START

Title: OFFICIAL GAZETTE OF THE UNITED STATES PATENT AND TRADEMARK OFFICE. PATENTS.

Volume: 1208

Issues: 1-3
PATENT: 5,722,090 - 5,729,829

Date: MARCH 3 - 17, 1998

UMI Number: 10426.00

Note:

REEL NO: 4

UMI
300 North Zeeb Road
Ann Arbor, MI 48103

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THE PAPER AND INK USED IN THE ORIGINAL PUBLICATION MAY AFFECT THE QUALITY OF THE MICORFORM EDITION.

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Vol. 1208 Number 1

OFFICIAL GAZETTE

of the

UNITED STATES PATENT AND TRADEMARK OFFICE

Route to:

PATENTS

March 3 1998



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OFFICIAL GAZETTE of the
UNITED STATES PATENT AND TRADEMARK OFFICE
March 3, 1998 Volume 1208 Number 1

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Patent Cooperation Treaty (PCT) Information

For information concerning PCT member countries, see the notice appearing in the *Official Gazette* at 1205 O.G. 4, on December 2, 1997.

For use of the European Patent Office as an International Searching Authority for international applications filed in the United States Receiving Office, see the notice appearing in the *Official Gazette* at 1022 O.G. 52, on September 28, 1982.

For use of the European Patent Office as an International Preliminary Examining Authority for international applications filed in the United States Receiving Office, see the notices appearing in the *Official Gazette* at 1080 O.G. 2, on July 7, 1987, and at 1091 O.G. 2, on June 7, 1988. There is no longer a limit on the number of such international applications accepted for international preliminary examination by the European Patent Office; see the notice appearing at 1116 O.G. 32, on July 17, 1990.

The search fee of the European Patent Office was increased, effective January 1, 1998, and was announced in the *Official Gazette* at 1205 O.G. 3, on December 2, 1997.

International fees were changed, effective on May 1, 1997, due to a change in the exchange rate of the U.S. dollar with regard to the Swiss franc, and were announced in the *Official Gazette* at 1197 O.G. 69, on April 22, 1997. The basic fee and the designation fee were further changed effective January 1, 1998 and were announced in the *Official Gazette* at 1205 O.G. 3, on December 2, 1997.

Certain domestic PCT fees and charges for International Search and Preliminary Examination were changed, effective October 1, 1997, and were announced in the *Official Gazette* at 1201 O.G. 63, on August 19, 1997.

The schedule of PCT fees (in U.S. dollars), effective January 1, 1998, is as follows:

International Application (PCT Chapter I) fees:	
Transmittal fee	240.00
Search Fee	
U.S. Patent and Trademark Office (USPTO) as International Searching Authority (ISA)	
— No corresponding prior U.S. national application filed under 35 U.S.C. 111(a)	700.00
— Corresponding prior U.S. national application filed under 35 U.S.C. 111(a)	450.00
— Supplemental search fee, per additional invention (payable only upon invitation)	210.00
European Patent Office as ISA	1250.00
International fees	
Basic fee	455.00
Basic supplemental fee (for each page over 30)	10.00
Designation fee per country or region	
— For the first 11 national or regional offices designated	105.00
— For each designation in excess of 11 offices	No Charge
Precautionary designation fee and confirmation fee for each precautionary designation confirmed (PCT Rule 15.5)	
— Designation fee	105.00
— Confirmation fee	52.50
International Application (PCT Chapter II) fees associated with filing a Demand for Preliminary Examination:	
Handling fee	162.00
Preliminary examination fee	
USPTO as International Preliminary Examining Authority (IPEA)	
— USPTO was ISA in PCT Chapter I	490.00
— Additional examination fee, per additional invention (payable only upon invitation)	140.00
— USPTO was not ISA in PCT Chapter I	750.00
— Additional examination fee, per additional invention (payable only upon invitation)	270.00

U.S. National Stage Fees	Small Entity	Regular
Basic National fee		
USPTO was IPEA		
— All claims presented satisfied provisions of PCT Article 33(2) to (4)	49.00	98.00
— All claims presented did not satisfy provisions of PCT Article 33(2) to (4)	360.00	720.00
USPTO was ISA but not IPEA	395.00	790.00
USPTO was neither ISA nor IPEA		
— Search report has not been prepared by the European Patent Office or the Japanese Patent Office	535.00	1070.00
— Search report has been prepared by the European Patent Office or the Japanese Patent Office	465.00	930.00
Other National fees		
— For each independent claim in excess of 3	41.00	82.00
— For each claim in excess of 20	11.00	22.00
— For each application containing a multiple dependent claim	135.00	270.00
— Surcharge for filing oath or declaration after the time limit applicable under PCT Article 22 or 39(1)	65.00	130.00
— Processing fee for filing English translation after the time limit applicable under PCT Article 22 or 39(1)	130.00	130.00

Nov. 10, 1997

BRUCE A. LEHMAN
Assistant Secretary of Commerce and Commissioner of Patents and Trademarks

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Notice of Maintenance Fees Payable

Title 37 Code of Federal Regulations (CFR), Section 1.362(d) provides that maintenance fees may be paid without surcharge for the six-month period beginning 3, 7, and 11 years after the date of issue of patents based on applications filed on or after Dec. 12, 1980. An additional six-month grace period is provided by 35 U.S.C. 41(b) and 37 CFR 1.362(e) for payment of the maintenance fee with the surcharge set forth in 37 CFR 1.20(h), as amended effective Dec. 16, 1991. If the maintenance fee is not paid in the patent requiring such payment the patent will expire on the 4th, 8th, or 12th anniversary of the grant.

Attention is drawn to the patents which were issued on February 28, 1995 for which maintenance fees due at 3 years

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and six months may now be paid. The patents have patent numbers within the following ranges:

Utility Patents 5,392,465 through 5,394,562
Reissue Patents based on the above identified patents.

Attention is drawn to the patents which were issued on February 26, 1991 for which maintenance fees due at 7 years and six months may now be paid. The patents have patent numbers within the following ranges:

Utility Patents 4,995,114 through 4,996,719
Reissue Patents based on the above identified patents.

Attention is drawn to the patents which were issued on February 24, 1987 for which maintenance fees due at 11 years and six months may now be paid. The patents have patent numbers within the following ranges:

Utility Patents 4,644,588 through 4,646,361
Reissue Patents based on the above identified patents.

No maintenance fees are required for design or plant patents.

Payments of maintenance fees in patents should be directed to "Commissioner of Patents and Trademarks, Box M. Fee, Washington, D.C. 20231."

For patents based on applications filed on or after Dec. 12, 1980, but before Aug. 27, 1982, patent owners must establish small entity status according to 37 CFR 1.27 if they have not done so and if they wish to pay the small entity amount.

The current amounts of the maintenance fees due at 3 years and six months, 7 years and six months, and 11 years and six months are set forth in 37 CFR 1.20(e)-(g), as amended Oct. 1, 1997, which are reproduced below:

37 CFR § 1.20 Post-issuance fees

(e) For maintaining an original or reissue patent, except a design or plant patent, based on an application filed on or after Dec. 12, 1980, in force beyond 4 years; the fee is due by three years and six months after the original grant:

By a small entity (§ 1.9(f)) $525.00
By other than a small entity $1,050.00

(f) For maintaining an original or reissue patent, except a design or plant patent, based on an application filed on or after Dec. 12, 1980 in force beyond 8 years; the fee is due by seven years and six months after the original grant:

By a small entity (§ 1.9(f)) $1,050.00
By other than a small entity $2,100.00

(g) For maintaining an original or reissue patent, except a design or plant patent, based on applications filed on or after Dec. 12, 1980 in force beyond 12 years; the fee is due by eleven years and six months after the original grant:

By a small entity (§ 1.9(f)) $1,580.00
By other than a small entity $3,160.00

The amount of the surcharge for paying the maintenance fee during the grace period or after expiration of the patent are set forth in 37 CFR 1.20(h), and (i) which are reproduced below:

(h) Surcharge for paying a maintenance fee during the 6 month grace period following the expiration of three years and six months, seven years and six months, and eleven years and six months after the date of the original grant of a patent based on an application filed on or after Dec. 12, 1980:

By a small entity (§ 1.9(f)) $65.00
By other than a small entity $130.00

(i) Surcharge for accepting a maintenance fee after expiration of a patent for non-timely payment of a maintenance fee where the delay is shown to the satisfaction of the Commissioner to have been:

(1) unavoidable $700.00
(2) unintentional $1,640.00

Notice of Expiration of Patents Due to Failure to Pay Maintenance Fee

35 U.S.C. 41 and 37 CFR 1.362(g) provide that if the required maintenance fee and any applicable surcharge are not paid in a patent requiring such payment, the patent will expire at the end of the 4th, 8th or 12th anniversary of the grant of the patent depending on the first maintenance fee which was not paid.

According to the records of the Office, the patents listed below have expired due to failure to pay the required maintenance fee and any applicable surcharge.

PATENTS WHICH EXPIRED · December 24, 1997
DUE TO FAILURE TO PAY MAINTENANCE FEES

Patent Number	Serial Number	Issue Date
Re. 33,435	07/017,487	11/13/90
(4,559,979)	(06/559,288)	(12/24/85)
Re. 34,231	07/591,770	04/27/93
(4,887,435)	(07/210,087)	(12/19/89)
4,559,651	06/682,512	12/24/85
4,559,671	06/606,237	12/24/85
4,559,673	06/631,699	12/24/85
4,559,674	06/607,770	12/24/85
4,559,688	06/544,558	12/24/85
4,559,698	06/563,766	12/24/85
4,559,721	06/653,571	12/24/85
4,559,737	06/560,215	12/24/85
4,559,739	06/555,684	12/24/85
4,559,741	06/544,908	12/24/85
4,559,744	06/744,657	12/24/85
4,559,749	06/516,849	12/24/85
4,559,755	06/575,940	12/24/85
4,559,760	06/438,426	12/24/85
4,559,770	06/594,002	12/24/85
4,559,775	06/459,992	12/24/85
4,559,778	06/384,800	12/24/85
4,559,789	06/589,730	12/24/85
4,559,798	06/654,365	12/24/85
4,559,802	06/698,370	12/24/85
4,559,804	06/500,886	12/24/85
4,559,811	06/612,505	12/24/85
4,559,817	06/572,820	12/24/85
4,559,821	06/481,881	12/24/85
4,559,822	06/371,450	12/24/85
4,559,830	06/594,739	12/24/85
4,559,837	06/548,193	12/24/85
4,559,838	06/539,822	12/24/85
4,559,839	06/504,465	12/24/85
4,559,845	06/603,337	12/24/85
4,559,864	06/594,640	12/24/85
4,559,870	06/530,089	12/24/85
4,559,882	06/616,902	12/24/85
4,559,884	06/440,023	12/24/85
4,559,888	06/388,233	12/24/85
4,559,890	06/487,936	12/24/85
4,559,900	06/585,187	12/24/85
4,559,902	06/613,636	12/24/85
4,559,904	06/495,866	12/24/85
4,559,906	06/602,687	12/24/85
4,559,908	06/504,537	12/24/85
4,559,913	06/609,980	12/24/85
4,559,916	06/491,955	12/24/85
4,559,919	06/568,211	12/24/85
4,559,932	06/556,122	12/24/85
4,559,933	06/507,065	12/24/85
4,559,937	06/488,920	12/24/85
4,559,950	06/555,071	12/24/85
4,559,954	06/454,020	12/24/85
4,559,966	06/702,341	12/24/85
4,559,975	06/350,080	12/24/85
4,559,976	06/533,875	12/24/85
4,559,980	06/486,803	12/24/85
4,559,991	06/500,450	12/24/85
4,559,992	06/458,380	12/24/85
4,560,001	06/468,900	12/24/85
4,560,004	06/615,443	12/24/85
4,560,401	06/523,226	12/24/85
4,560,410	06/503,649	12/24/85
4,560,434	06/565,577	12/24/85
4,560,435	06/656,803	12/24/85
4,560,451	06/490,963	12/24/85
4,560,456	06/648,948	12/24/85
4,560,470	06/736,154	12/24/85
4,560,477	06/553,778	12/24/85
4,560,482	06/559,458	12/24/85
4,560,486	06/599,299	12/24/85
4,560,490	06/576,651	12/24/85
4,560,493	06/685,215	12/24/85
4,560,497	06/612,238	12/24/85
4,560,504	06/678,953	12/24/85
4,560,505	06/612,798	12/24/85
4,560,506	06/614,090	12/24/85
4,560,507	06/604,696	12/24/85
4,560,522	06/509,655	12/24/85
4,560,523	06/605,202	12/24/85
4,560,530	06/472,815	12/24/85
4,560,531	06/265,486	12/24/85
4,560,532	06/550,669	12/24/85
4,560,537	06/641,245	12/24/85
4,560,542	06/679,136	12/24/85
4,560,549	06/525,916	12/24/85
4,560,564	06/652,163	12/24/85
4,560,566	06/568,008	12/24/85
4,560,570	06/613,022	12/24/85
4,560,577	06/649,330	12/24/85
4,560,583	06/626,189	12/24/85
4,560,586	06/457,987	12/24/85
4,560,587	06/690,891	12/24/85
4,560,588	06/642,286	12/24/85
4,560,591	06/630,395	12/24/85
4,560,601	06/636,310	12/24/85
4,560,611	06/546,287	12/24/85
4,560,617	06/588,903	12/24/85
4,560,620	06/683,644	12/24/85
4,560,626	06/420,053	12/24/85
4,560,631	06/657,142	12/24/85
4,560,636	06/599,816	12/24/85
4,560,637	06/451,911	12/24/85
4,560,639	06/528,036	12/24/85
4,560,640	06/619,461	12/24/85
4,560,641	06/478,666	12/24/85
4,560,662	06/548,323	12/24/85
4,560,666	06/678,977	12/24/85
4,560,671	06/724,051	12/24/85
4,560,675	06/686,498	12/24/85
4,560,679	06/542,439	12/24/85
4,560,691	06/630,810	12/24/85
4,560,695	06/621,596	12/24/85
4,560,698	06/617,201	12/24/85
4,560,700	06/699,607	12/24/85
4,560,708	06/671,444	12/24/85
4,560,710	06/688,235	12/24/85
4,560,713	06/690,809	12/24/85
4,560,716	06/643,921	12/24/85
4,560,720	06/542,355	12/24/85
4,560,722	06/644,781	12/24/85
4,560,723	06/551,571	12/24/85
4,560,727	06/495,890	12/24/85
4,560,733	06/656,393	12/24/85
4,560,735	06/714,759	12/24/85
4,560,736	06/493,410	12/24/85
4,560,739	06/673,074	12/24/85
4,560,740	06/606,378	12/24/85
4,560,741	06/722,577	12/24/85
4,560,743	06/646,115	12/24/85
4,560,748	06/500,908	12/24/85
4,560,754	06/635,989	12/24/85
4,560,759	06/470,016	12/24/85
4,560,761	06/605,425	12/24/85
4,560,764	06/508,180	12/24/85
4,560,769	06/588,119	12/24/85
4,560,778	06/650,865	12/24/85
4,560,781	06/552,906	12/24/85
4,560,783	06/544,185	12/24/85
4,560,788	06/520,763	12/24/85

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4,560,789	06/627,381	12/24/85
4,560,796	06/547,673	12/24/85
4,560,801	06/629,423	12/24/85
4,560,803	06/516,901	12/24/85
4,560,806	06/596,994	12/24/85
4,560,808	06/688,377	12/24/85
4,560,812	06/679,773	12/24/85
4,560,814	06/575,586	12/24/85
4,560,817	06/585,666	12/24/85
4,560,821	06/522,938	12/24/85
4,560,822	06/730,687	12/24/85
4,560,823	06/600,651	12/24/85
4,560,824	06/731,423	12/24/85
4,560,825	06/682,787	12/24/85
4,560,830	06/564,267	12/24/85
4,560,834	06/490,019	12/24/85
4,560,838	06/572,701	12/24/85
4,560,844	06/624,395	12/24/85
4,560,845	06/661,863	12/24/85
4,560,848	06/608,160	12/24/85
4,560,852	06/672,746	12/24/85
4,560,853	06/570,231	12/24/85
4,560,855	06/624,184	12/24/85
4,560,861	06/654,230	12/24/85
4,560,870	06/525,244	12/24/85
4,560,885	06/517,954	12/24/85
4,560,886	06/564,495	12/24/85
4,560,887	06/564,388	12/24/85
4,560,894	06/624,601	12/24/85
4,560,896	06/656,571	12/24/85
4,560,903	06/461,783	12/24/85
4,560,907	06/505,721	12/24/85
4,560,913	06/556,288	12/24/85
4,560,916	06/576,390	12/24/85
4,560,917	06/564,059	12/24/85
4,560,918	06/595,932	12/24/85
4,560,919	06/644,434	12/24/85
4,560,927	06/456,001	12/24/85
4,560,928	06/642,714	12/24/85
4,560,929	06/485,523	12/24/85
4,560,930	06/506,663	12/24/85
4,560,936	06/685,883	12/24/85
4,560,942	06/720,042	12/24/85
4,560,952	06/582,445	12/24/85
4,560,954	06/334,487	12/24/85
4,560,955	06/634,960	12/24/85
4,560,960	06/469,436	12/24/85
4,560,962	06/527,840	12/24/85
4,560,963	06/579,830	12/24/85
4,560,965	06/672,235	12/24/85
4,560,968	06/664,630	12/24/85
4,560,990	06/527,800	12/24/85
4,560,995	06/635,652	12/24/85
4,561,002	06/412,737	12/24/85
4,561,004	06/353,304	12/24/85
4,561,006	06/395,551	12/24/85
4,561,020	06/501,355	12/24/85
4,561,023	06/523,983	12/24/85
4,561,026	06/569,585	12/24/85
4,561,035	06/400,336	12/24/85
4,561,036	06/611,286	12/24/85
4,561,040	06/630,031	12/24/85
4,561,046	06/564,261	12/24/85
4,561,047	06/562,892	12/24/85
4,561,051	06/578,797	12/24/85
4,561,052	06/415,438	12/24/85
4,561,058	06/608,078	12/24/85
4,561,062	06/467,955	12/24/85
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4,561,065	06/467,347	12/24/85
4,561,067	06/502,755	12/24/85
4,561,083	06/496,589	12/24/85
4,561,085	06/655,645	12/24/85
4,561,089	06/592,670	12/24/85
4,561,093	06/468,438	12/24/85
4,561,094	06/508,772	12/24/85
4,561,096	06/506,261	12/24/85
4,561,107	06/381,228	12/24/85
4,561,112	06/510,056	12/24/85
4,561,119	06/595,510	12/24/85
4,887,322	07/032,598	12/19/89
4,887,323	07/272,636	12/19/89
4,887,331	07/345,337	12/19/89
4,887,335	07/278,650	12/19/89
4,887,339	07/220,265	12/19/89
4,887,340	07/259,729	12/19/89
4,887,341	07/091,934	12/19/89
4,887,344	07/329,292	12/19/89
4,887,345	07/106,308	12/19/89
4,887,356	07/163,089	12/19/89
4,887,358	07/183,996	12/19/89
4,887,360	07/359,062	12/19/89
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4,888,181	07/041,469	12/19/89
4,888,185	06/879,595	12/19/89

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4,888,186	07/177,762	12/19/89
4,888,189	07/086,265	12/19/89
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5,271,173	07/914,340	12/21/93

Patent Number	Serial Number	Issue Date
5,271,174	07/919,955	12/21/93
5,271,176	07/967,247	12/21/93
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5,271,377	07/656,582	12/21/93
5,271,381	07/793,630	12/21/93
5,271,387	07/931,573	12/21/93
5,271,397	07/808,428	12/21/93
5,271,406	07/887,531	12/21/93
5,271,409	07/791,573	12/21/93
5,271,413	07/917,184	12/21/93
5,271,415	07/826,707	12/21/93
5,271,416	08/033,145	12/21/93
5,271,418	07/935,928	12/21/93
5,271,419	07/759,266	12/21/93
5,271,420	08/007,957	12/21/93
5,271,424	07/803,865	12/21/93
5,271,425	08/065,111	12/21/93
5,271,431	07/917,011	12/21/93
5,271,439	07/839,112	12/21/93
5,271,444	07/911,345	12/21/93
5,271,446	07/925,455	12/21/93
5,271,455	07/720,414	12/21/93
5,271,460	08/036,396	12/21/93
5,271,462	08/003,776	12/21/93
5,271,467	07/863,698	12/21/93
5,271,470	07/688,665	12/21/93
5,271,471	08/063,458	12/21/93
5,271,473	07/990,890	12/21/93
5,271,481	07/797,124	12/21/93
5,271,487	07/982,318	12/21/93
5,271,493	07/946,026	12/21/93
5,271,499	07/953,860	12/21/93
5,271,500	07/791,471	12/21/93
5,271,501	08/016,849	12/21/93
5,271,508	07/885,040	12/21/93
5,271,520	08/025,078	12/21/93
5,271,535	07/888,011	12/21/93
5,271,538	07/918,697	12/21/93
5,271,546	07/956,292	12/21/93
5,271,552	08/063,599	12/21/93
5,271,553	07/866,429	12/21/93
5,271,557	07/866,888	12/21/93
5,271,562	08/024,030	12/21/93
5,271,571	07/656,987	12/21/93
5,271,572	07/853,727	12/21/93
5,271,579	07/911,474	12/21/93
5,271,589	07/973,177	12/21/93
5,271,591	07/929,407	12/21/93
5,271,592	07/936,320	12/21/93
5,271,593	07/899,088	12/21/93
5,271,603	08/025,088	12/21/93
5,271,604	07/945,310	12/21/93
5,271,608	07/802,116	12/21/93
5,271,610	07/896,111	12/21/93
5,271,612	07/882,680	12/21/93
5,271,616	07/951,769	12/21/93
5,271,617	07/933,297	12/21/93
5,271,619	07/590,800	12/21/93
5,271,622	07/953,244	12/21/93
5,271,626	07/871,439	12/21/93
5,271,634	07/852,109	12/21/93
5,271,638	07/930,997	12/21/93
5,271,639	07/906,063	12/21/93
5,271,642	08/000,015	12/21/93
5,271,645	07/771,611	12/21/93
5,271,646	07/877,750	12/21/93
5,271,653	07/980,336	12/21/93
5,271,654	07/996,843	12/21/93
5,271,656	07/965,445	12/21/93
5,271,659	07/795,001	12/21/93
5,271,673	07/933,770	12/21/93
5,271,680	07/997,869	12/21/93
5,271,685	07/755,631	12/21/93
5,271,699	07/787,123	12/21/93
5,271,705	07/865,960	12/21/93
5,271,713	07/956,147	12/21/93
5,271,720	07/998,379	12/21/93
5,271,721	07/582,876	12/21/93
5,271,725	07/868,718	12/21/93
5,271,726	07/887,792	12/21/93
5,271,730	07/869,817	12/21/93
5,271,731	07/991,413	12/21/93
5,271,735	07/783,844	12/21/93
5,271,737	07/940,441	12/21/93
5,271,745	07/967,175	12/21/93
5,271,748	07/946,222	12/21/93
5,271,757	07/973,256	12/21/93
5,271,758	07/701,302	12/21/93
5,271,772	07/829,952	12/21/93
5,271,784	07/993,358	12/21/93
5,271,793	07/990,671	12/21/93
5,271,794	07/819,082	12/21/93
5,271,804	07/970,658	12/21/93
5,271,807	07/930,400	12/21/93
5,271,810	07/901,531	12/21/93
5,271,813	08/038,887	12/21/93
5,271,818	07/979,450	12/21/93
5,271,819	07/889,927	12/21/93
5,271,822	08/034,027	12/21/93
5,271,824	08/003,187	12/21/93
5,271,825	07/807,003	12/21/93
5,271,837	07/871,970	12/21/93
5,271,841	07/934,834	12/21/93
5,271,842	07/804,413	12/21/93
5,271,843	07/756,635	12/21/93
5,271,848	07/849,175	12/21/93
5,271,849	07/854,260	12/21/93
5,271,851	08/027,879	12/21/93
5,271,855	07/946,296	12/21/93
5,271,858	07/815,511	12/21/93
5,271,860	07/962,234	12/21/93
5,271,861	07/750,300	12/21/93
5,271,863	07/841,690	12/21/93
5,271,885	07/845,286	12/21/93
5,271,887	08/035,948	12/21/93
5,271,897	07/913,551	12/21/93
5,271,898	08/056,450	12/21/93
5,271,907	07/844,829	12/21/93

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Patent Number	Serial Number	Issue Date
5,271,913	07/961,116	12/21/93
5,271,916	07/908,421	12/21/93
5,271,920	07/818,722	12/21/93
5,271,921	07/958,612	12/21/93
5,271,922	07/959,001	12/21/93
5,271,923	07/827,605	12/21/93
5,271,931	07/244,265	12/21/93
5,271,935	07/850,162	12/21/93
5,271,936	07/826,745	12/21/93
5,271,947	07/735,063	12/21/93
5,271,952	07/912,182	12/21/93
5,271,954	07/922,039	12/21/93
5,271,960	07/916,641	12/21/93
5,271,969	07/878,180	12/21/93
5,271,972	07/930,121	12/21/93
5,271,980	07/734,307	12/21/93
5,271,981	07/917,763	12/21/93
5,271,985	07/741,187	12/21/93
5,271,998	07/893,829	12/21/93
5,272,008	07/852,426	12/21/93
5,272,019	07/938,865	12/21/93
5,272,025	07/695,229	12/21/93
5,272,045	07/976,123	12/21/93
5,272,066	07/785,913	12/21/93
5,272,072	07/784,709	12/21/93
5,272,088	08/052,286	12/21/93
5,272,090	07/861,189	12/21/93
5,272,112	07/973,841	12/21/93
5,272,114	07/950,635	12/21/93
5,272,125	07/982,533	12/21/93
5,272,130	07/349,865	12/21/93
5,272,144	07/499,257	12/21/93
5,272,149	07/878,612	12/21/93
5,272,155	07/802,584	12/21/93
5,272,157	07/977,869	12/21/93
5,272,159	07/810,773	12/21/93
5,272,161	07/942,550	12/21/93
5,272,169	08/027,573	12/21/93
5,272,170	08/006,852	12/21/93
5,272,172	07/859,501	12/21/93
5,272,173	08/045,715	12/21/93
5,272,176	07/896,854	12/21/93
5,272,181	07/978,112	12/21/93
5,272,197	07/861,685	12/21/93
5,272,204	07/708,720	12/21/93
5,272,206	07/686,447	12/21/93
5,272,218	07/934,063	12/21/93
5,272,219	07/565,822	12/21/93
5,272,226	07/773,379	12/21/93
5,272,232	07/985,932	12/21/93
5,272,233	07/916,283	12/21/93
5,272,240	07/707,140	12/21/93
5,272,242	07/393,957	12/21/93
5,272,245	07/831,885	12/21/93
5,272,260	07/827,669	12/21/93
5,272,270	07/744,453	12/21/93
5,272,282	07/828,802	12/21/93
5,272,283	07/701,660	12/21/93
5,272,289	07/935,631	12/21/93
5,272,294	07/834,064	12/21/93
5,272,318	07/793,460	12/21/93
5,272,319	07/846,491	12/21/93
5,272,324	07/959,481	12/21/93
5,272,325	07/810,514	12/21/93
5,272,332	07/641,650	12/21/93
5,272,336	07/829,093	12/21/93
5,272,338	07/887,201	12/21/93
5,272,346	07/866,197	12/21/93
5,272,350	07/968,442	12/21/93
5,272,369	07/891,672	12/21/93
5,272,375	07/814,024	12/21/93
5,272,376	07/914,049	12/21/93
5,272,380	07/663,863	12/21/93
5,272,385	07/506,094	12/21/93
5,272,397	07/858,790	12/21/93
5,272,401	07/749,286	12/21/93
5,272,402	07/900,327	12/21/93
5,272,405	07/921,646	12/21/93
5,272,406	07/883,978	12/21/93
5,272,407	07/810,744	12/21/93
5,272,409	07/804,251	12/21/93
5,272,410	08/040,092	12/21/93
5,272,411	07/827,598	12/21/93
5,272,412	07/920,754	12/21/93
5,272,416	07/889,307	12/21/93
5,272,426	07/670,991	12/21/93
5,272,435	07/916,949	12/21/93
5,272,455	07/890,031	12/21/93
5,272,464	07/937,433	12/21/93
5,272,465	07/791,154	12/21/93
5,272,486	07/918,085	12/21/93
5,272,493	07/862,150	12/21/93
5,272,494	07/947,824	12/21/93
5,272,502	07/826,060	12/21/93
5,272,527	07/862,506	12/21/93
5,272,546	07/664,313	12/21/93
5,272,559	07/933,199	12/21/93
5,272,583	07/901,255	12/21/93
5,272,587	07/910,517	12/21/93
5,272,588	07/475,589	12/21/93
5,272,590	07/479,074	12/21/93
5,272,594	08/000,668	12/21/93
5,272,603	07/923,386	12/21/93
5,272,606	08/085,110	12/21/93
5,272,607	07/942,966	12/21/93
5,272,609	07/934,193	12/21/93
5,272,611	07/967,738	12/21/93
5,272,614	07/908,139	12/21/93
5,272,615	07/877,482	12/21/93
5,272,619	07/775,293	12/21/93
5,272,627	07/676,164	12/21/93
5,272,629	07/852,786	12/21/93
5,272,631	07/989,922	12/21/93
5,272,632	08/044,087	12/21/93
5,272,634	07/663,847	12/21/93
5,272,640	07/967,580	12/21/93
5,272,658	07/895,347	12/21/93
5,272,659	07/809,467	12/21/93
5,272,663	07/878,842	12/21/93
5,272,680	07/703,480	12/21/93
5,272,691	07/885,634	12/21/93
5,272,701	07/762,316	12/21/93
5,272,704	07/395,826	12/21/93
5,272,715	07/933,138	12/21/93
5,272,722	07/695,039	12/21/93
5,272,731	07/922,189	12/21/93
5,272,732	07/999,340	12/21/93
5,272,735	07/924,731	12/21/93
5,272,736	07/971,643	12/21/93
5,272,747	07/663,902	12/21/93
5,272,749	07/681,361	12/21/93

Patents Reinstated Due to the Acceptance of a Late Maintenance Fee From 12/19/97

Patent Number	Serial Number	Filing Date	Issue Date	Granted Date
4,430,524	06/360,198	03/22/82	02/07/84	12/22/97
4,493,623	06/468,066	02/22/83	01/15/85	12/22/97
4,842,530	07/149,572	01/28/88	06/27/89	12/22/97

Patent Number	Serial Number	Filing Date	Issue Date	Granted Date
5,130,893	07/630,647	12/20/90	07/14/92	12/23/97
5,196,238	07/660,370	02/25/91	03/23/93	12/22/97

Reissue Applications Filed

Notice under 37 CFR 1.11(b). The reissue applications listed below are open to inspection by the general public in the indicated Examining Groups and copies may be obtained by paying the fee therefor (37 CFR 1.12(b)).

D. 362,639, Re. S.N. 29/077,688, Sept. 26, 1997, Cl. D10/79, DIGITAL CURRENT PROBE, Daniel Arnoux, Owner of Record: *Inventor,* Attorney or Agent: John L. Welch, Ex. Gp.: 2903

5,026,689, Re. S.N. 08/547,679, Oct. 18, 1995, Cl. 514/60, R-T-E CEREAL WITH PSYLLIUM, Mitchell L. Ringe, et. al., Owner of Record: *Kellogg Co., Battle Creek, Mich.,* Attorney or Agent: Vincent M. Fazzari, Ex. Gp.: 1211

5,212,752, Re. S.N. 08/931,916, May 18, 1995, Cl. 385/078, OPTICAL FIBER FERRULE CONNECTOR HAVING ENHANCED PROVISIONS FOR TUNING, Daniel Lee Stephenson, et. al., Owner of Record: *American Telephone and Telegraph Co., New York, N.Y.,* Attorney or Agent: Donald E. Hayes Jr., Ex. Gp.: 2501

5,216,167, Re. S.N. 08/946,602, Oct. 7, 1997, Cl. 546/234, PHENYLACETIC ACID BENZYLAMIDES, Wolfgang Grell, et. al., Owner of Record: *Karl Thomae, GmbH, Biberach, Germany,* Attorney or Agent: Mary-Ellen M. Devlin, Ex. Gp.: 1209

5,340,004, Re. S.N. 08/971,907, Nov. 17, 1997, Cl. 224/042.46R, AUTOMOTIVE STORAGE NET, Donal Moore, Owner of Record: *Tecsyn Inc., St. Catherines, Canada,* Attorney or Agent: Julia Church Dierker, Ex. Gp.: 2761

5,414,897, Re. S.N. 08/857,716, May 16, 1997, Cl. 16/325, HINGE MECHANISM FOR A VEHICULAR SEAT BACK, Gerhard Loewe, Owner of Record: *Atwood Automotive, Inc., Battle Creek, Mich.,* Attorney or Agent: Dale A. Malone, Ex. Gp.: 3205

5,457,644, Re. S.N. 08/946,928, Oct. 8, 1997, Cl. 364/716, FIELD PROGRAMMABLE DIGITAL SIGNAL PROCESSING ARRAY INTEGRATED CIRCUIT, John L. McCollum, Owner of Record: *Actel Corp., Sunnyvale, Calif.,* Attorney or Agent: David B. Ritchie, Ex. Gp.: 2306

5,467,730, Re. S.N. 08/975,831, Nov. 21, 1997, Cl. 116/209, FIXTURE APPARATUS FOR ELEVATED LINES, Mark P. Kovaletz, Owner of Record: *Inventor,* Attorney or Agent: Stephen R. Seccombe, Ex. Gp.: 3108

5,470,588, Re. S.N. 08/979,152, Nov. 26, 1997, Cl. 424/667, METHOD OF INCREASING VAGINAL LUBRICATION, Susann R. Reilly, Owner of Record: *Inventor,* Attorney or Agent: Bernhard D. Saxe, Ex. Gp.: 1209

5,472,220, Re. S.N. 08/974,409, Nov. 19, 1997, Cl. 280/79.500, BUCKET DOLLY, Gerard A. Stephan, Owner of Record: *ITT Corp., New York, N.Y.,* Attorney or Agent: Alfred M. Walker, Ex. Gp.: 3106

5,472,018, Re. S.N. 08/977,915, Nov. 25, 1997, Cl. 139/001.00C, AIR DISTRIBUTOR ASSEMBLY AND PROCESS FOR AIR CONDITIONING A TEXTILE MACHINE USING A DISPLACEMENT TYPE AIR FLOW SYSTEM, Pavel Verner, et. al., Owner of Record: *Luwa Ag, Zurich, Switzerland,* Attorney or Agent: Jeffrey L. Schwartz, Ex. Gp.: 3408

5,473,932, Re. S.N. 08/926,192, Sept. 9, 1997, Cl. 73/300, TANDEM ROTOR TURBINE METER AND FIELD CALIBRATION MODULE, James J. Fitzpatrick, et. al., Owner of Record: *M & FC Holding Co., Wilmington, Del.,* Attorney or Agent: Kurt L. Grossman, Ex. Gp.: 2614

5,476,193, Re. S.N. 08/972,477, Nov. 18, 1997, Cl. 221/129.200, POSITIVE DISPLACEMENT, VOLUMETRIC RATIO BEVERAGE DISPERSING APPARATUS, Joel E. Haynes, Owner of Record: *Inventor,* Attorney or Agent: David R. Fairbairn, Ex. Gp.: 3104

5,480,883, Re. S.N. 08/988,005, Dec. 10, 1997, Cl. 514/249, BIS MONO- AND BICYCLIC ARYL AND HETEROARYL COMPOUNDS WHICH INHIBIT EGF AND/OR PDGF RECEPTOR TYROSINE KINASE, Alfred P. Spada, Owner of Record: *Rhone-Poulenc Rorer Pharmaceuticals Inc., Collegeville, Pa.,* Attorney or Agent: Frederick F. Calvetti, Ex. Gp.: 1209

5,498,970, Re. S.N. 08/927,763, June 19, 1997, Cl. 324/755, TOP LOAD SOCKET FOR BALL GRID ARRAY DEVICES, Kurt H. Petersen, Owner of Record: *Minnesota Mining and Manufacturing Co., St. Paul, Minn.,* Attorney or Agent: Richard D. Egan, Ex. Gp.: 2213

5,608,990, Re. S.N. 08/934,077, Sept. 9, 1997, Cl. 49/038, REMOVABLE LIGHT LIMITING BLIND ASSEMBLY, James H. Kyle, Owner of Record: *Pompanette Inc., Charlestown, N.H.,* Attorney or Agent: David E. Dougherty, Ex. Gp.: 3509

5,632,706, Re. S.N. 08/955,185, Oct. 21, 1997, Cl. 477/074, MOTOR VEHICLE WITH ELECTRONIC CLUTCH MANAGEMENT SYSTEM, Burkhard Kremmling, et. al., Owner of Record: *Luk Getriebe-Systeme GmbH, Buhl, Germany,* Attorney or Agent: Christa Hilderbrand, Ex. Gp.: 3502

5,649,869, Re. S.N. 08/972,057, Nov. 17, 1997, Cl. 473/118, FLUORESCENT BOWLING PINS, Joseph R. Infantino, et. al., Owner of Record: *AMF Bowling Inc., Mechanicsville, Va.,* Attorney or Agent: David E. Dougherty, Ex. Gp.: 3304

Commissioner Ordered Reexamination

Notice under 37 CFR 1.11(c). The orders for reexamination listed below are open to inspection by the general public in the indicated Examining Group. Copies of the orders and other related papers may be obtained by paying the fee therefor established in the Rules (37 CFR 1.2(b)).

In the event correspondence to the patent owner is not recieved, this notice will be considered to be constructive notice to the patent owner and reexamination will proceed (37 CFR 1.24(a)(5) and 1.525(b)).

5,583,267, Reexam. No. 90/004,862, Dec. 30, 1997, Cl. 568/730, BIOCATALYTIC PROCESS FOR PREPARING TETRAALKYLBIPHENOLS, Thurman M. Wheeler, et. al., Owner of Record: *Enzymol International, Columbus, Ohio,* Attorney or Agent: Mark P. Levy, Thompson Hines and Flory, Dayton, Ohio, Ex. Gp.: 1304, Requester: Commissioner of Patents and Trademarks, Washington, D.C.

Requests for Reexamination Filed

Notice under 37 CFR 1.11(c). The requests for reexamination listed below are open to inspection by the general public in the indicated Examining Groups. Copies of the requests and related papers may be

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obtained by paying the fee therefor established in the Rules (37 CFR 1.19(a)).

In the event correspondence to the patent owner is not received, this notice will be considered to be constructive notice to the patent owner and reexamination will proceed (37 CFR-1.248(a)(5) and 1.525(b)).

4,574,614, Reexam. No. 90/004,881, Dec. 22, 1997, Cl. 072/447, APPARATUS FOR REPAIRING AND STRAIGHTENING VEHICLES, Carl R. Field, Owner of Record: *Inventor*, Attorney or Agent: Michael O. Sturm, Henderson and Sturm, Des Moines, Iowa, Ex. Gp.: 3201, Requester: Owner

4,727,365, Reexam. No. 90/004,883, Oct. 30, 1997, Cl. 345/139, ADVANCED VIDEO OBJECT GENERATOR, William M. Bunker, et. al., Owner of Record: *Lockheed Martin Corp., Bethesda, Md.*, Attorney or Agent: Stephen A. Young, Martin Marietta Corp., Phialdelphia, Pa., Ex. Gp.: 2774, Requester: Michael B. Ray, Silicon Graphics Inc., Sterne Kessler Goldstein & Fox, Washington, D.C.

5,665,737, Reexam. No. 90/004,882, Jan. 5, 1998, Cl. 514/338, SUBSTITUTED BENZOXAZOLES, John D. Cavalla, et. al., Owner of Record: *Euro-Celtique, S.A., Luxemborg*, Attorney or Agent: Clifford M. Davidson, Steinberg, Raskin and Davidson, New York, N.Y., Ex. Gp.: 1205, Requester: Owner

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Notice of Expiration of Trademark Registrations Due To Failure to Renew

15 U.S.C. 1059 provides that each trademark registration may be renewed for periods of ten years from the end of the expiring period upon payment of the prescribed fee and the filing of an acceptable application for renewal. This may be done at any time within six months before the expiration of the period for which the registration was issued or renewed, or it may be done within three months after such expiration on payment of an additional fee.

According to the records of the Office, the trademark registrations listed below are expired due to failure to renew in accordance with 15 U.S.C. 1059.

TRADEMARK REGISTRATIONS WHICH EXPIRED
DECEMBER 15, 1997
DUE TO FAILURE TO RENEW

Reg. Number	Serial Number	Reg. Date
101,328	71/079,231	11/24/1914
115,866	71/091,023	03/13/1917
343,835	71/378,569	03/09/1937
343,858	71/380,726	03/09/1937
343,863	71/380,986	03/09/1937
343,868	71/381,524	03/09/1937
343,891	71/382,390	03/09/1937
343,897	71/382,653	03/09/1937
343,912	71/382,997	03/09/1937
343,925	71/383,391	03/09/1937
343,932	71/383,488	03/09/1937
343,933	71/383,537	03/09/1937
343,956	71/383,909	03/09/1937
343,957	71/383,910	03/09/1937
343,964	71/384,015	03/09/1937
343,968	71/384,060	03/09/1937
343,977	71/384,195	03/09/1937
344,008	71/384,475	03/09/1937
344,063	71/385,080	03/09/1937
642,456	71/674,638	03/12/1957
642,471	72/011,034	03/12/1957
642,477	72/010,703	03/12/1957
642,482	72/012,918	03/12/1957
642,487	72/014,422	03/12/1957
642,488	72/014,671	03/12/1957
642,489	72/017,119	03/12/1957
642,496	72/008,476	03/12/1957
642,499	71/693,892	03/12/1957
642,506	72/001,989	03/12/1957
642,507	72/003,128	03/12/1957
642,523	72/007,144	03/12/1957
642,533	71/681,343	03/12/1957
642,534	71/681,652	03/12/1957
642,540	72/006,287	03/12/1957
642,546	72/011,749	03/12/1957
642,550	72/012,192	03/12/1957
642,554	72/012,466	03/12/1957
642,561	72/013,159	03/12/1957
642,578	72/014,028	03/12/1957
642,581	72/014,291	03/12/1957
642,600	72/008,689	03/12/1957
642,605	72/009,909	03/12/1957
642,615	72/009,733	03/12/1957
642,618	72/012,819	03/12/1957
642,622	72/002,592	03/12/1957
642,631	72/013,658	03/12/1957
642,635	72/014,250	03/12/1957
642,668	72/011,165	03/12/1957
642,685	72/016,171	03/12/1957
642,693	72/004,756	03/12/1957
642,694	72/004,837	03/12/1957
642,700	72/007,615	03/12/1957
642,701	72/007,815	03/12/1957
642,707	72/008,311	03/12/1957
642,708	72/010,044	03/12/1957
642,711	71/684,372	03/12/1957
642,717	71/663,598	03/12/1957
642,732	71/680,885	03/12/1957
642,734	71/684,595	03/12/1957
650,551	71/698,402	08/20/1957
1,056,030	73/023,990	01/11/1977
1,070,277	73/084,465	07/26/1977

Service by Publication

A petition to cancel the registrations identified below having been filed, and the notice of such proceeding sent by certified mail to registrants at their last known address having been returned by the Postal Service as undeliverable, notice is hereby given that unless the registrants listed herein, their assigns or legal representatives, shall enter an appearance within thirty days of this publication, the cancellation will proceed as in the case of default.

Atari, Inc., Sunnyvale, Calif., Reg. No. 1,080,492, for the mark "OUTLAW", Canc. No. 27,053.

Scott Louis Inc., Los Angeles, Calif., Reg. No. 1,074,089, for the mark "TRIAD", Canc. No. 27,048.

Remmington Arms Co., Inc., Wilmington, Del., Reg. No. 1,243,782, for the mark "PRIME", Canc. No. 26,950.

JEAN BROWN
Technical Program Manager
Trademark Trial
and Appeal Board, for
ROBERT M. ANDERSON
Deputy Assistant Commissioner
for Trademarks

Certificates of Correction for the Week of March 3, 1998

B1-5,133,772	5,095,423	5,453,940	5,519,967
D. 382,586	5,175,397	5,472,855	5,532,259
D. 385,063	5,189,479	5,498,597	5,534,192
D. 385,366	5,247,548	5,499,365	5,534,416
D. 386,145	5,343,609	5,499,998	5,541,088
D. 386,528	5,379,281	5,501,814	5,541,274
D. 387,012	5,391,893	5,502,604	5,544,357
D. 388,313	5,404,544	5,507,436	5,544,647
4,907,018	5,405,087	5,507,610	5,546,327
5,055,539	5,435,205	5,514,335	5,547,931
5,075,109	5,447,739	5,519,623	5,552,426

5,554,815	5,615,359	5,640,335	5,654,553	5,663,560	5,673,673	5,686,715	5,695,802
5,556,060	5,616,200	5,640,543	5,654,673	5,663,592	5,673,697	5,686,741	5,695,882
5,558,368	5,616,253	5,640,664	5,654,936	5,663,874	5,674,708	5,686,903	5,695,896
5,559,456	5,616,428	5,640,714	5,656,211	5,663,938	5,674,901	5,687,376	5,695,951
5,561,144	5,616,457	5,640,793	5,656,398	5,664,319	5,674,924	5,687,452	5,696,073
5,561,275	5,616,480	5,641,971	5,656,612	5,664,384	5,675,434	5,687,479	5,696,199
5,563,131	5,618,255	5,642,187	5,657,014	5,664,599	5,675,576	5,688,110	5,696,492
5,567,228	5,618,273	5,642,589	5,657,137	5,665,487	5,675,991	5,688,656	5,697,405
5,569,535	5,618,520	5,643,457	5,657,157	5,665,721	5,676,343	5,689,026	5,697,415
5,570,309	5,621,283	5,643,918	5,657,332	5,666,109	5,676,358	5,689,085	5,698,199
5,571,624	5,621,527	5,644,341	5,657,399	5,666,217	5,676,762	5,689,513	5,698,548
5,572,738	5,622,174	5,644,370	5,657,695	5,666,766	5,676,834	5,689,674	5,698,957
5,574,212	5,623,826	5,644,373	5,658,694	5,666,815	5,677,010	5,690,139	5,699,273
5,576,631	5,624,021	5,644,457	5,658,891	5,667,121	5,677,131	5,690,574	5,699,701
5,579,002	5,624,959	5,645,829	5,659,630	5,667,521	5,677,319	5,691,018	5,700,659
5,579,456	5,625,036	5,645,849	5,659,885	5,667,691	5,678,271	5,691,183	5,700,773
5,583,450	5,625,393	5,646,415	5,659,962	5,668,627	5,679,013	5,691,335	5,700,981
5,588,597	5,625,663	5,646,685	5,660,531	5,668,750	5,679,161	5,691,548	5,701,258
5,589,496	5,627,940	5,647,458	5,660,826	5,668,975	5,679,190	5,691,742	5,701,459
5,589,671	5,628,771	5,647,921	5,660,899	5,669,688	5,679,295	5,692,636	5,701,910
5,589,932	5,629,716	5,648,804	5,661,023	5,670,034	5,679,553	5,692,800	5,702,157
5,595,289	5,631,073	5,650,669	5,661,115	5,670,467	5,679,894	5,693,034	5,702,365
5,598,932	5,631,165	5,650,750	5,661,138	5,670,473	5,679,900	5,693,274	5,702,789
5,599,819	5,631,171	5,650,799	5,661,226	5,671,657	5,680,829	5,694,125	5,702,799
5,602,341	5,631,724	5,650,804	5,661,575	5,671,807	5,681,296	5,694,419	5,703,017
5,602,784	5,631,888	5,650,861	5,661,667	5,671,929	5,681,330	5,694,698	5,703,278
5,604,352	5,633,172	5,650,911	5,661,715	5,671,982	5,682,555	5,694,747	5,703,301
5,604,679	5,633,270	5,651,037	5,661,981	5,672,334	5,683,136	5,695,012	5,703,909
5,604,888	5,633,642	5,651,487	5,662,020	5,672,964	5,683,504	5,695,075	5,704,916
5,605,733	5,633,950	5,652,055	5,662,893	5,673,024	5,684,430	5,695,396	5,705,707
5,609,740	5,636,822	5,652,610	5,662,897	5,673,133	5,684,723	5,695,444	5,707,554
5,610,941	5,637,092	5,652,896	5,663,205	5,673,376	5,685,298	5,695,639	5,707,654
5,611,442	5,637,481	5,653,267	5,663,533	5,673,625	5,685,766	5,695,736	5,710,529

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Summary of Final Decisions

Issued by the

Trademark Trial and Appeal Board

January 12-16, 1998

Date Issued	Type of Case(1)	Proceeding or App'n No.	Party/Parties	Issue	TTAB Decision	Opposer's/ Petitioner's Mark and Goods/Services	Applicant's/ Respondent's Mark and Goods/Services	Mark and Goods Cited by Examining Attorney	Citable as Precedent of TTAB
1-12	EX	74/447,060	Net Edge Systems, Inc.	2(e)(1)	Refusal Affirmed		"ATM CONNECT" [internetworking router]		No
1-12	CANC	24,549	Jason Inc. v. Munck Cranes Inc.	2(d)	Petition to Cancel Granted	"LOAD RUNNERS" [idler rollers]	"LOADRUNNER" [overhead cranes]		No
1-12	OPP	92,808	Facts on File, Inc. v. Credit Bureau of Baton Rouge, Inc.	2(d); ownership of the mark	Opposition Dismissed	check mark design [reference books and periodical publications, namely, encyclopedias, dictionaries, atlases, treatises, and loose leaf binders, in the fields of medicine, health, history, current affairs, politics, business, finance, sports, literature, language, travel, art, music, food, science, nature, archaeology, entertainment, education, criminology, religion, and child development]	"CHECKFAX" (and design) [credit bureau or credit inquiry and consultation]		No
1-13	EX	74/646,137	Hartz & Co., Inc.	2(e)(4) [surname]	Refusal Affirmed		"LANHAM" [men's clothing and formalwear, namely, shirts, pants, suits, hats, jackets, coats, shorts, sweaters, vests, ties, and rainwear]		No
1-13	EX	74/678,832	ABB Power T&D Co., Inc.	2(e)(1)	Refusal Reversed		"SAFEGEAR" [electrical switchgear]		No

(1)EX=EX PARTE APPEAL; OPP=OPPOSITION; CANC=CANCELLATION; CU=CONCURRENT USE; (SJ)=SUMMARY JUDGMENT; (R)=REQ. FOR RECONSIDERATION; (MD)=MOTION TO DISMISS; (MR)=MOTION TO REOPEN

Date Issued	Type of Case(1)	Proceeding or App'n No.	Party/Parties	Issue	TTAB Decision	Opposer's/ Petitioner's Mark and Goods/Services	Applicant's/ Respondent's Mark and Goods/Services	Mark and Goods Cited by Examining Attorney	Citable as Precedent of TTAB
1-13	EX	74/542,359	Solomon	2(e)(1)	Refusal Affirmed		"COMMUNITY PROPERTIES" [newspaper column reporting local, regional and national news, trends and developments in the residential real estate and mortgage industry]		No
1-16	EX	74/648,197	Scag Power Equipment Co., Inc.	2(d)	Refusal Affirmed		"TURF RUNNER" [commercial lawn mowers]	"TURF RUNNER" [spraying machines]	No
1-16	EX EX	74/567,999 74/568,000	Ishihara Sangyo Kaisha, Ltd.	2(d)	Refusal Affirmed (in both cases)		"TITANPLATE" and "TITANMASTER" [both marks for electrophotographic printing plates for offset press printing]	"TITAN" [processing machines used to expose and develop photosensitive printing plates]	No

(1)EX=EX PARTE APPEAL; OPP=OPPOSITION; CANC=CANCELLATION; CU=CONCURRENT USE; (SJ)=SUMMARY JUDGMENT; (R)=REQ. FOR RECONSIDERATION; (MD)=MOTION TO DISMISS; (MR)=MOTION TO REOPEN

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Box 7	Reissue applications for patents involved in litigation and subsequently filed related papers.
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Box AF	Expedited procedure for processing amendments and other responses after final rejection.
Box Comments Patents	Public comments regarding patent related regulations and procedures.
Box CPA	Requests for Continued Prosecution Applications (CPA's) under 37 CFR 1.53(d).
Box DAC	Petitions decided by the Office of Petitions including petitions to revive and petitions to accept late payment of issue fees or maintenance fees.
Box DD	Disclosure Documents or materials related to the Disclosure Document Program.
Box Design	The filing of all design patent applications and any communications relating thereto.
Box Issue Fee	All communications following the receipt of a PTOL–85, "Notice of Allowance and Issue Fee Due," and prior to the issuance of a patent should be addressed to Box Issue Fee, unless advised to the contrary. Assignments are the exception. Assignments should be submitted in a separate envelope and not be sent to Box Issue Fee.
Box Missing Parts	Response to the Notice to File Missing Parts of Application and associated papers and fees.
Box MPEP	Submissions concerning the Manual of Patent Examining Procedures.
Box Non-Fee Amendment	Non-fee amendments to patent applications. (Use Box AF for responses after final rejection).
Box PATENT APPLICATION	New patent applications and associated papers and fees.
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Box Provisional Patent Application	The filing of all provisional patent applications and any communications relating thereto.
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Box Reexam	Requests for Reexamination for *original* request papers *only*.
Box Sequence	Submission of diskette for biotechnical application.
Box SN	For fee and petitions under 37 CFR 1.182 to obtain date received and/or serial number for patent applications *prior* to the Office's standard notification (return post card or the official "Filing Receipt," "Notice to File Missing Parts," or "Notice of Incomplete Application").

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Box NEW APP FEE	New trademark applications and fees.
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Box TTAB FEE	Oppositions, cancellation petitions, and ex parte appeals.
Box TTAB NO FEE	Interferences, motions, and extension requests.
Box STATUS NO FEE	Written status inquiries.
Box POST REG FEE	Affidavits, renewals, corrections and amendments.
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Box 6	Mail for the Office of Procurement.
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Box 9	Coupon orders for U.S. patent and trademark copies.
Box 10	Orders for certified copies of PTO documents.
Box 11	Electronic Ordering Service (EOS).
Box 13	Mail for the Employee and Labor Relations Division.
Box 14	Mail directed to the APS Contracts Office.
Box 16	Deposit Account Replenishment Checks.
Box 17	Invoices directed to the Office of Finance.
Box 171	Vacancy Announcement Applications.
Box Assignment	All assignment documents except those filed with new applications.
Box EEO	Mail for the Office of Civil Rights.
Box Interference	Communications relating to interferences and applications and patents involved in interference.
Box M Fee	Correspondence regarding patent maintenance fees and related matter.
Box OED	Mail for the Office of Enrollment and Discipline.

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Each PTDL offers reference publications which outline and provide access to the patent and trademark classification systems, as well as other documents and publications which supplement the basic search tools. PTDLs provide technical staff assistance in using all materials.

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Since there are variations in the scope of patent and trademark collections among the PTDLs, and their hours of service to the public vary, anyone contemplating use of these collections at a particular library is urged to contact that library in advance about its collections, services, and hours in order to avert possible inconvenience.

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	San Diego Public Library	(619) 236-5813
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Connecticut	Hartford Public Library	Not Yet Operational
	New Haven Free Public Library	Not Yet Operational
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	Miami-Dade Public Library	(305) 375-2665
	Orlando: University of Central Florida Libraries	(407) 823-2562
	Tampa Campus Library, University of South Florida	(813) 974-2726
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	Detroit: Great Lakes Patent and Trademark Center	(313) 833-3379
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	St. Louis Public Library	(314) 241-2288 Ext. 390
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	Buffalo and Erie County Public Library	(716) 858-7101
	New York Public Library (The Research Libraries)	(212) 592-7000
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PATENT EXAMINING GROUPS	Phone number Area Code 703	New Case Date*
CHEMICAL EXAMINING GROUPS		
GENERAL METALLURGICAL, INORGANIC, PETROLEUM AND ELECTRICAL CHEMISTRY, ENGINEERING AND DESIGNS, GROUP 1100—THEODORE MORRIS, Director	308-0661	01/02/96
ORGANIC CHEMISTRY, DRUG, BIO-AFFECTING AND BODY TREATING COMPOSITION, GROUP 1200/2900—JOHN E. KITTLE, Director	308-1235	05/07/96
SPECIALIZED CHEMICAL INDUSTRIES AND CHEMICAL ENGINEERING, GROUP 1300—RICHARD V. FISHER, Director	308-0651	04/22/96
HIGH POLYMER CHEMISTRY, PLASTICS, COATING, PHOTOGRAPHY STOCK MATERIALS AND COMPOSITIONS, GROUP 1500—MARY LEE, Acting Director	308-2351	04/07/96
BIOTECHNOLOGY, GROUP 1800—JOHN J. DOLL, Director	308-0196	08/17/95
ELECTRICAL EXAMINING GROUPS		
INDUSTRIAL ELECTRONICS, PHYSICS AND RELATED ELEMENTS, GROUP 2100—STEWART LEVY, Director	308-1782	10/03/95
SPECIAL LAWS AND ADMINISTRATION, GROUP 2200—ROBERT E. GARRETT, Director	308-0511	01/19/96
COMPUTER SYSTEMS AND COMPUTER APPLICATION, GROUP 2300—JOSEPH J. ROLLA, Director	305-3900	01/19/96
SPECIAL COMPUTER APPLICATIONS: COMPUTER GRAPHICS, BUSINESS PRACTICES, & DIAGNOSTIC TESTING, GROUP 2400—GERALD GOLDBERG, Director	305-3900	11/13/95
ELECTRONIC AND OPTICAL SYSTEMS AND DEVICES, GROUP 2500—JANICE A. HOWELL, Director	308-0956	04/29/96
TELECOMMUNICATIONS, GROUP 2600—JIN F. NG, Director	305-3900	06/05/95
DESIGN, GROUP 2900—JOHN E. KITTLE, Director	305-3293	02/02/96
MECHANICAL EXAMINING GROUPS		
HANDLING AND TRANSPORTATION MEDIA, GROUP 3100—JOHN F. TERAPANE, JR., Director	308-1113	11/06/95
MATERIAL SHAPING, ARTICLE MANUFACTURING AND TOOLS, GROUP 3200—ETHEL CROSS, Director	308-1148	07/09/96
MEDICAL INSTRUMENTS, DIAGNOSTIC EQUIPMENT AND TREATMENT DEVICES; SURGERY AND SURGICAL SUPPLIES; AMUSEMENT AND EXERCISING DEVICES; ANIMAL HUSBANDRY; SPORTING GOODS; TOBACCO PRODUCTS AND MANUFACTURING EQUIPMENT; AND PRINTING, GROUP 3300—J.J. LOVE, Director	308-0858	12/20/95
SOLAR, HEAT, POWER, AND FLUID ENGINEERING DEVICES, GROUP 3400—DONALD G. KELLY, Director	308-0861	12/25/95
GENERAL CONSTRUCTION, PETROLEUM AND MINING ENGINEERING, GROUP 3500—A.L. SMITH, Director	308-2168	09/17/96

*A communication from the examiner should have been received in most applications filed prior to this date.

Patents will Expire as Follows:
(1) The term of any utility or plant patent that is in force on or results from an application filed before June 8, 1995 is the greater of the 20 year term provided in 35 U.S.C. 154(a)(2) or 17 years from grant subject to any terminal disclaimers. 35 U.S.C. 154(c)(1).
(2) All utility and plant patents granted on applications having an actual United States filing date on or after June 8, 1995 are granted for a term which begins on the date on which the patent is granted and ends 20 years from the date on which the application was filed in the United States. If the application contains a specific reference to an earlier application under 35 U.S.C. 120, 121 or 365(c), the patent term ends twenty years from that date on which the earliest application was filed. 35 U.S.C. 154(a)(2).
(3) All design patents are granted for a term of 14 years from the date of the grant.
However, the term of any patent may have been curtailed by disclaimer under the provisions of 35 U.S.C. 153, have lapsed due to failure to pay maintenance fees, or have been extended under the provisions of 35 U.S.C. 154, 155, or 156. Thus, if more reliable information is needed with respect to a particular patent, then the specific patent file should be reviewed to determine the actual date of patent expiration.

TRADEMARK OPERATION

Bruce A. Lehman, Commissioner
Philip G. Hampton, II, Assistant Commissioner
Robert M. Anderson, Deputy Assistant Commissioner
David E. Bucher, Director, Trademark Examining Office
Condition of Trademark Applications as of February 1, 1998

Law Office	Oldest Date New*	Oldest Date Amendment Filed
Law Office 101—Ron Williams, Managing Attorney, (703) 308–9101—4th Floor Foods, Beverages, Wines & Spirits—Int. Classes 29, 30, 31, 32, 33 Services—Int. Classes 35, 36, 37, 38, 39, 40, 41, 42	08/20/97	12/15/97
Law Office 102—Thomas Shaw, Acting Managing Attorney, (703) 308–9102—5th Floor Scientific Equipment & Furniture—Int. Classes 9, 20 Services—Int. Classes 35, 36, 37, 38, 39, 40, 41, 42	07/09/97	11/17/97
Law Office 103—Michael A. Szoke, Acting Managing Attorney, (703) 308–9103—5th Floor Scientific Equipment & Furniture—Int. Classes 9, 20 Services—Int. Classes 35, 36, 37, 38, 39, 40, 41, 42	07/02/97	01/20/98
Law Office 104—Sidney Moskowitz, Managing Attorney, (703) 308–9104—6th Floor Unwrought metals, Industrial Equipment, Tools, Installation, Vehicles, Firearms, Musical Instruments, Building Materials & Floor Coverings—Int. Classes 6, 7, 8, 11, 12, 13, 15, 19, 27 Services—Int. Classes 35, 36, 37, 38, 39, 40, 41, 42	05/16/97	11/12/97
Law Office 105—Thomas Howell, Managing Attorney, (703) 308–9105—6th Floor Chemicals, Paints, Lubricants, Pharmaceuticals, Medical Apparatus & Tobacco—Int. Classes 1, 2, 4, 5, 10, 34 Services—Int. Classes 35, 36, 37, 38, 39, 40, 41, 42	06/27/97	11/30/97
Law Office 106—Mary Sparrow, Managing Attorney, (703) 308–9106—7th Floor Cosmetics, Cleaning Preparations, Paper Products & Toys—Int. Classes 3, 16, 28 Services—Int. Classes 35, 36, 37, 38, 39, 40, 41, 42	06/19/97	11/05/97
Law Office 107—Thomas Lamone, Managing Attorney, (703) 308–9107—7th Floor Cosmetics, Cleaning Preparations, Paper Products & Toys—Int. Classes 3, 16, 28 Services—Int. Classes 35, 36, 37, 38, 39, 40, 41, 42	09/12/97	12/02/97
Law Office 108—David Shallant, Managing Attorney, (703) 308–9108—8th Floor Precious metals, Fibers, Leather goods, Housewares, Cordage, Yarns, Fabrics, Clothing & Notions—Int. Classes 14, 17, 18, 21, 22, 23, 24, 25, 26 Services–Int. Classes 35, 36, 37, 38, 39, 40, 41, 42	06/07/97	10/06/97
Law Office 109—Deborah Cohn, Managing Attorney, (703) 308–9109—8th Floor Precious metals, Fibers, Leather goods, Housewares, Cordage, Yarns, Fabrics, Clothing & Notions—Int. Classes 14, 17, 18, 21, 22, 23, 24, 25, 26 Services—Int. Classes 35, 36, 37, 38, 39, 40, 41, 42	10/09/97	12/07/97
**Collective Marks—Class 200		
**Certification Marks—Classes A & B		
Office of Trademark Services—Terron Simms, Director, (703) 308-9100		
Trademark Assistance Center—(703) 308-9000		
Pre-Examination—Alan Lambert, Supervisor, (703) 308-9401 ext. 188		
Intent-To-Use—(ITU)—(703) 308-9500		
Post Registration Section—Mary Bowman, Supervisor, (703) 308-9500 ext. 126		
Affidavits Under Sections 8 & 15 (All Classes)	12/15/97	—0—
Renewals (All Classes)	12/15/97	—0—
Section 12(c) Publications (All Classes)	11/24/97	—0—

1. ** Assigned to all Law Office

2. Applicants with inquiries concerning the status of their applications and a touch telephone should call (703) 305–8747 from 6:30 a.m. to Midnight EST, Monday through Friday. This automated voice system will provide the current status of your application. Applicants are urged not to file unnecessary inquiries concerning the status of their applications. See SECTION 411 of the TRADEMARK MANUAL OF EXAMINING PROCEDURE.

3. * These dates identify the oldest unassigned new case in each Law Office. All cases with earlier dates have either been examined and made the subject of an action or are currently being worked on by the assigned examining attorney.

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Matter enclosed in heavy brackets [ ] appears in the patent but forms no part of this reexamination specification; matter printed in italics indicates additions made by reexamination.

B1 Re. 33,933 (3445th)

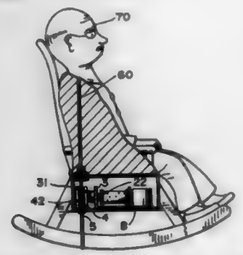
TOY MUSIC ROCKING CHAIR

Jack Hou, Taipi, Taiwan, assignor to Giftec, Ltd., Alexandria, Va.

Reexamination Request No. 90/003,505, Jul. 22, 1994.
Reexamination Certificate for Reissue Patent Re. 33,933, issued May 19, 1992, Ser. No. 378,401, Jul. 11, 1989.
Original No. 4,708,689, dated Nov. 24, 1987, Ser. No. 914,146, Oct. 1, 1986.

Int. Cl.[6] **A63H** *3/28;* **G10F** *1/06*

U.S. Cl. 446—301



AS A RESULT OF REEXAMINATION, IT HAS BEEN DETERMINED THAT:

The patentability of claims **1** and **2** is confirmed.

Claims **3–8** are cancelled.

1. A toy music rocking chair including a seat comprising:
(a) a music box supported below the seat, the box including a shaft having a rear end;
(b) a transmission system including an arm the arm being secured to the rear end of the shaft;
(c) a stub extending from the arm;
(d) a reciprocating plate including a lateral slot for receiving the stub therein whereby rotary motion of the stub can be changed into reciprocating motion of the rod for causing the rocking chair to sway back and forth;
(e) a pair of struts disposed within the box, the struts being provided with grooves for slidably receiving the reciprocating plate therein;
(f) a guide socket on the top of the box;
(g) a dollr ocker supported on the seat, the doll rocker including a pair of movable eyelids; and
(h) a reciprocating rod disposed through the guide socket for causing the eyelids to open and close slowly as though the doll rocker is sleepy.

B1 3,985,830 (3446th)

STAR POLYMERS AND PROCESS FOR THE PREPARATION THEREOF

Lewis J. Fetters, and Le-Khac Bi, both of Akron, Ohio, assignors to The University of Akron, Akron, Ohio

Reexamination Request No. 90/003,437, May 17, 1994.
Reexamination Certificate for , issued Oct. 12, 1976, Ser. No. 488,676, Jul. 15, 1974.

Int. Cl.[6] **C08F** *297/04;287/00*

U.S. Cl. 525—192 **0 Claim**

AS A RESULT OF REEXAMINATION, IT HAS BEEN DETERMINED THAT:

The patentability of claims **7–17** is confirmed.

Claims **1–6** and **18–21** are cancelled.

7. A polymer product having at least two star polymers joined together wherein each said star polymer comprises:
a nucleus having more that one molecule of a linking compound; and,
at least three polymeric arms linked to said nucleus, wherein said polymeric arms are selected from the group consisting of homopolymers and copolymers of conjugated diene monomers, monovinyl aromatic monomers and combinations thereof; and,
wherein said star polymers are joined at said nuclei by a linking agent selected from the group consisting of phosgene, silicon tetrachloride and dihalo silanes.

11. A process for the preparation of a polymer product having at least two star polymers joined together wherein each said star comprises a nucleus and at least three polymeric arms extending from said nucleus, comprising the steps of:
preparing said polymeric arms from monomers selected from the group consisting of conjugated dienes and monovinyl aromatic compounds with an organometallic initiator so as to form polymers terminated by an active chain end;
forming said nucleus while simultaneously linking said active chain ends thereto by adding to said polymeric arms an organic linking compound having at least two functional groups wherein the ratio of said linking compound to said active chain ends is at least 2.4:1; and,
joining at least two of said star polymers at said nuclei by a linking agent selected from the group consisting of phosgene, silicon tetrachloride and dihalo silanes.

B2 4,325,984 (3447th)

PLASMA PASSIVATION TECHNIQUE FOR THE PREVENTION OF POST-ETCH CORROSION OF PLASMA-ETCHED ALUMINUM FILMS

Christopher H. Galfo, San Jose, and Ashok L. Nalamwar, Milpitas, both of Calif., assignors to Fairchild Camera & Inst., Mountain View, Calif.

Reexamination Request Nos. 90/003,566, Sep. 13, 1994 and 90/003,869, Jun. 29, 1995.
Reexamination Certificate for Patent 4,325,984, issued Apr. 20, 1982, Ser. No. 172,745, Jul. 28, 1980.
Reexamination Certificate B1 4,325,984, issued Aug. 6, 1991.

Int. Cl.[6] **B05D** *3/04;3/06*

U.S. Cl. 427—38

AS A RESULT OF REEXAMINATION, IT HAS BEEN DETERMINED THAT:

The patentability of claims **1–9** is confirmed.

2. A method for preventing the post-etch corrosion of aluminum or aluminum alloy film which has been etched in a reaction chamber containing chlorinated plasma comprising:
a. evacuating the reaction chamber of chlorinated plasma;
b. while maintaining a vacuum in the reaction chamber, introducing fluorinated gas to the chamber;
c. applying suitable RF power to the chamber to generate a fluorinated plasma for passivation of the etched aluminum film.

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B1 4,594,204 (3448th)

PROCESS FOR ANNEALING THERMOPLASTICALLY-SHAPED PLASTICS PARTS

Klaus Heidenreich, Leverkusen; Hans-Werner Depcik, Duesseldorf, and Hans Radojewski, Leverdusen, all of Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Germany

Reexamination Request No. 90/003,800, Apr. 21, 1995.
Reexamination Certificate for Patent 4,594,204, issued Jun. 10, 1986, Ser. No. 653,135, Sep. 24, 1984.
Claims priority, application Germany, Oct. 5, 1983, 3336244
Int. Cl.[6] B29C *35/08*
U.S. Cl. 264—492

AS A RESULT OF REEXAMINATION, IT HAS BEEN DETERMINED THAT:

Claims **1-3** are cancelled.

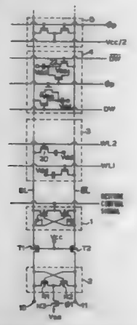
1. A process for annealing thermoplastically-shaped plastics parts for reducing the internal stresses, by treating the plastics parts after shaping with heat wherein the heat is transmitted to the plastics parts for 20–240 seconds by infra-red radiation of from 1200 nm to 5000 nm to produce a temperature of from 10 to 20% below the Vicat-softening temperature of the plastics parts.

B1 4,931,992 (3449th)

SEMICONDUCTOR MEMORY HAVING BARRIER TRANSISTORS CONNECTED BETWEEN SENSE AND RESTORE CIRCUITS

Masaki Ogihara, Yokohama; Yoshio Okada, Tokyo, and Syuso Fujii, Kawasaki, all of Japan, assignors to Kabushiki Kaisha Toshiba, Kawasaki, Japan

Reexamination Request No. 90/004,696, Jul. 11, 1997.
Reexamination Certificate for Patent 4,931,992, issued Jun. 5, 1990, Ser. No. 310,020, Feb. 9, 1989.
Continuation of Ser. No. 463, Jan. 5, 1987, abandoned.
Claims priority, application Japan, Jan. 17, 1986, 61-7271
Int. Cl.[6] G11C *7/00*
U.S. Cl. 365—189.11



AS A RESULT OF REEXAMINATION, IT HAS BEEN DETERMINED THAT:

The patentability of claims **6–9** and **11** is confirmed.

Claim **1** is cancelled.

Claims **2**, **3** and **10** are determined to be patentable as amended.

Claims **4** and **5**, dependent on an amended claim, are determined to be patentable.

New claims **12–53** are added and determined to be patentable.

2. [The semiconductor memory according to claim **1**] *A semiconductor memory operable in response to a power source potential Vcc, comprising:*

a memory cell, including an N-channel type transfer gate and a capacitor, for storing data;

a bit line pair for transferring the data;

a sense amplifier for amplifying the data from the bit line pair and for sensing the data stored in the memory cell;

a restore circuit directly connected to the bit line pair for restoring the data in the semiconductor memory; and

barrier transistor means for increasing the speed of sensing, said barrier transistor means being connected between the sense amplifier and the restore circuit and having a gate and a constant gate potential sufficient to maintain an ON state,

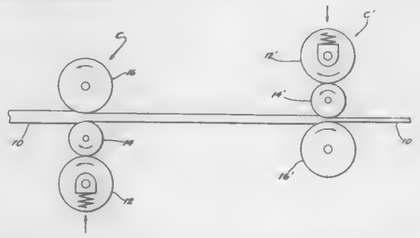
wherein the restore circuit comprises first and second MOS transistors forming a flipflop circuit controlled by a predetermined restore control signal.

B1 4,977,016 (3450th)

LOW PERMEABILITY FABRIC AND METHOD OF MAKING SAME

Peter B. Thornton, Bronxville; Stanley H. Cone, and George W. Booz, both of Hornell, all of N.Y., assignors to Stern & Stern Industries, Inc., New York, N.Y.

Reexamination Request No. 90/004,075, Dec. 29, 1995.
Reexamination Certificate for Patent 4,977,016, issued Dec. 11, 1990, Ser. No. 264,158, Oct. 28, 1988.
Int. Cl.[6] B60R *21/20*
U.S. Cl. 428—36.1



AS A RESULT OF REEXAMINATION, IT HAS BEEN DETERMINED THAT:

Claim **2** is cancelled.

Claims **1**, **12** and **13** are determined to be patentable as amended.

Claims **3–11**, dependent on an amended claim, are determined to be patentable.

New claims **14** and **15** are added and determined to be patentable.

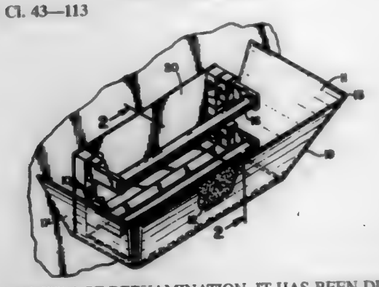
1. A strong, lightweight, thin, flexible *airbag* fabric of low permeability *for an inflatable restraint system* comprising an uncoated woven cloth characterized by a permeability of not more than one cubic foot of air per minute per square foot of cloth (0.5 $cm^3/sec/cm^2$) at a pressure drop of 0.5 inch of water (1.27 cm) across the cloth; *said fabric being further characterized by a Mullen burst strength of at least 650 psi (4482 kilopascals), a tensile strength of at least 300 lbs. (1334 newtons), a trapezoid tear of at least 40 lbs. (178 newtons), an elongation at break of at least 25%, a weight of not more than 8.25 oz/square yard (280 gm/m^2), and a thickness of less than 0.016 inch (0.141 cm).*

B1 5,365,690 (3451st)

FLYING INSECT TRAP USING REFLECTED AND RADIATED LIGHT

Thomas D. Nelson, Maplewood, and Douglas G. Anderson, Lakeville, both of Minn., assignors to Ecolab Inc., St. Paul, Minn.

Reexamination Request Nos. 90/003,689, Jan. 13, 1995 and 90/003,779, Mar. 30, 1995.
Reexamination Certificate for Patent 5,365,690, issued Nov. 22, 1994, Ser. No. 264, Jan. 4, 1993.
Int. Cl.[6] A01M *1/04*
U.S. Cl. 43—113



AS A RESULT OF REEXAMINATION, IT HAS BEEN DETERMINED THAT:

The patentability of claims **1–5**, **7–10**, **13–19**, **21**, **22**, **23** and **24** is confirmed.

Claims **6**, **11**, **12** and **20** are cancelled.

New claims **25–26** are added and determined to be patentable.

25. A flying insect trap that uses a display of insect attractant light on a vertical mounting surface, said trap comprising:

(a) a means for mounting a flying insect trap on a vertical mounting surface;

(b) a source of insect attractant light; and

(c) a housing enclosing the source, said housing comprising:

(i) an internal reflecting surface of the housing, positioned with respect to the horizontal such that both effective reflected and effective radiated light from the source of insect attractant light is directed onto the vertical mounting surface forming a diffused insect attracting light pattern; and

an insect immobilization surface; wherein the housing comprises an upwardly facing opening for insect entry and the insect attractant light source is placed in the housing below an edge of the upwardly facing opening.

B1 5,389,414 (3452nd)

DIVISIBLE LASER LABEL SHEET

Ghanshyam H. Popat, Alta Loma, Calif., assignor to Avery Dennison Corporation, Pasadena, Calif.

Reexamination Request No. 90/003,897, Jul. 19, 1995.
Reexamination Certificate for Patent 5,389,414, issued Feb. 14, 1995, Ser. No. 63,213, May 17, 1993.
Int. Cl.[6] B32B *31/00*
U.S. Cl. 428—40

AS A RESULT OF REEXAMINATION, IT HAS BEEN DETERMINED THAT:

Claims **1–11** are cancelled.

[**1**. A multiple purpose, double thickness label sheet assembly comprising:

a backing sheet having pre-defined dimensions and an upper surface;

a label sheet having a pressure sensitive adhesive coating thereon mounted on said upper surface of said backing sheet, with the adhesive facing the backing sheet, said label sheet covering substantially all of said upper surface of said backing sheet;

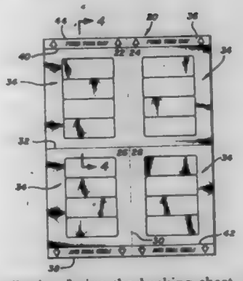
said double thickness label sheet assembly being divided into a plurality of sections by microperforations extending through both said label sheet and said backing sheet;

said label sheet having a flexible top leading edge and a flexible bottom leading edge, said label sheet having a first die-cut flexibility line cut into said label sheet approximately ½ inch from said top leading edge and a second die-cut flexibility line cut into said label sheets approximately ½ inch from said bottom leading edge, said flexibility lines allowing said leading edges to easily bend around the twists and turns in a conventional laser printer feed path;

each of said sections having a plurality of die cut labels thereon, with the die cuts extending through said label sheet but not through said backing sheet; and

said label sheet being substantially coextensive with said backing sheet;

whereby said double thickness label sheet assembly may be printed in its entirety by a laser printer, or may be divided along said microperforations into sections which each have a flexible leading edge for individual feeding into a laser printer, and said microperforations leave substantially smooth edges when said sections are separated from one another.]



B1 5,498,631 (3453rd)

METHOD FOR TREATMENT OF MENOPAUSAL AND PREMENSTRUAL SYMPTOMS

Sherwood L. Gorbach, Chestnut Hill; Barry R. Goldin, West Newton, both of Mass., and Herman Adlercreutz, Helsinki, Finland, assignors to Tufts University School of Medicine, Boston, Mass.

Reexamination Request No. 90/004,611, Apr. 23, 1997.
Reexamination Certificate for Patent 5,498,631, issued Mar. 12, 1996, Ser. No. 283,678, Aug. 1, 1994.
Continuation of Ser. No. 49,006, Apr. 16, 1993, abandoned.
Int. Cl.[6] A61K *31/35*
U.S. Cl. 514—456

AS A RESULT OF REEXAMINATION, IT HAS BEEN DETERMINED THAT:

Claim **1** is determined to be patentable as amended.

Claims **2–12**, dependent on an amended claim, are determined to be patentable.

1. A method of treating [a medical condition in a woman caused by reduced or altered levels of endogenous estrogen] *symptoms of menopause or premenstrual syndrome in a woman*, said method comprising administering to the woman an effective amount of [an] *a naturally occurring, isolated* isoflavonoid *which exhibits estrogenic activity, wherein said isoflavonoid is* selected from the group consisting of genistein, daidzein, Biochanin A, formononetin, O-desmethylangolensin, and equol, wherein administration of the isoflavonoid increases excretion of phytoestrogens.

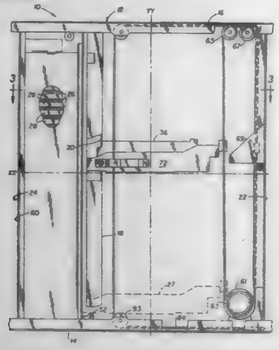
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B1 5,544,146 (3454th)

CARTRIDGE HANDLING SYSTEM

Robert W. Luffel, Greeley; D. Scott Paul, Ft. Collins, and Jon D. Rugg, Greeley, all of Colo., assignors to Hewlett-Packard Company, Palo Alto, Calif.

Reexamination Request No. 90/004,454, Nov. 14, 1996.
Reexamination Certificate for Patent 5,544,146, issued Aug. 6, 1996, Ser. No. 296,054, Aug. 24, 1994.
Int. Cl.° G11B *17/12*
U.S. Cl. 369—178



AS A RESULT OF REEXAMINATION, IT HAS BEEN DETERMINED THAT:

Claims **2** and **4** are cancelled.

Claims **1**, **3**, **5**, **16** and **17** are determined to be patentable as amended.

Claims **6–15** and **18** dependent on an amended claim, are determined to be patentable.

New claim **19** is added and determined to be patentable.

1. A cartridge handling system, comprising:

a cartridge storage rack having a plurality of cartridge storage locations aligned along a cartridge storage axis substantially parallel to a YY axis of an orthogonal XX, YY, ZZ coordinate system containing an XX axis, the YY axis, and a ZZ axis, each of the plurality of cartridge storage locations being adapted to receive a cartridge having an access end such that the access ends of the cartridges, when positioned in the plurality of cartridge storage locations, are aligned along a cartridge access plane substantially parallel to a YY–ZZ plane the YY–ZZ plane containing the YY axis and the ZZ axis of the orthogonal XX, YY, ZZ coordinate system, the cartridges being substantially located on one side of the cartridge access plane;

a first elongate guide rail *having a first opposed pair of elongate bearing surfaces* positioned at about the cartridge access plane and substantially parallel to only the YY–ZZ plane;

a second elongate guide rail *having a second opposed pair of elongate bearing surfaces* positioned at about the cartridge access plane and substantially parallel to only the YY–ZZ plane, said first and second elongate guide rails defining a bearing plane that is substantially parallel to the cartridge access plane;

an elongate lateral guide rail *having an opposed pair of elongate bearing surfaces* positioned at about the cartridge access plane and substantially parallel to only an XX–YY, the XX–YY plane containing the XX axis and the YY axis of the orthogonal XX, YY, ZZ coordinate system;

a cartridge engaging assembly for releasably engaging cartridges positioned in the cartridge storage locations, said cartridge engaging assembly including first and second bearings for slidably engaging *the respective first and second opposed pairs of elongate bearing surfaces of* said first and second elongate guide rails and a lateral guide rail bearing for slidably engaging *the opposed pair of elongate bearing surfaces of* said elongate lateral guide rail, wherein *the first and second opposed pairs of elongate bearing surfaces of* said first and second elongate guide rails allow said cartridge engaging assembly to be moved in a first direction that is substantially parallel to the YY–ZZ plane and wherein *the opposed pair of elongate bearing surfaces of* said elongate lateral guide rail allows said cartridge engaging assembly to be moved in a second directions that is substantially parallel to the XX–YY plane, wherein said first and second guide rails and said lateral guide rail together guide said cartridge engaging assembly along a displacement path that is substantially parallel to the cartridge storage axis; and

an actuator connected to said cartridge engaging assembly for positioning said cartridge engaging assembly at predetermined points along the displacement path.

STATUTORY INVENTION REGISTRATIONS

PUBLISHED MARCH 3, 1998

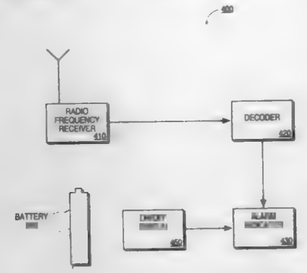
A statutory invention registration is not a patent. It has the defensive attributes of a patent but does not have the enforceable attributes of a patent. No article or advertisement or the like may use the term patent, or any term suggestive of a patent, when referring to a statutory invention registration. For more specific information on the rights associated with a statutory invention registration see 35 U.S.C. 157.

H1713

REMOTE ALARM FOR PERSONAL INTELLIGENT COMMUNICATORS

Ted Louis Pearlman, Montclair, and Andrew Todd Zidel, Hawthorne, both of N.J., assignors to Sony Corporation, Tokyo, Japan, and Sony Electronics, Inc., Park Ridge, N.J.

Filed Dec. 19, 1995, Ser. No. 574,623
Int. Cl.° H04Q *7/08*
U.S. Cl. 340—311.1 **14 Claims**



7. A discrete wireless remote alarm apparatus comprising:

a plurality of transmitters, each communicatively coupled to an associated primary communications device, wherein each transmitter broadcasts a notification signal in response to its associated primary communications device alert, wherein at least one notification signal indicates the receipt of e-mail by its associated primary communications device, wherein the notification signals are phase modulated, radio frequency signals;

a remote alarm indicator for remote notification of the primary communications device alerts, comprising:

a radio frequency receiver for receiving the notification signals;

an alarm indicator;

a decoder coupled to the receiver and the alarm indicator, wherein the decoder provides a signal to the alarm indicator corresponding to whether any notification signals have been received;

a battery coupled to provide power to the radio frequency receiver, the alarm indicator, and the decoder; and

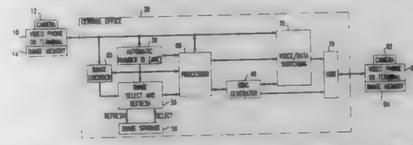
a switch coupled to the alarm indicator to permit deactivating the alarm indicator.

H1714

AUTOMATIC STILL IMAGE TRANSMISSION UPON CALL CONNECTION

B. Waring Partridge, III, Far Hills, N.J., assignor to Lucent Technologies Inc.

Filed May 3, 1995, Ser. No. 434,079
Int. Cl.° H04N *7/14*
U.S. Cl. 348—14 **20 Claims**



13. An image selection and transmission system comprising:

identifying means coupled to a telephone network for identifying a calling terminal and a called terminal;

switch means coupled to said network for establishing a ring connection to said called terminal and a visual communication connection between said calling terminal and said called terminal;

storage means coupled to said network for storing preselected portions of image data, each portion associated with one said calling terminal;

selector means coupled to said identifying means and to said storage means for selecting a portion of said image data associated with said calling terminal upon receipt of a signal from said identifying means; and

processor means coupled to said coding means, to said identifying means and to said switch means for automatically initiating a flow of said data stream to said called terminal upon the establishment of said ring connection, and for continuing the flow of said data stream upon the establishment of said communication connection.

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Matter enclosed in heavy brackets [ ] appears in the original patent but forms no part of this reissue specification; matter printed in italics indicates additions made by reissue.

Re. 35,740

TELECOMMUNICATION SYSTEM

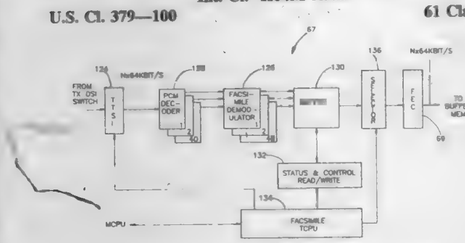
Joshua Piasecki, Ramat Gan, and Sason Sourani, Hod Hasharon, both of Israel, assignors to ECI Telecom Ltd., Petach Tikva, Israel

Original No. 5,117,453, dated May 26, 1992, Ser. No. 451,748, Dec. 18, 1989. Application for reissue May 19, 1994, Ser. No. 245,606

Claims priority, application Israel, Mar. 2, 1989, 89461

Int. Cl.[6] **H04M** *11/00*

U.S. Cl. 379—100 **61 Claims**



47. A method for interconnecting a plurality of telephone communication trunks carrying voice, facsimile and non-facsimile voiceband data signals, to a transmission network, the method comprising:

detecting facsimile signals, as distinguished from other voiceband data signals received from the plurality of telephone communication trunks;

demodulating only detected facsimile signals to form demodulated facsimile signals; and

transmitting the demodulated facsimile signals along the transmission network.

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PLANT PATENTS

GRANTED MARCH 3, 1998

Illustrations for plant patents are usually in color and therefore it is not practicable to reproduce the drawing.

10,265
GERANIUM PLANT NAMED 'MERILADY'
Adrianus W. M. Enthoven, Wateringen, Netherlands, assignor to Enthoven Breeding, B.V., Wateringen, Netherlands
Filed Dec. 9, 1996, Ser. No. 761,940
Int. Cl.[6] A01H *5/00*
U.S. Cl. Plt.—87.12 **1 Claim**

1. A new and distinct cultivar of geranium plant named 'Merilady', as illustrated and described.

10,266
GERANIUM PLANT NAMED 'MERIBLUE'
Adrianus W. M. Enthoven, Wateringen, Netherlands, assignor to Enthoven Breeding B.V., Wateringen, Netherlands
Filed Dec. 9, 1996, Ser. No. 762,701
Int. Cl.[6] A01H *5/00*
U.S. Cl. Plt.—87.12 **1 Claim**

1. A new and distinct cultivar of geranium plant named 'Meriblue', as illustrated and described.

10,267
GERANIUM PLANT NAMED 'MERIFLAME'
Adrianus W. M. Enthoven, Wateringen, Netherlands, assignor to Enthoven Breeding B.V., Wateringen, Netherlands
Filed Dec. 9, 1996, Ser. No. 762,702
Int. Cl.[6] A01H *5/00*
U.S. Cl. Plt.—87.12 **1 Claim**

1. A new and distinct cultivar of geranium plant named 'Meriflame', as illustrated and described.

10,268
KALANCHOE PLANT NAMED 'LIGHT JACQUELINE'
Knud Jepsen, Hinnerup, Denmark, assignor to Knud Jepsen A/S, Hinnerup, Denmark
Filed Dec. 4, 1996, Ser. No. 760,365
Int. Cl.[6] A01H *5/00*
U.S. Cl. Plt.—87.15 **1 Claim**

1. A new and distinct cultivar of Kalanchoe plant named 'Light Jacqueline', as illustrated and described.

10,269
AGLAONEMA PLANT NAMED 'PATRICIA'
Richard J. Button, Miami, Fla., assignor to Sunshine Foliage World, Zolfo Springs, Fla.
Filed Oct. 18, 1996, Ser. No. 733,733
Int. Cl.[6] A01H *5/00*
U.S. Cl. Plt.—88.1 **1 Claim**

1. A new and distinct cultivar of Aglaonema plant named 'Patricia', as illustrated and described.

10,270
AGLAONEMA PLANT NAMED 'JUBILEE'
B. Frank Brown, Valkaria, Fla., assignor to Sunshine Foliage World, Zolfo Springs, Fla.
Filed Nov. 18, 1996, Ser. No. 751,848
Int. Cl.[6] A01H *5/00*
U.S. Cl. Plt.—88.1 **1 Claim**

1. A new and distinct cultivar of Aglaonema plant named 'Jubilee', as illustrated and described.

10,271
AGLAONEMA PLANT NAMED 'GREEN LADY'
B. Frank Brown, Valkaria, Fla., assignor to Sunshine Foliage World, Zolfo Springs, Fla.
Filed Nov. 19, 1996, Ser. No. 751,958
Int. Cl.[6] A01H *5/00*
U.S. Cl. Plt.—88.1 **1 Claim**

1. A new and distinct cultivar of Aglaonema plant named 'Green Lady', as illustrated and described.

10,272
ANTHURIUM PLANT NAMED 'LENY'
Magdalena J. M. van Rijn, Schipluiden, Netherlands, assignor to RijnPlant, Schipluiden, Netherlands
Filed Dec. 4, 1996, Ser. No. 760,427
Int. Cl.[6] A01H *5/00*
U.S. Cl. Plt.—88.1 **1 Claim**

1. A new and distinct cultivar of Anthurium plant named 'Leny', as illustrated and described.

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PATENTS

GRANTED March 3, 1998

For CLASS	See PATENT NO.
477–040	5,722,500
134–006	5,723,019
162–159	5,723,020
162–168	5,723,021
162–168	5,723,022
162–175	5,723,023
261–018	5,723,077
424–497	5,723,269
524–831	5,723,548
530–817	5,723,588
558–132	5,723,645
395–202	5,724,379
345–204	5,724,519

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GRANTED MARCH 3, 1998

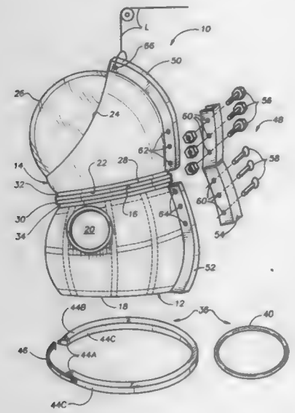
GENERAL AND MECHANICAL .

5,722,090

BACK-REINFORCED TWO-PIECE UPPER TORSO ASSEMBLY FOR ARTICULATED ONE-ATMOSPHERE DIVING SUIT

Robert J. Hughes, Lynn Haven, Fla., assignor to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

Filed Jul. 15, 1996, Ser. No. 679,839
Int. Cl.[6] B63C *11/02*
U.S. Cl. 2—2.17 **16 Claims**



1. An upper torso assembly for an articulated diving suit, said assembly comprising:

(a) a lower hollow body of substantially spherical rigid shape for housing a diver's upper trunk, said lower hollow body having opposite spaced apart upper and lower openings;

(b) an upper hollow body of substantially spherical rigid shape for housing a diver's head, said upper hollow body having a front face opening and a bottom opening and being seated upon said lower hollow body at adjacent portions of said lower and upper hollow bodies respectively surrounding said upper opening of said lower hollow body and said bottom opening of said upper hollow body, said seated portion of said upper hollow body being an annular bottom rim integrally formed on said upper body and surrounding said bottom opening thereof, said seated portion of said lower hollow body being an annular upper rim integrally-formed on said lower hollow body and surrounding said upper opening thereof; and

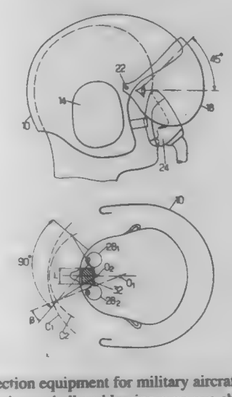
(c) a clamping and sealing mechanism including an annular seal ring and an annular split clamp being separate from and non-attached to one another and separate from sand non-attached to said lower and upper hollow bodies except for solely releasably coupling said upper hollow body to said lower hollow body about said respective annular bottom and top rims thereof so as to form a watertight joint therebetween wherein said upper hollow body can rotate relative to said lower hollow body.

5,722,091

PROTECTIVE EQUIPMENT FOR THE PILOT OF A MILITARY AIRCRAFT, AND A METHOD OF PERSONALIZING THE EQUIPMENT

Francois Keller, Breuillet; Fernand Bertheau, Elancourt, and Eric Farin, Paris, all of France, assignors to Intertechnique, Plaisir, France

PCT No. PCT/FR95/01449, § 371 Date Jul. 2, 1996, § 102(e) Date Jul. 2, 1996, PCT Pub. No. WO96/13992, PCT Pub. Date May 17, 1996
PCT Filed Nov. 3, 1995, Ser. No. 669,353
Claims priority, application France, Nov. 4, 1994, 94 13231
Int. Cl.[6] A42B *3/18*
U.S. Cl. 2—6.3 **8 Claims**



1. Head protection equipment for military aircraft pilot, comprising a helmet having a shell and having a an eye shield for location in front of the eyes of the aircraft pilot, said shield having a central portion of a shape such that, at each point of said central portion, a minimum radius of curvature of said head shield is substantially in a vertical plane and a maximum radius of curvature is in a plane which is substantially orthogonal to the vertical plane, the radius of curvature of the shield in said orthogonal plane lying in the range 110 mm to 145 mm and the radius of curvature in any said vertical plane which is parallel to a vertical mid plane of the helmet varying between about 135 mm in a center zone of said central portion and about 75 mm in lateral zones of said central portion.

5,722,092

PROTECTIVE ARM AND WRIST GUARD

Mark Borzecki, 2-106 Glebe Avenue, Ottawa, Ontario, Canada, K1J 2C3, and David C. Nielen, 1101 Falaise Road, Nepean, Ontario, Canada, K2E 6P9

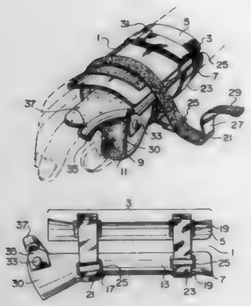
Filed Nov. 19, 1996, Ser. No. 752,024
Int. Cl.[6] A41D *13/08*
U.S. Cl. 2—16 **4 Claims**

1. A protective guard for receiving portions of the forearm, wrist, hand, and thumb of a user for protecting same from serious injury and fracture during falls particularly while playing sports, comprising:

a substantially rigid first plate means having a curved shape conforming to the posterior surface of a forearm of the user and adapted to be received thereon, said first plate means extending along the forearm and adjacent the hand of the user;

a substantially rigid second plate means having a curved shape conforming to the shape of an anterior surface of the forearm of the user and adapted to be received thereon extending along the forearm and adjacent the hand of the user, said plate means having a distal end positioned towards the hand of the

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user and a proximal end positioned away from the hand of the user, said second plate means being independent from said first plate means;

a substantially rigid thumb receiving means on said distal end of said second plate means shaped to conform to the shape of a base of a thumb of the user and adapted to receive the base of the thumb of the user;

retaining means extending across said thumb receiving means for aiding in retaining said plate means in position on the forearm and hand of the user; and

strap means adapted to attach said first and second plate means together for adjustably holding said plate means onto the forearm of the user, said strap means including a first strap means positioned near the distal end of said second plate means and a second strap means positioned near the proximal end of said second plate means.

5,722,093

HIP PROTECTOR

Susanne Hamann Andresen, Espergærde, Denmark, assignor to Sahva A/S, Copenhagen, Denmark

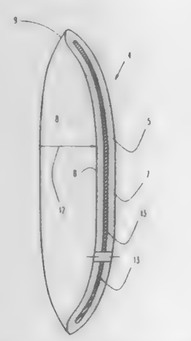
PCT No. PCT/DK95/00004, § 371 Date Jul. 8, 1996, § 102(e) Date Jul. 8, 1996, PCT Pub. No. WO95/19154, PCT Pub. Date Jul. 20, 1995

PCT Filed Jan. 5, 1995, Ser. No. 676,269

Claims priority, application Denmark, Jan. 17, 1994, 9400025

Int. Cl.[6] A41D *13/00;27/26*

U.S. Cl. 2—23 **11 Claims**



1. A hip protector for protecting the neck region of the femur of a human body comprising:

a resilient shell having a substantially uniform thickness, a convex side, a concave side and annular outer rim forming a continuously smooth dome shape surface without sharp edges;

a rigid internal core encased by the resilient shell and maintained a distance from the annular outer rim;

the concave side being concave in both the transverse and longitudinal direction, wherein, upon positioning on a human body, the annular outer rim abuts the human body while the inner concave surface is spaced from and precluded from abutting the human body;

the annular outer rim comprises a substantially elliptical configuration having a major diameter which terminates in a generally round end with symmetrical sides and in a slightly obtuse end with symmetrical sides, and a minor diameter;

the resilient shell is made of a closed-cell thermoplastic material such as polypropylene foam;

the core substantially conforms to the shape of the shell member and is made of a rigid thermoplastic material such as polypropylene and completely concealed in said shell; and

wherein when properly positioned on the human body, said slightly obtuse end faces downward as attached and is curved to provide a depth of the dome shaped shell member between 2.5 cm and 4.5 cm.

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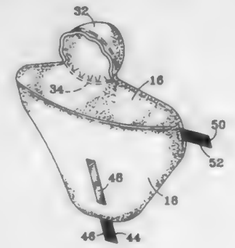
INFANT SWADDLING APPARATUS

Rebecca U. Ruefer, 1700 Parkview Pl., Bozeman, Mont. 59715

Filed Nov. 12, 1996, Ser. No. 747,280

Int. Cl.[6] A41B *13/06*

U.S. Cl. 2—69.5 **7 Claims**



1. An infant swaddling apparatus comprising:

a back panel presenting an upper edge, a lower edge, and opposed side edges that are tapered toward one another between the upper and lower edges;

a front panel presenting a lower edge and opposed side edges that extend along and are secured to the lower and side edges of the back panel to define a pocket that is closed on the sides and bottom, the front panel including an upper edge that is spaced from the upper edge of the back panel in a direction toward the bottom of the pocket;

a hood secured to the upper edge of the back panel; and

a length adjusting means for adjusting the length of the pocket, the length adjusting means including a first piece of hook-and-loop material secured to the apparatus adjacent the bottom of the pocket, and a second piece of hook-and-loop material secured to the front panel, the first and second pieces of material cooperating to adhere together when the bottom of the pocket is folded up over the front panel and the first piece of material is brought into contact with the second piece of material, the length adjusting means including a strap depending from the bottom of the pocket, the first piece of hook-and loop material being secured to the strap.

5,722,095

TIES AND PROCESSES FOR THE MANUFACTURE THEREOF

John Harold Jonas, Oakrise Model Farm, Crockham Hill Edenbridge, Kent TN8 6SR, United Kingdom

PCT No. PCT/GB94/01246, § 371 Date Mar. 13, 1996, § 102(e) Date Mar. 13, 1996, PCT Pub. No. WO94/28748, PCT Pub. Date Dec. 22, 1994

PCT Filed Jun. 9, 1994, Ser. No. 553,686

Claims priority, application United Kingdom, Jun. 9, 1993, 9311870

Int. Cl.[6] A41D *25/06*

U.S. Cl. 2—146 **6 Claims**



1. A method for manufacturing a novelty tie comprising:

creating a tie blank comprising a generally elongated length of fabric having a portion resembling a knot located along its length, and a front apron portion extending from said knot portion to an end of said length of fabric;

forming a printed design of an irregular object on said front apron portion;

cutting said elongated length of fabric along first and second edges of said apron portion between said knot portion and said end of said length of fabric material without cutting the remaining portion of said length of fabric, to form irregular edges only on said apron portion which resemble said object; and

forming means adjacent said knot portion for securing said tie around a user's neck so that said knot portion and irregular edges of said apron portion which resemble said object are visible.

5,722,096

PORTABLE URINAL

Patricia Pfaeffle, 72 S. Charles St., Hopelawn, N.J. 08861

Continuation of Ser. No. 365,071, Dec. 27, 1994, abandoned. This application Jul. 11, 1996, Ser. No. 678,118

Int. Cl.[6] A47K *11/00*

U.S. Cl. 4—144.1 **3 Claims**

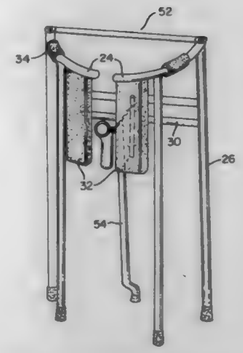
1. A portable urinal comprising:

a urine bottle support for holding a urine bottle, said urine bottle support having a receiving area through which an elongated support may extend to support the urine bottle support such that when said urine bottle support is being supported by said elongated support said urine bottle support forms a substantially right angle with said elongated support, said urine bottle support comprising:

a hollow rod;

an extension rod disposed within said hollow rod, said extension rod being selectively movable in a longitudinal direction relative to said hollow rod;

said extension rod including a body portion and an end portion, wherein said end portion forms a generally ninety degree angle with said body portion, and said end portion is formed such that it is selectively receivable by said first receiving area; and



a urine bottle selectively coupled to said urine bottle support;

said urine bottle comprising an elongate bottle having an exterior surface, an inclined entrance end that has an opening, and a handle having a first receiving area said handle being integral with said exterior surface, said urine bottle being coupleable to said urine bottle support by said first receiving area, such that when said urine bottle is coupled to said urine bottle support said urine bottle is positioned in a generally vertical position; and

a collapsible stand coupled to said urine bottle support comprising:

a plurality of arms;

a plurality of legs coupled to said plurality of arms;

a crossbar coupled between two of said plurality of legs; and

a height adjusting bar selectively coupled to said crossbar, said height adjusting bar being selectively movable in a vertical direction relative to said crossbar

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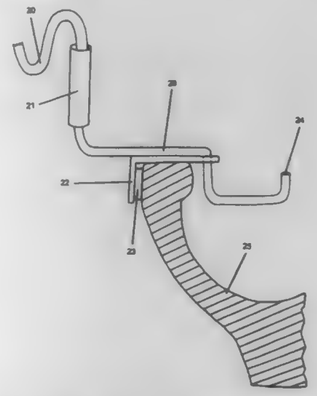
MOUNTING MEANS ENABLING TURNING OF VERTICAL SPRAY BIDETS FOR LAVATORIES

William B. Deveer, 76-04 Main St. #110, Kew Gardens, N.Y. 11367

Filed Aug. 26, 1996, Ser. No. 702,808

Int. Cl.[6] A47K *3/20*

U.S. Cl. 4—420.4 **2 Claims**



1. A bidet assembly adapted to be mounted onto a rim of a toilet bowl having a seat, said bidet assembly comprising:

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a mounting adapter having a first side adapted to extend along an outer surface of the rim, a second side adapted to be spaced from and extend along an inner surface of the rim and a third side connecting the first and second sides and adapted to extend along an upper surface of the rim, said third side having an aperture therethrough;

a rigid hollow tube having a U-shaped portion adapted to be positioned within the toilet bowl, said U-shaped portion comprising a first vertical leg for spraying water onto a user, a second vertical leg having an upper end which extends through said aperture and a third leg which connects the first and second legs, said rigid hollow tube further including a horizontal portion which extends from said upper end of said second vertical leg and which extends along an upper surface of said third side of said mounting adapter;

a flexible tube connected to said horizontal portion of said rigid hollow tube for supplying water to said rigid hollow tube; and

a handle connected to said horizontal portion of said rigid hollow tube whereby said handle is adapted to be pulled rearwardly by a user sitting on the seat of the toilet bowl in order to pivot said U-shaped portion of said rigid hollow tube about said aperture to thereby move said first vertical leg of said hollow rigid tube from a position near a rear portion of the toilet bowl to a position beneath the user.

5,722,098

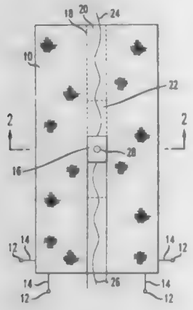
SWIMMING POOL COVER WITH DRAINAGE AND FILTER MEANS

Robert Stern, 1746 Lakewood Rd., Toms River, N.J. 08755

Filed Nov. 8, 1996, Ser. No. 745,878

Int. Cl.° E04H *4/00*

U.S. Cl. 4—498 **10 Claims**



10. A filter means for a cover for a water pool wherein said cover for said water pool comprises a sheet of flexible, waterproof material having a drainage opening position therein, said sheet of flexible, waterproof material adapted to be secured about the periphery of said water pool, said cover having a sleeve defining a passageway secured on said sheet of flexible, waterproof cover, said sleeve defining a passageway in alignment with an intersecting said drainage opening, said filter means selectively positioned in said sleeve defining said passageway, said filter means having a planar area dimension greater than the planar area dimension of said drainage opening, said filter means permitting the passage of water therethrough, said filter means preventing the passage of particulate matter therethrough by accumulation of said particulate matter in said filter means, said filter means further comprising;

a detachable frame having a pair of parallel lateral end members having angled end portions, a pair of parallel longitudinal side members having angled end portions, four corner members, each corner member comprised of two complimentary elements having complimentary grooves formed therein for the receipt and securing of said angled ends of said adjacent lateral end member and said adjacent longitudinal member thereby forming a generally rectangular frame;

a mesh filter cloth generally rectangular in shape and dimensioned to the size of said frame, said mesh filter cloth having a sleeve formed along each longitudinal edge and each lateral edge, each said sleeve having an opening in opposing ends, said mesh filter cloth slidably mountable on said lateral end members and said longitudinal side members by slidably inserting said lateral end member and said longitudinal side member into the respective sleeves formed on said mesh filter cloth, positioning the angled ends of said lateral end member and said longitudinal side member between the respective corner elements of said four corner members and securing said corner elements of said four corner members with a fastening means.

5,722,099

BATHING APPARATUS

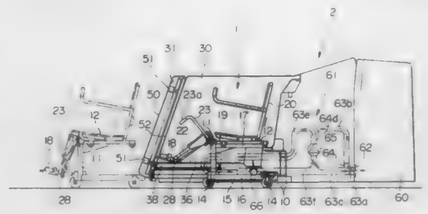
Hajime Suzuki, Kamagaya, and Yasuo Sekiguchi, Matsudo, both of Japan, assignors to Sakai Medical Co., Ltd., Tokyo, Japan

Division of Ser. No. 416,305, Apr. 4, 1995, Pat. No. 5,647,071. This application Dec. 16, 1996, Ser. No. 771,328

Claims priority, application Japan, Apr. 6, 1994, 6-68821; Nov. 11, 1994, 6-278161

Int. Cl.° A47K *3/022;3/12*

U.S. Cl. 4—555 **2 Claims**



1. A door-equipped bathing apparatus comprising:

a wheel chair provided with a chair base having caster rollers, a support rod fixedly erected on said chair base, and a seat section firmly supported on a free end of said support rod; and

a bath tub provided with a bottom section having a bottom sealing device for allowing said support rod to pass through said bottom section and providing water-tight sealing around said support rod which passes through said bottom section of said bath tub;

wherein an opening section formed on a vertical section of said bath tub provides entry of said wheel chair through said opening section thereinto,

such that said support rod passes through said bottom section of said bath tub while said seat section is inside said tub and said caster rollers are located externally of said tub,

said tub is provided with a tank for storing warm bath water and a supply/discharge device for supplying warm water from said tank to, and removing the warm water from, said tub, and

said bottom sealing device is disposed on a mating interface between said opening section and a door unit.

5,722,100

BABY BATHING APPARATUS

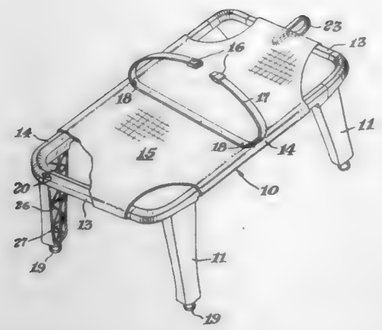
Gail R. Jozwiak, 4130 N. Spider Lake Rd., Traverse City, Mich. 49684

Continuation-in-part of Ser. No. 326,382, Oct. 20, 1994, abandoned. This application Nov. 20, 1995, Ser. No. 561,071

Int. Cl.° A47K *3/024*

U.S. Cl. 4—572.1 **4 Claims**

1. A baby bathing apparatus adapted for use in divided sinks, single sinks and tubs, comprising a generally rectangular frame having four sides, a top surface and a bottom surface, and open,



net-like non-absorbent quick drying fabric disposed within and attached to each side of said frame for allowing water to pass readily therethrough, said frame having four corners and having a removable leg attached approximate each of said corners on the bottom surface of said frame by cooperation of a self-locking snap attached to each leg, and a slot at each corner of said frame, each leg being 6 to 12 inches long such that said apparatus may be located in a divided sink with said frame straddling the sink divider, each leg being constructed of an open cross-ribbed construction, the respective sides of said frame being interconnected by self-locking snaps and slots such that said apparatus can be rendered compact for storage.

5,722,101

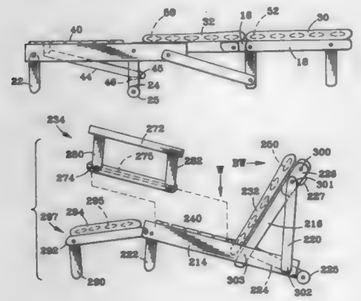
MULTI-FRAMED CONVERTIBLE ARTICLE OF FURNITURE

Nikita Grigoriev, P.O. Box 1410, Richfield Springs, N.Y. 13439

Filed May 17, 1996, Ser. No. 649,528

Int. Cl.° A47C *17/04*

U.S. Cl. 5—37.1 **13 Claims**



1. An article of furniture comprising:

a foldable frame assembly including a seat frame and a back rest frame;

a leg having a first end and a second end, wherein said leg being hingedly attached proximate said first end to said back rest frame; and

a linkage attached proximate said second end of said leg and interconnecting said leg and said seat frame such that said leg retracts proximate said back rest frame when said article of furniture is in a seat position and extends away from said back rest frame when said article of furniture is in an extended horizontal position.

5,722,102

BACKREST DEVICE

Neil Summers, 63 New Inn Lane, Guildford, Surrey GU4 7HT, United Kingdom

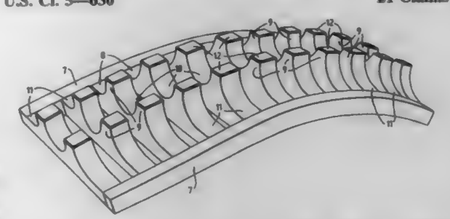
PCT No. PCT/GB95/00155, § 371 Date Jul. 10, 1996, § 102(e) Date Jul. 10, 1996, PCT Pub. No. WO95/20897, PCT Pub. Date Aug. 10, 1995

PCT Filed Jan. 26, 1995, Ser. No. 669,527

Claims priority, application United Kingdom, Feb. 4, 1994, 9402167

Int. Cl.° A47C *20/02*

U.S. Cl. 5—630 **21 Claims**



1. A backrest device having an upwardly facing supporting surface which is arranged to engage the back of a person lying supine in use on the supporting surface, the surface being convexly curved upwardly along a longitudinal direction and being substantially rigid to thereby withstand the weight of the person's body, and the surface presenting two rows of knobbles extending alongside one another in the longitudinal direction for engaging the person's back on each side of the spine, with a channel between the rows of knobbles to accommodate the bony part of the spine with substantially no pressure on the bony part of the spine, the knobbles comprising discrete knobs separated by spaces in the longitudinal direction.

5,722,103

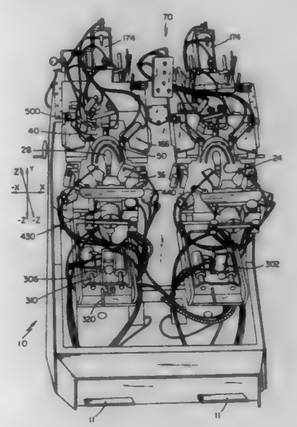
TOE AND SIDE AND HEEL LASTING MACHINE AND METHOD OF LASTING

William Walega, Hollis, N.H., assignor to International Shoe Machine Corporation, Nashua, N.H.

Filed Feb. 1, 1996, Ser. No. 595,554

Int. Cl.° A43D *21/16;21/08*

U.S. Cl. 12—7 **12 Claims**



1. A shoe lasting machine, operable on a footwear assembly including a last having an insole located at its bottom and an upper mounted thereon with an upper margin extending around the insole, comprising:

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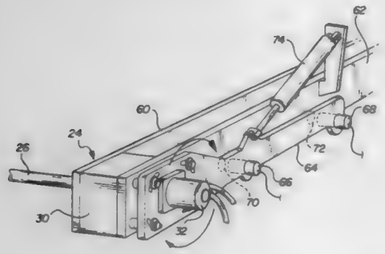
(a) a footwear assembly support, mounted to a machine frame, to support the footwear assembly;
(b) a toe wiper assembly including a plurality of toe wipers mounted to the machine frame for movement along a Y-axis in a toe wiping plane extending in an X-Y plane to press toe, side and ball portions of the upper margin against the insole bottom;
(c) an array of pincer assemblies positioned around the toe, side and ball portions of the footwear assembly, each pincer assembly including a pair of jaws adapted to receive part of the upper margin;
(d) means for lowering the clamped pincer assemblies along a Z-axis relative to the toe wiping plane to stretch the upper around the last; and
(d) means for pivoting the clamped pincer assemblies during a lasting cycle about an axis parallel to the Z-axis to positions inwardly of and beneath an edge of the insole to tightly wrap the stretch upper margin around at least ball regions of the last.

5,722,104

POSITION CONTROL SYSTEM FOR COUNTERWEIGHTED VEHICLE LAUNDRY TOP BRUSH

Robert J. Wentworth, Farmington Hills, Mich., assignor to Belanger, Inc., Northville, Mich.

Filed Apr. 22, 1996, Ser. No. 635,584
Int. Cl.[6] B60S *3/06*
U.S. Cl. 15—53.2 **15 Claims**



1. A system for controlling the position of a rotating brush relative to an object being contacted by the brush comprising:
support means carrying said brush;
a motor mounted to said support means and connected to drive the brush about an axis of rotation;
selectively actuable power means for controlling the position of the brush relative to the object;
means for sensing a reaction torque experienced by said motor when rotating said brush as applied to said support means and for producing signal conditions related thereto; and
means connecting said signal conditions to the power means for controlling the position of the brush so as to tend to maintain a desired brush contact depth relative to the object.

5,722,105

FLOOR MOP AND WRINGING MECHANISM THEREFOR

Stig Ola Thomasson, Vardavägen 235F, S-224 71 Lund, Sweden

Continuation-in-part of Ser. No. 625,699, Apr. 3, 1996, abandoned. This application Feb. 5, 1997, Ser. No. 795,607
Claims priority, application Germany, Dec. 28, 1995, 295 20 612 U
Int. Cl.[6] A47L *13/142*
U.S. Cl. 15—120.2 **16 Claims**

1. A floor mop comprising:



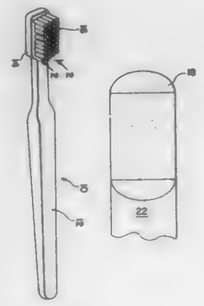
a stick having a lower end, an opposite upper end and a longitudinal axis extending therebetween;
a mop head including a mop fabric, the mop fabric having a first end and an opposite second end;
a lower handle disposed at the lower end of the stick and the first end of the mop fabric, the lower handle being axially and rotatably shiftable relative to the stick, the second end of the mop fabric being secured to the lower end of the stick;
a sleeve mounted to the upper end of the stick, the sleeve having a helical groove defined therein and an upper handle rotatably attached to the sleeve and in operative engagement with the helical groove of the sleeve so that longitudinal shifting of the upper handle is converted to rotational movement of the stick to wring the mop fabric of the mop head.

5,722,106

TOOTH POLISHING BRUSH

Thomas Craig Masterman; Jean L. Spencer, both of Boston, Mass., and Donna J. Beals, Morgan Hill, Calif., assignors to Gillette Canada Inc., Kirkland, Canada

Filed Feb. 1, 1995, Ser. No. 381,792
Int. Cl.[6] A46B *15/00*; A46D *1/00*
U.S. Cl. 15—167.1 **8 Claims**



1. A toothbrush including a handle extending from a head having at least one tuft secured to the head, said tuft including a plurality of elongated monofilaments each having a length and a generally uniform diameter comprised of:

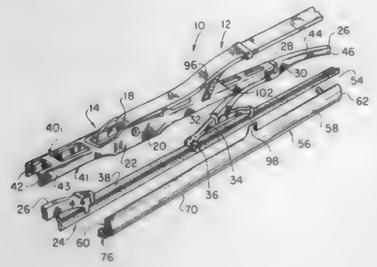
(a) a thermoplastic filament base material; and
(b) an effective polishing amount of polishing agent in contact with said base material and having a particle size of from about 0.10 microns to about 10 microns, wherein said monofilaments are characterized by:
a diameter in the range of from about 100 to about 350 μm;
a coefficient of friction of from about 0.01 to about 0.90;
an ISO stiffness rating of Soft to Medium;
a tuft retention greater than 3 lbs;
a bend recovery of from 80% to 100%;
an elongation at break of from about 1% to about 500%;
a tensile strength of from about 5,000 to about 200,000 psi; and
a tensile and flexural modulus of from about 100,000 to about 3,000,000 psi.

5,722,107

MOTOR VEHICLE WINDSCREEN WIPER COMPRISING AN IMPROVED SPRAY LINE

Jean-Pierre Eustache, Antony, and Jean-Louis Roumegoux, Paris, both of France, assignors to Valeo Systemes d'Essuyage, La Verriere, France

PCT No. PCT/FR96/00075, § 371 Date Sep. 19, 1996, § 102(e) Date Sep. 19, 1996, PCT Pub. No. WO96/22207, PCT Pub. Date Jul. 25, 1996
PCT Filed Jan. 17, 1996, Ser. No. 716,367
Claims priority, application France, Jan. 19, 1995, 95 00805
Int. Cl.[6] B60S *1/46;1/52*
U.S. Cl. 15—250.04 **16 Claims**



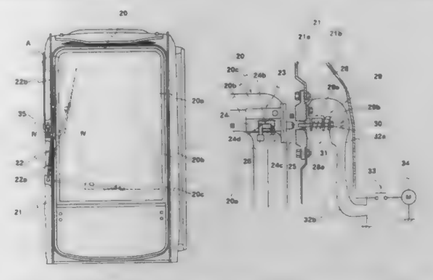
1. A screen wiper assembly for discharging a screen washing product therefrom, said assembly having a blade-carrying arm coupled with a generally parallel screen wiper blade having an external lateral surface, said blade comprises an articulated pressure-distributing structure including at least one elongated main yoke with a first secondary yoke articulated thereto about a first pivot pin generally at right angles to the screen wiper blade, the first pivot pin having at least one end, and including an elongated wetting ramp of which substantially the entire length thereof bears against the screen wiper blade external surface for discharging the screen washing product, the wetting ramp extending externally of the screen wiper blade and at least partly along the external lateral surface of the screen wiper blade, the wetting ramp being fixed to at least the end of the pivot pin which projects transversely towards the wetting ramp.

5,722,108

WINDSHIELD WIPER CONTROL DEVICE FOR CONSTRUCTION MACHINES

Tsuyoshi Sakyo, Chiyoda-machi, and Yoshimi Iwase, Mitsukaido, both of Japan, assignors to Hitachi Construction Machinery Co., Ltd., Tokyo, Japan

PCT No. PCT/JP96/02561, § 371 Date May 12, 1997, § 102(e) Date May 12, 1997, PCT Pub. No. WO97/10130, PCT Pub. Date Mar. 20, 1997
PCT Filed Sep. 9, 1996, Ser. No. 836,041
Claims priority, application Japan, Sep. 11, 1995, 7-257254
Int. Cl.[6] B60S *1/08*
U.S. Cl. 15—250.19 **10 Claims**



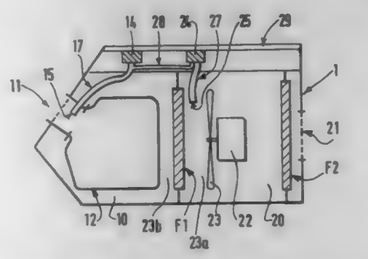
1. In a construction machine including a vertically slidable front window fitted on a front side of an operator's cab for movement between an opened and closed position, a windshield wiper assembly mounted on a frame of said operator's cab alongside said front window and having a wiper blade for cleaning the front window, a pin-latch unit for locking said front window in said closed position and a windshield wiper control device for controlling operation of said windshield wiper assembly;
said control device comprising a detection device for detecting a locked state of said front window in the closed position by way of application of a slide pin of said pin-latch unit, said control device rendering said windshield wiper assembly operative in the locked state of the pin-latch unit and inoperative in the unlocked state of the pin-latch unit on the basis of a detection signal from said detection device.

5,722,109

VACUUM CLEANER WITH FLOOR TYPE DETECTION MEANS AND MOTOR POWER CONTROL AS A FUNCTION OF THE DETECTED FLOOR TYPE

Gilles Delmas, Epinay-Sour-Sernart, France, and Johannes A. T. Driessen, Nieuweroord, Netherlands, assignors to U.S. Philips Corporation. New York, N.Y.

Continuation of Ser. No. 280,748, Jul. 26, 1994, abandoned. This application Nov. 18, 1996, Ser. No. 751,280
Claims priority, application France, Jul. 28, 1993, 93 09277
Int. Cl.[6] A47L *9/28*
U.S. Cl. 15—319 **25 Claims**



1. A vacuum cleaner comprising a vacuum cleaner body provided with an air inlet (**11**) and an air outlet (**21**), and a hose

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provided with a nozzle and coupled to the air inlet of the vacuum cleaner body, a dust chamber (**10**) in communication with the air inlet (**11**) and a housing (**20**) for a fan (**23**) driven by an electric motor (**22**), called main motor, which housing (**20**) is in communication with the dust chamber (**10**) and the air outlet (**21**), a flow path provided between said nozzle and said outlet comprising said hose, said vacuum cleaner in addition comprising:

detection means for detecting the characteristics of the floor type which is being cleaned and providing a signal indicative of said characteristics,

preprocessing means (**30**), responsive to the signal provided by said detection means for evaluating these characteristics and providing a signal indicative of said evaluation,

classification means (**40**) comprising a neural network, responsive to the signal provided by the preprocessing means, for recognizing and classifying the floor type which is being cleaned and providing a signal indicative of the resultant classification,

set point generating means (**50**), responsive to the signal provided by said classification means for determining a pressure set point at said air inlet as a function of the floor type classification and providing a signal indicative of said pressure set point, main-motor control means (**60**), responsive to the signal provided by said set point generating means, for controlling the power of the main motor so as to maintain this pressure set point, which vacuum cleaner is characterized in that:

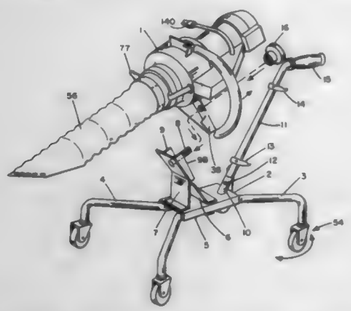
the detection means comprise a first pressure detector (**14**) whose measuring point (**15**) is directed at the inlet (**11**) of the dust chamber and which provides a signal which shows variations characteristic of the type of the floor being cleaned, and that there is also provided a sequential command system (**65**) for activating, in a given order and automatically, the preprocessing means (**30**), the classification means (**40**), the set point generating means (**50**) and the main-motor control means (**60**) during appropriate time periods.

5,722,110

PORTABLE INDUSTRIAL VACUUM MACHINE

Paul Curtis McIntyre, 4742 Squirrel Nest La., Charlotte, N.C. 28227, and Frank Rene Gruber, Monroe, N.C., assignors to Paul Curtis McIntyre, Charlotte, N.C.

Filed Oct. 10, 1995, Ser. No. 541,459
Int. Cl.[6] A47L *5/28;5/32*
U.S. Cl. 15—329 **30 Claims**



1. An industrial vacuum system for the collection of large debris in industrial settings, said vacuum capable of being mounted on a wheeled frame and being carried manually, comprising:

a vacuum unit having an impeller housing,

an impeller disposed within said impeller housing,

a motor housing attached to said impeller housing,

a motor having a motor shaft, said motor disposed within said motor housing, wherein said motor shaft is rotationally connected to said impeller;

means, disposed within said motor housing, for preventing debris from entering said motor;

means, disposed upon said impeller, for preventing debris from entering said motor;

means for detachably attaching said vacuum unit to said wheeled frame; and

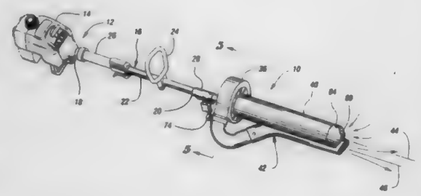
means for gripping and carrying said vacuum unit.

5,722,111

BLOWER VACUUM

Lee Sowell, and Kenneth M. Brazell, both of Phoenix, Ariz., assignors to Ryobi North America, Easley, S.C.

Filed Jul. 26, 1996, Ser. No. 690,334
Int. Cl.[6] A47L *5/24*
U.S. Cl. 15—330 **8 Claims**



1. An blower vacuum attachment for a multi-purpose power tool having a motor, an elongated tubular boom having a first end affixed to the motor, a spaced apart second end, and an intermediate section therebetween having a handle thereon, a drive shaft extending through the tubular boom having a driven end driven by the motor and an output end for powering one of a plurality of attachments, and a coupling mounted to the tubular boom second end for releasably affixing a selected one of a plurality of attachments to the multi-purpose power tool, the blower vacuum attachment comprising:

a tubular connector affixable to the coupling of the multi-purpose power tool;

a blower housing having a central axis and an internal cavity bounded by a first wall, a second wall, and a circumferential wall, the first wall affixed to the tubular connector, the second wall axially spaced from the first wall and having an axially oriented air inlet extending therethrough for allowing air to enter the internal cavity, the circumferential wall spanning between the first and second walls, extending circumferentially about the central axis and having an air outlet formed therein to enable air to exit from the internal cavity;

an impeller oriented within the internal cavity of the blower housing and pivotally mounted thereto for rotation about the central axis causing air to enter the internal cavity through the air inlet and be discharged through the air outlet;

an impeller shaft affixed to the impeller and extending through the blower first wall and the tubular connector for removable engagement with the output end of the drive shaft of the multi-purpose power tool;

an intake tube affixed to the blower housing air inlet and extending generally axially away from the blower housing;

a debris collection bag having an air inlet which is removably attachable to the air outlet of the blower housing and a porous wall member defining an internal cavity for trapping debris collected when the attachment is used as a vacuum; and

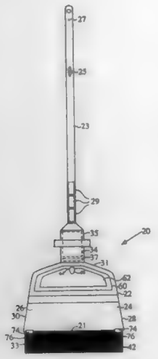
a blower tube for discharging a high velocity stream of air when the attachment is used as a blower, the blower tube having an air inlet which is removably attachable to the blower housing air outlet and an outlet oriented generally adjacent the intake tube inlet for discharging air along a blower outlet axis which is spaced from and generally parallel to the central axis, the air outlet having an area sized relative to the air inlet so that the air discharge velocity is substantially higher than the air intake velocity.

5,722,112

VACUUM ASSISTED BROOM

Iberio E. Scanni, and Nino V. Scanni, both of 5199 Warwickshire Way, Mississauga, Ontario, Canada, L5V 1N5

Continuation-in-part of Ser. No. 942,784, Sep. 10, 1992, abandoned. This application Feb. 15, 1994, Ser. No. 196,555
Int. Cl.[6] A47L *5/24*
U.S. Cl. 15—344 **17 Claims**



1. A vacuum assisted broom for sweeping a sweepable surface, said broom comprising:

a housing member having interconnected front, rear and side walls defining a hollow interior and being shaped and dimensioned to generally surround at least the top portion of a sweeping member;

a handle member securely attached to said housing member and extending upwardly therefrom;

a selectively actuatable suction means operatively connected to said housing member by way of a second opening in said housing member such that said hollow interior is in fluid communication with said suction means so as to thereby create a partial vacuum at said first opening; and

a sweeping member movably mounted within said housing member so as to depend therefrom through a first opening in said housing member, for selective movement between a first extended position whereat said sweeping member extends outwardly from said first opening in said housing member to thereby permit the sweeping of said sweepable surface using a broom-like sweeping action, and a second retracted position whereat said sweeping member is substantially reacted into said housing member so as to allow said first opening in said housing member to be in close proximity to said sweepable surface, to thereby permit vacuuming of debris frown said sweepable surface, upon actuation of said suction means.

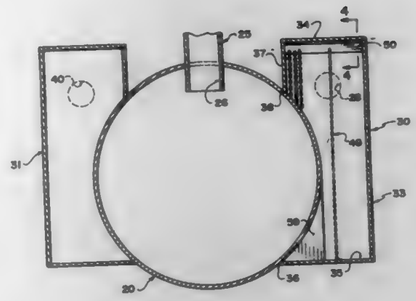
5,722,113

VACUUM TRUCK WITH AIR FILTER FORMED FROM LENGTHS OF CHAIN

Morris Baziuk, Winnipeg, Canada, assignor to Flush Quip Inc., Winnipeg, Canada

Filed Feb. 16, 1995, Ser. No. 389,507
Int. Cl.[6] A47L *9/10*
U.S. Cl. 15—352 **20 Claims**

1. Apparatus for filtering air comprising a duct, means for propelling the air along the duct to flow from a feed end to a discharge end and a plurality of air permeable curtains arranged at spaced positions along the duct, each curtain extending across the duct so that the air flowing along the duct passes through the curtain, each curtain comprising a plurality of lengths of chain with one end of each length supported in the duct in a row of said one ends and said lengths extending from said one ends in a direction across the duct, the lengths being connected to the duct only at said one end with said one end uppermost so that the other end of each length is free and the length is suspended vertically.

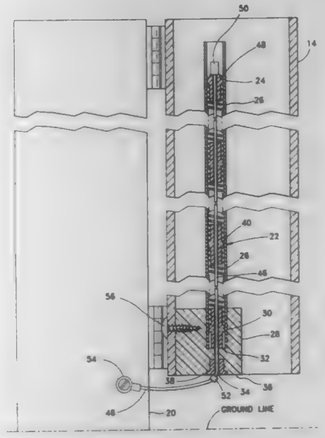


5,722,114

GATE CLOSURE MECHANISM

John K. Lapp, Jr., New Holland; Christian A. Stoltzfus, Bird-In-Hand, and Joseph P. Wachter, Nancaster, all of Pa., assignors to Quality Fencing & Supply Co., New Holland, Pa.

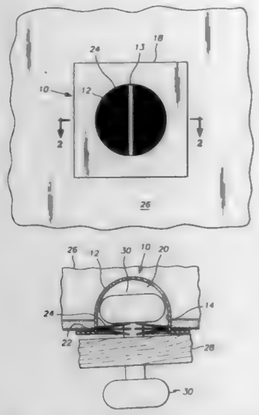
Filed Sep. 25, 1996, Ser. No. 719,435
Int. Cl.[6] E05F *1/08*
U.S. Cl. 16—78 **11 Claims**



1. In combination with a swinging gate capable of pivoting up to 180 degrees, where said gate includes a stationary post and a movable post that pivots thereabout, said movable post being hollow for receiving a compression spring mechanism therewithin, a compression spring mechanism comprising a cylindrical tube, a plurality of compression springs aligned end-to-end within said tube, a spring housing secured to one end of said tube for receiving an end of one of said compression springs, and a cable passing through said aligned compression springs and said spring housing and being secured to the end of said compression spring remote from said spring housing, whereby said compression springs are maintained in a first state of compression when said gate is closed, and a second state of compression when said gate is opened.

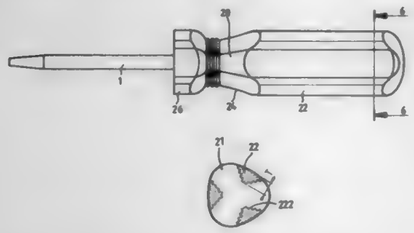
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5,722,115
DOOR KNOB RECEPTACLE
Richard Arens, 6 Oasis Pl., East Northport, N.Y. 11731
Filed Dec. 6, 1995, Ser. No. 568,264
Int. Cl.[6] E05C *19/02;17/00;* E05F *5/06*
U.S. Cl. 16—85 3 Claims



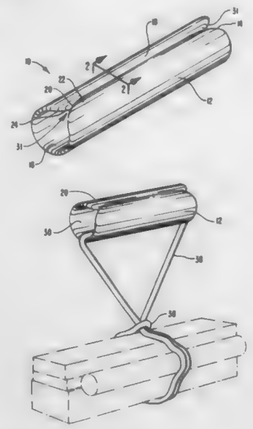
1. A door knob receptacle for receiving and retaining a door knob of a door within a pocket created in a wall, comprising:
a) a hemispherical shell having an outer periphery and an inner periphery;
b) a rectangular flange disposed about the outer periphery of said hemispherical shell, the rectangular flange having a front and a rear, wherein self adhesive tape is affixed to the rear of the rectangular flange; and
c) securing means disposed about the inner periphery of the hemispherical shell, said securing means comprising semi-rigid brushes disposed around and extending from the inner periphery of the hemispherical shell inward toward the center of said hemispherical shell in such a manner that a gap is formed in the center of said semi-rigid brush arrangement, thus allowing the door knob to enter the pocket and be retained therein.

5,722,116
TOOL HANDGRIP HAVING A SIMPLIFIED LONGITUDINAL SOFTER ZONES
Jack Lin, No. 103, Nan Kang San Road, Nan Kang Industrial Zone, Nan Tou City, Nan Tou County, Taiwan
Filed Apr. 1, 1996, Ser. No. 625,166
Int. Cl.[6] A47B *95/02;* B25G *1/10*
U.S. Cl. 16—110 R 1 Claim



1. A tool handgrip comprising:
a handgrip body including a core having an outer peripheral portion, said outer peripheral portion having at least two peripherally spaced longitudinally extending recesses with ridges secured therein.
said longitudinal ridges each having a thickness ranging from 1 mm to 6 mm, and said longitudinal ridges having a hardness less than that of said core, the hardness of said longitudinal ridges ranging from SHORE A 35 to 75 , and said longitudinal ridges each including a step ladder shaped surface for engaging with a corresponding step ladder shaped surface of said core and for preventing said longitudinal ridges from being disengaged from said core.

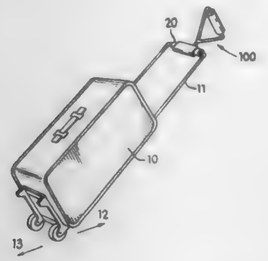
5,722,117
SPRING-LIKE SPLIT TUBULAR DEVICE HAVING OVERLAPPING LONGITUDINAL EDGES
H. Kristian Nielsen, 1910 10th Ave. West, Seattle, Wash. 98119
Filed Feb. 10, 1995, Ser. No. 387,103
Int. Cl.[6] B65D *63/00;33/06;* A45F *5/10;* A45C *13/26*
U.S. Cl. 16—114 B 12 Claims



1. A split tubular device comprising:
(a) a tubular member having two ends and a continuous boundary wall, said tubular member being formed of a renitent material and said ends having smoothly rounded edges wherein said renitent material permits the device to behave in a spring-like manner;
(b) a continuous longitudinal slit formed along the length of said tubular member, said longitudinal slit defining a first continuous longitudinal edge and a second continuous longitudinal edge, said first and second continuous longitudinal edges having corner ends which diverge in a smooth, arcuate path from said continuous longitudinal slit to said ends of said tubular member, wherein said first continuous longitudinal edge overlaps said second continuous longitudinal edge such that the first continuous longitudinal edge closes over the second continuous longitudinal edge when the tubular member is circumferentially flexed; and
(c) a chamber defined by said continuous boundary wall and accessible from the two ends or through the continuous longitudinal slit.

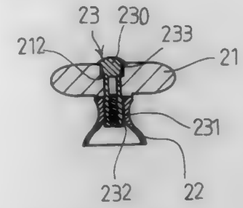
11. A process for comfortably and conveniently holding a carrying apparatus having a built-in handle comprising the steps of:
(a) obtaining a spring-like split tubular device comprising:
(1) a tubular member having two ends and a continuous boundary wall, said tubular member being formed of a renitent material and said ends having smoothly rounded edges wherein said renitent material permits the device to behave in a spring-like manner;
(2) a continuous longitudinal slit formed along the length of said tubular member, said longitudinal slit defining a first continuous longitudinal edge and a second continuous longitudinal edge, said first and second continuous longitudinal edges having corner ends which diverge in a smooth, arcuate path from said continuous longitudinal slit to said ends of said tubular member, wherein said first continuous longitudinal edge overlaps said second continuous longitudinal edge such that the first continuous longitudinal edge closes over the second continuous longitudinal edge when the tubular member is circumferentially flexed;
(3) a chamber defined by said continuous boundary wall and accessible from the two ends or through the continuous longitudinal slit; and
(4) a scissor-like entry-way at each end of the tubular member formed by the corner ends of the continuous longitudinal edges; and
(b) placing the built-in handle of the carrying apparatus into said chamber by sliding the handle through the entry-way and continuous longitudinal slit.

5,722,118
HANDLE CONVERSION APPARATUS
Barbara Hansen, Chicago; Lin Beribak, Forest Park; Marcie Moran, Naperville, and Krista Brown, Chicago, all of Ill., assignors to Jetset Design, Chicago, Ill.
Filed Jun. 28, 1996, Ser. No. 672,419
Int. Cl.[6] A47B *95/02*
U.S. Cl. 16—114 R 19 Claims



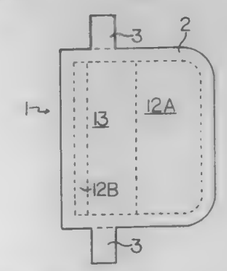
1. A handle conversion system for facilitating forward and rearward motion of a wheeled object, said handle conversion system comprising:
a preexisting handle on said wheeled object,
said preexisting handle including a grip member with a longitudinal axis positioned for use in a plane substantially perpendicular to a desired direction of motion, as prompted by the orientation of wheels on said wheeled object;
system attachment means for restrainably attaching said handle conversion system to said preexisting handle,
said system attachment means extending longitudinally along at least a substantial portion of said preexisting handle grip member to restrainably stabilize the orientation of said grip member relative to said system attachment means,
a hand grip having a first end, a second end opposite said first end and a hand grip longitudinal axis between said first and second ends, said hand grip longitudinal axis being oriented in a position substantially perpendicular to a plane in which said grip member of said preexisting handle is oriented; and
said hand grip being operably attached to said system attachment means so as to operably integrate same, such that said hand grip longitudinal axis is oriented substantially perpendicular to a plane in which said system attachment means is oriented and substantially within the same plane described by said direction of forward and backward motion of said wheeled object.

5,722,119
PULLING KNOB FOR FURNITURE
Sen Huang Wang, P.O. Box 63-99, Taichung, Taiwan
Filed Dec. 4, 1996, Ser. No. 760,194
Int. Cl.[6] E05B *1/00*
U.S. Cl. 16—121 1 Claim



1. A pulling knob for furniture comprising:
a knob body including a center portion having a hole formed therein, said hole including an upper portion having a non-circular opening formed therein,
a bolt engaged through said hole of said knob body, said bolt including a head formed on top and including a lower portion having an outer thread portion and an inner thread portion formed thereon, said bolt including an upper portion having at least one rib formed thereon for engaging with said non-circular opening of said knob body and for preventing said bolt from rotating relative to said knob body, and
a hand grip including an inner thread for engaging with said outer thread of said bolt for securing said bolt to said knob body.

5,722,120
PRE-STAMPED HALF-HINGE ADHERENT COVER
Lyle D. Bindschatel, and Debra L. Bindschatel, both of 7617 Wood Rd., Corryton, Tenn. 37721
Continuation-in-part of Ser. No. 756,176, Nov. 25, 1996. This application Dec. 20, 1996, Ser. No. 770,837
Int. Cl.[6] E05D *11/00*
U.S. Cl. 16—250 8 Claims



1. A Pre-stamped Half-hinge Adherent Cover for use in combination with all exposed surfaces of a half-hinge attached within a hinge recess of a door or jamb, said exposed surfaces of said half-hinge comprised of an outer surface, knuckles, an inner surface protruding from said hinge recess, a top edge of the top one of said knuckles, a bottom edge of the bottom one of said knuckles, a top edge of said half-hinge protruding from said hinge recess, and a bottom edge of said half-hinge protruding from said hinge recess,
said Pre-stamped Half-hinge Adherent Cover comprising a thin, flexible material having an outer surface and an inner surface, said inner surface of said cover being coated with a pressure sensitive adherent,
said Pre-stamped Half-hinge Adherent Cover further comprising:

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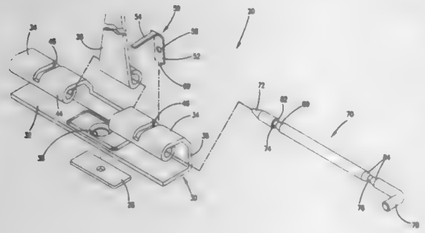
a main body to cover said outer surface of said half-hinge, said knuckles of said half-hinge, and said inner surface of said half-hinge, said inner surface of said main body having a less flexible non-adherent alignment guide for alignment of said Pre-stamped Half-hinge Adherent Cover on said outer surface of said half-hinge, said alignment guide being surrounded by a revealed perimeter of said pressure sensitive adherent.

two opposite tabs protruding from the top and bottom of said main body respectively, one of said tabs positioned to fold and cover said top edge of said top one of said knuckles and said top edge of said half-hinge protruding from said hinge recess and the opposite one of said tabs positioned to fold and cover said bottom edge of said bottom one of said knuckles and said bottom edge of said half-hinge protruding from said hinge recess.

5,722,121
ENCLOSURE HINGE

Robert Gerald Lau, Anoka, and Craig E. Schinzel, Ramsey, both of Minn., assignors to Federal-Hoffman, Inc., Anoka, Minn.

Filed Feb. 27, 1996, Ser. No. 607,699
Int. Cl.° E05D *5/12*
U.S. Cl. 16—381 **19 Claims**



1. A hinge apparatus, comprising:

a pin, including an annular groove formed therein;

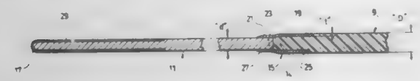
a hinge body, including a base portion and at least one knuckle, the knuckle defining a tubular opening formed therein configured for receiving the pin, the knuckle including an orifice formed in a side thereof, and a riser portion extending between the base and the knuckle, the riser portion including an alignment member extending outward;

a pin retaining member having a portion extending into the orifice in the side of the knuckle, the pin retaining member including a portion mounted to the base and aligned by the riser portion.

5,722,122
PINTLEPIN

André Corriveau, Rock Forest, Canada, assignor to Lippert Pintlepin Mfg Inc., Rock Forest, Canada

Filed Jul. 10, 1996, Ser. No. 677,968
Int. Cl.° E05D *5/10*
U.S. Cl. 16—386 **16 Claims**



1. In a pintlepin for use to connect together adjacent ends of segments of an endless belt of a given width, said adjacent ends having lops that are positioned in such a manner as to intermesh and form together a tubular opening of a given diameter extending over the full width of the belt, said pintlepin comprising:

a pintle consisting of at least one unshielded filament, said pintle having a front end and an outer diameter substantially identical to the diameter of the tubular opening formed by the intermeshed loops at the adjacent tends of the segments to be connected;

a leader made of a rigid or semi-rigid material, said leader having an outer diameter smaller than the outer diameter of the tubular opening and having a front end, defining a tip, and a rear end, said leader acting as a guide to facilitate insertion for the pintle through the tubular opening; and

a swager for connecting together the pintle and the lader, said swager consisting of a tubing having a front portion and a rear portion in which the rear end of the leader and the front end of the pintle are respectively swaged in coaxial and adjacent relationship;

the improvement wherein:

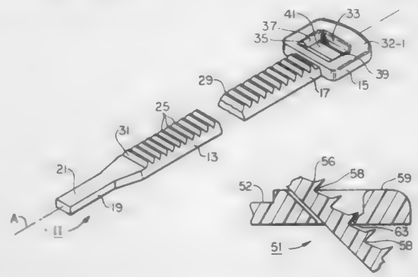
the front end of the unshielded pintle has a peripheral recess made therein; and

said peripheral recess is sized and shaped to allow the front end of the pintle to be flush with the rear portion of the swager and thus prevent said swager from having an outer diameter exceeding the outer diameter of the pintle.

5,722,123
CABLE TIE

Paul A. Davignon, Uxbridge, Mass.; Richard M. Bastien, Cumberland, R.I., and Francis L. Cormier, Jr., Dracut, Mass., assignors to Avery Dennison Corporation, Pasadena, Calif.

Filed Oct. 1, 1996, Ser. No. 723,605
Int. Cl.° B65D *63/00*
U.S. Cl. 24—16 PB **13 Claims**



1. A one piece cable tie for forming a plurality of objects such as cables into a bundle, said cable tie comprising:

(a). an elongated flexible strap having a top planar surface, a bottom planar surface, a first end and a second end, said strap having a plurality of raised cross-members spaced along its length, and

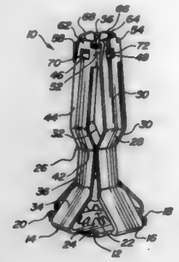
(b). a locking head integrally formed to the first end of said strap, said locking head having a top surface, a bottom surface and a strap accepting channel, the strap accepting channel being defined by a first sidewall, a second sidewall, an inner end wall and an outer end wall, the strap accepting channel extending through said locking head from the bottom surface of said locking head to the top surface of said locking head, one of said end walls being shaped to include a non-pivotable angled locking face which extends from the first sidewall to the second sidewall, the angled locking face being sized and shaped to engage one of said raised cross-members,

(c). whereby after the second end of said strap has been inserted through said strap accepting channel and drawn tight around a bundle and the insertion force is thereafter relaxed, the stored pressure of the bundle by virtue of its configuration pivots said strap causing one of the raised cross-members to abut against the angled locking face to lock the strap in place.

5,722,124
FASTENER CLIP ASSEMBLY

David M. Wisniewski, 7351 Metz, Shelby Township, Macomb County, Mich. 48316

Continuation-in-part of Ser. No. 677,093, Jul. 9, 1996. This application Jan. 21, 1997, Ser. No. 785,891
Int. Cl.° A44B *21/00*; **F16B** *19/00*
U.S. Cl. 24—295 **3 Claims**



1. A fastener clip assembly for attaching a first material to a second material in a secure and hidden fashion, said fastener clip assembly comprising:

a substantially planar and polygonally shaped base member and an aperture formed through said base member;

a first, a second, a third, and a fourth engaging member extending substantially upwardly from associated sides of said base member;

interengaging means for arranging each of said first, second, third and fourth engaging members in a resilient load bearing and outwardly biased fashion, said interengaging means further comprising each of said engaging members including an aperture portion located proximate an upper end thereof, a laterally projecting and angled tab portion extending from each of said engaging members in a direction towards a successive and associated engaging member, a further apertured portion being formed within a remote end of each of said angled tab portions which is positioned in alignment with said apertured portions located within said succeeding engaging members and in inwardly and downwardly curled engaging finger portion formed at an uppermost end of each of said engaging members, an outwardly facing seating portion being located at an end of each of said engaging finger portions and extending through said aligned apertured portions of said angled tab portion and associated engaging members so that, in combination, said engaging members are permitted a limited degree of movement relative to one another and are aligned and outwardly biased in response to being inwardly deflected; and

said base member for securing the first material through said aperture and said engaging members for providing outwardly biased and abutting securement of the second material.

5,722,125
SECURING DEVICE FOR GOLF CLUB HEAD COVERS

Peter Vasilopoulos, 11831 SE. Tiffany Way, Tequesta, Fla. 33469

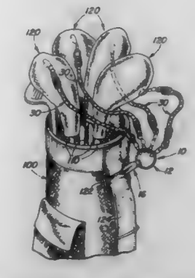
Filed Dec. 17, 1996, Ser. No. 768,785
Int. Cl.° A44B *21/00*; **A63B** *55/00*
U.S. Cl. 24—301 **18 Claims**

1. A device for use on a golf bag having a plurality of golf clubs therein and head covers on at least some of the golf clubs, said device comprising:

a base ring,

clip means fitted to said base ring for removably attaching the device to the golf bag,

a plurality of generally elongate cords each having a proximal end zone, a distal end zone, and a central zone extending between the proximal and distal end zones,



securing means on said proximal end zones of said cords for securing said cords to said base ring in movable relation thereon so that said securing means and said proximal end zones are able to travel about said base ring,

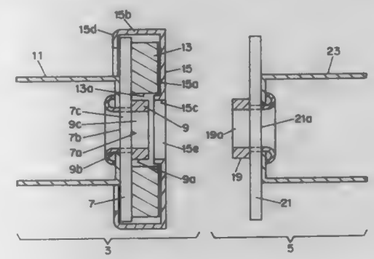
hook means on said distal end zones of said cords for removable attachment to individual respective ones of the head covers, and

wherein the head covers, when removed from the golf clubs, remain interconnected to said device and the golf bag so that they do not become separated therefrom.

5,722,126
MAGNETIC SNAP FASTENERS

Howard J. Reiter, Milford, Conn., assignor to Romag Fasteners Inc., Orange, Conn.

Filed May 22, 1996, Ser. No. 651,522
Int. Cl.° A44B *21/00*
U.S. Cl. 24—303 **3 Claims**



1. A magnetic snap fastener for releasably connecting a first surface and a second surface comprising:

(a) a female section, having

a first base washer defining a first hole substantially in the center of the first base washer;

a magnetic ring defining a second hole substantially in the center of the magnetic ring;

a non-magnetic cover defining a third hole substantially in the center of the cover and having a continuous peripheral flange, the cover being mounted to the first base washer by the continuous peripheral flange whereby the magnetic ring is held captively between the first base washer and the cover by the first base washer and the cover and whereby the first, second, and third holes are substantially axially aligned;

a first tubular stem with a fourth hole therethrough and substantially in the center thereof, the first tubular stem extending through the first and second holes, whereby the first, second, third, and fourth holes are substantially axially aligned; and

first attachment means affixed to the first base washer by the first tubular stem and adapted for attachment to the first surface;

(b) a male section, having

a second base washer defining a fifth hole substantially in the center of the second base washer;

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a second tubular stem with a sixth hole therethrough and substantially in the center thereof, the second tubular stem extending through the fifth hole, whereby the fifth and sixth holes are substantially axially aligned; and

second attachment means affixed to the second base washer by the second tubular stem and adapted for attachment to the second surface;

(c) whereby insertion of the second tubular stem into at least the second and third holes creates a magnetic force which releasably connects the female and male sections and hence the first and second surfaces attached to the first and second attachment means;

(d) wherein the first attachment means comprises a first pair of legs and the second attachment means comprises a second pair of legs;

(e) wherein the first pair of legs is mounted to the first base washer by the first tubular stem and the second pair of legs is mounted to the second base washer by the second tubular stem; and

(f) wherein the first pair of legs is rotatable with respect to the first base washer and second pair of legs is rotatable with respect to the second base washer.

5,722,127

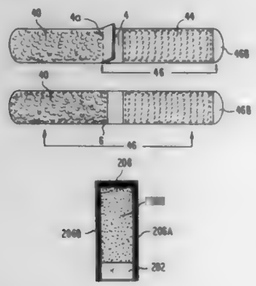
TAILORED AND PROTECTIVE UNDERGARMENTS

Fredrica Coates, Earlysville, Va., assignor to Tailored Technologies, Inc., Earlysville, Va.

Continuation of Ser. No. 303,043, Sep. 8, 1994, abandoned, which is a continuation-in-part of Ser. No. 207,485, Mar. 7, 1994, abandoned. This application Aug. 24, 1995, Ser. No. 518,940

Int. Cl.[6] A44B *1/04*

U.S. Cl. 24—304 **10 Claims**



9. A fastener tab, comprising:

a first strip having only one surface bearing filamentary fastener material and an opposite surface;

a second strip having only one surface bearing complementary filamentary fastener material and an opposite surface, and being of a length greater that the length of the first strip;

the first and second strips being joined, back to back, and with said opposite surfaces thereof facing each other, by an ovedock stitch line sealing opposite sides, and one end of the first and second strips;

the sealed end of said first and sec ond strips being aligned with each other, and a remaining end of said first and second strips being offset from each other.

5,722,128

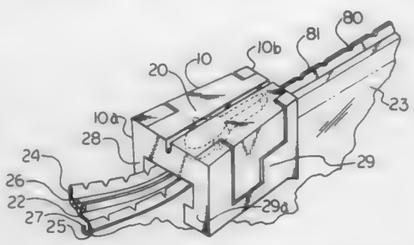
FASTENER ASSEMBLY WITH SLIDER PROVIDING TACTILE AND/OR AUDIBLE FEEDBACK

Kenneth A. Toney; Jose Porchia, both of Midland, and Brian C. Dais, Sanford, all of Mich., assignors to Dow Brands Inc., Indianapolis, Ind.

Filed Nov. 4, 1996, Ser. No. 740,801

Int. Cl.[6] A44B *1/04*

U.S. Cl. 24—400 **14 Claims**



1. A reclosable fastener assembly for closing and opening a thermoplastic bag, comprising:

a) a first profile having an inner surface, an outer surface, and a top edge, the first profile including at least one closure element positioned along the length of the inner surface;

b) a second profile having an inner surface, an outer surface and a top edge, the second profile including at least one closure element positioned along the length of the inner surface, the closure element of the second profile adapted to interlock with the closure element of the first profile, the inner surfaces of the first and second profiles being disposed between the outer surfaces of the first and second profiles;

c) a plurality of alternating deformed and undeformed segments disposed along the length of the outer surface of at least one of the profiles; and

d) a slider straddling the profiles adapted to interlock and disengage the closure elements as the slider is moved across the profiles;

wherein the alternating deformed and undeformed segments are adapted to provide a tactile sensation, an audible sensation, or a combination thereof as the slider moves across the profiles.

5,722,129

SEAT BELT BUCKLE

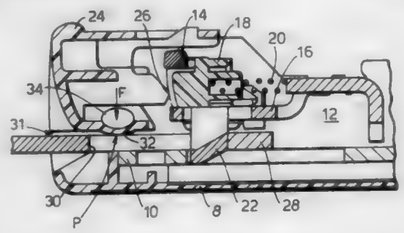
Mark John Harrison; Cecil Owens, and Michael John Jackson, all of Belfast, United Kingdom, assignors to European Components Co. Limited, United Kingdom

Continuation of Ser. No. 573,431, Dec. 15, 1995. This application Feb. 7, 1997, Ser. No. 796,604

Claims priority, application United Kingdom, Dec. 23, 1994, 9426119

Int. Cl.[6] A44B *11/00*

U.S. Cl. 24—642 **7 Claims**



1. A buckle for a seat belt of a motor vehicle, said buckle comprising a frame, a latch plate insertable in said frame, an aperture in said latch plate, a locking member engageable in said aperture in said latch plate, a release button for releasing said locking member and hence releasing said latch plate, said buckle having an elongate slot into which said latch plate is inserted, wherein at least one inner surface of said slot is defined by said frame, wherein at least one protrusion made of a resilient material is formed integrally with a portion of said release button extending parallel to said slot and forming an opposite surface thereof relative to said frame, and wherein said protrusion projects laterally into the slot, whereby said protrusion is deflected by said latch plate as it is inserted into the slot, and urges the latch plate resiliently against the frame of the buckle.

5,722,130

PRESS-BUTTON-LIKE FASTENING APPARATUS

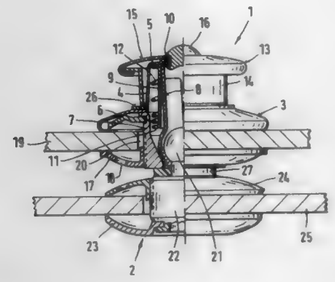
Hans-Joachim Baader, Wuppertal, Germany, assignor to Happich Fahrzeug-und Industrietelle GmbH, Wuppertal, Germany

Filed Mar. 14, 1996, Ser. No. 616,109

Claims priority, application Germany, Dec. 13, 1994, 44 44 333.1

Int. Cl.[6] A44B *17/00*

U.S. Cl. 24—662 **13 Claims**



13. A press-button like fastening apparatus comprising an upper part and a lower part:

the upper part comprises:

a hollow main part having a top and bottom ends; the top end having a first spring abutment surface;

gripping means disposed in main part, movable in the axial direction of the main part and compressible in the radial inward direction;

a button at the outside of the top end of the main part, the button engaging a top end of the gripping means and being movable in the axial direction of the main part, the button and main part defining a gap where a bottom end of the button is proximate to the main part;

a first sleeve extending around the gripping means and being connected thereto, the first sleeve having a distal second spring abutment surface;

a spring encircling the outside of the first sleeve with opposing ends of the spring engaging the first and second spring abutment surfaces, respectively, such that the spring presses the first sleeve and attached button to move inwardly in the axial direction of the main part;

a plate engaging the interior bottom end of the hollow main part;

a second annular sleeve having a top end engaging the plate and a bottom end extending below the main part and including an inward conical abutment surface positioned for engaging and urging the gripping means radially inward as the gripping means is moved in the axial direction toward the lower part;

a first washer that engages the bottom end of the second annular sleeve;

sealing means for sealing and protecting the upper part against penetration of humidity and dirt into the interior of the upper part by sealing the gap between the button and the main part; and

the lower part comprising an upstanding head part, a casing, a disc and a washer, the head part being attached to one end of the casing, the disc being attached to the opposite end of the casing and the second washer engaging the casing proximate to the head part;

wherein the head part extends toward the gripping means so that when the gripping means is moved by the force of the spring against the inward conical abutment surface, the gripping means is moved radially inward to grip the head part on the lower part of the fastening apparatus.

5,722,131

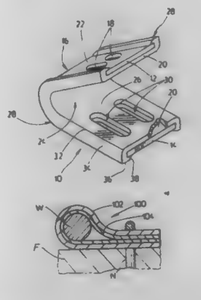
CLIP FOR FURNITURE SPRINGS, AND METHOD OF MANUFACTURE

Volkmar W. Leistner, Toronto, and Garry Randall Olson, Scarborough, both of Canada, assignors to Sigma Tool & Machine, Scarborough, Canada

Filed Jul. 25, 1995, Ser. No. 506,558

Int. Cl.[6] A47C *23/00*

U.S. Cl. 24—703.1 **11 Claims**



1. A furniture clip of the type used in association with furniture spring assemblies for furniture, having wire springs, and in which such furniture clips are used, for attaching such wire springs to said furniture said furniture clip comprising;

a sheet metal panel defining length and width, and formed transversely to define a wire receiving recess;

two sheet metal panel portions defined by said panel extending at an acute angle relative to one another on either side of said wire receiving recess, said sides of said panel portions adjacent said recess defining inner surfaces of said panel portions, and outer surfaces of said panel portions on the opposite sides thereof;

two pairs of openings of elongated shape formed through respective said sheet metal panel portions, said openings in each said pair being arranged parallel to one another and respective pairs registering with one another with said elongated openings in registration with one another;

a shield of flexible thermoplastic material extending over said inner surface portions of said two panel portions, and extending around said wire receiving recess;

two pairs of openings of elongated shape formed through said shield of thermoplastice material, said openings in each said pair being arranged parallel to one another and said openings in respective pairs registering with respective pairs of openings in respective said sheet metal panel portions;

edge portions of said thermoplastic shield extending along either edge thereof, and defining a width greater than the width of said panel portions, and,

retaining means retaining said thermoplastic shield in position on said sheet metal panel.

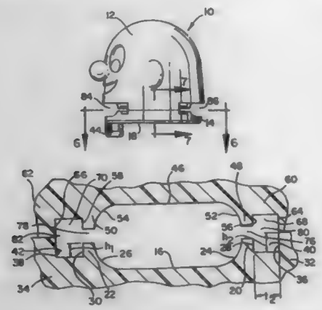
VOL 1208 ISS 1 MR 3 1998 UMI

5,722,132

LOCKING DEVICE FOR RECEIVING AND REMOVABLE, RETAINING THEREIN A STRETCHABLE LACE

David Jones, 6064 Vista Linda La., Boca Raton, Fla. 33433

Filed Jan. 28, 1997, Ser. No. 788,485
Int. Cl.[6] F16G *11/00*
U.S. Cl. 24—712.1 13 Claims



1. A locking device for receiving and removably retaining therein a stretchable lace, the device comprising:

a base member having generally parallel, flat first and second principal surfaces, the first surface including,

a pair of rib members extending outwardly therefrom by a first predetermined distance, the rib members being spaced from each other and each having a predetermined thickness, a predetermined maximum height, a first side wall sloping outwardly from the first surface and a second side wall extending generally perpendicularly outwardly from the first surface, the sloping side walls of the rib members generally facing each other, and

a pair of wall members extending outwardly therefrom by a second predetermined distance, the wall members each having a side wall extending generally perpendicularly outwardly from the first surface, the side walls of the wall members each being spaced from and facing the second side wall of one of the rib members to establish grooves therebetween, the thickness of the grooves being consistent and of a third predetermined distance along their lengths; and

a decorative cover member generally in the shape of and configured to simulate a three dimensional character, figure, design, or object, the cover member having a generally flat first surface, the first cover member surface including,

a pair of rib members extending outwardly therefrom by the first predetermined distance, the rib members being spaced from each other and each having a predetermined thickness, a predetermined maximum height, a first side wall sloping outwardly from the first cover member surface and a second side wall extending generally perpendicularly outwardly from the first cover member surface, the sloping side walls of the rib members generally facing each other, and

a pair of wall members extending outwardly therefrom by the second predetermined distance, the wall members each having a side wall extending generally perpendicularly outwardly from the first cover member surface, the side walls of the wall members each being spaced from and facing the second side wall of one of the rib members to establish grooves therebetween, the thickness of the grooves being consistent and of the third predetermined distance along their lengths,

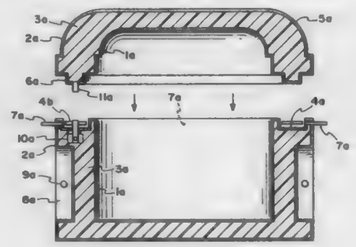
the base member being secured to the cover member with the respective first surfaces facing each other such that the rib members and grooves of the base member are aligned with the rib members and grooves of the cover member and the wall members of the base member engage the wall members of the cover member, the aligned rib members establishing sloped open areas of a size sufficient for passing portions of a stretched lace therethrough and the aligned grooves being of a size large enough for receiving the stretched lace portions passed through the open areas but small enough to grip and hold the received lace portions when in an unstretched condition.

5,722,133

COMBINATION BURIAL VAULT AND CASKET HAVING A SEALED INTERIOR

David W. Farris, 203 High Creek Dr., Roswell, Ga. 30076, and Jimmy D. Field, 1078 Dover Way, Norcross, Ga. 30093

Continuation-in-part of Ser. No. 327,674, Oct. 21, 1994, abandoned. This application Mar. 21, 1995, Ser. No. 407,891
Int. Cl.[6] A61G *17/00*
U.S. Cl. 27—17 15 Claims



1. A combination burial vault and casket, comprising:

a) a base, said base having a substantially vertical wall defining an interior;

b) a free edge extending around an upper portion of said wall;

c) a lid, said lid having a free surface configured for mating with said free edge;

d) said lid extending transversely to said wall when said free surface mates with said free edge; and

e) a substantially horizontally extending drive pin attaching said transversely extending lid to said substantially vertical wall without extending into said interior of said base;

f) said free edge of said wall and said free surface of said lid jointly define a tongue-and-groove connection.

5,722,134

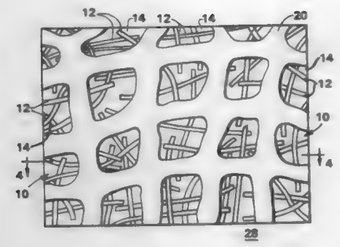
BATTERY ELECTRODE SUBSTRATES AND METHODS OF MAKING THE SAME

Robert J. Edgington, Granger; James A. Stepro, Mishawaka; Harold J. Wissell, Mishawaka, all of Ind., and Scott A. Lundberg, Niles, Mich., assignors to National-Standard Company, Niles, Mich.

Division of Ser. No. 318,489, Oct. 5, 1994, Pat. No. 5,589,301, which is a continuation of Ser. No. 979,830, Nov. 20, 1992, abandoned. This application Jun. 27, 1996, Ser. No. 671,534
Int. Cl.[6] H01M *4/74*
U.S. Cl. 29—2 16 Claims

1. A method of making a three-dimensional substrate material for use in constructing battery electrodes comprising the steps of:

providing a sintered matrix material selected from the group consisting of reticulated metal foams, conductive fibers and metal powder compacts, said matrix material having at least an upper surface and a lower surface, and



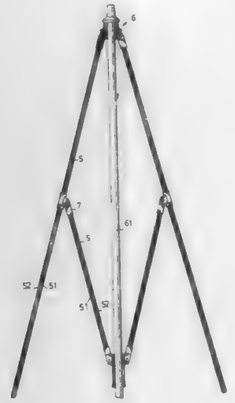
applying a porous covering layer to at least one surface of said sintered matrix material to retain said sintered matrix material substantially within the plane of said at least one surface of said matrix material, with said porous covering layer permitting chemical loading of active material through said layer and into said sintered matrix material.

5,722,135

UMBRELLA RIB FABRICATION METHOD

Fang I-Tsung, No. 176, Sec. 2, Chang Tsao Rd., Ho Mei Chen, Changhwa Hsien, Taiwan

Filed Jan. 14, 1997, Ser. No. 783,154
Int. Cl.[6] B23P *17/00*; B21F *41/00*; B29C *53/00*
U.S. Cl. 29—25 2 Claims



1. An umbrella rib fabrication method comprising the steps of:

(a) preparing a bamboo cane;

(b) cutting off nodes from said bamboo cane, so as to obtain a bamboo tube having a capillary therein;

(c) putting said bamboo tube in a cylindrical receptacle;

(d) pouring a resin compound into said receptacle;

(e) driving a plunger into said receptacle to compact said resin and to force said resin compound into said capillary of said bamboo tube, thereby obtaining a resin bonded bamboo tube; and

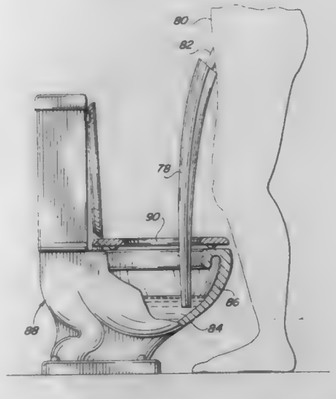
(f) cutting said resin bonded bamboo tube into finished pieces, said finished pieces respectively having a flat bamboo base with said resin compound bonded to said flat bamboo base.

5,722,136

PAPER ROLL DISPENSABLE MALE URINARY AID AND METHOD OF MAKING SAME

Viliam Jonec, 19015 Rosita St., Tarzana, Calif. 91356

Continuation-in-part of Ser. No. 216,906, Mar. 22, 1994. This application Nov. 23, 1994, Ser. No. 344,437
Int. Cl.[6] A47K *11/12*
U.S. Cl. 4—144.4 19 Claims



1. A disposable male urinary aid dispensable from a roll containing a plurality of the same thereon, comprising:

an extended segment of two-ply paper material made from first and second plies of paper material connected to each other, said two-ply paper material being wound onto an outer side of a cylindrical tube member;

first means for separating said extended segment of two-ply paper material into a plurality of first segments; and

second means which, together with said first means, separates said extended segment of two-ply paper material into a plurality of sheets, said first segments each comprising multi-sheet segments;

whereby each of said first segments of two-ply paper material defines a channel extending longitudinally therethrough between said first and second plies of paper material, said channel having an inlet end thereof and an outlet end thereof and comprising a passageway for liquid for passing liquid from said inlet end, through said channel, and out of said outlet end each of said first segments of two-ply paper material comprising a disposable male urinary aid, said inlet end of said channel being configured to receive the penis of a male user of said urinary aid therein.

5,722,137

METHOD FOR MAKING A HIGH DENSITY INTERCONNECT FOR AN ULTRASONIC PHASED ARRAY

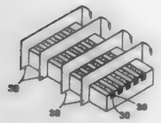
Peter William Lorraine, and Lowell Scott Smith, both of Niskayuna, N.Y., assignors to General Electric Company, Schenectady, N.Y.

Division of Ser. No. 398,336, Mar. 3, 1995, Pat. No. 5,559,388. This application Jun. 10, 1996, Ser. No. 660,825
Int. Cl.[6] H04R *17/00*
U.S. Cl. 29—25.35 9 Claims

1. A method for forming a high density interconnect for an ultrasonic phased array having an array of piezoelectric elements and a plurality of matching layers coupled to the piezoelectric elements at one end, the method comprising the steps of:

forming a plurality of grooves in a backfill material, each of the plurality of grooves separated a predetermined distance from each other and having a predetermined groove depth;

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depositing a conducting material in each of the plurality of grooves;

cutting the backfill material into a plurality of sections having different lengths;

reconsolidating said sections into an alternate orientation; and

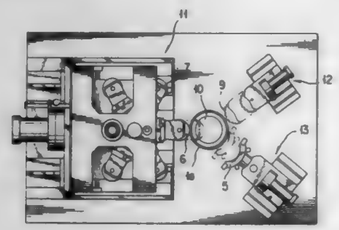
attaching the reconsolidated backfill material to the piezoelectric elements of the ultrasonic phased array at an end opposite of the plurality of matching layers.

5,722,138

APPARATUS FOR MANUFACTURING TOOTHED GEARS

Shigeaki Yamanaka, Hiroshima-ken, Japan, assignor to Kubota Iron Works Co., Ltd., Hiroshima, Japan

Division of Ser. No. 423,753, Apr. 18, 1995, Pat. No. 5,562,785. This application Jul. 16, 1996, Ser. No. 680,847
Claims priority, application Japan, Apr. 22, 1994, 6-084775
Int. Cl.[6] B23P *23/00*
U.S. Cl. 29—33 R **4 Claims**



1. An apparatus for manufacturing a toothed gear from a disc-shaped material, comprising:

a material support member for supporting the disc-shaped material;

a heating unit disposed around the material support member, said heating unit being supported by a support means to be capable of contacting and separating from the material support member;

a coarse working unit disposed around the material support member, said coarse working unit being supported by a support means to be capable of contacting and separating from the material support member, the support means for the coarse working unit comprising a plurality of supporting members capable of being selectively opposite to one another with respect to the material support member;

a finish working unit disposed around the material support member, said finish working unit being supported by a support means to be capable of contacting and separating from the material support member;

a swaging die mounted to the coarse working unit for swaging the disc-shaped material to provided a thickened portion to an outer peripheral portion thereof;

a first spinning die mounted to the coarse working unit for coarsely forming a toothed gear to the thickened outer peripheral portion of the material; and

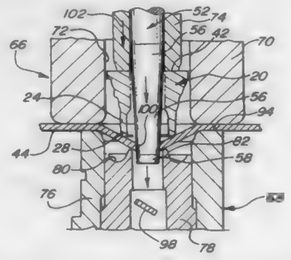
a second spinning die mounted to the finish working unit for finishing the toothed gear.

5,722,139

INSTALLATION APPARATUS FOR ATTACHING A FASTENER TO A PANEL

Harold A. Ladouceur, Livonia, Mich., and Rudolf R. M. Müller, Frankfurt, Germany, assignors to Multifastener Corporation, Detroit, Mich.

Division of Ser. No. 344,955, Nov. 25, 1994, Pat. No. 5,560,095, which is a continuation-in-part of Ser. No. 92,593, Jul. 16, 1993, abandoned, which is a division of Ser. No. 888,580, May 26, 1992, Pat. No. 5,237,733, which is a continuation-in-part of Ser. No. 806,172, Dec. 12, 1991, Pat. No. 5,146,672, which is a division of Ser. No. 457,060, Dec. 26, 1989, Pat. No. 5,072,518, which is a division of Ser. No. 271,123, Nov. 14, 1988, Pat. No. 4,893,394, which is a division of Ser. No. 111,966, Oct. 21, 1987, Pat. No. 4,831,698, which is a continuation-in-part of Ser. No. 69,804, Aug. 17, 1987, Pat. No. 4,810,143, which is a division of Ser. No. 869,507, Jun. 2, 1986, Pat. No. 5,700,470, which is a division of Ser. No. 657,570, Oct. 4, 1984, Pat. No. 4,610,072, which is a continuation-in-part of Ser. No. 563,833, Dec. 21, 1983, Pat. No. 4,555,838, which is a continuation-in-part of Ser. No. 504,074, Jun. 14, 1983, Pat. No. 4,543,701, and a continuation-in-part of Ser. No. 485,099, Mar. 28, 1983, Pat. No. 4,459,073, said Ser. No. 504,074 is a continuation of Ser. No. 229,274, Jan. 28, 1981, abandoned, said Ser. No. 485,099is a division of Ser. No. 229,274, Jan. 28, 1981, abandoned. This application May 11, 1995, Ser. No. 439,513
Int. Cl.[6] B23P *23/00*
U.S. Cl. 29—34 R **17 Claims**



1. An apparatus for attaching a female fastener element to a plastically deformable metal panel, said fastener element including a body portion having a central bore therethrough and an annular riveting portion integral with said body portion having an opening therethrough coaxially aligned with said body portion bore, and said riveting portion having a free annular end portion, said apparatus comprising:

a die member having a projecting central die post having a central bore, a concave annular die cavity generally surrounding said central die post and said die bore and a panel support surface generally surrounding said die cavity;

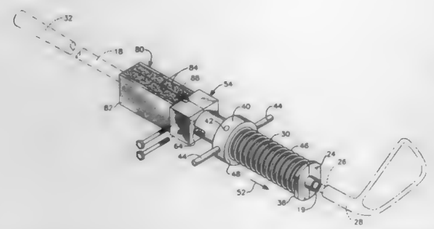
an installation head including a reciprocal punch coaxially aligned with said die bore, said punch including a free end having a diameter less than said die bore and a conical outer surface having a minor diameter adjacent said punch free end and a major diameter remote from said minor diameter, said installation head reciprocating said punch through said bore of said fastener element to pierce a slug from a panel supported on said die member support surface to form a panel opening, then driving said conical surface punch through said panel opening, said punch conical outer surface thereby enlarging said panel opening, said punch traveling from a first punch position to a second punch position, said installation head substantially simultaneously driving said free end of said fastener element riveting portion against said panel adjacent said panel hole to further enlarge said panel opening and deform a panel portion into said die cavity to form a mechanical interlock between said panel portion and said fastener element riveting portion, said major diameter of said punch conical surface being spaced from said projecting die post throughout the length of travel of said punch.

5,722,140

APPARATUS FOR PULLING GOLF CLUB SHAFTS FROM CLUB HEADS

Perry C. Marshall, 103 Granada Ct. North, Plant City, Fla. 33566

Continuation-in-part of Ser. No. 575,565, Dec. 20, 1995. This application May 20, 1996, Ser. No. 650,727
Int. Cl.[6] B23P *19/04*
U.S. Cl. 29—263 **10 Claims**



1. An apparatus that separates a hosel of the golf club shaft and a golf club head that are secured to one another by an adhesive, comprising:

a guide tube member having a diameter sufficient to axially receive therein the shaft and hand grip of a golf club;

a hosel push member positioned at a leading end of said guide tube member, said hosel push member having a leading end adapted to abuttingly engage an annular shoulder defined by a juncture of said shaft and said hosel, said hosel push member having a trailing end slideably received within said leading end of said guide tube member, said hosel push member having a radially outwardly extending flange positioned between the leading and trailing ends of said hosel push member, and said leading end of said guide tube disposed in abutting relation to a trailing side of said flange;

said guide tube having external threads formed substantially along its extent;

an internally threaded drive means push member disposed in screwthreaded engagement with said external threads of said guide tube so that said internally threaded drive means push member is displaced in a trailing-to-leading direction toward said hosel when rotated in a first direction and in a leading-to-trailing direction away from said hosel when rotated in a second direction;

a drive means disposed in ensleeving relation to said guide tube, said drive means having a leading end abutting said trailing side of said flange of said hosel push member and said drive means having a trailing end abutting a leading side of said drive means push member;

a primary stop member secured to said shaft in abutting relation to a trailing end of said guide tube, said primary stop member adapted to prevent rotation and leading-to-trailing displacement of said guide tube upon rotation of said drive means push member;

an auxiliary stop member positioned in abutting relation to a trailing end of said primary stop member, said auxiliary stop member including a pair of opposed, hard gripping surfaces adapted for engagement by a vice, a pair of opposed elastomeric pad members sandwiched between said gripping surfaces, and a pair of opposed grooves formed in said pad members, said opposed grooves being tapered to receive therebetween said golf club shaft;

whereby advancement of said internally threaded drive means push member in a trailing-to-leading direction applies pressure to said drive means in said trailing-to-leading direction and hence said hosel push member and said hosel in said trailing-to-leading direction so that said hosel separates from said shaft when said adhesive is thereafter weakened by application of heat to said hosel; and

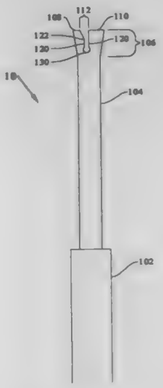
whereby a mounted vice grip holding said opposed surfaces of said auxiliary stop member inhibits slipping of said auxiliary stop member in a leading-to-trailing direction when said internally threaded drive means push member is rotated.

5,722,141

FASTENER RETAINER REMOVAL TOOL

Elliotte Strickland, San Diego, Calif., assignor to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

Filed Jul. 11, 1996, Ser. No. 679,688
Int. Cl.[6] B23P *19/04*
U.S. Cl. 29—267 **5 Claims**



1. A fastener retainer removal tool comprising:

a handle;

a shank coupled to said handle; and

a blade tip formed in a distal end of said shank wherein said blade tip comprises a single narrow portion and a single wide portion divided by a single slot having a single open end and an opposite single closed end for engaging a workpiece,

wherein said slot has a first portion wherein only two substantially parallel, straight sides extend substantially parallel to said shank along a distance from said closed end,

and wherein said slot has a second portion wherein a first of said sides tapers obliquely away from a second of said sides along a substantially straight line to form said narrow portion of said blade tip at said open end of said slot, and said second of said sides continues along a substantially straight line to form said wide portion of said blade tip at said open end of said slot.

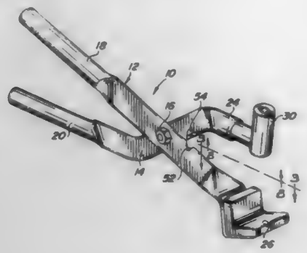
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5,722,142

INSTALLATION TOOL FOR IRRIGATION EMITTER BARBS

Michael R. Myers, 1400 Spice Sky Dr., Las Vegas, Nev. 89128

Filed Jan. 6, 1997, Ser. No. 779,305
Int. Cl.[6] B23P *19/02*
U.S. Cl. 29—268 9 Claims



1. A tool for installing irrigation barb emitters in irrigation tubing, the tool comprising:

a cradle member having a cradle handle and a cradle jaw on opposing ends thereof, and a barb holder member having a barb holder handle and a barb holder jaw on opposing ends thereof, the cradle member and the barb holder member being arranged in crossed relation and connected intermediate the opposing ends at a pivot such that the cradle handle opposes the barb holder handle and the cradle jaw opposes the barb holder jaw;

a cradle mounted at the end of the cradle jaw suitable for receiving a peripheral portion of an irrigation tubing; and

a barb holder mounted at the end of the barb holder jaw, the barb holder being a hollow cylinder having an axis aligned with the cradle when the cradle jaw and the barb holder jaw are brought together, the hollow cylinder comprising a lower cavity and an upper cavity concentrically oriented and cylindrically shaped with the upper cavity being of smaller diameter than lower cavity thereby forming a shoulder therebetween, the hollow cylinder releasably receiving a barb emitter, the shoulder within the hollow cylinder being suitable for acting against an annular disk shoulder on a barb emitter to force a piercing point on the barb emitter to penetrate a periphery of an irrigation tubing held within the cradle when the cradle jaw and the barb holder jaw are brought together.

5,722,143

SPINDLE CARRIER AND HOLDER

Brent L. Bucks, Valparaiso, Ind.; Graham R. Calvert, Leicestershire, England, and Paul E. Arrasmith, Valparaiso, Ind., assignors to Urschel Laboratories Incorporated, Valparaiso, Ind.

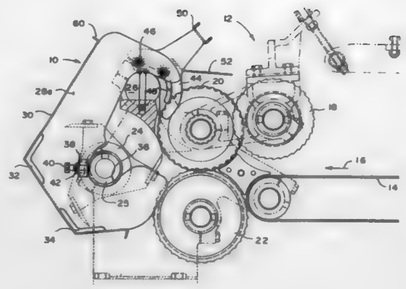
Filed Apr. 10, 1996, Ser. No. 630,762
Int. Cl.[6] B23Q *3/00*
U.S. Cl. 29—281.5 18 Claims

1. A carrier for carrying and holding a spindle of a machine, the carrier comprising:

a) a pair of laterally spaced apart end plates, each end plate having a recess configured to receive a portion of the spindle therein;

b) a carrying handle connected to and extending between the laterally spaced apart end plates; and,

c) at least one attachment member connected to at least one of the carrying handle and the pair of laterally spaced apart end plates to removably support the carrier and the spindle on the machine.

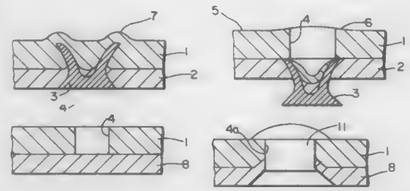


5,722,144

DEVICE AND PROCESS FOR REPAIRING AND CONNECTING VEHICLE BODY ELEMENTS OF A LIGHT ALLOY

Vlorel Bora, Untereisesheim, Germany, assignor to Audi AG, Ingolstadt, Germany

PCT No. PCT/EP94/01955, § 371 Date Dec. 4, 1995, § 102(e) Date Dec. 4, 1995, PCT Pub. No. WO95/00269, PCT Pub. Date Jan. 5, 1995
PCT Filed Jun. 16, 1994, Ser. No. 557,194
Claims priority, application Germany, Jun. 17, 1993, 43 20 [illegible]
Int. Cl.[6] B23P *6/00*
U.S. Cl. 29—402.05 11 Claims



1. A process for repairing vehicle bodies having first and second stacked elements which are connected to each other by rivets, comprising:

forcing out, from said first element only, at least one rivet connecting said first and second elements and removing said second element, with said at least one rivet attached, from said first element;

restoring a stamped area on said first element, which stamped area resulted from riveting of said first and second elements;

placing a third element in position to be connected to said first element;

in a single operation, punching a hole through said first and third elements and stamping a countersink in a top edge of said third element and forcing a portion of a bottom edge of said third element in the vicinity of said countersink into said first element; and

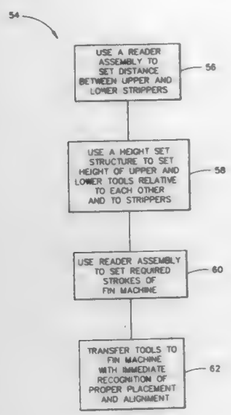
extending a rivet through said punched hole in said first and third elements to connect said third element to said first element.

5,722,145

QUICK CHANGE DEVICE FOR A ROBINSON FIN MACHINE

David L. Haushalter, Kenton; Mark F. Haushalter, Bellefontaine, and Philip D. Lowe, Kenton, all of Ohio, assignors to Robinson Fin Machines, Inc., Kenton, Ohio

Filed Jul. 16, 1996, Ser. No. 680,832
Int. Cl.[6] B23Q *17/00*
U.S. Cl. 29—404 14 Claims



12. A method for achieving proper placement and alignment of tools in a reciprocating press fin machine for continuously forming a metal sheet into sinuous or corrugated configuration associated with upper and lower opposed, metal-engaging tool, and further having upper and lower strippers for stripping material off the upper and lower tools when the fin machine is operating, the method comprising the steps of:

using a reader assembly to set a distance between the upper and lower strippers;

setting the upper stripper position relative to the lower stripper;

setting the lower tool height relative to the upper stripper position;

setting the upper tool height relative to the lower stripper position or to the lower tool height;

setting required strokes of the fin machine using the reader assembly;

transferring the set upper and lower tools to the fin machine.

5,722,146

METHOD OF ASSEMBLING A SUCTION ACCUMULATOR IN A RECEIVER FOR A HEAT EXCHANGER

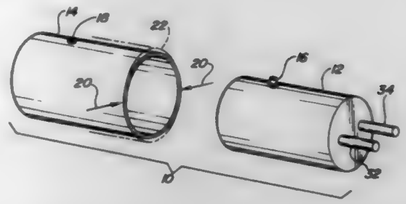
Adrian W. Seigle, and Edward W. Bottum, Jr., both of Brighton, Mich., assignors to Refrigeration Research, Inc., Brighton, Mich.

Filed Apr. 8, 1996, Ser. No. 628,084
Int. Cl.[6] B23P *11/02*
U.S. Cl. 29—446 13 Claims

1. A method of assembling a two-chamber assembly having a first chamber within a second chamber, comprising the steps of:

a. assembling a first chamber including providing a plug extending from an exterior surface on a side wall of the first chamber, the plug permitting fluid to be communicated from an interior of the first chamber, the plug extending radially away from the exterior surface on the first chamber;

b. radially deforming a second chamber from a normal cross-sectional shape, the second chamber having a radial opening defined through a side wall thereof;



c. inserting the first chamber into the deformed second chamber such that the plug is radially and axially aligned with the radial opening; and

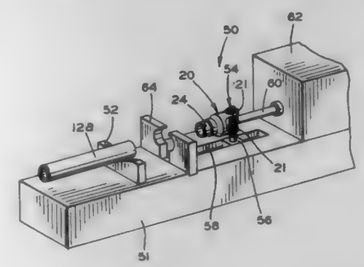
d. allowing the second chamber to return to the normal cross-sectional shape such that a portion of the plug is received through the radial opening to thereby permit fluid to be communicated from the interior of the first chamber and through the plug and to isolate an interior of the second chamber from the interior of the first chamber.

5,722,147

APPARATUS FOR PRESS FITTING AN END FITTING ONTO A HOLLOW TUBE

Earl Brazle, Whitleyville, Tenn., assignor to Dana Corporation, Toledo, Ohio

Filed Dec. 30, 1996, Ser. No. 774,394
Int. Cl.[6] B23Q *3/00*; B23P *19/02*; B25B *27/14*
U.S. Cl. 29—464 11 Claims



1. A method of mounting an end fitting onto an end of a hollow tube comprising the steps of:

(a) providing a support pin assembly including a pin having a slot formed therein and a tab within said slot for sliding movement between a first position, wherein a first width is defined for said support pin assembly, and a second position, wherein a second width is defined for said support pin assembly, said second width being less than said first width;

(b) providing an end fitting having an opening formed therethrough defining an inner surface having a width that is approximately equal to said first width of the support pin assembly;

(c) supporting the end fitting on the support pin assembly by inserting the pin through the opening and providing the tab in said first position such that the support pin assembly engages the inner surface of the end fitting;

(d) mounting the end fitting on the tube; and

(e) moving the end fitting and tube relative to the support pin assembly such that said tab is moved toward the second position to facilitate removal of the end fitting and tube from the support pin assembly.

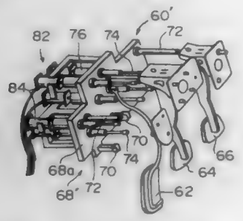
VOL 1208 ISS 1 MR 3 1998 UMI

5,722,148

APPARATUS AND METHOD FOR ASSEMBLING MOTOR VEHICLE

Koji Uemoto, and Tsuyoshi Ueda, both of Hiroshima-Ken, Japan, assignors to Mazda Motor Corporation, Hiroshima, Japan

Filed Mar. 28, 1995, Ser. No. 413,028
Claims priority, application Japan, Mar. 31, 1994, 6-062777
Int. Cl.[6] B23Q *3/00*
U.S. Cl. 29—468 15 Claims



1. An apparatus for assembling a plurality of components at once to a motor vehicle comprising:

supporting means for supporting the components at keeping locations which correspond to fastening positions on a vehicle body to which the components are to be fastened;

carrying means for carrying the supporting means so that the components reach the fastening positions on the vehicle body; and

transmitting means for transmitting fastening forces from an electric nut driver to the fastening positions, the transmitting means being supported by the supporting means, an input direction of the fastening forces being different from an output direction of the fastening forces;

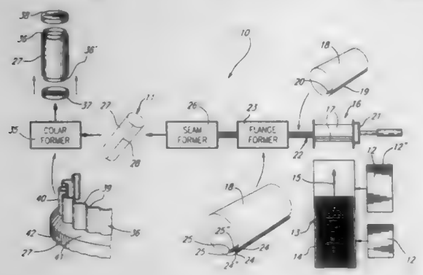
whereby the components are fastened, at the fastening positions, on the vehicle body.

5,722,149

METHOD AND APPARATUS FOR THE FABRICATION OF METAL CYLINDERS

Claude Lesage, Rte Claire, Canada, and Gerry O'Donnell, Canasioia, N.Y., assignors to Giant Factories Inc., Montreal, Canada

Filed Jan. 22, 1996, Ser. No. 589,592
Int. Cl.[6] B23P *11/00*
U.S. Cl. 29—505 17 Claims



1. An apparatus for fabricating a metal cylinder from a flat metal sheet, said apparatus comprising a loading station for feeding a flat metal sheet of predetermined size to a roll forming means to form a curved sheet defining an unconnected cylinder having opposed overlapping free side edges, displacement means to displace said unconnected cylinder, flange forming means to form an elongated inturned flange along an outer one of said overlapping free side edges and an outturned flange along an inner one of said overlapping free side edges, said flanges forming troughs with an adjacent side wall portion of said unconnected cylinder, said displacement means guidingly displacing said unconnected cylinder to a seam forming station where said flanges are displaced in meshing position by flange positioning means whereby each said flange enters the trough of the other flange, and securement means to connect said flanges in locking relationship to form an open-ended cylinder of predetermined diameter.

11. A method for fabricating a metal cylinder from a flat metal sheet comprising the steps of:

i) feeding a flat metal sheet of predetermined size to a roll forming means to form a curved sheet defining an unconnected cylinder having opposed overlapping free side edges,

ii) transferring said unconnected cylinder to a means for displacing said unconnected cylinder into a flange forming means,

iii) forming an elongated inturned flange along an outer one of said overlapping free side edges and an outturned flange along an inner one of said overlapping free side edges, said flanges forming troughs with an adjacent side wall portion of said unconnected cylinder,

iv) guidingly displacing said unconnected cylinder to a seam forming station where said flanges are displaced in meshing position by flange positioning means whereby each said flange enters the trough of the other flange, and

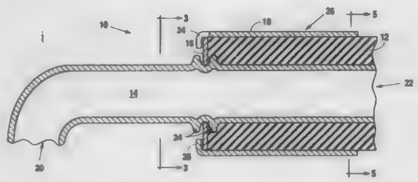
v) securing said flanges in locking relationship to form an open-ended cylinder of predetermined diameter.

5,722,150

METHOD OF FORMING ATTACHMENT OF A HOSE TO A FITTING

Ted A. Swanson, III, Austin, Tex., assignor to BLR Enterprises, San Marcos, Tex.

Filed Jan. 6, 1997, Ser. No. 778,611
Int. Cl.[6] B21D *39/00*
U.S. Cl. 29—508 2 Claims



1. A method for attaching a hose to a fitting having at least one radially outwardly extending annular wall intermediately disposed between a component attachment end and a hose attachment end of the fitting, comprising:

installing a collar, having a radially inwardly extending wall disposed at one end and a deformable sleeve portion having an inner diameter substantially equal to the outer diameter of said hose, on said fitting by inserting the collar over the hose attachment end of said fitting and moving the collar past the radially outwardly extending annular wall of the fitting to a position between the outwardly extending annular wall and the component attachment end of the fitting;

installing an expandable split ring having an inner diameter substantially equal to the outer diameter of the fitting, on said fixture at a position adjacent said outwardly extending annular wall of the fixture and between said installed collar and said outwardly extending annular wall;

inserting an open end of a hose over the hose attachment end of the fitting and moving said hose onto said fitting to a position at which the open end of the hose abuts the installed expandable split ring;

aligning said collar, ring and hose on the fitting by moving the collar toward the hose attachment end of fitting to a position at which the radially extending wall of the collar abuts the expandable split ring; and,

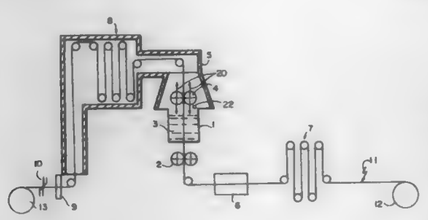
crimping the deformable sleeve portion of the collar in a press having a plurality of defined die members to form a plurality of radially inwardly extending grooves each extending inwardly a distance sufficient to compress a portion of said hose between the deformed sleeve and the outer diameter of the fitting.

5,722,151

PROCESS FOR MAKING SEMI-FINISHED PRODUCTS

Fritz P. Pleschiutschnigg; Lothar Parschat; Dieter Stalleicken, all of Duisburg; Tarek El Gammal, Aachen; Michael Vonderbank, Aachen; Peter Lorenz Hamacher, Aachen; Ingo von Hagen, Krefeld; Ulrich Menne, Hattingen, and Uwe Schmidt, Bochum, all of Germany, assignors to Mannesmann Aktiengesellschaft, Düsseldorf, Germany

PCT No. PCT/DE94/00656, § 371 Date Jan. 25, 1996, § 102(e) Date Jan. 25, 1996, PCT Pub. No. WO94/29048, PCT Pub. Date Dec. 22, 1994
PCT Filed Jun. 3, 1994, Ser. No. 557,135
Claims priority, application Germany, Jun. 8, 1993, 43 19 569.5
Int. Cl.[6] F16J *15/12*
U.S. Cl. 29—527.2 9 Claims



1. A process for making a semi-finished, thin metal bar having a thickness of less than 20 mm, comprising the steps of:

(a) feeding continuously and upwardly a metal profile through a pool of melt material of the same composition as that of the metal profile so that the metal profile is coated with an adherent layer of melt and crystalline structures;

(b) setting a rate of feeding such that the coated metal profile attains a thickness of at least three times a thickness of the metal profile;

(c) providing an inert atmosphere to a region where the coated metal profile exits the melt pool so as to prevent the coated metal profile from oxidizing; and

(d) reducing the thickness of the coated metal profile by subjecting the coated metal profile to a smoothing pass when the adherent layer thereon attains a mean temperature, T_{gl}, which satisfies the following equation:

$$T_{gl}=T_{sol}+a\times(T_{liq}-T_{sol})$$

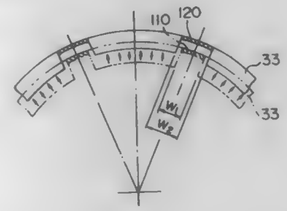
where a is a factor having a value of 0.1 to 0.8, T_{sol} is a solidus temperature of the melt material, and T_{liq} is a liquidus temperature of the melt material, so that the coated metal profile has a width-gauge ratio of 60 and a maximum variation in thickness of 2%.

5,722,152

METHOD OF ASSEMBLING A STATOR FOR AN ELECTRIC MOTOR

Masatomo Sumi, and Shigeo Inaki, both of Takefu, Japan, assignors to Matsushita Electric Industrial Co., Ltd., Osaka, Japan

Continuation of Ser. No. 148,556, Nov. 8, 1993, abandoned.
This application Jan. 31, 1996, Ser. No. 594,396
Claims priority, application Japan, Nov. 30, 1992, 4-319662
Int. Cl.[6] H02K *15/02*
U.S. Cl. 29—596 4 Claims



1. A method of assembling a stator for an electric motor, the method comprising the steps of:

forcibly enlarging outwardly, by means of a jig, a cylindrical yoke portion of a stator iron core which is to be formed by a pole portion having a plurality of radially salient projections, the projections having inner parts which are connected to form a ring, and the cylindrical yoke portion having a plurality of recesses and a plurality of bridge portions and being adapted to surround the pole portion; and

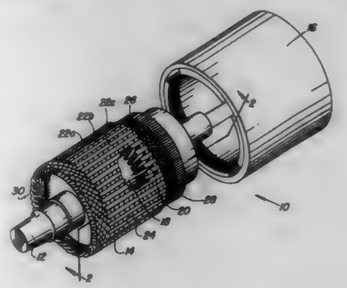
inserting the projections of the pole portions into the recesses of the enlarged yoke portion.

5,722,153

METHOD FOR FABRICATING A SPLIT-LOOP ARMATURE COIL FOR A MOTOR

Carl Alfred Holmes, Erie, and Hjalmar Albert Olson, North East, both of Pa., assignors to General Electric Company, Schenectady, N.Y.

Division of Ser. No. 232,563, Apr. 25, 1994, abandoned, which is a continuation-in-part of Ser. No. 126,811, Sep. 24, 1993, abandoned, which is a continuation of Ser. No. 751,043, Aug. 28, 1991, abandoned. This application Jul. 26, 1995, Ser. No. 507,768
Int. Cl.[6] H02K *15/02*
U.S. Cl. 29—598 6 Claims



1. A method for forming a polycoil including identical first and second sets of a plurality of individual conductors, the polycoil comprising a loop end portion and two middle portions each connected to the loop end portion for placement in two respective longitudinal slots of a magnetizable core member of a dynamoelectric machine, the method comprising the steps of:

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bending and twisting the first set of the plurality of individual conductors;

bending and twisting the second set of the plurality of individual conductors;

rotating one of the first and second sets approximately 180 degrees relative to the other set; and

positioning the first and second sets, with one rotated 180 degrees, substantially adjacent so as to form a gap between the first and second sets at the portions of the first and second sets which were bent and twisted to form the loop end portion of the polycoil and so as to situate the first and second sets substantially parallel without a gap between the first and second sets over the middle portions of the polycoil.

5,722,154

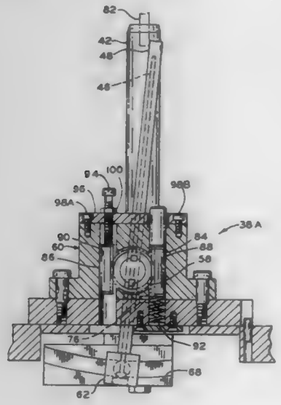
METHOD FOR SETTING SKEW ANGLE

Robert A. Dunlap, Fort Wayne, Ind., assignor to General Electric Company, Fort Wayne, Ind.

Division of Ser. No. 335,257, Nov. 7, 1994, Pat. No. 5,584,119. This application Sep. 23, 1996, Ser. No. 718,662

Int. Cl.[6] H02K *15/02*

U.S. Cl. 29—598 **3 Claims**



1. A method for setting the skew angle to be imparted to a stack of rotor laminations utilizing an apparatus having a mandrel and a skew pin rotatable relative to the mandrel, the mandrel and skew pin configured to have the rotor laminations stacked thereon, a setting arm secured to and controlling movement of the skew pin, the apparatus further including a stopping member for limiting rotation of the setting arm, a tool having skew pin angle indicating means comprising a plurality of indicators corresponding to respective skew angles, said method comprising the steps of:

setting the skew pin angle indicating means to a desired location along the length of the mandrel;

positioning the setting arm in a first position in registration with the desired skew pin angle indicator of the skew pin angle indicating means; and

setting the stopping member to prevent rotation of the setting arm, when moving in a direction from being substantially parallel with the mandrel to the first position, beyond the first position.

5,722,155

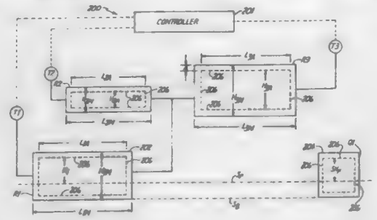
MACHINING GUIDE METHOD FOR MAGNETIC RECORDING REPRODUCE HEADS

Lance E. Stover, Eden Prairie; Beat G. Keel, Prior Lake, and Shanlin X. Hao, St. Paul, all of Minn., assignors to Seagate Technology, Inc., Scotts Valley, Calif.

Filed Apr. 10, 1996, Ser. No. 629,524

Int. Cl.[6] G11B *5/127;5/39;* **B24B** *49/02*

U.S. Cl. 29—603.1 **12 Claims**



1. A method of using an electrical lap guide (ELG) associated with a magnetic transducer prior to machining a front surface of the transducer to obtain a desired transducer height, the transducer and ELG being fabricated in a deposition of layers on a substrate, the ELG including a first resistor being aligned with the transducer such that a machined height of the first resistor is indicative of a machined height of the transducer, the ELG also including second and third resistors, the method comprising:

measuring resistances of the second and third resistors;

determining a sheet resistance of the deposition of layers as a function of the measured resistances of the second and third resistors;

determining a quantity of edge movement of edge surfaces of the transducer and of the first, second and third resistors as a function of the measured resistances of the second and third resistors, wherein the edge movement is caused by wafer processing;

calculating a predicted non-machined resistance of the first resistor as a function of the determined sheet resistance and as a function of the determined quantity of edge movement;

measuring a non-machined resistance of the first resistor; and

comparing the predicted non-machined resistance of the first resistor and the measured non-machined resistance of the first resistor to determine an amount of error.

5,722,156

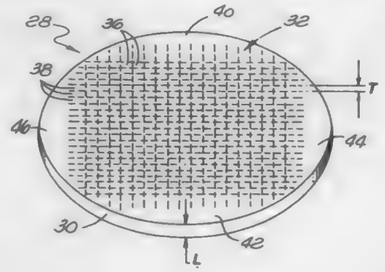
METHOD FOR PROCESSING CERAMIC WAFERS COMPRISING PLURAL MAGNETIC HEAD FORMING UNITS

Brian D. Balfrey, 601 Golden West Ave., and J. Charles Thompson, 716 Park Rd., both of Ojai, Calif. 93023

Filed May 22, 1995, Ser. No. 446,482

Int. Cl.[6] G11B *5/127*

U.S. Cl. 29—603.08 **28 Claims**



1. A method for processing a wafer comprising at least one strip containing a plurality of head forming units including respective transducers embedded in said wafer, comprising the steps of:

supporting the wafer to expose the head forming units of said strip for treatment;

removing material from the head forming units by contacting the respective head forming units with an abrasive held in a rigid matrix to form a throat height for said transducers and to form a leading edge ramp on the respective said head forming units by grinding; and

removing the strip of head forming units from the wafer as a bar for subsequent processing.

5,722,157

METHOD OF MAKING AN INDUCTION AND MAGNETORESISTANCE TYPE COMPOSITE MAGNETIC HEAD

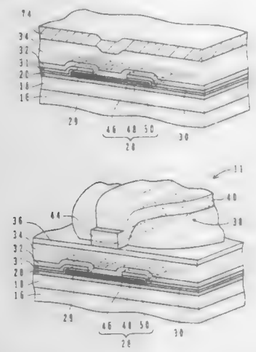
Shigeru Shouji, and Atsushi Toyoda, both of Hamamatsu, Japan, assignors to Yamaha Corporation, Japan

Filed Jun. 25, 1996, Ser. No. 673,667

Claims priority, application Japan, Jun. 28, 1995, 7-186320

Int. Cl.[6] G11B *5/127*

U.S. Cl. 29—603.14 **6 Claims**



1. A method of manufacturing an induction and magnetoresistance type composite magnetic head comprising the steps of:

(a) forming a magnetoresistive (MR) sensor film on a flat surface of a substrate having a slider surface generally perpendicular to the flat surface;

(b) forming a pair of conductive lead films on said magnetoresistive sensor film and said substrate to define a sensitive region of said magnetoresistive sensor film therebetween;

(c) forming a nonmagnetic insulating film and a first soft magnetic layer over said substrate, said nonmagnetic insulating film covering said lead films and said magnetoresistive sensor film, and said nonmagnetic insulating film and said first soft magnetic layer having non-planar upper surfaces due to topographical irregularities reflecting from said lead film, the magnetoresistive sensor film, the pair of conductive lead films, the nonmagnetic insulating film and the first soft magnetic layer collectively serving as an MR head portion;

(d) forming a sacrificial layer over the first soft magnetic layer;

(e) lapping surfaces of said nonmagnetic insulating layer, said first soft magnetic layer and the sacrificial layer in such a manner as to remove the sacrificial layer and to remove the irregularities on the surface of the first soft magnetic layer and provide a flat surface on said first soft magnetic layer;

(f) forming a gap layer on the flat surface of said first soft magnetic layer; and

(g) forming a coil structure and a second soft magnetic layer over the flat gap layer, at least a part of the gap layer between the first and second soft magnetic layers being flat, and the first and second soft magnetic layers, the gap layer and the coil structure collectively serving as an inductive head portion.

5,722,158

METHOD OF MANUFACTURE AND RESULTING THERMOELECTRIC MODULE

Robert E. Fritz, 2041 Vista Del Mar, San Mateo, Calif. 94404, and Joseph R. Monkowski, 1580 Lawrence Rd., Danville, Calif. 94506

Continuation of Ser. No. 476,998, Jun. 7, 1995, abandoned, which is a continuation-in-part of Ser. No. 395,258, Feb. 28, 1995, Pat. No. 5,515,238, which is a continuation of Ser. No. 141,454, Oct. 22, 1993, Pat. No. 5,434,744. This application Jan. 6, 1997, Ser. No. 778,948

Int. Cl.[6] H01R *43/00*

U.S. Cl. 29—825 **46 Claims**

1. A method of manufacturing an improved thermoelectric module, comprising

defining a first electrically conductive pattern on a first substrate;

defining a second electrically conductive pattern on a second substrate;

placing alternate and parallel bars of first thermoelectric material and second thermoelectric material in close proximity to each other;

connecting said bars to said first conductive pattern;

separating said bars into elements;

placing said second substrate over said elements;

connecting said elements to said second conductive pattern;

whereby an improved thermoelectric module with an increased number of elements is formed.

5,722,159

METHOD FOR RETENTION OF A FRAGILE CONDUCTIVE TRACE WITH A PROTECTIVE CLAMP

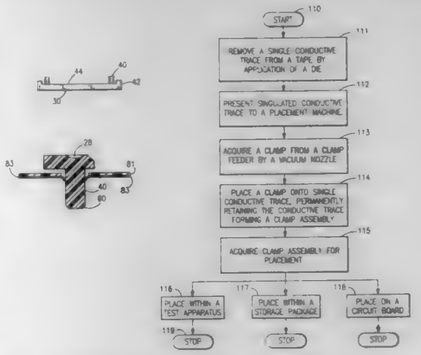
Christopher John Stratas, Vestal, N.Y., assignor to International Business Machines Corporation, Armonk, N.Y.

Division of Ser. No. 369,066, Jan. 5, 1995, Pat. No. 5,653,599. This application Apr. 29, 1996, Ser. No. 639,570

Claims priority, application Canada, Mar. 30, 1994, 2120280

Int. Cl.[6] H05K *3/30*

U.S. Cl. 29—832 **7 Claims**



1. A method of assembling a clamp to a conductive trace having an integrated circuit electrically coupled thereto, said method comprising the steps of:

acquiring a clamp from a clamp feeder, said clamp including an undersurface, a plurality of posts extending a first distance from said undersurface and a plurality of standoffs extending a second distance less than said first distance from said undersurface; and

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placing said clamp onto a conductive trace including a portion having an integrated circuit positioned thereon and a plastic layer and a conductive layer each including apertures therein such that the apertures of said plastic layer are of a larger diameter than said extending posts of said clamp and said apertures of said conductive layer are of a lesser diameter than said extending posts to retain said conductive trace and said integrated circuit within said clamp, said placing of said clamp including the step of extending said posts through said apertures of both said plastic layer and said conductive layer of said conductive trace and engaging said conductive trace with said standoffs such that said portion of said conductive trace having said integrated circuit positioned thereon is located adjacent said undersurface of said clamp at a distance less than said second distance of said extending plurality of standoffs to thereby protect said conductive trace and said integrated circuit positioned thereon.

5,722,160

PACKAGING METHOD OF BGA TYPE ELECTRONIC COMPONENT

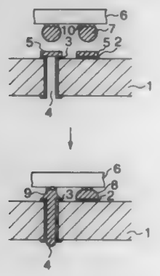
Yasuhiro Uemura, Hadano, and Masakazu Sakaue, Atsugi, both of Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Filed Oct. 25, 1995, Ser. No. 547,811

Claims priority, application Japan, Oct. 28, 1994, 6-265094

Int. Cl.[6] H05K *3/34*

U.S. Cl. 29—840 **18 Claims**



1. A packaging method of an electronic component for packaging said electronic component to a packaging substrate through solder bumps disposed on said electronic component, wherein through-holes are formed in pads of said packaging substrate corresponding to said solder bumps, and wherein a part of said solder bump molten at the time of reflow is caused to flow into said through-hole and the shape of said solder bump is formed into a cylindrical-post shape.

5,722,161

METHOD OF MAKING A PACKAGED SEMICONDUCTOR DIE INCLUDING HEAT SINK WITH LOCKING FEATURE

Robert C. Marrs, Scottsdale, Ariz., assignor to Amkor Electronics, Inc., Chandler, Ariz.

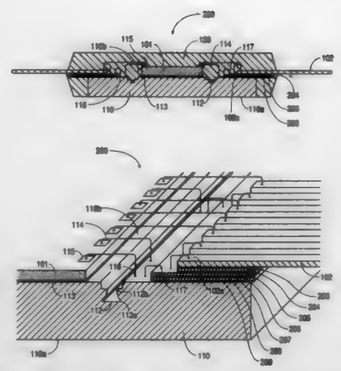
Division of Ser. No. 237,709, May 3, 1994, Pat. No. 5,701,034. This application May 1, 1996, Ser. No. 641,603

Int. Cl.[6] H05K *3/30*

U.S. Cl. 29—841 **21 Claims**

11. A method for forming a packaged semiconductor die, comprising the steps of:

providing a heat sink, a semiconductor die, and a plurality of electrically conductive package leads, the heat sink having a planar surface for mounting the semiconductor die and an inner portion of the package leads;



forming a locking region including at least one depression in a planar surface of the heat sink;

attaching a first surface of the die to the planar surface of the heat sink;

attaching an inner portion of each of the plurality of package leads to the planar surface of the heat sink such that a lead tip of each of the package leads is proximal to the die and the locking region is between the lead tips of the package leads and the die;

electrically connecting selected bond pads formed on a second surface of the die, the second surface being opposite to the die first surface, by wire bonds to the lead tips of corresponding package leads;

electrically connecting at least one other selected bond pad on the die to the heat sink planar surface by a wire bond at a location between the locking region and the lead tips of the package leads; and

encapsulating the die, bond wires, heat sink, and the inner portions of the package leads in encapsulant such that the encapsulant interlocks with the at least one depression to prevent the encapsulant from separating from the heat sink.

5,722,162

FABRICATION PROCEDURE FOR A STABLE POST

William T. Chou, Cupertino; Solomon I. Beilin, San Carlos; David A. Horine, Los Altos; David Kudzuma; Michael G. Lee, both of San Jose; Larry Louis Moresco, San Carlos, and Wen-chou Vincent Wang, Cupertino, all of Calif., assignors to Fujitsu Limited, Kanagawa, Japan

Filed Oct. 12, 1995, Ser. No. 541,219

Int. Cl.[6] H05K *3/10*

U.S. Cl. 29—852 **16 Claims**

1. A method of forming an aperture, which may be used to fabricate a post on a substrate, said method comprising the steps of:

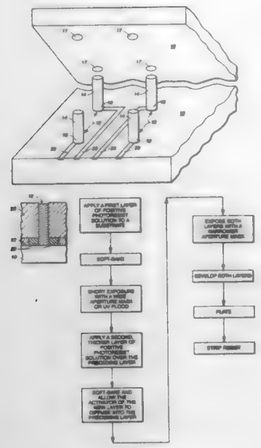
a) forming on said substrate a first layer of positive photoresist;

b) after step (a) has been performed, exposing a first portion of said first layer to an amount of actinic radiation which is insufficient to render the exposed first portion fully soluble in a developing solution;

c) after step (b) has been performed, applying a second layer of positive photoresist over said first layer, said second layer having a second portion which overlies said first portion of said first layer;

d) after step (c) has been performed, pattern exposing said second portion to an amount of actinic radiation which is sufficient to render said second portion soluble in a developing solution, said pattern exposing step further exposing a part of said first portion which is beneath said second portion to render it soluble in said developing solution; and

e) after step (d) have been performed, developing said first and second layers to remove photoresist material from said first



and second portions and to thereby form an aperture in said first and second layers.

5,722,163

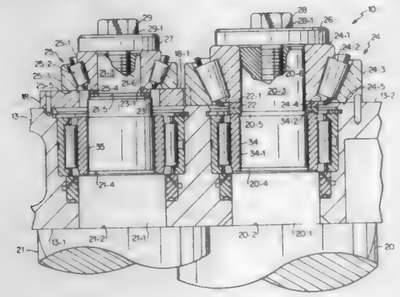
BEARING AND A METHOD FOR MOUNTING THEM IN SCREW COMPRESSOR

Stanley R. Grant, 3190 Reston Dr., Baldwinsville, N.Y. 13027, and Peter T. Schutte, 870 Westmoreland Ave., Syracuse, N.Y. 13210

Filed Oct. 4, 1994, Ser. No. 317,445

Int. Cl.[6] B23P *15/00*

U.S. Cl. 29—898.07 **8 Claims**



1. A method for mounting bearings in screw machines comprising the steps of:

selecting a pair of screw rotors having shaft portions extending axially therefrom;

setting the selected pair of rotors in a rotor housing;

securing an outlet casing to the rotor housing such that a shaft portion of each rotor extends beyond the outlet casing;

for each rotor performing the sequential steps of:

1) setting an arbitrary stack of shims surrounding the shaft portion;

2) placing a bearing on the shaft portion;

3) removably securing the bearing in place so as to engage the stack of shims and thereby axially locating the rotor;

4) measuring any axial gaps between the rotor and adjacent structure;

5) removing the bearing;

6) adding, removing or replacing one or more of the shims;

7) replacing the bearing;

8) determining if all axial gaps are acceptable; and

9) repeating steps 5–8 until all axial gaps are acceptable.

5,722,164

METHOD FOR MANUFACTURING GEARING COMPONENTS WITH SPECIAL GEARING, ESPECIALLY SYNCHROMESH GEARING

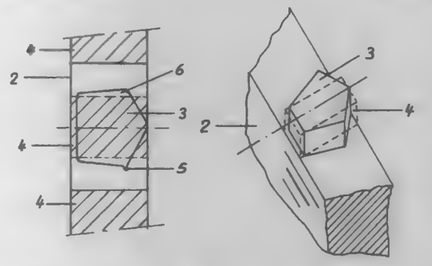
Alois Bernet, Jona, Switzerland, assignor to Feinstanz AG, Rapperswil, Switzerland

Filed Mar. 20, 1996, Ser. No. 618,555

Claims priority, application Switzerland, Apr. 10, 1995, 01027/95

Int. Cl.[6] B21D *53/28*

U.S. Cl. 29—893.33 **4 Claims**



1. A method of making a toothed gear comprising the steps of

(a) cutting, from a strip of material, a gear blank including circumferentially spaced, radially extending, substantially cuboid projections having a given ratio of tooth height to minimum tooth width; and

(b) forming the projections, by stamping, into roof-shaped, undercut teeth.

5,722,165

METHOD OF PRODUCING A CAST WHEEL

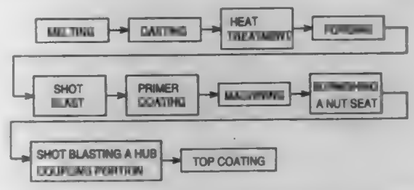
Shunji Kobayashi, Okazaki; Isao Tanaka, Yokohama; Saburo Maruyama, and Kishiro Abe, both of Ayase, all of Japan, assignors to Topy Kogyo Kabushiki Kaisha, Tokyo, Japan

Filed Oct. 25, 1996, Ser. No. 735,988

Claims priority, application Japan, Oct. 27, 1995, 7-280271

Int. Cl.[6] B21H *1/02*

U.S. Cl. 29—894.325 **7 Claims**



1. A method for producing a cast aluminum wheel for a vehicle comprising the steps of:

casting an aluminum wheel, said aluminum wheel including a hub coupling portion, a plurality of boltholes defined by said aluminum wheel, and a plurality of nut seats constructed and arranged such that each one of said plurality of boltholes has a nut seat formed therearound; and

applying at least three kinds of strengthening processes to said aluminum wheel to thereby increase the fatigue strength of said aluminum wheel, including forging said hub coupling portion of said aluminum wheel between adjacent boltholes,

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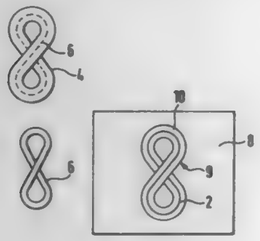
shot blasting a hub coupling surface of said hub coupling portion, and burnishing each said nut seat wheel.

5,722,166

PROCESS FOR MANUFACTURING A SHAPED PART CONSISTING OF DIFFERENT MATERIALS

Armin Voswinkel, Waldstrasse 2, D-86462, Langweid/Foret, Germany

Filed Aug. 14, 1995, Ser. No. 514,829
Claims priority, application Germany, Aug. 12, 1994, 44 28 562.0
Int. Cl.[6] B29C *33/40;37/02;* B21F *43/00*
U.S. Cl. 29—896.4 14 Claims



1. A process for manufacturing a shaped part including a support body and a cover covering at least a part of the support body, comprising the steps of:

forming a model version of the shaped part from shapeable material;

forming a cover mold from the model version of the shaped part;

forming a model of the support body using the model version of the shaped part by cutting the model version of the shaped part to the desired size; and

placing the model of the support body in the cover mold and filling the cover mold with a filling material.

5,722,167

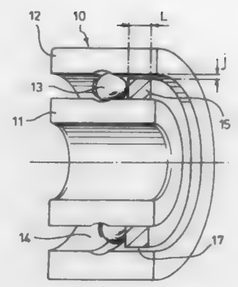
METHOD OF SETTING A DESIRED FLOW RATE THROUGH A BEARING

Lionel Duchamp, Annecy, and Patrick Lorriette, Jaux, both of France, assignors to AGCO, S.A., England

Continuation of Ser. No. 446,956, May 15, 1995, abandoned. This application Jan. 17, 1997, Ser. No. 785,483
Claims priority, application United Kingdom, May 17, 1994, 9409794
Int. Cl.[6] F16C *33/66*
U.S. Cl. 29—898.061 6 Claims

1. A method of setting a desired flow rate Q of a fluid of viscosity μ between two relatively rotating parts, the method comprising the steps of:

(a) fitting between the two parts a bearing comprising an inner race, an outer race, a plurality of rolling members interposed between said inner and outer races and a partial sealing member interposed between said inner and outer races and attached to either said inner race or said outer race adjacent to said plurality of rolling members, said partial sealing member



defining a substantially annular chamber having an outer diameter D, a length L, and a width J; and

(b) setting the diameter D, the length L and the width j of the substantially annular chamber according to the formula:

$$Q=\left(\frac{\Pi}{12}\right)\left(\frac{D^3\Delta P}{\mu L}\right)$$

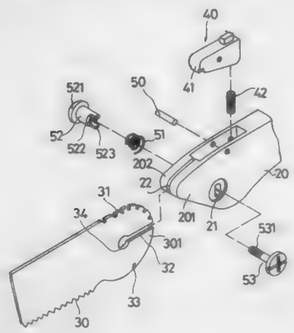
where ΔP is the pressure difference between the two sides of the said bearing.

5,722,168

SAW BLADE SECURING MECHANISM

Jung Hua Huang, No. 413, Section 1, Yuan Lu Road, Fu Hsing Hsiang, Chang Hua Hsien, Taiwan

Filed Jul. 29, 1996, Ser. No. 688,207
Int. Cl.[6] B26B *1/04*
U.S. Cl. 30—161 6 Claims



1. A saw comprising:

a handle including a first end having a slot formed therein and including an orifice formed therein and intersected with said slot,

a rod rotatably engaged in said orifice of said handle and including a first end having a head formed thereon for engaging with said first end of said handle and including a second end having at least one projection extended therefrom, said projection including a size smaller than that of said rod,

a saw blade including a first end having a groove formed therein for engaging with said projection when said projection is engaged in said slot, said groove including a root portion, said saw blade including an aperture formed in said root portion of said groove for engaging with said rod when said rod is aligned with said aperture, said aperture including a size greater than that of said groove so as to prevent said rod from disengaging from said saw blade when said rod is engaged in said aperture of said saw blade, and

means for securing said rod to said handle so as to retain said rod in said aperture of said saw blade and so as to allow said saw blade to be rotated relative to said rod,

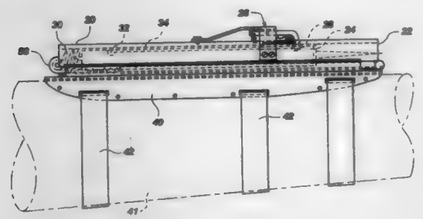
said first end of said saw blade including a peripheral portion having at least two notches formed therein, said handle further including a latch means provided therein for engaging with said notches so as to secure said saw blade relative to said handle and so as to allow said saw blade to be adjusted to different angular position relative to said handle.

5,722,169

POINTED WEAPON WITH A SPRINGING DEVICE

Birol Özden, Wormser Str. 51, D-50677 Cologne, Germany

PCT No. PCT/DE94/01078, § 371 Date May 15, 1996, § 102(e) Date May 15, 1996, PCT Pub. No. WO95/09341, PCT Pub. Date Apr. 6, 1995
PCT Filed Sep. 17, 1994, Ser. No. 619,533
Claims priority, application Germany, Sep. 27, 1993, 43 32 833.4
Int. Cl.[6] F41B *13/06*
U.S. Cl. 30—162 10 Claims



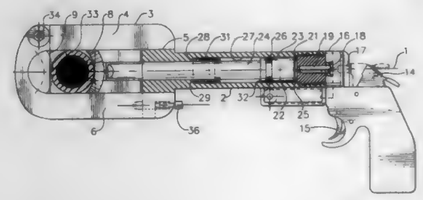
1. A pointed weapon with springing device, with which a pointed blade is slidably lead into a shaft and can be moved from a retractable home position into a projecting position, where a spring is arranged between the shaft and the blade, which prepressures the blade into the projecting position and where an engaging and disengaging stop work is planned at the shaft, which in the home position engages a catch recess provided in the blade and in the projecting position secures the blade against being pushed back into the shaft, characterized by the stop work comprising a release element made from flexible tensile material and comprising a loop for a finger and said weapon further comprises a supporting part and a strapping device, with which the pointed weapon can be put on and attached to a forearm of a human being.

5,722,170

CARTRIDGE ACTUATED CABLE CUTTER

Walter C. Smith, 2908 Oakwood La., Torrance, Calif. 90505

Filed Jun. 17, 1996, Ser. No. 665,229
Int. Cl.[6] B26D *15/00*
U.S. Cl. 30—228 4 Claims



1. An explosive cartridge actuated cable cutter device comprising:

(a) a housing having a longitudinal axis and an axially extending bore therein said bore having a circumferential step extending radially defining a reaction shoulder;

(b) a frame carried by said housing and extending axially;

(c) a reaction blade carried by said frame and extending laterally and across said longitudinal axis;

(d) a piston member comprising a piston head and a piston rod where said piston member is slideably mounted in said bore for axial displacement relative to said housing, said piston member further comprising a radially extending impact shoulder having a diameter greater than said piston rod;

(e) a cutting blade carried by said piston rod and extending laterally across said longitudinal axis where said cutting blade and said reaction blade are substantially parallel and laterally displaced;

(f) a cylinder head member removably mounted to said housing having an axially extending cartridge bore therein for receiving said explosive cartridge where said cartridge bore is in fluid communication with said piston head such that upon detonation of said explosive cartridge the explosive energy is transformed into kinetic energy of said piston member;

(g) a compressibly deformable attenuator sleeve mounted in slideable relationship with said piston rod and so adapted within said housing to permit compressive deformation of said attenuator sleeve between said impact shoulder and said reaction shoulder such that upon sufficient axial displacement of said impact shoulder the deformation of said attenuator sleeve will dissipate the kinetic energy of said piston member; and

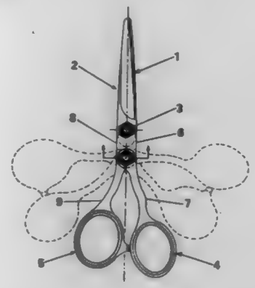
(h) firing means associated with said cylinder head for detonating said explosive cartridge, where said frame comprises a first section extending axially from said housing and a second section pivotally mounted to said first section.

5,722,171

SCISSORS, PARTICULARY HAIRDRESSER'S SCISSORS

Hardi Schmidt, Nummener Street 70, Solingen, Germany, 42653

PCT No. PCT/DE94/01247, § 371 Date May 2, 1996, § 102(e) Date May 2, 1996, PCT Pub. No. WO95/13168, PCT Pub. Date May 18, 1995
PCT Filed Oct. 22, 1994, Ser. No. 637,767
Claims priority, application Germany, Nov. 9, 1993, 43 38 235.5; Jul. 2, 1994, 44 23 320.5
Int. Cl.[6] B26B *13/12*
U.S. Cl. 30—255 13 Claims

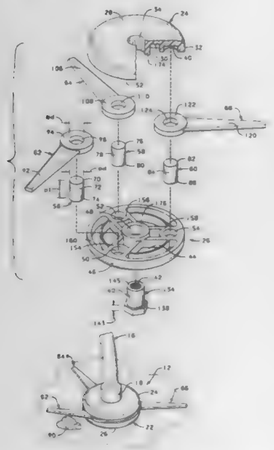


1. Scissors comprising two scissor blades (1, 2), means (3) for connecting said scissor blades (12) to each other in articulated fashion, two scissor handles (4, 5) each of which includes two handle sections (6, 7; 8, 9; 19, 20; 21, 22; 28, 29; 30, 31; 40, 41; 42, 43; 59, 60; 68, 69; 76, 77), a first handle section (6; 8; 19; 21, 28; 30; 40; 42; 59; 68; 76) being connected to its corresponding scissor blade (1; 2) and a second handle section (7; 9; 20; 22; 29; 31; 41; 43; 60; 69; 77) including a grip end of the scissor handle (4; 5), the two corresponding handle sections (6, 7; 8, 9; 19, 20; 21,

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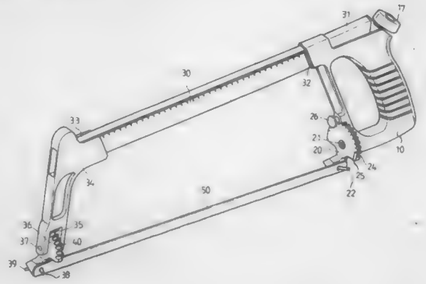
22; 28, 29; 30, 31; 40, 41; 42, 43; 59, 60; 68, 69; 76, 77) being connected to each other in articulated fashion for pivoting in the plane of the handle, means (15, 17, 18; 25, 26; 34, 39; 44, 52, 53; 44, 45, 49, 51; 65, 66; 70, 71, 72; 79, 80) for locking the two handle sections (6, 7; 8, 9; 19, 20; 21, 22; 28, 29; 30, 31; 40, 41; 42, 43; 59, 60; 68, 69; 76, 77) at various angles in relation to each other at the articulated joint of the handle sections (6, 7; 8, 9; 19, 20; 21, 22, 28, 29; 30, 31; 40, 41; 42, 43; 59, 60; 68, 69; 76, 77).

5,722,172
CUTTING ATTACHMENT FOR ROTARY CUTTING APPARATUS
Jack G. Walden, Wheatland, Okla., assignor to Lebever Co., Oklahoma City, Okla.
Filed Feb. 8, 1996, Ser. No. 598,755
Int. Cl.[6] A01D *55/00*
U.S. Cl. 30—347 **10 Claims**

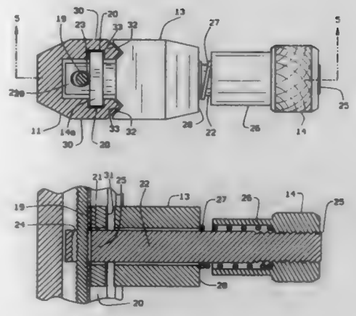


1. A cutting attachment for a rotary cutting apparatus comprising:
a rigid body comprising a first body member and a spatially disposed second body member, the first body member having a first side, a second side, and a centrally disposed opening extending therethrough, the second side of the first body member having a plurality of pin receiving holes formed therein an equi-distance apart, the second body member having a first side, a second side, and a centrally disposed opening extending therethrough, the second side of the second body member having a plurality of pin receiving holes formed therein an equi-distance apart such that each of the pin receiving holes in the second side of the second body member is alignable with one of the pin receiving holes in the second side of the first body member;
a plurality of pins for connecting the first and second body members and for maintaining at least a peripheral portion of the first and second body members in a spatially disposed relationship, each pin having a first end, a medial portion defining a bearing surface and a second end, each of the pins having a pin length (pl) and a diameter (pd) such that upon disposing the first end of each of the pins in one of the pin receiving holes in the second side of the first body member and disposing the second end of such pins in one of the pin receiving holes in the second side of the second body member the first and second body members are spatially disposed a predetermined distance (x) apart whereby the bearing surface of each of the pins is exposed in the space provided between the first and second body members of the rigid body;
a plurality of cutting members, each cutting member comprising a blade portion and a head portion having an aperture extending therethrough such that one of the pins is disposed through the aperture in the head portion of each of the cutting members for rotatably connecting one of the cutting members to each of the pin members and to the rigid body, the blade portion of each of the cutting members having a thickness (tb) less than the distance (x) between the first and second body member and the head portion of each of the cutting members having a thickness (th) less than the distance (x) between the first and second body member, the aperture in the head portion having a diameter (ad) greater than the diameter (pd) of the pin whereby each of the cutting members is permitted to rotate about and axially move along the bearing surface of the pin to which the cutting member is connected during operation of the rotary cutting device to effect cooling of the bearing surface of the pins and thereby substantially reduce enlargement of the apertures in the head portions of the cutting members due to rotational movement of the head portions of the cutting members about the bearing surfaces of the pins and axial movement of the head portions of the cutting members along the bearing surfaces of the pins;
pin guiding boss means disposed on the second side of the first and second body members for enhancing alignment of the pins with the pin receiving holes in the first and second body members and thereby insuring proper connection of the first and second body members via the pins; and
means for attaching the rigid body of the cutting attachment to the rotary cutting device.

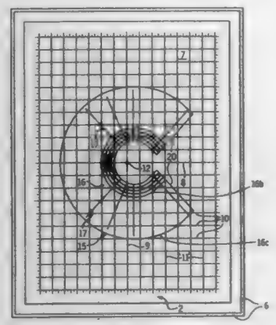
5,722,173
SAW BLADE ADJUSTING MECHANISM
Yin Han Huang, P.O. Box 63-99, Taichung, Taiwan
Filed Dec. 16, 1996, Ser. No. 767,418
Int. Cl.[6] B27B *21/02;21/06*
U.S. Cl. 30—510 **4 Claims**



1. A saw comprising:
a handle including an upper portion and a bottom portion, a channel formed in said upper portion of said handle,
a beam including a first end slidably engaged in said channel of said handle and including a second end,
a first rotary member pivotally secured to said bottom portion of said handle,
an arm secured to said second end of said beam, said arm including a bottom portion,
a second rotary member pivotally secured to said bottom portion of said arm,
a saw blade secured to said first rotary member and said second rotary member and rotated in concert with said first and said second rotary members,
means for securing said first rotary member to said handle,
means for positioning said second rotary member to said arm, and
means for moving said beam and said arm away from said handle for separating said second rotary member from said first rotary member and for retaining said saw blade in place, said moving means including an inclined bolt extended upward from said upper portion of said handle, a slide slidably engaged on said inclined bolt and having a protrusion engaged with said first end of said beam, and means for moving said slide along said inclined bolt and for moving said beam and said arm away from said handle.



5,722,174
DESIGN BOARD DEVICE FOR PREPARING OF PERSONAL GARMENTS, DECOR ITEMS AND THE LIKE
Jill A. Repp, Waukesha, Wis., assignor to June Tailor, Inc., Richfield, Wis.
Filed Jan. 19, 1996, Ser. No. 588,632
Int. Cl.[6] A41H *1/00;3/00*
U.S. Cl. 33—12 **15 Claims**

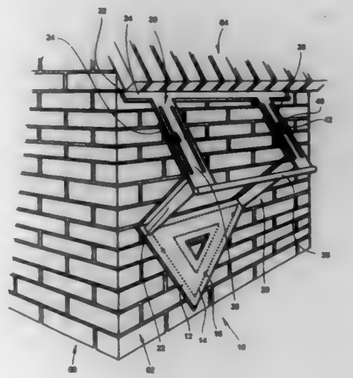


1. A design board device for layout of a Bishop collar neck edge or for a garment for general decor items, comprising:
a planar pattern board unit incorporating a structure for releasable attachment of a fabric member;
a plurality of neck patterns imprinted on said planar pattern board unit, each pattern being for a different size neck and each including a back neck opening and generally three sections between said opening, said three sections comprising a slightly flattened front neck section opposite said opening and generally round side sections extending from said front neck section and tangential sections extending from said generally round side sections to said opening.

5,722,175
SIGHT DEVICE ADJUSTMENT MOUNT
Scott O. Slates, Wentzville, Mo., assignor to Toxonics Manufacturing, Inc., Wentzville, Mo.
Filed Jul. 8, 1996, Ser. No. 629,999
Int. Cl.[6] F41G *1/467*
U.S. Cl. 033—265 **3 Claims**

1. A carrier for a bow sighting device comprising:
a) a hollow body having side walls spaced apart to define an elongated opening formed with guide tracks defining the opposite margins of said elongated opening and first grooves directed to extend along interiorly of said side walls;
b) bearing elements mounted in the opposite ends of said elongated openings in said hollow body;
c) a threaded shaft in said hollow body carried by said bearing elements to extend through said hollow body;
d) at least one rotating element on said hollow body proximate an end and connected to said shaft for rotating said threaded shaft;
e) a block having integral grooves in spaced relation to engage on said guide tracks for permitting said block to slide on said hollow body;
f) slide means in said hollow body engaged in said first grooves to be guided by said grooves during movement therein;
g) an actuator carried by said block and having one end engaged with said slide means and projecting into said hollow body and formed with an eye through which said threaded shaft extends, said eye being larger than said shaft and formed with thread elements to seat on said threaded shaft for moving said block along said guide tracks, said actuator having an opposite end projecting from said block;
h) a spring responsive element engaged on said opposite end of said actuator in position to releasably retain the thread elements of said eye of said actuator engaged with said threaded shaft to effect movement of said block upon shaft rotation, said spring responsive element being operable to release said eye engagement with said threaded shaft for movement of said block independently of shaft rotation; and
i) whereby upon release of the actuator multipoint contact is made between the various hollow body guide tracks, the block, the slide means within the hollow body first grooves, and the threaded shaft against the slide block and the actuator eye threaded element.

5,722,176
BRICK ALIGNMENT APPARATUS
Wayne Hinson, Rte. 1, Jefferson, S.C. 29718
Filed Apr. 30, 1996, Ser. No. 640,188
Int. Cl.[6] E04G *21/18*
U.S. Cl. 33—518 **12 Claims**



1. An apparatus for aligning bricks placed in a predetermined pattern during construction of a static structure, the bricks being

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placed in an angular relationship with upstanding walls of the static structure, said brick alignment apparatus comprising:

means for attaching said apparatus to a preexisting vertically oriented wall portion of the static structure, said attachment means being removably attachable to and extending in a generally parallel relationship with the wall portion;

means for supporting bricks oriented in a predetermined angular relationship with the wall portion, said brick support means including a brick support member and a brick support surface attached thereto, said brick support surface being disposed in an angular relationship with the wall portion and aligned for brick abutment thereagainst; and

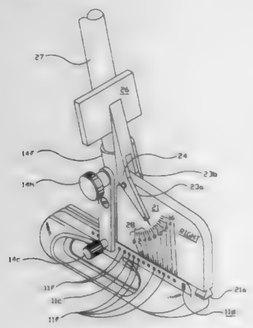
means for connecting said brick support means to said attachment means with said brick support means projecting a predetermined distance away from said attachment means in a predetermined angular relationship therewith, said connecting means including one generally elongate arm fixed to said attachment means at said predetermined angular relation therewith and projecting said predetermined distance outwardly therefrom; and a counting plate extending in a cantilevered manner from said connecting member for support of said brick support member thereon, with said brick support member being slidably mounted to said mounting plate and selectively positionable and fixable in a selected position.

5,722,177

GOLF CLUB PUTTER FITTING APPARATUS AND METHOD

Earl F. Reilly, III, 60-c Paradise Bay Rd., Port Ludlow, Wash. 98365

Filed Mar. 20, 1996, Ser. No. 619,855
Int. Cl.[6] A63B *53/02;53/00*
U.S. Cl. 33—508 **5 Claims**



1. A system for fitting golf club putters to individual golfers, comprising

a putter head having a horizontal axis;

a hosel member having a vertical axis and an upper end and a lower end, said lower end being attachable to said putter head on said horizontal axis thereof;

means for adjusting the location of attachment of said hosel member on said putter head horizontal axis;

a shaft member having a lower end and an upper end and an axis extending therebetween,

means for attaching said lower end of said shaft member to said upper end of said hosel member;

means for adjusting the angle between said axis of said shaft member and said vertical axis of said hosel member;

means for determining said adjusted angle between said axis of said shaft member and said vertical axis of said hosel member; and

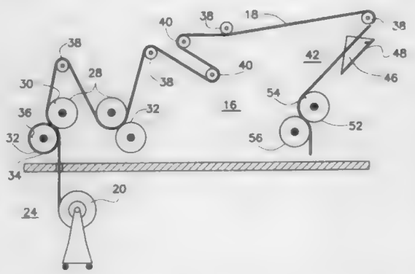
means for fixing the location on said putter head horizontal axis of the attachment of said hosel member to said putter head based on said determined adjusted angle.

5,722,178

METHOD FOR SETTING AND REGULATING THE POSITION OF WEBBING IN A PRINTING PRESS USING PREMARKED MAKEREADY TAPE

Harold T. Wells, 1233 Tipton Station Rd., Knoxville, Tenn. 37920

Division of Ser. No. 438,380, May 10, 1995. This application Sep. 25, 1996, Ser. No. 719,542
Int. Cl.[6] B41F *5/04*
U.S. Cl. 33—614 **7 Claims**



1. A method for setting and regulating the position of webbing on a continuous web printing press using a pre-marked makeready tape, the continuous web printing press having at least one printing unit, at least one compensator, and at least one folder, said at least one printing unit including an impression cylinder and a plate cylinder, said plate cylinder having a margin defined by the line of contact between the head and tail of a plate, said at least one folder including a folding cylinder and a cutting cylinder, said cutting cylinder having a cutter to cut off the webbing at the margin between printed pages, said method comprising the steps of:

(a) threading said pre-marked makeready tape through the continuous web printing press along a path defined by the continuous web, said pre-marked makeready tape comprising a length of material defining at least a first mark and a second mark spaced apart a distance equal to a whole multiple of the page length of printed matter;

(b) aligning said first mark with a first location on the continuous web printing press proximate to the path defined by the continuous web; and

(c) adjusting the compensator to align said second mark on the pre-marked makeready tape with a second location on the continuous web printing press proximate to a path defined by the continuous web, said compensator being disposed between said first and second locations on the continuous web printing press such that the distance between said first and second locations measured along the web is equal to a whole multiple of the page length of printed matter and that the distance between said margin and said cutter is equal to a whole multiple of the page length of printed matter.

5,722,179

DEVICE FOR MEASURING LENGTH

Adriano Zanier, Prilly, Switzerland, assignor to TESA SA, Renens, Switzerland

Filed Dec. 6, 1995, Ser. No. 568,201
Claims priority, application European Pat. Off., Dec. 29, 1994, 94810757
Int. Cl.[6] G01B *5/02*
U.S. Cl. 33—811 **28 Claims**

1. A device for measuring length comprising:

a beam having a first face and a second face, said beam being provided on said first face with a first longitudinal slideway and, on said second face opposite said first face, with a second longitudinal slideway,

a slider able to slide along said beam without direct contact, the position of said slider with respect to said beam permitting measurement of a length, said slider being provided with a first longitudinal groove,

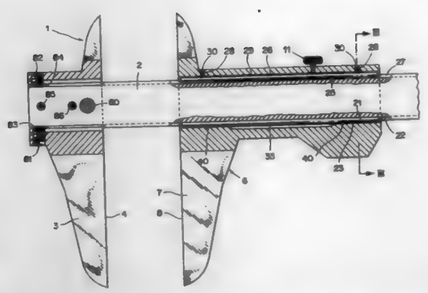
a first longitudinal guide shaft engaged in said first slideway and in said first groove,

said slider being provided with a second longitudinal groove, and a second longitudinal guide shaft, said second longitudinal guide shaft being located in said second slideway and in said second longitudinal groove, and

the surface of contact between said first slideway and said first guide shaft being less than an outer surface of a part of said first shaft located in said first slideway,

the contact surface between the second slideway and the second guide shaft being less than an outer surface of a part of the second shaft located in said second slideway,

at least one of said contact surfaces being reduced to one or more segments of a line.

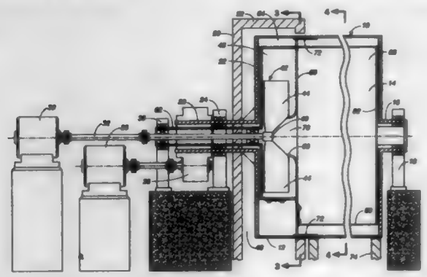


5,722,180

APPARATUS FOR DRYING A WET PAPER WEB

John R. Joiner, Vancouver, Wash., assignor to Fort James Corporation, Richmond, Va.

Filed Sep. 4, 1996, Ser. No. 707,798
Int. Cl.[6] F26B *11/02*
U.S. Cl. 34—115 **15 Claims**



1. Apparatus for drying a wet web, said apparatus comprising, in combination:

a through air dryer roll for supporting a wet web while said wet web is being dried, said through air dryer roll having a double-ended cylindrical through air dryer roll wall with openings therein and defining a through air dryer roll interior communicating with the exterior of said through air dryer roll through said openings;

through air dryer roll rotating means for rotating said through air dryer roll;

a rotatable fan member having fan blades located within said through air dryer roll interior accommodated by an end of said through air dryer roll;

fan member rotating means for rotating said fan member within said through air dryer roll interior during rotation of said through air dryer roll by said through air dryer roll rotating means; and

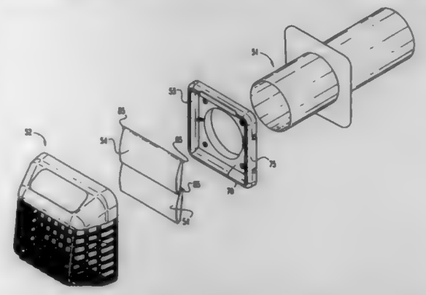
air flow passageway defining means defining an air flow passageway between said fan member and the exterior of said through air dryer roll, said fan member upon rotation thereof by said fan member rotating means causing air flow through a web on the through air dryer roll, through the openings of said through air dryer roll into the through air dryer roll interior, through the end of said through air dryer roll accommodating said fan member, and through said air flow passageway to the exterior of said through air dryer roll.

5,722,181

EXHAUST VENT WITH EXTERNAL GUARD

Stephen T. Meyer, Indianapolis, Ind., assignor to Deflecto Corporation, Indianapolis, Ind.

Filed Aug. 23, 1996, Ser. No. 697,444
Int. Cl.[6] F26B *19/00*
U.S. Cl. 34—235 **17 Claims**



1. An exhaust vent guard constructed and arranged to be mounted in a vertical orientation for protecting the exit area of an air vent conduit comprises:

an upper hood portion including a top wall, a pair of oppositely-disposed sidewalls, and a front wall, said top wall and the pair of side walls converging in the direction of said front wall, each of said hood portion walls being of a solid nature in order to provide a suitable barrier to moisture and debris; and

a lower cage portion including a bottom wall, a pair of oppositely-disposed sidewalls, and a front wall, each of said four cage portion walls being constructed and arranged with a plurality of openings for permitting the free flow of air through each of said four cage portion walls, the size of each opening of said plurality of openings being small enough to prevent the nesting of birds inside of said exhaust vent guard.

5,722,182

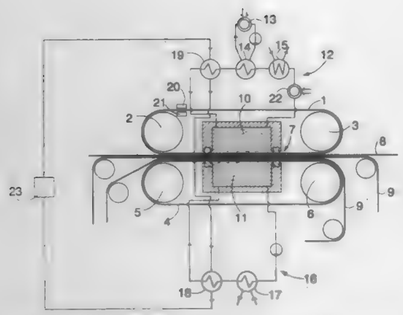
METHOD FOR DRYING A FIBRE WEB

Jukka Lehtinen, and Jarmo Puumalainen, both of Tampere, Finland, assignors to Valmet Corporation, Helsinki, Finland

Filed Jan. 15, 1997, Ser. No. 783,068
Claims priority, application Finland, Apr. 12, 1996, 961640
Int. Cl.[6] F26B *5/04*
U.S. Cl. 34—418 **12 Claims**

1. In a method for drying a fibre web, said method comprising passing a fibre web with at least one paper machine fabric between first and second bands which move in parallel along part of their length, said bands having a good thermal conductivity and being impermeable to air, such that the fibre web is in contact with the first band and the at least one paper machine fabric is in contact with the second band, whereby the bands form a drying zone between them when moving in parallel, the first band, which is in contact with the fibre web, being heated to a temperature for evaporating the water in the fibre web, and the second band, which is in contact with the at least one paper machine fabric, being cooled to a temperature lower than the temperature of the first band

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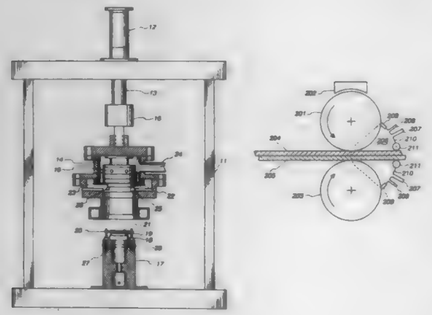
for condensing steam transferred from the fibre web to the at least one paper machine fabric, the improvement comprising heating the first band with heating water at a pressure, the heating water being at a temperature that does not exceed an evaporation temperature of the heating water at said pressure, said second band being cooled with cooling water that is at substantially the same pressure as the pressure of the heating water.

5,722,183

APPARATUS FOR DRYING A PAPER WEB AT ELEVATED AMBIENT PRESSURES

David I. Orloff; Timothy F. Patterson, both of Atlanta, Ga., and Andrew M. Krause, Monroe, La., assignors to Institute of Paper Science and Technology, Inc., Atlanta, Ga.

Division of Ser. No. 440,539, May 12, 1995, Pat. No. 5,598,642. This application Jun. 26, 1996, Ser. No. 674,594
Int. Cl.[6] F26B *21/06*
U.S. Cl. 34—558 4 Claims



1. Apparatus for drying a fiber web having a pair of opposed surfaces comprising, in combination:

a first roller having an outer heat transfer surface and means for heating the outer heat transfer surface above ambient temperature;

a second, unheated roller having an outer surface;

said first and said second rollers cooperating to form a nip therebetween, the first and the second rollers together comprising a pressing means for pressing said web;

a felt web passing through the nip in contact with the second roller for supporting said fiber web as it passes through the nip in contact with the first roller so as to be pressed by the first and the second rollers while being advanced in a downstream direction;

a gas pressure chamber downstream of said nip;

means for introducing pressurized gas into said pressure chamber with said pressure chamber confining the pressurized gas so as to apply a pressure to both surfaces of said fiber web as pressure on said fiber web from said first and said second rollers is released;

means for controlling gas pressure in said pressure chamber; and

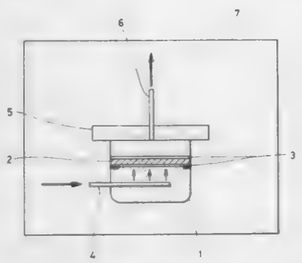
means for venting gas from said gas pressure chamber.

5,722,184

METHOD FOR FEEDING METALORGANIC GAS FROM SOLID RAW MATERIALS IN MOCVD AND ITS DEVICE

Atsushi Onoe; Kiyofumi Chikuma, and Hirofumi Kubota, all of Tsurugashima, Japan, assignors to Pioneer Electronic Corporation, Tokyo, Japan

Filed Mar. 27, 1996, Ser. No. 624,894
Claims priority, application Japan, Mar. 30, 1995, 7-097942
Int. Cl.[6] F26B *17/00*
U.S. Cl. 34—586 13 Claims



1. A method for feeding a metalorganic gas from a solid metalorganic material in a MOCVD apparatus comprising the steps of:

dissolving the solid metalorganic material in an organic solvent to form a solution;

adding an absorption reagent into the solution;

absorbing the solid metalorganic material into the absorption reagent consisting of porous grains;

disposing the absorption reagent in a high thermal atmosphere to sublimate the solid metalorganic material; and

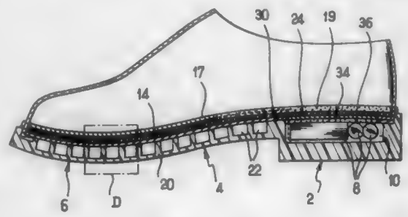
passing a carrier gas through the absorption reagent, thereby stably obtaining a mixture gas comprising the carrier gas and the sublimated metalorganic gas at a saturated vapor pressure.

5,722,185

HEATED SHOE WITH LONG HEATING TIME

Emilien Vigneron, 157 rue de la Roquette, 75011 Paris, France

Filed Mar. 27, 1996, Ser. No. 623,395
Claims priority, application France, Mar. 28, 1995, 95 03624
Int. Cl.[6] A43B *7/02;* H05B *3/34*
U.S. Cl. 36—2.6 5 Claims



1. A heated shoe comprising a heel, a sole provided with a heating device and having an outside face for making contact with the ground, and at least one energy-providing battery located in the heel and connected to the heating device, wherein:

the heating device comprises a heating fabric extending over at least a portion of the sole parallel to the outside face thereof, said heating fabric further including two electrodes which are connected by respective tinned copper braids to respective poles of said at least one energy-providing battery;

the sole includes (i) an additional thermal insulation layer comprising a metal sheet disposed on a non-woven layer, said insulation layer extending between the heating fabric and a sole support that extends as far as the heel and (ii) a cellular external structure extending between the sole support and the outside face of the sole, said cellular structure including cells having their tops closed by said sole support;

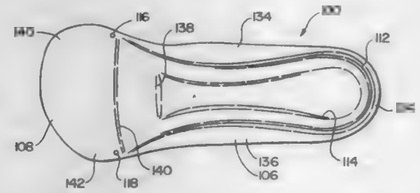
a reinforced housing is provided in the heel for receiving said at least one energy-providing battery, said housing having an opening that faces the sole, and the above sole support further presents a trap door to give access to a female power supply socket received in the heel to enable said at least one battery disposed in said housing to be recharged.

5,722,186

ORTHOTIC INSERT HAVING ADJUSTABLE ANGULAR ORIENTATION

Dennis N. Brown, Custer, Wash., assignor to Northwest Podiatric Laboratory, Inc., Blaine, Wash.

Continuation of Ser. No. 240,089, May 9, 1994, abandoned, which is a continuation of Ser. No. 93,133, Jul. 16, 1993, abandoned, which is a continuation of Ser. No. 836,180, Feb. 12, 1992, abandoned, which is a continuation of Ser. No. 482,025, Feb. 16, 1990, abandoned. This application Sep. 16, 1996, Ser. No. 714,525
Int. Cl.[6] A43B *13/38*
U.S. Cl. 36—43 27 Claims



1. An orthotic insert having a forward to rear lengthwise axis and adapted to be placed within a shoe, said orthotic insert comprising:

a substantially rigid base member having a rearwardly located heel portion forming a concave heel seat, and a longitudinally extending curved arch portion, said base member having upper and lower surfaces, said upper surface being generally contoured to fit a plantar surface of a person's foot; and

at least one U-shaped ridge formed on said lower surface of said base member and extending continuously around a rearward end of said heel portion and forwardly along both medial and lateral sides of said base member;

said rigid ridge projecting downwardly from said lower surface of said base member a sufficient distance to support said heel seat above an upper surface of an insole a shoe;

said ridge being formed of substantially rigid material so as to be able to support the weight of a person's foot without collapsing, said ridge also having a sharp, vertically-pointed lower edge which is defined by steep, downwardly-angled inner and outer wall portions for penetrating into an insole in response to the weight of a person's foot being applied to said upper surface of said base member, so that said ridge maintains said insert in a longitudinally fixed position and supports said base member so as to position the person's foot in a desired angular orientation;

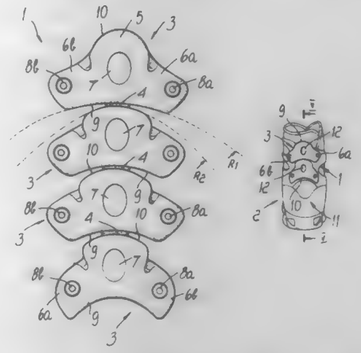
said lower edge of said ridge being configured to permit said angular orientation to be incrementally adjusted in medial, lateral, and rearward directions by incremental removal of material from corresponding portions of said lower edge of said ridge which extends around said rearward end of said heel portion and along said medial and lateral sides of said base member.

5,722,187

SUPPORTING DEVICE PARTICULARLY FOR SPORTS SHOES

Cecilia Pamio; Massimo Foffano, both of Treviso, and Bruno Borsoi, Vittorio Veneto, all of Italy, assignors to Nordica S.p.A., Trevignano, Italy

Filed Jan. 18, 1996, Ser. No. 588,177
Claims priority, application Italy, Jan. 31, 1995, TV95A0010
Int. Cl.[6] A43B *5/04*
U.S. Cl. 36—88 12 Claims



1. A supporting device in combination with a sports shoe, the supporting device comprising a plurality of elements axially and elastically connected to each other and longitudinally associated at a rear region of said shoe, said elements having mutually facing joining regions each having a curved shape and being mutually spaced apart such that a free rotation of one of said elements relative to another of said elements may occur upon a lateral oscillation applied to said shoe until an abutment between said mutually facing regions occurs for blocking said rotation, said elements being mutually axially and elastically connected by means of at least one adapted flexible bridge, and wherein each one of said elements comprises a body from which two first tabs protrude laterally, said tabs having tips and adapted first holes adjacent said tips that allow a coupling of said elements to said shoe.

5,722,188

SLUDGE DRYING BED SHOES

Ronald M. Ewing, 324 Washington St., Birdsboro, Pa. 19508

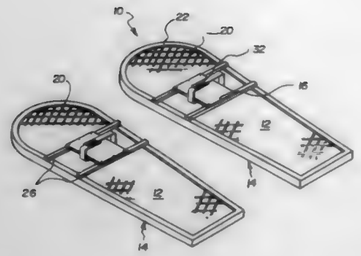
Filed Aug. 22, 1996, Ser. No. 701,638
Int. Cl.[6] A43B *5/04;5/16*
U.S. Cl. 36—116 1 Claim

1. New and improved sludge drying bed shoes adapted for use in association with sludge drying beds, each sludge drying bed being filled with sludge in a semi-solid state, the apparatus comprising, in combination:

two shoe bases each being formed in a plenary generally rectangular configuration with a rounded front end, a linear rear end, two long side edges and an outer perimeter, each base being fabricated of rigid aluminum mesh including a plurality of perpendicularly intersecting rods, the width of the front end being about 50% grater than the width of the rear end;

two frames each formed in a generally rectangular configuration with an upper surface, a lower surface, a hollow interior, a

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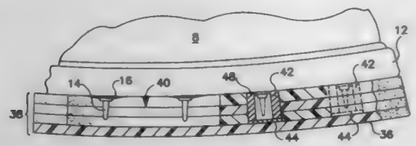
rounded front end, a linear rear end and two long side leges, the frame has a height of 26½ inches, a front width of 11½ inches and a rear width of 8 inches, the frames being coupled to the outer perimeter of each shoe base, each frame having a greater thickness than each base and including an upper surface, a central section and a lower surface, the central section of each frame having a recessed groove extending therearound, each base being affixed within a recessed groove;

four support bars, two support bars being positioned across the long side legs of each frame, the support bars being positioned upon the upper surface of the frame in a parallel spaced orientation between the mid-point and front end of the frame;

two shoe plates, each shoe plate being formed in a planar generally rectangular configuration with an upper surface and a lower surface, each shoe plate having a height of about 8 inches and a width of about 5 inches, the lower surface of each shoe plate is affixed across the approximate center point of the support bars of each frame by a bolt; and

two straps each having two free ends, each free end including hook and loop coupling means, one strap being coupled to the lower surface of each shoe plate, the free ends of each strap being extendable over the upper surface of each shoe plate to enable users to securely fasten the strap around their shoes, the apparatus enabling a user to walk upon the surface of sludge material.

5,722,189
ATHLETIC SHOE SOLE COVERING
Ron D. Johnson, 1851 Gibbs Shoals Rd., Greer, S.C. 29650
Filed Feb. 9, 1996, Ser. No. 599,069
Int. Cl.[6] A43B *5/00*
U.S. Cl. 36—135 **8 Claims**



1. A covering for a spiked athletic shoe, comprising:

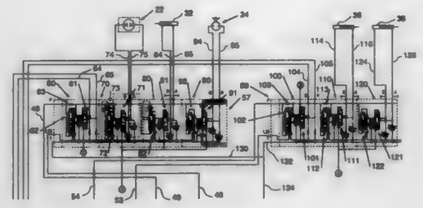
a flexible sole member of a given thickness with an upper surface and a bottom grip enhancing surface, said flexible sole member having a toe section, a heel section, and an intermediate section between said toe and heel sections;

a plurality of magnets disposed in said heel section and a plurality of magnets disposed in said toe section, said magnets defining openings so as to accommodate and attach to metallic spikes in toe and heel sections of a spiked athletic shoe, said magnets further comprising an upper magnetic face generally flush with said flexible sole member upper surface;

individual unconnected metallic backing plates attached to each of said magnets opposite said openings; and

at least one cut out section defined in said flexible sole member between said toe section and said heel, said cut out section having a depth so as to accommodate spikes of an athletic shoe and to provide said flexible sole member with a flexibility so as to conform with changing contours of a golf shoe when worn by a person.

5,722,190
PRIORITY BIASED LOAD SENSE HYDRAULIC SYSTEM FOR HYDRAULIC EXCAVATORS
John W. Arnold, New Philadelphia, Ohio, assignor to The Gradall Company, New Philadelphia, Ohio
Filed Mar. 15, 1996, Ser. No. 617,495
Int. Cl.[6] G05D *01/02*
U.S. Cl. 37—348 **11 Claims**



1. A hydraulic excavator, comprising:

a. a chassis operably supporting:

(1) first ground engaging means;

(2) first hydraulic drive means for driving said first ground engaging means;

(3) second ground engaging means;

(4) second hydraulic drive means for driving said second ground engaging means;

b. an upper structure pivotally supported on said chassis;

c. an engine mounted on said upper structure;

d. a boom movably mounted at one end on said upper structure, said boom having at least one additional movable section;

e. a material handling implement movably mounted on the other end of said boom;

f. means for pivoting said upper structure relative to said chassis;

g. means for moving said movable section;

h. means for raising and lowering said boom; and

i. a hydraulic circuit, comprising:

(1) a first hydraulic pump coupled to said engine;

(2) a first hydraulic valve in fluid communication with said first hydraulic pump and coupled to said first hydraulic drive means;

(3) a second hydraulic valve in fluid communication with said first hydraulic pump and coupled to said means for pivoting;

(4) a third hydraulic valve in fluid communication with said first hydraulic pump and coupled to said means for moving said movable section;

(5) first means for prioritizing flow of hydraulic fluid from said first pump between said first hydraulic drive means and said means for pivoting;

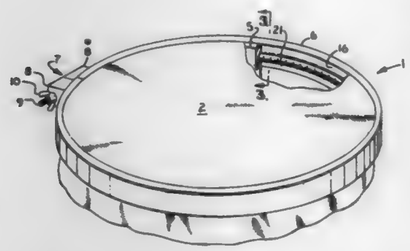
(6) second means for prioritizing flow of hydraulic fluid from said first pump between said means for pivoting and said means for moving said movable section;

(7) a fourth hydraulic valve in fluid communication with said second hydraulic pump and coupled to said second hydraulic drive means;

(8) a fifth hydraulic valve in fluid communication with said second hydraulic pump and coupled to said means for raising and lowering; and

(9) third means for prioritizing flow of hydraulic fluid from said second pump between said second hydraulic drive means and said means for raising and lowering.

5,722,191
CRAFT HOOP ASSEMBLY WITH GRIPPING SURFACE
Robert Elliott Morgan, 2255 NE. Porter Rd., Blue Springs, Mo. 64014
Continuation-in-part of Ser. No. 546,559, Oct. 20, 1995, Pat. No. 5,555,653, which is a continuation-in-part of Ser. No. 379,889, Jan. 27, 1995, abandoned. This application Jul. 11, 1996, Ser. No. 679,702
Int. Cl.[6] D06C *3/08*
U.S. Cl. 38—102.2 **15 Claims**



1. A craft hoop assembly for securing material on which a craft is to be performed comprising:

a. an inner ring having an outer surface;

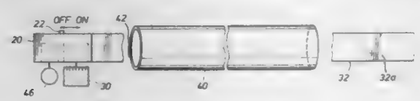
b. an outer ring having an inner surface and positionable in circumscribing alignment with said inner ring;

c. a first of said inner ring and said outer ring having a groove formed in said outer surface or said inner surface respectively and extending circumferentially therearound;

d. a second of said inner ring and said outer ring having a bead integrally formed on said outer surface or said inner surface respectively and extending at least partially therearound; said bead sized, shaped and positioned on said second ring such that said bead extends at least partially within said groove in said first ring when said outer ring is positioned in circumscribing alignment with said inner ring; and

e. a plurality of projections formed on said bead or along said groove or both.

5,722,192
MOVING DECORATIVE DISPLAY FOR ARTICLES OF CLOTHING
Sybil Salley, 30635 Lake Cir., Magnolia, Tex. 77355
Continuation-in-part of Ser. No. 558,952, Nov. 13, 1995. This application Nov. 28, 1995, Ser. No. 562,219
Int. Cl.[6] G09F *3/00*
U.S. Cl. 40—329 **16 Claims**



1. A visible, decorative, repetitive, body supported display attached to clothing and providing an illuminated image, the display comprising:

(a) a housing enclosing a memory wherein the memory stores a set of data for providing a visible image;

(b) a CPU provided with the set of data from the memory so the CPU provides signals forming a specified visible image:

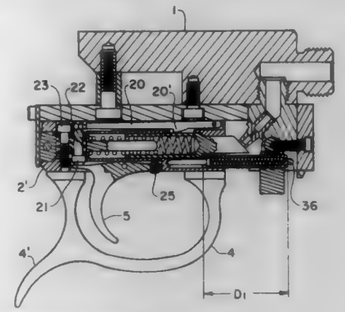
(c) an illuminated display having an illuminated and controlled operative state provided with the signals from the CPU wherein the display comprises an elongate display strip and the display extends substantially along said strip; and

(d) a connector for attaching said display to be worn encircling a person, wherein

(i) said display further includes a protective surrounding transparent bendable plastic tube about said display strip, and

(ii) said tube is sufficiently soft to be flattened into an oval shape when installed and said tube is provided with hook and loop material for attachment to a hat worn on said person.

5,722,193
FIRING MECHANISM FOR A MUZZLE-LOADED RIFLE
Thomas R. Post, 3865 Hershey Rd., Erie, Pa. 16506
Filed Nov. 25, 1996, Ser. No. 756,155
Int. Cl.[6] F41C *9/08*
U.S. Cl. 42—51 **19 Claims**



1. A muzzle-loading rifle comprising:

a) a barrel having an axial throughbore;

b) a breach plug connected to and providing closure for one end of said barrel, said breach plug having a recess which extends coaxially with the axial throughbore of said barrel;

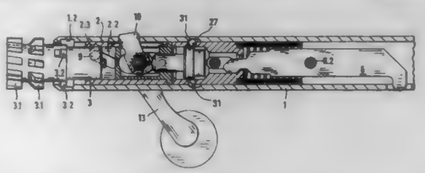
c) a primer chamber extending upwardly to intersect said recess;

d) a nipple for supporting a percussion cap ignitor, said nipple being surrounded on the top, back and both lateral sides by structure;

e) a striker for percussively engaging said percussion cap ignitor wherein i) said striker moves along a second axis positioned generally below a first axis which contains said barrel and ii) said nipple is angled to at least partially bridge the distance between said first and second axes;

whereby any exhaust from said percussion cap ignitor will project downwardly away from the face of the rifle's firer.

5,722,194
WEAPON BOLT
Franz Würger, Rottweil, and Klaus Münst, Epfendorf-Harthausen, both of Germany, assignors to Mauser-Werke Oberndorf Waffensysteme GmbH, Oberndorf, Germany
Filed Jan. 8, 1997, Ser. No. 781,535
Claims priority, application Germany, Jan. 9, 1996, 196 00 459.4
Int. Cl.[6] F41A *19/27*
U.S. Cl. 42—69.02 **12 Claims**



1. A weapon bolt assembly having a longitudinal axis of reciprocation, comprising

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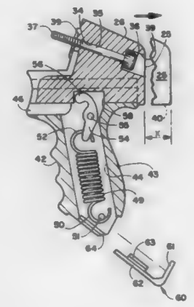
(a) a chamber sleeve securable to the breech end of a weapon barrel;
(b) a locking piece securable to the breech end of the weapon barrel;
(c) a control sleeve axially slidably received in said chamber sleeve for travel in forward and rearward directions; said control sleeve having a cam track oriented obliquely to said longitudinal axis;
(d) an axle supported in said control sleeve in an orientation transverse to said longitudinal axis;
(e) a manually operable bolt handle mounted on said axle for a rotary motion thereabout; said control sleeve being axially movable by said bolt handle;
(f) a disengagement lever mounted on said axle and being affixed to said bolt handle for executing pivotal motions therewith; said disengagement lever having an actuating face;
(g) an intermediate piece received in said control sleeve for axial slidable motions relative thereto; said intermediate piece having frontal and rearward ends and an axial slot through which said axle passes;
(h) a firing spring received in said chamber sleeve;
(i) a striker received in said chamber sleeve for axial slidable motions relative thereto; said striker having a frontal end adjoining said rearward end of said intermediate piece to cooperate therewith and a rearward end engaging said firing spring for being urged forwardly by said firing spring; said striker having a forward position and a rearward, arming position in which the firing spring is compressed by said striker;
(j) a trigger;
(k) a sear movably supported in said chamber sleeve and having a holding position in which said sear retains said striker in said arming position and a releasing position in which said sear allows said striker to move forwardly urged by said firing spring;
(l) an arming member situated within said chamber sleeve for axial slidable motions relative thereto; said arming member cooperating with said frontal end of said striker and said actuating face of said disengagement lever for being axially moved rearwardly for placing said striker into said arming position;
(m) first locking means movable in a locking state by said arming member for locking said striker to said chamber sleeve in said arming position of said striker; said first locking means being movable in an unlocking state;
(n) a bolt head received in said control sleeve for axial forward and rearward movements relative thereto; said bolt head being rotatable about said axis;
(o) a control pin held in said bolt head in a substantially radial orientation; said control pin extending into said cam track provided in said control sleeve for imparting a rotary motion of said bolt head about said axis upon axial movement of said control sleeve;
(p) second locking means carried by said bolt head and cooperating with said locking piece for locking said bolt head to and unlocking said bolt head from said locking piece upon rotation of said bolt head; and
(q) a firing pin received in said bolt head for axial sliding motions relative thereto; said firing pin being engageable by said intermediate piece; said control sleeve, said intermediate piece, said striker, said arming member and said first locking means being axially rearwardly movable by said bolt handle upon exerting a rearwardly directed manual force thereto.

5,722,195

PISTOL GRIP RECOIL SYSTEM FOR THE RECEIVER OF A FIREARM

James K. Bentley, 2489 Starling Dr., Paso Robles, Calif. 93446, and Willard H. Crawford, 1836 Orange St., Bakersfield, Calif. 93004

Filed Mar. 10, 1997, Ser. No. 814,063
Int. Cl.[6] F41C *23/00*
U.S. Cl. 42—74 **8 Claims**



1. A pistol grip recoil system for a receiver of a firearm comprising:
a pistol grip recoil assembly having a recoil base member and a pistol grip;
said recoil base member having a front wall, a top wall, a bottom wall, a rear wall, and laterally spaced left and right side walls;
said pistol grip having a front wall, a rear wall, laterally spaced left and right side walls, a top end and a bottom end;
means for detachably securing the front wall of said recoil base member to the rear end of the receiver of a firearm so that the recoil of said receiver when the firearm is fired is transmitted to said recoil base member;
track means interlocking the bottom wall of said recoil base member to the top end of said pistol grip so that said recoil base member can travel axially rearward with respect to said pistol grip from its static position when the firearm is fired; and
means for axially returning said recoil base member forwardly to its static position after dissipating the recoil of the firearm resulting from its being shot.

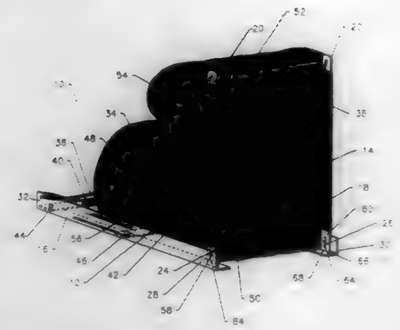
5,722,196

AQUATIC SEINE DEVICE

Robert E. Flynn, Twin Bridges, Mont., assignor to Manufacturing Technologies, Inc., Sheridan, Mont.

Filed Oct. 3, 1995, Ser. No. 538,240
Int. Cl.[6] A01K *73/12*
U.S. Cl. 43—14 **2 Claims**

1. A portable aquatic seine device comprising:
a plurality of two parallel L-shaped horizontal members;
a plurality of two parallel vertical members, said plurality of two parallel vertical members being pivotally and slidably attached to said plurality of two parallel L-shaped horizontal members;
a plurality of two support cross members, said plurality of two support cross members being pivotally attached one each to one each of said plurality of two parallel L-shaped horizontal members and releasably attachable to the other of said plurality of two parallel L-shaped horizontal members;
said plurality of two support cross members having a plurality of two first ends and a plurality of two second ends, with each of said plurality of two support cross members having a first end and a second end;



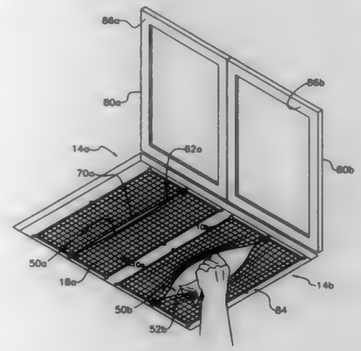
said first ends of each of said plurality of two support cross members being pivotally attached to said horizontal portion of one of said plurality of two parallel L-shaped horizontal members;
said second ends of each of said plurality of two support cross members being releasably attached to said horizontal portion of the other of said plurality of two parallel L-shaped horizontal members such that when said plurality of two support cross members are each pivoted and positioned perpendicular to said parallel L-shaped horizontal member to which said plurality of two support cross members are pivotally attached and releasably attached to said parallel L-shaped horizontal member to which said plurality of two support cross members are releasably attached, said plurality of two support cross members secure said plurality of two parallel L-shaped horizontal members in a generally rectangular framework manner to support said plurality of two parallel vertical members in upright parallel position;
said plurality of two parallel vertical members having a plurality of two bottom ends and a plurality of two top ends with each of said plurality of two parallel vertical members having a top end and a bottom end;
said plurality of two parallel L-shaped horizontal members having a plurality of two front ends and a plurality of two rear ends, with each of said plurality of two parallel L-shaped horizontal members having a front end, a rear end, a horizontal portion and a vertical portion;
said plurality of two bottom ends of said plurality of two parallel vertical members being pivotally and slidably attached to said vertical portions of said plurality of two front ends of said plurality of two parallel L-shaped horizontal members;
said vertical portions of said plurality of two front ends of said plurality of two parallel L-shaped horizontal members having a plurality of two pins, said plurality of two pins being one each on one each of said vertical portions of said plurality of two front ends of said plurality of two parallel L-shaped horizontal members;
said plurality of two bottom ends of said plurality of two parallel vertical members having a plurality of two slots, said plurality of two slots being one each on one each of said plurality of two bottom ends of said plurality of two parallel vertical members;
said plurality of two pins on said vertical portions of said plurality of two parallel L-shaped horizontal members extending through said plurality of two slots of said plurality of two bottom ends of said plurality of two vertical members;
said plurality of two parallel vertical members pivoting and sliding on said plurality of two pins on said vertical portions of said plurality of two parallel L-shaped horizontal members 90 degrees or perpendicular to said plurality of two parallel L-shaped horizontal members;
said horizontal portions of said plurality of two bottom ends of said plurality of two parallel L-shaped horizontal members having a plurality of two slots;
said plurality of two bottom ends of said plurality of two parallel vertical members sliding into said plurality of two slots in said horizontal portion of said plurality of two parallel L-shaped horizontal members when said plurality of two parallel vertical members are pivoted 90 degrees or perpendicular to said plurality of two parallel L-shaped horizontal members;
said plurality of two bottom ends of said plurality of two parallel vertical members securing said plurality of two parallel vertical members 90 degrees or perpendicular to said plurality of two parallel L-shaped horizontal members;
a plurality of two flexible cords, said plurality of two flexible cords attaching said plurality of two parallel vertical members to said plurality of two parallel L-shaped horizontal members, said plurality of two flexible cords attaching one each to one each of said plurality of two top ends of said plurality of two parallel vertical members and one each to one each of said vertical portions of said rear ends of said plurality of two parallel L-shaped horizontal members;
said aquatic seine device having a flexible net;
said flexible net being capable of allowing running water to pass therethrough yet adapted to retain aquatic insects, nymphs or other organisms being carried by said running water passing through said flexible net; and,
said flexible net being capable of being secured to said plurality of two parallel vertical members.

5,722,197

CLOSURE FOR A FISHERMAN'S LIVE WELL

John J. Albritton, P.O. Box 477, Clewiston, Fla. 33440

Filed Jun. 5, 1996, Ser. No. 658,638
Int. Cl.[6] A01K *97/05;97/20*
U.S. Cl. 43—55 **6 Claims**



1. A closure for a fisherman's live well, said closure comprising:
a flexible element, which comprises a net;
means, mounted proximate an entrance of the live well, for holding said flexible element such that said flexible element extends across and generally covers the entrance of the live well; and
means defining a self-closing opening through said flexible element, which means includes elastic means that urge said opening into a closed condition and that are selectively expandable to expose said opening and provide access to the live well through said opening.

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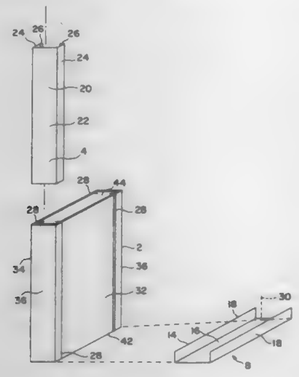
BUILDING WALL ASSEMBLY METHOD

Harold Bader, 11111 Biscayne Blvd., #753, N. Miami, Fla. 33181-3404

Continuation-in-part of Ser. No. 983,547, Feb. 3, 1993, abandoned. This application Oct. 7, 1994, Ser. No. 319,627

Int. Cl.[6] T04C *2/34*

U.S. Cl. 52—745.09 **5 Claims**



1. A method of fabricating a load-bearing, insulating building wall on a foundation of a building, the foundation having a foundation edge and an elongate foundation recess parallel with and spaced apart from said edge of said foundation, and a panel fastener element protruding from said recess, comprising the steps of:

forming a foam core having an interior face and an exterior face and opposing first and second side edges each having a vertical length, a top edge and a bottom edge each having a width;

forming a groove in said interior face and a groove in said exterior face substantially parallel with and spaced apart from said first side edge, thereby forming a first pair of grooves;

forming a second pair of grooves in said interior face and in said exterior face substantially parallel with and spaced apart from said second side edge;

forming first and second vertical members each having a web portion with web portion longitudinal edges, a flange portion at each said web portion longitudinal edge, said flange portions each having a flange portion longitudinal edge, and a ledge at each said flange portion longitudinal edge;

cutting said first and second vertical members to substantially said vertical length of said first and second side edge;

positioning each said vertical member such that said ledges are aligned with one end of each pair of said grooves;

sliding said vertical members into and along said pairs of grooves in engaging relationship therewith to substantially cover said first and second side edges, thereby forming first and second integral composite columns of great strength;

forming a foot member having a web portion with two longitudinal edges and a flange portion at each said web portion longitudinal edge;

cutting said foot member to substantially the width of said bottom edge;

fitting said foot member having a foot member opening over said bottom edge of said core;

forming a cap member having a web portion with two longitudinal edges and a flange portion at each said web portion longitudinal edge;

cutting said cap member to substantially the width of said top edge;

fitting said cap member over said top edge of said core;

joining said integral composite columns and said cap member, and said integral composite columns and said foot member, together with fasteners, such that said foam core, said integral composite columns and said cap and foot members combine to form an individual weight-bearing and lightweight panel;

lifting said panel and placing said foot member into said recess, such that said foot member opening fits around said concrete fastener element;

orienting said panel in an upright position;

opening a void in said core adjacent to said foot member corresponding in location to concrete fastener element;

inserting a securing element into said void and joining said securing element to said concrete fastener element to secure said panel within said recess;

securing a header member adjacent said top edge and to another part of said building to further secure said panel.

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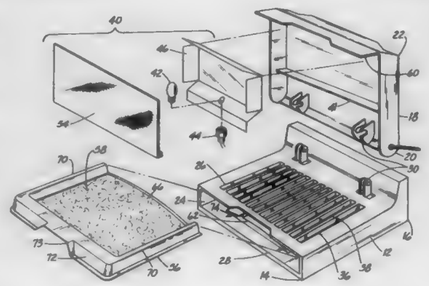
FLEA TRAP

Scott W. Demarest, Racine, Wis.; William J. Mayer, South Barrington; Dennis W. Gruber, Arlington Heights, both of Ill.; Donald E. McCumber, Madison, Wis.; Joseph E. Reimer, Oregon, Wis., and Karl A. Kohler, Racine, Wis., assignors to S. C. Johnson & Son, Inc., Racine, Wis.

Continuation of Ser. No. 325,915, Oct. 19, 1994, abandoned, which is a continuation-in-part of Ser. No. 168,432, Dec. 17, 1993, Pat. No. 5,513,465. This application Oct. 15, 1996, Ser. No. 729,201

Int. Cl.[6] A01M *1/04*

U.S. Cl. 43—113 **44 Claims**



35. A flea trap comprising a horizontally oriented base having a front and a rear edge, a vertically oriented cover having a bottom and a top edge, and an insert tray, the cover extending upwardly from the rear edge of the base, and the base extending forwardly from the bottom edge of the cover,

a. the base having

i. internal surfaces defining a substantially horizontal insert tray slot adapted to receive an insert tray,

ii. an opening communicating upwardly through the base from the insert tray slot to define an upwardly-opening tray slot window,

iii. an opening communicating substantially horizontally through the base from the insert tray slot to define an insert port sufficiently large to allow the horizontal insertion and removal of an insert tray through the insert port, and;

iv. a protective grid, the grid having spaced grid members that extend over the tray slot window, the grid members being spaced sufficiently close to each other as to restrict pet or child access through the grid to the insert tray slot but sufficiently apart from each other as to allow fleas access to the insert tray slot;

b. the cover having a light source whose light is directed substantially forwardly, across the base, toward the area in front of the flea trap, the rear edge of the base and bottom edge of the cover being joined to each other in jointed relation such that the cover may be moved by a user of the flea trap from an open position, wherein the cover extends approximately at a right angle to the base, to a closed position, wherein the cover extends generally parallel to the base to substantially cover the tray slot window, and

c. the insert tray having an upwardly exposed tacky surface to retain those fleas that are attracted to the flea trap by the light source and fall through the tray slot window to the tacky surface.

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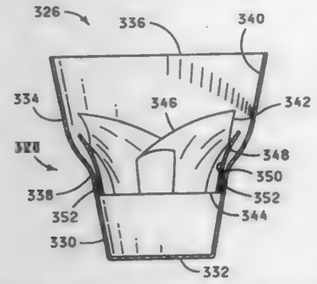
SLEEVE HAVING A DETACHABLE UPPER PORTION AND A SKIRT PORTION

Donald E. Weder, Highland, Ill., assignor to Southpac Trust International, Inc.

Continuation-in-part of Ser. No. 465,510, Jun. 5, 1995, Pat. No. 5,595,023, which is a continuation-in-part of Ser. No. 237,078, May 3, 1994, Pat. No. 5,625,979, which is a continuation-in-part of Ser. No. 220,852, Mar. 31, 1994, Pat. No. 5,572,851. This application Nov. 7, 1996, Ser. No. 746,233

Int. Cl.[6] A01G *9/02*

U.S. Cl. 47—72 **33 Claims**



1. A tubular sleeve for covering a pot means, the tubular sleeve having an upper end, a lower end, an outer peripheral surface, and an inner peripheral surface which surrounds an interior space, the tubular sleeve comprising:

a base portion for enclosing the pot means;

an upper portion for substantially surrounding a floral grouping disposed within the pot means and detachable from the base portion; and

a skirt portion preconnected to a portion of the base portion of the sleeve and enclosed by the upper portion and wherein when the upper portion is detached from the base portion, the skirt portion remains connected to the base portion and extends outwardly from the base portion.

5,722,201

SYSTEM FOR SUPPORTING AND IRRIGATING PLANT POTS

James J. Diorio, S.3 W.31963 Mary Ct., Delafield, Wis. 53018, and Robert P. Hubbell, 13210 W. Marquette Dr., New Berlin, Wis. 53151

Filed Sep. 22, 1995, Ser. No. 532,172

Int. Cl.[6] A01G *31/02*

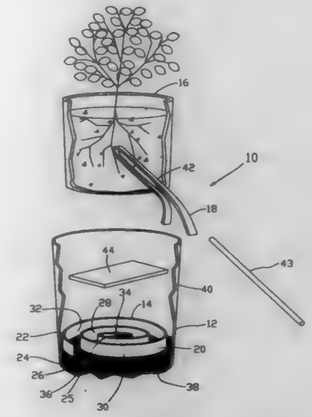
U.S. Cl. 47—81 **15 Claims**

1. An apparatus for supporting and irrigating a plant pot having a bottom and a side wall for holding a soil-based live plant, said apparatus comprising:

a container having a bottom and at least one side wall for retaining a liquid;

a free-standing support formed by a singular, generally rectangular strip of flexible, curlable material constructed and arranged to define a spiral platform disposed within said bottom and said side wall of the container and lying between said bottom of said container and said bottom of said plant pot, said strip having an inner end and an outer end, said spiral platform creating a circular pathway emanating from an open center site adjacent said inner end of said strip and flowing past an outlet site adjacent said outer end of said strip, said outer end of said strip being engagable against said bottom and said side wall of said container; and

a wick extending from said pathway to transfer liquid by capillary action to said plant pot when said container is filled with liquid.



5,722,202

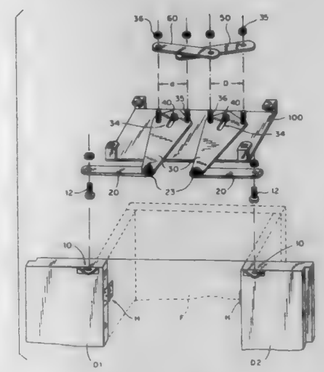
SEQUENTIAL DOOR CLOSING MECHANISM

Clinton T. Cooper, Youngstown, Ohio, assignor to SAFE-T-WAY, Salem, Ohio

Filed Apr. 26, 1996, Ser. No. 638,156

Int. Cl.[6] E05C *7/06*

U.S. Cl. 49—109 **15 Claims**



1. A door-closing mechanism adapted for use in closing two doors including a first door and a second door, the door mounted on hinges to a door frame, the door frame having a first fixed position and a second fixed position relative thereto; the mechanism comprising:

(a) a first pivot pin including means for mounting at the first fixed position of the door frame;

a second pivot pin including means for mounting at the second fixed position of the door frame;

(b) a first cam plate rotatably and linearly slidably mounted on the first pivot pin;

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a second cam plate rotatably mounted and linearly slidably on the second pivot pin;

(c) a first linkage including means to couple the first cam plate to the first door;

a second linkage including means to couple the second cam plate to the second door; and

(d) a first shuttle arm having

a first shuttle arm first end rotatably coupled to the first cam plate at a first radial distance from the first pivot pin and

a first shuttle arm second end rotatably coupled to the second cam plate at a second radial distance from the second pivot pin.

5,722,203

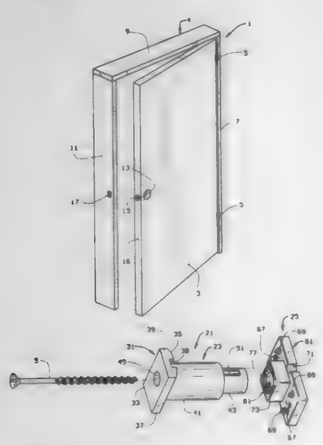
PREHUNG DOOR INSTALLATION AID

Donald E. Staples, 118A N. Main St., Cape Girardeau, Mo. 63701; J. Christian Staples, 4570 Brairgate, St. Charles, Mo. 63304, and Jeffrey T. Staples, 2403 Ripplemeade, Herndon, Va. 22071

Filed Sep. 9, 1996, Ser. No. 709,909

Int. Cl.° E06B *1/00*

U.S. Cl. 49—380 **21 Claims**



1. An installation aid in combination with a door assembly having a door for maintaining the door closed in the door assembly,

the door assembly comprising said door and a door frame, the door frame having a hinge jamb, a strike jamb, and a top jamb, the top jamb extending between and connecting the hinge jamb and strike jamb, the door being hingedly mounted to the hinge jamb; the door having a front surface, back surface, an edge which is proximate the strike jamb when the door is closed, a first hole having a curvature and located near said edge and extending between said front and back surfaces for accepting a door knob assembly and a second hole for a bolt of said door knob assembly and which extends inwardly from said edge and communicates with said first hole; said strike jamb including a hole extending therethrough and which is aligned with said second hole of said door when said door is closed in said door frame;

said installation aid including a first portion, a second portion, and a fastener which removably connects said first and second portions;

said first portion being adapted to be received in said door first hole and to extend through said door second hole; said first portion having a screw hole which is generally parallel to an axis of said second hole of said door;

said second portion being adapted to be secured to an outer surface of said strike jamb to cover said hole of said strike jamb and having a screw hole;

said fastener extending through said first and second portion screw holes to removably connect said first portion to said second portion to maintain said door closed during installation of said door assembly in a structure; said second portion remaining on said strike jamb after said door assembly is installed in the structure.

5,722,204

DEVICE FOR HOUSING THE ACTIVE AND PASSIVE JUNCTION ASSEMBLIES OF TELECOMMUNICATIONS INSTALLATIONS

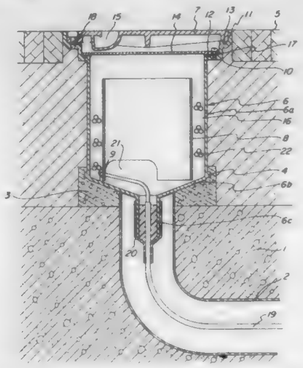
Werner Stieb, and Franz Grajewski, both of Stadthagen, Germany, assignors to Alcatel Kabel AG & Co., Germany

Filed Feb. 7, 1996, Ser. No. 598,200

Claims priority, application Germany, Feb. 22, 1995, 295 02 938 U

Int. Cl.° E02O *29/14*; H02G *9/00*

U.S. Cl. 52—20 **28 Claims**



1. A telecommunications installation installed underground, the ground having a gradient, the installation having:

(a) a concrete foundation;

(b) a pipe cast into the foundation so that at least a portion of the pipe protrudes from the foundation; and

(c) a device for storing active and passive junction assemblies comprising:

(i) a container having a hollow main body portion with a shoulder portion which narrows down to a hollow neck portion, the shoulder portion of the container adapted to rest on the protruding portion of the pipe to be cast into the foundation whereby the container is placeable at various angles thereby compensating for variations in the gradient of the ground, the hollow neck portion adapted to extend into the pipe and providing an open end to receive at least one cable therethrough; and

(ii) a sidewalk cover resting on the container to close the container.

5,722,205

SELF-INSTALLING POST

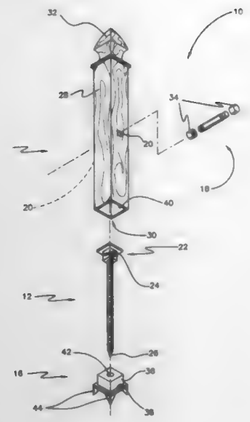
Richard M. Gannaway, 819 Greenfield Dr., Palm Harbor, Fla. 34684

Continuation of Ser. No. 593,907, Jan. 30, 1996, abandoned. This application Jan. 8, 1997, Ser. No. 780,679

Int. Cl.° E02D *5/74*

U.S. Cl. 52—155 **11 Claims**

1. A post assembly comprising:



a rod for penetrating the ground, said rod having a proximal end, a pointed distal end, a diameter, and an enlarged head comprising a flat upper stricking surface, a member projecting radially from said rod in two orthogonal axes both perpendicular to the longitudinal dimension of the rod, said enlarged head including a transverse passage, below said flat upper striking surface, having a first diameter dimension formed in said enlarged head, said enlarged head located at said proximal end of said rod; and

a body having a lateral wall including a longitudinal cavity cooperating in close fit with said enlarged head and configured to constrain said rod to move only in a longitudinal direction relative to said body, two opposed openings formed in said lateral wall of said body, said opposed openings each being fully bounded circumferentially by said body, said two opposed openings each having a second diameter dimension of magnitude slightly less than that of said first diameter dimension of said transverse passage of said enlarged head of said rod, and a pin having a third diameter dimension of magnitude just less than that of said second diameter, whereby said pin is removably insertable into said two opposed openings formed in said body of said post assembly, and through said transverse passage of said enlarged head of said rod, said body thus being securable to said rod by said pin, wherein said pin is used to contact said striking surface to drive said rod into the ground.

5,722,206

FLEXIBLE STORM RESISTANT SYSTEM

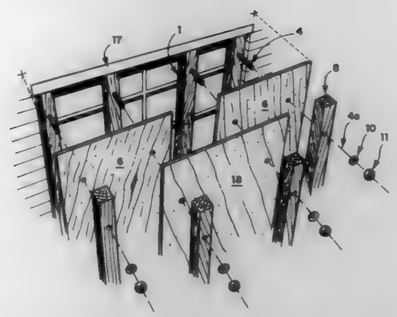
Kenneth J. McDonald, 4063 Vine La., Naples, Fla. 34112

Filed Oct. 28, 1996, Ser. No. 738,536

Int. Cl.° E06B *9/00*

U.S. Cl. 52—202 **5 Claims**

1. A flexible storm resistant system mounted in an opening in a wall of a dwelling, said opening being flush with said wall but having lateral walls surrounding said opening, bores are provided in the lateral walls of said opening, said system includes hinged support braces, said support braces having protruding retainer means at each end thereof, at least two of said support braces are mounted within said opening by said protruding retaining means being received in said bores, said support braces having threaded bolts horizontally protruding therefrom and an impact resistant panel having a periphery larger than said opening and having holes receiving said horizontal bolts, and rigid splints having holes corresponding to the location of said horizontal bolts and being received over said bolts to sandwich said impact resistant panel between said support braces and said splints and means applying



pressure between said support braces, said impact resistant panel and said splints through said bolts.

5,722,207

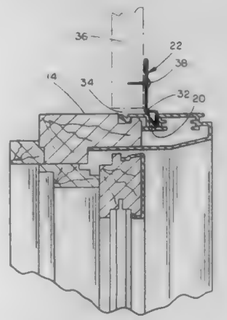
FOLDABLE NAIL FIN

Craig A. Anderson, and James T. Grigsby, both of Lincoln, Nebr., assignors to SealRite Windows, Inc., Lincoln, Nebr.

Filed May 6, 1994, Ser. No. 239,334

Int. Cl.° E06B *3/00*

U.S. Cl. 52—204.55 **1 Claim**



1. In combination:

a window including a frame;

said frame having a kerf formed therein;

and at least one foldable metal nail fin operatively secured to said frame;

said nail fin comprising a substantially flat body portion and an inner end portion which extends transversely from said body portion for insertion into said kerf whereby said body portion is normally positioned flush against said frame without objectionably protruding therefrom so that said frame and said nail fin may be shipped to a building site; said body portion of said nail fin having an indented fold line formed therein adjacent said inner end portion so that said body portion may be selectively folded, about said fold line, from its normally flush position adjacent said frame to a position wherein said nail fin extends outwardly from said window frame for nailing to a building surface extending around a window opening created therein;

the metal construction of said nail fin causing said nail fin to remain in its said flush position until manually folded outwardly to its nailing position;

the metal construction of said nail fin causing said nail fin to remain in its nailing position after it has been folded outwardly thereto.

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5,722,208

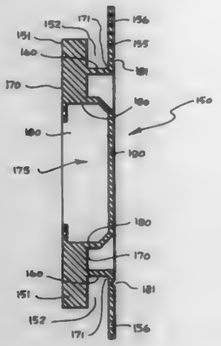
WALL MOUNTING SYSTEM FOR ELECTRICAL DEVICES

Phil A. Humphrey, and Weldon C. Humphrey, both of Lydonville, N.Y., assignors to Thermo Plastic Works, Inc., Lyndonville, N.Y.

Continuation-in-part of Ser. No. 291,398, Aug. 16, 1994. This application Oct. 10, 1995, Ser. No. 541,897

Int. Cl.[6] H02G 3/12

U.S. Cl. 52—220.8 23 Claims



1. An integral one-piece molded wall mounting assembly comprising a frame member having an interior flange suitable for mounting to a wall; an exterior flange member opposite said interior flange, said exterior flange member being thicker than said interior flange in the direction of the interior flange; said flanges being aligned in parallel planes and spaced from one another; inwardly indented axial walls positioned between said flanges to provide a channel encircling said assembly; a front wall surrounded by said exterior flange member, and an electrical box having an open end and a closed end opposite said open end, the open end of said electrical box being integral with a central opening in said front wall for access to the interior of said electrical box.

5,722,209

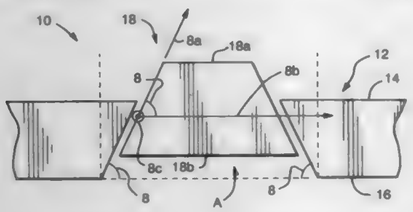
PROCESS FOR CUTTING OUT DECORATIVE/ARTISTIC DESIGNS AND PRODUCTS PRODUCED THEREBY

Peter C. Delaney, 30 School St., Keene, N.H. 03431, and Ronald C. Goodnow, Fitzwilliam, N.H., assignors to Peter C. Delaney, Keene, N.H.

Filed Feb. 14, 1997, Ser. No. 800,341

Int. Cl.[6] E04B 3/70; B27M 1/00

U.S. Cl. 52—455 15 Claims



1. A process for making a three dimensioned decorative, artistic design incorporatable into an article of manufacture, comprising the steps of:

fabricating a base piece having, a perimeter edge thereof, a first surface and a second surface, said first and said second surface separated by a thickness dimension of said base piece;

determining a maximum cut-angle and a maximum cut-width based upon said thickness dimension of said base piece;

determining a cut-angle and a cut-width based upon, a desired protrusion distance of each of at least one decorative cut-out piece to be cut from said base piece;

angle cutting, at said determined cut-angle and cut-width, said base piece in at least one predetermined and continuous pattern, thereby forming each said at least one decorative cut-out piece, each said at least one decorative cut-out piece being thereby one-directionally removable from said base piece thereby creating a corresponding decorative aperture for each said at least one decorative cut-out piece in said base piece upon removal of each said decorative cut-out piece from said base piece; and

inserting an insertion distance, at least one of each said decorative cut-out piece into at least one each said corresponding decorative aperture said desired protrusion distance thereby forming said three dimensioned decorative, artistic design incorporatable into said article of manufacture.

5,722,210

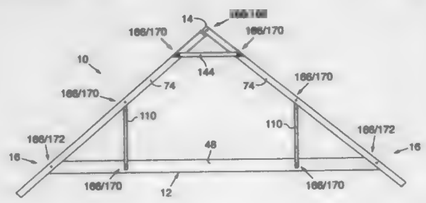
MODULARIZED TRUSS

Michael J. Baker; Steven P. Boyenger; Joseph A. Fyie; Peter T. Mellblom; Christopher B. Meyer; Glen D. Robak; Michael D. St. John; Donald J. Sharp, and Janice H. Zahn, all of Boise, Id., assignors to Trus Joist MacMillan, a Limited Partnership, Boise, Id.

Filed Dec. 28, 1995, Ser. No. 580,635

Int. Cl.[6] E04B 1/32

U.S. Cl. 52—643 34 Claims



1. A generally triangular truss, comprising:

a horizontal chord and a pair of inclined chords, the inclined chords being joined at an apex, and the horizontal chord extending between the inclined chords to form a base of the generally triangular truss;

a pair of vertical ties, each of which extends upwardly from the horizontal chord and interconnecting with the inclined chords, and a horizontal tie extending between the two inclined chords at points spaced substantially above the interconnection between the vertical ties and the inclined chords, the chords and ties defining therebetween a space in which to construct a living area; and

a plurality of pins;

wherein:

the chords are formed of engineered lumber; and

the joints between the chords and ties are defined by holes extending through the chords and ties, with the pins extending through adjacent ones of the holes to create pinned joints.

5,722,211

RAIL STRUCTURE TO SUPPORT FLAT STRUCTURAL ELEMENTS

Rolf Goldschmidt, Luftmattstrasse 15, CH-4052, Basel, Switzerland

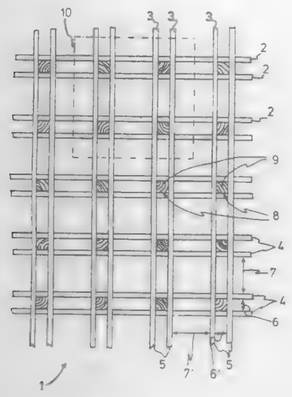
PCT No. PCT/DE93/00621, § 371 Date Jan. 20, 1995, § 102(e) Date Jan. 20, 1995, PCT Pub. No. WO94/02693, PCT Pub. Date Feb. 3, 1994

PCT Filed Jul. 10, 1993, Ser. No. 356,198

Claims priority, application Germany, Jul. 23, 1992, 42 24 285.1

Int. Cl.[6] E04C 2/42

U.S. Cl. 52—665 17 Claims



1. A rail structure for supporting flat structural elements comprising:

a first plurality of parallel stringers forming a plurality of stringer pairs extending in a first plane;

a second plurality of parallel stringers forming a plurality of stringer pairs extending in a second plane, said second plane parallel to said first plane, each said stringer of said first and second plurality of stringer pairs comprising a slat having an essentially rectangular cross-sectional area, said pluralities of stringer pairs disposed adjacently whereby said slats of said adjacent pluralities are in contact, said second plurality of stringer pairs crossing over said first plurality of stringer pairs thereby partially defining a plurality of cross over volumes at each cross over, each said cross over volume having a generally columnar shape and extending in a direction transverse to said first and second parallel planes, said cross over volumes bounded by transverse planes extending in said transverse direction, said transverse planes partially defined by interior facing surfaces of said first and second plurality of stringer pairs at each said cross over; said first plurality of stringer pairs having a first exterior boundary, said second plurality of stringer pairs having a second exterior boundary, said first and second exterior boundaries respectively and partially defined by outer edges of said slats and extending parallel to and respectively defining an outer boundary of said first and second planes, said slats of said first and second pluralities disposed within a generally planar space bounded by said first and second exterior boundaries;

and a plurality of connecting pieces, one said connecting piece disposed in each said cross over volume, each said connecting piece extending in said transverse direction through said first and second exterior boundaries, said connecting pieces each having first and second ends which are respectively disposed in a first and second bearing plane located exterior to and proximate said first and second exterior boundaries whereby said first and second ends are adapted to support said flat structural elements, each said connecting piece having a plurality of sides defining planes generally transverse to said first and second planes, said sides fastened to the interior surfaces of said first and second plurality of stringer pairs at said cross overs.

5,722,212

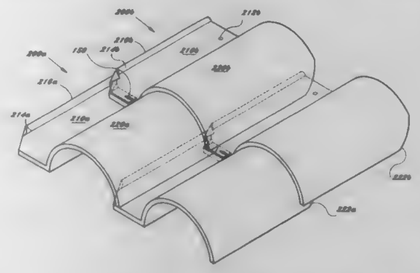
ROOF TILE RETAINING CLIP

David C. Struve, 2541 Calamondin Cir., Coconut Creek, Fla. 33063, and Robert D. Pike, 999 NW. 53rd Ct., Ft. Lauderdale, Fla. 33309

Continuation-in-part of Ser. No. 648,895, May 16, 1996, abandoned, which is a continuation-in-part of Ser. No. 285,047, Aug. 3, 1994, Pat. No. 5,533,313. This application Dec. 20, 1996, Ser. No. 771,019

Int. Cl.[6] E04D 1/34

U.S. Cl. 52—712 3 Claims



1. A roof tile retaining clip for securing a roof tile to a pitched roof structure, said roof tile including a substantially flat pan section defining a fastening aperture and an angled lower edge surface formed by a plane intersecting both a side edge and a front edge of said roof tile, and an arcuate roll section, said roof tile adapted to be fixed to a subroof structure in partially overlapping relation with respect to at least an adjacent lower roof tile, said retaining clip comprising:

a clip body having a fastening end, a tile retaining end and first and second mid-sections disposed between said ends;

said fastening end being substantially flat and defining a fastener aperture whereby said fastener aperture is installed in axial alignment with said tile aperture such that a fastener inserted through said aligned apertures engages said underlying subroof structure thereby anchoring said tile and clip thereto;

said first mid-section defined by a first clip bending crease, a second clip bending crease forming an acute angle with said first clip crease, and an edge of said clip;

said second mid-section defined by said second clip bending crease, a third clip bending crease substantially parallel to, and spaced from, said second clip crease, and opposing clip edges;

said tile retaining end defined by said third clip crease, opposing clip edges, and a retaining end edge for retaining the lower angled edge of an ovelapping roof tile.

5,722,213

FIRE RESISTANT STEEL DOOR WITH DROP-IN CORE

Steven M. Morency, New Albany, Ind., assignor to Ideal Architectural Doors & Plywood, New Albany, Ind.

Continuation-in-part of Ser. No. 539,190, Oct. 4, 1995, abandoned. This application Sep. 13, 1996, Ser. No. 713,605

Int. Cl.[6] E06B 5/16

U.S. Cl. 52—784.11 4 Claims

4. A heat temperature rise door, consisting of:

a bonded mineral fiber sheet;

a ceramic coating on said sheet formed from a mixture of liquid alkali metal silicate and mineral powder which has been

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coated on the mineral fiber sheet and has been dried to form said ceramic coating; and

a steel shell around said bonded, coated mineral fiber sheet, wherein said steel shell and bonded mineral fiber sheet are independent members, not bonded together, and wherein, if said door is subjected to high temperatures, said ceramic coating will intumesce.

5,722,214

DEVICE AND METHOD FOR VERIFYING THE INTEGRITY OF PRODUCT PACKAGING IN A WRAPPING MACHINE

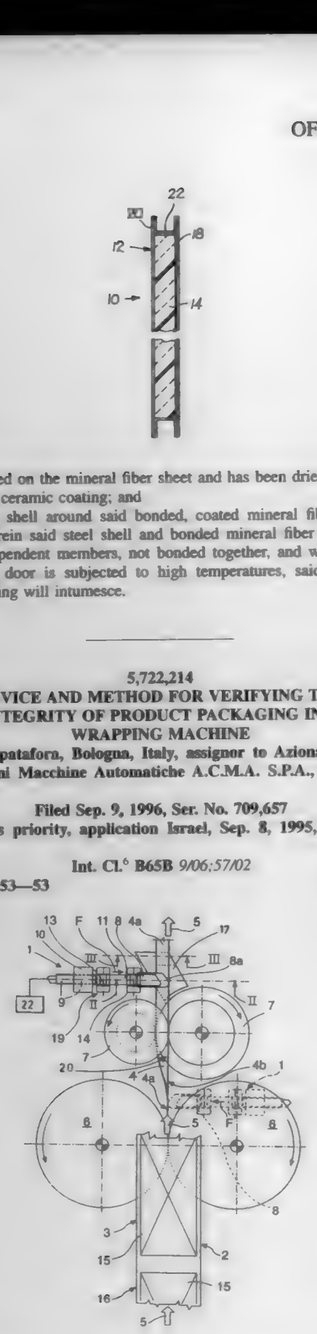
Mario Spatafora, Bologna, Italy, assignor to Azionaria Costruzioni Macchine Automatiche A.C.M.A. S.P.A., Bologna, Italy

Filed Sep. 9, 1996, Ser. No. 709,657

Claims priority, application Israel, Sep. 8, 1995, BO95 A 000120

Int. Cl.[6] B65B *9/06;57/02*

U.S. Cl. 53—53 **8 Claims**



1. A method for verifying the integrity of a longitudinal seam on each of a succession of packaged products, comprising:

while conveying a succession of individual products in a longitudinal direction along a path, wrapping convolutely in a wrapping direction about each product at a wrapping station, a strip of flexible material which is greater in corresponding dimension that the girth of the product in the wrapping direction so as to create a wrapped product having a tubular wrapper and two edge marginal portions and dispose said edge marginal portions in facially confronting relation;

attempting to seal between said edge marginal portions for each wrapped product to create a respective tab;

supporting and positioning a feeler beside said path to engage each packaged product at a predetermined location which, if the sealed flap has been successfully provided for a respective wrapped product causes the feeler to assume only a given position while engaging the respective packaged product, and if the sealed product has not been successfully provided for the respective product causes the feeler to assume a position other than said given position while engaging the respective wrapper product; and

sensing via a sensor operatively associated with the feeler whether the feeler is positioned in other than said given position while engaging a respective packaged product, and in such case providing an indication that the respective packaged product has been defectively sealed at the respective flap.

5,722,215

SEALING DEVICE

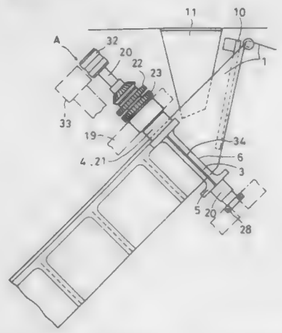
Shoji Yuyama, 3-8, Honan-cho Nishi 4-chome, Toyonaka-shi, Osaka, Japan

Filed Mar. 1, 1996, Ser. No. 609,831

Claims priority, application Japan, Mar. 2, 1995, 7-043168

Int. Cl.[6] B65B *9/06*

U.S. Cl. 53—374.4 **2 Claims**



1. A sealing device comprising a pair of first rotary shafts provided in a feed path for a longitudinally two-folded, heat-fusible packing sheet and rotatably supported by bearings so as to extend perpendicular to the direction in which said packing sheet is fed, a pair of lateral heating members mounted on said respective first rotary shafts and each having an axially extending heating surface capable of contacting said sheet and a surface kept out of contact with said sheet, a pair of second rotary shafts rotatably mounted around said respective first rotary shafts through bearings, a pair of longitudinal heating members mounted on said respective second rotary shafts and each having a cylindrical heating surface adapted to contact both side edges of said sheet, a first rotary drive means for rotating said first rotary shafts, and a second rotary drive means for rotating said second rotary shafts.

5,722,216

PROCESS FOR STORING SHEET-LIKE PRODUCTS

Jacques Meier, Bäretswil, Switzerland, assignor to Ferag AG, Hinwil, Switzerland

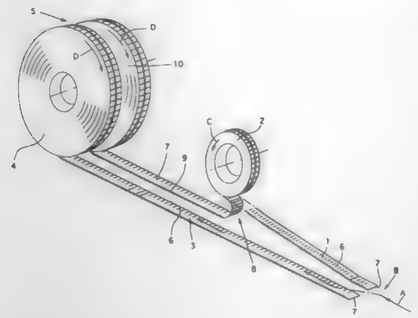
Filed Apr. 13, 1995, Ser. No. 422,715

Claims priority, application Switzerland, Apr. 15, 1994, 01 118/94

Int. Cl.[6] B65B *63/04*

U.S. Cl. 53—430 **51 Claims**

1. A process for storing a continuous stream of sheet-like products comprising the steps of winding up a first number of the products belonging to a first part of the continuous stream on a first main roll and simultaneously winding up a second number of the



products belonging to a second part of the continuous stream on a second main roll, the first main roll and the second main roll being arranged side-by-side.

5,722,217

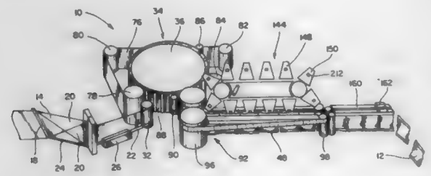
METHOD AND APPARATUS FOR CONTINUOSUSLY FORMING, FILLING AND SEALING PACKAGES WHILE LINKED TOGETHER

Charles E. Cloud, Northbrook, Ill., assignor to Cloud Corporation, Des Plaines, Ill.

Filed Nov. 17, 1995, Ser. No. 560,123

Int. Cl.[6] B65B *9/08;43/04;51/16*

U.S. Cl. 53—455 **60 Claims**



8. A method of continuously forming, filling and sealing of packages having a peelable seal, comprising the steps of:

(a) providing a continuous web of polyethylene film material having a surface coated with a peelable substance;

(b) folding the web to provide confronting sides coated with the peelable substance joined along a bottom edge;

(c) severing the web along the bottom edge;

(d) sealing the confronting sides along the bottom edge so that the confronting sides coated with the peelable substance can be peeled apart;

(e) forming vertical seals in the web to provide a series of horizontally disposed pouches severed by the vertical seals extending transversely of the web leaving sealed side edges of each pouch severed from one another with upper portions of each pouch being connected with adjoining pouches and having opposed sidewalls of each pouch unsealed along a top edge;

(f) opening pouches by separating the opposed sidewalls;

(g) filling the pouches;

(h) sealing a top portion of the opposed sidewalls of each pouch together to enclose the filled pouches; and

(i) trimming the upper portions from the web to simultaneously sever the filled and sealed pouches from the web.

5,722,218

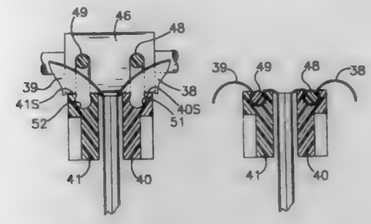
PLASTIC TRANSPORT SYSTEM

Hershey Lerner, Aurora, Ohio, assignor to Automated Packaging Systems, Inc., Streetsboro, Ohio

Filed Aug. 16, 1996, Ser. No. 699,128

Int. Cl.[6] B65B *43/26;43/28;41/12;41/14*

U.S. Cl. 53—459 **51 Claims**



1. A method of supporting a plastic film for transport and performing a work operation, the method comprising:

a) bringing first and second film sections respectively into engagement with a side part of a surface of an associated one of a spaced pair of first conveyor belts;

b) folding the sections over the respective first belts to bring another part of each section into engagement with another part of its associated first belt;

c) positioning a still further part of each section between its associated first belt and an associated one of a pair of second belts to produce frictional gripping of the sections due to coaction of the belts and sections; and,

d) applying a force to at least one of the sections to pull the one section against the associated belts and resisting such force with a gripping resistance produced by coaction of the one section and its associated belts alone.

5,722,219

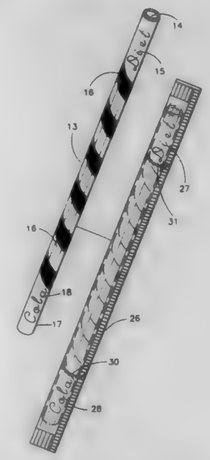
METHOD OF MAKING A DRINKING STRAW

Mark J. Dobransky, 955 W. Lancaster Rd., Ste. 300, Orlando, Fla. 32809

Filed Dec. 2, 1996, Ser. No. 758,889

Int. Cl.[6] B65B *11/10*

U.S. Cl. 53—461 **9 Claims**



1. A method of making a drinking straw comprising the steps of:

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selecting flat material suitable for making a drinking straw, said flat material having portions positioned to form the end portions of a straw;

printing indicia on said flat material portions positioned to form the end portions of a straw which indicia indicates a different type of drink on each end portion;

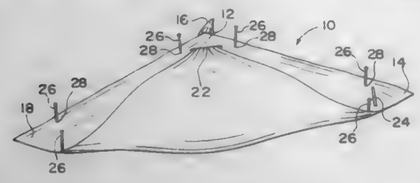
forming said flat material into a straw having indicia on each end thereof indicating a different type of drink on each end; whereby a straw is made which can distinguish a drink by the end of the straw protruding from a drink container.

5,722,220

APPARATUS AND METHOD FOR CONTAINING MATERIAL

Deenya Greenland, 154 Mosby Cir., Warrenton, Va. 22186

Filed Apr. 21, 1993, Ser. No. 49,650
Int. Cl.[6] B65D *30/10*
U.S. Cl. 53—462 **11 Claims**



1. An apparatus for containing material comprising,

a flat sheet of flexible material having a plurality of peripheral sections;

first and second sections, said first and second sections each including an opening of size and dimension such that at least one of said peripheral sections is able to be passed through said opening to an extent sufficient to gather and enclose material disposed on said sheet, wherein said first section and said second section are adjacent to each other and said first section and said second section each include an opening therein; and

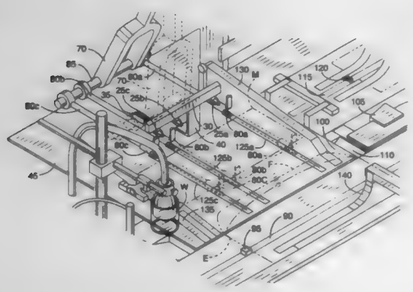
third and fourth sections.

5,722,221

ENVELOPE OPENING APPARATUS

Richard D. Maltman; Robert E. Valentine; Robert J. Leitner, all of Sacramento, and Gerry E. Leick, Rio Linda, all of Calif., assignors to United States Computer Services, Sacramento, Calif.

Filed Jan. 17, 1996, Ser. No. 591,218
Int. Cl.[6] B65B *43/36;57/10*
U.S. Cl. 53—493 **17 Claims**



1. An envelope opening apparatus, comprising:

a) positionally adjustable nozzle means for directing compressed gas to open envelopes;

b) inserter means for placing mail materials into envelopes;

c) envelope transport means for moving a plurality of envelopes horizontally past said inserter means and said nozzle means; and

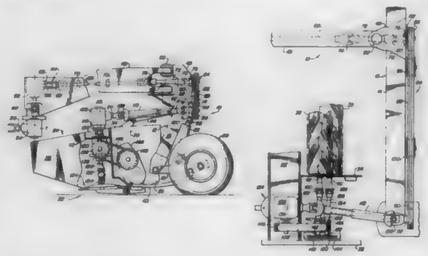
d) an electronic computer control means for activating and deactivating said nozzle means, wherein said electronic computer control means establishes if a correctly assembled mailing piece is ready for insertion into an envelope and open an envelope only if said correctly assembled mailing piece is ready for insertion.

5,722,222

CENTER-PIVOT MOWER-CONDITIONER DRIVE

James C. Walters; Roger Dale Stephenson; Stephen Kenneth Parsons, all of Ottumwa, and Allan Wesley Rosenbalm, Blakesburg, all of Iowa, assignors to Deere & Company, Moline, Ill.

Filed Aug. 8, 1996, Ser. No. 694,085
Int. Cl.[6] A01D *34/66;34/76*
U.S. Cl. 56—6 **13 Claims**



1. In a center-pivot mower-conditioner including a transversely extending mobile main frame, a header positioned in front of said main frame, a suspension means coupling the header to said main frame for floating vertically, an elongate tongue extending over said header and having a rear end coupled to said main frame for pivoting about an upright tongue pivot axis located halfway between opposite ends of said main frame, said header including a transversely extending rotary cutterbar including a plurality of side-by-side mounted cutting units driven from an upright input shaft spaced transversely in a first direction from a first location midway between opposite ends of said cutterbar, said header further including a crop conditioner including at least one driven, transversely extending conditioner element positioned rearwardly of said cutterbar and having a support shaft projecting in said first direction, and drive means coupled to said upright input shaft for driving said cutting units of said cutterbar and to said support shaft of said at least one driven conditioner element, the improvement comprising: said drive means including a first drive line section extending along and being supported by said tongue for rotation about a first axis intersecting said tongue pivot axis, with said first drive line section including a rear end terminating forwardly of said tongue pivot axis; a power transmission means for transferring drive torque from said first location midway between opposite ends of said main frame to a second location in general fore-and-aft alignment with said upright input shaft of said cutterbar; said power transmission means including first and second fore-and aft extending stub shafts respectively rotatably mounted to said main frame at said first and second locations; and power transfer means being coupled for transferring power from said first to said second stub shaft; said first stub shaft being rotatable about a first drive axis intersecting said tongue pivot axis and being in fore-and-aft alignment with said rear end of said first drive line section when said tongue is in a straight ahead position; an equal-angle drive line section; front and rear u-joints respectively coupling said equal-angle drive section to said first drive line section and said first stub

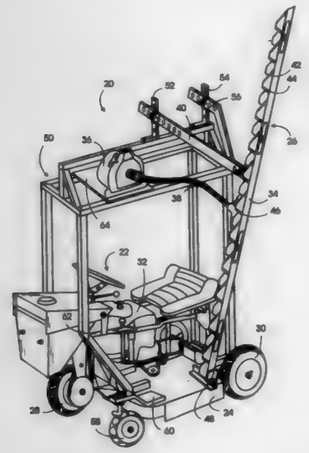
shaft; a header first right-angle gear box mounted above said upright input shaft and in general fore-and-aft alignment with, and at approximately an even height with said second stub shaft; said header first right-angle gear box including a rearwardly located input shaft and a downwardly projecting output shaft; a telescopic main header drive line extending between and being universally connected to said second stub shaft and to said rearwardly located input shaft; and a cutterbar drive means and a conditioner drive means respectively coupling said downwardly projecting output shaft to said upright input shaft and to said at least one rotatable conditioning element.

5,722,223

TREE TRIMMING APPARATUS

William H. Walton, Rt. 2, Box 150, Weiss Ln., Pflugerville, Tex. 78660

Filed Aug. 29, 1996, Ser. No. 705,288
Int. Cl.[6] A01D *75/30*
U.S. Cl. 56—13.7 **10 Claims**



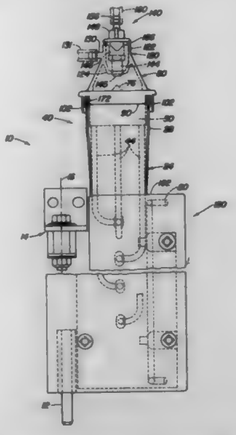
1. A trimming apparatus comprising a self-propelled riding power platform and a tree trimming cutter assembly, said self-propelled riding power platform includes a motor for providing power, at least two rear wheels, a single front driven steering wheel, a stabilizing caster wheel, a supporting deck, and a power platform support frame, said front driven steering wheel is connected to the front of said power platform support frame, said supporting deck is attached to and located below said power platform support frame, said rear wheels are adjustably connected to the rear of said supporting deck, said stabilizing caster wheel is positioned forward of one of said rear wheels and attached to said supporting deck, said tree trimming cutter assembly comprises a cutter means and a means for holding said cutter means at a desired preset cutting angle in relation to said power platform said cutter means is movably connected at one end to said supporting deck and positioned to the side of said self-propelled riding power platform between one of said rear wheels and said stabilizing caster wheel.

5,722,224

MOISTENER SYSTEM FOR A COTTON HARVESTER

Donald Henry Sheldon, Jr., Johnston; Jeffrey Scott Wigdahl, Ames, and Timothy Arthur Deutsch, Newton, all of Iowa, assignors to Deere & Company, Moline, Ill.

Filed Apr. 24, 1996, Ser. No. 637,065
Int. Cl.[6] A01D *46/18*
U.S. Cl. 56—41 **23 Claims**



1. In a cotton harvester having an upright spindle moistener column with an upper end and a plurality of spindle cleaning pads, a fluid distribution system for supplying fluid to the pads, the distribution system comprising:

a distributor supported adjacent the upper end of the column and including a plurality of fluid outlets connected to the cleaning pads;

a distributor cover removably connected to the distributor;

a nozzle supported by the cover above the distributor for supplying a flow of fluid to the fluid outlets; and

a flush line providing an additional flow of fluid to the distributor, wherein the flush line is connected to the distributor cover.

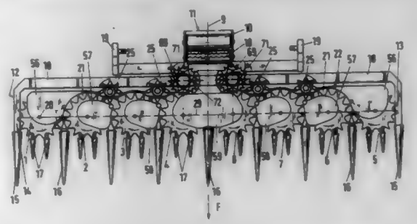
5,722,225

MACHINE FOR MOWING AND CHOPPING CORN AND SIMILAR STALK-LIKE HARVESTED CROPS INDEPENDENTLY OF THE ROW

Richard Wuebbels, Borken, and Norbert Wolters, Gescher, both of Germany, assignors to Maschinenfabrik Kemper GmbH, Sadtlohn, Germany

Filed Aug. 22, 1996, Ser. No. 701,317
Claims priority, application Germany, Aug. 30, 1995, 195 31 918.4
Int. Cl.[6] A01D *45/02*
U.S. Cl. 56—60 **24 Claims**

1. A mowing machine for mowing and chopping stalk-like crops



independently of rows while mowing in a forward direction, com-

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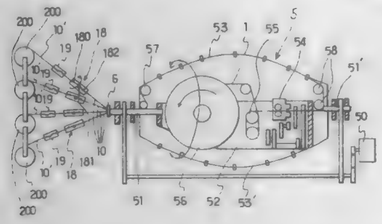
prising a frame, a plurality of drawing-in and mowing drums mounted on said frame on either side of a vertical central longitudinal plane of the machine, each of said drums being rotatable about substantially vertical axes, each of said drums including protruding teeth, a vertical guiding wall mounted on said frame and spaced from said drums to define a conveying space between said guiding wall and the respective drum, a central chopper mounted on said frame and receiving said crop from said conveyor space, said guiding wall having the shape of a wave when viewed in plan view with said wave shape having valleys and crests, a first portion of said guiding wall being disposed on one side of said vertical central longitudinal plane and a second portion of said guiding wall being disposed on the other side of said vertical central longitudinal plane, the valleys of said guiding wall being juxtaposed to a respective drum, said valleys of said guiding wall having a configuration corresponding generally to the configuration of the outer periphery of a juxtaposed drum, a conveying body rotatably mounted on said frame for rotation about a substantially vertical axis, said conveying body being disposed juxtaposed to a respective crest of said guiding wall, said conveying body having projecting teeth, said guiding wall having slits juxtaposed to said conveying body, said projecting teeth of said conveying body extending through said slits into said conveying space.

5,722,226

STEEL CORD FOR REINFORCEMENT OF OFF-ROAD TIRE, METHOD OF MANUFACTURING THE SAME, AND OFF-ROAD TIRE

Kazuo Matsumaru, Dejima-mura, Japan, assignor to Tokyo Rope Manufacturing Co. Ltd., Japan

Continuation of Ser. No. 671,529, Jun. 27, 1996, Pat. No. 5,661,966. This application Mar. 18, 1997, Ser. No. 820,281
Claims priority, application Japan, Jun. 27, 1995, 7-183400
Int. Cl.[6] D01H *13/26;* **D02G** *3/36*
U.S. Cl. 57—311 **2 Claims**



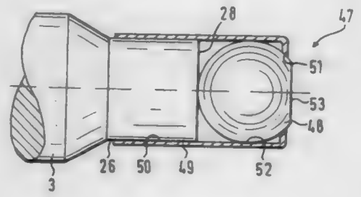
1. A method of manufacturing a steel cord including a plurality of strands each including three-six steel wires twisted together in a same twisting direction and with a same pitch length, each of said steel wires having a wavy pattern of a pitch length smaller than a lay length of said strands, each of said strands having a pattern in which a wavy pattern formed by the twisting and said wavy pattern of said steel wires are compounded and gaps are formed between said steel wires by said wavy patterns of said steel wires, three-six of said strands being simultaneously twisted together in a same twisting direction as a strand twisting direction and with a same pitch to form the steel cord, a lay length P1 of the steel cord being 8–15 times diameter D of the steel cord and an elongation of breakage by tension of the steel cord being over 5%, the method comprising the steps: providing a double-twist bunching type twisting machine comprising on an upstream side of an entrance side voice, a same number of wire twisters and preforming devices as a number of steel wires in each strand; providing in each wire twister three rollers mounted on a rotating member; providing three-five pins in each of the preforming devices disposed on a base member; fixing a position of each of the preforming devices; revolving each of the wire twisters about a passing line of a steel wire passing there through in a same direction as a direction of rotation of bows of the twisting machine so as to give each steel wire the continuous helical wavy pattern as a result of passing between the pins; and bundling the wires in this helical wavy state by the voice; and giving first and second twists in the twisting machine to form the cord.

5,722,227

OPEN-END SPINNING ROTOR

Fritz Stahlecker, Josef-Neidhart-Strasse 18, 73337 Bad Überkingen, Germany, assignor to Fritz Stahlecker, Bad Uberkingen, and Hans Stahlecker, Süssen, both of Germany

Filed Oct. 1, 1996, Ser. No. 724,671
Claims priority, application Germany, Dec. 8, 1995, 195 45 386.2
Int. Cl.[6] D01H *4/12*
U.S. Cl. 57—406 **20 Claims**



1. In an open-end spinning rotor assembly including a rotor cup, a rotor shaft fixed to the rotor cup at one end and having an oppositely facing free end, and a step bearing having a step bearing member,

the improvement comprising:

a supporting element which in use is interposed between the free end of the rotor shaft and the step bearing member, and

a holding part engaging a circumferential surface of the rotor shaft and holding the supporting element axially against the free end of the rotor shaft outside of and separate from the step bearing and step bearing member,

wherein said holding part is separate from both the rotor shaft and the supporting element.

5,722,228

STARTING SYSTEM FOR A GAS TURBINE ENGINE

Steven W. Lampe, Poway, and Alan Greubel, San Diego, both of Calif., assignors to Sundstrand Corporation, Rockford, Ill.

Filed Jul. 25, 1994, Ser. No. 279,968
Int. Cl.° F02C *7/268*
U.S. Cl. 60—39.06 **4 Claims**

1. In a gas turbine engine comprising:

a combustor chamber,

a compressor, mounted on a rotatable shaft, for supplying compressed gas to said combustion chamber,

a supply of fuel,

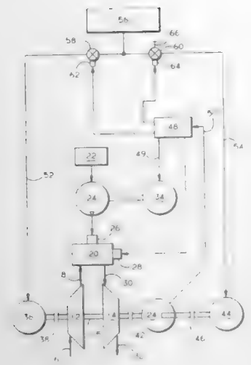
a controller for provision of said fuel to said combustion chamber,

driving means for permitting the rotation of said shaft to supply power to said controller when combustion of fuel within said combustion chamber is self sustaining, and

hydraulic means for starting rotation of said shaft, including a source of hydraulic fluid and a first hydraulic motor driven by said hydraulic fluid,

a starting means is provided for separately initializing said controller, said starting means comprising:

a second hydraulic motor connected to said source of hydraulic fluid for receiving said fluid independently from the provision of said fluid to said first hydraulic motor, and



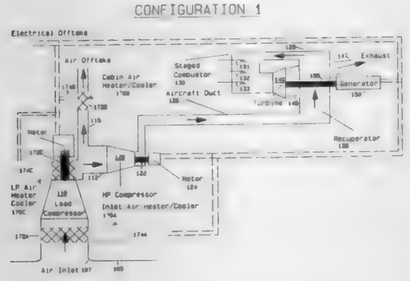
connecting means for selectively joining said second hydraulic motor to said driving means for supplying power to said controller prior to rotation of said shaft.

5,722,229

AUXILIARY GAS TURBINE ENGINES

Michael J. Provost, 85 Balmoral Drive, Bramcote Hills, Nottingham NG9 3FR, England

Filed Jun. 7, 1995, Ser. No. 480,292
Claims priority, application United Kingdom, Jul. 30, 1994, 9415436
Int. Cl.[6] F02C *6/08*
U.S. Cl. 60—39.07 **19 Claims**



1. An auxiliary gas turbine engine for an aircraft, including;

an air intake,

a load compressor for compressing air supplied from the air intake,

a cabin air supply duct for supplying air from the load compressor to the aircraft cabin,

a combustor for burning fuel in air supplied from the load compressor,

a turbine driven by the combustion products of the combustor,

a turbine exhaust means,

variable speed drive means for transferring power from the turbine to drive the load compressor, and

heat exchanger means for adjusting the temperature of the air flowing through the cabin air supply duct,

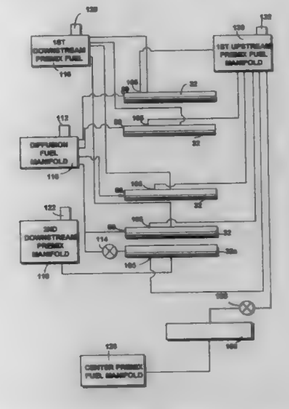
said load compressor being in flow series with a high pressure compressor, said load compressor supplying air to the cabin air supply duct and the high pressure compressor, and the high pressure compressor supplying air to the combustor.

5,722,230

CENTER BURNER IN A MULTI-BURNER COMBUSTOR

Mitchell Cohen, Troy; Masayoshi Kuwata, Ballston Lake; Charles E. Steber, Scotia, and Warren J. Mick, Altamont, all of N.Y., assignors to General Electric Co., Schenectady, N.Y.

Filed Aug. 8, 1995, Ser. No. 512,581
Int. Cl.[6] F02C *3/00;* **F02G** *3/00*
U.S. Cl. 60—39.37 **1 Claim**



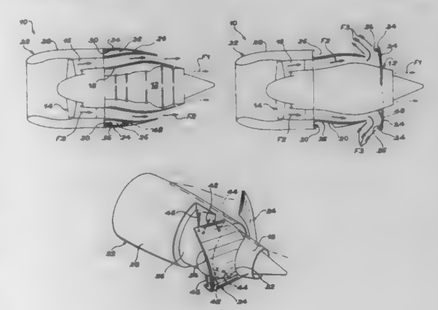
1. In a single stage gas turbine combustor capable of operating in pre-mix and diffusion modes having an annular array of nozzles arranged about a center axis, wherein said nozzles in said annular array are connected to both pre-mix and diffusion fuel sources, the improvement comprising a center pre-mix nozzle located on said center axis, and including a separate manifold for supplying only pre-mix fuel to the center nozzle.

5,722,231

TURBOFAN WITH THRUST REVERSAL DOORS NOT SUBMITTED TO BYPASS AIR IN THEIR INACTIVE POSITION

Alain Porte, Colomiers, France, assignor to Aerospatiale Societe Nationale Industrielle, Paris, France

Filed Jul. 26, 1996, Ser. No. 690,165
Claims priority, application France, Jul. 26, 1995, 95 09082
Int. Cl.° F02K *3/02*
U.S. Cl. 60—226.2 **10 Claims**



1. Turbofan, comprising:

a core engine, of given longitudinal axis, including an outer enclosure;

a nacelle placed coaxially around the engine and including an inner enclosure and an outer enclosure;

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a fan driven by the engine and assembled in an annular channel formed between the outer enclosure of the engine and the inner enclosure of the nacelle;

at least two thrust reversal doors, capable of occupying an inactive position, in which the doors are retracted in the nacelle, and an active position, in which the doors inflect at least part of the air flow circulating in the annular channel towards the exterior of the nacelle and forwards; and

means of controlling the movement of the doors between their inactive and their active positions;

in which:

in their inactive position, the doors are housed in casings which are formed on the outer enclosure of the nacelle and which are located in their entirety outside the inner enclosure of the nacelle; and

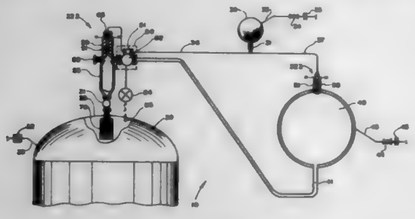
in their active position, the doors are placed beyond a rear end of the nacelle.

5,722,232

HYBRID HELIUM HEATER PRESSURIZATION SYSTEM AND ELECTRICAL IGNITION SYSTEM FOR PRESSURE-FED HYBRID ROCKETS

H. Stephen Jones, Lacombe, La., assignor to Martin Marietta Corporation, Bethesda, Md.

Filed Oct. 13, 1994, Ser. No. 322,781
Int. Cl.[6] F02K *9/72;9/50*
U.S. Cl. 60—259 **30 Claims**



1. Apparatus including a hybrid heater pressurization system, for a rocket comprising a first liquid fuel component and a second fuel component, comprising pressurization means, for forcing the first liquid fuel component into contact with the second fuel component, the pressurization means comprising:

(I) a gas initially stored at a cryogenic temperature;

(ii) a hybrid heater having a longitudinal axis and generating combustion products when ignited for heating the gas by mixing the combustion products of the hybrid heater with the gas in a mixing chamber; the gas being injected through ports circumferentially disposed about the axis; and

(iii) diffuser means for introducing the heated gas into a container containing the first liquid fuel component.

5,722,233

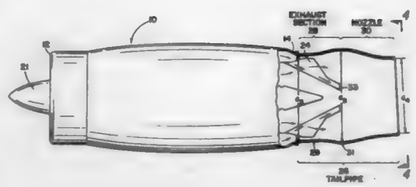
TURBOFAN ENGINE EXHAUST MIXING AREA MODIFICATION FOR IMPROVED ENGINE EFFICIENCY AND NOISE REDUCTION

John P. Nikkanen, Hartford, Conn., and Thomas J. Jannetta, Tulsa, Okla., assignors to The Nordam Group, Inc., Tulsa, Okla.

Filed Jun. 23, 1993, Ser. No. 82,050
Int. Cl.[6] F02K *1/38*
U.S. Cl. 60—262 **2 Claims**

1. For use with a turbofan engine having an engine exhaust duct through which engine core and fan gases are ejected, an improved fuel efficient and noise suppression tailpipe comprising:

a tailpipe exhaust section having a forward end and an aft end and having a flow area with an internal diameter at said



forward end of d_3, said forward end being connected to said engine exhaust duct, said tailpipe exhaust section expanding in the direction towards said aft end to an internal diameter of d_2;

fixed mixing means for mixing all engine core gas and all fan gas positioned at least partially within said tailpipe exhaust section, all substantial portions of the mixing means being forward of a mixing means aft end at which, a mixed exhaust stream of all of the engine core gas and fan gas is provided; and

a tailpipe nozzle section having a forward end and an exhaust end, the tailpipe nozzle section forming a unitary, undivided internal passageway through which all of said mixed exhaust stream passes, the forward end having an internal diameter of d_2 and forming a juncture with said tailpipe exhaust section aft end, the nozzle section converging in diameter towards said aft end to an internal diameter of d_4, d_2 being greater than d_3 and d_4 so that thereby a noise reducing internal, increased flow area bulge is formed in said tailpipe at said juncture of said exhaust section and said nozzle section, the ratio of d_2 to d_3 being about 1.1, said mixing means aft end being substantially in alignment with said noise reducing bulge at said exhaust section and said nozzle section juncture so that thereby no substantial portion of any portion of a mixer means extends within said tailpipe nozzle section, said increased flow area bulge serving to suppress noise and increase efficiency of said turbofan engine.

5,722,234

AIRCRAFT RAM JET ENGINE FOR SUPERSONIC AND/OR HYPERSONIC FLIGHT

Alain Chevalier, Asnieres les Bourges; Marc Bouchez, Bourges, both of France; Dmitri Davidenko, Moscou, Russian Federation; Valery Avrachkov, Moscow, Russian Federation, and Vadim Levine, Moscou, Russian Federation, assignors to Aerospatiale Societe Nationale Industrielle, Paris, France

Filed Jul. 15, 1996, Ser. No. 679,959
Claims priority, application France, Jul. 13, 1995, 95 08496
Int. Cl.[6] F02R *7/08*
U.S. Cl. 60—270.1 **6 Claims**

1. An aircraft ram jet engine intended to operate over a wide range of supersonic and hypersonic speeds, comprising:

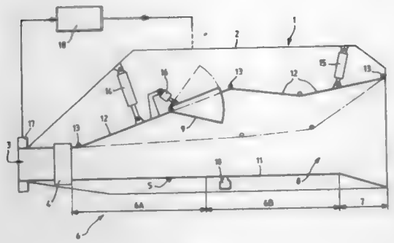
an oxidant inlet (**3**),

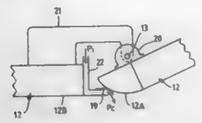
at least one fuel injector (**4**),

a body (**5**) in which the oxidant and fuel are mixed and combusted and the gases resulting from the combustion are channeled,

at least one movable wall of said body (**5**) consisting, at least partially, of at least two movable plates (**12**), each plate having lateral ends, and at least one articulation (**13**), in such a way as to cause the geometry of said body to change as a function of the operating speed of the ram jet engine, wherein two adjacent plates (**12**) are linked together by an articulation (**13**) having a rounded end (**12A**) and an end facing said rounded end (**12B**): and

first fluid blowing means (**19**, **22**) disposed in the region of said articulations (**13**) in order to cool said articulations, each of said first fluid blowing means including:





a first curved flexible strip (**19**) having a convex face and supported by said end (**12B**) facing the rounded end, and bearing against said rounded end (**12A**) by said convex face, and

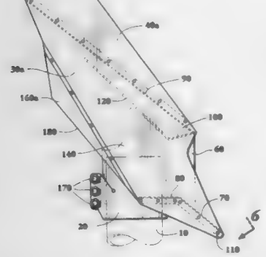
a fluid inlet duct (**22**) blowing a fluid towards said one rounded end (**12A**) and said curved flexible strip (**19**).

5,722,235

EXHAUST GAS BACK PRESSURE ATTENUATOR FOR TRUCK EXHAUST STACKS

Bailey L. Cumins, Tulsa, Okla., assignor to CCL, Inc., Tulsa, Okla.

Filed Aug. 26, 1996, Ser. No. 702,896
Int. Cl.[6] F02B *35/00*
U.S. Cl. 60—274 **14 Claims**



1. A method for reducing the exhaust gas back pressure at an upper end of a truck exhaust stack while the truck is in motion, said truck producing exhaust gases as a by-product of internal combustion, said method comprising the steps of:

(a) capturing a first ambient air stream on the face of an inclined ramp, said ramp rearwardly and upwardly inclined over the top of said upper end of said exhaust stack, and said ramp having a forward end, a rearward end, a left side and a right side, said forward end being lowered in the direction of forward travel, and the rearward end of said ramp extending above the upper end of said truck exhaust stack;

(b) directing said first air stream up the face of said ramp thereby creating a first low pressure region therebehind;

(c) capturing a second ambient air stream;

(d) dividing said second air stream into two subsidiary streams;

(e) directing one subsidiary air stream to one side of said truck exhaust stack adjacent the upper end thereof, and the other subsidiary air stream to the other side of said exhaust stack adjacent the upper end thereof, thereby creating a second low air pressure region behind said exhaust stack, whereby the exhaust gases within the stack are drawn into said low pressure region and mixed with said subsidiary air streams; and

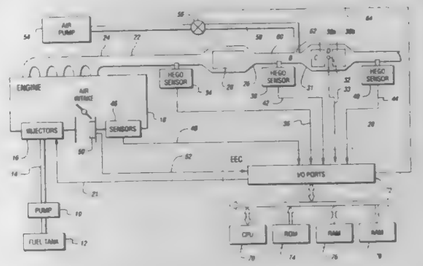
(f) releasing said exhaust gas and subsidiary air stream mixture into the atmosphere proximate to said first low pressure region.

5,722,236

ADAPTIVE EXHAUST TEMPERATURE ESTIMATION AND CONTROL

Michael John Cullen, Northville; Bradley John Hieb, Dearborn, and Christopher K. Davey, Novi, all of Mich., assignors to Ford Global Technologies, inc., Dearborn, Mich.

Filed Dec. 13, 1996, Ser. No. 768,004
Int. Cl.[6] F01N *3/20*
U.S. Cl. 60—274 **12 Claims**



1. A method of estimating the temperature of a NO_x trap located in an exhaust passage of an engine, said trap including a sensor for measuring the temperature of the trap, said method comprising a sequence of the steps of:

estimating the instantaneous temperature of said trap;

estimating temperature output of said sensor based on a previous estimate of said sensor output, said instantaneous trap temperature, and a predetermined temperature rate of change of said sensor as a function of engine air mass flow;

calculating the temperature error between the said estimated sensor output and the actual output of the sensor;

learning a trap temperature correction term based on said temperature error; and

correcting said estimated trap temperature using said correction term.

5,722,237

MUFFLER STRUCTURE FOR INTERNAL COMBUSTION ENGINE

Gilchi Iida; Yasuharu Sato, and Kengo Kubo, all of Tokyo, Japan, assignors to Kioritz Corporation, Tokyo, Japan

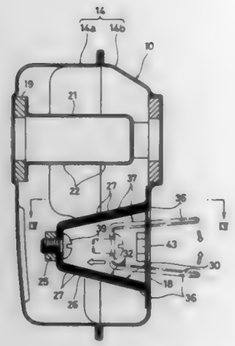
Filed Oct. 17, 1996, Ser. No. 733,299
Claims priority, application Japan, Oct. 20, 1995, 7-272959
Int. Cl.[6] F01N *3/28;7/18*
U.S. Cl. 60—302 **4 Claims**

1. A muffler structure for an internal combustion engine comprising:

a muffler, and

a catalytic assembly disposed in said muffler, said catalytic assembly including a spark arresting wire mesh and a catalytic cloth fitted over said spark arresting wire mesh, said catalytic cloth has its peripheral edge covered entirely or in

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substantial part and retained with side walls peripherally provided on said wire mesh.

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DEVICE FOR EVALUATING CATALYST PERFORMANCE DETERIORATION

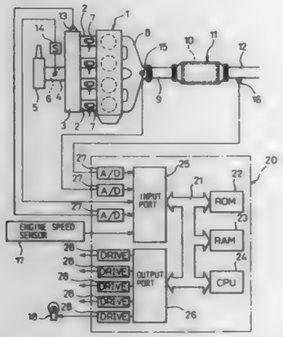
Toshio Tanahashi, Susono; Masakatsu Sanada, Numazu; Koji Yokota, Nagoya; Shinichi Matsunaga, Owariasahi; Hideo Sobukawa, Nisshin; Ichiro Konomi, and Tadashi Suzuki, both of Seto, all of Japan, assignors to Toyota Jidosha Kabushiki Kaisha, Toyota, and Kabushiki Kaisha Toyota Chuo Kenkyusho, Aichi, both of Japan

Filed Oct. 22, 1996, Ser. No. 734,774

Claims priority, application Japan, Oct. 25, 1995, 7-277780; Jun. 21, 1996, 8-161999

Int. Cl.[6] F01N *3/20*

U.S. Cl. 60—276 **14 Claims**



1. A device for evaluating performance deterioration of an exhaust gas purifying catalyst, comprising:

temperature detecting means arranged in an exhaust passage for detecting a temperature of an exhaust gas purifying catalyst;

oxygen concentration detecting means arranged in the exhaust passage for detecting a concentration of oxygen contained in an exhaust gas;

calculating means for calculating a degree of catalyst performance deterioration in a predetermined period on the basis of the temperature of the catalyst detected by said temperature detecting means and the concentration of oxygen detected by said oxygen concentration detecting means;

accumulating means for cumulatively adding the degree of catalyst performance deterioration in said predetermined period to obtain an accumulated value; and

evaluating means for evaluating the catalyst performance deterioration on basis of the accumulated value.

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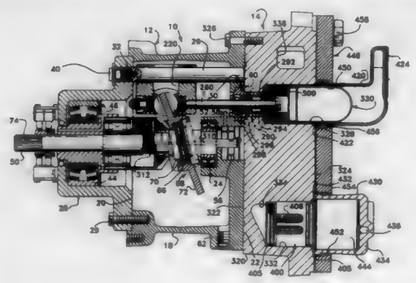
STIRLING ENGINE

William H. Houtman, Ann Arbor, Mich., assignor to Stirling Thermal Motors, Inc., Ann Arbor, Mich.

Continuation of Ser. No. 536,996, Sep. 29, 1994, Pat. No. 5,611,201. This application Feb. 26, 1997, Ser. No. 806,611

Int. Cl.[6] F01B *29/10*

U.S. Cl. 60—517 **18 Claims**



1. A Stirling engine comprising:

a cylinder block defining a plurality of mutually parallel cylinder bores and cooler bores, and said block defining a block mating surface perpendicular to said cooler bores with said cylinder bores and said cooler bores opening on said block mating surface,

a plurality of pistons positioned within said cylinder bores and reciprocatable therein,

a plurality of regenerator housings defining an enclosed end and an opened end,

a plurality of regenerators mounted within said regenerator housings,

a heater assembly having flow passages for a working fluid causing said working fluid to gain heat, said heater assembly connected to said regenerator housing enclosed ends, and

a one-piece retainer plate having a plurality of regenerator housing bores corresponding to and aligned with said cooler bores, said retainer plate mounted to said cylinder block mating surface thereby clamping said regenerator housings to said block mating surface in alignment with said cooler bores.

5,722,240

BOOSTED BRAKING DEVICE WITH REDUCED TRAVEL

Philippe Castel, Paris, France, assignor to Bosch Systems De Freinage, Drancy, France

PCT No. PCT/FR95/01664, § 371 Date Jan. 16, 1996, § 102(e) Date Jan. 16, 1996, PCT Pub. No. WO96/22208, PCT Pub. Date Jul. 25, 1996

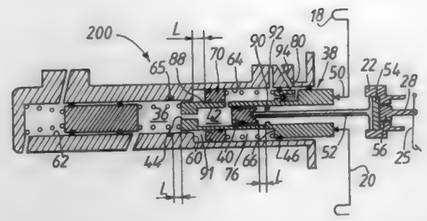
PCT Filed Dec. 13, 1995, Ser. No. 581,560

Claims priority, application France, Jan. 18, 1995, 95 00489

Int. Cl.[6] B60T *11/224*

U.S. Cl. 60—577 **12 Claims**

1. A booster braking device for a motor vehicle, comprising: a master cylinder and a pneumatic booster, said master cylinder being filled with a brake fluid and equipped with a main hydraulic piston designed to receive an actuation force composed of an input force and of a boost force, said input force and boost force acting in an axial direction, said pneumatic booster being capable of operating by application of said input force being applied to an operating rod controlling an opening of a valve in order to exert said boost force on said main hydraulic piston, said booster having a rigid casing divided in leaktight fashion into first and second



chambers by means of a moving partition capable of being urged by a difference in pressure between said first and second chambers, said difference in pressure resulting from the opening of said valve, said booster having a pneumatic piston which can move relative to the casing and carries said valve, said pneumatic piston contributes at least to transmitting the boost force to said main hydraulic piston, said main hydraulic piston of the master cylinder having a hollow moving cylinder with an internal volume and which slides in a bore and communicating with said master cylinder, said hollow moving cylinder receives at least some of said boost force, a secondary hydraulic piston located in said hollow moving cylinder receiving at least said input force slides over an axial distance in leaktight fashion and in said axial direction, said moving partition being slidably mounted on the pneumatic piston so that it can slide over a relative axial distance in the direction of said master cylinder from an initial relative position in which said moving partition is in abutment against the rear of said pneumatic piston and bearing at least indirectly on said moving cylinder toward the front in response to said pressure difference, said device being characterized in that said bore is stepped and includes a radial shoulder between a smaller-diameter front part and a larger-diameter rear part; said hollow moving cylinder is stepped and includes a radial shoulder between a smaller-diameter front part and a larger-diameter rear part; an annular piston is held fast to said main hydraulic piston when the travel of said hollow moving cylinder in said bore is less than said axial distance, said annular piston is capable of sliding in leaktight fashion over said front part of said hollow moving cylinder and in said rear part of said stepped bore, said annular piston being capable of sliding over said main hydraulic piston when the travel of said hollow moving cylinder in said bore is greater than said axial distance, said annular piston, said rear part of the stepped bore, said shoulder and said front part of said hollow moving cylinder together define a variable-volume annular chamber, said variable-volume annular chamber being capable of communicating with said internal volume of said hollow moving cylinder via at least one radial passage.

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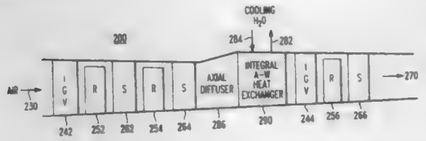
INTEGRALLY INTERCOOLED AXIAL COMPRESSOR AND ITS APPLICATION TO POWER PLANTS

David John Huber, North Canton, Ohio, assignor to Westinghouse Electric Corporation, Pittsburgh, Pa.

Filed Feb. 26, 1996, Ser. No. 606,629

Int. Cl.[6] F02C *7/143*

U.S. Cl. 60—728 **14 Claims**



1. A power plant comprising an integrally intercooled axial flow compressor, the compressor comprising:

a plurality of rotor blades and stator vanes; and

cooling means comprising a water-cooled stator assembly located in a flow path where gas passes through the compressor when in operation for receiving cooling water and for absorbing heat from gas passing over the cooling means, whereby, when the compressor is in operation the gas is cooled;

the cooling means further comprising an integral air to water heat exchanger located in the compressor downstream of the rotor blades and the stator vanes and in the flow path, the heat exchanger receiving cooling water and absorbing heat from the gas passing through the heat exchanger when the compressor is in operation; and

an axial diffuser located upstream of the heat exchanger.

5,722,242

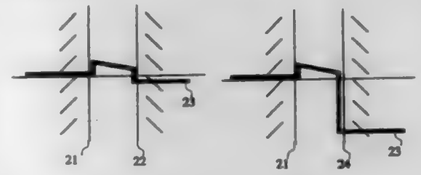
METHOD AND APPARATUS FOR IMPROVED VACUUM DIODE HEAT PUMP

Jonathan S. Edelson, Hillsboro, Oreg., assignor to Borealis Technical Limited, London, England

Filed Dec. 15, 1995, Ser. No. 573,074

Int. Cl.[6] F25B *21/00*

U.S. Cl. 62—3.1 **14 Claims**



1. An apparatus for pumping heat comprising

a) a vacuum diode, as cathode of said vacuum diode being in thermal contact with a mass from which said heat is to be removed, an anode of said vacuum diode being in thermal contact with a mass to which said heat is to be carried, said cathode of said vacuum diode having a work-function consistant with copious electron emission at the temperature of said mass from which heat is to be removed, said cathode being separated from said anode by vacuum,

b) a supply of electrical power capable of supplying current at suitable voltage to said vacuum diode,

c) said cathode of said vacuum diode being at a temperature of less than 400 degrees Centigrade, and said cathode of said vacuum diode being cooler than said anode of said vacuum diode,

the improvement wherein being

said anode of said vacuum diode having a work-function lower than said cathode of said vacuum diode, whereby contact potential between said cathode and said anode will act to reduce electrical losses owing to space charge effects.

5,722,243

PULSED HEAT ENGINE FOR COOLING DEVICES

James H. Reeves, 216 Abert Ave., Richland, Wash. 99352

Filed Nov. 13, 1996, Ser. No. 748,355

Int. Cl.[6] F25B *9/00*

U.S. Cl. 62—6 **12 Claims**

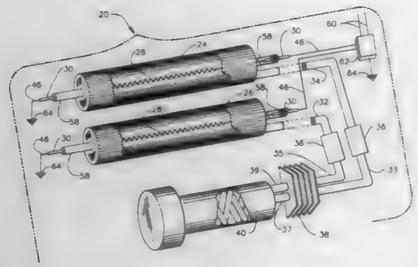
1. An electrically powered pulsed heat engine for cooling a heat load, said heat engine comprising:

(a) first and second containers for heating a gas, each said container having an inner surface and an outer surface, at least one of said containers having a heating element disposed therein;

(b) means for receiving an electric current from a source of electric power, said means being electrically connected to said heating elements;

(c) at least one heat exchanger for maintaining the temperature of gases near ambient temperature;

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(d) a low temperature vacuum cryostat, said cryostat having a gas port for the entrance and exit of gas, a cooling head provided with access to said gas port, said cooling head having a first chamber, a second chamber, and a partition, said two chambers being separated by said partition, said partition having an orifice therein, whereby access is provided from each said chamber to the other said chamber, said two chambers of cooling head being in thermal contact with the heat load; and

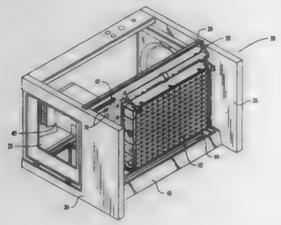
(e) a first conduit connected to and extending from the first gas heating container, coming into substantial thermal contact with said heat exchanger, and continuing on to said gas port of said cryostat, and a second conduit connected to and extending from the second gas heating container, coming into substantial thermal contact with said heat exchanger, and continuing on to said gas port of said cryostat.

5,722,244

MODULAR ICE CUBE MAKER AND METHOD OF MANUFACTURE

Norman L. Shelton, Boulder, Colo., assignor to Mile High Equipment Co., Denver, Colo.

Filed Sep. 27, 1995, Ser. No. 534,352
Int. Cl.[6] F25C *1/12*
U.S. Cl. 62—74 **39 Claims**



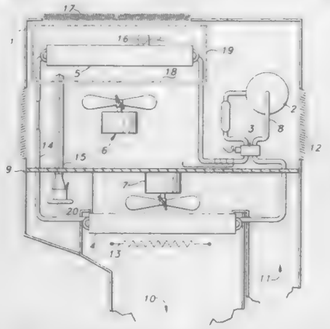
12. A method of manufacturing an ice making machine, comprising: molding a substantially unitary plastic base unit including a water trough; producing a water freezing member including an evaporator and ice mold; producing a plastic dividing panel; attaching the dividing panel to the base unit and mounting the freezing member to the dividing panel whereby the freezing member is positioned vertically above the trough so that water flowing over the freezing member drops into the trough.

5,722,245

MICROWAVE HEAT PUMP DEFROSTER

Henderson Frank Ponder, P.O. Box 145, Summerville, Ga. 30747

Filed Aug. 27, 1996, Ser. No. 704,449
Int. Cl.[6] F25D *21/06*
U.S. Cl. 62—80 **14 Claims**



12. A method for defrosting the outside coil of an electric heat pump, comprising the steps of:

providing a microwave energy means housed in a safe environment away from excessive moisture; and

an enclosure means wherein said outside coil of said heat pump is enclosed, along with a humidity controlled circuit breaker;

a microwave energy wave guide means to transmit said microwave energy to said enclosure means: and

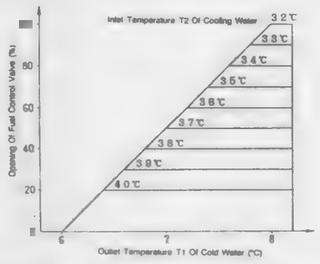
wherein microwave energy generated by said microwave energy means is transmitted to said enclosure means so as to apply heat to the external surfaces of said outside coil of said heat pump while said heat pump is operating in the heating mode so that said outside coil of said heat pump is defrosted with heat generated by said microwave energy without the need to reverse the flow of refrigerant within said heat pump, and allowing said heat to be absorbed into the heat pump system via the outside coil of said heat pump.

5,722,246

ABSORPTION REFRIGERATING APPARATUS CONTROL METHOD

Hideo Ishiko, Ohra-gun, Japan, assignor to Sanyo Electric Co. Ltd., Osaka-fu, Japan

Filed Aug. 20, 1996, Ser. No. 699,930
Int. Cl.[6] F25B *15/00*
U.S. Cl. 62—148 **6 Claims**



1. A method for controlling the amount of heating in a regenerator of an absorption refrigerating apparatus having an absorber and an evaporator, wherein the amount of heating in the regenerator is dependent upon the opening of a fuel control valve, and wherein cooling water is supplied to the absorber and cold water is removed from the evaporator, said method comprising the steps of:

determining a maximum value for the opening of the fuel control valve based upon the inlet temperature of cooling water supplied to the absorber; and

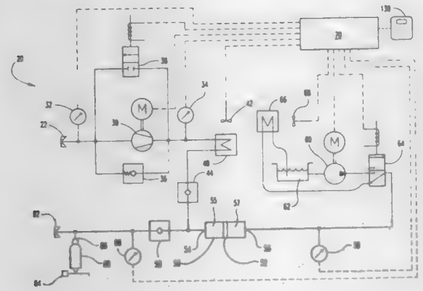
controlling the amount of heating in the regenerator by controlling the opening of the fuel control valve based upon the outlet temperature of cold water removed from the evaporator, independent of the inlet temperature of cooling water supplied to the absorber, until the opening of the fuel control valve reaches the maximum value, at which point the opening of the fuel control valve is limited to the maximum value.

5,722,247

RECOVERY SYSTEM FOR VERY HIGH-PRESSURE REFRIGERANTS

Luther D. Albertson, New Albany, and Walter R. Key, Greenwood, both of Ind., assignors to Redi-Controls Inc., Greenwood, Ind.

Filed Oct. 11, 1996, Ser. No. 728,765
Int. Cl.[6] F25B *45/00*
U.S. Cl. 62—149 **44 Claims**



1. An apparatus system for recovering and charging refrigerant of a refrigeration system, comprising:

a compressor for receiving refrigerant and expelling it at a higher pressure;

a cylinder defining an internal chamber, with a refrigerant port and a hydraulic fluid port;

a first check valve permitting flow of expelled, higher pressure refrigerant to the refrigerant port of said cylinder, and restricting refrigerant flow out of said cylinder;

a piston slidably movable within said cylinder and dividing the internal chamber into a first variable volume in fluid communication with the refrigerant port and a second variable volume in fluid communication with the hydraulic fluid port;

means for hydraulically actuating said piston, whereby supply of low pressure hydraulic fluid to the hydraulic fluid port results in intake of expelled, higher pressure refrigerant into the first variable volume, and supply of high-pressure hydraulic fluid to the hydraulic port results in discharge of refrigerant from the first variable volume;

a controller for cycling of said piston actuating means between supply of low pressure and high-pressure hydraulic fluid; and

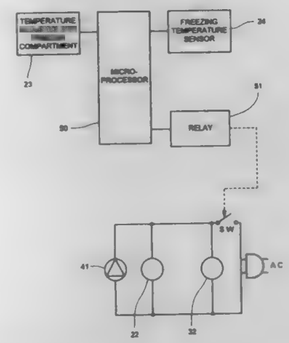
a second check valve permitting refrigerant flow out of the refrigerant port of said cylinder, and restricting refrigerant flow into the refrigerant port of said cylinder.

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OPERATING CONTROL CIRCUIT FOR A REFRIGERATOR HAVING HIGH EFFICIENCY MULTI-EVAPORATOR CYCLE (H.M. CYCLE)

Kook Jung Suh, Seoul, Rep. of Korea, assignor to Samsung Electronics Co., Ltd., Suwon, Rep. of Korea

Filed Nov. 9, 1995, Ser. No. 556,143
Claims priority, application Rep. of Korea, Nov. 11, 1994, 94-29471; Nov. 11, 1994, 94-29474; May 30, 1995, 95-13927
Int. Cl.[6] F25D *17/06*
U.S. Cl. 62—180 **6 Claims**



1. A refrigerator comprising:

at least two separate cooling compartments operating at different temperatures;

evaporators communicating with respective cooling compartments;

first and second fans communicating with respective evaporators and connected in parallel to an air conditioning power source;

a compressor for compressing refrigerant supplied to the first and second evaporators, the compressor connected in parallel to the first and second fans and to an electrical power source;

a single switch for controlling the application of electrical power to the compressor and the first and second fans;

a temperature adjuster for setting a temperature of one of the cooling compartments;

a sensor for detecting a temperature of the one cooling compartment; and

a controller for controlling the switch in response to a temperature detected by the sensor to simultaneously turn on or off the compressor and the first and second fans.

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MULTI STAGE THERMOELECTRIC POWER GENERATION

Joel V. Miller, Jr., 14340 Trinidad, San Leandro, Calif. 94577

Continuation-in-part of Ser. No. 607,382, Feb. 27, 1996, which is a continuation of Ser. No. 491,787, Jun. 19, 1995, abandoned. This application May 28, 1996, Ser. No. 653,862
Int. Cl.[6] F25B *27/00;21/02;* **F25D** *15/00*
U.S. Cl. 62—238.2 **5 Claims**

1. A system for refrigerating a region which comprises:

a burner means for generating thermal energy;

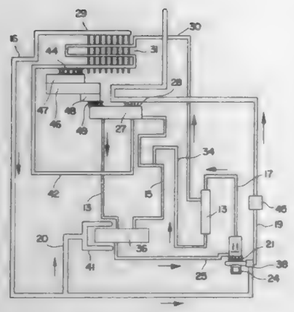
a plurality of power stages wherein each stage includes:

(i) a boiler means having a first location and adapted for absorbing heat from a source of heat at said first location;

(ii) said boiler means adapted for holding a liquid solution of a first component and a second component;

(iii) a separator means communicating with said boiler means such that when said solution is heated by said thermal energy, said liquid solution passes into said separator means where said second component is separated as a gas from said liquid first component;

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(iv) an absorption means for mixing said first and second components whereby a liquid mixture of said first and second components is formed;

(v) first conductor means for conducting said first component from said separator means to said absorption means;

(vi) a condensing means for condensing said second component from a gaseous second component to a liquid second component;

(vii) a second conductor means for conducting said gaseous second component from said separator means to said condenser means whereby said gaseous second component is condensed to liquid second component;

(viii) an evaporator means communicating with said condenser means for converting said liquid second component means to gaseous second component means;

(ix) a third conduit means connecting said evaporator means and said absorption means such that said gaseous second component passes from said evaporator means to said absorption means;

(x) a fourth conduit means adapted for conducting a gaseous third component from said absorption means to said evaporator means;

(xi) means for introducing a predetermined amount of a gaseous third component into one of:

(a) said third conduit means;

(b) said fourth conduit means;

such that said predetermined amount of said third component is selected to ballast pressure in said evaporator and absorber means;

(xii) a pump means connected to said fourth conduit means adapted for pumping said gaseous third component from said absorption means to said evaporator means;

a high end stage of said plurality of stages having said respective boiler having a first location adapted to be in thermal contact with said burner means;

said burner means providing said thermal energy to said first location of said high stage;

said plurality of stages being serially connected in a succession of said stages beginning with said high end stage connected to a neighboring stage such that each stage has one of:

(i) a respective condenser;

(ii) a respective absorber;

in thermal contact, respectively with said respective boiler of another neighboring stage and ending with a low end stage having a respective condenser in thermal contact with a heat sink whereby heat flows from said source of heat through said system and is discharged to said heat sink,

said evaporator means of at least one of said plurality of stages having a surface adapted for absorbing heat from said region.

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DEVICE FOR HEATING AND AIR-CONDITIONING THE PASSENGER COMPARTMENT OF A MOTOR VEHICLE WITH AN ELECTRIC MOTOR

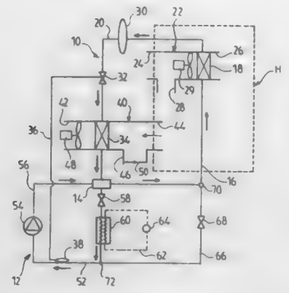
Vincent Pomme, Montigny le Bretonneux, France, assignor to Valeo Climatisation, La Verriere, France

Filed Oct. 24, 1996, Ser. No. 736,515

Claims priority, application France, Oct. 26, 1995, 95 12650

Int. Cl.[6] B60H *1/32*

U.S. Cl. 62—244 **22 Claims**



17. Device for heating and air-conditioning the passenger compartment of a motor vehicle with an electric motor, of the type comprising a refrigerating fluid circulation circuit having a main loop containing an internal heat exchanger suitable for exchanging heat with a flow of air sent into the passenger compartment, an external heat exchanger suitable for exchanging heat with a flow of air external to the passenger compartment, and a pressure reducing valve interposed between the internal heat exchanger and the external heat exchanger; a secondary loop containing a compressor; and means of switching between the main loop and the secondary loop in order to cause the refrigerating fluid to circulate in the main loop in a chosen direction of circulation, wherein the secondary loop contains an evaporator connected to a circuit for calling the power circuit associated with the electric motor of the vehicle;

wherein the switching means are able to adopt two different positions:

a heating position, which the refrigerating fluid coming from the compressor is sent first of all to the internal heat exchanger which fulfills the role of condenser, and then passes through the pressure reducing valve before being sent to the external heat exchanger which fulfills the role of evaporator; and

an air-conditioning position, in which the refrigerating fluid coming from the compressor is sent first of all to the external heat exchanger which fulfills the role of condenser, and then passes through the pressure reducing valve before being sent to the internal heat exchanger which fulfills the role of evaporator; and

wherein a bypass pipe containing a stop valve is interposed between the main loop and the secondary loop so that, in the heating position, the stop valve is closed so that the refrigerating fluid necessarily passes through the evaporator whilst, in the air-conditioning position, the refrigerating fluid can either bypass the evaporator when the stop valve is open, or pass through the evaporator when the stop valve is closed.

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AIR COOLER

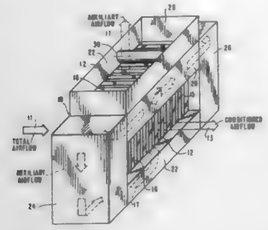
Fatim Nabiulin, Rishon-LeZion; Alexander Stepanov, Yavne; Igor Kvyat; Isaac Rosenstein, both of Rishon-LeZion, and Vladislav Dintcyn, Bney-Brak, all of Israel, assignors to Coolsys Maarachot Keroor Mitkadmot B.M., Yavne, Israel

Filed Mar. 18, 1996, Ser. No. 619,282

Claims priority, application Israel, Mar. 22, 1995, 113078

Int. Cl.[6] F25D *17/04*

U.S. Cl. 62—309 **11 Claims**



1. An air cooler comprising

a housing having an air inlet zone and an air outlet zone,

a heat exchanger arranged in said housing and defining a first plurality of dry channels extending from said air inlet zone to said air outlet zone and through which air to be cooled is passed in the same direction, the air to be cooled constituting a total airflow, said air outlet zone of said housing being exterior of said dry channels of said heat exchanger; said heat exchanger also defining a second plurality of moist channels each having an inlet and an outlet, said moist channels being arranged in an alternating relationship with said dry channels; said moist channels being structured and arranged to pass air to be humidified in a cross-flow direction to the direction of the total airflow; said air to be humidified constituting an auxiliary airflow and being formed from a partial flow of said total airflow after exiting from said dry channels into the air outlet zone exterior of said dry channels of said heat exchanger; a remaining part of the total airflow constituting a conditioned airflow fed to a user's point;

air diversion means arranged in said housing for dividing said total airflow at the air outlet zone exterior of said dry channels of said heat exchanger into said auxiliary airflow and said conditioned airflow, and for directing said auxiliary airflow from said air outlet zone exterior of said dry channels of said heat exchanger directly to the inlets of said moist channels without interaction with another air stream; and

a water distributing chamber mounted on the heat exchanger and communicating with the open outlets of said moist channels;

said air diversion means structured and arranged to extract said auxiliary airflow from a section of the air outlet zone which is situated closer to the outlets of said moist channels than to the inlets of said moist channels.

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COOLING AIR DISTRIBUTION APPARATUS FOR REFRIGERATOR

Ho Sul Kang, and Kyung Kil Heo, both of Changwon, Rep. of Korea, assignors to LG Electronics, Inc., Seoul, Rep. of Korea

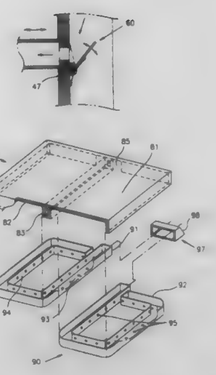
Filed Oct. 10, 1996, Ser. No. 728,324

Claims priority, application Rep. of Korea, Oct. 13, 1995, 28784/1995; Oct. 14, 1995, 28882/1995

Int. Cl.[6] F25D *19/00;17/04*

U.S. Cl. 62—455 **7 Claims**

1. A cooling air distribution apparatus for a refrigerator having a refrigerating compartment including a cooling air distribution duct means for distributing cooling air to the refrigerating compartment, comprising:



a plurality of receiving groove means formed in a front surface of the cooling air distribution duct and each side wall surface in the refrigerator compartment;

a plurality of cooling air inlet means formed in the receiving groove for introducing the cooling air into the refrigerator compartment;

an opening/closing means hinged to a reverse side of each cooling air inlet means for opening/closing the cooling air inlet means;

a rack duct means including

an upper plate having:

an upper portion having a predetermined thickness and size;

a first lower surface having a predetermined thickness;

a support portion formed in the first lower surface for supporting the upper portion;

a downwardly extended elongated edge portion;

a pair of engaging slits formed in the edge portion and spaced-apart with respect to the support portion; and

a plurality of fixing grooves formed in the first lower surface;

a cooling air guide member having:

an inlet portion protruding from one side of the cooling air guide member for introducing the cooling air into the rack duct therethrough;

a curved guide portion for guiding the cooling air introduced thereinto through the inlet portion to the support portion and the edge portion;

a plurality of cooling air holes formed in the inner surface of the guide portion and a second lower surface for introducing the cooling air into the refrigerator compartment therethrough;

a plurality of fixing hooks mating with the plurality of the fixing grooves to enable the guide portion to tightly engage the lower surface of the upper plate; and

a cooling air introducing guide engaged with the inlet portion of the cooling air guide member for opening the opening/closing means and for guiding the cooling air from the cooling air distribution duct toward the inlet portion of the cooling air guide member, wherein the rack duct means is insertable into each receiving groove and each cooling air inlet means for discharging the cooling air into the refrigerator compartment in multiple directions.

5,722,253

GOLF BAG WITH COOLERS

J. Brian Todd, 1193 Eldorado Ave., Oshawa, Ontario, Canada, L1K1E9

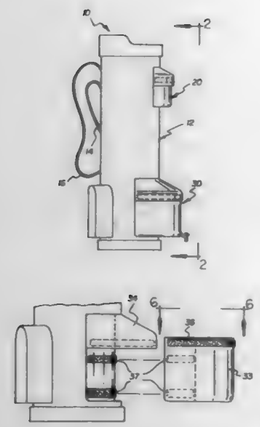
Filed Nov. 29, 1996, Ser. No. 753,739

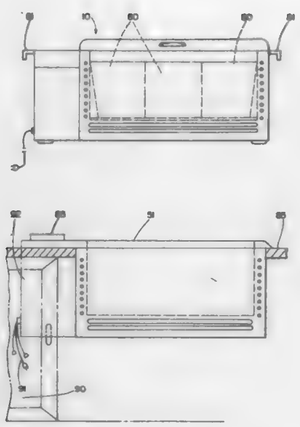
Int. Cl.[6] F25D *3/08*

U.S. Cl. 62—457.5 **10 Claims**

1. An arrangement of coolers on a golf bag having a generally cylindrical exterior surface and top and bottom ends, comprising:

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an upper insulated cooler secured to an upper portion of the golf bag, said upper cooler being sized to receive a beverage container such that the beverage container would be substantially prevented from shifting relative to the upper cooler, said upper cooler having an upper cooler cup comprising an arcuate rear wall for locating adjacent to the generally cylindrical exterior surface of said bag portion, an arcuate front wall substantially uniformly spaced from said arcuate rear wall, and end walls extending between corresponding ends of the front and rear walls, said front, back and end walls forming a perimeter wall, a bottom wall being joined to said perimeter wall for closing one side of said perimeter wall, said upper cooler cup having a dividing wall located inward of said front wall and extending in a substantially parallel relationship to said front wall to divide said upper cooler cup into a central beverage container receiving compartment and a cooling compartment adjacent the central compartment, said cooling compartment being open opposite said bottom wall to permit a cooling medium to be removably placed in the cooling compartment to cool the contents of said central compartment; and

a lower insulated cooler secured to a lower portion of the bag, said lower cooler having a size sufficient to receive a plurality of beverage containers, said lower cooler having a lower cooler cup comprising an arcuate rear wall for locating adjacent to the generally cylindrical exterior surface of said bag portion, an arcuate front wall substantially uniformly spaced from said arcuate rear wall, and end walls extending between corresponding ends of the front and rear walls, said front, back and end walls forming a perimeter wall, a bottom wall being joined to said perimeter wall for closing one side of said perimeter wall, said first cooler cup having a dividing wall located inward of said front wall and extending in a substantially parallel relationship to said front wall to divide said lower cooler cup into a central beverage container receiving compartment and a cooling compartment adjacent the central compartment, said cooling compartment being open opposite said bottom wall to permit a cooling medium to be removably placed in the cooling compartment to cool the contents of said central compartment.

5,722,254

REFRIGERATED SERVING DEVICE

Robin P. Roth; David E. Roth, both of Galloway, and James D. Woltz, Columbus, all of Ohio, assignors to DeLau Innovations, Ltd., Galloway, Ohio

Filed Jun. 5, 1996, Ser. No. 658,370

Int. Cl.[6] F25D *3/08;13/00;23/06*

U.S. Cl. 62—457.9 **8 Claims**

7. A refrigerated serving apparatus, comprising:

a housing;

a food chilling area within the housing having a bottom, a plurality of sides, and a top opening;

a heat absorbing element within the housing and adjacent to at least one side of the food chilling area;

a layer of insulation surrounding the food chilling area and said heat absorbing element;

a heat releasing element within the housing operatively connected with the heat absorbing element, the heat releasing element adjacent to at least one other side of the food chilling area, the at least one other side being different from the at least one side next to which the heat absorbing element is located, the heat releasing element being separated from the food chilling area and the heat absorbing element by the layer of insulation;

a device for moving a heat transferring agent through the heat absorbing element and the heat releasing element, to form a portable refrigeration unit which maintains the food chilling area at a serving temperature;

wherein the apparatus is adapted in size to fully rest upon a kitchen countertop.

5,722,255

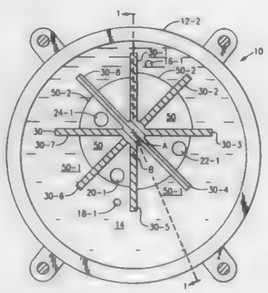
LIQUID RING FLASH EXPANDER

Joost J. Brasz, 1 Landgrove Dr., Fayetteville, N.Y. 13066

Filed Dec. 4, 1996, Ser. No. 753,965

Int. Cl.[6] F17C *9/04;* **F25B** *1/00*

U.S. Cl. 62—498 **8 Claims**



1. A liquid ring flash expander comprising:

a casing;

a cylindrical chamber within said casing and having a centrally located axis;

a vaned rotor located in said chamber and having an axis of rotation spaced from said centrally located axis;

said vaned rotor having a plurality of vanes having tips spaced from said chamber varying distances due to said spacing of said axes;

a first port in fluid communication with said chamber and located radially inward of said tips of said vanes;

a second port in fluid communication with said chamber, circumferentially spaced from said first port, located radially inward of said tips of said vanes and radially outward of said axis of rotation a distance at least equal to half of the distance between said tips and said axis of rotation;

a third port in fluid communication with said chamber, circumferentially spaced from said first port and located radially inward of said second port;

adjacent vanes of said plurality of vanes define cells which rotate with said rotor and move into and out of registration with said first, second and third ports whereby when liquid refrigerant is supplied to said chamber via said first port into one of said cells, said one cell is subjected to centrifugal forces as said one cell rotates such that flashing occurs producing gaseous refrigerant and cooled liquid refrigerant, said cooled liquid refrigerant passing from said one cell when said one cell comes into registration with said second port and gaseous refrigerant passing from said one cell when said one cell comes into registration with said third port.

5,722,256

AIR CONDITIONER AND HEAT PUMP WITH TETRAFLUOROETHANE-CONTAINING WORKING FLUID

Mark Brandon Shiflett, Newark, Del., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del.

Continuation of Ser. No. 119,522, Sep. 14, 1993, abandoned, which is a continuation-in-part of Ser. No. 931,371, Aug. 18, 1992, abandoned, which is a continuation-in-part of Ser. No. 649,356, Feb. 1, 1991, Pat. No. 5,185,094, which is a continuation-in-part of Ser. No. 628,000, Dec. 17, 1990, abandoned. This application Jun. 27, 1995, Ser. No. 508,760

Int. Cl.[6] F25B *1/00;* **C09K** *5/04*

U.S. Cl. 62—502 **2 Claims**

1. An air conditioner or heat pump containing a non-flammable working fluid suitable as a substitute for a working fluid containing R-502, said air conditioner or heat pump having a condenser and evaporator for producing refrigeration in a refrigeration system designed to use R-502, which working fluid consists essentially of 15 to 70% by weight of a tetrafluoroethane, 5 to 60% by weight of difluoromethane and 10 to 90% by weight of pentafluoroethane, which has a composition that displays at 0° C. (32° F.) a vapor pressure of about 83 psia and at 50° C. (112° F.) a vapor pressure of about 270 psia, the vapor pressure and the coefficient of performance in a refrigeration cycle of said composition being at least equal to the vapor pressure and the coefficient of performance in a refrigeration cycle of R-502.

5,722,257

COMPRESSOR HAVING REFRIGERANT INJECTION PORTS

Hiroki Ishii, Nishio; Mikio Matsuda, Okazaki, and Masami Sanuki, Chiryu, all of Japan, assignors to Denso Corporation, Kariya, and Nippon Soken, Inc., Nishio, both of Japan

Filed Oct. 10, 1996, Ser. No. 728,231

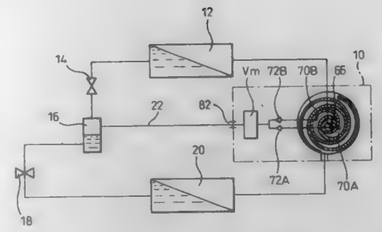
Claims priority, application Japan, Oct. 11, 1995, 7-263297; Nov. 9, 1995, 7-291123

Int. Cl.[6] F25B *31/00;* **F04C** *18/04*

U.S. Cl. 62—505 **5 Claims**

1. A scroll compressor comprising:

a casing;



a rotating shaft having a crank portion having an axis which is eccentric with respect to the rotating shaft;

a bearing for supporting the rotating shaft rotatably with respect to the casing;

a movable scroll member having an end plate and a scroll wall axially extending from the end plate;

a bearing rotatably supporting the movable scroll member on said crank portion so that the movable scroll member effects an orbital movement about the axis of the rotating shaft;

the movable scroll member and the stationary scroll member cooperating with each other so as to form operating chambers, which move radially inwardly, while the volume of the operating chambers is reduced, during the orbital movement of the movable scroll member;

an inlet port opened to the operating chambers when they are located radially outwardly, so that the fluid is introduced into the operating chambers;

an outlet port opened to the operating chambers when they are located radially inwardly, so that the fluid as compressed is discharged;

an injection port formed in the end plate of the stationary scroll member, the injection port being opened to the operating chamber for injecting, into the latter, the fluid which is at a pressure intermediate between the pressure of the refrigerant sucked via the inlet port and the pressure of the refrigerant injected from the outlet port, and;

an intermediate pressure chamber which is in communication with the injection port and which is for eliminating pressure pulsations in the fluid injected to the operating chamber from the injection port,

wherein the intermediate pressure chamber is formed by the end plate of the stationary scroll member and the casing, and wherein the casing is formed with an intermediate pressure port which is for introducing the fluid at the intermediate pressure into the intermediate pressure chamber.

5,722,258

APPARATUS FOR COMBINED HEAT AND MASS TRANSFER

William H. Aitken, Epping, England, assignor to The BOC Group plc, Windlesham, England

Filed Jul. 24, 1996, Ser. No. 690,268

Claims priority, application United Kingdom, Jul. 28, 1995, 95 15492

Int. Cl.[6] F25J *3/00*

U.S. Cl. 62—643 **5 Claims**

1. A liquid-vapour contact apparatus including:

vertical outer walls disposed in the manner of a cuboid;

a plurality of spaced, parallel, vertical plates;

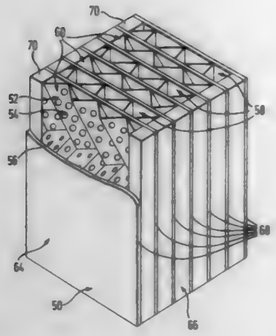
corrugated packing located between each pair of said vertical plates and having liquid and vapour flow characteristics;

the outermost of said vertical plates providing one pair of said vertical outer walls;

the other pair of said vertical outer walls comprising alternate plate edge portions and vertical spacer members;

each packing comprising a vertical array of corrugated liquid-vapour contact elements arranged one above another, with the corrugations in each liquid-vapour contact element slanting from top to bottom in one direction towards one side of the

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packing and the corrugations in the or each liquid-vapour contact element contiguous thereto slanting from top to bottom in another direction towards the opposite side of the packing; and

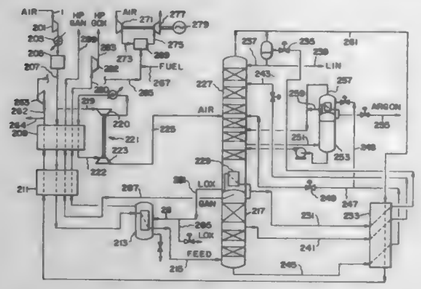
said vertical plates having two sets of passages, one set of passages being associated with an inlet for a first fluid to be fractionated, and the other set of passages being associated with an inlet for a second fluid.

5,722,259

COMBUSTION TURBINE AND ELEVATED PRESSURE AIR SEPARATION SYSTEM WITH ARGON RECOVERY

James Christian Sorensen, Allentown; Rakesh Agrawal, Emmaus; Arthur Ramsden Smith, Telford; Steven Lawrence Feldman, Macungie, and Donald Winston Woodward, New Tripoli, all of Pa., assignors to Air Products and Chemicals, Inc., Allentown, Pa.

Filed Mar. 13, 1996, Ser. No. 615,665
Int. Cl.[6] F25J *3/00*
U.S. Cl. 62—646 15 Claims



1. In a process for the generation of power in an integrated gasification combined cycle power generation system, wherein a compressed air feed is separated in a cryogenic distillation system at elevated pressure to recover oxygen and nitrogen, at least a portion of the oxygen is used in the gasification of a carbonaceous feedstock to provide a combustible gas mixture, and at least a portion of the gas mixture is combusted with compressed combustion air in a gas turbine combustor to generate hot pressurized gas which is expanded in a gas turbine which drives an electric generator to generate electric power, the improvement which comprises recovering an argon product in combination with the recovery of oxygen and nitrogen, wherein the compressed air feed for the cryogenic distillation system and the compressed combustion air for the gas turbine combustor are supplied by separate compression steps, and wherein the oxygen, nitrogen, and the argon product are recovered in a multiple column distillation process which comprises:

a) cooling the compressed air feed and separating the resulting cooled feed in a higher pressure column to yield a bottoms stream enriched in oxygen and argon;

b) cooling the bottoms stream, reducing the pressure of the resulting cooled stream, and introducing the resulting cooled reduced pressure stream into a lower pressure column;

c) withdrawing a high purity oxygen product which contains greater than 98 vol % oxygen from the bottom of the lower pressure column and an argon-enriched vapor from an intermediate point in the lower pressure column; and

d) introducing the argon-enriched vapor into an argon recovery distillation column, withdrawing and condensing a further argon-enriched overhead vapor therefrom, utilizing a portion of the resulting condensate as reflux for the column, and withdrawing the remaining portion of the condensate as an enriched argon product;

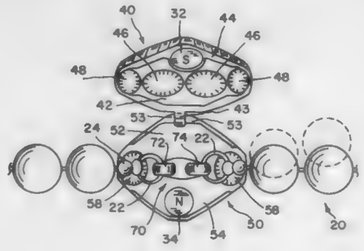
wherein boilup in the lower pressure column is provided in total by indirect heat exchange with vapor from the higher pressure column, and wherein feed to the higher pressure column is provided from the cooled feed of step a) without additional compressed vapor recycled from other points in the multiple column distillation process.

5,722,260

REVERSIBLE JEWELRY CLASP FOR NECKLACES AND/OR BRACELETS AND INTERCHANGEABLE JEWELRY ASSEMBLY EMPLOYING SAME

Joy Mangano, Sun Hill Rd., Nesconset, N.Y. 11767

Filed Dec. 10, 1996, Ser. No. 762,930
Int. Cl.[6] A44C *5/00*
U.S. Cl. 63—3.1 19 Claims



1. A jewelry clasp for releasably clasping the ends of jewelry together, comprising:

a pair of generally clam-shell-like clasp halves, each having a first end portion and a second end portion, said first end portions being hingedly joined together to allow for movement of said clasp halves between an open position in which said second end portions of said clasp halves are spaced apart from one another and a normally closed position in which said second end portions are pivotally moved to a close abutting relationship relative to one another;

a pair of hooks mounted on a inner side of at least one of said clasp halves on each of which a respective end of the jewelry may be releasably mounted; and

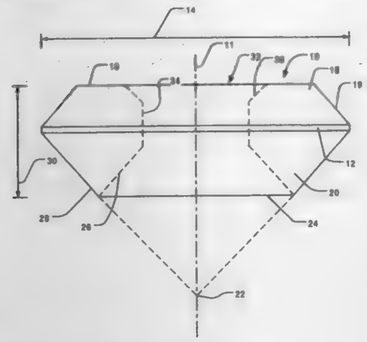
a pair of magnets, each of which is mounted on an opposite one of said second end portions in an opposing aligned position for registry and magnetic contact with one another to thereby releasably maintain said clasp halves in said normally closed position with said jewelry ends firmly clasped within said clasp halves.

5,722,261

TOROUS RING GEMSTONE AND METHOD FOR MAKING SAME

Glenn W. Lehrer, P.O. Box 15038, San Rafael, Calif. 94915

Filed Dec. 30, 1996, Ser. No. 778,208
Int. Cl.[6] A44C *17/00*
U.S. Cl. 63—32 20 Claims



1. A torus ring gemstone comprising:

a crown having a planar table;

a pavilion extending below said crown;

a planar girdle between said crown and said pavilion, said girdle being substantially parallel to said table; and

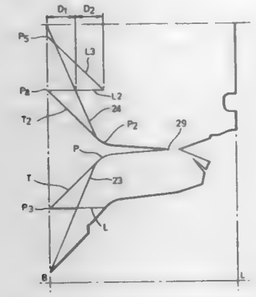
said crown, girdle and pavilion including a hole extending from said table through said crown, girdle and pavilion, said hole having an axis substantially perpendicular to said table.

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METHOD OF KNITTING FABRIC WHERE JOINED EDGES ARE FORMED FROM SUB-EDGES OF 45° AND COURSE-WISE DIRECTIONS

Malcolm Frederick Proctor; Giles Timothy Gregory, both of Nottingham, United Kingdom; Stuart Thomas Smith, Port Huron, and Gary John Leeke, Southfield, both of Mich., assignors to General Motors Corporation, Detroi, Mich.

Division of Ser. No. 591,813, Jan. 25, 1996. This application Mar. 14, 1997, Ser. No. 818,479
Claims priority, application United Kingdom, Feb. 1, 1995, 9501995
Int. Cl.[6] D04B *7/00;* A41H *3/00;* A42C *1/00*
U.S. Cl. 66—60 R 5 Claims



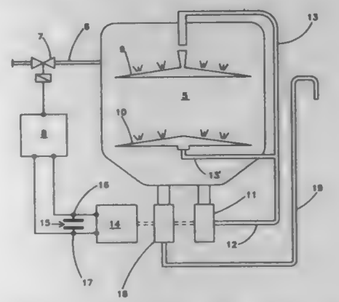
1. A method of forming a knitting pattern for a three-dimensional knitted fabric cover, said knitted fabric cover to have as knitted, a horizontal course-wise direction and needle loops of yarn, extending in needle lines in a vertical wale-wise direction), with respect to said course-wise direction, said fabric cover having a two-dimensional development in which there is at least one pair of opposed convex curved original edges-to-be-joined together which extend away from a point of intersection and in which tangents to the curved edge increase in angle relative to the course-wise direction for knitting outwardly from said point and where the angle between opposed tangents to points-to-be-joined on the two curved edges exceeds 90°, said method comprising forming a two-dimensional development, determining the wale-wise direction and the course-wise direction for knitting, reforming said edges-to-be-joined as new edges-to-be-joined arranged at either 45° bias to the course-wise direction of the fabric cover, or substatntially parallel to said course-wise direction.

5,722,263

WASHING MACHINE WITH DYNAMIC WATER INLET CONTROL ARRANGEMENT

Gianluca Tassotti, Pordenone, Italy, assignor to Electrolux Zanussi Elettrodomestici, Pordenone, Italy

Filed Jan. 5, 1996, Ser. No. 583,337
Claims priority, application Italy, Jan. 12, 1995, PN95A0005
Int. Cl.[6] D06F *33/02;39/08;* A47L *15/42*
U.S. Cl. 68—12.02 3 Claims



1. A washing machine provided with a dynamic water inlet control arrangement, comprising a water inlet valve that is actuated to open during at least a water inlet phase filling water into the machine; a water circulation pump for circulating water from the inlet valve; an electric motor driving the pump during at least a portion of the water inlet phase, said control arrangement being driven by a signal that is proportional to an outlet pressure of the circulation pump so as to close the inlet valve when signal variations decrease below a predetermined value, characterized in that said motor (**14**) is an asynchronous motor; a capacitive phase-shifter (**15**) is connected to motor windings for starting the motor into rotation; and the control arrangement (**24**, **26**) is connected at a terminal (**16**, **17**) between the phase-shifter and one of the motor windings, wherein the signal is a voltage provided by the phase-shifter.

5,722,264

SINGLE ROLL DISPLACEMENT WASH PRESS

John S. Antkowiak, New Boston, N.H., assignor to Beloit Technologies, Inc., Beloit, Wis.

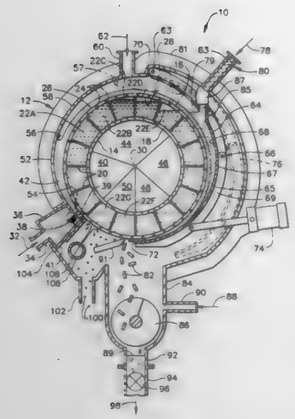
Filed Aug. 5, 1996, Ser. No. 689,184
Int. Cl.[6] D21C *1/02*
U.S. Cl. 68—43 17 Claims

1. A single roll displacement wash press, comprising:

a housing;

a drum rotatably mounted within said housing, said drum including a longitudinally extending centerline axis and a generally cylindrical outer wall having an outer surface and an inner surface, wherein said outer wall is perforated and said drum is rotatable about said centerline axis;

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a means for receiving a flow of pulp having a consistency ranging from about 2% o.d. to about 6% o.d. such that the pulp flows in the direction of rotation of said drum;

a means for defining a divergent formation zone and for forming a mat of the pulp on said drum within said divergent formation zone, said means for defining and forming comprising a first arcuate portion of said housing, wherein said divergent formation zone is divergent between an upstream end thereof and a downstream end thereof, said upstream end of said divergent formation zone communicating with said means for receiving the flow of the pulp;

a means for washing the pulp mat within a displacement zone, said displacement zone being disposed downstream of said divergent formation zone.

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WASHING MACHINE EQUIPPED WITH A LAUNDRY-STRIKING APPARATUS

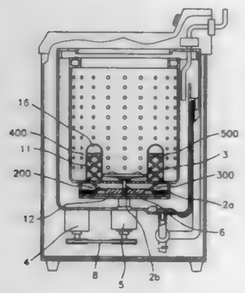
In-Su Cho, Kwangju, Rep. of Korea, assignor to Daewoo Electronics Co., Ltd., Seoul, Rep. of Korea

Filed Dec. 23, 1996, Ser. No. 772,750

Claims priority, application Rep. of Korea, Dec. 28, 1995, 95-50773

Int. Cl.[6] D06F *17/08;17/10*

U.S. Cl. 68—133 **6 Claims**



1. A washing machine having a washing tub for accommodating laundry, a pulsator mounted in the washing tub, an electric motor for rotating the pulsator, and a speed-reducing gear assembly with a shaft connected to the pulsator and for controlling a rotation speed of the electric motor so as to rotate the shaft, comprising:

a cam to which the shaft is fixedly inserted, the cam being rotated according to the rotation of the shaft, the cam being formed with concavities and convexities alternately on an outer circumference thereof;

a plurality of horizontal movement parts slidably contacted with the outer circumference to thereby be reciprocated in a horizontal direction by the concavities and the convexities when the cam is rotated; and

a plurality of vertical movement parts being installed in the washing tub, the vertical movement parts being connected to the horizontal movement parts respectively, the vertical movement parts being reciprocated in a vertical direction in the washing tub by a reciprocating movement of the horizontal movement parts respectively.

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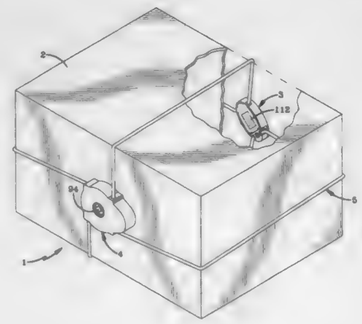
UNIVERSAL WRAP SECURITY DEVICE

Lawrence R. Yeager, Uniontown; James T. Weisburn, Massillon; Christopher G. Gallagher, Akron; Ronald M. Marsilio, Mogadore, and William G. Alford, Akron, all of Ohio, assignors to Alpha Enterprises, Inc., North Canton, Ohio

Filed Nov. 21, 1995, Ser. No. 561,370

Int. Cl.[6] E05B *65/00*

U.S. Cl. 70—57 **21 Claims**



1. A security device adapted to be placed about an object to prevent said object from being opened, said device including:

cable means including first and second cables for placement about the object to be secured;

ratchet means connected to the cable means for tightening the cable means around the object;

a two-piece locking member including a base and a fastener which releasably snap-fits into the base, each of said pieces being connected to the cable means and releasably engaged with each other for releasably locking said cable means about the object; and

said first cable extending between and connected to the ratchet means and to the base of the locking member and the second cable extending between and connected to the ratchet means and the fastener of the locking member.

5,722,267

Patent Not Issued For This Number

5,722,268

BURGLAR-PROOFING DEVICE FOR A PERSONAL COMPUTER

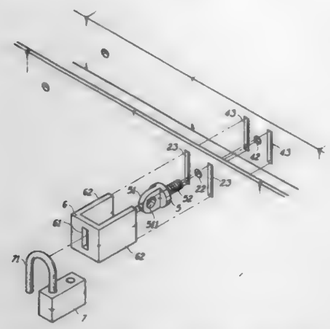
Phil-Kyu Choi, Suwon-si, Rep. of Korea, assignor to SamSung Electronics Co., Ltd., Kyungki-do, Rep. of Korea

Filed Apr. 23, 1996, Ser. No. 636,645

Claims priority, application Rep. of Korea, Apr. 24, 1995, 5333/1995

Int. Cl.[6] E05B *69/00*

U.S. Cl. 70—58 **7 Claims**



1. A burglar proofing device, said device comprising:

a housing for a computer having a rear panel with a first pair of grooves and a hole formed therein, and having a cover with a second pair of grooves and a fastening receptacle formed therein;

a ring screw having a fastening portion formed on a first end and a projecting portion formed on a second end positioned opposite said first end, said fastening portion being connected within said fastening receptacle when said computer is in an assembled state;

a bracket having a slot formed in a center portion and first and second arms extending outwardly from said center portion, said first arm being inserted through a first one of said first pair of grooves and a first one of said second pair of grooves, said second arm being inserted through a second one of said first pair of grooves and a second one of said second pair of grooves and said projecting portion being inserted through said slot when said computer is in said assembled state; and

fixing means for securing said computer in said assembled state, said fastening portion of said ring screw comprises a male threaded fastening member and said fastening receptacle formed in said cover comprises a female threaded groove matingly engaging said fastening member.

5,722,269

LOCKING DEVICE FOR CABINET OR CUPBOARD DOORS

Peter Simon, München; Hans Flamme, Unterhaching; Robert Streifeneder, Pilsting, and Dieter Ramsauer, Braunschweig, all of Germany, assignors to Knürr-Mechanik für die Elektronik Aktiengesellschaft, München, and DIRAK Dieter Ramsauer Konstruktionselemente GmbH & Co., KG, Schwelm, both of Germany

PCT No. PCT/EP93/03667, § 371 Date Oct. 11, 1995, § 102(e) Date Oct. 11, 1995, PCT Pub. No. WO94/15050, PCT Pub. Date Jul. 7, 1994

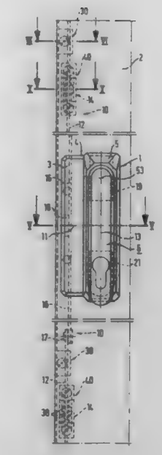
PCT Filed Dec. 22, 1993, Ser. No. 432,133

Claims priority, application Germany, Dec. 22, 1992, 92 17 546.5 U; Apr. 20, 1993, 93 05 893.4 U

Int. Cl.[6] B60R *25/02*

U.S. Cl. 70—208 **19 Claims**

1. A locking device for doors of cabinets or cupboards comprising:



a bolt mechanism including a locking rod,

at least one locking element located on said locking rod,

at least one cabinet or cupboard side receptacle in which the at least one locking element is held in the closed position, and

a handle and a tumbler located in the vicinity of a door plate for operating said bolt mechanism,

the door plate being bipartite and having a base plate as a first door plate area receiving the handle and an attached plate as a second door plate area

wherein the base plate is constructed symmetrically with respect to a longitudinal axis and can be selectively positioned along the attached plate and wherein inside of the attached plate and outside of a door leaf a vertically adjustable sliding plate as the tumbler is mounted,

the locking rod having a rectangular cross-section with a shorter side and a longer side, said longer side extending perpendicular to the sliding plate, and being operatively connected to and operable by the sliding plate.

5,722,270

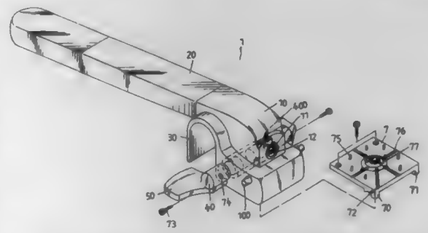
STEERING WHEEL LOCK WITH ALARM

Chien-Ho Yu, No. 253-59, Kang-Kou, Kang-Kou Tsun, An-Ting Hsiang, Tainan Hsien, Taiwan

Filed Mar. 26, 1997, Ser. No. 824,781

Int. Cl.[6] B60R *25/02*

U.S. Cl. 70—209 **2 Claims**



1. A steering wheel lock with alarm, comprising: a lock body having a cylinder; a stop lever extending from a periphery of said lock body; a casing fixedly disposed below said lock body; a shaft passing through a side wall of said casing and having a sleeve fixedly provided at a central portion thereof, said sleeve having a positioning hole for receiving a portion of said cylinder; a pair of lateral plates fixedly connected to the respective ends of said shaft

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for synchronous rotation with said shaft; and an alarm circuit means installed inside said lock and connected to a speaker disposed on a speaker base which is locked to a lower rim of said casing by means of screws, wherein said shaft is fitted with a reset spring having one end secured to said sleeve with the other end fixedly disposed inside said lock so as to allow said lateral plates, which are linked-up with said shaft, to automatically abut two restricting rods at both sides of said casing when said lateral plates are released from a locking position, thus preventing inadvertent actuation of the alarm circuit means during unlocking.

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Patent Not Issued For This Number

5,722,272

VEHICLE DOOR LOCK ACTUATOR

Mark Bridgeman, Coventry, and Jack Golar, Birmingham, both of England, assignors to Rockwell Light Vehicle Systems (Uk) Limited, Birmingham, United Kingdom

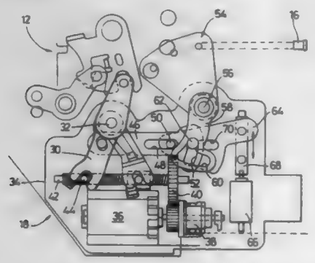
PCT No. PCT/GB95/00005, § 371 Date Jul. 10, 1996, § 102(e) Date Jul. 10, 1996, PCT Pub. No. WO95/18904, PCT Pub. Date Jul. 13, 1995

PCT Filed Jan. 4, 1995, Ser. No. 676,158

Claims priority, application United Kingdom, Jan. 11, 1994, 9400425.6

Int. Cl.[6] E05B *53/00*

U.S. Cl. 70—264 **3 Claims**



1. Power operable door latch and lock mechanism for a vehicle having a central locking system, said mechanism including a power actuator assembly comprising:

a) an actuating lever drivingly connected to locking means of the mechanism;

b) a main drive motor for selective powered movement of said lever between locked and unlocked positions;

c) a manual locking lever for operative connection to a non-key controlled manually operable element; and

d) a linkage interconnecting said manual lever to the said actuating lever for manual locking and unlocking independently of said drive motor,

i) said linkage including an elongate link connected at one end to an arm of said actuating lever, guided for longitudinal movement, and defining a first guide slot extending generally laterally thereof,

ii) said linkage further including a drive dog in the form of a floating connecting pin engaged in said first slot, a rocker arm of said manual locking lever being in overlapping relationship with the part of said link defining said first guide slot and defining a second guide slot co-acting with said pin and shaped to provide a lost motion portion extending co-axially of the axis of said manual locking lever, whereby positioning said pin in said lost motion portion provides a disengaged superlocking position at which motion of said manual lever is precluded from being transmitted through said linkage and to provide a narrow portion extending radially of said lever from the lost motion portion whereby positioning said pin in said narrow portion provides an engaged position at which motion is transmitted between the two levers for locking and unlocking,

iii) said linkage further including a superlocking lever defining a third guide slot in engagement with said pin, and positioned to shift said pin selectively between said disengaged and engaged positions without restricting movement of said pin along said lost motion portion of said second guide slot; and

iv) said mechanism including a superlocking motor for selective powered movement of said superlocking lever.

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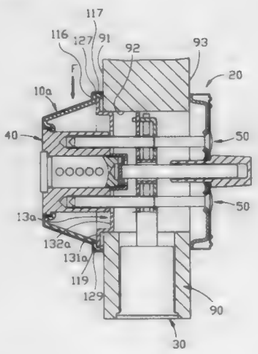
LATCH BOLT OPERATING DEVICE

San-Yi Lin, Yun-Lin Hsien, Taiwan; Ching-Chuan Kuo, Chia-Yi Hsien, Taiwan; Tong-Pei Wu, Chia-Yi Hsien, Taiwan; Lan-Kun Don, Chia-Yi Hsien, Taiwan, and Sheen-Youl Gao, Yun-Lin Hsien, Taiwan, assignors to Tong Lung Metal Industry Co., LTD., Taiwan

Filed Apr. 8, 1996, Ser. No. 628,848

Int. Cl.[6] E05B *9/04*

U.S. Cl. 70—370 **11 Claims**



1. A housing for a lock assembly, comprising:

an outer annular cover including a first front end portion and a first rear end portion, said outer annular cover being formed with a first axial hole which extends through said first front and said first rear end portions and which is adapted to permit extension of the lock assembly therethrough, said first rear end portion being formed with a first annular shoulder which includes a first radial part that extends outwardly from said first rear end portion, and a first axial part that extends rearwardly from said first radial part;

an inner annular cover being received in said outer annular cover and having a second front end portion, a second rear end portion and a second axial hole which extends through said second front and said second rear end portions and which is adapted to permit extension of the lock assembly therethrough, said second rear end portion being formed with a second annular shoulder which includes a second radial part that extends outwardly from said second rear end portion, and a second axial part that extends rearwardly from said second radial part;

said first axial part of said first annular shoulder being provided with at least one inwardly protruding boss that abuts against said second axial part of said second annular shoulder to retain said inner annular cover in said outer annular cover; the lock assembly having a front part formed with a radial flange, wherein said first front end portion has a first annular recessed section around said first axial hole and adapted for receiving the radial flange of the lock assembly therein, said second front end portion having a second annular recessed section around said second axial hole for receiving said first annular recessed section of said outer annular cover therein.

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LOCK CYLINDER

Shunsaku Nakauchi, Mitaka, and Syuji Maeda, Fussa, both of Japan, assignors to Kokusai Gijutsu Kaihatsu Kabushiki Kaisha, Japan

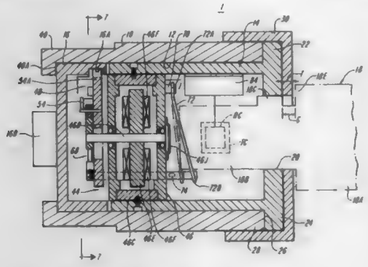
PCT No. PCT/JP95/02499, § 371 Date Jul. 25, 1996, § 102(e) Date Jul. 25, 1996, PCT Pub. No. WO96/18014, PCT Pub. Date Jun. 13, 1996

PCT Filed Dec. 6, 1995, Ser. No. 682,539

Claims priority, application Japan, Dec. 6, 1994, 6-329858

Int. Cl.[6] E05B *47/00;9/10;17/04*

U.S. Cl. 70—276 **12 Claims**



11. A lock cylinder set to a lock, comprising:

an outer cylinder;

a first inner cylinder which is rotatably set in said outer cylinder and into which a key is inserted;

a second inner cylinder which is rotatably set in said outer cylinder and connected to a locking/unlocking mechanism of said lock;

a connecting pin which is movably held by said first inner cylinder to connect said first inner cylinder with said second inner cylinder when the pin advances; and

a connecting pin control mechanism which advances said connecting pin when a proper key is inserted, holds the advance state, and retreats said connecting pin when said key is extracted; and

a key discrimination circuit which discriminates said inserted key and outputs a driving signal when the circuit decides that the key is proper, wherein

said connecting pin control mechanism comprises:

an energizing member for continuously supplying a retreat force to said connecting pin,

a protrusion set to said connecting pin,

a cam plate which is a rotary plate contacting said protrusion and which drops said protrusion to a retreat stabilized position when it is tilted and holds said protrusion at an advance stabilized position when it is raised, and

an actuator to which said driving signal is supplied to generate a driving force for raising said tilted cam plate.

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PUSHBUTTON CONSOLE LATCH

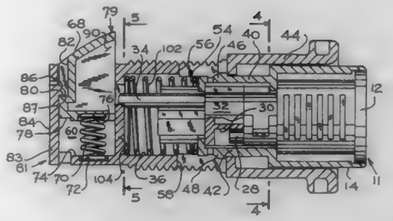
Robert J. Price, Shorewood, and John E. Bailen, West Allis, both of Wis., assignors to Strattec Security Corporation, Milwaukee, Wis.

Filed May 9, 1996, Ser. No. 647,029

Int. Cl.[6] E05B *9/10*

U.S. Cl. 70—379 R **9 Claims**

1. A latch, comprising:



a cylindrical housing extending along a longitudinal axis and having an external cylindrical surface, and an inner peripheral surface defining a sleeve receipt cavity in the cylindrical housing, the cylindrical housing further including first and second circumferentially spaced guide slots extending axially along the inner peripheral surface, and a bolt ward orientated in a plane passing perpendicularly through the longitudinal axis, the bolt ward communicating with the sleeve receipt cavity in the cylindrical housing;

a sleeve slidably received within the housing, the sleeve slidable between a first extended position and a second depressed position, and defining an external cylindrical surface which forms a slidable interface with the inner peripheral surface of a cylindrical housing;

means for biasing a sleeve toward the first extended position;

first and second resilient projections which extend axially along the external cylindrical surface of the sleeve, each projection terminating at a corresponding tab adapted for slidable receipt in the guide slots, each tab movable between a first retracted position wherein the tab is retracted below the external cylindrical surface of the sleeve and a second extended position wherein the tab extends radially from the external cylindrical surface of the sleeve into a corresponding guide slot in the cylindrical housing;

a cylinder rotatably supported within the sleeve, the cylinder rotatable between a first unlocked position and a second locked position; and

a bolt slidably received within the bolt ward, the bolt movable between a first extended position and a second retracted position.

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METHOD FOR ATTACHING FACEPLATE MOUNTING TABS TO A MORTISE LOCK HOUSING AND TABS AND HOUSINGS ADAPTED FOR THAT METHOD

Helmut R. Aigner, Colorado Springs, Colo., and Steven D. Small, San Rafael, Calif., assignors to Schlage Lock Company, San Francisco, Calif.

Continuation of Ser. No. 507,734, Aug. 3, 1995, abandoned. This application Jan. 27, 1997, Ser. No. 791,026

Int. Cl.[6] E05B *9/08*

U.S. Cl. 70—451 **5 Claims**

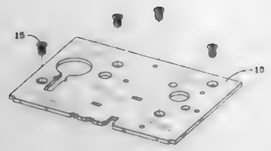
1. A method for attaching two separate mounting tabs to a mortise lock housing, comprising the following steps:

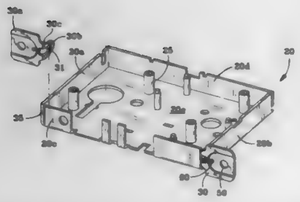
providing a hollow mortise lock housing in the form of a rectangular parallelepiped, one side of said housing comprising a removable coverplate, and a first side of said housing adapted to lie in a door edge and to provide at least one opening for a bolt;

providing one slot at each of top and bottom edges, as installed, of said first side of said lock housing, each said slot providing a narrow opening for capturing one of said separate mounting tabs at top and bottom corners of said lock housing, each slot being open at one end when said coverplate is removed;

providing said two separate mounting tabs, each tab having a first end portion for mounting the tab to said door edge and a second end portion having engagement means thereon for engaging an interior surface of said first side of said lock housing to limit movement of the tab relative to said first side,

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each said tab further having a substantially right angle bend between said first end portion and said second end portion;

assembling said mounting tabs to said lock housing while said coverplate is removed, by orienting said mounting tabs such that said first end portions are substantially parallel to the first side of the lock housing and project above and below the top and bottom corners, respectively, of said first side of said lock housing, and said second end portions are substantially parallel to top and bottom sides, respectively, of said lock housing, each of said right angle bends being aligned with a respective one of the slots; and, inserting said mounting tabs into said open ends of said slots to place the second ends of said tabs in contact with top and bottom sides, respectively, of said lock housing and to engage said engagement means with said interior surface of said first side of said housing to prevent tipping of said tabs with respect to said first side of said housing; and

attaching said coverplate to said lock housing.

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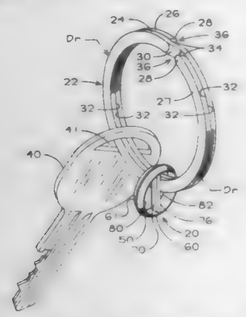
KEY RING OPENER AND METHOD OF USE

James M. Williams, 425 S. Elm St., No. 15A, Arroyo Grande, Calif. 93420

Filed Feb. 5, 1997, Ser. No. 795,993

Int. Cl.[6] A44B *15/00*

U.S. Cl. 70—456 R **18 Claims**



1. A key ring opener for spreading apart the adjacent end and intermediate portions of a split key ring that are spring-urged against each but are spreadable to allow a key to be placed on or taken off the ring, comprising:

wedge means insertable between the adjacent end and intermediate portions of a split key ring so that it is sandwiched therebetween; and

means connected to the wedge means and rollable between a user's fingers for causing the wedge means to be leveraged between said end and intermediate portions thereby to spread the same apart upon such rolling movement to facilitate entry of a key between the end and intermediate portions.

5,722,278

ROLL FORMING APPARATUS

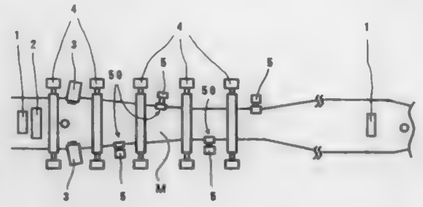
Katuyoshi Horino, Nagoya; Mitsuhiro Ozawa, Hekinan; Norio Nishikawa; Teruhiko Sato, both of Kariya; Atsushi Shiji, Anjo, and Takashi Wada, Hekinan, all of Japan, assignors to Aisin Seiki Kabushiki Kaisha, and Chubo Engineering Kabushiki Kaisha, both of Aichi-pref, Japan

Continuation of Ser. No. 309,474, Sep. 21, 1994, abandoned. This application Jan. 23, 1997, Ser. No. 787,877

Claims priority, application Japan, Sep. 21, 1993, 5-259140; Sep. 21, 1993, 5-259141; Sep. 21, 1993, 5-259142

Int. Cl.[6] B21D *5/08*

U.S. Cl. 72—8.3 **15 Claims**



1. A roll forming apparatus comprising:

tension rolls for feeding a material along a longitudinal direction thereof, said tension rolls being arranged at predetermined intervals and being driven; and a plurality of forming rolls for forming said material, said plurality of forming rolls being arranged on both sides of said material in a width direction and along a feeding direction of said material, each of said plurality of forming rolls further being positioned between adjacent tension rollers, wherein

said plurality of forming rolls are alternatingly positioned along the feeding direction of said material relative to each other such that a first one of said forming rolls is positioned between a first set of adjacent tension rolls along a first side of said material, with a subsequent forming roll being positioned along a second side of said material and between a set of adjacent tension rolls subsequent to said first set of adjacent tension rolls whereby only one side of said material between a set of adjacent tension rolls is formed by corresponding forming rolls.

5,722,279

CONTROL METHOD OF STRIP TRAVEL AND TANDEM STRIP ROLLING MILL

Shigeru Ogawa; Kenji Yamada; Atsushi Ishii, all of Futtsu; Hiroshi Omi, Tokyo, and Takehiro Nakamoto, Oita, all of Japan, assignors to Nippon steel Corporation, Tokyo, Japan

PCT No. PCT/JP94/01522, § 371 Date Jul. 6, 1995, § 102(e) Date Jul. 6, 1995, PCT Pub. No. WO95/07776, PCT Pub. Date Mar. 23, 1995

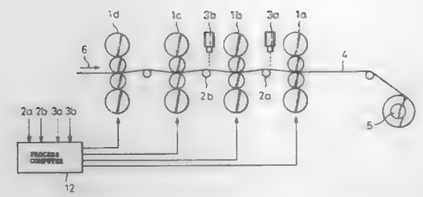
PCT Filed Sep. 14, 1994, Ser. No. 436,351

Claims priority, application Japan, Sep. 14, 1993, 5-229031

Int. Cl.[6] B21B *37/00*

U.S. Cl. 72—11.4 **9 Claims**

1. A control method of strip travel for a tandem strip rolling mill comprising at least two roll stands and including between said roll stands a rolled work tension measuring device having independent tension detectors on both working and driving sides and a lateral



position measuring device for measuring the lateral position of rolled work, characterized in that the lateral position of the rolled work at the position of said rolled work tension measuring device is detected directly or estimated from an output of said lateral position measuring device, the tension difference representing the difference between tensions actually acting on the working and driving sides of the rolled work at the position of said rolled work tension measuring device is computed from said detected or estimated lateral position and outputs of the working-side and driving-side detectors of said rolled work tension measuring device, and the difference between screwdown settings on the working and driving sides of each of at least the roll stands on the upstream and downstream sides of said rolled work tension measuring device, is controlled aiming at reducing said tension difference to zero, regardless of the lateral position of said rolled work.

5,722,280

TWO STAGE DIE SET

Ernest Robert Bodnar, 2 Danrose Crescent, Don Mills, Ontario, Canada, M3B 3N5

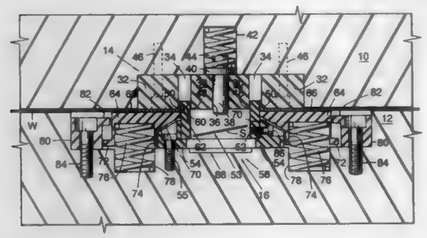
PCT No. PCT/CA93/00284, § 371 Date Jan. 6, 1995, § 102(e) Date Jan. 6, 1995, PCT Pub. No. WO94/01233, PCT Pub. Date Jan. 20, 1994

Continuation of Ser. No. 360,790, Jan. 6, 1995, abandoned. This PCT application Jul. 9, 1994, Ser. No. 822,181

Claims priority, application Canada, Jul. 10, 1992, 2073650

Int. Cl.[6] B21D *28/12*

U.S. Cl. 72—186 **14 Claims**



1. A two stage die set for use in a rotary apparatus, having upper and lower rotary members, and having at least one generally semi-cylindrical die support member in each of said upper and lower rotary members, for sequentially blanking an opening in a work piece, and thereafter forming edge formations on said work piece around said opening and being characterized by:

a male die assembly (**14**), in turn comprising a male blanking die member (**30**) defining a male blanking edge (**48**);

a male forming die member (**32**) spaced from said male blanking die member (**30**) defining a male forming corner (**50**);

recess means (**34**) between said blanking die (**30**) and said forming die (**32**);

a female die assembly (**16**) in turn comprising a generally hollow female die sleeve member (**52**), said female die sleeve member (**52**) being shaped and dimensioned to correspond to said male blanking die member (**30**) and to receive the same in telescopic relation and defining inner and outer sides;

wherein said male die assembly (**14**) is supported on said semi-cylindrical die support member (**10**) of said upper rotary apparatus and wherein said female die assembly (**16**) is supported on said semi-cylindrical die support member (**12**) of said lower rotary apparatus, and having upper spring recess means (**44**, **42**) in said upper semi-cylindrical die support member (**10**), and including lower spring recess means (**76**, **78**) in said lower semi-cylindrical die support member (**12**);

blanking edge means (**60**) on the inner side of said female die sleeve (**52**);

forming corner means (**62**) on the outer side of said female die sleeve (**52**);

a moveable female support plate means (**64**) located around said outer side of said female die sleeve member (**52**), and pressure means (**76**) operable on said moveable female support plate means (**64**), whereby to urge the same into a first position, and said moveable plate means (**64**) being adapted to yield to said male forming die member (**32**) of said male die assembly (**14**), when said male and female dies (**14**, **16**) are closed together, whereby said male blanking die (**30**) co-operates with said female die sleeve (**52**) of said female die assembly (**16**) to blank out a portion of a work piece (W) and form an opening therein, and whereby upon further relative movement between said male and female die assemblies (**14**, **16**) towards one another, said male forming die sleeve (**32**) will co-operated with said moveable support plate means (**64**) and said female die sleeve (**52**), to cause deformation of an edge portion of said work piece (W) around said opening;

wherein said female die sleeve (**52**) defines a predetermined first height, and wherein said movable support plate means (**64**), in its said first position, defines a predetermined second height, greater than said first height, whereby upon closing of said male and female die assemblies (**14**, **16**), said work piece (W) is initially clamped between said male forming die member (**32**) and said moveable support plate means (**64**), just prior to blanking of said opening, and said work piece (W) is blanked prior to any deformation thereof;

ejector means (**38**) in said male blanking die member (**30**), said ejector means (**38**) being resiliently moveable, whereby the same may be withdrawn into said blanking die member (**30**), upon closure of said blanking die member (**30**) on said work piece (W), and, after blanking of said portion of said work piece (W) by said male and female die members, said ejector means (**38**) being adapted to be extended from said male blanking die (**30**), whereby to displace said blanking out portion; and,

passageway means (**88**) in said female die assembly (**16**) communicating with the interior of said female die sleeve (**52**) for receiving said blanked out portion of said work piece (W), whereby the same may be disposed of through said passageway means.

5,722,281

APPARATUS FOR MANUFACTURING AN AUTOMOTIVE STEERING RACK

Tsutomu Yasuda, and Jun Minamoto, both of Saitama, Japan, assignors to Showa Corporation, Gyoda, Japan

Filed Dec. 13, 1995, Ser. No. 571,409

Claims priority, application Japan, Dec. 27, 1994, 6-337053

Int. Cl.[6] B21B *15/00;17/10;17/02*

U.S. Cl. 72—207 **2 Claims**

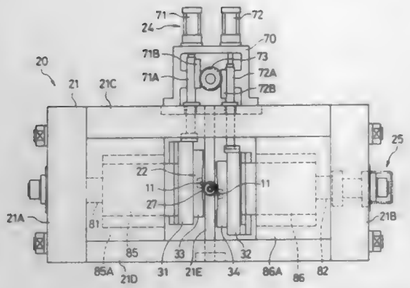
1. An apparatus for manufacturing an automobile steering rack having rack teeth formed on a side surface, comprising:

a rack material holding means for holding at least one hollow pipe-like rack material having a core bar inserted therein, said holding means having a vertical axis;

a forming roll having a vertical axis and an outer periphery, said forming roll periphery formed with a rack teeth form;

a mutual moving means for causing mutual moving of the rack material holding means and the forming roll, said holding means arranged and constructed to move in a tangential direction to an orientation of the forming roll as said rack

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material and said forming roll contact each other during formation of said steering rack;

a feeding means for adjusting a distance between the rack material holding means axis and the forming roll axis; and

the rack material holding means arranged and constructed to hold two rack materials, each of said racks disposed face-to-face with respect to each other on diametrically opposed sides of the forming roll, wherein the mutual moving means causes moving of the individual rack materials in opposite directions with respect to each other, such that contact forces exerted by the rack material on the forming roll cancel each other along each point of symmetry on the roll axis.

5,722,282

METHOD OF MANUFACTURING A CUP-SHAPED ARTICLE

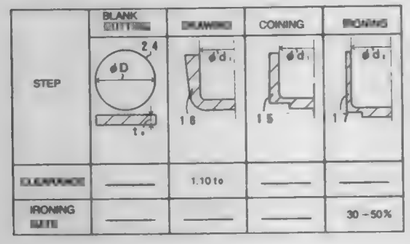
Kouichi Mine, Aichi-ken, and Akio Hotta, Toyotn, both of Japan, assignors to Toyota Jidosha Kabushiki Kaisha, Toyota, Japan

Continuation of Ser. No. 561,244, Nov. 21, 1995, abandoned. This application May 9, 1997, Ser. No. 853,672

Claims priority, application Japan, Nov. 21, 1994, 6-286454

Int. Cl.[6] B21D *22/00;22/21;* **B21C** *37/02*

U.S. Cl. 72—348 **13 Claims**



1. A method for manufacturing a cup-shaped article, comprising the steps of:

drawing a substantially flat plate material portion into a first cup-shaped configuration having an axis, a cylindrical wall portion, and a closed bottom portion, wherein said cylindrical wall portion has a thickness which tapers in an axial direction;

forming a second cup-shaped configuration by plastically working a portion of said first cup-shaped configuration, such that said cylindrical wall portion is given a substantially uniform thickness along said axial direction by being supplied with material from said bottom portion to substantially an entire axial portion of said cylindrical wall portion having said tapering thickness in said first cup-shaped configuration; and

ironing said cylindrical wall portion of said second cup-shaped configuration with a substantially constant ironing load throughout an entire axial length of said second cup-shaped configuration so as to obtain a cup-shaped article including a wall portion having a substantially uniform thickness thinner than said thickness of said wall portion of said second cup-shaped configuration.

5,722,283

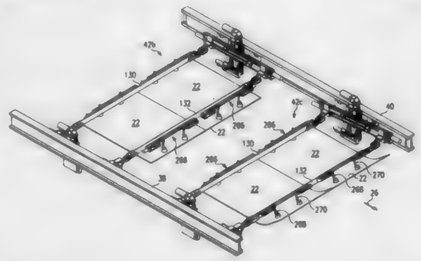
SYSTEM AND METHOD FOR ROTATION OF CROSS BARS IN A MULTIPLE STATION TRANSFER PRESS

Allen J. VanderZee, St. John, Ind.; Edward J. Brzezniak, and Adam Schwarz, both of Orland Park, Ill., assignors to Verson, A Divison of Allied Products Corporation, Chicago, Ill.

Continuation-in-part of Ser. No. 393,554, Feb. 23, 1995, Pat. No. 5,632,181. This application Mar. 14, 1996, Ser. No. 618,451

Int. Cl.[6] B21D *43/05*

U.S. Cl. 72—405.1 **29 Claims**



1. A system for transferring a work piece between a first press station and a second press station in a multiple station transfer press having a plurality of associated upper and lower dies, the system comprising:

at least one cross bar assembly movable between the press stations in the direction of flow for the transfer press,

each cross bar assembly having at least one cross bar;

a plurality of holding devices coupled to the cross bar for removably engaging a work piece;

a transfer mechanism for moving the cross bar assembly from a rest position to the first press station;

the cross bar assembly and the holding devices operable to releasably engage a work piece at the first press station and to move and deposit the work piece at the second press station;

the transfer mechanism returning the cross bar assembly to the rest position to prepare for a subsequent work piece transfer;

an electrical motor carried by the cross bar assembly for selectively rotating the one cross bar; and

a gear box connecting the electrical motor with one end of the one cross bar.

5,722,284

CRIMPING TOOL

Louis R. Linsmeyer, Hustisford, Wis., assignor to Tru-Fire Corporation, North Fond du Lac, Wis.

Continuation of Ser. No. 308,671, Sep. 19, 1994, abandoned. This application Jun. 6, 1996, Ser. No. 659,538

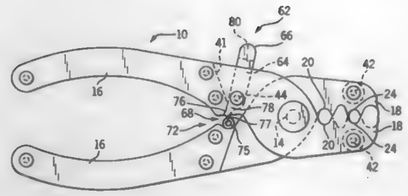
Int. Cl.[6] H01R *43/042*

U.S. Cl. 72—409.14 **11 Claims**

1. A pliers-type, lever action crimping tool comprising:

a. a first component including an integral upper handle end and a lower jaw end;

b. a second component including an integral lower handle end and an upper jaw end, said second component pivotally mounted relative to the first component intermediately of the handle ends and the jaw ends, the first and second components pivotable and offset opposite one another about the pivot point such that the jaw ends may be moved from a fully opened position with the jaws separated for defining an open



mouth to a progressively closed position wherein the jaws are in overlapping engagement with one another;

c. each jaw end comprising a plurality of spaced plates positioned such that the offset jaw ends are in interleaving juxtaposition when in overlapping engagement;

d. each component including at least one crimp element receiving notch, wherein the notches are disposed opposite one another to define a crimp area and the crimping action is accomplished by closing the notches past the pivot point such that an element to be crimped is completely circumscribed by opposite, offset notches,

e. wherein the jaws, when separated, permit the crimp element to be passed between the jaws ends back to the crimp area and

f. a decrimping tool pivotally mounted on one of the components, the other of the components including a seat for defining a decrimping operating zone and for receiving and positioning a crimp element in the operating zone.

5,722,285

CALIPER SENSOR

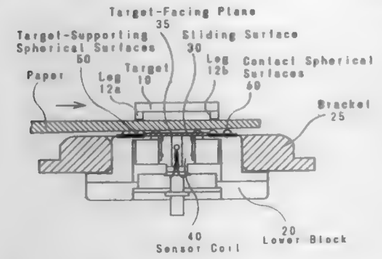
Akihiko Tsuchiya; Yutaka Saito, and Kazunori Onozawa, all of Tokyo, Japan, assignors to Yokogawa Electric Corporation, Tokyo, Japan

Filed Jul. 30, 1996, Ser. No. 688,434

Claims priority, application Japan, Oct. 27, 1995, 7-280420

Int. Cl.[6] G01B *7/06*

U.S. Cl. 73—159 **7 Claims**



1. A caliper sensor comprising:

a target having a measurement plane in contact with an object to be measured;

a sliding surface facing said target with said object disposed therebetween;

a sensor coil positioned under said sliding surface, which carries a high frequency signal and generates an eddy current in said measurement plane of said target;

a plurality of target supporting spherical surfaces comprising at least three spherical surfaces provided on a periphery of a part of said sliding surface facing said target and forming a plane determined by tops of each target supporting spherical surface; and

a plurality of contact spherical surfaces disposed outside said plurality of said target supporting spherical surfaces and above said sliding surface, and comprising a number of spherical surfaces equal to or greater in number than said target supporting spherical surfaces, and having tops of each contact spherical surface of a height equal to that of said target supporting spherical surfaces, wherein said object is disposed on said tops of said target supporting spherical surfaces and on said tops of said contact spherical surfaces.

5,722,286

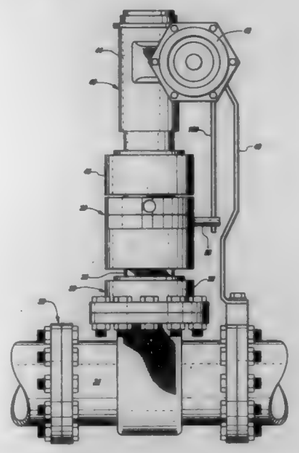
TORQUE/POSITION TRANSDUCER

Raoul W. Robert; Thomas Rogan Bernard, both of Baton Rouge; Jan Mark Bullock, St. Amant, and Ronald H. Drushel, Baton Rouge, all of La., assignors to T & R Solutions, Inc., Prairieville, La.

Continuation-in-part of Ser. No. 374,846, Jan. 19, 1995, Pat. No. 5,524,485. This application Jun. 10, 1996, Ser. No. 659,711

Int. Cl.[6] G01M *19/00*

U.S. Cl. 73—168 **7 Claims**



1. An apparatus for determining the torque applied by a valve actuator to a valve stem,

said valve having a valve stem with a valve stem input lug,

said valve actuator having a valve actuator output lug,

said apparatus for determining the applied torque comprising:

a. a rotatable body having:

an upper input lug mated to the valve actuator output lug,

a lower output lug mated to the valve stem input lug, and

a cylindrical central body portion connecting the upper input lug and the lower output lug;

b. at least two strain gauges mounted on said cylindrical central body portion; and

c. means responsive to the output signal from said strain gauge for generating a signal indicative of the torque applied to the valve by the valve operator.

5,722,287

VIDEO PEDOBAROGRAPH SYSTEM

Micah Aaron Forstein, 1900 Dracena Dr., #3, Los Angeles, Calif. 90027

Filed May 31, 1995, Ser. No. 456,159

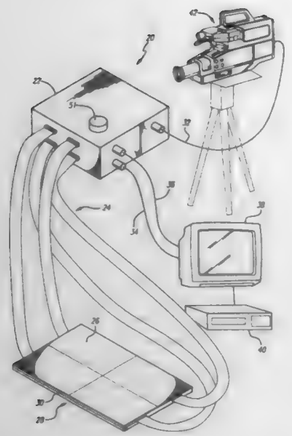
Int. Cl.[6] A61B *5/103;* **H01C** *10/10;* **H04N** *5/08*

U.S. Cl. 73—172 **22 Claims**

1. A video pedobarograph or foot pressure measuring and display system for providing a real time, qualitative display of dynamic relative pressure measurements, the system comprising:

a plurality of force sensors generating dynamic relative pressure signals, said plurality of force sensors being positioned within a force sensor matrix structure;

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a substantially rigid support structure including a substantially planar surface to which said force sensor matrix structure is fixedly secured;

video pedobarograph electronics coupled to said force sensors to receive the dynamic relative pressure signals, said electronics including a video sync stripper for stripping or deriving a video sync signal from a composite video signal received by the video pedobarograph electronics and control logic for directly mapping the dynamic relative pressure signals to the composite video signal in synchronization with the video sync signal to generate a mapped composite video signal; and

display means coupled to said electronics for providing a qualitative display of the dynamic relative pressure signals within a predetermined portion of an overall video image generated by said display means from the mapped composite video signal.

5,722,288

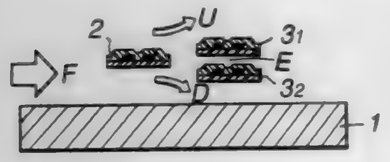
FLOW SENSOR

Junji Manaka, Tokyo, Japan, assignor to Ricoh Seiki Company, Ltd., Tokyo, Japan

Division of Ser. No. 342,579, Nov. 21, 1994, which is a division of Ser. No. 72,779, Jun. 7, 1993, Pat. No. 5,392,647. This application Feb. 16, 1996, Ser. No. 603,118

Int. Cl.[6] G01F *1/68*

U.S. Cl. 73—204.26 **3 Claims**



1. A flow sensor comprising a substrate having a cavity therein, and a heating portion and a heat-sensing portion, said portions formed each in the form of a bridge across the cavity and supported at both ends or at one end on the substrate in an order in the direction of a flow of gas to be measured, wherein the heat sensing portion includes two sensing portions disposed one above the other at two different planes and the heating portion is disposed at a plane between the two planes for the two sensing portions on the substrate in parallel with the direction of the gas flow to be measured.

5,722,289

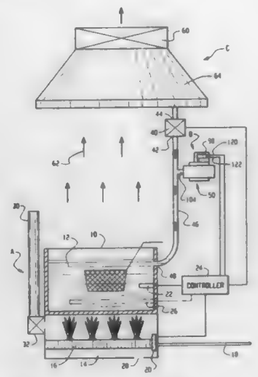
COOKING APPLIANCE WITH LEVEL DETECTION APPARATUS AND METHOD

Larry L. Carr, Chesterland, Ohio, assignor to Tridelta Industries, Inc., Mentor, Ohio

Filed Apr. 11, 1996, Ser. No. 630,440

Int. Cl.[6] G01F *23/00*

U.S. Cl. 73—302 **25 Claims**



22. A fluid level sensor for sensing the level of a fluid in a vessel, comprising:

a flow generating device for generating an air flow;

a tube member having a first end in communication with the vessel for receiving said fluid therein, and a second end disposed adjacent to said flow generating device, wherein said flow generating device modifies the pressure inside said tube; and

a pressure sensitive switch operatively connected to said tube member for sensing a difference between the pressure inside said tube member and pressure outside said tube member, and for providing a signal when said sensed difference in pressure reaches a predetermined value.

5,722,290

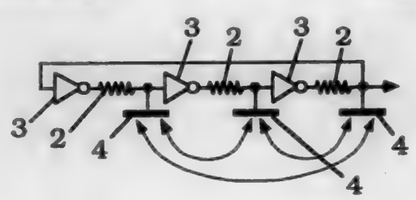
CLOSED-FIELD CAPACITIVE LIQUID LEVEL SENSOR

James W. Kronberg, Aiken, S.C., assignor to The United States of America as represented by the United States Department of Energy, Washington, D.C.

Filed Mar. 21, 1995, Ser. No. 408,412

Int. Cl.[6] G01F *23/26*

U.S. Cl. 73—304 C **20 Claims**



13. A liquid level sensing apparatus, said apparatus comprising:

a substantially cylindrical housing;

said housing containing an odd number of sensing pates, said sensing plates being greater in number than two;

said sensing plates being symmetrically spaced and each said plate taking up the same portion of the housing's circumference;

insulating gaps between said plates;

said plates being covered by a layer of nonconducting material which forms an outer cover for said housing;

said plates being electrically connected to an electrical circuit;

said electrical circuit comprising at least three inverters, each said inverter driving a series resistor and one of said plates;

said at least three inverters, being connected in series and forming said circuit;

a frequency of said electrical circuit being inversely proportional to the capacitance of said odd number of plates;

said electrical circuit frequency decreasing in response to increases in capacitance due to the presence of a liquid.

5,722,291

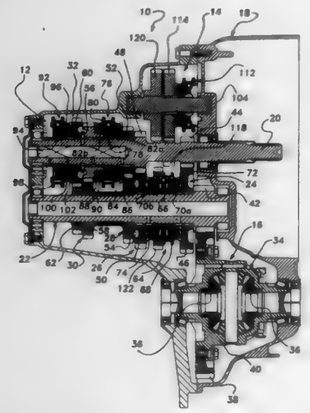
MANUAL TRANSMISSION WITH SYNCHRONIZED REVERSE GEAR

Glenn W. Fraley, Canton; Wayne E. Mueller, Milford, and George A. Parsons, Grosse Pointe, all of Mich., assignors to New Venture Gear, Inc., Troy, Mich.

Filed Aug. 26, 1996, Ser. No. 703,313

Int. Cl.[6] F16H *03/08*

U.S. Cl. 74—325 **21 Claims**



1. A transmission comprising:

a housing;

an input shaft rotatably supported in said housing;

an output shaft rotatably supported in said housing;

a gearset having a first input gear fixed to said input shaft and meshed with a first speed gear rotatably supported on said output shaft;

a first synchronizer clutch driven by said output shaft for selectively coupling said first speed gear thereto to provide a forward gear;

an idler shaft rotatably supported in said housing;

a first idler gear rotatably supported on said idler shaft and in driving connection with said input shaft;

a second idler gear fixed to said idler shaft and in driving connection with said first synchronizer clutch; and

a second synchronizer clutch for selectively coupling said first idler gear to said idler shaft to provide a reverse gear.

5,722,292

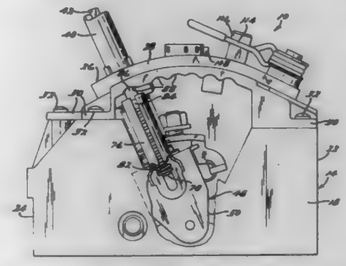
SHIFT CONTROL MECHANISM TO MANUALLY SHIFT AN AUTOMATIC TRANSMISSION

Arthur Anderson, Clarkston; Michael F. Donoughe, Rochester Hills; Peter J. Byk, Sterling Heights, and James W. Budzyn, Troy, all of Mich., assignors to Chrysler Corporation, Auburn Hills, Mich.

Continuation-in-part of Ser. No. 253,014, Jun. 2, 1994, Pat. No. 5,509,322. This application Jul. 24, 1995, Ser. No. 506,409

Int. Cl.[6] F16H *59/00*

U.S. Cl. 74—335 **2 Claims**



1. A shift control mechanism for an automatic transmission comprising:

a housing including a shift control pattern having a longitudinal portion defining a plurality of automatic transmission operating settings and a transverse portion at one end of said longitudinal portion defining a plurality of manual transmission operating settings;

a shift lever manually movable along said shift control pattern for selecting said automatic transmission operating settings and for selecting said manual transmission operating settings; and

a proximity switch assembly actuated by moving said shift lever to a first position in said transverse portion to send a signal to manually upshift the automatic transmission and to a second position in said transverse portion opposite said first position to send a signal to manually downshift the automatic transmission, said proximity switch including a switch housing and a shift lever engagement member pivotally mounted to said switch housing and moveable with said shift lever to said first and second transverse positions to manually shift the automatic transmission; said proximity switch including a switch housing and a shift lever engagement member pivotally mounted to said switch housing and moveable with said shift lever to said first and second transverse positions to manually shift the automatic transmission; wherein said switch housing includes a plurality of support prongs, said shift lever engagement member including a body and a hub disposed at one end of said body, and a yoke disposed at the other end of said body opposite said hub and extending transversely to said body, said shift lever engagement member mounted on said support prongs at said hub, said shift lever receivable by said yoke when said shift lever is in said transverse position.

5,722,293

METHOD FOR CONTROLLING A TRANSMISSION IN A DRAG-RACING VEHICLE

Patrick A. McFadden, 255 Woodside Dr., Pataskala, Ohio 43062

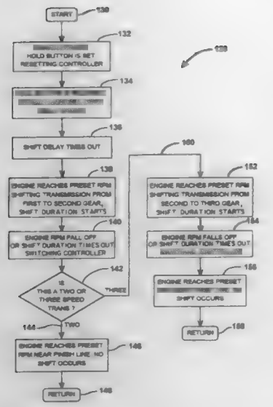
Continuation-in-part of Ser. No. 393,708, Feb. 24, 1995, Pat. No. 5,471,894, which is a division of Ser. No. 197,150, Feb. 16, 1994, Pat. No. 5,448,925. This application Dec. 4, 1995, Ser. No. 566,968

Int. Cl.[6] B60K *41/04;41/10*

U.S. Cl. 74—336 R **20 Claims**

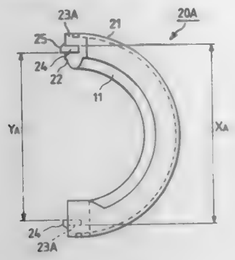
1. A method for controlling the shifting of a drag race vehicle with a controller for controlling an actuatable shifter assembly, which comprises the steps of:

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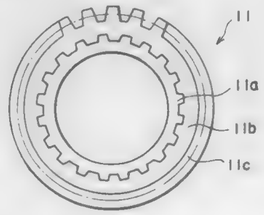
(a) resetting the controller;
(b) actuating the controller and launching the vehicle;
(c) at a predetermined engine speed value or after a first timed duration based on a predetermined engine speed value, actuating the shifter assembly for a second timed duration to shift to a next higher gear;
(d) repeating step (c) until all of the gears of the vehicle desired to be shifted have been shifted.

5,722,294
SEAL MEMBER FOR USE IN BALL SCREW APPARATUS
Shigeharu Kobayashi, Maebashi, and Mitsuji Kanai, Gunma, both of Japan, assignors to NSK Ltd., Tokyo, Japan
Filed Nov. 15, 1995, Ser. No. 559,272
Claims priority, application Japan, Nov. 15, 1994, 6-280741
Int. Cl.[6] **F16H** *25/22*
U.S. Cl. 74—424.8 NA 15 Claims



1. A ball screw apparatus comprising:
a screw shaft including a first screw groove on its outer circumference;
a ball screw nut including a large-diameter portion which is formed at an opening end and a second screw groove on its inner circumference which corresponds to the first screw groove;
a plurality of balls rolling within a helical space formed between the first and the second screw grooves; and
a seal member comprising a ring which is fitted into the large-diameter portion and a ridge which is engagable with the first screw groove,
the ring being formed of a first segment and a second segment, the first segment including a connection projection at an end, the second segment including a connecting recess at an end, the connecting projection of the first segment being capable of engaging the connecting recess of the second element;
wherein each of the first and the second segments includes end faces which are formed to incline in an axial direction of the ring and in directions opposite to each other.

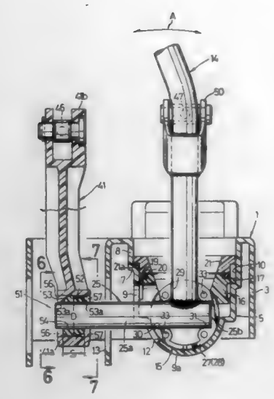
5,722,295
INJECTION-MOLDED GEAR FOR ENGINE AND MANUFACTURING METHOD THEREFOR
Mitsugu Sakai, Oomiya; Yoshimitsu Tateno, Nogi-machi; Kiyoshi Arai, Oomiyn, and Katsuharu Morioka, Kani, all of Japan, assignors to Fuji Jukogyo Kabushiki Kaisha, Tokyo, Japan
Filed Sep. 25, 1996, Ser. No. 719,872
Claims priority, application Japan, Sep. 28, 1995, 7-251579
Int. Cl.[6] **F16H** *55/06;55/14*
U.S. Cl. 74—443 15 Claims



1. An injection-molded gear for an engine, comprising:
an inside portion; and
a toothed outside portion formed around said inside portion,
at least said toothed outside portion being molded from a polyamide resin, said portion of the polyamide resin having a relative viscosity equal to or larger than 3.5, said relative viscosity being defined as η/η_0 where η_0 is a viscosity of sulfuric acid of 98% concentration and η is a viscosity of a solution of the 98% sulfuric acid in which the polyamide resin is dissolved at a concentration of 1.0%.

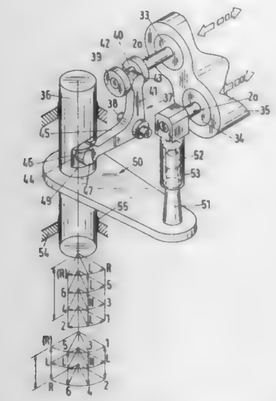
5,722,296
CHANGE DEVICE FOR TRANSMISSION
Yukio Nishigai, and Shigeo Matsumoto, both of Shizuoka, Japan, assignors to Kabushiki Kaisha Atsumitec, Shizuoka, Japan
Filed Sep. 29, 1995, Ser. No. 536,635
Claims priority, application Japan, Jun. 9, 1995, 7-143057
Int. Cl.[6] **B60K** *20/04;* **F16H** *59/04*
U.S. Cl. 74—473 P 1 Claim

1. A change device for a transmission, comprising:
a change lever capable of swinging in a select direction and a shift direction and mounted on a lever bracket;
a bell-crank capable of swinging in a direction perpendicular to said select direction and also mounted on said lever bracket;
a swinging shaft mounted on said change lever for swinging movement with a swinging movement of said change lever in said select direction, said swinging shaft being connected to one end of said bell-crank through a ball joint;
a select operation member connected to the other end of said bell-crank; and
a shift operation member connected to said change lever;
said ball joint comprising a ball hole having a spherical inner peripheral surface formed at one end of said bell-crank, a ball rotatably fitted in said ball hole, and a shaft hole formed in said ball so as to pass through the center thereof and slidably fitted to said swinging shaft, opposite sides of said ball through which said shaft hole opens being formed with a pair of flat surfaces defining a width smaller than a maximum diameter of said ball, at least one of opposite opening edges of said ball hole being provided with a pair of notches such as to



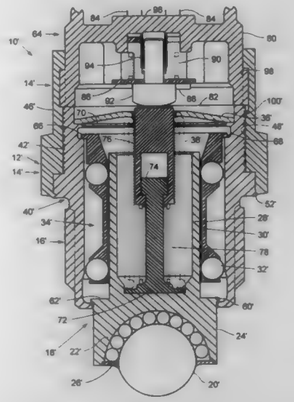
be opposed to each other, said notches having widths larger than said width of said ball and reaching a maximum diameter portion of the inner peripheral surface of said ball, said ball being rotatably fitted in said ball hole through said notches, said ball hole being provided at one of said opening edges with a pair of mutually opposed first notches, and at the other opening edge with a pair of mutually opposed second notches, each of which is displaced in phase through 90° with respect to one of said first notches in a peripheral direction of said ball hole, a sum of central angles corresponding to widths of both said first notches and central angles corresponding to widths of both said second notches being set to be 360°.

5,722,297
ACTUATOR SYSTEM FOR GEAR SHIFTING MECHANISMS OF MOTOR VEHICLES
Dieter Tischer, Wendlingen, and Roland Meyer, Roth, both of Germany, assignors to Hydraulik-Ring Antrieb- und Steuerungstechnik GmbH, Nürtingen, Germany
Filed Mar. 4, 1996, Ser. No. 610,669
Claims priority, application Germany, Mar. 4, 1995, 195 07 705.9
Int. Cl.[6] **B60K** *20/02*
U.S. Cl. 74—473 R 37 Claims



1. An actuator system for a gear shifting mechanism with a gear shifting shaft of a motor vehicle, said actuator system comprising:
a first actuator having a first control member moveable into various first switching positions;
a second actuator having a second control member moveable into various second switching positions;
one of said first and second actuators displaces the gear shifting shaft in the axial direction of the gear shifting shaft and the other of said first and second actuators rotates the gear shifting shaft;
said first and said second control members have axes positioned parallel to one another;
a kinematic coupling device connecting said first and said second control members and the gear shifting shaft;
wherein said coupling device comprises an angular lever with two angularly positioned arms, wherein said angular lever is pivotable about a pivot axis and wherein said pivot axis is positioned angularly to said axes of said first and said second control members.

5,722,298
ARRESTING SCREW FOR VEHICLE TRANSMISSIONS
Jörg Schwarzbich, Wertherstr.15, 33615 Bielefeld, Germany
Filed Mar. 18, 1996, Ser. No. 616,887
Claims priority, application Germany, Mar. 17, 1995, 195 09 880.3
Int. Cl.[6] **F16H** *63/38*
U.S. Cl. 74—475 18 Claims



1. An arresting screw for a vehicle transmission, comprising: pl a hollow bolt including a head and a metal core element affixed to the head, the core element including:
a metal screw thread adapted to be threaded into a transmission component, and
a longitudinal recess extending generally coaxially with respect to the screw thread, the longitudinal recess being open at one longitudinal end thereof, the longitudinal recess including a metal guide surface;
a latch member mounted in the longitudinal recess for longitudinal sliding movement along the metal guide surface thereof, an end of the latch member protruding from the open end of the longitudinal recess and adapted to be yieldably biased against a gear selector shaft of the vehicle transmission for being longitudinally displaced in response to movement of the gear selector shaft; and
a plastic body molded onto the core and defining the head, the head including a polygonal outer periphery exposed for receiving a turning tool, one of the plastic head and core element including recesses, portions of the other of the plastic head and core element projecting into the recesses to enhance the connection therebetween.

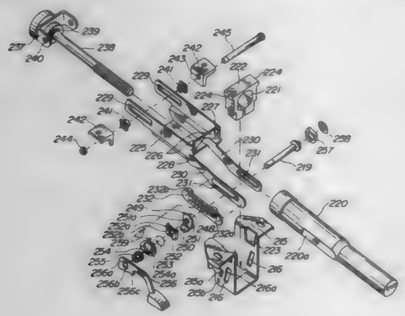
VOL 1208 ISS 1 MR 3 1998 UMI

5,722,299

ADJUSTABLE STEERING COLUMN ASSEMBLY FOR A VEHICLE

Yoshimi Yamamoto; Haruhide Kurita, both of Kosai, Japan; Niklas Kjellestrom, and Gunnar Eriksson, both of Eskilstuna, Sweden, assignors to Fuji Kiko Co., Ltd., Tokyo, Japan

Filed Jun. 29, 1995, Ser. No. 496,289
Claims priority, application Japan, Jun. 30, 1994, 6-148892; Sep. 13, 1994, 6-217767; Sep. 30, 1994, 6-236117
Int. Cl.[6] B62D 1/18
U.S. Cl. 74—493 30 Claims



8. A steering column assembly comprising:
an upper mounting clamp bracket member having a tilt adjustment hole, which is elongated to allow tilting adjustment of a steering column, and a tilt lock toothed portion, said upper mounting clamp bracket member comprising first and second side walls each formed with said elongated tilt adjustment hole and a mounting portion adapted to be fixed to a vehicle body;
a distance bracket member positioned between said first and second side walls of said upper mounting bracket clamp member and having a supporting portion for supporting said steering column, a telescopic adjustment hole, which is elongated to allow telescopic adjustment of said steering column, and a telescopic lock toothed portion;
a clamping bolt extending through said elongated tilt adjustment hole and said elongated telescopic adjustment hole;
an operating lever mounted on said clamping bolt for clamping said distance bracket member to said upper mounting clamp bracket member; and
a locking means mounted on said clamping bolt and having a tilt locking toothed portion for engaging with said tilt lock toothed portion of said upper clamp bracket member, and a telescopic locking toothed portion for engaging with said telescopic lock toothed portion of said distance bracket member.

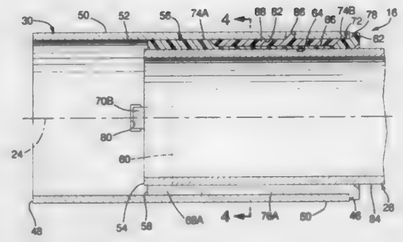
5,722,300

MOTOR VEHICLE STEERING COLUMN

Terry Edward Burkhard, Bay City, and Douglas Matthew Schneider, Bridgeport, both of Mich., assignors to General Motors Corporation, Detroit, Mich.

Filed Aug. 16, 1996, Ser. No. 704,459
Int. Cl.[6] B62D 1/18;1/19
U.S. Cl. 74—493 5 Claims

1. A motor vehicle steering column comprising:
a first mast jacket element adapted for attachment to a motor vehicle body,
a cylindrical passage through said first mast jacket element,
a second mast jacket element having a cylindrical outer surface extending telescopically into said cylindrical passage and cooperating therewith in defining an annulus between said first and said second mast jacket elements,



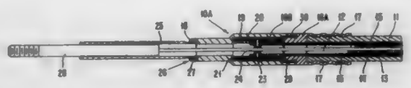
a flexible bushing having a cylindrical inside surface and a cylindrical outside surface and a pair of linear edges on opposite sides of a split in said cylindrical bushing,
a continuous lip on said cylindrical outside surface of said bushing,
said bushing being disposed in said annulus with said cylindrical inside surface thereof facing said cylindrical outer surface of said second mast jacket element and compressively flexed so that said continuous lip bears against said cylindrical passage in said first mast jacket element to define a closed circumferential chamber around said bushing interrupted by said split in said bushing, and
a solid plastic shim molded in place in said closed circumferential chamber by injecting liquid plastic into said closed circumferential chamber at an injection pressure operative to fill said closed circumferential chamber and to clamp said cylindrical inside surface of said bushing against said cylindrical outer surface of said second mast jacket element until shrinkage of the liquid plastic as it cures solid to form said plastic shim reduces the contact pressure and the corresponding frictional drag between said cylindrical inside surface of said bushing and said cylindrical outer surface of said second mast jacket element.

5,722,301

PUSH-PULL BLADE CONTROL WITH DEFLECTABLE END ROD

Peter R. W. Schaaphok, Petersburgh, N.Y., assignor to VPS Control Systems, Inc., Troy, N.Y.

Filed Jul. 8, 1996, Ser. No. 677,629
Int. Cl.[6] F16C 1/28
U.S. Cl. 74—502.3 12 Claims



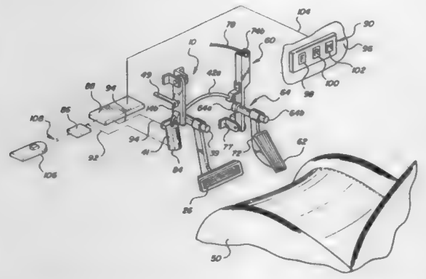
1. In a remote control which has a push-pull blade movably supported in a tubular sheath by two series of spaced bearing balls between opposite faces of said blade and two outer ball races, each end of said sheath being attached to an end fitting with a rigid tubular body in which ends of said ball races are anchored and an end of said blade is connected to a reciprocative end rod, the improvement of at least one of said end fittings which comprises a first tubular segment and a second tubular segment connected together by a swivel joint which allows the second tubular segment to be flexed relative to the first tubular segment, in which said ends of said ball races are anchored in said first tubular segment and through which said end of said blade extends into said second tubular segment wherein it is connected to said end rod.

5,722,302

ADJUSTABLE PEDAL ASSEMBLY

Christopher J. Rixon, Tecumseh, Canada, and Christopher Bortolon, Clawson, Mich., assignors to Teleflex, Inc., Plymouth Meeting, Pa.

Continuation-in-part of Ser. No. 513,017, Aug. 9, 1995, Pat. No. 5,632,183. This application Oct. 2, 1996, Ser. No. 720,682
Int. Cl.[6] G05G 1/14
U.S. Cl. 74—512 8 Claims



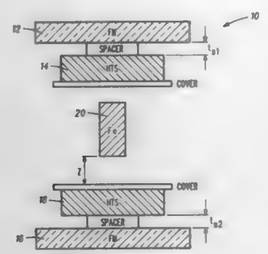
1. An adjustable pedal apparatus for a motor vehicle comprising:
a mounting structure;
a hollow guide rod extending rearwardly from the mounting structure and having an axially extending slot opening in a rearward end of the guide rod;
a pedal structure including an upper guide structure slidably mounted on the guide rod and a pedal arm extending downwardly from the guide structure;
a nut positioned slidably in the hollow of the guide rod;
a screw positioned within the guide rod and threadably engaging the nut;
drive means slidably positioned in the slot and interconnecting the nut and the pedal structure; and
means for rotating the screw.

5,722,303

MIXED-MU SUPERCONDUCTING BEARINGS

John R. Hull, Hinsdale, and Thomas M. Mulcahy, Western Springs, both of Ill., assignors to University of Chicago, Chicago, Ill.

Continuation-in-part of Ser. No. 25,950, Mar. 3, 1993, Pat. No. 5,540,116. This application Sep. 5, 1995, Ser. No. 523,262
Int. Cl.[6] G05G 1/00
U.S. Cl. 74—572 13 Claims



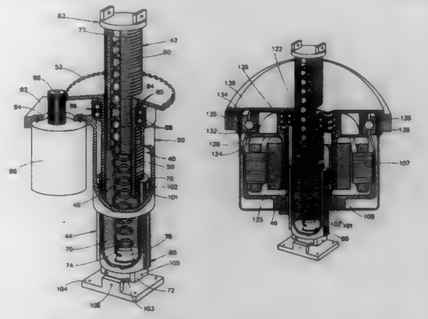
1. A mixed-mu superconducting bearing, comprising:
a ferrite structure disposed for rotation adjacent a stationary superconductor material structure and a stationary permanent magnet structure, said ferrite structure being levitated by said stationary permanent magnet structure.

5,722,304

LINEAR ACTUATOR

Terry S. Allen, Phoenix, Ariz., assignor to Honeywell Inc., Minneapolis, Minn.

Filed Mar. 1, 1994, Ser. No. 204,081
Int. Cl.[6] F16H 25/20
U.S. Cl. 74—586 7 Claims



1. A linear actuator comprising:
a rotatable hollow first cylindrical shaft having a rotational axis;
a second cylindrical shaft, said second cylindrical shaft being coaxial with said first cylindrical shaft and adjacent to an interior surface of the first cylindrical shaft;
a base member with a cylindrical interior surface coaxial with and adjacent an exterior surface of said first cylindrical shaft;
a coupling mechanism that couples the first shaft to the second shaft and the base member, such that rotation of the first shaft cause simultaneous linear motion of the second shaft and the base member parallel to the rotational axis and in opposite directions along parallel paths, the coupling mechanism including helical threads of a first pitch on the exterior surface of the first shaft engaging threads of said first pitch on the interior surface of the base member and helical threads of a second opposite pitch on the interior surface of the first shaft engaging threads of said second pitch on an exterior surface of the second shaft;
means for rotating said second shaft;
means for fixing the axial orientation of said rotating means relative to said base member; and
a spring connecting said second shaft and said base member.

5,722,305

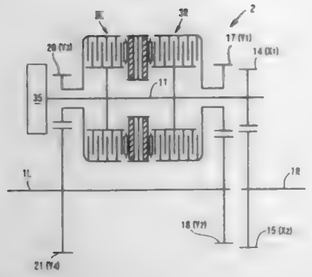
SYSTEM FOR GENERATING DIFFERENCE IN SPEED BETWEEN LEFT AND RIGHT WHEELS OF VEHICLE

Yasuhiro Sawa; Makoto Nakano, and Tetsuro Hamada, all of Saitama, Japan, assignors to Honda Giken Kogyo Kabushiki Kaisha, Tokyo, Japan

Filed Sep. 16, 1996, Ser. No. 714,578
Claims priority, application Japan, Sep. 18, 1995, 7-238600
Int. Cl.[6] F16H 37/06
U.S. Cl. 74—665 T 5 Claims

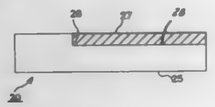
1. A system for generating a difference in speed between left and right wheels of a vehicle, by connecting the left and right wheels to each other by a gearbox, wherein said gearbox includes:
a countershaft disposed parallel to axles of said left and right wheels;
first and second speed-increasing gears for increasing the number of revolutions of one of said axles to transmit the rotation of the one axle to said countershaft;
a first shifting gear relatively rotatably carried on said countershaft;
a second shifting gear fixedly mounted on the other axle and meshed with said first shifting gear;
a third shifting gear relatively rotatably carried on said countershaft;

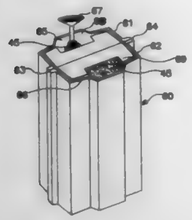
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a fourth shifting gear fixedly mounted on said other axle and meshed with said third shifting gear;
a first clutch mounted on said countershaft for coupling said first shifting gear to said countershaft; and
a second clutch mounted on said countershaft for coupling said third shifting gear to said countershaft, said first and second clutches being disposed adjacent each other between said first and third shifting gears.

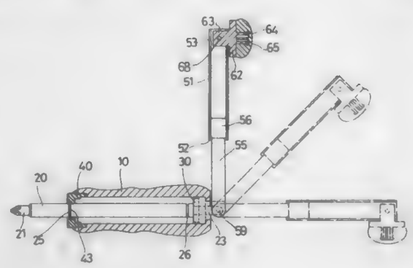
5,722,306
METHOD FOR MAKING A PELLETIZER KNIFE AND BLANK
Timothy M. Vela, Montgomery, N.Y., and David H. Atkinson, Oradell, N.J., assignors to Alloy Technology International Inc., West Nyack, N.Y.
Filed Jun. 7, 1995, Ser. No. 477,601
Int. Cl.[6] B21K *21/00*
U.S. Cl. 76—101.1 **8 Claims**





1. A method for producing a composite blank for a knife blade comprising the following steps:
(a) forming a pair of metal substrate halves, each having two ends, a base face, two side walls, a top face, and a groove formed in the top face forming two parallel shoulders extending between the ends;
(b) placing the substrate halves with their base faces facing each other;
(c) filling the grooves with a charge of Fe/TiC powder suitable for sintering and for bonding with the metal substrate halves;
(d) loading the substrate halves and charges into a closely-fitting metal container and closing the container;
(e) evacuating and sealing the container;
(f) subjecting the container to elevated temperatures and pressure in a HIP process to produce substrate halves with a sintered body of said power bonded thereto;
(g) after the HIP process, removing the container;
(h) separating the two substrate halves from one another;
(i) producing two parts from each substrate half by cutting through said substrate and sintered body of powder along the groove, each part having one of said shoulders; and
(j) slicing the parts from step (i) into blanks.

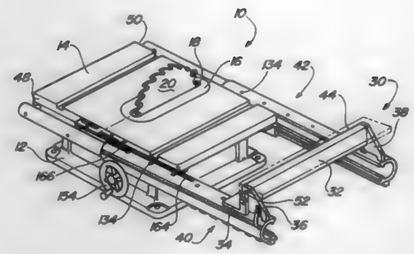
5,722,307
SCREW DRIVER HAVING A RETRACTABLE AND ROTATABLE HANDLE
Chun Chiung Chen, No. 45, Lane 25, Kuo Chung 1st Road, Da Li City, Taichung Hsien, Taiwan
Filed Feb. 19, 1997, Ser. No. 802,866
Int. Cl.[6] B25B *13/00*
U.S. Cl. 81—58.3 **4 Claims**



1. A screw driver comprising:
a hand grip including a bore and including a first end having a block secured to said hand grip, said block including at least one projection,
a rod slidably and rotatably received in said hand grip and including a first end for engaging with a tool bit and including a second end, said rod including an extension,
a rotary member slidably engaged on said extension of said rod and rotated in concert with said rod, said rotary member including at lest one notch for engaging with said projection of said block and for allowing said rod and said rotary member to be rotated by said block and said hand grip,
a handle including a first end pivotally coupled to said second end of said rod for allowing said handle to rotate to a position perpendicular to said rod and for allowing said handle to apply a great torque to said rod, and
said rod including two annular grooves, said block including a slot and a key engaged in said slot, said key including an aperture for engaging with said rod, said block including means for biasing said key outward of said block and for biasing said key to engage with said annular grooves and for allowing said key to position said rod to said block.

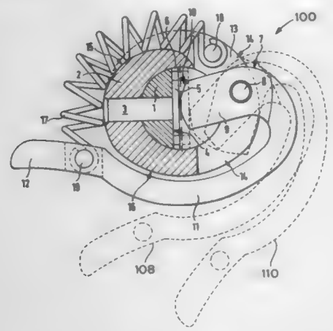
5,722,308
MOVABLE FENCE FOR A MACHINE TOOL
Warren A. Ceroll, Owings Mills; Robert S. Gehret, Hampstead; Daniel Puzio, Baltimore; Frederick R. Bean, Finksburg; Michael L. O'Banion, Westminster, all of Md., and David A. Porter, Hanover, Pa., assignors to Black & Decker Inc., Newark, Del.
Filed Oct. 10, 1995, Ser. No. 541,389
Int. Cl.[6] B26D *7/01*; **B27B** *27/02*
U.S. Cl. 83—438 **80 Claims**

1. A machine tool having a base, said machine tool comprising:
a first stationary rail connected to said base extending generally along a first direction, said stationary rail having a first and a second end;
a first movable rail received over said first stationary rail and extending generally parallel to said first stationary rail; and
a fence assembly including:



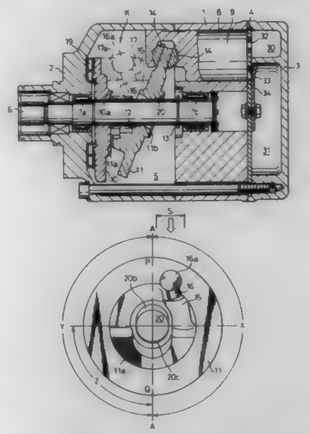
a fence extending generally perpendicular to said first movable rail; and
a first mount connected to said fence and adapted to engage said first movable rail, said first movable rail being movable with respect to said first stationary rail between a first position where said fence assembly is located between said first and second ends and a second position where said fence assembly is located beyond one of said first and second ends, said fence assembly being attached to said first movable rail in both said first and second positions.

5,722,309
APPARATUS FOR CLAMPING THE END OF A RECIPROCATING SAW BLADE
Jorg Seyerle, Kongen, Germany, assignor to Metabowerke GmbH & Co., Nurtingen, Germany
Filed Jan. 16, 1996, Ser. No. 584,948
Claims priority, application Germany, Jan. 20, 1995, 195 01 635.1
Int. Cl.[6] B27B *19/02*
U.S. Cl. 83—699.21 **5 Claims**



1. An apparatus for clamping a saw blade to a reciprocable plunger, the apparatus comprising:
a clamping body connected to an end of the plunger, with said clamping body having a bearing surface arranged for positive engagement with the saw blade, and with said clamping body having a stroke axis;
a clamping member, with said clamping member pivotally mounted on said clamping body, with said clamping member comprising:
a lever member, with said lever member having a relatively shorter inner arm and a relatively longer outer arm; and
an eccentric curved surface means with said eccentric curved surface means formed on said relatively shorter inner arm;
in which said clamping body further comprises spring means and an outer surface, with said spring means acting on said lever member urging said lever member toward a clamping direction in which said relatively shorter inner arm is urged toward said bearing surface;
and in which said spring means comprises tension spring means having a first end, a second end and an intermediate portion, with said first end connected to said clamping body and with said second end connected to said lever member and with said intermediate portion of said tension spring means extending onto said outer surface of said clamping body.

5,722,310
SINGLE HEADED PISTON TYPE VARIABLE CAPACITY REFRIGERANT COMPRESSOR PROVIDED WITH AN IMPROVED INCLINATION LIMITING MEANS FOR A SWASH PLATE ELEMENT
Masaki Ota; Masaya Nakamura; Shigeyuki Hidaka, and Hisakazu Kobayashi, all of Kariya, Japan, assignors to Kabushiki Kaisha Toyoda Jidoshokki Seisakusho, Kariya, Japan
Filed Oct. 21, 1996, Ser. No. 729,646
Claims priority, application Japan, Oct. 19, 1995, 7-271266
Int. Cl.[6] F04B *1/26*
U.S. Cl. 92—12.2 **6 Claims**



1. A variable capacity refrigerant compressor comprising:
an axially extending cylinder block having a plurality of axial cylinder bores formed therein and forming a part of an outer framework of the compressor;
a plurality of pistons slidably fitted in the cylinder bores to compress a refrigerant gas;
a front housing secured to an axially front end of said cylinder block and defining therein a crank chamber; a drive shaft rotatably supported and housed by said cylinder block and said front housing and rotating about an axis of rotation thereof upon being driven;
a rear housing secured to a rear end of said cylinder block and defining therein a suction chamber for a refrigerant gas to be compressed and a discharge chamber for the compressed refrigerant gas;
a rotor element mounted on said drive shaft to be rotated together therewith;
a swash plate element connected, via a hinge unit, to said rotor element so as to be synchronously rotated with said rotor element, and operatively engaged with said plurality of pistons to actuate sucking, compressing and discharging operations of said pistons, said swash plate having a suction actuating region and a compression and discharge actuating region separated by a predetermined line which corresponds to a line of inclination of said swash plate changing an angle of inclination thereof with respect to a plane perpendicular to the axis

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of rotation of said drive shaft in response to a difference in pressures prevailing in said crank chamber and said suction chamber; and,

an inclination limiting means arranged between said rotor element and said swash plate to limit the inclination of said swash plate to a predetermined maximum angular position;

wherein said hinge unit includes a pivotally engaging point between said rotor and swash elements to permit said rotor and swash plate elements to synchronously rotate and also permit said swash plate element to change an angle of inclination thereof, said pivotally engaging point of said hinge unit being positioned to be displaced from the top dead center of said swash plate toward said compression and discharge actuating region around said axis of rotation of said drive shaft, and

wherein said inclination limiting means comprises a first contacting area formed in said rotor element and a second contacting area formed in said swash plate element, said first and second contacting areas coming into contact with one another when the inclination of said swash plate element reaches said maximum angular position, said second contacting area of said swash plate element being disposed in said suction actuating region of said swash plate element with respect to said line of inclination of said swash plate element.

5,722,311

FLUID-OPERATED BRAKE ACTUATOR WITH SPRING CHAMBER ISOLATION

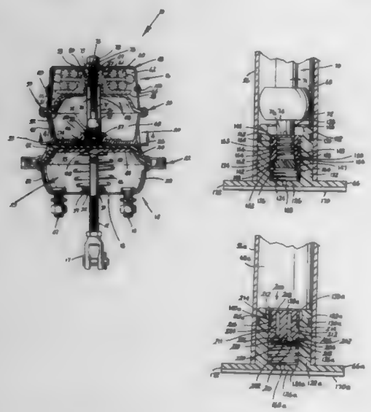
William C. Pierce; William J. Hicks, both of Muskegon, and Steven M. Stojic, Holland, all of Mich., assignors to Nai Anchoriok, Inc., Muskegon, Mich.

PCT No. PCT/US94/08421, § 371 Date May 1, 1995, § 102(e) Date May 1, 1995, PCT Pub. No. WO95/25030, PCT Pub. Date Sep. 21, 1995

Continuation-in-part of Ser. No. 54,757, Apr. 27, 1993, Pat. No. 5,372,059. This PCT application Jul. 25, 1994, Ser. No. 433,359

Int. Cl.[6] F01B *7/00*

U.S. Cl. 92—63 **15 Claims**



1. In a brake actuator for a vehicle, comprising:

a service brake housing;

a tandem spring brake housing;

a first movable member, disposed within the service brake housing, dividing the interior thereof into a first service brake chamber and a second service brake chamber, and reciprocally movable therein in response to the delivery and exhaust of pressurized fluid to the first service brake chamber;

a second movable member, disposed within the spring brake housing, dividing the interior thereof into a first spring brake chamber and a second spring brake chamber, and reciprocally movable therein in response to the delivery and exhaust of pressurized fluid to the second spring brake chamber;

a power spring disposed in the first spring brake chamber in a position to move the second movable member upon exhaust of fluid from the second spring brake chamber; and

a hollow actuator rod having an open proximal end mounted to and extending through the second movable member for reciprocal movement therewith between an extended position and a retracted position, and an open distal end disposed within the first service brake chamber in a position to move the first movable member with the movement of the second movable member;

a control valve at the distal end of the actuator rod to control the flow of fluid pressure through the actuator rod between the first service brake chamber and the first spring brake chamber;

characterized in that:

the control valve is mounted in the distal end of the actuator rod;

the control valve has a valve element movable between an open position to open the control valve and a closed position to close the control valve, and further has a biasing element to bias the valve element to the open position;

a valve actuator including a valve pin positioned in the actuator rod to contact the valve element when the actuator rod is in the retracted position and to move the valve element to the closed position to close the control valve,

whereby pressurized fluid is delivered to the first spring brake chamber from the first service brake chamber through the hollow actuator rod as the actuator rod moves from the retracted toward the extended position, pressurized fluid is delivered from the first spring brake chamber to the first service brake chamber through the hollow actuator rod as the actuator rod moves from the extended position toward the retracted position, and pressurized fluid is prevented from moving from the first service brake chamber to the first spring brake chamber through the actuator rod when the actuator rod is in the retracted position.

5,722,312

PROCESS FOR MOUNTING A CYLINDER SLEEVE IN A BASE MEMBER, AND A HYDRAULIC MACHINE

Egon Kristensen, Nordborg, Denmark, assignor to Danfoss A/S, Nordborg, Denmark

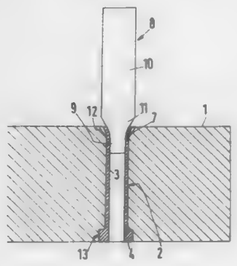
PCT No. PCT/DK93/00439, § 371 Date Jun. 27, 1996, § 102(e) Date Jun. 27, 1996, PCT Pub. No. WO94/15757, PCT Pub. Date Jul. 21, 1994

PCT Filed Dec. 22, 1993, Ser. No. 464,684

Claims priority, application Germany, Jan. 18, 1993, 43 01 124.1

Int. Cl.[6] F01B *11/02*

U.S. Cl. 92—171.1 **16 Claims**



1. A method for mounting a cylinder sleeve in a base member, including the steps of inserting the cylinder sleeve in the base member and enlarging the outer diameter of the inserted cylinder sleeve at one end by introducing a heated tool under pressure into said one end and exerting axial and radial forces on the cylinder sleeve, the cylinder sleeve being heated before the outer diameter is enlarged.

5,722,313

MACHINE FOR MAKING BEVERAGES SUCH AS ESPRESSO COFFEE WITH AUTOMATIC GROUND COFFEE INTRODUCTION AND DREGS EXPULSION

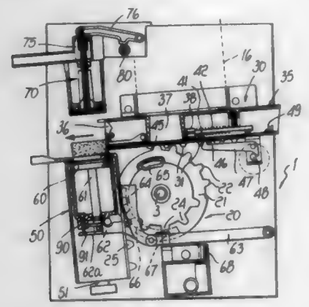
Arthur-Joachim Schmed, Oberdürnten, Switzerland, assignor to J. Lough Limited, Ireland

Filed Jul. 26, 1996, Ser. No. 690,212

Claims priority, application Switzerland, Jul. 31, 1995, 02231/95

Int. Cl.[6] A47J *31/34*

U.S. Cl. 99—289 R **24 Claims**



1. A machine for making beverages such as espresso coffee, with automatic ground coffee introduction and dregs expulsion, comprising:

a ground coffee dosage device;

a cam-based actuation unit;

a main shaft that drives said ground coffee dosage device and said cam-based actuation unit;

a ground coffee feeding-and-dregs-expulsion unit interacting with said cam-based actuation unit;

a block forming a movable extraction chamber interacting with said cam-based actuation unit;

said dosage device delivering ground coffee into said coffee feeding-and-dregs-expulsion unit, said coffee feeding-and-dregs-expulsion unit delivering said ground coffee into said extraction chamber;

an infusion plunger having an axis;

an actuation lever for said infusion plunger, interacting with said cam-based unit and directly connected to the infusion plunger, said infusion plunger slidable along said axis inside said movable extraction chamber, a hot water inlet located below said infusion plunger for delivering hot water into said extraction chamber; and

a fixed complementary plunger provided above said extraction chamber for compacting the ground coffee fed into said extraction chamber, said infusion plunger slidable axially with respect to said complementary plunger and said ground coffee feeding and dregs expulsion unit slidable transversely with respect to the axis of said infusion plunger.

5,722,314

AUTOMATIC BREAD PRODUCING MACHINE

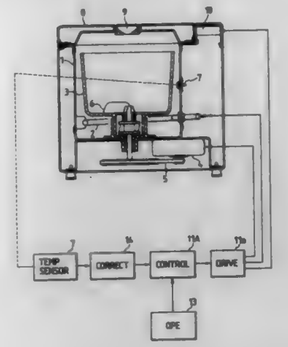
Akihisa Nakano, Kobe; Kouji Noda, Osaka; Hironobu Tanaka, Osaka; Masashi Kanbara, Osaka; Toshikatsu Maeda, Osaka; Takahiro Oshita, Kobe, and Yasuhiro Kakimoto, Nara, all of Japan, assignors to Matsushita Electric Industrial Co., Ltd., Osaka, Japan

Filed Nov. 14, 1995, Ser. No. 557,813

Claims priority, application Japan, Nov. 14, 1994, 6-279171; Jan. 6, 1995, 7-000777; Jan. 17, 1995, 7-004886; Jan. 17, 1995, 7-004887; Jan. 17, 1995, 7-004888; Feb. 8, 1995, 7-020401; Feb. 15, 1995, 7-027094

Int. Cl.[6] A47J *37/00;37/60*

U.S. Cl. 99—331 **9 Claims**



1. An automatic bread producing apparatus which controls a bread producing process in accordance with a baking temperature comprising:

a temperature sensor for detecting a temperature within a baking chamber;

means for determining a corrective value of temperature in response to temperature of said apparatus at the beginning of said bread producing process;

means for correcting a first control temperature to derive a second control temperature in response to the corrective value; and

means for controlling the bread producing process temperature in response to the temperature detected by the temperature sensor and the second control temperature.

5,722,315

SYSTEM AND DEVICE FOR GRILLING FOOD

Michiyuki Naramura, Okayama-ken, Japan, assignor to Kabushiki Kaisha Kyowa Kogyosho, Okayama-ken, Japan

Filed Aug. 1, 1994, Ser. No. 284,970

Claims priority, application Japan, Jul. 30, 1993, 5-189493; Jun. 2, 1994, 6-121227

Int. Cl.[6] A47J *37/00*

U.S. Cl. 99—349 **12 Claims**

1. An apparatus for heating an object, comprising:

means for storing a plurality of said objects;

a first grill plate having a first grilling surface thereon;

a second grill plate having a second grilling surface thereon;

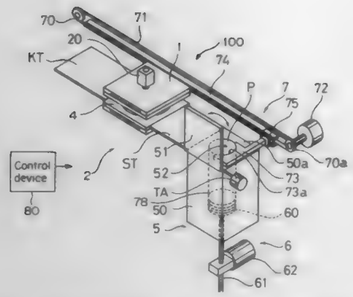
said first grilling surface being aligned with, and facing, said second grilling surface;

means for moving one of said plurality of objects from said means for storing to a position between said first grilling surface and said second grilling surface;

a layer on at least one of said first grilling surface and said second grilling surface;

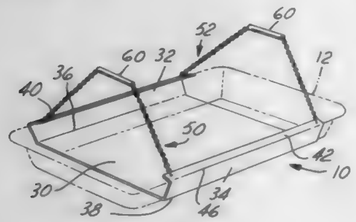
said layer including a mixture of polytetrafluoroethylene and a far-infrared radiation substance; and

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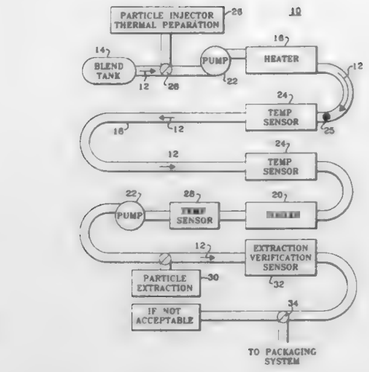
means for moving said layer into contact with a surface of said object.

5,722,316
CARRIER FOR ALUMINUM FOOD PANS
Matthew Rutland, Jr., 18485 Robson, Detroit, Mich. 48235
Filed Nov. 12, 1996, Ser. No. 745,693
Int. Cl.° B65D *90/04;90/12*
U.S. Cl. 99—426 **7 Claims**



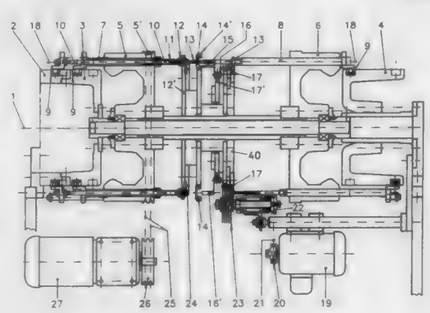
1. A carrier for shallow, downwardly dished, flexible aluminum food pans,
said carrier being generally channel-shaped and comprising:
a bottom wall having opposite side edges,
side walls extending upwardly from the respective side edges of said bottom at least two carrying straps each having ends secured to the respective side walls,
said carrier being open at the front and rear,
wherein said side walls have upper edge portions and flanges extending laterally inwardly from said upper edge portions adapted to engage over the side margins of the pan, the ends of said straps being secured to said flanges at longitudinally spaced points.

5,722,317
LOCAL MAGNETIC TEMPERATURE MEASUREMENT FOR ASEPTIC PROCESSING
Kenneth Marc Ghiron, Champaign, and James Bruce Litchfield, Urbana, both of Ill., assignors to The Board of Trustees of the University of Illinois, Urbana, Ill.
Filed Apr. 15, 1996, Ser. No. 632,173
Int. Cl.° A61L *2/04;* **A23L** *3/005*
U.S. Cl. 99—452 **14 Claims**



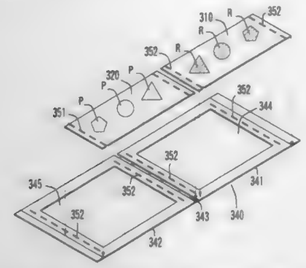
1. An aseptic processing system for processing a product by monitoring a magnetic particle in the product comprising:
a product stream path through which said product and said magnetic particle flow during processing;
moving means for moving said product and said magnetic particle through said product stream path;
a heater for heating said product and said magnetic particle; and
temperature sensor means for sensing a local temperature within said product in said product stream path based upon an amount of magnetization of said magnetic particle as it passes said temperature sensor means.

5,722,318
OLIVE STONING MACHINES
Vicente Rico Ruiz, and Antonio Garrido Perez, both of Dos Hermanas, Spain, assignors to Sociedad Anonimya De Racionalizacion Y Mecanizacion (Sadrym), Dos Hermanas, Spain
Filed Dec. 7, 1995, Ser. No. 568,461
Claims priority, application Spain, Nov. 17, 1995, 9502253
Int. Cl.° A23N *4/08;4/22*
U.S. Cl. 99—494 **7 Claims**



1. An olive stoning machine comprising:
conveyor means for conveying olives;
a main drum for rotation about an an axis and having a perimeter;
cups respectively on a plurality of stoning axes (**18**) on the main drum at the perimeter for respectively receiving the olives tangentially form the conveyor mean;
a nozzle (**11**) for cutting tips of the olives on the cups;
a stoning punch (**13**) and for stoning the tip-cut olives on the cups;
an ejector (**10**) for eliminating the tips of the stoned olives;
slicing cradles (**17**) respectively on the stoning axes (**18**) at a distance from the cups (**14**)
and spears (**13'**) on an outer surface of the punch for retaining the olives on the punch while the punch retracts after stoning olives toward the slicing cradle (**17**).

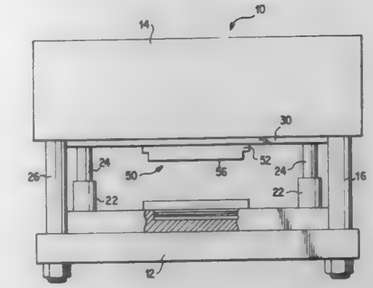
5,722,319
EMBOSSED PATTERN STAMPING APPARATUS
Toru Hirano, Tokyo, Japan, assignor to Atena Corporation, Tokyo, Japan
Filed Jul. 2, 1996, Ser. No. 675,721
Claims priority, application Japan, Jul. 7, 1995, 7-172610
Int. Cl.° B31F *1/07*
U.S. Cl. 101—23 **17 Claims**



1. An apparatus for stamping an embossed pattern on a sheet-like object, comprising:
a press roller and a rotating roller, wherein:
said press roller is provided with an embossed pattern stamping die at a circular external circumferential surface, and with a rotating shaft supported by bearings, and is caused to perform axial rotation by a rotating drive force applied from the outside;
said rotating roller faces opposite said external circumferential surface of said press roller to form a gap for said sheet-like object to be inserted between said rotating roller and said press roller;
said press roller and said rotating roller are both provided with mounting portions for mounting an embossed pattern stamping die;
said mounting portions are each provided with an indented groove and an operating member;
said indented groove is provided at said external circumferential surface of one of said press roller and said rotating roller in the direction of the axis thereof to constitute an interlocking portion to which one end of said embossed pattern stamping die is connected and retained; and
said operating member is positioned inside said indented groove and is deflected by a force applied from the outside to press said embossed pattern stamping die that is connected and retained inside said indented groove upward so that said embossed pattern stamping die can be taken out of said indented groove.

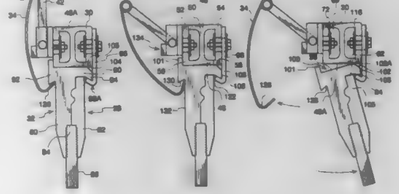
5,722,320
METHOD AND APPARATUS FOR ALIGNING DIE STAMPING PRESS PLATENS
David Thomas Meyer, Greer, S.C., assignor to Kemet Corporation, Greenville, S.C.
Filed Dec. 13, 1996, Ser. No. 764,578
Int. Cl.° B31F *1/07*
U.S. Cl. 101—32 **21 Claims**

1. A self-aligning die platen assembly for use with a cooperating die platen assembly to form a die set, said self-aligning die platen assembly comprising:
a die shoe;
a platen having a working face for operational cooperation with a corresponding working face of the cooperating die platen assembly when in closed relationship therewith;
said platen being mounted in said die shoe and having a freely rockable condition therein to permit said platen to be moved into an aligned operational position in which its working face conforms to the corresponding working face when the assemblies are closed; and



a locking element operatively associated with said platen and being selectively and repeatedly changeable between a first condition to maintain said platen locked in said operational position when the assemblies are opened and a second condition to release said platen to said freely rockable condition.

5,722,321
BLADE MOUNTING ASSMBLY FOR SREEN PRINTING APPARATUS
Alexander Szyszko, Bloomington, and Ryszard Witowski, Wheaton, both of Ill., assignors to Elexon Ltd., Elk Grove Village, Ill.
Filed Oct. 16, 1996, Ser. No. 732,041
Int. Cl.° B41F *15/44*
U.S. Cl. 101—123 **20 Claims**



1. A blade mounting assembly for releasably securing a holder of a squeegee blade or flood bar blade for a screen printing machine above a printing screen in the machine, the blade mounting assembly comprising:
a mounting bar having a bottom abutment surface for engaging the holder;
a pivot member on the mounting bar projecting below the mounting bar;
a pivotally mounted portion on the holder for releasable engagement with the pivot member;
a clamping mechanism connected to the mounting bar for applying a clamping force to the holder to pivot the pivotally mounted portion about the pivot member and clamp the holder against the mounting bar with the holder against the bottom surface of the bar; and
a clamp engaging portion on the holder for releasable engagement with the clamping mechanism and which is moved towards the mounting bar by the clamping mechanism as it pivots the pivotally mounted portion of the holder about the pivot member.

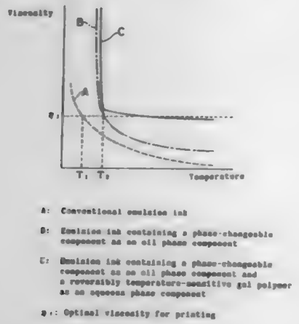
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5,722,322

EMULSION INK FOR STENCIL PRINTING PROCESS

Hideo Watanabe, Tokyo, Japan, assignor to Riso Kagaku Corporation, Tokyo, Japan

Filed Feb. 28, 1996, Ser. No. 608,299
Claims priority, application Japan, Feb. 28, 1995, 7-040600; Mar. 1, 1995, 7-042068; Mar. 9, 1995, 7-049999
Int. Cl.[6] C09D *11/02*; B41M *1/12*
U.S. Cl. 101—129 6 Claims



1. A stencil printing process for printing an object to be printed by passing an ink through perforations made in a stencil sheet which has undergone plate-making, comprising the following steps:

rendering a solid ink capable of causing a phase change into a liquid state at a temperature of 30°–80° C. into a liquid ink having a viscosity of 10–1,000,000 cps with the application of heat; and

passing the liquid ink through the perforations made in the stencil sheet within a time of 0.001–10 seconds while pressing the stencil sheet against the object to be printed with a pressure of 0.01–10 kg/cm^2 so as to transfer the ink onto the object.

5,722,323

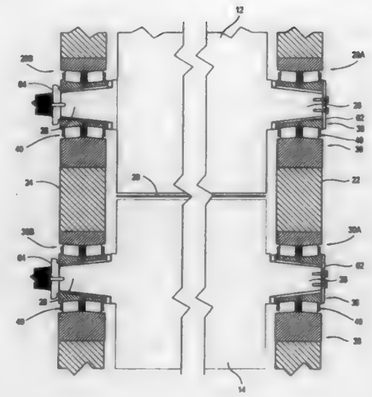
BLANKET CYLINDER THROW-OFF DEVICE

Frederick J. Whiting, LaGrange; Thomas W. Orzechowski, Orland Park; Stanley Momot, LaGrange, and Thaddeus A. Niemiro, Lisle, all of Ill., assignors to Goss Graphic Systems, Inc., Westmont, Ill.

Continuation of Ser. No. 527,607, Sep. 13, 1995, abandoned. This application Feb. 20, 1997, Ser. No. 803,556
Int. Cl.[6] B41F *13/24*
U.S. Cl. 101—218 8 Claims

1. An offset printing press having an apparatus for engaging and disengaging adjacent blanket cylinders from each other and corresponding adjacent plate cylinders, each of the cylinders having a tapered-shaped journal that is mounted between two parallel side frames of the printing press, the apparatus comprising:

at least one pair of bearing assemblies mounted on opposite ends of the tapered-shaped journal of at least one of the blanket cylinders, wherein each of the bearing assemblies is defined by an outer race mounted within a bore in one of the parallel side frames so as to be in a fixed position during operation of the printing press, the outer race of each of the bearing assemblies having an eccentric bore, and wherein each of the bearing assemblies is defined by an inner race disposed within the eccentric bore in the corresponding outer race so as to be movable during operation of the printing press, the outer race of each of the bearing assemblies thereby supporting the opposite ends of tapered-shaped journal within the two parallel side frames of the printing press, and wherein each of the bearing assemblies is defined by at least one anti-friction element disposed between the inner race and outer race to facilitate movement of the inner race relative to the outer race during operation of the printing press, the inner race being defined by an inner ring, an outer ring, and a ground spacer disposed between the inner ring and a shoulder of the cylinder, and wherein each of the inner and outer rings has a tapered-shaped inner surface and a cylindrically-shaped outer surface.

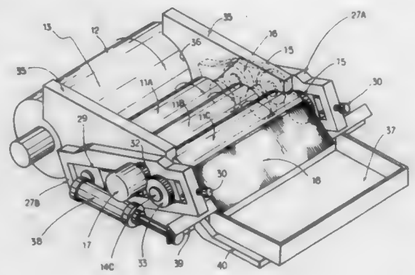


5,722,324

INK TROUGH APPARATUS FOR A PRINTING PRESS

Hiroshi Nishiwaki; Toshiharu Fujiwara; Kazushi Hatanaka, and Nobuyuki Baba, all of Osaka, Japan, assignors to Technoroll Co., Ltd., Izumi, Japan

Filed Oct. 15, 1996, Ser. No. 732,678
Claims priority, application Japan, Oct. 14, 1995, 7-292206; Mar. 18, 1996, 8-090441
Int. Cl.[6] B41F *1/46*
U.S. Cl. 101—363 9 Claims



1. An ink trough apparatus for a printing press comprising:

an ink trough being defined by a fountain roller forming a front end of said ink trough and a trough roller forming a rear end of said ink trough, said fountain and said trough rollers being in sealing parallel contact, and seal members forming opposite sides of said ink trough, said seal members being proximal to and in sealing contact with respective opposite ends of said rollers; and

a trough roller drive means for actuating the trough roller;

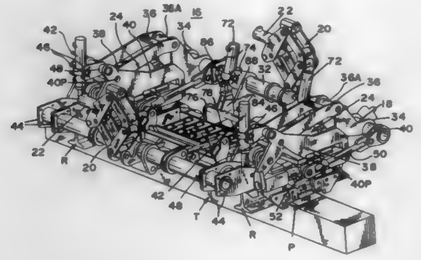
a fountain roller drive means for actuating the fountain roller, said trough roller drive means being actuated independently with respect to said fountain roller drive means.

5,722,325

TIE GUIDE AND PLATE HOLDING APPARATUS

Krzysztof E. Glomski; Kurt L. Natterstad, and Thomas H. Hoover, all of Fairmont, Minn., assignors to Harsco Corporation, Camp Hill, Pa.

Continuation of Ser. No. 305,901, Sep. 14, 1994, Pat. No. 5,617,795. This application Oct. 18, 1996, Ser. No. 733,988
Int. Cl.[6] E01B *29/06*
U.S. Cl. 104—9 9 Claims



1. An apparatus for aiding in tie replacement operations comprising:

a frame; and

first and second side clamp assemblies supported by said frame, each of said first and second clamp assemblies having a pair of opposing field side mechanical grip elements and a pair of opposing gauge side mechanical grip elements, said pairs of field side and gauge side mechanical grip elements operable to grip tie plates when ties thereunder are removed and replaced, and including at least one spring operably connected to at least one of the mechanical grip elements for biasing thereof; and wherein said first and second side clamp assemblies further include respective corresponding first and second hydraulic cylinders, each pair of mechanical grip elements being mounted for movement in a straight line parallel to an extension/retraction direction of the corresponding one of the first and second hydraulic cylinders.

5,722,326

MAGNETIC LEVITATION SYSTEM FOR MOVING OBJECTS

Richard F. Post, Walnut Creek, Calif., assignor to The Regents of the University of California, Oakland, Calif.

Filed Aug. 1, 1994, Ser. No. 295,577
Int. Cl.[6] B60L *13/00*
U.S. Cl. 104—281 5 Claims

1. A magnetic levitation system, comprising:

a plurality of pole assemblies attached to a movable object;

a track;

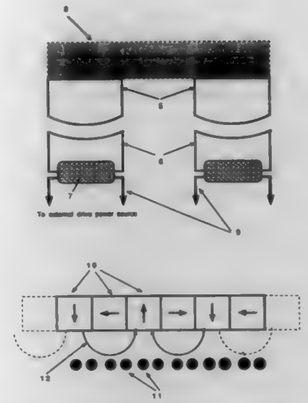
a plurality of closed inductively loaded circuits connected to said track; and

means for automatic centering of said movable object on said track;

wherein said plurality of pole assemblies are magnetically connected to said plurality of closed inductively loaded circuits, wherein said plurality of closed inductively loaded circuits comprise a linear array of closed inductively loaded circuits, wherein a force exerted between a single pole assembly of said plurality of pole assemblies and a single circuit of said linear array of closed inductively loaded circuits is:

$$F = \frac{\lambda}{4\pi}\left[\frac{(B_0 w)^2}{L_0}\right]\exp(-2ky) \text{ Newtons,}$$

where λ is the length of one period of said array, B_0 is the magnetic field of one circuit of said circuits, w is the width of said circuit, L_0 is the inductance (in henrys) of said circuit, $k=2\pi/\lambda$ and y is a displacement in the direction perpendicular to the face of said array.

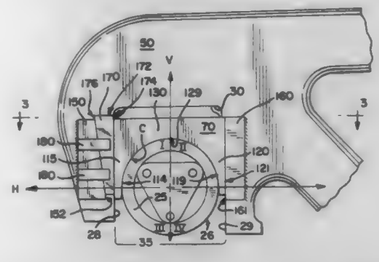


5,722,327

DEVICE FOR IMPROVING WARP STIFFNESS OF A RAILCAR TRUCK

V. Terrey Hawthorne, Lisle; Charles P. Spencer, Staunton, both of Ill.; Charles L. Van Auken, Dillsburg, Pa., and Terry L. Pitchford, St. Louis, Mo., assignors to Amsted Industries Incorporated, Chicago, Ill.

Filed Nov. 20, 1995, Ser. No. 560,971
Int. Cl.[6] B61F *5/26*
U.S. Cl. 105—218.1 57 Claims



1. An improved railway truck assembly having a first sideframe and a second sideframe, each of said sideframes having an inboard face, an outboard face, a first end with a first pedestal jaw, a second end with a second pedestal jaw, and a midsection therebetween, said first and second pedestal jaws each having inboard and outboard sides corresponding to said sideframe inboard and outboard faces, each of said sideframes laterally spaced from each other and disposed along a longitudinal axis, each of said first and second pedestal jaws formed by a vertically disposed forward wall, a vertically disposed rearward wall, and a horizontally disposed pedestal roof interconnecting said forward and rearward walls and thereby defining respective first and second pedestal jaw openings on each of said sideframes, each of said pedestal jaw openings having a lateral extent and a longitudinal extent, wherein said longitudinal extent generally corresponds to a defined span between said forward wall and said rearward wall and said lateral extent generally corresponds to a defined width between said sideframe inboard and outboard faces,

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a transversely disposed bolster extending between said sideframes at each of said sideframe midsections,

a first axle and a second axle, said first and second axles longitudinally spaced from each other and traversing between said sideframes, said axles generally parallel to each other, said first and second axles each having inboard and outboard ends with a respective bearing assembly mounted thereon, each of said pedestal jaw openings accommodating one said bearing assembly and one said axle end,

each of said bearing assemblies having a generally cylindrical body formed by an outer race centered about a horizontal and vertical axis of said assembly, thereby defining upper and lower bearing assembly quadrants, said vertical axis passing through a longitudinal midpoint of said bearing assembly and said horizontal axis passing through a vertical midpoint of said assembly, said cylindrical body forming a substantially circular bearing assembly cross section having a first diameter at said horizontal centerline,

a plurality of wheel bearing adapters, each said pedestal jaw opening accommodating a bearing adapter, each said bearing adapter having a body with an arcuate bottom surface, a top surface, an inboard side and an outboard side, said top surface on each said bearing adapter body contacting said pedestal jaw roof, and said arcuate bottom surface on each said adapter body in communication with said bearing assembly outer race, the improvement comprising:

means for locking each of said bearing adapters within said respective pedestal jaw opening to prevent rotational bearing adapter displacement within said pedestal jaw opening and to simultaneously maintain each said axle end at a substantially right angular relationship with respect to each of said sideframes, thereby increasing truck warp stiffness.

5,722,328

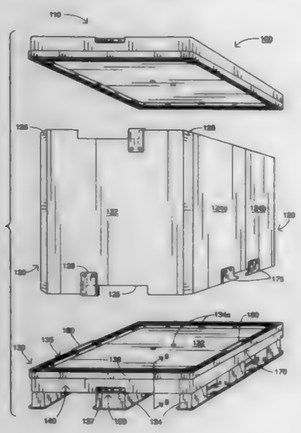
PALLET SYSTEM INCLUDING SIDE WALL LATCH ASSEMBLY

Robert J. Darby, Greensboro, N.C., assignor to T.H.E.M. International, Inc., Greensboro, N.C.

Continuation-in-part of Ser. No. 471,963, Jun. 6, 1995, abandoned. This application Mar. 5, 1996, Ser. No. 611,452

Int. Cl.[6] B65D *19/44*

U.S. Cl. 108—55.1 **43 Claims**



1. A pallet system comprising:

a) a side wall having a lower edge, said side wall further including a lock slot and a coupling structure each adjacent said lower edge;

b) a pallet having a peripheral rim arranged and configured to receive said lower edge;

c) a latch mechanism mounted on said pallet adjacent said peripheral rim, said latch mechanism selectively transitionable between an engaged position wherein said latch mechanism engages said lock slot thereby securing said side wall to said pallet and a disengaged position wherein said latch mechanism is not engaged with said lock slot thereby allowing said side wall to be removed from said pallet; and

d) a fixed bracket fixedly mounted on said pallet adjacent said peripheral rim and spaced apart from said latch mechanism, said fixed bracket arranged and configured to receive and engage said coupling structure from a first direction and wherein, when said fixed bracket and said coupling structure are engaged, said fixed bracket restricts movement of said side wall with respect to said pallet in a second direction.

5,722,329

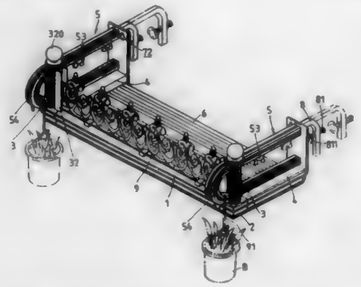
WALL FLOWER SUPPORT STRUCTURE

Jung-Yi Weng, 1F, No. 1, Lane 11, ChingMing Street, Taipei, Taiwan

Filed Jan. 13, 1997, Ser. No. 783,828

Int. Cl.[6] A47B *5/00*

U.S. Cl. 108—47 **13 Claims**



1. A flower support structure adapted to be attached to a wall, comprising:

a support frame comprising:

a first bar having two hollow ends,

a pair of connector members each having two extensions extending along two directions that are not co-linear, one of the extensions of one of the connectors being removably fitted into one hollow end of the first bar and one of the extensions of the other connector being removably fitted into the other hollow end of the first bar,

a pair of second bars each having a first hollow end into which a second one of the extensions of the connector members is fit to connect the second bars to each of the ends of the first bar so as to have the second bars opposite to each other, and an opposite second end of each second bar being adapted to abut against the wall, each of the second bars comprising a slot co-extensive therewith and opposite to each other, and

at least one support plate having two opposite side edges respectively slidably and removably fitted within the slots of the second bars to be supported thereon, fasteners being provided to secure the support plate to the second bars;

a rail structure comprising:

an end post of a predetermined axial length mounted to a top side of each of the connector members with an axial end thereof and axially extending in a direction substantially normal to the first bar and the second bars, each end post comprising two openings extending therethrough in a direction substantially parallel with one of the second bars and axially spaced from each other at a predetermined distance,

an end plate secured to a second end of each of the second bars to extend in a direction substantially parallel with and opposite to each end post, each end plate comprising an

opening substantially in alignment with one of the openings of one of the end posts that is remote from the connector member to which the one of the end posts is connected,

a U-shaped side rail member comprising two legs spaced from each other at a distance corresponding to the axial distance between the openings of each of the end posts to be removably fitted and extendible through the openings so as to have free ends of the legs in contact engagement with the respective end plate and an arc section connecting the two legs together, one of the legs that extends through the openings of the end post that is remote from the respective connector member and corresponding to the opening of the end plate comprising an interior passage in alignment with the opening of the end plate to define an interior channel, and

a front rail member releasably mounted to the first bar; and

anchoring means comprising:

an L-shaped member having a first leg slidably fitted within the interior channel of each of the U-shaped side rail members through the opening of the respective end plate to have a second leg of the L-shaped member substantially parallel with and spaced from the end plate at a distance adapted to accommodate the wall therebetween, the distance between the end plate and the second leg of the L-shaped member being adjustable by moving the first leg of the L-shaped member relative to the side rail frame, securing means being provided on the first leg of the L-shaped member to location-adjustably secure the L-shaped member to the respective side rail member, and

fastening means comprising an adjusting screw rotatably mounted on the second leg of the L-shaped member with a swivel head mounted on an end of the adjusting screw facing the end plate to manually operate to tightly secure the wall between the respective end plate and the swivel head and thus fix the flower support structure on the wall.

5,722,330

PALLET SYSTEM

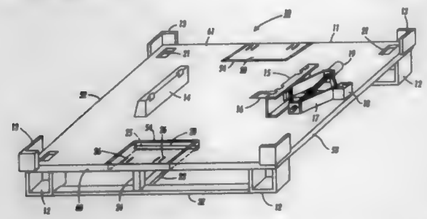
Barry Staggers, Aylesbury, United Kingdom, assignor to Xerox Corporation, Stamford, Conn.

Filed Jan. 16, 1997, Ser. No. 784,872

Claims priority, application United Kingdom, Jan. 19, 1996, 9601107

Int. Cl.[6] B65D *19/44*

U.S. Cl. 108—55.3 **15 Claims**



1. A pallet system for transporting an item, the system comprising:

a pallet including a base, a first support member fixed securely to the base, a second support member slidably mounted on the base and spaced from the first support member to accommodate the item therebetween, and means for manually adjusting the second support member relative to the base and in a direction toward the first support member for providing a releasable engagement with the item to secure the item to the base, each of the first and second support members include a plurality of cut outs; and

a plurality of locating means attachable to the item, the locating means, after attachment to the item, engage respective cut outs provided in the first and second support members, when the manual adjusting means is adjusted to effect the releasable engagement of the first and second support members with the item, thereby securing the item to the pallet.

5,722,331

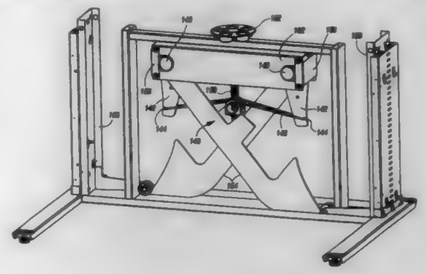
ADJUSTABLE HEIGHT LOAD BEARING SUPPORT STRUCTURE

Jay R. Machael, Muscatine, Iowa, assignor to Hon Industries Inc., Muscatine, Iowa

Continuation-in-part of Ser. No. 634,592, Apr. 18, 1996. This application Oct. 10, 1996, Ser. No. 731,138

Int. Cl.[6] A47B *9/00*

U.S. Cl. 108—145 **7 Claims**



1. An adjustable load bearing support structure comprising:

a base frame;

a generally planar support surface member;

a pair of adjustable support assemblies configured to support said support surface member for vertical movement relative to said base frame;

a pair of arms each being mounted for pivotable movement about an axis disposed beneath said support surface member and each having a free end provided with means for engaging one of said support assemblies;

a torsion spring connected to each arm, each spring having a central axis substantially coincident with the axis of pivotable movement of each respective arm and configured to exert a biasing force on each respective arm which force is transferred by each arm to one of said support assemblies;

a lever arm connected to each torsion spring and being configured to preload said springs when said lever arms are rotated;

a cable connecting said lever arms; and

means for tensioning said cable and thereby causing said lever arms to rotate and preload said springs.

5,722,332

APPARATUS AND PROCESS FOR CONDUCTING DEPOSIT AND DRAWING OPERATIONS OF BANKNOTES AND VALUABLES

Giuseppe Ezio Fumanelli, Meizo, Italy, assignor to M.I.B. Elettronica S.R.L., Peschiera Borromeo, Italy

Filed Dec. 28, 1995, Ser. No. 580,343

Int. Cl.[6] E05G *1/00*

U.S. Cl. 109—45 **14 Claims**

1. An apparatus for conducting deposit and drawing operations of banknotes and valuables, comprising:

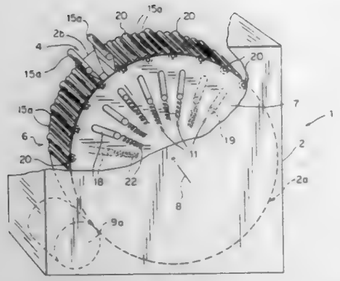
a protective envelope (**2**) having at least one aperture (**3**),

a plurality of casings (**4**) for banknotes and valuables (**5**) located within said protective envelope (**2**),

support and movement members (**6**) engaging said casings (**4**) for imposing to said casings (**4**) a first movement along a closed selection path, said casings (**4**) movably engaging said support and movement members (**6**),

translation members (**10**) for imposing to said casings (**4**), at said at least one aperture (**3**), a second movement transverse

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to said selection path, to bring a selected one of said casings (**4**) into a transversely advanced position in which said selected one of said casings (**4**) is accessible through said at least one aperture (**3**), and

electronic control means (**9**) for operating said support and movement members (**6**) and said translation members (**10**).

5,722,333

INCINERATOR FURNACE WITH FIRE GRATE AND AIR SUPPLY

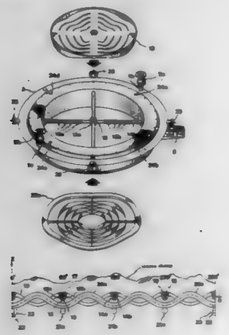
Kwangsoo Hyun, 8-30 Sungsoo-2-Ga-2-Dong, Sungdong-Gu, Seoul, Rep. of Korea

Continuation-in-part of Ser. No. 128,071, Sep. 28, 1993, abandoned. This application Apr. 10, 1995, Ser. No. 418,633

Claims priority, application Rep. of Korea, Sep. 30, 1992, 92-17830

Int. Cl.[6] **F23G** *5/00;7/00*

U.S. Cl. 110—247 **45 Claims**



40. A fire grate apparatus for use in incinerator furnaces, the apparatus comprising:

(a) at least three air supply pipings, each of which comprises two air pipings with one end blocked and the other open, the two air pipings having a plurality of air openings thereon, a baffle strip securing the two air pipings parallel to each other with the baffle strip in between, and a water piping having a closed cross section on one end and spaced-apart furcations on the other end, the integral body of the two air pipings and the baffle strip being axially inserted, with the blocked ends of the air pipings ahead, into the open portion of the furcations and welded together such that the air supply piping has one water piping channel open on one end, a cross section having two water channels and two air passages in the middle, and two air pipings open on the other end;

(b) a coolant water jacket divided into upstream and downstream coolant water jackets, the upstream and downstream water jacket having an intake coolant water inlet and an exhaust coolant water outlet respectively, the coolant water jacket being defined by means comprising upstream water jacket confinement means, an inner shell having a plurality of openings thereon for the air supply pipings and being welded to said confinement means, an outer shell having a plurality of openings thereon to let the air pipings of the air supply pipings pass through and being welded to said confinement means, the openings on the inner and outer shells being spaced at an angular interval at the same elevation so that each of the air supply pipings can be welded to the outer shell as well as to the inner shell past the opening on the inner shell, a plurality of fan-shaped baffle plates, each of which is placed horizontally in between the inner and outer shells and at the same elevation as the elevation of the baffle strip and is secured there such that the coolant water in the upstream water jacket has its outlet through one water channel of each of the air supply pipings, and an upper ring-shaped flange being welded to the upper ends of the inner and outer shells;

(c) a second junction body placed at the center of the coolant water jacket, each of the air supply pipings being welded to the junction body such that negative radial end of each of the air supply pipings is blocked;

(d) air plenum means for supplying pressurized air into each of the air pipings of the air supply pipings, the plenum means comprising an air plenum encircling the outer shell and at least one air intake piping having a mounting flange on one end, the other end of the air intake piping being welded to the air plenum; and

(e) a stationary grate for supporting burning fuel thereon, the stationary grate having concentric rings whose upper surface contour profile repeated for each angular sector confined by the two angularly neighboring air supply pipings is of a periodic fluctuational profile, and being mounted on the air supply pipings, the radially neighboring two concentric rings of the stationary grate being spaced such that the gap between the two neighboring concentric rings of the stationary grate aligns with the air openings on the air piping of the air supply pipings.

5,722,334

FIRE GRATE, IN PARTICULAR FOR WASTE INCINERATORS

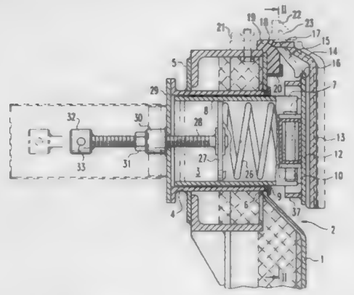
Walter Josef Martin, and Johannes Martin, both of Munich, Germany, assignors to Martin GmbH fur umwelt- und Energietechnik, Germany

Filed Feb. 18, 1997, Ser. No. 800,583

Claims priority, application Germany, Feb. 19, 1996, 196 06 107.5

Int. Cl.[6] **F23H** *7/08;7/14*

U.S. Cl. 110—281 **13 Claims**



1. Fire grate, in particular for use in a waste incinerator having a combustion chamber defined by a surrounding oven wall with partly overlapping rows of grate bars, wherein along the longitudinal axis the grate bar rows are arranged alternately fixed and movable and wherein the grate bar rows are bordered by grate side plates, the grate side plates being movable transverse to their longitudinal axes and pressable towards the grate bar rows by tensioning devices which are held in the oven wall and which are shaped as piston cylinder units, the invention further characterized in that each grate side plate (**12, 13**) is secured to a piston (**7**) of the tensioning device (**3**) and supported and guided only by the piston (**7**), the tensioning device (**3**) having a cylinder (**4**) open towards the combustion chamber and a hollow piston (**7**) guided therein, which is charged by a spring element (**26**), supported by the bottom (**29**) of the cylinder (**4**), the piston (**7**) being securely fastened to the grate side plate (**12, 13**) with a piston bottom (**10**) and being sealingly guided by a "piston sleeve" (**8**) located inside the cylinder (**4**).

5,722,335

THREAD CUTTING DEVICE OF A SEWING MACHINE

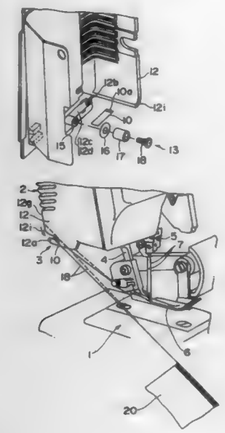
Makoto Kamewada, and Shinji Kojima, both of Utsunomiya, Japan, assignors to The Singer Company N.V., Curaco, Netherlands Antilles

Filed Aug. 29, 1996, Ser. No. 704,970

Claims priority, application Japan, Sep. 14, 1995, 7-262488

Int. Cl.[6] **D05B** *65/00*

U.S. Cl. 112—285 **4 Claims**



1. A sewing machine having a thread cutting device, comprising:

an arm;

a groove defined by the arm and having an opening end at a back end thereof;

a cutting blade having a plurality of inclined grooves defined at given intervals along which, portions of the cutting blade can be broken off to expose a new cutting edge; and

wherein a tip end of said thread cutting blade is disposed across an intermediate portion of said groove, and said thread cutting blade is fixed to said sewing machine by detachable fixing means.

5,722,336

SKIN FOAM-IN-PLACE FORMING SKIN MATERIAL AND SKIN FOAM-IN-PLACE FOAMED PRODUCT

Nobuo Takeuchi, Aichi, Japan, assignor to INOAC Corporation, Nagoya, Japan

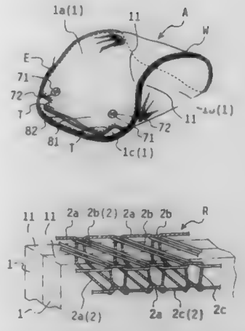
Filed May 17, 1996, Ser. No. 649,441

Claims priority, application Japan, May 17, 1995, 7-144104

Int. Cl.[6] **D05B** *15/00;* **B68G** *07/10;11/04*

U.S. Cl. 112—441 **14 Claims**

1. A skin foam-in-place skin material, comprising:



a plurality of skin forming pieces being stitched into a predetermined shape so that end edges of said skin forming pieces are overlapped one upon another; and

a plurality of threads by which the overlapped portion of said skin forming pieces is over-edge chain stitched with blind over edging along the end edges thereof, to prevent leakage through the end edges.

5,722,337

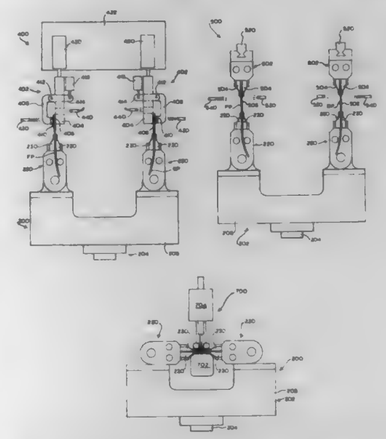
CROTCH-FORMING APPARATUS

Donald E. Burt, Danvers, and Henry R. Cofek, Groton, both of Mass., assignors to Design Technology Corporation, Billerica, Mass.

Division of Ser. No. 308,667, Sep. 19, 1994, Pat. No. 5,592,890. This application Dec. 19, 1996, Ser. No. 770,010

Int. Cl.[6] **D05B** *21/00*

U.S. Cl. 112—475.03 **10 Claims**



10. A method for forming the crotch in a garment having a front panel and a back panel which are joined at respective ends thereof to form the crotch, said method comprising the steps of:

(a) holding the front and back panels adjacent to the ends to be joined in a holding fixture including a pair of grippers;

(b) engaging the front and back panels while the front and back panels are held in said grippers in first and second clamping means movably mounted adjacent the grippers, said clamping means being movable laterally with respect to fabric the front and back panels;

(c) sensing the edges of the the front and back panels; and

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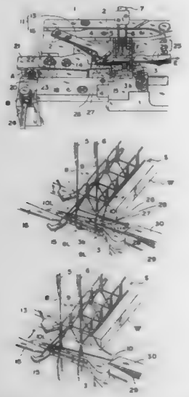
(d) opening said grippers on said holding fixture, moving said clamping means to a predetermined position to align the side edges of the front and back panels, and closing said grippers when the side edges of the front and back panels are aligned.

5,722,338

METHOD AND APPARATUS FOR PREVENTING SEAM FROM RAVELING IN DOUBLE CHAIN STITCH SEWING MACHINE

Osamu Douyasu, Osaka, Japan, assignor to Pegasus Sewing Machine Mfg. Co., Ltd., Osaka, Japan

Filed Feb. 19, 1997, Ser. No. 801,358
Claims priority, application Japan, Feb. 28, 1996, 8-067374
Int. Cl.[6] D05B *1/10;65/00*
U.S. Cl. 112—475.17 11 Claims



1. A method for preventing seam from raveling in a double chain stitch sewing machine having a plurality of needles moving vertically as being disposed laterally, and a looper moving laterally from a right side in the parallel direction of the plurality of needles, for forming a double chain stitch by collaboration of the needles and the looper, comprising the steps of:

hooking and engaging a looper thread consecutive to a looper from a cloth at a left side position of needles by engaging means when the looper is at a position advanced leftward near the sewing end point at the time of sewing of the cloth by said double chain stitch sewing machine,

forming a long loop in the looper thread engaged in the engaging means by driving the sewing machine for one stitch in this state,

cutting off a plurality of needle threads consecutive to the needles from the cloth through the looper and the looper thread consecutive to the looper from the cloth between the cloth and the looper, and

cutting off the looper thread engaged with the engaging means at the engaging portion simultaneously with this cutting or before or after it.

5,722,339

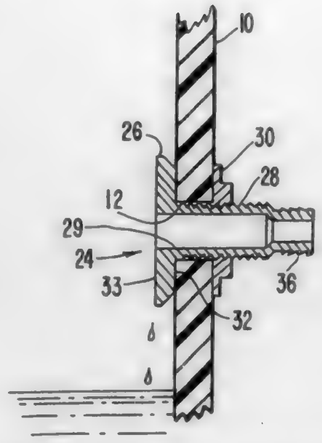
DRIP CONTROL FITTING

Donald Gross, 7240 Standard Dr., Hanover, Md. 21076

Filed Sep. 4, 1996, Ser. No. 707,739
Int. Cl.[6] B63B *19/26*
U.S. Cl. 114—182 3 Claims

1. A drip control marine fitting for passage through an opening in a wall of a marine vessel comprising

a generally tubular, hollow portion dimensioned to pass through an opening through a wall;



a flange attached to said tubular portion, said flange having an opening substantially coaxial with said tubular hollow portion to allow flow of fluid therethrough, a generally circular first surface adapted to abut an outer surface of said wall and a generally circular second surface facing away from said outer surface of said wall,

means for holding said fitting in said opening with said first surface adjacent said outer surface of said wall; and

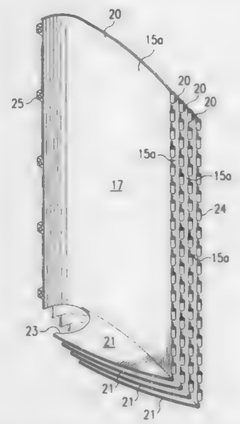
a conical diagonal surface interconnecting said first and second surfaces, a portion of said diagonal surface extending outwardly and downwardly from said first surface to said second surface to inhibit flow of liquid from said opening through said flange to said outer surface of said wall.

5,722,340

FAIRING FOR MARINE RISERS

John A. Sweetman, Farmers Branch, Tex., assignor to Mobil Oil Corporation, Fairfax, Va.

Filed Dec. 11, 1996, Ser. No. 764,410
Int. Cl.[6] F15D *1/10*
U.S. Cl. 114—243 8 Claims



1. A fairing adapted to be mounted onto a marine riser, said fairing comprising:

two identical fairing components, each component comprising:

an elongated, wing-like surface tapering to a point at its rear and having a curved surface at its front, said wing-like surface being open at one end;

a wall plate extending inward at the other end and configured to effectively extend between said components when said two components are assembled;

said wall plate having a recess therein adapted to receive said marine riser; and

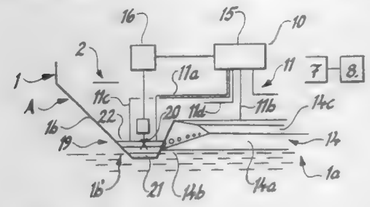
means for securing said components together when said components are in an operable position around said marine riser.

5,722,341

HULL-RELATED ARRANGEMENT

Bengt Wilhelm Törnqvist, 105 East 63rd St., #8B, New York, N.Y. 10021

PCT No. PCT/SE95/00605, § 371 Date Nov. 21, 1996, § 102(e) Date Nov. 21, 1996, PCT Pub. No. WO95/32888, PCT Pub. Date Dec. 7, 1995
PCT Filed May 29, 1995, Ser. No. 737,748
Claims priority, application Sweden, May 30, 1994, 94 01852-0
Int. Cl.[6] B63B *35/42*
U.S. Cl. 114—260 4 Claims



1. A hull for a vessel, comprising:

a cargo deck adapted to carry a plurality of barges, the cargo deck having wall members along starboard and port sides and a centrally located wall member, the cargo deck being open toward a stern of the vessel;

a hull, the hull including an outer surface, the outer surface including one or more side surfaces and a bottom surface, and an interior;

at least one ballast tank disposed in the interior of the hull;

means, disposed in the interior of the hull, for emptying and filling the ballast tanks with water such that a draft of the hull is decreased and increased by emptying and filling the ballast tanks with water, and wherein, when the ballast tanks are filled, the cargo deck is located sufficiently far beneath a waterline that fully loaded barges are adapted to float above the cargo deck, and, when the ballast tanks are empty, the cargo deck is located at a sufficiently high level that at least part of a weight of the barges rests on the cargo deck;

an air-compressing device;

a pipe system for delivering an air flow from the air-compressing device to orifices in the outer surface of the hull below the waterline;

the outer surface of the hull including a lowermost surface region, at least a part of the lowermost surface region of the hull being flat and extending horizontally, the lowermost surface region having a cavity, at least some of the orifices being disposed to deliver the air flow from the air-compressing device delivered by the pipe system to the orifices at least into the cavity; and

the outer surface of the hull having upwardly divergent hull surface regions provided adjacent the lowermost surface region, at least some of the orifices being disposed on both starboard and port sides of lower regions of the upwardly divergent hull surface regions such that air bubbles generated by the air flow from the air-compressing device delivered by the pipe system to the orifices are caused to rise divergently along the upwardly divergent hull surface regions to contribute a lifting force against the upwardly divergent hull surface regions and reduce friction against the upwardly divergent hull surface regions.

5,722,342

OVO ANTIBIOTIC AND MICROBIAL TREATMENT TO DIMENISH SALMONELLAE POPULATIONS IN AVIANS

J. Eric Line, 1081 Riverhaven La., Watkinsville; Norman J. Stern, 255 Gatewood Cir., Athens, both of Ga. 30607; Nelson A. Cox, 156 Valleywood Dr., Athens, Ga. 30606; J. Stan Bailey, 1290 Creekshore Dr., Athens, Ga. 30606; Catherine Ricks, 3336 Manor Ridge Dr., Raleigh, N.C. 27603; Patricia Phelps, 5208 Troutman La., Raleigh, N.C. 27613, and Michael Knight, 45 Stanland Drive, Scarborough, Ontario, Canada, M1M-2G5

Filed Jun. 28, 1996, Ser. No. 671,743
Int. Cl.[6] A01K *45/00*
U.S. Cl. 119—6.8 11 Claims

1. A method for treating avians in ovo comprising:

providing an avian egg containing a live embryonic bird;

administering a defined microbial preparation into the air cell of said avian egg;

administering an antibiotic to said avian egg in a region selected from the allantois and the region bounded by the amnion; and

incubating said arian egg to hatch,

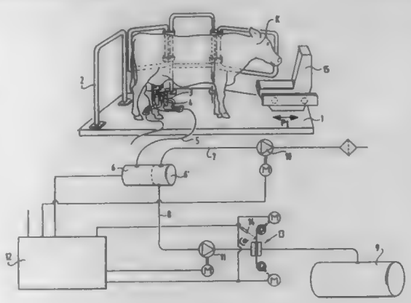
wherein the amount of human enteropathogenic bacteria contained in said arian egg's hatchling is reduced compared to that which would be expected without said administering steps.

5,722,343

METHOD FOR CONTROLLING A MILKING PROCESSING SYSTEM AND A DEVICE CONTROLLED BY SAID METHOD

Erik Arnoldus Aurik, Amsterdam; Pieter Adriaan Oosterling, Nieuw-Vennep, and Joost Dessing, Cruquius, all of Netherlands, assignors to Prolion B.V., Vijfhuizen, Netherlands

PCT No. PCT/NL95/00062, § 371 Date Oct. 3, 1996, § 102(e) Date Oct. 3, 1996, PCT Pub. No. WO95/22246, PCT Pub. Date Aug. 24, 1995
PCT Filed Feb. 17, 1995, Ser. No. 693,269
Claims priority, application Netherlands, Feb. 17, 1994, 9400241
Int. Cl.[6] A01S *5/013*
U.S. Cl. 119—14.02 18 Claims



1. A method for controlling a milking processing system in which milk is extracted at a teat of an animal and subsequently stored in a storage tank, comprising the steps of:

at least partially filtering the milk in a connecting conduit through a portion of a filter material to remove residue from the milk;

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moving the portion of the filter material with the residue thereon outside the connecting conduit;

detecting at least one of a quantity and quality of the residue on the portion of the filter material; and

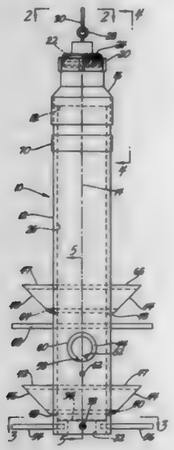
generating a control signal based on at least one of the quantity and quality of the residue on the portion of the filter material.

5,722,344

BIRD FEEDER WITH DRY SEED STORAGE

Lawrence R. Rank, 4307 Mt. Vernon, Swartz Creek, Mich. 48473

Filed Sep. 18, 1996, Ser. No. 717,241
Int. Cl.[6] A01K *39/01*
U.S. Cl. 119—57.8 **12 Claims**



1. A bird feeder comprising an upright container forming a seed storage compartment and having an access lid that can be opened and closed; a generally horizontal bore through the upright container; a generally horizontal tube mounted in the generally horizontal bore and passing through the seed storage compartment and open to the outside at both a first end and a second end, a seed access slot through a bottom portion of the generally horizontal tube and wherein the open ends of the generally horizontal tube extend outside the upright container and have surfaces that extend downwardly and inwardly toward adjacent walls of the upright container; and a bird perch below each open end of the generally horizontal tube.

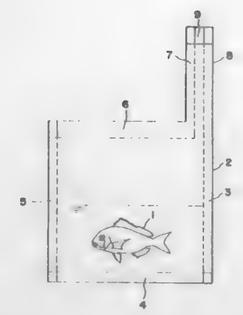
5,722,345

METHOD AND APPARATUS FOR TRANSPORTING LIVE FISH

Yoshiaki Nagaura, 585-61, Ohaza-Futsukaichi, Chikushino, Japan

Division of Ser. No. 130,402, Oct. 1, 1993, Pat. No. 5,463,983. This application Oct. 18, 1995, Ser. No. 544,954
Claims priority, application Japan, Oct. 6, 1992, 4-319183; Oct. 6, 1992, 4-319184
Int. Cl.[6] A01K *63/02*
U.S. Cl. 119—203 **16 Claims**

11. A bag for transporting fish comprising a main body for holding fish and life-supporting fluid and an elongated passage extending from said main body portion, said main body portion and said elongated passage being integrally formed with a thermally fusible material, said elongated passage having a terminating end and a connecting end integrally joined to said main body portion, a first thermal seal sealing said main body portion, said first thermal seal being provided after said fish has been introduced into said main body portion, and a second thermal seal sealing said terminating end of said elongated passage, said second thermal seal being provided after said life-supporting fluid has been introduced into said main body portion via said elongated passage.

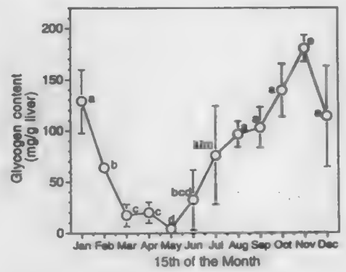


5,722,346

SMOLTING FEED

George C. Tremblay, Carolina, R.I.; Terence M. Bradley, Northbridge, Mass., and Hong Ji, Philadelphia, Pa., assignors to The Board of Governors for Higher Education, and Providence Plantations, both of Providence, R.I.

Filed Apr. 17, 1996, Ser. No. 633,506
Int. Cl.[6] A01K *61/00;* **A23K** *1/18;* **A61K** *31/205*
U.S. Cl. 119—230 **15 Claims**



1. A fish feed composition comprising juvenile salmon feed to reduce mortality and/or improve growth in juvenile salmon upon transfer to seawater, which feed comprises an amount of L-carnitine in admixture with juvenile salmon feed compositions sufficient to improve gluconeogenesis and/or glycogen reserves during smoltification and adaptation to seawater.

5,722,347

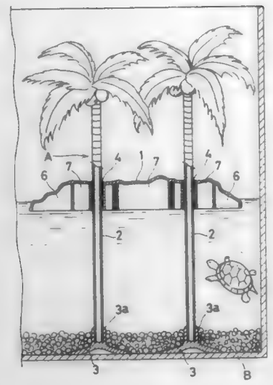
FLOATING ISLAND FOR AQUARIUM

Kazutoshi Tominaga, Higashiosakashi, Japan, and Robert C. Krause, 2605 S. Clearbrook Dr., Arlington Heights, Ill. 60006, assignors to Robert C. Krause, Arlington Heights, Ill.

Filed Dec. 27, 1996, Ser. No. 773,552
Claims priority, application Japan, Dec. 28, 1995, 7-343432
Int. Cl.[6] A61C *63/00*
U.S. Cl. 119—253 **12 Claims**

1. A floating island for an aquarium, comprising:

a board-shaped floating island body;



at least one supporting rod combined with said floating island body so that said floating island body can move up and down; and

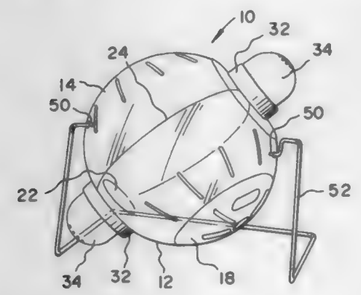
a fixing means so as to fix said at least one supporting rod in an upright state in an aquarium.

5,722,348

SMALL ANIMAL GLOBULAR HOUSING MODULE

Gerald Phillips, Wantagh; Johnny Davila Gonzalez, Long Beach, and Marvin Goldman, North Hills, all of N.Y., assignors to Penn-Plax, Inc., Garden City, N.Y.

Filed Jun. 18, 1996, Ser. No. 665,791
Int. Cl.[6] A01K *1/03*
U.S. Cl. 119—452 **12 Claims**



1. A small animal globular housing and exercise module comprising:

a main body formed of two hemispherical body pieces fabricated from a transparent thermoplastic material;

a lid opening, large enough to accommodate a human hand, formed in one of said body pieces;

a lid removably closing said lid opening;

ventilation openings of sufficient size and number to allow for air passage through the module;

a pair of through openings for possible passage of small animals therethrough, each opening having an outwardly protruding portion, each through opening being formed opposite to each other and positioned along and split by a division plane defining said two hemispherical body pieces; for

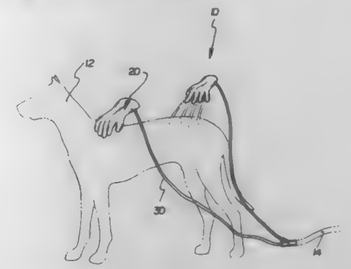
connecting means connectible to the protruding portion of each opening passage for holding said two body pieces together.

5,722,349

ERGONOMIC HAND PET WASHING SYSTEM

Mark R. Wolgamuth, 16 Hawxhurst Rd., Monroe, N.Y. 10950

Filed Aug. 1, 1996, Ser. No. 695,202
Int. Cl.[6] A01K *13/00*
U.S. Cl. 119—665 **5 Claims**



1. An ergonomic hand pet washing system comprising:

at least one glove;

a tube secured to a palm portion of the glove;

wherein the glove includes a palm agitating layer which comprises a plurality of mammilated rubber tips secured orthogonally to an exterior surface of the palm agitating layer for agitating soap and water during washing of an animal;

wherein the tube is fluidly connected to an interior reservoir formed between the palm agitating layer and the palm portion of the glove; and

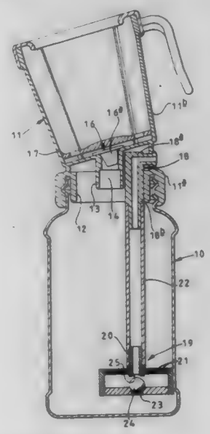
wherein the palm agitating layer includes a plurality of apertures fluidly connected to said interior reservoir for allowing water to penetrate substantially uniformly through the palm agitating layer.

5,722,350

DIP CUP AND METHOD OF TREATINNG THE TEATS OF ANIMALS

Barry Reginald Marshall, Oxford, England, assignor to Ambic Equipment Limited, Oxon, England

Filed Mar. 20, 1996, Ser. No. 618,550
Claims priority, application United Kingdom, Mar. 24, 1995, 9506058; Apr. 13, 1995, 9507695
Int. Cl.[6] A01K *29/00;* **B65D** *37/00*
U.S. Cl. 119—673 **9 Claims**



1. A dip cup comprising:

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a compressible container for containing a liquid including a foaming agent;

a cup mounted on the container;

a foaming device for drawing air from an exterior of the dip cup into liquid in the container as the container expands from a compressed state to cause the liquid to foam, said foaming device having an air inlet nipple, a plurality of air outlet apertures adjacent to the air inlet nipple and communicating with an inside of the container, a central aperture coaxial with the air inlet nipple, and a one-way valve for closing one of the central aperture and the air inlet nipple; and

passage means between the container and the cup and through which foam can pass from the container to the cup as the container is compressed.

5,722,351

APPARATUS FOR SECURING MOVABLE THINGS, PARTICULARLY DOGS

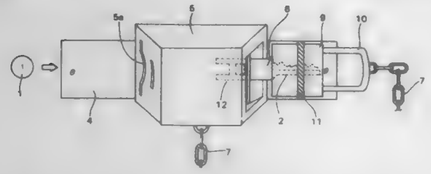
Brigitte Christiane Röper, Hamburg, Germany, assignor to Systec Ausbausysteme GmbH, Puchheim, Germany

Filed Oct. 18, 1995, Ser. No. 544,747

Claims priority, application Germany, Oct. 18, 1994, 9416751 U; Nov. 8, 1994, 9417869 U; Dec. 19, 1994, 9420287 U

Int. Cl.[6] A01K *27/00*

U.S. Cl. 119—795 **12 Claims**



1. Apparatus for securing a movable thing against unauthorized removal, comprising a security lock (**5**, **15**) having a slot adapted to receive a deposit token and an additional lock secured in a first position thereto, such that after insertion of the deposit token (**1**) the additional lock (**9**, **19**, **29**) is releasable from the first position, the additional lock having a key (**6**, **16**, **26**) removably located therein in a first position for operating the additional lock for securing the movable thing, and the additional lock being connected to a restraining means (**7**) which is also connected to the security lock, the deposit token (**1**) being adapted to be removed from the slot after the additional lock (**9**, **19**, **29**) and key (**6**, **16**, **26**) are returned to the first positions.

5,722,352

APPARATUS AND METHOD FOR REDUCING EQUINE CRIBBING BEHAVIOR

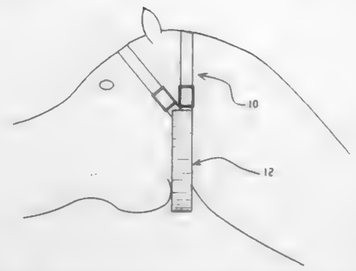
Nelson E. Leatherman, 1401 Hands Mill Rd., Rock Hill, S.C. 29732, assignor to Nelson E. Leatherman, Rock Hill, S.C.

Filed Dec. 2, 1996, Ser. No. 758,923

Int. Cl.[6] A01K *15/00*

U.S. Cl. 119—822 **20 Claims**

1. Apparatus for substantially reducing equine cribbing behavior, comprising: a collar that can be placed about the neck of a horse, and a control circuit carried by the collar for applying a shock to the horse; the control circuit comprising a first sensor that detects an equine characteristic related to cribbing activity and a second sensor that detects equine activity other than cribbing; the control circuit comprising logic means for preventing the application of a shock to the horse in response to a detected equine cribbing



characteristic when the second sensor detects equine activity other than cribbing.

5,722,353

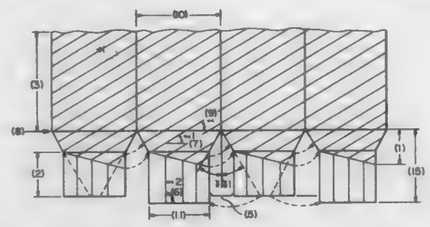
ONCE-THROUGH STEAM GENERATOR VERTICAL TUBE HOPPER ENCLOSURE WITH CONTINOUS TRANSITION TO SPIRAL FURNACE ENCLOSURE

Calvin E. Phelps, Akron, Ohio, assignor to The Babcock & Wilcox Company, New Orleans, La.

Filed May 4, 1995, Ser. No. 435,097

Int. Cl.[6] F22B *37/00*

U.S. Cl. 122—6 A **4 Claims**



1. In a once-through steam generator having a fluid flow circuitry that includes furnace front, rear, and side walls, the improvement comprising:

a series of spiral tubes extending around a lower furnace area of the steam generator;

a series of vertical hopper tubes located in the lower furnace area of the steam generator and below said series of spiral tube; and

said series of vertical hopper tubes being connected on a one to one basis to said series of spiral tubes in an all welded, flue gas tight construction to prevent any fluid flow splits, said vertical hopper tubes being equal in number to said spiral tubes.

5,722,354

HEAT RECOVERY STEAM GENERATING APPARATUS

Donald M. Sansoucy, Providence, R.I., assignor to DB Riley, Inc., Worcester, Minn.

Filed Dec. 8, 1995, Ser. No. 569,285

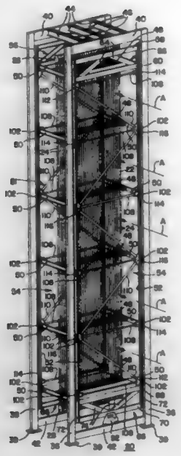
Int. Cl.[6] F22B *37/24*

U.S. Cl. 122—510 **17 Claims**

1. Heat recovery steam generating apparatus for extracting heat from a hot gas stream, comprising:

a vertically extending tube bank having upper and lower headers at opposite ends;

pairs of external gravity force support columns spaced upstream and downstream of said tube bank including a top support structure at the upper end of said columns for supporting said tube bank in hanging relation from said upper header;



pairs of internal trusses connected at the upper end to said columns and having opposite edges slidably supported from said columns for accommodating expansion and contraction and for transferring and inserting lateral and shear loads to the lower end of said columns;

tube spacing elements at plural levels supported on side members extending between said trusses for maintaining alignment of the tubes in said tube bank and transferring lateral loads to said trusses; and

bottom support structure between each pair of columns interconnected with lower ends of respective truss for transferring shear forces from said trusses to said columns.

5,722,355

TWIN-PISTON ENGINE

Roy Ekdahl, Floda, and Lars Larsson, Alingsås, both of Sweden, assignors to Aktiebolaget Electrolux, Stockholm, Sweden

PCT No. PCT/SE95/00344, § 371 Date Sep. 27, 1996, § 102(e) Date Sep. 27, 1996, PCT Pub. No. WO95/27129, PCT Pub. Date Oct. 12, 1995

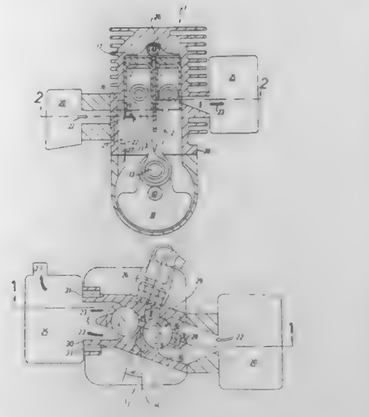
PCT Filed Mar. 31, 1995, Ser. No. 716,352

Claims priority, application Sweden, Mar. 31, 1994, 9401113; Mar. 31, 1994, 9401114

Int. Cl.[6] F02B *25/12*

U.S. Cl. 123—51 B **13 Claims**

1. A twin-piston engine (**1**) comprising a scavenging cylinder bore (**5**) and an exhaust cylinder bore (**4**), a scavenging piston (**2**) disposed within said scavenging cylinder (**5**) and an exhaust piston (**3**) disposed within said exhaust cylinder (**4**), said pistons (**2**,**3**) travelling in essentially the same direction, said exhaust cylinder bore (**4**) including an exhaust port (**6**), and said scavenging cylinder bore (**5**) including a plurality of scavenging ports (**7**,**8**,**9**), wherein a suction port (**16**) of the engine is positioned in the scavenging cylinder bore (**5**) and a fuel supply device (**20**) is connected to the suction port (**16**), said suction port being essentially symmetrical relative to a line of extension (**29**) passing through cross-sectional centers of the two cylinder bores whereas the exhaust port (**6**) is positioned near an extension of said line of extension (**29**) but on an opposite side of said cylinders relative to said suction port and wherein at least one scavenging duct (**27**) is open towards the scavenging piston (**2**) along its entire longitudinal



extension in the cylinder from the scavenging port (**7**,**8**,**9**) to a point (**28**) between the cylinder and a crankcase portion.

5,722,356

CAMSHAFT PHASE CHANGING DEVICE

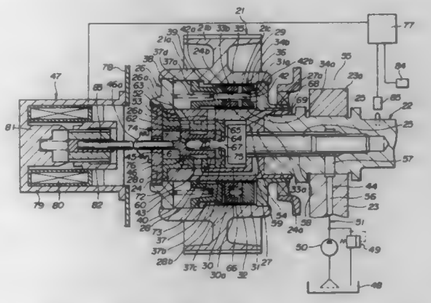
Seinosuke Hara, Atsugi, Japan, assignor to Unisia Jecs Corporation, Atsugi, Japan

Filed Aug. 9, 1996, Ser. No. 694,756

Claims priority, application Japan, Aug. 9, 1995, 7-203043

Int. Cl.[6] F01L *1/344*

U.S. Cl. 123—90.17 **12 Claims**



1. A variable camshaft phase changing device for an internal combustion engine having a camshaft rotatable about a camshaft axis, comprising:

co-axial drive and driven members, said driven member being securable to the camshaft for rotation therewith about an axis, said drive and driven members having an internal helical spline and an external helical spline, respectively, that are facing each other and have opposite helix angles;

two axially-spaced annular gears disposed between said drive and driven members, each of said annular gears having inner and outer helical splines, said inner helical splines of said annular gears mating with said external helical spline of said driven member, said outer helical splines of said annular gears mating with said internal helical spline of said drive member;

a resilient member biasing said annular gears one apart from the other for lash take-up, whereby said outer splines of said annular gears and said inner splines of said annular gears are aligned so that said outer splines of said annular gears engage opposite sides of said internal spline of said drive member and

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said inner splines of said annular gears engage opposite sides of said external spline of said driven member;

an annular piston axially moving said annular gears in one direction and in a return direction opposite to said one direction to vary the phase relationship between said drive and driven members;

said annular piston having a plurality of pins passing through one of said annular gears to the other of said annular gears;

said plurality of pins having heads arranged in driving relation with the other of said annular gears for transmitting motion of said plurality of pins to the other of said annular gears in said one direction as said annular piston moves in said one direction; and

said annular piston being movable in said return direction to move the one of said annular gears in said return direction as said annular piston moves in said return direction.

5,722,357

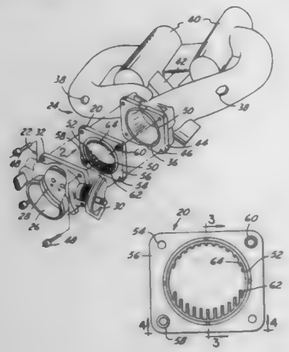
NOISE SUPPRESSION IN THE INTAKE SYSTEM OF AN INTERNAL COMBUSTION ENGINE

Michael Choi, Belleville, Mich., assignor to Ford Global Technologies, Inc., Dearborn, Mich.

Filed May 1, 1997, Ser. No. 847,083

Int. Cl.[6] F02M *29/00*

U.S. Cl. 123—184.21 **20 Claims**



1. An air intake system for controlling the flow of air into an internal combustion engine comprising:

a throttle body including a first bore wall defining a first portion of a main air bore and a valve mounted within the first portion of the main air bore, with the valve being movable to selectively restrict the flow of air through the main air bore;

an intake manifold including a second bore wall defining a second portion of the main air bore and means for mounting the throttle body relative to the intake manifold such that the first and the second portions of the main air bore align with one another, with the intake manifold being downstream of the throttle body; and

sound attenuation means, located downstream of the valve within the main air bore, for diffusing and redirecting the flow of air within the main air bore such that less sound is generated within the intake manifold.

5,722,358

TUBE WITH VARIABLE INSIDE DIAMETER

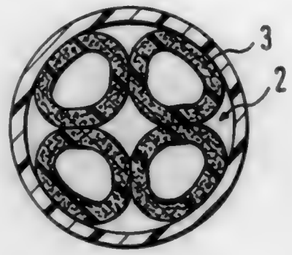
Rolf Fuesser, Ingersheim; Georg Knoch, Ludwigsburg; Heinz Mueller, Remseck; Helmut Spannbauer, Ludwigsburg, and Martin Weindorf, Kornwestheim, all of Germany, assignors to Filterwerk Mann & Hummel GmbH, Ludwigsburg, Germany

Filed Jan. 24, 1996, Ser. No. 591,009

Claims priority, application Germany, Jan. 24, 1995, 195 01 981.4; May 11, 1995, 195 17 382.1

Int. Cl.[6] F02M *35/10*

U.S. Cl. 123—184.56 **12 Claims**



1. An air intake tube for an intake manifold of an internal-combustion engine, said tube having an inner surface provided with at least one adjusting element for controllably changing the inside diameter of the tube, said adjusting element being located upstream of an air filter arranged in said intake manifold.

5,722,359

APPARATUS FOR CONTROLLING LEAN-BURN ENGINE

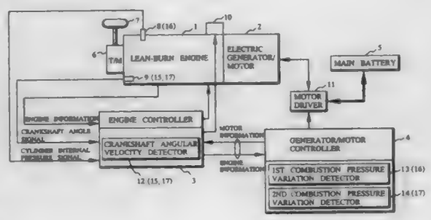
Katsuyoshi Chubachi, and Yoshio Yamamoto, both of Wako, Japan, assignors to Honda Giken Kogyo Kabushiki Kaisha, Tokyo, Japan

Filed Jan. 10, 1997, Ser. No. 783,301

Claims priority, application Japan, Jan. 12, 1996, 8-004164

Int. Cl.[6] F02B *75/06*

U.S. Cl. 123—192.2 **12 Claims**



1. An apparatus for controlling a motor vehicle equipped with a lean-burn engine and an electric motor coupled to an output shaft of the lean-burn engine, comprising:

engine control means for controlling the lean-burn engine to operate in a lean operating range of air-fuel ratios;

combustion-pressure variation detecting means for detecting a variation in a combustion pressure of the lean-burn engine controlled by said engine control means, wherein said variation indicates whether the lean-burn engine has exceeded said lean operating range; and

motor control means for controlling the electric motor to apply a force to the output shaft of the lean-burn engine for suppressing a variation caused in a torque produced by the lean-burn engine based on a real time variation in the combustion-pressure as detected by said combustion-pressure variation detecting means if said variation in the combustion-pressure is in excess of a predetermined value indicating that said lean operating range has been exceeded, wherein said motor control means comprises means for controlling said electric motor to supply a positive torque when a real-time detected combustion pressure is below a predetermined reference value and to supply a negative torque when said real-time detected combustion-pressure is above a predetermined reference value, to therein return said engine to said lean operating range.

5,722,360

ENGINE ASSEMBLY

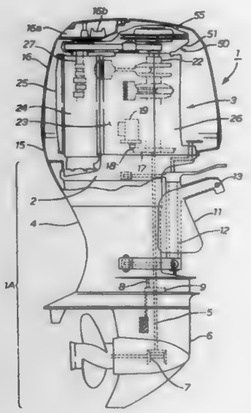
Masaki Tsunoda, and Mitsuharu Tanaka, both of Wako, Japan, assignors to Honda Giken Kogyo Kabushiki Kaisha, Tokyo, Japan

Filed Sep. 28, 1995, Ser. No. 535,642

Claims priority, application Japan, Sep. 28, 1994, 6-233818; Sep. 30, 1994, 6-237991

Int. Cl.[6] F02F *7/00*

U.S. Cl. 123—195 P **7 Claims**



1. An outboard engine assembly comprising:

an engine;

a crank shaft having an end extending outwardly from inside said engine;

a rotating body mounted at said end of the crank shaft; and

a cover body mounted on said engine so as to cover said rotating body;

said cover body comprising a lower cover that covers at least a lower part of said rotating body and an upper cover that covers at least an upper part of said rotating body, said cover body including means for connecting and aligning said lower cover and said upper cover, said lower cover having at least one ventilating intake port for sucking hot air located around said engine under the intake port, said upper cover having a ventilating exhaust duct for discharging the sucked hot air.

5,722,361

INTERNAL COMBUSTION ENGINE WITH PISTONS THAT ROTATE ABOUT A CENTER LINE

Huschang Sabet, Maybachstrasse 16, D-70469 Stuttgart; Willi Springer, Goeppingen, and Dietrich Eckhardt, Aichwald, all of Germany, assignors to Huschang Sabet, Stuttgart, Germany

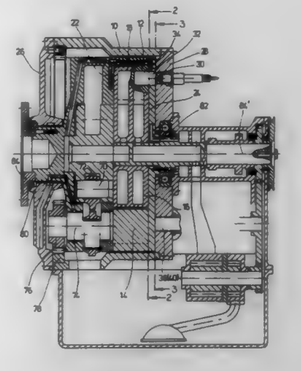
PCT No. PCT/EP94/02272, § 371 Date Jan. 24, 1996, § 102(e) Date Jan. 24, 1996, PCT Pub. No. WO95/03479, PCT Pub. Date Feb. 2, 1995

PCT Filed Jul. 12, 1994, Ser. No. 591,642

Claims priority, application Germany, Jul. 26, 1993, 43 24 997.3

Int. Cl.[6] F02B *53/10*

U.S. Cl. 123—205 **21 Claims**



1. An internal combustion engine with pistons that rotate around a center axis, comprising a cylindrical rotor housing closed off by a housing lid on a drive side and on a drive-opposing side of the rotor housing respectively, an outer rotor rotating at a constant speed in the rotor housing about the center axis and carrying a rotor side disk on the drive side and on the drive-opposing side respectively, an inner rotor rotating with an irregular speed inside of the outer rotor about the center axis, the outer rotor having more than one radially inwardly projecting pistons rigidly connected with one another, the inner rotor having a number of radially outwardly projecting pistons rigidly connected with one another, each piston of the inner rotor being received between two adjacent pistons of the outer rotor thereby defining two working chambers between the two mutually adjacent pistons of the outer rotor, a combustion chamber directly communicating with each working chamber, a plurality of control windows extending through one of the rotor side disks, stationary inlet and outlet openings communicating alternately through the respective control window into each combustion chamber, the stationary inlet and outlet openings being arranged spacially from one another along a first theoretical circle in one of the housing lids, the control windows being arranged along a second theoretical circle, the second circle having a radius corresponding to the first circle, the one rotor side disk having a first flat surface, the one housing lid having a second flat surface facing the first flat surface, a gap being defined between the first and second flat surfaces, sealing bars slidingly engaging at least one of the flat surfaces on the one rotor side disk and the one housing lid, the sealing bars surrounding the control windows, to define a sealed area between the control windows through which the stationary inlet and outlet openings fluidly communicate with the control windows, the sealing bars axially bridging the gap between the one rotor side disk and the one housing lid, and the combustion chambers being formed by recesses in the pistons of the outer rotor, the recesses being axially open in a direction toward the control windows and communicating with the adjacent working chambers transversely to an axial direction of the recesses.

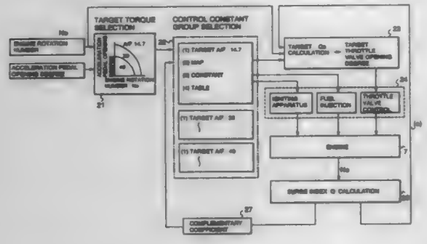
VOL 1208 ISS 1 MR 3 1998 UMI

5,722,362

DIRECT INJECTION SYSTEM ENGINE CONTROLLING APPARATUS

Yoshiya Takano, Hitachinaka; Mamoru Fujieda, Tomobe-machi, and Kousaku Shimada, Hitachinaka, all of Japan, assignors to Hitachi, Ltd., Japan

Filed Sep. 26, 1996, Ser. No. 721,036
Claims priority, application Japan, Sep. 29, 1995, 7-252411
Int. Cl.[6] F02D 41/04; F02B 17/00
U.S. Cl. 123—295 12 Claims



1. A direct injection system engine controlling apparatus comprises:

a fuel supplying means for directly supplying a fuel to a cylinder of an engine;

an inhale air amount controlling means for controlling an amount of an inhale air which is inhaled into said cylinder;

an igniting means for igniting a mixture material of the fuel and the air in the cylinder; and

a controlling means for controlling at least one of said fuel supplying means, said inhale air amount controlling means, and said igniting means; wherein

the direct injection system engine controlling apparatus further comprises:

an operation condition detecting means for detecting an operation condition of said engine; and

plural control constant groups for storing at least one of a constant, a map and a table for use in said controlling means;

in accordance with a detected operation condition detected by said operation condition detecting means, one of said control constant groups is selected.

5,722,363

CYLINDER-INJECTION TYPE INTERNAL COMBUSTION ENGINE AND A FUEL INJECTION CONTROL APPARATUS THEREFOR

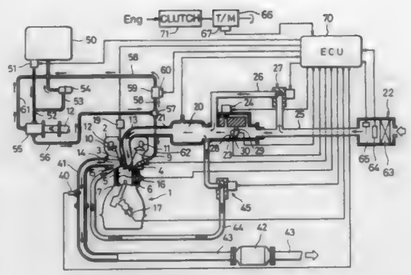
Kazumasa Iida; Yasuki Tamura; Shogo Omori; Katsuhiko Miyamoto; Masato Yoshida; Yuichi Tonomura, and Jun Aoki, all of Tokyo, Japan, assignors to Mitsubishi Jidosha Kogyo Kabushiki Kaisha, Tokyo, Japan

PCT No. PCT/JP96/01284, § 371 Date Apr. 15, 1997, § 102(e) Date Apr. 15, 1997, PCT Pub. No. WO96/36801, PCT Pub. Date Nov. 21, 1996
PCT Filed May 15, 1996, Ser. No. 765,791
Claims priority, application Japan, May 15, 1995, 7-115775; May 15, 1995, 7-115776
Int. Cl.[6] F02B 5/00
U.S. Cl. 123—305 44 Claims

1. A fuel injection control apparatus for a cylinder-injection type internal combustion engine, comprising:

operating state detecting means for detecting operating states of the internal combustion engine;

control mode switching means for performing a switching between a former-stage injection control mode in which fuel is injected during a suction stroke and a latter-stage injection control mode in which fuel is injected during a compression stroke, in accordance with a detection result provided by said operating state detecting means;



transitional state detecting means for detecting transitional operating states of the internal combustion engine; and

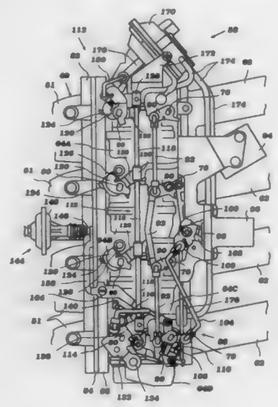
control mode selecting means, which takes priority over said control mode switching means when a transitional operating state of the internal combustion engine is detected by said transitional state detecting means, for selecting a fuel injection control mode suited for the detected transitional operating state.

5,722,364

THROTTLE LINKAGE MECHANISM

Takahide Watanabe, and Yoshifumi Iwata, both of Hamamatsu, Japan, assignors to Sanshin Kogyo Kabushiki Kaisha, Shizuoka, Japan

Filed May 31, 1996, Ser. No. 656,059
Claims priority, application Japan, May 31, 1995, 7-133922
Int. Cl.[6] F02D 9/00
U.S. Cl. 123—336 28 Claims



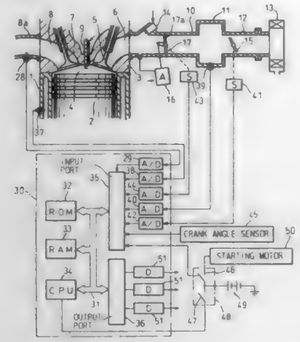
1. An induction system for a marine engine comprising a plurality of throttle devices which communicate with a plurality of runners of an engine intake manifold, a throttle linkage which interconnects said throttle devices so as to synchronize the operation of said throttle devices which move at least over a range of travel between two operational positions, and a throttle damper positioned between two of said runners, said throttle damper being selectively coupled to said throttle linkage such that said throttle damper controls the movement of the throttle devices at least over a portion of said range of travel.

5,722,365

FUEL INJECTION CONTROL DEVICE FOR ENGINE

Shinji Sadakane, Susono, and Hiroki Ichinose, Fujinomiya, both of Japan, assignors to Toyota Jidosha Kabushiki Kaisha, Aichi, Japan

Filed Jun. 4, 1996, Ser. No. 658,047
Claims priority, application Japan, Jun. 5, 1995, 7-137723
Int. Cl.[6] F02D 41/06; 9/00
U.S. Cl. 123—336 22 Claims



1. A fuel injection control device for an engine having an intake passage and an intake air control valve arranged therein and controlled by an actuator, the actuator controlling the intake air control valve to be closed in an engine starting operation and to be opened after the completion of the engine starting operation, the device comprising:

a fuel injector arranged in the intake passage downstream of the intake air control valve for injecting fuel into the intake passage;

a pressure sensor arranged in the intake passage upstream of the intake air control valve for detecting a negative pressure therein;

engine starting operation determining means for determining whether the engine starting operation is in process or has completed;

first fuel amount calculating means for calculating a fuel amount to be injected by the fuel injector based on the negative pressure detected by the pressure sensor when the determining means determines that the engine starting operation has completed;

delay period detecting means for detecting a delay period of the intake air control valve; and

fuel amount reducing means for reducing the fuel amount calculated by the first fuel amount calculating means during the delay period.

5,722,366

THROTTLE VALVE CONTROL DEVICE FOR INTERNAL COMBUSTION ENGINES

Hidefumi Adachi, Mitoshi; Yoshikatsu Hashimoto, Hitachiohta, and Mitsunori Nishimura, Hitachinaka, all of Japan, assignors to Hitachi, Ltd., Japan

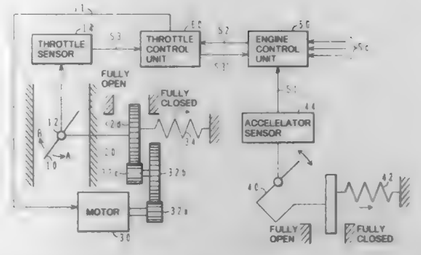
Filed Dec. 19, 1996, Ser. No. 770,711
Claims priority, application Japan, Dec. 19, 1995, 7-330081
Int. Cl.[6] F02D 9/08
U.S. Cl. 123—337 10 Claims

1. A throttle valve control device for internal combustion engines, comprising a throttle valve rotatably attached to a throttle body, and

an actuator for rotating said throttle valve,

said throttle body having a bore configured such that the center of rotation of said throttle valve is positioned on a line connecting the centers of an upstream opening and a downstream opening of said throttle body, and that the bore has an area formed of a curved surface being spherical or nearly spherical in an idle speed control area near a fully closed angle of said throttle valve, wherein:

the bore of said throttle body includes, as an area subsequent to said area formed of a curved surface being spherical or nearly spherical, an area formed of a composite surface made up of a curved surface being spherical or nearly spherical and a surface substantially parallel to a flow of intake air.

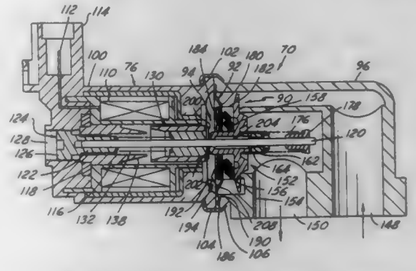


5,722,367

ENGINE IDLE SPEED AIR CONTROL

Randall P. Izydorek, Snover; Charles H. Tuckey, Cass City, and Kevin L. Williams, Columbiaville, all of Mich., assignors to Walbro Corporation, Cass City, Mich.

Continuation-in-part of Ser. No. 541,640, Oct. 10, 1995, abandoned, and Ser. No. 607,228, Feb. 26, 1996, abandoned. This application May 29, 1996, Ser. No. 654,541
Int. Cl.[6] F02M 3/09
U.S. Cl. 123—339.13 67 Claims



1. An idle speed bypass air control device for bypassing air around an intake throttle valve of an engine comprising, a housing having an air inlet passage, an air outlet passage and a first valve seat received between them, a solenoid carried by the housing having an electric coil and a movable plunger, an axially elongated slide rod disposed generally coaxially with the coil, the plunger being slidably received on the rod for movement relative to the rod and the coil, a main valve slidably received on the rod and movable relative to the plunger and the seat, the main valve being movable on the rod to a closed position engagable with the seat and to open positions disengaged and spaced from the seat, a diaphragm carried by the housing for actuating the main valve and with one face defining in part a chamber and the other face communicating with the inlet passage, a second valve seat carried by the main valve for movement therewith and communicating with the diaphragm chamber and the outlet passage, and a pilot valve carried by the plunger and movable by the plunger to a closed position in engagement with the second seat and to an open position disengaged and spaced from the second seat, whereby when the engine is operating with the throttle valve in a closed

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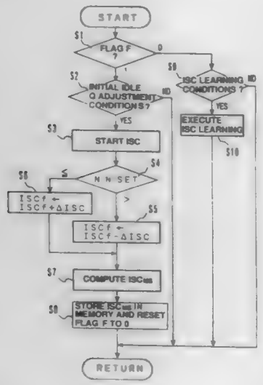
position and a subatmospheric pressure is applied to the outlet passage of the device, the opening of the main valve by the diaphragm is a function of and proportional to an electric signal applied to the coil of the solenoid.

5,722,368

METHOD AND APPARATUS FOR ADJUSTING THE INTAKE AIR FLOW RATE OF AN INTERNAL COMBUSTION ENGINE

Shoichi Sakai, Atsugi, Japan, assignor to Unisia Jecs Corporation, Kanagawa-ken, Japan

Filed Mar. 20, 1997, Ser. No. 821,348
Claims priority, application Japan, Mar. 28, 1996, 8-074362
Int. Cl.[6] F02M *3/00*
U.S. Cl. 123—339.23 **8 Claims**



1. A method of adjusting the intake air flow rate of an internal combustion engine comprising:

a step for carrying out idle operation immediately after manufacture of an internal combustion engine having a throttle valve disposed in an intake system, and carrying out idle rotation speed control by feedback controlling intake air flow rate so that engine rotation speed approaches a target rotation speed;

a step for learning a control value when a target rotation speed is obtained during said idle rotation speed control immediately after engine manufacture;

a step for storing as an initial idle intake air flow rate adjustment value, the learned result for the control value obtained during said idle rotation speed control immediately after engine manufacture.

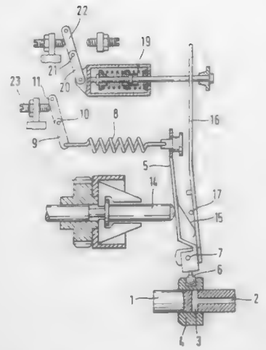
5,722,369

IDLING CONTROL MEANS FOR A FUEL INJECTION PUMP FOR INTERNAL COMBUSTION ENGINES

Willi Weippert, Bondorf, Germany, assignor to Robert Bosch, GmbH, Stuttgart, Germany

PCT No. PCT/DE95/01554, § 371 Date Aug. 5, 1996, § 102(e) Date Aug. 5, 1996, PCT Pub. No. WO96/18027, PCT Pub. Date Jan. 13, 1996
PCT Filed Nov. 10, 1995, Ser. No. 693,203
Claims priority, application Germany, Dec. 3, 1994, 44 43 114.7
Int. Cl.[6] F02D *1/04*
U.S. Cl. 123—373 **9 Claims**

1. A fuel injection pump for internal combustion engines, comprising a housing, a fuel injection quantity adjusting device (**4**) which is actuated by means of a governor lever (**5**), said governor lever is adjustable counter to a force of a governor spring (**19**) as a function of an rpm-dependently formed force, the governor spring (**19**) being disposed between a tensioning lever (**16**) and a setting lever (**20**) which is adjustable via a control shaft supported in stationary fashion and on whose end an adjusting lever (**22**) is secured, an idling spring (**8**) that is coupled to the governor lever (**5**) and is fastened between the governor lever and an idling spring control lever (**9**) secured to a shaft supported in a manner structurally attached to the housing, the idling spring control lever being adjustable by means of a control lever (**11**), connected to the shaft (**10**), a pivoting motion of said control lever is limited by a stop (**23**, **24**, **33**, **36**) and is settable by means of an actuating device as a function of engine operating parameters, the actuating device comprises a restoring spring (**26**), which engages the control lever (**11**), and a coupling arrangement, by means of which the control lever (**11**) is tensionally coupled to the adjusting lever (**22**), in such a way that the control lever (**11**) follows along with an adjustment of the adjusting lever (**22**).

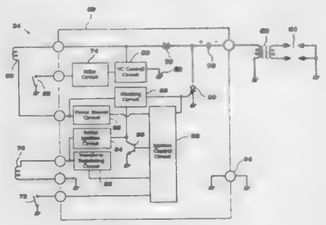


5,722,370

ENGINE OPERATION CONTROL SYSTEM

Takashi Koike, and Kazumasa Itoh, both of Hamamatsu, Japan, assignors to Sanshin Kogyo Kabushiki Kaisha, Shizuoka-ken, Japan

Filed Nov. 8, 1996, Ser. No. 745,965
Claims priority, application Japan, Nov. 8, 1995, 7-289788
Int. Cl.° F02P *5/06*
U.S. Cl. 123—418 **6 Claims**



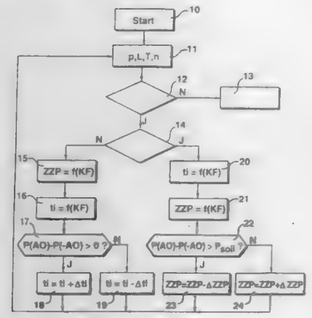
1. An engine operation control system for use with an internal combustion engine having a first variable volume combustion chamber having a first ignition element corresponding thereto, and a second variable volume combustion chamber and a second ignition element corresponding thereto, said engine operation control system firing said first and second ignition elements simultaneously but such that said first ignition element is fired in accordance with a first ignition advance when said first chamber is prepared for combustion, and such that said second ignition element is fired in accordance with a second ignition advance when said second combustion chamber is prepared for combustion, said first and second ignition advances being unequal.

5,722,371

PROCESS FOR CONTROLLING THE WARM-UP IN AN INTERNAL COMBUSTION ENGINE

Helmut Denz, Stuttgart; Martin Klenk, Backnang; Werner Herden, Gerlingen; Hubert Bischof, Vaihingen/enz; Albert Gerhard, Tamm, and Matthias Kuesell, Kornwestheim, all of Germany, assignors to Robert Bosch GmbH, Stuttgart, Germany

Filed Oct. 10, 1996, Ser. No. 728,425
Claims priority, application Germany, Oct. 18, 1995, 19 538 732.5
Int. Cl.[6] F02P *5/14*
U.S. Cl. 123—421 **5 Claims**



1. A method for controlling a warm-up of an internal combustion engine having an exhaust valve, comprising the steps of:

controlling, in a first phase of a warm-up period of the internal combustion engine, an injection time such that a combustion in a cylinder of the internal combustion engine is completed at a first time that the exhaust valve is opened; and

retarding, in a second phase of the warm-up period, a time of ignition such that the combustion in the cylinder of the internal combustion engine is not completed at a second time the exhaust valve is opened.

5,722,372

FUEL SUPPLY SYSTEM WITH CARBURETOR AIR BLEED CONTROL

Katsuharu Hosoe, Okazaki, and Katsuhiko Hirano, Yokkaichi, both of Japan, assignors to Nippondenso Co., Ltd., Kariya, Japan

Filed Sep. 30, 1996, Ser. No. 722,677
Claims priority, application Japan, Oct. 23, 1995, 7-274434
Int. Cl.[6] F02M *7/24*
U.S. Cl. 123—438 **4 Claims**

1. A fuel supply system for an engine, said system comprising:

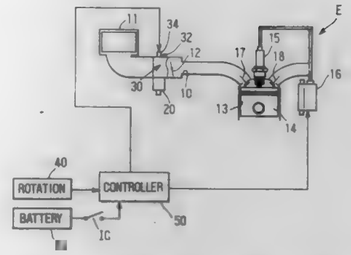
a carburetor for supplying the engine with fuel in accordance with air flow to the engine; and

an air bleed control means for controlling carburetor air bleed in accordance with engine load thereby controlling air supplied from the carburetor,

said control means controlling the amount of the air bleed in timed relation with a predetermined time in an operation cycle of the engine;

said air bleed control means including setting means for setting a time period in accordance with at least one of: (a) rotation speed and (b) load of the engine; and

said air bleed control means changing the amount of air bleed to a predetermined value for the set time period from the predetermined time and returns, after an elapse of the set time period, the air bleed to a value existing before the predetermined time.

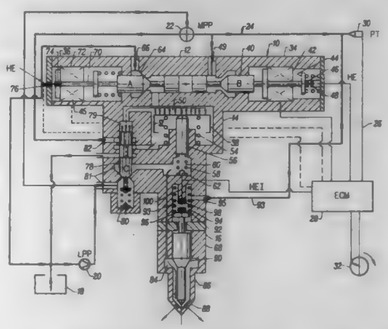


5,722,373

FUEL INJECTOR SYSTEM WITH FEED-BACK CONTROL

Marius A. Paul, and Ana Paul, both of 1120 E. Elm Ave., Fullerton, Calif. 92631

Continuation-in-part of Ser. No. 294,432, Aug. 23, 1994, abandoned, which is a continuation of Ser. No. 24,186, Feb. 26, 1993, abandoned. This application Nov. 8, 1995, Ser. No. 556,467
Int. Cl.[6] F02M *7/00*
U.S. Cl. 125—446 **13 Claims**



1. A fuel injector system with a plurality of fuel injector units, the injector system having electronically operated fuel delivery components for control of a fuel injection pulse to each injector unit comprising:

an electronic control network having an electronic control module with memory means for mapping a reference operating profile for each injector unit and processing means for processing electronic sensor signals and controlling the electronically operated fuel delivery components; wherein each fuel injector unit has a fuel injector component and a hydraulic distributor component having electronically controlled valve means for regulated delivery of fuel to the injector component; wherein the injector component has an injector nozzle with a discharge tip with discharge orifices, a compression spring and a hydraulically actuated needle valve displaceable in the injector nozzle against the closure force of the compressing spring, the needle valve having sensor means for tracking the displacement and position of the needle valve, the sensor means having a transducer element on the needle valve displaceable with the needle valve and a stationary transducer element in the injector nozzle arranged in relation to the transducer element on the needle valve wherein the sensor

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means generates a continuous feed-back control signal indicative of the displacement and position of the needle valve in each injector unit that is processed by the electronic control module, wherein displacement and position of the needle is indicative of fuel discharge through the discharge orifices; wherein the electronically controlled valve means of the hydraulic distributor component has a displaceable slide valve and an electronically controlled displacement means for displacing the slide valve, the displacement means having position sensor means for sensing the position of the slide valve and providing a signal indicative of such position to the electronic control module for processing; and wherein each distributor component has independently operated electronic displacement means for regulating the distributor component valve means by the electronic control module with discrete adjustment for each injector unit from the processing of the feed-back control signal from the sensor means of the needle valve and the sensor means of displacement means in each injector unit, in accordance with the reference operating profile for that unit.

5,722,374

FUEL STORING DEVICE FOR AN AUTOMOBILE

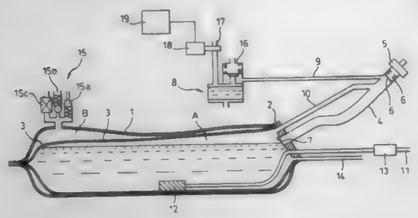
Toru Kidokoro, Hadano; Takaaki Itou, Mishima; Yoshihiko Hyodo, and Yukio Kinugasa, both of Susono, all of Japan, assignors to Toyota Jidosha Kabushiki Kaisha, Aichi, Japan

Filed Nov. 19, 1996, Ser. No. 751,380

Claims priority, application Japan, Nov. 20, 1995, 7-301553; Nov. 14, 1996, 8-303159

Int. Cl.[6] F02M *37/04;25/08*

U.S. Cl. 123—516 **9 Claims**



1. A fuel storing device for an automobile comprising:

a fuel storage container;

a flexible separator means disposed in the fuel storage container for separating the inside of the fuel storage container into a liquid fuel storage portion, a fuel vapor channel situated between a first surface of the separator means and an upper surface of liquid fuel in the fuel storage portion and a space portion, the flexible separator means being moveable up and down in accordance with the movement of the surface of liquid fuel, wherein the separator means is positioned relative to the upper surface of liquid fuel so that a height of the fuel vapor channel increases gradually from a minimum at a first end thereof to a maximum at a second end thereof;

a refuel pipe connected to the fuel storage portion; and

a fuel vapor draining pipe for draining fuel vapor into an intake passage of an engine, the fuel vapor draining pipe including at least one inlet located adjacent to the second end of the fuel vapor channel.

5,722,375

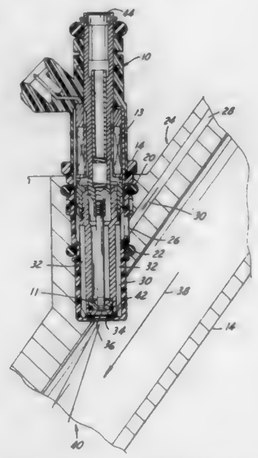
EXTENDED TIP AIR ASSIST FUEL INJECTOR

Debora Nally, 2270 W. Island Rd., Williamsburg, Va. 23185; Jingming J. Shen, 907 Elder Rd., Newport News, Va. 23602; William A. Peterson, Jr., 11183 Eagle Watch, Smithfield, Va. 23430, and John F. Nally, 2270 W. Island Rd., Williamsburg, Va. 23185

Filed May 10, 1995, Ser. No. 437,908

Int. Cl.[6] F02M *23/00*

U.S. Cl. 123—531 **6 Claims**



1. An air assisted electromechanical fuel injector for an internal combustion engine having an inlet for the reception of fuel into the injector and an outlet at one end of the injector for discharging fuel into the manifold of the engine, adjacent the outlet is a fuel metering valve which is operated by an electromagnetic means for opening and closing valve, and air supply means; comprising:

a shroud member located on the injector and extends from the outlet to a point intermediate the inlet and the outlet of the injector, said shroud member cooperates with the injector to define air passageways between the injector and the inside of the shroud member for the passage of air;

air inlet means in said shroud member adapted to be in fluid communication with the air supply means for connecting the air supply means, through the air passageways to a discharge point adjacent to but downstream of the outlet of the fuel metering valve; and,

sealing means located in cooperative relationship with the shroud member and axially spaced on either side of said air inlet means.

5,722,376

APPARATUS AND METHOD FOR CONTROLLING THE FLOW OF CRANKCASE EMISSIONS IN AN INTERNAL COMBUSTION ENGINE

Theodore P. Sweeten, Applegate, Oreg., assignor to Ventures Unlimited Inc., Applegate, Oreg.

Filed Dec. 20, 1996, Ser. No. 772,179

Int. Cl.[6] F02M *25/06*

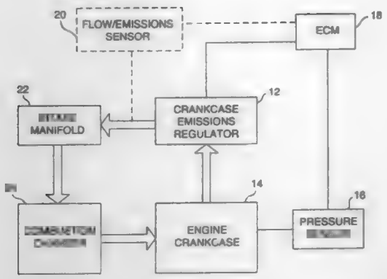
U.S. Cl. 123—574 **15 Claims**

1. An apparatus for controlling a flow of crankcase emissions from a crankcase of an internal combustion engine, said apparatus comprising:

a crankcase emissions filter/regulator having

a housing,

an inlet for receiving said flow of crankcase emissions from said crankcase,



an outlet for discharging said flow of crankcase emissions from said housing,

a filtering material, located within said housing, for filtering said flow of crankcase emissions, and

means for regulating said flow of crankcase emissions, said means for regulating being located within said housing;

means for sensing a crankcase pressure; and

means for controlling said means for regulating in response to said crankcase pressure, comprising an electronic control module (ECM) electronically connected to said means for sensing and electronically connected to said means for regulating, wherein:

said ECM compares said crankcase pressure to a predetermined pressure value stored at said ECM; and

said means for regulating is electronically controlled by said ECM.

5,722,377

FUEL INJECTION METHOD AND SYSTEM

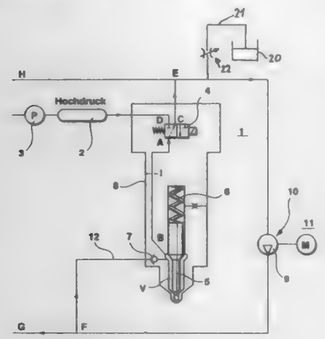
Dieter Schoenfeld, Markdorf, Germany, and Bernhard Baechle, Kuala Lumpur, Malaysia, assignors to MTU Motoren-und Turbinen-Union Friedrichshafen GmbH, Friedrichshafen, Germany

Filed Sep. 26, 1996, Ser. No. 721,037

Claims priority, application Germany, Sep. 26, 1996, 195 35 703.5

Int. Cl.[6] F02M *37/04*

U.S. Cl. 123—575 **21 Claims**



1. A fuel injection method for a Diesel engine having an injection nozzle with an internal volume and with an engine injection location, said method comprising the steps of:

(a) selectively communicating a first supply channel containing a first fuel under pressure with the internal volume of said injection nozzle at a first supply location;

(b) selectively communicating a second supply channel containing a second fuel with the internal volume of said injection nozzle at two locations such that said second supply channel and said internal volume comprise a circuit, a first of said two locations being a second supply location located between said first supply location and said engine injection location, and a second of said two locations being a return location proximate said first supply location.

5,722,378

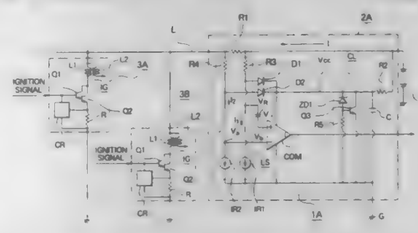
IGNITION DETECTION CIRCUIT

Nobuyuki Sawazaki; Masaaki Taruya, and Mitsuru Koiwa, all of Tokyo, Japan, assignors to Mitsubishi Denki Kabushiki Kaisha, Tokyo, Japan

Filed Sep. 25, 1996, Ser. No. 719,882

Int. Cl.[6] F02P *17/12*

U.S. Cl. 123—644 **4 Claims**



1. An ignition detection circuit comprising:

an ignition circuit for converting a voltage, which is applied thereto from a battery through a power supply path, into a high voltage and for supplying the high voltage to the spark plug so as to cause an electric discharge in a spark plug;

a detection resistor, inserted into the power supply path, for detecting an electric current flowing through the ignition circuit by converting the current into a detection voltage;

a reference voltage generation portion for generating a reference voltage to be compared with the detection voltage detected by the detection resistor;

a level shift circuit for superposing a voltage having a predetermined level on the detection voltage and the reference voltage and for shifting the level of each of the detection voltage and the reference voltage by the predetermined voltage;

a comparator for comparing the shifted detection voltage with the shifted reference voltage and for outputting a comparison signal; and

a clamping circuit for suppressing variations in power supply voltage corresponding to the comparator and for protecting the comparator.

5,722,379

INTERNAL-COMBUSTION ENGINE AND PROCESS FOR APPLYING A THERMAL BARRIER LAYER

Klaus Binder, Deizisau; Karl-Ludwig Weisskopf, Leinfelden-Echterdingen, and Patrick Izquierdo, Ulm, all of Germany, assignors to Daimler-Benz AG, Germany

Filed Nov. 18, 1996, Ser. No. 751,691

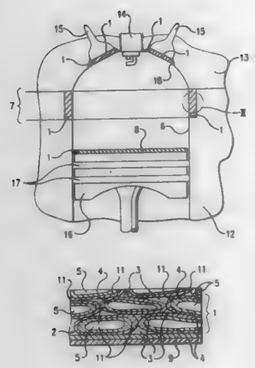
Claims priority, application Germany, Nov. 17, 1995, 195 42 944.3

Int. Cl.[6] F02F *3/10;* **B22D** *19/16*

U.S. Cl. 123—668 **25 Claims**

1. Internal-combustion engine having at least a combustion chamber, wherein parts within the combustion chamber which are exposed to combustion, are at least partially coated with a porous thermal barrier layer having a total porosity of more than 20%, said barrier layer comprising a barrier material which is resistant to heat, temperature-shock and abrasion, said material comprising at least one of hollow grains and hollow fibers connected with one another on an exterior side thereof, the thermal barrier layer having a heat penetration number defined by the following formula:

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$$b=\sqrt{p \cdot C \cdot \lambda}$$

with

b: the heat penetration number in $[J \cdot (Kcm^2 \sqrt{s})^{-1}]$,

p: the density of the thermal barrier layer in $[g/cm^3]$,

λ: the thermal conductivity of the barrier material in [W/cmK],

C: the specific heat of the barrier material in [J/gK]

wherein said heat penetration number is smaller than 0.25 $[J \cdot (Kcm^2 \sqrt{s})^{-1}]$; and

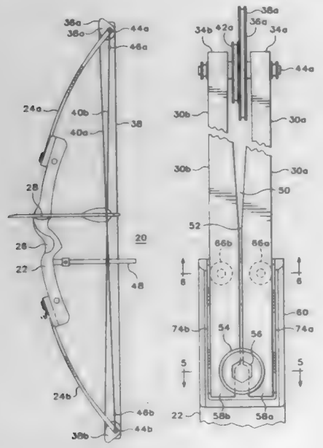
wherein a thermal conductivity λ of the barrier material is lower than 0.03 W/cmK.

5,722,380

SPLIT-LIMB COMPOUND ARCHERY BOW

Spencer Land, Signal Mtn, and Clint Pierce, Dunlap, both of Tenn., assignors to High Country Archery, Inc., Dunlap, Tenn.

Filed Aug. 23, 1996, Ser. No. 702,789
Int. Cl.[6] F41B *5/10*
U.S. Cl. 124—25.6 **10 Claims**



1. A compound archery bow comprising:

(a) a handle-riser;

(b) two bow limbs attached to said handle riser, said bow limbs projecting oppositely from said handle riser, each of said bow limbs comprising a pair of separate and independent resilient limb members projecting from said handle riser, said limb members being spaced apart from each other and each limb member having a tip portion opposite said handle riser;

(c) a pulley attached to each of said bow limbs between respective tip portions of each of said bow limbs;

(d) a bowstring and cable assembly strung between said pulleys;

(e) two limb mounting brackets, each of said limb mounting brackets attached to said handle riser and associated with a respective bow limb, each of said limb mounting brackets having at least two recesses and at least two mounting pins, each mounting pin having a projection, said projections matingly engageable with said recesses, and each mounting pin engaged with a respective bow limb member; and

(f) a rocking plate, said rocking plate mounted between said projections and said limb members.

7. A compound archery bow comprising:

(a) a handle-riser;

(b) two bow limbs attached to said handle riser, said bow limbs projecting oppositely from said handle riser, each of said bow limbs comprising a pair of separate and independent resilient limb members projecting from said handle riser, said limb members being spaced apart from each other along their entire length, each of said limb members engaging a rocking plate situated between said limb member and said handle riser, and each limb member having a tip portion opposite said handle riser;

(c) a pulley attached to each of said bow limbs between respective tip portions of each of said bow limbs; and

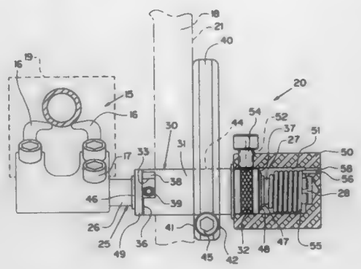
(d) a bowstring and cable assembly strung between said pulleys.

5,722,381

APPARATUS FOR ADJUSTABLY MOUNTING A PIVOTAL ARROW REST

Robert S. Mizek, Downers Grove, Ill., assignor to New Archery Products Corp., Forest Park, Ill.

Filed Feb. 27, 1997, Ser. No. 807,148
Int. Cl.[6] F41B *5/22*
U.S. Cl. 124—44.5 **23 Claims**



19. In an apparatus for adjustably mounting an arrow rest attached with respect to a pivot shaft which is rotatably mounted within a sleeve, wherein a longitudinal position and a radial position of the pivot shaft with respect to an archery bow riser is adjustable, a spring has an adjustable bias force acting upon the pivot shaft, the sleeve is adjustably fixed with respect to the archery bow riser, and an end cap is rotatably mounted about the sleeve, the improvement comprising:

the spring having one end portion and an opposite end portion, said one end portion fixed with respect to the pivot shaft, said opposite end portion fixed with respect to the end cap.

20. In an apparatus for adjustably mounting an arrow rest attached with respect to a pivot shaft which is rotatably mounted within a sleeve, wherein a longitudinal position and a radial position of the pivot shaft with respect to an archery bow riser is adjustable, a spring has an adjustable bias force acting upon the pivot shaft, and the sleeve is adjustably fixed with respect to the archery bow riser, the improvement comprising:

the pivot shaft having a first shaft end portion and a second shaft end portion, the sleeve having a first end surface and a second end surface, said first shaft end portion extending beyond said first end surface, said second shaft end portion extending beyond said second end surface, a keeper element attached to at least one of said first shaft end portion near said sleeve and said second shaft end portion near said sleeve, and a spring element positioned between said sleeve and said keeper element.

22. In an apparatus for adjustably mounting an arrow rest attached with respect to a pivot shaft which is rotatably mounted within a sleeve, wherein a set position of the pivot shaft with respect to an archery bow riser is adjustable, a spring has an adjustable bias force acting upon the pivot shaft, and the sleeve is adjustably fixed with respect to the archery bow riser, the improvement comprising:

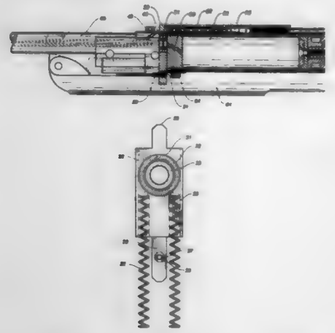
the pivot shaft having a first shaft end portion and a second shaft end portion, said first shaft end portion extending beyond an end surface of the sleeve, a keeper element attached to said first shaft end portion near said sleeve, and a thrust bearing positioned between said sleeve and said keeper element.

5,722,382

LOADING PLATE FOR A REPEAT-AIR RIFLE FOR PELLETS AND AMMUNITION

Hector Mendoza Orozco, Fuego 986, colonia Jardines del Pedregal, Alvaro Obregón, Federal District, Mexico

Filed Mar. 8, 1996, Ser. No. 612,998
Claims priority, application Mexico, Dec. 7, 1995, 955129
Int. Cl.[6] F41B *11/02; 11/14*
U.S. Cl. 124—51.1 **5 Claims**



1. In a loading arrangement for a repeat-air rifle for pellets or ammunition, the improvement comprising:

a loading plate positioned vertically in front of a compression chamber of the rifle, said loading plate being of rectangular shape and having a central circular borehole, said loading plate having an upper tongue extending from an upper part of said loading plate so as to cover an exit of the pellets or ammunition when said loading plate is moved downward, said loading plate having a lower tongue extending from a lower part of said loading plate, said second tongue having a central borehole therein so as to receive a movement limiting bolt means for limiting a movement of said loading plate, said loading plate having a plurality of lower bores affixed symmetrically toward said lower part of said loading plate, said plurality of lower bores having spring means received therein for urging an upward movement of said loading plate;

an upper retaining plate attached to an upper part of the rifle and comprising two fingers, said fingers being positioned so as to limit upward movement of said loading plate, said upper tongue extending through a space between said fingers; and

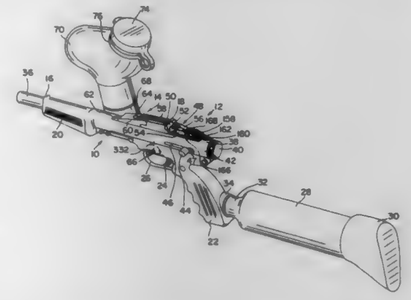
a lower retaining plate attached to a lower part of the rifle and comprising two fingers, said fingers being positioned so as to limit downward movement of said loading plate, said lower tongue extending through a space between said fingers.

5,722,383

IMPEDER FOR A GUN FIRING MECHANISM WITH AMMUNITION FEEDER AND MODE SELECTOR

Dennis J. Tippmann, Sr., New Haven, and Dennis J. Tippmann, Jr., Fort Wayne, both of Ind., assignors to Tippmann Pneumatics, Inc., Fort Wayne, Ind.

Filed Dec. 1, 1995, Ser. No. 566,139
Int. Cl.[6] F41B *11/02;* **F41A** *9/61*
U.S. Cl. 124—76 **33 Claims**



1. An apparatus for retarding movement of a cyclically reciprocating member during each reciprocating cycle of the member, comprising:

an impeder engaged with the member during a first portion of the reciprocating cycle of the member, the impeder resisting displacement of the member during the first portion of the cycle, and disengaged from the member during a second portion of the reciprocating cycle, said impeder being displaced along an axis of the reciprocation member;

a reset engaged with the member during a third portion of the reciprocating cycle of the member to position the impeder for engagement with the member during the first portion of the reciprocating cycle; and

a release for disengaging the impeder from the member during the second portion of the reciprocating cycle.

5,722,384

MULTI-DIRECTIONAL BALL THROWING SYSTEM

Stacey L. Cox, 431 Reg Holland Rd., Vidalia, Ga. 30474

Filed Sep. 27, 1996, Ser. No. 720,048
Int. Cl.[6] F41B *15/00*
U.S. Cl. 124—78 **9 Claims**

1. A Multi-Directional Ball Throwing System comprising:

a housing having an interior cavity;

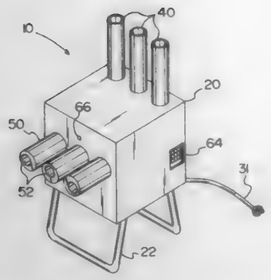
at least one storage tube secured to said housing extending into said interior cavity;

a propelling means secured within said interior cavity and connected to said storage tube to propel a ball within said storage tube opposite of said storage tube; and

at least two elongate delivery tubes projecting out of the interior cavity of said housing in a substantially parallel relationship to each other said delivery tubes being mounted adjacent to said propelling means in a position for receiving a ball propelled by said propelling means;

wherein each said delivery tube has a substantially cylindrical exterior surface, each said delivery tube having an arcuate lumen therein such that a ball traveling through said arcuate

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lumen exits the arcuate lumen in a direction skewed from the longitudinal axis of said substantially cylindrical delivery tube, and

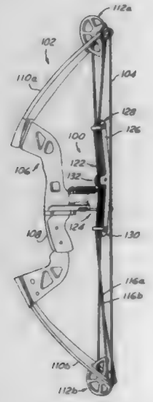
wherein each said delivery tube is mounted on said housing in a manner permitting rotation of each said delivery tube about the longitudinal axis thereof such that each said delivery tubes may be rotated to substantially simultaneously throw balls in different directions.

5,722,385

BUSS CABLE POSITIONER FOR COMPOUND BOWS

Paul H. Bunk, 1738 Welling, Troy, Mich. 48098, assignor to Paul H. Bunk, Troy, and Peter D. Keefe, Roseville, both of Mich.

Filed Feb. 18, 1997, Ser. No. 801,772
Int. Cl.[6] F41B *5/10*
U.S. Cl. 124—86 **16 Claims**



1. A buss cable positioner for a compound bow, the compound bow having a bow member and at least one buss cable, said buss cable positioner comprising:

outboard guidance means for guiding at least one buss cable at two mutually spaced outboard locations, an imaginary axis extending between said outboard locations;

inboard guidance means for guiding the at least one buss cable at at least one location between said outboard locations displaced with respect to said imaginary axis; and

connection means for connecting said outboard and inboard guidance means to a bow member.

8. A compound bow comprising:

a bow member having an arrow nocking location, said bow member comprising:

a handle section having a first and and an opposite second end;

a first limb connected with said first end of said handle section;

a second limb connected with said second end of said handle section;

at least one cam connected with at least one of said first and second limbs;

a bowstring strung between said first and second limbs, said bowstring being windably connected with said at least one cam; and

at least one buss cable strung between said first and second limbs, said at least one buss cable being windably connected with said at least one cam;

wherein said bow member is bisected by a bow plane, and wherein said stringing of said bow string and said at least one buss cable places said bowstring and said at least one buss cable in a zone centered on, and substantially proximate to, said bow plane at said arrow nocking location; and

a buss cable positioner comprising:

outboard guidance means for guiding said at least one buss cable at two mutually spaced outboard locations, an imaginary axis extending between said outboard locations;

inboard guidance means for guiding said at least one buss cable at at least one inboard location between said outboard locations displaced with respect to said imaginary axis; and

connection means for connecting said outboard and inboard guidance means to said bow member;

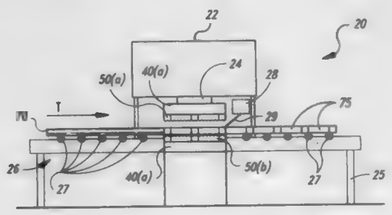
wherein said outboard locations are located within said zone, and wherein said at least one outboard location is located outside said zone.

5,722,386

METHOD AND APPARATUS FOR FORMING ORNAMENTAL EDGES ON CEMENT SIDING

Scott Fladgard, and Lloyd Fladgard, both of Kingston, Wash., assignors to Pacific International Tool & Shear, Ltd., Kingston, Wash.

Continuation-in-part of Ser. No. 351,599, Dec. 7, 1994, Pat. No. 5,570,678. This application Aug. 26, 1996, Ser. No. 701,770
Int. Cl.[6] B28D *1/32*
U.S. Cl. 125—23.01 **28 Claims**



1. A method for producing a non-linear ornamental edge on a cement siding workpiece, comprising the steps of:

providing a first non-linear cutting blade having a first contiguous cutting edge and a second non-linear cutting blade having a second contiguous cutting edge, the first and second non-linear cutting blades having a non-linear shape corresponding to a shape of an ornamental design feature, and the first and second cutting blades being aligned with one another to position the first cutting edge opposite to the second cutting edge;

positioning the workpiece between the first and second cutting blades so that the first and second cutting blades are aligned with a cut line on the workpiece at which an ornamental feature is desirably formed; and

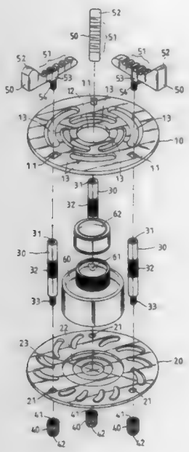
driving the first and second cutting edges against opposing sides of the cement siding workpiece at the cut line so that the first and second cutting edges simultaneously penetrate the cement siding to an intermediate depth along the length of the contiguous first and second cutting edges juxtaposed to the workpiece to form a non-linear cut through the workpiece in the shape of the first and second cutting blades.

5,722,387

PORTABLE STOVE

Yih-Long Chen, 58, Ma Yuan West St., Taichung, Taiwan

Filed Oct. 15, 1996, Ser. No. 729,860
Int. Cl.[6] F24C *5/04*
U.S. Cl. 126—45 **5 Claims**



1. A portable stove comprising:

an upper disk,

three boiler support plates disposed on said upper disk,

each said boiler support plates having a lateral block, an indentation formed on an upper face of each said boiler support plates a rectangular bottom protrusion disposed beneath each said boiler support plate, and a threaded post disposed beneath each said rectangular bottom protrusion,

said upper disk having three spaced rectangular holes to receive said corresponding threaded posts respectively, a plurality of vent holes and a center hole,

a lower disk disposed under said upper disk,

three support rods disposed between said upper disk and said lower disk,

each said support rod having an inner threaded hole formed on an upper end of each said support rod to engage with each said corresponding threaded post respectively, and a threaded end disposed on a lower end of each said support rod,

said lower disk having a center recess, three spaced round holes to receive said corresponding threaded end respectively, and a plurality of curved recesses,

three sockets disposed beneath said lower disk,

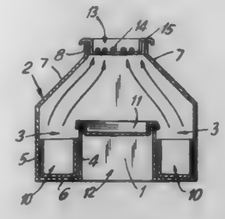
each said socket having an inner threaded recess to engage with said corresponding threaded end respectively.

5,722,388

GRILL-UNIT USED MAINLY WITH CHARCOAL BURNING

Klaus-Dieter Butow, Leinenweberstr. 14, D-79110 Freiburg, and Elke Petra, Lärchenstr. 28, D-85646 Anzing, both of Germany

Filed Apr. 29, 1996, Ser. No. 638,760
Claims priority, application Germany, Apr. 28, 1995, 195 15 060.5
Int. Cl.[6] F24B *3/00*
U.S. Cl. 126—25 R **15 Claims**



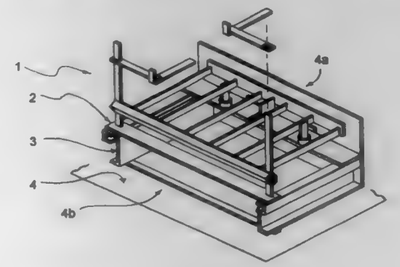
1. A grill unit, comprising: a vertical back wall; a front wall, two side pieces forming two parallel coal ducts arranged to extend between the front wall and the back wall, each of the coal ducts having a U-shaped cross-section with inner walls and outer walls having lateral vent holes therein, means for removably mounting the front wall to the side pieces; a grease trap tray supported on the inner walls; said two side pieces including an upwardly tapered cover above the outer walls, the cover having a top end; and, said two side pieces including vertical air trap walls arranged at the top end of the cover so as to form a grate opening with the front and back walls.

5,722,389

PULLOUT FIREPLACE GRATE

Lawrence Cranberg, P. O. Box 3434, Austin, Tex. 78764

Filed Dec. 13, 1994, Ser. No. 354,513
Int. Cl.[6] F24B *1/193*
U.S. Cl. 126—540 **10 Claims**



1. A fireplace grate comprising:

(a) a base adapted to rest in a grate position within a fireplace;

(b) laterally spaced apart base rails supported on the base, the base rails extending substantially horizontally when the base is in the grate position and parallel to each other;

(c) a pullout platform slidably mounted on the base rails so that the platform is supported by the rails and may be moved between an operating position over the base and a loading position offset from the base;

(d) a grate structure for supporting fuel to be used in the fireplace; and

(e) grate connecting means for connecting the grate structure to the pullout platform.

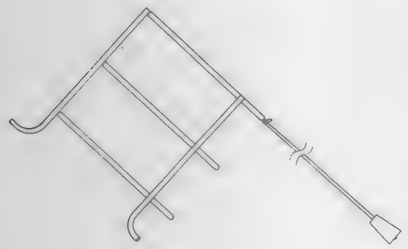
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5,722,390

FIREPLACE WOOD HOLDER

Harold W. Hannebaum, P.O. Box 437, Bellevue, Id. 83313

Filed Oct. 8, 1996, Ser. No. 727,276
Int. Cl.[6] F24B *3/00*
U.S. Cl. 126—541 6 Claims



1. A vertical fuel holder for fireplaces and wood stoves having a firebox floor which comprises:

a generally cylindrical container being generally open and supported in a vertical orientation above the fire box floor by at least three legs;

a plurality of rings held in substantially parallel spaced apart relation by vertical extensions of the legs;

a grate member being attached to a bottom most ring and disposed generally in a horizontal plane; and

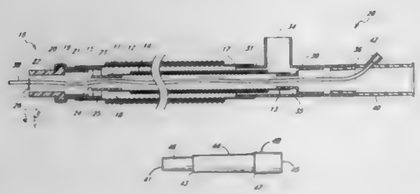
an elongated handle being removably attached to a point located near an upper end of the fuel holder to facilitate tilting of the fuel holder to a loading position.

5,722,391

ANESTHESIA TUBE ASSEMBLY

Terry G. Rosenkoetter, Greenwood; Robert D. Richmond, Zionsville, and Richard B. Hartnett, McCordsville, all of Ind., assignors to PAR Medical, Inc., Indianapolis, Ind.

Filed Nov. 12, 1996, Ser. No. 745,704
Int. Cl.[6] A61M *16/00*
U.S. Cl. 128—200.24 5 Claims



1. A device for testing gas-tight seals of a breathing tube assembly having a fitting connected to first and second tubes, said fitting having a first cylindrical part having a first diameter secured to said first tube by a substantially gas-tight seal and a second cylindrical part having a second diameter, substantially different from said first diameter, secured to said second tube by a substantially gas-tight seal, said device comprising:

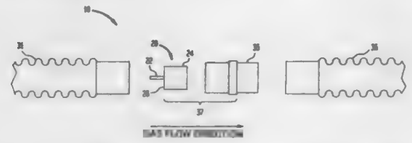
a first cylindrical stopper having a first diameter capable of occluding a first cylindrical part from the passage of pressurized gas therethrough, and a second cylindrical stopper having a second diameter capable of occluding a second cylindrical part from the passage of pressurized gas therethrough.

5,722,392

BREATHABLE GAS MIXING DEVICES, BREATHING SYSTEMS AND METHODS

Jeffrey W. Skimming, Gainesville, and Paul B. Blanch, Alachua, both of Fla., assignors to University of Florida, Gainesville, Fla.

Filed May 19, 1995, Ser. No. 445,442
Int. Cl.[6] A61M *15/00*
U.S. Cl. 128—203.12 25 Claims



1. A gas mixing device for use in a breathing system for receiving more than one gas and thoroughly mixing the received gases before the gases are inhaled by a subject, said gas mixing device being adapted to be connected to a hollow breathing tube or a hollow breathing tube Y-piece of the breathing system and comprising:

gas receiving means for receiving more than one gas at the same time: and

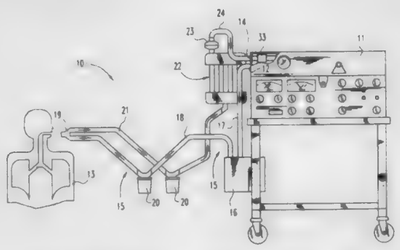
turbulence means for generating a pressure gradient to create turbulence in said gas receiving means when the gases enter into said gas receiving means, so that the gases entering into and passing through said gas receiving means are thoroughly mixed to provide a flow of mixed gases, as opposed to a laminar flow of gases, downstream from said gas mixing device for inhalation by a subject.

5,722,393

EXHALED GAS COOLING DEVICE

Lawrence P. Bartel, Indianapolis, and Jeffery A. Attwood, Mooresville, both of Ind., assignors to Methodist Hospital of Indiana, Inc., Indianapolis, Ind.

Continuation of Ser. No. 869,955, Apr. 17, 1992, abandoned, which is a continuation of Ser. No. 497,558, Mar. 22, 1990, abandoned. This application Oct. 20, 1993, Ser. No. 141,420
Int. Cl.[6] A61M *16/00*; A62B *7/00*; F24F *5/00*; F16K *31/00*
U.S. Cl. 128—204.15 32 Claims



1. A ventilating system for providing inspiration air to a patient and for receiving expiration air from the patient, which comprises:

a flow-cycled ventilator apparatus having inspiration air means and expiration air means, the inspiration air means being for providing inspiration air for delivery to the patient, the expiration air means being for receiving the expiration air from the patient, the expiration air means including an expiration air flow path within said ventilator apparatus;

flow transducer means located within the expiration air flow path for receiving the expiration air therethrough and for measuring the linear flow rate of the expiration air passed therethrough, said flow transducer means further being for initiating the delivery of inspiration from the inspiration air means in response to the measured linear flow rate of the expiration air;

inspiration conduit means connecting with the inspiration air means for communicating inspiration air to the patient;

first expiration conduit means for receiving expiration air from the patient;

expiration air cooling means including an expiration air cooler and being for cooling the expiration air received from the patient, said first expiration conduit means connecting with the expiration air cooler and being for communicating expiration air from the patient to the expiration air cooler; and

second expiration air conduit means communicating between the expiration air cooler and the expiration air means of said ventilator apparatus for delivering air from the expiration air cooler to and through the expiration air flow path of the expiration air means and through said flow transducer means;

said expiration air cooling means being for cooling the expiration air to a temperature sufficiently low to substantially eliminate further cooling of the expiration air as it passes through the expiration air flow path of the expiration air means and through said flow transducer means,

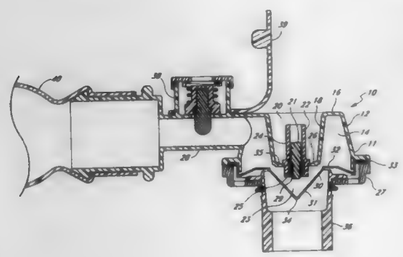
said flow transducer means thereby receiving the expiration air therethrough, measuring the linear flow rate of the expiration air passing therethrough, and initiating the delivery of subsequent inspiration air in response to the measured linear flow rate of the expiration air.

5,722,394

MANUAL RESUSCITATOR PRESSURE MONITOR VALVE

Thomas C. Loescher, Encinitas, Calif., assignor to Hudson Respiratory Care Inc., Temecula, Calif.

Filed Jan. 7, 1997, Ser. No. 779,773
Int. Cl.[6] A62B *7/04*
U.S. Cl. 128—205.24 13 Claims



1. A manual resuscitation valve assembly comprising:

a valve housing having a generally circular outer wall and a circular inner wall said walls defining an annular inspiratory gas chamber therebetween, and an open cavity concentric with and defined by said circular inner wall, a bottom wall at the base of said cavity, and an orifice in the center of said bottom wall,

a duckbill valve for directing inspiratory gas from said inspiratory gas chamber to a patient, said duckbill valve being substantially coaxial with the center of said bottom wall, and

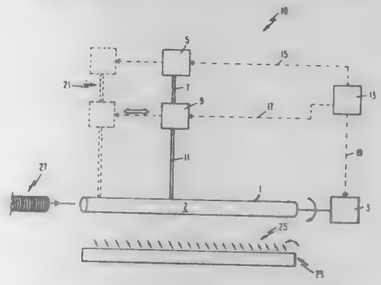
a one-way valve secured in said orifice, said valve extending into said cavity for attaching a pressure monitor for monitoring inspiratory gas pressure.

5,722,395

ULTRA THIN WALLED WIRE REINFORCED ENDOTRACHEAL TUBING

Theodor Kolobow, Rockville, Md., assignor to The United States of America as represented by the Department of Health and Human Services, Washington, D.C.

Division of Ser. No. 26,231, Mar. 2, 1993, Pat. No. 5,537,729, which is a continuation of Ser. No. 758,824, Sep. 12, 1991.
This application May 14, 1996, Ser. No. 645,887
Int. Cl.[6] A61M *16/04*
U.S. Cl. 128—207.14 10 Claims



1. An ultra thin walled wire reinforced endotracheal tubing for use in establishing an artificial airway comprising:

a) a generally cylindrical tubing of a predetermined length;

b) said generally cylindrical tubing further comprising a polymeric material having a spring wire material incorporated therewith and having a defined ultra thin wall thickness;

c) said defined ultra thin wall thickness providing an internal diameter approximating an outer diameter of said tubing to provide reduced resistance to air flowing through said endotracheal tubing during use;

d) wherein the defined ultra thin wall thickness is up to 0.50 millimeters.

5,722,396

METHOD FOR ESTIMATING CREATININE CLEARANCE USING MEASUREMENTS OF BODY CELL MASS

Donald P. Kotler, New Rochelle, and Emilia M. Sordillo, New York, both of N.Y., assignors to St. Luke's-Roosevelt Hospital Center, New York, N.Y.

Filed Aug. 13, 1996, Ser. No. 694,615
Int. Cl.[6] A61B *5/05*
U.S. Cl. 128—630 10 Claims

1. A method for estimating creatinine clearance in a subject, said method comprising the steps of:

calculating a value for body cell mass of said subject; and

estimating creatinine clearance of said subject as a function of said value.

5,722,397

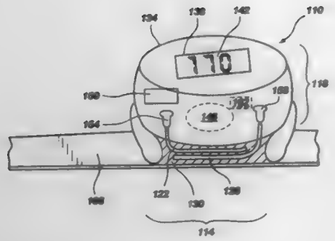
ENHANCEMENT OF TRANSDERMAL MONITORING APPLICATIONS WITH ULTRASOUND AND CHEMICAL ENHANCERS

Jonathan A. Eppstein, Atlanta, Ga., assignor to Altea Technologies, Inc., Atlanta, Ga.

Division of Ser. No. 152,442, Nov. 15, 1993, Pat. No. 5,458,140. This application Jun. 6, 1995, Ser. No. 465,874
Int. Cl.[6] A61B *5/00*
U.S. Cl. 128—633 10 Claims

1. A portable device attachable to a selected area of an individual's body surface for monitoring concentrations of an analyte in the body comprising

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(a) a collection unit including

(I) reservoir means for holding a chemical permeation enhancer for delivery to the body surface and receiving analyte from the body surface;

(ii) a source optical fiber, couplable to a light source, for conducting light energy therethrough and emitting evanescent wave energy; and

(iii) a detection optical fiber, couplable to a detection device, for capturing and conducting evanescent wave energy, wherein the source and detection optical fibers each have a surface with a binder disposed thereon for binding the analyte: and

(b) an electronic unit releasably coupleted to the collection unit including

(I) an ultrasound transducer for enhancing permeation of the analyte out of the individual's body into the reservoir means, the transducer disposed such that when the device is disposed on a selected area of an individual's body surface the reservoir is between the body surface and the transducer;

(ii) a power source coupled to the transducer;

(iii) a light source coupled to the power source and releasably coupleted to the source optical fiber for providing light energy to the source optical fiber:

(iv) a detection device releasably coupled to the detection optical fiber for receiving and measuring evanescent wave energy therefrom;

(v) an electronic circuit coupled to the transducer, power source, light source, detection device, and an output device, for controlling the operation of the transducer and light source, receiving measurements of light from the detection device, determining parameters of an equilibrium curve, calculating analyte concentration in the body from the equilibrium curve, and sending a signal containing the analyte concentration to the output device;

(vi) an output device for receiving the signal containing the analyte concentration and displaying the analyte concentration; and

(vii) a cover for enclosing and protecting the transducer, power supply, light source, detection device, electronic circuit, and output device, wherein the cover contains an opening through which the output device displays information.

5,722,398

APPARATUS FOR MEASURING CONCENTRATION OF HEMOGLOBIN AND METHOD FOR THE SAME

Ken Ishihara; Kaoru Asano, and Yasunori Maekawa, all of Hyogo, Japan, assignors to TOA Medical Electronics Co., Ltd., Hyogo, Japan

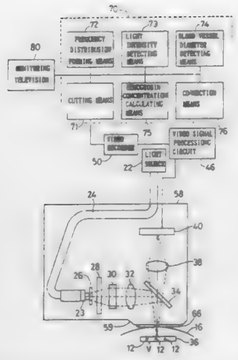
Filed Nov. 14, 1995, Ser. No. 557,573

Claims priority, application Japan, Nov. 15, 1994, 6-280936

Int. Cl.[6] A61B *5/00*

U.S. Cl. 128—633 **8 Claims**

1. An apparatus for measuring a concentration of hemoglobin comprising:



light application means for applying light of a single wavelength or wavelength band to a detection region containing a blood vessel present in a living body;

image capturing means for capturing an image of the detection region to which the light is applied; and

analysis means for analyzing the concentration of hemoglobin in blood flowing through the blood vessel by processing the captured image,

the analysis means including light intensity detection means for detecting a light intensity of a body tissue and a light intensity of a region of blood flow from the captured image and calculating means for calculating the concentration of hemoglobin from a ratio of the detected light intensity of the body tissue relative to the detected light intensity of the region of blood flow.

5,722,399

DEVICE FOR MEASURING THE PRESSURE OF A LIQUID AND METHOD FOR REGULATING SUCH A DEVICE

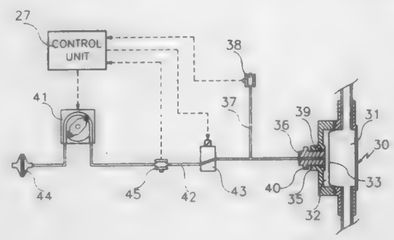
Jacques Chevallet, Serezin du Rhone; Alain Frugier, Tignieu, and Eric Louvet, Villefontaine, all of France, assignors to Hospal Industrie, France

Filed Jun. 6, 1995, Ser. No. 465,047

Claims priority, application France, Sep. 14, 1994, 94 11216

Int. Cl.[6] A61B *5/00*

U.S. Cl. 128—637 **26 Claims**



1. A liquid treatment apparatus, comprising:

a sensor which is sensitive to a variation in gas pressure and which generates signals indicative of sensed pressures;

a casing divided into a first compartment and a second compartment by a flexible membrane, the first compartment having at least one orifice for the introduction of the liquid, and the second compartment being connectable in a leaktight manner to the pressure sensor;

pumping means for varying a quantity of gas in the second compartment; and

means for controlling the pumping means as a function of variations in pressure generated in the second compartment by the pumping means, the controlling means being configured to receive signals from said sensor and to cause, through the pumping means, at least two successive pressure variations, having opposite directions, in the second compartment so as to adjust said position of the membrane between a wall of the casing bounding the first compartment and a wall of the casing bounding the second compartment.

5,722,400

GUIDING INTRODUCERS FOR USE IN THE TREATMENT OF LEFT VENTRICULAR TACHYCARDIA

John D. Ockuly, Minnetonka, and James A. Hassett, Bloomington, both of Minn., assignors to Daig Corporation, Minnetonka, Minn.

Filed Feb. 16, 1995, Ser. No. 389,252

Int. Cl.[6] A61B *5/04;17/39;* **A61N** *1/05*

U.S. Cl. 128—642 **14 Claims**



CUT AWAY VIEW OF HEART SHOWING A RETROGRADE GUIDING INTRODUCER SUPPORTING A CATHETER WHICH IS TO ABLATE THE LEFT VENTRICULAR SEPTAL WALL (REF: BELHASSEN TACHYCARDIA)

1. A process for the treatment of ventricular tachycardia within the left ventricle of a human heart comprising

(a) introducing into the left ventricle a guiding introducer, wherein said guiding introducer contains a lumen running lengthwise therethrough, a proximal and a distal end, and is comprised of preselected, shaped first, second and third sections, wherein a portion of the preselected sections of the guiding introducer is held in place by the anatomy of the left ventricle,

(b) introducing into the lumen of the guiding introducer an ablation or mapping catheter containing a proximal and distal end, wherein said catheter has one or more electrodes located at or near the distal end of the catheter,

(c) guiding the catheter to a preselected location within the left ventricle by use of the guiding introducer, and

(d) mapping or ablating the preselected location within the left ventricle of the heart by use of the electrodes of the catheter.

5,722,401

ENDOCARDIAL MAPPING AND/OR ABLATION CATHETER PROBE

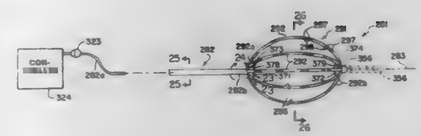
Susan M. Pietroski, Menlo Park; Andrew L. Lerohl, San Jose; Harold A. Heitzmann, Cupertino, and Mir A. Imran, Los Altos Hills, all of Calif., assignors to Cardiac Pathways Corporation, Sunnyvale, Calif.

Continuation-in-part of Ser. No. 326,666, Oct. 19, 1994, abandoned. This application Nov. 13, 1995, Ser. No. 555,927

Int. Cl.[6] A61B *5/04;* **A61N** *1/05*

U.S. Cl. 128—642 **45 Claims**

1. A mapping probe for introduction through a lumen into a chamber of a heart having blood therein and formed by a wall comprising a flexible elongate tubular member having proximal and distal extremities, expandable means movable from a contracted position to an expanded position secured to the distal extremity of the flexible elongate tubular member and formed from at least two elongate members, each of the elongate members having an extremity, means for joining together the extremities so that the elongate members extend at an angle relative to each other to form a vee therebetween when the expandable means is in the expanded position, a plurality of spaced-apart electrodes carried by the expandable means for engaging the wall of the heart when the expandable means is in the expanded position, electrical means extending through the flexible elongate tubular member and connected to the electrodes for performing electrical functions with respect to the electrodes and web-like means made of an elastomeric material adhered to the extremities of the elongate members and extending between the extremities within the vee for inhibiting the formation of thrombus in the vee when the expandable means is disposed within the blood of the heart.



5,722,402

SYSTEMS AND METHODS FOR GUIDING MOVABLE ELECTRODE ELEMENTS WITHIN MULTIPLE-ELECTRODE STRUCTURES

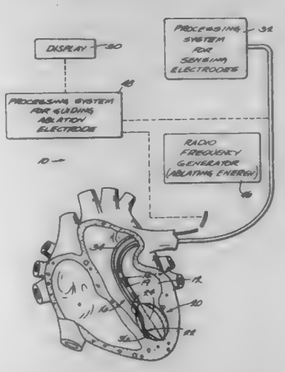
David K. Swanson, Mountain View; Dorin Panescu, Sunnyvale, and James G. Whayne, Saratoga, all of Calif., assignors to EP Technologies, Inc., San Jose, Calif.

Continuation of Ser. No. 320,301, Oct. 11, 1994, abandoned.

This application Jul. 12, 1996, Ser. No. 679,156

Int. Cl.[6] A61B *5/0408;17/39;* **A61N** *1/05*

U.S. Cl. 128—642 **22 Claims**



1. A system for guiding a movable electrode within an array of multiple electrodes located within an animal body, the system comprising

an array of multiple electrodes,

a movable electrode movable relative to the array,

an emitting electrode which comprises either the movable electrode or at least one electrode in the array,

an electrical energy generating element coupled to the emitting electrode, the electrical energy generating element conditioning the emitting electrode to emit electrical energy while the movable electrode is located within the array,

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a sensing electrode which comprises either the movable electrode or at least one electrode in the array,

a sensing element coupled to the sensing electrode, the sensing element conditioning the sensing electrode to sense electrical energy emitted by the emitting electrode, and

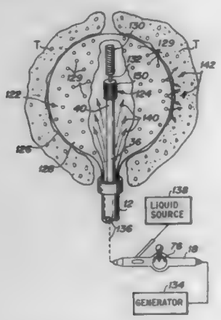
a processing element coupled to the sensing element to analyze electrical energy sensed by the sensing electrode and generate, based upon the analysis, an output that locates the movable electrode within the array.

5,722,403

SYSTEMS AND METHODS USING A POROUS ELECTRODE FOR ABLATING AND VISUALIZING INTERIOR TISSUE REGIONS

David McGee; Dorin Panescu, both of Sunnyvale; David K. Swanson, Mountain View, and James G. Whayne, Saratoga, all of Calif., assignors to EP Technologies, Inc., San Jose, Calif.

Filed Oct. 28, 1996, Ser. No. 739,039
Int. Cl.[6] A61N *1/05*
U.S. Cl. 128—642 43 Claims



20. A system for ablating heart tissue comprising

a catheter tube having a distal end for deployment in a heart chamber,

a fluid source of a medium containing ions,

an electrode on the distal end of the catheter tube comprising a wall having a surface capable of contacting tissue and peripherally surrounding an interior area, a lumen to convey a medium containing ions into the interior area, an electrically conductive element in the interior area,

an electrical path coupling the electrically conductive element to a source of energy to transmit the energy,

at least a portion of the wall comprising a porous material sized to pass ions contained in the medium, thereby establishing ionic transport of electrical energy from the electrically conductive element through the medium and wall to ablate heart tissue, and

an imaging element in the interior area coupled to a source of visualizing energy for visualizing tissue, and

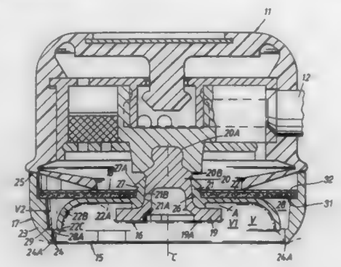
at least a portion of the wall also being generally transparent to the visualizing energy.

5,722,404

SEALING ELEMENT FOR A BIOMEDICAL ELECTRODE

Stig Lundbäck, Vaxholm, Sweden, assignor to Humanteknik AB, Stockholm, Sweden

PCT No. PCT/SE95/00143, § 371 Date Aug. 9, 1996, § 102(e) Date Aug. 9, 1996, PCT Pub. No. WO95/21568, PCT Pub. Date Aug. 17, 1995
PCT Filed Feb. 10, 1995, Ser. No. 693,239
Claims priority, application Sweden, Feb. 11, 1994, 9400489; May 16, 1994, 9401673
Int. Cl.[6] A61B *5/0416*
U.S. Cl. 128—643 20 Claims



1. A sealing element for a vacuum electrode device, the sealing element comprising:

a vacuum cup defining a vacuum chamber adapted to accommodate a skin-engaging portion of an electrode element therein and communicating with a vacuum passageway through which a vacuum can be applied to the vacuum chamber, the vacuum cup having a skin-engageable outer sealing edge disposed around an opening to said vacuum chamber; and

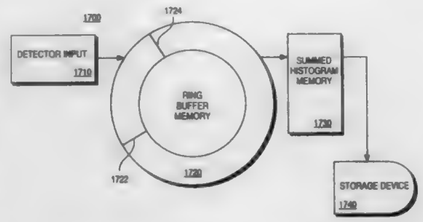
a narrow annular gap between the vacuum chamber and the outer sealing edge for conducting fluid away from the vacuum chamber towards the vacuum passageway, said gap being delimited outwardly by the outer sealing edge.

5,722,405

METHOD AND APPARATUS FOR ACQUISITION AND PROCESSSING OF EVENT DATA IN SEMI LIST MODE

Edward M. Goldberg, Sunnyvale, Calif., assignor to ADAC Laboratories, Milpitas, Calif.

Division of Ser. No. 48,751, Apr. 15, 1993, Pat. No. 5,431,161.
This application Feb. 23, 1995, Ser. No. 393,447
Int. Cl.[6] A61B *5/05*
U.S. Cl. 128—653.1 24 Claims



1. A computer implemented method for processing image events in a nuclear camera system having an acqusition processor, a memory unit, and at least one detector unit for detecting said image events, said method comprising the computer implemented steps of:

receiving individual data event words representing said image events for an entire R-R interval to form a current data event word set;

storing said individual data event words in list form for said entire R-R interval in a buffer of said memory unit; and

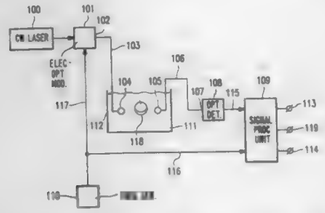
indicating, within unique buffer locations associated with said current data event word set, a start address for a subsequent data event word set and a count number representative of the duration of said R-R interval of said current data event word set.

5,722,406

DEVICE FOR CARRYING OUT OPTICAL MEASUREMENTS IN TURBID MEDIA

Dimitrios Papaioannou, Eindhoven, Netherlands, assignor to U.S. Philips Corporation, New York, N.Y.

Filed Mar. 20, 1996, Ser. No. 618,889
Claims priority, application European Pat. Off., Mar. 23, 1995, 95200725
Int. Cl.[6] A61B *5/05*
U.S. Cl. 128—653.1 20 Claims



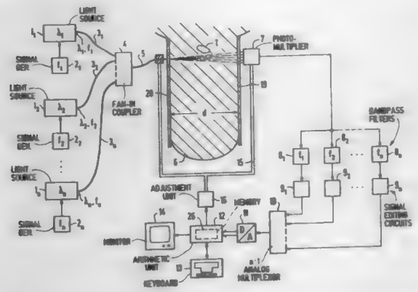
1. A device for localizing an object in a turbid medium, comprising a laser for generating radiation which is amplitude modulated with a modulation frequency, and a detection unit for measuring the amplitude-modulated radiation from the turbid media, wherein the laser includes means for suppressing higher harmonics in the amplitude-modulated radiation.

5,722,407

APPARATUS AND METHOD FOR EXAMINING TISSUE WITH LIGHT OF DIFFERENT WAVELENGTHS

Klaus Klingenbeck-Regn, Nueremberg, and Arnulf Oppelt, Spardorf, both of Germany, assignors to Siemens Aktiengesellschaft, Munich, Germany

Continuation of Ser. No. 298,173, Aug. 30, 1994, abandoned.
This application Jun. 17, 1996, Ser. No. 665,352
Claims priority, application Germany, Sep. 8, 1993, 43 30 460.5
Int. Cl.[6] A61B *5/05*
U.S. Cl. 128—653.1 14 Claims



1. An apparatus for examining blood and substantially stationary tissue by transillumination of said blood and substantially stationary tissue with light, comprising:

means for conducting an examination of blood and substantially stationary tissue including a plurality of monochromatic light sources respectively emitting light at defined, different wavelengths into said blood and substantially stationary tissue substantially simultaneously from a light entry zone which is substantially the same for the light of each wavelength, said light passing through said blood and substantially stationary tissue and emerging from said blood and substantially stationary tissue at a light exit zone with light from the different light sources having respective intensities at said different wavelengths;

means for receiving said light to obtain detected light after passing through the blood and substantially stationary tissue, having a light reception zone disposed opposite said light exit zone, and for producing output signals corresponding to the respective intensities in substantially all of the detected light of the parts of the detected light having said defined, different wavelengths; and

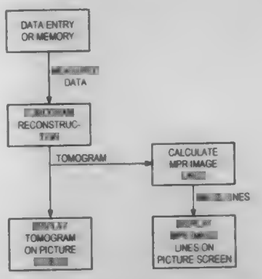
evaluation means, supplied with said output signals of said means for receiving said light, for identifying the concentration of a plurality of different blood and tissue components in said blood and stationary tissue, said evaluation means including a memory containing stored data corresponding to absorption by different blood and tissue components, obtained prior to said examination, for each of said different blood and tissue components respectively corresponding to the absorption of light at said defined, different wavelengths by the respective blood and tissue components, and said evaluation means identifying said concentration of a number of said different blood and tissue components corresponding at most in number to the plurality of defined, different wavelengths from said output signals and said stored data.

5,722,408

METHOD FOR IMAGE GENERATION IN AN IMAGING SYSTEM OF MEDICAL TECHNOLOGY

Guenter Dehner, Erlangen, and Manfred Herbert, Erlange-Buechenbach, both of Germany, assignors to Siemens Aktiengesellschaft, Munich, Germany

Filed Oct. 31, 1996, Ser. No. 742,214
Claims priority, application Germany, Nov. 7, 1995, 195 41 500.0
Int. Cl.[6] A61B *6/00*
U.S. Cl. 128—653.1 9 Claims



1. A method for generating an image in an imaging system for a medical examination of a subject comprising the steps of:

obtaining measurements of an examination subject and acquiring a three-dimensional volume data set of said measurements;

using said three-dimensional volume data set, reconstructing a reconstructed image of said subject in a computer, said reconstructed image having image data associated therewith and having a reconstructed image orientation relative to said subject, and said reconstructed image being selected from the group consisting of a plurality of tomographic images of said subject and a sub-volume image of said subject; and

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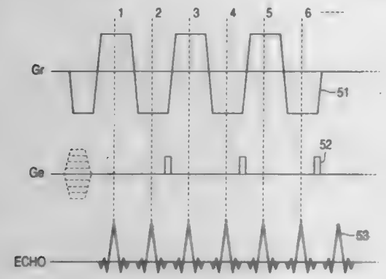
substantially simultaneously with obtaining said measurements and reconstructing said reconstructed image, displaying an image data set, using said image data as a two-dimensional sectional image with an arbitrary orientation relative to said reconstructed image orientation, and on-line growing of said two-dimensional image on said display while acquiring said measurements and reconstructing said reconstructed image.

5,722,409

NUCLEAR MAGNETIC RESONANCE IMAGING WITH PROTECTION AGAINST ARTIFACTS

Shigehide Kuhara; Kozo Sato, both of Kanagawa-ken, and Shoichi Kanayama, Saitama-ken, all of Japan, assignors to Kabushiki Kaisha Toshiba, Kawasaki, Japan

Division of Ser. No. 212,145, Mar. 14, 1994, Pat. No. 5,497,773. This application Jan. 19, 1996, Ser. No. 588,681
Claims priority, application Japan, Mar. 12, 1993, 5-051832
Int. Cl.[6] A61B *5/055*
U.S. Cl. 128—653.2 **10 Claims**



1. A method of nuclear magnetic resonance imaging, comprising the steps of:

exciting spins in an imagine region within the patient placed in a static magnetic field by applying prescribed gradient magnetic fields and RF pulses onto the patient:

applying a reading gradient magnetic field which is repeatedly switching its polarity, along a phase encoding gradient magnetic field applied at a rate of once in every two switchings of the reading gradient magnetic field;

acquiring NMR signals from the patient resulting from the reading gradient magnetic field applied at the applying step, and separating the NMR signals resulting from odd and even turns of switchings of the reading gradient magnetic field as data set for odd turns and data set for even turns; and

re-constructing one MR image from the data see for odd turns alone, and another MR image from the data set for even turns alone.

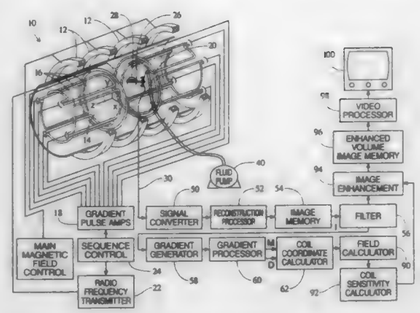
5,722,410

APPARATUS AND METHOD FOR AUTOMATED DETERMINATION OF SURFACE COIL COORDINATES TO CORRECT SIGNAL INHOMOGENEITIES IN MAGNETIC RESONANCE SIGNALS

Moriel S. NessAiver, Baltimore, Md., assignor to Picker International, Inc., Highland Heights, Ohio

Filed Jun. 14, 1996, Ser. No. 664,386
Int. Cl.[6] A61B *5/055*
U.S. Cl. 128—653.2 **21 Claims**

1. In a magnetic resonance imaging apparatus having a main magnetic field coil for generating a main magnetic field along an image region, gradient coils for generating magnetic field gradients across the main magnetic field, a magnetic excitation coil for exciting nuclei within the image region to resonate and generate radio frequency resonance signals, a surface coil positioned within



the image region for detecting radio frequency resonance signals, a signal converter for converting the detected radio frequency resonance signals into resonance data, a reconstruction processor for reconstructing the resonance data into a volumetric magnetic resonance image representation of the image region, the magnetic resonance image representation including an image value corresponding to each of a three-dimensional array of pixels, image values lying on and adjacent a selected plane are addressable to create a selected slice image representation, the improvement comprising:

a gradient processing circuit which calculates magnitudes and directions of pixel intensity gradients from the image values for each pixel of a first set of selected slice image representations which represent crossing planes through the image region; and,

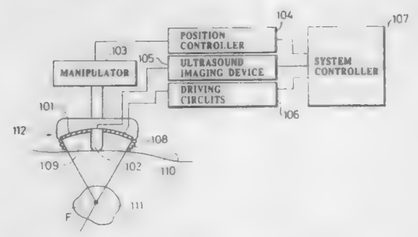
a surface coil coordinate calculator which calculates an image region coordinate for each of a plurality of segments of the surface coil, from the image values and the pixel intensity gradients of the first set of selected slice image representations.

5,722,411

ULTRASOUND MEDICAL TREATMENT APPARATUS WITH REDUCTION OF NOISE DUE TO TREATMENT ULTRASOUND IRRADIATION AT ULTRASOUND IMAGING DEVICE

Takuji Suzuki, Kanagawa-ken; Satoshi Aida, Tokyo; Katsuhiko Fujimoto; Mariko Shibata, both of Kanagawa-ken; Yoshiharu Ishibashi, Tokyo; Mamoru Izumi, Tokyo; Shiroh Saitoh, Tokyo, and Kazuya Okamoto, Saitama-ken, all of Japan, assignors to Kabushiki Kaisha Toshiba, Kawasaki, Japan

Continuation of Ser. No. 209,528, Mar. 14, 1994, Pat. No. 5,553,618. This application Jul. 23, 1996, Ser. No. 681,451
Claims priority, application Japan, Mar. 12, 1993, 5-052683; Aug. 5, 1993, 5-194359; Aug. 5, 1993, 5-194360; Sep. 14, 1993, 5-228744
Int. Cl.[6] A61B *8/00*
U.S. Cl. 128—660.03 **1 Claim**



1. An ultrasound medical treatment apparatus, comprising:

an ultrasound applicator for applying ultrasound irradiation to a treatment target; and

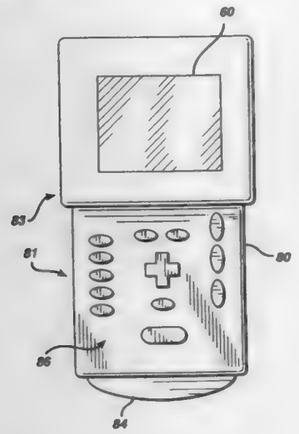
an ultrasound imaging device for imaging the treatment target by transmitting ultrasound pulses and receiving the ultrasound pulses reflected by the treatment target, said ultrasound imaging device increasing a transmission power of the ultrasound pulses during the ultrasound irradiation by the ultrasound applicator so as to reduce noise due to the ultrasound irradiation by the ultrasound applicator.

5,722,412

HAND HELD ULTRASONIC DIAGNOSTIC INSTRUMENT

Lauren S. Pflugrath, Seattle, and Jacques Souquet, Issaquah, both of Wash., assignors to Advanced Technology Laboratories, Inc., Bothell, Wash.

Filed Jun. 28, 1996, Ser. No. 672,782
Int. Cl.[6] A61B *8/00*
U.S. Cl. 128—662.03 **24 Claims**



1. A portable ultrasound system comprising:

an array transducer; and

a sampled data beamformer for delaying and combining samples of echo signals received by elements of said array transducer,

wherein said array transducer and said beamformer are located in a common enclosure.

5,722,413

MEDICAL DEMONSTRATION APPARATUS

Robert William Futcher, and Graham Frederick Orr, both of Glenorie, Australia, assignors to CorTech Development Pty Ltd, Glenorie, Australia

Continuation of Ser. No. 184,621, Jan. 18, 1994, abandoned. This application Aug. 30, 1996, Ser. No. 707,809
Claims priority, application Australia, Jul. 19, 1991, PK7348
Int. Cl.[6] G09B *23/28*
U.S. Cl. 128—668 **5 Claims**

1. A method for demonstrating a relationship of blood pressure to functioning of a simulated heart, the method comprising:

providing an elastically deformable hollow bulb configured and colored to provide a pneumatically operable model of a human heart, said bulb being adapted to be deformed by a person in order to simulate pumping action of the human heart;

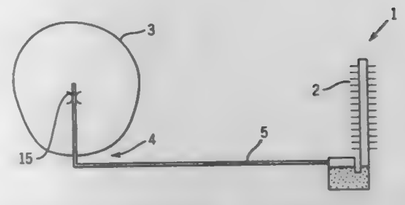
measuring with a pressure measurement device an increase in air pressure generated solely as a result of the deformation of the bulb and without deformation of other portions of a pneumatic system which includes the bulb and the pressure measurement device;

directly connecting said bulb and said pressure measurement device without supplying air to any inflatable cuff for sensing blood pressure in the person;

restricting the flow of air between the bulb and the pressure measurement device in order to produce a controllable reading on the pressure measurement device;

bleeding air from the pneumatic system through an air bleed means that continuously provides communication with the atmosphere during all operations of the apparatus; and

repeatedly deforming the said hollow bulb while observing a pressure reading displayed by said pressure measurement device and while continuously bleeding air from said pneumatic system through said air bleed means.

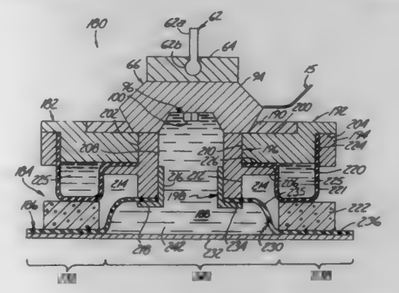


5,722,414

CONTINUOUS NON-INVASIVE BLOOD PRESSURE MONITORING SYSTEM

G. Kent Archibald, Vadnais Heights; Timothy G. Curran, Ramsey; Orland H. Danielson, Roseville; Marius O. Polisc, St. Paul, and Roger C. Thede, Afton, all of Minn., assignors to Medwave, Inc., Arden Hills, Minn.

PCT No. PCT/US94/12800, § 371 Date Apr. 19, 1996, § 102(e) Date Apr. 19, 1996, PCT Pub. No. WO95/13014, PCT Pub. Date May 18, 1995
PCT Filed Nov. 7, 1994, Ser. No. 633,757
Int. Cl.[6] A61B *5/02*
U.S. Cl. 128—672 **18 Claims**



1. A sensor for sensing blood pressure within an underlying artery of a patient, the sensor comprising:

a pressure transducer for sensing blood pressure pulses of the underlying artery, the transducer having a sensing surface;

a flexible diaphragm spaced from the sensing surface, wherein the flexible diaphragm at least partially defines an interface chamber in communication with the sensing surface of the pressure transducer;

a fluid coupling medium within the interface chamber for transmitting blood pressure pulses within the underlying artery from the flexible diaphragm to the sensing surface of the transducer; and

a variable height, body conforming spacing structure for spacing the transducer from the underlying artery, wherein the spacing

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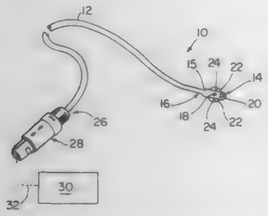
structure defines an expansion cavity adjacent the flexible diaphragm so that the interface chamber containing the fluid coupling medium may undergo a change in shape without a corresponding change in volume and pressure.

5,722,415

CONTINUOUS CARDIAC OUTPUT MONITOR

Paul F. Rom, Kentwood, and Russell A. Corace, Grand Rapids, both of Mich., assignors to Medtronic, Inc., Minneapolis, Minn.

Filed Apr. 30, 1996, Ser. No. 640,322
Int. Cl.[6] A61B *10/00*
U.S. Cl. 128—713 15 Claims



1. A system for continuously monitoring the output of a heart in a surgical patient, comprising:

a catheter having a proximal end and a distal end, the proximal end being adapted for electrical connection to a display;

a probe head provided on the catheter, the probe head including a probe and a pair of flexible flat projections extending outwardly from opposite sides of the probe for securing the probe head in the transverse sinus of the patient, each of the flexible projections having an outer edge portion;

at least one transducer positioned in the probe for detecting a condition of the heart; and

a hollow needle adapted for receiving the probe head prior to installing the probe head in the patient, an inner diameter of the hollow needle being smaller than the distance between the outer edge portions of the flexible projections;

whereby the probe head can be installed in the patient immediately after medians ternotomy and division of the patient's pericardium by inserting the needle through the patient's chest wall.

5,722,416

SYSTEMS AND METHODS FOR ANALYZING BIOPOTENTIAL MORPHOLOGIES IN HEART TISSUE TO LOCATE POTENTIAL ABLATION SITES

David K. Swanson, Mountain View; Dorin Panescu, Sunnyvale, and James G. Whayne, Saratoga, all of Calif., assignors to EP Technologies, Inc., San Jose, Calif.

Filed Feb. 17, 1995, Ser. No. 393,126
Int. Cl.[6] A61B *5/0402*
U.S. Cl. 128—696 52 Claims

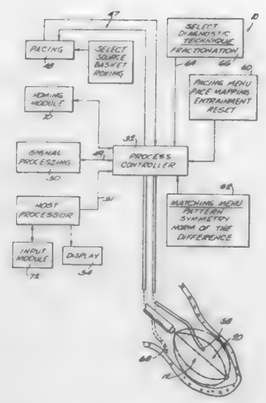
1. A processing element for analyzing biopotentials in myocardial tissue to locate potential ablution sites comprising

first means for inputting a template of an electrogram recorded during a cardiac event of known diagnosis, the input template comprising a plot of variations in biopotentials over time and not a spacial distribution of endocardial surface activation,

second means for inputting a sample of a paced electrogram triggered from a known pacing site, the sample comprising a plot of variations in biopotentials over time and not a spacial distribution of endocardial surface activation,

third means for electronically comparing the input sample to the input template and generating an output based upon the comparison, the output comprising a matching factor indicating how alike the input sample is to the input template, and

fourth means for comparing the matching factor to a predetermined value to determine whether the pacing site is a potential ablation site.

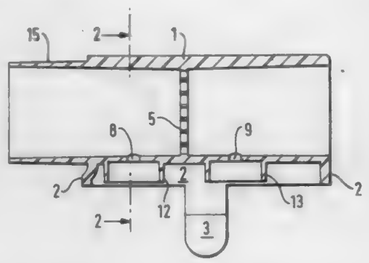


5,722,417

LONG FUNCTION MONITORING APPARATUS FLOWHEADS

Bernhardt Rudolph Garbe, Green Acres, Thrornborough, Buckinghamshire MK18 2DJ, United Kingdom

Filed Jun. 28, 1996, Ser. No. 672,541
Claims priority, application United Kingdom, Jun. 30, 1919, 9513370.8
Int. Cl.[6] A61B *5/087*
U.S. Cl. 128—725 2 Claims



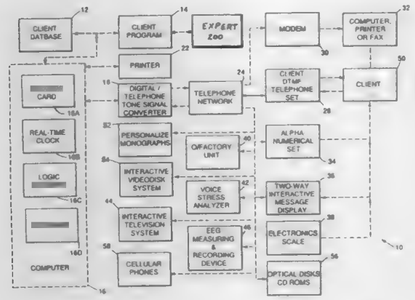
1. A flowhead for use in lung function monitoring apparatus consisting essentially of a molded body member; a substantially cylindrical main channel within the body member; a mesh integrally molded with the body member, said mesh extending across an entire cross-section of the channel and dividing the channel transversely into two sections; and axially spaced ports in a side wall of the body member which are in communication with the channel, with one port being located on each side of the mesh, and each port having an axis parallel to one another and transverse to a longitudinal axis of the channel; wherein each port is surrounded on an exterior surface of the body member by a cylindrical sealing collar, and wherein the mesh includes a plurality of narrow substantially cylindrical passages axially aligned with the longitudinal axis of the channel.

5,722,418

METHOD FOR MEDIATING SOCIAL AND BEHAVIORAL PROCESSES IN MEDICINE AND BUSINESS THROUGH AN INTERACTIVE TELECOMMUNICATIONS GUIDANCE SYSTEM

L. William Bro, 8939 S. Sepulveda #530, Los Angeles, Calif. 90045

Continuation of Ser. No. 112,955, Aug. 30, 1993, Pat. No. 5,377,258. This application Sep. 30, 1994, Ser. No. 315,630
Int. Cl.[6] A61B *5/021;5/04*
U.S. Cl. 128—732 58 Claims



1. A system for interactive preventative medical guidance and commercial goal management comprising:

a) polling means for creating a database of personalized input data indicative of an individual's particular behavioral issue;

b) evaluation means for determining an individual's temporal behavioral stage from said database selected from one of a plurality of behavioral stages;

(c) mediation means for determining from said evaluation means and said database a behavioral routine for changing said selected temporal behavioral stage;

(d) program means including transmission means for delivering to said individual specific content based communication based on said behavioral routine determined by said mediation means for changing said selected temporal behavioral stage; and

(e) feedback means for receiving an individual's response to said content based communication wherein said mediation means provides periodic reevaluation of said response for determining readjustment of said behavioral routine and said content based communication.

5,722,419

SYSTEM FOR DETERMINING THE VIABILITY OF TISSUE

John L. Semmlow, 81 Lewis St., New Brunswick, N.J. 08901, and Robert E. Brolin, 9 Sandburg Dr., Morganville, N.J. 07751-1428

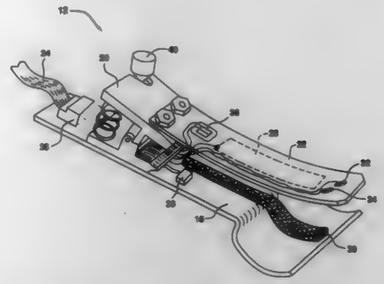
Filed Nov. 30, 1994, Ser. No. 347,562
Int. Cl.[6] H61B *15/05*
U.S. Cl. 128—733 30 Claims

1. A medical instrument which quantifies the survivability of tissue, said medical instrument comprising:

a measurement probe having gripping means for gripping tissue, stimulus electrodes for delivering an electrical stimulus, means for sensing movement in tissue gripped by said measurement probe in response to said electrical stimulus, and measurement electrodes for sensing electromyographic activity in tissue gripped by said measurement probe, wherein said stimulus electrodes, said measurement electrodes, and said tissue movement sensing means are mounted on said gripping means;

control means for controlling the generation of said electrical stimulus, for recording and analyzing movement sensed by said tissue movement sensing means and electromyographic activity sensed by said measurement electrodes, and for generating at least one quantity which is representative of the survivability of the tissue as indicated by at least one of the sensed tissue movement and the sensed electromyographic activity; and

circuit means for electrically connecting said measurement probe with said control means and processing electrical signals representing said electrical stimulus, said electromyographic activity, and said tissue movement.

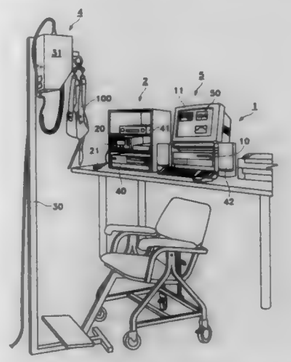


5,722,420

EMG BIOFEEDBACK TRACTION MODALITY FOR REHABILITATION

Ming-Yih Lee, Taoyuan, Taiwan, assignor to National Science Council, Taiwan

Filed Nov. 28, 1995, Ser. No. 562,222
Int. Cl.[6] A61B *5/04*
U.S. Cl. 128—733 15 Claims



1. An adaptive traction modality with closed loop traction force control based on EMG biofeedback signals from a neuro-muscular lesion of a patient for rehabilitation, comprising:

a main controller for the control of traction force;

a single channel high signal-to-noise ratio EMG scanner and signal processing units for receiving and processing EMG signals from the neuro-muscular lesion into displayable data;

a main controller/EMG scanner interface to provide a communication means between said main controller and said EMG scanner and signal processing units for closed loop traction force monitor and adjustment;

a traction force control interface to provide a communication means between said main controller and said traction modality for traction force control; and

a traction control window graphical display interface to display said data and to adjust traction force;

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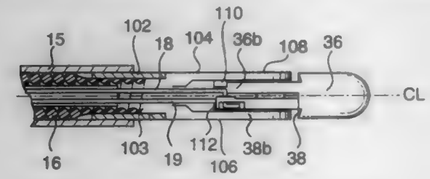
means for adaptively adjusting traction force based on EMG biofeedback signals includes entering the patient's information through said graphical display interface to said main controller to calculate a upper and lower EMG control limits, receiving said EMG biofeedback signals from said lesion and comparing the same with said control limits to determine an optimal traction force for adaptive traction force control.

5,722,421

CLEVIS HAVING DEFLECTION LIMITING STOPS FOR USE IN AN ENDOSCOPIC BIOPSY FORCEPS INSTRUMENT

Jose L. Francese; Joel F. Giurtino, and Matthew A. Palmer, all of Miami, Fla., assignors to Symbiosis Corporation, Miami, Fla.

Filed Sep. 15, 1995, Ser. No. 528,767
Int. Cl.[6] A61B *10/00*
U.S. Cl. 128—751 18 Claims



1. A deflection-limiting clevis for use in an endoscopic instrument having a pair of jaws, each jaw having a proximal tang for coupling the jaw to a control wire, said clevis comprising:

a) a substantially cylindrical base;

b) first and second clevis arms extending distally from said base, each of said first and second clevis arms having an interior surface and a distal end;

c) a clevis axle extending perpendicularly between said first and second clevis arms near their distal ends, and on which the jaws are mounted so that the tangs of the jaws extend proximally of said clevis axle; and

d) at least one stop extending from said interior surface of one of said first and second clevis arms toward said interior surface of another of said first and second clevis arms, said at least one stop being located proximal of said clevis axle and distal of said base and having at least one engaging surface for engaging the tang of at least one of the jaws to limit deflection of the at least one of the jaws when the jaws are in a closed position.

5,722,422

ENDOSCOPIC BIOPSY FORCEPS HANDLE WITH REMOVABLE SAMPLE REMOVAL PICK

Matthew A. Palmer, Miami, and Peter Kratsch, Sunrise, both of Fla., assignors to Symbiosis Corporation, Miami, Fla.

Filed Feb. 12, 1997, Ser. No. 799,508
Int. Cl.[6] A61B *10/00*
U.S. Cl. 128—751 20 Claims



1. An actuator handle assembly for an endoscopic biopsy forceps instrument having a tubular member, a control means extending through the tubular member, and a pair of forceps jaws coupled to the control means such that relative movement of the control means and the tubular member opens and closes the jaws, said actuator handle comprising:

(a) a stationary member having a distal end coupled to one of the control means and the tubular member, said stationary member having at least one holder means for receiving and holding a pick; and

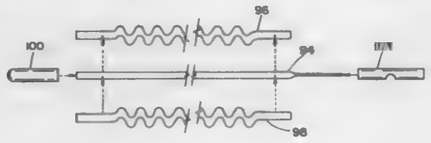
(b) a movable member coupled to the other of the control means and the tubular member and movable relative to said stationary member.

5,722,423

TISSUE REMOVING DEVICE

Stuart Lind, Minneapolis; Daniel Dostal, Eden Prairie, and John Skaaland, Hopkins, all of Minn., assignors to Annex Medical, Inc., Eden Prairie, Minn.

Filed Dec. 30, 1994, Ser. No. 366,822
Int. Cl.[6] A61B *10/00*
U.S. Cl. 128—756 10 Claims



1. A brush construction for the collection and obtention of microbiological specimen from a body cavity, said brush construction comprising:

a) at least two elongate plate-shaped elements having at least one edge adapted for specimen obtention; and

b) an elongate flexible member connected to said at least two plate-shaped elements, said elongate flexible member being twisted along the longitudinal extent of said elongate flexible member so as to impart a helically-spiraled configuration to said brush construction, whereby said at least one longitudinally extending edge forms the outer extremities of said brush structure.

5,722,424

MULTI-COATING STAINLESS STEEL GUIDEWIRE

Erik T. Engelson, Menlo Park, Calif., assignor to Target Therapeutics, Inc., Fremont, Calif.

Filed Sep. 29, 1995, Ser. No. 535,806
Int. Cl.[6] A61B *5/00*
U.S. Cl. 128—772 9 Claims



1. A guidewire suitable for guiding a catheter within a body lumen, comprising an elongated, flexible stainless steel alloy wire core having a more proximal section and a more distal section wherein the more proximal section is stiffer than the more distal section and has an outer proximal covering placed coaxially about and directly upon said wire core and said outer proximal covering is of a material selected from the group consisting of fluorocarbon polymers, polyarylenes, and polysulfones and wherein the more distal section has an outer distal covering axially adjacent said outer proximal covering and said outer distal covering comprising a tie layer adjacent the wire core, said tie layer being of a material selected from the group consisting of polyamides, polyethylene, polystyrene, polyurethane, and polyesters, said outer distal further comprising a hydrophilic polymeric composition exterior to said tie layer.

5,722,425

STYLET UNIT

Mats Boström, Sundbyberg, Sweden, assignor to Pacesetter AB, Solna, Sweden

Filed Nov. 29, 1996, Ser. No. 758,517
Claims priority, application Sweden, Dec. 4, 1995, 9504333
Int. Cl.[6] A61B *5/00*
U.S. Cl. 128—772 7 Claims



1. A stylet unit introducible into a flexible, hollow component for temporarily stiffening the flexible component and for bending a distal end section of the flexible component, said stylet unit comprising:

a flexible, tubular straight stylet shell having an internal longitudinal channel; and

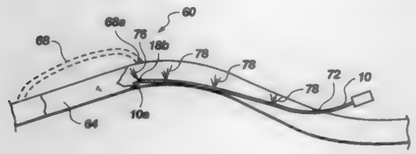
an internal stylet movably disposed inside said channel, said internal stylet having a longitudinal axis and having a precurved distal end section movable between a retracted position completely inside said stylet shell without causing bending of said stylet shell and a deployed position projecting beyond said stylet shell and forming a J-shape, said precurved distal end section being at least partially composed of memory metal and including a stylet section having a radius of curvature which varies along said longitudinal axis of said stylet.

5,722,426

CORONARY LIGHT PROBE AND METHOD OF USE

Jack Kolff, 1086 Franklin St., Johnstown, Pa. 15905

Filed Feb. 26, 1996, Ser. No. 607,072
Int. Cl.[6] A61B *00/19*
U.S. Cl. 128—898 21 Claims



1. A method for using a light probe in open heart/by-pass surgery to indicate the location of a blockage contained within an artery/vein and inhibiting blood flow through the artery/vein, the method comprising:

(a) selecting a probe having a lighting means disposed at a distal tip thereof for laterally emitting light;

(b) making an incision in an artery/vein for insertion of the probe;

(c) inserting the probe into the artery/vein and advancing the probe until the probe is disposed adjacent the blockage contained within the artery/vein;

(d) illuminating the artery/vein adjacent to the blockage to thereby indicate the position of the blockage;

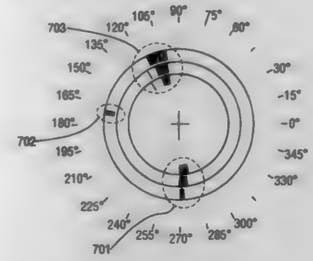
(e) marking the artery/vein at the location of the lighting means within the artery/vein to thereby indicate a desired location for attachment of a by-pass vessel.

5,722,427

METHOD OF REFRACTIVE SURGERY

Youssef Salih Wakil, Houston, Tex.; Spencer P. Thornton, Nashville, Tenn., and Ioannis G. Pallikaris, Heraklion, Greece, assignors to Eyesys Technologies, Inc., Houston, Tex.

Continuation of Ser. No. 60,127, May 10, 1993, abandoned.
This application Dec. 13, 1994, Ser. No. 355,436
Int. Cl.[6] A61B *19/00*
U.S. Cl. 128—898 6 Claims



1. A method for displaying dioptric powers of the corneal surface of an eye wherein the eye has a visual axis and a vertex where the visual axis intersects the corneal surface, comprising:

a) zoning the corneal surface into a plurality of parallel zones extending around the visual axis of the eye and at different radial distances from the vertex; and

b) generating a dioptric power curve for each said zone, said curve comprising the dioptric powers at spaced intervals along the zone.

5,722,428

METHOD FOR PRODUCING A POSTERIOR VITREOUS DETACHMENT

Henry J. Kaplan, and Tongalp H. Tezel, both of St. Louis, Mo., assignors to Washington University, St. Louis, Mo.

Filed Oct. 29, 1996, Ser. No. 740,430
Int. Cl.[6] A61B *19/00*
U.S. Cl. 128—898 17 Claims

1. A method for treating a subject to promote a posterior vitreous detachment comprising introducing into a vitreous cavity of an eye of a subject in need of such treatment an enzyme which specifically cleaves type IV collagen and fibronectin in an amount effective to promote a posterior vitreous detachment.

5,722,429

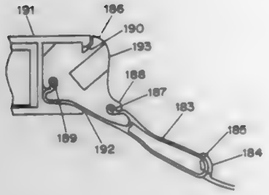
CONNECTING ARRANGEMENT FOR MEDICAL DEVICE

Carl O. Larson, Jr., Stonington; James S. Smith, Old Lyme; John H. Chapman, Groton; Scot A. Slimon, Mystic; John D. Trahan, No. Stonington, all of Conn.; Robert J. Brozek, Bridgewater, N.J.; Alberto Franco, Haziet, N.J.; John J. McGarvey; Marvin E. Rosen, both of Elizabeth, N.J., and Michael K. Pasque, St. Louis, Mo., assignors to Electric Boat Corporation, Groton, Conn.

Division of Ser. No. 201,806, Feb. 25, 1994, Pat. No. 5,676,651, which is a continuation-in-part of Ser. No. 35,788, Mar. 23, 1993, Pat. No. 5,290,227, which is a continuation-in-part of Ser. No. 926,779, Aug. 6, 1992, abandoned. This application Jun. 7, 1995, Ser. No. 477,909
Int. Cl.[6] A61B *19/00*
U.S. Cl. 128—899 8 Claims

1. A connecting arrangement for connecting a medical device including a hollow cylinder to a vessel in a human body comprising a metal ring, and a two-part sewing ring attached at one end to the metal ring, the two-part sewing ring comprising an endothelial promoting outer covering and a compliant inner layer connected at

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one end to the metal ring and connectable at the other end to a vessel in the human body, an exposed portion of the metal ring opposite to the sewing ring being removably connectible to the hollow cylinder.

5,722,430

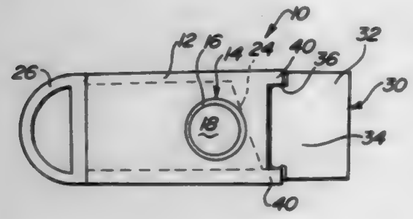
MONEY CLIP AND CIGAR CUTTER

Dale Bentley, 23101 Farmington Rd., Farmington, Mich. 48336, and John Ginopolis, 4763 Valley View South, West Bloomfield, Mich. 48033

Filed Jan. 21, 1997, Ser. No. 785,899

Int. Cl.[6] A24F *9/10*

U.S. Cl. 131—243 **19 Claims**



1. In combination a money clip device and cutter mechanism, comprising:

a housing having an opening therethrough and said housing including a first connector member;

a cutting blade supported in said housing, said cutting blade movable in said housing for cutting an article in said opening; and

a spring clip having a second connector member adapted to mate with said first connector member and said spring clip pivotally attached to said housing.

5,722,431

METHOD AND PLANT FOR TREATING TOBACCO LEAVES FOR THE PRODUCTION OF CUT TOBACCO

Wolfgang Metzner, Hamburg; Bernd Spallek, Syke, and Arno Weiss, Norderstedt, all of Germany, assignors to British-American Tobacco, Hamburg, Germany

Filed Nov. 18, 1996, Ser. No. 751,481

Claims priority, application Germany, Nov. 20, 1995, 195 43 262.2; European Pat. Off., Sep. 26, 1996, 96115458

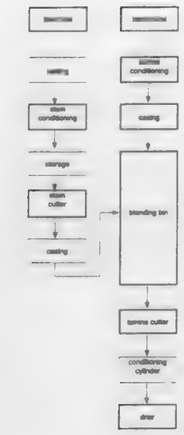
Int. Cl.[6] A24B *5/00*

U.S. Cl. 131—290 **25 Claims**

1. A method of treating tobacco leaves for the production of cut tobacco for smokable articles, wherein

a) non-rolled stems are conditioned and precut separately from the lamina material,

b) lamina material is conditioned separately from the stems,



c) stems and lamina material are subsequently blended and then

d) lamina material and stems are cut and dried jointly.

5,722,432

SMOKING ARTICLES

John Anthony Luke, and Philip John Kinnard, both of Southampton, England, assignors to British-American Tobacco Company Limited, Middlesex, England

Continuation-in-part of Ser. No. 245,815, May 18, 1994, Pat. No. 5,433,224, which is a continuation of Ser. No. 826,625, Jan. 28, 1992, abandoned. This application Jul. 13, 1995, Ser. No. 502,286

Claims priority, application United Kingdom, Jul. 2, 1990, 9102658

Int. Cl.[6] A24D *1/10;1/12;1/16;* **A24B** *1/04*

U.S. Cl. 131—349 **11 Claims**



1. A smoking article comprising a rod of combustible tobacco material wrapped in a wrapper;

said rod having (i) first and further smoking portions disposed successively laterally spaced apart adjacent and between first and further fuse portions; and (ii) first and further fuse portions disposed successively adjacent and between the first and further smoking portions;

the smoking portions being comprised of tobacco material and being sized to burn for the duration of a puff of a smoker;

the fuse portions being comprised of non-tobacco material and being sized to burn for the duration between the puffs of a smoker; and

each of the fuse portions being capable of re-igniting a smoking portion laterally spaced from the previous smoking portion when a smoker draws upon the article in a puff.

5,722,433

WATER-DISPERSIBLE SHEET FOR CIGARETTES AND CIGARETTE USING THE SAME

Yoshiaki Ishino, Fuji; Masato Shishikura, Numazu; Toru Tsujimoto, and Susumu Minamisawa, both of Tokyo, all of Japan, assignors to Mishima Paper Co., Ltd., Shizuoka-Ken, and Japan Tobacco Inc., Tokyo, both of Japan

Filed Jul. 30, 1996, Ser. No. 689,041

Claims priority, application Japan, Aug. 9, 1995, 7-222779

Int. Cl.[6] A24D *3/02*

U.S. Cl. 131—365 **13 Claims**

1. A water-dispersible sheet for cigarettes, which comprises

(1) a water-resolvable base paper made from fibrous raw materials containing not less than 20% by weight of water-dispersible fibers having fiber dimensions of a l/D value of 0.45 or lower and a L/D value of 60 or lower and a water-retention value of 95% or lower, and

(2) a water-dispersible coating layer containing water-soluble polymer formed on the surface of at least one side of said base paper, whereby

said sheet is adjusted to have an air-permeability of not more than 200 coresta measured with a paper permeability meter, or to have an air-resistance within the range of 0 to 50000 second/100 ml measured with an Oken type air-resistance tester.

5,722,434

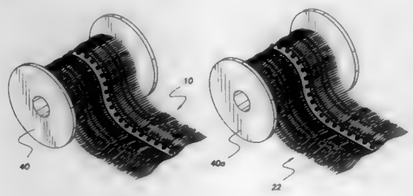
HAIR ENHANCEMENT SYSTEM

Janice M. Walker, 11807 James Dr., Balch Springs, Tex. 75180

Filed Apr. 26, 1996, Ser. No. 639,982

Int. Cl.[6] A41G *3/00;5/00*

U.S. Cl. 132—53 **5 Claims**



1. A hair enhancement system comprising:

a female portion having a first flexible fabric strip having a first plurality of female snap fastener halves secured to and evenly spaced a first spacing distance along a first side surface thereof;

a male portion having a second flexible fabric strip having a second plurality of male snap fastener halves that are mateably with said female snap fastener halves of said female portion secured to and evenly spaced by said first spacing distance along a second side surface thereof;

a first hair enhancement weft including a third plurality of flexible enhancement hair strands secured to and extending from a side edge of one of said female and male portions along a first length thereof;

a first spool member; and

a second spool member;

said female portion being wound upon said first spool member, said male portion being wound upon said second spool member.

5,722,435

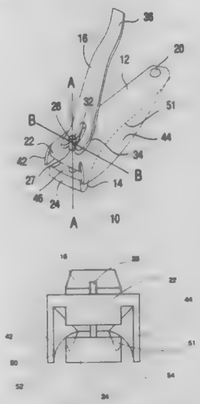
NAIL CLIPPER FOR CLIPPING AND DIRECTING THE DISCHARGE OF CLIPPED NAILS

David G. Harris, 102 Sellers La., Port Matilda, Pa. 16870

Filed Feb. 19, 1997, Ser. No. 802,587

Int. Cl.[6] A45D *29/02*

U.S. Cl. 132—75.5 **1 Claim**



1. A nail clipper and a discharge directing means for cutting nails and directing their discharge comprising upper and lower elongated members, each having first and second ends, said upper and lower elongated members being joined together at said first end such that said second ends oppose one another in spaced apart relationship, at least one of the second ends being movable toward the other;

a cuttings means at said second end of at least one of said upper and lower elongated members for cutting a nail when said second ends of said upper and lower elongated members are brought into contact with the nail;

said discharge directing means comprising: sides integrally formed or attached to said upper elongated member making said upper elongated member and sides generally "U-shaped"; said lower elongated member and said sides of said upper elongated member so formed and operationally located that when the upper and lower members' second ends are in contact with one another clipped nails cannot exit the nail clipper in a horizontal or upward direction; an opening between said lower elongated member and said sides of said upper elongated member through which clipped nails may pass out of the nail clipper in a downward direction when the upper and lower members' second ends are in contact with one another,

whereby nails may be clipped and the discharge of clipped nails controllably directed downward.

5,722,436

APPLICATOR ASSEMBLY FOR A COSMETIC PRODUCT, SUCH AS MASCARA, AND CORRESPONDING APPLICATOR

Michel Vandromme, Le Plessis-Brion, and Charles Pileur, Noyon, both of France, assignors to Sanofi, Paris, France

PCT No. PCT/FR95/01164, § 371 Date Jul. 12, 1996, § 102(e) Date Jul. 12, 1996, PCT Pub. No. WO96/08180, PCT Pub. Date Mar. 21, 1996

PCT Filed Sep. 11, 1995, Ser. No. 633,780

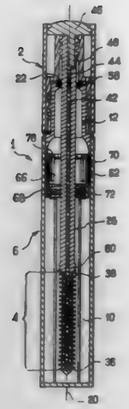
Claims priority, application France, Sep. 12, 1994, 94 10866

Int. Cl.[6] A45D *40/26*

U.S. Cl. 132—218 **22 Claims**

1. Applicator for a cosmetic product, the applicator having an axis and comprising:

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at least one axial rod;

a structure for the application of the product, which structure is carried by the rod and comprises adjacent surfaces for the application of the product;

manoeuvring means for adjusting the axial spacing between the application surfaces in order to optimise the action of the applicator and the amount of product to be applied, wherein the application structure also comprises:

at least one first member defining the surfaces for applying the product and, connected thereto,

at least one second, resiliently deformable member for adjusting the axial spacing of the surfaces from one another, under the action of the manoeuvring means.

5,722,437

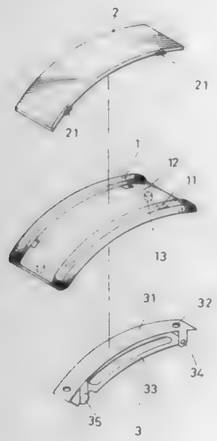
HAIR CLIP

Wen-Hsiung Chang, No. 45, Huan Kung Road, Yung-Kang Shih, Tainan Hsien, Taiwan

Filed Dec. 3, 1996, Ser. No. 754,038

Int. Cl.[6] A45D *8/26*

U.S. Cl. 132—275 **2 Claims**



1. A hair clip comprising:

a metal clip having a curved plate with a plurality of post holes respectively bored in two opposite ends, a plate spring located below said curved plate and having one end secured in a position hole respectively in two side walls projecting down from one end of said curved plate and the other end releasably pinched between two side walls projecting down from the other end of said curved plate;

a body of a proper shape, having a plurality of position holes, a shallow recess provided on an upper surface, and a plurality of short posts extending down from a lower surface;

plural decorative plates of different colors and designs respectively having a plurality of projections extending out from two opposite longitudinal sides to fit in said position holes of said body; and

said metal clip combined with said body by means of said posts of said body engaging with said post holes of said metal clip, said decorative plates being combined with said body in said shallow recess and secured with said projections being pressed to firmly engage with said position holes to become a hair clip said decorative plates being changeable so as to allow said hair clip to have a different decorative plates at one time.

5,722,438

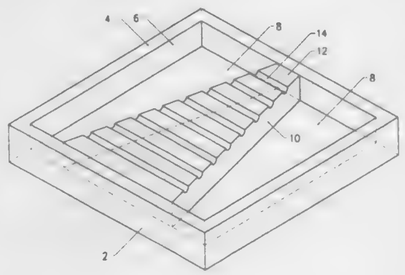
CIGAR-CIGARETTE ASHTRAY AND CIGAR-CIGARETTE HOLDING STRUCTURE

Don Gors, 6015 N. Ridge Ave., Chicago, Ill. 60660-2328

Filed Feb. 15, 1996, Ser. No. 602,120

Int. Cl.[6] A24F *19/00*

U.S. Cl. 131—231 **5 Claims**



1. An ashtray for receiving and retaining an elongated burning-smoking-article as it burns down, the ashtray comprising:

a) a body having a perimeter wall with an outer surface, an inner surface, and a bottom;

b) said body having at least one ashtray receptacle defined therein for receiving and retaining the burned remains of the burning-smoking-article;

c) a smoking-article-holding structure having a top surface and at least one side wall, said smoking-article-holding structure cooperating with the perimeter wall to define said at least one ashtray receptacle;

d) at least four smoking-article-holding grooves formed in the top surface of the smoking-article-holding structure in generally parallel relationship, said grooves adapted to receive and retain the burning-smoking-article in a substantially horizontal position in order to maintain a radially-even burn on the burning-smoking-article, said grooves each having a different longitudinal length in order to support and balance a substantial portion of the continuously-decreasing longitudinal length of the burning-smoking-article, so as to provide support for the burning-smoking article as it burns down.

5,722,439

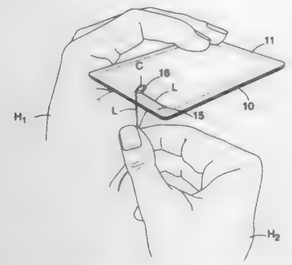
DENTAL FLOSS DISPENSER ON CARD FORMAT

Robert A. Endelson, 41 Yates Ave., Atlantic Beach, N.Y. 11509

Filed Feb. 26, 1996, Ser. No. 607,113

Int. Cl.[6] A61C *15/00*

U.S. Cl. 132—321 **13 Claims**



1. A dental floss dispenser in a card format comprising:

A. a base panel having a shallow well surrounded by a peripheral ridge;

B. a face panel superposed on the base panel and bonded to the ridge, said face panel having adjacent the front end an aperture and a miniature cutting blade; and

C. a supply of dental floss nested in said well, said supply being constituted by an unsupported flattened helical coil which is wound of a floss filament whose starting end is at the front of the coil, and is bonded to an adjacent convolution to prevent unravelling of the coil, the filament when reaching the rear of the coil then passing internally through the coil to emerge from the front of the coil as a pull out lead which is threaded through said aperture so that a length thereof may be withdrawn for use and cut off by the cutting blade, said well having a bed coated with a layer of pressure-sensitive adhesive which makes contact with the convolutions of the flattened coil nested in the well to maintain the position and integrity of the coil, the convolutions being released from the adhesive layer when the lead of the coil is pulled.

5,722,440

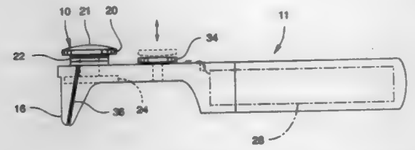
BITE DEVICE FOR DRIVING FLOSS THROUGH TIGHT INTERDENTAL GAPS

Charles L. Urso, Waltham, Mass., assignor to DynaProducts, Inc., Nashua, N.H.

Filed Mar. 25, 1996, Ser. No. 621,239

Int. Cl.[6] A61C *15/04*

U.S. Cl. 132—323 **21 Claims**



1. A bite device and dental flosser having a fork with spaced tines for supporting a floss span therebetween, the bite device and dental flosser comprising a bite member having a bite surface on one side and a stop guard surface on an opposite side, the bite member being movably supported between the tines to allow a fixed amount of up and down movement of the bite member and the fork relative to each other such that a user biting on the bite surface causes the bite member to force the fork to drive the floss span through a tight interdental gap, wherein the bite member is positioned relative to the fork such that when a user biting on the member forces the floss span through an interdental gap the stop guard surface engages a user tooth adjacent the floss span to prevent over-travel of the span thereby preventing floss impact against user gums.

5,722,441

ELECTRONIC DEVICE PROCESS APPARATUS

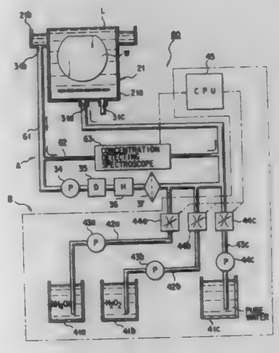
Masashi Teramoto, Tokyo, Japan, assignor to Tokyo Electron Limited, and Tokyo Electron FE Limited, both of Tokyo, Japan

Continuation of Ser. No. 199,573, Feb. 22, 1994, abandoned. This application Nov. 19, 1996, Ser. No. 753,032

Claims priority, application Japan, Feb. 22, 1993, 5-056424

Int. Cl.[6] B08B *3/02*

U.S. Cl. 134—56 R **40 Claims**



1. A process apparatus comprising:

a process vessel which contains a process solution, said process solution including a volatile component and being used for processing a substrate which is immersed in the process vessel;

supply means for supplying a contained component of the process solution to the process vessel;

a circulating passage for extracting a part of the process solution from said process vessel, and returning it to said process vessel;

a filter disposed in said circulating passage;

adjusting means for adjusting an amount of said contained component supplied from said supplying means to said process vessel;

control means for controlling said adjusting means;

a bypass which branches from said circulating passage, at a location upstream of said filter such that said bypass bypasses said filter; and

concentration detection means disposed in said bypass for detecting the concentration of said contained component in said process solution.

5,722,442

ON-SITE GENERATION OF ULTRA-HIGH-PURITY BUFFERED-HF FOR SEMICONDUCTOR PROCESSING

Joe G. Hoffman, Cardiff, and R. Scot Clark, Fallbrook, both of Calif., assignors to Startec Ventures, Inc., Fallbrook, Calif.

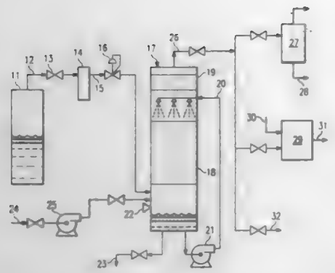
Continuation-in-part of Ser. No. 610,261, Mar. 4, 1996, and a continuation of Ser. No. 179,001, Jan. 7, 1994, Pat. No. 5,496,778. This application Jul. 1, 1996, Ser. No. 674,130

Int. Cl.[6] B08B *3/10*

U.S. Cl. 134—102.1 **5 Claims**

1. An on-site subsystem, in a semiconductor device fabrication facility, for providing ultra-high-purity buffered ammonium fluoride or hydrofluoric acid to a semiconductor manufacturing operation, comprising:

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a first evaporation source connected to receive an HF source and to provide a flow of HF vapor therefrom;

a second evaporation source connected to receive a liquid source of ammonia and to provide a flow of ammonia vapor therefrom;

said flow of HF vapor being connected to pass through a first ionic purifier unit which provides a recirculating volume of high-purity water, containing a high concentration of HF, in contact with said flow of HF vapor, wherein said first purifier passes purified HF gas; and

said flow of ammonia vapor being connected to pass through a second ionic purifier unit which provides a recirculating volume of high-purity water, containing a high concentration of ammonium hydroxide, in contact with said flow of ammonia vapor, wherein said second purifier passes purified ammonia gas;

a first generator unit, connected to receive said flow of HF gas from said first purifier and to combine said HF gas with high-purity acidic deionized water to produce ultra-pure hydrofluoric acid, said first generator unit also passing a top stream of impure HF gas contaminated with light impurities;

said ultra-pure hydrofluoric acid and said flow of ammonia vapor being connected to pass into a second generator, which combines said ammonia vapor into said ultra-pure hydrofluoric acid to produce an aqueous solution of ultra-pure buffered hydrofluoric acid of controlled concentration; and

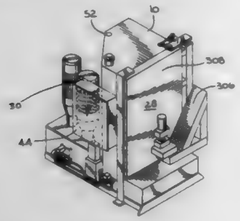
a piping connection which routes said aqueous solution to points of use in the semiconductor device fabrication facility.

5,722,443

PARTS WASHER CABINET SEALING SYSTEM

Ted Marler, Bridgeton, and Marc Treppler, St. Louis, both of Mo., assignors to The Mart Corporation, Maryland Heights, Mo.

Filed Aug. 30, 1994, Ser. No. 298,452
Int. Cl.[6] B08B *15/00*
U.S. Cl. 134—114 **19 Claims**



1. A parts washer comprising:

a cabinet defining an interior space;

means for entraining at least one of a liquid and vapor in said interior space;

an opening defined by the cabinet for accessing the interior space from externally of the cabinet;

a closure element having a top edge, a bottom edge and laterally spaced sides;

means for mounting the closure element to the cabinet for movement selectively between

a) an open position wherein the interior space can be accessed through the cabinet opening and

b) a closed position; and

first means cooperating between the closure element and cabinet for defining a controlled flow path for at least one of a liquid and vapor in the interior space,

said controlled flow path configured so that at least one of liquid and vapor in the interior space is caused to change directions as it traverses the controlled flow path.

said controlled flow path having a first section substantially adjacent to the top edge of the closure element and a second section substantially adjacent to the bottom edge of the closure element;

the first section in fluid communication with the second section to direct liquid accumulated in the first section by gravity into the second section,

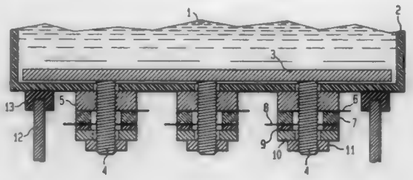
the second section having means for accumulating liquid from the first section to create a liquid seal between the closure element and the cabinet over a substantial portion of the second section between the sides of the closure element.

5,722,444

RIGID ULTRASONIC RADIATION PLATE ASSEMBLY SYSTEMS FOR ULTRASONIC CLEANING TANKS

Alex V. Prokopenko, and Robert B. Gulay, both of Hamilton, N.J., assignors to Trident Technologies Unlimited, Inc., Hamilton, N.J.

Filed Mar. 26, 1996, Ser. No. 621,649
Int. Cl.[6] B08B *3/10*
U.S. Cl. 134—184 **20 Claims**



1. An ultrasonic washing apparatus, comprising:

a) a plastic tank having sides and a bottom for containing a cleaning liquid, said tank bottom having a plurality of openings;

b) a generally rigid plate that overlays substantially the entire tank bottom, for assisting in providing structural support to said tank, the rigid plate having a plurality of studs extending from one side thereof, said studs being positioned to align with said openings in the bottom of the tank, the studs passing therethrough when said plate is placed on the bottom of the tank;

c) means for imparting an ultrasonic oscillation to said plate by communicating with at least one of said plurality of studs; and

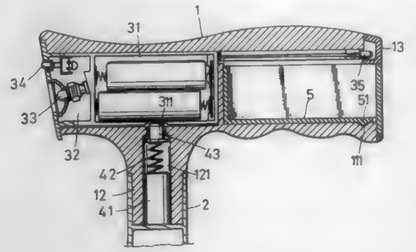
d) means for securing said oscillation imparting means to said plate and tank.

5,722,445

MULTIPURPOSE CANE

Shyu Shing Hae, 9F, No. 15, Lane 51, Min Chuan St., Jwu Nan, Miaoli, and William Du, No. 57-7, Alley 90, Sanguang Lane, Lin 22, Peishing Li, Peitun District, Taichung, both of Taiwan

Filed Apr. 2, 1997, Ser. No. 829,872
Int. Cl.[6] A45B *3/00*
U.S. Cl. 135—65 **4 Claims**



1. An improved multipurpose cane comprising a handle and a stick attached to the root portion of said handle, said handle being integrally configured defining a receiving chamber extending horizontally and longitudinally therein, the left half portion of said receiving space being provided with an electrical components sets, said electrical components set including a battery cell, a printed circuit board, a lamp, a push button switch, and a warning light disposed at the tail portion of said receiving space;

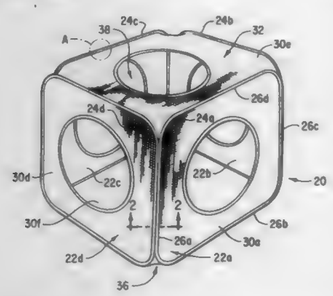
the bottom portion of said battery cell being provided with a recess corresponding to said root portion of said handle, said root portion of said handle defining vertically an inner chamber having a clipping element thereof, said clipping element including a biasing post, a compression spring and a cap button, the top of said cap button being projected into said receiving chamber and being received into said recess, wherein by this arrangement, said electrical components set can be readily and removably snapped into the handle via this mechanical engagement.

5,722,446

COLLAPSIBLE STRUCTURES

Yu Zheng, Covinn, Calif., assignor to Patent Category Corp., Monrovia, Calif.

Filed Jan. 2, 1997, Ser. No. 778,878
Int. Cl.[6] E04H *15/40*
U.S. Cl. 135—125 **30 Claims**



1. A collapsible structure adapted to be supported on a surface and comprising:

at least three foldable frame members, each having a folded and an unfolded orientation;

a fabric material substantially covering each frame member to form a panel for each frame member when the frame member is in the unfolded orientation, the fabric assuming the unfolded orientation of its associated frame member;

a top fabric connected to the panels and extending therebetween, the top fabric comprising a first opening;

wherein the structure includes a front panel and two side panels, the front panel having a first opening; and

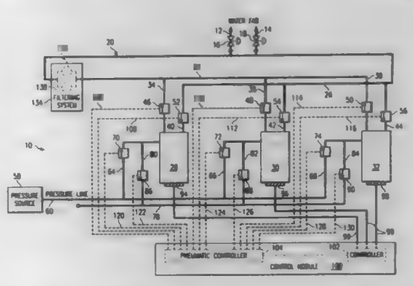
means for coupling the first opening of the top fabric with the first opening of the front panel.

5,722,447

CONTINUOUS RECIRCULATION FLUID DELIVERY SYSTEM AND METHOD

Vernon E. Morgan, Dallas, and Carl D. Reedy, Plano, both of Tex., assignors to Texas Instruments Incorporated, Dallas, Tex.

Filed Apr. 29, 1994, Ser. No. 235,725
Int. Cl.[6] B67D *5/00*
U.S. Cl. 137—1 **20 Claims**



9. A method supplying a fluid having a selected chemical concentration comprising the steps of:

providing a first tank for holding at least a portion of the fluid;

providing a second tank for holding at least a portion of the fluid;

providing a third tank for holding at least a portion of the fluid;

providing a pipeline network fluidly coupled to the first tank, the second tank, and the third tank, and having a feeding portion and a return portion;

coupling a chemical supply line to the pipeline network for supplying the chemical upon demand to an end user;

coupling a first plurality of valves to the first, second, and third tanks to selectively control the flow of the chemical from the tanks into the feeding portion of the pipeline network;

coupling a second plurality of valves to the first, second, and third tanks to selectively control the flow of the chemical from the return portion of the pipeline network into the first, second, and third tanks;

coupling a control module to the first and second plurality of valves for selectively controlling the opening and closing of each valve;

coupling a plurality of sensors to the first, second, and third tanks and coupled to the control module for allowing the control module to sense the amount of chemical in each tank;

coupling a pressure source to the first tank, second tank, and third tank;

coupling a third plurality of valves to the first, second, and third tanks, and coupled to the pressure source, each valve of the third plurality of valves also coupled to the control module for selectively allowing the tank coupled to the valve to be exposed to the pressure source;

coupling a fourth plurality of valves to the first, second, and third tanks, each of the valves of the fourth plurality of valves coupled to the control module for selectively allowing the tank coupled thereto to be exposed to a pressure less than the pressure source; and

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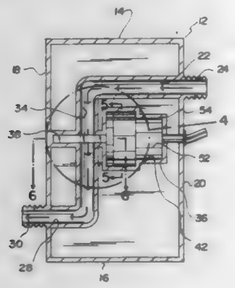
circulating the chemical to supply the chemical to the chemical supply line at all times by opening and closing the first, second, third, and fourth plurality of valves to provide a continuous, bumpless flow of chemical through the pipeline network.

5,722,448

GAS LINE AUTOMATIC CUT OFF VALVE

Mizael F. Dourado, 26 Searing Ave. #1, Harrison, N.J. 07029

Filed Aug. 8, 1996, Ser. No. 689,486
Int. Cl.[6] F16K *17/36*
U.S. Cl. 137—78.4 3 Claims



1. A new and improved gas line automatic cut off valve comprising, in combination:

a gas valve housing with a rectangular configuration having a top face, a bottom face, a front face, a rear face, and a pair of side faces formed therebetween defining an interior space, the gas valve housing including an entry conduit with a horizontal orientation having a first end situated on the rear face of the housing adjacent the top face thereof with a threaded protrusion extending outwardly from the rear face for allowing coupling with a standard gas line outlet and a second end situated within the interior space adjacent the front face of the housing; an egress conduit having a first end situated on the front face of the housing adjacent the bottom face thereof with a threaded protrusion extending outwardly from the front face for allowing coupling with a standard gas powered appliance and a second end situated within the interior space adjacent the front face of the housing; a valve conduit with a vertical orientation formed in communication with both the second end of the entry conduit and the second end of the egress conduit; and a valve encasing situated with the interior space of the housing including a rectangular slot with a horizontal orientation formed through the valve conduit midway between the entry conduit and the egress conduit with the rectangular slot having a first closed end adjacent the front face and a second open end defined by a periphery of the valve conduit, a flange encasing with a cylindrical configuration having first circular face formed adjacent the valve conduit in communication with the rectangular slot and second open circular face situated opposite the first circular face, and a solenoid encasing with a cylindrical configuration having a first open circular face formed in communication with the second circular face of the flange encasing and a second closed circular face situated opposite the first circular face;

a valve including a horizontally orientated member slidably situated within the rectangular slot of the valve encasing, the horizontally orientated member having an aperture formed therein with a first orientation with the aperture of the horizontally orientated member inserted within the slot for positioning the aperture in alignment with the valve conduit thus allowing gas to flow between the entry conduit and the egress conduit and a second orientation for situating the aperture of the horizontally orientated member within the flange encasing for precluding gas from flowing between the entry conduit and egress conduit, a circular flange integrally formed perpendicular with respect to the horizontally orientated member and adapted to slide within the flange encasing thus allowing the positioning of the horizontally orientated member in the first orientation and second orientation thereof while precluding gas from escaping the rectangular slot and flange encasing, and a solenoid situated within the solenoid encasing having an associated transducer coupled to the flange having a first unbiased orientation upon the lack of receipt of an activation signal with the transducer forcing the horizontally orientated member in the first orientation thereof and having a second biased orientation only upon the receipt of an activation signal with the transducer forcing the horizontally orientated member in the second orientation thereof; and

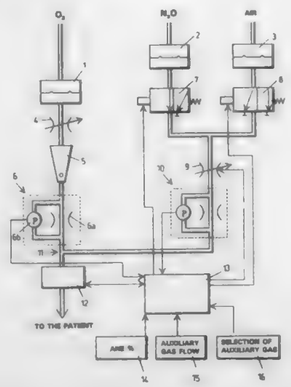
a gas and smoke detector with a top face, a bottom face, and a periphery formed therebetween, the gas and smoke detector situated above the standard gas powered appliance and electrically connected to the solenoid of the valve, the gas and smoke detector adapted to continuously transmit an activation signal upon the detection of smoke and further transmit an activation signal upon the detection of gas, the gas and smoke detector further adapted to cease the transmission of the activation signal only upon the depression of a reset button situated on the bottom face thereof.

5,722,449

ARRANGEMENT IN CONNECTION WITH A GAS MIXER

Erkki Heinonen, and Markku Paloheimo, both of Helsinki, Finland, assignors to Instrumentarium Oy, Helsinki, Finland

Continuation of Ser. No. 432,057, May 1, 1995, abandoned.
This application Jun. 3, 1997, Ser. No. 868,469
Claims priority, application Finland, May 6, 1994, 942119
Int. Cl.[6] A61M *16/10;* G05D *11/13*
U.S. Cl. 137—101.19 18 Claims



1. Apparatus for forming a breathing gas for a patient comprised of a mixture of oxygen and at least one other gas, said apparatus maintaining the oxygen content in the breathing gas at at least a desired minimum content, said apparatus comprising:

an oxygen supply conduit through which the oxygen flows;

a gas supply conduit means through which the other gas flows, said oxygen supply conduit and said gas supply conduit means being joined at a junction (**11**) from which the breathing gas mixture is discharged through an outlet conduit for supply to the patient;

mechanically operated flow regulating means in said oxygen supply conduit upstream of said junction, said means comprising a variable throttle valve means (**4**) for varying the flow rate of oxygen in said oxygen supply conduit through a range of flow rates and for establishing a given flow rate of oxygen in said oxygen supply conduit within said range to flow a desired quantity of oxygen per unit time through said oxygen supply conduit;

first flow measuring means (**6**) in said oxygen supply conduit upstream of said junction for ascertaining the amount of oxygen flowing said oxygen supply conduit and for providing an output in accordance therewith;

second flow measuring means (**10**) for ascertaining a gas flow amount in one of said gas supply conduit means and said outlet conduit and for providing an output in accordance therewith;

electrically operated flow regulating means (**9**) in said gas supply conduit means upstream of said junction for regulating the flow rate of the other gas flowing in said gas supply conduit means;

signal means (**15**) for providing a control signal indicative of the amount of other gas to be mixed with oxygen to form a breathing gas having not less than the desired minimum oxygen content; and

an electronic control circuit (**13**) having inputs coupled to said first and second flow measuring means (**6**, **10**) and to said signal means (**15**), said electronic control circuit having an output coupled to said electrically operabled flow regulating means (**9**), said electronic control circuit being responsive to the output of said signal means and the output of said first flow measuring means for determining a flow rate for the other gas flowing in said gas supply conduit means commensurate with the given flow rate of oxygen in said oxygen supply conduit established by said mechanically operable flow regulating means and that will establish at least the desired minimum oxygen content in the breathing gas, said electronic control circuit ascertaining differences between said determined flow rate of the other gas and the actual flow rate of the other gas provided by said second flow measuring means (**10**) and providing an output to said electrically operable flow regulating means (**9**) for altering the flow of the other gas in said gas supply conduit means to that which provides not less than the desired minimum oxygen content in the breathing gas discharged from said junction, said electronic control circuit operating said electrically operable flow regulating means (**9**) to vary the flow rate of the other gas as the given flow rate of oxygen is varied, thereby to maintain oxygen in the breathing gas at not less than the desired, minimum content as the given flow rate of oxygen is varied.

5,722,450

TAMPER RESISTANT CONSTRUCTION FOR HYDRANT

Bradley J. Julicher, Williamsville, N.Y., assignor to McGard, Inc., Orchard Park, N.Y.

Continuation-in-part of Ser. No. 652,633, Jun. 7, 1996, Pat. No. 5,632,301. This application Mar. 20, 1997, Ser. No. 822,396
Int. Cl.[6] F16K *35/06;* E03B *9/06*
U.S. Cl. 137—296 33 Claims

1. A tamper resistant construction for a fire hydrant comprising a hydrant nut actuating body having first and second end portions, a shroud rotatably mounted on and removable from said first end portion of said hydrant nut actuating body, a cap rotatably mounted on said second end portion of said hydrant nut actuating body, a wrench-receiving portion on said hydrant nut actuating body, and a spring biasing said cap over said wrench-receiving portion.

5,722,451

DEVICE FOR BLEEDING OR DRAINING A DUCT

Denis Godeau, Vieilles Maisons, and Anthony Garcia, Villemandeur, both of France, assignors to Hutchinson, Paris, France

Filed Nov. 22, 1995, Ser. No. 562,110
Claims priority, application France, Dec. 2, 1994, 94 14524
Int. Cl.[6] F16K *31/50;31/528;43/00*
U.S. Cl. 137—315 13 Claims

1. A device for closing a passage that opens into a duct for draining thereof, the device comprising a movable closure member mounted in the passage, said closure member comprising a body substantially defined by at least two parallel branches extending in the passage wherein said branches are radially elastic, said body and at least one of said branches include at least one helical peripheral groove and said passage comprises sealing means cooperating with the body of the closure member and at least one helical rib projecting from an inside surface of the passage and co-operating with the helical groove defined by at least a portion of said at least one of said branches so that the closure member can be mounted and sealed in the passage by rotation, and also mounted and sealed in the passage by translation and resilient snap-fastening.

5,722,452

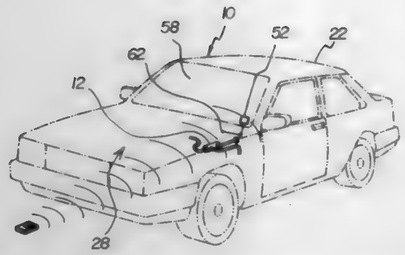
DISGUISED FUEL CUT-OFF THEFT PREVENTION DEVICE

Dolores H. Gilmore, 416 Kingscourt Dr. Apt. 111, Waterloo, Ontario, Canada, N2K 3N6

Filed Aug. 27, 1996, Ser. No. 703,135
Int. Cl.[6] B60R *25/00*
U.S. Cl. 137—354 5 Claims

5. A valve container resembling a fuel pump adapted to contain a valve for selectively precluding the supply of fuel to an engine of

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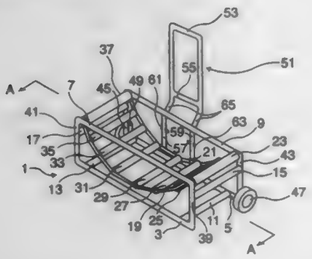
a vehicle comprising a front face, a rear face, and a periphery formed therebetween thus defining an interior space, the valve container having a first threaded aperture formed on the periphery adjacent the front face thereof for allowing coupling with a pipe connected to a fuel pump of a vehicle, a second threaded aperture formed on the periphery adjacent the rear face thereof, a third threaded aperture formed on the front face for allowing coupling with an engine of the vehicle via another pipe, and a mounting bracket for allowing coupling of the valve container within an engine compartment of the vehicle.

5,722,453

HOSE BUDDY

Robert William Huxhold, 2404 Chandler Rd., Bellevue, Nebr. 68005

Filed Feb. 12, 1997, Ser. No. 797,052
Int. Cl.[6] B65H *75/38*
U.S. Cl. 137—355.28 **7 Claims**



1. An apparatus for transporting and loading hose comprising:

an opened frame structure having interconnected elongated frame members including two opposite spaced arcuate shaped members which form an opened upper cradle, said frame having front and rear members;

a plurality of spaced rollers disposed between said arcuate shaped frame members and extending there between and mounted thereon and adapted to engage and receive a rolled hose for transporting;

an upright handle assembly attached to said frame to one or more rear members; and

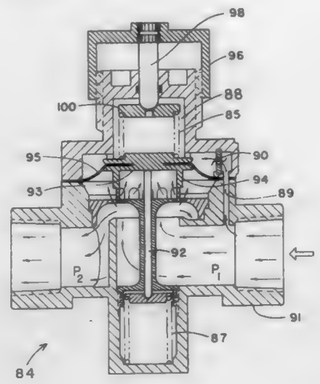
rotatable ground engaging members attached to at the frame's lower rear structure, excluding any of the arcuate shaped members, said ground engaging members being adapted to permit the frame and rollers to be moved along the ground.

5,722,454

FLUID FLOW FUSE

Robert P. Smith, Lake Forest, and Hubert Q. Stedman, Santa Ana, both of Calif., assignors to Q-Fuse LLC, Newport Beach, Calif.

Filed Mar. 12, 1996, Ser. No. 615,156
Int. Cl.[6] F16K *31/12*
U.S. Cl. 137—503 **3 Claims**



1. A water flow fuse for automatically shutting off an excessive rate of flow of water in a system, comprising:

a valve body having a water inlet passage and a water outlet passage fluidly connected by a valve seat opening;

a pressure measuring passageway formed in said valve body and connected between said water inlet passage and a pressure sensing chamber;

at least one restricted orifice formed in said pressure measuring passageway:

a combination poppet and sleeve valve member connected to a diaphragm movable between a normally open position and a closed position against said valve seat opening; said combination poppet and sleeve valve member including a cylindrical, hollow element having two ends with a closed top formed at a first of said two ends and a plurality of openings formed at a second of said two ends;

said diaphragm sealingly connected between said valve body and said top closed portion of said combination poppet and sleeve valve member, downstream of said valve seat, toward said water outlet passage, so that a lower area of said diaphragm is subject to varying pressures adjacent said water outlet passage and a separate upper area of said diaphragm forms a portion of said pressure sensing chamber;

a fluid chamber downstream of the valve seat opening and surrounding the cylindrical, hollow element, defined by the lower area of said diaphragm and an annular projection extending inwardly from the valve body;

a pair of springs cooperating with said combination poppet and sleeve valve member; and said combination poppet and sleeve valve member and said pair of springs being sized and dimensioned so that when a predetermined pressure differential is sensed said combination poppet and sleeve valve member is moved from a full open position toward a closed position; and whereby in said full open position said plurality of openings formed at said second of said two ends communicates between a volume of water within said cylindrical, hollow element and an annular volume of water within said fluid chamber; and when in a partially closed position said plurality of openings formed at said second of said two ends communicates upstream water pressure with downstream water pressure, while isolating said annular volume of water within said fluid chamber, thereby slowing travel of said combination poppet and sleeve valve member toward said valve seat; and said combination poppet and sleeve valve member is finally moved to said fully closed position, against said valve seat, without causing water hammer; and

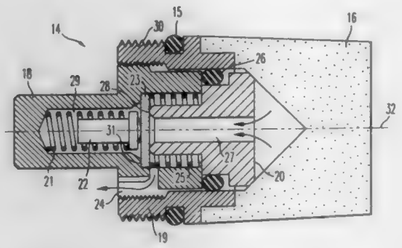
means in said combination poppet and sleeve valve member loosely cooperating with said valve seat in said fully closed position so as to allow some leakage of water by said combination poppet and sleeve valve member, to enable said combination poppet and sleeve valve member to automatically reset itself to said normally open position when pressure applied thereto has been relieved.

5,722,455

NOZZLE CLOSING VALVE, AS WELL AS PRESSURE ATOMIZER NOZZLE HAVING SUCH A NOZZLE CLOSING VALVE

Marcel Caminada, Niederglatt, Switzerland, assignor to Satronic AG, Dielsdorf, Switzerland

Filed Apr. 30, 1996, Ser. No. 641,357
Int. Cl.[6] F16K *15/00*
U.S. Cl. 137—536 **19 Claims**



1. A nozzle closing valve for a pressure atomizer nozzle comprising:

an inlet side with a central inlet port and a valve seat located at an end of the inlet port; and

a closing member, which is sealingly pressed onto the valve seat by a first spring located behind the closing member and is raised from the valve seat counter to a tension of the first spring when a predetermined pressure is reached in the inlet port;

wherein the closing member is constructed as a diaphragm, the first spring has a substantially linear spring characteristic and the first spring is housed in a spring chamber, constructed as a space open at one side and whose only opening is sealingly closed by the diaphragm.

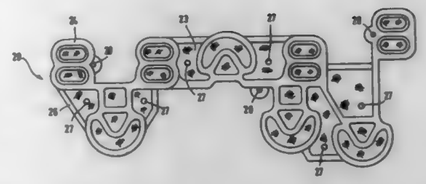
5,722,456

HYDRAULIC UNIT

Steffen Schumacher, Renningen, and Kurt Gensheimer, Bad Liebenzell, both of Germany, assignors to Robert Bosch GmbH, Stuttgart, Germany

Filed Aug. 21, 1996, Ser. No. 701,079
Claims priority, application Germany, Aug. 22, 1995, 195 30 748.8; Jul. 24, 1996, 196 29 873.3
Int. Cl.[6] F16K *27/00*
U.S. Cl. 137—550 **17 Claims**

1. A hydraulic unit, comprising a supporting plate provided with supply, return, and discharge passages; at least one electromagnetic regulator inserted in said supporting plate and controlling said passages; at least one sealing element provided with strands, said supporting plate having an end surface at which said passages open, said strands being arranged at said end surface; a flexible, filtering fabric, said strands of said sealing element extending at least along an outer contour of said fabric and having at least one branching, said strands extending at both sides of said filtering fabric and having at least one region through which a pressure medium flows and at least one region through which the pressure medium does not flow.

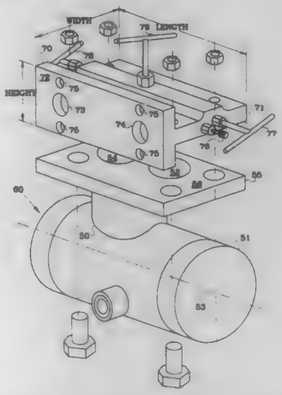


5,722,457

INTEGRATED MANIFOLD FOR COPLANAR PRESSURE TRANSMITTER

Douglas W. Wilda, 2100 Grant Mews, Ambler, Pa. 19002, and Charles E. Lane, III, 766 Moredon Rd., Meadowbrook, Pa. 19046

Filed Oct. 23, 1995, Ser. No. 546,849
Int. Cl.[6] F16K *11/20*
U.S. Cl. 137—597 **4 Claims**



1. A manifold for mounting a transmitter to a pipeline, said pipeline having fluid flowing therein, said pipeline further having a first and second process pipe to couple said fluid to said transmitter, said manifold comprising:

a) a body of rectangular-like shape having a height, length and width having a first surface formed by the plane of the width and length and having a second surface at right angles to said first surface formed by the plane of the length and height, and further wherein the second surface includes a first and second input port, and the first surface includes corresponding first and second output ports, the body including a first and second channel internal to the body such that fluid from the first process pipe is conducted from the first input port to the first output port and fluid from the second process pipe is conducted from the second input port to the second output port, the body further including an internal crossover channel between the first channel and the second channel;

b) a first and second valve, the first valve controlling the flow of fluid in the first channel and the second valve controlling the flow of fluid in the second channel, the first and second valve being placed between the internal crossover channel and the first and second output port, respectively;

c) a third valve for controlling the flow of fluid in the internal crossover channel; and

d) a vent drain valve, the valve controlling the flow of fluid from the first channel to the outside of the body, the vent drain

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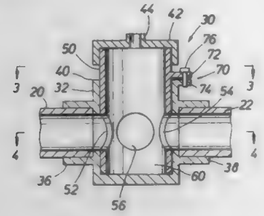
valve being placed in a vent channel, the vent channel being between the first input port and the internal crossover channel, and the outside of the body.

5,722,458

VALVE FOR CLEARING AIR CONDITIONING DRAIN LINES

Andrew M. Potter, 15424 Mound, Hockley, Tex. 77447

Filed Feb. 9, 1996, Ser. No. 599,621
Int. Cl.[6] F16K *11/06*
U.S. Cl. 137—625.47 **4 Claims**



1. A valve assembly for clearing air conditioning system drain lines using pressure or vacuum comprising:

a hollow valve body having an inlet member, a outlet member, an open top portion and a sealed bottom portion defining a tablet treatment chamber;

a hollow, vertically-removable valve plug in spaced relationship within the valve body, said valve plug proximally engaging said valve body and having three apertures, said valve plug rotatable from a first position, to a second position, to a third position wherein the first position permits fluid communication between said inlet and outlet members, the second position permits fluid communication between said inlet member and said open top portion and prevents fluid communication with said outlet member, and the third position permits fluid communication between said outlet member and said open top portion and prevents fluid communication with said inlet member, wherein the inner diameter of the hollow portion of said plug being generally equal to or greater than the inner diameters of said inlet and outlet members;

a removable valve cover for covering said valve plug; and

a positioner for securing said valve plug to said valve body enabling the alignment of said valve plug within said valve body in said first, second and third positions.

5,722,459

PRESSURE CONTROL VALVE OF A HYDRAULIC CONTROL SYSTEM OF AN AUTOMATIC TRANSMISSION

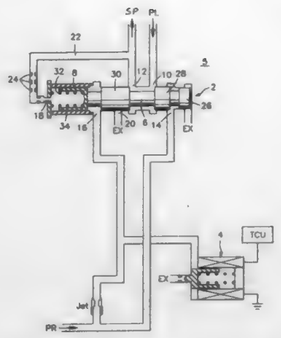
Young Bae Kim, and Jae Duk Jang, both of Kyungki-do, Rep. of Korea, assignors to Hyundai Motor Company, Seoul, Rep. of Korea

Filed May 31, 1996, Ser. No. 656,389
Claims priority, application Rep. of Korea, May 31, 1995, 95/14256
Int. Cl.[6] F15B *13/043*
U.S. Cl. 137—625.64 **6 Claims**

1. A pressure control valve for selectively applying hydraulic line pressure to a friction element in an automatic transmission, comprising:

a valve body;

a valve spool arranged in the valve body for linear movement, said valve spool having a hydraulic reducing pressure applied adjacent one end for exerting a force on the valve spool in a first direction, said hydraulic reducing pressure being less than the hydraulic line pressure, and a duty control pressure



applied adjacent an opposing end for exerting a force on the valve spool in a second direction opposite the first direction, said duty control pressure being selectable between a first hydraulic pressure and a second hydraulic pressure, said first and second hydraulic pressure being less than the hydraulic reducing pressure, and said first hydraulic pressure being less than said second hydraulic pressure;

a plug positioned at said opposing end of the valve spool, said duty control pressure exerting a force on the plug in the first direction; and

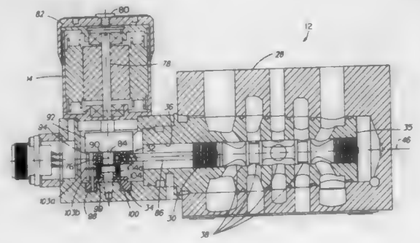
a feedback line for feeding the hydraulic line pressure back to the plug when the hydraulic line pressure is applied to the friction element, said hydraulic line pressure exerting a force on the plug in the second direction.

5,722,460

DIGITAL SERVO VALVE SYSTEM

Zenny Olsen, Farmington; Eric J. Hamman, and Gary F. D'Angelo, both of Bristol, all of Conn., assignors to Olsen Controls, Inc., Bristol, Conn.

Filed Oct. 10, 1996, Ser. No. 728,472
Int. Cl.[6] F15B *13/044*
U.S. Cl. 137—625.65 **13 Claims**



1. A digital servo valve system for controlling a displaceable actuator, comprising:

a valve body having an interior longitudinal cavity with a plurality of ports spaced there along, said ports being in fluid communication with a pressurized fluid source, a fluid pressure return and said actuator;

a valve spool displaceable within said cavity along a longitudinal axis, said valve spool having a plurality of substantially cylindrical lands alternately spaced with a plurality of recessed regions, said valve spool cooperatively configured with said valve body to regulate fluid flow through said ports in dependence on said valve spool axial position;

motor means having a drive shaft, said motor means establishing rotational positions of said shaft in response to position command signals;

rotary-to-linear translation means within said valve body and coupling said drive shaft and said valve spool for converting rotational positions of said shaft to linear positions of said valve spool;

a controller coupled to said motor means for generating said position command signals; and

null adjustment means for establishing a rotational null position of said shaft and a null position of said valve spool within the cavity of the valve body at which null position said valve spool cuts off fluid flow through said valve body, said null adjustment means comprising:

an index coupled to said shaft for rotation with said shaft,

shaft stop means mounted in said valve body and located at a null position,

a torsion spring mounted coaxially of said shaft and engaging said index and said shaft stop means such that said torsion spring exerts a force urging the index toward said shaft stop means, and

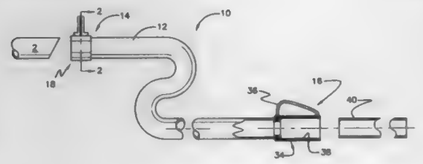
shaft stop adjustment means for adjusting the position of said shaft stop means.

5,722,461

EXHAUST HEAT APPLICATION HOSE

Marion L. Lake, 10514 Lakespring Way, Cockeysville, Md. 21030

Filed Jan. 2, 1997, Ser. No. 775,868
Int. Cl.[6] E03B *7/14*; **A47L** *5/14*
U.S. Cl. 138—35 **1 Claim**



1. A hose for advantageously directing exhaust gasses of a motor vehicle for purposes of heating and melting ice, said hose comprising:

a main section fabricated from pliant material having heat resistant properties capable of withstanding temperatures less than 250° F. (150° C.), said main section having a proximal end for attachment to an exhaust pipe of the motor vehicle and a distal end for discharging exhaust gasses;

connection means for removably connecting said hose to the exhaust pipe, said connection means disposed at and permanently attached to said proximal end of said main section of said hose and comprising a pliant and flexible collar and a clamp having lever handles for opening and closing said clamp about said collar over the exhaust pipe of the motor vehicle, said clamp having means for retaining said clamp on said collar;

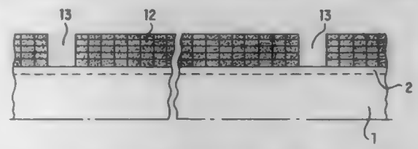
a rigid nozzle disposed at said distal end of said hose, said nozzle having a raised handle, connected to said nozzle, for manipulating said hose to discharge exhaust gasses advantageously, a receptacle formed in said nozzle, and an extension having means for removably and frictionally attaching to said receptacle of said nozzle, whereby exhaust gasses may selectively be discharged from said hose at a point distant from said handle.

5,722,462

FLEXIBLE HEAT INSULATED FLUID CONDUIT

Hamadi Dridi, 7, Avenue de la Porte de Choisy, 75013, Paris, France, and Bernard Dewimille, 8, Rue Vlaminck, 91350, Grigny, France

Continuation of Ser. No. 380,265, Jan. 26, 1995, abandoned, which is a continuation of Ser. No. 834,371, Feb. 12, 1992, abandoned, which is a continuation-in-part of Ser. No. 450,423, Dec. 14, 1989, abandoned, which is a continuation-in-part of Ser. No. 829,145, Dec. 26, 1985, Pat. No. 4,921,018.
This application Feb. 27, 1996, Ser. No. 607,439
Claims priority, application France, Apr. 25, 1984, 84 06483
Int. Cl.[6] F16L *9/14*
U.S. Cl. 138—149 **10 Claims**



1. A flexible, thermally insulated fluid conduit, comprising:

an inner central pipe through which fluids can flow,

an outer continuous extruded casing concentric to said pipe,

an insulating material filling annular space between said pipe and said casing,

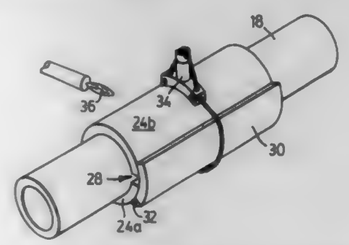
said insulating material being made of at least one layer of an insulating strip applied about said pipe by being wound under plastic deformation of an amount from 2 to 10% and spiralled with clearance so as not to restrict the flexibility of said pipe, said strip being made of an expanded plastic material having a density above 0.25 g/cm^3, low thermal conductivity, good resistance to creeping, low water absorption, and the ability to maintain its physical properties in the presence of sea water, wherein said expanded plastic material has a crush resistance, at 10% deformation, of at least 40 bars.

5,722,463

EXTERNAL PIPE REINFORCING SLEEVE

Robert James Smyth; Paul Lelonde, both of Calgary; Alcide St. Jean, Leduc; Michael Alvin Miller, Leduc, and Darcy Evan Miller, Leduc, all of Canada, assignors to Petro-Line Upgrading Services Ltd., Nisku, Canada

Filed Nov. 25, 1996, Ser. No. 758,155
Int. Cl.[6] F16L *9/00*
U.S. Cl. 138—170 **17 Claims**



1. A method of reinforcing a longitudinal section of hollow pipe comprising:

providing at least two sleeve segments, each sleeve segment having an inside surface adapted to fit onto an outer surface of said pipe, wherein said sleeve segments comprise two rolled steel plates;

preparing at least one of said outer surface of the pipe and said inside surface of the sleeve segments for receiving an epoxy;

applying said epoxy to at least one of said outer surface of the pipe and said inside surface of the sleeve segments;

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mounting said sleeve segments onto said pipe with said epoxy located therebetween;

applying a clamping force to squeeze said sleeve segments onto said epoxy and said outer surface of the pipe;

heating said sleeve segments to a temperature between 100 degrees F. and 300 degrees F. above the temperature of the pipe and sufficient for thermal expansion of said sleeve segments;

joining said sleeve segments while expanded to form a continuous sleeve circumferentially about said pipe; and,

removing said clamping force, and allowing said sleeve to cool to said temperature of the pipe to form an interference fit therebetween and to seal said section of pipe to avoid leakage of product therefrom, wherein said temperature to which said sleeve segments are heated provides sufficient thermal expansion so that upon said joining and subsequent cooling said sleeve remains in tension whether said pipe is internally pressurized or depressurized.

5,722,464

PILE WARP THREAD TENSION CONTROL APPARATUS FOR TERRY CLOTH WEAVING

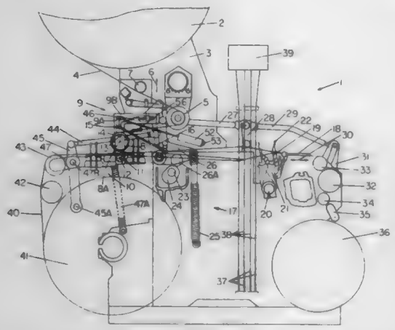
Walther Truyen, Oudenaarde; Adnan Wahhoud, Lindau-Bodolz; Peter Czura, Wangen; Hans-Dieter Scorl, Lindau; Josef Hehle, Hoerbranz, and Werner Birner, Lindau-Bodolz, all of Germany, assignors to Lindauer Dornier Gesellschaft mbH, Lindau, Germany

Filed Aug. 16, 1996, Ser. No. 689,709

Claims priority, application Germany, Aug. 17, 1995, 195 30 333.2

Int. Cl.[6] D03D *39/22*

U.S. Cl. 139—25 **18 Claims**



1. An apparatus for controlling the pile warp thread tension for weaving terry cloth in a loom, comprising a loom frame, at least one guide roller (**5**) rotatably mounted in said loom frame, a drive motor (**5A**) connected to said at least one guide roller (**5**), a warp tensioning faller roller (**8**) having a central axis (**8A**) and two ends, two support brackets (**9**) one of which is mounted to said loom frame (**10**) at each end of said faller roller (**8**), first bearings (**11**, **12**) fixed in said loom frame (**10**) and rotatably mounting said support brackets (**9**) to said loom frame, second bearings (**13**, **14**) rigidly connected to said faller roller (**8**) eccentrically to said central axis (**8A**) of said faller roller (**8**), said second bearings (**13**, **14**) rotatably mounting said faller roller (**8**) to said support brackets (**9**), said first bearings (**11**, **12**) and said second bearings (**13**, **14**) being spaced from each other, at least one spring biased control lever (**48**) rigidly connected to said faller roller (**8**) for tilting said faller roller (**8**), at least one biasing spring (**46**) operatively connected with one spring end (**50**) to said control lever (**48**) and with another spring end (**59**) to said support bracket (**9**), a coupling link (**16**) connected with a first link end (**16A**) to said support bracket (**9**) and with a second link end (**16B**) to a terry drive (**17**), and a controllable drive (**52**) operatively connected to said loom frame (at **53**) and to said spring biased control lever (**48**) for oscillating said faller roller (**8**) through said control lever (**48**) to maintain a substantially fixed warp tension simultaneously with a required warp supply rate.

5,722,465

MECHANISM FOR ADJUSTING THE TERRY PILE HEIGHT

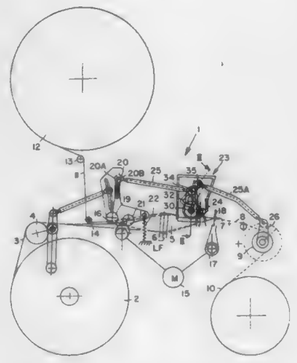
Wilhelm Herrlein, Ravensburg, Germany, assignor to Lindauer Dornier Gesellschaft mbH, Lindau, Germany

Filed Sep. 30, 1996, Ser. No. 723,531

Claims priority, application Germany, Oct. 6, 1995, 195 37 277.8

Int. Cl.[6] D03D *39/22*

U.S. Cl. 139—25 **12 Claims**



1. A terry cloth weaving loom comprising a terry pile height adjusting mechanism (**23**), a separately controllable drive (**24**) for said adjusting mechanism, a terry cloth formation drive including an eccentric cam drive drivable by a main loom drive for performing a basic terry cloth formation motion, at least one spring biased double lever mounted on a rotation journal shaft rigidly secured in a loom frame and operable by said eccentric cam drive, a fabric displacement component (**9**) for displacing a beat-up line of the fabric relative to a reed beat-up position, and further comprising coupling members (**25**, **25A**) operatively connecting said terry pile height adjusting mechanism (**23**) to said double lever (**20**) and to said fabric displacement component (**9**), whereby said terry pile height adjusting mechanism (**23**) is arranged between said double lever (**20**) and said fabric displacement component (**9**) for transmitting said basic terry cloth formation motion from said eccentric cam drive (**16**) to said fabric displacement component (**9**), and wherein said terry pile height adjusting mechanism comprises an adjustable drive (**23**) including a driven section (**23A**) and a drive section (**23B**), said driven section including a first gear subassembly (**27A**) operatively connected to said drive section (**23B**) and a second gear subassembly (**27B**) for transmitting an adjustment drive force, a housing (H) for said first and second gear subassemblies, a common shaft (**30**) mounted for rotation in said housing and interconnecting said first and second gear subassemblies (**27A**, **27B**) in said housing, at least one bearing plate (**33**) mounted on said common shaft (**30**) for tilting about said common shaft (**30**), a gear sector (**32**) tiltably mounted to said bearing plate (**33**) for tilting in response to said adjustment drive force applied to said gear sector (**32**) through said first and second gear subassemblies, and pivot elements (**34**, **35**; **PB1**, **PB2**) pivoting said coupling members to said gear sector (**32**).

5,722,466

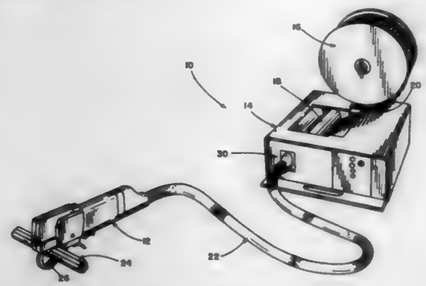
CABLE TIE INSTALLATION TOOL

Robert F. Levin, P.O. Box 273, Braceville, Ill. 60407, and Robert M. Tyler, 1085 Winding Glen Ct., Carol Stream, Ill. 60188

Filed Jan. 13, 1997, Ser. No. 782,850

Int. Cl.[6] B21F *9/02*

U.S. Cl. 140—93.2 **8 Claims**



1. An automatic cable tie installation tool for fastening an individual cable tie around a bundle of wires or the like, comprising:

cable tie application means for application of the cable tie around a bundle;

cable tie receiving means for receiving and positioning the cable tie for transportation to the cable tie application means;

cable tie advancing means utilizing pressurized air for advancing the cable tie from the receiving means through a transfer tube to the application means;

control means for controlling the receiving means;

sensing means for sensing the presence of a blockage within the transfer tube; and,

signaling means for signaling the control means in response to a blockage indicated by the sensing means to prevent the positioning of a next cable tie for transportation to the application means.

5,722,467

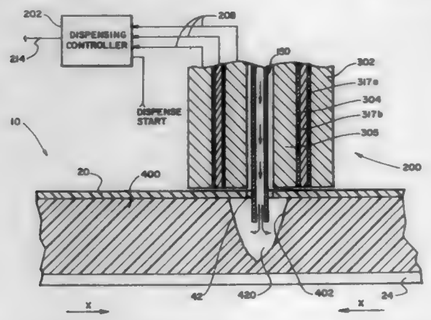
FILING OF ASSEMBLIES

Patrizio Vinciarelli, Boston, Mass., assignor to VLT Corporation, San Antonio, Tex.

Division of Ser. No. 246,509, May 20, 1994, abandoned. This application Nov. 9, 1995, Ser. No. 552,469

Int. Cl.[6] B65B *1/14*

U.S. Cl. 141—34 **15 Claims**



1. Apparatus for filling a free space within a chamber with a flowable material via an opening in a surface of the chamber, comprising

a flowable material conduit with an outlet end for delivering along a fill axis passing through the opening the flowable material with a delivery force,

a pulling mechanism for inducing an outwardly directed force acting in a direction crossing the fill axis independent of the delivery force and arranged with respect to the outlet end of the conduit so that, simultaneously, the outlet end may be positioned at the opening and the pulling mechanism may apply the outwardly directed force to draw the flowable material away from the outlet end,

a sensor positioned to sense the extent to which the free space has been filled with flowing material by detecting movement of a surface of the flowable material in the chamber inwardly toward the opening in a direction crossing the fill axis and past a predetermined sensing location on a wall of the chamber, and

a controller for controlling the delivering of the flowable material in response to the sensing.

5,722,468

EVAPORATIVE-FUEL EMISSION PREVENTING APPARATUS

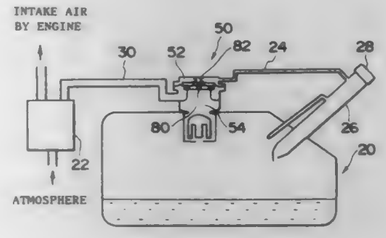
Katsuyuki Kido, Seto, Japan, assignor to Toyota Jidosha Kabushiki Kaisha, Toyota, Japan

Filed Mar. 13, 1996, Ser. No. 614,691

Claims priority, application Japan, Apr. 5, 1995, 7-080060; Apr. 7, 1995, 7-081629; Apr. 19, 1995, 7-093465

Int. Cl.[6] B65B *1/04*

U.S. Cl. 141—59 **5 Claims**



1. An evaporative-fuel emission preventing apparatus comprising:

a fuel tank for a vehicle;

a canister for processing evaporative fuel generated within the fuel tank;

a passageway for connecting the fuel tank and the canister;

a differential pressure regulating valve which is provided in the course of the passageway so as to open and shut off the passageway by an opening and closing operation of the differential pressure regulating valve, a low pressure section of the differential pressure regulating valve being connected to a vicinity of a fueling port of the fuel tank and a high pressure section of the differential pressure regulating valve being connected to the fuel tank; and

a communicating member provided to allow communication between the low pressure section of the differential pressure regulating valve and the fuel tank and return liquid fuel introduced into the low pressure section of the differential pressure regulating valve to the fuel tank,

wherein said communicating member is a communicating hole which is formed in a moving valve section of the differential pressure regulating valve such that the low pressure section and the high pressure section of the differential pressure regulating valve communicate with each other.

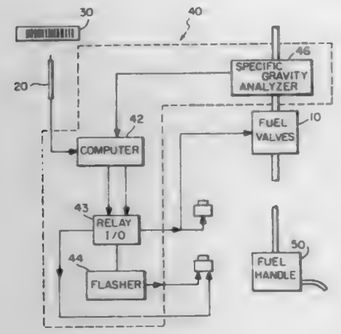
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5,722,469

FUEL VERIFICATION AND DISPENSING SYSTEM

Patrick Tuminaro, 42938 Staffordshire Dr., Lancaster, Calif. 93534

Filed Oct. 18, 1996, Ser. No. 734,026
Int. Cl.[6] B67D 5/33
U.S. Cl. 141—94 5 Claims



1. A fuel dispensing system comprising:
a placard having bar code information recorded thereon disposed on a device to be fueled;
a bar code reader for reading the bar code information recorded on said placard;
a plurality of fuel valves, each of said fuel valves being associated with a fuel tank containing a particular type of fuel;
a fuel handle which can be selectively coupled to each of said fuel tanks, one at a time, through said fuel valves, said fuel handle being adapted to be inserted into a fuel receptacle of the device to be fueled, said fuel handle having an auxiliary valve disposed therein to selectively prevent fuel from being dispensed through said fuel handle;
a control system coupled to said fuel valves and said fuel handle by a wireless communication device, said control system comprising a controller and a specific gravity analyzer, said specific gravity analyzer having a sensor that is disposed in a flow path of the fuel to monitor the specific gravity of the fuel as the fuel is being dispensed, said control system placing one of said valves and said auxiliary valve in an open position when fuel in one of the fuel tanks which corresponds to said one of said valves is a type of fuel indicated by said bar code, said control system placing said auxiliary valve in a closed position when a specific gravity of the fuel does not correspond to an acceptable specific gravity for the type of fuel to prevent contaminated fuel from being dispensed into the devise.

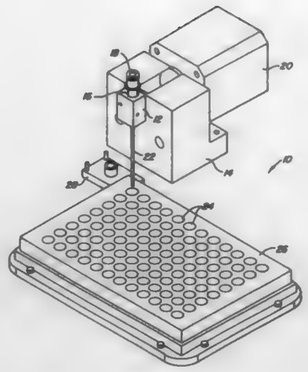
5,722,470

BEAD DISPENSING DEVICE AND METHODS

Haim Kedar, Palo Alto; Robert M. Gavin, San José ; Jeffrey H. Sugarman, Sunnyvale, and Donald T. Roth, Mountain View, all of Calif., assignors to Glaxo Group Limited, Greenford, United Kingdom

Filed Nov. 9, 1995, Ser. No. 555,799
Int. Cl.[6] B65B 1/00
U.S. Cl. 141—100 36 Claims

1. A method for transporting article held within a liquid medium, the method comprising:
placing the articles and the liquid medium into a hopper having a bottom end with an opening therein;
fluidizing the articles while within the hopper such that the articles are uniformly distributed within the hopper;



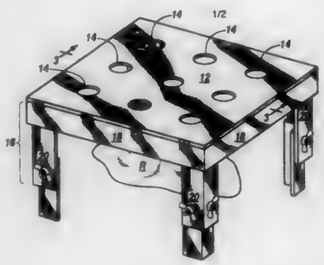
funneling a single article into a container positioned below and in alignment with the opening in the bottom end of the hopper; and
transferring the article from the container.

5,722,471

TOOL FOR ROCK BREAKING AND LOG SPLITTING

David F. Fredrickson, 4951 Toll Bridge Rd., Belton, Tex. 76513

Filed Feb. 19, 1997, Ser. No. 802,613
Int. Cl.[6] B27L 7/00
U.S. Cl. 144—193.1 6 Claims



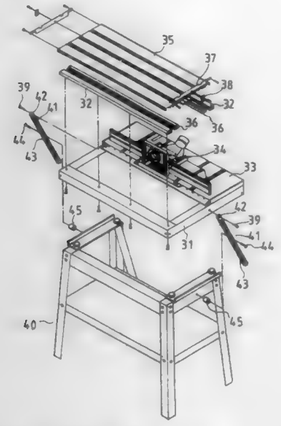
1. A tool for rock breaking, excavating, log splitting and similar operations comprising:
a plate having substantial thickness and having a plurality of substantially identical apertures formed therethrough;
a support for positioning said plate above a workpiece in a substantially horizontal plane;
an implement closely matched in dimensions and cross sectional configuration to the dimensions and cross sectional configuration of said plurality of apertures in said plate, said implement including a first end adapted for engagement with a workpiece and a second end adapted for engagement with a hammer; and
wherein said implement may be positioned in a selected aperture in said plate with the first end engaging a predetermined portion of the workpiece and the second end engaged with a hammer.

5,722,472

WOOD WORKING MACHINE

Tian Wang Wang, No. 45, Yi Chang East Road, Taiping City, Taichung Hsien, Taiwan

Filed Feb. 25, 1997, Ser. No. 805,931
Int. Cl.[6] B25H 1/00
U.S. Cl. 144—286.1 2 Claims



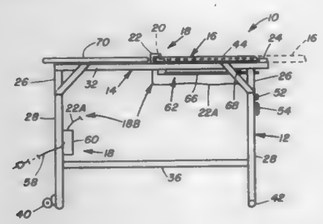
1. A wood working machine comprising:
a stand including an upper portion having a pair of fasteners,
a base secured on top of said stand and pivotally coupled to said stand at a pivot shaft, said base including a front portion and a rear portion,
a pair of arms each having an upper portion pivotally coupled to said base and each having an oblong hole for slidably engaging with said fasteners and for allowing said base to be rotated about said pivot shaft,
a platform secured on said rear portion of said base,
a cutter device secured on said platform,
a pair of rails secured in parallel on said front portion of said base, and
a table slidably engaged on said rails, said table including a pair of tracks slidably engaged on said rails for smoothly guiding said table to move along said rails.

5,722,473

WORKBENCH-BASED INTERCHANGEABLE POWER TOOL MOUNTING AND OPERATING APPARATUS

Joseph M. Tucker, Valparaiso, Ind., assignor to New Era Industries, Inc., Great Bend, Kans.

Filed Mar. 31, 1997, Ser. No. 831,466
Int. Cl.[6] B27C 9/00
U.S. Cl. 144—286.1 22 Claims



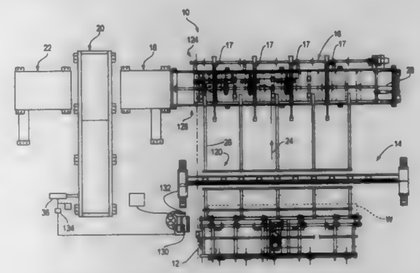
1. A workbench-based interchangeable power tool mounting and operating apparatus, comprising:
(a) a workbench frame including a base supported on an upper portion of said frame;
(b) at least one main support pallet for mounting an electrically powered tool;
(c) an electrical system including a first portion mounted on said main support pallet having a first electrical connector and a second portion mounted on said base and workbench frame having a second electrical connector for connection with an external electrical power source and being matable with said first electrical connector; and
(d) a pair of alignment members mounted on said base for receiving and supporting said main support pallet on said base and slidably guiding said main support pallet into and from an installed position on said base of said workbench frame in which said first electrical connector of said first portion of said electrical system is electrically mated with said second electrical connector of said second portion of said electrical system for electrically connecting a power tool mounted on said main support pallet with the external electrical power source.

5,722,474

METHOD AND APPARATUS FOR CUTTING A CANT INTO BOARDS

Christopher Raybon, 737 Old Brundage Rd., Hot Springs, Ark. 71913; Levi A. Pollard, V, 3310 Scotts Ferry Rd., Appling, Ga. 30802; Ronald W. McGehee, 537 Parducci Rd., Ukiah, Calif. 95482; Russell R. Kennedy, 723 Rock Creek Rd., and Patrick M. Conry, 304 Redbird Pl., both of Hot Springs, Ark. 71913

Filed Apr. 19, 1996, Ser. No. 635,189
Int. Cl.[6] B27B 1/00
U.S. Cl. 144—357 17 Claims



17. A method of forming a workpiece into sectioned parts using a cutting device of the type having a plurality of rotatable cutting members mounted for rotation on a common axis which is movable and including workpiece transport means for moving the workpiece from a starting position to a final position along a path which extends past the cutting device, comprising the steps of:
(a) passing the workpiece from the starting position through a scanning position;
(b) scanning the workpiece with a detection device to determine dimensional information of the workpiece;
(c) sending the dimensional information to a computing device which analyzes the dimensional information and calculates a cutting solution for the scanned workpiece;
(d) passing the workpiece from the scanning position toward the cutting device while orienting the workpiece for movement through the cutting device substantially along a linear axis of movement;
(e) engaging the workpiece with the cutting device by passing the workpiece past the cutting device while controlling the rotational position about the common axis of the cutting device in accordance with the cutting solution; and
(f) transporting the workpiece and sectioned parts from the cutting device.

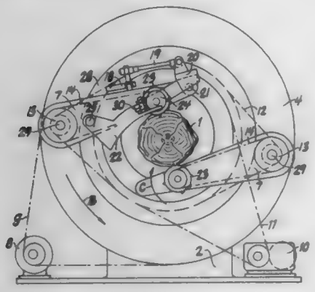
VOL 1208 ISS 1 MR 3 1998 UMI

5,722,475

METHOD AND DEVICE FOR DRESSING LOGS

Matti K. Lammi, Kaasmarkuntie. 129, FIN-28450 Vanha-Ulvila, Finland

PCT No. PCT/FI95/00124, § 371 Date Sep. 4, 1996, § 102(e) Date Sep. 4, 1996, PCT Pub. No. WO95/24300, PCT Pub. Date Sep. 14, 1995
PCT Filed Mar. 6, 1995, Ser. No. 700,491
Claims priority, application Finland, Mar. 8, 1994, 941074
Int. Cl.[6] B27L 1/00; B27M 1/00
U.S. Cl. 144—363 12 Claims



8. A method for machining logs comprising:

longitudinally advancing a log to be machined through an opening provided in a rotatable disc,

supporting a plurality of rotatable cutting heads on respective supporting arms pivotably connected to said rotatable disc, said arms and said cutting heads rotating with said disc around said log, the speed of rotation of said disc being varied as a function of conditions at the surface of the log,

rotating said cutting heads around respective axes of rotation while concurrently rotating said cutting heads with said disc around said log such that the net rotational speed of said cutting heads at the surface of the log is the sum of the speed of rotation produced by the rotatable disc and the speed of rotation of the cutting heads around their respective axes, and

varying the rotational speed of the cutting heads around their respective axes in relation to the rotational speed of the disc to maintain a substantially constant net rotational speed of the cutting heads at the surface of the log.

5,722,476

REVERSIBLE SLATTED SHUTTER

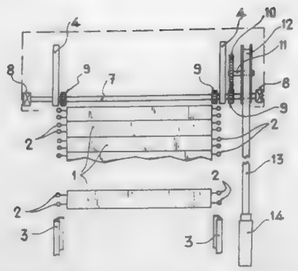
Francisco Lujan-Sanchez, Illescas, and Emiliano Martin-Gomez, Yuncos, both of Spain, assignors to Ceraper S.L., Toledo, Spain

PCT No. PCT/ES96/00075, § 371 Date Dec. 12, 1996, § 102(e) Date Dec. 12, 1996, PCT Pub. No. WO96/32562, PCT Pub. Date Oct. 17, 1996
PCT Filed Apr. 3, 1996, Ser. No. 750,554
Claims priority, application Spain, Apr. 12, 1995, 9501021 U; Feb. 22, 1996, 9600428 U
Int. Cl.[6] E06B 9/08
U.S. Cl. 160—133 9 Claims

1. A reversible shutter comprising:

a plurality of slats mounted between lateral guides and rolled and unrolled by a manual or motor-driven belt, said slats comprising elongated hollow bodies having sliding means coupled to ends thereof;

a shutter box having opposite sides and including labyrinthian guides mounted on said opposite sides, each of said labyrinthian guides having an inlet and an outlet coupled to one of the lateral guides, said labyrinthian guides each providing a direction change such that a front face of said slats is exposed at the inlet and a back face of said slats is exposed at the outlet; and



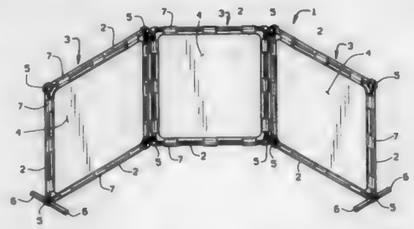
a driving mechanism for moving slats along said lateral guides and said labyrinthian guides so as to expose the front face or the back face of said slats.

5,722,477

PIPE CONNECTOR ASSEMBLY WITH INTERNAL LOCKING MECHANISM

Michael A. Richter, St. Louis; Michael F. Mullins, St. Charles; Ron L. Reeves, St. Louis; Dale Emge, and Robert Tanner, both of St. Charles, all of Mo., assignors to The Children's Factory, St. Louis, Mo.

Filed Apr. 29, 1996, Ser. No. 638,775
Int. Cl.[6] A47G 5/00
U.S. Cl. 160—135 6 Claims



1. A panel assembly comprising:

a plurality of interconnected frames, each frame having at least four tubular elements arranged in a substantially rectangular configuration;

a removable panel secured to each frame;

a plurality of connector assemblies for joining the tubular elements in each frame and for connecting the frames in preselected angular relationships;

each connector assembly comprising a first clevis having a series of integral clevis rings, a second clevis having a series of integral clevis rings, the clevis rings of the first clevis being interengaged with the clevis rings of the second clevis, a first locking element secured within the interengaged clevis of an adjacent tubular element rings, and a second locking element secured within the interengaged clevis rings so as to secure the clevises together in a preselected angular relationship.

5,722,478

VENETIAN BLIND SAFETY PULL CORD ASSEMBLY

Jeff Claypool, and Karyn Claypool, both of 7413 Westcliff Dr., West Hills, Calif. 91304

Continuation-in-part of Ser. No. 511,671, Aug. 7, 1995, abandoned. This application Sep. 24, 1996, Ser. No. 710,905
Int. Cl.[6] E06B 9/30
U.S. Cl. 160—173 R 9 Claims

1. An improved venetian blind safety pull cord assembly, said assembly comprising, in combination:



a) a housing having an upper end, a bottom end and upstanding sides interconnecting said upper end and said bottom end and collectively defining therewith a generally central cavity, said upper end and said bottom end each having a generally central opening extending down therethrough and into communication with said cavity, said housing openings being vertically aligned with each other and adapted to receive venetian bind pull cords;

b) connector means connected to said housing and extending upwardly therefrom for releasably connecting said housing in depending relation to an overhead venetian blind operating structure; and,

c) a generally tubular venetian blind pull cord cover telescopingly received within said housing through said housing bottom end, said cover comprising a plurality of interconnected portions, said portions decreasing in diameter from the uppermost of said portions to the lowermost of said portions, and telescoping within each other, said portions having upper and lower aligned venetian blind pull cord-receiving openings, said cover extending below said housing and movable between an upper collapsed position in said housing and a lower telescoped extended position, said lowermost portion having a transversely extending expanded handle anchoring the lower ends of venetian blind pull cords thereto, whereby when said cords are pulled down, said cover automatically travels therewith to said extended position to protect the cords against exposure and inadvertant entangling of a child and when said cords travel up during operation of a venetian blind mechanism to which said cords are attached, said cover is automatically moved to said collapsed position.

5,722,479

DIRECTIONAL ELECTROSTATIC ACCRETION PROCESS EMPLOYING ACOUSTIC DROPLET FORMATION

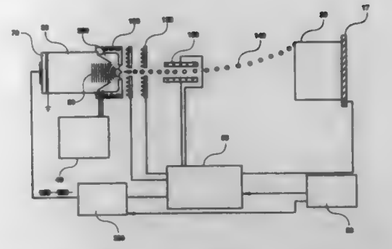
Richard Oeftering, Elyria, Ohio, assignor to The United States of America as represented by the Administrator of the National Aeronautics and Space Administration, Washington, D.C.

Division of Ser. No. 278,724, Jul. 11, 1994. This application Jun. 5, 1995, Ser. No. 465,070
Int. Cl.[6] B22D 23/00
U.S. Cl. 164—46 10 Claims

1. A Directional Electrostatic Accretion Process apparatus, comprising:

a process chamber,

a molten metal supply connected to said process chamber,



a nozzleless acoustic droplet generator contained within said process chamber and housing a supply of molten metal that generates droplets directly from a free surface of the molten metal, said generator is further supplied with molten metal by said molten metal supply,

an accretion target receiving said droplets, and

and electrostatic trajectory control located parallel to a path of said droplets that controls a trajectory of said droplets, directing said droplets from said droplet generator onto a specific position on said accretion target,

a Directional Electrostatic Accretion Process Control Unit connected between said process chamber and said molten metal supply for controlling said Directional Electrostatic Accretion Process, and

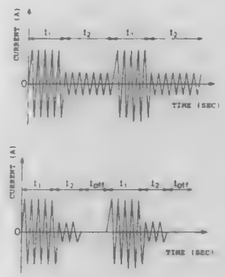
a Directional Electrostatic Accretion Process design workstation connected to said Directional Electrostatic Accretion Process control unit thereby controlling said Directional Electrostatic Accretion Process.

5,722,480

PROCESS FOR CONTINUOUS CASTING OF MOLTEN METAL AND APPARATUS FOR THE SAME

Shigeo Asai, 112, Yakushiyama, Narumi-cho, Midori-ku, Nagoya-shi, Aichi; Takehiko Toh, Chiba; Kiyoshi Wajima, Chiba; Kenzo Sawada, Chiba; Eiichi Takeuchi, Chiba; Kensuke Sassa, Aichi, all of Japan, and Tingju Li, Dalian, China, assignors to Nippon Steel Corporation, Tokyo, and Shigeo Asai, Aichi, both of Japan

PCT No. PCT/JP95/01672, § 371 Date Apr. 17, 1996, § 102(e) Date Apr. 17, 1996, PCT Pub. No. WO96/05926, PCT Pub. Date Feb. 29, 1996
PCT Filed Aug. 23, 1995, Ser. No. 628,698
Claims priority, application Japan, Aug. 23, 1994, 6-198597; Sep. 21, 1994, 6-226372; Sep. 21, 1994, 6-226373
Int. Cl.[6] B22D 27/02; 11/07
U.S. Cl. 164—466 18 Claims

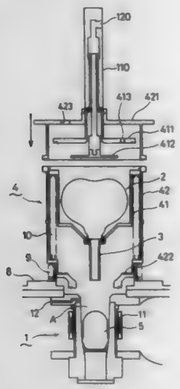


1. A process for continuously casting a molten metal comprising applying an alternating current to a solenoidal electromagnetic coil which is provided so that it surrounds a continuous casting mold wall or is embedded in the side wall of the mold, whereby an electromagnetic force exerted on the molten metal poured into the

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mold and being solidified is applied in the direction of separating the molten metal from the mold wall, said process comprising periodically changing the amplitude or waveform of the alternating current to be applied whereby lubrication and the surface properties of the cast slab are improved.

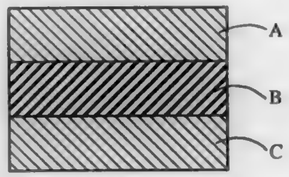
5,722,481
METHOD FOR CASTING METAL AND APPARATUS THEREFOR
Junji Yamada, Aichi; Noboru Demukai, Gifu, and Masayuki Yamamoto, Aichi, all of Japan, assignors to Daido Tokushuko Kabushiki Kaisha, Nagoya, Japan
Filed Apr. 25, 1996, Ser. No. 637,416
Int. Cl.[6] B22D *27/02*
U.S. Cl. 164—493 **15 Claims**



1. A method of casing molten metal, said method comprising:
levitation-melting metal in an inert atmosphere under atmospheric pressure in a levitation-melting furnace to thereby form molten metal, said furnace having positioned thereabove a double-structure mold chamber including an outer mold chamber, an inner mold chamber within said outer mold chamber, a gas-permeable mold within said inner mold Chamber and a suction pipe connected to said mold and extending downwardly from said inner mold chamber;
lowering said outer mold chamber toward said furnace;
reducing pressure in said double-structure mold chamber and in an upper space of said furnace to below atmospheric pressure;
lowering said inner mold chamber and thereby immersing said suction pipe in said molten metal;
blowing inert gas into said upper space and thereby injecting said molten metal into said mold;
raising said inner mold chamber and thereby removing said suction pipe from said molten metal; and
returning said double structure mold chamber to atmospheric pressure and raising said outer mold chamber.

8. An apparatus for casing metal, said apparatus comprising:
a levitation-melting furnace to melt metal to form molten metal;
a double-structure mold chamber positioned above said furnace and including a vertically movable outer mold chamber, an inner mold chamber within said outer mold chamber and vertically movable independently of movement thereof, a gas-permeable mold within said inner mold chamber and a suction pipe connected to said mold and extending downwardly from said inner mold chamber;
means for vertically moving said outer mold chamber and said inner mold chamber independently of each other;
atmosphere control means for controlling the atmosphere and pressure in said mold chamber and in an upper space of said furnace; and
whereby said moving means is operable to lower said outer mold chamber toward said furnace, said atmosphere control means is operable to reduce the pressure in said mold chamber and in said upper space to below atmospheric pressure, said moving means is operable to lower said inner mold chamber to thereby immerse said suction pipe in the molten metal in said furnace, said atmosphere control means is operable to blow inert gas into said upper space to thereby inject the molten metal through said suction pipe into said mold, said moving means is operable to raise said inner mold chamber to thereby remove said suction pipe from the molten metal, said atmosphere control means is operable to return said mold chamber to atmospheric pressure, and said moving means is operable to raise said outer mold chamber.

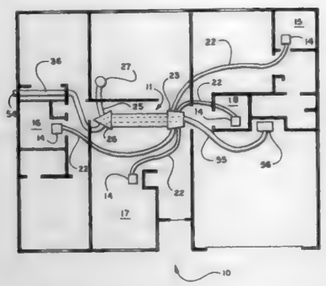
5,722,482
PHASE CHANGE THERMAL CONTROL MATERIALS, METHOD AND APPARATUS
Theresa M. Buckley, 441 E. Erie St. Apt. 4501, Chicago, Ill. 60611
Continuation-in-part of Ser. No. 913,246, Jul. 14, 1992. This application Mar. 15, 1995, Ser. No. 404,419
Int. Cl.[6] F28D *17/00*
U.S. Cl. 165—10 **20 Claims**



10. A method for metabolic cooling and for insulation of a user in a cold environment having an ambient environmental temperature which is below a comfortable skin temperature, comprising the step of providing a layer containing a phase change material which is in thermal contact with the skin of a wearer, said phase change material having a phase transition temperature which is below normal skin temperature and above ambient environmental temperature, whereby said phase change material provides a thermal environment for said wearer at a temperature above said ambient environmental temperature for an extended time period, and said phase change material further provides a heat sink to absorb metabolic heat of the wearer, and said metabolic heat serves to recharge said phase change material, thereby increasing the duration of said time period for which said phase change material provides said thermal environment at a temperature above said ambient environmental temperature.

5,722,483
AIR EXCHANGE APPARATUS AND METHOD
Gary L. Gibson, 95 N. Camino Espanol, Tucson, Ariz. 85716
Filed Aug. 14, 1996, Ser. No. 698,205
Int. Cl.[6] F24F *3/147*
U.S. Cl. 165—54 **7 Claims**

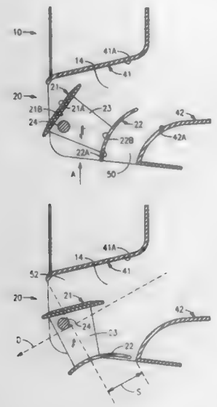
5. A process for exchanging air in an enclosed structure having plural rooms and being sufficiently airtight so as to admit less than a minimum acceptable volume of fresh air by infiltration from outside the structure, the process comprising the steps of:
removing relatively warm stale air from outlets at an elevated location an in at least some of the rooms;
conducting the removed stale air through separate ducts to a first plenum in elevated relation to the room outlets;
establishing an air flow path from the first plenum to a stale air outlet in elevated relation to the first plenum, whereby the



relatively warm stale air in the rooms is exhausted through the stale air outlet, thereby reducing the air pressure within the rooms; and
establishing a flow path from a source of fresh air outside the structure, to fresh air outlets located in at least some of the rooms at elevations lower than the outlets for stale air,
whereby the reduced air pressure within the rooms inducts fresh air into the structure through the flow path from the source of fresh air outside the structure.

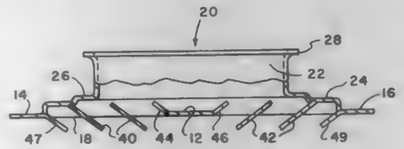
6. The process as in claim 5, comprising the further step of:
exchanging heat between the stale air removed from the rooms and the fresh air inducted into the structure, so as to recoup at least part of the energy represented by a temperature differential between the stale air and the fresh air.

5,722,484
LOUVER ASSEMBLY FOR FAN DISCHARGE DUCT
Srinivasan Subramanian, Liverpool, and Peter R. Bushnell, Cazenovia, both of N.Y., assignors to Carrier Corporation, Syracuse, N.Y.
Filed Dec. 26, 1995, Ser. No. 578,793
Int. Cl.[6] F24F *13/10*
U.S. Cl. 165—96 **13 Claims**



1. In a fan unit (**10**) comprising a discharge duct (**14**) having an upper wall surface (**41**A), a lower wall surface (**42**A), and side walls (**8**, **9**), an improved louver assembly (**20**) disposed within said duct, said assembly being rotatable between a first position and second position, the improvement comprising:
said louver assembly including an upper slat (**21**) and lower slat (**22**) extending across said duct between said side walls,
said upper and lower slats being spaced apart, said upper slat having a contour which follows the contour of said upper wall surface and being adjacent thereto and spaced therefrom when said louver is in said first position to define a generally constant cross-section flow passageway (**52**) therebetween, and said lower slat having a contour which follows the contour of said lower wall surface and is adjacent thereto and spaced therefore when said louver is in said second position to define a generally-constant cross-section flow passageway (**50**) therebetween.

5,722,485
LOUVERED FIN HEAT EXCHANGER
Daniel M. Love, Conrad, Iowa, and John D. Lamkin, Grenada, Miss., assignors to Lennox Industries Inc., Richardson, Tex.
Filed Nov. 17, 1994, Ser. No. 341,623
Int. Cl.[6] F28D *1/04*
U.S. Cl. 165—151 **19 Claims**

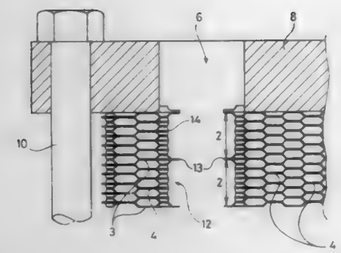


8. A fin for use in assembling a heat exchanger having a plurality of said fins arranged in substantially parallel, closely spaced relation and a plurality of heat transfer tubes passing through aligned openings in said fins and in intimate contact therewith to allow a heat transfer medium flowing through the heat transfer tubes to exchange heat with another heat transfer medium flowing across said fins, said fin comprising:
a center strip and opposed first and second edge strips defining a nominal plane of said fin, said center strip and said first and second edge strips extending longitudinally along said fin;
a plurality of collars spaced longitudinally along said fin and defining said openings, each of said openings having a diameter of about 5/16 inch, each collar having a substantially cylindrical portion and first and second base portions on one side of said fin, said first and second base portions defining respective first and second recessed portions on an opposite side of said fin; and
a plurality of first louvers extending longitudinally along said fin between said first edge strip and said center strip and a plurality of second louvers extending longitudinally along said fin between said center strip and said second edge strip, said first and second louvers intersecting said nominal plane at respective first and second angles such that said first louvers are in diverging relationship with respect to said second louvers on one side of said fin and in converging relationship with respect to said second louvers on an opposite side of said fin.

5,722,486
PLATE HEAT EXCHANGER
Ralf Blomgren, Skanör; Bo Nilsson, Kävlinge, and Mats Nilsson, Lund, all of Sweden, assignors to Alfa Laval AB, Lund, Sweden
PCT No. PCT/SE95/00552, § 371 Date Nov. 7, 1996, § 102(e) Date Nov. 7, 1996, PCT Pub. No. WO95/31681, PCT Pub. Date Nov. 23, 1995
PCT Filed May 17, 1995, Ser. No. 737,618
Claims priority, application Sweden, May 18, 1994, 9401756
Int. Cl.[6] F28D *9/00;* **F28F** *3/10*
U.S. Cl. 165—167 **7 Claims**

1. Plate heat exchanger (**1**) for heat transfer between two fluids, comprising:
a) a frame including two spaced frame plates (**8**,**9**),

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b) a plurality of plate modules (**2**), each comprising two principally rectangular outer heat transfer plates (**3**) and between these a stack of principally rectangular inner heat transfer plates (**4**), wherein said outer heat transfer plates (**3**) have smaller inlet and outlet openings (**12**) for at least one fluid than do said inner heat transfer plates (**4**); and

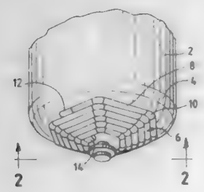
c) tightening bolts (**10**) adapted to clamp said plate modules (**2**) between said frame plates (**8**,**9**), said inner and outer heat transfer plates being substantially thinner than said frame plates, and having inlet and outlet openings (**12**) for respective fluids in their corner portions and being welded together, wherein said modules (**2**) are welded to each other around said smaller inlet and outlet openings (**12**) of their respective outer heat transfer plates (**3**) facing each other.

5,722,487

HEAT TRANSFER CHANNEL ON THE OUTSIDE OF A TANK

John P. McFadden, 735 Berkshire Ct., Dwoner Grove, Ill. 60516

Filed Apr. 16, 1996, Ser. No. 633,292
Int. Cl.[6] F28D *1/06*
U.S. Cl. 165—169 **9 Claims**



1. A channelling member for passing a heat transferring fluid along an outer surface of an end face of a tank comprising:

longitudinally elongate segments and fillets alternately arranged in a spiral pattern upon the outer surface of the end face of the tank,

each elongate segment intermediate ends of the spiral pattern having end portions registered with and joined to an adjacent fillet,

the elongate segments and fillets having substantially arcuately shaped cross sections with edge portions secured to the outer surface of the tank end face and zenith portions spaced apart from the outer surface of the tank face end forming an enclosed tubular passageway with the outer surface of the tank, and

the passageway being turned at each fillet at an obtuse angle between successive elongate segments.

5,722,488

APPARATUS FOR DOWNHOLE DRILLING COMMUNICATIONS AND METHOD FOR MAKING AND USING THE SAME

Randy A. Normann, Edgewood; Grant J. Lockwood, and Melitón Gonzales, both of Albuquerque, all of N. Mex., assignors to Sandia Corporation, Albuquerque, N. Mex.

Filed Apr. 18, 1996, Ser. No. 633,263
Int. Cl.[6] E21B *19/22*
U.S. Cl. 166—65.1 **24 Claims**



1. An apparatus for use in downhole drilling communications, comprising:

a spool of communications cable sized to fit within a drill string; and

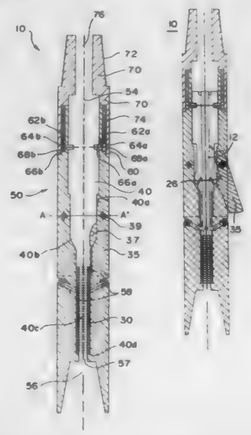
a layer of thermally contractive elastic material which partially encapsulates the spool.

5,722,489

MULTIPUPOSE DRILLING TOOL

Steven S. Lambe, 715 L St. Suite 400, Anchorage, Ak. 99501, and Matt W. Mahaffey, 8620 N. New Braunfels, San Antonio, Tex. 78217

Filed Apr. 8, 1996, Ser. No. 629,392
Int. Cl.[6] E21B *10/66*
U.S. Cl. 166—269 **20 Claims**



1. A multipurpose drilling tool comprising:

a housing member comprising an upper inlet end, a lower outlet end, a central bore having at least an upper section and a lower section disposed within said housing and connecting said inlet end and outlet end, and a plurality of tattle tale ports for indicating the pressure differential δP between differing pump pressures through said tattle tale ports;

a hollow piston disposed within said upper section of said central bore, said piston having a piston graded land, a central piston bore having an upper end and a plurality of ancillary ports;

a compressible spring disposed within said lower section of said central bore and exerting an upward force on said piston;

a plurality of underreaming blades pivotally mounted to said housing member each of said blades comprising at least one cutting surface and a blade graded land configured in such a manner that said blades pivot outwardly from said housing member upon contact with said graded piston land;

a piston travel guide for controlling the cycling of said piston through said central bore in such a manner as to cycle the piston to either a drilling position or an underreamining position;

means for attaching a drill bit to said housing member; and

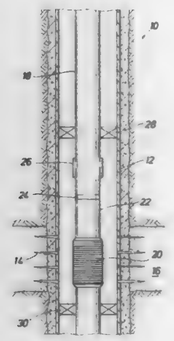
means for attaching said housing member to a drill string.

5,722,490

METHOD OF COMPLETING AND HYDRAULIC FRACTURING OF A WELL

Charles D. Ebinger, Lafayette, La., assignor to Ely and Associates, Inc., Houston, Tex.

Filed Dec. 20, 1995, Ser. No. 575,290
Int. Cl.[6] E21B *43/267*
U.S. Cl. 166—281 **10 Claims**



1. A method for completing a well and hydraulically fracturing a productive zone penetrated by the well, the well having casing, the casing having perforations into the productive zone, comprising the steps of:

(a) placing in the casing a tubing string, a gravel pack screen, the screen being placed opposite the perforations in the casing, means for temporarily plugging flow from the tubing to inside the screen, a controllable tubing port above the means for plugging and a tubing packer, the packer being above the port;

(b) setting the packer;

(c) hydraulically fracturing the wall by pumping fluid and proppant down the tubing string and through the port;

(d) removing the means for temporarily plugging flow from the tubing to inside the screen; and

(e) adjusting the controllable tubing port so as to seal flow from inside to outside the tubing.

5,722,491

WELL CEMENTING PLUG ASSEMBLIES AND METHODS

Bobby L. Sullaway, and David F. Laurel, both of Duncan, Okla., assignors to Halliburton Company, Duncan, Okla.

Filed Oct. 11, 1996, Ser. No. 731,335
Int. Cl.[6] E21B *33/16*
U.S. Cl. 166—291 **21 Claims**

1. A well cementing plug assembly adapted to be connected to a string of drill pipe or a circulation tool for use in a pipe during the cementing of the pipe in a well bore, the pipe including a float shoe or the like on which the plug assembly lands, comprising:

a bottom annular cementing plug having a longitudinal internal opening extending therethrough;

a bottom plug inner tube attached within said bottom plug internal opening, said inner tube including an interior activating ball annular seat at the lower end thereof, a lateral port disposed in the lower end portion of said inner tube above said activating ball annular seat, and said lower end portion of said inner tube being of a shape which provides a flow space exiting said bottom plug between the interior of said bottom plug internal opening and the exterior of said lower end portion of said inner tube;

a rupturable member which ruptures at a predetermined differential fluid pressure sealingly disposed over said lateral port in said bottom plug inner tube;

a top annular cementing plug having a longitudinal internal opening extending therethrough;

an elongated top plug inner tube snugly disposed through said top plug internal opening whereby said top plug is free to slide on said inner tube when a differential fluid pressure is exerted thereon;

the bottom end of said top plug inner tube being sealingly attached to the top end of said bottom plug inner tube by a first differential fluid pressure activated releasable connecting means; and

the top end of said top plug inner tube being sealingly attached to said string of drill pipe or said circulation tool by a second differential fluid pressure activated releasable connecting means.

15. A method of cementing a pipe in a well bore by way of a string of drill pipe or a circulation tool disposed within the top of said pipe, said pipe including a float shoe or the like connected at the bottom thereof comprising the steps of:

(a) connecting a cementing plug assembly to said string of drill pipe or circulation tool, said assembly comprising

a bottom annular cementing plug having a longitudinal internal opening extending therethrough,

a bottom plug inner tube attached within said bottom plug internal opening, said inner tube including an interior activating ball annular seat at the lower end thereof, a lateral port disposed in the lower end portion of said inner tube above said activating ball annular seat, and said lower end portion of said inner tube being of a shape which provides a flow space exiting said bottom plug between the interior of said bottom plug internal opening and the exterior of said lower end portion of said inner tube;

a rupturable member which ruptures at a predetermined differential fluid pressure sealingly disposed over said lateral port in said bottom plug inner tube,

a top annular cementing plug having a longitudinal internal opening extending therethrough,

an elongated top plug inner tube snugly disposed through said top plug internal opening whereby said top plug is free to slide on said inner tube when a differential fluid pressure is exerted thereon,

the bottom end of said top plug inner tube being sealingly attached to the top end of said bottom plug inner tube by a first differential fluid pressure activated releasable connecting means,

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the top end of said top plug inner tube being sealingly attached to said string of drill pipe or said circulation tool by a second differential fluid pressure activated releasable connecting means, said connecting means including an interior activating ball annular seat connected to said top plug inner tube which is larger than said activating ball annular seat disposed in said bottom plug inner tube,

the differential fluid pressure required to activate said first differential fluid pressure activated releasable connecting means being a predetermined pressure, the differential fluid pressure required to rupture said rupturable member being a predetermined pressure higher than that required to activate said first releasable connecting means and the differential fluid pressure required to activate said second differential fluid pressure activated releasable connecting means being a predetermined pressure higher than that required to rupture said rupturable member;

(b) dropping a first activating ball into said cementing plug assembly having a size whereby said activating ball seats on said annular seat disposed in the lower end of said bottom plug inner tube thereby closing said bottom plug inner tube;

(c) pumping a cement slurry into said cementing plug assembly whereby the differential fluid pressure exerted on said closed bottom plug inner tube equals or exceeds the predetermined pressure required to activate said first releasable connecting means thereby releasing said bottom plug from said cementing plug assembly;

(d) continuing the pumping of said cement slurry until said bottom plug lands on said float shoe;

(e) continuing the pumping of said cement slurry until said differential fluid pressure exerted on said rupturable member equals the predetermined pressure required to rupture said rupturable member thereby rupturing said rupturable member and allowing said cement slurry to flow through said bottom plug inner tube into the annulus between the outside of said pipe and said well bore by way of said float shoe;

(f) dropping a second activating ball into said cementing plug assembly having a size whereby said activating ball seats on said annular seat connected to said top plug inner tube thereby closing said top plug inner tube;

(g) pumping a displacement fluid behind said top plug until the differential fluid pressure exerted on said second releasable connecting means equals or exceeds the predetermined pressure required to activate said second releasable connecting means thereby releasing said top plug from said cementing plug assembly;

(h) continuing the pumping of said displacement fluid into said pipe behind said top plug until said top plug lands on said bottom plug and said cement slurry has been displaced into said annulus; and

(i) allowing said cement slurry to set in said annulus.

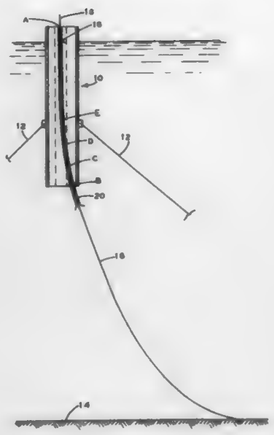
5,722,492

CATENARY RISER SUPPORT

Lyle David Finn, Sugar Land, Tex., assignor to Deep Oil Technology, Incorporated, Houston, Tex.

Filed Aug. 22, 1996, Ser. No. 701,622
Int. Cl.[6] E21B *17/01*
U.S. Cl. 166—367 **3 Claims**

1. In a floating offshore structure for producing hydrocarbons where a catenary riser extends from the sea floor to the floating structure, a support for the catenary riser, said support comprising a tube attached at predetermined locations to the floating offshore structure such that said support tube exits the lower end of the floating structure at an angle from the vertical, said tube extending outboard the lower end of the floating offshore structure and being sized to receive the catenary riser through said tube, wherein the portion of said tube that extends outboard the lower end of the



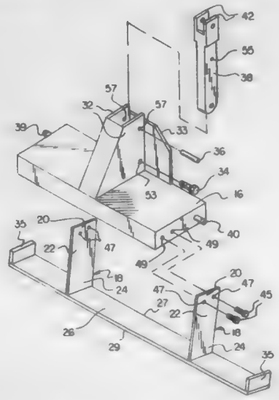
floating offshore structure has progressively increased flexibility toward the lower end of said support tube.

5,722,493

TRACTOR-MOUNTED CULTIVATOR APPARATUS

Joseph S. Dixon, PO Box 155, Brant, Alberta, Canada, T0L 0L0

Filed Oct. 1, 1996, Ser. No. 724,328
Int. Cl.[6] A01B *13/00*
U.S. Cl. 172—698 **6 Claims**



1. A cultivator apparatus for use on a vehicle, comprising:

a blade assembly,

a base portion for supporting said blade assembly relative to said vehicle, said base portion having and first and second spaced sidewalls and at least one transverse wall extending between said sidewalls,

blade connector means for attaching said blade assembly to said base portion, and

first and second vehicle connector means, said first and second connector means being attached to said base portion for operatively connecting said blade assembly to said vehicle,

wherein said blade connector mean includes a pair of downwardly descending strut members extending from said base portion sidewalls, respectively,

wherein said blade assembly comprises a transversely extending scraper blade connected between said pair of strut members

and wherein said scraper blade terminates in a pair of opposed distal ends, each of said distal ends extending oppositely and laterally beyond each of said strut members, respectively, each of said distal ends of said scrapper blade terminating in a corresponding wing member oriented orthogonally with respect to said scraper blade,

wherein said first vehicle connector means comprises a connecting link member attached to said base portion transverse wall intermedially of said pair of base portion sidewalls, and

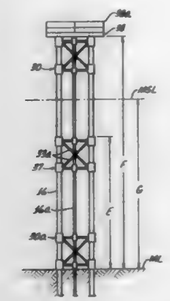
wherein said second vehicle connector means comprises a pair of connecting link members attached to said base portion sidewalls, respectively.

5,722,494

STACKED TEMPLATE SUPPORT STRUCTURE

Chris R. Landeck; Frank L. Jones, and Randall G. Scott, all of East Kalimantan, Indonesia, assignors to Union Oil Company of California, El Segundo, Calif.

Filed Oct. 18, 1995, Ser. No. 544,700
Int. Cl.[6] E21B *7/128*
U.S. Cl. 175—7 **33 Claims**



1. An offshore well structure which comprises:

a plurality of offshore well tubulars extending generally downward from above the water line through an underwater mud line and toward an underground fluid reservoir;

an uppermost bracing structure attached to said offshore well tubulars at a position above the water line; and

a lower bracing structure attached to said offshore well tubulars and spaced apart from said uppermost bracing structure, wherein said uppermost and said lower bracing structures have means for stackably mating with one another prior to said uppermost bracing structure being spaced apart from said lower bracing structure and attached to said well tubulars.

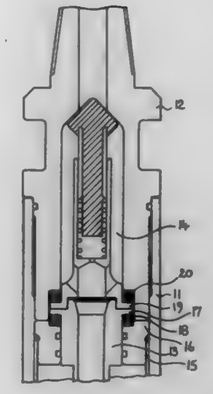
5,722,495

MAKE UP SYSTEM OF A DOWN-THE-HOLE HAMMER

Ian Graeme Rear, 24 Hanwell Way, Bassendean, Australia

PCT No. PCT/AU94/00558, § 371 Date Mar. 20, 1996, § 102(e) Date Mar. 20, 1996, PCT Pub. No. WO95/08690, PCT Pub. Date Mar. 30, 1995
PCT Filed Sep. 19, 1994, Ser. No. 617,813
Claims priority, application Australia, Sep. 20, 1993, PM1339
Int. Cl.[6] E21B *4/06*
U.S. Cl. 175—296 **17 Claims**

1. A make up system of a down-the-hole hammer, where the down-the-hole hammer includes a hammer casing which has a top sub mounted to one end and supports a drill chuck at the other end, the casing accommodating a piston between the top sub and the drill chuck which is caused to reciprocate within the hammer casing, the top sub being adapted to be connected to a source of high pressure fluid, said top sub accommodating a valving system



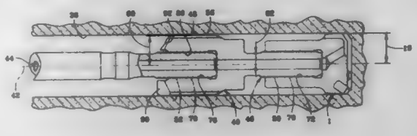
for controlling the delivery of fluid to the space within the casing, said make up system comprising: the valving system to be supported at one end of the hammer casing and having an annular flange thereon where the annular flange is capable of being slidably received within the hammer casing; an annular recess formed in the wall of the hammer casing; a retainer ring supported from said recess and extending inwardly beyond the inner face of the hammer casing, said flange being formed with an annular rebate around its perimeter adjacent the inner axial face to define a space between the retainer ring, the flange, and the side wall of the hammer casing, a compressible ring also received in the recess and located in the space, said compressible ring being compressed to fill the space as a result of the clamping forces applied by the fixing of the top sub to the hammer casing.

5,722,496

REMOVABLE GUIDE MEMBER FOR GUIDING DRILL STRING COMPONENTS IN A DRILL HOLE

Stuart A. Connell, Buchanan; James C. Patsell, Goodview, and James T. Laub, Salem, all of Va., assignors to Ingersoll-Rand Company, Woodcliff Lake, N.J.

Filed Mar. 19, 1996, Ser. No. 620,682
Int. Cl.[6] F21B *17/10*
U.S. Cl. 175—325.5 **5 Claims**



1. A guide member for maintaining alignment in a drill hole of drill string components along a drill string centerline, the drill hole being produced by a percussive, fluid-actuated drill bit, the drill bit having a radial dimension with respect to the drill string centerline, comprising:

(a) an elongated body having a body centerline axis extending axially therealong;

(b) a bore extending along said body centerline axis, for passing a fluid therethrough;

(c) said body terminating in a shank end portion and a head end portion;

(e) connection means on said shank end portion for removably connecting to a first drill string component;

(f) connection means on said head end portion for removably connecting to a second drill string component;

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(g) said head end portion having an outer surface thereon substantially symmetrically spaced around said body centerline, said head end portion having a radial dimension with respect to said body centerline, such that when said guide member and a drill bit are inserted into a drill string, said head end radial dimension is less than a drill bit radial dimension, but sufficient to position said outer surface of said head end portion in close proximity to a drill hole sidewall, whereby, if the drill string begins to deviate substantially out of axial alignment, said outer surface will contact the drill hole sidewall; and

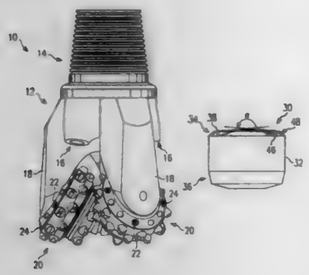
(h) said head end portion terminating in a distal surface having an angled cutting lip, whereby, when said guide is withdrawn upwardly from a drill hole, said cutting lip will cut through drill hole debris that may be trapped thereabove.

5,722,497

ROLLER CONE GAGE SURFACE CUTTING ELEMENTS WITH MULTIPLE ULTRA HARD CUTTING SURFACES

Robert C. Gum, Oklahoma City, Okla.; William D. Vanderford, Irving, and Thomas M. Dennis, Houston, both of Tex., assignors to Dresser Industries, Inc., Dallas, Tex.

Filed Mar. 21, 1996, Ser. No. 628,534
Int. Cl.[6] E21B *10/16;10/50*
U.S. Cl. 175—374 **77 Claims**



1. A gage surface cutting element for a cutter in a roller cone drill bit, comprising:

a generally cylindrical body formed of a hard and wear-resistant material and having a cutting end, said cutting end having a generally conical cutting surface substantially perpendicular to a longitudinal axis of said cylindrical body;

a plurality of shallow grooves formed in said conical cutting surface;

a plurality of strips of an ultra hard material having a shape and profile conforming to said shallow grooves, said strips defining cutting surfaces substantially in line with said conical cutting surface;

said hard and wear-resistant material and said ultra hard material defining a plurality of alternating hard and ultra hard elongated cutting surfaces and a small angle of approach with respect to a sidewall of a borehole; and

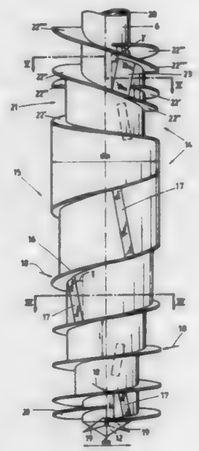
wherein said conical cutting surface has an angle between 160° and 180°.

5,722,498

SOIL DISPLACEMENT AUGER HEAD FOR INSTALLING PILES IN THE SOIL

William Frans Van Impe, Erpe-Mere, and Guy Adolf August Cortvrindt, Affligem, both of Belgium, assignors to Harenin-vest, Wijnegem, Belgium

PCT No. PCT/BE94/00078, § 371 Date Jun. 17, 1996, § 102(e) Date Jun. 17, 1996, PCT Pub. No. WO95/12050, PCT Pub. Date May 4, 1995
PCT Filed Oct. 28, 1994, Ser. No. 637,747
Claims priority, application Belgium, Oct. 28, 1993, 09301168
Int. Cl.[6] F21B *7/26;* **E02D** *5/62;7/22*
U.S. Cl. 175—394 **18 Claims**



1. A soil displacement auger head for installing piles in the soil, comprising:

a tip;

a displacement body having at least over a lower portion a core diameter increasing in diameter in a direction away from said tip; and

at least one screw flange extending at least over said lower portion of the displacement body;

wherein said screw flange has a pitch which increases at least over said lower portion of the displacement body in the direction away from said tip.

5,722,499

MULTIPLE DIAMOND LAYER POLYCRYSTALLINE DIAMOND COMPOSITE CUTTERS

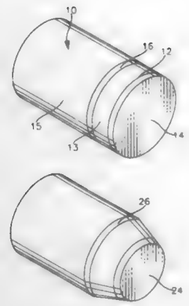
David M. Nguyen, Houston; Michael A. Siracki, The Woodlands, and Stephen G. Southland, Humble, all of Tex., assignors to Smith International, Inc., Houston, Tex.

Filed Aug. 22, 1995, Ser. No. 518,037
Int. Cl.[6] E21B *10/46*
U.S. Cl. 175—431 **12 Claims**

1. A drag bit comprising a plurality of cylindrical cemented tungsten carbide polycrystalline diamond cutters having two end faces, a body therebetween and a longitudinal axis, wherein the cutters are inserted in an outer body of the bit so that the longitudinal axis of each cutter is approximately perpendicular to a radius of the bit and wherein a portion of each cutter including an end face is exposed, and comprises:

a primary polycrystalline diamond cutting surface on the exposed end face; and

a polycrystalline diamond composite layer forming a secondary cutting surface on the exposed portion of the cutter, wherein the diamond layer extends across the cutter body and wherein the secondary cutting surface is spaced apart from the primary cutting surface.

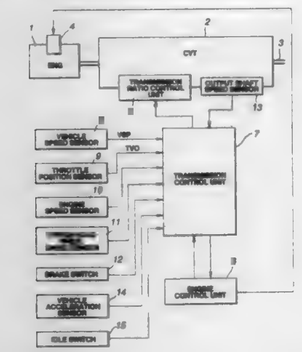


5,722,500

CONTINUOUSLY VARIABLE TRANSMISSION CONTROL APPARATUS

Nobusuke Toukura; Shojiro Sato, both of Yokohama; Takayoshi Nabeta, and Tadayuki Akiyama, both of Yokosuka, all of Japan, assignors to Nissan Motor Co., Ltd., Yokohama, Japan

Filed Oct. 8, 1996, Ser. No. 727,086
Claims priority, application Japan, Oct. 12, 1995, 7-264087; Oct. 12, 1995, 7-264088; Oct. 16, 1995, 7-267295
Int. Cl.[6] F16H *59/48*
U.S. Cl. 477—40 **9 Claims**



1. An apparatus for controlling a continuously variable transmission for use with an automotive vehicle including an accelerator pedal, the transmission having an input and output shaft, the transmission being operable at a variable speed ratio for transmitting a drive from the input shaft to the output shaft, comprising:

means for sensing vehicle operating conditions including vehicle acceleration and vehicle speed;

means for producing a released accelerator pedal indicative signal when the accelerator pedal is released;

means for calculating a target value for the speed of rotation of the input shaft based on the sensed vehicle operating conditions;

means for calculating a correction factor per predetermined unit time based on the sensed vehicle acceleration when the sensed vehicle acceleration exceeds a threshold value in the presence of the released accelerator pedal indicative signal;

means for adding the correction factor to the target input shaft speed value to correct the target input shaft speed value in an increasing direction at intervals of the predetermined unit time;

means for decreasing the threshold value as the vehicle speed increases; and

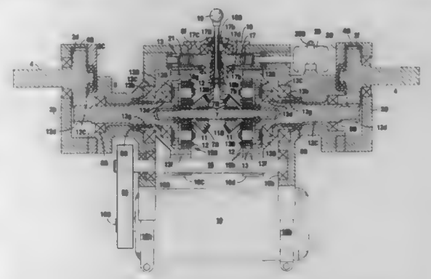
means for controlling the speed ratio to bring the input shaft speed into coincidence with the corrected target value.

5,722,501

BEVEL STEERING GEAR INTEGRATED DRIVE TRANSMISSION

Thomas E. Finch, and James A. Finch, both of Spring Branch, Tex., assignors to Teftec Corporation, Spring Branch, Tex.

Filed May 24, 1996, Ser. No. 652,975
Int. Cl.[6] B60K *1/02*
U.S. Cl. 180—6.44 **9 Claims**



1. An electric motor powered wheeled vehicle comprising:

a frame defining transversely spaced coaxially aligned bearings;

a pair of shafts respectfully journalled in said bearings for rotation about a horizontal axis, said shafts having end portions respectively projecting axially beyond said beatings;

a pair of primary ground engaging wheels respectively driven by said end portions of said shafts;

secondary ground engaging wheels mounted on said frame in longitudinally spaced relation to said primary ground engaging wheels;

a pair of identical planetary gear drive systems respectively coaxially mounted on said frame in axially spaced, coaxial relationship, each of said planetary gear systems comprising a sun gear, a planetary gear housing, a plurality of angularly spaced planet gears mounted on said housing and cooperating with the respective sun gear, and a ring gear surrounding said planetary gears and having internal teeth cooperating with each said planet gear of the respective planetary gear system;

said planetary gear housings being respectively operatively connected to said shafts;

a first reversible electric motor mounted on said frame;

means for energizing and selecting the direction of rotation of said first electric motor;

means for operatively connecting said first electric motor to one of said sun gear and ring gear of each said planetary gear drive systems to concurrently drive said shafts and said primary ground engaging wheels at equal speeds when the other of said sun gears and said ring gears are secured against relative movement;

a second reversible electric motor mounted on said frame;

means for energizing and for selecting the direction of rotation of said second reversible electric motor;

a primary bevel gear axially shiftably mounted on said frame for rotation about an axis perpendicular to the axis of said planetary gear systems, said primary bevel gear being rotatable in a selected direction by said second electric motor; and

means for axially shifting said primary bevel gear into operative engagement with said other of said sun gears and ring gears that are not operatively connected to said first electric motor,

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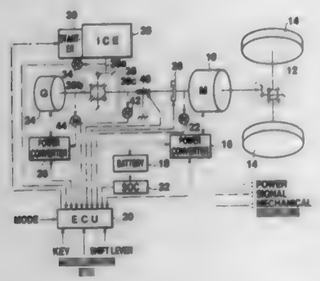
whereby energization of said second electric motor changes the relative rotational speed of said primary ground engaging wheels to effect the steering of the vehicle.

5,722,502

HYBRID VEHICLE AND ITS CONTROL METHOD

Kaoru Kubo, Aichi-ken, Japan, assignor to Toyota Jidosha Kabushiki Kaisha, Toyota, Japan

Filed May 20, 1996, Ser. No. 650,821
Claims priority, application Japan, May 24, 1995, 7-124903; Apr. 23, 1996, 8-100895
Int. Cl.[6] B60L 11/12;11/14
U.S. Cl. 180—65.4 13 Claims



1. A control method which is implemented in a hybrid vehicle which is provided with, at least, an internal combustion engine for producing power, first and second dynamo-electric machines each on a power transmission path from said internal combustion engine to a driving wheel and electrically connected to each other, and an accumulator electrically connected to said first and second dynamo-electric machines, and said control method comprising:

a first step for determining a control mode to be used from among multiple types of control modes including at least an SHV mode and a continuous-type PSHV mode,

a second step for setting the state of said components so that the electrical connections and the mechanical connection among above-mentioned components conform with the control mode determined in the first step, and

a third step for controlling the operation of above-mentioned components according to the control mode determined in the first step and set in the second step,

said SHV mode being a mode in which, after mechanically disconnecting the internal combustion engine and the first dynamo-electric machine from the second dynamo-electric machine and the driving wheel, said second dynamo-electric machine is operated as a motor and torque obtained by the motor is used to drive the vehicle, and if necessary, said first dynamo-electric machine is operated as a generator driven by said internal combustion engine, and

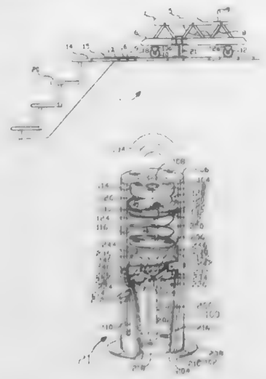
said continuous-type PSHV mode being a mode in which after mechanically connecting said internal combustion engine and first dynamo-electric machine to said second dynamo-electric machine and the driving wheel, the torque produced by said internal combustion engine is used in the mechanical form to drive the vehicle, and if necessary, said first dynamo-electric machine is operated as a generator to be driven by said internal combustion engine and said second dynamo-electric machine is operated as a motor or a generator.

5,722,503

BOUNDARY RESPONSIVE MOBILITY APPARATUS

William R. Haller, 425 Brighton St #403, Bethlehem, Pa. 18015

Continuation of Ser. No. 312,883, Sep. 27, 1994, abandoned.
This application Mar. 17, 1997, Ser. No. 818,280
Int. Cl.[6] B60T 7/16
U.S. Cl. 180—168 2 Claims



1. A braking apparatus for a mobility device, said mobility device rolling on a surface, said braking apparatus increasing the frictional contact between said mobility device and said surface, said braking apparatus being engaged when said mobility device passes over a magnetically permeable boundary defined on said surface, said braking apparatus comprising:

a piston chamber attached to said mobility device;

a piston springably biased within said chamber;

a moveable magnet attractively responsive to said boundary; and

means positioned within said piston for latching said piston within said piston chamber, said latching means releasably responsive to said magnet, wherein when unlatched, said piston is forcibly extended outwardly from said chamber directly engaging said surface.

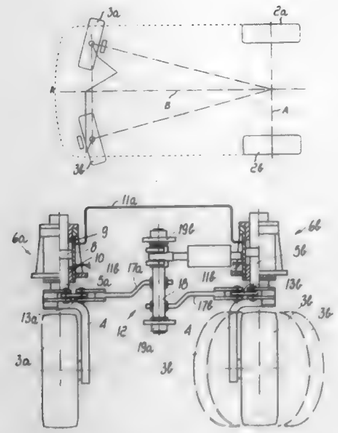
5,722,504

FOUR-WHEELED LIFT TRUCK

Angelo Gaetani, Civitanova Marche, Italy, assignor to Carer S.n.c. dell'Ing. Angelo Gaetani & C., Cotignola, Italy

Filed Apr. 24, 1996, Ser. No. 639,063
Claims priority, application Italy, May 3, 1995, BO95A0196
Int. Cl.[6] B62D 9/00
U.S. Cl. 180—411 7 Claims

1. Four-wheeled lift truck of the type having front wheels with independent powerplants, comprising rear turning wheels mounted below the stems of respective hydraulic jacks that have substantially vertical axes and are rigidly coupled to the chassis of the truck, the hydraulic circuits of said jacks being connected to one another so that the lowering of one wheel is matched by a rise of the other wheel, further comprising stems of said jacks that are interconnected by articulation means adapted to mutually coordinate the turning angles of said wheels to move the maximum



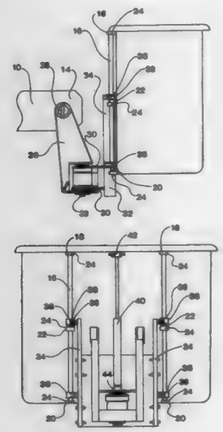
turning center to the intersection between the fixed axis of the front driving wheels and the centerline plane of the truck.

5,722,505

MAN PLATFORM FOR AN AERIAL BOOM

David F. Grabner, Roanoke, and Patrick M. DeLaney, Fort Wayne, both of Ind., assignors to Teco, Inc., Fort Wayne, Ind.

Filed Jun. 8, 1995, Ser. No. 488,562
Int. Cl.[6] B66F 11/04
U.S. Cl. 182—2 14 Claims



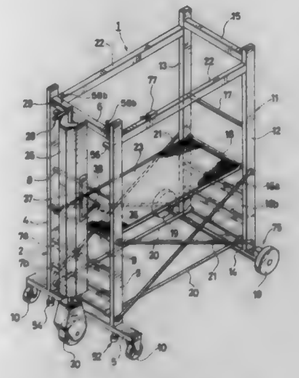
1. A man platform mounted on an articulated aerial boom, said boom having a distal end, said man platform having a frame pivotally connected to said distal end of said aerial boom, said frame having a pair of sleeves, at least one rod in said sleeves, said rod being secured to said man platform, said rod being spaced from said platform, and a linear actuator connected between said frame and said platform, whereby said platform may be linearly moved relative to said aerial boom the length of said rod by actuation of said actuator.

5,722,506

MOVABLE WORKING PLATFORM

Ishiyuki Takai, Tokyo, Japan, assignor to Sanritsu Giken Kogyo Kabushiki-Kaisha, Tokyo, Japan

Filed Oct. 4, 1994, Ser. No. 317,369
Claims priority, application Japan, Oct. 4, 1993, 5-271305
Int. Cl.[6] E04G 3/16
U.S. Cl. 182—16 23 Claims



1. A movable working platform comprising:

a scaffold including a front frame having a pair of support posts, and a pair of front wheels mounted on opposite sides of a lower end of said front frame, a rear frame having a pair of support posts, and a pair of rear wheels mounted on opposite sides of a lower end of said rear frame, and a scaffolding platform disposed between said front and rear frames;

a steering mechanism including a steering shaft vertically arranged along said front frame, a handle mounted on an upper end of said steering shaft, and a drive wheel mounted on a lower end of said steering shaft;

a foot-actuated drive mechanism including a foot-actuated pedal pivotally supported by said front frame proximate to the scaffolding platform, a wire member wound on a pulley and reciprocally moved in response to a reciprocating pivoting motion of said pedal, and a one-way clutch for transmitting only a one-way rotation of said pulley to said drive wheel in order to propel the working platform;

means for adjusting a vertical mounting position of said scaffolding platform between said front and rear frames; and

means for adjusting a vertical mounting position of said pedal.

5,722,507

STEP STOOL ASSEMBLY

James M. Kain, Tipp City, Ohio, assignor to Cosco, Inc., Columbus, Ind.

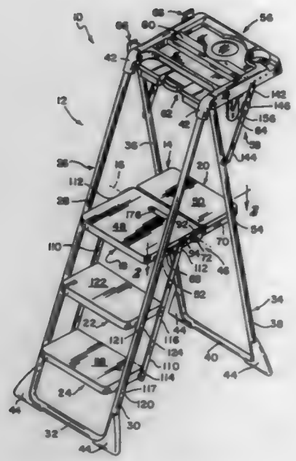
Filed Jan. 11, 1996, Ser. No. 585,153
Int. Cl.[6] E06C 7/14
U.S. Cl. 182—129 31 Claims

1. A platform stool comprising

a frame including a from leg and a rear leg, the front leg being pivotably coupled to the rear leg for movement about a leg pivot axis between an opened position wherein a bottom portion of the front leg is spaced-apart from a bottom portion of the rear leg and a closed position wherein the from leg is adjacent to the rear leg, and

a multi-part platform including a front section pivotably coupled to the front leg, a rear section pivotably coupled to the rear leg, each of the front and rear sections having a top surface, and a platform support linkage coupling the front section to the rear section for movement about a platform pivot axis between a platform-forming position wherein the top surface

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of the front section and the top surface of the rear section are aligned in substantially coplanar relation to form a platform and a platform-collapsing position wherein the top surface of the front section faces away from the rear leg and the top surface of the rear section faces away from the front leg, the front and rear legs cooperating with the multi-part platform so that the front and rear legs are in the opened position when the front and rear sections are in the platform-forming position and the front and rear legs are in the closed position when the front and rear sections are in the platform-collapsing position, the front section including a rear edge, the rear section including a front edge, the front edge being arranged in confronting separated relation with the rear edge when the multi-part platform is in the platform-forming position so as to define a vertical space therebetween, the platform pivot axis being laterally offset from the vertical space.

5,722,508

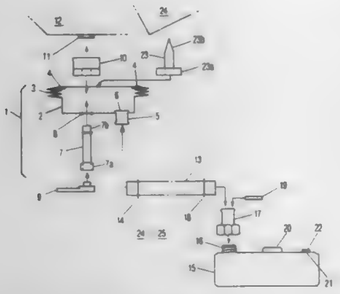
OIL CHANGE DEVICE

Terrance Donald Kraus, 4147 Alcazar St., NE., Albuquerque, N. Mex. 87109

Filed Jun. 24, 1996, Ser. No. 669,027

Int. Cl.[6] F16C *3/14*

U.S. Cl. 184—1.5 **19 Claims**



1. A device for collecting fluid from a reservoir having a drain plug, the device comprising:

(a) a sealing cover unit, having a top and a bottom, and comprising

a baffle means, mounted at said top of said sealing cover unit, for providing a mouth into said sealing cover unit, said baffle means having a superior surface and an inferior surface,

magnet means located at the superior surface of said baffle means for magnetically attaching said sealing cover unit to the reservoir,

a base, mounted at said bottom of said sealing cover unit for providing a fluid reservoir, said base having first and second orifices,

a tube fixture, attached to said base, for communicating with said first orifice,

means for preventing the drain plug from passing through said first orifice,

a wrench shaft protruding through said second orifice in said base, said wrench shaft having proximal and distal ends and a long axis, and said proximal end having a female-type head means for connecting said wrench shaft to a socket wrench having a complementary, male-type head,

means for connecting said distal end of said wrench shaft to a wrench socket having a diameter larger than said second orifice of said base and sized to engage the drain plug located on the reservoir, whereby said wrench shaft cannot fall out of said sealing cover unit when the wrench socket is connected to said distal end, and

a grommet-type means for sealing said wrench shaft and said base member, whereby said wrench shaft is capable of rotational and longitudinal displacement and an angle of intersection between said long axis of said wrench shaft and said base is capable of adjustment;

(b) a fluid collection container having a mouth;

(c) a flexible tube means having first and second open ends;

(d) means for connecting said first end of said tube to said tube fixture; and

(e) means for connecting said second end of said tube to said mouth of said fluid collection container.

17. A method of collecting fluid from a reservoir having a drain plug, the steps comprising:

(1) positioning a collecting device under the reservoir, said collecting device comprising:

(a) sealing cover unit having a top and a bottom, and comprising

a baffle means, mounted at said top of said sealing cover unit, for providing a mouth into said sealing cover unit, said baffle means having a superior surface and an inferior surface,

magnet means located at the superior surface of said baffle means for magnetically attaching said sealing cover unit to the reservoir,

a base, mounted at said bottom of said sealing cover unit for providing a fluid reservoir, said base having first and second orifices,

a tube fixture, attached to said base, for communicating with said first orifice,

means for preventing the drain plug from passing through said first orifice,

a wrench shaft protruding through said second orifice in said base, said wrench shaft having proximal and distal ends and a long axis, and said proximal end having a female-type head means for connecting said wrench shaft to a socket wrench having a complementary, male-type head,

means for connecting said distal end of said wrench shaft to a wrench socket having a diameter larger than said second orifice of said base and sized to engage the drain plug located on the reservoir, whereby said wrench shaft cannot fall out of said sealing cover unit when the wrench socket is connected to said distal end, and

a grommet-type means for sealing said wrench shaft and said base member, whereby said wrench shaft is capable of rotational and longitudinal displacement and an angle of intersection between said long axis of said wrench shaft and said base is capable of adjustment;

(b) a fluid collection container having a mouth,

(c) a flexible tube means having first and second open ends;

(d) means for connecting said first end of said tube to said tube fixture; and

(e) means for connecting said second end of said tube to said mouth of said fluid collection container;

(2) attaching said mouth of said baffle means to the reservoir by said magnet means;

(3) unscrewing the drain plug with said socket wrench connected to said proximal end of said wrench shaft;

(4) longitudinally displacing said wrench shaft away from said reservoir;

(5) allowing said drain plug to drop to said base of said sealing cover unit;

(6) disconnecting the socket wrench from said wrench shaft;

(7) allowing the fluid to flow by gravity into said sealing cover unit, through said flexible tube and into said container;

(8) determining when said oil flow has stopped;

(9) pulling away said baffle means from said reservoir;

(10) removing the drain plug from said sealing cover unit; and

(11) reattaching the drain plug to the reservoir.

5,722,509

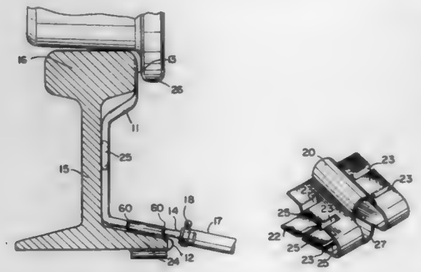
FLANGE OILER

Daniel Clifton Clinger, Haw Thorn, Pa., assignor to Consolidated Rail Corporation, Philadelphia, Pa.

Filed May 14, 1996, Ser. No. 648,353

Int. Cl.[6] B61K *3/00*; **E01B** *9/62*

U.S. Cl. 184—3.1 **14 Claims**



1. An applicator for applying lubricant to an interface of a wheel of a railroad railcar and a rail, the rail having a top surface that intersects with a side surface, the applicator comprising:

a malleable tube having a distal end formed into a lubricant dispensing tip, the malleable tube being disposed against the side surface of the rail and underneath the top surface to protect the tube from damage, and the distal end being disposed in a relief section of the rail, the relief section being formed in a first portion of the side surface of said rail that is disposed at the intersection of said side surface and the top surface.

5,722,510

DEVICE FOR CONTROLLING THE RETRACTION OF A MOBILE STRUCTURE

Daniel Viale, Tanneron, France, assignor to Societe Nationale Industrielle et Aerospatiale, Paris Cedex, France

Filed Apr. 5, 1996, Ser. No. 628,517

Claims priority, application France, Apr. 19, 1995, 95 04642

Int. Cl.[6] B64G *1/66*

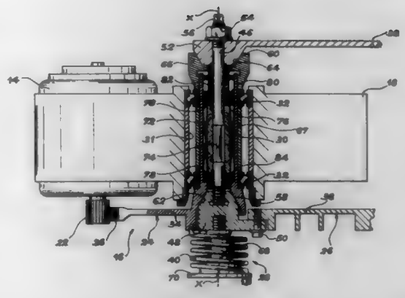
U.S. Cl. 185—40 R **10 Claims**

1. A unit, which comprises:

a retractable mobile structure;

a transmission mechanism:

a displacement control mechanism bringing said mobile structure into at least one regulated position by said transmission mechanism; and



a retraction control device controlling retraction of said mobile structure in a retracted position different from said regulated position, said retraction control device including a disconnectable connecting mechanism;

a memory material member acting on the disconnectable connecting mechanism in order to control the disconnection thereof, during a change of state of the material, and

a heating mechanism associated with said memory material member and controlling the change of state thereof on exceeding a predetermined temperature threshold.

5,722,511

LIFTING VEHICLE AND METHOD OF OPERATING THE VEHICLE

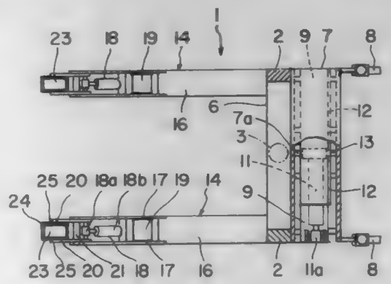
Koji Wakamiya, Aichi-Ken, Japan, assignor to Bishamon Industries Corporation, Ontario, Calif.

Filed Oct. 13, 1995, Ser. No. 542,672

Claims priority, application Japan, Oct. 17, 1994, 6-250864

Int. Cl.[6] B66F *9/06*

U.S. Cl. 187—231 **9 Claims**



8. A lifting vehicle, comprising a mount; a lifting mechanism on said mount; a pair of bearing members for moving said mount over a support surface, said bearing members projecting to one side of said mount, and each of said bearing members including a first rolling element rotatable about a first axis and a second rolling element rotatable about a second axis transverse to the respective first axis, each of said rolling elements having a lowered position in which the respective rolling element is arranged to contact the support surface and a raised position in which the respective rolling element is arranged to be out of contact with the support surface, and each of said bearing members further including a displacing mechanism for moving the associated rolling elements between the raised and lowered positions, each of said displacing mechanisms being designed so that the associated first rolling element is moved to the lowered position in response to movement of the corresponding second rolling element to the raised position and the associated first rolling element is moved to the raised position in response to movement of the corresponding second

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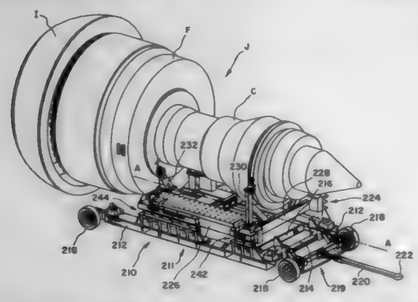
rolling element to the lowered position; and a shifting mechanism for moving said bearing members towards and away from one another.

5,722,512

JET AIRCRAFT ENGINE SHIPPING STAND

Gerald D. Lilja, Parker, Colo.; Frank Fowler, Gilford, Conn., and Robert F. Hatch, Aurora, Colo., assignors to Stanley Aviation Corporation, Aurora, Colo.

Filed Nov. 30, 1995, Ser. No. 565,437
Int. Cl.[6] B66B 9/16
U.S. Cl. 187—244 23 Claims



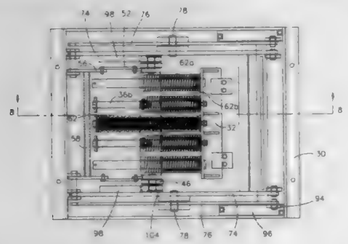
1. An improved jet aircraft engine shipping stand for shipping a jet aircraft engine mounted thereon in either a truck transport mode or an air transport mode, said shipping stand comprising:
a frame for supporting the aircraft engine;
a plurality of wheels mounted to said frame for providing locomotive capability to said shipping stand;
a cradle mounted on said frame, said cradle providing selective shock absorbing support between the aircraft engine and said frame, said cradle including at least one spacer that is selectively engaged therewith for configuring said shipping stand in either the truck transport mode or the air transport mode.

5,722,513

SCISSOR LIFT

Richard T. Rowan, Guelph; Leonard G. Sutherland, Brampton; Gary Cooke, Dundas, and Paul A. Pedersen, Guelph, all of Canada, assignors to Pentalift Equipment Corporation, Guelph, Canada

Filed Jun. 20, 1995, Ser. No. 492,602
Int. Cl.[6] B66B 9/02
U.S. Cl. 187—269 29 Claims



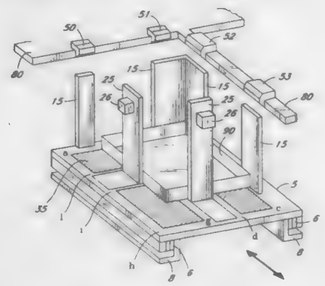
1. A scissor lift to maintain a load at an elevated location comprising a base, a support to support said load, at least one leg assembly having a pair of legs pivoted to one another intermediate their ends, said leg assembly extending between said base and said support and being connected thereto to permit relative movement between said support and said base while maintaining a predetermined orientation of said support to said base, and biasing means acting on said leg assembly to oppose relative movement between said support and said base, said biasing means including a plurality of biasing units selectively engageable with said leg assembly to vary the bias acting thereon.

5,722,514

TRAY INSTALLATION RACK FOR TEST HANDLER

Toshiyuki Kiyokawa, Kuki, Japan, assignor to Advantest Corp., Tokyo, Japan

Filed Apr. 26, 1996, Ser. No. 636,269
Claims priority, application Japan, Apr. 28, 1995, 7-129848
Int. Cl.[6] B66B 9/02
U.S. Cl. 187—270 9 Claims



1. A tray installment rack for a test handler to install therein a plurality of trays each of which has a large number of IC devices to be tested, comprising:
a main base fixed to said test handler;
a slide base slidably mounted on said main base and has a floor for receiving said trays thereon;
a pair of tray guide bars perpendicularly mounted on said slide base to meet two adjacent sides of each of said trays for limiting movements of said trays in two horizontal directions;
a pair of tray adjust bars slidably provided on said slide base to press said trays against said pair of guide bars in said two horizontal directions;
an elevator provided on said test handler to lift said trays in a vertical direction in said tray installation rack until an uppermost tray exceeds top ends of said tray guide bars;
a pair of tray pushers provided at top portions of said tray adjust bars; and
tray standard members mounted on said main base at immediately above said top ends of said tray guide bars to restrict movements of said uppermost tray in said two horizontal directions;
wherein said uppermost tray is positioned when said uppermost tray is pressed by said tray pushers against said tray standard members.

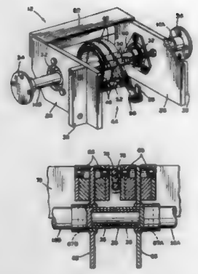
5,722,515

HAND CART BRAKING SYSTEM

Gene Wyse, 10510 County Rd. 12, Wauseon, Ohio 43567

Filed Jan. 27, 1997, Ser. No. 788,381
Int. Cl.[6] B60T 1/04
U.S. Cl. 188—22 19 Claims

1. A brake assembly mounted on a hand cart having a frame and a pair of laterally spaced wheels, said brake assembly comprising:
a pair of bearing brackets connected to a hand cart in spaced-apart relationship and extending from the hand cart between a pair of laterally spaced wheels;
a bearing mounted in each of said bearing brackets and aligned between the wheels;



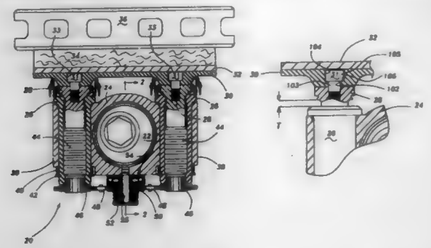
a split axle rotatably mounted in said bearings, said split axle including a first axle segment connected to a first wheel, a second axle segment connected to a second wheel, and a connection means positioned at an end-to-end junction of the two axle segments for facilitating the independent rotation of the axle segments and the respective wheels;
a brake mounted on said split axle at said connection means for selectively and simultaneously engaging the first and second axle segments of said split axle; and
an actuator mounted on the frame of the hand cart, said actuator connected to said brake for selectively causing said brake to engage said split axle.

5,722,516

DISC BRAKE WITH RIGID CONNECTION BETWEEN LOAD PLATE AND ADJUSTING PISTON

Roberto Forni, Novara; Roberto Conti, Varese, and Giovanni Sacchi, Novara, all of Italy, assignors to Meritor Heavy Vehicle Systems, LLC

Filed Nov. 12, 1996, Ser. No. 747,139
Int. Cl.[6] F16D 13/75;55/16;65/56
U.S. Cl. 188—71.9 12 Claims



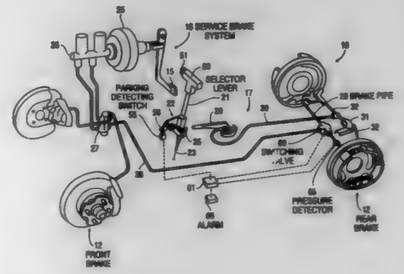
1. A disc brake system comprising:
a load plate to receive a friction material on a first face;
an eccentric to receive an input, and an actuation member to move said load plate and a friction material upon rotation of said eccentric;
an adjusting piston for adjusting the position of said load plate relative to said actuation member to compensate for wear on a friction material, said adjusting piston being directly connected to said load plate, and on an opposed side of said load plate from said friction material, at least one connecting element extending through said load plate from said first face and into said adjusting piston to securely and rigidly connect said adjusting piston;
structure for moving said adjusting piston upon wear of said friction material; and
said load plate including at least one hole extending from said first face toward said second face, and said connecting element extending through said hole to secure said load plate to said adjusting piston in a rigid connection such that there is no relative movement between said load plate and said adjusting piston.

5,722,517

BRAKE APPARATUS OF A MOTOR VEHICLE EQUIPPED WITH AUTOMATIC TRANSMISSION

Osamu Sayama, Tochigi, Japan, assignor to Mitsubishi Jidosha Kogyo Kabushiki Kaisha, and Mitsubishi Jodosha Engineering Kabushiki Kaisha, both of Tokyo, Japan

Filed Sep. 4, 1996, Ser. No. 707,419
Claims priority, application Japan, Sep. 4, 1995, 7-226625
Int. Cl.[6] B60T 17/16;11/00; B60K 41/26
U.S. Cl. 188—353 1 Claim



1. A braking apparatus of a motor vehicle equipped with an automatic transmission, comprising:
a spring chamber including a spring for biasing a wheel brake in a direction in which said wheel brake applies a braking force to a corresponding wheel, said spring chamber inhibiting said wheel brake from applying the braking force against a bias force of said spring, upon application of a pneumatic pressure from a compressed air supply to the spring chamber;
a shift operating unit including a selector member placed in a selected one of shift positions including a parking position for establishing a selected one of shift positions ranges of the automatic transmission; and
a control valve disposed between said compressed air supply and said spring chamber, said control valve being selectively placed in a first state wherein the spring chamber communicates with the compressed air supply, and a second state wherein an air in the spring chamber is discharged, said control valve being placed in said second state when said selector member is in said parking position, and placed in said first state when the selector member is in a position other than said parking position, and wherein
said control valve includes an operating portion that is mechanically moved along with said selector member so that the control valve is switched to said second state when the selector member is in said parking position, and switched to said first state when the selector member is in said position other than said parking position.

5,722,518

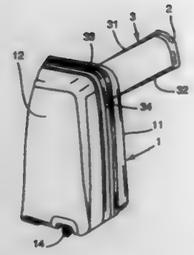
HANDLE FOR BAGGAGE

Michel Aumasson, Rueil Malmaison, France, assignor to Delsey, France

Filed Mar. 1, 1996, Ser. No. 609,636
Claims priority, application France, Mar. 3, 1995, 95 02471
Int. Cl.[6] A45C 5/14;13/26
U.S. Cl. 190—115 5 Claims

1. A wheeled case, comprising:
a housing having a top edge and an end edge joined at a curved corner;
a handle having first and second ends and a curved portion therebetween to seat against the curved corner;
a strap disposed through the handle slidably connecting the first end of the handle to the top edge and the second end to the end edge; and

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a retracting means connected to at least one end of the strap allowing the handle to retractably extend from the housing.

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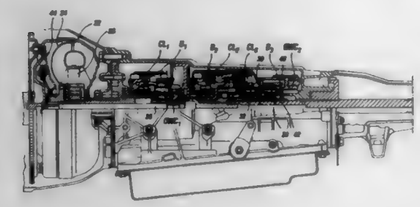
MULTIPLE RATIO AUTOMATIC TRANSMISSION AND TORQUE CONVERTER

Johann Kirchhoffer, Cologne; Thomas Martin, Pulheim; Eric Reichert, Leverkusen; Werner Croonen, Bergheim; Thomas Wagner, Cologne, and Wolfgang Wickler, Bruhl, all of Germany, assignors to Ford Global Technologies, Inc., Dearborn, Mich.

Continuation-in-part of Ser. No. 526,457, Sep. 11, 1995, Pat. No. 5,553,694, which is a division of Ser. No. 323,464, Oct. 14, 1994. This application Jun. 7, 1996, Ser. No. 659,992

Int. Cl.[6] B60K *41/04*

U.S. Cl. 192—3.3 **4 Claims**



1. An automatic control for a hydrokinetic, multiple ratio transmission for delivering torque from an engine to a driven member comprising a hydrokinetic torque converter and multiple ratio gearing, said torque converter having an impeller driven by said engine and a turbine connected to a torque input element of said gearing, a torque output portion of said gearing being connected to said driven member;

said transmission including fluid pressure-operated clutch and brake means for establishing and disestablishing torque ratio changes in said gearing;

a pressure source, a control valve system connecting said pressure source to said clutch and brake means;

a pressure-operated torque converter torque bypass clutch in said converter, said bypass clutch establishing a friction torque flow path between said turbine and said impeller when it is engaged, said bypass clutch comprising a clutch piston in said converter and defining in said converter a bypass clutch release pressure chamber and a bypass clutch apply pressure chamber;

said clutch piston being engaged with a torque transmitting capacity that is dependent upon pressure differential across said clutch piston;

a bypass clutch apply pressure passage communicating with said converter, a bypass clutch release pressure passage communicating with said release pressure chamber;

main pressure regulator valve means in said valve system for regulating control pressure in said valve system;

accumulator valve means in said valve system communicating with said main pressure regulator valve means for establishing an accumulator threshold pressure in said release chamber;

a converter fluid cooler and transmission lubrication circuit including converter cooler and lubrication portions;

converter clutch control valve means, movable between first and second positions, communicating with said release pressure passage for delivering pressure in said release pressure passage to said cooler and lubrication circuit when it assumes said first position;

a converter pressure modulator valve means communicating with said main pressure regulator valve means for modulating said control pressure to produce a converter clutch apply pressure in said bypass clutch apply pressure passage communicating with a converter pressure solenoid valve means when said converter clutch control valve means assumes said second position for varying pressure differential across said clutch piston;

said converter pressure solenoid valve means in said valve system communicating with said modulator valve means for establishing a pilot pressure on said modulator valve means; and

electronic control means responsive to operating variables for energizing said solenoid valve means whereby said bypass clutch capacity is controlled to effect smooth engagement and release.

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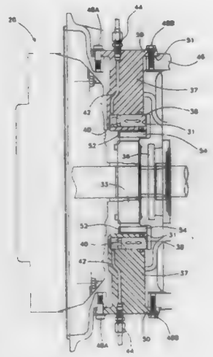
REACTION SURFACES FOR HYDRAULICALLY ACTUATED CLUTCHES

Charles E. Beyer, Clinton Township, Mich., assignor to Meritor Heavy Vehicle Systems, LLC

Filed Mar. 26, 1996, Ser. No. 621,927

Int. Cl.[6] F16D *25/08;67/04*

U.S. Cl. 192—13 R **22 Claims**



1. A clutch comprising:

at least one disk selectively brought into and out of contact with a plate member to selectively transmit rotation between said plate member and said disk;

actuation structure for selectively bringing said plate and said disk into contact, said actuation structure including a clutch bearing which is axially moveable between contact and noncontact positions;

at least two pistons, said pistons being operable to move said clutch bearing between said contact and noncontact positions; and

an anti-rotation structure for preventing rotation of said clutch bearing.

5,722,521

ROLLER TYPE ONE-WAY CLUTCH

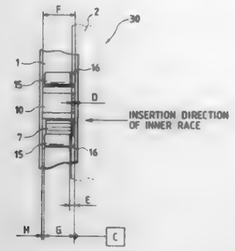
Toshio Awaji; Hirofumi Ogata, both of Fukuroi, and Yoshio Kinoshita, Shizuoka-ken, all of Japan, assignors to NSK-Warner K.K., Tokyo, Japan

Filed May 29, 1996, Ser. No. 654,554

Claims priority, application Japan, Jun. 1, 1995, 7-135298

Int. Cl.[6] F16D *41/066*

U.S. Cl. 192—45 **3 Claims**



1. A roller type one-way clutch comprising an outer race having an axially extending annular inner peripheral cam surface, an inner race disposed inside said outer race and having an annular outer peripheral raceway surface, said outer race and said inner race being disposed concentrically with each other for rotation relative to each other, a roller member disposed between said outer race and said inner race for transmitting a torque between said outer peripheral raceway surface and said inner peripheral cam surface, and a pad bearing for centering said inner race relative to said outer race, wherein said roller member has on at least one of axially opposite end portions thereof a chamfered portion chamfered over the entire periphery of said one end portion and wherein the axial width of said pad bearing is greater than the axial length of said roller member.

5,722,522

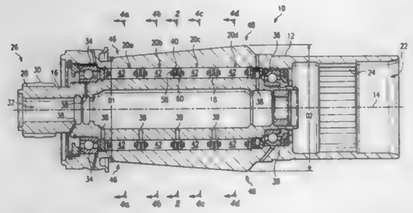
OVERRUNNING MULTIPLE-ROW SPRAG CLUTCH

Zachary S. Henry, Forth Worth, Tex., assignor to Bell Helicopter Textron, Inc., Hurst, Tex.

Filed Jun. 5, 1996, Ser. No. 658,642

Int. Cl.[6] F16D *41/07*

U.S. Cl. 192—45.1 **15 Claims**



1. An overrunning sprag clutch for the unidirectional transmission of torque between an input shaft and an output shaft, said clutch comprising:

(a) an annular outer race having a longitudinal axis therethrough and having an input end;

(b) an inner race positioned concentrically within said outer race forming an annular space therebetween and having an output end;

(c) a plurality of discrete annular sprag rows; said sprag rows positioned longitudinally adjacent to one another in said annular space, each said sprag row adapted to produce a running fit between said sprag row and said inner and outer races upon rotation of said inner race relative said outer race in one direction, to allow overrunning, and to produce a wedging fit between said sprag row and said inner and outer races upon rotation of said inner race relative to said outer race in the opposite direction to transmit a torque between said inner and outer races; and

(d) said outer race having a range of values for its radial stiffness, said values varying in the longitudinal direction from a low value at a first location on said outer race to a high value at a second location on said outer race, said first location being longitudinally between said output end and said second location.

5,722,523

FLUID CLUTCH

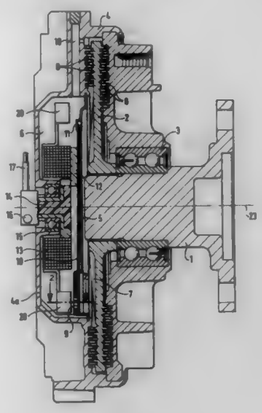
Hans Martin, Stuttgart, Germany, assignor to Behr GmbH & Co., Stuttgart, Germany

Filed Aug. 30, 1996, Ser. No. 697,876

Claims priority, application Germany, Sep. 12, 1995, 195 33 641.0

Int. Cl.[6] F16D *35/02*

U.S. Cl. 192—58.61 **18 Claims**



1. A fluid clutch comprising:

a driven shaft;

a drive disk attached to the driven shaft;

a housing rotatably mounted on the driven shaft, the housing having a dividing wall forming a working chamber and a reservoir chamber, the drive disk being rotatable in the working chamber, the housing having an inflow orifice for communicating fluid in the reservoir chamber to the working chamber and a return flow passage for communicating fluid in the working chamber to the reservoir chamber, wherein the inflow orifice is controlled by opening and closing a valve lever; and

a fluid drive stationarily positioned in the reservoir chamber and adapted to force fluid in the reservoir chamber into the working chamber through the inflow orifice as the housing rotates relative to the driven shaft while the valve lever is open.

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5,722,524

DRY MULTI-DISK CLUTCH

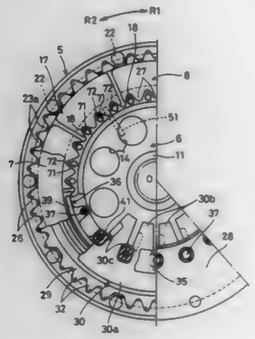
Hiroshi Mizukami, Neyagawa, and Yoshinobu Fukuda, Higashiosaka, both of Japan, assignors to Exedy Corporation, Osaka, Japan

Continuation-in-part of Ser. No. 438,726, May 10, 1995, Pat. No. 5,638,932. This application Dec. 12, 1996, Ser. No. 764,436

Claims priority, application Japan, Jul. 17, 1996, 8-187498

Int. Cl.[6] F16D *13/72*

U.S. Cl. 192—70.12 24 Claims



1. A clutch assembly comprising:

a hub member having a central hub which is connectable to a transmission shaft, said hub member also having a drum-shaped element and a flange portion which extends radially outward from said central hub to said drum-shaped element, said drum-shaped element formed with a plurality of gear teeth, and a plurality of axially extending holes, each one of said axially extending holes extending through a corresponding one of said gear teeth and each of said gear teeth formed with a radially extending opening extending from said axially extending hole to a radial outward portion of said corresponding one of said gear teeth.

5,722,525

MOTOR VEHICLE FRICTION CLUTCH WITH A TORSIONAL VIBRATION DAMPER, AND A TORSIONAL VIBRATION DAMPER FOR A MOTOR VEHICLE FRICTION CLUTCH

Norbert Ament, Eltingshausen; Reinhard Feldhaus, Oerlenbach; Joachim Lindner, Schweinfurt; Klaus Memmel, Gädheim; Jörg Sudau, Niederwerrn, and Michael Weiss, Dittelbrunn, all of Germany, assignors to Fichtel & Sachs AG, Schweinfurt, Germany

Filed Mar. 16, 1995, Ser. No. 405,137

Claims priority, application Germany, Mar. 18, 1994, 44 09 254.7

Int. Cl.[6] F16D *3/66*

U.S. Cl. 192—70.17 21 Claims

1. A friction clutch for a motor vehicle, said friction clutch comprising:

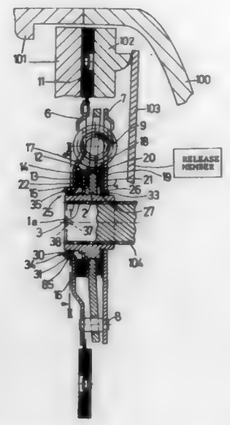
a housing;

a clutch plate disposed within said housing, said clutch plate defining an axis of rotation and an axial direction parallel to the axis of rotation;

pressure plate means for applying an axial force to said clutch plate, said pressure plate being disposed within said housing and being movable in the axial direction;

flywheel means for transferring rotational force to said clutch plate;

said clutch plate comprising a torsional vibration damper, said torsional vibration damper comprising:



a hub, said hub having means for engaging a transmission shaft;

a hub disc disposed about said hub and extending radially away from said hub, said hub disc having a first side and a second side facing away from one another;

a first cover plate disposed adjacent said first side of said hub disc;

a second cover plate disposed adjacent said second side of said hub disc;

at least one of said first cover plate and said second cover plate comprising friction lining means for engaging with said pressure plate and said flywheel means upon engagement of said friction clutch;

said first cover plate and said second cover plate being relatively rotatable about said hub with respect to said hub disc;

means for guiding at least one of said first cover plate and said second cover plate with respect to said hub;

said means for guiding comprising means for compensating for angular displacements of said hub with respect to said at least one of said first cover plate and said second cover plate, said means for compensating being disposed between, and making contact with, said at least one of said first cover plate and said second cover plate and said hub; and

means for axially retaining said means for guiding with respect to said hub and said at least one of said first cover plate and said second cover plate.

5,722,526

DISPENSING SECURITY SYSTEM FOR A VENDING MACHINE

Robert C. Sharrard, 2516 West Walton Blvd., Waterford, Mich. 48329-4436

Filed Nov. 13, 1995, Ser. No. 557,352

Int. Cl.[6] G07F *7/08*

U.S. Cl. 194—346 11 Claims

1. A security system for controlling, based upon a user's age, the dispensing of products from a vending machine, said security system comprising:

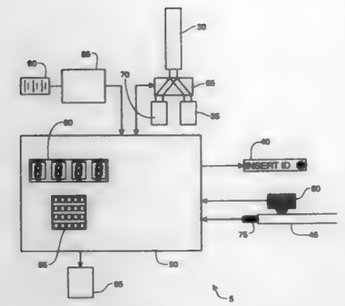
a main processor;

operator input means for inputting into said main processor information identifying a present date and a present time;

an identification insertion slot for receiving an identification card;

a legal tender return chute for returning money to a user;

identification reading means in connection with said identification insertion slot for acquiring a birth date from an identification card inserted into said identification insertion slot;



legal tender routing means in connection with said legal tender return chute for controlling the passage of money to or bypassing of money around said legal tender return chute;

said main processor configured to receive and store information from said operator input means and said identification reading means, said main processor configured to maintain the present date and the present time, said main processor configured to calculate an age from the birth date and the present date and to establish a comparison between said age and a legal age for purchasing a product; and

said main processor configured to control said legal tender routing means based on said comparison, such that money is directed to said legal tender return chute when said age is less than said legal age, and such that money is bypassed around said legal tender return chute to permit dispensing of a product when said age is at least equal to said legal age.

5,722,527

METHOD OF POSITIONING A PRINTED CIRCUIT BOARD IN A COMPONENT PLACEMENT MACHINE AND COMPONENT PLACE MACHINE THEREFORE

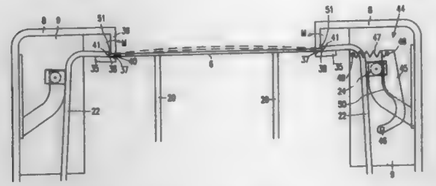
Josephus M. M. Van Gastel, and Jaap Oudes, both of Eindhoven, Netherlands, assignors to U.S. Philips Corporation, NY, N.Y.

Filed Mar. 27, 1996, Ser. No. 623,385

Claims priority, application European Pat. Off., Mar. 28, 1995, 95200775

Int. Cl.[6] B65G *47/22*

U.S. Cl. 198—345.3 5 Claims



3. A component placement machine provided with transport means for transporting printed circuit boards in the machine, with a support for supporting the printed circuit board in a component placement position, and with clamping means for fixing two mutually opposed edge portions of the printed circuit board by clamping, characterized in that

the clamping means comprise two sets of clamping frames situated on either side of the printed circuit board to be positioned, each set comprising a stationary and a movable clamping frame, whereby a couple can be exerted on an edge portion of the printed circuit board,

driving means are present for displacing the support and for displacing the movable clamping frames, and

pneumatic means are present for exerting a force on the movable clamping frames for obtaining a couple on the two mutually opposed edge portions of the printed circuit board.

5,722,528

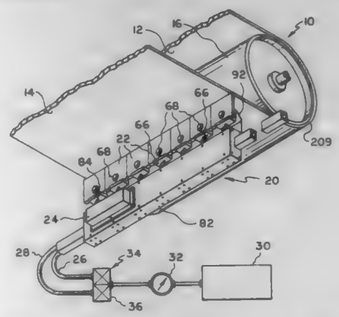
METHOD AND APPARATUS FOR CLEANING CONVEYOR BELTS

Troy D. Dolan, Latrobe, Pa., assignor to Conveyor Services Corp., Blairsville, Pa.

Continuation of Ser. No. 100,702, Jul. 30, 1993, abandoned, which is a continuation of Ser. No. 753,183, Aug. 30, 1991, abandoned. This application Sep. 27, 1994, Ser. No. 313,559

Int. Cl.[6] B65G *45/16*

U.S. Cl. 198—499 12 Claims



1. A conveyor belt cleaning arrangement which comprises:

a. an elongate support bar for transverse disposition to the direction of travel of a conveyor belt;

b. individual expansible and retractable piston-cylinder apparatus mounted adjacently to one another along said support bar;

c. means for expanding and retracting said piston-cylinder apparatus;

d. a scraper blade support plate attached to one end of each of said piston-cylinder apparatus;

e. scraper blades removeably attached to said scraper blade support plates;

f. co-operating elements of sliding attachment means between adjacent sides of said scraper blades.

5,722,529

DEVICE FOR UNIFORM DRAW-DOWN, HOMOGENIZATION AND CONTINUOUS MIXING OF BULK SOLIDS FROM SILOS AND STOCKPILES

Konanur Srikantiah Manjunath, Porsgrunn, Norway, and Alan William Roberts, New Lambton Hts., Australia, assignors to Norsk Hydro A.S., Oslo, Norway

PCT No. PCT/NO95/00035, § 371 Date Dec. 6, 1995, § 102(e) Date Dec. 6, 1995, PCT Pub. No. WO95/21784, PCT Pub. Date Aug. 17, 1995

PCT Filed Feb. 14, 1995, Ser. No. 532,662

Claims priority, application Norway, Feb. 14, 1994, 940492

Int. Cl.[6] B65G *33/00*

U.S. Cl. 198—671 9 Claims

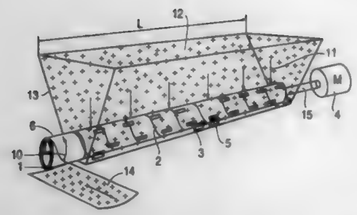
1. A discharge device comprising:

an inner tube having an inside and a longitudinal axis, said inner tube being rotatable about the longitudinal axis, a plurality of material inlet openings distributed along the periphery and along the length of said inner tube, and a material outlet;

a helical screw flight attached to the inside of said inner tube for the feed of material from said material inlet openings to said material outlet opening; and

an outer telescopic tube disposed around said inner tube, said outer telescopic tube having a plurality of slots therein and

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being rotatable on said inner tube, said slots, together with said material inlet openings of said inner tube, forming inlets for material to enter said inner tube and be fed by said helical screw, said slots being capable of varying the size of said inlets by rotation of said outer telescopic tube relative to said inner tube.

5,722,530

CHAIN DRIVE

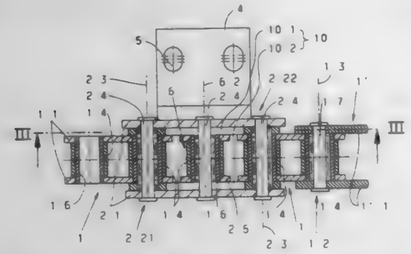
Frank Gunschera, Heidelberg, Germany, assignor to Heidelberger Druckmaschinen AG, Heidelberg, Germany

Filed Apr. 8, 1996, Ser. No. 629,186

Claims priority, application Germany, Apr. 8, 1995, 195 13 420.6

Int. Cl.[6] B65G *47/86*

U.S. Cl. 198—803.7 **5 Claims**



1. Chain drive with an endless chain formed by sideplate pairs and by articulated joints having mutually parallel joint axes and connecting the sideplate pairs, each of the joints having a chain roller concentric with the respective joint axis and having a cylindrical chain-roller contact surface, at least one section of the chain being formed by first chain links of equal pitch and a second chain link inserted between two of the first chain links which are disposed mutually adjacent to one another, the second chain link replacing two of the first chain links and being connected, respectively, by a first and a second joint to mutually adjacent first chain links, and sprocket wheels rotating during operation and being in engagement with the chain and with chain guides formed as mutually facing and mutually spaced apart guideways, comprising a supporting roller disposed at a longitudinal center of the second chain link and having a rotational axis parallel to the joint axes, and a cylindrical supporting-roller contact surface tangential to a first tangential plane extending parallel to the joint axes of the first and second joints, said first tangential plane being disposed opposite to and spaced from a second tangential plane likewise tangential to said supporting-roller contact surface, said first and said second tangential planes being disposed on one and the same side of a reference plane at respective first and second distances therefrom; said reference plane extending parallel to the joint axes of the first and second joints and being tangential to the chain-roller contact surfaces of chain rollers with which the first and second joints are furnished, at least one of said first and said second distances being greater than the diameter of the chain-roller contact surface.

5,722,531

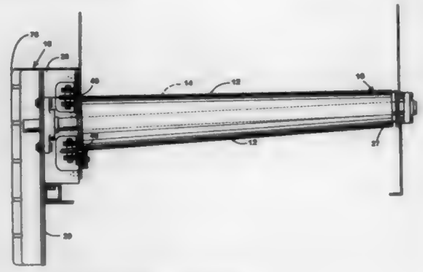
BELT TURN CONVEYOR

Mariusz Zimny, Brampton; John Krznarich, Etobicoke, and Allan Ewing, Georgetown, all of Canada, assignors to Mannesmann Dematic Rapistan Corp., Grand Rapids, Mich.

Filed Feb. 13, 1996, Ser. No. 600,593

Int. Cl.[6] B65G *21/16*

U.S. Cl. 198—831 **30 Claims**



1. A belt turn conveyor, comprising:

a vertical support;

a lateral support cantilevered from said vertical support, wherein said lateral support includes at least one removable wheel guide surface; and

an endless belt riding on said lateral support wherein said endless belt includes wheels engaging said guide surface, wherein said belt can be removed without disassembling said vertical support.

5,722,532

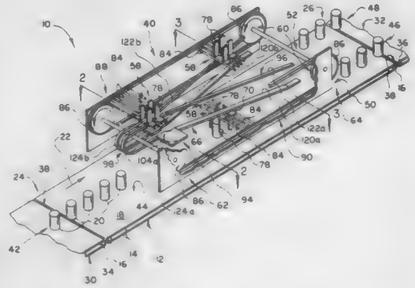
CONVERGENT/DIVERGENT PRODUCT CONVEYOR

David A. Troisi, Ithaca, and John E. Uber, Trumansburg, both of N.Y., assignors to Hi-Speed Checkweigher Co., Inc., Ithaca, N.Y.

Filed Nov. 8, 1996, Ser. No. 745,210

Int. Cl.[6] B65G *47/46*

U.S. Cl. 198—890 **13 Claims**



1. A conveyor mechanism comprising:

a first conveyor defining an upwardly facing article supporting surface movable along a first path of travel between article inlet and outlet ends of said first conveyor; and

a second conveyor disposed above said first conveyor for selectively displacing articles while supported by said surface between first and second regions spaced transversely of said first path of travel and arranged within the bounds of said surface as an incident to movement of said articles by said surface from said inlet end to said outlet end of said first conveyor, said second conveyor including at least one pushing mechanism, support means for supporting said pushing mechanism for movement along a second path of travel

vertically aligned with said first path of travel between first and second ends of said second conveyor, while permitting displacement of said pushing mechanism transversely of said first and second paths of travel between said regions, and displacing means for selectively displacing said pushing mechanism when transversely aligned with an article for moving said article with which said pushing mechanism is aligned between said regions, said pushing mechanism comprises a paddle supported by said support means to depend from said second conveyor vertically towards said surface during movement of said pushing mechanism between said first and second ends, said paddle being movable by said displacing means for pushing against said article with which it is aligned to effect movement thereof from said first region to said second region, and further means are provided to force said paddle to move transversely of said path of travel out of engagement with said article with which it is aligned after arrival of said article in said second region and during subsequent movement of said article towards said outlet end, said support means includes a slider mounted for siding movement transversely of said second path of travel and carrying said paddle and a magnetically attractable member, said displacing means includes a guide surface extending between said first and second regions and magnetically attractable means for magnetically attracting said member for movement along said guide surface between said first and second region, and said further means is another guide surface and extending from said guide surface of said displacing means in said second region relatively towards said first region.

5,722,533

DEVICE EXERTING A PROTECTIVE ACTION AGAINST FLUID SEEPAGES IN ELECTRICAL SWITCHES AND THE LIKE

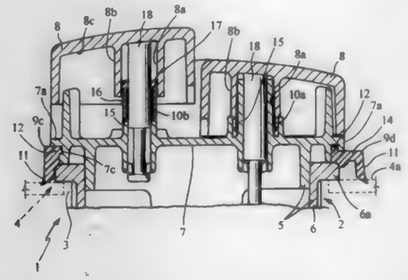
Flavio Gallone, Cornaredo, Italy, assignor to Signal Lux S.p.A., Italy

Filed Apr. 2, 1996, Ser. No. 626,542

Claims priority, application Italy, Nov. 30, 1995, MI95A1505

Int. Cl.[6] H01H *13/06*

U.S. Cl. 200—302.2 **12 Claims**



1. A device exerting a protective action against fluid seepages in electrical switches, one said switch comprising:

an external box-shaped body (**5**) of electrically insulating material housing an electromechanical switching unit and adapted to be engaged in a shaped opening (**3**) defined in a support wall (**4**),

at least one operating push button (**8**) projecting externally of a front side of said box-shaped body (**5**) and operatively connected with said electromechanical unit; and

sealing means adapted to block the seepage of fluids into said box-shaped body (**5**) and through said shaped opening (**3**), wherein said sealing means comprises at least one annular seal (**9***a*, **9***b*, **9***c*, **9***d*) perimetrically and externally integral with said box-shaped body (**5**) and disposed on the box-shaped body itself at a position adapted for operation on a border (**4***a*) defined around said shaped opening (**3**) and positioned at the front on said support wall (**4**) said annular seal (**9***a*, **9***b*, **9***c*, **9***d*) comprising at least one lip portion spaced from an outer edge portion of said body and (**11**, **11***a*, **11***b*) exhibiting a beveled edge adapted to abut against said border (**4***a*) of said support wall (**4**).

5,722,534

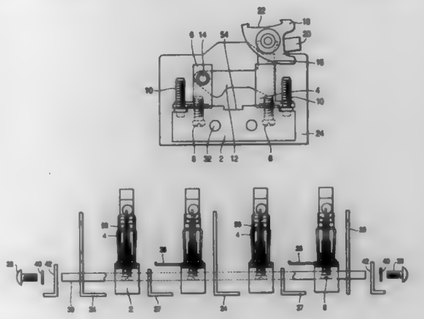
POWER DISCONNECT SWITCH

Jere Wright, 7301 Lakewood Blvd., Dallas, Tex. 75214

Filed Jul. 31, 1996, Ser. No. 688,859

Int. Cl.[6] H01H *9/08*

U.S. Cl. 200—305 **18 Claims**



1. A power test switch operable by a holder tool, comprising:

a generally parallelepiped base having first and second opposing ends, and two holes extending therethrough, from a top to a bottom thereof, the two holes being located respectively at the first and second opposing ends of the base, the base having two sides which connect the top and bottom and which run from the first to the second opposing ends;

first and second electrical conductors mounted on the top of the base respectively with first and second mounting pieces extending respectively through the two holes in the base;

a switch piece for electrically connecting the first and second electrical conductors, the switch piece pivoting on the first conductor to connect with the second conductor when parallel to the top of the base and to disconnect from the second conductor when extending away from and at an angle to the base, the switch piece having an upper portion which extends away from the base when the switch piece is parallel to the base;

an insulated handle attached to the upper portion of the switch piece for manually pivoting the switch piece;

a projection attached to and extending away from the insulated handle, the projection extending parallel with, or at an angle less than 45° to the base when the switch piece is parallel to the base, the projection having a substantially constant cross-sectional shape extending away from the handle so that the projection can fit snugly within the holder tool; and

an angled insulating plate fitting next to the base, the insulating plate having a first plate portion and a second plate portion generally perpendicular to the first plate portion such that the angled insulating plate fits adjacent to the bottom of the base to cover the two holes extending through the base and fits adjacent to only one of the two sides of the base which run from the first to the second opposing ends.

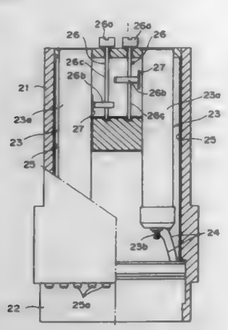
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5,722,535

COAXIAL CONVERSION CONNECTOR

Hidenao Nakajima, Kawasaki, Japan, assignor to Fujitsu Limited, Kawasaki, Japan

Filed Jun. 11, 1996, Ser. No. 661,872
Claims priority, application Japan, Oct. 17, 1995, 7-268570
Int. Cl.[6] H01H *1/12*
U.S. Cl. 200—504 5 Claims



1. A coaxial conversion connector adapted to be detachably connected to a mating connector of an electronic device having a frame ground portion electrically connected to a frame ground in the vicinity of said mating connector, said mating connector having a plurality of first connecting portions; said coaxial conversion connector comprising:

a coaxial jack adapted to receive a coaxial cable having one end equipped with a coaxial plug, said coaxial jack having a cylindrical first metal member adapted to be electrically connected through said coaxial plug to an outer conductor of said coaxial cable, and a second metal member adapted to be electrically connected through said coaxial plug to a central conductor of said coaxial cable;

a plurality of second connecting portions electrically connected to both said first metal member and said second metal member, said second connecting portions being adapted to be respectively electrically connected to said first connecting portions of said mating connector;

a first contact member provided in the vicinity of said second connecting portions, said first contact member being formed from an elastic metal member adapted to come into pressure contact with said frame ground portion of said electronic device; and

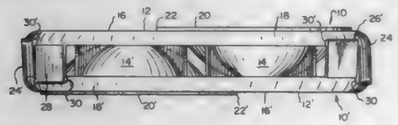
a switching means for switching continuity and discontinuity between said outer conductor of said coaxial cable and said first contact member.

5,722,536

DISPOSABLE CONTACT LENS PACKAGE WITH SNAP-TOGETHER FEATURE

Joan L. Pierce, Honeoye Falls; Margaret Mary R. Godly, Farmington, and Steven B. Renner, Rochester, all of N.Y., assignors to Bausch & Lomb Incorporated, Rochester, N.Y.

Filed Feb. 8, 1996, Ser. No. 598,303
Int. Cl.[6] A45C *11/04*
U.S. Cl. 206—5.1 29 Claims



1. A disposable contact lens package comprising:

a) a rigid support having a top surface and a lens seating surface having a height "H" located on said top surface; and

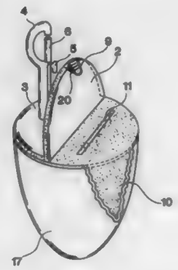
b) a plurality of legs attached to and extending downwardly from the perimeter of said top surface, each of said legs terminating into a free end spaced from said top surface, at least one of said legs including a catch formed at said free end thereof, said catch being operable to releasably, frictionally engage the top surface of a second package, substantially identical to said disposable contact lens package upon placing and pressing said packages together in stacked relation to one another with said top surfaces of each facing away from each other.

5,722,537

DISINFECTANT CONTAINER FOR PACIFIER OR NIPPLE

Elizabeth Sigler, 29173 Tupelo Dr., Lacombe, La. 70445

Filed Jun. 11, 1996, Ser. No. 661,363
Int. Cl.[6] B65D *55/00*
U.S. Cl. 206—205 11 Claims



1. A portable disinfectant apparatus for disinfecting pacifiers or bottle nipples in combination with a disinfectant in the apparatus, said apparatus comprising:

a container having a bottom, sides and at least a partially open top,

said container having a first lid portion and a second lid portion,

said first lid portion being immovably attached to said container to cover a portion of said open top,

said second lid portion being attached to said first lid portion so it can be moved from a first position in which it covers a portion of said open top to a second position in which said top is uncovered,

an absorbent means positioned within said container for holding said disinfectant,

means for securing said second lid portion in a closed position.

10. A portable disinfectant apparatus for disinfecting pacifiers or bottle nipples comprising:

a container having a bottom, sides and at least a partially open top,

said container having a first lid portion and a second lid portion,

said first lid portion being immovably attached to said container to cover a portion of said open top,

said second lid portion being attached to said first lid portion so it can be moved from a first position in which it covers a portion of said open top to a second position in which said top is uncovered,

an absorbent means positioned within said container for holding a disinfectant means,

means for securing said second lid portion in a closed position, and wherein

said absorbent means has an opening into which a pacifier or nursing bottle nipple may be introduced in order to bring said pacifier or nursing bottle nipple into contact with said disinfectant means,

said second lid portion is hinged to said first lid portion to pivot upwardly with respect to said first lid portion, and wherein

said absorbent means is a sponge.

11. A portable disinfectant apparatus for disinfecting pacifiers or bottle nipples comprising:

a container having a bottom, sides and at least a partially open top,

said container having a first lid portion and a second lid portion,

said first lid portion being immovably attached to said container to cover a portion of said open top,

said second lid portion being attached to said first lid portion so it can be moved from a first position in which it covers a portion of said open top to a second position in which said top is uncovered,

an absorbent means positioned within said container for holding a disinfectant means,

means for securing said second lid portion in a closed position, and wherein

said container has means for mounting said container on a support structure, and wherein

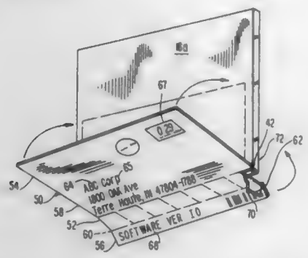
said mounting means is a spring biased hook which extends upwardly from said first lid portion.

5,722,538

LABEL ASSEMBLY FOR PACKAGE SLEEVE ACCOMMODATING A STORAGE MEDIA DISC AND METHOD FOR SEALING A PACKAGE SLEEVE

Phillip K. Neely, and Joseph D. Cresgy, both of Terre Haute, Ind., assignors to Sony Corporation, Tokyo, Japan, and Digital Audio Disc Corporation, Terre Haute, Ind.

Continuation of Ser. No. 407,717, Mar. 21, 1995, abandoned, which is a continuation-in-part of Ser. No. 261,681, Jun. 17, 1994, abandoned. This application Oct. 8, 1996, Ser. No. 729,773
Int. Cl.[6] B65D *85/30;85/00;* G09F *3/00;* B42D *15/00*
U.S. Cl. 206—308.1 36 Claims



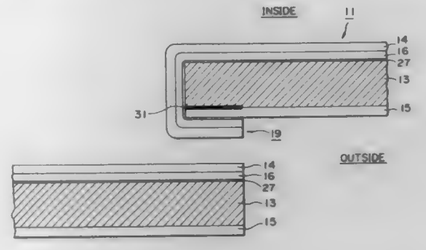
1. A package sleeve label assembly comprising a package sleeve including a sleeve cavity for accommodating a storage media disc therein and having a front portion and a back portion opposed to said front portion, a label assembly adhesively applied to said package sleeve so as to form in cooperation with said package sleeve a mailable sleeve assembly, said label assembly comprising a unitary structure formed of a combination of a removable tear strip, mailing identification information means for identifying mailing information regarding the package sleeve and product identification information means for providing product identifying information regarding the storage media disc accommodated within the package sleeve wherein said mailing identification means and said product identification means are provided on opposite sides of said tear strip, said tear strip providing a closure flap for the sleeve cavity so as to retain the disc in the sleeve cavity and upon removal thereof from said label assembly, the disc can be removed from the sleeve cavity, said mailing identification information means provided on said label assembly being adhesively applied to said front portion of said package sleeve and said product identification information means provided on said label assembly being adhesively attached to said back portion of said package sleeve, said tear strip having a non-adhesive portion facing the sleeve cavity so that no adhesive can contact the disc.

5,722,539

PACKAGING CONTAINER

Tadakatsu Ikenoya, and Kazuya Ono, both of Tokyo, Japan, assignors to Tetra Laval Holdings & Finance, S.A., Switzerland

Division of Ser. No. 442,107, May 16, 1995. This application Aug. 14, 1996, Ser. No. 696,620
Claims priority, application Japan, May 23, 1994, 6-108669
Int. Cl.[6] B65D *3/22*
U.S. Cl. 206—484 4 Claims



1. A packaging container comprising:

a packaging material including a paper substrate, an intermediate layer, an outermost layer, and an innermost layer and having opposite side edges which overlap each other such that said outermost layer and said innermost layer of said packaging material face each other; and

a bending portion formed by projecting said intermediate layer and said innermost layer from one side edge of said packaging material such that said intermediate and innermost layers project from the edges of said paper substrate and said outermost layer,

said bending portion being inserted between said outermost layer and said innermost layer of said packaging material by folding said bending portion and being joined by heat fusion with said outermost layer and said innermost layer,

said innermost layer being made of a flavor-retaining resin which retains flavors of food,

said outermost layer and said intermediate layer of said packaging material being made of resins which are compatible with each other, and

said outermost layer and said innermost layer of said packaging material being made of resins which are incompatible with each other.

5,722,540

CAN STACKING METHOD AND APPARATUS

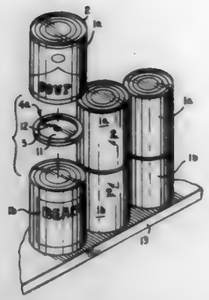
Linda S. Laird; Larry E. Haney, both of Hutchinson, Kans.; Cynthia Huggins, and Jesse A. Huggins, both of Tucson, Ariz., assignors to C&L Products, Inc., Hutchinson, Kans.

Filed Apr. 16, 1996, Ser. No. 633,142
Int. Cl.[6] B65D *21/02*
U.S. Cl. 206—503 6 Claims

1. A can stack with a first and second can and a stacker insert disc designed to stack and securely maintain said first can to said second can in a vertical stacked relationship, each of the first and second cans including a top perimeter flange of a first depth and a bottom perimeter flange of a second depth, the top and bottom perimeter flanges having the same inside diameter, said can stack comprising:

a. said first and second cans arrayed in a substantially vertical alignment with said bottom perimeter flange of said first can

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being aligned with said top perimeter flange of said second can and said insert disc comprising:

i. a perimeter segment, said perimeter segment having an outside surface and being sized such that a maximum distance from outside surface to outside surface of said perimeter segment is slightly less than the inside diameter of said top and bottom flanges of said first and second cans, said perimeter segment having a third depth which is equal to or greater than the combined depth of the top perimeter flange and a bottom perimeter flange of one of said cans;

ii. a center web segment interconnecting said perimeter segment, said center web segment having a fourth depth less than said third depth; and

iii. an aperture extending through said center web segment, said aperture being sized to allow storage or hanging of said insert discs.

5,722,541

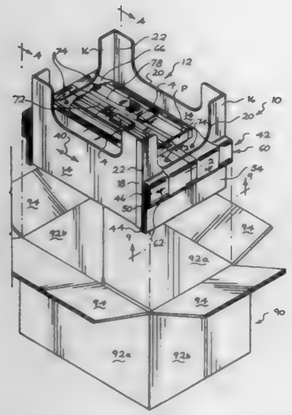
SUSPENSION PACKAGE

Lewis C. Lofgren, Chicago, and Noel M. Phillips, River Forest, both of Ill., assignors to Ade, Inc., Chicago, Ill.

Division of Ser. No. 441,797, May 16, 1995, Pat. No. 5,579,917. This application Jul. 30, 1996, Ser. No. 688,441

Int. Cl.[6] B65D *81/02*

U.S. Cl. 206—583 **3 Claims**



1. In a suspension package comprising a frame comprising two side walls interconnected by two end walls, a tensioning panel pivotably mounted to one of the end walls, and a product-retaining hammock mounted to the frame to suspend a product in the frame between the end walls, said hammock secured to the tensioning panel such that pivotal movement of the tensioning panel in a selected direction applies tension to the hammock, the improvement comprising:

an extension panel included in the tensioning panel, said extension panel dimensioned to extend under the frame, transverse to the end wall, when the hammock is tensioned.

2. In a package comprising a frame comprising two side walls, a tensioning panel pivotably mounted to the frame, and a product-retaining hammock mounted to the frame to hold a product in the frame between the side walls, said hammock secured to the tensioning panel such that pivotal movement of the tensioning panel in a selected direction applies tension to the hammock, one of the side walls situated in a side wall plane, the improvement comprising:

an extension panel included in the tensioning panel, said extension panel dimensioned to extend under the frame, substantially perpendicular to the side wall plane, when the hammock is tensioned.

5,722,542

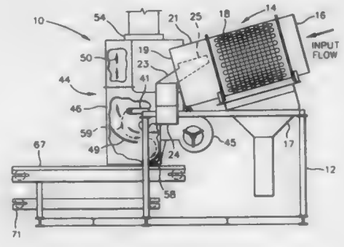
MACHINE AND METHOD FOR SEPARATING RECYCLABLE MATTER

Robert M. Davis, Bonita, Calif., assignor to CP Manufacturing, Inc., National City, Calif.

Continuation of Ser. No. 374,066, Jan. 18, 1995, Pat. No. 5,551,573, which is a continuation of Ser. No. 218,353, Mar. 28, 1994, Pat. No. 5,452,804, which is a division of Ser. No. 930,739, Aug. 14, 1992, Pat. No. 5,328,034. This application Jun. 19, 1996, Ser. No. 665,946

Int. Cl.[6] B03C *1/30;* **B07B** *9/00*

U.S. Cl. 209—37 **6 Claims**



1. A material separating machine, comprising:

a magnetic separator including:

a frame;

a trommel rotatable in the frame and having input and output ends;

perforations in the trommel for screening materials flowing from the input end to the output end;

an annulus near the output end;

a plurality of permanent magnets arrayed around the annulus;

means responsive to rotation of the trommel for bringing magnets of the plurality of permanent magnets into contact with an outer surface of the annulus and for disengaging magnets of the plurality of permanent magnets from contact with the outer surface of the annulus; and

a chute for receiving magnetic materials dropped from an inner surface of the annulus where magnets of the plurality of permanent magnets are disengaged from contact with the outer surface;

an air separator for receiving a flow of materials from the output end; and

a conveyor between the magnetic separator and the air separator for conveying the flow of material from the output end to the air separator.

5,722,543

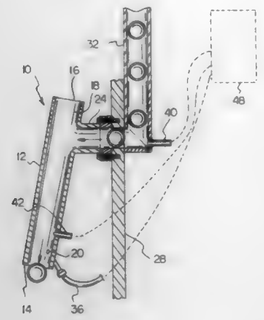
GOLF BALL SIZING APPARATUS

Mario Jarmuzewski, Chicopee, Mass., assignor to Lisco, Inc., Tampa, Fla.

Filed Aug. 31, 1995, Ser. No. 521,859

Int. Cl.[6] B07C *5/00*

U.S. Cl. 209—559 **3 Claims**



1. An apparatus for separating a flow of golf balls into a first set of golf balls which meet predetermined specifications and a second set of golf balls which do not meet specifications comprising:

a first elongated cylinder having a central axis positioned at an angle with respect to the horizontal, the elongated cylinder having an open lower end and an open upper end in coaxial alignment with the lower end and having an interior diameter to allow for the rolling of golf balls of the first set to move therethrough and out of the lower end, a large aperture formed in an upper surface of the elongated cylinder at a central extent thereof, the interior surface of the elongated cylinder being of an increased diameter between the central extent thereof and the upper end thereof, a supplemental small aperture formed in the upper surface of the elongated cylinder offset from the uppermost extent thereof, the supplemental small aperture being formed at an angle with regard to the axis of the elongated cylinder;

a short delivery cylinder having a vertical axis and being formed with a lower end coupled to the large aperture and an upper end for delivering golf balls to be separated; and

a source of compressed fluid coupled to the small aperture adapted to inject a stream of fluid into the elongated cylinder in a direction toward the upper end to drive a golf ball of the second set in the elongated cylinder outwardly of the elongated cylinder.

5,722,544

MODULAR SHELVING SYSTEM

Martha Williams, 1330 W. 43rd St., Chicago, Ill. 60609

Filed Apr. 20, 1995, Ser. No. 425,906

Int. Cl.[6] A47F *5/00*

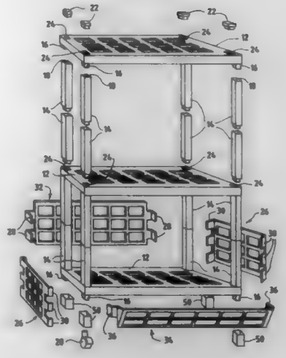
U.S. Cl. 211—188 **7 Claims**

1. A modular shelving system for storing articles comprising:

a) at least three shelves;

b) means for interconnecting said shelves including a plurality of support posts to define storage spaces having four sides; and

c) back and side panels enclosing three of the four sides of each of said storage spaces, the back and side panels each having opposing vertical end portions with a plurality of resilient connecting tabs disposed upon each of the vertical end portions, the tabs engaging the support posts and spaced from one another so as to permit the plurality of tabs on adjacent back and side panel vertical end portions to interengage one another.



5,722,545

CONTAINER WITH TWIST-ON-OFF CLOSURE CAP

Rolf Rinne, Frankfurt am Main, Germany, assignor to Dental-Kosmetik GmbH, Dresden, Germany

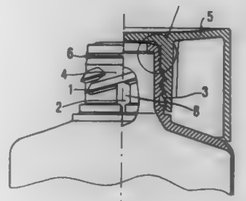
PCT No. PCT/DE94/01280, § 371 Date Apr. 5, 1996, § 102(e) Date Apr. 5, 1996, PCT Pub. No. WO95/15892, PCT Pub. Date Jun. 15, 1995

PCT Filed Oct. 31, 1994, Ser. No. 624,449

Claims priority, application Germany, Dec. 10, 1993, 43 42 251.9

Int. Cl.[6] B65D *1/02*

U.S. Cl. 215—44 **5 Claims**



1. A container with a twist-on-twist-off closure cap comprising:

a container head having an upper portion and a lower portion, the container head including a plurality of thread segments arranged on the lower portion of the container head;

a plurality of vertical fins disposed on the container head below the plurality of thread segments and extending downwardly substantially in the center of the plurality of thread segments;

a sealing lip circumferentially arranged around the upper portion of the container head;

the closure cap comprising a plurality of thread segment recesses for engaging the plurality of thread segments, and a cylindrical section for accommodating the sealing lip;

the sealing lip is arranged such as to form a seal with the closure cap before the closure cap is twisted onto the container head;

the plurality of vertical fins sealingly engage with the plurality of thread segments upon twisting of the closure cap onto the container head.

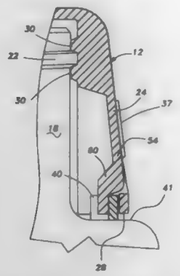
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5,722,546

CHILD-RESISTANT CLOSURE AND CONTAINER

Marc Briere, Newburgh, Ind., assignor to Rexam Closures Inc., Evansville, Ind.

Filed Dec. 13, 1996, Ser. No. 766,527
Int. Cl.[6] B65D *55/02*
U.S. Cl. 215—216 12 Claims



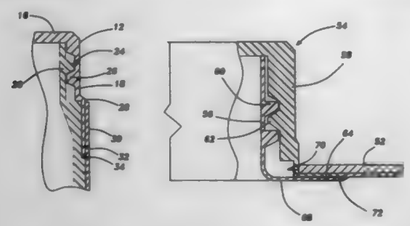
1. A child-resistant closure and container package comprising:
a closure having a top and an annular skirt extending from said top to form an annular lip spaced axially from said top,
a container having a cylindrical neck to be received in said closure complementary threads on said skirt and on said neck engageable to hold said closure on said container with said lip in radially spaced relation to said container,
a push tab formed in said skirt below said threads to permit deflection of said tab radially inwardly relative to said neck and the adjacent portions of said skirt, said push tab being formed by axially extending, circumferentially spaced slots in said skirt and by a circumferentially extending slot in spaced adjacent relation to said lip and joining said spaced slots,
a lock member on said container, and
a lock element on said push tab engageable with said lock member to prevent unthreading of said closure from said container when said push tab is in its undetected position said tab being deflectable radially inwardly to move said lock element out of the path of said lock member to permit unthreading of said closure from said container.

5,722,547

TAMPER INDICATING CLOSURE SYSTEM

William J. Shankland, Newburgh, Ind., assignor to Rexam Closures Inc., Evansville, Ind.

Filed Sep. 20, 1996, Ser. No. 717,303
Int. Cl.[6] B65D *51/18*
U.S. Cl. 215—230 10 Claims



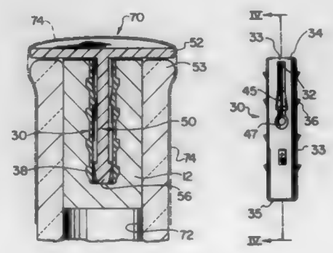
1. A tamper indicating closure and container assembly comprising:
a container having a body with an opening therein,
a closure attachable to said container for closing said opening in said container and having an annular lip defining an open end of said closure, said annular lip being in close proximity to said body of said container when said container is closed,
first tamper indicating means on said closure including a projection extending from said annular lip of said closure, and
second tamper indicating means on said container to conceal said first tamper indicating means when said closure is on said container and prior to initial opening of said container and resisting replacement of said first tamper indicating means in a concealed position upon replacement of said closure on said container to indicate prior opening, said second means being in the form of a flexible label attached to said container and covering said projection.

5,722,548

CORK STOPPER FOR BOTTLES OF WINE

David E. Hojnoski, Smithville, Canada, assignor to Kwik Kork International Inc., Barbados, Barbados

PCT No. PCT/CA94/00323, § 371 Date Dec. 16, 1996, § 102(e) Date Dec. 16, 1996, PCT Pub. No. WO95/34476, PCT Pub. Date Dec. 21, 1995
PCT Filed Jun. 16, 1994, Ser. No. 750,668
Int. Cl.[6] B65D *39/00*
U.S. Cl. 215—299 25 Claims



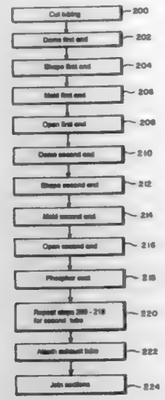
1. In combination a bottle stopper and stopper-remover comprising:
a cylindrical stopper (**10**) of resilient material, said stopper having top (**16**), bottom (**20**) and side surfaces (**12**) and a deep well (**14**) extending into said stopper (**10**) from said top surface (**16**);
a hollow sleeve (**30**) in and substantially conforming in cross-section to said well (**14**), said sleeve (**30**) having top (**34**) and bottom (**35**) ends and inner (**32**) and outer (**33**) surfaces; a series of protruding interference members (**36**) on said outer surface (**33**), at least one detent member (**46**) on said inner surface (**32**) spaced a predetermined distance from said top (**34**) and bottom (**35**); a pair of openings (**47**) through opposite sides of said sleeve (**30**) adjacent said detent (**46**) on a side of said detent remote from said top end (**34**); and a pair of longitudinal slits (**45**) extending from respective ones of said openings (**47**) toward said top end (**34**); and
puller means (**50**) for insertion into said sleeve (**30**), said puller means (**50**) comprising a top gripper member (**52**), an elongated stem (**54**) and a bottom locking means (**56**); said locking means configured to cause said sleeve (**30**) to expand to allow passage through said detent (**46**) of said locking means (**56**) when said stem (**54**) is inserted into said top end (**34**) of said sleeve (**30**), but to prevent withdrawal of said stem once inserted;
whereby when said stopper (**10**) is radially compressed, as by insertion into a neck of a bottle, an interference fit occurs between said interference members (**36**) and the resilient surface (**13**) of said well, such that, when said puller means (**50**) has been inserted into said sleeve (**30**), upward pulling of said puller means will cause said stopper to be removed from said bottle by reason of interference between said locking means and said detent.

5,722,549

CLOSED-LOOP TUBULAR LAMP ENVELOPE AND METHOD OF MANUFACTURE

David C. Wentzel, Brookline, N.H.; Gregory Zaslavsky, Marblehead, and Joseph V. Lima, Salem, both of Mass., assignors to Osram Sylvania Inc., Danvers, Mass.

Filed May 22, 1996, Ser. No. 650,245
Int. Cl.[6] H01J *9/38*
U.S. Cl. 220—2.1 R 18 Claims



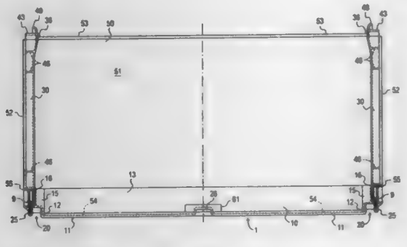
1. A method for fabricating a closed-loop, tubular lamp envelope, comprising the steps of:
a) forming a first dome at one end of a first tube;
b) molding a first blister on said first dome, said first molded blister having a first rim;
c) forming a first hole in said first molded blister, said first hole being defined by said first rim;
d) forming a second dome at the other end of said first tube;
e) molding a second blister on said second dome, said second molded blister having a second rim;
f) forming a second hole in said second molded blister, said second hole being defined by said second rim;
g) processing a second tube by performing steps a)–f) with the second tube; and
h) joining said first and second tubes at said first rims and at said second rims to form a sealed, closed-loop lamp envelope.

5,722,550

CONTAINER HAVING REUSABLE BASE AND DISPOSABLE OVER SLEEVE

Paul J. Ficker, Cincinnati, Ohio, assignor to Buckhorn Material Handling Group, Inc., Milford, Ohio

Filed Jun. 6, 1996, Ser. No. 659,346
Int. Cl.[6] B65D *19/20*
U.S. Cl. 220—4.28 7 Claims



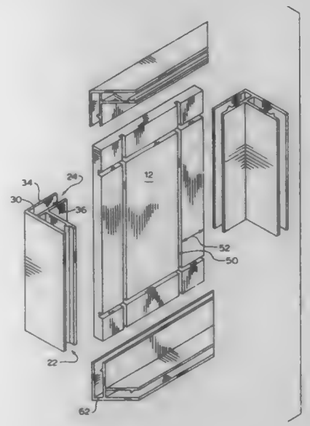
1. A stackable container comprising:
a base having a bottom wall and opposed side and end portions;
a pair of support members hinged to one of said side and end portions for supporting a stacking load caused when one said container is stacked on a like said container and hinge means for mounting said support members to said base;
said support members having at least two positions wherein said support members are positioned to be substantially coplanar with said base portion in a first position and rotated about said hinge means to be substantially perpendicular to said bottom wall of said base in said second position;
an outer sleeve detachable from said base portion that fits on said base part for forming a periphery of side and end walls upstanding from said base wherein said outer sleeve fits over said support members and has a bottom edge juxtaposed to the other of said side and end portions of said base;
wherein said outer sleeve is formed of cardboard and said periphery of said outer sleeve and said base part have a substantially rectangular shape; and
wherein said support members are hinged by said hinge means to said end portions of said base and corresponding end walls of said outer sleeve fit over said support members to form end walls of said container, and further wherein said outer sleeve has side walls contiguous with said end walls of said outer sleeve that fit into said base along an inner side of said base side walls.

5,722,551

CRATE ASSEMBLY AND PANEL CONNECTING CLIP

Dominick Cocciemiglio, Jr., 1300 E. Devon Ave., Elk Grove Village, Ill. 60007-5831

Filed Jul. 19, 1996, Ser. No. 684,703
Int. Cl.[6] B65D *90/04*
U.S. Cl. 220—4.33 10 Claims



1. A panel connecting clip for joining adjacent grooved panels comprising:
a first channel including a base positioned at the rear of said first channel, said first channel having an inner side wall and an outer side wall extending forwardly from said base;
a second channel attached transversely to said first channel and including a base positioned at the rear of said second channel, said second channel having an inner side wall and an outer side wall extending forwardly from said base; and
groove engaging means within said first and second channels comprising a ridge projecting from a side wall of each of said

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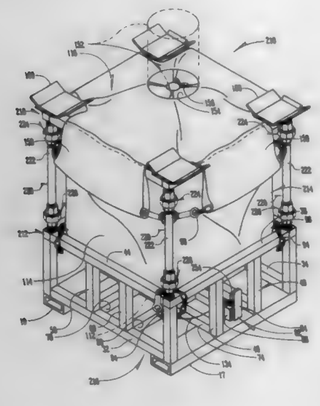
respective channels, said ridge exhibiting a forward sloping front side and a substantially perpendicularly projecting rear catch side.

5,722,552

COLLAPSIBLE STACKABLE CONTAINER SYSTEM FOR FLOWABLE MATERIALS

Gary L. Olson, Clarion, Iowa, assignor to Noslo Enterprises, Inc., Clarion, Iowa

Continuation-in-part of Ser. No. 517,550, Aug. 21, 1995. This application Oct. 27, 1995, Ser. No. 549,420
Int. Cl.[6] B65D *21/02;90/04;90/12;90/20*
U.S. Cl. 220—9.2 1 Claim



1. A collapsible container system for flowable materials, the container system comprising:

a collapsible frame having a bottom, front, rear and at least one side; the frame including a support tray having a discharge chute therein, the support tray being disposed above the bottom, and a pair of spaced apart elongated channel members extending in a substantially horizontal plane from the front of the frame to the rear of the frame below the support tray and being capable of receiving the lifting members of a lifting means, the frame including a top portion, and a plurality of spaced apart upright members extending between and attached to the top and bottom portions, and defining a height of the frame;

the upright members each including a moveable support portion that normally extends in a generally vertical direction and in supporting relation between the top and bottom portions of the frame;

a receptacle for flowable materials, the receptacle having a bottom portion resting on the support tray of the frame, the bottom portion of the receptacle having a discharge opening therein registered with the discharge chute and further having a cover flap with a movable portion selectively positionable in covering relation with the discharge opening;

means for retracting the cover flap from the discharge opening so as to allow flowable materials to exit the receptacle and depart from the frame, the means for retracting the cover flap being located at one of the sides of the frame and thereby extending generally transversely with respect to the channel members;

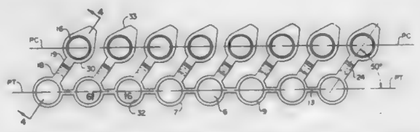
whereby when all of the support portions are moved from supporting relation between the top and bottom portions of the frame, the top portion of the frame and the receptacle are collapsible toward the bottom portion such that the height of the frame is reduced.

5,722,553

INTEGRAL ASSEMBLY OF MICROCENTRIFUGE STRIP TUBES HAVING INDEPENDENTLY TETHERED ANGULARLY RELATED SEAL CAPS

Kenneth P. Hovatter, 1901 Ackerman Dr., Lodi, Calif. 95240

Filed Mar. 31, 1995, Ser. No. 414,191
Int. Cl.[6] B65D *85/00*
U.S. Cl. 220—23.8 18 Claims



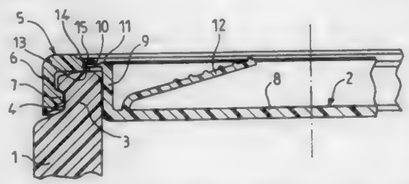
1. An integral assembly of a multiplicity of spaced reagent tubes arranged in an elongated aligned series, said tubes each having an open end and a closed end, the open ends of adjacent tubes integrally connected by a series of aligned tethers, and a corresponding multiplicity of correspondingly spaced independent seal caps, each seal cap having a tubular seal skirt portion symmetrical about a central axis and adapted to selectively sealingly engage the open end of an associated reagent tube, each said seal cap being independently pivotally connected integrally and angularly to an associated one of said reagent tubes at an angle other than 90 degrees to the elongated aligned series in which said reagent tubes are arranged and independently selectively manipulable in relation to the open end of said associated reagent tube to superimpose said seal cap thereover to selectively effect sealing penetration of said tubular skirt portion into or out of said open end to seal or unseal the open end of said associated reagent tube.

5,722,554

CLOSURE ELEMENT FOR CONFINING A PRODUCT IN A POT IN A TAMPERPROOF MANNER, AND METHOD FOR MANUFACTURING SUCH A CLOSURE ELEMENT

Cyrille Chanal, Charenton-le-Pont, and Jacques Playe, Brunoy, both of France, assignors to L'Oreal, Paris, France

Continuation of Ser. No. 306,976, Sep. 16, 1994, Pat. No. 5,573,130. This application Aug. 16, 1996, Ser. No. 698,760
Claims priority, application France, Sep. 17, 1993, 93/11104
The portion of the term of this patent subsequent to Sep. 16, 2014, has been disclaimed.
Int. Cl.[6] B65D *45/32*
U.S. Cl. 220—319 2 Claims



1. Closure element for a container equipped with a neck in order to confine a product in a tamperproof manner, the closure element comprising:

(a) a fastening ring substantially non-removably fixed to the neck of the container, this fastening ring being produced from a first plastic and including an annular groove; and

(b) a cap produced from a second, different plastic to include a peripheral edge,

wherein the edge of the cap is received in the annular groove formed in the ring,

wherein the first and second plastics are incompatible so that no connection is formed between them by thermofusion,

wherein the groove in the ring has dimensions including an axial thickness and a radial depth which are such that the closure produced by the element fitted on the container is leaktight,

wherein the edge of the cap is separated from the groove of the ring in order to open the container, and

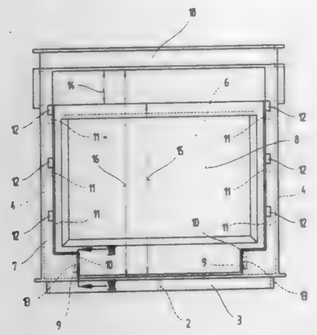
wherein, after the edge is separated from the groove, the edge cannot be fitted back into the groove.

5,722,555

TRANSPORT AND STORAGE CONTAINER

Franz Pölzl, Marchtrenk, Austria, assignor to Steiner Freizeitmöbel Gesellschaft m.b.H. & Co. KG, Pinsdorf/Aurachkirchen, Austria

PCT No. PCT/AT94/00172, § 371 Date May 31, 1996, § 102(e) Date May 31, 1996, PCT Pub. No. WO95/13970, PCT Pub. Date May 23, 1995
PCT Filed Nov. 17, 1994, Ser. No. 647,948
Claims priority, application Austria, Nov. 19, 1993, 2341/93
Int. Cl.[6] B65D *43/12*
U.S. Cl. 220—345 4 Claims



1. Transport and storage container with base and side walls, in which at least one side wall forms a frame, which is closed at the top, for inserting a flap that can be pivoted off, which flap by means of lower bearing pins, projecting on both sides and arranged coaxially relative to one another, engages in bearing eyes of the frame side parts, and can be inserted by means of locking pins, projecting on both sides and arranged above the bearing pins, into mounting slots of the frame side parts which are accessible via insertion openings from an outer surface, and the inside height of the frame of the flap-bearing side wall or face wall is greater than the flap height, and the slot length of the mounting slots is equal to or smaller in height than the height difference between the frame and flap, and at least one of the mounting slots comprises a restriction as a detent for the corresponding locking pins, and the mounting slots forming the bearing eyes for the bearing pins are designed in the form of longitudinal slots.

5,722,556

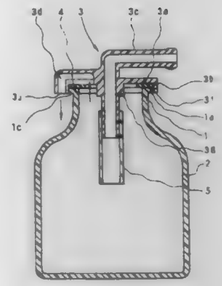
RESERVE TANK CAP HAVING EASILY MANUFACTURED INTEGRAL OVERFLOW PASSAGE AND RESERVE TANK

Yoshihiko Ota, Chiryu, and Hiroyuki Kosaka, Kyoto, both of Japan, assignors to Nippondenso Co., Ltd., Kariya, and Kyoraku Co., Ltd., Kyoto, both of Japan

Continuation-in-part of Ser. No. 312,866, Sep. 27, 1994, abandoned. This application Apr. 19, 1996, Ser. No. 633,997
Claims priority, application Japan, Sep. 28, 1993, 5-240924; Dec. 16, 1993, 5-67173
Int. Cl.[6] B65D *1/00*
U.S. Cl. 220—367.1 40 Claims

1. A cap for a reserve tank comprising:

a lid portion for covering an opening of said reserve tank;



an inlet connecting pipe extending through said lid portion and constructed and arranged to connect said reserve tank with an outside fluid source;

an outer peripheral wall portion integral with said lid portion, said outer peripheral wall portion extending from a periphery of said lid portion for securing said cap in covering relation with respect to said reserve tank, said outer peripheral wall portion having a protruding portion which protrudes radially outwardly from surfaces of said tank surrounding the opening of said tank;

said lid portion and said protruding portion of said outer peripheral wall defining an overflow passage communicating an interior of said reserve tank with an exterior of said reserve tank, said overflow passage including:

a radially extending groove formed in said lid portion; and

a discharge groove formed by said protruding portion of said outer peripheral wall portion, said discharge groove communicating with said radially extending groove and extending downwardly from said radially extending groove to discharge fluid to the exterior of said reserve tank;

said radially extending groove in said lid portion and said discharge groove formed by said protruding portion providing a continually opened path of fluid communication between said inlet connecting pipe and the exterior of said reserve tank so that high pressure fluid received within said reserve tank through said inlet connecting pipe can be discharged from said reserve tank through said radially extending groove and said discharge groove;

wherein said lid portion and said radially extending groove formed therein, said outer peripheral wall and protruding portion thereof, and said connecting pipe extending through said lid portion are formed as an integrally molded unitary structure.

5,722,557

FIRE EXTINGUISHER ENCLOSURE

Richard D. Smith, 1613 LaGenia Ct., Dalton, Ga. 30721

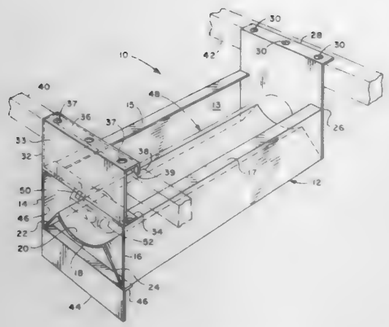
Filed Nov. 5, 1996, Ser. No. 743,301
Int. Cl.[6] B60R *11/00*
U.S. Cl. 220—476 13 Claims

1. A fire extinguisher enclosure, particularly adapted for supporting a tank-type chemical fire extinguisher in a generally horizontal position on a structure, said enclosure comprising:

an elongated body open at one end and adapted for supporting a fire extinguisher in a generally horizontal position in an interior space of said body, said body including a bottomwall portion comprising spaced apart webs and a concave intermediate part between said webs for cradling said fire extinguisher to minimize rolling movement of said fire extinguisher within said body during storage therein;

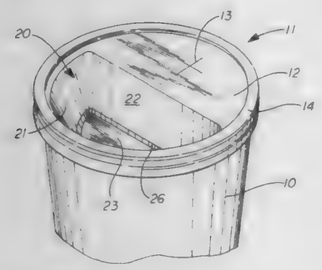
a first upstanding support member connected to said body at substantially the opposite end thereof and forming a closure for said opposite end, said first support member including means for engagement with said structure for supporting said body underslung from said structure; and

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a second upstanding support member connected to said body and spaced from said first support member and including means for engagement with said structure for supporting said body underslung from said structure.

5,722,558
DRINK LID WITH CONDIMENT RESERVOIR
Troy N. Thompson, Lexington, Ky., assignor to Sadler Inventions, Inc., Lexington, Ky.
Filed Apr. 3, 1997, Ser. No. 832,088
Int. Cl.[6] B65D *1/24*
U.S. Cl. 220—521 **14 Claims**



1. A container lid with a condiment reservoir, said lid defining a planar surface and an outer rim for attachment to the open top of a container, comprising:

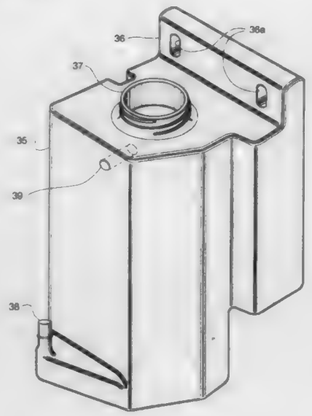
an orifice for drinking a liquid in said container extending through said planar surface of said lid and adjacent the outer rim of said lid;

an open top recess forming said reservoir in said lid opposite said orifice, said reservoir extending from the planar surface of said lid to a position lower than said surface; and

said recess being formed by closed side walls and a bottom extending down toward said container to form the reservoir,

whereby the condiment or a condiment holder may be placed in said reservoir for carrying said condiment for convenient use while held with said container.

5,722,559
COOLANT RECOVERY BOTTLE FOR SKID STEER LOADERS
Douglas G. Branham, Leola, Pa., assignor to New Holland North America, Inc., New Holland, Pa.
Division of Ser. No. 339,054, Nov. 14, 1994. This application Jun. 7, 1995, Ser. No. 480,989
Int. Cl.[6] B65D *25/02*
U.S. Cl. 220—562 **6 Claims**



1. In an off-road vehicle having a wheeled frame adapted for movement over the ground; and an engine supported by said frame to provide operative power for said vehicle, said engine having a coolant system including an external coolant recovery bottle to provide storage for liquid coolant, an improved coolant recovery bottle comprising:

a molded polymer, hollow body defining a cavity and having a inlet opening for the introduction of fluid into said body, said body having a connecting line opening adapted for attachment to a connecting line in flow communication with said engine coolant system, said body further having a vent extending internally into said cavity to open said cavity to the atmosphere, said vent being substantially perpendicular to a major axis of the body and said vent extending a substantial distance into the body.

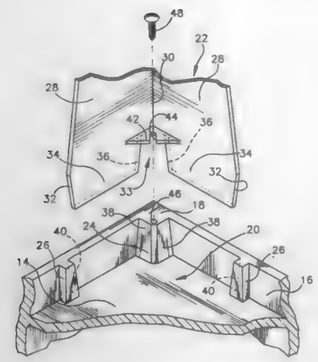
5,722,560
UTILITY TUB WITH SAFETY LOCKING LEGS
Robert J. Mustee, and William Edward Trsek, both of Middleburg Heights, Ohio, assignors to E. L. Mustee & Sons, Inc., Cleveland, Ohio
Filed Aug. 22, 1996, Ser. No. 686,501
Int. Cl.[6] F16M *11/20*
U.S. Cl. 220—630 **15 Claims**

1. In a utility tub for containing liquid, the utility tub including pockets disposed adjacent a bottom wall of the tub and legs for fitting into the pockets, each of said legs being generally L-shaped in cross-section, the improvement comprising:

legs having the L-shape formed by two leg sections that converge to form a corner of each said leg, wherein a slot near the corner at an upper end portion of each said leg forms an inner peripheral edge on each said leg section, and each said inner peripheral edge has a taper that extends inwardly at an angle of about 5° with respect to a vertical axis;

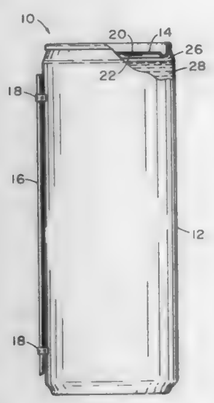
surfaces disposed in said pockets each having a taper that corresponds to each said inner peripheral edge taper; and

a mounting surface connected to the leg sections at the upper end portion at an interior portion of the corner of each said leg



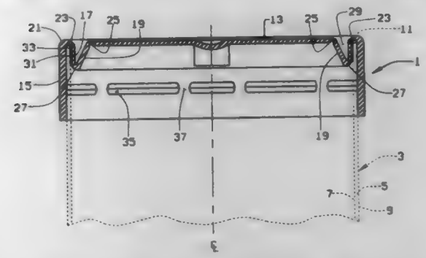
and a fastener for mounting each said mounting surface in one of said pockets.

5,722,561
DRINK STRAW CAN
Scott C. Biondich, Delmont; Dean J. Wainer, Lower Burrell, both of Pa., and Robert J. Falkenberg, Alpharetta, Ga., assignors to Aluminum Company of America, Pittsburgh, Pa.
Filed Mar. 13, 1996, Ser. No. 614,874
Int. Cl.[6] B65D *77/28*
U.S. Cl. 220—710 **10 Claims**



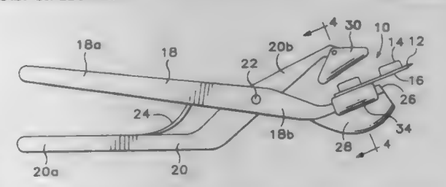
1. In a metal can lid for a can holding beverage under a positive pressure that may exceed 40 psig, said lid having a public side and a product side, the improvement comprising a small aperture in said lid and a patch of tearable sheet sealing material having a thickness less than about 0.015 inch covering said aperture on the product side of said lid and adhered to said product side by an adhesive having a shear strength sufficient to prevent said patch from being forced through said aperture by pressure in the can, said patch doming outwardly into said aperture by pressure in the can without bursting and being breakable by a piercing point on a straw to provide access to beverage in a can on which said lid is secured.

5,722,562
TUBE CAP
James Kick, Town and Country, Mo., assignor to C.A.P.S. Inc., Bridgeton, Mo.
Filed Mar. 28, 1996, Ser. No. 623,249
Int. Cl.[6] B65D *41/16*
U.S. Cl. 220—785 **5 Claims**



1. A closure cap for a tube, said tube having a tube wall and a tube end, said tube end being of a single thickness of said tube wall, said cap comprising a skirt which, when installed on said tube, extends from the end of said tube along the outside of said tube wall and is substantially in face-to-face engagement with the outer surface of said tube wall, said cap further having an end closure which extends across the end of the tube and closes off the tube, an inner flange integral with said skirt and with said end closure, said inner flange being concentric with said skirt and being substantially parallel to said skirt so as to receive said single thickness of said tube wall therebetween, a wall integral with the inner end of said inner flange and integral with said end closure for connecting the inner end of said inner flange and said end closure, and a flexible connection between said skirt and said inner flange which permits flexing of said inner flange relative to said skirt upon installation of said cap on said tube thereby to enable installation of said cap on said tube substantially without deformation of said tube, said wall applying a radially outward biasing force on said inner flange thereby to grip said tube between said inner flange and said skirt so as to hold said cap on said tube.

5,722,563
TOOL FOR REMOVING PILLS AND THE LIKE FROM BLISTER PACKAGES
Larry D. Hunts, 1111 Netherlands Rd., Trail, Oreg. 97541
Continuation of Ser. No. 706,378, Aug. 30, 1996, abandoned, which is a continuation of Ser. No. 402,292, Mar. 10, 1995, abandoned. This application Jul. 14, 1997, Ser. No. 892,475
Int. Cl.[6] B65B *69/00*
U.S. Cl. 221—25 **8 Claims**



1. A hand tool for removing tablets and the like contained in blister packaging having a top sheet forming a pocket containing a tablet of predetermined size and peripheral shape and a cover sheet affixed to the top sheet and covering and sealing the tablet-containing pocket, the hand tool comprising:

a) first and second arm members pivotally connected together and forming a pair of opposite handle end portions extending in one direction from the pivot connection and a pair of opposing working end jaw portions extending in the opposite direction from the pivot member, the working end jaw por-

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tions movable toward and away from each other about the pivot connection by movement of the associated handle end portions,

b) module member support means on the working end jaw portion of the first arm member for mounting a module member thereto secured against vertical movement therefrom,

c) a module member mounted on said support means and configured to provide an underlying supporting base for supporting the cover sheet of a blister package against deformation, said module member having at least one specifically-configured, tablet-receiving opening arranged for registry with a tablet in a blister package, said specifically-configured, tablet-receiving opening having a particular, peripheral shape substantially matching and dimensioned slightly larger than the said predetermined shape and size of a particular tablet in a blister package on the module member arranged in registry with the opening therethrough,

d) a pressing member on the working end jaw portion of the second arm member arranged to align with said opening in the support means,

e) the pressing member being arranged to engage the outer surface of a tablet-containing pocket of a blister package supported on the support means and, upon movement of the pressing member toward said support means, to press the pocket inwardly, forcing the tablet to press against the cover sheet which, by virtue of its support against deformation by the underlying module member and the matching shape and close dimensions of the aligned tablet and said opening, tears open under initial pressing force to allow the tablet to pass through said opening.

5,722,564

AUTOMATIC BANK MACHINE FOR DISTRIBUTING ROLLS OF COINS

Patrick Tiraboschi, Bastide Saint-Paul, Domaine du Vignal, F-06740 Chateauneuf de Grasse, France

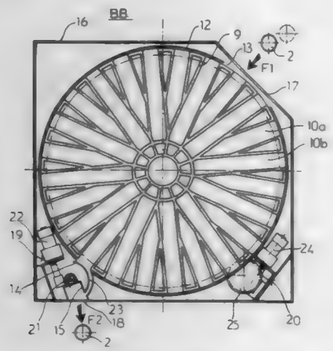
PCT No. PCT/FR94/01038, § 371 Date Mar. 22, 1996, § 102(e) Date Mar. 22, 1996, PCT Pub. No. WO95/08817, PCT Pub. Date Mar. 30, 1995

PCT Filed Sep. 5, 1994, Ser. No. 617,791

Claims priority, application France, Sep. 22, 1993, 93 11379

Int. Cl.[6] G07F *11/52*

U.S. Cl. 221—131 **10 Claims**



1. In a bank machine for dispensing coin rolls, comprising a kiosk with incorporated automatic teller, the kiosk having on its forward surface accessible to the public means including a control keyboard for permitting a transaction, a display screen, openings for the insertion of payment means, an outlet receptacles, the improvement wherein said machine further comprises: one or several vertical wheels, each wheel serving as a distribution drum for coin rolls via a dispensing shutter, each wheel adapted to rotate about an axis of rotation, said rolls being disposed in radiating recesses disposed about the axis of rotation of each wheel, each wheel including control means of the dispensing shutter, and means for stepwise rotating the wheel, each wheel being disposed in a circular cage which includes in its upper portion a window for loading said coin rolls and in its lower portion a window for dispensing by gravity coin rolls, and said lower dispensing window coacting with the control means of the dispensing shutter which permits opening and closing the lower window.

5,722,565

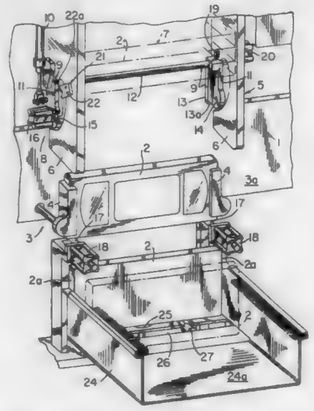
CASSETTE FEEDING SYSTEM AND METHOD

Luciano Perego, Milan, Italy, assignor to Tapematic U.S.A., Inc., Orlando, Fla.

Division of Ser. No. 390,055, Feb. 17, 1995, Pat. No. 5,598,949. This application Nov. 7, 1996, Ser. No. 745,068

Int. Cl.[6] B65H *1/00*

U.S. Cl. 221—197 **10 Claims**



1. A method of feeding tape cassettes in an automatic machine for loading tape into said cassettes, comprising the steps of:

arranging a plurality of cassettes in a horizontal orientation one upon the other to form a stack extending vertically above a loading station of the cassette loading machine;

disposing at least one cassette located at a lowermost position in said stack onto a collapsible support arranged in a rest position in which it horizontally supports the cassette;

maintaining the positioning of said cassette on the collapsible support;

moving the collapsible support to be dropped position in which the cassette retained thereon is oriented in a substantially vertical plane;

releasing the cassette from the collapsible support to let it fall vertically into said loading station.

5,722,566

DOUBLE ACTION WATER GUN

Kenneth P. Glynn, Raritan Township, Hunterdon County, N.J., assignor to Ideal Ideas, Inc., Flemington, N.J.

Filed Mar. 11, 1996, Ser. No. 613,476

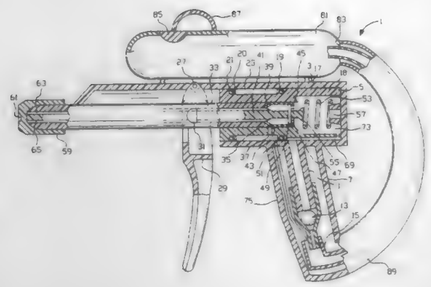
Int. Cl.[6] A63H *3/18*

U.S. Cl. 222—79 **20 Claims**

1. A continuous action toy water gun, which comprises:

a) a housing having a liquid chamber located within an operation cylinder, and a handle having a tube extending therethrough;

b) a pumping element located in said operation cylinder and being driven to reciprocate in horizontal forward and rearward strokes to dispense liquid from said liquid chamber, said



pumping element having a predetermined shape, volume and displacement and having a first position and a second position within said operation cylinder, said first position resulting from forward movement and establishing a minimum portion of volume of said pumping element within said liquid chamber and permitting a predetermined maximum available volume within said liquid chamber for liquid material, said second position resulting from rearward movement and establishing a maximum portion of volume of said pumping element within said liquid chamber and permitting a predetermined minimum available volume within said liquid chamber for liquid material due to volume displacement by said pumping element, and said pumping element including thereon a valve seat, a one way valve and a pumping rod such that said valve seat, said one way valve and said pumping rod move together with said pumping element when said pumping element is moved, said one way valve permitting liquid material to pass therethrough in a relative direction toward a spray nozzle, but not toward said liquid chamber, both said valve seat and said one way valve being located on a rearward portion of said pumping element such that said one way valve does not contact the wall of said operation cylinder, said spray nozzle being located on said housing and being connected to a liquid conducting means which allows liquid to flow from said pumping element to said spray nozzle, said pumping rod being located on a forward portion of said pumping element;

c) a relief valve connected to moving means for moving said pumping element and having a seat with an opening therethrough and a relief passage to bleed liquid back to said tube of said handle and to allow atmospheric air to be drawn in through said spray nozzle at the end of the rearward movement of said pumping element whereby said spray nozzle is cleared of liquid, said relief valve seat cooperating with said pumping element to close said opening through said seat when said pumping element is in its forward position, said moving means having a first position and a second position corresponding to said pumping element first position and second position; and

(d) a dip tube connected to the lower end of said tube in said handle of said main housing and extending to an inner portion of a water bomb attached to the top of said water gun;

such that when said moving means is reciprocated to prime and when said moving means and therefore said pumping element is moved from said first position to said second position, liquid material passes through said one way valve and seat and at least a portion thereof passes successively through said liquid conducting means and said spray nozzle, and when said trigger and therefore said pumping element is then returned to said first position, liquid material is sucked through said dip tube from said water bomb into said liquid chamber and liquid material in the area forward the closed valve exits through said liquid conduction means and said spray nozzle, thereby creating a continuous action spray on forward and rearward strokes of said pumping element.

5,722,567

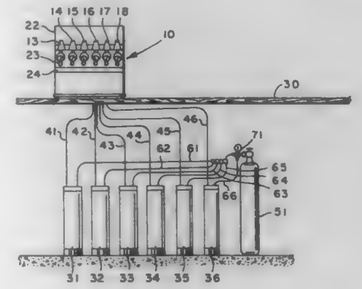
PREMIX BEVERAGE DISPENSER

Brian C. Jones, Collinsville, and Robert J. Bordonaro, Torrington, both of Conn., assignors to IMI Wilshire Inc., Anoka, Minn.

Filed Oct. 11, 1995, Ser. No. 540,845

Int. Cl.[6] B67D *5/62*

U.S. Cl. 222—146.6 **73 Claims**



1. A premix beverage dispensing apparatus including a product source station for providing at least one premixed beverage, a tower assembly, cooling means for chilling said premixed beverage downstream of said source station, at least one drink dispensing valve and conduit means for interconnecting said source station and said dispensing valve, said conduit means including an inlet end adjacent said source station and an outlet side within said tower assembly extending from said cooling means to an outlet end adjacent said valve, said outlet side fixed in an insulation block, said dispensing valve including a threaded socket, the improvement comprising: adapter means for connecting said valve to said outlet end along a common dispensing axis, including a plug-in connection fixed at said outlet end of said beverage conduit, said connector including a circumferential groove and an O-ring disposed therein and an adapter fitting interconnecting said plug-in connector and said threaded socket of said dispensing valve, said adapter fitting including a threaded nipple portion engaging with said threaded socket and seated against a gasket disposed therein, a head portion axially opposite said nipple portion, said head portion having a cylindrical receptacle opening, said plug-in connector and said O-ring fitted therein.

21. A method of assembling valves to a premix beverage dispensing apparatus comprising:

providing a product source station for providing at least one premixed beverage;

providing a tower assembly;

providing a cooling apparatus downstream of said source station for chilling said premixed beverage;

providing at least one drink dispensing valve;

providing at least one conduit for interconnecting said source station and said dispensing valve, said conduit including an inlet side extending between said source station and said cooling apparatus and an outlet side within said tower assembly between said cooling apparatus and said valve, said outlet side including an outlet end adjacent said valve;

providing said at least one drink dispensing valve with a threaded socket;

providing a plug-in connector fitting;

welding said plug-in connector fitting to said at least one conduit at said outlet end;

providing an adapter fitting for interconnecting said plug-in connector fitting and said threaded socket, said adapter fitting including a threaded nipple portion and a receptacle opening axially opposite said nipple portion;

screwing said threaded nipple portion into said threaded socket;

pushing said valve and said receptacle opening over said plug-in connector;

rotating said valve to a desired portion; and

fastening said valve into said position.

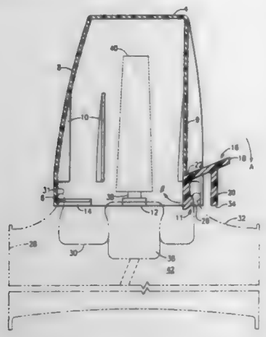
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5,722,568

TAMPER-EVIDENT AEROSOL CAP

Jeremy Smith, Loudon, N.H., assignor to Summit Packaging Systems, Inc., Manchester, N.H.

Filed Sep. 13, 1996, Ser. No. 712,619
Int. Cl.[6] B67D 5/32
U.S. Cl. 222—153.06 15 Claims



14. An overcap for an aerosol container in combination with an aerosol container, said aerosol container comprising a substantially closed aerosol container which is open at one end thereof and closed at an opposite end thereof, said open end of said aerosol container accommodating a mounting cup having an annular curl, an aerosol valve being supported by said mounting cup, said aerosol valve having a stem extending through said mounting cup and supporting an actuator, and said aerosol container containing an aerosol product to be dispensed; and

said overcap being closed at a first end and being opened at an opposed end thereof, and the open end of said overcap being defined by an annular skirt;

an inwardly facing surface of said annular skirt being provided with at least one rib for engaging an outwardly facing surface of a mounting cup; and

said annular skirt including a release mechanism for securing said overcap to the mounting cup and releasing said overcap from the mounting cup when attached thereto;

wherein said release mechanism includes at least one protrusion for engaging an inwardly facing surface of the mounting cup whereby said at least one protrusion and said at least one rib releasably maintain said overcap in engagement with the mounting cup and said release mechanism facilitates disengagement of said overcap from the mounting cup when desired.

5,722,569

TRIGGER SPRAYER WITH DISCHARGE PORT BLOCKING MECHANISM

Donald D. Foster, St. Charles, Mo., assignor to Contico International, Inc., St. Louis, Mo.

Filed Jul. 19, 1996, Ser. No. 685,446
Int. Cl.[6] B67D 5/32
U.S. Cl. 222—153.13 21 Claims

1. A trigger sprayer comprising:

a dispenser body;

a pump mechanism adjacent the dispenser body;

a trigger adjacent the pump mechanism; and

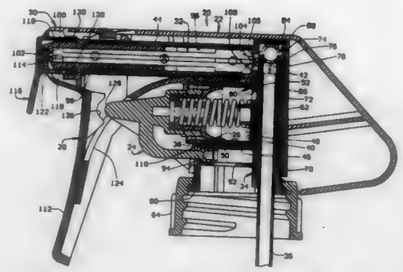
a plug;

the dispenser body having an intake port adapted for fluid communication with a source of liquid, an intake liquid flow path providing fluid communication between the intake port and the pump mechanism, a first check valve in the intake liquid flow path configured for permitting fluid flow from the intake port to the pump mechanism and for checking fluid flow from the pump mechanism to the intake port, a discharge port, and a discharge liquid flow path providing fluid communication between the pump mechanism and discharge port;

the pump mechanism including a pump element reciprocally moveable relative to the dispenser body between first and second positions to draw fluid in through the intake port and force it out through the discharge port;

the trigger being moveable relative to the dispenser body between forward and rearward positions and being located and configured to cause the pump element to move from its first position to its second position when the trigger is moved from its forward position to its rearward position;

the plug being connected to the trigger and moveable relative to the dispenser body between a blocking position in which it covers the discharge port and an unblocking position in which it is laterally spaced from the discharge port to avoid interference with the discharge of fluid through the discharge port, the trigger and plug being configured so that movement of the trigger between its forward and rearward positions causes movement of the plug between its blocking and unblocking positions.

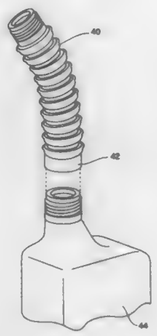


5,722,570

CONTAINER WITH EXTENDABLE, DIRECTABLE POURING SPOUT

Harry D. Sultzer, III, and David Clifford Pollard, both of 432 E. Idaho, Suite C-214, Kalisbell, Mont. 59901

Filed Jun. 14, 1996, Ser. No. 665,083
Int. Cl.[6] B65D 47/06
U.S. Cl. 222—529 1 Claim



1. An extendable, retractable pouring spout for use with a container, the spout comprising:

a. a discharge orifice at a distal end of the spout;

b. a sealing means for removably sealing the orifice;

c. a collapsible section;

d. the collapsible section comprising a spout sidewall formed in an annular continuous manner and having a series of inward peaks alternating with outward peaks;

e. each inward peak and each outward peak being a hinge between two connecting segment walls; and

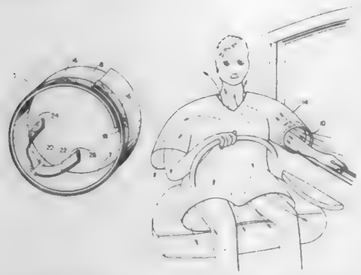
f. each segment wall being are shaped and configured to shift to a mirror image are shape upon application of stress thereto when the spout is extended.

5,722,571

AIR FLOW GUIDE FOR GARMENT SLEEVE

Sondra Littlejohn, 7320 Piney Branch Rd., Takoma Park, Md. 20912-4207

Filed Dec. 27, 1995, Ser. No. 579,352
Int. Cl.[6] A41H 43/00
U.S. Cl. 223—1 3 Claims



3. An air flow guide for a garment sleeve comprising an elongated flat strip of material having first and second surfaces on opposite sides of said strip adapted to be rolled into an adjustable diameter tube and inserted into a garment sleeve adjacent a cuff portion thereof, first fastener means secured to said first surface and extending longitudinally of said strip from one end of said strip to an opposite end of said strip and second fastener means complementary to said first fastener means secured to said second surface adjacent one end of said strip whereby upon forming said strip into a tube with said first fastener means facing outwardly of said tube, said second fastener means engaging said first fastener means to maintain said tube in a desired adjusted tubular configuration and wherein said first fastener means is comprised of a fabric strip having a plurality of projecting hooks thereon and said second fastener means is comprised of a fabric strip having a plurality of complementary loops thereon engageable by said hooks, said hooks of said first fastener means being engageable with the material of the garment sleeve to assist in holding said tube within said garment sleeve and wherein said guide material is flexible, semi-stiff material capable of maintaining a tubular configuration.

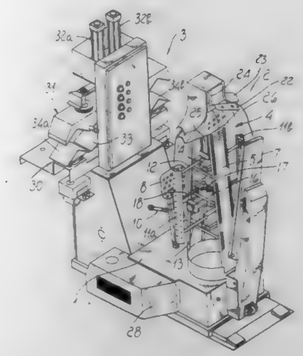
5,722,572

MACHINE FOR IRONING CLOTH ARTICLES SUCH AS SHIRTS AND THE LIKE

Enzo Pessina, Via S. Maria, 17, 20047 - Brugherio (Milano), Italy

Filed Apr. 20, 1995, Ser. No. 425,978
Claims priority, application Italy, Apr. 29, 1994, MI9400311 U
Int. Cl.[6] A41H 5/00
U.S. Cl. 223—70 9 Claims

1. An ironing machine, specifically designed for ironing cloth articles, such as shirts, characterized in that said ironing machine comprises a supporting structure, supporting a first ironing station, provided with a dummy for supporting the inside of a cloth article to be ironed and with a pressing elements facing an outside portion of said dummy, an inside portion of said dummy being coupled to suction means and said pressing elements including means for delivering a hot fluid, a second ironing station being moreover provided for ironing neck and cuff portions of said cloth articles to be ironed, said second station including a bottom ironing panel for supporting thereon said cloth article to be ironed and a top ironing panel which can be driven toward and away from said bottom ironing panel to process said neck and cuff portions of said cloth article, said bottom ironing panel comprising a central region for supporting said cloth article to be ironed and two separate raised side regions for bearing thereon said cuff portions of said cloth article.

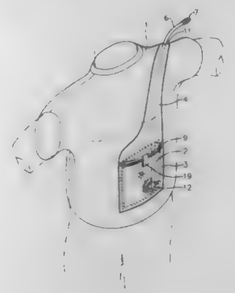


5,722,573

PORTABLE SYSTEM FOR DELIVERING A DRINKING BEVERAGE

Christopher Paul Carnel, 5073 San Feliciano Dr., Woodland Hills, Calif. 91364

Filed Aug. 6, 1996, Ser. No. 692,769
Int. Cl.[6] A45F 5/00
U.S. Cl. 224—148.2 13 Claims



10. A portable system for delivering a drinking beverage to a user, comprising:

(a) a carrier fabric made at least in part of a flexible material having a pocket;

(b) a flexible beverage reservoir having a sealed chamber therein removably mounted to said carrier fabric and captively held in said pocket;

(c) valve means carried by said flexible beverage reservoir communicating with said sealed chamber for admitting said beverage into said sealed chamber and for permitting the siphoning of said beverage from said sealed chamber;

(d) a beverage delivery lumen having a first end and a second end where said first end communicates with said valve means and said second end has an opening, and where said beverage delivery lumen is so adapted that said beverage may be siphoned from said sealed chamber by suction of said delivery lumen by a user.

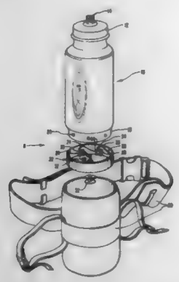
VOL 1208 ISS 1 MR 3 1998 UMI

5,722,574

CONTAINER AND RETAINING APPARATUS

Michael J. Pratt, Park City, Utah, assignor to Ogio International, Inc., Salt Lake City, Utah

Filed Nov. 14, 1996, Ser. No. 748,349
Int. Cl.[6] A45F *5/00*
U.S. Cl. 224—148.4 20 Claims



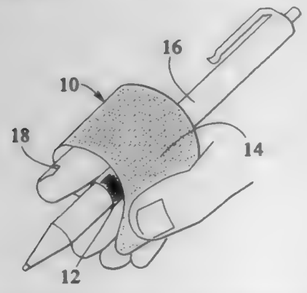
1. An apparatus for securely retaining a container in place while facilitating removal and insertion thereof comprising:
a. a container for containing fluid;
b. retaining means for releasably holding said container;
c. a protuberance assembly associated with one of said container or retaining means and a corresponding socket assembly associated with the other of said container or retaining means;
d. said protuberance assembly having at least one outward protrusion;
e. said corresponding socket assembly having at least one synergetic ramp and cavity combination, said corresponding socket assembly further comprising a first cavity having a ramp configured to direct said outward protrusion into the first cavity, and a second cavity for receiving said outward protrusion, said second cavity separated from the first cavity by a detent; and
f. said outward protrusion being reversibly engageable with said socket assembly.

5,722,575

GRIP-ASSISTING ACCESSORY

Paul Arthur Smith, Glenview, Ill., assignor to Eversharp Pen Company, Franklin Park, Ill.

Filed Mar. 1, 1996, Ser. No. 609,779
Int. Cl.[6] A41D *19/00*; B65D *19/00*
U.S. Cl. 224—217 15 Claims



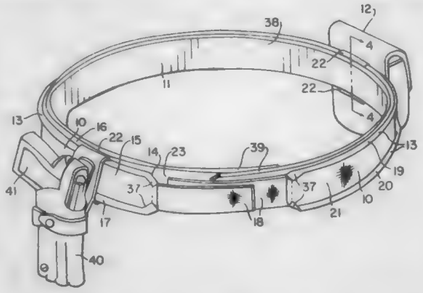
1. A grip-assisting device for use with elongated item to be held in a user's hand, the device comprising:
an elongated sleeve adapted to snugly receive the elongated item, the sleeve having an outer surface defining a length of the sleeve, the outer surface providing substantial longitudinal contact with at least one finger of the user's hand;
a flexible strap having a proximate end and a distal end defining a length therebetween, the flexible strap attached to the sleeve along a width of the flexible strap at the proximate end generally longitudinally to the sleeve and extending substantially perpendicularly from a central axis of the sleeve wherein the length of the strap is sufficient to wrap over both the at least one finger of the user's hand and at least a portion of the elongated sleeve to substantially immobilize the at least one finger with respect to the sleeve and further wherein the width of the flexible strap at the proximate end is equal to the length of the sleeve; and
means for maintaining the strap in a wrapped position over both the at least one finger of the user's hand and the portion of the sleeve.

5,722,576

TRACK MEMBER SYSTEM

William H. Rogers, Jacksonville, Fla., assignor to Safariland Ltd., Inc., Ontario, Calif.

Filed Apr. 25, 1996, Ser. No. 637,504
Int. Cl.[6] A45F *5/00*
U.S. Cl. 224—195 19 Claims



1. A tracked member for a human to wear for carrying a container, said tracked member comprising an elongated planar member having an outside surface facing away from a wearer's body and an inside surface facing toward the body, an elongated track means protruding outwardly from said outside surface and extending lengthwise of said member, said track means including a pair of spaced parallel track members, said tracked member further including an elongated tubular guide means having a pair of spaced internal hollows complemental to respective said track members and selectively positionable lengthwise along said track members while being frictionally clamped thereto, said guide means adapted to be firmly attached to a container to position same along said track members.

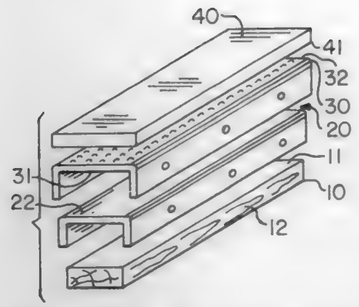
5,722,577

DRAGBOARD ASSEMBLY

Lloyd Simpson, Pittsburgh, Pa., assignor to Armstrong/Kover Kwick, Inc., McKees Rocks, Pa.

Filed Jul. 27, 1995, Ser. No. 508,177
Int. Cl.[6] B65H *23/00*
U.S. Cl. 226—195 7 Claims

1. A dragboard for use in a strip processing line comprising:
a. an elongated substrate having an upper surface, a lower surface and a pair of side surfaces;
b. a protective layer having an outer surface and an inner surface, the inner surface attached to, and covering, the upper surface and side surfaces of the substrate;
c. an adhering layer having an upper surface and a lower surface, with the upper surface of the adhering layer including a plurality of hooks and the lower surface of the adhering layer attached to the outer surface of the protective layer; and



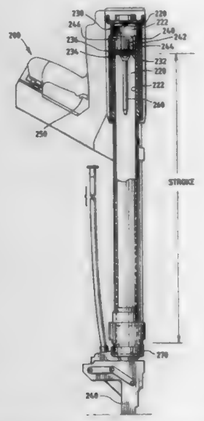
d. a contact layer having an upper surface and a lower surface, with the lower surface of the contact layer removeably attached to the upper surface of the adhering layer by the plurality of hooks.

5,722,578

HIGH VELOCITY, COMBUSTION-POWERED, FASTENER-DRIVING TOOL

Donald L. Van Erden, Wildwood; Kui-Chiu Kwok, Mundelein, and G. Michael Velan, Mt. Prospect, all of Ill., assignors to Illinois Tool Works Inc.

Filed Sep. 29, 1995, Ser. No. 536,854
Int. Cl.[6] B25C *1/04*
U.S. Cl. 227—8 11 Claims



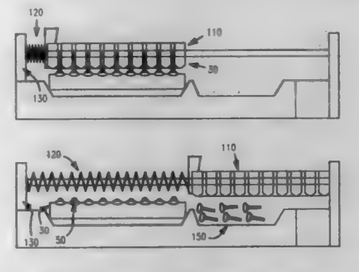
1. A combustion-powered, fastener-driving tool of a type deriving motive power from combustion of a gaseous fuel, said tool comprising structure defining a combustion chamber, structure defining a piston chamber communicating with the combustion chamber, the piston chamber having an inner, cylindrical wall, a driving piston movable within the piston chamber between an initial position and a terminal position over a stroke, a driving blade mounted to the driving piston so as to be conjointly movable with the driving piston over a stroke, means for sensing when the tool is pressed against a workpiece, for enabling the tool when the tool is pressed against a workpiece, and for disabling the tool when the tool is not pressed against a workpiece, and means including a trigger for generating a spark for initiating combustion of a gaseous fuel in the combustion chamber when the tool is enabled and the trigger is actuated, wherein the driving piston has an axial length, wherein the driving piston, the driving blade, and the piston chamber are arranged so that the driving piston and the driving blade are guided solely within the axial length of the driving piston, over at least substantially all of the stroke.

5,722,579

BOTTOM-SURFACE-METALLURGY REWORK PROCESS IN CERAMIC MODULES

Roy Yu, Wappingers Falls; James Patrick Wood, Beacon; Thomas Michael Biruk, Staatsburg; Gregory Scott Boettcher, Hopewell Junction; William Harrington Brearley; Kimberley Ann Kelly, both of Poughkeepsie; Bouwe William Leenstra, Walden, and Arthur Gilman Merryman, Hopewell Junction, all of N.Y., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Apr. 26, 1996, Ser. No. 638,415
Int. Cl.[6] B23K *1/018;31/02*
U.S. Cl. 228—119 22 Claims



1. A method for reworking a defective multi-chip module or substrate provided with a pin array, said pins being attached to pads by a braze material, said pads being positioned on a surface of said module or substrate, said method comprising the steps of:
a) applying a shearing force against said pins, with said module exposed to a temperature at or above that which is necessary for softening said braze material, to remove said pins;
b) polishing said surface of said module including said pads;
c) evaporating new pads; and
d) attaching new pins to said pads.

5,722,580

Patent Not Issued For This Number

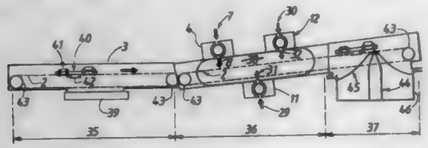
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5,722,581

METHOD AND DEVICE FOR WAVE SOLDERING INCORPORATING A DRY FLUXING OPERATION

Thierry Sindzingre, Cachan; Stéphane Rabia, Gif sur Yvette, and Nicolas Potier, Paris, all of France, assignors to L'Air Liquide, Societe Anonyme pour l'Etude et l'Exploitation des Procedes George Claude, Paris, France

Filed Jun. 7, 1996, Ser. No. 655,206
Claims priority, application France, Jun. 9, 1995, 95 06818
Int. Cl.[6] B23K *1/20*
U.S. Cl. 228—206 33 Claims



1. A method for wave soldering a circuit having two or more faces comprising the steps of:

(i) passing at least one initial gas mixture comprising at least one of an inert gas, a reducing gas and an oxidizing gas into at least one apparatus for forming excited or unstable gas species;

(ii) converting said at least one initial gas mixture into at least one primary gas mixture comprising excited or unstable gas species and substantially free of electrically charged species;

(iii) treating each of the two or more faces of said circuit with said at least one primary gas mixture at a pressure close to atmospheric pressure; and

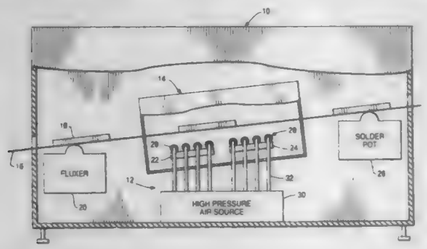
(iv) contacting said two or more faces of said circuit with at least one wave of a liquid soldering alloy.

5,722,582

HOT AIR CIRCULATION FOR WAVE SOLDERING MACHINES

David E. Gibson, Roswell, Ga., assignor to NCR Corporation, Dayton, Ohio

Continuation of Ser. No. 411,121, Mar. 27, 1995, abandoned, which is a continuation of Ser. No. 239,004, May 6, 1994, Pat. No. 5,425,495, which is a division of Ser. No. 137,550, Oct. 19, 1993, Pat. No. 5,379,943. This application Feb. 4, 1997, Ser. No. 795,461
Int. Cl.[6] H05K *3/34*; B23K *1/20*
U.S. Cl. 228—223 4 Claims



1. A method for removing moisture from a water-based flux on a printed circuit board moving through a wave soldering machine comprising the steps of:

pressurizing a gas with a pressurizing device;

heating the pressurized gas, including the substeps of providing a knife including a hollow cylindrical member sealed at one end and coupled to the pressurized device at another end and having a plurality of orifices which increase the pressure of the pressurized gas, and providing a heater which heats the knife and the pressurized gas; and

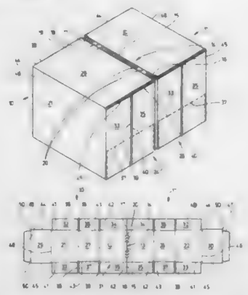
directing the heated and pressurized gas at the water-based flux.

5,722,583

CARDBOARD PACKAGING

Heinz Focke, Verden, and Henry Buse, Visselhövede, both of Germany, assignors to Focke & Co. (GmbH & Co.), Verden, Germany

Filed Jul. 19, 1996, Ser. No. 690,231
Claims priority, application Germany, Jul. 26, 1995, 195 26 988.8
Int. Cl.[6] B65D *5/54*
U.S. Cl. 229—120.011 7 Claims



1. A box made of stiff, foldable packaging material which comprises two separable subsidiary boxes (**10**, **11**), which are folded out of a common one-piece blank, each of said subsidiary boxes including a from wall (**12**, **13**), a back wall (**21**, **22**), a base wall (**27**, **28**), and side walls (**23**, **24**, **25**, **26**), with the front wall (**12**) of one of said subsidiary boxes (**10**) and the from wall (**13**) of the other of said subsidiary boxes (**11**) adjoining one another before being separated, and connected to one another along an upper folding edge (**14**), means for weakening the material along said fold line to permit the separation of said subsidiary boxes, each of said side walls (**23**, **24**, **25**, **26**), formed of pairs of individual folding tabs (**33**–**35**, **32**–**34**), one of said pairs of said folding flaps joined to the front wall (**12**), back wall (**21**), and base wall (**27**) of one of said subsidiary boxes (**10**) and the other of said pairs of folding flaps joined to the from wall (**13**), back wall (**22**), and base wall (**28**) of the other of said subsidiary boxes (**11**), characterized in that: said side flaps (**32** to **35**) connected to said front walls (**12**, **13**) and back walls (**21**, **22**), are dimensioned such that, in the folded position and forming the finished package, the width of said side flaps (**32** to **35**) corresponds to approximately half the width of the associated side walls (**23** to **26**).

the respective base walls (**27**, **28**) of both of said subsidiary boxes (**10**, **11**) are connected laterally to base flaps (**36**, **37**) folded into the plane of the respective adjacent side wall (**23** to **26**), and

the side flap (**32** to **35**) of both of said subsidiary boxes (**10**, **11**) are connected to the base flaps (**26**, **27**) in the areas facing the base walls (**27**, **28**).

5,722,584

CARTON APPLICABLE AS DISPLAY PACKAGE

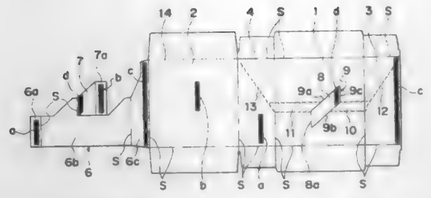
Jiro Fujiwara, Tokyo-to, Japan, assignor to Dai Nippon Printing Co., Ltd., Tokyo-to, and Otsuka Pharmaceutical Company, Limited, Tokyo, both of Japan

Filed Nov. 27, 1996, Ser. No. 758,050
Claims priority, application Japan, Nov. 30, 1995, 7-337860
Int. Cl.[6] B65D *5/481*
U.S. Cl. 229—120.15 5 Claims

1. A carton applicable as a display package which is made up of a blank including a front wall, a rear wall, a right and a left side walls, flaps constituting a top wall and flaps constituting a bottom wall,

said carton further comprising a partition wall means which is connected to any portion of the blank and has a lateral partition wall to traverse the carton in a right-and-left direction along approximately the center of the carton thereby dividing the interior of the carton to front and rear sections, and a longitudinal partition wall to cross the carton in a back-and-front direction thereby dividing the interior of the carton to right and left sections,

the front wall being provided with perforated tear means traversing approximately the center thereof in the right-and-left direction, while the right and left side walls or/and the rear wall include a tear part connected to outer ends of the right-and-left perforated tear means which is to be cut out to separate an upper part of the carton from a lower part of the carton.

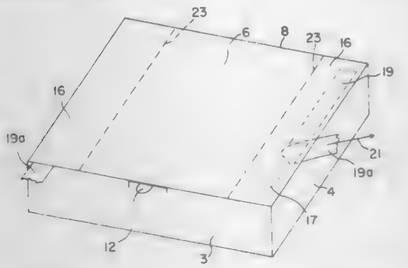


5,722,585

FOLDING BOX WITH SELF-ADHESIVE SEAL

Hermann M. Redl, Justus-von-Liebig-Strasse 17, D-86899 Landsberg, Germany, assignor to Hermann M. Redl, Landsberg, Germany

Filed Dec. 5, 1996, Ser. No. 760,791
Claims priority, application Germany, Dec. 8, 1995, 295 19 492 U
Int. Cl.[6] B65D *5/66*
U.S. Cl. 229—136 9 Claims



1. Folding box with cover (**6**) and at least one folding flap (**14**, **15**) situated under the cover, whereby the cover (**6**) or the flap (**14**, **15**) is provided with a contact adhesive strip (**17**) and, over it, a covering strip (**19**) that can be pulled off, in such a way that after pulling off the covering strip (**19**), the cover (**6**) can be stuck to the flap (**14**, **15**) by pressing, characterized in that at one of its free edges the cover (**6**) can be locked in the sealing position by mechanical locking (**10**, **11**), and that the or each covering strip (**19**) has a tab (**19***a*) which, with the cover (**6**) locked in sealing position, protrudes over the cover in such a way that the covering strip can be pulled out under the cover (**6**) in sealing position by pulling on the tab (**19***a*).

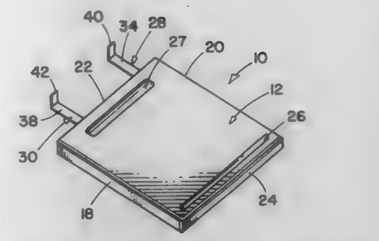
5,722,586

PORTABLE HANGING DESK

David Kent Hansen, 757 E. Phillips Dr. North, Littleton, Colo. 80122

Filed May 28, 1996, Ser. No. 653,048
Int. Cl.[6] A47B *23/00*
U.S. Cl. 108—44 19 Claims

1. A portable desk adapted for hanging from the rear portion of a seat back, said desk comprising:



a table board having substantially planer upper and lower surfaces, a top portion and a bottom portion;

a pair of mounting brackets defining a mounting means for releasable attachment to the top of a seat back, each said bracket having a mounting portion secured to and extending laterally substantially parallel with said table board bottom surface and adjustable lengthwise relative to said table board bottom surface to provide overall length adjustment of said mounting bracket, and an attachment portion extending in the same plane as said mounting portion laterally outwardly beyond the top portion of said table board substantially parallel to the plane of said table board bottom surface, said attachment portion including connection members projecting angularly outwardly from the distal end thereof;

support means projecting and extending directly from said table board bottom surface for contacting and bracing said board against the rear surface of a seat back to define the operational angle of said desk relative to said seat back; and

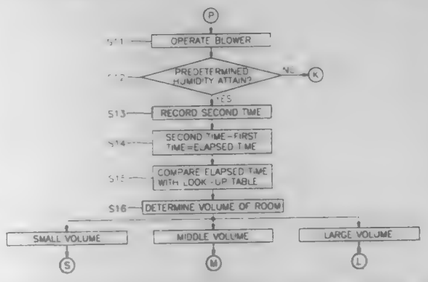
a ledge disposed along said upper table board surface at said bottom portion to provide a support for materials placed on said table board upper surface during use of said desk.

5,722,587

METHOD OF CONTROLLING A HUMIDIFIER SO AS TO SUPPLY ATOMIZED WATER INTO ROOMS IN ACCORDANCE WITH VOLUMES OF ROOMS

Woong Jung, Kyeongki-do, Rep. of Korea, assignor to Daewoo Electronics Co., Ltd., Seoul, Rep. of Korea

Filed Sep. 16, 1996, Ser. No. 714,448
Claims priority, application Rep. of Korea, Sep. 16, 1995, 95-30340
Int. Cl.[6] F24F *6/12*
U.S. Cl. 236—44 A 30 Claims



1. A method of controlling a humidifier having a microcomputer, a power switch, a key input section for setting various factors such as a desirable humidity and an operating time, a humidity sensing section for detecting a humidity in a room, a water atomizing section, a blowing section for blowing an atomized water into the room, and a displaying section for displaying a volume of the room, the water atomizing section including a heater and an ultrasonic vibrator, the microcomputer including a memory section in which a plurality of look-up tables are stored, the method comprising the steps of:

(1) recording the humidity of the room;

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(2) setting the desirable humidity and the operating time by handling the key input section;
(3) recording a first present time;
(4) recording a second present time when the humidity in the room has reached a predetermined humidity;
(5) recording an elapsed time from the first present time to the second present time;
(6) comparing the elapsed time with the look-up tables;
(7) determining a volume of the room; and
(8) operating the vibrator with a predetermined frequency according to the volume of the room.

5,722,588

COMBUSTION HEATER

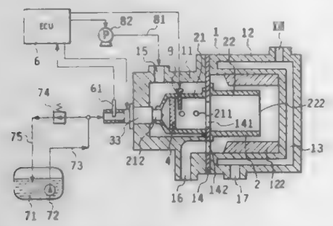
Takashi Inoue; Masanori Yasuda, both of Okazaki; Sadahisa Onimaru, Chiryu; Hiroshi Okada, Kariya; Akikazu Kojima, Gamagori, and Niro Takaki, Kariya, all of Japan, assignors to Nippon Soken Inc., Nishio, Japan

Filed Apr. 13, 1995, Ser. No. 422,522

Claims priority, application Japan, Apr. 13, 1994, 6-100744; Sep. 5, 1994, 6-236014

Int. Cl.[6] B60H *1/02*

U.S. Cl. 237—12.3 C **5 Claims**



1. A combustion heater having a burner in a housing provided with a fluid passage for heating a fluid introduced in said fluid passage, said combustion heater comprising:

a vaporization member provided in said burner for vaporizing a fuel supplied to said burner;

fuel feed means for supplying the fuel uniformly essentially all over the surface of said vaporization member;

air feed means for supplying combustion air to said burner; and

ignition means for igniting the supplied fuel in said burner,

wherein said fuel feed means includes fuel adjusting means for adjusting a supply amount of the fuel to said burner, wherein temperature detecting means is further provided for detecting a temperature of the fuel supplied to said burner, and wherein adjusting amount setting means is further provided for variably setting an adjusting amount of said fuel adjusting means based on the detected fuel temperature.

5,722,589

COMPOSITE LOAD BEARING STRUCTURE

Denis C. Richards, Mississauga, Canada, assignor to Green Track Inc., Bolton, Canada

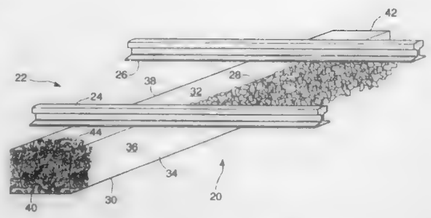
Continuation-in-part of Ser. No. 368,903, Jan. 5, 1995, Pat. No. 5,609,295. This application Mar. 10, 1997, Ser. No. 814,643

Int. Cl.[6] E01B *3/36*

U.S. Cl. 238—84 **23 Claims**

1. A composite load bearing structure comprising:

a main body portion having a top surface and a bottom surface defining a dimension of thickness therebetween, first and second-side surfaces defining a dimension of width therebetween, first and second end surfaces defining a dimension of length therebetween, and a first longitudinal axis oriented along the length of said main body portion;



wherein said dimension of thickness is significantly less than at least said length of said load bearing structure;

wherein said main body portion is made of a first composite material comprising a binding constituent in a proportion of about 10% to about 20% by volume, and an aggregate material in a proportion of about 80% to about 90% by volume;

wherein said binding constituent in said main body portion comprises a plastic material chosen from the group consisting of polyethylene and a polyethylene blend having at least 10% polyethylene;

wherein said aggregate material is in the form of irregular multi-faceted pieces chosen from the group consisting of crushed furnace slag, crushed gravel, crushed limestone, crushed granite, crushed basalt, crushed trap rock, and mixtures thereof; and

wherein the pieces of said aggregate material are distributed and otherwise arranged within said main body portion so that opposed surfaces of said pieces of aggregate material have at least partial contact, one with another, in a contiguous manner; and

at least one inner strengthening member having a second longitudinal axis which is substantially parallel to said first longitudinal axis;

wherein said at least one inner strengthening member is chosen from the group consisting of reinforcing bars; rolled, drawn, or cast ferrous sections; rolled, drawn, or cast composite alloy sections; plastic, metallic, and carbon based fibers; wire mesh, and expanded metal mesh.

5,722,590

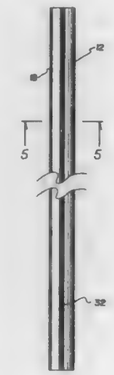
ILLUMINATED STRAW DEVICE

Jason Everett Miller, P.O. Box 3394, S. El Monte, Calif. 91733

Filed Sep. 18, 1996, Ser. No. 716,857

Int. Cl.[6] A47G *21/18*

U.S. Cl. 239—33 **14 Claims**



1. A new and improved illuminated straw device for illuminating a consumable liquid comprising in combination:

an elongated tubular member defined by an annular wall having an interior surface and an exterior surface, the tubular member having a length and a circular cross-section, the tubular member having a pair of linear channels being formed within the exterior surface thereof and extending the length of the tubular member, each linear channel having a channel wall with a plurality of bulbous projections extending outwardly therefrom and a plurality of holes therein, the plurality of bulbous projections being positioned along the length of the channel wall in an ordered fashion, the plurality of holes being sequentially positioned between the projections and along the length of the channel wall;

two strips of an illuminating material with each strip having a front face and a rear face, each strip being capable of light absorption, the rear face of each strip having a plurality of bulbous projections extending outwardly therefrom and a plurality of holes therein, each of the strips of illuminating material being sized and shaped for positioning within one of the channels of the tubular member, one of each strip being coupled with the tubular member when the bulbous projections of one of the channels engages the holes of the one strip and the bulbous projections of the one strip engages the holes of the channel; and

the tubular member having one of the two strips of illuminating material positioned within each of the channels, the two strips of illuminating material being exposed to a light source for light absorption when positioned within the tubular member, the tubular member being illuminated by the light exposed strips of illuminating material, the tubular member being positionable within a container filled with a consumable liquid, with the strips within the channels, for lighting up the liquid.

5,722,591

APPARATUS FOR SPREADING BULK MATERIALS

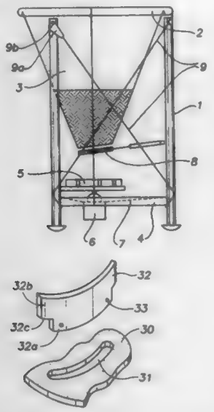
Wolfgang Folger, Hinter den Bergen 21, 68766 Hockenheim, Germany

Filed Nov. 9, 1995, Ser. No. 555,607

Claims priority, application Germany, Dec. 12, 1994, 44 44 127.4; Dec. 12, 1994, 44 44 128.2; Dec. 12, 1994, 44 44 129.0; Sep. 18, 1995, 195 34 565.7

Int. Cl.[6] B64D *1/18*

U.S. Cl. 239—171 **21 Claims**



1. Spreading apparatus for discharging bulk materials, said apparatus comprising

ring means,

a downwardly tapering hopper having an upper end attached to said ring means and an opposed lower end,

three legs, each leg having an upper end and an opposed lower end, said upper ends of said legs being releasably attached to said ring means at respective leg attachment points,

three struts, each strut extending between a pair of legs toward the lower ends thereof, said struts being releasably attached to said legs at respective strut attachment points, and

a plurality of tension cables, each cable having a top end joined to the ring proximate to a leg attachment point and a bottom end attached at a strut attachment point of an adjacent leg, the bottom of each cable being guided over a leg so that the legs are drawn against the struts.

5,722,592

ROTOR NOZZLE, IN PARTICULAR FOR A HIGH PRESSURE CLEANING APPARATUS

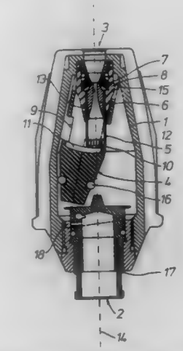
Anton Jäger, Dorfstrasse 9, Senden-Hittistetten, Germany, 89250

Filed Mar. 27, 1996, Ser. No. 624,037

Claims priority, application Germany, Mar. 30, 1995, 195 11 826.0

Int. Cl.[6] B05B *3/00*

U.S. Cl. 239—227 **10 Claims**



1. Rotor nozzle, comprising a nozzle housing (**1**) which has a central inlet opening (**2**) at its one axial end and an outlet opening (**3**) for the cleaning liquid at the other end, and also comprising a rotor arranged within the nozzle housing (**1**) and inclined relative to its longitudinal axis (**14**), with the rotor being rotationally driven and rolling off on the inner wall of the housing, wherein the rotor is provided with a nozzle (**6**) through which the cleaning liquid flows and which is arranged in a support (**5**), with the end of the nozzle pointing towards the outlet opening (**3**) being pivotally supported in a cup bearing (**7**), characterised in that the rotor is of sleeve-like form at its end pointing towards the outlet opening (**3**) and is journalled there on a bearing sleeve (**8**) at its end in the manner of a ball joint, with the cup bearing (**7**) being arranged concentrically within the bearing sleeve (**8**) and with the rotor (**4**) having at its inner side co-movement surfaces for the support (**5**).

5,722,593

ADJUSTABLE SPRINKLER NOZZLE

Jeff R. McKenzie, Riverside, Calif., assignor to The Toro Company, Minneapolis, Minn.

Continuation of Ser. No. 665,701, Jun. 18, 1996, abandoned, which is a continuation of Ser. No. 173,174, Dec. 23, 1993, Pat. No. 5,526,982. This application Feb. 12, 1997, Ser. No. 798,809

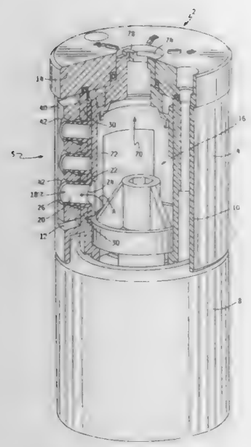
Int. Cl.[6] B05B *1/16;3/04*

U.S. Cl. 239—240 **14 Claims**

1. A sprinkler nozzle for throwing at least one water stream having an adjustable trajectory and flow volume, which comprises:

(a) a nozzle body having an exterior defined by a top wall and a peripheral sidewall extending downwardly from the top wall;

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(b) at least one nozzle port, wherein the nozzle port has a radial outer end located in the peripheral sidewall of the nozzle body and a radial inner end to throw a stream of water outwardly from the sidewall of the nozzle body to one side of the nozzle body at a given trajectory relative to a horizontal plane, wherein the nozzle port is adjustable on the nozzle body to allow the trajectory of the water stream issuing from the nozzle port to be adjusted by raising or lowering the radial outer end of the nozzle port relative to the inner end thereof;

(c) a trajectory adjustment member movably carried on the nozzle body for selective operation by the user, wherein the trajectory adjustment member is operatively connected to the nozzle port for raising or lowering the radial outer end of the nozzle port relative to the inner end thereof when the trajectory adjustment member is selectively operated by the user;

(d) a flow volume adjustment member movably carried on the nozzle body for selective operation by a user, wherein the flow volume adjustment member is configured to control the flow volume downstream of the radial inner end of the nozzle port when the flow volume adjustment member is selectively operated by a user; and

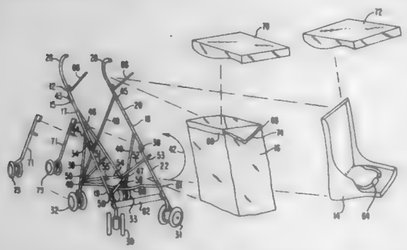
(e) wherein both of the trajectory adjustment and flow volume adjustment members extend to the exterior of the nozzle body to be operable from the exterior of the nozzle body.

5,722,594

CONVERTIBLE CHILD STROLLER/PACKAGE CARRIER

Sandra L. Farr, and David E. Farr, both of R.D. #2, Box 2168, Orwigsburg, Pa. 17961

Filed Aug. 14, 1995, Ser. No. 514,554
Int. Cl.[6] B62B *7/10;7/12*
U.S. Cl. 280—643 **14 Claims**



1. A convertible child stroller/package carrier, comprising in combination:

a wheeled frame mechanism;

a pair of rod members adapted for connection adjacent the top of said wheeled frame mechanism, to extend therefrom while being removable therefrom;

a child seat member adapted to be removably fastened on said wheeled frame mechanism beneath said pair of rod members, permitting a child to be seated on said child seat member, to provide a wheeled child stroller for transporting the child on said child stroller by pushing thereof;

a flexible bag member having a pair of sleeves at substantially the top thereof for sliding of said pair of rods thereinto, to removably suspend said flexible bag member on said wheeled frame mechanism, so as to permit packages to be placed in said flexible bag member, to provide a wheeled package carrier for transporting the packages on said package carrier by pushing thereof; and

a top member removably positionable on said wheeled frame mechanism over one of said child seat member and said flexible bag member;

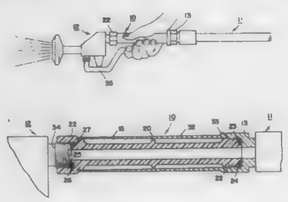
whereby, alternatively, a child stroller or a package carrier is provided.

5,722,595

GRIP ASSEMBLY

Bernard Parisi, Barnegat, N.J., assignor to Component Hardware Group, Inc.

Filed Oct. 30, 1995, Ser. No. 549,918
Int. Cl.[6] B05B *1/28*
U.S. Cl. 239—288 **21 Claims**



1. A grip assembly for a spray head assembly, said grip assembly comprising

a one piece base member having a barrel defining a bore for passage of hot water therethrough, an eternally threaded stem at one end of said barrel, a radially directed flange adjacent said stem, and an internally threaded enlarged collar at an opposite end of said barrel; and

a one piece cover member telescopically disposed over said base member, said cover member being radially spaced from said barrel of said base member to define an annular chamber therebetween and having said threaded stem of said base member extending therefrom.

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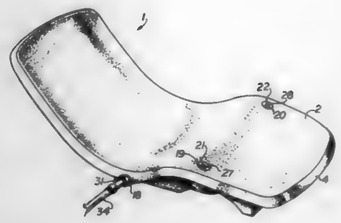
MIST-EMITTING LOUNGE CHAIR

Gregory A. Dome, 7720-B El Camino Real, Carlsbad, Calif. 92009

Filed Sep. 21, 1995, Ser. No. 531,726
Int. Cl.[6] B05B *15/00*
U.S. Cl. 239—289 **20 Claims**

10. An outdoor lounge chair which comprises:

a structure having a peripheral edge and being shaped and dimensioned to support an adult person in a reclining position above a surface, said structure comprising an envelope made of a top ply and a bottom ply of sheet plastic joined along said peripheral edge and defining therebetween a shallow chamber;



a fluid channel within said chamber, said channel including an inlet port, and at least one outlet port;

said inlet and outlet ports protruding through holes in said envelope;

means for coupling said inlet port to a source of pressurized fluid;

at least one spray nozzle mounted on said outlet port; and

wherein said fluid channel comprises a piping network made of metal; and

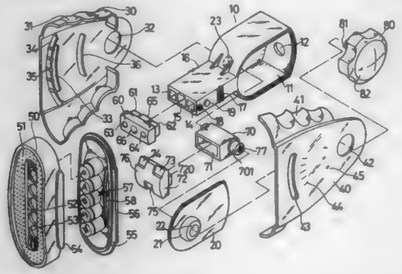
said bottom ply comprises intersecting longitudinal and transversal reinforcing ribs defining internal furrows and external ridges.

5,722,597

SPRAY NOZZLE

Wen-Li Guo, No. 10, Fang Dong Road, Wen Gin Tsuen, Fang Yuan Hsiang, Chang Hua Hsien, Taiwan

Filed Apr. 10, 1996, Ser. No. 630,340
Int. Cl.[6] A62C *31/02*
U.S. Cl. 239—395 **6 Claims**



1. A spray nozzle comprising:

a casing including a chamber formed therein and including an inlet for connecting said chamber to a water reservoir, said casing including an extension extended therefrom and having at least one first passage and a second passage formed therein and communicating with said chamber,

a plug secured to said extension, said plug including at least one first opening for aligning with said first passage and including a second opening for aligning with said second passage,

a housing including a rear portion rotatably secured to said casing at a pivot shaft and including a front portion,

a head secured to said front portion of said housing and including at least two annular walls formed therein,

means for aligning said second opening of said plug to at least one of said annular walls,

a block rotatably supported in said casing,

a valve secured to said block and including at least one first notch formed therein for aligning with said first passage and including a second notch for aligning with said second passage, and

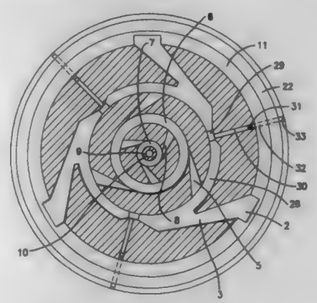
means for rotating said block so as to selectively align said first and said second notches with said first and said second passages respectively.

5,722,598

SPRAYING NOZZLE FOR REGULATING THE RATE OF FLOW PER UNIT OF TIME

Winfried Werding, 2, rue du Carroz, La Rippe, Switzerland

PCT No. PCT/IB94/00118, § 371 Date Nov. 22, 1995, § 102(e) Date Nov. 22, 1995, PCT Pub. No. WO94/27729, PCT Pub. Date Dec. 8, 1994
PCT Filed May 20, 1994, Ser. No. 553,294
Claims priority, application Switzerland, May 25, 1993, 1561/93
Int. Cl.[6] B05B *7/10;1/34*
U.S. Cl. 239—403 **16 Claims**



12. Spraying nozzle for regulating the rate of flow per unit of time comprising:

a nozzle sleeve (**1**, **19**, **27**);

a nozzle core (**13**) positioned within the nozzle sleeve (**1**, **19**, **27**);

supply channels (**2**) opening into first feeding channels (**3**, **22**), said first feeding channels arranged in one direction of rotation and feeding a first concentric channel (**4**, **21**); and

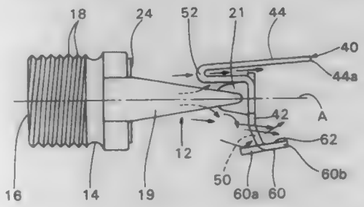
second feeding channels (**5**, **24**) connected to a bore (**9**) and extending from said first concentric channel in an opposite direction of rotation wherein the nozzle core (**13**) is integral with a delivery head (**12**) and covered by the nozzle sleeve (**1**, **19**, **27**) while the nozzle core (**13**) has a hollow space (**14**) which is hermetically closed off from the outside air by the nozzle sleeve (**1**, **19**, **27**).

5,722,599

SIDEWALL FIRE SPRINKLER HEAD

Michael Allen Fries, Coopersburg, Pa., assignor to Central Sprinkler Corporation, Lansdale, Pa.

Filed Feb. 21, 1996, Ser. No. 603,535
Int. Cl.[6] B05B *1/26;* **A62C** *37/08*
U.S. Cl. 239—504 **20 Claims**



1. In a sidewall sprinkler head comprising a tubular body and a deflector supported from the tubular body, the tubular body including an internal passageway and a central axis extending centrally through the passageway, the deflector including a face portion supported from the tubular body spaced away from and facing one end of the tubular body and oriented transversely to the central

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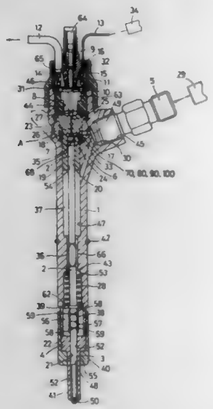
axis, and a canopy portion supported on one side of the central axis adjoining and spaced radially away from a side edge of the face portion, an improvement wherein the deflector includes a fin portion located on another side of the central axis opposite the one side, the fin portion extending transversely to the face portion, the fin portion and the face portion fully surrounding and defining a closed perimeter of an internal opening extending axially through the deflector.

5,722,600

FUEL INJECTION DEVICE FOR INTERNAL COMBUSTION ENGINES

Shigeaki Horiuchi, Fujisawa, Japan, assignor to Isuzu Motors Limited, Tokyo, Japan

Filed Jul. 12, 1996, Ser. No. 679,180
Claims priority, application Japan, Jul. 14, 1995, 7-200310
Int. Cl.[6] F02M *47/02*
U.S. Cl. 239—533.8 **5 Claims**



1. A fuel injection device for internal combustion engines comprising:
- a main body having nozzle holes to inject fuel;
- a valve assembly having a needle valve and a control piston connected to the needle valve, body reciprocating in the main body;
- a fuel chamber formed in the main body around the valve assembly;
- a balance chamber formed in a control sleeve fixed in the main body to control a lift of the valve assembly by applying a fuel pressure to the control piston;
- an annular chamber formed in the main body and communicating with a high-pressure fuel source;
- a supply passage communicating with the annular chamber to supply the high-pressure fuel to the balance chamber;
- an exhaust passage having an orifice to release the fuel from the balance chamber;
- an actuator to drive a control valve to open and close the exhaust passage; and
- a normally open check valve provided in the annular chamber and urged at all times by a spring force in a direction that opens the supply passage;

wherein the supply passage has a greater passage cross section than that of the orifice of the exhaust passage.

5,722,601

DRIP IRRIGATION HOSE AND METHOD OF ITS MANUFACTURE

Michael DeFrank, Temecula; Wayne Hackman, and Shawn Shirvan, both of San Diego, all of Calif., assignors to T-Systems International, Inc., San Diego, Calif.

Continuation-in-part of Ser. No. 346,335, Nov. 29, 1994, abandoned, which is a continuation-in-part of Ser. No. 249,904, May 26, 1994, abandoned. This application Jul. 15, 1996, Ser. No. 683,604
Int. Cl.[6] B05B *15/00*
U.S. Cl. 239—542 **11 Claims**



1. A drip irrigation hose made from a water impervious material comprising:
- an elongated water supply passage having a large cross section;
- a longitudinal flow regulating passage having a small cross section, the flow regulating passage being disposed along the water supply passage;
- a plurality of longitudinally spaced non flow limiting inlets from the water supply passage to the flow regulating passage;
- a plurality of longitudinally spaced outlets from the flow regulating passage to the exterior of the hose, the outlets being offset from the inlets to provide two substantial path lengths from each inlet to a respective outlet; and
- a series of staggered chevrons formed along the flow regulating passage, the chevrons being angled toward the inlets along each path length to induce turbulent flow.

5,722,602

PROCESS FOR MAKING FLOWABLE POWDERS FOR COATING APPLICATIONS

Kurtis C. Kelley, Washington, Ill., assignor to Caterpillar Inc., Peoria, Ill.

Filed Dec. 15, 1995, Ser. No. 573,158
Int. Cl.[6] B02C *23/18*
U.S. Cl. 241—17 **17 Claims**

1. A process for enhancing the flowability of a powder for spray coatings, comprising the steps of:
- mixing a metal, ceramic, or mixtures thereof powder with an aqueous solution of polyvinyl alcohol and forming a powder-polyvinyl alcohol mixture;
- forming a paste of said powder-polyvinyl alcohol mixture;
- drying said paste at a temperature in the range of 50 degrees C. to 85 degrees C.; and
- particulating said dry paste and forming a flowable powder having a particle size in the range of about 50 μm to about 300 μm.

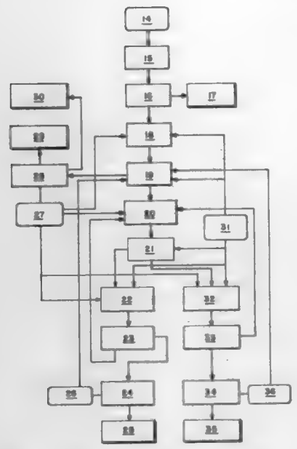
5,722,603

PROCESS FOR SEPARATION AND RECOVERY OF WASTE CARPET COMPONENTS

Michael Robert Costello, Chester, Va., and Bernd Roman Keller, Obbicht, Netherlands, assignors to AlliedSignal Inc. /DSM N.V., Morristown, N.J.

Filed Nov. 28, 1995, Ser. No. 563,810
Int. Cl.[6] B02C *19/12*
U.S. Cl. 241—20 **19 Claims**

1. A process for recovering a face fiber material from a waste carpet material, said process comprising:
- a. providing a feedstock including a waste carpet material comprised of a face fiber material, a backing and an adhesive material;



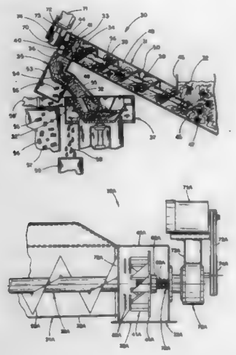
- b. removing a portion of the adhesive material from the feedstock to obtain a first mixture comprising a portion of the face fiber material;
- c. passing the first mixture and a liquid medium to a hydrocyclone, wherein the face fiber material is substantially separated, as a face fiber material stream, from other solids in the mixture having a specific gravity different from the face fiber material; and
- d. recovering the separated face fiber material stream.

5,722,604

METAL SCRAP SHREDDER

Russell D. Dudley, 3916 Old Field Trail, Kalamazoo, Mich. 49008

Filed Apr. 18, 1995, Ser. No. 423,679
Int. Cl.[6] B02C *18/06;18/22*
U.S. Cl. 241—24.11 **48 Claims**



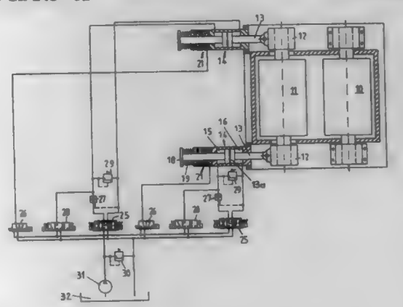
48. A method of shredding agglomerated scrap comprising steps of:
- providing a conveyor having a delivery system including a screw defining a longitudinal axis and a discharge located at a longitudinal end of the conveyor;
- providing a shredder having teeth rotatable about an axis extending generally parallel the longitudinal axis, the teeth being located proximate an end of said screw at said discharge;
- discharging agglomerated scrap from said discharge by operating said delivery mechanism;
- rotating said shredder teeth to shred the agglomerated scrap against said end of said screw as the agglomerated scrap exits said discharge; and
- separating liquid from shredded scrap supplied from said shredder.

5,722,605

ROLL CRUSHER

Wolfgang Finken, Ennigerloh, Germany, assignor to Krupp Fördertechnik GmbH, Duisburg, Germany

Filed May 7, 1996, Ser. No. 646,120
Claims priority, application Germany, May 17, 1995, 195 18 061.5; Jun. 20, 1995, 195 22 251.2
Int. Cl.[6] B02C *4/32*
U.S. Cl. 241—32 **10 Claims**



1. A roll crusher comprising
- (a) a crusher roll;
- (b) support means for rotatably and radially shiftably supporting said crusher roll;
- (c) a stationarily supported countermember cooperating with said crusher roll to define a crushing gap therewith;
- (d) a hydraulic setting system for radially displacing said crusher roll for varying said crushing gap; said hydraulic setting system including a pressure source and a piston rod executing strokes and having an end coupled to said support means for transmitting to said crusher roll setting forces derived from said pressure source; and
- (e) an abutment means for limiting the strokes of said piston rod to set a minimum magnitude of said crushing gap; said abutment means including actuating means for placing said abutment means into a stroke-limiting state and into a piston rod-releasing state.

5,722,606

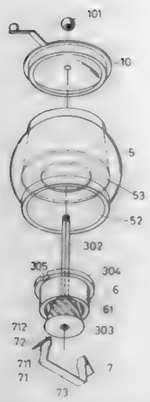
PEPPER GRINDER

Hua-Te Wu, Tainan, Taiwan, assignor to Yienn Lih Enterprises Co., Ltd., Tainan, Taiwan

Filed Nov. 5, 1996, Ser. No. 743,234
Int. Cl.[6] A47J *42/04*
U.S. Cl. 241—169.1 **2 Claims**

1. An improvement in a pepper grinder comprising:
- a housing element having a central cavity and an inward annular flange in the central cavity;
- a grinding mechanism housed inside the housing element, the grinding mechanism having an outer wall and a swiveling element movably received within the outer wall, the swiveling element being rotated relative to the outer wall in order to grind pepper between the swiveling element and the outer wall, the outer wall having an outward annular flange with two opposing gaps, the swiveling element being firmly connected with a rod having a distal threaded end;
- a cover having a lever, the cover and a nut being connected to the distal threaded end of the rod, the rod being rotated when

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the cover is swiveled by means of rotating the lever, position of the swiveling element relative to the outer wall being able to be changed by the nut in order to adjust fineness of ground pepper;

said improvement comprising a fixing element having two opposing hooked portions each having a sloping part and a second part, the second parts being substantially perpendicular to an intermediate portion defined by both second parts, each second part having an enlarged part at least wider than the gaps of the grinding mechanism, each sloping part extending from a top end of a respective one of the second parts and extending outward of said respective second part;

the fixing element being fixed to the housing element with upper ends of the second parts being received in the gaps and the enlarged parts firmly abutting the outward annular flange of the outer wall and with lower ends of the sloping parts abutting a wall of the cavity whereby fixing the outer wall to the housing element, the fixing element being shaped such that a space is provided between the intermediate portion thereof and a bottom of the outer wall for the swiveling element to be moved within the space.

5,722,607

HAMMERMILL

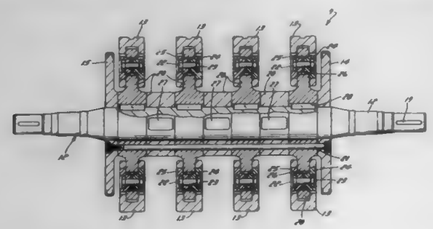
Uwe Hellmich, Hamburg, Germany, assignor to Sivyer Steel Corporation, Bettendorf, Iowa

Division of Ser. No. 300,709, Sep. 2, 1994, Pat. No. 5,598,981. This application Dec. 19, 1996, Ser. No. 775,719

Claims priority, application Germany, Sep. 9, 1993, 43 30 967.3

Int. Cl.[6] **B02C** *13/04;13/28*

U.S. Cl. 241—189.1 **9 Claims**



1. A hammermill for the fragmentation of metal car bodies, comprising:

a housing,

a shaft situated in said housing, a number of radially directed rotor arms mounted on the shaft,

a hammer aligned with the end of each rotor arm which moves in the direction of the shaft rotation, and means for independently mounting the hammers on each of the rotor arms, each hammer being of broader width than the space between the hammers so that overlap of the track of travel of the hammers results and having a pair of U-shaped shanks pivotally mounted on said mounting means for enclosing the sides of the rotor arms.

5,722,608

CORELESS ROLL OF WEB MATERIAL

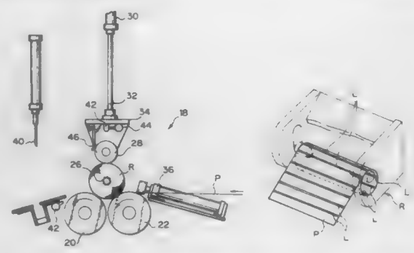
Tokushichi Yamazaki, 2-7-6, Kunikubo, Fuji-shi, Shizuoka-ken, Japan

Continuation of Ser. No. 599,671, Feb. 12, 1996, abandoned, which is a continuation of Ser. No. 126,573, Sep. 24, 1993, abandoned. This application Jan. 17, 1997, Ser. No. 786,193

Claims priority, application Japan, Sep. 25, 1992, 4-279281; Jun. 23, 1993, 5-152231

Int. Cl.[6] **B65H** *18/28;75/08*

U.S. Cl. 242—160.1 **19 Claims**



1. A coreless roll of toilet tissue material comprising a plurality of windings with a central bore, at least the first two of said windings adjacent to said central bore including a plurality of circumferentially spaced discrete lines of adhesion along which said at least first two windings are affixed to one another and areas of non-adhesion between said spaced lines of adhesion, said lines of adhesion and areas of non-adhesion extending in a direction substantially parallel to the axis of said central bore of the toilet tissue material, whereby said lines of adhesion and areas of non-adhesion facilitate separation of said affixed windings and permit the use of the roll without collapse of the roll.

5,722,609

TRAVERSE MECHANISM FOR A SPINNING REEL

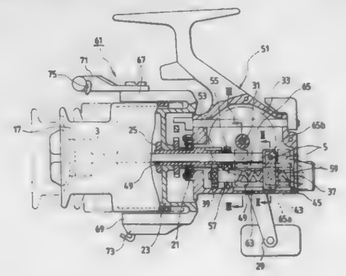
Shinji Murakami, Tokyo, Japan, assignor to Daiwa Seiko, Inc., Tokyo, Japan

Filed Mar. 11, 1997, Ser. No. 815,085

Claims priority, application Japan, Mar. 12, 1996, 8-054802

Int. Cl.[6] **A01K** *89/01*

U.S. Cl. 242—241 **14 Claims**



1. A traverse mechanism for a spinning reel for fishing comprising:

a sliding member forming a part of a traverse mechanism for transforming a rotational movement of a handle into a linear reciprocating movement of a spool shaft, said sliding member being fixedly secured to a rear end portion of said spool shaft;

a bearing portion provided in a reel main body for supporting said spool shaft; and

first and second guide parts provided between said reel main body and sliding member for guiding said linear reciprocating movement of said sliding member;

wherein said second guide part guides and supports said sliding member more loosely on a front side of said reel main body in the vicinity of said bearing portion than on a rear side of said reel main body; and further wherein

a rear loosening of said sliding member on the rear side of said reel main body can be prevented by said first and second guide parts and a front loosening of said sliding member on the front side of said reel main body can be prevented by said bearing portion and said first guide part.

5,722,610

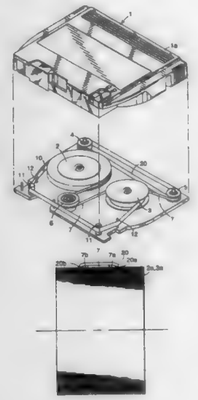
BELT-DRIVEN DATA CARTRIDGE WITH REDUCED TAPE PACK DEFORMATION

David P. Smith, Hudson, Wis., and Koichi Sano, Sagamihara, Japan, assignors to Imation Corp., Oakdale, Minn.

Filed Nov. 6, 1996, Ser. No. 744,627

Int. Cl.[6] **G11B** *23/087;15/32*

U.S. Cl. 242—342 **18 Claims**



1. In a belt driven tape cartridge having a supply side tape hub and a winding side tape hub both rotatably mounted on the base, tape wound around the hubs to form a tape pack about each hub, a drive roller rotatably mounted on the base, first and second corner rollers rotatably mounted on the base, a drive belt engaged on the drive roller, the tape pack on the supply side tape hub, the first and second corner rollers, and the tape pack on the winding side tape hub and a pack belt mounted only on the corner rollers and disposed on the inner side of the drive belt, the drive belt comprising a width less than a width of the pack belt to reduce deformation of the tape pack.

5,722,611

BELT RETRACTOR

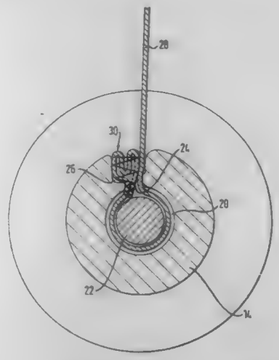
Johannes Schmid, and Rolf Coras, both of Schwäbisch Gmünd, Germany, assignors to TRW Occupant Restraint Systems GmbH, and TRW Inc.

Filed Mar. 7, 1997, Ser. No. 812,525

Claims priority, application Germany, Mar. 19, 1996, 296051152 U

Int. Cl.[6] **B60R** *22/28;22/34;* **B65H** *75/28*

U.S. Cl. 242—376 **6 Claims**



1. A belt retractor comprising a frame, a belt reel provided with a longitudinal axis and a peripheral surface, said belt reel being rotatably mounted in said frame and being provided with an interior cavity which is coaxial with said longitudinal axis, and with a slot having a minimum width and extending in parallelism to said longitudinal axis, said slot being open towards said peripheral surface of said belt reel and towards said interior cavity, and further comprising a rod extending coaxially through said interior cavity with a radial play, and a belt webbing connected to said belt reel with one end section having an end, said end section extending through said slot, around said rod and finally through said slot out of said interior cavity, said end of said end section being provided with a thickened part having a width which, as measured in a direction transverse to said longitudinal axis, is larger than said minimum width of said slot.

5,722,612

CLUTCH MECHANISM FOR USE IN SAFETY APPARATUS

Leonard John Feathers, Corwen, United Kingdom, assignor to Barrow Hepburn Sala Ltd., United Kingdom

PCT No. PCT/GB95/00068, § 371 Date Sep. 9, 1996, § 102(e) Date Sep. 9, 1996, PCT Pub. No. WO95/19204, PCT Pub. Date Jul. 20, 1995

PCT Filed Jan. 13, 1995, Ser. No. 663,284

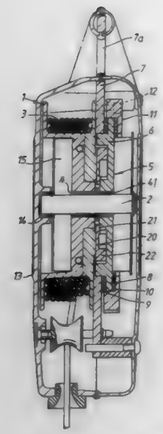
Claims priority, application United Kingdom, Jan. 18, 1994, 9400895; Aug. 18, 1994, 9416720

Int. Cl.[6] **A62B** *35/04*

U.S. Cl. 242—381.5 **7 Claims**

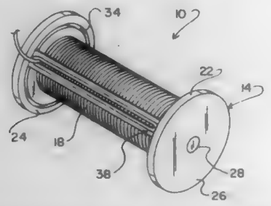
1. Fall-arrest safety apparatus which is attachable to a fixture and incorporates a safety line drum (**1**) for holding a safety line (**3**) and permitting it to be drawn from the drum (**1**) in response to pulling force on the line exerted by a person attached to that line; the apparatus having means which functions automatically initiated by activation of a speed sensitive clutch device to decelerate the drum if its unwinding speed becomes excessive as it does in the event of the worker falling; characterised in that the speed-sensitive clutch device for initiating deceleration of the safety line drum incorporates (a) at least one drive-transmitting coupling element (**17**) which is connected to the safety line drum (**1**) so that it bodily rotates with the drum (**1**) about its axis of rotation and is

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displaceable from an inactive position (FIG. **1**) into a drive-transmitting position (FIG. **2**) in which it transmits drive and (b) an inertia member (**20**) which is freely rotatable about said axis and relative to the drum itself; and in that said inertia member (**20**) is formed and disposed so that on rapid acceleration of the drum (**1**) in consequence of a fall it exerts pressure, due to its inertia, against said coupling element (**17**) thereby to cause or assist movement thereof into its drive-transmitting position.

5,722,613
EASY REEL DEVICE
Stephen A. Michael, 498 Bridgeport Dr., Port St. Lucie, Fla. 34953
Filed Apr. 3, 1997, Ser. No. 831,902
Int. Cl.[6] B65H *75/14;75/18*
U.S. Cl. 242—600 **7 Claims**



1. A new and improved easy reel device for holding and dispensing spun material comprising in combination:

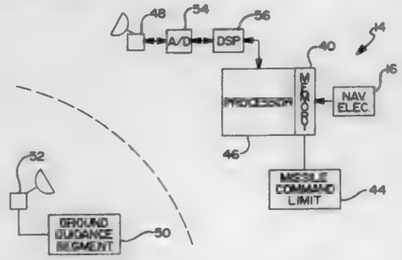
a spool having a pair of spool rims with a cylindrical member therebetween, the cylindrical member being capable of having material wrapped around for holding thereon when positioned between the pair of spool rims, each spool rim having a peripheral edge with an interior side and an exterior side therebetween, each spool rim having a center opening, the interior side of each spool rim having a circumference and a channel therein and extending the circumference of the interior side, the channel of each spool rim being near the peripheral edge thereof;

an axle being positioned through the cylindrical member and seated within the center opening of each spool rim for supporting the cylindrical member between the pair of spool rims, the cylindrical member capable of rotating about the axle and between the pair of spool rims;

an elongated feeder bar being generally rectangular in shape, the feeder bar having an elongated slot therein, the feeder bar being sized for simultaneous positioning within the channel of each spool rim, the feeder bar being arched to allow parallel movement around the cylindrical member when positioned within the channel of each spool rim; and

an elongated flexible liner being fixedly attached to the slot of the feeder bar, the liner having an opening for receiving a free end of the material wrapped around the cylindrical member of the spool, the liner within the slot of the feeder bar capable of guiding the material being dispensed from the spool with the feeder bar holding the material in the wrapped orientation during dispensing.

5,722,614
MISSILE GUIDANCE COMMAND LIMITATION SYSTEM FOR DYNAMIC CONTROLLABILITY CRITERIA
Dallas C. Wicke, Garden Grove, Calif., assignor to McDonnell Douglas Corporation, Huntington Beach, Calif.
Filed Oct. 30, 1996, Ser. No. 741,035
Int. Cl.[6] F42B *15/01*
U.S. Cl. 244—3.15 **10 Claims**



1. A method of guiding a missile to an intended target, comprising the steps of:

providing missile guidance electronics;

storing a plurality of algorithms for computing missile guidance commands, said commands being selectively activated by said missile guidance control electronics;

prior to applying said missile guidance commands, using said missile guidance control electronics to generate a plurality of dynamic control limiting commands including:

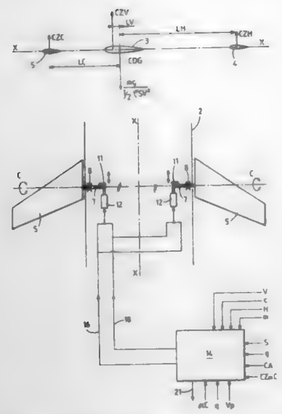
commands limiting missile body rate to ensure a projected trim margin to thereby prevent said missile from overshooting its angle of attack trim capability; and

commands limiting missile angular acceleration to that which is dynamically achievable by said missile; and

applying said plurality of dynamic control limiting commands to said missile guidance commands to produce a plurality of dynamically limited commands which are adapted to control said missile within physical parameters achievable by said missile.

5,722,615
TRANSPORT AIRPLANE WITH FRONT EMPENNAGE
Thierry Bilange, Tournefeuille, and Yvon Vigneron, Colomiers, both of France, assignors to Aerospatiale Societe Nationale Indusrielle, Paris, France
Filed May 3, 1995, Ser. No. 433,727
Claims priority, application France, May 3, 1994, 94 05371
Int. Cl.[6] B64C *3/42;13/16;39/12*
U.S. Cl. 244—45 A **5 Claims**

1. A transport airplane including a mainplane, elevator aerodynamic surfaces and a front canard empennage which is adjustable in angular orientation about an axis transverse to the longitudinal axis of said airplane by the action of actuating members, said airplane further including calculating means which continuously receive measurements:



of the speed of the airplane with respect to the air;

of the flight altitude;

of the centering of the airplane;

of the mass of the airplane;

of the incidence of the canard empennage;

of the pitch rate of the airplane;

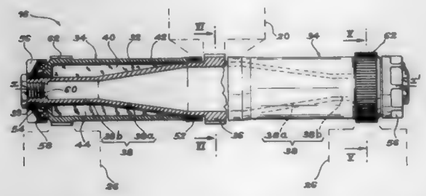
of the forecast speed of the speed of the airplane with respect to the air, in front of the airplane;

said calculating means having in memory the lift gradient of said canard empennage and calculating the angular setting to be given to said canard empennage such that:

during the phases of stabilized flight of the airplane without atmospheric disturbances, the lift of said canard empennage corresponds at every instant to the lowest possible value of the drag of the airplane; and such that

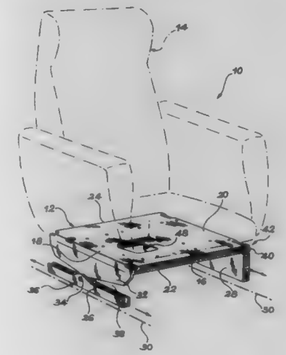
when the airplane is not in a phase of stabilized flight without atmospheric disturbances, the lift of said canard empennage is at least substantially constant, thereby allowing said calculating means to control said canard empennage.

5,722,616
CONICAL ROTARY ACTUATOR AND ITS APPLICATION TO THE CONTROL OF A RUDDER
Yves Durand, Aussonne, France, assignor to Societe Nationale Industrielle et Aerospatiale, Paris, France
Filed Nov. 27, 1995, Ser. No. 562,761
Int. Cl.[6] B64C *13/36*
U.S. Cl. 244—78 **16 Claims**



1. A rotary actuator comprising an inner body and at least one outer body fitted coaxially in one another, at least one annular space defined between said inner and outer bodies, first blades integral with the inner body, second blades integral with the at least one outer body, said first and second blades being arranged in an alternating manner in said annular space to define alternating first and second variable volume control chambers, with different fluid tight control chambers being formed within said annular space, whereby an alternate pressurization of said first and second control chambers controls a relative rotation between the inner and outer bodies, wherein at least one of the inner and outer bodies has a variable cross-section, and each of the first and second blades has an approximately triangular shape, with a height decreasing from one end to the other.

5,722,617
ADJUSTABLE SAFETY SEAT FOR A VEHICLE SUCH AS AN AIRCRAFT
Laurent Cecinas, Rochefort, France, assignor to Societe Nationale Industrielle et Aerospatiale, Paris, France
Filed Jun. 6, 1996, Ser. No. 659,195
Claims priority, application France, Jun. 9, 1995, 95 06837
Int. Cl.[6] B64D *25/04*
U.S. Cl. 244—122 R **11 Claims**



1. An adjustable seat for a vehicle comprising:

a baseplate provided with a top plate and at least one lower component carrying the top plate and intended to be fixed to a support structure of the vehicle;

at least one seat bed resting on the top plate of the baseplate; and releasable locking means by which the seat bed is normally immobilised on the baseplate and an actuation of which allows movements of the seat bed parallel to the top plate;

in which the baseplate includes at least two lower components respectively attached to the top plate by hinged joint means defining two hinge pins substantially at right angles to each other, oriented parallel to the top plate, a first of these hinged joint means, which defines a first of the hinge pins being positioned substantially at the apex of a triangle, the opposite side of which is coincident with the second hinge pin.

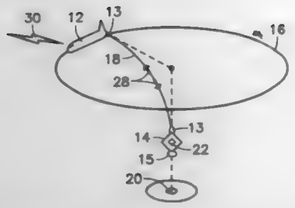
5,722,618
AIRBORNE TETHERED SENSOR SYSTEM
Delbert H. Jacobs, Oxnard; Eiichi Kamiya, Rolling Hills Estates, and Aldo Spadoni, Rancho Palos Verdes, all of Calif., assignors to Northrop Grumman Corporation, Los Angeles, Calif.
Continuation of Ser. No. 291,374, Aug. 16, 1994, abandoned. This application Aug. 20, 1996, Ser. No. 700,140
Int. Cl.[6] B64D *9/00*
U.S. Cl. 244—137.1 **32 Claims**

1. An airborne sensor system for placing a tethered payload in a near-stationary horizontal and vertical position at a desired location in relation to a target on the ground, comprising:

(a) an aircraft flying in a near-circular flight path;

(b) a tether connected at a first end to the aircraft;

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(c) a payload section connected to a second end of the tether; and.

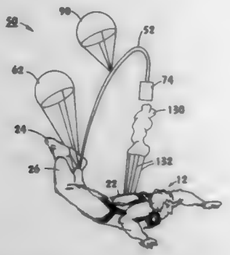
(d) an electronic sensor disposed in the payload section for determining the location of the payload section in relation to the ground.

5,722,619

PARACHUTE BRIDLE AND METHOD OF DEPLOYING A PARACHUTE

Michael W. Cottle, San Diego, Calif., assignor to Fliteline Systems, Inc., Costa Mesa, Calif.

Filed Jan. 3, 1996, Ser. No. 582,309
Int. Cl.[6] B64D *17/64;17/74*
U.S. Cl. 244—148 **13 Claims**



1. A parachute bridle assembly comprising:

a parachute bridle having a first end and a second end, said second end attached to a deployment bag contained within a harness container having a main parachute canopy therein;

a first pilot chute attached to the first end of the bridle; and

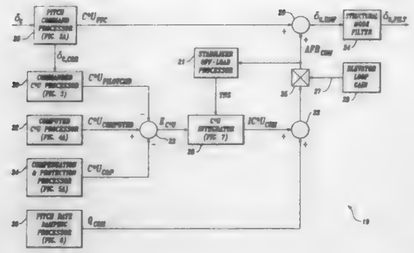
a second pilot chute attached to the bridle between the first end and the second end, said second pilot chute spaced from the first pilot chute by a distance sufficient to allow the first and second pilot chutes to enter an airstream separately, said second pilot chute configured to exert a drag in the airstream to extract and separate the deployment bag from the harness container while the bridle remains attached to the deployment bag and the main parachute canopy deploys.

5,722,620

AIRCRAFT PITCH-AXIS STABILITY AND COMMAND AUGMENTATION

Kioumars Najmabadi, Bellevue; Monte R. Evans, Federal Way; Edward E. Coleman, Lake Forest Park; Robert J. Bleeg, Mercer Island; Richard S. Breuhaus, Issaquah; Dorr Marshall Anderson, Seattle, and Timothy A. Nelson, Kirkland, all of Wash., assignors to The Boeing Company, Seattle, Wash.

Filed May 15, 1995, Ser. No. 441,281
Int. Cl.[6] B64C *13/18*
U.S. Cl. 244—181 **23 Claims**



1. An aircraft pitch control system having input signals representative of commanded elevator response, control column position, normal acceleration, and aircraft pitch rate; the pitch control system for changes in aircraft pitch exhibiting stable speed response characteristics; the pitch control system comprising:

(a) a computed elevator response processor comprising:

(i) a first combining unit for combining a signal representative of reference speed with a signal representative of aircraft speed to generate a speed error signal representative of their difference; and

(ii) a second combining unit for combining the normal acceleration signal, the aircraft pitch rate signal, and the speed error signal to generate a signal representative of computed elevator response, the computed elevator response signal representing the anticipated aircraft response under current flight conditions;

(b) a first signal combiner having first and second inputs, the commanded elevator response signal being fed to the first input, the computed elevator response signal being fed to the second input, the first signal combiner generating a difference signal; and

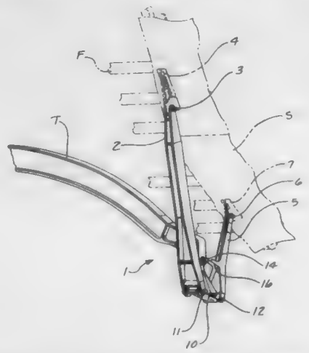
(c) mechanisms for controlling the aircraft in response to the difference signal.

5,722,621

BIPOD LOAD SUPPORT

Jack Noble, and Seiya Sakurai, both of Seattle, Wash., assignors to The Boeing Company, Seattle, Wash.

Filed Dec. 5, 1995, Ser. No. 567,621
Int. Cl.[6] B64C *3/50;9/02*
U.S. Cl. 244—215 **18 Claims**



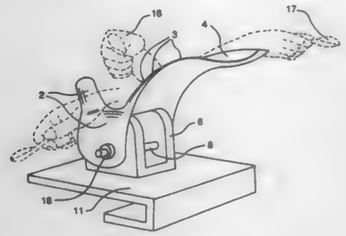
1. A support for carrying a load applied primarily in a first direction, comprising a body, a first elongated leg extending at an angle to the first direction and having a first end portion and a second end portion, the first leg being pivoted at its first end portion to the body for swinging about a first axis, a second elongated leg extending at an angle to the first direction and having a first end portion and a second end portion, the second leg being pivoted at its first end portion to the body for swinging about a second axis parallel to but offset a fixed distance from the first axis, and a load bearing member having corner portions pivoted, respectively, to the second end portions of the legs for swinging relative to the second end portions of the first and second legs about third and fourth axes, respectively, spaced apart but parallel to the first and second axes, the load bearing member extending generally between the first and second legs from the points of pivotal connection thereto toward the first pivoted end portions of the legs, the load bearing member having a load connection point adapted for application of the load thereto without application of force to the first and second legs other than through the load bearing member, the points of pivotal connection of the second end portions of the first and second legs to the load bearing member being spaced apart a distance less than the distance between the first and second axes such that the first and second legs are angled toward each other from the first end portions to the second end portions, the first leg, second leg and load bearing member being constructed and arranged relatively such that application of force in the first direction at the load connection point tends to move the support to a stable central equilibrium position from which the load bearing member can move laterally by relative movement of the first and second legs without changing the fixed distance between the first and second axes, and the load connection point in such stable central equilibrium position being disposed such that a line extending in the first direction from such load connection point passes between the first and second axes.

5,722,622

STABLE-SLIDE SELF-FEEDING ASSISTIVE DEVICE

Norman P. Gustafson, 2508 Collins Rd., Pittsburgh, Pa. 15235

Filed Jun. 24, 1996, Ser. No. 669,150
Int. Cl.[6] A47C *7/54*
U.S. Cl. 248—118 **5 Claims**



1. A device for guiding and supporting a persons arm, said device being removably attachable to a table, said device comprising:

a support slide, a holder and a base;

said support slide having a bottom support, a top support, and a slide portion between said bottom and top supports;

said support slide pivotally mounted to said holder and pivotable about a generally horizontal axis of said device;

said base having attachment means for removably attaching said device to said table; and

said holder rotatably mounted to said base and rotatable about a generally vertical axis of said device.

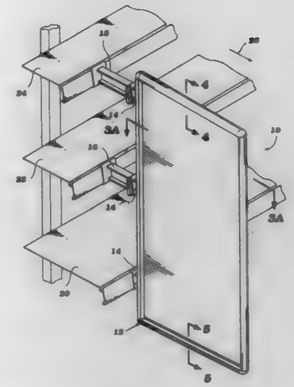
5,722,623

UPRIGHT DISPLAY ASSEMBLY

Scott Stephen Gibson, Mercer Island, Wash., assignor to Burke Gibson, Inc., Auburn, Wash.

Filed Sep. 18, 1996, Ser. No. 718,098
Int. Cl.[6] F16M *11/00*
U.S. Cl. 248—201 **17 Claims**

1. For use in combination with a horizontally disposed shelf that has a forward edge rail with an upper edge and a lower edge, and



with a display holder adapted to carry a display sign in a vertical, forwardly extending position, a display holder bracket assembly characterized by:

a) a clamp having an upper U-shaped portion for grabbing the upper edge of the forward edge rail and a lower U-shaped portion for grabbing the lower edge of the forward edge rail, the upper and lower U-shaped clamps being joined in a manner that permits the two U-shaped clamps to move apart so that the clamp can be pressed against and snap-fitted onto the forward edge rail, and

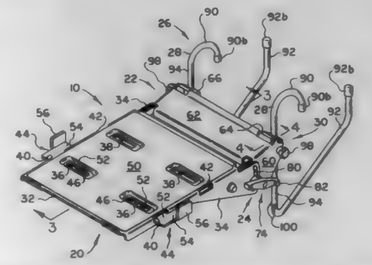
b) a display holder mount extending from the clamp, the display holder mount adapted to support the display holder in its vertical, forwardly extending position.

5,722,624

LAPTOP COMPUTER SUPPORT

Richard L. Watt, and Keith R. Ptak, both of Jamestown, N.Y., assignors to Weber Knapp Company, Jamestown, N.Y.

Filed May 29, 1996, Ser. No. 654,620
Int. Cl.[6] A47B *96/06*
U.S. Cl. 248—205.1 **4 Claims**



1. An adjustable support for removably mounting an art device relative to a support having upwardly and downwardly facing surfaces joined by an edge surface, said adjustable support comprising:

platform means for mounting said art device;

a bracket;

tilt adjustment means for mounting said platform means on said bracket for adjustable vertical tilting movement relative thereto;

support arm means having a first end portion arranged for engagement with said upwardly facing surface, a second end portion arranged for engagement with said downwardly facing surface and a connecting portion arranged to extend

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vertically between said end portions forwardly of said edge surface, said support arm means includes a pair of arms; and

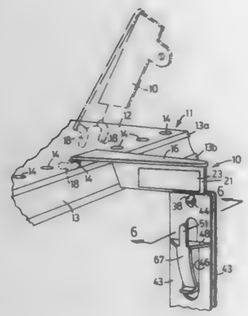
attachment means for adjustably attaching said bracket to said connecting portion of said support arm means for adjusting the height of said bracket relative to said support when said upwardly and downwardly facing surfaces thereof are engaged by said first and second end portions, respectively, said attachment means includes a pair of guide means slidably supporting said bracket for movement lengthwise of said connecting portion of each of said arms and a pair of clamping means for releasably clamping said bracket relative to said connecting portion of each of said arms in adjusted position lengthwise thereof, each of said pair of guide means includes a pair of guide flanges carried by said bracket with said guide flanges being formed with aligned through openings for slidably receiving said arms, and each of said pair of said clamping means includes a clamping screw adjustably threadably supported by said bracket for clampingly engaging said connecting portion intermediate said pair of guide flanges, said guide flange of each pair of said guide flanges are vertically inclined relative to one another and said through openings are elongated with a minimum dimension sized to slidably engage said connecting portion and a maximum dimension sized to permit one of said first end portion and said second end portion to be removably inserted therethrough for positioning said connecting portion within said through openings, and said maximum dimension extends in the direction in which said guide flanges of each pair are inclined relative to one another.

5,722,625

SHELF BRACKET

Richard E. H. Kenney, 224 Earl Stewart Drive, Aurora, Ontario, Canada, L4G 6S5

Filed Oct. 30, 1996, Ser. No. 739,909
Int. Cl.[6] A47F *5/00;* A47B *91/06*
U.S. Cl. 248—220.41 13 Claims



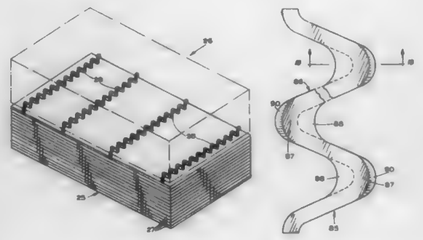
1. A shelf bracket comprising a unitary one piece molded plastics material body comprising a planar plate portion, two laterally spaced and generally parallel downwardly and rearwardly extending L-shaped leg portions molded integrally with a lower face of said plate portion adjacent a rear edge thereof for engaging in and locating and retaining said first plate portion relative to respective perforations in a sheet form shelving member, said plate portion tapering in width toward a front apex from said rear edge, and a bottom web integrally molded with said plate portion and extending downwardly substantially perpendicularly from the lower face thereof longitudinally rearwardly from the apex toward an upwardly extending rear-facing edge spaced forwardly from said leg portions.

5,722,626

REUSABLE RISER

Robert J. Menchetti, Buffalo; Ronald S. Finkelstein, East Amherst; Jashbhai M. Patel, Amherst, and Daniel A. Winkowski, Tonawanda, all of N.Y., assignors to National Gypsum Company, Charlotte, N.C.

Filed Dec. 4, 1995, Ser. No. 567,149
Int. Cl.[6] A47G *29/00*
U.S. Cl. 248—346.01 15 Claims



1. Apparatus for supporting an article, comprising at least first and second risers, said first riser being separated from and movable with respect to said second riser, said risers being nestable in close engagement, each of said risers further comprising a web having a width, thickness and an elongated length, said length being substantially greater than said width and said thickness, and said width being greater than said thickness, said web having first and second parallel edge surfaces which are spaced apart in the direction of said width and having two sides which are spaced apart in the direction of said thickness, said web comprising a fold which forms at least one ridge and at least one slope adjoining said ridge, said fold extending laterally in the direction of said sides and said first and second edge surfaces being in spaced apart substantially flat parallel planes, whereby an article positioned against one of said edge surfaces causes a compressive force across said width and wherein said ridge forms an outer ridge surface and an inner ridge surface and first and second projections extending from said inner ridge surface, each of said first and second projections gradually decreasing in size in a direction toward said slope, said first projection being adjacent said first edge surface and said second projection being adjacent said second edge surface, said projections sized to provide for engagement between adjacent risers during nesting of the at least first and second risers.

5,722,627

MECHANISM FOR ADJUSTING THE HEIGHT OF A DRUM CHAIR OR THE LIKE CHAIR

Yoshihiro Hoshino, Nagoya, Japan, assignor to Hoshino Gakki Kabushiki Kaisha, Japan

Filed Feb. 3, 1997, Ser. No. 794,318
Claims priority, application Japan, May 28, 1996, 8-157669
Int. Cl.[6] F16M *11/24;* A47C *3/00*
U.S. Cl. 248—405 8 Claims

1. A height adjustment mechanism for a chair seat comprising:

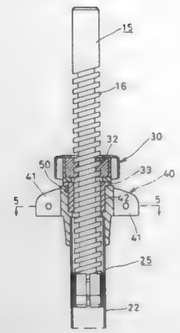
an upper support, for the seat;

a lower support for chair legs, the lower support being below the upper support,

one of the upper and lower supports being movable into and out of the other for adjusting the height of the seat above the lower support;

the upper support having an outer screw thread formed around it;

a rotatable adjustment member threaded on the outer screw thread of the upper support, such that rotation of the rotatable member in opposite directions moves the rotatable member selectively up or down along the upper support; the rotatable member having a lower surface with upper rotation inhibiting elements thereon;



a fixed member disposed around the upper support beneath the rotatable member and above the lower support and having an opening through which the upper support may be slid; the fixed member having an upper surface with lower rotation inhibiting elements thereon shaped to mesh with the upper rotation inhibiting elements on the underside of the rotatable member so that when the upper and lower rotation inhibiting elements are in engagement, the rotatable member is prevented from rotating with reference to the fixed member;

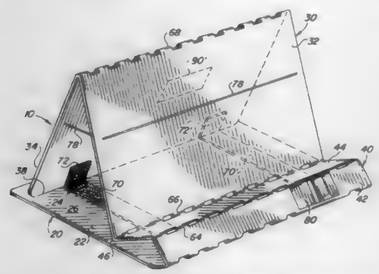
a tightening part at the fixed member for compressively tightening the fixed member on the upper support above the lower support and for being loosened to release the fixing member from comprehensive tightening on the upper support, whereby with the tightening part loosened, the upper support is free to be raised and lowered through the opening in the fixed member.

5,722,628

COLLAPSIBLE VARIABLE POSITION READING STAND

David L. Menaged, 12260 SW. 40th St., Miami, Fla. 33175

Filed Jun. 29, 1995, Ser. No. 496,357
Int. Cl.[6] A47B *97/04*
U.S. Cl. 248—441.1 5 Claims



1. A reading stand for supporting reading materials having one or more pages, the reading stand comprising:

a blank of rigid sheet material having a plurality of adjacently positioned panels including a base panel having an upper surface, a first group of panels and a second group of panels,

hinge means between each of said adjacently positioned panels for allowing angular folding movement of each of said panels relative to a remainder of said panels,

said first group of panels including a frontal panel and being structured and disposed for upward and rearward sloping support of said frontal panel throughout a range of angular, adjusted positions relative to said base,

said second group of panels being hingedly movable for arrangement through a range of adjusted positions to provide a support lip adjacent a lower portion of said frontal panel and cooperating with said frontal panel to receive and support the reading materials selectively in one of a range of preferred viewing orientations, said support lip being angularly adjustable relative to said frontal panel so as to engage and capture a lower edge of the pages of the reading materials,

adjustment means on said upper surface of said base panel for selectively adjusting and maintaining said frontal panel and said support lip at a select one of said range of adjusted positions,

a tape flag dispenser housing structured to contain a predetermined quantity of tape strips in stacked relation therein and including an upper portion with a dispensing slot sized and configured for passage of individual ones of the tape strips therethrough for individual dispensing thereof, said housing further including a flanged base defining a shoulder about a base of the upper portion,

means formed in at least one of said panels for attaching said housing thereto and including a cutout portion sized and configured for passage of the upper portion of said housing therethrough so that said shoulder engages an inner surface of said at least one panel about a periphery of said cutout portion with said dispensing slot exteriorly disposed to facilitate grasping and retrieval of one of the tape strips therefrom, and

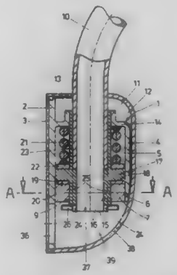
securing means for holding said housing within said cutout portion maintaining said shoulder engaged with said inner surface and said upper portion of said housing exteriorly exposed.

5,722,629

MOUNTING FOR AN EXTERNAL REAR VIEW MIRROR OF COMMERCIAL VEHICLES

Heinrich Lang, Ergersheim; Wolfgang Selboth, Bad Windsheim, and Herbert Riegel, Flachslanden, all of Germany, assignors to Mekra Rangau Plastics GmbH & Co. KG, Germany

Filed Aug. 3, 1995, Ser. No. 510,742
Claims priority, application Germany, Aug. 20, 1994, 44 29 603.7
Int. Cl.[6] A47G *1/24*
U.S. Cl. 248—479 11 Claims



1. A mounting for an external rear-view mirror of a commercial vehicle, comprising a metal bracket (**1**, **1'**) to be joined to the commercial vehicle and a tubular arm (**10**, **10'**), of which an end remote from the commercial vehicle is provided with a mirror and of which an end (**15**, **15'**) close to the commercial vehicle is supported on the metal bracket (**1**, **1'**) for pivoting about a pivot axis and for snap-in locking in various pivoting positions, wherein the end (**15**, **15'**), close to the vehicle, of the arm (**10**, **10'**) is directly inserted as a pivoting pin into a pivot bearing opening (**9**, **9'**) of the bracket (**1**, **1'**), a bearing bush (**16**, **16'**) of plastic material non-rotatably joined to the arm (**10**, **10'**) being disposed between the pivot bearing opening (**9**, **9'**) and the arm (**10**, **10'**), forming a pivot bearing that features a plastics-metal bearing combination between the arm (**10**, **10'**) and the bracket (**1**, **1'**), the bearing bush (**16**, **16'**) further comprising an annular projection (**17**, **17'**) provided with axially extending flanks (**18**, **18'**) and locking teeth (**19**,

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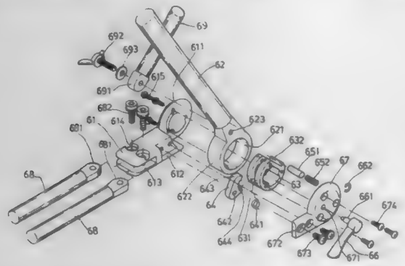
19') on one of its axially extending flanks (18, 18'), the locking teeth (19, 19') detachably meshing with mating teeth (20, 20') on the bracket (1, 1').

5,722,630

ROD REST

I-Tien Chu; Jui-Ho Yang, and Huan-Chin Lin, all of P.O. Box 82-144, Taipei, Taiwan

Filed Sep. 16, 1996, Ser. No. 714,201
Int. Cl.° F16M *13/00*
U.S. Cl. 248—514 1 Claim



1. A rod rest comprising:

a holder frame, said holder frame comprising a coupling disk at one end, a recess in the middle, a transverse slot at an opposite end and two countersunk holes respectively intersecting said transverse slot;

a main support coupled to said coupling disk and adapted for supporting a fishing rod, said main support comprising a barrel at a bottom end thereof pivoted to said coupling disk and defining a center through hole, and a screw hole adjacent to said barrel;

a circular coupling plate having a through hole, and a radial projecting bar fixedly fastened to the recess of said holder frame by screws;

a locating shaft revolvably mounted within the center through hole of said barrel and connected between the coupling disk of said holder frame and said circular coupling plate by screws, said locating shaft comprising a radial slot in the middle, and a triangular axial cut at the periphery, said triangular axial cut defining with the periphery of the center through hole of the barrel of said main support a triangular chamber having a narrower area at one end and a broader area at an opposite end;

a compression spring radially mounted in the axial cut of said locating shaft;

a retainer rod axially mounted in said triangular chamber within the axial cut of said locating shaft and radially supported on said compression spring;

a locating block mounted in the radial slot of said locating shaft and stopped at said retainer rod against said compression spring, said locating block having an oblong hole in the middle, a curved stop portion at one end stopped at said retainer rod, and a projection at an opposite end;

a torsional spring fastened to said circular coupling plate and connected to the projection of said locating block to impart a pressure to said locating block, causing the curved stop portion of said locating block to be maintained stopped against said retainer rod;

a lever having an oblong coupling rod perpendicularly raised from one end and turned in the through hole of said circular coupling plate and fitted into the oblong hole of said locating block for permitting said locating block to be turned with said lever relative to said retainer rod;

two anchoring bars respectively coupled to said holder frame for anchoring, said anchoring bars having a respective peripherally toothed, flat coupling eye at one end respectively inserted into the transverse slot of said holder frame and meshed together and then respectively and pivotably connected to the countersunk holes of said holder frame by a respective screw bolt; and,

an auxiliary support having a bottom end fastened to the screw hole of said main support by a wing screw and a washer, a top end made with a through hole, a hanger fastened to the through hole by a washer and a wing nut;

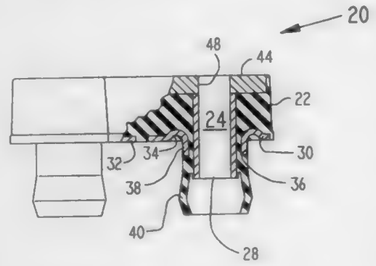
wherein when said main support is turned outwards relative to said anchoring bars, said retainer rod is moved from the narrower area of said triangular chamber to the broader area thereof, permitting said main support to be turned outwards further; when said main support is turned inwards toward said anchoring bars, said retainer rod is moved from the broader area of said triangular chamber to the narrower area thereof and then firmly engaged between said barrel and said locating shaft to stop said main support from turning; said main support is allowed to be turned inwards and outwards relative to said anchoring bars when said locating block is turned by said lever to force said retainer rod away from the narrow area of said triangular chamber toward the broader area thereof.

5,722,631

SINGLE-PIECE MOUNT WITH SPLIT METAL PLATES

David W. Dorton, Erie, Pa., assignor to Lord Corporation, Cary, N.C.

Filed Sep. 15, 1995, Ser. No. 529,118
Int. Cl.° F16M *13/00*; F16F *7/00*
U.S. Cl. 248—635 16 Claims



1. An elastomeric mount comprising

a) a layer of elastomer;

b) at least two fastener-receiving apertures extending through said elastomeric mount;

c) at least two separate substantially coplanar metallic plates, one for each of said at least two fastener-receiving apertures adjacent a lower surface of said layer of elastomer forming a first set of metallic plates to provide a wear-protecting, load-distributing surface for said elastomer, each of said at least two plates of said first set having an aperture which is coaxial with its corresponding fastener-receiving aperture in said mount, said fastener-receiving aperture being surrounded by a collar which has been extruded from each of said at least two plates, and each of said plates being bonded to said adjacent surface of said layer of elastomer, each of said at least two plates having an end portion juxtaposed to an end portion of each of said other at least two plate, said juxtaposed end portions forming pairs of end portions, said elastomer forming a narrow rib between each of said pairs of end portions;

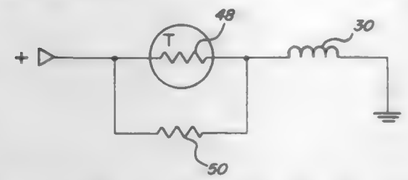
whereby said narrow rib between each of said pairs of end portions of said at least two separate metallic plates permits flexing of said elastomeric mount enabling a distance between said at least two fastener-receiving apertures to be adjusted to accommodate variations in hole center spacing in a supporting member to which said mount is attached.

5,722,632

TEMPERATURE-COMPENSATED EXHAUST GAS RECIRCULATION SYSTEM

Richard K. Rader, West Bloomfield, Mich., and James David Warren, Clayton, N.C., assignors to Borg-Warner Automotive, Inc., Sterling Heights, Mich.

Filed Apr. 20, 1995, Ser. No. 425,402
Int. Cl.° F16K *31/06*; H01H *47/26*
U.S. Cl. 251—129.15 5 Claims



1. In an exhaust gas recovery system (10) of the type that includes a vacuum-actuated exhaust gas recovery (EGR) valve (12) connected between an exhaust manifold (14) and an air intake manifold (16) to provide at controlled flow of exhaust gases to said air intake manifold (16) and a proportional solenoid valve (28) to regulate vacuum pressure to said EGR valve (12), said proportional solenoid valve (28) comprising:

an inductive coil (30) having a number of turns of an electrical conductor, whereby a magnetic field is produced upon energization of said coil (30); and

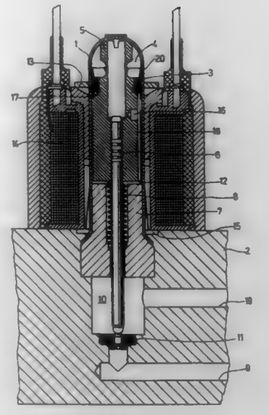
a ferromagnetic armature (40) disposed adjacent said coil (30);

wherein said electrical conductor has a positive temperature coefficient of resistance, and wherein said ferromagnetic armature (40) is movable under the influence of the magnetic field to regulate said vacuum pressure transmitted to said EGR valve (12), characterized in that:

said coil (30) is connected in series with a resistive combination of circuit elements that includes a first resistive element (48) and a second resistive element (50) connected across said first resistive element (48), with said first resistive element (48) having a first resistance value and a negative temperature coefficient of resistance and said second resistive element (50) comprising a wirewound resistor having a second resistance value that is substantially temperature-independent,

wherein said resistive combination of circuit elements (48, 50) has a resistance that exhibits a preselected negative temperature characteristic which offsets said positive temperature coefficient of resistance of said coil (30), and

wherein said coil and said resistive combination together form an electronic circuit the has a nominal resistance at twenty five degrees Celsius and that exhibits a change in resistance from said nominal resistance of less than +/–0.7 ohms over the temperature range of –50 to +150 degrees Celsius.



a valve housing defining a closed interior space accommodating a plurality of valve component parts defining the function of the solenoid valve;

a valve needle fixed to a magnet armature slidably disposed in the valve housing;

a magnetic core fixed in the valve housing;

a valve seat operably engaged by the valve needle in a closed position;

a magnet coil circumscribing the valve housing displacing the magnet armature and the valve needle between the closed position and an open position;

a valve accommodating member in which the valve seat is located having an inlet duct and an outlet duct separated by the valve seat;

the valve seat having an aperture blocked by the valve needle in the closed position;

a unidirectional sealing element interposed between an outside periphery of the magnet armature and an outside periphery of the valve housing separating a first pressure chamber from a second pressure chamber wherein the first pressure chamber is disposed between the armature and a first end of the valve housing and the second pressure chamber is disposed outside the periphery of the magnet armature opposite the sealing element from the first pressure chamber; and

the armature magnet having an orifice fluidly connecting the first pressure chamber to the second pressure chamber, wherein the sealing element in one of the two directions of movement of the magnet armature establishes an almost unhindered hydraulic connection between the first pressure chamber and the second pressure chamber.

5,722,633

SOLENOID VALVE FOR SLIP CONTROLLED BRAKE SYSTEMS

Andre F. L. Goossens, Rumst; Marc Timmermans, Leerbeek, both of Belgium, and Hans Wupper, Friedrichsdorf/Ts, Germany, assignors to ITT Automotive Europe GmbH, Germany

PCT No. PCT/EP94/03734, § 371 Date Aug. 12, 1996, § 102(e) Date Aug. 12, 1996, PCT Pub. No. WO95/18030, PCT Pub. Date Jul. 6, 1995
PCT Filed Nov. 11, 1994, Ser. No. 663,077
Claims priority, application Germany, Dec. 24, 1993, 43 44 440.7
Int. Cl.° F16K *31/06*
U.S. Cl. 251—129.15 9 Claims

1. A solenoid valve for slip-controlled hydraulic brake systems, comprising:

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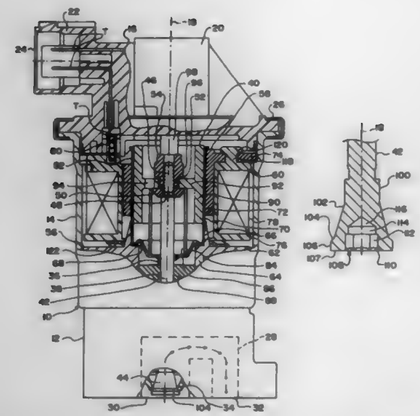
PINTLE-TYPE EGR VALVE

Bernard J. Hrytzak, Chatham, Canada; Takeshi Gomi, Saitama, Japan; Hirotomi Nemoto, Saitama, Japan, and Yoshio Yamamoto, Saitama, Japan, assignors to Siemens Electric Limited, Ontario, Canada, and Honda Giken Kogyo Kabushiki Kaisha, Tokyo, Japan

Continuation of Ser. No. 520,540, Aug. 29, 1995, abandoned.
This application Mar. 19, 1997, Ser. No. 820,826
Int. Cl.° F16K *31/06*
U.S. Cl. 251—129.15 11 Claims

1. An exhaust gas recirculation (EGR) valve for an internal combustion engine comprising an enclosure including a base, an entrance at which engine exhaust gas to be recirculated enters said base, a passageway that extends through said base for conveying engine exhaust gas that has entered said entrance, an exit at which engine exhaust gas that has passed through said passageway exits said base, an annular valve seat that is disposed within said

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passageway concentric with an imaginary axis, a pintle that is disposed within said enclosure for selective positioning along said axis, said pintle comprising a shaft and a head that is disposed at an end of said shaft and cooperatively associated with said valve seat for selectively setting the extent to which flow can pass through said passageway in accordance with the position of said pintle along said axis, actuating means for selectively positioning said pintle along said axis to selectively position said head relative to said valve seat, said pintle head and said valve seat comprising respective tapered surfaces that close against each other when said pintle is operated to a closed position by said actuating means and that separate to allow flow through said passageway when said pintle is operated to a selected open position by said actuating means, said pintle head comprising an end surface spaced axially beyond said respective tapered surfaces relative to said pintle shaft, and a central blind hole extending axially from said pintle head end surface to at least axially beyond said respective tapered surfaces when said respective tapered surfaces are closed against each other to thereby provide said pintle head with a skirt-like wall disposed about said axis.

5,722,635

CONTAINER VALVE COUPLING

Anthony Earle, Harrow Weald, England, assignor to Eastman Kodak Company, Rochester, N.Y.

Filed Oct. 27, 1995, Ser. No. 549,348

Claims priority, application United Kingdom, Oct. 29, 1994, 9421804

Int. Cl.[6] F16L *37/28*

U.S. Cl. 251—142.7 **8 Claims**

1. A valve arrangement for connecting a container having a wall, to apparatus which is to be fed fluid from the container, said arrangement comprising:

a probe;

a first fluid communication passage formed in said probe;

a first valve portion having an opening formed therein for receiving said probe, said opening extending along a length of said first valve portion;

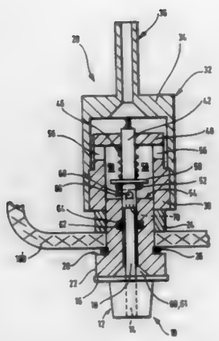
a second valve portion connected to said first valve portion, said second valve portion having a first chamber formed therein, said first chamber being in fluid communication with an exterior of said second valve portion, and a surface of said first valve portion defining a wall of said first chamber;

a bore in said second valve portion opposite said opening;

a plunger slidably mounted in said opening, extended into said first chamber and slidably mounted in said bore;

a seal carded by said plunger for sealing against said surface;

a helical spring surrounding and biasing said plunger to a first position in which said seal engages said surface; and



a second fluid communication passage formed in said plunger, wherein when said probe is inserted into said opening, said probe engages said plunger to move said plunger against said spring to a second position in which said second fluid communication passage communicates with said first chamber.

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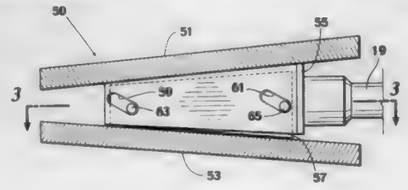
DOUBLE DISK GATE ASSEMBLY FOR BLOCK AND BLEED TYPE VALVES

James L. Houston, 3534 E. 109 St. S., Tulsa, Okla. 74137

Filed Dec. 18, 1996, Ser. No. 768,408

Int. Cl.[6] F16K *3/14*

U.S. Cl. 251—167 **13 Claims**



1. A sealing gate for a block and bleed type valve having an inlet in a first plane inclined upwardly about a first horizontal line for admitting fluid into the valve and an outlet in a second plane inclined downwardly about a second horizontal line below and parallel to the first horizontal line for exhausting fluid from the valve, the valve passing fluid from the inlet to the outlet at flow rates controlled by operation of a valve stem longitudinally aligned on a third horizontal line transverse to the first and second horizontal lines and passing between the inlet and the outlet comprising:

an upper disk-like member for sealing the inlet;

a lower disk-like member for sealing the outlet;

a first mounting frame fixed to a lower side of said upper disk-like member;

a second mounting frame fixed to an upper side of said lower disk-like member;

one of said first and second mounting frames being connected to the valve stem for horizontal movement of its corresponding disk-like member into and out of substantial registration with its respective inlet and outlet in response to operation of the valve stem; and

means engaging said first and second mounting frames for relative horizontal movement of said disk-like member corresponding to the other of said first and second mounting frames into and out of approximately substantial registration with its respective outlet and inlet and for limited floatation of said disk-like member corresponding to said other mounting frame relative to said disk-like member corresponding to said one mounting frame into and out of substantial registration with its respective outlet and inlet.

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SEALS

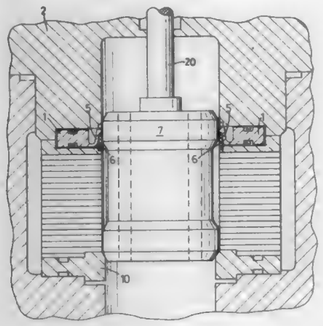
Jamshid Faramarzi, Foothill Ranch, and Curtis G. Sterud, Garden Grove, both of Calif., assignors to Control Components, Inc., Rancho Santa Margarita, Calif.

Continuation of Ser. No. 399,712, Mar. 3, 1995, abandoned. This application May 22, 1996, Ser. No. 653,923

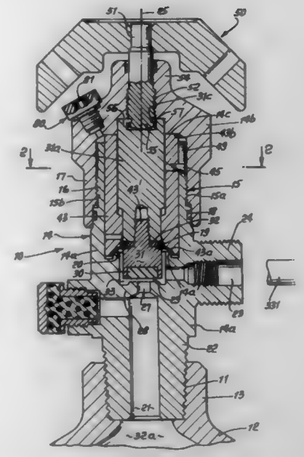
Claims priority, application United Kingdom, Mar. 3, 1994, 9404063

Int. Cl.[6] F16K *3/24*

U.S. Cl. 251—190 **10 Claims**



1. A seal for balanced pressure valve arrangements, the seal comprising a seal element adapted to be retained in a valve housing, the seal element being machined from a block of metal to include an annular seal well and a central aperture to receive a valve plug for said housing, said annular well extending around said aperture, the bottom of the well being radiused, and said annular well being separated from said aperture by an annular seal leg, the radially outer surface of said seal leg defining the radially inner surface of said well, wherein the seal well deforms under the application of pressure such that a portion of the seal leg is forced into sealing engagement with a surface of the valve plug, and a retainer is located upon the surface of the housing, the retainer being arranged to limit the degree of radially inward seal leg deflection toward the valve plug surface when the valve is opened.



c) and an independent pressure-transmitting element in the cavity to transmit cap thrust to effectuate said seal, said element blocked against rotation.

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MULTISTAGE WEDGE-SHAPED JACK APPARATUS

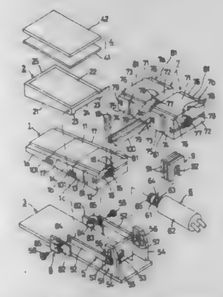
Haluo Nonaka, Osaka, Japan, assignor to Matsuo Engineering Co., Ltd., Osaka, Japan

Filed May 24, 1996, Ser. No. 652,917

Claims priority, application Japan, May 26, 1995, 7-127952

Int. Cl.[6] B24B *41/06*

U.S. Cl. 254—104 **11 Claims**



1. A multistage wedge-shaped jack apparatus comprising:

a longitudinally movable wedge-shaped drive member with an upper side and a lower side and a thin end face and a thick end face and having a slanted surface, which is slanted at a predetermined angle to a horizontal direction, on at least said upper side of said wedge-shaped drive member;

a wedge-shaped pressure receiving member with an upper side, a lower side, a thin end face, and a thick end face and having a slanted surface, which is slanted at a same predetermined angle to said horizontal direction as said predetermined angle of said slanted surface of said wedge-shaped drive member, any one of said upper and lower sides of said wedge-shaped pressure receiving member being slidable on said slanted surface of said wedge-shaped drive member, and any one of said upper and lower sides of said wedge-shaped pressure receiving member, which is not slidable on said slanted surface of said wedge-shaped pressure member, having a horizontal surface, wherein said wedge-shaped pressure receiving

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VALVE WITH MEANS TO BLOCK RELATIVE ROTATION OF PARTS DURING ASSEMBLY

Robert F. Miller, Arcadia, Calif., and Frederick J. Haydock, Murray, Utah, assignors to Vemco Corporation, San Dimas, Calif.

Continuation-in-part of Ser. No. 584,225, Jan. 11, 1996, Pat. No. 5,638,862. This application Apr. 5, 1996, Ser. No. 628,774

Int. Cl.[6] F16K *31/50*

U.S. Cl. 251—335.2 **20 Claims**

1. In a fluid valve, the combination comprising:

a) a body forming a cavity and a cap on the body extending over the cavity, the cap and body carrying interengaging threads allowing rotary make-up of the cap on the body,

b) a diaphragm in the cavity and seated on a ledge formed in the body, thereby to form a seal,

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member is laid on top of said wedge-shaped drive member so that said slanted surface of said wedge-shaped pressure receiving member contacts said slanted surface of said wedge-shaped drive member and said wedge-shaped drive member is laid on a base plate;

a plate-like pedal is laid on top of said wedge-shaped pressure receiving member which is laid on top of said wedge-shaped drive member;

said thick end face side of said wedge-shaped drive member is any one of pushed and pulled by a push and pull drive means provided in cooperation with a reactive force receiving means for limiting movement of said wedge-shaped pressure receiving member for jacking up and down a structure laid on said plate-like pedal;

at least one auxiliary wedge-shaped member is detachably coupled to said thick end face side of said wedge-shaped drive member;

each of said at least one auxiliary wedge-shaped member has a shorter length than a length of a stroke of said push and pull drive means, and has a slanted surface having said same predetermined angle to said horizontal direction as said predetermined angle of said slanted surface of said wedge-shaped drive member;

any one of said slanted surfaces of said wedge-shaped drive member and said at least one auxiliary wedge-shaped member are continuous from any one of said thin end face and said thick end face of said wedge-shaped drive member to any one of said thick end face and said thin end face of said at least one auxiliary wedge-shaped member;

a tip end of a drive rod of said push and pull drive means and said thick end face of said wedge-shaped drive member and each of said at least one auxiliary wedge-shaped member which are detachably coupled thereto; and

a temporary engagement means for limiting movement of said wedge-shaped drive member and said at least one auxiliary wedge-shaped member in engagement with side walls of said wedge-shaped drive member and said at least one auxiliary wedge-shaped members after a jack-up operation through a predetermined height.

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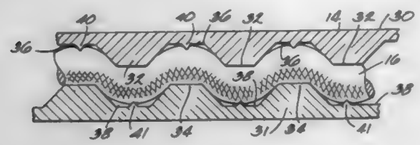
WINCH AND IMPROVED SHEAVE

Helmut K. Skyba, Rte. 2, Box 330, Wild Rose, Wis. 54984

Filed Sep. 25, 1996, Ser. No. 719,636

Int. Cl.[6] B66D *1/00*

U.S. Cl. 254—333 **19 Claims**



1. A sheave for advancing a rope looped around said sheave by application to said sheave of rotational forces comprising

a central hub and opposed, facing first and second surfaces radially outwardly extending from said hub to an outer perimeter,

each of said opposed surfaces being provided with alternating primary ridges and valleys extending from said hub to said outer perimeter, the primary ridges of said first one of said surfaces being aligned with a valley of the opposed second surface,

said valleys being tapered in width toward said hub of said sheave and having a generally flat floor surface, the center of each said valley having a secondary ridge projecting from said floor surface, said secondary ridges each being of a height extending above its associated valley floor surface that is substantially less than the height of said primary ridges, each of said secondary ridges being in at least approximate alignment with a primary ridge of said facing sheave surface.

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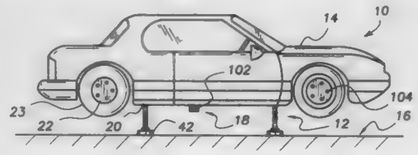
VEHICLE MOUNTED TIRE CHANGING SYSTEM

Angela Martin, and Robert Richardson, both of 2920 Theresa Ave., Las Vegas, Nev. 89101-1666

Filed Nov. 30, 1995, Ser. No. 564,866

Int. Cl.[6] B66F *3/24*

U.S. Cl. 254—423 **9 Claims**



1. A vehicle mounted tire changing system comprising:

a plurality of hydraulic jacks mounted to a vehicle in a substantially vertical orientation relative to the supporting terrain for lifting a portion of said vehicle relative to the terrain;

a hydraulic power means coupled in communication with said hydraulic jacks for providing a hydraulic fluid under pressure to actuate said hydraulic jacks;

a hydraulic manifold having valve assemblies coupled in fluid communication between said hydraulic jacks and said hydraulic power means;

a control means for selectively activating said valve assemblies;

an air compressor electrically connected to a battery via a switch for selectively operating said air compressor;

a pair of air hoses each having a first end in fluid communication with said air compressor and a second end carrying an air tool connector means for operably connecting air operated tools thereto, said connector means being connected to opposite sides of said vehicle;

an outer cylinder for mounting to said vehicle;

an inner rod having a distal end, said inner rod operable to be hydraulically extended from and retracted into said outer cylinder; and

a base connected to said distal end of said inner rod;

said base including a foot member having a circular side wall, a bottom section and a top section defining an interior therebetween; and a plurality of retractable spikes extending downwardly through said bottom section, each said retractable spike having an expanded end and a pointed end;

said foot member further including a plurality of tubes defining pathways therein, said tubes being vertically mounted within said interior between said top section and said bottom section, each said tube movably holding said expanded end of said retractable spike;

said bottom section forming a hole below each said pathway of said tube for disposing said pointed end of said retractable spike therethrough;

said base further including means for urging said pointed end of said retractable spike outwardly from said foot member, said urging means including a spring disposed within said pathway of said tube between said top section and said expanded end of said retractable spike.

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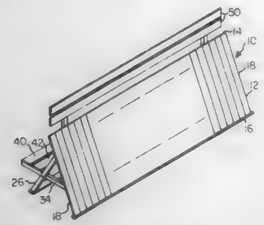
STANDING PRIVACY FENCE WITH A DEPLOYABLE BENCH

Terry L. Bradshaw, 531 State Rte. 28 East, Blanchester, Ohio 45107

Continuation-in-part of Ser. No. 602,294, Feb. 16, 1996, abandoned. This application Dec. 13, 1996, Ser. No. 767,248

Int. Cl.[6] E04H *17/00*

U.S. Cl. 256—1 **2 Claims**



2. A standing privacy fence which is collapsible and includes a deployable bench comprising, in combination:

a rectangular sheet formed with long parallel upper and lower edges and short vertical end edges, the sheet being formed of a plurality of generally vertically extending planks, the sheet including vertically strengthening planks adjacent to the upper and lower edges and end edges;

a pair of long supplemental planks having upper edges with pivot pins pivotally securing the upper edges of the supplemental planks to the strengthening planks of the sheet adjacent to the upper edge thereof, the supplemental planks being spaced a distance essentially equal to the width of the vertically strengthening planks of the sheet, the supplemental planks being positionable adjacent to the sheet for storage and transportation and being movable away from the sheet to form an A-shaped cross-sectional configuration when the fence is deployed;

additional planks having an intermediate extent with pivot pins coupled to intermediate extents of the supplemental planks and having interior ends with removable bolts coupled to an intermediate extent of the strengthening planks for allowing the supplemental planks to retain the sheet and supplemental planks in said A-shaped configuration when the fence is deployed but to allow removal of the removable bolts for pivoting the supplemental and additional planks parallel to the strengthening planks during storage and transportation, the additional planks having transverse seating planks adjacent to exterior ends thereof remote from the strengthening planks; and

back planks having lower ends with apertures and a pivot pin secured to the supplemental planks adjacent to their upper edges and pivotable to a raised orientation for storage and transportation and pivotable to a lower position during deployment as said fence and bench, the back planks having transverse back rest planks secured thereto.

5,722,643

TEMPERATURE COMPENSATED SAFETY GAS SPRING

James B. Chamberlin, and Alfred W. Siman, both of Charlotte, N.C., assignors to AVM, Inc., Marion, S.C.

Filed Mar. 7, 1996, Ser. No. 612,278

Int. Cl.[6] F16F *9/02*

U.S. Cl. 267—120 **8 Claims**

1. An improved gas spring comprising:

a) a cylinder defining an internal chamber, which is adapted to be filled with gas under pressure, higher than atmospheric pressure, and having an open end and a closed end;

b) a piston rod having one end received, in sealed relation to the cylinder, in the open end of the cylinder and being movable toward and away from the closed end of the cylinder;

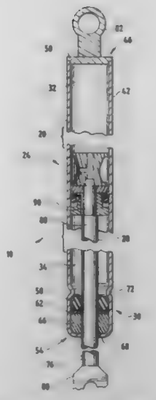
c) a piston assembly carried by the one end of piston rod and being movable within the internal chamber, the piston assembly separating the internal chamber into a compression compartment, which is adjacent to the closed end of the cylinder, and an extension compartment, which is adjacent to the open end of the cylinder, with the volumes of the compartments varying in accordance with the position of the piston assembly within the cylinder;

d) first means, which together with the piston assembly, for permitting gas to pass from the extension compartment to the compression compartment in response to movement of the piston assembly toward the extension compartment;

e) means for by-passing gas from the compression compartment to the extension compartment when the piston assembly moves toward the compression compartment;

f) second means for permitting gas to pass through the by-pass means, when the piston assembly moves toward the compression compartment and when the pressure of the gas in the compression compartment exceeds the pressure of the gas in the extension compartment by a predetermined amount;

g) temperature compensation means for changing the predetermined amount, in an analog manner, inversely with changes in the temperature so that the force exerted by the gas spring will be maintained substantially uniform regardless of changes in temperature throughout the anticipated range of temperature to which the gas spring will be exposed, with the temperature compensating means including a spool-shaped valve body having first and second end flanges and a central, reduced diameter portion disposed between the end flanges, the first end flange being proximal to the extension compartment and having a smaller diameter than that of the chamber to define a flow passage permitting gas flow between the first end flange and the cylinder, the second end flange being proximal to the compression compartment and forming a close, free-sliding fit with the cylinder; and a flow passage opening to the compression compartment and terminating in a valve seat positioned the middle portion of the spool-shaped valve body.



5,722,644

PRE-SHAPED VIBRATION-DAMPING MEMBER FOR DEFORMED PORTION

Ryouichi Kinoshita, and Kingo Manabe, both of Fukuyama, Japan, assignors to Hayakawa Rubber Company Limited, Hiroshima, Japan

Filed Sep. 12, 1996, Ser. No. 713,184

Claims priority, application Japan, Sep. 12, 1995, 7-233780

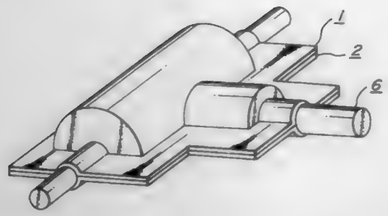
Int. Cl.[6] F16F *15/04*

U.S. Cl. 267—141 **9 Claims**

1. A pre-shaped, self-adhesive vibration-damping member for a deformed portion comprising:

a vibration-damping layer having a contact face adapted to be brought into contact with the deformed portion and an outer

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face on the side of the vibration-damping layer opposite from the contact face, the vibration-damping layer being shaped in advance such that the contact face matches the shape of the deformed portion,

an adhesive layer on the contact face of the vibration-damping layer, and

a releasing film of a material that is releasable from the adhesive layer protectively coveting the entire surface of the adhesive layer.

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ARRANGEMENT FOR INFLUENCING COIL SPRING TRAVEL

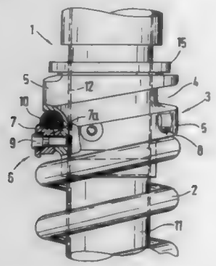
Horst Reitter, Renningen, Germany, assignor to Dr. Ing. h. c. F. Porsche AG, Germany

Filed Jun. 6, 1996, Ser. No. 659,519

Claims priority, application Germany, Jun. 16, 1996, 195 21 861.2

Int. Cl.[6] B60G *15/06;* **F16F** *1/12*

U.S. Cl. 267—177 **20 Claims**



1. Arrangement for influencing spring travel of a coil spring of a vehicle wheel suspension, comprising at least one spacing element arranged between coils of a coil spring, wherein the spacing element has a receiving groove extending corresponding to coil pitch of the coil spring and the coils are held rigidly with respect to one another, and a device for form locking engaging a recess portion of the coil spring for fixing the spacing element in various selected positions on the coil spring.

5,722,646

FLEXIBLE TOOLING APPARATUS

Mark S. Soderberg, Issaquah; Robert A. Starr, Auburn; Larry R. Cook, Woodinville, and Robert J. Thomas, Seattle, all of Wash., assignors to CNA Manufacturing Systems, Inc., Redmond, Wash.

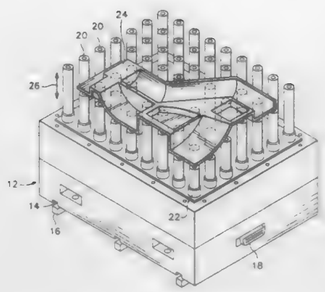
Filed Aug. 29, 1995, Ser. No. 520,446

Int. Cl.[6] B23Q *3/10*

U.S. Cl. 269—20 **19 Claims**

1. A dynamic tooling system comprising:

a support table having a plurality of receiving positions thereon, ones of said receiving positions including a quick-change interface providing a pneumatic supply and an addressable bus interconnection; and



an actuator mechanism adapted to be received in at least one of said plurality of receiving positions and for interfacing with said interface and extending and retracting as powered by said pneumatic supply in response to commands received via said addressable bus interconnection.

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WORKPIECE HOLDER, PARTICULARLY ADAPTED FOR HOLDING EYEGLASSES LENSES

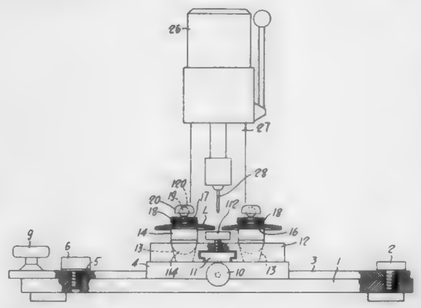
Armando Rattaro, Via delle Eriche 69/24, Genova; Camillo Rattaro, Viale Villa Chiesa 40A/3, Genova-Pegli, and Pierino Boldrini, Salita Superiore S. Tecla 23, Genova, all of Italy

Filed Apr. 19, 1996, Ser. No. 635,383

Claims priority, application Italy, Apr. 27, 1995, GE95A0043

Int. Cl.[6] B23B *31/30*

U.S. Cl. 269—45 **12 Claims**



1. A holder for holding the two lenses (**L**) of a pair of rimless eyeglasses for their machining by at least one fixed machining tool (**28**) to obtain the suitable mounting points for the side bars and nose bridge, comprising a pair of clamps (**14**, **17**, **117**) each of which is intended for holding one lens, said two clamps being mounted on a common support (**12**), means (**3**, **4**, **40**) being provided for displacing the said support (**12**) along a horizontal plane with respect to the fixed tool (**28**), each clamp (**14**, **17**, **117**) being designed for clamping a portion of a lens (**L**), and defining an axis (**A**) which is substantially perpendicular to the portion of lens clamped thereby, said clamp being positionable and lockable with said axis (**A**) oriented in any direction at the interior of an ideal cone (**A1**-**A2**) having a vertex through which the said axis (**A**) is passing.

5,722,648

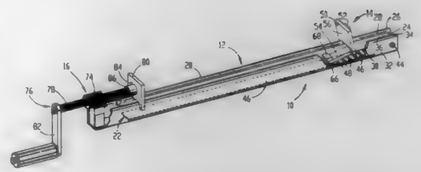
SPRING LOADED LOCATOR PIN ASSEMBLY

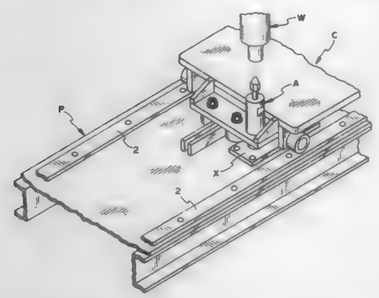
Todd A. Groll, Idaho Falls, and James P. White, Pocatelo, both of Id., assignors to The United States of America as represented by the United States Department of Energy, Washington, D.C.

Filed Jun. 12, 1996, Ser. No. 662,174

Int. Cl.[6] B23Q *3/10*

U.S. Cl. 269—47 **16 Claims**





1. A spring loaded locator pin assembly for a tool support carriage including a locator pin for positively positioning work pieces, each work piece having a locator pin engager for aligning said work pieces on a work support including:

a) said locator pin assembly having a housing,

b) said housing having means for fixedly securing said locator pin assembly to said tool support carriage,

c) said locator pin movable in said housing from a retracted position to first and second extended positions,

d) said locator pin including spring positioning means,

e) said housing including spring compression means,

f) spring means having first and second ends,

g) said first end engaging said spring positioning means,

h) said second end engaging said spring compression means,

i) a locator pin actuator cooperating with said locator pin for moving said locator pin relative to said housing from said retracted position to said first and second extended positions,

j) whereby when said locator pin actuator is moved in one direction relative to said locator pin, it compresses said spring means and retracts said locator pin relative to said housing, and when said locator pin actuator is moved in the opposite direction relative to said locator pin, it decompresses said spring means and extends said locator pin relative to said housing so as to engage the surface of a work piece, and upon movement of said work piece or said tool support carriage, it further extends said locator pin when said locator pin engages said locator pin engager on said work piece; thereby positively positioning said work piece relative to said work support.

5,722,649

ADJUSTABLE CLAMP

Milton I. Morris, 2701 W. Main, P.O. Box 260, Odessa, Mo. 64076

Filed Sep. 26, 1996, Ser. No. 721,228

Int. Cl.[6] B25B *1/02*

U.S. Cl. 269—171 **8 Claims**

1. An adjustable clamp apparatus for use with a channel-shaped structural member having a web and a pair of spaced flanges cooperatively defining a channel therebetween, each of said flanges having a lower end adjacent said web, an opposed upper end and a sidewall therebetween and including an inverted, U-shaped section adjacent said upper end and opening toward said web, each of said U-shaped sections having a pair of inner and outer legs and a bight portion therebetween, each of said outer legs extending from a corresponding sidewall, each of said inner legs extending into said channel and having respective inward edges spaced from said web, each of said bight portions presenting an outboard support shoulder, said support shoulders cooperatively defining a channel opening therebetween, said clamp apparatus comprising:

an anvil assembly including an anvil jaw and first coupling means for operatively coupling said anvil jaw with said structural member for selective shifting of said anvil jaw to a location along and relative to said structural member; and

a compression assembly including a compression jaw and second coupling means for operatively coupling said compression jaw with said structural member in alignment with said anvil jaw and for selective movement of said compression jaw relative to said anvil jaw for clenching a work piece therebetween,

said anvil jaw having an anvil work face and a pair of support surfaces configured for engaging said support shoulders of said structural member in spanning relationship with said channel opening,

said first coupling means including a tab secured to said anvil jaw and depending therefrom and having a lowermost end, said tab being configured for extending into said channel and having a pivot surface adjacent said lowermost end and configured for engaging said web,

said anvil assembly being configured for shifting between a sliding position in which said anvil assembly is slidable along and relative to said structural member and a stop position so that engagement of said anvil work face with said work piece causes pivoting of said anvil assembly about said pivot surface toward said stop position,

said first coupling means further including

an elongated stop piece secured to said tab and extending transversely therefrom within said channel and toward said compression assembly, said stop piece having a length greater than the thickness of said anvil jaw and including stop surfaces spaced from said anvil work face and configured for engaging said inward edges of said structural member for stopping the pivoting of said anvil assembly when said anvil assembly is in said stop position, and

holding means for preventing shifting of said anvil assembly along and relative to said structural member when said anvil assembly is in said stop position.

5,722,650

SORTER APPARATUS CAPABLE OF SHIFTING SHEET ON TRAY TOWARD PREDETERMINED SIDE SURFACE

Masahito Yamamoto; Yasuyuki Aiko, both of Yokohama; Satoshi Kuroyanagi, Inagi; Mitsuhiko Sato, and Yoshihito Osari, both of Kawasaki, all of Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan

Filed Jun. 30, 1995, Ser. No. 497,463

Claims priority, application Japan, Jul. 7, 1994, 6-155805

Int. Cl.[6] B65H *39/02*

U.S. Cl. 270—58.02 **23 Claims**

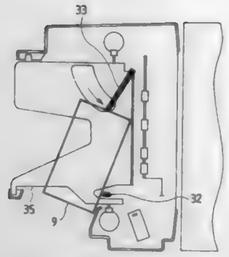
1. A sheet stacking apparatus comprising:

a tray for stacking a sheet;

sheet shift means for shifting the sheet on said tray;

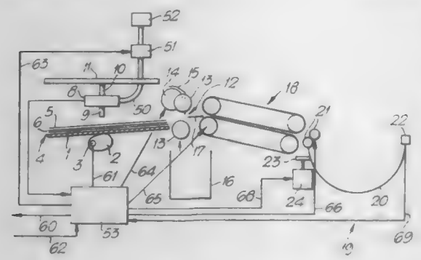
detection means for detecting if the sheet shifted by said sheet shift means is present on said tray; and

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control means responsive to said detection means for controlling said sheet shift means so as not to be operated when the shifted sheet is present on said tray.

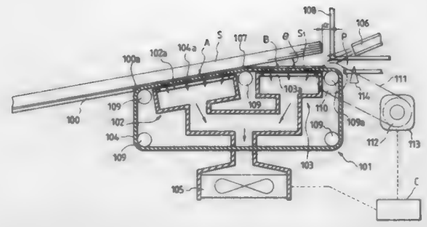
5,722,651
SHEET HANDLING
Jagdish Pankhania, Middlesex, United Kingdom, assignor to Crosfield Electronics Limited, Herts, United Kingdom
Filed May 3, 1996, Ser. No. 642,640
Claims priority, application United Kingdom, May 4, 1995, 9509065
Int. Cl.[6] B65H *5/00*
U.S. Cl. 271—3.19 **14 Claims**



1. A system for separating alternately stacked first and second sheets, the system comprising a first sheet holding device for holding a first sheet of the stack; means for causing relative separation movement between a sheet held by said first sheet holding device and the remainder of the stack so that the held sheet is positioned spaced above the remainder of the stack. said first sheet holding device being laterally moveable to feed the separated first sheet to an exit; and a second sheet removal device for laterally feeding a second sheet from the stack to an exit in generally the same lateral direction as the first sheet.

5,722,652
SHEET FEEDING APPARATUS WITH SHEET ABSORB MEANS AND A CONVEYOR CONTROLLED FOR FORWARD AND REVERSE CONVEYING DIRECTIONS
Yasumi Yoshida, Yokohama; Ryusei Kominato, Tokyo, and Shinsuke Ubayashi, Yokohama, all of Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan
Filed Oct. 25, 1994, Ser. No. 328,822
Claims priority, application Japan, Oct. 28, 1993, 5-270594; Oct. 28, 1993, 5-270595
Int. Cl.[6] B65H *5/08*
U.S. Cl. 271—11 **8 Claims**

1. A sheet feeding apparatus, comprising:
sheet supporting means for supporting sheets;



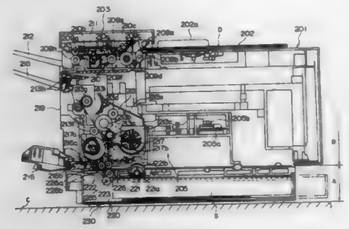
sheet absorb means for air-absorbing a lowermost sheet from among the sheets supported by said sheet supporting means;
convey means for conveying the sheet absorbed to said sheet absorb means;
regulation means for regulating a downward movement of the sheets supported by said sheet supporting means by abutting tip ends of the sheets against said regulation means;
size detection means for detecting a size of the sheets supported by said sheet supporting means, and
control means for determining a sheet conveying time of said convey means on the basis of a detection result of said size detection means to drive said convey means in the reverse direction after the sheet conveying time is elapsed.

5,722,653
SINGLE-SHEET FEEDER
Maximilian R. Seidl, Munich, and Karl Hasenöhrl, Hailbergmoos, both of Germany, assignors to Avery Dennison Corporation, Pasadena, Calif.
Filed Jul. 25, 1995, Ser. No. 506,687
Claims priority, application Germany, Jul. 25, 1994, 44 26 298.1
Int. Cl.[6] B65H *3/06*
U.S. Cl. 271—117 **10 Claims**



1. Single-sheet feeder comprising:
(a) a movable carrier for individual sheets defining a plane;
(b) a substantially planar first reference stop which serves as a side edge guide for the sheets and extends substantially perpendicular to the carrier;
(c) a second reference stop which serves as a leading edge guide for the sheets extending substantially perpendicular to the carrier and the first reference stop; and
(d) sheet transport means swingably situated above the carrier along the first reference stop and comprising a roller means for transporting a sheet from a stack of sheets on the carrier, an upper stop means and a sheet dispenser edge separated from the upper stop means by a space sufficient to allow dispensing of a sheet therebetween, wherein said roller means transports a sheet between said upper stop means and said sheet dispenser edge and wherein said plane of the carrier, said first reference stop and said second reference stop cooperate to position sheets in a stack for dispensing by said transport means.

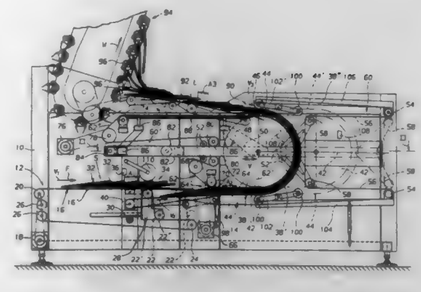
5,722,654
SHEET SUPPLYING APPARATUS
Sumitoshi Sootome, Yachiyo; Kazuyuki Morinaga, Yokohama, and Hisayuki Tomura, Machida, all of Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan
Division of Ser. No. 372,830, Jan. 13, 1995, Pat. No. 5,571,265, which is a continuation of Ser. No. 77,866, Jun. 18, 1993, abandoned. This application Oct. 18, 1996, Ser. No. 732,719
Claims priority, application Japan, Jun. 19, 1992, 4-186353; Jun. 29, 1992, 4-171085
Int. Cl.[6] B65H *3/06*
U.S. Cl. 271—119 **16 Claims**



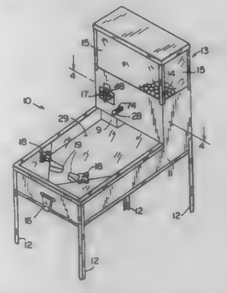
1. An image forming apparatus, comprising:
a sheet cassette drawably mounted onto a main body of said apparatus and for containing sheets therein;
a sheet supply roller provided in the main body for feeding out a sheet, said sheet supply roller having a peripheral portion that is partially cut;
sheet support means provided in said sheet cassette for supporting the sheets and urging the sheets towards said sheet supply roller;
separating means for separating the sheets fed out from said sheet support means by said sheet supply roller, said separating means having a normal rotation roller provided in the main body and rotating in a sheet feeding direction and a retard roller provided in said sheet cassette and rotating in a direction opposite to the sheet feeding direction;
retard roller supporting means provided in said sheet cassette for rockably supporting said retard roller, and urging means for urging the retard roller toward the normal rotation roller when said sheet cassette is mounted on said main body;
a drive output member provided in the main body of the apparatus and connected to a drive source provided in the main body of the apparatus; and
a drive input member connected to the retard roller to be engaged with the drive output member when said sheet cassette is mounted onto the main body to transmit the drive force to the retard roller.

5,722,655
APPARATUS FOR EVENLY SPACING SUCCESSIVE PRINTED PRODUCTS
Walter Reist, Hinwil, Switzerland, assignor to Ferag AG, Hinwil, Switzerland
Continuation of Ser. No. 599,098, Feb. 7, 1996, abandoned. This application May 8, 1997, Ser. No. 853,193
Claims priority, application Switzerland, Feb. 16, 1995, 00 450/95
Int. Cl.[6] B65H *5/34*
U.S. Cl. 271—270 **10 Claims**

1. An apparatus for evenly spacing successive sheet-like products comprising:
a first conveyor for feeding products having a spacing between mutually corresponding edges of successive products to a stationary transfer location;
a second conveyor positioned downstream of the first conveyor to receive said products at the transfer location and convey the products to a discharge location, said second conveyor having an adjustable effective conveying length extending from the transfer location to the discharge location;
a detector arrangement positioned upstream of the transfer location for detecting the spacing between the successive products arranged on the first conveyor;
a first motor for driving said second conveyor at an adjustable first predetermined speed at said transfer location wherein said first speed is adjusted dependent upon signals received from the detector arrangement such that the spacing between mutually corresponding edges of successive products corresponds to a predetermined spacing; and
a second drive motor for driving said second conveyor at a second predetermined speed at said discharge location wherein the effective length of the second conveyor is adjusted as a function of the first predetermined speed of said second conveyor at the transfer location and the second predetermined speed of the second conveyor at the discharge location.



5,722,656
MACHINE TO PLAY GAME WITH ROLLING BALLS AND DISPENSE THE BALLS AS PRIZES
Lyle G. Dickerson, 345 W. 17th St., Idaho Falls, Id. 83402
Filed Nov. 4, 1996, Ser. No. 742,656
Int. Cl.[6] A63F *7/02*
U.S. Cl. 273—118 R **8 Claims**

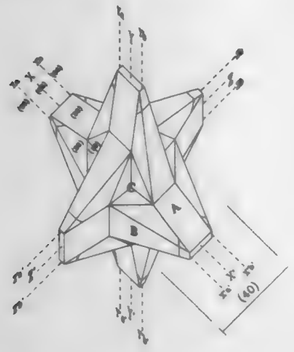


1. A machine which comprises the combination of
a reservoir to contain balls,
a sloping playfield containing at least one hole large enough to allow passage of one of said balls downward therethrough,
a sloping dispensing surface disposed below said playfield combined with a dispensing outlet so that balls which fall onto said dispensing surface roll to said dispensing outlet,
actuatable target means associated with said playfield,
a coin mechanism,
two flippers mounted to make contact with a ball drooped onto said playfield to roll the ball on said playfield in order to attempt to cause the ball to actuate said target,
characterized by

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a separator to separate substantially simultaneously at least two balls from the reminder of balls in said reservoir,
means to cause just one of the two balls separated by said separator to drop onto said playfield,
release means associated with the tract to release a second ball from said separator onto said dispensing surface,
means associated with the target to cause a ball which actuates the target to leave the playfield and drop onto the dispensing surface.

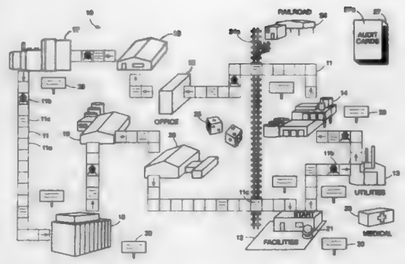
5,722,657
IRREGULAR POLYHEDRON PUZZLE GAME WITH PIECES OF ASYMMETRIC SHAPES
Dario Cabrera, Transversal 18 No. 77-18 Of. 706, Santa Fe De Bogota, D.C., Colombia
Continuation-in-part of Ser. No. 425,190, Apr. 20, 1995, abandoned. This application May 20, 1996, Ser. No. 650,798
Int. Cl.[6] A63F *9/08*
U.S. Cl. 273—153 S **9 Claims**



1. A puzzle game assembled with pieces in the form of an irregular polyhedron having the shape of a star of six points with at least eighteen movable and visible pieces and one fixed and invisible piece;
six of said pieces being A type of asymmetric shape for movement and twelve of said pieces being B type of asymmetric shape for movement and asymmetrically mounted in eighteen positions geometrically interrelated; and including
means for varying the related positions of said pieces during the game, including disarranging the geometric order of the original form of the star to a different order, and for restoring said original form of the geometric order.

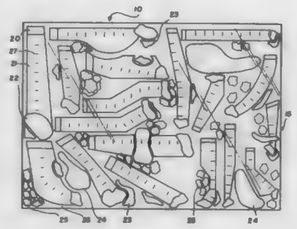
5,722,658
SAFETY BOARD GAME
Roberta Talmage, Willowbrook; Mark Bosse, Justice; Michael Hugdahl, Naperville; Edward A. Kuske, Chicago; Felix C. Legge, Oakbrook Terrace; Frank A. Pyrz, Hickory Hills; Tom Sill, LaGrange Park; Barbara Uicker, Willow Springs, and Ellen Carol Ann Young, LaGrange, all of Ill., assignors to CPC International Inc., Englewood Cliffs, N.J.
Filed Jan. 22, 1996, Ser. No. 589,837
Int. Cl.[6] A63F *3/00*
U.S. Cl. 273—243 **10 Claims**

1. A board game apparatus for teaching safety in a workplace, comprising:
(a) a game board having a playing surface with differentiated markings thereon, including:
(1) symbolic representations of a multiplicity of component units of an industrial organization; and



(2) a multiplicity of serially connected path segments connecting said component units and forming a path therebetween;
(b) a plurality of playing pieces for movement along said path, each of said playing pieces representing at least one player;
(c) chance means for specifying the number of path segments that a player can move their respective playing piece along said path during a given turn;
(d) a multiplicity of first safety cards, each of said first safety cards relating to at least one safety topic within said industrial organization and indicating information pertaining to said at least one safety topic, one of said first safety cards being drawn upon landing one of said playing pieces on one of said component units of said industrial organization on said game board, said information on said drawn card including a question relating to said at least one safety topic;
(e) a multiplicity of second safety cards for affecting game play by including one of a plurality of game instructions, wherein each of the game instructions directs movement of a playing piece on the game board based on whether the game instruction indicates an adherence to or an infraction of a safety rule related to an occurrence of an unusual safety event, said path segments comprising at least one event path segment, one of said second safety cards being drawn upon landing one of said playing pieces on said at least one event path segment; and
(f) scoring means for recording at least one successful response to said question relating to said at least one safety topic, whereby once a player successfully responds to questions relating to each of said safety topics that player wins the game.

5,722,659
GOLF BOARD GAME
Henry R. Gluth, 9140 Walnut Dr., Munster, Ind. 46321
Filed Feb. 14, 1997, Ser. No. 800,705
Int. Cl.[6] A63F *3/00*
U.S. Cl. 273—245 **1 Claim**



1. A golf board game, comprising:
a game board having a representation of a golf course showing a plurality of individual holes thereon with tees, fairways, greens, sand traps, water hazards, trees, and rough;
each said fairway including equally spaced markings along the length thereof indicative of distance along the fairway;

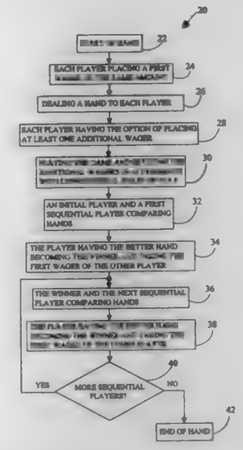
a plurality of player game pieces each resembling a golf tee for moving about said game board as a representative of the player's golf ball;
a first plurality of dice having only numerical indicia thereon for indicating the distance a player may advance a token along a fairway; and
a second plurality of dice having a combination of alphanumeric indicia thereon, wherein the second plurality of dice include the letters "H", "S", and "OB" thereon, said letters determining the direction of a shot, wherein a dice roll of "H" indicates a "hook" shot, wherein a dice roll of "S" indicates a "slice" shot, and wherein a dice roll of "OB" indicates an "out-of-bounds" shot;
a spinner device having indicia thereon indicating the number of putting strokes required to move to the hole, wherein a player spins said spinner device upon reaching a putting green space to determine the number of strokes to be assessed said player; and
a plurality of groups of penalty cards, each card having first indicia on a first side thereof and second indicia on a second side thereof, wherein said first indicia associated with a first said group of penalty cards identifies said first group of cards for use when a player's game piece is in a sand trap, said first indicia associated with a second said group of penalty cards identifies said second group of cards for use when a player's game piece is in a water hazard, said first indicia associated with a third said group of penalty cards identifies said third group of cards for use when a player's game piece is in the rough, and said first indicia associated with a fourth said group of penalty cards identifies said fourth group of cards for use when a player's game piece is among the trees, wherein a player chooses from a said group of cards when said player moves a game piece onto a portion of a hole representing a sand trap, a water hazard, trees or a rough; and wherein said second indicia on each card of each group of cards indicates a stroke penalty to be assessed a player drawing the card.

5,722,660
GAME WITH TIMED WATER RELEASE
Elliot Rudell, Torrance, and Joseph Cernansky, Palos Verdes Estates, both of Calif., assignors to Elliot A. Rudell, Torrance, Calif.
Filed Jan. 27, 1997, Ser. No. 790,728
Int. Cl.[6] A63F *3/00*
U.S. Cl. 273—287 **8 Claims**



1. A method for playing a game, comprising the steps of:
a) providing a spray unit which has a manually activated resettable timer assembly that actuates a valve which releases a fluid if said spray unit is not reset within a time interval;
b) activating said resettable timer assembly;
c) providing a question to a first player;
d) responding to the question; and,
e) resetting said resettable timer assembly if the response is correct,
wherein said resettable timer assembly will automatically release the fluid onto the first player if the first player does not provide a correct response within the time interval.

5,722,661
METHOD OF PLAYING POKER
John Skratulia, Whittier, and Fred Wolf, Chatsworth, both of Calif., assignors to Fred Wolf and John Skratulia, Chatsworth, Calif., A California general partnership
Filed Sep. 20, 1996, Ser. No. 717,257
Int. Cl.[6] A63F *1/00*
U.S. Cl. 273—292 **15 Claims**

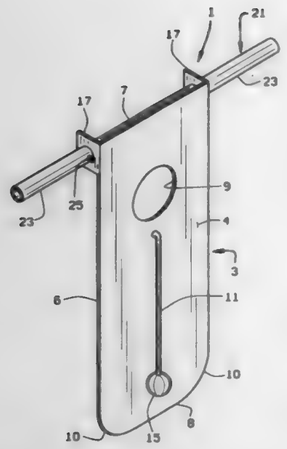


1. A method of playing a game of poker, comprising the steps of:
each player placing a first wager of the same amount;
dealing a hand to each player;
playing the game of poker wherein each player may make additional wagers, raise additional wagers, or fold in accordance with rules of play;
an initial player and a first sequential player comparing hands;
the player having a better hand becoming a Winner and taking said first wager of the other player;
the Winner and a next sequential player comparing hands;
the player having the better hand becoming the Winner and taking said first wager of the other player; and,
repeating said steps of the Winner and the next sequential player comparing hands and the player having the better hand becoming the Winner and taking said first wager of the other player until all players have participated.

5,722,662
HAND HELD AMUSEMENT DEVICE
Byron H. Howell, 3145 Market, East St. Louis, Ill. 62207
Filed Aug. 9, 1996, Ser. No. 695,338
Int. Cl.[6] A63B *67/10*
U.S. Cl. 273—329 **11 Claims**

1. A hand held amusement device including:
a rigid board having a front surface, a back surface, side edges, a top edge, and a bottom edge, a first opening formed spaced from the top edge, a pair of ears extending rearwardly from the side edges of the board at the top thereof, the ears having axially aligned ear holes;
a cord having a fixed end and a free end and being mounted to the board to extend from the front surface of the board, the

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cord having a length less than a distance between the bottom edge of the board and a point of attachment of the cord to the board;

a ball secured to the free end, the ball and board being made of materials such that the ball will bounce on the board; and

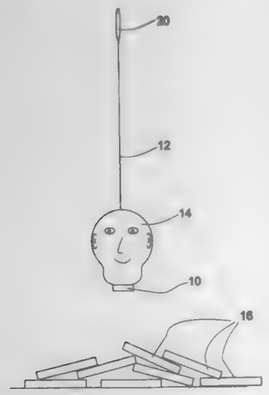
a rod rotatably journaled in the ear holes.

5,722,663

MAGNETIC CARD PICK-UP GAME AND APPARATUS

Shlomi Avigal, 92 Ibn Gvirol, Tel Aviv; Yakov Kedmi, 14 Mishol Shoham, Holon; Nir Manor, 27 Averbuch, Ramat Hasharon, and Avraham Pirchi, 23 Rahel, Kfar Saba, all of Israel

Filed Jul. 8, 1996, Ser. No. 677,670
Int. Cl.° A63B *67/10*
U.S. Cl. 273—448 **8 Claims**



1. A game apparatus, comprising:

(a) a magnet;

(b) an elastic cable connected near one end to said magnet; and

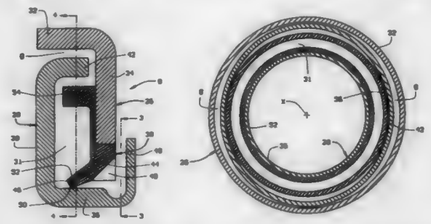
(c) a plurality of cards attractive to said magnet, each of said cards including a metallic mesh layer.

5,722,664

SEAL WITH PUMPING CAPABILITIES

Dennis L. Otto, Malvern, Ohio, assignor to The Timken Company, Canton, Ohio

Filed Sep. 25, 1996, Ser. No. 719,723
Int. Cl.° F16J *15/32*
U.S. Cl. 277—35 **21 Claims**



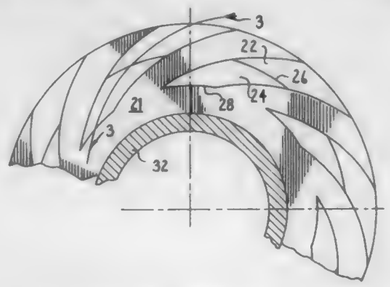
1. In combination with inner and outer machine components, one of which rotates relative to the other about an axis of rotation, with the inner machine component lying within the outer machine component such that an annular space exists between the machine components, a seal for closing the annular space, said seal comprising: a case fitted to one of the components and having an axial wall; a shield fitted to the other machine component and having a first axial wall located along the axial wall of the case such that one of the axial walls lies within the other axial wall with a gap between the two axial walls, the gap extending axially and varying in radial width circumferentially so that fluids that enter it will be pumped generally axially when relative rotation exists between the machine components, the variance in the radial width of the gap being deliberate and at least about 0.005 inches; and an elastomeric seal element attached to the case and establishing a dynamic barrier with respect to the shield.

5,722,665

SPIRAL GROOVE FACE SEAL

Josef Sedy, and Artur Zobens, both of Mount Prospect, Ill., assignors to Durametallic Corporation, Kalamazoo, Mich.

Continuation of Ser. No. 612,608, Mar. 8, 1996, abandoned, which is a continuation of Ser. No. 461,371, Jun. 5, 1995, abandoned, which is a continuation of Ser. No. 081,687, Jun. 24, 1993, abandoned, which is a continuation-in-part of Ser. No. 841,578, Feb. 26, 1992, abandoned. This application Jan. 24, 1997, Ser. No. 791,413
Int. Cl.° F16J *15/34*
U.S. Cl. 277—96.1 **22 Claims**



1. A seal device for sealing a fluid at a space between a housing and a rotatable shaft, comprising:

a first seal ring, mounted on said shaft for rotation therewith and having a planar front sealing surface;

a second seal ring, being substantially coaxial with said first seal ring and having a planar sealing surface defining a clearance with said first seal ring planar front sealing surface;

one of said seal rings being axially movable, said axially movable seal ring being acted upon by said fluid to close said clearance;

an elastic means for biasing said axially movable seal ring towards other said seal ring to close said clearance;

one of said planar sealing surfaces having a plurality of grooves formed therein for introducing said fluid between said planar sealing surfaces to thereby urge said planar sealing surfaces away from one another, said grooves arranged in spaced relation to each other, having a first relatively deep and substantially spiral portion extending inwardly from a first circumference of said planar surface toward a second circumference thereof, and a second relatively shallow portion in an abutment with said first relatively deep portion and extending therefrom toward said second circumference;

said abutment being an abrupt step-like change in groove depth;

a maximal depth of said relatively deep portion not exceeding 0.001 inches;

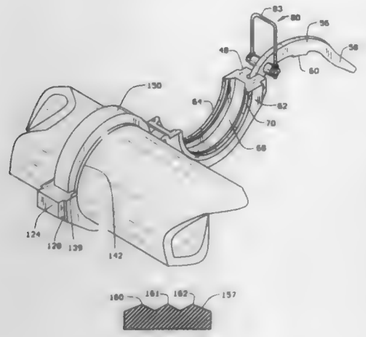
said relatively shallow portion being separated by an annular ungrooved surface from said second circumference of said one planar sealing surface; and said first circumference communicating with said fluid.

5,722,666

PIPE COUPLER GASKET WITH TRIANGULAR SEALING RIDGES

David E. Sisk, 7353 Hillsboro Rd., Bonne Terre, Mo. 63628

Division of Ser. No. 283,828, Aug. 1, 1994, Pat. No. 5,540,465. This application May 28, 1996, Ser. No. 654,129
Int. Cl.° F16J *15/02;* **F16L** *17/025*
U.S. Cl. 277—101 **1 Claim**



1. An integral gasket for seeding in an adjustable pipe couple to form a tight seal when the adjustable coupler incorporating a clamping arm is attached to two axially aligned with abutting sections of pipe, the gasket comprising:

An annular body, said body having an outer surface and an inner surface, said inner surface defining a bore, with a material thickness between said surfaces, said body dimensioned so that said outer surface seats in a groove in the coupler;

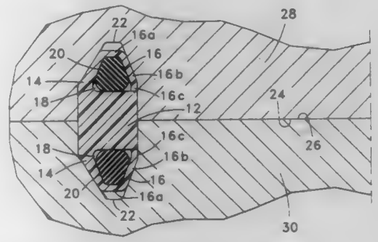
Said gasket upon its inner surface formed of serrations that provide a plurality of inwardly extending uniformly spaced ridges on said inner surface, said gasket ridges being symetrically formed as equilateral triangles in cross section, and uniformly spaced apart from each other, said ridges disposed to compress against a pipe when the coupler is attached, said serrated inner surface forming at least 3 ridges, comprising a centrally arranged ridge and two outer disposed ridges, the central one of said ridges postitioned to compress and spread against a pipe joint formed by the two abutting sections of pipe, and the two outer ridges disposed for compressing against the pipe surfaces.

5,722,667

SEAL ASSEMBLY FOR USE BETWEEN PLANAR SURFACES HAVING OPPOSED GROOVES TO RECEIVE AND HOLD THE SEAL ASSEMBLY

Michael J. Lim, Marlton, N.J., and Charles E. Wohlers, Chadds Ford, Pa., assignors to Garlock, Inc., New York, N.Y.

Filed Oct. 7, 1994, Ser. No. 320,078
Int. Cl.° F16J *15/10*
U.S. Cl. 277—164 **16 Claims**



1. A seal assembly comprising:

a body element formed of stiffly flexible material and having a pair of axially spaced-apart openings and

a pair of seal rings of resilient material positioned in said pair of spaced-apart openings;

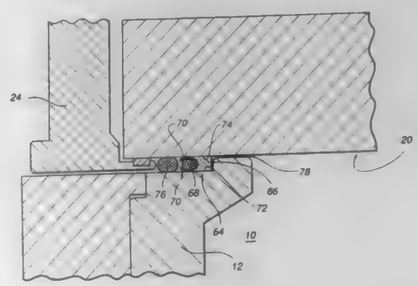
said body element having integral flexible web portions defining each of said spaced-apart openings such that, upon installation in sealing position in a groove formed between a pair of planar surfaces, said seal rings are substantially surrounded by said body element so that said seal rings cannot be subjected to any rubbing contact.

5,722,668

PROTECTIVE COLLAR FOR VACUUM SEAL IN A PLASMA ETCH REACTOR

Michael Rice, Pleasanton, and Eric Askarinam, Sunnyvale, both of Calif., assignors to Applied Materials, Inc.

Filed Apr. 29, 1994, Ser. No. 235,602
Int. Cl.° F16J *15/10*
U.S. Cl. 277—180 **4 Claims**



1. A vacuum chamber comprising:

a rigid ceiling member defining the upper boundary of the interior of said chamber, said rigid ceiling member having a first surface facing downwardly,

a rigid sidewall member having a second surface that faces upwardly for sealingly engaging said first surface of said rigid ceiling member,

a first elastomeric seal member compressively engaged between said first and said second surface, and

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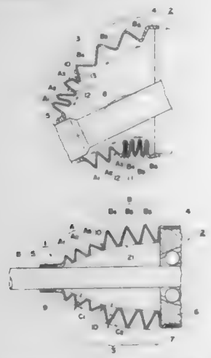
a protective collar positioned between said first elastomeric seal member and said chamber interior, said collar being compressively engaged between said first and said second surfaces.

5,722,669

RESIN CVJ BOOT WITH DISTINCT LARGE AND SMALL CREST PORTIONS

Minoru Shimizu; Yasuyuki Matsuura; Atsushi Ishikawa, all of Gotenba, and Shinji Nomura, Kamakura, all of Japan, assignors to Keeper Co., Ltd., Tokyo, Japan

Filed Dec. 20, 1995, Ser. No. 575,524
Claims priority, application Japan, Sep. 26, 1995, 7-247714
Int. Cl.° F16J *15/52*
U.S. Cl. 277—212 FB **20 Claims**



1. In a resin CVJ boot containing a shaft and comprising a bellows portion consisting of four or more continuous crest and root portions, a large-diameter mounting portion provided at one end of the bellows portion and a small-diameter mounting portion provided at the other end of the bellows portion, the resin CVJ boot characterized in that the CVJ boot has a large crest group and a small crest group and means for distinguishing said large crest group closer to the large-diameter mounting portion from a bending point obtained when the bellows portion displays an S-shaped bend having an expanded side and a compressed side from said small crest group directly connected to the large crest group and being closer to the small-diameter mounting portion, and for preventing slant faces forming the root portion which is closest to the S-shaped bend, from coming into contact with each other on said compressed side and, in the event that the slant faces do come into contact with each other on said compressed side, causing the slant faces to contact each other over a broad contact area, the large crest group being directly connected to the small crest group at the root portion closest to the S-shaped bend, the crest groups being shaped so that no root portion comes into contact with the shaft when the bellows portion displays the S-shaped bend.

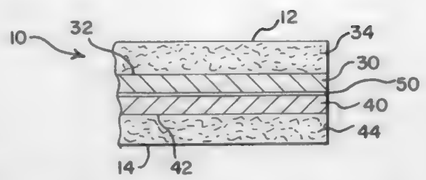
5,722,670

SEALING ASSEMBLY AND MULTI-LAYER GASKET FOR RESISTING FACING DELAMINATION AND DEGRADATION

Gary J. Novak, Indian Head Park, and Donald A. Bajner, Elmwood Park, both of Ill., assignors to Fel-Pro Incorporated, Skokie, Ill.

Filed Sep. 6, 1996, Ser. No. 708,189
Int. Cl.° F16J *15/12*
U.S. Cl. 277—235 A **26 Claims**

1. A gasket for disposition between a pair of metal flanges to be sealed, said gasket defining a plurality of openings, and wherein the metal flanges have substantially different coefficients of expansion, comprising



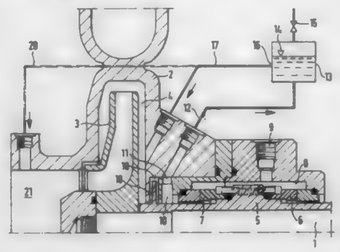
a first metal core having a first coefficient of expansion,
a facing laminated to a first surface of said first metal core,
a second metal core of a metal different from said first metal core and having a second coefficient of expansion but different from said first coefficient of expansion,
a facing laminated to a first surface of said second metal core, and
means securing said first and second cores to each other to form a sandwich, and facilitating relative sliding movement of said first core relative to said second core, with said first and second facings facing outwardly from opposite sides of said sandwich.

5,722,671

SEAL ARRANGEMENT

Josef Nosowicz, Geretsried; Michael Riedl, Eurasburg, and Rudolf Kollinger, Königsdorf, all of Germany, assignors to Feodor Burgmann Dichtungswerke GmbH & Co., Wolfratshausen, Germany

Filed Jan. 16, 1997, Ser. No. 783,863
Claims priority, application Germany, Jan. 17, 1996, 29600707 U
Int. Cl.° F16J *15/54*
U.S. Cl. 277—408 **6 Claims**



1. A seal arrangement for sealing a shaft with respect to a housing containing a liquid therein, said seal arrangement comprising: a face seal exposed to buffer gas on a gas side of the face seal remote from the liquid in the housing; a collecting chamber surrounding the shaft on a liquid side of said face seal remote from said gas side and communicating with the liquid in said housing for receiving leaked buffer gas reaching the liquid side of said face seal; and a pumping means for pumping a quantity of the liquid within said housing towards said collecting chamber.

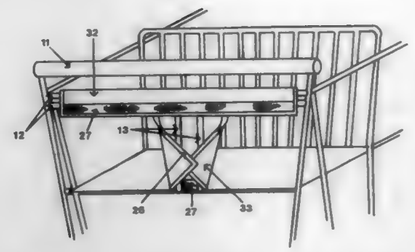
5,722,672

REUSABLE PROTECTIVE COVER FOR SHOPPING CART HANDLE/RENTED STROLLERS

Sonya Frederick, 4211 Federal St., Rockville, Md. 20853

Filed Dec. 11, 1995, Ser. No. 570,546
Int. Cl.° B62B *3/02*
U.S. Cl. 280—33.992 **8 Claims**

1. A washable and reusable protective cover that releasably attaches to a selected portion of a mobile push cart adapted to hold a small child, the cart including a horizontal handle, a horizontal



frame section positioned below the handle, and a vertical frame section attached to the horizontal frame section and extending downwardly therefrom, the protective cover comprising:
a substantially T-shaped flexible member with a rectangular upper portion and a lower portion depending from a lower edge of a central portion of the upper portion, the flexible member having an inner surface and an outer surface;
a first fastening member attached to the upper portion along at least upper edge portions of the inner and outer surfaces;
a second fastening member attached to the upper portion along at least lower edge portions of the inner and outer surfaces;
a third fastening member attached to the lower portion along at least a lower edge portion of at least one of the inner and outer surfaces; and
a fourth fastening member attached to the lower portion along at least a lower edge portion of at least one of the inner and outer surfaces;
wherein the upper portion is adapted to be selectively wrapped about either the handle or the horizontal frame section with the inner surface in engagement therewith and with the first and second fastening members interlocked together, the lower portion adapted to be wrapped about the outer surface of the upper portion when the upper portion is wrapped about the handle, and the lower portion adapted to be wrapped about the vertical frame section with the third and fourth fastening members interlocked together when the upper portion is wrapped about either the horizontal frame section or the handle.

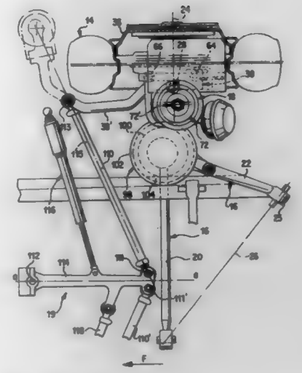
5,722,673

INDEPENDENT WHEEL SUSPENSION FOR MOTOR VEHICLES

Uwe Mauz, Esslingen, Germany, assignor to Mercedes-Benz AG, Germany

Filed Jan. 8, 1992, Ser. No. 817,819
Claims priority, application Germany, Jan. 8, 1991, 41 00 295.4
Int. Cl.° B62D *7/00*
U.S. Cl. 280—96.1 **6 Claims**

1. An independent wheel suspension for motor vehicles, comprising:
a semi-trailing arm arranged below a vehicle body floor of said vehicle and below a level of a wheel spin axis thereof, said semi-trailing arm comprising a first control arm extending in the transverse direction of the vehicle and having an inner end which is elastically pivotally connected in the area of a longitudinal center plane of the vehicle, and a second control arm extending from an outward end area of the first control arm toward a rear end of said vehicle, diagonally to the longitudinal center plane of said vehicle;
a vehicle wheel disposed on a wheel carrier, with an exterior end of said semi-trailing arm being supported in a ball joint on the wheel carrier; and
a tie rod section which is pivotally connected to a steering arm fixed to the wheel carrier and extends in the transverse direction of the vehicle;
wherein the semi-trailing arm and the tie rod section are disposed approximately in a common horizontal plane, with said ball joint being arranged on said wheel carrier close to an inner circumference of said wheel;
wherein the exterior end of the semi-trailing arm, which is supported on said ball joint, is bent diagonally upward and offset toward outside of the vehicle;
wherein said exterior end of the semi-trailing arm engages in an indentation of the wheel carrier which opens in the direction of an interior side of the vehicle and which is closed off in a downward direction by means of a supporting member which is fastened to the wheel carrier and supports the ball joint;
wherein the supporting member is an integral part of the steering arm; and
wherein a ball part of said ball joint extends from a bottom side of the semi-trailing arm and engages in a socket which is disposed on the steering arm.

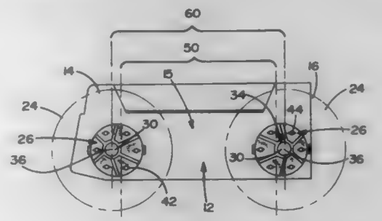


5,722,674

ECCENTRIC AXLE HOUSING

James Earl Dawson, West Bend, Wis., assignor to Trak International, Port Washington, Wis.

Filed Feb. 26, 1996, Ser. No. 606,582
Int. Cl.° B60G *1/02*; **B60B** *35/00*
U.S. Cl. 280—149.2 **2 Claims**

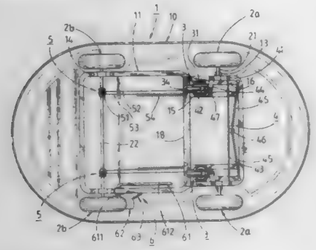


2. An eccentric axle housing for use in a skidsteer loader having a frame including a front and a rear, a lifting arm supported by said frame for selective pivotal movement, a front axle and a rear axle, said front and rear axles each supported by wheels, the eccentric axle housing comprising:
a body having a center, and
an axle support,
said axle support having a center which is spaced from said center of said body;
said eccentric axle housing including means for mounting said eccentric axle housing to the frame alternatively and selectively in a first position wherein the center of the axle support is rearward of the center of the body of the eccentric axle housing, and a second position wherein the center of the axle support is forward of the center of the body of the eccentric

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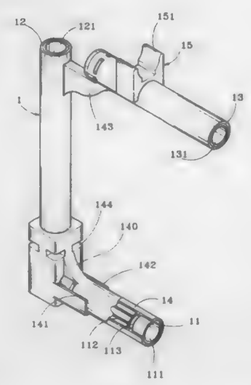
axle housing, wherein said means for mounting includes said body having a plurality of horizontal slots formed therethrough, and fasteners extending through said slots which are fixable to said frame.

5,722,675
GYMNASTIC TOY CAR
Cheng-chung Yang, P.O. Box 1-252, Sanchung, Taiwan
Filed Jan. 17, 1996, Ser. No. 586,323
Int. Cl.[6] B62M *1/16*
U.S. Cl. 280—244 **2 Claims**



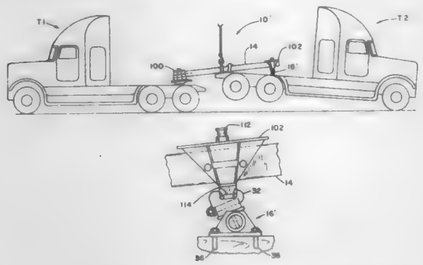
1. A gymnastic toy car comprising:
a chassis,
a housing mounted on the chassis, said chassis including two vertical bearing seats on a front two sides of the chassis,
two fixing frames on the two front sides of the chassis,
a cross beam at a center of the chassis,
two front wheels, each with a reverse T-shaped axle on the two vertical bearing seats on the front two sides of the chassis,
two rear wheels fixed at two ends of a rear axle mounted on a rear lower side of the chassis through two bearings with seats,
two rockers, each installed on the two fixing frames of the chassis through a ball bearing with a seat, and upper ends of the two rockers extending to an upper side of the housing,
a four-bar linkage for actuating the two front wheels to turn left and right, the four-bar linkage including
two outer upright connecting rods pivotally connected to one end of each reverse T-shaped axle, respectively,
two inner upright connecting rods, each with a slot at a center thereof, one end thereof pivotally installed on the cross beam of the chassis, and the slot nested on a lower end of each rocker,
a lateral connecting rod with a catch at a center thereof and two ends thereof pivotally connected to the front ends of the two outer upright connecting rods,
two lateral connecting rods pivotally connected to front and rear ends of the two inner and outer upright connecting rods, respectively, and
two pull springs with equal tensile force, one end thereof fixed on the catch at the center of the lateral connecting rod and another end thereof fixed on the front two sides of the chassis, respectively,
two drive mechanisms for driving the two rear wheels, the two drive mechanisms including
two drive wheels having a primary and a secondary cable reel nested on a unidirectional bearing and fixed on the rear axle,
two pull cables, one end thereof respectively fixed on one side of the primary cable reel and wound at least five turns on the primary cable reel, and another end thereof fixed at the lower ends of the two rockers, respectively,
two return cables, one end thereof respectively fixed on one side of the two secondary cable reels, and
two pull springs, one end thereof tied to another end of the return cable and another end thereof fixed on the cross beam at the center of the chassis, respectively, and
a brake device for braking the two rear wheels,
the brake device including
a brake bar comprising a horizontal and a vertical lateral L-shaped bars, one end fixed in a position adjacent to one of the two rear wheels on one side of the chassis, and another end extending to an upper side of the housing,
a pedal fixed at the other end of the brake bar,
a brake plate fixed at the one end of the brake bar and in a position of a rim tangent line of the one rear wheel, and
a pull spring, one end thereof fixed on the brake plate and another end thereof fixed on one side of the chassis,
whereby shaking the two rockers forward and rearward continuously and simultaneously or alternately to actuate the two drive mechanisms to drive the two rear wheels forward, oscillating and tilting the two rockers left or right to move the two rear wheels ahead and the four-bar linkage turning the two front wheels left or right, and stopping the oscillating of the two rockers and stamping the pedal of the brake device to slow down or stop moving the two rear wheels.

5,722,676
WHEELCHAIR FRAME ASSEMBLY
Johnson Wu, No. 52, Ching-Chien 3rd. Rd., Kuan-Yin Hsiang, Tao-Yuan Hsien, Taiwan
Continuation-in-part of Ser. No. 297,828, Aug. 30, 1994, Pat. No. 9,516,226. This application Oct. 11, 1995, Ser. No. 541,153
Int. Cl.[6] B62M *1/14*
U.S. Cl. 280—250.1 **8 Claims**



1. A wheelchair frame assembly comprising a plurality of unit flames connected together by fastening devices, wherein each unit frame comprises:
a plurality of metal frame robes connected to one another, each metal frame tube having a periphery and a pair of opposite ends a groove means around the periphery of each end and a plurality of longitudinal grooves spaced around the periphery and connected between said groove means;
a plastic cover shell directly molded on said metal frame tubes and covering the groove means and longitudinal grooves of each metal frame tube, the cover shell having a plurality of integral arm sections respectively connected between each two adjacent metal frame tubes and a plurality of integral rod sections, each rod section being respectively fitted into one end of each metal frame tube; and
a plurality of coupling means integrally extended from said plastic cover shell for permitting one unit frame to be coupled to another.

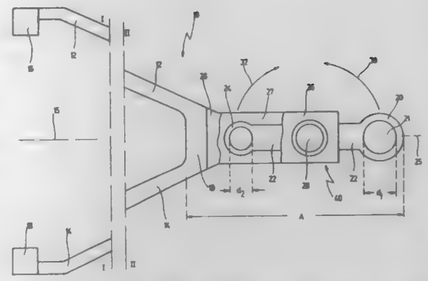
5,722,677
APPARATUS FOR THE TRANSPORTATION OF TRUCKS
Nicholas J. Lichter, Kenosha, Wis., and Curtis E. Lynch, North Lewisburg, Ohio, assignors to ATC Leasong Company, Kenosha, Wis.
Continuation-in-part of Ser. No. 5,849, Jan. 19, 1993, abandoned. This application Aug. 17, 1994, Ser. No. 291,767
Int. Cl.[6] B60P *3/07;3/12*
U.S. Cl. 280—402 **10 Claims**



1. A beam assembly for connecting a first wheeled vehicle to a second wheeled vehicle with the first vehicle reversed end-for-end so that the rear ends of the vehicles are in confronting relation but not overlapped and the first vehicle can be transported by and in tandem with the second vehicle, said beam assembly comprising:
a rigid elongate beam having first and second ends;
a first beam support mountable on the first vehicle in an upright position with a king pin and mountable on the first vehicle in an inverted position with a mounting bar, for engaging and supporting said beam adjacent said first end;
a second beam support mountable on the second vehicle in an upright position with a king pin and mountable on the second vehicle in an inverted position with a mounting bar, for engaging and supporting said beam adjacent said second end;
a frame attachment mountable on the first vehicle for engaging said beam between said first and second ends to anchor said beam against pivoting movement relative to the first vehicle: and
means for attaching said beam to said first and second beam supports at selected positions along said beam so that the relative distance between said first and second beam supports can be varied to vary the overall length of the tandem connected first and second vehicles.

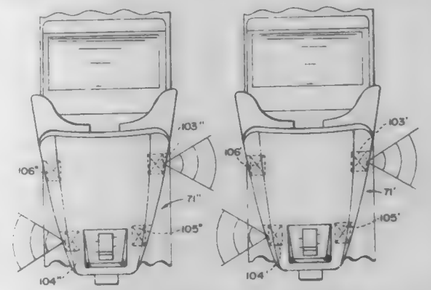
5,722,678
TRAILER COUPLING ASSEMBLY
Walter Hunger, Otto-Nagler-Strasse 13, D-97074 Wuerzburg, Germany
Filed Feb. 9, 1996, Ser. No. 599,325
Claims priority, application Germany, Feb. 11, 1995, 195 04 591.2
Int. Cl.[6] B60D *1/00*
U.S. Cl. 280—478.1 **4 Claims**

1. A trailer coupling assembly comprising:
first coupling means arranged at a rear end of a towing vehicle and having a coupling opening with coupling holes;
second coupling means arranged at a front end of a trailer and having two horizontal legs defining between them an open gap, said legs having free terminal ends provided with bearing means defining a swivel axis, said legs having, further, a first and a second securing opening, respectively at a distance from said bearing means, said securing openings being arranged coaxially along a common axis;
a drawbar having
a central pin journalled in said bearing means for allowing said drawbar to be swiveled about said swivel axis by at least 180°,



a first arm having a first terminal end with a first eye therein of a first predetermined diameter,
at least a second arm having a second terminal end with a second eye therein of a second predetermined diameter,
a coupling pin for coupling one of said drawbar arms to said coupling opening with said coupling pin being inserted through said eye of said one of said drawbar arms and through said coupling holes;
a securing pin for securing another of said drawbar arms in said open gap with said securing pin being inserted through said eye of said other of said drawbar arms and through said securing openings.

5,722,679
ELEMENT ASSEMBLY FOR RETAINING SHOES OR BOOTS ON A GLIDING BOARD
Christian Challande, Cruseilles; Pierre Desarmaux, Evires, both of France, and Hans Horn, Lysse, Switzerland, assignors to Salomon S.A., Metz-Tessy, France
Filed Nov. 17, 1995, Ser. No. 559,143
Claims priority, application France, Nov. 21, 1994, 94 14073
Int. Cl.[6] A63C *9/088*
U.S. Cl. 280—612 **14 Claims**



1. An assembly of two retention elements for retaining two boots of a skier on two skis, the two skis adapted to be interchangeably attached to either leg of a skier, each retention element comprising:
a retention jaw adapted to retain one end of the boot, the jaw having a boot engaging portion movable laterally at least in a horizontal plane between inward and outward directions relative to a central position where the boot engaging portion is aligned with a longitudinal median plane defined by the ski, the inward direction, with respect to either of the two retention elements, being a direction toward the other of the two retention elements and the outward direction being a direction away from the other of the two retention elements;
a spring for returning the jaw to its aligned position;
a linkage for transmission of movement between the retention jaw and the spring which compresses the spring upon lateral movement of the boot engaging portion from one side or the other of its aligned position, and which sends back to the Jaw

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an elastic return force for biasing the boot engaging portion towards its aligned position;

the jaw and the spring being adapted to free the end of the boot in response to a predetermined release threshold force corresponding to a predetermined amplitude of displacement of the Jaw and to a predetermined extent of compression of the spring;

an adjustment mechanism acting on the transmission linkage to modify in a differential manner inward and outward release threshold forces of the jaw corresponding to inward and outward directions of movement respectively of the boot engaging portion;

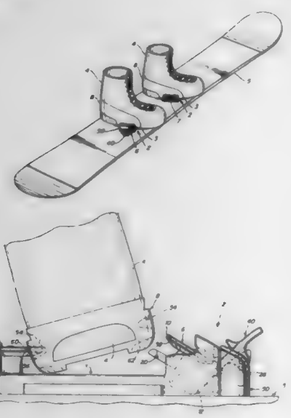
a manipulation element adapted to automatically interact with a corresponding manipulation element on the other retention element to control the adjustment mechanism of each retention element for reducing one of the inward and outward threshold forces and increasing the other one of the inward and outward threshold forces on the two retention elements when the skis are interchanged.

5,722,680

STEP-IN SNOWBOARD BINDING

David J. Dodge, Williston, Vt., assignor to The Burton Corporation, Burlington, Vt.

Filed May 29, 1996, Ser. No. 655,021
Int. Cl.[6] A63C *9/00*
U.S. Cl. 280—624 **83 Claims**



1. A snowboard binding for securing a snowboard boot to a snowboard, the binding having an open position and a closed position, the binding comprising:

a base adapted to receive the snowboard boot;

a first engagement member, pivotally mounted to the base, adapted to engage a first side of the snowboard boot when the binding is in the closed position; and

an over-center locking assembly that locks the binding in the closed position, the locking assembly including;

a first locking member, pivotally mounted to the base, that supports the first engagement member and mounts the first engagement member to the base; and

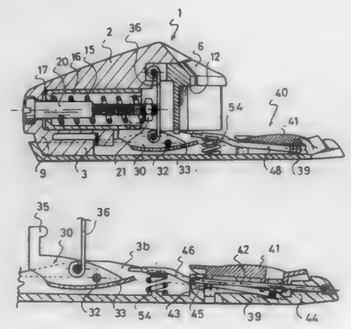
a second locking member, mounted to the base for movement between an open configuration and a closed configuration respectively corresponding to the open and closed positions of the binding, the second locking member being arranged to engage the first locking member when the second locking member is in its closed configuration, the first and second locking members being constructed and arranged so that when the binding is in the closed position, a lifting force generated by the boot on the first engagement member acts to maintain the second locking member in the closed configuration.

5,722,681

ALPINE SKI BINDING APPARATUS

Jean-Francois Merino, Annecy Le Vieux; Pierre Desarmaux, Evires, and Pascal Thomas, Chambery, all of France, assignors to Salomon S.A., Metz-Tessy, France

Filed Jul. 13, 1995, Ser. No. 501,865
Claims priority, application France, Jul. 13, 1994, 94 08940
Int. Cl.[6] A63C *9/08*
U.S. Cl. 280—634 **16 Claims**



1. A binding apparatus for retaining a boot upon an alpine ski, said apparatus comprising:

a base adapted to be affixed to the ski;

a body mounted upon said base;

a retention jaw borne by said body adapted to engage the boot, said retention jaw being mounted for a boot-releasing movement with respect to said base in response to forces exerted via the boot;

a spring housed in said body, said spring being mounted to exert an elastic return force in opposition to said boot-releasing movement of said jaw;

a support plate adapted to support at least a portion of a sole of the boot in a nominal position of said support plate, and a movement support structure mounting said support plate for rocking movement about a rocking axis, said rocking axis extending in a substantially longitudinal vertical plane, and for a vertical component of movement of said rocking axis within said substantially longitudinal vertical plane over a predetermined amplitude, said movement support structure comprising a linkage assembly providing a structural transmission for movements of said support plate;

a compensation mechanism connecting said spring and said linkage assembly, said compensation mechanism lowering said elastic return force of said spring in response to a predetermined movement of said linkage assembly, said compensation mechanism comprising a pivot element, said linkage assembly having a front end in abutting contact atop said pivot element; and

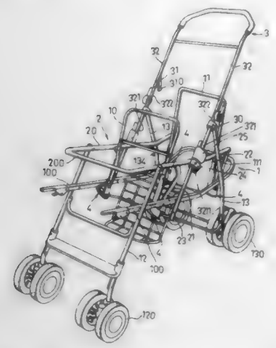
an elastic return element mounted to exert an elastic return force to said support plate to move said support plate within said substantially longitudinal vertical plane to a position having said front end of said linkage assembly raised with respect to said pivot element.

5,722,682

FOLDABLE TWO-SEATER STROLLER

Morgan Wang, 12F, No. 311, Fuhsing N. Rd., Taipei City, Taiwan

Filed Jun. 27, 1996, Ser. No. 669,816
Int. Cl.[6] B62B *7/06*
U.S. Cl. 280—642 **3 Claims**



1. A foldable two-seater stroller, comprising:

a U-shaped seat frame having a pair of forward extending arms, each of said forward extending arms having a front section, a rear section, and an intermediate section interconnecting said front and rear sections;

a pair of front legs, each of which has an upper end, an intermediate portion, and a lower end, each of said intermediate portions of said front legs being connected pivotally to said front section of a respective one of said forward extending arms, said lower end of each of said front legs having a front wheel connected thereto;

a pair of rear legs, each of which has an upper end, an intermediate portion, and a lower end, each of said intermediate portions of said rear legs being connected pivotally to said rear section of a respective one of said forward extending arms, said lower end of each of said rear legs having a rear wheel connected thereto;

a U-shaped handrail member having a pair of backward extending arms and a front guardrail interconnecting said backward extending arms, each of said backward extending arms having a front section, a rear section, and an intermediate section interconnecting said front and rear sections of said backward extending arms, each of said upper ends of said front legs being pivotally connected adjacent to said front section of a respective one of said backward extending arms;

a pair of middle connecting rods, each of said middle connecting rods having an upper end portion which is connected pivotally to said intermediate section of a respective one of said backward extending arms at an upper pivot point and a lower end portion which is connected pivotally to said intermediate section of a respective one said forward extending arms, each of said middle connecting rods further having a coupling member fixed thereto at a respective one of said upper pivot points;

a pair of front connecting rods, each of said front connecting rods having an upper end portion which is connected pivotally to a respective one of said backward extending arms between said upper end of a respective one of said front legs and said upper end portion of a respective one of said middle connecting rods, each of said front connecting rods further having a lower end portion which is connected pivotally to a respective one of said forward extending arms between said intermediate section of a respective one of said front legs and said lower end portion of a respective one of said middle connecting rods;

a pair of rear connecting rods, each of said rear connecting rods having an upper end portion which is connected pivotally to said rear section of a respective one of said backward extending arms and a lower end portion which is connected pivotally to said rear section of a respective one of said forward extending arms;

an inverted U-shaped handle unit having two downward extending arms, each of said downward extending arms having a lower section which is spaced parallelly behind said upper end portion of a respective one of said middle connecting rods, said lower section of each of said downward extending arms having a lower end which is connected pivotally to a respective one of said coupling members, each of said downward extending arms further having an intermediate section which is connected pivotally to said upper end of a respective one of said rear legs;

an inverted U-shaped front backrest member having two lower ends;

an inverted U-shaped rear backrest member having two lower ends;

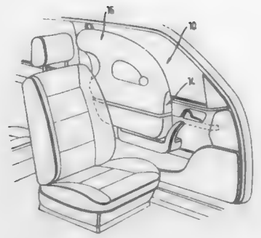
two front reclining adjuster means for positioning said front backrest member with respect to said seat frame at a selected inclination angle, each of said front reclining adjuster means interconnecting a respective one of said lower ends of said front backrest member and said lower end portion of a respective one of said front connecting rods; and

two rear reclining adjuster means for positioning said rear backrest member with respect to said seat frame at a selected inclination angle, each of said rear reclining adjuster means interconnecting a respective one of said lower ends of said rear backrest member and said lower end portion of a respective one of said rear connecting rods.

5,722,683

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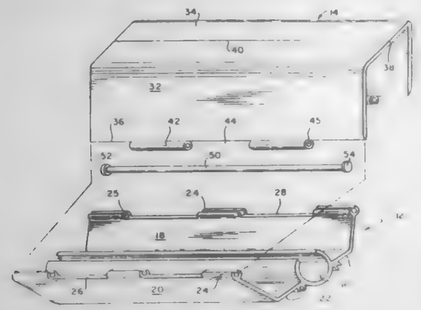


5,722,684

HINGED MODULE COVER

Davin G. Saderholm, Salt Lake City, and Brian M. Shaklik, Fruit Heights, both of Utah, assignors to Morton International, Inc., Chicago, Ill.

Filed Jun. 5, 1996, Ser. No. 658,330
Int. Cl.[6] B60R 21/16
U.S. Cl. 280—728.3 7 Claims



1. A cover and housing attachment assembly for a module of a vehicle safety restraint system comprising:
- a one-piece cover having a pair of integral doors connected together at one edge by a frangible seam and each of the doors having an opposed free edge;
- a one-piece housing including a pair of monolithic sidewalls, each of the sidewalls including a free edge extending along a length thereof;
- a plurality of attachment segments formed integrally with and extending from the free edge of each of the cover doors;
- a plurality of attachment portions formed integrally with and extending from the free edge of each of the sidewalls; and
- means for hingedly connecting the attachment segments of the cover doors directly to the attachment portions of the sidewalls and for preventing the cover doors from being separated from the housing sidewalls during deployment, wherein upon deployment of the module, the cover doors separate along the frangible seam and pivot outwardly opening the housing, causing no material stress to the cover.

5,722,685

GAS BAG LATERAL IMPACT PROTECTIVE DEVICE

Heinz Eyrainer, Waldstetten, Germany, assignor to TRW Occupant Restraint Systems GmbH, Alfdorf, Germany

Filed Oct. 22, 1996, Ser. No. 735,346
Claims priority, application Germany, Nov. 2, 1995, 295 17 372 U
Int. Cl.[6] B60R 21/22
U.S. Cl. 280—730.2 8 Claims

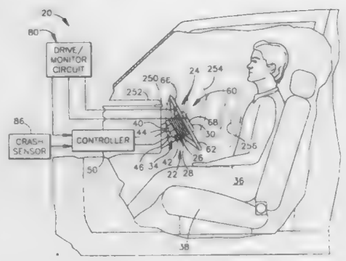
1. A gas bag lateral impact protective device for vehicle occupants, which is integrated in a vehicle door and comprises a compressed gas source, a thorax protecting gas bag and a head protecting gas bag connected to said thorax protecting gas bag, said thorax protecting gas bag and said head protecting gas bag being intended to be inflated by said compressed gas source and deploying, upon inflation, in a space to the side of said vehicle door, said head protecting gas bag deploying above said thorax protecting gas bag, said head protecting gas bag being in fluid communication with said thorax protecting gas bag, said thorax protecting gas bag having an outlet opening interconnected with an inlet opening of said head protecting gas bag, a sewing-off seam being provided in the region of said outlet opening so that the cross sectional area of said outlet opening is reduced, a dividing seam being provided on said thorax protecting gas bag, said dividing seam being in the fluid path from said compressed gas source to said outlet opening.

5,722,686

METHOD AND APPARATUS FOR SENSING AN OCCUPANT POSITION USING CAPACITANCE SENSING

Brian K. Blackburn, Rochester; Scott B. Gentry, Romeo; Joseph F. Mazur; Charles E. Steffens, Jr., both of Washington; John E. Bessonen, Redford, and William M. Jarocha, South Lyon, all of Mich., assignors to TRW Vehicle Safety Systems, Inc., Lyndhurst, Ohio

Filed May 16, 1995, Ser. No. 442,190
Int. Cl.[6] B60R 21/32
U.S. Cl. 280—735 58 Claims



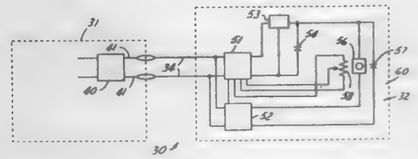
43. An apparatus for controlling an air bag restraining device in response to a sensed occupant seating position relative to an air bag restraining device, said apparatus comprising:
- a variable capacitor mounted at a known location relative to an air bag restraining device within a vehicle, said variable capacitor having a capacitance value functionally related to distance between a side of an occupant facing said air bag restraining device and said air bag restraining device;
- capacitance sensing circuit means for sensing the capacitance value of said variable capacitor and outputting an electric signal indicative of the sensed capacitance value; and
- control means operatively coupled to said capacitance sensing circuit means for controlling said air bag restraining device in response to the sensed capacitance value.

5,722,687

AIRBAGS SQUIB WITH TEMPERATURE BIAS

Charles R. Cook, Jr., Rochester Hills; Horst Belau, Clarkston, and Mark A. Parsons, Rochester, all of Mich., assignors to Siemens Automotive Corporation, Auburn Hills, and Ford Motor Company, Dearborn, both of Mich.

Filed Feb. 9, 1996, Ser. No. 599,611
Int. Cl.[6] B60R 21/26;21/32
U.S. Cl. 280—735 20 Claims



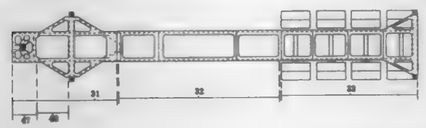
1. A squib control arrangement for an airbag restraint system for a vehicle, the squib control arrangement comprising:
- communication means for receiving electrical input signals containing a data component and an energy component;
- a squib having a firing portion and a preheating portion, whereby heat produced in said preheating portion is conducted to said firing portion;
- first coupling means for coupling said communication means to said preheating portion of said squib, and for supplying electrical energy thereto in response to said energy component of said electrical input signals; and
- second electrical coupling means for coupling said communication means to said firing portion of said squib, for causing said squib to fire in response to said data component of said electrical input signals.

5,722,688

UNIBEAM TRAILER CHASSIS

Roberto R. Garcia, Orting, Wash., assignor to Panderra Enterprises Inc., Tacoma, Wash.

Continuation of Ser. No. 423,744, Apr. 17, 1995, Pat. No. 5,611,570. This application Oct. 18, 1996, Ser. No. 733,258
Int. Cl.[6] B62D 63/06
U.S. Cl. 280—789 8 Claims



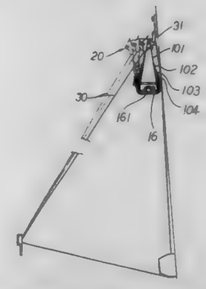
1. A flexible lightweight unibeam maximum weight container chassis capable of carrying loads of about 40,000 pounds to about 99,000 pounds, said maximum weight container chassis having a gross weight of about 3,500 pounds to about 13,000 pounds, and said maximum weight container chassis comprising:
- at least two longitudinal unibeam members and at least two lateral unibeam members each of which members being joined the one to the other by a single contiguous uniflange, wherein
- said at least two longitudinal unibeam members each comprising a longitudinal web, a longitudinal flange, and the uniflange,
- said at least two lateral unibeam members each comprising a lateral web, a lateral flange, and the uniflange, and
- the single contiguous uniflange being fastened in a perpendicular orientation to each of the longitudinal and lateral webs, and
- the longitudinal and lateral flanges being fastened in a perpendicular orientation to each of the longitudinal and lateral webs respectively; and
- said maximum weight container chassis further comprising a neck member, a mid-section member, and a rear member wherein each member comprises said uniflange, said longitudinal webs and said lateral webs,
- said maximum weight container chassis rear member further comprising
- a lateral axle web fastened to the uniflange, one of the longitudinal webs, and to each of two supporting lateral axle flanges, wherein each of the two supporting lateral axle flanges is fastened in turn to the longitudinal flanges and the longitudinal webs; and,
- a plurality of axle spring hangers for mounting axle springs to hold a plurality of axles.

5,722,689

CUSHIONING DEVICE FOR SAFETY BELT OF VEHICLE

Fou Min Chen, and Chin Chen Chen, both of No. 68, Yumin Street, Changhua City, Taiwan

Filed Nov. 19, 1996, Ser. No. 751,990
Int. Cl.[6] B60R 22/28
U.S. Cl. 280—805 5 Claims



1. A cushioning device for engaging with a safety belt of a vehicle and for cushioning the safety belt, said cushioning device comprising:
- a resilient member including a first plate having a first end for securing to the vehicle, a middle portion, and a second end;
- at least one second plate secured to said middle portion of said first plate for increasing a resilience of said resilient member;
- means for securing said second end of said resilient member to the safety belt and for allowing the safety belt to be resiliently moved for a distance; and
- wherein said first plate and said at least one second plate are U-shaped and have a lower portion secured together.

5,722,690

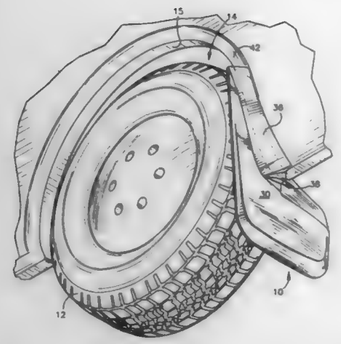
SPLASH GUARD

Douglas K. Ward, 43 Ipswich Crescent, Toronto, Ontario, Canada, M3J 2N4, and Kenneth J. Lott, 72 Pinebrook Crescent, Whitby, Ontario, Canada, L1R 2J7

Filed May 3, 1996, Ser. No. 642,270
Int. Cl.[6] B62D 25/00
U.S. Cl. 280—851 18 Claims

1. A splash guard adapted to fit any one of a set of vehicles having fender wheel well opening curvatures failing within a predetermined range while providing an aesthetic appearance of being custom molded for any vehicle of the set on which the splash guard is intended to be mounted, said splash guard comprising:
- a) a mounting section for connection to a fender and when connected having a mounting surface engaging an inturned fender flange;
- b) the mounting surface being adapted to assume a curvature substantially equal to a median curvature of said opening curvatures of the fender flanges of said set;

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c) a splash arresting section connected to the mounting section and extending downwardly from the mounting section when the splash guard is in use;

d) a flange section connected to the mounting and arresting sections, the flange section being curved and resiliently deformable for establishing surface engagement with a fender outer surface portion adjacent a wheel well;

e) the flange section curvature being substantially equal to the median curvature of outer surface portions of the vehicles of said set; and,

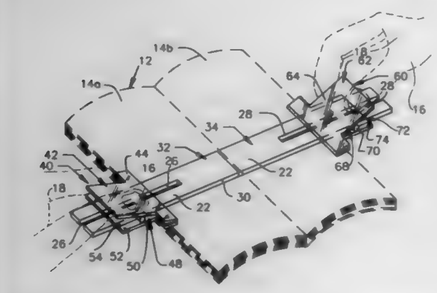
f) the flange section including a longitudinally extensible portion enabling enhanced flange deformation to accommodate a wide range of vehicle configurations.

5,722,691

COLLAPSIBLE AND PORTABLE PAGE HOLDER DEVICE FOR BOOKS

Tejal Patel, 515 Mullica Hill Rd., Apt. C-122, Glassboro, N.J. 08028

Filed Feb. 20, 1996, Ser. No. 604,108
Int. Cl.[6] B42D *9/00*
U.S. Cl. 281—42 **12 Claims**



1. A collapsible and portable page holder device for holding the pages of a book, comprising:

a) a back support member for supporting a book thereon including two sections connected by a central hinge member about which said two sections are foldable;

b) an elongated, channel opening formed in each of said two sections of said back support member;

c) two adjustable holding clips each having upper and lower clip members wherein each of said lower clip members is mounted within said channel opening in each of said two sections;

d) means for biasing said holding clips to a closed gripping position for gripping and holding the pages of a book; and

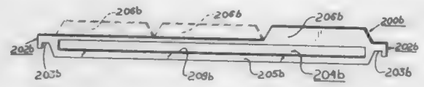
e) a guide member having guide means attached to each of said lower clip members for movably sliding each of said holding clips within each of said channel openings and relative to said back support member to adjust the spacing of said holding clips for receiving different size books.

5,722,692

BOOKLET FILING DEVICE

Igor Abramov, 510 Stratford Ct. #304B, Del Mar, Calif. 92014

Filed Mar. 30, 1994, Ser. No. 221,528
Int. Cl.[6] B42D *17/00*
U.S. Cl. 281—43 **19 Claims**



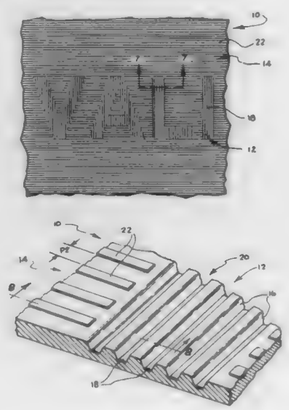
1. In a rail-based suspension filing system, a booklet filing device comprising: a single piece, essentially flat elongated strip having suspension means on each distal end, said suspension means interfaceable with suspension rails, said device further having a longitudinal aperture through which booklets are inserted, said longitudinal aperture made sufficiently wide and tall to permit insertion of an open booklet, said longitudinal aperture further defining lower body member and upper body member, said lower body member used to support booklet, whereby a booklet essentially straddles and is supported by said lower body member, said device further having front surface and back surface.

5,722,693

EMBOSSED DOCUMENT PROTECTION METHODS AND PRODUCTS

Kenneth M. Wicker, 7493 Wetmore Rd., Wayland, N.Y. 14572

Filed Oct. 3, 1996, Ser. No. 725,407
Int. Cl.[6] B42D *15/00*
U.S. Cl. 283—67 **18 Claims**



1. A counterfeit resistant security document comprising:

a support having a side comprising a print surface;

a first set of printed lines on the print surface having a predetermined first color, pitch, line width, and line height in a defined area and which form a a first image;

a second set of printed lines on the print surface forming a visible background image and having a predetermined second color, pitch line width and line height throughout the defined area and printed at an angle other than the angle of said first set of printed lines, the predetermined color, pitch and line width of each set of printed lines being such as to render said first image a latent image substantially indistinguishable from the background image to the naked eye and copiers when viewed or copied substantially at a right angle to the print surface;

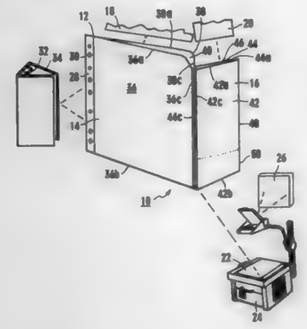
a third set of lines that consist of a set of linear embossments that form grooves in said support at the print surface side and on which at least part of one of the sets of printed lines is registered and superimposed, the embossments having a predetermined pitch substantially identical to the pitch of the one set of printed lines, a predetermined width equal to or greater than the width and a depth greater than the height of the one set of printed lines, the said part of the one set of printed lines lying entirely within the grooves as to render the image of said latent image visible only when viewed from non-perpendicular angles relative to said document print surface and angle of embossment.

5,722,694

TRANSPARENT ENVELOPE WITH FOLDABLE POCKET FLAP FOR INFORMATION DISPLAY

Helgi E. Baldursson, Furugrund 62, 200 Kópavogur, Iceland

Filed Aug. 21, 1995, Ser. No. 517,366
Int. Cl.[6] G03B *21/64;* **B42F** *7/06*
U.S. Cl. 283—116 **19 Claims**



1. An envelope for holding a primary sheet having information displayed thereon in selective juxtaposition with a secondary sheet, comprising:

a transparent rectangular sleeve for removably holding the primary sheet and having at least one open edge for receiving the primary sheet therethrough; and

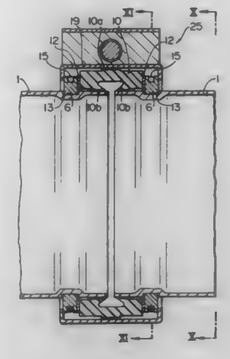
a transparent rectangular flap defining a pocket for removably holding the secondary sheet therein, the flap being hingedly connected to the sleeve along an edge thereof for movement between a juxtaposed position, wherein the flap is flush against the sleeve to overlay the secondary sheet on the primary sheet, and a distanced position, wherein the flap is not flush against the sleeve such that the secondary sheet is not overlaid on the primary sheet, the flap covering one half or less of the sleeve in the juxtaposed position.

5,722,695

PIPE JOINT

Shigeyuki Matsumoto; Yasuo Yabe; Kenji Fuse; Yasuyoshi Maruhashi; Mitsuaki Motoda; Kenji Miyatani; Tsuneyoshi Shibata; Masao Kanazawa; Minoru Sunaga, and Nobuhisa Fukuda, all of Tokyo, Japan, assignors to Kenkan Corporation, Tokyo, Japan

Filed Aug. 19, 1996, Ser. No. 699,252
Claims priority, application Japan, Sep. 13, 1995, 7-260713
Int. Cl.[6] F16L *55/00*
U.S. Cl. 285—23 **3 Claims**



1. In a pipe joint having an annular sealing ring with oppositely disposed end portions and a flow passage extending therethrough along a central axis of the annular sealing ring, said sealing ring having means to reduce its diameter, said sealing ring having means for tightening and compressing sealingly against the outside of axially aligned separated pipe ends inserted therein, the improvement in the annular sealing ring of the pipe joint comprising:

an annular flexible compressible ring having a lip portion constructed to bridge separated end portions of the aligned ends of two pipes of generally like diameter;

a segmented annular ring disposed axially at each side of said flexible compressible ring for engaging grooves in the pipe ends;

said segmented annular rings having a groove facing outwardly circumferentially;

said grooves of said segmented annular rings having an annular spring means to draw said segments together to thereby decrease the diameter of said segmented annular rings;

a band body of said annular sealing ring having two end portions and being radially inwardly facing U-shaped in cross section,

said band body being wrapped about said compressible ring and said segmented annular rings;

each of said end portions of said band body being looped about horizontally displaced members;

each of said members having threaded aligned holes therethrough,

each of said horizontally displaced members being connected by a threaded screw means constructed to draw said members together when rotated in one direction and to move said members apart when rotated in the other direction to move said end portions of said band together or apart to thereby tighten or loosen said band about said compressible ring and urge or release said compressible ring about the separated end portions of said pipes;

a segmented annular ring widening means for enlarging the internal diameter of said segmented annular ring, said widening means being removably interposed between pin holes at each side of at least two adjacent said segmented annular rings.

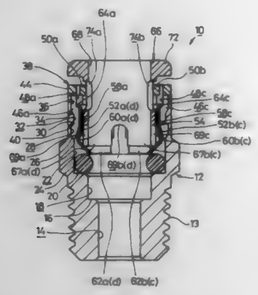
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5,722,696

EASY-CONNECT-AND-DISCONNECT TUBE COUPLING

Yoshimoto Taneya, Ibaraki-ken, Japan, assignor to SMC Kabushiki Kaisha, Tokyo, Japan

Continuation of Ser. No. 515,066, Aug. 14, 1995, abandoned. This application Jan. 30, 1997, Ser. No. 790,994
Claims priority, application Japan, Apr. 13, 1995, 7-088502
Int. Cl.[6] F16L 37/08
U.S. Cl. 285—39 6 Claims



1. A tube coupling comprising:

a cylindrical coupling body, said cylindrical coupling body having an annular recess disposed inside said cylindrical coupling body and an upper end, said annular recess having a tapered surface, and defining a step having an oppositely tapered surface;

a chuck disposed in said cylindrical coupling body and having an engaging portion on a distal end thereof for gripping a tube inserted in the cylindrical coupling body;

guide means for holding said chuck slidably therein, said guide means having an outwardly projection flange at an upper end thereof and an annular ledge at a lower end thereof, wherein said flange is fitted over said upper-end of the coupling body and said annular ledge is fitted into said annular recess engaging said step, a cylindrical slanted surface being formed between said upper end of said cylindrical coupling body and said step said guide means further having an inner cylindrical surface in substantial alignment with a proximal portion of the chuck for sliding contact therewith, and an inner conical tapered surface adjacent said inner cylindrical surface, wherein the proximal portion of said chuck is slidable in contact with and along said inner cylindrical surface between an uppermost and a lowermost position within said guide means;

a release bushing disposed in said cylindrical coupling body for insertion between the tube inserted in the cylindrical coupling body and said chuck, said release bushing being slidable along an inner cylindrical surface of said flange; and

a gasket disposed in said cylindrical coupling body for sealing a distal end of the tube with respect to an inner wall of said cylindrical coupling body through compression of said gasket;

said chuck having a bulging portion projecting radially outwardly from said proximal portion, such that when said bulging portion is drawn into said guide means by sliding said chuck toward said uppermost position of said guide means, the bulging portion is slidingly engaged and pushed radially inwardly by said conical tapered surface, causing said engaging portion of the chuck to be displaced radially inwardly into gripping engagement with the tube inserted in said cylindrical coupling body;

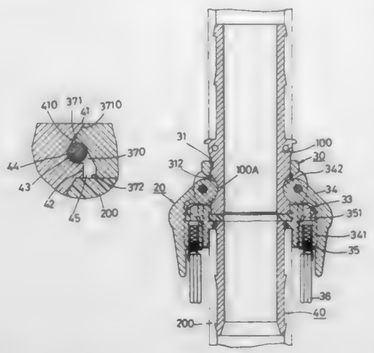
wherein, prior to insertion of said tube when said gasket is in an uncompressed state, said gasket is spaced a predetermined distance from said distal end of said chuck when the chuck is in said lowermost position in said guide means, with no intervening elements disposed between said chuck and said gasket.

5,722,697

FITTING WITH TWO TUBULAR MEMBERS ROTATABLE RELATIVE TO EACH OTHER

Waterson Chen, No. 477, Kuo-Kang Rd., Taichung City, Taiwan

Filed Apr. 10, 1996, Ser. No. 632,379
Int. Cl.[6] F16L 55/00
U.S. Cl. 285—91 3 Claims



1. A fitting including a first tubular member and a second tubular member coupled with the first tubular member, wherein the improvements comprise:

said first and second tubular members being formed separately, said first tubular member having a connecting end portion adapted to be connected to a first hose in use, and a receiving end portion having an inner peripheral surface formed with a first inward flange and a second inward flange projecting therefrom which are adjacent to each other so as to cooperatively define an annular first small groove therebetween, said inner peripheral surface of said receiving end portion further having an annular large groove formed therein near said first inward flange in such a manner that said first inward flange is located between said second inward flange and said large groove, said first inward flange defining the smallest inner diameter of said first tubular member thereat, said second inward flange defining a large inner diameter of said first tubular member thereat which is larger than the smallest inner diameter;

said second member having an engaging end portion adapted to be connected to a second hose in use, and an insert end portion extending into said receiving end portion of said first tubular member and having an annular flat end face, and an outer peripheral surface formed with a first outward flange and a second outward flange projecting therefrom which are adjacent to each other and which define cooperatively an annular second small groove therebetween, said first outward flange defining the largest outer diameter of said second tubular member thereat which is larger than the smallest inner diameter of said first tubular member, said second outer flange defining a small outer diameter of said second tubular member thereat which is larger than the smallest inner diameter of said first tubular member but smaller than the largest outer diameter of said second tubular member, a gap being located between said second inward and outward flanges, said first inward flange being located between said first and second outward flanges, said first inward and outward flanges having inclined surfaces which engage each other so as to enable said first inward flange to move into a space between said first and second outward flanges during assembly of said first and second tubular members;

a seal ring received within said large groove of said first tubular member and pressing against said annular end surface of said second tubular member so as to establish a liquid-tight seal between said inclined surfaces of said first inward and outward flanges; and

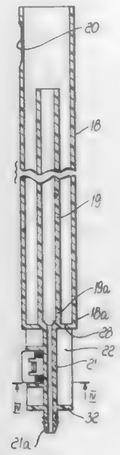
a C-shaped retaining ring received with said first and second small grooves and having a diameter larger than the gap so as to retain said first and second tubular members together and so as to prevent removal of said retaining ring from said first and second small grooves.

5,722,698

EXTENSION COUPLING FOR DISTRIBUTION DEVICES FOR GASEOUS FLUIDS AND/OR LIQUIDS

Luigi Amoretti, Romano d'Ezzelino, Italy, assignor to T.P.A. Impex S.p.A., Romano d'Ezzelino, Italy

Filed May 23, 1995, Ser. No. 446,970
Claims priority, application Italy, May 27, 1994, PD94A0100
Int. Cl.[6] F16L 25/06
U.S. Cl. 285—123.15 5 Claims



1. A structural element of an extension for distribution equipment of fluids in which the distribution equipment comprises a heating unit for heating the fluids, the extension being adapted for transporting the heated fluids and for being held by an operator at an external surface thereof, the structural element of the extension comprising:

a first external tubular body and a second internal tubular body for the passage of said fluids, wherein said second internal tubular body is disposed inside said first external tubular body and wherein the first body and said second body are a monolithic single molded plastic material portion of the structural element; and

a connecting structure for coupling the structural element to an other said structural element in a manner such that a ducting passage for the heated fluids is formed which passes through said second internal tubular body of said structural element and through an other said second internal tubular body of said other said structural element and which is isolated from said external surface of said extension whereby to decrease danger of causing burns to the operator;

and wherein said connecting structure is located at mutually opposite extremities of said structural element;

and wherein said connecting structure comprises at a first extremity of the structural element a male tube which is coaxial and connected to said second internal body;

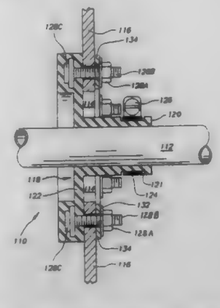
and wherein the connecting structure further comprises, at a second extremity of the structural element arranged opposite said first extremity, a female portion defined by a gap between the first external tubular body and the second internal tubular body and shaped for connectably receiving an other said male tube of said other said structural element.

5,722,699

FLEXIBLE ENTRY SEAL ARRANGEMENT

Rodney E. Brancher, Media, Pa., assignor to Environ Products, Inc., Lionville, Pa.

Continuation of Ser. No. 137,638, Oct. 18, 1993, abandoned, which is a continuation of Ser. No. 718,436, Jun. 26, 1991, abandoned, which is a continuation-in-part of Ser. No. 555,210, Jul. 18, 1990, abandoned. This application Jan. 19, 1996, Ser. No. 580,304
Int. Cl.[6] F16L 5/00;41/14
U.S. Cl. 285—142.1 10 Claims



1. In a secondary containment system for storage and delivery of environmentally hazardous gases or liquids, a flexible boot mounted in a sump wall for supporting a pipe passing through a sump wall opening, comprising:

a flexible annular member having a flange surface disposed against the sump wall exterior,

a pipe engaging section extending from the flange of the flexible annular member through the opening in the sump wall to the sump interior, said flexible annular member and said pipe engaging section in combination being flexible to permit angular displacement from perpendicular of a pipe engaged within the boot and passing through the sump wall up to at least thirty degrees in any direction.

said flexible annular member comprising a plurality of bolts disposed around the flange of the annular member and projecting into the sump interior from the flange surface of the annular member that is disposed against the sump wall, each of said bolts comprising a head that is encapsulated within the flexible annular member to protect said bolt heads from exposure to external environments.

5,722,700

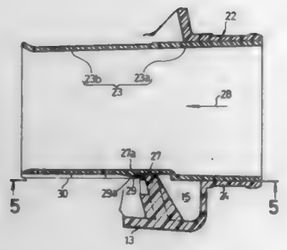
COUPLING STRUCTURE FOR PIPES OF SYNTHETIC RESIN

Tetsuya Miyake, and Yoshihiro Akiyama, both of Wako, Japan, assignors to Honda Giken Kogyo Kabushiki Kaisha, Tokyo, Japan

Filed Sep. 1, 1995, Ser. No. 522,719
Claims priority, application Japan, Sep. 8, 1994, 6-214822; May 19, 1995, 7-121250
Int. Cl.[6] F16L 41/08
U.S. Cl. 285—192 5 Claims

1. A synthetic resin pipe coupling structure for coupling a first pipe of synthetic resin to a second pipe of synthetic resin, wherein said first pipe is press-fitted into said second pipe having an inner peripheral surface which is circular in cross-section about an axis of said second pipe, said first pipe having an outer peripheral surface provided with recesses therein, said recesses being located on said outer peripheral surface with circumferential spacings therebetween, and wherein said first pipe comprises a cylindrical press-fitted portion provided with said recesses which have a predetermined length substantially corresponding to an axial length of said second pipe, said cylindrical press-fitted portion being press-fitted into said

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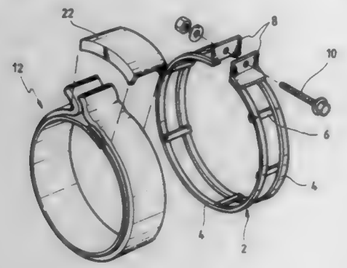
second pipe, said first pipe further comprising a cylindrical protrusion-in portion integrally extending from said press-fitted cylindrical portion, and wherein a stopper projection formed integral with said second pipe and having a stopper surface facing in a direction of movement between said pipes for press-fitting said first pipe into said second pipe, and a locking portion projectingly provided on an outer surface of the cylindrical protrusion-in portion of said first pipe, said locking portion being operative to engage said stopper surface of said stopper projection after said first pipe is press-fitted into said second pipe.

5,722,701

METHOD AND ASSEMBLY FOR JOINING PIPES

Sang-min Choi, Hyundai Villa 203, 836-3, Jisan-dong, Songtan-si, Kyungki-do, Rep. of Korea

Filed Dec. 4, 1996, Ser. No. 753,997
Int. Cl.[6] F16L *55/18*
U.S. Cl. 285—337 **7 Claims**



1. An assembly for longitudinally joining a pair of pipes, each of said pipes having an end to be joined and a circumferential outside surface, comprising:

a seal member; and

a watertight device,

said seal member concurrently wrapped about the outside surface of each pipe end to be joined,

said watertight device comprised of a first pocket placed over said seal member and adapted to be filled with an alumina cement powder and an additional pocket disposed within said first pocket, said additional pocket formed of a single body longitudinally divided into two halves, each of said halves filled with said alumina cement powder, and

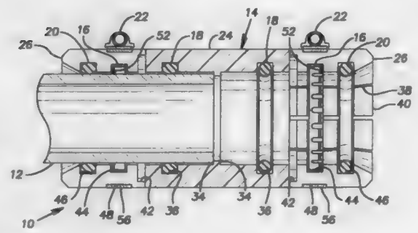
a clip for fastening each of said pockets in a circumferential direction about said seal member, said clip bound around an outside of said pocket.

5,722,702

PLASTIC PIPE COMPRESSION COUPLER

Robert B. Washburn, Amherst, Ohio, assignor to Arnco Corporation, Elyria, Ohio

Filed Apr. 12, 1996, Ser. No. 631,248
Int. Cl.[6] F16L *33/20;21/06*
U.S. Cl. 285—340 **26 Claims**



1. A coupler for connecting an end of a pipe comprising:

a sleeve having an internal passage for sliding over the end of the pipe, circumferentially spaced apart slits longitudinally extending from an end of said sleeve and forming a plurality of elements deflectable toward and away from the pipe, and annular sealing and locking grooves within said internal passage, said locking groove being located on said elements and axially spaced-apart from said sealing groove;

a sealing ring within said sealing groove for encircling the pipe and forming a seal between said sleeve and the pipe;

a locking ring within said locking groove for encircling the pipe and locking the pipe in said sleeve when said locking ring is in engagement with the pipe; and

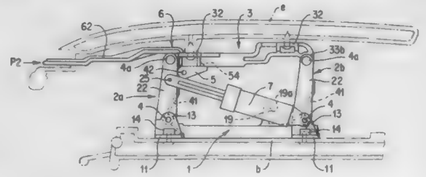
a compression device encircling said elements of said sleeve for deflecting said elements toward the pipe to engage said locking ring with the pipe.

5,722,703

POP-UP MECHANISM

Takashi Iwamoto, Machida, and Eiji Ueno, Utsunomiya, both of Japan, assignors to NIFCO Inc., Yokohama, Japan

Filed May 14, 1996, Ser. No. 645,570
Claims priority, application Japan, Jul. 27, 1995, 7-211185
Int. Cl.[6] E05C *19/00*
U.S. Cl. 292—1 **9 Claims**



1. A pop-up mechanism comprising,

a main frame having an upper surface;

a plurality of supporting poles, each pole having one end rotatably coupled to the main frame and collapsibly disposed over the upper surface of the main frame;

an elevating member rotatably attached to the other end of each of the supporting poles and having a locking dent and a lower surface;

a first urging device for urging the supporting poles to rotate in a stand-up direction oriented perpendicular to the main frame; and

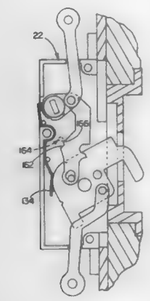
a locking device for locking the supporting poles in a folded state where the supporting poles are folded over the main frame and a pop-up state where the supporting poles stand up on the main frame, said locking device including a locking piece slidably attached to the elevating member and having a lock releasing projection extending toward the main frame and a locking hole; a second urging device for urging said locking piece in one direction attached to the locking piece; a locking member rotatably attached to one of the supporting poles and having at least one locking pawl at a forward end thereof to engage the locking dent of the elevating member, said locking member being urged toward the elevating member; and a locking projection projecting from the main frame toward the elevating member and having a locking pawl at a forward end portion thereof, said locking pawl of the locking projection engaging an edge of the locking hole of the locking piece to lock the elevating member in the folded state, said locking piece being slidable to release an engaging state between the edge of the locking hole and the locking pawl of the locking projection, said locking pawl of the locking member engaging the locking dent of the elevating member to lock the elevating member in the pop-up state, said locking piece being slidable so that when the locking piece is pushed, the lock releasing projection of the locking piece abuts against and pushes the locking member to rotate against an urging force, to release the locking pawl of the locking member from the locking dent of the elevating member.

5,722,704

MULTI-POINT DOOR LOCK

Ivanhoe E. Chaput, Redondo Beach, and Fetros Z. Mantarakis, Northridge, both of Calif., assignors to Reflectolite Products, Inc., Sun Valley, Calif.

Filed Apr. 23, 1996, Ser. No. 636,379
Int. Cl.[6] E05G *7/00*
U.S. Cl. 292—26 **46 Claims**



1. A lock assembly for securing a door to a door frame, said assembly comprising

a latch moveable between a retracted position in which the door is free to be opened or closed and an extended position in which the latch engages the door frame to hold the door closed,

an input member movable from a first position to a second position to move the latch to the extended position,

a linkage connected between the input member and the latch, the linkage having a first position in which it blocks transmission of motion from the input member through the linkage to the latch and a second position in which the motion of the input member is transmitted through the linkage to the latch, and

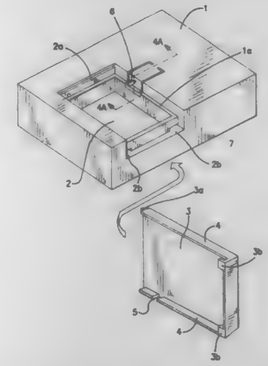
an engagement button positioned to contact the door frame as the door is approaching the closed position, the engagement button being connected to the linkage to cause the linkage to move from its first position to its second position when the door reaches the door frame.

5,722,705

LOCK STRUCTURE FOR COVER OF ELECTRONIC APPLIANCE

Manabu Deguchi, Tokyo, Japan, assignor to NEC Corporation, Tokyo, Japan

Filed Jun. 12, 1996, Ser. No. 661,917
Claims priority, application Japan, Jun. 24, 1995, 7-180871
Int. Cl.[6] E05C *19/06*
U.S. Cl. 292—87 **5 Claims**



1. In combination with a housing for an electronic device, a cover of the housing and a locking structure for securing the cover of the housing which closes an opening in said housing, said locking structure comprising:

recessed portions of said housing adjacent said opening, for receiving edge portions of the cover and preventing lateral movement of the cover in a first direction

a manipulating member secured to said housing adjacent one side of the opening, said manipulating member being movable interiorly of said housing and toward a bottom of the opening in a second direction perpendicular to said first direction

a locking member resiliently mounted on said manipulating member and movable relative to said manipulating member along said first direction from an extended position in which said locking member projects into one of said recessed portions to a retracted position in which said locking member is withdrawn from said recessed portion

whereby the locking structure further comprises a notch in said cover and when the housing is fitted with said cover having the notch aligned with the locking member, positions the locking member in the notch to prevent lateral movement of the cover in a third direction perpendicular to the first and second directions, and allows the locking member to be displaced free of the notch responsive to depression of the manipulating member in said second direction.

5,722,706

MOTOR-VEHICLE DOOR LATCH WITH POSITION-SENSING SWITCH

Peter Bartel, Hattingen, and Dirk Hundertmark, Herne, both of Germany, assignors to Kiekert Aktiengesellschaft, Heiligenhaus, Germany

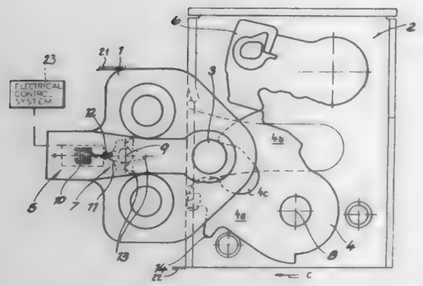
Filed Apr. 10, 1995, Ser. No. 420,830
Claims priority, application Germany, Apr. 13, 1994, 44 12 649.2; Sep. 16, 1994, 44 33 042.1
Int. Cl.[6] E05C *3/06*
U.S. Cl. 292—216 **5 Claims**

1. A motor-vehicle door latch for securing a door to a doorpost, the latch comprising:

a support mounted on a doorpost;

a bolt projecting from the support;

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a latch fork pivoted on the door, formed with a switch-actuating tooth, and movable between an engaged position interfitting with the bolt and retaining the door in a closed position fixed relative to the doorpost and a disengaged position out of engagement with the bolt and permitting the door to move relative to the doorpost;

a switch on the support displaceable between a position with the switch generating a door-closed output and another position with the switch generating a door-open output;

actuating means including an actuating element formed with a tooth operated directly by the actuating tooth of the fork and cooperating with the switch for

on movement of the door into the closed position positively physically pushing the switch into the position generating the door-closed output and holding the switch in the position generating the door-closed output so long as the door is in the closed position and

on movement of the door into the open position positively releasing the switch and physically pushing the switch into the position generating the door-open output; and

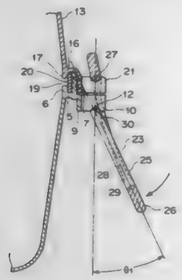
a spring connected to the actuating element and urging the switch into a position generating the door-open output.

5,722,707

CLAMPING STRUCTURE IN AIR-TIGHTLY SEALABLE CONTAINER

Masato Hosoi, Niigata-ken, Japan, assignor to Shin-Etsu Polymer Co., Ltd., and Shin-Etsu Handotai Co., Ltd., both of Tokyo, Japan

Filed Oct. 11, 1996, Ser. No. 730,010
Claims priority, application Japan, Oct. 12, 1995, 7-289157
Int. Cl.[6] B65D *45/30*
U.S. Cl. 292—258 **5 Claims**



1. A sealable container comprising:

a container body having an open periphery and a stepped flange extending from and surrounding said open periphery of said container body;

a cover mountable on said container body, said cover having an open periphery and a stepped flange extending from and surrounding said open periphery of said cover, wherein said stepped flange of said cover engages said stepped flange of said container body when said cover is mounted on said container body;

a first engagement tab protruding from said stepped flange of said container body, said first engagement tab having a first engagement groove formed thereon;

a second engagement tab protruding from said stepped flange of said cover and located so as to directly oppose said first engagement tab, said second engagement tab having a second engagement groove formed thereon; and

an engagement plate provided with a U-shaped opening formed in a planar face thereof with respect to a longitudinal direction of said plate, said U-shaped opening having two leg portions and a base portion interconnecting an end of each of said two leg portions,

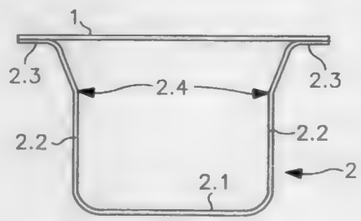
wherein, in an engaging position of said engagement plate, said first and second engagement tabs extend into said base portion of said U-shaped opening so that opposing portions of said engagement plate are received in said first and second engagement grooves.

5,722,708

BUMPER STRUCTURE

Martin Jonsson, Luleå, Sweden, assignor to Plannja Hardtech AB, Lulea, Sweden

Filed Jul. 25, 1996, Ser. No. 686,269
Claims priority, application Sweden, Jan. 26, 1994, 9400227
Int. Cl.[6] B60R *19/02*
U.S. Cl. 293—102 **15 Claims**



1. A bumper bar construction for use in an automobile, to absorb collision impact energies, said bumper bar construction having a closed and substantially trapezoidal cross-sectional shape, said bumper bar construction comprising:

a broad flange on one side of the substantially trapezoidal cross-sectional shape;

said broad flange having a first width;

the first width of said broad flange being disposed along the substantially trapezoidal cross-sectional shape;

said broad flange having an axis substantially perpendicular to said broad flange;

a narrow flange on the side of the substantially trapezoidal cross-sectional shape opposite said broad flange;

said narrow flange having a second width;

the second width of said narrow flange being disposed along the substantially trapezoidal cross-sectional shape;

the first width of said broad flange being substantially greater than the second width of said narrow flange;

said narrow flange being disposed a first distance along said axis from said broad flange;

said bumper bar construction having a longitudinal axis substantially perpendicular to the cross-sectional shape;

a first web connecting said broad flange and said narrow flange;

a second web connecting said broad flange and said narrow flange;

at least one of said first web and said second web comprising:

a first portion;

said first portion being disposed adjacent to said broad flange;

said first portion extending a substantial distance away from said broad flange and towards said narrow flange;

a second portion;

said second portion being disposed adjacent to said narrow flange;

said second portion extending a substantial distance away from said narrow flange and towards said broad flange;

said first portion being disposed at an angle to said second portion;

said angle being disposed within the closed cross-sectional shape;

said angle being substantially greater than 180°;

a guide to permit folding of said first portion with respect to said second portion upon application of collision impact energies;

said guide being disposed between said first portion and said second portion;

said guide comprising a fold;

said fold extending along said bumper bar construction substantially parallel to the longitudinal axis;

said fold being disposed a second distance from said broad flange; and

the second distance being no greater than one third of the first distance;

the second distance being no less than one eighth of the first distance;

said first portion of said at least one of said first web and said second web being substantially planar;

said second portion of said at least one of said first web and said second web being substantially planar;

said first web comprising:

a first end;

said first end being disposed adjacent to said broad flange;

said first end comprising a first web edge flange;

said first web edge flange being disposed substantially parallel to said broad flange; and

said first web edge flange comprising means for attaching said first web to said broad flange; and said second web comprising:

a second end;

said second end being disposed adjacent to said broad flange;

said second end comprising a second web edge flange;

said second web edge flange being disposed substantially parallel to said broad flange; and

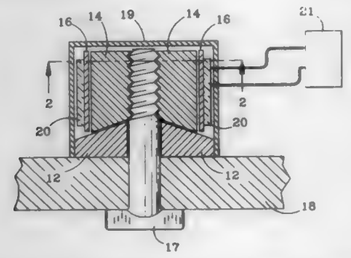
said second web edge flange comprising means for attaching said second web to said broad flange.

5,722,709

SEPARATION DEVICE USING A SHAPE MEMORY ALLOY RETAINER

Bradley K. Lortz, Rosemead, and Allan Tang, Torrance, both of Calif., assignors to Hughes Electronics, Los Angeles, Calif.

Filed Oct. 30, 1996, Ser. No. 738,451
Int. Cl.[6] F03G *7/06*
U.S. Cl. 294—86.4 **23 Claims**



1. An apparatus for releasably securing a workpiece, comprising:

a segmented securing device having a plurality of segments mounted in a movable relationship such that when moved together said segments secure a workpiece and when moved apart said segments release the workpiece, and

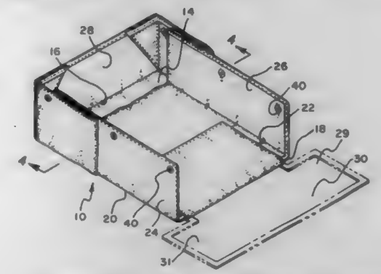
a retainer having constricted and expanded states, said retainer in its constricted state capturing said segments to secure the workpiece, and in its expanded state allowing said segments to move apart to release the workpiece, said retainer returning to its expanded state from its constricted state when heated to a restoration temperature.

5,722,710

EXPANDABLE PROTECTIVE LINER FOR VEHICLES

Robert J. Falciani, 9700 Ventnor Ave., Margate, N.J. 08402

Filed Aug. 28, 1996, Ser. No. 704,099
Int. Cl.[6] B60R *13/01*
U.S. Cl. 290—39.1 **13 Claims**



1. An expandable protective liner for protecting a rear cargo area of a vehicle defined by a floor, a pair of opposing side wall portions, a tail gate portion, and a seat back portion, said liner comprising:

a planar member having a floor portion with a front end, a rear end and two sides, said planar member being adapted to cover said floor of said rear cargo area;

a pair of side panels, each of said side panels extending from a corresponding one of said sides of said floor portion, each of said side panels being adapted to cover a corresponding one of said wall portions of said rear cargo area, said floor portion and said side panels having a substantially equivalent length;

a front panel interconnected to and extending upwardly from said front end of said floor portion of said planar member, said front panel being adapted to cover said seat back portion of said rear cargo area;

a rear panel extending from said rear end of said floor portion of said planar member, said rear panel being adapted to cover said tail gate portion of said rear cargo area;

at least two parallel spaced apart fold lines of reduced thickness located across said side panels and said floor portion of said planar member, each of said fold lines being spaced from and being located rearwardly of said upwardly extending front panel for allowing said side panels and said floor portion of said planar member to be partially folded over themselves in order to adjust the length of the same without affecting said front panel, and

means for releasably securing said expandable liner in said rear cargo area.

5,722,711

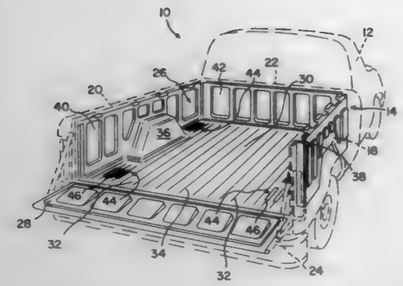
GRIP ZONE BEDLINER

Mark K. German, 1740 Lexington Ave., Uniontown, Pa. 15401

Filed Oct. 3, 1996, Ser. No. 725,356
Int. Cl.[6] B60R *13/01*
U.S. Cl. 296—39.2 **25 Claims**

1. A bedliner for a vehicle cargo bed having a front wall, a back wall, right and left sides, and a bottom surface, comprising,

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a non-grip floor fabricated of a polymeric material substantially covering the bottom surface of the cargo bed,

said non-grip polymeric material having a coefficient of friction suitable for allowing articles placed on said floor to be easily moved,

said floor having right and left edges, a front end, and a back end forming four corners located along said left and right edges adjacent said front and back ends,

a plurality of friction strips having a coefficient of friction higher than the coefficient of friction of said non-grip polymeric material for frictionally restraining articles placed on said friction strips,

said friction strips being positioned on said floor in preselected positions to form a plurality of grip zones separated from one another and located on said floor to facilitate movement and retention of cargo placed on said floor, and

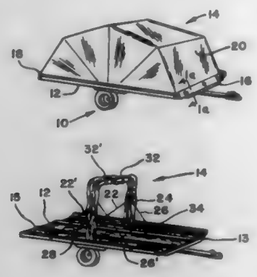
said friction strips being securely connected to said floor.

5,722,712

TRAILER DECK COVER

Randall Paul Pollen, 1237 E. 900 N., Milford, Ind. 46542

Filed Jan. 2, 1996, Ser. No. 582,112
Int. Cl.[6] B60P *7/02*
U.S. Cl. 296—100 6 Claims



1. A deck cover for a trailer comprising:

first and second U-shaped brackets fixed to a deck of the trailer;

a first frame having first and second side legs joined together with a center member, said first leg being connected to said first U-shaped bracket and said second leg being secured to said second U-shaped bracket;

a second frame having first and second side legs joined together with a center member, said first leg being connected to said first U-shaped bracket and said second leg being secured to said second U-shaped bracket, said first and second frames and said first and second U-shaped brackets defining a rectangle when positioned in a horizontal position on said deck;

a third frame having first and second side legs joined together with a center member, said first leg being connect to said first U-shaped bracket and said second leg being connected to said second U-shaped bracket;

a tarp having a first pocket located along a front edge, a second pocket located along a rear edge and a third pocket located at substantially a midpoint between the first and second pockets, said first pocket having a first flap and said second pocket having a second flap,

zipper means associated with first, second and third pockets whereby said center member of said first frame is easily positioned in said first pocket, said center member of said second frame is easily positioned in said second pocket, said center member of said third frame is easily positioned in said third pocket to secure the tarp to said first, second and third frames;

tab means having first and second strips connected to said tarp which are joined together to reinforce and assist said zipper means in retaining said center members in said first, second and third pockets;

first and second straps attached to said first and second frames, said first and second straps being connected to said deck to hold said first, second and third frames with the tarp attached thereto in a vertical position with respect to said deck and allow easy access to said deck; and

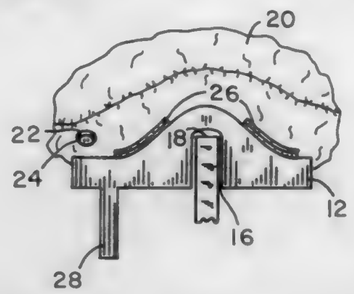
fastener means for connecting first and second projections extending from said center members of said first and second frames to said deck for maintaining said first and second frames in a horizontal position to form a canopy over said deck and protect any cargo carried by the trailer, said first and second flaps extending from said tarp to protect said fastener means from the environment.

5,722,713

VEHICLE ARM REST

Cathy D. Santa Cruz, 401 Canyon Way #43, Sparks, Nev. 89434, and Andrew R. Hope, P.O. Box 1177, Captain Cook, Hi. 96704

Filed Jul. 12, 1995, Ser. No. 501,814
Int. Cl.[6] B60J *9/00*
U.S. Cl. 296—153 5 Claims



1. An arm rest for use with a vehicle door, said door having a window, a window sill defining a slot adjacent to said window, a door panel disposed below said window sill and glass having at least one exposed edge, said arm rest comprising: an integrally formed support structure having a top portion and a bottom portion, an integrally formed groove extending along the complete axial length of said bottom portion, said groove being positionable over said exposed edge, an integrally formed downwardly extending projection along said complete axial length of said bottom portion, said groove and said projection being separate and spaced apart, said projection being positionable within said slot, a moldable bag having ergonomic qualities, said bag being filled with particulate matter and said top portion being affixed to said bag,

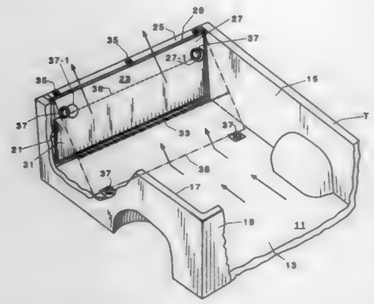
whereby, said arm rest assumes a first position of choice when said groove is positioned over said exposed edge and said arm rest assumes a second position of choice when said projection is positioned within said slot.

5,722,714

WIND DISPERSION APPARATUS FOR PICKUP TRUCKS

Ivan Vallerand, 46 Lakeview Ave., Waltham, Mass. 02154

Filed Oct. 26, 1994, Ser. No. 329,208
Int. Cl.[6] B62D *35/00*
U.S. Cl. 296—180.1 2 Claims



1. A wind deflector for dispersing the wind out of the truck bed of an open top pickup truck during movement thereof, the truck bed including a floor, a pair of spaced apart sidewalls, a front wall and a tailgate, said wind deflector comprising:

a. a top plate,

b. means on said top plate for securing the top plate to the tailgate,

c. a first panel hingedly connected to the top plate,

d. a second panel hingedly connected to said first panel, and

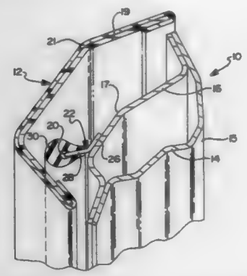
e. means for removably securing said second panel to either said tailgate or floor of said truck bed.

5,722,715

ENERGY ABSORBING AUTOMOTIVE VEHICLE BODY STRUCTURE

Rasik N. Patel, Canton; Guy Allen Breckenridge, Westland, and Saeed David Barbat, Farmington Hills, all of Mich., assignors to Ford Global Technologies, Inc., Dearborn, Mich.

Filed Jan. 23, 1997, Ser. No. 786,943
Int. Cl.[6] B60R *21/04*
U.S. Cl. 296—189 20 Claims



1. An automotive vehicle body structure comprising:

a structural member which forms a load-bearing portion of a vehicle, said structural member presenting an edge extending generally toward an interior of the vehicle;

a trim component mounted to said structural member and covering said edge; and

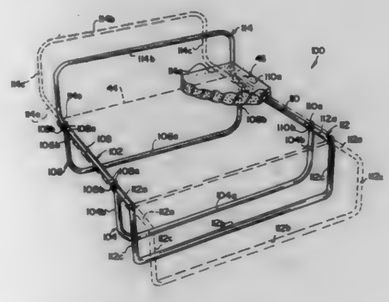
a high density elastic sleeve mounted to said edge and spaced from, but adjacent to, said trim component, said high density elastic sleeve having a bulbous shape and wherein said edge and said high density elastic sleeve are deformable in response to a force acting thereon to absorb and dissipate the energy generated by the force.

5,722,716

CONVERTIBLE FURNITURE FRAME

David L. Thomas, 18733 Briarwood Dr., Hagerstown, Md. 21742, and Mark D. Thomas, 13302 Clapper Rd., Hagerstown, Md. 21742

Continuation-in-part of Ser. No. 454,672, May 31, 1995, abandoned. This application Oct. 18, 1996, Ser. No. 734,013
Int. Cl.[6] A47C *13/00*
U.S. Cl. 297—118 22 Claims



1. A convertible furniture frame comprising:

a pair of side frames which include opposed separated pairs of vertical and horizontal tubular members joined to one another;

at least one cross-support member joined to and separating said pair of side flames; and

at least one pair of L-shaped leg members each having a first leg section and a second leg section which is shorter than said first leg section; wherein

said first leg section of said pair of L-shaped leg members is telescopically inserted into a respective one of said vertical and horizontal tubular members of said side frames such that said first leg section is positioned in one of a vertical and horizontal orientation, with said second leg section thereof being in one of a horizontal and vertical orientation, respectively, thereby to provide a desired furniture configuration.

5,722,717

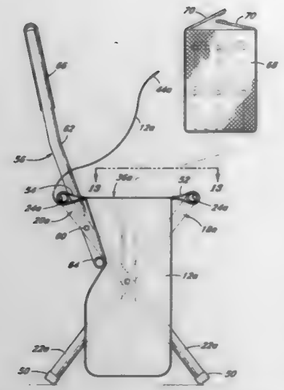
PORTABLE SEAT WITH STORAGE COMPARTMENT

Randy C. Rettenberger, 2059 Sea Cove La., Costa Mesa, Calif. 92627

Filed Mar. 8, 1996, Ser. No. 612,746
Int. Cl.[6] A47C *7/62*
U.S. Cl. 297—188.1 26 Claims

1. A portable seat comprising a collapsible frame which is movable between a collapsed position and an open position, said frame including a first support and a second support which define a seat plane with the frame in the open position, a container being supported by said first and second supports and depending into a space below said seat plane, said container having an upper opening accessible from above said seat plane, the opening being generally coextensive with a peripheral shape of the container just below the seat plane, and a seat cover attached to each support and positioned to lie generally within said seat plane and to cover at least a portion of said upper opening of said container, said seat cover being able to fold between and below the supports with the frame in the collapsed position and being releasably attached to at

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least one of the supports so as to be detached from the one support and moved toward the other support to expose generally the entire upper opening of the container.

5,722,718

SEAT MOUNTING ASSEMBLY

John Scott Still, and Jerry N. Shuler, both of Fort Collins, Colo., assignors to Catamount Cycles II LLC

Filed Sep. 4, 1996, Ser. No. 707,370
Int. Cl.[6] B62J 1/10
U.S. Cl. 297—215.15 **26 Claims**



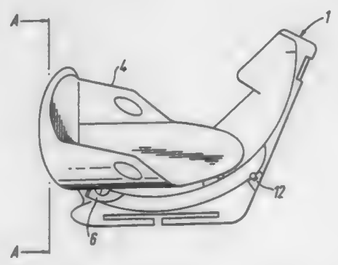
1. A bicycle seat mounting assembly comprising:
a base having a first bearing surface,
a cradle for supporting a bicycle seat above said base, said cradle having a second bearing surface movable on said first bearing surface through a horizontal position and range of tilt angles,
first clamping means to releasably lock said cradle to said base at a horizontal position and a selected tilt angle, said first clamping means comprising a first fastener that tightens to lock said cradle to said base and releases to allow said cradle to move relative to said base,
a second clamping means coaxial with and operable independently of said first clamping means to releasably lock a bicycle seat, said second clamping means comprising a second fastener extending upwardly through said first fastener, said second fastener tightens to lock a bicycle seat to said cradle and releases to allow said seat to move relative to said cradle.

5,722,719

CHILD'S SEAT FOR MOTOR VEHICLES

Geir O. Glomstad, Biri, Norway, assignor to HTS Hans Torgersen & Sonn as, Kroderen, Norway

PCT No. PCT/NO94/00082, § 371 Date Jan. 19, 1996, § 102(e) Date Jan. 19, 1996, PCT Pub. No. WO94/25306, PCT Pub. Date Nov. 10, 1994
PCT Filed May 3, 1994, Ser. No. 545,582
Claims priority, application Norway, May 5, 1993, 931643
Int. Cl.[6] B60N 2/42
U.S. Cl. 297—216.11 **6 Claims**



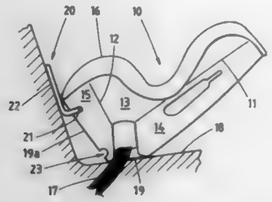
1. A child's seat for use in a vehicle, said child's seat comprising:
a frame member,
a seat component longitudinally movable between a first position and a second position on said frame member, said seat component being releasably secured in the first position and released from the first position when a specific value for kinetic energy is reached to enable a movement of the seat component to and retention at the second position,
said frame member being divided into a lower section for mounting in the vehicle and an upper section supporting the seat component, the upper section and the lower section having mutually facing convex contact surfaces and including a guide track for movement of the upper and lower sections in relation to each other,
a weight located between the convex contact surfaces for movement between the first and the second position when the specific value for kinetic energy is reached,
first and second guide pieces moving in the guide track between the upper section and the lower section of the frame member for movement of the seat component between the first and the second position,
the weight being releasably secured in the first position and being releasably secured in the second position upon traveling to the second position, and
buffers located in the guide track to check the kinetic energy of the seat component when the seat component is released from the first position and moved to retention in the second position.

5,722,720

CHILD SAFETY SEAT WITH AN ANTI-REBOUND SUPPORT

Michael Andrew Lumley, Sunshine, Australia, assignor to Britax Child-Care Products Pty Ltd, Victoria, Australia

Filed Jun. 13, 1996, Ser. No. 666,893
Claims priority, application Australia, Jun. 29, 1995, PN3865
Int. Cl.[6] B60N 2/28
U.S. Cl. 297—216.11 **15 Claims**



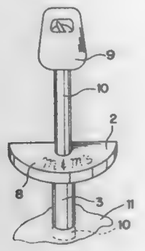
1. A child safety seat, having rebound protection, for use on a vehicle seat, said child safety seat comprising:
a safety seat portion;
a safety seat back rest portion extending from a rear edge of said safety seat portion;
at least one base surface that supports said safety seat when placed on a generally horizontal surface;
an anti-rebound support; and
coupling means coupling said anti-rebound support to said safety seat so that said anti-rebound support is movable between a first position where said anti-rebound support extends past an edge of the safety seat portion opposite to said rear edge, when said child safety seat is in a rearward facing position, and a second position where said anti-rebound support is stowed beneath said seat portion so that said anti-rebound support is clear of said base surface and any surface that said base surface rests upon, when said safety seat is supported by said base surface, to facilitate use of said child safety seat in a forward facing position.

5,722,721

POLE ADVERTISING SEAT

William W. Batoff; David L. Auspitz, and Alan L. Levine, all of One Penn Center #1805, 1617 John F. Kennedy Blvd., Philadelphia, Pa. 19103

Filed Nov. 22, 1996, Ser. No. 755,344
Int. Cl.[6] A47C 9/00
U.S. Cl. 297—217.1 **3 Claims**



1. A seat in combination with a vertical support comprising:
said vertical support having a top and a bottom portion and a vertical, longitudinal axis,
said bottom portion of said vertical support being attached to a supporting surface,
said seat comprising a horizontal support having a top surface and a bottom surface,
said horizontal support having only a single aperture extending therethrough,
said horizontal support having means for attachment to said vertical support,
said top and bottom surfaces of said seat extending perpendicular to said longitudinal axis of said vertical support,
said means for attachment to said vertical support comprising a hollow sleeve fixedly positioned within said single aperture,
said sleeve extending from said top surface to said bottom surface of said seat, and then beyond said bottom surface,
said sleeve having a top and a bottom surface,
said bottom surface of said sleeve engaging said supporting surface when said sleeve is engaged with said vertical support,
whereby said sleeve can be passed over said vertical support until said bottom surface of said sleeve rests on said supporting surface and said sleeve will thereby support said horizontal support.

5,722,722

VEHICLE SEAT ENERGY ABSORBER

Andrew J. Massara, Vargön, Sweden, assignor to Lear Corporation, Southfield, Mich.

Filed Jan. 14, 1997, Ser. No. 782,404
Int. Cl.[6] B60N 2/42
U.S. Cl. 297—216.13 **17 Claims**



1. A vehicle seat assembly, comprising:
a seat track component;
a seat back component pivotally connected with respect to the seat track component;
a recliner mechanism secured between the seat back component and seat track component for adjusting the angle of the seat back component with respect to the seat track component; and
a damper mechanism secured between the seat back component and seat track component;
wherein the recliner mechanism is disengageable from one of the seat components in a high energy impact, thereby allowing the damper mechanism to dissipate energy as the seat back component pivots with respect to the seat track component.

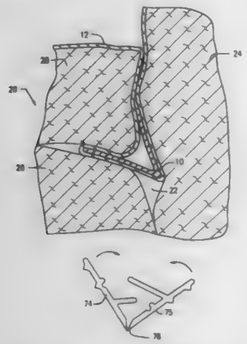
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5,722,723

STABILIZING DEVICE FOR SLIPCOVERS

Paula Riley, New York, and Kenneth V. Stevens, Brooklyn, both of N.Y., assignors to Presicent Partners, LP, New York, N.Y.

Continuation-in-part of Ser. No. 270,057, Jul. 1, 1994, Pat. No. 5,547,249. This application Feb. 1, 1996, Ser. No. 595,235
Claims priority, application WIPO, Jan. 8, 1996, WO-96/01063
Int. Cl.[6] A44B *21/00*
U.S. Cl. 297—228.13 **12 Claims**



1. A combination with a piece of upholstered furniture, for stabilizing a slipcover to the furniture, comprising:
a piece of upholstered furniture having an elongated crease defined between unstructured and flexible walls;
a one-piece elongated member made of resilient material and having a pair of resilient wings connected to each other at an elongated apex, each wing having a width between the apex and an outer edge of the wing which is small compared to a length of the member in a direction of elongation of the member, the member having a compressed position with the wings pressed toward each other for insertion into the crease, and an expanded position with the wings resiliently expanded in the crease, said apex comprising a live hinge between the wings for bending to form the apex and for moving the wings into a V-shaped configuration corresponding to the expanded position;
a stop projection extending from an inner surface of one of the wings toward the other of the wings for engaging the other wing for setting a spacing between the wings corresponding to the expanded position; and
a slipcover having a portion wrapped around the member in the crease, the expanded position of the member retaining the member and wrapped portion of the slipcover in the crease by resiliently wedging the wings against the unstructured walls in the crease.

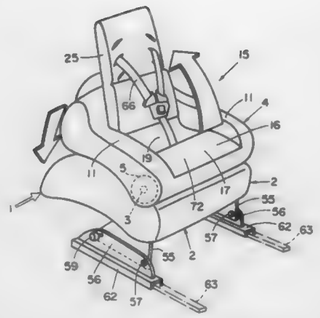
5,722,724

VEHICLE SEAT WITH A RETRACTABLE SUB VEHICLE SEAT

Yasuchika Takei; Masami Yoshida, and Tomomi Shouji, all of Tochigi-ken, Japan, assignors to Tokyo Seat Co., Ltd., Saitama-ken, Japan

Filed Oct. 23, 1996, Ser. No. 731,988
Claims priority, application Japan, Oct. 24, 1995, 7-298976
Int. Cl.[6] B60N *2/30*
U.S. Cl. 297—238 **11 Claims**

1. A vehicle seat with a retractable sub vehicle seat, comprising:
a main seat portion attached to a vehicle body;
a main backrest rotatably attached to the main seat portion;
said retractable sub vehicle seat having a recess formed on a rear side of the main backrest for receiving buttocks of a passenger and a sub backrest rotatably attached to the main backrest, said sub backrest being displaceable between a retracted position in which the sub backrest is substantially in parallel with the main backrest and is accommodated within the recess and an upright position in which the sub backrest is substantially perpendicular to the main backrest;
a locking mechanism for holding the sub backrest in the retracted position or the upright position;
wherein said main backrest has a frame assembly rotatably attached to the main seat portion, a front cushion section attached to a front side of the frame assembly for supporting a back of a passenger who sits on the main seat portion, and a rear cushion section attached to a rear side of the frame assembly, said rear cushion section being positioned in a bottom of the recess for supporting the buttocks of the passenger who sits on the recess;
wherein a supporting wall engages a rear surface of the sub backrest to support the sub backrest when the sub backrest is displaced into the upright position, said supporting wall being formed on a peripheral wall of the recess.

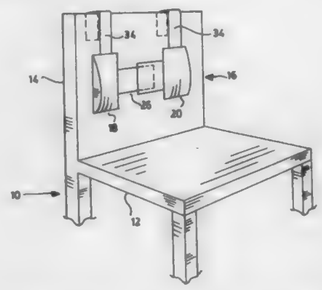


5,722,725

LUMBAR SUPPORT

Kevin J. McNaughton, North York, Canada, assignor to Ontario Inc., North York, Canada

Filed Apr. 25, 1996, Ser. No. 637,965
Int. Cl.[6] A47C *7/42*
U.S. Cl. 297—284.5 **17 Claims**



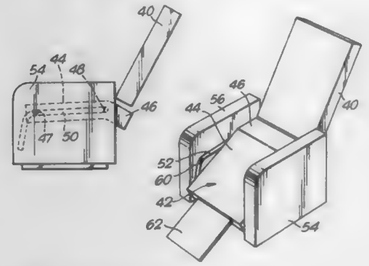
1. A lumbar support, for supporting the lumbar region of a seated person, said support having a pair of laterally spaced contoured cushions, a strap extending between said cushions and a retaining device to retain said support on an associated seat back, said strap being adjustable to vary the spacing between said cushions and, when adjusted, inextensible to inhibit relative lateral motion in a direction to increase the spacing between said cushions, wherein each of said cushions have:
top and bottom ends and inner and outer sides;
a convex, outwardly directed surface which comprises a first curve extending between said top and bottom ends;
said first curve having an apex proximate to said bottom end and at approximately ⅓ the overall length of said cushion for supporting the lumbar region in a saggital plane.

5,722,726

PASSENGER SEAT

James Akira Matsumiya, Gerrards Cross, England, assignor to Britax Rumbold Limited, Warwick, England

Filed Jan. 24, 1996, Ser. No. 590,628
Claims priority, application United Kingdom, Jan. 27, 1995, 9501603; Feb. 21, 1995, 9503329
Int. Cl.[6] A47C *1/02*; B60N *2/02*
U.S. Cl. 297—322 **3 Claims**



1. A vehicle seat comprising:
a base frame;
a seat back mounted on the base frame for angular movement between a substantially upright position and a reclined position;
a seat pan comprising a main portion having an upper surface and a rear portion having an upper surface, the rear portion being rigidly fixed to a rear edge of the main portion so that a rear edge of its upper surface is lower than the main portion upper surface when the main portion upper surface is horizontal; and
seat pan mounting means supporting the seat pan on the base frame and for permitting change in orientation of the main portion between a normal substantially horizontal position in which the upper surface of the main portion is horizontal and the rear portion is stowed under the seat back, and a position in which the upper surface of the rear portion is horizontal and is located in front of the seat back.

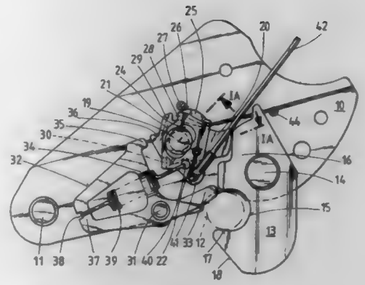
5,722,727

ARTICULATED FITTING FOR VEHICLE SEATS, IN PARTICULAR MOTOR VEHICLE SEATS

Hermann Unckrich, Alsenz, Germany, assignor to Keiper Recaro GmbH & Co., Remscheid, Germany

Filed Aug. 7, 1996, Ser. No. 695,164
Claims priority, application Germany, Aug. 23, 1995, 195 31 018.7
Int. Cl.[6] B60N *2/10*
U.S. Cl. 297—336 **7 Claims**

1. In an articulated fitting for vehicle seats, especially motor vehicle seats, having an articulated part which is swivelable with a backrest and a stationary articulated part, wherein the stationary articulated part is connected, by its front end remote of the articulated fitting, with a seat part of the vehicle seat so as to be rotatable via a swivel shaft, while its rear end region cooperates with a stop which is fixed at the seat part, and a catch hook provided with a hook jaw is swivelably articulated at the stationary articulated part, a locking arrangement being associated with the catch hook, said locking arrangement having an actuating lever which is supported at the stationary articulated part so as to be rotatable and which is loaded by a spring element in the locking direction, said actuating lever communicating with a locking cam which secures the catch hook in its locking position in which the jaw of the hook engages behind the stop in different regions thereof, and, in the locking position, a catch lever with a control arm contacting the stop is held under pretensioning by the spring element which acts upon the actuating lever in the locking direction, and, in the release position of the catch hook, the actuating lever is held by the catch lever in order to maintain this release position in that a catch arm of the catch lever engages via a catch projection in a recess of the locking cam, an improvement comprising that:
said locking cam being swivelably supported on a pin which is held at the stationary articulated part;
said locking cam supporting the actuating lever on an axle stub, which is situated on the actuating lever;
said actuating lever being a switching plate;
said axle stub being arranged at a distance radially from said pin;
wherein said switching plate, having an elongated hole which is curved around the axle stub, engages around said pin, which is fixed at the articulated part, and contacts, via a support cam situated on the switching plate, a support pin;
said support pin being fixed with respect to the articulated part to swivel the switching plate around the axle stub via contact with the support cam;
a driver face of the switching plate adapted to contact a release projection of the locking cam in order to disengage said locking cam from said catch hook when the switching plate swivels; and
said switching plate having a locking driver for the locking cam in order to transfer the latter into the position in which the catch hook is secured in its locking position.



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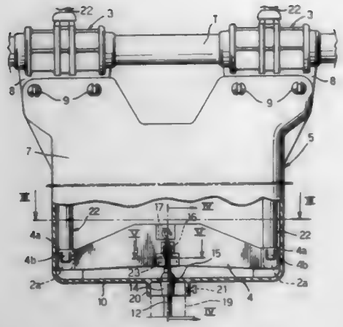
HEADREST FOR MOTOR VEHICLE SEATS

Emilio De Filippo, Bruzolo, Italy, assignor to Gestind-M.B. "Manifattura di Brusolo" S.p.A., Bruzolo, Italy

Filed Dec. 12, 1996, Ser. No. 767,041
Claims priority, application Italy, Jul. 16, 1996, TO96A0610
Int. Cl.[6] A47C *1/10*
U.S. Cl. 297—408 **6 Claims**

6. A headrest for a motor vehicle seat having a backrest with a bearing structure, comprising a resilient body, a pair of parallel support rods having respective lower ends projecting from said resilient body, and a pair of tubular guide elements to be rigidly secured to said structure of the seat backrest and through which said support rods are slidably mounted so as to allow height adjustment of said resilient body, a transverse member rigidly connecting said lower ends of the support rods, remote control operating means operatively connected to said transverse member to perform raising and lowering thereof, and a box-like protection body secured to said pair of said tubular guide elements and housing said support rods and said transverse member, said box-like protection body having a bottom wall supporting said operating means, wherein said tubular guide elements are formed by

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moulded plastic material bushes and said box-like body is formed by a pair of moulded plastic material half-shells secured to each other and to said bushes to snap-fit coupling means.

5,722,729

MULTI-LAYER HIGH IMPACT SEATING

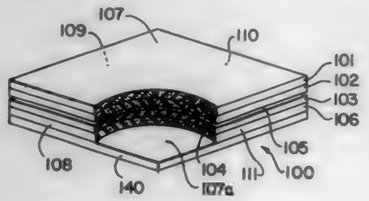
Brian D. Carilli, 2150 Columbia Ave., Palo Alto, Calif. 94306

PCT No. PCT/US95/06736, § 371 Date Dec. 30, 1996, § 102(e) Date Dec. 30, 1996, PCT Pub. No. WO96/37129, PCT Pub. Date Nov. 28, 1996

Continuation-in-part of Ser. No. 984,089, Nov. 30, 1992, Pat. No. 5,269,590, which is a continuation-in-part of Ser. No. 840,592, Feb. 19, 1992, abandoned, which is a continuation of Ser. No. 673,242, Mar. 19, 1991, abandoned, which is a continuation of Ser. No. 525,920, May 21, 1990, abandoned. This PCT application May 26, 1995, Ser. No. 765,643

Int. Cl.[6] A47C *7/02*

U.S. Cl. 297—452.55 5 Claims



1. A multi-layer seat which protects a person sitting on the seat in a moving device from impacts associated with vertical movements of the seat in the device, the seat comprising:

a seat base coupled to said moving device;

a first cushion;

a second cushion which is located vertically below said first cushion and which is positioned on top of said seat base; and

a relatively rigid member having substantially uniform rigidity which (A) substantially separates said first and second cushions, (B) transmits vertical thrust to said cushions, and (C) moves vertically as a whole as said second cushion compresses;

said first cushion being formed of a foam rubber material which partially absorbs a first downward vertical force applied to said first cushion from above by internal lateral displacement and partially transmits downward a second vertical downward force to said relatively rigid member,

said relatively rigid member transmitting a third vertically downward force from said first cushion to said second cushion,

said second cushion being formed of a foam rubber material of substantially unitary density having an internal lateral displacement of between 30 and 80 characterized by the fact that said third vertically downward force applied to said second cushion by said relatively rigid member is absorbed by internal lateral displacement of said foam rubber material in said second cushion;

the vertical thicknesses of said first and second cushions being substantially greater than the vertical thickness of said relatively rigid member;

said relatively rigid member having transverse dimensions including length and width dimensions, said first and second cushions having substantially identical transverse dimensions, said relatively rigid member having at least one transverse dimension generally less than the corresponding transverse dimensions of said first and second cushions, said relatively rigid member having a first outer edge, said first and second cushions having at least one common second outer edge and at least one indentation between said one common second outer edge of said first and second cushions and the corresponding first outer edge of said relatively rigid member;

said corresponding first outer edge of said relatively rigid member being indented relative to said common second outer edge.

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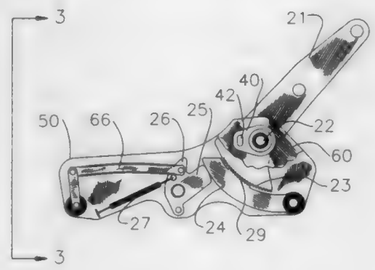
REINFORCEMENT MEMBER FOR PIVOTABLE ASSEMBLY

Thomas J. McKernan, Grand Rapids, Mich., assignor to Excel Industries, Inc., Elkhart, Ind.

Filed Oct. 29, 1996, Ser. No. 739,338

Int. Cl.[6] A47C *31/00*; B60N *2/44*

U.S. Cl. 297—463.1 17 Claims



1. A pivoting assembly comprising, in combination:

support bracket means for mounting other componentry of the pivoting assembly, comprising first and second support brackets, and having a stop formed on at least one of the first and second support brackets;

a pivot non-adjustably rigidly fixed to the first support bracket;

a pivoting member, pivotable around the pivot; and

a reinforcement member fixed non-rotationally to the pivot, wherein the stop of the support bracket means and the reinforcement member are fixed in contact at a location remote from the pivot.

5,722,731

VEHICLE SEAT AND SEAT BELT ARRANGEMENT

Chung L. Chang, 22834 Lazy Trail Rd., Diamond Bar, Calif. 91765

Filed Oct. 25, 1995, Ser. No. 548,207

Int. Cl.[6] A47C *31/00*

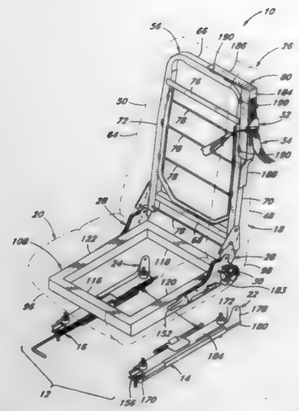
U.S. Cl. 297—473 23 Claims

1. A vehicle seat and seat belt assembly, comprising:

a first track having a front and a rear;

a second track having a front and a rear;

a platform slidable relative to said first track and said second track, comprising:



a seat bottom defining an upper surface, a first side, a second side, a front and a back;

a first bracket fixed relative to said seat bottom and mounted on and slidable with respect to said first track;

a second bracket fixed relative to said seat bottom and mounted on and slidable with respect to said second track; and

a seat back having a top end, a bottom end, a first side, a second side, a front face and a back face, said seat back mounted on said seat bottom;

a first layer of upholstery, said first layer covering at least said first side, said second side and said front face of said seat back and defining a first interior envelope;

a second layer of upholstery, said second layer covering at least said first side, said second side and said upper surface of said seat bottom and defining a second interior envelope;

a belt guide mounted to said seat back external to said first interior envelope;

a seat belt retractor mounted on said platform beneath said belt guide;

a seat belt having a first end connected to said retractor and a second end secured to said platform proximate said first track, said seat belt extending upward from said retractor along said first side of said seat back and through said belt guide;

a first latch member slidably secured to said seat belt between said belt guide and said second end; and

a second latch member secured to said platform proximate said second track, one of said first latch member and said second latch member being sized and shaped to retain the other of said first latch member and said second latch member, further comprising a first member fixed to said seat back and a second member, said first member and said second member sized and shaped to be movably retained by one another, said belt guide mounted on said second member, and wherein said first member is fixed to said first side of said seat back proximate said top end and one of said first member and said second member forms a series of stations extending between said top end and said bottom end of said seat back, further comprising a lock selectably preventing movement of said first member relative said second member.

5,722,732

SHOULDER BELT RETRACTOR WITH HEADREST SUPPORT

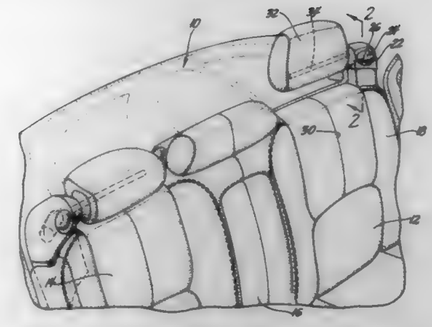
Michael John Haldenwanger, Brighton, Mich., assignor to General Motors Corporation, Detroit, Mich.

Filed Aug. 26, 1996, Ser. No. 703,251

Int. Cl.[6] B60R *21/00;22/34*

U.S. Cl. 297—483 5 Claims

1. In a vehicle shoulder belt retractor of the type having a belt reel rotatably supported between spaced apart sidewalls of a retractor housing, the improvement comprising:



a headrest support shaft attached to and extending between the spaced apart sidewalls of the retractor housing vertically above the belt reel and extending inboard from the retractor housing to support a headrest; and

a belt routing pulley rotatably mounted on the headset support shaft wherein, an end of the headrest support shaft extends completely through the belt routing pulley and between the sidewalls of the retractor housing and belt routing pulley receives a belt to guide the belt.

5,722,733

MOUNTING OF CUTTER PICKS

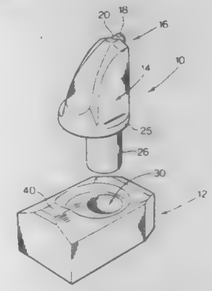
Klaus Tank, 9 Warbleton Ave., Esserwold, and Arthur Mark Kilfoil, 109 First Ave. Melville, both of Johannesburg, South Africa

Filed Jun. 27, 1996, Ser. No. 670,509

Claims priority, application South Africa, Jul. 5, 1995, 95/5389

Int. Cl.[6] E21C *35/18*

U.S. Cl. 299—108 7 Claims



4. A cutter pick comprising a pick body carrying a cutting insert which is exposed to perform a cutting action in a forward direction in use, the pick body having a base of circular cross-section and a shank of smaller circular cross-section depending from the base, the shank being eccentric with respect to the base in the forward direction.

5,722,734

RIM BRAKE DUST PROTECTING SYSTEM

Ted Bennick, Winchesster I, Oceanside, Calif. 92054

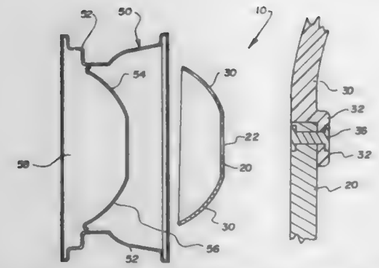
Filed Sep. 30, 1996, Ser. No. 723,390

Int. Cl.[6] B60B *7/04*

U.S. Cl. 301—37.1 4 Claims

1. A rim brake dust protecting system for use with a vehicle tire rim having a substantially planar central interior portion and a

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semi-spherical support member surronding said central interior portion, the semi-spherical support member of said tire rim having a convex interior surface for facing the hub of vehicle axle, said vehicle axle hub having a central wheel bearing housing and a number of lugs arranged in a circle pattern about said central bearing housing, said system comprising:

a central member comprising a round metal plate having a peripheral edge and being adapted to be mounted between the central interior portion of a tire rim and a vehicle axle hub; and

a concave arcuate rim member secured around the peripheral edge of the round metal plate of said central member, said arcuate rim member portion being adapted to fit adjacent to the convex interior rim surface of the semi-spherical support member

wherein said central member and said arcuate rim member comprise separate pieces secured together, said central member including a peripheral lip along the peripheral edge thereof overlapping a portion of said arcuate rim member, said central member being secured to said arcuate rim member by a plurality of fasteners passing through the peripheral lip of said central member and said arcuate rim member.

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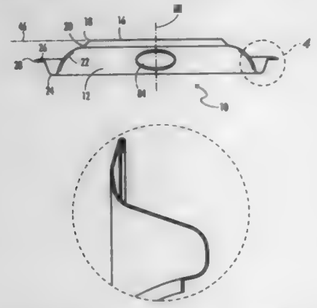
UNIVERSAL WHEEL TRIM ATTATCHMENT SYSTEM

James P. Wright; Timothy L. Bates; Kevin D. Nash; Barry Lynn Roberts, all of Cookeville, and John Davenport, Crossville, all of Tenn., assignors to Pheonix USA, Inc., Cookeville, Tenn.

Continuation of Ser. No. 602,508, Feb. 20, 1996, abandoned. This application Apr. 1, 1997, Ser. No. 834,688

Int. Cl.[6] B60B *7/06*

U.S. Cl. 301—37.37 **2 Claims**



1. A universal system for attaching a wheel liner to either a sixteen inch or sixteen and a half inch dual mount wheel having lugs and lug nuts, said wheel liner comprising:

a. a center piece;

b. a plateau integral to and surrounding said center piece having plural lug holes, said plateau forming an x-axis and perpendicular to a y-axis;

c. a first incline integral to and surrounding said plateau;

d. a ledge integral to and surrounding said first incline;

e. a second incline integral to and surrounding said ledge wherein said second incline is substantially 49.3 mm to 62 mm deep along said y-axis and has a radius of curvature of substantially 54.2 mm;

f. a valley integral to and surrounding said second incline having a radius of curvature of substantially 5 to 8 mm depending on section;

g. a ridge integral to and surrounding said valley being substantially 25 mm deep along said y-axis; and

h. a lip integral to an surrounding said ridge;

i. said plateau has an outside diameter of substantially 236.5 mm;

j. said first incline has an inside diameter of substantially 236.5 mm and an outside diameter of substantially 267 mm;

k. said first incline is substantially 12.7 mm deep along said y-axis;

l. said second incline has an inside diameter of substantially 267 mm and an outside diameter of substantially 370 mm;

m. said ridge has an inside diameter of substantially 377 mm and an outside diameter of substantially 405.4 mm; and

n. said lip has an inside diameter of substantially 405 mm and an outside diameter of substantially 445.5 mm.

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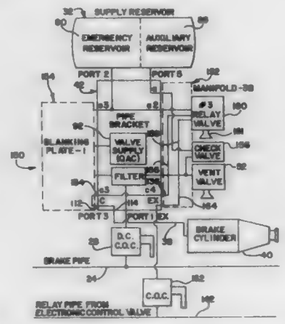
ELECTRONIC PNEUMATIC BRAKE SYSTEM

James M. Cook, Trona, Calif., assignor to Zeftron, Inc., Montgomery, Ill.

Filed Jul. 11, 1996, Ser. No. 678,320

Int. Cl.[6] B60T *11/26*

U.S. Cl. 303—15 **115 Claims**



1. An electronic pneumatic brake system for a train having a locomotive and a plurality of cars connected to said locomotive,

each car having an electronic pneumatic control valve and an electronic pneumatic controller connected to and operating said control valve,

a brake pipe on each car and the locomotive intercommunicating with each other,

air supply means in the locomotive for supplying air at desired levels of pressure to the brake pipes, an electronic head end unit in the locomotive, means for communicating between said head end unit and said controllers,

an auxiliary air reservoir and an emergency air reservoir on each car,

at least one brake cylinder on each car,

said control valve including:

means for connecting said auxiliary and emergency air reservoirs into a pneumatically combined air supply reservoir,

means connecting the brake pipe to the air supply reservoir to charge the supply reservoir and to maintain the air pressure in the supply reservoir at least to the level of the air pressure in the brake pipe,

a relay valve for selectively connecting said supply reservoir to said brake cylinder,

a pilot line connected to said relay valve,

an application valve for selectively supplying air pressure to the pilot line to pressurize the pilot line and actuate the relay valve to produce a braking application,

a release control valve for selectively exhausting air pressure from the pilot line to produce a release of the braking application,

and means for measuring the pressures in the brake pipe, supply reservoir, and the pilot line and/or the brake cylinder and for providing signals to the controller,

said controller including means for operating the application valve and the release control valve,

whereby said electronic pneumatic controllers and control valves respond to braking and release commands generated by said head end unit.

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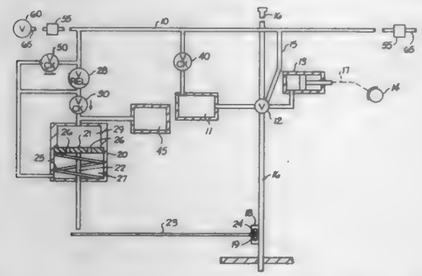
BRAKE RELEASE FOR RAILROAD CARS

David Cooper, 1113 Tamarron Pkwy., Smyrnia, Ga. 30080, and Charles Cooper, deceased, 504 D Pineview, late of Waycross, Ga. 31501, by Rosalind T. Cooper, executor

Filed Jan. 30, 1996, Ser. No. 593,882

Int. Cl.[6] B60T *15/02*

U.S. Cl. 303—68 **7 Claims**



1. In a brake system on a railroad car having a brake air line whose equalizing pressure is controlled from the train engine and a brake release valve operatively connected between said air line and brakes on said railroad car to hold the brakes released in response to air pressure in said air line and to apply the brakes when the air pressure in said air line is relieved and pressure responsive means operatively connected to said brake release valve to control the latter's operation; and valve means operatively connected to said pressure responsive means and operable in response to a variance of pressurization of said air brake line followed by relief of the pressure in said air brake line to actuate said pressure responsive means to operate said brake release valve to release the brakes, the improvement which comprises:

cylinder and piston unit having cylinder chambers on opposite sides of the piston; and said valve means comprises an intake check valve communicating with the cylinder chamber on one side of the piston and operable to permit pressurized flow in to the cylinder and to prevent pressurized flow out of the cylinder, and a normally closed valve connected between the air line and both said check valve and the cylinder chamber on the opposite side of the piston, said normally closed valve being operable to open in response to above normal pressurization of the said air line, whereby to apply air pressure to the cylinder chambers on both sides of the piston, an exhaust check valve to relieve the air pressure in the cylinder chamber on said opposite side of the piston when the air line pressure is relieved while said intake check valve traps the air pressure in the cylinder chamber on said one side of the piston and a second said check valve releases pressure on the opposite side of said piston in response to a pressure drop in said air brake line whereby the pressure unbalance on the piston moves the piston in a direction to operate said brake release valve to release the brakes.

5,722,738

HYDRAULIC BRAKE SYSTEM WITH BRAKE SLIP CONTROL AND TRACTION SLIP CONTROL

Erhard Beck, Weilburg; Hans-Dieter Reinartz, Frankfurt am Main, and Albrecht Otto, Hanau, all of Germany, assignors to ITT Automotive Europe GmbH, Frankfurt, Germany

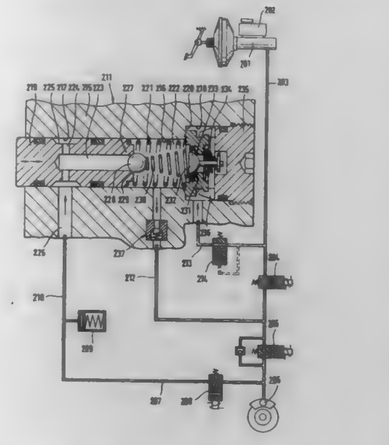
PCT No. PCT/EP94/02350, § 371 Dnte Apr. 15, 1996, § 102(e) Date Apr. 15, 1996, PCT Pub. No. WO95/03198, PCT Pub. Date Feb. 2, 1995

PCT Filed Jul. 16, 1994, Ser. No. 583,031

Claims priority, application Germany, Jul. 23, 1993, 43 24 689.3; Aug. 6, 1993, 43 26 389.5

Int. Cl.[6] B60T *8/34;8/48;* **B60K** *28/16*

U.S. Cl. 303—116.4 **7 Claims**



1. Hydraulic brake system with brake slip control and traction slip control, said system of the type including a master brake cylinder which is connected to a pressure fluid reservoir, at least one wheel brake cylinder associated with a driven wheel, a brake line from the master brake cylinder to the wheel brake cylinder, an inlet valve in the brake line, a low-pressure accumulator, a return line from the wheel brake cylinder to the low-pressure accumulator, an outlet valve in the return line, a self-priming pump, a pressure chamber in a housing, a cut-off valve in the brake line between the master brake cylinder and the inlet valve, a pressure line from the pressure chamber to the brake line between the cut-off valve and the inlet valve, a pressure valve between the pressure chamber and the pressure line, a first suction line between the low-accumulator and the pressure chamber, a second suction line between the pressure fluid reservoir and the pressure chamber, a change-over valve in the second suction line, comprising:

a first suction valve between the low-pressure accumulator and the pressure chamber, a second suction valve between the change-over valve and the pressure chamber, wherein said first and second suction valves are arranged in the pump housing.

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Patent Not Issued For This Number

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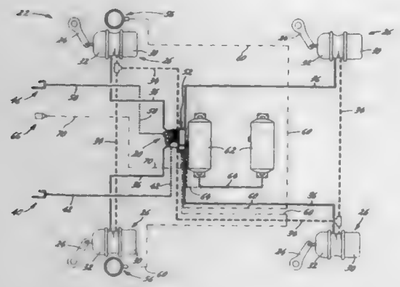
FULL FUNCTION SKID CONTROL BRAKING SYSTEM FOR VEHICLES

David G. Engelbert; Robert S. Taylor, and Steven D. Wallestad, all of Kansas City, Mo., assignors to Midland Brake, Inc., Kansas City, Mich.

Continuation of Ser. No. 427,371, Apr. 24, 1995, Pat. No. 5,577,814, which is a continuation of Ser. No. 252,931, Jun. 2, 1994, Pat. No. 5,409,303, which is a continuation-in-part of Ser. No. 78,139, Jun. 15, 1993, Pat. No. 5,425,572. This application Nov. 25, 1996, Ser. No. 758,195

Int. Cl.[6] B60T *8/32;13/00*

U.S. Cl. 303—118.1 19 Claims



1. A braking control assembly for actuating one or more brakes of a vehicle in response to a vehicle operator including a source of pressurized air fluidly coupled to said braking control assembly, a mechanism operable by the vehicle operator for providing brake actuation pressure when the vehicle operator actuates the mechanism and relieving air pressure when the vehicle operator deactuates the mechanism, a skid sensor providing skid condition signals, and one or more brake cylinders having one or more service brake chambers and one or more spring brake chambers in association with each of the brakes, said braking control assembly enclosed within a single housing and comprising:

a release valve connected to said spring brake chambers for permitting pressurized air to flow into said spring brake chambers when the air pressure in said spring brake chambers is relatively less than the air pressure in said braking control assembly and permitting air to flow out of said spring brake chambers of the brake cylinders when the air pressure in said braking control assembly is relatively less than the pressure in the spring brake chambers;

a relay valve comprising a housing portion, a movable flange separating a first control chamber and a second chamber, and a series of seals being opened and closed based upon movement of said movable flange, said movable flange actuating said series of seals to provide an open and a closed state, said open state permitting the service brake chambers to fluidly communicate through an exhaust port to atmosphere while preventing fluid communication with the source of pressurized air, said closed state permitting the service brake chambers to fluidly communicate with the source of pressurized air; wherein said movable flange moves in response to air pressure present in said first control chamber relative to the air pressure present in said second chamber; and

a control valve fluidly interposed between said relay valve and the mechanism operable by the vehicle operator which operates partially to control the air pressure within said first control chamber of said relay valve, said control valve acting to prevent an increase in pressure within said first control chamber of said relay valve in response to a first set of skid condition signals from the skid sensor and acting to exhaust the pressure within said first control chamber of said relay valve in response to a second set of skid condition signals from the skid sensor.

5,722,741

ELECTROHYDRAULIC PRESSURE CONTROL DEVICE

Helmut Steffes, Hattersheim, Germany, assignor to ITT Automotive Europe GmbH, Germany

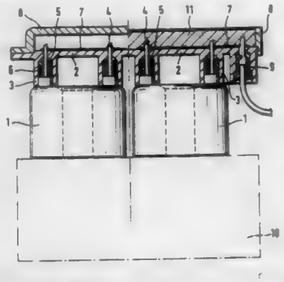
PCT No. PCT/EP94/01135, § 371 Date Oct. 30, 1995, § 102(e) Date Oct. 30, 1995, PCT Pub. No. WO94/25320, PCT Pub. Date Nov. 10, 1994

PCT Filed Apr. 13, 1994, Ser. No. 545,639

Claims priority, application Germany, Apr. 30, 1993, 43 14 312.1

Int. Cl.[6] B60T *8/36*

U.S. Cl. 303—119.2 7 Claims



1. Electrohydraulic pressure control device, comprising:

electromagnetically operable hydraulic valves arranged on a valve-accommodating member,

coils which project from the valve-accommodating member, the coils having electric contact elements on their parts projecting from the valve-accommodating member,

a cover which covers the projecting coil parts and the contact elements,

a carrier element for accommodating the coils which is arranged within the cover, wherein said carrier element includes projections formed on the bottom side of the carrier element, which bottom side faces the coils and wherein said projections substantially enclose said electric contact elements of said coils, and wherein the carrier element projections include cavities for accommodating adhesive material which establishes a connection with the projections by enclosing the contact elements in an operative manner.

5,722,742

ELECTROHYDRAULIC PRESSURE CONTROL MECHANISM

Hans-Dieter Reinartz, Frankfurt am Main; Dieter Dinkel, Eppstein/Ts, and Helmut Steffes, Hattersheim, all of Germany, assignors to ITT Automotive Europe GmbH, Germany

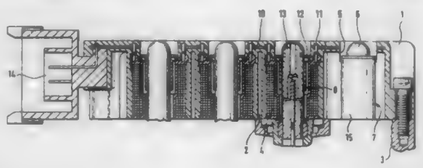
PCT No. PCT/EP94/02379, § 371 Date May 6, 1996, § 102(e) Date May 6, 1996, PCT Pub. No. WO95/03960, PCT Pub. Date Feb. 9, 1995

PCT Filed Jul. 20, 1994, Ser. No. 586,745

Claims priority, application Germany, Jul. 29, 1993, 43 25 410.1

Int. Cl.[6] B60T *13/66;8/36*

U.S. Cl. 303—119.2 7 Claims



1. Electrohydraulic control mechanism, of the type including electromagnetic, hydraulic valves arrayed on a valve housing

wherein the valves include coils, which in part overhang the valve housing, coil casings covering said coils, said overhanging coils equipped with contact elements, a molding box enclosing the coils and contact elements, comprising:

cavities formed in said molding box which fully extend from a first surface of said molding box to a second surface of said molding box, wherein said second surface of said molding box faces the valve housing, wherein said cavities form openings in said molding box, said openings being sufficiently large to accommodate the passage of said coils and coil casings therethrough to allow said coil casing to be easily attached to a valve dome.

5,722,743

TURN CONTROL APPARATUS FOR A VEHICLE

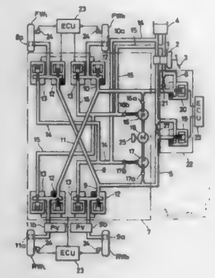
Yoshiaki Sano, Okazaki, Japan, assignor to Mitsubishi Jidosha Kogyo Kabushiki Kaisha, Tokyo, Japan

Filed Jun. 28, 1996, Ser. No. 672,938

Claims priority, application Japan, Jun. 30, 1995, 7-166405

Int. Cl.[6] B60T *8/32*

U.S. Cl. 303—146 5 Claims



1. A vehicle turn control apparatus including a hydraulic circuit through which a master cylinder connected to a brake pedal is connected with wheel brakes provided individually to wheels of a vehicle, one pump adapted to generate and supply a hydraulic pressure to the hydraulic circuit when actuated, and a hydraulic pressure control valve unit arranged in the hydraulic circuit so as to be located between the pump and the wheel brakes and adapted to adjust the hydraulic pressure generated by the pump, said control apparatus supplying the hydraulic pressure, generated by the pump and adjusted by means of the hydraulic pressure control valve unit, to at least one required wheel brake while a turn control request is being delivered, comprising:

hydraulic pressure control means for determining the turn control request based on an operating state and/or behavior of the vehicle and for controlling operations of the pump and the hydraulic pressure control valve unit; and

pump operation limiting means for limiting the operation of the pump, said pump operation limiting means allowing the operation of the pump only when the hydraulic pressure control valve unit is so operated as to increase the hydraulic pressure supplied from the pump to the at least one required wheel brake via the hydraulic circuit, while the turn control request is being delivered with the brake pedal depressed.

5,722,744

ROAD VEHICLE ELECTROHYDRAULIC BRAKE SYSTEM

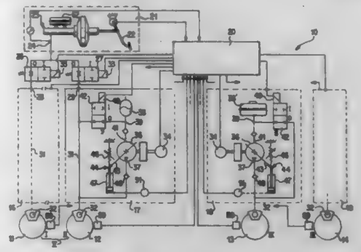
Walter Kupfer, Weinstadt, and Harry Troester, Tamm, both of Germany, assignors to Mercedes-Benz AG, Germany

Filed Jun. 26, 1996, Ser. No. 672,068

Claims priority, application Germany, Jun. 26, 1995, 195 23 108.2

Int. Cl.[6] B60T *8/48*

U.S. Cl. 303—189 20 Claims



1. Electrohydraulic brake system for a road vehicle, having wheel brakes in which each wheel brake is assigned a brake-pressure regulating element arranged to be actuatable by supplying drive signals to an electric motor and, together with the respective wheel brake comprises a wheel-brake circuit and, at least one electronic or electromechanical signal transmitter is configured to be actuatable by a vehicle driver to specify a required desired value of the retardation of the road vehicle and produces an electrical output signal correlated monotonically with at least one of the force and the stroke with which the vehicle driver actuates the transmitter, and an electronic control unit is provided which, from comparison of the desired-value input signals with actual-value signals characteristic of the vehicle retardation, produces actuating signals required for rapid matching of the actual value to the target desired value for the brake-pressure regulating elements wherein the brake-pressure regulating elements each comprise a piston pump configured as a reciprocating positive-displacement machine, with at least one piston, which executes filling and delivery strokes in a fixed phase relationship to a driving part of the pump which can be rotationally driven by the electric motor; an output of the pump per pump cycle is controllable in opposed monotonic correlation with pressure prevailing in the respective wheel brake such that the output decreases when the pressure increases; a maximum delivery volume per pump cycle which occurs within one revolution of the driving part is small relative to an output required to couple a maximum value of the brake pressure into the connected wheel brake and amounts to between 1/20 and 1/100 of the maximum output; each wheel brake is assigned a brake-fluid holding space into which brake fluid can be released in a metered manner via an electrically drivable valve arrangement; and the electrically drivable valve arrangement is configured to shut off the brakes from the associated brake-fluid holding spaces when the vehicle is stationary and the desired-value transmitter is actuated, and, when the desired-value input is reduced, to allow the metered outflow of brake fluid from the wheel brakes into the brake-fluid holding spaces.

5,722,745

TRACK-BELT FOR TRACK DRIVEN VEHICLES

Denis Courtemanche, Richmond, and Mario Bouchard, Sherbrooke, both of Canada, assignors to Centre de Recherches Camoplast Inc., Sherbrooke, Canada

Filed Feb. 28, 1995, Ser. No. 395,708

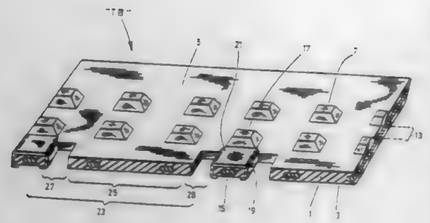
Claims priority, application Canada, Sep. 23, 1994, 2132807

Int. Cl.[6] B62D *55/24*

U.S. Cl. 305—168 15 Claims

1. In an endless track belt for vehicles moving on snow surfaces, said track belt comprising:

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a body made of an elastomeric material;

an outer surface for contact with the ground;

an inner surface provided with means for engagement with driving means and at least one endless pathway having a sliding surface contacting a corresponding slide rail of a slide rail suspension, said pathway being devoid from said means for engagment;

said endless sliding surface being provided with a plurality of slide clips that are spaced apart from each other by a segment of said endless sliding surface, said segment being divided in at least a first and a second distinct part, the first part being made of elastomeric material and the second part defining at least one cavity through the body;

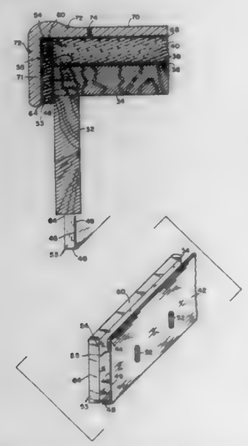
the improvement wherein the cavity through the body is to allow the introduction of snow between the slide rail and the first part and wherein the first part is of such size that friction with the slide rail will generate heat in a sufficient amount to melt the snow and maintain a lubricating film of water therebetween.

5,722,746

APPARATUS FOR SUPPORTING A TILE COUNTER CAP

Harold L. Hull, deceased, late of Sparks, Nev.; by Cathy D. Santa Cruz, Trustee, 401 Canyon Way, #43, Sparks, Nev. 89434; Eugene M. Peterson, deceased, late of Reno, Nev., and by Jacqueline Peterson, Administrator, 1405 Pass Dr., Reno, Nev. 89509

Filed Oct. 24, 1995, Ser. No. 547,284
Int. Cl.° A47B *96/18*
U.S. Cl. 312—140.3 4 Claims



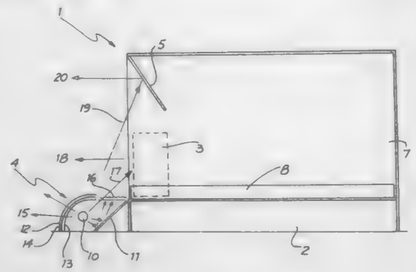
1. In a tile covered structure having a horizontal and vertical surface meeting to form a structure corner and having a plurality of tiles covering at least part of said horizontal surface, and a plurality of corner tiles each formed of substantially horizontal and vertical leg sections positioned at said corner, said tiles being secured to said structure by adhesive material between the tiles and said structure, the improvement comprising: a corner tile support strip attached between the vertical surface and the vertical leg sections of said corner tiles, said corner tile support strip comprising: a first elongated strip being a first main body screed which is substantially shaped to form a backward "L" having a short leg which forms a lip and a long leg, said long leg being substantially straight forming an elongated flat surface having an elongated top edge which is folded over upon itself forming an elongated hem, said flat surface, said hem and said lip each facing toward said vertical leg of said corner tile of said structure, and said screed having multiple nailing slots there through for receiving a fastener means therein for fixedly attaching said screed to said structure, and said corner tile support strip further including: an elongated rectangular stress barrier member having a first side and a tile-side surface, said first side conforming in size and shape to mate with both said hem and said elongated flat surface, and said first side being directly fixedly attached to said screed by caulking.

5,722,747

MERCHANDISING DISPLAY

Peter Baron, Waterloo, Australia, assignor to Australian Slatwall Industries Pty Ltd, Waterloo, Australia

Filed Feb. 7, 1996, Ser. No. 598,198
Claims priority, application Australia, Feb. 10, 1995, PN1057
Int. Cl.° A47B *81/00;97/00*
U.S. Cl. 312—223.5 13 Claims



1. An eye-level merchandising unit, comprising:

a stage for receiving a product, the stage having a front and a back;

a light source situated below and in front of the stage;

a first screen extending from the front of the stage above the light source and allowing illumination from the light source rearwardly and upwardly onto the stage;

a second screen positioned in front of the light source to allow forward illumination;

an overhead reflector placed above the front of the stage to reflect light from the light source in the forward direction; and

a second reflector provided between the light source and the front of the stage, and oriented in order to reflect light upwardly and rearwardly through the first screen onto the stage.

5,722,748

COMPUTER ENCLOSURE HAVING SIDE OPENING FOR REMOVABLE MEDIA

Robert Lajara, San Jose; Clifford Willis, Tracy, and Alan Lee Winick, San Jose, all of Calif., assignors to Sun Microsystems, Inc., Mountain View, Calif.

Filed Jul. 1, 1996, Ser. No. 671,311
Int. Cl.° A47B *47/00*
U.S. Cl. 312—265.6 5 Claims

1. An enclosure comprising a base comprising a bottom, an upstanding base front, a base rear and first and second upstanding



base sides, said first base side being formed with a base opening, a bezel framing said base opening and projecting outward relative to said first base side, said bezel having a bezel opening,

a cover comprising a top, a cover front substantially perpendicular to said top and at least one cover side perpendicular to said top,

said one cover side being formed with an outwardly distortable portion overlying and spaced outwardly of said bezel,

said cover side being formed with a cover opening substantially congruent with said bezel opening,

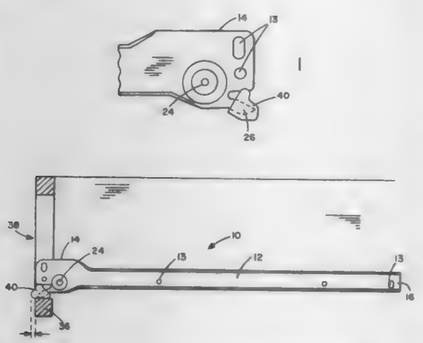
a lower edge of said cover front engaging a lower edge of said base front when said cover slants upward-rearward prior to closing and said outward distortable portion clearing said bezel as said base cover pivots downward rearward to a closed position and then resuming an original undistorted shape.

5,722,749

SELF-POSITIONING CABINET RAIL FOR A DRAWER GUIDE

Georg Domenig, Kernersville, N.C., assignor to Grass America, Inc., Kernersville, N.C.

Filed Jun. 5, 1996, Ser. No. 658,743
Int. Cl.° A47B *88/00*
U.S. Cl. 312—334.4 8 Claims



1. A self-positioning cabinet rail for supporting a drawer in a furniture article having a drawer opening, said self-positioning cabinet rail comprising:

a. a rail member having front and rear ends and a U-shaped cross section with upper and lower ledges, the front end including a bottom edge and a notch formed proximate the bottom edge of the front end, and said rail member being mountable in said drawer opening;

b. a roller rotatably mounted on the rail member near the front end; and

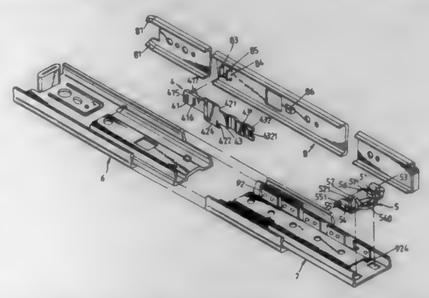
c. a section of the rail member formed on a lower side of the notch being downwardly bent to define a projection on the front end of the rail member which is angled downward and extends below the bottom edge of the front end of the rail member.

5,722,750

STRUCTURE OF SLIDING TRACK FOR DRAWERS

Leo Chu, 5F., No. 38, Lane 239, Chin Ping Rd., Chungho City, Taipei Hsien, Taiwan

Filed Feb. 6, 1997, Ser. No. 797,456
Int. Cl.° A47B *88/00*
U.S. Cl. 312—334.11 1 Claim



1. A sliding track assembly comprising an outer rail securely fixed to an inside wall of cabinet, an intermediate rail, an inner rail fixedly secured to a drawer at one lateral side, a first sliding ball rack slidably connected between said outer rail and said intermediate rail and a second sliding ball rack slidably connected between said intermediate rail and said inner rail, a first stop plate fixed to said intermediate rail at an outer end and having two projecting blocks for engagement with a second stop plate on said inner rail and two stop rods for stopping said second sliding ball rack in place, a second stop plate fixed to said inner rail at an outer side, said second stop plate being engaged with the projecting blocks of said first stop plate to stop said drawer in place when said drawer is pulled out of said cabinet, said second stop plate comprising a locating portion of width smaller than the pitch between the two projecting blocks of said first stop plate and of thickness longer than the thickness of the projecting blocks of said first stop plate, the locating portion of said second stop plate being fixed to said inner rail, a retaining portion longitudinally extended from one end of the locating portion of said second stop plate and made width longer than the pitch between the two projecting blocks of said first stop plate and defining two opposite projecting portions at two opposite lateral sides, a press portion longitudinally extended from the retaining portion of said second stop plate opposite to the locating portion of said second stop plate and made of width smaller than the pitch between the two projecting blocks of said first stop plate, a forked retaining tail defining a retaining notch and fastened to said inner rail, and a bent connected between said press portion and said forked retaining tail, the retaining portion and press portion of said second stop plate being spaced from said inner tail by a space, the retaining portion of said second stop plate being forced to curve toward said inner rail and to disengage from said first stop plate when said press portion is depressed, for permitting said drawer to be disconnected from said cabinet, the retaining portion of said second stop plate having a sloping surface portion connected to the locating portion of said second stop plate and two projecting portions remote from the sloping surface portion thereof, the sloping surface portion of the retaining portion of said second stop plate guiding said second stop plate through said intermediate rail when said drawer is inserted into said cabinet, the projecting blocks of said first stop plate having a respective top side, which is guided by the sloping surface portion of the retaining portion of said second stop plate to pass over the retaining portion of said second stop plate into engagement with the two projecting portions on the retaining portion of said second stop plate when

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said drawer is inserted into the inside wall of said cabinet, the projecting portions of the retaining portion of said second stop plate being engaged with the projecting blocks of said first stop plate to stop said drawer in place when said drawer is pulled out of said cabinet, said drawer being disconnected from said cabinet when said press portion of said second stop plate is depressed to curve the retaining portion of said second stop plate and to disengage the projecting portions of the retaining portion of said second stop plate from the projecting blocks of said first stop plate,

wherein: said first stop plate further comprises two locating plates bilaterally backwardly extended from a bottom side thereof, said locating plates each having a rear bevel edge at the top, and a longitudinal split below said bevel edge; said second sliding ball rack has two sliding faces bilaterally disposed at a bottom side thereof; the bevel edges of said locating plates guide the sliding faces of said second sliding ball rack into close contact with the locating plates of said first stop plate when said drawer is pulled out of said cabinet and said inner rail is moved with said drawer to force said second sliding ball rack into engagement with said first stop plate; the longitudinal splits of the locating plates of said first stop plate impart a springy force to the bevel edges of said locating plates of said first stop plate, enabling the sliding faces of said second sliding ball rack to be moved into engagement with said locating plates to said first stop plate.

5,722,751

STEREO SLIDE MOUNT AND MASKING-AMOUNT GUIDE DEVICE

Minuro Inaba, No. 1116, Oaza Samukawa, Oyama-shi, Japan

Division of Ser. No. 612,543, Mar. 8, 1996. This application Jan. 14, 1997, Ser. No. 783,199
Int. Cl.[6] G03B *21/14*
U.S. Cl. 353—7 **10 Claims**

7. A stereo slide viewer guide device used in mounting a stereo slide comprising:

a stereo slide holder;

a lens holder;

a first projection lens held by said lens holder, said first projection lens having a first optical axis;

a second projection lens held by said lens holder, said second projection lens having a second optical axis;

a first focusing plate holder;

a second focusing plate holder, said lens holder positioned between said stereo slide holder and said first and second focusing plate holders;

a first focusing plate held by said first focusing plate holder;

a second focusing plate held by said second focusing plate holder;

a feed screw having a right hand threaded portion and a left hand threaded portion, said first focusing plate holder attached to the right hand threaded portion and said second focusing plate holder attached to said left hand threaded portion, whereby when said feed screw is rotated said first and second focusing plate holders separate away from each other or approach each other;

a knob attached to said feed screw;

a first cam plate fitted to said feed screw;

a second cam plate fitted to said feed screw;

a first tappet rod having one end attached to said stereo slide holder and another end contacting said first cam plate;

a second tappet rod having one end attached to said lens holder and another end contacting said second cam plate;

a first spring urging said first tappet rod onto said first cam plate;

a second spring urging said second tappet rod onto said second cam plate;

a first erect prism and eye piece placed adjacent said first focusing plate;

a second erect prism and eye piece placed adjacent said second focusing plate;

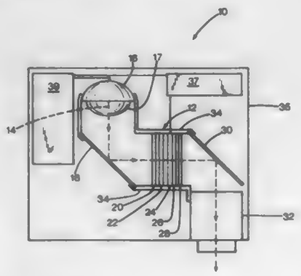
whereby said stereo slide holder, said lens holder, and said first and second focusing plate holders are interlocked such that when a projected picture is expanded or magnified the distance between said first and second focusing plate holders is increased.

5,722,752

MULTIMEDIA PROJECTION SYSTEM WITH IMAGE QUALITY CORRECTION

Martin J. Maiers, Newberg, Oreg., assignor to In Focus Systems, Inc., Wilsonville, Oreg.

Filed Jan. 10, 1997, Ser. No. 781,674
Int. Cl.[6] G03B *21/14*
U.S. Cl. 353—69 **7 Claims**



1. A projector comprising:

an optical frame;

a light source connected to the optical frame;

an LCD display object connected to the optical frame, the LCD display object operable to form images;

a front lens group connected to the optical frame on the image side of the display object for projecting images formed by the LCD display object; and

a fresnel lens connected to the optical frame, the fresnel lens being selectively tiltable about an axis extending parallel with the plane of the LCD display object in order to eliminate keystone distortion of images projected by the front lens group;

a manually movable fresnel actuator connected to the optical frame, the actuator having a cammed surface;

an arm extending between the fresnel actuator and the fresnel lens, the arm riding on the cammed surface such that a relatively large movement of the fresnel actuator produces a relatively small adjustment in tilt of the fresnel lens in order to permit precise elimination of keystone distortion.

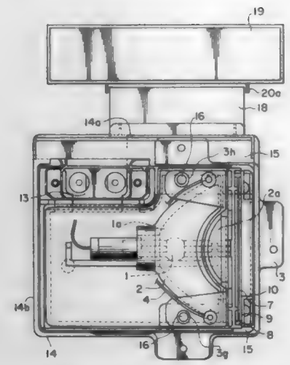
5,722,753

LAMP DEVICE OF LIQUID-CRYSTAL PROJECTION APPARATUS

Takehiro Okada, Ibaraki; Yaoki Maeda, Minoo; Shigeru Aruga, Moriguchi; Tadashi Ohira, Kobe; Tsuguhide Ioki, and Shigekazu Yamagishi, both of Takatsuki, all of Japan, assignors to Matsushita Electric Industrial Co., Ltd., Osaka, Japan

Filed Oct. 24, 1996, Ser. No. 736,485
Claims priority, application Japan, Nov. 1, 1995, 7-309792; Jun. 17, 1996, 8-155127
Int. Cl.[6] G03B *21/14*
U.S. Cl. 353—119 **9 Claims**

1. A liquid-crystal projection apparatus comprising a lamp having a light source portion; a group of liquid crystals for controlling the transmission of light from said light source portion; a group of mirrors for effecting color separation and color composition of the light from said light source portion; a lighting stabilizer containing a circuit for lighting said lamp; lamp fixing means; a cooling fan for feeding the air so as to cool said lamp; and a projection lens for



enlarging and reducing a transmitting-light image formed by said group of liquid crystals;

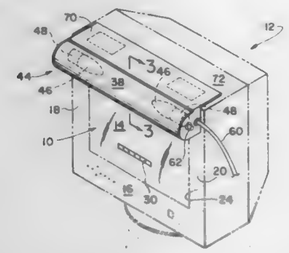
wherein said lamp comprises a concave mirror for reflecting the light from said light source portion to said group of mirrors in such a manner that said reflected light is formed into generally parallel rays of light, said concave mirror having a pair of first and second notches formed respectively at its upper and lower portions; a support member supporting said concave mirror; an outer casing which encloses said concave mirror and said light source portion, and is fixedly mounted on said support member, said outer casing having through holes formed through one side wall thereof; a flat glass panel fixedly mounted on said support member for transmitting said generally parallel rays of light therethrough; and an air passage formed within said outer casing.

5,722,754

FULL SPECTRUM LIGHT SOURCE FOR COMPUTER MONITOR

Eli Langner, 25 St. Nicholas St., Lynbrook, N.Y. 11563

Filed Apr. 21, 1997, Ser. No. 844,637
Int. Cl.[6] H05B *35/00*
U.S. Cl. 362—1 **1 Claim**



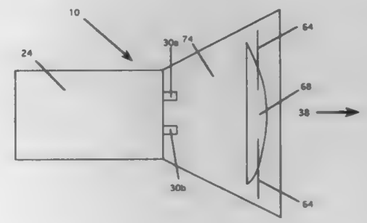
1. An improved light source means for a screen displaying computer-generated text to a viewer seated in facing relation to said screen, said improved light source means comprising a housing framing said screen consisting of a bottom, opposite sides and a top bounding a display opening through which said computer-generated text is displayed to said seated viewer, a cathode ray tube operated by said computer having a front screen disposed in said display opening on said front screen of which said text is displayed in partial spectrum illumination, an auxiliary housing for a light source mounted to extend forwardly of said frame top at the approximate eye level of said seated viewer, and a natural daylight-simulating light source disposed in said auxiliary housing and limited to generating full spectrum illumination, whereby the rays of said full spectrum illumination impinge upon the eyes of said seated viewer to contributing to lessening eye strain as might be caused by said partial spectrum illumination.

5,722,755

ILLUMINATION DEVICE, PARTICULARLY USEABLE AS A PROJECTOR FOR COLOR PHOTOGRAPHY

Dennis R. Slape, 6209 N. Imperial Dr., Peoria, Ill. 61614

Filed Jul. 18, 1995, Ser. No. 503,607
Int. Cl.[6] G03B *15/02*
U.S. Cl. 362—11 **14 Claims**



8. An illumination device comprising,

a power supply contained in a housing having a front face;

a plurality of colored light sources mounted on said front face of said housing, said colored light sources emitting colored light fluxes, said colored light sources being connected to and energized by said power supply and disposed to emit said colored light fluxes substantially in the direction of a selected object in front of said illumination device; and

means connected to said power supply for independently and selectively varying the output of each of said light sources, so that the luminosity and color saturation of said colored light fluxes projected toward the object can be varied.

5,722,756

Patent Not Issued For This Number

5,722,757

DISTRIBUTED ILLUMINATION ARRANGEMENT FOR A SOFT OBJECT

Thang Lu Chien, 8F, No. 29, Alley 73, Lin-Shon Street, Shi-Chi Town, Taipei, Haeng, Taiwan

Filed Mar. 11, 1996, Ser. No. 614,001
Int. Cl.[6] F21L *15/08;* **F21V** *8/00*
U.S. Cl. 362—32 **18 Claims**

1. In an illumination arrangement capable of being mounted on a soft object, including:

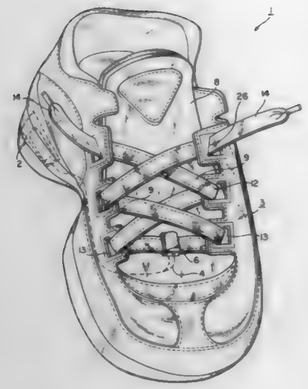
at least one light emitting diode;

a transparent flexible member optically coupled to the light emitting diode which forms a means for transmitting light emitted by the light emitting diode and emitting said light over an extended surface area,

the improvement wherein a transmittivity of a surface of the transparent flexible member varies with distance from the light emitting diode such that a greater amount of light is emitted through an area of the surface located away from the light emitting diode than from an area of the surface located closer to the light emitting diode, such that light is emitted uniformly from said surface, and

the further improvement wherein the light emitting diode is positioned within the transparent flexible member to maxi

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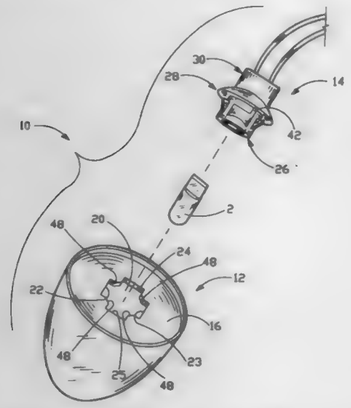
mize transmission of light from the light emitting diode to the transparent flexible member.

5,722,758

VEHICLE LIGHT FIXTURE WITH A QUICK DETACHABLE SOCKET

Nan Huang, Rancho Palos Verdes, Calif., assignor to Grand General Accessories Manufacturing Inc., Compton, Calif.

Filed Apr. 5, 1996, Ser. No. 628,861
Int. Cl.[6] B60Q *1/00*
U.S. Cl. 362—61 4 Claims



1. A vehicle light fixture apparatus, comprising:

a. a generally hollow dome shaped lens and a bottom plate attached to the lens, the bottom plate having a central cross shaped aperture with two pairs of opposite slots;

b. a quick detachable socket having a cylindrical shaped proximal portion with a proximal end, a wide circular middle portion, and a rectangular shaped distal portion with a distal end, the proximal end having a cavity for receiving a light bulb;

c. four equally spaced apart flange tabs integrally formed on and protruding away from said proximal portion of said quick detachable socket and spaced from said wide circular middle portion of said socket;

d. two opposite edge legs integrally formed with two of said four flange tabs respectively such that the two opposite edge legs extend downwardly to form with an upper surface of said wide circular middle portion of said quick detachable socket; and

e. said quick detachable socket installed to said hollow dome shaped lens by inserting said proximal portion into said central cross shaped aperture of said bottom plate such that a respective two of said four flange tabs respectively pass through said two pairs of opposite slots of said cross shaped aperture and rotating said distal portion which interlocks said proximal portion to said bottom plate, where said two opposite edge legs engage protruding bosses located within said central cross shaped aperture, thereby securing said quick detachable socket thereto, said bottom plate of said lens located between said multiplicity of spaced apart flange tabs and said wide circular middle portion of said quick detachable socket;

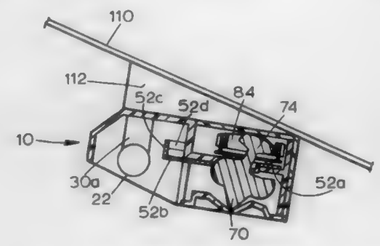
f. whereby when the light bulb malfunctions, said quick detachable socket can be unlocked by rotating said distal portion of said quick detachable socket which loosens itself from said central cross shaped aperture of said bottom plate, and be removed therefrom such that the malfunctioned light bulb can be replaced with a new light bulb without replacing said dome shaped lens and said bottom plate.

5,722,759

LAMP ASSEMBLY WITH INVERTED PIVOT MEMBER

Kenneth A. Eklov, Farmington Hills; William M. Brown, Brighton, and James N. Jorgensen, Warren, all of Mich., assignors to Micro Craft, Inc., Novi, Mich.

Filed Apr. 22, 1996, Ser. No. 635,752
Int. Cl.[6] B60Q *1/00*
U.S. Cl. 362—80 17 Claims



11. A lamp assembly adapted to be mounted to the underside of a hinged cover member of a vehicle to illuminate a compartment of the vehicle when the hinged member is opened to a predetermined extent, said lamp assembly comprising:

a housing;

a lamp disposed in said housing, said lamp having a first lamp terminal and a second lamp terminal; and

switch means for automatically turning on said lamp when said housing is moved to a first angular orientation and for automatically turning off said lamp when said housing is moved to a second angular orientation, said switch means comprising:

slidable means for causing one of said lamp terminals to be connected to an electrical terminal when said slidable means is in a first position and for causing one of said lamp terminals to be disconnected from said electrical terminal when said slidable means is in a second position; and

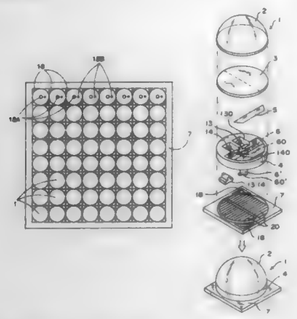
inverted pivot means, movable under the influence of gravity, for causing said slidable means to occupy said first position when said housing is in said first angular orientation and for causing said slidable means to occupy said second position when said housing is in said second angular orientation.

5,722,760

ELECTRO-LUMINESCENT LIGHT ASSEMBLY

Tseng Lu Chien, 8F, No. 29, Alley 73, Liu-Slien Street, Shi-Chi Town, Taipei, Hseng, Taiwan

Continuation of Ser. No. 383,405, Feb. 3, 1995, abandoned.
This application Jan. 15, 1997, Ser. No. 783,999
Int. Cl.[6] F21L *15/08*
U.S. Cl. 362—84 29 Claims



1. A light assembly, comprising:

a circuit board having a plurality of identical openings and a plurality of identical pairs of contact terminals respectively connected to one of two common inputs;

an individual electro-luminescent (EL) light unit in which is secured an EL panel and which includes light unit mounting means extending therefrom for insertion into any of said plurality of openings to thereby removably mount the individual electro-luminescent light unit on the circuit board;

a pair of electrical contacts; and

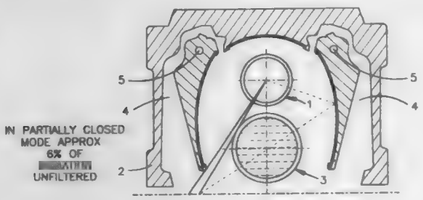
means for positioning the electrical contacts in the individual EL light unit in such a way that electrical contact between the EL panel and one of said pairs of contact terminals is established by insertion of said light unit mounting means into any of said openings.

5,722,761

LAMP ASSEMBLY WITH FILTER PRODUCING VARIABLE PROPORTIONS OF ULTRAVIOLET AND INFRARED RADIATION

Ronald Edward Knight, Berkshire, England, assignor to Nordson Corporation, Westlake, Ohio

Filed Jun. 6, 1996, Ser. No. 656,947
Int. Cl.[6] F21V *29/00*; F26B *3/28*
U.S. Cl. 362—96 12 Claims



1. A lamp assembly comprising

a source of ultraviolet and infrared radiation,

a filter,

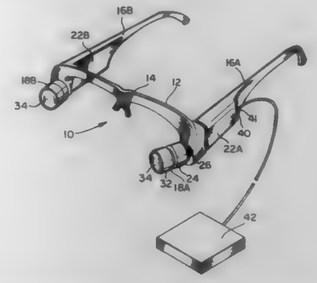
a varying device for directing a first proportion of the radiation through the filter and a second proportion so as to bypass the filter, the varying device being adjustably fixable in a plurality of settings enabling at least one of the proportions to be varied so as thereby to control the relative amounts of ultraviolet and infrared radiation emerging from the assembly.

5,722,762

ILLUMINATION DEVICE FOR MOUNTING ON THE HEAD OF A USER

David B. Soll, 5001 Frankford Ave., Philadelphia, Pa. 19124

Filed Jul. 18, 1996, Ser. No. 683,281
Int. Cl.[6] F21L *15/14*
U.S. Cl. 362—105 10 Claims



1. An illumination device for mounting on the head of a user, said device comprising:

a frame having a cross member and a pair of rearwardly extending temple members attached to opposite ends of said cross member; and

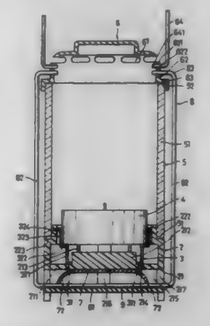
a focusable light assembly mounted on each end of said cross member by a pivotable connection, each focusable light assembly including a base member with a light source for emitting light and a first lens, and a focusing sleeve movably engaged with the base member and having a second lens mounted therein, said focusing sleeve being axially displaceable with respect to said base member by the user to vary the distance between said first lens and said second lens to at least one of converge and diverge the light emitted from said light source, each focusable light assembly being aimable by movement on the pivotable connection such that both light assemblies illuminate a selected area in a user's view field.

5,722,763

LANTERN

Kao-San Chen, No. 282, Sec. 2, Shu-Lin St., Tainan City, Taiwan

Filed Sep. 30, 1996, Ser. No. 724,181
Int. Cl.[6] F21L *19/02*
U.S. Cl. 362—163 6 Claims



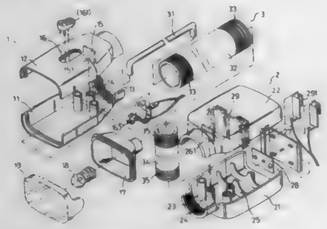
1. A lantern including:

a base having a bottom wall with a ventilation hole unit formed therethrough, and a surrounding wall formed integrally with an outer periphery of a top surface of said bottom wall;

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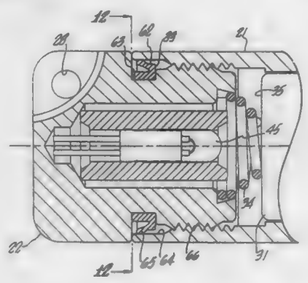
a clamp member fixed on said base and having at least three clamping pieces which are formed integrally with one another;
a candlestick clamped among said clamping pieces and adapted to mount a candle on said candlestick;
a vertical tubular transparent shade having two open ends and disposed on said surrounding wall of said base in such a manner that one of a lower end of said shade and an upper end of said base is sleeved on the other one of the lower end of said shade and the upper end of said base; and
a top cover attached to a top end of said shade and provided with a hanging unit;
wherein the improvements comprise:
said bottom wall of said base having a bottom surface in which an accommodating recess and an open-ended holder positioning slot unit are formed, said recess and said positioning slot unit being communicated with each other;
said top cover having two opposed horizontal positioning holes formed in an outer surface thereof;
an elongated and generally U-shaped holder having a horizontal rod extending through said positioning slot unit in such a manner that said horizontal rod is movable vertically in said positioning slot unit, and two vertical rods which are respectively and integrally formed with two ends of said horizontal rod and which have horizontally and inwardly extending upper end sections that are respectively inserted into said positioning holes of said top cover so as to hold said top cover and said shade on said base; and
a resilient element disposed within said accommodation recess of said base so as to push said horizontal rod of said holder downward relative to said base, thus clamping said shade between said top cover and said base, said top cover being capable of moving upward relative to said shade against biasing force of said resilient element in such a manner that said horizontal rod of said holder moves upward in said positioning slot unit of said base so as to rotate said holder about said horizontal rod and away from said shade, thereby permitting said shade to be removed from said base for access to said candlestick.

5,722,764
ADJUSTABLE FLASHLIGHT
Wen San Jou, P. O. Box 82-144, Taipei, Taiwan
Filed Oct. 31, 1996, Ser. No. 741,550
Int. Cl.[6] F21L *15/20*
U.S. Cl. 362—198 **1 Claim**



1. An adjustable flashlight comprising:
a lamp housing including a lower cover and an upper cover adapted to engage with said lower cover, said lower and upper covers being each formed at an end thereof with a first semi-circular neck portion having a plurality of semi-circular grooves at an inner side of said first semi-circular neck portion, said lower cover having a first vertical tubular portion close to said semi-circular grooves, said upper cover having a first depending panel formed with a first semi-circular recess located above said first vertical tubular portion of said lower cover, an intermediate portion of said upper cover having an elongated slot in which is slidably fitted an electrical switch, said switch being provided with downwardly extending pins engaged with two conducting members, a reflector fixedly mounted at a front end of said lamp housing and provided with an electrical socket for receiving a light bulb, and a lens arranged on said reflector;
a battery chamber including a lower portion, an upper portion adapted to engage with said lower portion to form a container, and a cap sealably engaged with an end of said container, said lower and upper portions having a second semi-circular neck portion at another other end thereof formed with a plurality of second semi-circular grooves at an inner side of said second semi-circular neck portion of said lower and upper portions, said lower portion having a second vertical tubular portion close to its neck portion and two battery supporters at an intermediate portion thereof, said upper portion being formed with two holders on which are mounted two electrodes, said upper portion having a second depending panel formed with a second semi-circular recess located above said second vertical tubular portion of said lower portion, a conducting plate being fixedly arranged on an inner side of said cap; and
a connecting member including an outer tube, an inner tube fitted within said outer tube, and a flexible rod arranged within said inner tube, said flexible rod being provided with two downwardly extending ends fitted into said first vertical tubular portion of said lower cover of said lamp housing and said second vertical tubular portion of said lower portion of said battery chamber, said flexible rod being kept in place by said first and second depending panels, said inner tube being formed with a plurality of grooves at both ends thereof, said outer tube being formed with a plurality of threads at both ends thereof which are adapted to mesh with said grooves of said lamp housing and said grooves of said battery chamber.

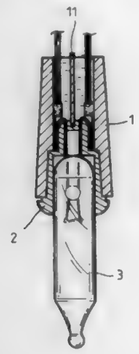
5,722,765
TAILCAP FOR A FLASHLIGHT
Anthony Maglica, Anaheim, Calif., assignor to Mag Instrument, Inc., Ontario, Calif.
Division of Ser. No. 308,356, Sep. 19, 1994, Pat. No. 5,485,360, which is a continuation of Ser. No. 49,525, Apr. 20, 1993, Pat. No. 5,349,506, which is a division of Ser. No. 866,422, Apr. 10, 1992, Pat. No. 5,207,502, which is a continuation of Ser. No. 719,156, Jun. 21, 1991, Pat. No. 5,113,326, which is a continuation-in-part of Ser. No. 553,977, Jul. 16, 1990, abandoned, which is a continuation of Ser. No. 356,361, May 23, 1989, Pat. No. 4,942,505, which is a continuation of Ser. No. 222,378, Jul. 19, 1988, Pat. No. 4,899,265, which is a continuation of Ser. No. 34,918, Apr. 6, 1987, abandoned, which is a continuation of Ser. No. 828,729, Feb. 11, 1986, Pat. No. 4,658,336, which is a continuation of Ser. No. 648,032, Sep. 6, 1984, Pat. No. 4,577,263. This application Jan. 16, 1996, Ser. No. 586,581
Int. Cl.[6] F21L *7/00*
U.S. Cl. 362—207 **4 Claims**



1. A tail cap assembly for a flashlight comprising
an externally threaded body portion;
a head body portion affixed to the externally threaded body portion;

a circumferential groove between the head body portion and the externally threaded body portion on the outer periphery of the externally threaded body portion;
a central cavity open at one end of the externally threaded body portion and extending through the externally threaded body portion and into the head body portion;
a bulb holder in the central cavity;
a spring seat at the opening of the central cavity;
a one way seal in the circumferential groove.

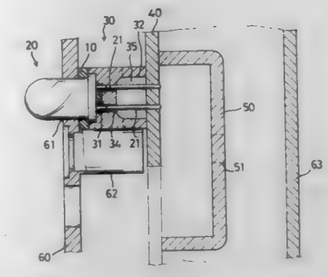
5,722,766
SECURE LIGHT BULB HOLDER ASSEMBLY
Kuo Fen Shu, No. 10, Lane 198, Chung Cheng Road, Hsinchu, Taiwan
Filed Sep. 16, 1996, Ser. No. 714,616
Int. Cl.[6] H01R *33/00*
U.S. Cl. 362—226 **1 Claim**



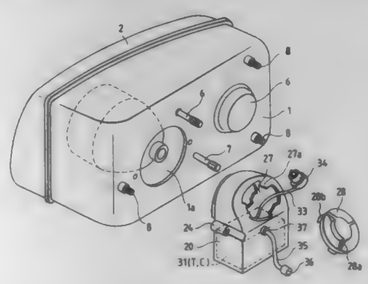
1. A secure light bulb holder assembly including a light bulb having its one end inserting into a cap while a pair of conducting wires formed on the bulb are passing through a pair of holes formed on the cap, and the cap as well as the light bulb being engaged within a base; characterized in that:
a groove is formed between the two holes of the cap and a plate is formed in the base; while the cap is engaged within the base, the inner end of the plate is then engaged within the groove to separate one conducting wire from the other, that provides two independent areas to prevent from a short circuit when water or rain infiltrating.

5,722,767
LED DISPLAY PANEL STRUCTURE
Sharming Lin, Taipei, Taiwan, assignor to Formosa Industrial Computing Inc., Taipei, Taiwan
Filed Oct. 22, 1996, Ser. No. 735,261
Int. Cl.[6] F21V *31/02*
U.S. Cl. 362—249 **7 Claims**

1. An LED display panel structure comprising:
a front plate having a plurality of through-holes defined therein;
a plurality of washers, each being provided on a back surface of said front plate in correspondence to each of said through-holes;
a plurality of LEDs each having a body and two leads, each of said LEDs being inserted into an aperture defined inside each of said washers and clamped in said aperture;
a plurality of holders, each having a first recess for receiving and holding each of said LEDs and a second recess for being filled with water resistant adhesive, a pair of through-bores which communicate said first recess with said second recess being defined for said pair of leads of each LED to extend therethrough respectively; and
a PC board for being attached by each of said holders with said second recess filled with water resistant adhesive and being connected with said two leads of each of said LEDs.



5,722,768
LAMP UTILIZING DISCHARGE BULB AS LIGHT SOURCE AND HAVING REDUCED SIZE
Takanori Suzuki; Yuji Fujino; Takashi Hori, and Masatoshi Yoneyama, all of Shizuoka, Japan, assignors to Koito Manufacturing Co., Ltd., Tokyo, Japan
Filed Jun. 26, 1996, Ser. No. 670,580
Claims priority, application Japan, Jun. 28, 1995, 7-183249; Feb. 23, 1996, 8-036050
Int. Cl.[6] B60Q *1/00*
U.S. Cl. 362—265 **19 Claims**

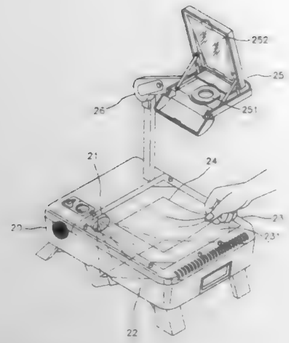


1. A lamp having a discharge bulb as a light source, comprising:
a lamp body; a socket and a discharge bulb received in said socket, said socket being attached to said lamp body via a hole formed in a rear portion of said lamp body; a lighting circuit for producing a high voltage for operating the discharge bulb, said lighting circuit comprising a plurality of constituent circuit components; and a case accommodating said lighting circuit attached to said lamp body rearward of said socket, at least some of said constituent circuit components being arranged in said case in an outer circumferential region of said socket.

5,722,769
RETRACTABLE PROJECTOR
Eric Fan, Taipei Hsien, Taiwan, assignor to Primax Electronics Ltd., Taipei Hsien, Taiwan
Filed Mar. 4, 1996, Ser. No. 610,698
Int. Cl.[6] F21V *7/18;* **G03B** *21/28*
U.S. Cl. 362—282 **14 Claims**

1. A projector comprising:

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a casing housing therein a light source emitting therefrom a light for illuminating a projected object;

a reflector mounted in said casing for reflecting said light to said object;

an upper cover mounted on said casing and forming a top portion of said casing, and supporting thereon said projected object, and said light reflected from said reflector passing through said top portion of said casing to said projected object;

a connector securing together said reflector and said upper cover; and

a projecting device mounted on a bottom portion of said casing through a support for imaging and projecting said light from said upper cover when said projecting device is being used, and said projecting device and said support positioned under said reflector when being retracted in said casing.

5,722,770

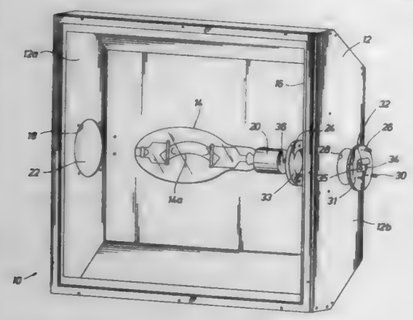
LIGHT FIXTURE HAVING POSITION-ORIENTED LAMP

Cary L. Douglas, San Marcos, Tex., assignor to The Genlyte Group Incorporated, Union, N.J.

Filed Nov. 12, 1996, Ser. No. 748,176

Int. Cl.[6] F21V *19/00*

U.S. Cl. 362—285 **2 Claims**



1. A light fixture for setting the position of a position-oriented arc lamp for optimum lumen output independently of the fixture position, comprising:

a housing for holding a position-oriented arc lamp and having an opening through which light emanates from the arc lamp;

rotating and securing means releasably connected to said housing for rotating the position-oriented arc lamp relative to said housing and securing the arc lamp to said housing when the arc lamp has been rotated to its optimum lumen output position; and

means mounted to said rotating and securing means for indicating when the position-oriented arc lamp has been rotated to its optimum lumen output position.

5,722,771

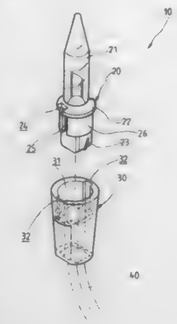
LAMP ASSEMBLY WITH WATER DRAIN

Jessica Wang, 16F-3, No. 70, Sec. 2, Tunha S. Road, Taipei, Taiwan

Filed Jun. 6, 1996, Ser. No. 659,569

Int. Cl.[6] F21V *29/00*

U.S. Cl. 362—294 **3 Claims**



1. A lamp assembly, comprising a holder having a bore and a lamp having a base receivable within the bore of the holder, at least one drain passage formed within the holder to extend to a bottom end of the holder so as to allow water to drain out of the holder through the drain passage;

wherein the drain passage comprises a first slot formed on an inside surface of the holder which extends to the bottom end of the holder and a second slot formed on the base which extends along and facing the first slot of holder so as to define the drain passage.

5,722,772

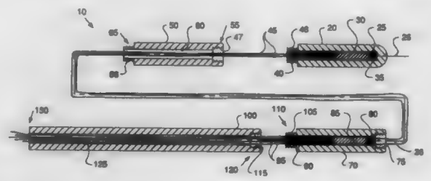
QUENCH COOLING EFFECTIVENESS APPARATUS FOR CONTINOUS MONITORING

Gary D. Keil, R.R. 2, Elmwood, Ill. 91529-9802; Wayne A. Supak, 406 Georgia Pkwy., Washington, Ill. 61571-1042, and Sheryl A. Tipton, 109 Arrowhead Ct., East Peoria, Ill. 61611-1800

Filed Jan. 11, 1996, Ser. No. 584,029

Int. Cl.[6] G01N *25/00*

U.S. Cl. 374—45 **27 Claims**



1. An apparatus for measuring the cooling effectiveness of a quench, comprising, in combination:

a first heat conductive sheath having a cavity therein;

a first temperature sensor installed in said cavity of said first heat conductive sheath, said first temperature sensor being heated by passing a constant current there through;

a second heat conductive sheath having a cavity therein;

a second temperature sensor installed in said cavity of said second heat conductive sheath, said second temperature sensor measuring the ambient quench temperature; and

a heat resistive sheath installed between said first and second heat conductive sheaths substantially collinear with said first and second heat conductive sheaths.

5,722,773

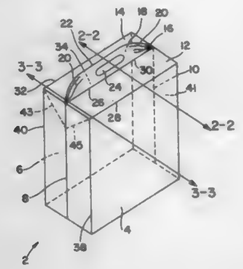
PLASTIC BAG HAVING A HANDLE INTEGRAL WITH THE GUSSET

Daniel J. Conrad, Murfreesboro, Tenn., assignor to Bemis Company Inc., Minneapolis, Minn.

Filed Nov. 29, 1994, Ser. No. 350,102

Int. Cl.[6] B65D *33/08*

U.S. Cl. 383—10 **18 Claims**



1. A flat structure of plastic film for use as a plastic bag, comprising,

two panels of plastic film,

a gusset of plastic film, one edge of the gusset being connected to a first edge of one panel and an opposing edge of the gusset being connected to a first edge of the other panel,

a handle of plastic film comprising the same sheet of plastic as a central fold line of the gusset, said handle having a fold at a top thereof, and

a seam uniting a second edge of one panel, a second edge of the other panel and the top fold line of the handle, the gusset, the handle, and at least one of the panels being made from a seamless sheet of a single layer of plastic film.

5,722,774

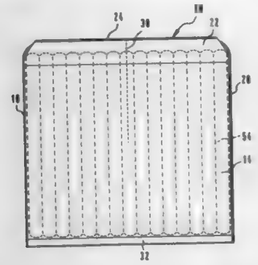
FLEXIBLE BAG FOR PACKAGING COMPRESSIBLE ABSORBENT ARTICLES

Wolfgang Hartz, Kiel, Germany, assignor to McNeil-PPC, Inc., Skillman, N.J.

Filed Feb. 8, 1996, Ser. No. 597,367

Int. Cl.[6] B65D *30/18;30/20*

U.S. Cl. 383—207 **10 Claims**



1. A flexible bag for a plurality of compressible absorbent articles which are arranged in parallel one beside the other, the bag comprising a plastic film and having an approximately rectangular base, a front side, a rear side, two narrow sides, and an upper side; being closed on all sides; having a line of weakness which marks an opening for the removal of one of the articles; and having a supporting band proximate the base; wherein (a) the line of weakness extends from a first location proximate a longitudinal center of the upper side, toward and down the front side toward the base to a second location about half way down the front side; (b) the approximately rectangular base is sealed to the front, rear, and two narrow sides to form a base seal; and (c) the supporting band comprises plastic film extending from the base seal.

5,722,775

DYNAMIC GROOVE BEARING WITH A LUBRICANT BARRIER

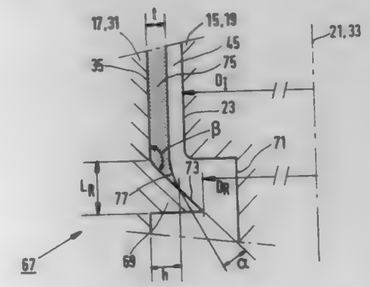
Carel J. Thijsse; Leonardus P.M. Tielemans; Jelm Franse, all of Eindhoven; Ronny Verzijl, Rotterdam, and Robert C.H. Boereboom, Eindhoven, all of Netherlands, assignors to U.S. Philips Corporation, New York, N.Y.

Filed Dec. 10, 1996, Ser. No. 762,892

Claims priority, application European Pat. Off., Dec. 22, 1995, 95203610

Int. Cl.[6] F16C *32/06*

U.S. Cl. 384—119 **15 Claims**



1. A dynamic groove bearing with an inner bearing part and an outer bearing part which is rotatable about the inner bearing part,

which bearing parts are provided with cooperating bearing surfaces between which there is a bearing gap in which a liquid lubricant is present during operation,

wherein the bearing surface of at least one of the bearing parts is provided with a pattern of grooves and

the dynamic groove bearing comprises means for preventing leakage of liquid lubricant from the bearing gap,

characterized in that

said means for preventing leakage comprise an annular barrier which is raised relative to the bearing surface of the outer bearing part and which bounds the bearing gap, and

the annular barrier has a lateral surface facing the bearing gap which is oblique relative to the bearing surface of the outer bearing part.

5,722,776

SHIPPING BEARING

Jeffrey Neil White, Hopkinsville, Ky., assignor to White Hydraulics Inc, Hopkinsville, Ky.

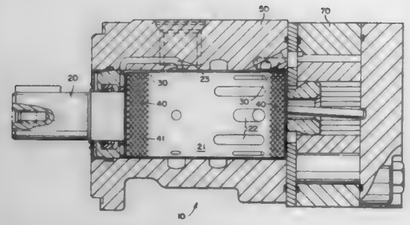
Filed Apr. 1, 1996, Ser. No. 626,670

Int. Cl.[6] F16C *33/44*

U.S. Cl. 384—380 **29 Claims**

1. In a device having a shaft using at least one sleeve bearing about its circumference within a housing, the shaft having a length within the housing, the device having areas containing a residue of unpressurized lubricant,

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the improvement of a knurl, said knurl being located in one of the shaft or housing at least partially overlapping the location of the sleeve bearing, said knurl having a length, said length of said knurl being less than the length of the shaft within the housing,

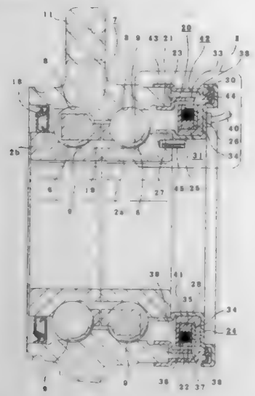
and at least some of the lubricant being located in said knurl so as to prevent galling of the shaft and sleeve bearing joint.

5,722,777

ROLLING BEARING UNIT WITH ROTATING SPEED DETECTOR

Hideo Ouchi, Fujisawa, Japan, assignor to NSK, Ltd., Tokyo, Japan

Continuation of Ser. No. 545,503, Oct. 19, 1995, Pat. No. 5,603,575. This application Dec. 12, 1996, Ser. No. 764,516
Claims priority, application Japan, Oct. 20, 1994, 6-254931
Int. Cl.[6] F16C *17/24*
U.S. Cl. 384—446 **18 Claims**



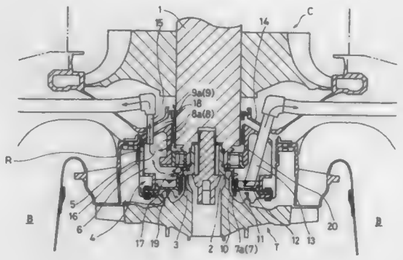
1. A rolling bearing unit with rotating speed detector comprising an inner ring member which has an axial end and an outer peripheral face formed with an inner ring raceway and is securely fitted over a stationary shaft, a rotatable outer ring member having an axial end and an inner peripheral face formed with an outer ring raceway, a plurality of rolling bodies provided between the inner ring raceway and outer ring raceway, an annular, magnetic tone wheel securely fitted to the axial end of the outer ring member, a support ring securely fitted to the axial end of the inner ring member, an annular sensor supported by the support ring so as to be faced to the tone wheel generally in a circumferential direction, the tone wheel having a cut-out section in which cut-outs are formed with a uniform pitch in a circumferential direction, so that the cut-out section is faced across a clearance to a portion of the sensor where the magnetic property changes in a circumferential direction with the same pitch as that of the cut-outs, the sensor comprising at least one annular magnetic pole piece, a permanent magnet and an annular coil, the at least one magnetic pole piece having end portions, the permanent magnet having first and second ends in magnetic orientation, so that the first end in magnetic orientation is placed adjacent to one of the end portions of the at least one pole piece, while the second end in magnetic orientation is placed magnetically adjacent to the tone wheel, the coil provided adjacent to the at least one pole piece, an annular member fitted to the outer ring member in a mating relationship with the support ring, and an annular, elastic member having a base portion and a tip portion such that the base portion is connected to one of the support ring and annular member while the tip portion is placed generally circumferentially in sliding contact with the other of the support ring and annular member.

5,722,778

BEARING DEVICE FOR VERTICAL ROTATING MACHINE

Tadahiko Kishikawa; Hisao Uekusa, both of Tokyo, Japan; Pierre Gauvin, and ReJean Jodoin, both of Quebec, Canada, assignors to Ebara Corporation, Tokyo, Japan

Filed Jan. 23, 1997, Ser. No. 787,922
Claims priority, application Japan, Jan. 24, 1996, 8-030056
Int. Cl.[6] F16C *33/76*
U.S. Cl. 384—471 **11 Claims**



1. A bearing device for supporting a rotating shaft substantially arranged in a vertical direction comprising:

a bearing means for supporting said rotating shaft;

a sealing means provided below said bearing means;

a bearing housing defining a bearing chamber surrounding said rotating shaft for enclosing said bearing means and said sealing means;

an oil supply pipe for supplying lubricant to said bearing means;

an oil dam provided at the bottom portion of said bearing chamber to surround said sealing means;

an oil suction pipe for discharging lubricant from said oil dam;

a sealing gas supplying means for supplying sealing gas into said bearing chamber from below by way of said sealing means; and

a sealing gas vent port opening at an upper area of said bearing chamber.

5,722,779

BEARING UNIT

Fumio Kameyama, Nagoya, Japan, assignor to Brother Kogyo Kabushiki Kaisha, Aichi-ken, Japan

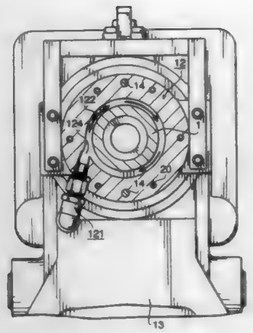
Filed Oct. 17, 1996, Ser. No. 734,382
Claims priority, application Japan, Oct. 17, 1995, 7-268840
Int. Cl.[6] F16C *33/76*
U.S. Cl. 384—478 **17 Claims**

1. A bearing unit comprising;

at least one bearing for rotatably supporting a shaft;

a housing for housing said bearing; and

a flange mounted to said housing in such a manner that one end of said shaft is inserted into said flange,



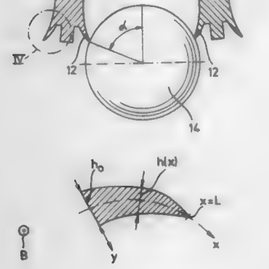
wherein said flange is provided with a fluid supply port which opens at the inner surface of said flange for introducing a fluid to a clearance between said shaft and said flange, and the axial direction of said supply port is essentially parallel to a tangent of the outer surface of said shaft.

5,722,780

CAGE FOR ROLLING ELEMENT BEARING

Matthias Scharman, Heidenfeld, Germany, assignor to SKF Industrial Trading & Development Company B.V., Nieuwegein, Netherlands

Filed Dec. 9, 1996, Ser. No. 762,061
Claims priority, application Netherlands, Dec. 8, 1995, 1001860
Int. Cl.[6] F16C *33/41*
U.S. Cl. 384—531 **5 Claims**



1. Cage for a rolling element bearing, which cage comprises elastically deformable prongs, a pair of said prongs defining a cage pocket in which a rolling element can be accommodated by snapping-in, the thickness of each prong perpendicular to a surface of the prong facing an adjacent cage pocket gradually diminishing, in a direction toward a free end of said prong, the length L of each prong, measured from a root of said prong toward said free end along a median line of the prong, and the thickness h_o of said root being selected in such a way that the conditions:

$$\epsilon_{bending,max} = \frac{3}{4} \cdot \frac{w_L}{L^2/h_0} < 4{,}5\%$$

and

-continued

$$\frac{E_{stored}}{E \cdot B \cdot R^2[1\epsilon_{bending,max}]^2} = \frac{h_0 \cdot L}{9 \cdot R^2} \geq 2{,}2 \cdot 10^{-2}$$

are satisfied, in which:

L=length measured along a median line of the prong

h_o=thickness at the root of the prong

w_L=maximum deflection at the free end of the prong

$\epsilon_{bending,\ max}$=maximum bending strain at w_L

E_{stored}=elastic bearing energy stored in the prong at w_L

E=Modulus of elasticity of the prong

B=Width of the prong

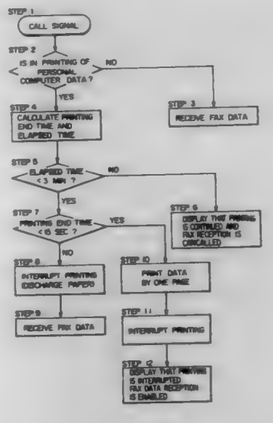
R=Radius of a said rolling element.

5,722,781

PRINTING APPARATUS

Shuzo Yamaguchi, Tosu, Japan, assignor to Matsushita Electric Industrial Co., Ltd.

Filed May 18, 1995, Ser. No. 444,059
Claims priority, application Japan, Jun. 17, 1994, 6-135545
Int. Cl.[6] H04N *1/32*
U.S. Cl. 400—61 **1 Claim**



1. A printing apparatus comprising:

first data reception means for receiving print data through a telephone line;

second data reception means for receiving print data through another line different from the telephone line;

print means for printing on a medium the print data received by said first data reception means or said second data reception means;

set means for measuring a print finish time (t) and deciding a first set time (T1) and a second set time (T2) which is larger than the first set time; and

control means for controlling said print means to print the print data received by said second data reception means in the event the print data is received by said first data reception means during printing of the print data received by said second data reception means on a medium, so that (i) when the print finish time (t) is larger than the second set time (T2), printing of the print data is maintained and reception of said first data reception means is rejected, (ii) when the print finish time (t) is smaller than the first set time (T1), printing of the print data is finished and thereafter reception of said first data reception means is started, and (iii) when the print finish time (t) is larger than the first set time (T1) and smaller than the second set time (T2), printing of the print data is interrupted and reception of said first data reception means is started.

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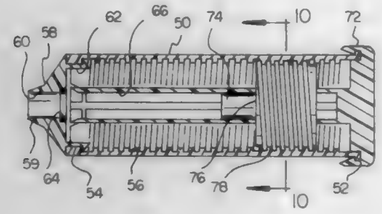
WAX PENCIL HOLDING DEVICE

Donald M. Rosenthal, 3780 Elmira Ave., Claremont, Calif. 91711

Continuation-in-part of Ser. No. 511,800, Aug. 7, 1995, Pat. No. 5,551,787. This application Aug. 19, 1996, Ser. No. 729,632

Int. Cl.[6] B43K *21/08;21/06*

U.S. Cl. 401—75 1 Claim



1. A new and improved wax pencil holding device comprising, in combination:

an intermediate hollow cylinder with an open bottom end, an open top end, and a closed periphery formed therebetween, the intermediate cylinder having a lower annular lip formed on the bottom end thereof and further extending outwardly therefrom and an upper annular lip formed adjacent the top end thereof and further extending inwardly therefrom, wherein an inner surface of the entire closed periphery is threaded;

a top cap with a generally frusto-conical configuration having an aperture centrally formed therein, a hooked tab mechanism depending from a lower surface thereof for releasably engaging the upper lip of the intermediate cylinder thus allowing the top cap to be rotated with respect to the intermediate cylinder, and a bushing situated about an inner periphery of the aperture thereof and extending slightly inwardly thereby reducing a diameter of the aperture;

an interior writing utensil holder tube coaxially situated within the intermediate cylinder and maintained in such orientation via an integral coupling with the bottom surface of the top cap such that a top end of the tube communicates with the aperture of the top cap and the tube rotates coincidentally with the rotation of the top cap, the tube having a plurality of slits longitudinally formed therein along an entire length thereof, whereby a writing utensil may be situated within the tube and extended from the aperture of the top cap;

a bottom cap formed of a disk having a clamp mechanism extending upwardly therefrom for releasably engaging the lower lip of the intermediate cylinder thus precluding access therein;

a chuck with a cylindrical configuration situated within the tube and adapted to slide vertically therein, whereby the writing utensil abuts the chuck when situated within the holder tube; and

an actuator disk situated within the intermediate cylinder having a top face, a bottom face, and a threaded outer periphery for threadedly engaging the threaded inner surface of the intermediate cylinder, the actuator disk having an aperture centrally formed therein for encompassing the holder tube, the actuator disk further having a plurality of inwardly extending connectors integrally coupled between an inner periphery of the aperture thereof and the chuck, with the connectors extending through the slits of the holder tube, thereby effecting rotation of the actuator disk upon the rotation of the top cap and holder tube; whereby upon the rotation of the top cap and holder tube with

respect to the intermediate cylinder, the threaded engagement between the actuator disk and the intermediate cylinder effects the vertical maneuvering of the chuck and the writing utensil thus allowing the selective dispensing thereof.

5,722,783

FILE FOLDER

Takio Kiyomi, Kyoto, Japan, assignor to Kokuyo Co., Ltd., Osaka, Japan

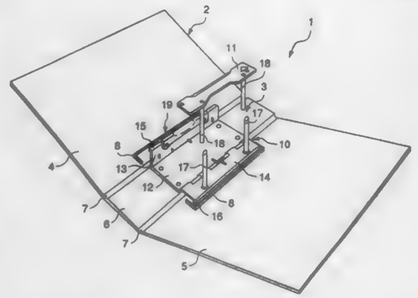
PCT No. PCT/JP95/00651, § 371 Date May 14, 1996, § 102(e) Date May 14, 1996, PCT Pub. No. WO96/04144, PCT Pub. Date Feb. 15, 1996

PCT Filed Apr. 3, 1995, Ser. No. 553,325

Claims priority, application Japan, Aug. 4, 1994, 6-183548

Int. Cl.[6] B42F *13/12*

U.S. Cl. 402—70 4 Claims



1. A file folder comprising a pair of foldable covers, a back cover integrally connected to said foldable covers, and a binding fastener fixedly provided at the inner face of said back cover, characterized in that an engaging projection is provided at the inner face of at least one of said foldable covers for abutting with and supporting an underside of said binding fastener substantially along the length of said binding fastener when said folder is closed and placed such that said back cover is positioned horizontally and located above said binding fastener.

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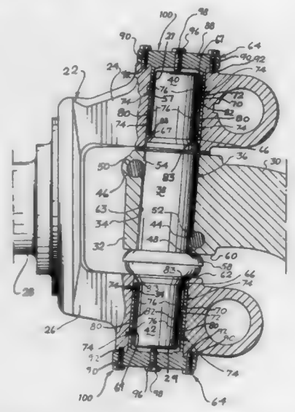
KINGPIN ASSEMBLY

Larry R. Link, Frankfort, Ill., assignor to American Roller Bushing Corporation, Monee, Ill.

Filed Dec. 6, 1995, Ser. No. 568,349

Int. Cl.[6] F16J *1/16*

U.S. Cl. 403—158 14 Claims



1. A kingpin assembly, comprising:

an axle having an upper side and a lower side, and an end portion with a generally vertically extending bore;

a steering spindle having integral upper and lower yokes positioned at said axle end portion and adjacent respective said upper and lower sides of the axle, the upper and lower yokes of the steering spindle having internal surfaces defining respective upper and lower steering spindle bores in registration with said axle bore;

a substantially cylindrical kingpin having a central portion disposed within the axle bore, and a pair of opposite, cylindrical end portions received within said respective upper and lower steering spindle bores, the end portions having peripheral surfaces in spaced relation from the internal surfaces of the respective upper and lower steering spindle bores to define an annular gap between the peripheries of the kingpin end portions and the internal surfaces of the respective upper and lower steering spindle bores;

a pair of keepers engaged with the axle and the central portion of the kingpin to secure the central portion of the kingpin in substantially stationary position within the axle bore;

a tapered thrust washer disposed between the lower side of the axle end portion and the lower yoke;

first and second annular sleeves each having an interior wall defining a cylindrical hollow internal sleeve bore and being secured within the respective steering spindle bore, with each of said first and second sleeves being secured within a respective one of said upper and lower steering spindle bores and received in said annular gaps between the peripheries of the kingpin end portions and the internal surfaces defining the respective steering spindle bores;

a pair of metal roller bearings mounted in the sleeve bores of each of the first and second sleeves in spaced relation with respect to one another, with the metal roller bearings having internal metal rolling elements;

a grease reservoir in each of said first and second sleeves in a region between said pair of metal roller bearings for receiving grease and retaining grease for lubrication of the rolling elements;

precisely machined and highly polished, cylindrical surfaces on the peripheries of the kingpin end portions machined to predetermined tolerances to have a close fit with the respective said internal metal rolling elements to reduce road pounding motion therebetween and being highly polished to provide smooth rolling engagement with the internal metal rolling elements; and

precisely machined and highly polished, inner cylindrical surfaces on said first and second sleeves with the internal metal rolling elements rolling with respect to the highly polished, cylindrical surfaces on the kingpin end portions and sleeve inner surfaces for low friction oscillatory movement of the steering spindle with respect to the end portion of the axle.

5,722,785

TOOL FASTENING DEVICE FOR TECHNOSCOPES

Jörg Diener, Oberderdingen, Germany, assignor to Richard Wolf GmbH, Knittlingen, Germany

Filed Sep. 27, 1996, Ser. No. 721,936

Claims priority, application Germany, Oct. 2, 1995, 195 36 557.7

Int. Cl.[6] B25F *1/00;* B24B *21/20*

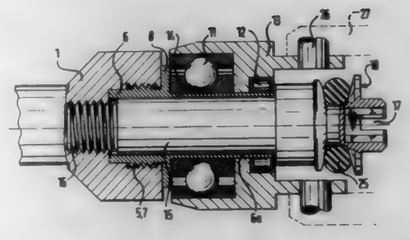
U.S. Cl. 403—202 8 Claims

1. An apparatus for fastening a rotary drivable tool (**22**) having a proximal end to a drive device having a head (**13**), said apparatus comprising:

a tool holder (**1**) having a proximal end and a distal end with the tool (**22**) being fixedly mounted to said tool holder (**1**) at said distal end;

a sleeve (**6**) having a distal end removably and threadedly mounted in a close confronting relation to said proximal end of said tool holder (**1**) and having a cylindrical bore therethrough, said sleeve (**6**) being rotatably mounted in the head (**13**); and

a drive spindle (**14**) having a free end and a shank portion (**15**) having a distal end removably and threadedly mounted to said proximal end of said tool holder (**1**), said shank portion (**15**) passing through said bore of said sleeve (**6**).



5,722,786

UNIVERSAL JOINT

Katsuyuki Kono, Toyota, and Masami Wakita, Nagoya, both of Japan, assignors to Chuouhatsujou Kabushiki Kaisha, Nagoya, Japan

Continuation of Ser. No. 525,472, Sep. 11, 1995, abandoned. This application Nov. 22, 1996, Ser. No. 754,901

Claims priority, application Japan, Sep. 30, 1994, 6-261550

Int. Cl.[6] B60G *11/48;* F16B *7/00*

U.S. Cl. 403—228 5 Claims

1. A universal joint for coupling a pair of spaced members comprising:

a coupling link coupling the pair of spaced coupled members;

each of said pair of coupled members having a fitting hole constituting a bolt hole thereon;

two stepped bolts each extending axially through a respective bolt hole of a corresponding coupled member and each defining a pivot axis for said coupling link about which the coupling link can pivotally rock;

said coupling link having opposite end portions each having a bolt hole through which a respective one of said bolts extends axially coupling the coupling link to said coupled members;

said bolts each having a length with a major diameter extending axially through a respective coupled member, a corresponding end portion of the coupling link, and a washer mounted thereon;

each bolt having an externally threaded length of minor diameter of each bolt for securing the washer on the coupling link;

each bolt having a sole elastic sleeve circumferentially directly on a corresponding length of said major diameter extending through the corresponding coupled member and through the coupling link to a side surface of a respective washer on the bolt; and

each of said sleeves having a respective pair of elastic collars around opposite ends thereof, one of the elastic collars of each said pair being disposed between a corresponding coupled member and the coupling link and another of the collars being

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disposed between the coupling link and a respective washer on the corresponding bolt to reduce play and thereby allow the coupling link to pivot about each sleeve in circumferential opposite directions about the individual bolts and to pivot in opposite directions at each bolt on an axis normal to the longitudinal axis of the corresponding bolt.

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ARRANGEMENT FOR CODING THE PLUG-IN SPACE OF A PLUG-IN MODULE IN A MODULE RACK

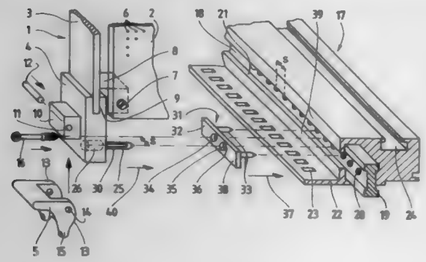
Paul Mazura, Karlsbad, and Michael Joist, Gaggenau, both of Germany, assignors to Schroff GmbH, Straubenhardt, Germany

Filed Mar. 5, 1996, Ser. No. 610,953

Claims priority, application Germany, Mar. 7, 1995, 195 07 724.5

Int. Cl.[6] F16B *21/14*

U.S. Cl. 403—405.1 **12 Claims**



1. An arrangement for coding a plug-in space of a plug-in module in a module rack by using a layout of at least one coding pin and at least one associated coding hole, said plug-in module comprising at least one holding bracket through which extends a fastening screw, and said module rack having at least one front profiled rail which has a longitudinal groove into which is inserted a perforated strip having equidistant holes, said holding bracket having a receiver for the coding pin, said receiver having an internal polygon, the coding pin being displaceable within said receiver and having a corresponding external polygon, said coding pin being provided with a longitudinally extending coding rib at its shaft, there being at least one coding plug having at least one pin for the introduction into a hole of the perforated strip, said coding plug having said coding hole for the coding pin and a through hole for said fastening screw, and said coding hole being provided with an edge recess for said coding rib.

5,722,788

TRAFFIC DELINEATOR WITH WHEELS

Bruce C. Bent, and James A. Bent, both of Huntington Beach, Calif., assignors to Bent Manfacturing Company, Huntington Beach, Calif.

Filed Jan. 24, 1996, Ser. No. 590,779

Int. Cl.[6] E01F *13/02*

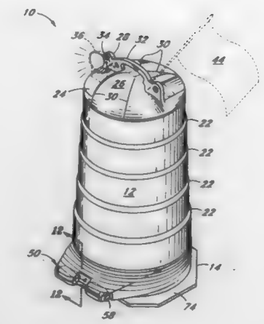
U.S. Cl. 404—6 **54 Claims**

21. A traffic delineator comprising:

a stackable barrel having a predetermined height and circumference, a top and a bottom, the top of the barrel forming a partial dome;

a base having mating surfaces for removably affixing the barrel to the top of the base;

a wheel socket formed in the bottom end of the barrel;



an axle on which a wheel is mounted to allow the delineator to be moved by rolling along the ground; and

means for mounting the axle to the socket.

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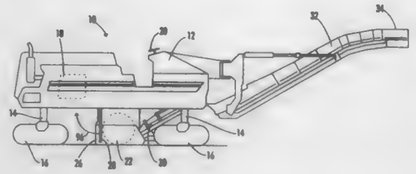
MULTI-WIDTH CUTTER

Stuart W. Murray, Brentwood, Tenn., and Gunter R. Hähn, Koenigswinter, Germany, assignors to Wirtgen America, Inc., Nashville, Tenn.

Continuation-in-part of Ser. No. 282,329, Jul. 29, 1994, Pat. No. 5,505,598. This application Apr. 4, 1996, Ser. No. 627,443

Int. Cl.[6] E01C *23/12*

U.S. Cl. 404—90 **7 Claims**



1. An improvement to a cold milling machine having a front, an back and opposing sides, such machines having means for advancing the machine along a given path and a milling drum mounted on the machine for cutting a width of material in the path of the machine, said machine including a drive train having a power input end on one side of the machine and a power output end on the other side of the machine, said power input end of said drive train connected to a power source, said power output end of said drive train connected to a gear mounted within a gear housing, said gear housing having opposing ends, one end of said gear housing being generally flush with the other side of said machine, said gear housing being mounted for rotation relative to said machine, a sleeve extending from the other end of said gear housing toward said one side of said machine, means for rotatably driving said sleeve, said the improvement including:

a. a set of milling drums, each drum in said set of milling drums having opposing ends and being of a different length;

b. each drum in said set of milling drums being divided into segments;

c. means for releasably connecting one end of any selected one drum of said set of milling drums to said one end of said gear housing; and

d. a connector element on the other end of at least one of said drums in said set of milling drums whereby said at least one of said drums can be releasably connected at its other end to said sleeve.

5,722,790

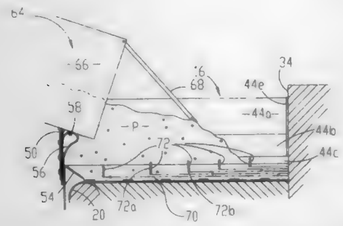
ASPHALT PAVING MACHINE HAVING WEIR ASSEMBLY FOR MINIMIZING SEGREGATION OF HOT MIX ASPHALT

Orville Oren Spray, Great Bend, Kans., assignor to Venture Corporation, Great Bend, Kans.

Filed Dec. 28, 1995, Ser. No. 579,229

Int. Cl.[6] E01C *19/18*

U.S. Cl. 404—108 **9 Claims**



1. In an asphalt paving machine including spreading mechanism for distributing paving material to the roadway, a hopper, and a conveyor forming the bottom of the hopper for moving paving material along a path extending through the hopper and to the spreading mechanism, a device for mixing the paving material as it moves along the path comprising:

a plurality of stationary weir members mounted within the hopper and spaced above the conveyor,

said weir members being spaced along the path of the paving material,

each of said weir members presenting an upright surface having a bottom edge,

said bottom edge and the conveyor defining a generally vertical passageway through which the paving material passes as it is moved by the conveyor,

said passageways having incrementally increasing heights along the path of movement of the paving material.

5,722,791

ROOF DRAIN FITTING

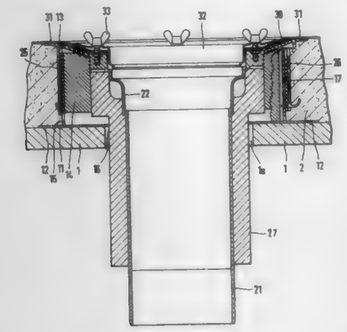
Johannes Dallmer, Arnsberg, Germany, assignor to Dallmer GmbH & Co., Arnsberg, Germany

Filed Mar. 8, 1996, Ser. No. 613,174

Claims priority, application Germany, Mar. 25, 1995, 195 10 955.4

Int. Cl.[6] E03F *1/00*

U.S. Cl. 405—52 **12 Claims**



1. A roof drain fitting having a clamping ring for securing flashing to a supporting collar comprising:

a box-shaped bottom part including a bottom plate with a circular recess formed therein and planar side walls connected to said bottom plate, each side wall having an exterior surface;

a molded top part including a down pipe, a pot adjoining said down pipe, a collar extending outwardly from above said pot, and four planar walls extending downwardly from said collar, said down pipe, pot, collar, and walls being integrally molded in one piece; and

means for adjustably securing said top part to said bottom part in different vertical positions without changing or removing any components of the fitting;

said down pipe extending through the circular recess to concentrically orient said top part with said bottom part with said four planar walls disposed adjacent said exterior surfaces of said side walls, wherein said top part is vertically adjusted by said securing means to secure said top part in a particular vertical position.

5,722,792

METHOD OF PUTTING A SALINE CAVITY UNDER GAS

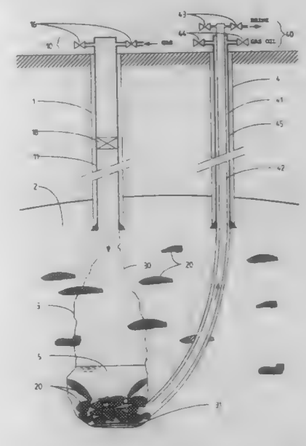
Jean-Marc Morisseau, Marly-le-Roi, France, assignor to Societe Francaise de Stockage Geologique- Geostock, Rueil-Malmaison Cedex, France

Filed Feb. 16, 1996, Ser. No. 601,362

Claims priority, application France, Feb. 28, 1995, 95 02292

Int. Cl.[6] B65G *5/00*

U.S. Cl. 405—59 **7 Claims**



1. A method of storing a gaseous substance in a saline cavity, the cavity being formed by washing out rock salt and being filled with brine once the washing out has been completed, said cavity including a bottom (**31**) and a roof (**30**), a first well (**1**) drilled for the washing out opening out in the roof and communicating said saline cavity with the surface, said well also serving as an injection well for the gaseous substance to be stored, the method including the steps of:

drilling a second, associated dewatering well (**4**) from the surface in proximity to said injection well, the dewatering well meeting said saline cavity close to the bottom thereof, and

injecting the gaseous substance into the cavity via the injection well to attendantly and simultaneously displace the brine out from the cavity through said dewatering well.

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5,722,793

METHOD AND DEVICE FOR CONTINUOUSLY LAYING AND BURYING A FLEXIBLE SUBMARINE CONDUIT

Kevin Peterson, Boulogne-Billancourt, France, assignor to Coflexip, Boulogne-Billancourt, France

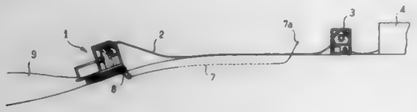
PCT No. PCT/FR94/00425, § 371 Date Oct. 20, 1995, § 102(e) Date Oct. 20, 1995, PCT Pub. No. WO94/24377, PCT Pub. Date Oct. 27, 1994

PCT Filed Apr. 15, 1994, Ser. No. 537,848

Claims priority, application France, Apr. 21, 1993, 93 04682

Int. Cl.[6] F16L *1/12*

U.S. Cl. 405—164 16 Claims



1. Method for continuously laying and burying an underwater flexible conduit, the flexible conduit being stored on at least one reel, said method comprising the steps of:

using a self-propelled sea plough remote-controlled via an umbilical cable, said sea plough carrying said at least one reel of flexible conduit,

controlling said sea plough carrying said reel from a site so as to lay and bury a length of the flexible conduit up to a first predetermined point,

controlling said sea plough beyond said first predetermined point from another site, and

continuing laying and burying of the flexible conduit as far as a second predetermined point, one of said sites being the land and the other comprising a waterborne vessel.

5,722,795

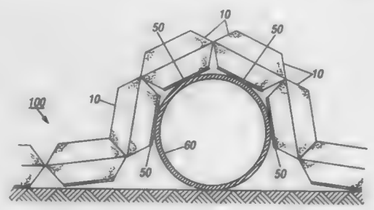
NON-ABRASIVE SUBSEA MAT

Thomas M. Angel, Houma, and Robbie Boudreaux, Montugut, both of La., assignors to Submar, Inc., Houma, La.

Filed Apr. 17, 1996, Ser. No. 633,472

Int. Cl.[6] F16L *1/12*

U.S. Cl. 405—172 10 Claims



1. A mat for stabilizing and protecting underwater installations comprising:

a plurality of elements, each of said elements having the shape of two symmetrically opposed pyramids, each of said pyramids having a truncated top forming a face, each of said pyramids further having a common rectangular base that forms a center of said element, said elements arranged in parallel rows and columns with sufficient space between each of said elements to allow adjacent elements to conform to an uneven seabed and underwater installation;

a flexible rope, said rope constructed and arranged to pass through said center of each of said elements in two directions and embedded therein to fasten said elements to each other by said rows and by said columns, said rope providing a small loop at the exit and entrance of alternating rows and alternating columns for the purpose of handling said mat during transportation and installation;

at least one non-abrasive pad, said non-abrasive pad attached to at least one of said elements by at least one rivet embedded in said element, said non-abrasive pad situated on at least one of said faces of said element to separate said element from said underwater installation in order to prevent said elements from contacting said underwater installation,

wherein said at least one non-abrasive pad defines a plurality of first openings which receive said rivets, and second openings which permit impressed current to pass through said non-abrasive pad therein.

5,722,794

FLOAT FOR FLOATING FLEXIBLE PIPES

Hans-Werner Friederich, Winsen; Winfried Hellmig, Buxtehude, and Uwe Maass, Hamburg, all of Germany, assignors to Phoenix Aktiengesellschaft, Hamburg, Germany

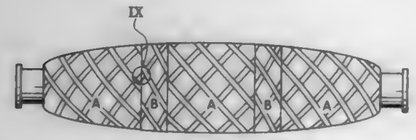
PCT No. PCT/DE95/00831, § 371 Date Feb. 27, 1996, § 102(e) Date Feb. 27, 1996, PCT Pub. No. WO96/01385, PCT Pub. Date Jan. 18, 1996

PCT Filed Jun. 29, 1995, Ser. No. 604,963

Claims priority, application Germany, Jul. 2, 1994, 44 23 299.3

Int. Cl.[6] F16L *1/04*

U.S. Cl. 405—171 20 Claims



1. Floating body for floating hoses said body having a face zone and a cylindrical body, comprising

a multilayered foam body surrounding the floating hose;

a textile cover arranged on the foam body and being designed multilayered and crossed; as well as

an outer covering made from a material selected from the group consisting of an elastomer, a thermoplastic elastomer and a thermoplastic material, wherein

the floating body is provided with an additional transverse textile reinforcement extending at an angle of 75° to 90° relative to the axis.

5,722,796

HINGE-OVER SUBSEA TEMPLATE PRODUCTION SYSTEM

Tore Halvorsen, Otto Sverdrups VE1 6A, 3600 Kongsberg, Norway; Jimmy Andrews, 1 Ridgeway Close, Unit 13-01, Liholiho Rise, Singapore, 1027; Luis Antonio Gomes Araujo, 67B Cumberland Street, Edinburgh, Scotland, EH3 6RD; Sverre Corneliussen, Lovasvelnen 3; Christopher E. Cunningham, Schlanbaxchevi 16, both of 3600 Kongsberg, Norway; Martin Faella, Meieviveien 10, N-3023 Drammen, Norway; Kaj Hugo Fredriksen, Asiyparken 24, 3215 Sandefjord, Norway; Nicholas Gatherar, 6(IFI) West Preston Street, Edinburgh, Scotland, EH8 9PX; Olav Inderberg, Vennsdalsveien 99; Asmund Lauvli, Haavenga, both of 3600 Kongsberg, Norway; Michael Graham Morgan, 18 Dunfermline Road, Limekilns, Fife, Scotland, KY11 3JS, and James Tait, 6 Royal Scot Way, Dunfermline, Scotland, KY12 OPS

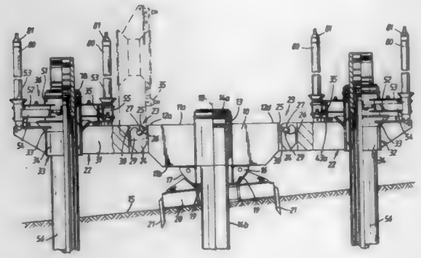
Continuation of Ser. No. 322,248, Oct. 12, 1994, abandoned.

This application Apr. 1, 1997, Ser. No. 834,698

Claims priority, application United Kingdom, Nov. 30, 1993, 9324530

Int. Cl.[6] E21B *43/017*; E02B *17/02*

U.S. Cl. 405—195.1 43 Claims



1. A subsea system comprising a template having an upper support for equipment and a mounting for landing the template to a base located on a seabed, the template including at least one hinge member for connection to a module such that the module can be pivoted relative to the template from a collapsed disposition to a deployed disposition, wherein the base supports both the template and the module at an elevation above the seabed.

5,722,797

FLOATING CAISSON FOR OFFSHORE PRODUCTION AND DRILLING

Edward E. Horton, III, Rancho Palos Verdes, Calif., assignor to Deep Oil Technology, Inc., Houston, Tex.

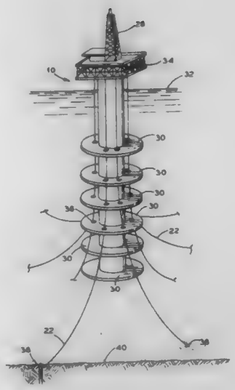
Filed Feb. 21, 1996, Ser. No. 604,520

Int. Cl.[6] B63B *35/44*

U.S. Cl. 405—224 2 Claims

1. A self buoyant, floating deep draft caisson having a draft greater than two hundred feet for use in drilling and production of wells offshore, the improvement comprising:

a. one or more plates that extend radially outward from the lower portion of the caisson located at the depth at which the water is relatively unaffected by wave motion when the caisson is in its operative installed position; and



b. a plurality of mooring lines each attached at one end to the caisson, said mooring lines being received in fairleads through one or more of said radially extending plates.

5,722,798

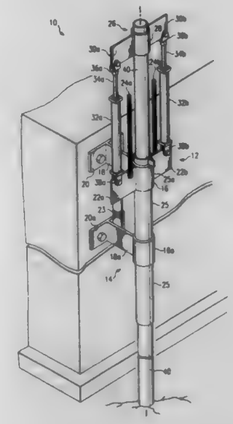
SYSTEM FOR RAISING AND SUPPORTING A BUILDING

Steven D. Gregory, Richardson, Tex., assignor to Gregory Enterprises, Ada, Okla.

Filed Feb. 16, 1996, Ser. No. 602,406

Int. Cl.[6] B66F *3/00*; E02D *5/00*;*5/02*

U.S. Cl. 405—230 75 Claims



74. A system for raising and supporting the foundation or slab of a building, said system comprising a support sleeve which receives a piling, means for bolting the support sleeve to the foundation or slab, a clamping assembly for engaging the upper portion of the piling, a ram assembly connected between the clamping assembly and the support sleeve for initially applying a load to the piling to drive the piling into the ground until the piling encounters a predetermined resistance, and then applying an additional load to the piling to raise the support sleeve and the foundation or slab a predetermined distance relative to the piling, and means for securing the support sleeve in the raised position relative to the piling to secure the foundation in its raised position.

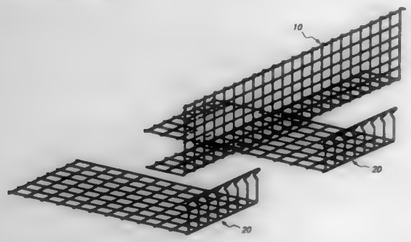
VOL 1208 ISS 1 MR 3 1998 UMI

5,722,799

WIRE EARTHEN RETENTION WALL WITH SEPARATE FACE PANEL AND SOIL REINFORCEMENT ELEMENTS

William K. Hilfiker, 2202 Lakeridge Dr., Grapevine, Tex. 76051

Filed May 23, 1996, Ser. No. 652,321
Int. Cl.[6] E02D 5/00
U.S. Cl. 405—262 48 Claims



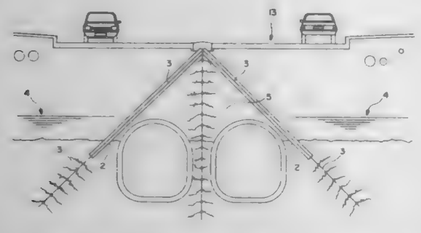
1. A retaining wall structure for the face of an earthen formation, said structure comprising:
a) successive angle-shaped welded wire face mats having relatively short floor portions extending into the formation in generally vertically spaced relationship to one another and upright portions secured to one another and extending between the floor portions at the face of the formation;
b) elongate welded wire soil reinforcing mats with bent-up ends of a height less than the distance between the floor portions of successive facè mats, said reinforcing mats being engaged with the floor portions of the face mats so as to extend therebeyond into the earthen formation with the bent-up ends extending partially over the upright portions of the face mats; and,
c) means securing the bent-up ends of the soil reinforcing mats to the upright portions of the face mats over which said bent-up ends extend.

5,722,800

SEAL AND ITS PRODUCTION METHOD FOR THE CREATION OF LOAD BEARINGS, REMOVABLE EARTH MASSES FOR THE CONSTRUCTION OF UNDERGROUND STRUCTURES SUCH AS CAVITY STRUCTURES

Klaus Esters, Essen-Kettwig, Germany, assignor to Keller Grundbau GmbH, Germany

Continuation of Ser. No. 737,833, Jul. 29, 1991, abandoned, which is a continuation of Ser. No. 234,396, Aug. 19, 1988, abandoned, which is a continuation of Ser. No. 819,212, Jan. 15, 1986, abandoned. This application Jun. 25, 1992, Ser. No. [illegible]
Claims priority, application Germany, Jan. 15, 1985, 35 01 128.9
Int. Cl.[6] E21D 9/00
U.S. Cl. 405—267 2 Claims



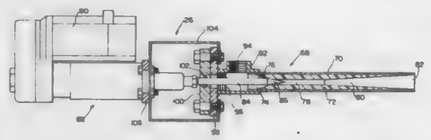
1. A sealing system for use in construction in underground soil in which a volume of said soil is to be sealed against groundwater to allow drainage and removal of said volume of soil, said underground soil including an upper layer subject to saturation by groundwater, and a lower watertight layer,
said sealing system comprising walls injected under pressure into the soil and encompassing said volume of soil as a roof, said walls having upper ends extending above said watertight layer and lower ends extending to said watertight layer, so that the encompassed volume is hermetically sealed,
said walls composed of a composition including bentonite, cement, and a filler, which, when cured, will not become fully rigid, but will be elastically deformable, so that, as water is removed from the encompassed volume by a vacuum, the walls will be able to adapt to the volume reduction and further compress and seal the encompassed soil.

5,722,801

MATERIAL CONVEYING SYSTEM WITH FLOW RATE CONTROL

William J. Mahoney, Jr., Williamsport, Pa., assignor to The Young Industries, Inc., Muncy, Pa.

Filed Dec. 21, 1995, Ser. No. 576,642
Int. Cl.[6] B65G 53/04
U.S. Cl. 406—24 18 Claims



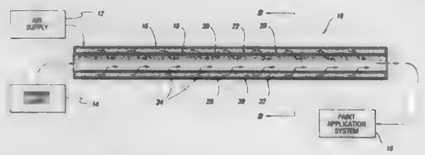
1. An apparatus for conveying particulate materials comprising:
a transporter vessel including an inlet for receiving materials to be conveyed and an outlet for discharging said materials;
a conveying pipeline connected to said vessel outlet for receiving materials from said vessel and for conveying said materials;
a supply of compressed gas;
a gas flow line connected between said gas supply and said vessel, said gas line including a valve with an adjustable passage therethrough;
said adjustable valve passage including a venturi tube having a throat;
said valve further including means for adjustably opening and closing said throat to adjust the flow rate of gas passing through said valve to control material conveyance.

5,722,802

POWDER DELIVERY APPARATUS

Timothy Wayne March, Westland, Mich., assignor to Low Emission Paint Consortium, Southfield, Mich.

Filed Jun. 9, 1995, Ser. No. 486,466
Int. Cl.[6] B65G 53/18;69/06
U.S. Cl. 406—46 8 Claims



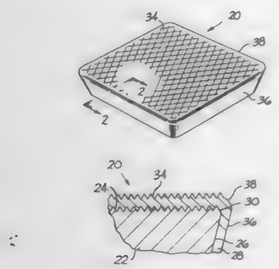
1. A powder delivery apparatus for use in a paint supply system for conveying paint powder particles, comprising:
an inner hose having an innermost and outermost surface and pores extending therebetween, the innermost surface defining a channel along which paint powder particles may flow; a conveying fluid entraining the paint powder particles for conveying the paint powder particles along the channel and
an outer concentric hose having an innermost surface spaced apart from the inner hose, the innermost surface of the outer hose and the outermost surface of the inner hose defining an uninterrupted annular chamber that is charged with a low pressure air,
the air being forced under pressure from the chamber radially inwardly through the pores and between the powder particles, so that transfer efficiency of the powder particles is achieved due to lower air pressures which are required to transport the powder particles, and in turn, particle velocity is reduced while being more evenly distributed along the interior of the inner hose, thereby promoting atomization and destroying agglomeration of adjacent particles so powder particles are prevented from fusing to the innermost surface of the inner hose, thus avoiding powder build-up in the inner hose and promoting consistent powder flow rates and supply pressures.

5,722,803

CUTTING TOOL AND METHOD OF MAKING THE CUTTING TOOL

Frank B. Battaglia, Latrobe; Vincent J. Cackowski, Derry; Aharon Inspektor, Pittsburgh; Edward J. Oles, Ligonier, and John J. Prizzi, Greensburg, all of Pa., assignors to Kennametal Inc., Latrobe, Pa.

Filed Jul. 14, 1995, Ser. No. 502,437
Int. Cl.[6] B23B 27/14
U.S. Cl. 407—119 62 Claims



1. A coated cutting tool comprising:
a substrate; and
a PVD coating applied directly onto the surface of the substrate, the PVD coating having an adherence as measured by the Rockwell A indentation adhesion load test of greater than or equal to 80 kg.

5,722,804

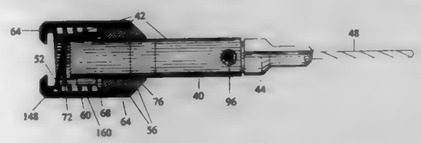
Patent Not Issued For This Number

5,722,805

DRILL BIT ADAPTOR TOOL

Brian K. Giffin, 92 Gold Trail, Goldhill, Boulder, Colo. 80302

Filed Dec. 8, 1995, Ser. No. 569,712
Int. Cl.[6] B32B 51/08
U.S. Cl. 408—239 R 15 Claims



1. An adaptor tool for connection to a driver, comprising:
a tool body having a longitudinal axis;
a working piece connected to said tool body;
a lock member for locking said tool body to the driver, with said lock member being in a first position relative to said longitudinal axis of said tool body;
a sliding member that is moveable relative to said longitudinal axis of said tool body to cause said lock member to move to a second position in order to permit the unlocking of the driver, said sliding member being positioned to facilitate grasping and moving thereof by a user of the adaptor tool wherein, in one of said first and second positions, said lock member is inclined relative to said longitudinal axis of said tool body and, in the other of said first and second positions, said lock member is less inclined relative to said longitudinal axis of said tool body than when said lock member is in said one of said first and said second positions; and
a spring for engaging at least one of said sliding member, said tool body, and said lock member, wherein said spring permits the locking of said lock member when said sliding member is released by the user.

5,722,806

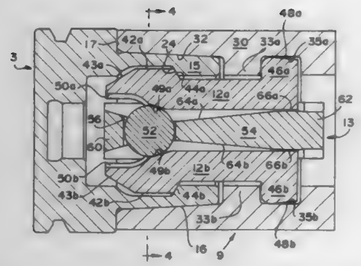
SYSTEM FOR COUPLING A TOOLHOLDER UTILIZING A FREE FLOATING WEDGING BALL

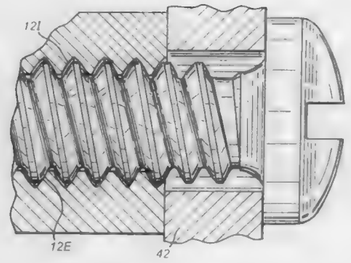
Robert A. Erickson, Raleigh, and Anthony L. Barkley, Knightdale, both of N.C., assignors to Kennametal Inc., Latrobe, Pa.

Continuation-in-part of Ser. No. 168,802, Dec. 16, 1993, Pat. No. 5,466,102. This application Nov. 9, 1995, Ser. No. 556,115
Int. Cl.[6] B23B 31/00
U.S. Cl. 409—233 33 Claims

15. A coupling system tool component comprising:
(a) a male coupling having a cylindrical distal end including a recess that includes follower surfaces;
(b) a female coupling having a hollow interior for receiving the distal end of the male coupling, and a pair of opposing jaw members movably mounted within said interior and including

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external cam surfaces for engaging said follower surfaces when said jaw members are radially moved apart to mate said male and female couplings, and internal wedge surfaces for engaging a wedging ball, and

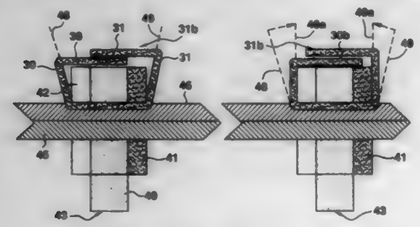
(c) a drive train for radially moving said jaw members apart, including said wedging ball, an axially movable rod for driving said wedging ball into and out of engagement with said internal wedge surfaces of said opposing jaw members, and means for compliantly connecting said wedging ball to said drive rod so that said ball floatingly engages the wedge surfaces of said opposing jaw members with equal force.

5,722,807

CLAMP LOAD INDICATOR

Malcolm H. Hodge, West Hartford, Conn., assignor to Structural Integrity Monitoring, Willimantic, Conn.

Filed Oct. 15, 1996, Ser. No. 729,203
Int. Cl.° F16B *31/02*
U.S. Cl. 411—10 **19 Claims**



1. A clamp load magnitude sensing device suitable for use in cooperation with a fastener comprising:

a flat washer having uniform thickness and an annular aperture for receiving a fastener, said washer having at least one marginal washer edge;

at least one arm extending from said one marginal washer edge;

said arm being formed integrally with said washer and extending generally perpendicular to said washer;

said arm being moveable in response to loads applied generally perpendicular to a surface of said washer when said washer is installed with a suitable fastener providing a tension load;

said washer being formed from a material that will follow deflection of a base metal with which it is used.

5,722,808

THREADED FASTENER SYSTEM

Alan Pritchard, Walchwil, Switzerland, assignor to Conti Fasteners AG, Baar, Switzerland

Filed Sep. 11, 1996, Ser. No. 710,126
Int. Cl.° F16B *35/00;35/04*
U.S. Cl. 411—366 **10 Claims**

1. A threaded fastener system having an axis of rotation and being defined in cross section, through the axis of rotation, by a mating concave curved profile internal thread and a convex curved profile external thread, the curved profile internal thread and curved profile external thread each being defined by a set of curved profile thread size parameters including an effective diameter and an axial thread pitch, and being respectively compatible with and matable with a straight profile external thread and straight profile internal thread of a conventional straight substantially triangular profile threaded fastener system having a mating straight profile internal thread and straight profile external thread, the straight substantially triangular profile threaded fastener system being defined by a set of straight profile thread size parameters according to published standards including a standardized effective diameter, a standardized axial thread pitch, a standardized minimum metal condition and a standardized maximum metal condition, the system comprising:

an internal thread defined by the curved thread size parameters and including a pair of confronting concave thread faces extending between an internal thread tip at a radially innermost location and an internal thread well at a radially outermost location relative to the axis of rotation of the system, each concave thread face being defined by a predetermined concave radius, the predetermined concave radius lying between (1) a first line defined by a face of the straight profile external thread having the compatible straight profile thread size parameters wherein the straight profile external thread is at the standardized maximum metal condition and (2) a second line defined by a face of the straight profile internal thread having the compatible straight profile thread size parameters wherein the straight profile internal thread is at the standardized minimum metal condition;

wherein one of the pair of concave thread faces comprises a concave load-carrying face and another of the pair of concave faces comprises an concave unloaded face;

wherein the internal thread tip is truncated to ensure an interference-free mating with an interengaging external thread;

an external thread defined by the curved thread size parameters and including a pair of confronting convex thread faces extending between an external thread tip at a radially outermost location and an external thread well at a radially innermost location relative to the axis of rotation of the system, each convex thread face being defined by a predetermined convex radius:

wherein one of the pair of convex thread faces comprises a convex load-carrying face and another of the pair of convex thread faces comprises an convex unloaded face;

wherein each concave internal thread face and each convex external thread face includes a center of curvature that defines the respective predetermined concave radius and the predetermined convex radius, the convex load-carrying face being located at the same position as, and having the same radius as, the concave load-carrying face, and the convex unloaded face having the same radius as the convex load-carrying face, and wherein the center of curvature of the convex unloaded face is displaced in an axial direction relative to the center of curvature of the unloaded concave face to accommodate a difference between the effective diameter of the internal thread and the effective diameter of the external thread;

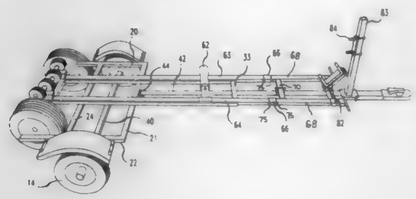
wherein a thread width in an axial direction of the external thread at a radial location of the effective diameter of the external thread is equal to one half the thread axial pitch, whereby both axially applied compression forces and axially applied tension forces can be applied to mating of the internal and external threads.

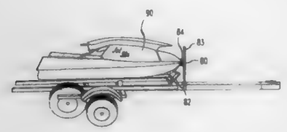
5,722,809

TRAILER-DOLLY COMBINATION FOR SMALL OR PERSONAL WATERCRAFT

Vincent A. Urbank, 609 Elizabeth Ave., Toms River, N.J. 08753

Continuation-in-part of Ser. No. 83,519, Jun. 30, 1993, abandoned. This application Apr. 7, 1995, Ser. No. 418,457
Int. Cl.° B60P *3/10*
U.S. Cl. 414—529 **4 Claims**





1. The combination of a towable trailer and a hand operated dolly comprising:

a trailer including a first frame assembly; first, second and third arms perpendicularly connected to form a substantially U-shaped second frame assembly connected to and overlying said first frame assembly; said first and third arms of said second frame assembly being parallel and slotted to receive and support said dolly therein;

said trailer including a bar; first tire means mounted on said bar at locations laterally of said first and second frame assemblies; means for coupling said bar to said first frame assembly;

an elongated member pivotally connected at a first end thereof to said first frame assembly to permit said first and second frame assemblies to rotate about said bar, and means mounted at a second end of said elongated member for attaching the trailer to a towing vehicle; first roller means mounted on said first and third arms to enable said dolly and a watercraft thereon to be transferred on an off of said trailer;

said hand operated dolly being formed by a third frame assembly that includes a pair of spaced parallel dolly arms adapted to be received and supported in said first and third arms of said second frame assembly; an axle mounted on said third frame assembly adjacent an end of said dolly arms; second tire means spacedly mounted on said axle so that when said dolly is transferred on to said trailer said second tire means are located within said first frame assembly; second roller means mounted on said dolly arms to enable a watercraft to be transferred on and off of said dolly; hand means on said dolly for transferring said dolly on and off of said trailers via said first roller means;

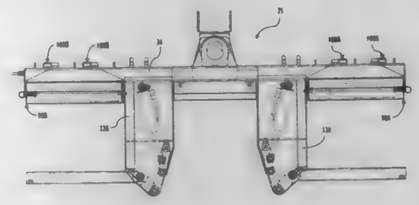
said first tire means having a first pressure value and constructed to withstand the impacts of paved highway travel; said second tire means having a second pressure value equal to approximately one-third of said first pressure value and constructed to withstand the impacts of travel on unpaved surfaces but insufficient to withstand the impacts of paved highway travel.

5,722,810

OVER-CENTER LOCKING MECHANISM FOR TOW TRUCK WHEEL-LIFT OR THE LIKE

Charles E. Young, and Scott A. Watson, both of Falling Waters, W. Va., assignors to Jerr-Dan Corporation, Greencastle, Pa.

Filed Nov. 7, 1995, Ser. No. 554,826
Int. Cl.° B60P *3/12*
U.S. Cl. 414—563 **29 Claims**



1. A wheel-grid assembly comprising:

a wheel boom;

a pair of lift arms each including an extension arm segment transversely fixed to the wheel boom, disposed to fit between front or rear wheels of a vehicle to be towed, and an engaging arm segment having a pivot point designed for pivotal mounting of said engaging arm segment near an end of the extension arm segment, remote from the wheel boom, and each said engaging arm segment having an actuating arm segment and a gripping arm segment extending in different directions from the pivot point;

a pair of linear actuators each having a fixed arm segment and movable arm segment, with said fixed arm segment relatively transversely, pivotally attached to the wheel boom and said movable arm segment pivotally attached to an over-center locking mechanism for locking the engaging arm segment in an engaging position, and thereby locking said engaging arm segment without aid of force from the movable arm segment;

said engaging arm segments maintaining either an open position disposed to fit between the front or rear wheels of the vehicle to be towed when the movable arm segments of the linear actuators are at non-extended positions, or a lifting position where extension of the movable arm segments of the linear actuators pivot said engaging arm segments to engage the vehicle to be towed.

28. A wheel spacer for adapting a wheel grid assembly for different sized wheels of a vehicle to be towed, comprising:

a wheel engaging surface, a top edge with at least one pin extending parallel to said top edge, a right edge and a left edge, said pin for mounting the wheel spacer on a wheel boom of the wheel grid assembly such that the wheel spacer pivots into a position within a wheel cradle formed by said wheel boom and a lift arm transversely mounted thereto;

a spring loaded latching pin, extending through the right and left edges of the wheel spacer, with one end protruding beyond the left edge and the other end protruding beyond the right edge, comprising:

a gripping means at one end of the latching pin;

a spring located just inside the edge of the wheel spacer with the end of the latching pin containing the gripping means, with said spring being locked in place by a locking ring creating spring tension forcing the latching pin in a direction away from the gripping means and toward the wheel spacer.

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5,722,811

METHOD FOR SEPARATING A PREDETERMINED NUMBER OF SHEETS FROM A STACK OF SHEETS

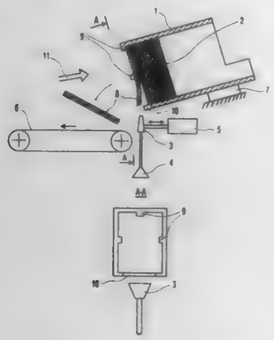
Michael Schum, Cherry Hill, N.J.; Boris M. Akselrod, St. Petersburg, Russian Federation; Alexander N. Gerasimov, St. Petersburg, Russian Federation; Alexander L. Ljubomirsky, St. Petersburg, Russian Federation; Alex M. Piniaev, St. Petersburg, Russian Federation; Alexey N. Zakharov, St. Petersburg, Russian Federation; Simon S. Litvin, St. Petersburg, Russian Federation; Vladimir M. Gerasimov, St. Petersburg, Russian Federation, and Michael Valdman, Boston, Mass., assignors to Asomm, Inc., Cherry Hill, N.J.

Filed Aug. 15, 1995, Ser. No. 515,466

Claims priority, application Russian Federation, Aug. 29, 1994, 94032558

Int. Cl.[6] B65H *3/48*

U.S. Cl. 414—796 12 Claims



1. A method of separating a block of sheets of a predetermined number of sheets from a stack of sheets, the method comprising:
- retaining the stack so that at least a portion of one edge of each consecutive foremost sheet is free to bend away from the stack,
- directing a plane of air flow sequentially onto the foremost surfaces of a predetermined number of at least two foremost sheets to bend at least portions of the free edges of the predetermined number of foremost sheets sequentially away from the stack,
- separating the bent predetermined number of foremost sheets into a block, and
- removing the block from the remaining sheets in the stack.

5,722,812

ABRASION RESISTANT CENTRIFUGAL PUMP

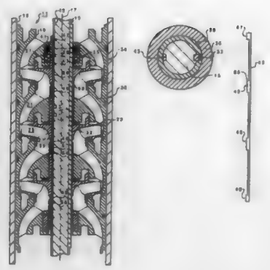
Dick L. Knox, Claremore, and J. Tad Bohlen, Broken Arrow, both of Okla., assignors to Baker Hughes Incorporated, Houston, Tex.

Continuation of Ser. No. 667,020, Jun. 20, 1996, abandoned. This application Jan. 17, 1997, Ser. No. 785,715

Int. Cl.[6] F04D *29/04;29/44;29/66*

U.S. Cl. 415—199.1 38 Claims

9. In a centrifugal pump having a housing, a driven shaft extending along a longitudinal axis, a plurality of pumping stages, each stage having a diffuser mounted stationarily in the housing and an impeller having a hub through which the shaft extends for rotating the impeller, the improvement comprising in combination:
- a stationary member on at least one of the diffusers, having an upward facing stationary bearing surface and a bore;
- a runner having a cylindrical portion which is rotatably carried in the bore of the stationary member and an upper flange which has a lower surface which engages the stationary bearing surface;



- key means for causing the runner and impellers to rotate with the shaft but allowing axial movement relative to the shaft; and
- a tension member having a downward facing shoulder on an upper end which engages the runner and extends downward through a selected number of the stages, the tension member having a plurality of upward facing load shoulders spaced along its length, each of the upward facing load shoulders extending radially outward between two of the hubs and supporting one of the hubs against downthrust, whereby downthrust on each of the impellers transfers to the tension member and through the tension member to the runner and stationary bearing surface.

5,722,813

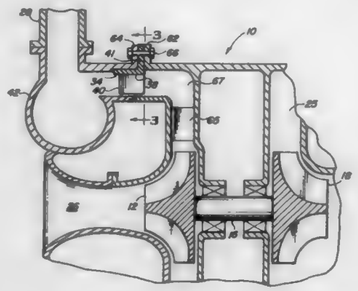
SEGMENTED COMPOSITE COMPRESSOR DESWIRL

Pei-Ching Li, Gilbert; Bruce D. Reynolds, Phoenix, and Theodore Westerman, Scottsdale, all of Ariz., assignors to Allied-Signal Inc., Morris Township, N.J.

Filed Oct. 28, 1996, Ser. No. 739,478

Int. Cl.[6] F04D *29/44*

U.S. Cl. 415—208.1 17 Claims



1. A deswirl arrangement for the compressor of a turbocharger or supercharger comprising:
- a plurality of deswirl segments made of injection molded organic matrix composite material, each deswirl segment comprising:
- an outer arcuate shroud segment having an inner surface and an outer surface;
- a plurality of airfoil shaped vanes extending radially inward from said inner surface of said outer shroud;
- a mounting flange extending radially outward from said outer shroud outer surface, said mounting flange defining two axially facing surfaces and extending circumferentially the entire length of said outer shroud, said mounting flange and said outer shroud together defining a circumferentially-facing edge at each end of said deswirl segment for abutting a corresponding circumferentially-facing edge of an adjacent deswirl segment;

- an integral flexible sealing member at one end of said mounting flange projecting circumferentially from said circumferentially-facing edge; and
- the other end of said mounting flange defining a mating slot extending from said respective circumferentially-facing edge for sealingly receiving the flexible sealing member of an adjacent deswirl segment.

5,722,814

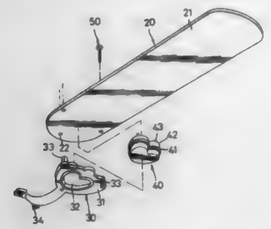
FAN BLADE MOUNTING DEVICE HAVING A DECORATIVE MEMBER PROVIDED THEREON

Chai-Chi Yu, No. 24, Lane 1, Ta-Chih St., Tan-Yang Tsun, Tan-Tzu Hsiang, Taichung Hsien, Taiwan

Filed Apr. 3, 1997, Ser. No. 832,457

Int. Cl.[6] F04D *29/00*

U.S. Cl. 416—204 R 12 Claims



1. A mounting device adapted to be secured to a bottom side of a connecting end portion of a fan blade of a ceiling fan, said mounting device comprising:
- a decorative member;
- a mounting arm having a plate-like blade mounting end portion which is to be disposed horizontally beneath the connecting end portion of the fan blade and which is formed with an insert hole that complements said decorative member for retaining said decorative member thereon, and a plurality of screw sockets that are disposed around said insert hole; and
- a plurality of screw fasteners adapted to extend through the connecting end portion of the fan blade to engage said screw sockets and retain said mounting arm on the fan blade.

5,722,815

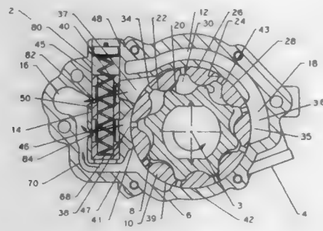
THREE STAGE SELF REGULATING GEROTOR PUMP

Eric R. Cozens, Burlington, Canada, assignor to Stackpole Limited, Mississauga, Canada

Filed Aug. 14, 1995, Ser. No. 515,054

Int. Cl.[6] F04C *15/02*

U.S. Cl. 417—310 18 Claims



1. A positive displacement pump for pumping a fluid from an intake condition to a discharge condition, said pump comprising:
- a rotor, stator, and follower set having at least one inlet and at least two outlets;
- a valve controlling at least one of said outlets, said valve sequentially movable among at least (a) a full flow position, (b) a partial flow position, and (c) a pressure relief position;
- an intake, a discharge, and a bypass passage;
- said valve sensible to pressure at said discharge;
- said valve tending to move from said full flow position as said discharge pressure increases;
- said outlets include at least a first outlet and a last outlet;
- said bypass passage, said intake, and said inlet are in mutual fluid communication;
- said last outlet is in fluid communication with said discharge;
- said first outlet communicates with said valve;
- said valve comprises at least two exhaust ports, a first of said exhaust ports communicating with said discharge and a second of said exhaust ports communicating with said bypass passage, and said bypass passage in fluid communication with said intake;
- in said full flow position of said valve said first exhaust port being open and said second exhaust port being closed;
- and in said partial flow and pressure relief positions of said valve said first exhaust port being closed and said second exhaust port being open.

5,722,816

GAS COMPRESSOR

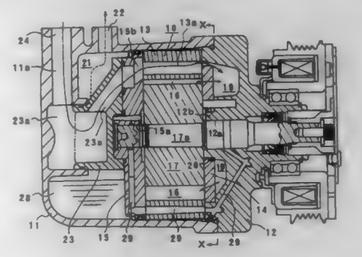
Koichi Shimada, and Seiichiro Yoda, both of Narashino, Japan, assignors to Seiko Seiki Kabushiki Kaisha, Japan

Filed Aug. 29, 1996, Ser. No. 705,541

Claims priority, application Japan, Aug. 31, 1995, 7-223791

Int. Cl.[6] F04B *49/00*

U.S. Cl. 417—310 3 Claims



1. A gas compressor comprising:
- a gas compression portion for compressing gas by a volume change caused by rotary motion of a rotating body;
- a gas exchange chamber placed at a first side of said gas compression portion and acting to exchange the gas with said gas compression portion;
- a control means disposed between said gas exchange chamber and said gas compression portion and having an opening for placing said gas compression portion and said gas exchange chamber in communication with each other, said opening having an effective area, said control means being designed to control compression volume of said gas compression portion by adjusting the effective area of said opening;
- a gas discharge portion disposed at a second side of said gas compression portion and having a discharge opening from which the gas compressed in said gas compression portion is discharged; and
- gas supply passages having a gas inlet port for drawing in the gas, said gas inlet port being located at said second side of said gas compression portion, said gas supply passages permitting supply of the gas to said gas compression portion.

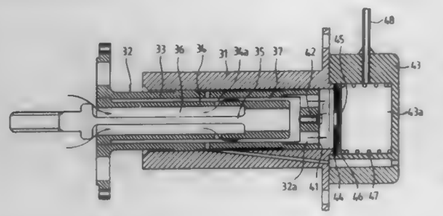
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NOISE-REDUCING APPARATUS FOR LINEAR COMPRESSOR

Jung Sik Park, and Hyung Kook Lee, both of Kyungki-do, Rep. of Korea, assignors to LG Electronics Inc., Rep. of Korea

Filed Aug. 14, 1996, Ser. No. 696,490
Claims priority, application Rep. of Korea, Aug. 21, 1995, 25666/1995
Int. Cl.[6] F04B *11/00*
U.S. Cl. 417—312 11 Claims



1. A noise-reducing apparatus for a linear compressor for reducing noise in which a plurality of silencers are formed connected to a suction side of a refrigerant passage inside a piston slidably disposed inside a cylinder,

wherein the piston is formed with an outer piston disposed in the cylinder, a rod post disposed inside the outer piston and a piston rod disposed inside the rod post;

a first silencer connected to an entrance of a refrigerant passage formed between the piston rod and the rod post; and

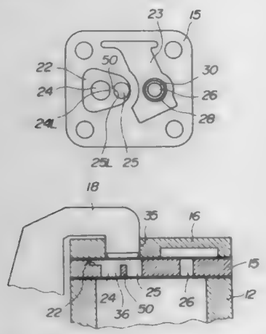
a second silencer formed between the rod post and the outer piston.

5,722,818

SUCTION VALVE ARRANGEMENT FOR A HERMETIC COMPRESSOR

Michio Ohta; Hirokazu Kawakami, both of Ohta, and Shuji Kawashima, Gunma-ken, all of Japan, assignors to Sanyo Electric Co., Ltd., Osaka-fu, Japan

Filed Sep. 3, 1996, Ser. No. 707,178
Claims priority, application Japan, Sep. 5, 1995, 7-228064
Int. Cl.[6] F04B *37/00*
U.S. Cl. 417—312 10 Claims



1. A hermetically sealed type compressor comprising:

an electric motor unit placed within a hermetically sealing casing;

a compressor unit located within said hermetically sealing casing and having a cylinder and a piston, said cylinder being in engagement with said piston driven by said electric motor unit to reciprocate;

a valve seat plate equipped with a plurality of adjacent suction holes with partition disposed therebetween and attached to an end portion of said cylinder; and

a suction reed valve disposed between the cylinder end portion and said valve seat plate to open and close said plurality of suction holes,

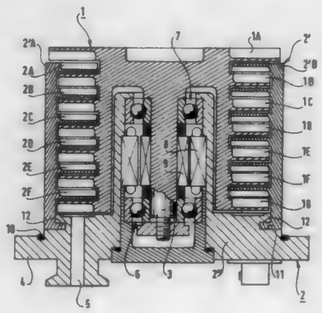
wherein said valve seat plate is constructed such that the partition between said adjacent suction holes have a constant thickness in a direction separating said holes.

5,722,819

MOLECULAR DRAG PUMP

Jean-Claude Broisin; Olivier Dauvillier, and Denis Perrillat-Amede, all of Annecy, France, assignors to Alcatel Cit, Paris, France

Filed Jun. 27, 1996, Ser. No. 671,555
Claims priority, application France, Jun. 30, 1995, 95 07922
Int. Cl.[6] F04D *19/04*
U.S. Cl. 417—423.4 3 Claims



1. A molecular drag pump comprising a rotor and a stator, the pump being of the type including at least alternating finned stages of the rotor and of the stator, and in which the rotor is bell-shaped, while the stator includes at least one external portion carrying the stator fins and at least one internal portion penetrating into the bell-shaped rotor, said internal portion closing the pump at its delivery end and including a flange-forming external peripheral rim, wherein said external portion of the stator carrying the stator pins is made up of two half-stators that meet in a diametral plane, each half-stator comprising a single piece and being positioned axially by having a bearing surface situated at its end remote from its suction end that hooks into a complementary circular groove of said internal portion of the stator, and wherein the outside diameter of the first finned stage of the rotor at its suction end corresponds, ignoring operating clearance, to the outside diameter of the external portion of the stator.

5,722,820

PROGRESSING CAVITY PUMP HAVING LESS COMPRESSIVE FIT NEAR THE DISCHARGE

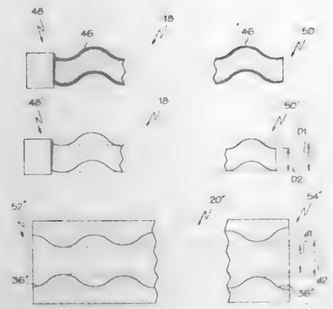
Alan G. Wild, Woodstock, and Kamran Z. Mirza, Springfield, both of Ohio, assignors to Robbins & Myers, Inc., Dayton, Ohio

Filed May 28, 1996, Ser. No. 654,359
Int. Cl.[6] F04C *2/107;5/00*
U.S. Cl. 418—48 15 Claims

1. A progressing cavity pump having a suction end and a discharge end, comprising:

a metallic rotor in the form of a helical gear with at least one lead; and

a resilient stator having an internal bore in the form of a helical gear including one more lead than said rotor;



said rotor being rotationally disposed in said internal bore to form a plurality of cavities between said rotor and stator;

said rotor and said stator having a compressive fit between said rotor and stator; and

said compressive fit near said discharge end being less than said compressive fit near said suction end;

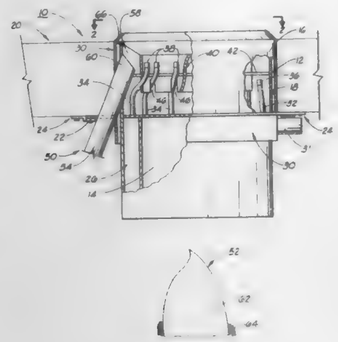
whereby, internal pressure leakage from said cavities located near said discharge end is greater than internal pressure leakage from said cavities located near said suction end.

5,722,821

BURNER ASSEMBLY FOR REDUCING NITROGEN OXIDES DURING COMBUSTION OF GASEOUS FUELS

Dan L. Christenson, Mulvane, Kans., assignor to Gordon-Piatt Energy Group, Inc., Winfield, Kans.

Continuation of Ser. No. 11,455, Jan. 29, 1993, Pat. No. 5,441,404. This application Aug. 10, 1995, Ser. No. 513,336
Int. Cl.[6] F23D *14/20*
U.S. Cl. 431—10 14 Claims



1. A process for combusting fuel in a burner to produce a combustion effluent containing less than about 25 ppm oxides of nitrogen which comprises:

supplying a stream of combustion air to the burner;

injecting a first gaseous fuel portion into the burner;

injecting a second gaseous fuel portion into the burner downstream of the first gaseous fuel portion;

igniting the first and second gaseous fuel portions injected into the burner, producing a flame envelope; and

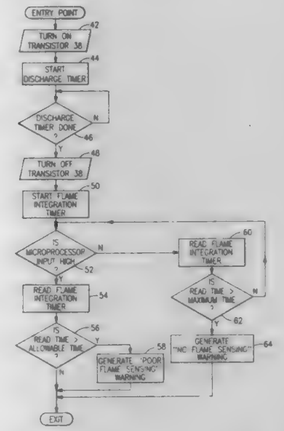
injecting an inert diluent generally tangentially to the flame envelope downstream of the first and second gaseous fuel portions, forming a shroud of inert diluent about the base of the flame envelope.

5,722,822

FLAME SENSOR VERIFICATION

Larry E. Wilson, Marion; Craig R. Knotts, Fort Wayne, and Daniel L. Kelly, Fort Worth, all of Ind., assignors to Carrier Corporation, Syracuse, N.Y.

Filed May 3, 1995, Ser. No. 433,183
Int. Cl.[6] F23Q *23/00*
U.S. Cl. 431—25 13 Claims



1. A system for detecting the presence and quality of a flame being produced by an electrically grounded burner of a furnace, said system comprising:

an electrode mounted in the path of a flame produced by the burner;

an alternating current voltage source connected through a first capacitor and a first resistor to said electrode, said alternating current voltage source causing current to flow through the electrode and through a flame impinging on the electrode to the burner, the current flow through the flame producing an attenuated voltage condition at the electrode caused by the relative conductivity of the flame for positive versus negative voltage fluctuation of the alternating current voltage;

a second resistor connected at one end to a junction between said first resistor and said first capacitor;

a second capacitor connected to the opposing end of said second resistor, said second capacitor in combination with said first capacitor and said second resistor defining a second current path to ground from the alternating current voltage source, said second capacitor charging over time to a capacitance voltage level indicative of the attenuated voltage condition at the electrode; and

a processor having an input for sensing when the second capacitor has reached the capacitance voltage level indicative of the attenuated voltage condition at the electrode, said microprocessor including means for measuring the time the second capacitor takes to achieve the capacitance voltage level indicative of the attenuated voltage condition at the electrode.

5,722,823

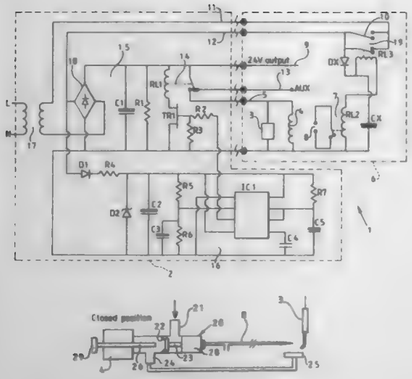
GAS IGNITION DEVICES

Neil John Hodgkiss, Waterloo, Cheltenham Road, Bredon, Tewkesbury, GL20 7NA, England

Filed Nov. 8, 1995, Ser. No. 552,313
Claims priority, application United Kingdom, Nov. 18, 1994, 9423271
Int. Cl.[6] F23Q *9/08*
U.S. Cl. 431—43 9 Claims

1. A gas ignition device comprising:

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a low voltage operating module adapted to be fitted to a gas appliance, said module comprising a gas actuator which is electrically operable to cause a gas valve to initiate a gas flow, and an igniter which is electrically operable to ignite the gas flow; and

a remote control unit that is spaced from said module and is connected to the gas actuator and the igniter by low voltage line means, said remote control unit comprising a power supply having an isolating transformer that is adapted to be connected to a high voltage mains supply for providing a low voltage output, and a timer circuit for applying the low voltage output to the low voltage line means to cause gas ignition in response to an appropriate actuating signal from said module.

5,722,824

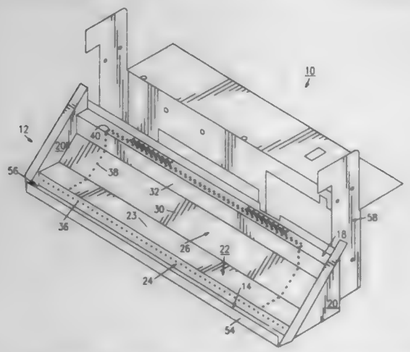
UNVENTED GAS BURNER ASSEMBLY

Robert Beck, 10803 Fremont, Ontario, Calif. 91761

Filed Dec. 13, 1994, Ser. No. 354,970

Int. Cl.[6] F23Q 2/32

U.S. Cl. 431—125 18 Claims



1. A gas burner assembly comprising a gas distribution chamber, wherein:

(a) the gas distribution chamber has an elongated horizontal base, an elongated top wall, a pair of opposed substantially vertical sidewalls and an elongated front wall;

(b) the front wall is a continuous surface comprising a substantially vertical forward section and a substantially concave rear section;

(c) first gas discharge ports are provided for evenly distributing a first quantity of gas (F1), the discharge ports extending longitudinally along the exterior of the forward section of the front wall, second gas discharge ports located in the front wall are provided for distributing a second quantity of gas (F2), the second gas discharge ports being aligned in an array, from adjacent the vertical section of the front wall to adjacent the top wall and third gas discharge ports are provided for distributing a third quantity of gas (F3), the third gas discharge ports arranged in an array, across the exterior of the top wall, the first, second and third gas discharge ports being chosen so that F3>F2+F1;

(d) the first and second gas discharge ports and the front wall are all configured so that gas burns along the exterior of the front wall in close proximity to the exterior of the front wall.

5,722,825

DEVICE FOR HEAT-TREATING METALLIC WORK PIECES IN A VACUUM

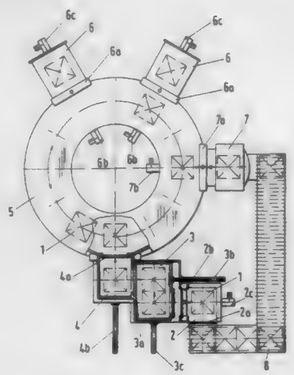
Bernd Edenhofer, Kleve, Germany, assignor to Ipsen Industries International GmbH, Kleve, Germany

Filed Mar. 29, 1996, Ser. No. 624,965

Claims priority, application Germany, Mar. 31, 1995, 295 05 496 U

Int. Cl.[6] F27B 9/02;9/18;9/26

U.S. Cl. 432—138 12 Claims



1. A device for heat-treating metallic workpieces in a vacuum, said device comprising:

a revolving vacuum furnace comprising an inlet transfer lock for introducing batches of workpieces into said revolving vacuum furnace and an outlet transfer lock for removing the batches of workpieces from said revolving vacuum furnace;

said revolving vacuum furnace further comprising an annular turntable for transporting the batches of workpieces from said inlet transfer lock to said outlet transfer lock;

at least one carburization furnace, for carburization treatment of the batches of workpieces, connected to said revolving vacuum furnace at least at a peripheral location of said revolving vacuum furnace between said inlet transfer lock and said outlet transfer lock in a direction of transport of the batches of workpieces, wherein said annular turntable transports the batches of workpieces to said at least one carburization furnace.

5,722,826

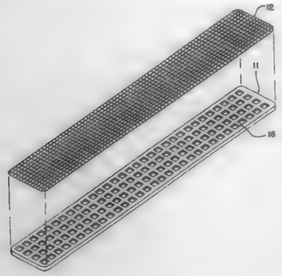
BONDING PAD

Lee H. Tuneberg, and William P. Gagin, both of Sheboygan, Wis., assignors to American Orthodontics Corporation, Sheboygan, Wis.

Filed Feb. 21, 1997, Ser. No. 803,015

Int. Cl.[6] A61C 7/00

U.S. Cl. 433—9 30 Claims



1. A metal bonding pad for an orthodontic attachment which comprises:

a thin layer of metal foil having a substantially smooth side adapted to be secured to the backside of an orthodontic attachment and a bond side for coacting with a bonding material to bond to a tooth,

said bond side having a photoetched pattern,

and a layer of mesh diffusion bonded thereto.

5,722,827

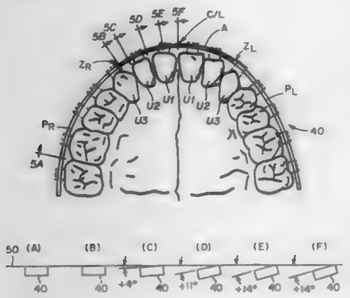
TORQUED TITANIUM-BASED ARCHWIRE

Timothy J. Allesee, Geneva; David J. Brosius, Crete, both of Ill., and Paul J. Blanchette, Burlington, Conn., assignors to Ortho Specialties, Hickory Hills, Ill.

Filed Feb. 23, 1996, Ser. No. 606,216

Int. Cl.[6] A61C 3/00

U.S. Cl. 433—20 14 Claims



1. An archwire of substantially rectangular cross-section which, in conjunction with a set of orthodontic brackets having slots to edgewise receive the archwire, applies torque forces to selected teeth, the archwire comprising:

a continuous, elongated member of titanium-based alloy formed to have a plurality of segments, including,

a curved anterior segment having a centerpoint, which segment, upon insertion into corresponding bracket slots, extends substantially parallel to the four central and lateral teeth with the centerpoint positioned between the brackets on the two central teeth;

first and second transition segments, each extending distally from a respective end of the anterior segment; and

first and second posterior segments, each extending distally from a respective distal end of one of the first and second transition segments;

wherein the anterior segment has a built-in torque which varies over the length of the segment, the torque attaining a maximum value, in a range of about 13°–20°, at the centerpoint and through a portion of the anterior segment which extends substantially through the slots of at least the two central teeth brackets and then decreasing to a value of about 5° at each end of the anterior segment, each of the posterior segments has approximately 0° built-in torque, and each transition segment has a length whereby, upon insertion of the archwire into the bracket slots, the entire transition segment is positioned between the brackets on corresponding adjacent lateral and cuspid teeth, the transition segments each having a built-in torque which varies from about 0° at the distal end to about 5° at the mesial end.

5,722,828

METHOD OF FABRICATING A DENTAL BITE REGISTRATION MOLD USING A GOTHIC ARCH TRACING

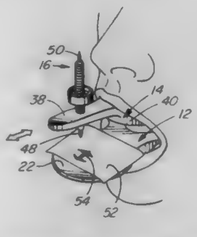
Leonard Wayne Halstrom, Lions Bay, Canada, assignor to Silent Knights Ventures Inc., Vancouver, Canada

Filed Mar. 24, 1995, Ser. No. 410,285

Claims priority, application Canada, Oct. 3, 1994, 2133549

Int. Cl.[6] A61C 19/04

U.S. Cl. 433—69 6 Claims



1. A method of fabricating a dental bite registration mold comprising the steps

(a) providing a first bite rim having a first U-shaped arch and a flat tracing plate extending forwardly of said first arch;

(a) providing a second bite rim having a second U-shaped arch and a tracing arm extending forwardly of said second arch;

(c) placing pliable dental putty into forward portions of said first and second arches;

(d) inserting said first bite rim into said patient's mouth such that said dental putty in said first arch conforms to an anterior segment of said patient's mandibular dentition and said tracing plate extends externally of said patient's mouth;

(e) inserting a separator plate into said patient's mouth overlying said first bite rim;

(f) inserting said second bite rim into said patient's mouth overlying said separator plate such that said dental putty in said second arch conforms to an anterior segment of said patient's maxillary dentition and said tracing arm extends externally of said patient's mouth overlying said tracing plate;

(g) allowing said dental putty to set with said patient biting firmly on said separator plate to obtain castings of said anterior segments of said patient's mandibular dentition and maxillary dentition;

(h) removing said separator plate from said patient's mouth;

(i) securing a removable substrate to an upper surface of said tracing plate;

(j) releasably securing a stylus to said tracing arm and adjusting said stylus until a first end thereof engages said substrate;

(k) moving said patient's mandible between protruded and retruded positions and between laterally excursive positions

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so that said stylus draws a tracing on said substrate indicative of the range of movement of said patient's mandible;

(l) removing said first and second bite rims from said patient's mouth;

(m) marking said substrate at a pre-determined point on said tracing;

(n) drilling a hole through said substrate and said tracing plate at said pre-determined point;

(o) placing pliable dental putty around rearward portions of said first and second arches;

(p) releasably securing an alignment pin to said tracing arm for extending between said tracing arm and said tracing plate;

(q) reinserting said first and second bite rims into said patient's mouth so that said castings engage said anterior segments of said patient's teeth and said pliable putty conforms to posterior segments of said patient's teeth;

(r) moving said patient's mandible until said spring-loaded pin is seated in said hole drilled in said tracing plate;

(s) allowing said dental putty to set to obtain castings of said posterior teeth segments; and

(t) removing said first and second bite rims and said pin from said patient's mouth.

5,722,829

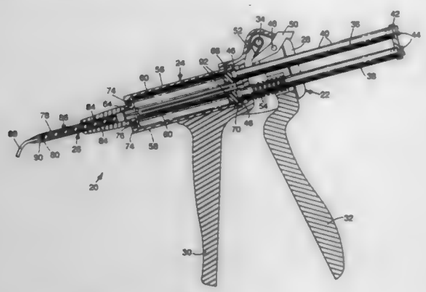
CARTRIDGE DISPENSING SYSTEM FOR DENTAL MATERIAL

Malcolm W. Wilcox, Woodbury; James E. Nash, St. Paul; Thomas W. Martin, Maplewood; Alex Rodriguez, Jr., and Ralph F. Rogers, both of Woodbury, all of Minn., assignors to Minnesota Mining & Manufacturing Co., St. Paul, Minn.

Continuation-in-part of Ser. No. 394,724, Feb. 27, 1995, abandoned. This application Oct. 24, 1995, Ser. No. 547,451

Int. Cl.[6] A61C *5/04*

U.S. Cl. 433—90 **46 Claims**



1. A dispensing system comprising:

an applicator having a body, an elongated handle connected to said body and a pair of plungers movable relative to said body;

a first container connected to said body and having a chamber with a longitudinal axis;

a second container connected to said body and having a chamber with a longitudinal axis; and

an arm pivotally coupled to said body and movable relative to said handle for moving said plungers,

said plungers being movable toward said chambers of said first container and said second container, said axes of said first container and said second container generally lying in a common reference plane, said handle depending from said body in a direction generally parallel to said reference plane, said chambers of said first container and said second container each having a component of a dental material.

5,722,830

CONTAINER FOR STORING AND DISPENSING A DENTAL SUBSTANCE

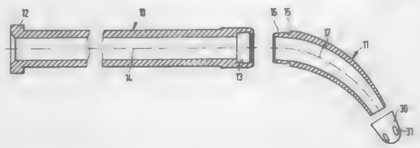
Gerd Brandhorst, Landsberg, and Wolf-Dietrich Herold, Seefeld, both of Germany, assignors to Thera Patent GmbH & Co. KG, Seefeld, Germany

Filed Feb. 20, 1996, Ser. No. 603,334

Claims priority, application Germany, Feb. 20, 1995, 295 02 783 U

Int. Cl.[6] A61C *5/04*

U.S. Cl. 433—90 **17 Claims**



1. A container for storing and dispensing a pasty substance sensitive to local pressure differences, comprising

a cartridge for holding said substance, said cartridge being circular-cylindrical throughout its length and defining an axis, and

a dispensing nozzle constituted by a rigid tube having an inlet opening which communicates with said cartridge, said inlet opening being the same size as the cartridge and aligned with said axis, and an outlet opening which is inclined with respect to said axis, the tube being circularly curved along a continuous smooth path throughout is length, and tapering toward said outlet opening in such a way that its inner cross-sectional shape is circular throughout its length.

5,722,831

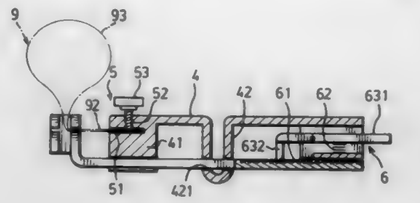
APPARATUS FOR FASTENING A MATRIX BAND TO A TOOTH

Chih-Sheng Lin, No. 184, Ching-Yun Rd., Tu-Chen City, Taipei Hsien, Taiwan

Filed Dec. 20, 1996, Ser. No. 770,558

Int. Cl.[6] A61C *5/04*

U.S. Cl. 433—155 **7 Claims**



2. An apparatus for fastening a matrix band to a tooth, said matrix band having length-variable overlapping end portions and a loop portion extending from said overlapping end portions, said apparatus comprising:

an elongated support frame having front and rear ends, said front end of said support frame being formed with a retaining member that slidably engages said overlapping end portions in order to selectively orient said loop portion of said matrix band to predetermined directions;

an elongated slide member slidably engaging and in parallel with said support frame and having front and rear ends, said front end of said slide member being formed with a sliding block;

locking means provided on said sliding block of said slide member for releasably locking said overlapping end portions in said sliding block; and

a single-direction positioning mechanism for permitting said sliding block of said slide member to move away from said retaining member of said support frame in order to pull said overlapping end portions of said matrix band to move rearwardly, thereby reducing the size of said loop portion of said matrix band, but releasably locking said slide member relative to said support frame in order to prevent said sliding block from being moved toward said retaining member,

said single-direction position mechanism comprising a plurality of detent teeth that are formed adjacent said rear end of said slide member, and an elongated housing that is formed longitudinally adjacent said rear end of said support frame, said housing having a longitudinal hole for receiving said rear end of said slide member on which said detent teeth are formed, a transverse hole extending from an external face thereof to said longitudinal hole thereof, a lock pin received in said transverse hole, a coiled spring mounted in said transverse hole in order to bias said lock pin to move toward said external face of said housing, and a cam member connected pivotably to said housing within said transverse hole, said cam member being rotatable to a first position where said lock pin is pushed by said cam member against biasing force of said coiled spring so as to engage one of said detent teeth of said support frame, thereby permitting said sliding block to move away from said retaining member but preventing said sliding block from being moved toward said retaining member when said sliding block is moved away from said retaining member, and a second position wherein said lock pin is biased by said coiled spring so as to disengage said one of said detent teeth.

5,722,832

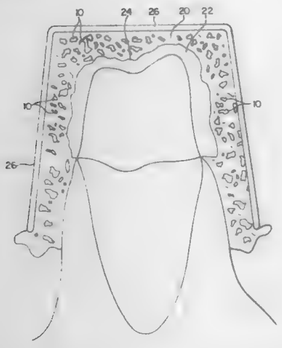
METHOD AND MATERIAL FOR TAKING DENTAL IMPRESSIONS

Dennis J. White, 51 Nostrand Rd., Cranbury, N.J. 08512

Filed Dec. 2, 1996, Ser. No. 764,707

Int. Cl.[6] A61C *9/00*

U.S. Cl. 433—214 **6 Claims**



1. A method of forming dental impression material comprising the steps of,

mixing base ingredients needed to form the impression material, and

adding a substance that will create air pockets within the impression material when in use.

5,722,833

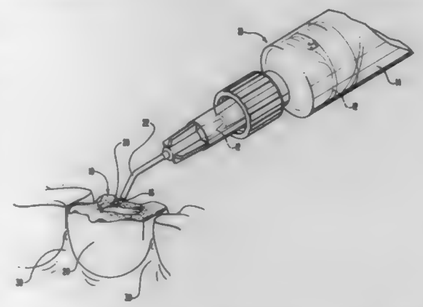
VISCOUS NEUTRALIZING BARRIER

Dan E. Fischer, Sandy, and Steven D. Jensen, Riverton, both of Utah, assignors to Ultradent Products, Inc., South Jordan, Utah

Continuation-in-part of Ser. No. 408,812, Mar. 21, 1995, Pat. No. 5,700,148. This application Jun. 20, 1996, Ser. No. 667,915

Int. Cl.[6] A61C *5/00*

U.S. Cl. 433—217.1 **41 Claims**



1. A caulking-type material for application to a dental substrate to form a neutralizing barrier that confines an etching composition to a defined area on the dental substrate during an etching procedure, the caulking-type material comprising a mixture product of a matrix material and an acid neutralizing agent, the matrix material comprising at least a carrier, the caulking-type material having a viscosity and rheology such that during the etching procedure the caulking-type material (a) will adhere to the dental substrate where it is applied in a desired configuration of the neutralizing barrier, (b) will substantially remain in the desired configuration during the acid etching procedure, and (c) will prevent significant migration of an etching composition from the defined area.

5,722,834

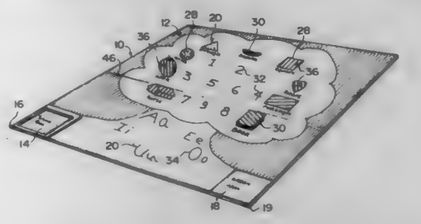
METHOD OF PLAYING A LEARNING TREE BOARD GAME

Juan Jose Rivera, and Carmen Rivera, both of Apartado 9, Quebradillas, Puerto Rico, 00678-0009

Filed Jul. 10, 1995, Ser. No. 500,471

Int. Cl.[6] G09B *19/22;* **A63F** *3/00*

U.S. Cl. 434—128 **1 Claim**



1. A method of playing a board game for children in the age group of three to six whereby players compete in matching indicia on cards with indicia on a game board in order to develop motor skills and aid in an identification of shapes, numbers, vowels and colors, said method comprising the steps of:

a) preparing a game board containing indicia located in the outline of a tree formed on said game board, said indicia including a plurality of different geometric shapes, a plurality of different illustrations of objects including a book, a house

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and an apple, a plurality of different numbers, and a plurality of different upper and lower case letter vowels arranged throughout said tree;

(b) each player in turn selecting an indicia on said game board from a deck of cards, each of said cards containing an indicia matching an indicia on said game board, said deck of cards being placed face down in a designated area on said board at commencement of play; and

(c) each player identifying on said board an indicia identical to the indicia selected from said deck of cards using a plurality of playing tokens, one for each player, said tokens being all placed in a designated area on said board at the commencement of play, the token of the player selecting a card from said deck being moved by said player to the matching indicia on said board and the player retaining a card for each match being made, the player first identifying a predetermined number and type of indicia on the board as represented by cards accumulated winning the game.

5,722,835

DEVICE AND METHOD FOR SIMULATING HAZARDOUS MATERIAL DETECTION

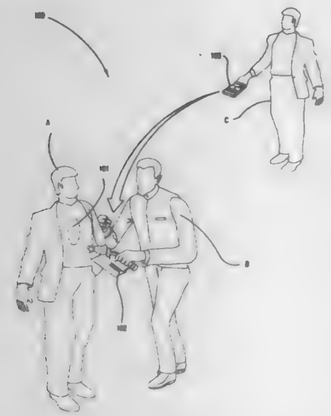
Steven D. Pike, Argon Electronics, Unit 16 Ribocon Way, Progress Business Park Luton, Bedfordshire, LU4 9UR, Great Britain

Filed Sep. 19, 1996, Ser. No. 710,530

Claims priority, application United Kingdom, Sep. 19, 1995, 9519098

Int. Cl.[6] G09B *9/00*

U.S. Cl. 434—218 **29 Claims**



1. A system for simulating detection of hazardous materials, said system comprising:

emitting means for emitting a first signal, said first signal simulating a hazardous material;

a detector having identification means programmed for identifying said first signal as a specific hazardous material; and

a remote control device having transmitting means for transmitting a second signal to said detector, said second signal determining the manner in which said identification means responds to said first signal.

5,722,836

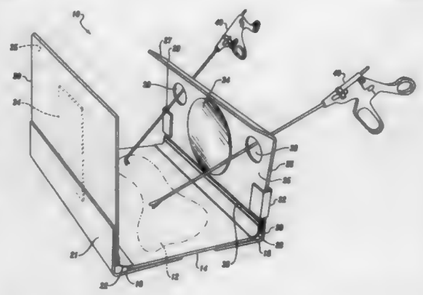
REFLECTED-IMAGE VIDEOENDOSCOPIC SURGICAL TRAINER AND METHOD OF TRAINING

Scott B. Younker, Vashon Island, Wash., assignor to Simulab Corporation, Vashon Island, Wash.

Filed May 21, 1996, Ser. No. 651,115

Int. Cl.[6] G09B *23/28*

U.S. Cl. 434—272 **27 Claims**



16. A method for training a trainee in videoendoscopic surgery techniques on an anatomical structure, the method comprising the steps of:

placing an anatomical structure on a base;

blocking a direct line-of-sight view of the anatomical structure with a shield;

performing a surgical procedure on the anatomical structure; and

reflecting past the shield a reflected two-dimensional image of the anatomical structure corresponding to an at least partially lateral view of the anatomical structure.

5,722,837

COAXIAL CABLE CONNECTOR

Yoshio Kurahashi, Kanagawa, Japan, assignor to Emuden Musen Kogyo Kabushiki Kaisha, Kanagawa, Japan

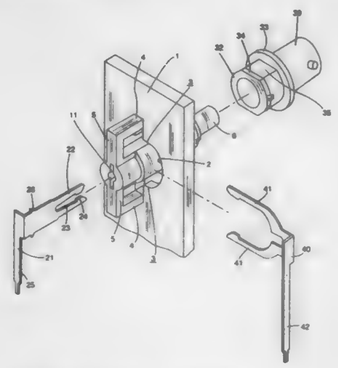
PCT No. PCT/JP95/02357, § 371 Date Oct. 11, 1996, § 102(e) Date Oct. 11, 1996, PCT Pub. No. WO96/16454, PCT Pub. Date May 30, 1996

PCT Filed Nov. 17, 1995, Ser. No. 676,193

Claims priority, application Japan, Nov. 17, 1994, 6-283396

Int. Cl.[6] H05K *1/00*

U.S. Cl. 439—63 **13 Claims**



1. A coaxial cable connector, comprising:

an insulating base;

a conductive cover fitting into said insulating base through a mounting hole in said insulating base;

said conductive cover being effective for receiving a ground terminal portion of a coaxial cable;

a stopper groove in said conductive cover;

said stopper groove being effective for receiving a catching portion of a ground contact terminal;

a contact holding portion connected to said insulating base;

said contact holding portion having a plug pin insertion hole at one end thereof being effective for receiving a plug pin of a coaxial connector;

said contact holding portion having a plug contact portion insertion hole at another end thereof being effective for receiving a plug contact portion of a contact terminal; and

said plug pin insertion hole and said plug contact portion insertion hole directly communicating with each other.

5,722,838

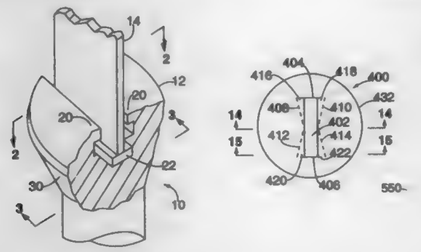
FASTENER SYSTEM AND METHOD OF MANUFACTURE THEREOF

Imre Czegledi, Apt. R22, 644 Lafayette Ave., Hawthorne, N.J. 07506

Division of Ser. No. 734,189, Jul. 22, 1991, Pat. No. 5,582,548, which is a continuation-in-part of Ser. No. 506,812, Apr. 10, 1990, abandoned. This application Feb. 14, 1994, Ser. No. 194,814

Int. Cl.[6] F16B *23/00;35/06*

U.S. Cl. 411—407 **9 Claims**



1. A fastener system to lock a driver tool and a fastener together to enable driving said fastener into material and removing said fastener from said material without said fastener and said driver tool separating from each other comprising:

said driver tool including

an elongated portion, and

a blade portion disposed on one end of said elongated portion having a relatively wider portion and a relatively narrower portion; and

said fastener including

a head portion having a top surface and a given perimeter,

a shaft portion depending fromsaid head portion,

said head portion and said shaft portion having a longitudinal axis, and

cavity means disposed in said head portion having

a first pair of walls parallel to and spaced a first predetermined distance from said longitudnal axis, said first pair of walls having closed end portions spaced from said perimeter,

a second pair of parallel walls below said first pair of walls parallel to said longitudinal axis and spaced a second predetermined distance from said axis greater than said first predetermined distance,

a bottom wall perpendicular to said second pair of walls interconnecting one end of each of said second pair of walls, and

a third pair of walls each interconnecting the other end of an associated one of said second pair of walls with an adjacent end of said first pair of walls;

said blade portion being insertable into said cavity means between said first pair of walls so that when said blade portion is fully inserted into said cavity means said third pair of walls overlie a portion of said wider portion of said blade portion to removably lock said blade portion and said fastener together.

5,722,839

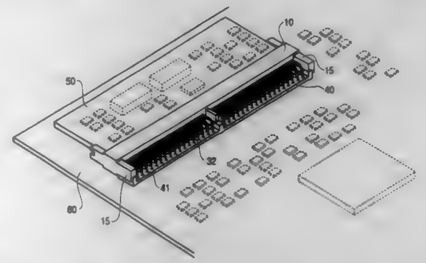
ELECTRICAL CONNECTOR FOR HORIZONTAL INSERTION OF A CPU MODULE THEREIN

Te-Hsin Yeh, No. 45, Tung Yuan Road, Chungli, Taoyuan County, Taiwan

Filed Dec. 12, 1996, Ser. No. 764,125

Int. Cl.[6] H01R *9/09*

U.S. Cl. 439—79 **6 Claims**



1. An electrical connector for horizontally mounting a CPU module relative to a circuit board, comprising:

an elongate connector body having a longitudinal insert slot provided therein for receiving the CPU module, said longitudinal insert slot having a plurality of terminals provided along an interior of said longitudinal insert slot for electrically contacting the CPU module, said plurality of terminals having distal ends thereof protruding from said connector body; and

a terminal positioning plate having a plurality of through holes formed therethrough corresponding to respective ones of said plurality of terminals,

wherein said connector body is mated to said terminal positioning plate such that said longitudinal insert slot of said connector body and said terminal positioning plate are disposed in parallel planes,

wherein said distal ends of said plurality of terminals are bent and inserted into respective said through holes provided in said terminal connecting plate.

5,722,840

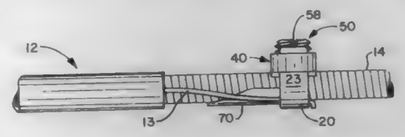
CONDUCTOR PROTECTOR

William T. Auclair, Winsted; John W. Auclair, Norfolk, and Randolph L. Auclair, New Hartford, all of Conn., assignors to Electric Motion Company, Inc., Winsted, Conn.

Division of Ser. No. 395,453, Feb. 28, 1995, Pat. No. 5,597,314, which is a continuation-in-part of Ser. No. 58,159, May 5, 1993, Pat. No. 5,429,532. This application Aug. 6, 1996, Ser. No. 692,602

Int. Cl.[6] H01R *13/648*

U.S. Cl. 439—98 **14 Claims**



1. A conductor protector for a cable having a cable shield ground clamp, the cable having at least one conductor surrounded by a conductive shield, the conductor protector comprising:

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an elongated trough-like member having opposite first and second ends and inner and outer arcuate surfaces, said member being composed of electrically conductive material and defining a longitudinally extending channel traversing said inner and outer arcuate surfaces;

means to facilitate insertion of said member into a cable; and

means to facilitate the longitudinal positioning of said protector on the cable.

5,722,841

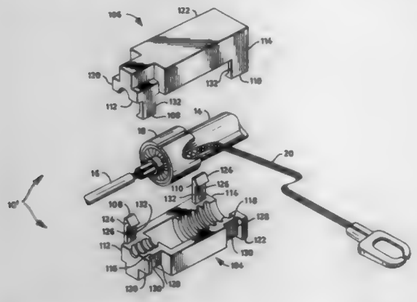
GROUND MEMBER AND CONDUCTOR MODULE CONTAINING SAME

John O. Wright, York, Pa., assignor to Osram Sylvania Inc., Danvers, Mass.

Filed Oct. 16, 1996, Ser. No. 730,953

Int. Cl.[6] H01R *4/66*

U.S. Cl. 439—98 **11 Claims**



1. A connector module, comprising:

an insulator housing extending in the direction of a longitudinal axis from one end to an opposite end and comprising first and second insulator portions mechanically connected together to provide respective facing first grooves and respective facing second grooves, said first and second grooves extending in said direction;

a coaxial cable which extends into said one end of said insulator housing, said coaxial cable comprising an insulative jacket sandwiched between said facing first grooves, a central conductor having a first distal end, and a shield layer between said insulative jacket and said central conductor;

a sleeve adjacent said first distal end and mechanically connected to said coaxial cable;

a conductor which extends into said opposite end of said insulator housing, said conductor comprising an insulative jacket sandwiched between said facing second grooves, and a second distal end, said second distal end being electrically and mechanically connected to said first distal end at a connecting length; and

a ground member electrically connected to said shield layer and extending out of said insulator housing, said ground member comprising a ground strap sandwiched between said sleeve and said shield layer.

5,722,842

UNDERWATER-MATEABLE CONNECTOR FOR HIGH PRESSURE APPLICATIONS

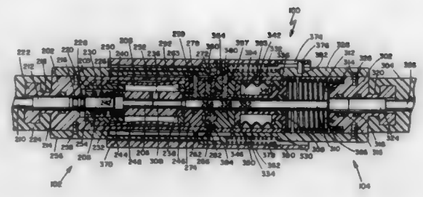
James L. Cairns, Ormond Beach, Fla., assignor to Ocean Design, Inc., Ormond Beach, Fla.

Division of Ser. No. 375,957, Jan. 20, 1995, Pat. No. 5,645,438. This application Mar. 4, 1997, Ser. No. 811,545

Int. Cl.[6] H01R *13/44*

U.S. Cl. 439—139 **10 Claims**

1. A method for mating a plug unit to a receptacle unit, said plug unit having a plug keyway, a plug actuator tab, and a plug actuator keyslot, said receptacle unit having a receptacle key, and a receptacle actuator tab, said plug keyway having a first keyway jog and a second keyway jog, said plug actuator keyslot having an actuator jog, said method comprising:



first engaging said plug keyway with said receptacle key and said plug actuator keyslot with said receptacle actuator tab;

first pushing together said plug unit and said receptacle unit until said receptacle key engages said first keyway jog and said retab engages said tab engages said actuator jog;

first rotating said plug unit with respect to said receptacle unit thereby moving said plug actuator tab;

second pushing together said plug unit and said receptacle unit until said receptacle key engages said second jog;

second rotating said plug unit with respect to said receptacle unit thereby moving said receptacle actuator tab; and

third pushing said plug unit and said receptacle unit together to mate said plug unit and said receptacle unit.

5,722,843

PLUG CONNECTOR HOUSING ASSEMBLY

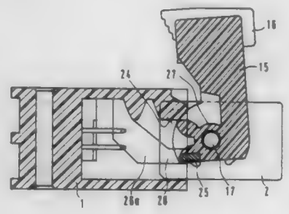
Bart Kerckhof, Oostkamp, Belgium; Artur Wohlfart, Bad Durkheim, Germany; Joris Dobbelaere, Beernem, Belgium; Josef Dirmeyer, Bodenwoehr, Germany, and Rony Van Houdenhove, Ruiselede, Belgium, assignors to Siemens Aktiengesellschaft, Munich, Germany

Filed Jul. 17, 1995, Ser. No. 503,298

Claims priority, application Germany, Jul. 15, 1994, 9411509 U

Int. Cl.[6] H01R *13/62*

U.S. Cl. 439—157 **4 Claims**



1. A plug connector housing assembly, comprising:

an outer housing and an inner housing to be nested together in a plug-in direction;

said housings including sides having approximately parallel opposed side walls with inner and outer surfaces;

said side walls of said outer housing defining an insertion opening with a peripheral region;

a locking mechanism in the form of a rack extending in the plug-in direction on one of said side walls;

a lever associated with another of said side walls;

a shaft being perpendicular to the plug-in direction and associated with said lever;

a gear wheel segment meshing with said rack, being firmly connected to said lever on said other of said side walls and being rotatably supported on said other of said side walls about said shaft;

said rack and said gear wheel segment being disposed at least at one of said sides, between said inner wall surface of said outer housing and said opposite outer wall surface of said inner housing; and

said side wall carrying said rack in said peripheral region of said insertion opening, and said gear wheel segment, having complementary guide elements fitting into one another only at a predetermined angular position of said gear wheel segment in the plug-in direction, and preventing rotation of said gear wheel segment during engagement with said rack, until after attaining a predetermined insertion depth of said gear wheel segment;

a) said rack disposed on said wall of the outer housing having a first tooth of said rack being operative for opening the housing, and a boundary strip extending to the edge of said insertion channel formed in said first tooth;

b) said gear wheel segment having a radially recessed toothless peripheral portion aligned with said boundary strip in an open position of said lever;

c) said gearwheel segment having a guide rib extending in said plug-in direction of said inner housing when said lever is in its open position;

d) said side wall of the outer housing having on its inside a connecting link guide disposed in alignment with said guide rib when said lever is in its open position; and

e) wherein said link guide includes a widening region for enablingly receiving said guide rib upon turning said guide rib after reaching said predetermined insertion depth of said inner housing.

5,722,844

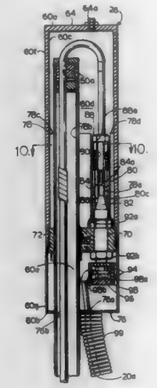
WELLHEAD JUNCTION SYSTEM

Leo Bryce Schraeder, Hidalgo de Pinto 762, Quita, Ecuador

Filed Apr. 4, 1996, Ser. No. 627,966

Int. Cl.[6] H01R *4/60*

U.S. Cl. 439—194 **29 Claims**



1. A junction system for a power cable including an electrical conductor, a device lead and a source lead at a wellhead, which includes:

(a) a bypass tube connected to the wellhead and having a lower end positioned in the wellhead and an upper end extending upwardly therefrom;

(b) a riser tube having a lower end connected to the bypass tube upper end and an upper end;

(c) a head casing assembly including a casing body having upper and lower ends, said riser tube extending through said casing body lower end;

(d) said casing body forming a bore therein; and

(e) an electrical connector positioned within said casing body bore and electrically connecting said power cable device lead and source lead.

5,722,845

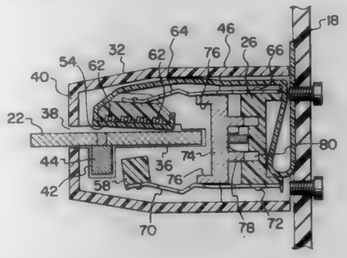
ELECTRICAL CONNECTORS

George Debortoli, Ottawa; Bhu Pendra Patel, Aylmer, and Kent Stahn, Orleans, all of Canada, assignors to Northern Telecom Limited, Montreal, Canada

Filed Sep. 19, 1996, Ser. No. 719,302

Int. Cl.[6] H01R *11/22*

U.S. Cl. 439—267 **9 Claims**



1. An electrical connector comprising as an assembly:—an elongate rigid support:

a flexible printed circuit board having a row of flexible conductors each having at one end a first terminal spaced outwardly from one side of the support and disposed at one side of a receiving station for an edge region of a rigid printed circuit board to be received in the receiving station, the first terminals being spaced apart longitudinally of the support and the conductors having second terminals spaced along the conductors from the first terminals for connection to terminals of a further electrical member;

a guide carried by the rigid support for removably locating the edge region of the rigid printed circuit board in the receiving station with a surface of that board at the edge region in a position opposing the first terminals;

and a pair of gripping jaws, the jaws disposed in positions, one of each side of the receiving station, a first of the gripping jaws carrying an end region of the flexible printed circuit board with the first terminals held by the first gripping jaw facing towards the receiving station, and the first gripping jaw is mounted at the free end of a cantilever spring means which is secured at its other end to the rigid support, and a spring position control member is slidably movably supported by the rigid support between:

a) a retracted position in which the cantilever spring means holds the first gripping jaw towards the receiving station for a gripping action upon the rigid printed circuit board and in which the flexible printed circuit board is flexed to locate and hold the first terminals simultaneously in operational positions for electrically engaging other terminals on the surface of the rigid printed circuit board; and

b) another position to operate the first gripping jaw to hold it away from the receiving station and in which the flexible printed circuit board is flexed to locate the first terminals spaced from and electrically disengaged from the rigid printed circuit board terminals.

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5,722,846

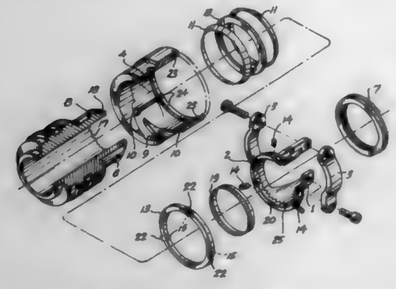
BAYONET COUPLING, LOW IMPEDANCE, VIBRATION RESISTANT CABLE CLAMP

Luis J. Lazaro, Jr., Seattle, Wash., assignor to The Boeing Company, Seattle, Wash.

Continuation of Ser. No. 503,762, Jul. 13, 1995, abandoned, which is a continuation of Ser. No. 48,702, Apr. 15, 1993, Pat. No. 5,458,501, which is a continuation-in-part of Ser. No. 972,655, Nov. 6, 1992, abandoned, which is a continuation-in-part of Ser. No. 901,468, Jun. 19, 1992, abandoned, which is a continuation-in-part of Ser. No. 827,118, Jan. 28, 1992, abandoned, which is a continuation-in-part of Ser. No. 660,313, Feb. 22, 1991, abandoned, which is a continuation-in-part of Ser. No. 516,403, Apr. 30, 1990, abandoned. This application Nov. 4, 1996, Ser. No. 743,101

Int. Cl.° H01R *4/54*

U.S. Cl. 439—318 5 Claims



1. A cable clamp for an electrical connector having locking accessory teeth (**2**) and grounding spring (**19**) as interengageable contact means,

coupling means for advancing said contact means to produce engagement;

a wavespring washer having uniformingly positioned surface projections that is progressively deflected, reaching a state of compression near said coupling means for providing movement;

said coupling means includes a rotatable coupling ring (**4**) having spaced helical ramp grooves (**9**) formed in the interior of said rotatable coupling ring (**4**);

said spaced helical ramp grooves (**9**) configured to receive bayonet pins (**8**) mounted on said electrical connector which are fixedly positioned in a spaced relationship with said spaced helical ramp grooves (**9**) during coupling of said cable clamp to said electrical connector;

said rotatable coupling ring (**4**) having detent including detent holes (**10**) at the end of said spaced helical ramp grooves (**9**) and in spaced relationship with said bayonet pins (**8**) on said electrical connector; and

said detent holes (**10**) enabling said wavespring washer (**11**) to retain components in coupled relationship;

said detent means including said detent holes (**10**) shiftable in a retentive position; and,

said grounding ring (**19**) joining said cable clamp and said electrical connector thereby providing said cable clamp with low impedance properties while minimizing vibration; and high vibration and large shock forces.

5,722,847

TWIST-LOCK CONNECTOR FOR ELECTRICAL PLUG AND WALL SOCKET

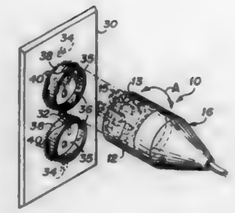
Philip E. Haag, Redwood City, Calif., assignor to Maverick Global Enterprises, LLC, Woodside, Calif.

Filed Jul. 12, 1996, Ser. No. 679,124

Int. Cl.° H01R *4/38*

U.S. Cl. 439—320 16 Claims

1. A connector assembly for maintaining engagement between an engaged electrical plug and a wall socket, the connector assembly comprising:



a) a cover plate for enclosing a wall socket, said cover plate including at least one circular opening for allowing plug-in access by an electrical plug to a socket portion of said wall socket;

b) said cover plate including an upstanding cylindrical wall disposed about a periphery of said at least one opening, said upstanding cylindrical wall having a plurality of thread members formed along an outer surface thereof; and

c) a sleeve for enclosing an electrical plug including a first sleeve end disposed adjacent a prong end of said electrical plug and a second sleeve end; wherein:

i) said first sleeve end having an inner cylindrical surface comprising a plurality of spaced apart, radially inwardly projecting nubs for lockingly engaging said threads of said cover plate upon insertion of said electrical plug within said socket portion of said wall socket and rotation of said sleeve with respect to said cover plate;

ii) said second sleeve end provided with rotatable mounting means for rotatably mounting said sleeve to said electrical plug to enable said sleeve to freely axially rotate about said electrical plug.

5,722,848

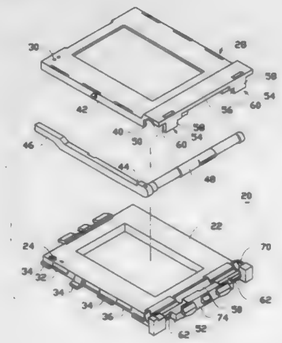
RETENTION MECHANISM FOR SELF-SECUREMENT OF ZIF PGA SOCKET

Ching-bo Lai, Ta-Hsi Chen, and Cheng-Hong Lin, Chung-Ho, both of Taiwan, assignors to Hon Hai Precision Ind. Co., Ltd., Taipei, Taiwan

Filed Oct. 25, 1995, Ser. No. 548,249

Int. Cl.° H01R *13/620*

U.S. Cl. 439—342 2 Claims



1. A ZIF PGA socket comprising:

a base having a plurality of passageways extending vertically therethrough;

a corresponding number of contacts received within the passageways therein, respectively;

a cover slidably moved regard to the base and a number of holes extending therethrough in alignment with the corresponding passageways, respectively;

a lever including an actuation handle and a cam shaft joined with each other at an angle wherein the handle is exposed by one side of the socket for access and the cam shaft is embedded within a corresponding channel adjacent to a rear portion of the socket; and

retention means integrally formed on said rear portion of the socket and beside said cam shaft of said lever, and said retention means including a retention device formed on one of said cover and base, and a recess formed in the other of said cover and base wherein said retention device includes a vertical alignment section for reception within said recess and a horizontal hook section for engagement with a restriction plane formed beside said recess;

whereby through said horizontal hook section securely confronted with the restriction plane, the cover can not substantially be lifted from the base, and wherein no additional parts are required to manufacture or assemble said cover and said base.

5,722,849

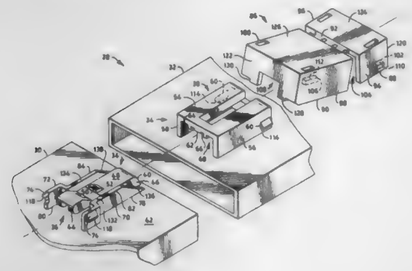
CONNECTOR

K. Troy Alwine, Warren, Pa., assignor to Osram Sylvania Inc., Danvers, Mass.

Filed Sep. 25, 1996, Ser. No. 719,669

Int. Cl.° H01R *13/627*

U.S. Cl. 439—352 14 Claims



1. A connector comprising:

a first slidably engaging portion comprising a first locking member;

a mating second slidably engaging portion comprising a second locking member, said first portion and said first locking member being disengaged from, in a first mode, and being engaged with, in a second mode, said second portion and said second locking member, respectively;

a lock disabler attachable to said first portion and said second portion and comprising a first segment pivotally attached to a second segment, said second segment being pivotal relative to said first segment in said second mode from a first position allowing disengagement of said first locking member relative to said second locking member to a second position preventing said disengagement, said first segment comprising at least one first lock disabler fastener and said second segment comprising at least one second lock disabler fastener, and further wherein said first portion comprises at least one first portion fastener which mates with said at least one second lock disabler fastener and said second portion comprises at least one second portion fastener which mates with said at least one first lock disabler fastener.

5,722,850

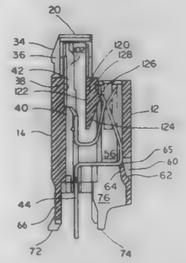
TELECOMMUNICATIONS CONNECTORS

Rowland Spencer White, Lunenburg, Mass., assignor to Molex Incorporated, Lisle, Ill.

Filed Nov. 27, 1995, Ser. No. 563,147

Int. Cl.° H01R *4/24*

U.S. Cl. 439—404 31 Claims



1. A telecommunications connector comprising:

a housing; and

at least one pair of contacts received in the housing, the pair of contacts comprising;

a first contact having an insulation displacement contact portion for receiving and establishing electrical connection with insulated wires, and a spring contact portion having a contact face; and

a second contact having a contact portion for establishing electrical connection with a conductor, and a spring contact portion having a contact face; wherein

said housing includes:

a first chamber for receiving said insulation displacement contact portion of said first contact and said conductor contact portion of said second contact; and

a second chamber for receiving said spring contact portion of said first contact and said spring contact portion of said second contact with said contact faces of said first and second spring contact portions in electrical contact, at least one of said first and second spring contacts portions being free to move with respect to the other within said second chamber to break said electrical contact therebetween.

5,722,851

CIRCUIT COMPONENT AND JUNCTION BOX FOR CONNECTING FLAT CABLES

Takahiro Onizuka, and Hideo Matsuoka, both of Yokkaichi, Japan, assignors to Sumitomo Wiring Systems, Ltd., Japan

Filed Feb. 14, 1996, Ser. No. 599,979

Claims priority, application Japan, Feb. 15, 1995, 7-027027

Int. Cl.° H01R *4/24*

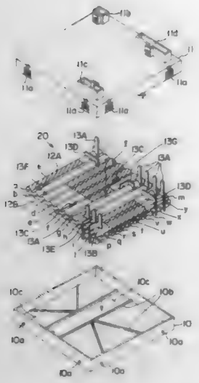
U.S. Cl. 439—404 18 Claims

1. A circuit component comprising:

a first flat cable having a first longitudinal axis, a second flat cable having a second longitudinal axis, said first cable having a plurality of first electrically conductive wires parallel to each other, first insulative connecting portions between adjacent said first wires, said second cable having a plurality of second electrically conductive wires parallel to each other, second insulative connecting portions between adjacent said second wires, said first cable superposed on said second cable to form a cable combination, said first axis being at a right angle to said second axis,

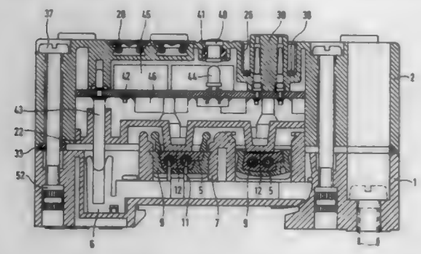
at least one cramping terminal inserted in said first cable and in electrical contact with at least one of said first wires, whereby

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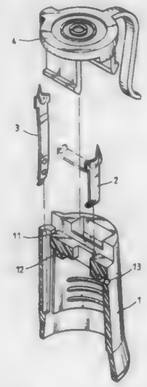
a plurality of contact legs on said cramping terminal passing through at least one of said second insulative connecting portions.

5,722,852
MODULE FOR THE CONNECTION OF ACTUATOR AND/OR SENSORS
Wolfgang Miek, Amberg, Germany, assignor to Siemens Aktiengesellschaft, München, Germany
PCT No. PCT/EP94/01026, § 371 Date Nov. 30, 1995, § 102(e) Date Nov. 30, 1995, PCT Pub. No. WO94/24725, PCT Pub. Date Oct. 27, 1995
PCT Filed Mar. 31, 1994, Ser. No. 530,314
Claims priority, application European Pat. Off., Apr. 14, 1993, 93106060
Int. Cl.[6] H01R *4/24*
U.S. Cl. 439—417 **20 Claims**



1. A module for the connection of subscribers to a multicore cable having line cores enclosed by insulation, the cable having a form coding which indicates the position of the line cores, comprising:
1. a housing;
2. an electrical circuit having contacts disposed with in said housing;
3. a contact-making device disposed in said housing and adapted to make contact between the line cores of the multicore cable and said contacts of said electrical circuit, said contact-making device including:
   1. a guiding part in the form of a channel;
   2. a line basket which can be latched therein in two vertical positions, said line basket having an inner profile corresponding to the form coding of the cable and openings in its base, said line basket having positioning means to hold an inserted cable in position; and
   3. contacts, arranged under the line basket, having contact tips directed toward said openings, whereby, in an upper position of the two positions, said cable can be inserted, when the housing of the module is open, into the line basket in a position which is predetermined by the form coding in conjunction with the inner profile and held in place by said positioning means, and that only when the line basket is pressed down into a lower position of the two positions do said contact tips project upward through the openings and at the same time make contact with the line cores while penetrating the cable insulation.

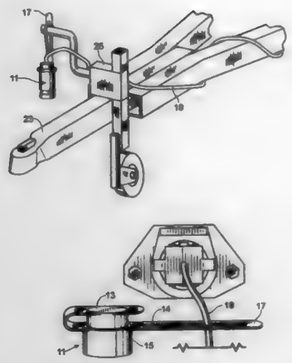
5,722,853
C-TYPE BULB SOCKET HAVING A DRAINING FEATURE
Min Shien Hwang, No. 2, Lane 65, Chen Kon Road, Hsinchu, Taiwan
Filed Mar. 12, 1996, Ser. No. 614,236
Int. Cl.[6] H01R *4/24;4/26;11/20*
U.S. Cl. 439—419 **1 Claim**



1. An improved C-type light bulb socket, comprising:
a socket body having an open bore formed in one end thereof for receiving a light bulb therein and a retaining portion formed on an opposing end of said socket body, said socket body having a protrusion extending into said open bore from a wall of said retaining portion and a plurality of apertures formed through a peripheral wall of said socket body adjacent said retaining portion wall for draining water therethrough, said protrusion having an upper surface disposed a greater distance from said retaining portion wall than said plurality of apertures;
a pair of conductor plates extending through said retaining portion wall into said open bore for contacting respective connection portions of the light bulb, a centrally disposed one of said pair of conductor plates being located on said protrusion; and,
a cap coupled to said socket body in overlying relationship with said retaining portion.

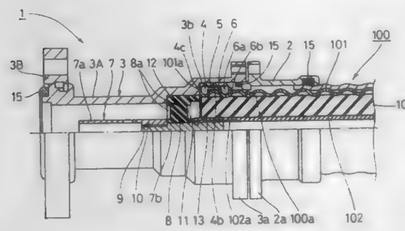
5,722,854
PROTECTIVE COVERING SYSTEM FOR TRAILER LIGHT CONNECTORS
Steve C. Geisler, 122 Cobblestone La., Idaho Falls, Id. 83404
Filed Jul. 7, 1995, Ser. No. 499,563
Int. Cl.[6] H01R *13/60*
U.S. Cl. 439—528 **11 Claims**

1. A protective covering system for a trailer light connector comprising:



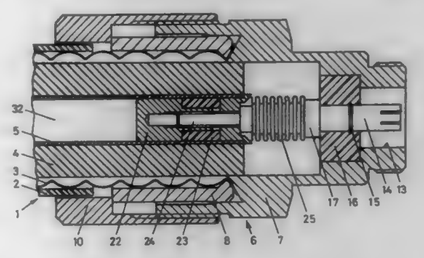
a body having an upper and lower portion, the lower portion including an opening whereby the covering system can be readily and repeatedly attached to or detached from a trailer or a towing vehicle,
a cap, the cap connected to the upper body portion of the body by a flexible connecting means,
a holder, the holder attached to the upper portion of the body, whereby said cap can function as a cover for the holder.

5,722,855
CONNECTOR AND ITS PARTS
Takayoshi Kanda; Nobuyoshi Matsuda; Hiromi Okuzono; Takumi Yamamoto, all of Hyogo-ken, and Akio Kusui, Saitama-ken, all of Japan, assignors to Mitsubishi Cable Industries, Ltd., Hyogo-ken, Japan
Filed Jun. 27, 1995, Ser. No. 494,994
Claims priority, application Japan, Jun. 28, 1994, 6-146333; Aug. 29, 1994, 6-203280
Int. Cl.[6] H01R *9/05*
U.S. Cl. 439—578 **20 Claims**



1. A connector comprising:
a first connecting cylinder for insertion of a coaxial cable therein having an outer conductor and an inner conductor, said first connecting cylinder having a pressing portion projecting radially inwardly from the inside of one end thereof, and an annular portion extending axially forwardly from said one end thereof;
a second connecting cylinder having a conductive pressed portion opposing said pressing portion of said first connecting cylinder when one end thereof is connected to said one end of said first connecting cylinder; and
a split clamp including at least two separable split members, said split clamp being longer axially than said annular portion of said first connecting cylinder and held by said annular portion of said first connecting cylinder between said pressing portion of said first connecting cylinder and said conductive pressed portion of said second connecting cylinder such that one end surface of said split clamp faces the pressing portion of said first connecting cylinder and the other end surface thereof clamps one end of said outer conductor against said conductive pressed portion of said second connecting cylinder when said first connecting cylinder is connected to said second connecting cylinder, said split clamp operating such that said one end surface of the split clamp is pressed by said pressing portion in association with the connection operation of said first and second connecting cylinders, and the other end surface thereof brings said one end of said outer conductor into contact with said pressed portion of said second connecting cylinder.

5,722,856
APPARATUS FOR ELECTRICAL CONNECTION OF A COAXIAL CABLE AND A CONNECTOR
Josef Fuchs, Appenzell, and Ulf Hugel, Herisau, both of Switzerland, assignors to Huber+Suhner AG, Herisau, Switzerland
Filed Jan. 24, 1996, Ser. No. 590,521
Claims priority, application Switzerland, May 2, 1995, 1248/95
Int. Cl.[6] H01R *9/05*
U.S. Cl. 439—578 **13 Claims**

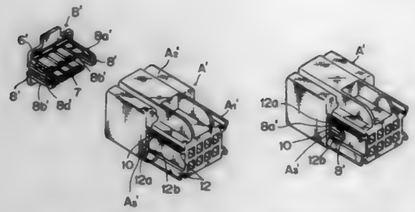


1. An apparatus for electrical connection of a hollow conductor (**5**) of a high frequency coaxial cable (**1**) with a conductor (**14**) of a coaxial connector (**6**), comprising:
a bellows-shaped intermediate piece (**25**) disposed between and electrically connecting the conductor (**5**) of the high frequency coaxial cable (**1**) and the conductor (**14**) of the coaxial connector (**6**).

5,722,857
CONNECTOR EQUIPPED WITH INSERTION DETECTING MEMBER FOR TERMINAL METAL PARTS
Hitoshi Saito; Kazuto Ohtaka; Hitoshi Sakai, and Hisashi Hanazaki, all of Shizuoka, Japan, assignors to Yazaki Corporation, Tokyo, Japan
Filed Feb. 6, 1996, Ser. No. 597,288
Claims priority, application Japan, Feb. 6, 1995, 7-017809; Jan. 10, 1996, 8-002377
Int. Cl.[6] H01R *13/40*
U.S. Cl. 439—595 **7 Claims**

1. A connector equipped with an insertion detecting member for terminal metal parts, comprising:
a connector housing having a housing body portion and containing walls defining a hood portion disposed adjacent said housing body portion and communicating therewith, the walls of said hood portion having greater peripheral dimensions than said housing body portion and being interconnected therewith on laterally opposite sides of said housing body portion by a step portion containing a window;
said housing body portion containing at least one terminal accommodating cavity and at least one resilient displacement

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permissible space, and a resilient engaging piece separating said terminal accommodating cavity from said resilient displacement permissible space,

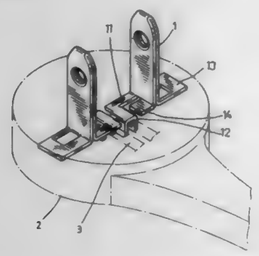
an insertion detecting member for terminal metal parts installed in said connector housing hood portion and movable therein from a provisional engaging position to a final engaging position,

said insertion detecting member having a main frame portion and an insertion detecting body, said insertion detecting body corresponding in number of and in shape to said resilient displacement permissible space,

a pair of manipulating pieces disposed each on opposite sides of said insertion detecting body and arranged to have ends extending to an exposed position through said windows in said connector housing step portion, with said main frame portion of said insertion detecting member in contact with an inside wall surface of said hood portion; and

means for grasping the exposed ends of said manipulating pieces for freely moving said insertion detecting member from a provisional engaging position within said connector housing hood portion to a final engaging position in which said insertion detecting body enters the associated resilient displacement permissible space.

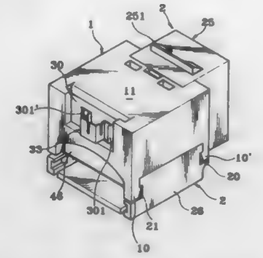
5,722,858
PRONG STRUCTURE OF A PLUG
Tsang Lan-Jen, No. 1, Lane 199, Sec. 1, Min Chuan Rd., Tainan, Taiwan
Filed Dec. 10, 1996, Ser. No. 762,775
Int. Cl.[6] H01R *13/40*
U.S. Cl. 439—601 **1 Claim**



1. A prong structure of a plug being formed by a folded rectangular strip and having an open end that is stretched horizontally at both sides of the folded rectangular strip, the improvements comprising:

said rectangular strip having a lateral tie segment with a clip formed at one end therof by a pair of clipping lugs, a lateral supporting lug formed at another end of said rectangular strip, and an assistant lug formed from said supporting lug, wherein when folding said rectangle strip, said clipping lugs on respective sides of said tie segment are bent to form a U-shaped groove for clipping a cord therein, said assistant lug being bent toward said lateral tie segment to fill a space left by one of said pair of clipping lugs to form a stable supporting base.

5,722,859
TOTALLY SHIELDED ELECTRICAL JACK ASSEMBLY FOR MODULAR PLUGS
Michael Chen, No. 11, Alley 16, Lane 337, Sec. 1, Ta-Tung Rd., Hsi-Chih Chen, Taipei Hsien, Taiwan
Filed Nov. 12, 1996, Ser. No. 744,156
Int. Cl.[6] H01R *13/648*
U.S. Cl. 439—607 **4 Claims**



1. A totally shielded electrical jack assembly adapted for connecting a modular plug to a cable, comprising:

a jack frame adapted for receiving the modular plug, said jack frame comprising a base and a front box in front of said base, wherein the base of said jack frame comprises two upright side walls respectively raised from two opposite lateral sides thereof, and notches in the upright side walls for engagement with the downward hooks of said top cover, and the upright side walls of the base of said jack frame have a respective horizontal mounting groove at an inner side;

a top cover coupled to and covered on the base of said jack frame, wherein said top cover has a plurality of downward hooks respectively fastened to said jack frame;

an electrical connector unit mounted inside said jack frame and adapted for electrically connecting the modular plug to the cable, wherein said electrical connector unit comprises a terminal mounting base frame, and a coupling in front of said terminal mounting base frame for receiving the modular plug, said terminal mounting base frame comprising at least two hooks raised from two opposite lateral sides and respectively forced into engagement with the horizontal mounting grooves of upright side walls of the base of said jack frame; and

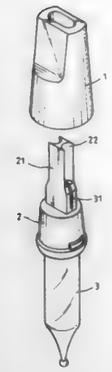
shield means mounted inside said jack frame, said shield means comprising a shield frame mounted inside said jack frame, and a cover shell mounted in said top cover, said shield frame and said cover shell being made from metal and coupled together and covered around said electrical connector unit to protect it against magnetic noises.

5,722,860
WATERTIGHT SOCKET STRUCTURE FOR USE IN A LIGHT BULB SERIES
Wun Fang Pan, 125, Lane 99, Din Pu Road, Hsinchu, Taiwan
Filed Dec. 9, 1996, Ser. No. 761,373
Int. Cl.[6] H01R *17/00*
U.S. Cl. 439—619 **1 Claim**

1. A light bulb socket structure for use with decorative light bulbs having conductor wires, comprising:

a socket body having a cavity formed therein and extending between a pair of opposing open end portions, one of said end portions having an oval shape;

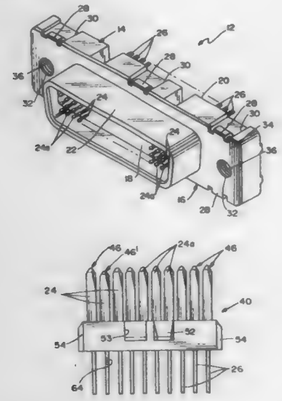
a light bulb holder engaged with said socket body within said cavity, said light bulb holder having a light bulb receiving cavity formed on one end thereof, said light bulb holder having a longitudinally extended rod portion extending from a bottom wall of said light bulb receiving cavity and formed integrally therewith in one piece formation, said rod portion being disposed within said cavity of said socket body and having a pair of flat walls and a pair of longitudinally



extended arcuate grooves respectively formed between said pair of flat walls of said rod portion, said pair of longitudinally extended arcuate grooves being fitted in said oval shaped portion to define two separate and distinct wire receiving channels; and,

a pair of electrical wires and the conductor wires being respectively disposed in said pair of wire receiving channels, said electrical wires and wire receiving channels being respectively dimensioned to form a substantially watertight fit therebetween.

5,722,861
ELECTRICAL CONNECTOR WITH TERMINALS OF VARYING LENGTHS
James A. Wetter, Hoffman Estates, Ill., assignor to Molex Incorporated, Lisle, Ill.
Filed Feb. 28, 1996, Ser. No. 608,355
Int. Cl.[6] H01R *13/502*
U.S. Cl. 439—701 **18 Claims**



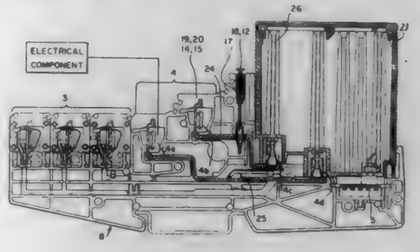
1. An electrical connector, comprising:

a dielectric housing having a mating face and a cavity having a transverse insertion axis generally perpendicular to the mating face; and

at least one terminal module including a plurality of elongated stamped terminals which have identical mating ends, said terminal module having a dielectric insert molded about portions of said stamped terminals and being disposed in said cavity such that said terminals are elongated in the direction of said insertion axis and said mating ends are proximate said mating face; and

at least one of said stamped terminals having a longitudinal axis and having been bent to form bent portions projecting from opposite sides of the longitudinal axis thereof so as to alter the shape thereof such that the mating end thereof is further from said mating face than the mating end of at least one of the other of said terminals.

5,722,862
MODULAR CONTROL APPARATUS HAVING INTEGRATED FIELD BUS COUPLING
Hans-Georg Glathe, Oerlinghauser Strasse 22, 32758 Detmold; Michael Schnatwinkel, Schmiedestrasse 39, 32051 Herford, and Christoph Zebermann, Schlossho 3 A, 37688 Beverungen, all of Germany
Filed Nov. 8, 1995, Ser. No. 555,067
Claims priority, application Germany, Nov. 10, 1994, 44 40 102.7
Int. Cl.[6] H01R *29/00*
U.S. Cl. 439—709 **18 Claims**



1. A modular control system, comprising:

(a) a first terminal block assembly (**1**) including a plurality of terminal blocks (**6–9**) arranged in side-by-side relation, at least some of said terminal blocks comprising corresponding control signal terminal blocks (**8**) each including:

(1) a power distribution section (**3**);

(2) a control signal section (**4**);

(3) a support section having internal bus bar means (**5**) for connecting the first assembly with a second terminal block assembly (**1'**);

(4) a plurality of control signal terminals (**4***a*,**4***b*) arranged on said control signal section, and a plurality of first electronic module terminals (**4***c*,**4***d*) arranged on said support section;

(5) a plurality of conductors (**24**,**25**) connecting said control signal terminals with said electronic module terminals, respectively; and

(6) at least one plug-in tap connection (**17**) affording electrical connection with an intermediate portion of at least one (**24**) of said conductors;

(b) electronic module means (**23**) mounted on said support section, said electronic module means having a plurality of second electronic module terminals connected with said first electronic module terminals, respectively; and

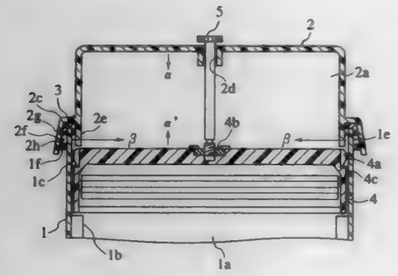
(c) bridge link means (**12**; **18**) for connecting the plug-in tap connection of one control signal terminal block of the assembly with the plug-in tap connection of another control signal terminal block of the assembly, thereby to establish a desired internal circuit configuration of the assembly.

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5,722,863
ELECTRIC CONNECTION BOX

Takeshi Yanase, Shizuoka-ken, Japan, assignor to Yazaki Corporation, Tokyo, Japan

Filed Oct. 17, 1996, Ser. No. 732,893
Claims priority, application Japan, Oct. 18, 1995, 7-269939
Int. Cl.[6] H01R 9/22
U.S. Cl. 439—718 3 Claims



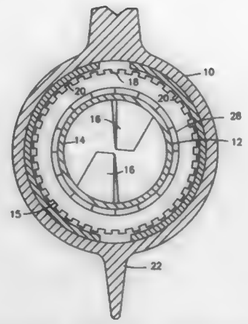
1. An electric connection box comprising:
an lower cover having an inner space which is opened at an upper side, said lower cover formed with a shelf portion and an engaging protrusion at an inner side of said lower cover, and a rib at an outer side of an opening rim portion of said lower cover;
a junction block accommodated in said inner space from an upper side of said lower cover, and being put on said shelf portion while said engaging protrusion remains engaged in an engaging concave portion at a side of said junction block; and
an upper cover carrying a groove frame which is opened at a lower side on a rim of said upper cover, a waterproof packing being accommodated in said groove frame, an outer side of said groove frame obliquely extending, and packing being received in said groove frame;
wherein said upper cover is engaged in said lower cover from an upper side of said lower cover, an opening rim portion of said lower cover and said rib being received in said groove frame, said upper cover being coupled to said lower cover side by a securing member, and said packing being compressed by an opening rim portion of said lower cover when said upper cover is pushed down;
whereby a rib of said lower cover is pushed inside by an outer side wall of said groove frame, so that the opening rim portion is bent, an engaging protrusion of said lower cover being jointed to an engaging concave portion of said junction block.

5,722,864
MARINE PROPULSION SYSTEM

Oscar Andiarena, 12340 SW. 39th Ter., Miami, Fla. 33175

Filed Jun. 24, 1996, Ser. No. 669,090
Int. Cl.[6] B63H 21/12
U.S. Cl. 440—5 11 Claims

1. A marine propulsion system, comprising:
a housing unit having forward and rearward openings;
a rotational unit, having forward and rearward openings and having an inner and outer periphery, rotatably secured in said housing unit such that said forward and rearward openings are aligned with said forward and rearward openings of said housing unit;
a plurality of blades rigidly secured to said inner periphery of said rotational unit at an angle of 23 to 32 degrees from a line parallel to said forward and rearward openings of said rotational unit; and
drive means which rotates said rotational unit within said housing unit;

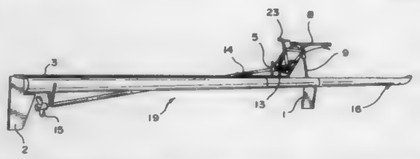


whereby, operation of said drive means causes the rotation of said rotational unit and said blades direct water into said forward openings of said housing unit and said rotational unit and out said rearward openings of said housing unit and said rotational unit, thereby creating thrust.

5,722,865
CANARD BALANCED MARINE BICYCLE

George W. Tatum, 4333 Electric Rd. Apt. 8H, Roanoke, Va. 24014

Filed May 21, 1996, Ser. No. 651,677
Int. Cl.[6] B63H 21/175
U.S. Cl. 440—12 19 Claims



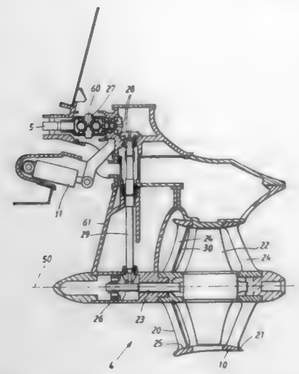
1. A rider powered water craft comprising an elongated hull having a narrow bow, a broad stern, a deck and a bottom, support means attached to said deck for supporting a rider, a crank means attached on said deck such that a rider on said support means can operate said crank means, an impeller means mounted on said hull for propelling said craft through the water, said impeller means operatively connected with said crank means so that movement of said crank means results in movement of said impeller means, rudder means mounted on said hull for providing directional control of said craft, and canard means mounted on said bottom for rotation about an axis perpendicular to the longitudinal axis of said hull, said canard means rotated by a rider, said hull, support means, crank means, impeller means, rudder means, and canard being inherently unstable and incapable of maintaining an upright position without balance input by a rider, said canard means providing dynamic balance input when rotated by a rider to oppose the rolling moment of the craft.

5,722,866
PROPULSION ARRANGEMENT FOR A MARINE VESSEL

Lennart Brandt, Enevägen 15, S-430 33 FjärÅs, Sweden

PCT No. PCT/SE93/00178, § 371 Date Nov. 15, 1995, § 102(e) Date Nov. 15, 1995, PCT Pub. No. WO94/20362, PCT Pub. Date Sep. 15, 1994
PCT Filed Mar. 2, 1993, Ser. No. 513,822
Int. Cl.[6] B63H 5/15
U.S. Cl. 440—67 22 Claims

1. A propulsion arrangement for a marine vessel, said arrangement comprising a propulsion unit including:

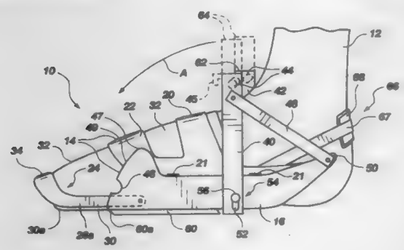


a non-rotating housing in the form of a nozzle extending along a principal axis, said nozzle having an inlet opening, an outlet and an internal diameter;
a propeller mounted for rotation within said nozzle, said propeller having a plurality of blades radially outwardly delimited by a periphery;
a support shaft extending along the principal axis of the nozzle and to which shaft said propeller is affixed; and
support shaft support means in the form of a plurality of arms extending substantially radially from the inner surface of the nozzle to a bearing hub for the support shaft, wherein
said plurality of arms are located upstream of the propeller, said arms being shaped so as to impart a pre-rotation on the flow of water upstream of the propeller, said internal diameter of said nozzle gradually decreases from a maximum at the inlet opening to a minimum within the nozzle and then increases towards the outlet, said propulsion unit being coupled to the marine vessel in such a manner that the propulsion unit can be trimmed to a desired angle to cause the nozzle to generate a hydrodynamic lift component at the stern of the marine vessel.

5,722,867
REINFORCED SHOE DEVICE

Michael C. LaGrow, 3808 S. 300 East, Salt Lake City, Utah 84115

Filed Oct. 23, 1995, Ser. No. 546,637
Int. Cl.[6] A63C 15/06
U.S. Cl. 441—70 27 Claims

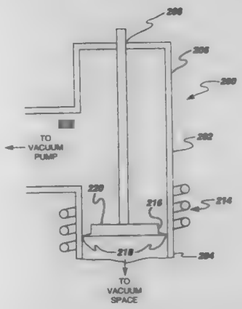


1. A reinforced shoe device comprising:
a shoe framework for holding at least a front portion of a user's foot therein, including first and second rigid side rails configured to reside adjacent opposing sides of the user's foot, said side rails being intercoupled by at least one support rib extending upwardly from said rails so as to reside above the user's foot, the framework further including an articulating toe brace having first and second rigid support arms pivotally attached to the first and second side rails, respectively, said support arms extending forwardly from the side rails and being intercoupled by a toe support piece configured to support a front portion of the user's foot thereupon; and
a flexible sole secured to the side rails and having a front portion disposed upon the articulating toe brace such that flexible movement of said front portion relative to the rest of the sole causes corresponding articulating movement of said toe brace relative to the side rails.

5,722,868
SYSTEM AND METHOD FOR MANUFACTURING X-RAY TUBES HAVING GLASS ENVELOPES UTILIZING A METAL DISK

Thomas Robert Raber, East Berne; William Joseph Jones, Altamont, and Michael Patrick Dennin, Watervliet, all of N.Y., assignors to General Electric Company, Schenectady, N.Y.

Filed Dec. 22, 1995, Ser. No. 576,972
Int. Cl.[6] H01J 9/26;9/40
U.S. Cl. 445—3 20 Claims



15. A system for sealing off under vacuum a large diameter glass tube with a metal disk operatively positioned inside the glass tube, the system comprising:
the metal disk having a smaller diameter than the glass tube;
a vacuum operatively connected to the glass tube;
heating means, operatively positioned on the outside of the glass tube proximate the position of the metal disk inside of the glass tube, for heating the metal disk to a temperature sufficient to collapse and seal the glass tube to the metal disk; and
means for checking for sealing contact between the glass tube and the metal disk.

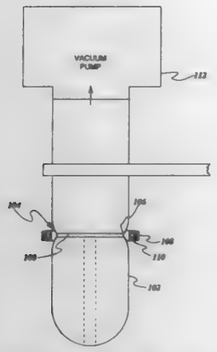
5,722,869
SYSTEM AND METHOD FOR MANUFACTURING X-RAY TUBES HAVING METAL ENVELOPES UTILIZING A METAL DISK

Thomas Robert Raber, East Berne; Mark Gilbert Benz, Burnt Hills, and Robert John Zabala, Schenectady, all of N.Y., assignors to General Electric Company, Schenectady, N.Y.

Filed Dec. 22, 1995, Ser. No. 577,162
Int. Cl.[6] H01J 9/26; B23K 31/02
U.S. Cl. 445—3 23 Claims

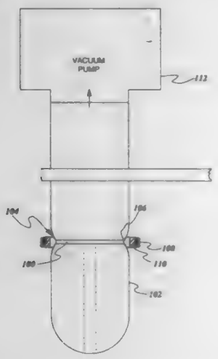
1. A method for exhausting a metal x-ray tube envelope utilizing a large diameter metal tubulation comprising the steps of:
providing a metal tubulation having a diameter greater than about 20 mm, a braze alloy being operatively positioned inside the tubulation;
operatively connecting the metal tubulation to the metal x-ray tube envelope;

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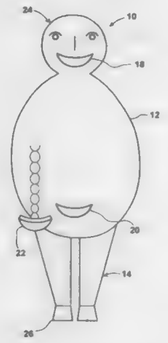
providing a metal disk having a braze alloy being operatively positioned thereon inside the tubulation, the metal disk having a smaller diameter than at least one portion of the tubulation;
providing a vacuum to the metal tubulation;
heating an anode of the x-ray tube envelope inside the x-ray tube envelope to a temperature of about 1500° C.;
positioning heating means proximate the outside of the metal tubulation;
positioning the metal disk inside the metal tubulation proximate the position of the heating means on the outside of the metal tubulation;
heating the metal tubulation proximate the metal disk to a temperature sufficient so as allow the braze to reflow and form a bond between the metal tubulation and the metal disk;
checking for sealing contact between the metal tubulation and the metal disk; and
cooling the metal tubulation/metal disk interface to a temperature sufficient to bond the metal tubulation to the metal disk.

5,722,870
SYSTEM AND METHOD FOR MANUFACTURING X-RAY TUBES HAVING GLASS ENVELOPES
Thomas Robert Raber, East Berne; Mark Gilbert Benz, Burnt Hills, and Robert John Zabala, Schenectady, all of N.Y., assignors to General Electric Company, Schenectady, N.Y.
Filed Dec. 22, 1995, Ser. No. 576,971
Int. Cl.[6] H01J *9/40;* **B23K** *31/02*
U.S. Cl. 445—28 **24 Claims**



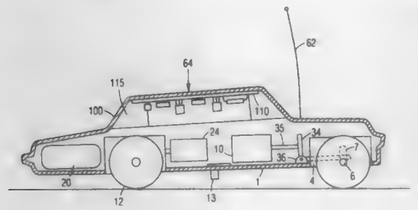
9. A method for exhausting and seasoning an x-ray tube envelope utilizing a large diameter metal tubulation comprising the steps of:
providing a metal tubulation having a diameter greater than about 20 mm a braze alloy being operatively positioned inside the tubulation;
providing a glass tubulation having a diameter greater than 20 mm;
operatively connecting the metal tubulation to the glass tubulation;
operatively connecting the glass tubulation to, the x-ray tube envelope;
providing a metal disk inside the metal tubulation, the metal disk having a smaller diameter than at least one portion of the metal tubulation, a braze alloy being operatively positioned on the metal disk;
providing a vacuum to the metal tubulation;
positioning heating means on the outside of the metal tubulation;
operating the x-ray tube to generate x-rays and generate temperatures inside the x-ray tube glass envelope of about 1500° C.;
positioning the metal disk inside the metal tubulation proximate the position of the heating means on the outside of the metal tubulation;
heating the metal tubulation proximate the metal disk to a temperature sufficient to reflow the braze alloy;
checking for sealing contact between the metal tubulation and the metal disk; and
cooling the metal tubulation proximate the metal disk to a temperature sufficient to bond the metal tubulation to the metal disk.

5,722,871
VARIABLE BOUYANCY AMUSEMENT DEVICE
Amos Zamir, 3 Hasvoraim, Tel Aviv 69207, Israel
Filed Aug. 9, 1996, Ser. No. 694,512
Int. Cl.[6] A63H *23/00*
U.S. Cl. 446—153 **9 Claims**



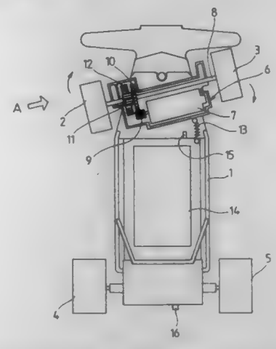
1. A variable buoyancy amusement device for use in water, the device comprising a body having a water-impermeable outer surface and an internal volume, said body including:
(a) a lower portion having a local density significantly greater than that of water such that said body tends to assume an upright orientation with said lower portion at the underside of said body;
(b) an internal cavity having an upper part and a lower part defined by their positions when said body assumes said upright orientation;
(c) an shaped upper aperture connecting between said upper part of said cavity and an adjacent point on said surface; and
(d) a lower aperture connecting between said lower part of said cavity and an adjacent point on said surface, said lower aperture being shaped similarly to said upper aperture, wherein said upper and lower apertures are selectively sealable such that, when said cavity contains air and any one of said apertures is sealed said body floats on the water with said lower aperture submerged and, when both of said apertures are open, water enters said cavity through said lower aperture thereby reducing the buoyancy of said body and causing it to sink.

5,722,872
COUNTER BALANCED LIFT ASSEMBLY FOR LOW-RIDER MODEL VEHICLES
Donald Simmons, 8032 Ney Ave., and Larnell Simmons, 3236 M.L.K. Jr. Way, both of Oakland, Calif. 94605
Filed May 16, 1996, Ser. No. 649,840
Int. Cl.[6] A63H *30/04;17/26*
U.S. Cl. 446—456 **6 Claims**



1. A low-rider model vehicle, comprising:
a chassis having a longitudinal axis, a front end, and a rear end;
front and rear axles respectively supported on said chassis adjacent said front end and said rear end thereof, each of said axles extending in a transverse direction relative to said central longitudinal axis;
a pair of wheels attached to each of said axles and adapted to support said vehicle on a ground;
guide means for maintaining said transverse direction of said front axle and allowing movement of said front axle relative to said chassis along a plane normal to said central longitudinal axis, said guide means comprising a pair of laterally opposed vertical side walls connected to said chassis, each of said side walls being provided with a vertical slot, said front axle extending through said slots, said slots allowing rotation and vertical movement of said front axle relative to said chassis along said plane;
lifting means for moving said chassis relative to said front axle between a lowered position and a raised position, said lifting means comprising an electric solenoid having a horizontal push rod extending from one end thereof toward said front end of said chassis, said push rod being mounted along said longitudinal axis;
a power supply connected to said electric solenoid for activating said electric solenoid; and
a L-shaped lever arm having an elbow pivotally attached to said chassis adjacent said push rod, said L-shaped lever arm having a horizontal portion and a vertical portion, said horizontal portion being attached to said front axle, said vertical portion engaging said push rod, when said solenoid is activated by said power supply, said push rod is extended to rotate said L-shaped lever arm, said horizontal portion of said L-shaped lever arm rotating downwardly, so that said front axle is lowered relative to said chassis, and said front end of said chassis is adapted to be raised relative to said ground.

5,722,873
RADIO-CONTROLLED TOY CAR WITH AN IMPROVED STEERING SYSTEM
Zenichi Ishimoto, Tokyo, Japan, assignor to Nikko Co., Ltd., Tokyo, Japan
Filed Jun. 27, 1996, Ser. No. 671,483
Claims priority, application Japan, Jun. 28, 1995, 7-162309
Int. Cl.[6] A63H *30/04;29/00;17/36;29/24*
U.S. Cl. 446—456 **10 Claims**

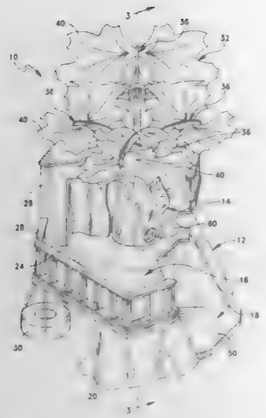


1. A steering system provided on a chassis of a toy car comprising:
a rotatable steering plate on the chassis, said steering plate being rotatable in a horizontal plane by a maximum angle toward left and right directions from a longitudinal center axis of the chassis;
means for urging said rotatable steering plate to rotate toward one of said left and right directions from said longitudinal center axis of the chassis, said urging means being affixed to said chassis and mechanically connected to said rotatable steering plate at a distance from said longitudinal center axis of the chassis;
a steering motor on said steering plate for generating a rotational power, said steering motor having a motor shaft;
a rotary shaft on said steering plate;
a transmission system mechanically connecting said motor shaft and said rotary shaft for transmitting said rotational power generated by said steering motor to said rotary shaft;
a first wheel mechanically connected to a first end of said rotary shaft, said first wheel being freely rotatable about said rotary shaft; and
a second wheel mechanically connected to a second end of said rotary shaft, said second wheel having a clutch mechanism so operating that if said steering motor is driven, then said rotational power is transmitted to said second wheel and thus said second wheel is driven whereby said rotatable steering plate is forced to align with said longitudinal center axis of said chassis, and if said steering motor is not driven, then said rotational power is not generated by said steering motor and thus said second wheel is not driven, whereby said rotatable steering plate is urged to rotate toward said one of said left and right directions from said longitudinal center axis of the chassis.

5,722,874
TREEHOUSE PLAY SET WITH ELEVATOR PLATFORM AND EXTENDABLE BRANCH MEMBERS
Gregory R. Horton, Manville; James Cartabiano, Cumberland, and Nancy Lavey, Wakefield, all of R.I., assignors to Hasbro, Inc., Pawtucket, R.I.
Filed Sep. 9, 1996, Ser. No. 707,837
Int. Cl.[6] A63H *33/00*
U.S. Cl. 446—476 **10 Claims**

1. A play set for use with action figures comprising:

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a base including a generally upright column having upper and lower ends, and a platform attached to the column between the upper and lower ends thereof;

a piston received within said column;

an extension member attached to a top portion of said piston, said piston being slidably movable within said column between a first lowered position wherein said extension member is generally disposed within said column, and a second raised position wherein said extension member extends upwardly and outwardly from the upper end of said column; and

an elevator which is slidably movable on the exterior surface of said column between a first lowered position wherein said elevator is adjacent a supporting surface and a second raised position wherein said elevator is generally co-planar with said platform, said elevator being coupled to said piston wherein movement of said elevator between said first and second positions causes corresponding movement of said piston between said first and second positions.

5,722,875

METHOD AND APPARATUS FOR POLISHING

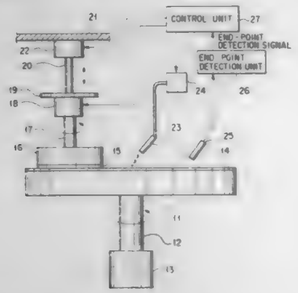
Mitsuaki Iwashita, Nirasaki; Nobuo Konishi, Yamanashi-ken, both of Japan; Gerald A. Krulik, San Clementa, Calif., and Gary Cohrt, Gilbert, Ariz., assignors to Tokyo Electron Limited, Tokyo, Japan, and IPEC-Planar, Phoenix, Ariz.

Filed May 30, 1996, Ser. No. 655,672

Claims priority, application Japan, May 30, 1995, 7-155402; May 30, 1995, 7-155403

Int. Cl.[6] B24B *49/00;51/00*

U.S. Cl. 451—8 **17 Claims**



1. A method of polishing an object by CMP with use of a polishing liquid, said object including a first layer and a second layer of a material different from the material of the first layer, said method comprising the steps of:

detecting a change point of the temperature of a surface-to-be-polished of the first layer while said first layer is being polished, on the basis of an information unit on the temperature of the surface-to-be-polished of the first layer and an information unit on the temperature of a surface-to-be-polished of the second layer, which information units are obtained by polishing in advance said first and second layers; and

detecting an end point of the polishing of the first layer on the basis of information on the change point.

5,722,876

ELECTRIC MOTOR DRIVEN TYPE ON-LINE ROLL GRINDER, ITS CONTROL METHOD AND GRINDING METHOD

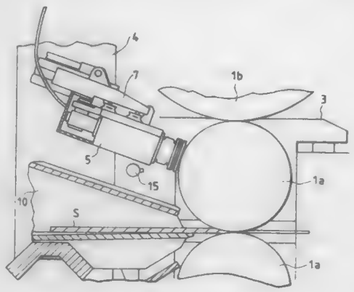
Shigeru Mori, Hitachi, and Toshitsugu Ohara, Jyuou-machi, both of Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Filed Jul. 29, 1996, Ser. No. 687,992

Claims priority, application Japan, Jul. 27, 1995, 7-191439

Int. Cl.[6] B24B *49/00;51/00*

U.S. Cl. 451—10 **29 Claims**



1. An electric motor driven on-line roll grinder of the grinding wheel type, which comprises a grinding unit for grinding a work roll in a rolling mill, a traverse equipment for moving said grinding unit in the axial direction of said work roll, said grinding unit comprising a grinding wheel for grinding said work roll, a driving device for rotating said grinding wheel through an axle of said grinding wheel and a grinding wheel transfer equipment for pressing said grinding wheel on said work roll, wherein said electric motor driven on-line roll grinder further comprises,

a driving device including an electric drive motor for rotatably driving said grinding wheel;

a casing for forming room for driving device, said motor being enclosed in said casing; and

humidity control means for controlling humidity in said room for said driving device.

5,722,877

TECHNIQUE FOR IMPROVING WITHIN-WAFER NON-UNIFORMITY OF MATERIAL REMOVAL FOR PERFORMING CMP

Anthony S. Meyer, San Jose; Thomas G. Mallon; Bradley Withers, both of Santa Clara, and Douglas W. Young, Sunnyvale, all of Calif., assignors to Lam Research Corporation, Fremont, Calif.

Filed Oct. 11, 1996, Ser. No. 729,614

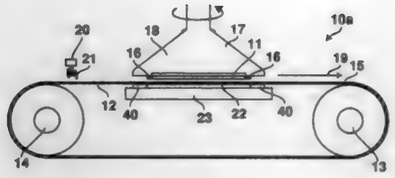
Int. Cl.[6] B24B *21/00*

U.S. Cl. 451—41 **28 Claims**

1. A support housing for supporting a linearly moving belt and a polishing pad disposed on said belt, in which said belt is disposed between said support housing and a surface of a material upon which said polishing pad engages to polish said material comprising:

a platen for having said belt reside thereon and in which a force exerted by said material onto said pad is counteracted by said platen, said platen disposed opposite said material and underlying said belt;

a damper coupled to said platen and disposed along a periphery of said platen where said belt engages said platen, said damper for reducing belt or pad fluctuation where said pad engages said material to obtain a more uniform polishing rate across said surface of said material.



5,722,878

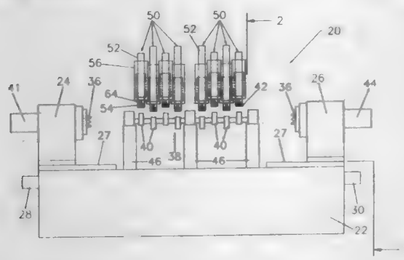
METHOD AND APPARATUS FOR MICROFINISHING

James D. Phillips, Posen, Mich., assignor to J. D. Phillips Corporation, Alpena, Mich.

Filed Aug. 28, 1995, Ser. No. 519,725

Int. Cl.[6] B24B *19/06*

U.S. Cl. 451—49 **21 Claims**



13. A method of microfinishing a surface of a workpiece comprising providing a shoe, and holding the shoe in pressure contact with a surface of the workpiece while vibrating the shoe generally perpendicular to the surface of the workpiece at a frequency of at least about 10,000 cycles per minute to a micro-finish the surface, said shoe having a hardness of at least about 3000 Vickers.

5,722,879

VARIABLE TRAVEL CARRIER DEVICE AND METHOD FOR PLANARIZING SEMICONDUCTOR WAFERS

John Edward Cronin, and Matthew Jeremy Rutten, both of Milton, Vt., assignors to International Business Machines Corporation, Armonk, N.Y.

Continuation of Ser. No. 349,848, Dec. 6, 1994, Pat. No. 5,549,511. This application Jun. 27, 1996, Ser. No. 671,034

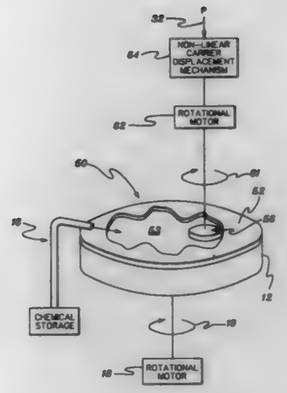
Int. Cl.[6] B24B *7/00;9/00;17/00*

U.S. Cl. 451—281 **12 Claims**

1. A polishing device for polishing a surface of a semiconductor wafer, said polishing device comprising:

a polishing pad;

a carrier assembly for holding the semiconductor wafer with the surface thereof to be polished in juxtaposition relative to the polishing pad; and



means for non-rotationally and non-linearly moving the semiconductor wafer and carrier assembly relative to the polishing pad.

5,722,880

Patent Not Issued For This Number

5,722,881

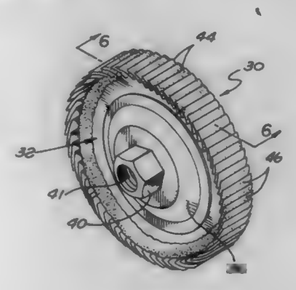
FLAP WHEEL

Grahame W. Emerson, Anaheim, Calif., assignor to Merit Abrasive Products, Inc., Compton, Calif.

Filed Aug. 30, 1996, Ser. No. 706,438

Int. Cl.[6] B24D *13/06*

U.S. Cl. 451—466 **25 Claims**



1. An abrasive wheel for abrading a surface of a workpiece in accordance with a rotation of the wheel, including,

a substantially rigid rotary member,

first means extending radially from the rotary member and having an annular periphery at its outer radial end and having an annular rim at its outer radial periphery, the annular rim having a width extending axially beyond the first means to define opposite axial ends of the rim,

a plurality of flaps each having an inner end and an outer end and each extending along the width of the rim and each extending from the annular rim at an angle relative to the annular rim and each disposed at least partially on an adjacent one of the flaps in an overlapping relationship in the radial direction with such adjacent ones of the flaps before the rotation of the wheel,

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the flaps being disposed around the complete periphery of the annular rim and being substantially parallel to one another in the overlapping relationship along the lengths of the flaps, and second means for attaching the flaps to the annular rim at the inner ends of the flaps along the width of the rim to retain the flaps in a substantially fixed relationship to one another and to the annular rim, with each flap disposed at the angle relative to the annular rim and with each flap disposed on an adjacent one of the flaps, during the rotation of the abrasive wheel and the application of the wheel against the workpiece surface.

5,722,882

AUTOMATIC COIN DISCHARGE APPARATUS

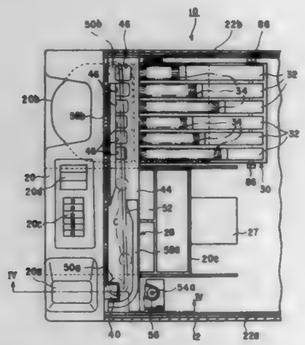
Kyouichi Kashiwagi, Susono; Masakazu Tanaka, and Hironobu Makino, both of Shizuoka-ken, all of Japan, assignors to Kabushiki Kaisha TEC, Shizuoka, Japan

Filed Sep. 27, 1995, Ser. No. 534,795

Claims priority, application Japan, Oct. 28, 1994, 6-265751

Int. Cl.[6] G07D *3/02;3/16*

U.S. Cl. 453—11 **25 Claims**



1. An automatic coin discharge apparatus comprising:

a housing having a coin-receiving opening and a coin discharge opening;

coin-storing means extending in a substantially horizontal direction in the housing and storing a plurality of coins of the same denomination in a piled-up state in one line in the substantially horizontal direction, in the piled-up coins each of the coins being in a standing state and side surfaces of the coins facing each other;

coin-urging means for urging the plurality of coins in the coin line in the coin-storing means toward one end portion of the coin-storing means in a direction along the coin line;

coin transporting means extending in the housing from the coin-receiving opening toward one end portion of the coin-storing means, and transporting coins received by the coin-receiving opening toward the one end portion of the coin-storing means with the coin being transported in a horizontally laid down state;

coin inserting means for inserting coins transported toward the one end portion of the coin-storing means by the coin transporting means, into a position nearest to the one end portion of the coin-storing means in the coin line in the coin-storing means with the coin being inserted in the standing state; and

guide means for guiding the coin from the coin transporting means to the coin inserting means by using gravity and changing the coin from in the horizontally laid down state to in the standing state while the coin is guided by gravity; and

coin discharge means for selectively discharging the coin in the position nearest to the one end portion of the coin-storing means in the coin line in the coin-storing means, from the coin-storing means toward the coin discharge opening of the housing with the coin being discharged in the standing state.

5,722,883

OUTFLOW NOZZLE FOR A VEHICLE

Stefan Schwarz, Rochester Hills, Mich., assignor to Valeo Klimasysteme GmbH, Rodach, Germany

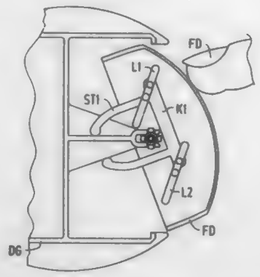
PCT No. PCT/EP95/03673, § 371 Date Jul. 29, 1996, § 102(e) Date Jul. 29, 1996, PCT Pub. No. WO96/09182, PCT Pub. Date Mar. 28, 1996

PCT Filed Sep. 18, 1995, Ser. No. 646,289

Claims priority, application European Pat. Off., Sep. 23, 1994, 94115041

Int. Cl.[6] B60H *1/34*

U.S. Cl. 454—155 **14 Claims**



1. Outflow nozzle of a heating and/or air-conditioning system, with a flow direction-neutral front baffle capable of pivoting from a normal operating position relative to a nozzle housing receiving said front baffle, and with deflecting fins, the latter being adjustable behind the front baffle relative to the latter and determining the direction of flow, such deflecting fins being adapted for pivoting in one or other direction into a corresponding dwelling position by a brief adjusting swivel motion of the front baffle with subsequent return setting of the front baffle.

5,722,884

FLAP FOR AN AIR GUIDING DUCT

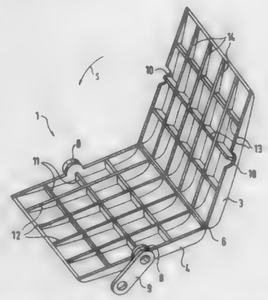
Michael Komowski, Stuttgart, Germany, assignor to Behr GmbH & Co., Stuttgart, Germany

Filed Apr. 1, 1996, Ser. No. 626,073

Claims priority, application Germany, Apr. 11, 1995, 195 13 670.5

Int. Cl.[6] B24D *13/00*

U.S. Cl. 454—69 **33 Claims**



1. Flap for on air guiding duct for a heating and/or air-conditioning system of a motor vehicle, having a flap body joined together from two flap halves, wherein the flap body is formed of two flap halves which are made of plastic and which are connected with one another to form a one-piece injection molded part by means of a film hinge injection molded along a lateral edge of the two flap halves, the two flap halves being foldable together about a hinge axis of the film hinge and being fixable by means of fixing elements in this folded-together position.

5,722,885

AIR MOVING SYSTEM

Richard D. Matthews, London, Great Britain, assignor to South Bank University & Enterprises, Limited, and Woods of Colchester Limited, both of United Kingdom

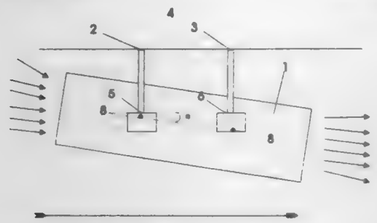
PCT No. PCT/GB95/02002, § 371 Date Feb. 24, 1997, § 102(e) Date Feb. 24, 1997, PCT Pub. No. WO96/06313, PCT Pub. Date Feb. 29, 1996

PCT Filed Aug. 23, 1995, Ser. No. 793,768

Claims priority, application United Kingdom, Aug. 23, 1994, 9416975

Int. Cl.[6] E21F *1/00*

U.S. Cl. 454—167 **18 Claims**



1. An air moving system, comprising: a jet fan having an axis and positioned adjacent to a supporting surface with the axis of the jet fan in a first position at an angle to said supporting surface so as to direct air away from the supporting surface when the fan is working, the jet fan being supported on at least one adjustable mounting so that, when the direction of air being blown by the fan is reversed, the fan is adjusted on its mounting to a second position so as to direct said reversed air flow away from said supporting surface in the opposite direction to the direction in the first position.

5,722,886

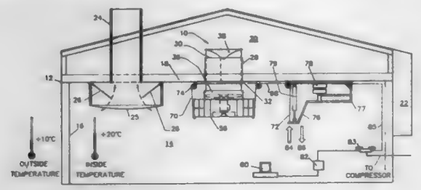
VENTILATOR

Stephen Dale Steckly, 228 Rhatigan Road East, Edmonton, Alberta, Canada, T6R 1N7

Filed Feb. 29, 1996, Ser. No. 608,610

Int. Cl.[6] F24F *7/06;11/053*

U.S. Cl. 454—229 **9 Claims**



1. A ventilator, comprising:

a female housing having a first end, a second end, and a passage that extends through the female housing from the first end to the second end, said female housing having an axis disposed vertically;

a skeletal male member telescopically received within the passage of the female housing, the male member being longer then the passage in the female housing such that the male member protrudes from the passage of the female housing, the male member having an air impermeable first end and an open second end in which is disposed a fan, the first end and the second end being connected by support rods, at least one air flow channel extends between the first end and the fan at the second end of the male member, radial air flow passages communicate with the at least one air flow channel at both the first end and the second end of the male member; and

means being provided to cause relative telescopic movement of the male member and the female housing, such that relative movement in a first direction diminishes the area of radial air flow passages exposed to air flow from the first end of the female housing while increasing the area of the radial air flow passages exposed to air flow from the second end of the female housing, and relative movement in a second direction diminishes the area of radial air flow passages exposed to air flow from the second end of the female housing while increasing the area of radial air flow passages exposed to air flow from the first end of the female housing;

the female housing being stationary and the male member being telescopically movable relative to the female housing, gravity serving as the means to cause telescopic movement of the male member in one direction.

5,722,887

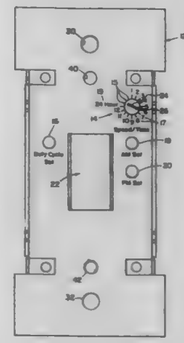
AUTOMATIC PROGRAM VENTILATION CONTROL SYSTEM

Jason Wolfson, Duxbury, and Paul H. Raymer, Falmouth, both of Mass., assignors to Tamarack Technologies, Inc., West Wareham, Mass.

Filed Aug. 17, 1995, Ser. No. 516,382

Int. Cl.[6] H01H *43/04*

U.S. Cl. 454—256 **6 Claims**



1. An automatic program ventilation control system for operating a fan comprising:

a fan drive circuit;

a duty cycle control circuit including means for selecting a duty cycle and means for setting the selected duty cycle, wherein said duty cycle is a specified length of time within a specified time interval;

a timing circuit including means for selecting a time of day and means for setting the selected time of day;

a fan speed control circuit including means for selecting a fan speed and means for setting the selected fan speed;

a manual override switch circuit for overriding the set duty cycle and fan speed for operating the fan at a predetermined speed for a preselected period of time; and

a control panel wherein each of said means for setting and said means for selecting are accessible on said panel, said panel including means for mounting a switch cover plate which covers and makes inaccessible said panel.

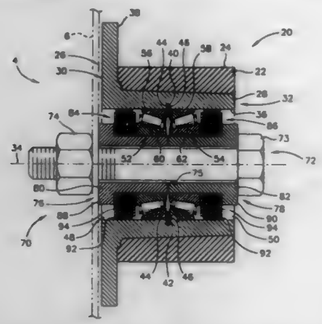
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ROLLER ASSEMBLY FOR AGRICULTURAL MACHINES

John L. Lane, P.O. Box 488, Greeley, Colo. 80632

Filed Jun. 12, 1996, Ser. No. 662,162
Int. Cl.[6] A01D 75/00; B65G 13/00
U.S. Cl. 460—114 19 Claims



11. A roller assembly having readily replaceable modular components for use within an agricultural conveyor apparatus including an endless conveyor supported on one or more roller assemblies mounted on a support frame, said roller assembly comprising:

a roller sub-assembly for supporting a conveyor element, said roller being generally cylindrical in shape and having a pair of sides and a central axis of rotation extending between said sides, said roller sub-assembly further comprising:

a pair of cavities formed by recesses in said roller sub-assembly sides, each cavity being centered on said central axis of rotation and having a rearward portion facing at least partially toward a corresponding one of said roller sides to provide a bearing support surface; and

a central bore extending between said cavities along said central axis of rotation;

a bearing sub-assembly adapted to mount in said roller sub-assembly cavities, said bearing sub-assembly comprising a pair of bearings having a radial outer portion which engages said bearing support surfaces and a radial inner portion; and

an axle sub-assembly mountable on a frame portion of an agricultural conveyor and which extends through said central bore of said roller sub-assembly and said bearings, said axle sub-assembly comprising:

an axle; and

a pair of bearing retainers mounted on said axle and imparting an axial compressive force urging said radial bearing inner portions together and said bearing outer portions against said bearing support surfaces, thereby rotatably securing said roller subassembly on said axle sub-assembly via said bearings.

5,722,889

Patent Not Issued For This Number

5,722,890

LOTTERY SYSTEM

Budd O. Libby, Dunwoody, and Daniel W. Bower, Atlanta, both of Ga., assignors to Telecom Productions, Inc., Atlanta, Ga.

Filed Oct. 20, 1995, Ser. No. 546,365
Int. Cl.[6] A63F 3/00
U.S. Cl. 463—17 9 Claims

1. A method of conducting a lottery, comprising:

(a) issuing a plurality of lottery tickets each bearing a sequence-specific subset of K different integers selected from a predetermined set of integers, K being a predetermined constant, a number of integers in said set being larger than K, said plurality of tickets including tickets respectively bearing different sequence-specific subsets of K integers of said set;

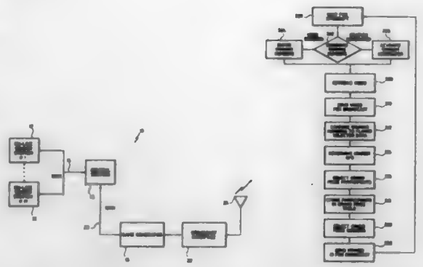
(b) assigning to each issued ticket a unique multidigit identifier;

(c) storing the identifier of all issued tickets for selective retrieval of all identifiers of issued tickets bearing any given sequence-specific subset of integers;

(d) after completion of step (a), randomly selecting one sequence-specific subset of K different integers from said set;

(e) selectively retrieving from storage the identifier of all issued tickets bearing said one sequence-specific subset; and

(f) randomly selecting one identifier retrieved in step (e), a ticket to which said one identifier is assigned being a winning ticket of the lottery.

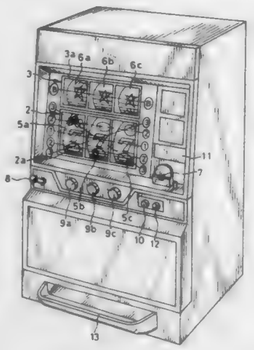


5,722,891

SLOT MACHINE HAVING TWO DISTINCT SETS OF REELS

Haruo Inoue, Tokyo, Japan, assignor to Eagle Co., Ltd., Tokyo, Japan

Filed Mar. 7, 1995, Ser. No. 399,922
Claims priority, application Japan, Apr. 5, 1994, 6-067171
Int. Cl.[6] A63F 9/22
U.S. Cl. 463—20 26 Claims



1. A slot machine in which a game is played to provide a win or a loss, said win being one of plural kinds including a normal win, a specific win, and a bonus win, said game being one of plural kinds including a normal game and a bonus game, said bonus game being allowed when said specific win is provided upon playing of a said normal game, said slot machine comprising:

a first reel set, including P normal reels having symbols arranged on their peripheries, P being at least two, said normal reels rotating during a said normal game, said normal win or a said specific win, in accordance with the combination of symbols on said normal reels stopping along a predetermined first winning line displayed in a first window; and

at least one specific reel having symbols arranged on its periphery, said specific reel rotating during a said bonus game, said specific reel stopping to display a said bonus win in a second window spaced from said first window, in accordance with the presence of at least one symbol on said specific reel in a predetermined winning position.

5,722,892

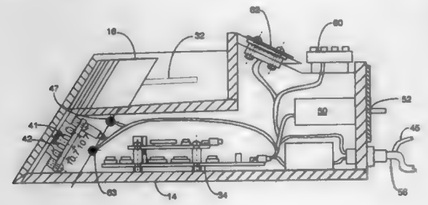
Patent Not Issued For This Number

5,722,893

CARD DISPENSING SHOE WITH SCANNER

Otho D. Hill, Las Vegas, Nev., and Louis W. DesPrez, Cupertino, Calif., assignors to Smart Shoes, Inc., Las Vegas, Nev.

Filed Oct. 17, 1995, Ser. No. 543,908
Int. Cl.[6] A63F 1/14
U.S. Cl. 463—47 11 Claims



1. A card delivery shoe for use in dealing playing cards for the playing of a card game comprising:

an elongated housing having a chute for supporting a deck of playing cards for movement toward one end of the housing, said housing having an outlet opening near the front thereof whereby the cards of the deck are removed manually one-by-one out of the housing during the play of a game along the chute in the housing;

means for scanning indicia on each of the cards as they move along said chute whereby a signal is generated which represents the value and suit of the cards as they move one-by-one out of the housing; and

means for coupling the scanner to a host computer for processing the signal for determination of the trends in the play of the game in accordance with the way in which the cards are played relative to a card count system, wherein the scanner includes a feed forward neural-network which is trained using error back-propagation to recognize the possible card suits and card values of the cards of a card deck supported on the chute.

5,722,894

TORQUE CONTROLLER

Masayuki Kojima, Wakayama, Japan, assignor to Noritsu Koki Co., Ltd., Wakayama, Japan

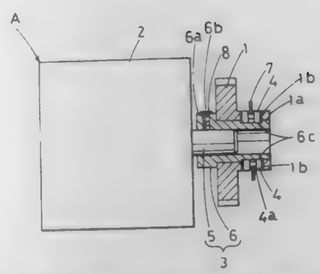
Filed Jan. 5, 1996, Ser. No. 583,609
Claims priority, application Japan, Jan. 26, 1995, 7-010863
Int. Cl.[6] F16D 7/10
U.S. Cl. 464—37 3 Claims

1. A torque controller comprising:

a drive shaft having an outer surface having therein circumferentially spaced engaging recesses;

a transmission device having a center hole, a boss portion surrounding said center hole, and circumferentially spaced slots extending through said boss portion;

said drive shaft being inserted in said center hole;



engaging elements fitted in respective said slots, each said engaging element comprising a pin-shaped member having an inner portion configured to fit in a respective said engaging recess and an outer portion having therein a radial recess extending in a circumferential direction of said boss portion; and

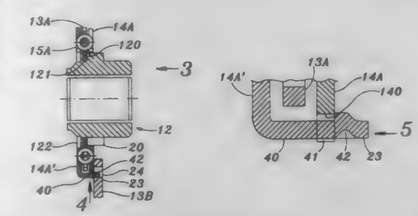
a resilient ring fitted about said boss, said resilient ring having a rectangular cross section including a radial dimension that is greater than an axial dimension, and said resilient ring having a radially inner edge fitting in said radial recess of each said pin-shaped members, said resilient ring urging said pin-shaped members inwardly such that said inner portion of each said pin-shaped member is urged into a respective said engaging recess, thereby enabling transfer of torque from said drive shaft to said transmission device, whereby when said transmission device is overloaded said pin-shaped members can move outwardly of said engaging recesses against the urging force of said resilient ring to terminate transfer of torque from said drive shaft to said transmission device.

5,722,895

TORSION PREDAMPER, NOTABLY FOR MOTOR VEHICLES

Michel Graton, Paris, and Fabrice Tauvron, Creteil, both of France, assignors to Valeo, Paris, France

PCT No. PCT/FR95/00284, § 371 Date Nov. 13, 1995, § 102(e) Date Nov. 13, 1995, PCT Pub. No. WO95/24573, PCT Pub. Date Sep. 14, 1995
PCT Filed Mar. 10, 1995, Ser. No. 553,259
Claims priority, application France, Mar. 11, 1994, 94 02960
Int. Cl.[6] F16D 3/66;3/14
U.S. Cl. 464—68 9 Claims



1. A torsion damper comprising: a hub (12), first and second webs (13A,13B) fixed to the hub (12), first and second metal guide washers (14A, 14A') disposed axially on each side of the first web (13A), in which the second guide washer (14A') has axially oriented mounting lugs (40) made as a single piece with the outer periphery of the second washer, and each mounting lug having a free end passing with assembly clearance through a complimentary recess (41) formed on the outer periphery of the first guide washer (14A) to cooperate with associated lateral edges (141) of recesses (41) for the connection in rotation of the first washer (14A) to the second washer (14A') and in which the free end of the mounting lugs (40) form a driving projection in contact with the second web

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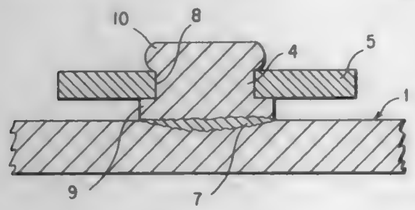
(13B), wherein the free end of at least some of the mounting lugs (40) have radially inward deformations to form a retaining means (42, 142, 242) for cooperation with the face of the first washer (14A), the deformations (42, 142, 242) leave intact the lateral edges (141) of the recesses (140), said mounting lugs (40) extend radially beyond the outer periphery of the web (13A), and the deformations are located in the central portion of the mounting lugs, leaving the lateral edges of the mounting lugs intact for cooperation with the lateral edges of the recess.

5,722,896

BALANCED PROPELLER SHAFT USING A WEIGHT ANCHOR

Russell James Beagley, and John Alan Smith, both of Melbourne, Australia, assignors to Unidrive Pty. Ltd., New South Wales, Australia

Continuation of Ser. No. 601,829, Feb. 15, 1996, abandoned, which is a continuation of Ser. No. 139,794, Oct. 22, 1993, abandoned. This application Jul. 1, 1997, Ser. No. 886,443
Claims priority, application Australia, Oct. 28, 1992, PL5547
Int. Cl.[6] F16C *3/00*
U.S. Cl. 464—180 **9 Claims**



1. A propeller shaft, comprising:
a shaft body;
a balance weight formed separately from said shaft body and having an aperture therethrough;
a metallic rigid anchoring element formed separately from said shaft body and said balance weight;
fixing means securing said rigid anchoring element to an outer surface of said shaft body so that said rigid anchoring element projects outwardly from said outer surface at a preselected balance weight location on said outer surface, the rigidity of said rigid anchoring element combined with the operation of said fixing means enabling said rigid anchoring element to function as fixed locating means for receiving said balance weight and holding said balance weight in said preselected balance weight location, said balance weight being positioned on said rigid anchoring element by engagement of said fixed rigid anchoring element within said aperture of said balance weight; and
securing means formed by a distorted part of said rigid anchoring element in which said part engages said balance weight and thereby prevents removal of said balance weight from said rigid anchoring element.

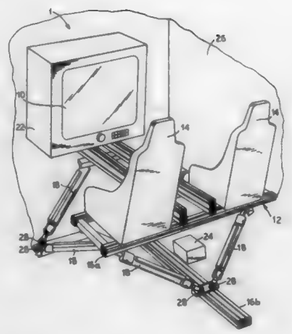
5,722,897

SENSORY SIMULATOR AND EDITOR AND A METHOD OF USING THE SAME

Brad Engstrand, 2658 N. Dayton, Chicago, Ill. 60614

Continuation of Ser. No. 469,193, Jun. 6, 1995, Pat. No. 5,564,985, which is a division of Ser. No. 253,094, Jun. 2, 1994, Pat. No. 5,496,220. This application Jun. 7, 1996, Ser. No. 660,499
Int. Cl.[6] A63G *31/16;* **A63J** *5/02*
U.S. Cl. 472—60 **7 Claims**

1. A system for viewing a scene including motion recorded on a medium, the system comprising:



a level base;
a bracket with at least one seat mounted on the bracket;
six pneumatic cylinders mounted on a level base and extending to the bracket;
a medium including a motion signal recorded thereon; and
a controller selectively controlling supply and release of air to six pneumatic cylinders, the controller responsive to a signal on the medium wherein the signal is indicative of a desired position of the at least one seat and further corresponds to the recorded motion on the medium.

5,722,898

POINTER ROD GOLF CLUB SWING TRAINER

William C. Witten, 3532 Golden Crest La., Rosamond, Calif. 93560

Filed Sep. 11, 1996, Ser. No. 725,945
Int. Cl.[6] A63B *69/36*
U.S. Cl. 473—211 **1 Claim**



1. A pointer rod for attachment on a user's hat comprising:
a rod having a tip end and comprised of a plurality of rod elements which fit successively one into the other to allow extension and collapsing of the rod relative to an attachment end;
a clip attached to the attachment end oriented to be clipped on a user's hat visor; and
the rod elements being of sufficient number and relative length such that when the attachment end is attached to the user's hat visor and the user's eyes are viewing a golf ball the rod is located above the optical line of sight of the user's eyes and, when the head of the user moves, the corresponding movement of the tip end of the pointer rod is significantly exaggerated because of the extended length of the pointer rod which permits its detection by the user and provides a reminder to the user to fix the head and eyes on the golf ball.

5,722,899

METHOD FOR MAKING A MATCHED SET OF GOLF CLUBS UTILIZING FREQUENCY CONVERSION VALUES

Michael H. L. Cheng, Simi Valley, Calif., assignor to Harrison Sports, Inc.

Filed Dec. 18, 1996, Ser. No. 767,348
Int. Cl.[6] A63B *53/00;53/10*
U.S. Cl. 473—289 **7 Claims**

Iron No.	A Natural Frequency (CPM)	B Desired Frequency (CPM)	C CPM Difference (CPM) (A-B)	D Overage & Weight Difference Conversion Value (CPM)	E Total Frequency Conversion Value (CPM)	F Tip Trim Amount Ins
2	284	289	5	0	5	.25"
3	285	293	8	7	15	.83"
4	286	297	11	10	21	1.2"
5	288	301	13	18	31	1.72"
6	290	305	15	21	36	2"
7	293	309	16	25	41	2.3"
8	294	313	19	30	49	2.7"
9	296	317	21	39	60	3.3"
P	299	321	22	40	62	3.4"

1. A method of making a matched set of golf clubs comprising the steps of:
randomly selecting a plurality of shafts from a stock of raw shafts;
determining the weighted vibration frequency of each of the plurality of shafts;
assigning sequential club head numbers to each shaft in the order of the frequency of each shaft, starting with the lowest club head number being assigned to the shaft having the lowest vibration frequency;
selecting a club head for each respective shaft;
determining the actual weight of each club head;
selecting a desired club head weight for each shaft;
determining a weight difference conversion value to adjust the determined vibration frequency of each shaft based on the desired club head weight;
determining an overage conversion value to adjust the determined vibration frequency of each shaft based on the actual weight of a selected club head in excess of the desired club head weight;
determining for each shaft a total frequency conversion value comprising the addition of (a) said weight difference conversion value, (b) the overage conversion value, and (3) the difference between the desired vibration frequency (minuend) and the determined vibration frequency (subtrahend);
determining for each shaft a tip trim amount based on the total frequency conversion value; and
trimming the tip of each shaft by said determined tip trim amount.

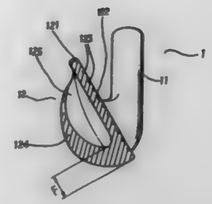
5,722,900

STRUCTURE OF GOLF CLUB HEAD

Chung Jong Sung, 7F-2, No. 87, Kuang Ming Street, Kaohsiung, Taiwan

Filed Jul. 28, 1995, Ser. No. 508,960
Int. Cl.[6] A63B *53/04*
U.S. Cl. 473—291 **3 Claims**

1. A set of golf club heads comprising:
a casing and a neck at one end of said casing for connection of a club shaft, said casing comprising a front wall, a striking surface defined within said front wall, a plurality of scoring lines on said striking surface, and a smoothly curved back wall extended from said front wall, wherein:
said back wall has a bottom side connected to said front wall by a solid bottom wall, defining with said front wall a back chamber that is open on a top side thereof such that a center of gravity of said club heads is varied from club to club, said center of gravity is varied in the vertical direction by increasing and decreasing a thickness of said solid bottom wall, and said center of gravity is varied in the horizontal direction by changing a slope of said solid bottom wall, thereby allowing a user to create a full set of irons all having the same front wall.

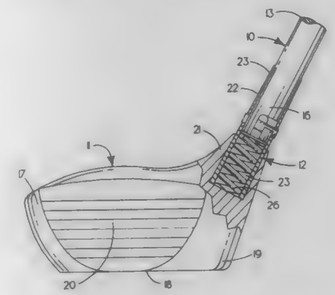


5,722,901

RELEASABLE FASTENING STRUCTURE FOR TRIAL GOLF CLUB SHAFTS AND HEADS

John R. Barron, 6512 E. Sprague Ave., Spokane, Wash. 99212, and Leo Ohanesian, 3311 E. 65th Ave., Spokane, Wash. 99223

Filed Feb. 11, 1997, Ser. No. 798,558
Int. Cl.[6] A63B *53/02*
U.S. Cl. 473—305 **2 Claims**



1. A releasable connecting structure for golf club shafts and heads, having a hosel defining a medial channel with an inner end to receive a first end portion of the shaft, comprising in combination:
a golf club head having a fastening pin carried by the hosel to extend diametrically through the medial channel defined therein spacedly distant from the inner end and a compression spring carried in the medial channel between the inner end and the fastening pin for biasing a shaft in the medial channel outwardly from the inner end, and
a golf club shaft having channel structure defined in the first end portion carried in the hosel, said channel structure having a diametrically orientated first slot, with a width incrementally greater than the diameter of the fastening pin, extending spacedly inwardly from the first end of the shaft to interconnect with a second radially extending slot having width at least as great as the length of the first slot and a length greater than the width to interconnect with a third vertical slot having a width at least as great as the first slot and extending with diametrical orientation toward the first end of the shaft spacedly distant therefrom.

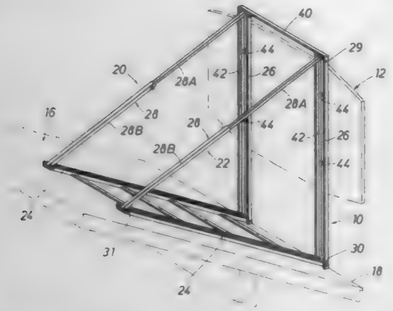
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5,722,902

METAL MOUNTING FRAME FOR BASKETBALL BACKBOARD AND METHOD OF INSTALLATION

Donovan G. Dupreé, 10663 Northbrook, Houston, Tex. 77043

Filed Mar. 12, 1996, Ser. No. 615,538
Int. Cl.[5] A63B *71/02*
U.S. Cl. 473—483 1 Claim



1. A method for installing a metal mounting frame for a basketball backboard on the inclined roof of a garage or the like from a collapsed folded position of the metal mounting frame, the metal mounting frame having a pair of metal parallel frame portions connected to each other and folded simultaneously between collapsed and erect positions, each frame portion including an upwardly facing channel-shaped base member, and a downwardly facing channel-shaped upright member for supporting said backboard hinged to said upwardly facing channel-shaped base member; a pair of adjustable diagonal bracing members, each including a pair of slidably connected telescoping portions comprising an upper telescoping portion hinged to said upright member and a lower telescoping portion disconnected from said base member in the collapsed flat position so that upon erection of said mounting frame from the collapsed flat portion said telescoping portions are extended until said lower telescoping portion is accurately aligned with said base member for securement;

said upwardly facing channel shaped base member and said downwardly facing channel-shaped upright member interfitting in a collapsed position to provide a minimum height to said mounting frame when folded to a collapsed position; and

adjustable means to secure said upper and lower telescoping members to each other when said upright member is positioned in vertical relation; said method for installing said frame from said collapsed position comprising the following steps:

unfolding the frame;

extending the telescoping portions of the diagonal members to align the free ends of said diagonal members with free ends of said base members;

connecting the free ends of said diagonal members and said base members to each other after alignment to provide an erect mounting frame;

then securing the erect metal mounting frame to the roof;

adjusting the upright members to a vertical position for receiving the basketball backboard by moving the telescoping portions relative to each other;

fastening said telescoping portions to each other with said adjustable fastening means to maintain the upright members in a vertical relation for attachment of said backboard; and

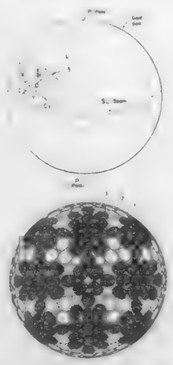
mounting a basketball backboard on said upright members at a predetermined height.

5,722,903

GOLF BALL

Keiji Moriyama, Shirakawa, and Satoshi Iwami, Himeji, both of Japan, assignors to Sumitomo Rubber Industries, Ltd., Hyogo-Ken, Japan

Filed Jan. 11, 1996, Ser. No. 584,363
Claims priority, application Japan, Jan. 13, 1995, 7-004418
Int. Cl.[6] A63B *37/14*
U.S. Cl. 473—384 8 Claims



1. A golf ball having a large number of dimples formed on the surface thereof, wherein the dimples comprise circular dimples and oval dimples in plan view; the total of the oval dimples is set to more than 20% of the total of the dimples; and the dimples are arranged in such a manner that an average intersection acute angle δ made between a line connecting the center of each oval dimple and a pole of the golf ball with each other and a major axis of each oval dimple is set in a range of $0 \leqq \delta \leqq 80°$.

5,722,904

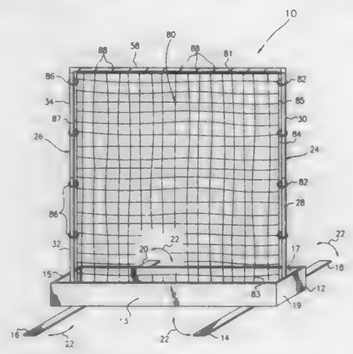
Patent Not Issued For This Number

5,722,905

COLLAPSIBLE PITCHING SCREEN ASSEMBLY

Patrick Kay Bidelman, 950 Dartmoor Cir., Nokomis, Fla. 34275

Filed Oct. 21, 1996, Ser. No. 735,788
Int. Cl.[6] A63B *69/00*
U.S. Cl. 473—451 11 Claims



1. A collapsible pitching screen assembly comprising:

an elongate container;

a pair of elongate, spaced apart uprights mounted within and extending upwardly from said container proximate respective ends of said container, each upright including a lower portion collapsibly mounted in said container and an upper portion detachably connected to an upper end of said lower portion, each said lower portion fitting within said container when said associated upper portion is detached therefrom and said lower portion is collapsed;

a crossbar that is detachably interconnected between the respective upper portions of said uprights and which fits in said container when said crossbar is detached from said uprights;

a flexible barrier including upper and lower ends and a pair of sides that extend between said barrier upper and lower ends, said upper end of said barrier being attached to said crossbar;

means for collapsibly attaching each said side of said barrier to a respective one of said uprights such that said side is restricted from separating from said upright and said barrier is movable between a raised condition wherein said crossbar is interconnected between said uprights and a collapsed condition wherein said crossbar is detached from said uprights and disposed in said container; and

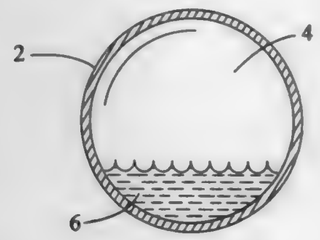
leg means operably connected to and selectively extendible from said container for engaging the ground and stabilizing said assembly.

5,722,906

GAME BALL

Robert Gentile, 30 Wyman St., Billerica, Mass. 01821

Continuation of Ser. No. 215,892, Mar. 21, 1994, abandoned.
This application Sep. 29, 1995, Ser. No. 538,032
Int. Cl.[6] A63B *43/04;37/08*
U.S. Cl. 473—471 1 Claim



1. A game ball in the shape of a sphere for use in playing street hockey, the game ball consisting of a hard, rigid spherical shell enclosing a cavity, and a non-toxic liquid antifreeze contained in said cavity, the spherical shell having a smooth unobstructed spherical inner surface, and the non-toxic liquid antifreeze occupying less than one-half of the volume of said cavity whereby the center of gravity of said game ball is below the geometric center of said game ball and the non-toxic liquid antifreeze moves freely over the spherical inner surface of said game ball during movement of the game ball over a playing surface.

5,722,907

BAT AND BALL GAME

Carl L. Paulun, 620 Third St., NE., New Philadelphia, Ohio 44663

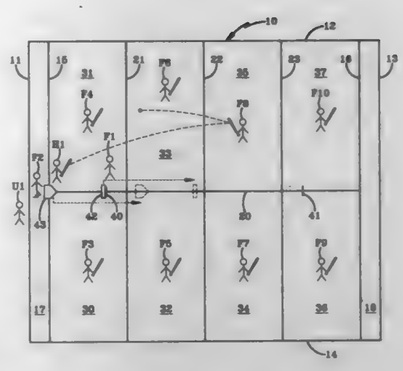
Filed Oct. 7, 1996, Ser. No. 726,769
Int. Cl.[6] A63B *71/02*
U.S. Cl. 473—474 10 Claims

1. A method of playing a game using at least one bat, and at least one ball, on a rectangular field, the method comprising:

defining a playing surface as a rectangular-shaped field having a pair of opposing end lines separated by a pair of opposing side lines defining the field therebetween, the field further including a goal line parallel to and spaced apart from each of the end lines thereby defining an end zone between each goal line and end line, the field further including a plurality of zones as defined by a plurality of base lines parallel to and spaced apart between the goal lines and a center line parallel to and spaced apart between the side lines;

pitching a baseball from a pitching rubber positioned along the center line toward a plate spaced apart a constant distance from the pitching rubber along the center line; and

selectively swinging at the baseball when in the proximity of the plate by a hitter adjacent the plate.

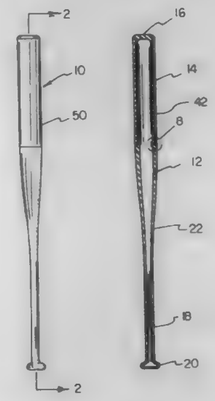


5,722,908

COMPOSITE BAT WITH METAL BARREL AREA AND METHOD OF FABRICATION

Brian Feeney, Enfield, Conn., and Thomas Kennedy, Wilbraham, Mass., assignors to Lisco, Inc., Tampa, Fla.

Filed Feb. 2, 1996, Ser. No. 595,535
Int. Cl.[6] A63B *59/06*
U.S. Cl. 473—567 1 Claim



1. A method of fabricating a ball bat comprising the steps of:

providing a bat frame in a generally cylindrical configuration having an essentially cylindrical hitting area terminating in a generally spherical closed end and having a handle area remote from the hitting area terminating in a short radially

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enlarged knob and with a tapering transition zone intermediate the hitting area and the handle area, the bat frame being fabricated of a composite material of linearly aligned fibers in a matrix binder;

providing an annular insert, the insert being fabricated of aluminum with an interior cylindrical surface and with radially extending parallel end faces and having a cylindrical exterior surface;

positioning the insert around the frame in the hitting area;

positioning the bat frame and insert into a mold having an internal configuration corresponding to the exterior configuration of the bat to be fabricated; and applying heat and pressure to the bat frame and insert, the heat and pressure being sufficient whereby a recess is formed in the hitting area, the recess being in a cylindrical configuration having an annular inner face in contact with the interior face of the insert, parallel end faces at ends of the recess in contact with the and faces of the insert and an opened annular exterior essentially coextensive with the exterior surface of the insert, the heat and pressure also being sufficient to cure the bat frame; and

removing the bat frame and insert from the mold to thereby provide a unitary ball bat with an aluminum insert in the hitting area.

5,722,909

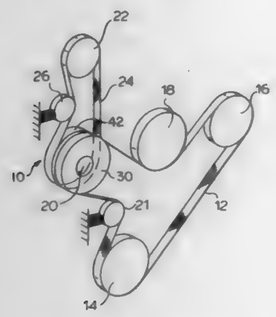
SERIES TYPE DECOUPLING DEVICE

Henry W. Thomey, Gilford, Canada, assignor to Litens Automotive Partnership, Woodbridge, Canada

Continuation-in-part of Ser. No. 534,989, Sep. 27, 1995, abandoned. This application Jan. 16, 1996, Ser. No. 585,596

Int. Cl.[6] F16H *7/00*

U.S. Cl. 474—87 **32 Claims**



1. A series type decoupler joint comprising

a driving pulley,

a driven pulley,

a sleeve for mounting said decoupler joint on a shaft, said driving pulley and said driven pulley mounted on said sleeve with said driving pulley engaging said sleeve for rotation therewith and said driven pulley rotatably engaging said sleeve, and

a flexible rubber core extending between said driving pulley and said driven pulley for elastically coupling said driving pulley to said driven pulley.

5,722,910

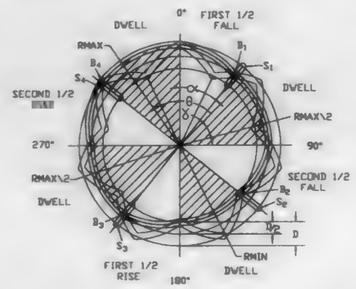
SPEED CONVERTER WITH DWELL

Frank A. Folino, Salem, Mass., assignor to Synkinetics, Inc., Lowell, Mass.

Division of Ser. No. 342,908, Nov. 21, 1994, Pat. No. 5,562,564, which is a continuation-in-part of Ser. No. 670,263, Mar. 14, 1991, Pat. No. 5,312,306, and Ser. No. 62,053, May 14, 1993, abandoned. This application Oct. 2, 1996, Ser. No. 725,146

Int. Cl.[6] F16H *13/04;13/08;29/00*

U.S. Cl. 476—36 **14 Claims**



1. Apparatus for converting a rotary motion input to an intermittent motion output, comprising

rotatable input and output devices coupled together by and interacting via at least one interacting element,

said input device having rotatable drive means for supply of angular velocity and rotary motive force to said output device, said output device having a rotatable driven means for receipt of said angular velocity and rotary motive force from said drive means, said rotatable means located coaxially about a common axis of the apparatus,

slot means having at least one slot, said slot adapted to receive therein said interacting element, said slot means located with said conjugate pair relative to said common axis, said slot defining a travel axis,

one of said devices having a flank portion with a non-varying dimension relative to said travel axis,

one of said devices having a flank portion with a varying dimension relative to said travel axis,

said drive means cooperating with said slot means and said driven means for converting rotation of said input to rotation of said output as defined by said flank portion with varying dimension, wherein said output rotation is interrupted accordingly to said flank portion non-varying dimension, the time period of such interruption defining a dwell period in said output rotation.

5,722,911

VEHICLE CONTROL APPARATUS ADAPTED TO CHARGE ENERGY STORAGE DEVICE BY GENERATOR DRIVEN BY SURPLUS ENGINE POWER WHICH CHANGES WITH REQUIRED VEHICLE DRIVE FORCE

Ryuji Ibaraki, Toyota; Yutaka Taga, Aichi-ken, and Seitoku Kubo, Toyota, all of Japan, assignors to Toyota Jidoshi Kabushiki Kaisha, Toyota, Japan

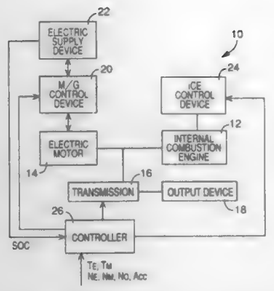
Filed Jul. 22, 1996, Ser. No. 684,692

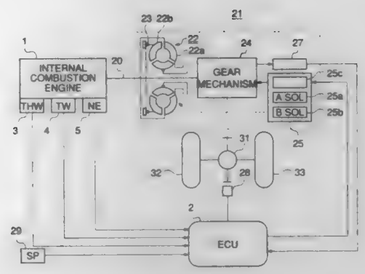
Claims priority, application Japan, Jul. 24, 1995, 7-186853

Int. Cl.[6] B60K *1/02;* **B60L** *11/12*

U.S. Cl. 477—3 **7 Claims**

1. A drive control apparatus for an automotive vehicle having an electric generator for generating an electric energy, an electric energy storage device for storing the electric energy generated by said electric generator, an electric motor operated as a first drive power source by said electric energy, and an engine operated as a second drive power source by combustion of a fuel, said apparatus





having an electricity generating drive mode in which the vehicle is driven by operation of said engine while said electric generator is operated by surplus power of said engine to generate electric power corresponding to said surplus power, for charging said electric energy storage device, said surplus power being equal to a difference between an output of the engine and required vehicle drive power which is currently required to drive the vehicle and which is smaller than said output of the engine, wherein an improvement comprises charging control means operable in said electricity generating drive mode, for controlling said engine to operate in a substantially steady state so as to provide a steady state output, and controlling said electric power to be generated by said electric generator, such that said electric power corresponds to surplus power of the engine which is equal to a difference between said steady state output of the engine and said required vehicle drive power smaller than said steady state output, whereby said electric power is changed with a change is said required vehicle drive power; and further comprising:

an engine drive mode in which the vehicle is driven by operation of said engine;

a motor drive mode in which the vehicle is driven by the electric motor operated by the electric energy stored in the electric energy storage device; and

drive source selecting means for selecting one of said engine drive mode and said motor drive mode, wherein said drive source selecting means selects a drive source on the basis of a first value in said engine drive mode of a physical quantity relating to a condition of said engine and a second value of said physical quantity reflecting energy conversion efficiencies of said electric generator, said electric motor and said electric energy storage device in said electricity generating mode, and according to a predetermined rule associated with said first and second values.

5,722,912

LOCK-UP CONTROL SYSTEM FOR AUTOMATIC TRANSMISSIONS

Kennosuke Narita, Wako, Japan, assignor to Honda Giken Kogyo Kabushiki Kaisha, Tokyo, Japan

Filed Aug. 29, 1996, Ser. No. 704,989

Claims priority, application Japan, Aug. 30, 1995, 7-243860; Aug. 30, 1995, 7-243861; Aug. 30, 1995, 7-243862

Int. Cl.[6] F16H *61/14*

U.S. Cl. 477—64 **17 Claims**

1. A lock-up control system for an automatic transmission of an automotive vehicle, said automotive vehicle having an internal combustion engine installed thereon, said automatic transmission having a lock-up clutch for mechanically engaging said automatic transmission with said engine to enable transmission of a driving force output from said engine to said automatic transmission, said lock-up control system controlling operation of said lock-up clutch,

said lock-up control system comprising:

operating condition-detecting means for detecting operating conditions of said automotive vehicle and said engine including load on said engine;

first engaging force control means for controlling an engaging force of said lock-up clutch, in an predetermined operating region of said automotive vehicle which is determined based on said operating conditions of said automotive vehicle and said engine detected by said operating condition-detecting means, in a manner such that an amount of slip of said lock-up clutch becomes equal to a desired value;

learning means for learning an engaging force control amount for controlling said engaging force of said lock-up clutch when said automotive vehicle is traveling in said predetermined operating region with said automatic transmission being in a predetermined speed position;

memory means for storing a learned value of said engaging force control amount obtained by said learning means;

corrected engaging force control amount-calculating means for calculating a corrected engaging force control amount by correcting said learned value of said engaging force control amount stored in said memory means according to said load on said engine, when said automotive vehicle is traveling with said automatic transmission being in a speed position which is suitable for a lower traveling speed of said automotive vehicle than said predetermined speed position; and

second engaging force control means for controlling said engaging force of said lock-up clutch by the use of said corrected engaging force control amount, when said automotive vehicle is traveling with said automatic transmission being in said speed position which is suitable for said lower speed of said automotive vehicle than said predetermined speed position.

5,722,913

PROCESS FOR CONTROLLING AN AUTOMATIC GEARBOX

Georg Gierer, Kressbronn, Germany, assignor to ZF Friedrichshafen AG, Friedrichshafen, Germany

PCT No. PCT/EP95/00595, § 371 Date Aug. 16, 1996, § 102(e) Date Aug. 16, 1996, PCT Pub. No. WO95/23303, PCT Pub. Date Aug. 31, 1995

PCT Filed Feb. 18, 1995, Ser. No. 693,119

Claims priority, application Germany, Feb. 23, 1994, 44 05 606.3

Int. Cl.[6] F16H *61/08*

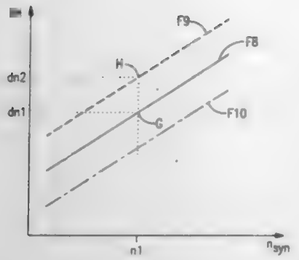
U.S. Cl. 477—148 **8 Claims**

1. A process for controlling an automatic transmission wherein a transition occurs from a first lower reduction step to a second higher reduction step when a first clutch disengages and a second clutch engages, a synchronizer speed is calculated by multiplying transmission output speed by a reduction ratio of the second reduction step, the process comprising the steps of:

assigning a differential speed value (dn) to the synchronizer speed value from a characteristic curve (F8);

beginning pressure increase of the second clutch at a speed value which results from the synchronizer speed value minus the differential speed value (dn); and

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adapting said characteristic curve (F8) when a transmission input speed exceeds the synchronizer speed value, said characteristic curve (F8) being adapted so that the assigned differential speed value (dn) after the adaptation is greater than the assigned differential speed value prior to the adaptation for the same synchronizer speed value (F9).

5,722,914

SYSTEM AND METHOD FOR INCREASING ENGINE IDLE DURING OPERATION OF AN ANTI-LOCK BRAKE SYSTEM

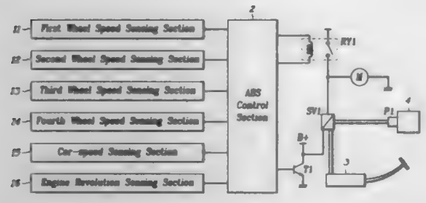
Chang Woo Kang, Kyungsangnam-do, Rep. of Koren, assignor to Hyundai Motor Company, Rep. of Korea

Filed Jul. 22, 1996, Ser. No. 684,047

Claims priority, application Rep. of Korea, Jul. 21, 1995, 95-21585

Int. Cl.[6] H02P *5/04*; B60K *41/20*

U.S. Cl. 477—187 4 Claims



1. A system for increasing an engine idle during operation of an automobile anti-lock brake system comprising:

car-speed sensing means for changing a state of an electronic signal, outputted according to a driving speed of the automobile;

engine revolution sensing section means for varying a state of an electronic signal outputted according to the engine's revolutions;

operation control means for outputting, when an ABS operation is realized, a control signal for increasing the revolutions of the engine so that it matches the speed the automobile is travelling;

a solenoid valve which controls a state of pressure applied to change an operational degree of an acceleration pedal;

switching means for controlling, according to a state of the signal applied from the operation control means, an operational state of the solenoid valve;

a vacuum pump, which is linked with the operation of an alternator and creates pressure, and, according to an opening state of the solenoid valve, supplies pressure; and

an actuator, which, according to the operation of the switching means, varies an operating state of the acceleration pedal if pressure is created in the vacuum pump and passed through the solenoid valve.

5,722,915

MOVEMENT TRAINING DEVICE WITH A CRANK

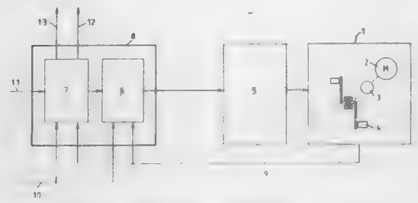
Martin Reck, Betzenweiler, Germany, assignor to Anton Reck, Betzenweiler, Germany

Filed Aug. 12, 1996, Ser. No. 695,516

Claims priority, application Germany, Aug. 12, 1995, 195 29 764.4

Int. Cl.[6] A63B *21/00*

U.S. Cl. 482—2 16 Claims



1. A movement training device comprising:

a crank including crankarms and pedals disposed on the crankarms, the pedals being adapted to be connected to feet or arms of a person training;

an electric motor transmission-connected to the crank for driving and braking the crank in both directions of rotation;

a four-quadrant power electronics device operatively connected to the motor for supplying current thereto to drive and brake the crank;

a computer operatively connected to the crank for detecting an angular position, a speed of rotation and a torque of the crank including respective directions thereof as instantaneous actual characteristic quantities of a crank movement and for placing the instantaneous actual characteristic quantities in a digital and thereby freely utilizable form, the computer including a regulating and control arrangement adapted to utilize digital values of the instantaneous actual characteristic quantities of the crank movement and other, externally recorded characteristic quantities for regulating and controlling the crank movement and for transmission to peripheral devices, the regulating and control arrangement including:

a speed regulating arrangement operatively connected to the crank for regulating the speed of the crank;

a torque limiting arrangement operatively connected to the crank for limiting a torque of the crank; and

a program control arrangement operatively connected to the crank for stipulating and running a temporal training program.

5,722,916

ADJUSTABLE STATIONARY EXERCISE BICYCLE

Johnny Goldberg, Los Angeles, Calif., assignor to Mad Dogg Athletics, Inc., Santa Monica, Calif.

Continuation of Ser. No. 391,438, Feb. 21, 1995, abandoned, which is a continuation of Ser. No. 969,765, Oct. 30, 1992, Pat. No. 5,423,728. This application Oct. 25, 1996, Ser. No. 736,976

Int. Cl.[6] A63B *21/00*

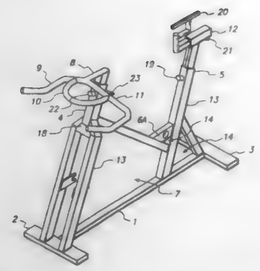
U.S. Cl. 482—57 8 Claims

1. An adjustable stationary exercise bicycle capable of being adjusted to allow persons having different physiques to adopt different riding positions including a standing riding position and a seated riding position, the bicycle comprising:

(a) a frame including (i) a front ground support element with a handlebar socket, and (ii) a rear ground support element with a rear socket;

(b) a pedal mounted on the frame, the pedal located below the rear socket;

(c) an adjustable seat assembly comprising (i) a seat, and (ii) an adjustable seat support holding the seat, the seat support adjustably mounted in a seat socket to allow fore and aft



movement of the seat relative to the seat socket, and the seat socket adjustably mounted in the rear socket to allow upward and downward movement of the seat relative to an adjustable handlebar; and

(d) an adjustable handlebar mounted in the handlebar socket and capable of adjustment to provide different positions relative to the adjustable seat, the adjustable handlebar comprising (i) a lateral bar having two downwardly sloped elements directed outwardly from the handlebar socket, (ii) handle prongs extending forwardly from the downwardly sloped elements of the lateral bar, and (iii) a forwardly directed ring element on the lateral bar, the ring element being circumferentially disposed about the handlebar socket and substantially parallel to the ground,

wherein fore, aft, upward, and downward adjustments of the adjustable seat support and adjustments of the handlebar allow the bicycle to be adapted by persons having different physiques, for use in a seated riding position and a standing riding position.

5,722,917

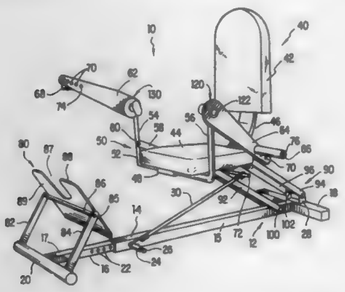
DISPLACEABLE SEAT EXERCISE SYSTEM

Brad Olschansky; Scott Olschansky, both of Smyrna, Ga., and Joel D. Gordon, Pikesville, Md., assignors to Exerfun, Inc., Smyrna, Ga.

Filed Sep. 18, 1996, Ser. No. 715,447

Int. Cl.[6] A63B *69/06*

U.S. Cl. 482—72 28 Claims



1. A displaceable seat exercise system, comprising:

a base frame extending longitudinally between opposing first and second ends;

foot support means fixedly coupled to said first end of said base frame;

seat means rotatively coupled to said second end of said base frame, said seat means including (a) a seat support member extending longitudinally between opposing front and rear ends thereof for supporting a buttock portion of a user's body, (b) a spine support member pivotally coupled to said seat support member adjacent said rear end thereof and displaceable to a first predetermined position for supporting a user's back, said pivotal coupling between said seat and spine support members defining a pivotal axis of said spine support member, said pivotal axis being displaced a predetermined distance from one end of said spine support member, and (c) parallelogram linkage means for rotatively coupling both said seat and spine support members to said base frame; and,

resistance means coupled between said base frame and said seat means for resisting a force applied by a user between said foot support means and said seat means to rotatively displace said seat means from a position proximate said foot support means while said spine support member is maintained in said first predetermined position.

5,722,918

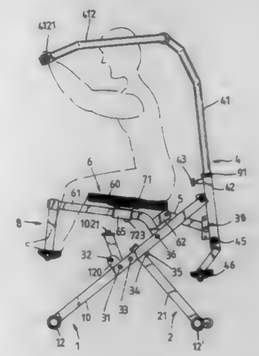
JOGGER EXERCISE WITH DIRECTION ADJUSTABLE SADDLE AND HANDLEBAR

Kuo-Ron Lee, No. 61, Mai Jou II Rd., Yi Lan City, Taiwan

Filed Nov. 6, 1996, Ser. No. 744,932

Int. Cl.[6] A63B *69/06*

U.S. Cl. 482—72 3 Claims



1. A jogger exerciser comprising a first support frame having two parallel rod members with a top and a bottom and a first transverse extending bar joined to said bottom of said rod members, said two parallel rod members extending upward in a first direction from said first transverse extending bar to said top upper position; a second support frame including a pillar interposed between said two parallel rod members and pivoted to said two parallel rods; said pillar having a bottom secured to a second transverse extending bar; a handlebar assembly pivotally connected to said top of said first support frame and including a sleeve member, a handlebar stem mounted in said sleeve member, and a handle bar pivoted to said handlebar stem; a saddle assembly having an arm member pivoted between said two parallel rod members of said first support frame and connected to said handlebar assembly, a saddle mounted on said arm member, said arm having a front end pivoted to said two parallel rods and a rear end for supporting said saddle; and a link assembly for interconnecting said first support frame, said second support frame, and said sleeve member of said handlebar assembly;

said saddle assembly including a coupling sleeve passing over said arm member; said saddle having a bottom, a narrow portion and a wide portion; said bottom of said saddle secured to a locating plate, said saddle assembly further including latch means for securing said locating plate to said coupling sleeve, said locating plate having two locating holes and said latch means having a latch receivable in either of said locating so that said narrow portion or said wide portion of said saddle can face in said first direction,

an arched foot support fastened to said rear end of said arm member of said saddle assembly adapted for resting of a user's feet;

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said handlebar stem of said handlebar assembly having a rounded lower end inserted into a socket at a top end of said sleeve member of said handlebar assembly, two rows of longitudinally spaced locating holes at said rounded lower end at opposite sides thereof, so that said rounded lower end can be rotated and secured in position by use of said longitudinally spaced locating holes at two different positions relative to an axis of said handlebar stem, and

said sleeve member of said handlebar assembly having a socket at a top end thereof which receives said rounded lower end of said handlebar stem, and a lock pin mounted in a radial hole thereof and inserted into one of said two rows of longitudinally spaced locating holes of said lower end of said handlebar stem to fix said handlebar stem in one of said two different positions.

5,722,919

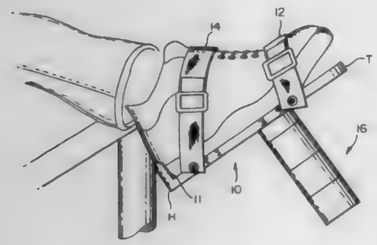
ANKLE REHABILITATION AND CONDITIONING DEVICE

Kirk Timmer, 528 21st Ave. NE., Great Falls, Mont. 59404

Filed Aug. 30, 1996, Ser. No. 705,962

Int. Cl.[6] A63B *21/06;23/08*

U.S. Cl. 482—79 **13 Claims**



1. An ankle strengthening and rehabilitation device which comprises a foot plate provided with an isolation channel having a longitudinal portion extending along a longitudinal axis of said foot plate and a transverse portion extending along a transverse axis transverse to said longitudinal axis; a weight; and a fastener connecting said weight to said foot plate through said isolation channel so that said weight cantilevers outward from a bottom surface of said foot plate and so that said weight may be selectively positioned along said longitudinal axis and said transverse axis and secured in a selected position and a means for attaching the foot plate to a person's foot.

5,722,920

MARTIAL ARTS PRACTICE APPARATUS

Vernon E. Bauer, P.O. Box 29, Arkville, N.Y. 12406

Filed Jul. 2, 1996, Ser. No. 677,337

Int. Cl.[6] A63B *69/00;21/00*

U.S. Cl. 482—83 **12 Claims**

1. A martial arts practice apparatus comprising:

a) a support member;

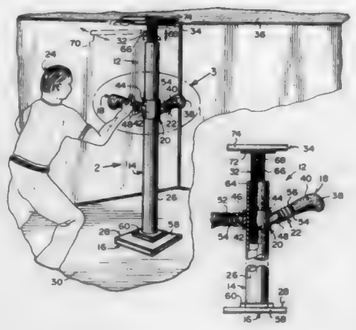
b) means for positioning said support member vertically in a stationary manner;

c) at least one target member;

d) means for suspending said at least one target member outwardly from said support member in a height adjustable manner;

e) means between said suspending means and said at least one target member for returning said at least one target member back to its original position after being struck by a martial artist;

f) said suspending means including:



i) a collar which fits upon said support member in a sliding manner;

ii) a setscrew in said collar to hold said collar in a fixed position upon said support member; and

iii) at least one stud extending outwardly from said collar to engage with said returning means; and

g) said returning means including:

i) a sleeve to fit over said stud;

ii) a setscrew in said sleeve to hold said sleeve in a fixed position on said stud;

iii) a coil spring;

iv) a flexible cylindrical accordion cover over said coil spring and connected at a first end to said sleeve; and

v) a setscrew in a second end of said flexible cover to hold an end of said focus pad in a fixed position in said second end of said flexible cover.

5,722,921

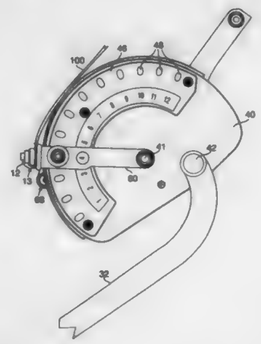
RANGE LIMITING DEVICE FOR EXERCISE EQUIPMENT

Roy Simonson, Colorado Springs, Colo., assignor to Cybex International, Inc.

Filed Feb. 6, 1997, Ser. No. 796,799

Int. Cl.[6] A63B *21/00*

U.S. Cl. 482—100 **11 Claims**



1. A weight machine having a range limiting device, said machine comprising:

a frame having a front and a rear;

a shaft pivotally mounted to the front of the frame, which shaft has a first axis of rotation;

a cam having an outer perimeter fixed to the shaft;

an input arm fixed to the shaft;

a cam arm pivotally mounted to the cam, which cam arm has a second axis of rotation, said second axis of rotation being different than said first axis of rotation:

means for selectively connecting the cam arm to the cam;

a tether fixed to the cam arm; and

a weight loading means operably connected to the tether.

5,722,922

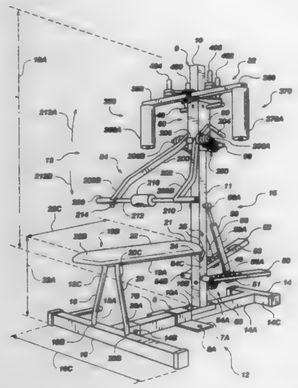
AEROBIC AND ANAEROBIC EXERCISE MACHINE

Scott R. Watterson, River Heights; Curt G. Bingham, and S. Ty Measom, both of Logan, all of Utah, assignors to ICON Health & Fitness, Inc., Logan, Utah

Continuation of Ser. No. 57,452, May 4, 1993, abandoned, which is a continuation of Ser. No. 706,756, May 29, 1991, abandoned, which is a continuation-in-part of Ser. No. 647,554, Jan. 29, 1991, Pat. No. 5,135,216, which is a continuation-in-part of Ser. No. 644,456, Jan. 23, 1991, Pat. No. 5,062,627. This application Mar. 28, 1995, Ser. No. 412,096

Int. Cl.[6] A63B *22/12;23/04*

U.S. Cl. 482—136 **23 Claims**



1. Apparatus for performing exercises, said apparatus comprising:

base support means for supporting said apparatus on a support surface;

a frame means having one or more frame members connected to and extending upward from said base support means;

stepping exercise means mechanically connected to said frame means for performance of stepping exercises by a user, said stepping exercise means including:

a first treadle spaced from a second treadles, said first treadle and said second treadle each being pivotally mounted to a frame member of said frame means, and resistance means interconnected between said frame member of said frame means and said first treadle and said second treadle to resist movement thereof; and

anaerobic exercise means separate from said stepping exercise means and mechanically connected to said frame means for the performance of anaerobic exercises by a user, said anaerobic exercise means comprising:

carriage means movably adapted to said frame member of said frame means to move therealong, and connecting means for connecting said carriage means to said frame member in any of a plurality of selected positions spaced along said frame member,

strengthening exercise means adapted to said frame means for the performance of strengthening exercises by said user, said strengthening exercise means including:

a lever member pivotally connected to said frame means with resistance means interconnected between said lever member and said frame means to resist movement of said lever member from a first position to a second position, and movable structure attached to said carriage means.

5,722,923

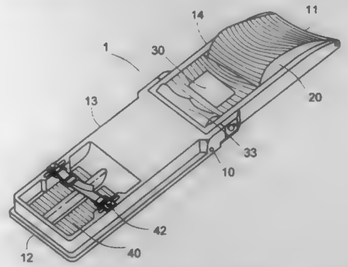
DEVICE FOR ABDOMINAL MUSCLE EXERCISE

Herman Lui, 329, W. 29th St., Apt. 405, New York, N.Y. 10001

Filed Aug. 8, 1995, Ser. No. 512,622

Int. Cl.[6] A63B *26/00*

U.S. Cl. 482—140 **10 Claims**



1. An exercise device comprising a housing, a hip-rest and a back-rest wherein:

said housing comprises a first end and a second end;

said hip-rest and back-rest are mounted on said housing;

said back-rest is for supporting the back of a user during the initiation and completion of exercise and comprises an upward arch which is pivotably movable about said first end of said housing; and

said hip-rest is for receiving the hips of the user during the exercise and comprises a front and a rear edge wherein the longitudinal distance between said front edge of the hip-rest and said first end of said housing is adjustable, and a raised barrier at said front edge of said hip-rest for restraining the hips of the user.

5,722,924

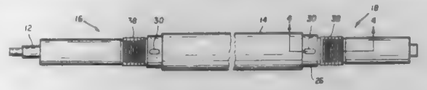
ROLLER FOR CONVEYING WEB IN A RESIN COATING ENVIRONMENT

Lawrence Alexander Hill, Rochester; Leon Richard Hale, Bergen, and Robert Seth Sherwin, Hilton, all of N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.

Filed Apr. 23, 1996, Ser. No. 636,436

Int. Cl.[6] B23P *15/00*

U.S. Cl. 492—24 **9 Claims**



1. A roller for conveying web in a resin coating environment, comprising:

a core having a main portion and first and second end portions;

a pressure sensitive layer having diameter (d_1) surrounding said core, said pressure sensitive layer extending widthwise along said main portion of said core between said first and second end portions;

a solid polymeric material layer having diameter (d_2) arranged on said first and second end portions of said core abutting against said pressure sensitive layer, said solid polymeric material layer and said pressure sensitive layer forming a generally uniform rotatable surface for conveying said web; and,

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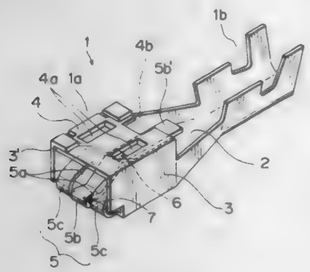
means for securing said polymeric material layer against axial movement along the core, said means for securing being threadably urged against a peripheral edge of said solid polymeric material layer so as to correspondingly urge said polymeric material layer into uniformity with said pressure sensitive layer.

5,722,925

ELECTRICAL FEMALE TERMINAL WITH LOCK MECHANISM

Isao Kameyama, and Shigeru Tanaka, both of Shizuoka, Japan, assignors to Yazaki Corporation, Tokyo, Japan

Filed Jun. 26, 1996, Ser. No. 669,726
Claims priority, application Japan, Jun. 28, 1995, 7-161981
Int. Cl.[6] H01R *11/22*
U.S. Cl. 493—849 **7 Claims**



1. A female terminal with a lock mechanism comprising: a male terminal receiving component having a base plate including front and back ends, side walls, and an upper plate formed of one electrically conductive plate,

an elastic contact member in said male terminal receiving portion and turned back from a front end of said base plate to extend backwardly, and

a lock portion provided in said elastic contact member and engageable with a male terminal,

wherein said elastic contact member has an extended portion extending forwardly from the front end of said base plate, a curved portion extending backwardly from the extended portion, a sloping portion reclined from a back end of said curved portion, and a contact portion extending backwardly from the sloping portion in parallel with said base plate, the sloping portion and curved portion intersecting backwardly of an intersection of said base plate and said extended portion.

5,722,926

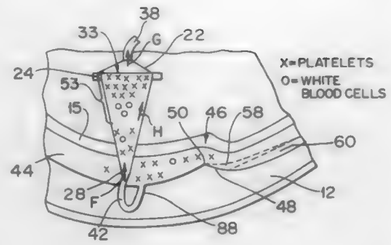
METHOD FOR SEPARATING PARTICLES

Dennis Hlavinka, Golden; Robert Langley, Westminster; Linda Taylor, Littleton, and John C. Walker, Boulder, all of Colo., assignors to COBE Laboratories, Inc., Lakewood, Colo.

Division of Ser. No. 423,578, Apr. 18, 1995. This application Jun. 27, 1996, Ser. No. 672,089
Int. Cl.[6] B01D *21/26*
U.S. Cl. 494—37 **17 Claims**

1. A method of separating particles having different sedimentation velocities within a fluid chamber provided on a centrifuge rotor, the fluid chamber having a wall forming a hollow interior including a separation area for separating the particles, the method comprising the steps of:

providing at least one flow directing member extending from the wall in the hollow interior of the fluid chamber, the flow directing member being shaped to reduce Coriolis jetting caused by a centrifugal field and liquid flow within the fluid chamber;



rotating the centrifuge rotor about an axis of rotation to generate a centrifugal field in the hollow interior of the fluid chamber;

flowing liquid carrying the particles into the fluid chamber, such that the flow directing member directs the liquid to limit flow of the liquid between the wall of the fluid chamber and the separation area within the chamber; and

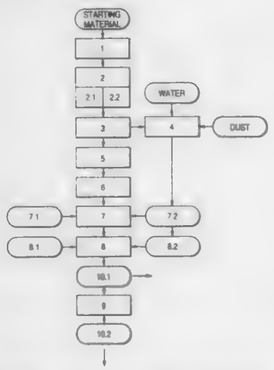
separating the particles within the fluid chamber at the separation area according to differences in sedimentation velocity, the separating step including settling particles having a larger sedimentation velocity in response to the centrifugal field and carrying particles having a smaller sedimentation velocity in flow of the liquid.

5,722,927

PROCESS AND INSTALLATION FOR PRODUCING MATERIALS WITH MODIFIED PROPERTIES

Helmut Fuchs, Neuwürschnitz, and Frieder Markert, Crottendorf, both of Germany, assignors to Environmental Technologies (Europe) Limited, Essex, United Kingdom

PCT No. PCT/DE93/00102, § 371 Date Oct. 31, 1994, § 102(e) Date Oct. 31, 1994, PCT Pub. No. WO93/16009, PCT Pub. Date Aug. 19, 1993
PCT Filed Feb. 6, 1993, Ser. No. 284,652
Claims priority, application Germany, Feb. 11, 1992, 42 03 866.9; Jun. 3, 1992, 42 18 216.6; Aug. 24, 1992, 42 27 996.8
Int. Cl.[6] B09B *3/00*
U.S. Cl. 588—252 **12 Claims**



1. A method for manufacturing filler materials for minerally bonded structural elements with thermal treatment of the starting materials to be used as filler materials, which comprises subjecting comminuted high-polymer materials comprised of natural or synthetic origin materials to a shock-like heat radiation treatment by directing the materials past an irradiation unit to provide a temperature gradient of at least 20K per mm of travel distance of the materials past the irradiation unit in which a temperature of more than 600° C. can be measured whereby the materials are inertized and are activated by heat in the range of a molar energy of 60 to 170 $kJ*mol^{-1}$ and then placing the resulting activated materials in a crystal-forming solution of inorganic substances that enter into a permanently adhesive bond with a basic matrix of a composite material to be formed therefrom.

5,722,928

STABILIZATION OF LEAD BEARING WASTE

Keith E. Forrester, P.O. Box 2008, Hampton, N.H. 03843-2008

Continuation-in-part of Ser. No. 318,538, Oct. 5, 1994, Pat. No. 5,536,899, which is a continuation-in-part of Ser. No. 38,812, Mar. 12, 1993, abandoned. This application Jul. 15, 1996, Ser. No. 683,606
Int. Cl.[6] A62D *3/00;* **B09D** *3/00*
U.S. Cl. 588—256 **20 Claims**

1. A method for reducing the leaching of lead from a lead bearing material or waste, comprising contacting said waste with a composition comprising a water soluble phosphate, acid selected from the group consisting of sulfuric acid, nitric acid and combinations thereof and a complexing agent containing Fe(II), Fe(III), Al(III), chloride or combination thereof, wherein the complexing agent is at least slightly water soluble, whereby a lead product is formed which is less soluble than the lead originally in said material or waste, thereby reducing the leaching of lead from said material or waste as determined by a leach test performed on said material or waste.

13. A method for reducing the leaching of lead from a lead bearing material or waste, comprising contacting said material or waste with a composition comprising a water soluble phosphate, acid selected from the group consisting of sulfuric acid, nitric acid and combinations thereof and aluminum dissolved therein, whereby a lead product is formed which is less soluble than the lead originally in said material or waste, thereby reducing the leaching of lead from said material or waste as determined by a leach test performed on said material or waste.

5,722,929

PARTICLE AGGLOMERATION WITH ACIDIC SULPHATE

Neil L. Smith, Oakville; Peter Ryan, Sudbury, and Carey Mitchell, Garson, all of Canada, assignors to Southwind Enterprises Inc., Ontario, Canada

Continuation-in-part of Ser. No. 606,586, Feb. 26, 1996, which is a continuation of Ser. No. 295,056, Aug. 26, 1994, Pat. No. 5,516,976. This application Dec. 17, 1996, Ser. No. 768,255
Int. Cl.[6] C22B *1/243*
U.S. Cl. 588—257 **32 Claims**

1. A process for agglomerating metallurgical particles including loose, metal sulphate containing particles to render the metallurgical particles suitable as feedstock in a metal extractive process comprising mixing said metallurgical particles with water;

wherein said water is present in an amount to cause a substantial portion of said metal sulphate containing particles to react according to at least one reaction mechanism selected from the group consisting of hydration and precipitation of an alkaline earth metal sulphate, said alkaline earth metal selected from the group consisting of magnesium, calcium, strontium and barium, thereby yielding a hardenable agglomerate.

22. A process for agglomerating metallurgical particles, said particles including loose, metal sulphate containing particles to render the metallurgical particles suitable as feedstock in a metal extractive process, comprising

(a) dissolving a portion of the metal sulphate in water such that water is not present as a separate phase,

(b) adding one or more of lime, dolomitic lime and burnt dolomite in a concentration sufficient to precipitate calcium sulphate, and

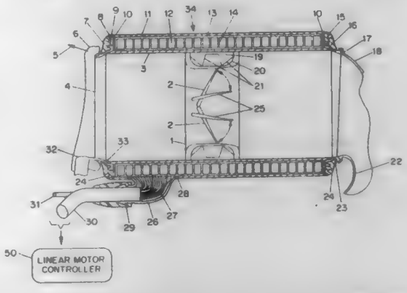
(c) extracting the mixture so obtained into agglomerates and allowing the agglomerates to become hard and shape retentive thereby rendering the metallurgical particles suitable as feedstock in a metal extractive process.

5,722,930

RECIPROCATING PUMP CIRCULATORY ASSIST ARRANGEMENT

Carl O. Larson, Jr., Stonington; James S. Smith, Old Lyme; John H. Chapman, Groton; Scot A. Slimon, Mystic; Trahan D. John, No. Stonington, all of Conn.; Marvin E. Rosen, Elizabeth, N.J.; Robert J. Brozek, Bridgewater, N.J.; Alberto Franco, Hazlet, N.J.; John J. McGarvey, Elizabeth, N.J., and Michael K. Pasque, St. Louis, Mo., assignors to Electric Boat Corporation, Groton, Conn.

Division of Ser. No. 201,806, Feb. 25, 1994, Pat. No. 5,676,651, which is a continuation-in-part of Ser. No. 35,788, Mar. 23, 1993, Pat. No. 5,290,227, which is a continuation-in-part of Ser. No. 926,779, Aug. 6, 1992, abandoned. This application Jun. 7, 1995, Ser. No. 477,908
Int. Cl.[6] A61M *1/12*
U.S. Cl. 600—16 **17 Claims**



1. A reciprocating pump circulatory assist arrangement comprising:

a hollow cylinder, a piston slidably positioned in the cylinder for reciprocating longitudinal movement therein to pump circulatory fluid through the cylinder as an assist to circulation, a permanent magnet arrangement fixedly attached to the piston for movement therewith and having axially spaced magnet poles directed radially outwardly toward the peripheral surface of the piston,

an array of coil windings supported in axially spaced relation by the hollow cylinder, and

control means for sequentially energizing the coil windings adjacent to the poles such that current flows through coil windings adjacent to opposite poles in opposite directions so as to exert an axial force on the piston causing the piston to move longitudinally through the hollow cylinder in a controlled manner in synchrony with the sequential energization of the electrical windings and wherein the sequential energization is arranged to cause the piston to be drawn toward the energized windings when the piston is approached by the pattern of sequentially energized windings from either direction.

5,722,931

FEMALE INCONTINENCE DEVICE

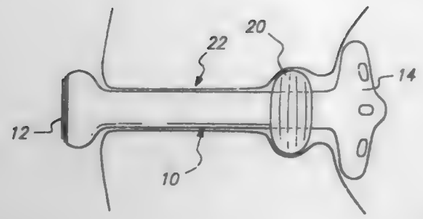
Malcolm D. Heaven, Hopewell, N.J., assignor to Urohealth Systems, Inc., Costa Mesa, Calif.

Filed Mar. 5, 1996, Ser. No. 610,866
Int. Cl.[6] A61F *2/00*
U.S. Cl. 660—29 **23 Claims**

13. A female incontinence device comprising:

a tubular catheter body having an enlarged retention head at a first end thereof and a valve which is actuatable to allow urine to pass from a bladder through the tubular catheter body; and

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at least one water swellable ring of a gel forming material disposed about the tabular catheter body for sealing the catheter body within a female urethra.

5,722,932

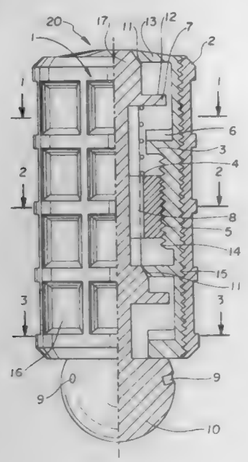
NONSURGICAL INTRAURETHRAL BLADDER CONTROL DEVICE

Andre A. Kulisz, and Valery Migachyov, both of St. Paul, Minn., assignors to HK Medical Technologies Incorporated, San Antonio, Tex.

Continuation of Ser. No. 173,636, Dec. 23, 1993, Pat. No. 5,512,032. This application Apr. 23, 1996, Ser. No. 636,522

Int. Cl.[6] A61M *27/00*

U.S. Cl. 600—29 **5 Claims**



1. In a method of controlling fluid flow with a bladder control apparatus adapted to be placed in a urethra including a valve block having a valve with open and closed positions and a fluid flow path through the valve block, and further including adjustment control means for setting the pressures at which the valve will open and close, the method of controlling fluid flow comprising the steps of:

normally biasing the valve in the closed position;

setting the valve opening and closing pressures;

moving the valve to the open position when the hydrostatic pressure in the urethra exceeds the opening pressure set level;

inducing a negative pressure from means in the fluid flow path according to Bernoulli's principle;

holding the valve in the open position with the negative pressure; and

moving the valve to the closed position when the induced negative pressure falls below the closing pressure set level.

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CHANNELED ENDOSCOPE COVER FITTED TYPE ENDOSCOPE

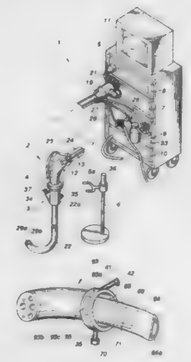
Hisao Yabe; Minoru Yamazaki; Hideo Ito, all of Hachioji; Yoshio Tashiro, Hino; Yoshihiro Iida, Tama; Akira Suzuki, and Osamu Tamada, both of Hachioji, all of Japan, assignors to Olympus Optical Co., Ltd., Tokyo, Japan

Continuation of Ser. No. 353,995, Dec. 6, 1994, abandoned, which is a continuation of Ser. No. 25,333, Feb. 24, 1993, abandoned. This application Feb. 27, 1997, Ser. No. 806,707

Claims priority, application Japan, Jan. 27, 1993, 5-001830 U; Jan. 27, 1993, 5-001831 U; Feb. 1, 1993, 5-002269 U

Int. Cl.[6] A61B *1/04*

U.S. Cl. 600—123 **14 Claims**



1. An endoscope system comprising:

an endoscope cover having therein an endoscope insertion channel and at least one line which is detachably connected to an external device;

an endoscope cover fitted type endoscope having an insertion portion at a distal end and an operating unit at a proximal end, said insertion portion being insertable through said endoscope insertion channel of said endoscope cover and which has a line insertion channel in said insertion portion through which said line is passed when said insertion portion of said endoscope is inserted through said endoscope insertion channel of said endoscope cover; and

an isolation member for isolating the proximal end opening of said line of said endoscope cover from said line insertion channel of said endoscope when said endoscope is removed from said endoscope cover, said isolation member having an outer diameter which is less than an outer diameter of said line insertion channel of said endoscope, said isolation member acting to completely prevent passage of fluid from the proximal end opening of said line of said endoscope cover during the removal operation,

said line insertion channel of said endoscope communicating with the outside through a cord extending from said operating unit of said endoscope,

said line of said endoscope cover passing through said line insertion channel in said insertion portion and said operating unit of said endoscope and a cord and extended outwards, and the proximal open end of said line being detachably connected to an external device.

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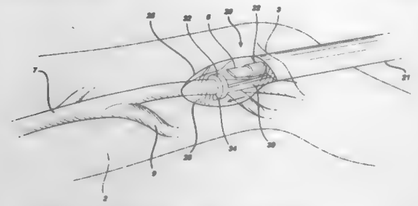
METHOD AND DEVICES FOR ENDOSCOPOIC VESSEL HARVESTING

Gary W. Knight, West Chester, Ohio; Julia C. Taylor, Seattle, Wash.; Michael F. Clem, Maineville, Ohio; Felmont F. Eaves, III, Stone Mountain, and Alan B. Lumsden, Atlanta, both of Ga., assignors to Ethicon Endo-Surgery, Inc., Cincinnati, Ohio

Division of Ser. No. 546,461, Oct. 20, 1995, Pat. No. 5,667,480. This application Aug. 15, 1996, Ser. No. 698,499

Int. Cl.[6] A61B *1/22*

U.S. Cl. 600—201 **7 Claims**



1. A device for dissecting tissue comprising:

a shaft having a lumen therethrough for receiving an endoscope therein; and

a transparent concave head connected to a distal end of the shaft, the head having a spoon-shape and defining a cavity therein, said cavity serving as a working space for an end effector of an instrument.

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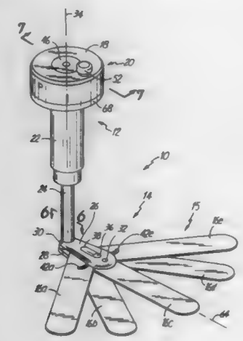
LAPAROSCOPIC RETRACTOR HAVING A PLURALITY OF BLADES EXTENDING LATERALLY FROM A HANDLE

Steven C. Christian, New Brighton, Minn., assignor to Minnesota Scientific, Inc., Minneapolis, Minn.

Filed May 5, 1995, Ser. No. 435,118

Int. Cl.[6] A61B *11/02*

U.S. Cl. 600—214 **24 Claims**



1. A retractor for retracting tissue when performing endoscopic or laparoscopic surgical techniques, the retractor comprising:

a main body portion having a central axis;

a plurality of retractor blades mounted for pivoting with respect to the main body portion, wherein the retractor blades project from the main body portion substantially perpendicular to the central axis and wherein the retractor blades are pivotable about a pivot axis that is parallel to and offset from the central axis;

a cam mechanism operably connecting the retractor blades to the main body portion; and

a rod mounted within the main body portion so that the rod is rotatable about the central axis, wherein the rod engages the cam mechanism so that rotation of the rod causes the retractor blades to move between a retracted position and an extended position.

5,722,936

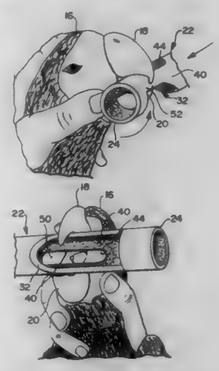
VETERINARY AVIAN ORAL SPECULUM AND METHOD OF USE

Bruce S. Trulio, 525 Sixth St., Annapolis, Md. 21403

Filed Jul. 30, 1996, Ser. No. 688,510

Int. Cl.[6] A61D *15/00*

U.S. Cl. 600—243 **15 Claims**



10. A method using a veterinary avian speculum, for an examiner to gain oral access to a bird having an upper mandible and a lower mandible on the bird's head comprising the steps of:

providing an avian speculum, said speculum being a rod having a length, a height, a first end, an opposite second end, a first longitudinal surface, and a second opposite longitudinal surface, a cut away portion being formed on the first longitudinal surface near the first end of the rod and defining a wall section between the first longitudinal surface and the second longitudinal surface, the wall section having a height less than the height of the rod, the cut away portion having a first end near the first end of the rod and a second end distal from the first end of the rod, a slotted hole being formed in the second longitudinal section of the rod, the cut away portion and the slotted hole being opposed to, and communicating with one another forming a through opening in the rod, the slotted hole and the cut away portion each having a respective length, the length of the slotted hole being less than the length of the cut away portion, the slotted hole being disposed near the second end of the cutaway portion,

stabilizing the head of the bird by the examiner

picking up the second end of the rod by the examiner, the rod being held with the cut away portion above the slotted hole,

inserting the wall section of the rod near the first end of the rod between the upper mandible and the lower mandible of the bird,

rotating the rod through approximately 90° wherein the mandibles are separated, the slotted hole on the rod being oriented inwardly toward the bird and the cutaway portion being oriented outwardly from the bird, the through opening in the rod being available as a window,

and gaining oral access to the bird by means of the through opening.

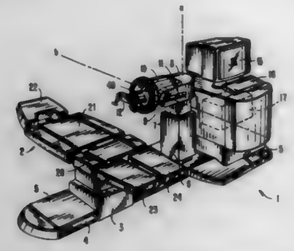
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EXERCISE PHYSICAL REHABILITATION AND TESTING METHOD AND APPARATUS WITH CYCLOIDAL REDUCER

James F. Smith, Smithtown, N.Y., assignor to Cybex International, Inc.

Continuation of Ser. No. 221,896, Mar. 30, 1994, abandoned. This application Apr. 17, 1996, Ser. No. 633,503
Int. Cl.[6] A63B *21/00*
U.S. Cl. 601—23 30 Claims



1. An apparatus for exercise, physical rehabilitation or extremity testing of a limb or body segment of a user comprising:
a base;
a track mounted to the base, the track having two ends and a longitudinal central axis;
a chair mounted to the track at a selected point between the two ends;
a stand fixedly mounted to the base proximate one end of the track in line with said track central axis.;
a post mounted to the stand;
a brace rotatably mounted to the post; and
a dynamometer rotatably ,mounted to the brace wherein the dynamometer comprises:
a motor having an output shaft;
a cycloidal speed reducer having a high speed shaft and a low speed shaft wherein the high speed shaft is mounted to the output shaft and wherein the high speed shaft and the low speed shaft are operably connected such that the high speed shaft rotates faster than the low speed shaft; and
a dynamometer input shaft mounted to the low speed shaft, the input shaft being capable of engaging the limb or body segment of the user of the apparatus.

5,722,938

Patent Not Issued For This Number

5,722,939

BODY SUPPORT LINER FOR A NECK BRACE

Linda M. Hohlen, Monticello, Minn., assignor to Linda Hohlen, Monticello, Minn.

Filed Jul. 25, 1996, Ser. No. 685,818
Int. Cl.[6] A61F *5/00*
U.S. Cl. 602—18 34 Claims



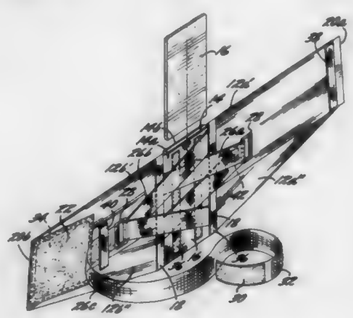
1. A liner for being positioned between a person's body and a neck brace, the neck brace having a support surface for being positioned adjacent the person's neck, a vertical length extending between an annular top edge and an annular bottom edge, the liner comprising:
a tubular fabric body having first and second open annular end portions, wherein the fabric body is stretchable and resilient in a plurality of directions and is configured so as to have an inner diameter and a vertical height greater than the vertical length of the neck brace such that the first and second annular end portions are foldable over and about the annular top edge and the annular bottom edge of the neck brace to resiliently grasp the neck brace and maintain the fabric body in the shape of the neck brace adjacent the support surface.

5,722,940

INDUSTRIAL BACK SUPPORT

John F. Gaylord, Jr., and R. Scott Gaylord, both of Matthews, N.C., assignors to Medical Specialties, Inc., Charlotte, N.C.

Filed Jul. 16, 1996, Ser. No. 680,998
Int. Cl.[6] A61F *5/02*
U.S. Cl. 602—19 24 Claims



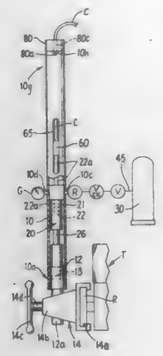
1. A back support device comprising:
an elongate elastic inner belt including a first fastener means for securing the belt about a waist of a wearer;
an elongate substantially inelastic outer belt secured to said inner belt in a substantially overlying relationship thereto;
a semi-rigid abdominal plate positioned beneath said substantially inelastic outer belt; and
a second fastener means for securing said outer substantially inelastic belt circumferentially about a waist of a wearer in a substantially continuous overlying relationship with respect to the circumferential direction of said abdominal plate such that said inelastic outer belt biases the abdominal plate against an abdominal region of a wearer and said abdominal plate distributes pressure applied by the outer substantially inelastic belt to underlying regions of a wearer's body to thereby increase intraabdominal pressure and providing concerted support for the lumbar region of the spine.

5,722,941

PNEUMATIC AMBULATORY TRACTION DEVICE

Brian K. Hart, 8225 N. 14th St., Kalamazoo, Mich. 49004

Filed Feb. 20, 1996, Ser. No. 603,978
Int. Cl.[6] A61F *5/00*
U.S. Cl. 602—32 15 Claims



1. A traction device comprising an elongated tubular housing including means for connecting an end region of said housing to a support, a pneumatic cylinder received in said housing, a piston received in said cylinder and having a piston rod movable relative to said housing to apply a traction force correlated to pneumatic pressure in said cylinder via flexible cable means connected to said piston and connected to a patient's body, a self-relieving pressure regulator disposed on an exterior of said housing and communicated to said cylinder, said regulator having a pressure control adjustment member that is manually adjusted to provide a set cylinder pressure which will not be exceeded during application of traction force by said self-relieving regulator venting excess pressure to ambient atmosphere, said traction force being controllable by manual adjustment of said pressure control adjustment member to provide said set cylinder pressure for a traction force to be applied to the patient's body, a pressure gage disposed on said housing to display said cylinder pressure, and means disposed on said housing for determining the extent of piston rod movement.

5,722,942

WOUND COVERING MATERIALS

Masaya Tanaka, Kobe; Yasuo Morimoto; Shoichi Harada, both of Osaka, and Sadashi Yamashita, Yokosuka, all of Japan, assignors to Kanebo, Ltd., Tokyo, Japan

PCT No. PCT/JP95/00198, § 371 Date Aug. 16, 1996, § 102(e) Date Aug. 16, 1996, PCT Pub. No. WO95/22354, PCT Pub. Date Aug. 24, 1995
PCT Filed Feb. 13, 1995, Ser. No. 693,048
Claims priority, application Japan, Feb. 18, 1994, 6-045013
Int. Cl.[6] A61F *5/00*
U.S. Cl. 602—56 8 Claims

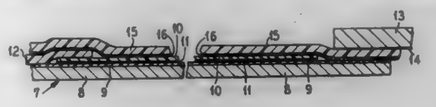
1. A wound covering material comprising an adhesive film consisting essentially of:
(A) 1 part by weight of glucommman,
(B) 0.20–0.99 parts by weight of a solubility modifier selected from the group consisting of pullulan and carrageenan,
(C) 0.10–12 parts by weight of a physiologically acceptable alkyl acrylate adhesive polymer base,
(D) 0.20–20 parts by weight of a plasticizer selected from the group consisting of polyhydric alcohols, sugar alcohols, monosaccharides, disaccharides and oligosaccharides.
and 1–50% by weight of the film of water.

5,722,943

NON-STRETCHING WOUND DRESSING

Robert W. Sessions, Burr Ridge, Ill., assignor to Ferris Mfg. Corporation, Burr Ridge, Ill.

Continuation of Ser. No. 417,289, Oct. 5, 1989, abandoned, which is a continuation of Ser. No. 797,777, Nov. 12, 1985, Pat. No. 4,884,563, which is a continuation-in-part of Ser. No. 707,233, Mar. 1, 1985, abandoned. This application Jul. 22, 1991, Ser. No. 733,962
The portion of the term of this patent subsequent to Dec. 5, 2006, has been disclaimed.
Int. Cl.[6] A61F *13/00;15/00*
U.S. Cl. 602—57 26 Claims



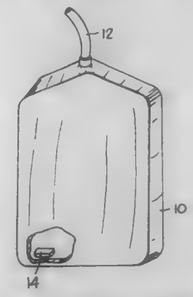
1. A non-stretching wound dressing comprising:
a one-piece carrier sheet;
a film sheet having a first adhesive layer on one side thereof adjacent said carrier sheet;
a cover sheet having a second adhesive layer adjacent said film sheet, said second adhesive layer adhering said cover sheet to said film sheet and covering essentially all of one side of said cover sheet;
a first gripping tab on one end of said cover sheet for separating and removing said carrier sheet from said film sheet and from said wound dressing with said cover sheet remaining affixed to said film sheet, said adhesion between said cover sheet and said film sheet being selected such that pulling said first tab releases said film sheet from said carrier sheet with said cover sheet remaining affixed to said film sheet; and
a second gripping tab on an opposite end of said cover sheet from said first gripping tab for releasing said cover sheet from said film sheet, said adhesion between said cover sheet and said film sheet being further selected such that, after removal of said carrier sheet from said wound dressing and application of the adhesive side of said film sheet to a patient, pulling on said second tab releases said cover sheet from said film sheet with said film sheet remaining in place on said patient.

5,722,944

METHOD OF PERITONEAL DIALYSIS

Thomas I. Folden, Alamo, Calif., assignor to Fresenius USA, Inc., Lexington, Mass.

Continuation-in-part of Ser. No. 196,973, Feb. 14, 1994, Pat. No. 5,527,272. This application Sep. 27, 1995, Ser. No. 534,452
Int. Cl.[6] A61M *37/00*
U.S. Cl. 604—4 7 Claims

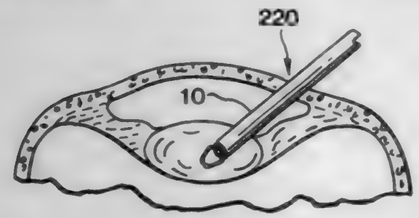


1. A method of peritoneal dialysis, comprising: engaging with a dialysis patient a dialysis tubing set including a dialysis solution source and a collection bag having a sterilization device therein, wherein the sterilization device includes a sterilization tablet with a

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coating; performing the dialysis on the patient using the dialysis solution; draining the used dialysis solution into the collection bag; and sterilizing the used dialysis solution with the sterilization device in the collection bag; wherein the sterilization step includes dissolving the coating with the used dialysis solution before releasing the sterilization agent.

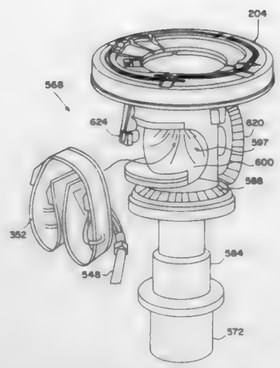
5,722,945
REMOVAL OF TISSUE
Aziz Yehia Anis, 9540 Firethorne La., Lincoln, Nebr. 68520, and Mark Evan Steen, Chino Hills, Calif., assignors to Aziz Yehia Anis, Lincoln, Nebr.
Continuation-in-part of Ser. No. 372,866, Jan. 13, 1995, abandoned, which is a continuation of Ser. No. 35,985, Mar. 22, 1993, abandoned, which is a continuation-in-part of Ser. No. 759,937, Sep. 16, 1991, abandoned, which is a continuation-in-part of Ser. No. 680,292, Apr. 4, 1991, abandoned, which is a continuation-in-part of Ser. No. 553,975, Jul. 17, 1990, Pat. No. 5,057,004. This application Apr. 1, 1996, Ser. No. 625,909
Int. Cl.[6] A61B *8/00;17/39*
U.S. Cl. 604—22 **5 Claims**



1. A method comprising the steps of:
connecting a handpiece having a fragmenting tip to a source of control signals through an interface circuit;
selecting the input impedance of the interface circuit to be placed in circuit between the source of control signals and the handpiece;
obtaining at least one control signal from the interface circuit;
inserting the fragmenting tip having fragmenting surfaces through an opening in the eye into the lens of an eye having a cataract and a capsular wall wherein the tip has at least one movable fragmenting surface;
moving the fragmenting surface in a first direction and in at least a second direction;
the step of moving the fragmenting surface in a first direction including the step of rotating the fragmenting surface at a first value of cycles per second; and
the step of moving the fragmenting surface in a second direction including the step of reciprocating the fragmenting surface at a second value of cycles per second;
said second value being different than the first value and being in the ultrasonic frequency range;
said at least one signal controlling the amplitude of reciprocal movement of the operative tip.

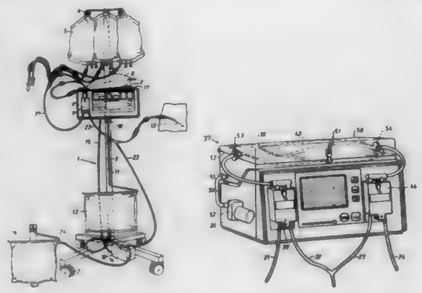
5,722,946
EXTRACORPOREAL BLOOD PROCESSING METHODS AND APPARATUS
Frederick S. Mudloff, Louisville; Richard E. Murray, Boulder, and Thomas L. Menhennett, Louisville, all of Colo., assignors to Cobe Laboratories, Inc., Arvada, Colo.
Filed Jun. 7, 1995, Ser. No. 486,012
Int. Cl.[6] A61M *37/00*
U.S. Cl. 604—5 **8 Claims**

1. A centrifuge rotor for an apheresis system comprising a blood processing channel interconnectable with said centrifuge rotor and



a blood processing vessel positionable within said channel, said centrifuge rotor comprising:
a rotatable rotor housing comprising a rotor sidewall, a rotor top, and a blood processing vessel loading aperture, said loading aperture comprising first and second apertures, said first aperture being accessible on an exterior surface of said rotor housing and extending only partially through said rotor housing, said second aperture intersecting with said first aperture and extending upwardly through said rotor top;
a channel mounting interconnected with said rotor top of said rotor housing, said channel being interconnectable with said channel mounting.

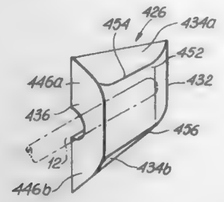
5,722,947
APPARATUS FOR CARRYING OUT PERITONEAL DIALYSES
Jan-Bertil Jeppsson, Lomma, and Tor Nordlie, Eslov, both of Sweden, assignors to Gambro AB, Sweden
PCT No. PCT/SE95/00086, § 371 Date Sep. 17, 1996, § 102(e) Date Sep. 17, 1996, PCT Pub. No. WO95/20985, PCT Pub. Date Aug. 10, 1995
PCT Filed Jan. 30, 1995, Ser. No. 687,596
Claims priority, application Sweden, Feb. 3, 1994, 9400347
Int. Cl.[6] A61M *1/00*
U.S. Cl. 604—29 **25 Claims**



1. An apparatus for conducting peritoneal dialysis comprising at least one flexible container for handling a fluid useful in said peritoneal dialysis, supply means for supplying said fluid to said at least one flexible container, weighing means for weighing the contents of said at least one flexible container, a conduit connected to said at least one flexible container for conducting a flow of said fluid, enclosure means surrounding said at least one flexible container thereby forming a space between said at least one flexible container and said enclosure means, and pressure control means for

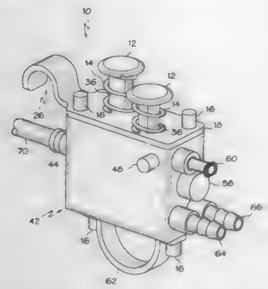
altering the pressure within said space for transferring said fluid from said at least one flexible container through said conduit.

5,722,948
COVERING FOR AN OCULAR DEVICE
Fredric J. Gross, 7338 Millbrook Rd., Norfolk, Va. 23505
Filed Feb. 14, 1996, Ser. No. 549,506
Int. Cl.[6] A61M *5/00*
U.S. Cl. 604—8 **20 Claims**



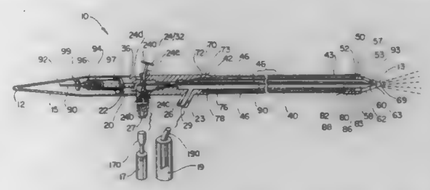
1. A covering for use with an ocular aqueous shunting tissue-implantable, fluid-dissipating device, having a tube component with an outside diameter of between 0.60 to 0.80 mm, the covering comprising a material compatible with the sclera of an eye and having a dimension of approximately 2 mm to 5 mm along one direction and about 4 mm to 9 mm along another dimension and having a tapered configuration with a minimum thickness at one end and between 0.8 mm to 1.2 mm at the other end and a cave overlying said tube component.

5,722,949
FLUID SUPPLY AND SUCTION APPARATUS AND METHOD
Christopher N. Sanese, Columbus, Ohio, assignor to Sanese Medical Corporation, Columbus, Ohio
Continuation-in-part of Ser. No. 296,950, Aug. 26, 1994, abandoned. This application Dec. 14, 1995, Ser. No. 572,122
Int. Cl.[6] A61M *1/00*
U.S. Cl. 604—33 **14 Claims**



1. An ergonomic fluid supply and suction apparatus for use in a surgical site comprising:
a body having a first end, a second end, a tool insertion thru-hole providing a substantially unobstructed portal from said first end to said second end of said body, and a plurality of ports in fluid communication with said tool insertion thru-hole, wherein said plurality of ports comprise at least a fluid supply port, a fluid suction port and a suction regulated port;
a plurality of valves, each valve having a reciprocation control button located on the exterior of said body, said valves each communicating with one of said plurality of ports to control the flow of a fluid such as gases, liquids, liquids with entrained solid matter or mixtures thereof between said ports and said tool insertion thru-hole;
said suction regulated port having a suction regulator to selectively control the amount of suction through said suction regulated port.

5,722,950
METHOD FOR REMOTE DELIVERY OF AN AEROSOLIZED LIQUID
Shawn M. Fujita, and Jeffrey L. Southard, both of Fort Collins, Colo., assignors to Atrix Laboratories, Inc., Fort Collins, Colo.
Filed Jun. 7, 1995, Ser. No. 476,796
Int. Cl.[6] A61M *31/00*
U.S. Cl. 604—48 **5 Claims**

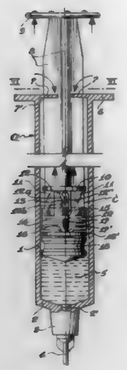


1. A method of applying an aerosol into the body of an animal, comprising:
(a) providing an apparatus having an air and fluid dispensing gun housing, a tubular extension rod housing adapted for laparoscopic administration, the tubular extension rod housing having a first end, a second end, an air channel and a fluid channel, each of said channels extending the length through the extension rod housing; said apparatus being connected to an external source of air and an external source of liquid; and
(b) inserting the extension rod housing of said apparatus into the animal;
wherein the liquid is drawn into the fluid channels and dispensed from the second end of the extension rod to form an aerosol that is dispensed into the body of the animal.

5,722,951
HYPODERMIC NON-REUSABLE SYRINGES WITHOUT VOLUNTARY INTERVENTION OF THE USER
Carlos José Marano, Máximo paz 497, Buenos Aires, Argentina, 1824
Filed Jul. 12, 1995, Ser. No. 501,666
Claims priority, application Argentina, Jul. 14, 1994, 328.803; Jul. 11, 1995, 332.722
Int. Cl.[6] A61M *5/00*
U.S. Cl. 604—110 **10 Claims**

1. An autodiscardable hypodermic syringe with preset piston stroke limitation, comprising:
an elongated cylinder having an opened end and an opposite substantially closed end;
an external tubular mouthpiece having a conduit for the coupling of a needle to said substantially closed end;
a piston being slidably received in said cylinder;
a rod for sliding said piston being selectively connected to said piston, an end of said rod remote from said piston projecting beyond said open end of said cylinder, said piston being selectively connected to said rod through a coupling and uncoupling mechanism, said coupling and uncoupling mechanism comprises a narrow body that projects from the internal end of the rod and has a passage coincident with a central axis of said rod, said passage extends from side to side of said narrow body and defines a descending section, that in its middle part has a deviation disposed outward of the descending section and of said narrow body;

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said piston being provided with a cavity for housing said narrow body and a hook in said passage being displacable from said descending section and through the deviation outward from the passage during the expulsion movement; and

retention means for retaining said rod in said cylinder being provided within the cylinder of the syringe in an area that permits the normal operation of the piston and rod.

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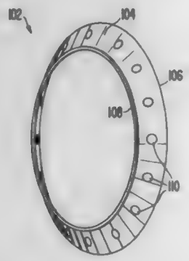
TREATMENT OF PRESBYOPIA AND OTHER EYE DISORDERS

Ronald A. Schachar, P.O. Box 1039, Denison, Tex. 75020

Division of Ser. No. 139,756, Oct. 22, 1993, Pat. No. 5,489,299, which is a division of Ser. No. 913,486, Jul. 15, 1992, Pat. No. 5,354,331. This application Jun. 5, 1995, Ser. No. 462,649

Int. Cl.[6] A61M *31/00;35/00*

U.S. Cl. 604—51 4 Claims



1. A method of increasing the amplitude of accommodation of a human eye having a crystalline lens and a ciliary muscle comprising increasing the effective working distance of the ciliary muscle by increasing the radial distance between the equator of the crystalline lens and the inner diameter of the ciliary body by weakening the sclera of the globe in the region overlying the ciliary body through intervention with external means, wherein said sclera is weakened by contact with an enzyme.

5,722,953

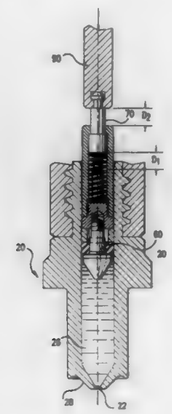
NOZZLE ASSEMBLY FOR INJECTION DEVICE

David Schiff, Highland Park, N.J., and Paul Mulhauser, New York, N.Y., assignors to Medi-Ject Corporation, Minneapolis, Minn.

Filed Feb. 29, 1996, Ser. No. 609,138

Int. Cl.[6] A61M *5/30*

U.S. Cl. 604—68 21 Claims



1. A nozzle assembly adapted for use with an injector device comprising:

a chamber for holding a fluid and having first and second ends with an orifice at the first end for passage of the fluid and being open at the second end;

a plunger movably received in said chamber for expelling fluid out of or drawing fluid into the chamber by moving the plunger relative to the chamber, the plunger comprising first and second driving members operatively connected to each other for expelling out and drawing in fluid, with the first driving member being spaced apart from the second driving member by a preselected gap; and

a resilient biasing member disposed between the first and second driving members for resiliently maintaining said gap.

5,722,954

Patent Not Issued For This Number

5,722,955

PRESSURE SENSING SYRINGE

Gabor J. Racz, Lubbock, Tex., assignor to Epimed International, Inc., Lubbock, Tex.

Continuation of Ser. No. 285,841, Aug. 4, 1994, abandoned. This application Apr. 18, 1996, Ser. No. 634,681

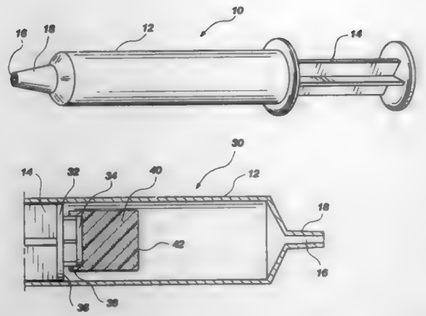
Int. Cl.[6] A61M *1/00*

U.S. Cl. 604—121 6 Claims

1. A pressure sensing syringe, said syringe having a syringe barrel having an open end and a closed end with an aperture therethrough, syringe piston, and pressure responsive member located in said syringe barrel capable of indicating the change of pressure of a fluid in said syringe during the injection of said fluid into a patient, said syringe comprising:

a syringe barrel having a portion thereof being translucent to observe the interior of the syringe barrel;

a syringe piston sealingly slidingly engaging the interior of the syringe barrel; and



a pressure responsive member located in the syringe barrel in the portion of the syringe barrel between the syringe piston and the closed end of the syringe barrel, the pressure responsive member including:

a compressible material including open cell foam having a plurality of open cells therein, and an impermeable coating on the compressible material to prevent said fluid from permeating the compressible material or being absorbed by the compressible material, the compressible material being visible through the translucent portion of the syringe barrel for indicating said change of pressure of said fluid in the syringe barrel during said injection of said fluid wherein the compressible material is retained within said syringe barrel by said syringe piston.

5,722,956

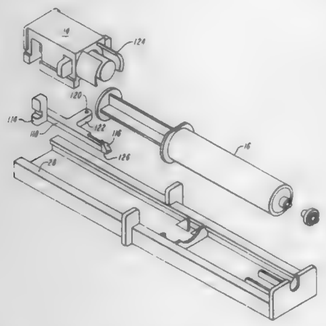
MULTI-DOSE SYRINGE DRIVER

Nathaniel M. Sims, Wellesley Hills; Michael H. Wollowitz, Somerville, and David M. Wrightson, Andover, all of Mass., assignors to The General Hospital Corporation, Boston, Mass.

Filed Aug. 14, 1996, Ser. No. 696,479

Int. Cl.[6] A61M *37/00*

U.S. Cl. 604—131 25 Claims



1. A syringe driver device, adapted to engage and impart forces to a syringe to dispense fluid from within the syringe, comprising:

a frame having proximal and distal ends;

a selectively positionable carriage element mounted upon the frame adjacent to the proximal end of the frame, the carriage element having proximal and distal ends and being in sliding engagement with the frame;

a syringe, removably mountable within the frame between the distal end of the frame and the distal end of the carriage element, the syringe including a fluid containing barrel with a flange at a proximal end thereof, an outlet tip at a distal end of the barrel and a moveable plunger, including a disk portion at a proximal end thereof and a tip portion at a distal end thereof, slidably disposed within the barrel for movement between withdrawn and fully inserted positions;

a force applying element, associated With the distal end of the carriage, the force applying element being adapted to engage and apply force to the plunger disk;

a spring element disposed substantially internally within the carriage and applying a biasing force to the force applying element;

cooperating locking elements associated with the carriage and the frame to secure the carriage to the frame among (i) an unlocked position, (ii) at least one locked, force applying position in which the force applying element is at least partially retracted within the carriage, and (iii) a locked, non-force applying position in which the force applying element is fully extended from the carriage element; and

a syringe securing means for engaging and maintaining the syringe within the frame.

5,722,957

IMPLANTABLE INFUSION PUMP

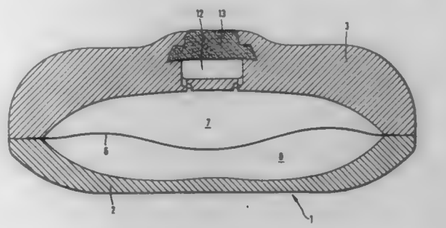
Bernd Steinbach, Bad Homburg, Germany, assignor to Fresenius AG, Germany

Filed Mar. 15, 1996, Ser. No. 618,432

Claims priority, application Germany, Mar. 17, 1995, 195 09 632.0

Int. Cl.[6] A16M *37/00*

U.S. Cl. 604—141 2 Claims



1. An implantable infusion pump for the dosed administration of medication into the human body, comprising a pumping chamber, which is formed by a lower chamber part and an upper chamber part connected thereto, wherein

a) the implantable pumping chamber is divided by a gas impermeable flexible partition into two subchambers,

b) the first subchamber is delimited by the upper chamber part and the flexible partition and designed as a reservoir for medicinal solutions, the upper part of the chamber has a refill opening which is sealed by at least one piercable septum, and the reservoir for medicinal solutions is connected via an outlet opening to an outlet catheter, and

c) the second subchamber is delimited by the lower chamber part and the flexible partition and is designed as a pressure chamber accommodating a halogenized hydrocarbon propellant, wherein the propellant is hexafluorobutane.

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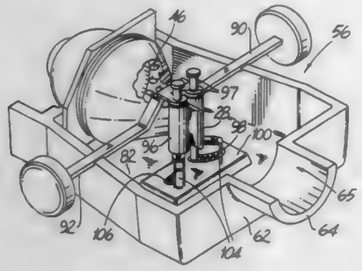
VALVE ASSEMBLY FOR INTRODUCING INSTRUMENTS INTO BODY CAVITIES

Roy D. Gravener, Fairfield; Alex Ianniruberto, Waterbury, both of Conn., and Michael Ciccolella, Lake Carmel, N.Y., assignors to United States Surgical Corporation, Norwalk, Conn.

Division of Ser. No. 268,706, Jun. 30, 1994, Pat. No. 5,542,931, which is a division of Ser. No. 167,230, Dec. 14, 1993, Pat. No. 5,360,417, which is a continuation of Ser. No. 874,291, Apr. 24, 1992, abandoned. This application May 23, 1996, Ser. No. 652,195

Int. Cl.[6] A61M *5/178*

U.S. Cl. 604—169 **4 Claims**



1. A valve assembly comprising:

a valve body formed of a flexibly resilient material and defining an aperture, said aperture being configured and dimensioned for resiliently engaging an instrument inserted therethrough in a substantially gas tight manner, said valve body including an inner wall and a plurality of rib members positioned on said inner wall and extending radially into said aperture;

means to bias said valve body to a configuration whereby said aperture is closed to form a gas tight seal, said biasing means including generally cylindrical pinching members for engaging said valve body radially outward of said aperture;

means to permit said biasing means to be selectively opened and closed so as to allow passage of an instrument through said aperture.

5,722,959

CATHETER SECUREMENT DEVICE

Steven F. Bierman, Del Mar, Calif., assignor to Venetec International, Inc., Mission Viejo, Calif.

Filed Feb. 14, 1996, Ser. No. 601,622

Int. Cl.[6] A61M *5/32*

U.S. Cl. 604—174 **48 Claims**



1. A securement device for securing a catheter to a patient's skin, the catheter including a hub which has at least generally opposing slots that extend transversely to an axis of the catheter, said securement device comprising:

a base coupled to an adhesive surface and configured to receive a section of the catheter in a position in which the catheter section extends generally along a longitudinal axis; and

a retainer coupled to said base by cooperating, interengaging structure between said base and said retainer, said retainer including a pair of opposing, arcuate rails which are spaced apart from each other in a direction generally parallel to a lateral axis, which lies perpendicular to the longitudinal axis and generally parallel to the base, the rails projecting away from said base in a direction that is generally normal to said base and generally parallel to a transverse axis, each rail extending along an arc defined within a plane which is positioned generally parallel to the longitudinal and transverse axes, each rail being sized to fit within a corresponding slot of the catheter hub, said rails including at least one pair of corresponding protrusions which project toward each other to decrease a distance between said rails, said distance between said protrusions being less than a distance between the slots of the catheter hub.

5,722,960

RETRACTABLE NEEDLE SYSTEM

Nancy Duplan, and Carlton E. Duplan, both of San Marcos, Calif., assignors to Duplan Industries, San Marcos, Calif.

Continuation-in-part of Ser. No. 903,617, Jun. 24, 1992, Pat. No. 5,304,150. This application Jul. 27, 1993, Ser. No. 97,989

Int. Cl.[6] A61M *5/00*

U.S. Cl. 604—195 **4 Claims**



1. A medical device comprising a retractable needle system and a substantially cylindrical barrel with a front end and a back end, wherein said retractable needle system comprises:

a) a needle for insertion into a patient to administer injectable material or to remove fluid substances;

b) a needle support means supporting said needle, said needle support means being reversibly fastened to the barrel such that the needle is oriented to project outwardly from the front end of the barrel; and

c) a retractor capable of being disposed within said barrel and traversing the interior of the barrel, said retractor capable of engaging said needle support means and withdrawing said needle support means and said needle into the barrel as said needle is removed from a patient wherein:

(i) said needle support means comprises a well having a bottom and sides and an exterior surface and an interior surface, said exterior surface being conformed so as to reversibly attach and seal said needle support means to the front end of said cylindrical barrel and said needle support means further containing at the bottom a means for mounting said needle in said needle support means to so as to project said needle from said cylindrical barrel, said needle being in fluid communication therewith;

(ii) said retractor comprises a shank portion which is capable of being disposed within said barrel and traversing between the front end and back end of said cylindrical barrel, said retractor having a front end which is configured so as to irreversibly engage the interior surface of the well of said needle support means when advanced to the front end of said cylindrical barrel, and to thereby retract said needle support means into said cylindrical barrel when the retractor is withdrawn toward the back end of the cylindrical barrel; and

(iii) the front end of said retractor is sufficiently laterally compressible to permit insertion of said retractor into the well and sufficiently laterally expandable to produce adhesion between said front end of the retractor and the interior surface of the well, so that when the retractor is withdrawn toward the back end of the cylindrical barrel, the front end of the retractor remains engaged with said needle support means, and withdraws said needle support means into the barrel.

5,722,961

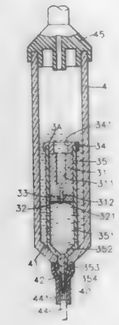
FLOW CONTROL DEVICE FOR USE WITH AN INTRAVENOUS SET

Cheng-Kuo Fan, Kaohsiung, Taiwan, assignor to King-He Hung, San Chung, Taiwan

Filed Jul. 12, 1995, Ser. No. 501,618

Int. Cl.[6] A61M *5/00*

U.S. Cl. 604—254 **2 Claims**



1. A flow control device for use with an intravenous set having a barrel for containing medicinal fluid, the barrel having an outlet, the flow control device comprising:

(a) a generally cylindrical casing located in the barrel, the casing having a hollowed interior, a casing outlet opening in communication with the hollowed interior and the outlet of the barrel, an upper end and a wall having a plurality of holes so as to enable medicinal fluid in the barrel to enter the hollowed interior;

(b) a floating member located within the hollowed interior of said casing, supported for floating by the buoyancy of the medicinal fluid, and having an upper surface, a lower surface, a peripheral surface, and a hollowed portion opening through the upper surface so that the hollowed portion contains medicinal fluid;

(c) a valve including a linkage bar secured to said floating member and located in the casing, the valve including a membranous member having a circular configuration and made of flexible material coupled via said linkage bar to said floating member such that said membranous member is spaced from the bottom surface of the floating member and moves with said floating member such that the membranous member is below a surface of the medicinal fluid in the barrel when the floating member is floating in the medicinal fluid; and

wherein as the barrel of the intravenous set is filled with medicinal fluid, the buoyancy of the medicinal fluid floats said floating member in the casing such that said membranous member is brought away from the outlet opening of the casing, thereby allowing the medicinal fluid to flow to the outlet of the barrel; and

wherein as the volume of medicinal fluid in the barrel is gradually reduced in level, said floating member is lowered and when said membranous member reaches a bottom of the casing, the weight of the medicinal fluid in the hollowed portion and the medicinal fluid above the membranous member causes said membranous member to block the outlet of the casing so as to stop the injection.

5,722,962

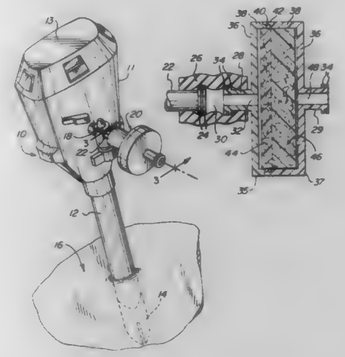
TROCAR PORT FILTER

Joxel Garcia, 64 Brook Ridge Dr., Avon, Conn. 06001

Filed Dec. 29, 1995, Ser. No. 581,052

Int. Cl.[6] A61M *25/00*

U.S. Cl. 604—264 **13 Claims**



1. A trocar assembly for exhausting gas from a body cavity comprising:

(a) a trocar having a housing with an outlet fitting thereon and providing a flow passage through said trocar and in communication with said outlet fitting; and,

(b) a filter mounted on said outlet fitting of said trocar and having

(i) a housing providing a chamber, a flow passage through said housing, and an inlet and an outlet on said housing at opposite ends of said passage communicating with said chamber, said housing also having a fitting about said inlet;

(ii) means on said inlet of said filter housing mounting said filter on said fitting of said trocar housing, said mounting means including a resilient mounting member providing a passage therethrough, said mounting member having inlet and outlet portions, said inlet portion being mounted on said outlet fitting of said trocar housing in sealing engagement therewith and said outlet portion being mounted on said inlet fitting of said filter housing in sealing engagement therewith;

(iii) filter means in said chamber, whereby effluent gas passing through said trocar flow passage flows through said filter means prior to exiting said filter through said outlet thereof.

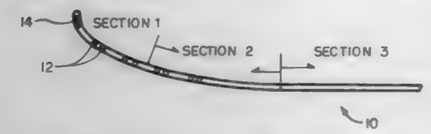
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5,722,963

CORONARY SINUS CATHETER

Keith G. Lurie, Minneapolis; David G. Benditt, Edina; Jeffrey J. Shultz, Robbinsdale; John David Ockuly, and John J. Fleischhacker, both of Minnetonka, all of Minn., assignors to Daig Corporation, Minnetonka, Minn.

Continuation of Ser. No. 371,849, Jan. 12, 1995, Pat. No. 5,549,581, which is a continuation of Ser. No. 106,383, Aug. 13, 1993, Pat. No. 5,423,772. This application Apr. 1, 1996, Ser. No. 625,908
Int. Cl.[6] A61M *25/00*
U.S. Cl. 604—282 3 Claims



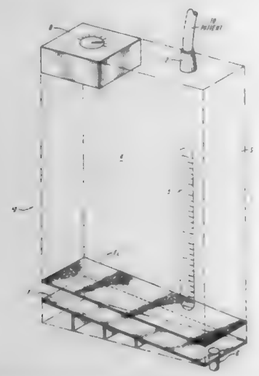
1. A catheter for use in a coronary sinus comprising an elongated member containing a generally straight proximal section and a curved distal section, wherein the distal section contains a first curve with a first arc and a second curve with a second arc, wherein the second curve is curved in substantially the same direction as the first curve, wherein the sum of the arcs of the first and second curves is from about 75° to 120°, when measured in relation to the generally straight proximal section, and wherein the first and second curves are substantially coplanar.

5,722,964

FILTERED BLOOD COLLECTION DEVICE

Steve A. Herweck, Nashua; Theodore Karwoski, Hollis, and Nicholas Want, Manchester, all of N.H., assignors to Atrium Medical Corporation, Hudson, N.H.

Continuation-in-part of Ser. No. 404,108, Mar. 13, 1995, abandoned. This application Jun. 7, 1995, Ser. No. 487,468
Int. Cl.[6] A61M *1/00*
U.S. Cl. 604—317 17 Claims



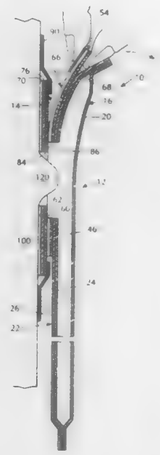
1. A wound drainage device for collecting fluid from a patient via a collection tube, such device comprising a collection chamber for collecting the fluid and a suction regulator for regulating suction applied to the collection chamber, wherein the collection chamber includes a top and a bottom and means at an upper region of the device for attaching to the collection tube so that suction in the collection chamber draws in said fluid, an outlet at a lowermost level of the bottom for providing collected fluid to an outlet tube, and a clot catcher extending across the outlet in a barrier position to provide a fluid path to the outlet while allowing clots at the bottom to reside suspended in fluid without reaching the outlet as fluid is withdrawn therefrom.

5,722,965

LOW PROFILE OSTOMY SYSTEM WITH REPOSITIONABLE POUCH

Thomas J. Kuczynski, Sayreville, N.J., assignor to Bristol-Myers Squibb Company, Princeton, N.J.

Filed Feb. 29, 1996, Ser. No. 609,318
Int. Cl.[6] A61F *5/44*
U.S. Cl. 604—344 16 Claims



1. An ostomy system comprising:

a) An ostomy pouch including a pouch envelope formed of flexible plastic material defining a waste collection chamber for body waste that passes through a stoma, a waste inlet opening formed in said envelope for positioning around said stoma to permit passage of waste material from said stoma to said collection chamber, a flexible annular adhesive coupling means for said pouch on said envelope at said waste inlet opening, said pouch coupling means having a resealable coupling adhesive, a manipulation tab extending from a generally circular peripheral portion of said pouch coupling means to manipulate positioning and repositioning of said pouch coupling means around the stoma, and

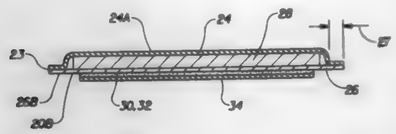
b) a generally annular body-side mounting wafer having an opening for a stoma, said mounting wafer having a biocompatible adhesive layer on one side for securement to a body surface around the stoma, said biocompatible adhesive layer having a peripheral edge and an opposite side with a release film for engagement with the resealable coupling adhesive of said pouch coupling means, such that said pouch can be secured to said mounting wafer when the resealable coupling adhesive of the pouch coupling means engages the releasable film of the mounting wafer, the adhesion between said releasable film and said resealable coupling adhesive being predetermined to permit repeated removal of said pouch coupling means from said mounting wafer, said tab facilitating manipulation, removal and resecurement of said pouch coupling means relative to said mounting wafer, and wherein said body-side mounting wafer includes support means for said releasable film for avoiding wrinkling of said releasable film when said releasable film is flexed or is separated from a coupling bond with the pouch coupling means and wherein said body-side mounting wafer further includes an annular border tape attached to a peripheral portion of said releasable film to overlap the peripheral edge of said biocompatible adhesive layer to cover said peripheral edge of said biocompatible adhesive layer.

5,722,966

WATER DISPERSIBLE AND FLUSHABLE ABSORBENT ARTICLE

Patricia Lee Christon, and Nicholas Albert Ahr, both of Cincinnati, Ohio, assignors to The Procter & Gamble Company, Cincinnati, Ohio

Filed Nov. 22, 1995, Ser. No. 561,989
Int. Cl.[6] A61F *13/15*
U.S. Cl. 604—364 21 Claims



1. A water dispersible and flushable absorbent article, the absorbent article comprising:

a liquid pervious topsheet comprising a first fibrous assembly having a temporary wet strength resin incorporated therein; a dispersible liquid impervious backsheet disposed beneath said topsheet, said backsheet comprising a water insoluble second fibrous assembly having a temporary wet strength resin incorporated therein that has been coated on at least one surface with a second resinous material wherein said second resinous material is water resistant; and

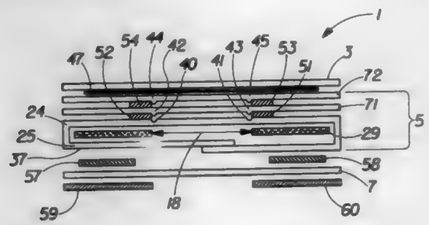
an absorbent core disposed between said topsheet and said backsheet wherein said topsheet and said backsheet are joined using a water soluble adhesive in at least an area of peripheral bonding to encapsulate said absorbent core therebetween.

5,722,967

SANITARY NAPKIN HAVING SHAPING MEANS

Peter Coles, Kelkheim Fischbach, Germany, assignor to The Procter & Gamble Company, Cincinnati, Ohio

PCT No. PCT/US93/08848, § 371 Date Mar. 20, 1995, § 102(e) Date Mar. 20, 1995, PCT Pub. No. WO94/06386, PCT Pub. Date Mar. 31, 1994
Continuation of Ser. No. 403,896, Mar. 20, 1995, abandoned.
This PCT application Sep. 20, 1993, Ser. No. 759,292
Claims priority, application European Pat. Off., Sep. 21, 1992, 92308588
Int. Cl.[6] A61F *13/15;13/20*
U.S. Cl. 604—385.1 1 Claim



1. A sanitary napkin for placement in a wearer's undergarment, comprising;

a liquid pervious topsheet;

a liquid impervious backsheet joined to said topsheet, said backsheet having a garment facing surface facing away from said topsheet; and

an absorbent core positioned between said topsheet and said backsheet, said absorbent core having a longitudinal centerline, a garment facing surface adjacent to said backsheet, a body facing surface being adjacent to said topsheet, and two axes of flexibility, one axis of flexibility extending on each side of the said longitudinal centerline and being substantially parallel thereto, said axes of flexibility defining a central part of said absorbent core wherein the stiffness of said absorbent core is reduced along the axes of flexibility, said garment facing surface of said core being joined to said backsheet along two strips of adhesive, said adhesive strips being spatially opposed and positioned on each side of said longitudinal centerline outwardly from said central part of said absorbent core,

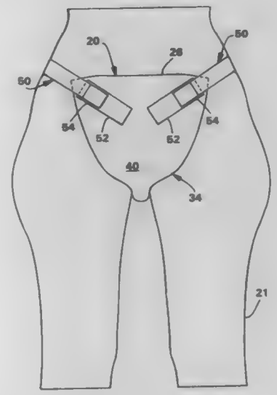
a pair of adhesive strips for adhesively attaching said garment facing surface of said backsheet to a wearer's garment, said adhesive strips being spatially opposed and extending along and substantially outboard of said axes of flexibility.

5,722,968

ABSORBENT ARTICLE FASTENING SYSTEM

Paul Joseph Datta, and Bernhardt Edward Kressner, both of Appleton, Wis., assignors to Kimberly-Clark Worldwide, Inc., Neenah, Wis.

Continuation of Ser. No. 579,394, Dec. 27, 1995, abandoned. This application Jan. 29, 1997, Ser. No. 790,088
Int. Cl.[6] A61F *13/15*
U.S. Cl. 604—391 18 Claims



1. An absorbent article for use by a wearer, comprising:

a garment having a first waist region, a second waist region, and a crotch region positioned between and interconnecting the first and second waist regions, the garment comprising a first interlocking fastening component disposed in the first waist region, the first interlocking fastening component comprising a plurality of engaging elements; and

at least one strap member for securing the garment about the wearer, the strap member having opposite first and second end portions and comprising:

a second interlocking fastening component bonded to the first end portion, the second interlocking fastening component adapted for refastenable attachment to the first interlocking fastening component and comprising:

a backing structure formed of a resilient material and having a concave major surface with a bending index of at least about 0.3 inch $^{-1}$ when the second interlocking fastening component is in an unfastened, relaxed state; and

a plurality of engaging elements projecting from the major surface, the engaging elements of the first and second interlocking fastening components comprising self-engaging shaped geometric materials; and

means for attaching the second end portion to the second waist region.

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5,722,969

DISPOSABLE DIAPER

Taketo Ito, Utsunomiya; Souiti Fujita, Kawachi-gun; Toshiyasu Tanaami, Tochigi, and Taiki Uchiyama, Haga-gun, all of Japan, assignors to Kao Corp., Tokyo, Japan

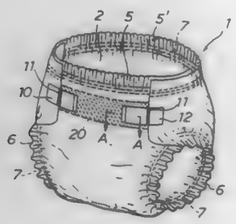
PCT No. PCT/JP95/00511, § 371 Date Nov. 22, 1995, § 102(e) Date Nov. 22, 1995, PCT Pub. No. WO95/26174, PCT Pub. Date Oct. 5, 1995

PCT Filed Mar. 20, 1995, Ser. No. 553,409

Claims priority, application Japan, Mar. 25, 1994, 6-056325; Apr. 28, 1994, 6-090980

Int. Cl.[6] A61F *13/15*

U.S. Cl. 604—390 11 Claims



1. A disposable diaper comprising:

a liquid permeable topsheet;

a liquid impermeable back sheet;

an absorbent member interposed between and attached to said topsheet and said back sheet;

a fastening tape for securing said diaper when said diaper is worn by a wearer, said fastening tape being provided with a folding section at which said fastening tape is to be folded back; and

a release tape to which, when said fastening tape is not in service and is folded back, an adhesive surface of said fastening tape is to be adhered, said fastening tape is adhered to said back sheet when said fastening tape is in service,

said disposable diaper having physical strength properties wherein:

a tensile load of said back sheet at 3% elongation in a transverse direction of said disposable diaper falls within the range of 100 g/cm to 300 g/cm, and a bulk softness of said back sheet is 55 g or less, said transverse direction being parallel to a waist portion of the diaper;

a peel strength required to peel said fastening tape from said back sheet at 180° is 400 g/cm or less, said peel strength being measured after said fastening tape adhered to said back sheet has been allowed to stand for 24 hours at 40° C. and 80% RH, and a time required until said fastening tape and said back sheet are peeled from each other under a load of 500 g is 10 minutes or longer; and

an outer surface of said back sheet is not provided with a target tape to which, when said fastening tape is in service, the adhesive surface of said fastening tape is to be adhered.

5,722,970

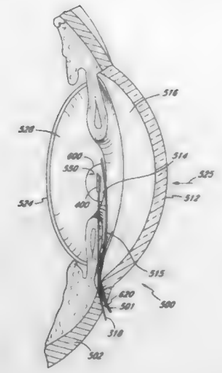
LASER SURGICAL METHOD USING TRANSPARENT PROBE

D. Michael Colvard, Pacific Palisades; Colette Cozean, El Toro, and Varouj D. Amirkhanian, Glendale, all of Calif., assignors to Premier Laser Systems, Inc., Irvine, Calif.

Continuation of Ser. No. 280,280, Jul. 26, 1994, abandoned, which is a continuation of Ser. No. 74,996, Jun. 11, 1993, abandoned, which is a continuation of Ser. No. 680,815, Apr. 4, 1991, abandoned. This application Feb. 21, 1995, Ser. No. 391,612

Int. Cl.[6] A61N *5/06*

U.S. Cl. 606—3 37 Claims



1. A method of performing a surgical procedure, using a laser probe which comprises a member having a longitudinal axis and a reflecting surface, comprising the steps of:

grasping the probe with a hand of a user and positioning the probe for surgery;

propagating invisible laser light through said probe;

outputting invisible laser light from said probe along an output path which extends in a direction transverse to said longitudinal axis, the step of outputting comprising reflecting the invisible laser light from said reflecting surface on said member and then passing the reflected laser light through an output surface on said member;

surgically altering tissue by contacting the tissue with said invisible light at a point of contact;

moving said point of contact relative to said tissue;

visualizing the point of contact using a method comprising:

propagating visible light from said point of contact to said probe in said transverse direction substantially along said output path;

passing at least some of said visible light completely through said probe in said transverse direction to provide a viewing beam which exits said probe along a viewing axis transverse to the longitudinal axis, the step of passing further comprising passing the visible light first through the output surface and then through the reflecting surface; and

viewing said visible light that has passed along said viewing axis through said probe to determine the location where said invisible light contacts said tissue.

5,722,971

INTRASTROMAL CORNEAL MODIFICATION

Gholam A. Peyman, 123 Walnut St., New Orleans, La. 70118

Continuation-in-part of Ser. No. 546,148, Oct. 20, 1995. This application Nov. 3, 1995, Ser. No. 552,624

Int. Cl.[6] A61N *5/02*

U.S. Cl. 606—5 15 Claims

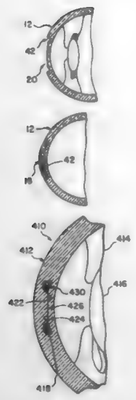
1. A method of modifying the curvature of a patient's live cornea having an exterior surface, comprising the steps of

forming a relatively small opening in the exterior surface of the live cornea,

creating a cavity in and surrounded by the live cornea by separating an internal area of the live cornea into first and second opposed internal surfaces, the cavity being defined by an open end formed by the opening in the exterior surface and by the first and second opposed internal surfaces the first internal surface of the cavity facing in a posterior direction of the live cornea and the second internal surface of the cavity facing in an anterior direction of the live cornea,

inserting a portion of a tool through the opening into the cavity,

incrementally and completely removing three-dimensional internal portions of the live cornea sequentially from at least one of the first and second internal surfaces in a predetermined pattern via the tool,



waiting a period of time to allow the cornea to collapse to obtain a new refractive power due to removal of internal portions of the live cornea,

examining the live cornea after the period of time to determine the new refractive power of the live cornea resulting from removal of internal portions of the live cornea,

inserting ocular material into the pocket, after the step of examining, to further modify the live cornea, and

encapsulating the ocular material between the first and second internal surface of the cornea to retain the ocular material therein.

5,722,972

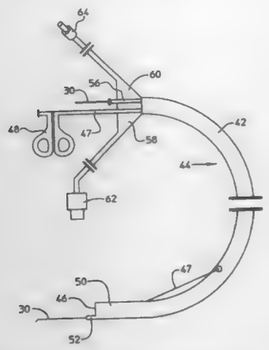
METHOD AND APPARATUS FOR ABLATION OF ATHEROSCLEROTIC BLOCKAGE

John A. Power, 202 Springhouse La., Pittsburgh, Pa. 15238, and Mark Schmidhofer, 6550 Beacon St., Pittsburgh, Pa. 15217

Continuation of Ser. No. 105,182, Aug. 12, 1993, abandoned. This application Sep. 5, 1995, Ser. No. 523,743

Int. Cl.[6] A61B *17/36*

U.S. Cl. 606—7 13 Claims



1. An apparatus for ablation of atherosclerotic blockage, said apparatus including, in combination,

a catheter including a tip or distal end adapted to be inserted into and guided within a blood vessel lumen to a site therein which contains atherosclerotic blockage,

a forward firing excimer-laser fiber carried by the tip or distal end of said catheter to a site in the blood vessel lumen containing atherosclerotic blockage,

an ultrasonic transducer in the proximal end of the catheter for determining the location and morphology of atherosclerotic blockage to be subsequently removed by said forward firing excimer laser fiber, and

an actuator at a non-surrounding outer peripheral location on the catheter and entirely proximally located from the distal end of the laser fiber for deflecting said tip or distal end of said catheter, said actuator being actuatable externally at a side surface of the blood vessel lumen to displace said tip or distal end in the blood vessel lumen eccentrically away from the center and into a generally parallel relation with the side of the blood vessel lumen containing atherosclerotic blockage having a location and morphology for removal by said forward firing excimer-laser.

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Patent Not Issued For This Number

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Patent Not Issued For This Number

5,722,975

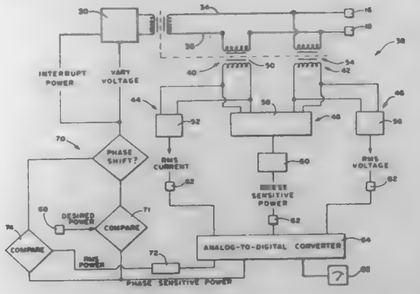
SYSTEMS FOR RADIOFREQUENCY ABLATION WITH PHASE SENSITIVE POWER DETECTION AND CONTROL

Stuart D. Edwards, Los Altos, and Roger A. Stern, Cupertino, both of Calif., assignors to E.P. Technologies Inc., Mountain View, Calif.

Division of Ser. No. 158,809, Nov. 29, 1993, Pat. No. 5,423,806, which is a continuation of Ser. No. 22,815, Feb. 24, 1993, abandoned, which is a continuation of Ser. No. 789,300, Nov. 8, 1991, abandoned. This application Jun. 7, 1995, Ser. No. 480,146

Int. Cl.[6] A61B *17/39*

U.S. Cl. 606—34 4 Claims



1. A system for ablating tissue at an ablation site using radiofrequency energy comprising

an electrode,

a source of radiofrequency energy coupled to the electrode for transmitting radiofrequency energy at the ablation site resulting in measurable voltage and current waveforms,

a monitoring element coupled to the electrode to monitor the current and voltage waveforms,

a sensing element coupled to the monitoring element to derive a phase shift between the monitored current and voltage waveforms, and

a controller coupled to the sensing element and responsive to the derived phase shift and operable to interrupt conduction of

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radio frequency energy when the derived phase shift exceeds a predetermined value.

5,722,976

APPARATUS AND METHOD FOR SURGICALLY SECURING BONE PARTS

Robin Peter Brown, 4 Fraser Street, Middle Park, Victoria 3206, Australia

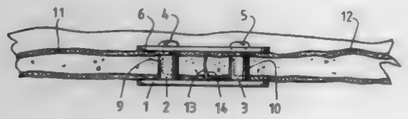
PCT No. PCT/AU94/00504, § 371 Date Jun. 26, 1996, § 102(e) Date Jun. 26, 1996, PCT Pub. No. WO95/05782, PCT Pub. Date Mar. 2, 1995

PCT Filed Aug. 29, 1994, Ser. No. 600,925

Claims priority, application Australia, Aug. 27, 1993, PM 8901

Int. Cl.[6] A61B *17/58*

U.S. Cl. 606—69 **17 Claims**



1. An apparatus for surgically securing a first bone part to a second bone part, comprising a base and first and second securing means for attaching to the base and for securing each respective bone part to the base firmly such that relative movement of the bone parts is prevented and re-growth of the bone parts into an integral whole is promoted, each securing means preventing movement or relative pivoting of the corresponding bone part outwards from the base by holding the corresponding bone part onto the base wherein

(i) the holding is performed by the application of external pressure applied to the bone parts by said first and second securing means on a side of the bone parts opposite to the base; and

(ii) said first securing means comprises a first screw means and a receiving means, said first screw means in use being inserted from a first outer bone surface through a first drilled hole in a first corresponding bone part and screwed into the receiving means disposed at an opposing outer surface of the bone part;

(iii) said first securing means includes a first post protruding from the base over which, in use, the first corresponding bone part is positioned with the first post inside the first drilled hole; and

wherein said second securing means comprises a second screw means and a receiving means, said second screw means in use being inserted from a first outer bone surface through a second drilled bole in a second corresponding bone part and screwed into the receiving means disposed at an opposing outer surface of the second bone part; and

said second securing means includes a second post protruding from the base over which, in use, the second corresponding bone part is positioned with said second post inside the second drilled hole.

5,722,977

METHOD AND MEANS FOR ANTERIOR LUMBAR EXACT CUT WITH QUADRILATERAL OSTEOTOME AND PRECISION GUIDE/SPACER

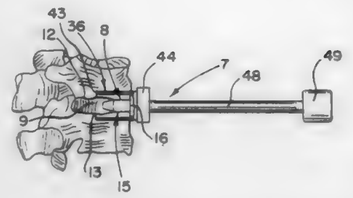
John K. Wilhelmy, Diablo, Calif., assignor to Danek Medical, Inc., Memphis, Tenn.

Filed Jan. 24, 1996, Ser. No. 590,612

Int. Cl.[6] A61B *17/16*

U.S. Cl. 606—84 **16 Claims**

1. In combination, a non-rotatable precision guide and spacer means adapted to be driven progressively into an intervertebral



space between two juxtaposed vertebrae of a spine to selectively progressively increase the spacing between opposed surfaces of said juxtaposed vertebrae a predetermined amount, and a quadrilateral tubular osteotome surrounding a portion of said precision guide and spacer means and manipulable to simultaneously cut opposed recesses in the juxtaposed spaced vertebrae while spanning the intervertebral space therebetween.

5,722,978

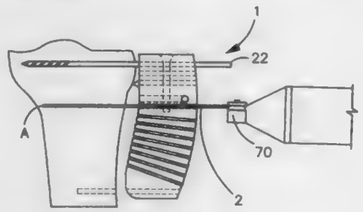
OSTEOTOMY SYSTEM

Joseph Robert Jenkins, Jr., 12203 Becontree Dr., Baton Rouge, La. 70810

Filed Mar. 13, 1996, Ser. No. 615,716

Int. Cl.[6] A61B *17/15*

U.S. Cl. 606—87 **27 Claims**



1. A surgical kit for performing a tibial osteotomy, comprising:

(a) an osteotomy guide, comprising:

(i) mounting means for attaching the guide in a predetermined relation to a tibia;

(ii) a transverse slot, defining a transverse cutting plane, adapted to receive and guide a transverse cutting blade for making a transverse cut into said tibia; and

(iii) a plurality of oblique slots angularly offset from said transverse slot, each said oblique slot defining an oblique cutting plane, adapted to receive and guide an oblique cutting blade for making a selected oblique cut into said tibia, wherein the intersection of each of said oblique cutting planes with said transverse cutting plane is adapted to define a wedge of bone which may be removed from said tibia;

(b) a transverse member adapted to pass through said transverse slot; and

(c) locking means on said osteotomy guide for lockably engaging said transverse member and positioning said osteotomy guide at a predetermined location relative to said transverse member.

5,722,979

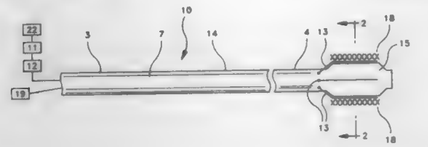
PRESSURE ASSISTED ULTRASONIC BALLOON CATHETER AND METHOD OF USING SAME

Richard S. Kusleika, Eden Prairie, Minn., assignor to Schneider (USA) Inc., Plymouth, Minn.

Filed Apr. 8, 1997, Ser. No. 826,889

Int. Cl.[6] A61M *25/10*

U.S. Cl. 606—108 **22 Claims**



1. An ultrasonic balloon catheter and stent assembly comprising:

a balloon catheter having a shaft with proximal and distal portions and one or more lumens, a balloon connected to the distal portion of the shaft and in communication with an inflation lumen, the balloon having an uninflated and an inflated state;

an acoustical energy generator associated with the catheter and adapted to provide oscillating energy at or near the balloon; and

a stent for placement in a body lumen and sized and configured to allow the balloon to be inserted in the stent in the uninflated state, wherein the acoustical energy generator transmits oscillating energy to the stent whereby transmission of the oscillating energy to the stent in combination or alternating with balloon pressure to a predetermined pressure causes deformation of the stent.

5,722,980

DEVICE FOR REMOVAL OF CALCULI

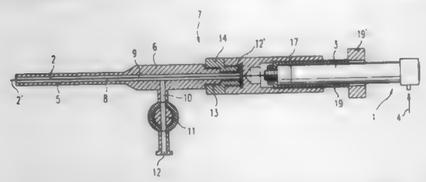
Manfred Schulz, Überlingen, and Wolfgang Merkle, Linnich, both of Germany, assignors to Ferton Holding, Delmont, Switzerland

Filed Feb. 21, 1995, Ser. No. 391,502

Claims priority, application Germany, Feb. 22, 1994, 44 05 656.7

Int. Cl.[6] A61B *17/22*

U.S. Cl. 606—128 **9 Claims**



1. A device for removal of calculi including nephroliths, ureteroliths or urinary calculi, using a suction pump having a pump tube, an intracorporeal lithotripter, and an endoscope having an operating passage, the device comprising:

a probe of the intracorporeal lithotriper which transmits shock waves and which is inserted into the operating passage of the endoscope for lithotripsy in situ;

a guiding tube having an external diameter and an internal diameter where said external diameter is dimensioned for insertion of said guiding tube into the operating passage of the endoscope and said internal diameter is dimensioned for receiving said probe of the intracorporeal lithotripter;

said guiding tube and said probe forming a suction passage as an annular passage between said guiding tube and said probe when said probe is inserted into said guiding tube, said guiding tube having a first connecting bore connected to said suction passage;

a first Luer lock connector, coupled to said first connecting bore, for coupling the pump tube of the suction pump, the suction pump producing a suction pressure in said suction passage when the suction pump is coupled to said first Luer lock connector;

an adjustable shut-off means, coupled to said first connecting bore, for adjusting and shutting off the suction pressure produced by the suction pump when the suction pump is coupled to said first Luer lock connector; and

a coupler means for mounting said guiding tube on the intracorporeal lithotripter.

5,722,981

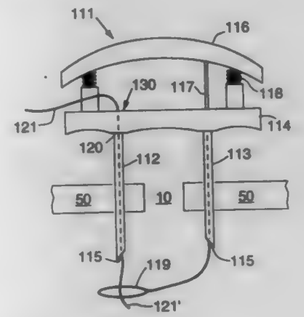
DOUBLE NEEDLE LIGATURE DEVICE

Jon A. Stevens, Condado, Puerto Rico, assignor to Tahoe Surgical Instruments, San Juan, Puerto Rico

Continuation of Ser. No. 255,363, Jun. 8, 1994, abandoned, which is a continuation-in-part of Ser. No. 134,263, Oct. 8, 1993, Pat. No. 5,462,560. This application Oct. 17, 1996, Ser. No. 731,689

Int. Cl.[6] A61B *17/04*

U.S. Cl. 606—148 **12 Claims**



1. A ligature device including:

(1) a needle assembly comprising

(a) needle support means for holding needles;

(b) first and second hollow needles, each of said needles having a shaft, a proximal end having a proximal end opening, a distal end having a distal end opening, and a sharpened distal tip, said needles being mounted on said needle support means at their proximal ends and extending substantially parallel to one another from said support means; and

(2) a rod assembly consisting of

a rod and a filament loop of shape memory alloy (SMA), said rod having a shaft, a proximal end, and a distal end, and being mounted on a rod handle at said proximal end, and said loop being positioned at said distal end of said rod;

said rod assembly connected to but slidably engaged with said needle assembly such that said rod is positioned within said first needle and said rod assembly is movable with respect to said needle assembly from a rod extended position to a rod retracted position, and, when said rod assembly is in said rod extended position, said filament loop extends past said distal end of said first needle such that said loop is deflected by said SMA to a position completely under said distal end opening of said second needle.

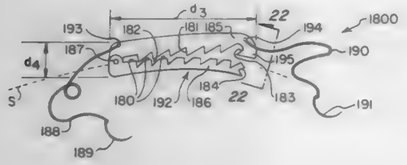
VOL 1208 ISS 1 MR 3 1998 UMI

5,722,982

STRABISMUS SURGERY APPARATUS AND METHOD

Rosane Ferreira, Porto Alegre, Brazil; J. Bronwyn Bateman, Denver, Colo., and Tomas F. Scalamandré Mendonca, Sao Paulo, Brazil, assignors to University Technology Corporation, Boulder, Colo.

Filed Sep. 26, 1996, Ser. No. 721,279
Int. Cl.[6] A61B 17/00
U.S. Cl. 606—151 9 Claims



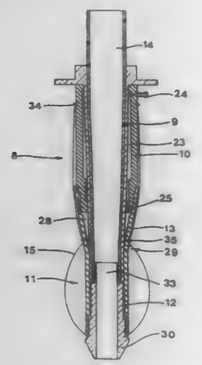
1. An extraocular muscle clip comprising:
a hinge means at one end;
a pair of oppositely facing jaws, said jaws being interconnected at said hinge means and having opposed faces surfaced with a muscle grabbing means, at least one of said jaws having an exterior surface adjacent the eye in use;
a locking means at a second end whereby said jaws may be closed thereby securely clamping onto said muscle;
a pair of suture material members affixed to said clip;
a suture needle affixed to each of said suture material members; and
said pair of oppositely facing jaws having a lower jaw member and an upper jaw member, said lower jaw member having a smooth upper surface, thereby providing a minimal resistance when passed under a muscle, said lower jaw member having recesses for receiving said upper jaw member.

5,722,983

DILATING SPECULUM

Clemens Van Der Weegen, 15 Churchill Avenue, Strathfield, New South Wales 2135, Australia

PCT No. PCT/AU94/00111, § 371 Date Nov. 30, 1995, § 102(e) Date Nov. 30, 1995, PCT Pub. No. WO94/21160, PCT Pub. Date Sep. 29, 1994
PCT Filed Mar. 9, 1994, Ser. No. 522,275
Claims priority, application Australia, Mar. 15, 1993, PL7802
Int. Cl.[6] A61M 29/00
U.S. Cl. 606—193 8 Claims



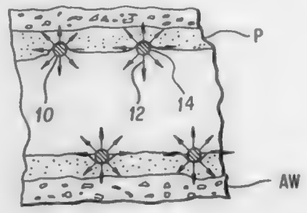
1. A speculum, for use in examining the interior of a body cavity, comprising a tubular body having two ends, a tubular probe adapted to enter said body cavity detachably secured to said tubular body so as to project beyond one of the ends thereof, an inflatable element encircling said probe, and means to inflate said element, and wherein said tubular body and said tubular probe are at least partly made of transparent material to permit light to be transmitted from end to end of said speculum through said transparent material.

5,722,984

ANTITHROMBOGENIC RADIOACTIVE COATING FOR AN INTRAVASCULAR STENT

David R. Fischell, Fair Haven, N.J., and Tim A. Fischell, Nashville, Tenn., assignors to Iso Stent, Inc., Belmont, Calif.

Filed Jan. 16, 1996, Ser. No. 585,760
Int. Cl.[6] A61B 17/00; A61N 5/00
U.S. Cl. 606—198 2 Claims



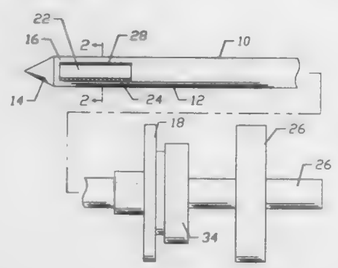
1. An intravascular stent comprising: a thin, wire-like, generally cylindrical metal structure, the stent having a single layered coating of the metal structure which single layered coating is both antithrombogenic and radioactive.

5,722,985

INSTRUMENT FOR TUMOR THERAPY

William G. Pettus, 194 Crane Dr., Monroe, Va. 24574

Filed Dec. 27, 1996, Ser. No. 774,888
Int. Cl.[6] A61B 17/32
U.S. Cl. 606—180 2 Claims



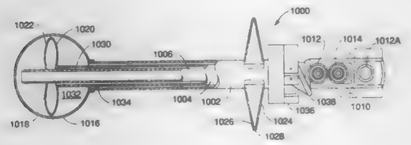
1. A device for brain tumor therapy comprising:
a. a conically tipped tubular member for simultaneous surgical excision, brachytherapy, and aspiration of matter from the interior of the tumor;
b. a longitudinal segment on a distal end of said tubular member adjoining the conical tip and having diametrically opposed longitudinal slots with surgically sharpened edges;
c. a neutron activated segment in said tubular member coincident with the longitudinally slotted segment;
d. a flanged entrance fitting with a compressible internal bushing, on a proximal end of said tubular member for laterally constraining said tubular member and for regulating the inward leakage of air along the outer surface of said tubular member;
e. an adjustable collar on the proximal end of said tubular member for grasping and manipulating said tubular member and for limiting the depth of insertion of said tubular member into the tumor.

5,722,986

INFLATABLE DEVICES FOR SEPARATING LAYERS OF TISSUE, AND METHODS OF USING

Jeffrey A. Smith, Sunnyvale; Albert K. Chin, Palo Alto, and Frederic H. Moll, San Francisco, all of Calif., assignors to Origin Medsystems, Inc., Menlo Park, Calif.

Division of Ser. No. 405,284, Mar. 16, 1995, Pat. No. 5,632,761, which is a continuation-in-part of Ser. No. 365,096, Dec. 28, 1994, abandoned, which is a continuation-in-part of Ser. No. 319,552, Oct. 7, 1994, which is a continuation-in-part of Ser. No. 282,287, Jul. 29, 1994, which is a continuation-in-part of Ser. No. 911,714, Jul. 10, 1992, which is a continuation-in-part of Ser. No. 794,590, Nov. 19, 1991, Pat. No. 5,309,896, which is a continuation-in-part of Ser. No. 706,781, May 29, 1991, abandoned. This application Jul. 24, 1996, Ser. No. 685,744
Int. Cl.[6] A61B 29/00
U.S. Cl. 606—192 20 Claims



1. A method of providing a working space in a patient for performing a medical procedure, comprising the steps of:
providing a first balloon, a second balloon, and a delivery device having a distal end;
cutting an incision in a patient;
inserting the distal end of the delivery device into the patient through the incision;
moving the distal end of the delivery device to a position between tissue layers in the patient;
positioning the first balloon between the tissue layers;
inflating the first balloon;
positioning the second balloon between the tissue layers;
inflating the second balloon;
leaving the distal end of the delivery device in the patient after the delivery device inserting step until the second balloon inflating step so that the tissue layers remain at least partially separated; and
insufflating a working space between the tissue layers with an insufflating fluid.

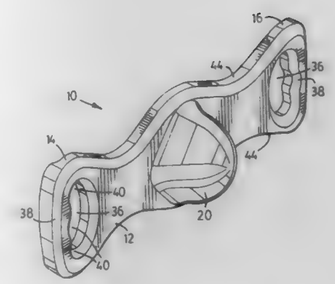
5,722,987

RESUSCITATOR

Wayne O. Witbeck, Ontario, Canada, assignor to Precious Lite Saving Products Inc., Mississauga, Canada

Filed Dec. 23, 1994, Ser. No. 363,118
Int. Cl.[6] A61B 17/00
U.S. Cl. 606—201 20 Claims

1. A resuscitator comprising:
an elongate stiffened, resilient handle member having opposed end portions and a central axis extending therebetween;
a raised, rounded pad located between said end portions and extending along an axis perpendicular to the handle member axis; and
said pad having a base portion extending in a direction perpendicular to both the handle member axis and the pad axis, said base portion being V-shaped in plan view.

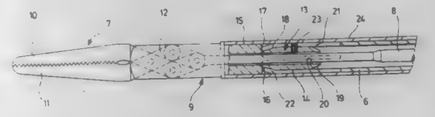


5,722,988

SURGICAL TUBULAR-SHAFTED INSTRUMENT

Dieter Weisshaupt, Johann-Peter-Hebel-Strasse 15, D-78194 Immendingen, Germany

Filed Jun. 7, 1996, Ser. No. 661,397
Claims priority, application Germany, Dec. 8, 1993, 43 41 735.3
Int. Cl.[6] A61B 17/28
U.S. Cl. 606—205 21 Claims



1. A surgical tubular-shafted instrument, comprising:
a first tube having a free end which is adapted to detachably hold a holder for a tool;
said holder comprising an extension which is insertable into said free end;
an actuating element for moving the tool, said actuating element extending in the first tube and being movable axially therein; and
an outer tube which surrounds said first tube and is longitudinally positionable between a closed position and an open position;
said first tube comprising radially displaceable parts at said free end; wherein:
said parts are adapted to surround the extension and secure the extension against axial displacement in the first tube when said extension is inserted into said free end;
said outer tube is adapted to secure said extension against axial displacement in the first tube when said extension is inserted into said free end and said outer tube is in said closed position over said extension by preventing radially outward displacement of said parts; and
said parts and said outer tube facilitate an axial removal of the extension from said first tube when said outer tube is positioned in said open position away from said free end.

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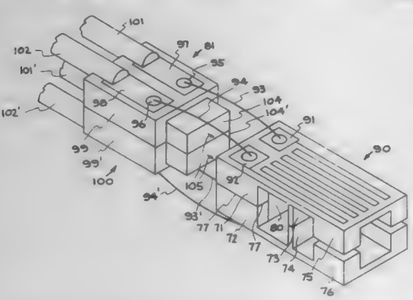
MICROMINIATURIZED MINIMALLY INVASIVE INTRAVASCULAR MICRO-MECHANICAL SYSTEMS POWERED AND CONTROLLED VIA FIBER-OPTIC CABLE

Joseph P. Fitch; Karla Hagans, both of Livermore; Robert Clough, Danville; Dennis L. Matthews, Moss Beach; Abraham P. Lee, Walnut Creek; Peter A. Krulevitch, Los Altos; William J. Benett, Livermore; Luiz Da Silva, Danville, and Peter M. Celliers, Berkeley, all of Calif., assignors to The Regents of the University of California, Oakland, Calif.

Continuation-in-part of Ser. No. 446,146, May 22, 1995, Pat. No. 5,645,564, Ser. No. 533,426, Sep. 25, 1995, and Ser. No. 549,497, Oct. 27, 1995. This application Mar. 6, 1997, Ser. No. 812,142

Int. Cl.[6] A61B *17/28*

U.S. Cl. 606—205 **8 Claims**



1. A micro-mechanical system, comprising:
- a catheter having a distal end for insertion into and manipulation within a body and a near end providing for a user to control said manipulation of said distal end within said body;
- a fiberoptic cable disposed within the catheter and having a distal end proximate to said distal end of the catheter and a near end for external coupling of-laser light energy;
- a microgripper attached to said distal end of the catheter and providing for the gripping or releasing of an object within said body; and
- a laser-light-to-mechanical-power converter connected to receive laser light from said distal end of the fiberoptic cable and connected to mechanically actuate the microgripper.

5,722,990

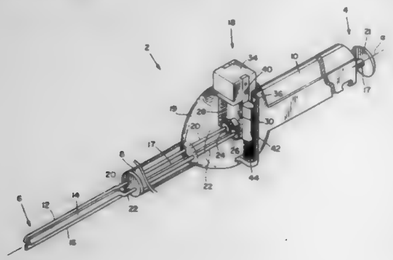
TISSUE GRASPING DEVICE

David J. Sugarbaker, Milton; Andy H. Levine, Newton; Nicholas F. Warner, Belmont; Eric E. May, Norfolk, all of Mass., and Lawrence Crainich, Charlestown, N.H., assignors to Sugar Surgical Technologies, Inc., Milton, Mass.

Filed Nov. 13, 1995, Ser. No. 558,951

Int. Cl.[6] A61B *17/28;19/00*

U.S. Cl. 606—207 **8 Claims**



1. A surgical device comprising:
- a tissue manipulating mechanism having a proximal end and a distal end;
- at least two rotatable, parallel, tissue engaging tines extending from the distal end of the mechanism and movable in arcs toward and away from each other in parallelism;
- a non-rotatable tine extendable from the distal end in a linear path parallel to the movable tines;
- an extending mechanism at the proximal end of the manipulating mechanism and connected to the non-rotatable tine for moving the non-rotatable tine toward and away from the distal end parallel with the rotatable tines; and
- an actuating mechanism at the proximal end of the manipulating mechanism and connected to the movable tines for moving the movable tines in arcs.

5,722,991

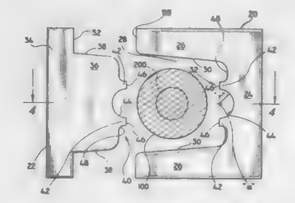
APPARATUS AND METHOD FOR ATTACHING SURGICAL NEEDLE SUTURE COMPONENTS

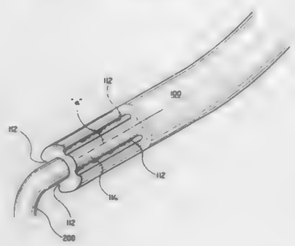
Francis D. Colligan, New Haven, Conn., assignor to United States Surgical Corporation, Norwalk, Conn.

Filed Jun. 7, 1995, Ser. No. 483,138

Int. Cl.[6] A61B *17/00*

U.S. Cl. 606—223 **25 Claims**





1. A surgical needle-suture attachment apparatus for attaching a surgical needle and a suture, which comprises a pair of dies, and a surgical needle at least partially positioned within the dies and having an end portion with an elongated aperture defined therein, each die including at least two generally planar engaging surfaces with a recessed portion disposed between adjacent engaging surfaces, the engaging surfaces each defining a plane in general parallel relation to a longitudinal axis of the respective die, the recessed portion defining a relief zone such that when an end portion of the suture is positioned within the aperture of the needle end and the dies are positioned about the end portion of the needle with the at least two engaging surfaces of each die generally facing the outer surface of the needle, applying inward crimping force to the dies causes the dies to produce inward crimping forces on opposed sides of the needle end portion to cause a reduction of the dimension of the elongated aperture of the needle to thereby attach the needle to the suture, wherein the recessed portion between the adjacent planar engaging surfaces is configured for receiving and collecting deformed material from the needle.

5,722,992

IMPLANT, ITS USE IN SURGERY AND PROCESSES FOR THE PRODUCTION THEREOF

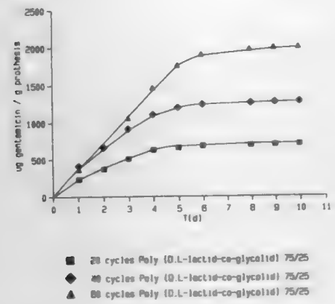
Helmut Goldmann, Melsungen, Germany, assignor to B. Braun Surgical GmbH, Melsungen, Germany

Filed Jun. 13, 1996, Ser. No. 663,478

Claims priority, application Germany, Jun. 14, 1995, 195 21 642.3

Int. Cl.[6] A61B *17/00*

U.S. Cl. 606—228 **25 Claims**



1. An implant, having infection-protected surface areas, which at least partly and at least on the infection-protected surface areas comprises resorbable material having a degradation time, the resorbable material containing an antimicrobiotic agent, wherein the solubility of the antimicrobiotic agent is chosen in such a way that the antimicrobiotic agent is delivered substantially over the entire degradation time of the resorbable material, and wherein the solubility of the antimicrobiotic agent and the degradation time of the resorbable material are matched to one another, so that the antimicrobiotic agent is delivered in decreasing quantities during the degradation time.

5,722,993

Patent Not Issued For This Number

5,722,994

IMPLANTABLE HEART DEFIBRILLATOR

Kjell Norén, Solna, and Pia Hagel, Sollentuna, both of Sweden, assignors to Pacesetter AB, Solna, Sweden

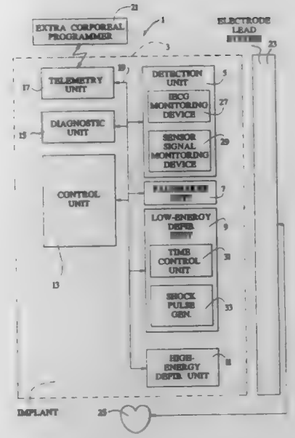
Filed Sep. 18, 1996, Ser. No. 714,310

Claims priority, application Sweden, Sep. 20, 1995, 9503257

Int. Cl.[6] A61N *1/39*

U.S. Cl. 607—5 **12 Claims**

1. An implantable heart defibrillator for use with an electrode lead system, comprising:
- an electrode lead connector connectable to said electrode lead system;
- sensing means connected to said electrode lead connector for sensing a condition of a heart and for emitting a condition signal identifying said condition;
- control means for determining the condition of the heart from said condition signal and for identifying whether a state of fibrillation exists and for emitting a command signal if said state of fibrillation exists; and
- shock pulse generator means, supplied with said command signal and connected to said electrode lead connector, for emitting at least one defibrillation shock to said electrode lead connector upon receipt of said command signal, comprised of at least one low-energy pulse having an energy content of less than 2 Joules and having a high voltage greater than 1000 volts.



5,722,995

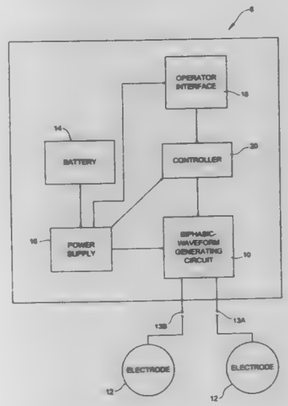
EXTERNAL DEFIBRILLATOR FOR PRODUCING AND TESTING BIPHASIC WAVEFORMS

Kenneth F. Olson, Minneapolis, and Byron L. Gilman, Plymouth, both of Minn., assignors to SurVivaLink Corporation, Minneapolis, Minn.

Continuation of Ser. No. 490,831, Jun. 8, 1995, Pat. No. 5,620,465. This application Dec. 30, 1996, Ser. No. 774,533

Int. Cl.[6] A61N *1/39*

U.S. Cl. 607—5 **6 Claims**



1. An external defibrillator device including a capacitive discharge generating circuit comprising:
- a power supply;
- first and second output terminals for electrical interconnection to a plurality of electrodes;
- a supply terminal and a reference terminal electrically connected to the power supply;
- at least two capacitors;
- charge circuitry for generating monophasic and biphasic defibrillation waveforms, wherein the charge circuitry is elec-

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trically connected to the supply and reference terminals and the at least two capacitors;

control circuitry electrically connected to the charge circuitry, wherein the control circuitry generates pulse control signals;

an operator interface coupled to the control circuitry wherein the control circuitry initiates the generation of the pulse control signals in response to an initial actuation of the operator interface; and

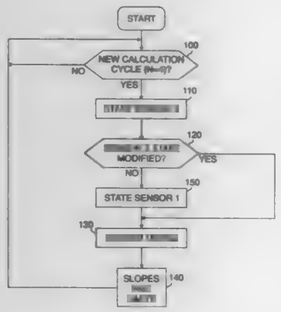
pulse initiating circuitry connected to the control circuitry and to the first and second output terminals, wherein the pulse initiating circuitry generates sequences of monophasic and biphasic waveforms in response to the pulse control signals from the control circuitry according to a pre-programmed protocol, wherein the waveforms generated follow the pre-programmed protocol upon each actuation of the operator interface.

5,722,996

ACTIVE IMPLANTABLE MEDICAL DEVICE HAVING A CONTROL FUNCTION RESPONSIVE TO AT LEAST ONE PHYSIOLOGICAL PARAMETER

Jean-Luc Bonnet, Vanves, and Laurence Geroux, Le Plessis Robinson, both of France, assignors to Ela Medical S.A.

Filed Sep. 17, 1996, Ser. No. 674,261
Int. Cl.[6] A61N *1/365*
U.S. Cl. 607—17 **27 Claims**



1. An active implantable medical device having a control function that is enslaved to at least one physiological parameter, comprising:

at least one effort sensor, measuring a preponderantly physiological parameter and having an effort output signal corresponding to an effort developed by a patient bearing the device;

at least one activity sensor, measuring a preponderantly physical parameter, and having an activity output signal corresponding to the effort developed by said patient, said activity and effort sensors each having a response time, the activity sensor response time being faster than the effort sensor response time; and

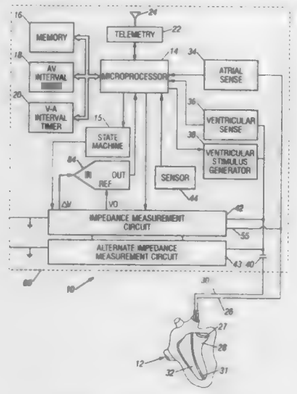
selection means, functioning in response to each of the effort and activity sensors, for determining a state of each sensor, identifying a change in state of at least one sensor, periodically analyzing the relative sequence of successive state changes of the effort and activity sensors according to a predetermined criteria intrinsic to the device, and for selecting one of the effort and activity sensors as a function of the result of said periodic analysis, in a manner to realize, at a given instant, an enslavement respecting most nearly the physiology of the patient corresponding to his/her activity and effort level at said given instant.

5,722,997

METHOD AND APPARATUS FOR CARDIAC IMPEDANCE SENSING

Ashok P. Nedungadi, Lake Oswego, Oreg., and Behrad Aria, Sugar Land, Tex., assignors to Sulzer Intermedics Inc., Angleton, Tex.

Filed Sep. 17, 1996, Ser. No. 714,881
Int. Cl.[6] A61N *1/37*
U.S. Cl. 607—28 **18 Claims**



12. A cardiac stimulation apparatus comprising:

a stimulator arranged to stimulate a patient's heart;

a charging circuit and a first capacitor, said charging circuit arranged to charge said first capacitor and said first capacitor adapted to produce a pulse when said first capacitor is discharged;

means for electrically transmitting said pulse through at least a portion of the patient's body; and

a circuit for developing a first signal representative of the voltage across said first capacitor when charged and a second signal representative of the voltage across said first capacitor when said first capacitor has been discharged to produce said pulse,

an analog-to-digital converter having a reference input and a signal input, the reference input to said analog-to-digital converter connected to receive said first signal and said signal input to said analog-to-digital converter connected to receive said second signal for producing a signal representative of a ratio of the discharged voltage to the charged voltage across said first capacitor.

5,722,998

APPARATUS AND METHOD FOR THE CONTROL OF AN IMPLANTABLE MEDICAL DEVICE

David Prutchi; Patrick J. Paul, both of Lake Jackson, and David G. Genzer, Bay City, all of Tex., assignors to Intermedics, Inc., Angleton, Tex.

Filed Jun. 7, 1995, Ser. No. 475,491
Int. Cl.[6] A61N *1/36*
U.S. Cl. 607—30 **3 Claims**

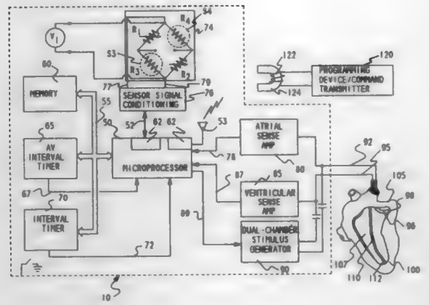
1. A device for altering the operation of a medical apparatus, a portion of the device of which is configured to be implanted within a human, the device comprising:

a. a command transmitter for generating a digital bit string;

b. an electromagnet coupled to the command transmitter to develop a series of magnetic pulses corresponding to the digital bit string;

c. an implantable giant magnetoresistance ratio sensor capable of sensing a time-varying magnetic field, to receive the series of magnetic pulses and develop an output signal;

d. a microprocessor;



e. an implantable sensor signal conditioner electrically coupled to the microprocessor to receive the output signal from the sensor and develop a signal in a condition for use by the microprocessor; and

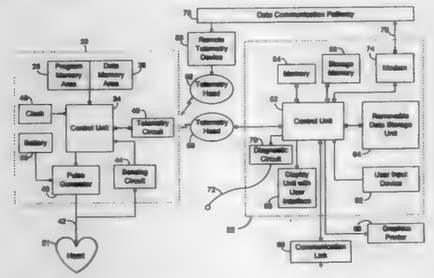
f. means to modify the operation of the microprocessor based upon the signal developed by the signal conditioner.

5,722,999

SYSTEM AND METHOD FOR STORING AND DISPLAYING HISTORICAL MEDICAL DATA MEASURED BY AN IMPLANTABLE MEDICAL DEVICE

Jeffery D. Snell, Oak Park, Calif., assignor to Pacesetter, Inc., Sylmar, Calif.

Filed Aug. 2, 1995, Ser. No. 510,369
Int. Cl.[6] A61N *1/02*
U.S. Cl. 607—32 **56 Claims**



1. A diagnostic system for use with a medical device implanted in a patient, wherein the medical device includes memory means, means for transmitting data from said memory means, and means for receiving data and storing said received data into said memory means, the system comprising:

telemetry means for receiving medical data transmitted by the medical device, the medical data including physiologic data pertaining to the patient's medical condition and parametric data pertaining to operating characteristics of the medical device;

long-term storage means for storing a historical patient data file containing medical data received from the medical device via the telemetry means;

control means for integrating medical data received from the medical device via the telemetry means during a current transmission into the historical patient data file stored in the long-term storage means, the historical patient data file thereafter containing medical data received during prior transmissions and the current transmission; and

means for transmitting said integrated historical patient data file to the medical device.

5,723,000

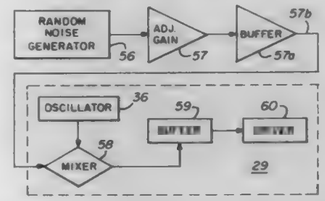
Patent Not Issued For This Number

5,723,001

APPARATUS AND METHOD FOR THERAPEUTICALLY TREATING HUMAN BODY TISSUE WITH ELECTROMAGNETIC RADIATION

Arthur A. Pilla, Ridgewood, N.J.; Viswanathan Iyer, Deerfield Beach, and Walter Leonard Wasserman, Boca Raton, both of Fla., assignors to Electropharmacology, Inc., Pompano Beach, Fla.

Continuation of Ser. No. 501,271, Jul. 12, 1995, abandoned, which is a continuation of Ser. No. 257,281, Jun. 9, 1994, abandoned. This application May 6, 1996, Ser. No. 642,213
Int. Cl.[6] A61N *1/32*
U.S. Cl. 607—68 **34 Claims**



1. Apparatus for therapeutically treating human body tissue with electromagnetic radiation, said apparatus comprising:

(a) first generating means for generating a cyclically repetitive signal at a frequency in the range of one to 100 megahertz, said first generating means including means for repetitively interrupting said repetitive signal to define repetitively pulsed bursts of said repetitive signal, wherein the burst-repetition rate is in a range up to 1000 Hertz;

(b) second generating means for generating an irregular-signal output;

(c) modulator means connected for response to said irregular-signal output and also connected to modulate said repetitively pulsed bursts of said repetitive signal, thereby to produce an irregularly modulated output signal;

(d) a body-applicator device responsive to an input-signal voltage to produce electromagnetic output radiation; and

(e) drive-connection means for supplying said irregularly modulated output signal to said body-applicator device, the level of output radiation from said device when in body-coupled relation to the electromagnetic output radiation from said device being such as to induce in body tissue current voltage amplitudes in the 10^3:1 range of mA/cm to V/cm.

5,723,002

ICE PACK

Robert E. Delk, Dallas; Michael L. Bowen, Arlington, and Pervez Dagia, Dallas, all of Tex., assignors to Tecnol, Inc., Fort Worth, Tex.

Continuation-in-part of Ser. No. 45,360, Apr. 13, 1993, Pat. No. 5,356,426. This application Aug. 22, 1994, Ser. No. 294,142
Int. Cl.[6] A61F *7/04*
U.S. Cl. 607—114 **38 Claims**

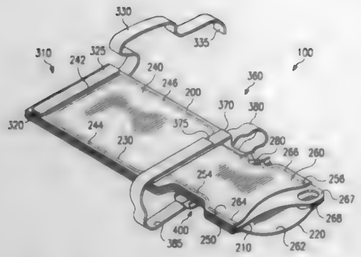
1. An ice pack bag comprising:

a first side wall having an insulation layer and a waterproof layer;

a second side wall having a waterproof layer;

wherein said first side wall and said second side wall are welded together to form a containment section, a neck in communi-

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cation with the containment section, and a mouth having an opening in communication with the neck;

wherein the insulation layer of said first side wall is disposed inside of the waterproof layer of said first side wall;

wherein said second side wall includes an insulation layer disposed inside the waterproof layer of said second side wall;

wherein the insulation layer of said first side wall is perforated with a plurality of holes;

wherein the insulation layer of said second side wall is perforated with a plurality of holes; and

wherein the holes in the insulation layer of said first side wall are larger holes than the holes in the insulation layer of said second side wall.

5,723,003

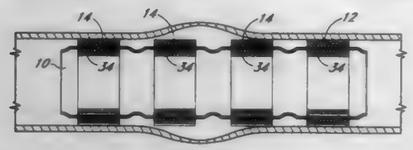
EXPANDABLE GRAFT ASSEMBLY AND METHOD OF USE

Thomas R. Winston, Leawood, and John Neet, Lawrence, both of Kans., assignors to Ultrasonic Sensing and Monitoring Systems, Kansas City, Mo.

Continuation of Ser. No. 305,060, Sep. 13, 1994, abandoned. This application Jan. 16, 1996, Ser. No. 585,470

Int. Cl.[6] A61F *2/04*

U.S. Cl. 623—1 **11 Claims**



1. A graft assembly for placement in a body passage having a generally tubular inner wall of predetermined diameter, the graft assembly comprising:

an elongated tubular graft presenting inner and outer graft surfaces;

a first outer stent retained on said outer graft surface and having expanded and contracted conditions and possessing a spring force that urges the first outer stent toward the expanded condition, the first outer stent when in the expanded condition presenting an outer diameter greater than the predetermined diameter of the inner wall of the body passage;

a means for securing the first outer stent to the outer surface of the graft;

a second outer stent secured to the graft at a position longitudinally spaced from the first outer stent, the second outer stent having expanded and contracted conditions and possessing a spring force that urges the second outer stent toward the expanded condition, the second outer stent when in the expanded condition presenting an outer diameter smaller than the outer diameter of the first outer stent so that the second stent supports the graft at the position spaced from the first outer stent; and

a means for securing the second outer stent to the outer surface of the graft; and

a plurality of inner stents provided along the inner graft surface of the graft and sleeved within the first and second outer stents, each of the inner stents being movable between expanded and contracted conditions and possessing a spring force that urges the inner stent toward the expanded condition, the inner stents when in the expanded condition pressing the graft against the first and second outer stents.

5,723,004

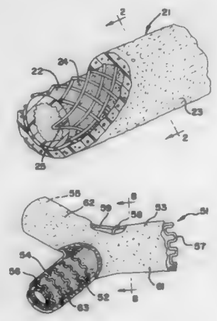
EXPANDABLE SUPPORTIVE ENDOLUMINAL GRAFTS

Jean-Pierre Georges Emile Dereume, Brussels, Belgium; David C. MacGregor, and Leonard Pinchuk, both of Miami, Fla., assignors to Corvita Corporation, Miami, Fla.

Continuation of Ser. No. 140,245, Oct. 21, 1993, abandoned. This application Jan. 31, 1996, Ser. No. 594,421

Int. Cl.[6] A61F *2/06*

U.S. Cl. 623—1 **29 Claims**



1. A bifurcated expandable supportive endoluminal graft, comprising:

a tubular supporting component with a trunk tube having a longitudinal axis and at least one branch tube having an axis disposed at an acute angle with respect to said longitudinal axis of the trunk tube, said tubular supporting component having an internal surface disposed toward the longitudinal axis of each of said trunk tube and branch tube and an external surface spaced outwardly from and shaped complementarily with said internal surface, said tubular supporting component having a network of strand areas with interstices therebetween, said tubular supporting component being expandable from a first diameter of each of the trunk tube and branch tube at which the graft can be inserted into a body pathway, each of said trunk tube and branch tube having a second diameter, each said second diameter being greater than each respective first diameter;

a stretchable wall of essentially inert biocompatible material, said stretchable wall being applied onto both of said internal and external surfaces of the tubular supporting component such that said stretchable wall is both a liner covering said internal surface of the tubular supporting component and also a cover over said external surface of the tubular supporting component, said stretchable wall having a first diameter size when said tubular supporting component is at its said first diameter of each of the trunk tube and branch tube, and said stretchable wall having a second diameter when said tubular supporting component is at its said second diameter size of each of the trunk tube and branch tube;

said liner is bonded to said cover through said interstices of the tubular supporting component so as to encapsulate said tubular supporting component within said stretchable wall; and

said stretchable wall is made from a porous elastomeric material that provides a structure which allows normal cellular invasion thereinto from the body pathway when implanted therewithin.

5,723,005

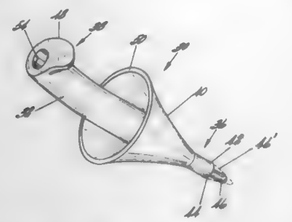
PUNCTUM PLUG HAVING A COLLAPSIBLE FLARED SECTION AND METHOD

Robert S. Herrick, Rialto, Calif., assignor to Herrick Family Limited Partnership, Rancho Cucamonga, Calif.

Filed Jun. 7, 1995, Ser. No. 475,548

Int. Cl.[6] A61F *2/14*

U.S. Cl. 623—4 **44 Claims**



1. An implant comprising

an elongated member having a pair of ends wherein one of said pair of ends includes a collapsible flared section having an outer surface and the other of said pair of ends includes a thin elongated lip, said thin elongated lip being located on said elongated member to position the thin elongated tip in a generally anterior direction upon insertion in to a punctum opening, said elongated member and said collapsible flared section being formed of a dimension to pass through a punctum opening of an eye.

5,723,006

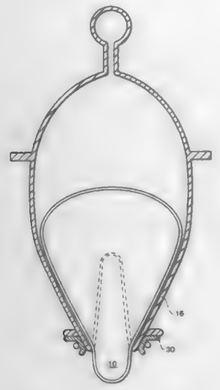
BREAST IMPLANT INTRODUCER

Walter J. Ledergerber, 31 Morningwood, Laguna Niguel, Calif. 92677

Continuation of Ser. No. 272,907, Jul. 8, 1994, Pat. No. 5,571,178, which is a continuation of Ser. No. 73,966, Jun. 8, 1993, abandoned, which is a continuation of Ser. No. 660,290, Feb. 22, 1991, abandoned. This application May 8, 1996, Ser. No. 646,845

Int. Cl.[6] A61F *2/12;* **A61B** *17/02*

U.S. Cl. 623—8 **2 Claims**



1. A surgical implant introducer comprising

a flexible tube having a first end and a second end, said first end having an opening sized to mate with an incision in a body, said second end having an opening sized to receive a surgical implant, said tube being closeable at said second end and deformable to force a surgical implant out of said opening of said first end of said tube, and

a ring affixed to said first end of said tube adjacent said opening to stabilize said first end of said tube adjacent said opening during insertion of an implant into a body.

5,723,007

BIOCOMPATIBLE COMPOSITE MATERIAL AND PROCESS FOR ITS PRODUCTION

Eva Maria Engel; Hugo Haemmerle, both of Tuebingen; Guenter Hoff, Daisendorf; Otto Inacker, Reutlingen; Bernhard Kneissel, Marl; Wilfried Nisch, Tuebingen; Lutz Scheideler, Tuebingen, and Heiner Weber, Tuebingen, all of Germany, assignors to Huels Aktiengesellschaft, Marl, Germany

Filed Aug. 8, 1996, Ser. No. 694,020

Claims priority, application Germany, Aug. 8, 1995, 195 29 036.4

Int. Cl.[6] A61F *2/02*

U.S. Cl. 623—11 **18 Claims**

1. A biocompatible composite material comprising a plastic matrix having a felt of collagen fibers contained therein, wherein said collagen fibers project out of a surface of said composite material, wherein the composite material is produced by a process comprising:

a) providing a collagen fiber felt wherein said collagen fibers have a structure of native collagen;

b) impregnating the collagen fiber felt with one or more polymerizable monomers,

c) partially curing the one or more polymerizable monomers to provide a polymer containing unpolymerized monomers, shortchain oligomers or both therein;

d) removing the unpolymerized monomers and shortchain oligomers from the surface of said composite material to expose said collagen fiber felt on said surface.

5,723,008

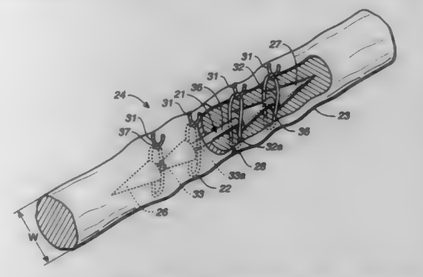
SPLINT FOR REPAIR OF TENDONS OR LIGAMENTS AND METHOD

Leonard Gordon, 2300 California St. Suite 300, San Francisco, Calif. 94115

Filed Jul. 20, 1995, Ser. No. 504,587

Int. Cl.[6] A61F *2/08;* **A61B** *17/84*

U.S. Cl. 623—13 **5 Claims**



4. A surgical repair splint in combination with a securement device to hold together opposed member ends of a severed or ruptured flexor tendon or ligament member subject to axial excursions during healing of said member comprising:

an elongated splint body formed with a width dimension less than a nominal width dimension of said member, said splint body having pointed opposite splint ends formed to be driven into each of said opposed member ends, splint body extending inwardly of each of said opposed member ends by a distance sufficient to enable securement of said splint body to said

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member on opposite sides of said opposed member ends by at least one securement device, and said splint body further being formed with a shoulder in a side of said splint body proximate each of said opposite splint ends, each said shoulder facing toward the other shoulder; and

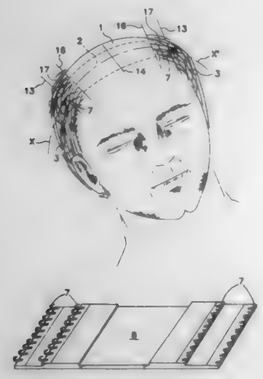
a securement device formed to engage said member without protruding from said member by an amount sufficient to impede excursions of said member, said securement device being positioned between the shoulders and formed to cooperate with the shoulders to resist axial separation of said opposed ends during excursions of said member during healing.

5,723,009

DEVICE FOR EXTENDING LIVING TISSUE

Patrick Frechet, 92, Avenue Mozart, 75016 Paris; Georges Fraisse, Saint Laurent du Var, and Guy Charvin, Antibes, all of France, assignors to MXM, Antibes, and Patrick Frechet, Paris, both of France

Division of Ser. No. 244,508, May 27, 1994, Pat. No. 5,531,790. This application Nov. 14, 1995, Ser. No. 555,704
Claims priority, application France, May 7, 1992, 92 05893
Int. Cl.[6] A61F *2/10*
U.S. Cl. 623—15 **3 Claims**



1. A process for extending an area of skin tissue with a device that is completely implanted underneath said skin tissue, said skin tissue having an undersurface, the process comprised of the steps of:

forming a temporary opening in the skin tissue for receiving the entire device thereunder;

separating the tissue from any base to which the skin tissue is attached in order to make accessible said undersurface of the skin tissue;

providing a device for stretching the skin tissue, said device having resilient means and tissue fastening means and being deformable so as to follow a natural shape of said skin tissue;

implanting said device underneath said skin tissue, inside said temporary opening;

engaging the undersurface of the skin tissue with a first of at least two tissue fastening means whereby the fastening means extends through the undersurface of the skin tissue;

engaging a second of at least two tissue fastening means spaced from the first, placing the resilient means under tension, whereby the resilient means draws the tissue fastening means toward an original pre-biased position to extend the skin tissue;

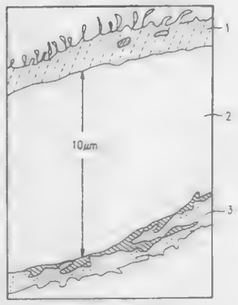
closing said temporary opening.

5,723,010

MEDICAL DEVICE AND METHOD FOR PRODUCING THE SAME

Tooru Yui, Fujisawa; Tokuzo Nakagawa, Kamakura, and Kazuo Kondo, Tokorozawa, all of Japan, assignors to Toyo Boseki Kabushiki Kaisha, Osaka, and Bio-Engineering Laboratories, Ltd., Tokyo, both of Japan

Filed Mar. 29, 1996, Ser. No. 623,976
Claims priority, application Japan, Mar. 31, 1995, 7-075914; Mar. 31, 1995, 7-075915
Int. Cl.[6] A61F *2/10;2/02*
U.S. Cl. 623—15 **11 Claims**



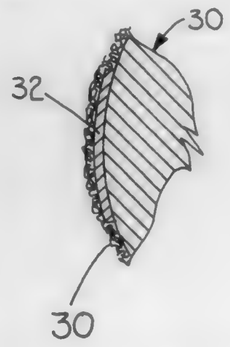
1. A medical device consisting essentially of stratum compactum of tissue membrane in isolated and purified form.

5,723,011

PROSTHETIC IMPLANT AND METHOD OF MAKING SAME

Thirumalai Devanathan, Warsaw, and Steve T. Lin, Ft. Wayne, both of Ind., assignors to Zimmer, Inc., Warsaw, Ind.

Continuation of Ser. No. 994,018, Dec. 21, 1992, abandoned. This application Mar. 28, 1994, Ser. No. 219,247
Int. Cl.[6] A61F *2/28*
U.S. Cl. 623—16 **4 Claims**



1. A method of making a prosthetic implant having a metal body with a metal porous surface layer metallurgically bonded to said metal body with the metallurgical bond prevented at predetermined locations relative to said metal body, said method comprising the steps of;

a) providing a prosthetic implant having a metal body, said metal body having a predetermined location of high stress;

b) providing a porous layer formed from a first metal;

c) metallurgically bonding said porous layer to the metal body such that said porous layer and;

d) providing means for preventing the porous layer from bonding with the metal body at said predetermined location of high stress.

5,723,012

USES FOR A CURRENT OF SUPERCRITICAL CARBON DIOXIDE AS AN ANTIVIRAL AGENT

Jacques Fages, Portet Sur Garonne; Patrick Frayssinet, Saiguede, and Gilbert Bonel, Toulouse, all of France, assignors to Bioland, Toulouse, France

Continuation-in-part of Ser. No. 163,775, Dec. 9, 1993, abandoned. This application Dec. 21, 1995, Ser. No. 576,565
Claims priority, application France, Jun. 13, 1995, 95 07266
Int. Cl.[6] A61F *2/28;2/54*
U.S. Cl. 623—16 **27 Claims**

1. A method of using carbon dioxide in supercritical state for eliminating viral contamination from an implantable tissue, comprising the steps of:

a) treating the tissue with a predetermined amount of supercritical carbon dioxide;

b) treating the tissue obtained in step a) with hydrogen peroxide;

c) treating the tissue obtained in step b) with sodium hydroxide; and

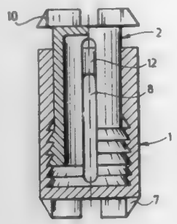
d) treating the tissue obtained in step c) with ethanol.

5,723,013

SPACER IMPLANT FOR SUBSTITUTING MISSING VERTEBRAE

Jean-Francois Jeanson, Assenay; Marc Ameil, Reims; Hervé Dinville, Saint-Parres-Aux-Tertres; Jean Huppert, L'Étrat; Thierry Marnay, Nimes, and Michel Gau, St. Pol Sur Ternoise, all of France, assignors to JBS S.A., Troyes, France

Filed Feb. 6, 1996, Ser. No. 595,955
Claims priority, application France, Feb. 6, 1995, 95 01326
Int. Cl.[6] A61F *2/44*
U.S. Cl. 623—17 **6 Claims**



1. An implant for replacing a removed vertebra, comprising

(a) an outer sleeve having a longitudinal axis and an inner surface having a periphery; said inner surface having a series of axially adjoining grooves each extending along a substantial part of said periphery; the groove series lending said inner surface a sawtooth-shaped configuration when viewing said outer sleeve in axial section; and

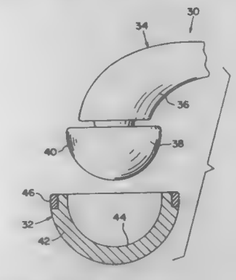
(b) an inner sleeve having a longitudinal axis and an outer surface having a periphery; said outer surface having a series of axially adjoining ribs each extending along a substantial part of said periphery of said outer surface; the rib series lending said outer surface a sawtooth-shaped configuration when viewing said inner sleeve in axial section; said inner sleeve being telescopingly received in said outer sleeve such that said series of ribs of said outer surface engage into said series of grooves of said inner surface in an interfitting relationship; said sawtooth-shaped configurations of said inner and outer surfaces being oriented such that in normal operation said sleeves are prevented by the interengaging sawtooth configurations from being telescoped into one another and are allowed by ratchet action to telescope outwardly from one another; said inner sleeve being radially sufficiently resilient to allow alternating radial compression and expansion of said inner sleeve during the ratchet action.

5,723,014

ORTHOPAEDIC IMPLANT HAVING A METALLIC BEARING SURFACE

Michel P. Laurent, Warsaw; Jerry Parcell, North Webster, and Kent McDonald, Claypool, all of Ind., assignors to Bristol-Myers Squibb Company, New York, N.Y.

Filed Jan. 23, 1997, Ser. No. 788,093
Int. Cl.[6] A61F *2/30*
U.S. Cl. 623—18 **15 Claims**



1. An orthopaedic implant, comprising:

a metallic body including a metallic bearing surface; and

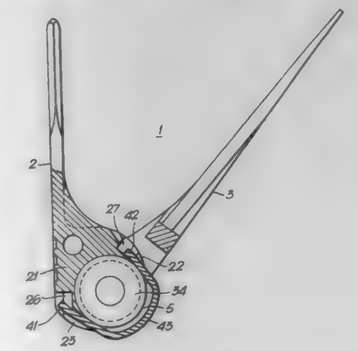
means for applying an electromotive force to said metallic bearing surface.

5,723,015

ELBOW PROSTHESIS

Finn Risung, Borgekroken 31, N-3711 Skien, and Knut Johnsen, Gamleveien 13, N-1406 Hebekk, both of Norway

PCT No. PCT/NO94/00033, § 371 Date Sep. 26, 1995, § 102(e) Date Sep. 26, 1995, PCT Pub. No. WO94/17758, PCT Pub. Date Aug. 18, 1994
PCT Filed Feb. 9, 1994, Ser. No. 501,115
Claims priority, application Norway, Feb. 10, 1993, 930460
Int. Cl.[6] A61F *2/38*
U.S. Cl. 623—20 **6 Claims**



1. An elbow prosthesis for implantation in destroyed elbow joints, with an ulnar component and a humeral component of a tissue-compatible material, wherein the head of the ulnar component is designed in a bifurcated form with two horns, wherein the

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head of the humeral component comprises a rotatable, replaceable spindle of a tissue-compatible and strong plastic material between two projecting flanges, and wherein the joint component of the prosthesis is formed by the head of the ulnar component being arranged to engage with the rotatable spindle of the humeral component,

characterized in that in each of the horns on the ulnar component there is provided a groove which terminates in a respective blind hole on each horn, the blind holes being approximately diametrically opposite each other in relation to the joint centre of the ulnar component, that the elbow prosthesis includes a C-ring-like clip arranged to connect the heads of the ulnar component and the humeral component while maintaining a desired degree of freedom of movement for the elbow joint and a predetermined tolerance of movement, and that the clip embraces the spindle on the humeral component with a clearance between an arc of the clip and the spindle and is locked to the ulnar component by ends of the clip being inserted in the grooves on the horns of the ulnar component and engaging with the blind holes.

5,723,016

IMPLANTABLE PROSTHETIC PATELLAR COMPONENTS

Julian Richard Minns, Durham; Swee Chai Ang, London, and Ian William Wallace, Tyne & Wear, all of England, assignors to British Technology Group Ltd., London, England

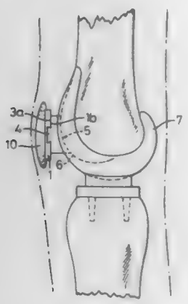
PCT No. PCT/GB94/00701, § 371 Date Nov. 17, 1995, § 102(e) Date Nov. 17, 1995, PCT Pub. No. WO94/22397, PCT Pub. Date Oct. 13, 1994

PCT Filed Mar. 31, 1994, Ser. No. 530,153

Claims priority, application United Kingdom, Apr. 1, 1993, 9306898

Int. Cl.[6] A61F *2/38*

U.S. Cl. 623—20 **8 Claims**



1. An implantable prosthetic patellar component comprising a patella part having a first side adapted to be secured to an inner surface of a natural patella, and a femoral part having a first side defining an articulation surface to replace the femoral face of the patella and slide freely relative to a femur, each of said parts having a second side, said second sides being mutually engageable to afford sliding movement therebetween in a medio-lateral direction.

5,723,017

Patent Not Issued For This Number

5,723,018

SHOULDER-JOINT ENDOPROSTHESIS

Jean-Maxwell Cyprien, 3, route Antoine-Martin, 1234 Vessey, Switzerland, and E. Bruno Gerber, 54, rue du Suchiez, 2006 Neuchâtel, Switzerland

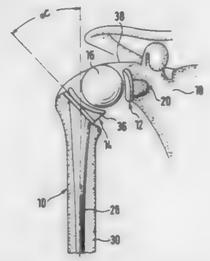
PCT No. PCT/EP93/03218, § 371 Date May 19, 1995, § 102(e) Date May 19, 1995, PCT Pub. No. WO94/10941, PCT Pub. Date May 26, 1994

PCT Filed Nov. 16, 1993, Ser. No. 256,606

Claims priority, application Germany, Nov. 17, 1992, 42 38 832.5

Int. Cl.[6] A61F *2/40*

U.S. Cl. 623—21 **15 Claims**



1. A shoulder-joint endoprosthesis comprising:

a glenoid joint socket having a rearward part for attachment to a shoulder blade,

a humeral joint socket with an intramedullary prosthesis stem by means of which it can be attached to a humerus,

a joint ball socket located between the glenoid joint socket and the humeral joint socket and being freely movable therein,

said glenoid joint socket being dished and substantially pear-shaped, said glenoid joint socket having a lower part and art upper part, and said upper part having a smaller radius of curvature than said lower part of said glenoid joint socket.

5,723,019

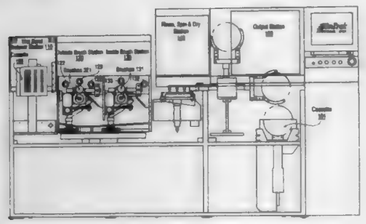
DRIP CHEMICAL DELIVERY METHOD AND APPARATUS

Wilbur C. Krusell, and Lane L. Larson, both of San Jose, Calif., assignors to OnTrak Systems, Incorporated, San Jose, Calif.

Continuation of Ser. No. 275,785, Jul. 15, 1994, abandoned. This application Mar. 18, 1996, Ser. No. 617,434

Int. Cl.[6] B08B *7/00*

U.S. Cl. 134—6 **20 Claims**



1. A method of cleaning a semiconductor substrate comprising:

moving a semiconductor substrate to a scrubbing position;

applying a cleaning solution to a brush by dripping said cleaning solution directly on said brush to form a brush having said cleaning solution thereon, wherein said cleaning solution is dripped only onto said brush; and,

scrubbing said semiconductor substrate, wherein said step of scrubbing said semiconductor substrate is performed with said brush having said cleaning solution thereon at said scrubbing position and wherein said step of scrubbing said semiconductor substrate applies said cleaning solution to said semiconductor substrate in an amount and over a period of time such that a pH profile of said semiconductor substrate is controlled to prevent damage of said semiconductor substrate.

5,723,020

FIRE-RETARDANT SATURATING KRAFT PAPER

Philip L. Robinson, Isle of Palms, and Ramazan Benrashid, Mt. Pleasant, both of S.C., assignors to Westvaco Corporation, New York, N.Y.

Continuation-in-part of Ser. No. 527,931, Sep. 14, 1995, abandoned. This application Nov. 1, 1996, Ser. No. 742,636

Int. Cl.[6] D21H *21/34*

U.S. Cl. 162—159 **13 Claims**

1. An improved method for the production of a flame-retardant high-pressure phenolic resin-impregnated kraft paper laminate, wherein the improvement comprises impregnating saturating kraft paper, said paper containing alumina trihydrate in an amount from about 25% to about 40% by the dry weight of the paper, with a mixture consisting essentially of phenolic resin and sodium borate in an amount sufficient to result in the laminate retaining

a) an amount of phenolic resin sufficient to fill voids of said kraft paper; and

b) sodium borate in an amount from about 0.1% to about 4.0% by the dry weight of the laminate,

and applying pressure to the mixture-impregnated paper to form the laminate.

5,723,021

METHOD FOR INHIBITING DEPOSITION IN PULP AND PAPERMAKING SYSTEMS USING A COMPOSITION COMPRISING OF POLYVINYL ALCOHOL, GELATIN AND CATIONIC POLYMER

Duy T. Nguyen, Jacksonville, Fla., assignor to BetzDearborn Inc., Trevose, Pa.

Continuation-in-part of Ser. No. 651,077, May 22, 1996, which is a continuation-in-part of Ser. No. 421,349, Apr. 12, 1995, Pat. No. 5,536,363. This application Aug. 21, 1996, Ser. No. 700,974

Int. Cl.[6] D21H *17/44;* **D21C** *9/08*

U.S. Cl. 162—168.1 **21 Claims**

1. A method for inhibiting the deposition of organic contaminants from pulp in pulp and papermaking systems comprising adding to said pulp from 0.5 parts to about 150 parts per million parts pulp of a composition comprising a polyvinyl alcohol having 50 to 100% hydrolysis and a molecular weight from about 15,000 to about 125,000, a high molecular weight gelatin having a molecular weight of about 100,000 to about 250,000, and a cationic polymer wherein the ratio of polyvinyl alcohol to gelatin is about 9:1 weight/weight percent and the ratio of high molecular weight gelatin to cationic polymer is about 1:1 weight/weight percent.

5,723,022

TEMPORARY WET STRENGTH RESINS

David Louis Dauplaise, Stamford, and Gerald J. Guerro, Trumbull, both of Conn., assignors to Cytec Technology Corp., Wilmington, Del.

Filed Jul. 11, 1996, Ser. No. 678,739

Int. Cl.[6] D21H *17/45;* **C08F** *8/28*

U.S. Cl. 162—168.3 **14 Claims**

1. A composition comprising a blend of:

A) from about 5% to about 50%, by weight, of an ionic, water-soluble vinylamide polymer having a weight average molecular weight of from about 100,000 to about 3 million and sufficient glyoxal-reactive amide substituents and —CHOHCHO substituents to be thermosetting, the ratio of the number of said —CHOHCHO substituents to the number of said glyoxal-reactive substituents being in excess of about 0.02:1.0, respectively, and

B) from about 50% to about 95%, by weight, of a glyoxalated, cationic, water-soluble vinylamide polymer containing from about 70–99%, by weight, of a vinylamide and having a weight average molecular weight ranging from about 500 to about 6000 before glyoxalation and sufficient glyoxal-reactive amide substituents and —CHOHCHO substituents to be thermosetting, the ratio of glyoxal substituents to vinylamide substituents in excess of about 0.1:1.0, respectively.

5,723,023

METHOD OF PAPERMAKING USING MODIFIED CATIONIC STARCH

John Tsai, Belle Mead; Walter Maliczyszyn, Somerville; Teresa Capitani, Clark, all of N.J., and Christopher Kulp, Palmer, Pa., assignors to National Starch and Chemical Investment Holding Corporation, Wilmington, Del.

Filed Sep. 27, 1996, Ser. No. 722,785

Int. Cl.[6] D21H *21/10*

U.S. Cl. 162—175 **18 Claims**

1. A method of making paper having improved retention and drainage properties comprising adding to the wet end system an effective additive amount of a cationic, non-degraded starch having a degree of substitution (DS) of at least 0.005, which is further modified to a degree of substitution (DS) of from about 0.005 to 0.4 with either:

a) an ether group, R—O—, where R is an hydroxyalkyl or alkyl of 1 to 4 carbon atoms or alkenyl of 2 to 4 carbon atoms; or

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b) an ester group,



where R is an alkyl of 1 to 4 carbon atoms or alkenyl of 2 to 4 carbon atoms,
and wherein the non-degraded fully modified starch has a Brookfield viscosity of at least 1000 cPs at 30° C. in an aqueous solution and is cooked prior to addition to the wet end system.

5,723,024

SEPARATION OF 2-METHYL-1-PROPANOL FROM 1-BUTANOL BY EXTRACTIVE DISTILLATION

Lloyd Berg, 1314 S. Third Ave., Bozeman, Mont. 59715

Filed Aug. 26, 1996, Ser. No. 701,781
Int. Cl.[6] B01D *3/40;* **C07C** *29/84*
U.S. Cl. 203—57 **1 Claim**

1. A method for recovering 2-methyl-1-propanol from a mixture consisting of 2-methyl-1-propanol and 1-butanol which consists essentially of distilling said mixture consisting of 2-methyl-1-propanol and 1-butanol in the presence of an extractive distillation agent, recovering the 2-methyl-1-propanol as overhead product and obtaining the 1-butanol and the extractive distillation agent as bottoms product, wherein said extractive distillation agent consists of one material selected from the group consisting of butyl benzoate, hexyl formate, 2-heptanone, triacetin, amyl acetate, isobornyl acetate, 2-butoxyethyl acetate, hexyl acetate, n-butyl propionate, propylene carbonate, propyl butyrate, butyl lactate, dibutyl phthalate, tridecyl phthalate, ethyl salicylate, cyclopentanone, 2-octanone, acetophenone, propiophenone, 4-hydroxy-4-methyl-2-pentanone, 3-pentanone, 4-methyl-2-pentanone, 2-undecanone, 2-methoxyethanol, diethylene glycol methyl ether, dioxolane, propoxypropanol, ethyl benzene, p-xylene, o-xylene, 3-carene, alpha-pinene, dipentene, cumene, o-diethylbenzene, tetrahydro naphthalene, tetraethyl ortho silicate, 2-methoxyethyl ether, propylene glycol methyl ether, 1-methoxy-2-propanol, diethylene glycol methyl ether, butyl ether, benzyl ether, anisole, methyl ethyl ketoxime, hexamethylene imine, butyraldehyde oxime, methyl isobutyl ketoxime, o-cresol, phenol, butyronitrile, 3-ethyl phenol, m-cresol, nonyl phenol, 1,4-butanediol, glycerol, dimethylformamide, N,N-dimethylacetamide, polyethylene glycol 300 and p-cresol.

5,723,025

SEPARATION OF 2-METHYL-1-PROPANOL FROM 2-BUTANOL BY EXTRACTIVE DISTILLATION

Lloyd Berg, 1314 S. Third Ave., Bozeman, Mont. 59715

Filed Sep. 19, 1996, Ser. No. 715,909
Int. Cl.[6] B01D *3/40;* **C07C** *29/84*
U.S. Cl. 203—57 **1 Claim**

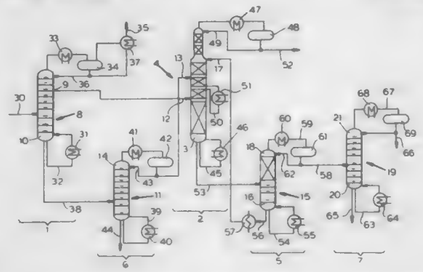
1. A method for recovering 2-methyl-1-propanol from a mixture consisting of 2-methyl-1-propanol and 2-butanol which consists essentially of distilling said mixture consisting of 2-methyl-1-propanol and 2-butanol in the presence of an extractive distillation agent, recovering the 2-methyl-1-propanol as overhead product and obtaining the 2-butanol and the extractive distillation agent as bottoms products, wherein said extractive distillation agent consists of one material selected from the group consisting of propyl butyrate, dimethyl phthalate, hexyl acetate, N-methyl pyrrolidinone, p-xylene, benzonitrile, 1,1,3,3-tetramethyl urea, dimethylsulfoxide and dimethylformamide.

5,723,026

PROCESS FOR RECOVERING PURE BENZENE AND PURE TOLUENE FROM AROMATIC HYDROCARBON PRODUCTS

Martin Leisse; Hans-Jürgen Vollmer, and Uwe Ranke, all of Essen, Germany, assignors to Krupp Koppers GmbH, Essen, Germany

Filed Aug. 18, 1995, Ser. No. 517,009
Claims priority, application Germany, Oct. 21, 1994, 44 37 702.9
Int. Cl.[6] B01D *3/40;* **C07C** *7/08*
U.S. Cl. 203—58 **16 Claims**



1. A process for recovering benzene toluene free of non-aromatic hydrocarbons from a starting product and containing aromatic hydrocarbons, said process comprising the steps of:
(a) degassing a starting product containing aromatic hydrocarbons including benzene and toluene in a distillative stabilizing stage to drive off residual gases and separating a resulting stabilized starting product into a benzene-rich component and a toluene-rich component Wherein said benzene-rich component is withdrawn from a distillative stabilizing column of said distillative stabilizing stage at a side fitting at an intermediate height of said distillative stabilizing column and said toluene-rich component is withdrawn from said distillative stabilizing column of said distillative stabilizing stage at a sump thereof;
(b) passing said toluene-rich component through a predistillation stage to deplete said toluene-rich component from high boiling point compounds;
(c) passing said benzene-rich component directly and said toluene-rich component after passing through said predistillation stage through a multi-plate extractive-distillation column in an extractive distillation stage and recovering a mixture of benzene, toluene and an extraction agent from a sump of said column;
(d) removing said extraction agent from said mixture in a stripper stage and recycling removed extraction agent to said extractive distillation stage, thereby forming a purified mixture of toluene and benzene; and
(e) distillatively separating the purified mixture of toluene and benzene into purified benzene and purified toluene.

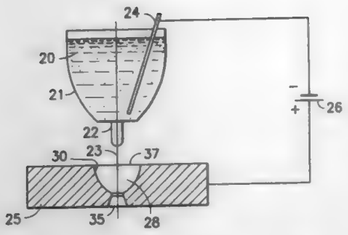
5,723,027

METHOD FOR PREPARING A POWDER IN A PLASMA ARC AND DEVICE FOR CARRYING OUT SAID METHOD

Bernard Serole, Peyrins, France, assignor to W.C. Heraeus GmbH, Hanau, Germany

PCT No. PCT/EP95/03513, § 371 Date May 7, 1996, § 102(e) Date May 7, 1996, PCT Pub. No. WO96/07475, PCT Pub. Date Mar. 14, 1996
PCT Filed Sep. 7, 1995, Ser. No. 640,756
Claims priority, application France, Sep. 7, 1994, 94 10874
Int. Cl.[6] B01J *19/08*
U.S. Cl. 204—164 **20 Claims**

1. A method for a continuous preparation of a powder comprising:



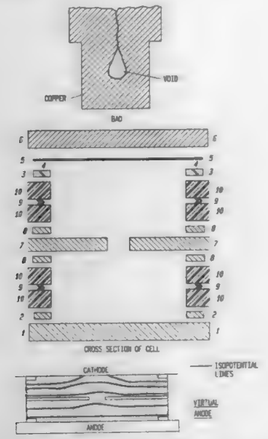
(a) generating a plasma arc by maintaining a voltage between a first electrode and a second electrode. and
(b) feeding at least two reagents comprising a first reagent and a second reagent into the plasma arc for reaction of the reagents therein, wherein the first reagent is an electrically conductive metal in a fluid form of a solid or liquid and comprises the first electrode.

5,723,028

ELECTRODEPOSITION APPARATUS WITH VIRTUAL ANODE

Jaime Poris, 21955 Bear Creek Way, Los Gatos, Calif. 95030

Division of Ser. No. 57,141, Apr. 29, 1993, Pat. No. 5,368,711, which is a division of Ser. No. 799,734, Nov. 22, 1991, Pat. No. 5,256,274, which is a continuation-in-part of Ser. No. 561,168, Aug. 1, 1990, abandoned. This application Oct. 19, 1994, Ser. No. 326,120
Int. Cl.[6] C25D *3/66*
U.S. Cl. 204—231 **3 Claims**



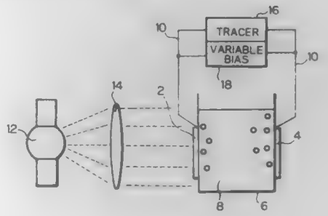
3. An apparatus for electrodeposition of metal onto a semiconductor having an electrically conducting layer, comprising:
an anode,
a cathode wire,
a cell body,
an anode gasket for sealing said anode to said cell body adapted to prevent leakage of an electrolyte,
a cathode gasket for sealing said semiconductor to said cell body adapted to prevent leakage of said electrolyte and providing contact between said cathode wire and said electrically conducting layer,
means for securing said semiconductor to said cathode gasket to exclude said electrolyte from contacting said cathode wire,
means for exposing a selected area of said semiconductor to said electrolyte,
a virtual anode located between said anode and said electrically conducting layer for creating a more uniform current distribution to said electrically conducting layer, and
a virtual anode gasket for sealing said virtual anode to said cell body adapted to prevent leakage of said electrolyte.

5,723,029

PHOTO-ELECTRIC CHEMICAL APPARATUS USING CARBON CLUSTER ELECTRODE

Masashi Shimoyama, Kanagawa-ken, Japan, assignor to Ebara Research Co., Ltd., Fujisawa, Japan

Continuation of Ser. No. 534,001, Sep. 25, 1995, abandoned, which is a continuation of Ser. No. 291,952, Aug. 17, 1994, abandoned. This application Mar. 28, 1997, Ser. No. 825,396
Claims priority, application Japan, Aug. 23, 1993, 5-229407
Int. Cl.[6] H01L *31/0256*
U.S. Cl. 204—242 **4 Claims**



1. A photo-electric chemical apparatus comprising:
an electrolyte;
a first electrode having an n-type semiconductor member disposed to be in touch with said electrolyte, said first electrode being transparent;
a second electrode having a fullerene member disposed to face to said n-type semiconductor member via said electrolyte;
means for electrically interconnecting said first electrode and said second electrode;
means for supporting said electrolyte, said first electrode and said second electrode; and
means for illuminating said first electrode and for illuminating said second electrode through said first electrode and said electrolyte;
wherein said photo-electric chemical apparatus generates hydrogen without application of any bias voltage between said electrodes.

5,723,030

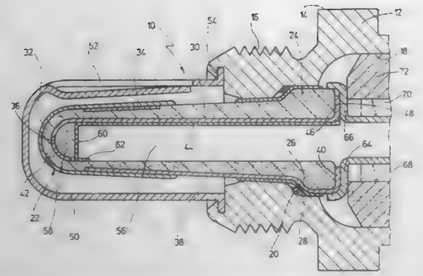
ELECTROCHEMICAL MEASURING SENSOR AND METHOD FOR MAKING THE SAME

Hans-Joerg Renz, Leinfelden-Echterdingen, Germany, assignor to Robert Bosch GmbH, Stuttgart, Germany

PCT No. PCT/DE95/01387, § 371 Date Apr. 16, 1996, § 102(e) Date Apr. 16, 1996, PCT Pub. No. WO96/14574, PCT Pub. Date May 17, 1996
PCT Filed Oct. 10, 1995, Ser. No. 628,704
Claims priority, application Germany, Nov. 8, 1994, 44 39 898.0
Int. Cl.[6] G01N *27/26*
U.S. Cl. 204—427 **15 Claims**

2. An electrochemical measuring sensor for determining the oxygen content of gases, said measuring sensor having a tube-shaped sensor element at whose outer side a measuring electrode is arranged which is exposed to a measuring gas and at whose inner side a reference electrode is arranged, wherein the reference electrode is covered with a layer having a high gas diffusion resistance such that a pumping reference volume forms at the reference

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electrode, and wherein the pumping reference volume is arranged at the bottom of the sensor element and is lidded with the layer.

5,723,031

METHOD FOR THE ANALYTICAL SEPARATION OF VIRUSES

Hansjörg Dürr, Burscheid; Hans-Robert Hehnen, Siegburg; Lothar Helbig; Roberto Correa, both of Leverkusen, and Ulf Brüggemeier, Leichlingen, all of Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Germany

Filed Oct. 24, 1995, Ser. No. 547,765

Claims priority, application Germany, Oct. 31, 1994, 44 38 833.0

Int. Cl.[6] G01N *27/26;27/447*

U.S. Cl. 204—451 **5 Claims**

1. Method for the non-destructive analytical detection or quantification of viruses or viral particles in a liquid sample matrix containing organic or inorganic minor constituents, protein moieties, nucleotides or other viruses, comprising

a) using a body liquid as a sample matrix for diagnostically detecting viruses or viral particles contained therein

b) separating the viruses or the viral particles from the protein moieties and/or nucleotides in the body liquid using a capillary electrophoresis system to obtain electrophoretical fractions wherein the capillary electrophoresis system is provided with a separating buffer to which is added a DNA/RNA-binding reagent, so that the virus or the viral particles in the body liquid introduced into the capillary electrophoresis system are stained during the electrophoretical separation,

c) recording an electropherogram associated with the electrophoretical fractions and

d) identifying the fractions as virus peaks by interpretation of the data in the electropherogram.

5,723,032

MAGNETIC RECORDING MEDIUM AND MANUFACTURING METHOD THEREOF

Kiyoto Yamaguchi, Zushi; Yukiko Mamiya, Yokosuka; Atsushi Ueda, Zushi, and Hiroyuki Uwazumi, Matsumoto, all of Japan, assignors to Fuji Electric Co., Ltd., Japan

Division of Ser. No. 181,422, Jan. 14, 1994, Pat. No. 5,496,632. This application Nov. 17, 1995, Ser. No. 560,361

Claims priority, application Japan, Jan. 20, 1993, 5-7472

Int. Cl.[6] C23C *14/34*

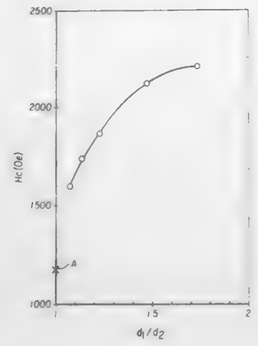
U.S. Cl. 204—192.2 **10 Claims**

1. A method for manufacturing a magnetic recording medium, comprising the steps of:

heating a non-magnetic base substrate to a temperature between 50° C. and 200° C.;

forming a non-magnetic metal buffer layer on a surface of the non-magnetic base substrate while heating, said non-magnetic buffer layer comprising Cr;

forming a non-magnetic metal under layer on said metal buffer layer, said non-magnetic under layer comprising Cr;



forming a thin-film magnetic layer comprised of a ferromagnetic alloy on said metal under layer;

wherein d_1/d_2 is not less than 1.2 where d_1 is a half bandwidth of an X-ray diffraction peak on the (**110**) plane of the metal buffer layer, and d_2 is a half bandwidth of an X-ray diffraction peak on the (**110**) plane of the metal under layer.

5,723,033

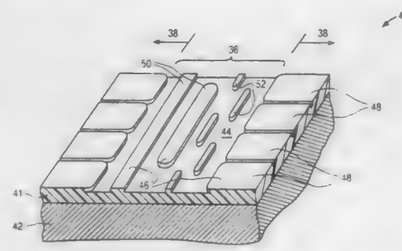
DISCRETE TRACK MEDIA PRODUCED BY UNDERLAYER LASER ABLATION

Joel R. Weiss, Fremont, Calif., assignor to Akashic Memories Corporation, San Jose, Calif.

Filed Sep. 6, 1995, Ser. No. 524,725

Int. Cl.[6] C23C *14/34;* **B05D** *3/00*

U.S. Cl. 204—192.15 **8 Claims**



8. A method for fabricating magnetic recording media comprising:

depositing an underlayer over a substrate surface, the underlayer comprising carbon;

laser ablating the underlayer to remove the carbon so as to produce recessed zones, the recessed zones being separated by raised zones of the underlayer, the underlayer at the raised zones having a greater thickness than the underlayer at the recessed zones, the recessed zones and the raised zones of the underlayer being substantially continuous in a circumferential direction and defining a discrete servo track pattern for enhanced read/write head tracking;

laser texturing a data zone over the substrate surface with a first surface roughness to improve read/write head glide characteristics;

laser texturing a contact start stop zone over the substrate surface with a second surface roughness greater than the first surface to improve read/write head stiction characteristics; and

deposition of a magnetic recording layer over the discrete servo track pattern of the carbon underlayer.

5,723,034

PROCESS FOR FORMING HYDROGENATED AMORPHOUS SILICON FILM

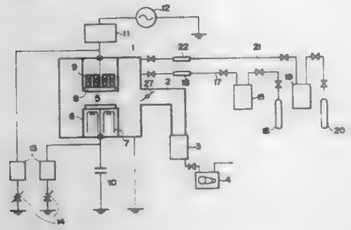
Kazuaki Ohmi, Yokohama, Japan, assignor to Canon Kabushiki Kaisha, Tokyo, Japan

Continuation of Ser. No. 337,457, Nov. 4, 1994, abandoned, which is a continuation of Ser. No. 102,980, Jul. 28, 1993, abandoned. This application May 8, 1996, Ser. No. 646,556

Claims priority, application Japan, Jul. 31, 1992, 4-205537

Int. Cl.[6] C23C *14/34*

U.S. Cl. 204—192.23 **7 Claims**



1. A process for forming a hydrogenated amorphous silicon film having a hydrogen content of no greater than 5.5 atomic % and a spin density of no greater than $10^{16}cm^{-3}$ on a substrate disposed in a film-forming chamber, which comprises:

applying a DC or high frequency bias voltage to a target formed of a material comprising silicon atoms and applying a positive DC bias voltage to the substrate to generate a discharge with a discharge frequency of at least 50 MHz in an inert gas atmosphere having a partial pressure of hydrogen no greater than 1 mTorr, wherein the temperature of the substrate is maintained at no greater than 300° C.

5,723,035

COATED MEMBRANES

Terry J. Mazanec, Solon, and Thomas L. Cable, Newbury, both of Ohio, assignors to The Standard Oil Company, Cleveland, Ohio

Continuation-in-part of Ser. No. 311,295, Sep. 23, 1994, abandoned, and a continuation-in-part of Ser. No. 394,925, Feb. 24, 1995, Pat. No. 5,591,315, said Ser. No. 394,925 is a continuation of Ser. No. 228,793, Apr. 15, 1994, abandoned, which is a division of Ser. No. 618,792, Nov. 27, 1990, Pat. No. 5,306,411, said Ser. No. 618,792 is a continuation-in-part of Ser. No. 457,327, Dec. 27, 1989, abandoned, and a continuation-in-part of Ser. No. 457,340, Dec. 27, 1989, abandoned, which is a continuation-in-part of Ser. No. 25,511, Mar. 13, 1987, Pat. No. 4,933,054, and a continuation-in-part of Ser. No. 457,384, Dec. 27, 1989, abandoned, and a continuation-in-part of Ser. No. 510,296, Apr. 16, 1990, abandoned, which is a continuation-in-part of Ser. No. 357,317, May 25, 1989, abandoned. This application Jun. 7, 1995, Ser. No. 474,563

Int. Cl.[6] C25B *13/04*

U.S. Cl. 204—295 **20 Claims**

1. A solid state membrane having a first surface and a second surface, comprising

A) a structure selected from the group consisting of:

a) substantially perovskitic material;

b) an intimate, gas-impervious, multi-phase mixture of an electronically-conductive phase and an oxygen ion-conductive phase, wherein said electronically conductive phase forms an electron-conductive path between said first surface and said second surface, and said oxygen ion conductive phase forms an oxygen ion-conductive path between said first surface and said second surface; and

c) combinations thereof;

and

B) a porous, chemically active, electronically conductive coating selected from the group consisting of metals, metal oxides and combinations thereof.

5,723,036

ELECTROCHEMICAL MEASURING CELL

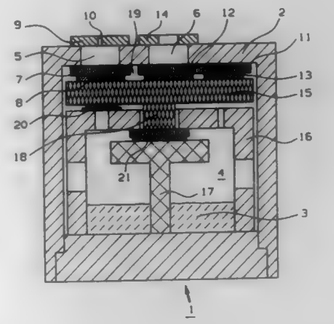
Rigobert Chrzan, Bad Oldesloe, and Christoph Bernstein, Lübeck, both of Germany, assignors to Drägerwerk Aktiengesellschaft, Lübeck, Germany

Filed Sep. 13, 1996, Ser. No. 713,474

Claims priority, application Germany, Sep. 13, 1995, 19533911.8

Int. Cl.[6] G01N *27/404*

U.S. Cl. 204—415 **3 Claims**



1. An electrochemical measuring cell for simultaneously detecting oxygen and carbon monoxide components of a gas sample, the electrochemical measuring cell comprising:

a housing having first and second openings directed toward the gas sample and defining an electrolyte chamber;

an aqueous electrolyte contained in said chamber;

a plurality of measuring electrodes disposed in said aqueous electrolyte;

a first diffusion membrane covering a first one of said measuring electrodes and a second diffusion membrane covering the remaining ones of said measuring electrodes;

a reference electrode common to said measuring electrodes;

a counter electrode common to said measuring electrodes;

said reference electrode and said counter electrode being disposed in said electrolyte so as to be in spaced relationship to each other and to said measuring electrodes;

first and second diaphragms corresponding to said first and second openings, respectively, for limiting the flow of said gas sample to individual ones of said measuring electrodes;

said first diaphragm being provided for a first one of said measuring electrodes for facilitating the detection of a first one of said components; said second diaphragm being provided for a second one of said measuring electrodes for facilitating the detection of said second one of said components;

a third one of said measuring electrodes being connected to said second measuring electrode via said second diffusion membrane with said second diffusion membrane defining a gas diffusion path between said second and said third measuring electrodes;

said first and second diffusion membranes being separate from each other and conjointly defining a gap therebetween; and

said electrolyte filling said gap whereby said gap and said electrolyte in said gap conjointly defining a barrier to prevent transverse diffusion between said first measuring electrode and said remaining ones of said measuring electrodes.

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5,723,037

MAGNETIC FORCE ASSISTED ELECTROFORM SEPARATION METHOD

William G. Herbert, Williamson; Loren E. Hendrix, Webster; Gary J. Maier, Webster, and Ernest F. Matyl, Webster, all of N.Y., assignors to Xerox Corporation, Stamford, Conn.

Filed Feb. 3, 1997, Ser. No. 794,109
Int. Cl.[6] C25D *1/20*
U.S. Cl. 205—67 **11 Claims**

1. A method for separating an electroformed article from a mandrel comprising creating a parting gap between the article and the mandrel and separating the article and the mandrel while magnetically attracting the article to a magnetic force, wherein the magnetic force on the article during the separation of the article and the mandrel fails to distort the parting gap.

5,723,038

PROCESS FOR PRODUCING A GRADIENT COATING MADE OF CALCIUM PHOSPHATE PHASES AND METAL OXIDE PHASE ON METALLIC IMPLANTS

Dieter Scharnweber; Henrike Bersch; Hartmut Worch, all of Dresden, Germany; Jurgen Hofinger, Gubener Strasse 28, D-01237 Dresden, Germany; Curt Kranz, Berlin, and Wolfgang Pompe, Kurort Hartha, both of Germany, assignors to Jurgen Hofinger, Dresden, Germany

PCT No. PCT/DE96/00197, § 371 Date Dec. 2, 1996, § 102(e) Date Dec. 2, 1996, PCT Pub. No. WO96/24391, PCT Pub. Date Aug. 15, 1996
PCT Filed Feb. 6, 1996, Ser. No. 718,445
Claims priority, application Germany, Feb. 10, 1995, 195 04 386.3
Int. Cl.[6] C25D *9/04*; A61L *27/00*
U.S. Cl. 205—107 **9 Claims**

1. A process for producing a gradient coating of calcium phosphate phases and metal oxide phases on a metal implant, comprising:

providing a metal implant;

providing an electrolyte solution containing calcium phosphate ions, and having a pH of between 4.0 and 7.5;

providing a counter electrode in the electrolyte solution;

placing the implant in the electrolyte solution;

applying an electrical potential between the counter electrode and the implant, so that the implant initially acts as a substrate cathode;

periodically reversing the polarity of the electrical potential a plurality of times, so that the implant alternates between cathodic polarization and anodic polarization, to deposit a gradient coating of calcium phosphate phases and metal oxide phases on the implant.

5,723,039

PROCESS FOR REMOVAL OF ORGANO-SULFUR COMPOUNDS FROM LIQUID HYDROCARBONS

Alexandr Vasilievich Zosimov; Valeriy Vasilievich Lunin, and Yuriy Mikhailovich Maksimov, all of Moscow, U.S.S.R., assignors to Catalytic Sciences, Ltd., Nassau, Bahamas

Filed Apr. 11, 1996, Ser. No. 630,758
Int. Cl.° C01G *17/00*
U.S. Cl. 205—696 **21 Claims**

1. A process for purifying a liquid hydrocarbon feedstock containing organo-sulfur compounds, which process comprises:

(a) forming an aqueous sulfuric acid solution containing an ion-oxidant containing a concentration of ions of a transition metal in a first, lower oxidation state;

(b) passing an electric current through the aqueous solution between an anode and a cathode in an electrolytic cell to oxidize said ions of said ion-oxidant to a second oxidation state higher than said first oxidation state so as to form a fresh working solution containing the resulting oxidized ions;



(c) introducing said feedstock and said working solution into a contacting zone and intimately contacting said feedstock and said working solution therein under conditions effective to oxidize organo-sulfur compounds in said feedstock and form water-soluble, or gaseous sulfur-containing compounds and to reduce said oxidized ions, so as to form a mixture of (i) a spent working solution containing the resulting reduced ions and having said water-soluble compounds dissolved therein and (ii) a purified hydrocarbon product containing a reduced level of said organo-sulfur compounds relative to the level thereof in said feedstock;

(d) separating said purified hydrocarbon product and said spent working solution;

(e) recovering the separated purified hydrocarbon product; and

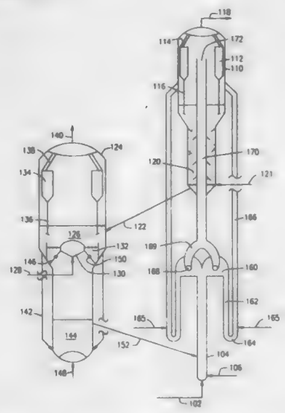
(f) returning the separated working solution to step (b) above to oxidize said reduced ions to a higher oxidation state.

5,723,040

FLUID CATALYTIC CRACKING PROCESS AND APPARATUS

Warren S. Letzsch, and Gerald Earl, both of Houston, Tex., assignors to Stone & Webster Engineering Corporation, Boston, Mass.

Continuation-in-part of Ser. No. 310,529, Sep. 22, 1994. This application Nov. 2, 1994, Ser. No. 333,549
Int. Cl.[6] C10G *11/00*; F27B *15/08*
U.S. Cl. 208—113 **11 Claims**



1. A method of improving an FCC process wherein cracking catalyst is fed into a lower portion of a riser reactor and is lifted up the riser reactor with a lift gas to an upper portion of the riser reactor wherein the cracking catalyst in a dilute phase contacts a hydrocarbon feedstock and cracking occurs in the upper portion of the riser reactor, the terminal end of the riser reactor discharging into a stripper vessel; the improvement comprising

bisecting said riser reactor to form a shortened riser reactor in a lower portion thereof and a stripper vessel inlet means in an upper portion thereof;

connecting said shortened riser reactor at the point of bisection to a first separating means having a vapor outlet and a solids outlet;

connecting said vapor outlet to said stripper vessel inlet means for discharge into said stripper vessel;

connecting said solids outlet to a stripper riser comprising a stripper gas inlet means, a vertical transfer line conduit and a stripper riser outlet means;

connecting said stripper riser outlet means to said stripper vessel; and

relocating the hydrocarbon feedstock feedline to enter the shortened riser reactor at the lower end thereof.

11. A process for the fluid catalytic cracking of hydrocarbonaceous feedstock comprising the steps of:

(a) cracking a hydrocarbonaceous feedstock in the presence of a dense phase of cracking catalyst in a riser reactor to form a stream of cracked product and spent catalyst;

(b) separating a major portion of spent catalyst from said cracked product to form a stream of spent catalyst and a stream of cracked product entrained with spent catalyst particulates;

(c) further separating the entrained spent catalyst particulates from said cracked product in a stripper vessel;

(d) stripping volatile hydrocarbons from the spent catalyst from step (b) with a stripping media in a dilute phase stripper riser to provide a stream of stripped spent catalyst, stripping media and volatile hydrocarbons;

(e) separating the volatile hydrocarbons and stripping media from the stripped spent catalyst in said stripper vessel;

(f) stripping the separated entrained spent catalyst from step (c) and further stripping the stripped spent catalyst from step (e) by contacting the spent catalyst with steam in said stripper vessel;

(g) withdrawing the cracked product, stripping media and volatile hydrocarbons from said vessel;

(h) partially regenerating the stripped spent catalyst in the upper zone of a two zone regenerator;

(i) passing the partially regenerated catalyst downwardly from the upper zone to a lower zone of said two zone regenerator;

(j) completing regeneration of the partially regenerated catalyst in said lower regeneration zone;

(k) recycling the regenerated catalyst from said lower regeneration zone to said riser reactor.

5,723,041

PROCESS AND APPARATUS FOR PROMOTING ANNULARLY UNIFORM FLOW

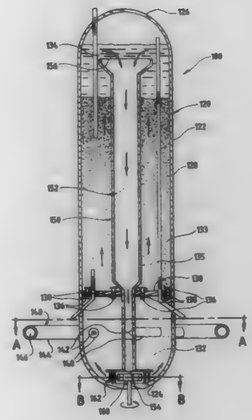
Narasimhan Devanathan, Aurora; Peter J. Klomans, Lockport, both of Ill., and William B. VanderHeyden, Los Alamos, N. Mex., assignors to Amoco Corporation, Chicago, Ill.

Continuation-in-part of Ser. No. 321,211, Oct. 10, 1994, Pat. No. 5,569,434. This application Oct. 10, 1995, Ser. No. 541,334
Int. Cl.[6] C10G *45/00*
U.S. Cl. 208—158 **14 Claims**

1. A process for conducting a chemical reaction, which comprises:

passing a feed fluid which includes a relatively buoyant phase and a denser phase into a plenum having an axis, the plenum defined by a side wall and an inlet end of a vertically oriented reactor vessel and by a foraminous grid extending transversely from the side wall;

rotating the feed fluid in the plenum about the axis to promote an annularly symmetric flow of the fluid by deiivering the feed fluid through a feed distributor defining within the plenum two or more ports, each of the ports located a radial distance from the axis, oriented to deliver the feed fluid in a common



plane which is transverse to the axis, and facing a shared rotary direction relative to the axis;

passing the feed fluid axially from the plenum through passages defined by the grid to a reaction space, the reaction space defined by the grid and by the side wall and an outlet end of the reactor vessel which is relatively higher as compared to the inlet end;

exposing the feed fluid in the reaction space to a catalyst composed of solid particles in an ebullated bed for converting the feed fluid to a chemical reaction product; and

withdrawing the product from the reaction space.

5,723,042

OIL SAND EXTRACTION PROCESS

William L. Strand, Edmonton, and Anthony F. Banks, Saskatoon, both of Canada, assignors to Bitmin Resources Inc., Canada

Continuation-in-part of Ser. No. 434,065, May 3, 1995, Pat. No. 5,645,714. This application Oct. 17, 1996, Ser. No. 733,298
Claims priority, application Canada, Jun. 5, 1994, 2123076
Int. Cl.[6] C10G *1/04*
U.S. Cl. 208—391 **9 Claims**

1. A method for processing a solid material containing an amount of water, the solid material comprising coarse mineral matter having a particle size of greater than 44 microns and non-dispersed fine material, and a sludge comprising a suspension of dispersed fine material, the dispersed fine material comprising dispersed clays and silts, to produce nonsegregating tailings of solid material and sludge, wherein the solid material and the sludge are obtained from oil sand during the processing of oil sand to extract bitumen, the method comprising the following steps in the sequence set forth:

(a) mixing the solid material with an amount of a flocculant;

(b) mixing the solid material and the flocculant with the sludge; and

(c) dewatering the mixture of the solid material, flocculant and the sludge to produce the tailings;

wherein the amount of flocculant mixed with the solid material is a finite amount which is sufficient to cause flocculation of the dispersed fine material in the sludge with the solid material but which is less than an amount which will significantly impair the dewatering step.

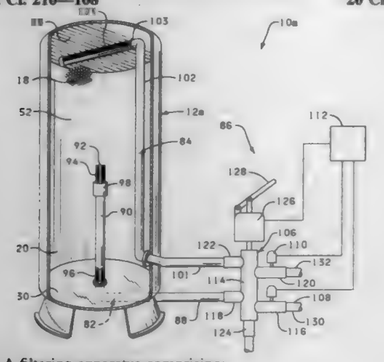
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5,723,043

FILTERING APPARATUS HAVING POSITIVELY BUOYANT AND NEGATIVELY BUOYANT PARTICULATE

William D. Hawk, 7417 Aurelia Rd., Oklahoma City, Okla. 73121, and Gary D. Cryer, 316 E. 15th, Chandler, Okla. 74834

Filed Jun. 13, 1996, Ser. No. 663,561
Int. Cl.[6] A01K *63/04;* **C02F** *3/06*
U.S. Cl. 210—108 **20 Claims**



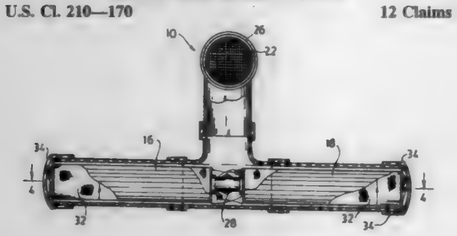
1. A filtering apparatus comprising:
a vessel having an upper end and a lower end;
a volume of positively buoyant particulate disposed in the vessel;
a volume of negatively buoyant particulate disposed in the vessel;
a first tubular member extending into the vessel and having a first slotted area positioned in the volume of negatively buoyant particulate and a second slotted area positioned between the volumes of positively and negatively buoyant particulate;
a second tubular member extending into the vessel and having a slotted area positioned in the volume of positively buoyant particulate; and
means for urging the liquid into the vessel through the first tubular member and out of the vessel through the second tubular member;
wherein the negatively buoyant particulate and the positively buoyant particulate filter the contaminated liquid as the liquid travels from the first tubular member to the second tubular member.

5,723,044

WATER FILTRATION SYSTEM FOR CONTROL OF THE ZEBRA MUSSEL

Harry C. Gleason, and Jeffrey L. Bond, both of Romulus, N.Y., assignors to Zebra Mussel Filter Systems, Inc., Romulus, N.Y.

Continuation-in-part of Ser. No. 662,417, Jun. 10, 1996, abandoned, which is a continuation-in-part of Ser. No. 509,353, Jul. 31, 1995, Pat. No. 5,525,222. This application Jan. 7, 1997, Ser. No. 779,900
Int. Cl.[6] B01D *35/02;35/31;35/28*
U.S. Cl. 210—170 **12 Claims**



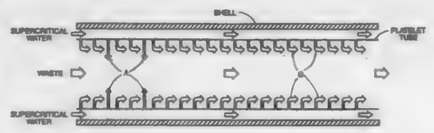
1. A water filtration system for preventing a Zebra Mussel from entering a water system having a water intake line extending into an aquatic environment exposed to Zebra Mussels, wherein said filtration system comprises:
(a) an intake line connection for connecting said filtration system to said intake line;
(b) at least one water collection line extending from said intake line connection;
(c) a water intake which is disposed substantially parallel to said intake line connection and which is comprised of an orifice with a top surface and a copper screen recessed at least about 2.5 inches from said top surface of said orifice;
(d) a first water filter and a second water filter, wherein each of said first and second water filters has a largest pore size that is small enough to prevent passage of an egg or veliger of Zebra Mussels, operatively associated with each of said collection lines such that any water passing through said collection lines must pass through said filter and into said collection line;
(e) a copper screen surrounding each of said first water filter and said second water filter; and
(f) a housing surrounding said each of said first water filter and said second water filter and including a first filter intake and a second filter intake.

5,723,045

PROCESS AND APPARATUS FOR SUPERCRITICAL WATER OXIDATION

Ernest Ludwig Daman, Mountainside, N.J., assignor to Foster Wheeler Development Corporation, Livingston, N.J.

Division of Ser. No. 320,426, Oct. 14, 1994, Pat. No. 5,571,423. This application Aug. 13, 1996, Ser. No. 696,222
Int. Cl.[6] C02F *1/72*
U.S. Cl. 210—175 **5 Claims**



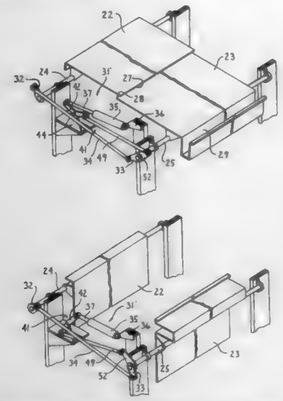
1. An improved apparatus useful for the supercritical water oxidation of organic waste material which comprises:
(a) a platelet tube reactor which comprises an inner platelet tube having a center reaction zone and supported within an outer tubular shell, thereby defining an annular space therebetween, said platelet tube being formed from a plurality of thin plates assembled into a tube shape and provided with a plurality of fluid passages from its outer surface to its inner surface leading to a plurality of apertures in the inner surface of said platelet tube;
(b) means for feeding a pressurized aqueous reaction mixture of said waste material and an oxidant source at ambient temperature to said center reaction zone;
(c) means for heating water externally of said reaction zone to at least supercritical conditions;
(d) means for feeding said externally heated supercritical water to at least one point along said annular space surrounding said platelet tube reactor, wherein the resulting pressure in said annular space is higher than the pressure in the center reaction zone within said platelet tube such that said supercritical water flows from said annular space through said fluid passages in the wall of said platelet tube and into said center reaction zone through said plurality of apertures, thereby forming a thin film of supercritical water over substantially the entire inner surface of said platelet tube and heating said mixture to reaction temperature; and
(e) means to remove a resulting reaction product mixture from said reaction zone.

5,723,046

DRIP TRAY LOCK MECHANISM FOR FILTER PRESS

David Lucey, Holland, Mich., assignor to JWI, Inc., Holland, Mich.

Filed Aug. 31, 1995, Ser. No. 522,191
Int. Cl.[6] B01D *25/12*
U.S. Cl. 210—230 **6 Claims**



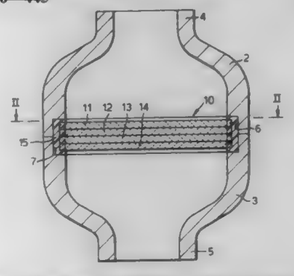
1. In a plate-type filter press having an elongate frame which defines a base of the filter press and is horizontally elongate so as to define a horizontal longitudinal axis thereof, a first press head mounted on said frame adjacent one end thereof, a second press head movably mounted on said frame adjacent the other end thereof, a plurality of vertically-enlarged filter plates slidably supported on said frame between said first and second press heads, drive means for moving said second press head longitudinally along said frame between a first closed position wherein the plurality of filter plates are snugly horizontally stacked between the press heads and an open position wherein the second press head is horizontally spaced sufficiently from the first press head to permit slidable displacement of the individual filter plates longitudinally along the frame, a drip tray arrangement movably mounted on the frame and when in a closed position extending generally under the stack of plates for collecting liquid which leaks from the stack, the drip tray arrangement including first and second drip trays and respective first and second tray support means for supporting said first and second drip trays on said frame downwardly below said filter plates for swinging movement of said first and second drip trays respectively about first and second horizontally elongate hinge axes which are disposed in the vicinity of opposite sides of the filter press and extend longitudinally thereof, wherein said first and second drip trays project away from said respective first and second hinge axes and terminate at respective free edges, said free edges of the first and second drip trays being suspended generally downwardly adjacent opposite sides of the filter press generally from the respective first and second hinge axes when in an open position, said free edges of said first and second drip trays being vertically swung upwardly in opposite rotational directions about their respective hinge axes generally towards one another into a closed position wherein the first and second drip trays project generally horizontally inwardly toward one another for disposition below the stack of plates, and an activating mechanism for substantially corresponding and synchronized movement of the first and second drip trays between said open and closed positions, said activating mechanism including a drive member non-rotatably fixed relative to said first drip tray so as to rotate therewith about said first hinge axis, said activating mechanism also including a synchronizing mechanism connected between said first and second drip trays so as to cause substantially corresponding and synchronized rotation thereof in opposite rotational directions, and a fluid pressure cylinder mechanism including an extendable and contractible fluid pressure cylinder interconnected to said drive member for controlling synchronous rotation of said first and second drip trays, the improvement comprising a locking mechanism separate from said synchronizing mechanism and interconnected to a movable end section of said fluid pressure cylinder and to said drive member radially outwardly of said first hinge axis to effect driving movement of said first and second drip trays by said fluid pressure cylinder downwardly to said open position and upwardly to said closed position and to effect self-locking of the activating mechanism and of the drip trays in the closed position even if the pressure cylinder is de-pressurized.

5,723,047

COMPRESSIBLE FILTER ELEMENT PERIPHERALLY SEALED BY A SETTABLE MATERIAL

Christopher Stratton Turnbull, Hythe, England, assignor to Smiths Industries Public Limited Co.

Filed Oct. 23, 1996, Ser. No. 734,850
Claims priority, application United Kingdom, Nov. 9, 1995, 9522999
Int. Cl.[6] B01D *27/08*
U.S. Cl. 210—445 **7 Claims**



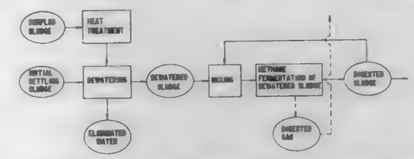
1. A filter comprising a housing; a filter element fabricated entirely of a compressible material and including at least one porous, compressible disc-shape filter member; a settable sealing material flowed into said filter element through its entire depth to seal a peripheral edge of said filter element, and wherein said settable material provides the entire seal and support of said filter element in said housing without compression of said edge of said filter element.

5,723,048

METHOD OF ANAEROBIC DIGESTION OF SEWAGE SLUDGE

Yoshio Kobayashi, and Minoru Akita, both of Osaka, Japan, assignors to Hitachi Zosen Corporation, Osaka, Japan

PCT No. PCT/JP94/02238, § 371 Date Jun. 27, 1996, § 102(e) Date Jun. 27, 1996, PCT Pub. No. WO95/18073, PCT Pub. Date Jul. 6, 1995
PCT Filed Dec. 26, 1994, Ser. No. 669,450
Claims priority, application Japan, Dec. 28, 1993, 5-335551
Int. Cl.[6] C02F *3/28*
U.S. Cl. 210—603 **8 Claims**



1. A method of anaerobic digestion of sewage sludge, comprising steps of subjecting surplus sludge to preliminary heat treatment at 60° C. or higher, dewatering the surplus sludge to make dewatered surplus sludge, mixing the dewatered surplus sludge with digested sludge which is taken out from a methane fermentation vessel for dewatered sludge, supplying the resulting mixture to the

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methane fermentation vessel for dewatered sludge, and discarding an amount of digested sludge equal to the amount of dewatered sludge supplied to the methane fermentation vessel.

5,723,049

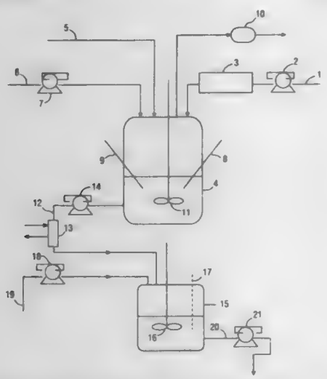
TREATMENT OF A FORMALDEHYDE-CONTAINING WASTE STREAM

Robert B. Weisenfeld, Chesterfield, Mo., assignor to Monsanto Company, St. Louis, Mo.

Continuation of Ser. No. 404,016, Mar. 14, 1995, abandoned. This application Sep. 23, 1996, Ser. No. 718,608

Int. Cl.[6] C02F *1/72*

U.S. Cl. 210—758 **20 Claims**



1. A process for selectively converting formaldehyde in an acidic aqueous stream associated with the manufacture of N-phosphonomethyliminodiacetic acid to formose sugars comprising the steps of:

(a) adding an aqueous solution of a strong alkali base to said stream to provide a pH of at least about 8.5; and

(b) heating the resulting basic solution to a temperature of at least about 80° C., thereby promoting the formose condensation of the formaldehyde to formose sugars while effectively suppressing the Cannizzaro reaction of the formaldehyde into formic acid and methanol.

5,723,050

BAG SET FOR USE IN CENTRIFUGAL SEPARATION

Peter Unger, Stockholm, and Eric Westberg, Lidingo, both of Sweden, assignors to Omega Medicinteknik AB, Sweden

PCT No. PCT/SE94/00638, § 371 Date Jan. 3, 1996, § 102(e) Date Jan. 3, 1996, PCT Pub. No. WO95/01842, PCT Pub. Date Jan. 19, 1995

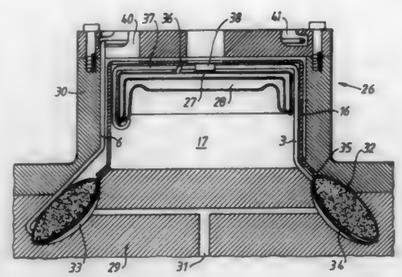
PCT Filed Jun. 28, 1994, Ser. No. 578,585

Claims priority, application Sweden, Jul. 8, 1993, 9302369

Int. Cl.° B01D *21/26*

U.S. Cl. 210—772 **18 Claims**

5. A bag set for use in the separation of fluids by centrifugation in a centrifuge of a type having a rotor with a processing space concentric to the axis of rotation of said rotor, said processing space comprising a central rotor compartment and a conical, annular rotor compartment, and having means for reducing the volume of said annular rotor compartment during rotation of said rotor, said bag set being intended for insertion into said processing space and comprising a rigid circular mounting member adapted to fit into said central rotor compartment, said mounting member including an inner cavity extending in the direction of said axis of rotation of said rotor, an outer essentially ring-shaped bag of flexible material mounted around said mounting member in a conical configuration and adapted to fit into said annular rotor



compartment and be supplied with said fluid which is to be separated, an inner circular bag of flexible material separable from said outer ring-shaped bag and mounted in said inner cavity and adapted to receive a fluid from said outer bag when the volume of said annular rotor compartment is reduced, said inner cavity being arranged to limit the spreading of said inner bag in the radial direction of said rotor but to allow expansion of said inner bag in the direction of said axis of rotation of said rotor when said inner bag is filled with a fluid, and a connecting tube for providing fluid communication between said outer conically configured ring-shaped bag and said inner bag in said inner cavity.

17. A method for centrifugal separation of thrombocyte suspensions from buffycoat obtained from separations of whole blood utilizing the bag set of claim 5 and a centrifuge of a type having a rotor with a processing space concentric to the axis of rotation of said rotor, said processing space comprising a central rotor compartment and a conical annular rotor compartment and having means for reducing the volume of said annular rotor compartment during rotation of said rotor, said method comprising supplying said buffycoat to said outer ring-shaped bag, centrifuging said buffycoat to separate said buffycoat into a light phase comprising said thrombocyte suspension and a denser phase of remaining products, expelling said thrombocyte suspension from said outer bag to said inner bag through said connecting tube during rotation of said rotor by reducing the volume of said annular rotor compartment, and obtaining said thrombocyte suspension in said inner bag.

5,723,051

GAP FILTER FOR LIQUIDS OR GASES

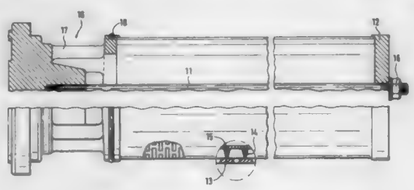
Bertram Bartelt, Steinheim; Peter Gohle, Pflugfelden, and Wolfgang Schaal, Backnang, all of Germany, assignors to Filterwerk Mann & Hummel GmbH, Ludwigsburg, Germany

Filed Dec. 12, 1995, Ser. No. 570,940

Claims priority, application Germany, Dec. 23, 1994, 44 46 261.1

Int. Cl.° B01D *29/15*

U.S. Cl. 210—791 **9 Claims**



1. A gap filter for filtering a fluid stream comprising

a filter housing;

a filter body disposed inside said housing through which the stream passes, said filter body comprising a cylindrical filter plate with slot-shaped openings therethrough, said filter plate enclosing a clean fluid chamber and separating the clean fluid chamber from an unfiltered fluid chamber, and

a support element supporting the filter body on the side of the clean fluid chamber, said support element comprising a safety filter.

5,723,052

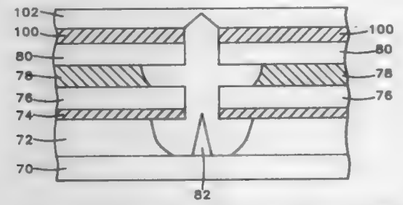
SOFT LUMINESCENCE OF FIELD EMISSION DISPLAY

David Nan-Chou Liu, Chutung, Taiwan, assignor to Industrial Technology Research Institute, Hsin-Chu, Taiwan

Division of Ser. No. 274,416, Jul. 13, 1994, Pat. No. 5,509,839. This application Feb. 26, 1996, Ser. No. 606,829

Int. Cl.[6] H01J *9/227*

U.S. Cl. 216—25 **7 Claims**



1. A method of forming a field emission display with soft luminescence, comprising the steps of:

forming a first insulating layer, on a substrate that acts as a baseplate for said field emission display;

forming a first conductive layer over said insulating layer;

forming openings in said first insulating and first conductive layers;

forming a field emission microtip on said substrate within each of said openings;

forming an second insulating layer over said first conductive layer;

forming a second conductive layer over said second insulating layer;

forming a third insulating layer over said second conductive layer, whereby said openings extend up through said second insulating layer, said second conductive layer and said third conductive layer;

forming an undercut in said second conductive layer, whereby a portion of said third insulating layer, adjacent to said opening, overhangs said undercut;

forming a layer of phosphorescent material within said undercut, over exposed surface of said second conductive layer; and

mounting a faceplate over said third insulating layer.

5,723,053

INK JET PRINT HEAD AND A METHOD OF MANUFACTURING THE SAME

Kaoru Momose; Takahiro Katakura; Kazumi Kamoi; Kazunaga Suzuki; Takahiro Naka; Kazuhiko Miura; Tatsuo Furuta, and Shinri Sakai, all of Nagano, Japan, assignors to Seiko Epson Corporation, Tokyo, Japan

Division of Ser. No. 336,060, Nov. 4, 1994. This application Jul. 12, 1996, Ser. No. 682,883

Claims priority, application Japan, Nov. 9, 1993, 5-279857; Nov. 10, 1993, 5-301150; Dec. 9, 1993, 5-341312; Dec. 24, 1993, 5-328581; Dec. 24, 1993, 5-328582; Apr. 14, 1994, 6-100636; Jun. 2, 1994, 6-121479; Jul. 20, 1994, 6-168264

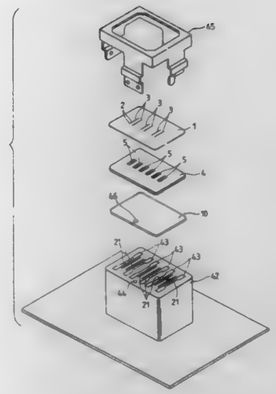
Int. Cl.[6] H01L *21/00*

U.S. Cl. 216—27 **11 Claims**

1. A method of manufacturing an ink jet printer head comprising the steps of:

forming a first pattern substantially aligned with the base of a bridge means triangular in cross section which is formed one of the major surfaces of the spacer; and

forming at least two narrow etching protecting patterns and second etching protecting patterns for connecting the narrow



etching protecting patterns to etching protecting patterns for forming one of the walls of the pressure generating chambers and the ink supply paths, the etching protecting patterns and the second etching protecting patterns being formed on the other major surface of the spacer,

wherein the second etching protecting patterns are not aligned with each other so that the prolonged lines drawn on the second etching protecting patterns are not overlaid one on the other.

5,723,054

Patent Not Issued For This Number

5,723,055

NOZZLE ASSEMBLY HAVING INERT GAS DISTRIBUTOR

Dominique Janssen, Tyler, Tex.; Jose Antonio Faria Simoes, Saint Ghislain, Belgium, and Robert O. Russell, Twinsburg, Ohio, assignors to Vesuvius Crucible Company, Wilmington, Del., and LTV Steel Company, Inc., Cleveland, Ohio

Continuation-in-part of Ser. No. 541,760, Oct. 10, 1995, abandoned. This application Jul. 9, 1996, Ser. No. 677,239

Int. Cl.° B22D *41/08*

U.S. Cl. 222—603 **23 Claims**

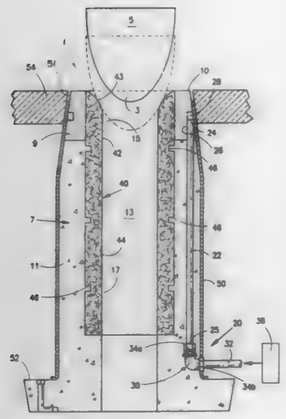
1. A refractory nozzle assembly for controlling a flow of molten metal, comprising:

a nozzle body having an upper portion and a lower portion formed from a refractory material, and a bore having a receiving end and a discharge end for receiving and discharging molten metal, respectively, said receiving end of said bore being circumscribed by said upper portion of said nozzle body;

a gas distributing means circumscribing said upper portion of said nozzle body for uniformly distributing a pressurized inert gas flow at all points around a top edge of said upper portion, and

means lining said bore for obstructing pressurized inert gas from flowing through the walls of the upper portion of said nozzle body and into the bore such that said inert gas flows substantially exclusively over the top edge of said upper portion, said lining means circumscribing at least said receiving end of said

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bore and extending to said top edge of said upper portion of the nozzle body.

5,723,056

Patent Not Issued For This Number

5,723,057

PSEUDO-AZEOTROPIC MIXTURE OF CHLORODIFLUOROMETHANE, 1,1,1-TRIFLUOROETHANE AND PENTAFLUOROETHANE, AND ITS APPLICATION AS A REFRIGERANT IN LOW-TEMPERATURE REFRIGERATION

Sylvie Macaudiere, Asnieres, France, assignor to Elf Atochem S.A., France

Continuation of Ser. No. 436,692, May 8, 1995, abandoned. This application Sep. 23, 1996, Ser. No. 717,749

Claims priority, application France, Feb. 17, 1995, 95 01858

Int. Cl.[6] C09K *5/04*

U.S. Cl. 252—67 **4 Claims**

1. An azeotrope-like mixture consisting of, by weight, 45% to 50% chlorodifluoromethane, 44% to 48% 1,1,1-trifluoroethane, and 6% to 8% pentafluoroethane, wherein the difference between the bubble-point and the dew point pressures of said azeotrope-like mixture is less than 0.2 bar for temperatures ranging from about −40° C. to about 60° C.

5,723,058

ABSORBENT COMPOSITIONS FOR REFRIGERATING AND HEATING SYSTEMS

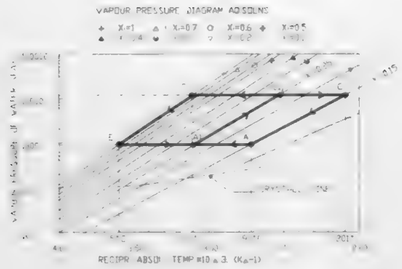
Eiko A. Schuurman, P.O. Box No. 645, 3430 AP Niewegein, Netherlands

Filed Apr. 1, 1996, Ser. No. 625,227

Int. Cl.[6] C09K *5/04;5/00*

U.S. Cl. 252—69 **4 Claims**

1. A composition for use in the Absorber and Generator of an absorption type refrigeration, air conditioning, heat transforming or heat pump system consisting essentially of an aqueous buffer solution of lithium chlorate and chloric acid, wherein the molar ratio of lithium chlorate to chloric acid is about 100,000,000:1.



5,723,059

FLUID DENSITY ADJUSTMENT FOR FUNCTIONAL FLUIDS

Carl E. Snyder, Jr., Trotwood, Ohio, assignor to The United States of America as represented by the Secretary of the Air Force, Washington, D.C.

Filed May 21, 1996, Ser. No. 668,610

Int. Cl.[6] C09K *5/00*

U.S. Cl. 252—70 **2 Claims**

1. A method to improve the dispersion of microencapsulated phase change materials in a poly-alpha-olefin electronic coolant fluid, which comprises modifying the density of the fluid to match the density of the phase change material by the addition of about 1 to 25 weight percent of a saturated oligomer of chlorotrifluoroethylene.

5,723,060

ANTIFREEZE COMPOSITION

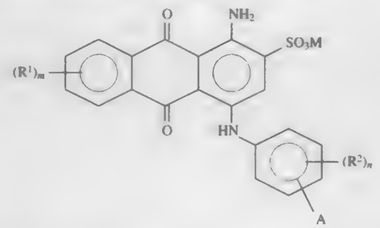
John D. Bruhnke, and Steven E. Brown, both of Spartanburg, S.C., assignors to Milliken Research Corporation, Spartanburg, S.C.

Filed Mar. 13, 1997, Ser. No. 816,298

Int. Cl.[6] C09K *5/00*

U.S. Cl. 252—73 **18 Claims**

1. An antifreeze composition comprising a polyhydric alcohol, a corrosion inhibitor and a colorant of the formula:



wherein m and n are independently selected from 0, 1, 2 or 3; M is cation; A is SO_3M or SO_2R^3, where R^3 is alkylene-SO_3M; R^1 is selected from the group consisting of hydroxy, C_{1-8} alkoxy, C_{1-8} alkyl, amino, sulfoxy, carboxy and R^2; and R^2 is NHR^4, where R^4 is triazine or triazine substituted with aminophenylsulfonate, chloro, dichloro, fluoro, or R^2 is CO_2M.

5,723,061

ANTIFREEZE COMPOSITION COMPRISING A WATER-SOLUBLE ALCOHOL AND A CORROSION INHIBITOR SYSTEM COMPRISING DICARBOXYLIC ACIDS OR SALTS THEREOF, DIAZOLE AND A TRIAZOLE

Claude Ciardi, Martigues, and Valerie Rousselon, St Mitre les Remparts, both of France, assignors to BP Chemicals Limited, London, England

Filed Apr. 23, 1996, Ser. No. 621,005

Claims priority, application France, Apr. 28, 1995, 95 05438

Int. Cl.[6] C09K *5/00*

U.S. Cl. 252—79 **11 Claims**

1. An antifreeze composition containing a water-soluble liquid alcohol capable of lowering the freezing point of an aqueous heat transfer fluid, and a corrosion inhibitor system wherein the said corrosion inhibitor system comprises:

(a) from 0.1to 10% by weight of a mixture of at least two dicarboxylic acids selected from two distinct groups, the first group consisting of C_3-C_6 aliphatic dicarboxylic acids and the second group consisting of C_7-C_{16} aromatic or aliphatic dicarboxylic acids, or of at least two alkali metal, ammonium or amine salts of the said acids,

(b) from 0.01to 2% by weight of at least one 1,3-diazole selected from the group consisting of imidazole, benzimidazole, imidazoline and the hydrocarbon derivatives thereof, and

(c) from 0.01 to 1% by weight of at least one triazole compound.

5,723,062

SELECTIVE ETCHING OF NICKLE/IRON ALLOYS

Kathleen Lorraine Covert, Vestal; Lisa Jeanine Jimarez, Newark Valley, and Krystyna Waleria Semkow, Poughquag, all of N.Y., assignors to International Business Machines Corporation, Armonk, N.Y.

Continuation of Ser. No. 359,218, Dec. 19, 1994, Pat. No. 5,560,840. This application May 28, 1996, Ser. No. 654,507

Int. Cl.[6] C09K *13/00*

U.S. Cl. 252—79.2 **10 Claims**

1. An etchant for etching nickel/iron alloy but not copper, comprising: ferric ammonium sulfate from an amount effective to etch nickel/iron alloy; and from about 4.5 to about 10 molar acid, selected from the group consisting essentially of: sulfuric acid; phosphoric acid; and mixtures thereof.

5,723,063

SOFT ICE

Hae Jie, 10, Bei Yuan Street, New City District, Hohhot, Inner Mongolia 010010, China

Filed Jun. 26, 1996, Ser. No. 670,597

Int. Cl.[6] B01J *13/00;* **C08J** *3/05;* **C08K** *5/053;* **C09K** *3/18*

U.S. Cl. 252—70 **10 Claims**

1. A composition of matter comprising 70% to 85% water, 4–10% salt, 8–15% glycerine and 2–6% polyacrylamide.

9. A method of producing a soft ice of claim 1 comprising the steps of:

1) dissolving salts in water,

2) adding to the water/salt solution, glycerine and poly acrylamide, with or followed by mixing, and

3) freezing the composition obtained in step 2.

5,723,064

COMPOSITION FOR BLEACHING TEXTILES

Sherman H. Sheppard, Pinnacle, N.C., assignor to Surry Chemicals, Inc., Mount Airy, N.C.

Continuation of Ser. No. 552,507, Nov. 9, 1995, abandoned, which is a continuation of Ser. No. 334,453, Nov. 4, 1994, Pat. No. 5,482,516, which is a continuation of Ser. No. 67,515, May 24, 1993, abandoned. This application Mar. 25, 1997, Ser. No. 829,825

Int. Cl.[6] C11D *7/54*

U.S. Cl. 252—186.29 **1 Claim**

1. A silicate-free liquid composition for use in bleaching cellulosic materials, said composition comprising:

(a) about 2 wt % of hydrogen peroxide;

(b) about 1 wt % of potassium hydroxide;

(c) a stabilizer, wherein said stabilizer is a magnesium salt formed from a mixture of magnesium oxide and citric acid; and

(d) the balance water.

5,723,065

LIQUID CRYSTAL COMPOSITIONS AND LIQUID CRYSTAL DISPLAY DEVICES

Shinichi Inaba, and Tsutomu Mikajiri, both of Ichihara, Japan, assignors to Chisso Corporation, Osaka, Japan

Filed Jan. 7, 1994, Ser. No. 178,809

Claims priority, application Japan, Jan. 11, 1993, 5-017838; Jun. 8, 1993, 5-163274

Int. Cl.[6] C09K *19/52;19/54;* **G02F** *1/13*

U.S. Cl. 252—299.01 **10 Claims**

1. A nematic liquid crystal composition for a liquid crystal display device of supertwisted nematic mode, which composition consists essentially of nematic liquid crystal and 0.0001–3% by weight of at least one compound selected from the group consisting of (1) condensed heterocyclic compounds, (2) aromatic amine compounds excluding aminophenol and methyl aminophenol compounds, (3) aliphatic amine compounds and (4) fluorocyanophenol compounds, based on the weight of the composition.

5,723,066

ELECTROOPTICAL LIQUID CRYSTAL SYSTEM

David Coates, Merley; Owain Llyr Parri, Poole; Simon Greenfield, Poole; Martin David Tillin, Poole; Mark John Goulding, Poole, and Patrick Nolan, Poole, all of Great Britain, assignors to Merck Patent Gesellschaft mit beschrankter Haftung, Darmstadt, Germany

Division of Ser. No. 81,280, Jun. 25, 1993. This application Jun. 7, 1995, Ser. No. 474,895

Claims priority, application European Pat. Off., Apr. 27, 1992, 92107137

Int. Cl.[6] C09K *19/52*

U.S. Cl. 252—299.01 **18 Claims**

1. A reactive liquid crystal compound of formula III

$$R^1—P—X—A^3—Z—A^4—R^2 \qquad \text{III}$$

wherein

R^1 is CH_2═CW—COO— or HS—CH_2—$(CH_2)_m$—COO—;

W is H, Cl or alkyl with 1–5 C atoms;

m is 1–7;

P is alkylene with up to 12 C atoms wherein one or more non-adjacent CH_2 groups can be replaced by —O—;

X is —O—, —S—, —COO—, —OCO— or a single bond;

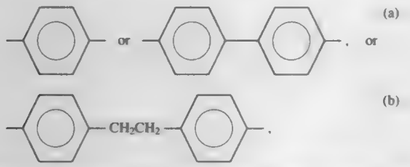
R^2 is an alkyl radical with up to 15 C atoms which is unsubstituted, mono- or polysubstituted by halogen, wherein one or more CH_2 groups can be replaced, in each case independently of one another, by —O—, —S—, —CO—, —OCO—, —CO—O— or —O—CO—O— in such a manner that oxygen atoms are not linked directly to one another, —CN, —Cl or —F, or

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R^2 has one of the meanings given for R^1—P—X—;

A^3 is 1,4-phenylene or naphthalene-2,6-diyl, in each case being unsubstituted or substituted with 1 to 4 halogen atoms;

A^4 is



wherein in each case 1,4-phenylene can be substituted by CN or halogen, and one of the 1,4-phenylene groups in (a) or (b) can also be replaced by a 1,4-phenylene radical in which one or two CH groups are replaced by N; and

Z is —CO—O—, —O—CO—, —CH_2CH_2— or a single bond; wherein at least one of A^3 and A^4 is substituted by at least one halogen atom.

5,723,067

TRIS-(CYANOTO)-S-TRIAZINES AND ANISOTROPIC DUROPLASTIC NETWORKS OBTAINED WITH THEM

Werner Mormann, Kreuztal, and Joerg Zimmermann, Siegen, both of Germany, assignors to Europaeische Wirtschaftsgemeinschaft, Luxemburg, Luxembourg

PCT No. PCT/EP94/02980, § 371 Date May 1, 1996, § 102(e) Date May 1, 1996, PCT Pub. No. WO95/07268, PCT Pub. Date Mar. 16, 1995

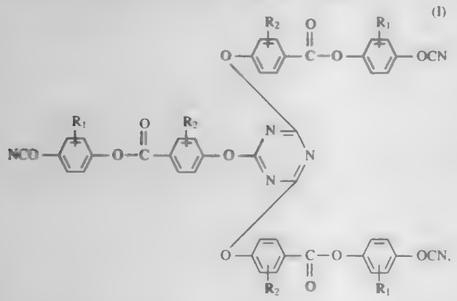
PCT Filed Sep. 7, 1994, Ser. No. 612,913

Claims priority, application Luxembourg, Sep. 8, 1993, 88 404

Int. Cl.[6] C08G *73/08;* **C07D** *251/04*

U.S. Cl. 252—299.01 **22 Claims**

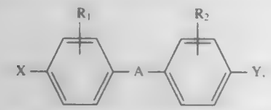
20. An anisotropic duroplastic network comprising a copolymerizate of tris(cyanato)-s-triazines having the formula (I)



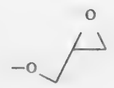
wherein

R_1 and R_2 independently of one another, represent halogen, hydrogen or a methyl group or ethyl group;

and nonliquid-crystalline comonomers having the formula (II):

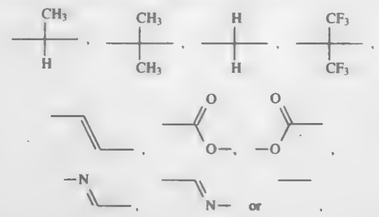


wherein X and Y, independently of one another, represent —OCN or

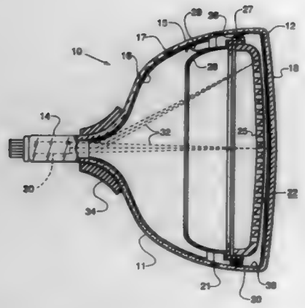


Y represents an alkyl, alkyloxy, alkyloxycarbonyl or acyloxy group with chain lengths of 1 to 20 carbon atoms,

A represents the following structural elements:


CH3
H
CH3
CH3
H
H
CF3
CF3
O
O
O
O
.
.
.

VOL 1208 ISS 1 MR 3 1998 UMI



coating, said material being selected from the group consisting of pecan shell flour and walnut shell flour.

5,723,072

PHOTOCHROMIC HETEROCYCLIC FUSED INDENONAPHTHOPYRANS

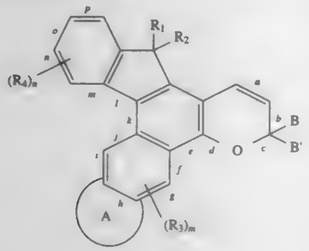
Anil Kumar, Pittsburgh, Pa., assignor to PPG Industries, Inc., Pittsburgh, Pa.

Continuation-in-part of Ser. No. 783,343, Jan. 16, 1997, which is a continuation-in-part of Ser. No. 666,942, Jun. 17, 1996, abandoned. This application Mar. 18, 1997, Ser. No. 819,969

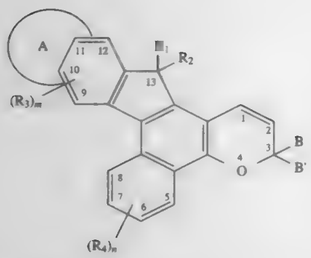
Int. Cl.[6] **G02B** *5/23;* **C07D** *491/06;493/06;495/06*

U.S. Cl. 252—586 **23 Claims**

1. An indenonaphthopyran compound represented by the following graphic formulae:



or



wherein,

(a) A is an unsubstituted, mono-substituted or di-substituted heterocyclic ring selected from the group consisting of benzothieno, benzofurano and indolo, the 2,3 or 3,2 positions of said heterocyclic ring being fused to the g, h, i, n, o or p side of said indenonaphthopyran, said heterocyclic ring substituents being C_1–C_6 alkyl, C_5–C_7 cycloalkyl, C_1–C_6 alkoxy, or bromo, chloro or fluoro;

(b) R_1 is hydrogen, hydroxy, bromo, fluoro or chloro and R_2 is the group, —$CH(V)_2$, wherein V is —CN or —$COOR_5$, and each R_5 is hydrogen, C_1–C_6 alkyl, phenyl(C_1–C_3)alkyl, mono(C_1–C_6)alkyl substituted phenyl(C_1–C_3)alkyl, mono(C_1–C_6)alkoxy substituted phenyl(C_1–C_3)alkyl or an unsubstituted, mono- or di-substituted aryl group selected from phenyl and naphthyl, or R_2 is the group, —$CH(R_6)Y$, wherein R_6 is hydrogen, C_1–C_6 alkyl or an unsubstituted, mono- or di-substituted aryl group selected from phenyl and naphthyl, and Y is —$COOR_5$, —COR_7, or —CH_2OR_{11}, wherein R_7 is hydrogen, C_1–C_6 alkyl, an unsubstituted, mono- or di-substituted aryl group selected from phenyl and naphthyl, amino, mono(C_1–C_6)alkylamino, di(C_1–C_6)alkylamino, phenylamino, mono- or di-(C_1–C_6)alkyl substituted phenylamino, mono- or di-(C_1–C_6)alkoxy substituted phenylamino, diphenylamino, mono- or di-(C_1–C_6)alkyl substituted diphenylamino, mono- or di-(C_1–C_6)alkoxy substituted diphenylamino, morpholino, or piperidino; R_{11} is hydrogen, —COR_5, C_1–C_6 alkyl, C_1–C_3 alkoxy(C_1–C_6)alkyl, phenyl(C_1–C_3)alkyl, mono(C_1–C_6)alkyl substituted phenyl(C_1–C_3)alkyl, mono(C_1–C_6)alkoxy substituted phenyl(C_1–C_3)alkyl, or an unsubstituted, mono- or di-substituted aryl group selected from phenyl and naphthyl, each of all of said aryl group substituents being C_1–C_6 alkyl or C_1–C_6 alkoxy; or

(c) R_1 and R_2 together form the group, $=C(V)_2$ or $=C(R_6)W$, wherein W is —$COOR_5$ or —COR_7;

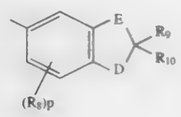
(d) R_3 and R_4 are each C_1–C_6 alkyl, C_1–C_6 alkoxy, bromo, chloro or fluoro, and m and n are each the integers 0, 1 or 2; and

(e) B and B' are each selected from the group consisting of:

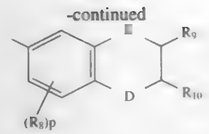
(i) an unsubstituted, mono-, di- or tri-substituted aryl groups selected from phenyl and naphthyl;

(ii) an unsubstituted, mono- or di-substituted aromatic heterocyclic group selected from pyridyl, furanyl, benzofuran-2-yl, benzofuran-3-yl, thienyl, benzothien-2-yl, benzothien-3-yl, dibenzofuranyl, dibenzothienyl, carbazolyl and fluorenyl, each of said aryl and aromatic heterocyclic substituents in (e)(i) and (ii) being selected from the group consisting of hydroxy, aryl, mono(C_1–C_6)alkoxyaryl, di(C_1–C_6)alkoxyaryl, mono(C_1–C_6)alkylaryl, di(C_1–C_6)alkylaryl, bromoaryl, chloroaryl, fluoroaryl, C_3–C_7 cycloalkylaryl, C_3–C_7 cycloalkyl, C_3–C_7 cycloalkyloxy, C_3–C_7 cycloakyloxy(C_1–C_6)alkyl, C_3–C_7 cycloalkyloxy(C_1–C_6)alkyl, C_3–C_7 cycloalkyloxy(C_1–C_6)alkoxy, aryl(C_1–C_6)alkyl, aryl(C_1–C_6)alkoxy, aryloxy, aryloxy(C_1–C_6)alkyl, aryloxy(C_1–C_6)alkoxy, mono- and di-(C_1–C_6)alkylaryl(C_1–C_6)alkyl, mono- and di-(C_1–C_6)alkoxyaryl(C_1–C_6)alkyl, mono- and di-(C_1–C_6)alkylaryl(C_1–C_6)alkoxy, mono- and di-(C_1–C_6)alkoxyaryl(C_1–C_6)alkoxy, amino, mono(C_1–C_6)alkylamino, di(C_1–C_6)alkylamino, diarylamino, N-(C_1–C_6)alkylpiperazino, N-arylpiperazino, aziridino, indolino, piperidino, arylpiperidino, morpholino, thiomorpholino, tetrahydroquinolino, tetrahydroisoquinolino, pyrryl, C_1–C_6 alkyl, C_1–C_6 bromoalkyl, C_1–C_6 chloroalkyl, C_1–C_6 fluoroalkyl, C_1–C_6 alkoxy, mono(C_1–C_6)alkoxy(C_1–C_4)alkyl, acryloxy, methacryloxy, bromo, chloro and fluoro;

(iii) a group represented by one of the following graphic formulae:



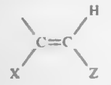
-continued



wherein E is carbon or oxygen and D is oxygen or substituted nitrogen, provided that when D is substituted nitrogen, E is carbon, said nitrogen substituent being selected from the group consisting of hydrogen, C_1–C_6 alkyl and C_2–C_6 acyl; each R_8 is C_1–C_6 alkyl, C_1–C_6 alkoxy, hydroxy, bromo, chloro or fluoro; R_9 and R_{10} are each hydrogen or C_1–C_6 alkyl; and p is an integer 0, 1 or 2;

(iv) C_1–C_6 alkyl, C_1–C_6 bromoalkyl, C_1–C_6 chloroalkyl, C_1–C_6 fluoroalkyl, C_1–C_6 alkoxy(C_1–C_4)alkyl, C_3–C_6 cycloalkyl, mono(C_1–C_6) alkoxy(C_3–C_6)cycloalkyl, mono(C_1–C_6)alkyl(C_3–C_6)-cycloalkyl, bromo(C_3–C_6)cycloalkyl, chloro(C_3–C_6)cycloalkyl and fluoro(C_3–C_6)cyclo-alkyl; and

(v) a group represented by the following graphic formula:



wherein X is hydrogen or C_1–C_4 alkyl and Z is selected from an unsubstituted, mono-, or di-substituted member of the group consisting of naphthyl, phenyl, furanyl and thienyl, each of said group substituents being C_1–C_4 alkyl, C_1–C_4 alkoxy, bromo, fluoro or chloro; or

(vi) B and B' taken together form fluoren-9-ylidene, mono- or di-substituted fluoren-9-ylidene or a member selected from the group consisting of a saturated C_3–C_{12} spiromonocyclic hydrocarbon ring, a saturated C_7–C_{12} spirobicyclic hydrocarbon ring, and a saturated C_7–C_{12} spirotricyclic hydrocarbon ring, each of said fluoren-9-ylidene substituents being selected from the group consisting of C_1–C_4 alkyl, C_1–C_4 alkoxy, bromo, fluoro and chloro.

5,723,073

CONDUCTIVE PASTE CONTAINING 2-TETRADECANOL AND CERAMIC CIRCUIT SUBSTRATE USING THE SAME

Junzo Fukuta, and Toshihiro Nakai, both of Nagoya, Japan, assignors to Sumitomo Metal (SMI) Electronics Devices Inc., Yamaguchi, Japan

Filed Mar. 6, 1996, Ser. No. 590,518

Claims priority, application Japan, Mar. 30, 1995, 7-073541

Int. Cl.[6] **H01B** *1/20;1/22*

U.S. Cl. 252—514 **10 Claims**

1. An electrically conductive paste for filling through holes for an interlayer electrical connection in a low-temperature firable ceramic circuit substrate to be fired at 800° to 1,000° C., which comprises:

a) 100 parts by weight of at least one member selected from the group consisting of flaky and spherical silver-based powder particles;

b) 0.1 to 2.0 parts by weight of at least one member selected from the group consisting of b_1) Sb_2O_3, or a substance which is converted into Sb_2O_3 by firing wherein the amount of said substance is given in terms of Sb_2O_3, and b_2) Rh powder; and

c) at least 3 parts by weight of 2-tetradecanol.

5,723,074

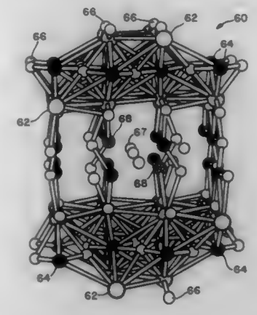
OXYGEN ION-CONDUCTING DENSE CERAMIC

Uthamalingam Balachandran, Hinsdale; Mark S. Kleefisch, Plainfield, both of Ill.; Thaddeus P. Kobylinski, Prospect, Pa.; Sherry L. Morissette, Las Cruces, N. Mex., and Shiyou Pei, Naperville, Ill., assignors to Amoco Corporation, Chicago, Ill.

Continuation-in-part of Ser. No. 212,251, Mar. 18, 1994, Pat. No. 5,580,497, which is a continuation-in-part of Ser. No. 48,668, Apr. 16, 1993, Pat. No. 5,356,728. This application Apr. 1, 1996, Ser. No. 626,119

Int. Cl.[6] **H01B** *1/06*

U.S. Cl. 252—519 **16 Claims**



1. A crystalline mixed metal oxide composition represented by

$$D_\alpha E_{\alpha+\beta} O_\delta$$

where D comprises at least one metal selected from the group consisting of magnesium, calcium, strontium, and barium, E comprises at least one element selected from the group consisting of vanadium, chromium, manganese, iron, cobalt, and nickel, α is a number in a range from about 1 to about 4, β is a number in a range upward from 0.1 to about 20, such that

$$1.1 < (\alpha+\beta)/\alpha \leq 6,$$

and δ is a number which renders the compound charge neutral, wherein the crystalline mixed metal oxide composition has an crystalline structure comprising layers having a perovskite structure held apart by bridging layers having a different structure identifiable by means of powder X-ray diffraction pattern analysis, the composition such that a dense ceramic membrane comprising the composition exhibits electron conductivity and oxygen ion conductivity, and ability to separate oxygen from a gaseous mixture containing oxygen and one or more other volatile components by means of the conductivities.

5,723,075

DIMERIZED THIOUREA DERIVATIVES NEAR-INFARED ABSORBENTS COMPRISING THE SAME, AND HEAT WAVE SHIELDING MATERIALS COMPRISING THE SAME

Hideki Hayasaka; Toshiyuki Takano, and Toshimi Satake, all of Tokyo, Japan, assignors to Nippon Paper Industries Co., Ltd., Tokyo, Japan

Continuation of Ser. No. 197,948, Feb. 17, 1994, abandoned. This application Apr. 19, 1996, Ser. No. 634,126

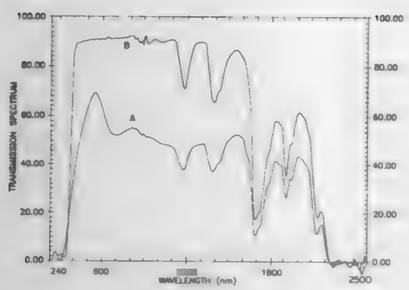
Claims priority, application Japan, Feb. 19, 1993, 5-030954; Aug. 11, 1993, 5-199664

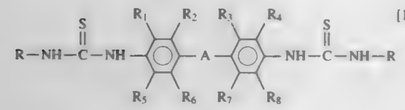
Int. Cl.[6] **F21V** *9/04;* **C07C** *303/00;335/00*

U.S. Cl. 252—587 **32 Claims**

1. A near-infrared absorbent composition comprising a dimerized thiourea derivative of Formula (1) and a copper compound mixed in a molar ratio of from about 8:2 to about 1:2:

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[1]

wherein A is CH_2, $(CH_2)_2$, S, O, SO_2, CONH, NH, or $C(CF_3)_2$; R is an alkyl group having 1 to 18 carbon atoms, a cycloalkyl group having 3 to 18 carbon atoms, an aralkyl group having 7 to 30 carbon atoms, an aryl group having 6 to 30 carbon atoms, an acyl group having 2 to 20 carbon atoms, an alkenyl group having 2 to 20 carbon atoms, or an alkoxycarbonyl group having 2 to 20 carbon atoms; R_1, R_2, R_3, R_4, R_5, R_6, R_7 and R_8 are each independently a lower alkyl group having 1 to 6 carbon atoms, nitro group, cyano group, halogen atom, or hydrogen atom.

5,723,076

METHOD OF PRODUCING LARGE POLYCRYSTALLINE PLATES FROM OPTICAL AND SCINTILLATION MATERIALS

Aleksandr Ivanovich Ilyukha; Fyodor Antonovich Osadchii; Vladimir Petrovich Seminozhenko; Aleksandr Antonovich Chernyshov; Lyudmila Sergeyevna Gordienko, and Pyotr Nikolayevich Onoprienko, all of Kharkov, Ukraine, assignors to Amcrys-H, Ltd., Kharkov, Ukraine

PCT No. PCT/UA94/00027, § 371 Date Apr. 2, 1996, § 102(e) Date Apr. 2, 1996, PCT Pub. No. WO95/12212, PCT Pub. Date May 4, 1995

PCT Filed Oct. 18, 1994, Ser. No. 624,517

Claims priority, application Ukraine, Oct. 20, 1993, 94051492

Int. Cl.[6] B29D *11/00*

U.S. Cl. 264—1.1 **4 Claims**

1. A method of manufacturing a polycrystalline plate of large size comprising:

heating a crystalline blank prepared from a material selected from the group consisting of optical and scintillation materials to a temperature, T, within the range of $0.5\ T_{melt}<T<T_{melt}$ where T_{melt} is the melting temperature of the material, thermomechanically deforming the heated blank by axially pressing with a press having a profiled surface whereby a blank with variable thickness is formed and wherein the blank has a thickness up to double the thickness of the plate, thermomechanically deforming the heated blank of variable thickness by axially pressing with a press having flat parallel surfaces, and cooling the blank, whereby the plate is formed.

5,723,077

MANUFACTURING APPARATUS AND METHOD FOR FINE HOLLOW PARTICLES

Toru Taniguchi, Tokyo, Japan, assignor to Reica Corp., Tokyo, Japan

Division of Ser. No. 399,364, Mar. 6, 1995, abandoned, which is a division of Ser. No. 996,044, Dec. 23, 1992, Pat. No. 5,424,336. This application Jun. 10, 1996, Ser. No. 661,148

Claims priority, application Japan, Dec. 27, 1991, 3-346263; Oct. 2, 1992, 4-265053

Int. Cl.[6] F02M *25/00*

U.S. Cl. 261—18.1 **12 Claims**

1. An apparatus for manufacturing hollow particles, comprising:

(a) a first tank for storing a raw material liquid from which the hollow particles are to be manufactured;

(b) a second tank for storing a dispersing medium liquid in which the raw material is to be dispersed;

(c) means for supplying the raw material liquid, which is stored in said first tank, to said second tank;

(d) means for preparing a starting emulsion by mixing the raw material liquid and the dispersing medium liquid in said second tank;

(e) means for supplying gas, which is dissolvable in only the raw material liquid, to the starting emulsion in said second tank under pressure to dissolve the gas in corpuscles dispersed in the raw material liquid, thereby obtaining a compressed emulsion in said second tank; and

(f) means for converting the compressed emulsion, which is obtained in said second tank, from a compressed state into a normal-pressure state.

5,723,078

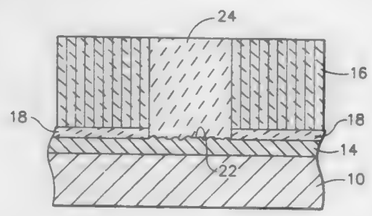
METHOD FOR REPAIRING A THERMAL BARRIER COATING

Bangalore A. Nagaraj, West Chester; Seetharamaiah Mannava, and Bhupendra K. Gupta, both of Cincinnati, all of Ohio, assignors to General Electric Company, Cincinnati, Ohio

Filed May 24, 1996, Ser. No. 651,183

Int. Cl.[6] B32B *35/00;* **B23P** *6/00*

U.S. Cl. 264—36 **20 Claims**



1. A method for repairing a thermal barrier coating system on an article that has suffered localized spallation of a ceramic layer overlying a metallic bond layer on the article, a limited portion of the bond layer being exposed by the localized spallation of the ceramic layer and being surounded by a remaining portion of the ceramic layer, the method comprising the steps of:

cleaning the limited portion of the bond layer exposed by the localized spallation so as to remove oxides and residue of the ceramic layer;

treating the limited portion of the bond layer so as to texture a surface thereof; and

depositing a ceramic material on the surface of the limited portion of the bond layer so as to form a ceramic repair layer that completely covers the limited portion of the bond layer and contacts the remaining portion of the ceramic layer.

5,723,079

METHOD FOR CONTROLLING THE INJECTION SPEED OF INJECTION MOLDING MACHINES AND AN APPARATUS THEREFOR

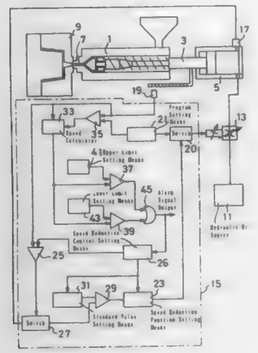
Shigeru Fujita, and Susumu Harada, both of Shizuoka, Japan, assignors to Toshiba Machine Co., Ltd., Tokyo, Japan

Filed Apr. 17, 1996, Ser. No. 633,884

Claims priority, application Japan, Apr. 25, 1995, 7-100905

Int. Cl.[6] B29C *45/77*

U.S. Cl. 264—40.7 **14 Claims**



1. A method for controlling injection speed of an injection molding machine, comprising the steps of:

detecting a driving force for forwardly moving an injection plunger movably inserted into an injection cylinder using a first detecting device;

reducing moving speed of the injection plunger in accordance with a moving speed reduction profile determined from a predetermined moving speed reduction function when a value detected by said first detecting device exceeds a predetermined standard value;

detecting moving speed of the injection plunger using a second detecting device during a period when the moving speed of the plunger is being reduced;

determining whether the moving speed detected by said second detecting device is above a predetermined upper limit or is below a predetermined lower limit; and

outputting an alarm signal when the moving speed detected by said second detecting device is above said predetermined upper limit or is below said predetermined lower limit.

13. An apparatus for controlling injection speed of an injecting molding machine, comprising:

first detection means for detecting a driving force for forwardly moving an injection plunger movably inserted into an injection cylinder for containing melted resin;

moving speed controlling means for reducing forwardly moving speed of the injection plunger in accordance with a moving speed reduction profile determined from a predetermined moving speed reduction function when a value detected by said first detecting means exceeds a predetermined standard value,

second moving speed detecting means for detecting moving speed of said plunger; and

determining means for determining if said moving speed of the injection plunger detected by said second detecting means is above a predetermined upper limit and if said moving speed of said injection plunger detected by said second detecting means if below a predetermined lower limit while said moving speed controlling means is reducing said moving speed, and for outputting an alarm signal when said moving speed is above said upper limit and when said moving speed is below said lower limit.

5,723,080

PROCESS FOR PRODUCING SPLITTABLE ELASTANE YARNS

Ben Bruner, Ravanel, S.C.; James F. Heslep, Pocopson, Pa.; Hans-Josef Behrens, Dormagen, Germany; Konrad Schmitz, Pulheim, Germany, and Karlheinz Wolf, Köln, Germany, assignors to Bayer Faser GmbH, Dormagen, Germany

Filed May 16, 1996, Ser. No. 648,473

Claims priority, application Germany, Jul. 27, 1995, 195 27 436.9

Int. Cl.[6] D01D *5/04;* **D01F** *6/78*

U.S. Cl. 264—103 **6 Claims**

1. In a dry spinning process for producing an elastane multifilament yarn, wherein an elastane solution is dry spun to form the yarn, the improvement which comprises reducing or preventing interfilamentary adhesion by

1) deploying in the spinning head of a conventional dry spinning apparatus at least one multihole spinning jet whose individual capillaries are located on one plate, the distance x between capillaries on one jet plate and the distance y between capillaries on any adjacent multihole spinning jet plates conforming to the relationship $40\ mm<x<y<500\ mm$,

2) laminarizing the gas flow in the dry spinning apparatus to prevent entangling of the individual filaments from adjacent multihole jets,

3) passing the resulting elastane yarns leaving the spinning shaft through a first thread guide with one opening per individual filament and then through a second thread guide which gathers a plurality of individual filaments together to form a multifilament, and

4) winding up the multifilament yarn, whereby the resulting elastane filaments are free from adhesion to one another.

5,723,081

DISPERSION SPINNING PROCESS FOR POLYTETRAFLUOROETHYLENE AND RELATED POLYMERS

Nicole Lee Blankenbeckler, Richmond; Joseph Michael Donckers, II, Midlothian, and Warren Francis Knoff, Richmond, all of Va., assignors to E. I. du Pont de Nemours and Company, Wilmington, Del.

Filed Dec. 20, 1996, Ser. No. 770,531

Int. Cl.[6] D01F *6/12*

U.S. Cl. 264—127 **6 Claims**

1. A process for making a dispersion spun fluorinated olefinic polymer fiber comprising the steps of:

(a) forming a mixture of an aqueous dispersion of particles of the fluorinated olefinic polymer with a aqueous solution of a matrix polymer;

(b) extruding the mixture into a coagulation bath containing a concentration of ions which coagulate the matrix polymer to form an intermediate fiber structure which carries ionic species; and

(c) sintering the intermediate fiber structure to decompose the matrix polymer and coalesce the fluorinated olefinic polymer particles

wherein immediately before sintering the ionic species are primarily fugitive ions wherein fugitive ions are those ions and partially ionized compounds which on heating to temperatures above 25° C., but below temperatures that cause coalescence of the fluorinated olefinic polymer particles volatilize or decompose to form only volatile substances or carbonaceous residues.

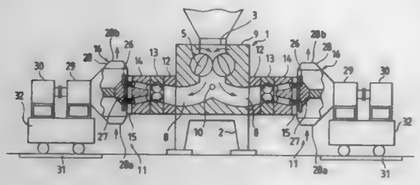
VOL 1208 ISS 1 MR 3 1998 UMI

5,723,082

METHOD OF GRANULATING SYNTHETIC RESIN BY EXTRUSION AND APPARATUS THEREOF

Hideki Mizuguchi, and Minoru Yoshida, both of Hiroshima, Japan, assignors to The Japan Steel Works, Ltd., Tokyo, Japan

Filed Jun. 11, 1996, Ser. No. 661,614
Claims priority, application Japan, Jun. 13, 1995, 7-145865
Int. Cl.[6] B29B *9/06*
U.S. Cl. 264—142 5 Claims



1. A method of granulating synthetic resin by extrusion, said method comprising the steps:
extruding a resin material through an extruder;
passing at least a portion of the extruded resin material to a first granulator which is connected to one end of the extruder for receiving the resin material;
granulating in the first granulator the resin material passed thereto from an output of the extruder;
passing at least a portion of the extruded resin material to at least a second granulator which is connected to the one end of the extruder in parallel with the first granulator for receiving the resin material;
granulating in at least the second granulator a portion of the resin material passed thereto from the output of the extruder; and
passing the resin material to at least one of said first granulator and second granulators so that at least one of the granulators is operated to conduct granulation continuously.

2. An apparatus for granulating synthetic resin by extrusion, said apparatus comprising:
an extruder;
a plurality of granulators individually arranged in parallel at an end of said extruder; and
a drive means for driving each of said granulators independently.

5,723,083

METHOD FOR FORMING PARTS FROM INORGANIC PARTICULATE MATERIAL

Leonard Edward Bogan, Jr., Hatfield, and Richard Anthony Einhorn, Langhorne, both of Pa., assignors to Rohm and Haas Company, Philadelphia, Pa.

Filed Sep. 9, 1996, Ser. No. 707,882
Int. Cl.[6] C04B *33/32*
U.S. Cl. 264—177.11 14 Claims

1. A method for forming a part from one or more particulate inorganic materials comprising:
a) forming a binder composition by admixing a primary binder and a secondary binder; wherein said primary binder comprises a first component selected from the group consisting of trimethylolpropane, di-trimethylolpropane, neopentyl glycol, pentaerythritol, and dipentaerythritol;
b) forming a feedstock by mixing said binder composition with one or more particulate materials at a temperature above the melting point of said binder composition;
c) forming a part from said feedstock by injection molding; and
d) removing said binder composition from said part by heating the part at a rate of from 0.5° C. per minute to 10 ° C. per minute.

5,723,084

FLASH SPINNING PROCESS

Hyunkook Shin, Wilmington, Del., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del.

Filed Mar. 8, 1996, Ser. No. 612,713
Int. Cl.[6] D01D *5/11*
U.S. Cl. 264—205 10 Claims

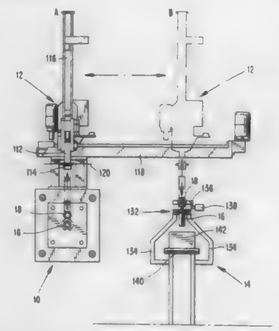
1. A process for the production of flash-spun plexifilamentary film-fibril strands of a high molecular weight alternating copolymer of ethylene and carbon monoxide or a high molecular weight alternating copolymer having alternating polymerized units of carbon monoxide and at least two different olefin units one of which is ethylene, and the remainder are selected from the group consisting of propylene, butene, pentene, hexene, heptene, octene, nonene, decene, dodecene, styrene, methyl acrylate, methyl methacrylate, vinyl acetate, undecenoic acid, undecenol, 6-chlorohexene, N-vinylpyrrolidone, and the diesters of vinylphosphonic acid in which a majority of the olefin units are ethylene units which comprises forming a spin solution of said alternating copolymer in a solvent having an atmospheric boiling point between 0° C. and 210° C., and selected from the group consisting of alcohols and halogenated hydrocarbons having 1 to 3 carbon atoms and spinning said spin solution at a pressure that is greater than the autogenous pressure of the spin solution into a region of substantially lower pressure and at a temperature at least 50° C. higher than the atmospheric boiling point of the solvent to form plexifilamentary film-fibril strands of said alternating copolymer.

5,723,085

PROCESS AND APPARATUS FOR MAKING A LEAK PROOF CAP AND BODY ASSEMBLY

Robert S. Abrams, Albany, and Robert Thomas Garren, Jr., Fultonville, both of N.Y., assignors to Capitol Vial, Inc., N.Y.

Filed Oct. 14, 1994, Ser. No. 323,038
Int. Cl.[6] B29C *45/42;65/78*
U.S. Cl. 264—238 30 Claims



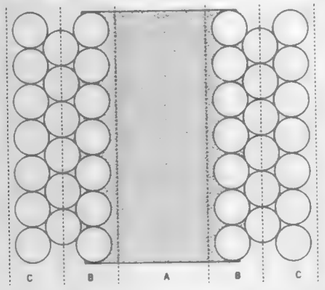
1. A process for forming a leak-proof body and cap comprising the steps of:
defining a mold cavity between a first mold part and a second mold part;
injecting a molten plastic material into at least one mold cavity in the second mold part thereby forming from the molten material a body and cap;
retracting the first mold part from the second mold part to separate the first mold part from the body and cap;
engaging at least one of the body and cap before the material is fully set with engagement means on a robotic arm;
removing the body and cap from the mold;
moving the body and cap with the robotic arm into a capping device while the body and cap are at a temperature at which the material is not fully set; and
sealing the body in the capping device before the material is fully set by moving the cap into engagement with the body to form a leak-proof seal before the material is fully set.

5,723,086

ELECTRODE MEMBRANE

Konstantin Ledjeff, Bad Krozingen; Roland Nolte, Denzlingen; Michael Bauer, Freiburg; Falko Mahlendorf, Freiburg, and Volker Peinecke, Freiburg, all of Germany, assignors to Fraunhofer-Gesellschaft Zur Forderung Der Angewandten Forschung E.V., Munich, Germany

PCT No. PCT/DE93/01162, § 371 Date Jul. 12, 1995, § 102(e) Date Jul. 12, 1995, PCT Pub. No. WO94/14203, PCT Pub. Date Jun. 23, 1994
PCT Filed Dec. 2, 1993, Ser. No. 448,567
Claims priority, application Germany, Dec. 7, 1992, 42 41 150.5
Int. Cl.[6] C25B *13/00;11/00;* H01M *8/10;* B31B *1/60*
U.S. Cl. 264—248 32 Claims



1. A method of producing an electrode membrane comprising:
forming a core zone from ion-dissociable polymers soluble in solvent, the polymers comprising homopolymers, copolymers or mixtures thereof;
forming an electrode layer, wherein formation of the electrode layer comprises adding a motive agent; and
wetting a surface of at least one of the core zone and electrode layer with a solvent and bonding the core zone and the electrode layer by pressing the core zone and the electrode layer together while at least one surface of the core zone or electrode layer is wetted to produce a final electrode membrane.

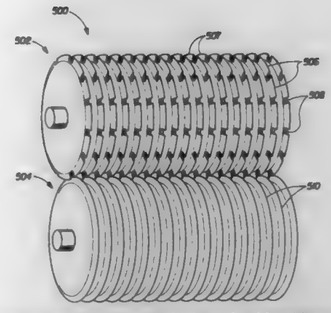
5,723,087

WEB MATERIALS EXHIBITING ELASTIC-LIKE BEHAVIOR

Charles W. Chappell, West Chester; Eugene R. Sorensen, Sharonville; Kenneth B. Buell, Cincinnati; John J. Curro, Cincinnati, and Michele A. Mansfield, Cincinnati, all of Ohio, assignors to The Procter & Gamble Company, Cincinnati, Ohio

Continuation of Ser. No. 566,203, Dec. 1, 1995, abandoned, which is a division of Ser. No. 203,087, Feb. 28, 1994, Pat. No. 5,518,801, which is a continuation-in-part of Ser. No. 100,958, Aug. 3, 1993, abandoned. This application Aug. 7, 1996, Ser. No. 692,986
Int. Cl.[6] B29C *49/00*
U.S. Cl. 264—284 1 Claim

1. A method for forming a web material into a web material exhibiting an elastic-like behavior in response to an applied elongation along at least one axis thereof, said web material comprising a strainable network having first and second regions, said first region providing a first, elastic-like resistive force to the applied elongation, and the second region providing a second resistive force to further applied elongation, said method comprising the steps of:
a) providing a web material; and
b) feeding said web material between a first roll and a second roll, said first roll comprising a plurality of toothed regions spaced apart by a plurality of grooved regions, said toothed regions comprising a plurality of teeth, said second roll comprising a plurality of teeth which mesh with said teeth on said first roll, as said web material is fed between said first roll and said second roll the portion of said web material passing between the teeth on said first roll and the teeth on said second roll being formed into said second regions of said web material while the portion of said web material passing between the grooves on said first roll and the teeth on said second roll being formed into said first regions of said web material.



5,723,088

PROCESS FOR THE PRODUCTION OF A HEAT-SEALABLE ORIENTED MULTILAYER POLYOLEFIN FILM

Ursula Murschall, Nierstein; Herbert Peiffer, Mainz, and Gunter Schloegl, Kelkheim, all of Germany, assignors to Hoechst Aktiengesellschaft, Frankfurt am Main, Germany

Division of Ser. No. 200,145, Feb. 23, 1994, Pat. No. 5,618,618. This application Nov. 18, 1996, Ser. No. 751,609
Claims priority, application Germany, Feb. 27, 1993, 43 06 153.2
Int. Cl.[6] B29C *47/06*
U.S. Cl. 264—469 18 Claims

1. A process for the production of a multilayer polyolefin film comprising a base layer including a propylene polymer, a tertiary aliphatic amine, and an amide of a water-insoluble carboxylic acid having 8 to 24 carbon atoms, and a heat-sealable outer layer comprising a heat-sealable olefin polymer and SiO_2 particles, wherein the multilayer film is essentially free from silicone oil, the process comprising
extruding melts corresponding to individual layers of the film through a flat-film die,
taking-off the coextruded film via a take-off roll,
biaxially stretching the film,
thermofixing the biaxially-stretched film,
optionally flame- or corona-treating the film, and
winding up the film.

5,723,089

LINE PIPE METAL ARC WELDED WITH WIRE ALLOY

Rikio Chijiiwa, Kimitsu; Hiroyuki Ogawa; Koichi Shinada, both of Futtsu; Yoshinori Ogata, Kimitsu; Hiroshi Tamehiro, Futtsu; Hajime Ishikawa, Kimitsu; Isamu Kimoto, Futtsu, and Yoshio Terada, Kimitsu, all of Japan, assignors to Nippon Steel Corporation, Tokyo, Japan

Division of Ser. No. 545,850, Nov. 13, 1995, abandoned. This application Mar. 24, 1997, Ser. No. 824,079
Claims priority, application Japan, Mar. 11, 1994, 6-066538; May 11, 1994, 6-120746
Int. Cl.[6] C22C *38/28*
U.S. Cl. 420—104 3 Claims

1. A line pipe for transporting CO_2-containing oil or natural gas, said line pipe having a weld having high carbonic acid gas corro-

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sion resistance on a circumference thereof, said weld made in the field by gas shield arc welding using a welding wire, said welding wire having a composition consisting essentially of 0.01 to 0.06 wt % of C, 0.10 to 0.60 wt % of Si, 0.9 to 3.2 wt % of Mn, 0.7 to 2.0 wt % of Cr, 0.005 to 0.06 wt % of Ti, not greater than 0.08 wt % of Al and the balance of Fe and unavoidable impurities.

5,723,090

METHOD FOR THE HYGIENIC PREPARATION OF MEDICAL INSTRUMENTS

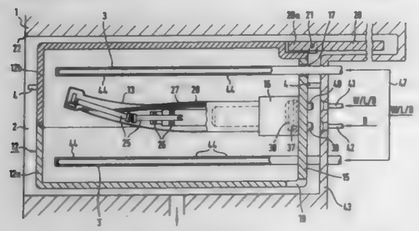
Lutz Beerstecher, Bensheim; Ralf Sutter, Weinheim; David Hruza, Bad Waldsee; Raimund Stetter-Alle, Ulm, and Karl Trackl, Langenau, all of Germany, assignors to Siemens Aktiengesellschaft, Munich, Germany

Division of Ser. No. 274,324, Jul. 13, 1994, Pat. No. 5,571,488. This application Jun. 19, 1996, Ser. No. 665,887

Claims priority, application Germany, Jul. 15, 1993, 43 23 815.7; Apr. 26, 1994, 94 106 517.9

Int. Cl.[6] A61L *2/00;9/00*

U.S. Cl. 422—26 **15 Claims**



1. A method for hygienical preparation of medical instruments including dental instruments having media channels, dental instruments without media channels and dental instruments with movable internal parts, said method comprising the step of loading the instruments into a chamber, which is then closed pressure-tight; while in the chamber, performing the steps of cleaning exterior surfaces of each of the instruments as well as any existing media channels by directing a high-energy water jet onto the exterior surfaces of the instruments and into the existing channels, said high-energy jet being, first, a cold water jet and then subsequently using a jet with a preheated water; intensely after-cleaning and disinfecting the exterior surfaces and any existing media channels as well as any movable internal parts and bearings of an instrument by directing a water stream having a temperature range of 60° C. to 100° C. onto the exterior surfaces, through any existing media channel and through the movable internal parts and bearings; lubricating existing movable parts by injecting a metered quantity of lubricant; sterilizing the instrument on the exterior surfaces and in any media channels and movable parts with saturated steam of a temperature of approximately 134° C.; then drying and cooling the instrument with a coolant.

5,723,091

FLOW MODULATION FOR FACILITATING DETECTOR IGNITION

Paul B. Welsh, Wilmington, Del., assignor to Hewlett-Packard Co., Palo Alto, Calif.

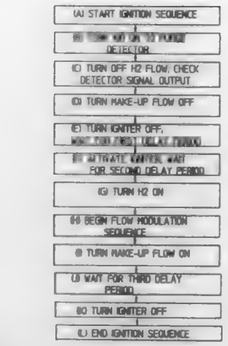
Continuation of Ser. No. 376,717, Jan. 23, 1995, abandoned. This application Jun. 25, 1996, Ser. No. 670,033

Int. Cl.[6] B01D *15/08;* **G01N** *27/00*

U.S. Cl. 422—54 **9 Claims**

1. An analytical instrument for detecting the presence of an analyte in a sample fluid, comprising:

a pneumatic manifold, for providing a selectable flow of at least one of a plurality of detector fluids, said plurality including a first detector fluid and a second detector fluid;



a controller, responsive to an electronic control signal, for causing said selectable flow to be modulated;

a flame-based detector, operably connected to the pneumatic manifold for receiving the modulated selectable flow; and

a programmable computer for providing said electronic control signal, said computer including flow modulation sequence means for determining flow modulation criteria that facilitate ignition and signal generating means for providing said electronic control signal in a predetermined ignition sequence wherein said modulated flow is effected according to a continuous transition from a first predetermined flow rate to a second predetermined flow rate and according to said flow modulation criteria.

5,723,092

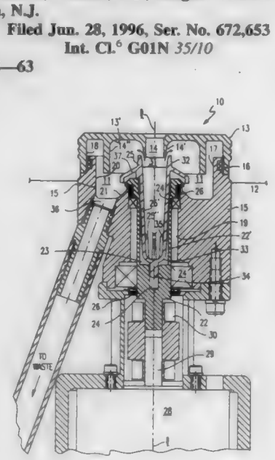
SAMPLE DILUTION SYSTEM AND DILUTION WELL INSERT THEREFOR

Arthur L. Babson, Chester, N.J., assignor to DPC Cirrus Inc., Randolph, N.J.

Filed Jun. 28, 1996, Ser. No. 672,653

Int. Cl.[6] G01N *35/10*

U.S. Cl. 422—63 **5 Claims**



1. A re-useable sample dilution system comprising, in combination:

a dilution well waste chamber defined by (a) a chamber body having inner sidewalls and a bottom defining a space, wherein said bottom includes a drainage port and a centrally located opening, and (b) a dilution well cover having a central hole, said dilution well cover being removably fitted upon said chamber body to cover said space;

a dilution well, including:

an elongated hollow cylinder having inside walls, an upper end and a lower end, said upper end having an opening and

said lower end having a plurality of inward projecting fins integral with said inside tube walls;

a dilution well spinning means, including:

a holding means for conformably receiving and supporting said dilution well,

a drive means capable of effecting rotation of said holding means and said dilution well, wherein said drive means includes a motor, and said holding means comprises a spindle where said motor controllably drives said spindle in rotation, and said spindle comprising a hollow sleeve defining a recess sized to permit nesting of said dilution well inside said spindle whereby said dilution well is capable of traveling in rotation with said spindle.

5,723,093

APPARATUS FOR THE CONTINUOUS SAMPLING AND ANALYSIS OF A LIQUID EFFLUENT

Thierry De Bruyne, Fresnes; Eric Leduc, Breuillet, and Thierry Juhel, Massy Palaiseau, all of France, assignors to Commissariat a L'Energie Atomique, France

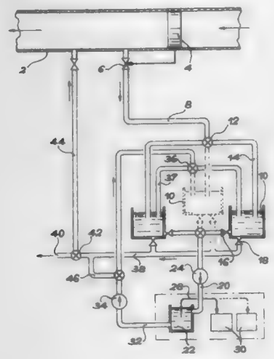
PCT No. PCT/FR95/00963, § 371 Date Aug. 5, 1996, § 102(e) Date Aug. 5, 1996, PCT Pub. No. WO96/02818, PCT Pub. Date Feb. 1, 1996

PCT Filed Jul. 18, 1995, Ser. No. 617,786

Claims priority, application France, Jul. 19, 1994, 94 08909

Int. Cl.[6] G01N *1/20*

U.S. Cl. 422—81 **19 Claims**



1. Apparatus for continuous sampling and analysis of a liquid effluent, comprising; a liquid effluent flow and first distribution means,

means for permanently deflecting part of the liquid effluent flow to be analyzed through said first distribution means,

at least two provisional storage tanks and a sampling cell, each containing an inlet and an outlet,

first means for draining each of the provisional storage tanks, connected to said inlet of said sampling cell,

means for withdrawing a sample from said sampling cell and transferring said sample to at least one measuring device, and

means for emptying said sampling cell, wherein said first distribution means is designed so as successively to fill said provisional storage tanks, and said draining means are designed so as successively to empty said provisional storage tanks in the order in which said provisional storage tanks are filled, into said sampling cell when the latter is empty.

5,723,094

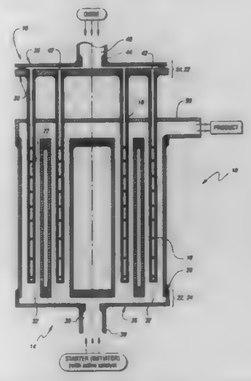
REACTOR FOR CHEMICAL REACTIONS

Kaizad Sunavala, Exton, Pa., assignor to ARCO Chemical Technology, L.P., Greenville, Del.

Filed Oct. 29, 1996, Ser. No. 741,180

Int. Cl.[6] B01J *8/04*

U.S. Cl. 422—197 **12 Claims**



1. A chemical reactor for increasing the production of a desired product, comprising:

a. a shell;

b. a plurality of flow tubes positioned in said shell, wherein said flow tubes are connected to a source of first reactant(s);

c. a capillary tubelet positioned within and along a length of each of said flow tubes, wherein said capillary tubelet is connected to a source of second reactant(s);

d. a plurality of apertures formed along said capillary tubelet to allow communication between said capillary tubelet and said flow tube;

e. one or more distributors for distributing said first reactant(s) into said flow tubes and said second reactant(s) into said capillary tubelets; and

f. an outlet for removing the desired product.

5,723,095

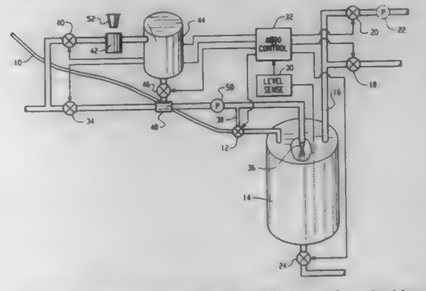
CLEANER CONCENTRATE FORMULATION FOR BIOLOGICAL WASTE FLUID HANDLING SYSTEMS

Christopher M. Fricker, Concord, and Michelle D. Mogyordy, Willoughby, both of Ohio, assignors to Steris Corporation, Mentor, Ohio

Filed Dec. 28, 1995, Ser. No. 580,325

Int. Cl.[6] A61L *2/00*

U.S. Cl. 422—292 **22 Claims**



1. A dry decontaminant composition which is activated with tap water to form a solution for cleaning and decontaminating blood, fat, protein, and other biological residues from surfaces, the composition comprising:

(a) lithium hypochlorite,

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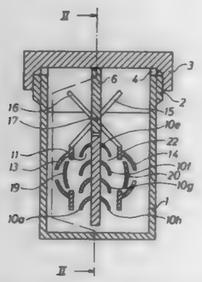
(b) a citrate salt in sufficient concentration to inhibit precipitation of insoluble carbonates from the tap water and to act as a cutting agent for fat, protein, and other biological residues, and to act as a chelator for blood,
(c) a pH buffer,
(d) a stabilizer,
(e) a corrosion inhibitor, and
(f) a surfactant.

5,723,096

APPARATUS FOR DISINFECTING CONTACT LENSES

Jørgen Bruun-Jensen, Slagelse, Denmark, assignor to Synoptik A/S, Rodovre, Denmark

PCT No. PCT/DK94/00394, § 371 Date Apr. 29, 1996, § 102(e) Date Apr. 29, 1996, PCT Pub. No. WO95/12141, PCT Pub. Date May 4, 1995
PCT Filed Oct. 27, 1994, Ser. No. 619,520
Claims priority, application Denmark, Oct. 29, 1993, 1221/93
Int. Cl.° A61L *2/18*
U.S. Cl. 422—301 **4 Claims**



1. In an apparatus for disinfecting contact lenses comprising a reaction vessel for immersing said lenses with disinfecting liquid in form of a hydrogen peroxide solution H_2O_2 having basket or net-like holders in which the contact lenses are placed on a frame also having a compartment walls provided with inlet openings for the H_2O_2-solution, and comprising a catalytic element for gradually decomposing the H_2O_2-concentration over a period of time, the improvement comprising the walls of the compartment having a system of lamellas abutting the catalytic element and extending away from said element, forming means such that the oxygen, O_2, developed during the decomposition of the H_2O_2-concentration is collected below said lamellas and maintained in contact with the catalytic element; and said lamellas comprising aperture means to permit the escape of collected oxygen.

5,723,097

METHOD OF TREATING SPENT POTLINER MATERIAL FROM ALUMINUM REDUCTION CELLS

Robert J. Barnett, Goldendale, Wash., and Michael B. Mezner, Sandy, Oreg., assignors to Goldendale Aluminum Company, Goldendale, Wash.

Filed Dec. 8, 1995, Ser. No. 569,271
Int. Cl.[6] C01F *7/04;* **C01B** *7/19;7/22*
U.S. Cl. 423—111 **31 Claims**

1. A method of treating spent potliner material from aluminum reduction cells, which spent potliner material may include fluoride compositions, cyanide compositions, iron compositions, calcium compositions, magnesium compositions, alumina, carbon, silica and sodium sulfate, said method comprising the steps of:
introducing said spent potliner material into a sulfuric acid digester to produce a gas component which may include hydrogen fluoride and hydrogen cyanide, and a slurry component including carbon, silica, alumina, sodium sulfate, iron sulfate, calcium sulfate and magnesium sulfate;
recovering said gas component from said digester and heating it to a temperature which is sufficient to decompose any hydrogen cyanide which has been produced, and thereby produce a gas component which is substantially cyanide free, and including CO_2, H_2O, nitrogen oxides and HF;
combining said gas component with water to form hydrofluoric acid;
admixing said hydrofluoric acid with aluminum hydroxide to create aluminum fluoride;
rinsing said slurry component with water to separate a first solid fraction including carbon, alumina and silica from a second liquid fraction;
adjusting said second liquid fraction to a first pH in the range of about 12.0–12.5 to create sodium aluminate in solution while precipitating impurities including Ca, Fe and Mg and then filtering the impurities from the liquid to produce a filtered liquid fraction;
adjusting the filtered liquid fraction to a second pH in the range of about 7.0–8.0 to precipitate and form aluminum hydroxide from the filtered liquid fraction;
admixing said first solid fraction with an alumina/silica mix to form an admixture; and
subjecting said admixture to an elevated temperature in an oxygen-rich atmosphere to oxidize said carbon and vitrify said alumina and silica into refractory material.

5,723,098

PROCESS FOR THE RECOVERY OF CATALYSTS IN ADIPIC ACID PRODUCTION

Herbert Salzburg, Fasanenstr. 11, 42799 Leichlingen; Georg Steinhoff, Schönwasserstr.214c, 47800 Krefeld; Heiko Hoffmann, Heitberg 6, 51427 Bergisch Gladbach, and Helmut Kaponig, Blockstr.20, 46049 Oberhausen, all of Germany

Filed Sep. 4, 1996, Ser. No. 706,473
Claims priority, application Germany, Sep. 12, 1995, 195 33 688.7
Int. Cl.° C07C *55/00;* **C02F** *1/42;* **C01G** *49/00*
U.S. Cl. 423—139 **1 Claim**

1. A process for the selective removal of iron ions from reaction solutions formed during nitric acid oxidation of cyclohexanol to adipic acid using concentrated nitric acid in the presence of copper and/or vanadium salts comprising
(a) separating adipic acid from the reaction solution,
(b) exposing the resultant reaction solution to a sulfonated ion exchanger, thereby binding iron, ions and copper and/or vanadium ions to said sulfonated ion exchanger,
(c) separating the ion-exchanger from the reaction solution,
(d) washing the separated ion exchanger with nitric acid to obtain an acid eluate, and
(e) exposing the acid eluate to an ion exchanger modified with aminophosphonic acid groups, thereby removing the iron ions from the acid eluate.

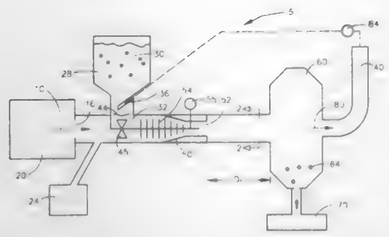
5,723,099

METHOD AND APPARATUS FOR REMEDIATION OF TOXIC FLUE GASES

Richard A. Steinke, 76 Silver Valley, Munroe Falls, Ohio 44223, and Dennis S. Chrobak, 2914 Silver Lake Blvd., Silver Lake, Ohio 44224

Filed May 17, 1996, Ser. No. 650,015
Int. Cl.[6] B01D *53/46;53/83*
U.S. Cl. 423—210 **17 Claims**

1. A process for remediation of particulate matter and gaseous pollutants including oxides of sulfur and nitrogen and volatile organic compounds in a gas stream comprising the steps of:
receiving said gas stream within a duct through a gas inlet;
introducing sorbent material into said duct at a sorbent introduction site downstream from said gas inlet, said sorbent material being selected for the particular pollutants in said gas stream;
providing a turbo powered venturi compressor within said duct adjacent said sorbent introduction site to control duct pressure drop, said turbo venturi compressor including an impeller and



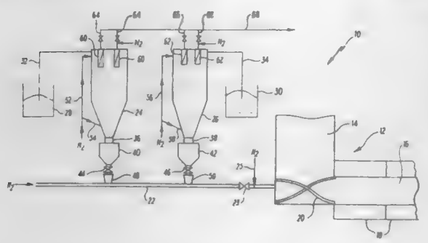
being operable to compact said gas stream and said sorbent material by reducing the cross-sectional area of said duct;
mechanically impelling said gas stream and said sorbent material through said turbo venturi compressor by rotation of said impeller;
reacting said particulate matter and said gaseous pollutants with said sorbent material to form reaction products;
removing said reaction products; and,
venting said gas stream through an outlet after collecting said reaction products.

5,723,100

URANIUM OXIDE PRODUCTION

Robert Carter, and John Terry Semeraz, both of Warrington, United Kingdom, assignors to British Nuclear Fuels plc, Warrington, England

PCT No. PCT/GB95/01281, § 371 Date Mar. 7, 1995, § 102(e) Date Mar. 7, 1995, PCT Pub. No. WO95/33689, PCT Pub. Date Dec. 14, 1995
PCT Filed Jun. 2, 1995, Ser. No. 592,337
Claims priority, application United Kingdom, Jun. 3, 1994, 9411096.2
Int. Cl.° C01G *43/025*
U.S. Cl. 423—261 **17 Claims**



1. In a process for the production of a uranium oxide in which UF_6 is converted by reaction with steam into UO_2F_2 in a first step and by further reaction of UO_2F_2 with at least one of steam and hydrogen in a second step to produce an oxide of uranium, the process being carried out in an apparatus comprising a single kiln vessel having a first region, having UF_6 and steam inlets, wherein the first step may be carried out, and a second region wherein the said second step may be carried out, which process includes the further steps of (a) analyzing the oxide of uranium produced to determine a characteristic thereof, the improvement comprising:
(b) where the characteristic is unacceptable, recycling the oxide of uranium to the said second region to produce an oxide of uranium having a lower fluoride content and oxygen to uranium ratio by feeding said material into the first region of the vessel, in the absence of any feeding of UF_6 or steam thereto, and by conveying said material by conveying means directly into the second region of the vessel, wherein the characteristic is at least one of the fluoride content and oxygen to uranium (O/U) ratio.

5,723,101

METHOD FOR PRODUCING CERIUM AND ZIRCONIUM OXIDES, MIXED OXIDES AND SOLID SOLUTIONS HAVING IMPROVED THERMAL STABILITY

Jean Pierre Cuif, Princeton, N.J., assignor to Rhone-Poulenc Inc., Cranbury, N.J.

Filed Oct. 15, 1996, Ser. No. 729,933
Int. Cl.° C01G *25/02;57/00;* **C01F** *17/00;* **C04B** *35/48*
U.S. Cl. 423—592 **42 Claims**

1. A method for producing cerium oxides, zirconium oxides, mixed oxides or solid solutions thereof having improved thermal stability, the method comprising the steps of:
a) forming a mixture comprising cerium and zirconium mixed oxides, cerium oxides, zirconium oxides, cerium and zirconium solid solution or a mixture thereof;
b) washing or impregnating the mixture with at least one alkoxylated compound having greater than 2 carbon atoms; and
c) calcining the washed or impregnated mixture.

5,723,102

PROCESS FOR THE PREPARATION OF AN ORGAN-SPECIFIC SUBSTANCE LABELED WITH TECHNETIUM-99M

Karl-Heinz Bremer, Bad Soden am Taunus; Ludwig Kuhlmann; Alexander Schwarz, both of Flörsheim am Main, and Axel Steinsträsser, Liederbach, all of Germany, assignors to CIS Bio International, Cedex, France

Continuation of Ser. No. 396,897, Mar. 1, 1995, which is a continuation of Ser. No. 257,931, Jun. 1, 1994, abandoned, which is a continuation of Ser. No. 126,018, Sep. 23, 1993, abandoned, which is a continuation of Ser. No. 907,746, Jun. 29, 1992, abandoned, which is a division of Ser. No. 680,114, Apr. 3, 1991, Pat. No. 5,164,175, which is a division of Ser. No. 427,990, Oct. 27, 1989, Pat. No. 5,116,596, which is a continuation of Ser. No. 130,183, Dec. 8, 1987, abandoned. This application Jun. 6, 1995, Ser. No. 466,259
Claims priority, application Germany, Dec. 10, 1986, 36 42 173.1; Aug. 27, 1987, 37 28 599.8
Int. Cl.° A61K *51/00;* **A61M** *36/14*
U.S. Cl. 424—1.69 **12 Claims**

1. A process for the preparation of an organ-specific substance labeled with technetium-99 m, which comprises mixing an organ-specific substance, or an organ-specific substance that has been pretreated or coupled to a complexing agent for technetium-99 m, with (99 m)-pertechnetate and a complex-stabilized reducing agent; wherein the reducing agent is at least one tin(II) salt of methanediphosphonic acid, aminomethanediphosphonic acid, 3,3-diphosphonopropionic acid, 3,3-diphospho-1,2-propanedicarboxylic acid or propane-1,1,3,3-tetraphosphonic acid.

5,723,103

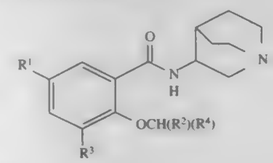
SUBSTITUTED BENZAMIDES AND RADIOLIGAND ANALOGS AND METHODS OF USE

Tomas de Paulis, Hermitage; Dennis E. Schmidt, Nashville; William Hewlett, Nashville, and Michael H. Ebert, Nashville, all of Tenn., assignors to Vanderbilt University, Nashville, Tenn.

Filed Dec. 9, 1994, Ser. No. 352,277
Int. Cl.° A61K *51/00;* **A61M** *36/14*
U.S. Cl. 424—1.85 **19 Claims**

1. A compound of the formula I

(I)



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R^1 is fluorine, chlorine, bromine, iodine, alkyl, alkenyl, alkynyl, alkoxy, alkenoxy, or alkynoxy,

R^2 and R^3 are independently hydrogen, fluorine, chlorine, bromine, iodine, alkyl, alkenyl, alkynyl, alkoxy, alkenoxy, or alkynoxy, wherein at least one of R^1, R^2, and R^3 is fluorine, bromine or iodine or is substituted with fluorine, bromine or iodine, and

R^4 is H or lower alkyl, with the proviso that when R^1 is a halogen atom, then R^2, R^3 and R^4 are not hydrogen.

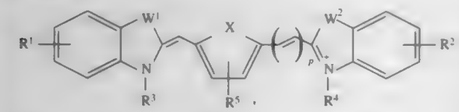
5,723,104

MONOCYCLIC FUNCTIONAL DYES FOR CONTRAST ENHANCEMENT IN OPTICAL IMAGING

Ella Y. Fung, 1329-D Whispering Pines, St. Louis, Mo. 63146, and Raghavan Rajagopalan, 13031 Vinson Ct., Maryland Heights, Mo. 63043

Filed May 13, 1996, Ser. No. 645,305
Int. Cl.[6] A61K *49/00; G01N 31/00;33/48*
U.S. Cl. 424—9.6 **16 Claims**

1. A diagnostic composition comprising a compound of the formula:



wherein R^1, R^2, and R^5 may be the same or different and are selected from the group consisting of hydrogen, C_1–C_{10}alkyl, C_1–C_{10}alkoxyl, hydroxyl, C_1–C_{10}hydroxyalkyl, C_1–C_{10}alkoxyalkyl, C_1–C_{10}aryl, carboxyl, C_1–C_{10}carboxylalkyl, halogen, nitro, C_1–C_{10} alkoxycarbonyl, mercapto, C_1–C_{10}mercaptoalkyl, C_1–C_{10}alkylthio, sulfonate, and —$(CH_2)_m$—$N(R^6)(R^7)$ wherein R^6 and R^7 are independently hydrogen or C_1–C_{10}alkyl, C_1–C_{10} acyl, and R^6 and R^7 are capable of forming 5, 6, or 7 membered rings which may optionally be substituted with —O—, —NR^8, or —S—; R^3 is selected from the group consisting of C_1–C_{10}alkyl, C_1–C_{10}hydroxyalkyl, C_1–C_{10}alkoxyalkyl, C_1–C_{10}aryl, C_1–C_{10}carboxylalkyl, C_1–C_{10}alkyl sulfonate, mercapto alkyl and —$(CH_2)_m N(R^6)(R^7)$; R^4 is selected from the group consisting of C_1–C_{10}carboxylalkyl and —$(CH_2)_m N(R^6)(R^7)$; W^1 and W^2 may be the same or different and are selected from the group consisting of —S—, —O—, —Se—, —Te—, —NR^8 and $C(R^9)(R^{10})$; p is about 1–10; and m is about 0–10; R^8 is hydrogen, C_1–C_{10}alkyl, C_1–C_{10}alkoxy, C_1–C_{10}mercaptoalkyl, hydroxyl, C_1–C_{10}hydroxyalkyl, C_1–C_{10}alkoxyalkyl, C_1–C_{10}aryl, C_1–C_{10}carboxylalkyl, C_1–C_{10}alkoxycarbonyl, C_1–C_{10}alkylthio, and —$(CH_2)_m$—$N(R^6)(R^7)$; R^9 and R^{10} are independently hydrogen, C_1–C_{10}alkyl, C_1–C_{10}alkoxyl, C_1–C_{10}hydroxyalkyl, C_1–C_{10}alkoxyalkyl, C_1–C_{10}carboxyalkyl, C_1–C_{10}alkoxycarbonyl, and —$CH_2)_m$—$N(R^6)(R^7)$; and X is —O—, —S—, —SO—, —SO_2—, —Se—, —Te—, —NR^8, or —$C(R^9)(R^{10})$.

5,723,105

VISUALLY CLEAR GEL DENTIFRICE

David B. Viscio, Monmouth Junction; Michael Collins, Hazlet, and Benjamin Y. Mandanas, Freehold, all of N.J., assignors to Colgate-Palmolive Company, New York, N.Y.

Division of Ser. No. 456,351, Jun. 1, 1995, Pat. No. 5,599,526. This application Sep. 13, 1996, Ser. No. 713,562
Int. Cl.[6] A61K *7/16;7/18*
U.S. Cl. 424—49 **13 Claims**

1. A visually clear gel dentifrice comprising about 5–50% by weight of dentally acceptable dentifrice polishing agent having a refractive index in the range of about 1.41 to about 1.47, about 0.1–10% by weight of a gelling agent to provide a gel consistency to said dentifrice, at least about 20% by weight of a liquid aqueous-humectant vehicle having a refractive index within about 0.02 refractive index units of said polishing agent, about 0.01–5% by weight of a substantially water-insoluble noncationic antibacterial agent, which is partially dissolved in about 0.1–3% by weight of flavoring oil, and about 0.5–5% by weight of surfactant which facilitates dissolving of said antibacterial agent in said gel dentifrice, the improvement characterized in that said surfactant is

(a) a polyoxyethylene alcohol sulfate having the formula

$$R—(O\,CH_2\,CH_2)_n\,^-OSO3\,^-X^+,$$

wherein R is an alkyl group with a C10–18 hydrocarbon chain length, n is an integer of 1 to about 4 and X is alkali metal or

(b) a weight mixture of at least about 1:3 of said polyoxyethylene alcohol sulfate with alkali metal lauryl sulfate;

wherein formations of crystals at cool temperature conditions below about 20° C. which substantially diminish clarity of said clear gel dentifrice is reduced while still permitting substantial retention of gel dentifrice clarity.

5,723,106

REDUCED ALCOHOL MOUTHWASH ANTISEPTIC AND ANTISEPTIC PREPARATION

R. Michael Buch, Hackettstown; Thomas A. Biemer, Great Meadows, and Frank A. Volpe, Kinnelon, all of N.J., assignors to Warner-Lambert Company, Morris Plains, N.J.

Continuation of Ser. No. 318,008, Oct. 4, 1994, abandoned, which is a continuation of Ser. No. 9,617, Jan. 27, 1993, abandoned. This application Jan. 21, 1997, Ser. No. 784,609
Int. Cl.[6] A61K *7/16;7/26*
U.S. Cl. 424—49 **14 Claims**

1. An organoleptically acceptable antiseptic mouthwash composition comprising an effective amount of thymol, eucalyptol, methyl salicylate and menthol dissolved in ethanol, said ethanol being present in an amount of no more than 22% v/v; a dispersion effective amount of surfactant; a co-solvent effective amount of a combination of propylene glycol and glycerin; benzoic acid; and water wherein the propylene glycol is present in an amount of from about 1.0% to about 4.0% v/v and said glycerin is present in an amount of from about 0.2% to about 3.0% v/v.

5,723,107

DUAL COMPONENT DENTIFRICE COMPOSITION FOR FLUORIDATING TEETH

John C. Blake-Haskins, Piscataway; Mary L. Colligan, Somerville; Benjamin Y. Mandanas, Freehold, and Abdul Gaffar, Princeton, all of N.J., assignors to Colgate Palmolive Company, New York, N.Y.

Filed Oct. 7, 1996, Ser. No. 726,974
Int. Cl.[6] A61K *7/16;7/18*
U.S. Cl. 424—52 **14 Claims**

1. A method for fluoridating teeth utilizing a semi-solid, extrudable, two component dentifrice system comprising the steps of (1) preparing as a first component a semi-solid, extrudable dentifrice composition containing a fluoride ion releasable hydrolyzable complex fluoride compound in an aqueous acidic vehicle in which the fluoride compound is stable, the vehicle being free of abrasive and surfactant and containing xanthan gum as the major thickening agent and glycerin, sorbitol or mixtures thereof as the humectant, and as a second component, a semi-solid, extrudable aqueous dentifrice composition containing a calcium ion releasable compound and an abrasive in an aqueous vehicle a containing xanthan gum as the major thickening agent and glycerin, sorbitol or mixtures thereof as the humectant (2) maintaining the first and second dentifrice compounds separate from the other until application to teeth requiring fluoridation and (3) mixing the first and second components together to deposit calcium fluoride therefrom on contact with a tooth surface.

5,723,108

DRYER AND TOP COAT FOR NAIL POLISH

Moisei Reysis, 37140 Independence Ct., Solon, Ohio 44139

Division of Ser. No. 450,527, May 25, 1995, Pat. No. 5,549,930. This application Jul. 16, 1996, Ser. No. 682,987
Int. Cl.[6] A61K *7/04;7/043*
U.S. Cl. 424—61 **6 Claims**

1. A drying accelerator for nail polish consisting essentially of:

a liquid mixture of about 50%–75% by volume dimethicone; and

about 25%–50% by volume cyclomethicone.

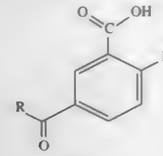
5,723,109

USE OF SALICYCLIC ACID DERIVATIVES FOR DEPIGMENTING THE SKIN

Catherine Causse, Paris, and Sabine Deprez, Thiais, both of France, assignors to L'Oreal, Paris, France

Filed Apr. 4, 1996, Ser. No. 627,965
Claims priority, application France, Apr. 7, 1995, 95 04189
Int. Cl.[6] A61K *7/48*
U.S. Cl. 424—62 **15 Claims**

1. A method of lightening skin, comprising contacting skin in need thereof with an effective amount of a salicylic acid compound of formula (I) or of a salt thereof as a sole inhibitor of tyrosinase:

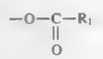


(I)

wherein:

R is a C_{2-22} linear or branched or C_{3-22} cyclic saturated aliphatic group or a C_{2-22} unsaturated group containing one or a plurality of double bonds; unsubstituted or substituted by at least one substituent selected from the group consisting of (a) halogen atoms, (b) the trifluoromethyl group, (c) hydroxyl groups in the free form or esterified by an acid having from 1 to 6 carbon atoms and (d) a carboxyl group in the free form or esterified by a lower alcohol having from 1 to 6 carbon atoms;

R' is a hydroxyl group or an ester functional group of the formula:



where R_1 is a C_{1-18} saturated or unsaturated aliphatic group without peeling the skin.

5,723,110

DEODORANT COSMETIC COMPOSITION SUPERIOR IN RESISTANCE TO DISCOLORATION AND DISPERSION

Tatsuo Yamamoto, Inazawa; Masashi Uchida, and Yasuo Kurihara, both of Nagoya, all of Japan, assignors to Shinagawa Fuel Co., Ltd., Tokyo, Japan

Filed Jul. 19, 1995, Ser. No. 504,389
Claims priority, application Japan, Jul. 19, 1994, 6-166926; Jun. 12, 1995, 7-143775
Int. Cl.[6] A61K *7/32;31/74;* **C01B** *39/00*
U.S. Cl. 424—65 **31 Claims**

1. A deodorant cosmetic composition superior in resistance to discoloration and dispersion comprising (i) an antibacterial zeolite, having at least a portion of its ion exchangeable ions substituted with ammonium ions and antibacterial metal ions, and (ii) silicone, blended together.

5,723,111

FOAM BOOSTING OF HAIR SHAMPOO COMPOSITIONS

David Alan Glover, and Linda Moy Madore, both of Midland, Mich., assignors to Dow Corning Corporation, Midland, Mich.

Division of Ser. No. 43,338, Apr. 6, 1993. This application Dec. 6, 1993, Ser. No. 161,562
Int. Cl.[6] A61K *7/075*
U.S. Cl. 424—70.1 **6 Claims**

1. A shampoo composition comprising 10 to 80 percent by weight of water; 10 to 50 percent by weight of an emulsifying agent selected from the group consisting of an anionic surfactant, a cationic surfactant, a nonionic surfactant, an amphoteric surfactant, and mixtures thereof, and 0.1 to 10 percent by weight of a foam boosting compound which is an oxyethylene functional organosilane having the formula $RSiR'_3$ in which R is the radical —$O(CH_2CH_2O)_xR''$; R' is an R group or an alkyl group having one to six carbon atoms; R" is a radical selected from the group consisting of hydrogen, an alkyl group having one to six carbon atoms, and an aryl group; and x is an integer having a value of six to thirty.

5,723,112

PYRITHIONE CONTAINING HAIR TREATMENT COMPOSITION

Paul Anthony Bowser, Near Bideford; Jonathan David Hague, Wirral; Andrew Malcolm Murray, Parkgate, all of United Kingdom, and Ruby Loo Bik Tan-Walker, Chester, Great Britain, assignors to Chesebrough-Pond's USA Co., Division of Conopco, Inc., Greenwich, Conn.

Filed Jul. 9, 1996, Ser. No. 677,259
Claims priority, application European Pat. Off., Jul. 14, 1995, 95304935
Int. Cl.[6] A61K *7/075;* **A01N** *25/04*
U.S. Cl. 424—70.13 **8 Claims**

1. An antimicrobial hair treatment composition comprising:

(a) from 0.1 to 50% by weight of surfactant;

(b) from 0.001 to 5% by weight of fine particles of an insoluble particulate metal pyrithione, in which at least about 90% by weight of the particles have a size of 1 microns or less; and

(c) from 0.01 to 5% by weight of a polymeric, water-soluble cationic deposition aid for the fine particles.

5,723,113

SPRAYABLE HAIR TREATMENT COMPOSITION

Joseph Raymond Faryniarz, Oxford; G. Jae Lee, Trumbull; Paul Vinski, Danbury, and Frank Jones, Gilford, all of Conn., assignors to Chesebrough-Pond's USA Co., Division of Conopco, Inc., Greenwich, Conn.

Division of Ser. No. 289,737, Aug. 12, 1994, Pat. No. 5,599,532. This application Oct. 24, 1996, Ser. No. 736,298
Int. Cl.[6] A61K *00/00*
U.S. Cl. 424—70.16 **13 Claims**

1. An aqueous hairspray composition comprising:

(i) a nonionic film-forming polymer constituted from at least one monomer having at least one unneutralized carboxylic acid group; and

(ii) an anionic film-forming polymer which is identical to the nonionic film-forming polymer except that all of the carboxylic acid groups have been converted to a salt form; the relative weight ratio of nonionic to anionic film-forming polymer ranging from about 10:1 to about 1:10.

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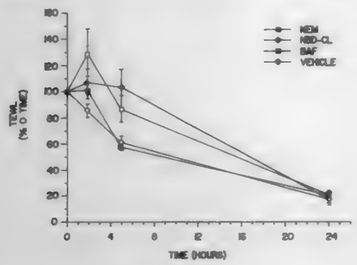
PENETRATION ENHANCING COMPOSITIONS AND METHODS OF THEIR USE

Carl R. Thorufeldt, San Rafael; Peter M. Elias, Muir Beach, and Stephen Grayson, San Rafael, all of Calif., assignors to Ceilegy Pharmaceuticals Inc., Foster City, and The Regents of the University of California, Oakland, both of Calif.

Division of Ser. No. 261,343, Jun. 16, 1994, abandoned, which is a continuation-in-part of Ser. No. 33,807, Mar. 19, 1993, abandoned. This application Apr. 26, 1996, Ser. No. 639,212

Int. Cl.[6] A61K *9/06;9/10*

U.S. Cl. 424—78.02 37 Claims



11. A topical composition comprising:

(a) about 0.01% to about 25% by weight of a penetration enhancing compound that is a proton pump inhibitor selected from the group consisting of monensin, lasalocid, nigericin, valinomycin, chloroquine, gramicidin D, salinomycin, N-ethylmaleimide, N,N'-dicyclohexylcarbodiimine, and bafilomycin A_1 or B_1;

(b) about 0.0001% to about 60% by weight of a therapeutic or prophylactic agent and;

(c) an amount of a physiologically acceptable carrier sufficient to total 100% by weight wherein said therapeutic or prophylactic agent is distinct from said proton pump inhibitor.

5,723,115

INHIBITION OF ADIPOSE TISSUE DEVELOPMENT AND OBESITY

Ginette Serrero, Lake Placid, N.Y., assignor to W. Alton Jones Cell Science Center, Inc., Lake Placid, N.Y.

Continuation of Ser. No. 694,299, May 2, 1991, abandoned. This application Dec. 2, 1993, Ser. No. 161,307

Int. Cl.[6] A61K *38/18;* C07K *14/485;16/22*

U.S. Cl. 424—85.1 11 Claims

1. A method for suppressing precursor adipocyte differentiation in obese mammals, comprising administering to said mammal an effective amount of a composition comprising epidermal growth factor or an epidermal growth factor receptor agonist which binds to the epidermal growth factor receptor and activates said receptor.

5,723,116

DECREASED MORTALITY OF SEVERE ACUTE PANCREATITIS FOLLOWING PROXIMAL CYTOKINE BLOCKADE

James G. Norman, Jr., Tampa, Fla., assignor to University of South Florida, Tampa, Fla.

Filed Jan. 6, 1995, Ser. No. 369,386

Int. Cl.[6] A61K *45/05;38/00;* C07K *1/00*

U.S. Cl. 424—85.1 16 Claims

9. A method for treating a person with acute pancreatitis which comprises co-administering an effective amount of a combination of a tumor necrosis factor (TNF) antagonist and Interleukin-1 receptor antagonist (IL-1ra) or a pharmaceutically acceptable salt thereof.

5,723,117

USE OF INTERLEUKIN-1 (IL-1) TO INHIBIT DEVELOPMENT OF HEPATITIS

Satoru Nakai, Tokushima; Seiji Akamatsu, Naruto; Yoshihiro Masui, Tokushima; Tsutomu Nishida, Naruto; Takashi Kamogashira, Tokushima, and Yoshikatu Hirai, Suita, all of Japan, assignors to Otsuka Pharmaceutical Co., Ltd., Tokyo, Japan

Division of Ser. No. 839,770, Apr. 9, 1992, abandoned. This application Oct. 22, 1993, Ser. No. 139,862

Claims priority, application Japan, Aug. 10, 1990, 2-212941

Int. Cl.[6] A61K *38/20*

U.S. Cl. 424—85.2 8 Claims

1. A method for inhibiting the development of hepatitis, comprising the step of administering, to a subject suffering from a disorder associated with development of hepatitis, one or more doses of a therapeutic composition comprising Interleukin-1 (IL-1) protein, wherein the administration of IL-1 protein is effective to inhibit the development of abnormal levels of one or more markers associated with hepatitis.

5,723,118

THERAPEUTIC AGENTS WHICH ARE ANTAGONISTS OR PARTIAL AGONISTS OF HUMAN INTERLEUKIN 4

Walter Sebald, Würzburg, Germany, assignor to Bayer Aktiengesellschaft, Leverkusen, Germany

PCT No. PCT/EP92/02614, § 371 Date May 6, 1994, § 102(e) Date May 6, 1994, PCT Pub. No. WO93/10235, PCT Pub. Date May 27, 1993

PCT Filed Nov. 13, 1992, Ser. No. 232,289

Claims priority, application Germany, Nov. 13, 1991, 41 37 333.2

Int. Cl.[6] C07K *14/54;* A61K *38/20*

U.S. Cl. 424—85.2 21 Claims

1. A mutant human interleukin-4 (hIL-4) protein, said mutant hIL-4 protein having the amino acid sequence of wild type hIL-4 protein, but wherein one or more of the amino acids occurring therein at positions 121, 124 or 125 is replaced by another natural amino acid, or the amino acid sequence is terminated at one of these positions, with the exception of mutein tyrosine124aspartic acid, said mutant hIL-4 protein being an antagonist or partial agonist of hIL-4-mediated in vitro T-cell proliferation.

5,723,119

METHOD FOR ENHANCING WOUND HEALING/REPAIR WITH IL-4

Martin A. Schwarz, Verona; Lee M. Sullivan, Edison; Loretta A. Bober, Linden, and Michael J. Grace, Hamilton Township, all of N.J., assignors to Schering Corporation, Kenilworth, N.J.

Continuation of Ser. No. 344,323, Nov. 23, 1994, abandoned, which is a continuation of Ser. No. 835,891, Feb. 14, 1992, which is a continuation-in-part of Ser. No. 386,937, Jul. 28, 1989, abandoned, and Ser. No. 639,631, Jan. 10, 1991, abandoned. This application May 25, 1995, Ser. No. 451,112

Int. Cl.[6] A61K *00/00*

U.S. Cl. 424—85.2 11 Claims

1. A method of enhancing the reparative phase of wound healing and repair in a mammal in need of such enhancing which comprises administering during said reparative phase an amount of Interleukin-4 (IL-4) effective for such purpose.

5,723,120

METHOD OF TREATING AN IL-6 RELATED DISEASE WITH INTERLEUKIN-6 RECEPTOR ANTAGONISTS

Just P. J. Brakenhoff, Amsterdam, and Lucien A. Aarden, Broek In Waterland, both of Netherlands, assignors to Chiron Corporation, Emeryville, Calif., and Central Laboratory of the Netherlands Red Cross Blood Transfusion Service, Amsterdam, Netherlands

Division of Ser. No. 357,538, Dec. 16, 1994, Pat. No. 5,591,827, which is a continuation of Ser. No. 959,942, Oct. 20, 1992, abandoned. This application Jun. 7, 1995, Ser. No. 476,651

Int. Cl.[6] A61K *38/19;* C07K *14/54*

U.S. Cl. 424—85.2 8 Claims

1. A method of treating an IL-6 related disease comprising the step of administering to a mammal in need thereof an interleukin-6 (IL-6) receptor antagonist comprising a mutated IL-6 polypeptide comprising amino acids 30 through 185 of mature IL-6 protein, characterized by having mutations in the region corresponding to amino acid positions 154 through 163 of mature IL-6 protein, said mutations providing decreased IL-6 signal transduction activity relative to IL-6 receptor-binding activity.

5,723,121

SUGAR MODIFIED INTERFERON

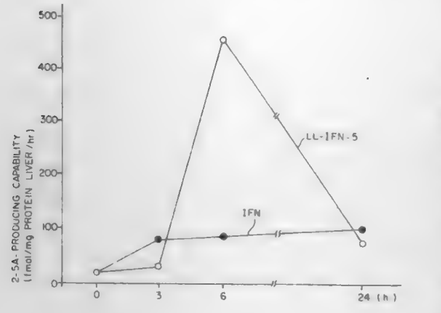
Mitsuko Takenaga, 30-1, Sugao 2-chome, Miyamae-ku, Kawasaki-shi, Kanagawa 216; Katsukiyo Sakurai, 527-6, Zohshiki 2-chome, Higashiyamato-shi, Tokyo 207; Rie Igarashi, 8-2, Minami-ikuta 5-chome, Tama-ku, Kawasaki-shi, Kanagawa 214, and Yutaka Mizushima, 1-11, Umegaoka 1-chome, Setagaya-ku, Tokyo 154, all of Japan

Continuation of Ser. No. 288,746, Aug. 16, 1994, abandoned. This application Mar. 10, 1997, Ser. No. 812,920

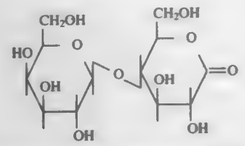
Claims priority, application Japan, Aug. 23, 1993, 5-227816

Int. Cl.[6] A61K *38/21;* G07K *17/10*

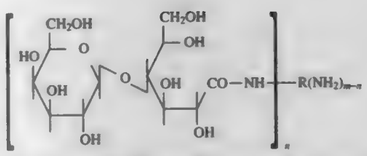
U.S. Cl. 424—85.4 15 Claims



1. Sugar-modified interferon (IFN), which is a binding reaction product between the carbonyl group of a lactose lactone represented by



and an ϵ-amino group of a lysine residue and/or an amino group at the N-terminal of interferon represented by (b) $R(NH_2)_m$ through acid amido bond to yield (c)



wherein m is the number of primary amino groups in IFN; n is the number of acid amido bonds; R is the IFN skeleton; and m is greater than or equal to n; and said reaction is performed in the presence of a surfactant which does not have an amino group reactive with lactose lactone.

5,723,122

USE OF THE PROTEASE DOMAIN OF HUMAN PLASMINOGEN ACTIVATOR FOR THE TREATMENT OF THROMBOEMBOLIC DISEASES

Ulrich Kohnert, Habach; Anne Stern, Penzberg; Ulrich Martin, Mannheim, and Stephan Fischer, Polling, all of Germany, assignors to Boehringer Mannheim GmbH, Penzberg, Germany

Filed Jun. 1, 1995, Ser. No. 456,566

Int. Cl.[6] A61K *38/43;38/48;* C12N *9/48;9/70*

U.S. Cl. 424—94.1 19 Claims

1. Method for treating a thromboembolic condition comprising administering to a subject in need thereof a thrombolytically effective amount of an active molecule which is not stimulated by CNBr fragments of fibrinogen, has plasminogenolytic activity less than 25 KU/mg, is a protein or glycoprotein has less than 10% of the fibrin binding activity of wild type human tissue plasminogen activator, and an amino acid sequence which consists of no more than amino acids 262–527 of human wild type tissue plasminogen activator and no less than amino acids 276–527 of human wild type tissue plasminogen activator.

5,723,123

PROCESS FOR THE PRODUCTION OF A VIRUS-FREE CONCENTRATE OF THROMBIN

Hermann Karges, and Horst Naumann, both of Marburg, Germany, assignors to Behringwerke Aktiengesellschaft, Marburg, Germany

Continuation of Ser. No. 977,842, Nov. 17, 1992, abandoned. This application Jun. 5, 1995, Ser. No. 465,191

Claims priority, application Germany, Nov. 19, 1991, 41 37 996.9

Int. Cl.[6] A61K *38/48*

U.S. Cl. 424—94.65 16 Claims

1. A process for the production of a purified and virus free preparation of thrombin which comprises adding a soluble salt in a concentration of from 0.5 mol/l up to the saturation limit thereof, said soluble salt having an anion that forms a sparingly-soluble salt or a soluble complex with calcium, to a solution of a prothrombin complex which has been purified on an anion exchanger and subjected to virus inactivation, said solution having a catalytic amount of thrombin present as a result of the purification of the prothrombin, the viral inactivation of the prothrombin, or added thereafter at a concentration of greater than zero up to 200 units of thrombin per ml of solution.

5,723,124

Patent Not Issued For This Number

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5,723,125

HYBRID WITH INTERFERON-ALPHA AND AN IMMUNOGLOBULIN FC LINKED THROUGH A NON-IMMUNOGENIC PEPTIDE

Tse Wen Chang, and Liming Yu, both of Houston, Tex., assignors to Tanox Biosystems, Inc., Houston, Tex.

Continuation-in-part of Ser. No. 579,211, Dec. 28, 1995, abandoned. This application Sep. 25, 1996, Ser. No. 719,331

Int. Cl.[6] A61K *39/395;39/00;* C07K *16/00;1/00*

U.S. Cl. 424—134.1 4 Claims

1. A hybrid molecule comprising an interferon molecule joined at its C-terminal end through a peptide linker to the N-terminal end of a first gamma immunoglobulin Fc fragment, the peptide linker having the sequence Gly Gly Ser Gly Gly Ser Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser (the peptide of SEQ ID NO:1), the hybrid molecule having a specific activity of at least 1.1×10^9 IU/μmole as measured by a virus cytopathic effect inhibition assay.

5,723,126

METHODS AND COMPOSITIONS FOR THERAPEUTIC USES OF A FIBRIN-SPECIFIC MONOCLONAL ANTIBODY

Paul E. Gargan, Southbend, Ind.; Victoria A. Ploplis, Leuven, Belgium, and Julian R. Pleasants, Granger, Ind., assignors to American Biogenetic Sciences, Inc., Copiague, N.Y.

Division of Ser. No. 86,423, Jul. 2, 1993, Pat. No. 5,453,359, which is a continuation-in-part of Ser. No. 81,914, Jun. 22, 1993, abandoned, which is a continuation of Ser. No. 835,800, Feb. 14, 1992, Pat. No. 5,223,410, which is a continuation of Ser. No. 364,053, Jun. 8, 1989, Pat. No. 5,120,834, which is a continuation-in-part of Ser. No. 206,259, Jun. 13, 1988, abandoned. This application Jun. 2, 1995, Ser. No. 460,702

Int. Cl.[6] A61K *39/395;* C07K *16/18*

U.S. Cl. 424—145.1 7 Claims

1. In a method for utilizing a monoclonal antibody in conjunction with a thrombolytic reagent for the treatment of thrombosis comprising administering to a human in need of said treatment a monoclonal antibody in conjunction with a thrombolytic agent, the improvement comprising employing for said monoclonal antibody a fibrin-specific monoclonal antibody that is MH-1 produced by hybridoma ATCC 9739 or an immunoreactive fragment thereof, or an antibody or an immunoreactive fragment thereof that binds to the same epitope as monoclonal antibody MH-1.

5,723,127

COMPOSITIONS AND METHODS FOR USE OF IL-12 AS AN ADJUVANT

Phillip Scott, Swarthmore, and Giorgio Trinchieri, Wynnewood, both of Pa., assignors to The Trustees of the University of Pennsylvania, and The Wistar Institute of Anatomy & Biology, both of Philadelphia, Pa.

Division of Ser. No. 265,087, Jun. 17, 1994, Pat. No. 5,571,515, which is a continuation-in-part of Ser. No. 229,282, Apr. 18, 1994, abandoned. This application Mar. 25, 1996, Ser. No. 621,493

Int. Cl.[6] A61K *39/00;39/12;39/005;* C07K *1/00*

U.S. Cl. 424—184.1 8 Claims

1. An antigenic composition comprising a selected antigen from a pathogenic bacteria or virus and an effective adjuvanting amount of Interleukin-12, wherein said Interleukin-12 enhances the cell mediated immune response to said antigen.

5,723,128

CYTOTOXIC T-CELL LYMPHOCYTE ("CTL") ACTIVITY REGULATION BY CLASS I MHC PEPTIDES

Carol Clayberger; Alan M. Krensky, and Peter Parham, all of Stanford, Calif., assignors to The Board of Trustees of the Leland Stanford Junion University, Stanford, Calif.

Continuation-in-part of Ser. No. 844,716, Mar. 2, 1992, which is a continuation-in-part of Ser. No. 755,584, Sep. 3, 1991, abandoned, which is a continuation of Ser. No. 672,147, Mar. 19, 1991, abandoned, which is a continuation-in-part of Ser. No. 8,846, Jan. 30, 1987, abandoned. This application Apr. 5, 1994, Ser. No. 222,851

Int. Cl.[6] A61K *38/00;* C07K *14/74*

U.S. Cl. 424—185.1 16 Claims

1. A method for blocking CTL activity comprising the step of contacting said CTL with a peptide of 25 amino acids in length or less comprising amino acids 75–84 of a human MHC class I HLA B allele alpha-1 domain protein.

5,723,129

GNRH-LEUKOTOXIN CHIMERAS

Andrew A. Potter, and John G. Manns, both of Saskatoon, Canada, assignors to University of Saskatchewan, Saskatoon, Canada

Continuation-in-part of Ser. No. 960,932, Oct. 14, 1992, Pat. No. 5,422,110, which is a continuation-in-part of Ser. No. 779,171, Oct. 16, 1991, abandoned. This application Feb. 10, 1995, Ser. No. 387,156

Int. Cl.[6] A61K *39/02;38/00;* C12N *15/00;* C07K *2/00*

U.S. Cl. 424—200.1 26 Claims

1. A chimeric protein comprising a leukotoxin polypeptide fused to a multimer having more than one selected GnRH polypeptide, whereby said leukotoxin portion of said chimeric protein acts to increase the immunogenicity of said GnRH multimer.

5,723,130

ADJUVANTS FOR VACCINES AGAINST RESPIRATORY SYNCYTIAL VIRUS

Gerald E. Hancock, 50 Plains Rd., Honeoye Falls, N.Y. 14472; Dan J. Speelman, 4215 Pine Haven La., Sanford, N.C. 27330, and Patrick J. Frenchick, 6601 Rexford Dr., Lincoln, Nebr. 68506

PCT No. PCT/US94/05833, § 371 Date Sep. 16, 1996, § 102(e) Date Sep. 16, 1996, PCT Pub. No. WO94/27636, PCT Pub. Date Dec. 8, 1994

PCT Filed May 24, 1994, Ser. No. 553,332

Int. Cl.[6] A61K *39/155;39/12;39/00;* C07K *5/00*

U.S. Cl. 424—211.1 6 Claims

1. A vaccine formulation comprising (a) a respiratory syncytial viral (RSV) protein selected from the group consisting of (i) RSV glycoprotein G, (ii) RSV glycoprotein F, (iii) a chimeric glycoprotein consisting of the signal and extracellular domains of RSV glycoprotein F linked to the extracellular domain of RSV glycoprotein G, and (iv) combinations thereof, and (b) an adjuvant selected from the group consisting of QS-21, 3-deacylated monophosphoryl lipid A and combinations thereof, in a physiologically acceptable vehicle.

5,723,131

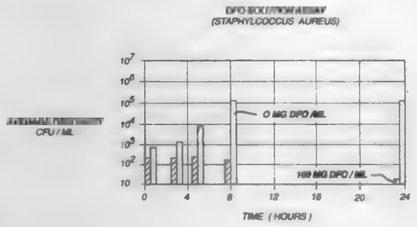
CONTACT LENS CONTAINING A LEACHABLE ABSORBED MATERIAL

Clyde L. Schultz, Ponte Vedra Beach; Ivan M. Nunez, Jacksonville; David L. Silor, Jacksonville, and Michele L. Neil, Jacksonville, all of Fla., assignors to Johnson & Johnson Vision Products, Inc., Jacksonville, Fla.

Filed Dec. 28, 1995, Ser. No. 580,233

Int. Cl.[6] A61K *9/00;* A61F *13/00*

U.S. Cl. 424—400 15 Claims



1. A polymeric composition comprising a polymeric hydrogel material containing desferrioxamine which is absorbed in said polymeric hydrogel material and capable of being leached into the ocular fluid.

5,723,132

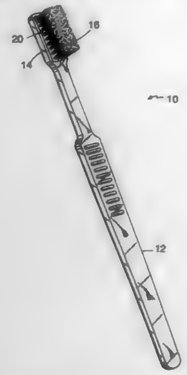
SUSTAINED-RELEASE MATRICES FOR DENTAL APPLICATION

Mingchih M. Tseng, Hingham, and Carl M. Philbrook, Jamaica Plain, both of Mass., assignors to Gillette Canada Inc., Kirkland, Canada

Division of Ser. No. 262,961, Jun. 21, 1994, which is a division of Ser. No. 898,471, Jun. 15, 1992, Pat. No. 5,340,581, which is a continuation-in-part of Ser. No. 749,137, Aug. 23, 1991, abandoned. This application Jun. 6, 1995, Ser. No. 467,556

Int. Cl.[6] A61K *7/16;9/22;9/26;* A46B *11/00*

U.S. Cl. 424—401 13 Claims



1. A method of providing an indication of wear in an oral brush, comprising

brushing teeth with an oral brush comprising a body including a handle and head, a brush portion connected to said head, and a wear-indicator composite, attached to said body, comprising a water-insoluble support resin, a water-soluble polymer, and a colorant,

wherein during said brushing the wear-indicator composite contacts water, said water-soluble polymer dissolving in said water resulting in the release of said colorant from said composite.

5,723,133

COSMETICS CONTAINING GUANIDINE DERIVATIVES

Minoru Nagai; Hiromitsu Kawada; Mayumi Tsuchiya; Seiji Yamasaki; Akira Yamamuro, and Toshiya Ono, all of Tokyo, Japan, assignors to Kao Corporation, Tokyo, Japan

Filed Jul. 26, 1995, Ser. No. 507,077

Claims priority, application Japan, Jul. 26, 1994, 6-173043; Sep. 22, 1994, 6-228023

Int. Cl.[6] A61K *7/48*

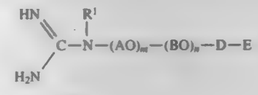
U.S. Cl. 424—401 4 Claims

1. A skin cosmetic preparation, comprising:

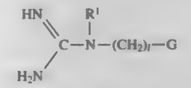
0.001 to 50% by weight, based on total weight, of a guanidine derivative, and

0.001 to 30%, based on total weight, of an organic acid or ester thereof,

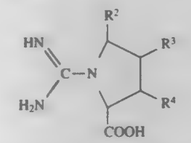
wherein said guanidine derivative is represented by the following formula (1), (2), (3) or an acid addition salt thereof:



(1)



(2)



(3)

wherein in formula (1) A and B may be the same or different from each other and each represents an alkylene group having 2 to 8 carbon atoms, D represents a single bond, —CO— or an alkylene group having 1 to 6 carbon atoms, E represents a hydrogen atom, a lower alkyl group, an aralkyl group having 7 to 12 carbon atoms, a phenyl group or a naphthyl group, said aralkyl, phenyl and naphthyl group being unsubstituted or substituted by an amino group which may be substituted with a lower alkyl group; nitro; cyano; hydroxyl: a carboxylic acid residue which may form an ester with a lower alkyl group, a lower alkyl halide or an aralkyl group having 7–12 carbon atoms; carbamoyl a halogen atom; a lower alkyl group; or a lower alkoxy group, m is an integer of 1 to 6, n is an integer of 0 to 6 and R^1 represents a hydrogen atom, a lower alkyl group or —(AO)$_m$—(BO$_n$—D—E, with the proviso that —(AO)$_m$—(BO)$_n$—D—E is not a hydroxyethyl group when R^1 is methyl group;

in formula (2), l is an integer of 1 to 10, G represents a hydrogen atom, a hydroxyl group, a carboxyl group, a sulfonic acid group or a phosphoric acid group and R^1 is as defined above, and;

in formula (3), one of R^2, R^3 and R^4 is a hydroxyl group and others are hydrogen atoms.

5,723,134

Patent Not Issued For This Number

179–264 O.G.–98–13: QL3

VOL 1208 ISS 1 MR 3 1998 UMI

5,723,135

ONE-PHASE PROCESS FOR MAKING A CLEAR ANTIPERSPIRANT STICK CONTAINING DIBENZYLIDENE ALDITOL

Andrew Ford, Stoneham, and David S. Wells, Shrewsbury, both of Mass., assignors to The Gillette Company, Boston, Mass.

Filed Feb. 6, 1996, Ser. No. 588,619
Int. Cl.[6] A61K *7/00*
U.S. Cl. 424—401 23 Claims

1. A method of making a gel cosmetic stick which comprises mixing, at a temperature below 50° C., a particulate dibenzylidene alditol with a liquid vehicle which contains an antiperspirant salt dissolved therein to form a uniform dispersion, heating a portion of said dispersion to a temperature sufficient to dissolve the dibenzylidene alditol in said portion, and cooling said portion to form a gel.

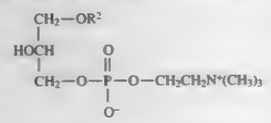
5,723,136

SKIN ACTIVATOR WITH GLYCOSAMINOGLYCAN PRODUCTION-ACCELERATING EFFECT

Shinji Tanaka, Tsukuba; Hiroshi Doi, Tsuchiura, and Noboru Yamamoto, Sagamihara, all of Japan, assignors to Institute for Advanced Skin Research, Inc., Kanagawa, Japan

PCT No. PCT/JP95/01243, § 371 Date Feb. 21, 1996, § 102(e) Date Feb. 21, 1996, PCT Pub. No. WO95/35090, PCT Pub. Date Dec. 28, 1995
PCT Filed Jun. 21, 1995, Ser. No. 605,121
Claims priority, application Japan, Jun. 21, 1994, 6-138637
Int. Cl.[6] A61K *6/00*
U.S. Cl. 424—401 8 Claims

1. A skin activator comprising 0.1 to 10 wt % of one or more 1-acyl-lysophospholipid represented by the following formula



wherein R^2 represents a saturated fatty acid residue of 13–18 carbon atoms or a fatty acid residue of 18 carbon atoms and having 1–3 unsaturated double bonds.

5,723,137

PROCESS FOR THE PRODUCTION OF STORAGE STABLE WAX DISPERSIONS

Bernd Wahle, Kaarst; Peter Waltenberger, Breitscheid; Claudia Klink, Willich; Thomas Foerster, Erkrath, and Thomas Engels, Frechen, all of Germany, assignors to Henkel Kommanditgesellschaft auf Aktien, Duesseldorf, Germany

PCT No. PCT/EP94/03453, § 371 Date Apr. 29, 1996, § 102(e) Date Apr. 29, 1996, PCT Pub. No. WO95/11936, PCT Pub. Date May 4, 1995
PCT Filed Oct. 20, 1994, Ser. No. 637,638
Claims priority, application Germany, Oct. 29, 1993, 43 37 030.6
Int. Cl.[6] A61K *7/06;7/48*
U.S. Cl. 424—401 19 Claims

1. The process of producing a storage-stable, fine-particle wax dispersion comprising heating a mixture consisting essentially of

(A) 10% to 80% by weight of a wax,

(B) 0.5% to 30% by weight of a hydrophilic nonionic dispersant having an HLB value of 8 to 18, and

(C) 1% to 30% by weight of a hydrophobic co-dispersant selected from the group consisting of fatty alcohols containing 12 to 22 carbon atoms and partial esters of polyols containing 3 to 6 carbon atoms with fatty acids containing 12 to 22 carbon atoms,

with the proviso that the weight ratio of component (B) to component (C) is in the range from 0.5:1 to 20:1, in the presence of 15% to 85% by weight of water to a temperature above the melting point of the mixture of components (A) to (C) to form a dispersion, heating said dispersion to its phase inversion temperature, and then cooling said dispersion to a temperature below its phase inversion temperature.

5,723,138

SKIN-ADHESIVE COSMETICS FOR REMOVING WRINKLES, CONTAINING VITAMINS AND ALOE EXTRACT

Jae-Hyun Bae, and Ok-Yeon Kim, both of 47-3, Onchun-1 Dong, Tongrae-ku, Pusan, Rep. of Korea

Filed May 6, 1996, Ser. No. 642,211
Int. Cl.[6] A61K *7/48*
U.S. Cl. 424—401 5 Claims

1. An adhesive cosmetic product which comprises a coating of a cosmetic composition and a nontoxic adhesive in a mixture or in a laminate structure on a non-toxic carrier film, and which may be directly adhered to the regions of the skin and removed easily from the skin wherein the cosmetic product comprises a coating of 5–50 parts by weight of the composition comprising 5–40% by weight of vitamin E, 5–50% by weight of vitamin A and 15–60% by weight of concentrated natural aloe extract, and 50–95 parts by weight of an adhesive in a mixture or in a laminate structure on a carrier film, wherein the cosmetic composition is in a thickness of from 5–50 μm and the adhesive is in a thickness of from 1–5 μm.

5,723,139

SKIN CARE COMPOSITIONS CONTAINING A POLYCYCLIC TRITERPENE CARBOXYLIC ACID AND A RETINOID

Stewart Paton Granger, Paramus, and Ian Richard Scott, Allendale, both of N.J., assignors to Chesebrough-Pond's USA Co., Division of Conopco, Inc., Greenwich, Conn.

Filed Sep. 27, 1996, Ser. No. 721,878
Int. Cl.[6] A61K *7/48*
U.S. Cl. 424—401 6 Claims

1. A skin conditioning composition comprising

(a) from about 0.001% to about 10% of a retinoid selected from the group consisting of retinol, a retinyl ester and mixtures thereof;

(b) from about 0.0001% to about 50% of a polycyclic triterpene carboxylic acid selected from the group consisting of oteanolic acid, ursolic acid, and glycyrrhetinic acid; and

(c) a cosmetically acceptable vehicle.

5,723,140

METHOD FOR TREATING PRESSURE ULCERS

Charles W. Pearsall, 7 W. Highpoint Rd., Stuart, Fla. 34996, and Manuel Caldera, 74-900 Hwy. 111, Suite 221, Indian Wells, Calif. 92210

Filed Jan. 30, 1996, Ser. No. 594,087
Int. Cl.[6] A61K *33/40*
U.S. Cl. 424—404 15 Claims

1. A method for treating an individual to prevent the occurrence of pressure ulcers and facilitate the healing of previously existing pressure ulcers, comprising the following steps:

determining which linens will contact pressure points on the individual as the individual rests upon a support surface;

preparing the linens by cleaning the linens in ozonated wash water to limit chemical residuals and maintain neutral pH levels on the linens, wherein the linens cleaned in ozonated wash water exhibit no chemical residuals and neutral pH, and cause no chemical reaction with the skin of the individual; and

placing the linens into use so that they contact the skin of the individual at pressure points.

5,723,141

N-PYRIDYLTOLUIDINE-CONTAINING FUNGICIDAL WATER DISPERSIBLE GRANULES

Tokiya Kimura; Takeshi Shindo, and Kazutaka Ikeda, all of Kusatsu, Japan, assignors to Ishihara Sangyo Kaisha Ltd., Osaka, Japan

PCT No. PCT/JP94/01320, § 371 Date Feb. 9, 1996, § 102(e) Date Feb. 9, 1996, PCT Pub. No. WO95/04460, PCT Pub. Date Feb. 16, 1995
PCT Filed Aug. 10, 1994, Ser. No. 592,296
Claims priority, application Japan, Aug. 11, 1993, 5-220563
Int. Cl.[6] A01N *25/12*
U.S. Cl. 424—408 10 Claims

1. Fungicidal water dispersible granules, which have a composition consisting essentially of from 20 to 94 wt % of the composition of a fungicide consisting essentially of the fungicidal active component 3-chloro-N-(3-chloro-5-trifluoromethyl-2-pyridyl)-α,α,α-trifluoro-2,6-dinitro-p-toluidine alone or in combination with another fungicidal active ingredient in the ratio of 10 to 70 parts by weight of said fungicidal active component to 10 to 70 parts of weight of the another fungicidal active ingredient, the another fungicidal active ingredient being

1-(2-cyano-2-methoxyiminoacetyl)-3-ethylurea, tetrachloroisophthalonitrile, dimethyl 4,4'-(o-phenylene)bis(3-thioallophanate), 4-[3-(4-chlorophenyl)-3-(3,4-dimethoxyphenyl)acryloyl]morpholine, (RS)-3-(3,5-dichlorophenyl)-5-methyl-5-vinyl-1,3-oxazolidine-2,4-dione, 3-(3,5-dichiorophenyl)-N-isopropyl-2,4-dioxoimidazolidine-1-carboxamide, N-(3,5-dichlorophenyl)-1,2-dimethylcyclopropane-1,2-dicarboximide, 3'-isopropoxy-o-toluanilide, α,α,α-trifluoro-3'-isopropoxy-o-toluanilide, methyl-(E)-methoxyimino [α-(o-tolyloxy)-o-tolyl]acetate, methyl (E)-2-{2-[6-(2-cyanophenoxy)pyrimidin-4-yloxy]phenyl}-3-methoxyacrylate, (E)-2-methoxyimino-N-methyl-2-(2-phenoxyphenyl)acetamide, N-(4,6-dimethylpyrimidine2-yl)aniline or 2-anilino-4-methyl-6-(1-propynyl)pyrimidine,

from 2 to 30 wt % of a surfactant, from 1 to 78 wt% of a carrier, from 0 to 3 wt % of an acid as a pH control agent and from 0 to 0.2 wt % of an antifoamer, and the pH of which is adjusted by the surfactant, carrier and/or an acid so that a 1% water suspension thereof will have a pH of from pH 5.0 to 6.8.

5,723,142

METHOD FOR MASKING THE CORNEA

Barry L. Bowyer, 1754 Grove Dr., Clearwater, Fla. 34619

Filed Oct. 11, 1994, Ser. No. 320,907
Int. Cl.[6] A61K *47/36;* A61F *9/04;* A61B *6/10*
U.S. Cl. 424—427 13 Claims

1. A method for masking the cornea of any eye during surgical application of laser energy, said method comprising the steps of:

preparing a substantially cross-linked biological material; and then solidifying the substantially cross-linked biological material on an eye within approximately three minutes to form an ablatable mask directly on the eye.

5,723,143

SOLID MUCOADHESIVE THERAPEUTIC OR HYGIENIC COMPOSITION FOR APPLICATION TO THE BUCCAL OR NASAL MUCOUS MEMBRANE

Yves R. Jacques, Annecy, France; Claude Gaillard, Lyngby, Denmark; Pierre Buri, Troinex, Switzerland; Bernard Boisrame, Lure, France; Catherine Aubry, Lure, France, and Vassilios Kaltsaltos, Lure, France, assignors to Vetoquinol S.A., Lure, France

Continuation of Ser. No. 344,674, Nov. 21, 1994, abandoned. This application Nov. 25, 1996, Ser. No. 755,348
Claims priority, application France, Nov. 24, 1993, 93 14057
Int. Cl.[6] A61K *9/20;9/40*
U.S. Cl. 424—435 9 Claims

1. Solid mucoadhesive therapeutic or hygienic composition for administration by application to the buccal or nasal mucous membrane, said composition comprising, in mixture, 15 to 25% by weight of a cellulosic ether selected from the group consisting of C_1–C_4 alkyl ethers of cellulose, C_1–C_4 hydroxyalkyl ethers of cellulose and mixtures thereof, said cellulosic ether being gelifiable when placed in the presence of an aqueous liquid, 10–15% by weight of a copolymer of acrylic acid and allyl sucrose or a physiologically acceptable salt of said copolymer, 30–45% by weight of a gelatin, and one or more therapeutic or hygienic active constituents.

5,723,144

OINTMENT FOR WOUND TREATMENT

Craig J. Hardy, Keighley, United Kingdom, assignor to Johnson & Johnson Medical, Inc., Arlington, Tex.

Continuation of Ser. No. 204,730, Mar. 1, 1994, abandoned. This application Jun. 14, 1996, Ser. No. 662,103
Claims priority, application United Kingdom, Mar. 23, 1993, 93060.99
Int. Cl.[6] A61L *15/00*
U.S. Cl. 424—445 4 Claims

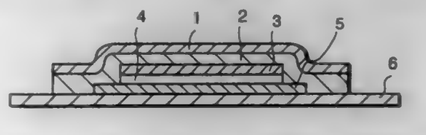
1. An aqueous wound treatment composition, comprising from 1 to 20% by weight of a gel-forming polysaccharide, and from 15 to 50% by weight of hexylene glycol, and water, wherein the gel-forming polysaccharide is selected from the group consisting of carboxymethyl cellulose and hydroxyethyl cellulose and the weight is calculated based on the weight of the aqueous wound treatment composition.

5,723,145

TRANSDERMAL ABSORPTION PREPARATION

Yasuo Shikinami; Kunihiro Hata; Seiei Sasatani, and Masao Sudoh, all of Osaka, Japan, assignors to Takiron Co., Ltd., and Ono Pharmaceutical Co., Ltd., both of Osaka, Japan

Continuation of Ser. No. 716,047, Sep. 19, 1996, abandoned, which is a continuation of Ser. No. 448,614, May 26, 1995, abandoned. This application Jul. 22, 1997, Ser. No. 898,646
Claims priority, application Japan, Sep. 30, 1993, 5-269842
Int. Cl.[6] A61F *13/02*
U.S. Cl. 424—448 8 Claims



1. A transdermal absorption preparation which comprises a drug-storing layer containing a drug and having a drug-releasing face coated with a drug-releasing controlling membrane, wherein said drug-storing layer comprises as a base a heat-sensitive segmented polyurethane represented by the general formula:

R—A—(U)—F—(U)—B—R'

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wherein A represents a polymer of ethylene oxide, propylene oxide, tetramethylene oxide or 1,2-butylene oxide, or a random or block copolymer thereof, B represents a random or block copolymer of ethylene oxide, propylene oxide, tetramethylene oxide and/or 1,2-butylene oxide, R and R', which may be the same or different, each represents a terminal H, CH_3, C_2H_5, C_3H_7 or C_4H_9, F represents a constituting structure which is a residual moiety of a diisocyanate compound excluding two isocyanate groups, and (U) represents a urethane bond, and at least one of A and B is hydrophilic and at the same time at least one of A and B has a characteristic that it melts near the temperature of human skin (30° to 40° C.);

wherein the viscosity of the seqmented polyurethane after melting is about 2,000 centipoise or less; and

wherein said drug-releasing controlling membrane is a phase-separated membrane comprising a mixture of a crosslinked gelatin phase and an uncrosslinked segmented polyurethane phase.

5,723,146

PHARMACEUTICAL PREPARATIONS

Georg Rössling; Andreas Sachse, and Jutta Riedl, all of Berlin, Germany, assignors to Schering Aktiengesellschaft, Berlin, Germany

Continuation of Ser. No. 130,539, Oct. 1, 1993, abandoned, and Ser. No. 982,328, Nov. 27, 1992, abandoned, and Ser. No. 857,133, Mar. 25, 1992, abandoned, which is a continuation of Ser. No. 604,021, Oct. 26, 1990, abandoned. This application Mar. 28, 1995, Ser. No. 411,392

Claims priority, application Germany, Oct. 27, 1989, 39 36 328.7

Int. Cl.[6] A61K *9/127*

U.S. Cl. 424—450 **9 Claims**

1. A pharmaceutical composition comprising, cyproterone acetate and liposomes, wherein the cyproterone is encapsulated in the liposomes.

5,723,147

MULTIVESICULAR LIPOSOMES HAVING A BIOLOGICALLY ACTIVE SUBSTANCE ENCAPSULATED THEREIN IN THE PRESENCE OF A HYDROCHLORIDE

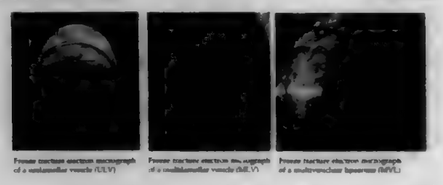
Simil Kim, Solana Beach, and Stephen B. Howell, Del Mar, both of Calif., assignors to DepoTech Corporation, La Jolla, Calif.

Continuation-in-part of Ser. No. 352,342, Dec. 7, 1994, abandoned, which is a continuation of Ser. No. 20,483, Feb. 23, 1993, abandoned, which is a continuation of Ser. No. 709,744, Jun. 3, 1991, abandoned, which is a continuation-in-part of Ser. No. 563,365, Aug. 6, 1990, abandoned, which is a continuation-in-part of Ser. No. 151,553, Feb. 18, 1988, abandoned. This application Jun. 6, 1995, Ser. No. 472,126

Claims priority, application United Kingdom, Feb. 23, 1987, 8704171

Int. Cl.[6] A61K *9/127*

U.S. Cl. 424—450 **16 Claims**



1. A multivesicular liposome having multiple non-concentric chambers with membranes distributed in a matrix comprising:

(a) a biologically active substance selected from agent, a cardiac glycoside, an antihypertensive, a nucleic acid, an antibiotic, a vaccine, an antiarrhythmic, an antiangina, a hormone, an antidiabetic, an antineoplastic, an immunomodulator, an antifungal, a tranquilizer, a steroid, a sedative, an analgesic, a vasopressor, an antiviral, a herbicide, a pesticide, a protein, a peptide, a neurotransmitter, a radionuclide, and suitable combinations thereof;

(b) an amphipathic lipid;

(c) a neutral lipid lacking a hydrophilic head group; and

(d) a hydrohalide selected from the group consisting of hydrochloric acid, arginine hydrochloride, histidine hydrochloride, lysine hydrochloride and pyridine hydrochloride in a concentration in the range from about 10 mM to about 500 mM;

wherein the concentration of the hydrohalide is sufficient to modulate the release rate of the biologically active substance from the composition.

5,723,148

TOPICAL PHARMACEUTICAL COMPOSITIONS

William Guy Love, Horsham, England, assignor to Novartis Corp., Summit, N.J.

Filed Jan. 5, 1996, Ser. No. 583,255

Claims priority, application United Kingdom, Jan. 5, 1995, 9500116

Int. Cl.[6] A61K *9/127*

U.S. Cl. 424—450 **20 Claims**

1. A topically administrable pharmaceutical composition comprising (A) zinc phthalocyanine, (B) as carrier for (A), (i) a monoalkyl ether of diethyleneglycol substantially in the absence of a N-alkylpyrrolidone, a N,N-dialkylbenzamide or dimethyl sulfoxide, or (ii) a mixture of a monoalkyl ether of diethyleneglycol with a lipid and (C) a gelling agent.

5,723,149

USE OF MEDICAGO SAPONINS FOR THE PREPARATION OF COSMETIC OR PHARMACEUTICAL COMPOSITIONS, ESPECIALLY DERMATOLOGICAL COMPOSITIONS, PROMOTING RENEWAL OF THE EPIDERMIS, STIMULATING HAIR REGROWTH OR DELAYING HAIR LOSS

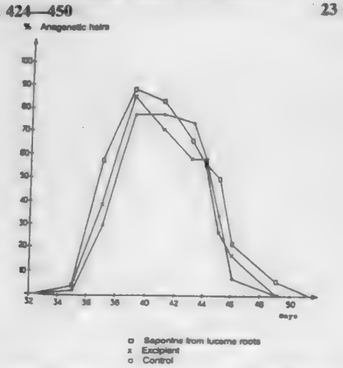
Frédéric Bonte; Alain Meybeck, both of Courbevoie, and Georges Massiot, Reims, all of France, assignors to LVMH Recherche, Colombes, Cedex, France

Continuation of Ser. No. 326,048, Oct. 19, 1994, abandoned, which is a continuation of Ser. No. 64,126, May 21, 1993, abandoned. This application Feb. 5, 1996, Ser. No. 596,699

Claims priority, application France, Nov. 21, 1990, 90 14542

Int. Cl.[6] A61K *9/127;31/70*

U.S. Cl. 424—450 **23 Claims**



1. A method for promoting hair growth, combating seborrheic alopecia, and delaying hair loss, comprising the topical application on the desired area to be treated comprising hair, and scalp, an amount effective for achieving said topical treatment of an active ingredient consisting essentially of at least one Medicago component selected from the group consisting of Medicago triterpene saponins, the corresponding sapogenins, Medicago plant extracts containing at least one of said triterpene saponins, and Medicago plant extracts containing at least one of said sapogenins.

5,723,150

Patent Not Issued For This Number

5,723,151

CELLULOSE ACETATE PHTHALATE ENTERIC COATING COMPOSITIONS

Phillip Michael Cook, Kingsport, Tenn.; Michael Wayne Adams, Raleigh, N.C., and Joseph Vaden Smith, Kingsport, Tenn., assignors to Eastman Chemical Company, Kingsport, Tenn.

Filed Nov. 6, 1995, Ser. No. 554,020

Int. Cl.[6] A61K *9/20*

U.S. Cl. 424—459 **9 Claims**

1. An enteric coating composition comprising

(a) cellulose acetate phthalate having an inherent viscosity of about 0.2 to 0.6 dL/g, measured at 25° C. in a (60/40 by weight) mixture of phenol/tetrachloroethane at a concentration of 0.5 g/100 mL and having phthalyl values of 30 to 40%; and

(b) an organic solvent.

5,723,152

APPARATUS FOR VACUUM MOLDING EXPANDED SYNTHETIC RESIN PARTS

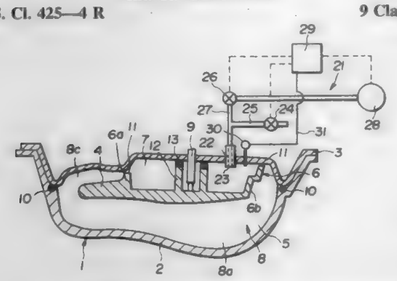
Yutaka Hirata; Teruo Iwai, and Toshio Iwasawa, all of Yokohama, Japan, assignors to Bridgestone Corporation, Tokyo, Japan

Filed Jul. 30, 1996, Ser. No. 681,931

Claims priority, application Japan, Aug. 1, 1995, 7-196843

Int. Cl.[6] B29C *44/58*

U.S. Cl. 425—4 R **9 Claims**



1. A mold apparatus for producing a synthetic resin foam part, comprising

a mold assembly comprising a lower mold having an upward open recess, an upper mold removably attached to the lower mold to cover the open recess to define a closed space, and an insert removably disposed in the closed space, wherein the insert on its upper surface is provided with a partition which is faced to said upper mold through a gap, the partition defines a chamber between the upper surface of the insert and the upper mold, and said closed space excluding said chamber constitutes a cavity into which a synthetic resin foam molding compound is introduced, and

a pressure regulator means for exhausting air from the chamber to keep the chamber in a subatmospheric pressure whereby air in the cavity is also exhausted through the gap when air in the chamber is exhausted.

5,723,153

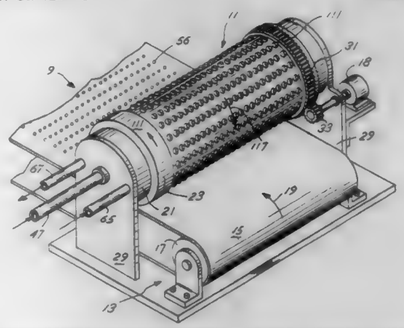
EXTRUSION APPARATUS HAVING A NOZZLE-HEADED DRUM

Jules Schwager, Palatine, Ill., assignor to Berndorf Belt Systems, Inc., Schaumburg, Ill.

Continuation of Ser. No. 398,526, Mar. 6, 1995, Pat. No. 5,492,463, which is a continuation of Ser. No. 196,693, Feb. 14, 1994, Pat. No. 5,395,560, which is a continuation of Ser. No. 693,235, Apr. 26, 1991, Pat. No. 5,286,181. This application Feb. 20, 1996, Ser. No. 602,489

Int. Cl.[6] B29C *47/32*

U.S. Cl. 425—8 **8 Claims**



1. An extrusion device including a rotable cylindrical member for extruding a flowable mass onto a moving conveyor and recycling any excess mass, comprising:

a plurality of nozzles disposed on said rotatable cylindrical member for extruding the flowable mass onto the moving conveyor, each of said nozzles including:

a top surface having an opening formed therethrough allowing said flowable mass to flow out of said rotatable cylindrical member and onto said moving conveyor; and

at least one guide surface providing a path to allow excess mass that is not extruded onto said moving conveyor to flow therealong;

a plurality of valley surfaces formed on said rotatable cylindrical member, said valley surfaces receiving excess mass as said rotatable cylindrical member rotates; whereby as said cylindrical member rotates, said excess mass that gathers in said valley surfaces flows toward said top surface along said at least one guide surface and onto said top surface whereby said excess mass is rejoined with flowable mass flowing out of said nozzles and is extruded onto said moving conveyor.

5,723,154

TIRE MOLD TRANSPORTER

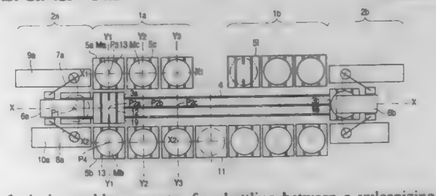
Nobuhiko Irie, and Teruaki Muta, both of Nagasaki, Japan, assignors to Mitsubishi Jukogyo Kabushiki Kaisha, Tokyo, Japan

Filed Nov. 15, 1995, Ser. No. 558,802

Claims priority, application Japan, Nov. 18, 1994, 6-285237; Jul. 13, 1995, 7-177492

Int. Cl.[6] B29C *35/00*

U.S. Cl. 425—34.1 **17 Claims**



1. A tire mold transporter for shuttling between a vulcanizing station in which plural sets of tire molds are arranged to perform

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vulcanization and a mold opening/closing station in which a tire mold is opened and a vulcanized tire contained therein is removed from the tire mold, subsequently an unvulcanized tire is inserted into the tire mold, and then the tire mold is closed, said tire mold transporter comprising:

a first railway disposed along said vulcanizing station and said mold opening/closing station;

a truck having a drive unit, said truck being moveable on said first railway between a first position in the mold opening/closing station and a plurality of second positions along a front area of the vulcanizing station;

a second railway, disposed on said truck, extending in a direction which is orthogonal to said first railway;

a plurality of third railways disposed at said plurality of second positions, respectively, each of said third railways extending in a direction which is orthogonal to said first railway and being connectable to said second railway; and

a mold transfer drive unit fixed on said truck such that when one of said third railways and said second railway on said truck are connected to each other, said mold transfer drive unit is operable to move a tire mold from said second railway onto one of said third railways and from one of said third railways onto said second railway.

5,723,155

COMPOSITE INSULATOR-PRODUCING COMPRESSION MOLD DEVICE

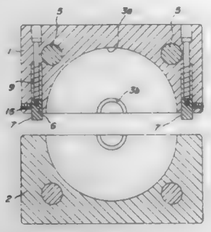
Koji Hayakawa, Handa, and Osamu Tsuji, Nagoya, both of Japan, assignors to NGK Insulators, Ltd., Japan

Filed Mar. 8, 1996, Ser. No. 612,783

Claims priority, application Japan, Mar. 23, 1995, 7-063883

Int. Cl.[6] **B29C** *43/18;43/38*

U.S. Cl. 425—116 **22 Claims**



1. A composite insulator-producing compression mold device comprising:

a pair of molding units each having a recess for the formation of a housing of a composite insulator;

at least one partition plate fitted to one of the molding units near the composite insulator housing-forming recess and at a location radially outwardly from said recess;

urging means for urging said partition plate toward the other molding unit such that an outer end portion of the partition plate may project out of said one of the molding units toward the other molding unit from a parting face of said one of the molding units when the molding units are opened, whereas when the molding units are closed, the partition plate may be received within said one of the molding units; and

means for preventing the partition plate from being detached from said one of the molding units,

wherein during molding unit closure to receive, within said recess, insulating macromolecular material for the formation of a housing, the outer end portion of the partition plate located outside said one of the molding units is urged into contact with a mold-parting face of the other molding unit by said urging means, whereby insulating macromolecular material fed into said recess for the formation of the housing is prevented from flowing radially outwardly through and between the parting faces.

5,723,156

MOLD FOR MOLDING A SEMICONDUCTOR PACKAGE

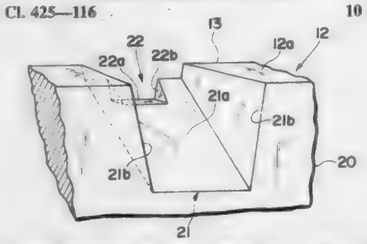
Jirou Matumoto, Tokyo, Japan, assignor to Oki Electric Industry Co., Ltd., Tokyo, Japan

Filed Feb. 10, 1997, Ser. No. 798,153

Claims priority, application Japan, Jul. 3, 1996, 8-173156

Int. Cl.[6] **B29C** *45/14;45/26*

U.S. Cl. 425—116 **10 Claims**



1. A mold for molding a semiconductor package comprising:

a pair of mold members for cooperatively holding therebetween a plate-form support member to retain a semiconductor device thereon and for cooperatively defining a cavity surrounding the semiconductor device, the pair of molding members having parting faces in contact with each other; and

a gate for guiding a resin molding material into the cavity, the gate being formed in the parting face of at least one of the pair of mold members,

wherein the gate is defined by a groove including a slanted bottom face inclined at an elevation angle to a haft of the cavity which is defined by the other mold member so as to orient the flow of the resin material toward the half of the cavity, and wherein in the slanted bottom face, an auxiliary groove is provided to cause the resin material, generally guided along the slanted bottom face, to be partially oriented to a direction different from the general resin flow direction given by the slanted bottom face.

5,723,157

EXTRUSION HEAD FOR PRODUCING HOSE- OR PIPE-SHAPED PREFORMS FROM EXTRUDABLE PLASTICS

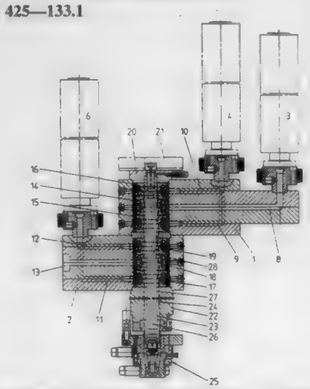
Lothar Grütjen, Lohmar, Germany, assignor to W. Müller KG, Lohmar, Germany

Filed Sep. 25, 1996, Ser. No. 719,492

Claims priority, application Germany, Sep. 26, 1995, 195 35 749.3

Int. Cl.[6] **B29C** *47/26*

U.S. Cl. 425—133.1 **12 Claims**



1. An extrusion head for producing hose- or pipe-shaped preforms from extrudable plastics, the preforms composed of at least one layer and intended for forming hollow members, said extrusion head comprising:

at least one distributor per layer of the preform;

each distributor having a central bore and an annular exit gap for an annular gap formed between each distributor and an outer face of a mandrel, the exit gap communicating with a flow channel fed by a feeding channel;

the feeding channel including a connecting channel for connecting to an extruder and the central bore of each distributor defining a longitudinal axis, said distributor including two outer and two central distributor discs which contact one another via contact faces, said contact faces being on planes perpendicular to the longitudinal axis, said feeding channel arranged in at least one contact face of the two central distributor discs, said feeding channel provided with passages, said flow channel being divided into two partial channels of which one each is arranged in at least one of the contact faces of a central distributor disc and an outer distributor disc, said passages leading to the two partial channels said two outer distributor discs include central projections directed towards one another and projecting into central bores of the two central distributor discs and said projections, between their ends, facing one another, forming the annular exit gap for the annular gap and said partial channels continuing into the free space formed between the projections and the central bores of the central distributor discs as far as the exit gap.

5,723,158

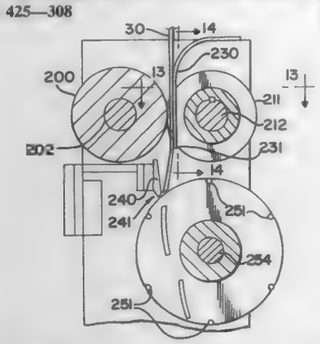
APPARATUS FOR PRODUCING SHREDDED CHEESE

Orville C. Fager; Scott G. Andrews, both of Green Bay; Dennis R. Ferdon, Abrams; David James Garnett, and Matthew Taylor Stenzel, both of Green Bay, all of Wis., assignors to Schreiber Foods, Inc., Green Bay, Wis.

Division of Ser. No. 473,071, Jun. 7, 1995, Pat. No. 5,601,855, which is a division of Ser. No. 106,330, Aug. 12, 1993, abandoned. This application Feb. 5, 1997, Ser. No. 795,603

Int. Cl.[6] **A23C** *19/00;* **A23P** *1/00;* **B26D** *1/00*

U.S. Cl. 425—308 **15 Claims**



1. An apparatus for producing food shreds of predetermined dimensions comprising:

a sheet former comprising at least one outlet tube that extrudes food in substantially liquid form upon an outer surface of at least one endless belt such that the extruded food forms a substantially continuous sheet of food;

a casting line positioned downstream of the sheet former and comprising at least one endless belt that transports a sheet of food on an outer surface of the belt;

a rotating cutting head positioned downstream of the casting line and comprising a rotating shaft mounted transversely to the direction of an incoming sheet of food, a plurality of spaced circular blades mounted to the rotating shaft and substantially perpendicular to the longitudinal axis of the rotating shaft, a plurality of transverse blades mounted substantially parallel to the longitudinal axis of the rotating shaft, the transverse blades extending between adjacent circular blades near the circumference of the circular blades, and further comprising a motor which drives the rotating shaft;

an anvil which receives on a surface of the anvil an incoming sheet of blood and which surface is disposed to cooperate with the circular blades and transverse blades to cut the sheet of food into shreds of food.

5,723,159

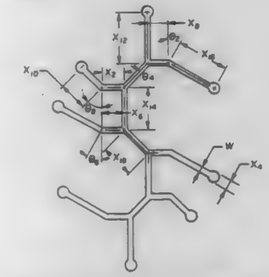
SPINNERETS FOR MAKING FIBERS CAPABLE OF SPONTANEOUSLY TRANSPORTING FLUIDS

Bobby M. Phillips, Jonesborough; Shriram Bagrodia, Kingsport; William A. Haile, Kingsport; Harry P. Hall, Kingsport; David A. Casey, Kingsport; J. Nelson Dalton, Kingsport; Ronnie J. Jones, Kingsport; Ronald S. Scalf, Bluff City; Richard D. Neal, Kingsport; Lewis C. Trent, Johnson City, and Jack L. Nelson, Johnson City, all of Tenn., assignors to Eastman Chemical Company, Kingsport, Tenn.

Division of Ser. No. 133,426, Oct. 8, 1993, Pat. No. 5,611,981, which is a division of Ser. No. 736,267, Jul. 23, 1991, which is a continuation-in-part of Ser. No. 333,651, Apr. 4, 1989, abandoned. This application Mar. 20, 1996, Ser. No. 618,737

Int. Cl.[6] **B29C** *47/30;* **D01D** *5/253*

U.S. Cl. 425—461 **16 Claims**



1. A spinneret comprising at least one orifice, said orifice has a cross-sectional width, W, that is between 0.064 mm and 0.12 mm; is substantially shaped as shown in FIG. 3; includes segments X_2, X_4, X_6, X_8, X_{10}, X_{12}, X_{14} and X_{16}; and defines angles θ_2, θ_4, θ_6 and θ_8, wherein

X_2 is $4W_{-1W}^{+4W}$; X_4 is $2W\pm0.5W$; X_6 is $6W_{-2W}^{+4W}$; X_8 is $6W_{-2W}^{+5W}$;

X_{10} is $7W_{-2W}^{+5W}$; X_{12} is $9W_{-1W}^{+5W}$; X_{14} is $10W_{-2W}^{+5W}$;

X_{16} is $11W_{2W}^{+5W}$; X_{18} is $6W_{-2W}^{+5W}$; θ_2 is 30°±30°;

θ_4 is 45°±45°; θ_6 is 30°±30°; and θ_8 is 45°±45°.

5,723,160

PLANT FOR THE TREATMENT OF POWDERS, OR GRANULES, IN PARTICULAR OF THE FOOD, CHEMICAL, OR PHARMACEUTICAL INDUSTRIES

Andrea Nora, and Ruggero Barani, both of Modena, Italy, assignors to ICO Oleodinamici S.p.A., Italy

PCT No. PCT/EP94/01219, § 371 Date Oct. 17, 1995, § 102(e) Date Oct. 17, 1995, PCT Pub. No. WO94/23831, PCT Pub. Date Oct. 27, 1994

PCT Filed Apr. 19, 1994, Ser. No. 535,031

Claims priority, application Italy, Apr. 20, 1993, MO93A0055; Apr. 20, 1993, MO93A0056

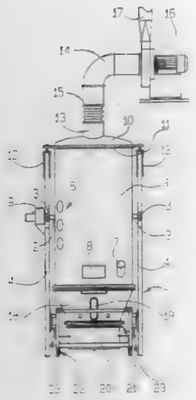
Int. Cl.[6] **B01J** *2/16;* **B29B** *9/08*

U.S. Cl. 425—472 **19 Claims**

1. A plant for the treatment of powders, or granules, in the food, chemical or pharmaceutical industries, comprising a tubular casing coupled at its lower end to a base structure and at its top end to a closing cover (**10**) of an air filter unit, the tubular casing (**1**) being detachable from the base structure (C) and the cover (**10**) so that it can be rotated around a horizontal axis.

16. A plant, as claimed in claim **1**, wherein said tubular casing (**1**) includes spraying means for spraying a binding liquid, said

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spraying means comprising inverting means for inverting the direction of flow of said binding liquid.

5,723,161

PROCESS OF MAKING FERMENTED SOUR DOUGHS

Rudolf Buensow, and Hans Egle, both of Pfaffenhofen, Germany, assignors to Van den Bergh Foods Co., Lisle, Ill.

Division of Ser. No. 87,588, Jul. 6, 1993, abandoned. This application May 17, 1995, Ser. No. 443,004

Claims priority, application European Pat. Off., Jul. 7, 1992, 92202055

Int. Cl.[6] A21D *8/04*

U.S. Cl. 426—18 1 Claim

1. Process for the preparation of a fermented, sour dough, wherein in a first stage a dough composition containing 60–65 wt % of water is made of: a) bran or flour or mixtures thereof; b) a sour starter material and c) water; the dough composition is fermented at 20°–40° C. during 8–24 hrs until the pH was dropped to less than 4.2; part of the dough of the first stage is mixed in a second stage with flour and/or bran and water until the dough displays a water content of 58–63 wt %; the dough is fermented at 25°–40° C. during 2–12 hrs until the pH of the dough was 3.8–4.2 and part of the dough of stage two is mixed with flour and/or bran in a third stage, without the addition of water, whereupon the dough is fermented at 20°–40° C. during 3–6 days until the pH of the dough is 3.8–4.0.

5,723,162

OAT-BASED FROZEN CONFECTION

Paul J. Whalen, Elk River, and Donald L. Maxwell, Plymouth, both of Minn., assignors to American Oats, Inc., Edina, Minn.

Continuation-in-part of Ser. No. 379,398, Jan. 26, 1995, abandoned. This application Jan. 25, 1996, Ser. No. 591,863

Int. Cl.[6] A23L *1/10*

U.S. Cl. 426—28 3 Claims

1. A non-dairy frozen confection comprising a syrup product that is frozen, the syrup product being formed from a liquefied and saccharified slurry that contains a base formulation and water, wherein the base formulation comprises a major amount of an oat material or waxy barley hybrid flour, and wherein the non-dairy frozen confection exhibits selected sweetness, texture, and mouthfeel characteristics while being devoid of exogenous sweeteners, stabilizers, emulsifiers, and proteins.

5,723,163

ROLLED FOOD ITEM

Craig E. Zimmermann, Waconia, and Rene K. Merle, Crystal, both of Minn., assignors to General Mills, Inc., Minneapolis, Minn.

Continuation of Ser. No. 587,812, Jan. 5, 1996, abandoned, which is a division of Ser. No. 509,922, Aug. 1, 1995, Pat. No. 5,516,542, which is a division of Ser. No. 191,248, Feb. 1, 1994, Pat. No. 5,455,053, which is a division of Ser. No. 17,881, Feb. 16, 1993, Pat. No. 5,284,667, which is a division of Ser. No. 664,715, Mar. 4, 1991, Pat. No. 5,205,106. This application Jan. 10, 1997, Ser. No. 781,430

Int. Cl.[6] A23L *1/00*

U.S. Cl. 426—106 20 Claims

1. Food item comprising, in combination: a strip of support material having leading and trailing ends and first and second side edges, with the leading end being a cut end, with the strip of support material having a width between the first and second edges and having a length between the trailing and leading ends, with the width being minimal relative to the length of the support material; and a strip of food supported upon the strip of support material and having side edges and a length which does not extend beyond the leading and trailing ends of the support material, with the strip of support material and the strip of food supported thereon being rolled around the cut leading end into a roll having multiple rotations with the strip of support material located on the outside of the roll.

5,723,164

THERMOSTABLE EDIBLE COMPOSITION HAVING ULTRA-LOW WATER ACTIVITY

James R. Morano, Somerset, N.J., assignor to Crompton & Knowles Corporation, Stamford, Conn.

Continuation of Ser. No. 345,694, Nov. 21, 1994, Pat. No. 5,529,801, which is a continuation of Ser. No. 4,051, Jan. 13, 1993, Pat. No. 5,366,750. This application Jun. 24, 1996, Ser. No. 668,931

Int. Cl.[6] A23L *1/0534*

U.S. Cl. 426—572 7 Claims

1. A thermostable edible composition having an ultra-low water activity of below 0.6 comprising:

an edible substantially non-aqueous polyol humectant,

an ultrahigh surface area cellulose in sufficient quantity to provide a surface area of a fibril and monofibril network of at least 100 m^2/gm and to heat stabilize said composition up to 450° F. wherein said ultrahigh surface area cellulose is a member selected from the group consisting of fibril cellulose, microfibril cellulose, and combinations thereof dried with at least one chaotropic agent and sheared with said non-aqueous polyol humectant, such that said thermostable edible composition has a total lipid content of less than 15 percent, and

an edible solid phase.

5,723,165

ASPARTYLDIPEPTIDE DERIVATIVES AND SWEETENER COMPOSITIONS CONTAINING THE SAME

Tadashi Takemoto; Yusuke Amino, and Ryoichiro Nakamura, all of Kawasaki, Japan, assignors to Ajinomoto Co., Inc., Tokyo, Japan

Filed Jul. 10, 1995, Ser. No. 500,405

Claims priority, application Japan, Jul. 8, 1994, 6-157503; Oct. 7, 1994, 6-244235; Jan. 31, 1995, 7-014241; Mar. 2, 1995, 7-042818

Int. Cl.[6] C07K *5/072*

U.S. Cl. 426—548 17 Claims

1. An aspartyldipeptide compound or mixture of compounds of the following formula (I) or biologically acceptable salts thereof:

L-Asp-X-NH-C*HR$_1$R$_2$ (I)

wherein R_1 represents an alkyl group having from 1 to 6 carbon atoms, or an alkoxymethyl group having from 2 to 7 carbon atoms; R_2 represents a phenyl group, a benzyl group, a cyclohexyl group, or a cyclohexylmethyl group, the structure having the C* atom is of an (S) configuration when R_1 is an alkyl group and is of an (R) configuration when R_1 is an alkoxymethyl group; wherein when R_1 is an alkyl group, X represents a residue of a D-α-amino acid or Dl-α-amino acid selected from the group consisting of D-norleucine, D-leucine, D-isoleucine, D-alloisoleucine, D-threonine, D-O-methylthreonine, D-allothreonine, D-O-methylallothreonine, and D- an DL-furylglycine, or a residue of a cyclic or acyclic α,α-dialkylamino acid having from 3 to 6 carbon atoms, but when R_1 is an alkoxymethyl group, X represents a residue of a D-α-amino acid or a DL-α-amino acid selected from the group consisting of D-alanine, D-α-aminobutyric acid, D-norvaline, D-valine, D-norleucine, D-leucine, D-isoleucine, D-alloisoleucine, D-t-leucine, D-serine, D-O-methylserine, D-threonine, D-O-methylthreonine, D-allothreonine, D-O-methylallothreonine, D-phenylglycine, and D-and DL-furylglycine, or a residue of a cyclic or acyclic α,α-dialkylamino acid having from 3 to 6 carbon atoms; and the bond between L-Asp and X is an α-bond, and wherein X is not a residue of D-norleucine or D-leucine when R_1 represents an alkyl group and R_2 represents a phenyl group.

5,723,166

USE OF LIGHT FLESHED VEGETABLES IN BABY FOOD

Richard C. Theuer, Chesterfield, Mo.; Craig S. Boyer, Boyes Hot Springs, Calif.; Richard F. Russo, and Gerald E. Shaul, both of Canajoharie, N.Y., assignors to Beech-Nut Nutrition Corporation, St. Louis, Mo.

Filed Feb. 21, 1996, Ser. No. 604,616

Int. Cl.[6] A23L *1/29*

U.S. Cl. 426—615 31 Claims

1. A process for producing a baby food comprising:

selecting at least one vegetable from the group consisting of orange carrots, low beta-carotene carrots, orange sweet potatoes, and white sweet potatoes, at least one of the selected vegetables having a beta-carotene level of at most about 10 ppm by weight;

preparing a puree from the selected vegetables and green beans;

combining said puree, beef, corn, potatoes and water to form a mixture; and

cooking said mixture;

thereby to produce said baby food having less than 20 ppm of beta-carotene.

5,723,167

COMPRESSED FROZEN VEGETABLES AND PROCESS OF MAKING

Victor Marcus Lewis, Neutral Bay, and David Adrian Lewis, Burraneer, both of Australia, assignors to Byron Agricultural Company PTy Ltd., Ruschcutters Bay, Australia

Filed Dec. 19, 1995, Ser. No. 575,158

Claims priority, application Australia, Dec. 21, 1994, PN0202

Int. Cl.[6] A23L *3/40*

U.S. Cl. 426—640 26 Claims

1. A process for preparing a low-temperature stable vegetable product comprising a plurality of vegetable pieces, said process consisting essentially of (a) dehydrating said vegetable product to a moisture content between about 15% and about 60% (w/w) to obtain a dehydrated vegetable product having a water activity at or below 0.90 measured at 20° C., (b) compressing the dehydrated vegetable product to substantially remove all of the air between the spaces of the pieces to produce a dehydrated compressed vegetable product which will not freeze at freezer temperatures and (c) reducing the temperature of said compressed dehydrated product to freezer temperatures.

5,723,168

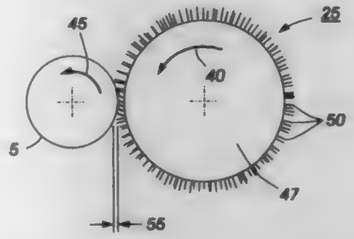
SOLVENTLESS COATING METHOD EMPLOYING ARAMID FIBERS

Eugene A. Swain, and Henry T. Mastalski, both of Webster, N.Y., assignors to Xerox Corporation, Stamford, Conn.

Filed Jan. 13, 1997, Ser. No. 781,300

Int. Cl.[6] B05D *1/28*

U.S. Cl. 427—11 10 Claims



1. A coating method comprising rubbing an edge region of an applicator, wherein the edge region of the applicator comprises an aramid material, across a surface of a substrate at a sufficient pressure and at a sufficient speed relative to the substrate surface to deposit a portion of the aramid material from the applicator to the substrate in an adherent coating on the substrate surface, wherein the method is accomplished in the absence of a solvent, wherein there is absent a step of applying discrete coating particles to the substrate surface.

5,723,169

METHOD FOR MAKING A SHADOW MASK FOR A COLOR PICTURE TUBE

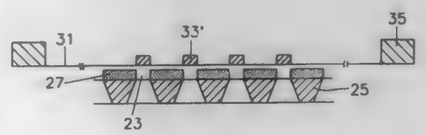
Dong-hee Han; Hwan-chul Rho, and Jae-myung Kim, all of Kyunggi-do, Rep. of Korea, assignors to Samsung Display Devices Co., Ltd., Kyunggi-do, Rep. of Korea

Filed Feb. 8, 1996, Ser. No. 598,387

Claims priority, application Rep. of Korea, Nov. 8, 1995, 95-40315

Int. Cl.[6] B05D *5/12*; H01J *9/12*

U.S. Cl. 427—64 10 Claims



1. A method for making a shadow mask for a color picture tube, comprising the steps of:

(a) forming a pattern, corresponding to apertures of the shadow mask, on a screen mesh fixed to a frame;

(b) disposing an aluminum killed (AK) steel shadow mask under the screen mesh; and

(c) printing a layer on a face of the AK steel shadow mask by squeezing paste material through the screen mesh onto said AK steel shadow mask with a substantially constant pressure along a direction.

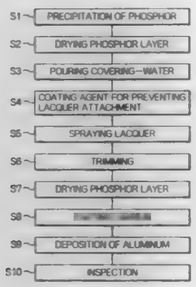
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5,723,170

METHOD OF FORMING FLUORESCENT SCREEN OF CATHODE RAY TUBE

Saori Kawase; Hiroshi Kato, and Tsuyoshi Kaneko, all of Kanagawa, Japan, assignors to Sony Corporation, Japan

Filed Jun. 18, 1996, Ser. No. 665,442
Claims priority, application Japan, Jun. 21, 1995, 7-154802
Int. Cl.[6] B05D *5/12*
U.S. Cl. 427—64 **13 Claims**



1. A method of forming a fluorescent screen for a cathode ray tube having a glass bulb, comprising the steps of:

cleaning an inner surface of the glass bulb having a panel portion by using at least pure water;

injecting an aqueous solution of electrolyte into the glass bulb;

depositing a suspension of water glass and phosphor slurry on an inner surface of the panel portion;

drying the suspension to form a phosphor layer;

coating a whole surface of the phosphor layer with pure water from 30 to 180 seconds;

spraying a lacquer comprising an acrylic resin on the wetted phosphor layer to form a lacquer film layer;

forming a metal backing layer on the lacquer film layer; and

heating the glass bulb to remove the lacquer film layer at a temperature at 400° C. to 420° C.

5,723,171

INTEGRATED CIRCUIT ELECTRODE STRUCTURE AND PROCESS FOR FABRICATING SAME

Joseph D. Cuchiaro; Larry D. McMillan, and Carlos A. Paz de Araujo, all of Colorado Springs, Colo., assignors to Symetrix Corporation, Colorado Springs, Colo.

Continuation-in-part of Ser. No. 477,111, Jun. 7, 1995, which is a continuation-in-part of Ser. No. 154,927, Nov. 18, 1993, Pat. No. 5,519,234, which is a division of Ser. No. 965,190, Oct. 23, 1992, abandoned, said Ser. No. 477,111is a continuation-in-part of Ser. No. 993,380, Dec. 18, 1992, Pat. No. 5,456,945. This application Dec. 23, 1996, Ser. No. 772,606
Int. Cl.[6] B05D *5/06*
U.S. Cl. 427—96 **18 Claims**

1. A method of fabricating a thin film electrode having a total thickness of less than 1 micron, said method comprising the steps of:

providing a substrate;

forming on said substrate an adhesion layer, said adhesion layer comprising titanium;

forming on said adhesion layer a layer of platinum, said layer of platinum being at least eight times thicker than the thickness of said adhesion layer; and annealing said electrode on said substrate at a temperature equal or greater than 622° C.

5,723,172

METHOD FOR FORMING A PROTECTIVE COATING ON GLASS

Dan Sherman, 2790 Thomas Grade, Morgan Hill, Calif. 95037, assignor to Dan Sherman, LaSelva Beach, Calif.

Filed Mar. 11, 1994, Ser. No. 212,168
Int. Cl.[6] B05D *5/12;* **C23C** *16/00*
U.S. Cl. 427—109 **21 Claims**

1. A method for producing a coated glass or ceramic article having a surface formed from silicates, said surface being selected from the group consisting of a sandblasted glass, an artistic glass, a float glass, and a Pyrex glass product, said method comprising the steps of:

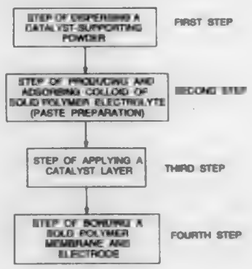
contacting the uncoated glass or ceramic article in a gaseous atmosphere at a pressure of at least 700 Torr with a silane vapor and a gaseous carbon source for a sufficient time at a temperature of less than 35° C. to form a coating on and in the glass or ceramic surface, wherein said coating comprises a silicon-carbide-containing layer having a thickness of at least 100 angstroms and containing 35 to 55 atom % carbon, between 15 and 30 atom % silicon, no more than 10 atom % elements other than silicon, oxygen, and carbon, and the remainder oxygen.

5,723,173

METHOD FOR MANUFACTURING SOLID POLYMER ELECTROLYTE FUEL CELL

Yuko Fukuoka, Kyoto; Makoto Uchida, and Nobuo Eda, both of Hirakata, all of Japan, assignors to Matsushita Electric Industrial Co., Ltd., Osaka, Japan

Filed Jan. 23, 1996, Ser. No. 590,118
Claims priority, application Japan, Jan. 26, 1995, 7-010579; Jan. 26, 1995, 7-010580; Jan. 10, 1996, 8-001981
Int. Cl.[6] B05D *5/12*
U.S. Cl. 427—115 **37 Claims**



1. A method for manufacturing a solid polymer electrolyte fuel cell which comprises the steps of:

dispersing a carbon powder supporting a noble metal catalyst in an organic solvent to obtain a dispersion,

mixing the resulting dispersion with an alcoholic solution of a solid polymer electrolyte to produce a colloid of the solid polymer electrolyte and simultaneously to obtain a mixed solution in which said colloid is adsorbed to the carbon powder,

applying the mixed solution on one side of a gas-diffusion layer to produce an electrode, and

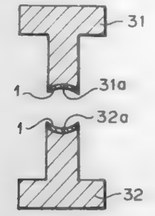
pressing the resulting electrode onto at least one side of a solid polymer electrolyte membrane to integrate them.

5,723,174

METHOD OF FORMING MOLD RELEASE FILM

Yasuhiko Sato, Omiya, Japan, assignor to Fuji Photo Optical Co., Ltd., Omiya, Japan

Filed Feb. 11, 1997, Ser. No. 798,060
Claims priority, application Japan, May 14, 1996, 8-145163
Int. Cl.[6] B05D *3/12*
U.S. Cl. 427—133 **2 Claims**



1. A method of forming a mold release film on a mold comprising an upper die, a lower die, and a cylindrical die used for press molding of an optical element, said method comprising the steps of:

forming a TiAlN film on at least molding surfaces of said upper and lower dies; and

polishing said TiAlN film so as to yield a center-line mean roughness of about 1 nm or less.

5,723,175

COATING COMPOSITION HAVING ANTI-REFLECTIVE AND ANTI-FOGGING PROPERTIES

Matthew T. Scholz, Woodbury, and George V. Tiers, St. Paul, both of Minn., assignors to Minnesota Mining and Manufacturing Company, St. Paul, Minn.

Division of Ser. No. 354,343, Dec. 12, 1994, Pat. No. 5,585,186. This application Jul. 19, 1996, Ser. No. 684,527
Int. Cl.[6] B05D *5/06;1/36;1/38;3/10*
U.S. Cl. 427—161 **12 Claims**

1. A method of imparting anti-reflection trod anti-fogging properties to a substrate, the method comprising the steps of:

(a) providing a substrate:

(b) preparing a coating composition comprising a liquid carrier and:

(i) a inorganic metal oxide particles; and

(ii) a silane, or a siloxane oligomer which is formed by the partial or complete hydrolysis and condensation of said silane, wherein said silane or siloxane oligomer comprises at least one hydrophilic anionic group selected from the group consisting of $—OSO_2O^-$, $—SO_2^-$, CO_2^-, $(—O)_{,2}P(O)O^-$, $—P(O)(O^-)$, $—OP(O)(O^-)_2$, $—P(O^-)_2$, and $—OP(O^-)_2$;

wherein the metal oxide and the silane or siloxane oligomer are present in the coating composition in amounts sufficient to provide a coated light transmissive substrate

(1) with an average drop diameter of at least about 4 mm when tested in accordance with the Wetting Test using a 3 microliter drop of deionized water; and

(2) with a percent transmission at 550 nm which is at least 3 percent greater than that of the uncoated substrate;

(c) applying the coating composition to at least one side of the substrate; and

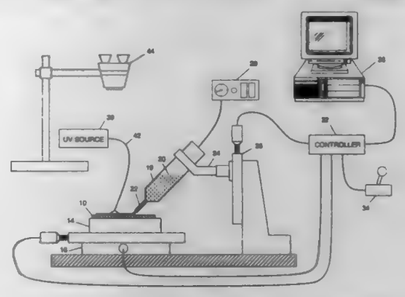
(d) drying the coating composition.

5,723,176

METHOD AND APPARATUS FOR MAKING OPTICAL COMPONENTS BY DIRECT DISPENSING OF CURABLE LIQUID

Barrie Peter Keyworth, and James Neil McMullin, both of Edmonton, Canada, assignors to Telecommunications Research Laboratories, Edmonton, Calif.

Division of Ser. No. 204,517, Mar. 2, 1994, Pat. No. 5,534,101. This application Jul. 8, 1996, Ser. No. 676,832
Int. Cl.[6] B05D *5/06;* **B05C** *11/00*
U.S. Cl. 427—163.2 **15 Claims**



1. Apparatus for forming a light guide on a substrate, the substrate having a surface, the apparatus comprising:

a support for the substrate;

a container having a nozzle;

an xy translation stage, the substrate being supported on the xy translation stage for translational movement in a plane defined by x and y axes;

a z-axis actuator, the container being mounted on the z-axis actuator for movement by the z-axis actuator in a direction perpendicular to the plane defined by the x and y axes from a position close to the substrate to a position away from the substrate;

a source of liquid curing radiation mounted to provide liquid curing radiation in the direction of the substrate; and

means to regulate dispensing of liquid from the container.

4. A method of forming an optical element on a substrate used for making electronic components, the substrate having a surface layer, comprising the steps of:

ejecting a first curable light guide forming liquid from a nozzle onto the substrate, while the nozzle is in contact with or slightly above the substrate; and

curing the first curable light guide forming liquid to form an optical element on the surface of the substrate, the optical element forming a light guide for light passing through or along the substrate.

5,723,177

DIAMOND-IMPREGNATED HARD MATERIAL

Helène S. R. Brandrup-Wognsen, Ingarö, and Stefan S. O. Ederyd, Saltsjö-Boo, both of Sweden, assignors to Sandvik AB, Sandviken, Sweden

Division of Ser. No. 297,712, Aug. 30, 1994, Pat. No. 5,585,175, and a continuation of Ser. No. 811,527, Dec. 20, 1991, abandoned. This application Aug. 9, 1996, Ser. No. 693,663
Claims priority, application Sweden, Dec. 21, 1990, 9004123
Int. Cl.[6] B05D *7/00*
U.S. Cl. 427—215 **4 Claims**

1. A method of making a wear resistant material comprising 3–60% by volume of diamond particles having a grain size of 3 to 100 μm and uniformly distributed and embedded in a matrix, which matrix contains at least one hard constituent taken from the group consisting of carbide, nitride and carbonitride or mixtures thereof of a metal from group IV, V and VI in the Periodic Table and a binder phase based upon Co, Ni and/or Fe, the method

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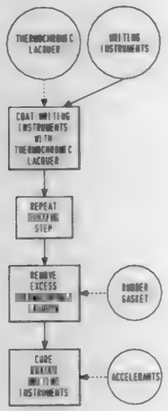
comprising forming a mixture of said hard constituent, binder phase and the diamond particles, each of the diamond particles being coated with a layer >1 μm of at least one refractory material taken from the group consisting of a refractory metal, carbide, nitride, oxide, boride, silicide or combinations thereof, pressing and sintering said mixture.

5,723,178

METHOD FOR MAKING THERMOCHROMIC WRITING INSTRUMENTS USING TOPICALLY APPLIED THERMOCHROMIC PIGMENTS

Jeffrey D. Sheets, Wylie, Tex., assignor to J.R. Moon Pencil Co., Inc., Lewisburg, Tenn.

Filed Aug. 28, 1995, Ser. No. 519,918
Int. Cl.[6] B05D *5/06;1/38*
U.S. Cl. 427—258 **23 Claims**



1. A method for making thermochromic writing implements using thermochromic pigments, using the steps of:

dispersing a thermochromic pigment in a lacquer to form a thermochromic lacquer of a type exhibiting a base color at a first temperature and which base color turns clear at a second temperature which is higher than said first temperature;

underpainting a surface of a writing implement by applying a paint of a color which is masked by the base color of the thermochromic lacquer thereon at the first temperature;

forming a coated writings implement by applying the thermochromic lacquer to the surface of the underpainted writing implement so as to form a thermochromic coating over the underpainting to thereby mask the paint at the first temperature; and

curing the coated writing implement.

5,723,179

METHOD AND COMPOSITION FOR OBTAINING WATERFAST IMAGES FROM INK JET INKS

Raymond W. Wong, and James McConnell Duff, both of Mississauga, Canada, assignors to Xerox Corporation, Stamford, Conn.

Filed Jan. 13, 1997, Ser. No. 783,590
Int. Cl.[6] B05D *5/04;1/36;1/02*
U.S. Cl. 427—258 **27 Claims**

1. A method for obtaining waterfast images from ink jet inks comprising:

treating a print substrate with a precipitant composition; and

jetting an ionic ink jet ink onto the print substrate,

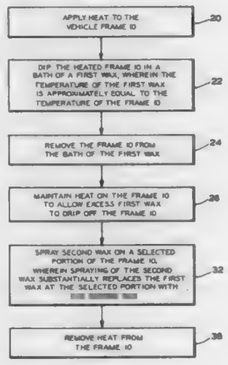
wherein the precipitant composition consisting essentially of water and an ionic precipitant of opposite ionic charge from the ionic ink jet ink.

5,723,180

METHOD FOR APPLYING A COATING CORROSION RESISTANT MATERIAL TO A VEHICLE FRAME STRUCTURE

Peter D. Boulanger, West Lawn, Pa., assignor to Dana Corporation, Toledo, Ohio

Filed Dec. 30, 1996, Ser. No. 773,939
Int. Cl.[6] B05D *1/02;1/18;1/32*
U.S. Cl. 427—271 **20 Claims**



1. A method of applying a coating of a corrosion resistant material to a member comprising the steps of:

(a) applying a coating of a first corrosion resistant material to first and second portions of the member;

(b) applying a coating of a second corrosion resistant material different from the first corrosion resistant material to the second portion of the member in such a manner that the coating of the first corrosion resistant material is removed from the second portion of the member.

5,723,181

COLLOIDAL SILICA/ZIRCONYL SALT COMPOSITIONS AS HYDROPHILIZING COATINGS

William Owen Roberts, Wilmington, Del., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del.

Filed Sep. 6, 1996, Ser. No. 711,335
Int. Cl.[6] B05D *3/00*
U.S. Cl. 427—353 **8 Claims**

5. A process for rendering the surface of a substrate hydrophilic comprising the steps of:

(a) applying to the surface of a substrate a hydrophilizing composition consisting essentially of about 5–95% by weight, calculated as SiO_2, of the composition, of aqueous colloidal silica and about 95–5% by weight, calculated as ZrO_2, of the composition, of a zirconyl salt, having a pH of ≦5.5, wherein said surface contains oxygen-containing molecules; and

(b) optionally rinsing the surface and drying.

5,723,182

METHOD FOR COATING LEATHER

Chol-Yoo Choi, Bensalem; Patricia Marie Lesko, Ottsville, and Katherine Sue Rice, Glenside, all of Pa., assignors to Rohm and Haas Company, Philadelphia, Pa.

Filed Aug. 27, 1996, Ser. No. 707,988
Int. Cl.[6] B05D *7/12*
U.S. Cl. 427—389 **6 Claims**

1. A method for coating leather comprising

(a) forming an aqueous coating composition comprising a multi-stage aqueous emulsion-polymer formed by a method comprising sequentially

(i) forming a predominantly acrylic first stage polymer comprising at least one copolymerized ethylenically unsaturated monomer and from 0.5% to 10% of a copolymerized monoethylenically-unsaturated carboxylic acid monomer, based on the weight of said first stage polymer, said first stage polymer being substantially free from copolymerized multi-ethylenically unsaturated monomer; and said first stage polymer having a Tg of less than 20 C.;

(ii) contacting said first stage polymer with a transition metal oxide, hydroxide, or carbonate at a pH of less than 9 in an amount greater than 0.1 equivalent of transition metal per equivalent of said copolymerized carboxylic acid monomer in said first stage polymer; and

(iii) forming a second stage polymer comprising at least one copolymerized ethylenically unsaturated monomer and from 0 to 10% of a copolymerized monoethylenically-unsaturated carboxylic acid monomer, based on the weight of said second stage polymer, provided that said second stage copolymerized carboxylic acid monomer is less than 25%, by weight, of the total copolymerized carboxylic acid monomer in said multi-stage emulsion polymer, said second stage polymer being substantially free from copolymerized multi-ethylenically unsaturated monomer; said second stage polymer having a Tg of greater than 20 C. and at least 10 C. higher than the Tg of said first stage polymer; and said second stage polymer being from 1% to 50% of the weight of said first stage polymer, based on dry polymer weights;

(b) applying said coating composition to leather; and

(c) drying said coating composition.

5,723,183

METAL COLORING PROCESS

Richard K. Williams, Minnetonka; David J. Halverson, Long Lake, both of Minn., and James N. Tuttle, Jr., Harwich Port, Mass., assignors to Birchwood Laboratories, Inc., Eden Prairie, Minn.

Filed Sep. 16, 1996, Ser. No. 714,550
Int. Cl.[6] B05D *1/38;3/00;* **C23C** *22/84*
U.S. Cl. 427—409 **11 Claims**

1. A process for forming a coating on ferrous metal substrates comprising the steps of:

a) cleaning a ferrous metal substrate to be coated;

b) coating the substrate with a dicarboxylic acid in the presence of an accelerant;

c) rinsing the substrate to remove dicarboxylic acid residue;

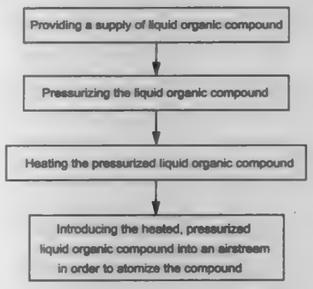
d) coloring the substrate by immersing the coated substrate in an aqueous solution consisting essentially of a reactive dye that produces a desired color at an appropriate pH and temperature and for a sufficient time period to achieve the desired color.

5,723,184

METHOD AND APPARATUS FOR ATOMIZING AN ORGANIC COMPOUND

Christopher W. Yamamoto, 11637 Linden St., Caldwell, Id. 83605

Filed Aug. 9, 1996, Ser. No. 694,513
Int. Cl.[6] B05D *1/02*
U.S. Cl. 427—421 **35 Claims**



28. A method for treating tubers with an organic compound which suppresses sprouting comprising the steps of:

(a) pressurizing the organic compound in its liquid phase;

(b) heating the pressurized liquid organic compound;

(c) discharging the heated pressurized organic compound into a moving air mass in order to atomize the organic compound; and

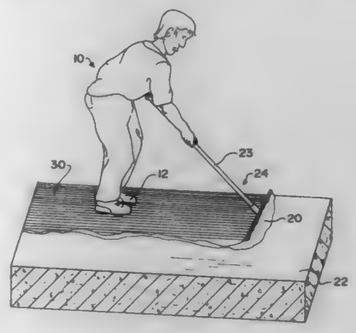
(d) exposing the tubers to the moving air mass containing the atomized organic compound so that the atomized organic compound will coat an outer surface of each tuber so exposed.

5,723,185

METHOD AND APPARATUS FOR APPLYING ADHESIVE

Michael Beier, 1028 Prospect, Elgin, Ill. 60120, and Michael Ulane, 102 Willow Rd., Prospect Heights, Ill. 60070

Filed Dec. 14, 1995, Ser. No. 572,572
Int. Cl.[6] B05D *1/28*
U.S. Cl. 427—429 **4 Claims**



1. A method of applying adhesive to a substrate by an installer, the method comprising the steps of:

the installer donning a pair of shoes having pins extending from the undersurface thereof;

the installer pouring a puddle of adhesive onto a substrate which is to be coated with the adhesive; and

the installer using a notched spreading edge squeegee having a long handle to push adhesive from the puddle to a configuration of parallel, spaced apart lines of adhesive.

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5,723,186

CONDUCTIVE FABRIC AND PROCESS FOR MAKING SAME

Ladson L. Fraser, Jr., High Point, N.C., assignor to Precision Fabrics Group, Inc., Greensboro, N.C.

Filed Sep. 9, 1994, Ser. No. 303,521
Int. Cl.[6] B05D *1/18*
U.S. Cl. 427—430.1 8 Claims

1. A process for forming a flexible, electrically conductive fabric, comprising the steps of:

applying an aqueous solution comprising a conductive material and a binder onto a nonconductive flexible fibrous web substrate;

saturating said web with said aqueous solution; and

drying and curing said web,

wherein said aqueous solution is prepared by a process comprising the step of adding to the solution a dispersion of said conductive material comprising at least 40% solids, and

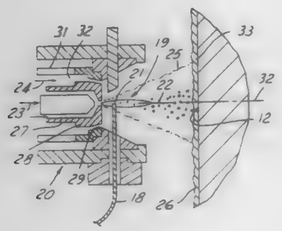
wherein said fabric has a surface resistivity of 1.0 to 3.5×10^3 ohms/sq.

5,723,187

METHOD OF BONDING THERMALLY SPRAYED COATING TO NON-ROUGHENED ALUMINUM SURFACES

Oludele O. Popoola, Grand Blanc; Matthew J. Zaluzec, Canton; Armando M. Joaquin, Rochester Hills; James R. Baughman, Plymouth, and David J. Cook, Farmington Hills, all of Mich., assignors to Ford Global Technologies, Inc., Dearborn, Mich.

Filed Jun. 21, 1996, Ser. No. 669,262
Int. Cl.[6] C23C *4/06;4/02*
U.S. Cl. 427—453 17 Claims



1. Method of bonding a thermally sprayed coating to a non-roughened cast light-metal surface, comprising;

(a) with a non-roughened cast light-metal surface substantially devoid of grease and oils, depositing a flux material thereonto to provide a dry flux coated surface, said flux being capable of removing oxides of said light metal and having a melting temperature of 60°–80° C. below that of the light-metal surface;

(b) thermally activating said flux of said flux coated surface to melt and dissolve any light-metal oxide residing on the light-metal surface; and

(c) concurrently therewith or subsequent to step (b) thermally spraying metallic droplets or particles onto said flux coated surface to form a metallic coating that is at least metallurgically bonded to the light-metal surface.

5,723,188

PROCESS FOR PRODUCING LAYERS OF CUBIC BORON NITRIDE

Holger Lüthje, Halstenbek; Klaus Bewilogua, and Simone Daaud, both of Brunswick, all of Germany, assignors to Fraunhofer-Geselischaft zur Forderung der Angewandten Forschung E.V, Munich, Germany

PCT No. PCT/DE95/00315, § 371 Date Sep. 4, 1996, § 102(e) Date Sep. 4, 1996, PCT Pub. No. WO95/23879, PCT Pub. Date Sep. 8, 1995
PCT Filed Mar. 3, 1995, Ser. No. 700,430
Claims priority, application Germany, Mar. 4, 1994, 44 07 274.0
Int. Cl.[6] H05H *1/24*
U.S. Cl. 427—577 31 Claims

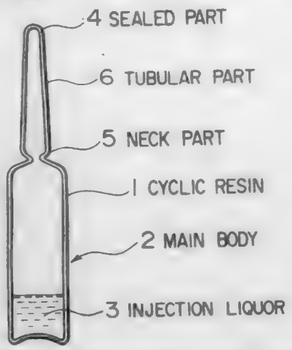
1. A process for producing a wear-resistant layer of cubic boron nitride on a substrate, comprising generating plasma by sputtering a target of electrically conductive material containing boron carbide in the presence of a process gas comprising N_2 and Ar, and depositing a cubic boron nitride layer on a substrate.

5,723,189

CONTAINER FOR A SANITARY ARTICLE

Morihiro Sudo, Sumida-Ku, Japan, assignor to Daikyo Gomu Seiko Ltd., Tokyo, Japan

Continuation of Ser. No. 916,747, Jul. 22, 1992, abandoned. This application Jul. 22, 1994, Ser. No. 277,307
Claims priority, application Japan, Jul. 22, 1991, 3-181164; Jul. 8, 1992, 4-181044
Int. Cl.[6] B29D *23/00*
U.S. Cl. 428—36.9 10 Claims



1. A container for a sanitary article wherein at least the inner surface thereof is made of a resin material consisting essentially of a resin formed from at least 30%, by weight, based upon the weight of the resin, of a cyclic olefin compound having at least five carbons or a bridged polycyclic hydrocarbon compound, as a polymeric component, said resin having a softening point of at least 130° C. and a bromine number of at most 1.

5,723,190

LABEL CONTINUUM AND PRODUCING METHOD THEREOF

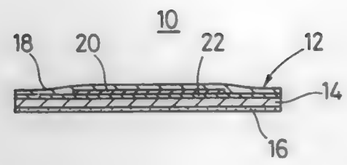
Shozo Osaka, Shijonawate, Japan, assignor to Petter Co., Ltd., Osaka-fu, Japan

Filed Sep. 11, 1995, Ser. No. 526,839
Claims priority, application Japan, Sep. 14, 1994, 6-247188; Dec. 22, 1994, 6-336321; Dec. 22, 1994, 6-336322; Dec. 22, 1994, 6-336323; Dec. 22, 1994, 6-336324
Int. Cl.° G09F *3/02*
U.S. Cl. 428—40.1 5 Claims

1. A label continuum comprising:

an elongated label substrate;

an adhesive layer formed on one side of said label substrate;



a heat-sensitive developing layer formed on an opposite side of said label substrate:

a release layer on said heat-sensitive developing layer;

a printed layer and being in direct adhering contact with said adhesive layer on at least part of said release layer;

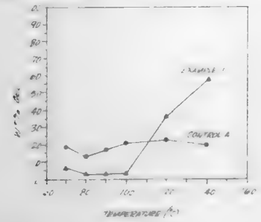
said printed layer comprising a printing ink high in releasability relative to said adhesive layer such that the printed layer and the adhesive layer are easily separated from one another.

5,723,191

TACKIFIED DUAL CURE PRESSURE-SENSITIVE ADHESIVE

Sebastian S. Plamthottam, Upland; Margaret M. Bernard, La Verne, and Prakash Maliya, Pasadena, all of Calif., assignors to Avery Dennison Corporation, Pasadena, Calif.

Division of Ser. No. 218,610, Mar. 28, 1994, Pat. No. 5,639,811, which is a continuation of Ser. No. 884,217, May 11, 1992, abandoned, which is a continuation of Ser. No. 407,129, Sep. 14, 1989, abandoned. This application Jun. 7, 1995, Ser. No. 475,970
Int. Cl.[6] C09J *7/02*
U.S. Cl. 428—41.8 14 Claims



1. A transfer tape comprising:

a self-supporting film formed of a tackified, crosslinked pressure sensitive adhesive and at least one release liner in contact therewith;

said pressure sensitive adhesive comprising a crosslinked acrylic based copolymer on a copolymerized basis, from about 55 to about 85% by weight of a monomer selected from the group consisting of alkyl acrylate esters and alkyl methacrylate esters containing from about 4 to about 12 carbon atoms in the alkyl group, and mixtures thereof, from 0 to about 35% by weight of a monomer selected from the group consisting of alkyl acrylate esters and alkyl methacrylate esters containing less than about 4 carbon atoms in the alkyl group, and mixtures thereof, from about 0.01 to about 2% by weight of a glycidyl methacrylate ester, a positive amount up to about 15% by weight of an unsaturated carboxylic acid monomer and from 0 to 30% by weight of an activator moiety, said copolymer as formed having a glass transition temperature of no higher than about −15° C. tackified with;

a tackifier substantially compatible with said acrylic based copolymer and selected from the group consisting of rosins, rosin esters, fractionated rosins, hydrogenated rosins, dehydrogenated rosins, modified rosin esters, terpene resins, phenol modified terpene resins, aliphatic hydrocarbon resins, and aromatic hydrocarbon resins;

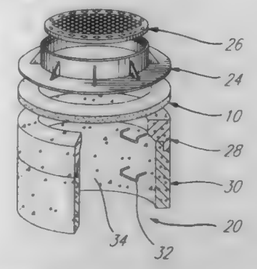
said crosslinked adhesive composition having undergone primary cure by exposure to a treatment selected from heat, chemical cross-linking in the presence of at least one cross linking agent, actinic radiation, and electron beam radiation to yield a tackified pressure-sensitive adhesive exhibiting a first gel content and following which said adhesive composition having undergone secondary cure by intrinsic interaction between pendant epoxy functionalities of the glycidyl monomers and pendant carboxylic acid functionalities of the unsaturated carboxylic acid monomers upon exposure to an elevated temperature to provide a tackified pressure-sensitive adhesive exhibiting a second gel content substantially greater than the first gel content, said tackifier provided in an amount of at least about 12 percent by weight based on the weight of tackifier and copolymer and sufficient to cause, at primary cure, a greater increase in 180° peel to stainless steel at 20 minutes dwell than the untackified polymer at the same level of primary cure, said adhesive composition on secondary cure exhibiting a shear adhesion failure temperature of at least about 40° C. above the softening point of the tackifier.

5,723,192

COMPOSITE COMPRESSION MOLDED ARTICLE, COMPOSITION THEREFOR AND PROCESS FOR MANUFACTURE THEREOF, AND USE

Slawomir Jonasz, Brossard, Canada, assignor to GNR Technologies Inc., Lasalle, Canada

Filed May 29, 1996, Ser. No. 657,064
Claims priority, application Canada, Jun. 7, 1995, 2151183
Int. Cl.[6] B32B *3/02*
U.S. Cl. 428—64.1 47 Claims



1. A compression molded article in the form of an adjustment unit or gasket adapted for insertion between a concrete riser exposed to mechanical vibrations and a metal component which transmits mechanical vibrations, comprising in weight %, 75 to 90% of rubber particles of varied size distribution in the range of 5 to 30 mesh, 5 to 12% of a polymer matrix, and 5 to 13% of reinforcing fibres, said rubber particles and reinforcing fibres being distributed throughout, and surrounded by, said matrix, wherein said rubber particles are selected from rubber crumb, buffings from vehicle tires and mixtures thereof.

5,723,193

INFORMATION RECORDING DISK AND RECORDED INFORMATION REPRODUCING APPARATUS

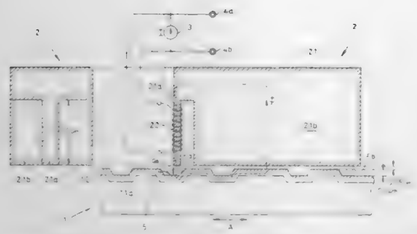
Yoshimi Tomita, Tsurugashima, Japan, assignor to Pioneer Electronic Corporation, Tokyo, Japan

Filed May 24, 1993, Ser. No. 65,425
Claims priority, application Japan, Jun. 2, 1992, 4-141634
Int. Cl.° G11B *5/66*
U.S. Cl. 428—65.3 6 Claims

1. An information recording magnetic disk for recording information signals on a recording surface, said information signals being reproduced by a reproducing apparatus, said disk comprising:

a plurality of pits formed, in a disk track direction, on the recording surface, each of said pits corresponding to a respective information signal; and

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a magnetic thin film formed on said recording surface covering said plurality of pits,

wherein said magnetic thin film constitutes a portion of a closed magnetic circuit for detecting a pit formed on the recording surface.

5,723,194

POLYURETHANE LAYERS WITH HIGHER SURFACE ENERGY

James W. Rosthauser, Glendale, W. Va., and Peter H. Markusch, McMurray, Pa., assignors to Bayer Corporation, Pittsburgh, Pa.

Division of Ser. No. 386,583, Feb. 10, 1995, abandoned. This application May 8, 1996, Ser. No. 643,436

Int. Cl.[6] B32B *3/02;27/00*

U.S. Cl. 428—95 10 Claims

1. A unitary carpet backing produced by applying a polyurethane/urea forming reactive mixture to the back of a carpet, wherein said reactive mixture comprises:

A) a compound containing isocyanate groups,

B) a non-polar organic compound containing isocyanate-reactive hydrogen atoms,

C) at least one material selected from the group consisting of

1) reactive non-ionic polar materials,

2) reactive ionic polar materials,

3) non-reactive polar materials, and

4) mixtures thereof,

wherein the resultant polyurethane layer has a surface energy from about 45 to 70 dynes/cm at room temperature, and component C) is present in a sufficient amount such that the polar contribution towards the surface energy is between 10 and 40 dynes/cm.

5,723,195

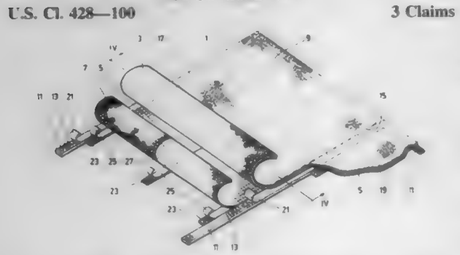
CARPET AND UNDERPAD ATTACHMENT SYSTEM

Joseph Rocco Pacione, 127 Elgin Street, Thornhill, Ontario L3T 1W7, Canada

Filed Sep. 21, 1993, Ser. No. 124,223

Int. Cl.° B32B *9/00*

U.S. Cl. 428—100 3 Claims



1. A method of installing wall to wall carpeting of a selected width over an underpad of a selected thickness, the carpeting having an underside substantially covered with loops, comprising the steps of:

(i) attaching hooked tapes of a thickness substantially equal to the thickness of the underpad along the perimeter of the area to be covered by the carpeting and in which the tapes have a removal covering,

(ii) fitting a selected underpad to fill the area bounded by the tapes,

(iii) fitting the carpeting as required to the room; and

(iv) selectively removing the covering of the tapes to attach the hooks of the tape to the loops on the carpeting.

5,723,196

AUTOMOBILE GLASS PANE ADAPTED FOR BONDING TO A WINDOW FRAME AND A METHOD FOR THE PRODUCTION THEREOF

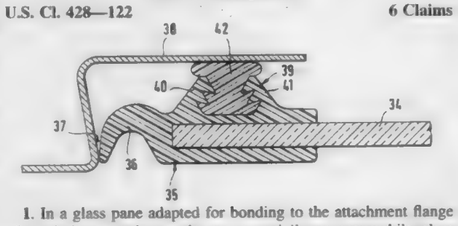
Gerd Cornils, Merzenich; Rolf Kotte, Alsdorf-Bogan; Karl Heinrich Bruck, Wollsburg; Florian Fischer, Alsdorf; Ulrich von Alfen, and Hans Ohlenforst, both of Aschen, all of Germany, assignors to Saint Gobain Vitrage International, Courbevoie, France

Filed Jan. 18, 1994, Ser. No. 188,161

Claims priority, application Germany, Jan. 16, 1993, 43 01 026.1; Feb. 3, 1993, 43 02 981.7; Apr. 8, 1993, 43 11 584.5

Int. Cl.[6] B60J *10/02*

U.S. Cl. 428—122 6 Claims



1. In a glass pane adapted for bonding to the attachment flange of a window opening, and more especially an automobile glass pane, said glass pane comprising a frame-shape polymer molding arranged along an edge part of the pane and having a portion directed towards the attachment flange, said portion having a U-shape cross section with lateral limbs defining a cavity with an internal wall surface having anchoring projections for an adhesive bead; and an adhesive bead of cured bonding material disposed in said cavity of said portion of U-shape cross section, the improvement wherein:

a) the frame-shape polymer molding comprises a thermoplastic polyolefin elastomer of isotactic polyproplyene and ethylene-propylene-diene rubber; and

b) the bonding material comprises a moisture curing single component polyurethane system which does not enter into any adhesive bond with said polymer molding, so as to provide a connection between the polymer molding and the bonding material when cured which is solely mechanical.

5,723,197

MOUNTING DEVICE FOR FOAMING IN A FOAM PART

Wolfgang Grund, Minden; Horst Steinmeier, Lübbecke, and Matthias Habersatter, Mallersdorf-Pfaffenberg, all of Germany, assignors to Johnson Controls GmbH & Co. KG, Espelkamp, Germany

Filed Dec. 21, 1995, Ser. No. 576,101

Claims priority, application Germany, Dec. 23, 1994, 44 46 450.9

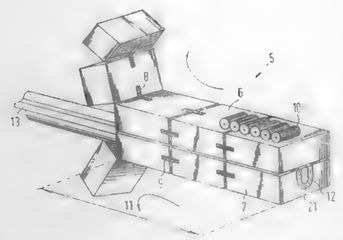
Int. Cl.° B32B *5/18*

U.S. Cl. 428—122 5 Claims

1. A foam part for a backrest or a seating surface of a vehicle seat comprising:

a molded foam pad **19**; and

an elongated mounting device **1** encapsulated within the foam pad **19**, the mounting device having an elongated core **2** of a coarse meshwork and a body **21** of foamed polymer resin at least partially foamed around the core, the mounting device being encapsulated into the foam pad whereby the mounting device can be used to attach a cover onto the foam pad **19**.



5,723,198

MULTI-LAYERED MAGNETIC RECORDING MEDIUM AND MAGNETIC RECORDING SYSTEM EMPLOYING THE SAME

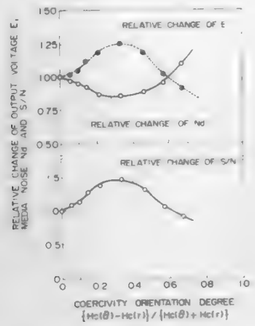
Yuzuru Hosoe, Hino; Yoshihiro Shiroishi, Hachioji, both of Japan; Akira Ishikawa, Menlo Park, Calif.; Futoshi Tomiyama, Hachioji, Japan; Kazuetsu Yoshida, Kodaira, Japan; Tomoo Yamamoto, Hachioji, Japan; Yotsuo Yahisa; Akira Osaki, both of Odawara, Japan; Katsuo Abe, Hiratsuka, Japan; Shinji Narishige, Kanagawa-ken, Japan; Naoki Kodama, Kamakura, Japan; Kiwamu Tanahashi, Musashino, Japan, and Emi Mangyo, Kokubunji, Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Filed Jun. 13, 1994, Ser. No. 258,923

Claims priority, application Japan, Jun. 11, 1993, 5-140351; Sep. 10, 1993, 5-225439

Int. Cl.[6] G11B *5/66*

U.S. Cl. 428—141 94 Claims



1. A multi-layered magnetic recording medium comprising:

a non-magnetic substrate; and

an alternating arrangement constituted by a plurality of magnetic layers and a non-magnetic intermediate layer between each pair of successive magnetic layers, formed on the non-magnetic substrate;

wherein the coercivity Hc(θ) of said multi-layered magnetic recording medium, which is measured by applying a magnetic field along a direction substantially parallel to a traveling direction of a magnetic head with respect to said magnetic recording medium during a writing operation, is greater than the coercivity Hc(r) of said multi-layered magnetic recording medium, which is measured by applying a magnetic field along a direction substantially perpendicular to the traveling direction of said magnetic head with respect to said multi-layered recording medium and parallel to a major surface of said multi-layered recording medium.

5,723,199

METHOD OF EXTRUDING TWO OR MORE MATERIALS

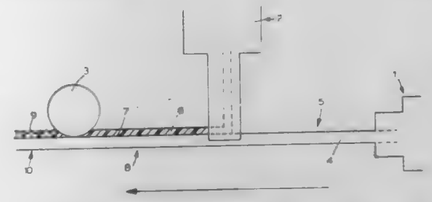
Peter Lawrence Boot, Worcestershire, England, assignor to Reddiplex Group PLC, Droitwich, England

Filed Jan. 29, 1996, Ser. No. 593,249

Claims priority, application United Kingdom, Jan. 31, 1995, 9501774

Int. Cl.[6] B29C *47/06;59/04*

U.S. Cl. 428—158 12 Claims



1. A method of manufacturing an ornamental elongate member comprising the steps of

extruding a first material, said first material being a thermoplastic material;

cooling said first material so that it solidifies;

extruding a second material along a surface of said first material, said surface of said first material being melted to enable a firm bond to be formed between said first and second materials;

mechanically treating said second material while it is still plastic to produce surface ornamentation in relief thereon without affecting the shape of said first material; and

cooling said ornamented first and second materials to form a firmly bonded, solid structure.

2. An ornamented elongate member produced by the method of claim 1.

5,723,200

DECORATIVE SHEET

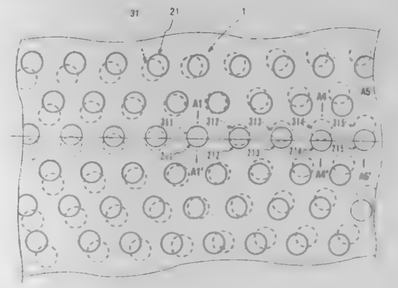
Masahiro Oshima; Katumi Shimizu, and Taturo Otani, all of Osaka, Japan, assignors to Meiwa Gravure Co., Ltd., Osaka, Japan

Filed Jul. 18, 1996, Ser. No. 683,389

Claims priority, application Japan, Feb. 6, 1996, 8-019619

Int. Cl.[6] B32B *3/00*; A47G *35/00*

U.S. Cl. 428—172 5 Claims



1. A light-transmitting decorative sheet being formed by a transparent sheet body having front and rear surfaces, wherein a plurality of convex lens-shaped projections are provided on said front surface in an arbitrary continuous pattern and figures are provided on said rear surface in a continuous pattern being identical to that on said front surface, in displacement from said continuous pattern on said front surface.

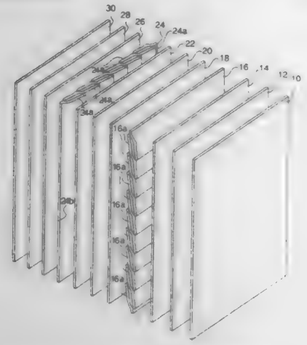
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5,723,201

PENETRATION RESISTANT PROTECTIVE ARMOR CONSTRUCTION

Paul Czetto, Jr., 164 Cocoa Dr., Tavernier, Fla. 33070

Filed May 22, 1996, Ser. No. 651,550
Int. Cl.[6] B32B *3/28*
U.S. Cl. 428—181 23 Claims



1. A protective armor construction comprising

a plurality of layers of material, at least one of said layers comprising an expandable layer of flexible ballistic resistant material having a plurality of folds therein, the folds of said plurality of folds overlapping one another and being arranged so as to unfold and expand in response to a ballistic force exerted on the armor construction such as to impede the ballistic force and to thereby limit penetration of the armor construction.

5,723,202

TRANSPARENT PRINTER MEDIA WITH REFLECTIVE STRIPS FOR MEDIA SENSING

Bruce E. Mueller, Escondido; Mark Wisnosky, Poway, both of Calif.; Todd R. Medin, Vancouver, Wash.; William D. Meyer, Ramona, and Peter C. Morris, San Diego, both of Calif., assignors to Hewlett-Packard Co., Palo Alto, Calif.

Continuation-in-part of Ser. No. 137,388, Oct. 14, 1993, Pat. No. 5,467,119, which is a continuation of Ser. No. 876,986, May 1, 1992, abandoned. This application Apr. 29, 1994, Ser. No. 235,769
Int. Cl.[6] B41M *5/00*
U.S. Cl. 428—194 28 Claims

1. A transparent print medium for recording image elements in a printer apparatus, the print medium comprising a layer of transparent material comprising opposed first and second surfaces and first and second opposed lateral edges and a transverse edge, said first surface an image surface for recording thereon image elements in the printer apparatus, and having removably affixed to said second surface of said sheet first and second separate and distinct opaque reflective layer portions having edges coincident with at least a portion of said first and second lateral edges of the medium and coterminous with at least a portion of said transverse medium edge.

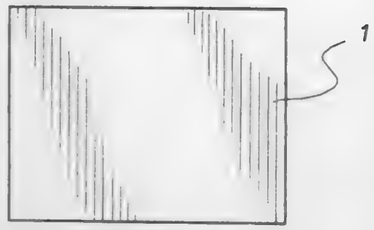
5,723,203

HOLOGRAPHICALLY TRANSFERABLE IMAGES

Stephen B. Stepanek, 41 Standish Way, Amherst, N.H. 03031

Filed Jul. 9, 1996, Ser. No. 679,349
Int. Cl.[6] B32B *9/00*
U.S. Cl. 428—195 7 Claims

1. A product comprising a foil wrapping element, said element comprising a foil substrate having two sides surfaces, one of said side surfaces being holographically enhanced, said product made



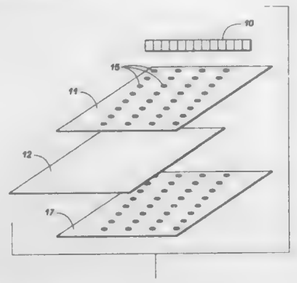
by the process of laminating, at elevated temperatures and pressures, a metallized holographic image contained on a polymeric substrate to one of said side surfaces of said foil substrate and subsequently delaminating said foil substrate from said polymeric substrate whereby said metallized holographic image is transferred to said side surface of said foil substrate.

5,723,204

TWO-SIDED ELECTRICAL PAPER

Mark J. Stefik, Woodside, Calif., assignor to Xerox Corporation, Stamford, Conn.

Filed Dec. 26, 1995, Ser. No. 578,257
Int. Cl.[6] B32B *3/00*
U.S. Cl. 428—206 4 Claims



1. Two sided electric paper comprising:

a layer of conducting material, and

two sheets of electric paper, one attached to each surface of said layer.

5,723,205

FABRICATION MULTILAYER COMBINED RIGID/FLEX PRINTER CIRCUIT BOARD

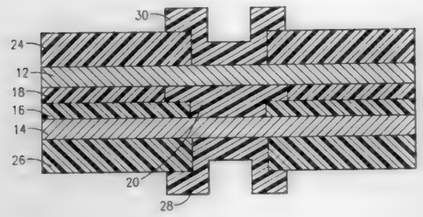
Lee J. Millette, Litchfield; A. Roland Caron, Hudson, and Joseph A. Thoman, Manchester, all of N.H., assignors to Teledyne Industries, Inc., Los Angeles, Calif.

PCT No. PCT/US94/02437, § 371 Date Sep. 6, 1996, § 102(e) Date Sep. 6, 1996, PCT Pub. No. WO95/24821, PCT Pub. Date Sep. 14, 1995
PCT Filed Mar. 8, 1994, Ser. No. 702,729
Int. Cl.[6] H05K *3/06;3/00*
U.S. Cl. 428—209 15 Claims

1. A multilayer rigid flex printed circuit board, wherein the board laminate comprises:

a double-sided basestock composite, formed by laminating two conducting sheets to an insulator layer, said insulator layer containing a flexible core;

a second insulator layer affixed to each side of the basestock, said insulator having a cutout region proximate to the flexible core of the basestock composite; and



a flexible layer affixed to said cutout regions with an adhesive, wherein said flexible layer contacts the conducting layers and abuts and overlaps a portion of the second insulator layer such that upon stacking of the laminate a hollow region is defined as between said stacked laminate sections.

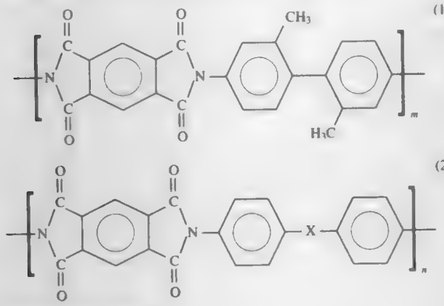
5,723,206

POLYIMIDE-METAL FOIL COMPOSITE FILM

Kazumi Higashi, and Amane Mochizuki, both of Osaka, Japan, assignors to Nitto Denko Corporation, Osaka, Japan

Filed Dec. 18, 1996, Ser. No. 768,635
Claims priority, application Japan, Dec. 26, 1995, 7-339569
Int. Cl.[6] B32B *7/02;15/08*
U.S. Cl. 428—215 5 Claims

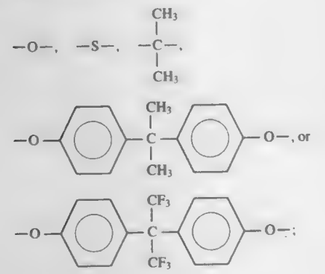
1. A polyimide-metal foil composite film comprising a conductive iron-nickel alloy foil of 1–500 microns thickness having directly laminated on at least one surface thereof a polyimide resin layer, wherein said polyimide resin layer comprises repeating units represented by the following formulae (1) and (2);



(1)

(2)

wherein X represents



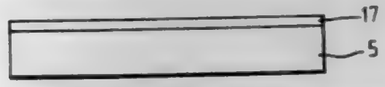
and m/n is from 90/10 to 50/50 by molar ratio.

5,723,207

INFRA-RED TRANSPARANT MATERIALS

Alan H Lettington, Battenhall, and Colin Smith, Malvern, both of England, assignors to The National Research Development Corporation, London, England

PCT No. PCT/GB89/00068, § 371 Date Jul. 23, 1990, § 102(e) Date Jul. 23, 1990, PCT Pub. No. WO89/06707, PCT Pub. Date Jul. 27, 1989
PCT Filed Jan. 19, 1989, Ser. No. 543,804
Claims priority, application United Kingdom, Jan. 21, 1988, 8801366
Int. Cl.[6] B32B *9/00;7/02*
U.S. Cl. 428—216 20 Claims



1. A method of producing an infrared and visible light transparent coating comprising the steps of:

providing an anode and a cathode inside a vacuum chamber,

arranged a target of at least one of Zr, Y, Ce, Th and Eu on the cathode,

mounting a substrate to be coated opposite and spaced from the cathode,

maintaining the substrate at a desired temperature of between 500° and 600° C.,

flowing gases of argon and nitrogen through the chamber whilst maintaining a reduced pressure inside the chamber,

providing a glow discharge plasma inside the chamber between the anode and cathode whereby argon ions sputter off material from the target to combine with nitrogen on the substrate and form the desired coating transparent to visible and infra red wavelength of 3–5 and 8–14 um.

5,723,208

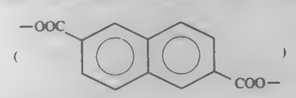
LAMINATED BASE FILM FOR PHOTOGRAPHIC FILM

Kenji Suzuki, Yokohama; Tsuyoshi Nagai, and Koji Furuya, both of Sagamihara, all of Japan, assignors to Teijin Limited, Osaka, Japan

PCT No. PCT/JP94/00180, § 371 Date Aug. 3, 1995, § 102(e) Date Aug. 3, 1995, PCT Pub. No. WO95/16223, PCT Pub. Date Jun. 15, 1995
PCT Filed Feb. 7, 1994, Ser. No. 495,616
Claims priority, application Japan, Dec. 7, 1993, 5-306639
Int. Cl.[6] B32B *27/36;27/06;* G03C *1/795;1/81*
U.S. Cl. 428—216 14 Claims

1. A laminated base film for a photographic film,

(A) which is a laminated film comprising a first layer composed essentially of polyethylene-2,6-naphthalenedicarboxylate and a second layer composed essentially of a polymer composition containing a 2,6-naphthalenedicarboxylate unit



and an ethylene unit (—CH_2CH_2—) in a total amount of at least 50% by weight, and

(B) which has a haze value of 3.0% or less,

(C) in which the first layer has a plane orientation coefficient NS_1 of 0.270 or less, and

(D) in which the first layer thickness/second layer thickness ratio is in the range of from 3/7 to 7/3;

wherein a difference ΔNS between a plane orientation coefficient NS_2 of the second layer and the plane orientation coefficient NS_1 of the first layer is in the range of from 0.002 to 0.200; and

wherein the laminated base film curls with the first layer inside and the second layer outside, in the longitudinal direction, and

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the laminated base film has a curl degree f_2 in the longitudinal direction in the range of from 0 to 70%.

5,723,209

ROLLABLE THERMAL INSULATION BASED ON SYNTHETIC FIBER

Heinz-Werner Borger, Bobingen, and Peter Knobloch, Grossaitingen, both of Germany, assignors to Hoechst Trevira GmbH & Co KG, Germany

Filed Apr. 3, 1996, Ser. No. 626,825

Claims priority, application Germany, Apr. 5, 1995, 195 127 67.6

Int. Cl.[6] B32B *5/06;7/10;* **D04H** *1/54;3/16*

U.S. Cl. 428—219 **18 Claims**

1. A rollable thermal insulation comprising synthetic fiber material and having thermal conductivity of not more than 0.04 W/m*K (determined in accordance with DIN 4108 Part 1) and a DIN 4102 Part 1 fire behavior corresponding to building material class B1, wherein the synthetic fiber material is composed of carrier fibers and bonding fibers both made of polyester, at least part of the surface of the bonding fibers consisting of a polyester having a melting point which is below the melting point of the carrier fibers.

13. The rollable thermal insulation of claim 1 including a lamination on at least one side.

5,723,210

ORGANIC COMPOSITE COATED STEEL SHEET

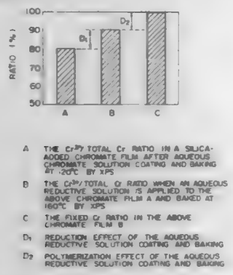
Shigeko Sujita, Chiba; Takahiro Kusakabe, Tokyo; Kyoko Hamahara; Kazuo Mochizuki, both of Chiba; Hiroyuki Tanabe, Tochigi; Masanori Nagai, Tochigi; Nobuyoshi Kato, Tochigi, and Osamu Ogawa, Tochigi, all of Japan, assignors to Kawasaki Steel Corporation, and Dai Nippon Toryo Co. Ltd., both of Japan

Filed May 29, 1996, Ser. No. 654,530

Claims priority, application Japan, May 30, 1995, 7-131472

Int. Cl.[6] C04B *9/02;* **B32B** *15/04;15/08;15/00*

U.S. Cl. 428—219 **9 Claims**



1. An organic composite coated steel sheet comprising:

(a) a zinc-based plating layer composed of zinc or a zinc-based alloy adhered to a surface of said steel sheet;

(b) a chromate-silica film adhered to the resulting surface of said zinc-based plating layer, said chromate-silica film containing silica and about 5 to 500 mg/m^2 of chromium expressed as metallic Cr, said chromate-silica film being formed from a chromate solution containing about 25 to 75 wt % of Cr^{+6} based upon the sum of all forms of Cr, including Cr^{+3} and Cr^{+6}; and

(c) a resin coating film adhered to said chromate-silica film, said resin coating film comprising at least one resin selected from the group consisting of an aqueous anionic resin and an aqueous nonionic resin, said resin coating film being formed from a water-dispersed silica and about 0.01 to 3 parts by weight of a reducing agent to about 100 parts by weight of said resin, said resin coating film being deposited on the surface of said chromate-silica film in a dry weight amount of about 0.1 to 3 g/m^2, said resin coating film having a dry weight composition comprising about 10 to 100 parts by weight of said water-dispersed silica and about 100 parts by weight of said resin, said resin coating film being substantially free of unreacted reducing agent,

wherein said chromate in said chromate-silica film includes Cr^{+3} in a ratio to total Cr that increases in the thickness direction of said chromate-silica film from within said film toward the film surface.

5,723,211

INK-JET PRINTER RECORDING ELEMENT

Charles Eugene Romano, Rochester; Wayne Thomas Ferrar, Fairport, and Jeanne Ellen Kaeding, Rochester, all of N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.

Filed Apr. 1, 1996, Ser. No. 625,980

Int. Cl.[6] B41M *5/00*

U.S. Cl. 428—328 **12 Claims**

1. An image-recording element for an ink-jet printer consisting of, in the following order:

(a) a substrate;

(b) a solvent-absorbing gelatin layer and

(c) a single image-forming layer of porous, pseudo-boehmite having an average pore radius of 10 to 80 Å.

5,723,212

MAGNETIC RECORDING MEDIUM MANUFACTURING METHOD AND MANUFACTURING APPARATUS AND MAGNETIC RECORDING MEDIUM

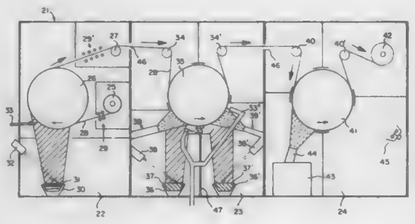
Noriyuki Kitaori; Osamu Yoshida, and Hirohide Mizunoya, all of Tochigi, Japan, assignors to Kao Corporation, Tokyo, Japan

Division of Ser. No. 122,286, Sep. 17, 1993, Pat. No. 5,593,723. This application May 16, 1995, Ser. No. 442,153

Claims priority, application Japan, Sep. 17, 1992, 4-247922; Jul. 22, 1993, 5-181501

Int. Cl.[6] G11B *5/66*

U.S. Cl. 428—332 **14 Claims**



1. A magnetic recording medium comprising a nonmagnetic substrate having two surfaces, a back-coat layer formed in a vacuum from a metal, a semi-metal or an oxide thereof on a surface of said nonmagnetic substrate and a magnetic layer formed on the other surface of said nonmagnetic substrate than said back coat layer-deposited surface.

5,723,213

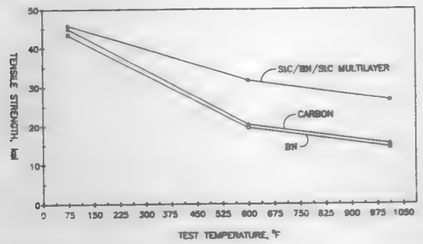
INTEGRATED MULTIPLE-CERAMIC-LAYER FIBER INTERFACIAL COATING

Harry Wellington Carpenter, Fallbrook; Robert Vernon Carter, Hawthorne; Mary Wagner Colby, Whittier, and David Eric Daws, Westminister, all of Calif., assignors to Northrop Grumman Corporation, Los Angeles, Calif.

Filed Oct. 18, 1995, Ser. No. 544,799

Int. Cl.[6] B32B *9/00*

U.S. Cl. 428—336 **21 Claims**



1. A ceramic matrix composite, comprising:

a ceramic fiber;

a multi-layer coating on said fiber comprising plural alternating layers of oxidation resistant materials followed by easy-cleaved materials and an outer layer of an oxidation resistant material; and

a ceramic matrix contacting said coating, said fiber and coating being embedded in said matrix.

5,723,214

PAPER FEED ROLL AND APPARATUS

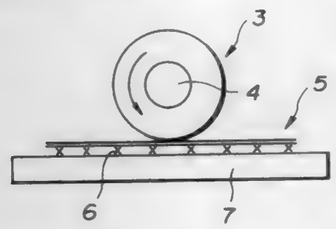
Hirotaka Yamazaki, Kunitachi; Yasushi Imai, Kodaira; Shinichi Toyosawa, Tokorozawa, and Yoshihide Fukahori, Hachioji, all of Japan, assignors to Bridgestone Corporation, Tokyo, Japan

Filed May 17, 1995, Ser. No. 442,757

Claims priority, application Japan, May 18, 1994, 6-104172; Jul. 29, 1994, 6-179269

Int. Cl.[6] D02G *3/00*

U.S. Cl. 428—364 **5 Claims**



1. A paper feed roll, said roll being formed of a rubber composition comprising

(A) a composite material having a low molecular weight material uniformly dispersed in a medium material without substantially bleeding out, and

(B) a rubber material,

wherein said low molecular weight material has a viscosity of up to 5×10^5 centipoise at 100° C.,

the difference in solubility parameter between said low molecular weight material and said medium material is up to 3.0,

the amount of the low molecular weight material is at least the same as the amount of the medium material, wherein the amounts are on a weight basis, and

the difference in solubility parameter between said low molecular weight material and said rubber material is up to 4.0; and

wherein the low molecular weight material has a number average molecular weight of up to about 20,000, and

wherein said medium material is selected from the group consisting of thermoplastic elastomers and thermoplastic resins, and

the composite material is blended with the rubber material.

5,723,215

BICOMPONENT POLYESTER FIBERS

Ismael Antonio Hernandez, Winterville; William Jonas Jones, Jr., Greenville, and Darren Scott Quinn, Goldsboro, all of N.C., assignors to E. I. du Pont de Nemours and Company, Wilmington, Del.

Continuation-in-part of Ser. No. 542,974, Oct. 13, 1995, which is a continuation-in-part of Ser. No. 315,748, Sep. 30, 1994, Pat. No. 5,458,971. This application Feb. 3, 1997, Ser. No. 794,101

Int. Cl.[6] D02G *3/00*

U.S. Cl. 428—373 **6 Claims**

1. Bicomponent fibers, wherein each component is glycol terephthalate polyester, and wherein the fibers are of helical configuration that has resulted from a difference between chain-branched contents of the glycol terephthalate polyester components of said fibers, wherein at least one glycol terephthalate polyester component is copolymerizod with up to 3/4f(f-2) mole % of chain-branching agent, where f is 3 to 6 and is the number of ester-forming functional groups of the chain-branching agent.

5,723,216

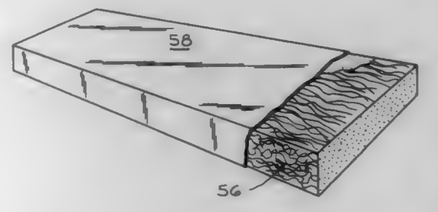
DUAL-GLASS FIBER INSULATION PRODUCT

Ronald A. Houpt, Newark; Russell M. Potter, Hebron, and David P. Aschenbeck, Newark, all of Ohio, assignors to Owens-Corning Fiberglas Technology, Inc., Summit, Ill.

Continuation of Ser. No. 148,745, Nov. 5, 1993. This application Oct. 25, 1994, Ser. No. 329,050

Int. Cl.[6] D02G *3/00*

U.S. Cl. 428—374 **3 Claims**



1. A glass fiber insulation product comprising irregularly-shaped dual-glass fibers having rotations which are irregular both in direction and in magnitude, wherein said dual-glass fibers are made up of a first glass (A) and a second glass (B) which interface each other along the length of the fibers in an A/B glass ratio, said dual-glass fibers having an average deviation ratio greater than about 5% away from an A/B glass ratio of 50:50, wherein the average deviation ratio is the numerical average of the deviation ratios of all of said dual-glass fibers in said glass fiber insulation product, and wherein the deviation ratio of a dual-glass fiber is the ratio, expressed in percent, of r to R on the cross-section of a dual-glass fiber, where r is the closest distance from the cross-sectional center of the fiber to the interface of the fiber glass (A) and second glass (B) making up the dual-glass fiber, and where R is the radius of the cross-section of the dual-glass fiber.

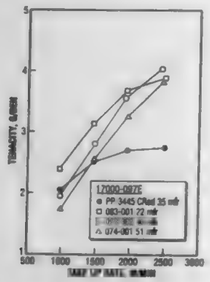
VOL 1208 ISS 1 MR 3 1998 UMI

5,723,217

POLYOLEFIN FIBERS AND THEIR FABRICS

Glenn Allan Stabl, Humble, and James John McAlpin, Houston, both of Tex., assignors to Exxon Chemical Patents Inc., Houston, Tex.

Division of Ser. No. 385,401, Feb. 7, 1995, abandoned, which is a continuation of Ser. No. 164,520, Dec. 9, 1993, abandoned, which is a continuation-in-part of Ser. No. 66,737, May 25, 1993, abandoned. This application May 11, 1995, Ser. No. 439,079
Int. Cl.[6] D02G 3/00
U.S. Cl. 428—401 16 Claims



1. A fiber comprising reactor-grade poly-alpha-olefin polymer wherein the poly-alpha-olefin polymer has a melt flow rate in the range of from greater than zero to 5,000 dg/min, a MWD in the range of from 1 to 3 and wherein the fiber has a diameter that is less than 50 μm.

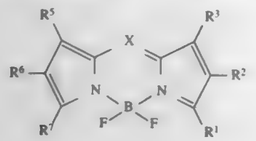
5,723,218

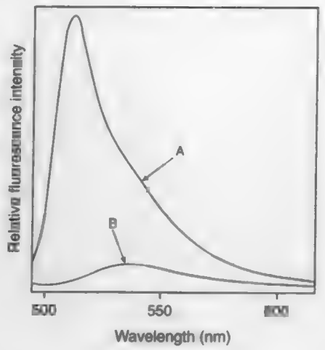
DIPYRROMETHENEBORON DIFLUORIDE LABELED FLOURESCENT MICROPARTICLES

Richard P. Haugland; Rosaria P. Haugland, both of Eugene; John Michael Brinkley, Elmira; Hee Choi Kang; Michael Kuhn, both of Eugene, all of Oreg.; K. Sam Wells, Vacaville, Calif., and Yu Zhong Zhang, Eugene, Oreg., assignors to Molecular Probes, Inc., Eugene, Oreg.

Continuation-in-part of Ser. No. 629,466, Dec. 18, 1990, abandoned, Ser. No. 843,360, Feb. 25, 1992, Pat. No. 5,453,517, Ser. No. 28,319, Mar. 8, 1993, Pat. No. 5,442,045, Ser. No. 375,360, Jan. 19, 1995, Pat. No. 5,516,864, Ser. No. 45,758, Apr. 8, 1993, Pat. No. 5,451,663, Ser. No. 246,790, May 20, 1994, Pat. No. 5,433,896, Ser. No. 246,847, May 20, 1994, Pat. No. 5,459,276, Ser. No. 247,013, May 20, 1994, Pat. No. 5,501,980, Ser. No. 247,108, May 20, 1994, Pat. No. 5,573,909, and Ser. No. 384,945, Feb. 6, 1995, said Ser. No. 28,319 is a division of Ser. No. 509,360, Apr. 16, 1990, Pat. No. 5,227,487, said Ser. No. 372,536 is a division of Ser. No. 38,918, Mar. 29, 1993, Pat. No. 5,405,975, said Ser. No. 45,758 is a division of Ser. No. 786,767, Nov. 1, 1991, Pat. No. 5,274,113, said Ser. No. 247,108 is a continuation-in-part of Ser. No. 882,299, May 13, 1992, Pat. No. 5,326,692. This application Jun. 7, 1995, Ser. No. 484,151
Int. Cl.[6] B32B 27/18
U.S. Cl. 428—402 30 Claims

1. A fluorescent labeled material having enhanced photostability and quantum yield comprising at least one polymer microparticle less than about 50 micrometers in diameter that internally incorporates a fluorescent dipyrromethene boron difluoride derivative compound of the general formula:





wherein X is CR^4, and where R^1–R^7, which may be the same or different, are hydrogen, halogen, alkyl, alkoxy, aryl, arylalkyl, cycloalkyl, acyl, formyl, or heteroaryl.

5,723,219

PLASMA DEPOSITED FILM NETWORKS

Omprakash S. Kolluri, Campbell, and Robert G. Johanson, Sunnyvale, both of Calif., assignors to Tailson Research, Sunnyvale, Calif.

Filed Dec. 19, 1995, Ser. No. 575,161
Int. Cl.[6] C08F 2/46; C08J 7/18
U.S. Cl. 428—411.1 31 Claims

1. A three dimensional film network, comprising:
a plurality of radio frequency discharge plasma film layers, said plasma film layers including a first layer and a second layer at least partially covalently bonded to said first layer;
said second layer having a substantially ordered geometric structure, said structure including a plurality of substantially uniformly dispersed interstitial spaces;
said first layer including a plurality of a first functional group; and
said second layer including a plurality of a second functional group.

25. A three dimensional film network, comprising:
a plurality of radio frequency discharge plasma film layers, said plasma film layers including a first layer and a second layer at least partially covalently bonded to said first layer;
said second layer having a substantially ordered geometric structure, said geometric structure including interstitial spaces;
said first layer including a plurality of an amine functional group;
said second layer including a plurality of a second functional group selected from the group consisting of carboxy, carboxylic ester, epoxy, isocyanate, hydroxy and sulfhydryl.

5,723,220

REMOVAL OF HALOS FROM GLASS-CERAMIC ARTICLES DECORATED WITH A CERAMIC COLOR

Roland Leroux, Stadecken-Elsheim; Erich Rodek, Mainz; Kurt Schaupert, Hofheim-Wallau; Jürgen Thürk, Schornsheim, and Waldemar Weinberg, Mainz, all of Germany, assignors to Schott Glaswerke, Mainz, Germany

Division of Ser. No. 2,761, Jan. 11, 1993, Pat. No. 5,500,255. This application Aug. 29, 1995, Ser. No. 520,675
Claims priority, application Germany, Jan. 10, 1992, 42 00449.7
Int. Cl.[6] B32B 17/06
U.S. Cl. 428—426 8 Claims

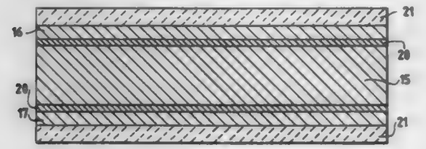
1. A glass-ceramic article decorated with a burnt-in ceramic color and, superimposed over said ceramic color, a coating consisting essentially of SiO_2.

5,723,221

ALUMINOUS PRESS PLATE AND PROCESS FOR PRODUCING SAME

Alan Thomas Brooker, Newcastle-upon-Tyre, and Pascale Marie Elisabeth Cordiez, Cramlington, both of England, assignors to Formica Corporation, Cincinnati, Ohio

Filed Apr. 26, 1996, Ser. No. 639,189
Int. Cl.[6] B30B 15/06; B32B 15/04; C23C 8/00
U.S. Cl. 428—469 17 Claims



1. An aluminous press plate for producing decorative laminates from decorative laminate materials, in a press apparatus, said plate comprising:
(a) a substantially flat core plate having opposed planar pressing surfaces of substantial area, the core plate being composed of an aluminum alloy having a 0.2% compressive yield stress of not less than about 180 MPa at 140° C.;
(b) a thin cladding layer of aluminum of not less than about 99% purity integrally bonded to the opposed planar surfaces of the core plate; and
(c) a continuous film of aluminum oxide on the aluminum cladding, the Al_2O_3 film being substantially free of grain line effects and substantially defining a surface finish of the decorative laminate.

11. A press apparatus for producing decorative laminate sheets comprising:
(a) means for supporting resinous mixtures and substrate materials as a substantially planar layer;
(b) an aluminous press plate having
(i) a core of an aluminum alloy having a 0.2% compressive yield stress of not less than about 180 MPa at 140° C.,
(ii) a thin cladding layer of aluminum of not less than about 99% purity integrally bonded to the opposed planar surfaces of the core, and
(iii) a continuous film of Al_2O_3 having a thickness of up to about 50 microns on the aluminum cladding, the Al_2O_3 film being substantially free to grain line effects; and
(c) means to urge the Al_2O_3 film against the resinous mixture and substrate material to form a generally planar laminate sheet.

5,723,222

HOT MELT ADHESIVES AND DISPOSABLE PRODUCTS UTILIZING THE SAME

Atsunori Sato, Sanda, and Naohiro Maeda, Itami, both of Japan, assignors to National Starch and Chemical Investment Holding Corporation, Wilmington, Del.

Filed Apr. 9, 1996, Ser. No. 629,851
Claims priority, application Japan, Apr. 11, 1995, 7-085737
Int. Cl.[6] A61F 13/16; B32B 7/14
U.S. Cl. 428—483 7 Claims

1. A disposable product obtained by binding at least one substrate selected from the group consisting of woven fabrics, nonwoven fabrics, rubbers, resins and papers to a polyolefin film characterized in that the adhesive used in said binding is a hot melt adhesive comprising:
(A) a thermoplastic block copolymer containing a block copolymer represented by formula (1):

$$A_1\text{-}B\text{-}A_2 \quad (1)$$

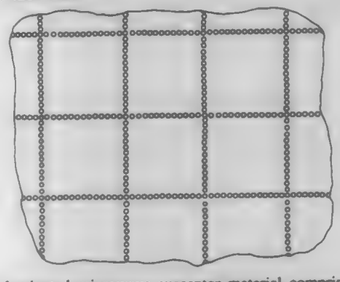
wherein A_1 and A_2, are aromatic vinyl copolymer blocks having different molecular weights, and B is a conjugated diene polymer or hydrogenated derivative thereof;
(B) a tackifier;
(C) a diluent; and,
(D) a stabilizer,
wherein, all based on the total amount of said hot melt adhesive, the content of component (A) is 10 to 40% by weight, the content of component (B) is 30 to 70% by weight, the content of component (C) is 30% by weight or less, and the content of component (D) is 0.1 to 4% by weight.

5,723,223

ULTRASONICALLY BONDED MICROWAVE SUSCEPTOR MATERIAL AND METHOD FOR ITS MANUFACTURE

James R. Quick, Greenwood Lake, N.Y., assignor to International Paper Company, Purchase, N.Y.

Filed Oct. 7, 1991, Ser. No. 772,517
Int. Cl.[6] B32B 3/10;31/16
U.S. Cl. 428—198 36 Claims



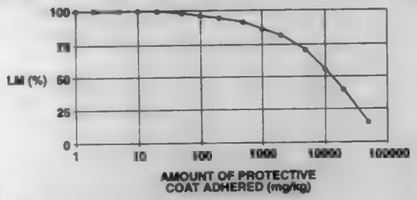
1. A laminated microwave susceptor material comprising first and second plies of material ultrasonically bonded together over bonding portions of an area thereof, wherein said first ply of material comprises a layer of thermally fusible plastic, said second ply of material comprises a layer of paper product, and at least one of said first and second plies of material comprises a metallized layer of microwave interactive material capable of converting microwave energy to thermal energy, said metallized layer being disposed between said plastic layer and said paper product layer, wherein a localized piercing of said microwave interactive material of said metallized layer is obtained by said ultrasonic bonding at said bonding portions such that a bond interface is formed between the plastic material of said first ply and the paper material of said second ply at said bonding portions, whereby said plastic material penetrates through the localized piercing of the metallized layer and forms paper-plastic bonds.

5,723,224

PHOSPHORESCENT MATERIAL

Hitoshi Toki; Yoshihisa Yonezawa, and Yoshitaka Kagawa, all of Mobara, Japan, assignors to Futaba Denshi Kogyo K.K., Chiba-ken, Japan

Filed Apr. 12, 1996, Ser. No. 631,050
Claims priority, application Japan, Apr. 12, 1995, 7-087115
Int. Cl.[6] C09K 11/08
U.S. Cl. 428—570 7 Claims



1. A phosphorescent material comprising:

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a body portion composed of an alkali earth metal and an oxide; and

a protective coat formed over an outer surface of said body portion.

5,723,225

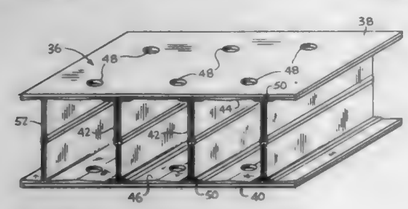
SUPERPLASTICALLY FORMED, DIFFUSION BONDED MULTIPLE SHEET PANELS WITH WEB DOUBLERS AND METHOD OF MANUFACTURE

Ken K. Yasui, Huntington Beach; David F. Bertino, Hermosa Beach; Krishna Hoffman, Duarte, and David H. Hamilton, Long Beach, all of Calif., assignors to McDonnell Douglas Corporation, Huntington Beach, Calif.

Filed Aug. 26, 1996, Ser. No. 703,259

Int. Cl.° B32B *15/00*

U.S. Cl. 428—593 **8 Claims**



1. An SPF/DB structural panel comprising:

a first face sheet;

a second face sheet separated from said first face sheet;

at least one first separator web positioned generally perpendicular to said first and second face sheets and connected to said face sheets to maintain the separation thereof, each said first separator web having:

first and second sides;

a first average distance between said first and second sides; and

a centerline bulge there along generally centered between said first and second face sheets and extending from said first and second sides; and

at least one second separator web positioned generally perpendicular to said first and second face sheets and connected to said face sheets to maintain the separation thereof, each said second separator web having:

first and second sides;

a second average distance between said first and second sides larger than said first average distance; and

a centerline bulge there along generally centered between the first and second face sheets and extending from said first and second sides,

wherein said panel has at least one edge, said at least one second separator web being positioned closer to said edge than said at least one first separator web.

5,723,226

GYPSUM-CONTAINING COMPOSITIONS AND FIRE-RESISTANT ARTICLES

Hubert C. Francis, Lithonia, and Anne H. Ksionzyk, Decatur, both of Ga., assignors to G-P Gypsum Corporation, Atlanta, Ga.

Filed Jun. 7, 1995, Ser. No. 482,377

Int. Cl.° B32B *29/00*; **C04B** *14/00*

U.S. Cl. 428—688 **21 Claims**

1. A fire resistant article characterized by a composition comprising:

at least about 65 wt. % set gypsum dihydrate;

at least about 3 wt. % of reinforcing fibers disposed substantially homogeneously throughout said set gypsum dihydrate;

from about 0 to about 5 wt. % of refractive filler; and

from about 0.1 wt. % to about 20 wt. % refractory inorganic binder wherein said article has a hose stream resistance of greater than about 20 seconds.

5,723,227

MAGNETO-OPTICAL RECORDING MEDIUM AND REPRODUCING METHOD FOR INFORMATION RECORDED ON THE MEDIUM

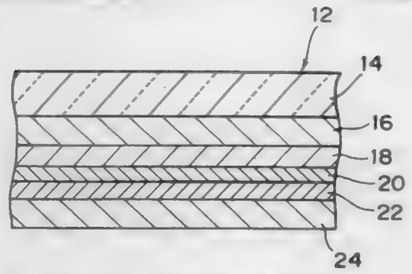
Koji Matsumoto, and Keiji Shono, both of Kawasaki, Japan, assignors to Fujitsu Limited, Kawasaki, Japan

Filed Jan. 4, 1995, Ser. No. 368,611

Claims priority, application Japan, Jan. 17, 1994, 6-002934; Sep. 5, 1994, 6-211103

Int. Cl.° G11B *5/66*

U.S. Cl. 428—694 ML **29 Claims**



1. A magneto-optical recording medium comprising:

a transparent substrate;

a first magnetic layer laminated on said transparent substrate and having an easy axis of magnetization in a plane at room temperature;

a second magnetic layer laminated on said first magnetic layer and having an easy axis of magnetization perpendicular to said substrate;

a third magnetic layer laminated on said second magnetic layer and having an easy axis of magnetization perpendicular to said substrate; and

wherein a Curie temperature Tc1 of said first magnetic layer, a Curie temperature Tc2 of said second magnetic layer, and a Curie temperature Tc3 of said third magnetic layer are related to satisfy Tc1>Tc2 and Tc3>Tc2, and wherein when a reproducing laser beam is directed onto the medium, a beam spot is formed on said medium having a temperature distribution including a low temperature area, an intermediate temperature area and high temperature area, said high and low temperature areas functioning as masks to inhibit reading in those areas, while only said intermediate temperature area is available for reading.

5,723,228

DIRECT METHANOL TYPE FUEL CELL

Takafumi Okamoto, Wako, Japan, assignor to Honda Giken Kogyo Kabushiki Kaisha, Tokyo, Japan

Filed Dec. 6, 1996, Ser. No. 764,072

Claims priority, application Japan, Dec. 6, 1995, 7-318288; Dec. 6, 1995, 7-318296

Int. Cl.° H01M *8/04*

U.S. Cl. 429—12 **16 Claims**

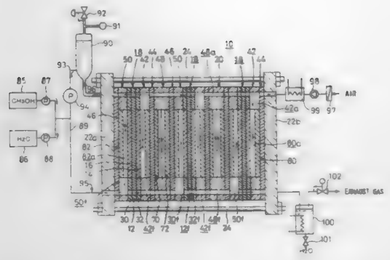
1. A direct methanol type fuel cell comprising:

at least one fuel cell unit including an anode and a cathode provided opposingly with an ion exchange membrane interposed therebetween; and

a plurality of separators for interposing said fuel cell unit therebetween;

each of said separators comprising:

a main separator body;



an anode-side elemental member including a methanol-supplying fluid passage formed on its surface which contacts with said anode, for allowing methanol to directly flow therethrough, said methanol-supplying fluid passage being formed in parallel to a direction of gravity; and

a cathode-side elemental member including an oxygen containing gas supplying fluid passage formed on its surface which contacts with said cathode, said oxygen containing gas supplying fluid passage being directed to a direction opposite to a direction to which said methanol-supplying fluid passage is directed.

5,723,229

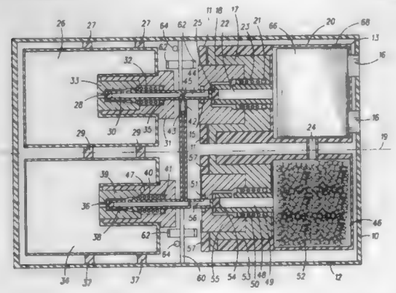
PORTABLE FUEL CELL DEVICE INCLUDING A WATER TRAP

Steven Michael Scheifers, Hoffman Estates, Ill.; Donald H. Klosterman, Gilbert, Ariz.; Marc Kenneth Chason, Schaumburg, and Karl W. Wyatt, Cary, both of Ill., assignors to Motorola, Inc., Schaumburg, Ill.

Filed Jul. 8, 1996, Ser. No. 676,790

Int. Cl.° H01M *8/06*

U.S. Cl. 429—19 **11 Claims**



1. A portable fuel cell device for reacting a gaseous fuel and a gaseous oxidant to produce electricity, said reaction resulting in the formation of gaseous products including water vapor and carbon dioxide, said portable fuel cell device comprising:

a fuel cell comprising a reaction chamber and means within the reaction chamber for generating electricity by reacting a mixture comprising a gaseous fuel and a gaseous oxidant;

a fuel line connected to the reaction chamber for introducing the mixture into the fuel cell;

a fuel reservoir connected to the fuel line for supplying gaseous fuel to the reaction chamber;

means connected to the fuel line for mixing a gaseous oxidant with the gaseous fuel to form the mixture;

an exhaust line connected to the reaction chamber for expelling exhaust gas from the reaction chamber, said exhaust gas containing gaseous products;

a water trap connected to the exhaust line and containing a water absorbing medium for absorbing water vapor from the exhaust gas, thereby forming a dry exhaust gas; and

a vent for releasing the dry exhaust gas from the water trap into the ambient atmosphere.

5,723,230

OLIGOSULFIDE TYPE ELECTRODE MATERIAL AND SECONDARY BATTERY CONTAINING SUCH ELECTRODE MATERIAL

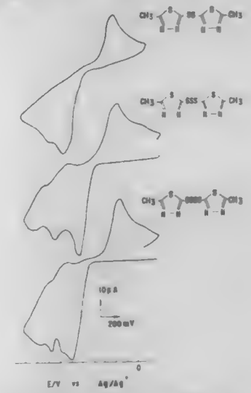
Katsuhiko Naoi, Koganei; Hiroshi Iizuka, and Yasuhiro Suzuki, both of Susono, all of Japan, assignors to Yazaki Corporation, Tokyo, Japan

Filed Feb. 27, 1996, Ser. No. 607,495

Claims priority, application Japan, Feb. 27, 1995, 7-038285; Sep. 11, 1995, 7-232770

Int. Cl.° H01M *004/60*

U.S. Cl. 429—104 **5 Claims**



1. An organic electrode material comprising:

S—S bonds which are of two or more than two but not more than six continuous bonds.

5,723,231

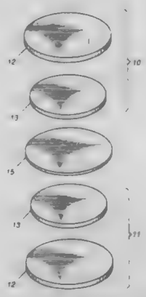
POLYMER ELECTROLYTE AND AN ELECTROCHEMICAL CELL CONTAINING THE ELECTROLYTE

Han Wu, Barrington; Changming Li, Vernon Hills, and Ke Keryn Lian, Northbrook, all of Ill., assignors to Motorola, Inc., Schaumburg, Ill.

Filed Dec. 9, 1996, Ser. No. 762,477

Int. Cl.° H01M *6/04*

U.S. Cl. 429—203 **11 Claims**



1. An electrolyte for an electrochemical cell, comprising:

an admixture of an ion conducting electrolyte having a boiling point or decomposition temperature greater than 100° C. and one or more polymers selected from the group consisting of

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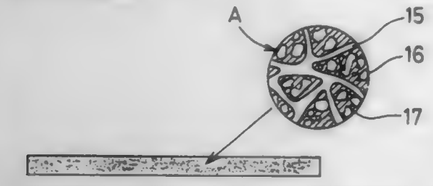
poly(benzimidazole), poly(acrylamide), poly(vinylpyrrolidone), poly(vinylpyridine), poly(ethyleneimine), poly(acrylic acid), and poly(aminosilicate) in ratios between 2:1 and 50:1, the admixture further containing between 0.2% and 8% by weight of fumed silica.

5,723,232

CARBON ELECTRODE FOR NONAQUEOUS SECONDARY BATTERY AND NONAQUEOUS BATTERY USING THE SAME

Kazuo Yamada; Takehito Mitate; Naoto Nishimura; Yoshihiro Tsukuda, all of Nara, and Tetsuya Yoneda, Mie, all of Japan, assignors to Sharp Kabushiki Kaisha, Osaka, Japan

Filed Apr. 1, 1996, Ser. No. 625,889
Claims priority, application Japan, Apr. 24, 1995, 7-098913; Mar. 1, 1996, 8-044961
Int. Cl.[6] H01M *4/66;4/36*
U.S. Cl. 429—245 12 Claims



1. A carbon electrode for a nonaqueous secondary battery, comprising:

a metal collector serving to catalyze carbon graphitization; graphite particles; and

a carbon material having a lower crystallinity than the graphite particles, and said carbon material covering the graphite particles and the collector;

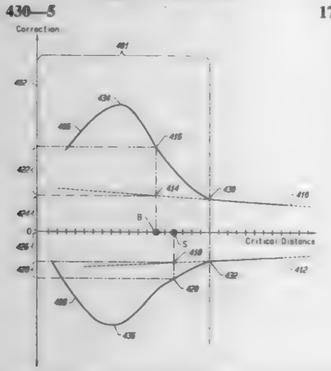
wherein the graphite particles and the carbon material are sintered together on the metal collector or in the presence of the metal collector.

5,723,233

OPTICAL PROXIMITY CORRECTION METHOD AND APPARATUS

Mario Garza, Sunnyvale; Nicholas K. Eib, and Keith K. Chao, both of San Jose, all of Calif., assignors to LSI Logic Corporation, Milpitas, Calif.

Filed Feb. 27, 1996, Ser. No. 607,365
Int. Cl.[6] G03F *9/00*
U.S. Cl. 430—5 17 Claims



1. An optical proximity correction method for preparing reticle designs to be used in photolithography, the method comprising the following steps:

(a) performing pattern recognition on an integrated circuit layout design to identify a location of a selected feature edge in the layout design;

(b) obtaining an optical proximity correction value for said selected feature edge by evaluating one or more non-linear mathematical expressions for optical proximity correction at the location of the selected feature edge, the one or more non-linear mathematical expression defining a curve that non-linearly increases an amount of optical proximity correction for said selected feature edge; and

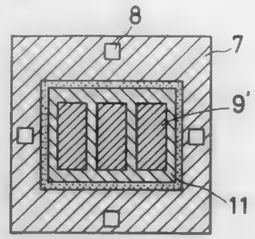
(c) incorporating said optical proximity correction value into said layout design to form said reticle design.

5,723,234

PHASE SHIFT PHOTOMASK AND PHASE SHIFT PHOTOMASK DRY ETCHING METHOD

Toshifumi Yokoyama, and Hiroyuki Miyashita, both of Tokyo, Japan, assignors to Dai Nippon Printing Co., Ltd., Tokyo, Japan

Filed Feb. 28, 1996, Ser. No. 608,065
Claims priority, application Japan, Feb. 28, 1995, 7-039677
Int. Cl.[6] G03F *9/00*
U.S. Cl. 430—5 6 Claims



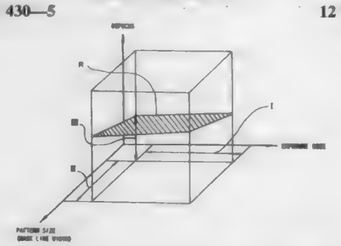
1. A phase shift photomask having an area provided with a phase shift layer which results in shifting a phase relative to another area, said phase shift photomask comprising a dummy etching pattern for dry etch rate correction, said dummy etching pattern being provided in an area other than a pattern exposure area.

5,723,235

METHOD OF PRODUCING PHOTOMASK AND EXPOSING

Keisuke Tsudaka, and Minoru Sugawara, both of Kanagawa, Japan, assignors to Sony Corporation, Tokyo, Japan

Division of Ser. No. 336,656, Nov. 4, 1994, Pat. No. 5,558,963.
This application May 16, 1996, Ser. No. 648,665
Claims priority, application Japan, Nov. 8, 1993, 6-302339; Mar. 14, 1994, 6-069113
Int. Cl.[6] G03F *9/00*
U.S. Cl. 430—5 12 Claims



1. A photomask used for the photolithographic process and having a transmitting area and a light shielding area,

said photomask being obtained by setting combinations of pluralities of defocus and mask pattern size values in predetermined ranges of the defocus latitude and the mask pattern size latitude, obtaining transfer patterns by varying the exposure dose, and checking whether the transfer patterns meet a design tolerance condition, thereby obtaining the exposure dose latitude as the range of exposure dose meeting the tolerance condition in all the predetermined ranges of the defocus latitude and the mask pattern size latitude.

a mask parameter being set for maximizing the mask pattern size latitude, the maximized mask pattern size latitude thereby maximizing the obtained exposure dose latitude,

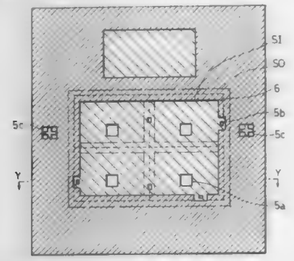
said mask parameter is one member or a combination of two or more members of the group consisting of the mask pattern size, the phase of the transmitting area, the transmissivity of the light shielding area and the phase of the light shielding area.

5,723,236

PHOTOMASKS AND A MANUFACTURING METHOD THEREOF

Masashi Inoue, Sakai, and Shinji Kobayashi, Nara, both of Japan, assignors to Sharp Kabushiki Kaisha, Osaka, Japan

Filed May 28, 1996, Ser. No. 654,432
Claims priority, application Japan, May 31, 1995, 7-133830; May 9, 1996, 8-115152
Int. Cl.[6] G03F *9/00*
U.S. Cl. 430—5 13 Claims



1. A photomask comprising:

a transparent substrate through which exposure light transmits;

a semitransparent film that has an inversion transmitting section for inverting the phase of the exposure light and a transmitting section that allows the exposure light to pass without changing the phase, the semitransparent film being arranged to form a pattern on the transparent substrate by using the inversion transmitting section and the transmitting section; and

a light-shielding film that has an edge coinciding with an inside edge of a scribe line and that is placed at a location on the semitransparent film including the scribe line and the outside area of the scribe line,

wherein all the pattern is constituted of the semitransparent film.

5,723,237

METHOD FOR DETERMINING BAKING CONDITIONS FOR RESIST PATTERN FORMATION THROUGH DEVELOPMENT OF UNEXPOSED TRIAL RESIST FILMS

Hideo Kobayashi; Keishi Asakawa, and Yasunori Yokoya, all of Yamanashi, Japan, assignors to Hoya Corporation, Tokyo, Japan

Filed Sep. 19, 1996, Ser. No. 707,487
Claims priority, application Japan, Sep. 19, 1995, 7-264726
Int. Cl.[6] G03C *5/00*
U.S. Cl. 430—30 23 Claims

1. A method of determining conditions for a resist pattern formation process having a baking operation which is carried out under a baking temperature and during a baking time, said method comprising the processes of:

assuming a particular condition in which, after trial resist films are formed on a plurality of trial plates and then baked under baking conditions which are different from one another, said trial resist films are subjected to a dissolving treatment without an exposing treatment under a predetermined treatment condition in which each of said trial resist films is partially dissolved;

determining, as said baking temperature, a temperature which minimizes a difference in a uniformity of remaining resist thickness of said trial resist films in said trial plates relative to differences in baking times for said trial resist films in said particular condition; and

determining, as said baking time, a time which makes said uniformity be best under said baking temperature in said particular condition.

5,723,238

INSPECTION OF LENS ERROR ASSOCIATED WITH LENS HEATING IN A PHOTOLITHOGRAPHIC SYSTEM

Bradley T. Moore; Robert Dawson; H. Jim Fulford, Jr., all of Austin; Mark I. Gardner, Cedar Creek; Frederick N. Hause, Austin; Mark W. Michael, Cedar Park, and Derick J. Wristers, Austin, all of Tex., assignors to Advanced Micro Devices, Inc., Sunnyvale, Calif.

Filed Dec. 4, 1996, Ser. No. 760,028
Int. Cl.[6] G03C *5/00*
U.S. Cl. 430—30 30 Claims

11. A method of inspecting a lens in a photolithographic system for fabricating integrated circuit devices, the method comprising:

depositing a photoresist on a wafer;

forming a first image pattern on a first portion of the photoresist by projecting radiation through a first test reticle and the lens, wherein the first test reticle includes a first test pattern of optically transparent lines that transfer a first amount of radiation to the lens thereby providing a first heating of the lens;

forming a second image pattern on a second portion of the photoresist by projecting radiation through a second test reticle and the lens, wherein the second test reticle includes a second test pattern of optically transparent lines that transfer second amount of radiation to the lens, thereby providing a second heating of the lens, wherein the second amount of radiation is greater than the first amount of radiation resulting in the second heating of the lens being greater than the first heating of the lens;

developing the photoresist;

etching the wafer using the photoresist as an etch mask, thereby forming a first transfer pattern in the wafer corresponding to the first image pattern and a second transfer pattern in the wafer corresponding to the second image pattern;

stripping the photoresist;

comparing the first test pattern with the first transfer pattern in conjunction with determining a first lens error;

comparing the second test pattern with the second transfer pattern in conjunction with determining a second lens error; and

using the first and second lens errors to obtain image displacement data as a function of position along a surface of the lens and as a function of heating the lens.

5,723,239

DESENSITIZING SOLUTION FOR OFFSET PRINTING

Ryosuke Itakura; Seishi Kasui; Hidefumi Sera, and Eiichi Kato, all of Haibara-gun, Japan, assignors to Fuji Photo Film Co. Ltd., Kanagawa, Japan

Division of Ser. No. 920,862, Jul. 28, 1992, Pat. No. 5,565,290.
This application Sep. 26, 1996, Ser. No. 718,949
Claims priority, application Japan, Jul. 30, 1991, 3-190081; Oct. 17, 1991, 3-269609; Oct. 18, 1991, 3-269917; Oct. 18, 1991, 3-269918; Dec. 4, 1991, 3-320488
Int. Cl.[6] G03G *13/28*
U.S. Cl. 430—49 5 Claims

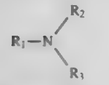
1. A method for electrophotographic offset printing wherein an electrophotographic offset printing plate having a photoconductive layer thereon is exposed to form an image and the exposed photo-

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conductive layer is treated with a desensitizing solution to render non-image areas thereon hydrophilic to prevent adhesion of printing ink to said non-image areas, the improvement which comprises the desensitizing solution comprising an amine compound-containing, cyanogen-free, desensitizing solution for electrophotographic offset printing comprising:

at least one compound selected from the group consisting of phytic acid, metal salts of phytic acid and ammonium salts of phytic acids; and

at least one compound selected from the group consisting of secondary and tertiary amines having the formula (1):



(1)

wherein

R_1 is an aliphatic group having 8 to 18 carbon atoms and R_2 and R_3 each is hydrogen or an aliphatic group having 1 to 18 carbon atoms.

5,723,240

METHOD FOR CONTROLLING THE FORMATION OF TONER IMAGES WITH TWO DISTINCT TONERS

Richard G. Allen, Rochester, N.Y., assignor to Eastman Kodak Company, Rochester, N.Y.

Filed May 29, 1996, Ser. No. 654,953

Int. Cl.[6] G03G *13/00*

U.S. Cl. 430—54 **24 Claims**

1. An image forming method comprising:

uniformly charging a photoconductive image member to a charge of a first polarity and a first potential V_o;

imagewise exposing the image member to form a first electrostatic image, said first electrostatic image having a minimum potential V_e;

using a first toning station, applying a first toner of the first polarity to the first electrostatic image to form a first toner image of the first polarity in the presence of an electric field controlled by a bias V_b associated with the first toning station, the first toner image having a maximum potential V_d;

imagewise exposing the image member to form a second electrostatic image of the first polarity;

using a second toning station, applying a second toner to the second electrostatic image in the presence of an electric field controlled by a bias V_b', associated with the second toning station, the second toner being of a second polarity opposite the first polarity, to form a second toner image having a potential at its maximum density of V_d';

characterized in that the step of applying a first toner is carried out under conditions providing a development completion of the first toner image equal to less than 0.4, where development completion is equal to

$$\frac{V_d - V_e}{V_b - V_e}.$$

5,723,241

PHOTOSENSITIVE MEMBER COMPRISING THICK PHOTOSENSITIVE LAYER FORMED ON ANODIZED ALUMINUM LAYER

Hideaki Ueda, Kishiwada, Japan, assignor to Minolta Co., Ltd., Osaka, Japan

Continuation of Ser. No. 427,735, Apr. 24, 1995, abandoned, which is a continuation of Ser. No. 171,449, Dec. 22, 1993, abandoned. This application Nov. 4, 1996, Ser. No. 743,135

Claims priority, application Japan, Dec. 28, 1992, 4-348455; Oct. 29, 1993, 5-271667

Int. Cl.[6] G03G *5/047*

U.S. Cl. 430—58 **18 Claims**

10. A laminated photosensitive member comprising

a charge transporting layer having a thickness of at least 33 μm and having a mobility of electrical charges of at least $5\times10^{-6}cm^2/V.sec$ under an electrical field of 2×10^5 V/cm;

a charge generating layer; and

an electrically conductive substrate having an anodized aluminum layer on the surface, the anodized aluminum layer comprising a porous layer having a thickness of 0.5 to 15 μm and a barrier layer having a thickness of 10 to 500 Å and having an impedance of 50 to 250 KΩ wherein the charge transporting layer and the charge generating layer are laminated on the surface of the substrate.

5,723,242

PERFLUOROETHER RELEASE COATINGS FOR ORGANIC PHOTORECEPTORS

Edward J. Woo, Woodbury, and Gaye K. Lehman, Lauderdale, both of Minn., assignors to Minnesota Mining and Manufacturing Company, St. Paul, Minn.

Continuation of Ser. No. 623,590, Mar. 28, 1996, abandoned. This application Jul. 18, 1997, Ser. No. 896,857

Int. Cl.[6] G03G *5/147*

U.S. Cl. 430—66 **15 Claims**

1. A photoreceptor element comprising an electroconductive substrate, a photoconductor layer, and a release layer comprising a perfluoroether urethane which is the reaction product of reactants comprising

a) a di-functional perfluoroether,

b) a diisocyanate,

c) an amino functional silane, and,

d) optionally, a diol chain extender.

5,723,243

ELECTROPHOTOGRAPHIC PHOTOCONDUCTOR AND AROMATIC POLYCARBONATE RESIN FOR USE THEREIN

Masaomi Sasaki; Hiroshi Tamura, both of Susono; Tomoyuki Shimada, Shizuoka-ken; Tetsuro Suzuki, Fuji; Chiaki Tanaka, Shizuoka-ken; Kouji Kishida, Shizuoka-ken; Akira Katayama, Shizuoka-ken; Kazukiyo Nagai; Chihaya Adachi, both of Numazu; Nozomu Tamoto, Tokyo; Mitsutoshi Anzai, and Akihiro Imai, both of Kawasaki, all of Japan, assignors to Ricoh Company, Ltd., Tokyo, and Hodogaya Chemical Co., Ltd., Kawasaki, both of Japan

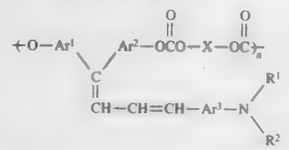
Filed May 16, 1996, Ser. No. 648,759

Claims priority, application Japan, May 16, 1995, 7-141290; Jul. 12, 1995, 7-176189; Jul. 13, 1995, 7-177402; Dec. 25, 1995, 7-336739; May 15, 1996, 8-120296; May 15, 1996, 8-120298; May 16, 1996, 8-146601

Int. Cl.[6] G03G *5/00*

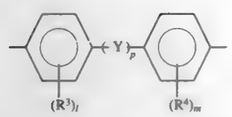
U.S. Cl. 430—96 **44 Claims**

1. An electrophotographic photoconductor comprising an electroconductive support, and a photoconductive layer formed thereon comprising as an effective component an aromatic polycarbonate resin having a repeat unit of formula (I):

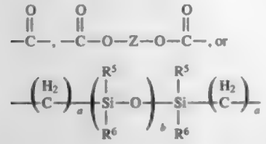


(I)

wherein n is an integer of 5 to 5000; Ar^1, Ar^2 and Ar^3 each may be the same or different, and is a bivalent aromatic hydrocarbon group; R^1 and R^2 each may be the same or different, and is an acyl group, an alkyl group which may have a substituent, an aromatic hydrocarbon group which may have a substituent, or a heterocyclic group which may have a substituent; and X is a bivalent aliphatic group, a bivalent cyclic aliphatic group, or



in which R^3 and R^4 each is an alkyl group which may have a substituent, an aromatic hydrocarbon group which may have a substituent, or a halogen atom; l and m each is an integer of 0 to 4; and p is an integer of 0 or 1, and when p=1, Y is a straight-chain, branched or cyclic alkylene group having 1 to 12 carbon atoms, —O—, —S—, —SO—, —SO_2—,



in which Z is a bivalent aliphatic hydrocarbon group; a is an integer of 0 to 20; b is an integer of 1 to 2000; and R^5 and R^6 each is an alkyl group which may have a substituent or an aromatic hydrocarbon group which may have a substituent.

5,723,244

CHARGING NEUTRALIZATION PROCESSES

Scott D. Chamberlain, Macedon; Christopher M. Knapp, Fairport, and David H. Pan, Rochester, all of N.Y., assignors to Xerox Corporation, Stamford, Conn.

Filed Jun. 2, 1997, Ser. No. 867,658

Int. Cl.[6] G03G *21/06*

U.S. Cl. 430—97 **23 Claims**

22. A process for the reduction of residual image voltage present on an imaging member which comprises contacting the member with a liquid developer composition comprised of a nonpolar liquid, thermoplastic resin particles, charge control additive, colorant and a charge director.

5,723,245

COLORED TONER AND DEVELOPER COMPOSITIONS AND PROCESS FOR ENLARGED COLOR GAMUT

Jacques C. Bertrand, Ontario; Roger N. Ciccarelli, Rochester; Edul N. Dalal, Webster; Sue E. Blaszak, Penfield; Kristen M. Natale-Hoffman, Rochester, and Thomas R. Pickering, Webster, all of N.Y., assignors to Xerox Corporation, Stamford, Conn.

Filed Oct. 9, 1996, Ser. No. 729,224

Int. Cl.[6] G03G *9/09*

U.S. Cl. 430—106 **24 Claims**

1. Toners comprised of a cyan toner, a magenta toner, a yellow toner, an orange toner, a green toner, and a black toner, each of said toners being comprised of resin and pigment; and wherein the pigment for the orange toner is Orange 5, C.I. number 12075. Orange 13. C.I. number 21110, Orange 16, C.I. number 21160, or Orange 34, C.I. number 21115, and the pigment for the green toner is Green 7, C.I. number 74260, or Green 36. C.I. number 7,4265, and wherein said pigment for each toner, excluding black, is prepared by flushing with water each of said pigments .In said toner resin, wherein a cyan, magenta, yellow, orange, and green pigment water wet cake is mixed with toner resin, and the water is removed, or substantially removed to generate pigmented resins.

5,723,246

BINDER RESIN AND TONER FOR ELECTROSTATIC DEVELOPMENT CONTAINING THE SAME

Katsutoshi Aoki; Yoshihiro Ueno; Tetsuhiro Semura; Shinji Moriyama, and Kuniyasu Kawabe, all of Wakayama, Japan, assignors to Kao Corporation, Tokyo, Japan

Filed May 23, 1996, Ser. No. 652,308

Claims priority, application Japan, May 23, 1995, 7-149509

Int. Cl.[6] G03G *9/087*

U.S. Cl. 430—109 **7 Claims**

1. A binder resin composition for producing a toner, comprising a blend of the following three resins (A) to (C):

resin (A) having a softening point of 120° C. or more and 170° C. or less, a glass transition temperature of 58° C. or more and less than 75° C., and a weight percentage of components insoluble to chloroform at 25° C. of 5% by weight or more and 50% by weight or less;

resin (B) having a softening point of 90° C. or more and 120° C. or less, a glass transition temperature of 58° C. or more and less than 75° C., and a weight percentage of components insoluble to chloroform at 25° C. of less than 5% by weight; and

resin (C) having a softening point of 80° C. or more and less than 110° C., a glass transition temperature of 45° C. or more and less than 58° C., and a weight percentage of components insoluble to chloroform at 25° C. of less than 5% by weight.

5,723,247

TONER AND DEVELOPER COMPOSITIONS WITH ORGANOSILOXANE COPOLYMERS

Robert A. Guistina, and Peter S. Alexandrovich, both of Rochester, N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.

Filed Feb. 28, 1997, Ser. No. 808,449

Int. Cl.[6] G03G *9/097*

U.S. Cl. 430—110 **13 Claims**

1. An electrostatographic toner composition comprising

(a) as a major component, a fixable binder resin which is free of siloxane segments, and

(b) blended therewith as an additive and as a minor component, an organosiloxane multiphase block or graft condensation copolymer having a polyorganosiloxane segment, a condensation polymer segment, and a polystyrene equivalent weight average molecular weight of from about 15,000 to 60,000 as determined by size exclusion chromatography, said polyorganosiloxane segment comprising from about 10 to 80 weight percent of the additive and the amount of said additive being sufficient to provide a blended composition having a surface atomic ratio of silicon to carbon in the range of from 0.005 to 0.5.

5,723,248

ELECTROSTATOGRAPHIC TONERS AND DEVELOPERS CONTAINING BIS [1,2-BENZISTHIAZOL-3(2H) -YLIDENE 1,1-DIOXIDE) ACETATES]CHARGE-CONTROL AGENTS

John C. Wilson, and Robert D. Fields, both of Rochester, N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.

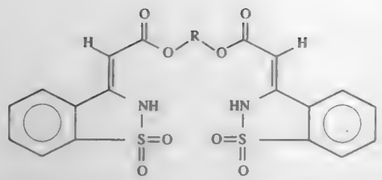
Filed Mar. 14, 1997, Ser. No. 815,037

Int. Cl.[6] G03G *9/097*

U.S. Cl. 430—110 **7 Claims**

1. An electrostatographic toner composition comprising a polymeric binder and a bis[(1,2-benzisothiazol-3(2H)-ylidene 1,1-dioxide)acetate] charge-control agent having the general structure (I):

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(I)

wherein R represents C_2 to C_{18} alkylene; arylenedialkylene; alkylenediarylene; bis(alkyleneoxyaryl)alkane; diphenylene; bis(alkyleneoxyaryl); or arylene.

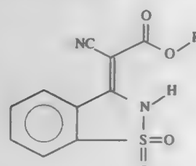
5,723,249

(1,2-BENZISOTHIAZOL-3(2H)-YLIDENE 1,1-DIOXIDE) CYANOACETATE CHARGE-CONTROL AGENTS FOR ELECTROSTATOGRAPHIC TONERS

John C. Wilson, and Robert D. Fields, both of Rochester, N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.

Filed Mar. 14, 1997, Ser. No. 818,667
Int. Cl.[6] G03G *9/097*
U.S. Cl. 430—110 **7 Claims**

1. A toner composition comprising a polymeric binder and a (1,2-benzisothiazol-3(2H)-ylidene 1,1-dioxide)cyanoacetates charge-control agent having the general structure:



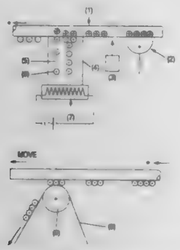
wherein R is C_1 to C_{18} alkyl or C_6 to C_{10} aryl.

5,723,250

PROCESS FOR IMAGE FORMATION USING LIQUID DEVELOPER

Hirotaka Matsuoka; Takako Kobayashi, and Ken Hashimoto, all of Minami-ashigara, Japan, assignors to Fuji Xerox Co., Ltd., Tokyo, Japan

Division of Ser. No. 421,871, Apr. 14, 1995, Pat. No. 5,622,804. This application Jan. 2, 1997, Ser. No. 778,360
Claims priority, application Japan, May 30, 1909, 6-137823; May 30, 1994, 6-137822
Int. Cl.[6] G03G *13/10*
U.S. Cl. 430—117 **7 Claims**



1. A process for forming an image comprising:
forming a latent image on a latent-image-holding substrate; and developing the latent image with a liquid developer for electrophotography,
wherein said liquid developer comprises (a) toner particles having a volume-average particle diameter of from 0.5 μm to 5 μm and comprising a thermoplastic resin substantially carrier-insoluble at the developing temperature of the liquid developer, a colorant, and a charge control agent, (b) a carrier that has an electrical resistivity of 10^8 to 10^{22} Ωcm and in which the toner particles are dispersed, and (c) a charge director contained in the carrier,
wherein said carrier comprises at least one ether compound represented by the general formula:

$$R_1O(CH_nH_{2n}O)_xR_2$$

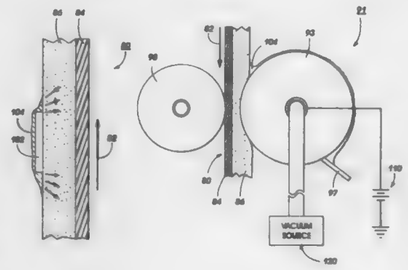
wherein R_1 and R_2 may be the same or different and each represent an alkyl group, cycloalkyl group, an aryl group, or an aralkyl group, provided that the total number of carbon atoms contained in R_1 and R_2 is from 6 to 20; and is an integer of 2 or 3; and x is an integer of 0 to 3, and
wherein said resin is selected from the group consisting of polyolefins, ethylene copolymers having a polar group, homopolymers of styrene, styrene-acrylic copolymers, polyesters and polyurethanes.

5,723,251

METHOD AND APPARATUS FOR REMOVING LIQUID CARRIER IN A LIQUID DEVELOPING MATERIAL-BASED ELECTROSTATOGRAPHIC PRINTING SYSTEM

Rasin Moser, Fairport, N.Y., assignor to Xerox Corporation, Stamford, Conn.

Filed Jan. 21, 1997, Ser. No. 785,115
Int. Cl.[6] G03G *13/11:15/11*
U.S. Cl. 430—126 **16 Claims**



1. A method for removing carrier liquid from a liquid developed image, comprising the steps of:
transferring a liquid development image to an intermediate transfer member for transporting the liquid developed image, said intermediate transfer member including a liquid carrier absorbent layer for contacting the liquid developed image to absorb at least a portion of the carrier liquid o[e] the liquid developed image;
transferring the liquid developed image off of the intermediate transfer member such that the absorbed carrier liquid remains imbibed in said liquid carrier absorbent layer;
compressing the intermediate transfer member for extracting absorbed carrier liquid from said liquid carrier absorbing layer thereof; and
applying an electrical bias to an area adjacent a surface of the intermediate transfer member, said electrical bias providing an electrical bias having a polarity opposite to a polarity of toner particles in the liquid developing material for attracting residual toner particles from the surface of the intermediate transfer member.

5,723,252

TONER PROCESSES

Raj D. Patel, Oakville, Canada; Grazyna E. Kmiecik-Lawrynowicz, Fairport, N.Y.; Anthony J. Paine, and T. Hwee Ng, both of Mississauga, Canada, assignors to Xerox Corporation, Stamford, Conn.

Filed Sep. 3, 1996, Ser. No. 707,037
Int. Cl.[6] J03G *9/08*
U.S. Cl. 430—137 **28 Claims**

1. A process for the preparation of toner which consisting essentially of
(i) preparing a pigment dispersion comprised of a pigment dispersed in an ionic surfactant;
(ii) shearing said pigment dispersion with a latex or emulsion blend comprised of resin particles and a counterionic surfactant;
(iii) heating the above sheared blend below the glass transition temperature (Tg) of said resin particles to form electrostatically bound toner size aggregates;
(iv) adding a stabilizer of in situ tricalcium phosphate solid particulants generated from a solution of calcium chloride and trisodium phosphate;
(v) heating the mixture of (iii) and (iv) above the Tg of the resin particles to obtain toner size particles comprised of resin and pigment;
(vi) washing with an acid to dissolve the trisodium phosphate; and
(vii) optionally washing with water, and optionally drying the toner obtained.

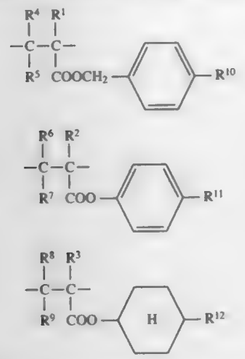
5,723,253

LIGHT-SENSITIVE COMPOSITION AND LIGHT-SENSITIVE LITHOGRAPHIC PRINTING PLATE CONTAINING O-QUINONEDIAZIDE COMPOUND, NOVOLAK RESIN, POLYMER AND ENCLOSURE COMPOUND

Katuhiko Higashino; Tomohisa Ohta, and Shinichi Matsubara, all of Tokyo, Japan, assignors to Konica Corporation, and Mitsubishi Chemical Corporation, both of Tokyo, Japan

Filed Dec. 4, 1995, Ser. No. 567,101
Claims priority, application Japan, Dec. 5, 1994, 6-329987; Jun. 23, 1995, 7-179585
Int. Cl.[6] G03F *7/023*
U.S. Cl. 430—166 **15 Claims**

1. A light-sensitive composition containing an o-quinonediazide compound, a novolak resin and a polymer,
characterized in that the polymer contains 3 to 40 mole % of a constitutional unit selected from the group consisting of constitutional units represented by the formulae (I), (II) and (III):



(I)

(II)

(III)

wherein R^1 to R^{12} each represent a hydrogen atom, an alkyl group or a phenyl group;
and the composition further comprises an enclosure compound which acts as a host compound capable of taking a chemical species therein as a guest compound.

5,723,254

PHOTORESIST WITH PHOTOACTIVE COMPOUND MIXTURES

Anthony Zampini, Westborough; Peter Trefonas, III, Medway; Pameln Turci, Harvard; Catherine C. Meister, Medway, and Gerald C. Vizvary, Lowell, all of Mass., assignors to Shipley Company, L.L.C., Marlboro, Mass.

Continuation of Ser. No. 419,099, Apr. 10, 1995, abandoned. This application Sep. 4, 1996, Ser. No. 706,096
Int. Cl.[6] G03F *7/023*
U.S. Cl. 430—190 **19 Claims**

1. A light-sensitive composition comprising a mixture of esterification products, said mixture comprising the esterification product of an alkali-soluble novolak resin that is the condensation product of an aldehyde and a phenol and an o-naphthoquinone diazide compound where a maximum of 20 mole percent of the phenolic hydroxyl groups are esterified with the o-naphthoquinonediazide compound, the esterification product of an o-naphthoquinonediazide compound and one or more low molecular weight phenols having from one to three phenolic hydroxyl groups, and the esterification product of a high molecular weight phenol having at least four phenolic hydroxyl groups and an o-naphthoquinonediazide compound where at least 50 mole percent of the phenolic hydroxyl groups are esterified with the o-naphthoquinonediazide compound, the molar ratio of said esterified resin to said esterified phenols varying between 1:10 and 10:1.

5,723,255

NANOPARTICULATE THERMAL SOLVENTS

John Texter, Rochester, and David Alan Czekai, Honeoye Falls, both of N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.

Filed Jun. 7, 1995, Ser. No. 487,373
Int. Cl.[6] G03C *8/00*
U.S. Cl. 430—203 **19 Claims**

1. An aqueous solid particle dispersion of a thermal solvent, wherein said thermal solvent is a water-immiscible phenol derivative and has a melting point, T_m, between 30° C. and 130° C., wherein said dispersion contains a dispersing aid, and wherein the thermal solvent particles in said dispersion are essentially nanocrystalline.

10. A process for forming a coating comprising the steps of:
providing an aqueous solid particle dispersion of thermal solvent, where said thermal solvent is a water-immiscible phenol derivative and has a melting point, T_m, between 30° C. and about 200° C., and where said dispersion contains a dispersing aid;
combining said aqueous solid particle thermal solvent dispersion with a coating melt composition, where said coating melt composition is maintained at a temperature, T_c, during the preparation and coating of said coating melt composition, and where $T_c < T_m$; coating the combined thermal solvent dispersion and coating melt composition onto a support to form a coating;
drying said coating by means wherein the temperature of said coating is maintained less than T_m; and wherein the physical state of thermal solvent in said thermal solvent dispersion is nanocrystalline.

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5,723,256

COLOR IMAGE FORMING PROCESS THROUGH TRANSFER OF IMAGE PORTION TO RECEIVING MATERIAL, VIA CUSHION LAYER

Tetsuya Taniguchi; Kiyoshi Goto; Takeo Akiyama; Miyuki Hosoi, all of Hino; Tetsuya Masuda, and Hideaki Mochizuki, both of Yokohama, all of Japan, assignors to Konica Corporation, Tokyo, Japan

Division of Ser. No. 331,793, Oct. 31, 1994, abandoned. This application May 15, 1996, Ser. No. 665,005

Claims priority, application Japan, Nov. 2, 1993, 5-297275

Int. Cl.[6] G03F *7/40*

U.S. Cl. 430—252 **7 Claims**

1. A color image forming method comprising the steps of:

imagewise exposing a color image-formable material which comprises a support provided thereon with a cushion layer, a color light-sensitive layer containing a light-sensitive composition and a coloring agent in this order,

developing the exposed color image-formable material so as to remove a non-image portion and leave an image portion, and

transferring the image portion of the light-sensitive layer alone to an image receiving material,

wherein the cushion layer has a hardness measured by the Shore hardness tester of 40 to 85 and a thickness of 20 to 50 μm.

5,723,257

SI CONTAINING HIGH MOLECULAR COMPOUND AND PHOTOSENSITIVE RESIN COMPOSITION

Shigeyuki Iwasa, Toyko, Japan, assignor to NEC Corporation, Japan

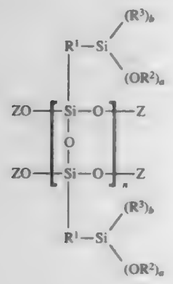
Filed May 31, 1996, Ser. No. 660,183

Claims priority, application Japan, May 31, 1995, 7-133586

Int. Cl.[6] G03F *7/039*

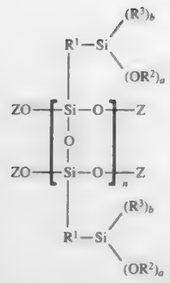
U.S. Cl. 430—270.1 **10 Claims**

1. An Si containing high molecular compound expressed by a general formula given below



where R^1 represents a C_2–C_8 divalent saturated hydrocarbon group, R^2 represents a C_1–C_8 hydrocarbon group, R^3 represents a C_1–C_8 hydrocarbon group, Z represents a hydrocarbon atom or trimethylsilyl group, a is 1 to 3, b is 0 to 2 with a sum of a and b being 3, and n is a positive integer selected from 10 to 500.

2. A photosensitive resin composition containing at least an Si containing high molecular compound and a photoacid generator, said Si containing high molecular compound being expressed by a general formula given below



where R^1 represents a C_2–C_8 divalent saturated hydrocarbon group, R^2 represents a C_1–C_8 hydrocarbon group, R^3 represents a C_1–C_8 hydrocarbon group, Z represents a hydrocarbon atom or trimethylsilyl group, a is 1 to 3, b is 0 to 2 with a sum of a and b being 3, and n is a positive integer selected from 10 to 500,

said photoacid generator serving to generate an acid by light irradiation and amplify a chemical change of a resist in a form of a catalytic reaction in a heat treatment after exposure.

5,723,258

ACETAL GROUP-CONTAINING ALKOXY-STYRENE POLYMERS, METHOD OF PREPARING THE SAME AND CHEMICAL AMPLIFIED PHOTORESIST COMPOSITION MAINLY COMPRISING THE SAME

Ji-Hong Kim; Sun-Yi Park; Seong-Ju Kim, and Joo-Hyeon Park, all of Taejeon, Rep. of Korea, assignors to Korea Kumho Petrochemical Co., Ltd., Seoul, Rep. of Korea

Division of Ser. No. 744,738, Oct. 30, 1996. This application Mar. 3, 1997, Ser. No. 804,288

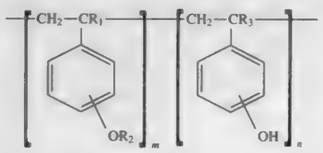
Claims priority, application Rep. of Korea, Nov. 28, 1995, 95-44207

Int. Cl.[6] G03C *1/492*

U.S. Cl. 430—270.1 **1 Claim**

1. A chemical enhanced photoresist composition, comprising:

at least one of acetal group-containing alkoxy-styrene polymers having a weight average molecular weight of 500–10,000,000, represented by the following formula I:

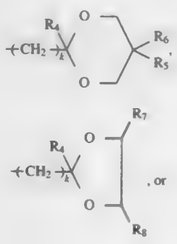


[I]

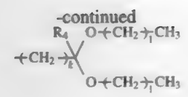
wherein

R_1 and R_3 may the same or different, and represent a hydrogen atom or a methylene group;

R_2 represents



-continued



wherein

R_4, R_5, R_6, R_7 and R_8 may be the same or different, and independently represent a hydrogen atom, an alkyl group or an aryl group; m+n=1; k is an integer of 1–5; and l is an integer of 0–5; and an acid-generating agent.

5,723,259

NEGATIVE TYPE COMPOSITION FOR CHEMICALLY AMPLIFIED RESIST AND PROCESS AND APPARATUS OF FORMATION OF CHEMICALLY AMPLIFIED RESIST PATTERN

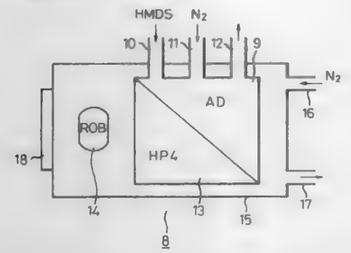
Akira Oikawa; Hiroyuki Tanaka, and Hideyuki Matsuda, all of Kawasaki, Japan, assignors to Fujitsu Limited, Kawasaki, Japan

Continuation of Ser. No. 468,744, Jun. 6, 1995, abandoned, which is a division of Ser. No. 446,517, May 22, 1995, abandoned, which is a continuation of Ser. No. 997,704, Jan. 5, 1993, abandoned. This application Oct. 23, 1996, Ser. No. 735,570

Claims priority, application Japan, Jan. 7, 1992, 4-000740; Jan. 17, 1992, 4-006652; Sep. 24, 1992, 4-254283

Int. Cl.[6] G03F *7/16*

U.S. Cl. 430—272.1 **1 Claim**



1. A process for forming a chemically amplified resist on a substrate, which comprises:

treating the substrate in a first chamber with a hydrophobic treating agent;

purging the first chamber with an inert gas;

heating the hydrophobic treated substrate in the first chamber;

purging the first chamber with an inert gas;

passing the heated hydrophobic treated substrate to a second chamber separate from the first chamber;

coating the heated hydrophobic treated substrate with a chemically amplified resist in the second chamber; and

heating the resist coated substrate in the second chamber.

5,723,260

UNSATURATED GROUP-CONTAINING URETHANE COMPOUND, PHOTOPOLYMERIZABLE COMPOSITION CONTAINING IT, AND PHOTOSENSITIVE LITHOGRAPHIC PRINTING PLATE

Shigeo Tsuji, and Hiroshi Tomiyasu, both of Yokohama, Japan, assignors to Mitsubishi Chemical Corporation, Tokyo, Japan

Filed Sep. 17, 1996, Ser. No. 715,088

Claims priority, application Japan, Sep. 18, 1995, 7-238552

Int. Cl.[6] G03F *7/027;7/029;7/09;* **C07C** *261/00*

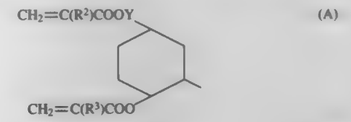
U.S. Cl. 430—278.1 **9 Claims**

1. An unsaturated group-containing urethane compound of the following formula (I):

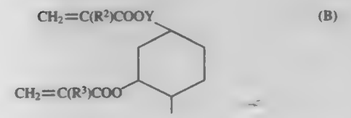


(I)

wherein X is a $C_{1\text{-}20}$ alkylene group which is branched or unbranched, and R^1 is a group of the following structural formula (A) or (B):



(A)



(B)

wherein each of R^2 and R^3 which are independent of each other, is a hydrogen atom or a methyl group, and Y is a $C_{1\text{-}6}$ alkylene group which is branched or unbranched.

2. A photopolymerizable composition comprising (a) a polymer binder, (b) a photopolymerization initiator, and (c) polymerizable unsaturated group-containing compounds, wherein the polymerizable unsaturated group-containing compounds (c) include at least one unsaturated group-containing urethane compound as defined in claim 1.

9. A photosensitive lithographic printing plate having a photosensitive resin layer formed on an aluminum substrate treated by surface roughening and anodizing treatment and, optionally, further by hydrophilic treatment, wherein the photosensitive resin layer is made of the photopolymerizable composition as defined in claim 2.

5,723,261

PHOTOPOLYMERIZABLE COMPOSITION

Makoto Yanagawa, Kamifukuoka, and Shinji Santoo, Tokorozawa, both of Japan, assignors to Tamura Kaken Co., Ltd., Saitama, Japan

Continuation of Ser. No. 508,721, Jul. 28, 1995, abandoned, Continuation-in-part of Ser. No. 605,028, Oct. 29, 1990, abandoned. This application Jan. 28, 1997, Ser. No. 787,765

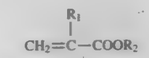
Claims priority, application Japan, Nov. 30, 1989, 1-311710

Int. Cl.[6] G03F *7/031;7/038*

U.S. Cl. 430—285.1 **12 Claims**

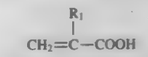
1. A photopolymerizable composition useful as a solder mask consisting essentially of:

(a) a copolymer possessing carboxyl groups, said copolymer being obtained by copolymerizing at least one compound of the formula (1):



(1)

with at least one compound of the formula (2)

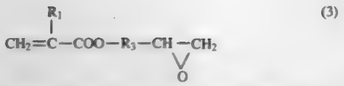


(2)

wherein R_1 is a hydrogen atom or a methyl group and R_2 is a C_1 to C_6 aliphatic hydrocarbon group,

wherein at least a portion of said carboxyl groups of said copolymer are esterified by addition of a compound having the general formula (3):

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(3)

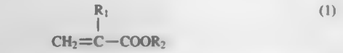
wherein R_1 has the same meaning as above, and R_3 is a C_1–C_{12} aliphatic or aromatic hydrocarbon group, and wherein said copolymer has a weight average molecular weight of 20,000 to 70,000, a softening point of 30° C. to 130° C., and an acid value of 120 to 150,

(b) a sensitizer comprising 2-methyl(4-methylthio)phenyl)-2-morpholino-1-propane as a main component and containing one or more different types of sensitizers, and

(c) a diluent having a boiling point of 100° C. or more under atmospheric pressure and containing an unsaturated compound having at least two methacryloyl or acryloyl groups.

6. A photopolymerizable composition useful as a solder mask consisting essentially of:

(a) a copolymer possessing carboxyl groups, and which is a reaction product of at least one compound having the formula (1):



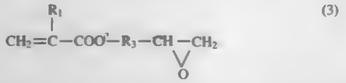
(1)

wherein R_1 is a hydrogen atom or methyl group and R_2 is a C_1 to C_6 aliphatic hydrocarbon group, and at least one compound having the general formula (2):



(2)

wherein R_1 has the same meaning as in (1), and wherein at least a portion of said carboxyl groups of said copolymer are esterified by addition of a compound having the general formula (3):



(3)

wherein R_1 has the same meaning as in (1) and (2), and R_3 is a C_1–C_{12} aliphatic or aromatic hydrocarbon group, and wherein said copolymer has a weight average molecular weight of 20,000 to 70,000, a softening point of 30° C. to 130° C., and an acid value of 120 to 150,

(b) a sensitizer comprising 2-methyl(4-methylthio)phenyl)-2-morpholino-1-propane as a main component and containing one or more different types of sensitizers, and

(c) a diluent having a boiling point of 100° C. or more under atmospheric pressure and containing an unsaturated compound having at least two methacryloyl or acryloyl groups.

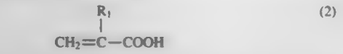
11. A photopolymerizable composition useful as a solder mask comprising:

(a) a copolymer possessing carboxyl groups, and which is a reaction product consisting essentially of at least one compound having the formula (1):



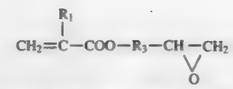
(1)

wherein R_1 is a hydrogen atom or methyl group and R_2 is a C_1 to C_6 aliphatic hydrocarbon group, and at least one compound having the general formula (2):



(2)

wherein R_1 has the same meaning as in (1), and wherein at least a portion of said carboxyl groups of said copolymer are esterified by addition of a compound having the general formula (3):



(3)

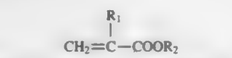
wherein R_1 has the same meaning as in (1) and (2), and R_3 is a C_1–C_{12} aliphatic or aromatic hydrocarbon group, and wherein said copolymer has a weight average molecular weight of 20,000 to 70,000, a softening point of 30° C. to 130° C., and an acid value of 120 to 150;

(b) a sensitizer comprising 2-methyl(4-methylthio)phenyl)-2-morpholino-1-propane as a main component and containing one or more different types of sensitizers, and

(c) a diluent having a boiling point of 100° C. or more under atmospheric pressure and containing an unsaturated compound having at least two methacryloyl or acryloyl groups.

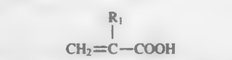
12. A photopolymerizable composition useful as a solder mask comprising:

(a) a copolymer possessing carboxyl groups, and which is a reaction product consisting of at least one compound having the formula (1):



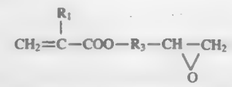
(1)

wherein R_1 is a hydrogen atom or methyl group and R_2 is a C_1 to C_6 aliphatic hydrocarbon group, and at least one compound having the general formula (2):



(2)

wherein R_1 has the same meaning as in (1), and wherein at least a portion of said carboxyl groups of said copolymer are esterified by addition of a compound having the general formula (3):



(3)

wherein R_1 has the same meaning as in (1) and (2), and R_3 is a C_1–C_{12} aliphatic or aromatic hydrocarbon group, and wherein said copolymer has a weight average molecular weight of 20,000 to 70,000, a softening point of 30° C. to 130° C., and an acid value of 120 to 150;

(b) a sensitizer comprising 2-methyl(4-methylthio)phenyl)-2-morpholino-1-propane as a main component and containing one or more different types of sensitizers, and

(c) a diluent having a boiling point of 100° C. or more under atmospheric pressure and containing an unsaturated compound having at least two methacryloyl or acryloyl groups.

5,723,262

RESIN COMPOSITION

Shigeo Nakamura; Masahiko Oshimura; Kenichi Mori; Tadahiko Yokota, and Hiroyasu Koto, all of Kawasaki, Japan, assignors to Ajinomoto Co., Inc., Tokyo, Japan

Continuation of Ser. No. 255,935, Jun. 7, 1994, abandoned.
This application Jul. 9, 1996, Ser. No. 680,551
Claims priority, application Japan, Jun. 7, 1993, 5-135892; May 16, 1994, 6-100903
Int. Cl.[6] G03F *7/038*
U.S. Cl. 430—286.1 **6 Claims**

1. A resin composition, comprising:

A) 1) an alkali soluble polymer having a phenolic hydroxy group and a number average molecular weight in the range of from 300 to 30,000, and 2) a compound having a) two or more polymerizable double bonds and b) an isocyanate group or an epoxy group in its molecule,

wherein the ratio of isocyanate or epoxy equivalent of compound 2) to hydroxyl equivalent of compound 1) is in the range of from 0.1 to 0.8; and

B), a compound having one or more functional groups which can react with the phenolic hydroxyl group by application of heat.

5,723,263

COLOR NEGATIVE ELEMENT HAVING IMPROVED BLUE RECORD PRINTER COMPATIBILITY

Stephen Paul Singer, Spencerport; Paul Barrett Merkel, and Jeffrey Walter Schmoeger, both of Rochester, all of N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.

Continuation of Ser. No. 430,639, Apr. 28, 1995, abandoned.
This application Nov. 12, 1996, Ser. No. 748,067
Int. Cl.[6] G03C *7/46*
U.S. Cl. 430—374 **8 Claims**

1. A process for forming a positive image on a negative working color photographic paper using the negative-positive photographic system, comprising:

forming a color negative image by exposing a color negative film element to the image, said element comprising a support bearing a blue light-sensitive silver halide emulsion first layer and a green light-sensitized silver halide emulsion second layer wherein said second layer contains a green sensitizing dye and wherein said first layer has associated therewith a hue correction coupler which upon coupling with oxidized developer produces a dye having a maximum absorbance in the range of 460 to 510 nm. and having a D480/D440 density ratio at mid scale which is greater than that exhibited by the element without the hue correction coupler; and then

forming a positive color image reflective print by projecting said color negative image onto a negative-working color paper having a maximum blue sensitivity in the range of 470–480 nm using a printer that employs blue filters having a maximum sensitivity in the range of 440–445 nm.

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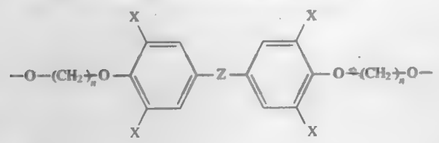
PATTERN TRANSFER TECHNIQUES FOR FABRICATION OF LENSLET ARRAYS USING SPECIALIZED POLYESTERS

Douglas R. Robello; Joseph F. Revelli, and Jeffrey I. Hirsh, all of Rochester, N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.

Filed Mar. 14, 1996, Ser. No. 615,938
Int. Cl.[6] G03F *7/40*
U.S. Cl. 430—321 **7 Claims**

1. A method for forming lenslets which collect light and focus it onto photosensitive elements of an electronic imager, comprising the steps of:

(a) providing a transparent polyester lenslet-forming layer on a substrate or on layer(s) on the substrate, the polyester containing a repeat unit, in part, having the structure

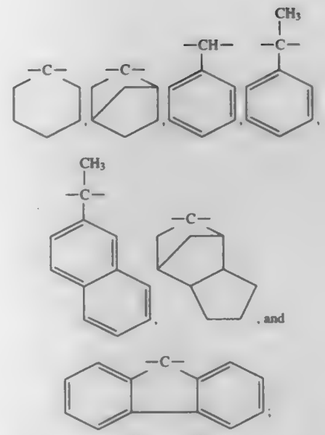


wherein:

n is 2 or greater;

X is selected from the group consisting of H, CH_3, Br and Cl; and

Z is selected from the group consisting of nil, O, S, CH_2, C═O, SO, SO_2, CH—CH_3, CH_3—C—CH_3, CF_3—C—CF_3, CH_3—C—CH_2CH_3,



(b) forming a thin etch-stop layer on the transparent lenslet-forming layer and patterning the etch-stop layer to form a mask so that the pattern corresponds to lenslets to be formed;

(c) anisotropically plasma etching the transparent lenslet-forming layer according to the pattern;

(d) removing the thin etch-stop mask; and

(e) thermally reflowing the patterned transparent layer to form the transparent lenslets.

5,723,265

IMAGE FORMING METHOD

Shinsaku Nagaoka; Takehiko Shoji; Kiyokazu Morita; Tsukasa Ito, and Yoshihiko Suda, all of Hino, Japan, assignors to Konica Corporation, Japan

Filed Oct. 8, 1996, Ser. No. 727,148
Claims priority, application Japan, Oct. 9, 1995, 7-261504; Oct. 26, 1995, 7-279059; Jun. 7, 1996, 8-145902
Int. Cl.[6] G03C *7/46*
U.S. Cl. 430—376 **12 Claims**

1. A method for forming a color image comprising exposing a silver halide color photographic light sensitive material,

developing the photographic material with a color developing solution and

bleach-fixing the photographic material with a bleach-fixing solution,

wherein said silver halide color photographic material comprises a support having thereon hydrophilic colloidal layers including a light insensitive hydrophilic colloid layer and a light sensitive silver halide emulsion layer containing a dye-forming coupler, said silver halide layer containing silver halide grains having an average chloride content of not less than 90 mol %; and the color image being formed in the presence of a dextran.

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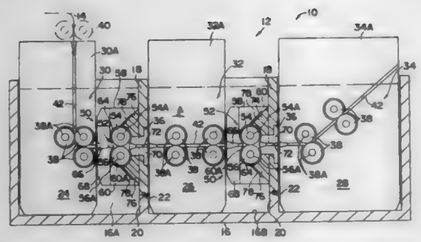
METHOD OF PROCESSING SILVER HALIDE PHOTOSENSITIVE MATERIAL

Kiyoshi Morimoto, Minami-ashigara, Japan, assignor to Fuji Photo Film Co., Ltd., Tokyo, Japan

Filed Sep. 27, 1996, Ser. No. 720,082
Claims priority, application Japan, Sep. 27, 1995, 7-272116
Int. Cl.[6] G03C *7/44*
U.S. Cl. 430—398 **19 Claims**

1. A method of processing a silver halide photosensitive material using a photosensitive material processing apparatus in which a

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photosensitive material is immersed and processed in a processing solution having a developing capability, a processing solution having a desilverizing capability and a processing solution for at least one of washing and stabilization, these processing solutions being respectively accommodated in a plurality of processing tanks disposed adjacent to each other along a direction in which the photosensitive material is conveyed, said photosensitive material processing apparatus comprising: a conveying roller pair for conveying the photosensitive material, which is provided in at least one portion of said photosensitive material processing apparatus; sealing means for sealing the periphery of said conveying roller; and a partition portion which is partitioned by a roller which is provided in at least one portion between adjacent processing tanks of the plurality of processing tanks to allow the photosensitive material to pass therethrough, wherein a processing solution in at least one of the plurality of processing tanks is covered by a fluid layer which floats on a liquid surface of the processing solution.

5,723,267

SILVER HALIDE PHOTOGRAPHIC MATERIAL AND THE METHOD OF PROCESSING THE SAME

Tadashi Ito, Kanagawa, Japan, assignor to Fuji Photo Film Co., Ltd., Kanagawa, Japan

Continuation of Ser. No. 498,888, Jul. 6, 1995, abandoned. This application Sep. 10, 1996, Ser. No. 711,997

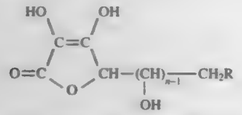
Claims priority, application Japan, Jul. 6, 1994, 6-154776

Int. Cl.[6] G03C *5/31*

U.S. Cl. 430—399 **11 Claims**

1. A process for processing a silver halide photographic material using an automatic processor, which comprises the steps of:

(i) developing the photographic material with a developer having a pH of from 9 to 10.5 and containing, as a developing agent, a reductone which is present in an amount of from 5 to 80 g per liter of said developer and which is represented by formula (I):



(I)

wherein R represents a hydrogen atom or a hydroxyl group, and n represents an integer of from 1 to 4;

(ii) fixing the developed material; and

(iii) washing the fixed material,

wherein the developer is replenished at a replenishment rate of 42.8 to 100 cc per m^2 of the photographic material; and wherein said photographic material comprises a photographic material constituting layer containing a calcium compound in a total amount of not more than 10 mg/m^2 and a support having provided thereon at least one silver halide emulsion layer.

5,723,268

METHOD OF PHOTOGRAPHIC COLOR PROCESSING

John Richard Fyson, Hackney, United Kingdom, assignor to Eastman Kodak Company, Rochester, N.Y.

Filed Mar. 13, 1997, Ser. No. 818,473

Claims priority, application United Kingdom, Mar. 13, 1996, 9605245

Int. Cl.[6] G03C *7/42*

U.S. Cl. 430—430 **10 Claims**

1. A method of processing comprising, in order:

color developing a photographic silver halide color material to form a dye image with a color developing solution,

stopping dye image formation in said color material with a stop bath, and

bleaching or bleach-fixing said color material with a bleaching or bleach-fixing solution,

wherein said bleaching or bleach-fixing solution is prepared by adding one or more additional components to overflow from said stop bath.

5,723,269

MICROPARTICLE PREPARATION AND PRODUCTION THEREOF

Yasaburo Akagi, Takatsuki; Nobuyuki Takechi, Osaka, and Muneo Nonomura, Suita, all of Japan, assignors to Takeda Chemical Industries, Ltd., Osaka, Japan

Continuation of Ser. No. 95,765, Jul. 23, 1993, abandoned. This application Mar. 7, 1996, Ser. No. 612,071

Claims priority, application Japan, Jul. 24, 1992, 4-198242; Feb. 9, 1993, 5-021142

Int. Cl.[6] A61K *9/58*

U.S. Cl. 424—497 **28 Claims**

1. A method for producing a microparticle preparation which comprises spraying a solution of polymer containing a drug and a solution of a water-soluble inorganic salt, a water-soluble organic acid or a water-soluble salt of an organic acid separately from different nozzles and contacting the solution sprays with each other in a spray dryer to produce microparticles of the polymer which contains the drug and are coated at least partially or wholly with the water-soluble inorganic salt, the water-soluble organic acid or the water-soluble salt of the organic acid, wherein the organic acid is selected from the group consisting of citric acid, tartaric acid, malic acid, succinic acid, benzoic acid, chondroitin sulfuric acid, alginic acid and peptic acid, and wherein the polymer is a poly fatty acid ester selected from the group consisting of homopolymers of α-hydroxycarboxylic acid, copolymers of two or more α-hydroxycarboxylic acid, and a mixture thereof.

5,723,270

PHOTOGRAPHIC ELEMENTS HAVING A PROCESS-SURVIVING POLYSILOXANE BLOCK COPOLYMER BACKING

Thomas M. Smith, Spencerport; Vito A. DePalma, Rochester, and Scott E. Tunney, Ontario, all of N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.

Filed Nov. 19, 1996, Ser. No. 752,338

Int. Cl.[6] G03C *1/83;1/835;1/89;1/76*

U.S. Cl. 430—517 **16 Claims**

1. A photographic element comprising (a) a support, (b) a radiation-sensitive silver halide emulsion layer on one side of the support, and (c) a protective backing on the opposite side of the support comprised of one or more layers, the outermost of which comprises a film-forming hydrophobic lubricious polyimide-siloxane block copolymer.

5,723,271

PHOTOGRAPHIC ELEMENTS HAVING A PROCESS-SURVIVING POLYSILOXANE BLOCK COPOLYMER BACKING

Thomas M. Smith, Spencerport; Vito A. DePalma, Rochester, and Scott E. Tunney, Ontario, all of N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.

Filed Nov. 19, 1996, Ser. No. 752,339

Int. Cl.[6] G03C *1/53;1/835;1/89;1/76*

U.S. Cl. 430—517 **20 Claims**

1. A photographic element comprising (a) a support, (b) a radiation-sensitive silver halide emulsion layer on one side of the support, and (c) a protective backing on the opposite side of the support comprised of one or more layers, the outermost of which comprises a film-forming hydrophobic lubricious polyester-siloxane block copolymer and a hydrophobic co-binder which does not contain polysiloxane block units.

5,723,272

SILVER HALIDE LIGHT-SENSITIVE ELEMENT

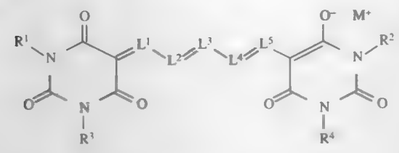
Gary Norman Barber, Penfield, and Margaret Jones Helber, Rochester, both of N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.

Filed Dec. 22, 1995, Ser. No. 572,904

Int. Cl.[6] G03C *1/06;1/815;1/825*

U.S. Cl. 430—522 **20 Claims**

1. A silver halide light sensitive photographic element comprising a support bearing on one side thereof at least one blue-sensitive silver halide emulsion yellow-image forming layer, at least one red-sensitive silver halide emulsion cyan-image forming layer, at least one green-sensitive silver halide emulsion magenta-image forming layer, and an antihalation layer comprising a cyan filter dye coated between the support and the red-sensitive layer; wherein the green-sensitive layer comprises a four-equivalent magenta image forming coupler and the cyan filter dye is of the formula



where

L^1, L^2, L^3, L^4 and L^5 are methine groups;

R^1, R^2, R^3 and R^4 are independently H or alkyl or aryl groups; and

M^+ is H or a counter ion;

wherein at least one of R^1, R^2, R^3 and R^4 comprises an aryl group substituted with a substituent having a π value of less than −0.10, where π represents the group substituent component of the hydrophobicity parameter logP.

5,723,273

PROTECTIVE OVERCOAT FOR ANTISTATIC LAYER

Charles Chester Anderson; Yongcai Wang, both of Penfield; James L. Bello, Rochester, and Mario D. DeLaura, Hamlin, all of N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.

Filed Sep. 11, 1996, Ser. No. 712,018

Int. Cl.[6] G03C *1/85;1/93;1/76;* **B32B** *7/30*

U.S. Cl. 430—527 **11 Claims**

1. An imaging element comprising a support:

an image forming layer;

an antistatic layer; and

a protective layer overlying said antistatic layer formed from an aqueous coating composition containing a film forming binder and a crosslinking agent wherein the film forming binder comprises a carboxylic acid containing vinyl polymer having a glass transition temperature of greater than 50° C. and an acid number of from 60 to 260 wherein the carboxylic acid containing vinyl polymer is reacted with ammonia or amine so that the coating composition has pH of from 7 to 10.

5,723,274

FILM FORMER AND NON-FILM FORMER COATING COMPOSITION FOR IMAGING ELEMENTS

Charles Chester Anderson, and Yongcai Wang, both of Penfield, N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.

Filed Sep. 11, 1996, Ser. No. 712,010

Int. Cl.[6] G03C *1/89;1/93;1/053;* **B32B** *27/30*

U.S. Cl. 430—528 **14 Claims**

1. An imaging element comprising a support having thereon at least one layer formed from an aqueous coating composition having dispersed therein (A) a film forming binder and (B) non-film forming polymeric particles said film forming binder comprising a carboxylic acid containing vinyl polymer having a glass transition temperature of greater than 50° C. and an acid number of from 60 to 260, the carboxylic acid containing polymer is reacted with ammonia or amine so that the coating composition has a pH of from 7 to 10.

5,723,275

VINYLIDENE CHLORIDE CONTAINING COATING COMPOSITION FOR IMAGING ELEMENTS

Yongcai Wang, and Charles Chester Anderson, both of Penfield, N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.

Filed Sep. 11, 1996, Ser. No. 712,016

Int. Cl.[6] G03C *1/89;1/93;1/053;* **B32B** *27/30*

U.S. Cl. 430—528 **21 Claims**

1. An imaging element comprising a support having thereon at least one layer formed by coating and subsequent drying of an aqueous coating composition having dispersed therein a film forming binder comprising an interpolymer containing carboxylic acid groups, the interpolymer comprising from 60 to 90 weight percent vinylidene chloride, the interpolymer having an acid number of from 30 to 150 wherein the carboxylic acid groups are reacted with ammonia or amine so that the aqueous coating composition has a pH of from 7 to 10.

5,723,276

COATING COMPOSITIONS FOR PHOTOGRAPHIC PAPER

Lori Jeanne Shaw-Klein, Rochester; Charles Chester Anderson, and Yongcai Wang, both of Penfield, all of N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.

Filed Sep. 11, 1996, Ser. No. 712,019

Int. Cl.[6] G03C *1/89;* **B32B** *23/08;27/08;27/30*

U.S. Cl. 430—528 **20 Claims**

1. A photographic element comprising:

a polyolefin resin coated paper base;

at least one light sensitive layer;

a backing layer formed by coating and subsequent drying of an aqueous coating composition having dispersed therein colloidal inorganic oxide particles, an antistatic agent and a film forming binder comprising a carboxylic acid containing vinyl polymer having a glass transition temperature of greater than 25° C. and an acid number of from 30 to 260 wherein the carboxylic acid containing vinyl polymer is reacted with ammonia or amine so that the coating composition has a pH of from 7 to 10.

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5,723,277

SILVER HALIDE EMULSION AND SILVER HALIDE COLOR PHOTOGRAPHIC MATERIAL USING THE SAME

Toshiuki Nabeta, Kanagawa, Japan, assignor to Fuji Photo Film Co., Ltd., Kanagawa, Japan

Filed May 17, 1996, Ser. No. 649,273
Claims priority, application Japan, May 17, 1995, 7-141377
Int. Cl.[6] G03C *1/035;1/42*
U.S. Cl. 430—567 18 Claims

1. A silver halide emulsion containing tabular silver halide grains in such an amount that the projected area of the tabular silver halide grains accounts for 30% or more of the entire projected area of silver halide grains contained in the emulsion, said tabular silver halide grains having:

(1) a multiple structure comprising one inner shell and one or more outer shells positioned outside of the inner shell, wherein the outermost shell of the outer shells contains 50 mol % or more of silver chloride and at least one of the outer shells and the inner shell which are positioned inside of the outermost shell contains 50 mol % or more of silver bromide;

(2) {100} faces as two main planes parallel to each other; and

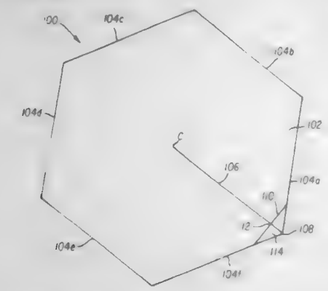
(3) an aspect ratio of 2 or more.

5,723,278

TABULAR GRAIN EMULSIONS WITH SELECTED SITE HALIDE CONVERSIONS AND PROCESSES FOR THEIR PREPARATION

Seshadri Jagannathan, Rochester; David E. Fenton, Fairport, and Samuel Chen, Penfield, all of N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.

Filed May 31, 1996, Ser. No. 657,827
Int. Cl.[6] G03C *1/015;1/035*
U.S. Cl. 430—567 10 Claims



1. A halide conversion process comprised of

providing a radiation-sensitive emulsion containing a gelatino-vehicle and silver halide grains and

introducing iodide ions into the grains,

WHEREIN

the radiation-sensitive emulsion as provided includes tabular grains which (a) are comprised at least 90 mole percent bromide and up to 10 mole percent iodide, based on silver, and (b) have {111} major faces that (i) form corners joined by linear edges and (ii) account for at least 70 percent of total grain projected area,

the pBr of the emulsion provided is maintained at less than 3.5,

an iodide ion source exhibiting a second order reaction rate constant with the gelatino-vehicle of less than 10^{-3} mole^{-1} sec^{-1} is introduced into the emulsion and reacted with the gelatino-vehicle to release iodide ions, and

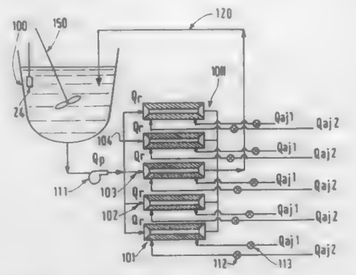
the released iodide ions selectively displace halide ions to create dislocations confined to corner regions of the tabular grains, the boundary between each corner region and the remainder of the tabular grain of which the corner region forms a part being delineated by a plane that perpendicularly intersects an axis extending from the center of a {111} major face of the tabular grain to the tabular grain corner within the corner region at a distance from the corner which is 10 percent of the length of the axis.

5,723,279

METHOD FOR PREPARING A PHOTOGRAPHIC EMULSION, AND APPARATUS FOR IMPLEMENTING THE METHOD

Pierre Henri Jezequel, Givry, France, assignor to Eastman Kodak Company, Rochester, N.Y.

Filed Nov. 21, 1996, Ser. No. 752,993
Claims priority, application France, Dec. 14, 1995, 95 15008
Int. Cl.[6] G03C *1/015;* B01J *14/00*
U.S. Cl. 430—569 18 Claims



1. Method for preparing a silver halide photographic emulsion, wherein the content of a vessel containing at least a stirred solution of gelatin is circulated in a plurality of external circulation loops of identical configuration, disposed in parallel and in which reagents required for the formation and/or growth of silver halide grains are added in an identical manner for each of the loops, the output of the circulation loops being recycled continuously in the vessel.

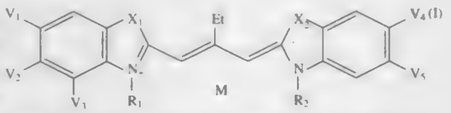
5,723,280

PHOTOGRAPHIC ELEMENT COMPRISING A RED SENSITIVE SILVER HALIDE EMULSION LAYER

Steven George Link, Rochester; James Kenneth Elwood, Farmington; Frederick Charles Derks, and Kenneth William Lowe, both of Rochester, all of N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.

Filed May 29, 1996, Ser. No. 655,109
Int. Cl.[6] G03C *1/18*
U.S. Cl. 430—574 14 Claims

1. A silver halide photographic element comprising a support and a silver halide emulsion layer containing tabular silver halide grains sensitized with a sensitizing dye of Formula I:



wherein each of X_1 and X_2 is an oxygen atom, a sulfur atom, or a selenium atom, with the proviso that one of X_1 and X_2 is an oxygen atom and the other is a sulfur or selenium atom; V_1 and V_2 together represent the atoms necessary to complete a fused benzene ring and V_3 is hydrogen, or V_2 and V_3 together represent the atoms necessary to complete a fused benzene ring and V_1 is hydrogen; each of V_4 and V_5 is independently a hydrogen or halogen atom, or an alkyl, alkoxy or aryl group; R_1 is an acid substituted alkyl group; R_2 is a 2-sulfoethyl group; and M is a counterion as necessary to balance the charge;

said emulsion having a peak sensitivity below about 640 nm.

5,723,281

PLASMA-LIKE SUBSTANCE

Paul E. Segall; Harold D. Waitz; Hal Sternberg, and Judith M. Segall, all of Berkeley, Calif., assignors to BioTime, Inc., Berkeley, Calif.

Division of Ser. No. 133,527, Oct. 7, 1993, abandoned, which is a continuation-in-part of Ser. No. 71,533, Jun. 4, 1993, Pat. No. 5,407,428. This application Jun. 6, 1995, Ser. No. 471,396
Int. Cl.[6] A01N *1/00;* A61K *31/715;31/72;47/36*
U.S. Cl. 435—1.2 11 Claims

1. A method of preserving a non-living biological subject at cryogenic temperatures without the use of a solution comprising a biological buffer, said method comprising:

administering a first solution comprising an aqueous solution comprised of sodium lactate, and at least one water soluble oncotic agent selected from the group consisting of hydroxyethyl starch, dextran 40, dextran 70, and albumin, while lowering the temperature of said subject to about a temperature less than 10° C. and above ice point;

administering to said subject a second solution, comprised of sodium lactate, sodium bicarbonate, and at least one water soluble oncotic agent selected from the group consisting of hydroxyethyl starch, dextran 40, dextran 70, and albumin, and at least one cold protecting agent, in an amount to substantially remove said first solution; and

further cooling said subject

with the proviso that neither of said first or second solutions comprises a biological buffer.

5,723,282

METHOD OF PREPARING ORGANS FOR VITRIFICATION

Gregory M. Fahy, Gaithersburg; Bijan Khirabadi, Rockville, both of Md.; Yasumitsu Okouchi, Hazelwood, Mo., and Thomas Maciag, Rockville, Md., assignors to The American National Red Cross, Washington, D.C.

Continuation-in-part of Ser. No. 72,754, Jun. 7, 1993, abandoned, which is a continuation-in-part of Ser. No. 725,054, Jul. 8, 1991, Pat. No. 5,217,860. This application Aug. 18, 1994, Ser. No. 292,001
Int. Cl.[6] A01N *1/02*
U.S. Cl. 435—1.3 17 Claims

1. A method of preparing a biological organ for cryopreservation, comprising:

(a) flushing the organ with a cryoprotectant-free, stabilizing flushing solution;

(b) perfusing the cryoprotectant-free organ of step (a) with a perfusion solution under controlled conditions in which the concentration of cryoprotectant is gradually increased in the perfusion solution to a first predetermined concentration, while the temperature of the organ and the perfusion solution is concurrently reduced from an initial temperature of about 0° to 37° C. to a lower temperature of about −13° to +5° C.;

(c) maintaining the concentration of the cryoprotectant for a sufficient time to permit the approximate osmotic equilibration of the organ to occur;

(d) increasing the concentration of cryoprotectant in the perfusion solution, from the concentration in step (c), under controlled conditions to a first intermediate concentration, which is not sufficient for vitrification, and maintaining the concentration of cryoprotectant at that intermediate concentration for sufficient time to permit the approximate osmotic equilibration of the organ;

(e) reducing the temperature of the organ to a temperature below that of step (b); and

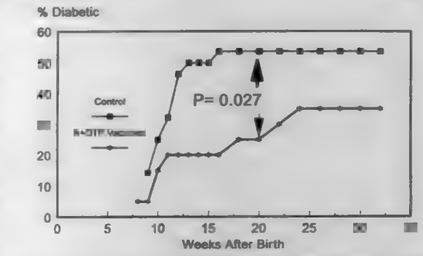
(f) increasing the concentration of cryoprotectant in the perfusion solution, to a level sufficient for vitrification.

5,723,283

METHOD AND COMPOSITION FOR AN EARLY VACCINE TO PROTECT AGAINST BOTH COMMON INFECTIOUS DISEASES AND CHRONIC IMMUNE MEDIATED DISORDERS OR THEIR SEQUELAE

John Barthelow Classen, Baltimore, Md., assignor to Classen Immunotherapies, Inc., Baltimore, Md.

Continuation-in-part of Ser. No. 104,529, Aug. 12, 1993. This application May 31, 1995, Ser. No. 450,586
Int. Cl.[6] C12Q *1/02;* A61K *39/00;39/02;39/12*
U.S. Cl. 435—4 47 Claims



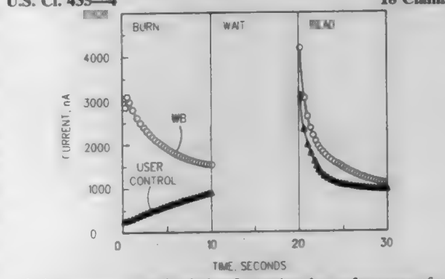
1. A method of determining whether an immunization schedule affects the incidence or severity of a chronic immune-mediated disorder in a treatment group of mammals, relative to a control group of mammals, which comprises immunizing mammals in the treatment group of mammals with one or more doses of one or more immunogens, according to said immunization schedule, and comparing the incidence, prevalence, frequency or severity of said chronic immune-mediated disorder or the level of a marker of such a disorder, in the treatment group, with that in the control group.

5,723,284

CONTROL SOLUTION AND METHOD FOR TESTING THE PERFORMANCE OF AN ELECTROCHEMICAL DEVICE FOR DETERMINING THE CONCENTRATION OF AN ANALYTE IN BLOOD

Ling Ye, Mishawaka, Ind., assignor to Bayer Corporation, Elkhart, Ind.

Filed Apr. 1, 1996, Ser. No. 625,132
Int. Cl.[6] C12Q *1/00;1/54;* A61M *1/14;* C25D *5/00*
U.S. Cl. 435—4 18 Claims



1. An aqueous control solution for testing the performance of an electrochemical sensing device useful for determining the concentration of an analyte in a blood sample which device comprises a working electrode and a reference electrode which working electrode has on its surface a composition comprising an enzyme specific for the analyte, a mediator which is a species reduced in response to a reaction between the analyte and the enzyme, and wherein the concentration of the analyte in the fluid test sample is determined as a function of the current measured which passes the working electrode which control solution provides a dynamic current which is distinctly different from the dynamic current profile which would be obtained in the electrochemical sensor with blood.

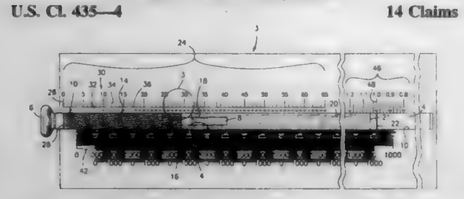
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5,723,285

ASSEMBLY FOR DETECTING BLOOD-BORNE PARASITES AND MEASURING BLOOD SAMPLE PARAMETERS IN A CENTRIFUGED SAMPLE OF BLOOD

Robert A. Levine, 31 Pilgrim La., Guilford, Conn. 06443, and Stephen C. Wardlaw, 191 N. Cove Rd., Old Saybrook, Conn. 06475

Filed May 30, 1996, Ser. No. 655,465
Int. Cl.[6] G01N *33/53;33/558*
U.S. Cl. 435—4 14 Claims



1. A slide for holding a centrifuged sample of anticoagulated whole blood contained in a sampling tube, said slide including:

a) a slot for holding the sampling tube;

b) first numerical indicia on the slide adjacent said slot for providing a zero reference baseline on the slide adjacent to one end thereof, said zero reference baseline being positioned on the slide so that one end of a centrifuged red cell pack contained in a sampling tube placed in the slide slot can be aligned with said zero reference baseline;

c) second numerical indicia on the slide adjacent to said slot for providing a hematocrit scale, said hematocrit scale extending from said zero reference baseline and including reference lines extending to an edge of said slot for measuring hematocrit in the centrifuged blood sample in the tube when placed in said slot to an accuracy of at least one percent;

d) third numerical indicia on the slide for providing at least one platelet count scale adjacent to said slot, and on a side of the slot opposite said hematocrit scale, said platelet count scale being operable to measure platelet counts in a centrifuged blood sample in the tube when placed in said slot to an accuracy of at least five percent;

e) fourth numerical indicia on the slide for providing a volume correction factor scale adjacent to said slot, said correction factor scale including multiplication factor reference lines extending to an edge of said slot for alignment with an optimum fill line on a centrifuged blood sample tube placed in the slot, and for concurrent alignment with an actual blood sample fill miniscus in the tube, said multiplication factor reference lines being spaced apart from said zero reference baseline so as to provide correction factors which are operable to correct hematocrit readings and platelet count readings so as to correlate such readings with the actual amount of blood sample in the sample tube; and

f) each of said numerical indicia being presented in mirror image on the slide.

5,723,286

PEPTIDE LIBRARY AND SCREENING SYSTEMS

William J. Dower, Menlo Park; Steven E. Cwirla, Palo Alto, and Ronald W. Barrett, Sunnyvale, all of Calif., assignors to Affymax Technologies N.V., Greenford, United Kingdom

Filed Jun. 20, 1990, Ser. No. 541,108
Int. Cl.[6] C12Q *1/70;1/60;* C12N *15/64*
U.S. Cl. 435—5 45 Claims

1. A method for identifying a peptide which binds to a preselected receptor molecule, comprising:

transforming host cells by electroporation with at least 10^8 different bacteriophage expression vectors, wherein each of said different vectors encodes a fusion protein comprising a peptide fused to a coat protein of a filamentous bacteriophage so that the N-terminal amino acid of said fusion protein is the N-terminal amino acid of said peptide, and wherein said different vectors are constructed by ligating each oligonucleotide of a mixture of at least 10^8 different oligonucleotides to a bacteriophage cloning vector that encodes the coat protein so as to form a coding sequence for said fusion protein, wherein each of said different oligonucleotides comprises a series of codons encoding a random collection of amino acids and encodes a different peptide;

cultivating the transformed cell under conditions suitable for expression and assembly of bacteriophage particles thereby displaying said peptides on the surface of said particles; and

selecting bacteriophage particles displaying the peptide by combining said particles with the preselected receptor molecule and separating particles bound to said receptor molecule from unbound particles.

5,723,287

RECOMBINANT VIRUSES DISPLAYING A NONVIRAL POLYPEPTIDE ON THEIR EXTERNAL SURFACE

Stephen J. Russell; Robert E. Hawkins, and Gregory P. Winter, all of Cambridge, United Kingdom, assignors to Medical Research Council, London, United Kingdom

PCT No. PCT/GB93/01992, § 371 Date May 3, 1995, § 102(e) Date May 3, 1995, PCT Pub. No. WO94/06920, PCT Pub. Date Mar. 31, 1994
PCT Filed Sep. 22, 1993, Ser. No. 381,960
Claims priority, application United Kingdom, Sep. 22, 1992, 9220010; Mar. 11, 1993, 9304962
Int. Cl.[6] C12Q *1/70;1/68;* C12N *1/00;* C07H *21/04*
U.S. Cl. 435—5 24 Claims

1. A recombinant retroviral particle that infects eukaryotic cells, comprising (a) a fusion protein comprising a non viral polypeptide fused at the amino-terminus or within seven amino acid residues of the amino terminus of a substantially intact viral glycoprotein said non viral polypeptide being, displayed on the external surface of the particle; and (b) a nucleic acid encoding said fusion protein, the nucleic acid further comprising a packaging signal sequence.

5,723,288

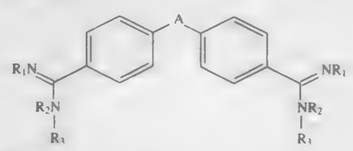
METHOD OF FLUORESCENT DETECTION OF NUCLEIC ACIDS AND CYTOSKELETON ELEMENTS USING BIS-DICATIONIC ARYL FURANS, AND KITS USEFUL THEREFOR

Christine C. Dykstra; Richard R. Tidwell, both of Chapel Hill, N.C.; David W. Boykin; W. David Wilson, both of Atlanta, Ga.; Jaroslaw Spychala, Poznan, Poland; Bijan P. Das, and Arvind Kumar, both of Atlanta, Ga., assignors to The University of North Carolina at Chapel Hill, Chapel Hill, N.C., and Georgia State University Research Foundation, Inc., Atlanta, Ga.

Filed May 6, 1994, Ser. No. 238,766
Int. Cl.[6] C12Q *1/68*
U.S. Cl. 435—6 22 Claims

1. A method for the fluorescent detection of a nucleic acid comprising:

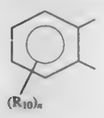
(a) contacting said nucleic acid with a compound according to Formula (I)



(I)

wherein:

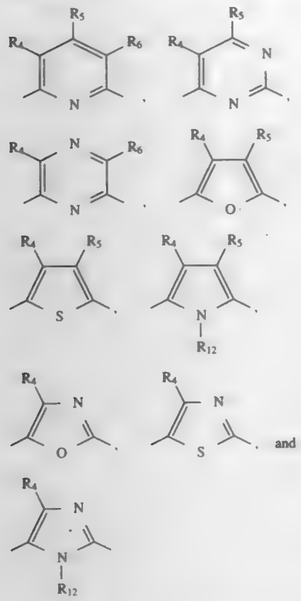
R_1 and R_2 together are:



wherein n is from 1 to 3 and R_{10} is H or —$CONHR_{11}NR_{15}R_{16}$, wherein R_{11} is loweralkyl, and R_{15} and R_{16} are each independently selected from the group consisting of H and lower alkyl;

R_3 is H, lower alkyl, cycloalkyl, aryl, hydroxyalkyl, aminoalkyl, or alkylaminoalkyl; and

A is a heterocyclic aromatic group selected from the group consisting of:



wherein R_4, R_5, and R_6 are each independently selected from the group consisting of H, lower alkyl, halogen, oxyalkyl, oxyaryl, or oxyarylalkyl; R_{12} is hydrogen, lower alkyl, hydroxy, aminoalkyl or alkylaminoalkyl;

or a physiologically acceptable salt thereof;

(b) exposing said nucleic acid to light to induce fluorescence of said compound of Formula (I); and

(c) detecting said nucleic acid.

5,723,289

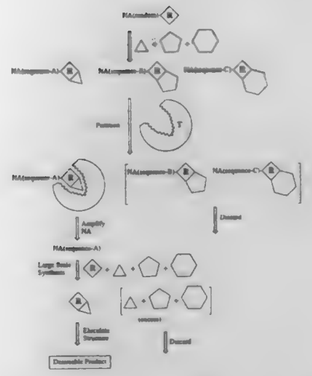
PARALLEL SELEX

Bruce E. Eaton, and Larry Gold, both of Boulder, Colo., assignors to NeXstar Pharmaceuticals, Inc., Boulder, Colo.

Continuation-in-part of Ser. No. 714,131, Jun. 10, 1991, Pat. No. 5,475,096, which is a continuation-in-part of Ser. No. 536,428, Jun. 11, 1990, abandoned. This application Sep. 20, 1994, Ser. No. 309,245
Int. Cl.[6] C07H *21/04;21/02;* C12P *19/34;* C12Q *1/68*
U.S. Cl. 435—6 28 Claims

1. A method for producing a product that binds to a target comprising:

(a) preparing a nucleic acid test mixture;



(b) coupling each member of said nucleic acid test mixture with a first reactant comprised of a small organic molecule with a molecular weight in the range of 2 to 1000 to form a nucleic acid-first reactant test mixture;

(c) forming a product library by contacting said nucleic acid-first reactant test mixture with a mixture of free reactants comprised of small organic molecules with a molecular weight in the range of 2 to 1000, wherein said product library is formed as a result of a bond formation reaction between said first reactant and at least one of said free reactants, wherein said bond formation reaction is selected from the group consisting of a condensation reaction, a hydrolysis reaction, a cycloaddition reaction, a conjugate addition reaction, an aldol condensation reaction, a cyclopropanation reaction, a hydrogenation reaction, and a cyclotrimerization reaction, wherein said bond formation reaction is facilitated by the nucleic acid coupled to said first reactant;

(d) contacting the product library of step (c) with a target, wherein products having an increased binding affinity to said target relative to the product library may be partitioned from the remainder of the product library; and

(e) partitioning said products having said increased binding affinity to said target from the remainder of the product library, whereby products that bind to said target are produced.

5,723,290

METHODS FOR PROFILING MRNA EXPRESSION IN NEURITES

James Eberwine, Philadelphia; Marc Dichter, Penn Valley, and Kevin Miyashiro, Philadelphia, all of Pa., assignors to Trustees of the University of Pennsylvania, Philadelphia, Pa.

Filed Nov. 3, 1994, Ser. No. 334,254
Int. Cl.[6] C12Q *1/68;* C07H *21/04;* C12P *19/34*
U.S. Cl. 435—6 5 Claims

3. A method of profiling mRNA expression in a selected neurite comprising:

(a) converting an mRNA population in a selected neurite into cDNA;

(b) making the cDNA double stranded;

(c) linearly amplifying the double stranded cDNA into aRNA; and

VOL 1208 ISS 1 MR 3 1998 UMI



(d) using the aRNA as a probe in reverse phase Northern analysis to produce an mRNA expression profile of the selected neurite.

5,723,291

METHODS FOR SCREENING COMPOUNDS FOR ESTROGENIC ACTIVITY

Peter Kushner; Paul Webb; Renée Williard; C. Anthony Hunt, and Gabriella Lopez, all of San Francisco, Calif., assignors to The Regents of the University of California, Oakland, Calif.

Continuation-in-part of Ser. No. 115,161, Sep. 1, 1993, abandoned. This application Mar. 27, 1995, Ser. No. 410,807

Int. Cl.[6] G01N *33/68;33/74;* **C12Q** *1/02;* **C12N** *15/00*

U.S. Cl. 435—6 **27 Claims**

1. A method for screening a test compound known to have antiestrogenic activity for agonistic estrogenic activity mediated through an indirect estrogen response, the method comprising:

a) providing a cell comprising AP1 proteins, an estrogen receptor, and a construct comprising a promoter comprising an AP1 site which regulates expression of a reporter gene;

b) contacting said cell with said test compound known to have antiestrogenic activity; and

c) detecting the expression of said reporter gene wherein enhanced expression of said reporter gene indicates that said test compound has agonistic estrogenic activity mediated through an indirect estrogen response.

5,723,292

STABLE DNA CONSTRUCTS

Glenn H. Kawasaki, Seattle, Wash.; Leslie Bell, Princeton, N.J., and Meher Irani, Seattle, Wash., assignors to ZymoGenetics, Inc., Seattle, Wash.

Continuation of Ser. No. 293,568, Aug. 22, 1994, which is a continuation of Ser. No. 136,472, Oct. 12, 1993, abandoned, which is a continuation of Ser. No. 587,613, Sep. 20, 1990, abandoned, which is a continuation-in-part of Ser. No. 734,119, May 15, 1985, abandoned, which is a continuation-in-part of Ser. No. 614,734, May 25, 1984, abandoned. This application Jun. 7, 1995, Ser. No. 488,179

Int. Cl.[6] C12P *21/02*

U.S. Cl. 435—6 **20 Claims**

1. A method for producing a protein product in a yeast host cell having a deficiency in a function necessary for normal cell growth on complex media comprising the steps of:

(a) transforming a yeast host cell having a deficiency in a cell cycle or glycolytic enzyme gene with a DNA molecule comprising a gene which complements said deficiency and a sequence coding for said protein product; and

(b) culturing the cell from step (a) under normal growth conditions in a growth medium whereby said gene functions as a selectable marker for cells transformed with said DNA molecule in the absence of additional selective pressure.

5,723,293

DIAGNOSTIC METHOD AND KIT FOR DETERMINING RH BLOOD GROUP GENOTYPE

Cheng-Han Huang, New York, N.Y., assignor to The New York Blood Center, Inc., New York, N.Y.

Filed Nov. 6, 1995, Ser. No. 553,888

Int. Cl.[6] C12Q *1/68;* **G01N** *33/555;* **C07H** *21/04;* **C12N** *15/00*

U.S. Cl. 435—6 **39 Claims**

1. A diagnostic method for determining Rh genotype of a subject, comprising:

isolating a DNA sample from a subject;

selectively cleaving the isolated DNA sample by digesting the DNA sample with SphI restriction enzyme to provide Rh gene fragments which are differentially characteristic of an Rh zygosity; and

detecting and correlating the Rh gene fragments so to determine Rh zygosity of the subject.

5,723,294

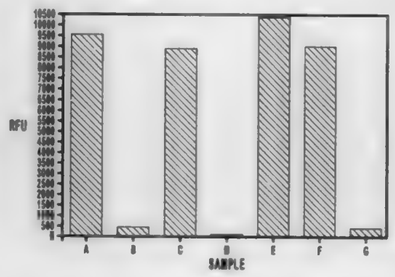
METHODS FOR DETECTION AND DISCRIMINATION OF MULTIPLE ANALYTES USING FLUORESCENT TECHNOLOGY

Michael J. Glass, Centerville; Jana Coombs; Sharon L. Malmstrom, both of Salt Lake City, and Linxian Wu, Sandy, all of Utah, assignors to Gull Laboratories, Salt Lake City, Utah

Filed Mar. 5, 1996, Ser. No. 613,805

Int. Cl.[6] C12Q *1/68;* **C07H** *21/04;21/02*

U.S. Cl. 435—6 **19 Claims**



1. A method for detecting and discriminating multiple target nucleic acid sequences, if present, within a mixture of multiple target nucleic acid sequences resulting from a selective polymerase chain reaction amplification process, said method comprising the steps of:

obtaining a mixture of different fluorescent dye-labeled target nucleic acid sequences resulting from a selective polymerase chain reaction amplification process Using primer oligonucleotides labeled with multiple fluorescent dyes such that each different target nucleic acid sequence is labeled with a different fluorescent dye;

obtaining multiple probe oligonucleotides, each said probe oligonucleotide being complementary to a portion of one strand of one target nucleic acid sequence such that said probe oligonucleotides can form hybrids with said fluorescent dye-labeled target nucleic acid sequences;

obtaining a solid-phase system comprising a microtiter plate having microtiter wells and chemical linking means for efficiently binding said probe oligonucleotides to said microtiter wells;

effecting chemical linking of said probe oligonucleotides to said microtiter wells to thereby immobilize said probe oligonucleotides in said microtiter wells:

effecting hybridization of the probe oligonucleotides and the fluorescent dye-labeled target nucleic acid sequences, if present, within said mixture to thereby form and immobilize different fluorescent dye-labeled hybrids within said microtiter wells;

removing non-hybridized fluorescent dye-labeled target nucleic acid sequences from within said microtiter wells;

obtaining a specific combination filter set for spectrally distinguishing the fluorescence signal from each of the different fluorescent dye-labeled hybrids with a fluorescence reader instrument; and

directly detecting and discriminating said different fluorescent dye-labeled hybrids within said microtiter wells with said fluorescence reader instrument.

5,723,295

METHODS, ACRIDAN COMPOUNDS AND KITS FOR PRODUCING LIGHT

Hashem Akhavan-Tafti; Zahra Arghavani, both of Brighton, and Renuka DeSilva, Northville, all of Mich., assignors to Lumigen, Inc., Southfield, Mich.

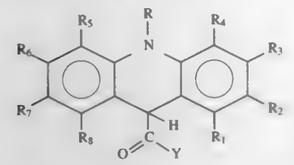
Continuation-in-part of Ser. No. 300,462, Sep. 2, 1994, abandoned, which is a continuation-in-part of Ser. No. 205,093, Mar. 2, 1994, Pat. No. 5,593,845, and Ser. No. 228,290, Apr. 15, 1994, Pat. No. 5,523,212, which is a continuation-in-part of Ser. No. 61,810, May 17, 1993, Pat. No. 5,491,072, said Ser. No. 205,093 is a continuation-in-part of Ser. No. 61,810. This application May 9, 1996, Ser. No. 644,088

Int. Cl.[6] G01N *33/535*

U.S. Cl. 435—6 **33 Claims**

1. A method for producing chemiluminescence comprising:

(a) reacting a peroxide compound and a peroxidase enzyme with an acridan having the formula:



wherein R is selected from alkyl, heteroalkyl and aralkyl groups, wherein R_1 to R_8 are selected independently from groups which allow the production of light and wherein Y is a leaving group under conditions of time, temperature and pH at a first level which permit the accumulation of an intermediate compound: and

(b) raising the pH to a second level which is high enough to cause the production of a burst of chemiluminescence from reaction of the intermediate with peroxide at an intensity substantially greater than that being produced before raising the pH.

5,723,296

AMPLIFICATION AND DETECTION OF MYCOBACTERIAL DNA K NUCLEIC ACIDS

Colleen Marie Nycz, Raleigh; James G. Nadeau, Chapel Hill; Patricia Brinkley Scott, Apex, all of N.C.; Daryl Dee Shank, BelAir, Md., and Patricia Anne Spears, Raleigh, N.C., assignors to Becton, Dickinson and Company, Franklin Lakes, N.J.

Continuation of Ser. No. 347,551, Nov. 30, 1994, abandoned. This application May 10, 1996, Ser. No. 644,729

Int. Cl.[6] C12Q *1/68;1/70;* **C12P** *19/34;* **C07H** *21/04*

U.S. Cl. 435—6 **10 Claims**

1. A set of oligonucleotides for amplification of a DNA K target sequence in Mycobacteria comprising a) a first amplification primer consisting of the target binding sequence of SEQ ID NO: 1 and, optionally, a non-target binding sequence for amplification of the target sequence, and (b) a second amplification primer consisting of the target binding sequence of SEQ ID NO: 2 and, optionally the non-target binding sequence for amplification of the target sequence.

5,723,297

PROCESS FOR DETECTING AN ANTIBODY USING A NUCLEIC ACID AMPLIFICATION PROBE

Jack D. Love, Rockville, Md., assignor to Gen Trak, Inc., Plymouth Meeting, Pa.

Division of Ser. No. 441,678, May 15, 1995, which is a continuation of Ser. No. 226,940, Apr. 13, 1994, abandoned, which is a continuation of Ser. No. 756,600, Sep. 10, 1991, abandoned. This application May 28, 1996, Ser. No. 654,243

Int. Cl.[6] C12Q *1/68;* **G01N** *33/53*

U.S. Cl. 435—6 **6 Claims**

1. A process for detecting the presence or absence of at least one specific antibody in a sample containing an antibody or mixture of antibodies, which process comprises:

(a) contacting the sample with an antigen which binds to said antibody to form an antibody-antigen complex,

(b) treating the sample to remove any of said antibody or said antigen which are not bound,

(c) treating the sample with a first oligonucleotide under conditions such that a portion of said first oligonucleotide binds to said antibody-antigen complex and a portion of said first oligonucleotide does not bind to said antibody-antigen complex, wherein said portion of said first oligonucleotide which does not bind to said antibody-antigen complex forms a double-stranded RNA polymerase binding site and a nucleotide sequence transcribing RNA when hybridized to a complementary nucleotide sequence in the absence of nucleic acid extension,

(d) treating the sample to remove any of first oligonucleotide which is not bound to said antibody-antigen complex,

(e) treating the sample with a second oligonucleotide under hybridizing conditions such that said second oligonucleotide hybridizes to said portion of said first oligonucleotide which does not bind to said antibody-antigen complex and forms a double-stranded RNA polymerase binding site and nucleotide sequence transcribing RNA,

(f) treating the sample with RNA polymerase and nucleotide triphosphates such that said nucleotide sequence formed between a portion of said first oligonucleotide and a portion of said second oligonucleotide results in the synthesis of RNA transcripts from the nucleotide sequence transcribing RNA, and

(g) determining whether said RNA transcripts were synthesized.

5,723,298

CYCLE LABELING AND SEQUENCING WITH THERMOSTABLE POLYMERASES

Abraham Oommen, and Steve Roemer, both of Lincoln, Nebr., assignors to Li-Cor, Inc., Lincoln, Nebr.

Filed Sep. 16, 1996, Ser. No. 714,562

Int. Cl.[6] C12Q *1/68;* **C12P** *19/34*

U.S. Cl. 435—6 **20 Claims**

1. A method for labeling DNA for DNA sequence analysis comprising,

preparing an internally labeled, partial nucleic acid primer extension product in a cycled primer extension reaction, wherein an unlabeled DNA primer is contacted with a DNA template in the presence of sub-optimal amounts of four dNTPs, one of said dNTPs being a labeled dNTP,

transferring the labeled partial primer extension product to a new reaction and

preparing chain terminated primer extension products in a second cycled reaction.

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5,723,299

SOMATOSTATIN RECEPTORS

Graeme I. Bell, Chicago, Ill.; Yuichiro Yamada, Minamitunahashi, and Susumu Seino, Chiba, both of Japan, assignors to Arch Development Corporation, Chicago, Ill.

Division of Ser. No. 816,283, Dec. 31, 1991, Pat. No. 5,436,155. This application Apr. 5, 1995, Ser. No. 417,103

Int. Cl.[6] C12N *5/10;* G01N *33/53*

U.S. Cl. 435—7.1 17 Claims

1. A method for assaying a candidate substance for its ability to interact with a somatostatin receptor polypeptide comprising:

expressing a somatostatin receptor polypeptide in a host capable of producing a form of the polypeptide which form may be assayed for interaction of said polypeptide with said candidate substance;

exposing said polypeptide to said candidate substance; and

evaluating the interaction of said polypeptide with said candidate substance wherein said polypeptide has an amino acid sequence of SEQ ID NO:2, SEQ ID NO:4, SEQ ID NO:6, SEQ ID NO:8, SEQ ID NO:10 or SEQ ID NO:12.

5,723,300

NUCLEAR LOCALIZED TRANSCRIPTION FACTOR KINASE AND DIAGNOSTIC ASSAYS RELATED THERETO

Gerald V. Denis, Arlington, and Michael R. Green, Boylston, both of Mass., assignors to University of Massachusetts Medical Center, Worcester, Mass.

Continuation-in-part of Ser. No. 6,243, Jul. 19, 1993, abandoned. This application Jul. 10, 1995, Ser. No. 503,062

Int. Cl.[6] G01N *33/53;33/573;* C12Q *1/00*

U.S. Cl. 435—7.1 10 Claims

1. A method of detecting leukemic cells associated with acute lymphoblastic leukemia or chronic lymphocytic leukemia in a biological test sample, said method comprising measuring the activity of a RING3-related kinase in said biological test sample, wherein said activity is phosphorylation of a substrate of a RING3-related kinase or autophosphorylation of a RING3-related kinase, an increase in said activity relative to a control sample being indicative of the presence of leukemic cells.

5,723,301

METHOD TO SCREEN COMPOUNDS THAT AFFECT GAPDH BINDING TO POLYGLUTAMINE

James R. Burke, Chapel Hill; Jeffery M. Vance, Durham; Jan Enghild, Durham, and Warren J. Strittmatter, Durham, all of N.C., assignors to Duke University, Durham, N.C.

Filed Nov. 3, 1995, Ser. No. 553,110

Int. Cl.[6] G01N *33/68*

U.S. Cl. 435—7.1 1 Claim

1. A method of screening compounds for the ability to inhibit binding of GAPDH to polyglutamine, comprising the steps of:

a) providing an aqueous solution containing a test compound, molecules comprising polyglutamine, and GAPDH; and

b) detecting whether binding of GAPDH to said molecules is reduced in the presence of said test compound compared to that which would occur in the absence of said test compound.

5,723,302

DETECTION OF PROSTATE-SPECIFIC ANTIGEN IN BREAST TUMORS

Eleftherios Diamandis, Toronto, Canada, assignor to Nordion International Inc., Canada

Continuation-in-part of Ser. No. 532,808, Jan. 5, 1996. This application Feb. 27, 1996, Ser. No. 607,777

Claims priority, application United Kingdom, May 14, 1993, 9309966

Int. Cl.[6] G01N *33/53;33/574;33/48*

U.S. Cl. 435—7.1 11 Claims

1. A method to aid in the diagnosis of breast cancer in a patient, said method comprising:

determining the amount of free PSA relative to PSA-ACT complexes in a serum sample of a patient; wherein the predominance of free PSA compared to PSA-ACT complexes in the sample indicates the presence of breast cancer in the patient.

5,723,303

IMMUNOGLOBULIN A BINDING PROTEIN

Vincent A. Fischetti, West Hampstead, N.Y., and Debra E. Bessen, Woodbridge, Conn., assignors to Rockefeller University, New York, N.Y.

Division of Ser. No. 330,515, Oct. 3, 1994, Pat. No. 5,556,944, which is a division of Ser. No. 813,584, Dec. 24, 1991, Pat. No. 5,352,588. This application Jun. 14, 1996, Ser. No. 664,939

Int. Cl.[6] G01N *33/566*

U.S. Cl. 435—7.5 11 Claims

1. A process for purifying IgA from a biological fluid comprising the steps of:

(a) contacting said biological fluid with an IgA binding protein attached to an inert support under conditions suitable for reaction between said IgA binding protein and IgA, said IgA binding protein comprising residues 42 through 372 of the amino acid sequence shown in SEQ ID NO. 3, wherein said IgA binding protein is capable of specifically binding with an IgA antibody;

(b) washing said support to remove contaminants after the reaction of IgA with said IgA binding protein; and

(c) eluting IgA bound by said IgA binding protein on said support.

5,723,304

IMMUNOLOGICAL DETECTION USING TWO DETECTABLE LABELS

Ramadan Arbi Abuknesha, London, United Kingdom, assignor to GEC-Marconi Limited, Stanmore, United Kingdom

PCT No. PCT/GB93/01628, § 371 Date Feb. 27, 1995, § 102(e) Date Feb. 27, 1995, PCT Pub. No. WO94/03811, PCT Pub. Date Feb. 17, 1994

PCT Filed Aug. 2, 1993, Ser. No. 381,826

Claims priority, application United Kingdom, Aug. 3, 1992, 9216465; Sep. 18, 1992, 9219743; Oct. 1, 1992, 9220722; Oct. 14, 1992, 9221578; Nov. 27, 1992, 9224897; Nov. 27, 1992, 9224898

Int. Cl.[6] G01N *33/53;33/542;33/537;33/543, 33/554;33/551;33/546;33/552*

U.S. Cl. 435—7.9 31 Claims

1. In a competitive assay method for immunological detection in a sample of the presence or concentration of an analyte species, wherein (a) a primary species comprises an analyte analog; (b) the primary species provides or is associated with a first detectable species; (c) a primary species reaction partner is provided which is capable of undergoing a specific binding reaction in a primary immune reaction mixture with the analyte species, if present, or with the analyte analog; (d) both the sample and the primary species are exposed to and incubated with the primary species reaction partner; (e) means are provided for separating the primary species from the reaction mixture; and (f) a signal from the first detectable species is detected by a signal-detecting means, the improvement comprising:

(i) causing a second detectable species to become associated with a support material via a secondary species and a secondary species reaction partner, said secondary species (A) being a species which does not itself undergo a specific binding reaction with the analyte species or with the analyte analog, (B) providing or being associated with the second detectable species, (C) undergoing a specific binding reaction with the secondary species reaction partner which is provided on or by, or associated with, the support material, and (D) being or becoming linked to the primary species reaction partner; and

(ii) if the analyte analog becomes bound to the primary species reaction partner, causing the first detectable species to become associated with the support material via linkage of the primary species reaction partner to the secondary species, with signals from said first and second detectable species being detectable by the signal detection means independently of each other and without interference one with another,

whereby quantitative comparison of the respective signal levels detected from the first and second detectable species enables ratiometric detection of the analyte species.

5,723,305

MARKER FOR MALE INFERTILITY AND/OR FERTILITY

Robert Sullivan, 3261 Chemin St-Louis, Ste-Foy, Québec, Canada, G1V 1S1, and Franck Boué, 15 avenue Raspail, 94250 Gentilly, France

Filed Apr. 18, 1996, Ser. No. 634,340

Int. Cl.[6] G01N *33/53;* C07K *16/28*

U.S. Cl. 435—7.21 2 Claims

1. A method for the diagnosis of male infertility which comprises the steps of:

a) determining the amount of P34H, a 34 kDa human epididymal sperm protein, in a sperm sample using an antibody specific to P34H; and

b) comparing the determined amount of step a) with a fertile control sample, wherein a P34H value lower than 30% of the fertile control sample is indicative of infertility.

5,723,306

MONOCLONAL ANTIBODIES FOR THE DETECTION OF PYRETHROIDS AND A PROCESS FOR THEIR PRODUCTION

Sabine Pullen; Berthold Hock, both of Freising; Thomas Wuske, Malente, and Andreas Manns, Lubeck, all of Germany, assignors to Dragerwerk Aktiengesellschaft, Lubeck, Germany

Filed Aug. 24, 1994, Ser. No. 296,050

Claims priority, application Germany, Sep. 4, 1993, 43 29 952.0

Int. Cl.[6] G01N *33/577;* C07K *16/44;* C12N *5/24*

U.S. Cl. 435—7.93 18 Claims

1. Monoclonal antibodies able to selectively bind to insecticidally or pesticidally active pyrethrins, pyrethroids and their derivatives, the monoclonal antibodies prepared from immunogens which have as a hapten component (1R. cis)-permethrin, (1.R-trans)-permethrin, (1R, cis)-permethric acid, (1, R-trans)-permethric acid or 3-phenoxybenzoic acid.

11. A method for detecting the presence of an analyte in a sample, the analyte comprising an insecticidal or pesticidal active substance as defined in claim 1 by a displacement immunoassay using monoclonal antibodies as defined in claim 1, the method comprising the steps of:

(a) applying the antibodies to a carrier membrane comprised of a porous or absorbable material and adding a biotin tracer;

(b) dissolving the sample to form a solution;

(c) dipping the membrane into the solution, wherein the solution additionally comprises an avidin enzyme conjugate;

(d) permitting the solution to migrate by capillary action through the membrane and the antibodies thereon to cause a displacement between the biotin tracer and the analyte on the membrane immobilized antibodies;

(e) washing the membrane;

(f) dipping the membrane into a buffered substrate solution specific for the enzyme to produce a color change proportional to the amount of analyte present.

5,723,307

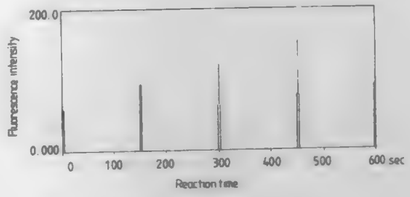
FLUOROGENIC SUBSTRATES FOR ASSAY OF ANGIOTENSIN CONVERTING ENZYME

Hsin Tsai, and Hui-Ling Chen, both of Taipei, Taiwan, assignors to Development Center for Biotechnology, Taipei, Taiwan

Filed Aug. 30, 1995, Ser. No. 520,770

Int. Cl.[6] C12Q *1/37;1/00;* G01N *33/53;* A61K *38/00*

U.S. Cl. 435—24 23 Claims



1. A fluorogenic substrate of the following formula:

E-Lk-AA_1-AA_2-AA_3-AA_4 (SEQ ID NO: 3)

wherein

E is 5-[(2-aminoethyl)amino]naphthalene- 1-sulfonyl;

Lk is a linking arm derived from a compound containing at least two functional groups condensable with amino groups,

AA_1 is a direct bond, or a residue of any protein constituent amino acids or amino acid derivatives other than tryptophan,

AA_2 is a residue of any protein constituent amino acids or amino acid derivatives other than tryptophan,

AA_3 and AA_4 are independently residues of any protein constituent amino acids or amino acid derivatives, provided that at least one of AA_3 and AA_4 is tryptophan residue.

5,723,308

CULTURE MEDIUM FOR RAPID COUNT OF COLIFORM BACTERIA

Patrick A. Mach, Shorewood; Karen E. Hesselroth, South St. Paul; Carl A. Adams, Apple Valley, and Debra L. Schwab, Stillwater, all of Minn., assignors to Minnesota Mining and Manufacturing Company, St. Paul, Minn.

Continuation of Ser. No. 292,494, Aug. 18, 1994, abandoned, which is a continuation-in-part of Ser. No. 62,311, May 14, 1993, Pat. No. 5,364,766. This application Mar. 11, 1996, Ser. No. 613,549

Int. Cl.[6] C12Q *1/04;* C12N *1/00;* G01N *21/00*

U.S. Cl. 435—34 26 Claims

1. A bacterial culture medium which facilitates the early detection and count of Enterobacteriaceae growing in the medium comprising tryptose or a mixture of gelatin peptone and yeast extract, lactose or glucose, sodium chloride, bile salts, guar gum and an excess amount of a sulfonphthalein dye sufficient to provide a high concentration of dye in close proximity to the growing bacteria in order to allow detection and count of the growing bacteria.

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5,723,309

PRODUCTION OF SUBUNITS OF SOLUBLE T CELL RECEPTORS BY CO-TRANSFECTION

Marc Bonneville, Nantes Cedex, France, assignor to Institut National de la Sante et de la Recherche Medicale (INSERM), Paris Cedex, and Immunotech, Marseille Cedex, both of France

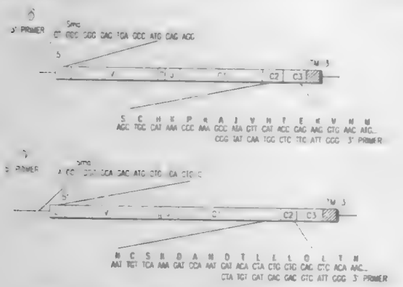
PCT No. PCT/FR93/01165, § 371 Date Sep. 14, 1994, § 102(e) Date Sep. 14, 1994, PCT Pub. No. WO94/12648, PCT Pub. Date Jun. 9, 1994

PCT Filed Nov. 25, 1993, Ser. No. 256,964

Claims priority, application France, Nov. 25, 1992, 92 14203

Int. Cl.° C12N *15/12;15/63;15/79;15/87*

U.S. Cl. 435—69.1 10 Claims



1. Process for producing soluble T receptors, comprising co-transfecting into a host cell DNA sequences each encoding only a single peptide consisting of one of the constituent T receptor units, from which the transmembrane portion of the T receptor has been deleted.

5,723,310

AQUEOUS MULTIPLE-PHASE ISOLATION OF POLYPEPTIDE

Stuart Builder, Belmont; Roger Hart, Burlingame; Philip Lester, San Lorenzo; John Ogez, Redwood City, and David Reifsnyder, San Mateo, all of Calif., assignors to Genentech, Inc., South San Francisco, Calif.

Continuation of Ser. No. 110,663, Aug. 20, 1993, Pat. No. 5,407,810. This application Feb. 7, 1995, Ser. No. 385,187

Int. Cl.° C07K *1/20;14/65;14/61;* C12N *1/00*

U.S. Cl. 435—69.1 26 Claims

26. A method for isolating from cells an exogenous polypeptide of interest in a non-native conformation and renaturing the polypeptide comprising contacting. the cells with a chaotropic agent in an amount sufficient to extract the polypeptide from the cells and maintain its solubility and with an effective amount of phase-forming species consisting essentially of a combination of polymer and salt to form two aqueous phases, wherein the upper phase is enriched in the polypeptide and depleted in the biomass solids and nucleic acids, and refolding the enriched polypeptide into an active conformation.

5,723,311

HUMAN DNA TOPOISOMERASE I α

Ying-Fei Wei, Darnestown; Mark D. Adams, North Potomac, and Robert D. Fleischmann, Gaithersburg, all of Md., assignors to Human Genome Sciences, Inc., Rockville, Md.

Filed Jun. 2, 1995, Ser. No. 458,477

Int. Cl.° C12P *21/02;* C12N *15/12;9/90*

U.S. Cl. 435—69.1 19 Claims

1. An isolated polynucleotide comprising a polynucleotide having at least a 95% identity to a member selected from the group consisting of:

(a) a polynucleotide encoding a polypeptide comprising amino acids 2 to 601 of SEQ ID NO:2; and

(b) the complement of (a).

5,723,312

COLLAGEN-INDUCED PLATELET AGGREGATION INHIBITOR

Christiane Noeske-Jungblut; Bernard Haendler; Joern Reiner Kraetzschmar; Wolf-Dieter Schleuning, all of Berlin, Germany; Alejandro Alagon, Cuernavaca, Mexico; Lourival Possani, Cuernavaca, Mexico, and Delia Cuevas-Aguirre, Cuernavaca, Mexico, assignors to Schering Aktiengesellschaft, Berlin, Germany

Continuation of Ser. No. 206,185, Mar. 7, 1994, which is a continuation of Ser. No. 116,889, Sep. 7, 1993, abandoned, which is a continuation-in-part of Ser. No. 914,383, Jul. 17, 1992, abandoned, which is a continuation-in-part of Ser. No. 814,884, Dec. 31, 1991, abandoned, which is a continuation-in-part of Ser. No. 756,211, Sep. 5, 1991, abandoned. This application Jun. 5, 1995, Ser. No. 462,894

Int. Cl.° C12P *21/06;* C12N *15/00;5/00;* C07H *21/04*

U.S. Cl. 435—69.1 20 Claims

1. An isolated cDNA or DNA molecule coding for a protein having the following amino acid sequence:

a) the sequence in

i) SEQ ID NO:11,

ii) SEQ ID NO:12 or

iii) SEQ ID NO:13,

or

b) an amino acid sequence encoded by a DNA sequence which hybridizes with a DNA sequence of SEQ ID NO:14, 15 or 16 under conditions wherein hybridization is conducted at 50° C. in the presence of 5×SSC, 5× Denhardt's solution, and 100 μg/ml salmon sperm DNA, and washing is conducted at 50° C. in 2×SSC and 0.2% SDS, wherein said protein inhibits collagen-induced aggregation of mammalian platelets.

5,723,313

ARF-P19, A NOVEL REGULATOR OF THE MAMMALIAN CELL CYCLE

Charles J. Sherr, Memphis, and Dawn E. Quelle, Cordova, both of Tenn., assignors to St. Jude Children's Research Hospital, Memphis, Tenn.

Filed Sep. 27, 1995, Ser. No. 534,975

Int. Cl.° C12P *21/06;* C07K *14/435*

U.S. Cl. 435—69.1 4 Claims

1. An isolated polypeptide, wherein said polypeptide

(a) has an amino acid sequence that is composed of at least about 20% arginine residues;

(b) induces cell cycle arrest when overexpressed in eukaryotic cells; and

(c) is encoded by a first reading frame that asyntactically overlaps a second reading frame, wherein said second reading frame encodes a polypeptide that inhibits one or more D-type cyclin-dependent kinases.

5,723,314

RECOMBINANT ANTIGEN FOR DIAGNOSING RHEUMATOID ARTHRITIS

Ramesh K. Prakash, Salt Lake City, Utah, assignor to Research Corporation Technologies, Inc., Tucson, Ariz.

Division of Ser. No. 364,081, Dec. 27, 1994, Pat. No. 5,585,464, which is a continuation-in-part of Ser. No. 19,780, Feb. 19, 1993, Pat. No. 5,395,753. This application Apr. 10, 1996, Ser. No. 630,552

Int. Cl.° C12N *5/10;15/12;15/63;* C12P *21/02*

U.S. Cl. 435—69.1 19 Claims

1. A purified and isolated DNA for securing expression in a host cell of a peptide having at least a part of the primary structural conformation and the antigenic activity of naturally-occurring RAMA protein; wherein said DNA:

(a) consists of SEQ ID NO:2; or

(b) encodes SEQ ID NO:3.

5,723,315

SECRETED PROTEINS AND POLYNUCLEOTIDES ENCODING THEM

Kenneth Jacobs, Newton; John M. McCoy, Reading; Edward R. LaVallie, Tewksbury; Lisa A. Racie; David Merberg, both of Acton; Maurice Treacy, Chestnut Hill, and Vikki Spaulding, Billerica, all of Mass., assignors to Genetics Institute, Inc., Cambridge, Mass.

Filed Aug. 23, 1996, Ser. No. 702,344

Int. Cl.° C12N *15/12;15/10;5/10;* C07K *14/435*

U.S. Cl. 435—69.1 20 Claims

1. An isolated polynucleotide selected from the group consisting of:

(a) a polynucleotide comprising the nucleotide sequence of SEQ ID NO: 1;

(b) a polynucleotide comprising the nucleotide sequence of SEQ ID NO:1 from nucleotide 593 to nucleotide 949;

(c) a polynucleotide comprising the nucleotide sequence of SEQ ID NO:1 from nucleotide 650 to nucleotide 949;

(d) a polynucleotide comprising the nucleotide sequence of the full length protein coding sequence of clone AY421_2 deposited under accession number ATCC 98145;

(e) a polynucleotide encoding the full length protein encoded by the cDNA insert of clone AY421 _2 deposited under accession number ATCC 98145;

(f) a polynucleotide comprising the nucleotide sequence of the mature protein coding sequence of clone AY421_2 deposited under accession number ATCC 98145;

(g) a polynucleotide encoding the mature protein encoded by the cDNA insert of clone AY421_2 deposited under accession number ATCC 98145;

(h) a polynucleotide encoding a protein comprising the amino acid sequence of SEQ ID NO:2;

(i) a polynucleotide which is an allelic variant of a polynucleotide of (a)–(g) above.

5,723,316

α-1-ANTICHYMOTRYPSIN ANALOGUES HAVING CHYMASE INHIBITING ACTIVITY

Barry S. Cooperman, Penn Valley; Harvey Rubin, Philadelphia; Norman Schechter, Philadelphia, and Zhi Mei Wang, Philadelphia, all of Pa., assignors to Trustees of the University of Pennsylvania, Philadelphia, Pa.

Continuation-in-part of Ser. No. 221,078, Mar. 31, 1994, Ser. No. 5,898, Jan. 15, 1993, abandoned, and Ser. No. 5,908, Jan. 15, 1993, Pat. No. 5,367,064, said Ser. No. 5,898 and Ser. No. 5,908, each is a division of Ser. No. 735,322, Jul. 24, 1991, Pat. No. 5,266,465, which is a division of Ser. No. 370,704, Jun. 23, 1989, Pat. No. 5,079,336, said Ser. No. 221,078 is a continuation-in-part of Ser. No. 5,898, and Ser. No. 5,908. This application Mar. 31, 1994, Ser. No. 221,171

Int. Cl.° C12N *15/00;5/10;* A61K *38/43*

U.S. Cl. 435—69.2 31 Claims

1. An analogue of human wild type α-1-antichymotrypsin wherein only the amino acid corresponding to the leucine at amino acid position 358 of wild-type α-1-antichymotrypsin is substituted with an amino acid selected from the group consisting of tryptophan and phenylalanine.

5,723,317

Patent Not Issued For This Number

5,723,318

DNA CODING FOR MEGAKARYOCYTE POTENTIATOR

Nozomi Yamaguchi, Kyoto; Tetsuo Kojima, Shizuoka; Masayoshi Oh-eda, Shizuoka, and Kunihiro Hattori, Shizuoka, all of Japan, assignors to Chugai Suyaku K.K., Tokyo, Japan

Filed Apr. 21, 1995, Ser. No. 426,819

Claims priority, application Japan, Oct. 23, 1992, 4-286153; Nov. 11, 1992, 4-301387; Dec. 9, 1992, 4-329546

Int. Cl.° C07K *14/52;* C12N *15/19*

U.S. Cl. 435—69.5 32 Claims

1. An isolated DNA molecule comprising a nucleotide sequence which encodes the amino acid sequence of SEQ ID NO:36.

5,723,319

CULTURED CELL LINE THAT INDUCIBLY EXPRESSES THE HEPATITIS B VIRUS GENOME, AND USES THEREOF FOR SCREENING ANTIVIRAL SUBSTANCES

Robert W. King, West Chester; Christopher S. Barker, Huntington Valley, and Christoph Seeger, Melrose Park, all of Pa., assignors to Avid Therapeutics, Inc., and Fox Chase Cancer Center, both of Philadelphia, Pa.

Filed Jun. 5, 1995, Ser. No. 462,216

Int. Cl.° C12N *15/51;5/10;* C12Q *1/70*

U.S. Cl. 435—69.3 22 Claims

1. A cell line capable of inducibly expressing a genome of hepatitis B virus, said cell line being stably transformed with:

a) a single copy of a cDNA encoding hepatitis B virus pregenomic RNA, said cDNA being operably linked to a target nucleotide sequence for activating expression of said hepatitis B virus genome, said activation of expression being caused by interaction of said target sequence with a transactivator protein that specifically interacts with said target sequence; and

b) a gene encoding and expressing said transactivator protein, said transactivator protein being responsive to induction under pre-determined inducing conditions, said induction enabling said transactivator protein to interact with said target nucleotide sequence, said interaction thereby activating expression of said hepatitis B virus genome.

5,723,320

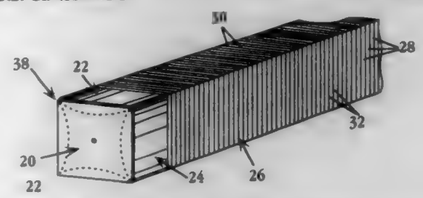
POSITION-ADDRESSABLE POLYNUCLEOTIDE ARRAYS

Peter J. Dehlinger, 58 Roosevelt Cir., Palo Alto, Calif. 94306

Filed Aug. 29, 1995, Ser. No. 520,730

Int. Cl.° C12P *19/34;* C12Q *1/68;1/70;* C07H *21/04*

U.S. Cl. 435—91.1 13 Claims



1. A method of producing a position-addressable array of known-sequence gene probes, comprising

(i) contacting a position-addressable array of different-sequence oligonucleotides where each oligonucleotide in the array has a unique known combinatonal sequence with a known-address region in the array, and (ii) and a free, 3' oligonucleotide end, with a set of single-stranded gene-probe templates, where each member of the set has a 5'-end probe segment whose sequence is complementary to a selected, known-sequence gene probe and a 3'-end recognition segment capable of hybridizing selectively to one of the oligonucleotides in said array, under complementary-strand hybridization conditions, said contacting being carried out under complementary-strand hybridization conditions such that each member in said set of

templates becomes hybridized, through its recognition segment, to one of the oligonucleotides in the array of oligonucleotides, and

(ii) extending the oligonucleotides in the array, in a 3'-to-5' direction, by DNA polymerization, where the oligonucleotides in the array serve as primers, and the 5'-end gene probe segments in the gene-probe templates, as templates for primer extension, to produce a position-addressable array of double-stranded gene probes.

5,723,321

PROCESS FOR PREPARING D-LYSINE

Masakatsu Furui; Eiji Takahashi, both of Osaka, and Hiroyasu Seko, Nara, all of Japan, assignors to Tanabe Seiyaku Co., Ltd., Osaka, Japan

Filed Dec. 21, 1995, Ser. No. 576,566

Claims priority, application Japan, Dec. 26, 1994, 6-322941

Int. Cl.[6] C12P *13/08;* **C12N** *1/20*

U.S. Cl. 435—115 **12 Claims**

1. A process for preparing D-lysine, which comprises the steps of:

bringing racemic lysine into contact with a culture or a treated culture of a microorganism having an ability of asymmetrically degrading L-lysine in a reaction medium; and

collecting and isolating the D-lysine from the reaction mixture.

5,723,322

PROCESS FOR MAKING SUCCINIC ACID, MICROORGANISMS FOR USE IN THE PROCESS AND METHODS OF OBTAINING THE MICROORGANISMS

Michael V. Guettler, Holt; Mahendra K. Jain, Okemos, both of Mich., and Bhupendra K. Soni, Westmont, Ill., assignors to Michigan Biotechnology Institute, East Lansing, Mich.

Division of Ser. No. 359,370, Dec. 20, 1994, Pat. No. 5,504,004. This application Jan. 11, 1996, Ser. No. 584,597

Int. Cl.[6] C12P *7/46;1/04;* **C12N** *1/20*

U.S. Cl. 435—145 **4 Claims**

1. In the method of preparing succinic acid by the fermentation of a medium containing fermentable carbon employing a succinic acid producing microorganism, the improvement which comprises employing as the microorganism an ionophore resistant, rumen, bacteria that tolerates and grows in medium containing concentrations of succinate salts in excess of about 50 g/l.

5,723,323

METHOD OF IDENTIFYING A STOCHASTICALLY-GENERATED PEPTIDE, POLYPEPTIDE, OR PROTEIN HAVING LIGAND BINDING PROPERTY AND COMPOSITIONS THEREOF

Stuart Alan Kauffman, Rte. 4, Tano Rd., Box 250-D, Santa Fe, N. Mex. 87501, and Marc Ballivet, 2, rue John-Rehfous, 1028 Geneva, Switzerland

Continuation of Ser. No. 133,952, Oct. 8, 1993, abandoned, which is a continuation of Ser. No. 977,307, Nov. 16, 1992, abandoned, which is a continuation of Ser. No. 616,319, Nov. 21, 1990, abandoned, which is a continuation of Ser. No. 942,630, Nov. 20, 1986, abandoned. This application Dec. 2, 1994, Ser. No. 349,510

Claims priority, application Switzerland, Mar. 30, 1985, 1379/85-8; WIPO, Jun. 17, 1985, CH 85/00099

Int. Cl.[6] C12N *15/00;* **C12P** *21/06;* **G01N** *33/53;* **C07H** *21/04*

U.S. Cl. 435—172.3 **48 Claims**

1. A method of identifying a peptide, polypeptide or protein having a binding property to a ligand, comprising:

(a) providing a ligand for detecting said binding property;

(b) synthesizing a diverse population of stochastically generated polynucleotide sequences;

(c) inserting said diverse population of stochastically generated polynucleotide sequences into a population of expression vectors to form a diverse population of expression vectors containing stochastically generated polynucleotide sequences;

(d) expressing in host cells said diverse population of expression vectors containing stochastically generated polynucleotide sequences to produce a diverse population of peptides, polypeptides or proteins; and

(e) screening said diverse population of peptides, polypeptides or proteins with said ligand under conditions which allow binding and detection of one or more peptides, polypeptides or proteins having said predetermined property.

5,723,324

APPARATUS AND METHOD FOR ELECTROSTATIC ENDOTHELIAL CELL SEEDING AND DNA TRANSFECTION IN A VASCULAR PROSTHESIS

Gary L. Bowlin, Akron, and Stanley E. Rittgers, Hudson, both of Ohio, assignors to The University of Akron, Akron, Ohio

Continuation-in-part of Ser. No. 541,248, Oct. 12, 1995. This application Sep. 30, 1996, Ser. No. 723,320

Int. Cl.[6] C12N *13/00;11/00;11/02;5/00*

U.S. Cl. 435—173.6 **19 Claims**

1. An apparatus for modifying in vitro an entire exposed luminal wall of a synthetic vascular graft, comprising:

conductor means for temporarily altering an electrical charge on the luminal wall to be modified by providing an internal conductor without openings spaced apart from an external conductor; and

support means for maintaining and exposing a suspension containing at least one of endothelial cells and DNA plasmids adjacent to the entire luminal walls wherein said support means maintains the luminal wall between said internal conductor and said external conductor and wherein the alteration of the electrical charge transfers said at least one endothelial cells and DNA plasmids from the suspension to the exposed luminal wall.

5,723,325

INDOLYL-3-ALKANE ALPHA-HYDROXYLASE COMPOSITIONS FROM PSEUDOMONAS XA

Robert L. Murtfeldt, La Canada; Allan J. Bream, and Kathryn K. McCarthy, both of Long Beach, all of Calif., assignors to Automedix Sciences, Inc., Irvine, Calif.

Continuation of Ser. No. 122,041, Sep. 14, 1993, abandoned, which is a division of Ser. No. 528,681, May 23, 1990, Pat. No. 5,244,807. This application May 16, 1996, Ser. No. 648,620

Int. Cl.[6] C12N *11/14;9/14;1/20;1/06*

U.S. Cl. 435—176 **8 Claims**

1. An indolyl-3-alkane alpha-hydroxylase (INDH) composition obtainable from Pseudomonas XA, which INDH composition:

a) comprises a substantially isolated INDH selected from the group consisting of:

i) an INDH1 having first, second and third protein subunits, said first protein subunit having a molecular weight of about 75,000 daltons, said second protein subunit having a molecular weight of about 34,500 daltons, and said third protein subunit having a molecular weight of about 32,500 daltons, all as determined by sodium dodecyl sulfate-polyacrylamide gel electrophoresis; and

ii) an INDH2 having first, second and third protein subunits, said first protein subunit having a molecular weight of about 60,000 daltons, said second protein subunit having a molecular weight of about 44,000 daltons, and said third protein subunit having a molecular weight of about 42,000 daltons as determined by sodium dodecyl sulfate-polyacrylamide gel electrophoresis;

b) has a Specific INDH Activity of at least 10 International Units of INDH activity per milligram of protein in the composition; and

c) contains less than 1 nanogram of endotoxin per International Unit of Specific INDH Activity.

5,723,326

GENOME CODING PHYTOLACCA ANTIVIRAL PROTEIN AND A RECOMBINANT EXPRESSION VECTOR THEREFOR

Young-Ho Moon, Kyunggi-Do; Hong-Seob Jeon, Seoul; Kyu-Whan Choi, Seoul; Kwan-Ho Lee, Seoul, and Man-Keun Kim, Seoul, all of Rep. of Korea, assignors to Jinro Limited, Seoul, Rep. of Korea

Continuation of Ser. No. 210,396, Mar. 17, 1994, abandoned, which is a division of Ser. No. 138,636, Oct. 15, 1993, Pat. No. 5,348,865. This application Jun. 6, 1995, Ser. No. 471,564

Claims priority, application Rep. of Korea, Aug. 28, 1993, 93-16938

Int. Cl.[6] C12N *9/22;* **C07K** *14/415*

U.S. Cl. 435—199 **2 Claims**

1. Phytolacca antiviral protein isolated from *Phytolacca insularis* Nakai comprising the amino acid sequence:

Met Lys Leu Met Leu Val Val Thr Ile Ser
1 5 10

Val Trp Leu Ile Leu Ala
15

Pro Thr Ser Thr Trp Ala Val Asn Thr Ile
20 25

Ile Tyr His Val Gly Ser
30

Thr Thr Ile Arg Asn Tyr Ala Thr Phe Gly
35 40 45

Tyr Phe Val Leu Lys Ala
50

Lys Ile Gln Val Met Cys Tyr Gly Ile Pro
55 60

Met Leu Pro Asn Ile Gly
65

Ser Asn Pro Lys Tyr Ile Leu Val Glu Leu
70 75

Gln Gly Ser Asn Glu Glu
80

Gly Ile Thr Leu Met Leu Arg Arg Asn Asn
85 90

Leu Tyr Val Met Gly Tyr
95

Ser Asp Pro Tyr Asn Asn Arg Cys Arg Phe
100 105

His Leu Phe Lys Ala Ile
110

Ser Gly Thr Glu Arg Glu Asp Val Glu Thr
115 120 125

Thr Leu Cys Pro Asn Ala

Asp Ser Arg Val Gly Lys Asn Ile Asn Tyr
130 135 140

Asp Ser Arg Tyr Pro Tyr

Leu Glu Ser Lys Ala Gly Val Asn Ser Arg
145 150 155

-continued

Ser Arg Val Gln Leu Val Gly
160

Ile Arg Ile Leu Asp Ser Gly Ile Gly Arg
165 170

Ile Ser Gly Val Thr Ser
175

Phe Thr Glu Arg Thr Glu Ala Glu Phe Leu
180 185

Leu Val Ala Ile Gln Met
190

Val Ser Glu Ala Ala Arg Phe Lys Tyr Ile
195 200

Glu Asp Gln Val Lys Thr
205

Asn Phe Asn Arg Pro Phe Asn Pro Asn Pro
210 215 220

Lys Val Leu Ile Leu Gln
225

Glu Thr Trp Gly Lys Ile Ser Ser Ala Ile
230 235

His Gly Ala Arg Asn Gly
240

Val Leu Pro Asn Pro Leu Gln Leu Val His
245 250

Ala Asn Gly Ala Asn Trp
255

Ile Val Leu Arg Val Asp Glu Ile Lys Pro
260 265

Asp Val Ser Leu Leu Asn
270

Tyr Val Ile Gly Ser Cys Gln Arg Thr Tyr
275 280

Asn Gln Asn Ala Met Phe
285

Ser Gln Leu Ile Met Ser Thr Tyr Tyr Asn
290 295 300

Tyr Met Ala Asn Leu Gly

Asp.
305

5,723,327

THERMOSTABLE TREHALOSE-RELEASING ENZYME, AND ITS PREPARATION AND USES

Shouji Ikegami; Michio Kubota; Toshiyuki Sugimoto, and Toshio Miyake, all of Okayama, Japan, assignors to Kabushiki Kaisha Hayashibara Seibutsu Kagaku Kenkyujo, Okayama, Japan

Filed Jun. 7, 1995, Ser. No. 485,132

Claims priority, application Japan, Jun. 25, 1994, 6-166126; Apr. 11, 1995, 7-109130

Int. Cl.[6] C12N *9/26;* **C12D** *19/12;* **C13K** *13/00*

U.S. Cl. 435—201 **15 Claims**

1. A purified trehalose-releasing enzyme which specifically hydrolyses the linkage between a trehalose moiety and the remaining glycosyl moiety in a non-reducing saccharide having a trehalose structure as an end unit and a degree of glucose polymerization of at least 3 and which enzyme is capable of acting on the non-reducing saccharide at a temperature of over 55° C. while retaining its activity.

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5,723,328

ENZYME WITH ENDOGLUCANASE ACTIVITY

Henrik Dalboege, Virum; Lene Nonboe Andersen, Birkeroed; Lene Venke Kofod, Ugerloese; Markus Sakari Kauppinen, Copenhagen, and Stephan Christgau, Vedbaek, all of Denmark, assignors to Novo Nordisk A/S, Bogsvaerd, Denmark

PCT No. PCT/DK93/00444, § 371 Date May 26, 1995, § 102(e) Date May 26, 1995, PCT Pub. No. WO94/14953, PCT Pub. Date Jul. 7, 1994

PCT Filed Dec. 23, 1993, Ser. No. 446,660

Claims priority, application Denmark, Dec. 23, 1992, 1544/92

Int. Cl.[6] C12N *1/15;15/56;15/63;21/00*

U.S. Cl. 435—209 18 Claims

1. An isolated DNA sequence comprising a member selected from the group consisting of:

(a) the sequence of SEQ ID NO:17; and

(b) the sequence of SEQ ID NO:18.

5,723,329

DNA ENCODING RETINOID RECEPTOR X (RXR) ALPHA AND GAMMA; CORRESPONDING VECTORS AND HOST CELLS

David J. Mangelsdorf, San Diego, and Ronald M. Evans, La Jolla, both of Calif., assignors to The Salk Institute for Biological Studies, La Jolla, Calif.

Continuation of Ser. No. 933,453, Aug. 21, 1992, abandoned, which is a continuation of Ser. No. 478,071, Jan. 22, 1991, abandoned. This application Nov. 8, 1994, Ser. No. 336,408

Int. Cl.[6] C12N *15/12;5/10*

U.S. Cl. 435—240.2 17 Claims

1. A recombinant, isolated nucleic acid selected from the group consistng of:

a nucleic acid which encodes a mammalian retinoid X receptor α protein or a mammalian retinoid X receptor γ protein, wherein said nucleic acid is obtained from a mammalian cDNA library, and wherein said nucleic acid hybridizes under stringent conditions with the complementary strand of a DNA having the sequence set forth in SEQ ID NO:1, 3 or 5;

a nucleic acid which encodes a polypeptide fragment of said α or γ receptor protein, wherein said fragment comprises at least the N-terminal domain, the DNA-binding domain or the ligand-binding domain of said receptor protein; and

a nucleic acid degenerate with either of the preceding nucleic acids.

5,723,330

GENETICALLY ENGINEERED REPORTER BACTERIA FOR THE DETECTION OF BACTERIOPHAGE

Catherine Elizabeth Dunn Rees; Katalin Rostas-Mulligan, both of Nottingham; Simon Fearon Park, Macclesfield; Stephen Paul Denyer, Lewes; Gordon Sydney Anderson Birnie Stewart, Leicester, and Sabah Abdel Amir Jassim, Nottingham, all of Great Britain, assignors to Merck Patent GmbH, Darmstadt, Germany

Division of Ser. No. 839,766, Apr. 9, 1992, Pat. No. 5,498,525. This application Dec. 19, 1995, Ser. No. 575,155

Claims priority, application United Kingdom, Aug. 9, 1990, 9017443

Int. Cl.[6] C12N *1/20*

U.S. Cl. 435—252.3 3 Claims

1. Reporter bacteria which are genetically engineered to have an indicator gene which on expression gives rise to a detectable polypeptide, wherein expression of the indicator gene is initiated by bacteriophage infection of the bacteria.

5,723,331

METHODS AND COMPOSITIONS FOR THE REPAIR OF ARTICULAR CARTILAGE DEFECTS IN MAMMALS

Ross A. Tubo, Quincy; Leesa M. Barone, Winthrop, and Courtney A. Wrenn, Haverhill, all of Mass., assignors to Genzyme Corporation, Framingham, Mass.

Division of Ser. No. 245,565, May 5, 1994, abandoned. This application Jun. 6, 1995, Ser. No. 469,966

Int. Cl.[6] C12N *5/00;5/02*

U.S. Cl. 435—366 15 Claims

1. A method for repairing an articular cartilage defect at a pre-determined site in a mammal, the method comprising the steps of:

(a) surgically implanting at the predetermined site of said defect a piece of synthetic cartilage of a predetermined volume prepared by the method comprising:

(i) seeding denuded chondrogenic cells, proliferated ex vivo, into a preshaped well having a cell contacting, cell abhesive surface, said well being dimensioned to provide a predetermined volume of the synthetic cartilage so that said volume approximates a volume of the cartilage defect to be repaired;

(ii) culturing said cells in said well for a time sufficient to permit said cells to differentiate and form a synthetic cartilage comprising chondrogenic cells dispersed within an endogenously produced extracellular matrix;

(iii) removing said synthetic cartilage from said well; and

(b) permitting the synthetic cartilage to integrate into the predetermined site.

5,723,332

TRANSLATIONAL ENHANCER DNA

Yuti Luis Alberto Chernajovsky, London, England, assignor to British Technology Group Limited, London, England

PCT No. PCT/GB94/02586, § 371 Date Apr. 19, 1996, § 102(e) Date Apr. 19, 1996, PCT Pub. No. WO95/14775, PCT Pub. Date Jun. 1, 1995

PCT Filed Nov. 25, 1994, Ser. No. 633,779

Claims priority, application United Kingdom, Nov. 26, 1993, 9324394; Sep. 1, 1994, 9417597

Int. Cl.[6] C07H *21/04*

U.S. Cl. 435—320.1 8 Claims

1. Isolated DNA from the portion of the β-chain of human kinesin genomic DNA lying between the 5'-end of the gene and the 3'-end of the first intron thereof, comprising nucleotides **430** to **474** of SEQ ID NO:1 or a variant thereof, wherein one to four nucleotides of said **430–474** nucleotides are varied or deleted.

5,723,333

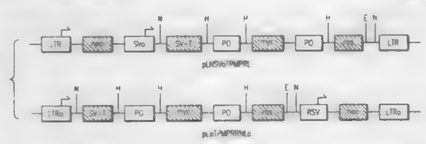
HUMAN PANCREATIC CELL LINES: DEVELOPMENTS AND USES

Fred Levine, Del Mar; Sijian Wang, San Diego; Gillian M. Beattie, Poway, and Alberto Hayek, La Jolla, all of Calif., assignors to Regents of The University of California, Oakland, Calif.

Continuation-in-part of Ser. No. 386,897, Feb. 10, 1995, abandoned. This application Jul. 31, 1995, Ser. No. 509,121

Int. Cl.[6] C12N *5/00;5/08;5/22;15/63*

U.S. Cl. 435—325 39 Claims



22. A method for producing a genetically modified cell comprising the steps of:

(a) transfecting a cell with a vector comprising at least two oncogenes.

(b) expressing the two oncogenes, whereupon the cell divides.

(c) and then suppressing the expression of the oncogenes by excising the vector or suppressing transcription from the oncogenes.

5,723,334

Patent Not Issued For This Number

5,723,335

IMMUNE STIMULATION BY PHOSPHOROTHIOATE OLIGONUCLEOTIDE ANALOGS

Stephen L. Hutcherson, Richmond, Va., and Josephine M. Glover, Woking, United Kingdom, assignors to Isis Pharmaceuticals, Inc., Carlsbad, Calif.

Continuation of Ser. No. 217,988, Mar. 25, 1994, abandoned. This application Sep. 11, 1996, Ser. No. 712,135

Int. Cl.[6] C12N *5/10;* A61K *31/70;31/795;* C07H *21/00*

U.S. Cl. 435—375 3 Claims

1. A method of modulating cytokine release in skin cells which comprises contacting skin cells with an oligonucleotide analog having at least one phosphorothioate bond in an amount sufficient to elicit an immune response resulting in the release of cytokine.

5,723,336

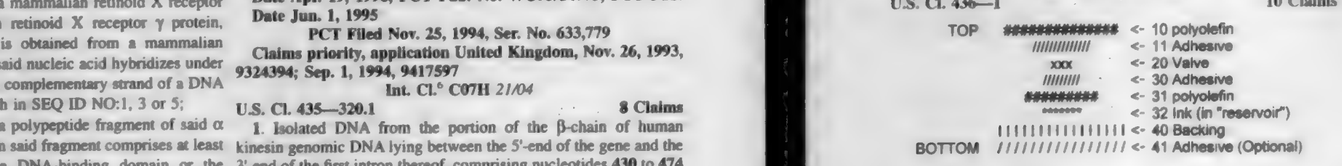
VALVED EXTENDED TIME-TEMPERATURE INDICATOR

Richard B. Barrett, Chatham, N.J., assignor to Air Liquide America Corporation, Houston, Tex.

Filed Feb. 7, 1996, Ser. No. 597,935

Int. Cl.[6] G01K *1/02*

U.S. Cl. 436—1 10 Claims



1. A valved temperature indicator comprising:

a base substrate;

an upper and a lower transparent polymeric layer on top of the base substrate with at least the upper layer having adhesive on a surface;

a valve member which is restrictive to the flow of dye therethrough interposed between the two polymer layers such that there is no adhesive contact between the polymeric layers in the area of the valve;

colored dye deposited on the lower polymeric layer or the base substrate so that the dye is visible and with the dye being positioned directly below the valve member so that the valve member partially obstructs visibility of the dye deposit;

whereby the dye migrates laterally through adhesive around the valve member, with migration in the adhesive of the upper polymeric layer above the valve member being inward so that the dye collects substantially over the valve member.

6. A process for indicating exposure to an environment above a predetermined temperature, the process comprising

providing the valved member of claim 1 wherein the dye migrates only at or above the predetermined temperature,

exposing the valved indicator to an environment having a temperature at least that of said predetermined temperature, whereby the dye migrates laterally through adhesive around the valve member of the indicator during the exposure so that the dye collects substantially over the valve member, effecting the appearance of the valve member such that the valve member becomes obscured by the dye.

5,723,337

METHOD FOR MEASURING AND CONTROLLING THE OXYGEN CONCENTRATION IN SILICON MELTS AND APPARATUS THEREFOR

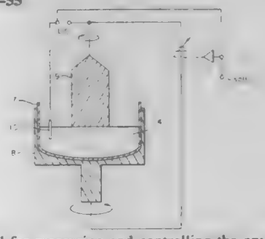
Gerog Müller, Langensendelbach; Rainer Marten, and Albrecht Seidl, both of Erlangen, all of Germany, assignors to Georg Müller, Langensendelbach, Germany

Filed Aug. 7, 1995, Ser. No. 511,752

Claims priority, application Germany, Aug. 13, 1994, 44 28 743.7

Int. Cl.[6] G01N *33/20;27/26;27/411*

U.S. Cl. 436—55 2 Claims



1. A method for measuring and controlling the oxygen concentration in a silicon melt which is held in a silica glass crucible or which is contacted by a piece of silica glass,

wherein the oxygen concentration is measured by an electrochemical solid ionic sensor dipped into the silicon melt and wherein a voltage is measured between the sensor and a silicon crystal growing from said melt, which voltage is related to the oxygen concentration of the silicon melt,

wherein a control of the oxygen concentration is achieved by applying a control voltage between the growing silicon crystal and the silica glass crucible contacted from an outer surface of said crucible, or said piece of silica glass touching the melt surface and contacted from an outer surface of said glass,

wherein the oxygen concentration of the melt and of the growing crystal is controlled by comparing the voltage, which is measured between the sensor and the growing crystal, with a reference voltage, which corresponds with the requested oxygen concentration, and wherein in the case of a deviation from the reference voltage the oxygen concentration is corrected by applying said control voltage.

5,723,338

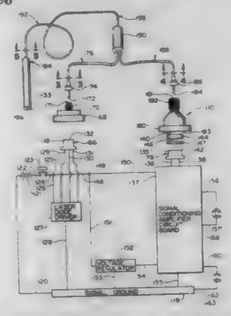
TAGGING HYDROCARBONS FOR SUBSEQUENT IDENTIFICATION

Michael J. Rutledge; Robert T. Roginski, both of Naperville, and George H. Vickers, Aurora, all of Ill., assignors to Amoco Corporation, Chicago, Ill.

Continuation-in-part of Ser. No. 334,274, Nov. 4, 1994. This application Jan. 29, 1996, Ser. No. 591,929

Int. Cl.[6] G01N *21/64*

U.S. Cl. 436—56 14 Claims



2. A method for identifying a hydrocarbon containing a fluorescent dye, which comprises:

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generating radiation in an excitation band consisting of wavelengths of about 600 to about 2500 nanometers, the radiation in the excitation band describing an excitation path extending from an excitation source to a target chamber;

irradiating by the excitation radiation a hydrocarbon selected from the group consisting of gasoline, diesel fuel, hearing oil, lubricating oil or crude petroleum in the target chamber, the hydrocarbon containing an essentially metal-free fluorescent dye at a concentration of about 0.01 to about 1000 parts per billion by weight appropriate for emitting radiation in a fluorescent band consisting of wavelengths of about 600 to about 2500 nanometers as a result of exposure to radiation in the excitation band, wherein the dye is selected from the group consisting of naphthalocyanine dye, phthalocyanine dye, cyanine dye, methine dye, croconium dye and squarylium dye, wherein the dye is soluble in the hydrocarbon to at least about one percent by weight based on the weight of the hydrocarbon, and wherein the dye is inert to moderately acidic aqueous solutions in the range of about 4 to about 7 pH or moderately alkaline aqueous solutions in the range of about 7 to about 10 pH;

passing radiation in the fluorescent band along a fluorescence path extending from the target chamber to a detector;

detecting the presence of a predetermined amount of fluorescence radiation at the detector and producing a detection signal, and identifying said hydrocarbon from the detection signal.

5,723,339

METHOD OF ANALYZING GOLD ELECTROPLATING SOLUTIONS FOR ARSENIC(III)

John Joseph Konrad, Endicott, and Robert Anthony Sinicki, Endwell, both of N.Y., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Apr. 15, 1996, Ser. No. 632,231

Int. Cl.[6] G01N *33/20;21/74;1/00*

U.S. Cl. 436—73 **14 Claims**

1. A method of analyzing for As(III) as AsO_2^{-1} ion in an Au(I) and Au(III) containing electroplating solution, said method comprising the steps of:

a. adding a sample of the electroplating solution to a buffered solution;

b. adding a complexing agent for Au(I) ion to the buffered solution, wherein the complexing agent for Au(I) is an alkali metal cyanide having the formula MCN where M is an alkali metal chosen from the group consisting of Li, Na, K, Rb, and Cs;

c. adding ammonium pyrrolidine dithiocarbamate as a complexing agent for the AsO_2^{-1} ion;

d. extracting the ammonium pyrrolidine dithiocarbamate—AsO_2^{-1} ion; and

e. analyzing the extracted ammonium pyrrolidine dithiocarbamate—AsO_2^{-1} ion for As.

5,723,340

OPTICAL INDICATOR FOR DETERMINING THE ACTIVITY OF AN ION IN A SAMPLE

Hellfried Karpf, Graz, Austria, assignor to AVL Medical Instruments AG, Schaffhausen, Switzerland

Continuation of Ser. No. 306,421, Sep. 16, 1994, abandoned. This application May 14, 1996, Ser. No. 645,891

Claims priority, application Austria, Sep. 30, 1993, A-1970/93

Int. Cl.[6] G01N *33/20;31/22*

U.S. Cl. 436—79 **5 Claims**

1. An optical indicator for determining the activity of an ion selected from the group consisting of Li+, Na+, Ca++ and Mg++ in a sample, said sample being in at least indirect contact with said optical indicator, said optical indicator comprising molecules of an ionophor having a molecular structure including at least two functional groups which form an electron donor acceptor (EDA) complex whose conformation is changed after selectively binding with a corresponding ion, such that at least one optical property of said optical indicator will undergo a measurable change, at least one of said at least two functional groups including a fluorophor, said ionophor being selected from the group consisting of N,N'-diheptyl-N,N',5,5-tetramethyl- 3,7-dioxanonane-diamide, N,N,N',N'-tetracyclohexyl- 1,2-phenylendioxydiacetamide, (−)-(R,R)-N,N'-bis-(11-(ethoxycarbonyl)-undecyl),-N,N'- 4,5-tetramethyl-3,6-dioxaoctan-diamide, and N,N',N"-tris-(3-(heptylmethylamino)-3-oxopropionyl)- 8,8'-iminodioctylamine.

5,723,341

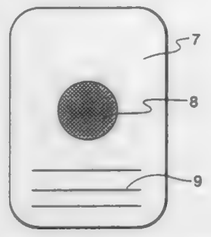
SCREEN CELL AND METHOD OF USING

William L. Truett, West Brattleboro, Vt., assignor to Janos Technology Inc., Townshend, Vt.

Continuation-in-part of Ser. No. 496,058, Jun. 28, 1995, abandoned, which is a continuation-in-part of Ser. No. 201,797, Feb. 25, 1994, Pat. No. 5,453,252. This application Jul. 3, 1996, Ser. No. 675,553

Int. Cl.[6] G01N *21/62;21/01*

U.S. Cl. 436—171 **8 Claims**



1. A method of analyzing a specimen comprising the steps of forming a specimen support of a rigid material that is non-reactive to water, acidic substances and solvents having a pair of opposed surfaces and having a plurality of unobstructed holes in a rigid surface disposed between said pair of opposed surfaces, the axes of said holes being substantially perpendicular to said opposed surfaces; enclosing each hole with an unsupported layer of a specimen to be analyzed, said specimen being selected from the group consisting of liquid, solid, paste or powder, said holes sized to retain a specimen to be analyzed enclosing said hole when said specimen support is positioned so that said opposed surfaces are vertical; positioning said support so that the axes of said holes are horizontal; directing a beam of infrared light through the holes and through the layer of said specimen enclosing each hole; and generating a wavelength spectrum of said beam passing through said layer.

5,723,342

ELECTROCHEMILUMINESENCE ASSAY

Ursula Giesen, Weilheim; Nicholas Hoyle, Tutzing; Volker Klemt, Weilheim; Günter Müller, Peissenberg, and Ulrich Neumann, Weilheim, all of Germany, assignors to Boehringer Mannheim GmbH, Mannheim, Germany

PCT No. PCT/EP94/01329, § 371 Date Jul. 11, 1996, § 102(e) Date Jul. 11, 1996, PCT Pub. No. WO94/25854, PCT Pub. Date Nov. 10, 1994

PCT Filed Apr. 27, 1994, Ser. No. 553,521

Claims priority, application Germany, May 3, 1993, 43 14 547.7; Sep. 25, 1993, 43 32 697.8; Jan. 20, 1994, 44 01 577.1

Int. Cl.[6] G01N *21/69*

U.S. Cl. 436—172 **20 Claims**

1. In a method for measuring electrochemiluminescence of a component capable of generating electrochemiluminescence by contacting said component with a solution which contains an oxidizable amine, applying an electrical voltage to said component and said solution to induce electrochemiluminescence, and detecting induced electrochemiluminescence, the improvement comprising cooling said solution to below room temperature and measuring said electrochemiluminescence at a temperature greater than the freezing point of said solution but below about 25° C.

5,723,343

AUTOANTIBODIES IN PATIENTS WITH ACQUIRED HYPOPARATHYROIDISM AND ASSAY METHOD THEREFOR

Noel K. Maclaren, Archer, and Yao-Huo Song, Gainesville, both of Fla., assignors to University of Florida, Gainesville, Fla.

Filed Aug. 28, 1995, Ser. No. 519,905

Int. Cl.[6] G01N *33/531;33/564;33/567*

U.S. Cl. 436—506 **3 Claims**

1. A method for detecting acquired hypoparathyroidism (AH) in a person, or propensity for developing autoimmune hypoparathyroidism and the propensity to develop other autoimmune diseases which are commonly associated with development of autoimmune hypoparathyroidism, selected from the group consisting of APSI, Hashimoto thyroiditis, hypothyroidism, mucocutaneous candidiasis, Addison disease, early onset pernicious anemia, chronic active hepatitis, alopecia, and primary hypogonadism, which comprises contacting a sample of serum from said person with an antigen selected from human calcium sensing receptor, and parathyroid specific cytosolic antigens, selected from the 70 kilodalton cytosolic protein antigen present in parathyroid cells, the 80 kilodalton cytosolic protein antigen present in parathyroid cells, or both, and detecting binding of antibodies present in said serum sample with said antigen, wherein the presence of said binding indicates that said person may have or may be at risk for developing AH.

3. A kit for use in a method for detecting AH in a person, said kit comprising:

(a) the CA-SR (calcium sensing receptor), the 70 kDa parathyroid cytosolic antigen recognized by AH positive sera, the 80 kDa parathyroid cytosolic antigen recognized by AH positive sera;

(b) animal anti-human immunoglobulin.

5,723,344

DEVICE FOR THE CAPTURE OF TARGET MOLECULES, AND CAPTURING PROCESS USING THE DEVICE

Claude Mabilat, Villeurbanne; Philippe Cros, Lyons; Bernard Mandrand, Villeurbanne; Marie-Hélène Charles, Condrieu; Marie-Noëlle Erout, Sainte Foy les Lyon, and Christian Pichot, Corbas, all of France, assignors to Bio Merieux, Marcy l'Etoile, France

Filed Jun. 24, 1994, Ser. No. 264,996

Claims priority, application France, Jun. 25, 1993, 93 07797

Int. Cl.[6] G01N *33/543;33/544;* **C12Q** *1/68*

U.S. Cl. 436—518 **15 Claims**

1. Device for capturing a target molecule for the purpose of detecting it and/or assaying it, comprising a water-soluble conjugate immobilized on a solid support by adsorption, said conjugate resulting from a covalent coupling of a polymer with a plurality of molecules of a ligand, wherein said polymer is an N-vinylpyrrolidone copolymer.

15. A process for capturing a target molecule, comprising:

providing a device comprising: (1) a water-soluble conjugate immobilized on a solid support by adsorption, said conjugate resulting from a covalent coupling of an N-vinylpyrrolidone copolymer with a plurality of molecules of a ligand, and (2) a bifunctional reagent comprising an anti-ligand group bonded with a partner group, wherein said anti-ligand group is attached to a ligand of the water-soluble conjugate to form a complex;

bringing the device into contact with the target molecule in solution in an aqueous medium under conditions permitting the formation of a complex between the partner group and the target; and

allowing said complex between the partner and the target to form.

5,723,345

METHOD AND DEVICE FOR SPECIFIC BINDING ASSAY

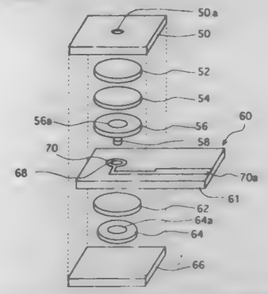
Tadakazu Yamauchi, and Hideyuki Terasawa, both of Saitama, Japan, assignors to Mochida Pharmaceutical Co., Ltd., Tokyo, Japan

Filed Jun. 27, 1995, Ser. No. 495,028

Claims priority, application Japan, Jun. 28, 1994, 6-146865

Int. Cl.[6] G01N *33/543;33/558;33/536*

U.S. Cl. 436—518 **9 Claims**



1. A method of determining the amount of a substance in a liquid sample comprising

flowing a signal substance generator and a liquid sample through a predetermined channel in a predetermined direction, such that a specific binding reaction takes place with at least said substance and said signal substance generator thereby causing the formation of a specific distribution of the signal substance generator in said channel which is dependent on the concentration of said substance, said specific distribution formed by an affinity chromatographic, a molecular sieve chromatographic, or an immunoprecipitation process;

generating a signal substance from said signal substance generator specifically distributed in said channel;

allowing dispersion of unreacted signal substance generator throughout the channel;

allowing diffusion of said signal substance to a plurality of detection means arranged in different positions in said flow direction;

detecting said signal substance with said plurality of detection means; and

determining the concentration of said substance from the relative signal detected at the detection means.

5,723,346

METHOD OF ASSAY USING TWO DISTINGUISHABLE TYPES OF PARTICLES

Jomar Frengen, Trondheim, Norway, assignor to Sinvent AS, Trondheim, Norway

PCT No. PCT/GB94/02816, § 371 Date Oct. 1, 1996, § 102(e) Date Oct. 1, 1996, PCT Pub. No. WO95/17674, PCT Pub. Date Jun. 29, 1995

PCT Filed Dec. 23, 1994, Ser. No. 663,122

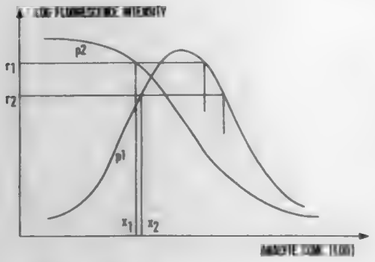
Claims priority, application United Kingdom, Dec. 23, 1993, 9326379

Int. Cl.[6] G01N *33/543*

U.S. Cl. 436—523 **14 Claims**

1. A method for assaying an analyte in a sample which comprises

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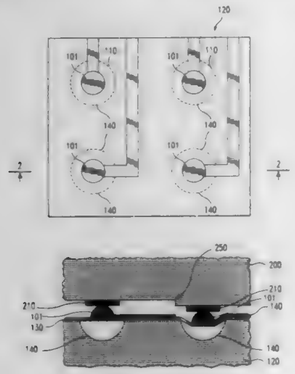
(a) reacting the sample with:
(i) a first binding partner having affinity for said analyte; and either
(ii)(a) a labelled ligand having affinity for said analyte, and
(iii)(a) a second binding partner having affinity for said labelled ligand; or
(ii)(b) a labelled ligand comprising a labelled form of said analyte, and
(iii)(b) a second binding partner having affinity for the label of said labelled ligand;
wherein said first and second binding partners are respectively immobilized on a first and second independently determinable solid support; and
(b) independently determining labelled ligand-carrying first and second solid supports and obtaining analyte concentration therefrom by reference to a double standard calibration curve.

5,723,347

SEMI-CONDUCTOR CHIP TEST PROBE AND PROCESS FOR MANUFACTURING THE PROBE

Toshiki Hirano, Tokyo-to; Atsuo Kimura, Ohtsu, and Shin-ichiro Mori, Kusatsu, all of Japan, assignors to International Business Machines Corp., Armonk, N.Y.

Division of Ser. No. 321,503, Oct. 12, 1994, Pat. No. 5,625,298. This application Oct. 24, 1996, Ser. No. 736,543
Claims priority, application Japan, Sep. 30, 1993, 5-244385
Int. Cl.[6] H01L *21/66;21/68;* **G01R** *1/02;1/067*
U.S. Cl. 437—8 **8 Claims**



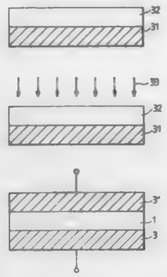
1. A probe structure for testing semi-conductor chips, comprising:
a substrate;
an oxide film for covering over said substrate and at least a part of some cavities, said cavities being formed in said substrate;
an organic film formed on and extending over said oxide film;
a plurality of conductive projections, formed on said organic film;
each of said projections being aligned, with a respective one of said cavities, and positionally matched with a respective I/O pad on a semi-conductor chip to be probed; and
conductive leads connected with said projections.

5,723,348

METHOD OF MAKING A LIGHT-EMITTING DEVICE

Hideya Kumomi, Yokohama, and Takao Yonehara, Atsugi, both of Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan

Division of Ser. No. 428,514, Apr. 25, 1995, abandoned. This application Feb. 12, 1996, Ser. No. 598,623
Claims priority, application Japan, Apr. 25, 1994, 6-107467
Int. Cl.[6] H01L *21/265;21/00;21/203;21/205*
U.S. Cl. 437—23 **9 Claims**



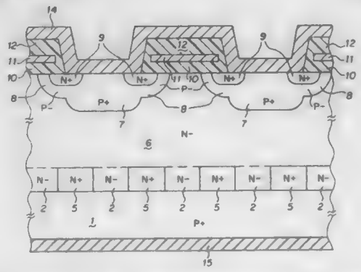
1. A production process of a light-emitting device, comprising a step of ion-implanting ions that can become a semiconductor material into an oxide film to form at least a part of a light-emitting layer.

5,723,349

PROCESS FOR MANUFACTURING A HIGH CONDUCTIVITY INSULATED GATE BIPOLAR TRANSISTOR INTEGRATER STRUCTURE

Piero Giorgio Fallica, Catania, Italy, assignor to Consorzio pre la Ricerca sulla Microelettronica nel Mezzogiorno, Catania, Italy

Division of Ser. No. 378,665, Jan. 26, 1995, abandoned. This application Jun. 7, 1995, Ser. No. 475,070
Claims priority, application European Pat. Off., Jan. 27, 1994, 94830028
Int. Cl.[6] H01L *21/265*
U.S. Cl. 437—31 **4 Claims**



1. A process for the manufacturing of an IGBT integrated structure, comprising the steps of:
a) growing a first epitaxial layer of a second conductivity type and a first dopant level over a substrate of a first conductivity type and a second dopant level;
b) growing an oxide layer over the first epitaxial layer;

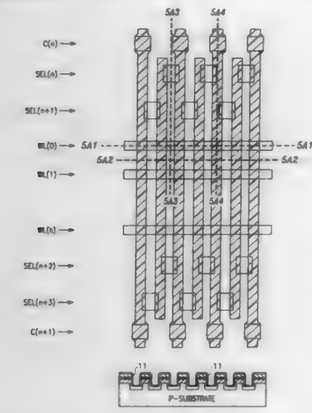
c) selectively removing the oxide layer to obtain uncovered regions of the first epitaxial layer;
d) introducing a dose of the second dopant level of the second conductivity type into the uncovered regions of the first epitaxial layer to form regions of the second conductivity type and the second dopant level intercalated with regions of the second conductivity type and the first dopant level;
e) removing the oxide layer;
f) growing over the first epitaxial layer a second epitaxial layer of the second conductivity type and the first dopant level having a thickness greater than a thickness of the first epitaxial layer;
g) forming, in the second epitaxial layer, at least one first doped region of the first conductivity type; and
h) forming, in said at least one first doped region, a respective second doped region of the second conductivity type
wherein in step (d) a plurality of said regions of the second conductivity type and the second dopant level are formed below each of the at least one first doped regions of the first conductivity type formed in step (g).

5,723,350

PROCESS FOR FABRICATING A CONTACTLESS ELECTRICAL ERASABLE EPROM MEMORY DEVICE

Gabriella Fontana, Vimercate; Orio Bellezza, Curno, and Giuseppe Paolo Crisenza, Trezzo sull'Adda, all of Italy, assignors to SGS-Thomson Microelectronics, S.r.l., Agrate Brianza, Italy

Filed May 28, 1993, Ser. No. 70,084
Claims priority, application European Pat. Off., Jun. 1, 1992, 92830282
Int. Cl.[6] H01L *21/8247*
U.S. Cl. 437—43 **48 Claims**



1. A process for fabricating a matrix of floating gate memory cells organized in rows and columns, with bitlines in the form of diffused regions alternately continuous and contacted directly through a metal line and discontinuous and contacted through respective select transistors arranged along at least two rows of offset select transistors every certain number of rows of matrix's memory cells, on a semiconducting substrate having a first type of conductivity and comprising the steps of:
forming a pad oxide layer on said substrate, and depositing and defining a masking nitride layer;
forming a field oxide defining channel regions of said cells in the form of parallel strips oriented along a first direction and rows of offset insular areas of said select transistors and of said contacts of said continuous bitlines;
removing said masking nitride and said pad oxide;
thermally growing a layer of gate oxide having a certain partial thickness over said channel regions and said insular areas defined by the field oxide;
defining by masking the area of said matrix of memory cells, etching said gate oxide and implanting a dopant of said first type of conductivity in said channel areas of the memory cells and removing said mask and growing a layer of tunnel oxide having a thickness smaller than the partial thickness of said removed gate oxide layer, while increasing the thickness of said gate oxide layer in other areas;
depositing a layer of polycrystalline silicon of first level and doping the polycrystalline silicon for increasing electrical conductivity to a desired value, forming an interpoly insulating multilayer, depositing a protective layer of polycrystalline silicon over said interpoly insulating multilayer and depositing a layer of silicon nitride having a thickness capable of protecting from oxidation the said protective layer of polycrystalline silicon;
masking said silicon nitride layer;
etching said silicon nitride layer said protective polycrystalline silicon layer, said interpoly isolation multilayer, said doped polycrystalline silicon layer of first level, said gate or tunnel oxide and said field oxide at crossings until exposing said semiconducting substrate along a plurality of alternately continuous and interrupted strips parallel to each other and oriented orthogonally in respect to underlying strips of field oxide defining said strip-shaped channel regions, within the area occupied by said matrix of cells;
implanting a heavy dose of a dopant capable of producing a second type of conductivity in exposed areas of said semiconducting substrate within said matrix area to form matrix's diffused bitlines, each coinciding either with source or with drain regions of a second type of conductivity of memory cells arranged along a same column;
diffusing said implanted dopant and oxidizing the surface of said semiconducting substrate in said areas exposed and implanted during the preceding steps while maintaining the other areas external to the area occupied by the memory cells protected from oxidation by said protecting silicon nitride layer;
planarizing the surface by depositing a planarizing layer of dielectric material and continuing the etching to remove said silicon nitride layer and exposing said protection layer of polycrystalline silicon;
masking the area occupied by said memory cells and eliminating said protective polysilicon silicon layer and said interpoly isolation multilayer from all the areas external to said area;
implanting a dopant of said first type of conductivity for adjusting the threshold in the channel areas of said select transistors and of transistors of circuits external to the matrix of memory cells, through said doped polycrystalline silicon layer of first level and said gate oxide layer;
depositing and doping a layer of polycrystalline silicon of second level; depositing a layer of a metal silicide;
masking said silicide layer to define the gate of transistors of said external circuits as well as of said select transistors and the control gates of said matrix of memory cells in the form of parallel strips oriented in said first direction;
etching said silicide layer and said doped polycrystalline silicon layer of second level, arresting the etching on said field oxide or on said planarizing dielectric material in areas external to the area of said matrix of memory cells and on said interpoly isolation multilayer within the matrix's area;
masking the areas external to said matrix area;
performing a self-aligned etching of said interpoly isolation multilayer and of said doped polysilicon layer of first level within said matrix's area;
forming a plurality of contacts on each of said continuous bitlines disposed alternately to said interrupted bitlines and depositing and defining parallel lines of a metallization layer over each of said plurality of contacts of said continuous bitlines.

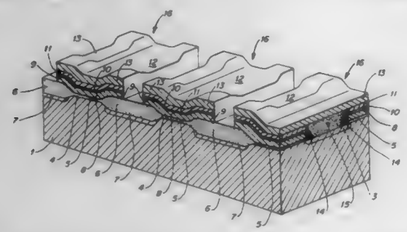
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5,723,351

METHOD OF MAKING MATRIX OF EPROM MEMORY CELL WITH A TABLECLOTH STRUCTURE HAVING AN IMPROVED CAPACITATIVE RATIO

Orio Bellezza, Curno, Italy, assignor to SGS-Thomson Microelectronics S.r.l., Agrate Brianza, Italy

Division of Ser. No. 191,667, Feb. 4, 1994, Pat. No. 5,475,250, which is a continuation of Ser. No. 929,418, Aug. 14, 1992, Pat. No. 5,296,396, which is a division of Ser. No. 759,203, Sep. 11, 1991, Pat. No. 5,160,986, which is a continuation of Ser. No. 444,796, Dec. 1, 1989, abandoned. This application Aug. 30, 1995, Ser. No. 521,469
Claims priority, application Italy, Dec. 5, 1988, 22848/88
Int. Cl.[6] H01L *21/8247*
U.S. Cl. 437—43 19 Claims



1. Process for the manufacture of a matrix of memory cells with source and drain lines parallel and alternated one to another on a semiconductor substrate, floating gate areas being interposed between said source and drain lines, and control gate lines parallel to one another and perpendicular to said source and drain lines in a superimposed condition with intermediate dielectric and aligned with respect to said floating gate areas, comprising the following succession of steps:

a) definition of strips of active areas alternated with parallel bars of field oxide on a semiconductor substrate;

b) growth of gate oxide;

c) deposition of a layer of floating gate, then of a dielectric layer and then of a barrier polysilicon layer;

d) self-aligned etching of the barrier layer, of the dielectric layer of the floating gate layer and of the field oxide bars in parallel strips which are perpendicular to said field oxide bars for the definition of uncovered strips of substrate to the sides of said parallel strips;

e) implantation of dopant in said uncovered strips for the formation of source and drain lines;

f) deposition and planarization of a layer of thick dielectric material over said source and drain lines;

g) deposition of a layer of control gate; and

h) patterning and etching of said layer of control gate and of said parallel strips of floating gate, dielectric layer and barrier layer until it stops on said field oxide for the definition of memory cells with floating gate areas being interposed between said source and drain lines, and control gate lines parallel to one another and perpendicular to said source and drain lines.

5,723,352

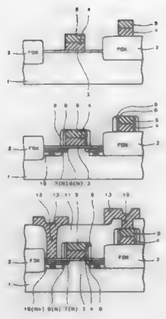
PROCESS TO OPTIMIZE PERFORMANCE AND RELIABILITY OF MOSFET DEVICES

Jiaw-Ren Shih, and Shion Hann Liaw, both of Hsiu-Chu, Taiwan, assignors to Taiwan Semiconductor Manufacturing Company, Hsinchu, Taiwan

Filed Aug. 3, 1995, Ser. No. 511,064
Int. Cl.[6] H01L *21/8234*
U.S. Cl. 437—44 20 Claims

1. A method for fabricating a MOSFET device, on a semiconductor substrate, with lightly doped source and drain regions, comprising the steps of:

forming field oxide regions on said semiconductor substrate;



growing a gate oxide on said semiconductor substrate, not covered by said field oxide region;

depositing a polysilicon layer on said gate oxide, and on said field oxide regions;

doping of said polysilicon layer;

depositing a metal silicide layer on said polysilicon layer;

patterning of said metal silicide layer, and said polysilicon layer, to form polycide gate structure;

ion implanting a first conductivity imparting dopant into said semiconductor substrate, not covered by said field oxide regions, or by said polycide gate structure;

ion implanting a second conductivity imparting dopant into said semiconductor substrate, not covered by said field oxide regions, or by said polycide gate structure;

annealing of said semiconductor substrate, forming an silicon oxide layer on exposed surfaces of said polycide gate structure;

deposition of a first insulator layer;

anisotropic etching of said first insulator layer to form insulator spacer on sidewall of said polycide gate structure;

ion implanting a third conductivity imparting dopant into said semiconductor substrate, not covered by; said field oxide regions, said polycide gate structure, or said insulator spacer;

forming a second insulator layer on said semiconductor substrate, on said polycide gate structure, on said insulator spacer, and on said field oxide regions;

opening contact hole sin said second insulator layer, to said polycide gate structure, and to specific regions of said semiconductor substrate; and

providing metal contact and interconnections to said polycide gate structure, and to said specific regions of said semiconductor substrate.

5,723,353

PROCESS FOR MANUFACTURING A SENSOR

Horst Muenzel; Dietrich Schubert, both of Reutlingen; Alexandra Boehringer, Leonberg; Michael Offenberg, Tuebingen; Klaus Heyers, and Markus Lutz, both of Reutlingen, all of Germany, assignors to Robert Bosch GmbH, Stuttgart, Germany

Filed Feb. 12, 1996, Ser. No. 599,838
Claims priority, application Germany, Feb. 10, 1995, 195 04 151.8; Aug. 22, 1995, 195 30 736.4
Int. Cl.[6] H01L *21/70*
U.S. Cl. 437—51 11 Claims

1. A method for manufacturing a rate-of-rotation sensor, comprising the steps of:

disposing a second insulating layer between a first silicon layer and a third silicon layer, the second layer being deposited and patterned starting from the first layer, the third layer being deposited in an epitaxy reactor; and



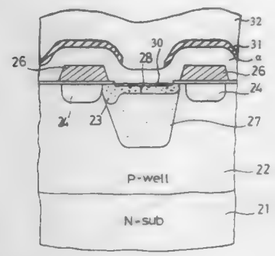
applying an etching mask through which a pattern is etched into the third layer and the first layer, wherein during the etching of the first layer, the second layer serves as the etching mask.

5,723,354

SOLID STATE IMAGE PICKUP DEVICE AND MANUFACTURING METHOD THEREFOR

Yong Park, Kyeungki-do, and Shang-Ho Moon, Seoul, both of Rep. of Korea, assignors to LG Semicon Co., Ltd., Chungcheongbuk-do, Rep. of Korea

Filed Dec. 6, 1995, Ser. No. 568,336
Claims priority, application Rep. of Korea, Jun. 3, 1995, 95-14701
Int. Cl.[6] H01L *21/339*
U.S. Cl. 437—53 16 Claims



1. A method for manufacturing a light receiving portion for a solid state image pickup device, comprising the steps of:

providing a substrate of a first impurity type;

forming a well of a second impurity type on the substrate;

forming a channel stop within an upper surface of the well;

forming a vertical CCD portion within the upper surface of the well;

forming a gate insulating layer on the upper surface of the well, the channel stop, and the vertical CCD portion;

forming a charge carrying gate electrode above the vertical CCD portion;

forming a light receiving photo diode by ion-implanting impurities of the first impurity type;

forming a first impurity layer on the light receiving photo diode by ion-implanting impurities of the second impurity type into a surface of the light receiving photo diode;

removing a portion of the gate insulating layer above the light receiving photo diode;

depositing an insulating layer containing impurities of the first impurity type on the gate insulating layer, the charge carrying gate electrode, and the first impurity layer; and

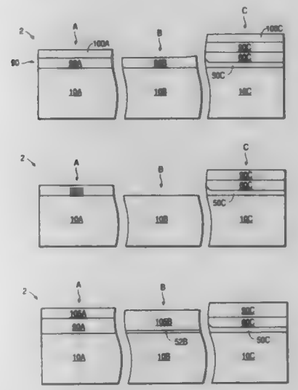
performing a heat treatment to form a second impurity layer by doping an upper surface of the first impurity layer with the impurities of the insulating layer.

5,723,355

METHOD TO INCORPORATE NON-VOLATILE MEMORY AND LOGIC COMPONENTS INTO A SINGLE SUB-0.3 MICRON FABRICATION PROCESS FOR EMBEDDED NON-VOLATILE MEMORY

Shang-De Ted Chang, Fremont, and Binh Ly, San Jose, both of Calif., assignors to Programmable Microelectronics Corp.

Filed Jan. 17, 1997, Ser. No. 785,234
Int. Cl.[6] H01L *21/8247*
U.S. Cl. 437—56 5 Claims



1. A method for fabricating a memory structure having a high-voltage region, a logic region, and a memory region, where said high-voltage region comprises isolation transistors, said logic region comprises logic transistors used to perform logic operations, and said memory region comprises memory cells, said method comprising the steps of:

growing a first layer of oxide on a major surface era semiconductor substrate to a thickness suitable for facilitating the tunneling of electrons therethrough;

depositing a first layer of polysilicon over said first layer of oxide;

removing portions of said first layer of polysilicon and said first layer of oxide which overlie said high-voltage and said logic regions, wherein the remaining portions of said first layer of polysilicon and said first layer of oxide which overlie said memory region serve as a floating gate and as a tunnel oxide, respectively, for said memory cells;

growing a second layer of oxide over said memory structure;

masking said second layer of oxide, using a layer of photo-resist, to expose only portions of said second layer of oxide which overlie said logic region.

removing said portions of said second layer of oxide which overlie said logic region;

removing said layer of photo-resist;

growing a third layer of oxide over said memory structure, wherein portions of said third layer of oxide and said second layer of oxide which overlie said high-voltage region serve as gate oxides for said isolation transistors and wherein portions of said third layer of oxide and second layer of oxide which overlie said logic region serve as gate oxides for said logic transistors; and

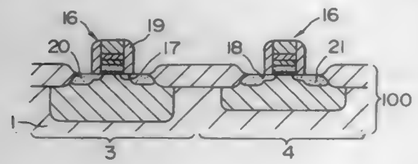
depositing and patterning a second layer of polysilicon over portions of said third layer of oxide which overlie said high-voltage region and said logic region.

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5,723,356
FABRICATION METHOD FOR SEMICONDUCTOR DEVICE

Masanori Tsukamoto, Kanagawa, Japan, assignor to Sony Corporation, Japan

Filed Jul. 29, 1996, Ser. No. 688,117
Claims priority, application Japan, Aug. 7, 1995, 7-200681
Int. Cl.[6] H01L *21/70*
U.S. Cl. 437—57 **8 Claims**



1. A fabrication method for a semiconductor device including a semiconductor base body; and a first semiconducting element having a first conductive portion of a first conducting type and a second semiconducting element having a second conductive portion of a second conducting type, which are formed on said semiconductor base body; wherein each of said first and second conductive portions of said first and second semiconducting elements is composed of a polysilicon film, and a metal film or a metal compound film formed on said polysilicon film, said method comprising:

a first step of forming an amorphous silicon film on said semiconductor base body;

a second step of implanting ions of an impurity having the first conducting type in said amorphous silicon film at a region on which said first semiconducting element is to be formed, and implanting ions of an impurity having the second conducting type in said amorphous silicon film at a region on which said second semiconducting element is to be formed;

a third step of crystallizing said amorphous silicon film to form said polysilicon film and at the same time diffusing said impurities in said polysilicon film, by heat treatment;

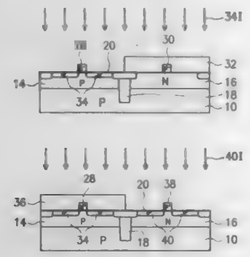
a fourth step of forming a metal or metal compound film on said polysilicon film; and

a fifth step of forming an insulating film on said metal or metal compound film.

5,723,357
SUPPLEMENTARY IMPLANTATION METHOD FOR FABRICATING TWIN GATE CMOS

Hsiu-Wen Huang, Kaoshiung, Taiwan, assignor to United Microelectronics Corporation, Taipei, Taiwan

Filed Feb. 28, 1997, Ser. No. 808,259
Claims priority, application Taiwan, Oct. 11, 1996, 85112454
Int. Cl.[6] H01L *21/70*
U.S. Cl. 437—57 **15 Claims**



1. A method of fabricating a twin gate CMOS component using supplementary implantation, comprising of the steps of:

(a) forming a first conductivity-type well region and a second conductivity-type well region with an isolation region therebetween, on a semiconductor substrate;

(b) forming a gate oxide layer on a surface of the first and second conductivity-type well regions;

(c) forming a polysilicon layer lightly doped with first conductivity-type ions on a surface of the gate oxide layer;

(d) implanting second conductivity-type ions in a first portion of the polysilicon layer, above the first conductivity-type well region, so as to neutralize the first conductivity-type ions therein and convert the first portion into a lightly doped layer of the second conductivity-type, while leaving a second portion of the polysilicon layer above the second conductivity-type well region, still lightly doped with the first conductivity-type ions;

(e) using photolithographic and etching processes to define respective patterns on the first and second portions of the polysilicon layer, thereby respectively to form a polysilicon gate of the second conductivity-type on the first conductivity-type well region and a polysilicon gate of the first conductivity-type on the second conductivity-type well region;

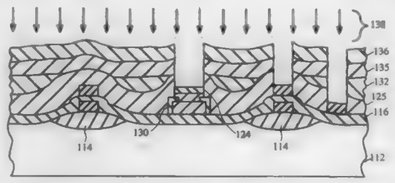
(f) implanting ions of the first conductivity-type in the second conductivity-type well region, so as to increase an electrical conductivity of the polysilicon gate of the first conductivity-type, while simultaneously forming source/drain regions of the first conductivity-type on the substrate on opposite sides of the first conductivity-type polysilicon gate, to establish a first transistor; and

(g) then implanting ions of the second conductivity-type in the first conductivity-type well region so as to increase a conductivity of the gate of the second conductivity-type while simultaneously forming source/drain regions of the second conductivity-type on the substrate on opposite sides of the second conductivity-type polysilicon gate, to establish a second transistor.

5,723,358
METHOD OF MANUFACTURING AMORPHOUS SILICON ANTIFUSE STRUCTURES

Martin Harold Manley, Saratoga, Calif., assignor to VLSI Technology, Inc., San Jose, Calif.

Filed Apr. 29, 1996, Ser. No. 639,557
Int. Cl.[6] H01L *21/70*
U.S. Cl. 437—60 **10 Claims**



1. A method of fabricating an integrated circuit device, the method comprising the steps of:

providing a substrate having a plurality of active regions, a plurality of dummy diffusion regions and a plurality of field oxide regions that are raised relative to the active and dummy diffusion regions;

depositing a first dielectric layer over the substrate such that the first dielectric layer produces topographically lower regions over the plurality of active regions and dummy diffusion regions and topographically higher regions over the field oxide regions;

depositing a first metallization layer defining a network of metallization lines, at least some of the metallization lines being arranged to electrically interconnect preselected ones of the plurality of active regions, wherein at least some of the metallization lines pass over associated field oxide regions;

forming an antifuse over the first dielectric layer such that the antifuse is positioned over a topographically lower dummy diffusion region, and

depositing a second dielectric layer over the first dielectric layer and the first metallization layer, and etching a multiplicity of via holes through the second dielectric layer such that at least some of the via holes are formed to communicate with segments of the metallization layer and at least one of the via holes is positioned to communicate with the antifuse.

5,723,359
METHOD FOR CONCURRENTLY FORMING THIN FILM RESISTOR AND THICK FILM RESISTOR ON A HYBRID INTEGRATED CIRCUIT SUBSTRATE

Kyung-Hwan Lee, Kumi-shi, Rep. of Korea, assignor to LG Information & Communications, Ltd., Seoul, Rep. of Korea

Filed Dec. 11, 1996, Ser. No. 764,697
Claims priority, application Rep. of Korea, Dec. 14, 1995, 1995-50134
Int. Cl.[6] H01L *21/70;27/00*
U.S. Cl. 437—60 **1 Claim**



1. A method for concurrently forming a thin film resistor and a thick film resistor on one hybrid IC substrate, comprising the steps of:

preparing an alumina substrate;

screen-printing a thick film resistor paste as a designed pattern, drying the thick film resistor paste, performing a plastic process, and thus forming a thick film resistor;

depositing a resistor protecting layer paste on the thick film resistor, drying the resistor protecting layer paste, performing a plastic process, and thus forming a thick film resistor protecting layer;

sequentially forming a tantalum (Ta) layer which forms a thin film resistor, a titanium (Ti) layer, a palladium (Pd) layer and a copper (Cu) layer which form a conduction line on the substrate, by using a sputtering method;

depositing a negative photoresist layer on the copper (Cu) layer;

light-exposing a remaining portion excepting portions corresponding to conduction line forming portions in the negative photoresist layer, to ultraviolet rays, developing the remaining portion, and removing another portions not light-exposed in the negative photoresist layer;

sequentially electroplating a copper (Cu) layer, a nickel (Ni) layer and a gold (Au) layer on the copper (Cu) layer portions which are exposed due to an elimination of the negative photoresist layer, and making a conduction line;

removing a remaining light-exposure portion of the negative photoresist layer;

etching titanium (Ti) layer, palladium (Pd) layer and copper (Cu) layer of a remaining portion wherein the conduction line including the Cu2, Ni and Au layers is formed;

depositing a positive photoresist layer on layers of the substrate;

light-exposing a remaining portion excepting portions corresponding to portions wherein a thin film resistor is formed, to ultraviolet rays, in the positive photoresist layer, developing and removing the remaining portion;

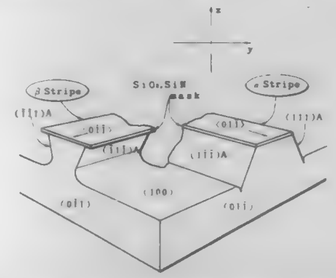
etching Ta layer portions exposed due to an elimination of the positive photoresist, and forming a thin film resistor comprised of the remaining Ta layer; and

removing the remaining portions which are not light-exposed in the positive photoresist layer, and achieving a substrate in which the thin film resistor are formed concurrently with the thick film resistor.

5,723,360
METHOD OF PROCESSING AN EPITAXIAL WAFER OF INP OR THE LIKE

Takashi Iwasaki, Osaka, Japan, assignor to Sumitomo Electric Industries, Ltd., Osaka, Japan

Continuation of Ser. No. 370,409, Jan. 9, 1995, abandoned. This application Feb. 20, 1996, Ser. No. 603,089
Claims priority, application Japan, Jan. 12, 1994, 6-014831
Int. Cl.[6] H02L *21/20*
U.S. Cl. 437—107 **11 Claims**



1. A method of processing an epitaxial wafer of InP or the like comprising the steps of:

forming striped protecting mask films selectively on an epitaxial wafer containing an InP crystal substrate, an InP cladding layer, an InP capping layer, and a crystal layer selected from at least one member of the group consisting of InP, InGaAs and InGaAsP;

etching parts uncovered by the protecting mask films by a mixture etchant of bromine and methanol until parts under the protecting mask films are transformed into normal-mesas having wider bottoms and narrower tops with tapered side surfaces;

etching the wafer by a thermally dissolved $AsCl_3$ gas;

shaping protrusions under the protecting mask films into rectangular sections having erect side surfaces; and

growing buried layers of InP.

5,723,361
THIN FILMS OF ABO_3 WITH EXCESS A-SITE AND B-SITE MODIFIERS AND METHOD OF FABRICATING INTEGRATED CIRCUITS WITH SAME

Masamichi Azuma; Carlos A. Paz De Araujo, and Michael C. Scott, all of Colorado Springs, Colo., assignors to Symetrix Corporation, Colorado Springs, Colo., and Matsushita Electronics Corporation, Osaka, Japan

Continuation-in-part of Ser. No. 165,082, Dec. 10, 1993, which is a continuation-in-part of Ser. No. 132,744, Oct. 6, 1993, Pat. No. 5,514,822, which is a continuation-in-part of Ser. No. 993,380, Dec. 18, 1992, Pat. No. 5,456,945, and Ser. No. 981,133, Nov. 24, 1992, Pat. No. 5,423,285, which is a continuation-in-part of Ser. No. 807,439, Dec. 13, 1991, abandoned, and Ser. No. 965,190, Oct. 23, 1992, abandoned, which is a continuation-in-part of Ser. No. 807,439, Dec. 13, 1991, abandoned. This application Jul. 5, 1994, Ser. No. 270,510
Int. Cl.[6] H01L *21/44*
U.S. Cl. 437—180 **22 Claims**

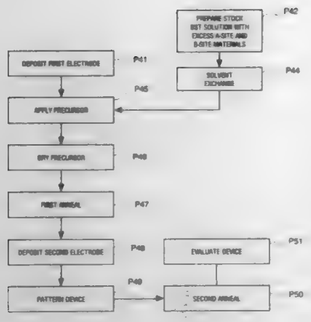
1. A method for fabricating an integrated circuit containing a thin film barium strontium titanate layer having an ABO_3 perovskite formula with a plurality of A-site metals and a plurality of B-site metals, said method comprising the steps of:

providing a liquid precursor comprising barium, strontium, and titanium in proportions defined by a formula

$$ABO_3$$

wherein A includes a mixture of barium and strontium, B is titanium, and O is oxygen, and said liquid precursor additionally

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includes an A' material selected from the group consisting of bismuth, strontium, lead, calcium, lanthanum, and mixtures thereof, and

a B' material selected from the group consisting of zirconium, tantalum, molybdenum, tungsten, niobium, and mixtures thereof,

applying said liquid precursor to a substrate;

treating said liquid precursor on said substrate to form a thin film barium strontium titanate layer including said A' material and said B' material; and

forming an integrated circuit including said thin film barium strontium titanate layer on said substrate.

5,723,362

METHOD OF FORMING INTERCONNECTION

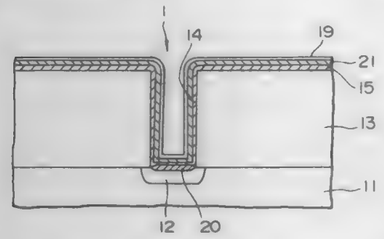
Hajime Inoue, Kanagawa, and Ryuichi Kanamura, Tokyo, both of Japan, assignors to Sony Corporation, Japan

Filed Jul. 9, 1996, Ser. No. 680,541

Claims priority, application Japan, Jul. 21, 1995, 7-185328

Int. Cl.[6] H01L *21/443*

U.S. Cl. 437—190 **8 Claims**



1. A method of forming an interconnection to an impurity diffusion layer previously formed in a specified region of a semiconductor substrate of a semiconductor device, said method comprising the steps of:

forming an opening in an insulating film formed on said semiconductor substrate at a position corresponding to said impurity diffusion layer;

forming a barrier metal layer composed of a Ti film and a TiN film in said opening; and

burying blanket tungsten in said opening, the improvement comprising the steps of:

depositing said Ti film in said opening by sputtering using a sputter system having a collimator plate;

depositing said TiN thin film for preventing oxidation of said Ti film by reactive sputtering using a sputter system having no collimator plate;

forming a titanium silicide layer on a connection portion between said Ti film and said impurity diffusion layer formed in said semiconductor substrate by a first heat-treatment;

converting a surface portion of said Ti film into a TiN film by a second heat-treatment performed in a reactive gas; and

depositing a blanket W film by CVD to be buried in said opening.

5,723,363

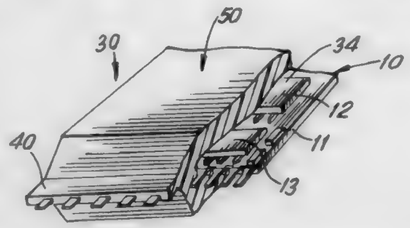
METHOD OF MANUFACTURING A SEMICONDUCTOR DEVICE

Lynn Wiese, Santa Clara, Calif., assignor to Siemens Components, Inc., Cupertino, Calif.

Filed Sep. 29, 1995, Ser. No. 537,062

Int. Cl.[6] H01L *21/60*

U.S. Cl. 437—205 **16 Claims**



1. A method of making asemiconductor device, comprising the steps of:

a. mounting plural optically active components on substrate;

b. encapsulating each optically active component with a radiation-transmissive material to form an optical medium; and

c. encapsulating the substrate with an opaque material disposed around the substrate and each encapsulated optically active component, said opaque material sealing the substrate and the components from the outside environment so that light is not emitted to or received from said outside environment.

5,723,364

METHOD FOR WIRE-BONDING A COVERED WIRE

Osamu Nakamura, Kokubunji, and Kazumasn Sasakura, Musashi Murayama, both of Japan, assignors to Kabushiki Kaisha Shinkawa, Tokyo, Japan

Filed Dec. 5, 1996, Ser. No. 759,230

Claims priority, application Japan, Dec. 5, 1995, 7-344552

Int. Cl.[6] H01L *21/60*

U.S. Cl. 437—209 **2 Claims**

1. A method for wire-bonding a covered wire comprising a process which includes the steps of:

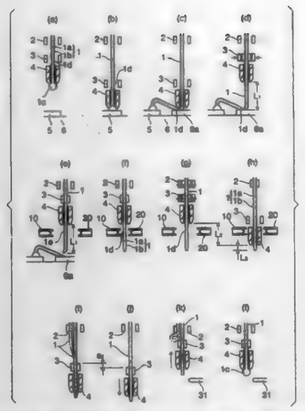
removing a covering-film located at an intended covering-film removal area of the covered wire which extends out from a capillary,

closing a second clamper and opening a first clamper, and lowering the capillary and first clamper so as to bring the covered wire extending out from the tip of the capillary into the interior of the capillary, thus leaving the tip of the covered wire to protrude from the tip of the capillary by only a tail length,

closing the first clamper and opening the second clamper, and raising the capillary and first clamper to a ball formation level, and

forming a ball at the tip of the covered wire;

wherein, after the first clamper is closed and the second clamper is opened in the step of raising the capillary and first clamper to the ball formation level, the capillary and first clamper are lowered so as to pull the covered wire downward, thus preventing the covered wire from sticking to the second clamper,



and then the capillary and first clamper are raised to the ball formation level.

5,723,365

Patent Not Issued For This Number

5,723,366

DRY ETCHING METHOD, METHOD OF FABRICATING SEMICONDUCTOR DEVICE, AND METHOD OF FABRICATING LIQUID CRYSTAL DISPLAY DEVICE

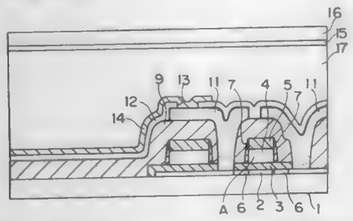
Koji Suzuki; Kaoru Takeda, both of Ogaki; Yoshihiro Morimoto, Inazawa, and Kiyoshi Yoneda, Motosu-gun, all of Japan, assignors to Sanyo Electric Co. Ltd., Moriguchi, Japan

Filed Sep. 28, 1995, Ser. No. 535,449

Claims priority, application Japan, Sep. 28, 1994, 6-233474; Jul. 3, 1995, 7-167514

Int. Cl.[6] H01L *21/465*

U.S. Cl. 437—228 **18 Claims**



18. A method of fabricating a liquid crystal display device, comprising the steps of:

forming a semiconductor switching element, having an electrode part, for driving pixels;

forming an insulating film on said semiconductor switching element;

forming a contact hole in said insulating film for providing electrical continuity with said electrode part of said semiconductor switching element;

forming a transparent electrode film in said contact hole and on said insulating film;

forming a patterned resist film on a portion of said transparent electrode film for patterning said transparent electrode film into the shape of a pixel electrode;

etching a region of said transparent electrode film that is not provided with said resist film by reactive ion etching with a first etching gas; and

changing said first etching gas for a chlorine containing gas being a second etching gas and etching said region of said transparent electrode film into the shape of said pixel electrode by reactive ion etching with said second etching gas.

5,723,367

WIRING FORMING METHOD

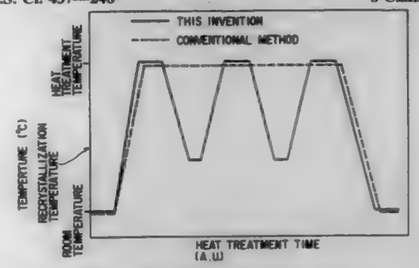
Junichi Wada, and Shohei Shima, both of Yokohama, Japan, assignors to Kabushiki Kaisha Toshiba, Kawasaki, Japan

Continuation of Ser. No. 341,142, Nov. 16, 1994, abandoned. This application Feb. 20, 1996, Ser. No. 603,187

Claims priority, application Japan, Nov. 16, 1993, 5-286987; Jul. 26, 1994, 6-174234; Oct. 31, 1994, 6-267428

Int. Cl.[6] H01L *21/324;* **C23C** *14/34;* **B05D** *5/12*

U.S. Cl. 437—248 **6 Claims**



1. A wiring forming method comprising the steps of:

forming an insulating film on a substrate;

forming a connection hole in the insulating film;

forming a conductive film on the insulating film and in the connection hole, while causing the conductive film to absorb a gas;

heating the substrate to a temperature not driving the gas out of the conductive film and filling the conductive film into the connection hole while maintaining a continuity of the conductive film; and

before or after shaping the conductive film to provide a wiring, heating the substrate to a temperature at which the gas is driven out of the conductive film.

5,723,368

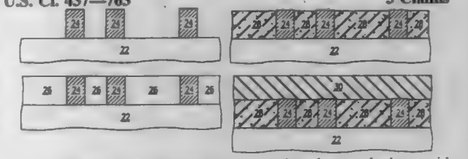
POROUS DIELECTRIC MATERIAL WITH IMPROVED PORE SURFACE PROPERTIES FOR ELECTRONICS APPLICATIONS

Chi-Chen Cho, 2010 N. Cliffe, Richardson, Tex. 75082; Bruce E. Gnade, 12219 Cross Creek, Dallas, Tex. 75243, and Douglas M. Smith, 1412 Marquette Pl. NE., Albuquerque, N. Mex. 87106

Continuation of Ser. No. 263,572, Jun. 23, 1994, Pat. No. 5,504,042. This application Jun. 7, 1995, Ser. No. 472,683

Int. Cl.[6] H01L *21/316*

U.S. Cl. 437—763 **5 Claims**



1. A method of constructing a semiconductor device, said method comprising:

providing a substrate containing an uncapped porous dielectric layer having a first thickness and having a porosity greater than 50% and an average pore diameter between 2 and 80 nm; and

heating said substrate to one or more temperatures between 100° C. and 450° C. in an atmosphere comprising at least one

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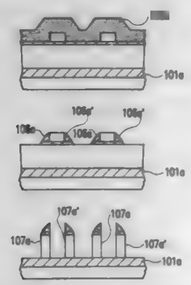
fluorine compound, thereby at least partially fluorinating pore surfaces in said porous dielectric while reducing said first thickness by less than 5%;
whereby said porous dielectric is rendered both hydrophobic and oleophobic.

5,723,369
METHOD OF FLIP CHIP ASSEMBLY
Ivor G. Barber, San Jose, Calif., assignor to LSI Logic Corporation, Milpitas, Calif.
Filed Mar. 14, 1996, Ser. No. 615,865
Int. Cl.[6] H01L *21/44;21/48*
U.S. Cl. 438—106 **12 Claims**



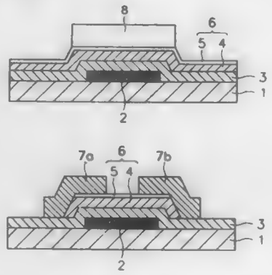
1. A method of assembling a flip chip in a package comprising:
coating the back of the flip chip with a heat conductive adhesive material,
attaching a heat conductive substrate to the heat conductive material,
mounting the flip chip to a package substrate using solder bumps attached between the front of the flip chip and the package substrate, there being a space left between the flip chip and the package substrate,
under filling the space between the flip chip and the package substrate with a heat conductive media,
encapsulating the flip chip against the package substrate with a peripheral mold such that at least a portion of the conductive substrate remains exposed, and
attaching electrical connectors to the package substrate, to form the package.

5,723,370
FET AND/OR BIPOLAR DEVICES FORMED IN THIN VERTICAL SILICON ON INSULATOR (SOI) STRUCTURES
Tak Hung Ning, and Ben Song Wu, both of Yorktown Heights, N.Y., assignors to International Business Machines Corporation, Armonk, N.Y.
Division of Ser. No. 368,069, Jan. 13, 1995, Pat. No. 5,581,101. This application Sep. 12, 1996, Ser. No. 713,061
Int. Cl.[6] H01L *21/84*
U.S. Cl. 438—156 **10 Claims**



1. In a method for fabricating integrated circuit in a silicon wafer having vertical semiconductor devices said method comprising:
forming at least one mandrel on the surface of a silicon body;
applying a conformal barrier coating over said mandrel;
anisotropic etching said conformal coating to the surface of the mandrel leaving the conformal coating at sidewalls of the mandrel;
anisotropic etching said silicon body, using each of the conformal coating sidewalls as an etch barrier, to form vertical silicon sidewalls each having at least one vertical exposed face and a top and bottom surface;
forming impurity regions in said vertical silicon sidewalls to create semiconductor devices;
forming interconnections between said impurity regions of said semiconductor devices; and
isolating said semiconductor devices from each other, insulating the bottom surface of said silicon sidewalls from the silicon body.

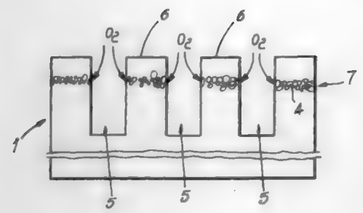
5,723,371
METHOD FOR FABRICATING A THIN FILM TRANSISTOR HAVING A TAPER-ETCHED SEMICONDUCTOR FILM
Young-Kap Seo; Chi-Woo Kim, and Ho-Chul Kang, all of Yongin-gun, Rep. of Korea, assignors to Samsung Electronics Co., Ltd., Suwon, Rep. of Korea
Filed Aug. 23, 1995, Ser. No. 517,878
Int. Cl.[6] H01L *21/84*
U.S. Cl. 438—158 **3 Claims**

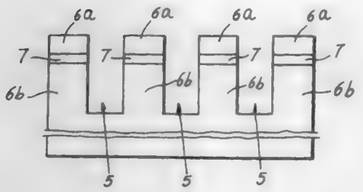


1. A method for fabricating a thin film transistor having a taper-etched semiconductor film comprising:
forming a gate electrode on a bare substrate;
forming an insulating film on the gate electrode;
forming a semiconductor film by forming an amorphous silicon film layer on the insulating film and forming an N^+ amorphous silicon film on the amorphous silicon film layer;
depositing and patterning photoresist on said N^+ amorphous silicon film;
descumming photoresist residue from said semiconductor film using a first gas of O_2 and CF_4; and
taper etching said semiconductor film with the remaining photoresist as a mask using a second gas of HCl and SF_6, to form a slope in the etching profile resulting from overetching.

5,723,372
METHOD AND APPARATUS FOR FORMING BURIED OXIDE LAYERS WITHIN SILICON WAFERS
Salvatore Ugo Campisano, Catania, and Vito Raineri, Mascalucia, both of Italy, assignors to Consorzio per la Ricerca sulla Microelettronica nel Mezzogiorno, Catania, Italy
Filed Sep. 14, 1995, Ser. No. 527,850
Claims priority, application European Pat. Off., Sep. 23, 1994, 94830452
Int. Cl.[6] H01L *21/762*
U.S. Cl. 438—164 **35 Claims**

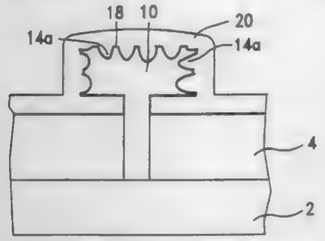
1. A method for forming buried oxide layers within a silicon wafer, the method comprising the steps of:
forming recesses in said silicon wafer;





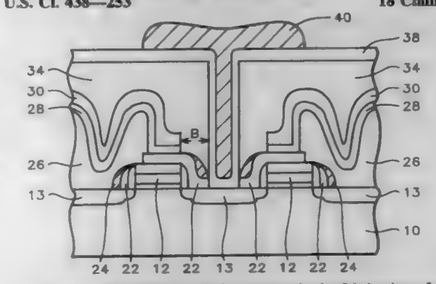
implanting light ions in said silicon wafer, at a depth that is less than a depth of said recesses, to form bubbles of said light ions in said silicon wafer; and
evaporating said light ions through said silicon wafer to leave cavities where said bubbles had been; and
oxidizing said cavities through said recesses to form a buried oxide layer of silicon oxide in said silicon wafer, wherein said recesses are formed before said light ions are implanted.

5,723,373
METHOD OF MAKING POROUS-SI CAPACITORS FOR HIGH DENSITY DRAMS CELL
Yih-Jau Chang, and Shye-Lin Wu, both of Hsinchu, Taiwan, assignors to Powerchip Semiconductor Corp., Hsinchu, Taiwan
Filed Nov. 18, 1996, Ser. No. 746,857
Int. Cl.[6] H01L *21/8242*
U.S. Cl. 438—253 **31 Claims**



1. A method for manufacturing a capacitor on a semiconductor substrate, said method comprising the steps of:
forming a dielectric layer on said semiconductor substrate;
forming a polysilicon layer over said dielectric layer;
patterning a photoresist on said polysilicon layer;
etching said polysilicon layer using said photoresist as a mask;
removing said photoresist;
forming a HSG-Si layer on said polysilicon layer;
etching said polysilicon layer while using said HSG-Si layer as a mask to create a plurality of grooves in said polysilicon layer, residual HSG-Si islands remaining on said polysilicon layer after etching said polysilicon layer;
forming a silicon oxide layer on said polysilicon layer, said residual HSG-Si islands and in said grooves;
etching said silicon oxide layer to expose the top of said residual HSG-Si islands leaving residual silicon oxide in said grooves;
isotropically etching using said residual silicon oxide as a mask to etch said HSG-Si islands and also into said polysilicon layer to thereby form a plurality of holes in said polysilicon layer;
removing said residual silicon oxide;
forming a dielectric film on the surface of said polysilicon layer; and
forming a conductive layer over said dielectric film to formed said capacitor.

5,723,374
METHOD FOR FORMING DIELECTRIC SPACER TO PREVENT POLY STRINGER IN STACKED CAPACITOR DRAM TECHNOLOGY
Julie Huang, and Mong-Song Liang, both of Hsin-Chu, Taiwan, assignors to Taiwan Semiconductor Manufacturing Company, Ltd., Hsin-Chu, Taiwan
Filed Dec. 27, 1996, Ser. No. 775,049
Int. Cl.[6] H01L *21/8242*
U.S. Cl. 438—253 **18 Claims**



1. A method of forming a bit line contact in the fabrication of an integrated circuit device comprising:
depositing a first polysilicon layer on the surface of a semiconductor substrate and patterning said first polysilicon layer to form a gate electrode wherein said bit line contact is to be formed adjacent to said gate electrode;
forming a source/drain region associated with said gate electrode in said semiconductor substrate where said bit line contact is to be formed;
forming first spacers on the sidewalls of said gate electrode;
depositing a first insulating layer over said gate electrode and patterning said first insulating layer wherein said first insulating layer adjacent to said bit line contact has a first slope;
depositing a second insulating layer over said first insulating layer;
anisotropically etching said second insulating layer to leave second spacers on the sidewalls of said first insulating layer wherein said second spacers adjacent to said bit line contact have a second slope smaller than said first slope;
depositing a second polysilicon layer overlying said gate electrode and patterning said second polysilicon layer;
depositing a first dielectric layer over said second polysilicon layer;
depositing a third polysilicon layer overlying said first dielectric layer;
etching away said third polysilicon layer and said first dielectric layer where said bit line contact is to be formed;
depositing a second dielectric layer over said third polysilicon layer;
etching a bit line contact opening through said second dielectric layer and said first insulating layer to said underlying semiconductor substrate wherein said bit line contact opening is separated from said third polysilicon layer by a thickness of said second dielectric layer; and
depositing a fourth polysilicon layer overlying said second dielectric layer and within said contact opening to form said bit line contact contacting said source/drain region in the fabrication of an integrated circuit device.

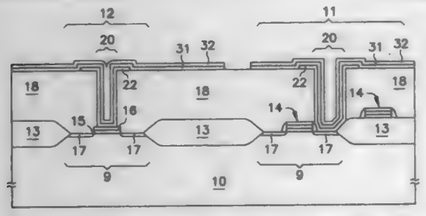
VOL 1208 ISS 1 MR 3 1998 UMI

5,723,375

METHOD OF MAKING EEPROM TRANSISTOR FOR A DRAM

Manny K. F. Ma, and Yauh-Ching Liu, both of Boise, Id., assignors to Micron Technology, Inc., Boise, Id.

Filed Apr. 26, 1996, Ser. No. 639,186
Int. Cl.[6] H01L 21/8247
U.S. Cl. 438—258 12 Claims



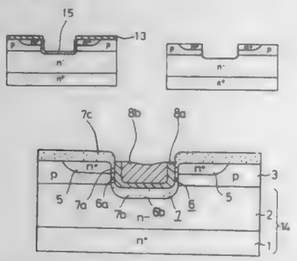
1. A method of forming an electrically reprogrammable integrated circuit transistor, the method comprising the steps of:
forming active regions on a semiconductor substrate;
forming field-effect transistor (FET) source/drain regions in the active regions;
forming FET gate regions in the active regions and extending at least partially outside of the active regions;
forming a first insulating layer on the semiconductor substrate;
forming a buried contact opening through the first insulating layer and over at least a portion of the gate region outside the active region, thereby exposing at least a portion of the underlying gate region;
forming a conductive bottom plate layer within the buried contact opening and on the first insulating layer, thereby physically and electrically contacting the exposed portion of the underlying gate region;
forming a dielectric layer on the conductive bottom plate layer and over the entire substrate; and
forming a conductive top plate layer on the dielectric layer.

5,723,376

METHOD OF MANUFACTURING SIC SEMICONDUCTOR DEVICE HAVING DOUBLE OXIDE FILM FORMATION TO REDUCE FILM DEFECTS

Yuuichi Takeuchi, Chita; Takeshi Miyajima, Kariva; Kazukuni Hara, Obu, and Norihito Tokura, Okazaki, all of Japan, assignors to Nippondenso Co., LTD., Kariya, Japan

Continuation of Ser. No. 468,073, Jun. 6, 1995, abandoned.
This application Nov. 7, 1996, Ser. No. 745,958
Claims priority, application Japan, Jun. 23, 1994, 6-141393
Int. Cl.[6] H01L 21/265;21/44;21/48
U.S. Cl. 438—270 16 Claims



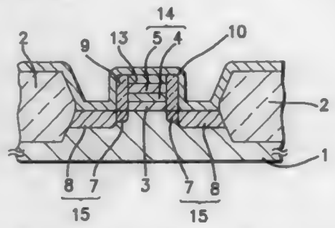
1. A method of manufacturing a silicon carbide semiconductor device comprising the steps of:
forming an epitaxial layer on a silicon carbide semiconductor substrate;
forming a groove having a bottom surface and side surfaces on the surface of said epitaxial layer by means of dry etching;
forming a first thermal oxidation film on said bottom surface and said side surfaces of said groove;
removing said first thermal oxidation film by means of wet etching; and
forming a second thermal oxidation film on said bottom surface and said side surfaces of said groove after said removal of said first thermal oxidation film;
wherein the plane orientation of said semiconductor substrate composed of silicon carbide is one of a (0001) carbon face of a hexagonal system and a {111} carbon face of a cubic system, and wherein the plane orientation of said bottom surface of said groove in said step of forming a groove is substantially the same as that of said semiconductor substrate; and
said second thermal oxidation film comprises a side surface oxidation film formed on said side surfaces of said groove and a bottom surface oxidation film having a thickness thicker than that of said side surface oxidation film and formed on said bottom surface of said groove.

5,723,377

PROCESS FOR MANUFACTURING A SEMICONDUCTOR DEVICE INCLUDING A SILICIDATION STEP

Kouji Torii, Tokyo, Japan, assignor to NEC Corporation, Tokyo, Japan

Filed Jun. 11, 1996, Ser. No. 660,571
Claims priority, application Japan, Jun. 13, 1995, 7-146185
Int. Cl.[6] H01L 21/336
U.S. Cl. 438—303 11 Claims



1. A method for manufacturing a semiconductor device comprising the steps of:
forming a first insulating film on a semiconductor substrate;
forming a first conductive film on said first film;
forming a first silicide film on said first conductive film;
forming a second insulating film on said first silicide film;
forming a gate electrode by etching said first conductive film, first silicide film, and second insulating film;
forming source and drain regions by using said gate electrode as an implant mask;
forming a second conductive film on said gate electrode and said source and drain regions;
forming a second silicide film on said source and drain region by heating said second conductive film; and
removing said second conductive film and said second insulating film by using an etchant.

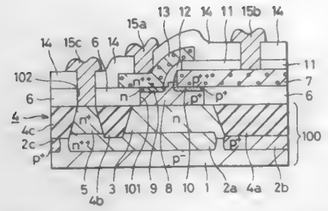
5,723,378

FABRICATION METHOD OF SEMICONDUCTOR DEVICE USING EPITAXIAL GROWTH PROCESS

Fumihiko Sato, Tokyo, Japan, assignor to NEC Corporation, Japan

Filed Mar. 31, 1996, Ser. No. 620,122
Claims priority, application Japan, Mar. 22, 1995, 7-087651
Int. Cl.[6] H01L 21/331
U.S. Cl. 438—309 7 Claims

1. A fabrication method of a semiconductor device, said method comprising the steps of:



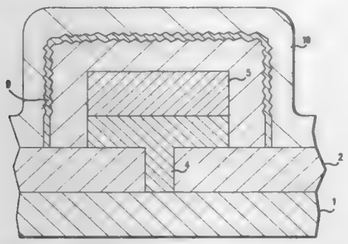
(a) forming a first insulating film on a first single-crystal semiconductor layer of a first conductivity type;
(b) selectively forming a first polycrystalline semiconductor film and a second insulating film on said first insulating film, respectively, said first insulating film being exposed through a first opening formed between opposing ends of said first polycrystalline semiconductor film and said second insulating film;
(c) selectively removing said first insulating film using said first polycrystalline semiconductor film and said second insulating film as a mask, thereby forming a second opening greater in plan size than said first opening;
(d) epitaxially grow a second single-crystal semiconductor layer of said second conductivity type on said first single-crystal semiconductor layer in said second opening;
(e) removing said second insulating film to expose a part of said second single-crystal semiconductor layer; and
(f) forming a third single-crystal semiconductor layer of said first conductivity type in or on said exposed part of said second single-crystal semiconductor layer to thereby produce a p-n junction therebetween;
wherein a thickness of said second single-crystal semiconductor layer is defined by a height of said second opening.

5,723,379

METHOD FOR FABRICATING POLYCRYSTALLINE SILICON HAVING MICRO ROUGHNESS ON THE SURFACE

Hirohito Watanabe, and Toru Tatsumi, both of Tokyo, Japan, assignors to NEC Corporation, Tokyo, Japan

Division of Ser. No. 672,073, Mar. 19, 1991, Pat. No. 5,366,917. This application Jan. 6, 1994, Ser. No. 177,995
Claims priority, application Japan, Mar. 20, 1990, 2-72462; Sep. 19, 1990, 2-249154; Nov. 28, 1990, 2-327069
Int. Cl.[6] H01L 21/205
U.S. Cl. 438—398 22 Claims



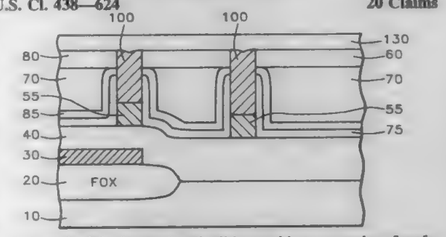
1. A method of fabricating a semiconductor device comprising the steps of:
depositing a silicon layer on a substrate at a transition temperature from an amorphous phase to a polycrystalline phase of silicon, said silicon layer thereby having an uneven surface caused by a plurality of hemispherical silicon grains grown at the surface thereof;
forming a dielectric layer on said uneven surface of said silicon layer with such a thickness that reflects said uneven surface of said silicon layer to a surface of said dielectric layer and with keeping the surface of said silicon layer substantially uneven, said dielectric layer thereby having an uneven surface; and
forming a conductive layer on said dielectric layer, whereby capacitance between said silicon layer and said conductive layer is increased by said uneven surfaces of said layer and said dielectric.

5,723,380

METHOD OF APPROACH TO IMPROVE METAL LITHOGRAPHY AND VIA-PLUG INTEGRATION

Chin-Kun Wang, San-chung, and Lu-Min Liu, Shin-chu, both of Taiwan, assignors to Taiwan Semiconductor Manufacturing Company, Ltd., Hsin-chu, Taiwan

Filed Mar. 25, 1996, Ser. No. 620,730
Int. Cl.[6] H01L 21/4763
U.S. Cl. 438—624 20 Claims



1. A method for improving the lithographic topography of wafer surfaces, and for improving metal deposition and via filling in multilayer metallurgy of submicron IC devices comprising the steps of:
providing a semiconductor substrate having MOS devices formed within and on its surface and with at least one blanket metal layer thereover;
depositing a first oxide coating over said blanket metal layer;
covering said first oxide coating with a first spin-on-glass layer;
performing etch-back of said first spin-on-glass layer;
performing partial etch-back of said first oxide coating;
applying a photo-resist on to the partially etched back first oxide coating surface and patterning said first oxide coating surface to form a mask;
etching the remaining first oxide coating exposed through the mask to form said patterning in said oxide coating and in the underlying said blanket metal layer;
depositing a second oxide coating over said patterning in said underlying blanket metal layer;
covering said second oxide coating with a coating of silicon nitride;
depositing a second spin-on-glass on said coating of silicon nitride;
performing etch-back of said second spin-on-glass layer;
depositing a third oxide coating over said etched back second spin-on-glass layer;
etching via holes reaching the patterned metal layer;
depositing tungsten metal into said via holes; and
depositing second level metal on said semiconductor substrate.

5,723,381

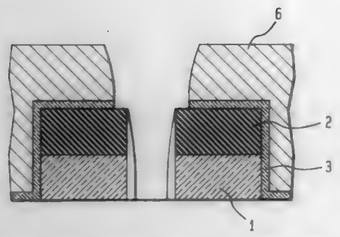
FORMATION OF SELF-ALIGNED OVERLAPPING BITLINE CONTACTS WITH SACRIFICIAL POLYSILICON FILL-IN STUD

Virinder Grewal, Fishkill, and Bernhard Poschenrieder, Poughkeepsie, both of N.Y., assignors to Siemens Aktiengesellschaft, Munich, Germany

Filed Sep. 27, 1995, Ser. No. 534,776
Int. Cl.[6] H01L 21/4763
U.S. Cl. 438—633 17 Claims

1. A method of forming a semiconductor device, comprising steps of:

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depositing a spacer dielectric film over a gate material;
depositing a sacrificial polysilicon film over said spacer dielectric film;
patterning said polysilicon film;
depositing an oxide on said polysilicon film;
planarizing said oxide by chemical mechanical polishing (CMP); and
removing said polysilicon film by isotropic etching to form said semiconductor device.

5,723,382

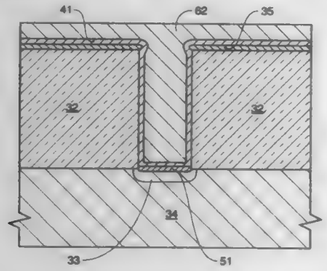
METHOD OF MAKING A LOW-RESISTANCE CONTACT TO SILICON HAVING A TITANIUM SILICIDE INTERFACE, AN AMORPHOUS TITANIUM NITRIDE BARRIER LAYER AND A CONDUCTIVE PLUG

Gurtej S. Sandhu, 2566 Waterbury La., Boise, Id. 83706; Trung T. Doan, 1574 Shenandoah Dr., and Tyler A. Lowrey, 2599 E. Plateau, both of Boise, Id. 83712

Division of Ser. No. 290,650, Aug. 15, 1994, abandoned, which is a continuation-in-part of Ser. No. 228,795, Apr. 15, 1994, abandoned, which is a continuation of Ser. No. 898,059, Jun. 12, 1992, abandoned. This application Jul. 31, 1995, Ser. No. 509,708

Int. Cl.[6] H01L *21/44*

U.S. Cl. 438—653 **10 Claims**



1. A process for fabricating a low-resistance contact structure in an integrated semiconductor circuit which comprises the steps of:
(a) providing a silicon region on an upper surface of a semiconductor wafer to which electrical contact must be made;
(b) depositing a dielectric layer which overlies the silicon region;
(c) etching a contact opening through said dielectric layer, said opening terminating at and exposing a portion of said silicon region;
(d) depositing a titanium metal layer within the contact opening in order to cover the portion of the silicon region exposed by the contact opening;
(e) depositing a amorphous titanium carbonitride film which lines the entire contact opening and overlies the titanium metal layer which covers the portion of the silicon region exposed by the contact opening; and
(f) at least partially filling a remaining void within the contact opening with a conductive material.

5,723,383

SEMICONDUCTOR SUBSTRATE TREATMENT METHOD

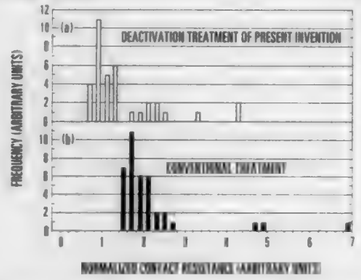
Toshihiko Kosugi; Hiromu Ishii, and Yoshinobu Arita, all of Kanagawa, Japan, assignors to Nippon Telegraph and Telephone Corporation, Japan

Filed Mar. 17, 1995, Ser. No. 407,416

Claims priority, application Japan, Mar. 25, 1994, 6-077927; Oct. 17, 1994, 6-250855

Int. Cl.[6] H01L *21/00*

U.S. Cl. 438—719 **12 Claims**



1. A semiconductor substrate treatment method comprising the steps of:
in one of a silicon semiconductor substrate and a polysilicon semiconductor substrate, said substrate having a top surface, wherein said substrate is doped, electrically deactivating a portion of a dopant of said semiconductor substrate by exposing said semiconductor substrate to a plasma atmosphere in which a gas containing at least hydrogen atoms is excited;
after the step of electrically deactivating a portion of said dopant, treating said substrate surface, wherein said step of treating said substrate surface includes one of the steps of cleaning said substrate surface, etching said substrate surface, and forming a conductive layer on said substrate surface; and
electrically activating said dopant by heating said substrate.

5,723,384

METHOD FOR MANUFACTURING A CAPACITOR IN A SEMICONDUCTOR DEVICE USING SELECTIVE TUNGSTEN NITRIDE THIN FILM

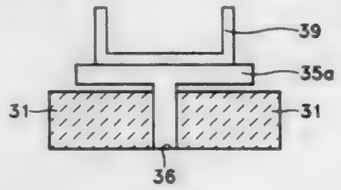
Byung-lyul Park; Jung-min Ha, both of Seoul; Dae-hong Ko, and Sang-in Lee, both of Kyungki-do, all of Rep. of Korea, assignors to Samsung Electronics Co., Ltd., Suwon, Rep. of Korea

Filed Sep. 13, 1996, Ser. No. 713,944

Claims priority, application Rep. of Korea, Nov. 3, 1995, ~~95-39660~~

Int. Cl.[6] H01L *27/108;21/8242;27/04;21/822*

U.S. Cl. 438—756 **18 Claims**



1. A method of manufacturing a capacitor in a semiconductor device, comprising the steps of;
sequentially forming a first insulating layer and a second insulating layer over a semiconductor substrate;
patterning the first insulating layer and the second insulating layer to form a first contact hole exposing a portion of the semiconductor substrate;

forming a first conductive layer over the second insulating layer to fill the first contact hole and electrically contact the exposed portion of the semiconductor substrate;
patterning the first conductive layer to form a lower portion of a first capacitor electrode;
forming a third insulating layer over the lower portion of the first capacitor electrode;
patterning the third insulating layer to form a second contact hole exposing a portion of the lower portion of the first capacitor electrode, the second contact hole being surrounded by residual portions of the third insulating layer;
forming an upper portion of the first capacitor electrode on the exposed portion of the lower portion of the first capacitor electrode by selectively forming a second conductive layer pattern on bottom and side wall surfaces of the second contact hole;
removing the residual portions of the third insulating layer;
removing the second insulating layer to form an undercut beneath the lower portion of the first capacitor electrode;
forming a dielectric film over the first capacitor electrode; and,
forming a second electrode over the dielectric film.

5,723,385

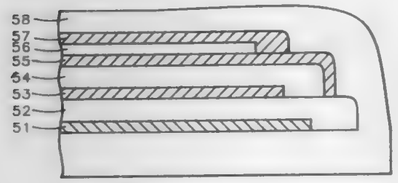
WAFER EDGE SEAL RING STRUCTURE

Chih-Heng Shen, Hsin-Chu, and Hui-Tzu Lin, Taichung, both of Taiwan, assignors to Taiwan Semiconductor Manufacturing Company, Ltd, Hsin-Chu, Taiwan

Filed Dec. 16, 1996, Ser. No. 767,007

Int. Cl.[6] H01L *21/4763;23/02;23/29;23/31*

U.S. Cl. 438—763 **24 Claims**



1. A method for providing a wafer edge seal ring structure, comprising the steps of:
providing a substrate;
depositing PolySi layer on said substrate;
forming a circumferential recess in said PolySi layer;
depositing a first interlevel dielectric layer on said PolySi layer;
forming a circumferential recess in said first level dielectric layer;
depositing a first metal layer on said first interlevel layer;
forming a circumferential recess in said first metal layer;
depositing a second interlevel dielectric layer on said first metal layer;
forming a circumferential recess in said second interlevel dielectric layer;
depositing a second metal layer on said second interlevel dielectric layer;
forming a circumferential recess in said second metal layer;
depositing a third interlevel dielectric layer on said second metal layer;
forming a circumferential recess in said third interlevel dielectric layer;
depositing a third metal layer on said third interlevel dielectric layer;
forming a circumferential recess in said third metal layer; and
depositing a passivation layer.

5,723,386

METHOD OF MANUFACTURING A SEMICONDUCTOR DEVICE CAPABLE OF RAPIDLY FORMING MINUTE WIRINGS WITHOUT ETCHING OF THE MINUTE WIRINGS

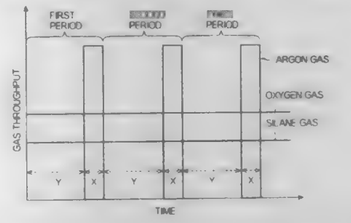
Hiraku Ishikawa, Tokyo, Japan, assignor to NEC Corporation, Tokyo, Japan

Filed Jul. 3, 1996, Ser. No. 674,907

Claims priority, application Japan, Jul. 4, 1995, 7-169097

Int. Cl.[6] H01L *21/00*

U.S. Cl. 438—787 **15 Claims**



1. A method of manufacturing a semiconductor device having a multilayer interconnection structure, wherein silane gas, oxygen gas and argon gas are employed as deposition gases, said method comprising steps of:
forming a silicon oxide film on an electric wiring on a semiconductor substrate by plasma deposition;
said step of forming said silicon oxide film comprising steps of:
providing a first frequency wave of a constant value for producing plasma;
supplying a second frequency wave of a constant value onto said semiconductor substrate; and
periodically supplying said argon gas during a pulse interval and, wherein said argon gas is not supplied during a rest interval.

5,723,387

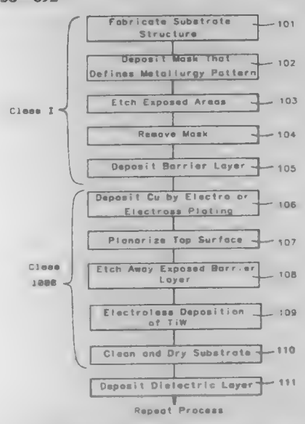
METHOD AND APPARATUS FOR FORMING VERY SMALL SCALE CU INTERCONNECT METALLURGY ON SEMICONDUCTOR SUBSTRATES

Lai-Juh Chen, Hsin-Chu, Taiwan, assignor to Industrial Technology Research Institute, Hsin-Chu, Taiwan

Filed Jul. 22, 1996, Ser. No. 684,714

Int. Cl.[6] H01L *21/00*

U.S. Cl. 438—692 **19 Claims**



6. A process for forming a Cu interconnect metallurgy on a microminiturized integrated circuit substrate comprising;

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forming a first dielectric layer on the top surface of said substrate, in a very clean environment;
depositing, exposing, and developing a mask on said substrate that defines the desired interconnection metallurgy, in a very clean environment;
etching grooves in said first dielectric layer through said mask;
removing said mask;
depositing a thin first layer of a barrier metal;
depositing a thick layer of Cu on the dielectric layer by electro or electroless plating technics, in a less stringent clean environment;
mechanically polishing away the thick Cu layer on the surface of the dielectric layer to expose the surface of the barrier layer, in a less stringent clean environment;
selectively removing the exposed barrier layer, in a less stringent clean environment;
selectively depositing a second thin barrier layer on the surface of the Cu remaining in said grooves, in a less stringent clean environment,
forming a second dielectric layer over the first dielectric layer in a very clean environment, and
repeating the above steps to form an overlying layer of interconnect metallurgy.

5,723,388

PREPREG OF ULTRA-HIGH-MOLECULAR-WEIGHT POLYETHYLENE

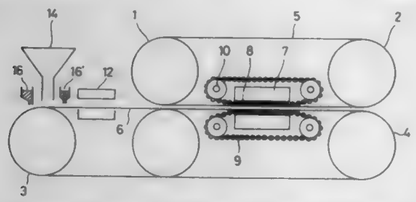
Seizo Kobayashi, Yokohama; Kazutosi Nomiyama, Akishima; Yoshimu Iwanami; Sumio Yoshida, both of Yokohama; Kazuhiko Kurihara, Tokyo, and Hiroshi Yazawa, Kunitachi, all of Japan, assignors to Nippon Oil Co., Ltd.; Nippon Petrochemicals Co., Ltd., and Polymer Processing Research Institute Ltd., all of Tokyo, Japan

Continuation of Ser. No. 354,268, Dec. 12, 1994, Pat. No. 5,612,125, which is a continuation of Ser. No. 886,939, May 22, 1992, abandoned. This application Jan. 7, 1997, Ser. No. 779,841

Claims priority, application Japan, May 27, 1991, 3-121404

Int. Cl.[6] **B29C** *70/50;70/10*

U.S. Cl. 442—170 **19 Claims**



1. A prepreg obtained by stretching a material comprising, as a main component, an ultra-high-molecular-weight polyethylene having an intrinsic viscosity of 5–50 dl/g as measured at 135° C. in decalin, to a total draw ratio of at least 20, subjecting the resulting stretched polyethylene material to a splitting treatment, and impregnating the resulting material with a thermosetting resin.

5,723,389

PROCESS FOR PREPARING ALKANEDIOLS

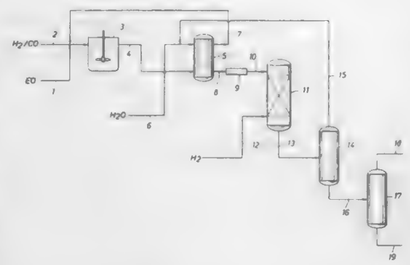
Lynn Henry Slaugh; Paul Richard Weider; Joseph Broun Powell, all of Houston, and Juan Pedro Arhancet, Katy, all of Tex., assignors to Shell Oil Company, Houston, Tex.

Filed Oct. 15, 1996, Ser. No. 729,932

Int. Cl.[6] **C07C** *47/02;27/04;27/00;45/00*

U.S. Cl. 468—862 **19 Claims**

1. A process for preparing an alkanediol comprising the steps of:
(a) contacting, at a temperature within the range of about 50° to about 100° C. and a pressure within the range of about 500 to



about 5000 psig, an ethylene oxide with carbon monoxide and hydrogen in an essentially non-water miscible solvent in the presence of an effective amount of a non-phosphine-ligated cobalt or rhodium catalyst and an effective amount of a cobalt or rhodium porphyrin promoter under reaction conditions effective to produce an intermediate product mixture comprising less than 15 wt % hydroxyaldehyde;
(b) adding an aqueous liquid to said intermediate product mixture and extracting into said aqueous liquid a major portion of the hydroxyaldehyde at a temperature less than about 100° so as to provide an aqueous phase comprising the hydroxyaldehyde in greater concentration than the concentration of hydroxyaldehyde in the intermediate product mixture, and an organic phase comprising at least a portion of the cobalt or rhodium catalyst and at least a portion of the porphyrin promoter;
(c) separating the aqueous phase from the organic phase;
(d) contacting the aqueous phase comprising the hydroxyaldehyde with hydrogen in the presence of a hydrogenation catalyst at a pressure of at least about 100 psig and a temperature during at least a portion of the hydrogenation step of at least about 40° C. to provide a hydrogenation product mixture comprising an alkanediol; and
(e) recovering the alkanediol from the hydrogenation product mixture.

5,723,390

GLASS HAVING LOW SOLAR RADIATION AND ULTRAVIOLET RAY TRANSMITTANCE

Takashi Kijima; Toru Kudo; Mizuki Ito; Fumio Kamei, and Akira Kondo, all of Yokohama, Japan, assignors to Asahi Glass Company Ltd., Tokyo, Japan

Continuation of Ser. No. 393,581, Feb. 10, 1995, abandoned. This application Feb. 12, 1996, Ser. No. 600,028

Claims priority, application Japan, Oct. 26, 1994, 6-262866

Int. Cl.[6] **C03C** *3/087*

U.S. Cl. 501—70 **9 Claims**

1. Glass having a green color and reduced transmittance of solar radiation and ultraviolet rays, said glass comprising a soda lime-silica glass containing from 0.52 to 0.67 wt % of total iron calculated as Fe_2O_3, from 0.2 to 0.6 wt % of TiO_2 and from 0.8 to 2.0 wt % of total cerium calculated as CeO_2, wherein the weight of FeO calculated as Fe_2O_3 is from 28 to 38% of the weight of the total iron calculated as Fe_2O_3, said glass having a dominant wavelength of from 500 to 540 nm, a visible light transmittance of at least 70% as measured using light source A at a point having a thickness in the range 1.7 to 5 mm, a solar radiation transmittance of not higher than 52%, as measured in accordance with JIS R3106, and an ultraviolet ray transmittance of not higher than 10%, as measured in accordance with ISO 9050, in terms of thickness of 3.5 mm.

5,723,391

SILICON CARBIDE GEMSTONES

Charles Eric Hunter, Raleigh, and Dirk Verbiest, Carrboro, both of N.C., assignors to C3, Inc., Morrisville, N.C.

Division of Ser. No. 521,635, Aug. 31, 1995. This application Oct. 30, 1996, Ser. No. 739,784

Int. Cl.[6] **C30B** *29/36;* **C04B** *35/565*

U.S. Cl. 501—86 **17 Claims**

1. A finished synthetic silicon carbide gemstone comprising a single crystal of synthetic silicon carbide having facets polished to a degree sufficient to permit the introduction of light into the gemstone for internal reflection from inside the gemstone.

5,723,392

IN-SITU GROWN WHISKER REINFORCED CERAMICS

Andre Ezis, and C. James Shih, both of Vista, Calif., assignors to Cercom, Inc., Vista, Calif.

Filed Jun. 23, 1994, Ser. No. 264,330

Int. Cl.[6] **C04B** *35/577*

U.S. Cl. 501—92 **5 Claims**

1. A Silicon Carbide ceramic material having a density greater than 99% of theoretical density and consisting essentially of Silicon Carbide and 1% to 50%, by weight, of uniformly dispersed in-situ Si_3N_4 reinforcements comprising whiskers.

5,723,393

ZIRCONIA CERAMIC ARTICLE

Debasis Majumdar; Dilip K. Chatterjee, and Syamal K. Ghosh, all of Rochester, N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.

Filed Mar. 6, 1997, Ser. No. 812,809

Int. Cl.[6] **C04B** *35/20;35/48*

U.S. Cl. 501—104 **8 Claims**

1. A ceramic article comprising:
magnesium-X silicate, wherein X represents lithium, sodium or potassium from about 0.1 to 2 weight percent;
yttria stabilized zirconia from about 99.9 to 98 weight percent wherein the yttria stabilized zirconia has a molar ratio of yttria to zirconia of from 0.5:99:5 to 5:95.

5,723,394

REFRACTORY CERAMIC MASS AND ITS USE

Harald Harmuth, Villach; Roland Heindl, and Josef Deutsch, both of Leoben, all of Austria, assignors to Veitsch-Radex Aktiengesellschaft Fur Feuerfeste Erzeugnisse, Vienna, Austria

Continuation of Ser. No. 385,050, Feb. 7, 1995, Pat. No. 5,569,631. This application Sep. 17, 1996, Ser. No. 715,165

Claims priority, application Germany, Feb. 8, 1994, 44 03 869.0

Int. Cl.[6] **C04B** *35/04*

U.S. Cl. 501—112 **13 Claims**

1. Refractory ceramic mass, comprising a mixture of:
a) 50 to 97 wt. % of sintered MgO and
b) 3 to 50 wt. % of a sintered spinel of hercynite (Mg,Fe)$(Fe,Al)_2O_4$.

5,723,395

DIELECTRIC CERAMIC COMPOSITION, ITS PREPARATION METHOD, MULTILAYER CHIP CAPACITOR, DIELECTRIC FILTER, AND ELECTRONIC PARTS

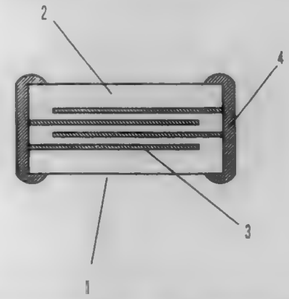
Takashi Suzuki, Akita; Tomoaki Kawata, Chiba; Kunihiko Kawasaki, Akita, and Masako Nitta, Ibaraki, all of Japan, assignors to TDK Corporation, Tokyo, Japan

Filed Jun. 28, 1996, Ser. No. 672,330

Claims priority, application Japan, Jun. 30, 1995, 7-165912

Int. Cl.[6] **C04B** *35/46*

U.S. Cl. 501—134 **10 Claims**



1. A dielectric ceramic composition comprising 40 to 90 mol % of TiO_2 and 60 to 10 mol % of ZnO as a main component and B_2O_3 and/or a B_2O_3-containing vitreous component as an auxiliary component in an amount of 0.1 to 6% by weight calculated as B_2O_3 and based on the weight of said main component.

5,723,396

DIELECTRIC COMPOSITION FOR HIGH FREQUENCIES

Eiichirou Hirose; Yoshinori Shinohara, and Shinji Sakai, all of Saitama-ken, Japan, assignors to Mitsubishi Materials Corporation, Tokyo, Japan

Filed Nov. 8, 1996, Ser. No. 745,770

Claims priority, application Japan, Nov. 10, 1995, 7-292750; Feb. 19, 1996, 8-030647; Mar. 28, 1996, 8-074230; Apr. 24, 1996, 8-102431

Int. Cl.[6] **C03C** *14/00;* **C04B** *35/495*

U.S. Cl. 501—135 **18 Claims**

1. A dielectric composition for high frequencies, which comprises a ceramic component comprising $Sr_x(Ni_{1/3}Nb_{2/3})_yO_3$ (wherein x/y=0.96–1.06), and 0.1–50% by weight of glass added thereto.

5,723,397

MOLECULAR SIEVE LAYERS AND PROCESSES FOR THEIR MANUFACTURE

Johannes Petrus Verduijn, Bertem, Belgium, assignor to Exxon Chemical Patents Inc., Houston, Tex.

PCT No. PCT/GB94/00878, § 371 Date Feb. 12, 1996, § 102(e) Date Feb. 12, 1996, PCT Pub. No. WO94/25152, PCT Pub. Date Nov. 10, 1994

PCT Filed Apr. 25, 1994, Ser. No. 535,169

Claims priority, application European Pat. Off., Apr. 23, 1993, 93303187

Int. Cl.[6] **B01J** *20/28*

U.S. Cl. 502—4 **19 Claims**

1. A process for the manufacture of a layer comprising a crystalline molecular sieve on a support comprising:
a) preparing a synthesis mixture comprising a source of silica and an organic structure-directing agent;
b) immersing said support in said synthesis mixture;

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c) heating said synthesis mixture containing said immersed support to an initial temperature of at least 70° C. and maintaining said synthesis mixture at said initial temperature for a period of crystallization time sufficient to deposit zeolite crystals onto said support; and

d) further heating said synthesis mixture containing said immersed support to a second temperature higher than said initial temperature for a period of crystallization time sufficient to deposit additional zeolite crystals onto said support and to form said layer.

5,723,398

HOMOGENEOUS, STABILIZED, REDUCED METAL ADDITION POLYMERIZATION CATALYSTS, PROCESS FOR PREPARATION AND METHOD OF USE

Robert K. Rosen, Sugar Land, Tex.; Peter N. Nickias, Midland, Mich.; David D. Devore, Midland, Mich.; James C. Stevens, Midland, Mich., and Francis J. Timmers, Midland, Mich., assignors to The Dow Chemical Company, Midland, Mich.

Division of Ser. No. 294,469, Aug. 23, 1994, Pat. No. 5,494,874, which is a division of Ser. No. 8,003, Jan. 21, 1993, Pat. No. 5,374,696, which is a continuation-in-part of Ser. No. 941,014, Sep. 4, 1992, abandoned, which is a continuation-in-part of Ser. No. 857,886, Mar. 26, 1992, abandoned. This application Jul. 6, 1995, Ser. No. 498,964

Int. Cl.[6] **B01J** *31/00;37/00;* **C08F** *4/02;4/60*

U.S. Cl. 502—103 **7 Claims**

1. An addition polymerization catalyst comprising in combination:

a metal complex corresponding to the formula:

$$Cp_2ML_n$$

wherein

Cp independently each occurrence is a cyclopentadienyl group, or a hydrocarbyl, silyl, halo, halohydrocarbyl, hydrocarbylmetalloid or halohydrocarbylmetalloid substituted derivative of said cyclopentadienyl group, said Cp group containing up to 50 nonhydrogen atoms, and optionally both Cp groups may be joined together by a bridging group;

M is a metal of Group 4 of the periodic Table of the Elements in the $^{+3}$ oxidation state;

L is a monovalent anionic ligand selected from the group consisting of: alkyl, cycloalkyl, aryl, silyl, amido, phosphido, alkoxy, aryloxy, sulfido groups and mixtures thereof, and being further substituted with an amine, phosphine, ether, or thioether-containing substituent able to form a coordinate-covalent bond or chelating bond with M; said ligand having up to 50 nonhydrogen atoms;

and an activating cocatalyst.

5,723,399

ETHYLENIC POLYMERIZATION CATALYST

Yasunori Takemoto; Takashi Monoi; Shintaro Inazawa, and Shinya Waki, all of Oita, Japan, assignors to Showa Denko K.K., Tokyo, Japan

Filed Sep. 13, 1996, Ser. No. 712,669

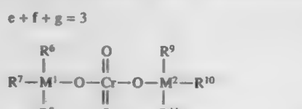
Claims priority, application Japan, Sep. 14, 1995, 7-237250

Int. Cl.[6] **C08F** *4/22*

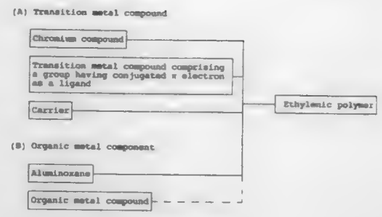
U.S. Cl. 502—113 **6 Claims**

1. An ethylenic polymerization catalyst comprising

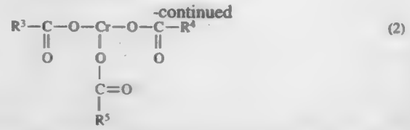
(A) a chromium compound selected from the group consisting of compounds of formulae (1) to (6):



(1)



-continued



(2)

wherein in formulas (1) and (2) R^1, R^2, R^3, R^4 and R^5 may be the same or different and each represents a hydrogen atom or a $C_{1\text{-}18}$ hydrocarbon group;

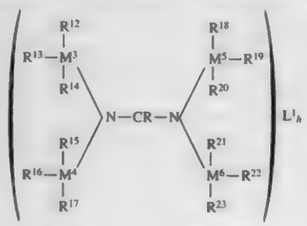
$$CrY_eZ^1_fZ^2_g \qquad (3)$$

wherein in formula (3) Y represents a 1,3-diketo chelate ligand; Z^1 and Z^2 may be the same or different; each is selected from the group consisting of a halogen atom, and e represents a number of from 1 to 3, with the proviso that e, f and g satisfy the relationship:

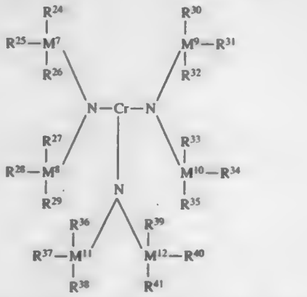
$$e + f + g = 3$$

(4)

wherein in formula (4) R^6, R^7, R^8, R^9, R^{10} and R^{11} may be the same or different and each represents a $C_{1\text{-}18}$ hydrocarbon group; and M^1 and M^2 each represents a carbon atom or a silicon atom;



(5)



(6)

wherein in formulas (5) and (6) R^{12} and R^{41} may be the same or different and each represents a hydrogen atom or a $C_{1\text{-}18}$ hydrocarbon group; M^3 to M^{12} each represent a carbon atom or a silicon atom; L^1 represents a ligand and h represents a number of from 0 to 2,

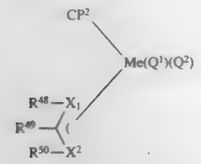
(B) a carrier, (C) aluminoxane, and (D) a transition metal compound comprising a group with a conjugated π electron as a ligand and selected from the group consisting of compounds of formulae (14) to (20):

$$(Cp^2)\,(Cp^3)_uMe(Q^1)_{3-u} \qquad (14)$$

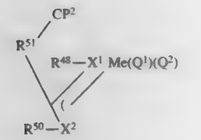
$$R^{51}(Cp^2)\,(Cp^3)Me(Q^1)\,(Q^2) \qquad (15)$$

$$R^{51}(Cp^2)\,(Y)Me(Q^1)\,(Q^2) \qquad (16)$$

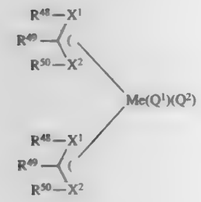
(17)



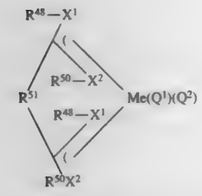
(18)



(19)



(20)



wherein Cp^2 and Cp^3 may be the same or different and each represents a ligand having a cyclopentadienyl skeleton; R^{48} to R^{50} may be the same or different and each represents a hydrogen atom, a $C_{1\text{-}20}$ hydrocarbon group, an alkylsilyl group or an alkylgermyl group; R^{51} represents a $C_{1\text{-}20}$ alkylene group, an alkylgermylene group or an alkylsilylene group; X^1 and X^2 may be the same or different and each represents a carbon atom or a nitrogen atom; Q^1 and Q^2 may be the same or different and each represents a hydrogen atom, a $C_{1\text{-}20}$ hydrocarbon group, an alkoxy group, an aryloxy group, a siloxy group or a halogen atom; Y represents an electron donor ligand represented by —O—, —S—, —NR^{52}— or —PR^{52}—, in which R^{52} represents a hydrogen atom, a $C_{1\text{-}20}$ hydrocarbon group, a halogenated alkyl group or a halogenated aryl group; Me represents a transition metal; and u represents an integer of 0 or 1;

R^{51} represents a $C_{1\text{-}20}$ alkylene group, an alkylgermylene group or an alkylsilylene group;

X^1 and X^2 may be the same or different and each represents a carbon atom or nitrogen atome, Q^1 and Q^2 may be the same or different and each represents a $C_{1\text{-}20}$ hydrocarbon group, a siloxy group or a halogen atom; and Y represents an electron donor ligand represented by —O—, —S—, NR^{52}— or —PR^{52}—; R^{52} represents a $C_{1\text{-}20}$ hydrocarbon group, a halogenated alkyl group or a halogenated aryl group;

wherein said chromium compound (A) is not calcined.

5,723,400.

PROCESS FOR THE PREPARATION OF A SOLID CATALYST COMPONENT SUITABLE FOR THE POLYMERIZATION OF OLEFINS WHICH INCLUDES AT LEAST TWO ADDITIONS OF AN ELECTRON DONOR

Giampiero Morini, Pavia; Enrico Albizzati, Novara; Giulio Balbontin; Giovanni Baruzzi, both of Ferrara, and Antonio Cristofori, Occhiobello, all of Italy, assignors to Montell North America Inc., Wilmington, Del.

Filed Feb. 20, 1996, Ser. No. 603,962

Claims priority, application Italy, Feb. 21, 1995, MI95A0319

Int. Cl.[6] **B01J** *4/60*

U.S. Cl. 502—126 **18 Claims**

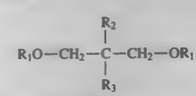
1. A process for the preparation of a solid catalyst component suitable for the polymerization of olefins, comprising

reacting a magnesium halide, or a magnesium halide precursor, with a titanium compound and an electron-donor compound to produce said solid catalyst component, wherein said electron-donor is added in at least two additions in the following order:

a) an addition of said electron-donor to said magnesium halide or magnesium halide precursor prior to or during a reaction of said titanium compound and said magnesium halide or magnesium halide precursor, and then

b) an addition of said electron-donor prior to or during a further reaction of the product of (a) with said titanium compound; and

wherein said electron-donor compound is selected from the group consisting of 1,3-diethers having the formula:



(I)

where R_1, R_2 and R_3, same or different, are C_1–C_{18} linear or branched alkyl, C_3–C_{18} cycloaliphatic, C_6–C_{18} aryl, C_7–C_{18} alkylaryl or C_7–C_{18} aralkyl radicals, and R_2 or R_3 can also be a hydrogen atom; or from cyclopolyenic 1,3-diethers where the carbon atom in position 2 belongs to a cyclic or polycyclic structure containing 5, 6, or 7 carbon atoms, or 5-n or 6-n' carbon atoms and n atoms of nitrogen and n' heteroatoms selected from the group consisting of N, O, S and Si respectively, where n is 1 or 2, and n' is 1, 2 or 3, said structure containing two or three double bonds and optionally being condensed with other cyclic structures, or substituted with one or more substituents selected from the group consisting of linear or branched C_1–C_{20} alkyl, C_3–C_{20} cycloalkyl, C_6–C_{20} aryl, C_7–C_{20} aralkyl, C_7–C_{20} alkylaryl radicals, and halogens or being condensed with other cyclic structures and substituted with one or more of the above mentioned substituents that can also be bonded to the condensed cyclic structures; one or more of the above mentioned alkyl, cycloalkyl, aryl, aralkyl and alkylaryl radicals and the condensed cyclic structures optionally containing one or more heteroatoms as substitutes for the carbon or hydrogen atom, or both.

5,723,401

CATALYST FOR THE CONTACT CONVERSION OF LOWER ALIPHATIC ALCOHOLS TO GASOLINE HYDROCARBONS

Shuji Sakuma; Kiminori Atsumi; Akira Inose, and Hideo Koyama, all of Tokyo, Japan, assignors to Kabushiki Kaisha Sangi, Tokyo, Japan

Division of Ser. No. 227,987, Apr. 15, 1994, Pat. No. 5,545,791, which is a division of Ser. No. 51,784, Apr. 26, 1993, abandoned. This application Aug. 5, 1996, Ser. No. 692,456

Claims priority, application Japan, Apr. 28, 1992, 4-134397; Jul. 24, 1992, 4-217498

Int. Cl.[6] **B01J** *27/18;27/185;27/186;27/187*

U.S. Cl. 502—213 **2 Claims**

1. A catalyst composition for the contact conversion of lower aliphatic alcohols to gasoline hydrocarbons, the catalyst consisting essentially of one or more metals or metal ions selected from the

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group consisting of Ti, Mn, Fe, Co, Cu, Pt, Ir, Rh, Ag, Zn and Sn supported on at least one phosphate based compound selected from the group consisting of a calcium phosphate compound, magnesium phosphate, barium phosphate and zinc phosphate, wherein the metal or metal ion is present in the catalyst composition in an amount of from 0.1 to 50% by weight of the phosphate based compound.

5,723,402

SILICAS WITH SPECIFIC CONTENTS OF CATIONS AS SUPPORTS FOR OLEFIN POLYMERIZATION CATALYSTS

Thomas J. Pullukat, Lansdale; Ronald S. Shinomoto, Schwenksville, both of Pa., and Carl A. Gillings, Wilmington, Del., assignors to PQ Corporation, Valley Forge, Pa.

Filed May 30, 1996, Ser. No. 655,178
Int. Cl.[6] B01J *21/08;21/14*
U.S. Cl. 502—232 **23 Claims**

1. A process of making a silica-supported olefin polymerization catalyst component comprising the steps of:

(a) contacting porous silica having surface hydroxyl groups thereon with an aqueous solution of sodium, potassium, lithium, calcium or magnesium hydroxide at a pH of less than 10.5;

(b) separating the porous silica from the aqueous solution;

(c) washing the separated porous silica with water;

(d) displacing residual water in the porous silica with an organic solvent;

(e) drying the porous silica; and

(f) purging residual organic solvent from the porous silica with nitrogen.

5,723,403

PRODUCTION PROCESS FOR CATALYSTS ON SUPPORTS INCLUDING A CENTRIFUGING STEP FOR THE SUPPORT AFTER COATING

Daniel Durand, Rueil Malmaison; Gil Mabilon, Carrieres Sur Seine, and Isabelle Guibard, Rueil Malmaison, all of France, assignors to Institut Francais Du Petrole, Rueil-Malmaison, France

Filed Jul. 29, 1994, Ser. No. 282,468
Claims priority, application France, Jul. 29, 1993, 93 09482
Int. Cl.[6] B01J *23/02;23/10;23/38*
U.S. Cl. 502—304 **26 Claims**

1. A process for the production of a catalyst, said catalyst comprising a catalytically active phase (A) deposited on a support having an open porosity of 80 to 99.9%, and comprising a monolithic structure or braided or interlocked fibers, said process comprising:

(a) preparing an aqueous suspension containing particles of at least one refractory inorganic oxide and optionally at least a part of a catalytically active phase comprising at least one catalytically active element;

(b) filling at least part of the open porosity of said support with the suspension prepared in (a);

(c) removing excess suspension from the support by axial centrifuging;

(d) thermally treating the support so as to obtain a support coated with a wash coat;

optionally repeating (b), (c) and (d);

(e) impregnating the coated support with a solution containing any remainder of said catalytically active phase; and

(f) thermally activating the coated and impregnated support.

5,723,404

PROCESS FOR THE PRODUCTION OF MIXED OXIDE POWDERS FOR CATALYSTS FOR THE REMOVAL OF NITROGEN OXIDES

Kai Bütje, Duisburg; Jürgen Kischkewitz, Ratingen; Rolf Michael Braun; Udo Holtmann, both of Krefeld, and Peter-Joachim Barenthien, Duisburg, all of Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Germany

Continuation of Ser. No. 263,980, Jun. 22, 1994, abandoned. This application May 16, 1996, Ser. No. 649,924
Claims priority, application Germany, Jun. 29, 1993, 43 21 555.6
Int. Cl.[6] B01J *21/06;101/50*
U.S. Cl. 502—350 **10 Claims**

1. A process for the production of a mixed oxide powder, that contains as chief constituent TiO_2 in the form of anatase and as minor constituents at least one of the catalytically active oxides MnO_3, WO_3, and V_2O_5, suitable for use as a catalyst for the removal of nitrogen oxides, comprising

(a) forming a suspension of titanium oxide hydrate by thermally hydrolyzing a titanyl sulphate solution obtained by digesting titanium-containing raw material with sulphuric acid, oleum or both, filtering the resulting titanium oxide hydrate out of the solution, optionally bleaching it, and then adding it to water to form a titanium dioxide hydrate suspension,

(b) partially neutralizing the suspension from (a) with alkaline liquor to a pH value between 4.0 and 6.0 at a temperature of from 20° to 100° C.,

(c) filtering the partially neutralized suspension to produce a filter cake and intensively washing the filter cake,

(d) adding at least one water-soluble salt of at least one metal selected from the group consisting of Mo, W and V, in solid form, to the filter cake, and

(e) drying the filter cake and calcining it at a temperature between 300° and 750° C.

5,723,405

ADHESIVE FOR LAMINATING THERMAL DYE TRANSFER PRINT

Jacob J. Hastreiter, Jr., Spencerport, and William H. Simpson, Pittsford, both of N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.

Filed Nov. 27, 1996, Ser. No. 757,986
Int. Cl.[6] B41M *5/035;5/38;5/40*
U.S. Cl. 503—227 **10 Claims**

6. A process of laminating a transparent protection sheet on top of a thermal dye transfer image comprising:

(I) imagewise-heating a dye-donor element comprising a support having thereon a dye layer comprising an image dye in a binder, said dye-donor being in contact with a dye-receiving element, thereby transferring a dye image to said dye-receiving element to form said dye transfer image; and

(II) thermally laminating said transparent protection sheet on top of said transferred dye image by means of an adhesive comprising a phenoxy resin.

5,723,406

METHOD FOR CONTROL OF HORTICULTURE DISEASES, AND DECONTAMINATION OF PLANT TISSUE

Rene N. Larose, 69 Butler Dr., Glastonbury, Conn. 06033, and Michael N. Abbot, 49 Oak St., Windsor Locks, Conn. 06096

Filed Jan. 2, 1996, Ser. No. 581,863
Int. Cl.[6] A01N *3/02;37/02;59/00*
U.S. Cl. 504—114 **27 Claims**

1. The method for control of horticulture diseases in living plants and decontamination of living plant tissue which comprises: spraying a solution including but not limited to hydrogen peroxide in the liquid phase to a part of a plant above the root of the plant, said hydrogen peroxide being a solution having a concentration of between 0.05 to 3.00%.

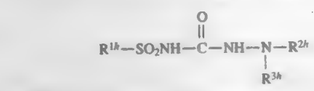
5,723,407

SULFONYLSEMICARBAZIDE DERIVATIVES AND PRESERVATIVE COMPOSITION FOR PRESERVING THE FRESHNESS OF FLOWER OF CUT FLOWERS

Naoki Midou; Kuniomi Matsumoto; Michiaki Iwata, all of Kanagawa-ken; Kunihiko Kurihara, and Kunitaka Tachibana, both of Tokyo, all of Japan, assignors to Meiji Seika Kaisha, Ltd., Tokyo, Japan

PCT No. PCT/JP94/01358, § 371 Date Feb. 13, 1996, § 102(e) Date Feb. 13, 1996, PCT Pub. No. WO95/05362, PCT Pub. Date Feb. 23, 1995
PCT Filed Aug. 16, 1994, Ser. No. 596,292
Claims priority, application Japan, Aug. 16, 1993, 5-202380
Int. Cl.[6] A01N *3/02;* **C07D** *213/16;333/10*
U.S. Cl. 504—115 **11 Claims**

1. A sulfonylsemicarbazide derivative of the general formula (I"), which is a compound having the general formula (I"-h):



(I"-h)

wherein R^{1h} is a pyridine-2-yl group or a pyridine-3-yl group, and R^{2h} and R^{3h} are alkyl groups having 1 to 2 carbon atoms, respectively, or a salt thereof.

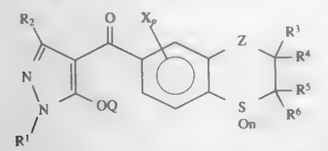
5,723,408

HERBICIDE COMPOSITION COMPRISING 4-(BENZOTHIOPYRAN-6-CARBONYL) PYRAZOLES

Mitsuru Shibata, Sodegaura; Ichiro Nasuno, Ichihara; Kazufumi Nakamura, Chita; Kazuyoshi Koike, Sodegaura, and Misako Yoshikawa, Yotsukaido, all of Japan, assignors to Idemitsu Kosan Co., Ltd., Tokyo, Japan

PCT No. PCT/JP95/01280, § 371 Date Mar. 24, 1997, § 102(e) Date Mar. 24, 1997, PCT Pub. No. WO96/00008, PCT Pub. Date Jan. 4, 1996
PCT Filed Jun. 27, 1995, Ser. No. 750,665
Claims priority, application Japan, Jun. 27, 1994, 6-144773; Sep. 20, 1994, 6-223906; Sep. 27, 1994, 6-230127
Int. Cl.[6] A01N *43/18;43/56*
U.S. Cl. 504—139 **20 Claims**

1. A herbicide composition containing, as active ingredients, a pyrazole derivative of the general formula (I),



(I)

{wherein:

R^1 is a C_1–C_4 alkyl group, a C_2–C_4 alkenyl group or a C_2–C_4 haloalkeny group,

R^2 is a hydrogen atom, a C_1–C_4 alkyl group, a C_1–C_4 haloalkyl group or a C_2–C_4 alkoxyalkyl group,

X is a C_1–C_4 alkyl group, a C_1–C_4 haloalkyl group, a C_2–C_4 alkoxyalkyl group, a halogen atom, a C_1–C_4 alkoxy group or a C_1–C_4 haloalkoxy group,

p is an integer of 0, 1 or 2,

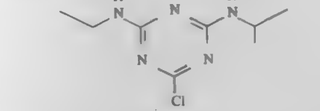
each of R^3, R^4, R^5 and R^6 is independently a hydrogen atom, a C_1–C_4 alkyl group, a C_1–C_4 haloalkyl group or a C_2–C_4 alkoxyalkyl group,

n is an integer of 0, 1 or 2,

Q is a hydrogen atom or a group of A—B,

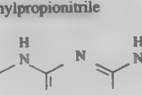
(in which

A is a group of



(in which each of R^7 and R^8 is independently a hydrogen atom or a C_1–C_4 alkyl group), and

B is a C_1–C_{12} alkyl group, a C_3–C_{10} cycloalkyl group or a group of



(in which Y is a C_1–C_4 alkyl group, a C_1–C_4 alkoxy group, a C_1–C_4 haloalkyl group, a nitro group or a halogen atom, and m is an integer of 0 or 1–3)),

and

Z is



(in which

R^9 is a hydrogen atom, a C_1–C_4 alkyl group or a C_1–C_4 haloalkyl group,

R^{10} is a hydrogen atom, a C_1–C_4 alkyl group, a C_2–C_4 alkenyl group or a C_2–C_4 alkynyl group,

R^{11} is a C_1–C_4 alkyl group, a C_1–C_4 haloalkyl group, a C_3–C_6 cycloalkyl group, a C_3–C_6 alkenylalkyl group, a C_3–C_6 alkynylalkyl group or a C_3–C_6 haloalkenylalkyl group,

R^{12} is a C_1–C_4 alkyl group, a C_1–C_4 haloalkyl group, a C_3–C_6 cycloalkyl group, a C_3–C_6 alkenylalkyl group, a C_3–C_6 alkynylalkyl group or a C_3–C_6 haloalkenylalkyl group)},

or a salt thereof; and

at least one herbicide compound selected from the group consisting of

a choroacetamide-based herbicide,

an imidazoline-based herbicide, and

Compound(B-1)

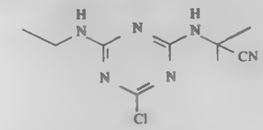
Common name: atrazine

Chemical Name: 6-chloro-N^2-ethyl-N^4-isopropil-1,3,5-triazine-2,4-diamine

Compound(B-2)

Common name: cyanazine

Chemical Name: 2-(4-chloro-6-ethylamino-1,3,5-triazin-2-ylamino)-2-methylpropionitrile

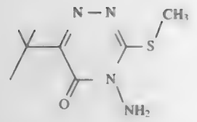


Compound(B-3)

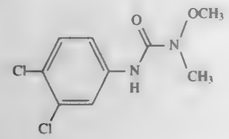
Common name: metribuzin

Chemical Name: 4-amino-6-tert-buthyl-4,5-dihydro-3-methylthio-1,2,4-triazin- 5-one

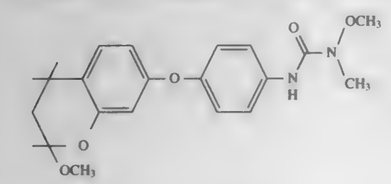
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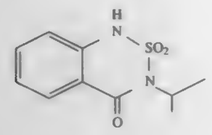
Compound(B-4)
Common name: linuron
Chemical Name: 3-(3,4-dichlorophenyl)-1-methoxy-1-methylurea



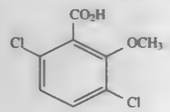
Compound(B-5)
Common name: metobenzurone
Chemical Name: (±)-1-methoxy-3-[4-(2-methoxy-2,4,4-trimethylchroman-7-yloxy)phenyl]-1-methylurea



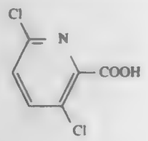
Compound(B-6)
Common name: bentazone
Chemical Name: 3-isopropyl-1H-2,1,3-benzothiadin-4(3H)-one-2,2-dioxide



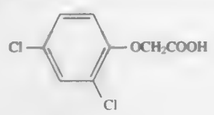
Compound(B-7)
Common name: dicamba
Chemical Name: 3,6-dichloro-2-methoxybenzoic acid



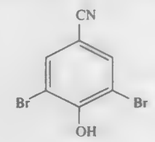
Compound(B-8)
Common name: chlopyralid
Chemical Name: 3,6-dichloropyridine-2-carboxylic acid



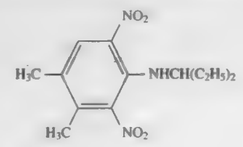
Compound(B-9)
Common name: 2,4-D
Chemical Name: 2-(2,4-dichlorophenoxy)acetic acid



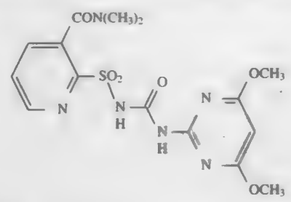
Compound(B-10)
Common name: bromoxynil
Chemical Name: 3,5-dibromo-4-hydroxybenzonitrile



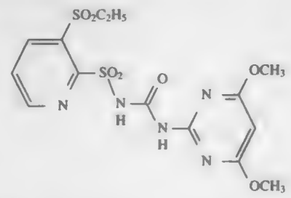
Compound (B -13)
Common name: pendimethalin
Chemical Name: N-(1-ethylpropyl)-2,6-dinitro-3,4-xylidine



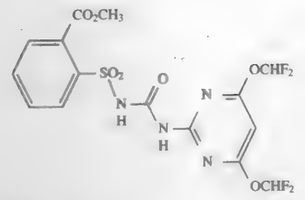
Compound(B-14)
Common name: nicosulfuron
Chemical Name: 2-(4,6-dimethoxypyrimidin-2-ylcarbamoylsulfamoyl)-N,N-dimethylnicotineamide



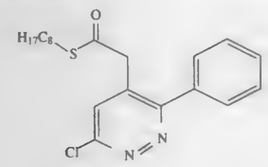
Compound(B-15)
Common name: rimsulfuron
Chemical Name: 1-(4,6-dimethoxypyrimidin-3-(3-ethylsulfonyl-2-pyridylsulfonyl)urea



Compound(B-17)
Common name: primisulfuron
Chemical Name: Methyl 2-[4,6-bis(difluoromethoxy)pyrimidin-2-yl-carbamoylsulfamoyl]benzoic acid



Compound(B-20)
Common name: pyridate
Chemical Name: 6-chloro-3-phenylpyridazin-4-yl-S-octylthiocarbonate



5,723,409

INTERMEDIATES FOR THE PREPARATION OF PHENYLSULFONYLUREA HERBICIDES AND PLANT GROWTH REGULATORS

Gerhard Schnabel, Grosswallstadt; Lothar Willms, Hillscheid; Klaus Bauer, Hanau, and Hermann Bieringer, Eppstein/Taunus, all of Germany, assignors to Hoechst Schering AgrEvo GmbH, Berlin, Germany

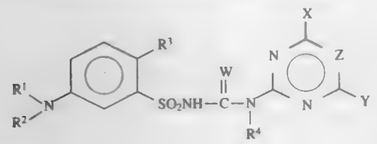
Continuation-in-part of Ser. No. 144,895, Oct. 28, 1993, Pat. No. 5,449,812. This application Apr. 28, 1995, Ser. No. 430,343

Claims priority, application Germany, Oct. 31, 1992, 42 36 902.9

Int. Cl.[6] C07D *239/64;401/12;* **A01N** *43/54*

U.S. Cl. 504—214 **7 Claims**

1. A compound of the formula (I) or a salt thereof



(I)

in which

R^1 is C_1–C_6-alkyl, C_2–C_6-alkenyl, C_2–C_6-alkynyl, the 3 latter radicals independently of one another being unsubstituted or substituted by one or more radicals from the group consisting of halogen, C_1–C_4-alkoxy, $CONH_2$, C_1–C_4-alkylthio, CN, CHO, (C_1–C_6-alkyl)carbonyl, (C_3–C_6-cycloalkyl)carbonyl, C_1–C_4-alkylsulfonyl, carboxyl, (C_1–C_4-alkoxy)carbonyl, (C_2–C_4-alkenyloxy)carbonyl, (C_2–C_4-alkynyloxy)carbonyl, NO_2, NH_2, mono- and di-(C_1–C_6)-alkylamino,

R^2 is CO—R^5, COO—R^5, CO—SR^7, CO—NR^8R^9, CS—$NR^{10}R^{11}$, CS—OR^{12}, CS—SR^{13}, SO_2R^{14}, $SO_2NR^{15}R^{16}$,

R^3 is COR^{17}, CO—OR^{18}, CO—$NR^{19}R^{20}$, CO—SR^{21}, COO—N=$CR^{22}R^{23}$, CSR^{24}, $CSSR^{25}$, CS—OR^{26}, CS—$NR^{27}R^{28}$, C(=NR^{29})R^{30},

R^4 is H, C_1–C_6-alkyl, C_2–C_6-alkenyl, C_2–C_6-alkynyl, the 3 latter radicals independently of one another being unsubstituted or substituted by one or more halogen radicals,

R^5 is H, C_1–C_6-alkyl, C_2–C_6-alkenyl, C_2–C_6-alkynyl, the three latter radicals independently of one another being unsubstituted or substituted by one or more radicals from the group consisting of halogen, C_1–C_4-alkoxy, C_1–C_4-alkylthio and $NR^{31}R^{32}$, or unsubstituted or substituted C_3–C_8-cycloalkyl, unsubstituted or substituted phenyl, pyridyl, pyrimidinyl, pyridazinyl, pyrazinyl, thienyl, thiazolyl, oxazolyl, furyl, pyrrolyl, pyrazolyl or imidazolyl, where each of the eleven last-mentioned radicals is unsubstituted or substituted by one or more radicals from the group consisting of C_1–C_4-alkyl, C_1–C_4-alkoxy and halogen or phenyl-C_1–C_4-alkyl which is unsubstituted or substituted on the phenyl ring.

R^6 is C_1–C_6-alkyl, C_2–C_6-alkenyl, C_2–C_6-alkynyl, the three latter radicals independently of one another being unsubstituted or substituted by one or more radicals from the group consisting of halogen, C_1–C_4-alkoxy, C_1–C_4-alkylthio and $NR^{31}R^{32}$, or C_3–C_6-cycloalkyl which is unsubstituted or substituted by one or more radicals from the group consisting of halogen, C_1–C_4-alkyl and C_1–C_4-alkoxy, or C_3–C_6-cycloalkyl-C_1–C_3-alkyl,

R^7 is selected from the group of radicals as defined in R^6,

R^8 is H, C_1–C_6-alkyl, C_2–C_6-alkenyl, C_2–C_6-alkynyl, the 3 latter radicals independently of one another being unsubstituted or substituted by one or more radicals from the group consisting of halogen, or (C_1–C_6)-alkoxy)carbonyl or C_1–C_4-alkoxy,

R^9 is H, C_1–C_6-alkyl, C_2–C_6-alkenyl, C_2–C_6-alkynyl, the 3 latter radicals independently of one another being unsubstituted or substituted by one or more radicals from the group consisting of halogen, C_1–C_4-alkoxy, C_1–C_4-alkylthio and $NR^{31}R^{32}$, or CO—R^{33}, CO—OR^{34}, CO—$NR^{35}R^{36}$, CS—$NR^{35}R^{36}$, CS—R^{33} or CS—OR^{34}, or

R^8, R^9 taken together are a divalent radical of the formula —$(CH_2)_4$—, —$(CH_2)_5$—, —CH_2CH_2—O—CH_2CH_2—, —$CH_2CH_2NHCH_2CH_2$—, the 4 latter radicals being unsubstituted or substituted by C_1–C_4-alkyl,

R^{10} is selected from the group of radicals as defined in R^8,

R^{11} is selected from the group of radicals as defined in R^9,

R^{12} is selected from the group of radicals as defined in R^6,

R^{13} is selected from the group of radicals as defined in R^6,

R^{14} is C_1–C_6-alkyl, C_2–C_6-alkenyl, C_2–C_6-alkynyl, the three latter radicals independently of one another being unsubstituted or substituted by one or more radicals from the group consisting of halogen, C_1–C_4-alkoxy, C_1–C_4-alkylthio and $NR^{31}R^{32}$,

R^{15} is selected from the group of radicals as defined in R^8,

R^{16} is H, C_1–C_6-alkyl, C_2–C_6-alkenyl, C_2–C_6-alkynyl, the 3 latter radicals independently of one another being unsubstituted or substituted by one or more halogen radicals,

R^{17} is selected from the group of radicals as defined in R^5,

R^{18} is C_1–C_6-alkyl, C_2–C_6-alkenyl, C_2–C_6-alkynyl, the three latter radicals independently of one another being unsubstituted or substituted by one or more radicals from the group consisting of halogen, C_1–C_4-alkoxy, C_1–C_4-alkylthio and $NR^{31}R^{32}$, or C_3–C_6-cycloalkyl which is unsubstituted or substituted by one or more radicals from the group consisting of halogen, C_1–C_4-alkyl and C_1–C_4-alkoxy, or C_3–C_6-cycloalkyl-C_1–C_3-alkyl or H,

R^{19} is selected from the group of radicals as defined in R^8,

R^{20} is selected from the group of radicals as defined in R^9,

R^{21} is selected from the group of radicals as defined in R^{18},

R^{22} is H, C_1–C_4-alkyl, C_3–C_5-alkenyl or C_3–C_5-alkynyl,

R^{23} is H, C_1–C_4-alkyl, C_3–C_5-alkenyl or C_3–C_5-alkynyl,

R^{24} is selected from the group of radicals as defined in R^{17},

R^{25} is selected from the group of radicals as defined in R^{18},

R^{26} is selected from the group of radicals as defined in R^{18},

R^{27} is selected from the group of radicals as defined in R^8,

R^{28} is selected from the group of radicals as defined in R^9,

R^{29} is H, OH, NH_2, NHR^{37}, $N(R^{37})_2$, C_1–C_4-alkyl, C_1–C_4-alkoxy, C_2–C_4-alkenyl or C_2–C_4-alkynyl, the 4 latter radicals independently of one another being unsubstituted or substituted by one or more radicals from the group consisting of halogen, C_1–C_3-alkoxy and C_1–C_3-alkylthio,

R^{30} is H, C_1–C_6-alkyl, C_1–C_6-alkoxy, C_2–C_6-alkenyl, C_2–C_6-alkynyl, the four latter radicals independently of one another being unsubstituted or substituted by one or more radicals from the group consisting of halogen, C_1–C_3-alkoxy and C_1–C_3-alkylthio,

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each
R^{31} independently of the others is H, C_1–C_4-alkyl, (C_1–C_4-alkyl)carbonyl, (C_1–C_4-alkoxy)carbonyl or CHO,
each
R^{32} independently of the others is H or C_1–C_4-alkyl,
R^{33} is selected from the group of radicals as defined in R^5,
R^{34} is selected from the group of radicals as defined in R^6,
R^{35}, R^{36} independently of one another are H, C_1–C_6-alkyl, C_2–C_6-alkenyl, C_2–C_6-alkynyl, the 3 latter radicals independently of one another being unsubstituted or substituted by one or more halogen radicals,
R^{37} is C_1–C_4-alkyl, C_2–C_4-alkenyl or C_2–C_4-alkynyl, the three radicals mentioned, independently of one another, being unsubstituted or substituted by one or more radicals from the group consisting of halogen, C_1–C_6-alkoxy and C_1–C_4-alkylthio,
W is O or S,
X and Y independently of one another are hydrogen, halogen, C_1–C_6-alkyl, C_1–C_6-alkoxy or C_1–C_6-alkylthio, the three latter radicals being unsubstituted or substituted by one or more radicals from the group consisting of halogen, C_1–C_4-alkoxy and C_1–C_4-alkylthio, or mono- or di-(C_1–C_4-alkyl)amino, C_3–C_6-cycloalkyl, C_3–C_5-alkenyl, C_3–C_5-alkenyloxy or C_3–C_5-alkynyloxy, and
Z is CH.

5,723,410

HERBICIDAL PYRROLESULFONYLUREAS

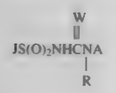
William Thomas Zimmerman, Landenberg, Pa.; Bruce Anthony Lockett, Newark, Del., and John Cuomo, Salt Lake City, Utah, assignors to E. I. du Pont de Nemours and Company, Wilmington, Del.

Division of Ser. No. 527,053, Sep. 12, 1995, Pat. No. 5,585,328, which is a division of Ser. No. 974,581, Feb. 24, 1993, Pat. No. 5,472,933, which is a continuation-in-part of Ser. No. 573,074, Aug. 29, 1990, abandoned. This application Aug. 2, 1996, Ser. No. 691,618

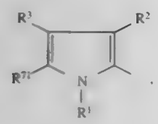
Int. Cl.[6] **C07D** *403/12;* **A01N** *43/54*

U.S. Cl. 504—215 **13 Claims**

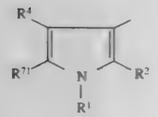
1. Compounds of the formula



wherein:
J is

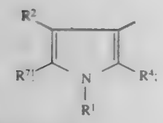


J-1



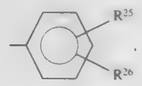
J-2

or

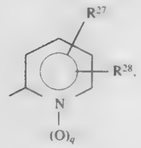


J-3

W is O or S;
R is H or CH_3;
R^1 is H; CH_3; CH_2OCH_3; $CH_2OC_2H_5$; CH_2CN; CH_2SCH_3; $CH_2SC_2H_5$; C_2–C_6 alkyl optionally substituted with one C_1–C_2 alkoxy, C_1–C_2 alkylthio, CN or one or more halogens; C_3–C_4 alkenyl; C_3–C_4 haloalkenyl; C_3–C_6 cycloalkyl; $C(O)R^5$; $N(CH_3)_2$; or Q^1;
R^2 is C_1–C_4 alkyl optionally substituted with one CN, C_2–C_3 alkylcarbonyl, methoxycarbonyl, C_1–C_2 alkoxy, C_1–C_2 alkylthio, C_1–C_2 alkylsulfonyl, $S(O)_2NR^6R^7$, OH or one or more halogens; C_2–C_4 alkenyl optionally substituted with one C_1–C_2 alkoxy, C_1–C_2 alkylthio, CN or one or more halogens; $(CH_2)_mQ^2$; CN; $C(O)R^8$; $C(O)OR^9$; $C(O)NR^{10}R^{11}$; $C(R^{12})$=NOR^{13}; $C(R^{14})(OR^{15})(OR^{16})$; $S(O)_nR^{17}$; $S(O)_2NR^{18}R^{19}$; NO_2; halogen; or OR^{73};
R^3 is H, halogen or C_1–C_4 alkyl;
R^4 is H, C_1–C_4 alkyl optionally substituted with one CN, C_2–C_3 alkylcarbonyl, methoxycarbonyl, C_1–C_2 alkoxy, C_1–C_2 alkylthio, C_1–C_2 alkylsulfonyl, $S(O)_2NR^6R^7$, OH or one or more halogens; C_2–C_4 alkenyl optionally substituted with one C_1–C_2 alkoxy, C_1–C_2 alkylthio, CN or one or more halogens; CN; $C(O)R^8$; $C(O)OR^9$; $C(O)NR^{10}R^{11}$; $C(R^{12})$=NOR^{13}; $S(O)_nR^{17}$; $S(O)_2NR^{18}R^{19}$; or halogen;
R^5 is C_1–C_4 alkyl, C_1–C_4 alkoxy or $NR^{20}R^{21}$;
R^6 is H, C_1–C_2 alkyl or OCH_3;
R^7 is C_1–C_2 alkyl; or
R^6 and R^7 can be taken together as —$(CH_2)_3$— or —$(CH_2)_4$—;
R^8 is H, C_1–C_3 alkyl or cyclopropyl;
R^9 is CH_3; C_2–C_3 alkyl optionally substituted with one C_1–C_2 alkoxy, OH, CN or one or more halogens; C_3–C_4 alkenyl; or propargyl;
R^{10} is H, C_1–C_3 alkyl or OCH_3;
R^{11} is C_1–C_3 alkyl; or
R^{10} and R^{11} can be taken together as —$(CH_2)_3$—, —$(CH_2)_4$—, —$(CH_2)_5$— or —$(CH_2)_2O(CH_2)_2$—;
R^{12} is H, C_1–C_3 alkyl, allyl, halogen, CN, N_3, C_1–C_2 alkoxy, C_1–C_2 alkylthio or SCN;
R^{13} is C_1–C_3 alkyl or allyl;
R^{14} is H or C_1–C_3 alkyl;
R^{15} and R^{16} are independently C_1–C_2 alkyl;
R^{17} is C_1–C_4 alkyl, optionally substituted with one C_1–C_2 alkoxy, C_1–C_2 alkylthio, CN or one or more halogens; C_3–C_4 alkenyl; or cyclopropylmethyl;
R^{18} is H, C_1–C_3 alkyl or OCH_3;
R^{19} is H or C_1–C_2 alkyl; or
R^{18} and R^{19} can be taken together as —$(CH_2)_3$—, —$(CH_2)_4$— or —$(CH_2)_5$—;
R^{20} and R^{21} are independently C_1–C_2 alkyl; or
R^{20} and R^{21} can be taken together as —$(CH_2)_3$—, —$(CH_2)_4$—, —$(CH_2)_5$— or —$(CH_2)_2O(CH_2)_2$—;
R^{71} is H, halogen or CF_3;
R^{73} is C_1–C_4 alkyl optionally substituted with one or more halogens, CN, C_1–C_2 alkoxy, or C_1–C_2 alkylthio; $C(O)R^{74}$; SO_2R^{75}; C_3–C_4 alkenyl; or propargyl;
R^{74} is C_1–C_4 alkyl optionally substituted with C_1–C_2 alkoxy, one or more halogens, or CN; C_3–C_4 alkenyl; or C_1–C_3 alkoxy;
R^{75} is C_1–C_3 alkyl or CF_3;
m is 0 or 1;
n is 0, 1 or 2;
Q^1 is

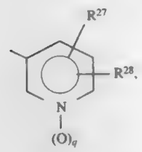


Q^1-1

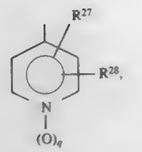


Q^1-2

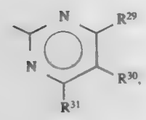
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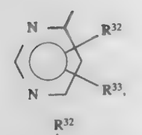
Q^1-3



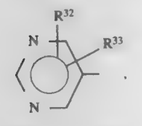
Q^1-4



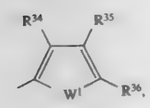
Q^1-5



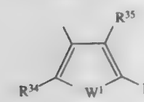
Q^1-6



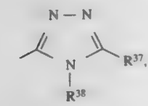
Q^1-7



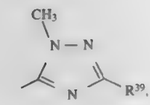
Q^1-8



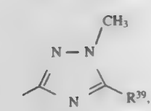
Q^1-9



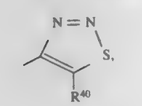
Q^1-10



Q^1-11

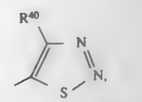


Q^1-12

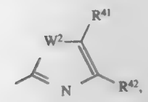


Q^1-13

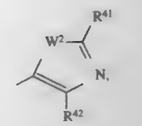
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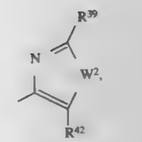
Q^1-14



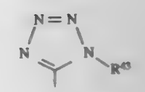
Q^1-15



Q^1-16

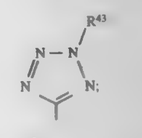


Q^1-17



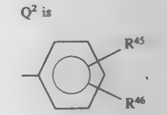
or

Q^1-18

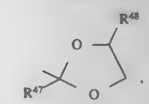


Q^2 is

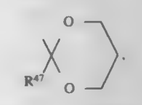
Q^1-19



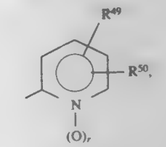
Q^2-1



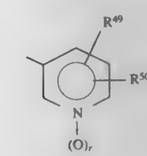
Q^2-2



Q^2-3



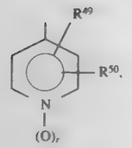
Q^2-4

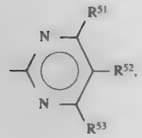


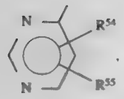
Q^2-5

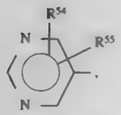
VOL 1208 ISS 1 MR 3 1998 UMI

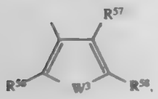
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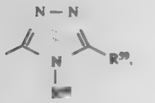


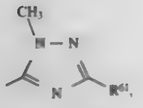


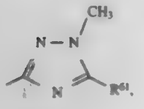


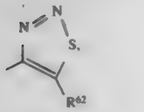


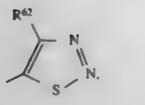




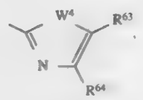




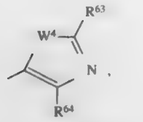




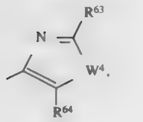
Q²-6



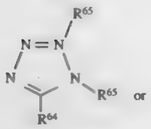
Q²-7



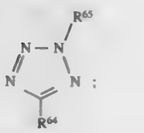
Q²-8



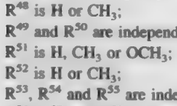
Q²-9



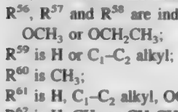
Q²-10



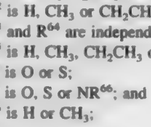
Q²-11



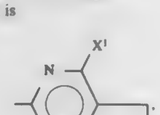
Q²-12



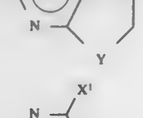
Q²-13



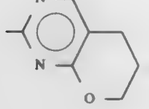
Q²-14



Q²-15



Q²-16



-continued

Q²-17

Q²-18

Q²-19

Q²-20

Q²-21

r is 0 or 1;

R^{45} and R^{46} are independently H, CH_3 or Cl;

R^{47} is H or C_1–C_3 alkyl;

R^{48} is H or CH_3;

R^{49} and R^{50} are independently H or CH_3;

R^{51} is H, CH_3 or OCH_3;

R^{52} is H or CH_3;

R^{53}, R^{54} and R^{55} are independently H, CH_3 or OCH_3;

R^{56}, R^{57} and R^{58} are independently H, CH_3, CH_2CH_3, Cl, Br, OCH_3 or OCH_2CH_3;

R^{59} is H or C_1–C_2 alkyl;

R^{60} is CH_3;

R^{61} is H, C_1–C_2 alkyl, OCH_3 or SCH_3;

R^{62} is H, CH_3 or CH_2CH_3;

R^{63} and R^{64} are independently H or CH_3;

R^{65} is H, CH_3, CH_2CH_3 or C_3H_7;

W^3 is O or S;

W^4 is O, S or NR^{66}; and

R^{66} is H or CH_3;

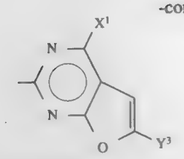
A is

A-2

A-3

-continued

A-4



Y^1 is O or CH_2;

X^1 is CH_3, OCH_3 or OCF_2H;

Y^3 is H or CH_3;

q is 0 or 1;

R^{25} and R^{26} are independently H, CH_3 or Cl;

R^{27} and R^{28} are independently H, F, or CH_3;

R^{29} is H, CH_3 or OCH_3;

R^{30} is H or CH_3;

R^{31}, R^{32} and R^{33} are independently H, CH_3 or OCH_3;

R^{34}, R^{35} and R^{36} are independently H, CH_3, CH_2CH_3, Cl, Br, OCH_3 or OCH_2CH_3;

R^{37} is H or C_1–C_2 alkyl;

R^{38} is CH_3;

R^{39} is H, C_1–C_2 alkyl, OCH_3 or SCH_3;

R^{40} is H, CH_3 or CH_2CH_3;

R^{41} and R^{42} are independently H or CH_3;

R^{43} is H, CH_3, CH_2CH_3 or C_3H_7;

W^1 is O or S;

W^2 is P, S or NR^{44}; and

R^{44} is H or CH_3; and their agriculturally suitable salts; provided that:

(a) when m is zero, Q^2 is bound through carbon to the pyrrole ring in J and

(b) when J is J-1 and R^1 is $C(O)R^5$, then R^2 is other than alkyl.

5,723,411

HERBICIDAL PYRIDAZINONES

Thomas Martin Stevenson, Newark, Del., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del.

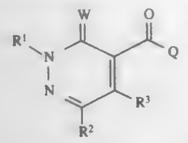
Filed Oct. 16, 1996, Ser. No. 732,001

Int. Cl.[6] A01N *43/58*; C07D *405/10;417/10;237/16*

U.S. Cl. 504—238 4 Claims

1. A compound selected from Formula I, N-oxides and agriculturally-suitable salts thereof,

1

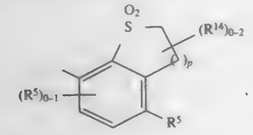


wherein:

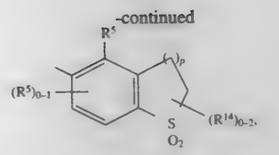
Q is phenyl, substituted with R^4 and optionally substituted with up to three R^5;

provided that, when R^4 and an adjacently attached R^5 are taken together, then Q is selected from the group

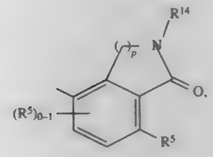
Q-1



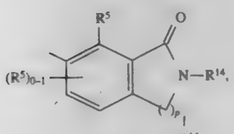
Q-2



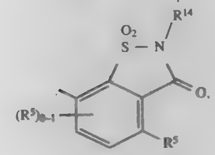
Q-3



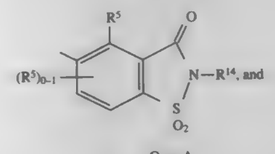
Q-4



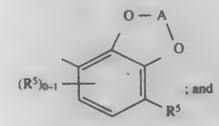
Q-5



Q-6



Q-7



; and

A is —CH_2— or —CH_2—CH_2—, each group optionally substituted with 1–4 halogen;

W is O or S;

R^1 is H, C_1–C_6 alkyl, C_3–C_6 haloalkyl, C_3–C_6 alkenyl, C_3–C_6 haloalkenyl, C_3–C_6 alkynyl, C_3–C_6 haloalkynyl, or C_3–C_6 cycloalkyl;

R^2 is H, C_1–C_3 alkyl, C_1–C_3 haloalkyl, C_1–C_3 alkoxy, halogen, or cyano;

R^3 is OR^6, C_1–C_6 alkylthio, C_1–C_6 haloalkylthio, C_1–C_6 alkylsulfinyl, C_1–C_6 haloalkylsulfinyl, C_1–C_6 alkylsulfonyl, C_1–C_6 haloalkylsulfonyl, mercapto, or halogen;

R^4 is C_1–C_4 alkyl, C_1–C_4 haloalkyl, OR^7, $S(O)_mR^8$, $S(O)_2NR^9R^{10}$, $C(=O)R^8$, $C(=O)OR^8$, $C(=O)NR^9R^{10}$, $NR^{11}R^{12}$, halogen, cyano, or nitro;

each R^5 is independently C_1–C_4 alkyl, C_1–C_4 haloalkyl, OR^7, $S(O)_mR^8$, $S(O)_2NR^9R^{10}$, $C(=O)R^8$, $C(=O)OR^8$, $C(=O)NR^9R^{10}$, $NR^{11}R^{12}$, halogen, cyano, or nitro; or

R^6 is H, C_1–C_6 alkyl, C_1–C_6 haloalkyl, C_2–C_6 alkoxyalkyl, formyl, C_2–C_6 alkylcarbonyl, C_2–C_6 alkoxycarbonyl, C_2–C_6 alkylamino carbonyl, C_3–C_7 dialkylaminocarbonyl, C_1–C_6 alkylsulfonyl, or C_1–C_6 haloalkylsulfonyl; or R^6 is benzoyl or phenylsulfonyl, each optionally substituted with C_1–C_3 alkyl, halogen, cyano, or nitro;

each R^7 is independently C_1–C_4 alkyl, C_1–C_4 haloalkyl, C_3–C_5 cycloalkyl, C_4–C_6 cycloalkylalkyl, C_2–C_6 alkoxyalkyl, C_2–C_5 cyanoalkyl, formyl, C_2–C_5 alkylcarbonyl, C_2–C_5 alkoxycarbonyl, C_1–C_4 alkylsulfonyl, or C_1–C_4 haloalkylsulfonyl;

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each R^8 is independently C_1–C_4 alkyl, C_1–C_4 haloalkyl, C_3–C_5 cycloalkyl, C_4–C_6 cycloalkylalkyl, C_2–C_6 alkoxyalkyl, or C_2–C_5 cyanoalkyl;

each R^9 is independently H, C_1–C_6 alkyl, C_1–C_6 haloalkyl, C_3–C_6 alkenyl, C_3–C_6 haloalkenyl, C_3–C_6 alkynyl, C_3–C_6 haloalkynyl, or C_1–C_6 alkoxy; or R^9 is phenyl or benzyl, each optionally substituted on the phenyl ring with C_1–C_3 alkyl, halogen, cyano, or nitro;

each R^{10} is independently H, C–C_6 alkyl, C_1–C_6 haloalkyl, C_3–C_6 alkenyl, C_3–C_6 haloalkenyl, C_3–C_6 alkynyl, or C_3–C_6 haloalkynyl; or

each pair of R^9 and R^{10}, when attached to the same atom, can independently be taken together as —CH_2CH_2—, —$CH_2CH_2CH_2$—, —$CH_2CH_2CH_2CH_2$—, —$CH_2CH_2CH_2CH_2CH_2$—, or —$CH_2CH_2OCH_2CH_2$—, each group optionally substituted with 1–2 C_1–C_3 alkyl;

each R^{11} is independently H, C_1–C_4 alkyl, C_1–C_4 haloalkyl, C_3–C_5 cycloalkyl, C_4–C_6 cycloalkylalkyl, C_2–C_6 alkoxyalkyl, C_2–C_5 cyanoalkyl, formyl, C_2–C_5 alkylcarbonyl, C_2–C_5 alkoxycarbonyl, C_1–C_4 alkylsulfonyl, or C_1–C_4 haloalkylsulfonyl;

each R^{12} is independently H, C_1–C_6 alkyl, C_1–C_6 haloalkyl, C_3–C_6 alkenyl, C_3–C_6 haloalkenyl, C_3–C_6 alkynyl, C_3–C_6 haloalkynyl, or C_1–C_6 alkoxy; or R^{12} is phenyl or benzyl, each optionally substituted on the phenyl ring with C_1–C_3 alkyl, halogen, cyano, or nitro; or

each pair of R^{11} and R^{12}, when attached to the same atom, can independently be taken together as —CH_2CH_2—, —$CH_2CH_2CH_2$—, —$CH_2CH_2CH_2CH_2$—, —$CH_2CH_2CH_2CH_2CH_2$—, or —$CH_2CH_2OCH_2CH_2$—, each group optionally substituted with 1–2 C_1–C_3 alkyl;

R^{13} is H or C_1–C_4 alkyl;

each R^{14} is independently C_1–C_6 alkyl, C_1–C_6 haloalkyl, C_1–C_6 alkoxy, C_1–C_6 haloalkoxy, C_1–C_6 alkylthio, C_1–C_6 haloalkylthio, hydroxy, or halogen; or two R^{14} bonded to the same carbon atom can be taken together as —OCH_2CH_2O—, —$OCH_2CH_2CH_2O$—, —SCH_2CH_2S—, or —$SCH_2CH_2CH_2S$—, each CH_2 optionally substituted with 1–2 CH_3 or 1–2 halogen; or two R^{14} bonded to the same carbon atom can be taken together with the carbon to which they are attached to form C(=O), C(=S) or C(=N—OR^{15}); provided that when two R^{14}, groups are attached to a carbon atom which is attached to a SO_2 as in Q-1 and Q-2 above then said R^{14} groups are other than taken together as optionally substituted —OCH_2CH_2O—, —$OCH_2CH_2CH_2O$—, —SCH_2CH_2S—, or —$SCH_2CH_2CH_2S$— and no more than one of said R^{14} groups can be C_1–C_6 alkoxy, C_1–C_6 haloalkoxy, C_1–C_6 alkylthio, C_1–C_6 haloalkylthio, or hydroxy;

each R^{15} is independently H, C_1–C_6 alkyl, C_1–C_6 haloalkyl, C_3–C_6 alkenyl, or C_3–C_6 alkynyl;

each m is independently 0, 1, or 2; and

each p is independently 1, 2, or 3.

5,723,412

2-BENZYLOXY-4-PHENOXYPYRIMIDINE DERIVATIVE, PROCESSES FOR PRODUCING THE DERIVATIVE AND HERBICIDAL COMPOSITION CONTAINING THE DERIVATIVE

Hisashi Kanno; Yoshikazu Kubota; Tsutomu Sato, and Masato Arahira, all of Iwaki, Japan, assignors to Kureha Kagaku Kogyo Kabushiki Kaisha, Japan

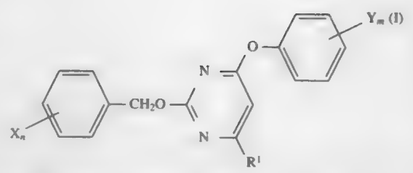
Filed Jul. 13, 1995, Ser. No. 502,208

Claims priority, application Japan, Jul. 15, 1994, 6-186708

Int. Cl.[6] C07D *239/53;* **A01N** *43/54*

U.S. Cl. 504—243 **10 Claims**

1. A 2-benzyloxy-4-phenoxypyrimidine derivative represented by the formula (I):



wherein R^1 represents hydrogen, a halogen, C_1–C_4 alkyl, C_1–C_4 haloalkyl, C_1–C_4 alkoxy, C_1–C_4 haloalkoxy, C_3–C_5 alkenyloxy, C_1–C_4 alkylthio, C_1–C_4 haloalkylthio, cyano, or phenyl;

each X, which may be identical or different if n is greater than 1, represents a halogen, C_1–C_4 alkyl, C_1–C_4 haloalkyl, or C_1–C_4 alkoxy;

each Y, which may be identical or different if m is greater than 1, represents a halogen, C_1–C_4 alkyl, C_1–C_4 haloalkyl, C_1–C_4 alkoxy, C_1–C_4 haloalkoxy, C_1–C_4 alkylthio, or C_1–C_4 haloalkylthio; and

n and m each independently represent an integer of 0 to 5.

5,723,413

SUBSTITUTED NAPHTHYRIDINES AND THEIR HERBICIDAL USE

Matthias Bratz, Speyer; Norbert Meyer, Ladenburg; Hartmann König, Limburgerhof; Helmut Walter, Obrigheim; Matthias Gerber, Limburgerhof, and Karl-Otto Westphalen, Speyer, all of Germany, assignors to BASF Aktiengesellschaft, Ludwigshafen, Germany

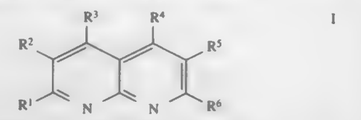
Filed Feb. 22, 1995, Ser. No. 392,474

Claims priority, application Germany, Feb. 23, 1994, 44 05 712.1

Int. Cl.[6] A01N *43/40;* **C07D** *471/04*

U.S. Cl. 504—246 **16 Claims**

1. A substituted naphthyridine of the formula I



where the substituents have the following meanings:

R^1 is

(c) phenyl substituted by one to four substituents selected from the group consisting of C_1–C_8-alkyl, C_2–C_8 -alkenyl, C_2–C_8-alkynyl, C_3–C_8-cycloalkyl, phenyl, C_1–C_5-alkoxy, C_1–C_5-thioalkyl, a five- or six-membered saturated heterocycle, a five- or six-membered aromatic heterocycle, it being a five- or six-membered aromatic heterocycle, it being possible for all the abovementioned substituents in each case to be additionally mono- to trisubstituted themselves, hydroxyl, an OC(O)R^{14} group, amino, an $NR^{15}R^{16}$ group, halogen, cyano, nitro, carboxyl, an R^7SO_2— group, —C(O)R^8, —C(Y)R^9, Y being oxygen or an NR^{13} group, or —C(VR^{10}WR^{11})R^{12}, V and W independently of one another being O or S;

R^7 is C_1–C_8-alkyl, C_3–C_8-cycloalkyl, C_1–C_8-haloalkyl, C_1–C_5-alkoxy, phenyl, naphthyl, aryl(C_1–C_6)-alkyl, heteroaryl, hydroxyl, amino, C_1–C_8-monoalkyl-or C_1–C_8-dialkylamino, C_5–C_8-cycloalkylamino;

R^8 is hydroxyl, amino, C_1–C_8-monoalkyl- or C_1–C_8-dialkylamino, C_5–C_8-cycloalkylamino, C_1–C_6-alkylthlo, C_1–C_8-alkoxy;

R^9 hydrogen, C_1–C_8-alkyl, C_3–C_8-oycloalkyl, C_{1-C8}-haloalkyl, C_1–C_4-alkoxy(C_1–C_6)-alkyl, C_1–C_8-aminoalkyl, phenyl, aryl(C_1–C_6)-alkyl, heteroaryl;

R^{10} and R^{11} are C_1–C_8-alkyl, C_1–C_6-haloalkyl or C_1–C_4-alkoxy(C_1–C_6)-alkyl, or R^{10} and R^{11} together form a di-, tri- or tetramethylene chain which is unsubstituted or substituted by one or two C_1–C_8-alkyl, C_1–C_6-haloalkyl, C_1–C_4-alkoxy(C_1–C_6)-alkyl groups or by an oxo group;

R^{12} is hydrogen, C_1–C_8-alkyl, C_3–C_8-cycloalkyl, C_1–C_8-haloalkyl, C_1–C_4-alkoxy (C_1–C_6)-alkyl, C_1–C_8-aminoalkyl, phenyl, aryl(C_1–C_6)-alkyl, heteroaryl;

R^{13} is C_1–C_8-alkyl, C_2–C_8-alkenyl, C_3–C_8-cycloalkyl, C_1–C_8-haloalkyl, C_1–C_4-alkoxy (C_1–C_6)-alkyl, C_1–C_8-aminoalkyl, phenyl, aryl (C_1–C_6)-alkyl, heteroaryl, hydroxyl, unsubstituted or substituted C_6–C_{10}-aryloxy, unsubstituted or substituted C_1–C_8alkoxy, amino, C_1–C_8-monoalkyl- or C_1–C_8-dialkylamino, C_5–C_8-cycloalkylamino, unsubstituted or substituted C_6–C_{10}-arylamino;

R^{14} is C_1–C_5-alkyl, unsubstituted or substituted phenyl, C_1–C_5-alkoxy, C_1–C_5-haloalkoxy, benzyloxy, amino, alkylamino, dialkylamino, a saturated five- or six-membered heterocycle bonded via N, which can additionally contain a further heteroatom N or O;

R^{15} is hydrogen, C_1–C_5-alkyl, unsubstituted or substituted phenyl;

R^{16} is hydrogen, C_1–C_5-alkyl, unsubstituted or substituted phenyl, a —C (O)R^{14} group or R^{16} together with R^{15} forms a four-or five-membered methylene chain which in turn can be substituted by one or two methyl groups and in which one methylene group can be replaced by oxygen;

R^2–R^6 are hydrogen, C_1–C_8-alkyl, C_2–C_8-alkenyl, C_3–C_8-cycloalkyl, C_{C8}-haloalkyl, C_1–C_4-alkoxy(C_1–C_6)-alkyl, C_1–C_8-aminoalkyl, unsubstituted or substituted phenyl, benzyl, unsubstituted or substituted five- or six-membered heteroaryl linked via a carbon, cyano, nitro, carboxyl, sulfonylmethyl, C_1–C_4-alkoxycarbonyl, carbamoyl, C_1–C_8-alkylcarbamoyl, dialkylcarbamoyl, C_1–C_4-alkanoyl, benzoyl or R^4 and R^5 or R^5 and R^6 together form a CH_2—$(CH_2)_n$—CH_2 chain where n=1 to 3 or an unfused aromatic ring;

with the proviso that compounds having the following substituent combinations are excluded:

xv) if R^2–R^6=hydrogen,

R^1 is not 4-chloro-phenyl, 4-bromophenyl, 4-nitrophenyl, 4 -hydroxyphenyl,

4 -methoxyphenyl, 4-methylphenyl, p-biphenyl, 2-hydroxy-4 -chlorophenyl, 3-nitrophenyl, 3-trifluoro-methylphenyl, 2 -hydroxyphenyl, 2-methoxyphenyl, 2hydroxy-5-nitrophenyl, 2 -hydroxy-5-methylphenyl; and

if R^3 is carboxy and R^2 and R^4–R^6 are hydrogen, R^1 is not o-hydroxyphenyl, p-methoxyphenyl or p-dimethylaminophenyl.

5,723,414

5-ARYL-ISOXAZOLINONES AND HERBICIDAL USE THEREOF

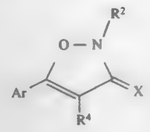
Colin Michael Tice, Elkins Park, Pa., assignor to Rohm and Haas Company, Philadelphia, Pa.

Filed Jan. 21, 1997, Ser. No. 786,573

Int. Cl.[6] A01N *43/26;43/40;* **C07D** *413/04*

U.S. Cl. 504—252 **16 Claims**

1. A compound of the formula



wherein

Ar is a substituted or unsubstituted aryl or heteroaryl;

R^2 is alkyl, cycloalkyl, alkenyl, cycloalkenyl, alkynyl or alkoxyalkyl, all of which may be substituted with one or more halogen atoms;

R^4 is alkynyl or alkoxyalkyl, both of which may be substituted with one or more halogen atoms; and

X is an oxygen or a sulfur atom.

5,723,415

5-HYDROXYPYRAZOL-4-YLCARBONYL-SUBSTITUTED SACCHARIN DERIVATIVES

Peter Plath, Frankenthal; Wolfgang von Deyn, Neustadt; Stefan Engel, Wörrstadt; Uwe Kardorff, Mannheim; Hartmann König, Heidelberg; Harald Rang, Altrip; Matthias Gerber, Limburgerhof; Helmut Walter, Obrigheim, and Karl-Otto Westphalen, Speyer, all of Germany, assignors to BASF Aktiengesellschaft, Ludwigshafen, Germany

PCT No. PCT/EP95/02974, § 371 Date Feb. 3, 1997, § 102(e) Date Feb. 3, 1997, PCT Pub. No. WO96/05197, PCT Pub. Date Feb. 22, 1996

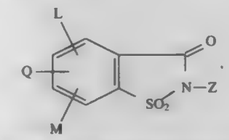
PCT Filed Jul. 27, 1995, Ser. No. 776,576

Claims priority, application Germany, Aug. 8, 1994, 44 27 997.3

Int. Cl.[6] A01N *43/80;* **C07D** *417/06*

U.S. Cl. 504—269 **6 Claims**

1. A 5-hydroxypyrazol-4-ylcarbonyl-substituted saccharin derivative of the formula I



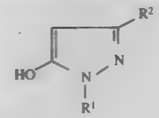
where the substituents have the following meanings:

L and M are hydrogen, C_1–C_4-alkyl, C_1–C_4-alkoxy, C_1–C_4-alkylthio, chlorine, cyano, methylsulfonyl, nitro or trifluoromethyl;

Z is hydrogen, C_1–C_4-alkyl, C_3–C_8-cycloalkyl, C_3–C_6-alkenyl, C_3–C_5-alkynyl, C_1–C_4-acyl, benzyl or phenyl, the phenyl rings in each case being unsubstituted or substituted by halogen or C_1–C_4-alkyl;

Q is a radical CO—J,

J is a 4-linked 5-hydroxypyrazole ring of the formula II



where

R^1 is C_1–C_4-alkyl and

R^2 is hydrogen or methyl,

and agriculturally customary salts of the compounds I.

5,723,416

WELL SERVICING FLUID FOR TRENCHLESS DIRECTIONAL DRILLING

W. Andrew Lino, 3634 Mill Bridge Way, Kingwood, Tex. 77345

Filed Apr. 1, 1997, Ser. No. 831,359

Int. Cl.[6] C09K *7/00;7/02*

U.S. Cl. 507—110 **12 Claims**

1. A water-based drilling fluid useful for drilling through earth formations contaminated with electrolytes, comprising:

water; and

a composition mixed into said water, said composition comprising about 91– 98% by weight of a water-swellable clay gellant selected from the class of natural and synthetic versions of sodium-based bentonite, calcium-based bentonite, montmorillonite, beidellite, hectorite, saponite, stevensite and mixtures thereof;

about 1–8% by weight of a water-swellable alkali metal carbonate selected from the group consisting of sodium, potassium and mixtures thereof; and

about 0.5–4% by weight of a water-swellable biopolymer selected from the class consisting of natural and modified xanthan gum, welan gum, guar gum, dextran gum, locust bean gum, and mixtures thereof.

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5,723,417

OIL-SOLUBLE POLYESTER, ADDITIVE FOR LUBRICATING OIL, AND LUBRICATING OIL COMPOSITION

Shizuo Kitahara, Kawaguchi; Yutaka Shikatani, Kawasaki; Junichi Igarashi, Tokyo; Yoshihide Ishikawa, Himeji; Shinsuke Hasegawa, Hyogo, and Michio Miyamoto, Kakogawa, all of Japan, assignors to Nippon Zeon Co., Ltd., Tokyo; Harima Chemicals, Inc., Kakogawa, and Nippon Oil Company, Ltd., Tokyo, all of Japan

Filed Feb. 12, 1996, Ser. No. 598,604

Claims priority, application Japan, Feb. 10, 1995, 7-045038

Int. Cl.[6] C10M *145/22;* **C08G** *63/16*

U.S. Cl. 508—455 **17 Claims**

1. An oil-soluble polyester having a weight average molecular weight of 10,000 to 1,000,000, which is a polycondensate prepared by polycondensing the following ingredients (A) and (B):

(A) a dicarboxylic acid, and

(B) a diol comprising (i) a hindered glycol represented by the following formula:

$$HO—CH_2—CR^1R^2—CH_2—OH$$

wherein R^1 and R^2 independently represent a linear or branched alkyl group, the sum of R^1 and R^2 being at least 3 and (ii) an alkylene glycol having at least 4 carbon atoms in the main chain, the ratio of the hindered glycol (i) to the alkylene glycol (ii) being in the range of 5/95 to 95/5 by mole.

5,723,418

ALKYL ETHER AMINE CONVEYOR LUBRICANTS CONTAINING CORROSION INHIBITORS

Kimberly L. Person Hei, Oakdale; Michael E. Besse, Golden Valley; Bruce E. Schmidt, St. Paul, and Christopher S. Sykes, New Brighton, all of Minn., assignors to Ecolab Inc., St. Paul, Minn.

Filed May 31, 1996, Ser. No. 655,952

Int. Cl.[6] C10M *129/26;133/04;173/02*

U.S. Cl. 508—511 **45 Claims**

1. A lubricant concentrate composition comprising:

a. an effective lubricating amount of one or more amine compounds each of said amine compounds having a formula selected from the group consisting of,

$$R_1—O—R_2—NH_2,$$

$$R_1—O—R_2—NH—R_3—NH_2,$$

and mixtures thereof wherein R_1 is a linear saturated or unsaturated C_6–C_{18} alkyl, R_2 is a linear or branched C_1– C_8 alkylene, and R_3 is a linear or branched C_1–C_8 alkylene;

b. an anticorrosive effective amount of a corrosion inhibitor, said corrosion inhibitor comprising a dicarboxylic acid, a tricarboxylic acid or mixture thereof; and

c. a detersive amount of surfactant effective to provide detergency to the composition, said surfactant selected from the group consisting of an anionic surfactant, a nonionic surfactant, a cationic surfactant, an amphoteric surfactant, and mixtures thereof

wherein said concentrate has a pH ranging from about 5 to 10 and can be diluted to produce a lubricant having a pH greater than 7.

5,723,419

ENGINE TREATMENT COMPOSITION

James L. Czerwinski, 544 Lolumbine, Lisle, Ill. 60532; James P. Heidel, 1410 71st St., Downers Grove, Ill. 60516, and Michael A. Schultz, 15259 Manor Ln., Lockport, Ill. 60441

Filed Sep. 19, 1996, Ser. No. 716,003

Int. Cl.[6] C10M *131/14*

U.S. Cl. 508—589 **20 Claims**

1. A composition for addition to the oil supply of an internal combustion engine which comprises:

(a) between about 60% and about 72% by volume of a base carrier oil;

(b) between about 16% and about 20% by volume of a chlorinated paraffin;

(c) between about 1% and about 10% by volume of an olefin copolymer wherein the resulting admixture has an overall viscosity profile which is not materially different than the viscosity profile of the oil supply's grade.

5,723,420

PERSONAL CLEANSING BAR COMPOSITIONS WHICH CONTAIN A FRAGRANCE-RELEASING COMPLEX FOR IMPROVED FRAGRANCE DELIVERY

Karl Shiqing Wei; Louis Fay Wong, both of Mason; Deborah Adamo Koehler, Middletown, and Mark Richard Sine, Morrow, all of Ohio, assignors to The Procter & Gamble Company, Cincinnati, Ohio

Filed Mar. 4, 1996, Ser. No. 610,689

Int. Cl.[6] C11D *3/50*

U.S. Cl. 510—101 **20 Claims**

1. A personal cleansing bar composition having desirable fragrance delivery comprising:

a) from about 0.1% to about 20% of a fragrance-releasing complex which comprises:

i) from about 10% to about 90% of a hydrophilic inorganic porous fragrance carrier; and

ii) from about 10% to about 90% of a fragrance impregnated within said carrier, wherein the ratio of the fragrance:fragrance carrier ranges from about 5:1 to about 1:10; and

b) from about 80% to about 99% of a bar carrier.

5,723,421

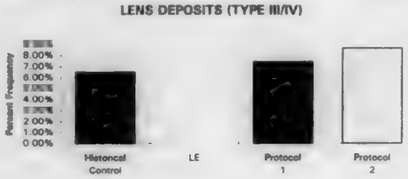
STABLE LIQUID ENZYME COMPOSITIONS AND METHODS OF USE IN CONTACT LENS CLEANING AND DISINFECTING SYSTEMS

Masood A. Chowhan; Ronald P. Quintana; Bahram Asgharian; Bor-Shyue Hong, all of Arlington, Tex.; Thierry Bilbault, Morris Township, N.J., and Ruth Ann Rosenthal, Alvarado, Tex., assignors to Alcon Laboratories, Inc., Fort Worth, Tex.

Continuation-in-part of Ser. No. 477,001, Jun. 7, 1995, Pat. No. 5,604,190. This application Oct. 18, 1995, Ser. No. 544,753

Int. Cl.[6] C11D *3/04;3/18;3/37;3/382*

U.S. Cl. 510—114 **24 Claims**



1. A liquid enzyme composition for cleaning contact lenses comprising:

an enzyme in an amount effective to clean the lens;

50–70% v/v of a 2–3 carbon polyol;

4–8% w/v of a borate compound; and water,

said composition having a pH of 6–7.

5,723,422

CLEANING PROCESS FOR PHOTORECEPTOR SUBSTRATES

Gene W. O'Dell, Williamson, and Philip G. Perry, Webster, both of N.Y., assignors to Xerox Corporation, Stamford, Conn.

Filed May 31, 1996, Ser. No. 656,030

Int. Cl.[6] C11D *1/66*

U.S. Cl. 510—166 **19 Claims**

1. A cleaning solution for cleaning imaging member substrates, comprising:

(a) an acid selected from the group consisting of a weak acid and a dilute strong acid,

(b) at least one compound selected from the group consisting of borax and polyphosphates,

(c) an oil-soluble surfactant,

(d) a water-soluble surfactant selected from the group consisting of a water-soluble polysorbate, a polyethylene/polypropylene copolymer, and mixtures thereof, and

(e) deionized water,

wherein a total concentration of said component (a) and said component (b) is less than about 1% by weight of the cleaning solution.

5,723,423

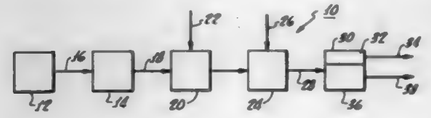
SOLVENT SOAPS AND METHODS EMPLOYING SAME

Donald C. Van Slyke, Brea, Calif., assignor to Union Oil Company of California, dba UNOCAL, El Segundo, Calif.

Division of Ser. No. 210,144, Mar. 17, 1994, Pat. No. 5,634,984, which is a continuation-in-part of Ser. No. 172,429, Dec. 22, 1993, abandoned. This application Mar. 12, 1996, Ser. No. 614,030

Int. Cl.[6] C09D *9/00*

U.S. Cl. 510—188 **38 Claims**



1. A composition comprising:

(a) at least two different types of surfactants, where each type of surfactant has a HLB value of at least 8 and a mixture of the surfactants would have a HLB value of at least 11;

(b) at least one diluent oil; and

(c) less than about 5 volume percent water (the volume percent being based on the total amount of surfactant, diluent oil, and water present in the composition),

where the composition is a solution.

5,723,424

CONCRETE CLEANING MIXTURE

Paul E. Jennings, 4606 SW 7th Ave., Cape Coral, Fla. 33914

Filed Sep. 23, 1996, Ser. No. 718,026

Int. Cl.[6] C11D *1/00;* **B08B** *7/00;3/14*

U.S. Cl. 510—240 **7 Claims**

1. A concrete cleaning mixture consisting of one component, said one component having two ingredients, a first ingredient is an all purpose clay material and said second ingredient is an attapulgite-type clay, both of said ingredients being of a granular material.

5,723,425

CONCENTRATED AQUEOUS LIQUID DETERGENT COMPRISING POLYVINYLPYRROLIDONE

Serge Gabriel Pierre Cauwberghs, and Ivan Maurice Alfons Herbots, both of Procter & Gamble European Technical Center N.V. 100 Temselaan, B-1853 Strombeek-Bever, Belgium

Continuation of Ser. No. 360,764, Dec. 22, 1994, abandoned. This application Aug. 19, 1996, Ser. No. 699,175

Claims priority, application European Pat. Off., Jul. 3, 1992, 92870098

Int. Cl.[6] C11D *1/29;1/66;3/386*

U.S. Cl. 510—299 **4 Claims**

1. A concentrated liquid detergent composition comprising the following:

(A) 25% to 35% of a surfactant component which comprises an anionic surfactant which consists of a water-soluble C_{11}–C_{15} alkyl ethoxy sulfate containing an average per mole of from 1 to 9 ethoxy sulfates;

(B) 0.05% to 5% of a polyvinylpyrrolidone which has a molecular weight of 5,000 to 15,000;

(C) 2% to 8% water; and

(D) a C_{12} or $C_{12\text{-}14}$ glucose amide nonionic surfactant in an amount to provide a ratio of anionic surfactant to nonionic surfactant of 3:1 to 1:1.

5,723,426

LIQUID LAUNDRY DETERGENT COMPOSITIONS CONTAINING SURFACTANTS AND SILICONE EMULSIONS

Yueqian Zhen; Wilbur Cecil Strickland, and Linda Carol McWilliams, all of 5299 Spring Grove Ave., Cincinnati, Ohio 45217-1087

Filed Feb. 29, 1996, Ser. No. 608,781

Int. Cl.[6] C11D *3/60*

U.S. Cl. 510—337 **12 Claims**

1. A liquid heavy duty laundry detergent composition comprising:

a) from about 0.1% to about 12%, by weight of the composition, of an emulsion, wherein said emulsion comprises from about 1% to about 90% by weight of the emulsion, of silicone and from about 0.1% to about 30%, by weight of the emulsion, of an emulsifier, and wherein said emulsion has a particle size of from about 5 to about 500 microns wherein said silicone has the formula,

$$—[Si(R_1)(R_2)—O]_x—$$

wherein said R_1 and R_2-in each repeating unit, —$(Si(R_1)(R_2)O)$—, are independently selected from C_1-C_{10} alkyl or alkenyl radicals, phenyl, substituted alkyl, substituted phenyl, or units of —[—R_1R_2Si—O—]—; x is from about 50 to about 300,000; wherein said substituted alkyl or substituted phenyl are substituted with halogen, hydroxyl groups, or nitro groups; and wherein said polymer is terminated by a hydroxyl group, hydrogen or —SiR_3 wherein $R_3$is hydroxyl, hydrogen or methyl;

b) from about 0.1% to about 15%, by weight of composition, of a cationic detersive surfactant;

wherein said silicone of said emulsion and said cationic detersive surfactant are present in a weight ratio of from about 1:10 to 10:1 and;

c) from 1% to 50% of a detersive builder selected from the group consisting of

(i) inorganic detergency builders; and

(ii) organic detergency builders selected from the group consisting of oxydisuccinates, copolymers of malic anhydride with ethylene or vinyl methyl ether, 1,3,5 trihydroxy benzene-2,4,6-trisulfonic acid ethylenediamine tetraacetic acid, nitrilotriacetic acid, mellitic acid, succinic acid, oxydisuccinic acid, polymaleic acid, benzene 1,2,3-tricarboxylic acid carboxymethyloxy succinic acid, 3, 3-dicarboxy-4-oxa- 1,6 hexanedioates, C_5-C_{20} alkyl and alkenyl succinic acids, and, salts thereof.

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5,723,427

GRANULAR DETERGENT COMPOSITIONS CONTAINING DEFLOCCULATING POLYMERS AND PROCESSES FOR THEIR PREPARATION

Elliot Michael Scherr, Princeton, and Stephen Thomas Repinec, Jr., Flemington, both of N.J., assignors to Colgate-Palmolive Company, New York, N.Y.

Continuation-in-part of Ser. No. 350,197, Dec. 5, 1994, abandoned. This application Sep. 18, 1995, Ser. No. 529,702

Int. Cl.[6] C11D *3/37;11/02*

U.S. Cl. 510—361 **33 Claims**

1. A concentrated granular detergent composition containing about 15% by weight water or less comprising a mixture of:

a) from about 15 to 50% by weight of surfactant;

b) at least one detergent builder;

c) from about 0.01 to about 7.5% by weight of a deflocculating polymer containing polymer chains of the structure P-QR, wherein P represents a polymer chain segment of a hydrophilic polymer, and QR represents a hydrophobic end-cap group wherein R is an organic hydrophobic radical containing from about 4 to 28 carbon atoms, and Q is S; and

d) water.

5,723,428

DETERGENT COMPOSITIONS AND PROCESS FOR PREPARING THEM

Jelles Vincent Boskamp, Vlaardingen; Timothy Richard Bundy, Rotterdam, both of Netherlands; Marilena Coruzzi, Piacenza, Italy; Pauline Farnworth, Merseyside, Great Britain; Mark Phillip Houghton, Berkel en Rodenrijs; Christophe Joyeux, Rotterdam, both of Netherlands; Peter Cory Knight, Cheshire, Great Britain; Leandre Naddeo, Milan, Italy, and Alistair Richard Sanderson, Cheshire, Great Britain, assignors to Lever Brothers Company, New York, N.Y.

Continuation of Ser. No. 340,911, Nov. 17, 1994, abandoned. This application May 2, 1996, Ser. No. 643,086

Claims priority, application United Kingdom, Nov. 24, 1993, 9324129

Int. Cl.[6] C11D *17/00;3/02*

U.S. Cl. 510—481 **13 Claims**

1. A process for the preparation of a particulate detergent composition having a bulk density of at least 600 g/l, which comprises mixing and granulating:

(a) one of more organic non-soap surfactants, optionally including one or more anionic surfactants in free acid form,

(b) one or more detergency builders comprising sodium aluminosilicate,

(c) fatty acid,

(d) optionally sodium carbonate,

(e) optionally water and minor detergent ingredients,

(f) sodium hydroxide in an amount equal to not more than 0.90 times the stoichiometric amount required to neutralise the fatty acid,

whereby a substantially homogeneous granular detergent base composition having a bulk density of at least 600 g/l is formed, whereby neutralisation of the fatty acid to soap is effected, and whereby any anionic surfactant initially present in free acid form is converted to sodium salt form;

and optionally admixing further detergent ingredients to form a product.

5,723,429

AZEOTROPIC OR AZEOTROPE-LIKE COMPOSITIONS OF TETRAFLUOROETHANE AND CHLOROTETRAFLUOROETHANE

Barry Asher Mahler, Glen Mills, Pa.; Ralph Newton Miller, Newark, and Charles Joseph Noelke, Wilmington, both of Del., assignors to E. I. du Pont de Nemours and Company, Wilmington, Del.

Division of Ser. No. 471,937, Jun. 6, 1995, abandoned, which is a continuation-in-part of Ser. No. 212,439, Mar. 11, 1994, Pat. No. 5,470,442. This application Apr. 24, 1996, Ser. No. 637,119

Int. Cl.[6] C11D *7/30;* **C09K** *5/04*

U.S. Cl. 510—408 **1 Claim**

1. An azeotropic or azeotrope-like composition consisting essentially of from about 91 to about 99.9 mole % 1,1,2,2-tetrafluoroethane and from about 9 to 0.1 mole % 1-chloro-1,1,2,2-tetrafluoroethane, said composition having a boiling point of from about −20° C. at 14.4 psia to about 60° C. at 199 psia.

5,723,430

MICROEMULSION CLEANERS HAVING DECREASED ODOR

Joseph Mihelic, Sparta, N.J., assignor to Ashland Inc., Columbus, Ohio

Continuation of Ser. No. 371,075, Jan. 10, 1995, abandoned. This application Oct. 15, 1996, Ser. No. 732,124

Int. Cl.[6] C11D *1/72;1/83;3/30;3/36*

U.S. Cl. 510—417 **8 Claims**

1. A ready-to-use microemulsion cleaner comprising:

(a) an organic solvent selected from the group consisting of dichlorotoluene, terpene hydrocarbon, aromatic hydrocarbon, oxyalcohol esters, m-pyrol, and mixtures thereof in an amount of from 7 to 18 weight percent;

(b) a nonionic surfactant blend comprising from about 10 to 25 weight percent of said cleaner, where said blend comprises (i) a lower ethoxylate of a linear alcohol having a carbon chain selected from the group consisting of C_9–C_{11}, C_{12}–C_{18}, or mixtures thereof, ethoxylated with an average of 2.0 to 4.0 moles of ethylene oxide, and (ii) a higher ethoxylate of a linear alcohol having a carbon chain selected from the group consisting of C_9–C_{11}, C_{12}–C_{18}, or mixtures thereof, ethoxylated with an average of 6.0 to 12.0 moles of ethylene oxide per chain wherein the ratio of (i) to (ii) is from 1:4 to 4:1;

(c) a glycol ether in an amount of 5 to 40 weight percent;

(d) an anionic phosphate ester hydrotrope or salt thereof in an amount of 3 to 20 weight percent;

(e) a primary amino alcohol selected from the group consisting of 2-amino-2-methyl-1-propanol, 2-amino-2-ethyl-1, 3-propanediol, 2-amino-1-butanol, 2-amino-2-methyl-1, 3-propanediol, tris(hydroxymethyl) aminomethane and 2-dimethyl-amino-2-methyl-propanol in an amount of 1 to 10 weight percent in amount effective to increase the flashpoint of said microemulsion cleaner; and

(f) water in an amount of 25 to 60 weight percent, said weight percent is based upon the total weight of the ready-to-use microemulsion cleaner.

5,723,431

LIQUID CRYSTAL COMPOSITIONS

Georges Yianakopoulos, Liege; Genevieve Blandiaux, Trooz, and Myriam Mondin, Seraing, all of Belgium, assignors to Colgate-Palmolive Co., Piscataway, N.J.

Continuation-in-part of Ser. No. 334,107, Nov. 4, 1994, Pat. No. 5,523,013, which is a continuation-in-part of Ser. No. 96,501, Sep. 3, 1993, abandoned, which is a continuation of Ser. No. 726,597, Jul. 8, 1991, abandoned, which is a continuation of Ser. No. 411,280, Aug. 22, 1989, Pat. No. 5,035,826. This application Apr. 26, 1996, Ser. No. 639,137

Int. Cl.[6] C11D *9/32;9/22*

U.S. Cl. 510—426 **7 Claims**

1. A liquid crystal detergent composition which comprises by weight:

(a) about 1% to about 30% of a nonionic surfactant containing ethylene oxide groups;

(b) about 1% to about 20% of a water soluble salt of an ethoxylated C_{8-18} alkyl ether sulfate surfactant or alkyl sulfate surfactant;

(c) about 0.1% to about 2.5% of an abrasive selected from the group consisting of amorphous hydrated silica, and polyethylene powder;

(d) about 1% to about 30% of a cosurfactant which is an alkyl ether of ethylene glycol or propylene glycol;

(e) about 0.6% to about 10% of a water insoluble organic compound selected from the group consisting of perfumes, essential oils and water insoluble hydrocarbons having about 8 to about 18 carbon atoms;

(f) about 0.2% to about 4.0% of a fatty alcohol;

(g) about 0.1% to about 2.0% of an alcohol having the formula $C_nH_{2n+2-x}(OH)_x$ wherein x is 2 or 3 and n is 2 to 5;

(h) about 0.2% to 3.0% of a cross-linked polyacrylic acid-type thickening agent having a molecular weight from 500,000 to 10,000,000; and

(i) the balance being water, said liquid crystal detergent composition has a storage modulus measured at a temperature between 20° C. to 40° C., at a strain of 0.1% to 5% and a frequency of 10 radians/second of at least about one Pascal and is one phase at a temperature of 8° C. to 43° C. and the composition does not contain sulfonate surfactant.

5,723,432

STABLE PUMPABLE LIQUID COMPOSITION OF ACYLOXY ALKANE AND PROCESS FOR THE STORAGE THEREOF

Peter William Beerse, Maineville; James Charles Dunbar, Cincinnati; Neil William Jordan, Cincinnati, and Gary Lee Reed, Cincinnati, all of Ohio, assignors to The Proctor & Gamble Company, Cincinnati, Ohio

Continuation of Ser. No. 528,185, Sep. 14, 1995, abandoned, which is a continuation of Ser. No. 161,185, Dec. 1, 1993, abandoned, which is a continuation of Ser. No. 831,595, Feb. 5, 1992, abandoned. This application Jul. 10, 1996, Ser. No. 677,991

Int. Cl.[6] C11D *1/12;1/28;7/50*

U.S. Cl. 510—447 **19 Claims**

1. A process of preparing a pumpable, stable, liquid composition comprising:

(a) from about 20% to about 60% acyloxy alkane sulfonic acid salt of the formula $RCOOR^1SO_3M$;

(b) from about 2% to about 50% paraffin; and

(c) from about 35% to about 55% water;

wherein R is a hydrocarbyl with from about 5 to about 19 carbon atoms; R^1 is a divalent hydrocarbyl or dialkylene ether radical with from about 2 to about 5 carbon atoms; and M is an alkali metal, alkaline earth metal, ammonium or organic amino base; wherein said process comprises the steps of:

(A) heating the composition to a temperature of from about 100° F. (38° C.) to about 160° F. (71° C.); and

(B) high shear mixing the composition until obtaining liquid crystalline components;

the liquid crystalline components having a particle size of less than about 50 microns, and the pH of the composition being from about 5 to about 7.5; wherein said liquid composition is stable at 120° F. for at least about 6 days.

5,723,433

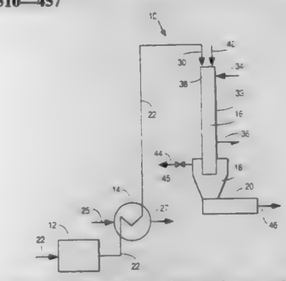
SOVENT REMOVAL PROCESS

Lanny R. Duvall, Kent; Burton Brooks, Bellevue, and Walter Jessup, Seattle, all of Wash., assignors to The Chemithon Corporation, Seattle, Wash.

Continuation-in-part of Ser. No. 126,490, Sep. 24, 1993, abandoned. This application Jun. 7, 1995, Ser. No. 475,046

Int. Cl.[6] C11D *11/00;* **B01D** *1/14;1/28;* **F26B** *7/00*

U.S. Cl. 510—457 **15 Claims**



1. A process for removing solvents from a detergent paste comprising:

(a) providing a dryer having an inlet and at least one channel;

(b) preheating a detergent paste to a temperature to result in flashing of at least one of the components of the paste at an operating pressure of an inlet of the channel and applying pressure to the paste to avoid vaporization of any of the components of the paste;

(c) pumping the detergent paste to the dryer inlet under a pressure sufficient to avoid flashing of any of the components of the paste;

(d) introducing the paste into the channel at said operating pressure of the channel inlet;

(e) supplying heat to the paste in the channel and reducing the pressure along the channel resulting in the further flashing of at least one component of the paste wherein vapor liberated during the flashing acts as a motive force to move the increasingly viscous paste along the channel; and

(f) collecting a resulting detergent concentrate at an outlet of the channel.

5,723,434

ISOTROPIC LIQUIDS COMPRISING HYDROPHOBICALLY MODIFIED POLAR POLYMER

Nancy Ann Falk, Livingston; Barbara Bory, Fort Lee; Tamara Padron, North Bergen; Tirucherai Varahan Vasudevan, West Orange; Diane Wolf, Bridgewater, all of N.J., and Jeanie Lum, Flushing, N.Y., assignors to Lever Brothers Company, Division of Conopco, Inc., New York, N.Y.

Filed Jan. 25, 1996, Ser. No. 591,789

Int. Cl.[6] C11D *3/37;17/00*

U.S. Cl. 510—475 **15 Claims**

1. An isotropic liquid detergent composition consisting essentially of:

(1) 1% to 85% by wt. of a surfactant selected from the group consisting of anionic, nonionic, cationic, amphoteric and zwitterionic surfactants and mixtures thereof;

(2) 0.1% to 25% by wt. hydrotrope wherein the hydrotrope is selected from the group consisting of propylene glycol, ethylene glycol, glycerol, sorbitol, mannitol, glucose and mixtures thereof and wherein said hydrotrope comprises less than about 2.5% by wt. alkyl aryl sulfonate;

(3) 0.1% to 20.0% electrolyte; and

(4) 0.1% to 10% by wt. of a polymer having

(a) a hydrophilic backbone comprising monomer units selected from the group consisting of:

(i) one ethylenically unsaturated hydrophilic monomer selected from the group consisting of unsaturated C_{1-6} acids, ethers, alcohols, aldehydes, ketones or esters;

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(ii) one polymerizable hydrophilic cyclic monomer units;
(iii) one or more non-ethylenically unsaturated polymerizable hydrophilic monomers selected from the group consisting of glycerol and other polyhydric alcohols; and
(iv) mixtures thereof;
wherein said polymer is optionally substituted with one or more amino, amine amide, sulphonate, sulphate, phosphonate, hydroxy, carboxyl or oxide groups to specify one monomer only; and
(b) a tail comprising a monomer comprising a pendant hydrophilic group and hydrophobic pendant group;
said polymer having a MW of 1,000 to 20,000;
wherein the molar ratio of backbone hydrophilic group to pendant hydrophobic group is less than about 10.

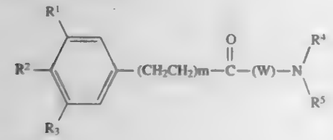
5,723,435

RINSE ADDED FABRIC SOFTENER COMPOSITIONS CONTAINING ANTIOXIDANTS FOR SUN-FADE PROTECTION FABRICS

John Cort Severns, West Chester; Mark Robert Sivik, Fairfield; Ellen Schmidt Baker, and Frederick Anthony Hartman, both of Cincinnati, all of Ohio, assignors to The Procter & Gamble Company, Cincinnati, Ohio

Continuation of Ser. No. 280,689, Jul. 26, 1994, abandoned. This application Feb. 5, 1996, Ser. No. 596,787
Int. Cl.[6] C11D *7/32*
U.S. Cl. 510—499 **18 Claims**

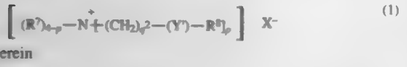
1. A rinse-added fabric softener composition comprising:
A. from about 1% to about 25%, by weight of the composition, of a non-fabric staining light stable antioxidant compound having the formula:



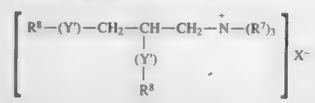
wherein
each R^1 and R^3 moiety is independently selected from the group consisting of hydroxy, C_1 to C_6 alkoxy groups, and branched or straight chained C_1 to C_6 alkyl groups;
each R^2 is a hydroxy group;
each R^4 is a saturated or unsaturated C_1 to C_{22} alkyl group or hydrogen;
each R^5 is a saturated or unsaturated C_1 to C_{22} alkyl group which can contain ethoxylated or propoxylated groups;
each W is



wherein Y is a hydrogen or a C_1 to C_5 alkyl group;
wherein Z is hydrogen, a C_1 to C_3 alkyl group, which may be interrupted by an ester, amide, or ether group, or a C_1 to C_{30} alkoxy group, which may be interrupted by an ester, amide, or ether group;
each m is from 0 to 4;
each n is from 1 to 50;
each q is from 1 to 10; and
wherein the antioxidant compound also comprises quaternary ammonium compounds; and
B. from about 3% to 50% by weight of the composition of a fabric softening composition selected from the group consisting of:
1. compounds having the formula:

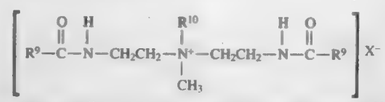


wherein
each Y' is —O—(O)C—, or —C(O)—O—;
p is 2 or 3;
each q^2 is 1 to 5;
each R^7 substituent is selected from short chain C_1–C_6 alkyl or hydroxyalkyl group, benzyl group and mixtures thereof;
each R^8 is a long chain C_{11}–C_{21} hydrocarbyl, or substituted hydrocarbyl substituent;
and counterion, X^-, is any softener-compatible anion;
2. compounds having the formula:



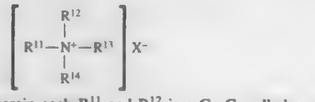
(2)

wherein each Y', R^7, R^8, and X^- have the same meanings as before for formula (1);
3. compounds having the formula:



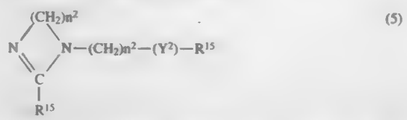
(3)

wherein each R^9 is a C_8 to C_{20} alkyl or alkenyl group; R^{10} is a hydrogen methyl, ethyl, or $(C_rH_{2r}O)_sH$, wherein r is from 1 to 5, wherein s is from 1 to 5; and X^- has the same meaning as before for formula (1);
4. compounds having the formula:



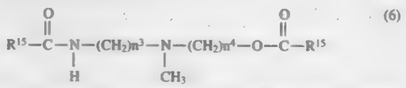
(4)

wherein each R^{11} and R^{12} is a C_8–C_{24} alkyl or alkenyl group; each R^{13} and R^{14} is a C_1–C_6 alkyl group; X^- has the same meaning as before for formula (1);
5. compounds having the formula:



(5)

wherein each Y^2 is either: —$N(R^{16})C(O)$—, in which each R^{16} is selected from the group consisting of C_1–C_6 alkyl, alkenyl, or hydroxy alkyl group, or hydrogen; —OC(O)—; or a single covalent bond;
wherein each R^{15} is independently, a hydrocarbyl group containing from about 11 to about 31 carbon atoms, and wherein each n^2 independently is from 2 to 4;
6. compounds having the formula:



(6)

wherein each R^{15} is independently, a hydrocarbyl group containing from about 11 to about 31 carbon atoms;
n^3 is 1 to 5;
n^4 is 1 to 5; and
7. mixtures thereof; and
C. from about 25% to about 95% by weight of the composition of a carrier material; and
wherein the composition optionally includes a non-fabric staining, light stable sunscreen compound; wherein said antioxidant compound is a solid having a melting point of less than about 80° C., or a liquid at a temperature of less than about 40° C.; and wherein said optional sunscreen compound absorbs light at a wavelength of from about 290 nm to about 450 nm and is a solid compound having a melting point of from about 25° C. to about 90° C., or a viscous liquid at a temperature of less than about 40° C.

5,723,436

CALCINEURIN INTERACTING PROTEIN COMPOSITIONS AND METHODS

Laiqiang Huang, Mountain View, and Martha S. Cyert, Palo Alto, both of Calif., assignors to The Board of Trustees of the Leland Stanford Junior University, Palo Alto, Calif.

Filed Oct. 24, 1994, Ser. No. 328,322
Int. Cl.[6] A61K *38/04;38/16;* **C07K** *14/395*
U.S. Cl. 514—2 **2 Claims**

1. A composition containing a polypeptide that is between 15 and 306 amino acids in length that is identical to a corresponding region in the sequence represented by SEQ ID NO:2.

5,723,437

CD6 LIGAND

Barton F. Haynes, Durham, N.C.; Alejandro Aruffo, Edmonds, Wash., and Dhavalkumar Patel, Durham, N.C., assignors to Duke University, Durham, N.C., and Bristol-Myers Squibb Company, New York, N.Y.

Continuation-in-part of Ser. No. 143,903, Nov. 2, 1993, abandoned. This application Nov. 2, 1994, Ser. No. 333,350
Int. Cl.[6] A61K *38/17;* **C07K** *14/435*
U.S. Cl. 514—2 **6 Claims**

1. An isolated and purified mammalian CD6 ligand having a molecular weight of about 35 kDa as determined by sodium dodecyl sulfate polyacrylamide gel electrophoresis under reducing conditions, wherein the binding of said ligand to 0 CD6 is divalent cation independent.

5,723,438

METHOD OF ANTIVIRAL USE OF SOLUBLE LDL RECEPTOR

Menachem Rubinstein, Givat Shmuel; Daniela Novick, Rehovot; Nathan Tal, Rehovot, and Dina G. Fischer, Rehovot, all of Israel, assignors to Yeda Research and Development Co. Ltd., Rehovot, Israel

Division of Ser. No. 92,817, Jul. 19, 1993, Pat. No. 5,496,926, which is a continuation-in-part of Ser. No. 4,863, Jan. 19, 1993, abandoned. This application Jun. 7, 1995, Ser. No. 485,131
Claims priority, application Israel, Jan. 19, 1992, 100696; Aug. 23, 1992, 102915
Int. Cl.[6] A61K *38/17;* **A07K** *14/705*
U.S. Cl. 514—2 **5 Claims**

1. A method for inhibiting vital infection of a cell comprising treating said cell with a pharmaceutical composition consisting essentially of a pharmaceutically acceptable carrier and an antiviral effective amount of a molecule comprising the soluble antiviral domain of the LDL receptor protein of SEQ ID NO:2, or a functionally equivalent salt, functionally equivalent derivative or functionally equivalent mutein thereof.

5,723,439

PHARMACEUTICAL AEROSOL COMPOSITION AND APPLICATION THEREOF FOR TREATMENT AND PROPHYLAXIS OF VIRAL DISEASES

Oleg Petrovich Zhirnov, Russian Federation, Moskovskaya Oblast, Dedovsk, ulitsa volokolamskaya, 60/12, kv. 15, and Alexandr Valentinovich Ovcharenko, Dolgoprudny, both of Russian Federation, assignors to Oleg Petrovich Zhirnov, Russian Federation

PCT No. PCT/RU92/00164, § 371 Date Jun. 21, 1993, § 102(e) Date Jun. 21, 1993, PCT Pub. No. WO93/03708, PCT Pub. Date Mar. 4, 1993
PCT Filed Aug. 19, 1992, Ser. No. 39,393
Claims priority, application Russian Federation, Aug. 21, 1991, 5000531
Int. Cl.[6] A61K *38/00*
U.S. Cl. 514—12 **2 Claims**

1. A method for treatment and prevention of respiratory pathology of viral or viral-bacterial origin using an aerosol composition containing as active ingredient an inhibitor of proteases selected from the group consisting of aprotinins and derivatives thereof, said active ingredient being dissolved in water to form a solution, said method comprising inhalation or direct application of a therapeutically effective amount of the aerosol on the respiratory tract.

5,723,440

CONTROLLING HEMIPTERAN INSECT PESTS WITH *BACILLUS THURINGIENSIS*

Brian Stockhoff, and Christopher Conlan, both of San Diego, Calif., assignors to Mycogen Corporation, San Diego, Calif.

Filed Jun. 7, 1995, Ser. No. 475,924
Int. Cl.[6] A01N *63/02;* **A61K** *38/16;* **C12N** *15/32;15/82*
U.S. Cl. 514—12 **3 Claims**

1. A method of killing hemipteran insect pests which comprises administering to said pests, or the environment of said pests, a pesticidally effective amount of a *Bacillus thuringiensis* toxin, wherein said toxin is from PS201T6.

5,723,441

METHOD OF TREATING RENAL DISEASE BY ADMINISTERING IGF-I AND IGFBP-3

Howard R. Higley, Mountain View, and Christopher A. Maack, El Cerrito, both of Calif., assignors to Celtrix Pharmaceuticals, Inc., Santa Clara, Calif.

Continuation of Ser. No. 353,141, Dec. 9, 1994, abandoned, which is a continuation of Ser. No. 152,862, Nov. 15, 1993, abandoned. This application Aug. 31, 1995, Ser. No. 521,907
Int. Cl.[6] A61K *38/00;38/28;38/27*
U.S. Cl. 514—12 **18 Claims**

1. A method of treating a renal disorder in a subject, said renal disorder selected from the group consisting of diabetic nephropathy and autoimmune nephropathy, said method comprising administering to said subject an effective amount of insulin-like growth factor (IGF) and insulin like growth factor binding protein 3 (IGFBP-3).

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5,723,442

PEPTIDE DERIVATIVES

Donald John Wolanin, Wilmington, Del., assignor to Zeneca Inc., Wilmington, Del.

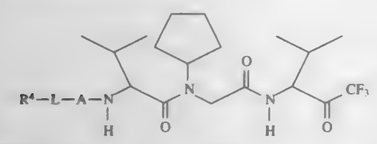
Continuation of Ser. No. 519,604, May 7, 1990, abandoned. This application Apr. 7, 1993, Ser. No. 43,616

Claims priority, application United Kingdom, May 8, 1989, 8910550

Int. Cl.[6] A61K *38/06;38/05*

U.S. Cl. 514—18 19 Claims

1. A compound of formula I



I

wherein:

A is selected from a group consisting of —CO—, —NH.CO— and —O.CO—;

L is selected from a group consisting of phenylene, (1–6C)alkanediyl, (2–6C)alkenediyl and phenylene(1–3C)alkyl, optionally containing one double bond in the alkyl portion, with the condition that no carbon included in a double bond of an alkenediyl group or included in an optional double bond of a phenylenealkyl group be directly bonded to an oxygen or nitrogen atom of group A; and

R^4 is selected from a group consisting of acylsulfonamide of formula $R^5.S(O_2).NH.CO$—, acylsulfonamide of formula $R^5.CO.NH.S(O_2)$—, sulfonylurea of formula $R^5.NH.CO.NH.S(O_2)$—, sulfonylurea of formula $R^5.S(O_2).NH.CO.NR^6$—, and trifluoromethylsulfonamide of formula $CF_3.S(O_2).NH$— wherein

R^5 is selected from a group consisting of (1–10C)alkyl; trifluoromethyl; (3–10C)cycloalkyl; (6 or 10C)aryl optionally substituted by 1 to 3 members of a group consisting of halogeno, nitro, amino, dimethylamino, hydroxy, methyl, trifluoromethyl, carboxy, phenyl, and {(1–5C)alkylcarbonyl}amino; and an aromatic heterocyclic group in which up to 3 carbons of the aromatic system may bear a substituent group independently selected from a group consisting of halogeno and trifluoromethyl; and

R^6 is hydrogen or methyl; or

a pharmaceutically acceptable base-addition salt thereof.

5,723,443

LIPID METABOLISM PROMOTING AGENT AND ITS USE

Kyoichi Kagawa, Ibarakishi; Takaya Kaneda, Kagoshima; Tetsuo Tadokoro, Nishinomiya, and Yoshikazu Matsumura, Neyagawa, all of Japan, assignors to Hankyu-Kyoei Bussan Co. Ltd., Osaka, Japan

Continuation of Ser. No. 214,069, Mar. 16, 1994, abandoned, which is a continuation of Ser. No. 980,325, Oct. 9, 1992, abandoned, which is a continuation of Ser. No. 427,092, Nov. 5, 1990, abandoned. This application Feb. 28, 1996, Ser. No. 608,043

Claims priority, application Japan, Feb. 2, 1988, 63-23624

Int. Cl.[6] A23J *1/06;* A61K *38/03;* C07K *4/12;* C12P *21/06*

U.S. Cl. 514—18 8 Claims

5. A method for reducing triglyceride levels in a subject in need thereof, comprising administering to a subject in need thereof an amount of a composition of matter produced by contacting red blood cells with a proteolytic enzyme for a period of from 3 to 48 hours, at a temperature of from 20° C. to 70° C. to digest at least a portion of protein in said red blood cells to tripeptides and tetrapeptides.

5,723,444

STARTING MATERIALS IN THE SYNTHESIS OF THROMBIN AND KINOGENASE INHIBITORS

Karl Thomas Antonsson, Lindome; Ruth Elvy Bylund, Västra Frölunda; Nils David Gustafsson, Kullavik, and Nils Olov Ingemar Nilsson, Fjärås, all of Sweden, assignors to Astra AB, Sodertalje, Sweden

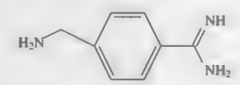
Continuation of Ser. No. 382,036, Aug. 19, 1994. This application Jun. 6, 1995, Ser. No. 470,277

Claims priority, application Sweden, Jun. 3, 1993, 9301916

Int. Cl.[6] A61K *38/00;* C07C *257/00;233/00;235/00*

U.S. Cl. 514—19 4 Claims

1. In a method of producing a peptidic thrombin inhibitor or a peptidic kininogenase inhibitor, the improvement which comprises using as a starting material the compound of the formula:



or a protected form thereof, wherein the amidino group is either mono- or diprotected at the nitrogens or a salt thereof.

5,723,445

Patent Not Issued For This Number

5,723,446

ENTERAL FORMULATION DESIGNED FOR OPTIMIZED NUTRIENT ABSORPTION AND WOUND HEALING

Debora Gray, Evanston; Nancy S. Schmelkin, Buffalo Grove; John Alexander, Kenilworth; David A. Mark, Oak Park, and Diana Twyman, Chicago, all of Ill., assignors to Nestec Ltd., Vevey, Switzerland

Continuation of Ser. No. 172,857, Dec. 23, 1993, abandoned. This application Jul. 17, 1996, Ser. No. 680,703

Int. Cl.[6] A61K *38/00;* A23J *1/00;* A23G *3/00*

U.S. Cl. 514—21 26 Claims

1. A method for providing nutrition to a trauma, burn or post-surgery patient comprising the step of enterally administering to the patient a therapeutically effective amount of a composition comprising:

a protein source comprising at least 25% of the total calories;

a carbohydrate source comprising approximately 35% to about 40% of the total calories; and

a lipid source comprising approximately 33% to about 45% of the total calories including a source of medium chain triglycerides comprising approximately 40% to about 60% of the lipid source, a source of omega-3 fatty acids, and a source of omega-6 fatty acids.

5,723,447

WATER MISCIBLE ERYTHROMYCIN SOLUTIONS

Lowell R. Macy, Vermillion, S. Dak., and Raymond E. Hopponen, Fort Dodge, Iowa, assignors to Rhone Merieux, Inc., Athens, Ga.

Filed Jul. 2, 1996, Ser. No. 675,380

Int. Cl.[6] A61K *31/70*

U.S. Cl. 514—29 14 Claims

1. A stable water miscible erythromycin composition comprising:

a) erythromycin at a concentration of between about 10% and about 40% by weight, based on the volume of the composition;

b) acetic acid present in an amount about equimolar to that of the erythromycin and forming a water soluble acetate compound of erythromycin; and

c) a water miscible non-aqueous vehicle composed of a organic solvent or mixture of solvents.

5,723,448

PREVENTING CONVERSION OF CITRULLINE TO ARGININOSUCCINATE TO LIMIT PATHOLOGICAL NITRIC OXIDE OVERPRODUCTION

Steven S. Gross, New York, N.Y., and Owen W. Griffith, Milwaukee, Wis., assignors to The Medical College of Wisconsin Research Foundation, Milwaukee, Wis.

Division of Ser. No. 354,585, Dec. 12, 1994, Pat. No. 5,545,625. This application Mar. 20, 1996, Ser. No. 618,810

Int. Cl.[6] A61K *31/70;31/195;* C07C *241/00*

U.S. Cl. 514—33 13 Claims

1. A method of prophylaxis or treatment of a subject for inflammation caused by induced nitric oxide production from arginine in cells, said method comprising administering to a subject at risk for or having such inflammation, a therapeutically effective amount of an argininosuccinate synthetase activity reducing agent.

5,723,449

METHODS AND COMPOSITIONS FOR INHIBITING URIDINE SECRETION

Jean-Pierre Sommadossi, and Mahmoud H. el Kouni, both of Birmingham, Ala., assignors to The UAB Research Foundation, Birmingham, Ala.

Continuation of Ser. No. 106,225, Aug. 13, 1993, Pat. No. 5,567,689. This application Jan. 19, 1996, Ser. No. 589,017

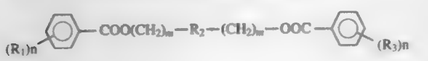
Int. Cl.[6] A61K *31/70;31/55;* C07D *241/04;* A01N *43/62*

U.S. Cl. 514—50 13 Claims

1. A method for protecting and/or rescuing normal or uninfected cells from toxicity resulting from the administration of a chemotherapeutic agent to a patient comprising:

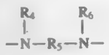
(a) administering an anticancer agent selected from the group consisting of a pyrimidine base and a pyrimidine nucleoside analogue; and

(b) administering an amount of a uridine secretion inhibiting compound effective to increase plasma and intracellular uridine levels, the uridine secretion inhibiting compound being represented by compounds having the following formula and pharmaceutically acceptable salts thereof:

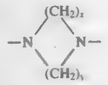


where:

R_1 and R_3 are lower alkoxy groups having from 1 to 3 carbon atoms, and are the same or different, n is an integer from 1 to 3, m is 2 or 3, R_2 is



where R_4 and R_6 are methyl, ethyl or propyl, and are the same or different, and R_5 is methyl, ethyl, propyl or butyl; or where R_2 is



where x is an integer from 2 to 4 and y is 2 or 3, and the sum of x and y is from 5 to 7.

5,723,450

SUBSTITUTED PYRIDINES, THEIR PREPARATION, AND THEIR USE AS PESTICIDES AND FUNGICIDES

Dieter Bernd Reuschling, Butzbach; Adolf Heinz Linkies, Frankfurt; Volkmar Wehner, Sandberg; Rainer Preuss, Hofheim; Wolfgang Schaper, Diedorf; Harald Jakobi, Frankfurt; Peter Braun, Nieder-Olm; Werner Knauf, Eppstein; Burkhard Sachse, Kelkheim; Anna Waltersdorfer, Frankfurt; Manfred Kern, Lörzweiler; Peter Lümmen, Niedernhausen, and Werner Bonin, Kelkheim, all of Germany, assignors to Hoechst Schering AgrEvo GmbH, Berlin, Germany

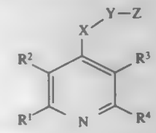
Filed Sep. 12, 1994, Ser. No. 304,382

Claims priority, application Germany, Sep. 14, 1993, 43 31 179.2

Int. Cl.[6] C07D *213/30;213/32;213/38;* A61K *31/44*

U.S. Cl. 514—63 11 Claims

1. A compound of the formula 1 or its salts



I

in which

(1) R^1, R^2, R^3 and R^4 are the same or different radicals selected from the series consisting of:
$(C_1–C_4)$-alkyl,
$(C_2–C_6)$-alkenyl,
$(C_1–C_6)$-alkoxy,
$(C_2–C_6)$-alkenyloxy,
halo-$(C_1–C_4)$-alkyl,
halo-$(C_2–C_4)$-alkenyl,
halo-$(C_1–C_4)$-alkoxy,
halo-$(C_2–C_4)$-alkenyloxy,
R—O—CH_2—,
R—O—CO—,
halo-$(C_1–C_6)$-alkoxymethyl,
halo-$(C_2–C_4)$-alkenyloxymethyl,
halo-$(C_1–C_4)$-alkoxycarbonyl,
halo-$(C_2–C_4)$-alkenyloxycarbonyl,
$(C_1–C_4)$-alkylthio,
$(C_2–C_4)$-alkenylthio,
$(C_1–C_4)$-alkylsulfinyl,
$(C_2–C_4)$-alkenylsulfinyl,
$(C_1–C_4)$-alkylsulfonyl,
$(C_2–C_4)$-alkenylsulfonyl,
aryl
substituted amino,
cyano,
halogen and
hydrogen;
R is $(C_1–C_{10})$-alkyl,
$(C_2–C_{10})$-alkenyl,
$(C_2–C_{10})$-alkynyl,
$(C_3–C_8)$-cycloalkyl or aralkyl;
aryl is defined as below under (4);
aralkyl is aryl-$(C_1–C_4)$-alkyl;

(2) X is O, S, NH, NR or NOR, R being defined as above under (1);

(3) Y is a bond or a bivalent hydrocarbon radical having 1 to 6 carbon atoms, in which a methylene group can be replaced by an oxygen atom, and which is optionally substituted by one or more identical or different radicals selected from the series consisting of
$(C_1–C_7)$-alkyl,
$(C_2–C_4)$-alkenyl,
$(C_3–C_4)$-alkynyl,
halo-$(C_1–C_4)$-alkyl and
halogen;

(4) Z is $(C_3–C_8)$-cycloalkyl or $(C_5–C_8)$-cycloalkenyl, it being possible in the carbocycle for one CH_2 to be replaced by NR^5, and R^5 is phenyl or substituted phenyl, which $(C_3–C_8)$-cycloalkyl or $(C_5–C_8)$-cycloalkenyl is substituted by one or more, identical or different radicals wherein at least one of

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said radicals is in the cis-position with respect to Y, and which radicals are selected from the series consisting of:
$(C_7–C_{18})$-alkyl,
$(C_5–C_{18})$-alkenyl,
$(C_7–C_{12})$-alkoxy,
$(C_5–C_{18})$-alkenyloxy,
$(C_7–C_{12})$-acyl
$(C_5–C_8)$-alkanyloxy,
$(C_5–C_{12})$-alkoxylcarbonyl,
$(C_5–C_{12})$-alkenyloxycarbonyl,
$SiR^6R^7R^8$,
NR^9R^{10},
oxo,
aryl,
$(C_2–C_{18})$-alkanediyl,
$(C_1–C_{18})$-alkanediyldioxy,
$(C_1–C_{13})$-alkyloximino and
$(C_2–C_{18})$-alkylidene,
it being possible for alkyl, alkenyl, alkanediyl, alkylidene, alkoxy, alkenyloxy, alkanoyloxy, alkoxylcarbonyl, alkenyloxycarbonyl, alkenediyldioxy or alkyloximino, to be unbranched or branched and one or more methylene groups to be replaced by heteroatoms/groups, selected from the group consisting of O, NR^{11} and $SiR^{12}R^{13}$ and moreover for 3 to 6 carbon atoms to form a cycle, and being optionally substituted by one or more identical or different radicals selected from the series consisting of halogen, halo-$(C_1–C_4)$-alkyl, $(C_3–C_8)$-cycloalkyl, $(C_1–C_8)$-acyl, phenoxy substituted phenoxy, phenyl, substituted phenyl, phenylthio and substituted phenylthio, R^{11} being hydrogen, $(C_1–C_4)$-alkyl or $(C_1–C_4)$-acyl and R^{12} and R^{13} being identical or different and independently of one another being $(C_1–C_4)$-alkyl, phenyl or substituted phenyl, of the said alkyl, alkenyl, alkanediyl, alkylidene and radicals derived therefrom;
R^6, R^7 and R^8 are independently selected from the group consisting of $(C_1–C_4)$-alkyl, phenyl and substituted phenyl and
R^9, R^{10} are independently selected from the group consisting of $(C_1–C_4)$-alkyl, $(C_3–C_6)$-cycloalkyl, phenyl and substituted phenyl;
aryl is a phenyl group which is optionally substituted by one or more identical or different groups selected from the series consisting of:
halogen,
$(C_3–C_8)$-cycloalkyl,
$(C_3–C_8)$-cycloalkenyl,
phenoxy,
substituted phenoxy,
phenylthio,
substituted phenylthio,
phenyl,
substituted phenyl,
NO_2,



acetoxy,
hydroxyl,
cyano,
$SiR^6R^7R^8$,
$O—SiR6^6R^7R^8$,
$NR^{15}R^{16}$,
$S(O)R^{17}$,
SO_2R^{17},
$(C_1–C_{12})$-alkyl,
$(C_1–C_{12})$-alkenyl,
$(C_1–C_7)$-alkoxy and
$(C_1–C_7)$-alkylthio
R^{14} is $(C_1–C_7)$-alkyl, halo-$(C_1–C_7)$-alkyl, $(C_3–C_7)$-cycloalkyl, halo-$(C_3–C_7)$-cycloalkyl, $(C_1–C_7)$-alkoxy, phenyl or substituted phenyl;
R^6, R^7 and R^8 have the meaning as above;
R^{15} and R^{16} independently selected from the group consisting of hydrogen, $(C_1–C_4)$-alkyl and $(C_1–C_4)$-acyl;
R^{17} is $(C_1–C_{10})$-alkyl, phenyl or substituted phenyl; in $(C_1–C_{12})$-alkyl and $(C_2–C_{12})$-alkenyl the hydrocarbon chain can be unbranched or branched and one or more CH_2 groups can be replaced by heteroatoms/groups selected from the group consisting of O, S, SO, SO_2, NR^{11} and $SiR^{12}R^{13}$;
R^{11}, R^{12} and R^{13} have the meaning as above;
the $(C_1–C_{12})$-alkyl or $(C_2–C_{12})$-alkenyl radical can additionally be substituted by one or more, identical or different groups selected from the series consisting of halogen, halo-$(C_1–C_4)$-alkoxy, hydroxyl, $(C_3–C_8)$-cycloalkyl, $(C_3–C_5)$-cycloalkenyl, $(C_1–C_4)$-acyl, phenoxy, substituted phenoxy, phenyl, substituted phenyl, phenylthio and substituted phenylthio; $(C_1–C_7)$-alkoxy and $(C_1–C_7)$-alkylthio can be unbranched or branched and one or more CH_2 groups therein can be replaced by O, and moreover can be substituted by one or more identical or different groups selected from the series consisting of halogen, phenyl, substituted phenyl, $(C_3–C_8)$-cycloalkyl, $(C_2–C_8)$-cycloalkenyl, phenoxy and substituted phenoxy.

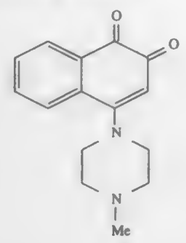
5,723,451

NITRIC OXIDE SYNTHASE (NOS) INHIBITORS

Adnan M.M. Mjalli, Vista; Sepehar Sarshar, Cardiff, and Chengzhi Zhang, Carlsbad, all of Calif., assignors to Ontogen Corporation, Carlsbad, Calif.

Filed Aug. 9, 1996, Ser. No. 694,998
Int. Cl.[6] A61K *31/495*
U.S. Cl. 514—255 **11 Claims**

1. A method for the inhibition of nitric oxide synthase in a subject in need of such inhibition which comprises the administration of an effective amount of nitric oxide synthase inhibitor wherein the inhibitor has the formula:



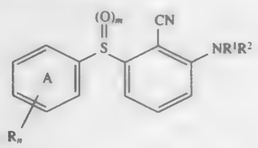
5,723,452

THERAPEUTIC BENZONITRILES

Joseph Howing Chan, Chapel Hill, N.C., assignor to Glaxo Wellcome Inc., RTP, N.C.

PCT No. PCT/GB95/00375, § 371 Date Aug. 21, 1996, § 102(e) Date Aug. 21, 1996, PCT Pub. No. WO95/23133, PCT Pub. Date Aug. 31, 1995
PCT Filed Feb. 23, 1995, Ser. No. 696,999
Claims priority, application United Kingdom, Feb. 23, 1994, 9403449
Int. Cl.[6] A61K *31/63;* **C07C** *255/34*
U.S. Cl. 514—155 **14 Claims**

1. A compound of formula (I)



(I)

wherein,
R is hydrogen, C_{1-4} alkyl, C_{1-4} alkoxy, hydroxyl, mercapto, $NR^{1a}R^{2a}$ (wherein R^{1a} and R^{2a}, which may be the same or different are, phenyl C_{1-4} alkyl) or SR^{1a} (wherein R^{1a} is hydrogen, C_{1-4}alkyl or phenyl C_{1-4} alkyl;
R^1 and R^2, which may be the same or different, are hydrogen, C_{1-4} alkyl or phenyl C_{1-4} alkyl;
m is 0, 1 or 2 and;
n is 1 to 5 (when n is greater than 1, R may be the same or different);
provided that when R^1 and R^2 are both hydrogen and m is 0, R is not hydrogen, or a physiologically functional derivative thereof.

5,723,453

STABILIZED, WATER-SOLUBLE ASPIRIN COMPOSITION

Howard P. Phykitt, Wilson, N.C., assignor to Health Corporation, Rocky Mount, N.C.

Filed Nov. 13, 1995, Ser. No. 557,726
Int. Cl.[6] A61K *31/60*
U.S. Cl. 514—165 **23 Claims**

1. A stabilized, essentially sodium-free aspirin composition which is readily soluble in a preselected fluid, said aspirin composition consisting essentially of:
(a) aspirin granules having a predetermined particle size, present in said aspirin composition generally within a range of between about 325.0 mg and about 1,000.0 mg per unit dose;
(b) granular potassium bicarbonate having an outer surface layer of potassium carbonate on granules thereof, present in said aspirin composition generally within a range of between about 250.0 mg and about 3,000.0 mg per unit dose, having a pH generally within a range of between about 8.0 and about 10.0 and being present in a molar amount which is greater than a molar amount required to neutralize said aspirin granules.

5,723,454

METHOD FOR OBTAINING ESTROGENS FROM PREGNANT MARE URINE BY SOLID PHASE EXTRACTION ON A SEMI-POLAR ADSORBER RESIN

Ivan Ban, Hannover; Henning Heinemann, Lehzte-Aligee; Gerhard Mechtold, Hannover, and Heinz-Helmer Rasche, Burgdorf, all of Germany, assignors to Sovlay Deutschland GmbH, Hannover, Germany

Continuation of Ser. No. 372,168, Jan. 12, 1995, abandoned. This application Nov. 26, 1996, Ser. No. 753,508
Claims priority, application Germany, Feb. 8, 1994, 44 03 886.0; Oct. 26, 1994, 44 38 272.3
Int. Cl.[6] A61K *31/56*
U.S. Cl. 514—169 **14 Claims**

1. A method for obtaining a natural mixture, depleted in phenolic urine contents, of conjugated estrogens from the urine of pregnant mares, said method comprising the steps of:
a) contacting a mare urine material selected from the group consisting of urine freed of mucilaginous substances and solids, a concentrate formed by reducing the volume of urine freed of mucilaginous substances and solids, and a urine retentate obtained by membrane filtration of urine freed of mucilaginous substances and solids, with a sufficient quantity of a semi-polar polymeric adsorber resin to adsorb conjugated estrogens contained in the urine material, whereby a semi-polar polymeric adsorber resin charged with a mixture of adsorbed conjugated estrogens is obtained, and thereafter separating the charged adsorber resin from the rest of the urine material;
b) washing the charged adsorber resin with an aqueous washing liquid having a pH of at least 12.0; and
c) contacting the washed adsorber resin with a sufficient quantity of an elution liquid consisting essentially of at least one water-miscible organic solvent selected from the group consisting of water-miscible ethers, lower alkanols, and lower aliphatic ketones or of a mixture of water and at least one water-miscible organic solvent selected from the group consisting of water-miscible ethers, lower alkanols and lower aliphatic ketones, to desorb the mixture of adsorbed conjugated estrogens, and recovering an eluate containing the mixture of conjugated estrogens.

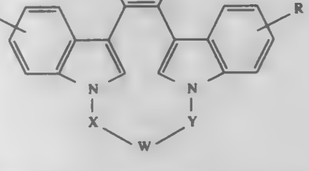
5,723,455

ANTIANDROGENIC AGENTS AND RELATED PHARMACEUTICAL COMPOSITIONS AND METHODS OF USE

Masato Tanabe, Palo Alto; Wan-Ru Chao, Sunnyvale; Wesley K. M. Chong, Encinitas, and David F. Crowe, Fresno, all of Calif., assignors to SRI International, Menlo Park, Calif.

Continuation of Ser. No. 177,899, Jan. 6, 1994, abandoned. This application Mar. 11, 1997, Ser. No. 815,311
Int. Cl.[6] C07J *71/00;1/00;* **A61K** *31/58;31/565*
U.S. Cl. 514—169 **22 Claims**

1. A compound having the structural formula



wherein:
R^1 and R^2 are independently selected from the group consisting of hydrogen and lower alkyl; and
one of R^6 and R^7 is hydroxyl and the other is n-propyl, or R^6 and R^7 are linked to provide a cycloalkyl group containing 3 to 6 carbon atoms.

5,723,456

THERAPEUTIC TREATMENT FOR CARDIOVASCULAR DISEASES

Michael R. Jirousek, Indianapolis; William Francis Heath, Jr., Fishers; Douglas Kirk Ways, and Lawrence E. Stramm, both of Indianapolis, all of Ind., assignors to Eli Lilly & Company, Indianapolis, Ind.

Continuation-in-part of Ser. No. 643,706, May 6, 1996, which is a division of Ser. No. 413,735, Mar. 30, 1995, Pat. No. 5,624,949, which is a continuation-in-part of Ser. No. 316,973, Oct. 3, 1994, abandoned, which is a continuation-in-part of Ser. No. 163,060, Dec. 7, 1993, abandoned. This application Jun. 13, 1996, Ser. No. 662,623
Int. Cl.[6] A61K *31/55;* **C07D** *487/22*
U.S. Cl. 514—183 **50 Claims**

1. A method for treating vascular endothelial cell dysfunction in a mammal comprising administering to a mammal in need of such treatment a cell dysfunction inhibiting amount of a protein kinase C inhibitor, wherein the protein kinase C inhibitor has the following formula:

(I)

wherein:
W is —O—, —S—, —SO—, —SO_2—, —CO—, $C_2–C_6$ alkylene, substituted alkylene, $C_2–C_6$ alkenylene, -aryl-,

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-aryl$(CH_2)_mO$—, -heterocycle-, -heterocycle-$(CH_2)_mO$—, -fused bicyclic-, -fused bicyclic-$(CH_2)_mO$—, —NR^3—, —NOR^3—, —CONH—, or —NHCO—;

X and Y are independently C_1–C_4 alkylene, substituted alkylene, or together X, Y, and W combine to form —$(CH_2)_n$—AA—;

R^1s are hydrogen or up to four optional substituents independently selected from halo, C_1–C_4 alkyl, hydroxy, C_1–C_4 alkoxy, haloalkyl, nitro, NR^4R^5, or — NHCO(C_1–C_4 alkyl);

R^2 is hydrogen, CH_3CO—, NH_2, or hydroxy; and

AA is an amino acid residue.

5,723,457

ACYLMERCAPTOALKANOYLAMINO AND MERCAPTOALKANOYLAMINO BENZAZEPINES

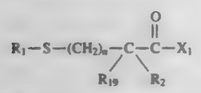
Donald S. Karanewsky, Chapel Hill, N.C., and Jeffrey A. Robl, Newtown, Pa., assignors to E. R. Squibb & Sons, Inc., Princeton, N.J.

Division of Ser. No. 160,540, Dec. 1, 1993, Pat. No. 5,552,397, which is a continuation-in-part of Ser. No. 61,606, May 13, 1993, abandoned, which is a continuation-in-part of Ser. No. 884,664, May 18, 1992, abandoned. This application Jul. 8, 1996, Ser. No. 676,769

Int. Cl.[6] A61K *31/395;31/55;* **C07D** *223/16;225/06*

U.S. Cl. 514—183 **16 Claims**

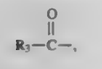
1. A compound of the formula



(I)

and pharmaceutically acceptable salts thereof wherein:

R_1 is hydrogen,



or R_{18}—S—;

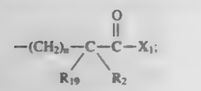
R_2 and R_{19} are independently selected from the group consisting of hydrogen, alkyl, cycloalkyl—$(CH_2)_m$—, substituted alkyl, aryl—$(CH_2)_m$—, substituted aryl—$(CH_2)_m$—, and heteroaryl—$(CH_2)_m$— or R_2 and R_{19} taken together with the carbon to which they are attached complete a cycloalkyl ring or a benzofused cycloalkyl ring;

n is zero or one;

m is zero or an integer from 1 to 6;

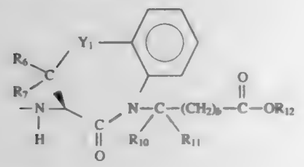
R_3 is alkyl, substituted alkyl, cycloalkyl—$(CH_2)_m$—, aryl—$(CH_2)_m$—, substituted aryl—$(CH_2)_m$—, or heteroaryl—$(CH_2)_m$—;

R_{18} is alkyl, substituted alkyl, cycloalkyl—$(CH_2)_m$—,aryl—$(CH_2)_m$—, substituted aryl—$(CH_2)_m$—, heteroaryl—$(CH_2)_m$— or —S—R_{18} completes a symmetrical disulfide wherein R_{18} is of the formula



(II)

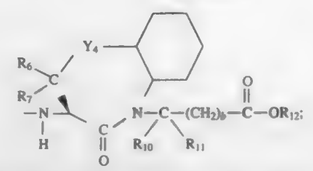
X_1 is of the formula



(VI)

or

-continued



(VII)

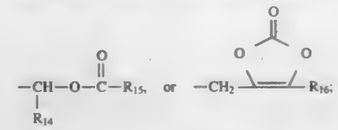
R_6 and R_{10} are independently selected from the group consisting of hydrogen, alkyl, substituted alkyl, alkenyl, substituted alkenyl, cycloalkyl —$(CH_2)_m$—, aryl—$(CH_2)_m$—, substituted aryl—$(CH_2)_m$—, and heteroaryl—$(CH_2)_m$—;

R_7 and R_{11} are independently selected from the group consisting of hydrogen, alkyl, substituted alkyl, alkenyl, substituted alkenyl, cycloalkyl —$(CH_2)_m$—, aryl—$(CH_2)_m$, substituted aryl—$(CH_2)_m$—, and heteroaryl—$(CH_2)_m$— or R_6 and R_7 taken together with the carbon to which they are attached complete a saturated cycloalkyl ring of 3 to 7 carbons;

b is zero or one;

Y_4 is —CH_2—, —$(CH_2)_2$—, or —$(CH_2)_3$—;

R_{12} is hydrogen, alkyl, substituted alkyl, aryl—$(CH_2)_m$—, substituted aryl—$(CH_2)_m$—, heteroaryl—$(CH_2)_m$—,



R_{14} is hydrogen, lower alkyl, cycloalkyl, or phenyl;

R_{15} is hydrogen, lower alkyl, lower alkoxy or phenyl;

R_{16} is lower alkyl or aryl-$(CH_2)_m$—;

the term "alkyl" refers to straight and branched chain radicals having one to seven carbon atoms;

the term "substituted alkyl" refers to such straight or branched chain radicals of 1 to 7 carbons wherein one or more hydrogens have been replaced by a hydroxy, amino, halo, trifluoromethyl, cyano, —NH(lower alkyl), —N(lower alkyl)$_2$, lower alkoxy, lower alkylthio or carboxy;

the term "alkenyl" refers to straight or branched chain radicals of 3 to 7 carbon atoms having one or two double bonds;

the term "substituted alkenyl" refers to such straight or branched radicals of 3 to 7 carbons having one or two double bonds wherein a hydrogen has been replaced by a hydroxy, amino, halo, trifluoromethyl, cyano, —NH(lower alkyl), —N(lower alkyl)$_2$, lower alkoxy, lower alkylthio, or carboxy;

the term "cycloalkyl" refers to saturated rings of 3 to 7 carbon atoms;

the term "aryl" refers to phenyl, 1-naphthyl, and 2-naphthyl;

the term "substituted aryl" refers to phenyl, 1-naphthyl, and 2-naphthyl having a substituent selected from lower alkyl, lower alkoxy, lower alkylthio, halo, hydroxy, trifluoromethyl, amino, —NH(lower alkyl), and —N(lower alkyl)$_2$, di- and tri-substituted phenyl, 1-naphthyl, or 2-naphthyl wherein said substituents are selected from methyl, methoxy, methylthio, halo, hydroxy, and amino;

the term "heteroaryl" refers to unsaturated monocyclic rings of 5 or 6 atoms containing one or two O and S atoms and/or one to four N atoms provided that the total number of hetero atoms is four or less and all other atoms in the ring are C and bicyclic rings wherein the five or six membered ring as defined above is fused to a phenyl or pyridyl ring, said heteroaryl ring is attached by way of an available carbon or nitrogen atom; and said monocyclic or bicyclic ring can be substituted at an available carbon atom by lower alkyl of 1 to 4 carbons, halo, hydroxy, benzyl, or cyclohexylmethyl, or can be substituted at an available nitrogen atom bybenzyloxymethyl, p-toluene sulfonyl, 2,4-dinitrophenyl, lower alkyl of 1 to 4 carbons, benzyl or benzhydryl;

the term "lower alkyl" refers to straight or branched chain radicals having one to four carbons;

the term "substituted lower alkyl" refers to such straight or branched chain radicals having one to four carbons wherein one hydrogen has been replaced by a hydroxy, amino, halo, trifluoromethyl, cyano, —NH(lower alkyl), —N(lower alkyl)$_2$, lower alkoxy, lower alkylthio, or carboxy;

the terms "lower alkoxy" and "lower alkylthio" refer to such lower alkyl groups as defined above attached to an oxygen or sulfur; and

the term "halo" refers to chloro, bromo, fluoro, and iodo.

5,723,458

HYPOLIPIDAEMIC COMPOUNDS

Lawrence Edward Brieaddy, Raleigh, and Gordon Lewis Hodgson, Jr., Durham, both of N.C., assignors to Glaxo Wellcome Inc., RTP, N.C.

PCT No. PCT/GB94/00314, § 371 Date Aug. 15, 1995, § 102(e) Date Aug. 15, 1995, PCT Pub. No. WO94/18184, PCT Pub. Date Aug. 18, 1994

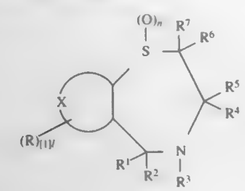
PCT Filed Feb. 15, 1994, Ser. No. 501,132

Claims priority, application United Kingdom, Feb. 15, 1993, 9303013; Jul. 22, 1993, 9315155

Int. Cl.[6] C07D *285/36;513/04;281/10;* **A61K** *31/55*

U.S. Cl. 514—211 **17 Claims**

1. A compound of formula (I):



(I)

wherein

l is an integer of from 0 to 4;

n is an integer of from 0 to 2;

R is an atom or group selected from halogen, cyano, hydroxy, nitro, alkyl, alkoxy, aryl, heteroaryl, aryloxy, arylalkoxy, aralkyl, alkaryl, —$O(CH_2)_pSO_3R^1$, —$O(CH_2)_pNR^{11}R^{12}$, —COR^{11}, —CO_2R^{11}, —$CONR^{11}R^{12}$, —CH_2OR^{11}, —$NR^{11}R^{12}$, —$NHCOR^{11}$, —$NHSO_2R^{11}$, —SR^{11}, —SO_2R^{11}, —$SO_2NR^{11}R^{12}$ and —SO_3R^{11}; or R is a group —OCH_2O— which forms a further ring attached to X;

wherein:

said alkyl, alkoxy, aryl, heteroaryl, aryloxy, arylalkoxy, aralkyl and alkaryl groups are optionally substituted by one or more atoms or groups independantly selected from halogen, hydroxy, nitro, nitrile, alkyl, alkoxy, —COR^{11}, —CO_2R^{11}, —SO_3R^{11} and —$NR^{14}R^{15}$;

p is an integer of from 1 to 4;

R^{11} and R^{12} are independently selected from hydrogen, C_{1-6} alkyl and phenyl; and

R^{14} and R^{15} are independantly selected from hydrogen and C_{1-6} alkyl;

R^1 is hydrogen or C_{1-6} alkyl;

R^2 is an atom or group selected from hydrogen, C_{1-6} alkyl (including cycloalkyl and cycloalkylalkyl), C_{1-4} alkoxy, pyrryl, thienyl, pyridyl, 1,3-benzodioxolo, phenyl and naphthyl, which groups are optionally substituted by one or more atoms or groups independently selected from halogen, cyano, hydroxy, nitro, carboxyl, phenyl, phenoxy, benzyloxy, —COR^{11}, —CO_2R^{11}, —$CONR^{11}R^{12}$, —CH_2OR^{11}, —$NR^{11}R^{12}$, —$NHCOR^{11}$, —$NHSO_2R^{11}$, —SR^{11}, —SO_2R^{11}, —SO_3R^{11}, —$O(CH_2)_pNR^{11}R^{12}$, and —$O(CH_2)_pSO_3R^{11}$ (wherein p, R^{11} and R^{12} are as hereinbefore defined);

R^3 is hydrogen, hydroxy C_{1-6} alkyl, alkoxy or —O—C_{1-6} alkanoyl;

R^4 is a group selected from C_{1-6} alkyl (including cycloalkyl and cycloalkylalkyl), C_{2-6} alkenyl, and C_{2-6} alkynyl, which groups are optionally substituted by one or more atoms or groups independently selected from halogen, oxo, —OR^{14}, —CO_2R^{14}, —$NR^{14}R^{15}$, —SR^{14}, —$S(O)C_{1-6}$ alkyl, —SO_2R^{14} and —SO_3R^{14};

R^5 is a group selected from C_{2-6} alkyl (including cycloalkyl and cycloalkylalkyl), C_{2-6} alkenyl and C_{2-6} alkynyl, which groups are optionally substituted by one or more atoms or groups independently selected from halogen, oxo, —OR^{14}, —CO_2R^{14}, —$NR^{14}R^{15}$, —SR^{14}, —$S(O)C_{1-6}$ alkyl, —SO_2R^{14} and —SO_3R^{14} (wherein R^{14} and R^{15} are as hereinbefore defined);

or R^4 and R^5, together with the carbon atom to which they are attached, form a C_{3-7} spiro cycloalkyl group which is optionally substituted by one or more atoms or groups independently selected from halogen, —OR^{14}, —CO_2R^{14}, —SO_3R^{14} and —$NR^{14}R^{15}$ (wherein R^{14} and R^{15} are as hereinbefore defined);

R^6 and R^7 are independently selected from hydrogen and C_{1-6} alkyl;

X is an aromatic or non-aromatic monocyclic or bicyclic ring system having from 5 to 10 carbon atoms (including the two carbon atoms forming part of the thiazepine ring) or X is a fused pyrryl, thienyl, or pyridyl group;

with the proviso that at least one of R, R^2, R^4 and R^5 is hydroxy or a group containing hydroxy; and

salts and solvates thereof.

5,723,459

BIOLOGICALLY ACTIVE ACYLATED AMINO ACID DERIVATIVES

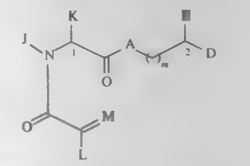
David M. Armistead, Maynard; Matthew W. Harding; Jeffrey O. Saunders, both of Acton, and Joshua S. Boger, Concord, all of Mass., assignors to Vertex Pharmaceuticals Incorporated, Cambridge, Mass.

Continuation-in-part of Ser. No. 217,982, Mar. 25, 1994, Pat. No. 5,620,971, and Ser. No. 881,152, May 11, 1992, abandoned, which is a continuation-in-part of Ser. No. 697,785, May 9, 1991, abandoned, said Ser. No. 217,982is a continuation-in-part of Ser. No. 127,814, Sep. 28, 1993, abandoned, which is a continuation-in-part of Ser. No. 952,299, Sep. 28, 1992, abandoned. This application Jan. 24, 1995, Ser. No. 377,315

Int. Cl.[6] A61K *31/54;31/535;* **C07D** *401/02;403/02*

U.S. Cl. 514—237.8 **28 Claims**

1. A compound of formula (I):



(I)

wherein

A is O, NH, or N—(C1–C4 alkyl);

B and D are independently:

(i) Ar, (C5–C7)-cycloalkyl substituted (C1–C6)-straight or branched alkyl or (C2–C6)-straight or branched alkenyl, (C5–C7)-cycloalkenyl substituted (C1–C6)-straight or branched alkyl or (C2–C6)-straight or branched alkenyl, or Ar-substituted (C1–C6)-straight or branched alkyl or Ar-substituted (C2–C6)-straight or branched alkenyl;

wherein in each case, any one of the CH_2 groups in said alkyl or alkenyl chains may be optionally replaced by a heteroatom selected from the group consisting of O, S, SO, SO_2; or

(ii)



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wherein Q is hydrogen, (C1–C6)-straight or branched alkyl or (C2–C6)-straight or branched alkenyl;

wherein T is Ar or substituted 5–7 membered cycloalkyl with substituents at positions 3 and 4 which are independently selected from the group consisting of hydrogen, oxo, hydroxyl, O—(C1–C4-alkyl) and O—(C2–C4alkenyl);

wherein Ar is a carbocyclic aromatic group selected from the group consisting of phenyl, 1-naphthyl, 2-naphthyl, indenyl, azulenyl, fluorenyl, and anthracenyl; or a heterocyclic aromatic group selected from the group consisting of 2-furyl, 3-furyl, 2-thienyl, 3-thienyl, 2-pyridyl, 3-pyridyl, 4-pyridyl, pyrrolyl, oxazolyl, thiazolyl, imidazolyl, pyrazolyl, 2-pyrazolinyl, pyrazolidinyl, isoxazolyl, isothiazolyl, 1,2,3-oxadiazolyl, 1,2,3-triazolyl, 1,3,4-thiadiazolyl, pyridazinyl, pyrimidinyl, pyrazinyl, 1,3,5-triazinyl, 1,3,5-trithianyl, indolizinyl, indolyl, isoindolyl, 3-H-indolyl, indolinyl, benzo[b]furanyl, benzo[b]thiophenyl, 1H-indazolyl, benzimidazolyl, benzthiazolyl, purinyl, 4H-quinolizinyl, quinolinyl, isoquinolinyl, cinnolinyl, phthalazinyl, quinazolinyl, quinoxalinyl, 1,8-naphthyridinyl, pteridinyl, carbazolyl, acridinyl, phenazinyl, phenothiazinyl, and phenoxazinyl;

wherein Ar may contain one to three substituents which are independently selected from the group consisting of hydrogen, halogen, hydroxyl, nitro, trifluoromethyl, trifluoromethoxy, (C1–C6)-straight or branched alkyl, (C2–C6)-straight or branched alkenyl, O—((C1–C4)-straight or branched alkyl), O—((C2–C4)-straight or branched alkenyl), O-benzyl, O-phenyl, 1,2-methylenedioxy, amino, carboxyl and phenyl;

L is U;

M is either oxygen or CH—U;

wherein U is hydrogen, O—((C1–C4)-straight or branched alkyl), O—((C2–C4)-straight or branched alkenyl), (C1–C6)-straight or branched alkyl, (C2–C6)-straight or branched alkenyl, (C5–C7)-cycloalkyl, (C5–C7)-cycloalkenyl substituted with (C1–C4)-straight or branched alkyl or (C2–C4)-straight or branched alkenyl, [(C1–C4)-alkyl or (C2–C4)-alkenyl]-Ar or Ar (Ar as defined above);

J is hydrogen or C1 or C2 alkyl or benzyl;

K is (C1–C4)-straight or branched alkyl, benzyl or cyclohexylmethyl;

m is 0–3; and

wherein the stereochemistry at carbon positions 1 and 2 are independently (R) or (S);

provided that if L is hydrogen, then M is CH—U or if M is oxygen then L is not hydrogen.

5,723,460

CYCLO (ALKYL AND ALKENYL) PHENYL-ALKENYLYL HETEROARYL COMPOUNDS AND PHARMACEUTICAL COMPOSITIONS CONTAINING SAME

Graham John Warrellow, Northwood; Valerie Anne Cole, Burnham, and Rikki Peter Alexander, High Wycombe, all of United Kingdom, assignors to Celltech Therapeutics Limited, Slough, United Kingdom

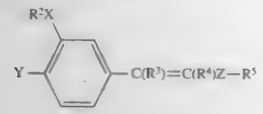
Division of Ser. No. 209,419, Mar. 9, 1994, Pat. No. 5,633,257. This application Jun. 6, 1995, Ser. No. 465,869

Claims priority, application United Kingdom, Mar. 10, 1993, 9304919

Int. Cl.[6] A61K *31/495;31/50;* **C07D** *237/08;241/12*

U.S. Cl. 514—247 **25 Claims**

1. A compound of formula (1)



wherein:

Y is halogen or —OR[1], where R[1] is substituted or unsubstituted alkyl;

X is —O—, —S— or —N(R[6])—;

Z is —$(CH_2)_n$—, where n is an integer of 0 to 3;

R^2 is substituted or unsubstituted cycloalkyl or substituted or unsubstituted cycloalkenyl;

each of R^3 and R^4 is independently hydrogen, substituted or unsubstituted alkyl, —CO_2R^7, —$CONR^8R^9$, —$CSNR^8R^9$, —CN or —CH_2CN;

R^5 is substituted or unsubstituted pyridazinyl or substituted or unsubstituted pyrazinyl;

R^6 is hydrogen or substituted or unsubstituted alkyl; and

each of R^7, R^8 and R^9 is independently hydrogen, substituted or unsubstituted alkyl, substituted or unsubstituted aralkyl or substituted or unsubstituted aryl;

or a salt, solvate, hydrate, prodrug or N-oxide thereof.

5,723,461

QUINOXALINES, A PROCESS FOR THEIR PREPARATION AND THEIR USE

Manfred Rösner, Eppstein, Germany; Uta-Maria Billhardt-Troughton, Raleigh, N.C.; Reinhard Kirsch, Braunschweig, Germany; Jörg-Peter Kleim, Kelkheim, Germany; Christoph Meichsner, Liederbach, Germany; Günther Riess, Hattersheim, Germany, and Irvin Winkler, Liederbach, Germany, assignors to Hoechst Aktiengesellschaft, Frankfurt am Main, Germany

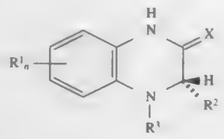
Filed Oct. 17, 1995, Ser. No. 544,290

Claims priority, application Germany, Oct. 21, 1994, 44 37 406.2

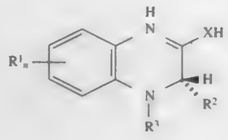
Int. Cl.[6] A61K *31/495;* **C07D** *241/44*

U.S. Cl. 514—249 **11 Claims**

1. A compound of the formula I or Ia,



(I)



(Ia)

or a physiologically tolerated salt thereof, wherein, in formulae I and Ia:

n is zero, one or two,

R^1 is fluorine, chlorine, hydroxyl or C_1–C_3-alkoxy,

R^2 is C_1–C_4-alkyl which is unsubstituted or is substituted by hydroxyl, C_1–C_4-alkoxy or C_1–C_4-alkylthio,

R^3 is C_1–C_6-alkyloxycarbonyl or C_2–C_6-alkenyloxycarbonyl, and

X is oxygen, sulfur or selenium.

5,723,462

CERTAIN FUSED PYRROLECARBOXAMIDES A NEW CLASS OF GABA BRAIN RECEPTOR LIGANDS

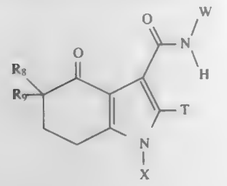
Pamela Albaugh, Clinton; Gang Liu, Branford, and Alan Hutchison, Madison, all of Conn., assignors to Neurogen Corporation, Branford, Conn.

Filed Apr. 26, 1996, Ser. No. 639,166

Int. Cl.[6] C07D *239/70;209/18;275/02;* **A61K** *31/425*

U.S. Cl. 514—249 **11 Claims**

1. A compound of the formula:



or the pharmaceutically acceptable non-toxic salts thereof wherein:

T is halogen, hydrogen, hydroxy, nitro, amine or straight or branched chain lower alkoxy having 1–6 carbon atoms;

X is hydrogen, hydroxyl or straight or branched chain lower alkyl having 1–6 carbon atoms;

W is thiazolyl, or quinoxalinyl, each of which is optionally mono or multi-substituted independently with halogen, cyano, hydroxy, straight or branches chain lower alkyl having 1–6 carbon atoms or cycloalkyl having 3–7 carbon atoms, amine, mono or dialkylamino where each alkyl is independently straight or branched chain lower alkyl having 1–6 carbon atoms or cycloalkyl having 3–7 carbon atoms, straight or Branched chain lower alkoxy having 1–6 carbon atoms, cycloalkyl alkoxy having 3–7 carbon atoms, or NR_1COR_2, COR_2, $CONR_1R_2$ or CO_2R_2 where R_1 and R_2 are the same or different and represent hydrogen or straight or branched chain lower alkyl having 1–6 carbon atoms or cycloalkyl having 3–7 carbon atoms; and R_8 is hydrogen or straight or branched chain lower alkyl having 1– 6 carbon atoms; and

R_9 is —COR_{13}, —CO_2R_{13} or —R_{13}, where R_{13} is hydrogen, phenyl, 2-, 3-, or 4-pyridyl, straight or branched chain lower alkyl having 1–6 carbon atoms, or phenylalkyl or 2-, 3-, or 4-pyridylalkyl where each alkyl is straight or branched chain lower alkyl having 1–6 carbon atoms; or

R_9 is —$CONR_{14}R_{15}$ or —$(CH_2)_kNR_{14}R_{15}$, where k is 0, 1, or 2; R_{14} represents hydrogen, straight or branched chain lower alkyl having 1–6 carbon atoms; and R_{15} is hydrogen, phenyl, 2-, 3-, or 4-pyridyl, straight or branched chain lower alkyl having 1–6 carbon atoms, or phenylalkyl or 2-, 3- or 4-pyridylalkyl where each alkyl is straight or branched chain lower alkyl having 1–6 carbon atoms; or $NR_{14}R_{15}$ forms a heterocyclic group which is morpholyl, piperidyl, pyrrolidyl, or N-alkyl piperazyl.

5,723,463

PYRIDO [3,2-E]PYRAZINONES WITH ANTI-ASTHMATIC ACTION AND PROCESSES FOR THEIR MANUFACTURE

Norbert Höfgen, Dresden; Thomas Büchner, Bonn; Ute Achterrath-Tuckermann, Maintal; Stefan Szelenyi, Schwaig, and Bernhard Kutscher, Maintal, all of Germany, assignors to ASTA Medica Aktiengesellschaft, Dresden, Germany

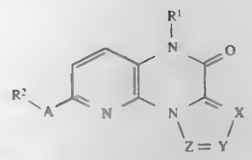
Filed Mar. 25, 1996, Ser. No. 621,315

Claims priority, application Germany, Mar. 24, 1995, 19510965.1

Int. Cl.[6] C07D *241/00;* **A61K** *31/495*

U.S. Cl. 514—250 **12 Claims**

1. Pyrido [3,2-e] pyrazinones of formula



(I)

where

A represents CH_2, NR^3 or O;

X, Y, and Z represent N or CR^4, where at least one of X, Y and Z represents N;

R^1 represents

C_1–C_{10}-alkyl (optionally branched) which is unsubstituted or substituted one or more times with hydroxy-, C_1–C_6-alkyloxy, C_1–C_6 alkenyloxy-, C_1–C_6 alkinyloxy-, aryl, aryloxy, heteroaryloxy, amino, mono-C_1–C_6-alkylamino, di-C_1–C_6-alkylamino, halogen, NO_2, CN, C=OR^5, or S(O)$_n$$R^6$ where n is 0–2,

C_1–C_{10}-alkenyl (optionally branched) which is unsubstituted or substituted one or more times with hydroxy-, C_1–C_6-alkyloxy, C_1–C_6 alkenyloxy-, C_1–C_6 alkinyloxy-, aryl, aryloxy, heteroaryloxy, amino, mono-C_1–C_6-alkylamino, di-C_1–C_6-alkylamino, halogen, NO_2, CN, C=OR^5, or S(O)$_n$$R^6$ where n is 0–2,

C_1–C_{10}-alkinyl (optionally branched) which is unsubstituted or substituted one or more times with hydroxy-, C_1–C_6-alkyloxy, C_1–C_6 alkenyloxy-, C_1–C_6 alkinyloxy-, aryl, aryloxy, heteroaryloxy, amino, mono-C_1–C_6-alkylamino, di-C_1–C_6-alkylamino, halogen, NO_2, CN, C=OR^5, or S(O)$_n$$R^6$ where n is 0–2, or

C_5–C_7-cycloalkyl which is unsubstituted or substituted one or more times with hydroxy-, C_1–C_6-alkyloxy, C_1–C_6 alkenyloxy-, C_1–C_6 alkinyloxy-, aryl, aryloxy, heteroaryloxy, amino, mono-C_1–C_6-alkylamino, di-C_1–C_6-alkylamino, halogen, NO_2, CN, C=OR^5, or S(O)$_n$$R^6$ where n is 0–2;

R^2 represents

H,

C_1–C_{10}-alkyl (optionally branched) which is unsubstituted or substituted one or more times with hydroxy-, C_1–C_6-alkyloxy, C_1–C_6 alkenyloxy-, C_1–C_6 alkinyloxy-, aryl, aryloxy, heteroaryloxy, amino, mono-C_1–C_6-alkylamino, di-C_1–C_6-alkylamino, halogen, NO_2, CN, C=OR^5, or S(O)$_n$$R^6$ where n is 0–3,

C_1–C_{10}-alkenyl (optionally branched) which is unsubstituted or substituted one or more times with hydroxy-, C_1–C_6-alkyloxy, C_1–C_6 alkenyloxy-, C_1–C_6 alkinyloxy-, aryl, aryloxy, heteroaryloxy, amino, mono-C_1–C_6-alkylamino, di-C_1–C_6-alkylamino, halogen, NO_2, CN, C=OR^5, or S(O)$_n$$R^6$ where n is 0–2,

C_5–C_7-alkinyl (optionally branched) which is unsubstituted or substituted one or more times with hydroxy-, C_1–C_6-alkyloxy, C_1–C_6 alkenyloxy-, C_1–C_6 alkinyloxy-, aryl, aryloxy, heteroaryloxy, amino, mono-C_1–C_6-alkylamino, di-C_1–C_6-alkylamino, halogen, NO_2, CN, C=OR^5, or S(O)$_n$$R^6$ where n is 0–2,

C_5–C_7-cycloalkyl which is unsubstituted or substituted one or more times with hydroxy-, C_1–C_6-alkyloxy, C_1–C_6 alkenyloxy-, C_1–C_6 alkinyloxy-, aryl, aryloxy, heteroaryloxy, amino, mono-C_1–C_6-alkylamino, di-C_1–C_6-alkylamino, halogen, NO_2, CN, C=OR^5, or S(O)$_n$$R^6$ where n is 0–2,

4-(1-chlorophenyl-1-phenylmethyl)-1-piperazinylmethyl, quinolinylmethyl or pyridinylmethyl;

R^3 represents H or C_1–C_6-alkyl;

R^4 represents H, a branched or unbranched C_1–C_6-alkyl or a halogen;

R^5 represents H, branched or unbranched C_1–C_6-alkyl, phenyl, OH, branched or unbranched C_1–C_6 alkyloxy, aryloxy, amino, mono-C_1–C_6-alkylamino, or di-C_1–C_6-alkylamino;

R^6 represents H, C_1–C_6-alkyl, aryl, OH, C_1–C_6 alkyloxy, aryloxy, amino, mono-C_1–C_6-alkylamino, or di-C_1–C_6-alkylamino;

and physiologically acceptable salts thereof.

VOL 1208 ISS 1 MR 3 1998 UMI

5,723,464

PIPERAZINE DERIVATIVES

Christopher Ian Brightwell, Windsor, and Michael Gerard Kelly, Maidenhead, both of Great Britain, assignors to American Home Products Corporation, Madison, N.J.

Filed Jun. 2, 1995, Ser. No. 459,205

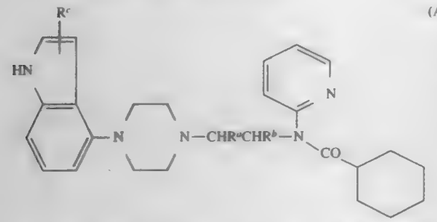
Claims priority, application United Kingdom, Jun. 3, 1994, 9411099

Int. Cl.[6] A61K *31/495;* **C07D** *401/14*

U.S. Cl. 514—254 **13 Claims**

1. A compound of the general formula A:

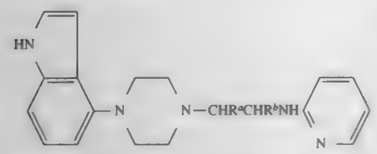
(A)



where R^a and R^b are each hydrogen or methyl and R^c is hydrogen, halo or C_{1-4} alkyl; or a pharmaceutically acceptable acid addition salt thereof.

9. An amine of formula B:

(B)



where R^a and R^b are each hydrogen or methyl.

5,723,465

INHIBITORS FOR CELL ADHESION AND CELLULAR INFILTRATION

Hiroshi Nakao, Tsuchiura; Michihisa Umetani, Tokyo; Makoto Suda, Tsukuba, and Takao Nagoya, Tsuchiura, all of Japan, assignors to Kowa Co., Ltd., Nagoya, Japan

Filed Nov. 18, 1996, Ser. No. 746,811

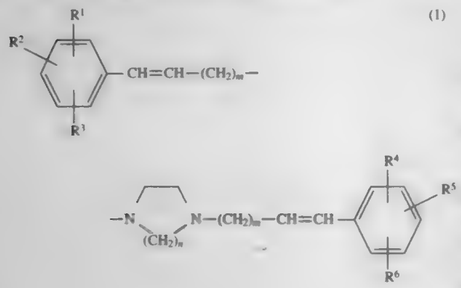
Claims priority, application Japan, Nov. 20, 1995, 7-301526

Int. Cl.[6] A61K *31/495;31/55*

U.S. Cl. 514—255 **2 Claims**

2. A preventive or therapeutic method for pathological conditions selected from the group consisting of allergic diseases, asthma, inflammations, rheumatism and arteriosclerosis, which comprises administering to a subject in need thereof an effective amount of a compound of the following formula (1):

(1)



wherein each of R^1, R^2, R^3, R^4, R^5, and R^6, which are identical to or different from each other, represents a hydrogen atom, a halogen atom, a hydroxyl group, a lower alkyl group, or a lower alkoxy group, m represents a number of 1 to 3 inclusive, and n represents 2 or 3; an acid addition salt thereof; or a hydrate of the compound or the acid addition salt.

5,723,466

TRANS CYCLOPENTANYL PURINE ANALOGS USEFUL AS IMMUNOSUPPRESSANTS

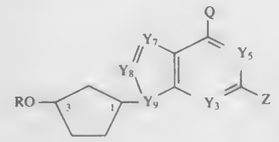
David R. Borcherding, Loveland, Ohio; Carl K. Edwards, III, Superior, Colo.; Ronald E. Esser, Berkeley Heights, N.J., and Douglas L. Cole, San Diego, Calif., assignors to Hoechst Marion Roussel, Inc., Cincinnati, Ohio

Continuation-in-part of Ser. No. 369,576, Jan. 6, 1995, abandoned, which is a continuation of Ser. No. 965,601, Nov. 2, 1992, abandoned, which is a continuation-in-part of Ser. No. 804,153, Dec. 6, 1991, abandoned. This application Jun. 7, 1995, Ser. No. 485,263

Int. Cl.[6] C07D *487/04;* **A61K** *31/505*

U.S. Cl. 514—258 **24 Claims**

1. A compound of the formula



wherein

the substituent in the 3-position on the cyclopentanyl ring is in the TRANS configuration relative to the bicyclic substituent,

Y_3, Y_5 and Y_9 are each nitrogen and Y_7 and Y_8 are a CH group,

R is a C_1–C_7 alkyl acyl or aryl acyl,

Q is NH_2, halogen or hydrogen, and

Z is hydrogen, halogen, or NH_2;

or a pharmaceutically-acceptable salt thereof.

5,723,467

METHOD OF TREATING PSYCHOTIC DISORDERS USING RISPERIDONE PAMOATE

Jean Louis Mesens, Wechelderzande, and Jozef Peeters, Beerse, both of Belgium, assignors to Janssen Pharmaceutica, N.V., Beerse, Belgium

Division of Ser. No. 522,422, Sep. 22, 1995, Pat. No. 5,612,346. This application Dec. 24, 1996, Ser. No. 773,737

Claims priority, application European Pat. Off., Apr. 28, 1993, 93201216

Int. Cl.[6] A61K *31/505*

U.S. Cl. 514—258 **10 Claims**

1. A method of treating psychotic diseases which comprises administering an effective amount to a subject in need of such treatment of the pamoate acid addition salt of risperidone.

5,723,468

6-MEMBERED RING FUSED IMIDAZOLES AS MUSCARINIC AGENTS

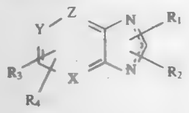
Annmarie Louise Sabb, Pennington, N.J., and Michael Byron Webb, Levittown, Pa., assignors to American Home Products Corporation, Madison, N.J.

Filed Oct. 1, 1996, Ser. No. 728,185

Int. Cl.[6] A61K *31/52;* **C07D** *519/00;473/00*

U.S. Cl. 514—262 **8 Claims**

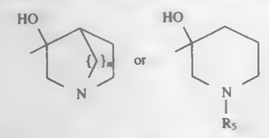
1. A compound of the formula:



where

R_1 is H, alkyl of 1 to 6 carbon atoms, perhaloalkyl of 1 to 6 carbon atoms, arylalkyl of 7 to 12 carbon atoms, alkenyl of 2 to 6 carbon atoms, or alkynyl of 2 to 6 carbon atoms;

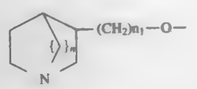
R_2 is H when R_4 is other than H, and, when R_4 is H, R_2 is



in which R_5 is hydrogen or alkyl of 1 to 6 carbon atoms;

R_3 is hydrogen or halogen;

R_4 is H or



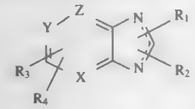
X and Y are nitrogen and Z is carbon;

n is 1 or 2;

n_1 is 0, 1, 2, 3, 4, or 5;

or a pharmaceutically acceptable salt thereof.

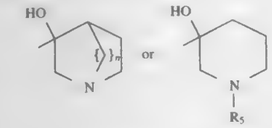
6. A method for alleviating the symptoms of neurological illness attending acetylcholine deficiency which comprises administering to a patient in need thereof, parenterally or orally, a muscarinic receptor active compound of the formula:



where

R_1 is H, alkyl of 1 to 6 carbon atoms, perhaloalkyl of 1 to 6 carbon atoms, arylalkyl of 7 to 12 carbon atoms, alkenyl of 2 to 6 carbon atoms, or alkynyl of 2 to 6 carbon atoms;

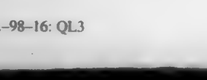
R_2 is H when R_4 is other than H, and, when R_4 is H, R_2 is



in which R_5 is hydrogen or alkyl of 1 to 6 carbon atoms;

R_3 is hydrogen or halogen;

R_4 is H or



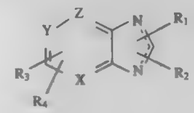
X and Y are nitrogen and Z is carbon;

n is 1 or 2;

n_1 is 0, 1, 2, 3, 4, or 5;

or a pharmaceutically acceptable salt thereof.

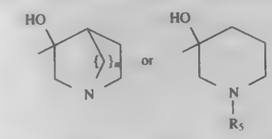
7. A method of alleviating memory loss attending senility which comprises administering to a patient in need thereof, parenterally or orally, a muscarinic receptor active compound of the formula:



where

R_1 is H, alkyl of 1 to 6 carbon atoms, perhaloalkyl of 1 to 6 carbon atoms, arylalkyl of 7 to 12 carbon atoms, alkenyl of 2 to 6 carbon atoms, or alkynyl of 2 to 6 carbon atoms;

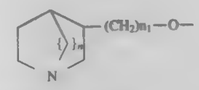
R_2 is H when R_4 is other than H, and, when R_4 is H, R_2 is



in which R_5 is hydrogen or alkyl of 1 to 6 carbon atoms;

R_3 is hydrogen or halogen;

R_4 is H or



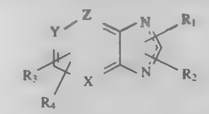
X and Y nitrogen and Z is carbon;

n is 1 or 2;

n_1 is 0, 1, 2, 3, 4, or 5;

or a pharmaceutically acceptable salt thereof, in an amount sufficient to enhance cognition.

8. A method for alleviating the neurological symptoms attending Parkinson's disease or senile pugilistica, which comprises administering to a patient in need thereof, parenterally or orally, a muscarinic receptor active compound of the formula:

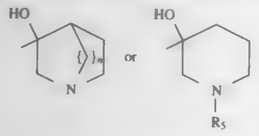


where

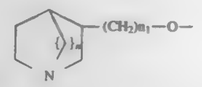
R_1 is H, alkyl of 1 to 6 carbon atoms, perhaloalkyl of 1 to 6 carbon atoms, arylalkyl of 7 to 12 carbon atoms, alkenyl of 2 to 6 carbon atoms, or alkynyl of 2 to 6 carbon atoms;

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R_2 is H when R_4 is other than H, and, when R_4 is H, R_2 is



in which R_5 is hydrogen or alkyl of 1 to 6 carbon atoms;
R_3 is hydrogen or halogen;
R_4 is H or



X and Y are nitrogen and Z is carbon;
n is 1 or 2;
n_1 is 0, 1, 2, 3, 4, or 5;
or a pharmaceutically acceptable salt thereof, in an amount sufficient to alleviate said neurological symptoms.

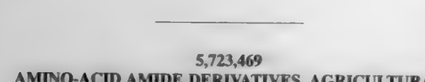
5,723,469

AMINO-ACID AMIDE DERIVATIVES, AGRICULTURAL OR HORTICULTURAL FUNGICIDES, AND METHOD FOR PRODUCING THE SAME

Masaru Shibata, Shizuoka-ken; Kazuhiko Sugiyama; Norihisa Yonekura, both of Iwata-gun; Junetsu Sakai, Ogasa-gun; Yoshiyuki Kojima, Kakegawa, and Shigeru Hayashi, Ogasa-gun, all of Japan, assignors to Kumiai Chemical Industry Co., Ltd., and Ihara Chemical Industry Co., Ltd., both of Tokyo, Japan

Division of Ser. No. 356,316, Dec. 28, 1994, Pat. No. 5,574,064. This application Jul. 11, 1996, Ser. No. 678,299
Claims priority, application Japan, Apr. 28, 1993, 5-125455
Int. Cl.[6] A61K *31/505;31/44;* **C07D** *239/34;213/02*
U.S. Cl. 514—269 **5 Claims**

1. An amino-acid amide represented by the formula:



wherein
R^1 represents
a lower alkyl group (optionally having at least one same or different substituent selected from the group consisting of a halogen atom, an alkoxy group, and a cyano group),
a lower alkenyl group,
a lower alkynyl group,
a cycloalkyl group (optionally having at least one same or different substituent selected from the group consisting of methyl group and a halogen atom),
a cycloalkylalkyl group,
a cycloalkenyl group,
an alkylene oxide group,
an aralkyl group (optionally having at least one same or different substituent selected from the group consisting of a methyl group, a cyano group, and a nitro group),
a phenyl group (optionally having at least one same or different substituent selected from the group consisting of
a halogen atom,
a lower alkyl group which may be substituted with a same or different halogen atom,
a lower alkoxy group which may be substituted with a same or different halogen atom,
a cyano group, and
a nitro group), or
a heterocyclic group,
R^2 represents an ethyl group, an n-propyl group, an isopropyl group, an isobutyl group, a sec-butyl group, a tert-butyl group, an alkenyl group, a cycloalkyl group, a phenyl group (optionally having at least one substituent of halogen atom),
R^3 represents a hydrogen atom or a lower alkyl group,
R^4 represents a hydrogen atom, a lower alkyl group, or a cyano group,
R^5, R^6, and R^7 independently represent a hydrogen atom or a lower alkyl group,
R^8 represents a hydrogen atom, a lower alkyl group, an aralkyl group, a phenyl group, an alkoxycarbonyl group, or a cyano group
Z^1 and Z^2 independently represent an oxygen atom or a sulfur atom,
Z^3 represents
an oxygen atom,
a sulfur atom,
a group N—R^{10} (wherein R^{10} represents a hydrogen atom, a methyl group, a methylcarbonyl group, a phenylcarbonyl group, a methoxycarbonyl group, or a methoxymethyl group),
a sulfinyl group,
a sulfonyl group,
a group COO,
a group CONR[11] (wherein R^{11} represents a hydrogen atom or a lower alkyl group),
Q represents
a heterocyclic group (optionally having a substituent selected from the group consisting of a halogen, an alkyl group, a trifluoromethyl group and a nitro group), or
a condensed heterocyclic group selected from the groups consisting of benzofuran, benzothiopene and quinoline (optionally having a substituent selected from the group consisting of a halogen and a nitro group),
m represents an integer from 0 to 2, and
n represents 0 or 1.

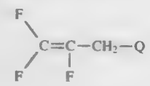
5,723,470

FLUOROALKENYL COMPOUNDS AND THEIR USE AS PEST CONTROL AGENTS

Dennis Paul Phillion, St. Charles; Peter Gerrard Ruminski, Ballwin, and Gopichand Yalamanchili, St. Louis, all of Mo., assignors to Monsanto Company, St. Louis, Mo.

Division of Ser. No. 329,593, Oct. 26, 1994, Pat. No. 5,514,717. This application Feb. 12, 1996, Ser. No. 599,827
Int. Cl.[6] A61K *31/505;31/41;* **C07D** *239/47;249/10*
U.S. Cl. 514—272 **9 Claims**

1. A compound having the structure:



wherein
Q is (C=W)—R_2;
wherein W is 0 or S;
R_2 is (a) —OR_{50}, —SR_{50}, or —$NR_{50}R_{60}$ wherein R_{60} is hydrogen or R_{50}; and wherein R_{50} is
(i) a heterocyclic group, substituted with at least one group selected from a radical of sulfonic acid, phosphonic acid, phosphinic acid, their esters, amides and thio esters; cyano, or trimethylsilyl and optionally further substituted with one of hydroxy, alkoxy, halo, nitro, amino, thiol, alkylthio, carboxyl, alkoxycarbonyl, or phenyl;
ii R_{50} and R_{60} taken together with the N-atom to which they are attached is a cyclic group selected from a radical of morpholine, piperidine, piperazine, or pyrrolidine, substituted with at least one group selected from a radical of sulfonic acid, phosphonic acid, phosphinic acid, their esters, amides and thio esters; cyano, or tfimethylsilyl and optionally further substituted with one of hydroxy, alkoxy, halo, nitro, amino, thio, alkylthio, carboxyl, alkoxycarbonyl, or phenyl;
iii R_{50} and R_{60} taken together with the N-atom to which they are attached are pyrazole, imidazole or triazole, optionally substituted with at least one group selected from a radical of sulfonic acid, phosphonic acid, phosphinic acid, carboxylic acid, their esters, amides and thio esters; cyano, or trimethylsilyl, hydroxy, alkoxy, halo, nitro, amino, thio, alkylthio, or phenyl; or
(b) A heterocyclic group optionally substituted with a radical of sulfonic acid, phosphonic acid, phosphinic acid, carboxylic acid, their esters, amides and thioesters, cyano, trimethylsilyl, hydroxy, alkoxy, halo, nitro, amino, thiol, alkylthio, or phenyl; with the proviso that when W is S and the heterocyclic group contains a N atom, then the point of attachment to the heterocyclic group must be through a N atom and with the further proviso that when W is O and R_2 is (b), the heterocyclic group can not be morpholine, piperidine, piperazine or pyrrolidine;
or any agronomically acceptable salt thereof.

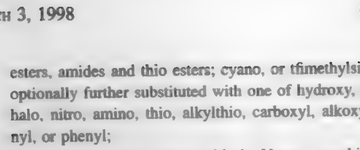
5,723,471

PYRIMIDINE FUNGICIDES

Paul John De Fraine, Wokingham, United Kingdom, assignor to Zeneca Limited, London, England

PCT No. PCT/GB95/00399, § 371 Date Aug. 7, 1996, § 102(e) Date Aug. 7, 1996, PCT Pub. No. WO95/24396, PCT Pub. Date Sep. 14, 1995
PCT Filed Feb. 27, 1996, Ser. No. 687,545
Claims priority, application United Kingdom, Mar. 7, 1994, 9404375
Int. Cl.[6] C07D *239/46;* **A01N** *43/54*
U.S. Cl. 514—274 **9 Claims**

1. A compound having the formula (I)



or a steroisomer thereof, wherein R is H or CH_3, A is CH or N, and D is OCH_3 or $NHCH_3$.

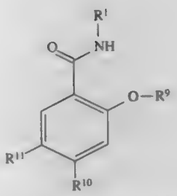
5,723,472

AMINOBENZOIC ACID DERIVATIVES

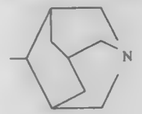
Shuhei Miyazawa; Yorihisa Hoshino; Hisashi Shibata; Kazuo Hirota; Takaaki Kameyama; Shinya Abe, and Takashi Yamanaka, all of Ibaraki, Japan, assignors to Eisai Co., Ltd., Tokyo, Japan

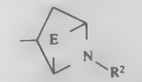
Division of Ser. No. 458,038, Jun. 1, 1995, which is a division of Ser. No. 275,704, Jul. 18, 1994, Pat. No. 5,512,579. This application Feb. 24, 1997, Ser. No. 806,536
Claims priority, application Japan, Jul. 30, 1993, 5-189693
Int. Cl.[6] A61K *31/435;* **C07D** *265/12;221/22*
U.S. Cl. 514—294 **9 Claims**

1. An aminobenzoic acid derivative represented by the following general formula (I) or a pharmacologically acceptable salt thereof:



wherein R^1 represents a group represented by the formula:





E is a group represented by formula —$(CH_2)_3$— or a group represented by formula —O—$(CH_2)_2$; R^2 represents hydrogen, lower alkyl or arylalkyl;
R^9 represents alkynyl;
R^{10} represents amino, acylamino or alkylamino; and
R^{11} represents halogen.

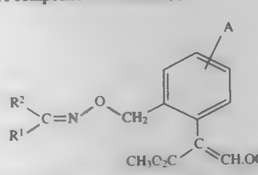
5,723,473

PROPENOIC ACID DERIVATIVES USEFUL AS FUNGICIDES

Brian Leslie Pilkington, Maidenhead, England, assignor to Zeneca Limited, London, England

PCT No. PCT/GB93/01990, § 371 Date Apr. 11, 1995, § 102(e) Date Apr. 11, 1995, PCT Pub. No. WO94/08968, PCT Pub. Date Apr. 28, 1994
PCT Filed Sep. 22, 1993, Ser. No. 416,701
Claims priority, application United Kingdom, Oct. 14, 1992, 9221526
Int. Cl.[6] A01N *47/42;* **C07D** *217/56;217/62;217/22*
U.S. Cl. 514—307 **7 Claims**

1. A compound of formula (I):



wherein A is hydrogen, halogen, hydroxy, C_{1-4} alkyl, C_{1-4} alkoxy, C_{1-4} haloalkyl, C_{1-4} haloalkoxy, C_{1-4} alkylcarbonyl, C_{1-4} alkoxycarbonyl, phenoxy, nitro or cyano; and one of R^1 and R^2 is hydrogen, C_{1-4} alkyl, C_{1-4} haloalkyl, halogen or cyano while the other is isoquinoline optionally substituted with one or more of the following: halogen, hydroxy, mercapto, C_{1-4} alkyl, C_{2-4} alkynyl, C_{2-4} alkenyl, C_{1-4} alkoxy, C_{2-4} alkenyloxy, C_{2-4} alkynyloxy, halo(C_{1-4})alkyl, halo(C_{1-4})alkoxy, C_{1-4} alkylthio, halo(C_{1-4})alkylthio, hydroxy(C_{1-4})alkyl, C_{1-4} alkoxy(C_{1-4})alkyl, C_{3-6} cycloalkyl, C_{3-6} cycloalkyl(C_{1-4})alkyl, methylenedioxy (optionally substituted with fluorine or C_{1-4} alkyl), aryl, heteroaryl, aryloxy, heteroaryloxy, aryl(C_{1-4})alkyl (in which the alkyl moiety is optionally substituted with hydroxy), heteroaryl(C_{1-4})alkyl, aryl(C_{2-4})alkenyl, heteroaryl(C_{2-4})alkenyl, aryl(C_{1-4})alkoxy, heteroaryl(C_{1-4})alkoxy, aryloxy(C_{1-4})alkyl, hereroaryloxy(C_{1-4})alkyl, C_{1-4}; alkanoyloxy, benzoyloxy, cyano, thiocyanato, nitro, —NR'R", —NHCOR', —NHCONR'R", —CONR'R", —COOR', —OSO_2R', —SO_2R'—COR', —CR'=NR" or —N=CR'R"; wherein the aryl or het-

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eroaryl rings of any of the foregoing substituents are optionally substituted by one or more of the following: halo, hydroxy, mercapto, C_{1-6} alkyl, C_{2-6} alkenyl, C_{2-6} alkynyl, C_{1-6} alkoxy, C_{2-6} alkenyloxy, C_{2-6} alkynyloxy, halo(C_{1-6})alkyl, halo(C_{1-6})alkoxy, C_{1-6} alkylthio, hydroxy(C_{1-6})alkyl, C_{1-6} alkoxy(C_{1-6})alkyl, C_{3-6} cycloalkyl, C_{3-6} cycloalkyl(C_{1-6})alkyl, alkanoyloxy, benzoyloxy, cyano, thiocyanato, nitro, —NR'R", —NHCOR', —NHCONR'R", —CONR'R", —COOR', —SO_2R', —OSO_2R', —COR', —CR'=NR" or —N=CR'R"; R' and R" are independently hydrogen, C_{1-6} alkoxy, C_{1-6} alkylthio, C_{3-6} cycloalkyl, C_{3-6} cycloalkyl(C_{1-6})alkyl, phenyl or benzyl, the phenyl and benzyl groups being optionally substituted with halogen, C_{1-6} alkyl or C_{1-6} alkoxy; aryl is phenyl or naphthyl; and heteroaryl is pyridinyl, pyrimidinyl, pyridazinyl, pyrazinyl, triazinyl (1,2,3-, 1,2,4- or 1,3,5-), furyl, thienyl, pyrrolyl, pyrazolyl, imidazolyl, triazolyl (1,2,3- or 1,2,4-), oxazolyl, isoxazolyl, thiazolyl, isothiazolyl, quinolinyl, isoquinolinyl, cinnolinyl, quinazolinyl, quinoxalinyl, indolinyl, isoindolinyl, benzofuranyl, benzothienyl or benzimidazolinyl.

5,723,474

BENZOTHIOPHENE COMPOUNDS, INTERMEDIATES, COMPOSITIONS, AND METHODS

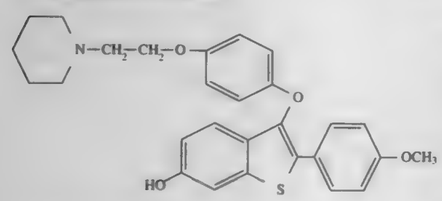
Alan David Palkowitz, Carmel, Ind., assignor to Eli Lilly and Company, Indianapolis, Ind.

Continuation-in-part of Ser. No. 396,401, Feb. 28, 1995, Pat. No. 5,510,357. This application Nov. 3, 1995, Ser. No. 552,636

Int. Cl.[6] A61K *31/445;* **C07D** *409/12*

U.S. Cl. 514—324 **4 Claims**

1. A compound of the formula:



or a pharmaceutically acceptable salt thereof.

5,723,475

ARYLPIPERIDINE AND ARYLPIPERAZINE DERIVATIVES AND MEDICAMENT CONTAINING THE SAME

Hirokazu Annoura, Nagaokakyo; Mayumi Uesugi, Ikoma-gun; Atsuko Fukunaga, Yokohama, and Shigeki Tamura, Ibaraki, all of Japan, assignors to Suntory Limited, Osaka, Japan

PCT No. PCT/JP96/00469, § 371 Date Oct. 28, 1996, § 102(e) Date Oct. 28, 1996, PCT Pub. No. WO96/26924, PCT Pub. Date Jun. 9, 1996

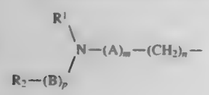
PCT Filed Feb. 28, 1996, Ser. No. 732,284

Claims priority, application Japan, Feb. 28, 1995, 7-040597

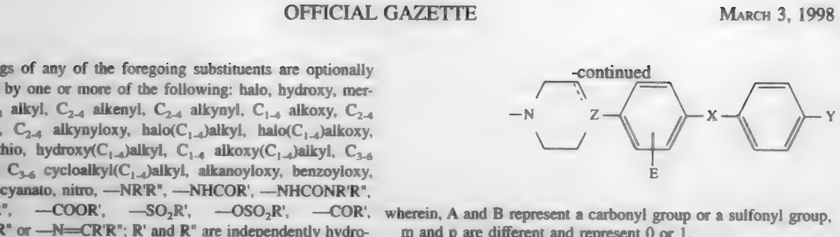
Int. Cl.[6] A61K *31/445;31/495;* **C07D** *211/26;241/04*

U.S. Cl. 514—331 **13 Claims**

1. A compound having the general formula (I) or its salt:



(I)



wherein, A and B represent a carbonyl group or a sulfonyl group,

m and p are different and represent 0 or 1,

R^1 and R^2 may be the same or different from each other and represent a hydrogen atom, an unsubstituted or substituted alkyl group, an unsubstituted or substituted aryl group, an unsubstituted or substituted aralkyl group, unsubstituted or substituted heterocyclic group containing nitrogen, an unsubstituted or substituted heterocyclic group containing oxygen or R^1 and R^2, taken together with the nitrogen atom to which they are linked, may form an unsubstituted or substituted heterocyclic group, provided that when B is a sulfonyl group, R^2 does not represent a hydrogen atom,

n is an integer of 1 to 6,

X represents a methylene group or an oxygen atom,

E and Y may be the same or different from each other and represent a hydrogen atom, a halogen atom, an alkoxy group, or an alkyl group which may be substituted by a halogen atom,

the dotted line shows the presence or absence of a bond,

when said dotted line shows the present of a bond, Z represents a carbon atom, and when said dotted line shows the absence of a bond, Z represents CH or a nitrogen atom.

5,723,476

4-HYDROXYCOUMARIN-3-CARBOXAMIDES FOR THE TREATMENT OF DIABETES MELLITUS

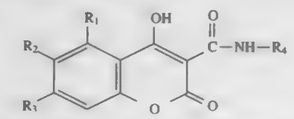
Scott D. Larsen; Jerry R. Colca, both of Kalamazoo; Peter K. W. Harris, Portage; Howard R. Miller; Alice L. Laborde, both of Kalamazoo; Rolf F. Kletzien, Plainwell, and Heinrich Josef Schostarez, Portage, all of Mich., assignors to Pharmacia & Upjohn Company, Kalamazoo, Mich.

Filed Nov. 12, 1996, Ser. No. 747,185

Int. Cl.[6] A61K *31/35;31/37*

U.S. Cl. 514—337 **8 Claims**

1. A method of treating a patient suffering from or susceptible to diabetes mellitus comprising the administration of an effective mount of a compound of formula I



I

or pharmaceutical acceptable salts thereof wherein:

R_1 is
(a) H,
(b) F,
(c) Cl, or
(d) CH_3;

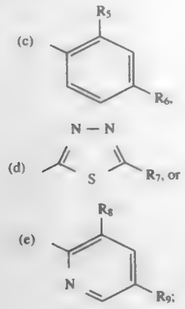
R_2 is
(a) H,
(b) F,
(c) Cl,
(d) Br, or
(e) Phenyl;

or R_1 and R_2 taken together is phenyl;

R_3 is
(a) H,
(b) Cl,
(c) F,
(d) —NO_2,
(e) phenoxy,
(f) Br, or

(g) CF_3;

R_4 is
(a) 3-carbamoyl-5-methylthien-2-yl,
(b) 5-(trifluoromethyl)-1,3,4-triazol,



R_5 is
(a) H, or
(b) Cl;

R_6 is
(a) H,
(b) Br,
(c) F,
(d) benzoyl,
(e) 5-trifluoromethyl-1,3,4-thiadiazol-2-oxy, or
(f) $(CH_3)CH—P—O(OEt_2)$;

R_7 is
(a) —SO_2CH_3,
—SO_2NH_2,
(c) —$SO_2N(CH_3)_2$,
(d) CF_3,
(e) CF_2Cl,
(f) CF_2H,
(g) Br,
(h) Cl, or
(i) CF_2CF_3;

R_8 is
(a) H, or
(b) Cl; and

R_9 is
(a) Br, or
(b) CF_3.

5,723,477

MODULATORS OF ACETYLCHOLINE RECEPTORS

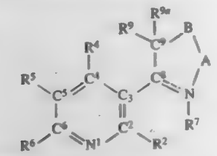
Ian A. McDonald; Jeffrey P. Whitten, and Nicholas D. Cosford, all of San Diego, Calif., assignors to Sibia Neurosciences, Inc., La Jolla, Calif.

Continuation-in-part of Ser. No. 337,640, Nov. 10, 1994, Pat. No. 5,594,011. This application Jun. 7, 1995, Ser. No. 484,413

Int. Cl.[6] C07D *401/02;* **A61K** *31/44*

U.S. Cl. 514—340 **21 Claims**

1. A compound having the structure:



I

wherein:

A is a 2 or 3 atom bridging species which forms part of a saturated or monounsaturated 6- or 7-membered ring including N^7, C^8, C^9 and B, provided, however, that the ring formed by N^7, C^8, C^9, A and B does not contain any covalent heteroatom-heteroatom single bonds, or any heteroatom-methylene-heteroatom relationships;

B is selected from —O—, —S—, NR^{10}—, wherein R^{10} is selected from hydrogen, lower alkyl, aryl, substituted aryl, alkylaryl, substituted alkylaryl, arylalkyl, substituted arylalkyl; or B is =N—, provided there is no double bond in the ring between A and B, or between B and C^9 when there is a double bond between N^7 and C^8;

R^2, R^4, R^5 and R^6 are each independently selected from hydrogen, alkyl, substituted alkyl, cycloalkyl, substituted cycloalkyl, alkenyl, substituted alkenyl, alkynyl, substituted alkynyl, aryl, substituted aryl, alkylaryl, substituted alkylaryl, arylalkyl, substituted arylalkyl, heterocyclic, substituted heterocyclic, trifluoromethyl, halogen, cyano, nitro;

—S(O)R', —$S(O)_2$R' or —$S(O)_2$NHR' wherein each R' is as defined above, provided, however, that when R^2, R^4, R^5 or R^6 is —S(O)R', R' is not hydrogen, alkenyl or alkynyl, and provided that when R^2, R^4, R^5 or R^6 is $S(O)R_2NHR'$, R' is not alkenyl or alkynyl;

—C(O)R", wherein R" is selected from hydrogen, alkyl, substituted alkyl, alkoxy, alkylamino, alkenyl, substituted alkenyl, alkynyl, substituted alkynyl, aryl, substituted aryl, aryloxy, arylamino, alkylaryl, substituted alkylaryl, arylalkyl, substituted arylalkyl, heterocyclic, substituted heterocyclic or trifluoromethyl, provided, however, that the carbonyl functionality is not conjugated with an alkenyl or alkynyl functionality;

—OR'", wherein R'" is selected from hydrogen, alkyl, substituted alkyl, cycloalkyl, substituted cycloalkyl, alkenyl, substituted alkenyl, alkynyl, substituted alkynyl, aryl, substituted aryl, alkylaryl, substituted alkylaryl, arylalkyl, substituted arylalkyl, aroyl, substituted aroyl, heterocyclic, substituted heterocyclic, acyl, trifluoromethyl, alkylsulfonyl or arylsulfonyl, provided, however, that the —OR'" functionality is not conjugated with an alkynyl or alkynyl functionality;

—$NR'"_2$, wherein each R'" is independently as defined above, or each R'" and the N to which they are attached can cooperate to form a 4-, 5-, 6- or 7-membered ring; provided, however, that the —$NR'"_2$ functionality is not conjugated with an alkenyl or alkynyl functionality;

—SR"", wherein R"" is selected from hydrogen, alkyl, substituted alkyl, alkenyl, substituted alkenyl, alkynyl, substituted alkynyl, aryl, substituted aryl, alkylaryl, ,substituted alkylaryl, arylalkyl, substituted arylalkyl, heterocyclic, substituted heterocyclic or trifluoromethyl, provided, however, that the —SR"" functionality is not conjugated with an alkenyl or alkynyl functionality; or

—$SiR""_3$, wherein R"" is selected from alkyl or aryl;

R^7 is selected from hydrogen, lower alkyl, aryl, substituted aryl, alkylaryl, or substituted alkylaryl, or R^7 is absent when there is a double bond between N^7 and C^8; and

R^9 and R^{9a} are each independently selected from hydrogen, lower alkyl, hydroxyalkyl, aryl, aryloxyalkyl, fluoro, trifluoromethyl, cyano, cyanomethyl, —OR', —NR'_2, or —SR', wherein each R' is as defined above, provided, however, that neither the —NR'_2 nor the —SR' functionality is conjugated with an alkenyl or alkynyl functionality;

provided, however, that when A is a two atom bridging species, B is —O—, and R^2, R^4, R^6, R^7, R^9 and R^{9a} are hydrogen, R^5 is not nitro; and when A is a two atom bridging species and B is —NH—, at least one of R^2, R^4, R^5, R^6, R^7, R^9 and R^{9a} is not hydrogen.

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5,723,478

AGRICULTURAL CHEMICAL COMPOSITIONS WITH IMPROVED THIFLUZAMIDE RELEASE IN WATER

Norihito Hayakawa, and Masatoshi Baba, both of Funabashi, Japan, assignors to Rohm and Haas Company, Philadelphia, Pa.

Filed Feb. 20, 1997, Ser. No. 804,158
Claims priority, application Japan, Feb. 28, 1996, 8-065139
Int. Cl.[6] A01N *43/78;25/08;59/00*
U.S. Cl. 514—365 **6 Claims**

3. A process for preparing thifluzamide with improved release in water, comprising:

a) dissolving thifluzamide in an organic solvent,

b) adding active carbon,

c) removing the active carbon,

d) removing the organic solvent by distillation, and

e) crystallizing the thifluzamide.

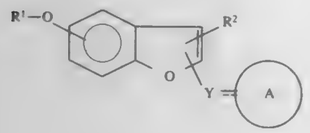
5,723,479

BENZOFURAN COMPOUNDS AND THEIR USE

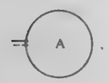
Takashi Sohda, Takatsuki; Hiroyuki Odaka, Kobe, and Yu Momose, Takarazuka, all of Japan, assignors to Takeda Chemical Industries, Ltd., Osaka, Japan

Filed Mar. 14, 1996, Ser. No. 615,084
Claims priority, application Japan, Mar. 14, 1995, 7-054214
Int. Cl.[6] C07D *417/12;* **A61K** *31/40*
U.S. Cl. 514—369 **17 Claims**

1. A compound represented by the formula:



wherein



.

in which

fheight..... represents a single or double bond, is a member selected from the group consisting of

1) a 5-membered heterocyclic group containing 1 to 4 atoms selected from N, O and S as ring component atoms;

2) a cyano group;

3) a carboxyl group;

4) a C_{2-7} alkoxycarbonyl group;

5) a C_{7-11} aryloxycarbonyl group;

6) a 5- or 6-membered heterocyclic-oxycarbonyl group containing 1 to 4 hetero atoms selected from N, O and S in addition to carbon atoms;

7) a sulfonic acid group;

8) a sulfamoyl group which is optionally mono-substituted by a C_{1-4} alkyl group;

9) a phosphonic acid group;

10) a di-C_{1-4} alkoxyphosphoryl group;

11) a carbamoyl group which is optionally mono-substituted by a C_{1-4} alkyl group;

12) a C_{2-7} alkylsulfonylthiocarbamoyl group; or

13) trifluoromethanesulfonamide;

R^1, which is attached to the oxygen atom through a C_{1-8} divalent hydrocarbon chain, is a 5- or 6-membered ring or a condensed ring containing at least one nitrogen atom as a ring component atom which rings are unsubstituted or are substituted by

1) a hydrocarbon residue selected from aliphatic hydrocarbon residues, alicyclic hydrocarbon residues, alicyclic-aliphatic hydrocarbon residues, aromatic aliphatic hydrocarbon residues and aromatic hydrocarbon residues;

2) a 5- or 6-membered ring group containing as ring component atoms 1 to 3 atoms selected from N, O and S in addition to carbon atoms;

3) an amino group;

4) an N-mono-substituted amino group having one substituent selected from lower alkyl groups, cycloalkyl groups, aryl groups, aromatic heterocyclic groups, non-aromatic heterocyclic groups, aralkyl groups, acyl groups, carbamoyl groups, N-mono-substituted carbamoyl groups, N,N-di-substituted carbamoyl groups, lower alkoxycarbonyl groups, hydroxyl group, lower alkoxy groups and aralkyloxy groups;

5) an N,N-di-substituted amino group having two substituents, in which one substituent is the same as that for the above-mentioned N-mono-substituted amino groups and the other substituent is selected from lower alkyl groups, cycloalkyl groups, aryl groups and aralkyl groups; or those two substituents may form a cyclic amino group;

when the hydrocarbon residues 1) contain an alicyclic group, or when the 5- or 6-membered ring group 2) is saturated, it may have 1 to 3 lower alkyl groups;

when the hydrocarbon residue 1) contain an aromatic hydrocarbon group, or when the 5- or 6-membered ring group 2) is unsaturated, it may have 1 to 4 substituents selected from halogen, hydroxy, cyano, nitro, trifluoromethyl, lower alkoxy groups, lower alkyl groups, lower alkoxycarbonyl groups, lower alkylthio groups and lower alkylamino groups;

and when the 5- or 6-membered ring has two or more hydrocarbon residues as substituents therefor and the substituents are located at mutually adjacent positions on the ring, these residues may be linked together to form a saturated or unsaturated divalent chain hydrocarbon residue having 3 to 5 carbon atoms;

R^2 is (1) hydrogen, (2) halogen, (3) a hydrocarbon residue selected from aliphatic hydrocarbon residues, alicyclic hydrocarbon residues, alicyclic-aliphatic hydrocarbon residues, aromatic aliphatic hydrocarbon residues and aromatic hydrocarbon residues;

when the hydrocarbon residue contains an alicyclic group, it may have 1 to 3 lower alkyl groups; and when the hydrocarbon residue contains an aromatic hydrocarbon group, it may have 1 to 4 substituents selected from halogen, hydroxy, cyano, nitro, trifluoromethyl, lower alkoxy groups, lower alkyl groups, lower alkoxycarbonyl groups, lower alkylthio groups and lower alkylamino groups,

(4) an optionally protected hydroxyl group, or

(5) an optionally protected amino group;

Y represents a di- or tri-valent aliphatic hydrocarbon residue having 1 to 8 carbon atoms; and

the benzene ring of the benzofuran moiety is unsubstituted or is substituted by 1 to 3 substituents selected from halogen, hydroxyl, cyano, nitro, trifluoromethyl, lower alkoxy groups, lower alkyl groups, lower alkoxycarbonyl groups, lower alkylthio groups and lower alkylamino groups;

or a pharmaceutically acceptable salt thereof.

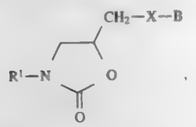
5,723,480

ADHESION RECEPTOR ANTAGONISTS III

Joachim Gante, Darmstadt; Horst Juraszyk; Peter Raddatz, both of Seeheim; Hanns Wurziger, Darmstadt; Guido Melzer, Hofheim/Ts., and Sabine Bernotat-Danielowski, Bad Nauheim, all of Germany, assignors to Merck Patent Gesellschaft Mit Beschrankter Haftung, Darmstadt, Germany

Division of Ser. No. 310,085, Sep. 22, 1994, Pat. No. 5,561,148.
This application May 29, 1996, Ser. No. 654,690
Claims priority, application Germany, Sep. 23, 1993, 43 32 384.7
Int. Cl.[6] C07D *263/38;* **A61K** *31/42*
U.S. Cl. 514—376 **19 Claims**

1. An oxazolidinone compound of formula I



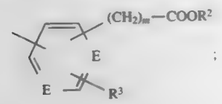
I

wherein

R^1 is a phenyl radical which is monosubstituted by H_2N—CH_2—, A_2N—CH_2—, H_2N—C(=NH)—, H_2N—C(=NH)—NH—, H_2N—C(=NH)—NH—CH_2—, HO—NH—C(=NH)— or HO—NH—C(=NH)—NH—;

X is —O—;

B is



;

A is C_{1-6}-alkyl;

R^2 is H, A, Li, Na, K, NH_4 or benzyl;

R^3 is H or $—(CH_2)_n—COOR^2$;

E is —CH—;

m is 1, 2 or 3; and

n is 0, 1, 2 or 3;

or a physiologically compatible salt thereof.

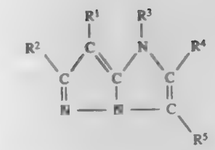
5,723,481

USE OF IMIDAZOPYRAZOLE DERIVATIVES AS ANALGESICS AND ANTI-INFLAMMATORY AGENTS

Atsusuke Terada; Kazuyuki Wachi; Hachio Miyazawa; Yoshio Iizuka; Kazuo Hasegawa, and Keiichi Tabata, all of Hiromachi, Japan, assignors to Sankyo Company, Limited, Tokyo, Japan

Division of Ser. No. 975,987, Nov. 13, 1992, Pat. No. 5,354,768, which is a continuation of Ser. No. 831,004, Feb. 6, 1992, abandoned, which is a continuation of Ser. No. 620,839, Nov. 29, 1990, abandoned, which is a division of Ser. No. 596,578, Oct. 10, 1990, abandoned, which is a continuation of Ser. No. 384,725, Jul. 25, 1989, abandoned. This application Jun. 16, 1994, Ser. No. 260,896
Claims priority, application Japan, Jul. 26, 1988, 63-186132
Int. Cl.[6] A61K *31/415;* **C07D** *235/00*
U.S. Cl. 514—393 **30 Claims**

1. A method of relieving or alleviating allergic reactions by the administration to a mammal suffering from said allergic reactions of an effective amount of an inhibitor of 5-lipoxygenase, wherein said inhibitor is selected from the group consisting of compounds of formula (I):



(I)

in which:

R^1 and R^2 are independently selected from the group consisting of: hydrogen atoms; C_1–C_{25} alkyl groups; substituted C_1–C_6 alkyl groups having at least one substituent selected from the group consisting of substituents (a), defined below; C_3–C_8 cycloalkyl groups: C_2–C_6 alkenyl groups: aralkyl groups in which the alkyl part is C_1–C_4 and the aryl part is C_6–C_{10} and is unsubstituted or has an least one substituent selected from the group consisting of substituents (b), defined below: arylalkenyl groups in which the aryl part is a C_6–C_{10} aryl group which is unsubstituted or has at least one substituent selected from the group consisting of substituents (b), defined below, and the alkenyl part is C_2–C_3 alkenyl; C_6–C_{10} aryl groups; C_6–C_{10} aryl groups having at least one substituent selected from the group consisting of substituents (b), defined below; aromatic heterocyclic groups which have from 5 to 8 ring atoms of which from 1 to 3 are hereto-atoms selected from the group consisting of nitrogen, oxygen and sulfur hetero-atoms, said aromatic heterocyclic group being unsubstituted or having at least one substituent selected from the group consisting of substituents (b), defined below, and being monocyclic or being fused to a benzene ring; cyano groups; and halogen atoms;

R^3 represents: a hydrogen atom; a C_1–C_{25} alkyl group; a substituted C_1–C_6 alkyl group having at least one substituent selected from the group consisting of substituents (a), defined below; an aralkyl group in which the alkyl part is C_1–C_4 and the aryl part is C_6–C_{10} and is unsubstituted or has at least one substituent selected from the group consisting of substituents (b), defined below; a C_1–C_6 aliphatic carboxylic acyl group; or an aromatic carboxylic acyl group in which the aryl part is a C_6–C_{10} carbocyclic aryl group which is unsubstituted or has at least one substituent selected from the group consisting of substituents (b), defined below;

R^4 and R^5 are independently selected from the group consisting of: hydrogen atoms; C_1–C_{25} alkyl groups; substituted C_1–C_6 alkyl groups having an least one substituent selected from the group consisting of substituents (a), defined below; C_3–C_8 cycloalkyl groups; C_2–C_6 alkenyl groups; aralkyl groups in which the alkyl part is C_1–C_4 and the aryl part is C_6–C_{10} and is unsubstituted or has an least one substituent selected from the group consisting of substituents (b), defined below; arylalkenyl groups in which the aryl part is a C_6–C_{10} aryl group which is unsubstituted or has at least one substituent selected from the group consisting of substituents (b), defined below, and the alkenyl part is C_2–C_3 alkenyl; C_6–C_{10} aryl groups: C_6–C_{10} aryl groups having at least one substituent selected from the group consisting of substituents (b), defined below; and aromatic heterocyclic groups which have from 5 to 8 ring atoms of which from 1 to 3 are hetero-atoms selected from the group consisting of nitrogen, oxygen and sulfur hetero-atoms, said aromatic heterocyclic group being unsubstituted or having at least one substituent selected from the group consisting of substituents (b), defined below, and being monocyclic or being fused to a benzene ring;

substituents (a)

hydroxy groups, halogen atoms, carboxy groups, cyano groups, C_2–C_7 alkoxycarbonyl groups and aromatic heterocyclic groups which have from 5 to 8 ring atoms of which from 1 to 3 are hetero-atoms selected from the group consisting of nitrogen, oxygen and sulfur hetero-atoms, said aromatic heterocyclic group being unsubstituted or having at least one substituent selected from the group consisting of substituents (b), defined below, and being monocyclic or being fused to a benzene ring;

substituents (b)

C_1–C_6 alkyl groups; halogen atoms; C_1–C_6 alkoxy groups; aryloxy groups in which the aryl part is an unsubstituted C_6–C_{10} carbocyclic aryl group; aralkyloxy groups in which the alkyl part is C_1–C_4 and the aryl part is C_6–C_{10} and is unsubstituted;

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C_1–C_6 aliphatic carboxylic acyl groups; aromatic carboxylic acyl groups in which the aryl part is a C_6–C_{10} carbocyclic aryl group which is unsubstituted or has at least one substituent selected from the group consisting of C_1–C_4 alkyl groups, C_1–C_4 alkoxy groups and halogen atoms; C_1–C_6 aliphatic carboxylic acyloxy groups; aromatic carboxylic acyloxy groups in which the aryl part is a C_6–C_{10} carbocyclic aryl group which is unsubstituted or has at least one substituent selected from the group consisting of C_1–C_4 alkyl groups, C_1–C_4 alkoxy groups and halogen atoms; amino groups; C_1–C_4 alkylamino groups; dialkylamino groups in which each alkyl part is C_1–C_4; C_1–C_6 aliphatic carboxylic acylamino groups; aromatic carboxylic acylamino groups in which the aryl part is a C_6–C_{10} carbocyclic aryl group which is unsubstituted or has at least one substituent selected from the group consisting of C_1–C_4 alkyl groups, C_1–C_4 alkoxy groups and halogen atoms; C_1–C_4 haloalkyl groups; carbamoyl groups; alkylcarbamoyl and dialkylcarbamoyl groups in which the or each alkyl group is C_1–C_4; carboxy groups; hydroxy groups; cyano groups; and C_2–C_7 alkoxycarbonyl groups;

with the proviso that at least one of R^2, R^4 and R^5 is or contains a heterocyclic moiety;

or a pharmaceutically acceptable salt thereof.

5,723,482

ACTIVE COMPOUNDS AND COSMETIC AND DERMATOLOGICAL FORMULATIONS

Joachim Degwert, Tostedt; Gerhard Sauermann, Wiemersdorf; Volkner Schreiner, Hamburg, and Franz Stab, Echem, all of Germany, assignors to Beiersdorf AG, Hamburg, Germany

PCT No. PCT/EP94/00760, § 371 Date Sep. 12, 1995, § 102(e) Date Sep. 12, 1995, PCT Pub. No. WO94/21245, PCT Pub. Date Sep. 29, 1994

PCT Filed Mar. 11, 1994, Ser. No. 522,268

Claims priority, application Germany, Mar. 13, 1993, 43 07 983.0

Int. Cl.[6] A61K *31/415;7/42;7/46;* **C09C** *1/36*

U.S. Cl. 514—399 **20 Claims**

1. A cosmetic or dermatological formulation which comprises an effective amount of

a) carnosine or a derivative or analogue thereof;

b) urocanic acid or a derivative or an analogue thereof;

c) optionally an antioxidant; and

d) an auxiliary.

5,723,483

SUBSTITUTED 1-PHENYL-3-PYRAZOLECARBOXAMIDES ACTIVE ON NEUROTENSIN RECEPTORS, THEIR PREPARATION AND PHARMACEUTICAL COMPOSITIONS CONTAINING THEM

Bernard Labeeuw, Montpellier; Danielle Gully, Saubens; Francis Jeanjean, Vaillaunes; Jean-Charles Molimard, St. Gely du Fesc, and Robert Boigegrain, Assas, all of France, assignors to Sanofi, Paris, France

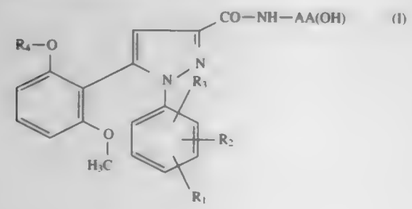
Filed Apr. 10, 1996, Ser. No. 630,761

Claims priority, application France, Apr. 11, 1995, 94 04350

Int. Cl.° A61K *31/415;* **A01N** *43/56;* **C07D** *231/14*

U.S. Cl. 514—406 **12 Claims**

1. Compound of formula:



in which:

—R_1 represents a group chosen from:

—T—CN;

—$C(NH_2)$=NOH;

—C(=NOH)NH$(CH_2)_rNR_5R_6$;

—T—$C(NR_{12}R_{13})$=NR_{14};

—$C(NH_2)$=NO$(CH_2)_rNR_5R_6$;

—T—$CONR_aR_b$;

—T—$CONR_7R_c$;

—Y—CO_2R_7;

—OR_d;

—T—NR_5R_6, on condition that R_5 and R_6 do not simultaneously represent hydrogen when T represents a direct bond;

—T—$N(R_7)COR_e$;

—$SO_2NR_aR_b$;

—T—$N(R_7)SO_2R'_7$;

—T—$NR_{27}R_{28}$;

—NR_aR_b represents a group chosen from:

—NR_5R_6; —$NR_5(CH_2)_rCR_7R_8(CH_2)_rNR_5R_6$;

—$NR_{21}(CH_2)_sCR_7R_8(CH_2)_rR_{22}R_{23}R_{24}Q^{\ominus}$

—$NR_7(CH_2)_qCN$; —$NR_7(CH_2)_qC(NR_{12}R_{13})$=$NR_{14}$;

—$NR_7(CH_2)_qCONH_2$;—$NR_7(CH_2)_qCO_2R_7$;

—$NR_{21}(CH_2)_sCR_7R_8(CH_2)_rNR_{25}R_{26}$;

—R_c represents a group chosen from:

—X—OR_7; —$CHR_{20}CO_2R_7$; —$(CH_2)_4CH(NH_2)CO_2R_7$;

—R_d represents a group chosen from:

—X—NR_aR_6; —Y—$CONR_5R_6$; —Y—CO_2R_7; —Y—$SO_2NR_5R_6$;

—R_e represents a group chosen from:

—R_{16}; —Y—NR_5R_6, —Y—$NHCOR_{16}$; —$CH(R_{17})NR_5R_6$; —Y—$R_{22}R_{23}R_{24}Q^{\ominus}$; —$(CH_2)_qCN$; —$(CH_2)_qC(NR_{12}R_{13})$=$NR_{14}$; —$NR_{18}R_{19}$;

—$R_2$and R_3 each independently represent hydrogen, a $(C_1$–$C_6)$alkyl, a $(C_3$–$C_8)$cycloalkylmethyl, a $(C_3$–$C_8)$cycloalkyl, a halogen, a nitro, a trifluoromethyl, a group —OR_4, a group —NR_5R_6, a cyano, a carbamoyl;

—or R_2 and R_3 together constitute a trimethylene, tetramethylene or pentamethylene group;

—R_4 represents hydrogen; a $(C_1$–$C_6)$alkyl; a (C_3C_4)alkenyl; a (C_3C_8)cycloalkylene; a (C_3C_8)cycloalkylmethyl; a $(C_1$–$C_4)$alkoxy$(C_1$–$C_4)$alkylene; a benzyl;

R_5 and R_6 each independently represent a hydrogen, a $(C_1$–$C_6)$alkyl; a $(C_3$–$C_8)$alkenyl; a $(C_3$–$C_8)$cycloalkylmethyl;

—R'_5 and R'_6 each independently represent a hydrogen or a $(C_1$–$C_6)$alkyl;

—R'_7 represents a $(C_1$–$C_4)$alkyl; a phenyl which is unsubstituted or substituted one or more times with a $(C_1$–$C_4)$alkyl; a group —X—NR_5R_6;

—R_7 represents a hydrogen, a $(C_1$–$C_4)$alkyl or a benzyl;

R_8 represents a hydrogen, a $(C_1$–$C_4)$alkyl, a hydroxyl, or R_7 and R_8, together with the carbon atom to which they are attached, constitute a $(C_3$–$C_5)$cycloalkane;

—R_9 represents hydrogen, a $(C_1$–$C_4)$alkyl, a benzyl, a group —X—OH or a group —X—$NR'_5R'_6$, a $(C_3$–$C_8)$alkenyl;

—R_{12} and R_{13} each independently represent a hydrogen or a $(C_1$–$C_4)$alkyl;

—R_{14} represents hydrogen. R_{14} may, in addition, represent a $(C_1$–$C_4)$alkyl when R_{12} represents hydrogen and R_{13} represents a $(C_1$–$C_4)$alkyl;

—R_{16} represents hydrogen, a $(C_1$–$C_8)$alkyl, a $(C_3$–$C_8)$cycloalkyl, a phenyl

—R_{17} represents a $(C_1$–$C_6)$alkyl, a phenyl, a benzyl, a hydroxy$(C_1$–$C_4)$alkyl, an amino$(C_1$–$C_4)$alkyl;

—R_{18} and R_{19} each independently represent a hydrogen, a $(C_1$–$C_4)$alkyl; R_{18} may, in addition, represent a group —$(CH_2)_q$-NR_5R_6;

—R_{20} represents hydrogen, a $(C_1$–$C_4)$alkyl, a benzyl, a hydroxyphenylmethyl, a hydroxy$(C_1$–$C_4)$alkyl, a mercapto$(C_1$–$C_4)$alkyl; a —$(CH_2)_3$-NH—C(=NH)NH_2 group, a —$(CH_2)_4NH_2$ g

—R_{21} represents a $(C_1$–$C_4)$alkyl, an allyl or a benzyl;

—R_{22} and R_{23} each independently represent a $(C_1$–$C_6)$alkyl;

—R_{24} represents a $(C_1$–$C_4)$alkyl, a benzyl, an allyl, a hydroxy$(C_1$–$C_4)$alkyl, a $(C_1$–$C_4)$alkoxy$(C_1$–$C_4)$alkyl;

$Q^{\ominus}$represents an anion;

—R_{25} represents hydrogen or a $(C_1$–$C_6)$alkyl;

—R_{26} represents a $(C_1$–$C_4)$alkylcarbonyl, a benzyloxycarbonyl; a $(C_1$–$C_4)$alkylcarbonyl;

—R_{27} represents a hydrogen; a $(C_1$–$C_4)$alkyl, a $(C_1$–$C_4)$alkylcarbonyl; a group —CO—$(CH_2)_r$-OH; a group $SO_2R'_7$;

—R_{28} represents a group —X—NR_5R_6;

—s=0 to 3;

—t=0 to 3, on the condition that (s+t), in a same group, is greater than or equal to 1;

—r=2to 5;

—q=1 to 5;

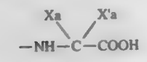
—T represents a direct bond or $(C_1$–$C_7)$alkylene;

—X represents a $(C_2$–$C_7)$alkylene;

—Y represents a $(C_1$–$C_7)$alkylene:

—Z represents a $(C_2$–$C_6)$alkylene:

—the group —NH—AA(OH) represents the residue of an amino acid:



where X_a is hydrogen and X'_a is hydrogen, a $(C_1$–$C_5)$alkyl or a non-aromatic C_3–C_{15} carbocyclic radical; or alternatively, X_a and X'_a, together with the carbon atom to which they are attached, form a non-aromatic C_3–C_{15} carbocycle;

its salts and its quaternary ammonium salts formed with acyclic or cyclic tertiary amines and its solvates.

5,723,484

BENZOPYRAN COMPOUNDS AS 5-HT_{2C} RECEPTOR ANTAGONISTS

Gilbert Lavielle, La Celle Saint Cloud; Thierry Dubuffet, L'Hay les Roses; Mark Millan, Paris, and Adrian Newman-Tancredi, Le Pecq, all of France, assignors to Adir et Compagnie, Courbevoie, France

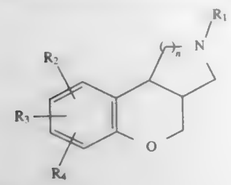
Division of Ser. No. 498,217, Jul. 5, 1995, Pat. No. 5,663,191. This application Jan. 21, 1997, Ser. No. 786,504

Claims priority, application France, Jul. 6, 1994, 94.08328

Int. Cl.[6] A61K *31/40;* **C07D** *491/52*

U.S. Cl. 514—410 **7 Claims**

1. A compound selected from these of formula (I):



in which:

n represents 1,

R_1 represents hydrogen or linear or branched $(C_1$–$C_6)$ alkyl, benzyl, acetyl, benzoyl, allyl, pyridinecarbonyl, pyridinemethyl, pyridineaminocarbonyl, linear or branched $(C_1$–$C_6)$ phthalimidoalkyl, linear or branched $(C_1$–$C_4)$ (thiochroman-8-yloxy)alkyl, linear or branched $(C_1$–$C_4)$ (benzodioxanyloxy-)alkyl, or linear or branched $(C_1$–$C_6)$ acylaminoalkyl, wherein acyl is benzoyl, naphthylcarbonyl, thienylcarbonyl, linear or branched $(C_1$–$C_6)$ alkylcarbonyl, furylcarbonyl, pyrrolylcarbonyl, pyridinylcarbonyl, or $(C_3$–$C_7)$ cycloalkylcarbonyl, each of these acyl groups being optionally substituted with one or more halogen, trihalomethyl, alkoxy or hydroxy,

R_4 represent hydrogen,

and R_2 and R_3 are located on adjacent carbons, and form, with the carbon atoms which bear them, a furan or phenyl ring,

the optical isomers thereof and the addition salts thereof with a pharmaceutically-acceptable acid.

5,723,485

1,2-DIARYLINDOLE DERIVATIVES, PROCESSES FOR THEIR PREPARATION AND THEIR USES IN THERAPEUTICS

Timur Güngör, Rueil Malmaison, and Jean-Marie Teulon, La Celle Saint Cloud, both of France, assignors to Laboratories UPSA, Agen, France

Filed Oct. 7, 1996, Ser. No. 723,450

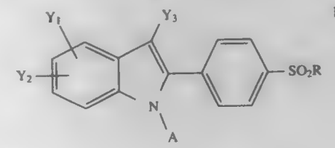
Claims priority, application France, Aug. 1, 1996, 96 09741

Int. Cl.[6] A61K *31/40;* **C07D** *209/08*

U.S. Cl. 514—415 **12 Claims**

1. A 1,2-diarylindole compound of formula (I):

Formula (I)



in which:

R is:

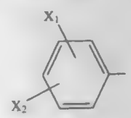
a lower alkyl group having 1 to 6 carbon atoms,

a lower haloalkyl group having 1 to 6 carbon atoms, or

a group —NH_2;

A is:

an aromatic ring:



in which X_1 and X_2 independently are:

the hydrogen atom,

a halogen atom,

a lower alkyl group having 1 to 6 carbon atoms,

a trifluoromethyl group,

a group $(CH_2)_nNR_1R_2$ in which:

n is an integer from 0 to 2 and

R_1 and R_2 independently are the hydrogen atom or a lower alkyl group having 1 to 6 carbon atoms.

a lower O-alkyl group having 1 to 6 carbon atoms, or

a group SO_2R, R being as defined above,

or else X_1 and X_2 together form a methylenedioxy group;

A is also a thiophene or pyridine heterocycle;

Y_1 and Y_2 independently are:

the hydrogen atom,

a halogen atom,

a lower alkyl group having 1 to 6 carbon atoms, or

a group SO_2R, R being as defined above; and

Y_3 is:

the hydrogen atom or

a lower alkyl group having 1 to 6 carbon atoms.

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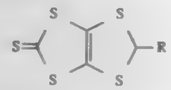
5,723,486

1,3 DITHIOLO(4,5)-1,3-DITHIOLO-2-THIONE DERIVATIVES, COMPOSITIONS AND USE AS ANTIMICROBIAL AND MARINE ANTIFOULING AGENTS

Weishi W. Wu; Duane R. Romer; Ravi B. Shankar, and R. Garth Pews, all of Midland, Mich., assignors to The Dow Chemical Company, Midland, Mich.

Filed Jul. 10, 1996, Ser. No. 678,026
Int. Cl.[6] A01N *13/28;* **C07D** *341/00*
U.S. Cl. 514—139 **20 Claims**

1. A 1,3-dithiolo(4,5-d)-1,3-dithiino-2-thione compound corresponding to the formula:



Ia

wherein R represents —Br, —Cl, —F, or —CN.

5,723,487

PREPARATION OF A PRODUCT FOR TREATMENT OF COLAGEN-RELATED DISORDERS

Antonio Sumi Horvath, deceased, late of Santiago; by Judith Tobar Goycolea, legal representative, M. Luisa Santander 0191 Providencia Stgo, Santiago; by Antonio Sumi Horvath, legal representative, 306 Y Nar 90 Dep 53, Vina del Mar, and by Dora Kiss Horvath, legal representative, Pasaje La Villa 8241, Santiago, all of Chile

Filed Feb. 13, 1995, Ser. No. 387,068
Int. Cl.[6] A61K *31/335*
U.S. Cl. 514—449 **4 Claims**

1. A method of treating collagen related disorders comprising the following steps:

a) providing a solution of an ascorbate in ethanol;

b) providing a solution of sodium hydroxide dissolved in water;

c) mixing the ascorbate solution with the sodium hydroxide solution so that the molar ratio of sodium hydroxide to ascorbate is 0.7:1 and an alkaline pH is maintained;

d) mixing chloroform with the solution of step c in quantity sufficient to produce a crystalline substance;

e) collecting the crystalline substance;

f) determining a melting temperature of the crystalline substance;

g) maintaining the temperature of all steps below approximately 35° C.;

h) administering to a mammal in need thereof a therapeutically effective amount of the crystalline substance, if the melting temperature observed in step f is approximately 170° C.

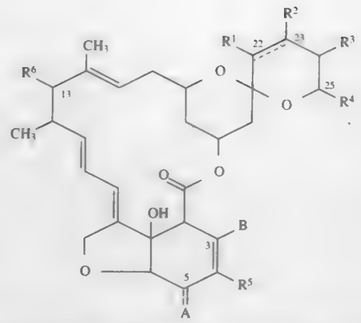
5,723,488

ANTIPARASITIC AGENTS

Nigel Derek Walshe, Sandwich, United Kingdom, assignor to Pfizer Inc., New York, N.Y.

PCT No. PCT/EP95/00383, § 371 Date Aug. 12, 1996, § 102(e) Date Aug. 12, 1996, PCT Pub. No. WO95/22552, PCT Pub. Date Aug. 24, 1995
PCT Filed Feb. 1, 1995, Ser. No. 687,435
Claims priority, application United Kingdom, Feb. 16, 1994, 9402916
Int. Cl.[6] A61K *31/335*
U.S. Cl. 514—450 **20 Claims**

1. A compound of formula (1):



(I)

wherein the broken lines represent independently optional bonds, R^1 and R^2 being absent when the C_{12}–C_{13} double bond is present,

A is OH, halo, C_1–C_8 alkoxy, C_1–C_9 alkanoyloxy, oxo, or oximino optionally substituted by a C_1–C_8 alkyl, alkenyl, alkynyl, aryl, trialkyisilyl, aralkyl, C_1–C_9 alkanoyl group or other group capable of being hydrolysed in vivo to the oxime, or hydrazono optionally substituted by at least one C_1–C_8 alkyl, alkenyl, alkynyl, aryl, trialkylsilyl, aralkyl, C_1–C_9 alkoxycarbonyl, carbamoyl, thiocarbamoyl, aroyl or C_1–C_9 alkanoyl group,

B is halo, C_1–C_8 alkyl, C_1–C_8 alkenyl, C_1–C_8 alkynyl, aryl, heteroaryl, C_1–C_8 alkanoyl, C_1–C_8 alkoxy, C_1–C_9 alkanoyloxy, C_1–C_9 alkoxycarbonyl, carboxy, arylcarbonyl, heteroaryl-carbonyl, mercapto, alkylthio, alkenylthio, arylthio, alkanoylthio, heteroarylthio, nitro, haloalkyl such as trifluoromethyl, hydroxyalkyl, alkoxyalkyl, mercaptoalkyl, alkylthio-alkyl, aminoalkyl optionally N-mono-or disubstituted by C_1–C_8 alkyl, C_1–C_8 alkenyl, C_1–C_8 alkynyl, C_1–C_8 alkanoyl, aryl, heteroaryl, C_1–C_9 alkoxycarbonyl, carboxy, arylcarbonyl, or by heteroarylcarbonyl,

or B is hydroseleno, alkylseleno, arylseleno, heteroarylseleno, azido or B is cyclic ether group having up to 8 carbon atoms, said group optionally being substituted by at least one substituent selected from cyano, C_1–C_8 alkoxy, C_1–C_8 hydroxyalkyl, C_1–C_9 alkoxycarbonyl, aminocarbonyl, C_1–C_9 alkanoyl, arylcarbonyl, heteroarylcarbonyl, halo, haloalkyl and trialkylsilyloxyalkyl;

R^1 is H, OH, halo, oxo, C_{1-8} alkoxy, C_{1-9} alkanoyloxy, $=CH_2$ or oximino optionally 0-substituted by a C_{1-8} alkyl, alkenyl, alkynyl, trialkylsilyl, aryl or aralkyl group

R^2 is H, OH, halo, oxo, C_{1-8} alkoxy optionally substituted by halo or by C_{1-4} alkoxy, C_{1-5} alkanoyl, C_{1-5} alkoxycarbonyl, carboxy, mercapto or by aryl, or R^2 is C_{3-8} alkenyloxy, C_{1-9} alkylcarbonyloxy, C_{3-9} alkenylcarbonyloxy, arylcarbonyl, carbamoyl optionally substituted by C_{1-9} alkyl, or oximino optionally 0-substituted by a C_{1-8} alkyl, alkenyl, alkynyl, trialkylsilyl, aryl or aralkyl group, or is methylene optionally substituted by a cyano or C_{1-9} alkyl group;

R^3 is H or C_{1-6} alkyl,

R^4 is

(a) an alpha-branched C_3–C_8 alkyl, alkenyl (including but-2-enyl, pent-2-enyl, and 4-methylpent-2-enyl), alkoxy-alkyl, or alkylthioalkyl group; an alpha-branched C_4–C_8 alkynyl group; a (C_4–C_8)cycloalkyl-alkyl group wherein the alkyl group is an alpha-branched C_1–C_5 alkyl group; a C_3–C_8 cycloalkyl or C_5–C_8 cycloalkenyl group, either of which may optionally be substituted by methylene or one or more C_1–C_4 alkyl groups or halo atoms; or a 3 to 6 membered oxygen or sulphur containing heterocyclic ring which may be saturated, or fully or partially unsaturated and which may optionally be substituted by one or more C_1–C_4 alkyl groups or halo atoms; or

(b) a group of the formula $—CH_2R^8$ wherein R^8 is H, C_1–C_8 alkyl, C_1–C_8 alkenyl, C_1–C_8 alkynyl, alkoxyalkyl or alkylthioalkyl containing from 1 to 6 carbon atoms in each alkyl or alkoxy group, wherein any of said alkyl, alkoxy, alkenyl or alkynyl groups may be substituted by one or more halo atoms; or a C_3–C_8 cycloalkyl or C_5–C_8 cycloalkenyl group, either of which may optionally be substituted by methylene or one or more C_1–C_4 alkyl groups or halo atoms; or a 3 to 6 membered oxygen or sulphur containing heterocyclic ring which may be saturated, or partially unsaturated and which may optionally be substituted by one or more C_1–C_4 alkyl groups or halo atoms; or a group of the formula SR^9 wherein R^9 is C_1–C_8 alkyl, C_1–C_8 alkenyl, C_3–C_8 alkynyl, C_3–C_8 cycloalkyl, C_5–C_8 cycloalkenyl, phenyl or substituted phenyl wherein the substituent is C_1–C_4 alkyl, C_1–C_4 alkoxy or halo; or a 3 to 6 membered oxygen or sulphur containing heterocylic ring which may be saturated, or fully or partially unsaturated and which may optionally be substituted by one or more C_1–C_4 alkyl groups or halo atoms; or

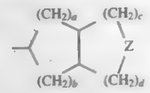
(c) a C_1–C_6 alkyl group substituted by one oxo or one or more hydroxy groups or by a single oxygen atom on two adjacent carbon atoms forming an oxirane ring, or R^4 is a C_1–C_5 alkyl group substituted by a (C_1–C_6) alkoxy-carbonyl group, said substituents on R_4 being attached to either or both of a terminal carbon atom and a carbon atom adjacent a terminal carbon atom of R4; or

(d) $=CH_2$ or a group of the formula:

wherein R^{10} and R^{11} are both H; R^{10} is H and R^{11} is C_1–C_3 alkyl, or one of R^{10} and R^{11} is H and the other is phenyl, heteroaryl, C_1–C_6 alkoxycarbonyl or substituted phenyl or heteroaryl wherein said substituent is fluorine, chlorine, C_1–C_4 alkyl, C_1–C_4 alkoxy, C_1–C_4 alkylthio, hydroxy(C_1–C_4)alkyl, cyano, aminosulphonyl, C_1–C_6 alkanoyl, C_1–C_6 alkoxycarbonyl, nitro, trifluoromethyl, trifluoromethoxy, amino or mono or di(C_1–C_4) alkylamino; and X is a direct bond or is an alkylene group having from 2 to 6 carbon atoms which may be straight or branched-chain; or

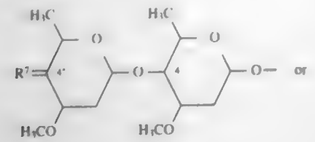
(e) phenyl which may optionally be substituted with at least one substituent selected from C_1–C_4 alkyl, C_1–C_4 alkylthio groups, halo atoms, trifluoromethyl, and cyano;

or R^4 may be a group of formula (II):



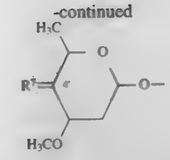
wherein Z is O, S or —CH_2—and a, b, c and d may each independently be 0, 1 or 2; the sum of a. b. c, and d not exceeding 5; R^5 is methyl, hydroxymethyl, (C_1–C_4 alkoxy)-methyl, (C_1–C_5 alkanoyl) oxymethyl, (C_1–C_8 alkenoyl)-oxymethyl, aroyloxymethyl, aralkanoyloxymethyl, formyl,optionally substituted oximino, halomethyl, azidomethyl or cyanomethyl,

R^6 is hydrogen, hydroxy, C_1–C_8 alkoxy or alkenoxy, C_1–C_9 alkanoyloxy or alkenoyloxy, aroyloxy, oxymethyleneoxy-(C_1–C_5)alkyloxy-(C_1–C_5)alkyl, C_1–C_9 alkoxyalkoxy, halogen, oxo, or optionally substituted oximino, hydrazono, carbazido or semicarbazido, N-(C_1–C_4)alkyl semicarbazido, N,N-di(C_1–C_4) alkylsemicarbazido, C_1–C_5 alkanoylhydrazido, benzoylhydrazido or (C_1–C_4)alkyl benzoylhydrazido; or R^6 is a group capable of being hydrolysed in vivo to give OH; or R^6 is



or

-continued



wherein R^7 is attached to C-4" or C-4' by a single bond and is hydroxy, C_1–C_9 alkanoyloxy or alkenoyloxy, aroyloxy, C_1–C_8 alkoxy, amino, N-(C_1–C_8)alkylamino, N,N-di(C_1–C^9)alkylamino, N-(C_1–C_5)alkanoylamino, or N,N-di(C_1–C^9)alkanoylamino; or R^7 is attached to C-4" or C-4' by a double bond and is oxo, optionally substituted oximino, semicarbazido, N-(C_1–C_4)alkylsemicarbazido, N,N-di(C_1–C_4 alkylsemicarbazido, (C_1–C_5)alkanoylhydrazido, benzoylhydrazido, or (C_1–C_4)alkylbenzoylhydrazido;

or R^7 is a group capable of being hydrolysed in vivo to give OH.

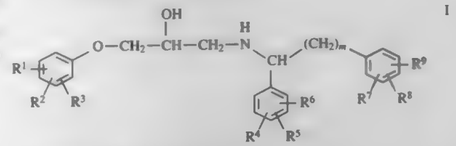
5,723,489

ARYLOXYPROPANOLAMINE BETA 3 ADRENERGIC AGONISTS

Philip M. Sher, Plainsboro; William N. Washburn, Titusville, and Kathleen M. Poss, Lawrenceville, all of N.J., assignors to Bristol-Myers Squibb Company, Princeton, N.J.

Division of Ser. No. 352,824, Dec. 2, 1994, Pat. No. 5,541,204. This application May 7, 1996, Ser. No. 646,164
Int. Cl.[6] A61K *31/135;31/335;* **C07C** *217/32;217/34*
U.S. Cl. 514—466 **16 Claims**

1. A compound of the formula



I

or pharmaceutically acceptable salts thereof where

R^1, R^2 and R^3 are independently hydrogen, hydroxy, alkoxy, nitro, amino, alkylsulfonylamino, acylamino, alkylsulfonyl, alkyl, cycloalkyl, phenyl, hydroxymethyl, cyano, aminocarbonyl, halogen or trifluoromethyl;

R^4, R^5 and R^6 are independently hydrogen, alkoxycarbonyl, carboxy, aminocarbonyl, alkylaminocarbonyl, dialkylaminocarbonyl, alkoxycarbonylmethyl, carboxymethyl, aminocarbonylmethyl, alkylaminocarbonylmethyl, dialkylaminocarbonylmethyl, hydroxy, alkoxy, di- or trifluoromethoxy, halogen, trifluoromethyl, cycloalkyl or alkyl; or two of the three substituents (R^4, R^5 and R^6) may together be methylenedioxy or benzo such that they together with the benzene ring to which they are attached form naphthyl;

R^7, R^8 and R^9 are independently hydrogen, alkoxycarbonyl, carboxy, aminocarbonyl, alkylaminocarbonyl, dialkylaminocarbonyl, alkoxycarbonylmethyl, carboxymethyl, aminocarbonylmethyl, alkylaminocarbonylmethyl, dialkylaminocarbonylmethyl, hydroxy, alkoxy, di- or trifluoromethoxy, halogen, trifluoromethyl, cycloalkyl or alkyl; or two of the three substituents (R^7, R^8 and R^9) may together be methylenedioxy or benzo such that they together with the benzene ring to which they are attached form naphthyl; and

m is the integer 0 or 1; provided that a) when R^1 is hydrogen, then R^2 and R^3 may not be halogen and alkyl, chloro and hydrogen, acylamino and hydrogen, acylamino and alkyl, acylamino and halogen, acylamino and aryl, acylamino and hydroxymethyl, acylamino and cycloalkyl, and acylamino and cyano; and when R^1 is alkyl, then R^2 and R^3 may not be acylamino and alkyl; b) when m is 0, and R^1 is hydrogen and

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R^2 is alkyl, alkoxy or halogen, and R^4 to R^9 are hydrogen, then R^3 may not be alkyl, alkoxy or halogen; c) when R^1 is hydroxymethyl and R^4 to R^9 are hydrogen, then R^2 and R^3 may not be hydrogen, alkyl, halogen, hydroxy, alkoxy, or hydroxymethyl; and when R^1 and R^2 are each hydroxymethyl and R^4 to R^9 are hydrogen, then R^3 may not be hydrogen, alkyl, halogen, hydroxy, or alkoxy; and when R^1 and R^2 are hydrogen, halogen, hydroxy, alkyl, nitro and alkoxy, R^3 may not be hydroxymethyl; d) when R^1 is hydrogen, alkyl, halogen or nitro, then at least one of R^2 and R^3 may not be hydrogen; and e) when m is zero and R^7 and R^8 are halogen and R^9 is hydroxy, at least one of R^1 to R^6 may not be hydrogen.

5,723,490

THF-CONTAINING SULFONAMIDE INHIBITORS OF ASPARTYL PROTEASE

Roger D. Tung, Arlington, Mass., assignor to Vertex Pharmaceuticals Incorporated, Cambridge, Mass.

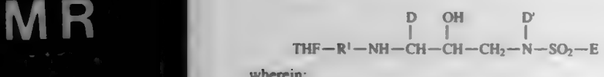
Continuation-in-part of Ser. No. 393,460, Feb. 23, 1995, abandoned, which is a continuation-in-part of Ser. No. 142,327, Nov. 24, 1993, Pat. No. 5,585,397, which is a continuation-in-part of Ser. No. 941,982, Sep. 8, 1992, abandoned. This application Apr. 19, 1995, Ser. No. 424,819

Int. Cl.[6] A61K *31/27;31/17;31/70*

U.S. Cl. 514—478 **18 Claims**

1. A pharmaceutical composition comprising:

a) a pharmaceutically effective amount of a compound of the formula;



(I)

wherein:

each R^1 is independently selected from the group consisting of —C(O)—, —$S(O)_2$—, —C(O)—C(O)—, —O—C(O)—, —O—$S(O)_2$, —NR^2—$S(O)_2$—, —NR^2 —C(O)— and —NR^2—C(O)—C(O)—;

each Het is independently selected from the group consisting of C_3–C_7 carbocycle; C_6–C_{10} aryl; phenyl fused with heterocycle; and heterocycle; wherein any member of said Het may be optionally substituted with one or more substituents selected from the group consisting of oxo, —OR^2, —R^3, —$N(R^2)(R^2)$, —NHOH, —R^2—OH, —CN, —CO_2R^2, —C(O)—$N(R^2)(R^2)$, —$S(O)_2$—$N(R^2)(R^2)$, —$N(R^2)$—C(O)—R^2, —C(O)—R^2, —$S(O)_n$—R^2, —OCF_3, —$S(O)_n$—R^6, —$N(R^2)$—$S(O)_2(R^2)$, halo, —CF_3, —NO_2, —R^6 and —O—R^6;

each R^2 is independently selected from the group consisting of H and C_1–C_3 alkyl optionally substituted with R^6;

each R^3 is independently selected from the group consisting of H, Het, C_1–C_6 alkyl and C_2–C_6 alkenyl wherein any member of said R^3, except H, may be optionally substituted with one or more substituents selected from the group consisting of —OR^2, —C(O)—NH—R^2, —$S(O)_n$—$N(R^2)(R^2)$, Het, —CN, —SR^2, —CO_2R^2, NR^2—C(O)—R^2;

each n is independently 1 or 2;

each D and D' is independently selected from the group consisting of R^6; C_1–C_5 alkyl, which may be optionally substituted with one or more groups selected from —OR^2, —R^3, —O—R^6, —S—R^6 and R^6; C_2–C_4 alkenyl, which may be optionally substituted with one or more groups selected from the group consisting of —OR^2, —R^3, —O—R^6 and R^6; C_3–C_6 carbocycle, which may be optionally substituted with or fused with R^6; and C_5–C_6 cycloalkenyl, which may be optionally substituted with or fused with R^6;

each E is independently selected from the group consisting of Het; —O—Het; Het—Het; —O—R^3; —NR^2R^3; C_1–C_6 alkyl, which may be optionally substituted with one or more groups selected from the group consisting of R^4 and Het; and C_2–C_6 alkenyl, which may be optionally substituted with one or more groups selected from the group consisting of R^4 and Het;

each R^4 is independently selected from the group consisting of —OR^2, —C(O)—NHR^2, —$S(O)_2$—NHR^2, halo, —NR^2—C(O)—R^2 and —CN;

each R^5 is independently selected from the group consisting of H and C_1–C_4 alkyl optionally substituted with aryl; and

each R^6 is independently selected from the group consisting of aryl, carbocycle and heterocycle, wherein said carbocycle or heterocycle may be optionally substituted with one or more groups selected from the group consisting of oxo, —OR^5, —R^5, —$N(R^5)$ (R^5), —$N(R^5)$—C(O)—R^5, —R^5—OH, —CN, —CO_2R^5, —C(O)—$N(R^5)$ (R^5), halo and —CF_3;

b) one or more additional agents selected from the group consisting of other anti-viral agents and immunostimulators; and

c) a pharmaceutically acceptable carrier, adjuvant or vehicle,

wherein said pharmaceutical composition is orally administrable.

5,723,491

FUNGICIDAL COMPOSITION AND METHOD OF CONTROLLING FUNGUS INFESTATION

Cosima Nuninger, Morschwiller le Bas, France; John Edward Nicholas Goggin, Binningen, Switzerland; Dino Sozzi, Sissach, Switzerland, and Holm Eilgehausen, Magden, Switzerland, assignors to Novartis Corporation, Summit, N.J.

Filed Jun. 2, 1995, Ser. No. 460,158

Claims priority, application Switzerland, Jul. 11, 1994, 2207/94; Dec. 22, 1994, 3895/94

Int. Cl.[6] A01N *37/12;37/44*

U.S. Cl. 514—538 **5 Claims**

1. A process for controlling or preventing an attack of Oomycetes on a plant without protracted exposure of the environment to the active ingredient and with minimal leaching of the active ingredient in the groundwater, comprising the step of applying to the plant, part of the plant or the plant locus which is infected or liable to be infected by Oomycetes, an effective amount of a fungicidal composition, comprising an inert carrier and, as active ingredient, metalaxyl, consisting of more than 70% by weight of the R-enantiomer.

5,723,492

LTA4 HYDROLASE INHIBITOR PHARMACEUTICAL COMPOSITIONS AND METHODS OF USE

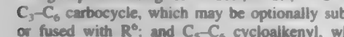
Nizal Samuel Chandrakumar, Vernon Hills; Barbara Baosheng Chen, Glenview; Michael Clare, Skokie; Bipinchandra Nanubhai Desai, Vernon Hills, all of Ill.; Stevan Wakefield Djuric, Malvern, Pa.; Stephen Hermann Docter, Mt. Prospect, Ill.; Alan Frank Gasiecki, Vernon Hills, Ill.; Richard Arthur Haack, Chicago, Ill.; Chi-Dean Liang, Glenview, Ill.; Julie Marion Miyashiro, Chicago, Ill.; Thomas Dale Penning, Elmhurst, Ill.; Mark Andrew Russell, Gurnee, Ill., and Stella Siu-tzyy Yu, Morton Grove, Ill., assignors to G.D. Searle & Co., Chicago, Ill.

Continuation of Ser. No. 321,184, Oct. 11, 1994. This application Jun. 6, 1995, Ser. No. 469,606

Int. Cl.[6] A61K *31/24;31/195*

U.S. Cl. 514—539 **16 Claims**

1. A pharmaceutical composition comprising an effective LTB_4-mediated inflammatory disease treating amount of a compound of the Formula I:

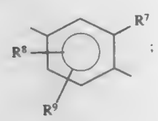


(I)

or a pharmaceutically acceptable salt thereof, wherein:

Ar^1 is an aryl moiety selected from the group consisting of phenyl, mono-, di-, or tri-substituted phenyl with the substituents selected from the group consisting of Cl, Br, F, CF_3, lower alkyl, lower alkoxy, NH_2, NO_2 and OH;

Ar^2 is



Q is —O— or —CH_2—;

Y is —O—;

R is selected from the group consisting of:

(i) linear or branched C_2–C_6 alkylenyl; or

(ii) —$C(R^{10})(R^{11})$—(CH_2)m—; and

Z is



wherein at least one of R^1 and R^2 is —$(CH_2)_aCOR^{15}$ and the other is selected from the group consisting of:

(i) H,

(ii) lower alkyl or allyl,

(iii) benzyl,

(iv) —$(CH_2)_aCOR^{15}$, and

(v) —$(CH_2)_a$—OH;

R^7 is H, halogen, lower alkyl, lower alkoxy, nitro, or hydroxy,

R^8 and R^9 are independently H, halogen, lower alkyl, lower alkoxy, NH_2, NO_2, or OH;

R^{10} is H, lower alkyl;

R^{11} is H or lower alkyl;

R^{15} is —OR^{16}, wherein R^{16} is H, lower alkyl or benzyl;

a is an integer of from 0 to 5;

m is 1, 2 or 3;

provided however that where either R^1 or R^2, or both R^1 and R^2 are —$(CH_2)_aCOR^{15}$, then a is not 0.

5,723,493

NAPHTHYLOXYACETIC ACID

Youki Nagao; Takayuki Maruyama, and Nobuyuki Hamanaka, all of Mishima-gun, Japan, assignors to Ono Pharmaceutical Co., Ltd., Osaka, Japan

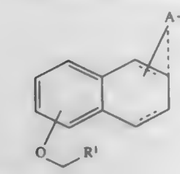
Division of Ser. No. 355,187, Dec. 8, 1994, Pat. No. 5,624,959. This application Dec. 17, 1996, Ser. No. 768,291

Claims priority, application Japan, Dec. 9, 1993, 5-340854

Int. Cl.[6] A61K *31/195*

U.S. Cl. 514—562 **6 Claims**

1. A compound of the formula (I):



(I)

wherein

R^1 is

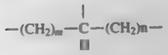
(i) —$COOR^4$ in which R^4 is hydrogen or C1–4 alkyl,

(ii) —$CONR^5R^6$ in which R^5 and R^6 each, independently, is hydrogen, C1–4 alkyl or C1–4 alkyl substituted by 1 of hydroxy, or

(iii) —CH_2OH,



in which A is



in which

m is 0, 1, 2, 3, 4, n is 0, 1, 2, 3, 4, and m+n is 2, 3, 4;

B is —NR^3SO_2— or —SO_2NR^3— in which R^3 is hydrogen, C1–4 alkyl or —CH_2COOR^7 in which R^7 is hydrogen or R^{4a}, in which R^{4a} is C1–4 alkyl;

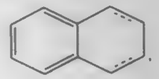
R^2 is

(i) C1–6 alkyl, C2–6 alkenyl or C2–6 alkynyl,

(ii) C1–6 alkyl, C2–6 alkenyl or C2–6 alkynyl substituted by 1, 2, 3 of phenyl, C4–7 cycloalkyl or phenyl substituted by 1, 2, 3 of C1–4 alkyl, C1–4 alkoxy or halogen or

(iii) naphthyl; and

in the formula



fheight- - - - - - is a bond or a double bond;

or a pharmaceutically acceptable salt thereof.

5,723,494

DERIVATIVES OF GLUTAMIC AND ASPARTIC ACIDS, A METHOD OF PREPARING THEM, AND THEIR USE AS DRUGS FOR ENHANCING MEMORY AND LEARNING

Francesco Makovec, Monza; Walter Peris, Milan; Lucio C. Rovati, and Luigi A. Rovati, both of Monza, all of Italy, assignors to Rotta Research Laboratorium S.P.A., Milan, Italy

PCT No. PCT/EP94/00604, § 371 Date Sep. 11, 1995, § 102(e) Date Sep. 11, 1995, PCT Pub. No. WO94/20454, PCT Pub. Date Sep. 15, 1994

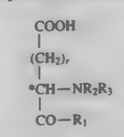
PCT Filed Mar. 2, 1994, Ser. No. 513,964

Claims priority, application Italy, Mar. 10, 1993, TO93A0167

Int. Cl.[6] C07C *237/06;237/24;* **A61K** *31/16;31/435*

U.S. Cl. 514—563 **11 Claims**

1. A compound represented by general formula (I) below, or a pharmaceutically acceptable salt thereof:

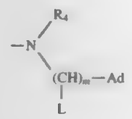


(I)

wherein r is 2, R_2 and R_3 are each selected from the group consisting of H, CH_3, C_2H_5 and CHO, provided that R_2 and R_3 are not simultaneously CHO, and wherein R_1 is selected from the group consisting of:

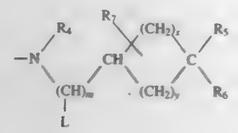
VOL 1208 ISS 1 MR 3 1998 UMI

(a) an aminoalkladamantyl group represented by:



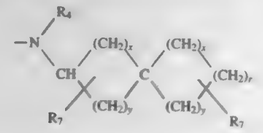
wherein R_4 is selected from the group consisting of H, C_1–C_5 alkyl and C_1–C_5 alkoxyalkyl, m is 0 or an integer of 1 to 3, L is selected from the group consisting of H, C_1–C_3 alkyl and C_1–C_3 alkoxyalkyl, and Ad is adamantyl (1- or 2-yl),

(b) a monocyclic animoalkyl group represented by:



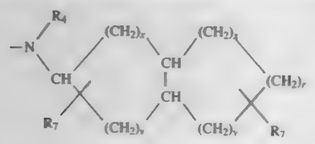
wherein R_4, m and L each have the meanings given above, x and y are each independently an integer of 1 to 4, provided that the ring formed comprises between 5 and 10 carbon atoms, and wherein R_5, R_6 and R_7 are each selected from the group consisting of H, C_1–C_4 alkyl and C_1–C_4 alkoxyalkyl group, provided that R_5 and R_6 are not simultaneously H,

(c) a dicyclic aminospiro group represented by:



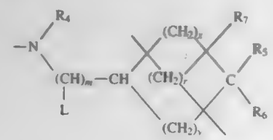
wherein R_4, R_7, r, x and y each have the meanings given above.

(d) a dicyclic amino group (orthofused) represented by:



wherein R_4, R_7, r, x and y each have the meanings given above, and

(e) a dicyclic amino group represented by:



wherein R_4, R_5, R_6, R_7, L, m, r, x and y each have the meanings given above,

wherein the stereochemistry of the compound at the chiral center, which is marked with an asterisk in formula (I), is L (laevo, sinister).

5,723,495

BENZAMIDOXIME PRODRUGS AS ANTIPNEUMOCYSTIC AGENTS

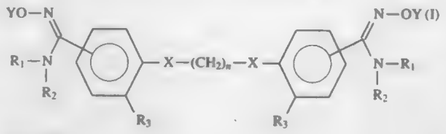
James E. Hall, Chapel Hill; Richard R. Tidwell, Pittsboro, both of N.C., and David W. Boykin, Atlanta, Ga., assignors to The University of North Carolina at Chapel Hill, Chapel Hill, N.C., and Georgia State University, Atlanta, Ga.

Filed Nov. 16, 1995, Ser. No. 558,716

Int. Cl.[6] A61K *31/165*

U.S. Cl. 514—633 **3 Claims**

1. A method of treating *Pneumocystis carinii* pneumonia in a subject in need of such treatment, comprising orally administering to said subject a bis-benzamidoxime of Formula I:



wherein:

R_1 and R_2 are each independently selected from the group consisting of H, loweralkyl, oxyalkyl, alkoxyalkyl, cycloalkyl, aryl, hydroxyalkyl, aminoalkyl or alkylaminoalkyl;

R_3 is H, loweralkyl, oxyalkyl, alkoxyalkyl, hydroxyalkyl, cycloalkyl, aryl, aminoalkyl, alkylaminoalkyl or halogen;

n is from 2 to 6;

X is O, N, or S; and

Y is H or loweralkyl;

or a pharmaceutically acceptable salt thereof, wherein said benzamidoxime is reduced in said subject to produce a benzamidine having anti-*P. carinii* activity, and wherein said compound of Formula I is administered in an amount effective to treat *Pneumocystis carinii* pneumonia, with the proviso that said bis-benzamidoxime is not 1,5-bis-(4'-(N-hydroxy amidino)phenoxy-)pentane.

5,723,496

METHOD FOR PREVENTION AND TREATMENT OF HARMFUL EFFECTS OF INTRACELLULAR ACIDOSIS

Tsutomu Nakada, San Francisco, Calif., assignor to The Regents of University of California, Oakland, Calif.

Continuation of Ser. No. 142,194, Oct. 22, 1993, abandoned, which is a continuation-in-part of Ser. No. 664,933, Mar. 5, 1991, Pat. No. 5,312,839. This application Mar. 15, 1995, Ser. No. 404,938

Int. Cl.[6] A61K *37/52*

U.S. Cl. 514—634 **9 Claims**

1. A method for treatment of Alzheimer disease caused by abnormal β-amyloid peptide metabolism resulting from intracellular acidosis or a pH fluctuation between the normal pH 7.3 and acidic intracellular pH between pH 5.0 and 7.0, said method comprising the step of administering to a subject in need of such treatment a pharmaceutically effective amount of an alkaline shifter compound or a buffering compound, wherein said compound is able to shift the intracellular pH of the cell from acidic pH below 7.0 to physiologically acceptable pH of about 7.1 to 7.4; and wherein said compound crosses the blood-brain-barrier, is permeable through a cell membrane, is able to decrease hydrogen ion concentration and has pKa from about 6.8 to about 11.4.

5,723,497

AMINE DERIVATIVE AND DERMATOLOGIC PREPARATION CONTAINING THE SAME

Yukihiro Ohashi, Utsunomiya; Yukihiro Yada, Haga-gun; Yoshinori Takema, Haga-gun; Taketoshi Fujimori, Haga-gun; Akira Kawamata, Utsunomiya; Hiroyuki Ohsu; Kazuhiko Higuchi, both of Haga-gun; Genji Imokawa, Utsunomiya; Hiroshi Kusuoku, Haga-gun; Ayumi Ogawa, Haga-gun, and Tsutomu Fujimura, Haga-gun, all of Japan, assignors to Kao Corporation, Tokyo, Japan

PCT No. PCT/JP94/00436, § 371 Date Sep. 18, 1995, § 102(e) Date Sep. 18, 1995, PCT Pub. No. WO94/21595, PCT Pub. Date Sep. 29, 1994

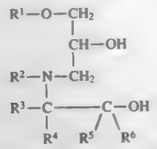
PCT Filed Mar. 17, 1994, Ser. No. 513,872

Claims priority, application Japan, Mar. 17, 1993, 5-057248; Mar. 17, 1993, 5-057249; Mar. 17, 1993, 5-057251; Mar. 18, 1993, 5-058875; Mar. 19, 1993, 5-060599; Mar. 19, 1993, 5-060600; Mar. 19, 1993, 5-060601; Mar. 19, 1993, 5-060602; Mar. 19, 1993, 5-060603; Mar. 19, 1993, 5-060604; Feb. 17, 1994, 6-020184; Mar. 10, 1994, 6-039480; Mar. 11, 1994, 6-041324

Int. Cl.[6] A61K *31/13*

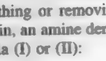
U.S. Cl. 514—669 **22 Claims**

1. A method of smoothing or removing wrinkles, which comprises applying, to the skin, an amine derivative represented by the following general formula (I) or (II):



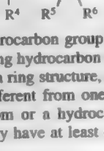
(I)

wherein R^1 means a hydrocarbon group having 1–3 carbon atoms or a heteroatom-containing hydrocarbon group having 1–40 carbon atoms, which may have a ring structure, and R^2, R^3, R^4, R^5 and R^6 are identical with or different from one another and denote individually a hydrogen atom or a hydrocarbon group having 1–20 carbon atoms, which may have at least one hydroxyl group,

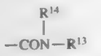


(II)

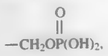
wherein A^1 means



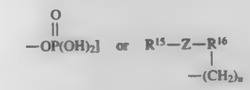
[R^7 means a hydrogen atom, a hydrocarbon group having 1–40 carbon atoms, which may have a hydroxyl, carboxyl, alkoxyl, alkylthio, acylamino or acyloxy group, or —R^{10}—Y (R^{10} denotes a linear or branched hydrocarbon group having 8–40 carbon atoms, which may have a hydroxyl group, and Y is —OR^{11}, —$COOR^{12}$ or



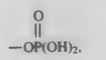
(R^{11}, R^{12}, R^{13} and R^{14} each mean a hydrogen atom or a hydrocarbon group having 1–20 carbon atoms, which may contain an oxygen atom)), R^8 denotes a hydrogen atom or a hydrocarbon group having 1–40 carbon atoms, which may have a hydroxyl, carboxyl, alkoxyl, alkylthio, acylamino or acyloxy group, R^9 stands for a hydrogen atom, a hydrocarbon group having 1–40 carbon atoms, which may have a hydroxyl, carboxyl, alkoxyl, alkylthio, acylamino or acyloxy group, a carboxyl group, or



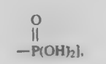
and X is a hydrogen atom, hydroxyl group or



[R^{15} denotes a linear, branched or cyclic hydrocarbon group having 1–40 carbon atoms, which may have a heteroatom, R^{16} means a hydrocarbon group having 1–7 carbon atoms, which may have a hydroxyl or alkoxyl group or



Z denotes —COO—, —O—, —S— or —$CONR^{17}$ (R^{17} is a hydrogen atom or a hydrocarbon group having 1–10 carbon atoms, which may have a hydroxyl group), and n stands for an integer of 1–5]; B^1 denotes a hydrogen atom, a hydrocarbon group having 1–10 carbon atoms, which may have a hydroxyl group, or a nitrogen atom; and C^1 stands for a hydrogen atom, a hydrocarbon group having 1–10 carbon atoms, which may have a hydroxyl group, alkoxyl group, hydroxyalkyloxy group, phosphoric acid residue, carboxyl group or alkoxycarbonyl group, a nitrogen atom, or —R^{18}—O—X' [R^{18} means a hydrocarbon group having 2–10 carbon atoms, which may have a hydroxyl group, and X' denotes a hydrogen atom or



and B^1 and C^1 may form a heterocyclic ring, which may contain an oxygen atom, together with the adjacent nitrogen atom, or an acid-added salt or quaternized product thereof.

5,723,498

COMPOSITION CAPABLE OF RELEASING ACROLEIN AND ITS USE

Peter Werle; Martin Trageser, both of Geinhausen; Oswald Helmling, and Harold Jakob, both of Hasselroth, all of Germany, assignors to Degussa Aktiengellschaft, Frankurt, Germany

Filed Sep. 13, 1995, Ser. No. 528,468

Claims priority, application Germany, Nov. 21, 1994, 44 41 315.7; Feb. 8, 1995, 195 04 042.2

Int. Cl.[6] A01N *35/02;31/14;43/24;42/28*

U.S. Cl. 514—703 **29 Claims**

1. A storage stable, transportable composition capable of releasing acrolein, comprising (i) at least one acetal of acrolein with an alcohol with 1 to 6 C atoms and 1 to 4 hydroxyl groups, and (ii) at least one acid with a pK_s value of less than 4 which is at least partially soluble in said acetal and chemically compatible therewith and which is a member selected from the group consisting of a monocarboxylic acid and a polycarboxylic acid, wherein said composition contains no water.

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5,723,499

POLYCYCLIC AROMATIC COMPOUNDS AND PHARMACEUTICAL/COSMETIC COMPOSITIONS COMPRISED THEREOF

Bruno Charpentier, Biot, and Jean-Michel Bernardon, Le Rouret, both of France, assignors to C.I.R.D. Galderma, Valbonne, France

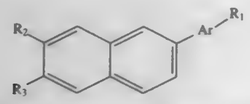
Filed Dec. 15, 1994, Ser. No. 356,913

Claims priority, application France, Dec. 15, 1993, 93 15068

Int. Cl.[6] A01N *31/14;* **C07D** *211/78*

U.S. Cl. 514—717 **57 Claims**

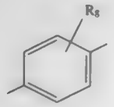
1. A polycyclic aromatic compound having the structural formula (I):



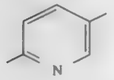
(I)

in which R_1 (i) a hydrogen atom, (ii) a radical —CH_3, (iii) a radical —CH_2OH, (iv) a radical —O—R_4, (v) a radical —$S(O)_t$—R_5 or (vi) a radical —CO—R_6 wherein R_4, R_5, R_6 and t are as defined below; Ar is a radical selected from among those of the following formulae (a)–(i):

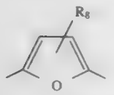
(a)



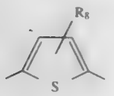
(b)



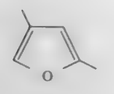
(c)



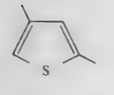
(d)



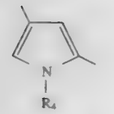
(e)



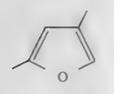
(f)



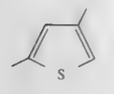
(g)



(h)



(i)



wherein R_4 and R_8 are as defined below; R_2 is a linear or branched alkyl radical having from 1 to 20 carbon atoms or a cycloaliphatic radical; R_3 is (a) a radical —X—$(CH_2)_m$—R_{10}, (b) a radical —$(CH_2)_m$—R_{11}, (c) a radical —CH=CH—$(CH_2)_n$—R_{11} or (d) a radical —O—CH_2—O—CH_2—CH_2—O—CH_3 wherein X, R_{10}, R_{11}, n and m are as defined below, with the proviso that R_2 and R_3 may together form, with the adjacent naphthalene nucleus from which they depend, a 5- or 6-membered ring optionally substituted by methyl groups and/or optionally interrupted by an oxygen atom or by a radical —$S(O)_z$— wherein z is as defined below; R_4 is a hydrogen atom, a lower alkyl radical or a radical —$(CH_2)_p$—$(CO)_q$—R_5 wherein p, q and R_5 are as defined below and further wherein the radicals R_4 may be identical or different; R_5 is a lower alkyl radical or a heterocycle and the radicals R_5 may be identical or different; R_6 is (a) a hydrogen atom, (b) a lower alkyl radical, (c) a radical of the formula:



wherein R' and R" are as defined below, or (d) a radical —O—R_7, wherein R_7 is as defined below and further wherein the radicals R_6 may be identical or different; R_7 is a hydrogen atom, a linear or branched alkyl radical having from 1 to 20 carbon atoms, an alkenyl radical, a mono- or polyhydroxyalkyl radical, an optionally substituted aryl or aralkyl radical, or a sugar residue, or an amino acid or peptide residue; R_8 is a halogen atom, a lower alkyl radical, a hydroxyl radical, a radical —OR_9 or —O—COR_9 wherein R_9 is as defined below, or is hydrogen only when R_2 is 1-adamantyl and R_3 can only be selected from the group consisting of (a) a radical —X—$(CH_2)_m$—R_{10} when R_{10} is an aralkyl radical; (b) a radical $(CH_2)_m$—R_{11} where R_{11} is COR_6, (c) is a radical —CH=CH—(CH_2)—R_{11} and (d) a radical—O—CH_2—O—CH_2—CH_2—O—CH_3 wherein x, n and m are defined below; the radicals R_9, which may be identical or different, are each a lower alkyl radical; R_{10} is a hydrogen atom, a lower alkyl radical, an aryl radical, an aralkyl radical, a monohydroxyalkyl radical, a polyhydroxyalkyl radical, a radical —CO—R_6 or, but only in the event that m is greater than or equal to 2, a radical of the formula:



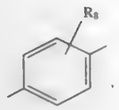
wherein R' and R" are as defined below; R_{11} is a hydrogen atom, a monohydroxyalkyl radical, a polyhydroxyalkyl radical, a radical —CO—R_6, a radical of the formula:



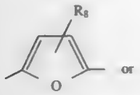
wherein R' and R" are as defined below, or, but only in the event that m is greater than or equal to 1, a hydroxyl radical, a radical —OR_9 or a radical —O—COR_9; R' and R", which may be identical or different, are each a hydrogen atom, a lower alkyl radical, a mono- or polyhydroxyalkyl radical, an optionally substituted aryl radical or an amino acid or sugar residue, with the proviso that R' and R" may together form, with the nitrogen atom from which they depend, a heterocycle; X is an oxygen or sulfur atom; n is an integer ranging from 0 to 4, inclusive; m is an integer ranging from 0 to 6 inclusive; p is an integer ranging from 1 to 3 inclusive; q is an integer equal to 0 or 1; t is an integer ranging from 0 to 2, inclusive; and z is an integer ranging from 0 to 2, inclusive; or a pharmaceutically/cosmetically acceptable salt or optical or geometric isomer thereof.

wherein if Ar is

(a)



(c)



or

(d)

and R_1 is a hydrogen atom, then R_8 is not a methyl radical.

5,723,500

ANTIPLAQUE ORAL COMPOSITION AND METHOD

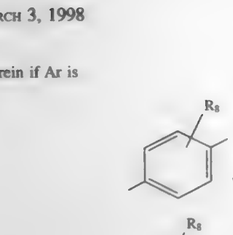
Orum D. Stringer, Yardley, Pa.; John C. Brahms, Trenton, N.J.; Malathy Subramanian, Branchburg, N.J., and Ernest E. Kelly, New Brunswick, N.J., assignors to Colgate-Palmolive Company, New York, N.Y.

Filed May 17, 1996, Ser. No. 649,389

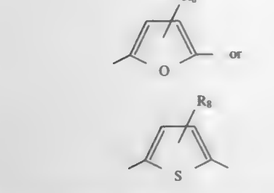
Int. Cl.[6] A01N *31/08;* **A61K** *31/05*

U.S. Cl. 514—736 **46 Claims**

1. An oral composition which is a mouthrinse or a semi-solid toothpaste or gel dentifrice comprising an orally acceptable mouthwash vehicle comprising a water-alcohol mixture or dentifrice vehicle comprising a water phase with humectant and a dentally acceptable polishing material and an effective antiplaque amount of at least one substantially water insoluble noncationic antibacterial agent (AA) of the formula:



I.



II.

wherein R^1 is (1) a C_{1-8} n-alkyl, optionally partially or fully substituted with C_{3-6} cycloalkyls or C_{1-7} side chain alkyls, or (2) a C_{3-6} cycloalkyl, optionally partially or fully substituted with C_{1-7} side chain alkyls or C_{3-6} cycloalkyls;

the B ring and R^6 of formula I are interchangeably substituted in the 4 and 5 positions of the A ring of formula I, and R^6 is H or R^1; and

(1) R^2 and R^3 are interchangeably substituted in the 4' and 5' positions of the B ring of formula I, and R^2 is R^1 and R^3 is H or R^1; or

(2) in the B ring, R^3 in the 5<<-position is H, R^2 in the 4<< position is R^7, R^7 is independently H or R^1 in the 2' and/or 3' positions, and n is 2; and

R^8 in formula III is independently H or R^1 in the 5, 6, 7 and/or 8 positions and m is 4.

5,723,501

PHARMACEUTICAL COMPOSITIONS CONTAINING 3-IODO-1,2-PROPANEDIOL HAVING MUCOLYTIC ACTIVITY

Robert Duane Sofia, Willingboro, N.J., assignor to Carter-Wallace, Inc., NY, N.Y.

Filed Nov. 20, 1996, Ser. No. 754,611

Int. Cl.[6] A61K *31/045*

U.S. Cl. 514—738 **4 Claims**

1. A pharmaceutical composition having mucolytic activity which comprises a therapeutically effective amount of 3-iodo-1,2-propanediol in admixture with one or more pharmaceutically acceptable carriers and diluents.

5,723,502

TOPICAL SPIN TRAP COMPOSITION AND METHOD

Peter H. Proctor, 4126 Southwest Freeway, Ste. 1616, Houston, Tex. 77027

Continuation-in-part of Ser. No. 229,374, Apr. 18, 1994, Pat. No. 5,470,876, and Ser. No. 193,228, Feb. 7, 1994, Pat. No. 5,472,687, each which is a continuation-in-part of Ser. No. 21,970, Feb. 24, 1993, Pat. No. 5,352,442, which is a continuation-in-part of Ser. No. 149,720, Jan. 29, 1988, abandoned, which is a continuation-in-part of Ser. No. 8,186, Jan. 28, 1987, abandoned, which is a continuation-in-part of Ser. No. 858,050, Apr. 30, 1986, abandoned, which is a continuation-in-part of Ser. No. 757,131, Jul. 18, 1985, abandoned. This application Jun. 5, 1995, Ser. No. 465,411

Int. Cl.[6] A61K *31/04;31/40;31/44*

U.S. Cl. 514—741 **17 Claims**

1. A method for reducing the amount of oxygen and hydroxyl free radicalism tissue of an organism comprising the step of:

administering a nitrone or nitroso spin trap to the tissue in an amount effective to inhibit the free radicals, wherein the spin trap is selected from N-t-butyl-α-phenylnitrone, 3,5-dibromo-4-nitrosobenzenesulfonic acid, 5,5-dimethyl-1-pyrroline N-oxide, 2-methyl-2-nitrosopropane, nitrosodisulfonic acid, α-(4-pyridyl-1-oxide)-N-t-butylnitrone, 3,3,5,5-tetramethylpyrroline N-oxide, and 2,4,6-tri-t-butylnitrosobenzene.

5,723,503

BIOLOGICAL TREATMENT FOR RHEUMATOID ARTHRITIS

J. Bruce Smith, and John G. Fort, both of Philadelphia, Pa., assignors to Thomas Jefferson University, Philadelphia, Pa.

Filed Sep. 28, 1994, Ser. No. 314,156

Int. Cl.[6] A06N *63/00*

U.S. Cl. 514—825 **5 Claims**

1. A method of treating rheumatoid arthritis comprising administering an effective amount of allogeneic mononuclear cells obtained from a human donor to an individual having rheumatoid arthritis.

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5,723,504

AMADORI REACTION COMPOUNDS AND PRODUCTS, PROCESS FOR THEIR MANUFACTURE, AND THEIR USE AS CYTOKINE INDUCERS

Jan Zbigniew Mioduszewski, Warsaw; Krystyna Witkiewicz, and Anna Inglot, both of Wroclaw, all of Poland, assignors to Torf Establishment, Liechtenstein

PCT No. PCT/EP93/00327, § 371 Date Oct. 24, 1994, § 102(e) Date Oct. 24, 1994, PCT Pub. No. WO93/16087, PCT Pub. Date Aug. 19, 1993

PCT Filed Feb. 11, 1993, Ser. No. 284,635

Claims priority, application Poland, Feb. 13, 1992, 293464; European Pat. Off., Mar. 3, 1992, 92103614

Int. Cl.[6] A61K *31/73;39/39;9/00;* C12P *21/00*

U.S. Cl. 514—885 49 Claims

37. A method of cytokine induction by polyclonal activation of mammalian cells, the method comprising the step of administering to mammalian cells a preparation comprising a cytokine induction effective amount of at least one biologically active Amadori rearrangement compound of the general formula R_1—NH—R_2, wherein R_1 is a 1-deoxy-2-ketose radical derived from a simple sugar, oligo- or polysaccharide and R_2 is an amino acid or peptide radical.

5,723,505

PROCESS FOR THE CONVERSION OF NATURAL GAS TO HYDROCARBONS

Patrick Chaumette, Bougival, and Pierre Boucot, Ternay, both of France, assignors to Institut Francais du Petrole, Rueil Malmaison, France

Filed Apr. 25, 1995, Ser. No. 428,550

Claims priority, application France, Apr. 25, 1994, 94 05065

Int. Cl.[6] C07C *27/00*

U.S. Cl. 518—702 11 Claims



1. A process comprising:

cracking a cooled effluent comprising a synthesis gas containing carbon monoxide, hydrogen and, optionally, carbon dioxide, and at least one hydrocarbon of 2–4 carbon atoms per molecule in a cracking zone to obtain an effluent comprising unsaturated hydrocarbons prepared by the cracking,

separating water from said effluent to obtain an essentially water-free effluent, and

subjecting said essentially water-free effluent to a Fischer-Tropsch synthesis in the presence of a Fischer-Tropsch synthesis catalyst to obtain a final effluent containing essentially linear and saturated hydrocarbons including C_5^+hydrocarbons.

5,723,506

EXTRUDED POLYMER FOAM WITH FILLER PARTICLES AND METHOD

Sammie J. Glorioso, Ridgeland, Miss., and James H. Burgess, Greenville, S.C., assignors to Apache Products Company, Anderson, S.C.

Continuation-in-part of Ser. No. 369,400, Jan. 6, 1995, which is a continuation-in-part of Ser. No. 144,621, Nov. 1, 1993, Pat. No. 5,424,014, which is a continuation of Ser. No. 946,738, Sep. 18, 1992, abandoned. This application Nov. 1, 1996, Ser. No. 740,779

Int. Cl.[6] B29C *44/20;44/50*

U.S. Cl. 521—79 18 Claims

1. A method for preparing a thermosetting polymer foam product comprising:

introducing polyol to a screw of an extruder;

introducing isocyanate to the screw of the extruder;

introducing filler particles to the screw of the extruder;

mixing the polyol and the isocyanate in the screw of the extruder;

introducing foaming agent to the screw of the extruder;

introducing catalyst to the extruder at a position proximate to the extruder head of the extruder;

mixing the catalyst with the foaming agent, the isocyanate, the polyol, and the filler particles in the extruder to form a composite mixture, thereby reacting the isocyanate and polyol and initiating a foaming reaction in the composite mixture in the extruder in conjunction with extrusion whereby expansion of the composite mixture into a foam takes place outside the extruder.

5,723,507

FOAMED GASKETS MADE FROM HOMOGENEOUS OLEFIN POLYMERS

Ronald P. Markovich, Houston, and Alan R. Whetten, Lake Jackson, both of Tex., assignors to The Dow Chemical Company, Midland, Mich.

Filed Mar. 11, 1996, Ser. No. 615,549

Int. Cl.[6] C08J *9/34*

U.S. Cl. 521—51 8 Claims

1. A foamed gasket made from a composition comprising at least one homogeneously branched ethylene polymer which is an interpolymer of ethylene with at least one C_3–C_{20} alpha-olefin, and at least one blowing agent, wherein the polymer has a density of about 0.895 to about 0.915 g/cm^3, and is characterized as having a molecular weight distribution M_w/M_n of from about 1.5 to about 2.5, and as having a CDBI greater than about 50%.

5,723,508

METHOD OF FABRICATING EMULSION FREEZE-DRIED SCAFFOLD BODIES AND RESULTING PRODUCTS

Kevin E. Healy, Evanston; Kyumin Whang, and Carson H. Thomas, both of Chicago, all of Ill., assignors to Northwestern University, Evanston, Ill.

Filed Jan. 25, 1996, Ser. No. 591,094

Int. Cl.[6] C08J *9/26*

U.S. Cl. 521—61 9 Claims

1. A method of fabricating a porous molded scaffold body, comprising the steps of:

(a) preparing an emulsion with a polar solvent dispersed in a non-polar solvent which is immiscible with said polar solvent, said non-polar solvent having dissolved therein from 5 to 20 parts by weight of a biocompatible polymer per each 100 parts total volume of both solvents, said polymer being insoluble in the dispersed polar solvent and forming a solid upon freeze-drying;

(b) freezing said emulsion in a mold under conditions which convert both of said solvents to solids without breaking the emulsion or throwing the polymer out of solution, thereby obtaining a solid frozen body of molded shape;

(c) subjecting the resulting molded frozen body to freeze-drying under conditions which convert the entire body to a porous solid; and

(d) continuing the freeze-drying until said entire body is a porous open-celled body.

5,723,509

AZEOTROPE-LIKE COMPOSITIONS OF DIMETHOXYMETHANE, CYCLOPENTANE AND 2-METHYL PENTANE AND THE USE THEREOF IN THE PRODUCTION OF FOAMS

Joachim Werner, Bethel Park, Pa.; Scott A. Kane, Wellsburg, W. Va.; Herman P. Doerge, Pittsburgh, Pa.; Eric F. Boonstra, Oakdale, Pa., and Charles E. Mortimer, Tarentum, Pa., assignors to Bayer Corporation, Pittsburgh, Pa.

Filed Sep. 23, 1996, Ser. No. 717,658

Int. Cl.[6] C08J *9/14*

U.S. Cl. 521—114 5 Claims

1. A process for the production of a polyurethane foam comprising reacting a polyisocyanate with an isocyanate-reactive material in the presence of an azeotrope-like composition consisting essentially of

a) from about 68.1 to about 69.1% by weight of dimethoxymethane,

b) from about 29.7 to about 30.7% by weight of cyclopentane and

c) from about 0.7 to about 1.7% by weight of 2-methyl pentane in which the sum of a), b) and c) is 100% by weight.

5,723,510

METHOD OF MANUFACTURING THERMOPLASTIC POLYESTER FOAM SHEET

Akira Kabumoto; Naoki Yoshida; Masayasu Ito, and Mitsunori Okada, all of Yokohama, Japan, assignors to The Furukawa Electric Co., Ltd., Tokyo, Japan

Filed Jun. 11, 1996, Ser. No. 661,652

Int. Cl.[6] C08J *9/04*

U.S. Cl. 521—182 9 Claims

1. A method of manufacturing a thermoplastic polyester foam sheet comprising the steps of:

forming a roll by overlapping and rolling a thermoplastic polyester sheet and a separator, said separator being formed of a nonwoven fabric having a weight per area of 20 to 100 g/m^2 and a thickness of 50 to 300 μm;

impregnating said thermoplastic polyester sheet with carbon dioxide gas while said roll is kept in a pressurized carbon dioxide atmosphere of at least 30 kg/cm^2 to thereby attain a degree of crystallinity in said thermoplastic polyester sheet of at least 30%; and

heating said thermoplastic polyester sheet under atmospheric pressure to a temperature ranging from a glass transition point to a melting point to thereby foam said thermoplastic polyester sheet.

5,723,511

PROCESSES FOR PREPARING TELECHELIC, BRANCHED AND STAR THERMOPLASTIC RESIN POLYMERS

Peter M. Kazmaier, Mississauga; Barkev Keoshkerian, Thornhill; Karen A. Moffat, Brantford; Michael K. Georges, Guelph; Gordon K. Hamer, and Richard P. N. Veregin, both of Mississauga, all of Canada, assignors to Xerox Corporation, Stamford, Conn.

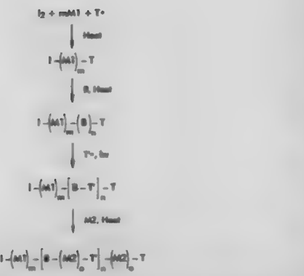
Filed Jun. 17, 1996, Ser. No. 664,702

Int. Cl.[6] C08F *2/50;257/02;265/06;287/00*

U.S. Cl. 522—35 18 Claims

1. A process for the preparation of branched thermoplastic resins comprising:

heating a mixture comprising an initiator compound of the formula A-T, wherein A represents a group having at least one carbon atom and is such that a free radical A• arising therefrom is capable of polymerizing an unsaturated monomer by free radical polymerization and the radical functionality resides on at least one carbon atom, and T is a covalently bonded stable free radical compound, at least one free radical polymerizable monomer of the formula M1, and at least one free radical reactive branching agent of the formula B,



wherein the branching agent is selected from branching agent monomers which contain a free radical reactive double bond and a photochemically active chromophore, and inhibiting branching agents which inhibit/thermal polymerization and which undergo photochemically induced branch point formation, to form an unbranched polymeric product of the formula

$$A—(M1)_m—(B)_n—T$$

where m and n are integers from 1 to about 10,000 representing the total number of monomers M and B contained in the unbranched product;

irradiating a mixture of the unbranched polymeric product and a second stable free radical compound of the formula T• to form an intermediate branched polymeric product of the formula

$$A—(M1)_m—[B—(T)_p]_n—T$$

wherein a T• becomes convalently bonded to at least one branching agent B in the polymeric product, and wherein p is an integer from 1 to about 10 representing the average number of stable free radical compounds of the formula T attached to each branching agent B in the intermediate branched polymeric product;

heating a mixture of the intermediate branched polymeric product and at least one second free radical polymerizable monomer of the formula M2 to form a first branched polymeric product of the formula

$$A—(M1)_m—[B—(M2)_o—(T)_p]_n—(M2)_o—T$$

where o is an integer from 1 to about 5,000 representing the average number of monomers M2 which are inserted between each of the covalently bonded stable free radical compounds T and T and each branch point; and

cooling the mixture, wherein the resulting product is a branched thermoplastic resin with arms or branches comprised of polymerized monomer with substantially uniform length and narrow polydispersity.

5,723,512

DIMERIC BISACYLPHOSPHINES, OXIDES AND SULFIDES

David G. Leppard, Marly, Switzerland, and Manfred Köhler, Freiburg, Germany, assignors to Ciba Specialty Chemicals Corporation, Tarrytown, N.Y.

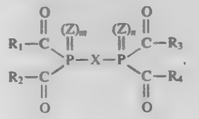
Continuation of Ser. No. 392,563, Feb. 23, 1995, abandoned. This application Jun. 27, 1996, Ser. No. 669,807

Claims priority, application Switzerland, Mar. 2, 1994, 614/94

Int. Cl.[6] C07F *9/53;9/02;* C08F *2/50;* C08K *3/22*

U.S. Cl. 522—55 10 Claims

1. A compound of the formula I

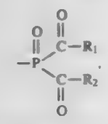


(I)

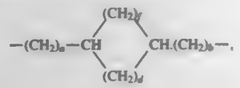
in which

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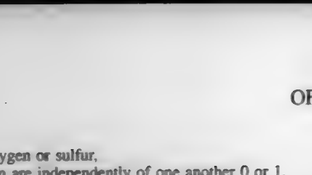
Z is oxygen or sulfur,
n and m are independently of one another 0 or 1,
R_1, R_2, R_3 and R_4 independently of one another are C_1–C_{20}alkyl, cyclopropyl, cyclopentyl, cyclohexyl, C_2–C_8alkenyl, phenyl which is unsubstituted or is substituted one to four times by C_1–C_{12}alkyl, C_1–C_{12}alkoxy, C_1–C_6alkylthio and/or halogen, naphthyl which is unsubstituted or is substituted one to four times by C_1–C_{12}alkyl, C_1–C_{12}alkoxy, C_1–C_6alkylthio and/or halogen, biphenyl which is unsubstituted or is substituted one to four times by C_1–C_{12}alkyl, C_1–C_{12}alkoxy, C_1–C_6alkylthio and/or halogen, or R_1, R_2, $R_3$and R_4 independently of one another are a 5- or 6-membered heterocyclic ring which contains O, S or N, or R_1 and R_2 or/and R_3 and R_4 are linked to form a ring containing 4 to 10 carbon atoms which is unsubstituted or is substituted by 1 to 6 C_1–C_4alkyl groups,
X is linear or branched C_1–C_{18}alkylene, is C_2–C_{18}alkylene which is interrupted one or more times by —O—, —S—, —NR_5—, —P(O)R_6— or —SO_2—, or is C_1–C_6alkylene which is substituted by Cl, F, C_1–C_4alkoxy, $COOR_7$, phenyl, C_1–C_4alkylphenyl, C_1–C_4alkylnaphthyl, phenyl-C_1–C_4alkyl, naphthyl-C_1–C_4alkyl, phenyl-C_1–C_4alkoxy, naphthyl-C_1–C_4alkoxy, C_1–C_4alkoxy-C_1–C_4alkoxy and/or CN, or X is C_2–C_8alkylene which is substituted by one or two groups of the formula G


(G)

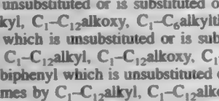
or X is a group of the formula (II),

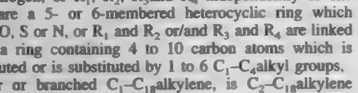

(II)

in which
a and b independently of one another are 0 or 1,
the sum of d and f is 3 to 8, with neither d nor f being 0,
or X is a group —CH_2—CH=CH—CH_2— or —CH_2—C≡C—CH_2—, or X is xylylene,


or

or X is a group of the formula (XII), or (XIV),


(XII)


(XIV)

in which
Z and G are as defined above and
Y is a single bond, —CR_8R_9—, —O—, —NR_5—, —S—, —SO_2—, —$(CH_2)_p$— or —CH=CH—,
p is a number from 2 to 12,
R_5 is hydrogen, C_1–C_{12}alkyl or phenyl,
R_6 is C_1–C_4alkyl or phenyl,
R_7 is C_1–C_{12}alkyl, C_2–C_{18}alkyl which is interrupted by one or more O atoms, or is benzyl, phenyl, cyclopentyl or cyclohexyl, and
R_8 is hydrogen, methyl or ethyl,
R_9 is hydrogen or C_1C_4alkyl, and
R_{10} is hydrogen C_1–C_4alkyl, C_1–C_4alkoxy or halogen.

5,723,513

POLYMERS CONTAINING HALOMETHYL-1,3,5-TRIAZINE MOIETIES

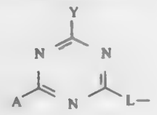
James A. Bonham, Grant Township, Washington County; Mitchell A. Rossman, Minneapolis, and Richard J. Grant, Maplewood, all of Minn., assignors to Minnesota Mining and Manufacturing Company, St. Paul, Minn.

Continuation of Ser. No. 370,471, Jan. 9, 1995, abandoned, which is a continuation of Ser. No. 49,731, Apr. 19, 1993, abandoned, which is a continuation of Ser. No. 476,340, Feb. 7, 1990, abandoned. This application Mar. 8, 1996, Ser. No. 612,739

Int. Cl.[6] **C08L** *79/04;* **C08F** *2/50;* **G03C** *1/675;* **G03F** *7/028*

U.S. Cl. 522—63 **21 Claims**

1. A photocrosslinkable, photoinsolubilizing coating composition comprising (a) a solvent and (b) a polymer having a polymeric backbone having covalently bonded thereon at least one 1,3,5-triazine nucleus represent by the formula:



wherein
A represent a member selected from the group consisting of mono-, di, and trichloromethyl groups, mono-, di-, and tribromomethyl groups, and mono-, di-, and triiodomethyl groups,
Y represents a member selected from the group consisting of alkoxy substituted aryl groups, vinyl substituted aryl groups, and alkynyl substituted aryl groups, and
L represents a group or covalent bond linking the triazine nucleus to the polymer, the portion of L directly attached to to the triazine nucleus being selected from the group consisting of (a) carbon atom of an aryl group, (b) carbon atom of a —CH=CH— group, (c) carbon atom of an ester group, (d) amino group selected from the group consisting of (1) aminoaryl groups wherein the nitrogen atom of the amino group is attached to the triazine nucleus and (2) amino groups wherein the nitrogen atom of the amino group is attached to both the triazine nucleus and the carbon atom of at least one —CH_2CH_2— group,and (e) oxygen atom,
wherein said polymer is dissolved or dispersed in said solvent and is rendered insoluble in said solvent when coated and dried upon a support and irradiated with actinic radiation.

5,723,514

HEATSET INTAGLIO PRINTING INK

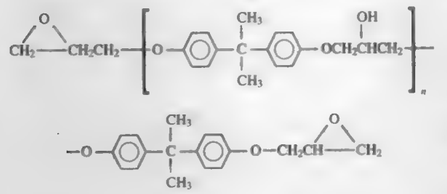
Solomon J. Nachfolger, Monsey, N.Y.; Hugo Babij, Waldwick, N.J.; Joseph Malanga, Clark, N.J.; Ralph H. Reiter, River Vale, N.J., and Walter J. Glesias, Elmwood, N.J., assignors to Sun Chemical Corporation, Fort Lee, N.J.

Filed Jun. 13, 1995, Ser. No. 489,912

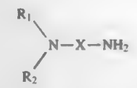
Int. Cl.[6] **C09D** *11/10*

U.S. Cl. 523—161 **14 Claims**

1. A heatset intaglio printing ink comprising:
a) a resin present in an amount of about 10 to 50 wt. %, based on the weight of the ink, comprising the reaction product of (i) about 65–75 parts per hundred of the ester obtained from the esterification of about 40–60 parts per hundred of an epoxy resin with about 60–40 parts per hundred of a drying oil partially conjugated unsaturated fatty acid having an iodine number of about 125–185, an acid number of about 180–210 and a degree of conjugation of about 20–25%, said ester having an acid number below about 10, and (ii) about 35–25 parts per hundred of a mixture of about 20–28% of one or more unsaturated monobasic acids having a polymerizable double bond and about 80–72% of one or more reactive monomers having a polymerizable double bond, said epoxy resin comprising the condensation product of bisphenol A and epichlorohydrin and having an epoxide equivalent weight of about 400 to 1100 and represented by the structure below wherein n has a value of 0 to about 8:



b) at least one glycol and/or glycol ether present in an amount of about 5 to 30 wt. %, based on the weight of the ink;
c) at least one inorganic and/or organic pigment present in an amount of about 5 to 40 wt %, based on the weight of the ink;
d) at least one drier, present in an amount of about 0.1 to 5 wt. %, based on the weight of the ink; and
e) about 0.1 to 5 wt. %, based on the weight of the ink, of a compound obtained by reacting 1 part by weight of an amine/epoxy adduct (a) with 0.1 to 0.8 part by weight of a compound (b) selected from the group consisting of phenolic resins and polyhydric phenol compounds, said amine/epoxy adduct (a) obtained by reacting an amino compound (1) of the general formula



wherein R_1 and R_2 each represent an alkyl group having 1 to 5 carbon atoms and X represents an alkylene group having 1 to 5 carbon atoms, or an amino compound mixture comprising said amino compound (1) and 1-amino-4-ethylpiperazine (2) in a weight ratio of (1) to (2) of 70/30 to 99/1, with an epoxy resin (3) having more than one adjacent epoxy group on the average in the molecule, in such a ratio that the amount of the epoxy groups in the epoxy resin (3) is 0.8 to 2.5 equivalents per equivalent of the amino group in the amino compound(s) (1) or (1)+(2).

5,723,515

INTUMESCENT FIRE-RETARDANT COMPOSITION FOR HIGH TEMPERATURE AND LONG DURATION PROTECTION

Samuel Gottfried, Riverdale, N.Y., assignor to No Fire Technologies, Inc., Upper Saddle River, N.J.

Filed Dec. 29, 1995, Ser. No. 581,449

Int. Cl.[6] **C09K** *21/14*

U.S. Cl. 523—179 **34 Claims**

1. A fire-retardant coating material, comprising:
a) a fluid intumescent base material having a foaming agent, a blowing agent, a charring agent, a binding agent, a solvent, and a pigment;
b) a flame spread reduction agent;
c) refractory fibers dispersed in said fluid intumescent base material;
d) an oxygen reduction agent;
e) a thermal transmission reduction agent;
f) a stabilizer and volatile organic reduction component;
g) a mechanical enhancer component for physical impact resistance and adhesion to a substrate;
h) a water-resistance agent; and
i) an elasticity agent to increase resistance to cracking and shrinking, and to improve ease of spraying.

5,723,516

INORGANIC PARTICLES COATED WITH ORGANIC POLYMERIC BINDERS COMPOSITE SHEETS INCLUDING SAME AND METHODS OF MAKING SAID COATED PARTICLES

W. Stuart Bigham, Woodbury, and Dean M. Moren, North St. Paul, both of Minn., assignors to Minnesota Mining and Manufacturing Company, St. Paul, Minn.

Continuation of Ser. No. 424,594, Apr. 17, 1995, abandoned, which is a continuation of Ser. No. 136,584, Oct. 14, 1993, abandoned. This application Nov. 22, 1996, Ser. No. 754,469

Int. Cl.[6] **C08J** *3/21;* **C08L** *23/02*

U.S. Cl. 523—205 **20 Claims**

1. Coated granules suitable for use as roofing granule material comprising inorganic particles coated directly with an organometallic polymeric binder, wherein said inorganic particles comprise raw rock material, and said organometallic polymeric binder comprising the reaction product of water with at least one component of a binder precursor composition, said binder precursor composition comprising an uncured mixture, said uncured mixture comprising a water reactive organic polymer dissolved in a hydrolyzable liquid organometallic solvent,
wherein said water reactive organic polymer of said uncured mixture has a weight average molecular weight of at least 100 wherein at least two in any sequence of three consecutive polymeric backbone atoms is carbon.

5,723,517

SYSTEM FOR CONTROLLING THE COLOR OF COMPOUNDED POLYMER(S) USING IN-PROCESS COLOR MEASUREMENTS

Peter John Campo, Niskayuna, and Paul Kenneth Houpt, Schenectady, both of N.Y., assignors to General Electric Company, Schenectady, N.Y.

Continuation of Ser. No. 602,226, Feb. 15, 1996, abandoned, which is a division of Ser. No. 378,993, Jan. 26, 1995, Pat. No. 5,559,173, which is a continuation of Ser. No. 131,232, Oct. 4, 1993, abandoned. This application May 19, 1997, Ser. No. 858,665

Int. Cl.[6] **G05D** *25/02;25/00;* **B01F** *15/04*

U.S. Cl. 523—303 **10 Claims**

1. A system for controlling the color of at least one compounded polymer comprising:
means for selecting at least one colorant additive such that a gain matrix G, for the effects of concentration of the at least one colorant upon the color of the mixture, will have a condition number indicative of no rank deficiency;
a compounder for mixing at least one polymer and said at least one colorant additive to produce a substantially homogeneous mixture;
a sensor for measuring optical signals and adapted to continually monitor the color of the mixture at substantially predetermined intervals;
a colorant additive feeder for providing, to the mixture being produced by said compounder, the at least one colorant additive at substantially predetermined colorant additive addition rates; and
a controller, responsive to said sensor and coupled to said colorant additive feeder, for controlling the colorant additive addition rate of said colorant additive feeder.

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5,723,518

AQUEOUS TWO-COMPONENT POLYURETHANE COATING COMPOSITIONS AND A METHOD FOR THEIR PREPARATION

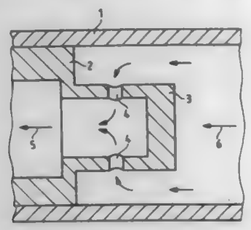
Lothar Kahl; Bernd Klinksiek, both of Bergisch Gladbach; Dieter Schleenstein, Odenthal; Manfred Bock, Leverkusen, and Nusret Yuva, Leichlingen, all of Germany, assignors to Bayer Aktiengeseilschaft, Leverkusen, Germany

Continuation of Ser. No. 448,870, May 24, 1995, abandoned. This application Jan. 6, 1997, Ser. No. 779,103

Claims priority, application Germany, Jun. 3, 1994, 44 19 570.2; Mar. 23, 1995, 195 10 651.2

Int. Cl.[6] C08J *3/03;* **C08L** *75/00;* **C09D** *175/00*

U.S. Cl. 523—324 **14 Claims**



1. A bimodal aqueous coating composition containing in dispersed form as binder an isocyanate-reactive component and a polyisocyanate component, in which these components have a particle size distribution having a first distribution maximum at a particle size of 40 to 200 nm and a second distribution maximum at a particle size of 200 to 2,000 nm, provided that the particle sizes of the distribution maxima differ by a factor of at least 2.

5,723,519

CATHODIC ELECTROCOATING COMPOSITIONS CONTAINING AN ANTICRATER AGENT

Allisa Gam, Troy, and Ding Yu Chung, Rochester Hills, both of Mich., assignors to E. I. du Pont de Nemours and Company, Wilmington, Del.

Filed Feb. 25, 1997, Ser. No. 806,868

Int. Cl.[6] C08G *59/50;* **C08L** *63/00*

U.S. Cl. 523—404 **9 Claims**

1. An improved cathodic electrocoating composition, comprising an aqueous carrier having dispersed therein a film forming binder comprising an epoxy-amine adduct and a blocked polyisocyanate crosslinking agent; wherein the improvement consists of an anticrater agent which consists of a silane terminated reaction product of polyoxy alkylene diamine and gamma-gylcidoxy alkyl alkoxy silane, which is hydrolyzed, and the anticrater agent having a number average molecular weight of about 700–5,000 determined by Gel Permeation Chromatography (GPC) using polystyrene as the standard; wherein the anticrater agent is used in an amount sufficient to reduce craters in a coating formed from the electrocoating composition.

5,723,520

POLYESTER MOLDING COMPOSITIONS AND ARTICLES EXHIBITING GOOD IMPACT, HEAT AND SOLVENT RESISTANCE

Murali Krishna Akkapeddi, Morristown; Bruce VanBuskirk, Dover, and Sengshiu J. Chung, Parsippany, all of N.J., assignors to AlliedSignal Inc., Morristown, N.J.

Continuation of Ser. No. 429,508, Apr. 26, 1995, abandoned. This application Aug. 9, 1996, Ser. No. 695,255

Int. Cl.[6] C08K *5/098;* **C08L** *67/02*

U.S. Cl. 523—455 **10 Claims**

1. A composition suitable for molding which comprises:

(a) i) at least one thermoplastic polyester homopolymer selected from the group consisting of polyethylene terephthalate, poly-1,4-cyclohexane dimethylene terephthalate, polyethylene naphthalate, and mixtures thereof, and

ii) at least one copolymer of ethylene and a glycidyl acrylate or methacrylate in which the glycidyl acrylate or methacrylate moiety is present in the copolymer in an amount of from about 2% to about 20% by weight, and wherein the copolymer contains more than 0 to about 30% by weight of an unsaturated comonomer selected from the group consisting of C3–C18 alpha olefins, styrenics and acrylics with a nitrile, amide or imide functionality; and

(b) at least one nucleating agent which is a Group I metal salt of a carboxylic acid containing compound in an amount sufficient to increase the crystallization rate of the polyester.

5,723,521

METHOD OF PREPARING SOLVENTLESS SILICONE RESINS THAT EXHIBIT SUPERIOR RECONSTITUTION AND THE RESINS SO-PRODUCED

Leon Neal Cook; Richard Allen Hessick, Jr.; Hongxi Zhang, and Randall Gene Schmidt, all of Midland, Mich., assignors to Dow Corning Corporation, Midland, Mich.

Filed Jul. 3, 1995, Ser. No. 497,736

Int. Cl.[6] C08K *5/54*

U.S. Cl. 524—268 **9 Claims**

1. A method of making a solventless silicone resin that exhibits a superior degree of reconstitution, said method comprising the steps of:

(1) preparing a dispersion of a silicone resin dispersed in a volatile liquid dispersant;

(2) dispersing from 2 to 25 parts of a nonvolatile silicone fluid, per 75 to 98 parts of said silicone resin, based upon 100 parts, by weight, of the total of said resin and said nonvolatile silicone fluid, in the dispersion obtained in step (1); and

(3) thereafter removing the volatile liquid dispersant therefrom.

5,723,522

FIBER-CONTAINING PLASTICS, PROCESS FOR PRODUCING THE SAME, FIBER-CONTAINING GRANULATES, FIBER-CONTAINING POLYMER COMPOUND

Franz Bergmann, Köln, Germany, assignor to Color Plastic Chemie, Albert Schleberger GmbH, Remscheid, Germany

PCT No. PCT/EP94/03194, § 371 Date Mar. 22, 1996, § 102(e) Date Mar. 22, 1996, PCT Pub. No. WO95/08592, PCT Pub. Date Mar. 30, 1995

PCT Filed Sep. 24, 1994, Ser. No. 619,463

Claims priority, application Germany, Sep. 24, 1993, 43 32 587.4

Int. Cl.[6] C08L *1/08;1/00;1/24*

U.S. Cl. 524—36 **11 Claims**

1. A fiber-containing plastic material which comprises:

(a) 0.01 to 20 parts by weight of a spun dyed cellulose fiber, wherein the spun dyed cellulose fiber is a viscose fiber, said 0.01 to 20 parts by weight of the spun dyed cellulose fiber present per 100 parts by weight of the plastic material; and

(b) a plastic matrix comprising at least one polymer in which the spun dyed cellulose fiber is contained, wherein the plastic material presents a depth effect, that the color of the plastic matrix is in contrast with the color of the fibers.

5,723,523

RUBBER COMPOSITION FOR A RADIAL TIRE HAVING IMPROVED PROCESSABILITY AND ADHESIVE STRENGTH

Martin L. Engelhardt, Hudson, Ohio, and Kyung-Kyu Kang, Taejon, Rep. of Korea, assignors to Hankook Tire Mfg., Co., Ltd., Seoul, Rep. of Korea

Filed May 22, 1996, Ser. No. 651,549

Int. Cl.[6] C08K *5/34*

U.S. Cl. 524—100 **2 Claims**

1. A rubber composition for a radial tire which comprises:

A) 100 parts by weight of natural rubber;

B) from 0.5 to 5 parts by weight of a modified melamine resin of the formula

$$MF_a(OMe)_b$$

wherein M is melamine, F is an alkyl group, OMe is a methoxy group, a is 2.5 to 4.0 and b is 0.5a±0.5; and

C) from 0.1 to 5 parts by weight of2-chloro-4,6 dianilino-1,3,5 triazine or 2 -chloro-4,6-bis (N-phenyl-p-phenylenediamino)-1,3,5 triazine.

5,723,524

METHOD FOR PREVENTING OR RETARDING THE FORMATION OF GAS HYDRATES

Jeffrey M. Cohen, Fairlawn; Philip F. Wolf, Bridgewater, and William D. Young, Bloomingdale, all of N.J., assignors to ISP Investments Inc., Wilmington, Del.

Filed Nov. 6, 1996, Ser. No. 743,696

Int. Cl.[6] C07C *7/20;* **C03K** *5/04*

U.S. Cl. 524—376 **25 Claims**

1. A composition for preventing or retarding the formation of gas hydrates or for reducing the tendency of gas hydrates to agglomerate, during the transport of a fluid comprising water and a hydrocarbon, through a conduit, comprising, (a) a polymer or copolymer selected from the group consisting of a terpolymer of vinyl pyrrolidone, vinyl caprolactam and an ammonium monomer having from 6 to 12 carbon atoms, selected from the group consisting of dialkyl aminoalkyl methacrylamide, dialkyl dialkenyl ammonium halide and a dialkylamino alkyl acrylate or methacrylate, a copolymer of vinyl pyrrolidone and vinyl caprolactam, and a homopolymer of vinyl caprolactam, and (b) a glycol ether containing an alkoxy group having at least 3 carbon atoms.

5,723,525

MOLDING MATERIALS BASED ON POLYARYLENE ETHERS

Karin Elbl-Weiser, Schriesheim, Germany, assignor to BASF Aktiengesellschaft, Ludwigshafen, Germany

Filed Jul. 12, 1996, Ser. No. 679,622

Claims priority, application Germany, Jul. 14, 1995, 194 25 681.6

Int. Cl.[6] C08K *3/10;3/18;3/26*

U.S. Cl. 524—424 **11 Claims**

1. A process for the preparation of a molding material, wherein

A) from at least 60% by weight of polyarylene ethers are mixed with

B) from 0.001 to 0.2% by weight of a carbonate or bicarbonate of an alkali metal or a mixture thereof

and furthermore

C) from 0 to 40% by weight of additives or processing assistants or mixtures thereof based on the components A to C.

5,723,526

RESIN COMPOSITION AND MOLDED ARTICLE

Masashi Nagasawa, Chiba, Japan, assignor to Teijin Chemicals Ltd, Tokyo, Japan

Continuation-in-part of Ser. No. 301,630, Sep. 7, 1994, abandoned. This application Apr. 1, 1996, Ser. No. 626,009

Claims priority, application Japan, Sep. 8, 1993, 5-223440

Int. Cl.[6] C08J *5/10;* **C08K** *3/34;* **C08L** *69/00*

U.S. Cl. 524—451 **10 Claims**

1. A resin composition consisting essentially of:

(a) an aromatic polycarbonate resin,

(b) a thermoplastic graft copolymer obtained by grafting a diene rubber component with a vinyl cyanide compound and an aromatic vinyl compound,

(c) a phosphoric acid ester,

(d) a polytetrafluoroethylene,

(e) a talc having an average particle diameter of 1.2 to 3.5 μm, and

(f) a composite rubber having a network structure in which a polyorganosiloxane rubber component and a polyalkyl (meth-)acrylate rubber component interpenetrate, said composite rubber having a gel content of 80% by weight or more when measured after extraction with toluene at 90° C. for 12 hours, in which composition (i) the proportions of the component (a), the component (b), the component (c) and the component (d) are 45 to 90% by weight, 10 to 40% by weight, 3 to 12% by weight and 0.1 to 2% by weight, respectively, based on the total weight (100% by weight) of the components (a), (b), (c) and (d) and (ii) the proportions of the component (e) and the component (f) are 5 to 25 parts by weight and 1 to 13 parts by weight, respectively, per the total weight (100 parts by weight) of the components (a), (b), (c) and (d).

5,723,527

THERMOPLASTIC RESIN COMPOSITION AND INJECTION MOLDED ARTICLE THEREOF

Hajime Sadatoshi; Kenichi Ohkawa, both of Ichihara; Teruhiko Doi, Sodegaura; Yuichi Miyake, Nagoya; Takao Nomura, Toyota, and Takeyoshi Nishio, Okazaki, all of Japan, assignors to Sumitomo Chemical Company, Limited, Osaka, and Toyota Jidosha Kabushiki Kaisha, Toyota, both of Japan

Filed Apr. 24, 1996, Ser. No. 637,279

Claims priority, application Japan, Apr. 27, 1995, 7-104468

Int. Cl.[6] C08K *3/34*

U.S. Cl. 524—451 **16 Claims**

1. A thermoplastic resin composition which has a melt flow rate (JIS-K-6758, 230° C.) of 20 to 30 g/10 min and, a flexural modulus at 23° C. of 30,000 kg/cm^2 or more and which comprises:

(A) 60 to 75% by weight of a crystalline polypropylene selected from the group consisting of:

(i) a crystalline propylene-ethylene block copolymer composed of a propylene homopolymer portion which is the first segment and, a propylene-ethylene random copolymer portion which is the second segment (referred to hereinafter as (A'), said propylene homopolymer portion having a Q value of 3.0 to 5.0 which is the Weight average molecular weight (Mw)/number average molecular weight (Mn) ratio according to a gel permeation chromatography (GPC), an isotactic pentad fraction of 0.975 or more as calculated by ^{13}C NMR and an intrinsic viscosity of 0.95 to 1.15 dl/g as measured at 135° C. in tetralin; said propylene-ethylene random copolymer portion having an intrinsic viscosity of 4.5 to 5.5 dl/g as measured at 135° C. in tetralin and a propylene content/ethylene-content ratio of 75/25 to 60/40 (weight % ratio), and

(ii) a mixture of the above crystalline propylene-ethylene block copolymer (i) with a crystalline propylene homopolymer having a Q value as defined above of 3.0 to 5.0, an isotactic pentad fraction as calculated by ^{13}C-NMR of 0.975 or more and an intrinsic viscosity of 0.95 to 1.15 dl/g as measured at 135° C. in tetralin;

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(B) 2 to 8% by weight of an ethylene-butene-1 copolymer rubber which has a Q value as defined above of 2.7 or less, a butene-1 content of 15.to 20% by weight, an intrinsic viscosity of 1.0 to 2.0 dl/g as measured at 70° C. in xylene and a Mooney viscosity at 100° C. (ML_{1+4}100° C.) of 7 to 90,

(C) 2 to 8% by weight of an ethylene-propylene copolymer rubber which has a Q value as defined above of 2.7 or less, a propylene content of 20 to 30% by weight, an intrinsic viscosity of 0.8 to 2.0 dl/g as measured at 70° C. in xylene and a Mooney viscosity at 100° C. (ML_{1+4}100° C.) of 5 to 60 and

(D) 10 to 20% by weight of talc having an average particle diameter of 4 μm or less,

(E) 5 to 20% by weight of fibrous magnesium oxysulfate having an average fiber length of 5 to 50 μm and an average fiber diameter of 0.3 to 2.0 μm, wherein the contents of (A), (A'), (B), (C), (D) and

(E) satisfy the following equations 1) to 6):

$$(A)+(B)+(C)+(D)+(E)=100 \quad 1)$$

$$0.05 \leqq [(B)+(C)]/100 \leqq 0.10 \quad 2)$$

$$0.15 \leqq \{[(A')+(B)+(C)]/100\} \leqq 0.25 \quad 3)$$

$$0.30 \leqq \{(B)/[(B)+(C)]\} \leqq 0.70 \quad 4)$$

$$0.20 \leqq [(D)+(E)]/100 \leqq 0.30 \quad 5)$$

$$0.30 \leqq \{(D)/[(D)+(E)]\} \leqq 0.80. \quad 6)$$

5,723,528

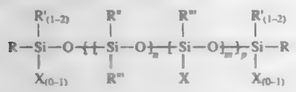
IMPACT MODIFIED THERMOPLASTIC POLYESTER MOLDING COMPOSITION

James P. Mason, McKees Rocks, Pa., assignor to Bayer Corporation, Pittsburgh, Pa.

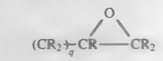
Filed Jul. 6, 1995, Ser. No. 498,939
Int. Cl.[6] C08K *3/36*
U.S. Cl. 524—492 **11 Claims**

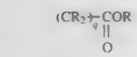
1. A thermoplastic molding composition comprising (a) a thermoplastic polyester resin, and (b) a silicone rubber powder, wherein said powder is present in the composition in an amount of about 8 to 25 percent relative to the weight of the composition, said silicone rubber powder having an average particle size of about 1 to 1000 microns and containing

(i) 100 pbw of a polydiorganosiloxane having a viscosity at 25° C. is about 10^6 to 10^9 centipoise and siloxane structural units represented by the general formula



wherein R', R" and R'" independently denotes a member selected from the group consisting of hydrogen atom, C_{1-10}-alkyl, alkenyl, cycloalkyl radicals and aryl groups, and where p is about 1000 to 8000 and where the relative weight proportions of n and m is 98.5 to 100: 0 to 1.5, and where X denotes a member selected from the group consisting of





where R denotes a member selected from the group consisting of hydrogen, C_{1-10}-alkyl, alkenyl, cycloalkyl radicals and aryl groups and where q is 1–10, and

(ii) about 10 to 80 pbw of a finely divided silica selected from the group consisting of fumed silica, precipitated silica and silica gel having a surface area of at least 50 m^2/g,

said composition characterized in that it has a notched Izod impact strength value which is greater than that of the thermoplastic polyester resin alone.

5,723,529

SILICA BASED AGGREGATES, ELASTOMERS REINFORCED THEREWITH AND TIRE TREAD THEREOF

Yvon André Bernard, Oberpallen; Uwe Ernst Frank, Ettelbruck; Wolfgang Lauer, Mersch, all of Luxembourg; Thierry Florent Edmé Materne, Attert, Belgium; Friedrich Visel, Bofferdange, and René Jean Zimmer, Howald, both of Luxembourg, assignors to The Goodyear Tire & Rubber Company, Akron, Ohio

Continuation of Ser. No. 360,543, Dec. 21, 1994, abandoned. This application Sep. 19, 1996, Ser. No. 716,120
Int. Cl.[6] C08K *3/00*
U.S. Cl. 524—492 **18 Claims**

1. A rubber composition comprised of (A) 100 parts by weight of a diene based elastomer, (B) about 5 to about 100 parts by weight of an aggregate of particles and (C) a silica coupler having a moiety reactive with silicon dioxide and a moiety reactive with the carbon-to-carbon double bonds of said elastomer; wherein said aggregate of particles is an aggregate characterized by having a BET surface in a range of about 100 to about 500 m^2/g, a CTAB surface in a range of about 100 to about 300 m^2/g, wherein the BET/CTAB ratio is in a range of about 0.8/1 to about 1.2/1, and a mercury porosometeric pore size distribution of V1/V2 ratio in a range of about 0.5/1 to about 0.7/1 and by being prepared by the steps of:

(A) reacting at least two inorganic materials with a strong base and forming a water solution of a product thereof, wherein said inorganic materials are comprised of, based on 100 parts by weight thereof, about 0.1 to about 99.9 parts silicon dioxide and, correspondingly, about 99.9 to about 0.1 parts of at least one additional inorganic material selected from an oxide and/or salt of aluminum with a restriction that said additional inorganic material is reactive with a strong base to form a water soluble product thereof;

(B) treating said water solution by the addition of at least one mineral acid thereto to react with said product to form a reaction product thereof and to reduce the pH of the solution and thereby produce precipitated particles of the reaction product as a precipitate;

(C) optionally interrupting the said acid addition of step (B) to the said water solution to allow the said precipitate to age for a period of time before resuming the addition of acid, followed by adding additional acid until a desired pH is reached to complete the said reaction and precipitation of the reaction product;

(D) optionally, after said acid addition of step (B), and/or step (C) if used, is completed, allowing the precipitate to age for a period of time;

(E) filtering and washing the precipitate with water and drying the precipitate to recover the primary particles in the form of an aggregate thereof and having a water of adsorption on the surface of the particles of the aggregate;

(F) optionally modifying step B and/or step C by treating the said precipitate by the addition to said precipitate of at least one electrolyte having an anion selected from at least one of carbonate, silicate, aluminate, borate, alumosilicate, phosphate, sulfate, halogenide, titanate and zirconate and cation selected from at least one of lithium, sodium, potassium, magnesium and/or calcium.

(G) optionally an additional step, during and/or following step (E) comprised of grafting onto said reaction product and/or precipitate at least one functional group and/or polymer, by a process of a reaction between the silanol groups, Si—O—Si groups and/or any other active sites on the surface thereof wherein said functional group is provided by reaction therewith at least one of (i) material of the type X and/or X-R, (ii) material of the type X-R-Y and (iii) a material of the type

X-R-Z and/or $(X\text{-}R\text{-}Z)_2$ wherein where R is an aliphatic hydrocarbon radical having from 2 to 30 carbon atoms or an aromatic or hydrocarbon substituted aromatic radical having from 6 to 30 carbon atoms, X and Y are the same of different radicals selected from at least one of hydroxy, amino, alcoholate, cyanide, thiocyanide, halogen, sulfonic acid, sulfonic acid ester, thiol, benzoic acid, benzoic acid esters, carboxylic acid, carboxylic acid ester and organo silane radicals and Z is a radical selected from S_n and Se_n, where n is an integer of from 2 to 6, or an unsaturated radical selected from allyl, vinyl, acryl and aryl radicals; and where said polymer is selected from at least one of synthetic cis 1,4-polyisoprene natural and/or natural rubber, cis 1,4-polybutadiene, polystyrene, polychloroprene, polyacrylonitrile, styrene-butadiene-copolymer rubber, butadiene-isobutylene-copolymer, EPDM, styrene-isoprene-butadiene terpolymer rubber and isoprene-butadiene copolymer rubber;

(H) optionally an additional step, following step (E), comprised of treating said dried precipitate with at least one non-ionic and/or non-ionic surfactant; provided, however, that the said process shall include at least one of said steps (F), (G) and (H).

5,723,530

TIRE WITH TREAD OF ELASTOMER COMPOSITION

David John Zanzig, Uniontown; Paul Harry Sandstrom, Tallmadge, and Edward John Blok, Wadsworth, all of Ohio, assignors to The Goodyear Tire & Rubber Company, Akron, Ohio

Filed Sep. 23, 1996, Ser. No. 717,740
Int. Cl.[6] C08K *5/01*
U.S. Cl. 524—495 **5 Claims**

1. A pneumatic rubber tire having a rubber tread where said tread is a rubber composition comprised of, based on 100 parts by weight of the tread rubber, (A) elastomers comprised of (i) about 25 to about 60 phr of styrene/butadiene copolymer elastomer having a styrene content in a range of about 30 to about 55 percent and a Tg within a range of about −15° C. to about −45° C., (ii) about 5 to about 40 phr of medium vinyl polybutadiene having a vinyl content in a range of about 40 to about 65 percent and a Tg within a range of about −45° C. to about −65C., (iii) about 20 to about 40 phr of cis 1,4-polybutadiene having a Tg within a range of about −95° C. to about −105C., and (iv) about 5 to about 30 phr of cis 1,4-polyisoprene having a Tg within a range of about −65° C. to about −70C., (B) about 60 to about 110 phr of carbon black reinforcing filler characterized by having an Iodine adsorption value in a range of about 116 to about 145 together with a DBP number in a range of about 115 to about 140 and (C) about 2 to about 30 phr of an aromatic processing oil having an aromatic content of at least 35 percent; wherein the Tg of the said cis 1,4-polybutadiene elastomer is at least 50° C. lower than the Tg of the said styrene/butadiene copolymer elastomer.

5,723,531

RUBBER COMPOSITION AND TIRE HAVING TREAD THEREOF

Friedrich Visel, Bofferdange, Luxembourg; Thierry Florent Edme Materne, Attert, Belgium; Uwe Ernst Frank, Marpingen, Germany, and Rene Jean Zimmer, Howald, Luxembourg, assignors to The Goodyear Tire & Rubber Company, Akron, Ohio

Filed Apr. 30, 1997, Ser. No. 846,911
Int. Cl.[6] C08K *3/00*
U.S. Cl. 524—496 **84 Claims**

1. A rubber composition comprised of

(A) 100 parts by weight of at least one diene-based elastomer selected from homopolymers of conjugated dienes, copolymers of conjugated dienes and copolymers of conjugated dienes with vinyl aromatic compounds selected from at least one of styrene and alpha-methystyrene;

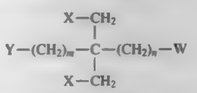
(B) about 30 to about 110, alternatively about 30 to about 90, phr of reinforcing carbon black selected from at least one of:

(1) classical carbon black having a concentration of acidic groups on its surface in a range of about 0.1 to about 2.0 ueq/m^2 (micro equivalents/cm^2) wherein said acidic groups are comprised of at least one of carboxyl and hydroxyl groups; and wherein said classical carbon black has a Nitrogen Specific Surface Area (N_2SA) in a range of about 30 to about 250 g/m^2 (ASTM D3037) and a corresponding DBP Adsorption Number in range of about 20 to about 150 $cm^3/100$ g;

(2) alkoxysilane modified reinforcing carbon black as a carbon black treated with an alkoxysilane having the general formula $(R'O)_{4-x-y}Si(R)_x(OH)_y$ including $R_n(R'O)_mSi$ and $(R'O)_nSi(OH)_m$ where R and R' are individually selected from the group consisting of primary, secondary and tertiary alkyl radicals and aralkyl radicals where R has from 1 to 20 carbon atoms and R' has from 1 to 3 carbon atoms; n and m are whole integers from 1 to 3 such that the sum of n and m is 4, x is zero or an integer from 1 to 4 and y is zero or an integer of from 1 to 4; and

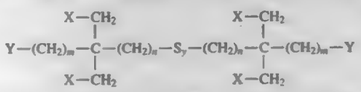
(3) a modified classical carbon black having been modified by being partially oxidized to increase its concentration of acidic groups on its surface by at least 30 percent to a concentration in a range of about 0.2 to about 5.0 ueq/m^2; wherein said acidic groups are comprised of at least one of carboxyl and hydroxyl groups; and wherein said modified classical carbon black has a Nitrogen Specific Surface Area (N_2SA) in a range of about 30 to about 250 g/m^2 (ASTM D3037) and a corresponding DBP Adsorption Number in a range of about 20 to about 150 $cm^3/100$ g; and

(C) at least one coupling agent selected from materials having the following formula(s):



(I)

wherein X is a radical selected from at least one of hydroxyl, amine and carboxyl radicals; Y is a radical selected from hydroxyl and hydrogen radicals; W is a radical selected from hydroxyl, thiol, cyanide, epoxide, allyl, vinyl, dithiocarbamate and benzothiazole radicals; m is zero or one; and n is an integer of 1 to 6, inclusive;



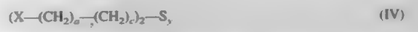
(II)

wherein X is a radical selected from at least one of hydroxyl, amine and carboxyl radicals; Y is a radical selected from hydroxyl or hydrogen radicals; m is zero or one; n is an integer of 1, 2 or 3 and y is an integer of 1 to 6 inclusive, provided however that where y is 1 or 2, then at least an amount of free sulfur equivalent to the amount of sulfur contained in the formula (II) is added to the rubber composition;



(III)

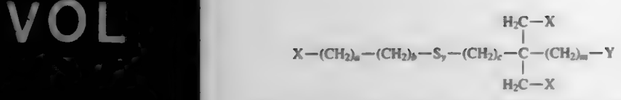
where X is a radical selected from hydroxyl, amine and carboxyl radicals; W is a radical selected from hydroxyl, thiol, cyanide, epoxide, allyl, vinyl, cithiocarbamate and benzothiazole radicals; a is an integer of 1 to 4 inclusive; and c is zero or an integer of from 1 to 3 inclusive;



(IV)

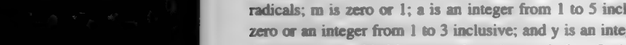
wherein X is a radical selected from hydroxyl, amine and carboxyl radicals; a is an integer of 1 to 3 inclusive; c is zero or an integer of from 1 to 3 inclusive; and y is an integer of 1 to 6 inclusive, provided however that where y is 1 or 2, then at least an amount of free sulfur equivalent to the amount of sulfur contained in the formula (IV) is added to the rubber composition;

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(V)

wherein X is a radical selected from hydroxyl, amine and carboxyl radicals; Y is a radical selected from hydroxyl and hydrogen radicals; m is zero or 1; a is an integer from 1 to 5 inclusive; c is zero or an integer from 1 to 3 inclusive; and y is an integer of 1 to 6 inclusive, provided however that where y is 1 or 2, then at least an amount of free sulfur equivalent to the amount of sulfur contained in the formula (V) is added to the rubber composition;



(VI)

wherein R is an alkyl radical selected from methyl, ethyl and propyl, preferably from methyl and ethyl, radicals; z is zero or one and y is an integer of 1 to 6 inclusive, provided however that where y is 1 or 2, then at least an amount of free sulfur equivalent to the amount of sulfur contained in the formula (V) is added to the rubber composition; R' is an alkylene radical containing from 1 to 15 carbon atoms; and Z is selected from one of the following radicals:



(VI-A)



(VI-B)

wherein R is an alkyl radical selected from at least one of methyl, ethyl, propyl and butyl radicals.

5,723,532

LONG-FIBER-REINFORCED HIGH-IMPACT POLYSTYRENE RESIN STRUCTURE AND MOLDING THEREOF

Tatsuo Izumitani, Nagano, and Haruji Murakami, Shizuoka, both of Japan, assignors to Daicel Chemical Industries, Ltd., Osaka, Japan

Filed Dec. 27, 1995, Ser. No. 579,262

Claims priority, application Japan, Dec. 28, 1994, 6-328531

Int. Cl.[6] C08K *7/14*

U.S. Cl. 524—525 **6 Claims**

1. A long-fiber-reinforced high-impact polystyrene resin structure of at least 3 mm in length, which is formed by compounding:

(A) a high-impact polystyrene resin with

(B) 5 to 80 wt. % (based on the whole composition) of a fibrous reinforcement, and wherein said fibrous reinforcement (B) is substantially the same in length as the structure and is arrayed substantially in parallel in the lengthwise direction of the structure.

5,723,533

SOLUBLE ANIONIC POLYMERIZATION INITIATORS AND PRODUCTS THEREFROM

David F. Lawson, Uniontown; James E. Hall, Mogadore, both of Ohio, and Yoichi Ozawa, Tokyo, Japan, assignors to Bridgestone Corporation, Tokyo, Japan

Division of Ser. No. 220,629, Mar. 30, 1994, Pat. No. 5,578,542, which is a continuation of Ser. No. 968,929, Oct. 30, 1992, abandoned. This application Nov. 26, 1996, Ser. No. 756,548

Int. Cl.[6] C08K *3/04;* **C08F** *36/04;4/48*

U.S. Cl. 524—572 **16 Claims**

1. A method of forming a functionalized polymer, comprising the steps of:

forming a solution of one or more anionically polymerizable monomers in an acyclic alkane solvent; and,

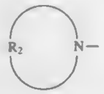
polymerizing said monomers in the presence of an initiator which is soluble in said acyclic alkane solvent; said initiator consisting essentially of a mixture comprising:

from about 90 to about 10 parts by weight of a lithio amine having the formula A_1Li and from about 10 to about 90 parts by weight of at least one other lithio amine having the formula A_2Li;

wherein A_1 and A_2 are different and independently selected from the group consisting of dialkyl, alkyl, cycloalkyl, aralkyl and dicycloalkyl amine radicals having the formula



and cyclic amine radicals having the formula



where each R_1 is independently selected from the group consisting of alkyls, cycloalkyls or aralkyls having from 1 to about 12 carbon atoms, and R_2 is selected from the group consisting of an alkylene, oxy- or amino-alkylene group having from about 3 to about 12 methylene groups.

5,723,534

TWO PART POLYURETHANE-BASED ADHESIVE SYSTEM

Pat L. Murray, Spring, Tex., assignor to Polyfoam Products, Inc., Spring, Tex.

Filed Oct. 11, 1996, Ser. No. 729,599

Int. Cl.[6] C08J *3/00;* **C08K** *3/20;* **C08L** *75/00;* **C08F** *8/30*

U.S. Cl. 524—590 **35 Claims**

1. A two part polyurethane adhesive system, comprising:

a polyurethane prepolymer comprising a reaction mixture of a polyol and an excess of an isocyanate having at least two NCO groups, wherein the polyol comprises propylene oxide and ethylene oxide randomly copolymerized with an initiator to a number average molecular weight of between about 1000 and about 5000 per terminal hydroxyl group of the polyol and wherein about 50 to about 90 percent by weight of the polyol is polymerized ethylene oxide; and

an aqueous phase curing agent for initiating a reaction with the polyurethane prepolymer.

5,723,535

PASTES FOR THE COATING OF SUBSTRATES, METHODS FOR MANUFACTURING THEM AND THEIR USE

Bruno E. Krismer; Uwe Thies; Peter Ladstätter, and Rudolf Hünert, all of Goslar, Germany, assignors to H.C. Starck GmbH & Co., KG, Goslar, Germany

Continuation of Ser. No. 624,207, Apr. 3, 1996, abandoned, which is a continuation of Ser. No. 297,656, Aug. 29, 1994, abandoned. This application Oct. 16, 1996, Ser. No. 733,468

Claims priority, application Germany, Sep. 13, 1993, 44 31 006.0

Int. Cl.[6] C08J *3/00;* **C08K** *3/20;* **C08L** *75/00;* **B32B** *15/00*

U.S. Cl. 524—591 **19 Claims**

1. Metallization paste and comprising:

(a) as a first dispersed solid component 50–90 weight percent of powders selected from the group consisting of Nb, Ta, Mo, W, Cr, Re, Au, Ag, Pt, Pd, Fe, Ni, C, B, Co, Mo and Ti,

(b) as a second component, 0.2 to 20 weight percent, referred to solids content, of an associative thickener in the form of a water emulsion with an active ingredient selected from the group consisting of tolulene diisocyanates (TDI) diphenylmethane diisocyanates (MDI), isophorone diisocyanates (IPDI), and hexamethylene diisocyanates (HDI),

(c) balance essentially water, and wherein

(d) the paste is printable.

5,723,536

AQUEOUS OR WATER-DILUTABLE BLOCKED POLYISOCYANATES AND THEIR USE FOR PREPARING POLYURETHANE CLEARCOATS HAVING SUBSTANTIALLY REDUCED THERMAL YELLOWING

Beate Baumbach; Eberhard König, both of Leverkusen; Lothar Kahl, Gladbach, and Nusret Yuva, Wermelskirchen, all of Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Germany

Filed Apr. 3, 1997, Ser. No. 832,551

Claims priority, application Germany, Apr. 17, 1996, 196 15 116.3

Int. Cl.[6] C08J *3/00;* **C08K** *3/20;* **C08L** *75/00*

U.S. Cl. 524—591 **2 Claims**

1. An aqueous or water-dilutable blocked polyisocyanate, which is based on the reaction product of

a) 40 to 80 wt. % of a polyisocyanate having an isocyanurate group content (calculated as $C_3N_3O_3$; molecular weight=126) of 2 to 30 wt. % and prepared from one or more diisocyanates having a molecular weight of 140 to 350 with

b) 5 to 30 wt. % of one or more reversible blocking agents for isocyanate groups which are monofunctional for purposes of the isocyanate addition reaction,

c) 0.5 to 15 wt. % of one or more stabilizing components which are mono- or difunctional for purposes of the isocyanate addition reaction and have 1 to 2 hydrazide groups and a molecular weight of 70 to 300,

d) 5 to 30 wt. % of a non-ionic/hydrophilic structural component containing at least one compound which is mono- or difunctional for purposes of the isocyanate addition reaction and contains at least one lateral or terminal hydrophilic polyether chain,

e) 0 to 15 wt. % of an anionic or potential anionic structural component containing one or more compounds having at least one isocyanate-reactive group and at least one group capable of salt formation, which may optionally be present in at least partially neutralized form,

f) 0 to 15 wt. % of one or more (cyclo)aliphatic polyamines having 2 to 3 amino groups and a molecular weight of 60 to 300 and

g) 0 to 15 wt. % of one or more polyhydric alcohols having 2 to 4 hydroxyl groups and a molecular weight of 62 to 250,

wherein the sum of the percentages of a) to g) is 100, based on the weight of components a) to g) and wherein the amounts of these components are selected such that

i) the content of isocyanurate groups (calculated as $C_3N_3O_3$; molecular weight=126) is at least 2 wt. %,

ii) the content of blocked isocyanate groups (calculated as NCO; molecular weight=42) is 5 to 11 wt. % and

iii) the content of chemically bound hydrazide groups (calculated as HN—NH; molecular weight=30) is 0.1 to 3.0 wt. %.

5,723,537

PIGMENT PASTES AND METHOD FOR MAKING

Gerda Bajorat, Wuppertal; Claudia Hamel, Erkrath, and Hartmut Kern, Wuppertal, all of Germany, assignors to Herberts Gesellschaft mit beschrankter Haftung, Wuppertal, Germany

Continuation of Ser. No. 114,687, Aug. 31, 1993, abandoned. This application Jun. 5, 1995, Ser. No. 462,441

Claims priority, application Germany, Sep. 2, 1992, 42 29 196.8

Int. Cl.[6] C08J *5/10;* **C08K** *13/02;* **C08L** *67/02*

U.S. Cl. 524—604 **7 Claims**

1. A pigment paste which contains one or more pigments and which paste is based on a water-free polyester oligomer polyacrylate pasting resin prepared in the absence of water by free radical polymerization of

(A) 80–50 weight % of

(a) one or several hydroxyfunctional acrylic acid esters and/or methacrylic acid esters,

(b) one or several monofunctional ethylenically unsaturated acids, and optionally,

(c) one or several alpha, beta-ethylenically unsaturated monomers differing from (a) and (b) and without functional groups, and

(B) 20–50 weight % of one or more hydroxyfunctional polyester oligomers having a molecular weight of 200–1000, a hydroxyl number of 280–600, and an acid number of 0–1.5 which is/are prepared by polycondensation of one or several diols, polyols, and dicarboxylic acids and derivatives thereof, the monomers (a), (b) and (c) being used in such quantities to obtain polyester oligomer polyacrylate with a hydroxyl number of 150–390, and an acid number of 16–40, by converting the resulting pasting resin into a pigment paste by blending the water-free pasting resin with an organic solvent with one or several pigments and/or fillers in a ratio of pigment or filler to pasting resin of 0.01 to 2.5:1 solids basis.

5,723,538

AQUEOUS DISPERSIONS OF POLYAMIDES

Stephen A. Fischer, Yardley; David I. Devore, Langhorne; Kartar S. Arora, Chalfont, all of Pa.; Reimar Heucher, Westmont, Ill.; Michael S. Wiggins, Lansdale, and Chase J. Boudreaux, North Wales, both of Pa., assignors to Henkel Corporation, Plymouth Meeting, Pa.

Continuation-in-part of Ser. No. 665,179, Jun. 14, 1996. This application Oct. 25, 1996, Ser. No. 738,425

Int. Cl.[6] C08K *3/00*

U.S. Cl. 524—608 **56 Claims**

1. A process of preparing a dispersion of a polyamide in water, said process comprising:

dissolving a polyamide having an amine value of greater than about 2 in an organic solvent to form a solution of said polyamide in said solvent, said polyamide and said solvent being at a temperature below the softening point of said polyamide during said dissolving, said solution further comprising a surfactant and an inorganic alkaline material,

adding sufficient water containing an acid to said solution with mixing to form an oil-in-water dispersion, the temperature of said solution and said water being below the softening point of said polyamide during said adding, the amount of said acid being sufficient to neutralize a portion of said inorganic alka-

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line material, but insufficient to coagulate said polyamide from the resulting oil-in-water dispersion, and
removing at least a major amount of said organic solvent from said oil-in-water dispersion.

5,723,539

MODIFIED POLYPHENYLENE ETHER-POLYAMIDE COMPOSITIONS AND PROCESS

Robert R. Gallucci, Pittsfield, Mass.; Roelof van der Meer, Bergen op Zoom, Netherlands, and Roger W. Avakian, Brasschaat, Belgium, assignors to General Electric, Pittsfield, Mass.

Division of Ser. No. 407,789, Mar. 20, 1995, which is a continuation of Ser. No. 68,275, May 25, 1993, abandoned, which is a continuation of Ser. No. 965,042, Oct. 22, 1992, abandoned, which is a continuation of Ser. No. 620,434, Nov. 30, 1990, abandoned, which is a continuation of Ser. No. 168,713, Mar. 16, 1988, abandoned, which is a division of Ser. No. 736,489, May 20, 1985, abandoned, which is a continuation-in-part of Ser. No. 612,369, May 21, 1984, abandoned. This application Mar. 14, 1997, Ser. No. 818,687

Int. Cl.[6] C08L *77/00*

U.S. Cl. 525—63 **17 Claims**

1. A novel resin composition comprising:
a) one or more polyphenylene ether resins,
b) one or more polyamide resins, and
c) a graft polyphenylene ether-polyamide product made by a reaction of one or more polyphenylene ether resins, one or more polyamide resins and one or more aliphatic polycarboxylic acid or derivative thereof being represented by the formula:

$$(R'O)_m R(COOR'')_n(CONR'''R^{IV})_s$$

wherein R is a linear or branched chain, saturated aliphatic hydrocarbon of from 2 to 20 carbon atoms; R' is selected from the group consisting of hydrogen, and alkyl, aryl, acyl and carbonyl dioxy groups having from 1 to 10 carbon atoms; each R'' is independently selected from the group consisting of hydrogen, and alkyl or aryl groups having from 1 to 20 carbon atoms; each R''' and R^{IV} is independently selected from the group consisting of hydrogen, and alkyl or aryl groups having from 1 to 10 carbon atoms; m is equal to 1 and (n+s) is greater than or equal to 2, and n and s are each greater than or equal to 0; wherein (OR') is alpha or beta to a carbonyl group and at least 2 carbonyl groups are separated by 2 to 6 carbon atoms; and
wherein the total ratio of polyphenylene ether to polyamide is from 5 to 95% by weight of the former to 95 to 5% by weight of the latter.

5,723,540

ELASTIC-THERMOPLASTIC GRAFT POLYMERS WITH IMPROVED PROPERTIES

Herbert Eichenauer, Dormagen; Martin Bohnenpoll; Adolf Schmidt, both of Köln, and Heinrich Alberts, Odenthal, all of Germany, assignors to Bayer AG, Leverkusen, Germany

Division of Ser. No. 644,133, May 10, 1996, Pat. No. 5,668,218. This application Apr. 3, 1997, Ser. No. 834,755
Claims priority, application Germany, May 29, 1995, 195 19 [illegible]

Int. Cl.[6] C08F *279/02;291/02;2/22;* **C08L** *51/04*

U.S. Cl. 525—78 **3 Claims**

1. Thermoplastic moulding compositions containing elastic-thermoplastic graft polymers and at least one thermoplastic resin, wherein said elastic-thermoplastic graft polymers are manufactured by radical emulsion polymerisation of resin-forming vinyl monomers in the presence of rubber present in latex form with the use of a combination of a peroxide of formula (I)

$$X_n\text{—}A\text{—}\overset{\overset{O}{\|}}{C}\text{—}O\text{—}O\text{—}R^1 \qquad (I)$$

where
R^1 is an alkyl, cycloalkyl or aryl group with 4 to 20 carbon atoms,
X is a —COOH group or a —SO_3H group or their alkali, alkaline-earth or ammonium salts,
n is an integer in the range from 1 to 6,
A is an alkylene, cycloalkylene or arylene group with 6 to 40 carbon atoms and a reducing agent as initiator system, wherein said reducing agent is a compound selected from the group consisting of salts of sulphinic acids, salts of sulphurous acid, sodium dithionite, sodium sulphite, sodium hyposulphite, sodiumhydrogen sulphite, ascorbic acid and its salts, sodium formaldehyde sulphoxate, mono- and dihydroxyacetone, sugar, iron (II) salts, tin (II) salts and titanium (III) salts.

5,723,541

OCULAR LENS COMPOSITION AND METHOD OF FORMATION

Donald R. Ingenito, Moraga; Henry F. Rugge, Oakland; David S. Soane, Piedmont, all of Calif., and William L. Sturm, Calgary, Canada, assignors to Rasor Associates, Inc., Sunnyvale, Calif.

Continuation-in-part of Ser. No. 77,857, Jun. 16, 1993, abandoned. This application Jun. 13, 1994, Ser. No. 255,570

Int. Cl.[6] C08L *53/00*

U.S. Cl. 525—92 **15 Claims**

1. A method for producing a thermoformable gas permeable ocular lens composition, comprising:
(a) preparing a solution containing
(1) a first polymer component comprising about 70–98% by weight of the composition that is a block copolymer comprising first and second blocks, the first block being selected from silicones and fluorocarbon polymers and the second block being selected from polycarbonates, polysulfones, and polystyrene; and
(2) a monomer polymerizable to form a second polymer component comprising about 30-2% by weight of the composition, the monomer being selected from the group consisting of acrylates, methacrylates, pyrrolidones, styrene, amides, acrylamides, carbonates, vinyls, acrylonitrile, nitriles, sulfones, siloxanes, glycols, ethers, and combinations thereof; in a solvent effective for the first polymer component and the monomer;
(b) polymerizing the monomer in the absence of a cross-linking agent to form the second polymer component so that the first and second polymer components form an interpenetrating polymer network within the solution; and
(c) removing the solvent from the solution to leave the thermoformable gas permeable contact lens composition.

5,723,542

HIGH FLOW, HIGH DUCTILITY POLY(ARYLENE SULFIDE) RESIN BLENDS

Chorng-Fure Robin Hwang, Cary, N.C.; James J. Scobbo, Jr., Guilderland, and S. Bruce Brown, Schenectady, both of N.Y., assignors to General Electric Company, Pittsfield, Mass.

Continuation-in-part of Ser. No. 288,518, Aug. 10, 1994, abandoned. This application May 28, 1996, Ser. No. 654,471

Int. Cl.[6] C08L *53/00;71/02*

U.S. Cl. 525—92 J **8 Claims**

1. A composition comprising:
(a) a low molecular weight poly(arylene sulfide) resin, wherein said low molecular weight poly(arylene sulfide) resin is present at a level of from about 10% to about 85% by weight based on the total weight of the composition, and wherein

said low molecular weight poly(arylene sulfide) resin has a number average molecular weight of between about 2,000 and about 10,000;
(b) a high molecular weight poly(arylene sulfide) resin, wherein said high molecular weight poly(arylene sulfide) resin is present at a level of between about 10% by weight and about 85% by weight percent based on the total weight of the composition, and wherein said high molecular weight poly(arylene sulfide) resin has a number average molecular weight of between about 11,000 and about 100,000; and
(c) at least one impact modifier selected from the group consisting of:
(i) a block copolymer of alkenyl aromatic compounds and dienes, wherein the block copolymer is a triblock copolymer comprising polystyrene endblocks and a selectively hydrogenated diene-derived midblock;
(ii) an epoxy functional alpha-olefin elastomer comprising about 60% to about 99.5% by weight of an α-olefin and about 0.5% to about 40% by weight of a glycidyl ester of an α,β-unsaturated carboxylic acid; and
(iii) a mixture of (i) and (ii);
wherein said impact modifier is present at a level of from about 2% to about 20% by weight based on the total weight of the composition.

5,723,543

BLOCK COPOLYMERS WITH IMPROVED OVERMOLDING ADHESION

Michael John Modic, Houston, Tex., assignor to Shell Oil Company, Houston, Tex.

Filed Sep. 26, 1996, Ser. No. 721,128

Int. Cl.[6] C08L *53/02*

U.S. Cl. 525—98 **26 Claims**

1. A thermoplastic elastomer composition comprising:
a hydrogenated elastomeric block copolymer having at least two resinous endblocks of polymerized monovinyl aromatic compound and an elastomeric midblock of polymerized conjugated diene;
a midblock plasticizer;
an ethylene-acrylate polymer;
a polypropylene; and
a stabilizer.

5,723,544

POLYOLEFIN IONOMER AS PROCESSING AID FOR THERMOPLASTIC POLYURETHANE

Bin Lee, Coraopolis, Pa., assignor to Bayer Corporation, Pittsburgh, Pa.

Continuation of Ser. No. 879,660, May 6, 1992, abandoned. This application Jan. 3, 1997, Ser. No. 775,988

Int. Cl.[6] C08L *75/06*

U.S. Cl. 525—130 **8 Claims**

1. A thermoplastic molding composition having lowered torque requirement entailed in it thermoplastic processing comprising
(i) a polyester-polyol based-polyurethane resin, and
(ii) about 0.1 to 5 percent relative to the total weight of said composition of an ionomer comprising a salt of a copolymer of 70 to 99 percent relative to the weight of the copolymer of alpha-olefin and about 1 to 30 percent relative to the weight of the copolymer of alpha, beta-ethylenically unsaturated carboxylic acid, wherein at least some of said carboxylic acid is neutralized by a monovalent counter ion selected from the group consisting of Li^+, Na^+ and K^+,
said copolymer having a weight average molecular weight of 1,000 to 200,000, said lowered torque requirement being in comparison to a corresponding composition which contains no ionomer.

5,723,545

BLENDS OF A SEMI-CRYSTALLINE POLYMER AND ELASTIC α-OLEFIN/CYCLIC OLEFIN COPOLYMERS

Bruce Allan Harrington, Houston; Patrick Brant, Seabrook, and Anthony Jay Dias, Houston, all of Tex., assignors to Exxon Chemical Patents Inc., Houston, Tex.

Continuation of Ser. No. 539,487, Oct. 6, 1995, which is a continuation of Ser. No. 324,287, Oct. 14, 1994, abandoned, which is a continuation-in-part of Ser. No. 5,676, Jan. 19, 1993. This application Nov. 4, 1996, Ser. No. 740,890

Int. Cl.[6] C08L *45/00*

U.S. Cl. 525—194 **21 Claims**

1. A blend comprising:
(1) about 55 to about 99.5% by weight semi-crystalline polymer; and
(2) about 0.5 to about 45% by weight of a rubbery thermoplastic copolymer comprising an α-olefin and from about 5 to about 30 mole % of cyclic olefin, said rubbery thermoplastic copolymer:
(a) having an Mw of at least about 30,000;
(b) being elastic over the range of temperatures between its Tg and about 100° C. above its Tg: and
(c) having a surface tension that is 3 dynes/cm or more different from the surface tension of the semi-crystalline polymer.
12. A molded article comprising a blend comprising:
(1) about 75 to about 95.5 weight percent of semi-crystalline polymer;
(2) about 25 to about 0.5 weight percent of a copolymer of ethylene and about 5 to about 30 mole % norbornene, said ethylene/norbornene copolymer being elastic over the range of temperatures between its Tg and about 100° C. above its Tg and said copolymer having a surface tension that is 5 dynes/cm or more greater than the surface tension of the semi-crystalline polymer; and
(3) optionally, a curing agent.

5,723,546

LOW- AND HIGH-MOLECULAR WEIGHT AMORPHOUS POLYALPHAOLEFIN POLYMER BLENDS HAVING HIGH MELT VISCOSITY, AND PRODUCTS THEREOF

Andres Sustic, Odessa, Tex., assignor to Rexene Corporation, Odessa, Tex.

Filed Mar. 24, 1997, Ser. No. 822,865

Int. Cl.[6] C08L *23/00*

U.S. Cl. 525—240 **20 Claims**

1. A polymer blend comprising:
a predominantly atactic flexible polyolefin polymer having a high weight average molecular weight of at least about 100,000 and a heat of fusion of about 15 to 60 J/g; and
an atactic polyolefin polymer having a low number average molecular weight of below about 25,000 and a heat of fusion of about 0.1 to 20 J/g, wherein the high molecular weight polymer and low molecular weight polymer are sufficiently miscible to impart a single glass transition temperature and an open time to the polymer blend, and the low molecular weight polymer is present in an amount sufficient to impart a melt viscosity of greater than about 8,000 cPs at room temperature and a crystallinity below about 28 J/g to the polymer blend.

5,723,547

Patent Not Issued For This Number

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5,723,548

EMULSIFIED MANNICH ACRYLAMIDE POLYMERS

Joseph J. Kozakiewicz, Trumbull, and Sun-Yi Huang, Stamford, both of Conn., assignors to Cytec Technology Corp., Wilmington, Del.

Continuation of Ser. No. 460,956, Jun. 5, 1995, abandoned, which is a continuation of Ser. No. 860,542, Mar. 30, 1992, abandoned, which is a division of Ser. No. 697,049, May 8, 1991, Pat. No. 5,132,023, which is a division of Ser. No. 535,791, Jun. 11, 1990, Pat. No. 5,037,881, which is a division of Ser. No. 428,730, Oct. 30, 1989, Pat. No. 4,956,399, which is a continuation-in-part of Ser. No. 285,927, Dec. 19, 1988, abandoned. This application Oct. 23, 1996, Ser. No. 735,845

Int. Cl.[6] C08L *33/26*

U.S. Cl. 524—831 2 Claims

1. A composition comprising acrylamide-anionic comonomer copolymer microparticles, said copolymer being substituted with at least about 1 mole percent of tertiary aminomethyl groups and having an average particle size of from about 200 to 2000 Å in diameter.

5,723,549

PROCESS FOR THE PREPARATION OF BROMINATED POLYSTYRENE HAVING IMPROVED COLOR CHARACTERISTICS

James L. Dever, Medina, and James C. Gill, Macedonia, both of Ohio, assignors to Ferro Corporation, Cleveland, Ohio

Filed Jun. 14, 1996, Ser. No. 663,657

Int. Cl.[6] C08F *8/18*

U.S. Cl. 525—333.4 10 Claims

1. In a process for the preparation of brominated polystyrene, as an additive for polymer matrices to impart flame retardancy, including

preparing a solution of a polystyrene reactant comprising from about five to about 20 percent by weight of said polystyrene reactant, in a halogenated hydrocarbon solvent;

adding a weak Lewis acid bromination catalyst in an amount of from about 0.2 to 10 percent by weight, to form a solution, said catalyst having a strength sufficient to effect bromination of said polystyrene reactant without inducing alkylation of said polystyrene reactant by said halogenated hydrocarbon solvent;

adding to said solution from about 1 to about 3.3 moles of a brominating agent, per mole of polystyrene repeating units; and

reacting said polystyrene with said brominating agent at a temperature of from about −20° C. to about 30 ° C.;

wherein the improvement comprises:

controlling the color characteristics of the resultant brominated polystyrene product by

selecting said polystyrene reactant having a weight average molecular weight of from about 500 to about 1,500,000;

selecting a brominating agent from the group consisting of bromine chloride and bromine;

operating at the lowest possible temperature within said range, consistent with said brominating agent and the catalyst selected; and

adding the contents of the reaction vessel to boiling water with agitation and flashing off said solvent while producing a slurry; and

recovering said brominated polymer from said slurry,, wherein the color properties of the resultant brominated product are improved by selection and consideration of reaction time and temperature, catalyst, brominating agent and method of product isolation.

5,723,550

BULK SULFONATION OF EPDM RUBBER

Cruise K. Jones, Houston; David B. Acker, Woodlands; Dennis A. Williams, Houston; Robert D. Lundberg, Williamsburg, and Vijay Swarup, Houston, all of Tex., assignors to Nalco/Exxon Energy Chemicals, L.P., Sugar Land, Tex.

Filed May 24, 1995, Ser. No. 449,234

Int. Cl.[6] C08F *8/36*

U.S. Cl. 525—344 12 Claims

1. A method for sulfonating ethylene-propylene-5-ethylene 2-norbornene (EPDM) terpolymer which comprises the steps of:

(a) mixing in a mechanical mixer the EPDM at a temperature between 20° C. and 80° C. with

(i) an effective amount of a sulfonating reagent comprising a mixture of sulfuric acid and carboxylic acid anhydrides having from 3 to 18 carbon atoms to sulfonate the EPDM terpolymer, and

(ii) a carboxylic acid processing aid having from 6 to 18 carbon atoms, the wt. ratio of (i)/(ii) being from 1.0/0.5 to 1.0/5.0;

(b) mixing the sulfonated EPDM terpolymer with an effective amount of a neutralizing agent to neutralize the EPDM terpolymer at a temperature between 25° C. to 80° C., said neutralizing agent selected from the group consisting of $(NH_4)_2CO_3$, $CaCO_3$, $Ca(OH)_2$ Na_2CO_3, NaOH, K_2CO_3, KOH, $MgCO_3$, and $Mg(OH)_2$

wherein the metal carbonates and hydroxides contain from 2 to 20 wt. % water or water/alcohol mixtures, said mixing step (b) continuing until the sulfonated neutralized EPDM has been reduced to finely divided discrete particles having an average particle size less than 0.25 inch.

5,723,551

COMPATIBLE COMPOSITIONS OF POLY-PHENYLENE ETHER) RESINS AND SEMI-CRYSTALLINE RESINS

Sterling Bruce Brown, Schenectady, N.Y.; Chorng-Fure Robin Hwang, Cary, N.C.; Farid Fouad Khouri, Clifton Park, N.Y.; Steven Thomas Rice, Scotia, N.Y.; James Joseph Scobbo, Jr., Slingerlands, N.Y., and John Bennie Yates, Glenmont, N.Y., assignors to General Electric Company, Pittsfield, Mass.

Division of Ser. No. 474,824, Jun. 7, 1995, abandoned. This application Jan. 4, 1996, Ser. No. 582,717

Int. Cl.[6] C08G *65/48;69/48;63/91*

U.S. Cl. 525—391 34 Claims

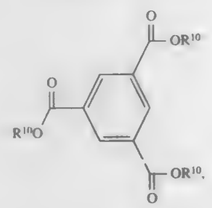
1. A method to increase the molecular weight of a resin comprising the steps of:

(i) allowing the resin to react with a compound containing at least two ortho ester moieties to form a reaction product of the resin and the compound containing at least two ortho ester moieties, and

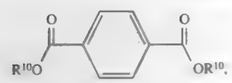
(ii) further allowing the reaction product to react with more of the same resin:

wherein the compound is selected from the group consisting of





-continued

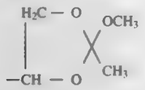


and

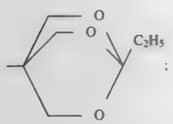


wherein R^6 is a hydrocarbon radical and R^7 is a C_{1-4} primary or secondary alkyl, C_{6-10} aromatic radical, or R^6 and R^7 are connected to form a 5- or 6-member ring,

and wherein R^{10} is a moiety containing an orthoester group represented by the



or



and wherein said resin is selected from the group consisting of poly(arylene sulfide) resin, polyamide resin, nucleophile containing polycarbonate resin, polyetherimide resin, nucleophile containing polyolefin, nucleophile containing polysulfone resin, nucleophile containing polyether sulfone resin, and nucleophile containing poly(phenylene ether) resin.

5,723,552

POLYURETHANE POLYMER OR OLIGOMER HAVING CARBAMATE GROUPS, METHOD FOR ITS PREPARATION, AND COATING COMPOSITION

Gregory L. Menovcik, Farmington Hills, and Walter H. Ohrbom, Commerce, both of Mich., assignors to BASF Corporation, Southfield, Mich.

Division of Ser. No. 361,344, Dec. 21, 1994, abandoned. This application Oct. 24, 1995, Ser. No. 547,174

Int. Cl.[6] C08G *18/32*

U.S. Cl. 525—453 5 Claims

1. A curable coating composition comprising:

(1) a polyurethane that is the reaction product of a mixture comprising:

(a) a polyol having at least one pendant carbamate group that is the reaction product of:

(i) a compound having a plurality of cyclic carbonate groups and

(ii) a member selected from the group consisting of ammonia, ammonium hydroxide, primary amine, and mixtures thereof;

(b) a polyisocyanate, and

(c) optionally, an active hydrogen-containing capping agent, and

(2) a curing agent having a plurality of groups that are reactive with carbamate.

5,723,553

PROCESS OF PRODUCING POLYMER USING A POLYMER SCALE DEPOSITION PREVENTIVE AGENT

Mikio Watanabe, Ibaraki-ken, and Toshihide Shimuzu, Urayasu, both of Japan, assignors to Shin-Etsu Chemical Co., Ltd., Tokyo, Japan

Filed Nov. 15, 1995, Ser. No. 559,451

Claims priority, application Japan, Nov. 15, 1994, 6-305581

Int. Cl.[6] C08F *2/02*

U.S. Cl. 526—62 5 Claims

1. A process for producing a polymer, which comprises polymerizing a monomer having an ethylenically unsaturated double bond in a polymerization vessel having a polymer scale preventive coating film on at least inner wall surfaces of the polymerization vessel, wherein the polymer scale preventive coating film comprises a polymer scale preventive agent comprising a salt of a sulfonation product of a condensate comprising (A) an aromatic amine compound and (B) an aldehyde compound as essential condensation components, wherein said salt is an alkali metal salt ammonium salt or a mixture thereof.

5,723,554

PROCESS FOR PRODUCING STYRENIC POLYMER

Masayuki Fujita; Hayato Kihara, and Takahiro Ishii, all of Chiba, Japan, assignors to Sumitomo Chemical Company, Limited, Osaka, Japan

Filed Sep. 6, 1996, Ser. No. 709,271

Claims priority, application Japan, Sep. 6, 1995, 7-229374

Int. Cl.[6] C08F *4/34;2/08*

U.S. Cl. 526—204 3 Claims

1. A process for producing a styrenic polymer by free radical polymerization, said process comprising the steps of:

(1) forming a mixture of a styrenic compound, a free radical initiator and a radical scavenger, wherein the concentration of the free radical initiator (I; % by mol) based on the amount of the styrenic compound satisfies the formula

$$2\times10^{-3}\leqq I\leqq 4\times10^{-2}$$

and wherein the concentration of the radical scavenger (C; % by mol) and the active site concentration of the free radical initiator (A; % by mol) based on the amount of the styrenic compound satisfy the formula

$$0.8\leqq C/A\leqq 4;$$

(2) maintaining the mixture of step (1) under free radical polymerization conditions including a polymerization temperature (T) of from 100° C. to 140° C., wherein I, C, A and T satisfy the formula

$$10^3\times I+6\times C/A+0.86\times(T-100)\leqq 48;$$

(3) discontinuing the polymerization when the conversion of the styrenic compound is from 40% to 85%; and

(4) recovering a styrenic polymer,

wherein the styrenic polymer recovered in step (4) has a weight average molecular weight (Mw) of 200,000 to 500,000, a number average molecular weight (Mn) of 100,000 to 450,000 and a molecular weight distribution (Mw/Mn) of from 1.1 to 2.

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5,723,555

VINYL RESINS CONTAINING ALKOXYACRYLAMIDE-POLYOL REACTION PRODUCTS AND USE IN EPOXY RESIN BLENDS FOR COATINGS

Shanti Swarup; Ronald R. Ambrose, both of Hampton Township, Allegheny County; James B. O'Dwyer, Clinton Township, Butler County, and Lawrence J. Fitzgerald, Richland Township, Allegheny County, all of Pa., assignors to PPG Industries, Inc., Pittsburgh, Pa.

Continuation of Ser. No. 557,504, Nov. 14, 1995, abandoned, which is a continuation of Ser. No. 219,332, Mar. 29, 1994, abandoned. This application Jun. 27, 1996, Ser. No. 672,153

Int. Cl.[6] C08F *222/00;2/06*

U.S. Cl. 526—210 **16 Claims**

1. The process for preparing an ungelled, water dispersible resin comprising: reacting together vinyl monomers including an acid group containing monomer, and N-(alkoxymethyl)acrylamide or N-(alkoxymethyl)methacrylamide monomer, and at least one other vinyl monomer in the presence of a solvent comprising a polyol having OH groups of unequal reactivity, wherein said polyol is selected from the group consisting of:

(a) a polyol which includes a combination of a primary OH group and a tertiary OH group,

(b) a polyol which includes a combination of a secondary OH group and a tertiary OH group, and

(c) a polyol which includes a combination of a primary OH group, a secondary OH group and a tertiary OH group.

5,723,556

FLUOROMONOMER/FUNCTIONALIZED HYDROCARBON MONOMER COPOLYMERIZATION PROCESS AND COPOLYMER PRODUCT

Clay Woodward Jones, Washington, W. Va., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del.

Division of Ser. No. 514,374, Aug. 11, 1995, which is a continuation-in-part of Ser. No. 383,281, Feb. 3, 1995, abandoned. This application Dec. 11, 1996, Ser. No. 763,425

Int. Cl.[6] C08F *14/18*

U.S. Cl. 526—254 **13 Claims**

1. Process comprising copolymerizing fluoromonomer of the formula $CF_2{=}CR_1R_2$, wherein R_1 is H, F, or Cl and R_2 is H or F, with hydrocarbon monomer of the formula $CH_2{=}CHOC(O)R_3$, wherein R_3 is an alkyl group containing 1 to 4 carbon atoms, by contacting these monomers with one another in a copolymerization medium consisting essentially of water, and no organic co-solvent polymerization initiator, and surfactant, said copolymerization medium being under pressure provided by said fluoromonomer being in gaseous state, agitating said medium during the resultant copolymerization reaction, maintaining the proportion of said fluoromonomer and said hydrocarbon monomer copolymerizing together during said copolymerization reaction essentially constant throughout the copolymerization reaction, and obtaining as a result thereof an aqueous dispersion of copolymer of substantially uniform composition of said fluoromonomer and said hydrocarbon monomer, said copolymer having ester side groups corresponding to the $—OC(O)CR_3$ groups of said hydrocarbon monomer.

5,723,557

THERMALLY STABLE ETHYLENE/ACID COPOLYMERS

Richard Tien-Hua Chou, Wilmington, Del., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del.

Continuation-in-part of Ser. No. 620,188, Mar. 22, 1996, abandoned. This application Jan. 9, 1997, Ser. No. 780,372

Int. Cl.[6] C08F *222/06*

U.S. Cl. 526—272 **6 Claims**

1. A composition, comprising:

an ethylene (meth)acrylic acid copolymer having from 5 to 30 weight percent (meth)acrylic acid, optionally also containing up to 40 weight percent of an alkyl acrylate having an alkyl group with from 1 to 8 carbon atoms, the acid copolymer having additionally copolymerized intrachain units derived from a further comonomer or comonomers selected from the group consisting of maleic anhydride, itaconic anhydride, methyl hydrogen maleate, ethyl hydrogen maleate maleic acid, itaconic acid, and a mixture of any of these monomers,

the intrachain units from the further comonomer or comonomers being present at a level of 0.05 to 3.0 weight percent with respect to the copolymer,

the MI of the copolymer being from 0.1 to 100 g/10 min.

5,723,558

FUMARIC ACID DERIVATIVE AND POLYMER THEREFROM

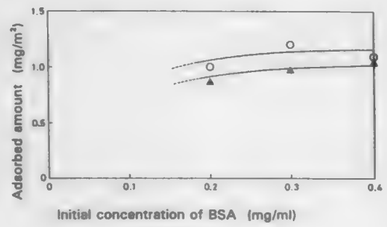
Tsutomu Oishi, Ube; Akio Hayashi, Kashiwa, and Yoshihito Kadoma, Kobe, all of Japan, assignors to NOF Corporation, Tokyo, Japan

PCT No. PCT/JP95/01738, § 371 Date Mar. 27, 1997, § 102(e) Date Mar. 27, 1997, PCT Pub. No. WO97/08177, PCT Pub. Date Mar. 6, 1997

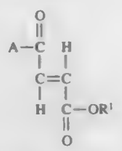
PCT Filed Aug. 31, 1995, Ser. No. 817,629

Int. Cl.[6] C08F *130/02;* **C07C** *69/60;* **C07F** *9/10*

U.S. Cl. 526—277 **4 Claims**

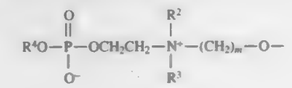


1. A fumaric acid derivative represented by the following general formula (1)



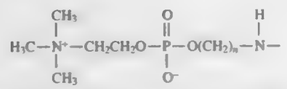
(1)

in which R^1 represents an alkyl group having 1–6 carbon atoms and A denotes a radical of



(A-1)

or



(A-2)

wherein R^2 and R^3 represent each an alkyl group having 1–4 carbon atoms and may be identical with or different from each other, R^4 denotes an alkyl group having 1–6 carbon atoms or a benzyl group and m and n denote each an integer of 1–6.

5,723,559

INITIATING PROCESS AND SYSTEM FOR THE ANIONIC POLYMERISATION OF ACRYLIC MONOMERS

Sunil K. Varshney, Liege; Roger Fayt, Neupre, and Philippe Teyssie, Neuville en Condroz, all of Belgium, assignors to Elf Atochem S.A., France

Division of Ser. No. 91,403, Jul. 14, 1993, Pat. No. 5,629,393, which is a continuation of Ser. No. 776,231, Nov. 12, 1991, abandoned. This application Jun. 7, 1995, Ser. No. 479,970

Claims priority, application France, Jun. 5, 1989, 89 07374; May 22, 1990, 90 06351

Int. Cl.[6] C08F *120/18;4/56*

U.S. Cl. 526—329.7 **5 Claims**

1. A polymethyl methacrylate having a number-average molecular weight between 7000 and 150,000, a polydispersity index between 1.05 and 2.0, having no cross-linking, and comprising up to 60% isotactic triads, 5 to 50% heterotactic triads, and 25 to 60% syndiotactic triads,

wherein the polymethyl methacrylate is prepared using an initiating system comprising:

at least one initiator of the formula $(C_6H_5)_2CHM$ in which M is lithium, sodium, or potassium; and

at least one alkali metal alcoholate of the formula R_1OLi in which R_1 is a straight- or branched-chain alkyl radical containing from 1 to 6 carbon atoms, an aryl radical, or an arylalkyl radical.

5,723,560

HIGHER MOLECULAR WEIGHT AMORPHOUS POLYPROPYLENE

Jo Ann Marie Canich, Webster, Tex., assignor to Exxon Chemical Patents Inc., Houston, Tex.

Division of Ser. No. 395,544, Feb. 28, 1995, Pat. No. 5,504,169, which is a continuation-in-part of Ser. No. 159,888, Nov. 30, 1993, Pat. No. 5,420,217, which is a division of Ser. No. 902,631, Jun. 23, 1992, abandoned, which is a continuation-in-part of Ser. No. 720,282, Jun. 24, 1991, abandoned, which is a division of Ser. No. 581,817, Sep. 13, 1990, Pat. No. 5,026,798, which is a continuation-in-part of Ser. No. 533,245, Jun. 4, 1990, Pat. No. 5,055,438, which is a continuation-in-part of Ser. No. 406,945, Sep. 13, 1989, abandoned. This application Jun. 7, 1995, Ser. No. 472,096

Int. Cl.[6] C08F *10/06;110/06*

U.S. Cl. 526—351 **19 Claims**

1. Amorphous polypropylene having a weight average molecular weight greater that 2.00,000, a molecular weight distribution from about 3.5 to about 1.5, a Bernoullianity index (B) of 1.3+0.6 and having % $(CH_2)_2$ of from 3 to 30.

5,723,561

PROCESS FOR THE CONTINUOUS PREPARATION OF ORGANOPOLYSILOXANES

Rudolf Braun, Kastl; Ludwig Hager, Burghausen; Johann Steiner, Kirchweidach, and Horst Müller, Emmerting, all of Germany, assignors to Wacker-Chemie GmbH, Munich, Germany

Filed Oct. 4, 1995, Ser. No. 538,885

Claims priority, application Germany, Nov. 17, 1994, 44 41 057.3

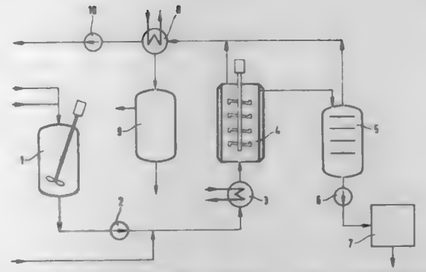
Int. Cl.[6] C08G *77/06*

U.S. Cl. 528—12 **8 Claims**

1. A process for the continuous preparation of organopolysiloxanes by condensation and/or equilibration reaction of organosilicon compounds, which comprises,

in a first step

conveying a mixture consisting essentially of an organosilicon compound and catalyst which is solid in the mixture at least at the reaction temperature continuously from the bottom upwards through a heated cylindrical reactor which is



arranged in a standing position and whose contents are optionally mechanically agitated and

in a second step

passing a reaction mixture obtained after leaving the heated cylindrical reactor at its upper end to an initially empty second cylindrical reactor and continuously through the second cylindrical reactor and

in a third step

freeing the reaction mixture of catalyst after exit from the cylindrical reactor.

5,723,562

PROCESS FOR POLYMERIZATION REACTIONS WITH FUNCTIONALIZED PEROXIDES

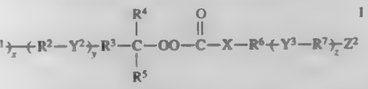
Daryl L. Stein, Bolingbrook, Ill., assignor to Elf Atochem North America, Inc., Philadelphia, Pa.

Continuation of Ser. No. 467,335, Jun. 6, 1995, abandoned, which is a division of Ser. No. 214,938, Mar. 17, 1994, Pat. No. 5,466,855, which is a division of Ser. No. 908,576, Jun. 25, 1992, Pat. No. 5,319,130, which is a division of Ser. No. 577,977, Sep. 5, 1990, abandoned. This application Dec. 5, 1996, Ser. No. 760,777

Int. Cl.[6] C08G *18/28;63/02;69/02;73/10*

U.S. Cl. 528—44 **9 Claims**

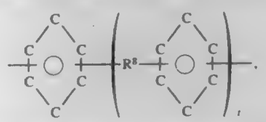
1. A process for preparing a polymeric peroxide comprising reacting a peroxide compound with one or more monomers selected from the group consisting of phosgene, a bis-haloformate, a polyhaloformate, a diacid halide, a polyacid halide, a diisocyanate, a polyisocyanate, a dianhydride, a diol, a polyol, a diamine, a polyamine, an aminoalcohol and a polyfunctional aminoalcohol, the peroxide compound having the following Formula I:



I

wherein

R^1, R^2, R^6 and R^7 are independently a substituted or unsubstituted alkyl diradical of 1 to 18 carbons, a substituted or unsubstituted cycloalkyl diradical of 5 to 18 carbons, a substituted or unsubstituted bicycloalkyl diradical of 7 to 12 carbons, a substituted or unsubstituted bicycloalkenyl diradical of 7 to 12 carbons, a substituted or unsubstituted alkenyl diradical of 2 to 18 carbons, a substituted or unsubstituted alkynyl diradical of 2 to 18 carbons, a substituted or unsubstituted aralkyl diradical of 7 to 18 carbons, a substituted or unsubstituted naphthyl diradical or a substituted or unsubstituted diradical having the following Formula II:



II

with the proviso that when X is a direct bond, R^6 is not a tertiary alkyl diradical;

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R^3 is a substituted or unsubstituted alkyl diradical of 1 to 18 carbons, a substituted or unsubstituted aralkyl diradical of 7 to 18 carbons, a substituted or unsubstituted naphthyl diradical or the substituted or unsubstituted diradical having the Formula II;

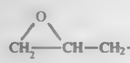
R^4 and R^5 are independently a substituted or unsubstituted alkyl radical of 1 to 10 carbons;

R^8 is a direct bond, —O—, —S—, —S(=O)$_2$—, —C(=O)—, —C(=O)—O—, —O—C(=O)—, —O—C(=O)—O—, —NH—C(=O)—, —C(=O)—NH—, —NH—C(=O)—NH— or a substituted or unsubstituted alkyl diradical of 1 to 6 carbons;

X is a direct bond;

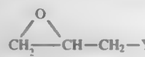
Y^1, Y^2 and Y^3 are independently —O—, —S—, —S(=O)$_2$—, —C(=O)—, —C(=O)—O—, —O—C(=O)—, —O—C(=O)—O—, —NH—C(=O)—, —C(=O)—NH—, —NH—C(=O)—O—, —O—C(=O)—NH—, —NH—C(=O)—NH, —C(=O)—C(=O)—, —O—C(=O)—C(=O)—O—, —NH—C(=O)—C(=O)—NH—, —NH—C(=O)—C(=O)—O— or —O—C(=O)—C(=O)—NH—;

Z^1 is H_2N—, O=C=N—, Cl—C(=O)—, Br—C(=O)—, HO—C(=O)—,



H_2N—C(R^9) (R^{10})—(CH_2)$_w$—Y^1— or R^{11}—O—C(=O)—;

Z^2 is H_2N—, O=C=N—, Cl—C(=O)—, Br—C(=O)—,



or H_2N—C(R^9)(R^{10})—(CH_2)$_w$—Y^1—;

R^9 and R^{10} are independently hydrogen or a substituted or unsubstituted alkyl radical of 1 to 4 carbons;

R^{11} is an alkyl radical of 1–4 carbons, benzyl or phenyl;

t, x, y and z are independently 0 or 1;

w is an integer from 1 to 12; and

substituents for any of R^1, R^2, R^3, R^4, R^5, R^6, R^7, R^8, R^9 or R^{10} are independently one or more of chloro, bromo, fluoro, cyano, amino, sulfo, carboxy, nitro, alkoxy of 1 to 12 carbons, alkylamino of 1 to 12 carbons, acyloxy of 1 to 12 carbons, alkenoyloxy of 3 to 12 carbons, alkenoylamino of 3 to 12 carbons, aroyloxy of 7 to 15 carbons, aroylamino of 7 to 15 carbons, phthalimido, alkoxycarbonyloxy of 2 to 13 carbons, alkoxycarbonylamino of 2 to 13 carbons, alkenyloxycarbonyloxy of 3 to 12 carbons, alkenyloxycarbonylamino of 3 to 12 carbons, aryloxycarbonyloxy of 7 to 15 carbons, alkylaminocarbonyloxy of 2 to 13 carbons, arylaminocarbonyloxy of 7 to 15 carbons, aralkylaminocarbonyloxy of 7 to 16 carbons, alkylsulfonyloxy of 1 to 8 carbons, alkylsulfonylamino of 1 to 8 carbons, arylsulfonylamino of 6 to 11 carbons or epoxyalkoxycarbonyl of 2 to 13 carbons.

5,723,563

SPANDEX ELASTOMERS

Bruce D. Lawrey, Charleston, and Stephen D. Seneker, Sissonville, both of W. Va., assignors to Arco Chemical Technology, L.P., Greenville, Del.

Filed Oct. 11, 1996, Ser. No. 728,923

Int. Cl.^{6} C08G *18/10;18/48*

U.S. Cl. 528—61 **21 Claims**

1. A spandex elastomer prepared by the process of:

a) selecting an isocyanate-terminated prepolymer prepared by reacting a stoichiometric excess of one or more di- and/or polyisocyanates with a polyoxypropylene diol component having a molecular weight in excess of 2000 Da and an unsaturation of about 0.010 meq/g or less, said polyoxypropylene diol component comprising about 70 weight percent or more based on the weight of the diol component, of one or more ultra-low unsaturation polyoxypropylene diols having an unsaturation of less than about 0.010 meq/g, and a molecular weight of about 2500 Da to about 20,000 Da, said isocyanate-terminated prepolymer having an isocyanate group content of from about 0.5 weight percent to about 10 weight percent;

b) preparing a solution of said isocyanate-terminated prepolymer in an aprotic solvent;

c) chain extending said isocyanate-terminated prepolymer with a substantially aliphatic and/or cycloaliphatic diamine component to form a segmented polyurethane/urea elastomer.

5,723,564

PROCESS FOR PREPARING ISOCYANURATE GROUP-CONTAINING POLYISOCYANATES AND THEIR USE IN TWO-COMPONENT COATING COMPOSITIONS

Lutz Schmalstieg, Köln; Carl-Gerd Dieris, Dormagen; Wolfgang Kremer, Kerken, and Bernd Riberi, Odenthal, all of Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Germany

Filed Jun. 21, 1996, Ser. No. 667,568

Claims priority, application Germany, Jun. 29, 1995, 195 23 657.2

Int. Cl.^{6} C08G *18/79*

U.S. Cl. 528—73 **9 Claims**

1. A process for preparing isocyanurate group-containing polyisocyanates in lacquer solvents which are inert towards isocyanate groups which comprises

a) reacting 0.2 to 1.5% of the NCO groups of a diisocyanate component containing

i) 80 to 100 wt. %, based on the weight of the mixture, of 2,4-diisocyanatotoluene and

ii) up to 20 wt. %, based on the weight of the mixture, of 2,6-diisocyanatotoluene,

with a monohydric alcohol, R—OH, wherein R represents a linear or branched, saturated or unsaturated, aliphatic hydrocarbon group with 6 to 22 carbon atoms, to form urethanized diisocyanates,

b) trimerizing at least a portion of the isocyanate groups of the urethanized diisocyanates in the form of 40 to 70 wt. % solutions in lacquer solvents which are inert towards isocyanate groups and in the presence of a catalyst for accelerating the trimerization of isocyanate groups, and

c) terminating the trimerization reaction by adding a catalyst poison to obtain a reaction mixture having a free diisocyanatotoluene content of less than 0.1 wt. %, based on the weight of the reaction mixture.

5,723,565

EPOXY CURING AGENTS

Michael Cuscurida, Austin, and Kathy Beth Sellstrom, Pflugerville, both of Tex., assignors to Huntsman Petrochemical Corporation, Austin, Tex.

Filed Apr. 12, 1993, Ser. No. 44,791

Int. Cl.^{6} C08G *59/62*

U.S. Cl. 528—111 **5 Claims**

1. An epoxy resin composition comprising the cured reaction product of an epoxy resin and a curing agent, the curing agent comprising a mixture of an amino curative and a polyoxyalkylene polycarbonate, said polyoxyalkylene polycarbonate consisting of:

(a) an initiator moiety having one or two reactive hydroxyl or carboxyl groups chemically bonded to a hydrocarbon radical selected from the group consisting of alkyl, alkylphenyl and oxyalkylene;

(b) an oxyalkylenecarbonyl moiety chemically bonded to the initiator moiety at the site of the hydroxyl or carboxyl groups by the reaction of an alkylene carbonate having from 2 to 6 carbon atoms or a mixture of an alkylene oxide, having 2 to 5 carbon atoms and carbon dioxide in the ratio of from 1 to 10 moles of the alkylene oxide per mole of carbon dioxide; wherein there is present an average of from 1 to 30 carbonyl groups in the oxyalkylenecarbonyl moiety per mole of initiator moiety.

5,723,566

RESINOUS COPOLYMER COMPRISING MONOMER UNITS OF EACH OF THE GROUPS OF PHENOL COMPOUNDS AND OLEFINICALLY UNSATURATED NON-ACIDIC TERPENE COMPOUNDS

Jacques Salvetat, Villeneuve, France, and Ronald Wind, Emmen, Netherlands, assignors to Arizona Chemical S.A., Niort, France

Filed Aug. 10, 1995, Ser. No. 513,413

Claims priority, application European Pat. Off., Feb. 11, 1993, 93400341

Int. Cl.^{6} C08G *61/00;* **C08F** *236/00:236/04*

U.S. Cl. 528—205 **8 Claims**

1. A resinous copolymer comprising monomer units from each of the groups of phenol compounds (I), olefinically unsaturated non-acidic terpene compounds (II), and aliphatic, non-terpenic polyunsaturated olefin compounds (III) wherein the monomer units of compound (III) comprise from about 1 to about 70% by weight of the total weight of the monomer units of compounds (II) and (III), and wherein the monomer units of compounds (II) and (III) are at least about 50% by weight of the total weight of the monomer units of compounds (I), (II) and (III) and the softening point of the copolymer is at least 130° C.

5,723,567

COPOLYAMIDES

Manfred Hewel, Rodels, and Ulrich Presenz, Trins, both of Switzerland, assignors to EMS-INVENTA AG, Zürich, Switzerland

Filed Sep. 28, 1995, Ser. No. 536,495

Claims priority, application Germany, Sep. 29, 1994, 44 34 899.1

Int. Cl.^{6} C08G *69/26;69/32*

U.S. Cl. 528—310 **8 Claims**

1. A partially aromatic copolyamide on the basis of metaxylylene diamine and hexamethylene diamine as the amine components and adipic acid and at least one further dicarboxylic acid selected from the group consisting of aliphatic dicarboxylic acids with 7 to 10 carbon atoms wherein the copolyamide consists essentially of the following components:

(a) 5 to 30 weight-% of said hexamethylene diamine,

(b) 10 to 40 weight-% of said metaxylylene diamine,

(c) 15 to 50 weight-% of said adipic acid, and

(d) 5 to 45 weight-% of said at least one aliphatic dicarboxylic acid with 7 to 10 carbon atoms,

wherein the components (a) to (d) add up to 100 weight-%, and the acid groups and the amine groups are present in approximately equimolar portions.

5,723,568

POLYAMIDE SOLUTION COMPOSITION AND METHODS FOR PRODUCING FIBRIDS AND PAPER-LIKE SHEETS USING THE SAME

Keizo Shimada; Jiro Sadanobu, both of Iwakuni; Tsugusi Yosida, Iwakun, and Yuzo Aito, Iwakuni, all of Japan, assignors to Teijin Limited, Osaka, Japan

Filed Dec. 29, 1995, Ser. No. 580,649

Claims priority, application Japan, Jan. 17, 1995, 7-004994; Feb. 20, 1995, 7-022882; Mar. 3, 1995, 7-044249; Mar. 3, 1995, 7-044250

Int. Cl.^{6} C08G *73/10;* **C08L** *77/06;79/00*

U.S. Cl. 528—310 **13 Claims**

1. A polyamide composition comprising a solution of:

(i) an aliphatic polyamide, an aliphatic aromatic polyamide or a mixture thereof;

(ii) N-methyl-2-pyrrolidone; and

(iii) calcium chloride,

the ratio between said polyamide (i) and the N-methyl-2-pyrrolidone (ii) in said composition being 3 to 25% by weight of said polyamide(i) to 97 to 75% by weight of the N-methyl-2-pyrrolidone (ii) and said solution containing the calcium chloride (iii) in an amount of 5 to 60 parts by weight based on 100 parts by weight of said polyamide(i).

5,723,569

RANDOM COPOLYMERIZED POLYAMIDE RESIN AND PROCESS FOR PREPARING THE SAME

Shin-ichi Sato; Masaaki Miyamoto; Kenji Tsuruhara, all of Fukuoka-ken, and Yoshiaki Ohtani, Kanagawa-ken, all of Japan, assignors to Mitsubishi Chemical Corporation, Tokyo, Japan

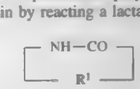
Filed Sep. 13, 1996, Ser. No. 710,256

Claims priority, application Japan, Sep. 13, 1995, 7-235111

Int. Cl.^{6} C08G *69/36*

U.S. Cl. 528—310 **15 Claims**

1. A process for preparing a random copolymerized polyamide resin by reacting a lactam of formula (I):



(I)

wherein R^1 is a C_{2-11} alkylene group optionally substituted with a substituent having 1 to 6 carbon atoms, with a hexamethylenediamine-adipic acid salt under conditions which comprise concentrating an aqueous solution of the salt to a concentration of at least 70% by weight while maintaining a uniform reaction phase at all times under a pressure and at a temperature at which the hexamethylenediamine-adipic acid salt does not precipitate up to a pressure not greater than 2 kg/cm^2·G and up to a temperature not greater than 150° C., and then mixing in the solution of the lactam of formula (I) and effecting copolymerization, thereby forming a polyamide resin having a relative viscosity measured by the sulfuric acid solution method (1% at 25° C.) of 1.5 to 8.0.

5,723,570

WHOLLY AROMATIC POLYAMIDE FIBER WITH IMPROVED DYEABILITY

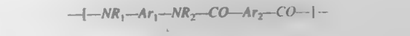
Jen-Chang Yang, Taipei; Jin-Chyueh Lin, Fong-San, and Lien-Tai Chen, Tainan, all of Taiwan, assignors to Industrial Technology Research Institute, Taiwan

Filed Mar. 30, 1995, Ser. No. 413,835

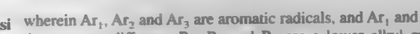
Int. Cl.^{6} C08G *69/32*

U.S. Cl. 528—337 **13 Claims**

1. A fiber of wholly aromatic polyamide containing at least 85 mole percent of recurring structural units represented by the following general formulas (I) or (II):

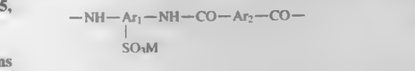


(I)



(II)

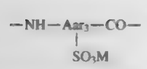
wherein Ar_1, Ar_2 and Ar_3 are aromatic radicals, and Ar_1 and Ar_2 are the same or different, R_1, R_2 and R_3 are a lower alkyl group or hydrogen, and R_1 and R_2 are the same or different, and containing at least about 0.2 mole percent of sulfonate in the polymer main chain as represented by the general formulas (III) or (IV):



(III)

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-continued



(IV)

wherein M is hydrogen, a metal cation, or a quaternary ammonium ion.

5,723,571

POLYIMIDE AND PROCESS FOR PRODUCING THE SAME

Osamu Oka, and Takeshi Nishigaya, both of Shizuoka, Japan, assignors to Tomoegawa Paper Co., Ltd., Tokyo, Japan

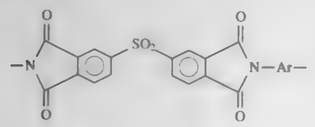
Filed Aug. 29, 1996, Ser. No. 703,151

Claims priority, application Japan, Aug. 31, 1995, 7-245148

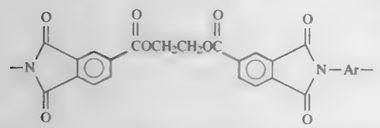
Int. Cl.[6] C08G *73/10;69/26*

U.S. Cl. 528—353 **10 Claims**

1. A polyimide comprising at least one of repeating units represented by the following formulas (1a) and (1b) and at least one of repeating units represented by the following formulas (2a) and (2b) and has a number average molecular weight of from 4,000 to 200,000:

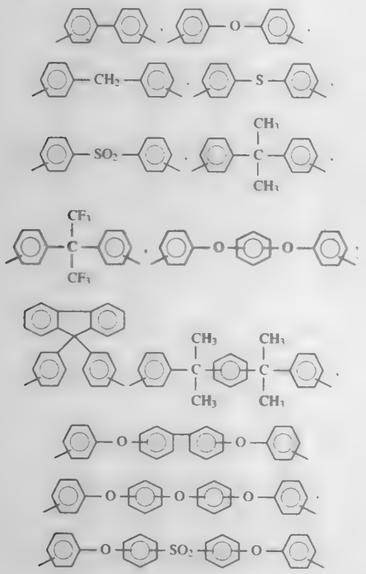


(1a)

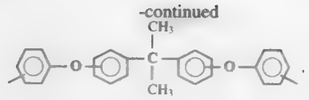


(2b)

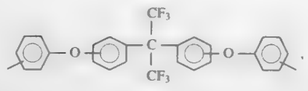
wherein Ar is a divalent aromatic group selected from the group consisting of following formulas:

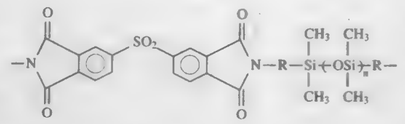


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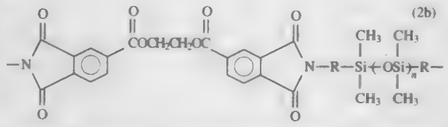


and





(1a)



(2b)

wherein R represents an alkylene group having 1–10 carbon atoms or a group: —$CH_2OC_6H_4$—, and n is an integer of 1–20.

5,723,572

PROCESS FOR THE PREPARATION OF A LINEAR ALTERNATING COPOLYMER OF CARBON MONOXIDE WITH ETHENE AND ANOTHER OLEFINICALLY UNSATURATED COMPOUND

Erwin Paulus Petrus Bleeker; Johannes Adrianus Maria Van Broekhoven, and Maria Barbara Hendrica Crijnen-Beers Van, all of Amsterdam, Netherlands, assignors to Shell Oil Company, Houston, Tex.

Filed Jun. 17, 1996, Ser. No. 663,467

Claims priority, application European Pat. Off., Jun. 12, 1995, 95201313

Int. Cl.[6] C08G *67/02*

U.S. Cl. 528—392 **18 Claims**

1. A process for the preparation of a linear alternating copolymer of carbon monoxide with ethene and another olefinically unsaturated compound (A) wherein a copolymer of which the molar ratio (r_1) of the monomer units originating in the olefinically unsaturated compound A to the monomer units originating in ethene is between about 1:100 to 1:3, is prepared by contacting the monomers in the presence of a liquid diluent with a catalyst composition comprising:

(a) a source of a Group VIII metal, and

(b) a bidentate ligand of the formula $R^1R^2M^1$—R—$M^2R^3R^4$ (I) wherein M^1 and M^2 independently represent a phosphorus, arsenic or antimony atom, R^1, R^2, R^3 and R^4 independently represent unsubstituted or substituted hydrocarbyl groups and R represents a bivalent bridging group which consists of three atoms in the bridge of which the middle atom is a carbon or silicon atom which carries two monovalent substituents R^5 and R^6 consisting of carbon, hydrogen and optionally oxygen, and the two outer bridging atoms are carbon atoms, wherein r_2 is the molar ratio of the olefinically unsaturated compound A to ethene in the liquid phase and the quotient r_2/r_1 is less than 24.

5,723,573

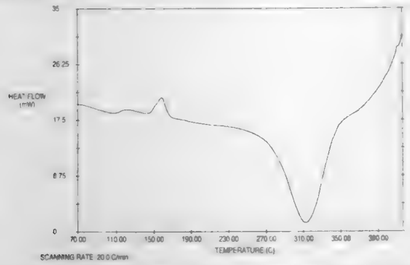
THERMOSETTING POLYQUINOLINES

Matthew L. Marrocco III, Santa Ana, and Lien-Chung Hsu, Glendale, both of Calif., assignors to Hitachi Chemical Company, Ltd., Tokyo, Japan

Filed Apr. 15, 1996, Ser. No. 632,156

Int. Cl.[6] C08G *73/06*

U.S. Cl. 528—423 **34 Claims**



1. A polymer comprising quinoline repeat units and end groups comprising an acetylene functionality.

5,723,574

REMOVAL OF CATALYST RESIDUES FROM POLYKETONE COMPOSITIONS

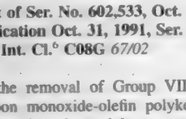
Paul K. Hanna, East Windsor, N.J., and Andrzej M. Piotrowski, Peekskill, N.Y., assignors to Akzo Nobel NV, Netherlands

Continuation-in-part of Ser. No. 602,533, Oct. 24, 1990, abandoned. This application Oct. 31, 1991, Ser. No. 785,644

Int. Cl.[6] C08G *67/02*

U.S. Cl. 528—493 **2 Claims**

1. A process for the removal of Group VIII metal catalyst residues from a carbon monoxide-olefin polyketone copolymer which comprises contacting the polyketone with an effective amount of a beta diketone compound of the formula



where R is selected from the group consisting of halo substituted methyl and halo substituted ethyl.

5,723,575

PROCESS FOR THE PREPARATION OF BACKBONE CYCLIC PEPTIDES

Chaim Gilon; Zvi Zelinger, and Gerardo Byk, all of Jerusalem, Israel, assignors to Yissum Research Development Company of the Hebrew University of Jerusalem, Jerusalem, Israel

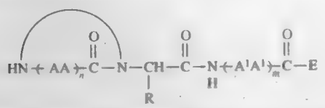
Continuation of Ser. No. 955,380, Oct. 1, 1992, abandoned. This application May 18, 1995, Ser. No. 444,135

Claims priority, application Israel, Oct. 2, 1991, 99628

Int. Cl.[6] C07K *1/00;1/02;1/04;5/12*

U.S. Cl. 530—317 **21 Claims**

1. A method for the preparation of cyclic tachykinin peptides of the general formula I:



(I)

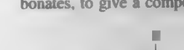
wherein n designates an integer from 1 to 10 and m designates an integer from 1 to 10, provided that the sum of m and n is no greater than 11;

(AA) and (A^1A^1) each designates an amino acid residue of a tachykinin peptide;

R is H, methyl, or an isobutyl group;

E represents a hydroxyl group, a carboxyl protecting group selected from alkoxy, substituted alkoxy or aryloxy or an amino or substituted amino group; and

the circled line designates a spacer group of the formula III:

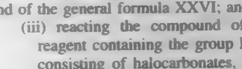


(III)

wherein p and q, each independently designates an integer of from 2 to 10 and wherein one end of the spacer group is attached to the Gly amino acid of the sequence;

said method comprising incorporating an N^{α}-ω amino alkylene-amino acid represented by formula Va into a peptide by:

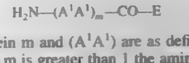
a) preparing a compound of the formula Va:



(Va)

wherein R and q are as defined above, G and L each independently represents an alkoxy-, substituted alkoxy- or aryloxy-carbonyl protecting group by:

(i) reacting an α-halocarboxylic acid of the formula XXII:



(XXII)

wherein R is as defined above and Hal is bromine, chlorine or iodine, with an alkylene diamine of the formula XXIII:



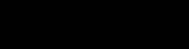
(XXIII)

wherein q is an integer from 2 to 10, to give a compound of the formula XXIV:



(XXIV)

(ii)(1) reacting the compound of formula XXIV with a reagent containing the group G selected from the group consisting of halocarbonates, anhydrides or mixed carbonates, to give a compound of the formula XXVI:



(XXVI)

or,

(2) reacting the compound of formula XXIV with a reagent containing the group G selected from the group consisting of halocarbonates, anhydrides or mixed carbonates, to give a compound of the formula XXVIII:

(XXVIII)

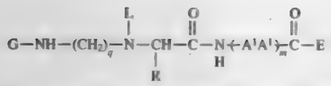
and selectively removing the protecting group G to give a compound of the general formula XXVI; and

(iii) reacting the compound of formula XXVI with a reagent containing the group L selected from the group consisting of halocarbonates, anhydrides or mixed carbonates, to give a compound of the formula Va;

b) reacting the compound of formula Va with a compound of the formula:

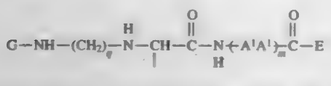
wherein m and (A^1A^1) are as defined above, with the proviso that when m is greater than 1 the amino acid residues in the chain may be the same or different, and E represents a hydroxyl group, a carboxyl protecting group selected from alkoxy, substituted alkoxy, aryloxy; an amine or substituted amine group, to give the compound of the formula VIa:

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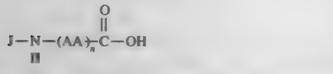
(VIa)

c) selectively removing from the compound of formula VIa, protecting group L, to give a compound of the formula VIIa:



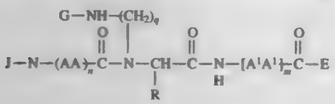
(VIIa)

d) reacting the compound of formula VIIa with a compound of the formula VIIIa:



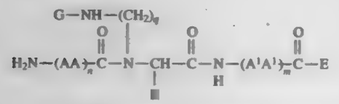
(VIIIa)

wherein n and (AA) are as defined above with the proviso that when n is greater than 1 the amino acid residues in the chain may be the same or different, and J represents a protecting group selected from the group consisting of alkoxy-, substituted alkoxy- or aryloxy-carbonyl, to give a compound of the formula IXa:



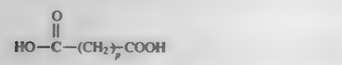
(IXa)

e) selectively removing the protecting group J from the compound of formula IXa, to give a compound of the formula Xa:



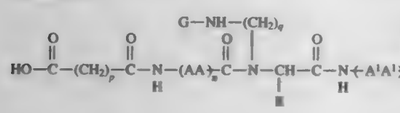
(Xa)

f) reacting the compound of formula Xa with a compound of the formula XIa:



(XIa)

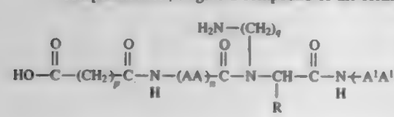
wherein p is an integer from 2 to 10, to give a compound of the formula XIIa:



(XIIa)

imul

g) selectively removing the protecting group G from the compound XIIa, to give a compound of the formula XIIIa:



(XIIIa)

h) cyclizing the peptide by reacting the compound of formula XIIIa with a coupling agent selected from the group consisting of dicyclohexylcarbodiimide (DCC), bis(2-oxo-3 -oxazolidinyl)phosphinic chloride (BOP-Cl), beazotriazolyl-N-oxytrisdimethyl aminophosphonium hexafluoro phosphate (BOP), 1-oxo-1-chlorophospholane (Cpt-Cl), hydroxybenzotriazole (HOBT), or mixtures thereof; and

i) removing other side-chain protecting groups, to give a compound of the general formula I.

5,723,576

THROMBIN INHIBITORS, THE PREPARATION THEREOF AND THE USE THEREOF FOR THERAPEUTICAL, PROPHYLACTIC AND DIAGNOSTIC APPLICATIONS

Alfredo De Rosa, and Armando Rossi, both of Naples, Italy, assignors to Development Biotechnological Processes S.N.C., Avellino, Italy

PCT No. PCT/EP94/01144, § 371 Date Oct. 16, 1995, § 102(e) Date Oct. 16, 1995, PCT Pub. No. WO94/24156, PCT Pub. Date Oct. 27, 1994

PCT Filed Apr. 13, 1994, Ser. No. 532,567

Claims priority, application Italy, Apr. 16, 1993, MI93A0748

Int. Cl.[6] C07K *14/00;* **A61K** *38/16*

U.S. Cl. 530—324 **9 Claims**

1. Peptides of general formula (I):

G1-G2-G3-G4-G5-G6-G7-G8-G9-F1-F2-F3-F4-F5-P6-E1-E2-E3-E4-E5-E6-E7-E8-E9-E10

wherein:

G1 - Ile, Val, Leu, Cha, Chg, alle, Nle, Pro, Pip, Phe, Tyr, Trp, Pgl, 1-Nal, 2-Nal, Met

G2 - Arg, Val, L-Pap, L-Map, Ala, Ile, Leu, Lys, Orn, Thr, aThr, alle, Ser

G3 - 2-Nal, Phe, 1-Nal, Trp, Tyr, Cha, Pgl, Chg

G4 - Thr, Ser, Asn, Gln, His, aThr

G5 - Asp, Glu

G6 - D-Ala, Aib, Gly, Ac_6c, Ac_5c

G7 - ε-Aca, δ-Ava, β-Ala-β-Ala, β-Ala-β-Ac_5c, β-Ala-β-Ac_6c, β-Ala—Gly, β-Ala-Gaba, Gly-β-Ala, Gly—Gly, Gly-Gabe, Gly-δ-Ava, Gaba-Gly, Gaba-β-Ala, δ-Ava-Gly, Gly—Gly—Gly

G8 - Pro, Ala, Gly, Ac_6c, Ac_5c

G9 - Glu

F1 - Ser, Asn, Gln, Thr, aThr, His, h-Ser, h-Phe

F2 - His

F3 = h-Phe, Leu, Asp, Asn, Gly, Nle, Ile, alle, Val, Cha, Chg, Phe, Tyr, Pgl, Trp, 1-Nal, 2-Nal, Met, Deg, Dpg

F4 = Gly, Asp, Asn

F5 - Gly, Ala, D-Ala, Deg, Dpg

F6 - Asp

E1 - Tyr, Phe, Trp, Cha, His, Pgl, 1-Nal, 2-Nal, Chg

E2 - Glu

E3 - Glu, Pro, Sar, Hyp, Δ-Pro, thioprolone, Pip, Azt

E4 - Ile, Chg, Cha,

E5 - Pro, Sar, Hyp, Δ-Pro, thioproline, Pip, Azt

E6 - Aib, Ala, Ac_6c, Ac_5c, Ac_4c,Ac_3c, cis or trans Δ-Glu, (S) or (R)-∝Me—Glu, Asp, Glu

E7 - Aib, Ala, Ac_6c, Ac_5c, Ac_4c, Ac_3c, cis or trans Δ-Glu, (S) or (R)-∝Me—Glu, Asp, Glu

E8 - Tyr, cis or trans Δ-Tyr, (S) or (R)-∝Me—Tyr, Phe, Aib, Ala, para or meta NO_2—Phe, para or meta SO_3H—Phe, para or meta PO_3H_2—Phe, para or meta PO_4H_2—Phe, para or meta SO_4H—Phe, meta SO_3H—Tyr, meta PO_3H_2—Tyr, para or meta $CH_2PO_3H_2$—Phe, para or meta CH_2SO_3H—Phe, para or meta CH_2COOH—Phe, para or meta CO_3H—Phe

E9 - Cha, Leu, cis or trans Δ-Leu, (S) or (R) ∝Me—Leu

E10 = D-Glu, Glu, β-Ala, Asp, D-Asp, Gly, Ala, Gln, Gla,

and salts thereof.

5,723,577

ANALOGS OF PARATHYROID HORMONE

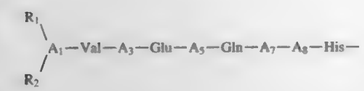
Zheng Xin Dong, Framingham, Mass., assignor to Biomeasure Inc., Milford, Mass.

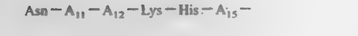
Filed Mar. 29, 1996, Ser. No. 626,186

Int. Cl.[6] A61K *38/29;* **C07K** *14/635*

U.S. Cl. 530—324 **23 Claims**

1. A peptide of the formula:









wherein

A_1 is Ser, Ala, or Dap;

A_3 is Ser, Thr, or Aib;

A_5 is Ile or Cha;

A_7 is Leu, Nle, Cha, β-Nal, Trp, Pal, Phe, or p-X-Phe in which X is OH, a halogen, or CH_3;

A_8 is Met, Nva, Leu, Val, Ile, Cha, or Nle;

A_{11} is Leu, Nle, Cha, β-Nal, Trp, or Phe;

A_{12} is Gly;

A_{15} is Leu or Cha;

A_{16} is Ser, Asn, Ala, or Aib;

A_{17} is Ser, Thr, or Aib;

A_{18} is Met, Nva, Leu, Val, Ile, Nle, Cha, or Aib;

A_{19} is Glu or Aib;

A_{21} is Val, Cha, or Met;

A_{23} is Trp or Cha;

A_{24} is Leu or Cha;

A_{27} is Lys, Aib, Leu, hArg, Gln, or Cha;

A_{28} is Leu or Cha;

A_{30} is Asp or Lys;

A_{31} is Val, Nle, Cha, or deleted;

A_{32} is His or deleted;

A_{33} is Asn or deleted;

A_{34} is Phe, Tyr, Amp, Aib, or deleted;

each of R_1 and R_2 is, independently, H, C_{1-12} alkyl, C_{2-12} alkenyl, C_{7-20} phenylalkyl, C_{11-20} naphthylalkyl, C_{1-12} hydroxyalkyl, C_{2-12} hydroxyalkenyl, C_{7-20} hydroxyphenylalkyl, or C_{11-20} hydroxynaphthylalkyl; or one and only one of R_1 and R_2 is COE_1 in which E_1 is C_{1-12} alkyl, C_{2-12} alkenyl, C_{7-20} phenylalkyl, C_{11-20} naphthylalkyl, C_{1-12} hydroxyalkyl, C_{2-12} hydroxyalkenyl, C_{7-20} hydroxy-phenylalkyl, or C_{11-20} hydroxynaphthylalkyl; and

R_3 is OH, NH_2, C_{1-12} alkoxy, or NH—Y—CH_2—Z in which Y is a C_{1-12} hydrocarbon moiety and Z is H, OH, CO_2H, or $CONH_2$;

provided that at least one of A_5, A_7, A_{11}, A_{15}, A_{18}, A_{21}, A_{23}, A_{24}, A_{27}, A_{28}, and A_{31} is Cha, or at least one of A_3, A_{16}, A_{17}, A_{18}, A_{19}, and A_{34} is Aib; or a pharmaceutically acceptable salt thereof.

5,723,578

PEPTIDE ANALOGS OF BOMBESIN

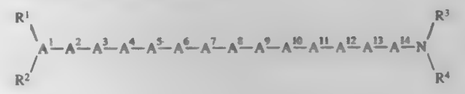
David H. Coy, New Orleans, La.; Jacques-Pierre Moreau, Upton, and Sun Hyuk Kim, Needham, both of Mass., assignors to The Administrators of Tulane Educational Fund, New Orleans, La., and Biomeasure Incorporated, Milford, Mass.

Continuation-in-part of Ser. No. 337,127, Nov. 10, 1994, which is a continuation-in-part of Ser. No. 779,039, Oct. 18, 1991, abandoned, which is a continuation-in-part of Ser. No. 502,438, Mar. 30, 1990, Pat. No. 5,084,555, which is a continuation-in-part of Ser. No. 397,169, Aug. 21, 1989, abandoned, which is a continuation-in-part of Ser. No. 376,555, Jul. 7, 1989, abandoned, which is a continuation-in-part of Ser. No. 317,941, Mar. 2, 1989, abandoned, which is a continuation-in-part of Ser. No. 282,328, Dec. 9, 1988, Pat. No. 5,162,497, which is a continuation-in-part of Ser. No. 257,998, Oct. 14, 1988, abandoned, which is a continuation-in-part of Ser. No. 248,771, Sep. 23, 1988, abandoned, which is a continuation-in-part of Ser. No. 207,759, Jun. 16, 1988, abandoned, which is a continuation-in-part of Ser. No. 204,171, Jun. 8, 1988, abandoned, which is a continuation-in-part of Ser. No. 173,311, Mar. 25, 1988, abandoned, which is a continuation-in-part of Ser. No. 100,571, Sep. 24, 1987, abandoned. This application Jun. 7, 1995, Ser. No. 488,099

Int. Cl.[6] A61K *38/00;* **C07K** *5/00;7/00;17/00*

U.S. Cl. 530—326 **21 Claims**

1. A peptide of the formula:



wherein

A^1 is D- or L- isomer of pGlu, or deleted;

A^2 is Gln, Asn, Gly, Ala, Leu, Ile, Nle, Abu, Met, Val, Phe, p-X-Phe in which X is F, Cl, Br, OH, or CH_3, Trp, β-Nal, or deleted;

A^3 is the D- or L- isomer selected from Arg and Lys, or deleted;

A^4 is Gln, Asn, Gly, Ala, Leu, Ile, Nle, Abu, Met, Val, Phe, p-X-Phe in which X is F, Cl, Br, OH, or CH_3, Trp, β-Nal, or deleted;

A^5 is Gly, the D- or L- isomer selected from Gln, Asn, Ala, Leu, Ile, Nle, Abu, Met, Val, Phe, p-X-Phe in which x is F, Cl, Br, OH, or CH_3, Trp and β-Nal, or deleted;

A^6 is Gly, the D- or L- isomer selected from Gln, Asn, Ala, N—Ac-D-Ala, Leu, Ile, Nle, Abu, Met, Val, Phe, p-X-Phe in which X is F, Cl, Br, OH, or CH_3, Trp, and β-Nal, or deleted;

A^7 is Gly, or the D- or L- isomer selected from Gln, Asn, Ala, Leu, Ile, Nle, Abu, Met, Val, Phe, p-X-Phe in which X is F, Cl, Br, OH, or CH_3, Trp, Lys, His, and β-Nal;

A^8 is Trp or Met;

A^9 is Sta, AHPPA, Gly, or the D- or L- isomer selected from Gln, Asn, Ala, Leu, Ile, Nle, Abu, Met, Val, Phe, p-X-Phe in which X is F, Cl, Br, OH, or CH_3, Trp, and β-Nal;

A^{10} is Sta, AHPPA, Gln, Asn, Gly, Ala, Leu, Ile, Nle, Abu, Met, Val, Phe, p-X-Phe in which X is F, Cl, Br, OH, or CH_3, Trp, Thr, or β-Nal;

A^{11} is Sta, AHPPA, Gly, or the D- or L- isomer selected from Ala, and Phe;

A^{12} is Sta, AHPPA, or the D- or L- isomer selected from His, Phe, and p-X-Phe in which X is F, Cl, Br, OH, or CH_3;

A^{13} is Sta, AHPPA, Gly, or the D- or L- isomer selected from Gln, Asn, Ala, Leu, Ile, Nle, Abu, Met, Val, Phe, p-X-Phe in which X is F, Cl, Br, OH, or CH_3, Trp, and β-Nal;

A^{14} is Gln, Asn, Gly, Ala, Leu, Ile, Nle, Abu, Met, Val, Phe, p-X-Phe in which X is F, Cl, Br, OH, or CH_3, Trp, or β-Nal;

each of R^1 and R^2, independently, is H, Phenylalkyl, $CO.E_1$ in which E_1 is C_{1-20} alkyl, C_{2-20} alkynyl, Phenyl, naphthyl or C_{7-10} Phenylalkyl, or $CO.OE_2$ in which E_2 is C_{1-10} alkyl or C_{7-10} Phenylalkyl; and

each of R^3 and R^4, independently, is H, C_{1-12} alkyl, C_{7-10} Phenylalkyl;

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provided that when one of R^1 and R^2 is $CO.E_1$ or $CO.OE_2$, the other must be H; further provided that when A^1 is Pglu, one of R^1 and R^2 must be H and the other must be the portion of Pglu that forms the imine ring, and when the N-terminal amino acid is Saa, one of R^1 and R^2 must be the N^{α}-substitutent of said Saa; provided that either the carbon atom participating in the amide bond between one and only one pair of neighboring amino acids selected from A^7 and A^8, A^8 and A^9, A^9 and A^{10}, A^{11} and A^{12}, A^{12} and A^{13}, and A^{13} and A^{14} is a methylene carbon, or one and only one of A^9, A^{10}, A^{11}, A^{12}, and A^{13} is Sta or AHPPA; and further provided that the next higher numbered amino acid residue adjacent to Sta or AHPPA must be deleted; or a pharmaceutically acceptable salt thereof.

5,723,579

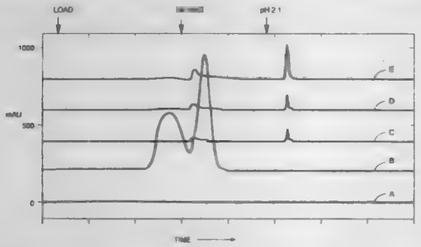
FIBRINOGEN BINDING PEPTIDES

Joseph A. Buettner, Raleigh; Christopher A. Dadd, Cary; George A. Baumbach, Knightdale, and David J. Hammond, Raleigh, all of N.C., assignors to Bayer Corporation, Berkeley, Calif.

Filed Feb. 2, 1996, Ser. No. 595,718

Int. Cl.[6] A61K *38/08;* **C07K** *7/04;14/75*

U.S. Cl. 530—329 **10 Claims**



1. A composition comprising a peptide 4-mer, 5-mer, or 6-mer having an available fibrinogen binding domain, wherein the binding domain is selected from the group consisting of Phe-Leu-Leu-Val and Leu-Leu-Val-Pro (subsequences of SEQ ID NO:1).

5,723,580

KETOMETHYLENE GROUP-CONTAINING ALDEHYDE CYSTEINE AND SERINE PROTEASE INHIBITORS

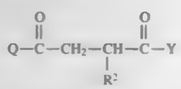
Sankar Chatterjee, Wynnewood, Pa., assignor to Cephalon, Inc., West Chester, Pa.

Filed May 7, 1996, Ser. No. 646,513

Int. Cl.[6] A61K *38/04;38/06;* **A01N** *35/02;* **C07C** *47/02*

U.S. Cl. 530—332 **12 Claims**

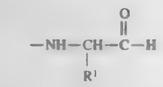
1. A compound of the formula:



wherein:

Q is $—CH(R^3)—NH(R^4)$;

Y has the formula:



R^1, R^2 and R^3 are independently H, alkyl having from one to about 14 carbons, cycloalkyl having from 3 to about 10 carbons, or a natural or unnatural side chain of an L-amino acid, said alkyl and cycloalkyl groups being optionally substituted with one or more J groups;

J is halogen, lower alkyl, aryl, heteroaryl, amino optionally substituted with one to three aryl or lower alkyl groups, guanidino, alkoxycarbonyl, alkoxy, hydroxy, or carboxy; and

R^4 is a protecting group.

5,723,581

MURINE AND HUMAN BOX-DEPENDENT MYC-INTERACTING PROTEIN (BIN1)

George C. Prendergast, Doylestown, and Daitoku Sakamuro, Philadelphia, both of Pa., assignors to The Wistar Institute of Anatomy and Biology, Philadelphia, Pa.

Continuation-in-part of Ser. No. 435,454, May 5, 1995, Pat. No. 5,605,830. This application May 24, 1996, Ser. No. 652,972

Int. Cl.[6] C07K *14/00;14/435*

U.S. Cl. 530—350 **3 Claims**

1. A mammalian Box-dependent myc-interacting polypeptide Bin1, said polypeptide having the amino acid sequence selected from the group consisting of

(a) murine Bin1, SEQ ID NO:2; and

(b) human Bin1, SEQ ID NO:4.

5,723,582

ANTIGEN-SPECIFIC HUMAN GLYCOSYLATION INHIBITING FACTOR

Kimishige Ishizaka, La Jolla, Calif., assignor to La Jolla Institute for Allergy and Immunology, La Jolla, Calif.

Division of Ser. No. 142,333, Jan. 27, 1993, Pat. No. 5,565,338, which is a continuation-in-part of Ser. No. 709,375, Jun. 3, 1991, abandoned, which is a continuation-in-part of Ser. No. 533,889, Jun. 4, 1990, abandoned. This application Jun. 2, 1995, Ser. No. 458,221

Int. Cl.[6] C07K *14/47;14/52;16/42;* **A61K** *39/00*

U.S. Cl. 530—351 **14 Claims**

1. Substantially pure antigen-specific human glycosylation inhibiting factor (GIF), wherein the antigen is an allergen.

5,723,583

ANTIBODY CONTAINING SIALYL LEWIS X DETERMINANTS

Brian Seed, and Gerd Walz, both of Boston, Mass., assignors to The General Hospital Corporation, Boston, Mass.

Continuation of Ser. No. 618,314, Nov. 23, 1990, abandoned. This application Jun. 7, 1995, Ser. No. 480,036

Int. Cl.[6] C07K *16/00*

U.S. Cl. 530—387.3 **5 Claims**

1. An antibody molecule which comprises at least one sialyl-Le^x determinant, the presence of said sialyl-Le^x determinant interfering with said antibody's ability to fix complement and bind an F_c receptor.

5,723,584

BIOTINYLATION OF PROTEINS

Peter J. Schatz, Mountain View, Calif., assignor to Affymax Technologies N.V., Greenford, United Kingdom

Continuation-in-part of Ser. No. 99,991, Jul. 30, 1993, abandoned. This application Feb. 3, 1995, Ser. No. 383,753

Int. Cl.[6] C07K *19/00;2/00;14/00*

U.S. Cl. 530—408 **6 Claims**

1. A biotinylation peptide comprising:

a non-naturally occurring peptide sequence of 13 to 50 amino add residues comprising the sequence:

Leu Xaa_1 Xaa_2 Ile Xaa_3 Xaa_4 Xaa_5 Xaa_6 Lys Xaa_7 Xaa_8 Xaa_9 Xaa_{10} (SEQ ID NO:1),

where

Xaa_1 is any amino acid;

Xaa_2 is any amino acid other than Leu, Val, Ile, Trp, Phe, or Tyr;

Xaa_3 is Phe or Leu;

Xaa_4 is Glu or Asp;

Xaa_5 is Ala, Gly, Ser, or Thr;

Xaa_6 is Gln or Met;

Xaa_7 is Ile, Met, or Val;

Xaa_8 is Glu, Leu, Val, Tyr, or Ile;

Xaa_9 is Trp, Tyr, Val, Phe, Leu, or Ile; and

Xaa_{10} is any amino add other than Asp or Glu,

wherein said biotinylation-peptide is capable of being biotinylated by a biotin ligase at the lysine residue adjacent to Xaa_6.

5,723,585

METHOD OF PURIFYING CARDIAC HYPERTROPHY FACTOR

Joffre Baker, El Granada; Kenneth Chien, La Jolla; Kathleen King, Pacifica; Diane Pennica, Burlingame, and William Wood, San Mateo, all of Calif., assignors to Genentech, Inc., South San Francisco, Calif.

Division of Ser. No. 286,304, Aug. 5, 1994, Pat. No. 5,571,893, which is a continuation-in-part of Ser. No. 233,609, Apr. 25, 1994, Pat. No. 5,534,615. This application May 17, 1995, Ser. No. 443,130

Int. Cl.[6] C07K *1/22;14/00;14/47;* **A61K** *38/36*

U.S. Cl. 530—413 **9 Claims**

1. A method for purifying CT-1 comprising:

a) growing a cell in a cell culture, wherein the cell comprises a nucleic acid encoding a polypeptide having at least 75% sequence identity with the translated CT-1 sequence SEQ ID NO:3 or SEQ ID NO: 8, and wherein the cell expresses the polypeptide;

b) recovering the polypeptide from the cell culture by contacting the polypeptide from the cell culture with a column to which is bound an antibody or an antigen-binding fragment thereof that binds CT-1; and

c) recovering a fraction containing CT-1.

5,723,586

DISPERSE DYES

Ruedi Altermatt, Buckten, Switzerland, assignor to Clariant Finance (BVI) Limited, Tortola, Virgin Islands (Br.)

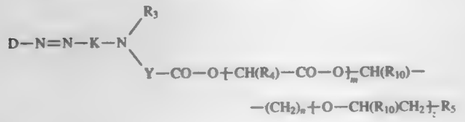
Filed Jun. 14, 1996, Ser. No. 663,882

Claims priority, application Germany, Jun. 19, 1995, 195 22 130.3

Int. Cl.[6] C09B *29/08;* **D06P** *1/18;3/52*

U.S. Cl. 534—761 **12 Claims**

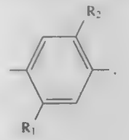
1. A disperse dye of the general formula I

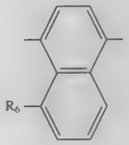


wherein

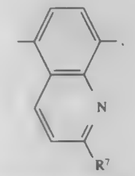
D signifies a diazo component which is usual with disperse dyes,

K signifies an aromatic radical of formula


(a)


(b)

or


(c)

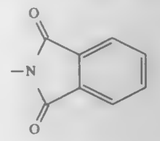
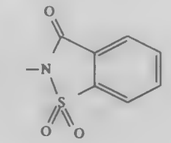
R_1 signifies hydrogen, chlorine, C_{1-2}-alkyl, C_{1-2}-alkoxy or acylamino,

R_2 signifies hydrogen, C_{1-4}-alkoxy, C_{1-2}-alkoxyethoxy, chlorine, bromine, or together with R_3 signifies a group of formula $—*CH(CH_3)CH_2C(CH_3)_2—$(* bonded to the nucleus),

R_3signifies hydrogen, C_{1-6}-alkyl, C_{3-4}-alkenyl, chloro- or bromo-C_{3-4}-alkenyl, C_{3-4}-alkinyl, phenyl-C_{1-3}-alkyl, C_{1-4}-alkoxycarbonyl-C_{1-3}-alkyl, allyl or C_{1-2}-alkoxyethyl,C_{3-4}-alkenyloxycarbonyl-C_{1-3}-alkyl, C_{3-4}-alkinyloxycarbonyl-C_{1-3}-alkyl, phenoxy-C_{2-4}-alkyl; C_{2-4}-alkyl substituted by halogen, cyano, C_{1-4}-alkoxy, C_{1-4}-alkylcarbonyloxy or C_{1-4}-alkoxycarbonyloxy or a group of formula $—CH_2—CH(R_8)CH_2—R_9$,

R_4 signifies hydrogen, phenyl or C_{1-2}-alkyl,

R_5 signifies a radical of formula


or


R_6 signifies hydrogen or hydroxyl,

R_7 signifies hydrogen or C_{1-4}-alkyl,

R_8 signifies hydroxyl, C_{1-4}-alkylcarbonyloxy or C_{1-4}-alkoxycarbonyloxy,

R_9 signifies chlorine, C_{1-4}-alkoxy, phenoxy, allyloxy, C_{1-4}-alkylcarbonyloxy, hydrogen or C_{1-4}-alkyl,

R_{10} signifies hydrogen or C_{1-4}-alkyl,

Y signifies



m and z independently signify zero or 1 and

n signifies a number from 1 to 5, with the proviso that,

if K is a radical of formula b or c, R_3 signifies hydrogen, and mixtures thereof.

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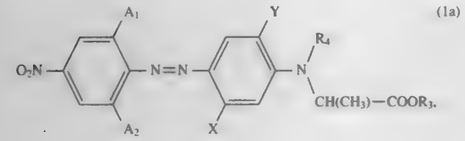
5,723,587

AZO DYES

Antoine Clément, Basel, and Athanassios Tzikas, Pratteln, both of Switzerland, assignors to Ciba Specialty Chemicals Corporation, Tarrytown, N.Y.

Continuation of Ser. No. 398,038, Mar. 3, 1995, abandoned, which is a continuation of Ser. No. 237,476, May 3, 1994, abandoned. This application Aug. 8, 1996, Ser. No. 694,142
Claims priority, application Switzerland, May 6, 1993, 1390/93; Jun. 4, 1993, 1673/93
Int. Cl.[6] C09B *29/085;29/09;* D06P *1/18;3/54*
U.S. Cl. 534—854 8 Claims

1. A dye of formula



(1a)

wherein

a) A_1 is cyano, A_2 is hydrogen, X is —NH—CO—CH_3, Y is chloro, R_3 is methyl and R_4 is hydrogen, or

b) A_1 is chloro, A_2 is chloro, X is —NH—CO—CH_3, Y is chloro, R_3 is methyl and R_4 is hydrogen, or

c) A_1 is chloro, A_2 is chloro, X is hydrogen, Y is chloro, R_3 is methyl and R_4 is hydrogen, or

d) A_1 is nitro, A_2 is bromo, X is —NH—CO—CH_3, Y is methoxy, R_3 is ethyl and R_4 is —CH_2—CH=CH_2, or

e) A_1 is chloro, A_2 is chloro, X is —NH—CO—CH_3, Y is chloro, R_3 is ethyl and R_4 is hydrogen, or

f) A_1 is nitro, A_2 is bromo, X is —NH—CO—CH_3, Y is methoxy, R_3 is methyl and R_4 is —CH_2—CH=CH_2, or

g) A_1 is nitro, A_2 is chloro, X is —NH—CO—CH_3, Y is methoxy, R_3 is methyl and R_4 is —CH_2—CH=CH_2.

5,723,588

PROTEIN-ENRICHED THERMOPLASTICS

David A. Donofrio, Scotts Valley, and Erwin R. Stedronsky, La Jolla, both of Calif., assignors to Protein Polymer Technologies, Inc., San Diego, Calif.

Continuation-in-part of Ser. No. 609,716, Nov. 6, 1990, which is a continuation-in-part of Ser. No. 269,429, Nov. 9, 1988, abandoned, which is a continuation-in-part of Ser. No. 114,618, Oct. 29, 1987, Pat. No. 5,243,038, which is a continuation-in-part of Ser. No. 927,298, Nov. 4, 1986, abandoned. This application Jul. 9, 1993, Ser. No. 89,862
Int. Cl.[6] C07K *17/04;17/08*
U.S. Cl. 530—817 10 Claims

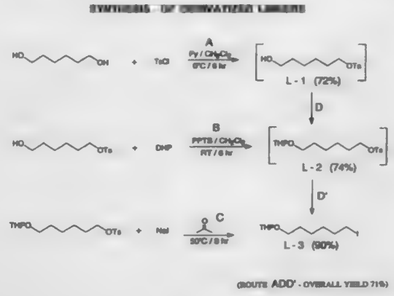
1. A composition comprising a biologically functional thermostable polypeptide interdispersed with a thermoplastic resulting from a melt at a temperature of at least 60° C., wherein said polypeptide is at least about 25 kD, has repeating units from elastin, collagen, keratin or silk proteins, and sequences intervening said repeating units, said intervening sequences having chemically active amino acids or a naturally occurring sequence having binding specificity for a protein receptor.

5,723,589

CARBOHYDRATE CONJUGATED BIO-ACTIVE COMPOUNDS

Dusan Miljkovic, Costa Mesa; Zbigniew Pietrzkowski, Santa Ana; Esmir Gunic, Costa Mesa, and Wilfried Seifert, La Jolla, all of Calif., assignors to ICN Pharmaceuticals, Costa Mesa, Calif.

Filed Dec. 21, 1995, Ser. No. 576,817
Int. Cl.[6] C07H *1/00*
U.S. Cl. 536—1.11 15 Claims



1. A compound having the general form MS-LINK-BAM, where MS is a monosaccharide, LINK is a linker, BAM is a bioactive material, MS is covalently bound to LINK at a position other than the MS C_1 carbon, and LINK is covalently linked to BAM, where the compound is more bioactive than BAM alone.

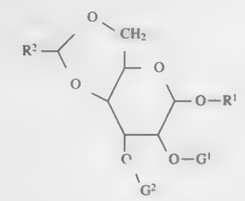
5,723,590

ACID-CLEAVABLE SURFACTANTS BASED ON ALKYLGLYCOSIDES

Herbert Koch, Dorsten; Wulf Ruback, Duelmen, and Wolfgang Schroeder, Dorsten, all of Germany, assignors to Huels Aktiengeselkschaft, Marl, Germany

Filed May 23, 1996, Ser. No. 652,093
Claims priority, application Germany, Jul. 8, 1995, 195 24 973.9
Int. Cl.[6] C07H *15/06;15/08;* C11D *3/22*
U.S. Cl. 536—4.1 8 Claims

1. A compound according to formula I:



(I)

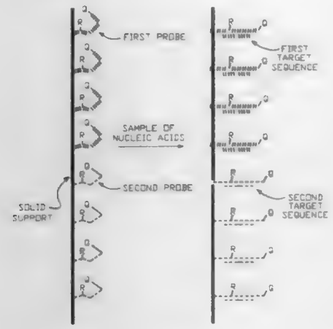
wherein R^1 represents unbranched or branched alkyl or alkylene group having 1 to 20 carbon atoms, R^2 represents alkyl group having 6 to 20 carbon atoms, G^1 represents $(EO)_v(PO)_wH$, G^2 represents $(EO)_x(PO)_yH$, EO is ethyleneoxy and PO is propyleneoxy, and v+w=0–30, x+y= 0–30; v+w+x+y≧1.

5,723,591

SELF-QUENCHING FLUORESCENCE PROBE

Kenneth J. Livak, San Jose; Susan J.A. Flood, Fremont, both of Calif.; Jeffrey Marmaro, Aurora, Colo., and Khairuzzaman Bashar Mullah, Union City, Calif., assignors to Perkin-Elmer Corporation, Foster City, Calif.

Continuation of Ser. No. 340,558, Nov. 16, 1994, Pat. No. 5,538,848. This application Nov. 15, 1995, Ser. No. 559,405
Int. Cl.[6] C07H *19/00;21/02;21/04;21/00*
U.S. Cl. 536—22.1 41 Claims



1. An oligonucleotide probe comprising:

an oligonucleotide sequence which does not hybridize with itself to form a hairpin structure;

a fluorescent reporter molecule attached to said oligonucleotide sequence; and

a quencher molecule capable of quenching the fluorescence of said reporter molecule attached to said oligonucleotide sequence;

said oligonucleotide sequence existing in at least one single-stranded conformation when unhybridized where said quencher molecule quenches the fluorescence of said reporter molecule, said oligonucleotide sequence existing in at least one conformation when hybridized to a target polynucleotide where the fluorescence of said reporter molecule is unquenched, the fluorescence intensity of said reporter molecule when said oligonucleotide sequence is hybridized to said target polynucleotide is at least a factor of 6 greater than the fluorescence intensity of said reporter molecule when said oligonucleotide sequence is not hybridized to said target polynucleotide.

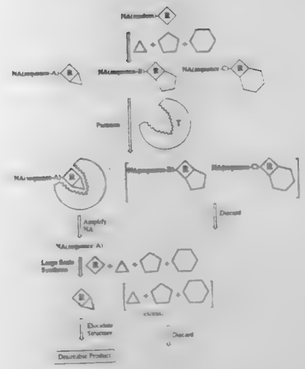
5,723,592

PARALLEL SELEX

Bruce E. Eaton, and Larry Gold, both of Boulder, Colo., assignors to NeXstar Pharmaceuticals, Inc., Boulder, Colo.

Division of Ser. No. 309,245, Sep. 20, 1994, which is a continuation-in-part of Ser. No. 714,131, Jun. 10, 1991, Pat. No. 5,475,096, which is a continuation-in-part of Ser. No. 536,428, Jun. 11, 1990, abandoned. This application Jun. 5, 1995, Ser. No. 462,389
Int. Cl.[6] C07H *21/04;21/02;* C12Q *1/68*
U.S. Cl. 536—23.1 4 Claims

1. A non-naturally occurring facilitating nucleic acid that facilitates a bond formation reaction between a first reactant and a free reactant, wherein said bond formation reaction is selected from the group consisting of a condensation reaction, a hydrolysis reaction, a cycloaddition reaction, a conjugate addition reaction, an aldol condensation reaction, a cyclopropanation reaction, a hydrogenation reaction, and a cyclotrimerization reaction, wherein each reactant is comprised of a small organic molecule with a molecular weight in the range of 2 to 1000, and further wherein said first reactant is coupled to said nucleic acid.



5,723,593

DIAGNOSTIC ASSAY FOR CHARCOT MARIE TOOTH DISEASE TYPE 1B

Roger V. Lebo, San Francisco, Calif., and Jeffrey V. Ravetch, New York, N.Y., assignors to The Regents of the University of California, Oakland, Calif.

Continuation-in-part of Ser. No. 91,336, Jul. 13, 1993. This application Jun. 7, 1995, Ser. No. 485,479
Int. Cl.[6] C07H *21/02;* C12Q *1/68*
U.S. Cl. 536—23.1 24 Claims

1. A composition for detection of a gene associated with Charcot-Marie-Tooth Disease Type 1B comprised of two amplification primers, wherein the first amplification primer is to

TTC CAC TAT GCC AAG GGA CAA C; (SEQ ID NO:1),

and the second amplification primer is to

CTG GTG GGT TTT TGA CAT CAC AT (SEQ ID NO:2).

5,723,594

HIGH AFFINITY PDGF NUCLEIC ACID LIGANDS

Nebojsa Janjic, and Larry Gold, both of Boulder, Colo., assignors to NeXstar Pharmaceuticals, Inc., Boulder, Colo.

Continuation-in-part of Ser. No. 479,783, Jun. 7, 1995. This application Mar. 20, 1996, Ser. No. 618,693
Int. Cl.[6] C07H *21/04;21/02;* C12Q *1/68;* C12P *19/34*
U.S. Cl. 536—23.1 3 Claims

1. A purified and isolated non-naturally occurring DNA ligand to Platelet Derived Growth Factor (PDGF) wherein said ligand is selected from the group consisting of SEQ ID NOS:82–87.

5,723,595

PLANT DESATURASES—COMPOSITIONS AND USES

Gregory A. Thompson, Davis, and Vic C. Knauf, Winters, both of Calif., assignors to Calgene, Inc., Davis, Calif.

Continuation of Ser. No. 762,762, Sep. 16, 1991, which is a continuation-in-part of Ser. No. 494,106, Mar. 16, 1990, abandoned, and Ser. No. 615,784, Nov. 14, 1990, abandoned, which is a continuation-in-part of Ser. No. 567,373, Aug. 13, 1990, abandoned, and Ser. No. 494,106. This application Jun. 6, 1995, Ser. No. 471,791
Int. Cl.[6] C12N *15/29;15/63;* C07H *21/04*
U.S. Cl. 536—23.6 10 Claims

1. A recombinant DNA construct comprising a DNA sequence encoding a Δ-9 plant desaturase protein having any one of the amino acid peptide sequences shown as SEQ ID NOS 1–7 and SEQ ID NOS 9–11.

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5,723,596

EUROPEAN CORN BORER RESISTANCE GENETIC MARKERS

Jane H. Cramer, Madison; Jeanne Romero-Severson, Mazomainie, and David West, Prescott, all of Wis., assignors to Agrigenetics, L.P., San Diego, Calif.

Filed Feb. 6, 1990, Ser. No. 474,988
Int. Cl.[6] C12N *15/10;15/11;15/29;* A01H *1/04*
U.S. Cl. 536—24.3 7 Claims

1. A nucleic acid probe linked to European Corn Borer resistance, selected from the group consisting of c94, having accession no. NRRL B-21845; p1000, having accession no. NRRL B-21847; c595, having accession no. 21846; r115, having accession no. NRRL B-21851; r109, having accession no. 21850; c39, having accession no. 21844; r90, having accession no. 21848; and r92, having accession no. 21849.

5,723,597

RIBOSOMAL NUCLEIC ACID PROBES FOR DETECTING ORGANISMS OR GROUPS OF ORGANISMS

David E. Kohne, La Jolla, Calif., assignor to Gen-Probe Incorporated, San Diego, Calif.

Division of Ser. No. 179,922, Jan. 11, 1994, abandoned, which is a continuation of Ser. No. 857,081, Mar. 19, 1992, Pat. No. 5,288,611, which is a continuation of Ser. No. 584,432, Sep. 12, 1990, abandoned, which is a continuation of Ser. No. 464,717, Jan. 12, 1990, abandoned, which is a continuation of Ser. No. 353,208, May 17, 1989, abandoned, which is a continuation of Ser. No. 655,365, Sep. 4, 1984, abandoned, which is a continuation-in-part of Ser. No. 456,729, Jan. 10, 1983, abandoned. This application Feb. 22, 1994, Ser. No. 199,486
Int. Cl.[6] C07H *21/04*
U.S. Cl. 536—24.3 40 Claims

1. A nucleic acid probe free in solution for specifically detecting the presence or amount of a target organism or group of organisms containing ribosomal nucleic acid, in a sample which may include non-target organisms containing ribosomal nucleic acid, which comprises:

a deoxynucleic molecule containing a nucleotide base sequence which hybridizes with only a ribosomal nucleic acid subunit subsequence or subsequences specific to said target organism or group of organisms, said subsequence or subsequences being less than the entire sequence of said ribosomal nucleic acid subunit,

wherein said nucleotide base sequence is not sufficiently complementary to a ribosomal nucleic acid subunit subsequence of a non-target organism to prevent specific detection of said deoxynucleic acid molecule hybridized with said target ribosomal nucleic acid under stringent hybridization conditions,

wherein said probe does not include any other nucleic acid molecule which contains a nucleotide base sequence that is sufficiently complementary to a ribosomal nucleic acid subunit subsequence of a non-target organism to prevent specific detection of said deoxynucleic acid molecule hybridized with said target ribosomal nucleic acid under said conditions,

wherein said probe does not include any non-nucleic acid molecule able to prevent specific detection of said deoxynucleic acid molecule hybridized with said target ribosomal nucleic acid under said conditions, and

wherein the hybridization of said deoxynucleic acid molecule with said target ribosomal nucleic acid can occur in solution.

5,723,598

ENCODED COMBINATORIAL CHEMICAL LIBRARIES

Richard Lerner, La Jolla; Kim Janda, San Diego, both of Calif., and Sydney Brenner, Cambridge, England, assignors to The Scripps Research Institute, La Jolla, Calif.

Division of Ser. No. 860,445, Mar. 30, 1992, Pat. No. 5,573,905. This application Jun. 18, 1996, Ser. No. 665,511
Int. Cl.[6] C07H *21/00;21/04*
U.S. Cl. 536—25.3 5 Claims

1. A method for preparing a library having a plurality of bifunctional molecules comprising the steps of:

a) providing a linker molecule B having termini A' and C' according to the formula A'-B-C' that is adapted for reaction with an amino acid precursor unit X' at terminus A' and with a nucleotide precursor Z' at terminus C';

b) conducting syntheses by adding the amino acid precursor unit X' of said step a to terminus A' of said linker and adding nucleotide precursor Z' of said step a to terminus C' of said linker, to form a composition containing bifunctional molecules having the structure X_n-B-Z_n where n is a position identifier for X and Z and has the value of 1+i wherein i is an integer from 0 to 10, such that when n is 1, X and Z are located most proximal to the linker B;

c) repeating step (b) on one or more aliquots of the composition to produce aliquots that contain a product containing a bifunctional molecule;

d) combining the aliquots produced in step (c) to form an admixture of bifunctional molecules, thereby forming said library.

5,723,599

ORGANIC POLYMER REAGENTS FOR SOLID PHASE SYNTHESIS OF OLIGONUCLEOTIDES

Robert E. Klem, San Luis Obispo, and Timothy A. Riley, Grover City, both of Calif., assignors to Genta Incorporated, San Diego, Calif.

Continuation of Ser. No. 231,900, Apr. 22, 1994, abandoned, which is a continuation of Ser. No. 781,329, Oct. 18, 1991, abandoned, which is a continuation-in-part of Ser. No. 605,849, Oct. 26, 1990, abandoned. This application Mar. 22, 1995, Ser. No. 409,902
Int. Cl.[6] C07H *21/00;* C08F *18/00*
U.S. Cl. 536—25.3 21 Claims

1. A polymeric reagent for solid phase synthesis of oligomers which has a particulate polymeric moiety linked by a linking moiety to a nucleosidyl moiety wherein:

(a) said polymeric moiety is a polymer which has cross-linked polymeric chains wherein the polymeric chains have from 0% to no more than 10% aromatic monomeric units and at least about 90% to 100% non-aromatic monomeric units within the polymeric chains and optionally have aromatic cross-links and which is derivatized with a reactive group —X_1 which is selected from —X groups depicted in FIGS. **6***a* and **6***b* and wherein said polymer shows a maximum change in volume with change in solvent of less than about 100%;

(b) said linking moiety is a bifunctional compound of formula Y_1-alk-Y_2 wherein alk is a substantially straight-chained alkylene group of 5 to 80 carbon atoms and Y_1 and Y_2 are selected from —Y groups depicted in FIGS. **6***a* and **6***b*;

(c) said nucleosidyl moiety is activated at its 3'—OH to have a —X_2 group which is selected from —X groups depicted in FIGS. **6***a* and **6***b*; and

(d) each of —X_1 and Y_1 and —X_2 and Y_2 are selected to give —X_2Y_2—groups selected from the —XY— groups depicted in FIGS. **6***a* and **6***b*.

18. A polymeric reagent for solid phase synthesis of oligomers which has a particulate polymeric moiety linked by a linking moiety to a nucleosidyl moiety wherein

(a) said polymeric moiety has a particle size of from about 10 to about 200 microns, has a pore size of from about 60 Å to about 2,000 Å, has a macroreticular structure and is selected from methacrylic polymers derivatized with a reactive group —X_1 which is selected from the X groups of FIGS. **6***a* and **6***b*;

(b) said linking moiety is a bifunctional compound of formula Y_1-alk-Y_2 wherein alk is a substantially straight chained alkylene group of 5 to 80 carbon atoms and Y_1 and Y_2 are selected from —Y groups of FIGS. **6***a* and **6***b*; and

(c) said nucleosidyl moiety is activated at its 3'—OH to have a group —X_2 which is selected from the X groups of FIGS. **6***a* and **6***b*;

wherein X_1 and Y_1 are selected so as to react to form a conjugation pair —X_1Y_1— which is selected from —XY— groups depicted in FIGS. **6***a* and **6***b* and X_2 and Y_2 are selected so as to react to form a conjugation pair —X_2Y_2— which is selected from —XY groups depicted in FIGS. **6***a* and **6***b*.

5,723,600

METHOD FOR INCORPORATING CELLULOSE ESTERS INTO CELLULOSE BY IMMERSING CELLULOSE IN AN ACID-DOPE SOLUTION

Griffin Ivan Johnson, Kingsport, Tenn., assignor to Eastman Chemical Company, Kingsport, Tenn.

Filed Sep. 23, 1996, Ser. No. 724,045
Int. Cl.[6] C08B *16/00;3/06;1/02*
U.S. Cl. 536—57 12 Claims

1. A method of incorporating a cellulose ester into cellulose, comprising the steps of:

(a) combining a cellulose ester-carboxylic acid solution with cellulose to achieve a treated fiber, the ester substituent in the cellulose ester and the carboxylic acid having the same number of carbon atoms; and

(b) water washing the treated fiber to recover the carboxylic acid.

5,723,601

SUPER POROUS POLYSACCHARIDE GELS

Per Olof Larsson, Lund, Sweden, assignor to Pharmacia Biotech AB, Upsala, Sweden

PCT No. PCT/SE93/00226, § 371 Date Sep. 16, 1994, § 102(e) Date Sep. 16, 1994, PCT Pub. No. WO93/19115, PCT Pub. Date Sep. 30, 1993
PCT Filed Mar. 16, 1993, Ser. No. 302,839
Claims priority, application Sweden, Mar. 18, 1992, 9200827
Int. Cl.[6] C08B *37/16*
U.S. Cl. 536—165 31 Claims

1. A method for producing porous materials of a polysaccharide, comprising the steps of:

mixing a water-based solution of the polysaccharide, with stirring, with an essentially water-immiscible organic phase to form an emulsion; and

allowing said emulsion to solidify, just before or during gelling of the emulsion, to form a network of two continuous phases, an aqueous polysaccharide phase and a flow-pore-forming organic phase, resulting in a material with two types of pores: small diameter diffusion pores and large diameter flow through pores.

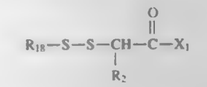
5,723,602

DUAL ACTION INHIBITORS CONTAINING A PYRIDAZINODIAZEPINE OR PYRAZOLODIAZEPINE LACTAM RING

Donald S. Karanewsky, Chapel Hill, N.C., and Jeffrey A. Robl, Newtown, Pa., assignors to E. R. Squibb & Sons, Inc., Princeton, N.J.

Division of Ser. No. 160,540, Dec. 1, 1993, Pat. No. 5,552,397, which is a continuation-in-part of Ser. No. 61,606, May 13, 1993, abandoned, which is a continuation-in-part of Ser. No. 884,664, May 18, 1992, abandoned. This application Apr. 17, 1995, Ser. No. 423,339
Int. Cl.[6] C07D *487/04*
U.S. Cl. 540—500 3 Claims

1. A compound of the formula



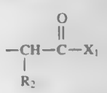
and pharmaceutically acceptable salts thereof wherein:

R_2 is selected from the group consisting of hydrogen, alkyl, cycloalkyl-$(CH_2)_m$—, substituted alkyl, aryl-$(CH_2)_m$—, substituted aryl-(CH_2)—, and heteroaryl-$(CH_2)_m$—;

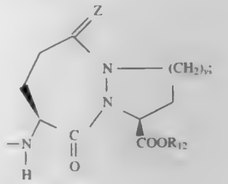
m is zero or an integer from 1 to 6;

R_3 is alkyl, substituted alkyl, cycloalkyl-$(CH_2)_m$—, aryl-$(CH_2)_m$—, substituted aryl-$(CH_2)_m$—, or heteroaryl-$(CH_2)_m$—;

R_{18} is alkyl, substituted alkyl, cycloalkyl-$(CH_2)_m$—, aryl-$(CH_2)_m$—, substituted aryl-$(CH_2)_m$—, heteroaryl-$(CH_2)_m$— or —S—R_{18} completes a symmetrical disulfide wherein R_{18} is of the formula



X_1 is of the formula

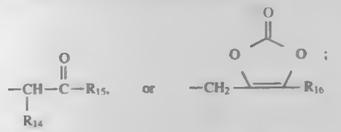


(XI)

v is one or two;

Z is O or two hydrogens;

R_{12} is hydrogen, alkyl, substituted alkyl, aryl-$(CH_2)_m$—, substituted aryl-$(CH_2)_m$—, heteroaryl-$(CH_2)_m$—,



R_{14} is hydrogen, lower alkyl, cycloalkyl, or phenyl;

R_{15} is hydrogen, lower alkyl, lower alkoxy or phenyl;

R_{16} is lower alkyl or aryl-$(CH_2)_m$—;

the term "alkyl" refers to straight and branched chain radicals having one to seven carbon atoms;

the term "substituted alkyl" refers to such straight or branched chain radicals of 1 to 7 carbons wherein one or more hydrogens have been replaced by a hydroxy, amino, halo, trifluoromethyl, cyano, —NH(lower alkyl), —N(lower alkyl)$_2$, lower alkoxy, lower alkylthio or carboxy;

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the term "cycloalkyl" refers to saturated rings of 3 to 7 carbon atoms;
the term "aryl" refers to phenyl, 1-naphthyl, and 2-naphthyl;
the term "substituted aryl" refers to phenyl, 1-naphthyl, and 2-naphthyl having a substituent selected from lower alkyl, lower alkoxy, lower alkylthio, halo, hydroxy, trifluoromethyl, amino, —NH(lower alkyl), and —N(lower alkyl)$_2$, di-and tri-substituted phenyl, 1-naphthyl, or 2-naphthyl wherein said substituents are selected from methyl, methoxy, methylthio, halo, hydroxy and amino;
the term "heteroaryl" refers to a moiety selected from the group consisting of 2-pyridyl, 3-pyridyl, 4-pyridyl, 4-imidazolyl, 4-thiazolyl, 2-thienyl, 3-thienyl, 2-furyl, 3-furyl, 2-indolyl, 3-indolyl, 4-quinolinyl, and 5-quinolinyl;
the term "lower alkyl" refers to straight or branched chain radicals having one to four carbons;
the terms "lower alkoxy" and "lower alkylthio" refer to such lower alkyl groups as defined above attached to an oxygen or sulfur; and
the term "halo" refers to chloro, bromo, fluoro, and iodo.

5,723,603

PROCESS FOR THE PREPARATION OF LACTAMS

Laurent Gilbert, Paris; Nathalie Laurain, Lyons; Philippe Leconte, Meyzieu, and Christophe Nedez, Asnieres sur Seine, all of France, assignors to R.P. Fiber & Resin Intermediates, Courbevoie Cedex, France

Filed Jun. 17, 1996, Ser. No. 665,520
Claims priority, application France, Jun. 16, 1995, 95 07446
Int. Cl.^{6} C07D *201/08;223/10*
U.S. Cl. 540—539 **31 Claims**

1. A process for the preparation of a lactam comprising:
hemihydrogenating an aliphatic dinitrile to form an aminonitrile in the presence of a catalyst;
distilling the aminonitrile so that the dinitrile content is less than or equal to 10% by weight and the content of by-products containing an amine or imine functional group is less than or equal to 10% by weight; and
hydrolyzing the distilled aminonitrile with water in the vapor phase in the presence or the absence of a catalyst to form said lactam.

5,723,604

SYNTHESIS OF 2,4,6,8,10,12-HEXABENZYL-2,4,6,8,10,12-HEXAAZATETRACYCLO [5.5.0.05,9.03,11]DODECANE

Louis F. Cannizzo, Ogden; William W. Edwards, Tremonton; Robert B. Wardle, Logan, and Thomas K. Highsmith, North Ogden, all of Utah, assignors to Thiokol Corporation, Ogden, Utah

Filed Jun. 22, 1995, Ser. No. 493,627
Int. Cl.^{6} C07D *487/22*
U.S. Cl. 540—556 **35 Claims**

1. A process of synthesizing 2,4,6,8,10,12-hexabenzyl-2,4,6,8,10,12-hexaazatetracyclo[5.5.0.0^{5,9}.0^{3,11}] dodecane ("HBIW") comprising the steps of:
(a) adjusting the pH of a glyoxal solution containing glyoxal to a pH of from 5 to 6;
(b) reacting said aqueous glyoxal solution and benzylamine in the presence of a mineral acid for sufficient time to form HBIW, wherein the glyoxal solution and benzylamine are in a polar organic solvent which is substantially nonreactive with glyoxal and benzylamine; and
(c) isolating the HBIW.

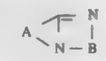
5,723,605

BICYCLIC AMIDINES, PROCESS FOR THEIR PREPARATION, AND THEIR USE AS CATALYST

Oleg Werbitzky, Visp; Ulrich Daum, Hofstetten, and Rachel Bregy, Raron, all of Switzerland, assignors to Lonza Ltd., Gampel/Valais, Switzerland

Filed Nov. 10, 1994, Ser. No. 339,191
Claims priority, application Switzerland, Nov. 11, 1993, 3385/93
Int. Cl.^{6} C07D *243/04;239/06;235/02*
U.S. Cl. 540—567 **8 Claims**

1. A process for the preparation of a bicyclic amidine of the formula:



I

wherein A is selected from the group consisting of —CR^{1}R^2—CR^{3}R^4—CR^{5}R^6—, —CR^{1}R^2—CR^{3}R^4—CR^{5}R^6—CR^{7}R^8— and —CR^{1}R^2—CR^{3}R^4—CR^{5}R^6—CR^{7}R^8—CR^{9}R^{10}—, wherein the substituents in A are in each case numbered starting from the nitrogen atom, and B is selected from the group consisting of —CR^{11}R^{12}—CR^{13}R^{14}—, —CR^{11}R^{12}—CR^{15}R^{16}—CR^{13}R^{14}—, and —CR^{11}R^{12}—CR^{15}R^{16}—CR^{17}R^{18}—CR^{13}R^{14}—, and R^1, R^2 and R^{11} to R^{14} are, in each case independently of one another, hydrogen, C$_1$–C$_4$ -alkyl, aryl, or are C$_1$–C$_4$-alkyl which is substituted with hydroxyl, primary amino, mono-C$_1$–C$_4$-alkylamino or mercapto, and R^3 to R^{10} and R^{15} to R^{18} are, in each case independently of one another, hydrogen, C$_1$–C$_4$-alkyl, aryl, hydroxyl, primary amino, mono-C$_1$–C$_4$-alkylamino or mercapto, or are C$_1$–C$_4$-alkyl which is substituted with hydroxyl, primary amino, mono-C$_1$–C$_4$-alkylamino or mercapto, wherein the substituents R^{11} and R^{12} in B are in each case numbered starting from the nitrogen atom having a double bond, comprising heating a lactone of the formula:



II

wherein A is as defined above, to at least 150° C. together with an at least equimolar quantity of an amine of the formula:



III

wherein B is as defined above, and subjecting the resultant reaction mixture, without isolating an intermediate, to a fractional distillation to provide the bicyclic amidine of formula I.

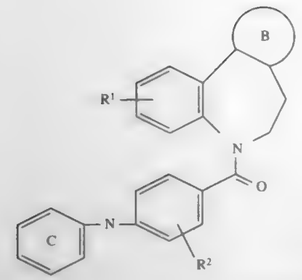
5,723,606

CONDENSED BENZAZEPINE DERIVATIVE AND PHARMACEUTICAL COMPOSITION THEREOF

Akihiro Tanaka; Hiroyuki Koshio; Nobuaki Taniguchi; Akira Matsuhisa; Ken-ichiro Sakamoto; Atsuki Yamazaki, and Takeyuki Yatsu, all of Ibaraki, Japan, assignors to Yamanouchi Pharmaceutical Co., Ltd., Tokyo, Japan

PCT No. PCT/JP94/01183, § 371 Date Jan. 19, 1996, § 102(e) Date Jan. 19, 1996, PCT Pub. No. WO95/03305, PCT Pub. Date Feb. 2, 1995
PCT Filed Jul. 19, 1994, Ser. No. 586,686
Claims priority, application Japan, Jul. 21, 1993, 5-180435
Int. Cl.^{6} C07D *223/20;* **A61K** *31/55*
U.S. Cl. 540—578 **13 Claims**

1. A nitrogen-containing aromatic 5-membered ring-condensed benzazepine derivative represented by the following formula (I)



(I)

wherein the symbols in the formula (I) have the following meanings; ring B: a nitrogen-containing aromatic 5-membered ring having at least 1 nitrogen atom and optionally one oxygen or sulfur atom, which may optionally have substituent(s), R^1, R^2: these may be the same or different from each other and each represents a hydrogen atom, a halogen atom, a lower alkyl group, an amino group which may optionally be substituted by lower alkyl group(s), or a lower alkoxy group, A: a single bond or a group represented by the formula

[—NHCO—(CR^{3}R4)$_n$—]—(CR^{3}R^4)$_n$—CONH—,

n: 0 or an integer of from 1 to 3,
R^3, R^4: these may be the same or different from each other and each represents a hydrogen atom, a lower alkyl group provided that R^3 and R^4 may together form a lower alkylene group having 2 to 7 carbon atoms, and ring C: a benzene ring, which is substituted with a substituted or unsubstituted aryl group or a substituted or unsubstituted saturated or unsaturated heterocyclic group or a salt thereof.

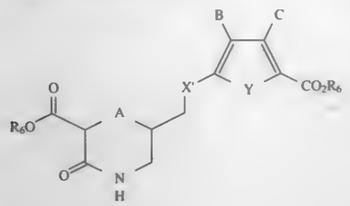
5,723,607

COMPOUNDS USEFUL AS ANTIPROLIFERATIVE AGENTS AND GARFT INHIBITORS

Michael D. Varney, Carlsbad; William H. Romines, San Diego, and Cynthia L. Palmer, La Mesa, all of Calif., assignors to Agouron Pharmaceticals, Inc., LaJolla, Calif.

Division of Ser. No. 477,635, Jun. 7, 1995, Pat. No. 5,641,774, which is a division of Ser. No. 282,293, Jul. 28, 1994, Pat. No. 5,594,139, which is a continuation-in-part of Ser. No. 10,861, Jan. 29, 1993, abandoned. This application Jan. 30, 1997, Ser. No. 792,572
Int. Cl.^{6} C07D *417/06;413/06;421/06*
U.S. Cl. 544—1 **3 Claims**

1. A compound of the formula XX":



wherein:
A is oxygen, sulfur or selenium;
X' is a substituted or unsubstituted C$_1$–C$_3$ alkyl group, a substituted or unsubstituted C$_2$–C$_3$ alkenyl, a substituted or unsubstituted C$_2$–C$_3$ alkynyl group, a substituted or unsubstituted amino group, sulfur or oxygen;
Y is oxygen, sulfur or NH;
B is hydrogen or a halogen;
C is hydrogen, a halogen or a substituted or unsubstituted C$_1$–C$_6$ alkyl group; and
each R$_6$ is independently a hydrogen or a moiety that forms with the attached CO_2 a readily hydrolyzable ester group.

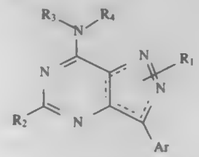
5,723,608

3-ARYL SUBSTITUTED PYRAZOLO[4,3-D]PYRIMIDINE DERIVATIVES; CORTICOTROPIN-RELEASING FACTOR RECEPTOR (CRF$_1$) SPECIFIC LIGANDS

Jun Yuan, Clinton, Conn., assignor to Neurogen Corporation, Branford, Conn.

Filed Dec. 31, 1996, Ser. No. 775,404
Int. Cl.^{6} C07D *487/04*
U.S. Cl. 544—283 **22 Claims**

1. A compound of the formula:



or the pharmaceutically acceptable salts thereof wherein
Ar is phenyl, 1- or 2-naphthyl, 2-, 3-, or 4-pyridinyl, 2- or 3-thienyl, 4- or 5-pyrimidinyl, each of which is mono-, di-, or trisubstituted with halogen, hydroxy, lower alkyl, or lower alkoxy, provided that at least one of the positions on Ar ortho to the point of attachment to the pyrazole ring is substituted;
R$_1$ is lower alkyl;
R$_2$ is hydrogen, halogen, lower alkyl, lower alkoxy, or thioalkoxy having 1–6 carbon atoms;
R$_3$ and R$_4$ are the same or different and represent
hydrogen, lower alkyl, alkoxy lower alkyl, hydroxy lower alkyl, or alkenyl;
phenyl, 2-, 3-, or 4-pyridinyl, 2- or 3-thienyl or 2-, 4- or 5-pyrimidinyl, each of which is optionally mono- or disubstituted with halogen, hydroxy, lower alkyl, or lower alkoxy;
phenyl-, 2-, 3-, or 4-pyridinyl-, 2- or 3-thienyl-, or 2-, 4- or 5-pyrimidinyl-lower alkyl, each of which is optionally mono- or disubstituted with lower alkyl;
cycloalkyl or cycloalkyl lower alkyl, each of which is optionally mono- or disubstituted with lower alkyl; or
2-hydroxyethyl or 3-hydroxypropyl, each of which is optionally monosubstituted with lower alkyl;
provided that not both R$_3$ and R$_4$ are hydrogen; or
R$_3$ and R$_4$ taken together represent —(CH$_2$)$_n$—A—(CH$_2$)$_m$— where
n is 2, or 3;
A is methylene, 1,2-phenylene, oxygen, sulfur or NR$_6$, wherein R$_6$ is lower alkyl, phenyl, 2-, 3-, or 4-pyridinyl, 2-or 3-thienyl or 2-, 4- or 5-pyrimidinyl, or phenyl, 2-, 3-or 4-pyridinyl-, 2-or 3-thienyl-, or 2-, 4- or 5-pyrimidinylalkyl; and
m is 1, 2or 3.

5,723,609

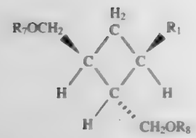
BIS (HYDROXYMETHYL) CYCLOBUTYL PURINES

William A. Slusarchyk, Skillman, and Robert Zahler, Princeton, both of N.J., assignors to E. R. Squibb & Sons, Inc., Princeton, N.J.

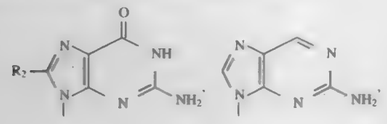
Continuation-in-part of Ser. No. 175,376, Mar. 30, 1988, abandoned. This application Mar. 13, 1989, Ser. No. 322,375
Int. Cl.^{6} A61K *31/52;* **C07D** *473/18;473/16;473/32*
U.S. Cl. 544—277 **20 Claims**

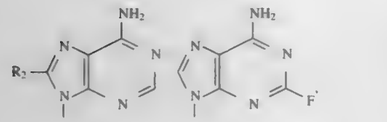
1. A compound having the formula

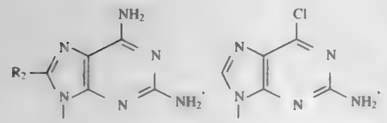
VOL 1208 ISS 1 MR 3 1998 UMI

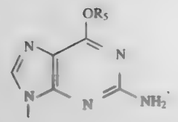


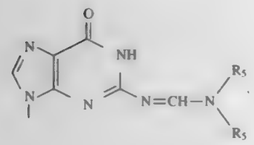
and its pharmaceutically acceptable salts wherein R_1 is

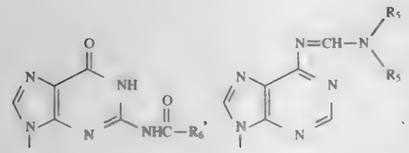


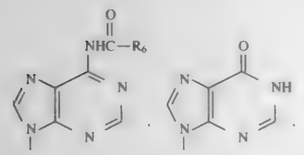




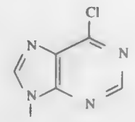








-continued



wherein R_2 is hydrogen, methyl, fluoro, chloro, bromo, iodo, hydroxy or amino; R_5 is alkyl; R_6 is hydrogen, alkyl, substituted alkyl, or aryl; and R_7 and R_8 are independently hydrogen, $—PO_3H_2$ or



wherein the term alkyl refers to both straight and branched chain groups having one to ten carbon atoms; the term substituted alkyl refers to alkyl groups having one or more substituents wherein the substituent is halogen, amino, azido, hydroxy, cyano, trialkylammonium (wherein each alkyl group has 1 to 6 carbons), alkoxy of 1 to 6 carbons, aryl and carboxy; the term aryl refers to phenyl and phenyl substituted with one, two or three substituents wherein the substitutent is alkyl of 1 to 6 carbons, alkoxy of 1 to 6 carbons, halogen, trifluoromethyl, amino, alkylamino, dialkylamino, nitro, cyano, alkanoyloxy of 2 to 11 carbons, carboxy, carbamoyl and hydroxy.

5,723,610

ALCOHOL REACTANTS FOR FORMING PHENYLPYRIMIDINE DERIVATIVES AND PROCESS FOR PREPARING SAID ALCOHOLS

Takayuki Higashii, Takatsuki; Masayoshi Minai, Moriyama; Isao Kurimoto, Toyonaka; Shoji Toda, Ibaraki; Takeshi Tani, Tsukuba; Chizu Sekine, Tsukuba, and Koichi Fujisawa, Tsukuba, all of Japan, assignors to Sumitomo Chemical Company, Limited, Osaka, Japan

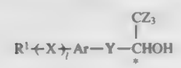
Division of Ser. No. 133,799, Oct. 8, 1993, Pat. No. 5,539,115, which is a continuation of Ser. No. 628,107, Dec. 17, 1990, abandoned. This application Apr. 12, 1996, Ser. No. 631,251

Claims priority, application Japan, Dec. 21, 1989, 01-333155; Feb. 27, 1990, 02-048852; Jun. 28, 1990, 02-171736; Sep. 6, 1990, 02-238621; Sep. 17, 1990, 02-248027

Int. Cl.[6] C07D *239/34*

U.S. Cl. 544—298 **4 Claims**

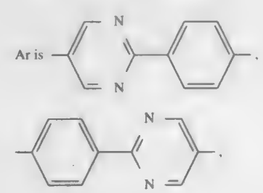
1. Alcohols represented by the following general formula:



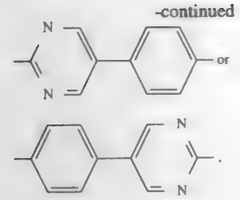
wherein R^1 is an alkyl group having 3 to 20 carbon atoms; x is

$-O-$, $-COO-$ or $-OCO-$;

Ar is



-continued



Y is

$+CH_2+_m$ or $-CH=CH+CH_2+_n$;

Z is hydrogen or fluorine atom; l is a number of 0 or 1; m is an integer of 0 to 10, provided that when Z is a hydrogen atom and Y is

$+CH_2+_m$

m is 0; n is an integer of 0 to 8; and * mark denotes an asymmetric carbon atom.

5,723,611

HETEROARYLPIPERIDINES

Marco Baroni, Vanzago; Tiziano Croci, Milan; Marco Landi, Bussero; Umberto Guzzi, Milan, all of Italy, and Dino Nisato, Saint Georges D'Orques, France, assignors to Sanofi, Paris, France

Division of Ser. No. 319,595, Oct. 7, 1994, Pat. No. 5,502,063. This application Jun. 6, 1995, Ser. No. 469,523

Claims priority, application European Pat. Off., Oct. 11, 1993, 93402498

Int. Cl.[6] C07D *239/42;401/04*

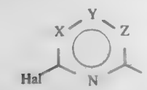
U.S. Cl. 544—330 **2 Claims**

1. A compound of formula (VIII):



(VIII)

in which Alk is a $(C_1–C_2)$alkyl group, R^* is hydrogen or a protecting group cleavable by hydrolysis and R is hydrogen, a protecting group cleavable by reduction or a heterocycle of structure (IX):



(IX)

in which Hal is a halogen atom and one of X, Y and Z is a nitrogen atom and the others are —CH=, and its salts, R^* being other than hydrogen if R is hydrogen or a group of structure (IX).

5,723,612

PROCESS FOR THE PREPARATION OF PURE 4,6-DIHLOROPYRIMIDINE

Wolfgang Huber, Salzburg; Franz Thomas Schwarz, Wolfern, and Ferdinand Heu, Linz, all of Austria, assignors to DSM Chemie Linz GmbH, Linz, Austria

Filed Jun. 3, 1996, Ser. No. 657,301

Claims priority, application Austria, Jun. 2, 1995, 939/95

Int. Cl.[6] C07D *239/02*

U.S. Cl. 544—334 **9 Claims**

1. A process for the preparation of pure 4,6-dichloropyrimidine by reaction of 4,6-dihydroxypyrimidine with an excess of phosphorus oxychloride in the presence of an acid scavenger and catalyst, which comprises using a trialkylamine having 2 to 4 C atoms in the alkyl moiety as acid scavenger and catalyst and isolating 4,6-dichloropyrimidine by distilling off excess phosphorus oxychloride and adding the residue and a neutralizing agent simultaneously to water at 30° to 70° C. so that a pH between 2 and 5 is achieved, whereupon, after stirring for 10 to 60 minutes and subsequent cooling to 10 to 30° C., 4,6-dichloropyrimidine precipitates out.

5,723,613

PROCESS FOR THE FREE-RADICAL CHLORINATION OR BROMINATION OF METHYL AROMATIC COMPOUNDS

Guido Steffan, Odenthal, Germany, assignor to Bayer Aktiengesellschaft, Leverkusen, Germany

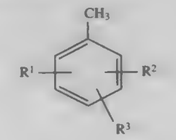
Filed Oct. 2, 1992, Ser. No. 956,126

Claims priority, application Germany, Oct. 11, 1991, 41 33 676.3

Int. Cl.[6] C07D *241/36;* **C07C** *22/00;17/00;51/58*

U.S. Cl. 544—356 **14 Claims**

1. A process for the free-radical chlorination or bromination of a methylaromatic compound of the formula

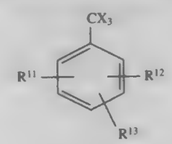


in which

R^1 and R^2 independently of each other denote hydrogen, halogen, COHal or SO_2Hal and

R^3 denotes hydrogen or halogen, where R^2 and R^3 together, if they are adjacent, can form the radical of a 5- or 6-membered isocyclic or heterocyclic rings which can itself be monosubstituted or disubstituted by halogen, COHal or SO_2Hal, where such heterocyclic rings contain 1 or 2 hetero atoms selected from the group comprising N, O and S,

to give a trichloromethyl aromatic compound or a tribromomethyl aromatic compound of the formula



in which

R^{11} and R^{12} independently of each other denote hydrogen, halogen or COHal,

R^{13} is hydrogen, halogen or COHal, where R^{12} and R^{13}, if they are adjacent, can form the radical of a 5- or 6-membered isocyclic or heterocyclic ring, which itself can be monosubstituted or disubstituted by halogen or COHal, where such heterocyclic rings contain 1 or 2 hereto atoms selected from the group comprising N, O and S, and

X is chlorine or bromine,

and where, in the case of the occurrence of SO_2Hal groups, these are converted to halogen with elimination of SO_2, without ultraviolet irradiation and without the addition of free-radical generators, wherein the halogenation is carried out at a temperature of 120°–240° C. and in the presence of one or more alkali metal halides selected from the group comprising KCl, KBr, RbCl, RbBr, CsCl and CsBr in an amount of 0.1–30 mmol of alkali metal halide per mol of the methylaromatic compound, provided that when X is chlorine, only the alkali metal chlorides are used, and when X is bromine, only the alkali metal bromides are used.

VOL 1208 ISS 1 MR 3 1998 UMI

5,723,614

BENZOFURANS

Andreas Bathe, Darmstadt; Bernd Helfert, Ober-Ramstadt; Henning Bottcher, Darmstadt, and Kurt Schuster, Ober-Ramstadt, all of Germany, assignors to Merck Patent Gesellschaft mit beschrankter Haftung, Darmstadt, Germany

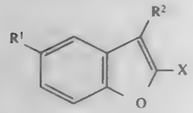
Filed Apr. 19, 1996, Ser. No. 634,825

Claims priority, application Germany, Apr. 20, 1995, 195 14 567.4

Int. Cl.[6] C07D *209/42;307/85;333/62;* **A61K** *31/34*

U.S. Cl. 544—376 **11 Claims**

1. A benzofuran of formula I



I

wherein

R^1 is 1-piperazinyl or 4-R^3-piperazinyl,

R^2 is H, Cl, Br, OH or OA,

R^3 is benzyl or an amino protective group,

X CN, COOH, COOA, COOPh, $COOCH_2Ph$, COOPy or CO-Het,

A is C_{1-4} alkyl,

Ph is phenyl,

Het is imidazol-1-yl, triazol-1-yl or tetrazol-1-yl and

Py is pyridyl,

or a physiologically acceptable salt thereof.

5,723,615

PROCESS FOR PREPARING 4-TERT-BUTYLOXYCARBONYL-(S)-PIPERAZINE-2-TERT-BUTYLCARBOXAMIDE

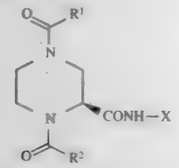
Kai Rossen, Westfield; Steven A. Weissman, Little Falls; Jess Sager; David Askin, both of Warren; Paul J. Reider, Westfield, and Ralph P. Volante, Cranbury, all of N.J., assignors to Merck & Co., Inc., Rahway, N.J.

Filed Jun. 18, 1996, Ser. No. 665,753

Int. Cl.[6] C07D *241/04*

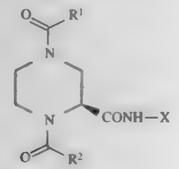
U.S. Cl. 544—388 **11 Claims**

1. A chiral hydrogenation process for the synthesis of a chiral piperazine, of the structure



wherein R^1 and R^2 are independently OX, and X is C_{1-4} alkyl unsubstituted or substituted with aryl or trihalo, comprising the steps of:

(a) providing a quantity of the compound



(b) mixing thereto between about 0.1 mole % and about 5 mole % of the catalyst of the structure:

(diene) Rhodium (chiral bisphosphine) (anionic counterion); or

(diene) Iridium (chiral bisphosphine) (anionic counterion);

wherein the anionic counterion is selected from the group consisting of perchlorate, tetrafluoroborate, triflate, hexafluorophosphate, and hexafluoroantimonate anion;

(c) hydrogenating the mixture in solvent in the presence of a hydrogen source, at a temperature between about −10° C. and about 150° C.;

(d) to give the desired chiral piperazine.

5,723,616

PROCESS FOR THE PREPARATION OF A GROWTH HORMONE SECRETAGOGUE

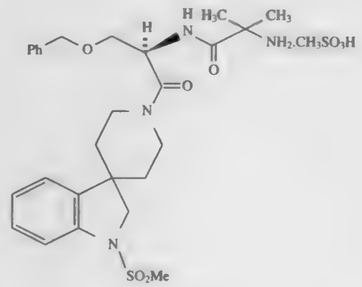
Peter G. Houghton, Hertfordshire, Great Britain; Audrey Molina, Ocean, N.J.; Joannis Houpis; Joseph E. Lynch, both of Plainfield, N.J., and Ralph P. Volante, Cranberry, N.J., assignors to Merck & Co., Inc., Rahway, N.J.

Filed Oct. 23, 1996, Ser. No. 736,173

Int. Cl.[6] C07D *451/00*

U.S. Cl. 546—18 **26 Claims**

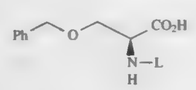
1. A process for the preparation of a compound of formula V:



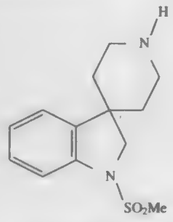
V

which comprises:

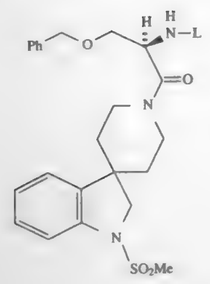
(1) coupling an amino acid of the formula:



with a compound of the formula:



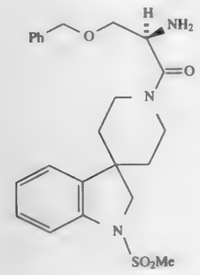
in the presence of an acid activating agent which is selected from: DCC and EDC in a solvent which comprises isopropyl acetate and water in the presence of HOBT to give a compound of formula I:



I

wherein L is an amino protecting group, followed by:

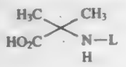
(2) reacting the compound of the formula I with a first amino deprotecting agent to give a compound of formula II:



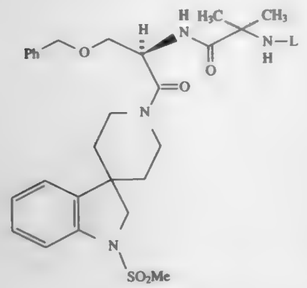
II

followed by:

(3) coupling an amino acid of the formula:



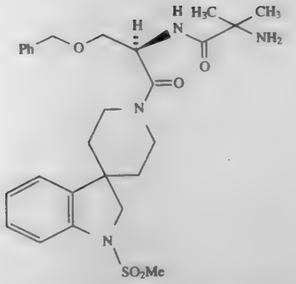
wherein L is an amino protecting group, with the compound of formula II in the presence of an acid activating agent which is selected from: DCC and EDC in a solvent which comprises isopropyl acetate and water in the presence of HOBT, to give a compound of the formula III:



III

wherein L is an amino protecting group, followed by:

(4) reacting the compound of the formula III with a second amino deprotecting agent to give a compound of the formula IV, or a pharmaceutically acceptable salt thereof:



IV

followed by:

reacting the compound of the formula IV with methanesulfonic acid to give the compound of formula V.

5,723,617

PYRROLO[2,1-A]ISOQUINOLINE DYES

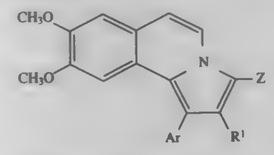
Gregory D. Cuny, Woodbury, Minn., assignor to Minnesota Mining and Manufacturing Company, Saint Paul, Minn.

Filed Dec. 21, 1995, Ser. No. 576,502

Int. Cl.[6] C07D *221/06*

U.S. Cl. 546—94 **16 Claims**

1. A dye having a central pyrrolo[2,1-a]isoquinoline nucleus represented by the formula:



wherein Ar is a phenyl or substituted phenyl group; R^1 is an alkyl, alkaryl, aralkyl or aryl group and Z represents the group of atoms that includes either a positively charged nitrogen atom, a carbonyl group, or a nitrile group and completes a conjugate chain between the nitrogen atom of the pyrrolo[2,1-a]isoquinoline nucleus and the positively charged nitrogen atom, the carbonyl group, or the nitrile group contained in Z, conjugate means that the substituent is capable of delocalized bonding between the positively charged nitrogen, carbonyl group or nitrile group within the substituent and the nitrogen of the pyrrolo[2,1-a]isoquinoline nucleus.

5,723,618

METHOD FOR MANUFACTURING OF 1,4-DIHYDROPYRIDINES, NOVEL N-SUBSTITUTED BICYCLIC 4-HYDROPYRIDINES, AND NOVEL BICYCLIC N-SUBSTITUTED 4,5-DIHYDROPHYRIDINES, INTERMEDIATES USEFUL IN THE MANUFACTURE THEREOF, AND THE COMPOUNDS THEREOF WHICH HAVE POTENTIAL ACTIVI

Regis Chung Soon Hin Leung-Toung; Khashayar Karimian, and Tim Fat Tam, all of Mississauga, Canada, assignors to Apotex, Inc., Ontario, Canada

Filed Oct. 10, 1996, Ser. No. 729,017

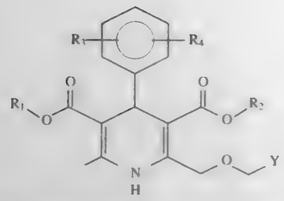
Claims priority, application New Zealand, Nov. 1, 1995, 280378

Int. Cl.[6] C07D *211/86*

U.S. Cl. 546—121 **12 Claims**

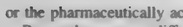
1. A 1,4-dihydropyridine of the formula I:

VOL 1208 ISS 1 MR 3 1998 UMI

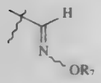


I

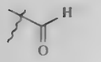
or the pharmaceutically acceptable salt thereof, wherein R_1 and R_2 are the same or different and are lower alkyl of from 1 to 5 carbon atoms including branched and straight chains; R_3 is hydrogen, or halogens; R_4 is hydrogen, or halogens; Y is selected from the group of formula II, III. V, or VI;



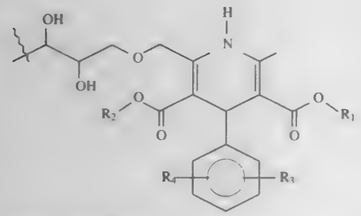
II



III



V



VI

wherein in formula II

R_5 is hydroxy, alkoxy, or 1-alkoxyalkyloxy when R_6 is hydrogen;

R_6 is hydroxy, alkoxy, or 1-alkoxyalkyloxy when R_5 is hydrogen;

wherein in formula III

R_7 is hydrogen, lower alkyl, or 1-alkoxyalkyl.

5,723,619

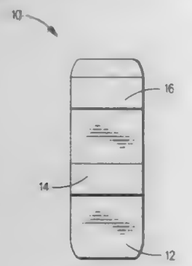
METHOD FOR THE SYNTHESIS OF DEOXYPYRIDINOLINE

Robert P. Hatch, Elkhart, Ind., assignor to Bayer Corporation, Elkhart, Ind.

Filed Jan. 13, 1997, Ser. No. 782,214

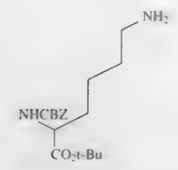
Int. Cl.° C07D *213/127;213/16;213/20*

U.S. Cl. 546—250 **10 Claims**

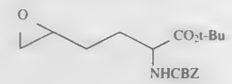


1. A method for the preparation of deoxypyridinoline which comprises the steps of:

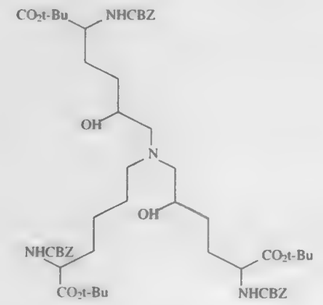
(a) reacting an Nα-protected-O-protected lysine of the formula:



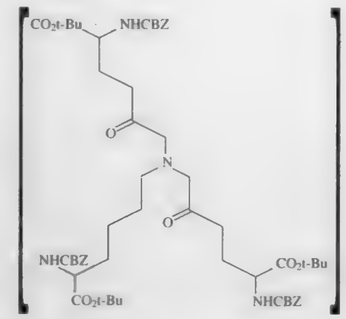
with at least two equivalents of 5,6-epoxy-2 -N-protected-O-protected-(2S)-2-aminohexanoate of the formula:



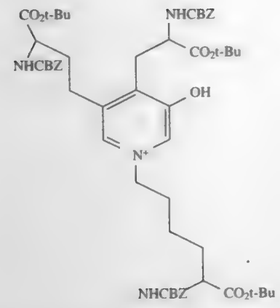
to produce the corresponding aminodiol of the formula:



b) reacting the aminodiol with an oxidizing agent to provide the corresponding aminodiketone of the formula:

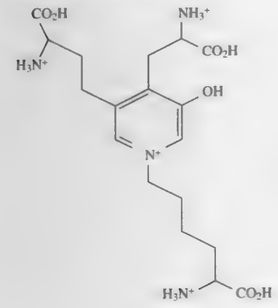


c) reacting the aminodiketone with a base to produce the corresponding 3-hydroxydihydropyridine and then reacting the 3-hydroxydihydropyridine with an oxidizing agent to form the 3-hydroxypyridinium ring thereby providing a compound of the formula:



and

d) deprotecting the compound of step (d) to provide deoxypyridinium of the formula:



o is an integer having the value 0–4;

R_4 is hydrogen, alkyl of 1 to 10 carbons, alkenyl of 2 to 10 carbons and having 1 to 3 double bonds, alkynyl having 2 to 10 carbons and 1 to 3 triple bonds, carbocyclic aryl selected from the group consisting of phenyl, C_1–C_{10}-alkylphenyl, naphthyl, C_1–C_{10}-alkylnaphthyl, phenyl-C_1–C_{10}alkyl, napthyl-C_1–C_{10}alkyl; CN, or $(CH_2)_pCO_2R_8$ where p is an integer between 0 to 10;

R_5 is $C(R_{15})(R_{16})XR_{17}$;

Y is pyridyl optionally substituted with one or two R_2 groups;

A is $(CH_2)_n$ where n is 0–5, lower branched chain alkyl having 3–6 carbons, cycloalkyl having 3–6 carbons, alkenyl having 2–6 carbons and 1 or 2 double bonds, alkynyl having 2–6 carbons and 1 or 2 triple bonds, and

B is hydrogen, COOH or a pharmaceutically acceptable salt thereof, $COOR_8$, $CONR_9R_{10}$, $—CH_2OH$, CH_2OR_{11}, CH_2OCOR_{11}, CHO, $CH(OR_{12})_2$, $CHOR_{13}O$, $—COR_7$, $CR_7(OR_{12})_2$, $CR_7OR_{13}O$, or tri-lower alkylsilyl, where R_7 is an alkyl, cycloalkyl or alkenyl group containing 1 to 5 carbons, R_8 is an alkyl group of 1 to 10 carbons, a cycloalkyl group of 5 to 10 carbons or trimethylsilylalkyl where the alkyl group has 1 to 10 carbons, or R_8 is phenyl or lower alkylphenyl, R_9 and R_{10} independently are hydrogen, an alkyl group of 1 to 10 carbons, or a cycloalkyl group of 5–10 carbons, or phenyl or lower alkylphenyl, R_{11} is lower alkyl, phenyl or lower alkylphenyl, R_{12} is lower alkyl, and R_{13} is divalent alkyl radical of 2–5 carbons; and further wherein R_{14} is hydrogen, alkyl of 1 to 10 carbons, alkenyl of 2 to 10 carbons and having 1 to 3 double bond, alkynyl having 2 to 10 carbons and 1 to 3 triple bonds, carbocyclic aryl selected from the group consisting of phenyl, C_1–C_{10}-alkylphenyl, naphthyl, C_1–C_{10}-alkylnaphthyl, phenyl-C_1–C_{10}alkyl, napthyl-C_1–C_{10}alkyl; R_{15} is hydrogen or lower alkyl of 1 to 6 carbons, and R_{16} and R_{17} jointly form a ring having a total of 4 to 5 carbons and the X heteroatom.

5,723,620

ACETYLENES DISUBSTITUTED WITH A 5 SUBSTITUTED TETRAHYDRONAPHTHYL GROUP AND WITH AN ARYL OR HETEROARYL GROUPS HAVING RETINOID-LIKE BIOLOGICAL ACTIVITY

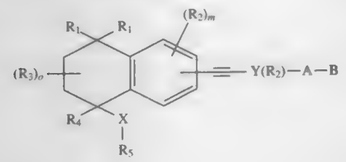
Vidyasagar Vuligonda, Irvine; Min Teng, Aliso Viejo; Richard L. Beard, Newport Beach; Alan T. Johnson, Rancho Santa Margarita; Yuan Lin, Walnut, and Roshantha A. Chandraratna, Mission Viejo, all of Calif., assignors to Allergan, Waco, Tex.

Division of Ser. No. 366,172, Dec. 29, 1994, Pat. No. 5,543,534. This application Nov. 3, 1995, Ser. No. 552,813

Int. Cl.° C07D *405/02*

U.S. Cl. 546—280.1 **18 Claims**

1. A compound of the formula



wherein

X is S or O;

R_1 is hydrogen or alkyl of 1 to 10 carbons;

R_2 and R_3 are hydrogen, or alkyl of 1 to 6 carbons and the substituted ethynyl group occupies either the 2 or the 3 position of the tetrahydronaphthalene nucleus;

m is an integer having the value of 0–3;

5,723,621

PROCESS FOR PROCESSING BIARYL COMPOUND

Koichi Shibata; Shuichi Matsui, and Kazutoshi Miyazawa, all of Chiba, Japan, assignors to Chisso Corporation, Osaka, Japan

Filed May 14, 1996, Ser. No. 645,561

Clsims priority, application Japan, May 15, 1995, 7-141117; Aug. 4, 1995, 7-219592

Int. Cl.° C07B *37/04;* **C07D** *213/16*

U.S. Cl. 546—339 **22 Claims**

1. A process for producing a biaryl compound represented by formula (III):

Ar—Ar' (III)

(wherein Ar and Ar' each independently represents a substituted or unsubstituted aromatic group) which comprises the steps of:

(i) reacting a trialkoxysilyl-substituted aromatic compound represented by formula (I):

Ar—Si(OR)$_3$ (I)

(wherein Ar has the same meaning as defined above and R represents an alkyl group having from 1 to 5 carbon atoms) with a fluoride ion source in the presence of a solvent; and then

(ii) adding thereto an aromatic compound represented by formula (II):

X—Ar' (II)

(wherein X represents an eliminating group and Ar' has the same meaning as defined above) and a catalyst comprising a transition metal of tenth group to conduct a further reaction.

VOL 1208 ISS 1 MR 3 1998 UMI

5,723,622

SYNTHETIC METHOD FOR MAKING PYRIDIN-PROPYL-SULPHOBETAINE WITHOUT ANY RISKS FOR THE HUMAN BEINGS AND THE ENVIRONMENT

Giuseppe Faranda, Via G. Rossini 12, Mesano Boscone; Luciano Antonio Vailati, Via OSuny 2; Claudio Valzesi, Via A. Anfussi, 3, both of Milan, and Enrico Borroni, Via I Maggio 2h/H, Brugherio (Gi), all of Italy

Filed Jul. 3, 1996, Ser. No. 674,889
Claims priority, application Italy, Jul. 6, 1995, MI95A1453
Int. Cl.[6] C07D *211/70*
U.S. Cl. 546—339 5 Claims

1. A synthetic method for making pyridine-propyl-sulphobetaine, without any risks for human beings and environment, wherein said method comprises the steps of reacting a 1–3 substituted alkyldihalogenide with pyridine and sulphonating, in water, with an alkylhalogenide co-solvent, to provide pyridin-propyl-sulphobetaine which can be separated from water, leaving in said water the halogenides.

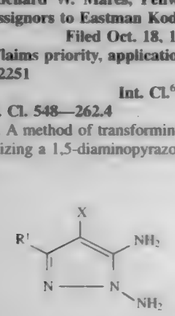
5,723,623

METHOD OF TRANSFORMING PYRAZOLE COMPOUNDS

David Clarke, Watford; Hamish McNab, Edinburgh, and Richard W. Mares, Penwortham, all of United Kingdom, assignors to Eastman Kodak Company, Rochester, N.Y.

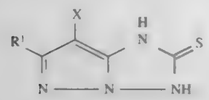
Filed Oct. 18, 1996, Ser. No. 732,732
Claims priority, application United Kingdom, Oct. 31, 1995, 9522251
Int. Cl.[6] C07D *487/04*
U.S. Cl. 548—262.4 10 Claims

1. A method of transforming a pyrazole compound, comprising cyclizing a 1,5-diaminopyrazole compound having the structure:



(2)

wherein R^1 is a substituent group; and X is hydrogen, an acyl group, or a heterogroup:
in an alkaline solution with carbon disulphide to produce a pyrazolotriazole thione compound having formula (3)



(3)

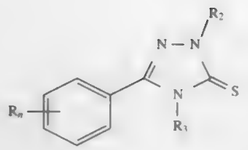
5,723,624

PROCESS FOR THE PREPARATION OF 5-ARYL-2,4-DIALKYL-3H-1,2,4-TRIAZOLE-3-THIONES

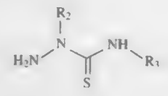
Sandra K. Stolz-Dunn, Midland; David H. Louks, Saginaw, both of Mich.; Yolanda M. Puga, Morgan Hill, Calif., and Christian T. Goralski, Midland, Mich., assignors to Merrell Pharmaceuticals Inc, Cincinnati, Ohio

PCT No. PCT/US95/06927, § 371 Date Mar. 28, 1997, § 102(e) Date Mar. 28, 1997, PCT Pub. No. WO96/01812, PCT Pub. Date Jan. 25, 1996
Continuation of Ser. No. 271,925, Jul. 7, 1994, abandoned. This PCT application Jun. 1, 1995, Ser. No. 765,013
Int. Cl.[6] C07D *249/12*
U.S. Cl. 548—263.2 12 Claims

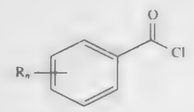
1. A process for preparing a compound of the formula:



wherein
R is halogen, C_{1-3} alkyl or C_{1-3} alkoxy;
n is the integer 1 or 2; and
R_2 and R_3 are each independently C_{1-3} alkyl, comprising:
a) mixing a compound of the formula:



wherein R_2 and R_3 are defined as above, with a base and an organic solvent;
b) agitating the mixture at a temperature of about 22° C. to reflux; and
c) adding about one molar equivalent of a compound of the formula:



wherein R and n are defined as above, to the mixture.

5,723,625

PROCESS FOR THE PRODUCTION OF SPECIFIC ISOMER MIXTURES FROM OXINDOLE ALKALOIDS

Dietmar Keplinger; Klaus Keplinger, and Gerhard Laus, all of Innsbruck, Austria, assignors to Immodal Pharmaka Gesellschaft m.b.H, Volders, Austria

Continuation-in-part of Ser. No. 687,361, Aug. 2, 1996, abandoned. This application Oct. 4, 1996, Ser. No. 725,879
Claims priority, application Austria, Feb. 4, 1994, 212/94
Int. Cl.[6] C07D *209/54;209/96;471/00;491/00;498/00;513/00*
U.S. Cl. 548—408 33 Claims

1. A method of preparing a mixture of isomers of a spiro oxindole alkaloid, said mixture having a definable isomer pattern, said method comprising:
defining said isomer pattern of said mixture of isomers,
selecting an organic solvent being able to dissolve said oxindole alkaloid and being homogeneously miscible with water,
selecting a concentration of said organic solvent, said concentration determining said defined isomer pattern,
preparing a homogeneous solvent-agent comprising water and said organic solvent, and
dissolving said oxindole alkaloid in said solvent-agent, said oxindole alkaloid being isomerized into said mixture of isomers according to said isomer pattern.

5,723,626

FLUORESCENT ISOINDOLINE PIGMENTS

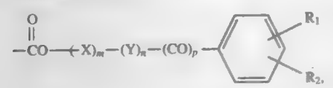
Zhimin Hao, Marly; John S. Zambounis, Murten, and Abul Iqbal, Arconciel, all of Switzerland, assignors to Ciba Specialty Chemicals Corporation, Tarrytown, N.Y.

Division of Ser. No. 319,399, Oct. 6, 1994, Pat. No. 5,561,232.
This application Jul. 9, 1996, Ser. No. 677,286
Claims priority, application Switzerland, Oct. 13, 1993, 3080/93; Nov. 18, 1993, 3442/93
Int. Cl.[6] C07D *209/44;403/02;403/14;239/02*
U.S. Cl. 548—467 6 Claims

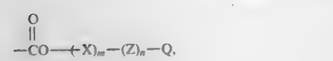
1. A compound of formula

$$A(B)_x, \quad (I),$$

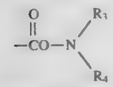
wherein
x is an integer from 1 to 5,
A is the radical of a chromophore of the isoindoline series, which radical contains x N-atoms selected from the group consisting of isoindoline N atoms and amide or imide N atoms which are conjugated with the phenyl ring of the isoindoline, to which N-atoms the groups B are attached,
B is a group of formula



(II)

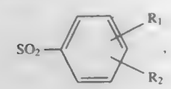


(III)

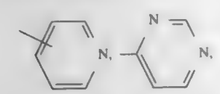


(IV)

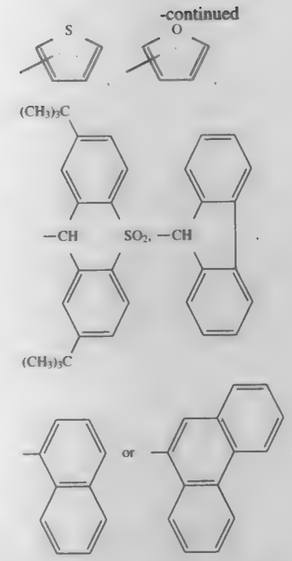
or hydrogen, with the proviso that at least one B is formula (II), (III) or
m, n and p are each independently of one another 0 or 1,
X is C_1–C_4alkylene or C_2–C_8alkenylene,
Y is a group —V—$(CH_2)_q$—,
Z is a group —V—$(CH_2)_r$—,
V is C_3–C_6cycloalkylene,
q is an integer from 1 to 6, and
r is an integer from 0 to 6,
R_1 and R_2 are each independently of the other hydrogen, C_1–C_6alkyl, C_1–C_4alkoxy, halogen, CN, NO_2, unsubstituted phenyl or phenoxy or phenyl or phenoxy which are substituted by C_1–C_4alkyl, C_1–C_4alkoxy or halogen,
Q is hydrogen, CN, $Si(R_1)_3$;
a group $C(R_5)(R_6)(R_7)$, wherein R_5, R_6 and R_7 are each independently of one another hydrogen or halogen and at least one of R_5, R_6 and R_7 is halogen;
a group



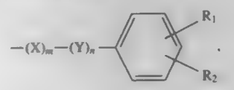
wherein
R_1 and R_2 are as defined above;
a group SO_2R_8 or SR_8, wherein R_8 is C_1–C_4alkyl;
a group $CH(R_9)_2$, wherein R_9 is unsubstituted phenyl or phenyl which is substituted by C_1–C_4alkyl, C_1–C_4alkoxy or halogen; or
a group of formula



-continued



R_3 and R_4 are each independently of the other hydrogen, C_1–C_{18}alkyl, a group



wherein
X, Y, R_1, R_2, m and n are as defined above, or R_3 and R_4 together with the linking nitrogen atom, form a pyrrolidinyl, piperidinyl or morpholinyl radical.

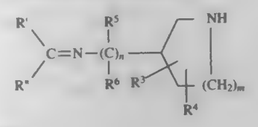
5,723,627

PREPARATION OF 7-(3-AMINO- AND 3-AMINO-METHYL-1-PYRROLIDINYL)-3-QUINOLONECARBOXYLIC ACIDS AND -NAPHTHRIDONECARBOXYLIC ACIDS

Uwe Petersen, Leverkusen; Andreas Krebs, Odenthal; Thomas Schenke, Bergisch-Gladbach; Klaus Grohe; Michael Schriewer, both of Odenthal; Ingo Haller, Wuppertal; Karl Georg Metzger, Wuppertal; Rainer Endermann, Wuppertal, and Hans-Joachim Zeiler, Velbert, all of Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Germany

Division of Ser. No. 717,748, Jun. 19, 1991, Pat. No. 5,648,493, which is a division of Ser. No. 529,016, May 25, 1990, Pat. No. 5,061,712. This application Feb. 20, 1997, Ser. No. 803,479
Claims priority, application Germany, Jun. 7, 1989, 39 18 544.3
Int. Cl.[6] C07D *205/04;207/14;207/09;211/56*
U.S. Cl. 548—557 1 Claim

1. A compound of the formula



(III)

in which

R^3 represents hydrogen, C_1–C_3-alkyl, hydroxyl, C_1–C_3-alkoxy, C_1–C_3-alkylthio or halogen,

R^4 represents hydrogen or methyl,

R^5 and R^6 are identical or different and represent hydrogen or methyl,

m represents 0, 1 or 2,

n represents 0 or 1 and

R' represents hydrogen, straight-chain or branched alkyl having 1 to 10 carbon atoms or phenyl, which can optionally be substituted by one to five identical or different substituents from the group comprising C_1–C_4-alkyl, C_1–C_4-alkoxy, C_1–C_2-alkylthio, hydroxyl, nitro, halogen, carboxyl, C_1–C_4-alkoxycarbonyl, cyano and phenyl, or represents naphthyl, and

R" represents hydrogen, straight-chain or branched alkyl having 1 to 5 carbon atoms or phenyl, wherein R' and R", together with the carbon atom to which they are bonded, can also form a 5- or 6-membered aliphatic ring which is optionally substituted by one or more methyl or ethyl radicals.

5,723,628

PROCESS FOR PREPARING CARBOXYLIC ACID DERIVATIVE

Fumihiko Kanou, Himeji; Toshihiro Takeda, Kobe; Natsuki Mori, Takasago, and Kazunori Kan, Nishinomiya, all of Japan, assignors to Kanegafuchi Kagaku Kogyo Kabushiki Kaisha, Osaka, Japan

PCT No. PCT/JP95/02673, § 371 Date Aug. 22, 1996, § 102(e) Date Aug. 22, 1996, PCT Pub. No. WO96/20188, PCT Pub. Date Jul. 4, 1996

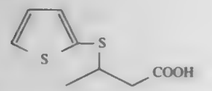
PCT Filed Dec. 25, 1995, Ser. No. 693,229

Claims priority, application Japan, Dec. 28, 1994, 6-329089

Int. Cl.[6] C07D *333/16*

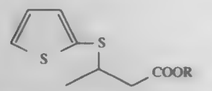
U.S. Cl. 547—66 **11 Claims**

1. A process for preparing a compound having the structural formula



(I)

characterized by, in a reaction of a compound having the formula (III):

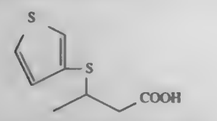


(III)

wherein R is a straight chain or branched C_1 to C_4 alkyl group, with an aqueous solution of acid, adding an organic solvent or an organic acid, removing by distillation an alcohol or alcohol derivative which is produced during the reaction and has the formula (IV):

R—OX (IV)

wherein R is the same as defined above, and X is hydrogen atom or COR' where R' is hydrogen atom, a straight chain or branched C_1 or C_2 alkyl group or a phenyl group which may be substituted, whereby the production of a by-product compound having the structural formula (II):



(II)

is controlled to at most 0.1 mol %.

5,723,629

THIOPHENE SYNTHESIS

Graham John Hutchings, Osmotherley; Richard William Joyner, Birkenhead; Barry William Luke Southward, Widnes; Russel Andrew Stewart, Wolverhampton, and Lance Svend Fuller, Trussell, all of Great Britain, assignors to Shell Research Limited, Great Britain

Filed Jun. 24, 1996, Ser. No. 669,017

Claims priority, application European Pat. Off., Jun. 28, 1995, 95304563

Int. Cl.[6] C07D *333/10;* **B01J** *23/20*

U.S. Cl. 549—85 **20 Claims**

1. A method of preparing a thiophene, which comprises reacting an organic compound containing a chain of at least 4 C atoms linked by single or double bonds with a source of sulfur in the vapor phase, in the presence of a catalyst comprising the composition

$$M(Fe_{0.8-1}Cr_{0.2-0})(OH)_6X_n$$

wherein M is NH_4 or an alkali metal; and X_n represents one or more suitable anions.

5,723,630

PROCESS FOR PREPARING FLUORINATED BETA-SULTONES

Yuri Cheburkov, Woodbury, and William M. Lamanna, Stillwater, both of Minn., assignors to Minnesota Mining and Manufacturing Company, St. Paul, Minn.

Filed Feb. 18, 1997, Ser. No. 802,193

Int. Cl.[6] C07D *331/04*

U.S. Cl. 549—89 **19 Claims**

1. A process for preparing a fluorinated beta-sultone, the process comprising the step of reacting a fluorinated olefin hav. ing at least three carbon atoms with oleum.

5,723,631

COUMARIN DERIVATIVES AS RETROVIRAL INHIBITORS

Ashok Dharmaji Patil, King of Prussia; Robert Philip Hertzberg, Downingtown; Geoffrey B. Dreyer, Malvern; Alan James Freyer, Downingtown; John W. Westley, Bryn Mawr; Balan Chenera, Audubon, all of Pa., and Michael Leo West, St. Lucia, Australia, assignors to SmithKline Beecham Corporation, Philadelphia, Pa.

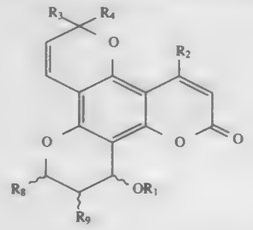
PCT No. PCT/US93/12500, § 371 Date Jun. 22, 1995, § 102(e) Date Jun. 22, 1995, PCT Pub. No. WO94/14789, PCT Pub. Date Jul. 7, 1994

PCT Filed Dec. 22, 1993, Ser. No. 464,800

Int. Cl.[6] C07D *311/78;407/00;493/12*

U.S. Cl. 549—277 **8 Claims**

1. A process for preparing a compound of the structure:



wherein

R_1 is H, acyl, $COCHR_5NR_6R_7$, $P(O)(OH)_2$ or $S(O)(OH)_2$;

wherein:

R_5 is H or a side chain of any naturally occurring amino acid; and R_6 and R_7 are independently selected from the group consisting of H and C_{1-6} alkyl; and R_6 and R_7 can be taken together to form a 5–7 membered saturated heterocyclic ring containing said nitrogen;

R_2 is H, hydroxyl, C_{1-6} alkyl, C_{1-6} alkylamino, di(C_{1-6} alkyl)amino, 1-amino-C_{1-8} alkyl, C_{1-8} alkyl-amino-C_{1-8} alkyl, di-(C_{1-6} alkyl)amino C_{1-8} alkyl, cyclohexyl, aryl or heterocycle, wherein aryl or heterocycle may each be unsubstituted or substituted with one or more of the following: C_{1-6} alkyl, C_{1-6} alkoxy, hydroxy-C_{1-4} alkyl, amino, C_{1-6} alkylamino, di(C_{1-6} alkyl)amino, 1-amino-C_{1-8} alkyl, C_{1-8} alkyl-amino-C_{1-8} alkyl, di-(C_{1-6} alkyl)amino C_{1-8} alkyl, hydroxyl, nitro, azido or halogen; and

R_3, R_4, R_8 and R_9 are independently selected from the group consisting of H, methyl and ethyl;

or a pharmaceutically acceptable salt thereof;

which comprises:

(a) reaction of phloroglucinol with a β-ketoester under acid catalysis;

(b) acylation with a substituted acryloyl halide and subsequent base-catalyzed ring closure;

(c) chromene ring formation, by reacting with a propargyl halide in the presence of base, acid and nBu4NI (or KI) and heating the mixture; and

(d) reduction of the keto group in ring position 12; with the proviso that when R_2 is H, then the ester reacting with phloroglucinol is propiolate ester.

5,723,632

TOTAL SYNTHESIS OF ANTITUMOR ACYLFULVENES

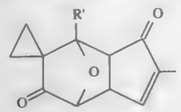
Trevor C. McMorris, LaJolla, Calif., assignor to MGI Pharma, Inc., Minnetonka, Minn., and Regents of the University of California, Oakland, Calif.

Filed Aug. 8, 1996, Ser. No. 689,461

Int. Cl.[6] C07D *307/94*

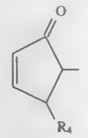
U.S. Cl. 549—331 **10 Claims**

1. A method of synthesizing a compound of formula (V):



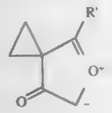
(V)

wherein R' is (C_1–C_4)alkyl; comprising the steps of coupling a cyclopentenone of formula (II):



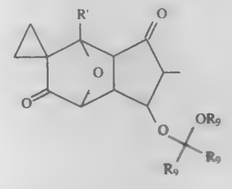
(II)

wherein R_4 is —O—$C(R_9)_2O(R_9)$, wherein R_9 is (C_1–C_4)alkyl; with a cyclic carbonyl ylide dipole of formula (III):



(III)

to form a compound of formula (IV):



(IV)

and treating compound (IV) with base to form a ketone of formula (V).

5,723,633

PYRAN DERIVATIVE, PHOTOSENSITIVE RESIN COMPOSITION, AND HOLOGRAM RECORDING MEDIUM USING IT

Shin Kobayashi, Atsugi; Susumu Matsumura, Kawaguchi; Naosato Taniguchi, Machida; Yoko Yoshinaga; Toshiyuki Sudo, both of Kawasaki; Hideki Morishima, Tokyo, and Tadashi Kaneko, Isehara, all of Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan

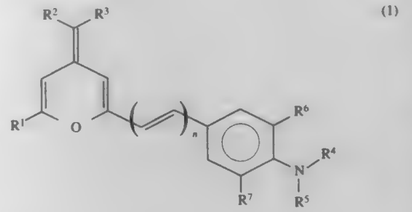
Division of Ser. No. 248,093, May 24, 1994, Pat. No. 5,492,942. This application Dec. 20, 1995, Ser. No. 575,387

Claims priority, application Japan, May 25, 1993, 5-144423

Int. Cl.[6] C07D *315/00;209/04;455/06*

U.S. Cl. 549—426 **2 Claims**

1. A pyran derivative having a structure represented by the following formula (1)



(1)

wherein n is 3 or 4; R^1 is a proton, an alkyl group having 1 to 4 carbon atoms or a substituted or unsubstituted phenyl group; each of R^2 and R^3 is independently a cyano group, an alkoxycarbonyl group having an alkyl moiety of 1 to 4 carbon atoms, an acyl group having an alkyl moiety of 1 to 4 carbon atoms, an aracyl group having a substitute or unsubstituted phenyl group, a sulfonyl group which is unsubstituted or substituted by an alkyl group having 1 to 4 carbon atoms, a substituted or unsubstituted aryl group, or a substituted or unsubstituted aryloxy group; each of R^4 and R^5 is an alkyl group having 1 to 6 carbon atoms; and each of R^6 and R^7 is a proton, provided that R^4 and R^5 are alkyl groups, and a pair of R^4 and R^6 as well as a pair of R^5 and R^7 can be bonded to each other to form a five-membered heterocyclic ring, a six-membered heterocyclic ring or a seven-membered heterocyclic ring.

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5,723,634

METAL ALKOXIDE COMPOUNDS

Robert A. Holton, Tallahassee, Fla., assignor to Florida State University, Tallahassee, Fla.

Continuation of Ser. No. 314,532, Sep. 28, 1994, Pat. No. 5,466,834, which is a continuation-in-part of Ser. No. 949,107, Sep. 22, 1992, abandoned, which is a continuation-in-part of Ser. No. 863,849, Apr. 6, 1992, abandoned, which is a continuation-in-part of Ser. No. 862,955, Apr. 3, 1992, abandoned, which is a continuation-in-part of Ser. No. 763,805, Sep. 23, 1991, abandoned. This application Jun. 7, 1995, Ser. No. 483,309

Int. Cl.[6] C07D *305/14*

U.S. Cl. 549—510 28 Claims

1. A metal alkoxide having the formula:



wherein

M is a metal;

E_1, E_2 and the carbon to which they are attached define a tetracyclic taxane nucleus, and

E_3 is hydrogen.

5,723,635

PROCESS FOR THE PURIFICATION OF TAXOIDS

André Durand, Sainte-Geneviève-des-Bois; Alain Gerbaud, Athis-Mons, and Rodolphe Margraff, Viry-Châtillon, all of France, assignors to Rhone-Poulenc Rorer S.A., Antony, France

PCT No. PCT/FR94/00300, § 371 Date Sep. 21, 1995, § 102(e) Date Sep. 21, 1995, PCT Pub. No. WO94/21622, PCT Pub. Date Sep. 29, 1994

PCT Filed Mar. 18, 1994, Ser. No. 522,418

Claims priority, application France, Mar. 22, 1993, 93 03251

Int. Cl.[6] C07D *305/14*

U.S. Cl. 549—510 5 Claims

1. A process for the purification of 10-deacetylbaccatin III by centrifugal partition chromatography, said process comprising

centrifuging in a suitable centrifugal partition chromatography apparatus, for a time sufficient to purify said 10-deacetylbaccatin III, impure 10-deacetylbaccatin III and at least two solvents which are capable of forming two partially miscible phases, wherein said two solvents are a mixture of at least one aliphatic ketone and water, and wherein the partition coefficient between the two partially miscible phases ranges from 0.1 to 10.

5,723,636

METHYLTRIOXORHENIUM-UREA HYDROGEN PEROXIDE EPOXIDATION OF OLEFINS

Steven P. Fenelli, Hillsborough, and Rose Ann Schultz, Princeton, both of N.J., assignors to National Starch and Chemical Investment Holding Corporation, Wilmington, Del.

Filed Apr. 12, 1996, Ser. No. 631,388

Int. Cl.[6] C07D *301/19*

U.S. Cl. 549—529 3 Claims

1. A process for the epoxidation of olefins comprising contacting the olefin with urea-hydrogen peroxide in the presence of a rhenium catalyst in an organic solvent.

5,723,637

PROCESS FOR PRODUCING PROPYLENE OXIDE

Junpei Tsuji; Kenshi Uchida; Noriaki Oku; Mitsuhisa Tamura, and Masaru Ishino, all of Chiba, Japan, assignors to Sumitomo Chemical Company, Limited, Osaka, Japan

Filed Nov. 22, 1996, Ser. No. 754,125

Claims priority, application Japan, Dec. 6, 1995, 7-317841; Jun. 7, 1996, 8-145493

Int. Cl.[6] C07D *301/19*

U.S. Cl. 549—529 8 Claims

1. A process for producing propylene oxide which comprises reacting a raw material solution, which is a solution of ethylbenzene hydroperoxide in ethylbenzene obtained by liquid phase autoxidation of ethylbenzene, with propylene in the presence of a Ti-containing solid catalyst to give propylene oxide, said raw material solution being a solution prepared by washing a solution of ethylbenzene hydroperoxide in ethylbenzene, obtained by liquid phase autoxidation of ethylbenzene, with an aqueous alkali solution to bring the lactic acid concentration to 5 ppm by weight or less.

5,723,638

PROCESS FOR 20-OXO-17α,21-DIOL STEROIDS

Robert Lett, Paris, and Oleg Melnyk, Mons-en-Baroeul, both of France, assignors to Roussel Uclaf, France

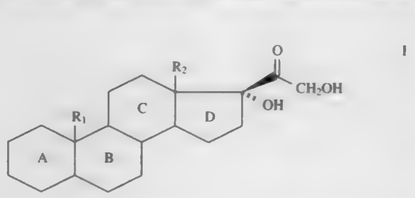
Filed Jun. 26, 1995, Ser. No. 495,048

Claims priority, application France, Jul. 1, 1994, 94 08140

Int. Cl.[6] C07J *75/00;5/00*

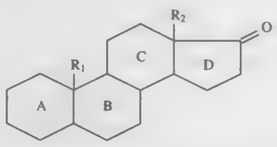
U.S. Cl. 552—558 12 Claims

1. A process for the preparation of a compound of the formula



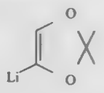
I

wherein R_1 is hydrogen or alkyl of 1 to 4 carbon atoms, R_2 is alkyl of 1 to 4 carbon atoms and the A, B, C and D ring system has at least one double bond and the A, B, C and D rings are optionally substituted by at least one member of the group consisting of optionally protected hydroxy, optionally protected keto, halogen, alkyl and alkoxy of 1 to 4 carbon atoms, and alkenyl and alkynyl of 2 to 4 carbon atoms comprising reacting a compound of the formula



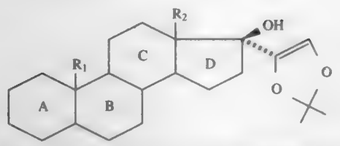
II

wherein R_1, R_2, A, B, C and D are as defined above with a reagent of the formula



R

to obtain a compound of the formula

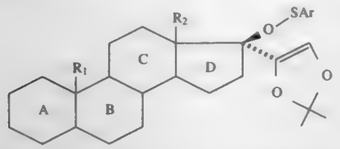


III

wherein R_1, R_2, A, B, C and D are as defined above, reacting the compound of formula III with an aryl sulfenyl halide of the formula

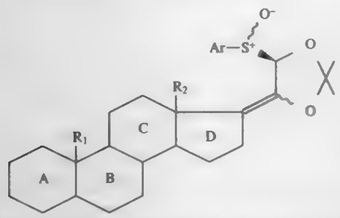
Ar-S-Hal S

wherein Ar is an optionally substituted phenyl and Hal is halogen in the presence of a base to obtain intermediately a compound of the formula



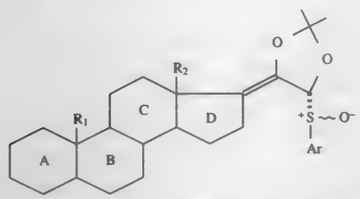
IV

wherein Ar is defined as above which is rearranged by allowing the temperature to rise to ambient temperature optionally in the presence of a base into the sulfoxide of the formula



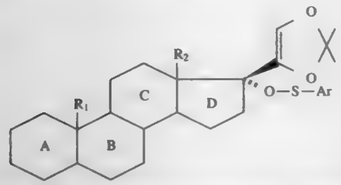
V

which is in the form of a mixture of diasteroisomers of E+Z configuration at the level of the 17(20) double bond, epimerizing the mixture of compounds of formula V with a strong base in an aqueous or alcoholic polar medium to obtain the sulfoxides of the formula



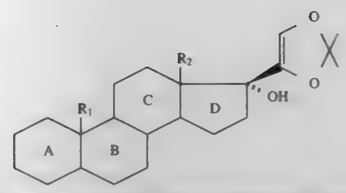
VI

which are in form of a mixture of diastereoisomers of (Z) configuration at the level of the $17(20_i$ double bond and which are in equilibrium with the sulfenate of the formula



VII

cleaving the compound of formula VII with a thiophilic compound to obtain a compound of the formula



VIII

and reacting the compound of formula VIII with an acid hydrolysis agent to obtain the compound of formula I.

5,723,639

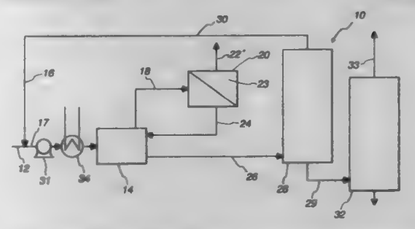
ESTERIFICATION OF FERMENTATION-DERIVED ACIDS VIA PERVAPORATION

Rathin Datta, Chicago, and Shih-Perng Tsai, Naperville, both of Ill., assignors to University of Chicago, Chicago, Ill.

Filed Oct. 16, 1995, Ser. No. 543,522

Int. Cl.[6] C07C *51/00*

U.S. Cl. 554—154 24 Claims



1. A method for esterifying ammonium carboxylate salt comprising:

a.) mixing the salt with an alcohol to create a mixture;

b.) heating the mixture in the presence of a catalyst; and

c.) subjecting the mixture to a pervaporation process.

5,723,640

TRANSITION METAL COMPOUND HAVING INDENYL-CONTAINING METALLOCENE

Daisuke Fukuoka; Takashi Tashiro; Koji Kawaai; Junji Saito; Takashi Ueda; Yoshihisa Kiso; Junichi Imuta; Terunori Fujita; Masatoshi Nitabaru, and Masayasu Yoshida, all of Waki, Japan, assignors to Mitsui Petrochemical Industries, Ltd., Tokyo, Japan

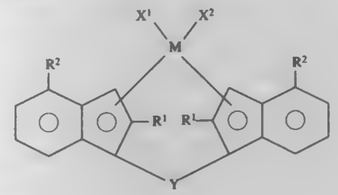
Continuation of Ser. No. 255,706, Jun. 7, 1994, abandoned. This application Mar. 26, 1996, Ser. No. 622,592

Claims priority, application Japan, Jun. 7, 1993, 5-136253; Sep. 24, 1993, 5-238561; Oct. 6, 1993, 5-250742; Nov. 29, 1993, 5-298744; Nov. 29, 1993, 5-298745; Feb. 23, 1994, 5-25548

Int. Cl.[6] C07F *7/08*

U.S. Cl. 556—11 1 Claim

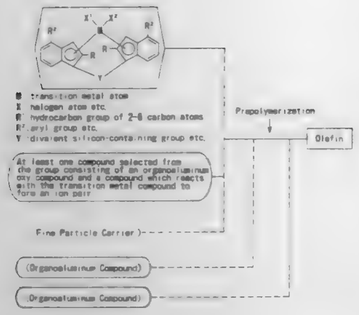
1. A transition metal compound represented by the following formula (I):



(I)

wherein

VOL 1208 ISS 1 MR 3 1998 UMI



M is zirconium or hafnium;

R^1 is an alkyl group of 1 to 4 carbon atoms;

R^2 is an aryl group selected from the group consisting of anthracenyl and phenanthryl;

X^1 and X^2 are each a hydrogen atom, a halogen atom, a hydrocarbon group of 1 to 20 carbon atoms, a halogenated hydrocarbon group of 1 to 20 carbon atoms, an oxygen-containing group or a sulfur-containing group; and

Y is a divalent silicon-containing group selected from the group consisting of alkylsilylene, alkylarylsilylene and arylsilylene.

5,723,641

PROCESSES AND CATALYST COMPOSITIONS FOR HYDROCYANATION OF MONOOLEFINS

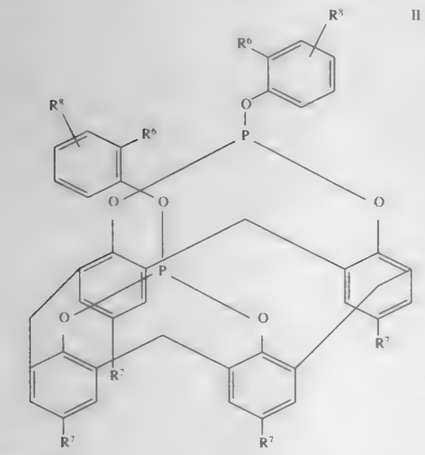
Wilson Tam, Boothwyn, Pa.; Kristina Ann Kreutzer, and Ronald James McKinney, both of Wilmington, Del., assignors to E. I. du Pont de Nemours and Company, Wilmington, Del.

Division of Ser. No. 424,351, Apr. 26, 1995, which is a continuation-in-part of Ser. No. 198,963, Feb. 18, 1994, abandoned, which is a continuation-in-part of Ser. No. 157,342, Nov. 23, 1993, abandoned. This application Sep. 26, 1996, Ser. No. 721,068

Int. Cl.[6] C07F *9/02;15/04*

U.S. Cl. 556—13 **12 Claims**

1. A catalyst precursor composition comprising zero-valent nickel and a bidentate phosphite ligand selected from the group consisting of Formula II, Formula III, Formula IV, and Formula V,

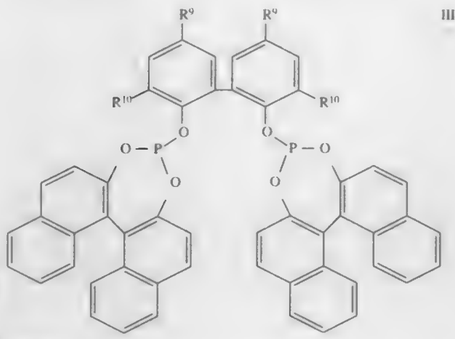


II

wherein

each R^6 and R^7 is independently a tertiary substituted hydrocarbon of up to 12 carbon atoms; and

each R^8 is independently H or a branched or straight chain alkyl of up to 12 carbon atoms, or OR^4 wherein R^4 is C_1 to C_{12} alkyl;

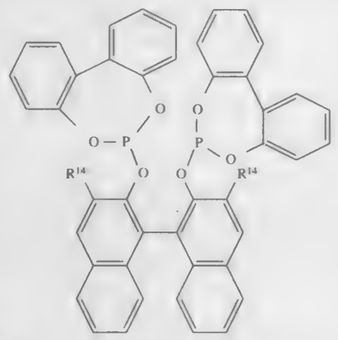


III

wherein

each R^9 is independently H or a branched or straight chain alkyl of up to 12 carbon atoms, or OR^4 wherein R^4 is C_1 to C_{12} alkyl; and

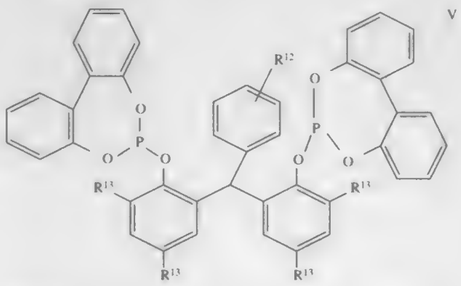
each R^{10} is independently a tertiary substituted hydrocarbon of up to 12 carbon atoms;



IV

wherein

each R^{14} is independently a tertiary substituted hydrocarbon of up to 12 carbon atoms or $Si(R^{11})_3$ where R^{11} is independently a branched or straight chain alkyl of up to 12 carbon atoms or phenyl; and



V

wherein

R^{12} is H or a branched or straight chain alkyl of up to 12 carbon atoms; and

each R^{13} is independently a branched or straight chain alkyl of up to 12 carbon atoms.

5,723,642

OPTICALLY ACTIVATE PHOSPHINES,THEIR PREPARATION AND THEIR METAL COMPLEXES, AND USE IN ASYMMETRIC SYNTHESIS

Rainer Stürmer, Roedersheim; Lothar Laupichler, Heidelberg; Paul Knochel, and Falk Langer, both of Marburg, all of Germany, assignors to BASF Aktiengesellschaft, Ludwigshafen, Germany

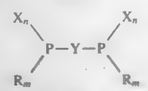
Filed May 6, 1996, Ser. No. 643,586

Claims priority, application Germany, May 12, 1995, 195 169 68.9

Int. Cl.[6] C07F *9/02*

U.S. Cl. 556—18 **11 Claims**

1. An optically active phosphine of the formula II



II

where the variables have the following meanings:

X is an optically active terpene radical,

R is an unsubstituted or substituted phenyl radical,

Y is a bridge member having 1–10 C atoms in the formula I

n is 1,2 or 3 and

m is 0,1 or 2 with the proviso that n+m=3 in the formula II

n is 1 or 2 and

m is 0 or 1 with the proviso that n+m=2.

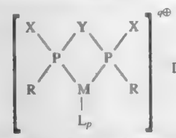
3. A process for preparing optically active phosphines, which comprises

a) hydroborating an optically active olefin,

b) reacting the reaction product from step a) with a dialkylzinc compound,

c) reacting the reaction product from step b) with a phosphorus halide to give the phosphine.

5. A transition metal complex of the general formula IV



IV

where the variables X, Y, R, m and n have the meanings mentioned in claim **1** and the other variables have the following meanings:

D is the equivalent of a noncoordinated anion,

L is an organic ligand,

M is a transition metal,

p is 0 to 4 and

q is 0 to 4.

5,723,643

METHOD FOR THE PREPARATION OF ACRYLOXY- OR METHACRYLOXY-FUNCTIONAL ORGANOSILICON COMPOUNDS

Ryuzo Mikami, and Tadashi Okawa, both of Chiba Prefecture, Japan, assignors to Dow Corning Toray Silicone Co., Ltd., Tokyo, Japan

Filed Apr. 15, 1997, Ser. No. 834,201

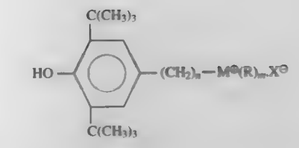
Claims priority, application Japan, Apr. 26, 1996, 8-131432

Int. Cl.[6] C07F *7/08*

U.S. Cl. 556—440 **15 Claims**

1. A method for preparation of acryloxy- or methacryloxy-functional organosilicon compounds comprising

(A) reacting an acrylate or methacrylate ester of an alcohol comprising an aliphatically unsaturated bond or a phenol comprising an aliphatically unsaturated bond with a (B) SiH-functional silicon compound in the presence of (C) a hydrosilylation reaction catalyst and (D) a polymerization inhibitor described by formula



where n is 0 or 1; M is an atom selected from the group consisting of N, P, As, Sb, O, S, Se, Sn, and I; R is a monovalent hydrocarbon group or hydrogen atom; m is 1, 2, or 3; and X is a conjugate base of an organic acid or inorganic acid.

5,723,644

PHOSPHOROUS REMOVAL FROM CHLOROSILANE

Ming-Shin Tzou, Midland, Mich., assignor to Dow Corning Corporation, Midland, Mich.

Filed Apr. 28, 1997, Ser. No. 846,190

Int. Cl.[6] C07F *7/08*

U.S. Cl. 556—466 **10 Claims**

1. A method for reducing the phosphorus contaminant of a chlorosilane, the method comprising contacting a mixture comprising as a major portion a chlorosilane described by formula $R_aH_bSiCl_{4-a-b}$ and as a minor portion phosphorus or a compound of phosphorus with an absorbent comprising copper or a compound of copper supported on silica at a temperature in the range of about 100° to 600° C., where each R is independently selected and may be a substituted or unsubstituted hydrocarbon group comprising 1 to about 6 carbon atoms, a=0, 1, 2, or 3 and b=0, 1, 2, or 3.

5,723,645

METHOD FOR PREPARING 3-AMINOPROPANE PHOSPHORIC ACID

Ok Sub Lee, Anyang; Young Hun Byon; Bo Sub Lee, both of Yongin; Jong Eon Hong; Jae Suk Ko, both of Seoul; Yun Ki Cho, Yongin, and Ho Lee, Suwon, all of Rep. of Korea, assignors to Pacific Corporation, Seoul, Rep. of Korea

Filed Nov. 4, 1996, Ser. No. 744,352

Claims priority, application Rep. of Korea, Sep. 5, 1996, 1996-38496; Oct. 26, 1996, 1996-48938

Int. Cl.[6] C07F *9/09*

U.S. Cl. 558—132 **7 Claims**

1. A method for preparing 3-aminopropane phosphoric acid from 3-amino-1-propanol, which comprises the steps of:

(a) reacting 3-amino-1-propanol with phosphorus oxychloride in an equivalent ratio of 1:1–1.3 in an organic solvent, at a temperature of 0°–5° C. for about 1 hour, to form a cyclic phosphoramidyl chloride intermediate;

(b) hydrolyzing the intermediate of step (a) in the presence of an acidic catalyst;

(c) recrystallizing the product of step (b) with an alcohol solvent; and

(d) optionally forming a salt thereof.

VOL 1208 ISS 1 MR 3 1998 UMI

5,723,646

SUBSTITUTED AMINO ACID AMIDE DERIVATIVES THEIR PREPARATION AND USE AS FUNGICIDES

Thomas Seitz, and Heinz-Wilhelm Dehne, both of Monheim, Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Germany

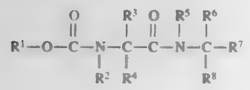
Filed Jan. 16, 1992, Ser. No. 821,674

Claims priority, application Germany, Jan. 24, 1991, 41 02 042.1

Int. Cl.[6] C07C *261/00*

U.S. Cl. 560—27 **1 Claim**

1. An amino acid amid derivative of the formula (I)



(I)

wherein

R^1 represents methyl; ethyl; n- and i-propyl; n-, i-, s- and t-butyl; fluoromethyl; fluoroethyl; fluoropropyl; chloropropyl; fluorobutyl; chlorobutyl; difluoromethyl; difluoropropyl; dichloropropyl; difluorobutyl; dichlorobutyl; trifluoromethyl; trichloromethyl; trifluoroethyl; trichloroethyl; trifluoropropyl; trichloropropyl; trifluorobutyl; trichlorobutyl; allyl; butenyl; propargyl; butynyl; fluoro- or chloroallyl; fluoro- or chlorobutenyl; fluoro- or chloropropargyl; fluoro- or chlorobutynyl; cyclopropyl; cyclopentyl; cyclohexyl; cyclopentenyl; cyclohexenyl; phenyl; or phenyl monosubstituted to disubstituted by identical or different substitutents selected from the group consisting of methyl, ethyl, n- and i-propyl, n-, i-, s- and t-butyl, methoxy, ethoxy, i- and n-propoxy, n-, i-, s- and t-butoxy, trifluoromethyl, difluoromethyl, pentafluoroethyl, tetrafluoroethyl, trifluorochloroethyl, trifluoroethyl, trifluoroethoxy, difluoromethoxy, pentafluoroethoxy, tetrafluoroethoxy, trifluorochloroethoxy, trifluoromethoxy, trifluoromethylthio, chlorine, bromine, and fluorine;

R^2 and R^5 represent hydrogen;

R^3 and R^4 are identical or different and represent hydrogen; methyl; ethyl; n- or i-propyl; n-, i-, s- or t-butyl; 3-pentyl; cyclopropyl; cyclopentyl; or cyclohexyl; or

R^3 and R^4 together with the carbon atom to which they are bonded form a cyclopropyl, cyclopentyl, or cyclohexyl ring;

R^6 represents hydrogen; methyl; ethyl; n- and i-propyl; and

R^7 and R^8 are identical or different and represent phenyl; pyridyl; furanyl; thienyl; or phenyl substituted by a substituent selected from the group consisting of methyl, ethyl, n- and i-propyl, n-, i-, s- and t-butyl, methoxy, ethoxy, i- and n-propoxy, n-, i-, s- and t-butoxy, trifluoromethyl, difluoromethyl, pentafluoroethyl, tetrafluoroethyl, trifluorochloroethyl, trifluoroethyl, trifluoroethoxy, difluoromethoxy, pentafluoroethoxy, tetrafluoroethoxy, trifluorochloroethoxy, trifluoromethoxy, trifluoromethylthio, chlorine, bromine, fluorine, nitro, and cyano; or pyridyl, furanyl or thienyl substituted by a substituent selected from the group consisting of chlorine, fluorine, bromine and methyl;

with the exception of the compound [1-[[(diphenylmethyl)-amino]carbonyl]-2 -methylpropyl] -1,1-dimethylethylcarbamate.

5,723,647

N-(4-BROMO-2-FLUOROBENZYL)CARBAMATES AND A PROCESS FOR THEIR PREPARATION

Norbert Beye, Kelkheim, and Karl-Ernst Mack, Wiesbaden, both of Germany, assignors to Hoechst Aktiengesellschaft, Germany

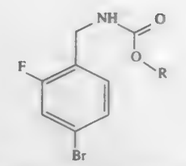
Filed Sep. 20, 1996, Ser. No. 717,013

Claims priority, application Germany, Sep. 21, 1995, 195 35 083.9

Int. Cl.[6] C07C *271/10*

U.S. Cl. 560—30 **11 Claims**

1. An N-(4-bromo-2-fluorobenzyl)carbamate of the formula (I),



(I)

where R is (C_1–C_{12})alkyl, benzyl or phenyl, where the benzyl and phenyl radicals can also be substituted by (C_1–C_3)alkyl or (C_1–C_3)alkoxy.

5,723,648

INTERMEDIATES FOR ANTI-MICROBIAL BENZOHETEROCYCLIC COMPOUNDS

Hiraki Ueda, Mishima; Hisashi Miyamoto; Hiroshi Yamashita, both of Tokushima, and Hitoshi Tone, Itano, all of Japan, assignors to Otsuka Pharmaceutical Company, Limited, Tokyo-to, Japan

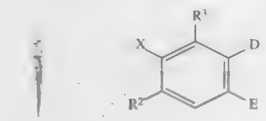
Division of Ser. No. 179,239, Apr. 8, 1988, Pat. No. 5,563,138. This application Jul. 5, 1996, Ser. No. 676,034

Claims priority, application Japan, Apr. 16, 1987, 62-94198; Apr. 24, 1987, 62-102351; Apr. 30, 1987, 62-108361; May 22, 1987, 62-126598; Jun. 16, 1987, 62-149544; Jul. 14, 1987, 62-176126; Nov. 9, 1987, 62-283776; Nov. 12, 1987, 62-287108

Int. Cl.[6] C07C *229/34;69/66*

U.S. Cl. 560—38 **5 Claims**

1. A compound of the formula:

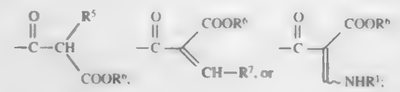


wherein X is a halogen atom,

R^1 is a lower alkyl group; R^2 is a halogen atom or a 5- to 9-membered saturated or unsaturated heterocyclic group that may be substituted; E is a halogen atom;

and

D is a group of the formula:



wherein R^5 is a group of the formula: —COR^{10} (R^{10} is a lower alkyl group) or a group of the formula: —$COOR^{11}$ (R^{11} is a lower alkyl group), R^6 is a lower alkyl group, R^7 is a group of the formula: —$NR^{12}R^{13}$ (R^{12} and R^{13} are each a lower alkyl group) or a lower alkoxy group, R^1 is a cyclopropyl group that may be substituted by 1 to 3 of substituents selected from the group consisting of a lower alkyl group and a halogen atom, a phenyl group that may be substituted by 1 to 3 of substituents selected from the group consisting of a lower alkoxy group, a halogen atom and a hydroxy group, a lower alkyl group that may be substituted by a halogen atom, a lower alkanoyloxy group or a hydroxy group, a lower alkenyl group, or a thienyl group.

5,723,649

PREPARATION OF CYCLOPROPANE ESTERS

Martin Charles Bowden, Brighouse, and Stephen Martin Brown, Cumberworth, both of United Kingdom, assignors to Zeneca Limited, London, England

PCT No. PCT/GB95/02570, § 371 Date Jan. 31, 1997, § 102(e) Date Jan. 31, 1997, PCT Pub. No. WO96/16018, PCT Pub. Date May 30, 1996

PCT Filed Nov. 2, 1995, Ser. No. 776,549

Claims priority, application United Kingdom, Nov. 24, 1994, 9423743

Int. Cl.[6] C07C *69/74*

U.S. Cl. 560—124 **4 Claims**

1. A process for the preparation of a lower alkyl ester of 3-(2-chloro-3,3,3-trifluoroprop-1-en-1-yl)-2,2-dimethylcyclopropane carboxylic acid in which the corresponding lower alkyl ester of a carboxylic acid selected from 6-bromo-6-chloro-3,3-dimethyl-7,7,7-trifluorohept- 2-enoic acid and 6,6-dichloro-3,3-dimethyl-7,7,7-trifluorohept- 2-enoic acid is treated with an alkali metal lower alkoxylate in the presence of an aromatic hydrocarbon solvent under conditions under which the lower alcohol of the alkoxylate is removed from the reaction mixture by distillation with the aromatic solvent.

5,723,650

CYCLOHEXANE TRICARBOXYLIC ACID DERIVATIVE AND METHOD FOR THE PREPARATION THEREOF

Takuji Hirose, Tsukuba; Kazuyuki Kasuga, Tsuchiura; Hideki Sugihara, Tsukuba; Yuichiro Himeda, Tsukuba; Zhen-He Wang, Tsukuba, and Bruce Baldwin, Tsukuba, all of Japan, assignors to Japan as represented by Director General of Agency of Industrial Science and Technology, Tokyo, Japan

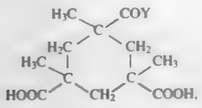
Filed Feb. 13, 1996, Ser. No. 600,737

Claims priority, application Japan, Feb. 27, 1995, 7-038460

Int. Cl.[6] C07C *69/74*

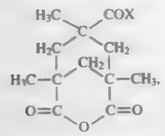
U.S. Cl. 560—127 **9 Claims**

9. A method for the preparation of a monoester or monoamide compound of of 1,3,5-trimethyl-1,3,5-cyclohexane tricarboxylic acid represented by the formula



in which Y is a group of the formula —OR or —NHR, R being a monovalent hydrocarbon group or an oxygen-containing monovalent hydrocarbon group, which comprises the steps of:

(a) mixing a 1,3,5-trimethyl-1,3,5-cyclohexane tricarboxylic acid anhydride halide represented by the formula



in which X is an atom of halogen, and a compound represented by the formula

Y—H,

in which Y has the same meaning as defined above, in the presence of a dehydrohalogenating agent to give a dehydrohalogenation product; and

(b) subjecting the dehydrohalogenation product obtained in step (a) to a hydrolysis reaction on the acid anhydride group.

5,723,651

PROCESS FOR PRODUCING α-L-ASPARTYLDIPEPTIDE AMIDE DERIVATIVES

Toyoto Hijiya; Tadashi Takemoto; Ryoichiro Nakamura; Yusuki Amino, and Naoko Sugiyama, all of Kawasaki, Japan, assignors to Ajinomoto Co., Inc., Tokyo, Japan

Filed Dec. 28, 1995, Ser. No. 579,975

Claims priority, application Japan, Dec. 28, 1994, 6-327094; Aug. 24, 1995, 7-215940

Int. Cl.[6] C07C *229/00*

U.S. Cl. 560—169 **9 Claims**

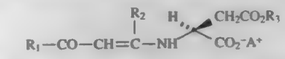
1. A process for producing α-L-aspartyldipeptide amide derivatives, which comprises the steps of:

(a) preparing an L-aspartic acid derivative of formula (1) by reacting

(i) an L-aspartic acid β-alkyl ester;

(ii) a base; and

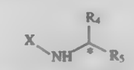
(iii) a β-diketone or an acetoacetic acid ester;



(1)

wherein R_1 is an alkyl or alkoxy group with 1 to 4 carbon atoms or an aromatic group with 6 to 10 carbon atoms; R_2 is an alkyl group with 1 to 4 carbon atoms or an aromatic group with 6 to 10 carbon atoms; R_3 is an alkyl group with 1 to 4 carbon atoms or a benzyl group; and A is a protonated tertiaryamine, a dicyclohexylamine, or an alkaline metal;

(b) mixing the L-aspartic acid derivative of formula (1) with alkyl chloroformate and with an amino acid amide derivative of formula (2):



(2)

wherein R_4 is an alkyl group with 1 to 6 carbon atoms or an alkoxymethyl group with 2 to 7 carbon atoms; R_5 is a benzyl group, a cyclohexyl group, a cyclohexylmethyl group, a phenyl group, or a phenyl group with a substituent in its 2-, 3- or 4-position selected from F, Cl, Br, I, a hydroxyl group, an alkoxy group with 1 to 6 carbon atoms, a cyano group, a nitro group, an acetyl group, an amino group, an acetylamino group, or R_5 is a phenyl group with a methylenedioxy group, a trimethylene group, or a tetramethylene group in its 2, 3 or 3,4-position, or R_5 is a 2-, 3- or 4-pyridyl group, a 2- or 3-furyl group, or a 2- or 3 -thienyl group; when R_4 is an alkylkoxymethyl group the configuration of C* is (R), (S), or (RS);

when R_4 is an alkyl group and R_5 is a benzyl group, a cyclohexyl group, a cyclohexylmethyl group, or a phenyl group X is a D-α-amino acid residue or a DL-α-amino alloisoleucine, D-threonine, D-0-methylthreonine, D-allothreonine, D-0-methylallothreonine, D- or DL-furylglycine, or a cyclic or non-cyclic, α,α-dialkyl amino acid residue with 3 to 6 carbon atoms; when 1) R_4 is an alkyl group and R_5 is a phenyl group with a substituent in its 2-, 3- or 4-position selected from the group consisting of F, Cl, Br, I, hydroxyl group, alkoxy group with 1 to 6 carbon atoms, cyano group, nitro group, acetyl group, amino group, acetylamino group, or a phenyl group with methylenedioxy, trimethylene or tetramethylene groups in its 2, 3- or 3,4-position, or 2-, 3- or a 4-pyridyl group, a 2- or 3 -furyl group or a 2- or 3-thienyl group or 2) R_5 is an alkoxymethyl group X is a D-α-amino acid residue or a DL-α-amino acid residue selected from the group consisting of D-alanine, D-α-aminobutyric acid, D-norvaline, D-valine, D-norleucine, D-leucine, D-isoleucine, D-alloisoleucine, D-t-leucine, D-serine, D-0-methylserine, D-threonine, D-0-methylthreonine, D-allothreonine, D-0-methylallothreonine, D-phenylglycine, D- or DL-furylglycine, or a cyclic or non-cyclic α,α-dialkylamine acid residue with 3 to 6 carbon atoms;

and wherein L-Asp and x are α-bonded; and

(c) hydrolyzing the resulting product under acidic conditions.

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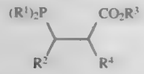
5,723,652

OPTICALLY ACTIVE MONOPHOSPHINO CARBOXYLIC ACID DERIVATIVE

Tohru Minami, Munakata, Japan, assignor to Nissan Chemical Industries, Ltd., Tokyo, Japan

Filed Jun. 26, 1996, Ser. No. 672,036
Claims priority, application Japan, Jun. 28, 1995, 7-162584
Int. Cl.[6] C07C 69/67;59/11
U.S. Cl. 560—179 5 Claims

1. A composition comprising an enantiomeric excess of at least one isomer of a compound of formula (I):



(I)

wherein

R^1 represents a C_{1-6} alkyl group or a phenyl group which may be optionally substituted with a C_{1-4} alkyl group or C_{1-4} alkoxy group;

R^2 represents a C_{1-4} alkyl group; and

R^3 and R^4 each represents, independently, a hydrogen atom, C_{1-4} alkyl group or a phenyl group which may be optionally substituted with a C_{1-4} alkyl or C_{1-4} alkoxy group.

5,723,653

LIQUID RHEOLOGICAL ADDITIVES PROVIDING RHEOLOGICAL PROPERTIES TO NON-AQUEOUS SYSTEMS

Mahalingam Santhanam, E. Windsor, N.J., assignor to Rheox, Inc., Hightstown, N.J.

Filed Dec. 9, 1996, Ser. No. 761,870
Int. Cl.[6] C07C 69/34
U.S. Cl. 560—196 13 Claims

1. A liquid rheological additive for organic systems which when free of diluent is pourable at ambient temperature which imparts thixotropy to such systems, comprising the reaction product of:

a) One or more active hydrogen compounds, wherein the active hydrogen compound contains at least two active hydrogen moieties; and

b) One or more compounds containing at least two moieties which are capable of reacting with the active hydrogen moieties of (a); and after the reaction of compounds a) and b) is complete, reacting

c) one or more compounds different than the compounds of a) and b) containing at least three moieties at least one moiety of which is capable of reacting with the reaction product of (a) and (b).

5,723,654

PROCESS FOR THE PREPARATION OF ALKYL 2-FLUORO-ISOBUTYRATES

Achim Bertsch, Köln, Germany, assignor to Bayer Aktiengeselischaft, Leverkusen, Germany

Filed Jun. 17, 1996, Ser. No. 668,493
Claims priority, application Germany, Jun. 22, 1995, 195 22 703.4
Int. Cl.[6] C07C 69/63
U.S. Cl. 560—227 7 Claims

1. A process for the preparation of an alkyl 2-fluoro-isobutyrate of the formula (I)

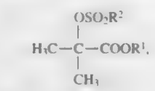


(I)

in which

R^1 denotes an unbranched or branched, unfluorinated or fluorinated alkyl radical having 1 to 4 carbon atoms,

in which a sulfonic ester of the formula (II)



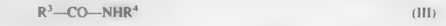
(II)

in which

R^1 has the meaning given under formula (I) and

R^2 independently of R^1, has the same scope of meanings as R^1,

is reacted with potassium fluoride in a solvent of the formula (III)



(III)

in which

R^3 and R^4, independently of each other, each denote hydrogen, phenyl or alkyl having 1 to 4 carbon atoms.

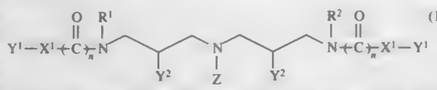
5,723,655

AMINE COMPOUND AND DETERGENT COMPOSITION CONTAINING THE SAME

Mitsuru Uno; Tomohito Kitsuki, both of Wakayama, and Katsumi Kita, Izumisano, all of Japan, assignors to Kao Corporation, Tokyo, Japan

PCT No. PCT/JP95/00988, § 371 Date Jan. 7, 1996, § 102(e) Date Jan. 7, 1996, PCT Pub. No. WO96/01805, PCT Pub. Date Jan. 25, 1996
PCT Filed May 23, 1995, Ser. No. 750,981
Claims priority, application Japan, Jul. 8, 1994, 6-157553; Jul. 8, 1994, 6-157554
Int. Cl.[6] C07C 229/26;229/30;233/36;235/10
U.S. Cl. 562—58 6 Claims

1. An amine compound represented by the following general formula (1):



(1)

wherein R^1 and R^2 are the same or different from each other and represent individually a linear or branched alkyl or alkenyl group which may be substituted by a hydroxyl group and has 1–24 carbon atoms, X^1 represents an alkylene or alkenylene group which may be substituted by at least one hydroxyl, sulfonic or carboxyl group and has 1–6 carbon atoms, Y^1 represents a carboxyl or sulfonic group, or a sulfuric acid residue, Y^2 represents a hydroxyl group, a sulfuric acid residue or a group —OCO—X^1—COOH, Z represents a sulfoalkyl group or a group obtained by removing an amino group from an amino acid or a salt thereof, and n represents a number of 0 or 1, or a salt or quaternized product thereof.

5,723,656

PROCESS FOR PREPARING AROMATIC CARBOXYLIC ACIDS WITH EFFICIENT ENERGY RECOVERY

Kenneth J. Abrams, Naperville, Ill., assignor to Amoco Corporation, Chicago, Ill.

Continuation of Ser. No. 323,047, Oct. 19, 1994, abandoned.
This application Feb. 22, 1996, Ser. No. 603,888
Int. Cl.[6] C07C 51/16
U.S. Cl. 562—412 15 Claims

1. A continuous process for preparing aromatic carboxylic acids by the exothermic liquid-phase oxidation reaction of an aromatic feedstock compound wherein energy is efficiently recovered from the exothermic liquid-phase oxidation reaction, which process comprises:

(a) oxidizing an aromatic feedstock compound to an aromatic carboxylic acid in a liquid-phase reaction mixture comprising water, a low-molecular weight monocarboxylic acid solvent, a heavy metal oxidation catalyst and a source of molecular oxygen, under reaction conditions which produce a gaseous high pressure overhead stream comprising water, gaseous by-products, and gaseous low-molecular weight monocarboxylic acid solvent;

(b) removing in a high efficiency separation apparatus at least about 95 wt. % of the low-molecular weight monocarboxylic acid solvent from the gaseous high pressure overhead stream from the liquid-phase oxidation reaction to form a second gaseous high pressure overhead stream comprising water and gaseous by-products formed during the oxidation reaction; and

(c) directing the second gaseous high pressure overhead stream to a means for recovering energy from the second high pressure overhead stream.

5,723,657

Patent Not Issued For This Number

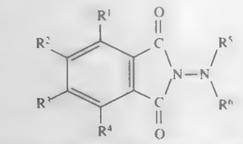
5,723,658

PROCESS FOR THE PREPARATION OF SALTS OF SUBSTITUTED OR UNSUBSTITUTED PHTHALIC ACIDS

Ralf Pfirmann, Griesheim, and Theodor Papenfuhs, Frankfurt, both of Germany, assignors to Hoechst Aktiengesellschaft, Germany

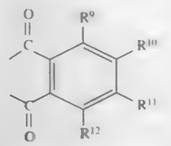
Filed May 2, 1996, Ser. No. 641,757
Claims priority, application Germany, May 2, 1995, 195 15 986.1
Int. Cl.[6] C07C 63/16;63/17
U.S. Cl. 562—480 23 Claims

1. A process for the preparation of salts of substituted or unsubstituted phthalic acids, which comprises reacting a compound of the formula



(1)

in which R^1, R^2, R^3 and R^4 are identical or different and are H, F, Cl, Br, CF_3, OH, an alkoxy or alkyl radical in each case having 1 to 4 carbon atoms, or a radical —NR^7R^8, in which R^7 and R^8 are identical or different and are H, an alkyl radical having 1 to 4 carbon atoms, or a phenyl radical, R^5 and R^6 are identical or different and are H, a —CO—alkyl group having 1 to 6 carbon atoms in the alkyl radical, or a benzoyl group, or R^5 and R^6 together form a radical of the formula



(2)

in which R^9, R^{10}, R^{11} and R^{12} are identical or different and are E, F, Cl, Br, CF_3, OH, an alkoxy or alkyl radical in each case having 1 to 4 carbon atoms, or a radical —NR^7R^8, in which R^7 and R^8 are identical or different and are H, an alkyl radical having 1 to 4 carbon atoms, or a phenyl radical, with water, a water-soluble base and an oxidizing agent at a temperature of −10° to 150° C. in the presence or absence of a water-insoluble solvent inert under the reaction conditions.

5,723,659

PROCESS FOR THE PURIFICATION OF AROMATIC POLYCARBOXYLIC ACIDS

James F. White, Hudson, Ohio, assignor to Engelhard Corporation, Iselin, N.J.

Continuation of Ser. No. 542,229, Nov. 6, 1995, which is a continuation of Ser. No. 360,855, Dec. 20, 1994, abandoned.
This application Feb. 3, 1997, Ser. No. 794,103
Int. Cl.[6] C07C 51/42
U.S. Cl. 562—485 8 Claims

1. A process for the purification of impure aromatic polycarboxylic acids produced by the catalytic oxidation of polyalkylaromatic hydrocarbons which comprises contacting said impure acid with hydrogen and at least one supported hydrogenation catalyst, wherein said supported catalyst is coated with at least one water insoluble and non-brittle layer of at least one polymeric material.

5,723,660

PROCESS FOR PRODUCING ACETIC ACID

Yoshiaki Morimoto; Hiroyuki Nakayama, both of Niigata, and Takashi Ueno, Hiroshima, all of Japan, assignors to Daicel Chemical Industries, Ltd., Osaka, Japan

PCT No. PCT/JP96/01087, § 371 Date Dec. 13, 1996, § 102(e) Date Dec. 13, 1996, PCT Pub. No. WO96/33965, PCT Pub. Date Oct. 31, 1996
PCT Filed Apr. 22, 1996, Ser. No. 765,344
Claims priority, application Japan, Apr. 24, 1995, 7-104027
Int. Cl.[6] C07C 51/12;51/10
U.S. Cl. 562—519 1 Claim

1. A process for producing acetic acid by reacting continuously at least one selected from methanol, methyl acetate and dimethyl ether with carbon monoxide in the presence of an eighth group metal-containing catalyst, methyl iodide and water, comprising:

(a) a step in which a crude reaction liquid is withdrawn from a carbonylation step and introduced into a flash zone, and a catalyst circulating liquid containing a catalyst component which is not evaporated in the flash zone is circulated into a carbonylation reactor,

(b) a step in which a vapor fraction evaporated in the flash zone is fed into a first distillation column in the form of vapor and/or liquid,

(c) a step in which a low boiling circulating stream comprising water, methyl acetate, methyl iodide, and acetic acid is withdrawn from the top of the first distillation column, and

(d) a step in which crude acetic acid is withdrawn from the bottom or the side cut near the bottom of the first distillation column, wherein a liquid separation state in a decanter at the top of the first distillation column is maintained by reducing the concentration of methyl acetate contained in a liquid fed into the decanter at the top of the first distillation column to 40 wt % or less.

5,723,661

PROCESS FOR PREPARING CALCIUM PYRUVATE AND ITS HYDRATES

Curt Zimmermann, Mauthausen, and Kurt Weissenböck, Enns, both of Austria, assignors to DSM Chemie Linz GmbH, Linz, Austria

Filed Mar. 11, 1997, Ser. No. 814,410
Claims priority, application Austria, Mar. 11, 1996, A448/96
Int. Cl.[6] C07C 59/19
U.S. Cl. 562—577 7 Claims

1. A process for preparing high-purity calcium pyruvate or its hydrates by reacting an aqueous solution of pyruvic acid with an inorganic calcium compound with the pH being set to 2 to 7 which comprises reacting an up to 10% strength aqueous solution of pyruvic acid with the calcium compound, in the presence or absence of a stabilizer or complexing agent, and mixing the resulting solution With an organic diluent at temperatures of 0° to 30° C.

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and isolating the resulting precipitate of calcium pyruvate or its hydrate from the solution.

5,723,662

PROCESS FOR PREPARING A PARTICULARLY PURE GLYCOLIC ACID

Frank Ebmeyer, Augsburg; Harald Häberlein, deceased, late of Neusäss; by Hans Harald Häberlein, heir, Neu-Ulm; by Jörg Thomas Häberlein, heir, Allersberg; by Mark Christian Häberlein, heir, Freiburg, and Holger Mohn, Gelnhausen-Hailer, all of Germany, assignors to Hoechst Aktiengesellschaft, Germany

Filed Jan. 9, 1997, Ser. No. 780,983

Claims priority, application Germany, Jan. 10, 1996, 196 00 620.1

Int. Cl.[6] C07C *59/00*

U.S. Cl. 562—579 **3 Claims**

1. A process for preparing a particularly pure glycolic acid by saponification with chloroacetic acid with an excess of alkali metal hydroxide, with the resulting alkali metal chloride being filtered off, which comprises subsequently subjecting the 20 to 70% strength by weight glycolic acid solution to an electrodialysis at 20° to 40° C. and a cell voltage of 0.5 to 2.5 V per cell pair.

5,723,663

PREPARATION OF THIOAMIDES

Arthur Jackson, Washington; Graham Heyes; David Holmes, both of Durham, and Craig Morgan, Billingham, all of England, assignors to Fine Organics, Ltd., England

Filed Aug. 8, 1995, Ser. No. 512,662

Claims priority, application United Kingdom, Dec. 8, 1994, 9416364

Int. Cl.[6] C07C *333/02*

U.S. Cl. 564—78 **21 Claims**

1. A process for the preparation of an aliphatic thioamide, comprising reacting in a water miscible polar solvent, an aliphatic nitrile compound of the general formula:

$$R_1R_2R_3C—CN$$

wherein R_1, R_2 and R_3 each denotes a hydrogen atom or an alkyl radical containing from 1 to 5 carbon atoms, with hydrogen sulphide, in the presence of a catalytic amount of an aliphatic primary amine of the general formula:

$$R_4R_5R_6N$$

wherein R_4 denotes an alkyl radical containing from 1 to 5 carbon atoms and R_5 and R_6 each denotes a hydrogen atom.

5,723,664

METHOD OF PREPARING SULFONIMIDE OR ITS SALT

Hiroaki Sakaguchi; Kenji Fujii; Shigenori Sakai; Yoshiyuki Kobayashi, and Yasushi Kita, all of Ube, Japan, assignors to Central Glass Company, Limited, Yamaguchi, Japan

Filed Sep. 7, 1995, Ser. No. 525,439

Claims priority, application Japan, Sep. 12, 1994, 6-217532

Int. Cl.[6] C07C *303/38*

U.S. Cl. 564—82 **14 Claims**

1. A method of preparing a sulfonimide represented by the general formula (1), a first salt thereof represented by the general formula (2), or a second salt thereof represented by the general formula (3), the method comprising the step of:

(a) reacting one or two sulfonyl fluorides represented by the general formula (4) with nonhydrous ammonia and an amine component which is one of a tertiary amine represented by the general formula (5) and a heterocyclic amine, so as to prepare said first salt,

$$H[Rf^1SO_2—N—SO_2Rf^2] \quad (1)$$

wherein "Rf^1" and "Rf^2" represent the same or different groups each of which has a carbon atom number from 1 to 12 and is straight-chain or branched-chain and one selected from the group consisting of perfluoroalkyl groups, fluoroalkyl groups, fluoroalkenyl groups and fluoroallyl groups,

$$M^1[Rf^1SO_2—N—SO_2Rf^2]_{n1} \quad (2)$$

wherein "Rf^1" and "Rf^2" are defined as above; "M^1" represents a positive ion having a first valence; and "n1" represents an integer that is the same as said first valence,

$$M^2[Rf^1SO_2—N—SO_2Rf^2]_{n2} \quad (3)$$

wherein "Rf^1" and "Rf^2" are defined as above; "M^{2+}" represents an alkali or alkali earth metal atom having a second valence; and "n2" represents an integer that is the same as said second valence,

$$RfSO_2F \quad (4)$$

wherein "Rf" represents the same or different groups which are identical with said "Rf^1" and said "Rf^2",

$$(R_1)_3N \quad (5)$$

wherein "R^1" represents the same or different alkyl groups each having a carbon atom number from 1 to 5.

5,723,665

ETHENYL AMIDE COMPOUND PRODUCTION PROCESS

Shozo Kato; Shigeo Tamura; Toshio Kitajima, and Noriyuki Fukada, all of Tokuyama, Japan, assignors to Tokuyama Corporation, Yamaguchi-ken, Japan

Filed Nov. 15, 1996, Ser. No. 749,542

Claims priority, application Japan, Nov. 15, 1995, 7-297099

Int. Cl.[6] C07C *231/02*

U.S. Cl. 564—142 **11 Claims**

1. A process for producing an ethenyl amide compound, which comprises reacting a Schiff base compound having a carbon atom adjacent to a carbon atom constituting an imino group and at least one hydrogen atom on the carbon atom with an acylhalide at a reduced pressure while removing by-produced hydrogen halide by distillation to produce an ethenyl amide compound having an amide bond in the molecule and a double bond between carbons at α-position and β-position with respect to the nitrogen atom of the amide bond.

5,723,666

OXIME SUBSTITUTED TETRAHYDRONAPHTHALENE DERIVATIVES HAVING RETINOID AND/OR RETINOID ANTAGONIST-LIKE BIOLOGICAL ACTIVITY

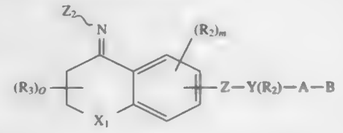
Vidyasagar Vuligonda, Irvine; Richard L. Beard, Newport Beach; Alan T. Johnson, Rancho Santa Margarita; Min Teng, Aliso Viejo; Tai K. Song, Long Beach, and Roshantha A. Chandraratna, Mission Viejo, all of Calif., assignors to Allergan, Waco, Tex.

Filed Jun. 21, 1996, Ser. No. 667,215

Int. Cl.[6] C07C *249/00;251/00;263/00;291/00;229/00;* **C07F** *7/04*

U.S. Cl. 564—253 **36 Claims**

1. A compound of the formula



wherein X_1 is $[C(R_1)_2]_n$ where R_1 is independently H or alkyl of 1 to 6 carbons, and n is an integer between 0 and 2;

Z is

—N=N—,
—N(O)=N—,
—N=N(O)—,
—N=CR_1—,
—CR_1=N—;
—(CR_1=CR_1)$_{n'}$— where n' is an integer having the value 0–5,
—CO—NR_1—,
—CS—NR_1—,
—NR_1—CO,
—NR_1—CS,
—COO—,
—OCO—;
—CSO—;
—OCS—;
—CO—CR_1=CR_1—;

R_2 is hydrogen, lower alkyl of 1 to 6 carbons, F, Cl, Br, I, CF_3, fluoro substituted alkyl of 1 to 6 carbons, OH, SH, alkoxy of 1 to 6 carbons, or alkylthio of 1 to 6 carbons;

R_3 is hydrogen, lower alkyl of 1 to 6 carbons or F;

m is an integer having the value of 0–3;

o is an integer having the value of 0–4;

Y is a phenyl or naphthyl group, or heteroaryl selected from a group consisting of pyridyl, thienyl, furyl, pyridazinyl, pyrimidinyl, pyrazinyl, thiazolyl, oxazolyl, imidazolyl and pyrrazolyl, said phenyl and heteroaryl groups being unsubstituted substituted with one or two R_2 groups, or

when Z is —(CR_1=CR_1)$_{n'}$— and n' is 3, 4 or 5 then Y represents a direct valence bond between said (CR_2=CR_2)$_{n'}$ group and B;

A is $(CH_2)_q$ where q is 0–5, lower branched chain alkyl having 3–6 carbons, cycloalkyl having 3–6 carbons, alkenyl having 2–6 carbons and 1 or 2 double bonds, alkynyl having 2–6 carbons and 1 or 2 triple bonds;

B is hydrogen, COOH or a pharmaceutically acceptable salt thereof, $COOR_8$, $CONR_9R_{10}$, —CH_2OH, CH_2OR_{11}, CH_2OCOR_{11}, CHO, $CH(OR_{12})_2$, $CHOR_{13}O$, —COR_7, $CR_7(OR_{12})_2$, $CR_7OR_{13}O$, or $Si(C_{1\text{-}6}alkyl)_3$, where R_7 is an alkyl, cycloalkyl or alkenyl group containing 1 to 5 carbons, R_8 is an alkyl group of 1 to 10 carbons or trimethylsilylalkyl where the alkyl group has 1 to 10 carbons, or a cycloalkyl group of 5 to 10 carbons, or R_8 is phenyl or lower alkylphenyl, R_9 and R_{10} independently are hydrogen, an alkyl group of 1 to 10 carbons, or a cycloalkyl group of 5–10 carbons, or phenyl or lower alkylphenyl, R_{11} is lower alkyl, phenyl or lower alkylphenyl, R_{12} is lower alkyl, and R_{13} is divalent alkyl radical of 2–5 carbons, and

Z_2 is OR_1or OR_{18} where R_{18} is phenyl, benzyl, lower alkyl or lower alkoxy substituted phenyl, or Z_2 is $OSi(R_2)_3$, $OCOR_{14}$, $OC(R_{15})(R_{16})X_2R_{17}$, $N(R_{14})_2$, $NHCON(R_{14})_2$, $NHCSN(R_{14})_2$, where X_2 is O or S; R_{14} is hydrogen, alkyl of 1 to 10 carbons, alkenyl of 2 to 10 carbons and having 1 to 3 double bonds, alkynyl having 2 to 10 carbons and 1 to 3 triple bonds, carbocyclic aryl selected from the group consisting of phenyl, C_1–C_{10}-alkylphenyl, naphthyl, C_1–C_{10}-alkylnaphthyl, phenyl-C_1–C_{10}alkyl, naphthyl-C_1–C_{10}alkyl; R_{15} and R_{16} are hydrogen or lower alkyl of 1 to 6 carbons, R_{17} is lower alkyl of 1 to 6 carbons, or R_{16} and R_{17} jointly form a ring having a total of 4 to 5 carbons and the X_2 heteroatom.

5,723,667

METHOD OF PRODUCING OPTICALLY ACTIVE TERT-LEUCINOL AND ITS USE

Karlheinz Drauz, Freigericht; Wilfried Jahn, Gelnhausen, and Michael Schwarm, Alzenau, all of Germany, assignors to Degussa Aktiengesellschaft, Germany

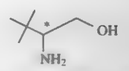
Filed Feb. 21, 1996, Ser. No. 603,553

Claims priority, application Germany, Feb. 21, 1995, 195 05 994.8

Int. Cl.[6] C07C *209/88;215/08;* **C07B** *57/00*

U.S. Cl. 564—302 **20 Claims**

1. A method of producing optically active tert-leucinol (formula I)



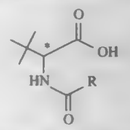
(I)

in which * signifies a chirality center, said method comprising

converting racemic (RS)-tert-leucinol into a diastereomeric salt pair by reaction with an optically active acid;

removing said salt pair from solution by fractionated crystallization and separating therefrom the optically active acid, thereby releasing the optically active tert-leucinol from said salt pair;

wherein an N-acylated tert-leucine of general formula VIII is used as the optically active acid



(VIII)

in which R can be hydrogen or an alkyl-, arylalkyl- or aryl group with up to 20 C atoms optionally substituted with or containing heteroatoms, and * signifies a chirality center.

5,723,668

METHOD OF SEPARATING THE RACEMATE OF TRAMADOL

Helmut Buschmann; Werner Winter, both of Aachen; Ivars Graudums, Stolberg, and Peter Jansen, deceased, late of Eschweiler, all of Germany, by Ursula Jansen, heiress, assignors to Gruenenthal GmbH, Aachen, Germany

Filed Dec. 31, 1996, Ser. No. 775,396

Claims priority, application Germany, Jan. 19, 1996, 196 01 745.9

Int. Cl.[6] C07B *57/00*

U.S. Cl. 564—304 **9 Claims**

1. A method of separating a racemate of tramadol into (−)-tramadol enantiomer and (+)-tramadol enantiomer fractions, said method comprising the steps of:

converting a racemic tramadol salt into a racemic tramadol free base solution;

separating (−)-tramadol enantiomer from the racemic free base solution by selective precipitation thereof with L-(+)-tartaric acid to leave a mother liquor containing (+)-tramadol enantiomer;

releasing (+)-tramadol enantiomer free base from the mother liquor; and

converting the (+)-tramadol enantiomer free base into a non-tartrate salt.

5,723,669

ARYLAMINE PROCESSES

H. Bruce Goodbrand, Hamilton; Nan-Xing Hu, Oakville, and Beng S. Ong, Mississauga, all of Canada, assignors to Xerox Corporation, Stamford, Conn.

Filed Jan. 30, 1997, Ser. No. 791,694

Int. Cl.[6] C07C *209/10*

U.S. Cl. 564—307 **25 Claims**

1. A process for the preparation of N, N-bis(3,4-dimethylphenyl)-4-biphenylamine which comprises the reaction of N,N-bis(3,4-dimethylphenyl)amine and an iodobiphenyl in the presence of a ligand copper catalyst, and wherein the ligand is selected from the group consisting of monodentate tertiary amines and bidentate tertiary amines, and which reaction is accomplished at a temperature of from about 120° C. to about 150° C.

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5,723,670

LIQUID AMINES

Rick L. Adkins, New Martinsville, and William E. Slack, Moundsville, both of W. Va., assignors to Bayer Corporation, Pittsburgh, Pa.

Filed Jun. 18, 1996, Ser. No. 665,751
Int. Cl.[6] C07C *209/10*
U.S. Cl. 564—404 **5 Claims**

1. A process for the production of a liquid aromatic amine comprising reacting

1) an amine represented by the formula

$$R^3R^2R^1C_6H_2NH_2$$

in which

R^1 and R^2 each represents hydrogen, an alkyl group having from 1 to 10 carbon, alkoxy groups, or halides, and

R^3 represents an NH_2 group, aminophenyl, an alkyl substituted aminophenyl, methylene aniline, an alkyl substituted methylene aniline having from 1 to 10 carbon atoms, a halogen substituted methylene aniline, oxyaniline, an alkyl substituted oxyaniline having from 1 to 10 carbon atoms, a halogen substituted oxyaniline.

which amine is normally solid at ambient temperature and pressure with

a derivatizing agent represented by the formula

$$X—Y$$

in which

X represents a halide group or a sulfonate group, and

Y represents an alkyl group having from 1 to 16 carbon atoms, a cycloalkyl group having from 3 to 12 carbon atoms, an alkoxyalkyl group having from 2 to 52 carbon atoms, an aryl group having from 7 to 12 carbon atoms,

in amounts such that the molar ratio of derivatizing agent 2) to amine groups in 1) is from about 0.25:1 to about 8:1.

5,723,671

ARYLAMINE PROCESSES

H. Bruce Goodbrand, Hamilton; Nan-Xing Hu, Oakville, and Beng S. Ong, Mississauga, all of Canada, assignors to Xerox Corporation, Stamford, Conn.

Filed Jan. 30, 1997, Ser. No. 790,669
Int. Cl.[6] C07C *209/10*
U.S. Cl. 564—405 **27 Claims**

1. A process for the preparation of N,N-bis(3,4-dimethylphenyl)-4-biphenylamine which comprises the reaction of an aminobiphenyl and an iodoxylene in the presence of a ligand copper catalyst, and wherein the ligand is selected from the group consisting of monodentate tertiary amines and bidentate tertiary amines, and which reaction is accomplished at a temperature of from about 120° C. to about 150° C.

5,723,672

PROCESS FOR RACEMIZATION OF OPTICALLY ACTIVE 1-PHENYLETHYLAMINE DERIVATIVE

Shinichiro Nagata, Oita; Yoshimi Yamada, Osaka; Koji Hagiya, Takatsuki, and Hideyuki Goto, Oita, all of Japan, assignors to Sumitomo Chemical Company, Limited, Osaka, Japan

Filed Dec. 5, 1996, Ser. No. 759,633
Claims priority, application Japan, Dec. 7, 1995, 7-318851
Int. Cl.[6] C07C *209/00*
U.S. Cl. 564—424 **5 Claims**

1. A process for racemization of an optically active 1-phenylethylamine derivative represented by the formula [1]:

$$R^1—\underset{\displaystyle CH_3}{\underset{|}{CH}}—NH_2 \qquad [1]$$

wherein R^1 represents a phenyl group substituted at least at the ortho-position, which comprises reacting the optically active 1-phenylethylamine derivative [1] with an aldehyde compound represented by the formula [2]:

$$R^2—CHO \qquad [2]$$

wherein R^2 represents an optionally substituted alkyl group or an optionally substituted phenyl group to form an optically active imine represented by the formula [3]:

$$R^1—\underset{\displaystyle CH_3}{\underset{|}{CH}}—N=CH—R^2 \qquad [3]$$

wherein R^1 and R^2 are as defined above, reacting the imine with an alkaline metal tert-alkoxide in an aprotic polar solvent or a mixture of the aprotic polar solvent and an aprotic nonpolar solvent, and then hydrolyzing the resultant racemic imine.

5,723,673

PROCESS FOR PREPARING AMIDES OF N-ALKYL POLYHYDROXYALKYLS

Junan Kao, Kobe, Japan; Ephraim Lamar Kelly, Batavia, Ohio; Vicki Lynn Weber, Cincinnati, Ohio; Michael Steven Gibson, Loveland, Ohio; Donald Benjamin Appleby; Joseph Fredrich Sherman, both of Cincinnati, Ohio; Ronald Edward Pegoli; Mary Celine Schneider, both of Batavia, Ohio; Terry Franklin Formyduval, and Larry Nelson Hawkins, both of Cincinnati, Ohio, assignors to The Procter & Gamble Company, Cincinnati, Ohio

Filed Jun. 7, 1995, Ser. No. 474,857
Int. Cl.[6] C07H *209/44*
U.S. Cl. 564—487 **19 Claims**

1. In an amide-forming reaction for preparing amides of N-alkylamino polyols comprising reacting a source of fatty acyl groups such as fatty acids, fatty acid anhydrides, and fatty acid esters and an N-alkylamino polyol in an organic hydroxy solvent in the presence of a base catalyst, said reaction being carried out under non-oxidizing conditions, the step of selecting as reactants a source of fatty acyl groups selected from the group consisting of fatty acids, fatty acid anhydrides, fatty acid esters, and mixtures thereof having greater than 98% transmittance at 460 nm and an N-alkylamino polyol having a Gardner Color of less than 1.

5,723,674

Patent Not Issued For This Number

5,723,675

METHOD FOR PREPARING ANTHRAQUINONES

Young J. Joo; Jin-Eok Kim; Jeong-Im Won, and Kum-Ui Hwang, all of Taejeon, Rep. of Korea, assignors to Korea Kumho Petrochemical Co., Ltd., Seoul, Rep. of Korea

Filed Dec. 2, 1996, Ser. No. 758,920
Claims priority, application Rep. of Korea, May 16, 1996, 96-16434
Int. Cl.[6] C07C *45/61*
U.S. Cl. 568—317 **5 Claims**

1. A method for preparing anthraquinones unsubstituted or substituted with at least one C_1–C_4 alkyl group through a [2+4] Diels-Alder reaction of 1,4-naphthoquinone or 1,4-benzoquinone with 1,3-butadienes unsubstituted or substituted with at least one C—C alkyl group and a dehydrogenation of 1,4,4a,9a-tetrahydroanthraquinones obtained from the [2+4] Diels-Alder reaction using a Lewis acid or Broensted acid as an oxidative catalyst for dehydrogenation, the method comprising the step of:

carrying out simultaneously the [2+4] Diels-Alder reaction and the oxidative dehydrogenation in a single pot by using dimethylsulfoxide as a dehydrogenating agent and as a solvent for the [2+4] Diels-Alder reaction.

5,723,676

PROCESS FOR PRODUCING BENZOPHENONE COMPOUNDS

Lee Alan DeWitt; Heng Su, and Chempolil Thomas Mathew, all of Morris County, N.J., assignors to AlliedSignal Inc., Morristown, N.J.

Filed Jul. 1, 1996, Ser. No. 674,293
Int. Cl.[6] C07C *45/42*
U.S. Cl. 568—323 **24 Claims**

1. A process for producing a benzophenone compound comprising the steps of:

(A) mixing a diphenylmethane compound of the formula: $(X_pC_6H_{5-p})CH_2(C_6H_{5-p}X_p)$ wherein X is fluorine, chlorine, bromine, or iodine and p is 0 or 1 with an effective amount of a first reactant and a sufficient amount of water to form a slurry;

(B) heating the slurry formed in step (A);

(C) adding an effective amount of a second reactant to the heated slurry in order to form a reaction mixture;

(D) reacting the reaction mixture at a temperature of from about 70° to about 200° C. and for a time sufficient to form a reaction product comprising a benzophenone product and reaction byproducts;

(E) separating the benzophenone product from the reaction byproducts; and

(F) purifying the benzophenone product in order to obtain a purified benzophenone compound

wherein the first and second reactant are selected from the group consisting of manganese dioxide and a strong acid, provided that if the first reactant is manganese dioxide the second reactant is the strong acid and if the first reactant is the strong acid, the second reactant is manganese dioxide and wherein the amount of the strong acid is an amount of from about 2 to about 20 moles per mole of the diphenylmethane compound.

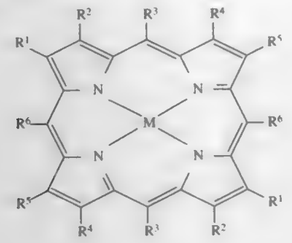
5,723,677

METHOD FOR HYDROPEROXIDE DECOMPOSITION USING NOVEL PORPHYRINS SYNTHESIZED FROM DIPYRROMETHANES AND ALDEHYDES

Tilak Wijesekera, Glen Mills; James E. Lyons, Wallingford, and Paul E. Ellis, Jr., Downingtown, all of Pa., assignors to Sun Company, Inc. (R&M), Philadelphia, Pa.

Division of Ser. No. 175,057, Dec. 29, 1993, which is a continuation-in-part of Ser. No. 568,116, Aug. 16, 1990, which is a continuation-in-part of Ser. No. 425,089, Oct. 23, 1989, abandoned, which is a continuation-in-part of Ser. No. 66,666, Jun. 26, 1987, Pat. No. 4,900,871, which is a continuation-in-part of Ser. No. 246, Jan. 2, 1987, Pat. No. 4,895,682. This application Jun. 27, 1996, Ser. No. 670,300
Int. Cl.[6] C07C *45/28*
U.S. Cl. 568—342 **16 Claims**

1. Method of decomposing hydroperoxides which comprises contacting a hydroperoxide with a catalyst, comprising an iron, manganese, cobalt or ruthenium metal complex having the following structural formula:



where M comprises iron, manganese, cobalt or ruthenium and (a) R^6 is hydrogen or haloaryl, R^3 is hydrogen or haloalkyl, but R^6 and R^3 are not both hydrogen, and where R^1, R^2, R^4 and R^5 are independently hydrogen, hydrocarbyl, halogen, nitro, cyano or halocarbyl, or (b) R^3 and R^6 are haloalkyl and R^1, R^2, R^4 and R^5 are halogen, or an oxo-bridged dimer of said composition, or an azide of said composition.

5,723,678

PREPARATION OF ACETYLENIC COMPOUNDS

Thomas Rühl, Frankenthal; Jochem Henkelmann, Mannheim; Marc Heider, Neustadt, and Peter Hofmann, Nürnberg, all of Germany, assignors to BASF Aktiengesellschaft, Ludwigshafen, Germany

Filed Apr. 12, 1996, Ser. No. 631,095
Claims priority, application Germany, Apr. 12, 1995, 195 13 840.6
Int. Cl.[6] C07C *45/45*
U.S. Cl. 568—395 **4 Claims**

1. A process for preparing acetylenic compounds of the general formula I

$$R^1—C\equiv C—CHR^2—CH_2—X \qquad I$$

where the substituents have the following meanings:

R^1 hydrogen, unsubstituted or substituted alkyl or aryl;

R^2 hydrogen or C_1–C_4-alkyl;

X CN; $COOR^3$ where R^3 is C_1–C_6-alkyl or benzyl; $C(O)R^4$ where R^4 is hydrogen or C_1–C_4-alkyl,

by reacting an alkyne of the formula II

$$R^1—C\equiv C—H \qquad II$$

with an α,β-unsaturated compound of the formula III

$$R^2HC=CH—X \qquad III$$

at a temperature from 20° C. to 100° C. in a solvent selected from the group consisting of ketones, ethers, aromatic hydrocarbons and aprotic solvents,

in the presence of a homogeneous rhodium-phosphine catalyst, wherein a rhodium catalyst with a bidentate phosphine ligand is used, the bidentate phosphine ligand being a member selected from the group consisting of 1,2-bis(dicyclohexylphosphino)ethane, 1,2-bis(dicyclohexylphosphino)methane, 1,2-bis(dimethylphosphino)ethane, 1,2-bis(dimethylphosphino)methane, 1,2-bis(di-tert-butylphosphino)methane or 1,2-bis(diisopropylphosphino)propane.

5,723,679

PROCESS FOR THE PREPARATION OF METHYL ETHYL KETONE FROM SECONDARY BUTYL ALCOHOL USING AN IMPROVED COPPER SILICA CATALYST

Alive Keshavaraja, Mangalore; James Violet Samuel, and Arumugamangalam Venkataraman Ramaswamy, both of Pune, all of India, assignors to Council of Scientific & Industrial Research, New Delhi, India

Filed May 16, 1996, Ser. No. 649,024
Int. Cl.[6] C07C *45/00*
U.S. Cl. 568—406 **9 Claims**

1. An improved process for the preparation of methyl ethyl ketone from secondary butyl alcohol which comprises contacting the alcohol at a temperature ranging from about 210° C. to 350° C. with a catalyst consisting essentially of copper embedded on an amorphous silica matrix, wherein the copper content ranges from about 1 to 50 mole % with respect to silica, the catalyst being prepared by a sol-gel route from alkoxides or salts of silicon and copper.

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5,723,680

PREPARATION OF ALDEHYDES

Claudius Kormann, Bingen, and Heinz-Josef Kneuper, Mannheim, both of Germany, assignors to BASF Aktiengesellschaft, Ludwigshafen, Germany

PCT No. PCT/EP95/04506, § 371 Date Apr. 18, 1997, § 102(e) Date Apr. 18, 1997, PCT Pub. No. WO96/16012, PCT Pub. Date May 30, 1996

PCT Filed Nov. 16, 1995, Ser. No. 817,600

Claims priority, application Germany, Nov. 17, 1994, 44 40 801.3

Int. Cl.[6] C07C *45/00*

U.S. Cl. 568—455 11 Claims

1. A process for the preparation of aldehydes or alcohols by the hydroformylation of olefins of more than 3 carbon atoms by means of a bare rhodium catalyst dissolved homogeneously in the reaction medium, at superatmospheric pressure and at elevated temperatures, and separation of the rhodium catalyst from the liquid reaction mixture, wherein a magnetizable, inorganic pigment coated with a polymeric binder is used for separating the homogeneously dissolved, bare rhodium catalyst from the hydroformylation medium, and this pigment, after it has been laden with the rhodium contained in the hydroformylation medium, is separated from the liquid hydroformylation medium by applying an external magnetic field.

5,723,681

3,3-(DISUBSTITUTED)CYCLOHEXAN-1-01 DIMERS AND RELATED COMPOUNDS

Siegfried B. Christensen, IV, Philadelphia, and Joseph M. Karpinski, Pottstown, both of Pa., assignors to SmithKline Beecham Corporation, Philadelphia, Pa.

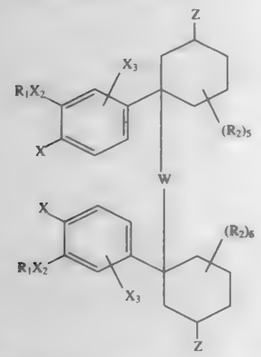
PCT No. PCT/US95/13323, § 371 Date Jun. 23, 1997, § 102(e) Date Jun. 23, 1997, PCT Pub. No. WO96/20157, PCT Pub. Date Jul. 4, 1996

PCT Filed Oct. 10, 1995, Ser. No. 860,288

Int. Cl.[6] C07D *333/12;317/04;233/66;211/72;* C07C *43/205;229/38;233/64;335/02*

U.S. Cl. 568—646 4 Claims

1. A compound of Formula I



(I)

wherein:

R_1 is independently $—(CR_4R_5)_nC(O)O(CR_4R_5)_mR_6$, $—(CR_4R_5)_nC(O)NR_4(CR_4R_5)_mR_6$, $—(CR_4R_5)_nO(CR_4R_5)_mR_6$, or $—(CR_4R_5)_rR_6$, wherein the alkyl moieties may be unsubstituted or substituted with one or more fluorines;

m is 0 to 2;

n is 1 to 4;

r is 0 to 6;

R_4 and R_5 are independently selected from hydrogen or a C_{1-2} alkyl;

R_6 is independently hydrogen, methyl, hydroxyl, aryl, halo substituted aryl, aryloxyC_{1-3} alkyl, halo substituted aryloxyC_{1-3} alkyl, indanyl, indenyl, C_{7-11} polycycloalkyl, tetrahydrofuranyl, furanyl, tetrahydropyranyl, pyranyl, tetrahydrothienyl, thienyl, tetrahydrothiopyranyl, thiopyranyl, C_{3-6} cycloalkyl, or a C_{4-6} cycloalkyl containing one or two unsaturated bonds, wherein the cycloalkyl or heterocyclic moiety may be unsubstituted or substituted by 1 to 3 methyl groups, an ethyl group, or an hydroxyl group;

provided that:

a) when R_6 is hydroxyl, then m is 2; or

b) when R_6 is hydroxyl, then r is 2 to 6; or

c) when R_6 is 2-tetrahydropyranyl, 2-tetrahydrothiopyranyl, 2-tetrahydrofuranyl, or 2-tetrahydrothienyl, then m is 1 or 2; or

d) when R_6 is 2-tetrahydropyranyl, 2-tetrahydrothiopyranyl, 2-tetrahydrofuranyl, or 2-tetrahydrothienyl, then r is 1 to 6;

e) when n is 1 and m is 0, then R_6 is other than H in $—(CR_4R_5)_nO(CR_4R_5)_mR_6$;

X is independently YR_2, fluorine, NR_4R_5, or formyl amine;

Y is independently O or $S(O)_{m'}$;

m' is a number having a value of 0, 1, or 2;

W is alkyl of 2 to 6 carbons, alkenyl of 2 to 6 carbon atoms or alkynyl of 2 to 6 carbon atoms;

X_2 is independently O or NR_8;

X_3 is independently hydrogen or X;

R_2 is independently selected from $—CH_3$ or $—CH_2CH_3$ unsubstituted or substituted by 1 or more fluorines;

s is 0 to 4;

Z is independently OR_{14}, OR_{15}, SR_{14}, $S(O)_{m'}R_7$, $S(O)_2NR_{10}R_{14}$; $NR_{10}R_{14}$, $NR_{14}C(O)R_9$, $NR_{10}C(Y')R_{14}$, $NR_{10}C(O)OR_7$, $NR_{10}C(Y')NR_{10}R_{14}$, $NR_{10}S(O)_2NR_{10}R_{14}$, $NR_{10}C(NCN)NR_{10}R_{14}$, $NR_{10}S(O)_2R_7$, $NR_{10}C(CR_4NO_2)NR_{10}R_{14}$, $NR_{10}C(NCN)SR_9$, $NR_{10}C(CR_4NO_2)SR_9$, $NR_{10}C(NR_{10})NR_{10}R_{14}$, $NR_{10}C(O)C(O)NR_{10}R_{14}$, or $NR_{10}C(O)C(O)OR_{14}$;

Y' is independently O or S;

R_7 is $—(CR_4R_5)_qR_{12}$ or C_{1-6} alkyl wherein the R_{12} or C_{1-6} alkyl group is unsubstituted or substituted one or more times by methyl or ethyl unsubstituted or substituted by 1–3 fluorines, —F, —Br, —Cl, $—NO_2$, $—NR_{10}R_{11}$, $—C(O)R_8$, $—CO_2R_8$, $—O(CH_2)_qR_8$, —CN, $—C(O)NR_{10}R_{11}$, $—O(CH_2)_qC(O)NR_{10}R_{11}$, $—O(CH_2)_qC(O)R_9$, $—NR_{10}C(O)NR_{10}R_{11}$, $—NR_{10}C(O)R_{11}$, $—NR_{10}C(O)OR_9$, $—NR_{10}C(O)R_{13}$, $—C(NR_{10})NR_{10}R_{11}$, $—C(NCN)NR_{10}R_{11}$, $—C(NCN)SR_9$, $—NR_{10}C(NCN)SR_9$, $—NR_{10}C(NCN)NR_{10}R_{11}$, $—NR_{10}S(O)_2R_9$, $—S(O)_{m'}R_9$, $—NR_{10}C(O)C(O)NR_{10}R_{11}$, $—NR_{10}C(O)C(O)R_{10}$, or R_{13};

q is 0, 1, or 2;

R_{12} is independently R_{13}, $(CH_2)_q$, C_3–C_7 cycloalkyl, (2-, 3- or 4-pyridyl), pyrimidyl, pyrazolyl, (1- or 2-imidazolyl), pyrrolyl, piperazinyl, piperidinyl, morpholinyl, furanyl, (2- or 3-thienyl), quinolinyl, naphthyl, or phenyl;

R_8 is independently selected from hydrogen or R_9;

R_9 is independently C_{1-4} alkyl unsubstituted or substituted by one to three fluorines;

R_{10} is independently OR_8 or R_{11};

R_{11} is independently hydrogen, or C_{1-4} alkyl unsubstituted or substituted by one to three fluorines; or when R_{10} and R_{11} are as $NR_{10}R_{11}$ they may together with the nitrogen form a 5 to 7 membered ring optionally containing at least one additional heteroatom selected from O, N, or S;

R_{13} is independently oxazolidinyl, oxazolyl, thiazolyl, pyrazolyl, triazolyl, tetrazolyl, imidazolyl, imidazolidinyl, thiazolidinyl, isoxazolyl, oxadiazolyl, or thiadiazolyl, and each of these heterocyclic rings is connected through a carbon atom and each may be unsubstituted or substituted by one or two C_{1-2} alkyl groups;

R_{14} is independently hydrogen or R_7; or when R_{10} and R_{14} are as $NR_{10}R_{14}$ they may together with the nitrogen form a 5 to 7 membered ring comprised only of carbon atoms or carbon atoms and at least one 1 heteroatom selected from O, N, or S;

R_{15} is independently $C(O)R_{14}$, $C(O)NR_4R_{14}$, $S(O)_2R_7$, or $S(O)_2NR_4R_{14}$;

or the pharmaceutically acceptable salts thereof.

5,723,682

DIFLUOROVINYL ETHERS

Eike Poetsch, Mühltal; Werner Binder, Dieburg; Michael Kompter, Riedstadt; Joachim Krause, Dieburg; Kazuaki Tarumi, Seeheim-Jugenheim, and Ekkehard Bartmann, Erzhausen, all of Germany, assignors to Merck Patent Gesellschaft mit Beschrankter Haftung, Darmstadt, Germany

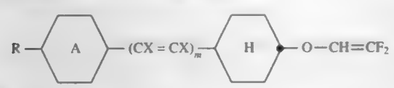
Filed Mar. 5, 1997, Ser. No. 812,335

Claims priority, application Germany, Mar. 6, 1996, 196 08 634.5

Int. Cl.[6] C07C *41/16*

U.S. Cl. 568—655 6 Claims

1. A difluorovinyl ether of the formula I



I

in which

R is alkyl or alkenyl having 1 to 12 carbon atoms, in each of which one or more CH_2 groups may be replaced by —O—, $—CF_2—$ or —CH=CH—, a terminal $CH_3—$ group may be replaced by $CF_3.—$, a terminal $CH_2—CH—$ group may be replaced by $CH_2=CH—$ or $CH_2=CF—$, and one or two CH groups may be replaced by CF in such a way that two oxygen atoms are not linked to one another,

the ring A is 1,4-cyclohexylene, 1,4-cyclohexenylene or 1,4-phenylene, each of which is unsubstituted or substituted by 1 or 2 F atoms,

each X is H or F, and

m is 0 or 1.

5,723,683

SEPARATION OF MONOETHERS FROM DIETHERS

Daniel M. Trauth, West Chester, and Edward T. Shawl, Wallingford, both of Pa., assignors to ARCO Chemical Technology, L.P., Greenville, Del.

Filed Mar. 12, 1996, Ser. No. 614,125

Int. Cl.[6] C07C *41/02*

U.S. Cl. 568—678 8 Claims

1. The process for separating a monoalkyl glycol ether from a dialkyl glycol ether which comprises forming a mixture comprised of monoalkyl glycol ether, dialkyl glycol ether, glycol and solvent hydrocarbon, separating said mixture into two immiscible liquid phases, and separately recovering a lower polar phase comprised of monoalkyl glycol ether and glycol and an upper solvent hydrocarbon phase comprised of dialkyl glycol ether and solvent hydrocarbon.

5,723,684

COMPOSITIONS FOR BIS-(FLUOROMETHYL)ETHER

Jane Lesley Butcher, Runcorn; Thomas Anthony Ryan, Kelsall, and Leslie Burgess, Runcorn, all of England, assignors to Imperial Chemical Industries PLC, London, England

Continuation of Ser. No. 898,786, Jun. 15, 1992, abandoned. This application May 21, 1996, Ser. No. 651,652

Claims priority, application United Kingdom, Jun. 14, 1991, 9112817; Jun. 14, 1991, 9112860; Jun. 14, 1991, 9112861; Nov. 13, 1991, 9124087; Dec. 11, 1991, 9126330

Int. Cl.[6] C07C *43/12*

U.S. Cl. 568—683 2 Claims

1. A composition comprising bis(fluoromethyl)ether and water wherein the molar ratio of bis(fluoromethyl)ether to water in the composition is at least 10:1.

5,723,685

PREPARATION OF MONOVINYL ETHERS

Marc Heider, Neustadt; Thomas Rühl; Herbert Helfert, both of Frankenthal; Martin Schmidt-Radde, Beindersheim, and Jochem Henkelmann, Mannheim, all of Germany, assignors to BASF Aktiengesellschaft, Ludwigshafen, Germany

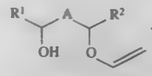
Filed Oct. 26, 1995, Ser. No. 548,739

Claims priority, application Germany, Oct. 19, 1994, 44 38 707.5

Int. Cl.[6] C07C *41/00*

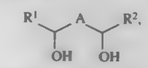
U.S. Cl. 568—688 6 Claims

1. A process for the preparation of monovinyl ethers of the formula I



(I)

in which A stands for a chemical bond or for a methylene or ethylene group, the radicals R^1 and R^2 independently stand for hydrogen, alkyl, cycloalkyl, or aryl groups or R^1 and R^2 together form a C_3–C_5 alkylene bridging member, which comprises: reacting a diol of the formula II



(II)

in which the variables have the above meanings, with acetylene in the presence of a base at 150°–250° C. under an acetylene partial pressure of 5–25 bar until 40–80% of the diol has been converted, at which point the reaction is stopped and the monovinyl ether of the formula I is isolated.

5,723,686

RECYCLE OF ALCOHOL IN A COMBINED HYDROISOMERIZATION AND ETHERIFICATION PROCESS

Gary R. Patton, and Robert B. Eldridge, both of Bartlesville, Okla., assignors to Phillips Petroleum Company, Bartlesville, Okla.

Filed Aug. 3, 1995, Ser. No. 510,988

Int. Cl.[6] C07C *41/42*

U.S. Cl. 568—697 8 Claims

1. A method of processing a hydrocarbon feed containing olefin compounds and diolefin compounds comprising:

(a) hydroisomerizing said hydrocarbon feed in a first hydroisomerization zone so as to hydrogenate diolefin compounds to olefin compounds and to produce a reaction effluent comprising said olefin compounds, unreacted hydrocarbons and light hydrocarbons;

(b) separating a hydroisomerate stream comprising said olefin compounds from said reaction effluent in a first separation zone;

(c) combining said hydroisomerate stream with an alcohol feed to produce a combine stream;

(d) etherifying said combine stream in an etherification zone to produce an oxygenate stream comprising oxygenated compounds, unreacted alcohol and unreacted hydrocarbons;

(e) separating said oxygenated stream into at least three streams in a second separation zone under conditions which provide a first stream comprising a product stream of said oxgenated compounds, a second stream which comprises said unreacted hydrocarbons and a third stream which comprises unreacted alcohol and water; and

(f) passing said third stream to said first separation zone.

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5,723,687

PROCESS FOR THE JOINT PRODUCTION OF ETHERS AND HYDROCARBONS WITH A HIGH OCTANE NUMBER

Mario Marchionna, Milan; Francesco Ancillotti, S. Donate Milanese, and Marco Di Gerolamo, Melegnano, all of Italy, assignors to Snamprogetti S.p.A., Milan, Italy

Filed May 15, 1996, Ser. No. 648,421
Claims priority, application Italy, Jun. 1, 1995, MI 95/A1140
Int. Cl.[6] C07C 41/00
U.S. Cl. 568—697 12 Claims

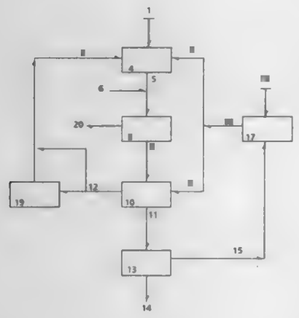
1. Process for the joint production of ethers and hydrocarbons with a high octane number starting from a charge consisting of hydrocarbon cuts containing isobutene, by oligomerization with acid catalysts comprising carrying out the oligomerization reaction in the presence of one or more primary alcohols selected from methanol and ethanol in such a quantity as to have a molar ratio primary alcohols/isobutene in the feeding of between 0.2 and 0.7, operating at a reaction temperature of between 30° and 100° C., at a pressure of less than 5 Mpa and at a feeding space velocity of less than 20 h^{-1}.

5,723,688

PROCESS FOR PREPARING AN ADDUCT OF A BISPHENOL WITH PHENOLIC COMPOUND

Emil Patrascu; Johann Wilhelm Frey, both of Stade, and Hartwig Sendner, Bremerfoerde-Elm, all of Germany, assignors to The Dow Chemical Company, Midland, Mich.

Filed Nov. 15, 1995, Ser. No. 558,307
Int. Cl.[6] C07C 37/68;39/16;39/12
U.S. Cl. 568—724 18 Claims



1. A process for preparing an adduct of a bisphenol with a phenolic compound comprising the steps of

a) reacting a carbonyl compound with a stoichiometric excess of a phenolic compound in the presence of an acidic cation exchange resin as a catalyst, to produce a product mixture containing a bisphenol, unreacted phenolic compound, unreacted carbonyl compound and water; and

b) crystallizing an adduct of the bisphenol with the phenolic compound from the product mixture in a crystallization device,

wherein the product mixture obtained in Step a) is not subjected to a distillation step before the product mixture enters the crystallization device and prior to the crystallization Step b) the content of the carbonyl compound in the product mixture is analyzed and if the content of the carbonyl compound is below a concentration of from about 0.1 to about 8 percent, additional carbonyl compound is added such that the total concentration of the carbonyl compound is from about 0.1 to about 8 percent, based on the total weight of the product mixture.

5,723,689

PROCESS FOR RECOVERING BISPHENOLS

Eric James Pressman, East Greenbush; Sheldon Jay Shafer, Clifton Park; Joseph Richard Wetzel, Latham, all of N.Y., and Martin Herke Oyevaar, Goes, Netherlands, assignors to General Electric Company, Schenectady, N.Y.

Filed Jan. 16, 1996, Ser. No. 587,052
Int. Cl.[6] C07C 39/12;39/16;37/68
U.S. Cl. 568—724 11 Claims

1. A method for recovering bisphenol A in the absence of adduct crystallizations and without the generation of reaction recycle streams, said method comprising the steps of:

(a) vacuum distilling a mixture comprising A to produce a distillate comprising o,p-bisphenol A, chromans and triarylols and a residue; and

(b) subjecting the residue to melt crystallization to obtain bisphenol A which is at least about 99% pure.

5,723,690

PROCESS FOR THE PREPARATION OF TETRABROMOBISPHENOL-A

Bonnie G. McKinnie, Magnolia, Ark., assignor to Albemarle Corporation, Richmond, Va.

Continuation of Ser. No. 426,997, Apr. 24, 1995. This application Oct. 30, 1995, Ser. No. 550,044
Int. Cl.[6] C07C 39/367;37/68
U.S. Cl. 568—726 32 Claims

1. A process for the production of tetrabromobisphenol-A, which process comprises:

a. feeding, to a reactor, a solution comprised of bisphenol-A, water and a water miscible solvent to at least partially form a reaction mass having a liquid phase containing from above about 15 to about 65 wt % water, the wt % being based upon the amount of water and water miscible solvent in the liquid phase;

b. during (a), providing for the presence of unreacted Br_2 in the reaction mass to yield a tetrabromobisphenol-A precipitate;

c. oxidizing HBr produced in the reaction mass to yield Br_2; and

d. having a reaction mass temperature which is within the range of from about 30° to about 100° C.

5,723,691

METHOD FOR PREPARING ION-EXCHANGE RESIN FOR USE AS A CATALYST IN THE SYNTHESIS OF BISPHENOLS

Michael John Cipullo, Prattville, Ala., and Eric James Pressman, Greenbush, N.Y., assignors to General Electric Company, Pittsfield, Mass.

Filed Aug. 31, 1995, Ser. No. 522,187
Int. Cl.[6] C07C 39/12;39/16
U.S. Cl. 568—727 8 Claims

4. An improved process for the preparation of bisphenol-A which comprises:

providing a hydrated acidic ion-exchange resin catalyst for catalyzing the condensation of phenol with acetone;

washing the provided resin catalyst;

vaporing a portion of the water associated with the hydrated catalyst;

separating sufficient of the water vapor from the catalyst to remove from 25 to 95 percent by weight of said water, whereby a partially dehydrated catalyst is obtained;

contacting the partially dehydrated catalyst with phenol so as to remove additional water from the catalyst until the water content of the effluent phenol contains less than about 4 weight percent water; and

condensing phenol and acetone in a reaction zone at a temperature within the range of from 40° to 95 ° C., in the presence of the dehydrated catalyst

wherein the improvement comprises washing with deionized water until the water washings exhibit a specific conductance of less than about 50 micromho/cm at 25° C.
whereby the ppm of oligomers is reduced by about 40%.

5,723,692

PREPARATION OF 4,4'-DIHYDROXY-'ALKYLSTIBLBENE WITH REDUCED DIMER FORMATION

Katherine S. Clement; Robert E. Hefner, Jr.; Emmett L. Tasset, all of Lake Jackson, and Louis L. Walker, Clute, all of Tex., assignors to The Dow Chemical Company, Midland, Mich.

Filed Sep. 13, 1996, Ser. No. 713,330
Int. Cl.[6] C07C 39/215
U.S. Cl. 568—729 20 Claims

1. A process of preparing a 4,4'-dihydroxy-α-alkylstilbene comprising the steps of:

a) contacting under dehydrohalogenation conditions a halogenated intermediate and optionally a water-immiscible solvent with a solution containing water and a polar protic solvent to form a substantially uniform dispersion, wherein:

i) the volume-to-volume ratio of the polar protic solvent to the water is not less than 1:2;

ii) the concentration of the halogenated intermediate does not exceed 30 gs per 100 mL of the water, the water-immiscible solvent, and the polar protic solvent; and

iii) the halogenated intermediate is prepared by the acid catalyzed condensation of a phenolic compound and an α-haloketone; and

b) increasing the concentration of water with respect to the polar protic solvent to precipitate the 4,4'-dihydroxy-α-alkylstilbene.

5,723,693

PROCESS FOR PREPARING AND RECOVERING 4,4'-DIHYDROXY-ALPHA-ALKYLSTILBENE OR 4,4'-DIHYDROXY-ALPHA, ALPHA'DIALKYLSTILBENE

Robert E. Hefner, Jr., and David A. Carr, both of Lake Jackson, Tex., assignors to The Dow Chemical Company, Midland, Mich.

Filed Sep. 13, 1996, Ser. No. 713,906
Int. Cl.[6] C07C 39/215
U.S. Cl. 568—729 20 Claims

1. A process for preparing a 4,4'-dihydroxy-alpha-alkylstilbene or 4,4'-dihydroxy-alpha,alpha' -dialkylstilbene which comprises:

(A) reacting at a temperature of from −20° C. to 20° C. a mixture of:

(1) at least one alpha-haloketone;

(2) at least one compound containing one phenolic hydroxyl group or aromatic alkoxy group per molecule such that the mole ratio of phenolic hydroxyl group-containing or aromatic alkoxy group-containing compound(s):alpha-haloketone(s) is at least 0.1:1; and

(3) either (a) at least one strong protonic acid or (b) at least one Lewis acid, or (c) any combination thereof;

such that the mole ratio of phenolic hydroxyl group-containing or aromatic alkoxy group-containing compound(s):alpha-haloketone(s):strong protonic acid(s) or Lewis acid(s) or combination thereof is from 0.1:1:0.0026 to 20:1:8; thereby forming a reaction product containing at least one halogen-containing bisphenol compound which, upon being dehydrohalogenated, forms a 4,4'-dihydroxy-alpha-alkylstilbene or 4,4'-dihydroxy-alpha,alpha' -dialkylstilbene;

(B) reducing the acid content of the product resulting from step (A) to less than 10,000 ppm;

(C) dehydrohalogenating the product obtained from step (B), thereby forming a dehydrohalogenated product containing 4,4'-dihydroxy-alpha-alkylstilbene or 4,4'-dihydroxy-alpha,alpha' -dialkylstilbene;

(D) adding water to the product of step (C) in amounts sufficient to crystallize at least a portion of the 4,4'-dihydroxy-alpha-alkylstilbene or 4,4'-dihydroxy-alpha,alpha' -dialkylstilbene and recovering the crystals and the remaining organic phase separately;

(E) independently repeating steps (A), (B), and (C) to obtain a dehydrohalogenated product;

(F) mixing at least a portion of organic phase obtained in step (D) with the product obtained in step (E); and

(G) adding mater to the mixture obtained in step (F) in amounts sufficient to crystallize at least a portion of the 4,4'-dihydroxy-alpha-alkylstilbene or 4,4'-dihydroxy-alpha,alpha' -dialkylstilbene and recovering the crystals.

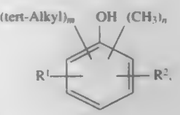
5,723,694

PROCESS FOR PREPARING MONOMETHYLATED OR DIMETHYLATED PHENOLS

Artur Botta, and Hans-Josef Buysch, both of Krefeld, Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Germany

Filed Nov. 22, 1996, Ser. No. 755,513
Claims priority, application Germany, Dec. 4, 1995, 195 45 105.8
Int. Cl.[6] C07C 37/00
U.S. Cl. 568—799 12 Claims

1. A process for preparing a phenol which is monomethylated or dimethylated in the ortho or para position to the OH group and which has the formula



(I)

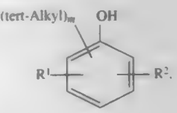
where

R^1 and R^2 represent, independently of one another, hydrogen, C_1–C_{12}-alkyl without tert-alkyl groups, C_5–C_8-cycloalkyl, phenyl, C_1–C_4-alkyl-phenyl, C_7–C_{10}-aralkyl, phenoxy, phenylthio or together represent a condensed aromatic ring,

m is 0, 1 or 2 and if m=1 or 2 simultaneously indicates an ortho or para position to the OH group and

n is 1 or 2 and at the same time indicates one or two of the ortho or para positions to the OH group,

which comprises reacting a tert-alkyl-substituted phenol which has at least one free ortho or para position to the OH group and which has the formula



(II)

where

R^1 and R^2 are as defined above,

tert-alkyl has from 4 to 6 carbon atoms and

m is as defined above and

there are n free ortho or pars positions to the OH group,

a) with from 1 to 20 mol of formaldehyde or its polymers and with at least 1 mol of a carboxylic acid of the formula

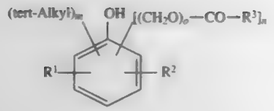
$$R^3—COOH, \quad \text{(III)}$$

where

R^3 is H, C_1–C_{18}-alkyl, C_2–C_{18}-alkenyl, C_5–C_8-cycloalkyl, C_7–C_{10}-aralkyl, phenyl or C_1–C_4-alkyl-phenyl,

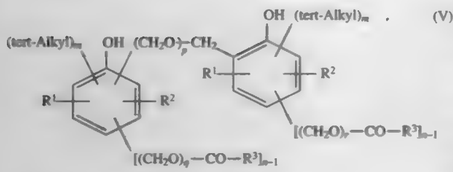
in the presence or absence of an inert solvent to give a mixture of substituted phenols of the formulae

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(IV)

and



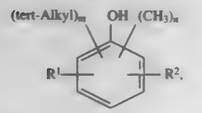
(V)

where

R^1, R^2, R^3, tert-Alkyl, m and n are as defined above and

o, p, q and r are, independently of one another, from 1 to 8,

b) hydrogenating the compounds (IV) and (V) individually or as a mixture using H_2 in the presence of a hydrogenation catalyst to give a substituted phenol of the formula



(VI)

where

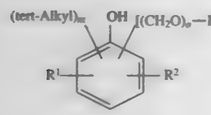
R^1, R^2, tert-Alkyl, m and n are as defined above, where the hydrogenation is carried out in the presence or absence of a solvent and where the substituted phenols of the formulae (IV) and (V) can be reacted individually or as a mixture, prior to or during the hydrogenation, with an alcohol of the formula

R^4—OH. (VII)

where

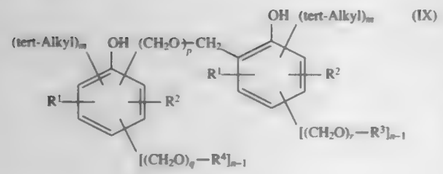
R^4 represents C_1–C_{18}-alkyl, C_2–C_6-hydroxyalkyl or C_5–C_8-cycloalkyl,

to give etherified, substituted phenols of the formulae



(VIII)

or



(IX)

where

R^1, R^2, tert-Alkyl, m, n, o, p, q and r are as defined above and

c) if m is 0, the tert-alkyl groups are cleaved off at from 80° to 300° C. in the presence of an acid cleavage catalyst.

5,723,695

CONTINUOUS PROCESS FOR THE MANUFACTURE OF SODIUM C_4-C_8ALKOXIDE

Jan Hendrik Wevers, Mainz-Kastel, and Robert Jan Hendrik Scheffer, Ingelheim, both of Germany, assignors to American Cyanamid Company, Madison, N.J.

Filed Jun. 2, 1995, Ser. No. 459,059

Int. Cl.[6] C07C *31/30*

U.S. Cl. 568—851 **24 Claims**

1. A process for the manufacture of sodium C_4–C_8 alkoxide which comprises treating a stirred dispersion of sodium metal in a solvent under an inert atmosphere selected from the group consisting of nitrogen, helium and argon, with a less than stoichiometric amount of C_4–C_8alkanol at a temperature of about 100° to 140° C. to form a mixture comprising a first phase and a second phase, wherein the first phase comprises a solution of the sodium C_4–C_8alkoxide in the solvent and the second phase comprises the sodium metal, separating the first phase to obtain the product sodium C_4–C_8alkoxide as the solution, and optionally continuously recycling the remaining mixture.

5,723,696

PROCESS FOR THE PRODUCTION OF POLYGLYCEROLS

Glyn Roberts, Wirral Merseyside; Alan Reginald Minihan, Merseyside, both of Great Britain; Johannes Arie M. Laan, Breda, and Johan Jan W. Eshuis, Schiedam, both of Netherlands, assignors to Unichema Chemie B.V., Gouda, Netherlands

PCT No. PCT/EP95/00248, § 371 Date Jul. 17, 1996, § 102(e) Date Jul. 17, 1996, PCT Pub. No. WO95/21210, PCT Pub. Date Aug. 10, 1995

PCT Filed Jan. 24, 1995, Ser. No. 676,247

Claims priority, application European Pat. Off., Feb. 4, 1994, 94300859

Int. Cl.[6] C07C *31/22*

U.S. Cl. 568—869 **8 Claims**

1. A process of preparing polymers of glycerol which comprises polymerizing glycerol, glycidol, glycerol carbonate or 2,2-dimethyl-1,3-dioxolane-4-methanol in the presence of an effective amount of a catalyst selected from the group consisting of: rubidium fluoride impregnated on alumina; cesium fluoride impregnated on alumina; potassium fluoride impregnated on alumina; and zirconium oxide.

5,723,697

CATALYTIC OXIDATION OF LIGHT ALKANES IN PRESENCE OF A BASE

Manoj V. Bhinde, Boothwyn, and Thomas W. Bierl, West Chester, both of Pa., assignors to Sun Company, Inc. (R&M), Philadelphia, Pa.

Filed Dec. 29, 1995, Ser. No. 580,918

Int. Cl.[6] C07C *29/50*

U.S. Cl. 568—910 **28 Claims**

1. Method for partial oxidation of alkanes to alkanols which comprises contacting an alkane with a metal organic ligand catalyst in the presence of an inorganic base.

5,723,698

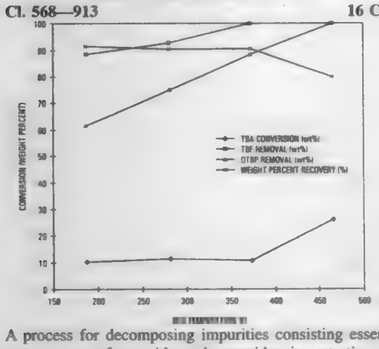
CATALYTIC DECOMPOSITION OF FORMATE IMPURITIES IN TERTIARY BUTYL ALCOHOL AND METHYL TERTIARY BUTYL ETHER STREAMS

Pei-Shing Eugene Dai; Laurence Darrel Neff; Kyle Lee Preston, all of Port Arthur, and Rei-Yu Judy Hwan, Sugar Land, all of Tex., assignors to Huntsman Specialty Chemicals Corporation, Austin, Tex.

Filed Dec. 18, 1995, Ser. No. 573,822

Int. Cl.[6] C07C *27/26;41/00*

U.S. Cl. 568—913 **16 Claims**



1. A process for decomposing impurities consisting essentially of formate esters, free acids and peroxides in a tertiary butyl alcohol stream to produce noncondensible gas products which comprises reacting said tertiary butyl alcohol stream or a methyl tertiary butyl ether stream containing said impurities over a catalyst consisting essentially of a non-noble Group VIII metal and a metal of Group IB on an inert support consisting essentially of alumina mixed with a hydrotalcite-like composition in the proportions of 2–75 wt. % alumina and 25–98 wt. % of hydrotalcite-like composition.

5,723,699

PURIFICATION PROCESS FOR HEXAFLUOROETHANE PRODUCTS

Ralph Newton Miller; Mark Richard Deschere, both of Newark, Del.; Barry Asher Mahler, Glen Mills, Pa., and Olagappan Muthu, Newark, Del., assignors to E. I. du Pont de Nemours and Company, Wilmington, Del.

Continuation of Ser. No. 455,883, May 31, 1995, abandoned, which is a continuation of Ser. No. 309,376, Sep. 20, 1994.

This application Jan. 24, 1997, Ser. No. 789,173

Int. Cl.[6] C07C *19/08*

U.S. Cl. 570—134 **7 Claims**

1. An azeotropic composition consisting essentially of about 95 to about 85 mole percent hexafluoroethane and about 4 to about 15 mole percent hydrogen fluoride, said composition having a boiling point from about –50 degrees C. at 54 psia to about 8 degrees C. at 343 psia.

5,723,700

METHOD FOR CONCURRENTLY PRODUCING 1,1,1,2-TETRAFLUOROETHANE AND PENTAFLUOROETHANE

Byung Gwon Lee; Hoon Sik Kim; Honggon Kim; Sang Deuk Lee, and Moon Jo Chung, all of Seoul, Rep. of Korea, assignors to Korea Institute of Science and Technology, Seoul, Rep. of Korea

Filed Sep. 5, 1996, Ser. No. 708,466

Claims priority, application Rep. of Korea, Apr. 23, 1996, 12394/1996

Int. Cl.[6] C07C *17/08*

U.S. Cl. 570—168 **2 Claims**

1. A method for concurrently producing 1,1,1,2-tetrafluoroethane and pentafluoroethane, which comprises

(A) reacting 1,1,1-trifluoro-2-chloroethane, hydrogen fluoride and chlorine in a first reactor, in the presence of a fluorination catalyst, at a temperature in the range of from 300° C. to 450° C.;

(B) transferring the products of step (A) together with trichloroethylene to a second reactor and reacting them at a temperature in the range of from 200° C. to 400° C.;

(C) separating 1,1,1,2-tetrafluoroethane and pentafluoroethane from the resultant products; and

(D) feeding the remaining products from step (C) back to the first reactor,

wherein the molar ratio of Cl_2/1,1,1-trifluoro-2-chloroethane in step (A) is in the range of from 0.001 to 0.05.

5,723,701

SATURATED LINEAR POLYFLUOROHYDROCARBONS, PROCESSES FOR THEIR PRODUCTION, AND THEIR USE IN CLEANING COMPOSITIONS

Carl George Krespan, Wilmington, Del., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del.

Division of Ser. No. 919,454, Jul. 27, 1992, Pat. No. 5,504,265, which is a division of Ser. No. 595,840, Oct. 11, 1990, Pat. No. 5,171,902. This application Jun. 2, 1995, Ser. No. 460,021

Int. Cl.[6] C07C *19/08*

U.S. Cl. 570—175 **20 Claims**

1. A process for preparing a linear dihydropolyfluoroalkane selected from the group consisting of $CF_3CHFCHFCF_2CF_3$, $CF_3CHFCHFCF_2CF_2CF_3$, $CF_3CF_2CHFCHFCF_2CF_2CF_3$, $CF_3CHFCHFCF_2CF_2CF_2CF_3$, and $CF_3CF_2CHFCHFCF_2CF_3$, comprising the step of: hydrogenating an olefinic starting material in the liquid phase over a metal catalyst from the palladium group in the absence of a polar solvent; wherein said olefinic starting material has the same number of carbon atoms as said dihydropolyfluoroalkane and is selected from the group consisting of $CF_3CF{=}CFCF_2CF_3$, $CF_3CF{=}CFCF_2CF_2CF_3$, $CF_3CF_2CF{=}CFCF_2CF_3$, $CF_3CF_2CF{=}CFCF_2CF_2CF_3$, and $CF_3CF{=}CFCF_2CF_2CF_2CF_3$; and wherein said olefinic starting material has its olefinic bond between the carbon atoms which correspond to the carbons which bear the hydrogen in said dihydropolyfluoroalkane.

5,723,702

METHOD FOR REMOVING MOISTURE FROM CHLORODIFLUORO-METHANE

Young Soo Kwon; Kun You Park; Sang-Deuk Lee, and Honggon Kim, all of Seoul, Rep. of Korea, assignors to Korea Institute of Science and Technology, Seoul, Rep. of Korea

Continuation-in-part of Ser. No. 347,803, Nov. 30, 1994, abandoned. This application Mar. 13, 1996, Ser. No. 615,092

Claims priority, application Rep. of Korea, Dec. 9, 1993, 27090/1993

Int. Cl.[6] C07C *17/38*

U.S. Cl. 570—177 **9 Claims**

1. A process for removing moisture from chlorodifluoromethane ($CHClF_2$) containing moisture in excess comprising the steps of:

(a) lowering the partial pressure of water in the chlorodifluoromethane gas by contacting the chlorodifluoromethane gas with an aqueous solution of calcium chloride of more than 5% by weight;

(b) recovering chlorodifluoromethane dissolved in the used aqueous solution of calcium chloride at a temperature above 30° C. before regenerating the used calcium chloride solution; and

(c) regenerating said used calcium chloride solution by heating the calcium chloride solution at a temperature above 70° C.

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5,723,703

PURIFICATION OF ALLYL CHLORIDE

Abe Wiebe De Jong, and Timothy Michael Nisbet, both of Amsterdam, Netherlands, assignors to Shell Oil Company, Houston, Tex.

Filed Jul. 19, 1995, Ser. No. 504,277

Claims priority, application European Pat. Off., Jul. 22, 1994, 94202144

Int. Cl.[6] C07C *21/067*

U.S. Cl. 570—231 6 Claims

1. A process for the removal of (cyclo)aliphatic hexene and hexadiene isomers from allyl chloride comprising chlorinating a mixture of allyl chloride and impurities comprising (cyclo)aliphatic hexene and hexadiene isomers wherein said mixture is present in the liquid state, and removing chlorinated impurities from said allyl chloride wherein the chlorination step is performed with chlorine gas.

5,723,704

PROCESS FOR THE PREPARATION OF ALKYL CHLORIDES

Hervé Demail; Jean-Claude Schweickert, both of Vert Le Petit, and Pierre Le Gars, Sorgues, all of France, assignors to Societe Nationale des Poudres et Explosifs, Paris Cedex, France

Filed Jan. 3, 1997, Ser. No. 779,245

Claims priority, application France, Jan. 24, 1996, 96 00777

Int. Cl.[6] C07C *19/00;17/16*

U.S. Cl. 570—241 9 Claims

1. Process for the preparation of alkyl chlorides, characterized in that:

a) in a first stage a primary mono- or polyhydric aliphatic alcohol, which has a C_4–C_{30} carbon chain which is saturated, substituted or otherwise by one or more chlorine atoms and branched or otherwise and which may comprise one or more C_5–C_7 cycloalkyl groups, is reacted with gaseous hydrochloric acid in the absence of catalyst and at a temperature of between 80° C. and 170° C., until the degree of conversion of the alcohol functional groups is equal to or between 60 and 95 mol %, and

b) in a second stage phosgene and a catalyst are introduced into the reaction mixture, the catalyst being chosen from the group consisting of hexaalkylguanidinium halides and their hydrohalides, quaternary ammonium halides, quaternary phosphonium halides, pyridine and pyridines substituted by one or more C_1–C_6 alkyl groups, at a temperature of between 80° C. and 160° C.

5,723,705

PROCESS FOR THE PREPARATION OF POLYOLEFIN WAXES IN THE PRESENCE OF A METALLOCENE CATALYST AND A CO-CATALYST

Hans-Friedrich Herrmann, Darmstadt; Ludwig Böhm, Hattersheim/Ts; Hartmut Voigt, Königstein/Ts; Walter Spaleck, Liederbach, and Gerd Hohner, Gersthofen, all of Germany, assignors to Hoechst Aktiengesellschaft, Frankfurt, Germany

Continuation of Ser. No. 66,578, May 26, 1993, abandoned. This application Jun. 7, 1995, Ser. No. 478,359

Claims priority, application Germany, May 26, 1992, 42 17 378.7

Int. Cl.[6] C10L *1/16*

U.S. Cl. 585—9 12 Claims

1. A process for the preparation of a polyolefin wax by polymerization or copolymerization of olefins or diolefins at a temperature in the range of −40° to 95° C., at a pressure in the range of 0.5 to 120 bar, in a suspension in the presence of a catalyst comprising a metallocene and a cocatalyst selected from the group consisting of an organoaluminum compound, $R^{22}NH_{4-x}BR^{23}_4$, $R^{22}_xPH_{4-x}BR^{23}_4$, $R^{22}_3CBR^{23}_4$, or BR^{23}_3 where x is a number from 1 to 4, the radicals R^{22} are identical or different, and are C_1–C_{10}alkyl or C_6–C_{18}-aryl, or two radicals R^{22}, together with the atom linking them, form a ring, and the radicals R^{23} are identical or different, and are an unsubstituted or substituted C_6–C_{18}-aryl wherein the substituents are selected from the group consisting of alkyl, haloalkyl and fluorine, and wherein the metallocene is a compound of the formula I

$$\begin{array}{c} R^3 \\ | \\ R^1—M^1—R^4 \\ | \\ R^2 \end{array} \qquad (I)$$

in which M^1 is a metal of group IVb, Vb or VIb of the Periodic Table of Elements, R^1 and R^2 are identical or different and are a hydrogen atom, a C_1–C_{10}-alkyl group, a C_1–C_{10}-alkoxy group, C_6–C_{10}-aryl group, a C_6–C_{10}-aryloxy group, a C_2–C_{10}-alkenyl group, a C_7–C_{40}-arylalkyl group, a C_7–C_{40}-alkylaryl group, a C_8–C_{40}-arylalkenyl group or a halogen atom and R^3 and R^4 are identical or different end are a mononuclear or polynuclear hydrocarbon radial capable of forming a sandwich structure with the central atom M^1, or one of the radials R^3 and R^4 is a substituted nitrogen atom and hydrocarbons having 3 carbon atoms or a halogenated hydrocarbon which boils at a temperature not higher than 95° C. serve as suspending agents.

5,723,706

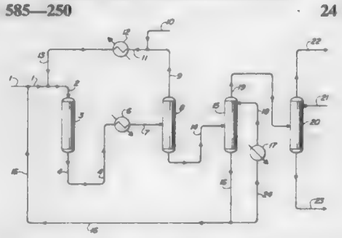
PROCESS FOR THE TREATMENT OF HALOGENATED ORGANIC FEEDSTOCKS

Robert S. Brasier, Mount Prospect, and Robert B. James, Jr., Northbrook, both of Ill., assignors to UOP, Des Plaines, Ill.

Filed May 30, 1996, Ser. No. 655,500

Int. Cl.[6] C07C *1/20;2/68;2/90;5/00*

U.S. Cl. 585—250 24 Claims



1. A process for treating a halogenated organic stream containing less than about 500 ppm by weight of water or water precursors to produce hydrocarbonaceous compounds having a reduced level of organic halogen and an aqueous liquid stream comprising hydrogen halide which process comprises the steps of:

(a) contacting said halogenated organic stream containing less than about 500 ppm by weight of water or water precursors and a hydrogen-rich gaseous recycle stream containing less than about 500 ppm by weight of water or water precursors with a hydrogenation catalyst in a hydrogenation reaction zone at hydrogenation conditions to increase the hydrogen content of said halogenated organic stream containing less than about 500 ppm by weight of water or water precursors and to thereby produce hydrogen halide;

(b) cooling the resulting effluent from said hydrogenation reaction zone admixture from step (a) to condense at least a portion of the effluent from said hydrogenation reaction zone to produce a hydrogen-rich gaseous stream containing less than about 500 ppm by weight of water or water precursors and a liquid stream comprising hydrogenated hydrocarbonaceous compounds, hydrogen halide and less than about 500 ppm by weight of water or water precursors;

(c) contacting said liquid stream comprising hydrogenated hydrocarbonaceous compounds, hydrogen halide and less than about 500 ppm by weight of water or water precursors with a sponge oil;

(d) separating said liquid stream comprising hydrogenated hydrocarbonaceous compounds, hydrogen halide, said sponge oil and less than about 500 ppm by weight of water or water precursors in a separation zone to produce a stream containing hydrogenated hydrocarbonaceous compounds and hydrogen halide, and a stream comprising said sponge oil and trace quantities of halogenated organic compounds; and

(e) contacting said stream containing hydrogenated hydrocarbonaceous compounds and hydrogen halide with a lean aqueous stream in an absorption zone to produce a stream comprising hydrocarbonaceous compounds and an aqueous stream comprising hydrogen halide.

5,723,707

DEHYDROGENATION PROCESSES, EQUIPMENT AND CATALYST LOADS THEREFOR

John V. Heyse, Crockette; Paul G. Johnson, Pinole, and Bernard F. Mulaskey, Fairfax, all of Calif., assignors to Chevron Chemical Company, San Francisco, Calif.

Continuation of Ser. No. 177,124, Jan. 4, 1994, Pat. No. 5,406,014, and a continuation-in-part of Ser. No. 283, Jan. 4, 1993, abandoned. This application Dec. 12, 1994, Ser. No. 353,598

Int. Cl.[6] C07C *5/333*

U.S. Cl. 585—444 14 Claims

1. A method of dehydrogenating a dehydrogenatable hydrocarbon with a platinum dehydrogenation catalyst in a reactor system under low sulfur dehydrogenation conditions wherein at least a portion of the reactor system in contact with the hydrocarbon has been pretreated with a carburization resistant coating to an extent effective to increase the carburization resistance of the reactor system.

5,723,708

METHOD FOR PRODUCING CYCLOPENTADIENES

Yasuo Matsumura; Kazuharu Suyama, both of Yokohama, and Yoshihisa Inomata, Kawasaki, all of Japan, assignors to Nippon Petrochemicals Company, Limited, Tokyo, Japan

Filed Sep. 27, 1995, Ser. No. 534,817

Claims priority, application Japan, Sep. 29, 1994, 6-261995; Sep. 29, 1994, 6-261996; Dec. 29, 1994, 6-340509

Int. Cl.[6] C07C *1/20;1/207;13/15;13/28*

U.S. Cl. 585—358 7 Claims

1. A method for producing cyclopentadienes which comprises the following steps (I) and (II):

(I) the step of selecting as reactant materials ketones, aldehydes or a combination of a ketone and an aldehyde with the proviso that the total number of carbon atoms in said reactant materials is 7 to 20 and in which at least one of the reactants has at least one active hydrogen on the carbon atom at the alpha-position relative to the carbonyl group, and reacting them in the presence of an acid catalyst or basic catalyst in the liquid phase by an aldol reaction so as to produce a reaction product containing a carbonyl compound selected from the group consisting of a β-hydroxycarbonyl compound, an α,β-unsaturated carbonyl compound, a β,γ-unsaturated carbonyl compound and a mixture thereof, and

(II) the step of contacting said carbonyl compound within the temperature range of 120° to 600° C. in a vapor phase and a solid acid catalyst in the presence of an inert diluent, the contact time between said carbonyl compound and the catalyst being within the range of 0.005 to 20 seconds for the cyclodehydration of the carbonyl compound so as to produce the cyclopentadienes.

5,723,709

TERPENE DIMER COMPOSITIONS AND RELATED METHODS OF MANUFACTURE

Claude Frank Phillips, Jr., Lynn Haven, and James William Booth, Panama City, both of Fla., assignors to Arizona Chemical Company, Panama City, Fla.

Continuation of Ser. No. 227,807, Apr. 14, 1994, abandoned. This application Jul. 9, 1996, Ser. No. 677,174

Int. Cl.[6] C07C *2/76;13/00;13/28*

U.S. Cl. 585—362 21 Claims

1. A process for the preparation of a terpene dimer composition comprising the sequential steps of:

preparing a mixture by adding at least one monoterpene having the molecular formula $C_{10}H_{16}$ to an inorganic acid; wherein 1.0 parts by weight of said monoterpene is combined with approximately 0.3 to 0.6 parts by weight of said inorganic acid;

reacting said mixture at temperatures in the range of 90°–120° C. to cause the condensation of said monoterpene into a terpene dimer having the molecular formula $C_{20}H_{32}$ and containing at least one double bond;

wherein the composition is produced without a distillation step and includes uncondensed monoterpenes, monomeric by-products having the molecular formulas $C_{10}H_{14}$, $C_{10}H_{16}$ or $C_{10}H_{18}$, and less than 15% of terpene oligomers having molecular formulas greater than $C_{20}H_{32}$.

5,723,710

ZEOLITE BETA AND ITS USE IN AROMATIC ALKYLATION

Gregory J. Gajda, Mt. Prospect, Ill., and Richard T. Gajek, Daphne, Ala., assignors to UOP, Des Plaines, Ill.

Filed Jul. 12, 1996, Ser. No. 682,862

Int. Cl.[6] C07C *2/68;5/52*

U.S. Cl. 585—467 20 Claims

1. A process for preparing cumene by the alkylation of benzene with propylene comprising reacting propylene with from 2 up to about 10 molar proportions of benzene at a temperature between about 90° and about 200° C. at a pressure sufficient to maintain at least a partial liquid phase in the presence of a calcined, non-templated, surface-modified zeolite beta whose surface aluminum atoms have a 2p binding energy of at least 74.8 electron volts as determined by X-ray photoelectron spectroscopy.

5,723,711

PROCESS FOR PREPARING 2-METHYLNAPHTHALENE

Masahiro Motoyuki; Koji Yamamoto, both of Kobe, Japan; John Paul McWilliams, and Ajit Vishwanath Sapre, both of Paulsboro, N.J., assignors to Kobe Steel, Ltd., Kobe, Japan, and Mobil Oil Corporation, Fairfax, Va.

Filed Nov. 6, 1996, Ser. No. 744,828

Int. Cl.[6] C07C *5/22*

U.S. Cl. 585—481 13 Claims

1. A process for producing 2-methylnaphthalene from a feedstock containing 1-methylnaphthalene by contacting said feedstock with a catalyst composition, said process comprising isomerization of 1-methylnaphthalene,

wherein said catalyst composition comprises a synthetic zeolite characterized by an X-ray diffraction pattern including interplanar d-spacing as set forth in Table A of the specification.

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5,723,712

CATALYTIC COMPOSITION FOR BIPHASE CATALYSIS, IN PARTICULAR USING NICKEL COMPLEXES, AND A PROCESS FOR THE OLIGOMERIZATION OF OLEFINS

Yves Chauvin, Le Pecq, France; Roberto de Souza, Porto Alegre, Brazil, and Helene Olivier, Rueil Malmaison, France, assignors to Institut Francais du Petrole, Rueil-Malmaison, France

Filed Jul. 10, 1996, Ser. No. 676,670

Claims priority, application France, Jul. 11, 1995, 95/08492

Int. Cl.[6] C07C *2/30*

U.S. Cl. 585—513 **19 Claims**

1. A catalytic composition comprising at least one lithium halide, at least one hydrocarbylaluminium halide and at least one nickel compound.

16. In a process comprising subjecting an olefin to dimerisation in contact with a catalyst composition, the improvement wherein the catalyst composition is according to claim **1**.

5,723,713

ETHYLENE CONVERSION PROCESS

Barry Martin Maunders, Martigues, France, assignor to BP International Limited, London, England

Filed Aug. 6, 1996, Ser. No. 693,020

Claims priority, application United Kingdom, Dec. 6, 1994, 942457

Int. Cl.[6] C07C *2/10;2/00*

U.S. Cl. 585—533 **16 Claims**

1. A process for the conversion of ethylene to a mixture of olefins predominating in 1-olefins said process comprising

a. feeding ethylene through a bed of an oligomerization catalyst to form an oligomer predominating in C2–C6 olefins and

b. feeding the oligomer so formed wherein said oligomer is optionally mixed with further aliquots of ethylene so as to maintain a concentration of ethylene in the oligomer to at least 50% by volume through a catalyst bed to metathesise the oligomer feed to a mixture of olefinic products predominating in C2–C6 1-olefins.

5,723,714

PROCESS FOR THE PREPARATION OF METHYLENECYCLOPROPANE

Paul Binger, Mülheim an der Ruhr, Germany, assignor to Studiengesellschaft Kohle mbH, Mulheim an der Ruhr, Germany

PCT No. PCT/EP94/03231, § 371 Date Sep. 5, 1995, § 102(e) Date Sep. 5, 1995, PCT Pub. No. WO95/09826, PCT Pub. Date Apr. 13, 1995

PCT Filed Sep. 28, 1994, Ser. No. 513,840

Claims priority, application Germany, Oct. 1, 1993, 43 33 491.1

Int. Cl.[6] C07C *1/32*

U.S. Cl. 585—638 **13 Claims**

1. Process for the preparation of methylenecyclopropane from 3-halogen-2-methyl-1-propene (β-methallyl halogenide), comprising reacting the β-methallyhalogenide with an alkali metal-bis-(trialkylsilyl)-amide of the general formula (I)

$$Me—N(SiR_3)_2 \quad (I)$$

wherein

Me represents an alkali metal cation selected from lithium, sodium or potassium, and

R represents a short-chain, straight-chain or branched, saturated alkyl group having 1 to 4 C-atoms,

optionally in presence of an alkali metal alcoholate or a corresponding alcohol of the general formula (II)

$$MeOR \text{ or } HOR \quad (II)$$

wherein

Me and R have the above mentioned meaning, in an organic solvent having a boiling point above 100° C. at a temperature above room temperature.

5,723,715

ISOPARAFFIN-OLEFIN ALKYLATION

Bruce B. Randolph, 2424 Mountain Clr., Bartlesville, Okla. 74003, and Ronald G. Abbott, 3234 Leafy Pine Ct., Kingwood, Tex. 77345

Continuation-in-part of Ser. No. 950,334, Sep. 24, 1992, abandoned. This application May 30, 1995, Ser. No. 452,738

Int. Cl.[6] C07C *2/58*

U.S. Cl. 585—724 **22 Claims**

1. A process comprising the step of:

contacting under suitable alkylation reaction conditions a hydrocarbon mixture, comprising olefins and paraffins, with a catalyst composition having an absence of a Lewis acid and comprising the components of:

a hydrogen halide and a sulfone wherein the weight ratio of said hydrogen halide component to said sulfone component in said composition is in the range of from about 39:1 to about 1:1; and

a promoter selected from a group consisting of sulfuric acid, fluorosulfonic acid, and a sulfonic acid of the formula $R\text{-}SO_3H$ wherein R is an alkyl group, an aromatic group, a halogenated alkyl group or a halogenated aromatic group.

5,723,716

METHOD FOR UPGRADING WAXY FEEDS USING A CATALYST COMPRISING MIXED POWDERED DEWAXING CATALYST AND POWDERED ISOMERIZATION CATALYST FORMED INTO A DISCRETE PARTICLE (LAW082)

Dee Anne Brandes, Calgary; David N. Zinkie, Sarnia, both of Canada, and Sandra J. Alward, Baton Rouge, La., assignors to Exxon Research and Engineering Company, Florham Park, N.J.

Division of Ser. No. 343,387, Nov. 22, 1994, abandoned. This application Aug. 27, 1996, Ser. No. 703,588

Int. Cl.[6] C10G *47/16*

U.S. Cl. 585—734 **17 Claims**

1. A method for upgrading waxy feeds to produce lubricating oils said method comprising contacting the waxy feed under upgrading conditions of elevated temperature, and pressure in the presence of hydrogen with a catalyst comprising a unitized powder pellet catalyst made by mixing powdered molecular sieve dewaxing catalyst comprising a 10 member ring unidirectional pore inorganic oxide molecular sieve with a powdered amorphous isomerization catalyst having an acidity of about 0.3 to about 2.5, mixing the powdered materials together to form a homogeneous mass, compressing/extruding the mass and pelleting the extruded/compressed mass, wherein said acidity is determined by the ability of the isomerization catalyst to convert 2-methylpent-2-ene to 3-methylpent-2-ene and 4-methylpent- 2-ene and is expressed as the mole ratio of 3-methylpent-2-ene to 4-methylpent-2-ene.

5,723,717

PROCEDURE FOR THE RECOVERY AND/OR CLEANING OF CARBON FORMED AS A RESULT OF COMBUSTION PROCESSES

Günter H. Kiss, Minusio, Germany, assignor to Thermoselect AG, Vaduz, Liechtenstein

Filed Feb. 2, 1995, Ser. No. 382,608

Int. Cl.[6] C10B *47/00*

U.S. Cl. 588—213 **4 Claims**

1. A process for treating gases obtained during the reclamation of carbon-containing waste materials, comprising the steps of:

degassing carbon-containing waste materials and diverting the gases therefrom; gasifying the remaining organic components of the waste materials at a temperature of at least 800° C. and collecting the gases therefrom together with the gases from said degassing step; chilling the collected gases below 100° C. with a cooling water spray to obtain deposits of activated carbon; forming a dispersion of the activated carbon in the cooling water which binds any noxious substances in the collected gases; concentrating the dispersion to form a carbon sludge; drying the carbon sludge to form residual carbon while evaporating off any noxious substances; and recycling the residual carbon into the carbon-containing waste materials prior to said gasifying step.

5,723,718

INDUCTION OF IMMUNE TOLERANCE TO TUMOR CELLS

Michael E. Berens, Gilbert, Ariz., assignor to St. Joseph's Hospital and Medical Center, Phoenix, Ariz.

Filed Dec. 20, 1994, Ser. No. 359,760

Int. Cl.[6] C12N *5/00;15/00*

U.S. Cl. 800—2 **21 Claims**

1. A method of producing a canine useful for screening solid-tumor cancer therapies, the method comprising:

introducing heterologous tumor cells subcutaneously, into an immature preimmunocompetent canine fetus between about 35 and about 40 days gestation under conditions that induce specific immune tolerance to the tumor cells such that the canine, upon birth and thereafter, retains a normal, intact immune system and the tumor cells are recognized as self; and

allowing the tumor cells to proliferate in the canine thereby forming a tumor.

18. A canine comprising a heterologous solid tumor, wherein said canine is specifically immunotolerant of said tumor, such that the canine has a normal, intact immune system and the tumor cells are recognized as self.

5,723,719

TRANSGENIC MOUSE AS MODEL FOR DISEASES INVOLVING DOPAMINERGIC DYSFUNCTION

Anil K. Ratty, Kent Ridge Crescent, Singapore; Stanley D. Glick, Williamstown, Mass.; John J. Mullins, Edinburgh, United Kingdom; Lawrence W. Fitzgerald, Milford, Conn., and Kenneth W. Gross, East Concord, N.Y., assignors to Health Research Inc., Buffalo, N.Y.

Continuation-in-part of Ser. No. 36,988, Mar. 25, 1993, abandoned, which is a continuation-in-part of Ser. No. 742,601, Aug. 8, 1991, abandoned. This application Feb. 15, 1995, Ser. No. 389,191

Int. Cl.[6] C12N *5/00;15/00;* **A61K** *49/00*

U.S. Cl. 800—2 **6 Claims**

1. A transgenic mouse, from a mouse line designated TgX15, exhibiting a circling behavior phenotype as a result of an insertional mutation caused by introducing a Ren-2^d transgene into chromosome 16 of said mouse, or an ancestor thereof, at an embryonic stage such that said transgene disrupts an endogenous function, resulting in said mutation, wherein the transgenic mouse demonstrates an increase in dopamine binding receptors in the nigrostriata when compared to mice of the same species which do not contain the insertional mutation.

5,723,720

PROCESS FOR THE DEVELOPMENT OF ENDOPHYTE-INFECTED PLANTS

A. Douglas Brede, Veradale, and Suichang Sun, Liberty Lake, both of Wash., assignors to J. R. Simplot Company, Boise, Id.

Filed Jun. 7, 1995, Ser. No. 483,897

Int. Cl.[6] A01H *4/00;17/00;5/00;* **A01G** *13/00*

U.S. Cl. 800—200 **31 Claims**

1. A cultivar of a non-naturally occurring turf grass comprising a naturally endophyte-free grass, selected from the group consisting of bentgrass of the genus Agrostis and Kentucky bluegrass of the genus Poa, infected with an Acremonium endophytic fungus.

5,723,721

INBRED CORN LINE CG00685 USE THEREOF

Christopher P. Clucas, Washington Court House, Ohio, assignor to Novartis Corporation

Continuation of Ser. No. 393,517, Feb. 22, 1995, abandoned, which is a continuation of Ser. No. 253,191, Jun. 2, 1994, abandoned, which is a continuation of Ser. No. 18,676, Feb. 17, 1993, abandoned. This application Dec. 6, 1995, Ser. No. 567,869

Int. Cl.[6] A01H *5/00;4/00;* **C12N** *5/04*

U.S. Cl. 800—200 **15 Claims**

1. An inbred corn line designated CG00685 (ATCC designation 75384).

5,723,722

INBRED MAIZE LINE PHND1

Norman Eugene Williams, York, Nebr., assignor to Pioneer Hi-Bred International, Inc., Des Moines, Iowa

Filed Feb. 26, 1996, Ser. No. 606,813

Int. Cl.[6] A01H *5/00;4/00;* **C12N** *5/04*

U.S. Cl. 800—200 **19 Claims**

1. Seed of maize inbred line designated PHND1 having been deposited under ATCC Accession No.

5,723,723

INBRED MAIZE LINE PH44A

Loren John Hoffbeck, Tipton, Ind., assignor to Pioneer Hi-Bred International, Inc., Des Moines, Iowa

Filed Mar. 5, 1996, Ser. No. 611,160

Int. Cl.[6] A01H *5/00;4/00;1/00;* **C12N** *5/04*

U.S. Cl. 800—200 **19 Claims**

1. Seed of maize inbred line designated PH44A having been deposited under ATCC Accession No. 209268.

5,723,724

INBRED CORN LINE ZS01591

Bob Guse, Hope, Ind.; Sue Sullivan, Ames, Iowa, and Dirk Benson, Westfield, Ind., assignors to Garst Seed Company, Slater, Iowa

Filed Apr. 1, 1996, Ser. No. 617,668

Int. Cl.[6] A01H *5/00;4/00;* **C12N** *5/04*

U.S. Cl. 800—200 **11 Claims**

1. Inbred corn seed designated ZS01591, some of said seed deposited in the ATCC and carry accession number 209115.

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5,723,725

INBRED CORN LINE ZS01101

David Witherspoon, Marshall, Mo., and Ming-Tang Chang, Ames, Iowa, assignors to Garst Seed Company, Slater, Iowa

Filed Mar. 21, 1996, Ser. No. 619,354
Int. Cl.[6] A01H *5/00;4/00;* **C12N** *5/04*
U.S. Cl. 800—200 **11 Claims**

1. Inbred corn seed designated ZS01101, some of said seed deposited in the ATCC and carry accession number 209105.

5,723,726

INBRED CORN LINE ZS01452

Richard Stelpflug, Huxley, Iowa, and Mark Messmer, Wichita, Kans., assignors to Garst Seed Company, Slater, Iowa

Filed Mar. 28, 1996, Ser. No. 620,795
Int. Cl.[6] A01H *5/00;4/00;* **C12N** *5/04*
U.S. Cl. 800—200 **11 Claims**

1. Inbred corn seed designated ZS01452, some of said seed deposited in the ATCC and carry accession number X204112.

5,723,727

INBRED CORN LINE ZS01429

Kris Nyhus, New Haven, Ind., assignor to Garst Seed Company, Slater, Iowa

Filed Mar. 28, 1996, Ser. No. 620,796
Int. Cl.[6] A01H *5/00;4/00;* **C12N** *5/04*
U.S. Cl. 800—200 **11 Claims**

1. Inbred corn seed designated ZS01429, some of said seed deposited in the ATCC and carry accession number 209111.

5,723,728

INBRED CORN LINE ZS01819

Scott Tragessor, Marshall, Mo., and Sue Sullivan, Ames, Iowa, assignors to Garst Seed Company, Slater, Iowa

Filed Mar. 27, 1996, Ser. No. 622,770
Int. Cl.[6] A01H *5/00;4/00;* **C12N** *5/04*
U.S. Cl. 800—200 **11 Claims**

1. Inbred corn seed designated ZS01819, some of said seed deposited in the ATCC and carry accession number 209117.

5,723,729

INBRED CORN LINE ZS01250

Tony Maves, Horace, N. Dak., and Mark Messmer, Ankeny, Iowa, assignors to Garst Seed Company, Slater, Iowa

Filed Apr. 8, 1996, Ser. No. 628,915
Int. Cl.[6] A01H *5/00;4/00;* **C12N** *5/04*
U.S. Cl. 800—200 **11 Claims**

1. Inbred corn seed designated ZS01250, some of said seed deposited in the ATCC and carry accession number 209108.

5,723,730

INBRED CORN LINE ZS01595

Kevin Montgomery, Maroa, Ill.; Ming-Tang Chang, Ames; Jeff Sernett, Kelley, both of Iowa, and Scott Tragesser, Marshall, Mo., assignors to Garst Seed Company, Slater, Iowa

Filed Apr. 25, 1996, Ser. No. 634,893
Int. Cl.[6] A01H *5/00;4/00;* **C12N** *5/04*
U.S. Cl. 800—200 **11 Claims**

1. Inbred corn seed designated ZS01595, some of said seed deposited in the ATCC and carry accession number 209114.

5,723,731

INBRED CORN LINE ASG05

Kevin D. Eichelberger, Monmouth, Ill., and David Wayne Peters, New Ulm, Minn., assignors to Asgrow Seed Company, Kalamazoo, Mich.

Filed Jul. 12, 1996, Ser. No. 679,145
Int. Cl.[6] A01H *5/00;4/00;* **C12N** *5/04*
U.S. Cl. 800—200 **10 Claims**

1. Inbred corn seed designated ASG05 having ATCC accession No. 97645.

5,723,732

SOYBEAN CULTIVAR 9063092096

Roger Lussenden, Redwood Falls, Minn., assignor to Asgrow Seed Company, Kalamazoo, Mich.

Filed Sep. 20, 1996, Ser. No. 716,131
Int. Cl.[6] A01H *5/00;5/10;* **C12N** *5/04*
U.S. Cl. 800—200 **9 Claims**

1. A soybean seed designated 9063092096, deposited as ATCC Accession Number 209182.

2. A plant or plants of the soybean cultivar designated 9063092096 produced by growing the seed of claim 1.

5,723,733

SOYBEAN CULTIVAR 8817039154041

William K. Rhodes, Queenstown, Md., assignor to Asgrow Seed Company, Kalamazoo, Mich.

Filed Sep. 30, 1996, Ser. No. 723,995
Int. Cl.[6] A01H *5/00;5/10;* **C12N** *5/04*
U.S. Cl. 800—200 **9 Claims**

1. A soybean seed designated 8817039154041 deposited as ATCC Accession Number 209188.

2. A plant or plants of the soybean cultivar designated 8817039154041 produced by growing the seed of claim 1.

5,723,734

SOYBEAN CULTIVAR 92382094203

William K. Rhodes, Queenstown, Md., assignor to Asgrow Seed Company, Kalamazoo, Mich.

Filed Sep. 30, 1996, Ser. No. 723,996
Int. Cl.[6] A01H *5/00;5/10;* **C12N** *5/04*
U.S. Cl. 800—200 **9 Claims**

1. A soybean seed designated 92382094203 deposited as ATCC Accession Number 209187.

2. A plant or plants of the soybean cultivar designated 92382094203 produced by growing the seed of claim 1.

5,723,735

SOYBEAN CULTIVAR 913148931250

Kevin W. Matson, Ames, Iowa, assignor to Asgrow Seed Company, Kalamazoo, Mich.

Filed Sep. 30, 1996, Ser. No. 723,997
Int. Cl.[6] A01H *5/00;5/10;* **C12N** *5/04*
U.S. Cl. 800—200 **9 Claims**

1. A soybean seed designated 913148931250 deposited as ATCC Accession Number 209184.

2. A plant or plants of the soybean cultivar designated 913148931250 produced by growing the seed of claim 1.

5,723,736

SOYBEAN CULTIVAR 914819313007

Christopher Tinius, Memphis, Tenn., assignor to Asgrow Seed Company, Kalamazoo, Mich.

Filed Sep. 30, 1996, Ser. No. 723,998
Int. Cl.[6] A01H *5/00;5/10;* **C12N** *5/04*
U.S. Cl. 800—200 **9 Claims**

1. A soybean seed designated 914819313007 deposited as ATCC Accession Number 209183.

2. A plant or plants of the soybean cultivar designated 914819313007 produced by growing the seed of claim 1.

5,723,737

SOYBEAN CULTIVAR 91105993404

Christopher Tinius, Memphis, Tenn., assignor to Asgrow Seed Company, Kalamazoo, Mich.

Filed Sep. 30, 1996, Ser. No. 723,999
Int. Cl.[6] A01H *5/00;5/10;* **C12N** *5/04*
U.S. Cl. 800—200 **9 Claims**

1. A soybean seed designated 91105993404 deposited as Accession Number 209185.

2. A plant or plants of the soybean cultivar designated 91105993404 produced by growing the seed of claim 1.

5,723,738

SOYBEAN CULTIVAR 916119311654

Christopher Tinius, Memphis, Tenn., assignor to Asgrow Seed Company, Kalamazoo, Mich.

Filed Sep. 30, 1996, Ser. No. 724,000
Int. Cl.[6] A01H *5/00;5/10;* **C12N** *5/04*
U.S. Cl. 800—200 **9 Claims**

1. A soybean seed designated 916119311654 deposited as ATCC Accession Number 209186.

2. A plant or plants of the soybean cultivar designated 916119311654 produced by growing the seed of claim 1.

5,723,739

INBRED CORN LINE LH281

Gary D. Arthur, Iown City, Iowa, assignor to Holden's Foundation Seeds, Williamsburg, Iowa

Filed Oct. 4, 1996, Ser. No. 725,922
Int. Cl.[6] A01H *5/00;4/00;* **C12N** *5/04*
U.S. Cl. 800—200 **10 Claims**

1. Inbred corn seed designated LH281 having ATCC accession No. 97742.

2. A corn plant produced by growing the seed of claim 1.

5,723,740

Patent Not Issued For This Number

5,723,741

SOYBEAN CULTIVAR 89150793

Kevin W. Matson, Ames, Iowa, and Michael Lewis, Vicksburg, Mich., assignors to Asgrow Seed Company, Kalamazoo, Mich.

Filed Feb. 12, 1997, Ser. No. 797,921
Int. Cl.[6] A01H *5/00;5/10;* **C12N** *5/04*
U.S. Cl. 800—200 **10 Claims**

1. A soybean seed designated 89150793 deposited as ATCC Accession Number 209351.

2. A soybean plant produced by growing the seed of claim 1.

5,723,742

SOYBEAN CULTIVAR 9314589400005

Janet Nykazn, Portage, and Michael Lewis, Vicksburg, both of Mich., assignors to Asgrow Seed Company, Kalamazoo, Mich.

Filed Feb. 12, 1997, Ser. No. 797,986
Int. Cl.[6] A01H *5/00;5/10;* **C12N** *5/04*
U.S. Cl. 800—200 **10 Claims**

1. A soybean seed designated 9314589400005 deposited as ATCC Accession Number 209352.

2. A plant or plants of the soybean cultivar designated 9314589400005 produced by growing the seed of claim 1.

5,723,743

SOYBEAN CULTIVAR 9314629501439

Roger Lussenden, Redwood Falls, Minn., assignor to Asgrow Seed Company, Kalamazoo, Mich.

Filed Feb. 11, 1997, Ser. No. 798,265
Int. Cl.[6] A01H *5/00;5/10;* **C12N** *5/04*
U.S. Cl. 800—200 **10 Claims**

1. A soybean seed designated 9314629501439 deposited as ATCC Accession Number 209353.

2. A plant or plants of the soybean cultivar designated 9314629501439 produced by growing the seed of claim 1.

5,723,744

SOYBEAN CULTIVAR 9311729435199

Kevin W. Matson, Ames, Iowa, assignor to Asgrow Seed Company, Kalamazoo, Mich.

Filed Feb. 11, 1997, Ser. No. 798,267
Int. Cl.[6] A01H *5/00;5/10;* **C12N** *5/04*
U.S. Cl. 800—200 **9 Claims**

1. A soybean seed designated 9311729435199 deposited as ATCC Accession Number 209206.

2. A plant or plants of the soybean cultivar designated 9311729435199 produced by growing the seed of claim 1.

5,723,745

SOYBEAN CULTIVAR 9312229422519

Andrew D. Nickell, Milton, Wis., assignor to Monsanto Corporation, St. Louis, Mo.

Filed Feb. 11, 1997, Ser. No. 798,815
Int. Cl.[6] A01H *5/00;5/10;* **C12N** *5/04*
U.S. Cl. 800—200 **9 Claims**

1. A soybean seed designated 9312229422519 deposited as ATCC Accession Number 209207.

2. A plant or plants of the soybean cultivar designated 9312229422519 produced by growing the seed of claim 1.

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5,723,746

REDUCED ETHYLENE SYNTHESIS AND DELAYED FRUIT RIPENING IN TRANSGENIC TOMATOES EXPRESSING S-ADENOSYLMETHIONINE HYDROLASE

Richard Keith Bestwick, Portland, and Adolph J. Ferro, Lake Oswego, both of Oreg., assignors to Epitope, Inc., Beaverton, Oreg.

Continuation-in-part of Ser. No. 613,858, Dec. 12, 1990, abandoned, which is a continuation-in-part of Ser. No. 448,095, Dec. 12, 1989, abandoned. This application Apr. 9, 1993, Ser. No. 46,583

Int. Cl.[6] A01H *4/00;5/08;* **C12N** *15/82;5/14*

U.S. Cl. 800—205 **35 Claims**

1. A transgenic fruit-bearing plant, comprising: (i) a DNA sequence which encodes S-adenosylmethionine hydrolase enzyme, and (ii) a promoter capable of regulating expression of the tomato E8 gene, where expression redulated by said promoter is induced during fruit ripening or by ethylene synthesis by fruit of said plant, and where said DNA sequence is operably linked to said promoter to enable expression of S-adenosylmethionine hydrolase enzyme.

5,723,747

WAX ESTERS IN TRANSFORMED PLANTS

Michael Lassner, and James George Metz, both of Davis, Calif., assignors to Calgene, Inc., Davis, Calif.

Continuation-in-part of Ser. No. 920,430, Jul. 31, 1992, Pat. No. 5,370,996, which is a continuation-in-part of Ser. No. 796,256, Nov. 20, 1991, abandoned, Ser. No. 767,251, Sep. 27, 1991, Pat. No. 5,403,918, and Ser. No. 659,975, Feb. 22, 1991, abandoned. This application Jun. 1, 1994, Ser. No. 251,464

Int. Cl.[6] A01H *5/00;5/10;* **C12N** *15/82*

U.S. Cl. 800—205 **11 Claims**

1. A method of producing a wax ester in a plant cell, wherein said method comprises growing a plant cell comprising a jojoba fatty acyl reductase expressed from a sequence heterologous to said plant cell, wherein said plant cell comprises a fatty acyl substrate of said jojoba fatty acyl reductase.

8. A plant cell comprising a wax ester obtained by the method of claim **1**.

11. A plant comprising a plant cell according to claim **8**.

5,723,748

Patent Not Issued For This Number

5,723,749

Patent Not Issued For This Number

5,723,750

TRANSGENIC PLANTS EXPRESSING DISASSEMBLY DEFICIENT VIRAL COAT PROTEINS

Gerald Stubbs, Nashville, Tenn., and James N. Culver, Silver Spring, Md., assignors to Vanderbilt University, Nashville, Tenn., and Univ. of Maryland Biotechnology Institute, College Park, Md.

Filed Jan. 12, 1995, Ser. No. 372,175

Int. Cl.[6] A01H *5/00;* **C12N** *15/33;15/84*

U.S. Cl. 800—205 **5 Claims**

2. A nucleic acid encoding a pathogenic plant virus protein, containing substitutions in the genetic sequence which result in the replacement of amino acids having carboxylate side chains which are in proximity with other amino acids having carboxylate side chains, such that they create electrostatic repulsive forces, with uncharged amino acids and which, when expressed in a plant, has the phenotypic effect of displacing wild type coat proteins in an infecting wild type virus in the process of disassembly and inhibiting the ability of the wild type virus to disassemble, wherein the nucleic acid does not encode for asparagine at amino acid position 77 when the nucleic acid encodes a tobacco mosaic virus coat protein.

5. A plant functionally expressing the protein encoded by the nucleic acid of claim **2** in mounts which inhibit the ability of the wild type virus to disassemble.

5,723,751

EXPRESSION MOTIFS THAT CONFER TISSUE AND DEVELOPMENT-SPECIFIC EXPRESSION IN PLANTS

Nam-Hai Chua, Scarsdale, N.Y., assignor to The Trustees of Rockefeller University, New York, N.Y.

Continuation of Ser. No. 982,792, Nov. 30, 1992, abandoned. This application Jan. 24, 1995, Ser. No. 378,986

Int. Cl.[6] A01H *5/00;* **C12N** *15/29;5/04;15/82*

U.S. Cl. 800—205 **11 Claims**

1. A modified plant promoter comprising (A) a tetrameric tandem direct repeat of the lwt motif, GTACGTGGCG, (SEQ ID NO:2) and (B) a promoter or a segment of a promoter, wherein said segment has its 3'-end at the nucleotide corresponding to the transcription initiation site of the homologous gene regulated by said promoter or at any nucleotide that is one to nine basepairs 5'-upstream of the nucleotide corresponding to the transcription initiation site, and said segment has its 5'-end at a nucleotide at least 50 basepairs 5'-upstream of said initiation site; and (A) is coupled to the 5'-end of (B) or is inserted into (B) at a site at least 50 basepairs 5'-upstream of the 3'-end of (B).

5. A genetically engineered DNA molecule comprising the modified plant promoter of claim **1**, **2**, **3** or **4** operatively linked to the coding sequence of a gene of interest, wherein said modified plant promoter is linked to the 5'-end of said coding sequence and said modified plant promoter regulates the transcription of said coding sequence.

7. A transgenic plant containing a genetically engineered DNA molecule of claim **5**.

5,723,752

CLONING AND DEVELOPMENTAL EXPRESSION OF PEA RIBULOSE-1,5-BISPHOSPHATE CARBOXYLASE/OXYGENASE LARGE SUBUNIT N-METHYLTRANSFERASE

Robert L. Houtz, Lexington, Ky., assignor to University Of Kentucky, Lexington, Ky.

Filed Feb. 21, 1995, Ser. No. 391,000

Int. Cl.[6] A01H *5/00;* **C12N** *15/29;15/54;15/82*

U.S. Cl. 800—205 **15 Claims**

1. An isolated Rubisco LSMT gene which is expressed in a photosynthesizing plant having a large subunit of Rubisco and which encodes a Rubisco LSMT enzyme.

7. A recombinant photosynthesizing non-pea plant transformed with the Rubisco LSMT gene of claim **1**.

5,723,753

Patent Not Issued For This Number

5,723,754

TAPETUM-SPECIFIC PROMOTERS FROM BRASSICACEAE SPP

Roderick John Scott, 95 Martopp Road, Clarendon Pk, Leicester LE2 1 WG; John Draper, 10 Shirley Road, Stoneygate, Leicester LE2 2 LJ, and Wyatt Paul, Flat 5, 74 Stoughton Rd., Leicester LE2 2EB, all of Great Britain

Continuation of Ser. No. 78,228, Aug. 23, 1993, abandoned. This application Apr. 5, 1995, Ser. No. 417,460

Claims priority, application United Kingdom, Dec. 24, 1990, 9028060

Int. Cl.[6] A01H *5/00;* **C12N** *15/12;15/82*

U.S. Cl. 800—205 **28 Claims**

1. Isolated DNA comprising a promoter having tapetum-specific activity which naturally drives the expression of a gene encoding a 12.9 kDa tapetum-specific protein as shown in FIG. **4** (SEQ ID No. 7) in *Arabidopsis thaliana.*

27. A plant cell transformed with the DNA as claimed in any one of claims **1** to **7**.

28. A plant, a part of a plant, or propagating material from a plant, each comprising plant cells transformed as claimed in claim **27**.

5,723,755

LARGE SCALE PRODUCTION OF HUMAN OR ANIMAL PROTEINS USING PLANT BIOREACTORS

Marc G. Fortin, Ste-Anne-de-Bellevue, Canada, assignor to Francis E. Lefaivre, and McGill University, both of Canada

Filed May 16, 1995, Ser. No. 442,255

Int. Cl.[6] A01H *5/00;* **C12N** *15/12;15/82;15/84;15/24*

U.S. Cl. 800—205 **12 Claims**

2. An expression vector for the large scale production of a human or animal protein, which comprises a DNA construct consisting of operatively linked DNA coding for a plant promoter, a mRNA stabilizer a transcription terminator and said human or animal protein to be expressed, wherein said human or animal protein is selected from the group of proteins consisting of human protein C (HCP), factor VIII, growth hormone, erythropoietin, interleukin 1, interleukin 2, interleukin 3, interleukin 4, interleukin 5, interleukin 6, and interleukin 7, wherein said expression vector is pCP2.

3. An expression vector for the large scale production of a human or animal protein, which comprises a DNA construct consisting of operatively linked DNA coding for a plant promoter, a mRNA stabilizer, a transcription terminator, and said human or animal protein to be expressed, wherein the human or animal protein is a protein chosen from a family of proteins, wherein said family of proteins is selected from the group consisting of colony stimulating factors, relaxins, polypeptide hormones, cytokines, growth factors and coagulation factors, wherein said expression vector is pLG3.

5. A plant bioreactor for the large scale production of human or animal protein, which comprises dicotyledonous plants transformed with the expression vector of claim **2** which further includes a suitable selectable marker for plant transformation.

5,723,756

***BACILLUS THURINGIENSIS* STRAINS AND THEIR GENES ENCODING INSECTICIDAL TOXINS**

Marnix Peferoen, Ghent; Bart Lambert, Beernem, and Katrien Van Audenhove, Brugge, all of Belgium, assignors to Plant Genetic Systems, N.V., Ghent, Belgium

Division of Ser. No. 952,755, Nov. 17, 1992, Pat. No. 5,466,597. This application May 18, 1995, Ser. No. 443,679

Claims priority, application United Kingdom, Apr. 26, 1990, 90401144; Dec. 20, 1990, 90403724

Int. Cl.[6] A01H *5/00;* **C12N** *5/04;15/32;15/82*

U.S. Cl. 800—205 **6 Claims**

1. A transformed plant cell comprising a chimeric gene comprising an isolated DNA sequence encoding a Btl109P protein of SEQ. ID. No. 1; or an insecticidally effective part of the Btl109P protein of SEQ. ID. No. 1, or a truncated Btl109P protein of SEQ. ID. No. 1 having at least the toxin activity of the Btl109P protein, said DNA being under the control of a plant expressible promoter.

2. A plant or a seed thereof comprising the plant cell of claim **1**.

5,723,757

PLANT PROMOTERS SPECIFIC FOR SINK ORGAN EXPRESSION OF GENES

Mario Rocha-Sosa, Cuernavaca, Mexico; Uwe Sonnewald, Berlin, Germany; Wolf-Bernd Frommer, Berlin, Germany; Lothar Willmitzer, Berlin, Germany, and Marina Stratmann, Berlin, Germany, assignors to Hoechst Schering AgrEvo GmbH, Berlin, Germany

Continuation-in-part of Ser. No. 995,911, Dec. 22, 1992, Pat. No. 5,436,393, which is a continuation of Ser. No. 454,363, Dec. 21, 1989, abandoned. This application May 23, 1995, Ser. No. 448,110

Claims priority, application Germany, Dec. 21, 1988, 38 43 627.2

Int. Cl.[6] A01H *5/00;* **C12N** *15/29;15/82;5/04*

U.S. Cl. 800—205 **25 Claims**

17. A transgenic plant comprising an expression cassette comprising the following sequences:

i) a promoter sequence of a class I patatin gene which leads to a sink organ specific expression of sequeances fused to said promoter sequence,

ii) a DNA sequence of heterologous origin, which is fused to the promoter sequence, and

iii) a DNA sequence for transcriptional and translational termination, wherein the transgenic plant expresses the DNA sequence of heterologous origin at a level higher in the sink organ relative to the other tissues.

5,723,758

***BACILLUS THURINGIENSIS* GENES ENCODING LEPIDOPTERAN-ACTIVE TOXINS**

Jewel Payne, Davis, Calif.; David A. Cummings, Faversham; Raymond J.C. Cannon, Sittingbourne, both of England; Kenneth E. Narva, and Steve Steiman, both of San Diego, Calif., assignors to Mycogen Corporation, San Diego, Calif.

Continuation-in-part of Ser. No. 69,902, Jun. 1, 1993, abandoned, which is a division of Ser. No. 759,247, Sep. 13, 1991, Pat. No. 5,268,172. This application May 23, 1995, Ser. No. 448,170

Int. Cl.[6] C12N *5/14;15/32*

U.S. Cl. 800—205 **11 Claims**

1. An isolated polynucleotide sequence encoding a lepidopteran-active toxin wherein said toxin comprises SEQ ID NO. 7, 8, or 9, or a lepidopteran-active variant or portion thereof wherein said variant has at least 90% sequence identity with SEQ ID NO. 7, 8, or 9.

5,723,759

PYRROLNITRIN BIOSYNTHESIS GENES

James M. Ligon, Basel, Switzerland; Dwight Steven Hill, Cary, N.C.; John Andrew Ryals, Durham, N.C.; Stephen Ting Lam, Raleigh, N.C., and Philip E. Hammer, Cary, N.C., assignors to Novartis Finance Corporation, New York, N.Y.

Division of Ser. No. 258,261, Jun. 8, 1994, Pat. No. 5,639,949, which is a continuation-in-part of Ser. No. 87,636, Jul. 1, 1993, abandoned, which is a continuation-in-part of Ser. No. 908,284, Jul. 2, 1992, abandoned, which is a continuation-in-part of Ser. No. 570,184, Aug. 20, 1990, abandoned, which is a continuation-in-part of Ser. No. 937,648, Aug. 31, 1992, abandoned. This application Jun. 1, 1995, Ser. No. 457,335

Int. Cl.[6] A01H *5/00;* **C12N** *5/10;15/31;15/82*

U.S. Cl. 800—205 **8 Claims**

1. A DNA molecule isolated from a pyrrolnitrin-producing bacterium, wherein said DNA molecule encodes a biosynthetic enzyme required, in the biosynthetic pathway of pyrrolnitrin.

6. A plant transformed with the DNA molecule of claim **1**.

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5,723,760

FUNGUS-RESPONSIVE CHIMAERIC GENE

Günter Strittmatter, and Norbert Martini, both of Köln, Germany, assignors to Max-Planck-Gesellschaft Zur Forderung, Munich, Germany

Division of Ser. No. 302,891, Jan. 30, 1995. This application Jun. 5, 1995, Ser. No. 463,048

Claims priority, application European Pat. Off., Mar. 20, 1992, 92400770

Int. Cl.° A01H *5/00;* **C12N** *15/29;5/04;15/82*

U.S. Cl. 800—205 **17 Claims**

1. A chimeric gene, comprising:

a) a fungus-responsive promoter region comprising the DNA sequence of SEQ ID No. 1 from nucleotide 295 to nucleotide 567 operably linked to

b) a foreign DNA sequence.

7. The chimeric gene of claim **1**, wherein the foreign DNA sequence encodes a GUS marker protein.

11. A plant comprising a plant cell wherein the chimeric gene of any one of claims **1** to **7** has been integrated into the DNA of said plant cell.

5,723,761

PLANT ACYL-ACP THIOESTERASE SEQUENCES

Toni A. Voelker, Davis; Ling Yuan, Vacaville; Jean Kridl; Deborah Hawkins, both of Davis, and Aubrey Jones, Woodland, all of Calif., assignors to Calgene, Inc., Davis, Calif.

Continuation-in-part of Ser. No. 261,695, Jun. 16, 1994, abandoned, and Ser. No. 152,004, Nov. 10, 1993, abandoned. This application Jun. 2, 1995, Ser. No. 464,523

Int. Cl.° A01H *5/00;15/10;* **C12N** *5/14;15/29;15/52;15/82*

U.S. Cl. 800—205 **42 Claims**

30. A method of increasing the percentage of C16:0 fatty acids in a plant seed, wherein said method comprises:

growing a plant having integrated into its genome a DNA construct, said construct comprising in the 5' to Y direction of transcription, a transcriptional regulatory region functional in said plant cell and a plant thioesterase encoding sequence, wherein said plant thioesterase is expressed and preferentially utilizes saturated C16:0 fatty acyl-ACP substrates as compared to C18:1 fatty acyl-ACP substrates, and

harvesting seed from said plant, wherein said seed comprises oil having an increased percentage of C16:0 fatty acids as compared to C16:0 fatty acid levels in wild-type seed from an untransformed control plant.

5,723,762

TRANSGENIC PLANTS EXPRESSING A PROKARYOTIC AMMONIUM DEPENDENT ASPARAGINE SYNTHETASE

Dénes Dudits; Katalin Paulovics; Katalin Kalman; János Györgyey; Ferenc Nagy; László Bako; Gábor Horvath, all of Szeged, Hungary; Peter Eckes, Kelkheim/Taunus, and Günter Donn, Hofheim am Taunus, both of Germany, assignors to Hoechst Aktiengesellschaft, Frankfurt, Germany

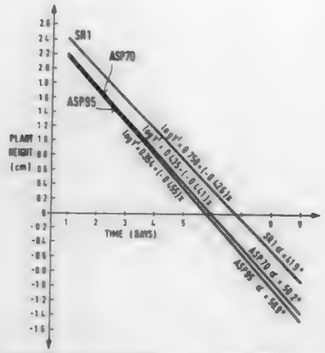
Division of Ser. No. 360,176, Dec. 20, 1994, Pat. No. 5,545,819, which is a continuation of Ser. No. 238,203, May 4, 1994, abandoned, which is a continuation of Ser. No. 116,045, Sep. 2, 1993, abandoned, which is a continuation of Ser. No. 910,262, Sep. 24, 1992, abandoned. This application Jun. 5, 1995, Ser. No. 465,526

Claims priority, application European Pat. Off., Jan. 26, 1990, 90 10 1537.0

Int. Cl.° A01H *5/00;5/10;* **C12N** *15/52;15/82*

U.S. Cl. 800—205 **19 Claims**

19. A plant, seed, or propagule comprising plant cells containing DNA coding for *E. coli* ammonium-specific asparagine synthetase.



type A, wherein the cell expresses *E. coli* ammonium-specific asparagine synthetase, type A.

5,723,763

PLANTS WITH MODIFIED FLOWERS

Celestina Mariani, Heusden; Jan Leemans, Deurle, and Willy De Greef, Ghent, all of Belgium, assignors to Plant Genetic Systems, N.V., Ghent, Belgium

Division of Ser. No. 395,649, Feb. 28, 1995, which is a continuation of Ser. No. 214,045, Mar. 15, 1994, abandoned, which is a continuation of Ser. No. 671,752, Mar. 21, 1991, abandoned. This application Jun. 6, 1995, Ser. No. 466,123

Claims priority, application European Pat. Off., Oct. 8, 1989, 89402270

Int. Cl.° A01H *5/00;1/02;* **C12N** *15/29;15/55;15/82;5/04;9/22*

U.S. Cl. 800—205 **78 Claims**

25. A plant comprising a first foreign DNA and a second foreign DNA incorporated in the nuclear genome of its cells wherein said first foreign DNA comprises a sterility gene comprising:

a sterility DNA encoding a ribonuclease which, when produced in cells of a female reproductive organ of said plant, is capable of killing or disabling them, and

a sterility promoter capable of directing expression of said sterility DNA selectively in specific cells of the female reproductive organ of said plant, said sterility DNA being in the same transcriptional unit as, and under control of, said sterility promoter; and

wherein said second foreign DNA comprises a restorer gene comprising:

a fertility-restorer DNA encoding a ribonuclease inhibitor which neutralizes, blocks, offsets, overcomes or otherwise prevents activity of said ribonuclease; and

a first promoter directing expression of said fertility-restorer DNA at least in said specific female organ cells of said plant, said fertility restorer DNA being in the same transcriptional unit as, and under control of, said first promoter;

whereby said plant is female fertile due to prevention of the activity of said ribonuclease in said specific female organ cells by said ribonuclease inhibitor produced by expression of said fertility-restorer DNA at least in said specific female organ cells.

5,723,764

CELLULOSE SYNTHESIS IN THE STORAGE TISSUE OF TRANSGENIC PLANTS

Scott Edward Nichols, Johnston, and George William Singletary, Ankeny, both of Iowa, assignors to Pioneer Hi-Bred International, Inc., Des Moines, Iowa

Filed Jun. 7, 1995, Ser. No. 475,928

Int. Cl.° C12N *15/29;15/31;15/82;* **A01H** *5/00*

U.S. Cl. 800—205 **21 Claims**

1. A method of manufacturing cellulose in the storage tissues of transgenic plants comprising: stably transforming the plant with

genes encoding the cellulose synthase complex and diguanylate cyclase, wherein said cellulose synthase complex genes and said diguanylate cyclase genes are derived from *Acetobacter xylinium*, wherein said cellulose synthase complex genes are expressible in the storage tissues of said transgenic plant; and growing the plant under conditions suitable for expression of said synthase and cyclase genes and the synthesis of cellulose thereby.

5,723,765

CONTROL OF PLANT GENE EXPRESSION

Melvin John Oliver, Lubbock; Jerry Edwin Quisenberry, Idalou; Norma Lee Glover Trolinder, Quanah, all of Tex., and Don Lee Keim, Leland, Miss., assignors to Delta and Pine Land Co., Scott, Miss., and The United States of America as represented by the Secretary of Agriculture, Washington, D.C.

Continuation-in-part of Ser. No. 283,604, Aug. 1, 1994, abandoned. This application Jun. 7, 1995, Ser. No. 477,559

Int. Cl.° C12N *15/29;15/82;* **A01H** *4/00;5/00*

U.S. Cl. 800—205 **55 Claims**

1. A method for making a genetically modified plant comprising stably transforming a plant cell with a first DNA sequence comprising a first gene whose expression results in an altered plant phenotype, and a transiently-active promotor, the first gene and the transiently-active promotor being operably linked to one another, but separated by a blocking sequence that is flanked by specific excision sequences, such that the presence of the blocking sequence prevents the expression of the first gene, a second DNA sequence comprising a second gene that encodes a recombinase specific for the specific excision sequences flanking the blocking sequence of the first DNA sequence, and a repressible promotor operably linked in functional relation to the second gene, and a third DNA sequence comprising a third gene that encodes a repressor specific for the repressible promotor of the second DNA sequence, the third sequence being linked to a plant-active promoter;

regenerating a whole plant from the plant cell.

5,723,766

CONTROL OF FRUIT RIPENING THROUGH GENETIC CONTROL OF ACC SYNTHASE SYNTHESIS

Athanasios Theologis, Los Altos Hills, Calif., and Takahido Sato, Tokyo, Japan, assignors to The United States of America as represented by the Secretary of the Agriculture, Washington, D.C.

Division of Ser. No. 378,313, Jan. 25, 1995, which is a continuation of Ser. No. 862,493, Apr. 2, 1992, abandoned, which is a continuation-in-part of Ser. No. 579,896, Sep. 10, 1990, abandoned. This application Jun. 7, 1995, Ser. No. 481,171

Int. Cl.° A01H *4/00;* **C12N** *15/82;5/14*

U.S. Cl. 800—205 **14 Claims**

9. A transgenic plant which exhibits properties, one of which properties is a delay of fruit ripening, resulting from a lack of sufficient endogenous ACC synthase which plant has been modified to contain a DNA molecule comprising an expression system that generates an RNA complementary to RNA transcribed from an endogenous ACC synthase gene wherein said RNA transcribed from an endogenous ACC synthase gene is capable of amplification by a combination of primers selected from the group consisting of:

that wherein the 5'→3' primer encodes MGLAENQ and the 3'→5' primer encodes FQDYHGL;

that wherein the 5'→3' primer encodes FQDYHG and the 3'→5' primer encodes FMEK(V/T)R;

that wherein the 5'→3' primer encodes KA(L/V)EEAY and the 3'→5' primer encodes FPGFRVG; and

that wherein the 5'→3' primer encodes KALEEAY and the 3'→5' primer encodes RVCFANMD.

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5,723,767

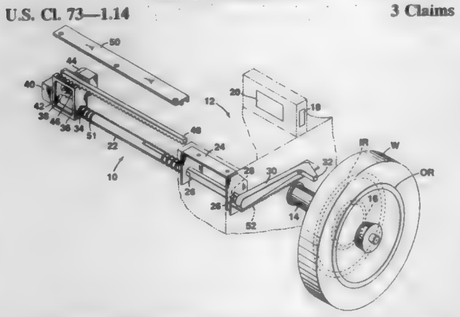
METHOD OF CALIBRATING A WHEEL BALANCER PARAMETER ENTRY DEVICE

Frederick J. Rogers, Little Rock, and Jean de Bellefeuille, North Little Rock, both of Ark., assignors to Snap-on Technologies, Inc., Lincolnshire, Ill.

Division of Ser. No. 302,283, Sep. 8, 1994, Pat. No. 5,571,965. This application Aug. 7, 1996, Ser. No. 693,738

Int. Cl.[6] G01M *1/02*

U.S. Cl. 73—1.14 **3 Claims**



1. A method of calibrating a parameter entry device for a vehicle wheel balancer having a rotatable shaft upon which a wheel to be balanced is mountable and a signal processor means, the parameter entry device including an elongated rod slideably and rotatably mounted to the balancer in parallel with the rotatable shaft, a transverse arm connected to an end of the rod nearest the wheel, the transverse arm comprising a known length and a wheel contacting tip located at the distal end thereof, and a rotary means coupled to the rod for generating a signal representative of the amount of rotation of the arm, the method comprising:

rotating the wheel contacting tip from a rest position to a first position located a known radial distance from the longitudinal centerline of the rotatable shaft;

rotating the wheel contacting tip to a second position located the known radial distance from the longitudinal centerline of the rotatable shaft;

storing a first signal from the rotary means representative of the angle of rotation of the arm between the rest position and the first position;

storing a second signal from the rotary means representative of the angle of rotation of the arm between the first and second positions;

determining an angle between the rest position of the arm and a line connecting the longitudinal centerlines of the rotatable shaft and the rod from the first and second signals;

storing the angle determined in the preceding step for use by the processor means in subsequent determinations of the diameter of the wheel from the angle of rotation of the arm.

5,723,768

PROCESS FOR THE EARLY RECOGNITION OF HYDROPLANING OF A VEHICLE TIRE ON A WET ROAD

Dieter Ammon, Remseck - Neckargröninge, Germany, assignor to Daimler-Benz AG, Germany

Filed Nov. 25, 1996, Ser. No. 755,365

Claims priority, application Germany, Nov. 24, 1995, 195 43 928.7

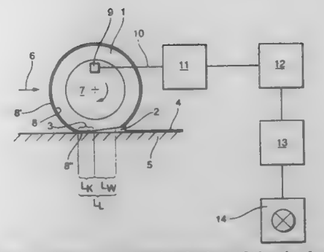
Int. Cl.[6] B60Q *1/00*

U.S. Cl. 73—8 **10 Claims**

1. Process for detecting imminent hydroplaning of a vehicle tire by evaluation of a frequency spectrum of rotational wheel speed, said process comprising:

detecting rotational speed of a wheel which carries said vehicle tire;

continuously evaluating a natural resonance response of rotational tire vibrations in a frequency range above 20 Hz; and



determining imminence of hydroplaning of the tire based on a detuning of rotational natural frequencies.

5,723,769

DIFFUSION CELL

Christopher Barber, Darlington; Patrick Hannon, Warwick; Bradley Mark Patterson, Sorrento, and Michael George Trefry, Floreat, all of Australia, assignors to Commonwealth Scientific and Industrial Research Organisation, and Greenspan Technology Pty Ltd., both of Australia

PCT No. PCT/AU94/00714, § 371 Date Aug. 28, 1996, § 102(e) Date Aug. 28, 1996, PCT Pub. No. WO95/14223, PCT Pub. Date May 26, 1995

PCT Filed Nov. 18, 1994, Ser. No. 648,049

Claims priority, application Australia, Nov. 19, 1993, PM2545; Jun. 7, 1994, PM6121

Int. Cl.[6] G01N *13/00;27/40;* **C08G** *77/04*

U.S. Cl. 73—19.12 **60 Claims**

1. A gas or volatile organic compound in-situ monitoring device diffusion cell for location directly within different types of bulk media, the diffusion cell being of sealed hollow configuration and comprising a membrane capable of containing a gas phase within said diffusion cell on a first side of said membrane, the membrane being permeable to gasses and volatile organic compounds and relatively impermeable to water, the membrane providing an interface, in use, between the gas phase therewithin and the bulk medium externally thereof on a second side of said membrane, wherein the diffusion cell includes therewithin on said first side a core of porous material to minimize the internal volume therewithin, and wherein the diffusion cell is capable of being connected in fluid communication with a gas or volatile organic compound sensitive sensor to measure the level of gas or volatile organic compounds, the core of porous material and the sensor being, in use, located in close proximity to reduce the dead volume between the diffusion cell and the sensor.

5,723,770

TAPPING TEE PRESSURE TEST RESTRAINING KIT

Peter F. Ertoia, 80-12 54th Ave., Elmhurst, N.Y. 11373

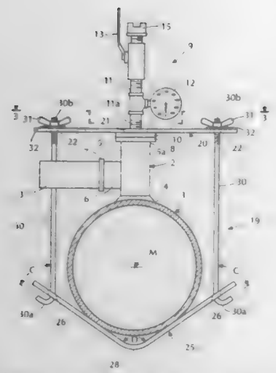
Filed Oct. 25, 1996, Ser. No. 740,250

Int. Cl.[6] C05B *1/00*

U.S. Cl. 73—41 **14 Claims**

1. A method of restraining the adapter bushing of a pressure tester against blow off from its connection on a tapping tee of a pipeline during pressure testing of the pipeline, said adapter bushing having an outer top surface and being removably mounted on the lower end of a pipe nipple of said tester, comprising the steps of mounting an elongated swivel plate on said nipple adjacent to said bushing top surface, said mounting being centrally of the length of said swivel plate to provide opposite swivel plate end portions extending on either side of said nipple and positionable in a generally transverse direction of said pipeline whereby said end portions respectively project laterally outward of the opposite sides of said pipeline, and using means braced against the opposite side of said pipeline to tighten said swivel plate end portions to press

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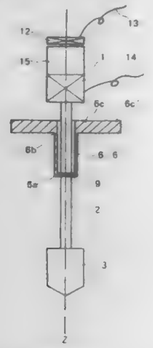
said swivel plate against said outer top surface of said bushing and restrain said bushing in its said connection on said tapping tee.

5,723,771

VIBRATORY LIQUID DETECTOR

Shinsuke Miura, Mishima; Norihiko Kumagai, and Kenji Muraoka, both of Tokyo, all of Japan, assignors to Yamaichi Electronics Co., Ltd., Tokyo, Japan

Continuation of Ser. No. 614,475, Mar. 13, 1996, abandoned. This application Apr. 23, 1997, Ser. No. 847,340
Claims priority, application Japan, Mar. 13, 1995, 7-081846
Int. Cl.[6] G01N *11/10*
U.S. Cl. 73—54.24 3 Claims



1. A viscosity detector comprising:
a vibration transmission shaft having a first end, a second end, and a central longitudinal axis;
a torsional vibrator connected to said first end of said vibration transmission shaft so as to impart a circular vibration to said vibration transmission shaft, said vibration member comprising a piezoelectric element;
a liquid detector connected to said second end of said vibration transmission shaft such that said circular vibrations from said torsional vibrator are transmitted to said liquid detector;
a spring member having a first end fixedly secured at an intermediate position of said vibration transmission shaft at a vibration node between said vibration member and said liquid detector, and a second end axially spaced from said first end and radially spaced from a peripheral surface of said vibration transmission shaft;
a support element connected to said second end of said spring member; and
an inertial mass connected to said first end of said vibration transmission shaft along the central axis thereof,
wherein said torsional vibrator causes said first end of said vibration transmission shaft to vibrate in one direction and said second end of said vibration transmission shaft to vibrate in the opposite direction, and said inertial mass is capable of balancing rotational momentum of said vibration member and said detector.

5,723,772

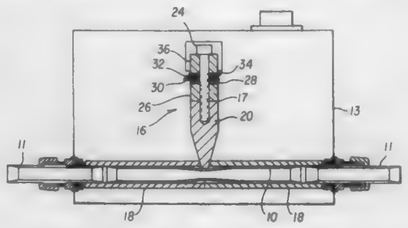
Patent Not Issued For This Number

5,723,773

BUBBLE DETECTOR

Michael Bryan, Watford, United Kingdom, assignor to Eastman Kodak Company, Rochester, N.Y.

Filed Nov. 22, 1996, Ser. No. 753,307
Claims priority, application United Kingdom, Dec. 6, 1995, 9524949
Int. Cl.[6] G01N *29/02; 15/06*
U.S. Cl. 73—61.75 16 Claims



2. A bubble detector comprising a conduit for liquid to be monitored, said conduit having opposing flattened, generally parallel walls, a tuned ultrasound-conducting and directing elements, and a transducer engaged with one of said walls and operable to apply alternating displacements to said one of said walls, at an ultrasonic frequency, in a direction generally normal to said walls to transmit ultrasonic waves through liquid passing through the conduit, wherein said transducer is an ultrasonic transducer which comprises a Langevin sandwich secured to one end of the tuned ultrasound-conducting and directing element an opposite end of which is secured to said conduit.

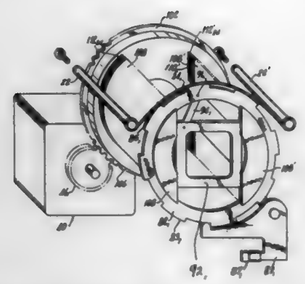
5,723,774

PROFILOMETRY SCANNER MECHANISM

Luis R. Sanchez, Miami, Fla., assignor to Micro Identification Systems, Inc., Coral Gables, Fla.

PCT No. PCT/US93/06742, § 371 Date Dec. 5, 1995, § 102(e) Date Dec. 5, 1995, PCT Pub. No. WO95/03523, PCT Pub. Date Feb. 2, 1995
Continuation-in-part of Ser. No. 725,853, Jul. 3, 1991, Pat. No. 5,245,864. This PCT application Jul. 19, 1993, Ser. No. 564,194
Int. Cl.[6] G01B *5/28;5/20*
U.S. Cl. 73—105 12 Claims

1. A mechanism for scanning a tri-dimensional body comprising:
A. housing means;
B. scan rotor means rotably mounted to said housing means, and said scan rotor means including a scan rotor member and step motor means for driving said scan rotor member and said scan rotor member further including two parallel spaced apart arm means rigidly mounted to said scan rotor member;
C. a plurality of phase disk means rotably and slidably mounted over said two arm means and coaxially disposed with respect to each other and each of said phase disk means further



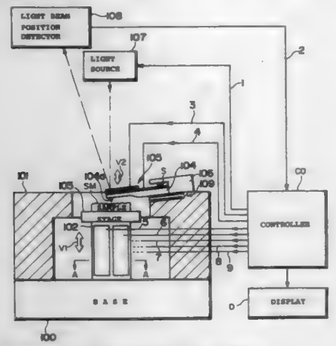
includes clutch means for frictionally slowing down the rotation of said phase disk means;
D. a respective plurality of contour follower means slidably mounted within said two arm means capable of being displaced;
E. a respective plurality of linkage means for transmitting the motion of said phase disk means to said contour follower means; and
G. means for detecting the angular position difference of each one of said phase disk means with respect to the position of said two arm means and said difference being proportional to the displacement of the associated contour follower means with respect to a center of said arm means.

5,723,775

ATOMIC FORCE MICROSCOPE UNDER HIGH SPEED FEEDBACK CONTROL

Shunji Watanabe, Tokyo, and Toru Fujii, Takasaki, both of Japan, assignors to Nikon Corporation, Tokyo, Japan

Filed Jul. 2, 1996, Ser. No. 674,867
Claims priority, application Japan, Jul. 5, 1995, 7-169392
Int. Cl.[6] G01B *5/28;* G01N *23/00*
U.S. Cl. 73—105 14 Claims



1. A scanning probe microscope comprising:
(a) a first piezoelectric actuator extendible in a first direction;
(b) a cantilever arranged on an extension line of an extending direction of said first piezoelectric actuator and deflectable in the first direction;
(c) a second piezoelectric actuator arranged on said cantilever, said second piezoelectric actuator being lighter than said first piezoelectric actuator;
(d) a piezoelectric vibrator mechanically coupled to said cantilever;
(e) a detector for detecting a deflection amount of said cantilever;
(f) a feedback system having a first input terminal electrically connected to said detector, and a first output terminal for outputting an output signal so as to keep a signal input to said first input terminal constant, said output signal having a low-frequency component and a high-frequency component;
(g) a low-pass filter having a second input terminal for receiving the output signal from said feedback system, and a second output terminal for outputting the low-frequency component of the output signal inputted to said second input terminal, said second output terminal being electrically connected to said first piezoelectric actuator; and
(h) a high-pass filter having a third input terminal for receiving the output signal outputted from said feedback system, and a third output terminal for outputting the high-frequency component of the output signal inputted to said third input terminal, said third output terminal being electrically connected to said second piezoelectric actuator.

5,723,776

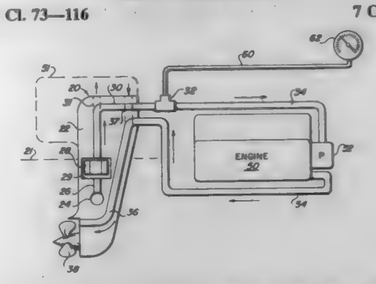
Patent Not Issued For This Number

5,723,777

MARINE IMPELLER TESTER

Larry A. Barone, 10844 W. Michael Dr., Sun City, Ariz. 85373

Division of Ser. No. 341,675, Nov. 17, 1994, Pat. No. 5,503,022, which is a continuation-in-part of Ser. No. 253,972, Jun. 3, 1994, Pat. No. 5,445,012, which is a continuation of Ser. No. 8,474, Jan. 25, 1993, abandoned. This application Mar. 26, 1996, Ser. No. 622,260
Int. Cl.[6] G08B *21/00*
U.S. Cl. 73—116 7 Claims



1. Testing apparatus for testing an impeller of a marine engine drive unit having an opening in the drive unit through which water flows to the impeller comprising in combination:
a cup to be secured to the opening in the drive unit;
a bore in the cup through which water flows to the impeller;
a cylinder communicating with the bore;
means for providing a flow of water to the cylinder before the marine engine is started;
a gauge connected to the cylinder for indicating the pressure of the flow of water;
a pointer on the gauge movable in response to the flow of water in the cylinder; and
an indicator on the gauge movable to indicate the position of the pointer after the flow of water has been provided for providing a reference point for indicating the status of the impeller after the marine engine is started.

5,723,778

Patent Not Issued For This Number

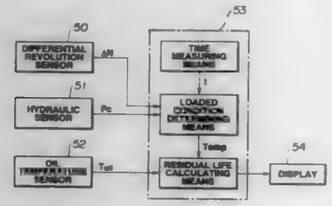
VOL 1208 ISS 1 MR 3 1998 UMI

5,723,779

SYSTEM FOR DETERMINING RESIDUAL LIFE OF FRICTION CLUTCH

Tomoyuki Hara, Isehara, and Toshiharu Takasaki, Sagamihara, both of Japan, assignors to Nissan Motor Co., Ltd., Yokohama, Japan

Filed Mar. 6, 1996, Ser. No. 611,741
Claims priority, application Japan, Mar. 9, 1995, 7-049867
Int. Cl.[6] F16D *66/00*
U.S. Cl. 73—118.1 8 Claims



1. A system for indicating a residual life of a friction clutch, comprising:

means for detecting a differential revolution of the clutch and for generating a differential revolution signal indicative thereof;

means for detecting a control pressure of a working fluid used to generate a clutch engaging force of the clutch and for generating a control pressure signal indicative thereof;

means for measuring a loading time of the clutch and for generating a loading time signal indicative thereof;

means for determining a loaded condition of the clutch when the clutch is engaged based on said differential revolution signal, said control pressure signal, and said loading time signal, and for generating a loaded condition signal indicative thereof;

means for accumulating an amount of time that a facing of the clutch is subjected to said loaded condition since the clutch has been in service; and

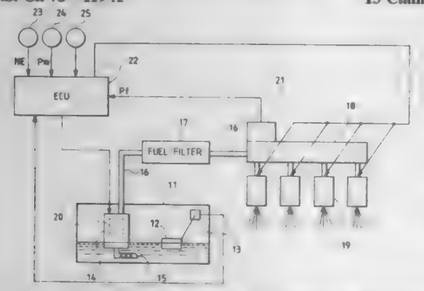
means for calculating the residual life based on the accumulated amount of time.

5,723,780

FUEL SUPPLY SYSTEM FOR INTERNAL COMBUSTION ENGINE

Makoto Miwa, and Naoki Yoshiume, both of Kariya, Japan, assignors to Nippondenso Co., Ltd., Kariya, Japan

Filed Jun. 3, 1996, Ser. No. 657,359
Claims priority, application Japan, Jun. 2, 1995, 7-136255
Int. Cl.[6] F02M *37/08*; G01M *15/00*
U.S. Cl. 73—119 A 13 Claims



1. A fuel supply control system for an internal combustion engine, comprising:

fuel pump control means for deriving a feedback correction amount based on a deviation between a fuel pressure in fuel piping from a fuel pump to a fuel injector and a target fuel pressure, and for performing a feedback control of said fuel pump based on said feedback correction amount; and

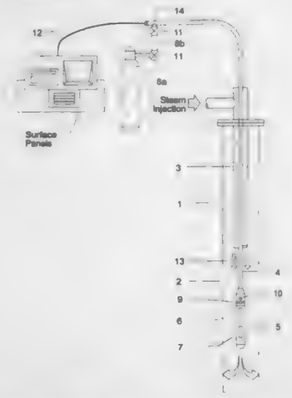
abnormality detecting means for detecting an occurrence of abnormality in a fuel supply system when said feedback correction amount falls outside a given range.

5,723,781

BOREHOLE TRACER INJECTION AND DETECTION METHOD

Phillip E. Pruett, 12417 Hwy. 178, Bakersfield, Calif. 93306, and Mitchell Findlay, 11526 E. Banyon Rim Dr., Whittier, Calif. 90601

Filed Aug. 13, 1996, Ser. No. 696,325
Int. Cl.[6] E21B *47/10*
U.S. Cl. 73—152.18 31 Claims



1. Apparatus for continuously injecting and detecting the presence of a tracer in a borehole, the apparatus comprising:

(a) a first capillary tube positioned within the borehole extending continuously from the surface to a selected depth and providing a flowpath for the tracer:

(b) a pressurized source at the surface, in fluid communication with the first capillary tube, for injecting the tracer into the first capillary tube;

(c) a tracer release port, in fluid communication with the first capillary tube, the tracer release port for releasing the tracer element at the selected depth; and

(d) at least one sensor for detecting the presence of the tracer, the sensor connected to the first capillary tube, and suspended in the borehole at the selected depth.

5,723,782

METHOD OF LAND VEHICLE SUSPENSION EVALUATION AND DESIGN THROUGH ROLL ANGLE ANALYSIS

Robert C. Bolles, Jr., 24 Park PL., Ormond Beach, Fla. 32174

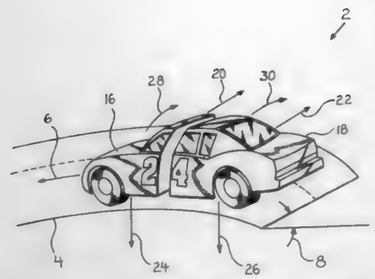
Filed Nov. 29, 1996, Ser. No. 759,086
Int. Cl.[6] G01C *21/00*
U.S. Cl. 73—178 R 1 Claim

1. A method for improving a land vehicle suspension by predicting and equalizing front and rear roll angles for a given road bank angle and a lateral vehicle force, the method comprising:

a. determining the said vehicle front section sprung weight, which is defined by the vehicle sprung weight borne by the said vehicle front tires;

b. determining the said vehicle rear section sprung weight, which is defined by the vehicle sprung weight borne by the said vehicle rear tires;

c. predicting a front roll angle using the said vehicle front section sprung weight and a front section lateral force along with the said vehicle suspension variable measurements and



track banking angle, in conjunction with inputs of spring rates of the said vehicle's front left and right wheel suspensions, roll center location, sway bar diameter, front sprung center of the gravity height;

d. predicting a rear roll angle using the said vehicle rear section sprung weight and a rear section lateral force along with the said vehicle suspension variable measurements and track banking angle, in conjunction with inputs of spring rates of the said vehicle's rear left and right wheel suspensions, roll center location, sway bar diameter, rear sprung center of the gravity height;

e. comparing the predicted front roll angle to the predicted rear roll angle as determined in steps a–d; and

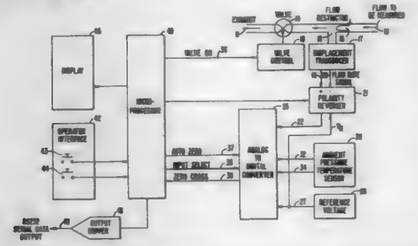
f. changing the said suspension variables until the said predicted front roll angle equals to the said predicted rear roll angle.

5,723,783

ACOUSTIC DISPLACEMENT FLOWMETER

William Stephen Woodward, Chapel Hill, N.C., assignor to J & W Scientific, Incorporated, Folsom, Calif.

Filed Mar. 15, 1994, Ser. No. 213,605
Int. Cl.[6] G01F *5/00*
U.S. Cl. 73—203 14 Claims



1. In a method of determining the flow rate of a fluid flowing along a path, said method comprising the steps of (a) establishing fluid flow along the path; (b) directing the flow of the fluid to a transducer having a displacement element by restricting the flow path; (c) generating a signal from the transducer representative of displacement due to fluid flow while the flow path is restricted; (d) using the transducer signal to determine the flow rate; and (e) reestablishing fluid flow along the path by removing the restriction; the improvement wherein said step (d) of using includes the steps of:

(i) providing an analog reference signal;

(ii) integrating the analog reference signal for a predetermined time period;

(iii) deintegrating the integrated reference signal with the transducer signal until the value of the deintegration signal reaches a threshold value; and

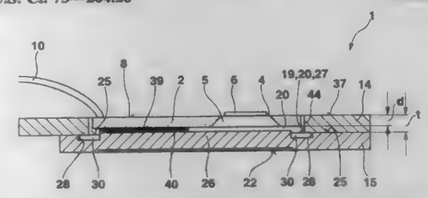
(iv) using the time required for the deintegration signal to reach the threshold value to calculate the flow rate.

5,723,784

FLOW RATE METER

Manfred Lembke, Gerlingen; Josef Kleinhans, Vaihingen; Hans Hecht, Korntal-Muenchingen; Helmut Bassler, Weinstadt; Gerhard Hueftle, Aspach; Alexander Kromer, Stuttgart; Kurt Weiblen, Metzingen; Stefan Lehenberger, Maierhoefen; Guenther Frick, Schwieberdingen; Klaus Reymann, Gerlingen; Axel-Werner Haag, Stuttgart; Dieter Tank, Eberdingen; Uwe Konzelmann, Asperg; Waldemar Guenther, Bietigheim-Bissingen, and Henninge Marberg, Weil der Stadt, all of Germany, assignors to Robert Bosch GmbH, Stuttgart, Germany

Filed Jul. 8, 1996, Ser. No. 676,850
Claims priority, application Germany, Jul. 6, 1995, 195 24 634.9
Int. Cl.[6] G01F *1/68*
U.S. Cl. 73—204.26 9 Claims



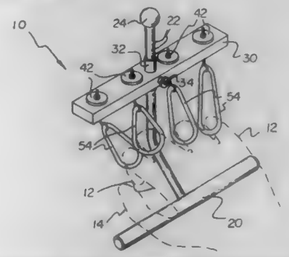
1. A device for measuring the mass of a flowing medium, aspirated by internal combustion engines, which comprises a sensor carrier, a platelike sensor element which is accommodated in a recess (**20**) of said sensor carrier, said sensor element includes a sensor region (**4**) that has at least one measuring resistor (**6**) exposed to the flowing medium in order to measure a mass of the flowing medium, the sensor element is accommodated essentially flush in the recess and is retained in the recess by means of being glued along a portion of a bottom surface to a bottom face in the recess, the bottom face (**25**) of the recess (**20**) of the sensor carrier (**1**) has a troughlike indentation (**30**) in a plane below said sensor element (**2**) parallel with the bottom surface, which extends at least partially along a circumference of the sensor element (**2**) outside the sensor region (**4**) that includes the at least one measuring resistor (**6**).

5,723,785

HAND MUSCLE TENSION MEASURING APPARATUS

Michael R. Manning, 10875 Crestmont Ave., Philadelphia, Pa. 19154

Filed Feb. 14, 1997, Ser. No. 799,378
Int. Cl.[6] A63B *21/02*
U.S. Cl. 73—379.03 9 Claims



1. A hand muscle tension measuring apparatus comprising:

a T-shaped member having a longitudinal portion and a transverse portion for being engaged by the thumb of a user;

a support member slidably coupled to the longitudinal portion of said T-member in a transverse relationship to the longitudinal portion;

four finger tension measuring means positioned within said support member; and

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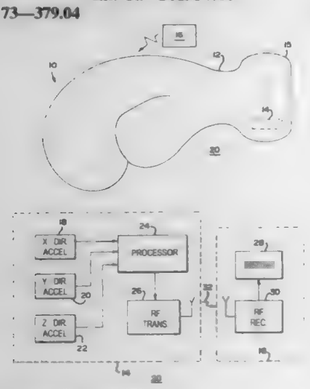
a finger connecting means coupled to said finger tension measuring means for engaging a finger of a user, said finger connecting means comprising four finger engaging structures each including a swivel joint rotatably coupled to a said finger tension measuring means, and a flexibly resilient loop coupled to said swivel joint opposite of said finger tension measuring means for receiving a finger of a user such that said tension measuring means is pullable by the finger in a direction towards the transverse portion of the T-shaped member to measure the tension-producing force between the thumb and each individual finger of the user.

5,723,786

BOXING GLOVE ACCELEROMETER

Matthew Klapman, 1 E. Delaware St., Apt. 31J, Chicago, Ill. 60611

Filed Jul. 11, 1996, Ser. No. 679,680
Int. Cl.[6] G01M *7/00*
U.S. Cl. 73—379.04 7 Claims



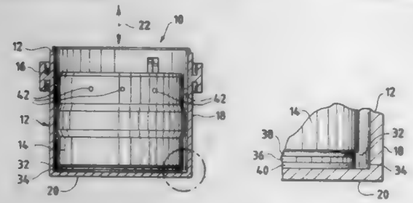
1. A boxing glove comprising:
a boxing glove body; and
an accelerometer disposed within the boxing glove body which continuously measures an instantaneous acceleration of the boxing glove.

5,723,787

ACCELEROMETER MOUNTING SYSTEM

Damon Rance Stoddard, Seattle, and Dale Glen Smith, Snohomish, both of Wash., assignors to AlliedSignal, Inc., Morristown, N.J.

Filed Mar. 4, 1996, Ser. No. 610,001
Int. Cl.[6] G01P *1/02*
U.S. Cl. 73—493 10 Claims



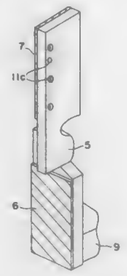
1. An accelerometer assembly comprising:
a transducer housing having a cylindrical sidewall and generally planar bottom wall secured to said sidewall;
a generally cylindrical accelerometer transducer coaxially located within said transducer housing and having a first end disposed to said bottom wall; and
a thermally conductive compliant adhesive film interposed between said first end of said accelerometer transducer and said bottom wall for bonding said accelerometer transducer to said transducer housing.

5,723,788

ANGULAR VELOCITY SENSOR HAVING A BALANCED TUNING FORK STRUCTURE

Jiro Terada, Hirakata; Hiroshi Takenaka, Ikoma; Masaharu Ushihara, Hirakata; Masami Tamura, Uji; Hitoshi Nishimura, and Kikuo Kaino, both of Hirakata, all of Japan, assignors to Matsushita Electric Industrial Co., Ltd., Osaka, Japan

Continuation of Ser. No. 433,699, May 3, 1995, abandoned, which is a division of Ser. No. 92,354, Jul. 15, 1993, Pat. No. 5,445,025. This application Dec. 4, 1996, Ser. No. 760,346
Claims priority, application Japan, Feb. 3, 1993, 5-16054; Feb. 3, 1993, 5-16122
Int. Cl.[6] G01P *9/04*
U.S. Cl. 73—504.16 3 Claims



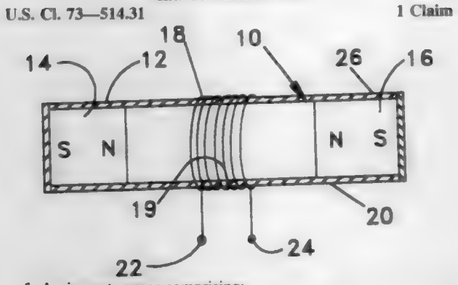
1. An angular velocity sensor comprising:
a first metal plate having a generally rectangular shape, a first lengthwise dimension, and a first metal surface;
a second metal plate having a generally rectangular shape, a second lengthwise dimension, and a second metal surface,
a first vibrator including a first actuator and a first detector joined orthogonally to each other;
a second vibrator including a second actuator and a second detector joined orthogonally to each other;
an electrode block coupling between the first and second vibrators;
said first and second vibrators arranged parallel to each other along an axis of detection and coupled to each other by said electrode block at the lowermost ends of the first and second actuators forming a tuning-fork structure;
said first actuator and said first detector including first piezoelectric elements bonded to said first metal surface;
said second actuator and said second detector including second piezoelectric elements bonded to said second metal surface; and
one of said first metal plate and said second metal plate having at least one aperture of at least one of
a) sufficient size and
b) sufficient depth
for substantially balancing said tuning-fork structure when a plurality of signals generated by the first and second detectors by translational movement of said angular velocity sensor substantially cancel out each other.

5,723,789

IMPACT RESPONSIVE SENSOR

E. Paul Shannon, Rt. 2, Box 249, Killen, Ala. 35645

Filed Jan. 12, 1994, Ser. No. 180,288
Int. Cl.[6] G01P *15/11*
U.S. Cl. 73—514.31 1 Claim



1. An impact sensor comprising:
a non-ferrous housing having a passage therein and an end member provided at each end of said housing for enclosing said passage at opposite ends thereof;
a first magnetic member mounted in and being rigidly secured in said housing, a second magnetic member being slidably positioned in said passage for movement in an axial path, each of said first and second magnetic members having opposite magnetic poles and being positioned in said passage with a pair of poles of like polarity facing each other and with only the repelling magnetic force between said poles of like polarity serving to maintain said spaced relation between said first and second magnetic members;
voltage generating and pick off means comprising a single inductance coil winding circumferentially wound about said housing, said inductance coil winding having a bore and being positioned intermediate said first and second magnetic members and so disposed relative to the path of said second magnetic member so that an impulse voltage is induced in said single winding by movement of said second magnetic member in said axial path responsive to an impact force acting on said housing, said impact force being of a magnitude which causes said second magnetic member to overcome the repelling magnetic force between said first and second magnetic members so that said second magnetic member will move into said bore of said winding and thereby generate said impulse voltage;
conducting means extending from said inductance coil winding to transmit said voltage from said inductance coil winding; and
an automotive vehicle for supporting said sensor, said vehicle being provided with an air bag and means for actuating said air bag for inflation thereof, said conducting means extending from said inductance coil winding being electrically connected to said actuation means for activation thereof responsive to said impact force acting on said vehicle.

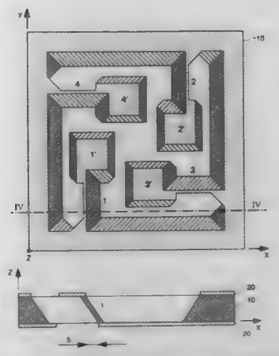
5,723,790

MONOCRYSTALLINE ACCELEROMETER AND ANGULAR RATE SENSOR AND METHODS FOR MAKING AND USING SAME

Gert Andersson, Gunderjallsgatan, S-431 51 Molndal, Sweden

Filed Jun. 2, 1995, Ser. No. 460,488
Claims priority, application Sweden, Feb. 27, 1995, 9500729
Int. Cl.[6] G01P *15/00*; G01L *1/00*
U.S. Cl. 73—514.36 5 Claims

1. A semiconductor device formed from a monocrystalline semiconductor substrate having a substantially planar main surface, for measuring force components, said semiconductor device comprising:
at least one cantilever beam formed in said monocrystalline semiconductor substrate, said at least one cantilever beam having a surface inclined non-parallel, non-perpendicular to the main substrate plane of said monocrystalline semiconductor substrate wherein inclination of the at least one cantilever beam to the main surface of said monocrystalline semiconductor substrate is achieved through etching of the monocrystalline semiconductor substrate and said surface of said at least one cantilever beam being defined by one crystal plane of said monocrystalline semiconductor substrate inclined non-parallel, non-perpendicular with respect to the main surface of said monocrystalline semiconductor substrate and that bending of each of the at least one cantilever beams occurs substantially along an axis perpendicular to said inclined surface; and
at least one mass of inertia, coupled to a corresponding one of said at least one cantilever beam.

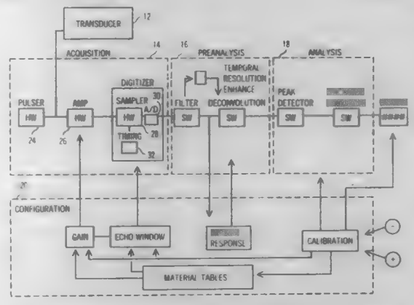


5,723,791

HIGH RESOLUTION ULTRASONIC COATING THICKNESS GAUGE

Frank J. Koch, Ogdensburg, N.Y.; Leon C. Vandervalk, Prescott, and David J. Beamish, Brockville, both of Canada, assignors to DeFelsko Corporation, Ogdensburg, N.Y.

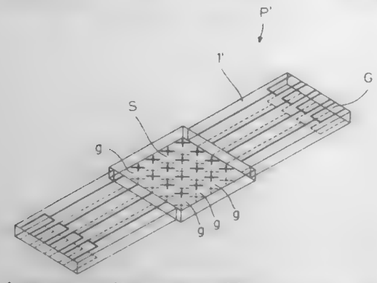
Filed Sep. 28, 1993, Ser. No. 127,529
Int. Cl.[6] G01N *29/18*
U.S. Cl. 73—597 35 Claims



1. A thickness gauge for measuring a thickness of a coating on a substrate, comprising:
ultrasonic transducer means for emitting ultrasonic signals into the coating and receiving the ultrasonic signals reflected from the substrate;
a pulser for sending pulses to the transducer means;
a sampler for sampling signals received by the transducer means;
timing means for controlling the pulser and the sampler so as to perform an equivalent time sampling of the signals sampled by the sampler; and
control means for calculating a thickness of the coating based on said sampled signals.

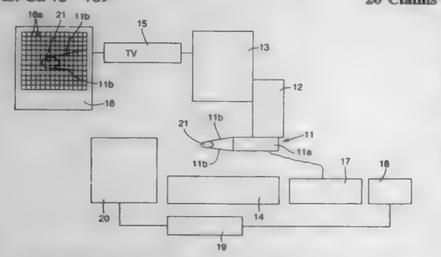
VOL 1208 ISS 1 MR 3 1998 UMI

5,723,792
STRESS COMPOSITE SENSOR AND STRESS MEASURING DEVICE USING THE SAME FOR STRUCTURE
Nagao Miyazaki, Osaka, Japan, assignor to Japan Electronics Industry, Limited, Osaka, Japan
Filed Sep. 7, 1995, Ser. No. 524,858
Claims priority, application Japan, Sep. 14, 1994, 6-257715
Int. Cl.[6] G01B 7/16
U.S. Cl. 73—769 14 Claims



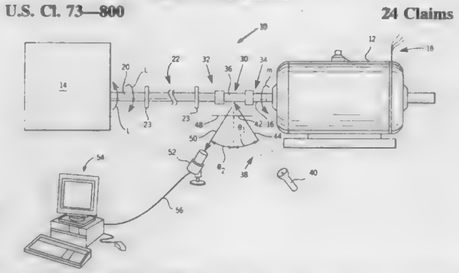
1. A stress composite sensor comprising:
a base plate having a pair of opposing planar surfaces; and
a plurality of stress sensors or a plurality of rows of stress sensors, in the form of strain gauges, integrated by being fixed on said pair of opposing planar surfaces at intervals to form a sensor segment, the arrangement of said stress sensors permitting said stress sensors to produce stress signals allowing determination of stress in one direction alone.

5,723,793
METHODS AND APPARATUS FOR MEASURING STRESS AND STRAIN CHARACTERISTICS OF MICROSCOPIC SPECIMENS
Yoshihiko Suzuki, Funabashi, and Takashi Kawahito, Fujsawa, both of Japan, assignors to Nikon Corporation, Tokyo, Japan
Filed Jan. 15, 1997, Ser. No. 783,043
Claims priority, application Japan, Jan. 22, 1996, 8-008309
Int. Cl.[6] G01D 1/16;7/02
U.S. Cl. 73—789 20 Claims



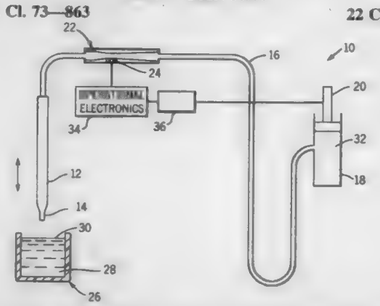
1. An apparatus for measuring a stress-versus-strain characteristic of a microscopic specimen, the apparatus comprising:
(a) a microgripper comprising at least one finger movable a certain amount upon application of a corresponding certain amount of electrical energy to the finger, each such finger being operable to move sufficiently to contact the specimen without stressing the specimen and to move sufficiently relative to the specimen to apply a stress to the specimen, each such movement being a function of the amount of electrical energy applied to the finger;
(b) means for determining any strain d of the specimen occurring as a result of application of a stress to the specimen using the microgripper, compared to when no stress is being applied to the specimen;
(c) means for measuring the amount of electrical energy V_0 applied to each finger before applying the stress to the specimen and the amount of electrical energy V_F applied to each finger during application of the stress to the specimen using the microgripper; and
(d) means for calculating, from V_0, V_F, and d, a stress-versus-strain characteristic of the specimen.

5,723,794
PHOTOELASTIC NEURAL TORQUE SENSOR
Frederick M. Discenzo, Brecksville, Ohio, assignor to Reliance Electric Industrial Company, Cleveland, Ohio
Filed Sep. 29, 1995, Ser. No. 537,202
Int. Cl.[6] G01L 1/24
U.S. Cl. 73—800 24 Claims



1. A method of quantizing flexure in a material, the method comprising the steps of:
providing a photoelastic material;
flexing the photoelastic material into a first flexed orientation;
passing a first light signal through said photoelastic material disposed in said first flexed orientation, the first light signal exiting the photoelastic material at a plurality of points over the surface of the photoelastic material as a first modified light signal; and,
in a neural network based on said first modified light signal, generating a first output signal representative of a first degree of flexure in said photoelastic material disposed in said first orientation.

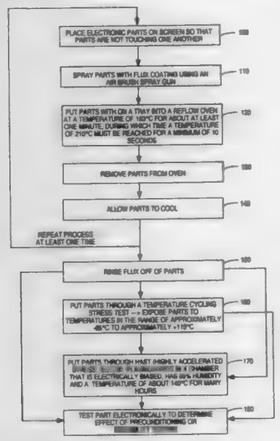
5,723,795
FLUID HANDLER AND METHOD OF HANDLING A FLUID
Richard Merriam, Dallas, Tex., assignor to Abbott Laboratories, Abbott Park, Ill.
Filed Dec. 14, 1995, Ser. No. 572,835
Int. Cl.[6] G01N 35/10
U.S. Cl. 73—863 22 Claims



1. A method of handling a fluid, the method comprising the steps of:
(a) moving a tip of a nozzle below a surface of the fluid to be handled;

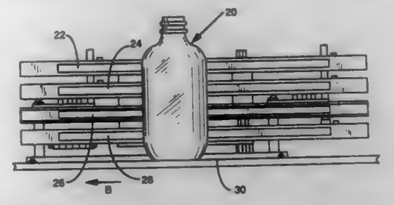
(b) energizing a pump fluidly associated with the nozzle to move fluid into the nozzle;
(c) energizing a pressure transducer fluidly associated with the nozzle to monitor pressure within the nozzle;
(d) substantially continuously monitoring pressure within the nozzle with the pressure transducer during operation of the pump, wherein the monitoring step (d) comprises monitoring pressure within the nozzle about 1000 times per second; and
(e) determining whether movement of fluid into the nozzle is intended or unintended based on the substantially continuously monitored pressure within the nozzle.

5,723,796
ATOMIZED FLUX APPLICATION TO SIMULATE SOLDERING
Clifford B. Nielsen, Milpitas, Calif., assignor to Cypress Semiconductor Corp., San Jose, Calif.
Continuation of Ser. No. 568,192, Dec. 6, 1995, abandoned.
This application Jun. 2, 1997, Ser. No. 866,974
Int. Cl.[6] G01M 19/00
U.S. Cl. 73—865.6 14 Claims



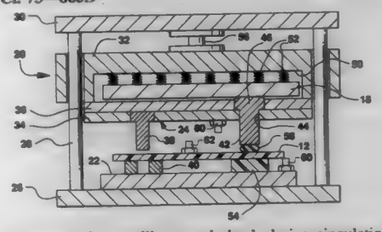
1. A method for testing a packaged integrated circuit which comprises a discrete component part by applying an atomized flux coating to said discrete component part, said method comprising:
placing said part on a support surface;
spraying said part with said atomized flux coating from an air brush spray gun;
heating said part to simulate a soldering process;
removing said part from a heat source;
allowing said part to cool;
repeating all of the above steps at least once;
rinsing said flux coating off of said part; and
testing said part electronically to determine the reliability and functionality of said part.

5,723,797
CONTAINER INSPECTION APPARATUS HAVING DIAMETER MEASURING MEANS AND ASSOCIATED METHOD
Henry M. Dimmick, Butler; Mark F. Zanella, Sr., Cranberry Township, and Thomas F. Meinik, Butler, all of Pa., assignors to AGR International, Inc., Butler, Pa.
Division of Ser. No. 603,125, Feb. 20, 1996, Pat. No. 5,604,442, which is a division of Ser. No. 330,323, Oct. 27, 1994, Pat. No. 5,532,605. This application Sep. 27, 1996, Ser. No. 723,185
Int. Cl.[6] B07L 5/07
U.S. Cl. 73—865.8 14 Claims



1. A method of inspecting container diameters comprising
providing an elongated path of travel for said container with elongated container contacting means disposed adjacent one side of said path,
sequentially passing containers along said path while urging them into intimate contact with said container contact means,
determining the diameter of said container at a plurality of locations on said containers while said containers are in motion translationally along said path of travel by monitoring displacement of said container contacting means and emitting displacement voltage signals corresponding thereto, and
employing electronic processing means to compare said displacement voltage signal values with diameter reference values and determining the relationship therebetween.

5,723,798
MEASURING AND CONTROLLING PANEL SINGULATION SHOCK
Michael Paul Cole, Mission, and David Paul Bellus, McAllen, both of Tex., assignors to Delco Electronics Corporation, Kokomo, Ind.
Filed Oct. 18, 1996, Ser. No. 734,059
Int. Cl.[6] G01N 19/00
U.S. Cl. 73—865.9 9 Claims



1. A method of controlling panel shock during singulation by apparatus including opposed dies, the apparatus being subject to cycles of wear and corrective maintenance, comprising the steps of:
measuring die acceleration of at least one die and panel acceleration during a statistically significant number of tests of panel singulation at spaced intervals in a wear cycle;
correlating the die and panel acceleration measurements;
determining a range of panel acceleration related to acceptable levels of shock and a range of corresponding acceptable die acceleration; and

VOL 1208 ISS 1 MR 3 1998 UMI

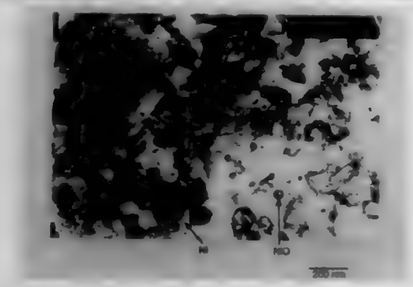
thereafter controlling shock by measuring die acceleration of the at least one die during panel
singulation, and maintaining the apparatus to keep the die acceleration measurements
within the determined range of acceptable die acceleration.

5,723,799

METHOD FOR PRODUCTION OF METAL-BASED COMPOSITES WITH OXIDE PARTICLE DISPERSION

Norimitsu Murayama, and Yasuyoshi Torii, both of Aichi, Japan, assignors to Director General of Agency of Industrial Science and Technology, Tokyo, Japan

Filed Jul. 5, 1996, Ser. No. 678,535
Claims priority, application Japan, Jul. 7, 1995, 7-195855
Int. Cl.[6] B22F 1/00
U.S. Cl. 75—232 4 Claims



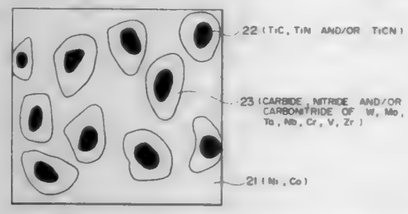
1. A method for producing metal-based composite with oxide particle dispersion, comprising sintering of metal-based ultrafine powders (with an average grain size of about 20 nm to 100 nm and the grain size distribution of about 5 nm to 300 nm and with the surface oxidized for handling) in vacuum, in an inert gas or in a reducing atmosphere by rapid sintering, crystallizing the ultrafine powders with a grain size of about 50 nm or less to metal oxide during sintering and simultaneously removing the oxygen on the surface of the ultrafine powder with the grain size of about 50 nm or more.

5,723,800

WEAR RESISTANT CERMET ALLOY VANE FOR ALTERNATE FLON

Takashi Yoshimoto; Yasushi Hara; Hirokuni Amano, and Masao Koshi, all of Toyama, Japan, assignors to Nachi-Fujikoshi Corp., Toyama, Japan

Filed Jul. 3, 1996, Ser. No. 674,997
Claims priority, application Japan, Jul. 3, 1996, 7-187683
Int. Cl.[6] C22C 29/04
U.S. Cl. 75—238 4 Claims



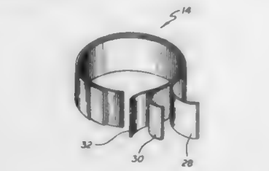
1. A vane made of wear resistant cermet alloy for alternate flon comprising: 5 to 20% by weight of a binder phase composed mainly of Ni; a hard phase having a double phase structure having a core composed mainly of titanium carbide, titanium nitride and/or titanium carbonitride, and a rim phase encircling said core; and inevitable impurities; said hard phase containing 30 to 60% by weight of Ti, 10 to 30% by weight of W, 0.5 to 10% of Mo, 1 to 25% by weight of at least one of Ta, Nb, Cr, V and Zr, 2 to 5.4% by weight of N and 4 to 12% by weight of C, and being uniformly dispersed in an alloy phase; and further, an average core size of said core being 1.5 μm or less and a maximum core size of said core being 5 μm or less.

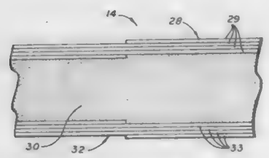
5,723,801

DRUM SHELL AND METHOD FOR MAKING SAME

Paul Hewitt, 120 Hana Hwy., Unit 9-103, Paia, Hi. 96779

Filed Jun. 16, 1994, Ser. No. 260,553
Int. Cl.[6] G10D 13/02
U.S. Cl. 84—411 R 12 Claims





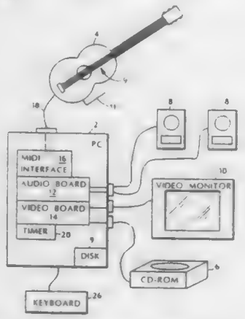
1. A seamless drum shell comprising:
a first seamless roll of carbon fiber;
a layer of foam disposed on said first roll of carbon fiber;
a second seamless roll of carbon fiber disposed on said layer of foam.

5,723,802

MUSIC INSTRUMENT WHICH GENERATES A RHYTHM EKG

Charles L. Johnson, Cambridge, Mass.; Allan A. Miller, Hollis, N.H.; Herbert P. Snow, Somerville, Mass., and Vernon A. Miller, Mount Vernon, N.H., assignors to Virtual Music Entertainment, Inc., Andover, Mass.

Continuation of Ser. No. 177,741, Jan. 5, 1994, Pat. No. 5,491,297, which is a continuation-in-part of Ser. No. 73,128, Jun. 7, 1993, Pat. No. 5,393,926. This application Jan. 23, 1996, Ser. No. 590,131
Int. Cl.[6] G09B 15/04; G10H 1/26
U.S. Cl. 84—609 14 Claims



12. A control program tangibly stored on a digital storage medium for use with a virtual musical instrument that includes an

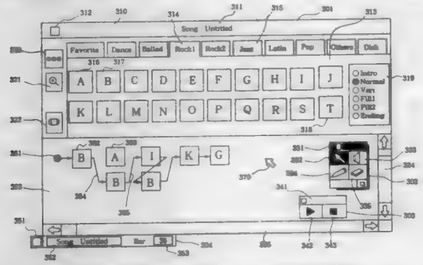
actuator for generating a sequence of actuation signals in response to a corresponding sequence of activations of the actuator by a user, an audio component, a digital processor receiving said sequence of actuation signals from said actuator and generating a corresponding sequence of control signals therefrom, and a digital storage device storing a sequence of note structures representing a musical score, wherein said digital storage medium is readable by the digital processor, said control program being configured to operate the virtual musical instrument to perform the functions of:
in response to receiving a start signal from the user, starting a timer resource; and
in response to receiving each actuation signal of said sequence of actuation signals,
(a) determining from the timer resource a time at which the received actuation signal occurred;
(b) selecting a corresponding one of the note structures in the sequence of note structures based on the time at which said received actuation occurred; and
(c) generating a control signal from the selected note structure, wherein the control signal causes the audio component to generate the musical sound corresponding to the selected note structure.

5,723,803

AUTOMATIC PERFORMANCE APPARATUS

Yasushi Kurakake, Hamamatsu, Japan, assignor to Yamaha Corporation, Japan

Filed Sep. 27, 1994, Ser. No. 312,776
Claims priority, application Japan, Sep. 30, 1993, 5-269865; Oct. 27, 1993, 5-291306
Int. Cl.[6] G10H 1/38
U.S. Cl. 84—637 17 Claims



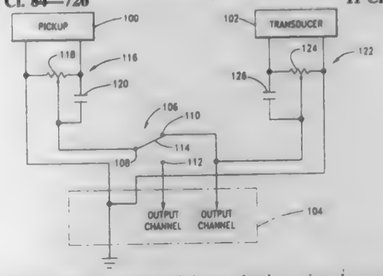
1. An automatic performance apparatus comprising:
style selection means for selecting a style from a plurality of styles;
storage means for storing a plurality of automatic performance patterns suited for each of said plurality of styles;
display means for displaying information;
automatic performance pattern reading control means for reading out a plurality of automatic performance patterns stored in said storage means in correspondence with the selected style;
element display control means for controlling said display means to display a plurality of display elements respectively corresponding to the plurality of automatic performance patterns read out by said automatic performance patterns reading control means in correspondence with the selected style;
designation means for designating two display elements to be connected by a line from the plurality of display elements displayed on said display means;
line connection means for displaying a connecting line between the designated two display elements;
determination means for determining a performance order of automatic performance pattern data in correspondence with the display elements connected by the line on the basis of the display elements displayed on said display means and a line connection state; and
performance means for automatically playing automatic performance pattern data in the determined performance order.

5,723,804

ELECTRIC MONOPHONIC/STEREOPHONIC STRINGED RESONATOR INSTRUMENT

D. Michael Replogle, Huntington Beach, Calif., assignor to Gibson Guitar Corp., Nashville, Tenn.

Filed Jul. 10, 1996, Ser. No. 677,764
Int. Cl.[6] G10H 1/08; 1/46; 3/18
U.S. Cl. 84—726 11 Claims



1. An electric monophonic/stereophonic stringed resonator instrument, comprising:
an instrument body;
a resonator assembly mounted on said body;
a plurality of strings connected to said body;
two generating means for generating respective electric signals in response to a player playing said strings and thereby causing said strings to move and said resonator assembly to vibrate;
output means, connected to said body, for providing two channels through which electric signals are output from said instrument; and
means, connected to said output means, for selectably allowing either (1) electric signals from both of said generating means to be blended and output through one of the channels of said output means to produce a monophonic output or (2) electric signals from one of said generating means to be output from one of the channels of said output means and electric signals from the other of said generating means to be output from the other of the channels of said output means to produce a stereophonic output.

5,723,805

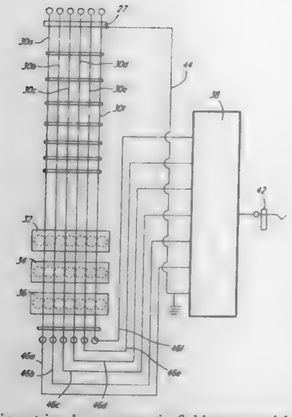
VIBRATION TRANSDUCER DEVICE FOR STRINGED MUSICAL INSTRUMENTS

Robert J. Lacombe, 1825, McNeil, Ville Ste-Catherine, PQ, Canada, J0L 1E0

Filed Jul. 12, 1996, Ser. No. 679,235
Int. Cl.[6] G10H 3/18
U.S. Cl. 84—727 16 Claims

1. A vibration transducer device for stringed musical instruments including a body and a predetermined number N of tensioned and electrically conductive longitudinal strings each having a first end and a second end; said tensioned longitudinal strings lying into a plane laterally adjacent to each other; said vibration transducer device comprising:
a magnetic field generating bar to be mounted to said body and including a series of N+1 adjacent magnetic field generating means each having a magnetic pole for facing said plane when said bar is mounted to said body; each said magnetic poles being of a given polarity; each pair of adjacent magnetic poles being of reverse polarities; said series of N+1 adjacent magnetic field generating means to be arranged in a staggered relationship with said N strings when said bar is mounted to said body;
an amplification circuit having a predetermined number N of amplification channels; each said amplification channel to be electrically connected to said first and second ends of a corresponding one of said strings; each said amplification channel amplifying an electric signal induced in said corre-

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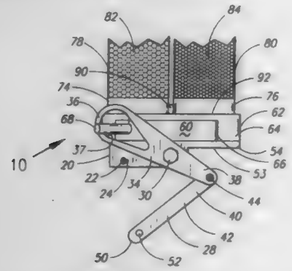
sponding string by a magnetic field generated by said magnetic field generating bar, upon vibration of said corresponding string.

5,723,806

SHOTGUN SHELL RELOADING ACCESSORY

Joel M. Odom, 6830 59th St., Tulsa, Okla. 74145

Filed Jun. 4, 1996, Ser. No. 658,024
Int. Cl.[6] F42B *33/02*
U.S. Cl. 86—31 **14 Claims**



1. An accessory for converting a shell casing reloader to a reloader for reloading a casing with two different sizes of shot comprising:

a funnel gear rotatably engagable with rod teeth provided on a rod of a reloader, said funnel gear having a funnel gear opening communicating therethrough,

a base removably securing to a shot baffle provided on the reloader, a collar opening communicating through said base to said shot baffle,

a flattened cylinder rotatably sandwiched between said base below said flattened cylinder and an accessory top assembly above said flattened cylinder, means for reciprocally rotating said flattened cylinder,

said accessory top assembly being provided with a first shot collar, said first shot collar providing communication through said assembly for small size shot contained within a first shot tube secured to said assembly, and said accessory top assembly being provided with a second shot collar, said second shot collar providing communication through said assembly for large size shot contained within a second shot tube secured to said assembly, and

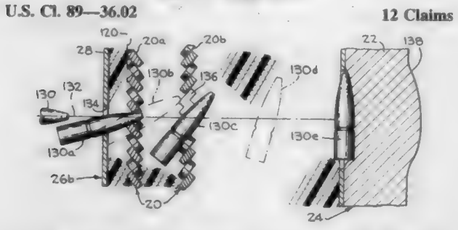
first and second shot openings being provided in said cylinder so that each communicates through said cylinder.

5,723,807

EXPANDED METAL ARMOR

James A. Kuhn, II, San Jose, Calif., assignor to FMC Corporation, Chicago, Ill.

Continuation of Ser. No. 788,610, Jun. 20, 1985, abandoned.
This application Jan. 20, 1988, Ser. No. 144,772
Int. Cl.[6] F41H *7/04*
U.S. Cl. 89—36.02 **12 Claims**



1. An apparatus for protecting a military vehicle having an armored body against ballistic threats from a high speed bullet adapted to be propelled along a predetermined path externally of and toward the vehicle and having a small diameter pointed leading surface and a large diameter generally cylindrical side surface, the improvement which comprises:

means defining a plurality of layers of stand-up hardened steel expanded metal members having a plurality of interconnected out of phase sinuous sections with sharp upstanding edges and a plurality of curved surfaces;

means for mounting said layers of expanded metal members on the armored body of said vehicle in spaced relation from each other and from said body in position to be sequentially engaged by the leading end surface of the bullet as the bullet moves along said path toward said vehicle;

said sharp upstanding edges and said curved surfaces on a first hit expanded metal layer cooperating to define means for engaging the small pointed leading surface of the bullet for deflecting and tumbling the bullet from said path and allowing the bullet to pass through said first expanded metal layers; and

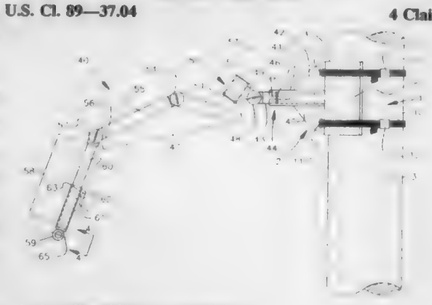
said sharp upstanding edges and said curved surfaces on a second expanded metal layer cooperating to define means for further deflecting and tumbling the bullet from said path and causing the large side surface of the bullet to be stopped by said armored body with less than lethal force, each of said expanded metal members being formed from a steel plate having hardenability characteristics of AISI 4355 plate and are hardened to a Rockwell hardness of about RC 54.

5,723,808

ADJUSTABLE REST

Jeffrey D. Devall, P.O. Box 8612, Clinton, La. 70722

Filed Jul. 24, 1996, Ser. No. 687,148
Int. Cl.[6] F41B *23/06*
U.S. Cl. 89—37.04 **4 Claims**



1. An adjustable rest, comprising:

(a) a support base;

(b) mounting means for attaching said support base to a rigid structure;

(c) a first support member slidably connected to said support base;

(d) a second support member pivotally connected to said first support member wherein said second support member can be pivoted about at least two axes and wherein said second support member includes a first portion and a second portion, and wherein said first portion and said second portion are pivotally connected to one another;

(e) a third support member pivotally connected to said second support member, wherein said third support member is adjustable in length; and

(f) resting means operatively connected to said third support member for allowing a selected device to be rested thereon.

5,723,809

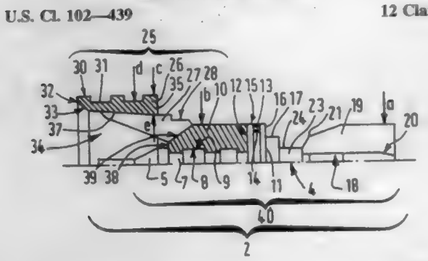
Patent Not Issued For This Number

5,723,810

DOUBLE-PENETRATION REDUCED-RANGE HUNTING BULLET

Jean-Claude Sauvestre, 64 rue de la Vallee, 18230 Saint-Doulchard, France

PCT No. PCT/FR95/01170, § 371 Date Jun. 27, 1996, § 102(e) Date Jun. 27, 1996, PCT Pub. No. WO96/08689, PCT Pub. Date Mar. 21, 1996
PCT Filed Sep. 13, 1995, Ser. No. 640,856
Claims priority, application France, Sep. 13, 1994, 94 10922
Int. Cl.[6] F42B *5/02;12/00*
U.S. Cl. 102—439 **12 Claims**



1. A munition for a weapon of small, medium or large caliber, the munition including a cartridge comprising:

a subprojectile including a body and an axisymmetric element having a front central nozzle communicating with at least two annular nozzles, the axisymmetric element forming a front part of the subprojectile and comprising a hollow outer element and a solid inner element, the inner element being connected to the body, the hollow outer element and the solid inner element being connected together by at least two blades;

a launcher initially operatively engaged with the subprojectile and filling a bore of the weapon;

a primed case surrounding the subprojectile and the launcher; and

a propellant charge within the primed case;

wherein the launcher detaches from the subprojectile upon leaving the weapon due to aerodynamic forces acting on the launcher; and

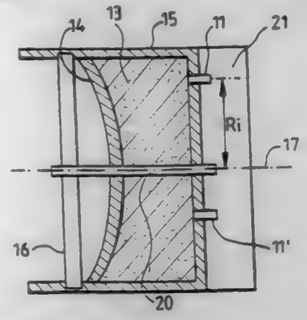
wherein the front central nozzle and the annular nozzles channel airflow through and around the subprojectile.

5,723,811

WARHEAD HAVING A CORE GENERATING CHARGE

Thierry Bouet, and Jean-Pierre Guillon, both of Orleans, France, assignors to TDA Armements SAS, La Ferte Saint Aubin, France

Continuation of Ser. No. 591,143, Jan. 25, 1996, abandoned.
This application Jun. 16, 1997, Ser. No. 876,433
Claims priority, application France, Jun. 13, 1995, 95 06984
Int. Cl.[6] F42B *12/10*
U.S. Cl. 102—476 **16 Claims**



1. A warhead which comprises:

a casing;

an explosive charge positioned in the casing and having an axis of symmetry of revolution;

a detector located at a front portion of the charge;

priming means positioned at a rear portion of the charge; and

one of an electrical processing means and a control means enabling actuation of said priming means and which is located on a rear exterior surface of the casing;

wherein the explosive charge is delimited by a liner and includes an axial hollow channel, said channel comprising a microwave guide, said channel and said microwave guide both extending along said axis of symmetry through the explosive charge, the liner and the casing, the microwave guide forming a microwave link between the detector and said one of said electrical processing means and said control means; and

wherein said priming means comprises a multiple-point priming device extending through a rear exterior surface of the casing to a front interior surface of a base of the casing, said multiple-point priming device comprising at least three detonators positioned outside the axis.

5,723,812

STABILIZED AMMONIUM NITRATE

Gérard Berteleau, Ris Orangis, and Jean-Claude Mondet, Vert le Grand, both of France, assignors to Societe Nationale des Poudres et Explosifs, Cedex, France

Filed Jan. 24, 1997, Ser. No. 789,207
Claims priority, application France, Jan. 24, 1996, 96-00778
Int. Cl.[6] C06B *31/028*
U.S. Cl. 149—46 **10 Claims**

1. Ammonium nitrate stabilized with potassium nitrate, characterized in that it includes between 1% and 7% by weight of potassium nitrate and between 0.1% and 1% by weight of an organic dye containing at least one arylsulphonate group chosen from the class consisting of benzenesulphonate groups and naphthalenesulphonate groups.

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5,723,813

INSULATING SPACER WITH SHIELD ELECTRODES HAVING A GRADED RESISTANCE

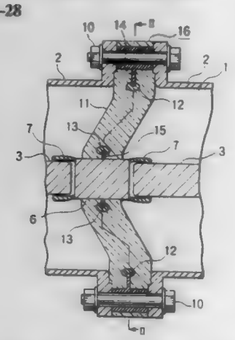
Hiromi Ito; Kenji Mimura; Hirofumi Fujioka; Etsuro Tomonaga; Hiroshi Aoki, and Hiroyuki Hama, all of Tokyo, Japan, assignors to Mitsubishi Denki Kabushiki Kaisha, Tokyo, Japan

Filed Jun. 14, 1996, Ser. No. 663,733

Claims priority, application Japan, Jun. 23, 1995, 7-157723; Apr. 24, 1996, 8-102743

Int. Cl.[6] H01B 7/00

U.S. Cl. 174—28 20 Claims



1. An insulating spacer comprising a conductor placed in a grounded metallic container packed with an insulating gas and to which a high voltage is applied, an insulating member for fixedly securing said conductor to said container, and shield electrodes installed in said insulating member in the vicinity of said container and said conductor or in the vicinity of said container, said shield electrodes being constructed with a plastic made of an epoxy resin composition such that their volumetric specific resistivity increases toward the median point between said container and said conductor.

5,723,814

SUPPORTING INSULATOR HAVING A TWO-PART INTERLOCKING OUTER RING

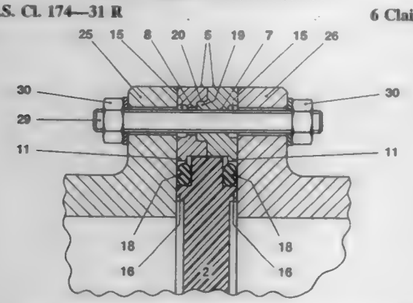
Gustav Kölbi, Affoltern, and Ales Vrana, Richterswil, both of Switzerland, assignors to Asea Brown Boveri AG, Baden, Switzerland

Filed Mar. 13, 1995, Ser. No. 402,959

Claims priority, application European Pat. Off., Apr. 8, 1994, 94105436

Int. Cl.[6] H01B 17/26;17/24;17/06

U.S. Cl. 174—31 R 6 Claims



1. A supporting insulator for installation between two connecting flanges of a switching installation, comprising:

an outer ring;

an insulator body, the insulator body being in the form of a disk and being formed of hardened cast resin;

at least one cast fitting, the cast fitting being cast in the insulator body,

wherein the outer ring includes at least two identically constructed rings, the at least two rings being separably locked together, and the insulator body is separably locked between the at least two rings when the at least two rings are separably locked together,

wherein the at least two rings include means which position the insulator body radially, the at least two rings include means which temporarily position the insulator body axially, and, the supporting insulator further including stops, the stops interacting with the connecting flanges and being integrally formed on the insulator body, the stops providing a definitive axial positioning of the insulator body, and

wherein the radial positioning means includes studs, and the temporary axial positioning means includes a collar integrally formed internally on at least one of the at least two rings.

5,723,815

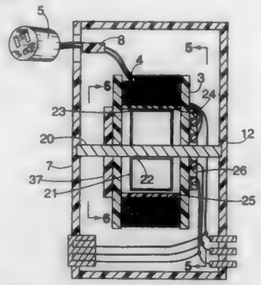
RETRACTABLE ELECTRICAL EXTENSION CORD

Rolando Pena, 1105 Farm Rd., Secaucus, N.J. 07094

Filed Sep. 12, 1996, Ser. No. 713,006

Int. Cl.[6] H01H 9/02

U.S. Cl. 174—53 20 Claims



1. A wall mounted extendible and retractable electrical extension cord comprising:

an enclosed housing having a rear wall and a front wall parallel to and spaced from said rear wall, said front wall having at least one aperture therethrough, said enclosed housing being secured to a wall of a building;

an electrical extension cord having a predetermined length and an electrical connector on one end thereof, a portion of said electrical extension cord adjacent said one end thereof extending through said at least one aperture;

a reel mounted on an axle extending between the rear and front walls and disposed within said enclosed housing between and parallel to said rear wall and said front wall to store said electrical extension cord thereon;

an electrical power source coupled to said enclosed housing having at least a power terminal and a neutral terminal; and

a mechanism disposed within said housing coupled to said reel, said electrical extension cord and said electrical power source to couple electrical power to said electrical extension cord, to enable pulling said electrical extension cord from said reel by said one end to a desirable length for use, to lock said reel when said electrical extension cord is at said desirable length, and to automatically retract said electrical extension cord back onto said reel after terminating the use thereof.

5,723,816

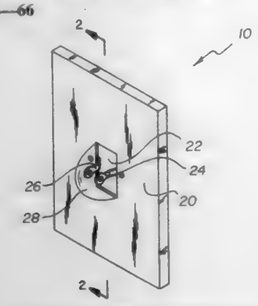
PAINT SHIELDS FOR ELECTRICAL SWITCHES AND OUTLETS

James Neece, 5325 Coal Mine Rd., Ione, Calif. 95640

Filed Aug. 8, 1996, Ser. No. 694,212

Int. Cl.[6] H02G 3/100

U.S. Cl. 174—66 2 Claims



1. A paint shield for covering an electrical wall switch cover, comprising:

a rectangular plate of a size adapted for covering said electrical wall switch cover and being formed from a non-electrically conductive material, said rectangular plate having a switch lever aperture for receiving an electrical wall switch lever

a right clip member secured to said rectangular plate adjacent to said switch lever aperture and projecting through said switch lever aperture in a substantially orthogonal orientation to said rectangular plate, and

a left clip member secured to said rectangular plate adjacent to said switch lever aperture at a location opposite said right clip member said left clip member projecting through said switch lever aperture in a substantially orthogonal orientation to said rectangular plate,

wherein the right and left clip members are able to pinchingly abut said switch lever to thereby retain the rectangular plate in a position over said wall switch cover to thereby prevent paint or other debris from contacting said wall switch cover.

5,723,817

SNAP-ON WALLPLATE SYSTEM

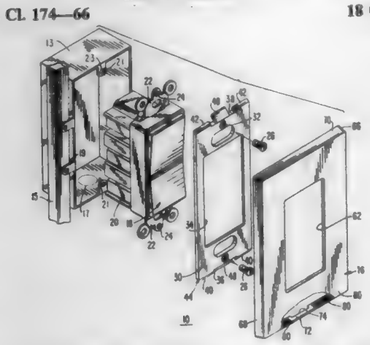
Alfredo Arenas, Hauppauge, and Anthony Tufano, North Massapequa, both of N.Y., assignors to Leviton Manufacturing Co., Inc., Little Neck, N.Y.

Continuation of Ser. No. 182,910, Jan. 14, 1994, abandoned.

This application Dec. 2, 1996, Ser. No. 757,275

Int. Cl.[6] H02G 3/14

U.S. Cl. 174—66 18 Claims



1. A cover plate device for covering a wall mounted wiring device mounted in and to a ganged box mounted adjacent an aperture in a wall, said ganged box having a width dimension and a height dimension, said cover device having no visible fasteners when installed comprising:

a. a unitary, generally planar attachment member of generally uniform width having a first end and a second end and a width dimension substantially less than the width dimension of said ganged box, said attachment member having at least two mounting holes, at least one of said mounting holes adjacent said first end and at least one of said mounting holes adjacent said second end; said mounting holes permitting said attachment member to be attached adjacent a front face of and over said wiring device mounted in and to said ganged box after said wiring device is mounted in and to said ganged box;

b. at least two latch members adjacent each of said first end and said second end of said attachment member;

c. a cover plate member having a front surface and a rear surface and a ridge, said ridge having an inner surface and an outer surface, extending along an entire periphery of said rear surface to space said rear surface from any wall surface over which said cover plate member is applied; said cover plate member having a width dimension greater than said ganged box width dimension and a height dimension greater than said ganged box height dimension and having a first end and a second end and positioned to overlie said attachment member and the ganged box in and to which said wiring device is mounted;

d. at least two sets of multiple recesses in the inner surface of said ridge adjacent each of said first and second ends of said cover plate member to receive an associated one of said at least two latch members on said first and second ends of said attachment member, each of said at least four latch members operating independently and each engaging one recess in an associated one of said at least four sets of multiple recesses based upon a position of the wall adjacent said aperture, to thereby assemble said cover plate member to said attachment member covering said attachment member, said ganged box and said aperture in said wall;

e. two tabs, one adjacent said first end of said attachment member and the other adjacent said second end of said attachment member, said tabs permitting, when engaged by a suitable tool, the removal of said cover plate member from said attachment member; and

f) one slot in said second end of said cover plate member, at a location corresponding to an associated one of the tabs on said attachment member to permit a suitable tool to enter such slot and contact the associated one of the tabs for the removal of said cover plate member from said attachment member.

5,723,818

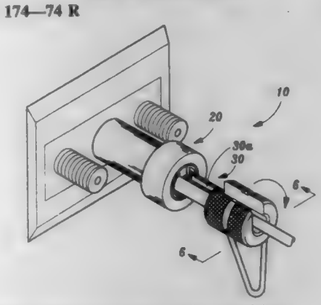
STRUCTURE OF A SAFETY PLUG FOR COAXIAL CABLE

Ming-Hwa Yeh, No. 2, Lane 8, Hsin An Rd., Shih Lin District, Taipei, Taiwan

Filed Aug. 24, 1993, Ser. No. 110,894

Int. Cl.[6] H02G 15/02

U.S. Cl. 174—74 R 1 Claim



1. A safety plug for a coaxial cable comprising:

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a clamping element comprising a left member and a right member riveted together pivotally by an axle pin so that the left member and the right member can be expanded outward simultaneously, the left member and the right member form a circular body when they are pressed together, the circular body having a groove in an exterior surface, the left member and the right member each having an annular slot therein, and the interior wall of each member is a semi-arc so that when the two members are pressed together their interior walls define a circular channel;

a main body in the shape of a hollow circular tube, the main body having an internal flange at a rearward end and an annular groove near a forward end, with a sloping portion between the rearward and forward ends,

a spring washer fits into said annular groove and is also contained in an annular groove on said clamping element such that the clamping element is secured in said main body, said clamping element securing a coaxial cable therein and including a connector that is hexagonal in shape with an interior threaded area at a forward end, said threaded area receiving threads of an input jack;

a hand tool comprising two opposing semi-arc elements with a handle at a rearward end, the exterior of the handle including a groove with a ring attached therein,

said semi-arc elements being insertable into said annular slots in said clamping element such that when a rotational force is applied to the hand tool, the connecting member and hence the safety plug is screwed onto said input jack.

5,723,819

CONDUCTOR CHANNEL FOR INSTALLING INSULATED ELECTRICAL CONDUCTORS

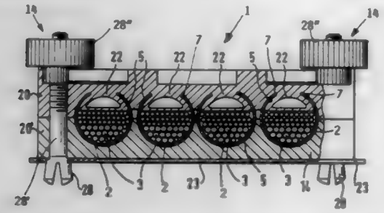
Safa Kirma, Wedel, and Gundolf Paul, Boenningstedt, both of Germany, assignors to Daimler-Benz Aerospace Airbus GmbH, Hamburg, Germany

Filed Sep. 14, 1993, Ser. No. 121,635

Claims priority, application Germany, Sep. 15, 1992, 42 30 771.6

Int. Cl.[6] H02G *3/26*

U.S. Cl. 174—97 **16 Claims**



1. A conductor channel for installing insulated electrical conductors in an aircraft or a spacecraft, comprising at least one hollow section made of an electrically conductive material having a section wall and a longitudinal slot in said section wall forming clamping edges in said section wall, a retaining strip held by said clamping edges in said hollow section, said retaining strip extending substantially along an entire length of said conductor channel, an elastically deformable filler body enclosed in said retaining strip, said filler body pressing said retaining strip against said clamping edges of said hollow section, an abrasion protection for said insulated electrical conductors inside said hollow section, at least one transition piece secured to said hollow section for connecting said hollow section to another system, and at least one tension relief device connected to at least one end of said hollow section so that said insulated electrical conductors are relieved of tension loads, at least one mounting for electrically connecting and grounding said electrically conducting hollow section to a grounding support, wherein said transition piece extends into said hollow section through said longitudinal slot for holding said electrically insulated conductors in said hollow section, and wherein said transition piece is adapted for providing an electrically grounding connection to another protective conductor system or to other electrical systems.

5,723,820

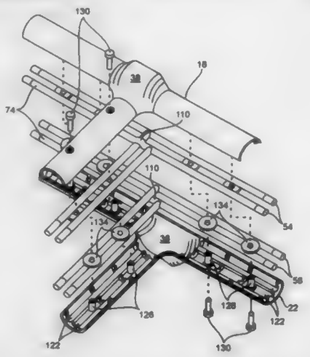
DEVICE FOR CHANGING THE RUN DIRECTION OF A PRE-BUSSED RIGID CONDUIT ELECTRICAL DISTRIBUTION SYSTEM

Robert I. Whitney, Brookville, Ind.; Lisa C. Simmering, Fair Play, S.C.; Aubrey Bryant, Liberty, Ind.; Glenn S. O'Nan, Hamilton, Ohio; Rodney Joe West, Liberty, Ind., and Larry T. Shrout, Middlesex, N.C., assignors to Square D Company, Palatine, Ill.

Continuation-in-part of Ser. No. 147,611, Nov. 5, 1993. This application Mar. 8, 1994, Ser. No. 207,648

Int. Cl.[6] H01R *4/60*

U.S. Cl. 174—99 B **19 Claims**



1. A device for changing the run direction of a sectionalized electrical distribution system, said device comprising:

a) a housing defining a hollow interior and having a first leg, a second leg and a third leg, said legs being integrally joined together at a common junction in said housing, said housing having a first end associated with said first leg, a second end associated with said second leg and a third end associated with said third leg;

b) a first electrical conductor assembly substantially enclosed within said housing;

c) a second electrical conductor assembly substantially enclosed within said housing;

d) a plurality of conductor supports each being integrally formed from said housing and wherein at least one of said supports extends generally between said common junction and each of said first, second and third ends;

e) said first and second electrical conductor assemblies each having an end portion extending outwardly from each of said housing ends a predetermined and generally equal length; and

f) means for continuously and uniformly supporting a portion of said first and second conductor assemblies intermediate said end portions and enclosed within said housing.

5,723,821

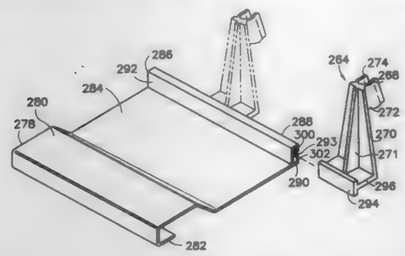
MOUSE CORD CONTROL DEVICE

Robert C. Klinger, 311 Shady Nook Rd., Harleysville, Pa. 19438, and Troy E. Bergstrom, 130 Township Rd., Macungie, Pa. 10862

Continuation-in-part of Ser. No. 106,579, Aug. 16, 1993, abandoned. This application Jun. 7, 1995, Ser. No. 481,813

Int. Cl.[6] A46B *17/02*

U.S. Cl. 174—135 **8 Claims**



1. A device for controlling movement of a mouse cord connected between a computer and a computer mouse, operated on a computer mouse pad, said device comprising:

an engaging means for engaging said mouse cord at a point along a length of said cord to provide for movement of a portion of said cord extending from said engaging means to said computer mouse while restraining a portion of said cord between said computer mouse and said computer, and

a mounting means attached to said engaging means for mounting said device on said computer mouse pad, said mounting means comprising:

a vertical support member connected to said engaging means for elevating said engaging means above said computer mouse pad;

a base member for attaching said mouse cord control device to said computer mouse pad, said base member being movably attached to said vertical support member to allow lateral movement of said engaging means and said vertical support member in relation to said base member and said computer mouse pad.

5,723,822

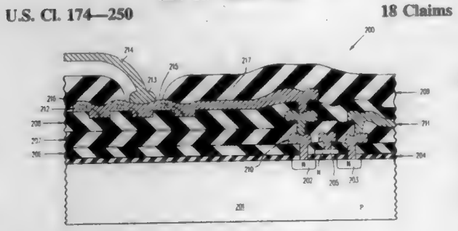
STRUCTURE FOR FABRICATING A BONDING PAD HAVING IMPROVED ADHESION TO AN UNDERLYING STRUCTURE

Chuen-Der Lien, Los Altos Hills, Calif., assignor to Integrated Device Technology, Inc., Santa Clara, Calif.

Filed Mar. 24, 1995, Ser. No. 409,784

Int. Cl.[6] H05K *1/00*

U.S. Cl. 174—250 **18 Claims**



1. An integrated circuit structure comprising:

a semiconductor substrate;

a first electrically insulating layer situated over the semiconductor substrate, wherein the first insulating layer has one or more cavities which extend into the first insulating layer from an upper surface of the first insulating layer;

an electrically conductive bonding pad situated over the upper surface of the first insulating layer, and extending partially into each of the cavities.

5,723,823

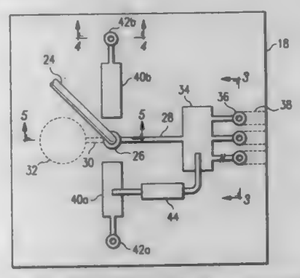
CIRCUIT BOARD WITH ENHANCED REWORK CONFIGURATION

James S. Bell, Austin, Tex., assignor to Dell USA, L.P., Austin, Tex.

Filed Jun. 9, 1994, Ser. No. 257,402

Int. Cl.[6] H05K *1/02*

U.S. Cl. 174—262 **10 Claims**



1. A rework configuration for routing between spaced first and second target areas arranged upon a printed circuit board, comprising:

a printed circuit board having a plurality of coplanar conductors spaced between an upper planar surface and an opposing lower planar surface;

a plurality of interconnect structures spaced across said printed circuit board and electrically connected to each other by at least one of said conductors each of said interconnect structures comprising:

a plated hole extending entirely between the upper and lower planar surfaces, wherein said plated hole is configured to receive a wire at the upper surface and a test probe at the lower surface;

at least one signal via extending from the upper surface to one of said plurality of conductors;

an interconnect bonding pad arranged upon the upper surface between said signal via and a wire;

a ground bonding pad arranged upon the upper surface; and

a power bonding pad arranged upon the upper surface; and

a first wire connected at the upper planar surface between a first target area and one of said plurality of interconnect structures, and a second wire connected at the upper planar surface between a second target area and another of said plurality of interconnect structures.

5,723,824

CHECKWEIGHER WITH A BELT CONVEYOR

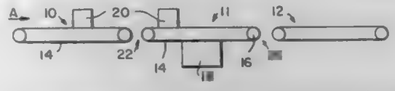
Eberhard Stadler, Göttingen, Germany, assignor to Mettler-Toledo AG, Greifensee, Switzerland

Filed Aug. 30, 1995, Ser. No. 521,308

Claims priority, application Germany, Sep. 15, 1994, 9415016 U

Int. Cl.[6] G01G *19/00*; **B65G** *37/00*

U.S. Cl. 177—145 **8 Claims**



1. A checkweigher with a belt conveyor comprising at least two belt conveyor sections arranged one behind the other in a convey-

VOL 1208 ISS 1 MR 3 1998 UMI

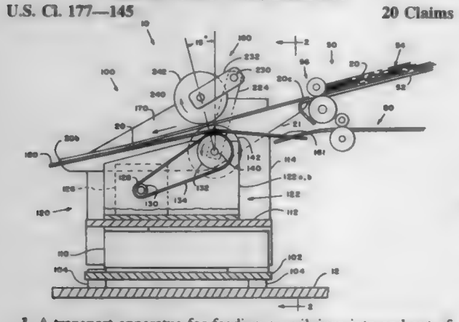
ing direction and defining a gap therebetween, one of the conveyor sections comprising a weighing bridge, the conveyor sections having ends, each conveyor section comprising a sliding surface and guide rollers mounted at the ends of the conveyor section, each conveyor section further comprising a plurality of conveying belts mounted so as to travel on the sliding surface and guided around the guide rollers, the conveyor sections further comprising sliding fingers-formed by extensions of the sliding surface beyond the guide rollers, wherein the sliding fingers are arranged between the conveying belts and substantially bridge the gap between the conveyor sections.

5,723,825

TRANSPORT APPARATUS FOR A WEIGHING MODULE

Donald T. Dolan, Ridgefield; Gerald C. Freeman, Norwalk; Flavio M. Manduley, Woodbury; Pushpavadan S. Nagarsheth, Danbury, and Edilberto I. Salazar, Brookfield, all of Conn., assignors to Pitney Bowes Inc., Stamford, Conn.

Filed Apr. 1, 1996, Ser. No. 625,375
Int. Cl.[6] G01G *19/02;* **B65H** *5/00*
U.S. Cl. 177—145 **20 Claims**



1. A transport apparatus for feeding a mailpiece into and out of a weighing module, the apparatus comprising:
means for feeding the mailpiece; and
means for positioning the feeding means in a first position for receiving the mailpiece from a first direction and feeding the mailpiece into a weighing position and for positioning the feeding means in a second position for feeding the mailpiece in a second direction out of the weighing module.

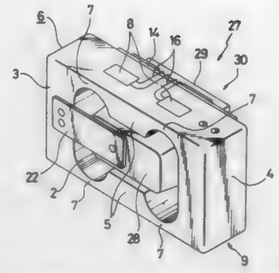
5,723,826

LOAD CELL UNIT

Tohru Kitagawa, Mishima; Yoshihisa Nishiyama, Sunto-gun, and Shuji Takabayashi, Mishima, all of Japan, assignors to Kabushiki Kaisha TEC, Shizuoka, Japan

Filed Jul. 3, 1995, Ser. No. 498,294
Claims priority, application Japan, Jul. 4, 1994, 6-151862
Int. Cl.[6] G01G *3/14;3/08*
U.S. Cl. 177—211 **18 Claims**

1. A load cell unit comprising:
a load cell comprising a flexible member having a fixed end, a moving end, and a through hole formed between the fixed end and the moving end so as to form four flexible portions, and strain gages attached to the flexible portions of the flexible member, respectively;
a wiring board provided with a circuit connected to the strain gages of the load cell so as to form a bridge circuit including the strain gages, a processing circuit connected to the bridge circuit, and having a first major surface and a second major surface, at least film capacitors among the circuit elements of the processing circuit being mounted on the first major surface, the wiring board having a size in all dimensions exceeding a size of the through hole of the load cell and being disposed beside the load cell with the film capacitor mounted on and protruding from the first major surface to be disposed in the through hole of the load cell;
a first shield cover attached to the first major surface of the wiring board so as to cover the circuit elements mounted on the first major surface of the wiring board and to protrude into the through hole and so as not to interfere with the load cell; and
a second shield cover attached to the second major surface of the wiring board so as to cover the second major surface of the wiring board and to be formed external of the through hole.

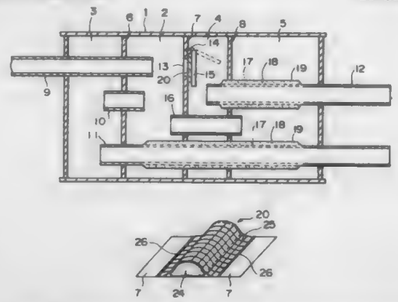


5,723,827

NOISE SUPPRESSING MUFFLER

Akira Sasaki, Yokosuka; Kazushige Maeda, Zushi, and Haruki Yashiro, Fujisawa, all of Japan, assignors to Nissan Motor Co., Ltd., Yokohama, Japan

Filed Dec. 26, 1995, Ser. No. 576,967
Claims priority, application Japan, Dec. 26, 1994, 6-323336
Int. Cl.[6] F01N *1/00*
U.S. Cl. 181—237 **10 Claims**



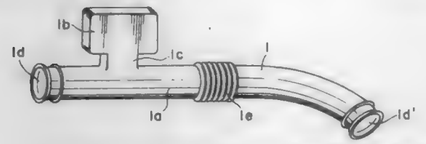
1. A noise suppressing muffler for attenuating noise from engine-exhaust gas, comprising:
a housing;
at least one baffle board for partitioning the housing into a plurality of chambers;
an exhaust gas passage for discharging the exhaust gas outside the housing through the chambers;
a bypass valve for bypassing a part of the passage, wherein the valve comprises a hole formed in the baffle board and a valve body for closing the hole by coming into close contact with the baffle board, the valve being adapted to be opened by pressure from the exhaust gas;
means for pushing the valve body toward a closing position;
a noise absorbing material around the hole; and
means for dispersing an impact exerted on the noise absorbing material by closing of the valve body.

5,723,828

HOLLOW PLASTIC PRODUCT HAVING A SOUND ATTENUATOR

Tatsuya Nakagawa, Matsudo, Japan, assignor to Excell Corporation, Chiba-ken, Japan

Filed Aug. 23, 1995, Ser. No. 518,376
Claims priority, application Japan, Aug. 26, 1994, 6-202492
Int. Cl.[6] F01N *1/02*
U.S. Cl. 181—250 **4 Claims**



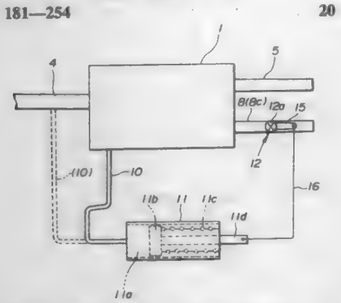
1. A hollow plastic product having a sound attenuating function, comprising:
a duct extending over a length along a longitudinal axis to define a flow passage, said duct being comprised of a first plastic material and said duct is provided with at least one end fitting portion at one end thereof, said end fitting portion being comprised of a second plastic material which is softer than said first plastic material;
a resonator defining a chamber having a predetermined volume and comprised of said first plastic material, said resonator being located at a radial distance from said longitudinal axis;
a connector extending between said duct and said resonator to thereby establish a fluidic communication between said chamber of said resonator with the flow passage of said duct, said connector being comprised of said first plastic material; and
wherein said duct, resonator and connector define a unitary structure and said predetermined volume serves to attenuate a sound created by fluid flowing through said flow passage.

5,723,829

MUFFLER ASSEMBLY OF INTERNAL COMBUSTION ENGINE

Tomohisa Inomata, Kawasaki; Tohru Awaya; Koji Seki, both of Yokohama; Yukio Nakanishi, and Tanomo Norikawa, both of Yokosuka, all of Japan, assignors to Calsonic Corporation, Tokyo, Japan

Filed Dec. 13, 1995, Ser. No. 571,773
Claims priority, application Japan, Feb. 24, 1995, 7-036514; Feb. 24, 1995, 7-036516; Feb. 24, 1995, 7-036517
Int. Cl.[6] F01N *1/00*
U.S. Cl. 181—254 **20 Claims**



1. A muffler assembly for an exhaust system of an internal combustion engine, comprising:
a muffler; and
an exhaust gas inlet tube connected to the muffler to feed the exhaust gas from the engine into the muffler;
means defining first and second exhaust gas outlet passages connected to the muffler for exhausting the exhaust gas from the muffler through at least one of the outlet passages;
a valve assembly having a pivot shaft and a valve plate connected to the pivot shaft, the valve plate being situated in the second outlet passage and pivotally movable in the second outlet passage to control the exhaust-gas flow through the second outlet passage;
a pneumatic actuator having a reciprocating piston rod and a work chamber;
means for feeding the exhaust gas to the work chamber; and
a link mechanism operatively connected to the piston rod and the pivot shaft so that reciprocating motion of the piston rod induces the valve plate to pivot and control the exhaust-gas flow through the second outlet passage,
wherein the amount of piston rod reciprocation, thus the amount of valve plate opening in the second outlet passage, is controlled by pressure developed in the work chamber.

5,723,830

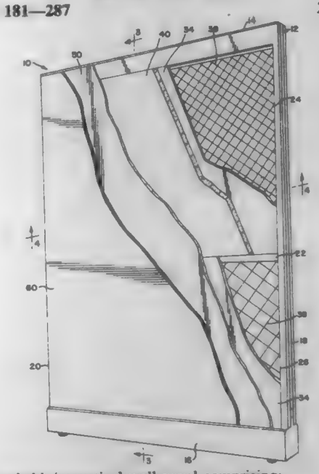
Patent Not Issued For This Number

5,723,831

TACKABLE ACOUSTICAL BARRIER PANEL

David B. Martin, Jenison; Henry A. Thenikl, Grand Rapids; Jerry L. Davis, Rockford; Tim M. Poel, and John Vanderkolk, both of Hudsonville, all of Mich., assignors to Herman Miller Inc., Zeeland, Mich.

Continuation of Ser. No. 360,146, Dec. 20, 1994, abandoned. This application Feb. 18, 1997, Ser. No. 802,180
Int. Cl.[6] E04B *1/343*
U.S. Cl. 181—287 **20 Claims**



1. A tackable/acoustical wall panel comprising:
a peripheral frame having a top rail, a bottom rail, opposed side rails and a dividing rail, the dividing rail separating the panel into a first cavity and a second cavity,
the first cavity having a substantially rigid first septum mounted therein in order to restrict sound transmission through the panel, the first septum having opposing rigid front and back surfaces,
a tackable inner layer secured to the first septum,
the second cavity having a substantially rigid second septum mounted therein in order to restrict sound transmission through the panel, the second septum having opposing rigid front and back surfaces, wherein said second septum is isolated from any tackable material, and
a decorative cover secured to the frame and extending over the first cavity and the second cavity.

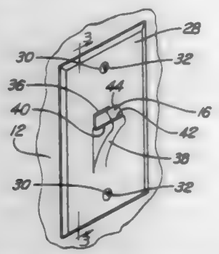
VOL 1208 ISS 1 MR 3 1998 UMI

5,723,832

SWITCH GUARD FOR ELECTRIC SWITCH ASSEMBLY

James K. Hall, 1466 Chicago Blvd., Detroit, Mich. 48206

Filed Jul. 11, 1996, Ser. No. 676,647
Int. Cl.[6] H01H 9/20
U.S. Cl. 200—43.16 2 Claims



1. A wall mounted electric switch assembly comprising an electric switch and a mounting frame on which said switch is mounted,

a switch arm projecting from said switch and movable from an "on" to an "off" position, and

a cover plate removably attached to said mounting frame covering and protecting the switch,

said cover plate having a rear surface facing said switch and also having a from surface,

said cover plate having a slot through which the switch arm extends,

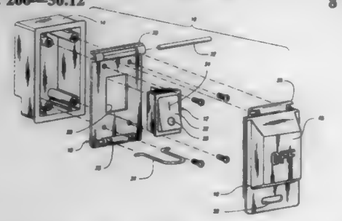
said cover plate having an integral guard formed on and projecting outwardly from said front surface adjacent to said slot providing a stop adapted to substantially abut the switch arm when in one of its "on" and "off" positions and blocking it from movement to the other of said positions.

5,723,833

ON-OFF SWITCH WITHIN A LOCKABLE HOUSING

Danny A. Thrasher, Anderson, S.C., assignor to Ryobi North America, Inc., Easley, S.C.

Filed Jul. 5, 1996, Ser. No. 678,574
Int. Cl.[6] H01H 9/28
U.S. Cl. 200—50.12 8 Claims



1. An ON-OFF switch assembly which is lockable using a conventional padlock, the ON-OFF switch assembly comprising:

a housing having an opening;

an ON-OFF electrical switch mounted within the housing, the ON-OFF electrical switch having an actuator extending through the opening, the actuator being shiftable between an ON position and an OFF position;

a cover pivotally attached to the housing, the cover being pivotable between an opened position where the actuator is accessible to an operator, a closed position where the cover encloses the actuator rendering the actuator unaccessible to the operator, and a run position where the cover is slightly open, the cover having a back surface with a tab extending therefrom which engages the actuator to shift the actuator to the OFF position when the cover is pivoted from the run position to the closed position; and

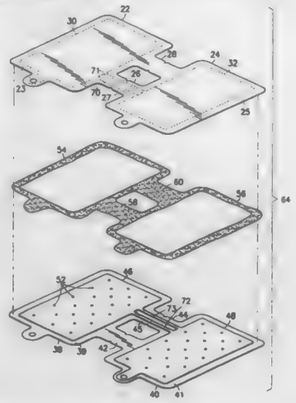
a hasp pivotally attached to the housing, the hasp being pivotable between an extended orientation in which the hasp projects through an aperture in the cover to enable locking of the cover to the housing in the closed position using the conventional padlock, and a retracted orientation in which the hasp with the conventional padlock locked thereon is positioned sufficiently clear of the housing to allow the cover to be freely pivoted to the closed position.

5,723,834

HORN MEMBRANE SWITCH WITH RUPTURABLE STRAIN RELIEF BRIDGING CONNECTOR

Howard W. Hambleton, Jr., South Ogden, Utah, and Kevin W. Booth, Mesa, Ariz., assignors to Morton International, Inc., Chicago, Ill.

Filed Nov. 19, 1996, Ser. No. 752,357
Int. Cl.[6] H01H 9/00;13/70; B60R 21/22
U.S. Cl. 200—61.54 20 Claims



1. A membrane horn switch comprising:

A) a first main switch section including,

1) a top nonconductive sheet having a bottom surface substantially covered with an electrically conductive coating,

2) a bottom nonconductive sheet having a top surface substantially covered with an electrically conductive coating, with the top nonconductive sheet superimposed on the bottom nonconductive sheet with the electrically conductive coatings facing each other, and

3) at least one nonconductive spacer separating the conductive coatings until sufficient actuation pressure is exerted against the first main switch section;

B) a second main switch section including,

1) a top nonconductive sheet having a bottom surface substantially covered with an electrically conductive coating,

2) a bottom nonconductive sheet having a top surface substantially covered with an electrically conductive coating, with the top nonconductive sheet superimposed on the bottom nonconductive sheet with the electrically conductive coatings facing each other, and

3) at least one nonconductive spacer separating the conductive coatings until sufficient actuation pressure is exerted against the second main switch section;

C) a first bridge member including,

1) a top nonconductive bridge sheet connecting the top nonconductive sheets of the first and the second main switch sections, the top nonconductive bridge sheet having a bottom surface, and

2) an electrically conductive coating in the form of at least two spaced-apart, generally parallel strips substantially covering the bottom surface of the top nonconductive bridge sheet and connecting the conductive coatings on the top nonconductive sheets of the first and the second main switch sections, the first bridge member being relatively narrow and rupturable by a force created by an inflating airbag cushion; and

D) a second bridge member including,

1) a bottom nonconductive bridge sheet connecting the bottom nonconductive sheets of the first and the second main switch sections, the bottom nonconductive bridge sheet having a top surface, and

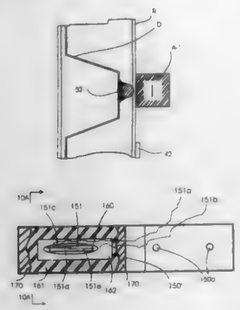
2) an electrically conductive coating in the form of at least two spaced-apart, generally parallel strips substantially covering the top surface of the bottom nonconductive bridge sheet and connecting the conductive coatings on the bottom nonconductive sheets of the first and the second main switch sections, the second bridge member being relatively narrow and rupturable by a force created by an inflating airbag cushion.

5,723,835

COMPOSITE REED SWITCH-BRACKET

Glendell N. Gilmore, 13606 Boca Raton, Houston, Tex. 77069

Continuation-in-part of Ser. No. 412,729, Mar. 29, 1995, abandoned. This application May 29, 1996, Ser. No. 655,180
Int. Cl.[6] H01H 3/16;9/00
U.S. Cl. 200—61.71 10 Claims



1. A bracket-reed switch mounting apparatus adapted to be mounted on an elevated portion of a track for a vertically movable door for positioning the switch to provide an electrical signal when the door moves from a selected position, comprising:

a rigid non-magnetic bracket body having a first portion adapted to be attached to an elevated portion of a door track for a vertically movable door;

said body having a second portion which is adapted to be positioned substantially parallel to the plane of the door and in close proximity to a portion of the door when the door is in a selected position;

said second portion having a resilient material secured therein which has an internal gas pocket has a gaseous medium in which the reed switch is positioned in a floating suspension relative to said body to thereby minimize shock damage to said reed switch by external forces; and

a magnet positioned with the door to activate the switch when the door is moved from said selected position.

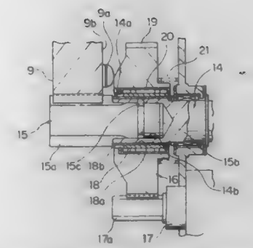
5,723,836

OPERATION MECHANISM OF CIRCUIT BREAKER

Michiharu Okuno, and Coichi Shichida, both of Tokyo, Japan, assignors to Mitsubishi Denki Kabushiki Kaisha, Tokyo, Japan

Filed Oct. 8, 1996, Ser. No. 727,297
Claims priority, application Japan, Oct. 12, 1995, 7-264203
Int. Cl.[6] F16H 55/00
U.S. Cl. 200—501 6 Claims

1. An operation mechanism of a circuit breaker, comprising:



a breaking spring for causing a circuit opening operation by discharging stored mechanical energy;

a closing spring for causing a circuit closing operation by discharging stored mechanical energy to rotate a cam;

a force storing device for storing mechanical energy in said breaking spring and said closing spring; and

a driving mechanism for driving said force storing device, said driving mechanism being connected to a cam shaft having said cam fastened thereto with a gear train,

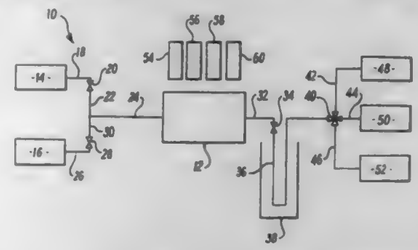
wherein said gear train comprises a gear wheel fastened to said cam shaft, a pinion meshed with said gear wheel and a clutch driving element provided on the same axis as said pinion and constituting a clutch together with said pinion, wherein said driving mechanism comprises an operational driving electric motor for driving said clutch driving element, and wherein coupling between said pinion and said clutch driving element is disconnected by a cam mechanism composed of an end cam provided on and formed by an end face of said gear wheel and said clutch driving element, in the vicinity of stationary positions of said cam and said gear wheel in a force storing state of said closing spring.

5,723,837

URANIUM HEXAFLUORIDE PURIFICATION

Andrew Philip Jeapes; Mark Fields, both of Cumbria, and Gerard Sean McGrady, Oxford, all of United Kingdom, assignors to British Nuclear Fuels plc, United Kingdom

PCT No. PCT/GB94/02670, § 371 Date Aug. 16, 1996, § 102(e) Date Aug. 16, 1996, PCT Pub. No. WO95/15921, PCT Pub. Date Jun. 15, 1995
PCT Filed Dec. 6, 1994, Ser. No. 656,271
Int. Cl.[6] B01D 53/00; C01G 43/00; G21C 1/00; B01J 19/08
U.S. Cl. 204—157.3 25 Claims



1. A method of purifying a UF_6 gas stream containing UF_6 molecules having fluoride impurities, the method comprising irradiating the UF_6 gas stream with laser radiation in a vessel in order to selectively convert at least a portion of the fluoride impurities in the gas stream to involatile products, removing the purified UF_6 gas stream from the vessel and separately removing the impurities from the vessel, said UF_6 gas stream being irradiated with the laser radiation having a frequency range of below about 24,000 cm^{-1}.

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5,723,838

METHOD FOR TREATING INCINERATOR EFFLUENT GAS

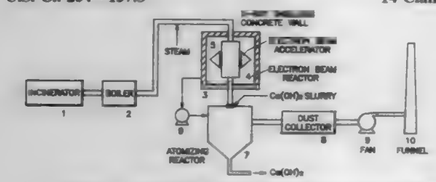
Byung-chul Shin, Kyunggi-Do; Keun-hoo Lee, Seoul; Bum-Soo Han, and Ki-Hun Joh, both of Taejon, all of Rep. of Korea, assignors to Samsung Engineering Co., Ltd., and Samsung Heavy Industries Co., Ltd., both of Seoul, Rep. of Korea

Filed Sep. 26, 1996, Ser. No. 721,055

Claims priority, application Rep. of Korea, Oct. 4, 1995, 95-33808

Int. Cl.[6] B01D *53/00;* C01B *21/00;17/00;* B01J *8/00*

U.S. Cl. 204—157.3 14 Claims



1. A method of removing harmful substances from an effluent gas using irradiation, comprising the steps of:

(a) supplying an incinerator effluent gas into an electron beam reactor;

(b) supplying steam into a top portion of the electron beam reactor to adjust humidity of the incinerator effluent gas in dry basis in the electron beam reactor to more than 100 g/Nm^3 and less than 200 g/Nm^3;

(c) applying an electron beam radiated from an electron accelerator to the incinerator effluent gas in the electron beam reactor to activate substances and water which are included in the effluent gas;

(d) atomizing an alkaline material into the irradiated effluent gas from (c) in an atomizing reactor to cause a reaction between said effluent gas and said alkaline material; and

(e) recovering salts produced by the reaction.

5,723,839

GAS CIRCUIT BREAKER

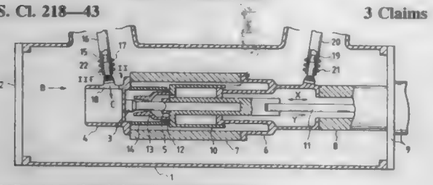
Hiroshi Kozawa, Hitachinaka, Japan, assignor to Hitachi, Ltd., Tokyo, Japan

Filed Jul. 23, 1996, Ser. No. 681,361

Claims priority, application Japan, Aug. 8, 1995, 7-201911

Int. Cl.[6] H01H *33/70*

U.S. Cl. 218—43 3 Claims



1. In a gas circuit breaker comprising:

a grounded tank in which a gas is enclosed;

a fixed contact contained in said tank;

a moving contact contained in said tank and electrically connected to said fixed contact;

an insulting grounded support for supporting said moving contact in a state that said moving contact is insulated from said tank;

an inter-contact insulating tube for supporting said fixed contact in such a manner that said fixed contact is insulated from said moving contact;

an in-bushing conductor connected to a side of said fixed contact;

an in-bushing conductor connected to a side of said moving contact; and

a maintenance cover removably provided on a side end portion of said tank;

the improvement comprising:

a fixed contact side conductor mounted on said fixed contact; and

a connecting conductor, mounted on said fixed contact side conductor, for slidably supporting said in-bushing conductor;

wherein said fixed contact side conductor has a hole which allows said connecting conductor to be moved in an axial direction of said in-bushing conductor.

5,723,840

GAS-DIELECTRIC HIGH-TENSION INTERRUPTER OF THE ARC-PUFFER TYPE

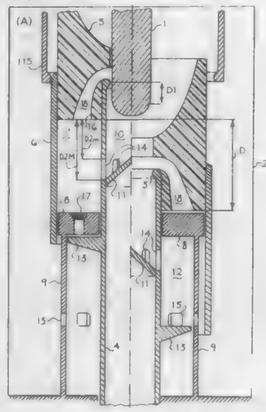
Predrag Bojic, and Sergio Rizzo, both of Genoa, Italy, assignors to Ansaldo Industria S.p.A., Genoa, Italy

Filed May 3, 1996, Ser. No. 642,331

Claims priority, application European Pat. Off., May 4, 1995, 95830180

Int. Cl.[6] H01H *33/88*

U.S. Cl. 218—60 8 Claims



1. A gas-dielectric high-tension interrupter of the arc-puffer type, comprising:

a first fixed contact and a contact which is movable relative to the fixed contact and is opened by an operating rod in which an arcing chamber is formed, the rod having a predetermined opening travel D,

a movable assembly fixed to the rod and comprising an insulating nozzle with a nozzle neck, slidable on the fixed contact, a cylinder forming, with the rod and the nozzle, a compression chamber closed by a first piston which is fixed relative to the fixed contact and is supported by a support cylinder, and a second piston fixed to the rod and movable in the support cylinder, the first fixed piston, the support cylinder, and the movable rod forming a suction chamber closed by the second piston,

said rod having holes for communication between the arcing chamber and the compression chamber for positions of the movable rod corresponding to a first fraction of the opening travel, and for communication between the arcing chamber and the suction chamber for positions of the rod corresponding to a second fraction of the opening travel separate from the first fraction.

5,723,841

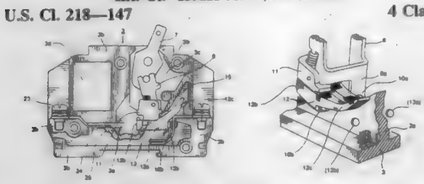
CIRCUIT BREAKER HAVING ARC GAS SUPPRESSING BARRIER ON A MOVABLE CONTACT

Toru Kurono, Seto, Japan, assignor to Nitto Electric Works, Ltd., Aichi-ken, Japan

Filed Mar. 6, 1996, Ser. No. 611,744

Int. Cl.[6] H01H *33/14;9/30;33/02*

U.S. Cl. 218—147 4 Claims



1. A distribution circuit breaker for first and second circuits, comprising:

a first circuit breaking mechanism for a first circuit and a second circuit breaking mechanism for a second circuit, the first and second circuit breaking mechanisms having a partition disposed therebetween, each of the first and second circuit breaking mechanisms being disposed in a single housing, said first and second circuit breaking mechanisms being operatively coupled such that said first and second circuit breaking mechanisms are operated by a single common handle;

movable contact driving mechanism divided at a lower end portion thereof to form first and second fingers, said movable contact driving mechanism being attached to lower end portion of said single common handle so as to be operated by said single common handle;

movable contacts respectively coupled to said first and second fingers of said movable contact driving mechanism and positioned on separate sides of said partition; and

an arc gas suppressing barrier operatively coupled to said movable contacts and disposed in at least one of said first and second circuits and having an inverted U-shaped cross-section to prevent the generation of a secondary arc in an adjacent one of said first and second circuits.

5,723,842

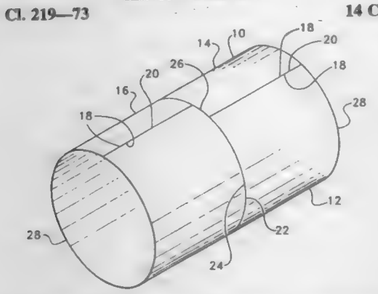
ABOVE-GROUND FIRE-RESISTANT STORAGE TANK SYSTEM AND FABRICATION METHOD

R. Michael Webb, Eau Claire, Wis., assignor to U-Fuel, Inc., Eau Claire, Wis.

Filed Jan. 17, 1996, Ser. No. 590,077

Int. Cl.[6] B23K *9/18*

U.S. Cl. 219—73 14 Claims



5. A method of fabricating an improved above-ground fire-resistant storage system for storing combustible material, such as gasoline, comprising the steps of:

providing sheet steel of approximately 10 gauge or thicker, said sheet steel having a maximum of approximately 0.15% carbon and a maximum of approximately 0.8% manganese;

cutting and shaping from said sheet steel into a plurality of storage tank sheet steel pieces with at least one edge, said storage tank sheet steel pieces constructed such that when assembled and welded they form a storage tank with each said edge in contact with a neighboring edge to form at least one joint, said joint being selected from the group consisting of joggle joints and butt weld joints, at least a weld fusing each said joint;

assembling and welding said storage tank sheet steel pieces to form said storage tank, said welding being performed with a welding technique selected from the group consisting of:

submerged arc welding using a L 61 weld wire and a 761 flux, operating with 225 to 280 amps; and

dual shielded wire feed welding shielded by carbon dioxide and operating with 180 to 220 amps, using a flux core weld wire having a maximum of approximately 0.15% carbon and approximately 1.4% manganese;

installing a test fitting to said continuous storage tank wall; and

pressure testing said storage tank, identifying and rewelding any leaks.

5,723,843

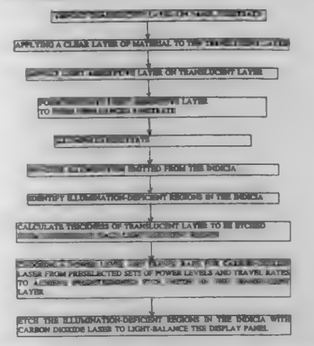
METHOD OF FORMING AND BALANCING AN ILLUMINATED DISPLAY PANEL

Dale Muggli, Bothell, Wash., assignor to Illuminated Display Division of Bell Industries, Inc., Redmond, Wash.

Filed Jan. 28, 1993, Ser. No. 10,550

Int. Cl.[6] B23K *26/00;* G09F *13/08*

U.S. Cl. 219—121.69 17 Claims



1. A method for forming and light balancing an illuminated display panel comprising the steps of:

forming an unbalanced display panel by depositing a translucent layer on a panel substrate, depositing a light absorptive layer on the translucent layer and forming indicia in the light absorptive layer;

illuminating the unbalanced display panel;

measuring the uniformity of illumination from the indicia in the display panel and identifying illumination-deficient indicia; and

etching the illumination-deficient indicia with a laser beam so as to increase the amount of light from said illumination-deficient indicia by removing portions of the translucent layer underlying said illumination-deficient indicia, wherein the illuminated display panel is light balanced.

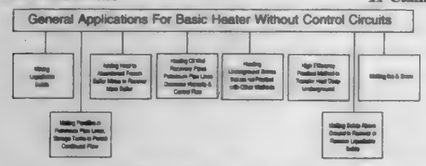
VOL 1208 ISS 1 MR 3 1998 UMI

5,723,844

HEATING SYSTEM USING FERRITE TO CONVERT RF ENERGY INTO HEAT ENERGY

Robert L. Dow, 9674 Charles St., LaPlata, Md. 20646, and Paul W. Proctor, Rte. 2, Kathy La., White Plains, Md. 20695

Continuation of Ser. No. 287,293, Aug. 8, 1994, abandoned.
This application Apr. 18, 1996, Ser. No. 634,525
Int. Cl.[6] H05B 6/10
U.S. Cl. 219—618 11 Claims



1. A method of transferring heat in an underground mining operation to a location comprising:

A) providing a heating circuit consisting of an RF generator, a coaxial cable connected to said RF generator, and a high Curie Temperature self-regulating ferrite heating element with a Curie Temperature of at least 150° C. connected to the coaxial cable to receive RF energy from the RF generator;

B) placing the ferrite heating element in an underground deposit to be heated;

C) applying RF energy to the ferrite element; and

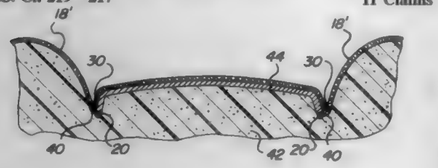
D) maintaining the ferrite heating element below its Curie Temperature.

5,723,845

AUTOMOTIVE SEAT WITH CO-WOVEN HEATING ELEMENTS

Eric A. Partington, Auburn Hills, and John P. Slaven, Harper Woods, both of Mich., assignors to Lear Corporation, Southfield, Mich.

Filed Feb. 23, 1996, Ser. No. 606,101
Int. Cl.[6] H05B 1/00;3/34
U.S. Cl. 219—217 11 Claims



1. An automotive seat assembly comprising:

a seat;

a seat back;

each of said seat and said seat back including a resilient contoured foam substructure and at least one of said foam substructures having spaced recessed trenches molded within said foam;

a fabric cover disposed over said foam substructure of at least one of said seat and said seat back;

said cover including non-conductive fibers woven together, spaced electrodes and electrically conductive elements woven into said fibers and extending between said electrodes,

said cover including each of said conductive elements consisting of a single and homogeneous composition acting as a resister to create heat in response to electrical current and presenting a bare surface in contact with said surrounding fibers to emit said heat directly from said surface to heat the surrounding environment; and

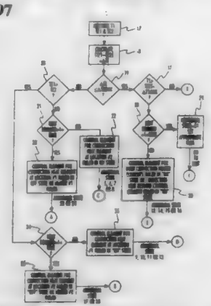
said electrodes positioned in said recessed trenches to secure said electrodes and said fabric cover to said foam substructure.

5,723,846

MULTIPROBE INTELLIGENT DIAGNOSTIC SYSTEM FOR FOOD-PROCESSING APPARATUS

Bernard J. Koether, Tequesta, Fla., and Richard J. Mangini, Brookfield, Conn., assignors to Technology Licensing Corporation, Tequesta, Fla.

Filed Jul. 11, 1995, Ser. No. 501,211
Int. Cl.[6] H05B 1/02
U.S. Cl. 219—497 48 Claims



1. A multiprobe diagnostic system for a cooking appliance including at least one heating element comprising:

at least one error-detecting temperature sensor to measure temperature at said heating element;

at least one control temperature sensor to measure ambient temperature within said appliance at location spaced away from said at least one heating element;

means for comparing temperature measured by any of said sensors to predetermined or learned minimum and maximum values for said temperature at the respective sensor and providing a first signal based thereon;

means for calculating temperature difference between two temperature sensors at two different locations and for comparing said difference to predetermined or learned minimum and maximum values for said difference in temperature between the respective sensors and providing a second signal based thereon; and

means for identifying and setting error conditions in response to said first and second signals.

5,723,847

METHOD FOR DETERMINING AND DISPLAYING THE REMAINING TIME IN A TREATMENT PROGRAM IN A HOUSEHOLD APPLIANCE AND ELECTRONIC CONTROL UNIT FOR PERFORMING THE METHOD

Frank Böldt, Berlin, Germany, assignor to Bosch-Siemens Hausgeraete GmbH, Munich, Germany

Filed Aug. 7, 1996, Ser. No. 693,455
Claims priority, application Germany, Aug. 7, 1995, 195 28 980.3
Int. Cl.[6] H05B 1/02
U.S. Cl. 219—506 3 Claims

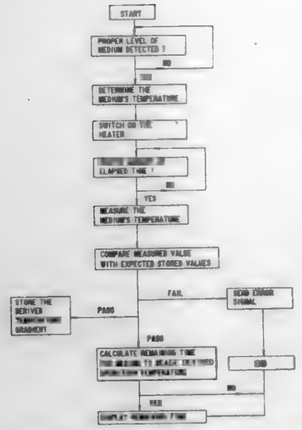
1. A method for determining and optionally displaying the remaining time in a treatment program in a household appliance on the basis of a time estimate based on a temperature gradient of a medium through a heating time segment, which comprises:

equipping the household appliance with an electric heater to heat a medium used for treatment and constantly monitoring a temperature of the medium;

initializing a test program segment to determine an installed heating capacity parameter that determines a temperature gradient of the medium;

heating a defined quantity of the medium with the electrical heater for a predetermined period of time;

calculating at least one of the installed heating capacity parameter and a comparison value corresponding to its magnitude from the attained temperature increase, the defined quantity of the medium and the known period of time; and



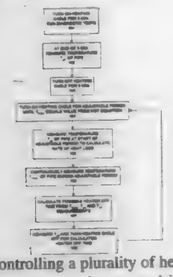
storing at least one of the installed heating capacity parameter and a comparison value corresponding to its magnitude as an operand in a nonvolatile memory to be use for calculating the time remaining in the treatment program.

5,723,848

HEATING CABLE CONTROL AND MONITORING METHOD AND SYSTEM

George Bilenko, Stamford, Conn.; Jules G. Leibman, White Plains, N.Y.; Shimon Meiler, Dix Hills, N.Y., and Victor Zelmanovich, Deer Park, N.Y., assignors to Intech 21, Inc., Deer Park, N.Y.

Filed Jan. 16, 1996, Ser. No. 586,098
Int. Cl.[6] H05B 1/02
U.S. Cl. 219—508 23 Claims



1. A system for controlling a plurality of heating cables, wherein each heating cable has two conductors and is disposed in contact with a heatable vessel during use to heat the vessel and is connectable to power lines having at least two conductors for applying power thereto, the system comprising:

a plurality of first switches each connectable between one heating cable and power lines and each responsive to a control signal for selectively connecting and disconnecting the one heating cable to and from the power lines;

a plurality of addressable remote terminals each connectable to one heating cable and having a temperature sensor for detecting the temperature of a heatable vessel heated by the one heating cable, a processor for controlling bi-directional communications and a first spread spectrum transceiver connectable to the two conductors of the one heating cable and controlled by the processor for transmitting temperature data relating to temperatures detected by the temperature sensor over a network including the one heating cable and the power lines and receiving data over the network including the power lines;

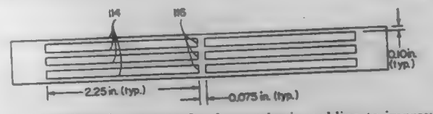
at least one addressable main controller for controlling the plurality of first switches and comprising a processor for controlling bi-directional communications, a second spread spectrum transceiver connected to two of the power line conductors for transmitting data over the network including the power lines to the remote terminals and for receiving temperature data transmitted from each first spread spectrum transceiver over the network including the power lines, wherein the processor is receptive of the temperature data from the plurality of remote terminals for producing a plurality of control signals as a function thereof and further comprising circuitry for applying each control signal to one first switch.

5,723,849

REINFORCED SUSCEPTOR FOR INDUCTION OR RESISTANCE WELDING OF THERMOPLASTIC COMPOSITES

Marc R. Matsen, Seattle; Ronald W. Brown, Des Moines, both of Wash.; James Healy, Tucson, Ariz.; Karl A. Hansen, deceased, late of Seattle, and John J. deJong, executor, Bellevue, both of Wash., assignors to The Boeing Company, Seattle, Wash.

Continuation-in-part of Ser. No. 341,779, Nov. 18, 1994, Pat. No. 5,599,472, which is a continuation-in-part of Ser. No. 169,655, Dec. 16, 1993, Pat. No. 5,530,227, Ser. No. 151,433, Nov. 12, 1993, Pat. No. 5,420,400, and Ser. No. 92,050, Jul. 15, 1993, Pat. No. 5,410,133, which is a division of Ser. No. 681,004, Apr. 5, 1991, Pat. No. 5,229,562, said Ser. No. 169,655 is a continuation-in-part of Ser. No. 777,739, Oct. 15, 1991, Pat. No. 5,410,132. This application Jun. 6, 1995, Ser. No. 469,986
Int. Cl.[6] H05B 6/10
U.S. Cl. 219—634 36 Claims



1. A reinforced susceptor for thermoplastic welding to improve bond strength by integrating a metal strip of the susceptor with fiber reinforcement, comprising:

a woven fabric having a plurality of weave fibers and a plurality of warp fibers, each warp fiber paired in overlying relationship with a metal strip to form warp fiber metal strip pairs, each metal strip having a head and a tail, such that the orientation of the metal strip to the warp fiber for each warp fiber/metal strip pair across the fabric is an alternating pattern having the metal strip adjacent to a first weave fiber for a first warp fiber/metal strip pair and having the metal strip displaced from the weave fiber by the warp fiber for the next warp fiber/metal strip pair to complete a woven style, the weave fiber electrically separating the metal strips from one another across the width of the fabric.

5,723,850

CASH DRAWER ASSEMBLY

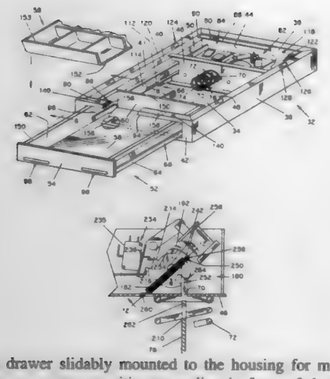
Ronald D. Lambert, Indianapolis, Ind., assignor to Loyal Manufacturing Corporation, Indianapolis, Ind.

Filed Jul. 26, 1996, Ser. No. 688,040
Int. Cl.[6] G07G 1/00
U.S. Cl. 235—22 47 Claims

1. A cash drawer assembly comprising

a housing defining an interior region and having a front wall, a rear wall spaced apart from the front wall and positioned to lie behind the front wall, and spaced-apart first and second side wails connecting the front and rear walls.

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a cash drawer slidably mounted to the housing for movement between an open position extending in front of the housing and a closed position in the interior region of the housing,

a compression spring attached to the rear wall and extending forwardly therefrom, the spring being spaced apart from the first side wall by a first distance and from the second side wall by a second distance, the first distance being generally equal to the second distance, and

a tongue attached to the cash drawer and extending rearwardly therefrom, the tongue being spaced apart from the first side wall by the first distance and from the second side wall by the second distance.

5,723,851

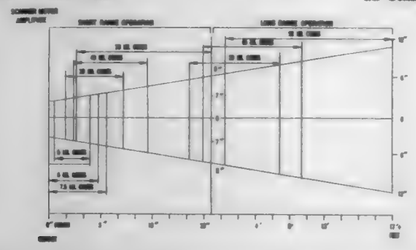
COMBINED RANGE, TURN PARALLEL BEAM ASSEMBLY WITH COMMON FOCUSING ELEMENT FOR SCANNING SYSTEMS

Patrick Salatto, Jr., Shirley, and Thomas Mazz, Huntington Station, both of N.Y., assignors to Symbol Technologies, Inc., Holtsville, N.Y.

Division of Ser. No. 98,243, Jul. 29, 1993, Pat. No. 5,420,411, which is a continuation of Ser. No. 717,770, Jun. 14, 1991, abandoned. This application May 30, 1995, Ser. No. 452,995

Int. Cl.[6] G06K *7/10*

U.S. Cl. 235—462 **12 Claims**



1. A system for electro-optically reading indicia located at different working ranges of distances, comprising:

a) an assembly including

a housing having a window,

optical means within the housing,

means including a pair of laser light sources within the housing, for generating and directing a pair of generally parallel laser beams to and through the optical means and the window, and

said optical means having a first optical characteristic for focusing one of the laser beams at a short working range of distances relative to the window of the housing, and a second optical characteristic different from said first optical characteristic for focusing the other of the laser beams at a long working range of distances relative to the window of the housing, said long working range being greater than said short working range;

b) means for determining the working range in which an indicium to be read is located, and for selecting one of the laser light sources and of the laser beams for the determined range;

c) means for scanning the selected laser beam for the determined range across the indicium; and

d) means for detecting light reflected off the scanned indicium.

5,723,852

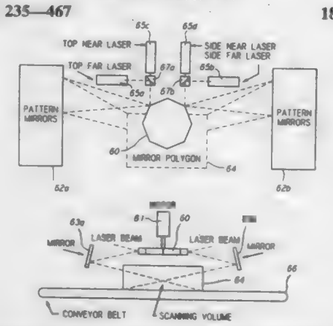
CHECKOUT COUNTER SCANNER HAVING MULTIPLE SCANNING SURFACES

Joseph F. Rando, Los Altos Hills, Calif.; Howard N. Roberts, and Thomas C. Arends, both of Eugene, Oreg., assignors to Spectra-Physics Scanning Systems, Inc., Eugene, Oreg.

Division of Ser. No. 188,164, Jan. 26, 1994, Pat. No. 5,491,328, which is a continuation-in-part of Ser. No. 108,112, Aug. 17, 1993, abandoned, which is a division of Ser. No. 764,527, Sep. 24, 1991, Pat. No. 5,256,864. This application Jun. 5, 1995, Ser. No. 461,047

Int. Cl.[6] G06K *7/10*

U.S. Cl. 235—467 **18 Claims**



1. A bar code scanning system for scanning an item being passed through a scan volume, comprising

a housing having an upper portion positioned over the scan volume;

a multiple beam source within the housing for generating a plurality of laser beams;

a scanning mirror within the upper portion of the housing over the scan volume for scanning the laser beams to produce a plurality of scanning beams;

a motor for rotating the scanning mirror;

a first set of pattern mirrors disposed on a first side of the scan volume and a second set of pattern mirrors disposed on a second side of the scan volume opposite to the first side;

wherein said scanning mirror directs the scanning beams across the first and second sets of pattern mirrors and into the scan volume from different directions.

5,723,853

BAR CODE READER

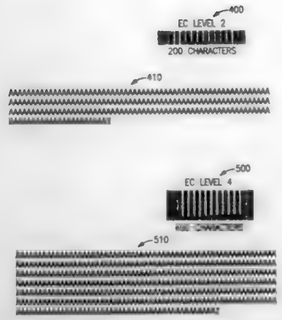
Andrew Longacre, Jr., Skaneateles, and Robert M. Hussey, Syracuse, both of N.Y., assignors to Welch Allyn, Inc., Skaneateles Falls, N.Y.

Continuation of Ser. No. 371,037, Jan. 10, 1995, abandoned. This application Mar. 7, 1997, Ser. No. 813,870

Int. Cl.[6] C06K *7/10*

U.S. Cl. 235—472 **12 Claims**

1. A self-contained two-dimensional bar code reader of the type having a housing, a light source for illuminating bar code symbols containing optically encoded data, said bar code symbols including PDF417 bar code symbols having multiple rows of optically encoded data, and a photodetector disposed in said housing for



generating electrically encoded data signals in response to light reflected from said bar code symbols, and a decoder disposed in said housing for enabling said reader to decode said bar code symbols, wherein said decoder includes:

a data memory for storing decoded data;

a program memory for storing a decoding program;

a programmable decoding circuit coupled to said data memory and said program memory and responsive to said decoding program and to said electrically encoded data signals for decoding said PDF417 bar code symbols;

said decoding program including:

a.) a row decoding program for decoding successive rows of optically encoded data read from said bar code symbol to produce decoded character data for storage in said data memory; and

b.) a message decoding program for placing decoded character data in appropriate positions in a row and column matrix that is representative of said symbol, and for error checking and error correcting said character data as a string of concatenated rows to produce a complete message.

5,723,854

ELECTRONIC LABEL FOR OPTICAL READING/WRITING

Jean Claude Berney, Les Charbonnières, Switzerland, assignor to Gay Freres S.A., Geneva, Switzerland

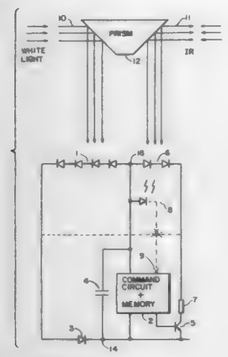
PCT No. PCT/CH95/00147, § 371 Date Feb. 14, 1996, § 102(e) Date Feb. 14, 1996, PCT Pub. No. WO96/01473, PCT Pub. Date Jan. 18, 1996

PCT Filed Jun. 28, 1995, Ser. No. 596,156

Claims priority, application Switzerland, Jul. 4, 1994, 02120/94

Int. Cl.[6] G06K *19/06*

U.S. Cl. 235—491 **8 Claims**



1. Electronic label, comprising

a plurality of photocells (**1**, **34**) responsive to white light and connected together to convert said white light into an operating voltage across a pair of terminals (**14**, **16**);

a receiving diode (**8**, **35**), responsive to a light wavelength range other than said white light, powered by said pair of terminals, and furnishing information received as a modulation of light in said other wavelength range,

at least one electronic memory device capable of retaining stored information in the absence of power supply, and

a command circuit (**2**) for instructing said memory device, coupled to said pair of terminals, and having an input connected to an output of said receiving diode (**8**, **35**), and

a light-emitting transmission means (**6**, **35**), powered by said pair of terminals and having an input connected to an output of said memory device, for reading out information stored in said memory device, as commanded by said command circuit (**2**).

5,723,855

SYSTEM FOR REMOTELY CONTROLLING A MOVABLE OBJECT

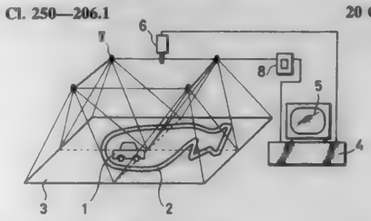
Ketsu Oh; Shingo Yamaoka, both of Kobe; Kazubiro Kusuda, Hiratsuka, and Kohichi Hayashida, Ebina, all of Japan, assignors to Konami Co., Ltd., Hyogo-ken, Japan

Filed Jun. 19, 1995, Ser. No. 491,797

Claims priority, application Japan, Jun. 22, 1994, 6-140291; Feb. 21, 1995, 7-032508

Int. Cl.[6] G01C *21/02*

U.S. Cl. 250—206.1 **20 Claims**



1. A racing game system for remotely controlling a movable object comprising:

a drive controller, disposed on the movable object, for controlling driving of the movable object in accordance with movement data;

an emitter device, disposed on the movable object, for emitting light;

a light sensor for receiving light emitted from the emitter device and producing light data;

a processor for calculating a position of the emitter device based on the light data from the light sensor;

a movement data generator means for randomly selecting a predetermined race development data from a plurality of predetermined race development data and generating the movement data for the movable object in accordance with the position calculated by the processor and said randomly selected predetermined race development data; and

a movement data sender for sending the generated movement data to the drive controller.

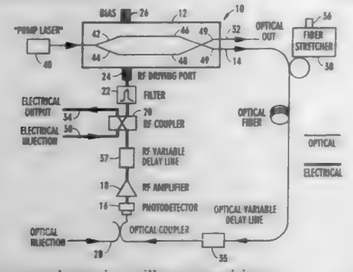
VOL 1208 ISS 1 MR 3 1998 UMI

5,723,856

OPTO-ELECTRONIC OSCILLATOR HAVING A POSITIVE FEEDBACK WITH AN OPEN LOOP GAIN GREATER THAN ONE

Xiaotian Steve Yao, Diamond Bar, and Lutfollah Maleki, San Marino, both of Calif., assignors to California Institute of Technology, Pasadena, Calif.

Filed Aug. 1, 1995, Ser. No. 510,064
Int. Cl.[6] H01S 3/098
U.S. Cl. 250—227.11 41 Claims



1. An opto-electronic oscillator comprising:

an electric-optical modulator having an electrical input port that accepts an electrical control signal and an optical output port, wherein the electric-optical modulator is operable to generate at the optical output port an optical signal being modulated at an oscillation frequency related to the electrical control signal,

a photodetector operable to convert a portion of the optical signal from the optical output port of the electro-optical modulator to an electrical signal and to provide the electrical signal to the electrical input port of the electro-optical modulator as the electrical control signal, the electrical signal from the photodetector oscillating at the same oscillation frequency at which the optical signal at the optical output port is modulated, and

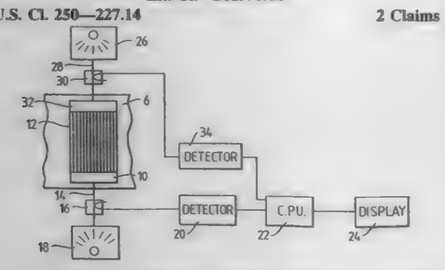
an active feedback loop connecting the optical output port, the photodetector and the electrical input port, said feedback loop having a positive feedback with an open loop gain which is greater than one.

5,723,857

METHOD AND APPARATUS FOR DETECTING CRACKS AND STRAINS ON STRUCTURES USING OPTICAL FIBERS AND BRAGG GRATINGS

Fiona Underwood, and Andrew Ball, both of Farnborough, Great Britain, assignors to British Aerospace Public Limited Company, Hampshire, Great Britain

Continuation of Ser. No. 294,397, Aug. 23, 1994, abandoned.
This application May 8, 1996, Ser. No. 646,868
Claims priority, application United Kingdom, Aug. 24, 1993, 9317576
Int. Cl.[6] G01N 3/80
U.S. Cl. 250—227.14 2 Claims



1. A method of measuring structural defects of a structure including the steps of:

a) attaching to said structure at least one structural defect sensor each comprising a fibre optic cable in turn comprising a plurality of longitudinally extending optical fibres mounted in a predetermined spaced apart substantially parallel co-planar array, selected fibres having Bragg Gratings located along their length in their surfaces, one side of said array being adapted for attachment to a surface of a structure to be tested,

b) coupling to one end of the fibre optic cable of each sensor a light source, and an optical sensor having time domain measuring and multiplexing capabilities,

c) monitoring a variation of a light parameter measured by said optical detector using time domain measurement to locate the position of a crack along a fibre and using multiplexing for determining from which fibre the light source is being analyzed,

d) monitoring point strains by measuring a characteristic of light reflected from said Bragg Gratings, and

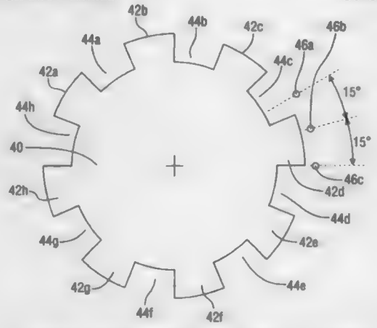
including the further steps of locating a second light source, with a corresponding optical switching unit and a detector, at another end of said cable thereby enabling reflections of light from both ends of said cable to be monitored and thereby the positioning of any discontinuity on an individual fibre within said cable to be accurately established.

5,723,858

POSITION ENCODER WITH FAULT INDICATOR

David Mark Sugden, Ilkley, United Kingdom, assignor to Switched Reluctance Drives, Ltd., Harrogate, United Kingdom

Continuation of Ser. No. 472,959, Jun. 7, 1995, abandoned.
This application Apr. 24, 1997, Ser. No. 847,401
Claims priority, application United Kingdom, Mar. 28, 1995, 9506358
Int. Cl.[6] G01D 5/34
U.S. Cl. 250—231.13 30 Claims



1. A position encoder system that allows the failure of the position encoder to be detected, the system comprising:

at least one movable member having a predefined width;

a position encoder including three or more sensors positioned such that the distance between adjacent sensors is less than the predefined width and the distance between at least two of the sensors is greater than the predefined width, each sensor providing a digital output signal in response to the relationship of the movable member to the sensor where the digital output signals from the sensor define an output state, the sensors arranged such that a failure of the position encoder results in an illegal output state; and

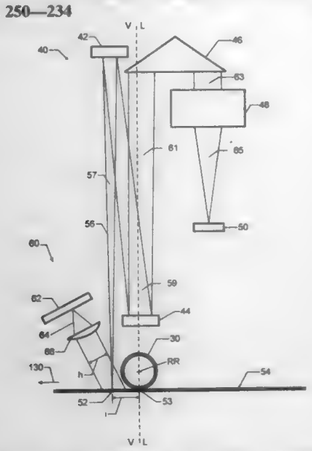
a failure detector electrically coupled to receive the output signals from the plurality of sensors, the failure detector signaling a failure whenever an illegal output state is detected.

5,723,859

LINE CONTACT HAND-HELD SCANNING DEVICE AND METHOD HAVING A LIGHT PATH SUBSTANTIALLY PERPENDICULAR TO THE ORIENTATION OF THE OBJECT AT A LINE PORTION

Ronald K. Kerschner, Loveland; Charles H. McConica; Jacklyn M. Dowdy, both of Fort Collins, and David K. Campbell, Loveland, all of Colo., assignors to Hewlett-Packard Company, Palo Alto, Calif.

Filed Jan. 29, 1996, Ser. No. 601,276
Int. Cl.[6] H01J 3/14
U.S. Cl. 250—234 26 Claims



1. A method of scanning an object with a hand-held optical scanning device comprising the steps of:

making contact between said object and said scanning device;

performing a scan while moving said scanning device along said object and maintaining said contact;

variably tilting said scanning device while performing said scan;

imaging successive line portions of said object with a light path as said scanning device is moved along said object;

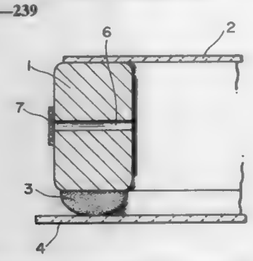
wherein the greater part of said light path extends in an orientation which is substantially perpendicular to the orientation of said object.

5,723,860

FRAME-SUPPORTED PELLICLE FOR PHOTOMASK PROTECTION

Yuichi Hamada, and Meguru Kashida, both of Gunma-ken, Japan, assignors to Shin-Etsu Chemical Co., Ltd., Tokyo, Japan

Filed Jun. 28, 1996, Ser. No. 673,257
Claims priority, application Japan, Jul. 5, 1995, 7-169545
Int. Cl.[6] H01J 5/02
U.S. Cl. 250—239 6 Claims



1. In a frame-supported pellicle for dust-free protection of a photomask used in a photolithographic patterning work consisting of:

(a) a pellicle frame of a rigid material having two opposite parallel end surfaces;

(b) a transparent pellicle membrane of a plastic resin spread over and adhesively bonded to one of the end surfaces of the pellicle frame in a slack-free fashion; and

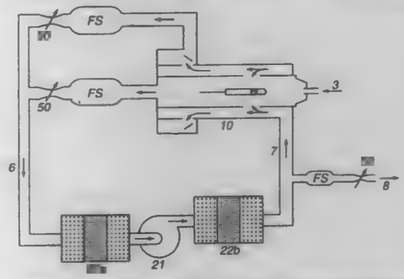
(c) a layer of a pressure-sensitive adhesive formed on the other end surface of the pellicle frame, the improvement which comprises having the layer of the pressure-sensitive adhesive layer of which the surface is outwardly convex.

5,723,861

RECIRCULATING FILTRATION SYSTEM FOR USE WITH A TRANSPORTABLE ION MOBILITY SPECTROMETER

Byron Lee Carnahan, Pittsburgh, and Alexander Semenovich Tarassov, Mars, both of Pa., assignors to Mine Safety Appliances Company, Pittsburgh, Pa.

Filed Apr. 4, 1996, Ser. No. 628,147
Int. Cl.[6] H01J 49/40;49/04
U.S. Cl. 250—287 20 Claims



1. A fluid filtration system for use with an ion mobility spectrometer, comprising:

A. a pump in communication with both an outlet and a carrier stream inlet of the ion mobility spectrometer for recirculating ion mobility spectrometer outlet fluid flow into the carrier stream inlet;

B. at least one filter in communication with the pump for removing impurities from the recirculated flow; and

C. an exhaust in communication with the pump for removing a portion of the recirculated flow from the system, wherein the amount of fluid removed is equal to the amount of fluid entering the sample stream inlet of the ion mobility spectrometer.

5,723,862

MASS SPECTROMETER UTILIZING HIGH ENERGY PRODUCT DENSITY PERMANENT MAGNETS

Leon Forman, 52 Pardam Knoll Rd., Miller Place, N.Y. 11764

Filed Mar. 4, 1996, Ser. No. 610,370
Int. Cl.[6] H01J 49/26
U.S. Cl. 250—294 28 Claims

1. A portable magnetic sector mass spectrometer, comprising:

a) a base;

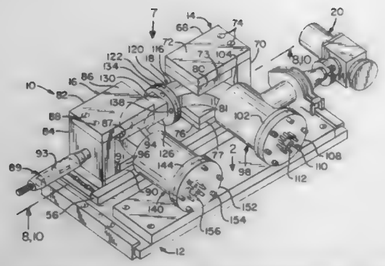
b) first magnetic field generating apparatus using greater than 10E7 GOe permanent magnetic material and being mounted to said base for generating a 90° magnetic field with a radius of curvature and having an entrance and an exit;

c) a smoothly bent magnetic deflection flight tube assembly passing through said first 90° magnetic field and containing a vacuum chamber of less than 3×10E-5 Torr;

d) introducing means disposed in said vacuum chamber of said smoothly bent magnetic deflection flight tube assembly for introducing a material to be analyzed;

e) ionizing means disposed in said vacuum chamber of said smoothly bent magnetic deflection flight tube assembly for

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ionizing and accelerating by an electrical voltage the material to be analyzed; the ionized material to be analyzed having an ion trajectory contained in said vacuum chamber of said smoothly bent magnetic deflection flight tube assembly; the ion trajectory of the ionized material to be analyzed having a parallel component being focused at a point where the ion trajectory of the ionized material to be analyzed generally exits said first 90° magnetic field generating means;

f) collecting and measuring means disposed in said vacuum chamber of said smoothly bent magnetic deflection flight tube assembly for collecting and measuring the ionized material to be analyzed,

wherein said first magnetic field generating means is mounted to said base in a way selected from the group consisting of fixedly and slidably in both lateral and longitudinal directions, so that when said first magnetic field generating means is slidably mounted to said base, said first magnetic field generating means has a high intensity position for source exit focus where said first magnetic field generating means is in proximity to said vacuum chamber of said smoothly bent magnetic deflection flight tube assembly and allowing for a higher mass spectra to be scanned, and a low intensity position using angular focus geometry where said first magnetic field generating means is external to said vacuum chamber of said smoothly bent magnetic deflection flight tube assembly and allowing for a lower mass spectra to be scanned; said smoothly bent magnetic deflection flight tube assembly includes a first chamber that has an open distal pert end with a flange that extends outwardly from, and surrounds, said open distal port end of said first chamber of said smoothly bent magnetic deflection flight tube assembly, an interior space, and a substantially closed proximal end with a centrally disposed throughbore that has a throughbore perimeter; said ionizing means includes an ion source that is contained in said first chamber of said smoothly bent magnetic deflection flight tube assembly; said smoothly bent magnetic deflection flight tube assembly further includes a smoothly bent magnetic deflection flight tube with an interior space, an open inlet end that extends outwardly from said throughbore perimeter of said centrally disposed throughbore of said substantially closed proximal end of said first chamber of said smoothly bent magnetic deflection flight tube assembly, with said interior space of said first chamber of said smoothly bent magnetic deflection flight tube assembly being in communication with said interior space of said smoothly bent magnetic deflection flight tube of said smoothly bent magnetic deflection flight tube assembly, an open outlet end, and a central radius of curvature; said smoothly bent magnetic deflection flight tube assembly further includes a second chamber that has an interior space, an open distal port end with a circular flange that extends outwardly from, and surrounds, said open distal port end of said second chamber, and a substantially closed proximal end with a centrally disposed throughbore that has a throughbore perimeter from which said outlet end of said smoothly bent magnetic deflection flight tube of said smoothly bent magnetic deflection flight tube assembly extends, with said interior space of said second chamber of said smoothly bent magnetic deflection flight tube assembly being in communication with said interior space of said smoothly bent magnetic deflection flight tube of said smoothly bent magnetic deflection flight tube assembly; said first chamber of said smoothly bent magnetic deflection flight tube assembly further contains an ion source exit slit for defining the ion trajectory of the ionized material to be analyzed leaving said ion source of said first chamber of said smoothly bent magnetic deflection flight tube assembly, and a first ion trajectory defining slit for further defining the ion trajectory of the ionized material to be analyzed leaving said ion source exit slit of said first chamber of said smoothly bent magnetic deflection flight tube assembly; said first ion trajectory defining slit of said first chamber of said smoothly bent magnetic deflection flight tube assembly is disposed between said ion source exit slit of said first chamber of said smoothly bent magnetic deflection flight tube assembly and said first magnetic field generating means; said smoothly bent magnetic deflection flight tube assembly further contains a second ion trajectory defining slit for further defining the ion trajectory of the ionized material to be analyzed leaving said first magnetic field generating means; said smoothly bent magnetic deflector flight tube is a pair of 90° bends resulting in a consecutive 90° arc-shape with said first chamber of said smoothly bent magnetic deflection flight tube assembly being parallel to said second chamber of said smoothly bent magnetic deflection flight tube assembly, so that the ionized material to be analyzed that enters said open inlet end of said consecutive 90° arc-shaped magnetic deflection flight tube of said smoothly bent magnetic deflection flight tube assembly will exit said open outlet end of said consecutive 90° arc-shaped magnetic deflection flight tube of said smoothly bent magnetic deflection flight tube assembly in a direction 180° from its entry; said consecutive 90° arc-shaped magnetic deflection flight tube of said smoothly bent magnetic deflection flight tube assembly has a first 90° arc-shaped portion with a central radius of curvature and a second 90° arc-shaped portion contingent with said first 90° arc-shaped portion of said consecutive 90° arc-shaped magnetic deflection flight tube of said smoothly bent magnetic deflection flight tube assembly and has a central radius of curvature equal to said central radius of curvature of said first 90° portion of said consecutive 90° arc-shaped magnetic deflection flight tube of said smoothly bent magnetic deflection flight tube assembly; and

g) a second magnetic field generating means identical in configuration to said first magnetic field generating means and slidably mounted to said base in beth the lateral and longitudinal directions, and spaced a distance from said first magnetic field generating means in tandem relationships, so that double momentum selection is provided that allows for the reduction of the effect of scattered ions, and adjacent masses can be more readily identified in a quantifiable way,

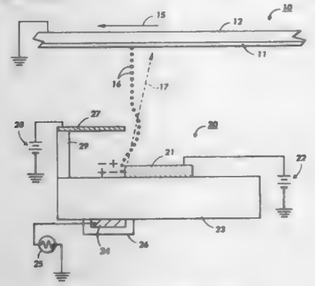
wherein said second ion trajectory defining slit of said smoothly bent magnetic deflection flight tube assembly is contained in said consecutive 90° arc-shaped magnetic deflection flight tube between said first magnetic field generating means and said second magnetic field generating means; said smoothly bent magnetic deflection flight tube assembly further includes a collecting slit contained in said second chamber of said smoothly bent magnetic deflection flight tube assembly; when said first magnetic field generating means and said second magnetic field generating means are in said low intensity positions, the distance between said ion source exit slit of said first chamber of said smoothly bent magnetic deflection flight tube assembly and said entrance of said first magnetic field generating means, the distance between said exit of said first magnetic field generating means and said entrance of said second magnetic field generating means, and the distance between said exit of said second magnetic field generating means add said collecting slit of said second chamber of said smoothly bent magnetic deflection flight tube assembly are each equal to said radius of curvature of said magnetic field of said first magnetic field generating means.

5,723,863

ION CHARGING APPARATUS WITH LIGHT BLOCKING CAPABILITY

Richard F. Bergen, Ontario, N.Y., assignor to Xerox Corporation, Stamford, Conn.

Filed Mar. 28, 1996, Ser. No. 623,291
Int. Cl.[6] H01T *19/04*
U.S. Cl. 250—326 **13 Claims**



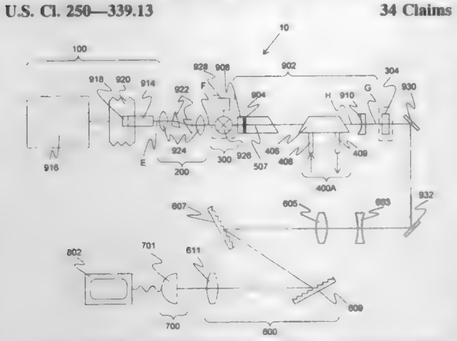
1. A corona generating device, comprising:
a dielectric support substrate;
a corona producing member attached to one side of said dielectric support member;
a low voltage DC source connected to said corona producing member;
a blocking electrode positioned above said dielectric support substrate and adapted to block light produced by ions emitted from said corona producing member;
an electrode connected to the opposite side of said dielectric support substrate; and
a high voltage AC source coupled to said electrode to provide fields that generate corona along an edge of said corona producing member.

5,723,864

LINEAR CAVITY LASER SYSTEM FOR ULTRA-SENSITIVE GAS DETECTION VIA INTRACAVITY LASER SPECTROSCOPY (ILS)

George H. Atkinson, and Esmail Mehdizadeh, both of Tucson, Ariz., assignors to Innovative Lasers Corporation, Tucson, Ariz.

Continuation-in-part of Ser. No. 675,605, Jul. 3, 1996, which is a continuation-in-part of Ser. No. 522,963, Sep. 1, 1995. This application Jul. 3, 1996, Ser. No. 675,531
Int. Cl.[6] G01N *21/35*
U.S. Cl. 250—339.13 **34 Claims**



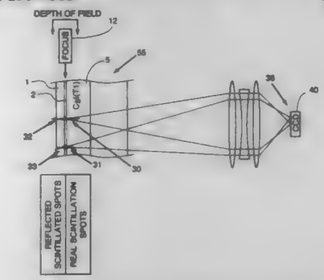
1. A gas detection system for detecting the presence of gaseous species in a gas sample comprising:
(a) a linear laser cavity formed between a first mirror and a second mirror;
(b) an ion-doped crystal therein having two ends;
(c) a pumping source located outside said linear laser cavity which has an output which optically excites said ion-doped crystal, thereby producing an output beam which exits said linear laser cavity;
(d) means for containing said gas sample in said linear laser cavity, said output beam of said ion-doped crystal passing through said gas sample prior to exiting said linear laser cavity; and
(e) a detector assembly including therein a detector, wherein said output beam of said ion-doped crystal after exiting said linear laser cavity is directed to said detector assembly for determining the presence and/or concentration of gaseous species in the gas sample.

5,723,865

X-RAY IMAGING DEVICE

Richard Trissel, Cardiff; Stephen Horton, Oceanside; Brett Spivey, Encinita, and Lee Morsell, Del Mar, all of Calif., assignors to ThermoTrex Corporation, San Diego, Calif.

Continuation-in-part of Ser. No. 344,141, Nov. 23, 1994. This application Oct. 3, 1995, Ser. No. 538,791
Int. Cl.[6] G01T *1/202*
U.S. Cl. 250—368 **17 Claims**



1. An x-ray scintillator for producing an x-ray image comprising:
a) a substantially rigid optically transparent support plate; and
b) a single crystal scintillation crystal in the form of a crystalline plate, defining a peak x-ray scintillation wavelength, mounted on said support plate, said scintillation crystal defining an x-ray illumination surface and a viewing surface, said illumination surface being covered with an x-ray transparent, optical reflector to define an optically reflecting illumination surface, and both viewing surface and said optically reflecting illumination surface being treated to reduce Fresnel reflections in said crystal at said peak x-ray scintillation wavelength to less than 1.0 percent and to reduce surface roughness to less than 100 angstroms;
wherein said x-ray image is produced at and near said optically reflecting illumination surface directly from light created in said crystal and indirectly from light created in said crystal and reflected from said reflector.

5,723,866

METHOD FOR YIELD AND PERFORMANCE IMPROVEMENT OF LARGE AREA RADIATION DETECTORS AND DETECTORS FABRICATED IN ACCORDANCE WITH THE METHOD

William J. Hamilton, Jr., Ventura, Calif., assignor to HE Holdings, Inc., Los Angeles, Calif.

Filed Jun. 26, 1996, Ser. No. 670,478
Int. Cl.[6] H01L *27/144;31/09*
U.S. Cl. 250—370.09 **20 Claims**

10. A method for operating a large area, solid state radiation detector, comprising the steps of:

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providing the detector with a volume of semiconductor material that is responsive to ionizing radiation for generating charge carriers, with a first electrode coupled to one surface of the volume of semiconductor material, and with a plurality of second electrodes coupled to a second surface of the volume of semiconductor material, individual ones of the second electrodes being associated with an underlying region of the volume of semiconductor material for collecting charge carriers from the underlying region, the volume of semiconductor material having a substantially constant thickness across the detector;

irradiating the detector with ionizing radiation to generate charge carriers within the volume of semiconductor material; and

at a summing node, combining charge carriers collected from individual ones of the second electrodes to generate an output signal.

5,723,867

FIELD EMISSION CATHODE HAVING FOCUSING ELECTRODE

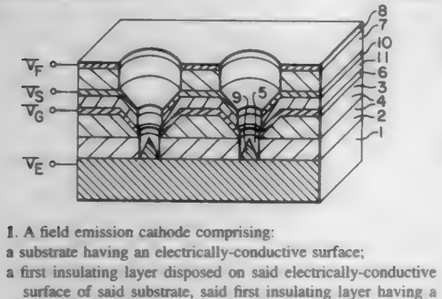
Hironori Imura, Tokyo, Japan, assignor to NEC Corporation, Tokyo, Japan

Filed Feb. 27, 1996, Ser. No. 607,463

Claims priority, application Japan, Feb. 27, 1995, 7-038234

Int. Cl.[6] G01N *27/00;* **H01J** *1/02*

U.S. Cl. 250—423 F **7 Claims**



1. A field emission cathode comprising:

a substrate having an electrically-conductive surface;

a first insulating layer disposed on said electrically-conductive surface of said substrate, said first insulating layer having a cavity defined by a cavity edge formed therein;

a second insulating layer disposed on said first insulating layer, said second insulating layer being recessed at a downward inclination around said cavity edge;

a gate electrode disposed on said second insulating layer adjacent said cavity edge, said gate electrode being recessed at a downward inclination around and in contact with said second insulating layer at said cavity edge;

a third insulating layer disposed on said gate electrode except for said recessed portion;

a focusing electrode disposed on said third insulating layer; and

an emitter disposed in said cavity, said emitter being electrically connected to said electrically conductive surface of said substrate.

5,723,868

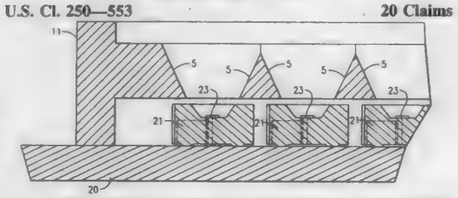
ILLUMINATING ASSEMBLY FOR USE WITH BAR CODE READERS

Charles M. Hammond, Jr., and William H. Havens, both of Skaneateles, N.Y., assignors to Welch Allyn, Inc., Skaneateles Falls, N.Y.

Continuation of Ser. No. 441,037, May 15, 1995, abandoned. This application Feb. 25, 1997, Ser. No. 805,739

Int. Cl.[6] H01L *31/14*

U.S. Cl. 250—553 **20 Claims**



1. A light director for use with non-contact bar code symbol readers of the type including a two-dimensional array of light sources for illuminating a two-dimensional field of view, comprising:

a director body member including a two-dimensional array of light directing units, each of which directs light generated by a respective one of said light sources toward said two-dimensional field of view as a whole, each of said light directing units including:

(i) a first open end for receiving light generated by a corresponding light source located in proximity thereto;

(ii) a second open end through which light received into the corresponding first open end is able to pass out of said director; and

(iii) a wall extending between said first and second open ends for increasing the fraction of light passing out of said second open end, wherein light passing from said second open end of each of said light directing units impinges in an overlapping manner onto said field of view as a whole, said illuminated field of view extending a predetermined distance from said light director.

5,723,869

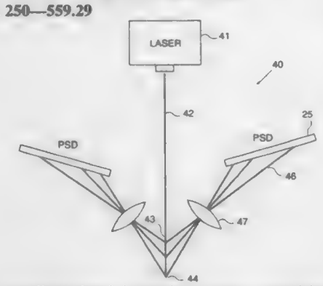
MULTICHANNEL POSITION SENSING DETECTOR

Pat V. Costa, Nissequogue; William E. Yonescu, Smithtown, and Donald Fritz, Coram, all of N.Y., assignors to Robotic Vision Systems, Inc., Hauppauge, N.Y.

Continuation of Ser. No. 310,841, Sep. 22, 1994, Pat. No. 5,554,858. This application Sep. 5, 1996, Ser. No. 707,637

Int. Cl.[6] G01V *8/00*

U.S. Cl. 250—559.29 **1 Claim**



1. A two-dimensional inspection system comprising: a laser source for projecting a narrow laser beam of light; means for deflecting said laser beam through small angles; a position sensing detector having a plurality of electrically isolated channels, each of said channels having a length; means for imaging light reflected from said laser beam upon said position sensing detector and imaging a light spot at a position along the channel length; each of said channels generating two electrical currents in a ratio proportional to the position of a light spot along said channel length; means for selecting a channel having a current ratio indicating the position of said laser beam reflected from a surface; means for deselecting channels with output generated substantially by localized peaks of stray light; means for converting the current ratio of selected channel into a two-dimensional and a three-dimensional position value indicative of said surface reflecting said laser beam; and means for reporting said two-dimensional and three-dimensional position value.

5,723,870

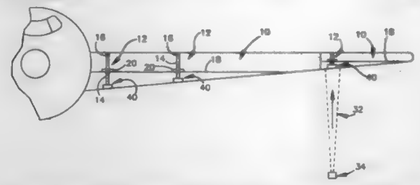
FLUID GAUGING APPARATUS USING MAGNETOSTRICTIVE SENSOR AND STICK GAUGE

David Henry Crowne, Middlebury; Lisa Brackenbury Maurice, Jericho; Frederick Lloyd Lichtenfels, II, Vergennes, and Kip Joseph Freeman, Shelburne, all of Vt., assignors to Simmonds Precision Products Inc., Akron, Ohio

Continuation of Ser. No. 268,002, Jun. 28, 1994, which is a continuation-in-part of Ser. No. 69,263, May 28, 1993, Pat. No. 5,399,875. This application May 6, 1996, Ser. No. 647,328

Int. Cl.[6] G01N *15/06*

U.S. Cl. 250—577 **34 Claims**



1. Apparatus for detecting fluid level in a container, comprising: a housing adapted to be disposed in the container; a float with an associated magnetic element, said housing being a floatation guide for the float, with the float position corresponding to fluid level in the container; a magnetostrictive sensor disposed inside the housing; and a stick gauge disposed inside the housing; the magnetostrictive sensor and the stick gauge being individually operable with the float to determine the position thereof.

5,723,871

PROCESS OF EMITTING HIGHLY SPIN-POLARIZED ELECTRON BEAM AND SEMICONDUCTOR DEVICE THEREFOR

Tsutomu Nakanishi, Nagoya; Hiromichi Horinaka, Suita; Takashi Saka, Nagoya, and Toshihiro Kato, Kasugai, all of Japan, assignors to Daido Tokushuko Kabushiki Kaisha, Nagoya, Japan

Continuation-in-part of Ser. No. 876,579, Apr. 30, 1992, Pat. No. 5,315,127. This application Mar. 17, 1994, Ser. No. 214,319

Claims priority, application Japan, May 2, 1991, 3-130611; Jun. 7, 1991, 3-163642; Mar. 21, 1992, 4-094807; Mar. 18, 1993, 5-084033; Oct. 18, 1993, 5-260072

The portion of the term of this patent subsequent to May 24, 2011, has been disclaimed.

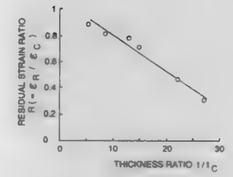
Int. Cl.[6] H01L *29/201;29/161*

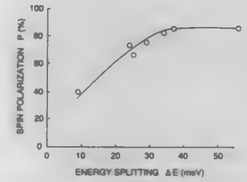
U.S. Cl. 257—11 **36 Claims**

1. A semiconductor device for emitting, upon receiving a light energy, a highly spin-polarized electron beam, comprising:

a first compound semiconductor layer formed of gallium arsenide phosphide, $GaAs_{1-x}P_x$, and having a first lattice constant;

a second compound semiconductor layer provided on said first semiconductor layer, said second semiconductor layer having a second lattice constant different from said first lattice constant and a thickness, t, smaller than the thickness of said first semiconductor layer, said second semiconductor layer emitting said highly spin-polarized electron beam having not less than 50% spin polarization, upon receiving said light energy; and





a fraction, x, of said gallium arsenide phosphide $GaAs_{1-x}P_x$ of said first semiconductor layer defining a magnitude of mismatch between said first and second lattice constants, such that said magnitude of mismatch and said thickness t of said second semiconductor layer provide a residual strain, ϵ_R, of not less than 2.0×10^{-3} in said second semiconductor layer,

wherein said second semiconductor layer is formed of gallium arsenide, GaAs, and

wherein said fraction x of said gallium arsenide phosphide $GaAs_{1-x}P_x$ of said first semiconductor layer and said thickness t, in angstrom unit, of said second semiconductor layer satisfy at least one of the following expressions:

$$t \leqq -18000x + 8400,$$

and

$$t \leqq -7000x + 5100.$$

5,723,872

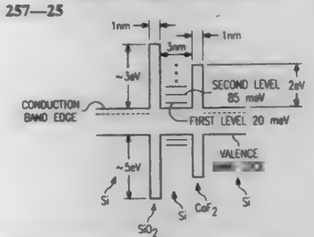
MIXED BARRIER RESONANT TUNNELING

Alan C. Seabaugh, and Chih-Chen Cho, both of Richardson, Tex., assignors to Texas Instruments Incorporated, Dallas, Tex.

Filed Aug. 15, 1994, Ser. No. 290,269

Int. Cl.[6] H01L *29/06;29/24*

U.S. Cl. 257—25 **3 Claims**



1. A resonant tunneling diode, comprising:

an emitter;

a first tunneling barrier made of a first material and abutting said emitter;

a quantum well abutting said first tunneling barrier;

a second tunneling barrier made of a second material different from said first material and abutting said quantum well; and

a collector abutting said second tunneling barrier, wherein:

said first material is crystalline; and

said second material is amorphous.

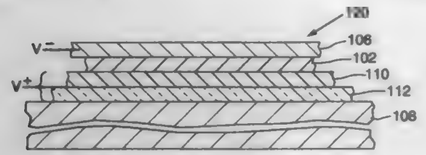
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5,723,873

BILAYER COMPOSITE ELECTRODES FOR DIODES

Yang Yang, 260 Harvard La., Santa Barbara, Calif. 93111

Filed Mar. 3, 1994, Ser. No. 205,519
Int. Cl.[6] H01L *35/24;51/00*
U.S. Cl. 257—40 33 Claims



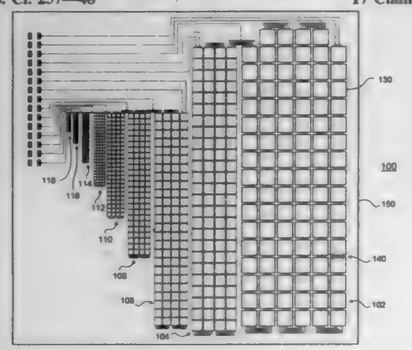
1. In a diode comprising an ohmic hole-injecting layer electrode in contact with a first side of a layer of an electrically active material and an electron-injecting layer electrode in contact with a second side of said layer of an electrically active material, the improvement comprising employing as said ohmic hole-injecting layer electrode a composite ohmic hole-injecting layer electrode comprising at least one layer of a high work function conductive inorganic material plus at least one layer of conductive polyaniline.

5,723,874

DISHING AND EROSION MONITOR STRUCTURE FOR DAMASCENE METAL PROCESSING

Faye Diann Baker, Burlington; Daniel Shaw Brooks, Essex Junction; Robert Kenneth Leidy, Burlington; Anne Elizabeth McGuire, Colchester, and Rock Nadeau, Essex Junction, all of Vt., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Jun. 24, 1996, Ser. No. 668,895
Int. Cl.[6] H01L *23/58;29/40*
U.S. Cl. 257—48 17 Claims



1. A monitor for characterizing the dishing occurring in a planarization process comprising:

a) a wafer;

b) a first monitor structure set embedded in said wafer, said first monitor structure set comprising a first plurality of monitor structures, said first plurality of monitor structures connected together in series with a first plurality of connective traces; and

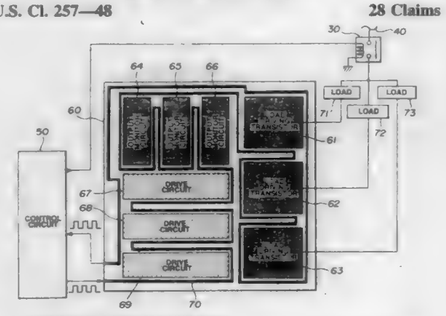
c) a second monitor structure set embedded in said wafer, said second monitor structure set comprising a second plurality of monitor structures, said second plurality of monitor structures having an area less than said first plurality of monitor structures and connected together in series with a second plurality of connective traces.

5,723,875

CHIP DAMAGE DETECTING CIRCUIT FOR SEMICONDUCTOR IC

Noriyuki Abe, Yokohama; Toshimi Abo, Chigasaki, and Toshirou Shinohara, Yokosuka, all of Japan, assignors to Nissan Motor Co., Ltd., Yokohama, Japan

Filed Oct. 23, 1996, Ser. No. 736,567
Claims priority, application Japan, Oct. 24, 1995, 7-275485
Int. Cl.[6] H01L *23/58;27/10*
U.S. Cl. 257—48 28 Claims



1. A fail-safe system comprising

a semiconductor integrated circuit comprising at least two functional circuit sections;

a chip check circuit for receiving a chip check signal for detecting a breakage in said semiconductor integrated circuit, said chip check circuit comprising a chip check line extending between at least the two functional circuit sections in a chip of said semiconductor integrated circuit;

detecting means for detecting an abnormal condition by monitoring an output signal of said chip check circuit and producing an abnormality signal when said detecting means detects the abnormal condition; and

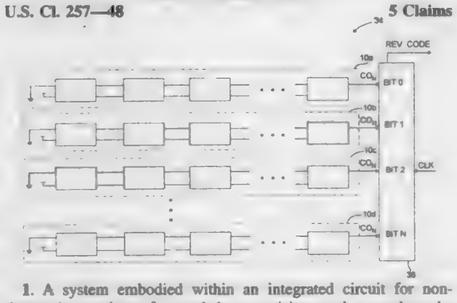
fail-safe means for performing a fail-safe action in response to said abnormality signal.

5,723,876

DEVICE AND METHOD FOR PROGRAMMING A LOGIC LEVEL WITHIN AN INTERGRATED CIRCUIT USING MULTIPLE MASK LAYERS

S. Doug Ray, Austin, Tex., assignor to Advanced Micro Devices, Inc., Sunnyvale, Calif.

Division of Ser. No. 311,216, Sep. 23, 1994, Pat. No. 5,644,144. This application Mar. 5, 1997, Ser. No. 811,814
Int. Cl.[6] H01L *23/58*
U.S. Cl. 257—48 5 Claims



1. A system embodied within an integrated circuit for non-destructive readout of a mask layer revision used to produce the integrated circuit, said system comprising:

a plurality of devices formed in a portion of a semiconductor substrate, each of said plurality of devices includes a plurality of series connected programmable circuits and each programmable circuit is arranged on a distinct layer from a plurality of layers lithography formed on said semiconductor substrate;

each of said plurality of devices is connected to receive a fixed logic level and to produce a programmed logic level, wherein a logic value of the programmed logic level is dissimilar to a logic value of the fixed logic level during times in which an odd number of said plurality of series connected programmable circuits are reconfigured in accordance with respective revisions to said layers; and

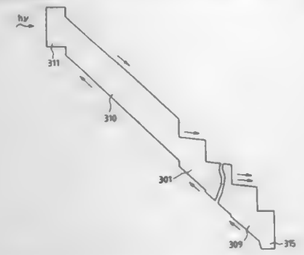
a parallel load register coupled to receive said plurality of devices and, upon further receipt of a clocking input, to read out a revision code corresponding to a revision of said layers.

5,723,877

PHOTOELECTRIC CONVERSION APPARATUS

Shigetoshi Sugawa; Ihachiro Gofuku, both of Atsugi; Kazuaki Ohmi, Hadano; Yoshiyuki Osada, Atsugi, and Masato Yamanobe, Machida, all of Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan

Division of Ser. No. 141,723, Oct. 26, 1993, which is a continuation of Ser. No. 667,400, Apr. 3, 1991, abandoned. This application Jun. 7, 1995, Ser. No. 476,030
Claims priority, application Japan, Aug. 4, 1989, 1-201449; Aug. 4, 1989, 1-201450; Mar. 2, 1990, 2-49592; Mar. 2, 1990, 2-49593; Mar. 2, 1990, 2-49594; Mar. 2, 1990, 2-49595; Mar. 2, 1990, 2-49602
Int. Cl.[6] H01L *29/165;29/04;31/07*
U.S. Cl. 257—59 22 Claims



1. A photoelectric conversion device comprising:

a bias voltage applying means;

a light absorbing region made of non-monocrystalline material of substantially an intrinsic conductivity type with at least a first energy bandgap formed therein, provided with a light incident surface for absorbing a light to generate carrier; and

a carrier multiplication region made of a non-monocrystalline material comprising a plurality of adjacent layers of inclined energy bandgaps of which energy bandgaps gradually vary from a second energy bandgap to a third energy bandgap broader than the second energy bandgap,

wherein said carrier multiplication region includes a heterojunction for carrier ionization formed at a junction between a third energy bandgap region in one layer of the inclined energy bandgap layers and a second energy bandgap region in the other layer of the inclined energy bandgap layers adjacent to the one layer,

said carrier multiplication region is provided at a side opposite to the light incident surface of said light absorbing region, and, in the carrier multiplication region, the inclined energy bandgap layers are arranged so that the energy bandgap is gradually made broader from the light absorbing region to its opposite side,

a film thickness d of the light absorbing region meet a relation;

$$d \geq -(1/\alpha) \cdot Ln\,(1-P),\ (1>P \geq 0.9),$$

(where α is an absorption ratio of the light absorbing region with regard to used light wavelength and P is a light absorbing coefficient), and

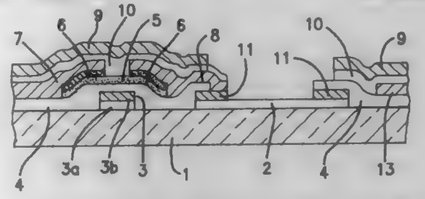
said bias voltage applying means applies a bias voltage between the light incident surface side of said light absorbing region and a side opposite to the light incident surface of said carrier multiplication region, a first time period for fixing one bias voltage at a potential and a second time period for electrically floating are provided, during the first time period, the carrier generated within the light absorbing region drifts and is transported into said carrier multiplication region, while said bias voltage applying means applies the bias voltage so as not to ionize the carrier within the light absorbing region.

5,723,878

ACTIVE MATRIX LIQUID CRYSTAL PANEL HAVING THIN FILM TRANSISTORS

Koichi Yanai, Tokyo, Japan, assignor to NEC Corporation, Tokyo, Japan

Filed Aug. 26, 1996, Ser. No. 702,949
Claims priority, application Japan, Aug. 24, 1995, 7-237836
Int. Cl.[6] H01L *29/04;31/036*
U.S. Cl. 257—59 20 Claims



1. A thin film transistor substrate for a liquid crystal display panel, said thin film transistor substrate comprising:

a transparent insulative substrate;

a pixel electrode provided on a first predetermined region of said transparent insulative substrate;

a first optical shielding film being made of a metal and being provided on a peripheral region of said pixel electrode;

a thin film transistor provided on a second predetermined region of said transparent insulative substrate, said thin film transistor comprising a gate electrode provided on said transparent insulative substrate, a gate insulation film provided to extend over said second predetermined region to cover said gate electrode and also extend on at least an outer portion of said first optical shielding film, a source electrode extending at least over said gate insulation film over a first half of said gate electrode and being electrically connected to said pixel electrode, and a drain electrode extending at least over said gate insulation film over a second half of said gate electrode;

a signal line extending over said gate insulation film to said drain electrode so that said signal line is positioned above said pixel electrode and separated by said gate oxide film from said pixel electrode; and

a second optical shielding film extending over said thin film transistor provided on said second region and also extending over an outer part of said first optical shielding film so that an opening portion of said pixel electrode is substantially defined by an inside edge of said first optical shielding film.

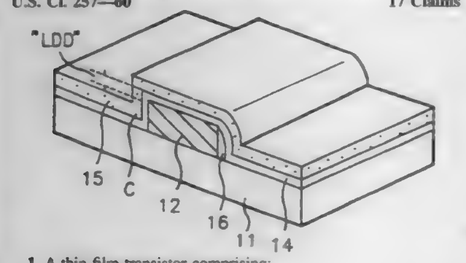
VOL 1208 ISS 1 MR 3 1998 UMI

5,723,879

THIN FILM TRANSISTOR WITH VERTICAL CHANNEL ADJACENT SIDEWALL OF GATE ELECTRODE AND METHOD OF MAKING

Seok Won Cho, Chungcheongbuk-do, and Jong Moon Choi, Seoul, both of Rep. of Korea, assignors to Goldstar Electron Co., Ltd., Chungcheongbuk-do, Rep. of Korea

Continuation of Ser. No. 415,567, Apr. 3, 1995, abandoned, which is a division of Ser. No. 296,172, Aug. 29, 1994, Pat. No. 5,432,102. This application Jan. 24, 1997, Ser. No. 788,204
Claims priority, application Rep. of Korea, May 12, 1994, 10411/1994
Int. Cl.[6] H01L *29/04;31/036;31/0376;31/20*
U.S. Cl. 257—60 **17 Claims**



1. A thin film transistor comprising:
a substrate;
a gate electrode having two sidewalls and a top surface on a predetermined portion of the substrate;
a sidewall spacer at one sidewall of the gate electrode;
an insulating layer on the sidewall spacer, the top surface of the gate electrode, the other sidewall of the gate electrode and the substrate;
a semiconductor layer on the insulating layer, said semiconductor layer having a substantially vertical channel region therein adjacent to said other sidewall of the gate electrode, no part of said substantially vertical channel region extending over said top surface of said gate electrode; and
a source region and a drain region in the semiconductor layer.

5,723,880

THIN FILM 2H α-SIC

Mark Anthony Stan, Westlake; Martin Owen Patton, Fairview Park, and Joseph Dale Warner, Westlake, all of Ohio, assignors to Kent State University, Kent, Ohio

Division of Ser. No. 210,044, Mar. 17, 1994, Pat. No. 5,529,949. This application Jun. 7, 1995, Ser. No. 484,761
Int. Cl.[6] H01L *31/0312*
U.S. Cl. 257—77 **2 Claims**

1. 2H α-silicon carbide in the form of a thin film, said thin film defining two major surfaces, said two major surfaces defining a thickness therebetween, and the diameter of said thin film in all directions perpendicular to said thickness being at least five times said thickness.

5,723,881

DUAL-BEAM LASER DIODE

Kuo-Ti Chen, Taipei, Taiwan, assignor to Quarton Inc., Taipei, Taiwan

Filed Dec. 4, 1996, Ser. No. 759,512
Int. Cl.[6] H01L *33/00*
U.S. Cl. 257—88 **3 Claims**

1. A dual-beam laser diode comprising:
a base;
a first laser diode mounted on said base and having a first laser emitting body controlled to emit a first laser beam; and,
a second laser diode mounted between said base and said first laser diode and having a second laser emitting body controlled to emit a second laser beam, said first laser diode being disposed in overlaying relationship with respect to said second laser diode with said first laser emitting body being closely spaced to said second laser emitting body, said second laser beam substantially overlapping said first laser beam of said first laser diode.

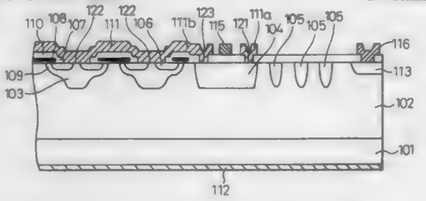


5,723,882

INSULATED GATE FIELD EFFECT TRANSISTOR HAVING GUARD RING REGIONS

Naoto Okabe, Chita-gun, and Naohito Kato, Kariya, both of Japan, assignors to Nippondenso Co., Ltd., Kariya, Japan

Continuation-in-part of Ser. No. 221,002, Apr. 1, 1994, abandoned. This application Mar. 10, 1995, Ser. No. 401,506
Claims priority, application Japan, Mar. 10, 1994, 6-039874
Int. Cl.[6] H01L *29/74;29/76;23/58*
U.S. Cl. 257—139 **19 Claims**



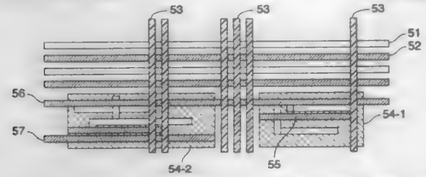
1. An insulated gate field effect transistor comprising:
a semiconductor substrate having a cell area formed on a first side of said semiconductor substrate, said cell area comprising a plurality of first wells of a first conductivity type, each of said plurality of first wells containing:
a source region of a second conductivity type,
a channel region in a surface portion of said semiconductor substrate adjacent to said source region,
a gate electrode formed over said channel region with a gate insulating film therebetween,
a source electrode formed on said respective well region and being in common electrical contact with respective source regions of the others of said plurality of first wells;
a drain electrode provided on a second side of said semiconductor substrate; and
a guard ring area disposed on said first side of said semiconductor substrate so as to surround said cell area;
said source electrode having an extension which extends from said source electrode and forms a by-pass which is connected directly to a second well of said first conductivity type formed in said first side of said semiconductor substrate between said cell area and said guard ring area whereby, when a current concentration occurs within said guard ring area, said concentrated current is conducted directly to said source electrode in said cell area through said by-pass, thereby preventing said concentrated current from causing a forward biassing between said plurality of first wells and said source region.

5,723,883

GATE ARRAY CELL ARCHITECTURE AND ROUTING SCHEME

Tushar R. Gheewalla, Los Altos, Calif., assignor to In-Chip, Los Altos, Calif.

Filed Nov. 14, 1995, Ser. No. 557,474
Int. Cl.[6] H01L *27/10;23/48*
U.S. Cl. 257—204 **20 Claims**



1. A circuit layout architecture for an integrated circuit using cells comprising:
a first group of global interconnect lines made from a first conductive layer and disposed along a first direction;
a second group of global interconnect lines made from a second conductive layer above said first conductive layer, and disposed along said first direction;
a third group of global interconnect lines made from a third conductive layer above said second conductive layer, and disposed along a second direction substantially different than said first direction; and
a plurality of basic cells, each one including diffusion regions for transistor source and drain terminals, gate electrode regions for transistor gate terminals, and contact regions for making electrical contact to said diffusion and gate electrode regions,
wherein, a macro cell is made by interconnecting adjacent basic cells, and interconnections internal to a macro cell are made using interconnect lines from said first and second conductive layers, and
wherein, said plurality of macro cells are selectively coupled together via said first, second and third group of interconnect lines,
wherein each one of said plurality of basic cells comprises a first diffusion region of a first type and a second diffusion region of a second type, and wherein said first and second diffusion regions are laid out in a non-rectangular shape,
wherein each of said plurality of basic cells comprises a first and second gate electrode regions, each one of which is shared between a transistor made in said first diffusion region and a transistor made in said second diffusion region,
wherein each of said plurality of basic cells has a substantially rectangular shape with a first and second substrate contact regions disposed in corners, and
wherein said substantially rectangular shape of each of said plurality of basic cells has a first dimension defined by only nine interconnect lines made from said first conductive layer disposed in parallel in said first direction, and a second dimension defined by only three interconnect lines made from said third conductive layer disposed in parallel in said second direction.

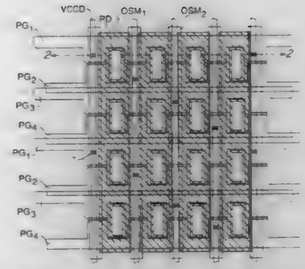
5,723,884

CHARGE COUPLED DEVICE IMAGE SENSOR HAVING OPTICAL SHIELDING METAL

Yong Kwan Kim, Kyunkgi-do, Rep. of Korea, assignor to LG Semicon Co., Ltd., Seoul, Rep. of Korea

Filed Jul. 14, 1994, Ser. No. 274,951
Claims priority, application Rep. of Korea, May 21, 1994, 11096/1994
Int. Cl.[6] H01L *27/148;29/768*
U.S. Cl. 257—232 **1 Claim**

1. A charge coupled device image sensor comprising:



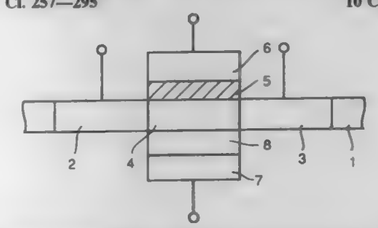
a plurality of photoelectric conversion regions for converting lights incident to a semiconductor substrate into image signal charges;
a plurality of vertical charge coupled device regions for transmitting image signal charges generated in the plurality of photoelectric conversion regions in vertical direction;
a plurality of transfer gate electrodes for transmitting the image signal charges generated in the plurality of photoelectric conversion regions in four phases in vertical direction;
an insulation film for insulating the plurality of transfer gate electrodes;
first metal layers formed over regions excluding the plurality of photo electric conversion regions and the plurality of vertical charge coupled device regions for shielding lights; and,
a second metal layer formed over the plurality of vertical charge coupled device regions for connecting between transfer gate electrodes the same clock signals applied thereto within one vertical charge coupled device and shielding lights incident to the vertical charge coupled device regions.

5,723,885

SEMICONDUCTOR DEVICE INCLUDING A FERROELECTRIC FILM AND CONTROL METHOD THEREOF

Tsukasa Ooishi, Hyogo, Japan, assignor to Mitsubishi Denki Kabushiki Kaisha, Tokyo, Japan

Filed Mar. 13, 1996, Ser. No. 614,578
Claims priority, application Japan, Jun. 8, 1995, 7-142280
Int. Cl.[6] H01L *29/76;29/94;31/062;31/113*
U.S. Cl. 257—295 **10 Claims**



1. A semiconductor device with a memory cell, said memory cell comprising:
a first semiconductor region of a first conductivity type forming a channel region;
second semiconductor regions of a second conductivity type forming a pair of source/drain regions formed at both ends of said first semiconductor region;
a gate dielectric film formed on one main surface of said first semiconductor region and having a ferroelectric film;
a gate electrode formed on said ferroelectric film; and
a back electrode formed on another main surface of said first semiconductor region at a position corresponding to said gate electrode with an insulating film interposed therebetween.

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5,723,886

N CHANNEL MOSFET WITH ANTI-RADIOACTIVITY

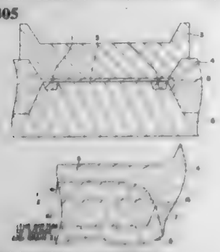
Kousuke Yoshida, Tokyo, Japan, assignor to NEC Corporation, Japan

Continuation of Ser. No. 1,831, Jan. 8, 1993, abandoned. This application Sep. 16, 1994, Ser. No. 307,487

Claims priority, application Japan, Jan. 9, 1992, 4-001964

Int. Cl.[6] H01L *27/108;29/76;27/01;29/94*

U.S. Cl. 257—305 4 Claims



1. A field effect transistor comprising:

a semiconductor substrate;

field oxide films selectively formed in an upper portion of said substrate, said field oxide films having bottom areas;

source and drain diffusion regions of a first conductivity type selectively formed in an upper portion of said substrate, each of said source and drain having a bottom area, said source and drain diffusion regions being separated from each other by a channel region, and said bottom areas of said source and drain regions extending to a level which is shallower than a level at said bottom of said isolation oxide film;

a gate oxide film formed on said channel region;

a gate electrode formed on said gate oxide film; and

leak guard diffusion regions of a second conductivity type formed in an upper region of said substrate and along regions abutting inside edges of said isolation oxide films, each of said leak guard diffusion regions having a bottom, the bottom of each of said leak guard diffusion regions extending to a level which is shallower than a level of said bottom of said isolation oxide film but to a level which is deeper than said level at said bottoms of said source and drain diffusion regions, each of said leak guard diffusion regions having a first contact surface contacting said gate oxide film and a second contact surface contacting a bottom half part of said inside edge of said field oxide film, said bottom half part being embedded into said semiconductor substrate;

said second contact surface extending to a level which is deeper than said level of said bottoms of said source and drain regions but to a level which is shallower than said level of said bottoms of said field oxide films.

5,723,887

SEMICONDUCTOR MEMORY DEVICE AND MANUFACTURING METHOD THEREOF

Junichi Tsuchimoto, and Kiyoshi Mori, both of Hyogo, Japan, assignors to Mitsubishi Denki Kabushiki Kaisha, Tokyo, Japan

Filed Jun. 27, 1996, Ser. No. 671,289

Claims priority, application Japan, Feb. 21, 1996, 8-033691

Int. Cl.[6] H01L *27/108*

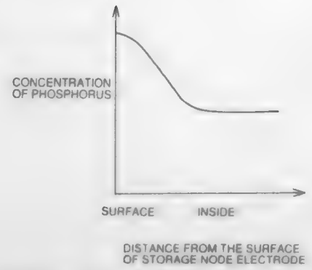
U.S. Cl. 257—309 3 Claims

1. A semiconductor memory device, comprising:

a semiconductor substrate;

a storage node electrode provided on said semiconductor substrate and having integrally formed silicon crystal grains on its surface;

a capacitor insulating film provided on said semiconductor substrate to cover the outer surface of said storage node electrode including said silicon crystal grain; and



a cell plate electrode covering said storage node electrode with said capacitor insulating film interposed, wherein phosphorous is doped in said silicon crystal grains, and concentration of said phosphorous is continuously decreased inward from the surface of said silicon crystal grains.

5,723,888

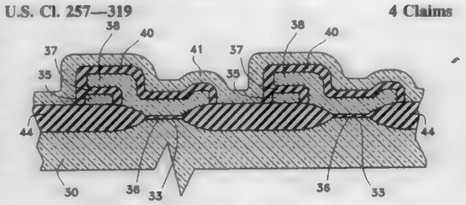
NON-VOLATILE SEMICONDUCTOR MEMORY DEVICE

Shih-Chiang Yu, 10451 Davison Ave., Cupertino, Calif. 95014

Filed May 17, 1993, Ser. No. 62,237

Int. Cl.[6] H01L *29/76;29/788*

U.S. Cl. 257—319 4 Claims



1. A non-volatile semiconductor memory device comprising:

a semiconductor substrate;

a source and a drain formed in said semiconductor substrate, said source spaced from said drain;

a channel disposed between said source and said drain;

a pair of first control gates dielectrically disposed atop portions of said channel;

a second control gate dielectrically disposed atop said pair of first control gates and substantially perpendicular therewith; and

a floating gate having end segments thereof dielectrically disposed between said pair of first control gates and said second control gate, and a mid segment thereof dielectrically disposed atop another portion of said channel;

wherein when said first and second control gates are substantially simultaneously energized to a first set of potential values, electrical charges are couplingly induced in said floating gate from said channel, allowing said floating gate to couplingly vary the conductivity of said channel after the de-energization of said control gates, and wherein when said first and second control gates are substantially simultaneously energized to a second set of potential values, electrical charges are couplingly induced out of said floating gate to said channel, allowing said floating gate to couplingly vary the conductivity of the channel after the de-energization of said control gates.

5,723,889

SEMICONDUCTOR MEMORY DEVICE AND METHOD FOR FABRICATING THE SAME

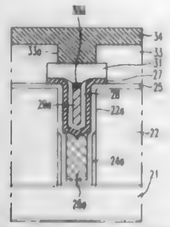
Jong Mun Choi, Seoul; Chang Yeol Kim, and Woun-Suck Yang, both of Chungcheongbuk-do, all of Rep. of Korea, assignors to LG Semicon Co., Ltd., Chungcheongbuk-do, Rep. of Korea

Filed Aug. 29, 1995, Ser. No. 520,435

Claims priority, application Rep. of Korea, Nov. 21, 1994, 30588/1994

Int. Cl.[6] H01L *29/76;21/465*

U.S. Cl. 257—329 28 Claims



1. A semiconductor memory device comprising:

a semiconductor substrate having a trench;

a first insulation film on the substrate;

the first insulation film having an opening above the trench;

a capacitor including a dielectric film in the trench and a storage node in the trench on the dielectric film;

a transfer transistor in the opening of the first insulation film including a channel layer on the storage node, a gate insulation film on the channel layer, and a gate electrode on the gate insulation film;

a second insulation film on the gate electrode;

a conduction layer on the second insulation film;

a third insulation film in contact with the channel layer; and

a bit line in contact with the conduction layer.

5,723,890

MOS TYPE SEMICONDUCTOR DEVICE

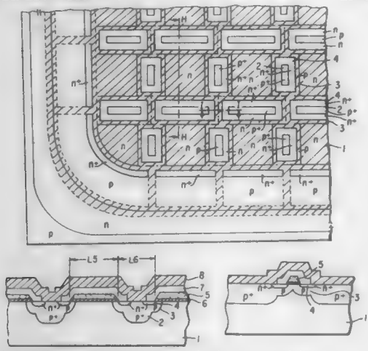
Tatsuhiko Fujihira; Takeyoshi Nishimura, and Takashi Kobayashi, all of Nagano, Japan, assignors to Fuji Electric Co., Ltd., Japan

Continuation-in-part of Ser. No. 452,789, May 30, 1995, abandoned, which is a continuation-in-part of Ser. No. 368,815, Jan. 6, 1995, abandoned. This application May 6, 1996, Ser. No. 643,760

Claims priority, application Japan, Jan. 7, 1994, 6-000364; May 24, 1994, 6-108873; Nov. 10, 1994, 6-276196; Nov. 21, 1994, 6-286254

Int. Cl.[6] H01L *29/94;29/06*

U.S. Cl. 257—339 13 Claims



1. A MOS type semiconductor device, comprising:

a semiconductor layer of a first conductivity type; and

a plurality of MOS type rectangular cells, each having four major sides including short and long major sides, a channel region of a second conductivity type formed in a surface layer of the semiconductor layer, and at least one source region of the first conductivity type formed in a surface layer of the channel region, at least two sides of said source region lying in parallel to at least two sides of the channel region;

wherein channel regions of first and second neighboring cells, which have major sides facing each other in parallel, are joined along facing major short sides thereof; and

wherein the channel region of a third cell along a major-short side of the third cell is joined with the joined channel regions of the first and second cells, the major short side of said third cell being perpendicular to the facing major short sides of said first and second cell.

5,723,891

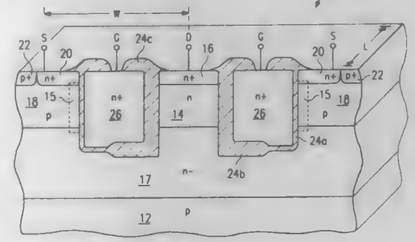
TOP-DRAIN TRENCH BASED RESURF DMOS TRANSISTOR STRUCTURE

Satwinder Malhi, Garland, Tex., assignor to Texas Instruments Incorporated, Dallas, Tex.

Continuation of Ser. No. 883,985, May 18, 1992, Pat. No. 5,640,034. This application Jun. 5, 1995, Ser. No. 463,954

Int. Cl.[6] H01L *29/76;29/94*

U.S. Cl. 257—341 4 Claims



1. A transistor, comprising:

a trench formed in a semiconductor substrate;

a nonuniform dielectric lining formed in the trench, the nonuniform dielectric lining having a thin portion and a thick portion;

a drain drift region formed in the semiconductor substrate, the drain drift region abutting and substantially surrounding the thick portion of the nonuniform dielectric lining;

a drain region formed in a top surface of the semiconductor substrate in the drain drift region;

a source region formed in the semiconductor substrate, the source region abutting the thin portion of the nonuniform dielectric lining, wherein the region between the source region and the drain drift region along the thin portion of the nonuniform dielectric lining forms a channel region; and

a gate formed in the trench.

5,723,892

Patent Not Issued For This Number

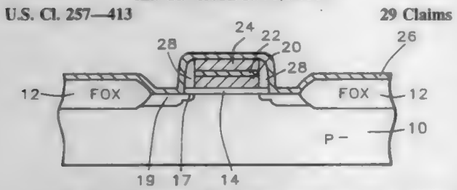
VOL 1208 ISS 1 MR 3 1998 UMI

5,723,893

METHOD FOR FABRICATING DOUBLE SILICIDE GATE ELECTRODE STRUCTURES ON CMOS-FIELD EFFECT TRANSISTORS

Douglas Chen-Hua Yu, and Pin-Nan Tseng, both of Hsin-Chu, Taiwan, assignors to Taiwan Semiconductor Manufacturing Company, Ltd., Hsin-Chu, Taiwan

Filed May 28, 1996, Ser. No. 656,991
Int. Cl.[6] H01L *29/76;29/56*
U.S. Cl. 257—413 **29 Claims**



1. A method for fabricating field effect transistor devices having a double silicide gate electrode comprising the steps of:

providing a semiconductor substrate doped with a conductive type dopant;

forming field oxide areas on said semiconductor substrate surrounding and electrically isolating device areas;

forming a gate oxide layer on said device areas; depositing a first polysilicon layer on said device

areas and elsewhere on said field oxide areas; depositing a first silicide layer on said first polysilicon layer;

depositing a second polysilicon layer on said first silicide layer;

patterning said second polysilicon layer, said first silicide layer, and said first polysilicon layer by photoresist masking and anisotropic plasma etching thereby forming gate electrodes on said device areas and interconnecting lines on said field oxide areas;

forming lightly doped source/drain areas in said device areas adjacent to said gate electrodes by ion implantation;

forming insulating sidewall spacers upon the sidewalls of said gate electrodes;

forming heavily doped source/drain contact areas in said device areas adjacent to said insulating sidewall spacers by ion implantation;

depositing a conformal refractory metal layer on said substrate over said gate electrodes, said device areas, and said field oxide areas;

annealing said refractory metal layer and thereby forming a second silicide layer comprised in part of said second polysilicon layer on said gate electrodes and elsewhere on said interconnecting lines and concurrently forming said second silicide layer on said source/drain contact areas;

selectively etching said remaining refractory metal layer and thereby completing said field effect transistors having said double silicide gate electrodes and self-aligned silicided source drain contact areas.

5,723,894

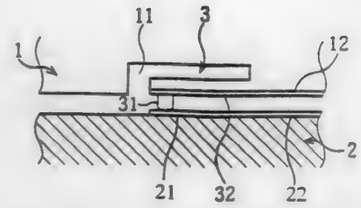
STRUCTURE FOR PROVIDING AN ELECTRICAL CONNECTION BETWEEN CIRCUIT MEMBERS

Toshiaki Ueno, Yokohama, and Mitsuchika Saito, Kawasaki, both of Japan, assignors to Hewlett-Packard Company, Palo Alto, Calif.

Filed Jul. 3, 1996, Ser. No. 675,768
Claims priority, application Japan, Jul. 7, 1995, 7-196175
Int. Cl.[6] H01L *29/82*
U.S. Cl. 257—415 **20 Claims**

1. An electrical connection structure for connecting a first circuit member to a second circuit member, the first circuit member including a semiconductor substrate, the electrical connection structure comprising:

a cantilever formed in the semiconductor substrate, the cantilever having an end remote from the semiconductor substrate;



a conductive needle at the end of the cantilever, the conductive needle being electrically connected to the first circuit member;

a terminal pad located on the second circuit member opposite the conductive needle when the first circuit member and the second circuit member are juxtaposed, the terminal pad being electrically connected to the second circuit member; and

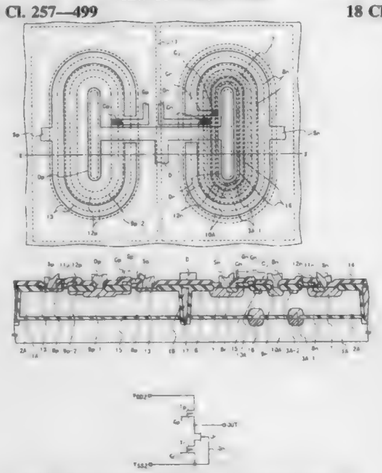
fixing means for fixing the first circuit member juxtaposed to the second circuit member in a way that stresses the cantilever to apply a contact force between the conductive needle and the terminal pad.

5,723,895

FIELD EFFECT TRANSISTOR FORMED IN SEMICONDUCTOR REGION SURROUNDED BY INSULATING FILM

Kenichiro Takahashi, Tokyo, Japan, assignor to NEC Corporation, Tokyo, Japan

Filed Oct. 2, 1996, Ser. No. 724,818
Claims priority, application Japan, Dec. 14, 1995, 7-325467
Int. Cl.[6] H01L *29/06*
U.S. Cl. 257—499 **18 Claims**



1. A field effect semiconductor device comprising:

a first semiconductor region of a first conductive type;

a second semiconductor region of a second conductive type provided above said first semiconductor region, said second conductive type opposite that of said first conductive type;

a dielectric film interposed between said first semiconductor region and said second semiconductor region to surround said second semiconductor region on side and bottom portions of said second semiconductor region with at least one opening portion for connecting said second semiconductor region to said first semiconductor region;

a source region provided in a surface portion of said second semiconductor region and connected to a source electrode;

a drain region provided in the surface portion of said second semiconductor region and connected to a drain electrode; and

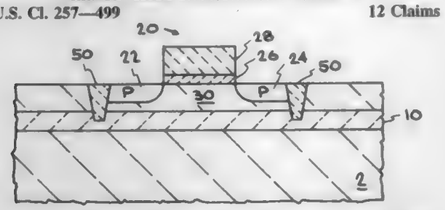
a channel region of said first conductive type which surrounds at least one of said source region and said drain region.

5,723,896

INTEGRATED CIRCUIT STRUCTURE WITH VERTICAL ISOLATION FROM SINGLE CRYSTAL SUBSTRATE COMPRISING ISOLATION LAYER FORMED BY IMPLANTATION AND ANNEALING OF NOBLE GAS ATOMS IN SUBSTRATE

Abraham Yee, Santa Clara, and Sheldon Aronowitz, San Jose, both of Calif., assignors to LSI Logic Corporation, Milpitas, Calif.

Continuation of Ser. No. 461,413, Jun. 5, 1995, abandoned, which is a division of Ser. No. 198,911, Feb. 17, 1994, Pat. No. 5,508,211. This application Dec. 16, 1996, Ser. No. 771,372
Int. Cl.[6] H01L *29/00;27/01;27/12;31/0392*
U.S. Cl. 257—499 **12 Claims**



1. An integrated circuit structure in a single crystal silicon substrate electrically isolated from other portions of said silicon substrate by a buried non-oxide isolation region formed in said silicon substrate beneath said integrated circuit structure and spaced from the surface of said silicon substrate above said buried non-oxide isolation region, said isolation region comprising an implant-damaged region of said silicon substrate containing implanted atoms of a noble gas selected from the group consisting of neon, implanted in said substrate at a dosage level of at least about 6×10^{15} neon atoms/cm^2 and at an energy level ranging from about 0.5 MeV to about 1.25 MeV; argon, implanted in said substrate at a dosage level of least about 2×10^{15} argon atoms/cm^2 and at an energy level ranging from about 1.5 MeV to about 2.5 MeV; and krypton, implanted in said substrate at a dosage level of at least about 6×10^{14} krypton atoms/cm^2 and at an energy level ranging from about 3 MeV to about 5 MeV; to inhibit recrystallization during subsequent annealing of said implant-damaged region of said silicon substrate containing said implanted atoms of said noble gas, said implanted noble gas atoms enmeshed in said isolation region with silicon atoms from said single crystal silicon substrate.

5,723,897

SEGMENTED EMITTER LOW NOISE TRANSISTOR

John Leighton, Anoka, and John Shier, Apple Valley, both of Minn., assignors to VTC Inc., Bloomington, Minn.

Filed Jun. 7, 1995, Ser. No. 484,675
Int. Cl.[6] H01L *29/72;27/06*
U.S. Cl. 257—563 **11 Claims**

1. An improved low noise transistor comprising:

a substrate;

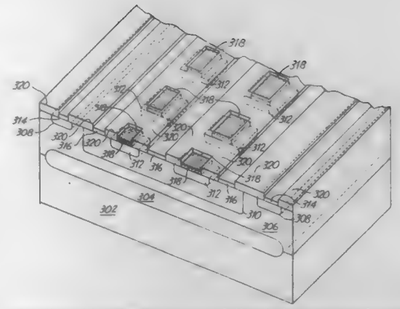
a lightly doped collector region disposed on the substrate;

a buried layer composed of a semiconductive material of a first conductivity type, disposed between the substrate and the lightly doped collector region;

at least one longitudinal collector contact region composed of the semiconductive material of the first conductivity type, disposed within the lightly doped collector region;

at least one conductive collector contact, disposed adjacent to the at least one collector contact region;

at least one longitudinal base region composed of a semiconductive material of a second conductivity type, disposed within the lightly doped collector region;



a plurality of longitudinal rows of discretely segmented conductive base contacts, disposed adjacent to the at least one base region;

at least one longitudinal row containing a plurality of discretely segmented emitter regions composed of the semiconductive material of the first conductivity type, disposed within the at least one base region; and

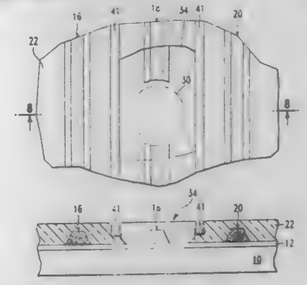
a plurality of discrete conductive emitter contact segments, disposed adjacent to respective discretely segmented emitter regions.

5,723,898

ARRAY PROTECTION DEVICES AND METHOD

Richard Alfred Gilmour, Colchester; Thomas John Hartswick, Underhill; David Charles Thomas, Richmond; Ronald Robert Uttecht, Essex Junction, and Erick Gregory Walton, South Burlington, all of Vt., assignors to International Business Machines Corp., Armonk, N.Y.

Continuation of Ser. No. 389,533, Apr. 13, 1995, abandoned, which is a division of Ser. No. 221,715, Mar. 31, 1994, Pat. No. 5,420,455. This application Oct. 4, 1996, Ser. No. 726,543
Int. Cl.[6] H01L *27/02*
U.S. Cl. 257—529 **2 Claims**



1. A semiconductor device comprising:

a semiconductor substrate having a first insulative layer on a major surface thereof;

a plurality of metallic circuit elements, including circuit alteration devices having a known melting point, forming an electrical circuit deposed of said layer;

a passivating layer deposed over said insulating layer and said metallic circuit elements; and

bodies of non-frangible barrier material, having a melting point higher than the melting point of said circuit alteration devices, disposed in grooves formed in said passivating layer, and isolated from said circuit elements, said bodies being further positioned adjacent to and on either side of each of said circuit alteration devices and extending between said circuit alteration devices and any adjacent ones of said metallic

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circuit elements thereto to protect said metallic circuit elements, adjacent to said one of said circuit alteration devices, from any change in resistivity caused by vaporization of said circuit alteration devices by preventing any damage caused by said vaporization of said circuit alteration devices from extending to an adjacent circuit element;

said circuit alteration device being formed of two layers of titanium with a layer of copper aluminum therebetween and having a predetermined melting point and said bodies of barrier material being formed of a material selected from the class consisting of tungsten and molybdenum and having a melting point higher than the melting point of said circuit alteration devices.

5,723,899

SEMICONDUCTOR LEAD FRAME HAVING CONNECTION BAR AND GUIDE RINGS

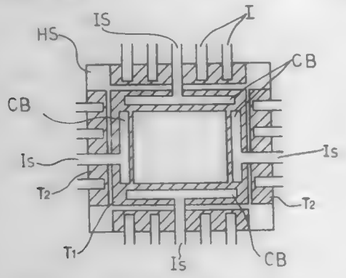
Won Sun Shin, Seoul, Rep. of Korea, assignor to Amkor Electronics, Inc., Chandler, Ariz., and Anam Industrial Co., Ltd., Seoul, Rep. of Korea

Filed Aug. 29, 1995, Ser. No. 520,429

Claims priority, application Rep. of Korea, Aug. 30, 1994, 94-21610; Oct. 10, 1994, 94-25861; Oct. 10, 1994, 94-26326

Int. Cl.[6] H01L *23/495*

U.S. Cl. 257—666 **16 Claims**



1. A package for a semiconductor chip comprising:

a heat sink including a surface with a first edge and a second edge;

a leadframe comprising a plurality of leads,

a first set of said plurality of leads being positioned at and extending over said first edge of said surface of said heat sink and a second set of said plurality of leads being positioned at and extending said second edge of said surface of said heat sink;

a rectangular guide ring attached to said surface of said heat sink, said first set of said plurality of leads including at least one extended first lead extending further inwardly to said rectangular guide ring than leads of said first set other than said at least one extended first lead, said rectangular guide ring having sides connected to each other at their ends so as to form said rectangular guide ring; and

a first connection bar attached to said surface of said heat sink, said second set of said plurality of leads including at least one extended second lead extending further inwardly to said first connection bar than leads of said second set other than said at least one extended second lead, wherein said rectangular guide ring is juxtaposed to said semiconductor chip and is located between said semiconductor chip and said first connection bar.

5,723,900

RESIN MOLD TYPE SEMICONDUCTOR DEVICE

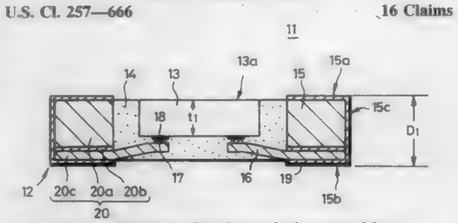
Akira Kojima; Haruhiko Makino, and Kenji Ohsawa, all of Kanagawa, Japan, assignors to Sony Corporation, Tokyo, Japan

Continuation of Ser. No. 299,646, Sep. 2, 1994, abandoned. This application Feb. 12, 1997, Ser. No. 799,497

Claims priority, application Japan, Sep. 6, 1993, 5-221414

Int. Cl.[6] H01L *23/495*

U.S. Cl. 257—666 **16 Claims**



1. A resin mold type semiconductor device comprising:

a semiconductor chip; and

a lead frame, said semiconductor chip having a thickness which is less than a thickness of said lead frame and being sealed with resin mold;

said lead frame having at least one conductor with a terminal portion external to said semiconductor device and extending to a location adjacent said chip;

said chip being supported in said frame only by said conductors and said resin mold and further wherein a surface of the chip is flush with a surface of the resin.

5,723,901

STACKED SEMICONDUCTOR DEVICE HAVING PERIPHERAL THROUGH HOLES

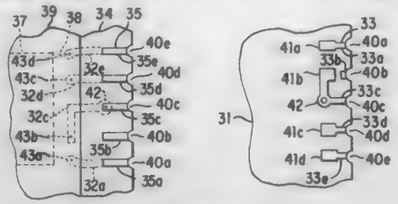
Akio Katsumata, Kanagawa-ken, Japan, assignor to Kabushiki Kaisha Toshiba, Kawasaki, Japan

Filed Dec. 11, 1995, Ser. No. 570,695

Claims priority, application Japan, Dec. 13, 1994, 6-308963

Int. Cl.[6] H01L *23/02;23/48;23/52;29/40*

U.S. Cl. 257—686 **16 Claims**



1. A semiconductor device comprising:

a first semiconductor device including a first base substrate having side surfaces and made of glass epoxy resin, a second base substrate made of glass epoxy resin attached to the first base substrate, a central portion of said second base substrate being provided with a first cavity having side surfaces, a first semiconductor chip mounted in the first cavity and on the first base substrate, a first bonding wire connected to the first semiconductor chip, a first internal wiring element connected to the first bonding wire, a first resin covering the first cavity, a first through hole connected to the first internal wiring element and formed on one of the side surfaces of the first base substrate and one of the side surfaces of the second base substrate, a first lower external electrode formed on a lower surface of the first base substrate, a first upper external electrode formed on an upper surface of the second base substrate, and a first test pad formed on the lower surface of the first base substrate, wherein said first lower external electrode and said first upper external electrode are connected to the first through hole, said first test pad and said first lower electrode

are connected, and a top surface of the first resin is lower than said upper surface of the second base substrate;

a second semiconductor device including a third base substrate having side surfaces made of glass epoxy resin, a fourth base substrate made of glass epoxy resin attached to the third base substrate, a central portion of said fourth base substrate having a second cavity with side surfaces, a second semiconductor chip mounted in the second cavity and on the third base substrate, a second bonding wire connected to the second semiconductor chip, a second internal wiring element connected to the second bonding wire, a second resin coveting the second cavity, a second through bole connected to the second internal wiring element and formed on one of the side surfaces of the third base substrate and one of the side surfaces of the fourth base substrate, a second lower external electrode formed on the lower surface of the third base substrate, a second upper external electrode formed on an upper surface of the fourth base substrate, and a second test pad formed on the lower surface of the third base substrate which is at the same location as the first test pad of the first semiconductor device, wherein said second lower external electrode and said second upper external electrode are connected to the second through hole, said second test pad and said second lower external electrode are electrically insulated and a top surface of the second resin is lower than said upper surface of the fourth base substrate; and

a mounting substrate made of glass epoxy resin on which the first and second semiconductor devices are mounted and aligned in a perpendicular direction, the first and second semiconductor devices electrically connected to each other by the first upper external electrode and the second lower external electrode.

5,723,902

SURFACE MOUNTING TYPE ELECTRONIC COMPONENT

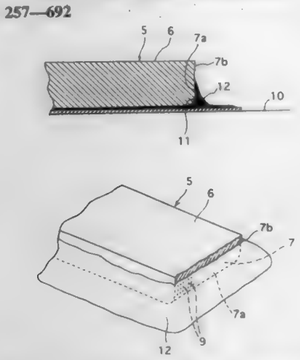
Kazutaka Shibata, and Yasunobu Shoji, both of Kyoto, Japan, assignors to Rohm Co. Ltd., Kyoto, Japan

Filed Jul. 30, 1996, Ser. No. 681,967

Claims priority, application Japan, Jul. 31, 1995, 7-195561

Int. Cl.[6] H01L *23/495;23/48;23/52*

U.S. Cl. 257—692 **10 Claims**



1. A surface mounting type electronic component comprising:

an electronic element;

a plurality of leads electrically connected to the electronic element, each of the leads including an inner lead portion and an outer lead portion, the outer lead portion having a flat bottom surface and an end face; and

a package enclosing the electronic component together with the inner lead portion of said each lead;

wherein the end face of the outer lead portion of said each lead includes a rounded bottom corner portion continuous with the flat bottom surface.

5,723,903

THIN TYPE SEMICONDUCTOR DEVICE, MODULE STRUCTURE USING THE DEVICE AND METHOD OF MOUNTING THE DEVICE ON BOARD

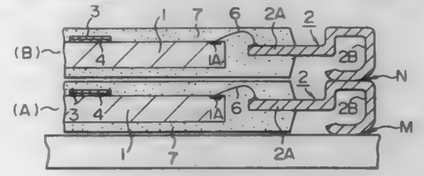
Masachika Masuda, Tokorozawa, and Tamaki Wada, Higashimurayama, both of Japan, assignors to Hitachi, Ltd., and Hitachi VLSI Engineering Corporation, both of Japan

Division of Ser. No. 65,788, May 24, 1993, Pat. No. 5,446,313. This application Jun. 7, 1995, Ser. No. 487,216

Claims priority, application Japan, May 25, 1992, 4-132287

Int. Cl.[6] H01L *23/48;23/495*

U.S. Cl. 257—696 **18 Claims**



12. A semiconductor device comprising:

a semiconductor chip having a rectangular plate shape, said semiconductor chip including an integrated circuit and external terminals formed in a main surface thereof;

a plurality of leads disposed in the vicinity of a periphery of said semiconductor chip, each of said plurality of leads having an inner lead portion and an outer lead portion;

means for electrically connecting said external terminals of said semiconductor chip with the corresponding inner lead portions of said plurality of leads; and a body for sealing said semiconductor chip and said inner lead portion of each of said plurality of leads, said body having a first surface, a second surface facing said first surface and a third surface between said first and second surfaces,

wherein said outer lead portion of each of said plurality of leads protrudes outwardly from said third surface of said body and includes a first portion and a second portion,

wherein said first portion of said outer lead portion extends in a direction substantially parallel with said first surface and to the substantially same level as said first surface, and

wherein said second portion of said outer lead portion extends in a direction substantially parallel with said second surface and in a lower level than said second surface.

5,723,904

PACKAGED SEMICONDUCTOR DEVICE SUITABLE TO BE MOUNTED AND CONNECTED TO MICROSTRIP LINE STRUCTURE BOARD

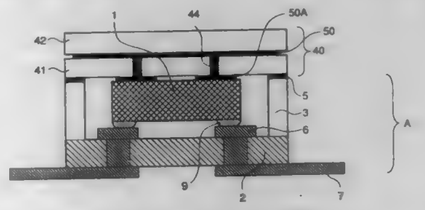
Nobuo Shiga, Kanagawa, Japan, assignor to Sumitomo Electric Industries, Ltd., Osaka, Japan

Filed Mar. 10, 1994, Ser. No. 208,267

Claims priority, application Japan, Mar. 10, 1993, 5-076104

Int. Cl.[6] H01L *23/02;23/12*

U.S. Cl. 257—698 **5 Claims**



1. A packaged semiconductor device comprising:

an insulating substrate having a first surface formed with a plurality of connection pads and a second surface formed with a plurality of external connection members each of which is

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electrically connected to a corresponding one of said connection pads through a via hole formed through said insulating substrate;

an integrated circuit chip bonded facedown on said first surface of said insulating substrate so that said integrated circuit chip is electrically connected to said connection pads through solder bumps, said integrated circuit chip having a back electrode formed on a back surface thereof;

an electrically conductive cap covered on said first surface of said insulating substrate, wherein said cap is not electrically connected with any of said plurality of connection pads on said first surface so that said integrated circuit chip is encapsulated in an empty space defined by said insulating substrate and said conductive cap,

said back electrode of said integrated circuit chip being electrically connected to said conductive cap;

wherein said back electrode of said integrated circuit chip is electrically connected through an electrically conducting element to said conductive cap; and

wherein said conductive cap is composed of a side wall bonded at its lower end to said insulating substrate so as to surround said integrated circuit chip and a lid structure bonded to an upper end of said side wall, said lid structure being bonded and electrically connected to said back electrode of said integrated circuit chip through a solder.

5,723,905

SEMICONDUCTOR PACKAGE WITH LOW STRAIN SEAL

Patrick Anthony Coico, Fishkill; David Linn Edwards, Poughkeepsie; Shaji Farooq; Raed A. Sherif, both of Hopewell Junction, and Hilton T. Toy, Wappingers Falls, all of N.Y., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Aug. 4, 1995, Ser. No. 511,175

Int. Cl.[6] H01L *23/12*

U.S. Cl. 257—704 **2 Claims**

1. A semiconductor package comprising:

a substrate having at least one semiconductor device thereon;

a cap covering the at least one semiconductor device on said substrate; and

a seal between said cap and said substrate;

wherein said cap has a predetermined TCE mismatch with said substrate, and wherein said mismatch is determined by a minimal solution for the cap TCE, given the substrate TCE, according to the formula:

$$M=\alpha_{cap}\times\Delta T_{cap}-\alpha_{sub}\times\Delta T_{sub} \quad (1)$$

where M is the absolute value of the difference between the normalized rates of expansion between the cap and the substrate, α_{cap} is the TCE of the cap, ΔT_{cap} is the temperature change over time of the cap from power-on until thermal equilibrium, α_{sub} is the TCE of the substrate and ΔT_{sub} is the temperature change over time of the substrate from power-on until thermal equilibrium.

5,723,906

HIGH-DENSITY WIREBOND CHIP INTERCONNECT FOR MULTI-CHIP MODULES

Kenneth Rush, Colorado Springs, Colo., assignor to Hewlett-Packard Company, Palo Alto, Calif.

Filed Jun. 7, 1996, Ser. No. 657,582

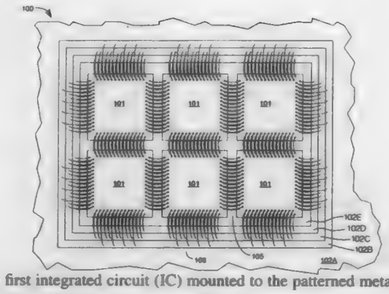
Int. Cl.[6] H01L *23/16;27/10;23/48;23/055*

U.S. Cl. 257—723 **15 Claims**

1. A multi-chip module comprising:

a substrate having an die mounting surface formed thereon;

patterned metallization formed on the die mounting surface of the substrate to provide a plurality of ground conductors and a plurality of power supply conductors;



a first integrated circuit (IC) mounted to the patterned metallization of the die mounting surface;

a first row of bond pads formed on an upper surface periphery of the first IC;

a second row of bond pads formed on the upper surface periphery of the first IC and inside the first row of bond pads;

a second IC mounted to the die mounting surface;

a third row of bond pads formed on an upper surface periphery of the second IC;

a fourth row of bond pads formed on the upper surface periphery of the second IC and inside the third row of bond pads;

a first set of wire bonds above the substrate coupling the second row of bond pads to the fourth row of bond pads;

a second set of wire bonds above the substrate coupling selected ones of the first row of bond pads to selected ones of the third row of bond pads;

a third set of wire bonds above the substrate exclusive of the second set of wire bonds coupling selected ones of the first row of bond pads to the patterned metallization formed on the substrate; and

a fourth set of wire bonds above the substrate exclusive of the second set of wire bonds coupling selected ones of the third row of bond pads to the patterned metallization formed on the substrate.

5,723,907

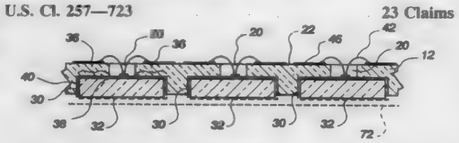
LOC SIMM

Salman Akram, Boise, Id., assignor to Micron Technology, Inc., Boise, Id.

Filed Jun. 25, 1996, Ser. No. 668,765

Int. Cl.[6] H01L *23/34;23/02*

U.S. Cl. 257—723 **23 Claims**



1. A multi-chip module, comprising:

a carrier substrate having a top side and a bottom side, said carrier substrate defining a plurality of openings extending between said top side and said bottom side and a plurality of recesses partially extending into said bottom side, each aligned with one of said plurality of openings; and

a plurality of semiconductor dice, each having an active surface including a plurality of bond pads thereon, at least a portion of at least one of said plurality of semiconductor dice secured at least partially within one of said plurality of recesses with said active surface facing said carrier substrate and said plurality of bond pads exposed through said one of said plurality of openings.

5,723,908

MULTILAYER WIRING STRUCTURE

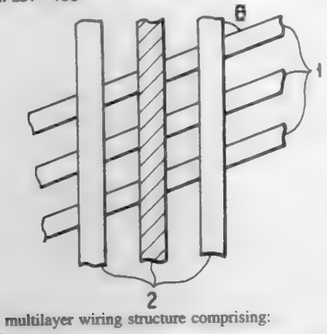
Yumi Fuchida, Yokohama; Jun Hanari; Kazuhiro Matsumoto, both of Kawasaki; Junichi Kudo, Yokohama; Kunio Yoshihara, Kawasaki, and Ayako Takagi, Yokosuka, all of Japan, assignors to Kabushiki Kaisha Toshiba, Kawasaki, Japan

Filed Mar. 11, 1994, Ser. No. 208,870

Claims priority, application Japan, Mar. 11, 1993, 5-051118

Int. Cl.[6] H01L *23/48*

U.S. Cl. 257—758 **18 Claims**



1. A multilayer wiring structure comprising:

a substrate;

a first line layer essentially consisting of at least one of a strip-shaped power line and a strip-shaped ground line extending in a first direction;

a second line layer located above or below said first line layer and essentially consisting of at least one strip-shaped signal line extending in a second direction; and

an interlayer insulating layer interposed between said first line layer and said second line layer, said first direction being in a skewed position with respect to said second direction.

5,723,909

SEMICONDUCTOR DEVICE AND ASSOCIATED FABRICATION METHOD

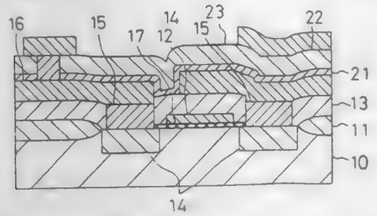
Kousaku Yano; Tatsuo Sugiyama; Satoshi Ueda, all of Osaka, and Noboru Nomura, Kyoto, all of Japan, assignors to Matsushita Electric Industrial Co., Ltd., Osaka, Japan

Continuation of Ser. No. 293,320, Aug. 22, 1994, abandoned. This application Sep. 11, 1996, Ser. No. 712,237

Claims priority, application Japan, Aug. 23, 1993, 5-207950

Int. Cl.[6] H01L *23/58*

U.S. Cl. 257—760 **4 Claims**



1. A semiconductor device comprising:

(a) a semiconductor substrate;

(b) a first metallization layer locally formed on a surface of said semiconductor substrate thereby leaving portions of said surface of said semiconductor substrate exposed;

(c) a first silicon oxide layer formed in such a manner that said first silicon oxide layer covers said exposed portions of said semiconductor substrate's surface and said first metallization layer;

(d) a molecular layer composed of hexamethyldisilazane alone is formed on said first silicon oxide layer for making the surface of said first silicon oxide layer uniformly hydrophobic, said molecular layer being composed of molecules containing hydrophobic groups;

(e) a second silicon oxide layer uniformly formed on said molecular layer by means of a chemical vapor deposition process utilizing the chemical reaction of ozone with organosilicon; and

(f) a second metallization layer locally formed on said second silicon oxide layer.

5,723,910

SEMICONDUCTOR DEVICE HAVING A MOS STRUCTURE

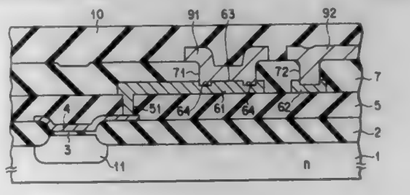
Hiroshi Kariyazono, Tokyo, and Katsu Honna, Kawasaki, both of Japan, assignors to Kabushiki Kaisha Toshiba, Kawasaki, Japan

Division of Ser. No. 258,785, Jun. 13, 1994, Pat. No. 5,525,544. This application Jan. 19, 1996, Ser. No. 588,679

Claims priority, application Japan, Jun. 14, 1993, 5-165960

Int. Cl.[6] H01L *23/48;23/52;29/40*

U.S. Cl. 257—776 **9 Claims**



1. A semiconductor device comprising:

a semiconductor substrate having a gate oxide film on a surface thereof, the gate oxide film having a gate electrode thereon;

a first metal wire layer provided above said gate electrode and connected to said gate electrode;

an insulating film covering said first metal wire layer and having an opening exposing a surface portion of said first metal wire layer, a portion of the exposed surface portion of said first metal wire layer having a plurality of recesses respectively located therein at corners of the opening; and

a second metal wire layer provided in the opening and connected to said first metal wire layer.

5,723,911

KEYLESS ACCESS CONTROL DEVICE

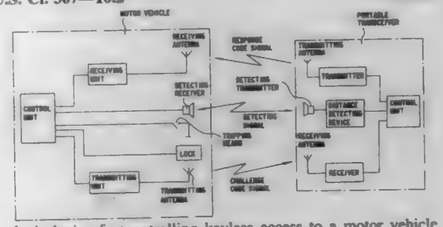
Manfred Glehr, Neutraubling, Germany, assignor to Siemens Aktiengesellschaft, Munich, Germany

Filed Mar. 17, 1995, Ser. No. 405,840

Claims priority, application Germany, Mar. 17, 1994, 44 09 167.2

Int. Cl.[6] B60Q *1/00*

U.S. Cl. 307—10.2 **8 Claims**



1. A device for controlling keyless access to a motor vehicle, comprising:

a transceiver to be carried by a user;

tripping means;

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a transmitting unit disposed in a motor vehicle and being associated with said tripping means for broadcasting a challenge code signal when said tripping means are actuated;

a distance detecting device for measuring a distance between said transceiver and the motor vehicle, said distance detecting device outputting a detecting signal independent of the challenge code signal and outputting a distance signal;

said transceiver having a receiver for receiving the challenge code signal, and said transceiver having a transmitter for broadcasting a response code signal only whenever the distance signal states that the motor vehicle is located in the immediate vicinity of said transceiver;

an unlocking unit; and

a receiving unit disposed in the motor vehicle for receiving the response code signal from said transceiver and furnishing an unlocking signal to said unlocking unit if the response code signal matches a predetermined code signal.

5,723,912

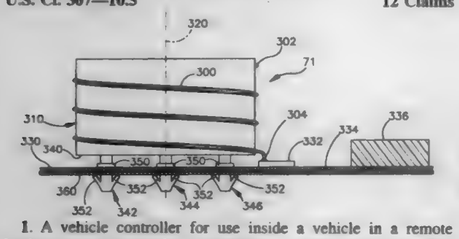
REMOTE KEYLESS ENTRY SYSTEM HAVING A HELICAL ANTENNA

Mahmood Ahrabian, Novi, and William P. Sullivan, Lapeer, both of Mich., assignors to TRW Inc., Lyndhurst, Ohio

Filed Apr. 25, 1996, Ser. No. 638,890

Int. Cl.[6] H01Q *11/08; 1/40*

U.S. Cl. 307—10.5 **12 Claims**



1. A vehicle controller for use inside a vehicle in a remote keyless entry system for controlling a vehicle device function comprising means for receiving a coded RF request signal from a portable transmitter and means for controlling said vehicle device upon receipt of a proper said RF request signal, wherein said receiving means includes a flat non-conductive circuit board, a flat ground plane disposed on said circuit board, and a helical antenna mounted on said circuit board and electrically insulated from said ground plane by said circuit board and including an elongated conductive member having a signal output end and an opposite free end, said conductive member being helically coiled about a helical axis with said helical axis being oriented perpendicular to said ground plane with said antenna being configured to provide an omni-directional radiation pattern about said helical axis.

5,723,913

HIGH-VOLTAGE ELECTRONIC SWITCHING CIRCUIT

Craig R. Weggel, Willow Grove, Pa., assignor to Performance Controls, Inc., Horsham, Pa.

Filed Dec. 6, 1994, Ser. No. 350,411

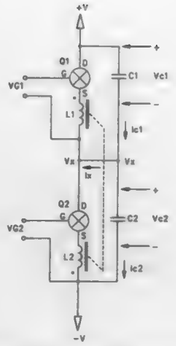
Int. Cl.[6] H01H *47/00*

U.S. Cl. 307—113 **6 Claims**

1. A high-voltage switching circuit comprising a pair of electronic switches, each of said switches having a source, a gate, and a drain, the pair of switches being connected across a power supply which produces a maximum voltage, the switches being connected in series such that the drain of one of said switches is connected to the source of another of said switches, the gates of the switches being connected to control signals,

the circuit further comprising:

a pair of inductors, the inductors being connected in series with each switch, the inductors being magnetically coupled to each other with opposing phases, and



a pair of capacitors, each capacitor being connected in parallel with a series combination formed by one of said switches and one of said inductors, the capacitors having equal capacitances,

wherein the control signals are applied to a gate circuit which includes one of the inductors,

wherein each switch is never exposed to more than half the maximum voltage of the power supply, and

wherein the control signals are applied to the gates of each switch simultaneously, and wherein the switches together comprise a single switching unit.

5,723,914

DEVICE FOR PREVENTING AN ELECTRICAL EQUIPMENT FROM RE-POWERING AFTER RECOVERY OF SERVICE INTERRUPTION

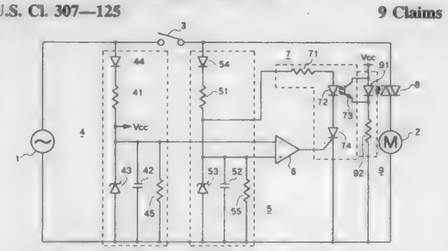
Eiji Nakayama; Shigeru Shinohara, and Masateru Niyada, all of Hitachinaka, Japan, assignors to Hitachi Koki Co., Ltd., Tokyo, Japan

Filed Apr. 26, 1996, Ser. No. 638,049

Claims priority, application Japan, Apr. 28, 1995, 7-105252

Int. Cl.[6] H01H *47/00*

U.S. Cl. 307—125 **9 Claims**



1. A security device for electrical equipment having a power switch, the electrical equipment being connected to a power source in use, said device comprising:

a first voltage detection circuit, operable under a first condition when the electrical equipment is supplied with power from the power source, for detecting a voltage of the power source and outputting a first detection voltage;

a second voltage detection circuit, operable under a second condition when the electrical equipment is supplied with power from the power source and when the power switch is turned on to allow the electrical equipment to be powered by the power source, for detecting a voltage of the power source and outputting a second detection voltage;

a comparator connected to said first voltage detection circuit to receive the first detection voltage and also connected to said second voltage detection circuit to receive the second detection voltage, said comparator comparing the first detection voltage with the second detection voltage and outputting a comparison result, said comparison result differing depending on whether said power source is operating under a normal powering condition or whether power has been restored following a power disruption while said power switch is in a closed position; and

control means for controlling the electrical equipment so as not to be powered by the power source in response to the comparison result obtained after power has been restored following a power disruption while said power switch is in a closed position.

5,723,915

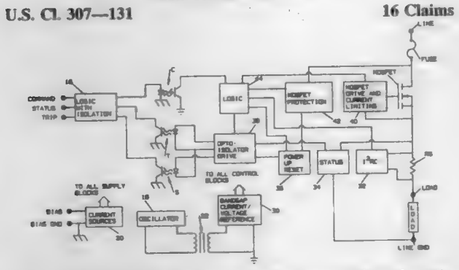
SOLID STATE POWER CONTROLLER

Thomas R. Maher, Plainville, Mass.; Norman E. LeComte, West Greenwich, R.I., and Keith W. Kawate, Attleboro Falls, Mass., assignors to Texas Instruments Incorporated, Dallas, Tex.

Filed Dec. 4, 1992, Ser. No. 985,406

Int. Cl.[6] H04H *3/08*

U.S. Cl. 307—131 **16 Claims**



1. A solid state controller for controlling current through a wire to a load by means of a solid state switch through an input line comprising:

solid state switch means serially connected to the load through a wire,

a shunt resistor serially connected to the switch means and the wire,

means for generating a first electrical signal proportional to the voltage drop across the shunt resistor,

means for squaring the said first electrical signal to produce a second electrical signal proportional to the power being dissipated in the wire,

RC network means coupled to the means for squaring the said second electrical signal and being charged thereby to integrate the second electrical signal as a function of time,

means for comparing the voltage across the RC network indicative of the temperature rise of the wire with a reference and when the RC network voltage is greater than the reference for providing an electrical trip signal for turning off the solid state switch means and latch means for maintaining the controller in a trip condition once it is tripped until reset by an input signal.

5,723,916

ELECTRICAL LOAD DRIVING DEVICE INCLUDING LOAD CURRENT LIMITING CIRCUITRY

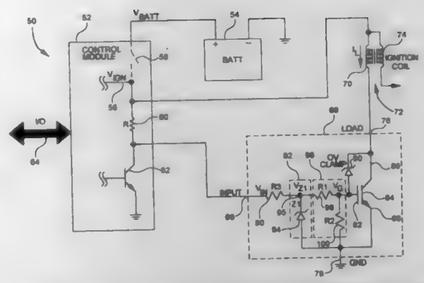
Donald Ray Disney, and John Robert Shreve, both of Kokomo, Ind., assignors to Delco Electronics Corporation, Kokomo, Ind.

Filed May 17, 1996, Ser. No. 650,148

Int. Cl.[6] H01H *9/30*

U.S. Cl. 307—131 **17 Claims**

1. Circuitry for driving an electrical load comprising:



a load driving transistor connected to the electrical load and operable to conduct a load current therethrough in response to a drive signal provided to an insulated gate thereof;

a first resistor having a first end connected to said insulated gate and a second end;

a second resistor having a first end connected to said insulated gate and a second end adapted to receive said drive signal; and

a zener diode having a first end connected to said second end of said second resistor and a second end connected to said second end of said first resistor, said resistors and said zener diode limiting said drive signal to a predefined drive signal level to thereby limit said load current to a predefined load current level.

5,723,917

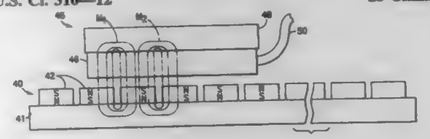
FLAT LINEAR MOTOR

Anwar Chitayat, Northport, N.Y., assignor to Anorad Corporation, Hauppage, N.Y.

Filed Nov. 30, 1994, Ser. No. 346,860

Int. Cl.[6] H02K *41/00*

U.S. Cl. 310—12 **25 Claims**



1. A flat linear motor comprising:

a single row of permanent magnets mounted upon a magnet backplate of magnetic material;

an armature assembly;

said armature assembly including an armature block;

said armature block including coils;

said coils having cores substantially filled wi.h a non-magnetic material;

a flux focusing block holder composed of a magnetic material;

said armature block being affixed upon said flux focusing block holder; and

said flux focusing block holder and said magnet backplate positioned to provide a return path for a magnetic flux emanating from said single row of permanent magnets such that said magnetic flux is confined in said armature block, whereby a low resistance magnetic circuit is formed.

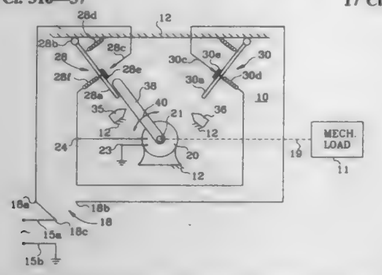
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5,723,918

BI-DIRECTIONAL ACTUATOR USING A RANDOM DIRECTION AC MOTOR

Roger A. Schilling; Tom A. Heckathorne, both of New Brighton, and Edward L. Schwarz, Minneapolis, all of Minn., assignors to Honeywell Inc., Minneapolis, Minn.

Filed Mar. 8, 1996, Ser. No. 611,603
Int. Cl.[6] H02K *33/14*; H02P *6/00*
U.S. Cl. 310—37 17 Claims



1. A bi-directional AC motor-powered actuator to receive AC power at first and second actuator power terminals from a source and for driving a load between two extreme positions, comprising

a) a frame;

b) a random direction AC motor assembly mounted on the frame, said motor assembly having first and second power terminals and an output member mechanically moving through a path of travel between first and second extreme positions responsive to AC power applied to the power terminals;

c) a first limit stop mounted on the frame, and positioned to limit the output member's movement away from the second extreme position and substantially at the first extreme position;

d) a second limit stop mounted on the frame, and positioned to limit the output member's movement away from the first extreme position and substantially at the second extreme position;

e) a first limit switch mounted on the frame, said first limit switch having a first terminal connected to the motor's first power terminal, a second terminal normally in electrical connection with the first limit switch's first terminal, and an operating element interacting with the output member to disconnect the first limit switch's first terminal from the second terminal when the output member is near the first extreme position;

f) a second limit switch mounted on the frame, said second limit switch having a first terminal connected to the motor's first power terminal, a second terminal normally in electrical connection with the second limit switch's first terminal, and an operating element interacting with the output member to disconnect the second limit switch's first terminal from the second terminal when the output member is near the second extreme position; and

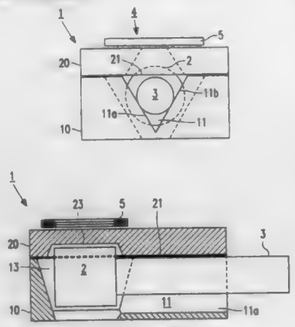
g) a first SPDT switch having a first selectable terminal connected to the first limit switch's first terminal, a second selectable terminal for connection to the second limit switch's first terminal, and a common terminal, said SPDT switch having a first state in which the first selectable terminal is connected to the common terminal and a second state in which the second selectable terminal is connected to the common terminal.

5,723,919

MICROMETER WITH SIMPLIFIED BEARINGS

Marinus J.J. Dona, and Karim Lefki, both of Eindhoven, Netherlands, assignors to U.S. Philips Corporation, New York, N.Y.

Filed May 15, 1996, Ser. No. 647,861
Claims priority, application European Pat. Off., Nov. 24, 1995, 95203235
Int. Cl.[5] H02K *57/00;7/10*
U.S. Cl. 310—40 MM 8 Claims



1. A micromotor comprising:

a magnetic rotor secured to a shaft;

a stator having at least one winding; and

bearings which rotatably support the shaft relative to the stator and which include

a first part made of a silicon substrate and having at least one groove with a first bounding wall and a second bounding wall, said first and second bounding walls of the at least one groove extending parallel to and for engaging the shaft and,

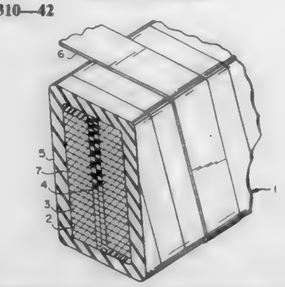
a second part separate from and secured to the first part having at least a third bounding wall extending parallel to the shaft, the shaft being positioned relative to the stator by said first, second and third bounding walls.

5,723,920

STATOR BARS INTERNALLY GRADED WITH CONDUCTIVE BINDER TAPE

Mark Markovitz; James J. Grant, both of Niskayuna, and William E. Tomak, Scotia, all of N.Y., assignors to General Electric Company, Schenectady, N.Y.

Filed Oct. 12, 1994, Ser. No. 321,959
Int. Cl.[6] H02K *3/14*
U.S. Cl. 310—42 17 Claims



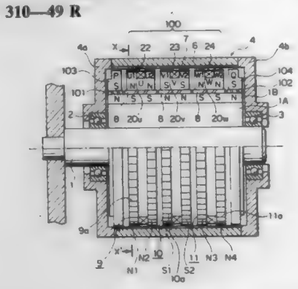
1. An insulated stator bar for a dynamoelectric machine comprised of a stator bar element, and an electrically conductive tape wrapped directly on the stator bar, wherein said conductive tape includes a woven fabric support sheet, and a polymeric binder system carried by said support sheet and comprised of carbon particles dispersed in a polymeric matrix.

5,723,921

HYBRID-TYPE STEPPING MOTOR

Tsuneo Sugiura, Iida, Japan, assignor to Tamagawa Seiki Kabushiki Kaisha, Nagano-ken, Japan

Filed Jul. 16, 1996, Ser. No. 680,844
Claims priority, application Japan, Apr. 22, 1996, 8-100303
Int. Cl.[6] H02K *37/02;37/10*
U.S. Cl. 310—49 R 8 Claims



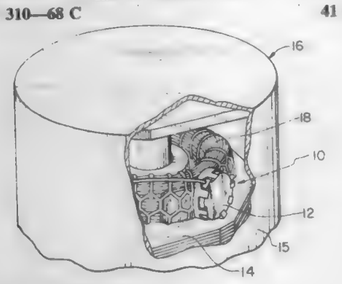
1. A hybrid-type stepping motor having an outer rotor structure comprising a pair of bearings spaced apart and mounted on a fixed shaft, a rotor case rotatably supported by the bearings, a ring-shaped rotor yoke, mounted on the rotor case and having a plurality of rotor teeth, a stator yoke body made up of n stator yokes arranged side by side in the direction of the fixed shaft, each yoke mounted on a corresponding cylinder magnet attached to the fixed shaft, a plurality of stator teeth formed on the circumferences of the stator yokes, n axially centered circular coil slots formed on the circumferences of the stator yokes, n coils seated in the circular coil slots, wherein n is an integer greater than one, a pair of sub cylinder magnets mounted to the fixed shaft, and a pair of sub magnetic flanges mounted on the sub cylinder magnets, wherein the stator yoke body is interposed between the pair of sub magnetic flanges, whereby the stator yokes alternate in magnetic polarity and magnetic flux flows from the sub cylinder magnets to the sub magnetic flanges.

5,723,922

COMPRESSOR OVERLOAD HOLDER AND METHOD OF MOUNTING SAME

Jeffrey C. Fowlkes, Springville, Tenn., assignor to Tecumseh Products, Tecumseh, Mich.

Continuation-in-part of Ser. No. 249,532, May 26, 1994, abandoned. This application Jul. 26, 1996, Ser. No. 687,760
Int. Cl.[6] H02K *11/00*
U.S. Cl. 310—68 C 41 Claims



1. A compressor comprising:

a housing;

a motor-compressor unit including a motor with windings wrapped by lacing, said unit disposed in said housing;

an overload protector electrically connected to said motor by at least one electrical lead, said electrical lead extending in a first direction; and

an overload holder for mounting said overload protector to said motor, said holder comprising:

a wall having a first opening proximate said motor windings and a second opening, said wall surrounding said overload protector, said overload protector having a first surface in direct thermal contact with said motor windings through said first opening, said at least one electrical lead being connected to said overload protector via said second opening;

at least one lip extending inwardly from said wall and engaging said overload protector; and

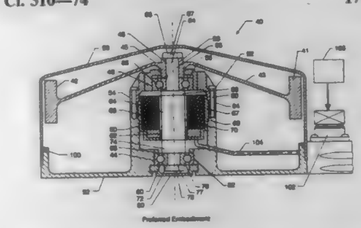
an arm extending outwardly from said wall in a second direction generally opposite said first direction of said electrical lead, said lacing engaging said arm and said electrical leads, whereby said overload holder and said overload protector are affixed to said motor by said lacing.

5,723,923

APPARATUS FOR PROVIDING TORQUE AND FOR STORING MOMENTUM ENERGY

Charles E. Clagett, Accokeek, Md., assignor to The United States of America as represented by the United States National Aeronautics and Space Administration, Washington, D.C.

Filed Feb. 21, 1995, Ser. No. 393,736
Int. Cl.[6] H02K *7/02*
U.S. Cl. 310—74 17 Claims



1. A torque reaction/momentum wheel device comprising:

support means located only on one side of said device;

a cantilevered flywheel for storing angular momentum;

motor means integrally formed with said support means;

shaft means coupled with said motor means and said cantilevered flywheel;

bearing means rotatably coupled with said shaft; and

cover means coupled with said support, means via an o-ring seal so as to encapsulate and pressurize said cantilevered flywheel, said support means and said motor means.

5,723,924

MOTORIZED REDUCTION GEAR UNIT, ESPECIALLY FOR DRIVING A VEHICLE SCREEN WIPER APPARATUS

Pierre Blanchet, Lencloitre, France, assignor to Valeo Systemes D'Essuyage, La Verriere, France

Filed Feb. 7, 1996, Ser. No. 598,237
Claims priority, application France, Feb. 8, 1995, 95 01537
Int. Cl.[6] H02K *5/04*
U.S. Cl. 310—85 14 Claims

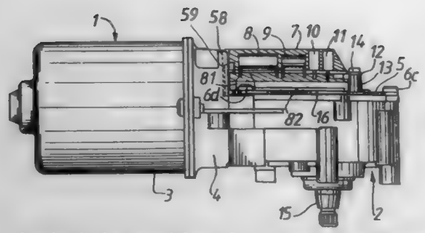
1. A motorized reduction gear unit for a vehicle screen wiper apparatus, comprising:

a hollow gearbox casing having an open side;

a closure plate closing said open side of the gearbox casing and having an external surface, at least a portion of said external surface being electrically conductive;

a group of electronic components disposed on said conductive portion of said closure plate external surface;

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a housing in the general form of a cap overlying and flanking said group of components, said housing comprising electrically conductive material and at least one connecting means for electrical connection with said conductive portion of said closure plate external surface; and

a mounting plate of electrically insulating material and carrying said group of components, said mounting plate having a plurality of metallic sectors defining electrical connections between components in said group.

5,723,925

SUPERCONDUCTOR MOTOR PROVIDED WITH SUPERCONDUCTOR SHIELD

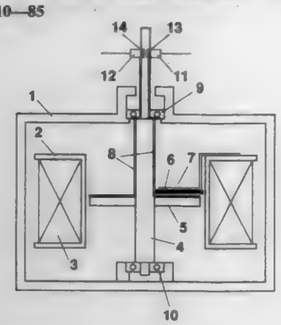
Yoshitaka Kambe, Seto, and Tamio Shinozawa, Anjo, both of Japan, assignors to Toyota Jidosha Kabushiki Kaisha, Japan

Filed Apr. 17, 1996, Ser. No. 633,316

Claims priority, application Japan, May 15, 1995, 7-115544

Int. Cl.[6] H02K *55/00;23/00*

U.S. Cl. 310—85 **7 Claims**



1. A superconductor motor comprising:

a solenoid coil for generating a magnetic field within the bore of the solenoid coil as a result of an electrical current flowing through the coil,

a rotor arranged in the bore of the solenoid coil,

a superconductor shield partly covering the surface of said rotor,

a stationary drive coil partly arranged close to the superconductor shield to cause an electrical current to flow in a radial direction,

an electric current supply for supplying said electrical current to said stationary drive coil, and wherein

said stationary drive coil has a first radial section directed from the center of the rotor toward the periphery thereof, second and third sections extending upward from the respective opposite ends of the first section and a fourth section running in parallel with the first section to form a rectangular winding.

5,723,926

STEPPING MOTOR

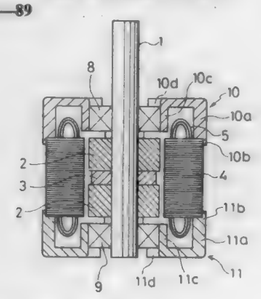
Rikuro Obara, and Hirotaka Ichimura, both of Nagano-ken, Japan, assignors to Minebea Co., Ltd., Nagano-ken, Japan

Filed Mar. 5, 1996, Ser. No. 611,180

Claims priority, application Japan, Apr. 25, 1995, 7-124370

Int. Cl.[6] H02K *5/15;5/04*

U.S. Cl. 310—89 **1 Claim**



1. A stepping motor comprising

a rotor attached to a rotation shaft;

a stator core provided around an outer periphery of the rotor having a clearance therebetween;

a press-formed first metal plate casing and disposed at a front portion of the stator core in a first axial direction of the rotation shaft;

a press-formed second metal plate casing and disposed at a rear portion of the stator core in a second axial direction of the rotation shaft;

at least one bearing fixed to each of the first casing and the second casing for supporting the front portion and the rear portion of the rotation shaft;

wherein the first casing and the second casing include a first portion that supports the stator core, a second portion formed as one piece with the first portion that supports the at least one bearing, and at least one aperture disposed at each corner of each casing for clamping each casing and the stator core by bolts, wherein the first portion of the casing for supporting the stator core includes a contacting portion and a non-contacting portion, the contacting portion having a thickness less than a thickness of the non-contacting portion for supporting a circumferential part of the stator core, wherein the second portion for supporting the at least one bearing includes a plurality of folded portions extending alternatively in an axial direction of the rotation shaft and a plurality of annular projections extending in a radial direction of the rotation shaft, wherein the folded portions and the annular projections are formed as one piece with the first portion for supporting the stator core, the folded portions defining a radial dimension of the at least one bearing in radial direction, and the annular projections defining an axial dimension of the at least one bearing.

5,723,927

DYNAMIC PRESSURE BEARING SPINDLE MOTOR

Hiroyoshi Teshima, Tottori-ken, Japan, assignor to Matsushita Electric Industrial Co., Ltd., Kadoma, Japan

Filed Mar. 28, 1996, Ser. No. 623,254

Claims priority, application Japan, Mar. 31, 1995, 7-075654

Int. Cl.[6] H02K *5/16;5/167;5/173*

U.S. Cl. 310—90 **4 Claims**

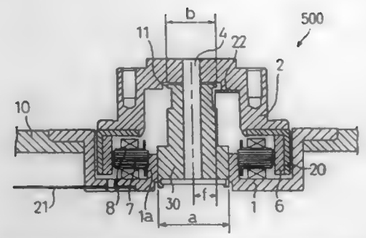
1. A dynamic pressure bearing spindle motor, comprising:

a housing;

a sleeve fixed to the housing and having a projecting lip;

a rotor hub rotatable with respect to the housing and having a stopper which is engageable with the projecting lip;

a shaft fixed to the rotor hub and rotatably inserted into the sleeve;



a thrust plate attached to the sleeve so as to be opposed to an end face of the shaft; and

lubricating oil provided between the thrust plate and the end face of the shaft to form a thrust bearing and also provided between the shaft and the sleeve to form a radial dynamic pressure bearing,

wherein the stopper is put into engagement with the projecting lip of the rotor hub when the rotor hub moves in a thrust direction, thereby preventing the rotor hub from disengaging from the sleeve,

wherein dimensions of the motor satisfy the expression a≧b, a>2f, and b>2f where the maximum outer diameter among a plurality of outer diameters of the sleeve is a, an outer diameter of the projecting lip is b, and a radius of curvature of an inner periphery of the stopper is f, and

wherein the inner periphery of the stopper further has a radius of curvature which is greater than half of the maximum outer diameter of the sleeve.

5,723,928

INDUCTION MOTOR AND METHOD OF ADJUSTING POWER FACTOR OF THE SAME

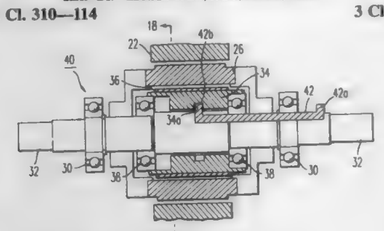
Kouji Imai, 5-2003-202, Nakahira, Tenpaku-ku, Nagoya-shi, Aichi-ken; Nuio Tsuchida, 5-227-16, Kurosawadai, Modori-ku, Nagoya-shi, Aichi-ken, and Yoshiyuki Shibata, Toyota, all of Japan, assignors to Toyoda Koki Kabushiki Kaisha, Kariya; Kouji Imai, and Nuio Tsuchida, both of Nagoya, all of Japan

Filed Sep. 29, 1995, Ser. No. 536,643

Claims priority, application Japan, Sep. 30, 1994, 6-261936; Mar. 24, 1995, 7-091687; Apr. 14, 1995, 7-113760

Int. Cl.[6] H02K *1/22;1/28;16/00;16/01*

U.S. Cl. 310—114 **3 Claims**



1. An induction motor comprising:

a stator for generating a rotating magnetic field;

a rotor fixed to a shaft for rotation therewith inside said stator, said rotor including a plurality of spaced apart conductors;

a cylindrical member disposed within an inner space defined in said rotor and rotatably supported by said shaft:

magnets attached to the circumference of said cylindrical member such that said magnets face the rotating magnetic field; and

a spacer positioned on said shaft which spacer moves said magnets axially with respect to said stator and said rotor and in the axial direction of said shaft so as to change overlapping areas between poles of said stator and said magnets.

5,723,929

D.C. MOTOR WITH PRIMARY AND AUXILIARY MAGNETIC POLES

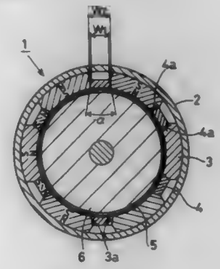
Masami Niimi, Handa, Japan, assignor to Nippondenso Co., Ltd., Kariya, Japan

Filed Apr. 30, 1996, Ser. No. 640,436

Claims priority, application Japan, Sep. 19, 1995, 7-239383

Int. Cl.[6] H02K *23/04*

U.S. Cl. 310—154 **10 Claims**



1. A direct current motor comprising a stator and a rotor, said stator including:

a plurality of primary magnetic poles including permanent magnets and disposed circumferentially;

a plurality of auxiliary magnetic poles including permanent magnets and interposed between circumferentially adjacent two of the primary magnetic poles;

a thin cylindrical sleeve fitted on radial inner faces of the primary magnetic poles; and

supporting means pressing the auxiliary magnetic poles to a radial outer face of the sleeve to fixedly support the auxiliary magnetic poles in position, wherein:

each of the primary magnetic poles is formed with slanted faces on circumferential sides thereof to provide a varying circumferential width which decreases toward the sleeve;

each of the auxiliary magnetic poles is formed with slanted faces on circumferential sides thereof in correspondence to the slanted faces of the primary magnetic poles to provide a varying circumferential width which increases toward the sleeve; and

the supporting means is provided by the slanted faces of the primary magnetic poles abutting circumferentially the slanted faces of the auxiliary magnetic poles.

5,723,930

STATORS INCORPORATING BLANK WINDING SLOTS FOR A PERMANENT MAGNET BRUSHLESS MOTOR AND METHOD OF WINDING THEREOF

Shih-Chiang Ho, Tainan, and Ming-Chung Chang, Yunlin Hsien, both of Taiwan, assignors to Industrial Technology Research Institute, Hsinchu, Taiwan

Filed Jan. 5, 1995, Ser. No. 369,158

Int. Cl.[6] H02K *3/00*

U.S. Cl. 310—179 **4 Claims**

1. A method for winding a stator of a brushless motor structure, comprising:

determining the number of slots Ns of said stator in accordance with Ns=k·m·((p'·q)±1); and

winding said stator in an altered fraction slot winding pattern which has blank slots in slots where double-layer winding slots are positioned in a normal fraction slot winding pattern, wherein,

q equals a number of slots per pole per phase,

k equals a number of blank slots per phase and is greater than or equal to 1,

m equals a number of phase of said motor,

p equals a number of poles of said motor,

p' is an even number multiplier, but not a multiple of 3, and

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said number of poles of the motor p is equal to said number of blank slots per phase k multiplied by said even number multiplier p' such that p=k·p'.

5,723,931

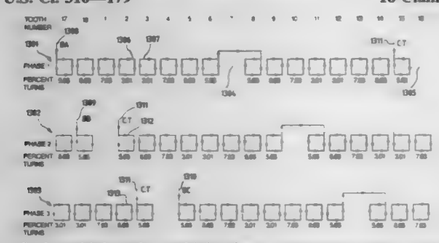
MULTIPLE POLE, MULTIPLE PHASE, PERMANENT MAGNET MOTOR AND METHOD FOR WINDING

Boris Daniel Andrey, Wheeling, Ill., assignor to MPC Products Corporation, Niles, Ill.

Filed Jan. 17, 1996, Ser. No. 583,729

Int. Cl.[6] H02K *3/00;3/28*

U.S. Cl. 310—179 **16 Claims**



1. A multiple pole, multiple phase, permanent magnet motor comprising:

a rotor having a plurality of permanent magnet poles;

a stator having a plurality of stator slots and an equal number of stator teeth defined by adjacent stator slots;

a plurality of phase windings disposed on the stator, each phase winding including a plurality of coils having a non-uniform number of turns, to develop electromagnetic poles in proximity to the stator, the electromagnetic poles for each phase being distributed symmetrically about the stator, equidistant from one another, and equal in number to the number of permanent magnet rotor poles;

the number of turns of each of the plurality of coils of each phase winding is selected in accordance with a predetermined sinusoidal relation, wherein the predetermined sinusoidal relation comprises:

$$n(t)=A \sin(\omega t-\theta);$$

where

n=number of turns;

t=tooth number;

$\omega=(p/T)\pi$;

where

p=number of poles;

T=total number of stator teeth;

$$\omega=\phi/2+\alpha;$$

where

ϕ=electrical angle between phases;

α=mechanical angle between teeth; and

A=a constant of proportionality.

5,723,932

DC MOTOR WITH IMPROVED BRUSHES AND LIQUID PUMP USING THE SAME

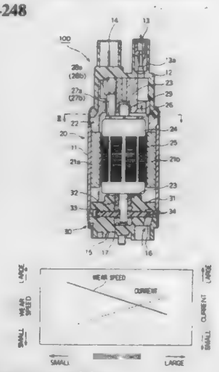
Motoya Ito, Hekinan; Minoru Yasuda, Chiryu, and Takeshi Matsuda, Anjo, all of Japan, assignors to Nippondenso Co., Ltd., Kariya, Japan

Filed Jun. 17, 1996, Ser. No. 665,237

Claims priority, application Japan, Jun. 16, 1995, 7-148516; May 15, 1996, 8-119417

Int. Cl.[6] H02K *23/00*

U.S. Cl. 310—248 **18 Claims**



8. A liquid pump comprising:

a DC motor including a casing, an armature with a coil and a commutator at an end of the armature in the casing, a first brush, and a second brush arranged in the casing in slidable contact with the commutator for current supply to the commutator, and first and second biasing springs for biasing the first and second brushes onto the commutator, respectively; and

a pump driven by the DC motor for forcibly feeding liquid from one end to another end in the casing,

wherein the first spring for biasing the first brush provides a biasing force that is larger than a biasing force provided by the second spring for biasing the second brush.

5,723,933

ELECTRONICALLY COMMUTATED DC MACHINE

Andreas Gründl, München; Bernard Hoffmann, Starnberg, and Reiner Rasch, Hechendorf, all of Germany, assignors to Orto Holding A.G., Luxembourg, Luxembourg

Filed Apr. 26, 1995, Ser. No. 427,369

Claims priority, application Germany, Apr. 26, 1994, 44 14 527.6

Int. Cl.[6] H02K *3/04*

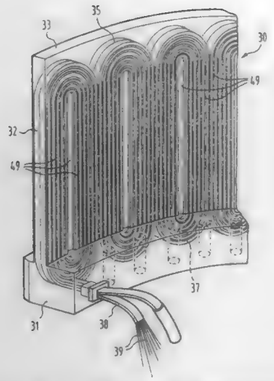
U.S. Cl. 310—266 **25 Claims**

1. An electrically commutated DC machine comprising:

a permanent magnet rotor supported on a rotational axis; having an even number of permanent magnet poles, arranged in a constant pole pitch for rotating along a cylindrical air gap,

generating within said air gap a homogeneous magnetic field with linear and radially extending magnetic field lines with a continuously changing polarity,

an iron-free stator means including a self-supporting stator coil of conductor material comprised of one or more several strand(s), wherein each strand comprises a number of twisted thin filaments individually isolated, having a diameter equal or less than 0.4 mm, and a cured synthetic resin, said conductor material and cured resin being compacted to provide a stator coil having a content of conductor material of from 70



to 90% by volume to form straight coil portions parallel to the rotational axis and extending within the air gap wherein each coil portion comprises only one distinctive current direction at a given moment, and wherein each coil portion has a width corresponding to the pole pitch of the permanent magnet rotor.

5,723,934

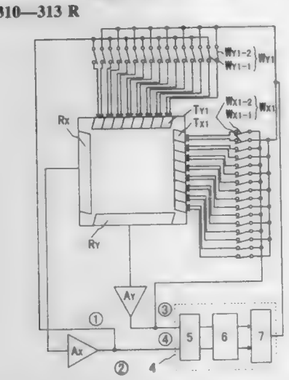
SURFACE ACOUSTIC WAVE POSITION-SENSING DEVICE

Kohji Toda, 1-49-18 Futaba, Yokosuka 239, Japan

Filed Aug. 9, 1996, Ser. No. 694,981

Int. Cl.[6] H01L *41/08*

U.S. Cl. 310—313 R **8 Claims**



1. A surface acoustic wave position-sensing device comprising:

a piezoelectric substrate having an upper- and a lower end surfaces running perpendicular to the thickness direction thereof;

a nonpiezoelectric plate having an upper- and a lower end surfaces running perpendicular to the direction of the thickness d thereof;

at least two surface acoustic wave transducing units X and Y, each thereof consisting of

N interdigital transducers T_i (i=1, 2, ... , N) formed on said upper end surface of said piezoelectric substrate, the thickness of said piezoelectric substrate being larger than approximately three times an interdigital periodicity p of said interdigital transducer T_i, said thickness of d of said nonpiezoelectric plate being smaller than said interdigital periodicity p,

an interdigital transducer R formed on said upper end surface of said piezoelectric substrate and having an interdigital periodicity equal to said interdigital periodicity p, said lower end surface of said nonpiezoelectric plate being mounted on said upper end surface of said piezoelectric substrate through said interdigital transducers T, and R, and

N switches W_i (i=1, 2, ... , N), output terminals thereof being connected with input terminals of said interdigital transducers T_i, respectively; and

a controlling system connected with said surface acoustic wave transducing units X and Y,

said interdigital transducer T_i receiving an electric signal E_T with a frequency approximately corresponding to said interdigital periodicity p, exciting a surface acoustic wave of the zeroth mode and the higher order modes on an area, in contact with said interdigital transducer T_i, of said upper end surface of said piezoelectric substrate, and transmitting said surface acoustic wave having the wavelength approximately equal to said interdigital periodicity p to an area, in contact with said interdigital transducer R, of said upper end surface of said piezoelectric substrate, through said nonpiezoelectric plate, the phase velocity of said surface acoustic wave of said zeroth mode being approximately equal to the phase velocity of the Rayleigh wave traveling on said piezoelectric substrate alone under the electrically shorted condition, the phase velocity of said surface acoustic wave of said higher order modes being approximately equal to the phase velocity of the Rayleigh wave traveling on said piezoelectric substrate alone under the electrically opened condition,

said interdigital transducer R transducing said surface acoustic wave transmitted to said area, in contact with said interdigital transducer R, of said upper end surface of said piezoelectric substrate, to an electric signal E_R with a frequency approximately corresponding to said interdigital periodicity p,

said nonpiezoelectric plate being made of a material such that the phase velocity of the surface acoustic wave traveling on said nonpiezoelectric plate alone is lower than that traveling on said piezoelectric substrate alone,

said controlling system turning on and off said switches W_i with a fixed period in turn, keeping a check on a magnitude of said electric signal E_R, sensing a touch with a finger or others on said upper end surface of said nonpiezoelectric plate by a decrease or a disappearance in magnitude of said electric signal E_R, picking out one of said switches W_i turned on when said decrease or said disappearance in magnitude of said electric signal E_R happens,

said surface acoustic wave transducing unit X having N propagation lanes U_{Xi} (i=1, 2, ... , N) of said surface acoustic wave between said interdigital transducers T_i and R, two neighbors of said propagation lanes U_{Xi} being closed or partially overlapping each other,

said surface acoustic wave transducing unit Y having N propagation lanes U_{Yi} (i=1, 2, ... , N) of said surface acoustic wave between said interdigital transducers T_i and R, two neighbors of said propagation lanes U_{Yi} being closed or partially overlapping each other, said propagation lane U_X being vertical to said propagation lane U_Y.

5,723,935

VIBRATION DRIVEN MOTOR

Yoshiro Tomikawa, Yonezawa; Tadao Takagi, Yokohama; Mitsuhiro Okazaki; Takatoshi Ashizawa, both of Kawasaki, and Isao Sugaya, Yokohama, all of Japan, assignors to Nikon Corporation, Tokyo, Japan

Continuation of Ser. No. 509,818, Aug. 1, 1995, abandoned. This application Jun. 10, 1996, Ser. No. 661,099

Claims priority, application Japan, Aug. 1, 1994, 6-180279; Jul. 19, 1995, 7-182791

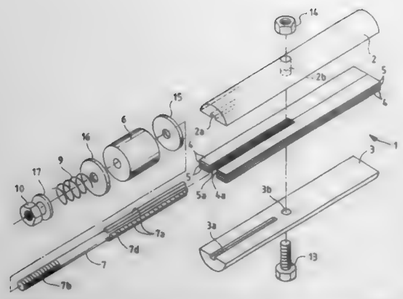
Int. Cl.[6] H02N *2/00*

U.S. Cl. 310—323 **20 Claims**

1. A vibration driven motor, comprising:

a cylindrical stator assembly including a vibration element having two substantially semi-cylindrical vibration members, and

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an electro-mechanical converting device in contact with said two vibration members;

a relative moving element disposed on an end surface of said vibration element and effecting movement relative to said vibration element;

a pressing member for pressing said relative moving element against said vibration element; and

a mounting device attached to said stator assembly and supporting said relative moving element and said pressing member;

wherein said electro-mechanical converting device includes a first electro-mechanical converting element for generating, upon application of a first alternating voltage, torsional vibration in said vibration element around an axis of said vibration element, and a second electro-mechanical converting element for generating, upon application of a second alternating voltage of different phase than said first alternating voltage, longitudinal vibration in said vibration element in an axial direction of said vibration element; and

said first and second electro-mechanical converting elements each include at least one plate-like member sandwiched between flat portions of said vibration members.

5,723,936

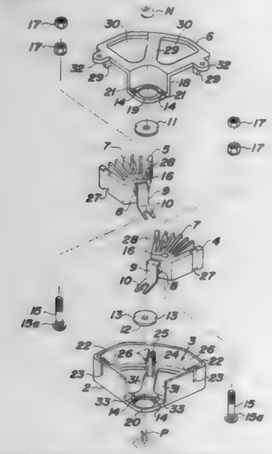
BATTERY ISOLATOR BRACKET HEAT SINK

Thomas E. Wagner, Kirkwood, Mo., assignor to Wagner Product Co., Kirkwood, Mo.

Filed Jun. 19, 1995, Ser. No. 492,406

Int. Cl.[6] H02K *11/02;1/32;* **H02M** *1/00*

U.S. Cl. 310—68 D **9 Claims**



1. A battery isolator bracket incorporating two or more heat sinks, each of said heat sinks having a diode mounted thereto and for use for the conduct of current to at least a pair of batteries deriving their charge from an alternator, said alternator incorporating battery posts, a bracket, said bracket formed of a first segment partially enclosing said pair of heat sinks, a second segment that conforms to the first segment and encloses said heat sinks, each of said first and second segments forming said bracket having vent passages therethrough to dissipate the heat conducted to the heat sinks from their diodes during alternator operation, said bracket cooperating with fastening means for securing said bracket to a support, each of said heat sinks is formed of a series of integral fins, said fins being fan-shaped and located conformedly within said bracket, said bracket vent passage arranged at opposite sides of the bracket to expose the heat sinks to ambient air on opposing sides, each of the heat sinks provided with a diode attached thereto, a terminal extending from each diode, each terminal arranged for electrical connection to the alternator, the diode mounted on each heat sink electrically contacting its arranged terminal to regulate the conduct of charge generated within the alternator, through the diode, through its associated heat sink, and transmitting said charge to their respective batteries, the first segment of the bracket including mounting means, said enclosed heat sinks held in the bracket by said mounting means, each heat sink being fabricated of metal, and the bracket holding said heat sinks being formed of non-electrically conductive polymer, and said heat sink terminal connecting with the alternator battery post.

5,723,937

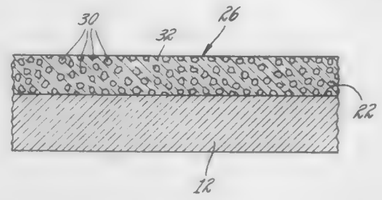
LIGHT-SCATTERING COATING, ITS PREPARATION AND USE

Pamela K. Whitman, and Thomas G. Parham, both of Gates Mills, Ohio, assignors to General Electric Company, Schenectady, N.Y.

Filed Mar. 22, 1993, Ser. No. 34,316

Int. Cl.[6] H01K *1/26*

U.S. Cl. 313—116 **23 Claims**



1. A light-transmissive article having at least one surface with at least a portion of said surface having disposed on it a light-scattering coating comprising light-scattering particles having an effective size of at least about 0.2 microns in a vitreous, silica binder.

5,723,938

CRT WITH ASYMMETRIC ELECTRODE GEOMETRY IN INLINE DIRECTION WITH RESPECT TO SIDE BEAM APERTURES IN FIRST GRID ELECTRODE

Shinichi Kato, and Tutomu Tojyo, both of Mobara, Japan, assignors to Hitachi, Ltd., Tokyo, Japan

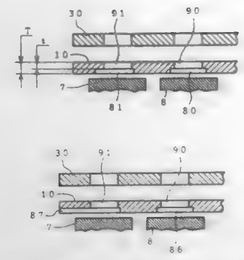
Filed Feb. 8, 1996, Ser. No. 598,702

Claims priority, application Japan, Feb. 13, 1995, 7-024233

Int. Cl.[6] H01J *29/46*

U.S. Cl. 313—412 **20 Claims**

1. In a color cathode ray tube including an evacuated envelope comprising a faceplate portion, a neck portion and a funnel portion therebetween, a multi-apertured color selection electrode suspended in said evacuated envelope and disposed a short distance from a color phosphor screen formed on an inner surface of said faceplate portion, an inline electron gun housed in said neck portion for emitting and directing one center electron beam and



two side electron beams so to converge on said color phosphor screen, and a deflection device mounted in the neighborhood of junction of said neck portion and said funnel portion of said evacuated envelope for generating a magnetic field for deflecting said three electron beams emitted from said electron gun in two horizontal and vertical directions,

said electron gun having three cathodes arranged in an inline direction and a plurality of grid electrodes arranged along a tube axis toward said color phosphor screen from said three cathodes including a first grid electrode facing said three cathodes and an electrode geometry asymmetric in said inline direction being provided on two side beam apertures in said first grid electrode for said two side electron beams on a side facing said three cathodes.

5,723,939

CIRCULAR FLUORESCENT LAMP

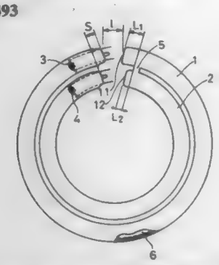
Ikuhiro Okuno, Kyoto; Toshiyoshi Oga, Shiga; Hidehito Kawahara, Osaka, and Masashi Sangen, Kyoto, all of Japan, assignors to Matsushita Electronics Corporation, Osaka, Japan

Filed Dec. 21, 1995, Ser. No. 575,995

Claims priority, application Japan, Dec. 28, 1994, 6-327809; Dec. 28, 1994, 6-327810

Int. Cl.[6] H01T *63/02*

U.S. Cl. 313—493 **32 Claims**



1. A circular fluorescent lamp which has plural circular arc tubes disposed concentrically, with a first circular arc tube being disposed outwardly of a second circular arc tube, each of the tubes having an electrode at one tube-end part and a sealed portion at the other tube-end part, and the tubes are joined near the sealed portion with a bridge-jointed portion to form a discharge path inside the tubes, wherein a distance L_1(mm) is measured along a center line of the first tube from the point corresponding radially to the end part of the bridge-jointed portion to the sealed tube-end part of the first tube while a distance L_2(mm) is measured along a center line of the second tube from the point corresponding radially to the end part of the bridge-jointed portion to the sealed tube-end part of the second tube, and L_1 is longer than L_2.

5,723,940

FLAT-PANEL TYPE PICTURE DISPLAY DEVICE WITH ELECTRON PROPAGATION DUCTS

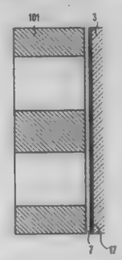
Gerardus G.P. Van Gorkom; Petrus H.F. Trompenaars; Gerardus A.H.M. Vrijssen; Siebe T. De Zwart; Bernardus H.W. Hendriks, and Nicolaas Lambert, all of Eindhoven, Netherlands, assignors to U.S. Philips Corporation, New York, N.Y.

Division of Ser. No. 73,372, Jun. 4, 1993. This application Jun. 6, 1995, Ser. No. 471,296

Claims priority, application European Pat. Off., Jul. 19, 1992, 92202260

Int. Cl.[6] H01J *29/70;01/62;63/04;03/10*

U.S. Cl. 313—422 **10 Claims**



1. A flat panel display device comprising:

a. a face plate bearing a luminescent screen;

b. a back plate;

c. means connecting the back plate to the face plate to form a sealed enclosure;

d. means for producing electrons;

e. a spacer structure, including a plurality of apertures for passing the electrons to the screen, situated within the enclosure between the back plate and the face plate, said structure including an apertured spacer plate having walls defining respective apertures in said plate, at least a first portion of each of said walls diverging with distance toward the face plate.

5,723,941

LIGHTING UNIT, ELECTRODELESS LOW-PRESSURE DISCHARGE LAMP, AND DISCHARGE VESSEL FOR USE IN THE LIGHTING UNIT

Bauke J. Roelevink, Roosendaal, Netherlands, assignor to U.S. Philips Corporation, New York, N.Y.

Filed Apr. 10, 1996, Ser. No. 630,311

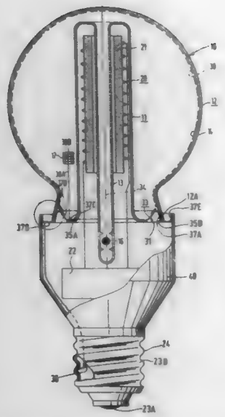
Claims priority, application European Pat. Off., May 24, 1995, 95201371

Int. Cl.[6] H01J *65/00*

U.S. Cl. 313—493 **20 Claims**

1. A lighting unit comprising: an electrodeless low-pressure discharge lamp and a supply for said lamp, the lamp being provided with a discharge vessel which is closed in a gastight manner, which contains an ionizable filling, and which has a recessed portion and an enveloping portion, while the lamp in addition provided with a coil positioned in the recessed portion for generating a high-frequency magnetic field during lamp operation for maintaining an electric discharge in the discharge vessel, the enveloping portion of the discharge vessel being provided with a light-transmitting, electrically conductive layer at an inner surface, and the discharge vessel having a lead-through member which is electrically connected to the conductive layer, which extends along the circumference of the inner surface of the enveloping portion of the discharge vessel, and which is accessible from outside the discharge vessel, characterized in that: the lead-through member comprises a metal collar surrounding an axis, which collar extends from the recessed portion to the enveloping portion and to which collar each of said portions has a fastening point, the light-transmitting, electrically conductive layer covering a region of the lead-through member which adjoins the inner surface of the envel-

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oping portion and which is at a distance from at least one of the fastening points between the discharge vessel and the collar.

5,723,942

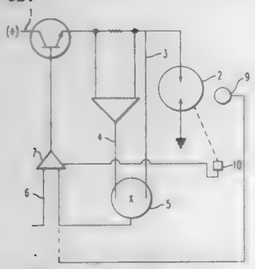
Patent Not Issued For This Number

5,723,943

METHODS AND APPARATUSES FOR HIGH-SPEED CONTROL OF LAMP INTENSITIES AND/OR WAVELENGTHS AND FOR HIGH-SPEED OPTICAL DATA TRANSMISSION

Gary Brooker, Potomac; J. Scott McDonald, Germantown, both of Md., and Jeffrey Scott Brooker, Herndon, Va., assignors to Atto Instruments, Inc., Rockville, Md.

Filed Nov. 10, 1994, Ser. No. 339,218
Int. Cl.[6] H01J *40/00;40/16;01/02;07/24*
U.S. Cl. 313—524 **18 Claims**



1. An apparatus for generating light, comprising:

(A) a lamp containing one or more materials (i) which are at least partially in a vapor state under conditions of lamp use, (ii) which are at least partially solid or liquid under conditions of lamp use or storage and (iii) which do not continuously generate light below a threshold electric power but which, in response to an applied electric power greater than said threshold electric: power, continuously generate light of an intensity related to the difference between said applied electric power and said threshold electric power, and

(B) a first power source that applies electric power to said lamp to cause said lamp to generate light, when said electric power varies from exceeding said threshold electric power to below said threshold electric power;

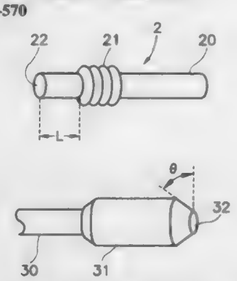
(C) a second power source that applies power to said lamp sufficient to maintain said material in the vapor state such that the lamp continuously generates light when said applied electric power from the first power source is below said threshold electric power.

5,723,944

METAL HALIDE LAMP OF THE SHORT ARC TYPE

Tadatoshi Higashi, Himeji, and Tomoyoshi Arimoto, Tatsuno, both of Japan, assignors to Ushiodenki Kabushiki Kaisha, Tokyo, Japan

Filed Nov. 27, 1995, Ser. No. 562,984
Claims priority, application Japan, Nov. 25, 1994, 6-314350; Dec. 22, 1994, 6-335346
Int. Cl.[6] H01J *17/04*
U.S. Cl. 313—570 **6 Claims**



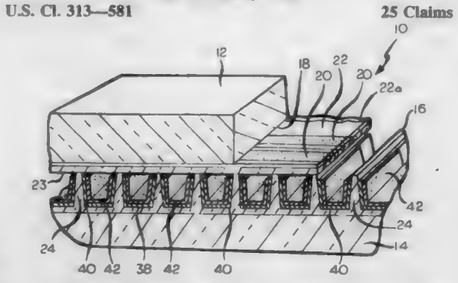
1. A short arc metal halide lamp which is operated with an essentially horizontal discharge direction using direct current power, comprising a lamp tube in which a cathode, an anode, at least rare earth halides and mercury are encapsulated; wherein said cathode has a tungsten electrode shaft with a tungsten coil wound thereon; and wherein a relationship $0.029<S/I<0.076$ is satisfied, where S is a cross-sectional area of the electrode shaft in mm^1 and I is an operating current in amperes of the lamp during steady-state luminous operation.

5,723,945

FLAT-PANEL DISPLAY

Jerry D. Schermerhorn, Perrysburg, Ohio, assignor to Electro Plasma, Inc., Millbury, Ohio

Filed Apr. 9, 1996, Ser. No. 629,723
Int. Cl.[6] H01J *17/49*
U.S. Cl. 313—581 **25 Claims**



21. A flat-panel display comprising a hermetically sealed gas filled enclosure, said enclosure including

a top glass substrate having a plurality of top substrate electrodes and a thin dielectric film covering said top substrate electrodes;

a bottom glass substrate spaced from said top glass substrate, said bottom glass substrate having an interior surface of an etchable glass material which is selectively crystallizing and having a plurality of alternating barrier ribs and micro-grooves; each said micro-groove including a micro-groove base and upwardly extending surrounding sidewalls and each said barrier rib having an aspect ratio of more than 3:1 and including a barrier rib base, a crest and sidewalls which extend from said barrier rib base to said crest; said surrounding sidewalls of adjacent micro-grooves being interconnected by said crest of an intermediate barrier rib;

a bottom glass substrate electrode formed of metal and extending up to at least a substantial portion of said sidewalls; and

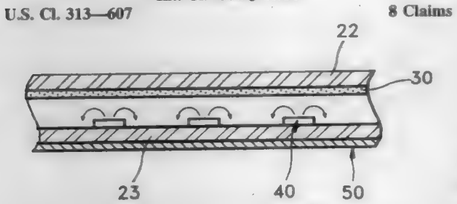
red, green and blue phosphors deposited in separate adjacent micro-grooves on each said bottom glass substrate electrode.

5,723,946

PLANE OPTICAL SOURCE DEVICE

Deuk-il Park, Seoul, and Sang-mook Kim, Suwon, both of Rep. of Korea, assignors to Samsung Display Devices Co., Ltd., Kyungki-do, Rep. of Korea

Filed Sep. 21, 1995, Ser. No. 531,531
Claims priority, application Rep. of Korea, Oct. 11, 1994, 94-26116
Int. Cl.[6] H01J *61/30*
U.S. Cl. 313—607 **8 Claims**



1. A plane optical source device comprising:

a container having a front plate, a rear plate and side walls, said front plate being made of a transparent substance, for defining an airtight space for generating an arc;

a fluorescent layer formed on the inner surface of said front plate, said fluorescent layer being in contact with substantially the entire inner surface of said front plate;

a first electrode formed on the inner surface of said rear plate of the container in a predetermined pattern, said first electrode being opposite to said fluorescent layer; and

a second electrode formed on an outer surface of said rear plate, corresponding to said first electrode.

5,723,947

ELECTRODELESS INDUCTIVELY-COUPLED FLUORESCENT LAMP WITH IMPROVED CAVITY AND TUBULATION

Oleg Popov, Needham; Jakob Maya, Brookline; Koichi Kobayashi, Needham, and Edward K. Shapiro, Levington, all of Mass., assignors to Matsushita Electric Works Research & Development Laboratories Inc., Woborn, Mass.

Filed Dec. 20, 1996, Ser. No. 772,139
Int. Cl.[6] H01H *65/04;65/00*
U.S. Cl. 313—634 **13 Claims**

1. An electrodeless ICF lamp comprising:

a lamp envelope, said envelope having a reentrant cavity disposed therein and containing a fill of a rare gas and an amalgam of a vaporizable metal;

a phosphor coating on the inside of said envelope for generation of visible light;

a tubulation along a longitudinal axis of the envelope, said tubulation having a proximal and a distal end, said distal end being used for exhaustion of the envelope and for amalgam location, said proximal end being attached to said reentrant cavity, the diameter of said tubulation being greater at said proximal end than at said distal end to form an expansion area;

a lamp base, said base adapted to be attached to a fixture;

a cylinder formed to act as a Faraday cage of an electrically and thermally conductive metal disposed inside said reentrant cavity, said cylinder being welded to the base;

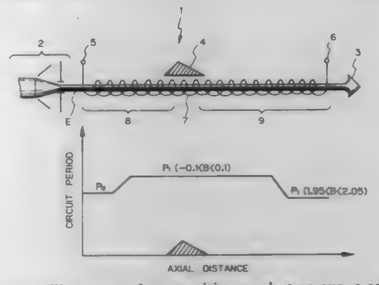
an induction coil and an RF generating means to generate a plasma within said envelope disposed in said cylinder.

5,723,948

HELIX TRAVELLING-WAVE TUBE WITH A MAXIMUM SMALL SIGNAL GAIN AT THE OPERATING VOLTAGE

Mitsuru Yoshida, Tokyo, Japan, assignor to NEC Corporation, Tokyo, Japan

Filed Oct. 3, 1996, Ser. No. 724,863
Claims priority, application Japan, Oct. 4, 1995, 7-257868
Int. Cl.[6] H01J *25/34*
U.S. Cl. 315—3.6 **3 Claims**



1. A travelling-wave tube comprising an electron gun, a collector, a high frequency input section, a high frequency output section, and a helix wave delay circuit divided halfway by a high frequency attenuator with respect to frequency, said helix wave delay circuit comprises a uniform circuit period **P0** portion having a uniform circuit period **P0**, a velocity taper portion where a circuit period varies from **P0** to **P1**, a uniform circuit period **P1** portion having a uniform circuit period **P1** greater than **P0**, a velocity taper portion where the circuit period Varies from **P1** to **P2**, and a uniform circuit period **P2** portion having a uniform circuit period **P2** smaller than **P1**, as named from a side adjoining said high frequency input section, and a velocity coefficient B expressed, assuming that a circuit wave has a phase velocity **v0**, that electrons have a DC velocity **u0**, and that the circuit has a coupling coefficient C, as:

$$B=(u0-v0)/(C\cdot v0) \qquad \text{Eq. (0)}$$

is confined, in said uniform circuit period P1 portion, in a range of:

$$-0.1<B<0.1 \qquad \text{Eq. (1)}$$

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and confined, in said uniform circuit period P2 portion, in a range of:

$$1.95<B<2.05 \qquad \text{Eq. (2)}$$

and a difference ΔB between said velocity coefficients B is selected to lie in a range of:

$$1.95<\Delta B<2.1 \qquad \text{Eq. (3)}$$

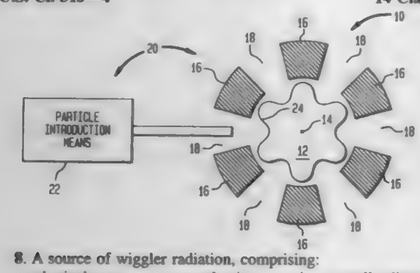
and said uniform circuit period P0 portion and said uniform circuit period P1 portion each has a particular length selected such that a small signal gain becomes maximum at a voltage satisfying said Eqs. (1)–(3).

5,723,949

SPHERICAL MAGNET STRUCTURE AND USE THEREOF IN WIGGLER RADIATION SOURCE

Herbert A. Leupold, Eatontown, N.J., assignor to The United States of America as represented by the Secretary of the Army, Washington, D.C.

Filed Dec. 28, 1995, Ser. No. 579,699
Int. Cl.[6] H01F *7/00*
U.S. Cl. 315—4 **14 Claims**



8. A source of wiggler radiation, comprising:

a spherical magnet structure having a cavity centrally disposed therein about an axis passing therethrough parallel to a magnetic field which is sustained thereby in the cavity and having peripheral passage means disposed equatorially thereabout for access to and egress from the cavity, the magnet structure being constructed from a plurality of magnet segments that each contribute to the field and as a group distribute the field with the magnitude thereof varying periodically over a circular pattern in a plane passing perpendicularly through the axis, each segment being configured as a cantaloupe melon wedge and fabricated of permanently magnetic material in accordance with the relative disposition of adjacent segments thereto and the field contribution to be sustained thereby; and

means for introducing charged particles to the circular pattern of the periodically varying field wherein those particles are influenced to travel around the circular pattern in a continuous periodic path which traverses thereacross and thereby generate wiggle radiation.

5,723,950

PRE-CHARGE DRIVER FOR LIGHT EMITTING DEVICES AND METHOD

Chengping Wei, Gilbert; Franky So, Tempe, and Michael P. Norman, Chandler, all of Ariz., assignors to Motorola, Schaumburg, Ill.

Filed Jun. 10, 1996, Ser. No. 662,719
Int. Cl.[6] G09G *3/12*
U.S. Cl. 315—169.3 **8 Claims**

1. A precharge driver for organic light emitting devices with an associated capacitance, the precharge driver comprising:

a current driver including a first transistor connected between a current source and one terminal of an organic light emitting device, the first transistor being connected to supply current to the organic light emitting device from the current source when the first transistor is activated and an address input connected to a control terminal of the first transistor for activating the first transistor upon receiving a positive logic square wave, the current driver being coupled to the organic light emitting device included in a two dimensional array of organic light emitting devices so as to supply a substantially square wave of current to the organic light emitting device; and

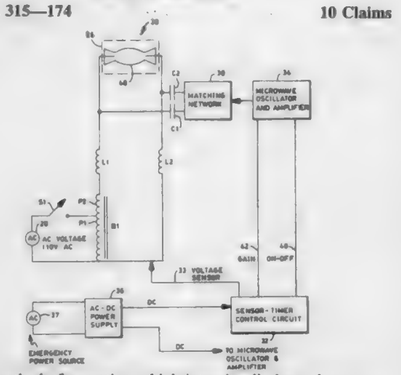
a precharge circuit coupled to the current driver so as to activate the current driver to supply a pulse of current to the associated capacitance of the organic light emitting device to rapidly charge the associated capacitance at an initial portion of the square wave of current, whereby a resultant substantially square wave of current is applied to the organic light emitting device, the precharge circuit being coupled to receive the positive logic square wave at an input terminal thereof and being further coupled to a control terminal of the current source for supplying a sharp positive pulse to the control terminal of the current source upon receiving the positive logic square wave.

5,723,951

METHOD OF HOT RESTARTING A HIGH INTENSITY DISCHARGE LAMP

Wojciech W. Byszewski, Boston; Yan Ming Li, Cambridge, and A. Bowman Budinger, Westford, all of Mass., assignors to Osram Sylvania Inc., Danvers, Mass.

Filed Jun. 26, 1996, Ser. No. 670,891
Int. Cl.[6] H05B *41/00*
U.S. Cl. 315—174 **10 Claims**



1. A method of operating a high intensity discharge lamp comprising the steps of:

providing a high intensity discharge lamp;

applying a primary sottree of power to said lamp to initiate and sustain an arc discharge within said lamp;

interrupting said primary source of power to said lamp to allow said lamp to cool;

applying a secondary source of power to said lamp to maintain plasma conductivity within said lamp during normal lamp operation and during a period of lamp cooling; and

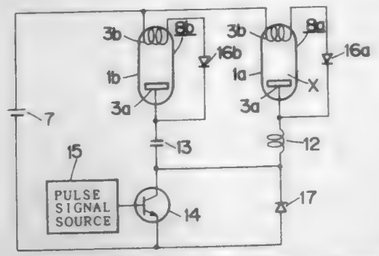
reapplying said primary source of power to said lamp after said period of lamp cooling to reignite and sustain an are discharge within said lamp; and wherein the step of interupting includes loss power from a primary AC voltage source.

5,723,952

RARE GAS DISCHARGE FLUORESCENT LAMP DEVICE

Sadayuki Matsumoto; Takeo Saikatsu; Takehiko Sakurai; Masao Karino, and Hiroyoshi Yamazaki, all of Kanagawa, Japan, assignors to Mitsubishi Denki Kabushiki Kaisha, Tokyo, Japan

Division of Ser. No. 710,555, Jun. 5, 1991, Pat. No. 5,173,642.
This application Aug. 5, 1992, Ser. No. 925,497
Claims priority, application Japan, Jun. 6, 1990, 2-147694
Int. Cl.[6] H05B *37/00*
U.S. Cl. 315—205 **6 Claims**



1. A rare gas discharge fluorescent lamp device comprising;

a rare gas discharge fluorescent lamp wherein rare gas is enclosed in the inside of a glass bulb which has a fluorescent layer formed on an inner face thereof and has a pair of electrodes at the opposite ends thereof,

a high frequency power source for supplying a high frequency signal having a frequency higher than 3 KHz but lower than 200 KHz, and

an electric voltage generating means for receiving said high frequency signal from said high frequency power source, converting said high frequency signal into a pulse-like voltage and applying said pulse-like voltage across said pair of electrodes of said rare gas discharge fluorescent lamp, said pulse-like voltage having a period divided into an energization time and an idle time, wherein said energization time is equal to approximately a half period of said high frequency signal applied from said power source and said idle time is approximately an odd-number times as long as said half period of the high frequency signal applied from said power source.

5,723,953

HIGH VOLTAGE IC-DRIVEN HALF-BRIDGE GAS DISCHARGE LAMP BALLAST

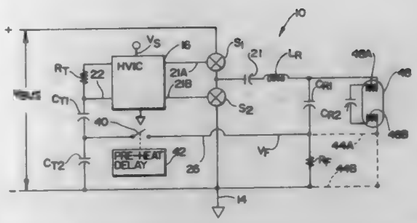
Louis R. Nerone, Brecksville, and David J. Kachmarik, Strongsville, both of Ohio, assignors to General Electric Company, Schenectady, N.Y.

Filed Sep. 19, 1996, Ser. No. 718,178
Int. Cl.[6] G05F *1/00*
U.S. Cl. 315—307 **15 Claims**

1. A ballast circuit for a gas discharge lamp having resistively heated cathodes, comprising:

(a) a resonant load circuit including first and second resonant impedances whose values determine the operating frequency of said resonant load circuit; said load circuit including means for incorporating a gas discharge lamp;

(b) a d.c.-to-a.c. converter circuit coupled to said resonant load circuit so as to induce an a.c. current in said resonant load circuit, and comprising first and second switches serially connected between a bus conductor at a d.c. voltage and ground, and having a common node through which said a.c. load current flows;



(c) a feedback circuit for providing a feedback signal varying in proportion to the level of current in said resonant load circuit;

(d) a high voltage IC for driving said first and second switches at a frequency determined by a timing signal; said timing signal predominantly comprising said feedback signal during lamp ignition, whereby during lamp ignition said feedback signal causes said high voltage IC to drive said first and second switches in continuous manner towards a switching frequency which promotes resonant operation of said resonant load circuit; and

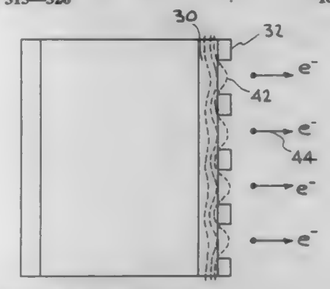
(e) means to isolate said feedback signal from said timing signal for a predetermined period of time upon energizing of said converter circuit so as to allow said cathodes to become heated during said period of time, prior to lamp ignition.

5,723,954

PULSED HYBRID FIELD EMITTER

Stephen E. Sampayan, Manteca, Calif., assignor to The Regents of the University of California, Oakland, Calif.

Filed Apr. 14, 1995, Ser. No. 422,094
Int. Cl.[6] H01J *11/04*
U.S. Cl. 315—326 **18 Claims**



1. A multilayer emitter, comprising:

an actively switchable ferroelectric substrate comprising a ferroelectric output face;

a field emitter fixedly attached to said ferroelectric substrate;

means for switching the polarization of said ferroelectric substrate; and

an intermediate exit electrode fixedly attached to said ferroelectric output face between said ferroelectric substrate and said field emitter.

5,723,955

Patent Not Issued For This Number

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5,723,956

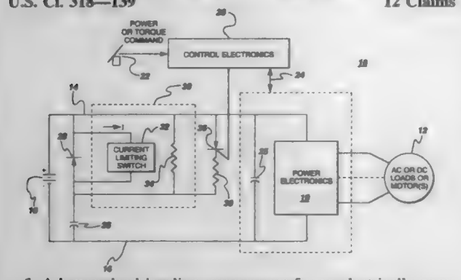
LOW COST ELECTRONIC ULTRACAPACITOR INTERFACE TECHNIQUE TO PROVIDE LOAD LEVELING OF A BATTERY FOR PULSED LOAD OR MOTOR TRACTION DRIVE APPLICATIONS

Robert Dean King, Schenectady, N.Y., and Rik Wivina Anna Adelson DeDoncker, Malvern, Pa., assignors to General Electric Company, Schenectady, N.Y.

Filed May 28, 1996, Ser. No. 654,476

Int. Cl.[6] H02M *7/53;* **H02P** *7/01*

U.S. Cl. 318—139 **12 Claims**



1. A battery load leveling arrangement for an electrically powered system in which battery loading is subject to intermittent high current loading, the system including a battery, a load and a system controller coupled to the battery and load for controlling application of power to the load, the improvement comprising:

a passive energy storage device;

unidirectional conducting means coupled in series electrical circuit with said passive energy storage device and poled to conduct current from said storage device to the load, said series electrical circuit being coupled in parallel electrical circuit with the battery whereby said passive energy storage device provides current to the load and the battery when battery terminal voltage is less than voltage on said passive energy storage device by an amount at least equal to a voltage drop across said unidirectional. conducting means; and

current limiting means connected in electrical parallel circuit with said unidirectional conducting means for providing an electrical current path for recharge current to said passive energy storage device and for limiting the average magnitude of recharge current to said device, said current limiting means comprising a current limiting switch in electrical parallel circuit arrangement with a resistor, said current limiting switch being operable to switch to a high impedance condition in response to recharge current above a selected average magnitude so as to divert said recharge current through said resistor.

5,723,957

METHOD AND APPARATUS FOR CONTROLLING SPINDLE MOTOR

Tetsuro Ishikawa, Kawasaki, Japan, assignor to Fujitsu Limited, Japan

Filed Nov. 9, 1994, Ser. No. 336,536

Claims priority, application Japan, Mar. 11, 1994, 6-040697

Int. Cl.[6] H02K *23/00*

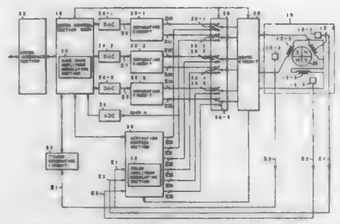
U.S. Cl. 318—254 **22 Claims**

1. A motor control apparatus comprising:

a brushless DC motor of (m) phases and (n) poles;

a rotation detecting section for detecting a rotation of said DC motor;

a gain detecting section which has a pulse amplitude modulating circuit for obtaining a control gain to maintain a specified speed on the basis of rotation detection signals from (m) Hall elements provided in correspondence to stator coils of (m) phases of said DC motor and outputting pulse amplitude modulation signals of (m) phases in accordance with said control gain, said gain detecting section detecting said control



gain to maintain said DC motor at a specific rotational speed from an amplitude of one of said pulse amplitude modulation signals of (m) phases that are outputted from said pulse amplitude modulation circuit; and

a sine wave amplitude modulating section for outputting sine wave amplitude modulation signals of (m) phases whose amplitudes were modulated on the basis of said detected rotational speed of said rotation detecting section and said detected control gain of said gain detecting section to said DC motor, thereby controlling the rotational speed of said DC motor to said specified speed.

5,723,958

ARRANGEMENT FOR OPERATING A CONSUMER IN A MOTOR VEHICLE

Leonhard Boll, Eberdingen, and Klaus Müller, Asperg, both of Germany, assignors to Robert Bosch GmbH, Stuttgart, Germany

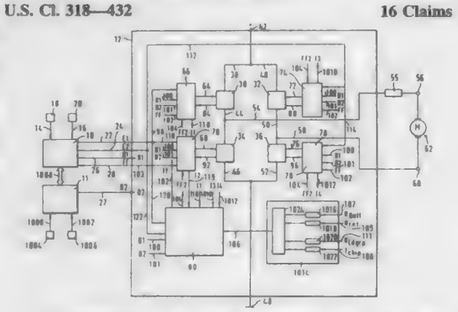
PCT No. PCT/DE94/00903, § 371 Date Mar. 4, 1996, § 102(e) Date Mar. 4, 1996, PCT Pub. No. WO95/07572, PCT Pub. Date Mar. 16, 1995

PCT Filed Aug. 4, 1994, Ser. No. 602,769

Claims priority, application Germany, Sep. 4, 1993, 43 29 919.9

Int. Cl.[6] H02P *7/29*

U.S. Cl. 318—432 **16 Claims**



1. An arrangement for operating a consumer in a vehicle, the arrangement comprising:

at least two switch elements operatively connected to said consumer through which a current can flow;

microcomputer means for generating at least one drive signal to actuate said switch elements to influence said current through said consumer;

a monitoring device for monitoring the operability of said arrangement and said monitoring device including: detecting means for detecting the respective currents through said switch elements; means for providing a pregiven value for said currents; and, monitoring means for monitoring the respective currents through said switch elements to determine when said currents reach or exceed said pregiven value;

limiting means for limiting the current through at least one of said switch elements to a maximum value when said current through said one switch element exceeds said pregiven value; and,

circuit means for switching off said switch element when said current through said one switch element has exceeded said pregiven value for a pregiven time duration.

5,723,959

POWER WINDOW DRIVING CONTROL DEVICE

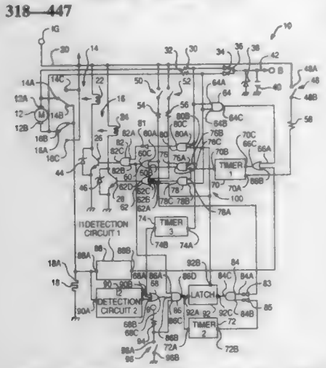
Hitoshi Iwata; Kanichi Tanaka; Shigekazu Yasuda; Yasushi Nishibe, and Kenichi Kinoshita, all of Aichi-ken, Japan, assignors to Tokai-Rika-Denki Seishakusho Kabushiki Kaisha, Aichi-ken, Japan

Continuation of Ser. No. 101,079, Aug. 4, 1993, abandoned. This application Mar. 11, 1996, Ser. No. 613,599

Claims priority, application Japan, Aug. 4, 1992, 4-207892; Aug. 4, 1992, 4-207984; Aug. 4, 1992, 4-207985; Aug. 7, 1992, 4-211174

Int. Cl.[6] H02K *17/34*

U.S. Cl. 318—447 **3 Claims**



1. A power window driving control device which moves a window glass of a vehicle in opening and closing directions by a driving force of a motor, comprising:

a manual switch for designating closing of said window glass only during operation of said manual switch by a vehicle occupant;

an automatic switch for designating closing of said window glass by operation of said automatic switch by said vehicle occupant;

measuring means for measuring time elapsed since closing of said window glass was designated by one of said manual switch and said automatic switch;

a sensor for detecting a completely closed state of said window glass;

current detecting means for detecting that a current flowing to said motor when said window glass is being closed exceeds a predetermined value;

driving control means for at least one of stopping and reversing said motor in response to one of a first state and a second state, wherein said driving control means stops and said motor in said first state in which said current detecting means detects that said current flowing to said motor exceeds said predetermined value and said completely closed state of said window glass is not detected by said sensor, and said driving control means stop said motor in said second state in which the time elapsed since closing of said window glass was designated exceeds a predetermined time;

prohibiting means for prohibiting driving of said motor so that said window glass is not moved in said closing direction during a period in which designation for closing of said window glass by said manual switch or said automatic switch continues after said motor is stopped by said driving control means; and

switching means for rendering said prohibiting means non-operative including means for enabling only operation of said manual switch to drive said motor when said prohibiting means is rendered non-operative.

5,723,960

METHOD OF AND APPARATUS FOR OPENING/CLOSING CONTROL OF MOTOR-DRIVEN OPENING/CLOSING MEMBER OF VEHICLE

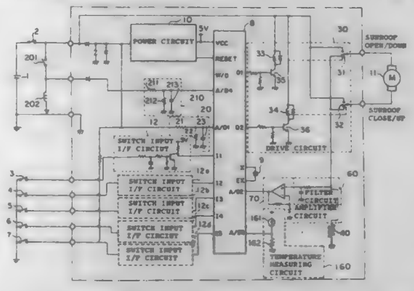
Kouichi Harada, Hyogo, Japan, assignor to Mitsubishi Denki Kabushiki Kaisha, Tokyo, Japan

Filed Aug. 8, 1995, Ser. No. 512,701

Claims priority, application Japan, Apr. 25, 1995, 7-101493

Int. Cl.[6] E05F *15/16*

U.S. Cl. 318—469 **17 Claims**



12. An apparatus for controlling opening/closing of a motor-driven movable member of a vehicle comprising:

a motor for driving said movable member;

current detection means for detecting a driving current for said motor;

a control circuit calculating a change in the driving current detected by said circuit detection means at predetermined detecting intervals, outputting one of a stop signal to cause said motor to stop and a reverse signal to cause said motor to reverse, when the change has exceeded a previously set overload threshold value, said control circuit further responsive to start operation of the motor to monitor a masking period and, after the masking period has passed, compare the driving current with a previously set value for selecting a higher overload threshold value from stored overload threshold values when the driving current value is not smaller than the present current value; and

a driving circuit responsive to said control circuit for driving said motor.

5,723,961

NUMERICAL CONTROL APPARATUS HAVING SPLINE INTERPOLATING FUNCTION

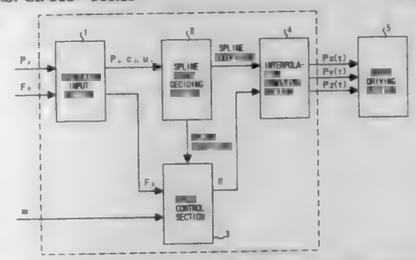
Daisuke Fujino, and Tomonori Satou, both of Tokyo, Japan, assignors to Mitsubishi Denki Kabushiki Kaisha, Tokyo, Japan

Filed Apr. 10, 1996, Ser. No. 630,765

Claims priority, application Japan, Jul. 17, 1995, 7-180409

Int. Cl.[6] G05B *19/4103;19/18*

U.S. Cl. 318—568.15 **19 Claims**



1. A numerical control apparatus having a spline interpolating function comprising:

spline curve deciding means for deciding a spline curve smoothly connecting each of a plurality of pass points dis-

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cretely set on a desired curved machining track by executing approximate calculations for a tangential vector of each pass point an arbitrary number of times;

speed control means for computing a moving speed of an object so that, when the object moves according to the spline curve decided by said spline curve deciding means, the normal acceleration will be within an allowable range; and

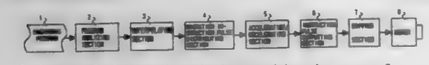
interpolating means for computing an amount of movement of the object on the spline curve per unit time for interpolation.

5,723,962

NUMERICAL CONTROL METHOD AND NUMERICAL CONTROL DEVICE

Yuji Mizukami, and Yoshihiko Tsurumi, both of Tokyo, Japan, assignors to Mitsubishi Denki Kabushiki Kaisha, Tokyo, Japan

Filed Mar. 12, 1996, Ser. No. 614,013
Claims priority, application Japan, Apr. 20, 1995, 7-094728
Int. Cl.[6] G05B *19/24*
U.S. Cl. 318—571 **8 Claims**



1. A numerical control method comprising the steps of:

computing a migration rate and a feed speed in each axial direction from a moving position of a tool by progressively analyzing a machining program by increments of at least one program block;

generating instruction pulses according to a specified sampling cycle based on the computed migration rate and feed speed;

controlling an output timing of the instruction pulses to a controlled object according to the sampling cycle; and

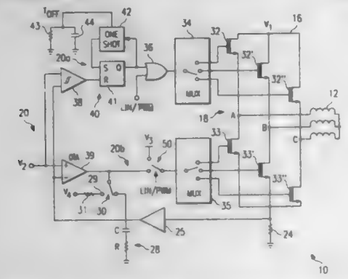
resetting the sampling cycle so that a fraction of an instruction pulse will not be generated in a final sampling cycle of the at least one program block.

5,723,963

APPARATUS AND METHOD FOR CONTROLLING TRANSITION BETWEEN PWM AND LINEAR OPERATION OF A MOTOR

Larry B. Li, Plano, Tex.; Chinh D. Nguyen, Sunnyvale, Calif.; Masimiliano Brambilla, San Jose, Calif.; Eugene Lee, Cupertino, Calif., and Athos Canclini, Santa Clara, Calif., assignors to SGS-Thomson Microelectronics, Inc., Carrollton, Tex.

Filed Jun. 7, 1995, Ser. No. 488,370
Int. Cl.[6] G05B *5/01;7/02*
U.S. Cl. 318—590 **21 Claims**



1. A motor drive control system for operation in both linear and PWM modes with minimized effect of transients upon transitions between modes, comprising:

a drive circuit for supplying energizing current to motor coils during a first set of time intervals in the linear mode and during a second set of time intervals, that occur between the intervals of the first set, in the PWM mode;

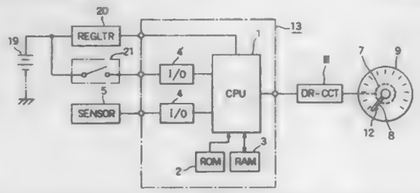
said drive circuit including a compensation network that is switchably connected in the drive circuit during intervals of linear mode operation and not during periods of PWM mode operation.

5,723,964

METHOD AND DEVICE FOR CONTROLLING STEP MOTOR

Hiroaki Nakabu, Ciryu, Japan, assignor to Nippondenso Co., Ltd., Kariya, Japan

Filed Jan. 29, 1996, Ser. No. 593,077
Claims priority, application Japan, Feb. 15, 1995, 7-027008; Nov. 21, 1995, 7-302971
Int. Cl.[6] G01R *11/36*
U.S. Cl. 318—599 **9 Claims**



1. A method for controlling a stepping motor which rotates a motor shaft according to pulse width of an outside signal, said stepping motor comprising steps of:

detecting continuously present pulse width of said outside signal;

calculating, in synchronism with said outside signal, next pulse width from said present pulse width;

calculating a set position where said motor shaft moves from said present pulse width and said next pulse width;

calculating present position from said present pulse width;

calculating, in synchronism with said outside signal, number of moving steps of said motor shaft from said present position and said set position;

calculating driving time of each step of said motor shaft from said next pulse width and said number of moving steps; and

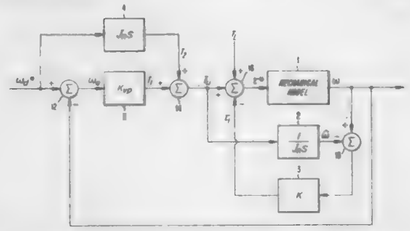
driving said motor shaft according to said driving time and said number of moving steps.

5,723,965

VELOCITY CONTROL METHOD AND APPARATUS FOR SERVO MOTORS

Chung Hyuk Yim, Seoul, Rep. of Korea, assignor to Samsung Electronics Co., Ltd., Suwon, Rep. of Korea

Filed Apr. 9, 1996, Ser. No. 629,759
Claims priority, application Rep. of Korea, Dec. 28, 1995, 95-61659
Int. Cl.[6] G05B *19/29*
U.S. Cl. 318—601 **9 Claims**



1. A velocity control method for use in a servo motor having a disturbance eliminator, said velocity control method comprising the steps of:

calculating a control torque input value based on a desired target velocity input value and an output velocity value of an actual mechanical model;

adding a disturbance torque value to the control torque input value to input the added result to said mechanical model;

inputting the control torque input value to a virtual model to calculate an estimation velocity according to the control torque input value;

calculating a corrected torque based on a velocity value difference between the output velocity value of said mechanical model and the estimation velocity value of said virtual model; and

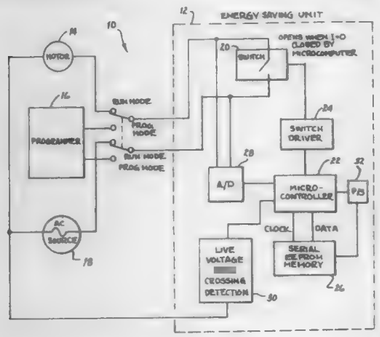
reflecting the corrected torque on the control torque input value.

5,723,966

SYSTEM AND METHOD FOR INCREASING THE EFFICIENCY OF ALTERNATING CURRENT INDUCTION MOTORS

Richard Stephen Straka, and David Maxwell Coombs, both of Phoenix, Ariz., assignors to Current Technology, Inc., Phoenix, Ariz.

Filed Aug. 23, 1996, Ser. No. 702,267
Int. Cl.[6] H02P *7/622*
U.S. Cl. 318—650 **17 Claims**



1. A system for increasing efficiency of an AC motor, comprising, in combination:

switching means coupled to said AC motor for controlling power supplied to said AC motor;

timer means coupled to said AC motor for monitoring a time when AC line voltage to said AC motor reaches zero volts;

A/D converter means coupled to said timer means for monitoring a time when AC line current to said AC motor reaches zero amps and for converting an AC open circuit voltage across said switching means from an analog measurement to a digital measurement, said digital measurement being indicative to power actually needed by said AC motor; and

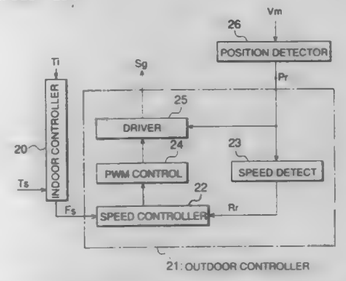
microcontroller means coupled to said timer means, to said A/D converter means and to said switching means for combining said time when AC line current reaches zero amps with said time when AC line voltage to said AC motor reaches zero volts and with said digital measurement provided by the A/D converter means to determine a servo error, for determining if said AC motor needs more power based on said servo error, for determining if said AC motor needs less power based on said servo error, and for providing a control signal to said switching means to supply the minimum power required.

5,723,967

METHOD OF STARTING A BRUSHLESS MOTOR FOR DRIVING A COMPRESSOR IN A REFRIGERATING CYCLE

Ichiro Hongo; Nobuo Matsui, both of Yokohama, and Takao Hoshi, Fuji, all of Japan, assignors to Kabushiki Kaisha Toshiba, Kawasaki, Japan

Continuation of Ser. No. 229,641, Apr. 19, 1994, abandoned.
This application Jul. 24, 1995, Ser. No. 506,048
Claims priority, application Japan, Apr. 23, 1993, 5-098097
Int. Cl.[6] H02K *23/00*
U.S. Cl. 318—254 **6 Claims**



1. A method of starting of a brushless motor for driving a compressor in a refrigerating cycle, comprising the steps of:

a) driving the brushless motor in accordance with an operation mode of an asynchronous forced commutation operation at a non-zero fixed low frequency by increasing an applied voltage at an essentially constant rate within a certain voltage range, until one of: i) a rotational speed of the compressor exceeds a predetermined value after a starting operation commencement, or ii) a predetermined time has elapsed after the starting operation commencement;

b) during the asynchronous forced commutation operation, detecting rotor position detection signals which are indicative of a rotational speed of the brushless motor and, when the rotor position detection signals are detected at a predetermined rate corresponding to synchronous commutation time intervals, shifting the operation mode from the asynchronous forced commutation operation to a synchronous commutation starting operation using the detected rotor position detection signals,

wherein the synchronous commutation starting operation is not entered from the asynchronous forced commutation operation under any other circumstances;

c) disenabling the detecting of the rotor position detection signals after the synchronous commutation starting operation;

d) implementing the asynchronous forced commutation operation at the same synchronous commutation time intervals as those obtained during the detecting of the rotor position detection signals; and

e) determining the starting operation completion, and thereby shifting the operation mode to a speed control operation according to a load to be air-conditioned, when at least one of the following three starting decision criteria is satisfied: that a rotational speed of the compressor reaches a first predetermined value; that the number of revolutions of the compressor exceeds a second predetermined value under the synchronous commutation starting operation; and that a first predetermined time has elapsed after the starting operation commencement.

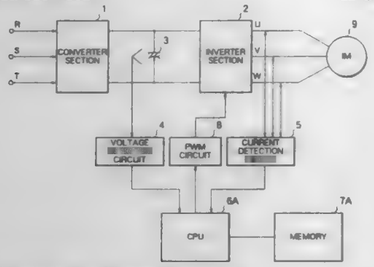
VOL 1208 ISS 1 MR 3 1998 UMI

5,723,968

VARIABLE SPEED SYSTEM

Hisao Sakurai, Nagoya, Japan, assignor to Mitsubishi Denki Kabushiki Kaisha, Tokyo, Japan

Filed Sep. 17, 1995, Ser. No. 537,278
Claims priority, application Japan, Oct. 5, 1994, 6-241405
Int. Cl.[6] B06B *1/28*
U.S. Cl. 318—802 11 Claims



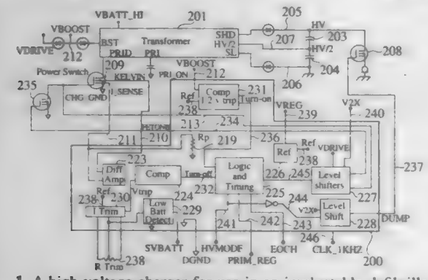
1. A variable speed system comprising:
a) a converter means (1) for converting a three-phase AC power into a DC power;
b) an inverter means (2) for converting said DC power into an AC power of variable frequency and variable voltage;
c) a voltage detection means (4) for detecting a DC bus voltage at an output side of said converter means;
d) a current detection means (5) for detecting a current at an output side of said inverter means; and
e) control means including a memory (7A), a control circuit (6A) and a PWM circuit (8) for determining the magnitude of a load connected to said inverter means based on said detected DC bus voltage and said detected current, and for adjusting a maximum speed of the motor, and attendantly the maximum speed of a load coupled to the motor, in accordance with said determined load based on a plurality of parameters previously stored in said memory;
f) wherein said control circuit determines an output frequency for the inverter means corresponding to the determined magnitude of the load on the motor based on the plurality of parameters stored in said memory, and said PWM circuit outputs to said inverter means a control signal corresponding to said determined output frequency.

5,723,969

HIGH VOLTAGE CHARGER

Stephen T. Archer, Sunnyvale; Kenneth J. Carroll, Los Altos, and Benjamin D. Pless, Atherton, all of Calif., assignors to Pacesetter, Inc., Sunnyvale, Calif.

Filed Jun. 7, 1996, Ser. No. 660,259
Int. Cl.[6] H01M *10/44;10/46*
U.S. Cl. 320—2 20 Claims



1. A high voltage charger for use in an implantable defibrillator for providing a charging current to an output load, comprising:
a transformer providing said charging current by inductively coupling an electrical current drawn from a power source;
a switch for alternately switching on and off said electrical current;
a sensor sensing the magnitude of said electrical current; and
a control circuit coupled to said switch and said sensor for controlling said switch, such that, when said sensor senses said magnitude of said electrical current to exceed a predetermined value, said control circuit disables flow of said electrical current, said predetermined value selected such that said current drawn from said power source has a predetermined average value.

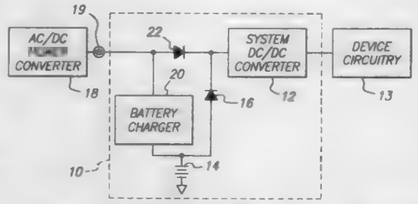
11. A method for providing a charging current to an output load of an implantable defibrillator, comprising the steps of:
providing said charging current by inductively coupling an increasing electrical current from a power source;
providing a switch for alternately switching on and off said electrical current;
sensing the magnitude of said electrical current; and
controlling said switch, such that, when said sensor senses said magnitude of said electrical current exceeds a predetermined value, said control circuit disables flow of said electrical current, said predetermined value selected such that said current drawn from said power source has a predetermined average value.

5,723,970

BATTERY CHARGING CIRCUITRY HAVING SUPPLY CURRENT REGULATION

David B. Bell, Los Altos, Calif., assignor to Linear Technology Corporation, Milpitas, Calif.

Filed Apr. 5, 1996, Ser. No. 628,802
Int. Cl.[6] H01M *10/46*
U.S. Cl. 320—30 20 Claims



1. Circuitry for recharging a battery from a power source, wherein said power source provides power characterized by a plurality of parameters, at least one of said plurality of parameters having a predetermined limit, the circuitry comprising:
an input for receiving power from the power source;
an output for delivering power to the battery;
sensing circuitry foe monitoring the at least one parameters; and
regulating circuitry, coupled to the input, the output, and the sensing circuitry, for regulating the voltage or current at the output of the battery charging circuitry responsive to the monitored parameter.

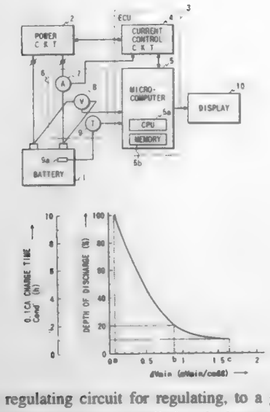
5,723,971

APPARATUS FOR CHARGING A BATTERY FOR A CHARGE TIME DETERMINED BASED ON THE DEPTH OF DISCHARGE

Shoji Sakai, Toyota; Toshiyuki Kawai, Toyohashi; Hironori Asa, Okazaki; Sadahisa Onimaru, Chiryu, and Mitsuo Inagaki, Okazaki, all of Japan, assignors to Nippon Soken, Inc., Aichi, Japan

Filed Jul. 19, 1996, Ser. No. 684,077
Claims priority, application Japan, Jul. 20, 1995, 7-184153
Int. Cl.[6] H01M *10/46;10/48;* H02J *7/04*
U.S. Cl. 320—30 12 Claims

1. A charging apparatus for a rechargeable storage battery comprising:



a current regulating circuit for regulating, to a given constant level, a charging current supplied to the battery from a power circuit:
voltage detecting means for detecting a voltage of the battery;
temperature detecting means for detecting a temperature of the battery; and
charge time determining means for determining a charge time required for charging the battery fully at the charging current regulated in level by said current regulating circuit, said charge time determining means monitoring a variation in the voltage detected by said voltage detecting means during a charge and finding a minimum value of the variation in the voltage to estimate an amount of capacity of the battery consumed before the charge for determining the charge time based on the amount of capacity estimated and the temperature of the battery detected by said temperature detecting means.

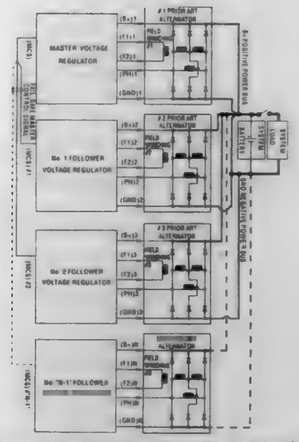
5,723,972

FAIL-SAFE COMMON CONTROL OF MULTIPLE ALTERNATORS ELECTRICALLY CONNECTED IN TANDEM PARALLEL FOR PRODUCING HIGH CURRENT

Luis E. Bartol, and German Holguin, both of c/o Industrias Condor, S.A. de C.V. Blvd M. Cervantes Saavedra No. 17, Col Granada 11520, Mexico

Continuation-in-part of Ser. No. 645,611, May 14, 1996, and Ser. No. 580,763, Dec. 29, 1995, Pat. No. 5,642,033. This application Jul. 15, 1996, Ser. No. 680,126
Int. Cl.[6] H02P *9/00*
U.S. Cl. 322—15 30 Claims

1. A power system for producing electrical power from a source of motive power comprising:
a battery;
a plurality of alternators connected in electrical parallel across the battery, each alternator being individually responsive to an individually associated regulating signal to produce electrical power from the source of motive power; and
a plurality of electronic voltage regulators including
a master electronic voltage regulator for producing a control signal in response to variations in a voltage across the battery, and for providing in response to this control signal a regulating signal to an associated one of the plurality of alternators, and
at least one follower voltage regulator, receiving the control signal, for providing in response to this control signal a regulating signal to an individually associated one of the plurality of alternators.

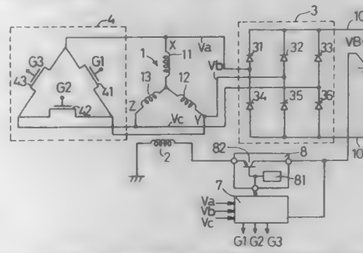


5,723,973

GENERATING APPARATUS

Atsushi Umeda, Anjo; Makoto Taniguchi, Obu; Hirohide Sato, Toyokawa, and Shin Kusase, Obu, all of Japan, assignors to Nippondenso Co., Ltd., Kariya, Japan

Filed Apr. 4, 1996, Ser. No. 627,478
Claims priority, application Japan, Apr. 24, 1995, 7-098978
Int. Cl.[6] H02P *9/00*
U.S. Cl. 322—20 22 Claims



1. A generating apparatus including an alternator which includes multi-phase armature windings having respective phase terminals, said generating apparatus comprising:
means, connected between two of said phase terminals of said multi-phase armature windings, for bi-directionally short-circuiting said two phase terminals; and
means, connected to said short-circuiting means, for controlling said short-circuiting means to supply current from one of said two phase terminals to the other, thereby controlling alternator-output-power.

5,723,974

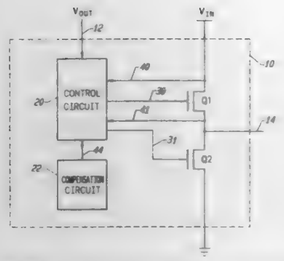
MONOLITHIC POWER CONVERTER WITH A POWER SWITCH AS A CURRENT SENSING ELEMENT

Richard L. Gray, Alameda, Calif., assignor to Elantec Semiconductor, Inc., Milpitas, Calif.

Filed Nov. 21, 1995, Ser. No. 561,304
Int. Cl.[6] G05F *1/56*
U.S. Cl. 323—282 10 Claims

1. A monolithic power control circuit, comprising:

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a power switching transistor that provides a voltage to drive an input node of a filter circuit;

a control circuit that senses a voltage drop across the power switching transistor and that provides a control signal to the power switching transistor that adjusts a duty cycle of the power switching transistor according to a contribution of the voltage drop across the power switching transistor and a difference in a voltage from an output node of the filter circuit and a predetermined voltage value; and

a compensation circuit providing a compensation signal to the control circuit to enable the control circuit to adjust the contribution of the voltage drop across the power switching transistor so that the control signal modulates the duty cycle of the power switching transistor element in response to temperature changes of the power switching transistor.

5,723,976

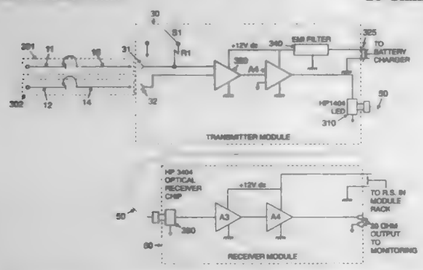
APPARATUS AND METHOD FOR CONVERTING A VOLTAGE WAVEFORM INTO AN OPTICAL SIGNAL

Wesley A. Rogers, Grosse Pointe Park, Mich., assignor to Electronic Development, Inc., Grosse Pointe Park, Mich.

Division of Ser. No. 440,912, May 15, 1995, Pat. No. 5,534,772, which is a division of Ser. No. 169,703, Dec. 17, 1993, Pat. No. 5,440,227, which is a division of Ser. No. 862,621, Apr. 2, 1992, Pat. No. 5,311,116. This application Apr. 10, 1996, Ser. No. 629,889

Int. Cl.[6] G01R *31/28*

U.S. Cl. 324—72.5 **26 Claims**



1. Apparatus for converting a voltage waveform into an optical signal comprising:

a first lead for providing a first voltage level;

a second lead for providing a virtual ground associated with the first voltage level;

a circuit connected to the first and second leads for providing a centertap second voltage level;

a first input circuit and a second input circuit for receiving the voltage waveform, the first and second input circuits being connected to the centertap second voltage level and respectively providing first and second output signals corresponding to the voltage waveform;

a differential amplifier for differentially amplifying the first and second output signals and providing a third output signal that corresponds to the difference between the first and second output signals; and

means for converting the third output signal to an optical signal corresponding to the voltage waveform.

5,723,976

METHOD FOR DETECTING MINUTE DEFECTS IN AN ENCAPSULATED ELECTRONIC COMPONENT

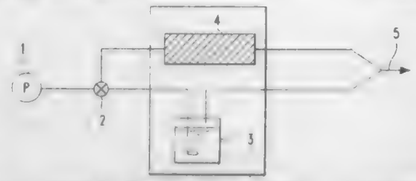
Toshiaki Yoshida, Ohtsu, and Tetsuo Norimatsu, Shiga-ken, both of Japan, assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Sep. 18, 1995, Ser. No. 529,387

Claims priority, application Japan, Sep. 22, 1994, 6-227865

Int. Cl.[6] G01N *1/30*

U.S. Cl. 324—158.1 **11 Claims**



1. A method for detecting minute defects in an encapsulated electronic component comprising the steps of immersing the component in an aqueous fluorescent solution of a water-soluble fluorescent substance having the property of fluorescing when moistened and stopping fluorescing when dry, allowing the solution to permeate into minute defects of the component, opening the component, and observing an image of the component while moistening the component with humid air and drying the component with dry air at least once to detect fluorescing and stopping fluorescing.

5,723,977

COMPOSITE ANNULAR ELEMENT, USABLE AS A PULSE WHEEL AND MADE OF A METAL INNER ANNULAR RING AND AN OUTER RING FORMED OF FRAGILE MATERIAL

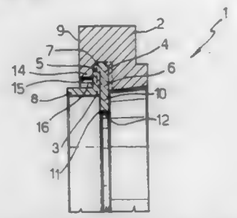
Roberto Moretti, Cambiano; Matteo Genero, Santena, and Rolando Cacciatore, Nichelino, all of Italy, assignors to SKF Industrie S.p.A, Torin, Italy

Filed May 30, 1996, Ser. No. 655,731

Claims priority, application Italy, May 30, 1995, TO95A0231

Int. Cl.[6] G01P *3/44;3/487;3/48*

U.S. Cl. 324—207.22 **11 Claims**



1. A composite annular element usable as a pulse wheel, comprising an annular assembly element for fitment to a rotary member, and a ring made of fragile material, said ring being fitted radially outwards of and axially and angularly integral with said annular assembly element, the annular assembly element comprising a metal annular ring formed in one piece, the metal annular ring including an axially extending sleeve portion for being fitted to the rotary member, a flange portion connected continuously to the sleeve portion to define an axial shoulder for withstanding thrust exerted by an assembly fixture, and an intermediate rib projecting radially outwards of the sleeve portion, the intermediate rib being partly embedded inside said ring of fragile material and being co-molded onto said rib with a predetermined continuous annular radial clearance being provided between said sleeve portion of the metal annular ring and said ring of fragile material.

5,723,978

PHOTO-INDUCIBLE MAGNETIC EXCHANGE COUPLING DEVICE

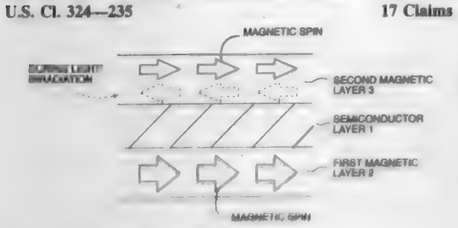
Koichiro Inomata; Roger Highmore; Keiichiro Yusu, and Yoshinori Takahashi, all of Kanagawa-ken, Japan, assignors to Kabushiki Kaisha Toshiba, Kanagawa-ken, Japan

Filed Feb. 23, 1995, Ser. No. 392,523

Claims priority, application Japan, Feb. 24, 1994, 6-025803; Jun. 8, 1994, 6-126317

Int. Cl.[6] G01R *33/12;* **H01L** *43/08*

U.S. Cl. 324—235 **17 Claims**



1. A magnetic device, comprising

a first magnetic layer;

a second magnetic layer in overlapping relation with the first magnetic layer and having a coercive force smaller than that of the first magnetic layer; and

a semiconductor layer between the first and second magnetic layers so that photo-induced magnetism occurs between the first and second magnetic layers when the semiconductor layer is irradiated with light.

5,723,979

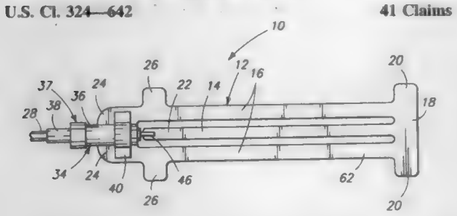
MIXED FLUID TIME DOMAIN REFLECTOMETRY SENSORS

Charles L. Mohr, 1440 Agnes St., Richland, Wash. 99352

Continuation of Ser. No. 349,152, Dec. 1, 1994, Pat. No. 5,554,936. This application Jul. 8, 1996, Ser. No. 677,582

Int. Cl.[6] G01R *27/04*

U.S. Cl. 324—642 **41 Claims**



1. A sensor for use with time domain reflectometry systems to allow measurement of a fluid mixture having intermixed constituents with differing electrical permittivities, comprising:

at least one primary electrode made from electrically conductive material; said at least one primary electrode having sensing surfaces adjacent to which the fluid mixture is located during sensing;

at least one secondary electrode having a spaced relationship with said at least one primary electrode to allow the fluid mixture to be present between the at least one primary electrode and the at least one secondary electrode; said at least one secondary electrode being made from electrically conductive material;

a dielectric layer covering at least said sensing surfaces of said at least one primary electrode, to electrically isolate the primary electrode from the fluid mixture and prevent dissipation of a time domain reflectometry signal propagated through said sensor.

5,723,980

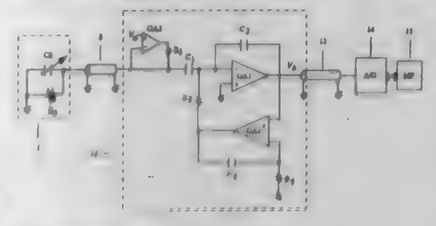
CLEARANCE MEASUREMENT SYSTEM

Wayne C. Haase, Acton, and James K. Roberge, Lincoln, both of Mass., assignors to Aerogage Corporation, Acton, Mass.

Filed Jun. 7, 1995, Ser. No. 476,084

Int. Cl.[6] G01R *27/26*

U.S. Cl. 324—662 **20 Claims**



1. A measurement system, comprising:

a sensor disposed in a housing in which one or more elements are movable relative to the housing, the sensor and each of the elements being separated by a distance and forming a sensing capacitor having a first value dependent on the distance between the sensor and each element as each element passes the sensor, and having a second value when no element is passing the sensor, the sensor generating a signal representative of the capacitance of the sensing capacitor;

an amplifier coupled to the sensor and having a substantially constant gain, the amplifier amplifying the signal generated by the sensor to create an output signal which includes maxima and minima, the maxima corresponding to instances when an element passes the sensor and the minima corresponding to instances when no element is passing the sensor, wherein the maxima includes a first noise component and the minima includes a second noise component;

a biasing network coupled between the amplifier and the sensor, the biasing network including a voltage source for providing a substantially constant voltage to the sensor; and

a processor coupled to the amplifier for: (i) determining the difference between at least one of the maxima of the amplified output signal, and at least one of the minima of the amplified output signal wherein the first noise component and the second noise component are substantially canceled in determining the difference, (ii) determining the capacitance of the sensing capacitor by multiplying the voltage provided by the voltage source, by the gain provided by the amplifier, and by the difference between the at least one of the maxima of the amplified signal and the at least one of the minima of the amplified signal, and (iii) determining the distance between the sensor and each of the elements using the capacitance.

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5,723,981

METHOD FOR MEASURING THE ELECTRICAL POTENTIAL IN A SEMICONDUCTOR ELEMENT

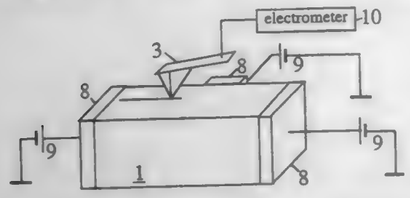
Louis C. Hellemans, Pellenburg; Thomas Trenkler, Leuven; Peter De Wolf, Eeklo, and Wilfried Vandervorst, Mechelen, all of Belgium, assignors to IMEC vzw, Leuven, Belgium

Continuation of Ser. No. 345,300, Nov. 28, 1994, Pat. No. 5,585,734, and Ser. No. 520,341, Aug. 28, 1995, abandoned. This application Jun. 25, 1996, Ser. No. 673,616

Claims priority, application Netherlands, Aug. 29, 1994, 9401390

Int. Cl.[6] G01R *31/26;* **H01J** *37/26*

U.S. Cl. 324—719 **21 Claims**



1. A method of measuring an electrical potential distribution in a semiconductor element, comprising the steps of:

(a) applying a voltage over said semiconductor element;

(b) placing a conductor in contact with said semiconductor element in a region of said semiconductor element with a known electrical potential using a scanning proximity microscope while injecting a substantially zero current in said semiconductor element with said conductor;

(c) monitoring the electrical potential on said conductor;

(d) monitoring the contact force between said conductor and said semiconductor element;

(e) increasing contact force between said conductor and said semiconductor element until a first substantial change in said contact force is recorded and until a first substantial change in said electrical potential is recorded, the monitored electrical potential attaining thereby substantially the same value as said known electrical potential and the contact force corresponding to said first substantial change being a calibrated contact force; thereafter

(f) changing the position of said conductor while applying said calibrated contact force on said conductor;

(g) measuring the electrical potential on said conductor while injecting a substantially zero current in said semiconductor element with said conductor; and

(h) repeating steps (f) and (g).

5,723,982

APPARATUS FOR ANALYZING THIN FILM PROPERTY

Takao Yasue, and Tadashi Nishioka, both of Itami, Japan, assignors to Mitsubishi Denki Kabushiki Kaisha, Tokyo, and Ryoden Semiconductor System Engineering Corporation, Hyogo, both of Japan

Filed Jul. 25, 1995, Ser. No. 506,856

Claims priority, application Japan, Aug. 22, 1994, 6-196576

Int. Cl.[6] G01R *31/26*

U.S. Cl. 324—765 **4 Claims**

1. An apparatus for analyzing a property of a thin film comprising:

measuring means for measuring an I/V characteristic of a thin film disposed on a sample, at each of a plurality of test points on the thin film, the measuring means including:

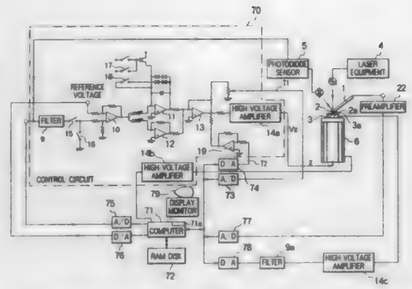
means for applying a voltage V increasing with time to a maximum voltage across a probe spaced from the thin film and the thin film;

means for detecting a current I flowing between the probe and the thin film in response to the voltage;

means for switching the voltage to zero when the current detected by the means for detecting exceeds a threshold current before the voltage reaches the maximum voltage for preventing excessive current from flowing between the thin film and the probe whereby damage to the probe is avoided; and

means for moving the thin film relative to the probe for sequentially and respectively placing the probe opposite each of the test points; and

image forming means for forming a surface current distribution image based on the I/V characteristic measured at each of the test points by the measuring means.



5,723,983

METHOD OF EVALUATING SEMICONDUCTOR DEVICE WITHOUT ELECTRICAL INFLUENCE OF PARASITIC ELEMENTS

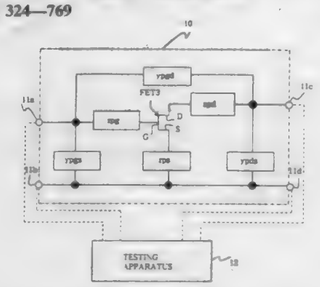
Noriaki Matsuno, Tokyo, Japan, assignor to NEC Corporation, Tokyo, Japan

Filed Aug. 7, 1996, Ser. No. 698,158

Claims priority, application Japan, Aug. 11, 1995, 7-227090

Int. Cl.[6] G01R *31/26*

U.S. Cl. 324—769 **8 Claims**



1. A method of evaluating a semiconductor device, comprising the steps of:

a) preparing a semiconductor device having at least one circuit component, a first comparative sample equivalent to said semiconductor device from which said at least one circuit component is deleted and a second comparative sample equivalent to said semiconductor device in which said at least one circuit component is short-circuited;

b) respectively measuring a first set of four terminal parameters, a second set of four terminal parameters and a third set of four terminal parameters for said semiconductor device, said first comparative sample and said second comparative sample connected through a coupling means to a testing apparatus;

c) obtaining a first set of y-parameters or a first set of z-parameters, a second set of y-parameters or a second set of z-parameters and a third set of y-parameters or a third set of z-parameters from said first set of four terminal parameters, said second set of four terminal parameters and said third set of four terminal parameters;

d) calculating a fourth set of y-parameters or a fourth set of z-parameters for said at least one circuit component on the basis of said first to third sets of z-parameters or said first to third sets of y-parameters; and

e) determining electric characteristics of said at least one circuit component on the basis of said fourth set of y-parameters or said fourth set of z-parameters.

5,723,984

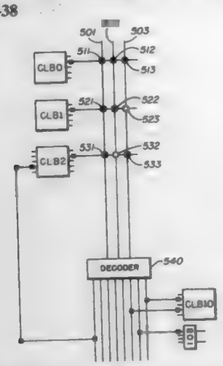
FIELD PROGRAMMABLE GATE ARRAY (FPGA) WITH INTERCONNECT ENCODING

Bradley A. Sharpe-Geisler, San Jose, Calif., assignor to Advanced Micro Devices, Inc., Sunnyvale, Calif.

Filed Jun. 6, 1996, Ser. No. 659,279

Int. Cl.[6] H03K *19/173;19/177*

U.S. Cl. 326—38 **12 Claims**



5. A method of encoding outputs of a CLB of a field programmable gate array (FPGA) comprising the steps of:

programming configurable logic blocks (CLBs) so that only one output of the CLBs is high at a time; and

programming programmable interconnect points to connect more than one of the CLB outputs to a single interconnect line.

5,723,985

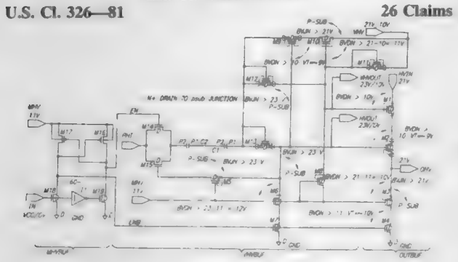
CLOCKED HIGH VOLTAGE SWITCH

Hieu Van Tran, San Jose; Trevor Blyth, Milpitas, and Richard T. Simko, Los Altos Hills, all of Calif., assignors to Information Storage Devices, Inc., San Jose, Calif.

Filed Nov. 21, 1995, Ser. No. 590,267

Int. Cl.[6] H03K *19/0175*

U.S. Cl. 326—81 **26 Claims**



1. A high voltage output level shifter using low voltage MOS devices comprising:

a first terminal for coupling to a first voltage source, a second terminal for coupling to a second voltage source, a third terminal for coupling to a third voltage source, a fourth terminal for coupling to a clock signal, and an output terminal, wherein said second voltage source is intermediate to said first and third voltage sources;

first, second, third and fourth devices, each having a source, a drain and a gate, said second device having a channel region between said source and drain of said second device, said second device having a field implant terminating short of said source and said drain of said second device, the field implant also terminating at the edge of said channel region, said drain of said first device being coupled to said first terminal, said source of said first device and said drain of said second device being coupled together, said source of said second device and said drain of said third device being coupled to said output terminal, said source of said third device and said drain of said fourth device being coupled together, said gate of said third device being coupled to said second terminal, said source of said fourth device being coupled to said third terminal;

an input circuit for providing an input signal;

a charge pump coupled to said input circuit and to said gates of said first and second devices for charging said gates of said first and second devices to a threshold voltage above that provided by said first voltage source in response to said input signal; and

a circuit coupled to said input circuit and to said gates of said third and fourth devices for switching said third and fourth devices off in response to said input signal.

5,723,986

LEVEL SHIFTING CIRCUIT

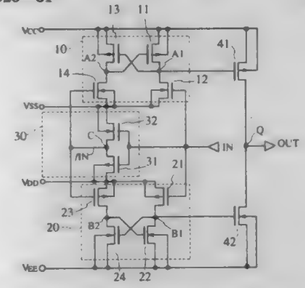
Takeshi Nakashiro; Isao Abe; Takeshi Suyama, all of Kanagawa-ken, and Junichi Machida, Chiba-ken, all of Japan, assignors to Kabushiki Kaisha Toshiba, Kawasaki, Japan

Filed Jun. 4, 1996, Ser. No. 659,000

Claims priority, application Japan, Jun. 5, 1995, 7-137781

Int. Cl.[6] H03K *19/0185*

U.S. Cl. 326—81 **20 Claims**



1. A level shifting circuit connected to first and second high voltages and first and second low voltages, the circuit comprising:

(a) a high-level shifter connected to the first high and low voltages, for amplifying the peak voltage of an input signal;

(b) a low-level shifter connected to the second high and low voltages, for amplifying the trough voltage of the input signal; and

(c) an output circuit for providing the first high voltage and second low voltage in response to the outputs of the high- and low-level shifters,

the first high voltage being higher than the second high voltage, and the second low voltage being lower than the first low voltage.

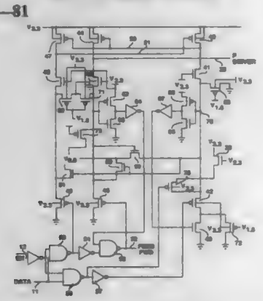
VOL 1208 ISS 1 MR 3 1998 UMI

5,723,987

LEVEL SHIFTING OUTPUT BUFFER WITH P CHANNEL PULLDOWN TRANSISTORS WHICH ARE BYPASSED

Stilkol Ronen, Haifa, Israel, assignor to Intel Corporation, Santa Clara, Calif.

Filed Jun. 6, 1996, Ser. No. 660,607
Int. Cl.[6] H03K *19/0185*
U.S. Cl. 326—81 11 Claims



1. In an integrated circuit for providing an output signal at a first potential where the integrated circuit substantially operates from a second potential lower than the first potential, an improvement comprising:

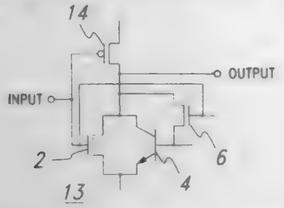
a bistable circuit for shifting a signal between approximately the second potential to approximately the first potential, the bistable circuit including a plurality of pull-down, p channel transistors formed in wells where the wells are maintained at approximately the first potential, each of the pull-down transistors being bypassed at a predetermined voltage.

5,723,988

CMOS WITH PARASITIC BIPOLAR TRANSISTOR

Shivaling S. Mahant-Shetti, Richardson; Mark G. Harward; Lawrence A. Arledge, Jr., both of Dallas, and Ravishankar Sundaresan, Carrollton, all of Tex., assignors to Texas Instruments Incorporated, Dallas, Tex.

Filed Oct. 20, 1993, Ser. No. 139,490
Int. Cl.[6] H03K *19/08;19/0948*
U.S. Cl. 326—85 6 Claims



1. An inverter including:

a load field effect transistor and a drive field effect transistor, a drain/source of said load field effect transistor being connected to a drain/source of said drive field effect transistor;

a first field effect transistor;

a first bipolar transistor, wherein said first bipolar transistor is a parasitic bipolar transistor;

a first drain/source of said drive field effect transistor being connected to the collector of said first bipolar transistor, a second drain/source of said drive field effect transistor being connected to the emitter of said first bipolar transistor;

a first drain/source of said first field effect transistor being connected to the base of said first bipolar transistor;

a second drain/source of said first field effect transistor being connected to the collector of said first bipolar transistor;

the gate of said first field effect transistor being connected to the gate of said drive field effect transistor;

an input of said inverter is coupled to a gate of both said drive field effect transistor and a gate of said load field effect transistor; and

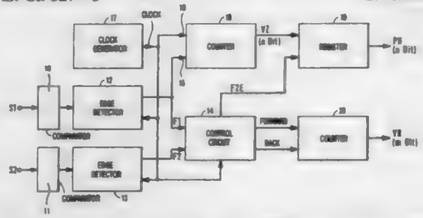
an output of said inverter is coupled to said drain/source of said load field effect transistor.

5,723,989

PHASE-MEASUREMENT DEVICE

Siegbert Steinlechner, Leonberg, Germany, assignor to Robert Bosch GmbH, Stuttgart, Germany

PCT No. PCT/DE94/01325, § 371 Date May 17, 1996, § 102(e) Date May 17, 1996, PCT Pub. No. WO95/14236, PCT Pub. Date May 26, 1995
PCT Filed Nov. 9, 1994, Ser. No. 648,064
Claims priority, application Germany, Nov. 18, 1993, 43 39 303.9
Int. Cl.[6] G01R *25/00;* H03D *13/00*
U.S. Cl. 327—3 15 Claims



8. A device for determining a phase difference between a first digital input signal having rising and falling edges and a second digital input signal having rising and failing edges, either the rising or falling edges of the first input signal being selected as predetermined edges of the first input signal and either the rising or falling edges of the second input signal being selected as predetermined edges of the second input signal, said device comprising:

first means for determining a component of the phase difference between the first and the second input signals that is less than 360°, the first means including a clock generator which emits a clock signal and a first counter which counts the clock signal, the first counter being reset whenever the rising edge of the first input signal appears; and

second means for determining a component of the phase difference between the first and second input signals that is an integer multiple of 360°, the second means including means for counting how many times the predetermined edge of one of the first and second input signals appears between consecutive appearances of the predetermined edge of the other of the first and second input signals.

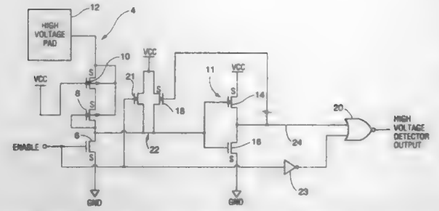
5,723,990

INTEGRATED CIRCUIT HAVING HIGH VOLTAGE DETECTION CIRCUIT

Frankie F. Roohparvar, Cupertino, Calif., assignor to Micron Quantum Devices, Inc., Santa Clara, Calif.

Filed Jun. 21, 1995, Ser. No. 493,162
Int. Cl.[6] H03K *5/153;* H03L *7/00*
U.S. Cl. 327—81 62 Claims

1. A mode detection circuit implemented in an integrated circuit, said integrated circuit switchable between a normal operation mode and an alternative operation mode and having a plurality of contact pads for electrically connecting the integrated circuit to an external environment, with one of the pads functioning to provide an interface between an external environment and the integrated circuit for signals having a maximum voltage magnitude, relative to a circuit common, when the integrated circuit is in the normal operation mode and with the one pad functioning to receive an external mode control signal which will cause the integrated circuit to switch to the alternative operation mode, with the mode control



signal having a voltage magnitude which is greater than that of the maximum voltage magnitude, said detection circuit comprising:

a first transistor having a gate, a source and a drain, with one of the gate and source coupled to the one pad;

a second transistor having a gate, source and drain, with the source and drain of the second transistor being connected in series with the drain and source of the first transistor;

output circuitry having an input connected to a first node intermediate the first and second transistors said output circuitry being configured to provide an output when a voltage at the first node exceeds a predetermined trip point, with the output circuitry comprising a third transistor having a gate, source and drain and a fourth transistor having a gate, source and drain, with the gate of the third transistor coupled to the first node, the drain of the third transistor coupled to a second node and with the source and drain of the third transistor connected in series with the source and drain of the fourth transistor;

feedback circuitry operatively coupled to the first and second nodes and configured to produce positive feedback from the second node to the first node; and

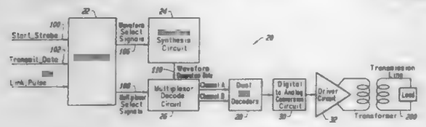
wherein the first transistor and any additional transistors connected between the first node and the one pad, together with the fourth transistor, are of a same channel type and wherein the second transistor and the third transistor are of a same channel type.

5,723,991

SYSTEM AND METHOD FOR WAVEFORM SYNTHESIS

Thomas Jefferson Runaldue, and Yi Cheng, both of San Jose, Calif., assignors to Advanced Micro Devices, Inc., Sunnyvale, Calif.

Filed Feb. 9, 1996, Ser. No. 599,188
Int. Cl.[6] G06F *1/02;* H03K *3/02*
U.S. Cl. 327—105 14 Claims



1. A system for synthesizing a waveform, comprising:

circuitry for generating digital data representative of each of a set of preselected waveform pulses wherein each preselected waveform pulse has a preselected slope at zero-crossing;

circuitry for tracking a history of a data signal and wherein said circuitry for tracking is coupled to select from said circuitry for generating digital data a sequence of the preselected waveform pulses in response to the history such that the sequence conveys the history and such that mismatches between the preselected slopes of adjacent waveform pulses in the sequence are minimized; and

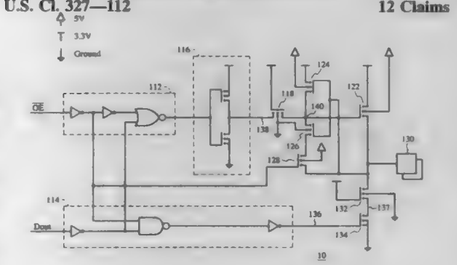
circuitry coupled to receive the digital data for the sequence of the preselected waveform pulses and for converting the digital data for the sequence of the preselected waveform pulses into the waveform.

5,723,992

LOW LEAKAGE OUTPUT DRIVER CIRCUIT WHICH CAN BE UTILIZED IN A MULTI-VOLTAGE SOURCE

Patrick Yin, Fremont, and Craig S. Thrower, San Jose, both of Calif., assignors to Aspec Technology, Inc., Sunnyvale, Calif.

Filed Oct. 19, 1995, Ser. No. 545,158
Int. Cl.[6] H03K *17/687;17/16*
U.S. Cl. 327—112 12 Claims



1. An output driver circuit comprising:

a first pull-up transistor means coupled to a first voltage potential;

a second pull-down transistor means coupled to a second voltage potential;

a pad member coupled to the first pull-up and second pull-down transistor means;

a circuit coupled to the pad member and coupled to the first pull-up transistor means, the circuit for substantially reducing the leakage through the first pull-up transistor means when the pad member is coupled to a third voltage potential, the circuit further comprising:

an inverter coupled at an input to the pad member;

a third transistor coupled to an output of the inverter and to the gate of the first pull-up transistor means;

a fourth transistor coupled to the third transistor and to the input of the inverter; and

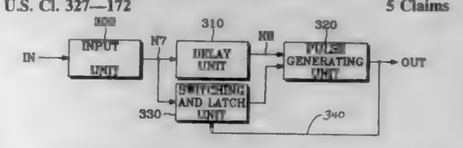
a fifth transistor coupled at a drain to the third transistor and at a gate to the input of the inverter.

5,723,993

PULSE GENERATING CIRCUIT FOR USE IN A SEMICONDUCTOR MEMORY DEVICE

Gi-Won Cha, Kyungki-do, Rep. of Korea, assignor to Samsung Electronics Co., Ltd., Suwon, Rep. of Korea

Filed Jun. 12, 1996, Ser. No. 662,323
Claims priority, application Rep. of Korea, Jun. 12, 1995, 15393/1995
Int. Cl.[6] H03K *5/153;5/00*
U.S. Cl. 327—172 5 Claims



1. A pulse generating circuit for use in a semiconductor memory device, comprising:

an input unit for receiving an input logic signal to trigger an output pulse of predetermined pulse width in response to a first transition of the input logic signal, the input unit including an output terminal coupled to a first node;

a delay unit coupled to the input unit to provide a predetermined delay period following a logic state transition at the first node, the delay unit including an output terminal coupled to a second node;

a pulse generating unit coupled to the second node for logic-gating an output signal of said delay unit together with the

VOL 1208 ISS 1 MR 3 1998 UMI

logic state at the first node, so as to generate an output pulse having a width corresponding to the predetermined delay period; and

means for controllably coupling the first node to the pulse generating unit in response to the pulse output signal so as to isolate the input unit from the pulse generating unit until after completion of the output pulse.

5,723,994

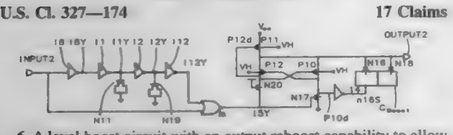
LEVEL BOOST RESTORATION CIRCUIT

Tah-Kang Joseph Ting, Hsinchu; Chun Shiah, Taichung, and Bor-Doou Rong, Hsinchu, all of Taiwan, assignors to Etron Technology, Inc., Hsin-Chu, Taiwan

Filed Jun. 10, 1996, Ser. No. 661,288

Int. Cl.[6] H03K *7/08*

U.S. Cl. 327—174 **17 Claims**



6. A level boost circuit with an output reboost capability to allow the output of said level boost circuit to be restored after the reception of an upward spurious glitch, which will transition from a logical zero state to a logical one state and return to the logical zero state, while not responding to a downward spurious glitch which will transition from the logical one state to the logical zero state and return to the logical one state, comprising:

a) an input terminal for the reception of input pulses that repeatedly change from the logical zero state to the logical one state and then return to the logical zero state over time, including the downward spurious glitches;

b) a glitch exaggeration circuit coupled to the input terminal to elongate the Upward spurious glitch to form an elongated glitch pulse and to minimize the downward spurious glitch while not effecting the transfer of other input pulses;

c) a boosting means coupled to the glitch exaggeration circuit to increase the level of the input pulses, reboost the level from the reception of the upward spurious glitch, and be insensitive to the downward spurious pulse;

d) a driving means coupled to the boosting means to amplify the boosted input pulses; and

e) an output terminal coupled to the driving means to transfer the boosted input pulsed to external circuitry.

5,723,995

METHOD FOR ELIMINATING PROCESS VARIATION TIMING SKEWS IN A SOURCE SYNCHRONOUS DESIGN

Thomas J. Mozdzen, Gilbert, Ariz., and Harry Muljono, San Jose, Calif., assignors to Intel Corporation, Santa Clara, Calif.

Filed Dec. 20, 1995, Ser. No. 575,970

Int. Cl.[6] H03K *5/13*

U.S. Cl. 327—293 **6 Claims**

1. An integrated circuit comprising:

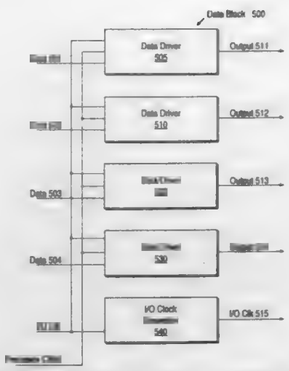
a clock generator for generating a core clock signal and an input/output I/O clock signal;

a plurality of functional units, said plurality of functional units including a cache, wherein said cache is coupled to a core unit, said core clock signal, and an I/O unit;

a plurality of data blocks coupled to said core clock signal and said I/O clock signal, each of said data blocks comprising:

a plurality of data bus drivers for receiving data from said functional units and outputting external data, each of said data bus drivers including:

a data input coupled to said cache; a data output synchronized via said I/O clock signal; and a data drive circuit comprising a plurality of transistors for driving said data output;



an output clock generator coupled to said I/O clock signal, said output clock generator including a clock drive circuit for outputting an output clock signal via a clock output, wherein said clock drive circuit is substantially identical to said data drive circuit and said clock drive circuit comprises a plurality of transistors, each of said plurality of transistors of said clock drive circuit having a slightly longer channel length than a corresponding transistor in said data drive circuit.

5,723,996

LEADFRAME FOR PLASTIC-ENCAPSULATED SEMICONDUCTOR DEVICE, SEMICONDUCTORDEVICE USING THE SAME, AND MANUFACTURING METHOD FOR THE LEADFRAME

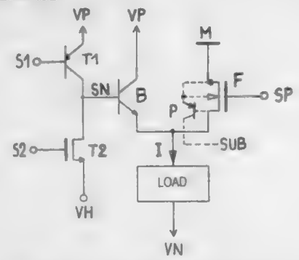
Bernhard Zojer, Villach, Austria, assignor to Siemens Aktiengesellschaft, Munich, Germany

Filed Feb. 12, 1996, Ser. No. 601,066

Claims priority, application Germany, Feb. 10, 1995, 195 04 480.0

Int. Cl.[6] H03K *17/04*

U.S. Cl. 327—432 **2 Claims**



1. An integratable reversing switch, comprising:

a load, said load having one load terminal for selectively receiving a ground potential and a first supply potential being positive relative to the ground potential, and said load having another load terminal being connected to a second supply potential being negative relative to the ground potential;

a first switch being connected to the first supply potential V and to the one load terminal;

an n-channel DMOS field effect transistor forming a second switch having a source terminal connected to the ground potential, a drain terminal connected to the one load terminal and a gate terminal for receiving a blocking potential voltage being substantially equal to the ground potential to generate a blocking switch state and for receiving a first control potential voltage being positive relative to the ground potential to generate a conductive switching state, said DMOS field effect transistor further having bulk and substrate terminals thus forming a pnp parasitic bipolar transistor having emitter, base and collector terminals formed by said bulk, said drain and said substrate terminals, respectively, of said DMOS field effect transistor, said DMOS field effect transistor having an on-state resistance being so low that, at a maximum source-to-drain current, a source-to-drain voltage drop remains lower than a base-to-emitter threshold voltage of said pnp parasitic bipolar transistor; and

said two switches having switching states each occurring in opposition to the other.

5,723,997

INTERFACE CIRCUIT OF AN ELECTRONIC FLASH UNIT

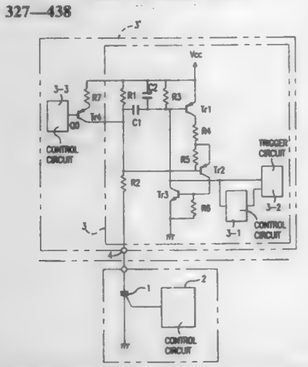
Hiroshi Sakamoto, Kanagawa-ken, Japan, assignor to Nikon Corporation, Tokyo, Japan

Filed Dec. 14, 1995, Ser. No. 572,690

Claims priority, application Japan, Dec. 15, 1994, 6-311565

Int. Cl.[6] H03K *17/72*

U.S. Cl. 327—438 **19 Claims**



1. An interface circuit that interfaces an electronic flash unit with a self-held semiconductor device, the interface circuit comprising:

a pull-up circuit coupled to a synchronized signal line, supplying current to the synchronized signal line greater than a holding current of the self-held semiconductor device when the pull-up circuit is on the synchronized signal line connecting the electronic flash unit with the self-held semiconductor device; and

a controller coupled to the pull-up circuit, the controller generating a control signal to cycle the pull-up circuit ON and OFF, a voltage level of the synchronized signal line becoming HIGH when the pull-up circuit is ON and the self-held semiconductor device is OFF, the controller allowing the self-held semiconductor device to transition from an ON state to an OFF state when the pull-up circuit is OFF.

5,723,998

ELECTRONIC CIRCUIT WITH OPERATION SELF-CONTROL FUNCTION

Akitoshi Saito; Shigemitsu Yamaoka, and Ryo Kamiya, all of Shizuoka, Japan, assignors to Yamaha Corporation, Hamamatsu, Japan

Filed Jul. 28, 1995, Ser. No. 508,975

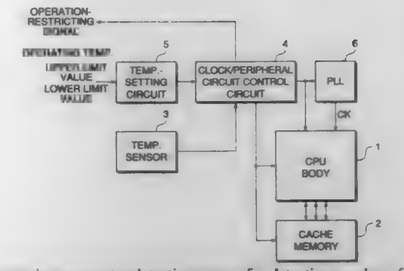
Claims priority, application Japan, Aug. 10, 1994, 6-209259; Aug. 10, 1994, 6-209260

Int. Cl.[6] H01L *35/00;* **H03K** *3/42*

U.S. Cl. 327—513 **22 Claims**

1. An electronic circuit with an operation self-control function comprising:

an electronic circuit body;



operating parameter-detecting means for detecting a value of an operating parameter indicative of an operating condition of said electronic circuit body, wherein said operating parameter-detecting means detects a processing capacity of said electronic circuit body attributable to an operating environment in which said electronic circuit body operates, and wherein said operating parameter-detecting means includes a temperature sensor for sensing a temperature of said electronic circuit body;

self-control means for restricting operation of said electronic circuit body according to the detected value of said operating parameter; and

clock-generating means for generating a clock on which said electronic circuit body operates, wherein said self-control means is responsive to the detected value of said operating parameter, for varying a frequency of said clock from said clock-generating means to self-restrict operation of the electronic body in correspondence with the varying frequency, and

wherein said self-control means controls a processing amount per unit time of said electronic circuit body according to the detected processing capacity.

5,723,999

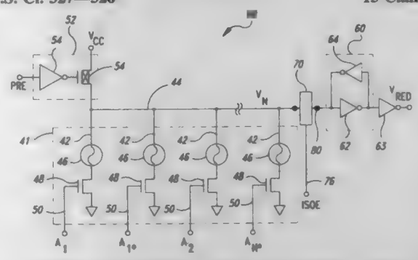
REDUNDANT ROW FUSE BANK CIRCUIT

Todd Merritt, Boise, Id., assignor to Micron Technology, Inc., Boise, Id.

Continuation of Ser. No. 453,010, May 30, 1995, Pat. No. 5,583,463. This application Nov. 8, 1996, Ser. No. 748,468

Int. Cl.[6] G06F *11/16*

U.S. Cl. 327—526 **15 Claims**



1. A blown fuse detection circuit for detecting a blown or unblown state of a fuse having a first end and a second end, comprising:

a precharging circuit configured to provide a test voltage to the first end of the fuse in response to a first control signal;

a buffer circuit having an input terminal, the buffer circuit having a threshold voltage less than the test voltage, the buffer circuit further being responsive to output a voltage of a first state in response to a voltage greater than the threshold voltage at the input terminal and to output a voltage of a second state in response to a voltage less than the threshold voltage at the input terminal;

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a reference voltage source configured to provide a reference voltage less than the threshold voltage to the second end of the fuse;

an isolation circuit having an isolation input, the isolation circuit being coupled between the input terminal of the buffer circuit and the first end, the isolation circuit being configured to couple the first end to the buffer circuit in response to an isolation signal of a first state at the isolation input and to present a substantially open circuit to the buffer circuit in response to an isolation signal of a second state at the isolation input; and

a control circuit configured to provide the isolation signal of a first state at a first time, the first control signal at a second time and the isolation signal of the second state at a third time following the first and second times.

5,724,000

DIFFERENTIAL SWITCHED CAPACITOR FILTERING

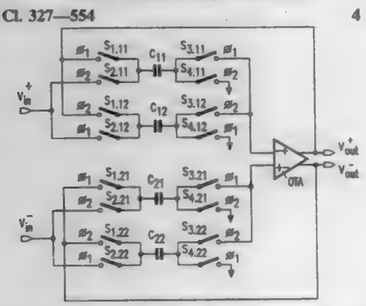
Patrick J. Quinn, Eindhoven, Netherlands, assignor to U.S. Philips Corporation, New York, N.Y.

Filed Oct. 21, 1996, Ser. No. 734,275

Claims priority, application European Pat. Off., Oct. 20, 1995, 95202849

Int. Cl.[6] **H03K** *5/00;* **H03H** *11/12*

U.S. Cl. 327—554 **4 Claims**



1. A differential switched capacitor filter section having at least one pair of differential inputs and at least one pair of differential outputs, the filter section comprising:

a differential amplifier;

a first set of switched capacitors coupled between a non-inverting output and an inverting input of said differential amplifier;

a second set of switched capacitors coupled between an inverting output and a non-inverting input of said differential amplifier, wherein said inverting and non-inverting outputs of said differential amplifier are coupled to said at least one pair of differential outputs of said filter section; and wherein, in said sets of switched capacitors, first terminals of the switched capacitors are coupled to a corresponding one of said outputs of said differential amplifier thru first switches operating at mutually differing switching phases within each set, and to one of said differential inputs of said filter section thru second switches operating at mutually differing switching phases within each set, while second terminals of the capacitors are coupled to a corresponding one of said inputs of said differential amplifier thru third switches operating at mutually differing switching phases within each set, and to a reference terminal thru fourth switches operating at mutually differing switching phases within each set.

5,724,001

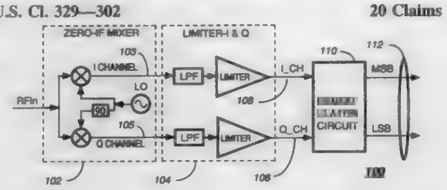
METHOD AND APPARATUS FOR DEMODULATING A FREQUENCY SHIFT KEYED SIGNAL

Chun-Ye Susan Chang, Boca Raton, Fla., assignor to Motorola, Inc., Schaumburg, Ill.

Filed Dec. 2, 1996, Ser. No. 753,816

Int. Cl.[6] **H03D** *3/00;* **H04L** *27/14*

U.S. Cl. 329—302 **20 Claims**



1. A method for demodulating a multi-level frequency shift keyed (FSK) signal, comprising the steps of:

receiving the multi-level FSK signal from a radio messaging system;

mixing the multi-level FSK signal to generate an in-phase signal and a quadrature signal;

counting a sequence of state transitions of the in-phase signal and the quadrature signal; and

determining a frequency deviation of the multi-level FSK signal based on the sequence of state transitions counted.

5,724,002

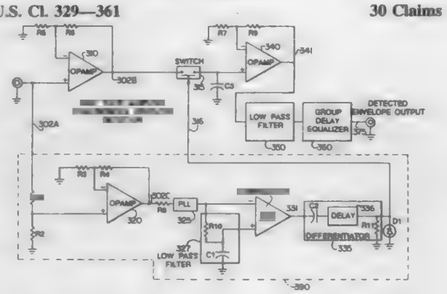
ENVELOPE DETECTOR INCLUDING SAMPLE-AND-HOLD CIRCUIT CONTROLLED BY PRECEDING CARRIER PULSE PEAK(S)

Timothy P. Hulick, Schwenksville, Pa., assignor to Acrodyne Industries, Inc., Blue Bell, Pa.

Filed Jun. 13, 1996, Ser. No. 662,604

Int. Cl.[6] **H03D** *1/02*

U.S. Cl. 329—361 **30 Claims**



1. A synchronous sampling envelope detector, comprising:

an input for receiving a carrier waveform which includes a series of pulses; and

means, responsive to a detected maximum-magnitude value of a present pulse of the carrier waveform, for sampling an instantaneous value of the carrier waveform at a time which is delayed to a portion of a subsequent pulse of the carrier waveform which occurs after the present pulse.

5,724,003

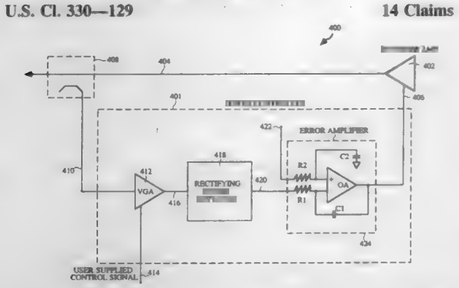
METHODS AND APPARATUS FOR SIGNAL AMPLITUDE CONTROL SYSTEMS

Brent R. Jensen, Portland, and James W. H. Marsh, Sherwood, both of Oreg., assignors to Maxim Integrated Products, Inc., Sunnyvale, Calif.

Filed Dec. 29, 1995, Ser. No. 581,033

Int. Cl.[6] **H03G** *3/30*

U.S. Cl. 330—129 **14 Claims**



1. A power controller circuit for generating an error signal from an alternating current output signal of a power amplifier, a reference voltage level, and a control signal, comprising:

a power sampler circuit for sampling a portion of said output signal and outputting a sensed signal, said sensed signal being proportional to a power level of said output signal;

a variable gain amplifier having a first variable gain amplifier input and a second variable gain amplifier input, said first variable gain amplifier input being coupled to said power sampler circuit for receiving said sensed signal, said second variable gain amplifier input receiving said control signal, for outputting a variable gain amplifier output signal having a substantially constant peak-to-peak voltage irrespective of a power level of said output signal;

a power detector circuit coupled to said variable gain amplifier for receiving said variable gain amplifier output signal, said power detector circuit outputting a rectified signal;

an error amplifier having a first error amplifier input and second error amplifier input, said first error amplifier input being coupled to said power detector circuit for receiving said rectified signal, said second error amplifier input being coupled to said reference voltage level, whereby said error amplifier outputs said error signal responsive to a difference between said rectified signal and said reference voltage level; and

whereby said variable gain amplifier is configurable to have either a substantially linear in dB gain control or a substantially linear in voltage gain control.

5,724,004

VOLTAGE BIAS AND TEMPERATURE COMPENSATION CIRCUIT FOR RADIO FREQUENCY POWER AMPLIFIER

Warren P. Reif, Fort Worth, Tex., and William Beckwith, Chandler, Ariz., assignors to Motorola, Inc., Schaumburg, Ill.

Filed Jun. 13, 1996, Ser. No. 662,551

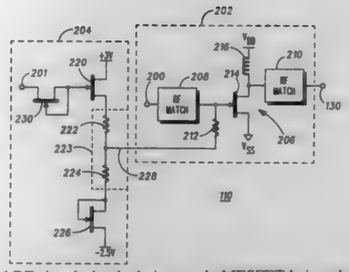
Int. Cl.[6] **H03F** *3/16*

U.S. Cl. 330—277 **7 Claims**

1. A radio frequency (RF) power amplifier, comprising:

a radio frequency gain stage for providing an amplified RF signal to an antenna at an RF antenna power output level, the radio frequency gain stage including a depletion mode MESFET (metal epitaxial semiconductor field effect transistor) configured for amplifying an RF signal to provide the amplified RF signal, the depletion mode MESFET being characterized by a MESFET temperature coefficient; and

a bias circuit having a control input for receiving a variable control signal and an output coupled to the radio frequency gain stage, the bias circuit providing an output voltage to the radio frequency gain stage in response to the variable control signal, the output voltage having an output voltage temperature coefficient, the output voltage temperature coefficient substantially compensating the MESFET temperature coefficient to maintain the RF antenna power output level substantially constant.



5,724,005

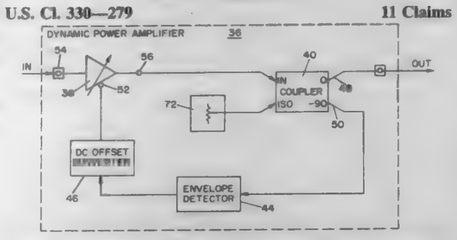
LINEAR POWER AMPLIFIER WITH AUTOMATIC GATE/BASE BIAS CONTROL FOR OPTIMUM EFFICIENCY

Young-Kai Chen, Berkeley Heights, and Jenshan Lin, Flanders, both of N.J., assignors to Lucent Technologies Inc., Murray Hills, N.J.

Filed Apr. 25, 1996, Ser. No. 637,999

Int. Cl.[6] **H03G** *3/30*

U.S. Cl. 330—279 **11 Claims**



10. A method for dynamically controlling a power amplifier employed in a wireless terminal used for transmitting to a base terminal, said method comprising the steps of:

generating a given power output signal in response to an input signal applied to said power amplifier, said power output signal having a given power signal corresponding to the distance of said wireless terminal to said base terminal;

generating a power indication signal corresponding to said power output signal;

generating a biasing signal corresponding to said power indication signal so as to vary the biasing point of said power amplifier as a function of said power indication signal such that the power added efficiency of said amplifier remains substantially constant.

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5,724,006

CIRCUIT ARRANGEMENT WITH CONTROLLABLE TRANSMISSION CHARACTERISTICS

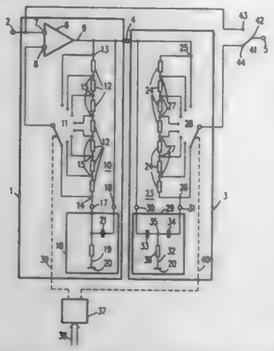
Ernst-August Kilian, and Christoph Möller, both of Hamburg, Germany, assignors to U.S. Philips Corporation, New York, N.Y.

Filed Sep. 5, 1995, Ser. No. 523,698

Claims priority, application Germany, Sep. 3, 1994, 44 31 481.7

Int. Cl.[6] H03F *1/34;3/181*

U.S. Cl. 330—294 **11 Claims**



6. A circuit arrangement with controllable transmission characteristics between a signal input and a signal output for a signal within a given transmission frequency band, said circuit arrangement comprising a bass control stage to which the signal, applied to the signal input, is applied for adjustably boosting an amplitude-frequency response of the signal at low frequencies of the given transmission frequency band, and a notch filter stage to which the signal processed in the bass control stage is applied for attenuating the amplitude-frequency response of the signal at mid-frequencies of the given transmission frequency band independently of the bass control stage, said notch filter stage applying the signal thus processed to the signal output, characterized in that the notch filter stage comprises a first voltage divider arrangement with a frequency-dependent characteristic, said first voltage divider arrangement having a plurality of taps which are connectable to the signal output of the circuit arrangement via a first electronically controllable switch, one end of the first voltage divider arrangement being arranged to receive the signal from the bass control stage.

5,724,007

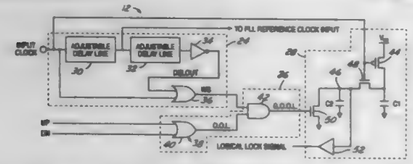
ADJUSTABLE LOCK DETECTOR FOR A PHASE-LOCKED LOOP CIRCUIT

Monte F. Mar, Issaquah, Wash., assignor to Cypress Semiconductor Corporation, San Jose, Calif.

Filed Mar. 25, 1996, Ser. No. 622,539

Int. Cl.[6] H03L *7/095*

U.S. Cl. 331—1 A **20 Claims**



1. An apparatus for detecting when an output signal of a phase-locked loop circuit is phase locked to an input reference signal to the phase-locked loop circuit, comprising:

means for generating a window signal having a pulse width indicative of a predetermined phase error to thereby define an acceptable phase error window including means for varying said predetermined phase error to thereby adjust the size of said acceptable phase error window;

means coupled to the phase-locked loop circuit for detecting when an actual out-of-lock signal occurs outside of said acceptable phase error window and generating in response thereto a gated out-of-lock signal in a first state, said detecting and generating means being otherwise operative to generate said gated out-of-lock signal in a second state indicative of a condition wherein said phase-locked loop circuit is phase locked within said predetermined phase error; and

means for detecting when said gated out-of-lock signal has been in said second state for a predetermined number of input clock cycles and generating in response thereto a logical lock signal, said input clock corresponding to said input reference signal.

5,724,008

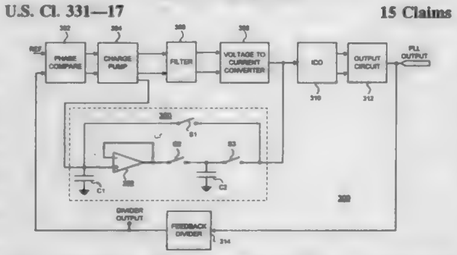
PHASE-LOCKED LOOP WITH CHARGE DISTRIBUTION

Frank David Ferraiolo, Essex Junction; John Edwin Gersbach, Burlington, and Charles Joseph Masenas, Essex Junction, all of Vt., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed May 2, 1996, Ser. No. 641,862

Int. Cl.[6] H03L *7/093*

U.S. Cl. 331—17 **15 Claims**



1. A feedforward path for a phase-locked loop, wherein said phase-locked loop includes a charge pump and an oscillator, said feedforward path comprising:

a) a first charge storage mechanism, said first charge storage mechanism receiving a charge from said charge pump;

b) a switch mechanism, said switch mechanism distributing said charge from said first charge storage mechanism to said oscillator for each output cycle of said oscillator.

5,724,009

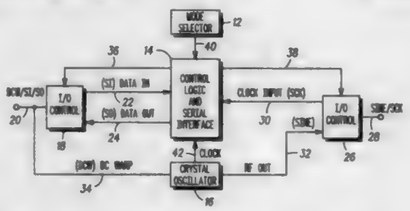
CRYSTAL OSCILLATOR HAVING INPUT/OUTPUT PINS SELECTIVELY USED FOR ANALOG OR DIGITAL SIGNALS

Timothy Collins, Downers Grove, and Gregory Pucci, Batavia, both of Ill., assignors to Motorola Inc., Schaumburg, Ill.

Filed Oct. 29, 1996, Ser. No. 739,339

Int. Cl.[6] H03B *5/32*

U.S. Cl. 331—108 C **21 Claims**



1. An analog and digital electronic circuit, comprising:

a power lead, an input/output pin, and a switching circuit, the power lead coupled to the switching circuit and the switching circuit coupled to the input/output pin;

a first operating mode allowing analog communication with the analog and digital electronic circuit via the input/output pin when a first signal is applied to the power lead to control the switching circuit; and

a second operating mode allowing digital communication with the analog and digital electronic circuit via the input/output pin when a second signal is applied to the power lead to control the switching circuit.

5,724,010

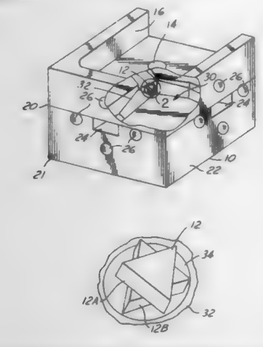
WIDEBAND "Y" JUNCTION ISOLATOR/CIRCULATOR AT V-BAND

Richard N. Brown, Los Angeles, Calif., assignor to Hughes Electronics, Los Angeles, Calif.

Filed Sep. 9, 1996, Ser. No. 709,972

Int. Cl.[6] H01P *1/39*

U.S. Cl. 333—1.1 **10 Claims**



1. A wideband "Y" junction isolator/circulator at V-Band comprising:

a housing arranged to be connected to a plurality of waveguide mechanisms;

a ramp section forming a waveguide within said housing; and

a six-point "star"-shaped ferrite structure positioned on a junction point of said ramp section.

5,724,011

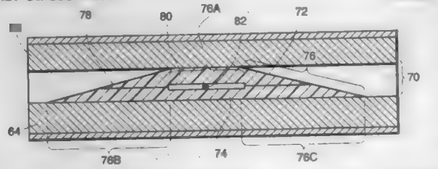
VOLTAGE VARIABLE DIELECTRIC RIDGED WAVEGUIDE PHASE SHIFTER

Brian T. McWhirter, Redondo Beach, and Steve K. Panaretos, Los Angeles, both of Calif., assignors to Hughes Electronics, Los Angeles, Calif.

Filed Sep. 3, 1996, Ser. No. 711,725

Int. Cl.[6] H01P *1/18*

U.S. Cl. 333—157 **9 Claims**



1. A voltage variable dielectric ridged waveguide phase shifter, comprising:

a section of double ridged waveguide, having a conductive wall enclosing a waveguide channel, and wherein opposed first and second conductive ridges extend into the channel and are separated by a ridge gap along a longitudinal extent of the waveguide section, wherein said section of double ridge waveguide has a longitudinal axis along which electromagnetic energy propagates, and an electric field is established along a direction which is transverse to said longitudinal axis;

a dielectric filler disposed within the waveguide within the ridge gap, said filler fabricated of a voltage variable dielectric material having a property that its dielectric constant value is dependent on an electric field established across the material, wherein the dielectric filler includes a first impedance transformer section which performs an impedance transforming function between an impedance of the waveguide section and an impedance of the phase shifter and wherein the dielectric filler includes a second impedance transformer section which performs an impedance transforming function between said impedance of the waveguide section and said impedance of the phase shifter, wherein the first and second impedance transformer sections are tapered along a longitudinal extent of the waveguide section at a first port of the phase shifter so as to gradually transform the impedance from that of a ridged waveguide section to that of a voltage variable phase shifter section, and wherein said voltage variable dielectric material is selected so that its relative dielectric constant has the ability to change with an applied electric field by an amount necessary to provide a predetermined phase shift;

a circuit for establishing a variable dc electric field across the dielectric filler to vary the electric field applied to the dielectric material and thereby vary the dielectric constant value of the material and the resultant propagation delay of electromagnetic energy propagating along the longitudinal extent of the waveguide section, said circuit comprising an electrode member disposed within the dielectric filler intermediately between the first and second ridges in the ridge gap, and a voltage source having a first polarity terminal connected to the electrode member and a second polarity terminal electrically connected to the first and second ridges, wherein the ridges act as electrodes of a second polarity in establishing the electric field, and a conductor element passed through a small opening in said conductive wall of the waveguide and in electric contact with said electrode member and with said first polarity terminal of said voltage source, and wherein only a single dc connection is made to said electrode member.

5,724,012

TRANSMISSION-LINE NETWORK

Petrus Johannus Stephanus Teunisse, Hengelo, Netherlands, assignor to Hollandse Signaalapparaten B.V., Hengelo, Netherlands

PCT No. PCT/EP95/00179, § 371 Date Aug. 1, 1996, § 102(e) Date Aug. 1, 1996, PCT Pub. No. WO95/21472, PCT Pub. Date Aug. 10, 1995

PCT Filed Jan. 18, 1995, Ser. No. 682,630

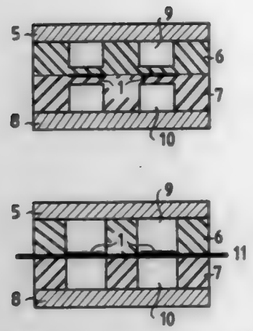
Claims priority, application Netherlands, Feb. 3, 1994, 9400165

Int. Cl.[6] H01P *3/08*

U.S. Cl. 333—238 **16 Claims**

1. Transmission-line network, comprising an assembly of a first conductive base, a first dielectric sheet having a constant thickness, a second dielectric sheet having a constant thickness, a second conductive base, and a stripline network, located between the first dielectric sheet and the second dielectric sheet, characterized in that both dielectric sheets are provided with a continuous length cavity whose form conforms substantially to the stripline network, such that the transmission-line network contains substantially no dielectric sheet between the first conductive base and the stripline network and the second conductive base and the stripline network

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and that the stripline network is placed on a dielectric film, interposed between the first dielectric sheet and the second dielectric sheet.

5,724,013

HIGH-FREQUENCY INTEGRATED CIRCUIT

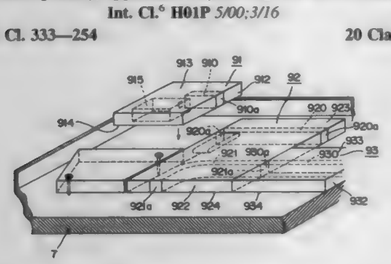
Youhei Ishikawa; Toru Tanizaki, both of Kyoto, and Hiroshi Nishida, Kawanishi, all of Japan, assignors to Murata Manufacturing Co., Ltd., Japan

Filed Aug. 28, 1995, Ser. No. 519,999

Claims priority, application Japan, Aug. 30, 1994, 6-205424

Int. Cl.[6] H01P *5/00;3/16*

U.S. Cl. 333—254 **20 Claims**



1. A high-frequency integrated circuit comprising:

a substrate;

a plurality of devices, each having a nonradiative dielectric waveguide, which are surface-mounted on the substrate, each of the devices comprising:

a respective pair of conductors which are parallel to each other with a specified spacing therebetween; and

a respective dielectric strip which is disposed between the corresponding pair of conductors;

one of the conductors having a plane mounting surface which is entirely in contact with the substrate; and

the pair of conductors defining an end surface which is vertical with respect to a direction in which an electromagnetic wave is propagated in the dielectric strip, an end of the dielectric strip being exposed at the end surface; and

the exposed end of the dielectric strip of each of the devices being close to an exposed end of a respective dielectric strip of an adjacent one of said devices so as to propagate said electromagnetic wave between said devices.

5,724,014

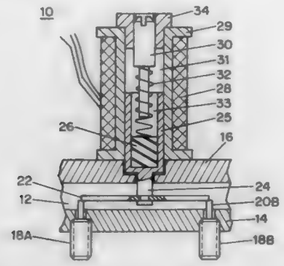
LATCHING RF SWITCH DEVICE

Vincent Leikus, Fairfield, Conn., and Yuly Bauer, Brooklyn, N.Y., assignors to The Narda Microwave Corporation, Hauppauge, N.Y.

Filed Apr. 4, 1996, Ser. No. 627,287

Int. Cl.[6] H01H *53/00*

U.S. Cl. 335—4 **5 Claims**



1. A latching electromechanical RF switch comprising:

an RF switch cavity having at least two RF ports, each having a coaxial inner conductor extending into said cavity and having a switch contact thereon;

a contact leaf member in said RF cavity and moveable between a first contact position connecting said switch contacts and a second position spaced from said switch contacts;

an electromagnet coil mounted to a wall of said RF cavity and having a ferromagnetic member;

an armature having a permanent magnet and having a connecting member extending into said RF cavity and connected to said contact leaf member, said armature assembly being moveable by said coil to move said contact leaf member between said first and second positions, and a spring urging said armature away from said ferromagnetic member;

said spring, said ferromagnetic member and said permanent magnet being arranged to cause said permanent magnet to attract said ferromagnetic member in one of said positions holding said armature thereat, and to cause said spring to hold said armature and said permanent magnet away from said ferromagnetic member in the other of said positions, said armature being moveable between said positions by supplying a current pulse to said coil.

5,724,015

BULK MICROMACHINED INDUCTIVE TRANSDUCERS ON SILICON

Yu-Chong Tai, Pasadena; Denny K. Miu, Valencia; Weilong Tang, Alhambra; Viktoria Temesvary, Culver City, and Shuyun Wu, Pasadena, all of Calif., assignors to California Institute of Technology, Pasadena, Calif.

Filed Jun. 1, 1995, Ser. No. 457,468

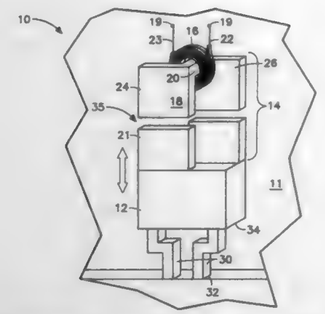
Int. Cl.[6] H01H *51/22*

U.S. Cl. 335—78 **24 Claims**

1. A micromachine comprising:

a crystalline substrate;

a movable element which is formed from a first portion of said substrate; and



an electromagnetic transducer fabricated over said substrate, wherein a portion of said electromagnetic transducer is coupled to said movable element.

5,724,016

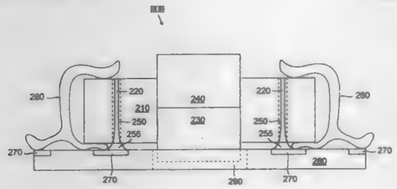
POWER MAGNETIC DEVICE EMPLOYING A COMPRESSION-MOUNTED LEAD TO A PRINTED CIRCUIT BOARD

Robert Joseph Roessler, Rowlett, Tex., and Lennart Daniel Pitzele, Setauket, N.Y., assignors to Lucent Technologies Inc., Murray Hill, N.J.

Continuation-in-part of Ser. No. 434,485, May 4, 1995. This application Jan. 29, 1997, Ser. No. 791,082

Int. Cl.[6] H01F *15/10;27/30*

U.S. Cl. 336—65 **10 Claims**



1. A magnetic device, comprising:

a multi-layer circuit containing a plurality of windings disposed in layers thereof, said multi-layer circuit having inner lateral vias associated therewith, said inner lateral vias intersecting said layers of said multi-layer circuit;

a conductive substance disposed within said inner lateral vias and electrically coupling selected ones of said plurality of windings;

a magnetic core mounted proximate said plurality of windings and adapted to impart a desired magnetic property to said plurality of windings; and

a compression-mounted electrical lead resiliently bearing against said conductive substance and electrically coupled to electrical conductors on a substantially planar substrate to conduct electricity therebetween, said plurality of windings and said magnetic core substantially free of a surrounding molding material to allow said magnetic device to assume a smaller overall device volume.

5,724,017

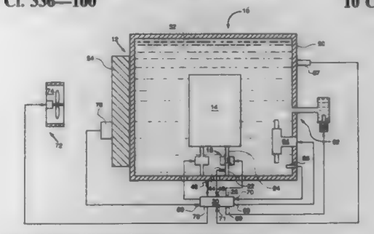
ELECTRICAL TRANSFORMER WITH REDUCED CORE NOISE

Frederic Ghislain Pia, Clifton Park; Imdad Imam, Schenectady, both of N.Y.; Frank Albert Pitman, Jr., Rome, Ga., and Stephen Linwood Smith, Garza Garcia, Mexico, assignors to General Electric Company, Schenectady, N.Y.

Filed Jul. 31, 1995, Ser. No. 509,265

Int. Cl.[6] H01F *27/00*

U.S. Cl. 336—100 **10 Claims**



1. An electrical transformer comprising:

a) a housing;

b) a transformer core and winding subassembly disposed within and spaced apart from said housing;

c) an active mount subassembly including:

(1) an active mount disposed within said housing and having a first end attached to said housing and a second end attached to said transformer core and winding subassembly for canceling oscillations of said housing; and

(2) a controller having an output port connected to said active mount.

5,724,018

DEVICE WITH FOUR-LEGGED COIL

Wolfgang Brandl, Amberg; Johann Drexler, Schwandorf; Wilfried Kliemt, Amberg; Bardo Koppmann, Kaltenbrunn; Roland Nagel, Erlangen, and Reinhard Zinner, Bodenwöhr, all of Germany, assignors to Siemens Aktiengesellschaft, München, Germany

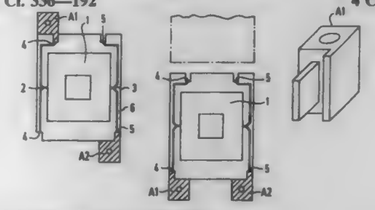
PCT No. PCT/DE94/00713, § 371 Date Jan. 5, 1996, § 102(e) Date Jan. 5, 1996, PCT Pub. No. WO95/02255, PCT Pub. Date Jan. 19, 1995

PCT Filed Jun. 22, 1994, Ser. No. 571,946

Claims priority, application Germany, Jul. 7, 1993, 43 22 648.5

Int. Cl.[6] H01F *27/04*

U.S. Cl. 336—192 **4 Claims**



1. A switching device comprising:

a first side and a second side;

a four-legged coil with a first winding end and a second winding end;

a first plug-in location and a second plug-in location, each connected to said first winding end;

a third plug-in location and a fourth plug-in location connected to said second winding end;

a first connecting terminal shape coded to match said first plug-in location and said second plug-in location;

a second connecting terminal shape coded to match said third plug-in location and said fourth plug-in location.

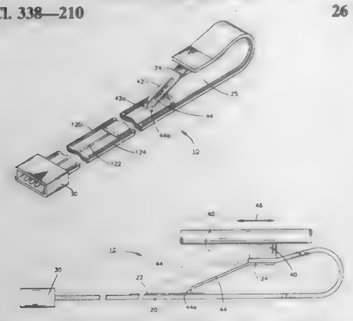
VOL 1208 ISS 1 MR 3 1998 UMI

5,724,019

FLEXIBLE POTENTIOMETER

Earl C. Pearson, Knoxville, Tenn., assignor to Robertshaw Controls Company, Richmond, Va.

Filed Jun. 27, 1996, Ser. No. 669,795
Int. Cl.[6] H01C *3/06*
U.S. Cl. 338—210 26 Claims



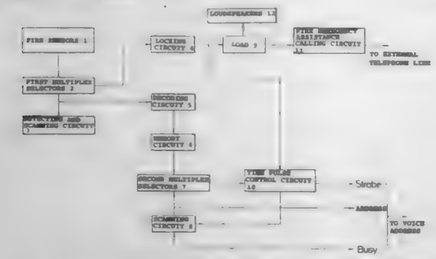
1. A method for generating an electrical signal comprising the steps of:
a) providing a flexible elongated carrier for an electrical component and a conductive element;
b) coupling the electrical component and the conductive element to circuitry;
c) effecting relative movement between the conductive element and the electrical component to flex at least a portion of the elongated carrier; and
d) forming an electrical contact between the conductive element and the electrical component to generate the electrical signal that varies as the elongated carrier flexes.

5,724,020

VOICE WARNING SYSTEM FOR FIRE ACCIDENTS

Ching-Fu Hsu, P.O. Box 82-144, Taipei, Taiwan

Filed May 16, 1996, Ser. No. 648,700
Int. Cl.[6] G08B *25/08*
U.S. Cl. 340—286.05 1 Claim



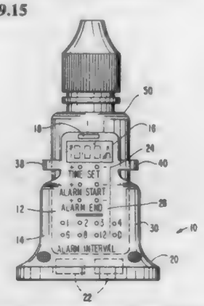
1. A voice warning system for fire accidents comprising a plurality of fire sensors, a first multiplex selector, a detecting and scanning circuit, a locking circuit, a decoding circuit, a memory circuit, a second multiplex selector, a scanning circuit, a load, a time pulse controlling circuit, a fire emergency assistance calling circuit, and a plurality of loudspeakers **12**, said sensors and said loudspeakers being designed to arrange in appropriate positions and the other circuits being disposed with a fire-proof control box, whereby when any one of said fire sensors senses fire, a signal will be sent to said multiplex selector which will detect fire position through said detecting and scanning circuit and will synchronously send out low potential signal to said locking circuit and said decoding circuit, said locking circuit being used for locking fire memory and connected to said load and said pulse control circuit for producing time sequence pulse, said decoding circuit being designed for decoding the fire position, said memory circuit memorizing said fire position and outputting 16 signals to said second multiplex selector which will cyclic scan position signal via said scanning circuit and will synchronously send out low potential to said time pulse control circuit and voice address output reference to a voice card when receiving signal, said voice card sending out a busy signal to block cyclic scanning if said voice card is working, said time pulse control circuit including positive OR gate, positive AND gate, non-positive AND gate, SN7474 and SN74123IC and being used for controlling cyclic scanning function of said scanning circuit and sending out a strobe signal to control said voice card.

5,724,021

SELF-CONTAINED, PROGRAMMABLE, TIME INTERVAL ALARM REMINDER DEVICE FOR EYEDROP MEDICATION ADMINISTRATION AND A MEANS FOR AFFIXING SUCH TO EYEDROP/MEDICATION CONTAINER

Stephen C. Perrone, 68-55 Fresh Pond Rd., Ridgewood, Queen, N.Y. 11385, assignor to Stephen C. Perrone, Ridgewood, N.Y.

Filed Jul. 9, 1996, Ser. No. 676,544
Int. Cl.[6] G08B *3/00*
U.S. Cl. 340—309.15 23 Claims



1. A self-contained programmable time interval alarm device for medication administration, comprising:
a wrap-around housing having a resilient element and a clamp with releasably mating elements, said wrap-around housing being movable to wrap around a periphery of a container of medication, said clamp being movable in unison with said wrap-around housing between a clamping position, which mates said releasable mating elements and secures the container of medication to said housing, and a released position that frees said releasable mating elements and releases the container from said wrap-around housing, said resilient element compressing into a compressed condition in response to said clamp entering into said clamping position and thereby being movable in unison with said container, said resilient element leaving said compressed condition in response to said clamp entering into said released position;
alarm circuitry supported by the housing and being responsive to passage of a set time interval to make an indication; and
a plurality of switches supported by the housing each associated with a different time interval, said alarm circuitry being responsive to actuation of any of said switches individually to set to the different time interval that is associated with the switch so that the alarm circuitry makes the indication in response to passage of the different time interval.

5,724,022

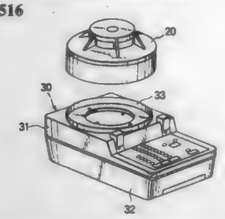
Patent Not Issued For This Number

5,724,023

SETTING DEVICE FOR FIRE ALARM SYSTEM

Kelichi Takahashi, and Kazuki Takumi, both of Tokyo, Japan, assignors to Nohmi Bosai Ltd., Tokyo, Japan

Filed Mar. 28, 1995, Ser. No. 412,155
Claims priority, application Japan, Mar. 30, 1994, 6-061763
Int. Cl.[6] G08B *29/00*
U.S. Cl. 340—516 15 Claims



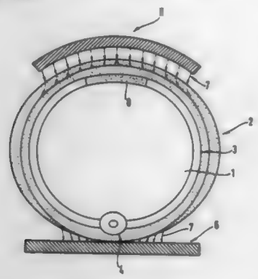
9. A setting device for a fire alarm system, comprising:
a terminal device connecting section having a first base removably and electrically connectable to a first terminal device of a first size, and a second base removably and electrically connectable to a second terminal device of a second size which is smaller than the first size; and said second base is recessed within said first base.

5,724,024

DEVICE FOR DETECTING THE PRESENCE OF PERSONS ON SEATS

Wilhelm Sonderegger, Dornbirn; Georg Kuehne, Rankwil, and Thomas Hupp, Feldkirch, all of Austria, assignors to Vos Verkehrs-Optimierungs-Systems GmbH & Co., Austria

PCT No. PCT/EP94/01779, § 371 Date Mar. 13, 1996, § 102(e) Date Mar. 13, 1996, PCT Pub. No. WO95/00368, PCT Pub. Date Jan. 5, 1995
PCT Filed Jun. 1, 1994, Ser. No. 564,366
Claims priority, application Germany, Jun. 22, 1993, 43 20 513.5; Jul. 3, 1993, 43 22 159.9
Int. Cl.[6] G08B *13/26*
U.S. Cl. 340—562 10 Claims



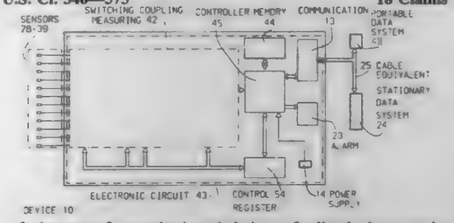
1. A device for detecting the presence of persons in transport means including at least one seat where an electrical monitoring arrangement is assigned to at least one seat of the transport means, the electrical monitoring arrangement being adapted to measure the presence of a human body on the seat to which the electrical monitoring arrangement is assigned via a capacitive electrode arrangement that detects slight body changes over time, caused by breathing and/or heart beat.

5,724,025

PORTABLE VITAL SIGNS MONITOR

Itzchak Tavori, P.O. Box 434, 46103 Herzlia B, Israel

Continuation-in-part of Ser. No. 326,421, Oct. 20, 1994, abandoned. This application Feb. 14, 1996, Ser. No. 601,641
Claims priority, application Italy, Oct. 21, 1993, 107351
Int. Cl.[6] G08B *23/00*
U.S. Cl. 340—573 18 Claims



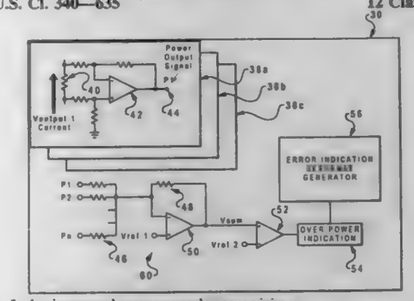
1. A system for monitoring vital signs of a live body, comprising:
(a) an inquiring device;
(b) a portable monitoring device, said device including:
(i) an electrical circuit, said circuit including a controller, data storage capability, and input ports, said electrical circuit being designed to read inputs and to store data;
(ii) a plurality of sensors connected to said electrical circuit inputs, each of said sensors providing said sensor's corresponding sensor output;
(iii) an alarm mechanism, said alarm mechanism designed to activate when a predetermined set point stored in said data storage capability is exceeded, said set point being based on at least one of said sensor outputs;
(iv) communication means for transferring said data to said inquiring device, and for downloading of related data such as personal identification parameters, operating software, forced measurement software, and alarm set-points from said inquiring device; and,
(v) an instruction set for operation of said portable monitoring device.

5,724,026

MULTIPLE OUTPUT LEVEL POWER SUPPLY WITH OVERPOWER DETECTION CIRCUIT

Jonathan Michael Allen, Rochester, Minn., assignor to International Business Machines Corporation, Armonk, N.Y.

Filed Apr. 24, 1996, Ser. No. 639,917
Int. Cl.[6] G08B *21/00*
U.S. Cl. 340—635 12 Claims



1. An improved power supply comprising:
a DC power supply for providing a plurality of diverse DC voltage output levels;
a power indication circuit coupled to said DC power supply for generating a plurality of power output signals, each of said plurality of power output signals representative of the power output at one of said plurality of diverse DC voltage output levels; and

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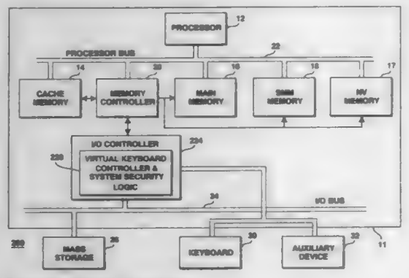
a summation circuit coupled to said power indication circuit for generating a total power output signal representative of the total power output from selected ones of said plurality of diverse DC voltage output levels of said DC power supply wherein overpower condition may be detected.

5,724,027

METHOD AND APPARATUS FOR PROVIDING SYSTEM SECURITY TO PERSONAL COMPUTER SYSTEMS USING TRANSPARENT SYSTEM INTERRUPT

Mark Shipman, Hillsboro, and Orville Christeson, Portland, both of Oreg., assignors to Intel Corporation, Santa Clara, Calif.

Filed Sep. 28, 1995, Ser. No. 535,725
Int. Cl.[6] G06F *3/02;13/00;* **H04L** *9/32;* **G06K** *5/00*
U.S. Cl. 340—825.31 **25 Claims**



17. An apparatus comprising:

a processor having a first and a second state of operation, an interrupt for switching the processor from the first state to the second state, and an instruction for returning the processor to the first state from the second state;

keyboard controlling facility that operates in a one of three modes in any point in time during operation, the three modes including

a first mode wherein commands and data are allowed to be exchanged between a coupled keyboard/auxiliary device and the processor operating in the first state through the keyboard controlling facility in a substantially unrestricted manner, except for a first plurality of security related commands and data,

a second mode wherein commands and data exchanges between the processor operating in the first state and the keyboard/auxiliary device through the keyboard controlling facility are substantially inhibited, except for a second plurality of security related commands and data, and

a third mode wherein the keyboard controlling facilitating communicates exclusively with the processor operating in a second state, facilitating servicing of either the first or the second security related commands and data, and inhibiting all command and data exchanges between the processor and the keyboard/auxiliary device; and

an interrupt handler executed by the processor in the second state for servicing the first or the second security related commands and data.

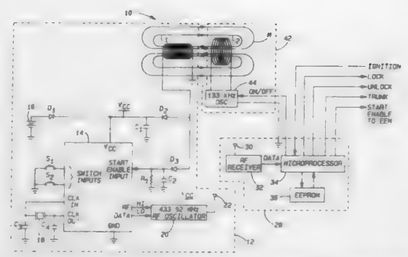
5,724,028

RF REMOTE SYSTEM WITH DRIVE-AWAY PREVENTION

James M. Prokup, Westland, Mich., assignor to United Technologies Automotive, Inc., Dearborn, Mich.

Continuation of Ser. No. 360,644, Dec. 21, 1994, abandoned.
This application Jun. 3, 1997, Ser. No. 868,327
Int. Cl.° H04Q *1/00*
U.S. Cl. 340—825.31 **19 Claims**

1. A security system for preventing unauthorized activation and for providing remote function actuation of a vehicle, the system comprising:



a fob transmitter for transmitting coded signals to prevent unauthorized activation and for providing remote function actuation of the vehicle having an initiation signal, said fob transmitter comprising:

a first microprocessor

for generating a first coded signal to remotely actuate a function within the vehicle; and

for generating a second coded signal, to secure the vehicle, in response to receiving a power signal;

a first coil for receiving said power signal;

a first circuit for transmitting said first and second coded signals;

a receiver for receiving said coded signals to prevent unauthorized activation of the vehicle, and for initiating actuation of a vehicle function remotely, said receiver comprising:

a second circuit for receiving said first and said second coded signal;

a second coil for coupling with said first coil to transmit said power signal to said first coil in response to receiving the initiation signal; and

a second microprocessor

for determining the validity of said received first coded signal, and for initiating the function remotely being actuated within the vehicle if said received first coded signal is valid; and

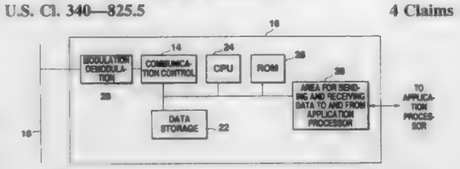
for determining the validity of said received second coded signal, and for securing the vehicle by generating an activation signal if said received second coded signal is valid.

5,724,029

COMMUNICATION INTERCONNECTION DEVICE WITH PROCESSING INTERRUPT BASED ON TOKEN ADDRESS

Noriyuki Takao; Hidetoshi Takano, both of Toyota; Sakae Ito, and Naoki Okamura, both of Nara, all of Japan, assignors to Toyota Jidosha Kabushiki Kaisha, Toyota, and Sharp Kabushiki Kaisha, Osaka, both of Japan

Continuation of Ser. No. 268,607, Jun. 30, 1994, abandoned.
This application Oct. 17, 1995, Ser. No. 544,211
Claims priority, application Japan, Jun. 30, 1993, 5-159884
Int. Cl.° H04L *12/56*
U.S. Cl. 340—825.5 **4 Claims**



1. A communication device used as at least one of a plurality of stations coupled together via a communication medium constituting a communication network, the communication device comprising:

a) processing means for conducting communication processing; and

b) interrupt means for requesting an interruption processing from the processing means, wherein the interruption means includes:

(i) a demodulator being coupled to the communication medium and outputting data from the communication medium as a first output and as a second output;

(ii) a first receiving channel receiving said first output of the demodulator and having a first address extractor for extracting an address from the data demodulated by the demodulator and received from said first output, having a first buffer in which a first reference address is stored and having a first address comparator for judging whether a frame received via the demodulator through the communication medium is a media access control frame for maintenance and control of normal communication by comparing the address extracted by the first address extractor with the first reference address;

(iii) a second receiving channel receiving said second output of the demodulator and having a second address extractor for extracting an address from the data demodulated by the demodulator and received from said second output, having a second buffer in which a second reference address is stored and having a second address comparator for judging whether a frame received via the demodulator through the communication medium is a logical link control data frame for data transmission addressed to the communication device by comparing the address extracted by the second address extractor with the second reference address; and

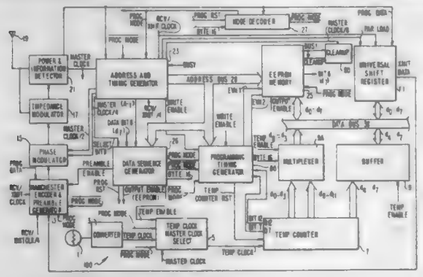
(iv) interrupt request means for requesting, from the processing means interruption processing regarding the media access control frame when the first receiving channel judges that the frame received via the demodulator through the communication medium is the media access control frame and for requesting interrupt processing regarding the logical link control frame when the second receiving channel judges that the frame received via the demodulator through the communication medium is the logical link data control frame.

5,724,030

SYSTEM MONITORING REPROGRAMMABLE IMPLANTABLE TRANSPONDER

Donald J. Urbas, Evergreen, and David Ellwood, Lakewood, both of Colo., assignors to Bio Medic Data Systems, Inc., Seaford, Del.

Filed Oct. 13, 1994, Ser. No. 322,644
Int. Cl.° G08C *19/12*
U.S. Cl. 340—870.17 **26 Claims**



1. A passive transponder comprising:

antenna means for receiving an input signal containing data from a signal source and transmitting an output signal to said signal source;

memory means for storing said data received by said transponder from said signal source, said transponder being in one of a read mode for outputting said data to said signal source as said output signal and a programming mode wherein said memory means stores said data in response to said input signal; and

integrity means for indicating to said signal source the sufficiency of said input signal for causing said memory means to store said data.

15. A passive transponder comprising: antenna means for receiving an input signal containing data from a signal source and transmitting an output signal to said signal source;

memory means for storing said data received by said transponder from said signal source, said transponder being in one of a read mode for outputting said data to said signal source as said output signal and a programming mode wherein said memory means stores said data in response to said input signal; and monitoring means for monitoring a characteristic of a host, wherein said monitoring means is coupled to said memory means, said memory means including a plurality of memory addresses, each of said plurality of addresses being sequentially addressed in response to said input signal, said monitoring means monitoring said characteristic during the period of time required to address a predetermined number of said addresses of said memory means and producing a characteristic measurement, said output signal including said characteristic measurement.

21. A passive transponder comprising:

an antenna for receiving an input signal containing data from a signal source and transmitting an output signal to said signal source;

memory means for storing said data received by said transponder from said signal source, said transponder being in one of a read mode for outputting said data to said signal source as said output signal and a programming mode wherein said memory means stores said data in response to said input signal; and

impedance modulation means for modulating the impedance of the antenna to output a carrier signal formed by the changing impedance permitting said antenna to output said output signal and receive said input signal substantially simultaneously by applying a load to said antenna in response to said output signal to reduce interference with said input signal, said impedance being modulated in response to the input signal.

5,724,031

METHOD AND KEYBOARD FOR INPUTTING CHINESE CHARACTERS ON THE BASIS OF TWO-STROKE FORMS AND TWO-STROKE SYMBOLS

Feimeng Huang, The Agricultural Bank of China Neijiang Branch, 284 Jiao Tong Road Neijiang, Sichuan, China

PCT No. PCT/CN94/00079, § 371 Date May 1, 1996, § 102(e) Date May 1, 1996, PCT Pub. No. WO95/12842, PCT Pub. Date May 11, 1995
PCT Filed Oct. 20, 1994, Ser. No. 637,715
Claims priority, application China, Nov. 6, 1993, 93115373.5
Int. Cl.° H03M *11/00*
U.S. Cl. 341—28 **4 Claims**

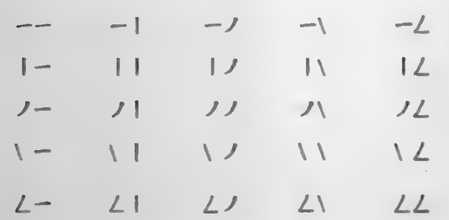


1. A keyboard for inputting Chinese characters on the basis of two-stroke forms and two-stroke symbols, wherein said keyboard

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is a standard keyboard on which keys for 25 two-stroke form code elements, keys for 25 to 28 two-stroke symbol code elements and a code-ending key are arranged; and wherein

said two-stroke form code elements include:



all of the above two-stroke form code elements are arranged in three lines, with each line having at most 10 code elements; and

the 5 code elements beginning with a horizontal stroke are marked on the left 5 keys of the middle line;

the 5 code elements beginning with a vertical stroke are marked on the right 4 keys of the middle line and the second right key of the lower line;

the 5 code elements beginning with a left-falling stroke are marked on the left 5 keys of the upper line;

the 5 code elements beginning with a right-falling stroke are marked on the right 5 keys of the upper line; and

the 5 code elements beginning with a turning stroke are marked on the left 5 keys of the lower line,

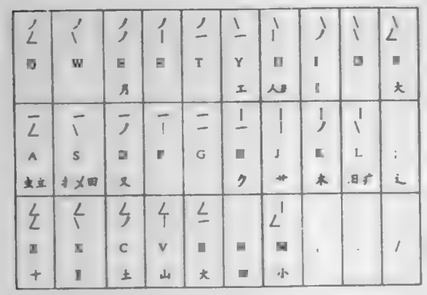
said two-stroke symbol code elements are:

日月人工本ㄐㄑ大土ㄓㄨ口ㄕㄆㄅㄎㄔ十ㄖ土山大口小

and following three code elements can be added as two-stroke symbol code elements when necessary:

入、金、马;

said two-stroke form code elements and said two-stroke symbol code elements are arranged on the keyboard in accordance with the following combination relations:



and, when two-stroke symbol code elements "入、金、马" are added:

5,724,032

METHOD AND APPARATUS FOR COMPRESSING AND DISPLAYING DIGITAL DATA, PARTICULARLY THE HEART RATE OF FETAL MONITORS

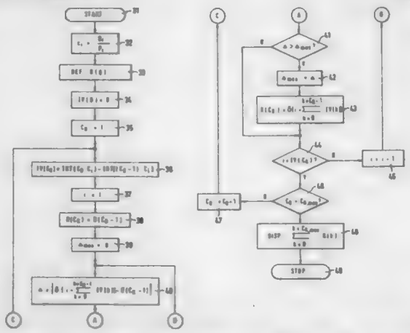
Ralf Klein, Boeblingen, and Herbert Secker, Stuttgart, both of Germany, assignors to Hewlett-Packard Company, Palo Alto, Calif.

Filed Jun. 7, 1996, Ser. No. 660,637

Claims priority, application Germany, Jul. 1, 1995, 195 24 092.1

Int. Cl.[6] **G06F** *19/00;* **A61B** *5/0444;* **H03M** *7/30*

U.S. Cl. 341—50 **14 Claims**



1. Method for compressing digital data for a raster representation with at least two dimensions on a digital computer, where the raster resolution at least in the direction of the abscissa is less than the resolution of the digital data itself, characterized by the following method steps:

(1.1) Selecting an ordinate value for the first raster point to be displayed,

(1.2) Starting a counter for the abscissa values of the raster points or for the digital data,

(1.3) Determining the maximum absolute difference between the ordinate values of the data in an interval defined by a compression factor c_i and beginning at or after the abscissa value of the last raster point determined, and the ordinate value of the last raster point,

(1.3.1) wherein the compression factor c_i is calculated from the formula $c_i=D_i/P_i$ where D_i=the total number of data items to be displayed in the abscissa direction and P_i= the number of raster points available for displaying in the abscissa direction,

(1.4) Selecting the ordinate value of that raster point which corresponds to the maximum absolute difference determined in step (1.3) as the ordinate value of a new raster point,

(1.5) Incrementing the counter, and

(1.6) Repeating the steps of the method beginning with step (1.3), until the ordinates of the desired number of raster points have been determined.

5,724,033

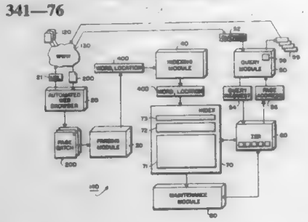
METHOD FOR ENCODING DELTA VALUES

Michael Burrows, Palo alto, Calif., assignor to Digital Equipment Corporation, Maynard, Mass.

Filed Aug. 9, 1996, Ser. No. 695,059

Int. Cl.[6] **H03M** *3/00*

U.S. Cl. 341—76 **2 Claims**



1. A computer implemented method for encoding digital values, the values being arranged in a successively increasing order, comprising the steps of:

determining a delta value for each pair of immediately successive values, each delta value being the difference between the pair of immediately successive values;

storing a logical zero in the least significant bit of a next single byte and storing the delta value in the most significant bits of the next single byte if the delta value can be encoded as one byte;

storing a logical one in the least significant bit of a first byte of a plurality of next bytes and storing a first portion of the delta value in the most significant bits of the first byte, and storing a logical zero in the most significant bit of the next byte of the plurality of bytes and storing a next portion of the delta value in the least significant bits of the next byte of the plurality of bytes, unless the next portion of the delta value is the last portion of the delta value, in which case storing a logical zero in the most significant bit of the last byte of the plurality of bytes, and storing the last portion of the delta value in the least significant bits of the last byte to encode the values as a sequence of bytes storing delta values so that the number of instructions which must be executed to decode the encoded values is minimized.

5,724,034

DEVICE FOR ESTABLISHING CELL BOUNDARIES IN A BIT STREAM AND CRC CALCULATION

Johan Wieant Gerlach Nielander, Amersfoort, and Franciscus Anna Gerardus Vankan, Tilburg, both of Netherlands, assignors to Koninklijke PTT Nederland N.V., Groningen, Netherlands

PCT No. PCT/EP94/04272, § 371 Date Jun. 18, 1996, § 102(e) Date Jun. 18, 1996, PCT Pub. No. WO95/18495, PCT Pub. Date Jul. 6, 1995

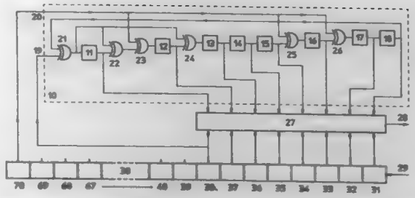
PCT Filed Dec. 23, 1994, Ser. No. 663,140

Claims priority, application Netherlands, Dec. 27, 1993, 9302266

Int. Cl.[6] **H03M** *13/00*

U.S. Cl. 341—94 **10 Claims**

1. Device for establishing boundaries in a bit stream, comprising converting means (**10**) for converting a first number of bits of the bit stream into a second number of bits, which converting means (**10**) comprise at least a first input (**19**) for receiving at least one bit situated within the first number of bits and comprise at least a second input (**20**) for receiving at least one bit situated outside the first number of bits, and



comparing means (**27**) for comparing the second number of bits with a third number of bits of the bit stream, which first number, second number and third number are each at least equal to one, characterized in that the converting means (**10**) comprise

a series circuit (**11–18**) of at least a fourth number of memory elements, each memory element for generating at least one bit of the second number of bits, which series circuit (**11–18**) is coupled to the first input (**19**), and

discounting means (**23,25,26**) for discounting the effect on the conversion process of at least one bit situated outside the first number of bits, which discounting means (**23,25,26**) are coupled to the second input (**20**) and to the series circuit (**11–18**).

5,724,035

METHOD OF CORRECTING SIGNALS FOR ENCODER AND APPARATUS FOR SAME

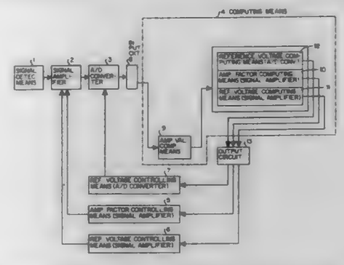
Hirokazu Sakuma, Tokyo, Japan, assignor to Mitsubishi Denki Kabushiki Kaisha, Tokyo, Japan

Filed Sep. 25, 1996, Ser. No. 719,635

Claims priority, application Japan, Mar. 29, 1996, 8-077168

Int. Cl.[6] **H03N** *1/06*

U.S. Cl. 341—120 **16 Claims**



1. A method of correcting signals for an encoder by preparing simulated sinusoidal signals by means of movement of a scale member of a signal detecting section, subjecting said simulated sinusoidal signals to A/D conversion, and computing positional data, said method comprising the steps of:

detecting amplitude of said simulated sinusoidal signal from a difference between the maximum value and the minimum value of said simulated sinusoidal signal;

deciding an optimal reference voltage for the A/D converter or an optimal amplification factor and an optimal reference voltage for an amplifier for simulated sinusoidal signals according to this amplitude; and

setting a reference voltage for said A/D converter, or an amplification factor and a reference voltage for said amplifier according to these optimal values.

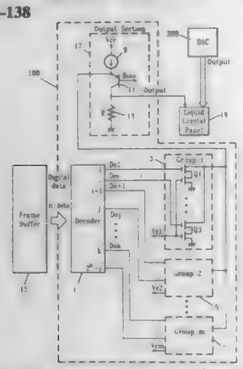
VOL 1208 ISS 1 MR 3 1998 UMI

5,724,036

DIGITAL-TO-ANALOG CONVERTER WITH GAMMA COMPENSATION AND A LIQUID CRYSTAL DISPLAY DEVICE USING SAME

Yoshinao Kobayashi, Hiratsuka, and Yoshitami Sakaguchi, Yokohama, both of Japan, assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Sep. 5, 1995, Ser. No. 523,654
Claims priority, application Japan, Sep. 5, 1994, 6-211214
Int. Cl.[6] H03M 1/84
U.S. Cl. 341—138 10 Claims



1. A D/A converter for converting digital data read from a frame buffer for each pixel of a display screen to analog data compensated by a gamma compensation, wherein a curve of the gamma compensation is divided to a plurality of ranges sufficient to approximate the curve, comprising:
a constant current source;
output means connected to said constant current source for providing an output voltage by a flowing current;
a plurality of driver transistors, each connected to one of said plurality of output lines of said decoder and to said constant current source for conducting a current from said constant current source when said connected output line is active;
a plurality of limit transistor, each connected to one of said plurality of driver transistors; and
wherein said plurality of output lines of said decoder are grouped correspondingly to each of said plurality of ranges, and a common reference voltage in each group is applied to control terminals of said limit transistors associated with said output lines in each of said groups.

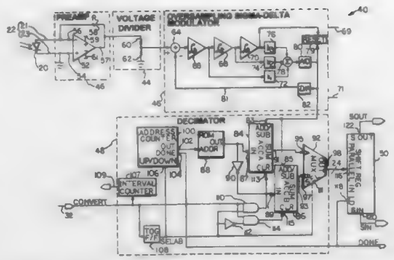
5,724,037

DATA ACQUISITION SYSTEM FOR COMPUTED TOMOGRAPHY SCANNING AND RELATED APPLICATIONS

Wai L. Lee, Wilmington, Mass., assignor to Analog Devices, Inc., Norwood, Mass.

Filed May 23, 1995, Ser. No. 447,735
Int. Cl.[6] H03M 3/00
U.S. Cl. 341—143 37 Claims

1. A computed tomography scanning system, comprising:
an x-ray source,
a plurality of x-ray detectors positioned to receive x-rays from the x-ray source,
a position sensor responsive to a position of the x-ray source relative to the x-ray detectors,
a plurality of sigma-delta modulators each having an input operatively connected to an output of one of the x-ray detectors,
a plurality of decimator portions each having a modulated detector signal input operatively connected to an output of one of the modulators, the decimator portions each having a convert signal input operatively connected to an output of the position sensor and having a clock signal input, wherein the decimator



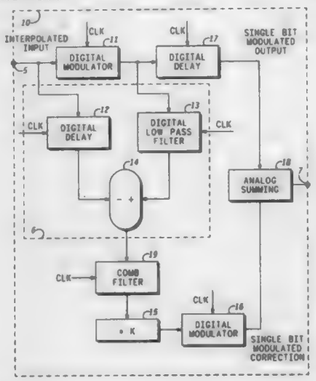
portions are each responsive to a convert signal on the convert signal input to define a decimation period during which each decimator decimates a modulated detector signal on the modulated detector signal input based on a clock signal on the clock line,
a digital signal processing stage responsive to outputs of the decimator portions, and having a display output, and a display responsive to the digital signal processing stage.

5,724,038

NOISE CANCELLING CIRCUIT AND ARRANGEMENT

Vladimir Koifman, Rishon-Lezion; Yachin Afek, Kfar Saba, and Sergio Liberman, Natania, all of Israel, assignors to Motorola, Inc., Schaumburg, Ill.

Filed Feb. 12, 1996, Ser. No. 599,742
Claims priority, application United Kingdom, Feb. 10, 1995, 9502586
Int. Cl.[6] H03M 1/66
U.S. Cl. 341—144 8 Claims



1. A noise cancelling circuit for use with a D/A converter having a sigma-delta modulator and a data output, the circuit comprising:
an input terminal for receiving an error signal of the sigma-delta modulator, error measuring means for measuring the error signal of the sigma-delta modulator, the error signal representing quantization error of the modulator, filtering means coupled to receive the error signal from the error measuring means for providing a filtered error signal,
filter compensating means coupled to the data output of the D/A converter and for providing a compensated output,
scaling means coupled to receive the filtered error signal, for providing a scaled filtered error signal in dependence upon the filtered error signal,
modulating means coupled to receive the scaled filtered error signal for providing a single bit stream of error data,
summing means for summing the single bit stream of error data and the compensated output from the D/A converter and for providing a corrected output, wherein the error signal is

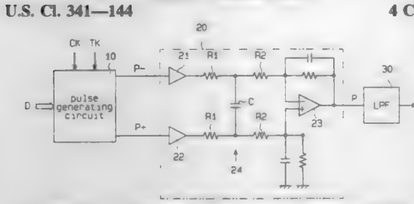
filtered, scaled and modulated and the data output is compensated such that the corrected output is obtained having a substantially reduced quantization error.

5,724,039

D/A CONVERTER

Koji Hayashi, Hashima, Japan, assignor to Sanyo Electric Co., Ltd., Osaki, Japan

Filed Mar. 11, 1997, Ser. No. 815,497
Claims priority, application Japan, Mar. 14, 1996, 8-57709
Int. Cl.[6] H03M 21/08
U.S. Cl. 341—144 4 Claims



1. A digital-to-analog (D/A) converter for converting digital data including an appropriate number of bits to an analog value according to the contents of the digital data every data conversion period, the D/A converter comprising:
a pulse generating circuit for generating a negative pulse signal and a positive pulse signal at the time of executing a continuous data conversion including an odd order and even order of the data conversion period which has a predetermined constant length, wherein the negative pulse signal rises after a period specified by the digital data in the odd data conversion period, and the negative pulse signal falls in the even data conversion period, wherein a period, which is specified by the digital data, remains in the even data conversion period, wherein the positive pulse signal rises in the odd order of the data conversion period such that a period, specified by the digital data, remains in the odd data conversion period, and the positive pulse signal falls after a period specified by the digital data in the even data conversion period; and
a pulse synthesizer for synthesizing the negative pulse signal and the positive pulse signal and for providing a synthesized pulse signal in response to the difference between the negative pulse signal and the positive pulse signal.

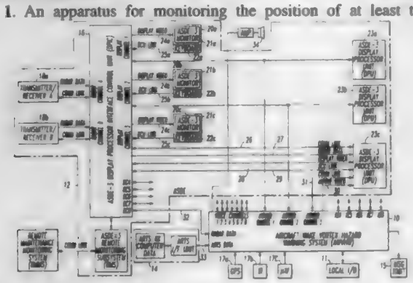
5,724,040

AIRCRAFT WAKE VORTEX HAZARD WARNING APPARATUS

Marshall Watnick, Trumbull, Conn., assignor to Northrop Grumman Corporation, Los Angeles, Calif.

Continuation-in-part of Ser. No. 494,119, Jun. 23, 1995, Pat. No. 5,557,278. This application Feb. 16, 1996, Ser. No. 602,426
Int. Cl.[6] G01S 13/95
U.S. Cl. 342—26 11 Claims

1. An apparatus for monitoring the position of at least two



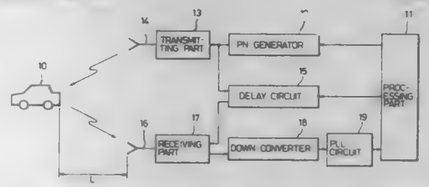
aircraft in an approach pattern to an airport, comprising:
(a) a target supervisor for characterizing and tracking said aircraft, said target supervisor receiving target data from at least one sensor, said target supervisor providing a plurality of outputs indicative of at least position and velocity parameters of said aircraft: and
(b) a hazard monitoring supervisor responsive to said outputs and operable to compare said outputs with a predetermined rule base governing a wake vortex hazard condition and to provide a detectable notice of a wake vortex hazard condition if said parameters violate said rule base.

5,724,041

SPREAD SPECTRUM RADAR DEVICE USING PSEUDORANDOM NOISE SIGNAL FOR DETECTION OF AN OBJECT

Kiyoshi Inoue; Haruhiko Ishizu, both of Atsugi, and Ryuji Kohno, Yokohama, all of Japan, assignors to The Furukawa Electric Co., Ltd., Tokyo, Japan

Filed Nov. 22, 1995, Ser. No. 561,985
Claims priority, application Japan, Nov. 24, 1994, 6-290139; Feb. 9, 1995, 7-022077
Int. Cl.[6] G01S 13/93
U.S. Cl. 342—70 17 Claims



1. A spread spectrum radar device which receives a reflected wave from an object based on a transmitted wave and detects said object, comprising:
generating means for generating a pseudorandom noise signal;
a transmitter for transmitting a wave whose band is spread by said pseudorandom noise signal;
a receiver for receiving a reflected wave from the object based on said transmitted wave and putting out a received signal;
despreading means for despreading said received signal by said pseudorandom noise signal and detecting a correlation of said received signal with said pseudorandom. noise signal;
a delay device for delaying said pseudorandom noise signal for a prescribed delay time when said correlation is detected;
a distance measuring device for measuring a distance to said object according to said delay time when said correlation is detected;
a frequency converter for converting the frequency of said received signal to a signal with a low frequency; and
identifying means for identifying presence of said object based on said frequency-converted low frequency signal.

5,724,042

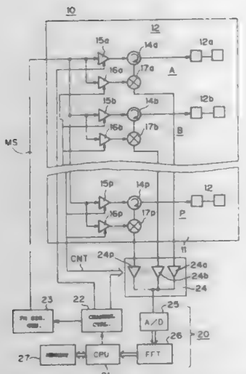
RADAR MODULE AND ANTENNA DEVICE

Satoru Komatsu, and Masanobu Urabe, both of Saitama-Ken, Japan, assignors to Honda Giken Kogyo Kabushiki Kaisha, Tokyo, Japan

Filed Mar. 6, 1996, Ser. No. 611,665
Claims priority, application Japan, Mar. 23, 1995, 7-090252; Aug. 24, 1995, 7-239311
Int. Cl.[6] G01S 7/28;13/93
U.S. Cl. 342—175 8 Claims

1. A radar module comprising:
a dielectric substrate;
an antenna assembly mounted on said dielectric substrate, said antenna assembly comprising a plurality of transmitting and receiving channels including respective planar array antenna elements each composed of a plurality of patches connected

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to and spaced along a linear distal end portion of a feeder line, said planar array antenna elements being arrayed in a direction substantially perpendicular to the linear distal end portion of the feeder line;

a plurality of transmitting and receiving assemblies mounted as monolithic microwave integrated circuits on said dielectric substrate, for selectively transmitting high-frequency signals to said planar array antenna elements and selectively receiving echo signals from said planar array antenna elements; and

a plurality of circularors mounted on said dielectric substrate and associated with the transmitting and receiving channels, respectively, said circulators connecting the respective linear distal end portions of the feeder lines to transmission and reception end portions which are connected to the transmitting and receiving assemblies, respectively.

5,724,043

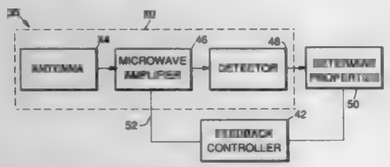
VARIABLE FREQUENCY MICROWAVE TROPOPAUSE SENSOR SYSTEM AND METHOD

Richard C. Savage, Franktown, Colo., and James L. Peirce, Hermosa Beach, Calif., assignors to Hughes Aircraft Company, Los Angeles, Calif.

Filed Jul. 31, 1995, Ser. No. 509,620

Int. Cl.[6] G01S *3/02*

U.S. Cl. 342—351 **15 Claims**



1. An apparatus, comprising:

a variable frequency microwave radiometer operating over a range of from about 118.0 to about 119.0 GHz, the radiometer receiving as a first input a microwave signal and as a second input a frequency selector signal, and producing as an output a measured power level at a measurement frequency corresponding to the input frequency selector signal; and

a feedback controller having as an input the measured power level and producing as an output the frequency selector signal, the feedback controller being operable to vary the frequency selector signal to a target frequency so as to produce a minimum value in the measured power level.

5,724,044

ELECTRICALLY SCANNING MICROWAVE RADIOMETER

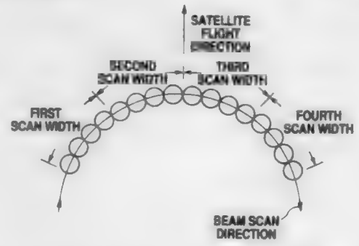
Hirokazu Tanaka, Kamakura, Japan, assignor to Mitsubishi Denki Kabushiki Kaisha, Tokyo, Japan

Continuation of Ser. No. 370,536, Jan. 9, 1995, abandoned. This application Jan. 27, 1997, Ser. No. 791,012

Claims priority, application Japan, Jan. 10, 1994, 6-000780

Int. Cl.[6] G01S *3/02;* **H01Q** *3/22;* **H04B** *7/185*

U.S. Cl. 342—351 **58 Claims**



1. An electrically scanning microwave radiometer mounted in a flying body orbiting a planet and operative to measure a surface of the planet, said electrically scanning microwave radiometer comprising:

a receiving antenna having a single radiation face a shape of which is cylindrical and is capable of scanning the surface of the planet along a conical section, the receiving antenna being constructed such that the single radiation face receives radiated energy substantially along a beam axis that extends from the radiation face to the surface of the planet;

a receiver for detecting original signals received by the receiving antenna and indicating a radiation from the planet to generate detected signals;

an integrator for integrating the detected signals to generate integrated signals; and

measurement signal providing means for processing the integrated signals to generate measurement signals which indicate the result of measurement for the surface of the planet and will be provided to an earth station;

wherein said receiving antenna comprises:

a plurality of sub-arrays disposed on said single radiation face and arranged in a scan direction, each of said plurality of sub-arrays having at least one beam for receiving the radiation from the planet;

a sub-array selection switch for selecting at least one of said plurality of sub-arrays as a receiving sub-array and for supplying the radiation received by the receiving sub-array to the receiver as said original signals; and

switch control means for controlling said sub-array selection switch to change the receiving sub-array sequentially in the scan direction such that the surface of said planet will be scanned along said conical section.

5,724,045

RADAR TRANSPONDER

Youichi Kawakami, Hyogo, Japan, assignor to Mitsubishi Denki Kabushiki Kaisha, Tokyo, Japan

Filed Sep. 20, 1995, Ser. No. 531,072

Claims priority, application Japan, Sep. 22, 1994, 6-228050

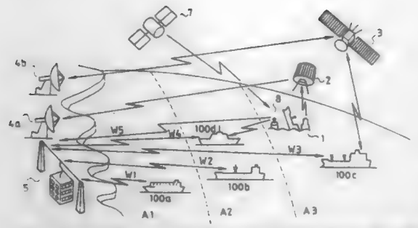
Int. Cl.[6] H04B *7/185;* **G01S** *5/02*

U.S. Cl. 342—357 **12 Claims**

1. A multi-functional radar transponder having a Global Positioning System (GPS) receiver and equipped for being mounted in a ship comprising:

means for monitoring radar signals from other ships in a normal mode and for receiving and transmitting marine disaster signals in an emergency mode;

a multi-functional antenna structure comprising:



a first antenna for receiving the radar signals from other ships in the normal mode and for receiving and transmitting marine disaster signals in the emergency mode; and

a second antenna for receiving GPS signals mounted to be positioned adjacent to and to be folded out to a position extending at an angle of about 90 degrees to the first antenna in the emergency mode; and

a first switch operated with the positioning of the second antenna from the normal mode to the emergency mode for disenabling the transmission of the marine disaster signals in the normal mode and for enabling the transmission of the marine disaster signals in the emergency mode.

5,724,046

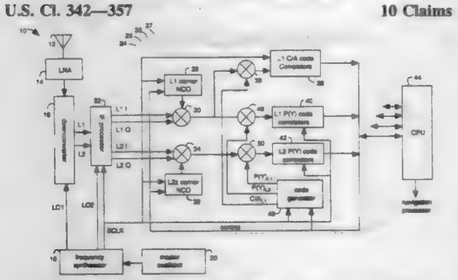
METHOD AND SYSTEM FOR USING A SINGLE CODE GENERATOR TO PROVIDE MULTI-PHASED INDEPENDENTLY CONTROLLABLE OUTPUTS IN A NAVIGATION SATELLITE RECEIVER

Kreg A. Martin, and Gary R. Lennen, both of Cupertino, Calif., assignors to Trimble Navigation Limited, Sunnyvale, Calif.

Filed Feb. 1, 1996, Ser. No. 595,180

Int. Cl.[6] H04B *7/185;* **G01S** *5/02*

U.S. Cl. 342—357 **10 Claims**



1. A dual-frequency navigation satellite receiver, comprising:

an antenna and low-noise amplifier for receiving dual-channel spread spectrum transmissions from a plurality of orbiting navigation satellites;

downconversion means connected to the antenna and low-noise amplifier for removing the carriers from an L1 and an L2 channel pair in said transmissions;

a pair of L1 and L2 code mixers connected to the downconversion means for removing a pseudo-random spreading code from said downconverted transmissions;

an L1 code numeric controlled oscillator (NCO) and an L2 code NCO respectively connected to a phase resolver that provides for counting the excess of L1 code clocks over the L2 code clocks with a digital counter;

a single pseudo-random spreading code generator connected to the L1 NCO and providing for an L1 pseudo-random spreading code output signal connected to the L1 code mixer; and

digital signal delay means connected to said phase resolver and the single pseudo-random spreading code generator and providing for an L2 pseudo-random spreading code output signal connected to the L2 code mixer, wherein the phase resolver incrementally adjusts the output of the pseudo-random spreading code generator to produce said L2 pseudo-random spreading code output signal.

5,724,047

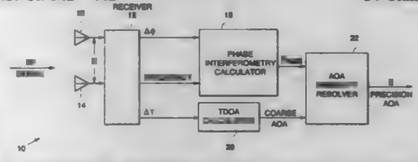
PHASE AND TIME-DIFFERENCE PRECISION DIRECTION FINDING SYSTEM

Rick J. Liolo, Redondo Beach; Gary E. Clayton, Torrance, and Robert A. Deaton, Los Angeles, all of Calif., assignors to Hughes Electronics, Los Angeles, Calif.

Filed Nov. 27, 1996, Ser. No. 758,038

Int. Cl.[6] G01S *5/04*

U.S. Cl. 342—442 **14 Claims**



8. A method for determining a precise estimate of an angle of arrival (AOA) of received RF signals relative to a antenna array of first and second antenna elements separated in space by a distance D, comprising the steps of:

processing first and second signals at said first and second antenna elements in response to the received RF signals to determine a frequency of said received signals, to determine a phase difference between corresponding phases of said first and second signals received at said first and second antenna elements, and to determine a time difference of arrival (TDOA) of said respective first and second signals at said first and second antenna elements;

calculating a set of multiple ambiguous estimates of said AOA using phase interferometry in response to said phase difference and said frequency;

performing a TDOA angle calculation using said TDOA to provide a coarse estimate of said AOA; and

selecting as a precision estimate of said AOA that ambiguous estimate comprising said set which is closest to said coarse estimate.

5,724,048

ARRAY ANTENNA, IN PARTICULAR FOR SPACE APPLICATIONS

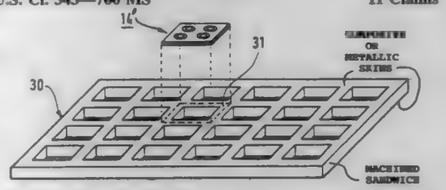
Olivier Remondiere, Frouzins, France, assignor to Alcatel, N.V., Amsterdam, Netherlands

Filed Jan. 30, 1992, Ser. No. 828,012

Claims priority, application France, Feb. 1, 1991, 91 01153

Int. Cl.[6] H01Q *1/38*

U.S. Cl. 343—700 MS **11 Claims**



1. An array antenna for space applications, the antenna comprising:

a plurality of subarrays each containing at least four radiating elements inside a respective common periphery, each said subarray being in the form of a physically separate stack of conductive and dielectric layers bounded by said respective common periphery; and

a support structure having a plurality of openings arranged in a two dimensional array, each said opening being a respective common opening located beneath a major portion of all of

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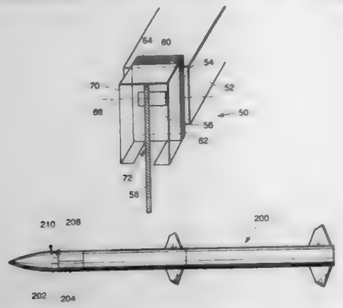
said at least four radiating elements of a respective said subarray and each said opening being surrounded by an interface zone defining a support surface for fixing to said common periphery of the respective subarray.

5,724,049

END LAUNCHED MICROSTRIP OR STRIPLINE TO WAVEGUIDE TRANSITION WITH CAVITY BACKED SLOT FED BY OFFSET MICROSTRIP LINE USABLE IN A MISSILE

Pyong K. Park, Agoura Hills, Calif., and Eric L. Holzman, Medford, N.J., assignors to Hughes Electronics, Los Angeles, Calif.

Filed May 23, 1994, Ser. No. 247,363
Int. Cl.° H01Q 1/28; H01P 5/107
U.S. Cl. 343—705 12 Claims



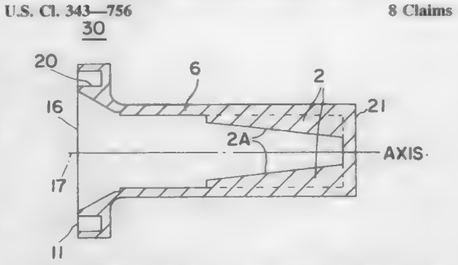
8. An airborne missile, comprising a missile body, a waveguide disposed in said body and having a first end and characterized by a waveguide characteristic impedance, an RF processor section disposed within said body, said processor section including a microstrip transmission line circuit, a port for coupling to said waveguide, and a microstrip transmission line to waveguide transition disposed at said port, said transition comprising terminating means for terminating said first end of said waveguide located at said port, said terminating means comprising a dielectric substrate having opposed first and second surfaces, wherein a layer of conductive material defines a groundplane on said first surface thereof facing an interior region of said waveguide, said conductive layer having an open slot defined therein characterized by a slot center, said slot being centered on said first end of said waveguide, a microstrip conductor defined on said second opposed surface disposed transversely relative to an elongated extent of said slot and offset from said slot center by an offset distance, a length of said elongated extent is such that said slot is resonant over a frequency range of operation of said transition, said extent smaller than a corresponding extent of said waveguide, and said offset distance is such that said transition performs impedance matching between said waveguide characteristic impedance and a characteristic impedance of said microstrip transmission line, and means for defining an electrically conductive cavity adjacent said second surface of said substrate to cover said second surface and to prevent coupling to unwanted parallel-plate and dielectric surface wave modes, said defining means including an end conductive surface and cavity side enclosure surface means for defining sidewalls enclosing sides of said cavity, said conductive cavity enclosing said microstrip conductor at a region adjacent said second surface, and wherein dimensions of said cavity are such that no cavity modes resonate in a frequency band of operation of said transition.

5,724,050

LINEAR-CIRCULAR POLARIZER HAVING TAPERED POLARIZATION STRUCTURES

Katsuhiko Tokuda, Osaka; Yoshikazu Yoshimura, Takatsuki, and Tatsuya Nagatsu, Minou, all of Japan, assignors to Matsushita Electric Industrial Co., Ltd., Osaka, Japan

Filed Sep. 12, 1995, Ser. No. 527,023
Claims priority, application Japan, Sep. 12, 1994, 6-217143
Int. Cl.° H01P 1/165; H01Q 15/24
U.S. Cl. 343—756 8 Claims



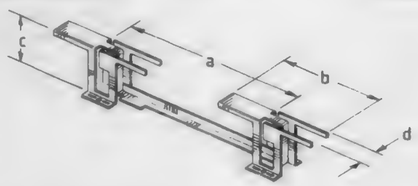
1. Linear-circular polarizer for receiving a signal having a particular frequency, the linear-circular polarizer comprising a waveguide having a first totally closed end, a second end, and a pair of fin shaped ¼ wavelength phase plates that introduce a phase difference of one quarter cycle of the particular frequency, each of said ¼ wavelength phase plates having a respective sloping surface and situated opposite to each other and on an inner surface of the waveguide so that each respective ¼ wavelength phase plate has one end thereof in contact with the first totally closed end of the waveguide, and said ¼ wavelength phase plates positioned at the first end of the waveguide opposite to the second end of the waveguide where a primary radiator is located so that each respective sloping surface decreases in height along each of the ¼ wavelength phase plates from said closed end of the waveguide to the second end of the waveguide where said primary radiator is located.

5,724,051

ANTENNA ASSEMBLY

Peter Mailandt, Dallas, and Tan D. Huynh, Hurst, both of Tex., assignors to Allen Telecom Inc., Solon, Ohio

Filed Dec. 19, 1995, Ser. No. 575,708
Int. Cl.° H01Q 9/28;21/12
U.S. Cl. 343—795 17 Claims



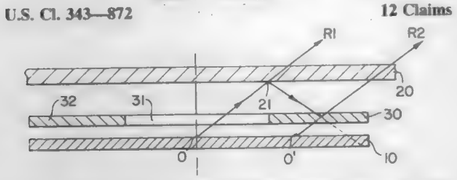
10. An antenna assembly comprising a base plate and at least one integrally formed antenna array mounted thereon, said antenna array comprising a pair of dipole antennas, an elongated transmission line formed integrally at the ends thereof with said pair of dipole antennas, and mounting means integrally formed with said dipole antennas for mounting said antenna array to said base plate, each said dipole antenna comprising a pair of oppositely directed, elongated dipole arms, one of said arms being continuous in plan view and the other comprising a pair of spaced apart arm elements in plan view.

5,724,052

DEVICE FOR REDUCING THE RADOME EFFECT WITH A SURFACE-RADIATING WIDEBAND ANTENNA AND REDUCING THE RADAR CROSS SECTION OF THE ASSEMBLY

Christian Boulingre, Le Plessis Robinson; Henri Perron, Bagnolet, and Jean Rannou, Antony, all of France, assignors to Thomson-CSF, Puteaux, France

Filed May 16, 1989, Ser. No. 364,674
Claims priority, application France, Jun. 14, 1988, 88 07905
Int. Cl.° H01Q 1/42
U.S. Cl. 343—872 12 Claims



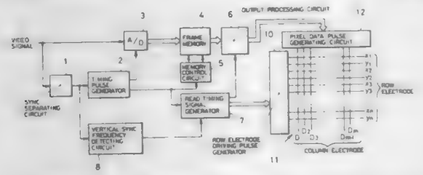
1. A device for reducing the disturbing effect produced by the reflections of waves on a radome protecting a surface-radiating wideband antenna, and for reducing the radar cross section of the assembly, comprising a layer for absorbing transmitted radiation, placed between said antenna and said radome, and extending parallel to the surface of the antenna at a close distance to said antenna, said absorbing layer having an absorption coefficient varying between a minimum value in the center of the radiating surface of the antenna, and a maximum value at the periphery of said radiating surface.

5,724,053

PLASMA DISPLAY APPARATUS ADAPTED TO MULTIPLE FREQUENCIES

Tetsuroh Nagakubo, Koufu, Japan, assignor to Pioneer Electronic Corporation, Tokyo, Japan

Filed Jul. 19, 1995, Ser. No. 504,243
Claims priority, application Japan, Sep. 7, 1994, 6-213934
Int. Cl.° G09G 3/28
U.S. Cl. 345—60 1 Claim



1. A plasma display apparatus adapted to multiple scanning frequencies, in which

a video signal is converted to a plurality of pixel data according to a luminance level for every field of said video signal,

the number of times of discharge light emission corresponding to each of said pixel data is set in accordance with said luminance level, and

a light emission drive is performed, thereby executing a gradation display, said apparatus comprising:

vertical sync frequency measuring means for measuring a vertical sync frequency of said video signal; and

discharge light emission adjusting means for adjusting the number of times of said discharge light emission on the basis of said vertical sync frequency measured,

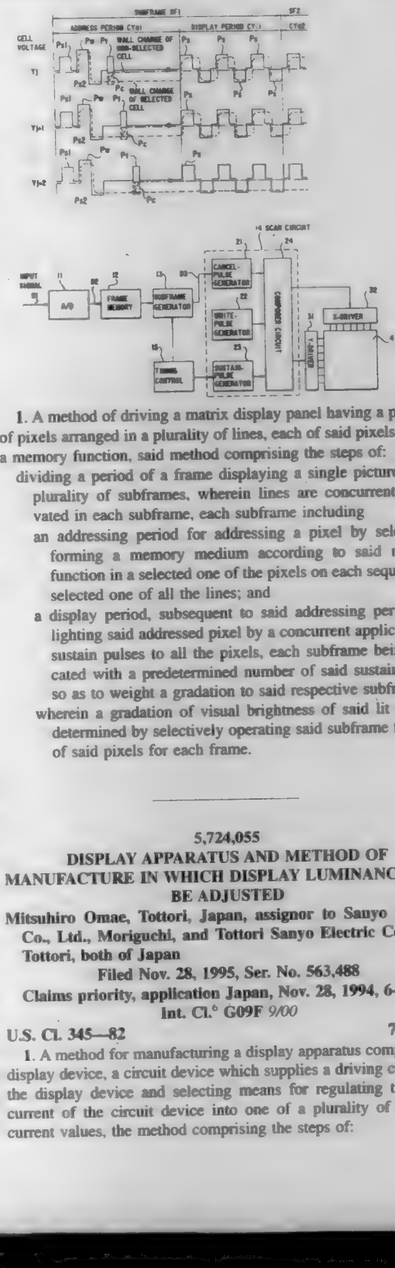
wherein said discharge light emission adjusting means reduces said number of times of said discharge light emission when said vertical sync frequency increases and increases said number of times of said discharge light emission when said vertical sync frequency decreases.

5,724,054

METHOD AND A CIRCUIT FOR GRADATIONALLY DRIVING A FLAT DISPLAY DEVICE

Tsutae Shinoda, Kawasaki, Japan, assignor to Fujitsu Limited, Kanagawa, Japan

Division of Ser. No. 405,920, Mar. 16, 1995, Pat. No. 5,541,618, which is a continuation of Ser. No. 181,959, Jan. 18, 1994, abandoned, which is a continuation of Ser. No. 799,255, Nov. 27, 1991, abandoned. This application Jul. 1, 1996, Ser. No. 674,161
Claims priority, application Japan, Nov. 28, 1990, 2-331589
Int. Cl.° G09G 3/28
U.S. Cl. 345—60 15 Claims



1. A method of driving a matrix display panel having a plurality of pixels arranged in a plurality of lines, each of said pixels having a memory function, said method comprising the steps of:

dividing a period of a frame displaying a single picture into a plurality of subframes, wherein lines are concurrently activated in each subframe, each subframe including

an addressing period for addressing a pixel by selectively forming a memory medium according to said memory function in a selected one of the pixels on each sequentially selected one of all the lines; and

a display period, subsequent to said addressing period, for lighting said addressed pixel by a concurrent application of sustain pulses to all the pixels, each subframe being allocated with a predetermined number of said sustain pulses so as to weight a gradation to said respective subframe,

wherein a gradation of visual brightness of said lit pixel is determined by selectively operating said subframe for each of said pixels for each frame.

5,724,055

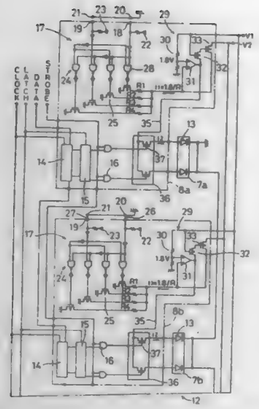
DISPLAY APPARATUS AND METHOD OF MANUFACTURE IN WHICH DISPLAY LUMINANCE CAN BE ADJUSTED

Mitsuhiro Omae, Tottori, Japan, assignor to Sanyo Electric Co., Ltd., Moriguchi, and Tottori Sanyo Electric Co., Ltd., Tottori, both of Japan

Filed Nov. 28, 1995, Ser. No. 563,488
Claims priority, application Japan, Nov. 28, 1994, 6-293454
Int. Cl.° G09F 9/00
U.S. Cl. 345—82 7 Claims

1. A method for manufacturing a display apparatus comprising a display device, a circuit device which supplies a driving current to the display device and selecting means for regulating the drive current of the circuit device into one of a plurality of steps of current values, the method comprising the steps of:

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allocating the display device to one of a plurality of ranks according to its light quantity characteristic;

allocating the circuit device to one of a plurality of ranks according to its output current characteristic; and

selecting based on the rank of the display device and the rank of the circuit device a selection value of the selecting means previously prepared according to a combination of ranks of the display device and the circuit device.

5,724,056

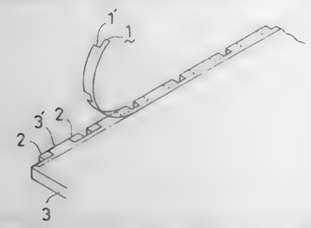
METHOD FOR CONSTRUCTING A LIQUID CRYSTAL DISPLAY

Teruyuki Kato, Settsu, Japan, assignor to Kabushiki Kaisha Kato Seiko, Osaka, Japan

Continuation of Ser. No. 300,041, Sep. 2, 1994, abandoned. This application Oct. 2, 1995, Ser. No. 537,632

Int. Cl.[6] G09G *3/36*

U.S. Cl. 345—87 **5 Claims**



1. A method for constructing a liquid crystal display, comprising a first step for connecting a first end part of a TAB film provided with a chip to an end part of a liquid crystal panel, and a second step for connecting a second end part of the TAB film to an end part of a printed board using solders, the end part of the printed board being formed to have projecting portions;

the method further comprising the following steps prior to the second step:

preparing a tape having a long side that is cut to have projecting portions corresponding to the projecting portions of the end part of the printed board, and applying adhesive materials to a rear surface of each projecting portion of the tape;

aligning the tape to the printed board using the projecting a portions on the tape as guides such that the projecting portions of the tape coincide with the projecting portions of the printed board so as to avoid contacting pattern wirings formed on the printed board;

attaching the tape to the printed board so that the projecting portions of the tape coincide with the projecting portions of the printed board and the adhesive are applied to prescribed portions of the printed board;

removing the tape from the printed board so as to leave the adhesive materials on the prescribed portions of the printed board; and

arranging the TAB film so as to be temporarily fixed to the printed board via the adhesive materials so that the solders may be applied.

5,724,057

METHOD AND APPARATUS FOR DRIVING A LIQUID CRYSTAL DISPLAY

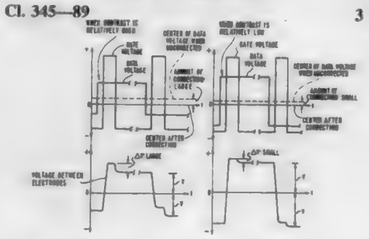
Yasuhiro Kimura, Yamato; Satoru Nishi, Zama, and Takahiro Onodera, Sagamihara, all of Japan, assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Nov. 7, 1994, Ser. No. 335,005

Claims priority, application Japan, Nov. 5, 1993, 5-276424

Int. Cl.[6] G09G *3/36*

U.S. Cl. 345—89 **3 Claims**



1. A method for driving a liquid crystal display in which a liquid crystal display device includes a display cell which is formed by a switching element, a pair of transparent electrodes disposed so as to oppose each other and so as to be spaced apart at a predetermined distance, and a liquid crystal disposed between said pair of transparent electrodes, and wherein the turning on of said switching element, the application of voltage, which is of a predetermined polarity and of a magnitude corresponding to a tone displayed by said display cell, to said liquid crystal via said transparent electrodes and, thereafter, the turning off of said switching element for a predetermined time, are repeated as the polarity of the voltage applied to said liquid crystal is alternately reversed, so that an image is displayed, said method being characterized in that: designating the contrast of an image to be displayed,

the magnitude of the voltage applied to said liquid crystal is changed in accordance with a specified contrast for the image to be displayed on said liquid crystal display, and the magnitude of the changed applied voltage is corrected for each polarity by an amount also based on the contrast of said image specified by said designating step so that an absolute value of the voltage between said pair of transparent electrodes when said switching element is turned off when the changed voltage is applied to said liquid crystal at a predetermined polarity and the absolute value of the voltage between said pair of transparent electrodes when said switching element is turned off when the changed voltage is applied at a polarity which is opposite to the predetermined polarity become equal.

5,724,058

GRAY SCALE DISPLAY DRIVING METHOD OF A MATRIX LIQUID CRYSTAL DISPLAY AND DRIVING APPARATUS THEREFOR

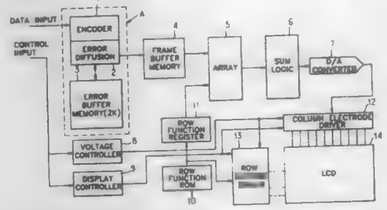
Sun-jung Choi, Suwon; Cheol-woo Park, Suwon; Choon-yul Oh, Anyang, and Min-seok Kim, Suwon, all of Rep. of Korea, assignors to Samsung Display Devices Co., Ltd, Kyungki-do, Rep. of Korea

Filed Oct. 25, 1995, Ser. No. 547,920

Claims priority, application Rep. of Korea, Sep. 6, 1995, 95-29161

Int. Cl.[6] G09G *3/36*

U.S. Cl. 345—89 **9 Claims**



1. A method of driving a matrix liquid crystal display comprising the steps of:

determining an n-bit error-diffused value of N-bit picture data, where n is smaller than N;

converting said N-bit picture data into an M-bit code, where M is larger than or equal to N;

error-diffusing n-bits of said converted picture data; and

displaying picture data of M-n bits, with n bits being error-diffused, as a picture by a gray display method.

5,724,059

METHOD FOR DRIVING OPTICAL MODULATION DEVICE

Junichiro Kanbe, and Kazuharu Katagiri, both of Yokohama, Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan

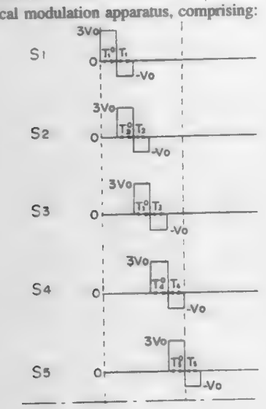
Division of Ser. No. 308,536, Sep. 21, 1994, Pat. No. 5,436,743, which is a division of Ser. No. 865,630, Apr. 9, 1992, Pat. No. 5,381,254, which is a continuation of Ser. No. 302,083, Jan. 26, 1989, abandoned, which is a continuation of Ser. No. 139,130, Dec. 28, 1987, abandoned, which is a continuation of Ser. No. 701,765, Feb. 14, 1985, abandoned. This application Apr. 14, 1995, Ser. No. 421,869

Claims priority, application Japan, Feb. 17, 1984, 59-28274; Jul. 10, 1984, 59-143481

Int. Cl.[6] G09G *3/36*

U.S. Cl. 345—94 **57 Claims**

1. An optical modulation apparatus, comprising:



an optical modulation device having:

a plurality of picture elements arranged in the form of a matrix having a plurality of rows and a plurality of columns;

scanning electrodes arranged in rows and signal electrodes arranged in columns defining said matrix of picture elements; and

a chiral smectic liquid crystal disposed between the scanning electrodes and signal electrodes; and

driving means for

a) applying a scanning selection signal comprising a former voltage of one polarity and a latter voltage of the other polarity to a particular one of the scanning electrodes to select that particular scanning electrode, and applying data signals to the signal electrodes, each data signal comprising an information signal for selecting a display state of a picture element on the particular scanning electrode, so that the picture elements on the particular scanning electrode supplied with the former voltage of one polarity are non-selectively erased into one display state and the picture elements on the particular scanning electrode supplied with the latter voltage of the other polarity are respectively selected in display states depending on the information signals applied in synchronism with the latter voltage of the other polarity, the voltage polarities being determined with respect to the voltage level of a scanning electrode to which the scanning selection signal is not applied; and

b) applying the former voltage of one polarity of a subsequent scanning selection signal to a scanning electrode selected subsequent to the particular scanning electrode during the period of applying the data signals for selecting the display states of the picture elements on said particular scanning electrode;

wherein the scanning electrodes are provided in a number N, and

said former voltage and said latter voltage are set to have pulse durations ΔT_1 (sec) and ΔT_2 (sec), respectively, satisfying: $\Delta T_1+\Delta T_2>T_1$, wherein T_1 is a time given as one frame scanning period (sec)/N.

5,724,060

MULTIPLEX ADDRESSING OF FERRO-ELECTRIC LIQUID CRYSTAL DISPLAYS

Alistair Graham; Jonathan R. Hughes, both of Malvern, and Michael John Towler, Oxford, all of United Kingdom, assignors to The Secretary of State for Defence in Her Britannic Majesty's Government of the United Kingdom of Great Britain and Northern Ireland, Hants, United Kingdom

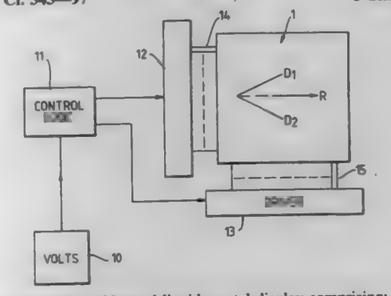
PCT No. PCT/GB94/00150, § 371 Date Aug. 14, 1995, § 102(e) Date Aug. 14, 1995, PCT Pub. No. WO94/18665, PCT Pub. Date Aug. 18, 1994

PCT Filed Jan. 26, 1994, Ser. No. 505,200

Claims priority, application United Kingdom, Feb. 15, 1993, 9302997

Int. Cl.[6] G09G *3/36*

U.S. Cl. 345—97 **6 Claims**



1. A multiplex addressed liquid crystal display comprising:

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a liquid crystal cell including a layer of ferro-electric smectic liquid crystal material contained between two substrates, each substrate bearing a set of electrodes, said sets of electrodes arranged to form collectively a matrix of addressable display elements having addressable intersections;

means, responsive to a data waveform, a strobe waveform and a voltage reduction waveform, for generating modified data and modified strobe waveforms of unipolar pulses in successive time slots (ts) for applying to the, two sets of electrodes, said generating means combining a data waveform and a voltage reduction waveform to form said modified data waveform and for applying said modified data waveform to one set of electrodes, and combining said strobe waveform and said voltage reduction waveform to form said modified strobe waveform and for applying said modified strobe waveform to the other set of electrodes in a multiplexed manner,

means for controlling the order of data waveforms so that a desired display pattern is obtained wherein voltage levels applied to the generating means are reduced whilst maintaining the resultant voltage level appearing at the addressable intersections.

5,724,061

DISPLAY DRIVING APPARATUS FOR PRESENTING SAME DISPLAY ON A PLURALITY OF SCAN LINES

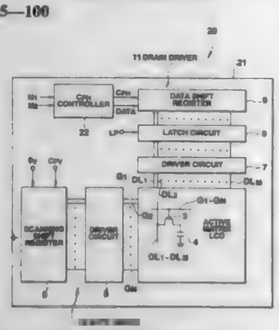
Minoru Kanbara, Hachioji, Japan, assignor to Casio Computer Co., Ltd., Tokyo, Japan

Filed Dec. 22, 1994, Ser. No. 361,979

Claims priority, application Japan, Dec. 29, 1993, 5-353901

Int. Cl.[6] G09G *3/36*

U.S. Cl. 345—100 **20 Claims**



1. A display driving apparatus comprising:

(i) a matrix display device for displaying an image, said matrix display device having switching elements and data written elements connected to said switching elements, said switching elements and said data written elements being arranged in rows and columns to form a matrix;

(ii) a plurality of scan lines arranged in a predetermined number of rows, each row of said plurality of scan lines being connected to respective ones of said switching elements arranged along a corresponding row of said matrix;

(iii) a plurality of data lines connected to said switching elements for supplying lines of display data to be displayed on successive rows of said scan lines;

(iv) a data line driver circuit connected to said switching elements via said data lines for supplying said switching elements connected to successive rows of said scan lines with said lines of display data, said data line driver circuit including:

shift means for receiving and shifting lines of display data supplied in serial thereto; and

holding means for successively receiving lines of display data from said shift means, holding a previous line of received display data, and supplying the held previous line of display data to said switching elements connected to a successive row of said scan lines when said holding means does not receive a successive new line of display data from said shift means; and

(v) control means, connected to said data line driver circuit, for inhibiting said shift means from receiving lines of display data corresponding to a predetermined number of successive rows of said scan lines, wherein said control means includes means for switching between a normal driving mode and an intermittent driving mode before said shift means receives lines of display data, said normal driving mode being a mode in which said shift means successively supplies said lines of display data to said holding means, and said intermittent driving mode being a mode in which said shift means stops supplying said lines of display data to said holding means for a predetermined number of successive rows of said scan lines after said shift means supplies a line of display data to said holding means.

5,724,062

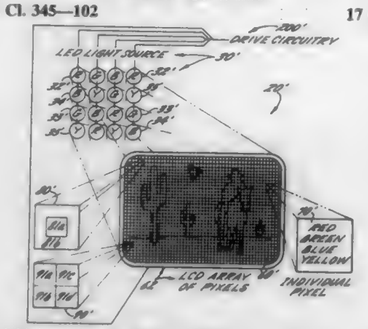
HIGH RESOLUTION, HIGH BRIGHTNESS LIGHT EMITTING DIODE DISPLAY AND METHOD AND PRODUCING THE SAME

C. Eric Hunter, Chapel Hill, N.C., assignor to Cree Research, Inc., Durham, N.C.

Continuation-in-part of Ser. No. 926,035, Aug. 5, 1992, Pat. No. 5,359,345. This application Sep. 21, 1994, Ser. No. 310,260

Int. Cl.[6] G09G *3/36*

U.S. Cl. 345—102 **17 Claims**



1. A high resolution, full color display, comprising:

a liquid crystal pixel selectably addressable during a predetermined time period wherein said liquid crystal pixel comprises an array of individual portions of a liquid crystal pixel and wherein each individual portion of said pixel is individually addressable over the predetermined time period;

an interspersed set of at least one red, one green, and one blue color light emitting diodes positioned adjacent said liquid crystal pixel and adapted for emitting light through said liquid crystal pixel; and

means connected to said liquid crystal pixel for selectably addressing the liquid crystal pixel a plurality of times during the predetermined time period so as to provide persistence when changes in color occur.

5,724,063

COMPUTER SYSTEM WITH DUAL-PANEL LCD DISPLAY

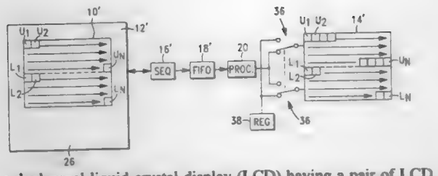
Lawrence Chee, Vancouver, and David Mulvenna, Delta, both of Canada, assignors to Seiko Epson Corporation, Tokyo, Japan

Filed Jun. 7, 1995, Ser. No. 487,120

Int. Cl.[6] G09G *3/36*

U.S. Cl. 345—103 **26 Claims**

1. A computer system comprising:



a dual-panel liquid crystal display (LCD) having a pair of LCD display panels operatively associated with one another so as to appear to be a single LCD display, each one of said pair of LCD display panels having plural pixel locations;

a dynamic random access memory (DRAM) having a virtual memory space with plural memory locations, said plural memory locations corresponding to said plural pixel locations of said pair of LCD display panels;

a display pipeline for sequentially reading plural memory locations of said DRAM corresponding to all pixel locations of one of said pair of LCD panels and sequentially writing corresponding pixel values to corresponding pixel locations of said one LCD display panel, and then sequentially reading plural memory locations of said DRAM corresponding to all pixel locations of the other of said pair of LCD panels and sequentially writing corresponding pixel values to corresponding pixel locations of said other LCD display panel;

said display pipeline including switch means for alternatingly directing plural pixel values in sequence from said DRAM to one of said pair of LCD display panels, and then directing plural pixel values in sequence from said DRAM to the other of said pair of LCD display panels, and for simultaneously blanking the one of said pair of LCD display panel which is not being written to by said display pipeline.

5,724,064

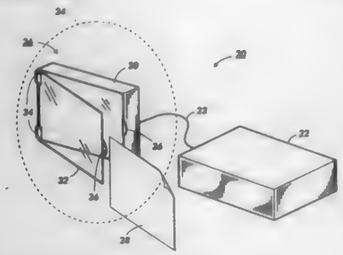
COMPUTING SYSTEM WITH AN INTERACTIVE DISPLAY

Mark J. Stefik, Woodside; David M. Levy, Palo Alto, and Michalene M. Casey, Morgan Hill, all of Calif., assignors to Xerox Corporation, Stamford, Conn.

Filed Dec. 27, 1995, Ser. No. 579,515

Int. Cl.[6] G09G *3/38*

U.S. Cl. 345—105 **11 Claims**



1. A computing system comprising:

a processor;

a sole display for the computing system;

said display comprising a display housing and a removable induced field activated display sheet;

said display housing being so constructed and arranged to receive said removable induced field activated display sheet;

said induced field activated display sheet having a plurality of image producing elements responsive to an induced field;

said induced field activated display sheet being flexible;

said display housing having a plurality of induced field creating means each of which is arranged to activate at least a respective one of the image producing elements of the induced field activated display sheet when located in said display housing;

means operably connected to said processor and said display housing for selectively activating said plurality of induced field creating means to thereby selectively activate the image producing elements of said induced field activated display sheet when located in said display housing in order to create different image on said same induced field activated display sheet in response to different images generated by said processor; and

said induced field activated display sheet being so constructed and arranged to retain its current image when removed from said display housing.

5,724,065

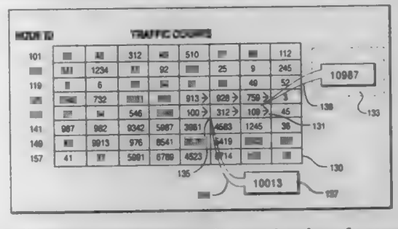
FLOAT TO SURFACE DISPLAY

David Yu Chang, and Shih-Gong Li, both of Austin, Tex., assignors to International Business Machines Corp., Armonk, N.Y.

Continuation of Ser. No. 168,545, Dec. 15, 1993, Pat. No. 5,602,563. This application Jul. 23, 1996, Ser. No. 685,127

Int. Cl.[6] G09G *5/00*

U.S. Cl. 345—115 **21 Claims**



1. A method for displaying data in a user interface of a computer system, comprising the steps of:

receiving dynamic data for display in a panel with a plurality of output fields;

determining that a first dynamic data will not fit in a first output field;

truncating the first dynamic data to fit in the first output field;

displaying the panel with dynamic data in the plurality of output fields, the first dynamic data displayed in a truncated manner in the first output field;

responsive to selection of the first output field, selecting a first location among a first plurality of possible locations on the display at which a first floating output field sufficiently long to display the first dynamic data will not overlap any significant feature of the panel; and

responsive to selecting the first location, displaying the first floating output field at the first location.

5,724,066

METHOD AND APPARATUS FOR AUTOMATIC CONTROL OF INSTRUMENTS THROUGH VIDEO

Richard O. Carmack, Indianapolis; Howard Clarence Freeman, Noblesville; Charles V. Green, Indianapolis; David S. Herron, Indianapolis; Darren Carl Martin, Indianapolis; G. Scott Ruiong, Indianapolis; Mark J. Simmons, Carmel; Karl Szabo, Fishers; Raymond E. Szkotak, Indianapolis; Li-Wun Chen Tam, Carmel; Robert C. Uleski, Noblesville; Frank W. Wagle, and Stephen T. West, both of Indianapolis, all of Ind., assignors to Boehringer Mannheim Corporation, Indianapolis, Ind.

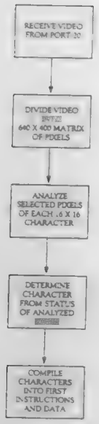
Division of Ser. No. 209,522, Mar. 10, 1994, abandoned. This application Apr. 18, 1995, Ser. No. 423,816

Int. Cl.[6] G09G *5/22*

U.S. Cl. 345—141 **11 Claims**

1. A method for distinguishing among the characters of a character set, the characters of which are represented by a data stream

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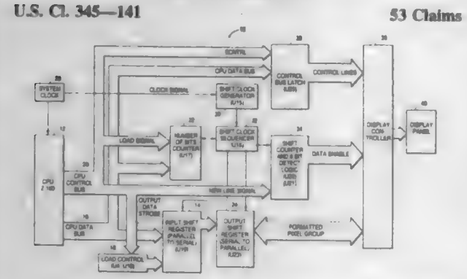
to a display port, the data stream capable of causing the characters to be displayed by a display coupled to the display port as selected pixels from m columns of pixels in n rows, the method comprising determining a subset of pixels, said subset containing fewer than all of the m times n pixels, said subset including pixels which uniquely identify each respective character of the set, examining only data in the data stream corresponding to said subset of pixels, and identifying a respective character based upon the states of said data corresponding to said subset of pixels.

5,724,067

SYSTEM FOR PROCESSING INDIVIDUAL PIXELS TO PRODUCE PROPORTIONATELY SPACED CHARACTERS AND METHOD OF OPERATION

Hans B. Atchley, Greensboro, and John J. Ronchetti, Sr., Kernersville, both of N.C., assignors to Gilbarco, Inc., Greenboro, N.C.

Filed Aug. 8, 1995, Ser. No. 512,410
Int. Cl.[6] G09G *5/22*
U.S. Cl. 345—141 **53 Claims**



1. A process for proportionately spacing a plurality of characters comprising:

(a) storing a character font in a memory defining a group of characters which individually selected, each selectable character containing at least one matrix of pixels with each matrix containing a plurality of rows of pixels with each row having pixels extending in a direction of reading of the pixels from the memory, visible pixels in the at least one matrix of each selectable character defining a visible shape which is stored in the memory as a first binary value and background pixels in the at least one matrix of each selectable character which are a remainder of a total number of pixels in the at least one matrix of each selectable character are stored in the memory as a second binary value;

(b) reading from the memory a selected row of pixels from the at least one matrix of each of the plurality of characters in a sequence of pixel groups with each pixel group containing a fixed number of pixels and being read from the memory in parallel;

(c) producing processed pixel groups containing the proportionately spaced plurality of characters by processing the sequence of pixel groups of the plurality of characters from the selected row by serially processing the individual pixels within each pixel group which has been read to selectively add or discard pixels from the at least one matrix of each of the selected characters;

(d) sequentially outputting in parallel the processed pixel groups of the selected row with each processed pixel group containing the fixed number of pixels to produce proportionate spacing in the selected row between the pixels of adjacent characters within the selected row; and

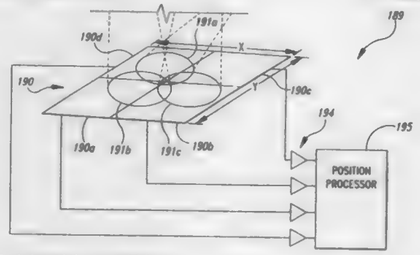
(e) repeating steps (b)–(d) to select and process each remaining row of the matrices of the plurality of characters.

5,724,068

JOYSTICK WITH UNIFORM CENTER RETURN FORCE

Russell I. Sanchez, Seattle, Wash.; Hiroyoshi Fuchioka, Tochigi, Japan; Teruo Suzuki, Tochigi, Japan, and Yuuichi Nakatsuka, Tochigi, Japan, assignors to Microsoft Corporation, Redmond, Wash.

Filed Sep. 7, 1995, Ser. No. 525,488
Int. Cl.[6] G06F *3/033*
U.S. Cl. 345—161 **27 Claims**



1. A joystick, comprising:

a housing;

a control stick having an upper end for grasping and moving by a user to position said control stick and a lower end movably mounted within said housing with movement thereof being responsive to user movement of said control stick upper end, said control stick having a resting position relative to said housing when not grasped by the user;

a position sensing circuit within said housing to detect the position of said control stick;

a spring retainer fixedly mounted within said housing; and

a coil spring having an upper spring end operatively engaging said control stick lower end and a lower spring end operatively engaging said spring retainer to compress said coil spring between said control stick lower end and said spring retainer to apply a centering force to said control stick to cause said control stick to return to the resting position.

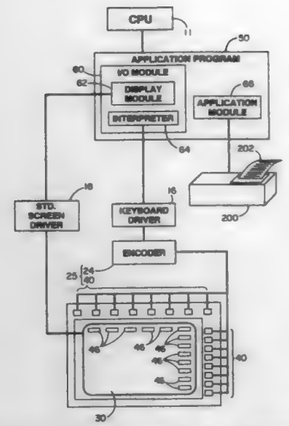
5,724,069

SPECIAL PURPOSE TERMINAL FOR INTERACTIVE USER INTERFACE

Jack Y. Chen, 3773 Fox Pointe Rd., Rockford, Ill. 61114

Filed Jul. 15, 1994, Ser. No. 275,847
Int. Cl.[6] G09G *5/00*
U.S. Cl. 345—172 **18 Claims**

1. A special purpose microcomputer-based terminal for interactive user interface and comprising the combination of:



a general purpose microcomputer having a display port and a keyboard port, the keyboard port being interfaced to a microcomputer keyboard driver of the type responsive to interpret keystroke signals in a standard format transmitted from a standard alphanumerical keyboard;

an interactive interface module comprising a general purpose display screen connected to and driven from the display port of the microcomputer, and a user input module including a plurality of electrical pushbuttons arranged along at least one side of the display;

the user input module including an encoder circuit for detecting the actuation of each pushbutton and producing a keystroke signal identifying the actuated pushbutton and compatible with the standard format of the keyboard driver;

the user input module being coupled to the keyboard port so that the keystroke signals produced by the encoder circuit are transmitted to and processed by the keyboard driver;

a program memory in the microcomputer for assigning level specific functions to individual ones of the pushbuttons and containing instructions which:

(a) assign level-specific input functions to the pushbuttons, and display pushbutton function assignments for a specified level on the display screen in positions coordinated to the positions of the pushbuttons; and

(b) respond to signals received from the keyboard driver circuit initiated by actuation of a pushbutton by determining the function specified by the pushbutton actuation for the specified level and executing the determined function.

5,724,070

COMMON DIGITAL REPRESENTATION OF STILL IMAGES FOR DATA TRANSFER WITH BOTH SLOW AND FAST DATA TRANSFER RATES

Karl Denninghoff; Chandan S. Chauhan, and Philippe Ferriere, all of Redmond, Wash., assignors to Microsoft Corporation, Redmond, Wash.

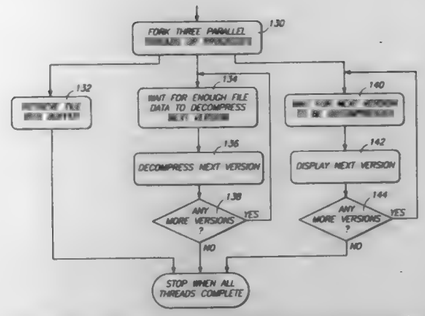
Filed Nov. 20, 1995, Ser. No. 560,907
Int. Cl.[6] G09G *5/00*
U.S. Cl. 345—202 **26 Claims**

1. A still image display system for displaying a still image stored as a compressed data file, comprising:

a progressive decompression component which decompresses the compressed data file and produces successive versions of the still image at progressively increasing resolutions;

a data retrieval medium operably connected to supply the compressed data file to the decompression component at a rate which is at least as fast as the decompression component can decompress the compressed data file;

a visual display device;



an image display component operably connected to successively display the successive versions of the still image produced by the decompression component on the visual display device;

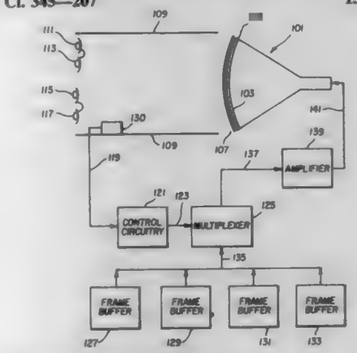
wherein the decompression component acts concurrently with the data retrieval medium to decompress the compressed data file concurrently with retrieving the compressed data file.

5,724,071

DEPTH IMAGE DISPLAY ON A CRT

Roger A. Morton, Penfield, and Roy Y. Taylor, Scottsville, both of N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.

Filed Jan. 25, 1995, Ser. No. 378,855
Int. Cl.[6] G09G *3/22*; **H04N** *13/00*
U.S. Cl. 345—207 **13 Claims**



4. A display system comprising:

a display device for displaying a three dimensional visual image;

a sensing device arranged to sense the location of the image on the display device and provide an output signal in response thereto; and

a processing means connected between said display device and said sensing device, said processing means being responsive to said sensing device output signal to provide a control signal, said display device being operable in response to said control signal to modify the location of the image on said display device;

wherein said processing means includes:

control circuitry connected to said sensing device, said control circuitry being responsive to said sensing device output signal to provide a control signal;

gating means connected between said control circuitry and the display device; and

first memory means connected to said gating means, said first memory means being operable to store a first plurality of frames of image data, each of said frames being effective when applied to the display device to generate the presen-

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tation of a different image on the display device, said gating means being further operable in response to said control signal to enable a selected one of the image data frames to be applied to the display device.

5,724,072

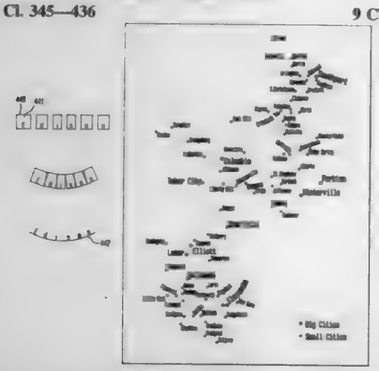
COMPUTER-IMPLEMENTED METHOD AND APPARATUS FOR AUTOMATIC CURVED LABELING OF POINT FEATURES

Herbert Freeman, Cranbury, and Fauzia S. Abbasi, Edison, both of N.J., assignors to Rutgers, The State University of New Jersey, Piscataway, N.J.

Division of Ser. No. 404,185, Mar. 13, 1995. This application Dec. 12, 1996, Ser. No. 766,582

Int. Cl.[6] G06T *11/00*

U.S. Cl. 345—436 **9 Claims**



1. A computer-implemented method of automatically labeling point features on map in accordance with predefined point feature labeling criteria, the map including a plurality of point features to be labeled with corresponding point feature names in accordance with said criteria, said method comprising the steps of:

(a) entering into the computer (i) map data including point feature data for said plurality of point features to be labeled and (ii) label data including said corresponding point feature name for each of said point features, said point feature name comprising one or more characters;

(b) performing a horizontal placement step for each point feature to first determine whether said corresponding point feature name can be placed in a horizontal position near said point feature;

(c) performing a curved placement step if said point feature name cannot be placed in accordance with said horizontal placement step by (i) calculating a total length of said point feature name, (ii) selecting a radius of curvature and an angle of curvature from a chosen center of rotation in accordance with said point feature labeling criteria, (iii) creating a placement arc from said angle of curvature and said radius of curvature, (iv) choosing a test location for placement of said placement arc, and (v) placing said point feature name on said placement arc at said test location and testing whether this placement satisfies said criteria; and

(d) selecting said test location as a final point feature name position if said criteria are satisfied, repeating said curved placement step with a different test location until said label placement criteria are satisfied if possible.

5,724,073

METHOD FOR THE ENTRY OF A GRAPHIC CHARACTER BY SPECIFYING A PARALLELOGRAM WHERE THE CHARACTER IS TO BE DISPLAYED

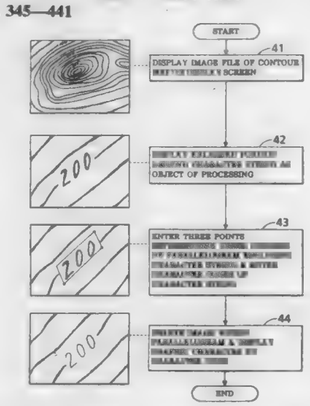
Takashi Hino, and Naruto Takasaki, both of Yokohama, Japan, assignors to Hitachi Software Engineering Co., Ltd., Kanagawa-ken, Japan

Continuation of Ser. No. 219,727, Mar. 29, 1994, abandoned. This application Jan. 22, 1996, Ser. No. 589,306

Claims priority, application Japan, Mar. 31, 1993, 5-097055

Int. Cl.[6] G06T *11/00*

U.S. Cl. 345—441 **6 Claims**



1. A method of entering a graphic character for display in a graphical image on a display unit by employing a graphic processor having a graphic display function, comprising the steps of:

displaying the contents of an image file, including a portion of said image file into which at least one graphic character is to be entered, said portion being displayed at a displayed scale;

specifying the portion of said image file into which the at least one graphic character is to be entered;

changing the displayed scale of the portion specified in said portion-specifying step;

specifying a parallelogram in which said at least one graphic character is to be entered within said portion;

entering a character code, having a number of characters, representing said at least one graphic character; and

creating graphic character data for said at least one graphic character, on the basis of the number of characters of the character code, and on the basis of attribute data representative of a geometric shape of said at least one graphic character;

wherein said attribute data is computed on the basis of the shape of said parallelogram, the displayed scale as changed in said changing step, and the number of characters of the character code.

5,724,074

METHOD AND SYSTEM FOR GRAPHICALLY PROGRAMMING MOBILE TOYS

Devindra S. Chainani, Bellevue, and Timothy E. Wood, Seattle, both of Wash., assignors to Microsoft Corporation, Redmond, Wash.

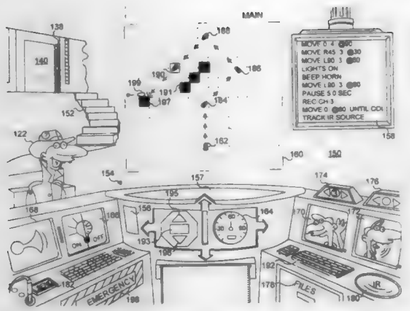
Filed Feb. 6, 1995, Ser. No. 384,034

Int. Cl.[6] G06F *9/00*

U.S. Cl. 345—474 **17 Claims**

1. A method for programming a mobile device to execute actions defined by a graphical program created by a user of the device, comprising the steps of:

(a) displaying a plurality of graphic objects to the user on a computer display, enabling the user to select specific graphic objects from the plurality of graphic objects, said specific



graphic objects that are thus selected by the user each representing an element of the graphical program;

(b) graphically entering successive movements of the device to further define the graphical program, and establishing a control parameter comprising a response that the mobile device should take as a result of the mobile device contacting an object;

(c) converting the graphical program thus created by the user into a control program that is in a format executable by a control within the device;

(d) linking a memory for the control within the device to the computer;

(e) downloading the control program from the computer into the memory for the control, said control being thereby enabled to control the device in accordance with the control program created by the user that is downloaded into said memory; and

(f) unlinking the memory for the control within the device from the computer so that the control within the device can execute the control program independently of the computer as the device moves about.

5,724,075

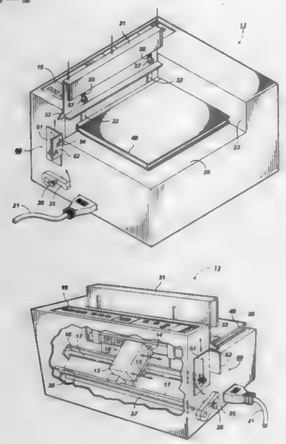
INK JET BOOK SPINE PRINTING SYSTEM

Wayne R. Smith, Pittsford, N.Y., assignor to Xerox Corporation, Stamford, Conn.

Continuation-in-part of Ser. No. 229,253, Apr. 18, 1994, abandoned. This application May 5, 1995, Ser. No. 436,031

Int. Cl.[6] B41J *3/00*

U.S. Cl. 347—2 **12 Claims**



1. A system that enables printing onto a spine portion of books by an ink jet printer, comprising:

an ink jet printer having a printhead and a support member for supporting a book in a substantially horizontal position, said book including a spine portion and edge portions, said ink jet printer including at least two registration members for registering said spine portion of said book in a predetermined position with respect to said printhead;

guide members for supporting said printhead for transverse movement with respect to said spine portion of said book;

an adjustable centering mechanism connected to said printhead for centering print on said spine portion of the book; and

a computer operatively connected to said ink jet printer to provide command signals to said printhead of said ink jet printer in order for said ink jet printer to print text onto said spine of said book.

5,724,076

OUT-OF-INK DETECTOR AND INK JET PRINTER

Nobuhisa Ishida, Kyoto, Japan, assignor to Rohm Co., Ltd., Kyoto, Japan

PCT No. PCT/JP95/00562, § 371 Date Nov. 30, 1995, § 102(e) Date Nov. 30, 1995, PCT Pub. No. WO95/26882, PCT Pub. Date Oct. 12, 1995

PCT Filed Mar. 27, 1995, Ser. No. 553,535

Claims priority, application Japan, Apr. 4, 1994, 6-066065

Int. Cl.[6] B41J *2/195;2/175*

U.S. Cl. 347—7 **9 Claims**

1. An out-of-ink detector for detecting the out-of-ink condition of an ink jet print head having an ink jet head unit with a plurality of nozzles, through which the unit selectively jets ink, and having an ink tank which feeds ink to said ink jet heat unit, comprising:

a pair of detection electrodes, one of said pair of detection electrodes being an electrically conductive film formed on a vibration plate of said ink jet head unit to form a common electrode, and the other one of the pair of detection electrodes being formed on the ink tank and connected to an exclusive line provided on a flexible cable.

5,724,077

DRIVING METHOD FOR AN INK JET RECORDING DEVICE HAVING A PLURALITY OF RECORDING HEADS

Yuji Murata, Ebina, Japan, assignor to Fuji Xerox Co., Ltd., Tokyo, Japan

Continuation of Ser. No. 123,074, Sep. 20, 1993, abandoned. This application Dec. 19, 1995, Ser. No. 574,783

Claims priority, application Japan, Oct. 8, 1992, 4-296471

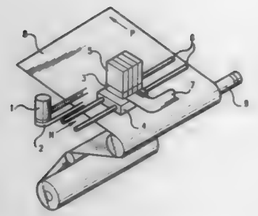
Int. Cl.[6] B41J *29/38*

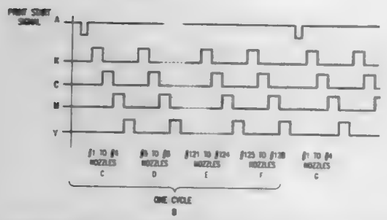
U.S. Cl. 347—12 **6 Claims**

1. A driving method for an ink jet recording device having a plurality of recording heads, each of said recording heads having a corresponding plurality of nozzles directed to a recording medium, each recording head having a plurality of blocks with each block including a corresponding group of said plurality of nozzles, the driving method comprising the steps of:

divisionally driving each of said plurality of blocks for each of said recording heads directed to the recording medium by

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controlling print control signals for said recording heads, with said blocks being driven during a printing cycle,

and

shifting a drive timing of a second one of said recording heads directed to the recording medium relative to a drive timing of a first one of said recording heads during said printing cycle by delaying heater control signals applied to said second one of said recording heads relative to heater control signals applied to said first one of said recording heads such that all of said recording heads can not be simultaneously driven during said printing cycle, thereby reducing peak power consumption of said ink jet recording device during said printing cycle.

5,724,078

INK JET APPARATUS WITH CONTROL OF RECORDING HEAD CLEANING

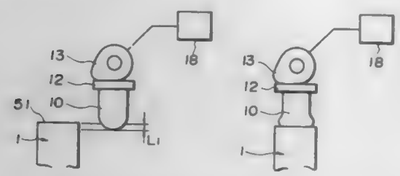
Yasuo Kotaki, Yokohama, Japan, assignor to Canon Kabushiki Kaisha, Tokyo, Japan

Continuation of Ser. No. 45,172, Apr. 13, 1993, abandoned. This application Dec. 16, 1996, Ser. No. 767,155

Claims priority, application Japan, Apr. 14, 1992, 4-120132

Int. Cl.[6] B41J *2/165*

U.S. Cl. 347—33 **12 Claims**



1. An ink jet apparatus for use with an ink jet head having a discharge surface provided with at least one of a discharge opening for discharging an ink therethrough, said apparatus comprising:

a cleaning member for making contact with the discharge surface to clean the discharge surface upon relative movement between the ink jet head and said cleaning member; and

changing means for changing a first contact pressure to a second contact pressure between said cleaning member and the discharge surface in accordance with a discharging condition of the ink discharged from the discharge opening, said first contact pressure being such that a load for cleaning is 50–200 g/line of the discharge openings, and said second contact pressure being such that the load for cleaning is 200–500 g/line of the discharge openings.

5,724,079

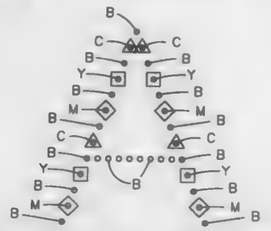
COMBINED BLACK AND COLOR INK JET PRINTING

Edward Frank Helinski, Johnson City; Ho Chong Lee, Endicott, and Jack Louis Zable, Vestal, all of N.Y., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Nov. 1, 1994, Ser. No. 332,709

Int. Cl.[6] B41J *2/21;2/145;2/15*

U.S. Cl. 347—43 **5 Claims**



1. An ink jet printer, including a mechanism for receiving and incrementing paper vertically, a print head and mechanism for moving the print head horizontally across the paper, and a plurality of orifices and devices to eject ink drops from the orifice, and wherein the printer has a plurality of orifices to print black ink and colored ink, and wherein the color is generated by a plurality of different color inks, the black ink and each color from separate orifices, an improved nozzle configuration in a print head face plate comprising;

said orifices being arranged in a pattern in which the orifices are spaced vertically and horizontally with respect to each other, and wherein each color ink orifice is interposed between two black ink orifices in the vertically-spaced direction, and wherein each orifice is vertically spaced from all other orifices;

whereby a swath of printing can be formed with interspersed dots of black ink and colored ink.

5,724,080

NON-STICKING PUMP FOR USE IN RECOVERY OF INK JET RECORDING APPARATUS

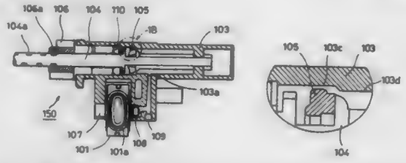
Masaharu Ikado, Suita, Japan, assignor to Canon Kabushiki Kaisha, Tokyo, Japan

Filed Dec. 16, 1994, Ser. No. 357,016

Claims priority, application Japan, Dec. 20, 1993, 5-319987; Dec. 20, 1993, 5-319991

Int. Cl.[6] B41J *2/175*

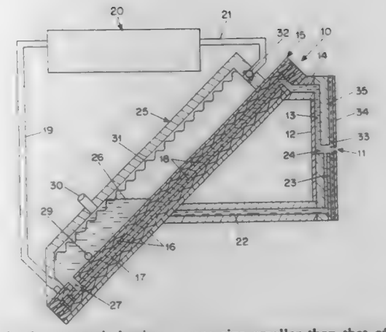
U.S. Cl. 347—85 **26 Claims**



1. An ink jet apparatus having a recording head for ejecting ink onto a recording medium, said apparatus comprising:

a pump, including a cylinder having an operating portion having an inner wall of a first inner diameter and a standby portion having an inner wall of a second inner diameter, and a piston having an outer diameter and an outer circumferential surface that is adapted to be in direct engagement with said inner wall of said operating portion, said piston being disposed within said cylinder and mounted for relative movement with said cylinder between said operating portion, wherein the outer diameter of said piston closely fits the first inner diameter of said cylinde:, and said standby portion, wherein the entire outer circumferential surface of said piston loosely fits the second inner diameter of said cylinder, and a port in said cylinder for communicating with said recording head; and

drive means for moving said piston relative to said cylinder to generate pressure at said port while said piston occupies said operating portion.



filter in the reservoir having a pore size smaller than that of the filter in the passage leading from the pressure chamber to the orifice.

5,724,081

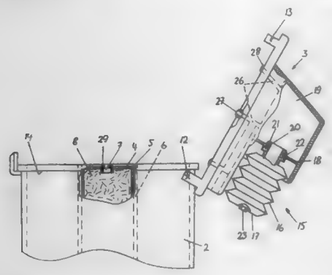
MULTI-COLOR PRINT HEAD FOR AN INK-JET PRINTER

Gordian Maechler, Altendorf, and Jürg Geissmann, Zurich, both of Switzerland, assignors to Pelikan Produktions AG, Egg, Switzerland

Filed Mar. 13, 1995, Ser. No. 402,577

Int. Cl.[6] B41J *2/175*

U.S. Cl. 347—87 **19 Claims**



1. A multi-color print head for an ink-jet printer comprising a housing having a plurality of receiving chambers, a plurality of ink cartridges each having an ink of a pre-determined color in said receiving chambers, each of said ink cartridges having a vent opening for feeding air, and a pump means disposed on said housing and being in fluid communication with said vent opening to create an overpressure at the vent openings after at least one of said ink cartridges has been inserted in one of said receiving chambers.

5,724,082

FILTER ARRANGEMENT FOR INK JET HEAD

Edward R. Moynihan, Plainfield, N.H., assignor to Specta, Inc., Keene, N.H.

Filed Apr. 22, 1994, Ser. No. 231,102

Int. Cl.[6] B41J *2/175*

U.S. Cl. 347—88 **6 Claims**

1. An ink jet bead comprising a pressure chamber, an orifice plate having an orifice of selected diameter, an ink passage extending from the pressure chamber to the orifice, a filter in the passage between the pressure chamber and the orifice having a pore size small enough to retain contaminant particles which could block the orifice, wherein the filter in the passage has a pore size from approximately 30% to less than 100% of the diameter of the orifice, a reservoir for supplying ink to the pressure chamber and a

5,724,083

Patent Not Issued For This Number

5,724,084

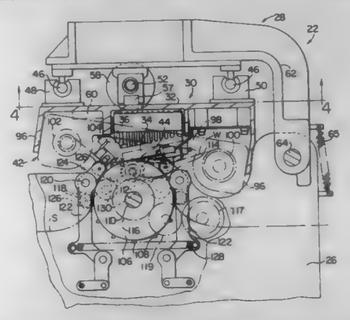
APPARATUS FOR MAKING GRAPHIC PRODUCTS HAVING A CALIBRATED PRINT HEAD, AND METHOD OF CALIBRATING SAME

Charles M. Hevenor, Glastonbury, Conn., assignor to Gerber Scientific Products, Inc., Manchester, Conn.

Filed Dec. 5, 1995, Ser. No. 567,304

Int. Cl.[6] B41J *2/325*

U.S. Cl. 347—171 **22 Claims**



1. An apparatus for printing graphic products on sheet material having calibrated print-head movement in a lateral direction of the sheet, comprising:

a print head including a substantially linear array of heating elements extending in a lateral direction of the sheet material, the print head being movable between first and second positions in the lateral direction of the sheet for printing graphic images on the sheet wider than the length of the linear array;

means for controlling a first group of heating elements located at approximately a first end of the linear array to print a plurality of first indicia spaced relative to each other on the sheet material;

means for moving the print head in the lateral direction of the sheet material and positioning a second group of heating elements located at approximately a second end of the linear array to overlap the first indicia;

means for controlling the second group of heating elements to sequentially print a plurality of second indicia in spaces

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defined between adjacent first indicia, and for incrementally moving the print head in the lateral direction of the sheet material between printing sequential second indicia; and

means for adjusting the distance between the first and second positions of the print head based on the incremental movement of the print head corresponding to a selected one of the second indicia.

5,724,085

COLOR THERMAL PRINTER AND COLOR THERMAL PRINTING METHOD

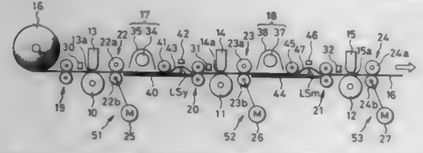
Fuyuki Inui, and Tomoyoshi Nishimura, both of Saitama, Japan, assignors to Fuji Photo Film Co., Ltd., Kanagawa, Japan

Filed Jan. 11, 1996, Ser. No. 584,441

Claims priority, application Japan, Jan. 12, 1995, 7-003321; Nov. 14, 1995, 7-295802

Int. Cl.[6] B41J *2/325*

U.S. Cl. 347—175 **18 Claims**



10. A color thermal printer for printing a full-color image on a recording sheet in a frame sequential fashion, said thermal printer comprising:

transporting means for transporting said recording sheet along a transport path;

a plurality of print stations arranged in series along said transport path, each of said print stations being adapted to record one color frame of the full-color image and comprising a thermal head and a platen disposed across said transport path from each other and movable relative to each other to nip said recording sheet between said thermal head and said platen in each of said print stations;

controlling means for starting thermal recording of one color frame by said thermal head when a designated position of said recording sheet reaches said thermal head in each of said print stations; and

slack providing means for providing a slack portion in said recording sheet between adjacent two of said print stations, so that said slack portion absorb a change in load applied to said recording sheet while being transported.

5,724,086

PRINTHEAD HAVING DATA CHANNELS WITH REVISABLE ADDRESSES FOR INTERLEAVING SCAN LINES

Thomas A. Mackin, Hamlin; Daniel D. Haas, Webster, and Kurt M. Sanger, Rochester, all of N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.

Filed May 12, 1995, Ser. No. 440,408

Int. Cl.[6] B41J *2/435;2/35*

U.S. Cl. 347—237 **24 Claims**

1. A printhead, comprising:

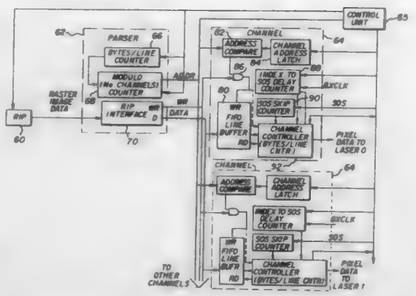
independently modulatable printing elements;

print channels each respectively connected to and uniquely associated with one of said printing elements, each of the channels having a channel address;

a print data distributor connected to said channels and producing channel addresses for print data for said printing elements;

wherein each of said channels comprises:

an address register storing the channel address, a comparator connected to said distributor and said address register for comparing the channel addresses produced by said distributor with the channel address in said address register, and a buffer connected to said distributor, said comparator and the associated one of the printing elements, said buffer being responsive to the comparison of said comparator.



5,724,087

IMAGE FORMING APPARATUS AND METHOD FOR CORRECTING A SCANNING LINE BEND

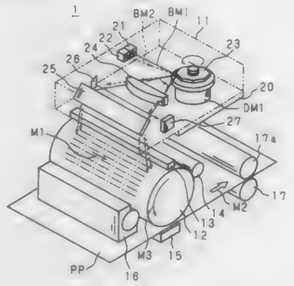
Takao Sugano; Masayuki Iwasa, and Kazuki Ogawa, all of Kawasaki, Japan, assignors to Fujitsu Limited, Kawasaki, Japan

Filed Jun. 27, 1995, Ser. No. 495,173

Claims priority, application Japan, Oct. 25, 1994, 6-260014

Int. Cl.[6] B41J *2/47*

U.S. Cl. 347—243 **11 Claims**



1. An exposure method for scanning a photosensitive body with a plurality of light beams, comprising the steps of:

impinging a plurality of light beams at different angles on a scanning device having a revolving reflecting surface;

scanning the light beams with the scanning device in a main scanning direction in a state where a locus of at least one light beam during a single scan includes a first scanning line bend owing to reflection on said reflecting surface;

passing the scanned light beams through positions on an image forming lens to produce a second scanning line bend in the locus of the at least one light beam during a single scan, said second scanning line bend offsetting said first scanning line bend, said positions excluding an optical center of said image forming lens; and

exposing a surface of the photosensitive body to the light beams which have passed through said image forming lens, said surface moving in a subscanning direction.

5,724,088

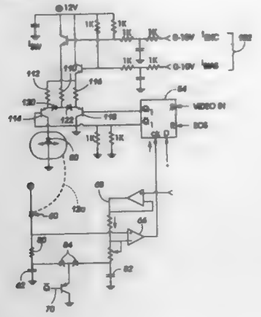
HIGH-SPEED, REFLEX-CONTROLLED LASER CIRCUIT FOR AN ELECTROPHOTOGRAPHIC PRINTER

Frank C. Genovese, Fairport, N.Y., assignor to Xerox Corporation, Stamford, Conn.

Filed Mar. 27, 1996, Ser. No. 623,242

Int. Cl.[6] B41J *2/47*

U.S. Cl. 347—246 **13 Claims**



1. A raster output scanning apparatus for directing a modulated writing beam to a photosensitive surface to selectably expose a plurality of pixel areas thereon, comprising:

a laser diode adapted to output the writing beam;

a sensor diode positioned to receive a portion of light flux directly from the laser diode while the laser diode emits the writing beam to expose one pixel area on the photosensitive surface;

an accumulator associated with the sensor diode, adapted to accumulate charge created by the sensor diode resulting from light flux from the laser diode; and

a comparator associated with the accumulator, adapted to monitor charge accumulated on the accumulator and output a quench signal when the charge accumulated on the accumulator exceeds a predetermined threshold level; and

a drive circuit for applying voltage to the laser diode to cause the laser diode to output the modulated writing beam, the drive circuit including

a drive switch, having an output connected to the laser diode, an input, and a base, the base causing a connection between the input and output when activated,

a ground switch, having an output connected to ground, an input, and a base, the base causing a connection between the input and output when activated,

a bias source, commonly connected to the input of the drive switch and the input of the ground switch, the bias source being of a voltage less than a lasing voltage of the laser diode,

a switching source, commonly connected to the input of the drive switch and the input of the ground switch, the switching source being of a voltage greater than a lasing voltage of the laser diode when combined with the voltage of the bias source, and

a video selector, adapted to selectably activate one of the base of the drive switch and the base of the ground switch;

the comparator being operatively associated with at least one of the ground switch and the drive switch, whereby the quench signal from the capacitor operates to turn off the laser diode.

5,724,089

PRINTER FOR PRINTING BIT-MAPPED IMAGE RESPONSIVE TO BIT-MAPPED IMAGE SIGNAL

Akira Nagumo; Norio Nakajima, and Shinichi Katakura, all of Tokyo, Japan, assignors to Oki Electric Industry Co., Ltd., Tokyo, Japan

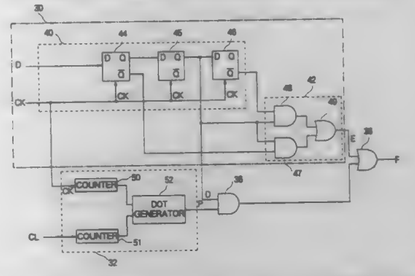
Filed Feb. 21, 1995, Ser. No. 391,902

Claims priority, application Japan, Feb. 28, 1994, 6-029915; Feb. 28, 1994, 6-055177

Int. Cl.[6] B41J *2/47*

U.S. Cl. 347—247 **19 Claims**

1. A printer for printing a bit-mapped image responsive to a bit-mapped image signal having interior dots and edge dots, the printer comprising:



a pattern generator having an output, the pattern generator for generating a pattern signal having a plurality of dots and a plurality of absences of dots and outputting the pattern signal at the output thereof;

a discriminator having an input for receiving the bit-mapped image signal and an output, the discriminator for discriminating between the edge dots and the interior dots present in the bit-mapped image signal, the discriminator for producing a discrimination signal and outputting the discrimination signal at the output thereof, the discrimination signal having one value for the edge dots and a different value for the interior dots;

a first logic circuit having a first input coupled to the output of the pattern generator for receiving the pattern signal, a second input coupled to the output of the discriminator for receiving the discrimination signal, and an output, the first logic circuit for producing a modified bit-mapped image signal and outputting the modified bit-mapped image signal at the output thereof, the modified bit-mapped image signal having the edge dots present in the bit-mapped image signal, the modified bit-mapped image signal also having each interior dot present in the bit-mapped image signal if a dot corresponding to such interior dot is present in the pattern signal; and

a print head having an input coupled to the output of the first logic circuit for receiving the modified bit-mapped image signal, the print head for creating a bit-mapped image according to the modified bit-mapped image signal.

5,724,090

IMAGE FORMING METHOD AND APPARATUS THEREOF WITH CONTROL OF DOT POSITION

Mamoru Tanaka, Yokohama, and Nobuyuki Ito, Oume, both of Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan

Continuation of Ser. No. 144,560, Nov. 2, 1993, abandoned. This application Nov. 22, 1996, Ser. No. 754,476

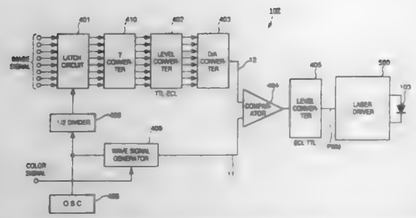
Claims priority, application Japan, Nov. 6, 1992, 4-296933

Int. Cl.[6] B41J *2/47*

U.S. Cl. 347—251 **17 Claims**

1. A color image forming apparatus which modulates a light beam in accordance with a density value of each pixel represented by a color image signal and forms an image corresponding to the density value by irradiating the modulated light beam onto photoreceptive means, comprising:

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input means for inputting the color image signal composed of a plurality of color component signals;

modulation means for modulating the light beam based on the color image signal;

irradiating means for irradiating the modulated light beam onto the photoreceptive means; and

formation means for forming a dot corresponding to a beam spot formed by irradiation of the modulated light beam,

wherein said modulation means comprises control means for controlling a center position of the dot formed by said formation means in accordance with a color component and the density value of the color component signals.

5,724,091

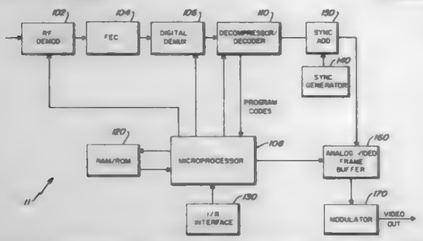
COMPRESSED DIGITAL DATA INTERACTIVE PROGRAM SYSTEM

Michael J. Freeman, Kings Point, and Gregory W. Harper, New York, both of N.Y., assignors to ACTV, Inc., New York, N.Y.

Continuation-in-part of Ser. No. 166,608, Dec. 13, 1993, abandoned, which is a continuation of Ser. No. 797,298, Nov. 25, 1991, abandoned. This application May 18, 1995, Ser. No. 443,607

Int. Cl.[6] H04N *7/173*

U.S. Cl. 348—13 **17 Claims**



1. In an interactive television system having a plurality d subscriber television reception systems, each of said subscriber television reception systems comprising a multichannel television receiver, each of said multichannel television receivers having a plurality of different television reception channels, each of said television reception channels having a different associated communication frequency; a television subscriber distribution network connected to said plurality of subscriber television reception systems; and a television programming transmission means connected to said subscriber distribution network for providing transmitted interactive television programming thereto, said subscriber distribution network providing said transmitted interactive television programming to said plurality of subscriber television reception systems, said television programming transmission means comprising means for substantially simultaneously providing a multi-information interactive television program communication signal as said transmitted interactive television programming to said subscriber distribution network;

the improvement comprising:

a plurality of simultaneously provided different program information message signals related in real-time and content to each other, said plurality of program information message signals in a compressed digital format and comprising said multi-information interactive television program communication signal, each of said plurality of program information message signals having an associated communication frequency corresponding with one of said plurality of different television reception channels, more than one of said program information message signals having the same associated communication frequency and combined into a multiplexed interactive television program information signal with at least one other of said program information message signals, said combined program information signals transmitted in said multi-information interactive television program communication signal, wherein each of said program information message signals is independently receivable; any of said different television reception channels carrying either a single one of said program information message signals or said multiplexed interactive television program information signal; each of said multichannel television receivers independently receiving and selecting any of said plurality of program information message signals dependent on the television reception channel selected and the signal selected therefrom, each of said multichannel television receivers comprising a demultiplexing multichannel selection means for demultiplexing said multiplexed interactive television program information signal and selecting the television reception channel associated frequency to be received, signal selection means for selecting a particular program information message signal from said demultiplexed interactive television program information signal, decompression means for decompressing said compressed digital format of said selected program information message signals, said decompression means requiring an adjustment period upon switching from a first selected multiplexed program information message signal to a next selected multiplexed program information message signal, each of said program information message signals having a designated position indicator in said demultiplexing multichannel selection means; and

means, connected to the decompression means, for providing a delay for a time corresponding to said adjustment period during a switch from said first selected multiplexed program information message signal to said next selected multiplexed program information message signal of said multichannel interactive program for allowing said decompression means a period of time to adjust to said switch and to thereby enhance the efficiency of said decompression means, said delay providing means effecting a delay for said adjustment period in response to selection of said next selected multiplexed program information message signal, said demultiplexing multichannel selection means decoding said next selected multiplexed program information message signal in response to selection of said next selected multiplexed program information message signal, said multi-information interactive television program communication signal simultaneously provided related program information message signals enabling a program information message signal switch from said first selected multiplexed program information message signal to said next selected multiplexed program information message signal without a visually perceptible associated delay;

at least one of said program information message signals further comprising video information for display on said multichannel television receiver corresponding to informational labels to be dynamically assigned to said designated position indicators for a particular multi-information interactive television program, said informational labels are dynamically variable dependent on the content of said multi-information interactive television program;

wherein flexible multi-information interactive television programming is provided with a reduced number of television channels and wherein a multichannel interactive program is viewed without a visually perceptible delay when switching between channels of the interactive program during said interactive television program.

5,724,092

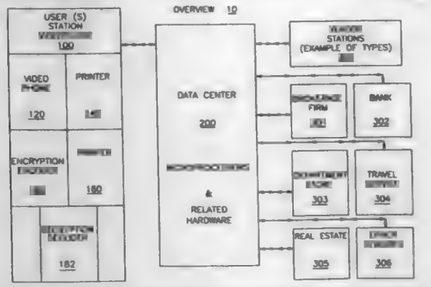
VIDEOPHONE INTERACTIVE MAILBOX FACILITY SYSTEM AND METHOD OF PROCESSING INFORMATION

John Davidsohn, 7 S. Hollow Rd., Dix Hills, N.Y. 11746, and Anthony Cinotti, 410 Hillside Ave., Mahwah, N.J. 07430

Continuation of Ser. No. 438,892, May 10, 1995, Pat. No. 5,606,361. This application Sep. 12, 1996, Ser. No. 713,007

Int. Cl.[6] H04M *11/00;* **H04N** *7/12*

U.S. Cl. 348—14 **15 Claims**



4. A videophone interactive mailbox facility system including a central data center for processing of information to conduct a transaction, comprising:

a) a user station having a videophone for viewing transaction information sent or received to conduct a transaction; and means for inputting said transaction information into said videophone; said videophone including a memory chip for storing said transaction information and an interface chip for interfacing with said central data center;

b) a vendor station having computer means for the transmission and receipt of vendor-type information to or from said central data center for conducting a transaction; and database storage components for receiving and storing said transaction information sent from said user station via said central data center; and

c) said central data center electronically connected to said user station and said vendor station and including a computer processor for centralized transmitting, receipt of and storage of said transaction information and said vendor-type information with said user station and said vendor station; and a network interface for electronically connecting and making compatible said computer means at said vendor station and the videophone at said user station.

5,724,093

APPARATUS FOR THE OPTICAL DETECTION OF SURFACE DEFECTS, PARTICULARLY IN ROLLED STRIPS

Riccardo Parenti, Genoe, Italy, assignor to Finmeccanica S.p.A. Azienda Ansaldo, Genoa, Italy

Filed Jan. 16, 1996, Ser. No. 587,365

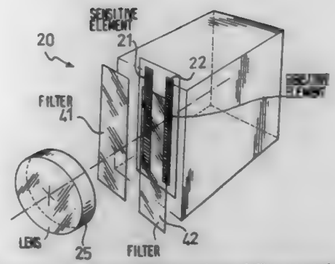
Claims priority, application Italy, Feb. 24, 1995, MI95A0363

Int. Cl.[6] H04N *7/18;9/47*

U.S. Cl. 348—131 **6 Claims**

1. Apparatus for the optical detection of defects in a surface, by video recordings made through a bright-field channel and a dark-field channel, processed by electronic means included in the apparatus, comprising:

a telecamera having at least two sensitive elements, each of which is sensitive to light radiations of a respective wavelength range and is included in one of the bright-field and dark-field recording channel, the telecamera viewing a surface to be checked in a direction substantially perpendicular thereto, and further comprising first and second light sources which emit, onto the surface to be checked, light radiations with respective wavelengths corresponding to those with which the aforesaid sensitive elements operate, one of said light sources emitting radiations substantially tangential to the surface to be checked and the other source emitting radiations that are reflected by the surface towards the telecamera.



5,724,094

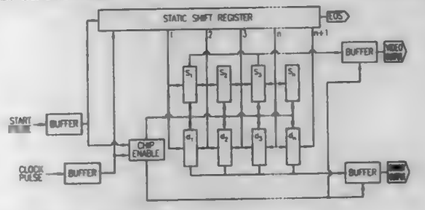
CONTACT IMAGE SENSOR UTILIZING DIFFERENTIAL VOLTAGE PICKOFF

Hsin-Fu Tseng, Los Altos, and Weng-Lyang Wang, Saratoga, both of Calif., assignors to ScanVision, San Jose, Calif.

Filed Sep. 22, 1995, Ser. No. 532,926

Int. Cl.[6] H04N *5/335;9/64*

U.S. Cl. 348—243 **9 Claims**



1. A contact image sensor circuit comprising:

a plurality of active sensing elements,

a plurality of dummy sensing elements, each said dummy sensing element is placed in close proximity to a corresponding active sensing element,

a shielding means to ensure that said dummy sensing elements receive no light exposure so that each dummy sensing element generates a reference output signal,

control and drive clocks to control the timing and scan advance of the circuit,

a digital scanning shift register,

a first buffer amplifier and a second buffer amplifier; wherein

said active sensing elements are activated in sequence by said shift register, each said active sensing element thereby generating an output signal that is received in said first buffer amplifier, as said shift register activates each succeeding active sensing element in sequence, said shift register resets each preceding active sensing element in sequence to a dark level,

said dummy sensing elements are sequentially activated in the same manner as are said active sensing elements, said reference output signals of said dummy sensing elements are received in said second buffer amplifier,

said output signals from said active sensing elements are compared to said reference output signals of said dummy Sensing elements to scrub said output signals from said active sensing elements of dark fixed pattern noise and DC offset voltage, thereby generating a resultant video output signal.

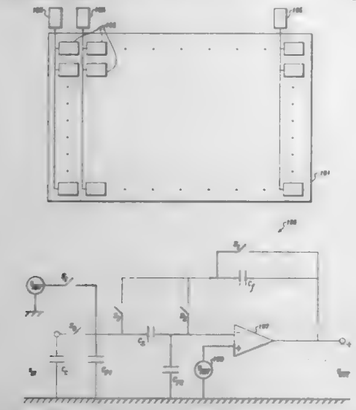
VOL 1208 ISS 1 MR 3 1998 UMI

5,724,095

CHARGE AMPLIFIER FOR MOS IMAGING ARRAY AND METHOD OF MAKING SAME

Tai-Ching Shyu, Cupertino, and Datong Chen, Fremont, both of Calif., assignors to OmniVision Technologies Inc., San Jose, Calif.

Filed Oct. 3, 1995, Ser. No. 538,441
Int. Cl.[6] H04N 5/335
U.S. Cl. 348—300 8 Claims



8. A MOS imaging array comprising:

a plurality of photosensitive pixels formed in an array, said pixels providing a charge signal in response to irradiation by light; and

a plurality of charge amplifiers, one of said amplifiers associated with at least one of said pixels, said charge amplifier comprising

(a) an operational amplifier having an output terminal for communicating an output signal, a negative input, and a positive input;

(b) a feedback capacitor for routing said output signal to said negative input;

(c) a series capacitor having a first and a second terminal, said first terminal connected to said negative input and said second terminal adapted to receive said charge signal;

(d) a first switch mechanism for routing said output signal directly to said negative input during a preparation period to said negative input, said first switch mechanism also holding the voltage of said second terminal at substantially the same level as the voltage of said positive input; and

(e) a second switching mechanism for routing said output signal through said feedback capacitor and through said series capacitor to said negative input during an amplification period, said second switching mechanism also routing said charge signal through said series capacitor to said negative input.

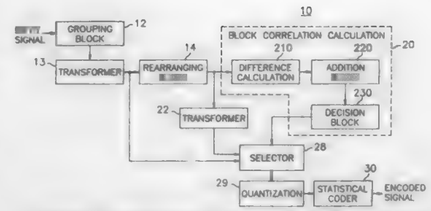
5,724,096

VIDEO SIGNAL ENCODING METHOD AND APPARATUS EMPLOYING INTER-BLOCK REDUNDANCIES

Sung-Wook Yoon, Seoul, Rep. of Korea, assignor to Daewoo Electronics Co., Ltd., Seoul, Rep. of Korea

Filed Dec. 27, 1996, Ser. No. 774,840
Claims priority, application Rep. of Korea, Dec. 29, 1995, 95-64303
Int. Cl.[6] H04N 7/30
U.S. Cl. 348—403 20 Claims

1. A method for encoding a frame of a video signal, wherein the frame is divided into non-overlapping blocks of M×N pixels, M and N being positive integers, respectively, comprising the steps of:



(a) arranging the blocks into groups of P×Q blocks, P and Q being positive integers, respectively;

(b) transforming each of the P×Q blocks in a group into a set of M×N transform coefficients, to thereby provide for the group a first class of transform coefficients corresponding to P×Q sets of M×N transform coefficients, the transform coefficients in a set representing different frequency components, respectively;

(c) rearranging the first class of transform coefficients to generate M×N sets of P×Q rearranged coefficients, the rearranged coefficients in a set being of an identical frequency component;

(d) transforming each set of the M×N sets of P×Q rearranged coefficients into a set of P×Q transform coefficients to thereby provide a second class of transform coefficients corresponding to the transform coefficients of the M×N sets of P×Q rearranged coefficients; and

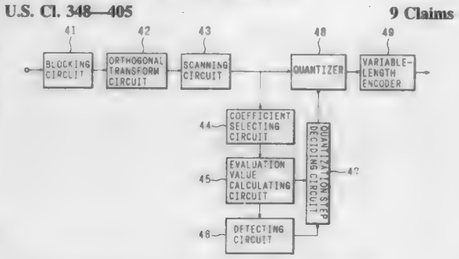
(e) setting the second class of transform coefficients as selected coefficients for the group of P×Q blocks.

5,724,097

ADAPTIVE QUANTIZATION OF VIDEO BASED ON EDGE DETECTION

Taketoshi Hibi; Tomohiro Ueda; Satoshi Kurahashi, and Ken Onishi, all of Nagaokakyo, Japan, assignors to Mitsubishi Denki Kabushiki Kaisha, Tokyo, Japan

Filed Oct. 18, 1994, Ser. No. 325,100
Claims priority, application Japan, Oct. 18, 1993, 5-284308; Oct. 18, 1993, 5-284309; Dec. 27, 1993, 5-349950; Dec. 27, 1993, 5-349953; Dec. 27, 1993, 5-349954
Int. Cl.[6] H04N 7/30
U.S. Cl. 348—405 9 Claims



1. A high-efficiency encoding apparatus, comprising:

means for dividing a video signal into blocks;

means for orthogonal-transforming the video signal divided into blocks to produce orthogonal-transformed coefficients;

means for selecting a dominant low frequency coefficient and a dominant high frequency coefficient for each block from the orthogonal-transformed coefficients; and

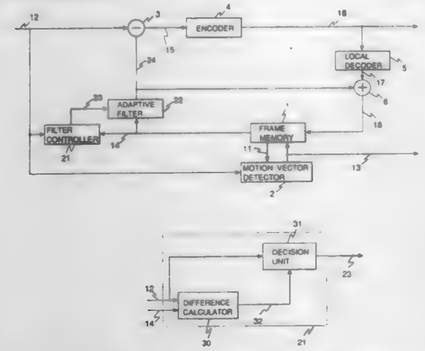
means for controlling a compression ratio for each block, based on a ratio of the dominant high frequency coefficient and the dominant low frequency coefficient.

5,724,098

INTERFRAME CODING METHOD AND APPARATUS UTILIZING A FILTER CONTROLLER AND AN ADAPTIVE FILTER

Tokumichi Murakami; Yoshiaki Kato, and Toshiaki Shimada, all of Kanagawa, Japan, assignors to Mitsubishi Denki Kabushiki Kaisha, Tokyo, Japan

Continuation of Ser. No. 157,638, Nov. 24, 1993, abandoned.
This application Dec. 28, 1995, Ser. No. 580,363
Claims priority, application Japan, Dec. 25, 1992, 4-346552; Feb. 25, 1993, 5-036371; Aug. 23, 1993, 5-207842
Int. Cl.[6] H04N 7/32
U.S. Cl. 348—416 34 Claims



1. An interframe coding system for frame-to-frame coding of an input signal, comprising:

a local decoding loop Which includes a filter, responsive to a control signal, to select filtering coefficients of the filter to provide one of a plurality of predetermined responses, and that filters a predictive signal to provide a filtered predictive signal; and

a filter controller, receiving the input signal and the predictive signal, that calculates an activity value of the input signal which indicates a variation of the input signal, and that generates the control signal to control the filter based on the activity value of the input signal:

wherein the filter has a first input that receives the predictive signal, a second input that receives the control signal and an output that provides the filtered predictive signal, and wherein the filter is adapted to filter the predictive signal using one of a plurality of patterns of filtering coefficients, a filtering intensity of the filter being determined by the one of the plurality of filtering coefficients, the one of the plurality of patterns of filtering coefficients being selected by the filter based on the control signal.

5,724,099

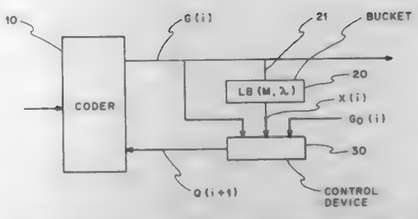
PROCESS FOR CONTROLLING THE OUTFLOW RATE OF A CODER OF DIGITAL DATA REPRESENTATIVE OF SEQUENCES OF IMAGES

Maher Hamdi, Reuues; Rolin Pierre, Cerrou Sevigue, and James Roberts, Vrgisins le Bretonneux, all of France, assignors to France Telecom, Paris, France

Filed Jun. 4, 1996, Ser. No. 658,050
Claims priority, application France, Jul. 10, 1995, 95 08581
Int. Cl.[6] H04N 7/12;11/02;11/04;7/00
U.S. Cl. 348—419 9 Claims

1. A process for controlling a data output flow rate of a coder of digital data which is representative of a sequence of images, said coder including a quantization stage having a quantization parameter Q, said sequence of images comprising successive groups of images, said process comprising the steps of:

setting a quantization parameter Q(i+1) for coding an (i+1) group of images at a moment when data of an i group of images is at an output of the coder, said digital data having a flow rate at the output of said coder conforming to a version of a leaky bucket defined by a size M and by a leakage rate λ; and



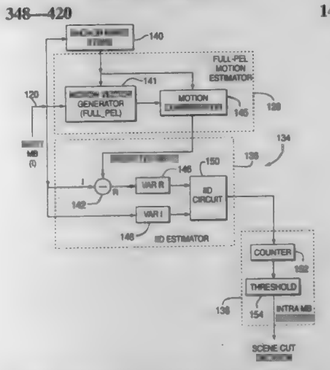
setting said quantization parameter Q(i+1) for the coding of the (i+1) group of images in terms of an activity of a scene represented by the i group of images, the scene of said i group of images being active when its open-loop flow rate is greater than the leakage rate λ of the leaky bucket and being inactive when said open-loop flow rate is less than the leakage rate λ, said open-loop flow rate of a group of images being the flow rate which said scene of images would have at an output of said coder if it had been quantized with a constant quantization parameter Qo at an average rate D over an entire sequence of images to which said scene of images belongs is equal to the leakage rate of said leaky bucket, the average rate D being an average rate when each group of the images is quantized with a constant parameter.

5,724,100

METHOD AND APPARATUS FOR DETECTING SCENE-CUTS IN A BLOCK-BASED VIDEO CODING SYSTEM

Prashanth Kuchibhotla, Yardley, Pa., assignor to David Sarnoff Research Center, Inc., Princeton, N.J.

Filed Feb. 26, 1996, Ser. No. 606,613
Int. Cl.[6] H04N 7/34
U.S. Cl. 348—420 14 Claims



1. In a block-based video encoder that partitions each input image of a sequence of input images into a plurality of macroblocks, computes at least one motion vector for each of said macroblocks, and generates a sequence of predicted images, where each predicted image in said sequence comprises a plurality of predicted macroblocks derived from said input images and said motion vectors, a method of detecting that a first image is substantially different from a second image within said sequence of input images comprising the steps of:

(a) estimating a coding mode that is to be used by the block-based video encoder to code a macroblock within said second image;

(b) incrementing a count value whenever the coding mode is estimated to be a particular type of coding mode;

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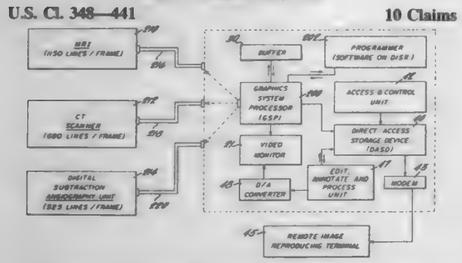
(c) repeating steps a and b until the coding mode is estimated for each macroblock in the second image; and
(d) when the count value exceeds a threshold level, setting an indicator flag.

5,724,101

SYSTEM FOR CONVERSION OF NON STANDARD VIDEO SIGNALS TO STANDARD FORMATS FOR TRANSMISSION AND PRESENTATION

Marvin E. Haskin, Philadelphia, Pa., assignor to Prevail, Inc., Bryn Mawr, Pa.

Continuation of Ser. No. 200,543, May 31, 1988, which is a continuation of Ser. No. 84,333, Aug. 11, 1987, which is a continuation-in-part of Ser. No. 36,264, Apr. 9, 1987. This application Feb. 7, 1991, Ser. No. 652,185
The portion of the term of this patent subsequent to Aug. 16, 2005, has been disclaimed.
Int. Cl.[6] H04N *7/01;11/20*
U.S. Cl. 348—441 **10 Claims**



1. A system for converting non-standard analog video signals to signals having standard formats for transmission and presentation, the non-standard analog video signals representing images in any of a plurality of first formats, comprising:
converter means responsive to the non-standard analog video signals in the first format for converting the analog video signals to standard analog video signals having a selected different standard analog video format;
digitizing means for digitizing the standard analog video signals to form corresponding digitized image-representing signals;
storage means for storing the digitized image-representing signals;
a remote terminal including a digital-to-analog converter and an image-display device, responsive to the digitized image-representing signals to reproduce the images represented by the non-standard analog video signals;
means for accessing the stored digitized image-representing signals; and
means for transmitting the digitized image-representing signals directly to the remote terminal for display on the image-display device.

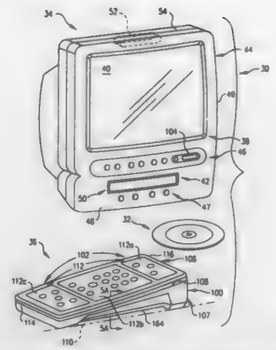
5,724,102

SYSTEMS IN WHICH INFORMATION CAN BE RETRIEVED FROM AN ENCODED, LASER READABLE DISC

Robert G. Harrison, and Robert D. Lamson, both of Seattle, Wash., assignors to Coach Master International Corporation, Seattle, Wash.

Division of Ser. No. 569,310, Dec. 8, 1995, which is a continuation of Ser. No. 505,969, Jul. 24, 1995, abandoned. This application Mar. 26, 1996, Ser. No. 621,638
Int. Cl.[6] H04N *7/100*
U.S. Cl. 348—552 **45 Claims**

1. An information retrieval and display system which comprises the combination of:



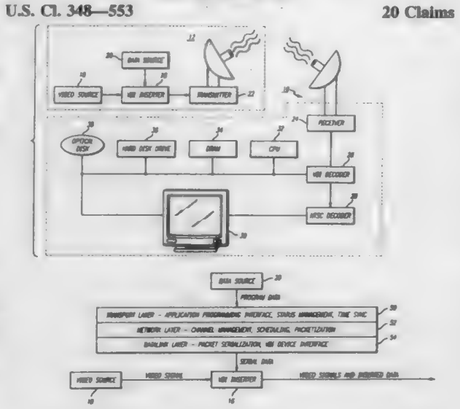
a module comprising a player for a disc with laser readable data stored thereon and a screen for displaying information read from said disc;
a disc as aforesaid operatively associated with said player; and means for controlling the operation of said disc player;
the data stored on said disc corresponding to an introductory video, a hierarchy of menus, and items of information;
at least one of said menus offering a user multiple numbered choices;
said control means comprising an array of user-actuated numbered controls corresponding on a one control-to-one choice basis with the choices on said menu;
the user-actuatable controls being numbered ① through ⑨; and
the menus in the hierarchy each having a maximum of nine numbered choices.

5,724,103

CD ROM INFORMATION REFERENCES DELIVERED TO A PERSONAL COMPUTER USING THE VERTICAL BLANKING INTERVALS ASSOCIATED DATA TECHNOLOGY FROM A NABTS COMPLIANT TELEVISION BROADCAST PROGRAM

Steve Batchelor, Hillsboro, Oreg., assignor to Intel Corporation, Santa Clara, Calif.

Filed Nov. 13, 1995, Ser. No. 558,030
Int. Cl.[6] H04N *5/44*
U.S. Cl. 348—553 **20 Claims**



1. A system that receives a video signal and a data signal from a broadcaster which inserts the data signal into a vertical blanking interval of the video signal and transmits both the video and data comprising:

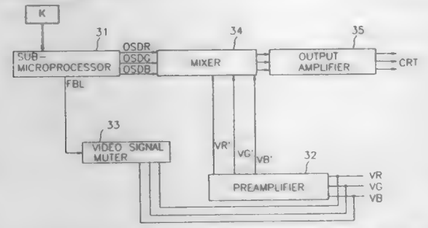
a video receiver that receives the video and data signals;
a vertical blanking interval decoder that separates the data signal from the video signal;
a video decoder that converts the video signal into a television signal;
a monitor that displays the television signal;
a non-volatile storage device that contains a text/graphic signal that is resident within said non-volatiles storage device; and,
a central processing unit which receives the data signal from said vertical blanking interval decoder and generates a command to transfer said text/graphic signal from said non-volatile storage device to said monitor to display said text/graphic signal on said monitor.

5,724,104

ON-SCREEN DISPLAY/VIDEO SIGNAL PROCESSOR FOR A MONITOR

Jeong-Ouk Eom, Seoul, Rep. of Korea, assignor to Daewoo Electronics Co., Ltd., Seoul, Rep. of Korea

Filed Sep. 29, 1995, Ser. No. 536,730
Claims priority, application Rep. of Korea, Sep. 30, 1994, 94-24935
Int. Cl.[6] H04N *5/50;5/445*
U.S. Cl. 348—569 **18 Claims**



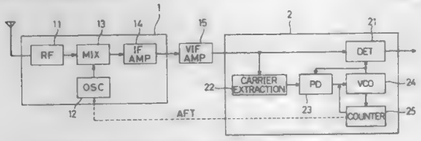
1. In an on-screen display/video signal processor having means for generating on-screen display signals and a fast blanking signal according to an on-screen display mode selection signal generated by an on-screen display mode selection key, means for amplifying video signals, means for converting the amplified video signals to signals of video signal levels and means for amplifying the signals of video signal levels to be supplied to a cathode-ray tube, the on-screen display/video signal processor comprising:
means for muting the video signals with an input of the fast blanking signal in order to remove the video signals rapidly according to a selection of the on-screen display mode selection key.

5,724,105

TELEVISION SIGNAL RECEIVER

Hiroyuki Hatano, Kyoto, Japan, assignor to Rohm Co., Ltd., Kyoto, Japan

Filed Jun. 25, 1996, Ser. No. 673,152
Claims priority, application Japan, Jun. 26, 1995, 7-159475
Int. Cl.[6] H04N *5/50*
U.S. Cl. 348—725 **6 Claims**



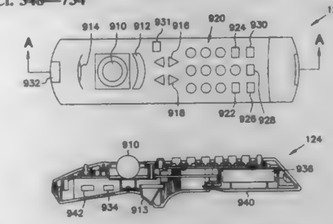
1. A television signal receiver, comprising:
a voltage-controlled oscillator for generating a signal by which a VIF signal is multiplied for detection;
a first control loop for comparing phases between a VIF carrier extracted from the VIF signal and an output from the oscillator and for controlling the oscillator according to results of the comparison;
a second control loop including a counter for controlling the oscillator according to an output voltage of the counter, the counter monitoring an output frequency of the oscillator for a predetermined time to output a voltage when a monitored frequency is out of a predetermined range defined by a standard VIF carrier frequency.

5,724,106

HAND HELD REMOTE CONTROL DEVICE WITH TRIGGER BUTTON

Sidney David Autry, Dakota Dunes, S. Dak., and Jeffrey Schindler, Sioux City, Iowa, assignors to Gateway 2000, Inc., North Sioux City, S. Dak.

Continuation-in-part of Ser. No. 503,368, Jul. 17, 1995. This application Mar. 27, 1996, Ser. No. 624,022
Int. Cl.[6] H04N *5/44*
U.S. Cl. 348—734 **15 Claims**



1. A hand held remote control device for single hand control of an entertainment system comprising:
a trigger-like selection button located on a bottom portion of the remote control device such that the button is convenient to the index finger of a hand for selecting functions associated with a cursor on the screen when the device is held in the hand;
a pointing device for controlling the cursor displayed on the entertainment system; and
electromagnetic frequency generating circuitry coupled to a plurality of keys on a top portion of the device for transmitting signals representative of the keys, the button and pointing device.

5,724,107

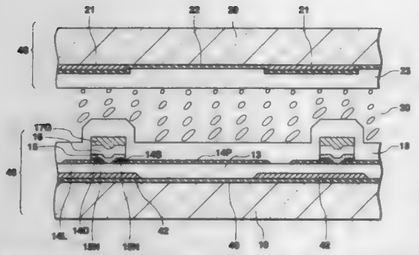
LIQUID CRYSTAL DISPLAY WITH TRANSPARENT STORAGE CAPACITORS FOR HOLDING ELECTRIC CHARGES

Ryuji Nishikawn, and Toshio Shimada, both of Gifu, Japan, assignors to Sanyo Electric Co., Ltd., Osaka, Japan

Filed Sep. 26, 1995, Ser. No. 534,109
Claims priority, application Japan, Sep. 30, 1994, 6-237483; Nov. 30, 1994, 6-296894; Dec. 9, 1994, 6-306550; Dec. 9, 1994, 6-306553
Int. Cl.[6] G02F *1/1343;1/1333;1/1335;1/13*
U.S. Cl. 349—38 **24 Claims**

1. A liquid crystal display comprising a first substrate and a second substrate facing each other with a liquid crystal layer interposed therebetween, wherein:
the first substrate includes thereon: a plurality of pixel electrodes arranged in a matrix array; drain lines formed between columns of the pixel electrodes; gate lines formed between rows of the pixel electrodes; thin film transistors, each of said thin film transistors having a source electrode connected to a respective one of the pixel electrodes, a drain electrode connected to a respective one of said drain lines, and a gate electrode connected to a respective one of said gate lines; a first light-shielding layer having a first aperture shielding light

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between the pixel electrodes; a storage capacitor electrode opposed to the pixel electrodes with an interlevel insulation layer interposed therebetween, said storage capacitor electrode being a transparent conductive layer disposed substantially all over the first substrate including under each of said thin film transistors; and storage capacitors holding charges, the storage capacitors formed in an area where the pixel electrodes are opposed to the storage capacitor electrode; and the second substrate includes a common electrode extending substantially all over an area where the first and second substrates face each other.

5,724,108

LIQUID CRYSTAL DISPLAY DEVICE WITH A PRISM SHEET THAT INCREASES BRIGHTNESS IN THE OPTIMUM RANGE OF VIEWING ANGLE

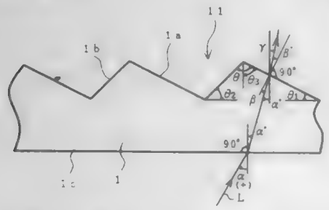
Katsuhiko Shibata, Mobara, Japan, assignor to Hitachi, Ltd., Tokyo, Japan

Continuation of Ser. No. 400,843, Mar. 8, 1995, abandoned. This application Dec. 2, 1996, Ser. No. 759,839

Claims priority, application Japan, Mar. 14, 1994, 6-042111

Int. Cl.[6] G02F *1/1335*

U.S. Cl. 349—62 **20 Claims**



1. A liquid crystal display device comprising:

an optical means arranged between a liquid crystal display panel and a backlight to control the direction of light emitted from the backlight to a specified range of angles;

wherein the optical means is a prism sheet whose upper surface forms a prism surface and whose lower surface forms a smooth surface;

wherein a cross section of the prism surface is a scalene triangles, each of which is so shaped that a center angle of the specified range of angles is shifted from a center angle of the backlight intensity range more than 50% of the peak intensity to a direction of the prism surface on a side adjacent a smaller side base angle, and the specified range of angles has a narrower viewing angle range than the backlight intensity range; and

wherein minimum and maximum angles of the backlight intensity range at more than 50% of the peak intensity are negative and positive angles of incidence to the optical means, respectively, and the prism surface on the side adjacent the smaller base angle faces in a direction of a wider viewing angle characteristic of the liquid crystal display panel.

5,724,109

LIQUID CRYSTAL DISPLAY PANEL WITH ELECTRODES OR A PASSIVATION LAYER INTERMEDIATE TWO LIQUID CRYSTAL LAYERS

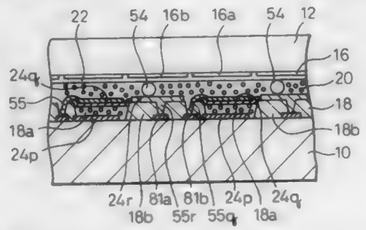
Kimiaki Nakamura; Hidefumi Yoshida; Kazutaka Hanaoka; Hideaki Tsuda; Hideo Chida, and Takahiro Sasaki, all of Kawasaki, Japan, assignors to Fujitsu Limited, Kawasaki, Japan

Continuation-in-part of Ser. No. 123,858, Sep. 17, 1993, Pat. No. 5,508,831. This application Sep. 1, 1995, Ser. No. 522,580

Claims priority, application Japan, Sep. 17, 1992, 4-248022; Sep. 14, 1993, 5-228882; Jun. 22, 1995, 7-155805

Int. Cl.[6] G02F *1/1347;1/1333;1/1335;* **C09K** *19/02*

U.S. Cl. 349—79 **21 Claims**



1. A liquid crystal display panel, comprising:

first and second plates having respective main surfaces in opposing, spaced relationship, the first plate having disposed thereon conductors and electrodes;

first and second liquid crystal layers arranged between the first and second plates;

a plurality of solid regions of a non-liquid crystal material on the main surface of the first plate and the first liquid crystal layer being arranged along the first plate as a plurality of separate and discrete liquid crystal dispersing regions disposed between respective, adjacent solid regions;

electrodes arranged on corresponding surfaces of the liquid crystal dispersing regions in opposed relationship with respect to the electrodes on the first plate; and

connecting members extending through the solid regions and connecting the electrodes arranged on the liquid crystal dispersing regions to respective conductors on the first plate.

5,724,110

LIQUID CRYSTAL PANEL AND METHOD FOR PRODUCING THE SAME IN WHICH THE SEAL SECTION IS FORMED FROM A MIXTURE OF LIQUID CRYSTAL AND RESIN

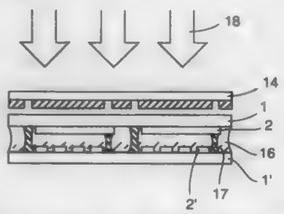
Kenji Majima, Matsubara, Japan, assignor to Sharp Kabushiki Kaisha, Osaka, Japan

Filed May 22, 1995, Ser. No. 447,223

Claims priority, application Japan, May 27, 1994, 6-115120

Int. Cl.[6] G02F *1/1333;1/1339*

U.S. Cl. 349—86 **7 Claims**



1. A liquid crystal panel including a liquid crystal material between two substrates secured together by a sealing section which is interposed therebetween and surrounds the liquid crystal material, the liquid crystal panel being produced by a method comprising the steps of:

positioning opposite each other two base substrates which are larger than the substrates of the liquid crystal panel in a completed state, leaving a gap between the two base substrates;

filling the gap between the two base substrates with a mixture of a photocurable resin and a liquid crystal material, and irradiating a prescribed area of the mixture with light to cause phase separation of the photocurable resin from the liquid crystal material and to cure the photocurable resin, thereby forming liquid crystal regions and sealing section frames which surround the respective liquid crystal regions to define a plurality of panels and securing the two base substrates together; and

cutting the base substrates into a plurality of frame defined liquid crystal panels.

5,724,111

REFLECTIVE LCD HAVING A LIGHT SCATTERING MEANS FORMED ON AN ELECTRODE SIDE SURFACE OF A COUNTER SUBSTRATE

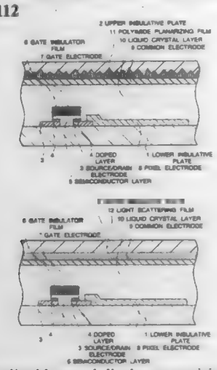
Eishi Mizobata; Hidenori Ikeno, and Hiroshi Kanoh, all of Tokyo, Japan, assignors to NEC Corporation, Tokyo, Japan

Filed Jun. 12, 1996, Ser. No. 661,898

Claims priority, application Japan, Jun. 13, 1995, 7-146189

Int. Cl.[6] G02F *1/1335;1/1333*

U.S. Cl. 349—112 **4 Claims**



1. A reflective liquid crystal display comprising a first insulative plate having a reflector, a second insulative plate having a transparent electrode, said first and second insulative plates being assembled in such a manner that said reflector opposes to said transparent electrode, separately from each other, and a liquid crystal layer sandwiched between said reflector and said transparent electrode, wherein said reflector has a planar reflecting surface, and a light scattering means is provided at said second insulative plate wherein said light scattering means comprises a convex-concave surface formed on a transparent electrode side surface of said second insulative plate.

5,724,112

COLOR LIQUID CRYSTAL APPARATUS

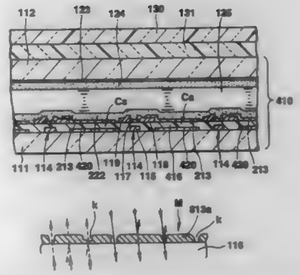
Tetsushi Yoshida, Sagamikomachi; Zenta Kikuchi, and Hisashi Aoki, both of Hamura, all of Japan, assignors to Casio Computer Co., Ltd., Tokyo, Japan

Continuation of Ser. No. 411,328, Mar. 27, 1995, abandoned. This application Jun. 16, 1995, Ser. No. 491,088

Claims priority, application Japan, Mar. 28, 1994, 6-56518; Mar. 28, 1994, 6-56523; Mar. 29, 1994, 6-58560; Mar. 29, 1994, 6-58561

Int. Cl.[6] G02F *1/1335;1/1333*

U.S. Cl. 349—117 **23 Claims**



1. A color liquid crystal display device comprising:

a transparent first substrate having an inner surface and at least one transparent electrode formed thereon;

an insulating second substrate having an inner surface arranged to oppose the inner surface of said first substrate and at least one electrode formed on the inner surface of said second substrate;

a liquid crystal layer sandwiched between the inner surfaces of said first and second substrates and having a predetermined initial aligned state;

a polarizing member arranged on a first substrate side of said liquid crystal layer;

at least one retardation plate for coloring light which emerges from the liquid crystal display, said retardation plate being arranged between said liquid crystal layer and said polarizing member such that an optical axis of said retardation plate with respect to a transmission axis of said polarizing member is not parallel to or perpendicular to the transmission axis; and

a reflecting member arranged on a liquid crystal layer side of said second substrate;

wherein the inner surface of one of said first and second substrates includes a plurality of pixel electrodes and a plurality of active elements respectively corresponding to said plurality of pixel electrodes, said pixel electrodes and said active elements being arranged in a matrix on the inner surface of said one of said first and second substrates, and the inner surface of the other substrate includes at least one counter electrode formed thereon; and

wherein molecules of said liquid crystal layer are twisted and aligned at an angle of 90°, the transmission axis of said polarizing member is about 45° with respect to an aligning direction of liquid crystal molecules of said liquid crystal layer adjacent to said second substrate, and a phase delay axis of said retardation plate is about 140° with respect to the aligning direction of the liquid crystal molecules of said liquid crystal layer adjacent to said second substrate.

15. A color liquid crystal display device comprising:

a transparent first substrate having an inner surface and at least one transparent electrode formed thereon;

an insulating second substrate having an inner surface arranged to oppose said first substrate and having at least one electrode formed on the inner surface of said second substrate opposing said at least one transparent electrode formed on the inner surface of said first substrate;

a liquid crystal layer sandwiched between said first and second substrates and having a predetermined initial aligned state;

a first polarizing member arranged on a first substrate side of said liquid crystal layer such that a transmission axis of said polarizing member is shifted at a predetermined angle with respect to a liquid crystal molecule aligning direction on the first substrate side of said liquid crystal layer so as not to be parallel to or perpendicular to the liquid crystal molecule aligning direction;

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at least one retardation plate for coloring light which emerges from the liquid crystal display, said retardation plate being arranged between said liquid crystal layer and said polarizing member such that a retardation axis of said retardation plate is shifted by a predetermined angle with respect to a transmission axis of said polarizing member so as not to be parallel to or perpendicular to the transmission axis of said first polarizing member;

a semitransparent reflecting member arranged on a liquid crystal layer side of said second substrate; and

a second polarizing member arranged on a second substrate side of said semitransparent reflecting member; and

wherein said semitransparent reflecting member includes a mirror surface having a large number of small holes.

5,724,113

LIQUID CRYSTAL DEVICE ALIGNMENT LAYER HAVING AN ASYMMETRIC PROFILE GRATING ON ITS SURFACE

Guy Peter Bryan-Brown; Damien Gerard McDonnell, and Michael John Towler, all of Malvern, United Kingdom, assignors to The Secretary of State for Defence in Her Britannic Majesty's Government of the United Kingdom of Great Britain and Northern Ireland, Hants, United Kingdom

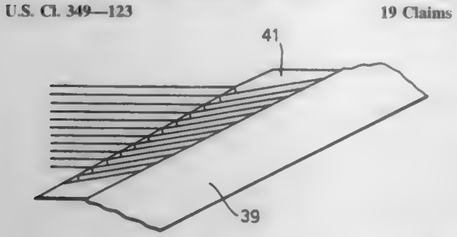
PCT No. PCT/GB95/00177, § 371 Date Aug. 6, 1996, § 102(e) Date Aug. 6, 1996, PCT Pub. No. WO95/22075, PCT Pub. Date Aug. 17, 1995

PCT Filed Jan. 30, 1995, Ser. No. 687,494

Claims priority, application United Kingdom, Feb. 9, 1994, 9402516

Int. Cl.[6] G02F *1/1337;1/13*

U.S. Cl. 349—123 **19 Claims**



1. A method of providing a surface alignment and surface molecular tilt on walls (3,4,41,46) of liquid crystal devices (1) comprising the steps of:

forming a layer (41, 46) of material capable of being cross linked on the surface of a liquid crystal cell wall (3, 4, 41, 46),

illuminating the layer (41, 46) with polarised light to anisotropically cross link the layer,

forming an asymmetric grating in the cross linked layer (41, 46) so that liquid crystal molecules (2) in contact with the layer (41, 46) will be both aligned and tilted to the plane of the cell wall (3, 4, 41, 46).

5,724,114

LIQUID CRYSTAL DEVICE WITH COMPOSITION CONTAINING OPTICALLY ACTIVE MATERIAL AND MATERIAL SHOWING SMECTIC, SMECTIC A AND CHIRAL SMECTIC C PHASES UPON TEMPERATURE DECREASE

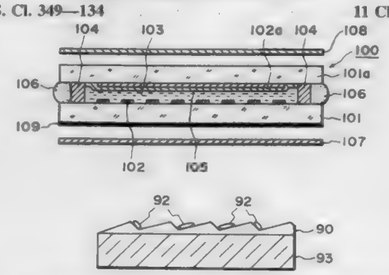
Kazuharu Katagiri, Tama; Kazuo Yoshinaga, Machida; Shinjiro Okada, Isehara, and Junichiro Kanbe, Yokohama, all of Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan

Continuation of Ser. No. 191,929, Feb. 4, 1994, abandoned, which is a division of Ser. No. 34,827, Mar. 18, 1993, Pat. No. 5,311,343, which is a continuation-in-part of Ser. No. 863,781, Apr. 6, 1992, Pat. No. 5,301,049, which is a continuation-in-part of Ser. No. 251,028, Sep. 26, 1988, Pat. No. 5,120,466, which is a continuation of Ser. No. 750,295, Jul. 1, 1985, abandoned. This application May 15, 1995, Ser. No. 440,878

Claims priority, application Japan, Jul. 13, 1984, 59-146211; Jul. 14, 1984, 59-146498; Sep. 12, 1984, 59-190789; Sep. 12, 1984, 59-190790; Sep. 14, 1984, 59-192920

Int. Cl.[6] G02F *1/13;1/1341;1/141*

U.S. Cl. 349—134 **11 Claims**



1. A process for producing a liquid crystal device, comprising:

disposing a pair of substrates opposite to each other with a spacing therebetween, at least one of the pair of substrates being provided with a unidirectional alignment characteristic;

injecting a liquid crystal composition heated to an elevated temperature into the spacing between the substrates, said liquid crystal composition comprising a mixture of at least one species of optically active substance and at least one liquid crystal compound exhibiting a smectic phase, said liquid crystal composition exhibiting smectic A phase and chiral smectic phase, wherein said liquid crystal composition is in a higher temperature phase than the smectic A phase at said elevated temperature; and

causing the liquid crystal composition in the higher temperature phase to cool through smectic A phase into chiral smectic phase so that the liquid crystal composition is aligned to form molecular long axes aligned in one direction due to the unidirectional alignment characteristic in the smectic A phase and to tilt said molecular long axes in at least two directions different from said one direction in the chiral smectic phase.

5,724,115

LIQUID CRYSTAL DEVICE AND PROCESS FOR PREPARING THE SAME

Yukari Sakai; Mitsuko Nagai, and Hideo Hama, all of Sodegaura, Japan, assignors to Mitsui Petrochemical Industries, Ltd., Tokyo, Japan

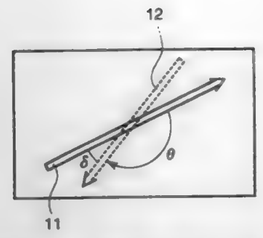
Filed Jun. 2, 1995, Ser. No. 459,801

Claims priority, application Japan, Jun. 13, 1994, 6-130696; Jan. 20, 1995, 7-007734

Int. Cl.[6] G02F *1/133;* **C09K** *19/52*

U.S. Cl. 349—134 **6 Claims**

1. A liquid crystal device comprising a liquid crystal cell filled with a liquid crystal material capable of exhibiting a smectic phase, said cell including upper and lower substrates each having in order an electrode and an orientation film in contact with the liquid crystal material, the surface of each orientation film is treated by



subjecting the film to an orientation treatment to control an orientation direction of the liquid crystal material with which it is in contact, wherein the orientation treatment direction of one orientation film is different from the orientation treatment direction of the other orientation film, and a cross angle Θ formed by the orientation treatment directions of the orientation films, as measured in the clockwise direction based on the orientation treatment direction of the orientation film of the upper substrate side, is represented by the following formula (I) or (II):

$$\Theta=180°-\delta \quad \text{(I)}$$

$$\Theta=360°-\delta \quad \text{(II)}$$

wherein 0°<δ90°, and

wherein when the liquid crystal cell filled with the liquid crystal material in a smectic phase is placed between two polarizing plates of the crossed Nicols arrangement in such a manner that the amount of the transmitted light, which transmits through one polarizing plate, the liquid crystal cell and the other polarizing plate in this order, would be minimum, the minimum value T of the light transmittance represented by the following formula (IV) is not more than 1.0%;

$$T=((I-I_0)/I_{100})\times 100 \quad \text{(IV)}$$

wherein I is the minimum amount of the transmitted light, I_0 is an amount of the transmitted light in the crossed Nicols arrangement when the liquid crystal cell is not placed, and I_{100} is a difference between I_0 and the amount of the transmitted light in the parallel Nicols arrangement when the liquid crystal cell is not placed.

5,724,116

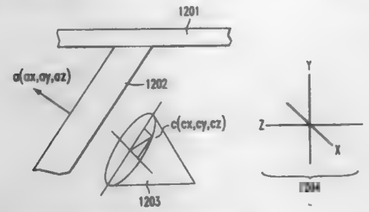
LIQUID CRYSTAL PANEL WITH MEMORY FUNCTION

Yasushi Suzuki, Sayama, Japan, assignor to Citizen Watch Co., Ltd., Tokyo, Japan

Filed Jun. 6, 1995, Ser. No. 468,336

Int. Cl.[6] G02F *1/1337;1/13*

U.S. Cl. 349—171 **8 Claims**



1. A liquid crystal panel comprising:

two substrates,

an electrode film formed on one surface of each of the two substrates,

an alignment film formed on each of the electrode films,

the two substrates being disposed such that the alignment films face each other, and

an antiferroelectric liquid crystal material held between the two substrates, said antiferroelectric liquid crystal material containing a mixture of at least two kinds of layer structures that provide minimum free energy.

5,724,117

SPECTACLES WITH DECORATION

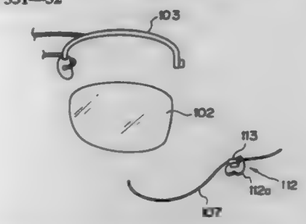
Masaru Murai; Takayuki Hirai; Isao Hyoi; Yoshimi Maeda, all of Fukui, and Seiichi Susuki, Fukui Prefecture, all of Japan, assignors to Murai Co., Ltd., Fukui, Japan

Division of Ser. No. 956,950, Oct. 5, 1992, Pat. No. 5,469,230. This application Apr. 28, 1995, Ser. No. 430,739

Claims priority, application Japan, Dec. 12, 1991, 3-109469; Dec. 12, 1991, 3-109470; Dec. 19, 1991, 3-110862; Feb. 21, 1992, 4-17195; May 21, 1992, 4-40290; May 22, 1992, 4-41159; May 22, 1992, 4-41161; May 25, 1992, 4-41868; May 25, 1992, 4-41869

Int. Cl.[6] G02C *11/02*

U.S. Cl. 351—52 **6 Claims**



1. Spectacles with a decoration, comprising

a pair of lenses;

spectacle frame bodies;

flexible lens holding members arranged around said lenses for holding said lenses within said spectacle frame bodies; and a decoration fastened to at least one of said flexible lens holding members, said decoration having fitting means for being fitted to said flexible lens holding member, wherein said decoration is fitted to the flexible lens holding member through a fastening hole through which said lens holding member is fastened.

5,724,118

CLIP-ON LENS ATTACHMENT WHICH CAN BE CUSTOMIZED TO FIT A WIDE VARIETY OF SPECTACLES

Martin Krebs, Steinbruchstrasse 26, A-9523 Landskron, Austria

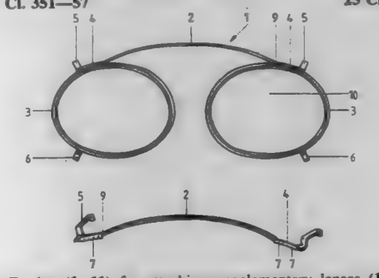
PCT No. PCT/AT94/00205, § 371 Date Jul. 18, 1996, § 102(e) Date Jul. 18, 1996, PCT Pub. No. WO95/18987, PCT Pub. Date Jul. 13, 1995

PCT Filed Dec. 28, 1994, Ser. No. 666,318

Claims priority, application Austria, Jan. 3, 1994, A 5/94; Apr. 27, 1994, A 880/94

Int. Cl.[6] G02C *7/08*

U.S. Cl. 351—57 **25 Claims**



1. Device (1, 11) for attaching supplementary lenses (10) to spectacles, comprising two flexible, closed rings (3) which hold the

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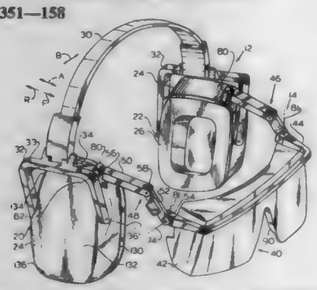
supplementary lenses (**10**), bow (**2**) which joins the rings (**3**), and hooks (**5**, **6**) for attaching the device (**1**, **11**) to the spectacles, wherein a perimeter of the rings (**3**) can be reduced in size.

5,724,119

EARMUFF-EYEGLASS COMBINATION

Howard S. Leight, Santa Monica, Calif., assignor to Howard S. Leight & Associates Inc., San Diego, Calif.

Filed Jul. 12, 1996, Ser. No. 683,515
Int. Cl.[6] G02C *1/00;5/14*
U.S. Cl. 351—158 **9 Claims**



1. A combination that includes an earmuff assembly and an eyeglass assembly, where the eyeglass assembly includes an eyeglass with opposite sides and a pair of temple bar devices, and where each temple bar device has a rear end pivotally mounted on said earmuff assembly and has a front end coupled to a corresponding side of said eyeglass, wherein:

each of said temple bar devices includes a plurality of bars, including a first bar having a rear end pivotally connected to said earmuff assembly and having a front end lying forward of said rear end, and a second bar having a rear end pivotally connected to said front end of said first bar and having a front end which lies forward of said second bar rear end and which is pivotally coupled to a corresponding side of said eyeglass, whereby to enable adjustment of the forward-rearward position of the eyeglass.

5,724,120

MULTIFOCAL CONTACT LENS AND METHOD AND APPARATUS FOR MAKING THE SAME

Jan B. Svochak, 6432 Heather, Watauga, Tex. 76148, and Colin Howard Wess, 4701 Canyon Trail North, Euless, Tex. 76040

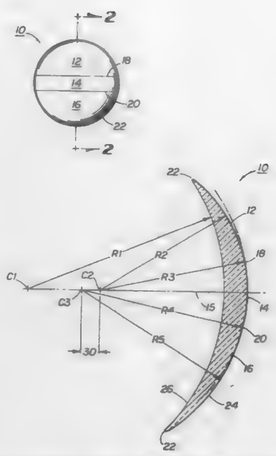
Filed Oct. 2, 1995, Ser. No. 538,099
Int. Cl.[6] G02C *7/04*
U.S. Cl. 351—161 **11 Claims**

1. A contact lens having a single optical axis, an anterior side and an opposite posterior side adapted to fit against a human cornea, comprising:

a. a first spherical vision surface disposed laterally across a first portion of the anterior side having a first radius of curvature and a first center of curvature disposed along the single optical axis;

b. a second spherical vision surface disposed laterally across a second portion of the anterior side and having a second radius of curvature and a second center of curvature disposed along the single optical axis; and

c. a transition surface disposed laterally across a third portion of the anterior side intermediate the first portion and the second portion and having a plurality of centers of curvature, each



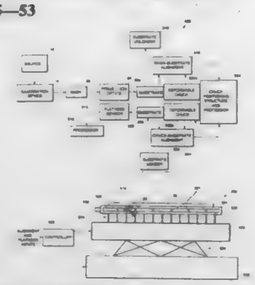
center of curvature being disposed along the single optical axis.

5,724,121

MOUNTING MEMBER METHOD AND APPARATUS WITH VARIABLE LENGTH SUPPORTS

William G. McKinley, Littleton; Bernhard P. Piwczyk, Carlisle, and John R. Burgess, Dunstable, all of Mass., assignors to Hughes Danbury Optical Systems, Inc., Danbury, Conn.

Filed May 12, 1995, Ser. No. 439,958
Int. Cl.[6] G03B *27/42*
U.S. Cl. 355—53 **8 Claims**



1. Apparatus comprising:

a deformable mounting member on which a substrate can be mounted, the mounting member having a base upon which are mounted a plurality of actuators;

a plurality of variable-length members supporting the deformable mounting member on a support, each variable-length member capable of movement to position the mounting member relative to an optical system;

a controller generating control signals for the variable-length members to selectively change the lengths of the variable length members to position the mounting member and actuate the actuators to change the shape of the deformable mounting member; and

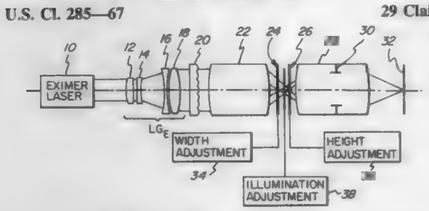
a chamber within the deformable mounting member accessible via a vacuum port such that the chamber can be at least partially evacuated to hold a substrate on the deformable mounting member.

5,724,122

ILLUMINATION SYSTEM HAVING SPATIALLY SEPARATE VERTICAL AND HORIZONTAL IMAGE PLANES FOR USE IN PHOTOLITHOGRAPHY

Mark L. Oskotsky, Mamaroneck, N.Y., assignor to SVG Lithography Systems, Inc., Wilton, Conn.

Filed May 24, 1995, Ser. No. 448,994
Int. Cl.[6] G03F *7/20*
U.S. Cl. 285—67 **29 Claims**



1. An illumination system for photolithography, comprising:

a beam expander;

a lens array following the beam expander;

a condenser following the lens array, the condenser having a horizontal image plane and a vertical image plane at different spatial locations; and

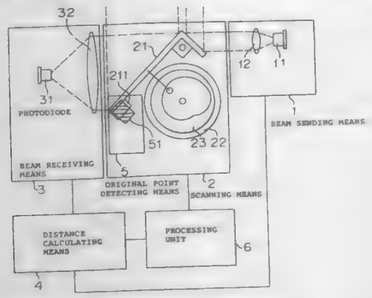
a relay following the condenser, whereby light entering the beam expander is directed to the lens array, imaged in two spatially separate planes by the condenser, and re-imaged in a single plane at a reticle by the relay.

5,724,123

DISTANCE MEASURING EQUIPMENT FOR DETECTING A SCANNING DIRECTION

Shoichi Tanaka, Tokyo, Japan, assignor to Mitsubishi Denki Kabushiki Kaisha, Tokyo, Japan

Filed Dec. 20, 1995, Ser. No. 575,223
Claims priority, application Japan, Jun. 22, 1995, 7-155953
Int. Cl.[6] G01C *3/08*
U.S. Cl. 356—5.01 **6 Claims**



1. Distance measuring equipment comprising:

beam emitting means,

reflecting means for reflecting the beam from the beam emitting means in a predetermined direction, and for reflecting in a predetermined direction a return beam which results from reflection of the beam by an obstacle,

scanning means for moving the reflecting means in a predetermined range to scan the beam,

beam receiving means for receiving the return beam reflected by the reflecting means,

distance determining means for calculating a distance to the obstacle based on a time difference between the time of beam emission and reception of the return beam by said beam receiving means,

origin detecting means for detecting an origin point as a reference position of the reflecting means, and

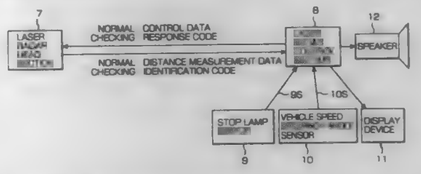
beam emission direction determining means for calculating an emission direction of the beam from the reflecting means based on an output from the origin detecting means.

5,724,124

LASER RADAR APPARATUS

Koichi Kai, Tokyo, Japan, assignor to Mitsubishi Denki Kabushiki Kaisha, Tokyo, Japan

Filed Apr. 19, 1996, Ser. No. 634,613
Claims priority, application Japan, Oct. 13, 1995, 7-265746
Int. Cl.[6] G01S *17/08*
U.S. Cl. 356—5.01 **16 Claims**



2. A laser radar apparatus comprising:

a laser radar head section for irradiating laser light toward an object of detection and for measuring a distance to said object based on the period of time from a first time point at which the laser light is irradiated to a second time point at which the laser light reflected by said object of detection returns;

identification means provided on said laser radar head section for transmitting an identification code;

a laser radar control section connected with said laser radar head section for controlling the operation thereof based on the result of the distance measurement; and

response-code transmission means provided on said laser radar control section for receiving said identification code from said identification means and transmitting a response code corresponding to said identification code;

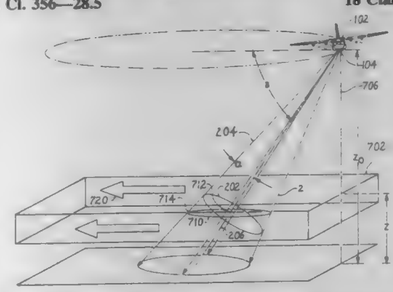
wherein said identification means enables laser irradiation of said laser radar head section when it receives said response code corresponding to said identification code transmitted therefrom.

5,724,125

DETERMINATION OF WIND VELOCITY USING A NON-VERTICAL LIDAR SCAN

Lawrence L. Ames, 1218 Willow St., San Jose, Calif. 95125-4337

Filed Jun. 22, 1994, Ser. No. 263,820
Int. Cl.[6] G01P *3/36;* **G01S** *13/58*
U.S. Cl. 356—28.5 **18 Claims**



1. A method for obtaining a wind velocity using a signal transmitter located at a first location and a signal receiver located at a second location, comprising the steps of:

transmitting a first signal along a first transmission path from the first location using the signal transmitter, wherein said first

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signal propagates to a third location, and wherein a first distance is a distance between the first location and said third location along said first transmission path;

receiving a first reflected signal at the second location using the signal receiver, wherein said first reflected signal is said first signal reflected from said third location;

transmitting a second signal along a second transmission path from the first location using the signal transmitter, wherein said second signal propagates to a fourth location, and wherein a second distance is a distance between the first location and said fourth location along said second transmission path, and wherein said second distance is not equal to said first distance, and wherein said third location and said fourth location are at a first altitude;

receiving a second reflected signal at the second location using the signal receiver, wherein said second reflected signal is said second signal reflected from said fourth location; and

determining the wind velocity at said first altitude based upon said first reflected signal and said second reflected signal.

5,724,126

METHOD FOR MEASURING DISTRIBUTION OF ZERO DISPERSION WAVELENGTHS IN AN OPTICAL FIBER AND APPARATUS THEREFOR

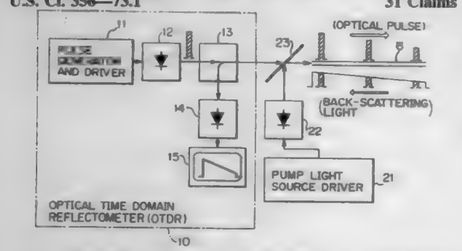
Shigendo Nishi, Yokosuka; Katsumi Iwatsuki; Ken-ichi Suzuki, both of Yokohama, and Masatoshi Saruwatari, Yokosuka, all of Japan, assignors to Nippon Telegraph and Telephone Corporation, Tokyo, Japan

Filed May 5, 1995, Ser. No. 435,640

Claims priority, application Japan, May 6, 1994, 6-094239

Int. Cl.[6] G01N *21/41;21/84*

U.S. Cl. 356—73.1 **31 Claims**



1. A method for measuring a distribution of zero dispersion wavelengths in an optical fiber, comprising the steps of:

launching an optical pulse or an optical pulse and a pump light into said optical fiber from one end of said optical fiber;

observing at said one end of said optical fiber a back-scattering light waveform of said optical pulse, said waveform being indicative of a distribution of a power of said optical pulse in said optical fiber in a longitudinal direction;

measuring from the observed back-scattering light waveform a portion where modulation instability is induced in said optical fiber; and

determining a zero dispersion wavelength at the portion of said optical fiber where the modulation instability is induced from a wavelength of said optical pulse or pump light.

5,724,127

SYSTEM AND METHOD FOR INSPECTING AN END OF A FIBER OPTIC

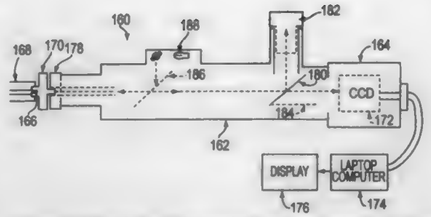
Andrei Csipkes, Columbia, Md., and Glen D. Porter, Norcross, Ga., assignors to Ciena Corporation, Linthicum, Md.

Filed Feb. 27, 1997, Ser. No. 808,722

Int. Cl.[6] G01N *21/88*

U.S. Cl. 356—73.1 **24 Claims**

1. An apparatus for inspecting an end surface of a fiber optic, comprising:



a scope body having an adapter that mates the scope body with a bulkhead connected to an end surface of a fiber optic;

means for generating light at a selected angle to the end surface of the fiber optic, located within the scope body, so that the light impinges on the end surface of the fiber optic through the bulkhead at the selected angle and an image of the end surface of the fiber optic is generated wherein an imperfection located on the end surface of the fiber optic casts a shadow on the image of the end surface of the fiber optic; and

means for receiving the image of the end surface of the fiber optic wherein the imperfection on the end surface of the fiber optic cable is detected and enhanced due to the shadow in the image.

5,724,128

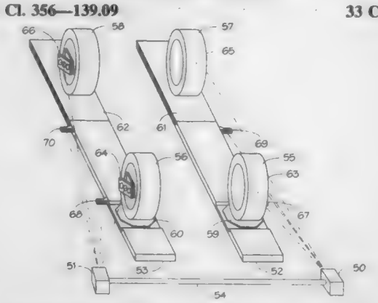
APPARATUS AND METHOD FOR DETERMINING VEHICLE WHEEL ALIGNMENT MEASUREMENTS FROM THREE DIMENSIONAL WHEEL POSITIONS AND ORIENTATIONS

Daniel B. January, St. Peters, Mo., assignor to Hunter Engineering Company, Bridgeton, Mo.

Filed Dec. 28, 1995, Ser. No. 580,465

Int. Cl.[6] G01B *11/275*

U.S. Cl. 356—139.09 **33 Claims**



1. A wheel alignment apparatus for determining the alignment of the wheels of a vehicle in relation to the surface on which the vehicle wheels roll, said apparatus comprising:

a first set of predetermined optical targets adapted to be mounted one to each of the wheels of a vehicle;

a second set of predetermined optical targets disposed in a predetermined geometrical relationship with respect to the surface on which said vehicle wheels roll;

at least one video camera disposed to receive images of said first optical targets and said second optical targets;

a computer operatively connected to said at least one camera, said computer being responsive to the images of said first set of targets and to the images of said second set of targets to determine values of wheel alignment parameters of the vehicle relative to said surface on which said vehicle wheels roll.

5,724,129

METHOD FOR DETERMINING VEHICLE WHEEL ALIGNMENTS

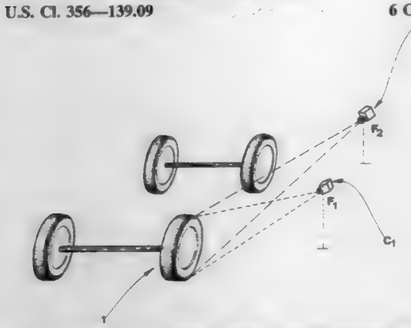
Marco Matteucci, Rio Saliceto, Italy, assignor to G.S. S.r.l., Corregio, Italy

Filed Sep. 16, 1996, Ser. No. 714,681

Claims priority, application European Pat. Off., Apr. 23, 1996, 96830232

Int. Cl.[6] G01B *11/26*

U.S. Cl. 356—139.09 **6 Claims**



1. A method for calculating vehicle wheel alignment, comprising:

use of two television cameras arranged in such positions as to frame and observe two different visual angles contemporaneously of a single wheel of a vehicle;

designation of geometrical entities characteristic of said single wheel by means of which a plane of said wheel is identified;

calculation of two transformations between coordinates of at least three unaligned points of said plane of said wheel and position of said transformations respectively on focal planes on which images of said television camerasare formed, by means of two application matrices;

calculation of said application matrices obtained by means of observation of said two television camerasof a set of points positioned in a known way in space;

calculation of two inverse applications through which it is possible to derive coordinates in space of three unaligned points of a plne of said wheel plane starting from a knowledge of the coordinates of said points of focal planes of said two television cameras;

calculation of an equation of the plane of said wheel and of a vector normal thereto, as well as angles formed by said vector with reference axes.

5,724,130

TECHNIQUE FOR THE MEASUREMENT AND CALIBRATION OF ANGULAR POSITION

Charles Wang, 28509 Seamont Dr., Palos Verdes, Calif. 90274

Filed Sep. 8, 1995, Ser. No. 524,653

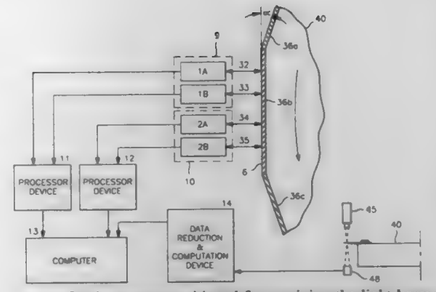
Int. Cl.[6] G01C *3/00;* **G01B** *11/26;* **G01D** *5/34*

U.S. Cl. 356—152.2 **9 Claims**

1. An apparatus for providing data related to an angular rotation of a rotating table, the apparatus comprising:

light reflecting means including a plurality of mirrors placed end to end around a circumference of the rotating table thereby establishing a regular polygon of reflecting surfaces of the mirrors, such that the reflecting surfaces of the mirrors are tangent to a circumference of the table;

interferometric means for providing a plurality of parallel adjacent light beams directed at the light reflecting means, said beams spaced apart in such a manner that when one of said beams is positioned at an interface between two of the mirrors, another of said beams is positioned on only one of the mirrors;



a retroreflecting means positioned for receiving the light beams from the light reflecting means, and for redirecting the light beams back to the light reflecting means so as to direct the light beams back to the interferometric means;

whereby the interferometric means provides the data necessary to calculate the angular rotation of the rotating table.

5,724,131

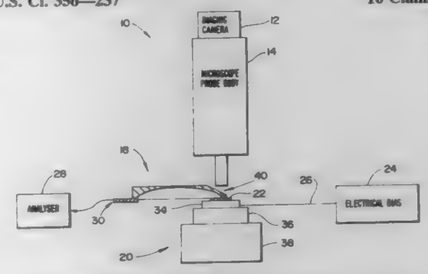
INTEGRATED EMISSION MICROSCOPE FOR PANCHROMATIC IMAGING, CONTINUOUS WAVELENGTH SPECTROSCOPY AND SELECTIVE AREA SPECTROSCOPIC MAPPING

Wai Kin Chim; Daniel Siu Hung Chan; Jacob Chee Hong Phang; Jing Mei Tao, and Yong Yu Liu, all of Singapore, Singapore, assignors to The National University of Singapore, Singapore, Singapore

Continuation-in-part of Ser. No. 490,352, Jun. 14, 1995, Pat. No. 5,569,920. This application Aug. 4, 1995, Ser. No. 511,351

Int. Cl.[6] G01N *21/71*

U.S. Cl. 356—237 **16 Claims**



1. An emission microscope system for collecting and analyzing light emitted from an emission point of interest on a device under test, comprising:

(a) a concave ellipsoidal mirror with an ellipticity greater than 0.8, the mirror having first and second focal points;

(b) means for positioning the emission point of interest at the first focal point; and

(c) emission collection means located at the second focal point of the mirror, said collection means having a collection face centered upon and substantially perpendicular to the axis connecting the first and second focal points, whereby emissions from the emission point of interest are focused to the second focal point and collected by said collection means.

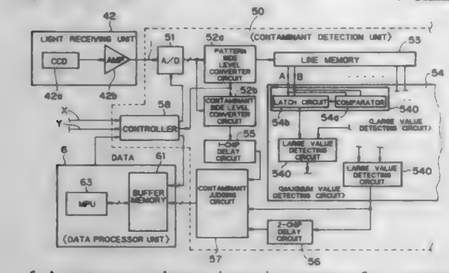
VOL 1208 ISS 1 MR 3 1998 UMI

5,724,132

EXTRANEOUS SUBSTANCE INSPECTION APPARATUS FOR PATTERNED WAFER

Yoshio Morishige, Honjo; Hisato Nakamura, Saitama-ken, and Tetsuya Watanabe, Honjo, all of Japan, assignors to Hitachi Electronics Engineering Co., Ltd., Tokyo, Japan

Filed Oct. 24, 1996, Ser. No. 736,582
Claims priority, application Japan, Nov. 21, 1995, 7-326310
Int. Cl.[6] G01N 21/00
U.S. Cl. 356—237 9 Claims



1. An extraneous substance inspection apparatus for a patterned wafer, which detects extraneous substance on a patterned wafer having patterns in the form of IC chips on a basis of a detection signal which is obtained by irradiating said patterned wafer with a laser beam at a predetermined angle with respect to a surface of said patterned wafer and receiving scattering light reflected from said patterned wafer, the detection signal having a magnitude corresponding to a level of the received scattering light, the apparatus comprising level conversion means for converting the level of the detection signal obtained from a position in a certain chip of said wafer into one of multi-valued levels and a judging circuit for comparing a signal indicative of the one of multi-valued levels with another signal indicative of a converted level obtained by converting a detection signal detected at a similar position in another chip adjacent to said certain chip by said level conversion means to judge an existence or absence of an extraneous substance.

5,724,133

INTERIOR INSPECTION METHOD AND APPARATUS FOR ENCLOSED SPACES

Troy Meadows, Crosby; Richard W. Winstead, Bridge City, and Robert L. Mitchem, Crosby, all of Tex., assignors to Rescar, Inc., Downers Grove, Ill.

Continuation-in-part of Ser. No. 544,472, Oct. 18, 1995, Pat. No. 5,565,981, which is a continuation of Ser. No. 208,687, Mar. 11, 1994, abandoned. This application Aug. 15, 1996, Ser. No. 698,571
Int. Cl.[6] G01N 21/88
U.S. Cl. 356—241 11 Claims

1. An inspection apparatus for viewing the interior of an enclosed space of a structure comprising

body means including an elongated tube having a lower portion and an upper portion disposed along a first axis,

said lower portion being arranged to be inserted into the enclosed space,

support means affixed to said body means for supporting said body means on the structure,

a first housing having a light source and a second housing having a video camera means, means for rotatably mounting said first housing and said second housing on said lower portion respectively about a pair of axes generally transverse to said first axis,

mechanical linkage means extending from said upper portion to said lower portion and being operatively coupled to said means for rotatably mounting said first housing and said second housing,

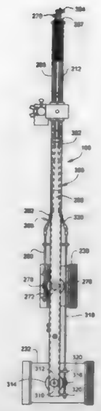
said linkage means having control means mounted externally of the enclosed space in operative connection to said linkage means and acting to selectively rotate said first housing and said second housing respectively about said transverse axes,

said means for rotatably mounting said first housing and said second housing included gear means coupled to said linkage means,

said linkage means includes a pair of elongated rods extending from said upper portion to said lower portion, said gear means being connected to said elongated rods,

said pair of elongated rods are respectively coupled to said first housing and said second housing, and

said pair of elongated rods are rotatably mounted on body means, said control means being connected to said pair of rods to independently rotate one of said rods and rotate one of said first housing and said second housing.

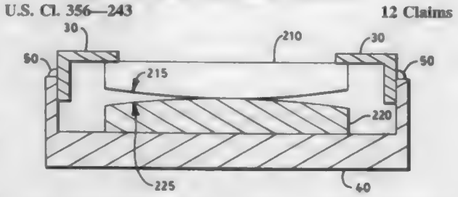


5,724,134

CALIBRATION STANDARD FOR OPTICAL GAP MEASURING TOOLS

Peter de Groot; James Biegen; Leslie Deck, and Robert Smythe, all of Middletown, Conn., assignors to Zygo Corporation, Middlefield, Conn.

Filed Nov. 13, 1995, Ser. No. 556,273
Int. Cl.[6] G01J 1/02; G01B 11/00;11/14
U.S. Cl. 356—243 12 Claims



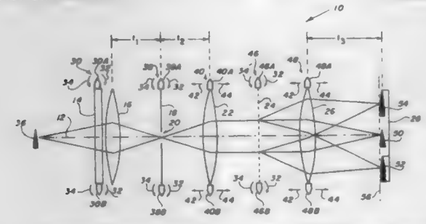
1. In a system for calibrating an optical gap measuring tool using a calibration standard for calibrating a gap size in said optical gap measuring tool against a known gap size in said calibration standard; the improvement comprising a pair of opposed optical elements, at least one of which is fabricated from a transparent material capable of providing visible access therethrough, said opposed optical elements having opposed surfaces, at least one of said opposed surfaces of one of said pair of optical elements being curved with respect to said opposed surface of the other of said optical elements of said pair, said curved surface having a known geometric curvature and being curved away from said opposed surface of said other optical element; and means for holding said pair of optical elements together so that said curved surface of said one element is substantially in contact with the opposed surface of said other optical element of said pair for establishing an obvious and unambiguous region of contact between said opposed surfaces in which said known gap size is zero with the gap being said opposed surfaces outside said region of contact varying in accordance with said known geometric curvature of said curved surface of said one optical element, said other optical element opposed surface also comprising a curved surface oppositely curved to said one optical element curved surface.

5,724,135

HYPER-SPECTRAL IMAGING USING ROTATIONAL SPECTRO-TOMOGRAPHY

Paul A. Bernhardt, Alexandria, Va., assignor to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

Filed Mar. 27, 1996, Ser. No. 622,231
Int. Cl.[6] G01J 3/28
U.S. Cl. 356—328 2 Claims



1. A rotational hyper-spectral-tomographic (RST) imager having an optical axis and that resolves the image of an object into spatial (x,y) coordinates and a spectral coordinate that includes the optical wavelength (λ) from the detection of the photon flux emitted by the object, wherein the spatial and spectral coordinates determine the characteristics of the object, said imager comprising:

(a) a filter located at the input .stage of the imager and having first and second faces, said filter having means for passing a predetermined range of wavelengths, said first face positioned to receive said photon flux of the object;

(b) a first lens having first and second faces with the first face positioned to look toward said second face of said filter;

(c) a field lens having means for being mounted for rotation and having a circular aperture of a predetermined radius r_a and being positioned from said first lens by a first predetermined focal length f_1;

(d) a zoom lens having first and second faces and having means for being mounted for movement relative to said field lens so as to establish an adjustable second focal length f_2, said first face of said zoom lens positioned to look toward said second face of said first lens;

(e) a diffracting grating having first and second faces and having means for being mounted for rotation, said first face thereof positioned to look toward said second face of said zoom lens;

(f) a second lens having first and second faces and having means for being mounted for movement, said first face thereof positioned to look toward said second face of said diffracting grating; and

(g) a detector for detecting said photon flux of said object and having a receiving surface positioned to look toward said second face of said second lens and located relative to said second lens to establish a third focal length f_3;

said circular aperture of said field lens having its central portion in coincidence with said optical axis and, similarly, said filter, said first, second, and second lens, said diffracting grating and said detector each having a central portion that is also in coincidence with said optical axis; and

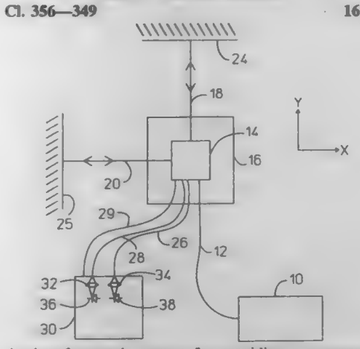
said imager being rotated in fixed angular steps around said optical axis.

5,724,136

INTERFEROMETRIC APPARATUS FOR MEASURING MOTIONS OF A STAGE RELATIVE TO FIXED REFLECTORS

Carl A. Zanoni, Middlefield, Conn., assignor to Zygo Corporation, Middlefield, Conn.

Filed Oct. 15, 1996, Ser. No. 730,753
Int. Cl.[6] G01B 9/02;11/02
U.S. Cl. 356—349 16 Claims



1. An interferometric system for providing a measurement of motion of a moving stage, said system comprising:

a source of a single frequency, linearly polarized, frequency stabilized light beam, said source being disposed remote from said moving stage and optically aligned therewith;

optical fiber means disposed between said remote source and said moving stage for delivering said light beam to said moving stage;

said moving stage comprising module means, said optical fiber means comprising means for delivering said light beam to said module means, said module means comprising means for converting said single frequency light beam delivered thereto into a two frequency, orthogonally polarized beam, said module means further comprising at least first and second interferometer means to produce first and second measurement beams and providing first and second light signal outputs for measuring said motion, respectively, based thereon;

first and second fixed reflecting means disposed remote from said moving stage and optically aligned with said first and second interferometer means, respectively, for reflecting said first and second measurement beams, respectively for providing said first and second interferometer means light signal outputs for enabling measurement of motions of said moving stage relative to said first and second reflecting means; and

means for converting said first and second light signal outputs into said measurement of displacement.

5,724,137

FRINGE PATTERN DISCRIMINATOR FOR INTERFEROMETER USING DIFFRACTION GRATINGS

Mark J. Tronolone, Fairport, and Jon F. Fleig, Rochester, both of N.Y., assignors to Tropel Corporation, Fairport, N.Y.

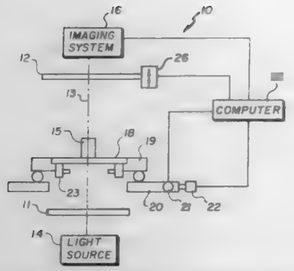
Filed Jun. 27, 1996, Ser. No. 671,488
Int. Cl.[6] G01B 9/02
U.S. Cl. 356—354 13 Claims

1. A method of distinguishing an object fringe pattern from other fringe patterns in an interferogram produced by an interferometer using a pair of diffraction gratings for separating and recombining test and reference beams, the method comprising:

a. moving an object to be measured so that movements occur in X and Y directions in a plane perpendicular to an optical axis of the interferometer, and the movements extend for sufficient distances to change brightness of regions of the object fringe pattern within the interferogram;

b. identifying which pixels of an imaging system experience change in irradiance in response to object movement; and

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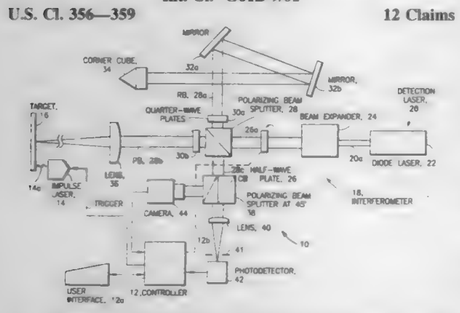
c. using irradiance data only from the identified pixels in analyzing the interferogram to produce a measurement of a surface of the object.

5,724,138

WAVELET ANALYSIS FOR LASER ULTRASONIC MEASUREMENT OF MATERIAL PROPERTIES

Judith E. Reich, Andover, and Petros A. Kotidis, Framingham, both of Mass., assignors to Textron Systems Corporation, Wilmington, Mass.

Filed Apr. 18, 1996, Ser. No. 634,286
Int. Cl.° G01B *9/02*
U.S. Cl. 356—359 **12 Claims**



1. A system for determining a characteristic of a target, comprising:

means for launching an elastic wave within the target;

an interferometer for detecting a displacement of a surface of the target in response to said launched elastic wave;

means, responsive to said detected displacement, for determining an amount of energy that is contained within at least one wavelet coefficient; and

means for correlating the energy with a characteristic of the target.

5,724,139

DARK FIELD, PHOTON TUNNELING IMAGING PROBES

John M. Guerra, Concord, Mass., assignor to Polaroid Corporation, Cambridge, Mass.

Filed Jun. 28, 1996, Ser. No. 673,253
Int. Cl.° G01B *11/24;11/30*
U.S. Cl. 356—371 **56 Claims**

1. A dark field, photon tunneling imaging probe for use in a system for measuring and visualizing microtopographic features of scattering surfaces, said probe comprising:

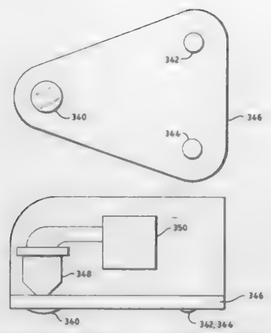
a base;

a housing for providing a light tight enclosure over said base;

lighting means attached to said base for illuminating a surface with a wavelength evanescent field so that light initially bound within said wavelength evanescent field is converted at least in part into propagating light through the process of back scattering from said surface and such that, in the absence of a surface or if a surface is distant, no evanescent light energy is converted into propagating light, said propagating light varying in correspondence with the scattering properties of said surface and the local distance of the surface's microtopographic features from said evanescent field;

imaging means mounted on said base along an optical axis positioned to collect said propagating light and form an image with it in which the microtopographic features of the surface are encoded as imagewise variations in image intensity; and

photodetector means mounted on said base for generating an image signal having an amplitude that varies in accordance with said image intensity and image position.

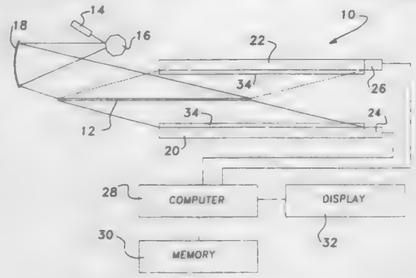


5,724,140

METHOD AND APPARATUS FOR DETERMINING THE QUALITY OF FLAT GLASS SHEET

James William Haywood, Ann Arbor, Mich., assignor to Ford Motor Company, Dearborn, Mich.

Filed Oct. 28, 1996, Ser. No. 738,557
Int. Cl.° G01B *11/30*
U.S. Cl. 356—371 **15 Claims**



1. A method of determining the quality of flat glass sheet comprising the steps of:

illuminating a rotating mirror with a light ray to form a moving ray and directing said light ray from said rotating mirror at an acute angle onto said glass sheet;

positioning a mask having alternating opaque and transparent portions to receive light from said ray after striking said glass sheet;

moving said ray from a first position of said sheet to a second position of said sheet and causing said light ray to move along said mask;

collecting light passing through said mask;

measuring the duration of said collected light; and

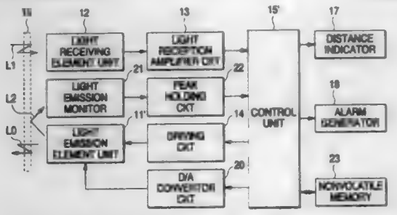
correlating said measured duration to the quality of said glass sheet.

5,724,141

DISTANCE MEASURING APPARATUS

Jun Nishino, Omiya, Japan, assignor to Kansei Corporation, Omiya, Japan

Filed Jul. 19, 1996, Ser. No. 683,885
Claims priority, application Japan, Jul. 19, 1995, 7-182948
Int. Cl.° G01B *11/14*
U.S. Cl. 356—375 **8 Claims**



1. A distance measuring apparatus for measuring a distance to an object, the object having a reflecting surface and a pair of members of at least a predetermined reflection performance respectively disposed on portions of said reflecting surface, said distance measuring apparatus comprising:

light emitting means for emitting light;

light receiving means for receiving light which is emitted from said light emitting means and which is reflected from the object;

calculating means for calculating a distance from the object on the basis of a period of time between the emission of light from said light emitting means and the reception of the light by said light receiving means; and

means for controlling an amount of light emitted from said light emitting means so as to be quadratically changed in accordance with the calculated distance being in a measurement range of less than a first distance,

wherein, in the measurement range of less than the first distance where light reflected from said reflecting surface positioned between said pair of members is received, a maximum amount of light capable of being received by said light receiving means is set to be smaller than a sensitivity at which a snowfall is detected, and a minimum amount of light capable of being received by said light receiving means is reduced to a level at which an object positioned at less than the first distance is detected, and

wherein an output level of the light output by said light emitting means is set to a minimum amount when the calculated distance is about 5 meters.

5,724,142

METHOD AND APPARATUS FOR MEASURING AND CONTROLLING THE VOLUME OF A LIQUID SEGMENT IN A TUBE

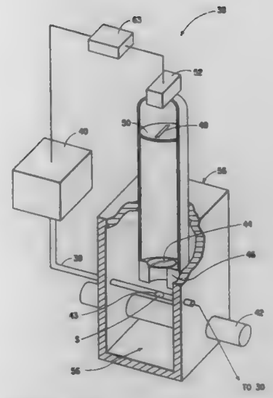
Edward Stephen Kaminski, North East, Md., and Paul John Zuk, Lincoln University, Pa., assignors to Dade International Inc., Deerfield, Ill.

Filed Mar. 29, 1996, Ser. No. 619,069
Int. Cl.° G01B *11/28*
U.S. Cl. 356—379 **13 Claims**

1. A method for determining the volume of a liquid segment traversing at a constant velocity through a transparent tube having an inner wall using a radiation detector, the segment having a leading edge and a trailing edge, comprising the steps of:

exposing the tube to an incident wave from a source of radiation;

locating the source of radiation at an azimuthal angle Ø that maximizes the amount of radiation reaching the detector, the angle Ø being the angle formed between the incident wave from the source of radiation and the refracted wave from the inner wall of the tube;



detecting refracted waves from the source that are refracted at the inner wall of the tube; and,

comparing the amount of radiation refracted from the tube at the leading and trailing edges of the segment with the amount of radiation refracted from the tube when there is no liquid segment within the tube,

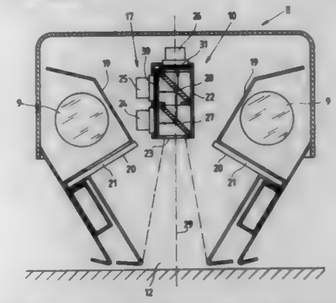
so that the volume of the segment may be determined from the time interval between passage of the leading and trailing edges of the segment past a position along the tube, in combination with the internal diameter of the tube and the constant velocity of the segment.

5,724,143

METHOD AND DEVICE FOR DETERMINING THE AREA COVERAGE OF AN ORIGINAL

Werner Huber, Rauenberg, and Helmut Kipphan, Schwetzingen, both of Germany, assignors to Heidelberger Druckmaschinen AG, Heidelberg, Germany

Filed Mar. 25, 1992, Ser. No. 857,332
Claims priority, application Germany, Mar. 25, 1991, 41 09 744.0
Int. Cl.° G01B *11/28*
U.S. Cl. 356—380 **8 Claims**



1. Method for setting ink settings of a printing machine for area coverage for a printing original having printing areas and non-printing areas thereon, the printing areas being of different color than that of the non-printing areas, the printing original having a location-dependent inhomogeneity γ independent of the area coverage, at least one full-tone area and at least one non-printing area, the method comprising the steps of: scanning with an optical scanner the original for determining a local diffuse-reflection value of at least a first and second measuring field, the measuring result of the scanning being influenced by the inhomogeneity; determining from the scanning by means of at least two sensors in the

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optical scanner at least two respective diffuse-reflection values from each of the measuring fields, wherein said diffuse-reflection values differ spectrally from each other in accordance with their respective color difference; determining with the optical scanner from the full-tone area at least two diffuse-reflection values (V1, V2); determining with the optical scanner from the non-printing area at least two diffuse-reflection values (H1, H2); determining with the optical scanner from each of the measuring fields at least two measuring fields having least diffuse-reflection values (S1, S2); computing with a computing device the ink settings from the diffuse-reflection values by means of a set of equations and setting the ink settings according to the computed ink settings.

5,724,144

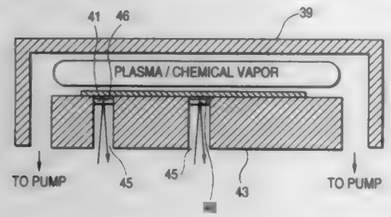
PROCESS MONITORING AND THICKNESS MEASUREMENT FROM THE BACK SIDE OF A SEMICONDUCTOR BODY

Karl Paul Ludwig Muller, Wappingers Falls; Katsuya Okumura, Poughkeepsie, and Theodore G. Van Kessel, Millbrook, all of N.Y., assignors to International Business Machines Corp., Armonk, N.Y., and Kabushiki Kaisha Toshiba, Kanagawa-ken, Japan

Continuation of Ser. No. 388,412, Feb. 14, 1995, abandoned. This application Jul. 3, 1996, Ser. No. 674,855

Int. Cl.[6] G01B *11/06*

U.S. Cl. 356—382 **36 Claims**



1. A method for obtaining thickness data for a semiconductor body, comprising:

providing a semiconductor body comprising a front side portion and a back side portion on a semiconductor body support platform including a passageway for transmission of light from a light source therethrough, said support platform comprising a structure selected from the group consisting of: (a) a chuck for holding the semiconductor body during polishing of a front side surface of said front side portion; and (b) a cathode within a reaction chamber;

transmitting light from said light source through said passage way and onto said back side portion such that said light is at least partially transmitted through said back side portion, partially reflected by a back side surface of said front side portion to form a primary reflection, and partially transmitted through said front side portion then at least partially reflected from a front side surface of said front side portion to form a secondary reflection;

detecting said primary and secondary reflections; and

calculating thickness data for the front side portion from said primary and secondary reflections.

5,724,145

OPTICAL FILM THICKNESS MEASUREMENT METHOD, FILM FORMATION METHOD, AND SEMICONDUCTOR LASER FABRICATION METHOD

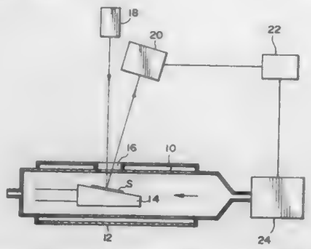
Takayuki Kondo; Katsumi Mori, and Takeo Kaneko, all of Suwa, Japan, assignors to Seiko Epson Corporation, Tokyo, Japan

Filed Jul. 12, 1996, Ser. No. 679,714

Claims priority, application Japan, Jul. 17, 1995, 7-202872

Int. Cl.[6] G01B *11/06*

U.S. Cl. 356—382 **16 Claims**



1. An optical film thickness measurement method in which a monitor light beam is radiated towards a substrate during the formation of a stack of films on said substrate, and optical film thickness is measured from extreme values of the reflection intensity of light reflected therefrom,

wherein said stack of films, comprises:

a first film having a reflectance of at least 98% within a predetermined wavelength range; and

a second film formed on said first film and having an absorption coefficient of 1000 cm^{-1} or less within said predetermined wavelength range;

said optical film thickness measurement method comprises the steps of:

measuring said first film by a first monitor light beam having a predetermined wavelength dependent on the predetermined wavelength range; and

measuring said second film by a second monitor light beam having a wavelength that differs from said predetermined wavelength range.

5,724,146

Patent Not Issued For This Number

5,724,147

Patent Not Issued For This Number

5,724,148

APPARATUS AND METHOD FOR DETERMINATION OF URINE COLOR

Willis Howard, III, and Gary E. Rehm, both of Elkhart, Ind., assignors to Bayer Corporation, Elkhart, Ind.

Filed May 9, 1996, Ser. No. 647,120

Int. Cl.[6] G01N *21/27*

U.S. Cl. 356—425 **20 Claims**

1. An apparatus for analyzing a urine sample disposed on a reagent pad having a color which changes over time in response to said urine sample, said apparatus comprising:

means for illuminating said reagent pad on which said urine sample is disposed;

first means for detecting light of a first color received from said reagent pad and generating a first reflectance signal at a first time when said color of said reagent pad is changing and a second reflectance signal at a second time when said color of said reagent pad is changing, said second time being subsequent to said first time and each of said first and second reflectance signals having a magnitude;

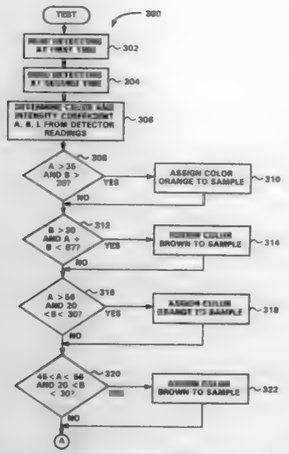
second means for detecting light of a second color received from said reagent pad and generating a third reflectance signal when said color of said reagent pad is changing, said third reflectance signal having a magnitude;

third means for detecting light of a third color received from said reagent pad and generating a fourth reflectance signal when said color of said reagent pad is changing, said fourth reflectance signal having a magnitude;

means for determining a first color coefficient having a magnitude based upon said magnitudes of said first, second and third reflectance signals;

means for determining a second color coefficient having a magnitude based upon said magnitudes of said first, second and fourth reflectance signals; and

means for assigning a color to said urine sample based upon said magnitudes of said first and second color coefficients.



5,724,149

OPTICAL COMMUNICATION LINK FAULT SIGNALLING

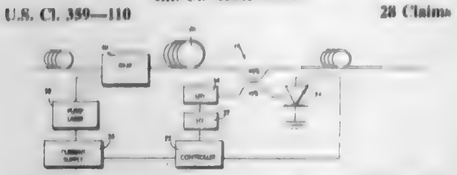
William Andrew Stallard, Colchester; Andrew David Ellis, Suffolk, and Robert Michael Percival, West Yorkshire, all of England, assignors to British Telecommunications plc, London, England

Filed Dec. 3, 1992, Ser. No. 956,008

Claims priority, application United Kingdom, Apr. 20, 1990, 9008895

Int. Cl.[6] H04B *10/02*

U.S. Cl. 359—110 **28 Claims**



1. A fault signalling system for a long range optical communications link over which narrow bandwidth signals are transmitted comprising:

a plurality of photonic amplifiers, each photonic amplifier having a gain profile for enhancing signals transmitted along the link;

a broadband signalling means associated with each photonic amplifier and coupled to the link for coupling an optical output signal characteristic of the particular photonic amplifier onto the communications link;

each said optical output signal having a frequency bandwidth which is substantially wider than the collective gain bandwidth profile of the plurality of photonic amplifiers;

each said signalling means being operable to transmit its characteristic optical output signal along the communications link to receiving means associated with the link; and

means for generating or interrupting the characteristic output signal from at least one of said signalling means in the event of a fault so as to provide an indication at the receiving means of the location of the fault.

5,724,150

METHOD AND APPARATUS FOR MEASURING A POSITION OF WEBS OR SHEETS

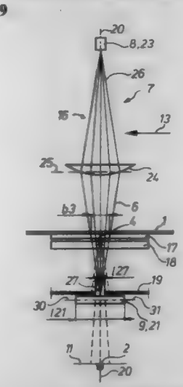
Johannes Georg Schaede, and Volkmar Rolf Schwitzky, both of Würzburg, Germany, assignors to Koenig & Bauer-Albert Aktiengesellschaft, Wurzburg, Germany

Filed Dec. 11, 1995, Ser. No. 570,522

Claims priority, application Germany, Dec. 10, 1994, 44 44 080.4; Aug. 31, 1995, 195 32 009.3

Int. Cl.[6] G01N *21/84*

U.S. Cl. 356—429 **19 Claims**



1. A method for measuring the position of an edge of a web including:

generating a light beam using an illuminating device;

providing a photoelectric receiver having a plurality of photoelectric elements arranged at short distances from each other in an imaging plane in a path of said light beam;

including a light source and a light condenser in said illuminating device, said light condenser focusing said light beam at a condenser focus point;

positioning an optical system between said illuminating device and said photoelectric receiver;

situating an imaging lens intermediate said light condenser and said photoelectric receiver;

locating said web edge in said focusing light beam between said light condenser in said illuminating device and said imaging lens; and

using said optical system for defining said edge of said web clearly in said imaging plane in a direction of a transverse axis extending perpendicularly to said edge of said web and for defining said edge of said web diffused and blurred in said imaging plane in a direction of a longitudinal axis extending parallel with said edge of said web.

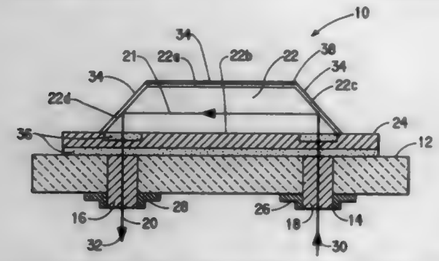
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5,724,151

WAVEGUIDE SENSING ELEMENT FOR USE IN A SAMPLE MEDIUM AND METHOD OF REAR-FIRING ELECTROMAGNETIC RADIATION

James Francis Ryley, Drexel Hill; Joseph Anthony Perrotto, Landenberg, both of Pa.; Moshe Oren, Waltham, Mass., and Ronald Jack Riegert, Newark, Del., assignors to E.I. du Pont de Nemours and Company, Wilimington, Del.

Filed Jul. 30, 1996, Ser. No. 688,450
Int. Cl.[6] G01N 21/00
U.S. Cl. 356—432 27 Claims



1. A waveguide sensing element for detecting a component in a sample medium, comprising:

(a) a substrate having an input opening adapted to accept an input optical fiber and an output opening adapted to accept an output optical fiber, wherein the input optical fiber transmits rear-fired electromagnetic radiation and the output optical fiber emits the rear-fired electromagnetic radiation; and

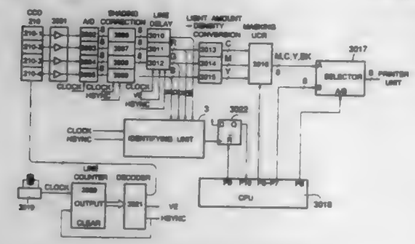
(b) a guiding layer disposed adjacent to the substrate, the guiding layer having a longitudinal axis, a first surface, a second surface spaced from the first surface and bevel means extending between the first and the second surface for directing the rear-fired electromagnetic radiation along, the longitudinal axis of the guiding layer, wherein the guiding layer has a thickness of less than 0.635 cm.

5,724,152

IMAGE READING APPARATUS AND IMAGE PROCESSING APPARATUS FOR READING OPTICAL INFORMATION OF VISIBLE AND NON-VISIBLE LIGHT

Toshio Hayashi, Kawasaki; Hiroshi Tanioka; Shinobu Arimoto, both of Yokohama; Kazuo Yoshinaga, Machida; Takehiko Nakai, Tokyo; Tsutomu Utagawa, Yokohama; Tetsuya Nagase, Kawasaki, and Nobuatsu Sasanuma, Yokohama, all of Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan

Filed Dec. 28, 1993, Ser. No. 174,435
Claims priority, application Japan, Jan. 1, 1993, 5-015083; Jan. 1, 1993, 5-015096
Int. Cl.[6] H04N 1/21; B41J 2/47; G01D 15/14; G02B 26/00
U.S. Cl. 358—296 26 Claims



1. An image processing apparatus comprising:

an image reading unit comprised of plural read pixel arrays and having (i) first detecting means for detecting invisible image information by part or all of a predetermined line of at least two lines of the read pixel arrays, and (ii) second detecting means for detecting visible image information of a pixel array of the read pixel arrays except for the predetermined line, wherein a distance between the pixel array of the predetermined line and the pixel array except for the predetermined line is an integer multiple of a pitch of pixels of at least two lines of the read pixel arrays;

judging means for judging a specific original on a basis of detection results of the first detecting means and the second detecting means; and

control means for controlling image processing in accordance with a judgment result of said judging means,

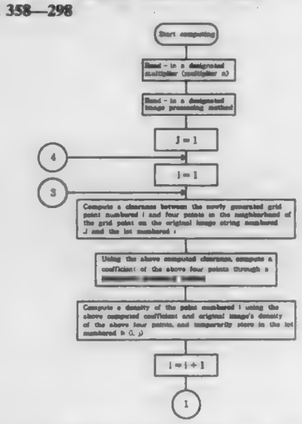
wherein a circuit for image processing is also used to output said invisible information synchronously with said visible information on a substantially same position on a read image.

5,724,153

VARIABLE DENSITY IMAGE PROCESSING METHOD AND VARIABLE DENSITY IMAGE PROCESSING APPARATUS THEREOF

Haruo Kotani, Takatsuki, and Makoto Yamaguchi, Tokyo, both of Japan, assignors to Nishimoto Sangyo Co., Ltd., Osaka, Japan

PCT No. PCT/JP94/01840, § 371 Date Oct. 4, 1995, § 102(e) Date Oct. 4, 1995, PCT Pub. No. WO95/22226, PCT Pub. Date Aug. 17, 1995
PCT Filed Nov. 1, 1994, Ser. No. 525,752
Claims priority, application Japan, Feb. 8, 1994, 6-036539
Int. Cl.[6] H04N 1/21; 1/387
U.S. Cl. 358—298 6 Claims



1. A computer implemented variable density image (grey scale image) processing method wherein grid points of an original image are multiplied by a certain real multiplier, new grid points are generated therebetween at a certain interval, density of newly generated grid points are set at a certain value, and thereby a new image multiplied by a real multiplier is obtained, said method comprising the steps of:

(a) multiplying an original image by a certain real multiplier in the line direction;

(b) calculating distances for all newly generated grid points from the newly generated and unassigned density grid point of the grid lines, which includes original grid points moved by multiplying the original image by the real multiplier in the line direction, to four original grid points on the same line which are near the newly generated grid points respectively;

(c) calculating coefficients for determining density in accordance with said distances;

(d) setting density of all unassigned density grid points on the lines multiplied by the real multiplier with a certain calculation method using said coefficients and the density of original grid points relating to said coefficients;

(e) multiplying the image, which is multiplied in the line direction, by a real multiplier in the row direction thereafter; and

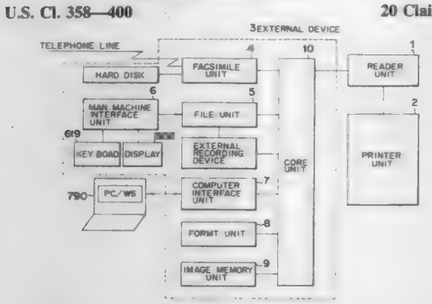
(f) setting density of all newly generated and unassigned density grid points of the rows including set density grid points moved by multiplying by the real multiplier in the row direction with a certain calculation method using the density of original grid points or the density of set density grid points of which density is set by step (d).

5,724,154

IMAGE PROCESSING APPARATUS WITH MULTIPLE FUNCTIONS

Hirobiko Ito, Kawasaki; Keishi Inaba, and Masahiro Iwadate, both of Yokohama, all of Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan

Continuation of Ser. No. 219,547, Mar. 29, 1994, abandoned. This application Feb. 4, 1997, Ser. No. 794,458
Claims priority, application Japan, Mar. 31, 1993, 5-094917
Int. Cl.[6] H04N 1/00; 1/21
U.S. Cl. 358—400 20 Claims



1. An image processing apparatus comprising:

input means for inputting a plurality of instructions for image processing jobs, each of which image processing jobs treats a different image independently;

storage means for storing the plurality of instructions input by said input means;

decision means for deciding whether processing of each image processing job takes a long time or a short time based on respective processing contents of the image processing jobs respectively corresponding to the plurality of instructions input by said input means;

discrimination means for discriminating whether the processing corresponding to each of the plurality of instructions input by said input means inputs an image or outputs an image; and

control means for sorting an execution order of the plurality of instructions stored in said storage means in accordance with a decision result provided by said decision means, and further sorting the execution order of the plurality of sorted instructions in accordance with a discrimination result provided by said discrimination means so that processing which inputs an image and processing which outputs an image alternately appear,

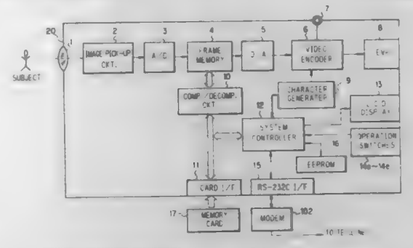
wherein said control means executes each of the image processing jobs according to the execution order of the plurality of sorted instructions.

5,724,155

ELECTRONIC IMAGING SYSTEM

Yawara Saito, Hachiohji, Japan, assignor to Olympus Optical Co., Ltd., Tokyo, Japan

Filed Dec. 30, 1994, Ser. No. 366,893
Claims priority, application Japan, Dec. 30, 1993, 5-351087
Int. Cl.[6] H04N 1/00; 1/32
U.S. Cl. 358—402 26 Claims



1. An electronic still camera, comprising:

image pick-up means for generating and outputting an image signal photoelectrically converted from an image incident thereon;

image data storing means for storing image data, corresponding to said image signal issued from said image pick-up means on an applied storage device or medium;

data communication means for transmitting designated image data in said storage device or medium through a personal computer network organization while an operation mode of the system is set for communication;

switch means for causing said communication means to start a communication mode operation; and

operation mode changing means including a first switch and a second switch, said first switch for switching a camera mode and a communication mode, said second switch for switching a play mode and a recording mode while said camera mode is set by said first switch, and for switching a receiving mode and a transmitting mode while a communication mode is set by said first switch.

5,724,156

FACSIMILE APPARATUS AND METHOD HAVING FUNCTION OF RELAY TRANSMISSION OR RELAY RESULT REPORT TRANSMISSION

Yukinori Satou, Ebina, Japan, assignor to Ricoh Company, Ltd., Tokyo, Japan

Continuation of Ser. No. 517,359, Aug. 21, 1995, abandoned, which is a continuation of Ser. No. 233,345, Apr. 26, 1994, abandoned. This application Sep. 17, 1996, Ser. No. 714,878
Claims priority, application Japan, Apr. 27, 1993, 5-099946; Oct. 29, 1993, 5-271367; Apr. 18, 1994, 6-078558
Int. Cl.[6] H04N 1/00; H04M 11/00
U.S. Cl. 358—407 26 Claims

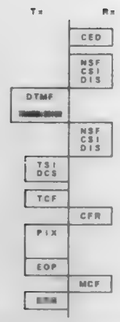
1. A facsimile apparatus comprising:

detecting means for detecting dual-tone multifrequency data; and

processing means for determining from the dual-tone multifrequency data sent from a requesting station whether a relay transmission is requested and for recognizing from the dual-tone multifrequency data a destination for a receiving station which is to receive image information from the requesting station;

wherein, when the requesting station requests relay transmission, the requesting station sends the image information to the facsimile apparatus and the facsimile apparatus performs the relay transmission to the receiving station and thus transmits the image information to the receiving station, and wherein said facsimile apparatus checks said dual-tone multifrequency data transmitted by said requesting station for a one-touch number or an abbreviated number representing a destination

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where a relay report is to be transmitted, wherein said destination may include stations other than said facsimile apparatus and said requesting station.

5,724,157

FACSIMILE APPARATUS AND METHOD OUTPUTTING RESULTS OF FACSIMILE COMMUNICATION

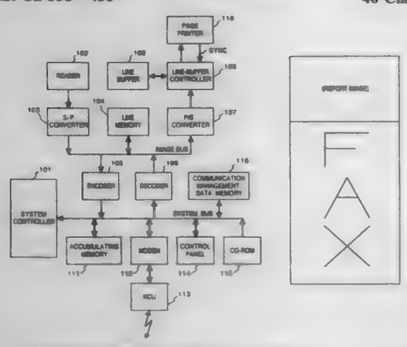
Atsushi Otani, Tokyo, and Katsutoshi Ushida, Yokohama, both of Japan, assignors to Canon Kabushiki Kaisha, Japan

Continuation of Ser. No. 225,974, Apr. 12, 1994, abandoned. This application May 9, 1996, Ser. No. 647,293

Claims priority, application Japan, Apr. 20, 1993, 5-092814

Int. Cl.[6] H04N *1/387;1/40*

U.S. Cl. 358—450 **40 Claims**



1. A facsimile apparatus capable of outputting a report of results of communication, comprising:

code memory means for storing coded image data to be printed;

communication management data storage means for storing communication management data;

encoding means for generating coded management data based on the communication management data stored in said communication management data storage means;

decoding means for decoding the coded image data read out from said code memory means and the coded management data generated by said encoding means to generate pixel data;

line buffer memory means for storing a plurality of lines of pixel data from said decoding means;

page printing means for printing each line of the pixel data, read out from said line buffer memory means, for a page of an image, said page printing means printing each line within a constant time regardless of an information content of each line, wherein said decoding means decodes the code data for each line within a respective time shorter than the constant time regardless of an information content of each line; and

output means for successively outputting the coded management data and the coded image data to said decoding means,

wherein said output means applies a zoom processing to the coded image data, and combines the management data and the zoom-processed image data in such a manner that the image data and the communication management data are combined to form combined data and the combined data fits on one page.

5,724,158

IMAGE PROCESSING APPARATUS FOR SELECTIVELY USING MTF CORRECTION PROCESS FOR DIFFERENT REGIONS OF A COMPOSITE IMAGE

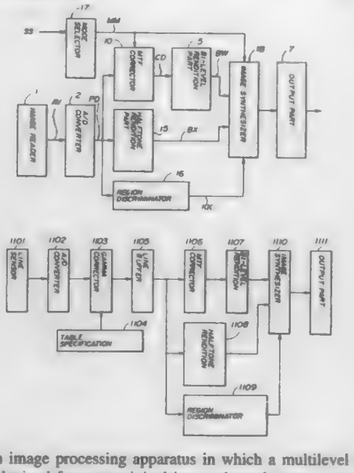
Kazumasa Koike, Atsugi, Japan, assignor to Ricoh Company, Ltd., Tokyo, Japan

Division of Ser. No. 946,889, Sep. 18, 1992, Pat. No. 5,550,647. This application Dec. 29, 1995, Ser. No. 580,557

Claims priority, application Japan, Sep. 20, 1991, 3-268619; Nov. 19, 1991, 3-329814; May 13, 1992, 4-146942

Int. Cl.[6] H04N *5/202*

U.S. Cl. 358—462 **8 Claims**



1. An image processing apparatus in which a multilevel image signal obtained from an original image through raster scanning is input, said image processing apparatus comprising:

correction means for converting the input multilevel image signal into an output multilevel image signal through an MTF correction process;

first bi-level rendition means for performing a simple bi-level rendition process with respect to the multilevel image signal output by said correction means, so that a first bi-level image signal is output by the first bi-level rendition means;

second bi-level rendition means for performing a pseudo halftone rendition process with respect to said input multilevel image signal to output a second bi-level image signal;

discrimination means for detecting whether a target pixel indicated by said input multilevel image signal is located in a halftone region of the original image or in a bi-level region thereof; and

image synthesizing means for outputting the first bi-level image signal to an output device via said first bi-level rendition means when the target pixel is detected by said discrimination means as being located in the bi-level region, and for outputting the second bi-level image signal to the output device via the second bi-level rendition means when the target pixel is detected by said discrimination means as being located in the halftone region,

wherein said correction means performs the MTF correction process in accordance with an MTF correction mode, said MTF correction mode being selected from among a plurality of MTF correction modes, having different correction effects,

in accordance with at least one of the following: a) a density value indicated by the target pixel of said input multilevel image signal, b) an average of a plurality of density values indicated by the target pixel of said input multilevel image signal and by neighborhood pixels surrounding the target pixel and c) a distribution of a plurality of density values indicated by the target pixel of said input multilevel image signal and by neighborhood pixels surrounding the target pixel.

5,724,159

IMAGE READING DEVICE PROVIDED WITH STRUCTURAL FEATURES FOR FIXING THE READING UNIT DURING TRANSPORT

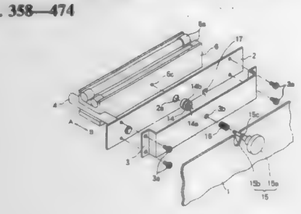
Kunihiko Nakagawa, and Hiroshi Nakao, both of Nagaokakyo, Japan, assignors to Mitsubishi Denki Kabushiki Kaisha, Tokyo, Japan

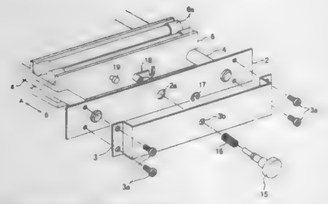
Division of Ser. No. 229,715, Apr. 19, 1994, Pat. No. 5,585,937. This application Jul. 22, 1996, Ser. No. 684,822

Claims priority, application Japan, Apr. 21, 1993, 5-094355; Nov. 16, 1993, 5-311142; Dec. 6, 1993, 5-340145

Int. Cl.[6] H04N *1/028;1/04;1/10*

U.S. Cl. 358—474 **6 Claims**





1. An image device comprising:

a frame;

a reading unit provided with a line sensor for reading a text image;

a guide member, fixed to said frame, for supporting said reading unit such that said reading unit is free to slide in a predetermined direction; and

a stay fixed to said frame,

wherein a screwhole is formed at a predetermined position in said reading unit, a first throughole is formed in said frame coaxially with said screwhole, and a second throughhole is formed in said stay, coaxially with both said screwhole and said first throughhole, and

wherein an elastic member, having a third throughhole, is engaged with said first throughhole in said frame, and a holding member is provided including a grip of large diameter and a screw of small diameter, such that said reading unit is fixed when the image reading device is transported by screwing said screw into said screwhole of said reading unit through said second throughhole of said stay and through said third throughhole of said elastic member.

5. An image reading device comprising:

a frame;

a reading unit including a line sensor for reading a text image;

a guide member, fixed to said frame, for supporting said reading unit such that said reading unit is free to slide in a predetermined direction; and

a stay fixed to said frame,

wherein a projection is provided at a predetermined position on said reading unit, a first throughhole is formed in said frame, and a second throughhole is formed in said stay coaxially with said first throughhole, wherein

said image reading device further includes,

a holding member passing through said first throughhole in said frame and said second throughhole in said stay, said holding member including a hook at an end and a grip on the outer side of said stay, said hook being rotated so as to engage with said projection by rotating said grip when said image reading device is transported,

a compression spring provided on the outer side of said stay, for pushing said holding member towards the outside of said image reading device, and

a clip provided on said holding member, for contacting with the inner side of said stay.

5,724,160

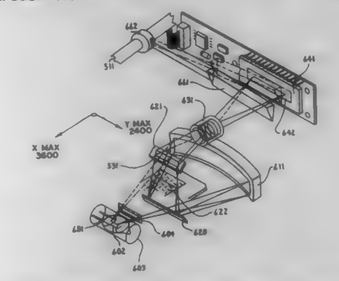
OPTICAL SCANNER FOR LINE SCANNING AN ORIGINAL

Marco Brandestini, Kirkland, and Richard F. Ferraro, Seattle, both of Wash., assignors to Nikon Corporation, Tokyo, Japan

Continuation of Ser. No. 484,639, Jun. 7, 1995, abandoned, which is a division of Ser. No. 320,113, Oct. 7, 1994, Pat. No. 5,537,229, which is a continuation of Ser. No. 973,819, Nov. 6, 1992, abandoned, which is a continuation of Ser. No. 619,663, Nov. 28, 1990, Pat. No. 5,191,406, which is a continuation-in-part of Ser. No. 511,649, Apr. 20, 1990, abandoned. This application Dec. 18, 1996, Ser. No. 769,696

Int. Cl.[6] H04N *1/04;1/191;1/192;* **G02B** *5/10*

U.S. Cl. 358—475 **12 Claims**



1. A scanner apparatus for scanning an original comprising:

a light source for producing a longitudinally diverging light beam;

a reflector having a first reflective surface which is curved with respect to a first axis for collecting light rays forming said longitudinally diverging light beam from said light source so as to focus said light beam into a longitudinally converging light beam and to direct said longitudinally converging light beam towards the original so as to form an image beam;

an imaging optical system for receiving the image beam and forming the image beam into a line of light; and

a line sensor for receiving the line of light produced by said imaging optical system.

7. A scanner apparatus for scanning an original comprising:

a light source for producing a longitudinally diverging light beam;

a reflecting means having a first reflective surface which is curved with respect to a first axis for collecting light rays forming said longitudinally diverging light beam from said light source so as to focus said light beam into a longitudinally converging light beam and to direct said longitudinally converging light beam towards the original so as to form an image beam;

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an imaging optical means for receiving the image beam and forming the image beam into a line of light; and

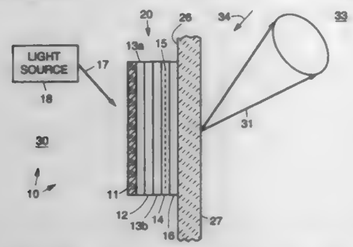
an image reading means for receiving the line of light produced by said imaging optical system.

5,724,161

HOLOGRAPHIC INFORMATION DISPLAY FOR EXTERIOR VEHICLE APPLICATION

Ronald T. Smith, Corna Del Mar, Calif., and Robert Allan Pyburn, Carmel, Ind., assignors to Delco Electronics Corp., Kokomo, Ind., and Hughes Electronics Corp., Los Angeles, Calif.

Filed Sep. 29, 1995, Ser. No. 537,176
Int. Cl.[6] G03H *1/00*
U.S. Cl. 359—13 **15 Claims**



1. Holographic apparatus for displaying information to an observer, said apparatus comprising:

a decal comprising:

a protective layer;

a hologram comprising a transmission hologram layer secured to the protective layer that contains a holographic image that is projected in a predetermined viewing direction when illuminated; and

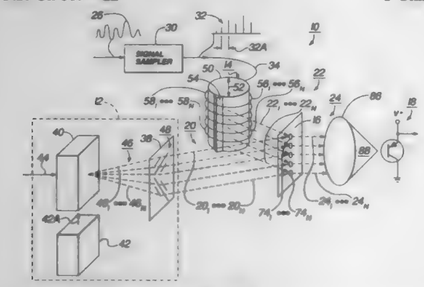
an opaque and clear mask layer into which an icon is incorporated; and a light source for illuminating the transmission hologram layer to project the holographic image to an observer.

5,724,162

OPTICAL CORRELATOR USING SPATIAL LIGHT MODULATOR

Joseph P. Garcia, Greenbelt, Md., and Lisa Koenigsberg, Jerusalem, Israel, assignors to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

Filed Nov. 27, 1995, Ser. No. 562,919
Int. Cl.[6] G02B *1/26*
U.S. Cl. 359—22 **8 Claims**



1. An optical correlator comprising:

(a) a delay line for receiving signals of interest comprising light modulated pulses spaced apart from each other with respect to time so as to represent interpulse time, said delay line having a plurality of stations with means for providing illuminating pulses between adjacent stations that are spaced apart from each other by a predetermined interpulse time;

(b) a hologram having a plurality of locations each storing spatial data which produce predetermined optical reference signals when intercepted by light beams having spatial coordinates defining a predetermined direction and position;

(c) means for generating a light excitation signal steerable to each of said plurality of locations and having said spatial coordinates defining said predetermined direction and position to produce said predetermined optical reference signals;

(d) an electron trapping material with a defined plane and having a plurality of locations with each location being representative of a predetermined pattern whose contents is definable by a write beam and readable by a read beam, said predetermined pattern being imaged onto said electron trapping material representing a correlation reference signal and is arranged so as to be intercepted by said illuminating pulses representing some unknown input signal to be classified, and so that said predetermined optical reference output signals serve as said write beam and said illuminating pulses serve as said read beam, said predetermined pattern of said electron trapping material providing corresponding optical correlation signals when the contents of said write beam is the contrast reversed image of the contents of said write beam;

(e) focus means arranged to receive and focus into one beam said optical correlation signals; and

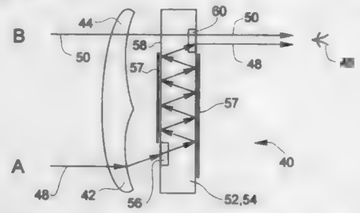
(f) means responsive to said focused beam to produce electrical signals which are proportional to the correspondence between said signals of interest and said predetermined optical reference signals.

5,724,163

OPTICAL SYSTEM FOR ALTERNATIVE OR SIMULTANEOUS DIRECTION OF LIGHT ORIGINATING FROM TWO SCENES TO THE EYE OF A VIEWER

Yair David, Ramat Hasharon, Israel, assignor to Yariv Ben-Yehuda, Tel Aviv, Israel

Filed Nov. 12, 1996, Ser. No. 746,526
Int. Cl.[6] G02B *5/32;3/10;27/14*
U.S. Cl. 359—15 **7 Claims**



1. An optical system to be used by a viewer to view a first scene and a second scene, the system comprising:

(a) a first eyepiece lens having a first focal length;

(b) a second eyepiece lens having a second focal length, said first and second lenses being positioned aside one another in front of one of the eyes of the viewer, such that a single light beam from any of said scenes passes only through one of said first and second lenses; and

(c) an optical arrangement for directing incident light originating from the first scene and passing through said first lens into said eye of the viewer, and at the same time, for directing incident light originating from the second scene and passing through said second lens into said eye of the viewer, said optical arrangement including a holographic plate being positioned between said first and second lenses and said eye of the viewer, said holographic plate including:

(i) a first input holographic optical element for passing incident light passing through said first lens into said holographic plate; and

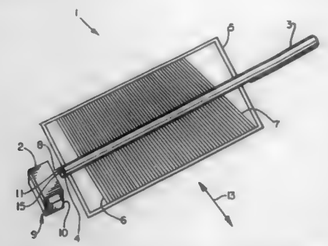
(ii) an output holographic optical element for passing light entering said holographic plate out of said holographic plate to said eye of the viewer.

5,724,164

CONTINUOUSLY TUNABLE LASER

Herman Leonard Lowenhar, New York, and Burton Louis Huland, Long Beach, both of N.Y., assignors to Kol Ohr Corporation, Wilmington, Del.

Continuation-in-part of Ser. No. 899,825, Jun. 16, 1992, Pat. No. 5,315,436, which is a continuation of Ser. No. 534,710, Jun. 6, 1990, abandoned. This application Apr. 28, 1994, Ser. No. 234,955
Int. Cl.[6] G03H *1/00;* **H01S** *3/30*
U.S. Cl. 359—34 **24 Claims**



1. A tunable light source having an emission spectrum of substantially single lines, comprising:

at least one active optical element;

a respective first reflective end for each said active optical element;

a grating with a set of lines that are one of parallel and divergent, said grating comprising a second reflective end, said divergent lines diverging from at least one of a true vertex and an effective vertex, said grating and said first reflective end of each said at least one active optical element cooperating to form a respective resonant cavity that contains a said at least one active optical element, each of said at least one active optical elements and its corresponding resonant cavity cooperating to produce a respective light output having an emission spectrum of substantially a single line, said at least one resonant cavity, upon comprising a plurality of resonant cavities, having a relative orientation of the plurality of resonant cavities that is at least one of parallel and non-parallel;

means for effecting a grazing coupling between said grating and said at least one resonant cavity and for controlling said grazing coupling to maintain substantially uniform reflection from each grating line back to said at least one active element associated with the respective at least one resonant cavity, each said at least one resonant cavity being at least one of a resonant cavity without an optical fiber and a resonant cavity having an optical fiber; and

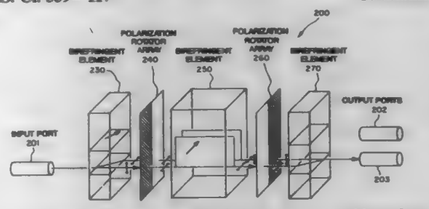
means for moving said grating along a path relative to said at least one resonant cavity to simultaneously and in the same ratio alter both the periodicity of the effective intersections of said grating lines with said at least one resonant cavity and the effective cavity length of said at least one resonant cavity to produce a constant longitudinal mode throughout the entire tunings range of said tunable light source.

5,724,165

FAULT-TOLERANT OPTICAL ROUTING SWITCH

Kuang-Yi Wu, Boulder, Colo., assignor to Macro-Vision Communications, L.L.C., Boulder, Colo.

Filed Jul. 23, 1996, Ser. No. 685,150
Int. Cl.[6] H04B *10/00*
U.S. Cl. 359—117 **18 Claims**



1. A method for switching optical signals between either of two control states comprising the steps of:

providing an first input/output (I/O) port;

providing a second I/O port;

providing a third I/O port;

providing a fourth I/O port;

spatially decomposing an optical signal received from the first I/O port into two portions having orthogonal polarizations with respect to each other;

spatially decomposing an optical signal received from the fourth I/O port into third and fourth portions having orthogonal polarizations with respect to each other;

rotating the polarization of one of said first and second portions to match the polarization of the other of said first and second portions determined by the control state;

rotating the polarization of one of said third and fourth portions to match the polarization of the other of said third and fourth portions determined by the control state;

spatially routing the first and second portions based upon their polarization;

spatially routing the third and fourth portions based upon their polarization, wherein the polarization of the first, second, third, and fourth portions is the same before the steps of spatially routing;

rotating the polarization of one of said first and second portions to be orthogonal to the polarization of the other of said first and second portions;

rotating the polarization of one of said third and fourth portions to be orthogonal to the polarization of the other of said third and fourth portions;

passing the first and second portions through a birefringent element to recombine the first and second portions into a single optical signal aligned with one of the second and third I/O ports; and

passing the third and fourth portions through the birefringent element to recombine the third and fourth portions into a single optical signal aligned with one of the second and third I/O ports.

5,724,166

INFORMATION SHARING METHOD FOR A PLURALITY OF NODES IN COMMUNICATION SYSTEM AND COMMUNICATION SYSTEM

Toru Nakata, Yokohama, Japan, assignor to Canon Kabushiki Kaisha, Japan

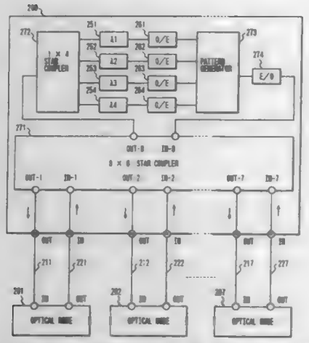
Filed May 3, 1995, Ser. No. 433,054
Claims priority, application Japan, May 13, 1994, 6-099824
Int. Cl.[6] H04B *10/20;* **H04J** *14/00*
U.S. Cl. 359—120 **47 Claims**

9. A communication system comprising:

a plurality of nodes;

a plurality of signal lines for connecting said nodes to perform communication;

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a usage state transmission line on which state information indicative of a usage state of the plurality of signal lines is transmitted to the respective nodes;

forming means for forming an encoded pattern in which the state information is encoded; and

distributing means for distributing the encoded pattern directly to the respective nodes via said usage state transmission lines, said distributing means including a star coupler to which said signal lines and said usage state transmission line are connected,

wherein after a node requesting use of a signal line receives the encoded pattern, the requesting node selects an available signal line on the basis of the state information.

5,724,167

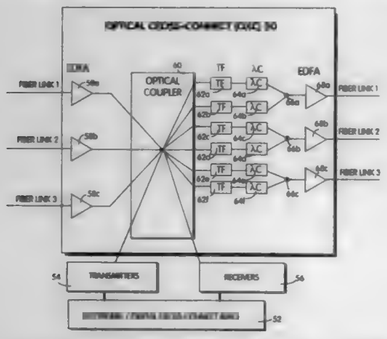
MODULAR OPTICAL CROSS-CONNECT ARCHITECTURE WITH OPTICAL WAVELENGTH SWITCHING

Roberto Sabella, Rome, Italy, assignor to Telefonaktiebolaget LM Ericsson, Stockholm, Sweden

Filed Nov. 14, 1995, Ser. No. 555,716

Int. Cl.[6] H04J *14/02*

U.S. Cl. 359—128 **27 Claims**



1. A single stage optical cross-connect node for routing and switching wavelength communications channels at high speed, the single stage comprising:

plural optical fiber input links and output links, each link containing plural wavelength channels;

a single optical star coupler having an input port for each input link and plural output ports for combining all of the wavelength channels received from all of the input links and providing the combined signal so that all of the input wavelength channels are available at each output port of the optical star coupler;

tunable optical filters, each connected to one of the optical star coupler output ports for selecting one of all of the input wavelength channels received on all of the input links;

optical wavelength converters, each corresponding and connected to each tunable optical filter for translating the selected wavelength channel to a different wavelength channel; and

optical combiners for combining selected wavelength channels generated by the wavelength converters onto corresponding optical fiber output links,

wherein the optical star coupler, tunable optical filters, optical wavelength converters, and optical combiners are included in the single stage.

5,724,168

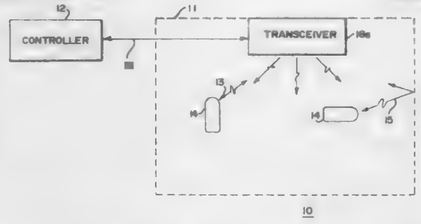
WIRELESS DIFFUSE INFRARED LAN SYSTEM

Ellen L. Oschmann, Winnetka, and Jeffrey Peter Welch, Libertyville, both of Ill., assignors to Spectrix Corporation, Deerfield, Ill.

Filed Oct. 11, 1994, Ser. No. 322,016

Int. Cl.[6] H04B *10/00*

U.S. Cl. 359—172 **5 Claims**



1. A wireless diffuse infrared communication system for enclosed areas comprising:

a controller;

a substantially omnidirectional diffuse infrared transceiver disposed inside the enclosed area, operatively interconnected with the controller and simultaneously transmitting a diffuse infrared signal throughout the enclosed area;

a portable remote station; and

a floating photodiode amplifier circuit disposed within the remote station, for transceiving the diffuse communicated signal with the substantially omnidirectional diffuse infrared transceiver.

5,724,169

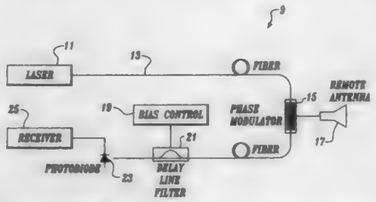
PHASE-MODULATED FIBER OPTIC COMMUNICATION LINK WITH CARRIER SIGNAL FILTERING

Michael J. LaGasse, Seattle, Wash., assignor to The Boeing Company, Seattle, Wash.

Filed Feb. 27, 1996, Ser. No. 607,366

Int. Cl.[6] H04B *10/12*

U.S. Cl. 359—173 **21 Claims**



7. A phase-modulated fiber optic communication link with carrier signal filtering comprising:

(a) a laser for producing an optical carrier signal;

(b) an optical fiber for conveying said optical carrier signal to a phase modulator;

(c) phase modulator for receiving said optical carrier signal and phase modulating said optical carrier signal with a modulated RF signal to produce a phase-modulated optical signal containing said optical carrier signal and a pair of sidebands, the center frequency of one of said sidebands lying below the frequency of said optical carrier signal and the center frequency of the other of said sidebands lying above the frequency of said optical carrier signal, said sidebands being out of phase by 180 degrees with each other, the power level of said sidebands being substantially less than the power level of said optical carrier signal;

(d) an optical fiber for conveying said phase-modulated optical signal to a demodulator; and

(e) a demodulator for receiving and demodulating said phase-modulated optical signal, said demodulation including:

(i) an optical filter for optically filtering said phase-modulated optical signal and producing at least one output signal containing a part of said optical carrier signal and at least one of said sidebands, the power of said part of said optical carrier signal relative to the power of said at least one sideband being substantially reduced by said optical filter; and

(ii) a photodiode detector for receiving the at least one output of said optical filter and recovering said modulated RF signal.

5,724,170

AUTOMATIC POWER CONTROL CIRCUIT

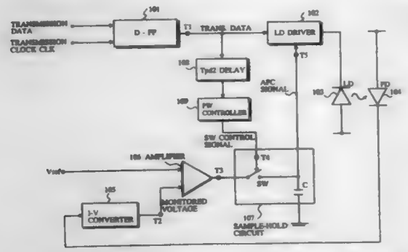
Yukio Aizawa, Tokyo, Japan, assignor to NEC Corporation, Tokyo, Japan

Filed Dec. 15, 1995, Ser. No. 573,147

Claims priority, application Japan, Dec. 15, 1994, 6-333374

Int. Cl.[6] H04B *10/04*

U.S. Cl. 359—187 **19 Claims**



1. A control circuit for a light-emitting source which emits an optical signal, comprising:

monitoring means for monitoring said optical signal emitted by said light-emitting source to produce a monitored signal corresponding to said optical signal;

sampling means for sampling said monitored signal each time said light-emitting source emits light based on an input digital signal and producing a first monitored signal;

retaining means for retaining said first monitored signal to produce a control signal; and

driving means for driving said light-emitting source according to said input digital signal and said control signal such that a signal component of said optical signal varies according to said input digital signal and a light intensity of said optical signal is controlled by said control signal;

said driving means comprising:

a first transistor for switching on and off according to pulses of said input digital signal; and

a second transistor, which is connected in series to said first transistor, for varying in impedance according to said control signal to control said intensity of light emitted by said light-emitting source.

5,724,171

OPTICAL SCANNING APPARATUS

William Bradshaw Amos; John Francis William Mallett, both of Cambridge, and Richard Henderson, Great Shelford, all of United Kingdom, assignors to Medical Research Council, London, England

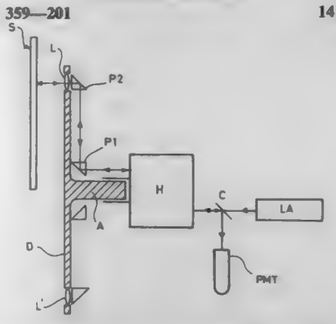
PCT No. PCT/GB94/00887, § 371 Date May 16, 1996, § 102(e) Date May 16, 1996, PCT Pub. No. WO94/27167, PCT Pub. Date Nov. 24, 1994

PCT Filed Apr. 26, 1994, Ser. No. 556,953

Claims priority, application United Kingdom, May 19, 1993, 9310267

Int. Cl.[6] G02B *26/08*

U.S. Cl. 359—201 **14 Claims**



1. Optical scanning apparatus comprising a support having an axis of rotation, a plurality, of reading heads mounted on the support to rotate therewith when the support is rotated at uniform angular speed about its axis, at least one optical source, and optical beam-switching means also movable in rotation at uniform angular speed for switching the beam from the source or sources between the reading heads so that successive reading heads are in turn continuously operational over a predetermined segment of a circular line scan whereby a subject relative to which at least the reading head support of the assembly has a linear translational movement may be read by the reading heads.

5,724,172

OPTICAL SCANNING APPARATUS

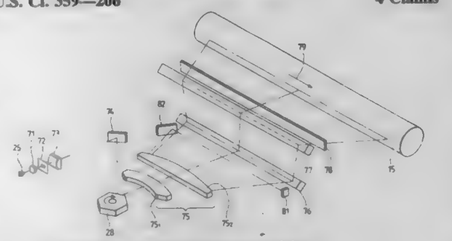
Akira Ota, Saitama, Japan, assignor to Fuji Xerox Co., Ltd., Tokyo, Japan

Division of Ser. No. 56,892, May 5, 1993, Pat. No. 5,546,215. This application Aug. 13, 1996, Ser. No. 696,213

Claims priority, application Japan, May 8, 1992, 4-116106; May 8, 1992, 4-116107

Int. Cl.[6] G02B *26/08*

U.S. Cl. 359—206 **4 Claims**



1. An optical scanning apparatus comprising;

a deflecting and scanning means for repetatively reflecting a laser beam, composed of a modulated image signal, to a light-sensitive member; and

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an fθ optical system for selecting an optical path for the laser beam so that the laser beam from said deflecting and scanning means is moved at a constant speed on the light-sensitive member;

wherein said fθ optical system includes a spherical single lens for receiving the laser beam from said deflecting and scanning means, and a planoconvex cylindrical lens having a refractive power only in a direction of deflection of the laser beam for receiving the laser beam through said spherical single lens; and said spherical single lens and said planoconvex cylindrical lens are located close to said deflecting and scanning means;

said optical scanning apparatus further comprising a concave cylindrical mirror having a refractive power only in the direction perpendicular to the deflection direction of the laser beam for reflecting the laser beam through said planoconvex cylindrical lens toward the light-sensitive member;

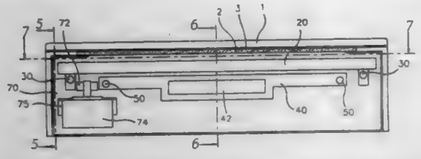
wherein said concave cylindrical mirror is located close to the light-sensitive member.

5,724,173

OPTICAL SCANNING DEVICE

Tsai Shui Chuan, No. 3, Alley 80, Lane 108, Sec. 1, Kuang-Fu Road, Hsin-Chu, Taipei, Taiwan

Filed Nov. 25, 1996, Ser. No. 791,649
Int. Cl.^{6} G02B *26/08*
U.S. Cl. 359—210 **8 Claims**



1. An optical scanning device for scanning picture elements of a sheet of paper, comprising:

a first guiding element for providing mechanical guidance on a straight path parallel to said sheet;

a first moving element, which is movable back and forth, guided by said first guiding element;

a first mirror, which is mounted on said first moving element, reflecting light from said picture elements of said sheet into a direction parallel to the movement of said first moving element;

a light source, illuminating said picture elements of said sheet and moving synchronously with said first moving element;

a second guiding element for providing mechanical guidance on a straight path parallel to said sheet;

a second moving element, which is movable back and forth, guided by said second guiding element;

a lens and a light detecting device, which are mounted on said second moving element;

a set of mirrors, which are mounted in a fixed position and reflect light coming from said first mirror into the opposite direction onto said lens, wherein light from said picture elements is focused by said lens on said light detecting device; and

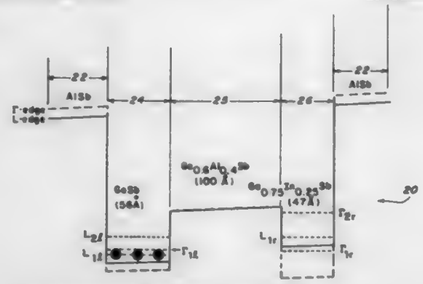
a driving device, driving said first moving element along said first guiding element and said second moving element along said second guiding element, such that said first and said second moving elements move with the same velocity into opposite directions.

5,724,174

INTERSUBBAND ELECTRO-OPTICAL MODULATORS BASED ON INTERVALLEY TRANSFER IN ASYMMETRIC DOUBLE QUANTUM WELLS

Jerry R. Meyer, Catonsville; Craig A. Hoffman, Columbia, and Filbert Bartoli, Upper Malboro, all of Md., assignors to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

Filed Jan. 11, 1996, Ser. No. 586,476
Int. Cl.^{6} G02F *1/03*
U.S. Cl. 359—248 **25 Claims**



1. An electro-optical modulator, comprising:

a first semiconductor barrier layer and a second semiconductor barrier layer;

a first quantum well layer having a conduction band minimum at the L point or the X point, disposed between said first and second semiconductor layers;

a second quantum well layer having a conduction band minimum at the Γ point, disposed between said first and second semiconductor layers;

a spacer layer disposed between said first and second quantum well layers, wherein said spacer layer has a conduction band minimum for establishing quantum confinement in said first quantum well layer at said L or X point and in said second quantum well layer at said Γ point, and is adapted for tunnelling between said first and second quantum well layers, and

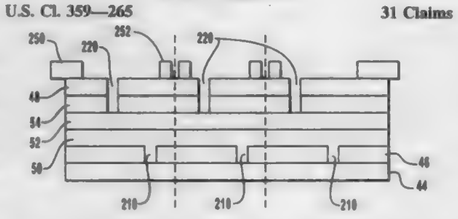
means for applying a controllable electric field in a direction normal to said first and second quantum well layers.

5,724,175

ELECTROCHROMIC DEVICE MANUFACTURING PROCESS

Bryant P. Hichwa; Richard A. Bradley, Jr.; Steven P. Sapers, all of Sonoma; Michael J. Cumbo, Santa Rosa, and J. Gordon H. Mathew, Sonoma, all of Calif., assignors to Optical Coating Laboratory, Inc., Santa Rosa, Calif.

Filed Jan. 2, 1997, Ser. No. 735,431
Int. Cl.^{6} G02F *1/15*
U.S. Cl. 359—265 **31 Claims**



1. A method for preparing a device having at least one electrochromically active area capable of changing transmittance or reflectance in response to an applied voltage, said method comprising the steps of:

obtaining a substrate;

forming a first layer on said substrate, said first layer being an electrical conducting layer;

patterning a first region of electrical isolation partitioning said first electrical conducting layer into at least two electrically separate areas;

forming a second layer on said first electrical conducting layer, said second layer selected from the group consisting of an ion storage layer and an electrochromic layer;

forming a third layer on said second layer, said third layer being an ion conducting layer on said second layer;

forming a fourth layer on said ion conducting layer, said fourth layer being selected from the group consisting of an ion storage layer and an electrochromic layer; wherein said fourth layer is an ion storage layer or an electrochromic layer when the second layer is an electrochromic layer, and wherein said fourth layer is an electrochromic layer when the second layer is an ion storage layer;

forming a fifth layer on said fourth layer, said fifth layer being a second electrical conducting layer;

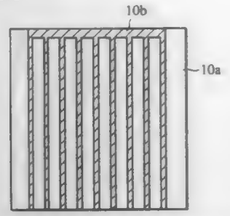
laser patterning a second region of isolation separating said second electrical conducting layer into at least two electrically separate areas in manner such that said first region of electrical isolation and said second region of electrical isolation intersect to define at least one electrochromically active area.

5,724,176

COUNTERELECTRODE FOR SMART WINDOW AND SMART WINDOW

Yoshinori Nishikitani; Takaya Kubo, and Nobuyuki Kuroda, all of Kanagawa-ken, Japan, assignors to Nippon Oil Co., Ltd., Tokyo, Japan

Continuation-in-part of Ser. No. 215,194, Mar. 21, 1994, abandoned. This application Sep. 29, 1995, Ser. No. 536,957
Claims priority, application Japan, Mar. 30, 1993, 5-72179
Int. Cl.^{6} G02F *1/153*
U.S. Cl. 359—271 **3 Claims**



1. A counterelectrode for a smart window comprising a transparent substrate and a linear electrically conductive material formed on a surface of said transparent substrate, said electrically conductive material having a surface area of not less than 10 m^2/g and electrical conductivity of not less than 10^{-6} Ω^{-1}·cm^{-1} at 25° C., wherein said linear electrically conductive material includes a plurality of parallel lines having the same line width, and

wherein said parallel lines having the same line width intersect one another at a pre-set angle.

5,724,177

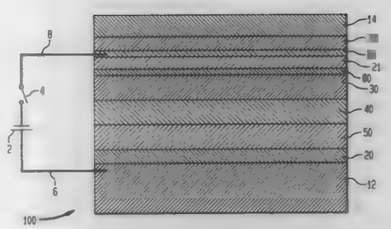
ELECTROCHROMIC DEVICES AND METHODS

Frank B. Ellis, Jr., Princeton; John E. Van Dine, Mahwah, and V. D. Parkhe, Edison, all of N.J., assignors to Sun Active Glass Electrochromics, Inc., Piscataway, N.J.

Continuation of Ser. No. 996,676, Dec. 24, 1992, Pat. No. 5,485,303, which is a continuation-in-part of Ser. No. 754,650, Sep. 4, 1991, Pat. No. 5,321,544. This application May 2, 1995, Ser. No. 434,159
Int. Cl.^{6} G02F *1/153*
U.S. Cl. 359—273 **19 Claims**

1. An electrochromic device, comprising

an electrochromic structure including an elelectrochromic mate an electrochromic material, a counterelectrode and transporting means for transporting ions between said electrode and said counterelectrode,



conductive means including at least two electrically conductive layers sandwiching said electrochromic structure for applying an electric potential across said electrochromic structure, at least one of said electrically conductive layers including a layer of an electrically conductive oxide,

a substrate and a superstrate together cooperating to sandwich said electrochromic structure and said electrically conductive layers, and

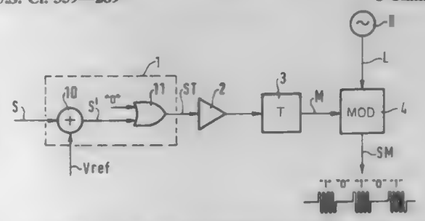
enhancing means for enhancing the transmission of radiation through said electrically conductive layers, said enhancing means including at least one optically transparent layer including silicon dioxide in surface contact with said substrate and at least one other optically transparent layer including silicon dioxide in surface contact with said superstrate.

5,724,178

AMPLITUDE MODULATION CIRCUIT HAVING AN ELECTRO-ABSORPTION MODULATOR

Georges Grandpierre, Guibeville, and Eric Brandon, Bourg la Reine, both of France, assignors to Alcatel Submarine Networks, Clichy, France

Filed Oct. 22, 1996, Ser. No. 734,604
Claims priority, application France, Oct. 23, 1995, 95 12436
Int. Cl.^{6} G02F *1/01*
U.S. Cl. 359—289 **8 Claims**



1. A circuit for amplitude modulating an optical signal by an N-state electrical signal, N being greater than or equal to 2, the circuit comprising:

a modulator having a first input for receiving said optical signal to be modulated and a second input for receiving a modulating electrical signal;

said circuit further comprising, upstream from the second input, shaping means having an input receiving said N-state electrical signal and having an output that switches from one of said N states to another of said N states in response to said N-state electrical signal taking up a level that is greater than a predetermined threshold, and switching from said other state to said one of the N states in response to said N-state electrical signal taking up a level that is less than said predetermined threshold, said predetermined threshold being associated with said pair of states, and having a level that lies between and is different from the respective levels taken by said two states.

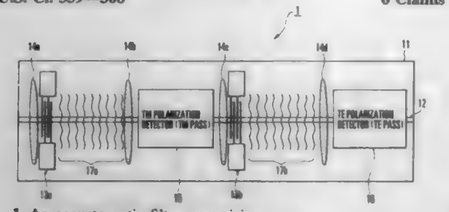
VOL 1208 ISS 1 MR 3 1998 UMI

5,724,179

ACOUSTO-OPTIC FILTER

Toru Hosoi, Tokyo, Japan, assignor to NEC Corporation, Tokyo, Japan

Filed Nov. 26, 1996, Ser. No. 753,397
Claims priority, application Japan, Nov. 29, 1995, 7-310240
Int. Cl.[6] G00F 1/33
U.S. Cl. 359—308 6 Claims



1. An acousto-optic filter comprising:

a channel type optical waveguide fabricated on a substrate;

first surface acoustic wave transducing means mounted on said optical waveguide in correspondence with an input terminal thereof to transduce a first surface acoustic wave;

first polarization converting means for converting only a specific wavelength component of first linearly polarized light excited at said input terminal of said optical waveguide through interaction of the first surface acoustic wave generated by said first surface acoustic wave transducing means into second linearly polarized light perpendicular to the first linearly polarized light, said first polarization converting means having a first interacting region where the first surface acoustic wave and the first linearly polarized light interact;

second surface acoustic wave transducing means mounted on said optical waveguide in correspondence with an output terminal of said first polarization converting means to excite a second surface acoustic wave; and

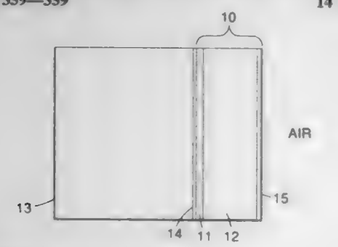
second polarization converting means for converting only a specific wavelength component of second linearly polarized light obtained by conversion of said first polarization converting means through interaction of the second surface acoustic wave generated by said second surface acoustic wave transducing means into first linearly polarized light, said second polarization converting means having a second interacting region where the second surface acoustic wave and the second linearly polarized light interact, said second interacting region having an interacting length different from that of said first interacting region.

5,724,180

LONG WAVELENGTH INFRARED TRANSPARENT CONDUCTIVE WINDOW

Clarke T. Wellman, Thousand Oaks, and Michael R. Borden, Santa Monica, both of Calif., assignors to Hughes Electronics, Los Angeles, Calif.

Continuation of Ser. No. 322,628, Oct. 13, 1994, abandoned. This application May 7, 1996, Ser. No. 644,671
Int. Cl.[6] G02B 1/11;5/28; G01F 1/21
U.S. Cl. 359—359 14 Claims



1. Optical apparatus comprising:

a thin conductive bulk silicon substrate having a predetermined thickness and an electrical resistivity of between 5 and 200 ohms per square; and

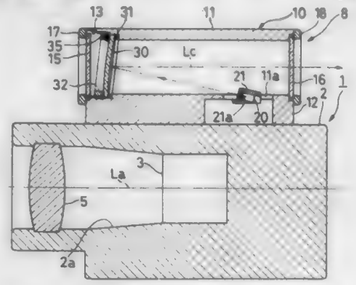
infrared transparent substrate contacting a surface of the thin conductive silicon substrate, said optically transparent substrate having a thickness greater than said thickness of said silicon substrate.

5,724,181

SIGHT SCOPE

Kiyoshi Negishi, Tokyo, Japan, assignor to Asia Optical Co., Ltd., Tokyo, Japan

Filed Feb. 7, 1997, Ser. No. 796,238
Claims priority, application Japan, Dec. 18, 1996, 8-354080
Int. Cl.[6] G02B 23/00;26/02; F41G 1/32
U.S. Cl. 359—428 3 Claims



1. A sight scope comprising:

(a) a sleeve-like holder;

(b) a semitransparent mirror attached to said holder in such a way to be inclined relative to an axis of said holder;

(c) a light source attached to said holder at a location offset to an ocular side rather than said semitransparent mirror, light being emitted towards said semitransparent mirror from said light source, said light being reflected by said semitransparent mirror towards the ocular side generally along the axis of said holder and provided as an aiming point; and

(d) an adjusting mechanism for adjusting inclination of said semitransparent mirror, said adjusting mechanism including:

(i) a receiving recess formed in an inner periphery of one end of said holder on an objective side, said receiving recess having a circular configuration in section, an axis of said receiving recess being inclined relative to the axis of said holder, said semitransparent mirror being received in said receiving recess, an annular step is formed at an innermost part of said receiving recess;

(ii) a resilient ring interposed between said semitransparent mirror and said step;

(iii) a support ring attached to said receiving recess and facing with a surface of said semitransparent mirror on the opposite side of said resilient ring, said support ring having three or more threaded through-holes equally spacedly arranged in a circumferential direction thereof; and

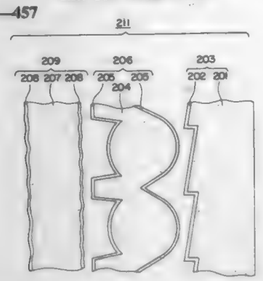
(iv) three or more adjusting screws for threadingly engaging said three or more threaded through-holes respectively, one end of each of said adjusting screws being faced with said semitransparent mirror.

5,724,182

OPTICAL SHEET AND A LIGHT TRANSMISSION SCREEN USING THE SAME

Katsuaki Mitani, Ibaraki; Hirokazu Sakaguchi, Toyonaka, and Satoshi Aoki, Kadoma, all of Japan, assignors to Matsushita Electric Industrial Co., Ltd., Osaka, Japan

Filed Mar. 14, 1996, Ser. No. 616,166
Claims priority, application Japan, Mar. 23, 1995, 7-064044
Int. Cl.[6] G03B 21/60
U.S. Cl. 359—457 18 Claims



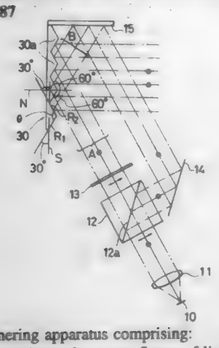
1. An optical sheet comprising a sheet-like substrate with projections and depressions on a surface thereof and an antireflective film disposed on said surface of said sheet-like substrate, wherein a thickness of said antireflective film ranges from $(1.2\lambda)/(4n)$ to $(5\lambda)/(4n)$, where n is a refractory index of said antireflective film and n is smaller than a refractive index of said sheet-like substrate and λ is a wavelength of light in a visible region.

5,724,183

LIGHT GATHERING APPARATUS

Kazushi Yoshida, Shizuoka-ken, Japan, assignor to Asahi Kogaku Kogyo Kabushiki Kaisha, Tokyo, Japan

Division of Ser. No. 679,271, Apr. 2, 1991, abandoned. This application Jan. 27, 1994, Ser. No. 187,140
Claims priority, application Japan, Apr. 5, 1990, 2-91233
Int. Cl.[6] G02B 5/30;27/14;27/28
U.S. Cl. 359—487 13 Claims



1. A light gathering apparatus comprising:

means for generating at least two fluxes of light;

means for diverting at least one of said at least two fluxes of light to form at least two fluxes of light extending in different directions; and

means for receiving and reflecting said at least two fluxes of light extending in different directions and for reflecting a combined parallel light flux comprising said at least two fluxes of light after changing the directions of said at least two fluxes of light so that said at least two fluxes of light extend in the same direction;

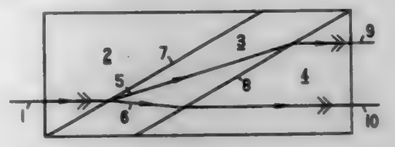
wherein said means for receiving and reflecting comprises an array of continuous first and second reflection mirror surfaces which are alternately and symmetrically arranged with respect to the bisector of an angle formed by an intersection of said at least two fluxes of light, said continuous first and second reflection mirror surfaces meeting at apex angles of 120 degrees.

5,724,184

POLARIZER WITH BIREFRINGENT PLATE

Raymond Hesline, 31 Lilac St., East Bentleigh, Victoria, Australia

Division of Ser. No. 807,864, Jan. 13, 1992, abandoned. This application Mar. 14, 1994, Ser. No. 220,716
Int. Cl.[6] G02B 5/30
U.S. Cl. 359—494 1 Claim



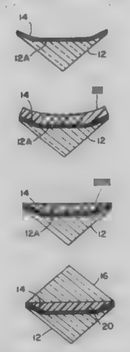
1. A polarizing device comprising first and second isotropic elements of the same refractive index symmetrically arranged about a central birefringent plate, the optic axis of said plate being so arranged that ordinary and extraordinary component rays of an input ray diverge as said input ray passes from said first isotropic element into said birefringent plate whilst said ordinary and extraordinary component rays pass as parallel rays through said second isotropic element.

5,724,185

METHOD FOR OPTICALLY CONTACTING SURFACES STRESSED BY AN OPTICAL COATING

Carolyn F. Hickey, Acton; Robert O. Woodbury, Westford, and Dale A. Allen, Marlboro, all of Mass., assignors to Hughes Danbury Optical Systems, Inc., Danbury, Conn.

Filed Aug. 17, 1995, Ser. No. 516,342
Int. Cl.[6] G02B 1/10; B32B 31/00; B05D 5/06
U.S. Cl. 359—500 14 Claims



1. A method for optically contacting an optically coated optical element comprising the steps of:

forming an optical coating on a surface of a first optical element, said coating causing said surface to deform; and

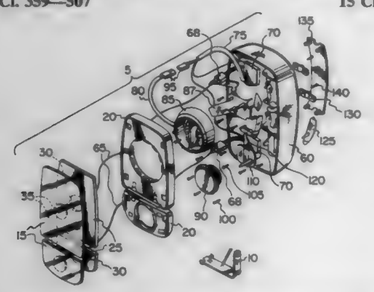
joining a second optical element having first and second faces with said coated surface of said first optical element; said second element being sufficiently pliable such that said first face of said second element substantially conforms to said deformed coated surface to provide optical contact therebetween;

polishing said second face of said second optical element to a predetermined profile; and

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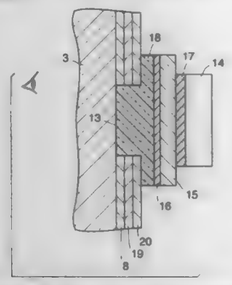
joining a third optical element having a surface which substantially conforms to said predetermined profile of said second element with said second face of said second element to provide optical contact therebetween.

5,724,186
ULTRASONIC REARVIEW MIRROR
John D. Collier, 58 Edgewater Drive, Stony Creek, Ontario, Canada, L8E 4Z3
Filed Jul. 25, 1996, Ser. No. 687,316
Int. Cl.[6] G02B *5/08;* **B08B** *7/02;* **B60S** *1/02;* **H01L** *41/08*
U.S. Cl. 359—507 **15 Claims**



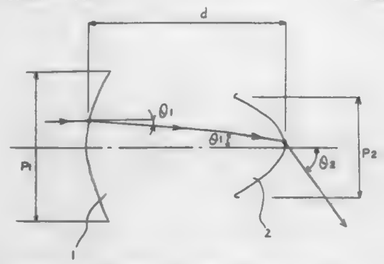
1. A self cleaning plate unit comprising a planar plate member, and a vibrating means mounted directly on said plate member for producing a standing wave substantially perpendicular to the plane of said plate member at an uniform frequency, substantially equal to the corresponding resonant frequency of said plate member in order to remove foreign substances from the surface of said plate member, said vibrating means is comprised of two vibrating units one of which contacts said plate member over an area whose diameter is smaller than or equal to half the wavelength of an operating frequency of said plate member.

5,724,187
ELECTROCHROMIC MIRRORS AND DEVICES
Desaraju V. Varaprasad; Ian A. McCabe; Hamid Habibi; Niall R. Lynam; Mingtang Zhao, all of Holland, and Craig A. Dornan, Grand Haven, all of Mich., assignors to Donnelly Corporation, Holland, Mich.
Continuation-in-part of Ser. No. 238,521, May 5, 1994, Pat. No. 5,668,663. This application Apr. 27, 1995, Ser. No. 429,643
Int. Cl.[6] G02B *5/08;* **G02F** *1/153*
U.S. Cl. 359—608 **22 Claims**



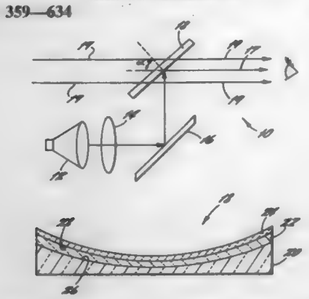
1. An electrochromic rearview mirror for a motor vehicle comprising;
(a) a first substantially transparent substrate coated with a substantially transparent conductive electrode coating on its inward surface;
(b) a second substantially transparent substrate with a substantially transparent conductive electrode coating on its inward surface, said second substrate positioned in spaced-apart relationship with said substrate of (a);
(c) a layer of reflective material coated onto the non-inward opposite surface of said substrate of (b);
(d) an ultraviolet radiation vulnerable electrochromic solid film coated onto said substantially transparent conductive electrode coating of said substrate of (b);
(e) a sealing means positioned toward a peripheral edge of each of said substrate of (a) and said substrate of (b) and sealingly forming a cavity therebetween;
(f) an electrolyte comprising a redox reaction promoter and wherein said electrolyte is located within said cavity in front of said electrochromic solid film forming an electrochromic element whereby said electrolyte shields said electrochromic solid film from ultraviolet radiation; and
(g) a means for introducing an applied potential to said electrochromic element to controllably cause a variation in the amount of light reflected from said mirror.

5,724,188
LENTICULAR LENS SHEET
Yoshihiro Kumagai, and Ichiro Matsuzaki, both of Niigata, Japan, assignors to Kuraray Co., Ltd., Kurashiki, Japan
Filed Jul. 5, 1996, Ser. No. 675,903
Claims priority, application Japan, Jul. 10, 1995, 7-173260
Int. Cl.[6] G02B *27/10*
U.S. Cl. 359—619 **3 Claims**



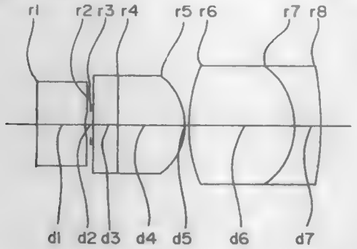
1. A double-faced lenticular lens sheet, comprising
at least one incident side lens formed on a first face of the double-faced lenticular lens sheet; and
at least one corresponding emergent side lens formed on a second opposite face of the double-faced lenticular lens sheet; wherein:
light rays incident on the at least one incident side lens parallel to an optical axis thereof pass through the lenticular lens sheet and emerge from the at least one emergent side lens;
an angle of refraction θ1 is formed by a straight line parallel to an optical axis of the at least one incident side lens and a light ray refracted by an incident plane passing through the lenticular lens sheet;
an angle of refraction θ2 is formed by a straight line parallel to an optical axis of the at least one emergent side lens and the light ray refracted by and emitted from an emergent plane;
Δθ1 is an absolute value of the angle of refraction θ1 on the incident plane;
Δθ2 is an absolute value of an angle of refraction given by (θ2-θ1) on the emergent plane;
the ratio between Δθ1 and Δθ2 given by (Δθ2/Δθ1) is 1.0 or more when a center of the lenticular lens sheet rests on the optical axis of the at least one incident side lens and a width of the lenticular lens sheet is 80% or less of the lens pitch of the at least one incident side lens.

5,724,189
METHODS AND APPARATUS FOR CREATING AN ASPHERIC OPTICAL ELEMENT AND THE ASPHERIC OPTICAL ELEMENTS FORMED THEREBY
Ronald A. Ferrante, St. Charles, Mo., assignor to McDonnell Douglas Corporation, St. Louis, Mo.
Filed Dec. 15, 1995, Ser. No. 573,481
Int. Cl.[6] G02B *27/14*
U.S. Cl. 359—634 **44 Claims**



1. A method of coating a combiner substrate to create an aspheric combiner, the method comprising the steps of:
positioning a mask in an aligned relation with the combiner substrate, wherein the mask defines an opening having a shape through which a portion of the combiner substrate is exposed;
rotating at least one of the mask and the combiner substrate to create a relative rotation between the mask and the combiner substrate; and
depositing an aspheric dielectric layer on the portion of the combiner substrate exposed by the opening defined by the mask while the mask and the combiner substrate continue their relative rotation, wherein said depositing step comprises depositing an aspheric dielectric layer having a thickness which varies in a radial direction in correspondence to the shape of the opening defined by the mask to thereby create an aspheric combiner.

5,724,190
OBJECTIVE LENS FOR ENDOSCOPE
Satoru Tachihara, and Kazuyuki Takahashi, both of Tokyo, Japan, assignors to Asahi Kogaku Kogyo Kabushiki Kaisha, Tokyo, Japan
Continuation of Ser. No. 331,970, Oct. 31, 1994, Pat. No. 5,530,591. This application Jan. 17, 1996, Ser. No. 587,983
Claims priority, application Japan, Nov. 1, 1993, 5-273902; Sep. 6, 1994, 6-212850
Int. Cl.[6] G02B *21/02;9/00*
U.S. Cl. 359—661 **10 Claims**



1. An objective lens for an endoscope comprising a first lens group comprising one negative lens, a second lens group comprising at least one positive lens, and a third lens group comprising at least one positive lens, as viewed from an object side, wherein the objective lens satisfies the following relationship:

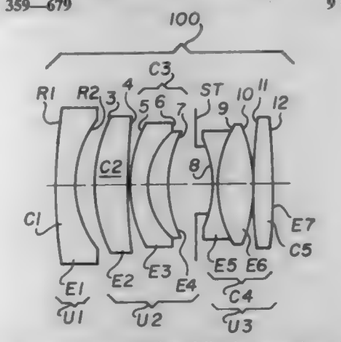
$$\theta_{g,F}<-2.223\times10^{-3}\cdot\nu_d+1.365$$

wherein,

$\theta_{g,F}=(n_g-n_d)/n_F-n_c)$;

n_g designates a refractive index of a glass material of the first lens group at the g-line;
n_d designates a refractive index of a glass material of the first lens group at the d-line;
n_F designates a refractive index of a glass material of the first lens group at the F-line;
n_c designates a refractive index of a glass material of the first lens group at the C-line; and
ν_d designates an Abbe number of a glass material of the first lens group.

5,724,191
ENLARGING LENS WITH A LARGE WORKING DISTANCE
Barbara J. Kouthoofd, Rochester, N.Y., assignor to Eastman Kodak Company, Rochester, N.Y.
Filed Dec. 30, 1994, Ser. No. 366,527
Int. Cl.[6] G02B *15/14;13/04*
U.S. Cl. 359—679 **9 Claims**

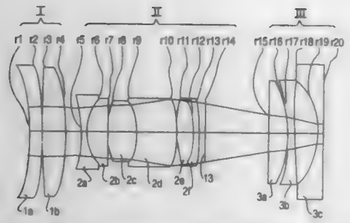


1. A lens system consisting of the following seven lens elements numbered successively from a long conjugate to a short conjugate with the stop between the fourth and the fifth lens elements:
a) a first, negative power lens element, meniscus concave to the stop;
b) a second, positive power lens element having a convex surface toward the first lens element;
c) a third, negative power lens element;
d) a fourth, positive power lens element having a concave surface oriented towards the aperture stop;
e) a fifth, negative power lens element;
f) a sixth, positive power lens element having a convex side facing a seventh lens element; and
g) the seventh, positive power biconvex lens element; and
wherein BF/EF>1.0, where BF is a back focus and EF is the focal length of the lens system.

5,724,192
WIDE-ANGLE ZOOM LENS
Hae-Jin Lee, Changwon-si, Rep. of Korea, assignor to Samsung Aerospace Industries, Ltd., Kyeongsangnam-do, Rep. of Korea
Filed Sep. 25, 1995, Ser. No. 533,432
Claims priority, application Rep. of Korea, Sep. 26, 1994, 94-24144; Sep. 18, 1995, 95-30457
Int. Cl.[6] G02B *15/14*
U.S. Cl. 359—689 **5 Claims**

1. A zoom lens system comprising, in order from an object side of the zoom lens system toward an image plane:

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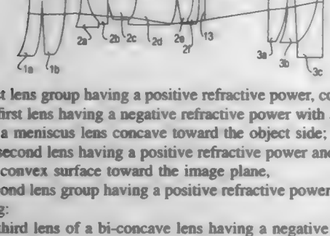


a first lens group having a positive refractive power, comprising:
a first lens having a negative refractive power with a shape of a meniscus lens concave toward the object side; and
a second lens having a positive refractive power and having a convex surface toward the image plane,
a second lens group having a positive refractive power, comprising:
a third lens of a bi-concave lens having a negative refractive power;
a fourth lens, cemented to the third lens, having a positive refractive power;
a fifth lens of a bi-convex lens;
a sixth lens, cemented to a fifth lens, having a negative refractive power with a shape of a meniscus lens concave toward the object side;
a seventh lens having a positive refractive power; and
an eighth lens having a negative refractive power; and
a third lens group having a negative refractive power,
wherein a distance between the first lens group and the second lens group is increased and a distance between the second lens group and the third lens group is decreased during zooming from a wide angle position to a telephoto position, while the first, second and third lens groups shift toward the object side, and wherein the zoom lens system satisfies the following condition:

$$-6.0<(R_9+R_{10})/(R_9-R_{10})<-2.5,$$

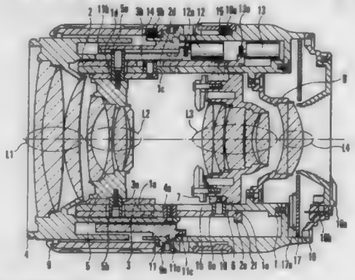
where R_9 is a radius of curvature of a surface toward the object side of the sixth lens in the second lens group; and
R_{10} is a radius of curvature of a surface toward the image plane of the sixth lens in the second lens group.

5,724,193
SUPER WIDE ANGLE ZOOM LENS
Jun Hirakawa, Tokyo, Japan, assignor to Asahi Kogaku Kogyo Kabushiki Kaisha, Tokyo, Japan
Filed Oct. 23, 1995, Ser. No. 546,960
Claims priority, application Japan, Oct. 21, 1994, 6-256977; Aug. 28, 1995, 7-219238
Int. Cl.[6] G02B *15/14*
U.S. Cl. 359—691 **17 Claims**



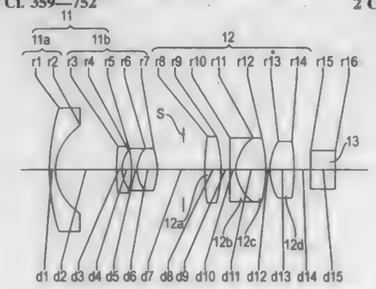
1. A super wide angle zoom lens comprising:
a first lens group of negative power; and
a rear lens group of positive power, said first lens group being arranged closer to an object side than said rear lens group,
wherein zooming is carried out by relatively moving said first lens group and said rear lens group, and
said super wide angle zoom lens further comprising, at a wide angle extremity thereof, a half angle of view of more than 60°.

5,724,194
OPTICAL APPARATUS INCLUDING ZOOMING MEANS FOCUS INCLUDING A PART HAVING A BACKLASH, AND CORRECTION MEANS FOR CORRECTING THE BACKLASH OF THE FOCUS APPARATUS
Masanori Ishikawa, Tokyo, Japan, assignor to Canon Kabushiki Kaisha, Tokyo, Japan
Filed Jan. 25, 1996, Ser. No. 590,359
Claims priority, application Japan, Jan. 31, 1995, 7-034212
Int. Cl.[6] G02B *15/14*
U.S. Cl. 359—696 **20 Claims**



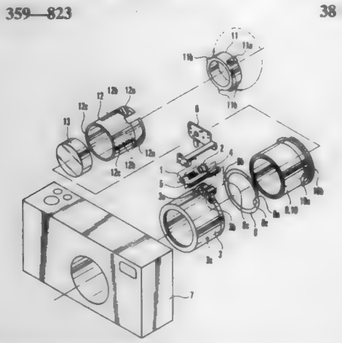
1. A lens barrel comprising:
a first lens arranged to move for varying a magnification of an image;
a second lens arranged to move for focusing and for compensating for a change in focusing position due to movement of said first lens;
focusing means for driving said second lens;
zooming means for driving said first lens and said second lens, said zooming means moving said second lens by using a part of said focusing means, said part of the focusing means having a backlash; and
correcting means for correcting the backlash of said part of the focusing means when a zooming operation is performed by said zooming means.

5,724,195
FAST SUPER WIDE-ANGLE LENS SYSTEM
Takashi Enomoto, and Takayuki Ito, both of Tokyo, Japan, assignors to Asahi Kogaku Kogyo Kabushiki Kaisha, Tokyo, Japan
Filed Aug. 16, 1996, Ser. No. 698,929
Claims priority, application Japan, Aug. 25, 1995, 7-217733
Int. Cl.[6] G02B *13/04;3/02;9/12;9/04*
U.S. Cl. 359—752 **2 Claims**



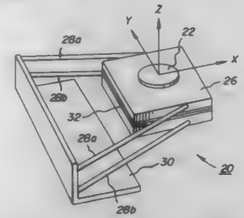
1. A fast super wide-angle lens system, comprising:
a front lens group having a negative power;
a diaphragm; and
a rear lens group having a positive power,
wherein said front lens group, said diaphragm and said rear lens group are arranged in this order from an object side,
said front lens group comprising a first sub-lens group having a negative power and a second sub-lens group having a negative power which is spaced from said first sub-lens group by a maximum distance among the lenses in the front lens group;
and further wherein said lens system satisfies the following relationships:
$-0.5<f/f_F<-0.2$,
$-0.2<f/f_{1a}<-0.07$,
$3<d_{ab}/f<7$,
$10<\Sigma d_{F+S}/f<15$, and
wherein
f represents a focal length of the whole lens system,
f_F represents a focal length of said front lens group,
f_{1a} represents a focal length of said first sub-lens group of said first lens group,
d_{ab} represents a distance between said first sub-lens group and said second sub-lens group of said first lens group, and
Σd_{F+S} represents a sum of a thickness of said front lens group and a distance between said front and rear lens groups.

5,724,196
LENS BARREL
Kazushige Ichino, Tokyo, Japan, assignor to Canon Kabushiki Kaisha, Tokyo, Japan
Continuation of Ser. No. 116,328, Sep. 3, 1993, abandoned.
This application Jul. 30, 1996, Ser. No. 687,906
Claims priority, application Japan, Sep. 9, 1992, 4-240442
Int. Cl.[6] G02B *7/02*
U.S. Cl. 359—823 **38 Claims**



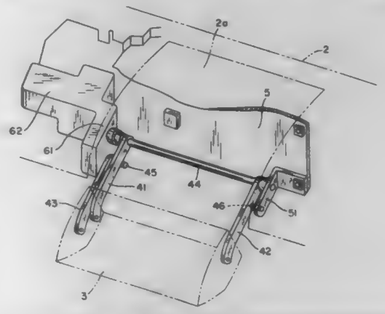
1. A lens barrel comprising:
a) a spur-gear helicoid having a spur gear part and a helicoid part arranged to spatially overlap each other;
b) a spur gear engaging said spur gear part of said spur-gear helicoid;
c) a helicoid engaging a part of said helicoid part of said spur-gear helicoid; and
d) a lens barrel system to which a rotation force is transmitted by the engagement between said spur gear part and said spur gear and to which a moving force in the direction of an optical axis is transmitted by the engagement between said helicoid part and said helicoid, wherein said spur-gear helicoid moves in the direction of the optical axis by the moving force.

5,724,197
ACTUATOR WHICH COMPENSATES FOR COMPACT DISK TILT ERROR
Lawrence A. Barnes, Fairport; Philip Frank Marino, and Gary R. Bisson, both of Rochester, all of N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.
Filed Aug. 14, 1996, Ser. No. 696,763
Int. Cl.[6] G02B *7/02*
U.S. Cl. 359—824 **6 Claims**



1. An optical actuator for positioning a lens to focus a laser light beam on a surface of a compact disk, and to compensate for tilt errors in the surface of the compact disk, comprising:
a) a lens mount for supporting the lens;
b) a base;
c) at least two pairs of spaced-apart flexures, each pair of flexures being fixed to the lens mount and to the base, the flexures of one pair being arranged so that they are non-parallel when viewed from the side and the distance between flexures at the base is less than the distance at the position where they are mounted to the lens mount and the other pair of flexures being arranged so that they are non-parallel when viewed from the side and the distance between flexures at the base is greater than the distance at the position where they are mounted to the lens mount; and
d) means for applying a force to the lens mount to cause the flexures to deflect such that as the lens moves in a vertical direction to focus the light beam, it also rotates to maintain a nearly perpendicular alignment of the optical axis to the compact disk surface, minimizing the residual tilt error.

5,724,198
RETRACTABLE REAR UNDER VIEW MIRROR DEVICE FOR AN AUTOMOTIVE VEHICLE
Masumi Nishikawa, Toyoake; Shoji Okada, Anjyo, and Hidekazu Kogita, Kariya, all of Japan, assignors to Aisin Seiki Kabushiki Kaisha, Kariya, Japan
Filed Sep. 10, 1996, Ser. No. 709,839
Claims priority, application Japan, Sep. 12, 1995, 7-234397; Sep. 13, 1995, 7-235262
Int. Cl.[6] G02B *7/182;* **B60R** *1/06*
U.S. Cl. 359—841 **9 Claims**



1. A retractable rear under view mirror device mounted rearward of an automotive vehicle, comprising:

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a deflector provided rearward of the automotive vehicle and having a recess;

a mirror assembly including a mirror housing and a rear under view mirror, the mirror assembly having side surfaces and being movably supported with respect to the deflector to selectively be positionable from a stored position inside the recess of the deflector to a use position wherein the rear under view mirror reflects the rear under field of view of the automotive vehicle and allows a driver to observe therethrough the rear under field of the view thereof and vice versa; and

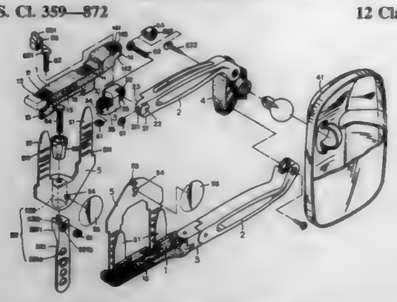
driving means for moving the mirror assembly to be positioned in the stored position or the use position, the driving means having a rotatable rod connected to an output shaft of an electric motor and rotatably supported on the deflector, a first arm fixed at one end to the rotatable rod and pivoted at the other end to one of the side surfaces of the mirror assembly, and a follower arm rotatably supported at one end of the deflector and pivoted at the other end to one of the side surfaces of the mirror assembly, said follower arm being parallel to the first arm, the follower arm being supported on the deflector adjacent where the first arm is fixed to the rotatable rod.

5,724,199

ADJUSTABLE AUXILIARY REAR-VIEW MIRROR MOUNTING STRUCTURE

Tsai-Fu Hu, 200, Fu Chiang Road, Sec. 2, Yung Kang, Tainan, Taiwan

Filed Jun. 7, 1996, Ser. No. 660,291
Int. Cl.[6] G02B *7/182*
U.S. Cl. 359—872 **12 Claims**



1. An adjustable auxiliary rear-view mirror mounting structure comprising:

a pair of inner arms, each inner arm having a first end adapted for fastening to the rear-view mirror of a motor vehicle, and a second end;

a pair of outer arms, each outer arm having a first end pivoted the second end of one inner arm, and a second end;

two connectors respectively connected between the second ends of said inner arms and the first ends of said outer arms;

a lamp socket and mirror holder fastened to the second ends of said outer arms; and

binding means connected between the first ends of said inner arms;

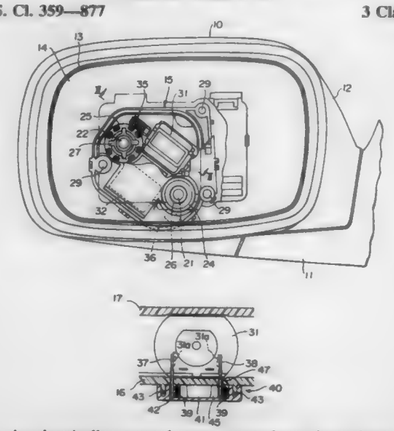
wherein the second end of each of said inner arms has a toothed wall portion horizontally disposed at one side and a screw hole at the center of the toothed wall portion thereof; the first end of each of said outer arms has a toothed wall portion vertically disposed at one side and a screw hole at the center of the toothed wall portion thereof; each of said connectors has a toothed horizontal coupling section at one end detachably meshed with the toothed wall portion of one inner arm, a first through hole at the center of said toothed horizontal coupling section and fixed to the screw hole of the second end of one inner arm at the desired angle by a first screw and a first nut, a toothed vertical coupling section at an opposite end detachably meshed with the toothed wall portion of one outer arm, a second through hole at the center of said toothed vertical coupling section and fixed to the screw hole of the first end of one outer arm at the desired angle by a second screw and a second nut, each of said first screw and said second screw being coupled with a respective cap adapted for turning by hand.

5,724,200

ELECTRICALLY POWERED REMOTE CONTROL REARVIEW MIRROR SYSTEM

Toshihiro Mochizuki, Fujieda, Japan, assignor to Murakami Kaimeido Co., Ltd., Shizuoka-ken, Japan

Filed Jan. 16, 1996, Ser. No. 586,293
Claims priority, application Japan, Jan. 18, 1995, 7-059688
Int. Cl.[6] G02B *7/182*
U.S. Cl. 359—877 **3 Claims**



1. An electrically powered remote control rearview mirror with means for horizontally and vertically tilting a mirror surface, said rearview mirror comprising

a mirror body (**12**),

an actuator unit (**15**) comprising an actuator unit housing (**16**, **17**) having an outer surface provided with a convex portion (**43**) and a concave portion (**46**) and means for adjusting a tilting angle of the mirror surface including mirror tilting motors (**31**, **32**) inside the actuator unit housing (**16**, **17**), each of said motors having a motor casing and motor terminals (**31***a*,**31***a*) in the motor casing,

a wire harness (**39**) for making an electrical connection to one (**31**) of the motors (**31**,**32**), said wire harness including harness terminals (**37**, **38**) for making electrical contact with the respective motor terminals (**31***a*,**31***a*) of said one of the motors, and

a connector (**40**) for maintaining said electrical connection of said wire harness (**39**) to said one (**31**) of the motors, said connector (**40**) being engaged on the outer surface of the actuator unit housing (**16**, **17**);

wherein the connector (**40**) is provided with a concave portion (**41**) facing the housing (**16**,**17**), two containing portions (**42**,**42**) on respective opposite sides of the concave portion (**41**) for holding the harness terminals (**37**, **38**) of the wire harness (**39**), a concave groove (**44**) formed in peripheral wall top portions of the containing portions (**42**,**42**), said convex

portion (**43**) engaging in said concave groove (**44**), and a pair of engaging pawls (**45**) protruding from an inside wall of the concave portion (**41**) into the housing (**16**, **17**) and engaging the housing to firmly hold the connector (**40**) on the housing so as to contact the harness terminals (**37**, **38**) with the motor terminals (**31***a*,**31***a*);

wherein the housing (**16**) includes at least two throughgoing slits (**47**) in the vicinity of said one (**31**) of the motors through which said harness terminals (**37**,**38**) are passed, the engaging pawls (**45**) engage with the housing in the concave portion (**46**) of the housing and the convex portion (**43**) of the connector (**40**) extends around the at least two throughgoing slits (**47**) and the concave portion (**46**); and

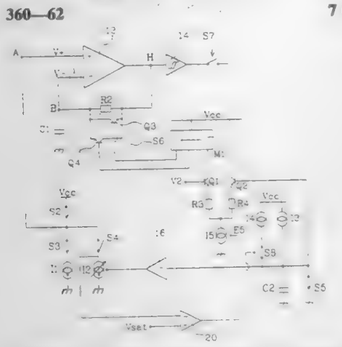
wherein the connector (**40**) having the concave groove (**44**) and the engaging pawls (**45**) protruding from the inside wall of the concave portion (**41**) is provided with an entrance portion (**48**) for inserting the wire harness (**39**) and said entrance portion (**48**) is open on one end of the connector (**40**) for insertion of the wire harness.

5,724,201

METHOD AND APPARATUS FOR REDUCING TRANSITION TIME FOR A MAGNETIC HEAD TO SWITCH FROM A WRITE MADE TO A READ MODE BY REDUCING A MAXIMUM CURRENT VALUE AT DIFFERENT RATES

Jean-Luc Jaffard, Saint Egreve, and Yann Desprez-Le Goarant, Grenoble, both of France, assignors to SGS-Thomson Microelectronics S.A., Saint Genis, France

Continuation of Ser. No. 100,665, Jul. 30, 1993, Pat. No. 5,483,390. This application Dec. 13, 1995, Ser. No. 571,760
Claims priority, application France, Jul. 31, 1992, 92 09798
Int. Cl.[6] G11B *15/12*
U.S. Cl. 360—62 **7 Claims**



1. An apparatus for reducing transition time for a magnetic head to switch from a write mode to a read mode, the magnetic head conducting a write current during the write mode, the apparatus comprising:

a current source, coupled to the magnetic head to receive the write current, that limits a current through the current source to a value less than a maximum current value of the current source, the maximum current value having an initial value greater than the write current, the current source having a control input that receives a control signal to vary the maximum current value; and

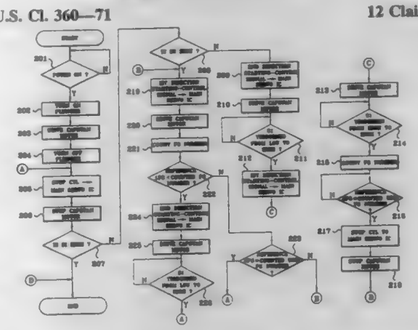
means for providing the control signal to the current source to reduce the maximum current value from the initial value to a value equaling the write current at a first rate, and from the value equaling the write current to a value below the write current at a second rate, the first rate being greater than the second rate.

5,724,202

MODE RESET METHOD AND APPARATUS FOR A MAGNETIC RECORDING/REPRODUCING APPARATUS

Do Y. Choi; Gun C. Park, and Jae K. Seo, all of Suwon, Japan, assignors to Samsung Electronics Co., Ltd., Kyungki-do, Rep. of Korea

Filed Aug. 31, 1994, Ser. No. 298,744
Claims priority, application Rep. of Korea, Aug. 31, 1993, 93-17571
Int. Cl.[6] G11B *15/18;15/48*
U.S. Cl. 360—71 **12 Claims**



1. A mode reset method for a magnetic recording/reproducing apparatus including a deck and having a mode determination function executed in conjunction with output signals from a stop sensor and a cassette-in sensor, said mode reset method comprising the steps of:

(a) driving a plunger to an extended position when power is supplied to the magnetic recording/reproducing apparatus, to enable a transmission gear to connect a tape loading and running system;

(b) rotating a capstan motor to generate a rotational force to transmit the generated rotational force to said tape loading and running system;

(c) retracting said plunger to disconnect the transmission gear from the tape loading and running system and stopping the rotation of the capstan motor;

(d) determining a current position of a ring gear based on the output signals from the stop sensor and the cassette-in sensor and frequency generator signals generated responsive to rotation of said capstan motor;

(e) determining whether the magnetic recording/reproducing apparatus is in a predetermined mode based on the signals in step (d); and

(f) resetting the deck to the predetermined mode, if it is determined in step (e) that the magnetic recording/reproducing apparatus is not in the predetermined mode.

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5,724,203

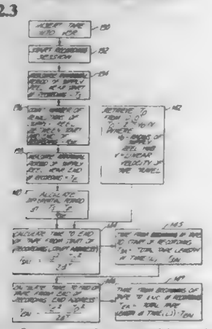
METHOD AND APPARATUS FOR DETERMINING ADDRESSES IN TIME ALONG A RECORDING TAPE

Daniel S. Kwoh, La Canada, Calif., and Yee Kong Ng, Tai Po, Hong Kong, assignors to Index Systems, Inc., Virgin Islands (Br.)

Continuation of Ser. No. 504,216, Jul. 19, 1995, abandoned, which is a continuation of Ser. No. 167,285, Dec. 15, 1993, abandoned, which is a continuation-in-part of Ser. No. 66,666, May 27, 1993, abandoned, which is a continuation-in-part of Ser. No. 14,541, Feb. 8, 1993, abandoned, which is a continuation-in-part of Ser. No. 1,125, Jan. 5, 1993, abandoned, which is a continuation-in-part of Ser. No. 883,607, May 7, 1992, abandoned, which is a continuation-in-part of Ser. No. 817,723, Jan. 7, 1992, abandoned, which is a continuation-in-part of Ser. No. 805,844, Dec. 5, 1991, abandoned, which is a continuation-in-part of Ser. No. 747,127, Aug. 19, 1991, abandoned. This application Oct. 25, 1996, Ser. No. 736,789

Int. Cl.[6] G11B *15/18*

U.S. Cl. 360—72.3 **12 Claims**



1. An apparatus for measuring an address in time between a beginning of a tape on a reel and a current location along the tape wound around a hub of the reel comprising:

means for measuring a single rotational period of the reel near a first location along the tape being represented as Tp;

means for storing a single rotational period of the reel when the radius of the tape on the reel is approximately the same as the radius of the reel hub being represented as To;

means for deriving an average differential period between one rotational period of the reel and the next rotational period of the reel as the tape is wound around or unwound from the reel being represented as dT; and

means for deriving from Tp, To and dT, an address in time from the beginning of the tape to the first location on the tape.

5,724,204

APPARATUS AND METHOD OF REPRODUCING SYNCHRONIZATION SIGNAL IN DISC STORAGE SYSTEM

Tohru Shinohara, Kawasaki, and Shuichi Hashimoto, Tokyo, both of Japan, assignors to Fujitsu Limited, Kawasaki, Japan

Continuation of Ser. No. 748,956, Aug. 20, 1991, abandoned. This application May 2, 1994, Ser. No. 237,404

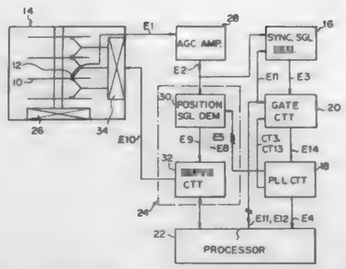
Claims priority, application Japan, Aug. 20, 1990, 2-218533

Int. Cl.[6] G11B *5/596*

U.S. Cl. 360—77.05 **56 Claims**

1. An apparatus for reproducing a synchronization signal in a disc storage system, comprising:

a disc mechanism including a plurality of information storage discs in one of which a particular servo pattern is recorded, and a corresponding plurality of reproducing heads, one of the reproducing heads reading the servo pattern from the corresponding information storage disc to thereby output a servo signal, the servo pattern including a first servo pattern and a second servo pattern following after the first servo pattern and the servo signal including first and second servo signals corresponding to the first and second servo patterns, respectively;



synchronization signal demodulating means, responsive to the servo signal from the disc mechanism, for demodulating the synchronization signal in synchronization with a rotation of the information storage discs, wherein the synchronization signal demodulating means includes:

a first monostable multivibrator outputting first and second pulses triggered by the first and second servo signals, respectively;

a second monostable multivibrator outputting a window signal triggered by the first pulse, the window signal having a pulse width longer than an interval between the first pulse and the second pulse;

a first gate, connected to the first monostable multivibrator and the second monostable multivibrator, inputting the first and second pulses and the window signal, outputting the first pulse to the second monostable multivibrator and gating the second pulse when the second pulse exists within the window signal;

a second gate, connected to the first monostable multivibrator and the second monostable multivibrator, inputting the first and second pulses and the window signal and outputting the synchronization signal when the second pulse exists within the window signal;

synchronization clock generating means for generating a clock signal with a particular frequency in synchronization with the synchronization signal, said clock signal being used for positioning said reproducing heads; and

gate means, operatively connected between the synchronization signal demodulating means and the synchronization clock generating means, for prohibiting transmission of the synchronization signal from the synchronization signal demodulating means to the synchronization clock generating means for a particular period, and for filtering spike noise.

5,724,205

AUTOMATIC TRACKING CONTROL DEVICE WHICH USES DIFFERENT WEIGHTINGS WITH A NUMBER OF INCORRECTABLE, CORRECTABLE, AND NON-ERRORS

Man Chul Choi, Seoul, Rep. of Korea, assignor to Goldstar Co., Ltd., Seoul, Rep. of Korea

Continuation of Ser. No. 214,514, Mar. 18, 1994, abandoned. This application Oct. 19, 1995, Ser. No. 545,379

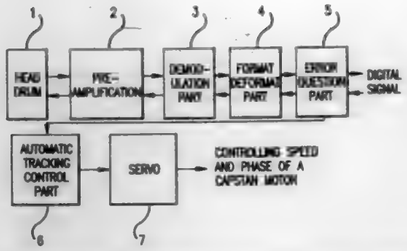
Claims priority, application Rep. of Korea, Mar. 19, 1993, 1993-4297; Mar. 19, 1993, 1993-4298

Int. Cl.[6] G11B *5/584*

U.S. Cl. 360—77.13 **4 Claims**

1. An automatic tracking control device of a digital video cassette tape recorder comprising:

a pre-amplification means for amplifying reproduction signals scanned at a rotating head of a head drum to any level in reproduction;



a modulation and demodulation means for restoring amplified reproduction signals in the pre-amplification means into digital signals;

a format and deformat means for arraying the digital signals restored in the modulation and demodulation means to an original digital signal;

an error correction means for correcting errors in the output data arrayed by the format and deformat means according to the correction result, detecting the type of errors within a few seconds and generating correctable and incorrectable control signals according to the rate of errors detected; and

an automatic tracking control means for controlling the tracking through a servo system by generating tracking data according to the rates of error obtained through addition of different weightings to each of the control signals transmitted thereto from the error correction means;

said automatic tracking control means including a first, a second and a third counter means for counting the control signals having no errors, having errors but correctable and having errors incorrectable of the error correction means, a weighting addition part for making the difference between the counter number of incorrectable errors, correctable errors and non-errors larger than they really are by adding a larger weighting value to the outputting value of each counter, a tracking selection means for selecting least error portions of the outputting value of said weighting addition part.

5,724,206

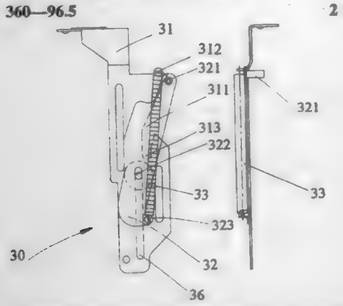
PROTECTIVE COVER OPENING MECHANISM FOR A CASSETT LOADING AND UNLOADING APPARATUS FOR CASSETTE RECORDERS

Pi-Ling Lin, Changhua; Sen-Yuan Chien, Ilan, and Hsin-Ching Wei, Kaoshiung, all of Taiwan, assignors to Industrial Technology Research Institute, Hsinchu, Taiwan

Filed Sep. 14, 1995, Ser. No. 528,016

Int. Cl.[6] G11B *5/008*

U.S. Cl. 360—96.5 **2 Claims**



1. A protective cover opening mechanism for a cassette loading and unloading apparatus for a cassette recorder that receives an edge of a cassette adjoining a side of the cassette where a protective cover is located on a digital compact cassette (DCC) comprising:

a sliding plate connected to the cassette recorder, wherein an end surface of said sliding plate is an inclined plane with a concave channel at a bottom of said inclined plane, and said sliding plate having a first pulling hook at an end part of said sliding plate and a slot therein;

a spline shaft having one end within said slot, said spline shaft performs reciprocating motion along said slot;

a turning arm connected to said spline shaft, said turning arm having a second pulling hook thereon and a fixed pin thereon which is spaced from said second pulling hook;

a stretching spring having an end connected to the first pulling hook and having its other end connected to the second pulling hook;

whereby when the DCC is loaded in said recorder, said fixed pin first engages an outer edge of a protective cover of the DCC, and as the cassette is pushed forward into the recorder said spline shaft moves along said slot and drives said fixed pin along the inclined plane of said sliding plate until said fixed pin slides into the concave channel of the inclined plane and said stretching spring is stretched, and completes the opening action of the protective cover of the DCC;

when the DCC is unloaded from the recorder, said stretching spring returns to its original state and causes the protective cover opening mechanism to return to its original state that existed prior to loading of the DCC.

5,724,207

CASSETTE HOLDER FOR INDIVIDUALLY HOLDING DIFFERENT SIZE CASSETTES

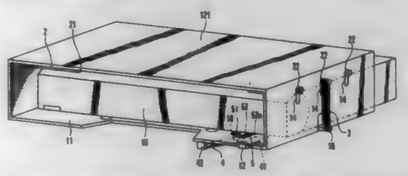
Junji Kobayashi, Tokyo, Japan, assignor to Canon Kabushiki Kaisha, Tokyo, Japan

Continuation of Ser. No. 363,369, Dec. 23, 1994, abandoned. This application Aug. 13, 1996, Ser. No. 696,110

Claims priority, application Japan, Dec. 31, 1993, 5-352063

Int. Cl.[6] G11B *5/008;15/00;17/00*

U.S. Cl. 360—96.5 **12 Claims**



7. A cassette holder for insertable receipt individually of first and second cassettes having respective different dimensions in a direction transverse to a cassette insertion direction, said cassette holder comprising:

a) a housing adapted to have an individual cassette inserted therein;

b) first and second unlocking means for respective unlocking of a lid of said first and second cassettes inserted in said housing, said first and second unlocking means being disposed in respective first and second different positions transversely of said cassette insertion direction; and

c) displacement means for displacing said first unlocking means from an interfering relation with an inserted said second cassette and into an inoperative state; said displacement means including a support member having one end immovably attached to said housing, said support member including said first unlocking means and an upstanding member;

said one end of said support member, said upstanding member and said first unlocking means all being aligned in said direction transverse to said cassette insertion direction, and said first unlocking means being more apart from said one end of said support member than the upstanding member.

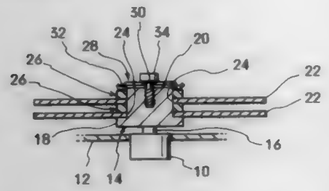
VOL 1208 ISS 1 MR 3 1998 UMI

5,724,208

HARD DISC SPACER AND HARD DISC CLAMP

Heikichi Yahata, Okaya, Japan, assignor to Kabushiki Kaisha Soode Nagano, Nagano, Japan

Filed Sep. 30, 1996, Ser. No. 720,600
Claims priority, application Japan, Apr. 30, 1996, 8-108966
Int. Cl.[6] G11B 17/02
U.S. Cl. 360—98.01 6 Claims



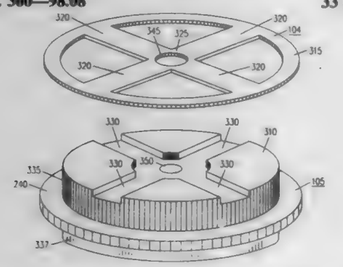
1. A hard disc spacer, which covers a rotary shaft of a hard disc drive unit, for keeping a clearance between hard discs, comprising:
a ring made of a metal; and
a coating layer, which is made of a hard metal, on opposing side surfaces of said ring; and
an outer ceramic coating layer, formed by ceramic spraying, on surfaces of said coating layer, said outer ceramic coating layer having a thickness sufficient for embedding particulate residues produced during formation of said ring.

5,724,209

LOW-PROFILE DISK MOUNTING ASSEMBLY, AND LOW-PROFILE DISK DRIVES CONSTRUCTED THEREFROM

James A. Dunckley, Boulder, and Gary F. Kelsic, Longmont, both of Colo., assignors to Integral Peripherals, Inc., Boulder, Colo.

Continuation of Ser. No. 391,872, Feb. 22, 1995, abandoned.
This application Dec. 23, 1996, Ser. No. 772,379
Int. Cl.[6] G11B 17/028
U.S. Cl. 360—98.08 33 Claims



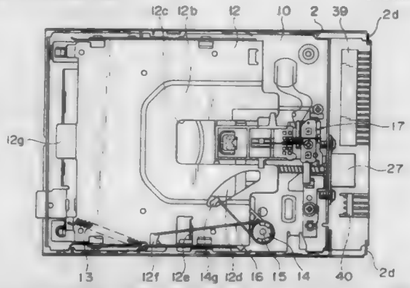
1. A disk mounting assembly for a computer disk drive comprising:
a hub including an upper surface having a plurality of spoke recesses situated therein, the hub including a protruding ledge extending around the hub;
a disk including a central opening situated on the protruding ledge and about the hub;
a ring situated about the hub and atop the disk;
a spring washer including a circumferential edge surface situated atop the ring, the spring washer including a center and a plurality of spokes extending inwardly from the circumferential edge surface to the center, the plurality of spokes of the spring washer being situated within the respective plurality of spoke recesses of the hub; and
a retainer for holding the center of the spring washer to the hub to squeeze the disk between the protruding ledge of the hub and the ring.

5,724,210

MAGNETIC RECORDING/REPRODUCING APPARATUS WITH MAGNETIC DISC ENGAGING/DISENGAGING MECHANISM

Toru Sawada, Fukushima-ken, Japan, assignor to Alps Electric Co., Ltd., Tokyo, Japan

Filed Aug. 21, 1996, Ser. No. 703,157
Claims priority, application Japan, Sep. 11, 1995, 7-232864
Int. Cl.[6] G11B 17/00;5/016;33/02
U.S. Cl. 360—99.06 5 Claims



1. A magnetic recording/reproducing apparatus for recording/reproducing from a disc cartridge, the apparatus comprising:
a slide plate mounted on a chassis such that the slide plate slides between a forward position and a backward position, and is urged toward the forward position by a spring;
a holder movably connected to the slide plate such that the holder moves between an unloaded position and a loaded position in cooperation with movement of said slide plate;
a rotating member rotatably supported on the chassis, said rotating member having a locking claw and a shutter actuating member formed integrally therewith; and
a torsion coil spring wound around said rotating member, the torsion coil spring having a first end retained by said shutter actuating member and a second end retained by a retainer hole formed in said holder, said second end having a bent portion forming an incorrect insertion preventative spring for preventing incorrect insertion of the disc cartridge;
wherein, before loading of the disc cartridge, said slide plate is locked by said locking claw in said backward position, so that said holder is maintained at said unloading position, whereas, when the disc cartridge is loaded, said rotating member is rotated by the disk cartridge, thereby releasing the locking claw from said slide plate such that said holder is shifted to said loading position while said shutter actuating member opens a shutter of the disc cartridge.

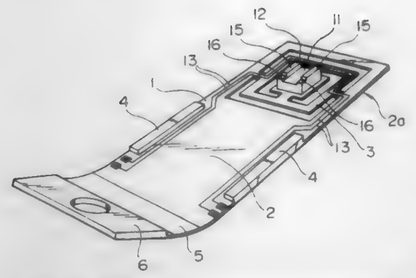
5,724,211

MAGNETIC HEAD SUPPORT MECHANISM, HAVING BEAM PORTION CURVED WITH INTERNAL STRESS

Teruyoshi Higashiyn, Odawnra; Mikio Tokuyama, Tsukuba; Satomitsu Imai, Odawara; Takeshi Harada, Abiko, and Yoshinori Takeuchi, Ishioka, all of Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Filed Jun. 19, 1996, Ser. No. 665,932
Claims priority, application Japan, Jun. 27, 1995, 7-161270
Int. Cl.[6] G11B 5/48
U.S. Cl. 360—104 20 Claims

1. A magnetic head support mechanism comprising:
a. a beam portion
b. a mount integrally formed on said portion for fixing said beam portion to an actuator,
c. said beam portion having a free end
d. a magnetic head supported on a free end side of said beam portion,
e. said beam portion and said mount being made of a material selected from among a ceramic material, a monocrystalline silicon material, and a silicon-on-insulator material, and



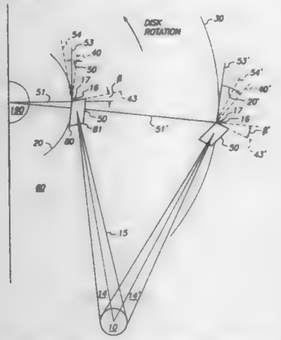
f. a thin film formed on one of a selected portion of said beam portion and a region adjacent said selected portion, such that said selected portion is an area of internal stress forming a curved portion in said beam portion by spontaneous deformation.

5,724,212

METHOD AND APPARATUS FOR INCREASING DATA DENSITY IN MAGNETIC DATA STORAGE DISK DRIVES

Michael L. Mallary, Berlin, and Peter T. Griffin, Shrewsbury, both of Mass., assignors to Quantum Corporation, Milpitas, Calif.

Filed May 26, 1995, Ser. No. 452,225
Int. Cl.[6] G11B 5/55;21/08;20/20
U.S. Cl. 360—106 15 Claims



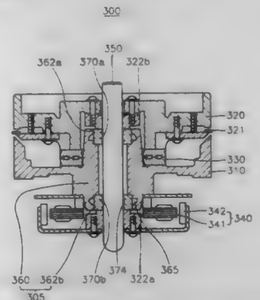
6. A magnetic disk drive apparatus for increasing recording density comprising:
a magnetic recording disk having a plurality of tracks including an innermost track and an outermost track, each of the tracks having a width and a radius defined between a disk center and the track;
means for rotating the disk;
a slider mounting means to position a slider between the innermost track and the outermost track
a read/write head carried by the slider and flying at a substantially constant fly height above a storage surface of the disk, and maintaining a substantially constant track-to-track spacing as the head moves between the innermost track and the outermost track, the head having a generally linear recording head gap;
a generally parallelogram shaped slider carrying the read/write head, the parallelogram shaped slider defined by a pair of parallel side edges, a leading edge and a trailing edge the side edges and the trailing edge defining an obtuse angle and an acute angle, the leading edge further defined by an inside leading corner and an outside leading corner, the head gap being located along the trailing edge, between the side edges, and skewed in a counterclockwise angle from the radius at the innermost track and a clockwise angle from the radius at the outermost track as viewed from above the disk; and
the inside leading corner of the parallelogram shaped slider being located in advance of the outside leading corner, away from the direction of disk rotation, when the slider is positioned at the innermost track and the outside leading corner of the parallelogram shaped slider is located in advance of the inside leading corner, away from the direction of disk rotation, when the slider is positioned at the outermost track, as viewed from above the disk.

5,724,213

HEAD DRUM ASSEMBLY OF VIDEO CASSETTE RECORDER

Keum-Mo Kim, Seoul, Rep. of Korea, assignor to Daewoo Electronics Co., Ltd., Seoul, Rep. of Korea

Filed Oct. 28, 1996, Ser. No. 738,866
Claims priority, application Rep. of Korea, Oct. 28, 1995, 95-30842 U; Oct. 28, 1995, 95-37792 U
Int. Cl.[6] G11B 15/61
U.S. Cl. 360—107 7 Claims



1. A head drum assembly of a video cassette recorder comprising:
a lower drum;
a motor for generating a driving force, said motor having a stator mounted on said lower drum below said lower drum and having a rotor which is radially spaced apart from the stator and rotates in magnetic conjunction with the stator;
a shaft connected to the rotor of said motor by a first flange, an upper portion of said shaft being inserted into a second flange, said shaft being rotated as the rotor rotates;
an upper drum positioned above said lower drum and fixed to the second flange, said upper drum having at least two magnetic heads for recording and reproducing signals of the video cassette recorder while said shaft is rotating;
a rotary transformer provided between a lower surface of said upper drum and an upper surface of said lower drum, for electrically connecting the magnetic heads to said lower drum;
two journal bearings of fluid dynamic pressure type, into which said shaft is inserted, wherein on an inner surface of each are formed two lubricating grooves respectively spaced apart from the upper and lower ends of each of said journal bearings, for supporting and lubricating said shaft, each of said journal bearings having slits connected to the lubricating grooves; and
a bearing housing an outer surface of which is connected to the inner surface of said lower drum, and at upper and lower ends of which bearing receiving recesses for receiving and supporting said journal bearings are respectively formed, wherein lubricant containing grooves connected to the slits are respectively formed on inner surfaces of the bearing receiving recesses so that the lubricant in the lubricant containing grooves flows between said shaft and each of said journal bearings.

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5,724,214

DISCHARGING DEVICE FOR HEAD DRUM

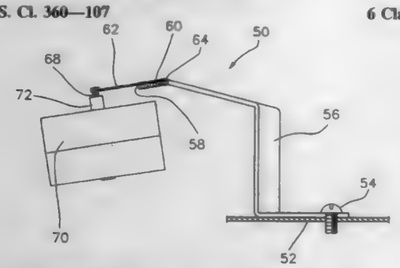
Seong-Ick Ahn, Seoul, Rep. of Korea, assignor to Daewoo Electronics Co., Ltd., Seoul, Rep. of Korea

Filed Dec. 2, 1996, Ser. No. 753,889

Claims priority, application Rep. of Korea, Nov. 30, 1995, 95-45165

Int. Cl.[6] G11B 5/53

U.S. Cl. 360—107 6 Claims



1. A discharging device for a head drum comprising:

a bracket in which a fixed end is fixed on a main chassis and a free end has a bracket protrusion;

a coil spring which coils that surround the bracket protrusion of the bracket;

a leaf spring in which a first end is put inside the coil spring together with the bracket protrusion of the bracket, and a second end contacts the head drum; and

said leaf spring has a leaf spring protrusion at the first end of the leaf spring that is contained by the coils of the coil spring.

5,724,215

ROTARY TRANSFORMER ARRANGEMENT FOR A MAGNETIC TAPE SYSTEM DRUM ASSEMBLY

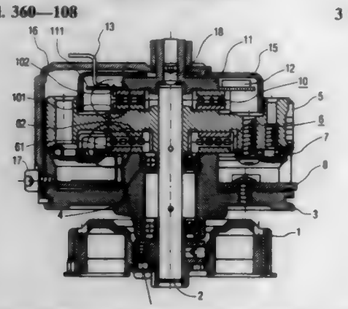
Bruno Fayolle, Lezinnes; Dominique Besnard, Auxerre; Emmanuel Ribiollet, Chauvry, and Alain Leclaire, Héry, all of France, assignors to Societe Tonnerroise d'Electronique Industrielle S.A., France

Continuation of Ser. No. 396,393, Feb. 28, 1995, abandoned. This application Apr. 3, 1997, Ser. No. 832,133

Claims priority, application France, Mar. 1, 1994, 94 02331

Int. Cl.[6] G11B 5/52

U.S. Cl. 360—108 3 Claims



1. A drum assembly for a magnetic tape reading and writing system comprising:

a static drum;

a rotary spindle coaxial with said static drum and connected to a drive motor;

a rotary drum mounted on said spindle, said rotary drum having an upper and a lower face;

a set of two audio magnetic heads and a set of four video magnetic heads, each of said magnetic heads being rigidly attached to said rotary drum;

a first rotary transformer having a rotor part mounted on a lower face of said rotary drum and coupled to one of the set of heads;

a first stator part disposed inside said static drum and connected to a first amplifier housed inside said static drum;

a second rotary transformer having a rotor part mounted on the upper face of said rotary drum and coupled to the other set of magnetic heads, and

a second stator part mounted on a mechanical assembly rigidly attached to a bracket fixed on said static drum, said stator part of said second rotary transformer being connected to a second amplifier mounted on said mechanical assembly.

5,724,216

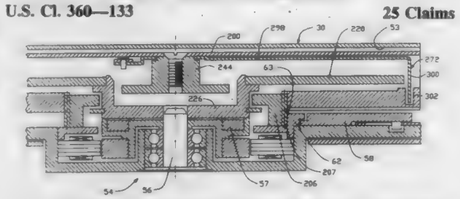
REMOVABLE CARTRIDGE WHICH MAY BE MOUNTED TO A DISK DRIVE SPINDLE MOTOR WITHOUT RELATIVE MOVEMENT BETWEEN THE MOTOR AND A HOUSING OF THE CARTRIDGE

Syed H. Iftikar, Fremont; Herbert E. Thompson, Los Gatos, and Albert J. Guerini, Gilroy, all of Calif., assignors to Syquest Technology, Inc., Fremont, Calif.

Continuation of Ser. No. 976,379, Nov. 13, 1992, Pat. No. 5,444,586. This application Oct. 26, 1994, Ser. No. 329,336

Int. Cl.[6] G11B 17/04;23/03;5/012

U.S. Cl. 360—133 25 Claims



1. A cartridge for a removable cartridge disk drive, the disk drive containing a stationary motor, said cartridge comprising:

a housing;

a disk assembly including a disk located in said housing, said disk assembly being movably positionable relative to said housing along the axis of rotation of said disk;

a movable mounting assembly which moves said disk assembly in a mounting position such that said disk assembly in said mounting position is capable of being mounted onto the motor of the disk drive without moving said housing closer to the motor; and

a positioning assembly in operable communication with said mounting assembly and actuatable to move said mounting assembly so as to move said disk assembly in said mounting position such that said disk assembly in said mounting position is capable of mounting onto the motor without moving said housing closer to the motor.

5,724,217

MAGNETIC DISK CARTRIDGE WITH SHUTTER SPRING ENGAGING PORTION AND GUIDE PROJECTION

Kengo Oishi, Kanagawa-ken, Japan, assignor to Fuji Photo Film Co., Tokyo, Japan, and Iomega Corporation, Roy, Utah

Filed Aug. 26, 1996, Ser. No. 704,952

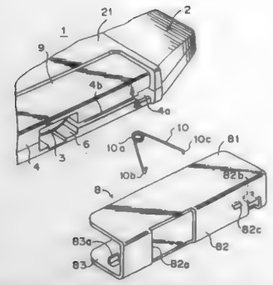
Int. Cl.[6] G11B 23/03

U.S. Cl. 360—133 3 Claims

1. A magnetic disk cartridge comprising:

a magnetic disk,

a cassette shell encasing the magnetic disk to be rotatable therein and formed as a flat prism with a top surface slightly larger than the magnetic disk, a bottom surface of substantially the same shape as the top surface and lying parallel thereto, and narrow side surfaces extending between outer peripheral



edges of the top and bottom surfaces, wherein a slit including an inner surface, is formed in the one side surface of the cassette shell,

a magnetic head access opening formed in one side surface for enabling magnetic recording and reproducing heads to be brought in contact with, or close to, opposite surfaces of the magnetic disk from the exterior,

a shutter member constituted as a sectionally U-shaped sheet member formed by interconnecting an upper wing, a shutter section with a shutter window and a lower wing that extend respectively along said top, one side and bottom surfaces,

a shutter closing spring for biasing the shutter member in the closing direction, said shutter closing spring having a first end portion and a second end portion,

a spring engaging portion for engaging the first end portion of the shutter closing spring provided at the lateral end portion thereof of the shutter section of the shutter member, and

a guide projection formed on the shutter member between the spring engaging portion and the shutter window and projecting toward the one side surface,

wherein the shutter member is provided on the cassette shell to be slidable along said surfaces for enabling the shutter window of the shutter section to open and close the magnetic head access opening, and

wherein the guide projection engages the slit at a portion of the one side surface of the cassette shell, and as the spring engaging portion moves along the slit, the guide projection regulates the position of the spring engaging portion with respect to the width direction of the slit, so as to prevent the spring engaging portion from making contact with the inner surface of the slit, even when the biasing force of the shutter closing spring is unbalanced.

5,724,218

POWER TRANSISTOR WITH SHORT-CIRCUIT PROTECTION

Jenoe Tihanyi, Kirchheim, Germany, assignor to Siemens Aktiengesellschaft, Munich, Germany

Filed Sep. 26, 1996, Ser. No. 721,565

Claims priority, application Germany, Sep. 27, 1995, 195 35 956.0

Int. Cl.[6] H02H 3/18

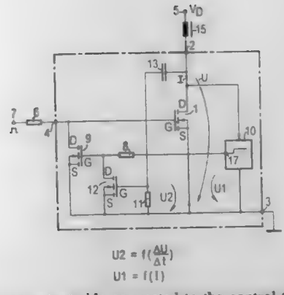
U.S. Cl. 361—79 10 Claims

1. A circuit configuration for short-circuit protection of a power transistor, comprising:

a) first and second terminals between which a load path of a power transistor is connected, and a third terminal connected to a control terminal connection of the power transistor;

b) another transistor having a load path connected between said second and third terminals and having a control terminal connection;

c) a current sensor configuration for detecting a current flowing through the power transistor, said current sensor configuration



having an output side connected to the control terminal connection of said other transistor, for turning said other transistor on as soon as a specified critical value of the current through the power transistor is exceeded; and

d) a voltage sensor configuration for detecting a voltage change along the load path of the power transistor, said voltage sensor configuration having an output side connected to the control terminal connection of said other transistor, for varying a potential at the control terminal connection of said other transistor in accordance with the detected voltage change.

5,724,219

ELECTROSTATIC PROTECTION CIRCUIT COMPRISING PLURALITY OF PROTECTIVE ELEMENTS

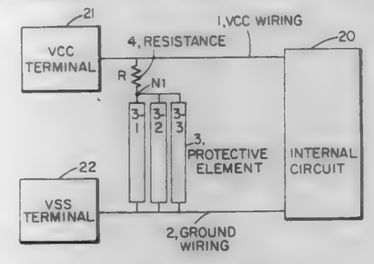
Kaoru Narita, Tokyo, Japan, assignor to NEC Corporation, Tokyo, Japan

Filed May 30, 1996, Ser. No. 655,188

Claims priority, application Japan, May 30, 1995, 7-155273

Int. Cl.[6] H02H 3/22

U.S. Cl. 361—111 3 Claims



1. A semiconductor device comprising, a first power supply wiring, a second power supply wiring, a first, a second and a third protective elements arranged in parallel, a first connecting wiring connecting in common one ends of said first, said second and said third protective elements, a second connecting wiring connecting the other ends of said first, said second and said third protective elements to said second power supply wiring, and a third connecting wiring connecting said first connecting wiring to said first power supply wiring, where said third connecting wiring has a resistance higher than that of said first connecting wiring.

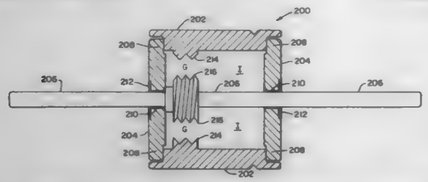
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5,724,220

COAXIAL TRANSMISSION LINE SURGE ARRESTOR WITH FUSIBLE LINK

Nisar A. Chaudhry, West Babylon, N.Y., assignor to TII Industries, Inc., Copiague, N.Y.

Continuation-in-part of Ser. No. 548,903, Oct. 26, 1995, Pat. No. 5,675,196, which is a continuation-in-part of Ser. No. 351,667, Dec. 8, 1994, Pat. No. 5,566,056. This application Jul. 25, 1996, Ser. No. 687,229
Int. Cl.[6] H02H *1/00*
U.S. Cl. 361—119 20 Claims



1. Apparatus for protecting a coaxial transmission line comprising:

(a) a coaxial transmission line surge arrestor comprising a gas discharge tube, the gas discharge tube comprising

(1) a hollow conductive housing,

(2) insulating ends adapted to seal the housing,

(3) an inert gas sealed in the housing,

(4) a center conductor extending through the housing, the conductor having a longitudinal axis oriented in a direction parallel to the direction of signal transmission, and

(5) the diameter of the center conductor being varied along at least a portion of its length between the insulating ends for matching the impedance of the surge arrestor to that of the transmission lines; and

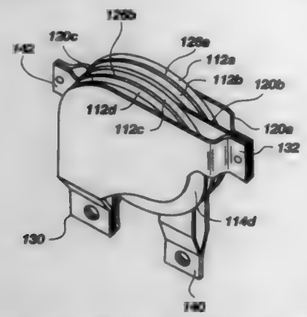
(b) a fusible link electrically connected in series with the coaxial surge arrestor.

5,724,221

DIRECT CONTACT VARISTOR ASSEMBLY

Perry Law, Centerville, Utah, assignor to EFI Electronics Corporation, Salt Lake City, Utah

Filed Feb. 2, 1996, Ser. No. 594,644
Int. Cl.[6] H02H *1/00*
U.S. Cl. 361—127 25 Claims



1. A voltage surge suppressor in combination with a power distribution system comprising at least one power distribution line in a distribution circuit, a varistor having a planar surface in electrical connection with the distribution circuit such that electric current in the distribution circuit of voltage greater than a predetermined threshold is diverted through the varistor, wherein said electrical connection comprises direct contact between the planar surface of the varistor and the at least one power distribution line such that electric current in the distribution circuit of voltage less than the predetermined threshold flows over the planar surface of the varistor and wherein said at least one power distribution line is not aligned with another element of the distribution circuit at a periphery of the planar surface of the varistor.

5,724,222

BIAXIALLY ORIENTED POLYPROPYLENE FILM AND A CAPACITOR MADE THEREOF

Takumi Hirano, Shizuoka; Itsuo Nagai, Shiga; Shigeru Tanaka, Shiga, and Masayoshi Asakura, Shiga, all of Japan, assignors to Toray Industries Inc., Tokyo, Japan

Filed Aug. 27, 1996, Ser. No. 703,328
Claims priority, application Japan, Nov. 29, 1995, 7-310944
Int. Cl.[6] H01G *4/26*
U.S. Cl. 361—311 12 Claims

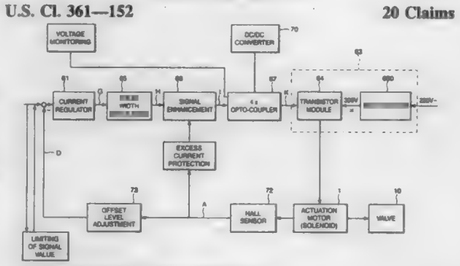
1. A biaxially oriented polypropylene film that is 98–99.5% in isotacticity, above 99% in isotactic pentad fraction, and 1–4% in the sum of the machine- and transverse-direction heat shrinkage at 120° C.

5,724,223

CONTROL OF A PROPORTIONAL VALVE USING MAINS VOLTAGE

Alfred Feuser, Lohr-Rodenbach; Jörg Dantlgraber, Lohr/Main; Helmut Kunkel, Wiesthal, and Rudolf Schäffer, Marktheidenfeld, all of Germany, assignors to Mannesmann Rexroth GmbH, Lohr, Germany

Continuation of Ser. No. 7,911, Jan. 22, 1993, abandoned. This application Mar. 20, 1995, Ser. No. 406,808
Claims priority, application Germany, Jan. 22, 1992, 42 01 652.5
Int. Cl.[6] H01F *7/18*
U.S. Cl. 361—152 20 Claims



1. A proportional valve comprising:

a valve;

valve actuation detection means for detecting an actuation of said valve and for generating a valve actuation signal representative thereof at all times during operation of said proportional valve;

a solenoid actuating said valve, said solenoid including a coil;

a mains voltage supply generating electrical energy from a rectified mains voltage, said electrical energy being at least an order of magnitude greater than a maximum level acceptable to said coil; and

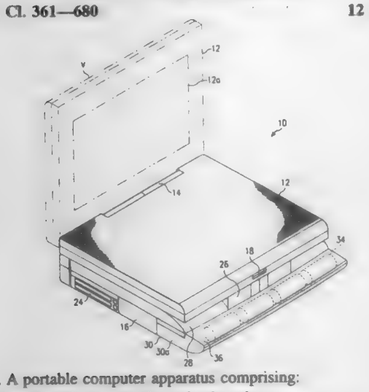
control circuit means, powered by said mains voltage supply, for receiving said valve actuation signal and a reference signal for supplying to said mains voltage supply a controlling signal based on a difference between said valve actuation signal and said reference signal, said controlling signal causing said mains voltage supply to output said electrical energy comprising pulses of said electrical energy to said coil of said solenoid, and said control circuit means controlling application of said controlling signal so as to ensure that said coil of said solenoid is not overloaded by said electrical energy and that a maximum current value is not exceeded.

5,724,224

INTEGRATED PALM REST AND BATTERY PACK HAVING FIRST AND SECOND PALM REST SURFACES DEFINING A PAIR OF ADJACENT ARCUATE SURFACES IN A PORTABLE COMPUTER SYSTEM

Bryan Howell, and Steve Gluskoter, both of Austin, Tex., assignors to Dell USA, L.P., Austin, Tex.

Filed Oct. 21, 1996, Ser. No. 733,954
Int. Cl.[6] G06F *1/16;* H05K *5/02*
U.S. Cl. 361—680 12 Claims



1. A portable computer apparatus comprising:

a base member supporting a keyboard;

a first palm rest surface defined by an arcuate terminal end of the base member adjacent the keyboard; and

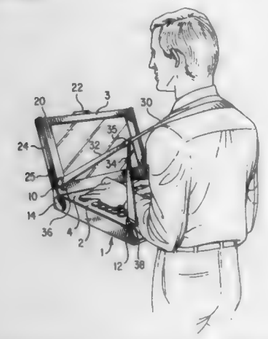
a housing attached to and extending from the base member, the housing forming a second palm rest surface extending from the first palm rest surface and including an arcuate portion, the second palm rest surface simultaneously defining an expanded battery storage space, whereby the first and second palm rest surfaces define a pair of adjacent arcuate surfaces.

5,724,225

LAPTOP COMPUTER CARRYING TRAY

John Hrusoff, 1910 Marthas Rd., Alexandria, Va. 22307; Chris Saladyga, 8508 16th St., #621, Silver Spring, Md. 20710, and Marissa Cachero, 370 Taylor St., S-21, Washington, D.C. 20017

Filed Oct. 5, 1995, Ser. No. 539,372
Int. Cl.[6] G06F *1/16;* A45F *5/00*
U.S. Cl. 361—683 15 Claims



1. A portable laptop type computer unit housing assembly comprising:

a) a portable laptop style computer unit including an upper casement and a lower casement;

b) a flat rectangular tray having a closed bottom wall joined to two side walls, a parially open front wall including a first lip, and a partially open rear wall including a second lip, each of said two side walls having two projections extending therefrom, each of said projections including an aperture; and

c) two shoulder straps;

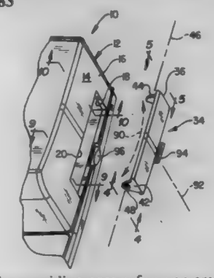
said shoulder straps releasably attached to said apertures, and said lower casement releasably secured to said first and said second lips.

5,724,226

HOUSING ACCESS DOOR CONSTRUCTION FOR A PORTABLE COMPUTER DOCKING STATION

Mark H. Ruch, The Woodlands, and Kelly K. Smith, Spring, both of Tex., assignors to Compaq Computer Corporation, Houston, Tex.

Filed Jun. 14, 1996, Ser. No. 664,421
Int. Cl.[6] G06F *1/16;* H05K *5/03*
U.S. Cl. 361—683 34 Claims



8. Apparatus for providing access from an area on one side of a wall to an area on the opposite side of the wall, said apparatus comprising:

an opening formed in the wall;

a door member having first and second spaced apart locations thereon; and

a mounting structure for supporting said door member, at said first and second spaced apart locations thereon, for movement relative to the wall between a closed position in which said door member blocks said opening, and an open position in which said door member unblocks said opening,

said first and second door member locations and said mounting structure having cooperatively engageable portions operative to resiliently deform said door member along a distance thereon extending from said first location to said second location during movement of said door member through an initial distance toward one of said open and closed positions thereof, and then permit said door member to return to its original shape in a manner causing said door member to drive itself the rest of the way to said one of said open and closed positions thereof.

5,724,227

ROTATABLE DRIVE BAY MODULE FOR A COMPUTER CABINET

Ronald Hancock; Jeffrey Schindler, both of Sioux City, Iowa, and Theodore W. Waitt, Dakota Dunes, S. Dak., assignors to Gateway 2000, Inc., North Sioux City, S. Dak.

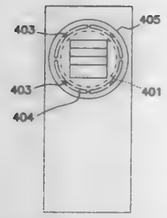
Filed Mar. 19, 1996, Ser. No. 617,619
Int. Cl.[6] G06F *1/16;* H05K *5/02*
U.S. Cl. 361—685 5 Claims

1. A personal computer cabinet including a drive bay module for holding multiple peripheral drive units comprising:

a computer cabinet having side panels;

a receiving bay with a substantially circular mouth positioned therein, and a plurality of first fastener openings formed adjacent to the receiving bay;

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a drive bay module having

a first pair of substantially parallel plates forming opposing sides of the module and a second pair of substantially parallel plates forming a top and bottom of the module and coupled to the first pair of plates, wherein the module has an open front and back;

mounting hardware to secure the peripheral drive units within the module, wherein the mounting hardware is positioned on the first pair of plates;

a flange formed extending perpendicularly outward from the first and second pairs of plates at the front of the module and sized to overlap the perimeter of the mouth of the receiving bay when the module is positioned therein;

a plurality of second fastener openings in the flange which correspond with the first fastener openings in the computer cabinet when the module is oriented at any one of a plurality of angles within the receiving bay; and

a plurality of fasteners insertable into the first and second fastener openings for securing the module within the receiving bay.

5,724,228

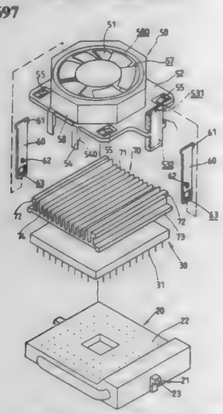
CPU HEAT DISSIPATOR

Tzu-I Lee, 2F, No. 362, Ta Nan Road, Shin Lin, Taipei City, Taiwan

Filed Aug. 14, 1996, Ser. No. 696,515

Int. Cl.[6] H05K *7/20*

U.S. Cl. 361—697 **9 Claims**



1. A computer central processing unit (CPU) heat dissipator adapted to be used with a CPU connector which has two opposite sideways lugs, the heat dessipator comprising:

a heat conductive body comprising a base having a bottom face adapted to be placed on a top face of the CPU which is mounted on the connector to sandwich the CPU between the heat conductive body and the connector, the base further having an opposite top face on which a plurality of fins are formed and spaced from each other to define therebetween air passages; and

a holding frame made of a resilient and deformable material, comprising a plate member having an underside to be placed on top ends of the fins to sandwich the heat conductive body between the holding frame and the CPU and a central opening around which a circumferential wall is formed on an upper surface of the plate member to define therein a fan chamber for receiving and rotatably supporting therein a convection fan, the plate member further comprising two securing arms substantially normal thereto and rotatable relative thereto, each of the securing arms having a rigid retaining plate fixed thereon, the retaining plate having an opening for receiving and fitting onto the respective sideways lug of the connector so as to secure the holding frame and the heat conductive body to the CPU and the connector.

5,724,229

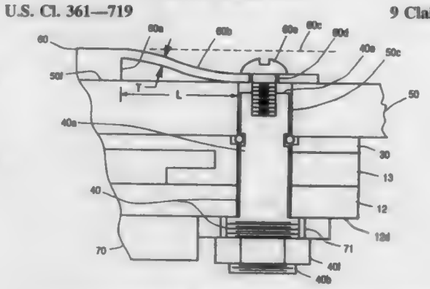
ELECTROMECHANICAL ASSEMBLY HAVING A LID WHICH PROTECTS IC CHIPS AND HOLDS CONTACT SPRINGS

Jerry Ihor Tustaniwskyi, Mission Viejo; Leonard Harry Alton, Escondido; Ronald Jack Kuntz, San Diego, and Ronald Allen Norell, Oceansice, all of Calif., assignors to Unisys Corporation, Blue Bell, Pa.

Filed Mar. 27, 1996, Ser. No. 623,389

Int. Cl.[6] H05K *7/20*

U.S. Cl. 361—719 **9 Claims**



1. A pressure-mountable, electro-mechanical assembly which is comprised of:

an integrated circuit chip;

a housing which holds said chip in an open cavity, and which has conductors that connect said chip to a pattern of flat metal pads which lie on an exterior surface of said housing around said open cavity;

a lid which covers said cavity, lies on said exterior surface around said cavity, and has terminal holes that match and expose said pattern of metal pads;

respective conductive springs which are held in said terminal holes, contact said metal pads, and project from said lid;

a single set of alignment holes, through said lid and said housing, which line up only when said conductive springs are aligned with said metal pads; and,

a single set of pins which extend completely through said alignment holes and which are threaded for connection to other components in said assembly; each pin having a wide end which is too wide to pass through said holes, and having a narrow end with a retainer which holds said lid and said housing together.

5,724,230

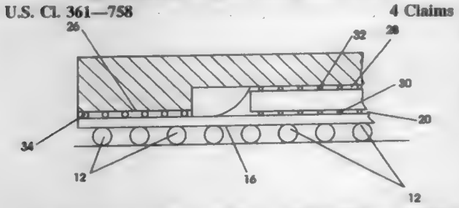
FLEXIBLE LAMINATE MODULE INCLUDING SPACERS EMBEDDED IN AN ADHESIVE

Steven Eugene Poetzinger, Apex, N.C., assignor to International Business Machines Corporation, Armonk, N.Y.

Filed Jun. 21, 1996, Ser. No. 669,900

Int. Cl.[6] H05K *5/03;5/04;7/20;* **H01L** *23/34*

U.S. Cl. 361—758 **4 Claims**



1. An electronic module, including a chip bonded to a flexible laminate, and apparatus for establishing coplanarity of a base surface of the electronic module, the apparatus comprising:

a stiffener having a recessed portion for receiving a chip mounted to the flexible laminate, the recessed portion including an upper planar surface and a lower planar surface, the upper and lower planar surfaces being substantially parallel; and

a bond line along the lower planar surface for attaching the flexible laminate to the stiffener, the bond line including a plurality of spacers embedded within adhesive.

5,724,231

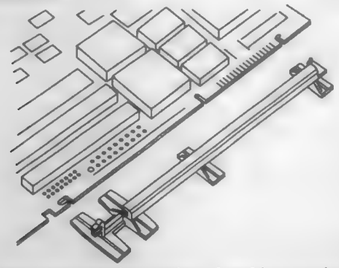
SUPPORT FOR ELECTRONIC CARDS AND BOARDS OF VARYING LENGTHS

Alan Lee Winick, San Jose; Clifford Willis, Tracy, both of Calif.; Dave Desilets, Hopkinton, and James M. Carney, Pepperell, both of Mass., assignors to Sun Microsystems, Inc., Mountain View, Calif.

Filed Jul. 1, 1996, Ser. No. 674,125

Int. Cl.[6] H05K *5/00*

U.S. Cl. 361—759 **9 Claims**



1. A front edge guide for securing a board in an enclosure, the board having a leading edge formed with slots and channel engaging means and the enclosure having a base and leg engaging means on the base,

said guide comprising a channel shaped to detachably engage the leading edge, first means cooperable with the channel engaging means to hold said channel attached to the board, legs depending from said channel, and third means on said legs shaped to engage the leg-engaging means to limit movement of said guide relative to the enclosure along Y and Z axes, said first means comprising a pair of vertical elements shaped and positioned to be received in the slots, the distance between said elements being greater than the distance between the slots, said guide being flexible so that said guide bends vertically to permit insertion of one said element in a slot and then another said element in another slot and then pushed inwardly to seat said elements in the slots and said channel gripping the leading edge.

5,724,232

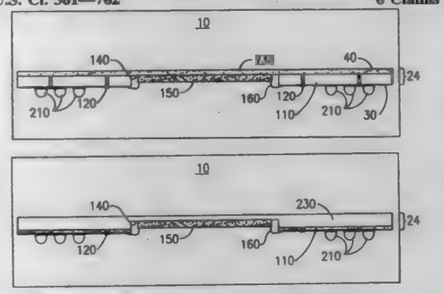
CHIP CARRIER HAVING AN ORGANIC PHOTOPATTERNABLE MATERIAL AND A METAL SUBSTRATE

Ashwinkumar Chinuprasad Bhatt, Endicott; Subahu Dhirubhai Desai, Vestal; Thomas Patrick Duffy, Endicott, and Jeffrey Alan Knight, Endwell, all of N.Y., assignors to International Business Machines Corporation

Division of Ser. No. 390,344, Feb. 15, 1995. This application May 21, 1996, Ser. No. 655,323

Int. Cl.[6] H05K *1/05;1/03;1/18;* **H01L** *23/36*

U.S. Cl. 361—762 **6 Claims**



1. A chip carrier, comprising:

a chip carrier substrate which includes a first surface, a second surface opposed to said first surface, a layer of photoimageable organic material having a thickness of from about 2 mils to about 20 mils which is immediately adjacent said first surface and which bears a layer of electrical circuitry, including contact pads, and a layer of metallic material having a thickness of from about 4 mils to about 20 mils which is immediately adjacent said second surface;

a single-tiered photoformed cavity having a depth extending from said first surface toward said second surface, said depth extending at least to said layer of metallic material;

a semiconductor chip, positioned face-up within said cavity and contacting said layer of metallic material, said chip including chip contact pads and wire bonds extending from said chip contact pads to contact pads on said layer of organic material.

5,724,233

SEMICONDUCTOR DEVICE HAVING FIRST AND SECOND SEMICONDUCTOR CHIPS WITH A GAP THEREBETWEEN, A DIE STAGE IN THE GAP AND ASSOCIATED LEAD FRAMES DISPOSED IN A PACKAGE, THE LEAD FRAMES PROVIDING ELECTRICAL CONNECTIONS FROM THE CHIPS TO AN EXTERIOR OF THE PACKAG

Tosiyuki Honda, Kawasaki, and Takao Haranosono, Satsuma-gun, both of Japan, assignors to Fujitsu Limited, Kawasaki, and Kyushu Fujitsu Electronics Limited, Satsuma-gun, both of Japan

Division of Ser. No. 459,689, Jun. 2, 1995, Pat. No. 5,579,208, which is a division of Ser. No. 214,318, Mar. 17, 1994, Pat. No. 5,471,369. This application May 15, 1996, Ser. No. 647,788

Claims priority, application Japan, Jul. 9, 1993, 5-170540

Int. Cl.[6] H01L *23/485;* **H05K** *1/14*

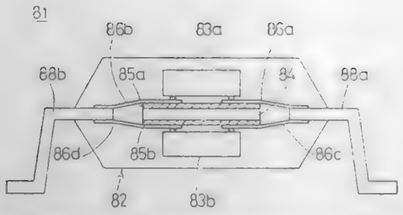
U.S. Cl. 361—813 **7 Claims**

1. A semiconductor device comprising:

a package having disposed therein a first semiconductor chip and a second semiconductor chip, said first semiconductor chip being displaced from said second semiconductor chip;

two lead frames disposed in and extending from said package and respectively providing electrical connections from said first semiconductor chip and said second semiconductor chip to an exterior of the package;

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a die stage disposed between said first semiconductor chip and said second semiconductor chip;

a first TAB lead connecting said first semiconductor chip to the first lead frame;

a second TAB lead connecting said second semiconductor chip to the second lead frame; and

first and second insulating members, said first semiconductor chip being positioned so that a surface thereof on which circuitry is provided faces a first main surface of said die stage, the first insulating member being provided between said first TAB lead and the first main surface of said die stage, and said second semiconductor chip being positioned so that a surface thereof on which circuitry is provided faces a second main surface of the die stage opposite to the first main surface thereof, the second insulating member being positioned between said second TAB lead and the second main surface of said die stage.

5,724,234

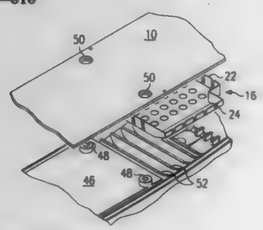
SLOTTED SHIELD CAN

Craig A. Phelps, Raleigh, N.C., assignor to Ericsson Inc., Research Triangle Park, N.C.

Filed May 2, 1996, Ser. No. 641,880

Int. Cl.[6] H05K *9/00*

U.S. Cl. 361—816 **31 Claims**



1. An apparatus comprising:

an electronic circuit;

an insulating means having a surface area in which the electronic circuit is situated;

a ground path means substantially circumscribing said surface area;

a radio frequency (RF) shield means for covering said electronic circuit, said RF shield means including a top conforming to at least the dimensions of said surface area and downwardly extending sides enclosing said surface area, each of said sides having a plurality of slots extending substantially the full height of that side; and

a housing means for applying a force to the top of said shield means whereby the sides of said shield means are made to contact said ground path means.

5,724,235

OVERCURRENT PROTECTING DEVICE FOR USE IN DC—DC CONVERTER

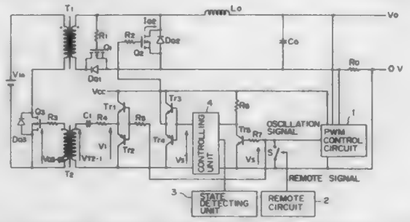
Hiroshi Shimamori; Sentarou Tokimi, both of Kawasaki; Tohru Futakawa, and Hiroyuki Suzuki, both of Ohtemachi, all of Japan, assignors to Fujitsu Ltd., Kawasaki, and Shindengen Electric Mfg., Co., Ltd., Tokyo, both of Japan

Filed Dec. 26, 1996, Ser. No. 774,305

Claims priority, application Japan, Dec. 27, 1995, 7-340294

Int. Cl.[6] H02M *3/335*

U.S. Cl. 363—21 **15 Claims**



1. A DC-DC converter comprising a main transformer; a main switch connected to a primary side of the main transformer in series; a rectification switch connected to a secondary side of the main transformer in series; a flywheel switch connected to the secondary side of the main transformer in parallel; and a PWM control circuit for outputting an oscillation signal having a duty cycle to maintain a predetermined output voltage by alternately switching between the main switch and the rectification switch, and the flywheel switch via a driving circuit, further comprising:

controlling means for controlling the flywheel switch; and

state detecting means for detecting an output from the DC-DC converter, and providing a control instruction signal to said controlling means based on a result of detection, wherein

the control instruction signal is generated if the result of detection indicates that an electric current whose value exceeds an allowable value, can possibly flow through the flywheel switch of the DC-DC converter; and

said controlling means turns off the flywheel switch if the control instruction signal is input from said state detecting means.

5,724,236

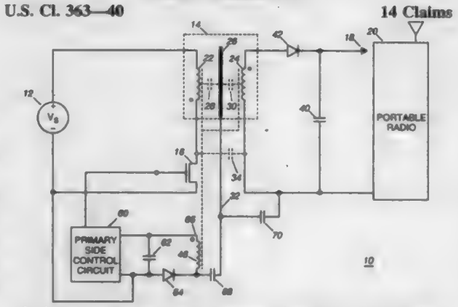
POWER CONVERTER TRANSFORMER HAVING AN AUXILLIARY WINDING AND ELECTROSTATIC SHIELD TO SUPPRESS NOISE

John W. Ogiesbee, Athens, Ga., assignor to Motorola, Inc., Schaumburg, Ill.

Filed Mar. 5, 1996, Ser. No. 611,234

Int. Cl.[6] H02M *1/12*

U.S. Cl. 363—40 **14 Claims**



1. A reduced noise power converter having an input voltage source, a transformer having a primary winding: secondary winding, an auxiliary winding; and an electrostatic shield disposed between said primary winding and said secondary winding, said primary winding having a polarity, said auxiliary winding having an opposing polarity to said primary winding, and wherein said auxiliary winding is coupled between said electrostatic shield and said input voltage source.

5,724,237

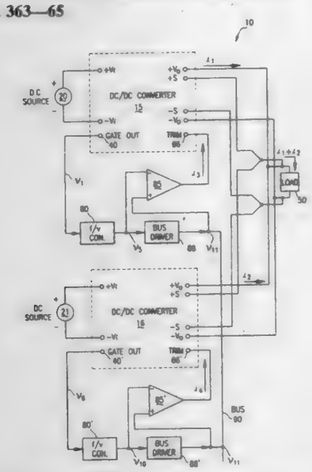
APPARATUS AND METHOD FOR SHARING A LOAD CURRENT AMONG FREQUENCY-CONTROLLED D.C.-TO-D.C. CONVERTERS

Patrick L. Hunter, Miami Lakes, Fla., assignor to Unipower Corporation, Coral Springs, Fla.

Filed Jun. 11, 1996, Ser. No. 661,847

Int. Cl.[6] H02J *1/10;* **H02M** *3/158*

U.S. Cl. 363—65 **3 Claims**



1. An apparatus for sharing a load current substantially equally among D.C.-to-D.C. converters having outputs coupled mutually in parallel to a common load, said apparatus comprising:

(a) at least two D.C.-to-D.C. converters of a type whose output varies according to a controllable operating frequency, each of said converters including

(i) at least one D.C. input coupleable to a D.C. source;

(ii) at least one D.C. output coupleable to the load;

(iii) an output terminal providing an indicating signal representing said operating frequency, and

(iv) an input terminal for receiving a control signal for adjusting said operating frequency, and

(b) circuit means coupled to each said output terminal and to each said input terminal for receiving said indicating signal from each said converter, for determining based on said indicating signals which one of said converters is supplying the largest share of said load current and for applying to said input terminal of each of said converters other than said one of said converters a respective control signal tending to equalize sharing of said load current among said converters.

5,724,238

CIRCUIT ARRANGEMENT FOR PRODUCING AN A.C. VOLTAGE FOR DRIVING A PANE OR PANEL HAVING A VARIABLE LIGHT TRANSPARENCY

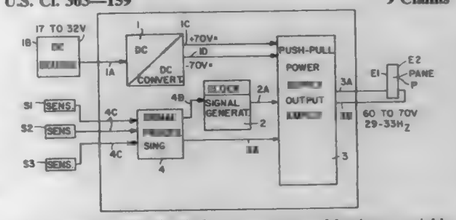
Stephan Schulz, Neu Wulmstorf, and Christian Dehnke, Hamburg, both of Germany, assignors to Daimler-Benz Aerospace Airbus GmbH, Hamburg, Germany

Filed Dec. 2, 1996, Ser. No. 759,260

Claims priority, application Germany, Dec. 1, 1995, 195 44 744.1

Int. Cl.[6] H02M *5/20;* **G02F** *1/153*

U.S. Cl. 363—159 **9 Claims**



1. A power supply circuit for a pane or panel having a variable light transparency in response to an alternating driving voltage applied by said power supply circuit to transparent electrodes of said pane or panel, comprising a D.C. voltage converter (**1**) having an input (**1A**) for connection to a D.C. power source and two outputs (**1C**, **1D**) for providing two D.C. output voltages which are substantially higher than a voltage of said D.C. power source, a push-pull power output amplifier (**3**) having first and second inputs connected to respective outputs of said two outputs (**1C**, **1D**) of said D.C. voltage converter (**1**), at least one control signal input (**2A**), and a power output (**3A**, **3B**) for providing said alternating driving voltage, said power supply circuit further comprising an electronic clock signal circuit (**2**) connected to said at least one control input (**2A**) of said push-pull power output amplifier (**3**) for providing a low frequency clock signal to said push-pull power output amplifier (**3**), for controlling the output of said alternating driving voltage.

5,724,239

ROBUST CONTROL SYSTEM FOR DESIGNING LOGIC FOR IMPERFECT MODEL

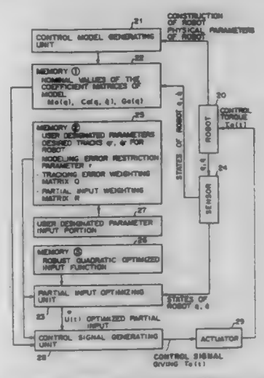
Junji Kaneko, Kawasaki, Japan, assignor to Fujitsu Limited, Kawasaki, Japan

Filed Oct. 26, 1995, Ser. No. 548,466

Claims priority, application Japan, Oct. 27, 1994, 6-263526

Int. Cl.[6] G05B *13/00;13/04*

U.S. Cl. 364—149 **27 Claims**



1. A robust control apparatus corresponding to a robust control theory that is a control theory for permitting the use of an imperfect model, comprising:

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control model generating means for generating a dynamics model of an object to be controlled in consideration of inaccuracies of coefficient matrices and random disturbances;

partial input optimizing means for optimizing a selective partial input of a control input of the dynamics model corresponding to the state of the object and a robust quadratic optimizing criterion; and

control signal generating means for generating a control signal for the object corresponding to outputs of said control model generating means and said partial input optimizing means.

5,724,240

METHOD FOR AUTOMATICALLY RESETTING A MICROCOMPUTER IN A VIDEO CASSETTE RECORDER

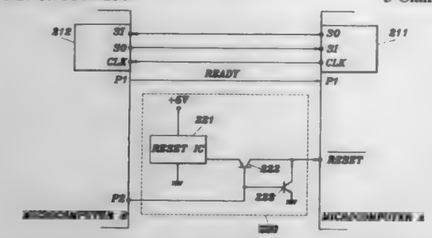
Tae-Goon Yoon, Seoul, Rep. of Korea, assignor to Daewoo Electronics Co., Ltd., Seoul, Rep. of Korea

Filed Jul. 20, 1994, Ser. No. 278,482

Claims priority, application Rep. of Korea, Jul. 21, 1993, 93-13823

Int. Cl.[6] G06F *11/00*

U.S. Cl. 364—184 3 Claims



1. In a video cassette recorder having a timer micom and a servo/syscon micom, a watchdog method for, upon detecting an abnormality in the timer micom by the servo/syscon micom, automatically resetting the timer micom, comprising the steps of:

(a) sending from the servo/syscon micom a request command for watchdog data to the timer micom via a serial communication path formed between the timer micom and the servo/syscon micom;

(b) transmitting from the timer micom the watchdog data to the servo/syscon micom in response to the request command for the watchdog data via the serial communication path;

(c) determining in the servo/syscon micom whether the watchdog data is normal;

(d) resetting the timer micom when the watchdog data is abnormal as determined in said step (c); and

(e) repeating said steps (a) to (d) periodically.

5,724,241

DISTRIBUTED SEISMIC DATA-GATHERING SYSTEM

George William Wood, Sugar Land; Ricky Lynn Workman, Houston, and Michael W. Norris, Cypress, all of Tex., assignors to Western Atlas International, Inc., Houston, Tex.

Filed Jan. 11, 1996, Ser. No. 585,244

Int. Cl.[6] G06F *19/00*

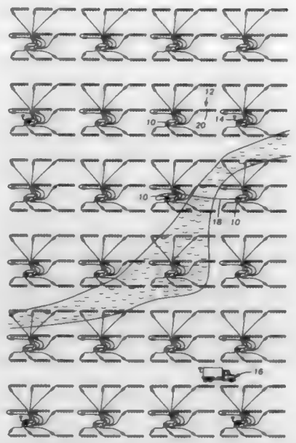
U.S. Cl. 364—421 6 Claims

1. A seismic data-gathering system comprising:

a first plurality of seismic signal-collection channels, for continuously measuring seismic signals, interconnected by channel number with at least one data acquisition module;

a GPS satellite receiver integral with said data acquisition module for monitoring the geographic coordinates thereof and for establishing a system clock synchronized to satellite time-base transmissions;

each said data-collection channel including means, under program control from said data-acquisition module for



a) accepting utility data including externally-derived geographic coordinates, channel-identification indicia and instrumental configuration settings characterizing each said channel,

b) continuously sampling and quantizing the continuously-measured seismic signals at preselected timed sample intervals during a predetermined signal-collecting time window, and

c) downloading the quantized measured seismic signals and utility data to the data acquisition module interconnected therewith; and

means in the interconnected data-acquisition module for continuously receiving and recording on a storage medium, the downloaded quantized measured seismic signals in sample-sequential order by channel number and for recording said utility data.

5,724,242

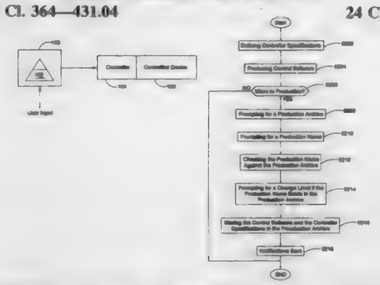
METHOD FOR PRODUCING PRODUCTION CONTROL SOFTWARE FOR A NATURAL GAS ENGINE CONTROLLER

Amy L. Moore-McKee, Varna; Geoffrey D. Ginzel; William Schubert, both of Peoria, all of Ill., and Kevin S. King, West Lafayette, Ind., assignors to Caterpillar Inc., Peoria, Ill.

Filed Mar. 21, 1995, Ser. No. 408,759

Int. Cl.[6] G06G *7/70*; F02M *51/00*

U.S. Cl. 364—431.04 24 Claims



1. Method of operating a computer to produce control software for an electronic controller for a natural gas engine, the method comprising:

(1) defining a set of air features of the electronic controller and the natural gas engine as a function of user input;

(2) defining a set of fuel features of the electronic controller and the natural gas engine as a function of user input;

(3) defining a set of timing features of the electronic controller and the natural gas engine as a function user input;

(4) defining a set of protection features of the electronic controlled and the natural gas engine as a function of user input, wherein said defining a set of protection features including,

(i) enabling protection features for at least one parameter,

(ii) defining a caution value for said at least one parameter, and

(iii) defining a shutdown value for said at least one parameter; and

(5) producing control software to operate the controller as specified by the user defined features.

5,724,243

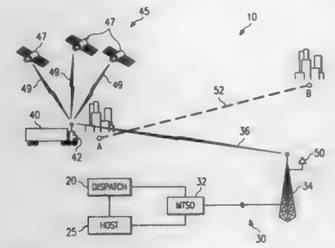
METHOD AND APPARATUS FOR DETERMINING EXPECTED TIME OF ARRIVAL

Kenneth R. Westerlage, Fort Worth; Dale E. Beasley, Flower Mound; William C. Kennedy, III, Dallas, and William L. Hoag, Farmers Branch, all of Tex., assignors to Highway-Master Communications, Inc., Dallas, Tex.

Filed Feb. 10, 1995, Ser. No. 387,221

Int. Cl.[6] G01C *23/00*

U.S. Cl. 364—446 51 Claims



1. A system for determining an expected time of arrival of a vehicle equipped with a mobile unit, comprising:

a dispatch remotely located from the vehicle, the dispatch operable to generate destination information for the vehicle, the destination information specifying at least one destination and a corresponding appointment time;

a communications link coupled to the dispatch, the communications link operable to receive the destination information for the vehicle from the dispatch; and

the mobile unit coupled to the communications link, the mobile unit operable to receive from the communications link the destination information for the vehicle generated by the dispatch, the mobile unit further operable to determine a vehicle position, the mobile unit further operable to determine in response to the vehicle position the expected time of arrival of the vehicle at the destination identified by the destination information, the mobile unit further operable to determine if the expected time of arrival differs from the corresponding appointment time for the destination by more than a predetermined amount.

5,724,244

MICROWAVE OVEN AND A CASH REGISTER SYSTEM INCLUDING THE SAME

Tsutomu Yabuki, Kawasaki, Japan, assignor to Fujitsu Limited, Kawasaki, Japan

Filed Apr. 18, 1996, Ser. No. 635,873

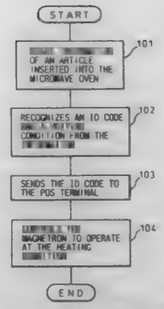
Claims priority, application Japan, Apr. 20, 1995, 7-094821

Int. Cl.[6] H05B *6/68;6/64;* G06K *7/10*

U.S. Cl. 364—464.1 22 Claims

1. A microwave oven comprising:

an irradiator for irradiating microwaves to heat articles;



an article information reader for reading article information from an article information recording medium disposed on the surface of the article; and

heating control means for controlling the irradiator to operate at a condition determined based on the article information read by the article information reader,

wherein the article information recording medium is a radio-wave article information means which generates a response signal in response to an external radio signal, the article information reader includes a radio-wave transmitter for transmitting the external radio signal, a radio-wave receiver for receiving the response signals from the radio-wave article information means, and a decoder for decoding the response signal.

5,724,245

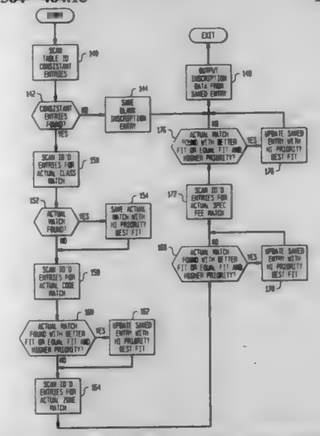
APPARATUS FOR CONTROLLING A POSTAGE METER AND SELECTING AN INSCRIPTION

James P. Maher, Milford, and Stanley Rydzak, Brookfield, both of Conn., assignors to Pitney Bowes Inc., Stamford, Conn.

Filed Sep. 28, 1995, Ser. No. 534,919

Int. Cl.[6] G07B *17/00*

U.S. Cl. 364—464.18 18 Claims



1. An apparatus for controlling a postage meter, said postage meter including an input for input of postage value data and inscription selection data, said apparatus comprising:

a) input means for input of a plurality of postal information parameters for a mail piece;

b) control means, responsive to said input means for:

b1) determining said postage value data in accordance with said postal information; and

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b2) determining said inscription selection data as a prioritized function of said postal information parameters wherein said inscription selection data is incompletely determined by said postal information, so that more than one inscription selection data value can be consistent with said postal information, and said control means selects among values of said inscription selection data which are consistent with said postal information in accordance with a predetermined prioritization of said inscription selection data values; and

c) output means, responsive to said control means for output of said postage value data and inscription data.

5,724,246

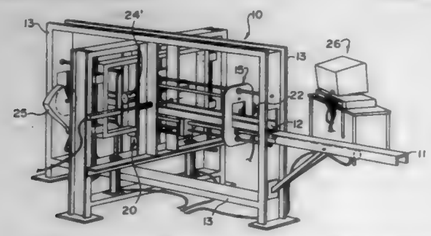
ARRANGEMENT FOR THE CONTROLLED NOTCHING AND CUTTING OF FRAMING COMPONENTS

Edwin Dean Heil, 2828 River Bend, Kingwood, Tex. 77339

Filed Jan. 17, 1996, Ser. No. 587,960

Int. Cl.[6] G06F *19/00;* **G05B** *19/402*

U.S. Cl. 364—474.09 **28 Claims**



1. A computerized controlled apparatus for notching of components, comprising:

a support means for supporting the components,

a notcher carried by the support means for notching of the components while being in operational contact therewith,

a traveling means carried by the support means for advancing the components into operational contact with the notcher and away from the notcher,

a cut-off saw carried by the support means for cutting the components to a required length, and

a controlling means for coordinating and controlling operation of the apparatus, wherein the controlling means produces commands for the notcher, the traveling means, and the cut-off saw according to design considerations received by the controlling means, thereby avoiding participation by an operator and thereby providing a precise implementation of the design considerations.

5,724,247

METHOD OF GENERATING A SIGNAL INDICATING THE DIRECTION OF A SHORT-CIRCUIT

Thomas Dalstein, Berlin, Germany, assignor to Siemens Aktiengesellschaft, München, Germany

PCT No. PCT/DE94/01151, § 371 Date May 24, 1996, § 102(e) Date May 24, 1996, PCT Pub. No. WO95/09465, PCT Pub. Date Apr. 6, 1995

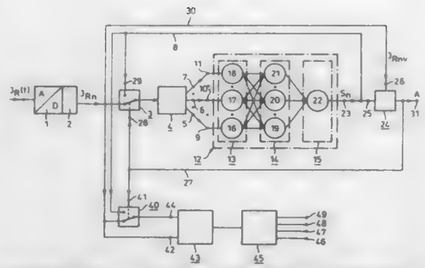
PCT Filed Sep. 20, 1994, Ser. No. 615,297

Claims priority, application Germany, Sep. 27, 1993, 43 33 259.5

Int. Cl.[6] G01R *31/00*

U.S. Cl. 364—483 **16 Claims**

1. A method for generating a direction signal indicating the direction of a short-circuit current in relation to a control point on a power transmission line to be monitored, the method comprising the steps of:



sampling current and voltage signals derived from phase currents and phase voltages of the power transmission line;

normalizing the sampled current and voltage signals to obtain a series of normalized sample values for each phase;

generating a triggering reference value for each sample value, which triggering reference value is determined from sample values preceding a time of triggering and from consecutively generated triggering reference values in the event of triggering;

subtracting from each sample value the triggering reference value corresponding to each sample value of each series, thus obtaining one difference series of difference values per phase, wherein:

a triggering device generates the triggering reference values to form the difference values from derived voltage signals,

in the triggering device, a triggering neural network with an input layer, a hidden layer, and an output layer with a single triggering output neuron is assigned to each phase conductor of the power transmission line to be monitored,

the triggering neural network assigned to each phase conductor has a behavior taught by coaching through simulation of voltages for different load conditions of the power transmission line to be monitored,

successively sampled, normalized values of the voltage on the respective phase conductor of the power transmission line are applied simultaneously to the different neurons of the input layer of each triggering neural network,

a subsequently sampled normalized value of the voltage on the respective phase conductor is compared to the output signal of the triggering output neuron of the triggering neural network, and

the output signal of the triggering output neuron of the triggering neural network, present in the respective phase conductor over the output signal of the triggering output neuron of the respective triggering neural network when the normalized comparative value of the current in the respective phase conductor is exceeded and/or present below the output signal of the triggering output neuron of the respective other neural network when the normalized comparative value of the voltage on the same phase conductor is not reached, and the simultaneously present output signals of the triggering output neurons of the other triggering neural networks, are used as triggering reference values;

supplying the difference values of all difference series to input neurons of the triggering neural network so that the output signal of the output neuron of the neural network exceeds a predefined upper threshold value in the event of a short-circuit in a first direction and is below a predefined lower threshold value in the event of a short-circuit in a second direction; and

generating a direction signal when the output signal of the output neuron reaches one of the upper and lower threshold values.

5,724,248

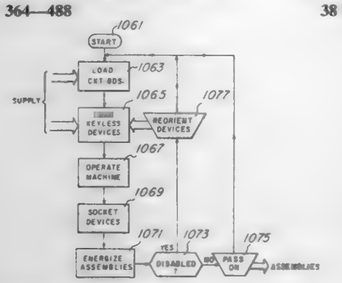
DEVICES AND SYSTEMS WITH PROTECTIVE TERMINAL CONFIGURATION, AND METHODS

Peter N. Ehlig, Houston, Tex., assignor to Texas Instruments Incorporated, Dallas, Tex.

Continuation of Ser. No. 347,969, May 4, 1989, abandoned. This application Jul. 22, 1992, Ser. No. 918,902

Int. Cl.[6] H05K *10/00*

U.S. Cl. 364—488 **38 Claims**



1. An electronic device comprising:

an electronic circuit having points for introducing power supply voltage, ground return and at least one output;

a device package for holding the electronic circuit, the device package being subject to misorientation; and

terminals, including terminals for power supply voltage, the ground return, and the output, connected to said electronic circuit and secured to said device package, said terminals distributed on said device package so that a turning reorientation of the entire electronic device translates the terminals to each other only in a way which prevents electrical stress to said electronic circuit due to possible misorientation of the electronic device under test.

5,724,249

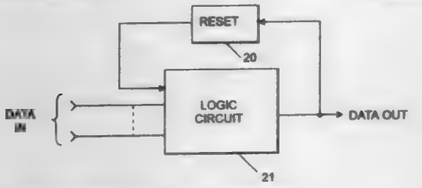
SYSTEM AND METHOD FOR POWER MANAGEMENT IN SELF-RESETTING CMOS CIRCUITRY

Visweswara Rao Kodali, and Salim Ahmed Shah, both of Austin, Tex., assignors to International Business Machines Corp., Armonk, N.Y.

Filed Jun. 5, 1995, Ser. No. 461,961

Int. Cl.[6] H03K *19/02;19/094*

U.S. Cl. 364—488 **18 Claims**



1. A self-resetting logic circuit comprising:

means operable for receiving an input data signal;

means operable for performing a logical operation on said input data signal to produce an output data signal;

means operable for outputting said output data signal; and

means, coupled to said performing means, operable for disabling said logic circuit.

5,724,250

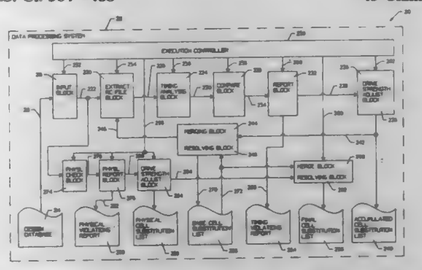
METHOD AND APPARATUS FOR PERFORMING DRIVE STRENGTH ADJUST OPTIMIZATION IN A CIRCUIT DESIGN

Joseph P. Kerzman, New Brighton; Kenneth L. Engelbrecht, Blaine; Robert J. Palermo, Shoreview, and Douglas A. Fuller, Eagan, all of Minn., assignors to Unisys Corporation, Blue Bell, Pa.

Filed Feb. 7, 1996, Ser. No. 598,506

Int. Cl.[6] G06F *17/50*

U.S. Cl. 364—488 **45 Claims**



1. A system for correcting timing violations in a circuit design, wherein the circuit design is represented in a circuit design database including a number of components selected from a component library, selected components of the component library having at least one corresponding logically equivalent component with a different drive strength, the system comprising:

a. input means for inputing the circuit design database into the system, wherein the circuit design database includes a physical placement location of each component within the circuit design and routing information for routes between selected components within the circuit design;

b. extracting means for extracting an RC file from the circuit design database wherein the RC file contains entries that represent the electrical load on selected components within the circuit design;

c. analyzing means for analyzing a number of timing paths within the circuit design wherein said analyzing means calculates the delay of selected components along each of the number of timing paths and sums the delays of the selected components;

d. comparing means coupled to said analyzing means for comparing the delay along a selected timing path with a predefined specification;

e. first drive strength adjust means coupled to said comparing means for substituting selected components along selected timing paths with a corresponding logically equivalent component having a different drive strength; and

f. executing means for executing said extracting means, said analyzing means, said comparing means, and said first drive strength adjust means for a predetermined number of iterations.

5,724,251

SYSTEM AND METHOD FOR DESIGNING, FABRICATING AND TESTING MULTIPLE CELL TEST STRUCTURES TO VALIDATE A CELL LIBRARY

William D. Heavlin, San Francisco, Calif., assignor to Advanced Micro Devices, Inc., Sunnyvale, Calif.

Filed Jun. 7, 1995, Ser. No. 480,788

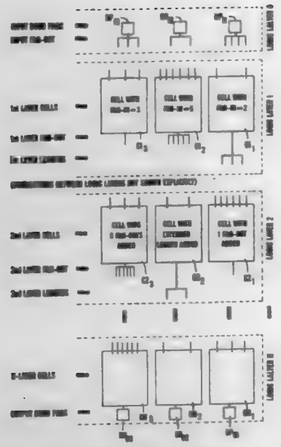
Int. Cl.[6] G06F *17/50*

U.S. Cl. 364—491 **21 Claims**

1. A system for validating a cell library having K number of different logic cells with each logic cell exclusively belonging to one of J logic families, J and K both being positive integers with $J \leqq K$, comprising:

means for forming a schematic of a test structure having N logic layers, where N is a positive integer, each logic layer having a

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plurality of logic cells from the cell library including at least one logic cell from each of the J logic families, outputs of logic cells in a logic layer being connected to inputs of logic cells in an adjacent logic layer;

means for testing the schematic of the test structure to predict signal processing of input signals; and

means for comparing the predicted signal processing for the schematic test structure with actual signal processing measured for a fabricated test structure.

5,724,252

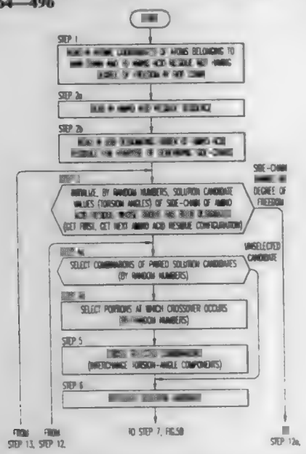
SYSTEM FOR PREDICTION OF PROTEIN SIDE-CHAIN CONFORMATION AND METHOD USING SAME

Hiroshi Iijima, c/o Kirin Beer Kabushiki Kaisha Kiban Gijutsu Kenkyusho, 1-13-5, Fukuura, Kanazawa-ku, Yokohama-shi, Kanagawa-ken, and Yusuke Naito, Bay-city Urayasu I-105, 6-Hinode, Urayasu-shi, Chiba-ken, both of Japan

Filed Dec. 9, 1994, Ser. No. 352,621

Int. Cl.[6] G06F *17/159;* **G01N** *33/00;37/00*

U.S. Cl. 364—496 **8 Claims**



1. A system for predicting protein side-chain conformation having a processor for executing instructions, a storage device for storing data, a random-number generator for generating random numbers, an input unit for entering data and an output unit for outputting data, and provided with a function for predicting side-chain conformation, which is represented by three-dimensional coordinates of atoms constructing the side chain, from a given main-chain conformation of protein, which is represented by three-dimensional coordinates of atoms constructing the main chain of protein, and an amino acid sequence, and a function for analyzing results of prediction, said system comprising:

(a) means for reading the main-chain structure of the protein and an amino acid residue sequence from the storage device in which they have been stored;

(b) means for designating, in a specific order, amino acid residues having the protein side chain to undergo prediction;

(c) means for representing side-chain conformation by side-chain torsion angles and obtaining, from the torsion angles, positions of the atoms constructing the side chains;

(d) means for generating a plurality of solution candidates with regard to side-chain atom positions of a designated amino acid residue;

(e) means for determining, in each side-chain conformation candidate, whether no other atoms are present within the van der Waals radii of each of the protein atoms or, if other atoms are present within the van der Waals radii of each of the protein atoms, determining how close they are;

(f) means for ranking the solution candidates based upon the determination;

(g) means for generating different solution candidates until a solution is obtained in which there are no other atoms present within the van der Waals radii of all protein atoms; and

(h) means for writing interim information that prevails during a prediction operation as well as predicted side-chain conformations in said storage device.

5,724,253

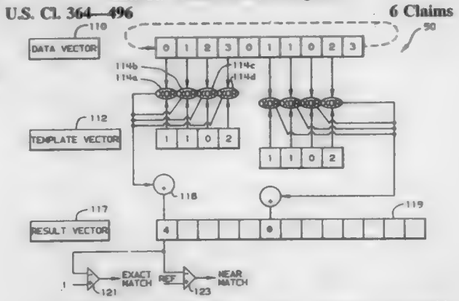
SYSTEM AND METHOD FOR SEARCHING DATA VECTORS SUCH AS GENOMES FOR SPECIFIED TEMPLATE VECTOR

Joseph Francis Skovira, Bighamton, N.Y., assignor to International Business Machines Corporation, Armonk, N.Y.

Filed Mar. 26, 1996, Ser. No. 622,719

Int. Cl.[6] G06F *17/00;* **C12Q** *1/68*

U.S. Cl. 364—496 **6 Claims**



1. A method for comparing a DNA fragment nucleotide sequence with a longer genomic nucleotide sequence, said method comprising the steps of:

representing said genomic nucleotide sequence by a first sequence of digital vector elements;

representing said DNA fragment nucleotide sequence by a second sequence of digital vector elements, said second sequence being shorter than said first sequence;

Exclusive ORing said second sequence with a like size segment of said first sequence, element by element, and Summing the results of the Exclusive ORing, whereby a zero sum indicates a nucleotide match and a nonzero sum indicates a lack of nucleotide match; and

shifting said second sequence one or more elements along said first sequence and repeating the Exclusive ORing and Summing step for the shifted second sequence; and

wherein each of said elements of said first and second sequences is represented by a respective digital value, and the values are assigned such that the result of the Exclusive ORing of said second sequence with each segment of said first sequence yields a value representing the degree of nucleotide mismatch between said DNA fragment nucleotide sequence and a segment of said genomic nucleotide sequence corresponding to said each segment of said first sequence.

5,724,254

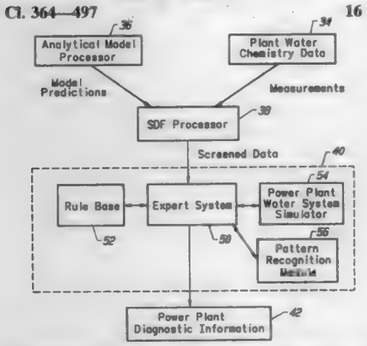
APPARATUS AND METHOD FOR ANALYZING POWER PLANT WATER CHEMISTRY

Peter J. Millett, Half Moon Bay, Calif.; Gary D. Burns, Corapolis, Pa., and Gary E. Brobst, Sebastopol, Calif., assignors to Electric Power Research Institute, Palo Alto, Calif.

Filed Jan. 18, 1996, Ser. No. 588,194

Int. Cl.[6] G01N *33/18*

U.S. Cl. 364—497 **16 Claims**



1. A power plant water chemistry analysis apparatus, comprising:

water chemistry sensors to obtain power plant water chemistry data characterizing the chemical activity of a power plant water system;

an analytical model processor to generate model predictions for said power plant water system; and

an artificial intelligence processor to process said power plant water chemistry data and said model predictions, which in combination constitute over specified system data with more known power plant water chemistry data than unknown model predictions, said artificial intelligence processor generating power plant water chemistry diagnostic information from said over specified system data.

5,724,255

PORTABLE EMERGENCY ACTION SYSTEM FOR CHEMICAL RELEASES

Verne E. Smith, Cheyenne; David C. Sheesley, Laramie; Samuel B. King, Laramie; Thayne K. Routh, Laramie, and John S. Nordin, Laramie, all of Wyo., assignors to The University of Wyoming Research Corporation, Laramie, Wyo.

Filed Aug. 27, 1996, Ser. No. 703,863

Int. Cl.[6] G06F *19/00;* **G08B** *17/30*

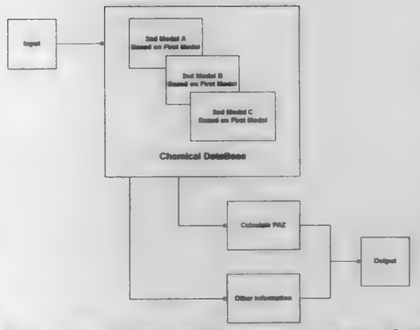
U.S. Cl. 364—500 **74 Claims**

1. An emergency chemical release response method comprising the steps of:

a. accepting an electronic representation of at least a chemical identifier by an electronic calculating element;

b. electronically selecting at least one type of model of response determination from alternative models related to said chemical identifier;

c. utilizing said model in said electronic calculating element;



d. determining a protective action zone through use of said electronic calculating element; and

e. outputting a result of said protective action zone on at least a visual output element connected to said electronic calculating element.

5,724,256

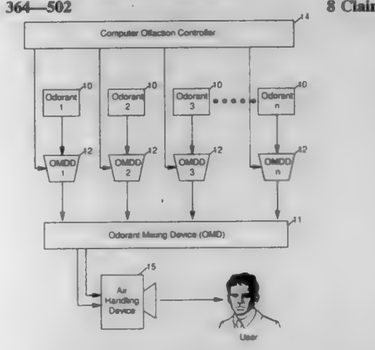
COMPUTER CONTROLLED OLFACTORY MIXER AND DISPENSER FOR USE IN MULTIMEDIA COMPUTER APPLICATIONS

Joseph Kinman Lee, Raleigh, N.C.; James Lee Lentz, Austin, Tex., and Ilya Iosephovich Novof, Essex Junction, Vt., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Jun. 10, 1996, Ser. No. 661,271

Int. Cl.[6] G06F *9/00*

U.S. Cl. 364—502 **8 Claims**



OMDD = Odorant Metering Delivery Device

1. A computer controlled odor mixing and dispensing system comprising:

a hollow member having at least one opening in each of two spaced surfaces to define a fluid inlet and a fluid outlet;

a plurality of containers each suitable for storing a different odorant arranged in an array and mounted in said hollow member proximate the opening defining the said fluid inlet;

a plurality of controllable delivering means, one connected to each of said plurality of containers, for controlling, in response to control signals supplied by a computer, the volume of odorant dispensed from its associated container;

a moving absorptive porus member mounted in said hollow member for receiving the odorants dispensed by said controllable metering delivery means; and,

fluid pumping means mounted in said hollow member for establishing a fluid flow between said inlet and said outlet and through said moving absorptive porus member whereby odor-

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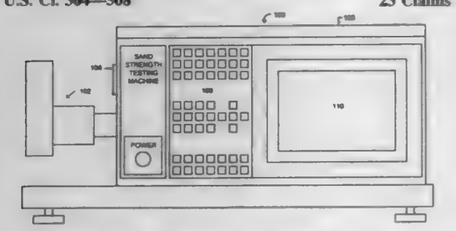
ants deposited on the said moving absorptive porus member are mixed by said fluid flow and motion and expelled at said fluid outlet.

5,724,257

FOUNDRY SAND TESTING APPARATUS AND SYSTEM

Ricardo Mario Gerosa; Horacio Marcelo Gerosa, both of Rosario, Argentina, and Scott M. Strobl, Aurora, Ill., assignors to Simpson Technologies Corporation, Aurora, Ill.

Filed Apr. 19, 1996, Ser. No. 635,291
Int. Cl.[6] G01N *3/00;3/08;5/02*
U.S. Cl. 364—508 **23 Claims**



1. A system for testing foundry sand comprising:

sensor means for sensing strength and strain characteristics of said foundry sand responsive to an applied force to a sample of said foundry sand and for generating a strength representative signal and a strain representative signal;

processor means coupled to said sensor means for processing said generated strength and strain representative signals; said processor means includes means for receiving a user calibration selection, and means responsive to said user calibration selection for receiving user selected calibration adjustments; and

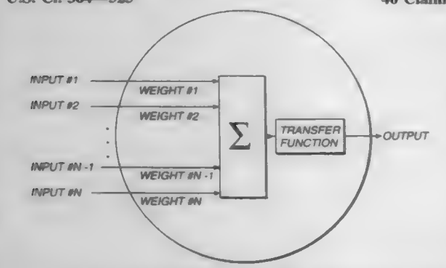
display means coupled to and operatively controlled by said processor means for displaying a stress-strain curve responsive to said generated strength and strain representative signals.

5,724,258

NEURAL NETWORK ANALYSIS FOR MULTIFOCAL CONTACT LENS DESIGN

Jeffrey H. Roffman, Jacksonville, Fla., assignor to Johnson & Johnson Vision Products, Inc., Jacksonville, Fla.

Filed May 9, 1996, Ser. No. 647,005
Int. Cl.[6] G02C *7/04;* **B29D** *11/00;* **A61F** *2/16*
U.S. Cl. 364—525 **40 Claims**



1. A method of optimizing optical designs involving a plurality of design variables, said method comprising:

(a) identifying predetermined optical design parameters relevant to a predetermined optical refractive condition;

(b) forming optical lenses utilizing one or more of said optical design parameters for use in clinical evaluations each such evaluation providing visual acuity data and subjective response ratings for a defined number of patients having said optical refractive condition;

(c) inputting said optical design parameters and related patient parameters as input components, and said visual acuity data and said subjective response ratings as output components into a neural network;

(d) training said neural network to model significant relationships between said input components and said output components to thereby produce a trained neural network;

(e) isolating and inputting one or more specific design parameters for evaluation by said trained neural network to predict visual acuity and subjective response as a function of said specific design parameter; and

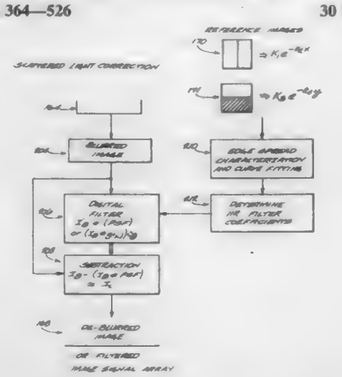
(f) integrating one or more of said predictions to determine the optimal optical design to correct said optical refractive condition.

5,724,259

SYSTEM AND METHOD FOR MONITORING COLOR IN A PRINTING PRESS

John C. Seymour, Jefferson; Jeffrey P. Rappette, Waukesha; Frank N. Vroman, Cedarburg; Chia-Lin Chu, Brookfield; Bradly S. Moersfelder, Waukesha; Michael A. Gill, Oconomowoc, and Karl R. Voss, Wauwatosa, all of Wis., assignors to Quad/Tech, Inc., Sussex, Wis.

Filed May 4, 1995, Ser. No. 434,928
Int. Cl.[6] G01N *21/47;21/88;* **G06F** *15/00*
U.S. Cl. 364—526 **30 Claims**



1. A method for monitoring color quality of a printed image printed on a substrate, the method comprising the steps of:

positioning a camera assembly to receive light reflected from the printed image on the substrate, the camera assembly including a means for producing a signal;

transmitting the signal from the camera assembly to a computer; and

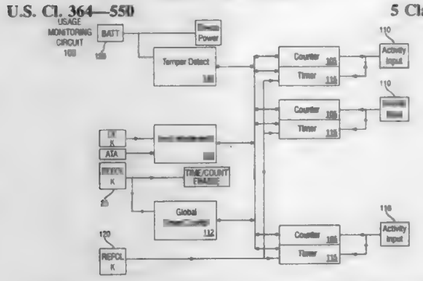
processing the signal in the computer, the step of processing the signal in the computer including the steps of digitizing the signal to produce a digitized array and correcting the digitized array for the effects of scattered light wherein the step of correcting the digitized array includes the step of digitally filtering the digitized array, and wherein the step of digitally filtering the digitized array includes the step of using an exponential function to model the optical response of the camera assembly.

5,724,260

CIRCUIT FOR MONITORING THE USAGE OF COMPONENTS WITHIN A COMPUTER SYSTEM

Dean A. Klein, Lake City, Minn., assignor to Micron Electronics, Inc., Nampa, Id.

Filed Sep. 6, 1995, Ser. No. 524,330
Int. Cl.[6] G06F *11/34*
U.S. Cl. 364—550 **5 Claims**



1. A usage monitor circuit for a computer system having a system power supply and further having a plurality of components, referred to as monitored components, said monitored components being configured to be selectively activated, said usage monitor circuit comprising:

(a) a plurality of monitor units respectively associated with said monitored components, each said monitor unit comprising (1) a counter unit, and (2) a timer unit;

(b) each said monitor unit being connected to receive a series of activity input signals, each indicating that the respective monitored component is activated, and to record the number and cumulative duration of the activity input signals so received in a nonvolatile data store;

(c) a global activity monitor unit connected to receive one or more applications of system power and to record the number and cumulative duration of said one or more applications of system power in a nonvolatile data store; and

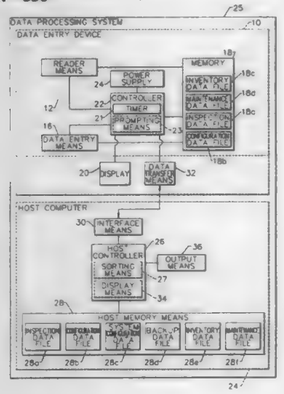
(d) a tamper detection unit.

5,724,261

DATA PROCESSING SYSTEM AND METHOD FOR COMPILING DATA DURING PROPERTY INSPECTION AND MAINTENANCE OPERATIONS

Joseph Paul Denny, Greer, S.C.; Edward Wallace Sternagle, and Kenneth Scott Allman, both of Charlotte, N.C., assignors to Rent Roll, Inc., Carrollton, Tex.

Filed Feb. 5, 1996, Ser. No. 596,640
Int. Cl.[6] G06F *15/46;15/21*
U.S. Cl. 364—550 **40 Claims**



1. A property inspection data entry device for compiling inspection data during the inspection of a property, wherein said inspection data includes data relating to the relative condition of the property, and wherein the property inspection data entry device comprising:

reader means, responsive to one or more labels associated with the property which includes indicia representative of predetermined characteristics of the property, for receiving inspection data relating to the predetermined characteristics of the property;

data entry means, responsive to actuation by an operator of the property inspection data entry device, for receiving additional inspection data relating to the property including data relating to the relative condition of the property;

memory means, responsive to both said reader means and said data entry means, for storing the inspection data relating to the property received by both said reader means and said data entry means; and

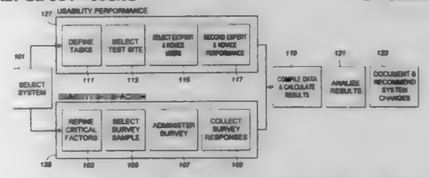
controller means, responsive to said reader means and said data entry means, for identifying data relating to the relative condition of the property which fails to meet a predetermined criteria.

5,724,262

METHOD FOR MEASURING THE USABILITY OF A SYSTEM AND FOR TASK ANALYSIS AND RE-ENGINEERING

Bahador Ghahramani, Long Valley, N.J., assignor to Paradyne Corporation, Largo, Fla.

Continuation-in-part of Ser. No. 251,079, May 31, 1994, abandoned. This application Oct. 11, 1994, Ser. No. 320,810
Int. Cl.[6] G09B *7/00*
U.S. Cl. 364—551.01 **19 Claims**



1. A method for task analysis and re-engineering of a system, said system including means for performing a task, said task including at least one step, said method comprising the steps of:

measuring usability of said system to provide quantitative measurements of said task for a population of users, wherein the quantitative measurements include a time characteristic that is computed by converting time segments into a digital performance time, and a satisfaction characteristic of the users;

determining a population statistical index for a set of said population according to values based on said quantitative measurements, wherein the population statistical indexes are based on the variance between said quantitative measurements;

determining a comparable statistical index for each of a plurality of subsets of said set of said population;

processing said comparable statistical index for the plurality of subsets to identify a feature for re-engineering.

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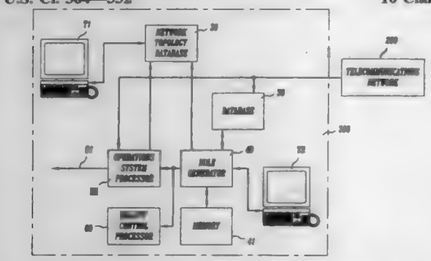
AUTOMATIC TEMPOROSPATIAL PATTERN ANALYSIS AND PREDICTION IN A TELECOMMUNICATIONS NETWORK USING RULE INDUCTION

Sasisekharan Raguram, Somerset; V. Seshadri, Lincroft, and Sholom M. Weiss, Highland Park, all of N.J., assignors to AT&T Corp, Middletown, N.J.

Continuation of Ser. No. 587,062, Jan. 6, 1996, abandoned, which is a continuation of Ser. No. 140,780, Oct. 21, 1993, abandoned. This application May 30, 1997, Ser. No. 866,047

Int. Cl.[6] G06F *15/18*

U.S. Cl. 364—552 10 Claims



1. A method of processing particular data generated by a telecommunications system, said particular data being indicative of different types of events that occurred in said telecommunication system, said method comprising the steps of:

obtaining said particular data from said telecommunications system,

segmenting said particular data into a plurality of groups,

processing said particular data contained within at least a first group of said plurality of groups and automatically generating values for respective predetermined measurements,

independently generating at least one rule set as a function of said predetermined measurements, and

processing said particular data in said first group using said at least one rule set to identify said different types of events and to predict measurements in at least a second group.

5,724,264

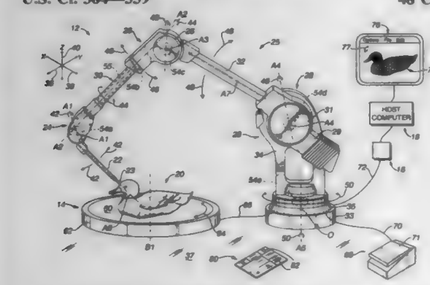
METHOD AND APPARATUS FOR TRACKING THE POSITION AND ORIENTATION OF A STYLUS AND FOR DIGITIZING A 3-D OBJECT

Louis B. Rosenberg, Pleasanton; Bruce M. Schena, Menlo Park, and Bernard G. Jackson, Atherton, all of Calif., assignors to Immersion Human Interface Corp., San Jose, Calif.

Continuation-in-part of Ser. No. 461,170, Jun. 5, 1995, Pat. No. 5,576,727, and a continuation of Ser. No. 92,974, Jul. 16, 1993. This application Aug. 7, 1995, Ser. No. 512,084

Int. Cl.[6] G01B *7/008*

U.S. Cl. 364—559 48 Claims



1. A method for locating the position and orientation of a rotary table apparatus with reference to a probe apparatus, said rotary table and said probe apparatus used for measuring three-dimensional geometry of an object placed on a surface of said rotary table, the method comprising:

providing a base portion of said rotary table apparatus on a first surface;

providing a base of said probe apparatus on said first surface, said probe apparatus including a probe connected to said base of said probe apparatus by an arm linkage including rotary joints that allow said probe to move in multiple degrees of freedom;

placing a tip of said probe of said probe apparatus on a fixed location of a turntable portion of said rotary table apparatus;

rotating said turntable portion of said rotary table apparatus while maintaining said probe at said fixed location on said turntable portion such that said fixed location and said probe are moved through a plurality of angular positions in at least a portion of a circle;

sampling data from sensors included in said joints of said arm linkage of said probe apparatus as said turntable is rotated, said data including representations of a position and an orientation of said probe at a plurality of different angular positions of said turntable portion;

detecting a change in angular positions of said turntable portion with respect to said base portion as said turntable is rotated; and

determining the position and orientation of said surface of said rotary table apparatus relative to said base portion of said probe apparatus, said position and orientation being determined utilizing said data sampled at said plurality of different angular positions of said turntable portion from said probe sensors and utilizing said detected change in said angular positions of said turntable portion, thereby allowing new rotary positions of said object to be known during said measuring of said three-dimensional geometry of said object after said rotary table and said object have been rotated during said measuring.

5,724,265

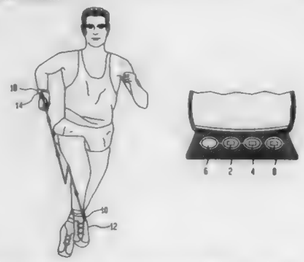
SYSTEM AND METHOD FOR MEASURING MOVEMENT OF OBJECTS

Lawrence J. Hutchings, 18729 Brickell Way, Castro Valley, Calif. 94546

Filed Dec. 12, 1995, Ser. No. 570,759

Int. Cl.[6] G01C *22/00*

U.S. Cl. 364—565 22 Claims



1. A system for measuring the speed of a person, said system comprising:

a plurality of accelerometers and rotational sensors disposed in the shoe of said person, said accelerometers configured so as to provide acceleration signals corresponding to accelerations associated with the movement of said shoe as said person takes a step, said rotational sensors configured so as to provide angular signals corresponding to the angle of said shoe about an axis of a three dimensional translational coordinate;

a calculator coupled to said accelerometers and said rotational sensors configured so as to receive said acceleration signals and said angular signals, said calculator adapted to measure the distance traversed during each step and the speed of said person.

5,724,266

AUTOMATIC INITIALIZATION METHOD APPLIED TO DEVICE FOR DETECTING PNEUMATIC ABNORMALITIES ON THE BASIS OF VARIATIONS IN ANGULAR VELOCITY OF TIRE

Yoshikazu Kishimoto, Kakogawa, and Minao Yanase, Kobe, both of Japan, assignors to Sumitomo Rubber Industries, Ltd., Hyogo-ken, Japan

Continuation of Ser. No. 169,174, Dec. 20, 1993, abandoned. This application Apr. 30, 1996, Ser. No. 641,265

Claims priority, application Japan, Dec. 21, 1992, 4-339998

Int. Cl.[6] B60C *23/00*

U.S. Cl. 364—566 3 Claims

3. An automatic initialization method in a device for detecting pneumatic abnormality of a tire on the basis of variations of angular velocity of the tire wherein angular velocities of tires are relatively compared with one another and if a predetermined difference exists an alarm for tire deflation is issued, comprising the steps of:

measuring and monitoring acceleration of a vehicle in the lateral direction,

measuring and monitoring a steering addle of the vehicle,

obtaining for each tire **1**, **2**, **3** and **4**, under normal tire pressure, an angular velocity of rotation A, B, C and D, respectively, and only using the data of angular velocity of rotation of each corresponding tire when the acceleration in the lateral direction ranges from −0.03 g to +0.03 g and the steering angle of the vehicle ranges from −15° to +15°, and

obtaining a correction value for each tire Ac, Bc, Cc and Dc from the angular velocity of rotation A, B, C and D of corresponding tire **1**, **2**, **3** and **4**, respectively, on the basis of the following formulas:

Ac=A/A

Bc=A/B

Cc=A/C

Dc=A/D

wherein the device is so designed to relatively compare Ac × A'; Bc×B'; Cc×C' and Dc×D', A', B', C' and D' being defined as angular velocities of rotation detected for each corresponding tire, respectively, when the vehicle is running.

5,724,267

WEIGHT MEASURING APPARATUS USING A PLURALITY OF SENSORS

James L. Richards, 58 Boning Rd., Fayetteville, Tenn. 37334

Filed Jul. 2, 1996, Ser. No. 674,343

Int. Cl.[6] G01G *7/00*

U.S. Cl. 364—567 22 Claims

1. A weighing apparatus for measuring a load weight, the apparatus comprising:

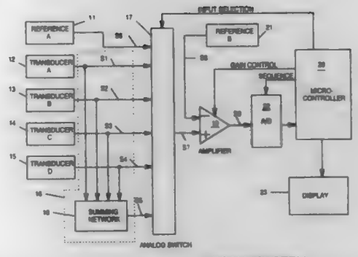
a plurality of load sensing transducers each producing an output;

a switching means connected to receive the sensing transducer outputs for selecting a predetermined sequence of the transducer outputs;

converting means following the switching means for converting the output sequence to a digital representation;

processing means coupled to the converting means for processing the digital representation to derive a weight measurement result; and

means for providing a reference signal to the processing means, wherein the processing means includes means for utilizing the



SCALE SYSTEM

digital representation of the output sequence together with a system error model to derive a corrected weight measurement result thereby for reducing errors in the derived weight result.

5,724,268

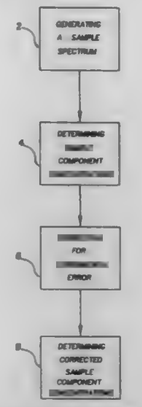
APPARATUS AND METHODS FOR THE ANALYTICAL DETERMINATION OF SAMPLE COMPONENT CONCENTRATIONS THAT ACCOUNT FOR EXPERIMENTAL ERROR

Lester Sodickson, Waban, and Ronald S. Schariack, Brookline, both of Mass., assignors to Chiron Diagnostics Corporation, W. Walpole, Mass.

Filed Jun. 29, 1995, Ser. No. 496,724

Int. Cl.[6] G06F *17/11*; G01N *21/84*

U.S. Cl. 364—571.02 18 Claims



1. An improved method of determining the concentrations of one or more components of an analytical sample from an observed spectrum estimated by

$$Y_{obs}(\omega)=P(\omega)\cdot C,$$

wherein Y_{obs}, is a vector whose "m" elements are the magnitudes of the observed spectrum at each value of an independent variable ω, C is the vector whose 37 n" elements are the estimated concentrations of "n" components that contribute to the measured spectrum, and P is a "m×n" matrix whose elements are the magnitudes of the contribution to the spectrum of each of "n" components at each of the "m" values of the independent variable ω, wherein the method comprises generating a sample spectrum from which the concentrations of the sample components are determined and determining the sample concentrations from the spectrum, the improvement comprising correcting for experimental error by modeling the experimental error as "r" types of errors given by the product ξ·K where K is a vector whose "r" elements are the magnitudes of each of the "r" types of experimental errors and ξ is an "m×r" matrix whose elements are the relative errors at each

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value of ω for each type of experimental error, adding the product $\xi \cdot K$ to the estimated spectrum as

$$Y_{obs}(\omega)=P(\omega)\cdot C+\xi\cdot K$$

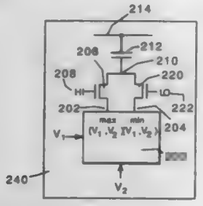
and solving for the best fit values of C and K, wherein "n" and "r" are integers each greater or equal to 1 and "m" is an integer at least "n+r".

5,724,269

SINGLE CLOCK CYCLE TWO-DIMENSIONAL MEDIAN FILTER

Volnei A. Pedroni, Pasadena, and Amnon Yariv, San Marino, both of Calif., assignors to California Institute of Technology, Pasadena, Calif.

Filed Aug. 14, 1995, Ser. No. 514,626
Int. Cl.[6] G06F *17/00*
U.S. Cl. 364—572 13 Claims



7. A median filter comprising:

a plurality of cells, said cells arranged such that each cell receives a value to be compared and a possible median among a plurality of median values to be compared against, each cell selectively producing a highest voltage among its values to be compared and said plurality of median values, and the lowest voltage among said value to be compared and said median values;

a plurality of first elements, each of which produces an output voltage indicative of a difference between said highest and lowest voltages; and

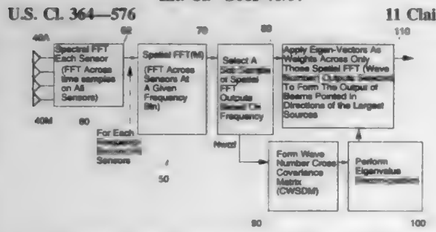
a circuit element which determines smallest differences between said highest and lowest voltages to identify the proper median among said plurality of medians.

5,724,270

WAVE-NUMBER-FREQUENCY ADAPTIVE BEAMFORMING

Theodore E. Posch, deceased, late of Fullerton, Calif., by Theodore E. Posch, executor, assignor to HE Holdings, Inc., Los Angeles, Calif.

Filed Aug. 26, 1996, Ser. No. 703,235
Int. Cl.[6] G06F *15/31*
U.S. Cl. 364—576 11 Claims



1. A method for wave-number-frequency adaptive beam forming using the sensor outputs from a linear array of sensors, comprising the following steps:

performing a spectral Fast Fourier Transform (FFT) on time samples of the sensor outputs for each sensor to produce frequency bin outputs;

performing a spatial FFT across the sensors at a given frequency bin to enter the wave number space and generate Nw independent spatial wave number beams;

selecting a subsample of spatial FFT outputs based on frequency and then selecting a subsample of spatial FFT outputs based on frequency and then forming a cross-covariance matrix from the spatial wave number beams;

performing an eigenvalue decomposition of the cross-covariance matrix to determine a set of eigenvectors; and

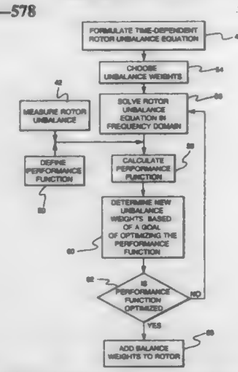
applying the set of eigenvectors as weights to the spatial wave number beams to form output beams.

5,724,271

MODEL-BASED METHOD FOR OPTIMIZED FIELD BALANCING OF ROTATING MACHINERY

Raymond John Bankert, Greenville, S.C., and Harindra Rajiyah, Clifton Park, N.Y., assignors to General Electric Company, Schenectady, N.Y.

Continuation-in-part of Ser. No. 217,825, Mar. 25, 1994, abandoned. This application Dec. 13, 1995, Ser. No. 571,791
Int. Cl.[6] G01M *1/16*
U.S. Cl. 364—578 3 Claims



1. A method for balancing a rotatable machine having a steady-state rotational speed, a generally longitudinally extending rotor, and a generally longitudinal axis, the method comprising the steps of:

a) measuring at said steady-state rotational speed the vibrational displacement of said rotor of said machine with respect to said axis at a plurality of first axial locations along said rotor;

b) formulating an equation for a rotordynamic computer model of said machine based on finite element analysis relating at said steady-state rotational speed the vibrational displacement of said rotor of said model with respect to said axis at a plurality of second axial locations along said rotor as a time-dependent function of the centrifugal forces applied to said machine by adding an unbalance weight at each of a plurality of third axial locations along said rotor, wherein each said unbalance weight has a mass and an off-axial location, and wherein said plurality of second axial locations includes said plurality of first axial locations and said plurality of third axial locations;

c) defining a performance function in the frequency domain which includes the sum of the squares of the difference between the vibrational displacement of said rotor of said machine and the vibrational displacement of said rotor of said model at said plurality of first axial locations;

d) choosing a value for the mass and the off-axial location for each said unbalance weight at said plurality of third axial locations;

e) solving said equation in the frequency domain for the vibrational displacement of said rotor of said model at said plurality of second axial locations;

f) calculating said performance function;

g) determining new values for the mass and the off-axial location of each said unbalance weight based on a goal of optimizing said performance function;

h) repeating steps e) through g) until said performance function is optimized; and

i) adding balance weights to said machine which are the reverse of said unbalance weights when said performance function is optimized,

wherein step b) includes the step of formulating said equation in terms which include the vibrational displacement of said rotor of said model and its first and second time derivatives, and

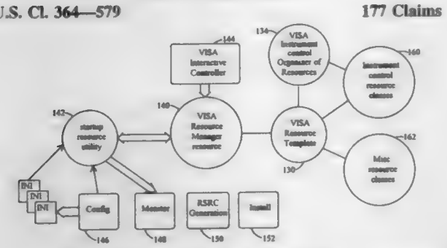
wherein step b) includes the step of deriving a stiffness matrix which operates on the vibrational displacement of said rotor of said model, a damping matrix which operates on the first time derivative of the vibrational displacement of said rotor of said model, and a mass matrix which operates on the second time derivative of the vibrational displacement of said rotor of said model.

5,724,272

METHOD AND APPARATUS FOR CONTROLLING AN INSTRUMENTATION SYSTEM

Bob Mitchell; Hugo Andrade; Jogen Pathak; Samson DeKey; Abhay Shah, and Todd Brower, all of Travis County, Tex., assignors to National Instruments Corporation, Austin, Tex.

Filed May 4, 1994, Ser. No. 238,480
Int. Cl.[6] G06F *19/00*
U.S. Cl. 364—579 177 Claims



1. An instrumentation system for controlling one or more instruments, wherein the instrumentation system comprises:

a computer system including a central processing unit and memory;

one or more instruments coupled to the computer system;

at least one input/output interface coupled between the computer system and said instruments, wherein the at least one input/output interface type used in said instrumentation system comprises one or more of the group consisting of VXI, GPIB, and serial;

a plurality of instrument control resource classes stored in the memory of the computer system which provide functionality for controlling instrument device capabilities of said one or more instruments;

a plurality of instrument control resources stored in the memory of the computer system for controlling instrument device capabilities of said one or more instruments, wherein said plurality of instrument control resources inherit functionality from said plurality of instrument control resource classes, wherein said plurality of instrument control resources are based on the at least one input/output interface and said one or more instruments comprised in said instrumentation system;

a resource manager stored in the memory of the computer system for providing user control, communication and access to said plurality of instrument control resources, wherein said resource manager maintains a data structure comprising information on said instrument control resources; and

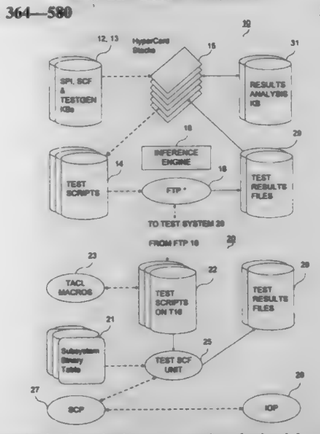
an instrumentation control program stored in the memory of the computer system using one or more of said plurality of instrument control resources, wherein said instrumentation control program controls the instrumentation system, wherein said instrumentation control program executes regardless of said input/output interface type used in said instrumentation system.

5,724,273

METHOD AND APPARATUS FOR ANALYZING TEST RESULTS OBTAINED BY APPLYING A BINARY TABLE AND A SUITE OF TEST SCRIPTS TO A TEST SUBSYSTEM CONTROL FACILITY FOR A DISTRIBUTED SYSTEMS NETWORK

Marc Desgrousilliers, Campbell; Gregory H. Henderson, Los Gatos, and Jane S. Prugsanapan, San Jose, all of Calif., assignors to Tandem Computers Incorporated, Cupertino, Calif.

Division of Ser. No. 326,771, Oct. 20, 1994. This application Dec. 6, 1994, Ser. No. 350,230
Int. Cl.[6] G06F *17/00;9/455*
U.S. Cl. 364—580 27 Claims



8. A method of analyzing test results obtained by applying a binary table and a suite of test scripts to a test subsystem control facility for a distributed systems network, said binary table expressing a proposed set of requirements for a proposed subsystem control facility and said suite of test scripts being prepared from a first knowledgebase containing test generation information relating to a predetermined set of subsystem requirements, said method comprising the steps of:

(a) providing a second knowledgebase containing said predetermined set of subsystem requirements;

(b) comparing the test results with said predetermined set of subsystem requirements in said second knowledgebase, said step of comparing including the step of selecting individual test results for analysis; and

(c) indicating the relative conformance of said proposed set of requirements with said predetermined set of subsystem requirements.

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PERSONAL COMPUTER MODULE SYSTEM AND METHOD OF USING

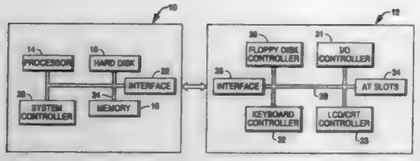
Richard Nelson, Butte, Mont., and Frank Liebenow, Greer, S.C., assignors to NCR Corporation, Dayton, Ohio

Continuation of Ser. No. 157,247, Nov. 22, 1993, Pat. No. 5,436,857. This application Jun. 20, 1995, Ser. No. 493,185
Int. Cl.[6] G06F *1//16*
U.S. Cl. 364—708.1 3 Claims

1. A personal computer system, comprising:

a portable personal computer base unit having a receptacle for receiving a data processing module;

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a desktop personal computer base unit having a receptacle for receiving said data processing module; and

a data processing module which can be placed in the receptacle of either the portable personal computer or the desktop personal computer base unit and operatively engaged with the respective base unit to provide an operable personal computer.

5,724,275

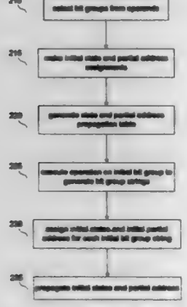
FAST MULTI-OPERAND BIT PATTERN DETECTION METHOD AND CIRCUIT

Shine Chien Chung, San Jose, Calif., assignor to Hitachi Microsystems, Inc., San Jose, Calif.

Filed Mar. 22, 1996, Ser. No. 620,370

Int. Cl.[6] G06F *7/00*

U.S. Cl. 364—715.1 **20 Claims**



1. A process for detecting a bit pattern in the result of an operation on at least a first operand and a second operand, each operand having a plurality of data bits in bit positions, the process comprising the steps of:

receiving with a circuit a plurality of bit groups from the operands, the bit groups comprising data bits from identical bit positions from each operand;

executing with the circuit the operation on each bit group for generating bit strings, each bit string corresponding to one bit group;

assigning with the circuit a predetermined corresponding initial state and a predetermined corresponding initial partial address for each bit string; and

propagating with the circuit the initial states and initial partial addresses for generating a final state and a final address representative of the bit pattern by concatenation of the initial states and selection of the initial partial addresses.

5,724,276

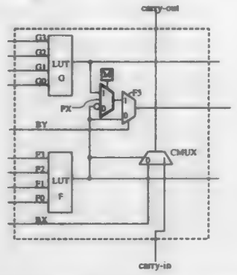
LOGIC BLOCK STRUCTURE OPTIMIZED FOR SUM GENERATION

Jonathan S. Rose, Palo Alto, and Trevor J. Bauer, Campbell, both of Calif., assignors to Xilinx, Inc., San Jose, Calif.

Filed Jun. 17, 1996, Ser. No. 664,628

Int. Cl.[6] G06F *7/50*

U.S. Cl. 364—716.06 **3 Claims**



1. A field programmable gate array (FPGA) logic block structure comprising:

a first multiplexer having at least two data inputs and at least one control input;

a second multiplexer having at least two data inputs and at least one control input, said second multiplexer providing a first data input to said first multiplexer;

a first lookup table having a plurality of inputs, said first lookup table providing true and complement output signals, one as a second data input to said first multiplexer and one as a first data input to said second multiplexer;

a second lookup table having a plurality of inputs, said second lookup table providing a second data input to said second multiplexer; and

a plurality of lines accessible from a general interconnect structure of an FPGA, one of said lines providing a control input to said first multiplexer, and other of said lines providing said inputs to said first and second lookup tables.

5,724,277

BACKGROUND NOISE GENERATING APPARATUS

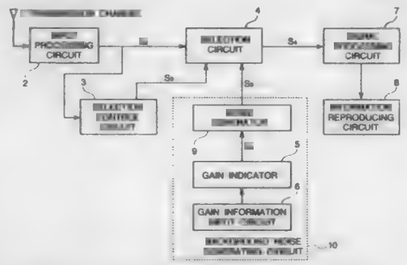
Masashi Nakagawa, Tokyo, Japan, assignor to NEC Corporation, Tokyo, Japan

Filed Dec. 6, 1995, Ser. No. 568,233

Claims priority, application Japan, Dec. 6, 1994, 6-301943

Int. Cl.[6] G06F *1/02*

U.S. Cl. 364—124.17 **7 Claims**



1. A background noise generating apparatus comprising:

a first input circuit for receiving a level control information;

a level control circuit receiving an output of said first input circuit and controlled by a first clock so as to output a level control signal in accordance with said output of said first input circuit;

a random number generator receiving a second clock different from said first clock, for generating a random data;

a logic gate receiving said random data and said level control signal during a first period in accordance with said second clock, for generating a predetermined logic value signal;

a selection controller, receiving said second clock, for outputting a predetermined selection control signal in synchronism with said second clock; and

a selection circuit for receiving said logic value signal outputted from said logic gate, for selectively supplying said logic value signal of said logic gate during said first period in accordance with said selection control signal from said selection controller.

5,724,278

APPARATUS FOR INVERSE DISCRETE COSINE TRANSFORM

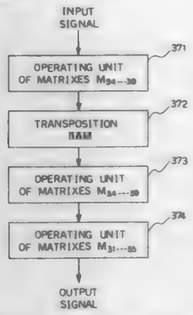
Hideyuki Ohgose, Neyagawa, and Takatoshi Nada, Tsuzuki-gun, both of Japan, assignors to Matsushita Electric Industrial Co., Ltd., Osaka-fu, Japan

Filed Dec. 6, 1995, Ser. No. 568,096

Claims priority, application Japan, Dec. 6, 1994, 6-301872; Oct. 26, 1995, 7-278947

Int. Cl.[6] G06F *17/14*

U.S. Cl. 364—725.02 **6 Claims**



3. An inverse discrete cosine transform apparatus for carrying out two-dimensional inverse discrete cosine transform by using a row-column transform method in which a one-dimensional inverse discrete cosine transform is carried out with respect to row direction and column direction of a two-dimensional input signal and a two-dimensional output signal is output, the apparatus comprising:

an operating unit of matrixes M_{34}–M_{39} for carrying out in row direction a rearrangement operation according to a first operation matrix M_{39}, an addition and subtraction operation according to a second operation matrix M_{38}, a multiplication operation according to a third operation matrix M_{37}, an addition and subtraction operation according to a fourth operation matrix M_{36}, a multiplication operation according to a fifth operation matrix M_{35}, and an addition and subtraction operation according to a sixth operation matrix M_{34},

a transposition part for holding output data of said operation unit of matrixes M_{34}–M_{39} and outputting said output data by interchanging row and column,

an operating unit of matrixes M_{34}–M_{39} for carrying out in column direction a rearrangement operation according to the first operation matrix M_{39}, an addition and subtraction operation according to the second operation matrix M_{38}, a multiplication operation according to the third operation matrix M_{37}, an addition and subtraction operation according to the fourth operation matrix M_{36}, a multiplication operation according to the fifth operation matrix M_{35}, and an addition and subtraction operation according to the sixth operation matrix M_{34},

an operating unit of matrixes M_{31}–M_{33} of two-dimensional operation for carrying out a multiplication operation according to an operation matrix obtained by deriving a tensor product from a seventh operation matrix M_{33}, a multiplication operation according to an operation matrix obtained by deriving a tensor product from an eighth operation matrix M_{32}, and an addition and subtraction operation according to an operation matrix obtained by deriving a tensor product from a ninth operation matrix M_{31}, so that the two-dimensional inverse discrete cosine transform is carried out by combining a row-column transposition method and the two-dimensional operation by tensor product on the basis of one-dimensional inverse discrete cosine transforms represented by the following equation:

$$\begin{bmatrix} y_0 \\ y_1 \\ y_2 \\ y_3 \\ y_4 \\ y_5 \\ y_6 \\ y_7 \end{bmatrix} = \frac{1}{2} M_{31} \begin{bmatrix} 1 & \square & 0 & 0 & 1 & 0 & 0 & 0 \\ 0 & 1 & \square & 0 & 0 & 1 & 0 & 0 \\ \square & 0 & 1 & 0 & 0 & \square & 1 & \square \\ 0 & 0 & 0 & 1 & \square & 0 & \square & 1 \\ \square & \square & 0 & 1 & 0 & \square & \square & -1 \\ \square & 0 & 1 & \square & 0 & 0 & -1 & 0 \\ 0 & 1 & \square & \square & \square & -1 & \square & \square \\ 1 & 0 & 0 & \square & -1 & \square & \square & 0 \end{bmatrix}$$

$$M_{32} \begin{bmatrix} 1 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 1 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 1 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 1 & 0 & 0 & 0 & 0 \\ \square & 0 & \square & \square & \frac{1}{2c_1} & \square & \square & 0 \\ \square & \square & 0 & \square & \square & \frac{1}{2c_3} & \square & 0 \\ 0 & \square & \square & \square & 0 & 0 & \frac{1}{2c_5} & 0 \\ 0 & 0 & 0 & 0 & \square & 0 & 0 & \frac{1}{2c_7} \end{bmatrix}$$

$$M_{33} \begin{bmatrix} c_4 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & c_4 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & c_4 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & c_4 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & c_4 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & c_4 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & c_4 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & c_4 \end{bmatrix}$$

$$M_{34} \begin{bmatrix} 1 & 0 & 0 & 1 & 0 & 0 & 0 & 0 \\ 0 & 1 & 1 & 0 & 0 & 0 & 0 & 0 \\ 0 & 1 & -1 & 0 & 0 & 0 & 0 & 0 \\ 1 & 0 & 0 & -1 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 1 & 0 & 0 & 1 \\ 0 & 0 & 0 & 0 & \square & 1 & 1 & 0 \\ 0 & 0 & 0 & 0 & 0 & 1 & -1 & 0 \\ 0 & 0 & 0 & 0 & 1 & 0 & 0 & -1 \end{bmatrix}$$

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-continued

M_{35}

$$\begin{bmatrix} 1 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 1 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & \frac{1}{2c_6} & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & \frac{1}{2c_2} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 1 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 1 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & \frac{1}{2c_6} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{1}{2c_2} \end{bmatrix}$$

M_{36}

$$\begin{bmatrix} 1 & 1 & 0 & 0 & 0 & 0 & 0 & 0 \\ 1 & -1 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 1 & -1 & 0 & 0 & 0 & 0 \\ 0 & 0 & 1 & 1 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 1 & 1 & 0 & 0 \\ 0 & 0 & 0 & 0 & 1 & -1 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 1 & -1 \\ 0 & 0 & 0 & 0 & 0 & 0 & 1 & 1 \end{bmatrix}$$

M_{37}

$$\begin{bmatrix} 1 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 1 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 2c_4 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 1 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 2c_4 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 1 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 2c_4 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 1 \end{bmatrix}$$

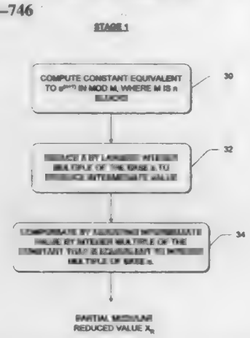
M_{38}

$$\begin{bmatrix} 1 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 1 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 1 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 1 & 1 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 1 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 1 & 1 & 0 \\ 0 & 0 & 0 & 0 & 1 & 1 & 0 & 0 \\ 0 & 0 & 0 & 0 & 1 & 1 & 1 & 1 \end{bmatrix}$$

M_{39}

$$\begin{bmatrix} 1 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 1 & 0 & 0 & 0 \\ 0 & 0 & 1 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 1 & 0 \\ 0 & 1 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 1 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 1 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 1 \end{bmatrix} \begin{bmatrix} x_0 \\ x_1 \\ x_2 \\ x_3 \\ x_4 \\ x_5 \\ x_6 \\ x_7 \end{bmatrix}$$

5,724,279
COMPUTER-IMPLEMENTED METHOD AND COMPUTER FOR PERFORMING MODULAR REDUCTION
Josh Benaloh, Redmond, and Wei Dai, Bellevue, both of Wash., assignors to Microsoft Corporation, Redmond, Wash.
Filed Aug. 25, 1995, Ser. No. 519,600
Int. Cl.[6] G06F *7/38*
U.S. Cl. 364—746 **50 Claims**

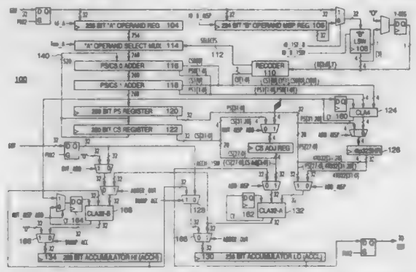


1. In an electronic system involving transmission of data over a network between two computing units, a computer-implemented method comprising the following steps:

sending data from one computing unit to another; and

processing the data at one of the computing units using a modular reduction operation "X mod M," where X is a number with k+1 blocks written in base α, $X=<x_k x_{k-1} \cdots x_1 x_0>$, and M is a modulus having n blocks, $M=<m_{n-1} m_{n-2} \cdots m_1 m_0>$, and n<k+1, said processing step comprising defining a constant U that is equal to α^{n+1} mod M, reducing the number X by an integer multiple of α^{n+1} to yield an intermediate value that is less than the number X but greater than zero, and compensating for reduction of the number X by adjusting the intermediate value by an amount that is one of (1) an integer multiple of the constant U or (2) an integer multiple of a constant V, where V=M−U, to yield an incrementally reduced value X_R that is equivalent modulo M to the number X.

5,724,280
ACCELERATED BOOTH MULTIPLIER USING INTERLEAVED OPERAND LOADING
Timothy Don Davis, Arlington, Tex., assignor to National Semiconductor Corporation, Santa Clara, Calif.
Filed Aug. 31, 1995, Ser. No. 521,792
Int. Cl.[6] G06F *7/52*
U.S. Cl. 364—760 **4 Claims**



1. A multiplier for computing the product of a first operand and a second operand, comprising:

first operand data storage means for loading and storing the first operand;

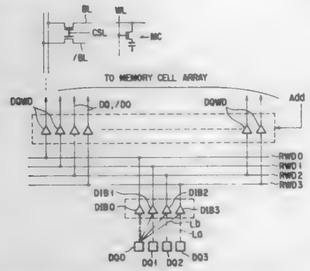
second operand data storage means for loading and storing the second operand, the second operand storage means including first and second partial operand data storage means for storing a first and a second part of the second operand;

Booth recoding means for forming and accumulating Booth partial products of the first and second operands;

product accumulation means for forming the product of the first and second operands from the accumulated Booth partial products; and

control means for shifting the first part of the second operand to the Booth recoding means and enabling the Booth recoding means after loading the first part of the second operand data into the first partial operand data storage means, and prior to completing the loading of the second part of the second operand data into the second partial operand data storage means.

5,724,281
SEMICONDUCTOR INTEGRATED CIRCUIT HAVING IMPROVED WIRING IN INPUT TERMINAL
Katsushi Nagaba, Kawasaki, Japan, assignor to Kabushiki Kaisha Toshiba, Tokyo, Japan
Filed Jan. 29, 1997, Ser. No. 790,466
Claims priority, application Japan, Jan. 31, 1996, 8-015657
Int. Cl.[6] G11C *13/00*
U.S. Cl. 365—63 **18 Claims**



1. A semiconductor integrated circuit comprising:

a plurality of terminals for inputting/outputting signals;

a plurality of buffer circuits arranged to correspond to said plurality of terminals;

a plurality of transmission paths for transmitting signals, to which said plurality of buffer circuits are respectively connected, said plurality of transmission paths being connected to a selected memory cell; and

a plurality of wires for connecting at least one of said plurality of terminals to said plurality of buffer circuits, a position of the wire for connecting said at least one terminal to said plurality of buffer circuits being changed in accordance with a bit pattern of said memory cell.

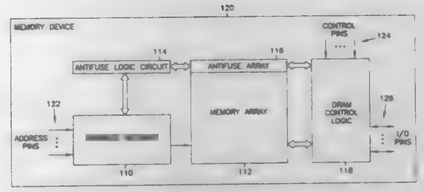
5,724,282
SYSTEM AND METHOD FOR AN ANTIFUSE BANK
Daniel R. Loughmiller, and Kevin G. Duesman, both of Boise, Id., assignors to Micron Technology, Inc., Boise, Id.
Filed Sep. 6, 1996, Ser. No. 708,920
Int. Cl.[6] G11C *17/16*
U.S. Cl. 365—96 **12 Claims**

6. A memory device, comprising:

an array of storage cells for storing data for the memory device;

an address decoder coupled to the array of storage cells that selects a cell of the array to be accessed:

an array of antifuses that is coupled to provide data to the address decoder for use in selecting cells of the array of storage cells; and



wherein the array of antifuses comprises:

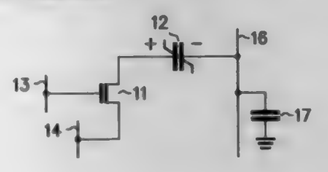
an array of word and digit lines;

a number of access devices, each access device coupled to one of the word lines and one of the digit lines and coupled to an antifuse;

an addressing circuit coupled to the array of word and digit lines that selects an antifuse; and

a sensing circuit coupled to at least one of the digit lines that retrieves the data stored in the antifuse.

5,724,283
DATA STORAGE ELEMENT AND METHOD FOR RESTORING DATA
Jy-Der D. Tai, Phoenix, Ariz., assignor to Motorola, Inc., Schaumburg, Ill.
Continuation of Ser. No. 490,368, Jun. 14, 1996, abandoned.
This application Aug. 13, 1996, Ser. No. 689,578
Int. Cl.[6] G11C *11/22*
U.S. Cl. 365—145 **17 Claims**



11. A method for restoring data in a data storage element, comprising the steps of:

providing the data storage element having a switch and a capacitor with polarization retention, wherein a control terminal of the switch is coupled for receiving control signals, a first current conducting terminal of the switch is coupled to a first terminal of the capacitor with polarization retention, a second current conducting terminal of the switch is coupled for receiving extraction signals, and a second terminal of the capacitor with polarization retention is directly coupled to a bit line for transmitting data;

providing data in the data storage element;

applying a first control signal to the control terminal of the switch;

applying a first extraction signal to the second current conducting terminal of the switch to read data from the capacitor with polarization retention;

applying a data restoring voltage to the second terminal of the capacitor with polarization retention;

applying a second extraction signal to the second current conducting terminal of the switch; and

applying a second control signal to the control terminal of the switch after the second extraction signal is applied to the second current conducting terminal of the switch, resulting in the data being restored in the data storage element.

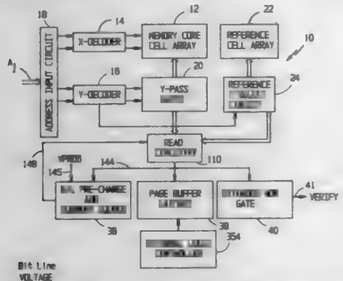
VOL 1208 ISS 1 MR 3 1998 UMI

5,724,284

MULTIPLE BITS-PER-CELL FLASH SHIFT REGISTER PAGE BUFFER

Colin Stewart Bill, Cupertino; Ravi Prakash Gutala; Qimeng Derek Zhou, both of Sant Clara, and Jonathan Shichang Su, Sunnyvale, all of Calif., assignors to Advanced Micro Devices, Inc., Sunnyvale, Calif.

Filed Jun. 24, 1996, Ser. No. 669,116
Int. Cl.[6] G11C *11/34*
U.S. Cl. 365—185.2 18 Claims



1. A page buffer for use in an array of multiple bits-per-cell flash EEPROM memory cells so as to render page mode programming and reading, said page buffer comprising in combination;

sensing logic means (**26**,**27**) for selectively and sequentially comparing array bit line voltages with each of a plurality of target reference cell bit line voltages;

shift register means (**300**) responsive to said sensing logic circuit means for sequentially storing either a low or high logic level after each comparison of the bit line voltages with one of the plurality of target reference cell bit line voltages, said shift register means being formed of series-connected latch means (**302**–**308**) each having inputs and outputs;

switching circuit means (**N5**) interconnected between said sensing logic circuit means and said latch means and being responsive to one of the latch means outputs for selectively passing, the logic signal from said sensing logic means to the input of said latch means; and

inhibit programming circuit means (**312**) responsive to outputs of said latch means during a programming mode for generating an inhibit logic signal so as to cause the logic signal from said sensing logic circuit means to be at a low logic level, thereby preventing programming.

5,724,285

FLASH MEMORY PC CARD CAPABLE OF REFRESHING DATA A PREDETERMINED TIME AFTER THE PC CARD IS REMOVED FROM A HOST

Takayuki Shinohara, Tokyo, Japan, assignor to Mitsubishi Denki Kabushiki Kaisha, Tokyo, Japan

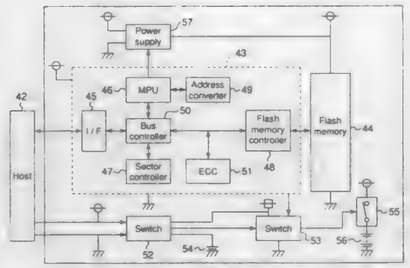
Filed Sep. 13, 1996, Ser. No. 713,646
Claims priority, application Japan, Mar. 8, 1996, 8-051524
Int. Cl.[6] G11C *16/06*
U.S. Cl. 365—185.25 6 Claims

1. A flash PC card comprising:

a flash memory device;

a timer which starts to count a predetermined time when an external power supply is stopped to be connected to the flash PC card; and

a controller, coupled to said flash memory device and said timer, which refreshes data stored in said flash memory device if



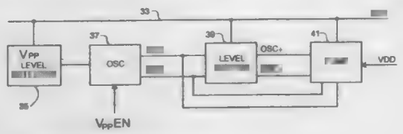
said timer has counted the predetermined time when the external power supply is started again.

5,724,286

FLEXIBLE DRAM ARRAY

Peter B. Gillingham, Kanata, Canada, assignor to Mosaid Technologies Incorporated, Kanata, Canada

Filed Dec. 14, 1994, Ser. No. 355,957
Int. Cl.[6] G11C *7/00*
U.S. Cl. 365—189.11 9 Claims



1. A DRAM array comprising:

(a) plural wordlines and plural bitlines,

(b) bit charge storage capacitors associated with the bitlines and wordlines,

(c) cell access field effect transistors (FETs) having their gates connected to the wordlines and their source-drain circuits connected between the bitlines and the charge storage capacitors, for enabling reading or writing data from or to the charge storage capacitors,

(d) a boosted wordline voltage source Vpp, and

(e) means for connecting a selectable one of either of said boosted voltage source or an unboosted voltage source Vdd to said wordlines exclusively during a substantially full duration of a wordline active interval,

whereby said DRAM array can be exclusively operated during the substantially full duration of a wordline active interval selectably with either said Vpp boosted or said unboosted Vdd wordline voltage.

5,724,287

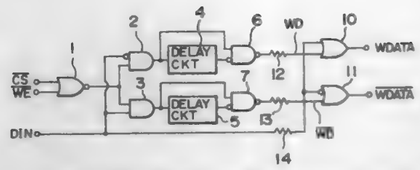
DATA INPUT CIRCUIT OF SEMICONDUCTOR STORAGE DEVICE

Tetsuro Takenaka, Tokyo, Japan, assignor to Oki Electric Industry Co., Ltd., Tokyo, Japan

Filed May 22, 1996, Ser. No. 651,716
Claims priority, application Japan, May 25, 1995, 7-126088
Int. Cl.[6] H03K *5/153*
U.S. Cl. 365—191 6 Claims

1. A data input circuit of a semiconductor storage device, wherein when a write control signal is changed to a write enable state or when write data changes during the write control signal being in said write enable state, a write pulse is generated in one of first and second write pulse data depending on a logical level of said write data, said first and second write pulse data being fed to a pair of data lines, respectively, said data input circuit comprising:

write pulse generating means for forming intermediate write pulse data based on said write control signal and said write data; and



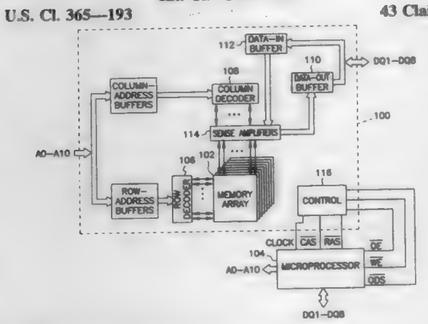
data re-input means, inputted with said intermediate write pulse data and said write data, for executing logical operations between said inputted intermediate write pulse data and said inputted write data so as to form final first and second write pulse data which are given to the pair of data lines, respectively, as said first and second write pulse data.

5,724,288

DATA COMMUNICATION FOR MEMORY

Eugene H. Cloud, Boise; Brett Williams, Eagle, and Troy A. Manning, Boise, all of Id., assignors to Micron Technology, Inc., Boise, Id.

Filed Aug. 30, 1995, Ser. No. 512,326
Int. Cl.[6] G11C *7/00*
U.S. Cl. 365—193 43 Claims



2. An integrated circuit memory comprising:

memory cells for storing data;

output communication means for outputting the data stored in the memory cells; and

an output signal circuit for indicating that valid data is available from the output communication means;

wherein the output signal circuit comprises:

an output signal connection, and

a trigger circuit coupled to the output signal connection for producing an output data strobe signal.

5,724,289

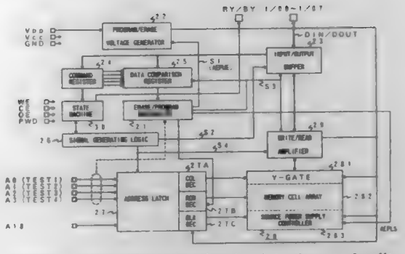
NONVOLATILE SEMICONDUCTOR MEMORY CAPABLE OF SELECTIVELY PERFORMING A PRE-CONDITIONING OF THRESHOLD VOLTAGE BEFORE AN ERASE SELF-TEST OF MEMORY CELLS AND A METHOD RELATED THEREWITH

Hisayoshi Watanabe, Kawasaki, Japan, assignor to Fujitsu Limited, Kawasaki, Japan

Continuation-in-part of Ser. No. 291,899, Aug. 17, 1994, abandoned. This application Aug. 13, 1996, Ser. No. 689,794
Claims priority, application Japan, Sep. 8, 1993, 5-223718
Int. Cl.[6] G11C *29/00*
U.S. Cl. 365—201 10 Claims

1. A non-volatile semiconductor memory in which pieces of data stored in a plurality of memory cells are erasable at a time, comprising:

invalidating means for invalidating a write instruction which instructs to equalize a plurality of threshold voltages of the



memory cells with each other by injecting a plurality of charges into the memory cells in advance before an erasing of the data stored in the memory cells; and

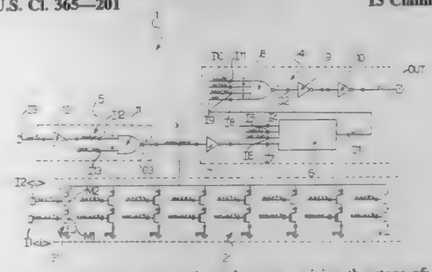
performing means for performing a write operation to write pieces of data in the memory cells and an erase operation of the data according to an erase instruction subsequent to the write instruction invalidated by the invalidating means.

5,724,290

METHOD AND PROGRAMMING DEVICE FOR DETECTING AN ERROR IN A MEMORY

Mauro Sali, S. Angelo Lodigiano; Marcello Cane, Piobesi D'Alba, and Corrado Villa, Sovico, all of Italy, assignors to SGS-Thomson Microelectronics S. r. L., Agrate Brianza, Italy

Filed Dec. 24, 1996, Ser. No. 774,110
Claims priority, application European Pat. Off., Dec. 29, 1995, 95830555
Int. Cl.[6] G11C *13/00*
U.S. Cl. 365—201 13 Claims



1. A method for programming a byte comprising the steps of:

comparing a plurality of digital signals which correspond to the bits in the byte being programmed and a second plurality of digital signals which correspond to data to be written in;

programming homolog bit pairs with null values; and

checking the programming by generating an error signal on the occurrence of homolog bit pairs having a value of "one", and interrupting the programming to prevent a value of "zero" from being overwritten with a value of "one".

5,724,291

SEMICONDUCTOR MEMORY DEVICE WITH REDUCED CHIP AREA

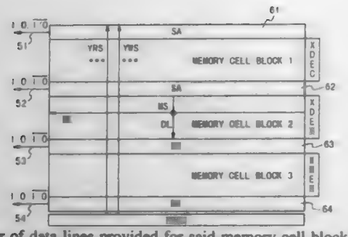
Tatsuya Matano, Tokyo, Japan, assignor to NEC Corporation, Tokyo, Japan

Filed Nov. 21, 1996, Ser. No. 754,410
Claims priority, application Japan, Nov. 30, 1995, 7-338190
Int. Cl.[6] G11C *13/00*
U.S. Cl. 365—207 21 Claims

1. A semiconductor memory device comprising:

a memory cell block composed of a plurality of memory cells arranged in a matrix;

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a pair of data lines provided for said memory cell block;

a plurality of word lines each of which is connected to a row of memory cells of said memory cell block;

a row decoder circuit provided for said memory cell block, and selectively activated in accordance with an address to activate one of said plurality of word lines and said pair of data lines;

a pair of digit lines provided for each column of memory cells of said memory cell block;

a sense amplifier provided for each column of memory cells, for amplifying differential data signals on said digit lines;

a column decoder circuit provided for said memory cell block, for selectively activating one of a plurality of columns of memory cells in accordance with said address and selectively setting the activated column of memory cells to one of a read mode and a write mode in a read/write control signal;

a read data transfer circuit provided for each column of memory cells, for respectively transferring differential read data signals to said digit lines in said read mode when the column of memory cells is activated, said differential read data signals corresponding to data read out from one memory cell of said activated column of memory cells connected to the activated word line and amplified by said sense amplifier; and

a write data transfer circuit provided for each column of memory cells, for respectively transferring differential write data signals on said data lines to said digit lines in said write mode when the column of memory cells is activated, data corresponding to said differential write data signals being written in one memory cell of said activated column of memory cells connected to the activated word line.

5,724,292

STATIC SEMICONDUCTOR MEMORY DEVICE

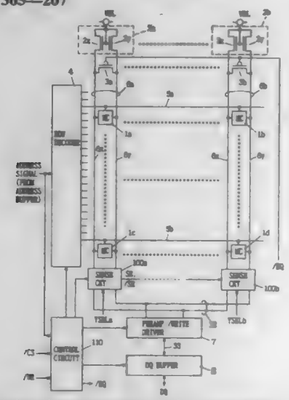
Tomohisa Wada, Hyogo, Japan, assignor to Mitsubishi Denki Kabushiki Kaisha, Tokyo, Japan

Filed Jan. 13, 1997, Ser. No. 781,386

Claims priority, application Japan, Jun. 18, 1996, 8-156795

Int. Cl.[6] G11C *7/02*

U.S. Cl. 365—207 **22 Claims**



1. A semiconductor memory device comprising:

a plurality of word lines arranged in a row direction;

a plurality of bit line paris arranged in a column direction;

a plurality of memory cells arranged at crossings between said plurality of word lines and said plurality of bit line pairs, the memory cells each storing information, each of said plurality of memory cells including (i) a pair of load elements coupled between a first power supply node and first and second storage nodes for driving said first and second storage nodes to a voltage level on said first power supply node, respectively, (ii) a pair of cross-coupled drive transistor elements coupled between said first and second storage nodes and a second power supply node for holding potentials on said first and second storage nodes, respectively, and (iii) a pair of access transistor elements responsive to a signal potential on a corresponding word line to connect electrically said first and second storage nodes to bit lines of a corresponding bit line pair, respectively;

a plurality of sense amplifiers provided corresponding to said plurality of bit line pairs for sensing, amplifying and latching potential differences of corresponding bit line pairs when activated, respectively;

sense amplifiers activating means responsive to a memory cell selection instructing signal for activating said plurality of sense amplifiers;

row selecting means for decoding an applied address signal and driving a word line among said plurality of word lines arranged corresponding to an addressed row to the selected state;

column selecting means for decoding another applied address signal and selecting a bit line pair among said plurality of bit lines arranged corresponding to an addressed column; and

writing means for transferring a write data onto the selected bit line pair when activated in response to a write operation instructing signal being active, wherein

said row selecting means includes means for writing the write data into a memory cell on the selected bit line pair while restoring data corresponding to the potential differences latched by the sense amplifiers into memory cells on respective bit line pairs other than the selected bit line pair.

5,724,293

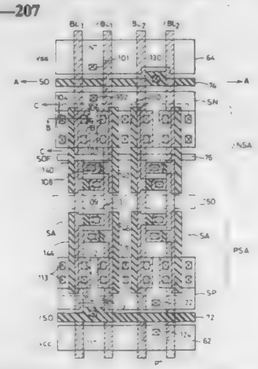
SEMICONDUCTOR MEMORY DEVICE HAVING POWER LINE ARRANGED IN A MESHED SHAPE

Shigeki Tomishima; Mikio Asakura; Kazutami Arimoto, and Hideto Hidaka, all of Hyogo-ken, Japan, assignors to Mitsubishi Denki Kabushiki Kaisha, Tokyo, Japan

Continuation of Ser. No. 692,819, Jul. 29, 1996, Pat. No. 5,650,972, which is a continuation of Ser. No. 417,527, Apr. 6, 1995, Pat. No. 5,602,793, which is a division of Ser. No. 224,461, Apr. 7, 1994, Pat. No. 5,426,615, which is a division of Ser. No. 942,320, Sep. 10, 1992, Pat. No. 5,325,336. This application Mar. 14, 1997, Ser. No. 816,102

Int. Cl.[6] G11C *7/00*

U.S. Cl. 365—207 **17 Claims**



1. A semiconductor memory device comprising:

a memory cell array including a plurality of memory cells arranged in rows and columns;

a plurality of word lines each coupling a row of memory cells of said memory cell array;

a plurality of pairs of bits lines, each of the pairs coupling a column of memory cells of said memory cell array;

a first power supply line arranged in parallel with the bit lines, for transmitting a predetermined potential;

a plurality of sense amplifiers provided corresponding to said plurality of pairs of bit lines respectively and arranged in parallel with said plurality of word lines, each of said plurality of sense amplifiers sensing and amplifying a potential difference between the bit lines of a corresponding bit line pair;

an interconnection line transmitting a sense amplifier activation signal;

a sense amplifier drive signal line transmitting a drive signal to said plurality of sense amplifiers;

a second power supply line arranged in parallel with the word lines and coupled to said first power supply line; and

a plurality of drive transistors provided such that a drive transistor is provided commonly to adjacent two sense amplifiers of said plurality of sense amplifiers, each of said plurality of drive transistors having a gate coupled to said interconnection line through a first contact hole between the bit lines of one of corresponding two bit line pairs, a source coupled to said second power supply line through a second contact hole provided between the bit lines of another of the corresponding two bit line pairs, and a drain coupled to said sense amplifier drive signal line.

5,724,294

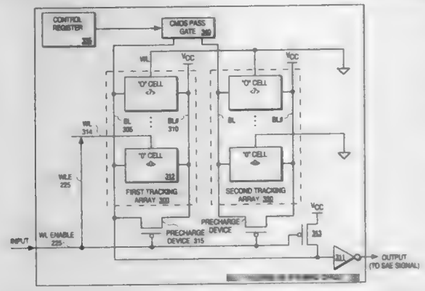
SELF-TRACKING SENSE AMPLIFIER STROBING CIRCUIT AND METHOD

Cong Q. Khieu, San Jose, Calif., assignor to Intel Corporation, Santa Clara, Calif.

Filed Dec. 30, 1996, Ser. No. 777,546

Int. Cl.[6] G11C *7/00*

U.S. Cl. 365—210 **15 Claims**



1. An apparatus for providing a sense amplifier enable signal in response to an enable signal, the sense amplifier enable signal enabling a memory array to be read, the apparatus comprising:

a first array of tracking memory cells including at least a first tracking cell configured to store a fixed value and coupled to receive the enable signal;

first and second bitlines coupled to the first array, the first bitline to be coupled to a power source; and

an output coupled to the second bitline, the output being asserted to provide a sense amplifier enable signal when the second bitline reaches a predetermined voltage in response to the enable signal being received by the cell.

5,724,295

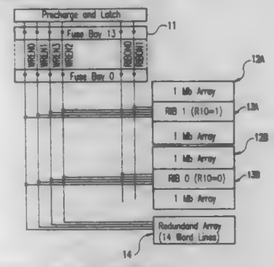
PARTITIONED DYNAMIC MEMORY ALLOWING SUBSTITUTION OF A REDUNDANT CIRCUIT IN ANY PARTITION AND USING PARTIAL ADDRESS DISABLEMENT AND DISABLEMENT OVERRIDE

Mark Adam Beiley, Burlington; Charles Edward Drake, Underhill, and Thomas Edward Obremski, South Burlington, all of Vt., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Jun. 7, 1995, Ser. No. 473,594

Int. Cl.[6] G11C *7/00*

U.S. Cl. 365—222 **11 Claims**



6. An electronic circuit including

a plurality of systems of addressable elements, each said system of addressable elements including a plurality of addressable elements,

a plurality of redundant circuits which can be substituted for portions of any of said systems of addressable elements, and

means for driving at least one addressable element of said plurality of addressable elements at a partial address in at least one of said plurality of systems of addressable elements simultaneously with at least one redundant circuit which has been substituted for at least one addressable element of said plurality of addressable elements at said partial address in another system of said plurality of systems of addressable elements.

5,724,296

SELF-REFRESHABLE DUAL PORT DYNAMIC CAM CELL AND DYNAMIC CAM CELL ARRAY REFRESHING CIRCUIT

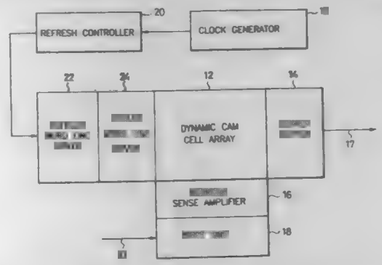
Hyun Sik Jang, Kyoungki-do, Rep. of Korea, assignor to Hyundai Electronics Industries Co., Ltd., Kyoungki-do, Rep. of Korea

Division of Ser. No. 500,224, Jul. 10, 1995, Pat. No. 5,642,320. This application Mar. 10, 1997, Ser. No. 813,186

Claims priority, application Rep. of Korea, Jul. 11, 1994, 94-16657

Int. Cl.[6] G11C *15/00*

U.S. Cl. 365—222 **1 Claim**



1. A dynamic CAM cell array refreshing circuit comprising:

a dynamic CAM cell array including a plurality of self-refreshable dual port dynamic CAM cells;

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first word line drive means for generating write addresses to drive first word lines of said dynamic CAM cell array to store initial data into said dynamic CAM cell array;

refresh word line drive means for generating addresses to drive second word lines of said dynamic CAM cell array to refresh said dynamic CAM cell array;

clock generation means for generating a clock necessary to a refresh operation;

refresh control means for adjusting the clock from said clock generation means according to an initial data write mode and a normal operation mode and supplying the adjusted clock to said refresh word line drive means;

refresh sense amplification means for sensing data on a bit line of each of said plurality of dynamic CAM cells in said dynamic CAM cell array and refreshing the sensed data; and

data input means for supplying data to be stored in said dynamic CAM cell array and data to be compared therewith to said dynamic CAM cell array.

5,724,297

SEMICONDUCTOR INTEGRATED CIRCUIT DEVICE AND METHOD OF ACTIVATING THE SAME

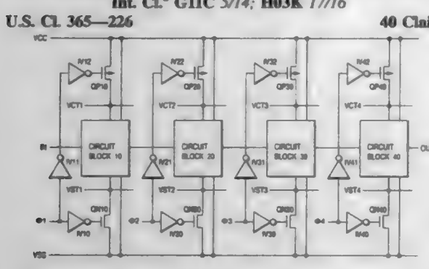
Hironasa Noda, Tokyo; Masakazu Aoki, Tokorozawa; Youji Idei, Asaka; Kazuhiko Kajigaya, Iruma; Osamu Nagashima, Hamura; Kiyoo Itoh, Higashikurume; Masashi Horiguchi, Kawasaki, and Takeshi Sakata, Kodaira, all of Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Filed Dec. 12, 1996, Ser. No. 762,883

Claims priority, application Japan, Dec. 21, 1995, 7-349718

Int. Cl.[6] G11C *5/14*; H03K *17/16*

U.S. Cl. 365—226 **40 Claims**



1. A semiconductor integrated circuit device comprising:

a plurality of circuit blocks divided according to respective functions and respectively set so as to perform circuit operations in response to operation control signals; and

a power switch circuit composed of a plurality of switch MOSFETs, said power switch MOSFETs being provided in parallel between a power line for delivering an operating voltage supplied from an external terminal and internal power lines provided for said respective circuit blocks and being stepwise turned on in response to control signals produced by successively delaying the operation control signals.

5,724,298

LOW LEAKAGE DATA RETENTION POWER SUPPLY CIRCUIT

Paul Dishaun Henry, 711 First Ave., NE., Carmel, Ind. 46032

Continuation of Ser. No. 739,777, Oct. 30, 1996, abandoned. This application Mar. 24, 1997, Ser. No. 823,266

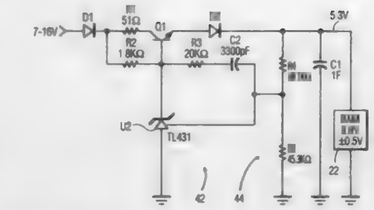
Int. Cl.[6] G11C *7/00*

U.S. Cl. 365—229 **17 Claims**

1. A data storage arrangement, comprising:

a data storage device requiring a nominal input supply voltage level, within a range having upper and lower tolerance limits, within which range stored data is retained;

a capacitor coupled to said data storage device;



a source for generating a power supply voltage at a level greater than at least said upper tolerance limit of said input supply voltage;

a first diode having a first electrode coupled to said source of power supply voltage for reducing reverse current flow to said source when said power supply voltage exhibits a level less than said upper tolerance limit of said input supply voltage;

a regulator, coupled to a second electrode of said first diode, for supplying a regulated voltage to said data storage device and to said capacitor; and

a feedback circuit coupled to said regulator for receiving said regulated voltage, said regulated voltage being held at a certain voltage level between said nominal input supply voltage and said upper tolerance limit;

said feedback circuit including a second diode for reducing reverse current flow through said regulator when said power supply voltage exhibits a level less than said upper tolerance limit.

5,724,299

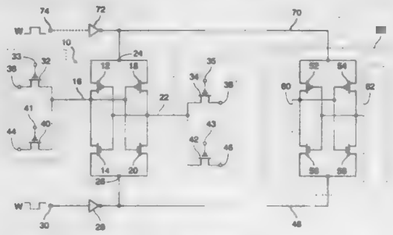
MULTIPORT REGISTER FILE MEMORY USING SMALL VOLTAGE SWING FOR WRITE OPERATION

Andrew V. Podlesny; Guntis V. Kristovsky; Yuri L. Pogrebnoy; Vladimir N. Kalmykov, and Valeriy V. Lozovoy, all of Moscow, Russian Federation, assignors to Sun Microsystems, Inc., Mountain View, Calif.

Filed Apr. 30, 1996, Ser. No. 641,327

Int. Cl.[6] G11C *8/00*

U.S. Cl. 365—230.05 **16 Claims**



1. A multiport register file comprising:

a storage element having first and second storage nodes, a positive voltage supply node, and a negative voltage supply node;

a plurality of first switched bit lines coupled to said first storage node and a plurality of second switched bit lines coupled to said second storage node; and

a first buffered switching circuit coupled to said negative voltage supply node of said storage element, said first buffered switching circuit for switching-on/off said storage element, wherein during a write operation said storage element is switched-off, and a small voltage swing of between about 0.2 and about 0.5 volts is placed on said first and second storage nodes from selected first and second switched bit lines, and,

during a read operation said storage element amplifies said small voltage swing of between about 0.2 and about 0.5 volts to provide an amplified signal when said storage element is switched on.

5,724,300

NON-VOLATILE SEMICONDUCTOR MEMORY DEVICE AND MEMORY SYSTEM USING THE SAME

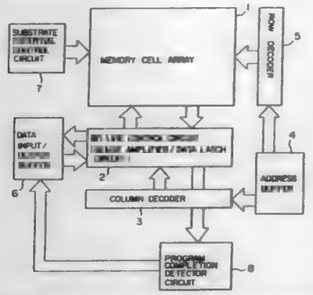
Tomoharu Tanaka; Masaki Momodomi, both of Yokohama; Hideo Kato, Kawasaki; Hiroto Nakai; Yoshiyuki Tanaka, both of Yokohama; Riichiro Shirota, Fujisawa; Seiichi Aritome; Yasuo Itoh, both of Kawasaki; Yoshihisa Iwata, Yokohama; Hiroshi Nakamura, Kawasaki; Hideko Odaira, Machida; Yutaka Okamoto, Kawasaki; Masamichi Asano, Tokyo-To, and Kaoru Tokushige, Yokohama, all of Japan, assignors to Kabushiki Kaisha Toshiba, Kawasaki, Japan

Continuation of Ser. No. 576,564, Dec. 21, 1995, Pat. No. 5,615,165, which is a continuation of Ser. No. 326,281, Oct. 20, 1994, Pat. No. 5,546,351, which is a continuation-in-part of Ser. No. 992,653, Dec. 18, 1992, Pat. No. 5,361,227. This application Jan. 16, 1997, Ser. No. 784,927

Claims priority, application Japan, Dec. 19, 1991, 3-354871; Dec. 25, 1991, 3-343200; Mar. 10, 1992, 4-086082; Mar. 31, 1992, 4-077946; Mar. 31, 1992, 4-105831; Jul. 2, 1992, 4-175693

Int. Cl.[6] G11C *13/00*

U.S. Cl. 365—230.06 **44 Claims**



1. A non-volatile semiconductor memory device comprising:

a semiconductor substrate;

a plurality of bit lines;

a plurality of word lines insulatively intersecting said bit lines;

a memory cell array comprising a plurality of memory cells, each including a transistor with a charge storage portion;

a plurality of programming control circuits for storing control data of first and second logic levels which define control write voltages to be applied to respective ones of said memory cells, said control data being stored in data storage portions, for applying said control write voltages to said respective ones of said memory cells according to the control data stored in said data storage portions, for determining actual written states of said memory cells, and for modifying stored control data from said first logic level to said second logic level in the data storage portions corresponding to memory cells in which data has been successfully written; and

an output circuit for detecting whether or not all of said data storage portions store the control data of said second logic level, for outputting pass flag when all of said data storage portions store the control data of said second logic level, and for outputting fail flag when at least one data storage portion stores the control data of said first logic level.

5,724,301

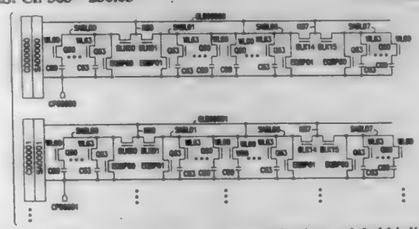
HIERARCHICAL MEMORY ARRAY STRUCTURE HAVING ELECTRICALLY ISOLATED BIT LINES FOR TEMPORARY DATA STORAGE

Mir Majid Seyyedy, Boise, Id., assignor to Micron Technology, Inc., Boise, Id.

Continuation of Ser. No. 417,213, Apr. 5, 1995, Pat. No. 5,600,602. This application Nov. 21, 1996, Ser. No. 752,578

Int. Cl.[6] G11C *7/00*

U.S. Cl. 365—230.03 **14 Claims**



1. A method of storing data in a memory having a global bit line connected to a plurality of subarray bit lines, each one of the plurality of subarray bit lines connected to a plurality of memory storage capacitors, the method comprising the steps of:

providing a charge on one of the plurality of subarray bit lines; and

electrically isolating the one of the plurality of subarray bit lines from the global bit line and from the plurality of memory storage capacitors to temporarily store the charge on one of the plurality of subarray bit lines.

5,724,302

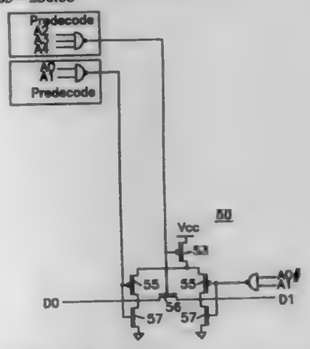
HIGH DENSITY DECODER

Randy Steele, Folsom, Calif., assignor to Intel Corporation, Santa Clara, Calif.

Continuation of Ser. No. 499,947, Jul. 10, 1995, abandoned. This application Feb. 19, 1997, Ser. No. 801,252

Int. Cl.[6] G11C *8/00*

U.S. Cl. 365—230.06 **7 Claims**



1. A decoder circuit, comprising:

a first inverting complementary transistor pair and a second inverting complementary transistor pair, each pair comprising a first transistor and a second transistor;

a control circuit generating a first input to the first inverting complementary transistor pair in response to a first plurality of address bits and generating a second input to the second inverting complementary transistor pair in response to the first plurality of address bits;

an enabling circuit for enabling the first inverting complementary transistor pair in response to a second plurality of address bits and the second inverting complementary transistor pair in response to the second plurality of address bits; and

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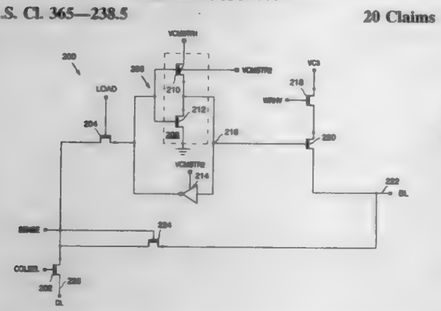
wherein the first inverting complementary transistor pair and the second inverting complementary transistor pair generate output signals in the absence of a strobe signal in response to the inputs generated by the control circuit and the output of the enabling circuit.

5,724,303

NON-VOLATILE PROGRAMMABLE MEMORY HAVING AN SRAM CAPABILITY

Michael E. Gannage, Santa Clara; David K. Wong, and Asim A. Bajwa, both of San Jose, all of Calif., assignors to Nexcom Technology, Inc., Sunnyvale, Calif.

Filed Feb. 15, 1996, Ser. No. 601,963
Int. Cl.[6] G11C *7/00*
U.S. Cl. 365—238.5 20 Claims



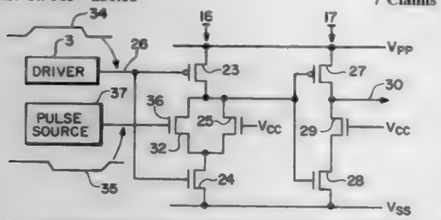
1. A non-volatile programmable memory integrated circuit comprising:
a plurality of data input/output ("I/O") nodes;
a plurality of page latches respectively coupled to the data I/O nodes, each of the page latches being loadable and readable through a respective one of the data I/O nodes;
a plurality of bit lines respectively coupled to the page latches;
a plurality of word lines; and
a memory array having a plurality of non-volatile erasable-programmable memory cells coupled to respective pairs of the word lines and bit lines.

5,724,304

REPEATER WITH THRESHOLD MODULATION

Richard C. Foss, Kirkcaldy Fife, Scotland, assignor to Mosaid Technologies Incorporated, Kanata, Canada

Division of Ser. No. 401,300, Mar. 9, 1995, Pat. No. 5,576,649, which is a continuation of Ser. No. 923,534, Aug. 3, 1992, abandoned. This application Nov. 15, 1996, Ser. No. 749,409
Int. Cl.[6] G11C *13/00*
U.S. Cl. 365—230.06 7 Claims



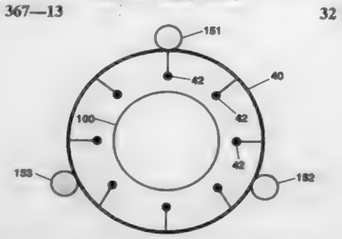
2. A semiconductor memory having at least one wordline conductive track containing distributed parasitic elements, the memory being a DRAM, said track being divided into two or more separate segments, and a repeater connecting pairs of the separate segments together for refreshing a pulse signal passing therethrough.

5,724,305

APPARATUS FOR ACOUSTIC NEAR FIELD SCANNING USING CONFORMAL ARRAYAL

Joseph A. Clark; Michael A. Sartori, both of Arlington, Va.; Moon H. Cho, Fairfax, and Daniel F. Dozier, Vienna, all of Va., assignors to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

Filed Jun. 30, 1995, Ser. No. 497,591
Int. Cl.[6] H04B *17/00*
U.S. Cl. 367—13 32 Claims



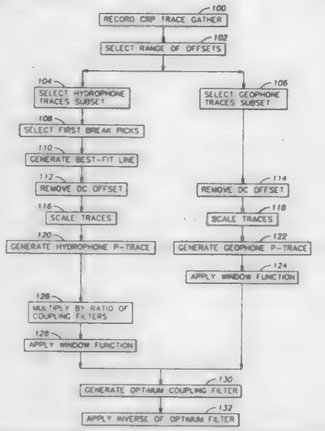
1. Apparatus for scanning the acoustic near field of a structure having a circumferential surface about its longitudinal axis, comprising:
a frame for said structure;
at least one array of acoustic measurement devices;
means for engaging each said array with respect to said frame so as to be approximately conformal with respect to said surface in the circumferential direction and movable in the longitudinal direction; and
means for intermittently driving each said array in the longitudinal direction.

5,724,306

METHOD FOR CORRECTING DUAL SENSOR DATA FOR IMPERFECT GEOPHONE COUPLING USING PRODUCTION SEISMIC DATA

Frederick James Barr, Houston, Tex., assignor to Western Atlas International, Inc., Houston, Tex.

Filed Dec. 29, 1995, Ser. No. 580,634
Int. Cl.[6] G01V *1/38*
U.S. Cl. 367—15 17 Claims



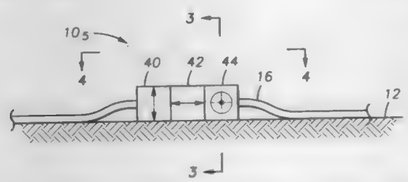
1. A method of marine seismic surveying, comprising the steps of:
recording with a first sensor a first signal indicative of pressure and with a second sensor a second signal indicative of motion, said sensors deployed on a marine bottom;
calculating a coupling mechanism filter for said second sensor, said coupling mechanism filter substantially correcting for imperfect coupling of said second sensor to said marine bottom, by calculating a first transfer function for said first signal, calculating a second transfer function for said second signal, taking the ratio of said second transfer function to said first transfer function, applying said ratio to said first signal, generating a third signal, and optimizing said coupling mechanism filter to minimize the difference between said second signal and said third signal; and
applying a filter based upon said coupling mechanism filter to at least one of said signals.

5,724,307

METHOD FOR IMPROVING THE COUPLING RESPONSE OF A WATER-BOTTOM SEISMIC SENSOR

James E. Gaiser, Littleton, Colo., assignor to Western Atlas International, Inc., Houston, Tex.

Filed Apr. 14, 1997, Ser. No. 838,885
Int. Cl.[6] G01V *1/36*
U.S. Cl. 367—21 3 Claims



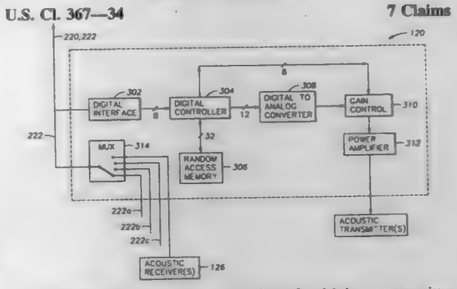
1. A method for removing objectionable ground-coupling response characteristics from seismic signals due to an imperfectly-coupled seismic receiver polarized in a cross-line direction, relative to a well-coupled, co-located seismic receiver polarized in an in-line direction, comprising:
along a preselected source-receiver trajectory vector, assembling a plurality of in-line seismic-signal wavetrains emanating from a selected in-line seismic receiver in a first common-receiver gather and assembling a plurality of cross-line seismic-signal wavetrains emanating from a co-located cross-line receiver in a second common-receiver gather;
in the time domain, individually auto-correlating each of the seismic-signal wavetrains resident in the respective first and second common-receiver gathers to provide a plurality of in-line and cross-line auto correlations;
normalizing the respective in-line auto-correlations to unity and normalizing the respective cross-line auto-correlations to the corresponding in-line auto-correlations;
scaling the normalized cross-line auto-correlations to compensate for the difference between the cross-line polarization direction and the pre-selected source-receiver trajectory vector;
averaging the normalized in-line auto-correlations and the normalized, scaled cross-line auto-correlations and transforming same to the frequency domain to define in-line and cross-line amplitude spectra;
deconvolving the cross-line auto-correlation by the in-line auto-correlation to define a coupling deconvolution operator; and
applying the coupling deconvolution operator to the cross-line seismic-signal wavetrains resident in the cross-line common-receiver gather to compensate said signals for the imperfect ground-coupling response characteristics due to the cross-line receivers.

5,724,308

PROGRAMMABLE ACOUSTIC BOREHOLE LOGGING

Martin H. Sorrells; Thomas S. Smith, and Donald L. Canterbury, all of Conroe, Tex., assignors to Western Atlas International, Inc., Houston, Tex.

Filed Oct. 10, 1995, Ser. No. 540,536
Int. Cl.[6] G01V *1/40*
U.S. Cl. 367—34 7 Claims



1. A method for generating a waveform for driving a transmitter in an acoustic well logging instrument inserted into a wellbore, comprising:
energizing said transmitter with a signal having an initial waveform;
receiving acoustic energy propagated along said wellbore so as to generate a receiver signal;
comparing said receiver signal to said initial waveform; and
adjusting said initial waveform by reducing amplitudes of component frequencies of said initial waveform which excite ringing in certain earth formations penetrated by said wellbore.

5,724,309

METHOD FOR GEOPHYSICAL PROCESSING AND INTERPRETATION USING INSTANTANEOUS PHASE AND ITS DERIVATIVES AND THEIR DERIVATIVES

William G. Higgs, Manhattan Beach, and Yi Luo, Brea, both of Calif., assignors to Chevron U.S.A. Inc., San Francisco, Calif.

Filed Mar. 6, 1996, Ser. No. 611,544
Int. Cl.[6] G01V *1/28;1/36*
U.S. Cl. 367—48 27 Claims



1. A method of processing data of seismic traces for geophysical interpretation of the earth's subsurface, comprising the steps of:
determining a spatial frequency value by taking the directional spatial derivative of the instantaneous phase for each of a plurality of x,y, t(z) data points in the seismic data; and
posting the spatial frequency values to identify changes within the earth's subsurface.

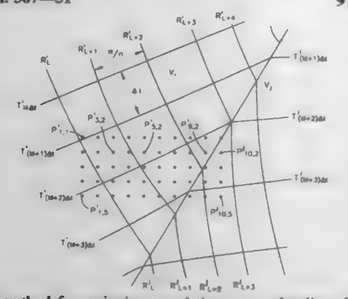
VOL 1208 ISS 1 MR 3 1998 UMI

5,724,310

TRAVELTIME GENERATION IN THE PRESENCE OF VELOCITY DISCONTINUITIES

Goran Milan Stankovic, and Uwe Karsten Albertin, both of Houston, Tex., assignors to Western Atlas International, Inc., Houston, Tex.

Filed Oct. 15, 1996, Ser. No. 730,221
Int. Cl.[6] G01V 1/28;1/30
U.S. Cl. 367—51 9 Claims



1. A method for assigning travel times to a plurality of output image points, superimposed as a regular array of grid points distributed over a complex velocity model including a plurality of velocity domains, for use in migrating seismic reflection data, comprising:

i) mapping, over the velocity model, a set of sparsely-distributed ray-path trajectories radiating from each of a plurality of pre-selected surface-source locations, the ray-path trajectories having a desired angular separation;

ii) erecting a set of wavefront segments orthogonal to the mapped ray-path trajectories, the wavefront segments being separated by a fixed desired time increment;

iii) identifying each said output image point and each said wavefront segment with a layer index defining their respective velocity-domain residencies;

iv) assigning a travel time to a selected output image point by projection from a nearby wavefront having a layer index that matches the layer index of said selected output image point; and

v) repeating steps i) through iv) for all output image points.

5,724,312

ULTRASOUND TRANSDUCER HEAD WITH INTEGRATED VARIABLE-GAIN AMPLIFIER DEVICES

Ralph Oppelt, Uttenreuth, Germany, assignor to Siemens Aktiengesellschaft, Munich, Germany

Filed Apr. 17, 1996, Ser. No. 632,815
Claims priority, application Germany, Apr. 18, 1995, 195 14 308.6
Int. Cl.[6] G01S 7/526
U.S. Cl. 367—98 16 Claims

1. An ultrasound transducer head, comprising:

at least one transducer element for receiving ultrasound signals and converting said ultrasound signals into electrical signals; and

an amplifier device for electrically amplifying the electrical signals of the transducer element, the amplifier device including at least one controllable capacitive component for controlling the gain of the amplifier device.

5,724,311

METHOD AND DEVICE FOR THE LONG-TERM SEISMIC MONITORING OF AN UNDERGROUND AREA CONTAINING FLUIDS

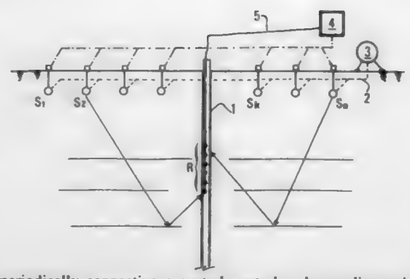
Jean Laurent, Orgeval, and Frédéric Huguet, Epinay-Sur-Seine, both of France, assignors to Institut Francais du Petrole, RueilMalmaison, France, and Gaz De France, Paris, France

PCT No. PCT/FR95/01722, § 371 Date Aug. 26, 1996, § 102(e) Date Aug. 26, 1996, PCT Pub. No. WO96/21165, PCT Pub. Date Jul. 11, 1996
PCT Filed Dec. 22, 1995, Ser. No. 700,373
Claims priority, application France, Dec. 29, 1994, 94 15835
Int. Cl.[6] G01V 1/40;1/28
U.S. Cl. 367—57 21 Claims

1. A seismic monitoring method for periodically sensing state variations of an underground reservoir over an operating time of use of the reservoir storing a fluid, the reservoir being crossed by at least one operating well, the method comprising:

permanently installing, for the operating time, a plurality of repetitive seismic sources positioned in fixed places with respect to a mouth of the well and a buried linking network connected with a feeding device for selectively supplying energy to the seismic sources;

permanently setting in a fixed position at least one array of seismic receivers; and



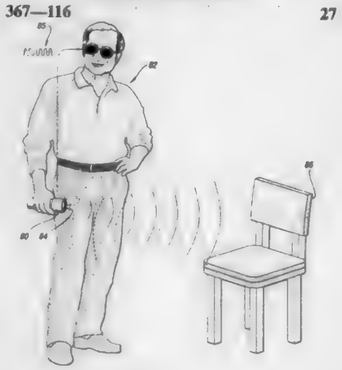
periodically connecting a central control and recording unit to the seismic sources through the buried linking network and to the at least one array of seismic receivers for sensing the state variations including selective remote control of each of the seismic sources through the buried linking network and recording seismic signals sensed by the at least one array of seismic receivers in response to seismic waves transmitted selectively in the ground by the seismic sources.

5,724,313

PERSONAL OBJECT DETECTOR

David Burgess; Lee Felsenstein, both of Palo Alto, and Steven E. Saunders, Cupertino, all of Calif., assignors to Interval Research Corp., Palo Alto, Calif.

Filed Apr. 25, 1996, Ser. No. 637,552
Int. Cl.[6] G01S 15/00
U.S. Cl. 367—116 27 Claims



1. A personal object detector apparatus comprising:

a CTFM ranging system which transmits a frequency-swept pressure wave, receives a reflected frequency-swept pressure wave from each of at least one object, and forms an audio signal based upon a frequency difference between the frequency-swept pressure wave and each reflected frequency-swept pressure wave, the audio signal having an amplitude dependent upon size of the at least one object; and

an audio output device which produces an acoustic pressure wave in dependence upon the audio signal.

5,724,314

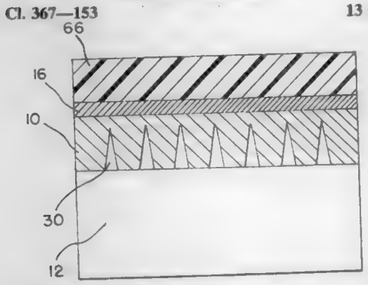
Patent Not Issued For This Number

5,724,315

OMNIDIRECTIONAL ULTRASONIC MICROPROBE HYDROPHONE

Mark B. Moffett, Waterford; James M. Powers, Norwich, both of Conn.; Dmitry Chizhik, Highland Park, N.J., and Timothy B. Straw, New London, Conn., assignors to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

Filed May 29, 1996, Ser. No. 655,104
Int. Cl.[6] H04R 1/44
U.S. Cl. 367—153 13 Claims



1. An omnidirectional ultrasonic microprobe hydrophone comprising:

a substrate member having a first surface and a second surface;

a pair of pressure sensing elements formed at one end of the microprobe, the first of said pair of pressure sensing elements formed on said first surface and the second of said pair of pressure sensing elements formed on said second surface, each pressure sensing element including a plurality of columnar voids formed therein, said columnar voids providing a 3,3 mode of operation wherein lateral stresses in a plane parallel with said substrate surfaces are small when compared to the stresses perpendicular to said plane;

a pair of leads formed at an opposite end of said microprobe from said pair of pressure sensing elements; and

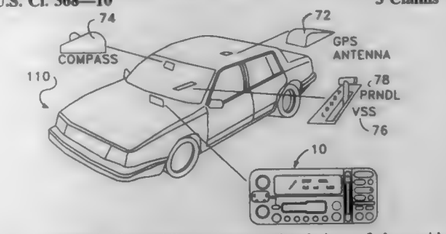
means for electrically connecting said pair of pressure sensing elements to said pair of leads, the connecting means connecting the first of said pair of leads to a first face of each of said pressure sensing elements nearest to said substrate member and further connecting the second of said pair of leads to a second face of each of said pressure sensing elements farthest from said substrate member.

5,724,316

GPS BASED TIME DETERMINING SYSTEM AND METHOD

Randall T. Brunts, Carmel, Ind., assignor to Delco Electronics Corporation, Kokomo, Ind.

Filed Sep. 26, 1995, Ser. No. 533,904
Int. Cl.[6] G04B 19/22; G04C 11/02; G08G 1/12; G06F 15/50
U.S. Cl. 368—10 3 Claims



1. A method of providing current updated time of day, said method comprising the steps of:

receiving GPS radio wave signals;

determining a current position from said GPS radio wave signals;

determining a reference time of day from said GPS radio wave signals;

providing a clock for providing a measured time;

determining a direction of travel;

determining a speed of travel;

determining an approximate current position as a function of the determined direction and speed of travel when GPS radio waves are unavailable;

determining the current time of day as a function of the approximate current position; and

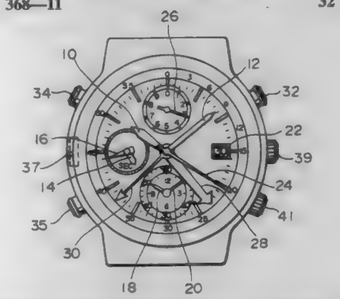
displaying the determined current time of day.

5,724,317

APPARATUS AND A METHOD FOR INDICATING MEASUREMENTS WITH AN ANALOG DISPLAY AND A POINTER UNIT THEREOF

Masaru Kubota; Keiichiro Oguchi; Takashi Kawaguchi, and Hidenori Nakamura, all of Suwa, Japan, assignors to Seiko Epson Corporation, Tokyo, Japan

Filed Jun. 5, 1995, Ser. No. 464,027
Claims priority, application Japan, Jun. 3, 1994, 6-145598; May 11, 1995, 7-137214
Int. Cl.[6] G04B 4/06; G04L 7/00
U.S. Cl. 368—11 32 Claims



1. An analog display measuring instrument comprising:

a sensor for measuring a value of a sensed characteristic;

a measured value pointer for indicating a current value measured by said sensor;

a maximum or minimum value pointer indicating one of a maximum or minimum measured value respectively;

a common drive source

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a gear train driven by said common drive source to move said measured value pointer and to move said maximum or minimum value pointer only in one of an incremental or decremental direction respectively; the gear train including a disengageable linkage member which couples movement of the measured value pointer to movement of the maximum or minimum value pointer as the measured value pointer is being increased from the value of the maximum value pointer or decreased from the value of the minimum value pointer and decouples movement of the measured value pointer and the maximum value pointer when the measured value pointer is being increased below the value of the maximum value pointer or is being decreased above the value of the minimum value pointer; and

a control for controlling said drive source to move said measured value pointer to a position corresponding to a measured value obtained by said sensor.

5,724,318

TIMEPIECE COMPRISING ROTARY INDICATING MEANS

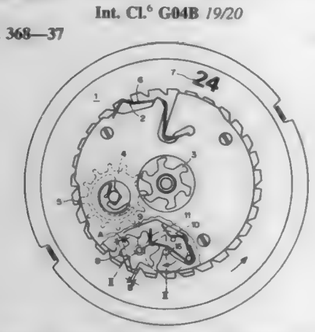
Gabriel Mossuz, Saint-Blaise, Switzerland, assignor to Fabrique d'Ebauches de Sonceboz S.A., Sonceboz/Be, Switzerland

Filed Jun. 9, 1994, Ser. No. 257,127

Claims priority, application European Pat. Off., Jun. 16, 1993, 93810433

Int. Cl.[6] G04B *19/20*

U.S. Cl. 368—37 **22 Claims**



1. A timepiece having a date indicator including inner teeth and means for moving said date indicator angularly by one step per day, the timepiece comprising:

at least one rotary indicating means driven by said inner teeth , said at least one rotary indicating means and said date indicator being disposed non-concentrically;

at least one intermediate rotary gearing organ, which meshes with said driving inner teeth of said date indicator, wherein a clearance is provided between a driven active tooth of said intermediate rotary gearing organ and one of said driving inner teeth in a direction from said driven active tooth to said driving inner teeth when the date indicator is in a resting position;

a pinion arranged integrally and coaxially with said intermediate rotary gearing organ, said pinion driving an indication wheel on which said rotary indicating means is disposed; and

a jumper spring disposed to contact the intermediate rotary gearing organ.

5,724,319

MAGNETO-OPTICAL RECORDING APPARATUS HAVING TRANSIENT RESPONSE CORRECTION FOR MAGNETIC HEAD COIL CURRENTS

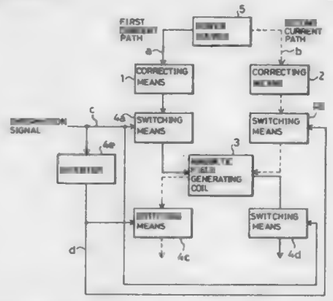
Hiroshi Fuji, Soraku-gun; Tomoyuki Miyake, Nara, and Shigeo Terashima, Tenri, all of Japan, assignors to Sharp Kabushiki Kaisha, Osaka, Japan

Filed Jul. 11, 1995, Ser. No. 500,647

Claims priority, application Japan, Jul. 14, 1994, 6-162333

Int. Cl.[6] G11B *7/00*

U.S. Cl. 369—13 **26 Claims**



1. A magneto-optical recording device for recording information on a magneto-optical recording medium, comprising:

a magnetic field generating coil for generating a magnetic field whose direction is varied according to a direction of a current in the vicinity of said magneto-optical recording medium;

a power source for supplying a current to said magnetic field generating coil so as to drive said magnetic field generating coil;

first and second current paths as routes through which the current from said power source flows in positive and negative directions with respect to said magnetic field generating coil;

switching means for switching the direction of the current flowing to said magnetic field generating coil between the positive and negative directions by alternatively switching on and off said first and second current paths according to the information; and

correcting means, disposed on said first and second current paths in series with said switching means, for correcting a transient response caused by current flowing through said magnetic field generating coil.

5,724,320

Patent Not Issued For This Number

5,724,321

STORAGE AND RETRIEVAL SYSTEM FOR A PLURALITY OF DATA STORAGE MEDIUMS

Natan Vishlitzky, Brookline, Mass., assignor to EMC Corporation, Hopkinton, Mass.

Filed Dec. 21, 1994, Ser. No. 361,136

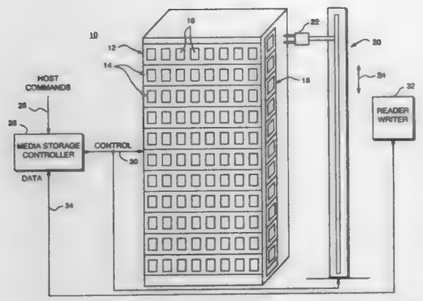
Int. Cl.[6] G11B *17/22*

U.S. Cl. 369—30 **25 Claims**

1. A system for storing and retrieving data storage media, said system comprising:

a data storage media storage cabinet including a plurality of data storage media storage locations, at least one of said plurality of data storage media storage locations not including a data storage media;

at least one data storage media transport mechanism, coupled to each of said plurality of data storage media storage locations, and responsive to a data storage media transport mechanism



control signal, for moving said plurality of data storage media in each respective data storage media storage location along at least first and second axes, said first axis orthogonal to said second axis, and for providing a predetermined one of said plurality of data storage media stored in a preselected one of said plurality of data storage media storage locations to a retrieval region in said data storage media storage cabinet;

a data storage media retrieval mechanism, responsive to a retrieval mechanism control signal directing movement of said data storage media retrieval mechanism along at least one axis parallel to at least one of a row and a column of said data storage media storage cabinet proximate said retrieval region in said data storage media storage cabinet, for retrieving a predetermined one data storage media of said plurality of data storage media, and for placing said retrieved predetermined one data storage media into a media read/write mechanism; and

a data storage media system controller, responsive to commands requesting access to a predetermined one of said plurality of data storage media, for providing said media transport mechanism control signal directing said movement of said data storage media transport mechanism, for providing said retrieval mechanism control signal directing retrieval of said predetermined one data storage media.

5,724,322

APPARATUS FOR RECORDING AND/OR REPRODUCING A RECORDING MEDIUM WITH EDITING FUNCTION

Tsuyoshi Kondo, Tokyo, and Hiroshi Mukawa, Kanagawa, both of Japan, assignors to Sony Corporation, Tokyo, Japan

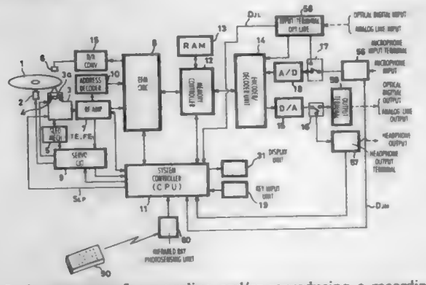
PCT No. PCT/JP94/01324, § 371 Date May 15, 1995, § 102(e) Date May 15, 1995, PCT Pub. No. WO95/04990, PCT Pub. Date Feb. 16, 1995

PCT Filed Aug. 10, 1994, Ser. No. 411,745

Claims priority, application Japan, Aug. 10, 1993, 5-216921; Nov. 25, 1993, 5-317531

Int. Cl.[6] G11B *17/22;5/09;3/90*

U.S. Cl. 369—32 **9 Claims**



1. An apparatus for recording and/or reproducing a recording medium comprising:

recording and reproducing means for recording or reproducing data on or from a recording medium in which management information for recording or reproducing data is recorded together with data;

designating means for designating a break position of one data;

control means for controlling said recording and reproducing means on the basis of said management information so that said recording and reproducing means records or reproduces data on or from a recording medium, recognizing a time point in which said designating means designates said break position when said designating means is operated during said recording and reproducing means records or reproduces data on or from said recording medium and controlling said recording and reproducing means so that said recording and reproducing means rewrites said management information; and

operating means for setting a pause state while data is recorded on or reproduced from said recording medium and wherein said control means refuses an output signal from said designating means when the pause state is set by said operating means while data is being recorded on said recording medium,

wherein said control means controls said recording and reproducing means such that said recording and reproducing means sets said designated position or the position at which said pause state is set as a break position and rewrites said management information when it is detected that the position designated by said designating means or the position at which said pause state is set by said operating means is a position of somewhere of one data.

5,724,323

RECORDING AND REPRODUCING APPARATUS FOR RECORDING MEDIA

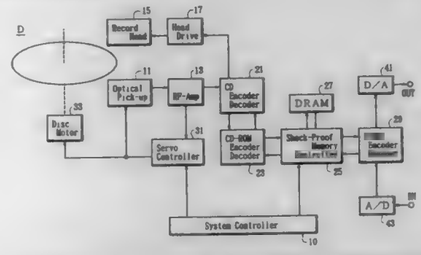
Noboru Mamiya, Gifu, and Takashi Tanifuji, Kyoto, both of Japan, assignors to Sanyo Electric Co., Ltd., Osaka, Japan

Filed Jan. 29, 1996, Ser. No. 615,844

Claims priority, application Japan, Jan. 30, 1995, 7-034382; Jan. 30, 1995, 7-034383

Int. Cl.[6] G11B *17/22;3/90*

U.S. Cl. 369—32 **7 Claims**



5. An apparatus for recording and reproducing data on a storage medium having a rewrite enable table of contents that includes a predetermined number of pointers and a predetermined number of slots, each of the pointers pointing to either a slot which manages an unrecorded part allocated within a data storage area in the storage medium or one of the predetermined number of slots which manages a recorded part allocated within the data storage area, each of the predetermined number of slots storing start and end addresses of a corresponding part for managing the part and each slot stored at a position next to a slot managing a next part which is linked to a previous part, the recording and reproducing apparatus comprising:

determining means for determining whether a total number of both the slot which manages an unrecorded part and slots of the predetermined number of slots which manage respective recorded parts is larger than the predetermined number of slots;

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recording means for recording an item of information into a part set in the data storage area when the total number of slots is smaller than the predetermined number of slots;

retrieving means for retrieving consecutive addresses by comparing start and end addresses of a recorded part containing data which is commanded to be erased with respective end and start addresses of the unrecorded parts;

joining means for joining two parts at a boundary between the recorded part to be erased and any unrecorded part to form a new unrecorded part, one part to be joined being commanded to erase the recorded data, the other part to be joined containing one of retrieved consecutive addresses;

slot writing means for storing start and end addresses of the new unrecorded part into one of the two slots which had managed the two parts and for storing start and end addresses of a part in which the item of information is recorded into an empty slot;

linking means for storing a position of a slot having the start and end addresses of the new unrecorded part into a previous slot which managed an unrecorded part; and

pointer writing means for storing a position of the slot in which the start and end addresses are stored.

5,724,324

OPTICAL PICKUP ACTUATOR WITH AN OBJECTIVE LENS FIXING PART SUSPENDED BY AN ELASTIC MEMBERS

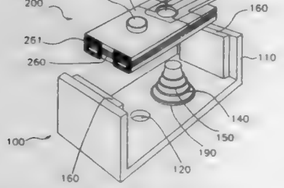
Kwang-Suk Lee, Seoul, Rep. of Korea, assignor to Daewoo Electronics Co., Ltd., Seoul, Rep. of Korea

Filed Sep. 27, 1996, Ser. No. 722,773

Claims priority, application Rep. of Korea, Sep. 29, 1995, 95-32810

Int. Cl.[6] G11B 7/00

U.S. Cl. 369—44.15 **10 Claims**



10. An optical pickup actuator which comprises:

a supporting part having

a yoke which has a flat bottom and both side walls upwardly bent at both ends thereof; magnets which are oppositely installed on inner surfaces of both of the side walls, respectively; a laser-penetrating hole made in one portion of the flat bottom; a guide projector upwardly projected in another portion of the flat bottom, the guide projector having a truncated cone shape of which outer surface is bent inwardly; an elastic member into which the guide projector is inserted; and a first groove formed around the guide projector on the bottom of the yoke into which a lower end of the elastic member is inserted and fixed; and

an objective lens fixing part having

a main body having a flat plate shape for upwardly and downwardly moving along both side walls of the yoke; an objective lens installed in a position corresponding with the laser-penetrating hole; a through hole installed in a position corresponding with the projector and penetrated by the guide projector; and focusing control coil portion and tracking control coil portion installed on side walls of the main body; and a second groove formed around the through hole into which an upper end of the elastic member is inserted and fixed,

wherein the objective lens fixing part is provided on a top of the elastic member in a state that the guide projector is inserted into the through hole, so that the objective lens fixing part is to be elastic by the elastic member.

5,724,325

METHOD FOR REDUCING LEAD IN TIME IN AN OPTICAL DISK RECORDING OR REPRODUCING APPARATUS CAPABLE OF PROCESSING DATA FOR MULTIPLE TYPES OF DISKS

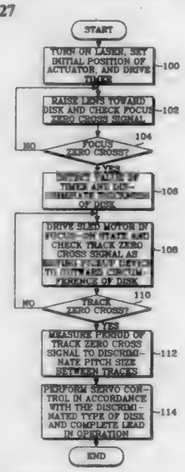
Jeong-Joo Jeong, Suwon, Rep. of Korea, assignor to Samsung Electronics Co., Ltd., Kyungki-Do, Rep. of Korea

Filed Jul. 1, 1996, Ser. No. 675,296

Claims priority, application Rep. of Korea, Aug. 7, 1995, 24308/1995

Int. Cl.[6] G11B 7/095

U.S. Cl. 369—44.27 **5 Claims**



1. A method for discriminating a disk type of a disk loaded in an optical disk recording or reproducing apparatus capable of reproducing data from the multiple types of disks, said method comprising the steps of:

turning on a laser of a pickup device, setting said pickup device at an initial position, and starting a timer;

obtaining a minimum tracking error point for the optical disk while vertically moving said pickup device from said initial position towards said optical disk at a constant velocity;

detecting a thickness of said optical disk from a value measured by said timer at the time when the minimum tracking error point is obtained and from the constant velocity during the vertical movement of said pickup device;

obtaining minimum tracking error points between tracks on said optical disk while horizontally moving said pickup device at a constant velocity, at the time when the minimum tracking error point is obtained;

detecting a pitch size between tracks from a time period between the detection of tracking error minimum points and from the constant velocity during the horizontal movement of said pickup device; and

discriminating the disk type from the detected thickness of said optical disk and the detected pitch size between the tracks.

5,724,326

APPARATUS FOR GENERATING TRACK COUNT PULSE

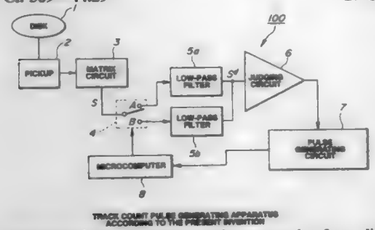
Takahiro Komazaki, Kanagawa, Japan, assignor to Sony Corporation, Tokyo, Japan

Filed Aug. 22, 1996, Ser. No. 701,507

Claims priority, application Japan, Aug. 25, 1995, 7-217923

Int. Cl.[6] G11B 7/09

U.S. Cl. 369—44.29 **17 Claims**



TRACK COUNT PULSE GENERATING APPARATUS ACCORDING TO THE PRESENT INVENTION

1. Apparatus for generating a track count pulse from different optical media having respectively different track pitches, wherein each said track count pulse signal represents a track on a respective optical medium, comprising:

means for impinging a light beam on said respective optical medium;

means for receiving said light beam reflected from said respective optical medium;

means for generating a tracking error signal from the reflected light beam;

a plurality of low-pass filters each having a respective filter frequency range corresponding to the track pitch of a respective one of said plurality of optical media;

means for selecting one of said low-pass filters for filtering said tracking error signal;

means for determining an amplitude level of the filtered tracking error signal; and

means for generating a track count pulse as a function of the amplitude level of said filtered tracking error signal.

5,724,327

RECORD CARRIER HAVING FIRST VARIATIONS OF A FIRST PHYSICAL PARAMETER CORRESPONDING TO INFORMATION RECORDED THEREON AND SECOND VARIATIONS OF A SECOND PHYSICAL PARAMETER RELATING TO RECOVERY OF THE INFORMATION

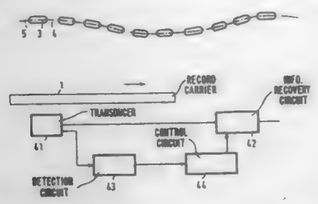
Jozef M.K. Timmermans, Hasselt, Belgium; Erik C. Schylander, and Johannes J. Mons, both of Eindhoven, Netherlands, assignors to U.S. Phillips Corporation, New York, N.Y.

Division of Ser. No. 983,901, Dec. 1, 1992, abandoned. This application Feb. 14, 1995, Ser. No. 388,536

Claims priority, application European Pat. Off., Dec. 2, 1991, 91203147

Int. Cl.[6] G11B 7/00

U.S. Cl. 369—48 **10 Claims**



1. A record carrier, exhibiting:

first variations of a first physical parameter of the record carrier, said first variations corresponding to information recorded on the record carrier, which information is recoverable by means of a predetermined type of data processing; and

second variations of a second physical parameter of the record carrier, said second variations exhibiting a modulation pattern representing a code which indicates the type of data processing to be used to recover the information, and said second physical parameter is caused by variations associated with a track of said record carrier.

5,724,328

DISK DRIVE APPARATUS HAVING IMPROVED INITIALIZATION PROCESS

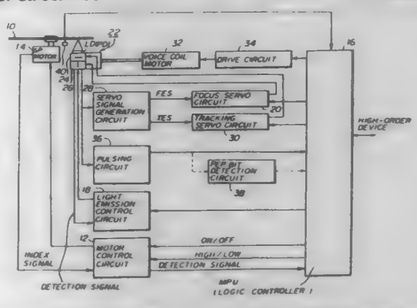
Shigenori Yanagi, Kawasaki, Japan, assignor to Fujitsu Limited, Kawasaki, Japan

Division of Ser. No. 348,182, Nov. 28, 1994, which is a continuation of Ser. No. 115,988, Sep. 18, 1993, abandoned, which is a continuation of Ser. No. 584,350, Sep. 18, 1990, abandoned. This application Jun. 6, 1995, Ser. No. 467,692

Claims priority, application Japan, Sep. 18, 1989, 1-241294

Int. Cl.[6] G11B 7/00

U.S. Cl. 369—50 **30 Claims**



1. A method of disk drive control, said method comprising the steps of:

(a) accelerating a recording medium, of a disk shape and positioned adjacent to an optical head for being driven in rotation in relation thereto, until a rotating speed of the recording medium reaches a predetermined constant rotating speed at which user data on the recording medium can be read therefrom by the optical head, said step (a) comprising the substeps of:

(a1) accelerating the recording medium adjacent to the optical head until the rotating speed of the recording medium reaches an intermediate rotating speed, less than the predetermined constant rotating speed;

(a2) maintaining the recording medium at the intermediate speed until a step (c) is complete; and

(a3) accelerating the recording medium from the intermediate rotating speed to the predetermined constant rotating speed;

(b) reading control information from a PEP zone of the recording medium after the recording medium has accelerated to the intermediate rotating speed in step (a1), the control information including information for adjusting an amount of light to be omitted from the optical head to a predetermined light level;

(c) adjusting an amount of light emitted from the optical head onto the recording medium in accordance with the control information read from the PEP zone in step (b) and so that the amount of light emitted becomes equal to the predetermined light level before the rotating speed of the recording medium reaches the predetermined constant rotating speed in said step (a3);

(d) focusing the optical head in accordance with performing focus servo pull-in control so that an appropriate spot of light is formed on the recording medium after said step (b) and before the rotating speed of the recording medium reaches the predetermined constant rotating speed in said step (a3); and

(e) performing read/write operations after said step (d).

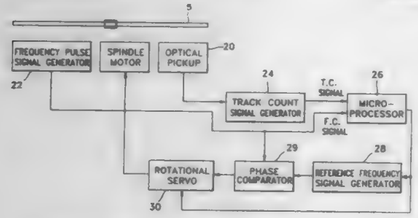
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5,724,329

APPARATUS FOR CONTROLLING ROTATIONAL SERVO BY USING FREQUENCY PULSE SIGNAL GENERATOR

Young-Han Kim, Suwon, Rep. of Korea, assignor to Samsung Electronics Co., Ltd., Kyungki-do, Rep. of Korea

Filed Jul. 22, 1996, Ser. No. 685,916
Claims priority, application Rep. of Korea, Aug. 22, 1995, 95-25972
Int. Cl.[6] G11B 7/00
U.S. Cl. 369—50 3 Claims



1. A rotational servo controlling apparatus for controlling the rotational speed of a spindle motor comprising:

a frequency pulse signal generator for generating a frequency pulse signal indicating the current rotational speed of the spindle motor;

a track count signal generator for counting the number of tracks from the current track to an object track, and generating a corresponding track count signal;

a microprocessor receiving said frequency pulse signal and said track count signal and issuing a command to generate a reference frequency pulse signal for said object track;

a reference pulse signal generator for generating said reference frequency pulse signal in response to the command of said microprocessor;

a phase comparator for comparing said frequency pulse signal received from said frequency pulse signal generator and said reference frequency pulse signal for the object track received from said reference frequency pulse signal generator and output a comparison signal; and

a rotational servo receiving the comparison signal and controlling the rotational speed of the spindle motor to rotate at speed proper for the reading of data from the object track.

5,724,330

INFORMATION RECORDING MEDIUM WHEREIN MULTI-BIT DIGITAL INFORMATION IS REPRESENTED BY A SHIFT AMOUNT OF A PIT EDGE, RECORDING APPARATUS, REPRODUCING APPARATUS, AND RECORDING AND REPRODUCING APPARATUS THEREFOR

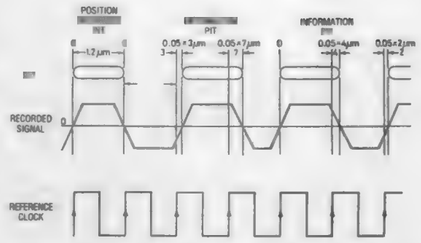
Seiji Kobayashi; Hiroshige Okamura, both of Kanagawa; Hisayuki Yamatsu, and Toshiyuki Kashiwagi, both of Tokyo, all of Japan, assignors to Sony Corporation, Tokyo, Japan

PCT No. PCT/JP92/01250, § 371 Date Oct. 13, 1993, § 102(e) Date Oct. 13, 1993, PCT Pub. No. WO93/16467, PCT Pub. Date Aug. 19, 1993
Continuation of Ser. No. 676,903, Jul. 8, 1996, abandoned, which is a continuation of Ser. No. 133,156, Oct. 13, 1993, abandoned. This PCT application Sep. 30, 1992, Ser. No. [illegible]
Claims priority, application Japan, Feb. 14, 1992, 4-059710; Jul. 10, 1992, 4-207074
Int. Cl.[6] G11B 5/76;3/70
U.S. Cl. 369—59 11 Claims

7. An information recording medium for recording an n-bit digital data, the information recording medium comprising:

an information pit along a track of the recording medium having an edge displaced from a predetermined reference position by a shift amount from among 2^n possible shift amounts (first through 2^n), each of the 2^n possible shift amounts corresponding to a unique n-bit digital data, wherein a first shift amount is zero, wherein a second shift amount is one step distance from the predetermined reference position, wherein a third shift amount is two steps of distance from the predetermined reference position, wherein each successive shift amount is one additional step of distance from the preceding shift amount, such that the 2^nth shift amount is 2^n-1 steps of distance from the predetermined reference position;

a plurality of 2^{2n} servo areas each containing an education pit from among a plurality of education pits, each servo area having a first education edge displaced from a corresponding first predetermined education reference position by a first education shift amount from among the 2^n possible shift amounts, each servo area having a second education edge displaced from a corresponding second predetermined education reference position by a second education shift amount from among the 2^n possible shift amounts, wherein the plurality of 2^{2n} servo areas includes all 2^{2n} permutations of first and second education shift amounts.

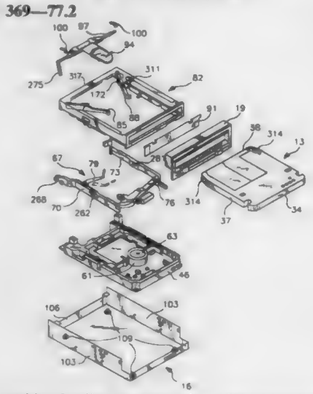


5,724,331

DISK DRIVE SYSTEM HAVING IMPROVED CARTRIDGE-LOADING APPARATUS INCLUDING DIRECT DRIVE GEAR TRAIN AND METHODS FOR MAKING AND OPERATING SAME

Marvin B. Davis, and Kent Murphy, both of Colorado Springs, Colo., assignors to Discovision Associates, Irvine, Calif.

Filed Aug. 25, 1994, Ser. No. 296,794
Int. Cl.[6] G11B 17/04
U.S. Cl. 369—77.2 12 Claims



1. A cartridge loading apparatus in a disk drive having a cartridge loading end, a remote end, and a base plate, said cartridge loading apparatus comprising:

a first slider having a forward end adjacent the cartridge loading end of the disk drive and a remote end adjacent the remote end of the disk drive, said first slider further having only one S-shaped slot formed therein to provide a first low-resistance linking connection;

a second slider having a forward end adjacent the cartridge loading end of the disk drive and a remote end adjacent the remote end of the disk drive, said second slider further having only one S-shaped slot formed therein to provide a second low-resistance linking connection;

a tiller having a first end and a second end, said first end of said tiller being swingably linked with said forward end of said first slider, and said second end of said tiller being swingably linked with said forward end of said second slider, so that a first rotation of said tiller in a first direction about a tiller axis drives said first slider toward the cartridge loading end of the disk drive while driving said second slider toward the remote end of the disk drive, and a second rotation of said tiller in a second direction about said tiller axis drives said first slider toward the remote end of the disk drive while driving said second slider toward the cartridge loading end of the disk drive;

a cartridge receiver for receiving a respective cartridge containing a disk with a central hub, said cartridge receiver being linked to said first slider and to said second slider by their respective S-shaped slots and movable between an upper position and a lower position when said sliders are driven by said tiller;

a stop cooperative with said cartridge receiver, said stop for preventing said cartridge receiver from further movement when the disk is fully loaded;

drive means for providing a controllable force to said tiller so that the tiller is controllably rotated about said tiller axis;

a gear train interposed between said drive means and said tiller, said gear train directly transmitting said controllable force provided by said drive means, said gear train thereby providing an efficient transfer of said controllable force; and

a cam operatively associated with said tiller and said gear train for rotating said tiller about said tiller axis so that when said first and second sliders move said cartridge receiver between said upper position and said lower position, said cartridge receiver, respective cartridge, and disk move along a non-horizontal path while tilting to thereby reduce the force needed to remove the central hub from a spindle magnet while said first and second low-resistance linking connections provided by the respective S-shaped slots further contribute to reducing the force needed to drive said first and second sliders.

5,724,332

DISK LOADING TECHNIQUE PERMITTING LOADING OF BOTH A DISK SET IN A DISK LOADING ADAPTOR AND A NAKED DISK

Mikio Ogusu, Hamamatsu, Japan, assignor to Yamaha Corporation, Hamamatsu, Japan

Filed Jun. 6, 1995, Ser. No. 470,979
Claims priority, application Japan, Jun. 13, 1994, 6-154140
Int. Cl.[6] G11B 17/03;23/03
U.S. Cl. 369—77.2 9 Claims

2. A disk loading adaptor for attachment to a disk drive, said disk loading adaptor comprising:

a tray member for removably holding an information recording disk;

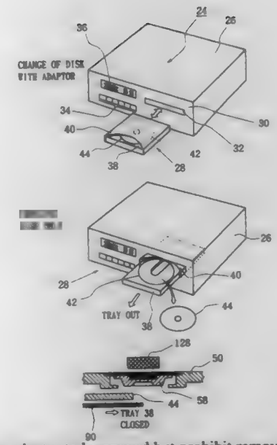
a case member mounted on said tray member and movable relative to said tray member to open or close said disk loading adaptor, the disk being held on said tray member in a space formed between said tray and case members; and

a clamping pulley which is vertically movably provided on the case member,

wherein the disk held on said tray member can be changed for another disk by moving at least one of said tray and case members outwardly away from the other of said tray and case members to open said disk loading adaptor while the other remains fixedly attached to said disk drive by engagement with an engagement means, which is in said disk drive and engages with said disk loading adaptor to allow said disk loading adaptor to be opened but prohibit removal of said disk loading adaptor from said disk drive,

the clamping pulley is evacuated by magnet means to a predetermined position away from the disk when the tray member holding the disk slides relative to the case member so that the disk does not collide with the clamping pulley, and

said engagement means is releasable to allow said disk loading adaptor to be completely removed from said disk drive.



5,724,333

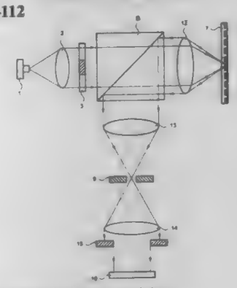
Patent Not Issued For This Number

5,724,334

OPTICAL HEAD DEVICE UTILIZING SUPER-RESOLUTION TECHNIQUE

Akitomo Ohba; Masahiko Sato, and Jun-ichi Takahashi, all of Tokyo, Japan, assignors to NEC Corporation, Tokyo, Japan

Filed Nov. 15, 1995, Ser. No. 559,290
Claims priority, application Japan, Nov. 15, 1994, 6-280206; Nov. 15, 1994, 6-280207; Dec. 12, 1994, 6-332049
Int. Cl.[6] G11B 7/00
U.S. Cl. 369—112 11 Claims



1. An optical head device comprising:

a light source for emitting laser light;

a super-resolution filter for providing a predetermined light intensity distribution with respect to the laser light from said light source;

an objective lens for converging on a date recording medium the laser light that has passed through said super-resolution filter and for collecting the light from said data recording medium;

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a reconverging optical means for reconverging the light that has been reflected from said data recording medium and has been transmitted through said objective lens;

a light pass limiting means for allowing a center portion of a flux of the light reconverged by said reconverging optical means to pass;

a photo-detecting means for detecting the light that has passed through said light path limiting means; and

a collecting leans positioned between said limiting means and said photo-detecting means;

an aperture positioned between said collecting lens and said photo-detecting means.

5,724,335

OBJECTIVE LENS FOR RECORDING AND REPRODUCING FOR USE IN AN OPTICAL INFORMATION RECORDING MEDIUM

Masaya Kobayashi, Hachioji, Japan, assignor to Konica Corporation, Tokyo, Japan

Filed Oct. 22, 1996, Ser. No. 735,273
Claims priority, application Japan, Oct. 25, 1995, 6-299281
Int. Cl.[6] G11B 7/00
U.S. Cl. 369—112 23 Claims



15. An objective lens in which when the objective converges a light emitted from a light source onto an information recording surface of a first optical information recording medium through a transparent substrate having a first thickness, the objective lens has a first lateral magnification m_1 and a first numerical aperture NA_1, and when the objective converges the ray emitted from the light source onto an information recording surface of a second optical information recording medium through a transparent substrate having a second thickness, the objective lens has a second lateral magnification m_2 that is less than m_1 and a second numerical aperture NA_2, the objective lens comprising:

(a) a first surface; and

(b) a second surface provided opposite the first surface,

wherein the objective lens satisfies the following conditional expression,

$$NA_1 > NA_2,$$

and wherein an amount of an offense against sine condition $SC(m_1:NA_2)$ represented by the following expression for NA_2 at the first lateral magnification m_1 of the objective lens satisfies the following conditional expression,

$$0.06 \geqq SC(m_1:NA_2)/f \geqq 0.002$$

and

$$SC(m_1:NA_2)=d_2-\cos(u_2)/NA_2-(1-m_1)\cdot f$$

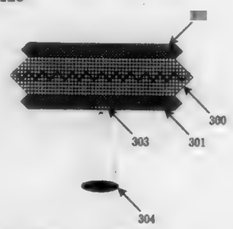
wherein f represents a focal length of the objective lens, NA_2 represents a numerical aperture of the objective lens at the second lateral magnification m_2, d_2 represents a height of a ray on a principal plane of the objective lens from an optical axis for the numerical aperture NA_2 at the first lateral magnification m_1, and u_2 represents an incident angle of the ray to the objective lens for the numerical aperture NA_2 at the first lateral magnification m_1.

5,724,336

TERA-BYTE DISK DRIVE

Steven G. Morton, 9 Old Good Hill Rd., Oxford, Conn. 06478

Filed Apr. 25, 1995, Ser. No. 427,456
Int. Cl.[6] G11B 9/00
U.S. Cl. 369—126 19 Claims



1. A data storage unit, comprising:

at least one planar substrate comprising a core that supports a layer of dielectric material;

at least one read/write head that is coupled to an actuator for translating said at least one read/write head over said layer of dielectric material, said at least one read/write head comprising at least one read electrode structure coupled to a read receiver circuit on said read/write head and at least one write electrode structure coupled to a write control circuit on said read/write head, said write electrode structure being responsive to said write control circuit for emitting charge carriers towards said layer of dielectric material for storage in said layer of dielectric material as a charge packet, said read electrode structure being responsive to an electric field of a charge packet stored in said layer of dielectric material for outputting a signal to said read receiver circuit; and

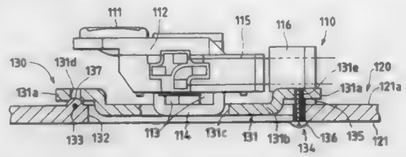
means for levitating said read/write head over said layer of dielectric material during a rotation of said planar substrate.

5,724,337

OPTICAL PICKUP WITH A COMPACT DESIGN

Noriyuki Kawano; Kouichi Ogura; Yoshio Saito; Mitsuru Kinouchi; Nobuo Uekusa, and Hiroyuki Matsuura, all of Tokyo, Japan, assignors to TDK Corporation, Tokyo, Japan

Continuation of Ser. No. 330,671, Oct. 28, 1994, abandoned.
This application Feb. 27, 1997, Ser. No. 810,340
Claims priority, application Japan, Oct. 29, 1993, 5-271595; Nov. 22, 1993, 5-292006; Dec. 1, 1993, 5-301689; Dec. 22, 1993, 5-346418
Int. Cl.[6] G11B 17/00;21/16;7/00
U.S. Cl. 369—244 22 Claims



1. A mechanism for adjusting inclination of an objective lens for use in an optical pickup including an objective-lens driving device having an object lens, a yoke and at least one permanent magnet, and an optical system for transmitting and receiving light to and from said objective lens, said yoke and said at least one permanent magnet constituting a magnetic circuit, said mechanism comprising:

a base having a through hole formed therein, on which said objective-lens driving device and said optical system are mounted to accommodate at least a part of a bottom portion of said objective-lens driving device in said through hole;

a contacting portion between said objective-lens driving device and the base, said contacting portion forming an inclining fulcrum for inclining said objective lens relative to said base, said contacting portion forming the inclining fulcrum being located between a bottom and a top of the objective lens driving device; and

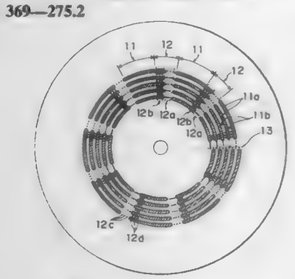
height adjusting means for inclining said objective-lens driving device about said inclining fulcrum.

5,724,338

REWRITABLE DISK-SHAPED OPTICAL RECORDING MEDIUM

Masahiro Birukawa, Hirakata; Norio Miyatake, Kobe; Yuuichi Fukamachi, Ikoma; Yoshihiko Kudoh, Yawata, and Yasumori Hino, Hirakata, all of Japan, assignors to Matsushita Electric Industrial Co., Ltd., Osaka-fu, Japan

Division of Ser. No. 409,009, Mar. 23, 1995, which is a division of Ser. No. 118,232, Sep. 9, 1993, Pat. No. 5,422,874. This application Sep. 13, 1996, Ser. No. 712,804
Claims priority, application Japan, Sep. 10, 1992, 4-241595
Int. Cl.[6] G11B 7/24
U.S. Cl. 369—275.2 21 Claims



1. A rewritable disk-shaped optical recording medium, comprising:

a track having a plurality of turns, each of which is divided into a plurality of sector portions;

wherein a first plurality of said sector portions comprises land sector portions and a second plurality of said sector portions comprises groove sector portions;

wherein said land sector portions and said groove sector portions are alternatingly provided along a radial direction;

wherein each of said groove sector portions comprises a groove area and a non-groove area, and each of said land sector portions comprises a land constituting a non-groove area;

wherein each of said land sector portions includes a first read-only area comprising first pits, and a first rewriting area for recording and reading of data;

wherein each of said groove sector portions includes a second read-only area comprising second pits, and a second rewriting area for recording and reading of data;

wherein said second read-only area of each of said groove sector portions is formed in said non-groove area thereof;

wherein said first read-only area of each of said land sector portions is formed in said non-groove area thereof; and

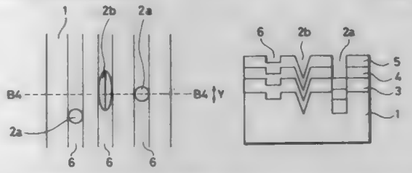
wherein the pits of the first and second read-only areas of each adjacent pair of the land sector portions and groove sector portions are shifted in location from each other in the circumferential direction thereof such that they do not overlap each other in the radial direction.

5,724,339

OPTICAL RECORDING MEDIUM HAVING RECORDING PITS OF DIFFERENT SHAPES

Masatsugu Ogawa, Tokyo, Japan, assignor to NEC Corporation, Japan

Filed Mar. 25, 1996, Ser. No. 621,478
Claims priority, application Japan, Mar. 31, 1995, 7-097610
Int. Cl.[6] G11B 7/24
U.S. Cl. 369—275.4 9 Claims



1. A light-reproduction medium, data stored therein being reproduced by detecting at least one of light transmitted therethrough and light reflected therefrom, said light-reproduction medium comprising:

a substrate formed on a surface thereof with at least two recording pits having different level from said surface of said substrate, each of said recording pits having a cross-section selected from at least two different shapes, said cross-section being defined as viewed in a direction perpendicular to a direction Y in which said light-reproduction medium is moved relative to an optical head, at least two recording pits among said recording pits being asymmetrical in shape about an axis passing through a midpoint thereof and parallel to said direction Y.

5,724,340

APPARATUS AND METHOD FOR AMPLITUDE TRACKING

Robert V. Jones, Bountiful; Richard J. Saggio, Salt Lake City, and John W. Zscheile, Jr., West-Farmington, all of Utah, assignors to Unisys Corporation, Blue Bell, Pa.

Filed Feb. 2, 1995, Ser. No. 382,738
Int. Cl.[6] H04J 13/00
U.S. Cl. 370—203 10 Claims

1. A method for modulating a first signal with a second signal such that the amplitude of the second signal does not significantly exceed the amplitude of the first signal at any one time, comprising the steps of:

obtaining a first plurality of values of the first signal, taken at different times, wherein each of said first plurality of values is taken from a different portion of the first signal, said first plurality of values are arranged in a sequence corresponding to the order of the corresponding values of the first signal, and said first plurality of values includes a first portion and a second portion wherein said second portion follows said first portion;

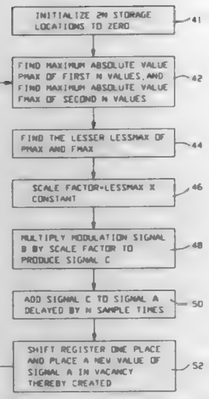
determining the maximum absolute value of all values of said first portion, and the maximum absolute value of all values of the second portion;

determining the lesser of the two maximum absolute values;

determining a scale factor based on the lesser of the two maximum absolute values;

scaling the amplitude of the second signal, using the scale factor, to produce a third signal;

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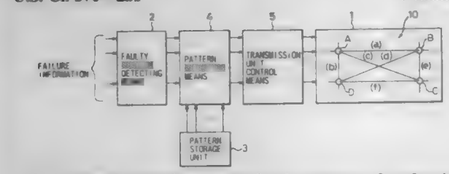
combining the third signal with a delayed first signal, wherein the first signal is delayed by a number of intervals of the values that is equal to the number of values in the first portion.

5,724,341

NETWORK CONTROL APPARATUS

Yoshitsugi Inoue, Kawasaki, Japan, assignor to Fujitsu Limited, Kanagawa, Japan

Filed Dec. 19, 1995, Ser. No. 574,864
Claims priority, application Japan, Dec. 27, 1994, 6-325673
Int. Cl.[6] H04B *1/74*
U.S. Cl. 370—221 **4 Claims**



1. A network control apparatus for the purpose of performing control of a network which is made up of a plurality of transmission units and a plurality of circuits which make connection between said plurality of transmission units, and said network performing communication of information between different points in said network over prescribed circuit paths formed by said plurality of circuits, each of said plurality of transmission units being represented as terminals within said network, said network being arranged by means of said plurality of transmission units and said plurality of circuits into terminal networks of four or more terminals, said network control apparatus comprising:

a faulty circuit path detecting means which detects a faulty circuit path which includes a circuit in which a failure has occurred, based on failure information with regard to failures which may occur in each said terminal network;

a pattern storage unit in which are pre-stored patterns, for each said terminal network, with regard to the transmission lines which could be taken in each of said terminal networks;

a pattern selection means which, when a said faulty circuit path is detected, selects from said pattern storage means a pattern of said patterns corresponding to an alternative route other than said faulty circuit path; and

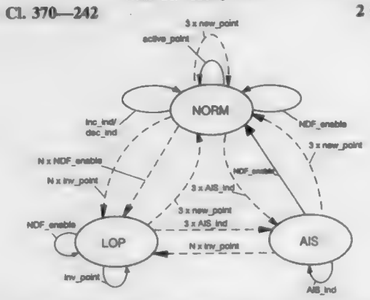
a transmission unit control means which controls the operation of each of said transmission units which are included in a faulty circuit path in accordance with a transmission line which includes said selected pattern.

5,724,342

METHOD FOR RECEIVING A SIGNAL IN A SYNCHRONOUS DIGITAL TELECOMMUNICATIONS SYSTEM

Tuomo Sihvola, Helsinki; Toni Oksanen, Espoo, and Sixten Johansson, Helsinki, all of Finland, assignors to Nokia Telecommunications Oy, Espoo, Finland

PCT No. PCT/FI94/00506, § 371 Date Jun. 28, 1996, § 102(e) Date Jun. 28, 1996, PCT Pub. No. WO95/13673, PCT Pub. Date May 18, 1995
PCT Filed Nov. 10, 1994, Ser. No. 640,936
Claims priority, application Finland, Nov. 12, 1993, 935026
Int. Cl.[6] H04J *3/12*
U.S. Cl. 370—242 **2 Claims**



1. A method for receiving a signal used in a synchronous digital telecommunications system, the signal having a frame structure with a predetermined number of bytes of fixed length and comprising a pointer indicating the phase of payload within the frame structure, comprising:

performing pointer interpretation in regard to a receiver which has three possible main states, the receiver entering from one main state to another under the control of event number counting of a succession of events, said main states being a normal state, a loss of pointer state and an alarm state, and said events comprising reception of a new pointer indicating a new pointer value;

counting the number of successive new pointers using a new pointer counter, and, when being in the loss of pointer state, entering the normal state after a new pointer has been received a predetermined number of time in succession, including continuing said counting of the new pointers upon transition from the normal state to the loss of pointer state, irrespective of said state transition without resetting the new pointer counter in consequence of each transitional loss of pointer state.

5,724,343

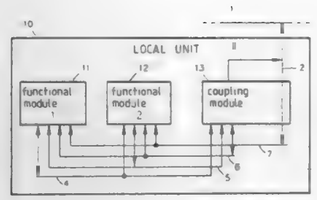
DEVICE FOR COMMUNICATIONS BETWEEN A PLURALITY OF FUNCTIONAL MODULES INSTALLED IN A LOCAL UNIT AND AN ARINC 629 TYPE EXTERNAL BUS

Isabelle Pain, Josas; Patrice Toillon, Le Pecq; Michel Ducateau, Nogent Le Roi, and Christian Sannino, Vieille Eglise En Yvelines, all of France, assignors to Sextant Avionique, Velizy Villacoublay, France

Filed Jul. 3, 1996, Ser. No. 675,072
Claims priority, application France, Jul. 7, 1995, 95 08339
Int. Cl.[6] H04J *1/16*
U.S. Cl. 370—242 **11 Claims**

1. A device for communications between a plurality of functional modules installed in a local unit and a multiplexed, multitransmitter, multireceiver external bus for communications with other local units, said device comprising:

at least as many internal busses as there are functional modules susceptible of transmitting data to the other modules of said local unit and to said external bus, each internal bus being of the multiplexed, multitransmitter, multireceiver type, and



complying with the time protocol and the format of the data transiting on said external bus, said functional modules being coupled to said internal busses so that each module susceptible of transmitting data is the sole transmitter on at least one of said internal busses and a receiver on the other internal busses;

an additional internal bus associated with the external bus, ensuring dissemination within said local unit of the data transiting on said external bus, this dissemination bus being of the same type as said internal busses and being connected to said external bus and to said functional modules; and

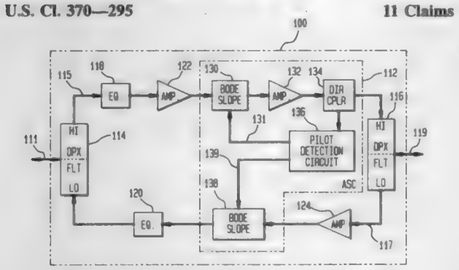
a coupling module designed to transfer, to said external bus, data circulating on said internal busses and destined for another local unit connected to said external bus.

5,724,344

AMPLIFIER USING A SINGLE FORWARD PILOT SIGNAL TO CONTROL FORWARD AND RETURN AUTOMATIC SLOPE CIRCUITS THEREIN

William Federick Beck, 2735 Pioneer Rd., Hatboro, Pa. 19040

Filed Apr. 2, 1996, Ser. No. 626,352
Int. Cl.[6] H03F *3/62*
U.S. Cl. 370—295 **11 Claims**



1. A bidirectional amplifier comprising:

first and second paths for propagating a first signal including a pilot signal and a second signal, respectively, having respective first and second different frequency bands in first and second opposite directions, respectively, within the bidirectional amplifier;

coupling means for coupling the first and second signals received from first and second cable paths, respectively, of a transmission medium onto the respective first and second paths and for coupling the second and first signals from the second and first paths, respectively, onto the respective second and first cable paths; and

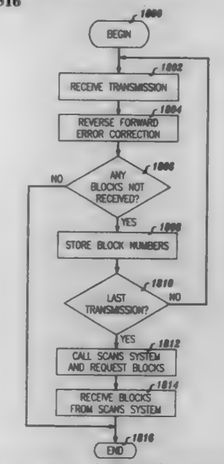
compensating means, which is disposed in the first and second paths and is responsive to the pilot signal in the first signal, for independently changing equalization and amplification of each of the first and second signals across the first and second frequency bands, respectively, propagating in the respective first and second paths for independently compensating for signal attenuation changes occurring in the first cable path of the transmission medium.

5,724,345

SYSTEM AND METHOD FOR A SCALABLE AND RELIABLE TRANSMISSION OF ELECTRONIC SOFTWARE DISTRIBUTION

Paul Joseph Guarneri, Naperville, Ill.; Thomas Joseph Killian, Westfield, N.J.; Venkata Chalapathi Majeti, Naperville, Ill., and Norman Loren Schryer, New Providence, N.J., assignors to Lucent Technologies Inc., Murray Hill, N.J.

Filed Dec. 13, 1995, Ser. No. 572,248
Int. Cl.[6] H04L *1/08;* **H04B** *7/185*
U.S. Cl. 370—316 **11 Claims**



1. A system for scalable and reliable broadcast for data distribution comprising:

an earth station having a source of said data, an earth orbiting satellite, and

a plurality of receiving earth stations for receiving said data;

said earth orbiting satellite including means for receiving data from said source earth station and means for retransmitting said data to said plurality of receiving earth stations;

said source earth station including means for formatting said data into a plurality of data blocks, said data blocks including block correction information, means for packing said plurality of data blocks into a series of cells, said series of cells including cell correction information, and means for repetitively transmitting said series of cells to said satellite;

said plurality of earth receiving stations including means for receiving said series of cells, means for detecting errors in each of said series of cells and for correcting said cells using said cell correction information, means for unpacking said cells and for reforming said plurality of data blocks, means for detecting errors in ones of said plurality of data blocks and correcting said errors with said block correction information, means for unformatting said plurality of data blocks into said data, and means for monitoring a next one of said repetitive transmission only for data blocks previously received which contain errors that could not be corrected by said means for correcting said cells and said means for correcting using said plurality of data blocks; so that said data is received accurately at each of said receiving stations without acknowledg-

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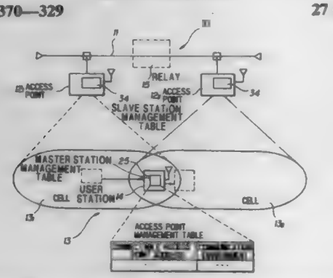
ment of data receipt from any of said plurality of receiving stations sent back to said earth station.

5,724,346

MEANS FOR MAINTAINING CONNECTABLE ACCESS POINTS OWING TO MOVEMENT OF A MOBILE STATION BETWEEN CELLS IN A WIRELESS LAN SYSTEM

Naofumi Kobayashi; Kiyotaka Shikata, and Osamu Sekihata, all of Kawasaki, Japan, assignors to Fujitsu Limited, Kanagawa, Japan

Filed Sep. 18, 1995, Ser. No. 529,525
Claims priority, application Japan, Jan. 11, 1995, 7-002481
Int. Cl.[6] H04J *3/02*
U.S. Cl. 370—329 **27 Claims**



1. A wireless LAN system comprising two or more access points connected to a LAN, each access point having a slave-station management table for managing user station addresses that are under its supervision, and user stations connected to terminals for wirelessly sending and receiving signals to and from the access points, each of said user stations searching for a connectable access point for connection thereto as a new access point when said user station moves, connecting itself to a new access point that has been found, and subsequently sending signals to and receiving signals from the new access point, wherein each of said user stations comprises:

search means for searching for a connectable access point, said searching being performed before connection to the connectable access point becomes necessary;

a master-station management table for holding the address of the connectable access point; and

master/user station connection control means for sending a connection request to the connectable access point having said address held in said master-station management table when connection to the new access point becomes necessary.

5,724,347

INTEGRATED NETWORK SWITCH HAVING UNIVERSAL SHELF ARCHITECTURE WITH FLEXIBLE SHELF MAPPING

Karen Bell, and John Monteschio, both of Novato, Calif., assignors to Harris Corporation, Melbourne, Fla.

Filed Jun. 10, 1994, Ser. No. 257,887
Int. Cl.[6] H04J *3/02*
U.S. Cl. 370—377 **22 Claims**

1. An integrated network switch comprising:

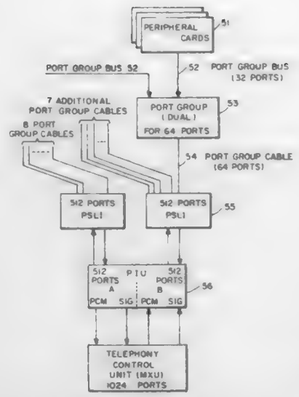
a plurality of peripheral shelves, each having a plurality of ports for respective peripheral devices;

a common control;

an interface disposed between the common control and the peripheral shelves;

a plurality of switching means included in said common control, each having switch ports for selectively inter-connecting ports corresponding to said peripheral devices;

means for identifying each of said plurality of switch means;



means for identifying a peripheral shelf as an identified peripheral shelf, including a shelf type of said identified peripheral shelf and port numbers associated with the identified peripheral shelf;

means for identifying available switch means of said common control for ports associated with each shelf to be connected to the switch means; and

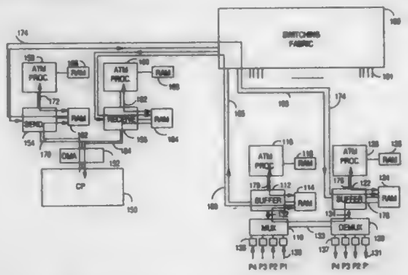
means for dynamically designating ports of the identified peripheral shelf to switch ports of the available switch means.

5,724,348

EFFICIENT HARDWARE/SOFTWARE INTERFACE FOR A DATA SWITCH

Claude Basso, Nice; Jean Calvignac, La Gaude; Mathieu Girard, Saint Laurent du Var; Daniel Orsatti, Cagnes Sur Mer; Michel Susini, Saint Laurent du Var, and Fabrice Verplanken, La Gaude, all of France, assignors to International Business Machines Corporation, Armonk, N.Y.

Continuation-in-part of Ser. No. 547,825, Oct. 25, 1995, abandoned. This application May 5, 1997, Ser. No. 858,156
Claims priority, application European Pat. Off., Apr. 5, 1995, 95480039
Int. Cl.[6] H04L *12/56*
U.S. Cl. 370—384 **2 Claims**



1. A data switch for switching fixed length cells comprising:

a) a switching fabric having multiple inputs and multiple outputs, said switching fabric being capable of switching a fixed length cell received on any of the multiple inputs to any of the multiple outputs;

b) one or more input/output adapters, each connected to said switching fabric through at least one input and one output, each said adapter receiving data cells on one set of ports from a source external to the data switch for transfer to the switching fabric on internal cell paths and transmitting data cells received from said switching fabric on internal cell paths to another set of ports for transfer to a destination external to the data switch, each said adapter including one or more hardware modules for controlling the processing of data cells; and

c) a control element connected to said switching fabric through at least one input and one output and including a control processor for generating control cells which can be directed to said hardware modules on said internal cell paths and through said switching fabric to allow the control processor to control the data switch operations,

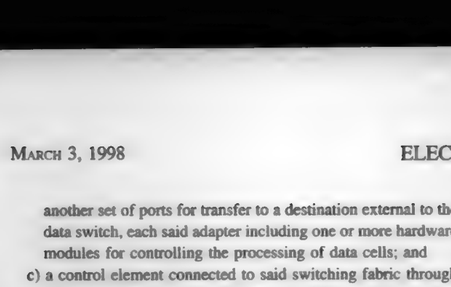
at least predetermined ones of said hardware modules further including a processor for generating control cells for transmission over said internal cell paths and through said switching fabric to an input of said control processor for use by said control processor in controlling data switch operations.

5,724,349

TERABIT PER SECOND ATM PACKET SWITCH HAVING OUT-OF-BAND CONTROL WITH MULTI CASTING

Thomas Jay Cloonan, Downers Grove, and Gaylord Warner Richards, Lisle, both of Ill., assignors to Lucent Technologies Inc., Murray Hill, N.J.

Filed Aug. 31, 1995, Ser. No. 521,676
Int. Cl.[6] H04L *12/56*
U.S. Cl. 370—390 **17 Claims**



1. A packet switch for switching packets from at least one of a plurality of input lines to a plurality of output lines, comprising:

a plurality of input interfaces, each having an input port connected to a respective input line of said plurality of input lines, and each of said input interfaces having an output port;

a network for switching a plurality of I input ports to a plurality of P output ports;

each of said plurality of input interface output ports is fanned out to a respective group of F of said I input ports of said network

said network having a plurality of C pipes, where C is an integer of a value equal to P/I;

a plurality of output modules, said output modules together having a plurality of inputs, each of said output module inputs connected to respective output port of said plurality of P output ports, and together having a plurality of outputs, each of said output module outputs connected to a respective output line of said plurality of output lines;

each pipe of said C pipes having a path from each of the plurality of inputs lines that is connectable to a respective output line of the plurality of output lines; and

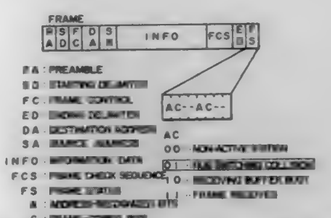
an out of band controller multicasting at least one packet from said plurality of input lines to multiple output lines.

5,724,350

DATA TRANSMISSION METHOD AND SYSTEM FOR HUB-BASED NETWORK

Takuji Hamada, Hitachiota; Norihiko Sugimoto, Katsuta; Kinshirou Oonishi; Shunji Inada, both of Hitachi; Yoshinori Ohkura, Mito, and Katsuhiko Yoneda, Ibaraki-ken, all of Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Continuation of Ser. No. 49,292, Apr. 20, 1993. This application Jun. 12, 1995, Ser. No. 489,475
Claims priority, application Japan, Apr. 22, 1992, 4-102729
Int. Cl.[6] H01J *3/14*
U.S. Cl. 370—392 **5 Claims**



1. A method for transmitting data in a hub-based network to which a plurality of communication devices are connected through a hub in accordance with a communication based on a protocol of CSMA/CD (Carrier Sense Multiple Access with Collision Detection), comprising the steps of:

receiving by said hub, through transmission lines, a plurality of data frames transmitted from said communication devices, said data frames each having a transmission request from a communication device;

detecting a destination communication device for each of said data frames to be relayed based on a destination address in said each data frame;

when a plurality of said communication devices have transmission requests for transmitting data to a same destination communication device, relaying by said hub, a data frame from one communication device of said plurality of said communication devices to said same destination communication device; and

posting, by said hub, a collision signal based on said protocol of CSMA/CD added to each of said data frames transmitted from said communication devices other than said one communication device, to said communication devices other than said one communication device for requesting retransmission of data frames other than said data frame from said one communication device when transmission to said same destination communication device is being occupied by said one communication device.

5,724,351

SCALEABLE MULTICAST ATM SWITCH

Hung-Hsiang Jonathan Chao, 13 Yellow Brook Rd., Holmdel, N.J. 07733, and Byeong-Seog Choe, Hyundae Apt. 92-802, Apkoojung-Dong 482, Kangnam-Koo, Seoul, Rep. of Korea

Filed Aug. 7, 1995, Ser. No. 511,811
Claims priority, application Rep. of Korea, Apr. 15, 1995, 9161
Int. Cl.[6] H04L *12/28;12/56*
U.S. Cl. 370—395 **17 Claims**

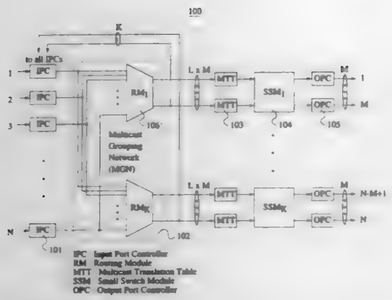
1. A switch for routing cells from a plurality of input ports to a plurality of output ports, the switch comprising:

a) a plurality of input port controllers, each of the plurality of input port controllers

i) having a cell input for receiving cells from an associated one of the plurality of input ports,

ii) having a plurality of feedback inputs,

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iii) having a cell output,

iv) terminating a line of the associated one of the plurality of input ports,

v) buffering a cell received at the associated one of the plurality of input ports,

vi) storing a local priority value based on information included in the cell received at the associated one of the plurality of input ports,

vii) storing a multicast pattern based on information included in the cell received at the associated one of the plurality of input ports,

viii) comparing each of a plurality of feedback priority values, provided at the plurality of feedback inputs, with the stored local priority value to form a set of comparison results,

ix) updating the multicast pattern based on the set of comparison results, and

x) applying one of a next cell received at the associated one of the plurality of input ports and the cell buffered, to the cell output based on the updated multicast pattern; and

b) a plurality of routing modules for routing cells to one of a plurality of output groups, each of the plurality of routing modules

i) having a plurality of inputs, each of the plurality of inputs coupled with the cell output of a corresponding one of the plurality of input port controllers,

ii) having an address generator for generating addresses corresponding to a group of associated output ports,

iii) having an array of switch elements, each of the switch elements having a first input, a second input, a first output and a second output,

wherein the array of switch elements includes an first row of switch elements, a last row of switch elements, a first column of switch elements, a last column switch elements, and an internal array of switch elements not belonging to any one of the first row, the last row, the first column, and the last column,

each of the switch elements of the first row having its second input provided with one of the addresses generated by the address generator and having its second output coupled with the second input of a corresponding switch element in an adjacent row,

each of the switch elements of the first column having its first input coupled with the cell output of an associated input port controller and having its first output coupled with the first input of a corresponding switch element in an adjacent column,

each of the switch elements of the last row having its second output coupled with an associated one of the outputs of the routing module and having its second input coupled with the second output of an associated switch element in an adjacent row,

each of the switch elements of the last column having its first input coupled with the first output of an associated switch element in an adjacent column,

the second output of the switch element belonging to both the last row and the last column providing a feedback priority value which is applied to an associated one of the plurality of feedback inputs in each of the input port controllers,

each of the switch elements belonging to the internal array having

its first input coupled with the first output of an adjacent switch element of a preceding column, and

its second input coupled with the second output of an adjacent switch element of a preceding row,

wherein each of the switch elements have a toggle state in which its first input is coupled with its second output and its second input is coupled with its first output, and a cross state in which its first input is coupled with its first output and its second input is coupled with its second output, and

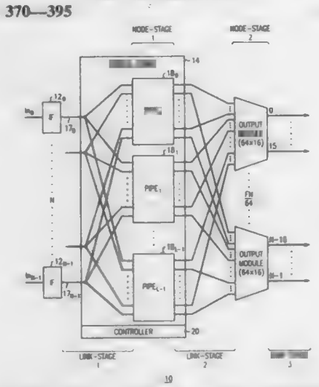
wherein each of the switch elements assume the toggle state when address information of a cell applied at its first input matches address information applied to its second input and priority information of the cell applied at its first input is higher than priority information applied at its second input, and otherwise assumes the cross state.

5,724,352

TERABIT PER SECOND PACKET SWITCH HAVING ASSIGNABLE MULTIPLE PACKET LOSS PROBABILITIES

Thomas Jay Cloonan, Downers Grove, and Gaylord Warner Richards, Lisle, both of Ill., assignors to Lucent Technologies Inc., Murray Hill, N.J.

Filed Aug. 31, 1995, Ser. No. 522,209
Int. Cl.[6] H04L *12/54*
U.S. Cl. 370—395 **21 Claims**



1. A packet switch for switching a telecommunication packet from a plurality of input lines to a plurality of output lines, comprising:

a plurality of input interfaces, each having an input port connected to a respective input line of said plurality of input lines, and each of said input interfaces having an output port;

a network for switching a plurality of I input ports to a plurality of P output ports;

each of said plurality of input interface output ports is fanned out to a respective group of F of said I input ports of said network,

said network having a plurality of C pipes, where C is an integer of a value equal to P/I;

a plurality of output modules, said output modules together having a plurality of inputs, each of said output module inputs connected to respective output port of said plurality of P output ports, and together having a plurality of outputs, each of said output module outputs connected to a respective output line of said plurality of output lines;

each pipe of said C pipes having a path from each of the plurality of inputs lines that is connectable to a respective output line of the plurality of output lines; and

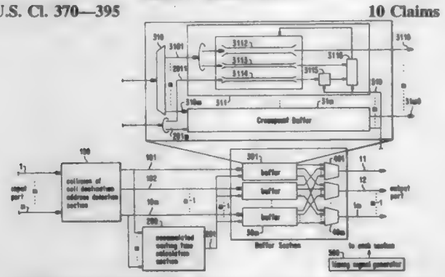
an out of band controller having multiple priority levels for hunting a path through said packet switch for a telecommunication packet.

5,724,353

SELF-ROUTING SWITCH METHOD AND CIRCUIT FOR AN ATM SWITCH

Tsugio Sugawara, Tokyo, Japan, assignor to NEC Corporation, Tokyo, Japan

Filed Dec. 14, 1995, Ser. No. 572,107
Claims priority, application Japan, Dec. 20, 1994, 6-316214
Int. Cl.[6] H04L *12/28*
U.S. Cl. 370—395 **10 Claims**



9. A self-routing switch method for an ATM switch that temporarily stores input cells in cell buffers and reads out the stored input cells from said cell buffers at proper timing comprising:

detecting collision between input cells having the same output port destination address;

determining a cell loss number which indicates a number of input cells having the same output port destination address;

calculating and storing a cell waiting time for an input cell;

simultaneously inputting an input cell, a corresponding cell loss number and the cell waiting time to one of said cell buffers and simultaneously resetting the stored cell waiting time to "0";

finding a maximum cell loss number for all inputted cells, subtracting "1" from the maximum cell loss number and storing the maximum cell loss number as the cell waiting time, and subtracting "1" from the stored cell waiting time for a time interval corresponding to a one cell transmission time until that value becomes "0"; and

storing the cell loss number, the cell waiting time, and the input cells in a crosspoint buffer and, when reading out cells from the crosspoint buffer, subtracting "1" from the cell waiting time value until the cell waiting time becomes "0"; and

subtracting "1" for each time interval corresponding to the one cell transmission time after the cell waiting time value is "0" until the loss cell number also becomes "0", and reading out temporarily stored input cells from the crosspoint buffer and transmitting the cells to output ports from the time the cell loss number becomes "0".

5,724,354

METHOD FOR THE INSERTION OF CELLS INTO AN ATM TYPE FLOW AND IMPLEMENTATION DEVICE

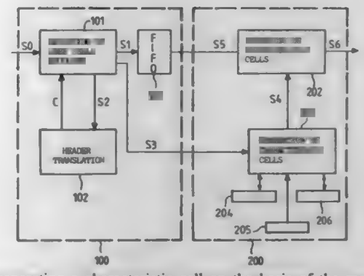
Jean Yves Tremel, Pleumeur-Bodou, and Bertrand Mathieu, Lannion, both of France, assignors to France Telecom, Paris, France

Filed Nov. 8, 1995, Ser. No. 555,294
Claims priority, application France, Nov. 8, 1994, 94 13403
Int. Cl.[6] H04L *12/56*
U.S. Cl. 370—395 **11 Claims**

1. A method for inserting a characteristic cell into a flow of incident cells transmitted along a virtual path according to an ATM standard, the incident cells comprising user cells and vacant cells, wherein said method comprises the following steps:

(A) performing a real-time pre-processing operation on an incoming flow of incident cells so as to 1) form a message that characterizes each said incident cell and that provides a piece of information concerning a type of each said incident cell, and 2) select the user cells and store each said user cell; and

(B) performing a real-time processing operation including



generating a characteristic cell on the basis of the messages formed during the step (A),

if a designated number of user cells has been sent along the path, then inserting the characteristic cell into the flow of incident cells and eliminating one of the vacant cells from the flow of incident cells, and

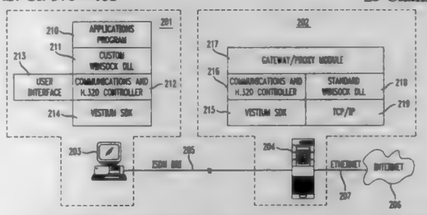
if the designated number of user cells has not been sent along the path, sending a pending user cell further along the path, and generating a vacant cell.

5,724,355

NETWORK ACCESS TO INTERNET AND STORED MULTIMEDIA SERVICES FROM A TERMINAL SUPPORTING THE H.320 PROTOCOL

Richard Frank Bruno, Morristown; Howard Paul Katseff, Manalapan; Robert Edward Markowitz, Glen Rock, all of N.J.; Carlos Alberto Perea, Bethlehem, Pa.; Bethany Scott Robinson, Colts Neck, N.J.; Sethuraman Suresh, Somerset, N.J., and Hugh L. Williams, Hillsborough, N.J., assignors to AT&T Corp, Middletown, N.J.

Filed Oct. 24, 1995, Ser. No. 547,216
Int. Cl.[6] H04L *12/66*; **G06F** *13/00*
U.S. Cl. 370—401 **25 Claims**



1. In a telecommunications network, a method of providing access to the Internet to a multimedia terminal capable of communicating voice, video and data signals over separate voice, video and data streams, respectively, on a bearer channel in accordance with a standardized H.320 protocol, the method comprising the steps of:

establishing a data connection between the multimedia terminal and a gateway server that is remote from the terminal and is connected to the Internet, the data connection being at least in part over the bearer channel on only at least a portion of the data stream, for transmitting data associated with a request and a response to such request to and from a provider connected on the Internet, respectively, while the multimedia terminal simultaneously maintains the capability of transmitting and receiving the video and voice signals on the video and voice streams, respectively, on the bearer channel;

receiving, at the gateway server from the multimedia terminal over the data connection, the data associated with the request;

transmitting, by the gateway server, onto the Internet, an executed request initiated by the terminal to the provider in a format that is compatible for transmission on the Internet;

receiving, at the gateway server, from off the Internet from the provider, a response to the request; and;

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forwarding, by the gateway server, the response to the request to the terminal over the data connection.

5,724,356

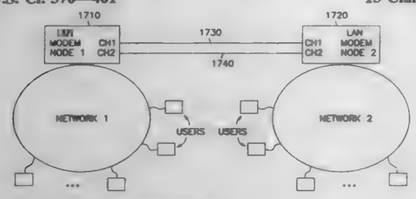
ADVANCED BRIDGE/ROUTER LOCAL AREA NETWORK MODEM NODE

Vidyasagaran Parameswaran Nair; Damodar Bhat, both of Bangalore, India; Hung S. Ngo, Spring Lake Park, Minn., and Narasimhan Sundarraajan, Bangalore, India, assignors to Multi-Tech Systems, Inc., Mounds View, Minn.

Filed Apr. 28, 1995, Ser. No. 431,715

Int. Cl.[6] H04J *3/02*

U.S. Cl. 370—401 **13 Claims**



1. A modem node, comprising:

a controller for controlling data flow and processing within the modem node;

a network interface, interconnecting the controller and a network, for interfacing the modem node to the network; and

a modem, interconnecting the controller to a plurality of data links, the modem having a plurality of channels;

the controller including a filter for filtering data received from the network to control access to the plurality of data links and the modem node programmable for performing data balancing on the plurality of data links.

5,724,357

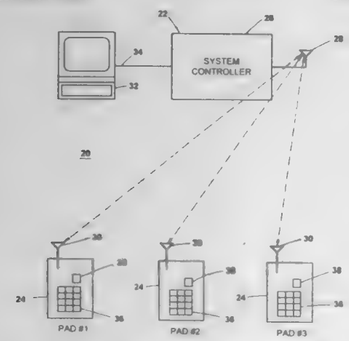
REMOTE RESPONSE SYSTEM AND DATA TRANSFER PROTOCOL

Harry G. Derks, Holland, Mich., assignor to Fleetwood Group, Inc., Holland, Mich.

Continuation-in-part of Ser. No. 826,987, Jan. 28, 1992, Pat. No. 5,379,213. This application Jun. 24, 1994, Ser. No. 265,843

Int. Cl.[6] H04J *3/26*; **H03K** *7/08*

U.S. Cl. 370—413 **57 Claims**



1. A wireless method of retrieving at a base unit responses from a plurality of users, said responses being entered in a plurality of remote response units, each user being provided with a response unit, including:

transmitting a base data packet over a wireless communication link to said plurality of remote response units;

decoding said base data packet at each response unit and loading into memory at least a portion of the decoded base data packet at each response unit, wherein said portion of the decoded base packet includes a plurality of characters, at least a portion of said plurality of characters pertaining to different response units;

determining at each response unit any character of said portion of the decoded base data packet that pertains to that particular response unit; and

processing by each remote response unit any character that pertains to that particular remote response unit, including transmitting in a response data packet over a wireless communication link from that particular remote response unit to the base unit any response entered by a user.

5,724,358

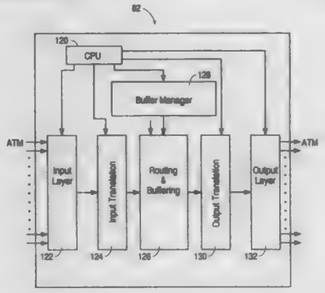
HIGH SPEED PACKET-SWITCHED DIGITAL SWITCH AND METHOD

Kent H. Headrick, Newark, and Kannan Devarajan, Sunnyvale, both of Calif., assignors to Zeitnet, Inc., Santa Clara, Calif.

Filed Feb. 23, 1996, Ser. No. 606,163

Int. Cl.[6] H04L *12/56*

U.S. Cl. 370—418 **32 Claims**



1. A system for communicating multiple priority level data packets between an input port and one or more output ports of a switch, comprising:

means for receiving a data packet from the input port, the data packet having a header portion indicating an output port destination and a level of priority, selected from a predetermined set of priority levels, of the data within the data packet;

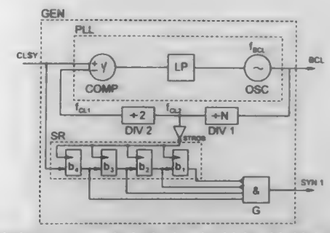
a buffer for storing the data packet in a selected buffer location, the buffer being shared by the output ports;

a plurality of queues corresponding to each of the output ports, each queue having a plurality of sub-queues for storing pointers to buffer locations containing data packets having different priority levels, selected from the predetermined set of priority levels; and

means for storing a pointer to the selected buffer location in the priority sub-queues based on the output port destination and the selected priority level of the data packet.

5,340,933

Patent Not Issued For This Number



includes an external clock signal which with high frequency alternates between two logic levels, and an external synchronizing signal having a low frequency and stored in a signal of high frequency forming said external clock signal, the frequency of said external clock signal being an integer M times the frequency of said external synchronizing signal;

decoding said external synchronizing signal in said composite reference signal with high precision irrespective of any phase jitter that may occur on the edges of said reference clock signal since said reference clock signal includes within the time frame of a primary clock signal at least two mutually sequential intervals of the same logic level, preferably followed by a corresponding number of intervals having the opposite logic level, whereby one such interval corresponds to one half-period of said primary clock signal frequency; and

sensing each of said intervals in the center of the interval between two expected signal edges.

5,724,361

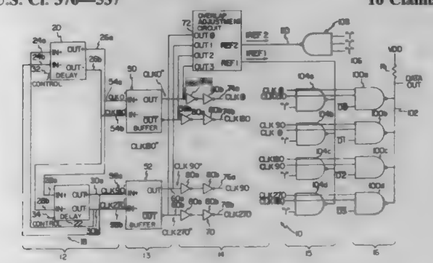
HIGH PERFORMANCE N:1 MULTIPLEXER WITH OVERLAP CONTROL OF MULTI-PHASE CLOCKS

Alan Fiedler, Minneapolis, Minn., assignor to LSI Logic Corporation, Milpitas, Calif.

Filed Mar. 12, 1996, Ser. No. 614,403

Int. Cl.[6] H04J *3/02*

U.S. Cl. 370—537 **16 Claims**



1. A time division multiplexer comprising:

a multiphase clock generator having a plurality of select clock outputs with different phases;

a data multiplexer having a plurality of data inputs, a plurality of select clock inputs and a data output, wherein the select clock inputs of the data multiplexer are coupled to corresponding select clock outputs;

a reference multiplexer having a plurality of reference data inputs, a plurality of select clock inputs and a first reference output, wherein the select clock inputs of the reference multiplexer are coupled to corresponding select clock outputs;

a reference generator having a second reference output; and

a comparison circuit having first and second comparison inputs coupled to the first and second reference outputs, respectively, and having a comparison output coupled to the plurality of select clock outputs.

5,724,360

COMPOSITE CLOCK SIGNAL

Peter Carl Binger Lundh, Farsta, and Mats Göran Wilhelmsson, Stockholm, both of Sweden, assignors to Telefonaktiebolaget LM Ericsson, Stockholm, Sweden

Filed Apr. 21, 1994, Ser. No. 231,016

Claims priority, application Sweden, Apr. 21, 1993, 9301327

Int. Cl.[6] H04J *3/06*

U.S. Cl. 370—516 **17 Claims**

1. A method for distributing a common frame reference for a high frequency bit clocking generator through the medium of a composite clock and synchronizing signal, comprising the steps of:

forming said composite clock and synchronizing signal as a composite reference signal, said composite reference signal

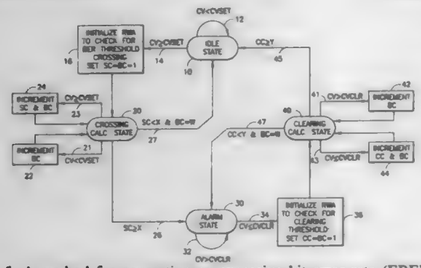
VOL 1208 ISS 1 MR 3 1998 UMI

5,724,362

APPARATUS AND METHOD EMPLOYING A WINDOW RESET FOR EXCESSIVE BIT ERROR RATE ALARM DETECTION AND CLEARING

Joseph C. Lan, Shelton, Conn., assignor to TranSwitch Corporation, Shelton, Conn.

Filed Sep. 29, 1995, Ser. No. 536,056
Int. Cl.[6] G06F *11/00*
U.S. Cl. 371—5.1 **27 Claims**



1. A method for generating an excessive bit error rate (EBER) alarm for an STSn or an STMn telecommunications signal, said STSn or STMn telecommunications signal having a frame, comprising:

a) in an idle state, monitoring blocks of the telecommunications signal to determine on a block by block basis the number of code violations (CV) in a given block, and comparing the number of code violations of each block to a first threshold value (CVSET) until an excessive bit error indication for one of said blocks is obtained, wherein a block of the telecommunications signal comprises an integer number (B) of frames of the STSn or STMn telecommunications signal, said integer being greater than zero;

b) when said excessive bit error indication for one of said blocks is obtained,

(i) setting a first window comprised of a first plurality of blocks (W) of the telecommunications signal,

(ii) monitoring said blocks of said first window, and comparing the number of code violations of each block in said first window to said first threshold value to provide a first error-related indication for each block,

(iii) counting the number of blocks in said first window where said first error-related indication is of a first type to provide a first count, and

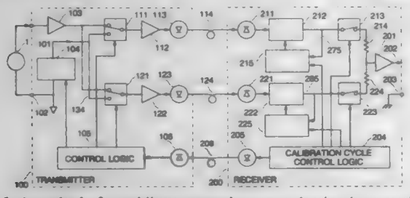
(iv) comparing said first count to a second threshold value (X), and entering an alarm state and setting an alarm when said first count relates to said second threshold value in a first manner, and returning to said idle state when said count relates to said second threshold value in a second manner.

5,724,363

OPTICAL ANALOG SIGNAL TRANSMISSION SYSTEM

Edward F. Breya, 1005 Windsor Dr., Menlo Park, Calif. 94025

Filed Jun. 21, 1996, Ser. No. 667,413
Int. Cl.[6] G06F *11/00*
U.S. Cl. 371—5.5 **20 Claims**



1. A method of providing automatic error reduction in an optical signal transmission system comprising two parallel, substantially identical first and second optical transmission channels, each with means to convert an electrical drive signal applied to a drive input into optical radiation, means to convey the optical radiation to a receiver, a detector to convert the received optical radiation into an electrical detector signal, and an amplifier system to amplify the detector signal to produce a received output signal representative of said electrical drive signal; a calibration generator to generate a calibration signal; first and second input switching means arranged so that said drive input of each of said optical transmission channels can be proportional to either a transmission signal or said calibration signal; first error correction circuit comprising means to measure the response of said first optical transmission channel to said calibration signal, in order to adjust its characteristics to reduce its transmission errors, and means to adjust its transmission characteristics; and second error correction circuit comprising means to measure the response of said second optical transmission channel to said calibration signal, in order to adjust its characteristics to reduce its transmission errors, and means to adjust its transmission characteristics; an output switching circuit arranged so that there is an output signal that can be proportional to any one of a plurality of signals comprising the received output of said first optical transmission channel, the received output of said second optical transmission channel, and the average of the said received outputs of said first and second optical transmission channels; and a control system which controls the operation of said calibration generator, said first and second input switching means, said first and second error correction circuits, and said output switching circuit; the object being to make said output signal an accurate, continuous representation of said transmission signal; said method comprising the steps of:

a) disconnecting said received output of said first optical transmission channel so that said output signal is proportional to said received output of said second optical transmission channel;

b) disconnecting said drive input of said first optical transmission channel from said transmission signal, and connecting it to said calibration signal;

c) measuring the response of said first optical transmission channel to said calibration signal, and adjusting the transmission characteristics of said first optical transmission channel in order to reduce its transmission errors;

d) disconnecting said drive input of said first optical transmission channel from said calibration signal, and reconnecting it to said transmission signal;

e) reconnecting said received output of said first optical transmission channel so that said output signal is proportional to the average of said received outputs of said first and second optical transmission channels;

f) disconnecting said received output of said second optical transmission channel so that said output signal is proportional to said received output of the said first optical transmission channel;

g) disconnecting said drive input of said second optical transmission channel from said transmission signal, and connecting it to said calibration signal;

h) measuring the response of said second optical transmission channel to said calibration signal, and adjusting the transmission characteristics of said second optical transmission channel in order to reduce its transmission errors;

i) disconnecting said drive input of said second optical transmission channel from said calibration signal, and reconnecting it to said transmission signal; and

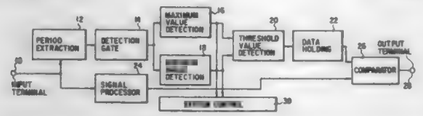
j) reconnecting said received output of said second optical transmission channel so that said output signal is proportional to the average of said received outputs of said first and second optical transmission channels.

5,724,364

BINARIZATION CIRCUIT

Takeshi Mori, Machida, and Kosei Tamiya, Sagamihara, both of Japan, assignors to Olympus Optical Co., Ltd., Tokyo, Japan

Filed Mar. 6, 1996, Ser. No. 611,653
Claims priority, application Japan, Mar. 16, 1995, 7-056911
Int. Cl.[6] G06K *9/38*
U.S. Cl. 371—6 **11 Claims**



1. A binarization circuit for use in an information reproduction system comprising reading means for optically scanning and reading a dot code from a recording medium on which multimedia information including at least audio information, image information and digital code data is recorded in optically readable dot codes, a binarization circuit for binarizing an image signal corresponding to said dot code read by said reading means, processing means for performing a predetermined process on binary data from said binarization circuit to restore said binary data to original multimedia information, and output means for reproducing and outputting each pieces of multimedia information based on an output signal of said processing means, said binarization circuit comprising:

a filter for extracting a specific period in the dot code in an image signal corresponding to said dot code read by said reading means;

maximum value/minimum value detection means for detecting a maximum value and a minimum value in a predetermined unit of said specific period extracted by said filter;

threshold value computing means for computing a threshold value for binarization from said maximum value and minimum value detected by said maximum value/minimum value detection means; and

binarization means for binarizing said image signal corresponding to said dot code read by said reading means with said threshold value computed by said threshold value computing means.

5,724,365

METHOD OF UTILIZING REDUNDANCY TESTING TO SUBSTITUTE FOR MAIN ARRAY PROGRAMMING AND AC SPEED READS

Edward Hsia; Darlene Hamilton, both of San Jose, and Jose H. Hernandez, Milpitas, all of Calif., assignors to Advanced Micro Devices, Inc., Sunnyvale, Calif.

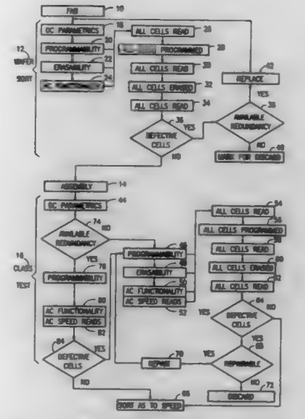
Filed May 24, 1996, Ser. No. 653,227
Int. Cl.[6] G01R *31/28*
U.S. Cl. 371—21.1 **16 Claims**

1. A method of testing Flash memory devices wherein the Flash memory devices comprise main array cells and redundancy array cells, wherein said method comprises the steps of:

performing wafer sort testing of the main array cells and the redundancy array cells of the Flash memory devices;

packaging the flash memory devices that pass the wafer sort testing,

determining the availability of redundancy array cells after the packaging and wafer sort testing are performed;



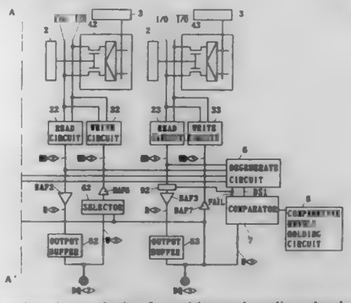
performing class testing only on the redundancy array cells if redundancy array cells are available, wherein class testing on main array cells is not performed.

5,724,366

SEMICONDUCTOR MEMORY DEVICE

Kiyohiro Furutani, Tokyo, Japan, assignor to Mitsubishi Denki Kabushiki Kaisha, Tokyo, Japan

Continuation of Ser. No. 551,484, Nov. 1, 1995, Pat. No. 5,642,317. This application Oct. 30, 1996, Ser. No. 738,655
Claims priority, application Japan, May 16, 1995, 7-117074; May 15, 1996, 8-120543
Int. Cl.[6] G06F *11/00*
U.S. Cl. 371—21.2 **6 Claims**



1. A semiconductor device for writing and reading plural data in plural memory cells which are specified by the same address signal through a plurality of pairs of input and output wires, comprising:

a plurality of terminals,

a plurality of write means connected to said plurality of terminals respectively for writing write data in said plural of memory cells through said plurality of pairs of input and output wires,

a plurality of read means for reading data from said plural memory cells through said plurality of pairs of input and output wires,

a plurality of output means connected between said plurality of terminals and said plurality of read means respectively, for outputting a plurality of read data read out by said plurality of read means to said plurality of terminals,

a mode setting means for outputting test mode signal,

degenerating means for generating a first signal indicating that said read data connected to the said degenerating means are all at the first state, for generating a second signal indicating

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that said read data connected to the said degenerating means are all at the second state, for generating a third signal indicating that said read data connected to said degenerating means include read data at the first state and the second state,

comparative means connected to said degenerating means and a terminal which is one of said plurality of terminals, for comparing the output of said degenerating means with the expected data from said terminal,

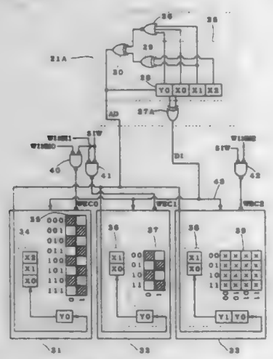
test result outputting means generating a fourth signal by checking said third signal of said degenerating means and the result of comparison of said comparative means, responsive to said test mode signal of said mode setting means.

5,724,367

SEMICONDUCTOR MEMORY DEVICE HAVING SCAN PATH FOR TESTING

Tokuya Osawa, and Hideshi Maeno, both of Tokyo, Japan, assignors to Mitsubishi Denki Kabushiki Kaisha, Tokyo, Japan

Filed Feb. 28, 1996, Ser. No. 608,048
Claims priority, application Japan, Oct. 19, 1995, 7-271171
Int. Cl.[6] G11C *29/00*
U.S. Cl. 371—21.3 **14 Claims**



1. A semiconductor memory device comprising:

a first memory circuit including,

a first memory cell array of matrix form having memory cells each specified by a first vertical address dam indicative of one of a number of rows and a number of columns and a first horizontal address data indicative of the other number, and

a first scan path having,

a first input terminal,

α registers, α being a natural number, for storing said first vertical address data therein, and

β registers, β being a natural number, for storing said first horizontal address data therein, said α registers being closer to said input terminal than said β register;

a second memory circuit including,

a second memory cell array of matrix form having memory cells each specified by a second vertical address data indicative of the same one of the number of rows and the number of columns as said first vertical address data indicated and second horizontal address data indicative of the other number, and

a second scan path having,

a second input terminal,

α registers for storing said second vertical address data therein, and

γ registers γ being a natural number and not equal to β, for storing said second horizontal address data therein, said a registers being closer to said second input terminal than said γ registers; and

an address generator circuit including,

a shift register for serially receiving at an input terminal thereof a test address pattern to be outputted simultaneously to said first and second scan paths to store said test address pattern therein, and

write signal generating means for generating a write signal in association with said test address pattern on the basis of data stored in a predetermined register of said shift register, wherein

said α registers of said first scan path and said α registers of said second scan path being arranged such that less significant bits of said first and second vertical address data are stored in respective first subsets of said a registers positioned closer to respective of said first input terminal and said second input terminal than resistive second subsets of said a registers which store more significant bits, and less significant bits of said first and second horizontal address data are stored in respective first subsets of said β registers and said γ registers positioned closer to said first and second input terminals than a second subset of said β registers and said γ registers which store more significant bits,

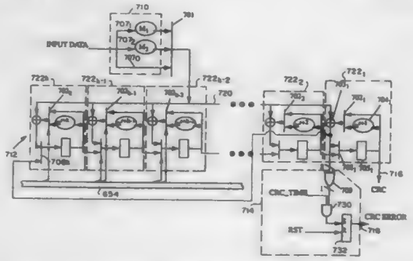
and wherein write data transmitted through a signal line common to said first and second memory circuits are written to said first and second memory cell arrays in said first and second memory circuits according to said test address pattern and said write signal.

5,724,368

CYCLICAL REDUNDANCY CHECK METHOD AND APPARATUS

Christopher P. Zook, Longmont, Colo., assignor to Cirrus Logic, Inc., Fremont, Calif.

Continuation of Ser. No. 325,717, Oct. 18, 1994, Pat. No. 5,671,237, which is a continuation of Ser. No. 147,865, Nov. 4, 1993, Pat. No. 5,465,260. This application Oct. 2, 1996, Ser. No. 725,320
Int. Cl.[6] H03M *13/00*
U.S. Cl. 371—37.7 **62 Claims**



2. An error correction generator comprising:

an interleaving circuit for dividing an input stream of data into a plurality of interleaves;

a circuit which forms a linear combination of the plurality of interleaves and operates upon the linear combination in order to generate cyclical redundancy check (CRC) information; and

an error correction circuit which generates error correction (ECC) information using the input stream and the CRC information;

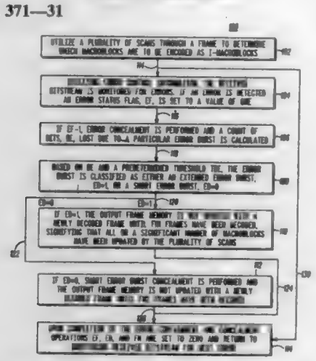
wherein the interleaving circuit includes a multiplier for multiplying at least one of the interleaves by a constant.

5,724,369

METHOD AND DEVICE FOR CONCEALMENT AND CONTAINMENT OF ERRORS IN A MACROBLOCK-BASED VIDEO CODEC

James C. Brailean, Park Ridge; Kevin J. O'Connell, Palatine; Mark R. Banham, Arlington Heights, and Stephen N. Levine, Itasca, all of Ill., assignors to Motorola Inc., Schaumburg, Ill.

Filed Oct. 26, 1995, Ser. No. 548,772
Int. Cl.[6] H04L *1/00*
U.S. Cl. 371—31 **15 Claims**



1. A method for concealment of errors occurring in a bitstream using control information for a macroblock-based video codec, where at least one previous video frame of macroblocks is stored, comprising the steps of:

A) counting bits, of a received transmission, between a plurality of bits having control information to determine whether a current frame or a portion of a current frame has been corrupted;

B) wherein if at least the current frame has been corrupted and an immediately previous frame has been buffered,

the following steps are performed:

B1) determining a resynchronization bit position in the bitstream;

B2) displaying the immediately previous video frame of macroblocks at the resynchronization bit position for a predetermined number of frames;

B3) returning to step A;

C) wherein if a portion of a current frame has been corrupted, regenerating a plurality of corrupted macroblocks of the frame by the steps of:

C1) determining a pool of motion vectors for a first macroblock of the plurality of corrupted macroblocks;

C2) determining, from the pool, a motion vector that provides the macroblock from the immediately previous stored frame having a highest correlation of intensity values along borders of the macroblock in the current frame, providing a regenerated macroblock;

C3) repeating steps C1–C2 for preselected corrupted macroblocks to provide a plurality of regenerated macroblocks;

C4) displaying the regenerated macroblocks in the current frame and returning to step A.

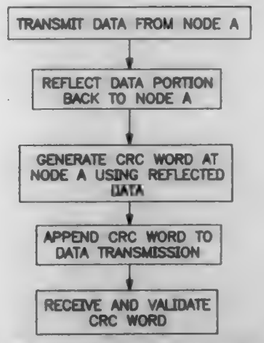
5,724,370

CRC GENERATION AND DETECTION METHOD

Paul K. Sferrazza, Branchbone, and Joseph W. Harmon, East Brunswick, both of N.J., assignors to Harris Corporation, Melbourne, Fla.

Filed Feb. 28, 1995, Ser. No. 395,814
Int. Cl.[6] H03M *13/00*
U.S. Cl. 371—53 **15 Claims**

9. A method of generating a CRC word in a data communication system in which data are transmitted from a transmitter onto a bus and the transmitted data are reflected back to the transmitter,



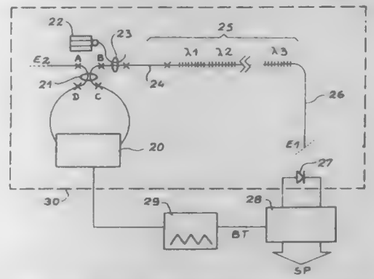
comprising the steps of cycling the reflected data through a CRC register at the transmitter to generate a CRC word, and appending the CRC word to the data by transmitting the CRC word from the transmitter after receipt of the data.

5,724,371

PHOTOINSCRIBED BRAGG GRATING SENSOR WITH A GOOD SIGNAL-TO-NOISE RATIO

Sylvain Magne, Chatillon; Pierre Ferdinand, Houilles, and Jean-Claude Gaucher, Le Val St Germain, all of France, assignors to Commissariat a L'Energie Atomique, France

Filed Feb. 1, 1996, Ser. No. 595,490
Claims priority, application France, Feb. 21, 1995, 95 01973
Int. Cl.[6] H01S *3/30*
U.S. Cl. 372—6 **13 Claims**



1. Sensor device with a high signal-to-noise ratio, characterized in that it comprises at least one Bragg grating transducer photoinscribed on a dielectric guide and a feedback loop constituted by a Sagnac interferometer including a time modulated, wavelength selective element making it possible to implement a switched laser sensor.

5,724,372

DIODE-PUMPED LASER SYSTEM USING URANIUM-DOPED Q-SWITCH

Robert D. Stultz, Bellflower; David S. Sumida, Los Angeles, and Milton Birnbaum, Rancho Palos Verdes, all of Calif., assignors to Hughes Electronics, Los Angeles, Calif.

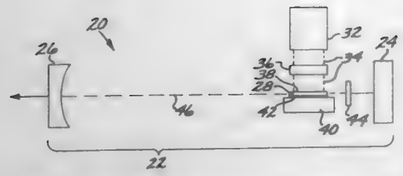
Continuation-in-part of Ser. No. 375,753, Jan. 20, 1995, Pat. No. 5,557,624. This application Jan. 22, 1996, Ser. No. 590,012
Int. Cl.[6] H01S *3/11*
U.S. Cl. 372—11 **19 Claims**

1. A laser system, comprising:

a laser resonator cavity having a resonant path;

a lasing element within the laser resonator cavity, the lasing element comprising a lasing host material doped with erbium

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and a dopant that absorbs energy from a pumping light beam and transfers that energy to the erbium, wherein the dopant that absorbs energy from the pumping light beam is ytterbium;

a diode optical pump disposed to direct the pumping light beam into the lasing element; and

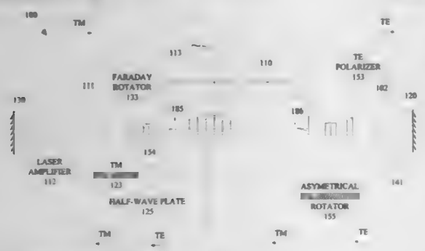
a Q-switch lying along the resonant path within the laser resonator cavity, the Q-switch comprising a Q-switch host material having uranium ions doped therein.

5,724,373

MICROPHOTONIC ACOUSTO-OPTIC TUNABLE LASER

Kok-Wai Chang, Sunnyvale, Calif., assignor to Hewlett-Packard Company, Palo Alto, Calif.

Filed Nov. 15, 1996, Ser. No. 751,137
Int. Cl.[6] H01S *3/10*
U.S. Cl. 372—20 **4 Claims**



1. A tunable laser, comprising:

a laser amplifier;

an AOTF including a waveguide therein having first and second ports;

a first polarization filter, said first polarization filter being located between said laser amplifier and said first port of said AOTF;

a first asymmetrical polarization rotator, said first asymmetrical polarization rotator being located between said first port of said AOTF and said first polarization filter;

a reflector located to reflect light leaving said second port of said AOTF back into said second port of said AOTF;

a second polarization filter, said second polarization filter being located between said mirror and said second port of said AOTF; and

a second asymmetrical polarization rotator, said second asymmetrical polarization rotator being located between said second port of said AOTF and said second polarization filter.

5,724,374

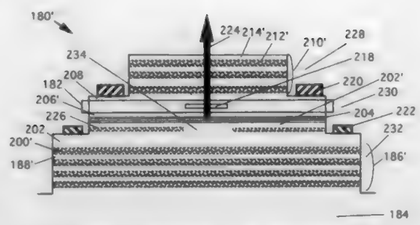
APERTURE COMPRISING AN OXIDIZED REGION AND A SEMICONDUCTOR MATERIAL

Jack L. Jewell, Boulder, Colo., assignor to Picolight Incorporated, Boulder, Colo.

Filed Aug. 19, 1996, Ser. No. 699,697
Int. Cl.[6] H01S *3/034*
U.S. Cl. 372—45 **56 Claims**

1. An aperture comprising:

at least a first layer, comprising a first Al content;



said first layer being oxidized in a laterally oriented first region;

said first layer having a laterally oriented second region having a second Al content lower than said first Al content and thereby creating a non-homogeneous first layer; and

a second layer disposed in communication with said first layer, said second layer being oxidized less than said first layer; and

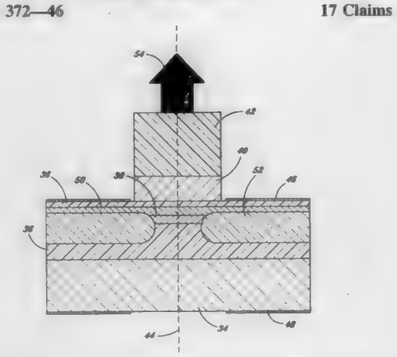
a non-planar boundary having top and bottom boundary surfaces and side walls connecting said top and bottom boundary surfaces, said top boundary surface defined as a top surface of said second layer above said laterally oriented first region and said bottom boundary surface defined as a bottom surface of said laterally oriented second region, said first and second regions defining an aperture.

5,724,375

VERTICAL CAVITY SURFACE EMITTING LASER WITH ENHANCED SECOND HARMONIC GENERATION AND METHOD OF MAKING SAME

Frank H. Peters, Lompoc, Calif., assignor to W. L. Gore & Associates, Inc., Newark, Del.

Filed Jul. 17, 1996, Ser. No. 687,079
Int. Cl.[6] H01S *3/19*
U.S. Cl. 372—46 **17 Claims**



1. A vertical cavity surface emitting laser (VCSEL) with harmonic generation, comprising:

a second mirror stack;

a gain region including active material located within said second mirror stack capable of emitting electromagnetic radiation at a fundamental wavelength;

a first mirror stack;

a harmonic generating region including a non-linear element and being disposed between said mirror stacks for generating electromagnetic radiation at a harmonic of the fundamental wavelength in response to electromagnetic radiation at the fundamental wavelength; and

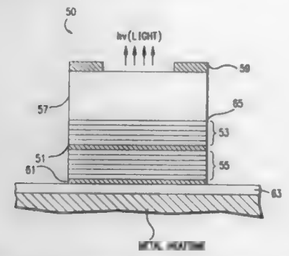
a pair of contacts located to provide current flow through said second mirror stack and said gain region without passing through said non-linear element.

5,724,376

TRANSPARENT SUBSTRATE VERTICAL CAVITY SURFACE EMITTING LASERS FABRICATED BY SEMICONDUCTOR WAFER BONDING

Fred A. Kish, Jr., San Jose, and Richard P. Schneider, Jr., Mountain View, both of Calif., assignors to Hewlett-Packard Company, Palo Alto, Calif.

Filed Nov. 30, 1995, Ser. No. 565,537
Int. Cl.[6] H01S *3/19*
U.S. Cl. 372—96 **16 Claims**



1. A vertical cavity surface emitting laser diode comprising:

an active layer having an upper and lower surface;

upper and lower reflectors on the upper and lower surfaces of the active layer and adjacent thereto;

a transparent substrate wafer bonded to the upper distributed Bragg reflector; and

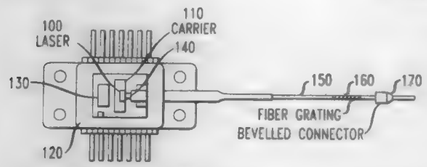
contacts for applying a voltage across the active region.

5,724,377

METHOD AND APPARATUS FOR IMPROVING THE INSTABILITY OF A LASER

Sun-Yuan Huang, Maidencreek Township, Berks County, Pa., assignor to Lucent Technologies Inc., Murray Hill, N.J.

Filed Feb. 29, 1996, Ser. No. 608,874
Int. Cl.[6] H01S *3/08;* **G02B** *6/34;* **G01B** *9/02*
U.S. Cl. 372—98 **11 Claims**



1. A method of generating light from a laser, said method comprising the steps of:

generating light with Fabry-Perot spacing from said laser, and

receiving said light in a fiber grating wherein said grating has a spectral width between about 2 to about 4 times larger than said Fabry-Perot spacing.

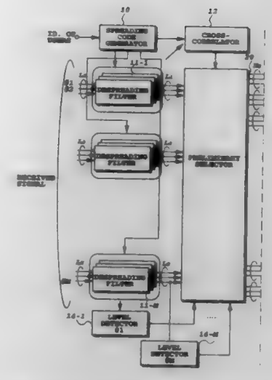
5,724,378

CDMA MULTIUSER RECEIVER AND METHOD

Yoshinori Miki, Yokohama, and Mamoru Sawahashi, Yokosuka, both of Japan, assignors to NIT Mobile Communications Network, Inc., Japan

Filed Dec. 7, 1995, Ser. No. 569,002
Claims priority, application Japan, Dec. 13, 1994, 6-309008; Jun. 12, 1995, 7-144790
Int. Cl.[6] H04B *15/00*
U.S. Cl. 375—200 **13 Claims**

1. A CDMA multiuser receiver in a CDMA system in which a transmitter side assigns different spreading codes to respective users, and transmits symbols of the users after spectrum spreading the symbols using the spreading codes associated with the users, and a receiver side receives signals transmitted from the users through one or more paths, and separates at least one of received signals, said CDMA multiuser receiver comprising:



despreaders for despreading said received signals by using spreading codes associated with the users, and for outputting receive timing information of said received signals on each of said paths;

level detectors for detecting received signal levels of said received signals on said paths;

cross-correlation calculation means for calculating for each of said paths cross-correlations between said spreading codes taking account of said receive timing information;

selecting means for obtaining, for each of said paths, interference amounts from the other paths on the basis of said received signal levels and said cross-correlations between said spreading codes, and for selecting Ns paths in order of magnitude of said interference amounts (Ns is an integer greater than one); and

decorrelators for obtaining despread outputs, from which interferences are canceled, on the basis of received symbols and cross-correlations associated with said Ns paths selected.

5,724,379

METHOD OF MODIFYING COMPARABLE HEALTH CARE SERVICES

Nancy A. K. Perkins, Canandaigua; Nancy N. Boyer, Penfield; Catherine H. Dibble, Honeoye Falls, and Catherine G. McCabe, Rochester, all of N.Y., assignors to HealthChex, Inc., Fairport, N.Y.

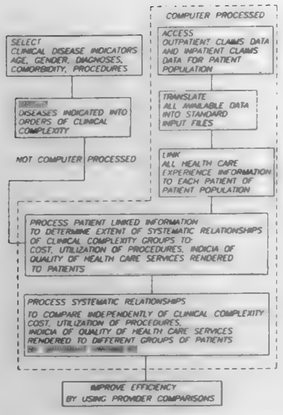
Continuation of Ser. No. 38,351, Mar. 29, 1993, abandoned, which is a continuation of Ser. No. 517,257, May 1, 1990, abandoned. This application Dec. 21, 1994, Ser. No. 361,167
Int. Cl.[6] G06F *17/60;* **G06G** *7/52*
U.S. Cl. 395—202 **5 Claims**

1. A method of modifying health care services rendered to a population of patients by a plurality of providers of health care services, said method comprising:

a. dividing human diseases evident from predetermined diagnoses and procedures into at least four groups, namely, acute diseases, chronic diseases, mental health, and pregnancy and further dividing the groups into orders of clinical complexity ranging from less to more clinically complex;

b. linking each patient of the population to the patient's respective records in a data base of health care experience information containing records of both inpatient and outpatient services including diagnoses and procedures for individual patient's multiple episodes of illness;

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c. assigning each patient a clinical complexity rating by comparing the various diagnoses and procedures linked to each patient with the ordered groups of clinical complexity into which such diagnoses and procedures were previously grouped;

d. computer processing the data base of health care experience information to determine the extent to which the ordered groups of clinical complexity systematically relate to indicia of quality and utilization of the services rendered to the patients so that the indicia of quality and utilization can be compared independently of the ordered groups' clinical complexity;

e. computer processing comparisons of health care services rendered by different providers to different groups of patients in the population by using the systematic relationship between the groups of clinical complexity and the indicia of quality and utilization of health care services to reveal comparative clinical efficiencies of the different providers;

f. using the comparative provider clinical efficiencies to increase the number of the comparably more efficient health care services for patients in the population and to decrease the number of comparably less efficient health care services for patients in the population, thereby increasing the clinical efficiency of the overall rendering of health care services to the population; and

g. completing the modification of health care services using the comparative provider clinical efficiencies so that the data base of health care experience information is modified to reflect a different systematic relationship between the groups of clinical complexity and the indicia of quality and utilization of health care services indicative of increased overall clinical efficiency of the health care services rendered to the population.

5,724,380

RADIO TRANSMISSION SYSTEM

Gerhard Ritter, Thaining, Germany, assignor to Siemens Aktiengesellschaft, Munich, Germany

Filed May 24, 1995, Ser. No. 449,791

Claims priority, application Germany, Jun. 6, 1994, 44 19 749.7

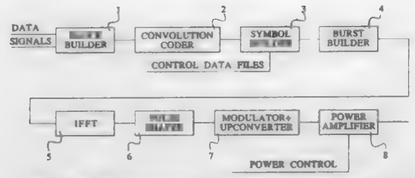
Int. Cl.[6] H04B *15/00;* **H04K** *1/00;* **H04L** *27/30*

U.S. Cl. 375—202 **5 Claims**

1. A radio transmission system comprising:

at least one base station and a plurality of mobile subscriber stations;

said subscriber stations each comprising means for determining a best frequency for communications with said base station



and means for transmitting said best frequency over one of a plurality of radio transmission channels to said base station in an uplink burst;

said base station comprising means for receiving the best frequencies from said subscriber stations;

means for allocating said best frequencies respectively among said subscriber stations and means for assigning said best frequencies to the respective subscriber stations in a downlink burst

wherein the base station further comprises a block forming unit for forming data and signaling to blocks and comprises a convolution coder for convolution coding of the blocks,

wherein the base station further comprises a symbol forming unit for forming symbols by combining the convolution coded blocks with block interleving.

5,724,381

RECEIVER FOR SPREAD SPECTRUM COMMUNICATION

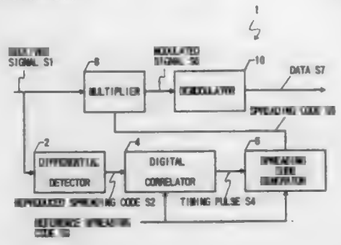
Chisato Endo; Naoyuki Yamada; Tsutayuki Shibata, all of Aichi-ken; Masanori Miyashita, Nisshin, and Yoshimi Kitazumi, Chiru, all of Japan, assignors to Kabushiki Kaisha Toyota Chuo Kenkyusho, Aichi-ken, and Nippondenso Co., Ltd., Kariya, both of Japan

Filed Sep. 20, 1995, Ser. No. 531,341

Claims priority, application Japan, Sep. 22, 1994, 6-254391

Int. Cl.[6] H04K *1/00*

U.S. Cl. 375—206 **3 Claims**



1. A spread spectrum receiver for despreading a direct sequence spread spectrum signal comprising:

differential detection means for reproducing a spreading code from a received direct sequence spread spectrum signal;

digital correlation means for inputting said reproduced spreading code output from said differential detection means, calculating a correlation value between a predetermined reference spreading code and said reproduced spreading code by shifting bit by bit, and outputting a timing pulse when said correlation value exceeds a predetermined threshold value;

spreading code generation means for outputting a spreading code identical to said predetermined reference spreading code when said timing pulse is input from said digital correlation means;

first multiplication means for multiplying said received direct sequence spread spectrum signal by said spreading code output from said spreading code generation means in synchronization with each bit of said reference spreading code; and

demodulation means for inputting an output signal from said first multiplication means and demodulating a data.

5,724,382

MULTIMODE SPREAD SPECTRUM COMMUNICATION SYSTEM TOLERANT TO VARYING CHANNEL CHARACTERISTICS

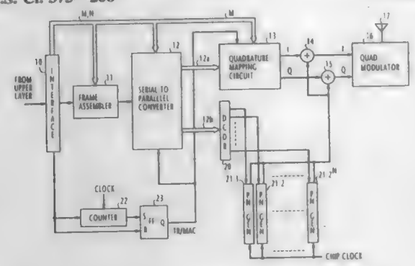
Hidenori Maruyama, Tokyo, Japan, assignor to NEC Corporation, Japan

Filed Jan. 30, 1996, Ser. No. 593,606

Claims priority, application Japan, Jan. 30, 1995, 7-012267

Int. Cl.[6] H04B *1/707*

U.S. Cl. 375—206 **18 Claims**



1. A spread spectrum transmitter comprising:

framing means for producing a header containing symbol bits indicating an integer M, and assembling symbol bits to form a frame, where M is equal to or greater than 1;

separator means for separating (M+N) symbol bits of said frame into an M-bit portion and an N-bit portion of a frame, respectively, where N is equal to or greater than 0;

a quadrature mapping circuit, connected to receive said header and said M-bit portion of said symbol from said separator means, for converting said header into in-phase (I) and quadrature (Q) signals having a predetermined number of signal points in a signal constellation and converting the M-bit portion of said symbol into I and Q signals having 2^M signal points in said signal constellation;

pseudorandom sequence generator means for producing a predetermined pseudorandom sequence when said header is being produced by said framing means and selectively producing one of 2^N pseudorandom sequences of unique bit patterns depending on the value of value of said N-bit portion of said frame;

spreading means for spreading said I and Q signals of said header with said predetermined pseudorandom sequence and spreading said I and Q signals of said frame with said one of the 2^N pseudorandom sequences; and

transmitter means for quadrature modulating and transmitting the spread I and Q signals of said header and said frame.

5,724,383

METHOD FOR GENERATING AND ENCODING SIGNALS FOR SPREAD SPECTRUM COMMUNICATION

Robert Gold, Los Angeles, Calif., and Robert C. Dixon, Palmer Lake, Colo., assignors to Omnipoint Corporation, Colorado Springs, Colo.

Continuation-in-part of Ser. No. 146,491, Nov. 1, 1993, abandoned. This application May 1, 1995, Ser. No. 432,905

Int. Cl.[6] H04B *15/00;* **H04K** *1/00;* **H04L** *27/30*

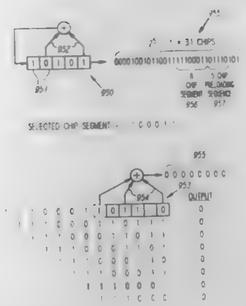
U.S. Cl. 375—208 **31 Claims**

1. A method of communication using a plurality of spread spectrum codes comprising the steps of:

generating a plurality of spreading codes, at least one of said spreading codes being non-maximal,

defining a code length,

selecting from said spreading codes a plurality of code portions of said code length, one of said code portions being selected from each of said spreading codes,



receiving a data stream, and

transmitting said code portions in response to said data stream.

5,724,384

PN CODE SYNC DEVICE USING AN ADAPTIVE THRESHOLD

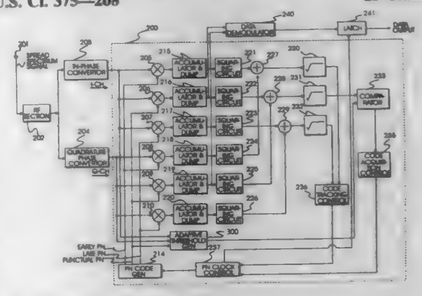
Je-Woo Kim, Suwon, and Jong-Hyeon Park, Seoul, both of Rep. of Korea, assignors to SamSung Electronics Co., Ltd., Suwon, Rep. of Korea

Filed Jul. 14, 1995, Ser. No. 502,863

Claims priority, application Rep. of Korea, Jul. 14, 1994, 17001-1994

Int. Cl.[6] H04B *1/69*

U.S. Cl. 375—208 **25 Claims**



6. A receiver, comprising:

means for receiving a spread spectrum signal having a received pseudo-noise code sequence modulated therein, and for generating an in-phase signal and a quadrature-phase signal;

a pseudo-noise code generator for generating a reference pseudo-noise code sequence comprising an early pseudo-noise code, a punctual pseudo-noise code, and a late pseudo-noise code;

correlator means for correlating said in-phase signal and said quadrature-phase signal with said early pseudo-noise code, said punctual pseudo-noise code, and said late pseudo-noise code, respectively, to respectively generate an early correlation signal, a punctual correlation signal, and a late correlation signal, each comprising both in-phase and quadrature-phase components;

an adaptive threshold generator for receiving said in-phase signal and said quadrature-phase signal to adaptively generate a variable threshold in response to said punctual pseudo-noise code;

code acquisition means for comparing said punctual correlation signal with said variable threshold to produce an initial synchronization detection signal;

code tracking means for combining said early and late correlation signals to produce an error signal proportional to a phase difference between said received pseudo-noise code modu-

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lated in said spread spectrum signal and said reference pseudo-noise code sequence; and

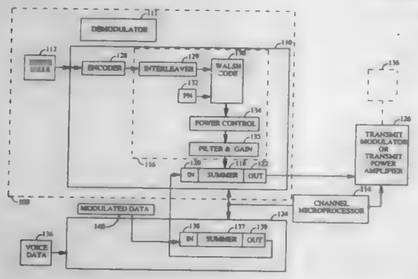
a demodulator for demodulating said spread spectrum signal into a baseband signal.

5,724,385

SERIAL LINKED INTERCONNECT FOR SUMMATION OF MULTIPLE WAVEFORMS ON A COMMON CHANNEL

Jeffrey A. Levin; Kenneth D. Easton; Jurg Hinderling, all of San Diego, Calif.; Lindsay A. Weaver, Jr., Boulder, Colo., and Michael P. Brock, San Diego, Calif., assignors to Qualcomm Incorporated, San Diego, Calif.

Filed Sep. 30, 1994, Ser. No. 316,156
Int. Cl.° H04B *1/38*
U.S. Cl. 375—222 **23 Claims**



1. An apparatus for use in a spread spectrum telecommunication system for generating a signal for subsequent broadcast over the system comprising:

a first set of processed data;

a first modulation block for generating a second set of processed data in response to a first set of input data;

a first summer for generating a third set of processed data by summing said first set of processed data with said second set of processed data;

a second modulation block for generating a fourth set of processed data in response to a second set of input data;

a second summer for generating a fifth set of summed output data by summing said third set of summed output data with said fourth set of processed data;

a controller for controlling said first summer and said second summer; and

a transmitter for generating broadcast signals in response to said second set of summed output data.

5,724,386

Patent Not Issued For This Number

5,724,387

CABLE LOSS SIMULATOR FOR SERIAL DIGITAL SOURCE USING A PASSIVE NETWORK

Daniel G. Baker, Aloha, and Michael Harris, Portland, both of Oreg., assignors to Tektronix, Inc., Wilsonville, Oreg.

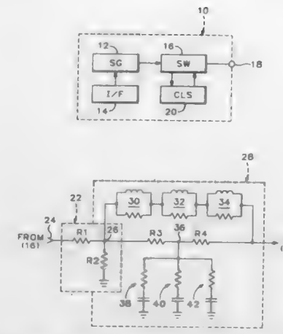
Filed Aug. 12, 1994, Ser. No. 289,594
Int. Cl.° H04B *3/46;17/00;* **H04Q** *1/20*
U.S. Cl. 375—224 **1 Claim**

1. A serial digital signal source comprising:

means for generating a predetermined serial digital signal;

a cable loss simulator having a constant resistance passive network for simulating a frequency dependent cable loss for a reference cable; and

means for selectively coupling the predetermined serial digital signal through the cable loss simulator to an output terminal



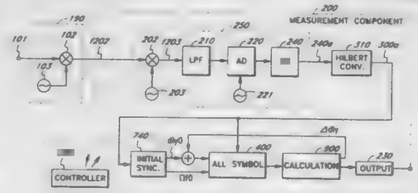
of the serial digital signal source, the cable loss simulator including a resistive L-section having the predetermined serial digital signal applied at an input by the selectively coupling means and a bridged T-section coupled between an output of the resistive input L-section and the output terminal via the selectively coupling means, the bridged T-section having a plurality of breakpoints to simulate a frequency-loss characteristic for the reference cable.

5,724,388

DIGITAL SIGNAL MODULATION ANALYSIS DEVICE

Masao Nagano, Fukiage-machi, and Hitoshi Takahashi, Gyoda, both of Japan, assignors to ADVANTEST Corp., Tokyo, Japan

Filed Apr. 21, 1995, Ser. No. 427,104
Claims priority, application Japan, Apr. 22, 1994, 6-107940
Int. Cl.° H04B *3/46;* **H04J** *17/00*
U.S. Cl. 375—224 **2 Claims**



1. A digital modulation analysis device for measurement of modulation precision of a digital MCA (Multi Channel Access) signal produced by a device under test (DUT) for a digital communication, comprising:

a frequency converter (**109**) which receives said signal from said DUT and converts said signal into a first intermediate frequency signal;

a sampling part (**25**) which receives said first intermediate frequency signal from said frequency converter (**109**) and converts said first intermediate frequency signal to a second intermediate-frequency signal whose frequency is lower than that of said first intermediate frequency to store said second intermediate frequency signal in a memory;

a Hilbert converter (**310**) which converts an incoming signal into I-component signals and Q-component signals through a quadrant-modulate detection process;

an initial synchronization part (**740**) which receives said I-component and said Q-component signals to determine a carrier's central-frequency (Ωf**0**) and a slot synchronization address (dly**0**);

a complete symbol-demodulation/parameter-estimation part (**400**) which receives information on said carrier's central-frequency (Ωf**0**) and a slot synchronization address (dly**0**) from said initial synchronization part (**740**) and said

I-component and Q-component signals from said Hilbert converter (**310**) and determines optimal parameters (gain constant Ax, initial phase θx, carrier frequency Ωx, and burst droop factor σx) to minimize the modulation error ϵ, said estimation part demodulating data for all symbols (vector value A[n] and phase angle θ[n] for symbol number n) and determining reference data for said all symbols (reference symbol vector value Ar[n]; and

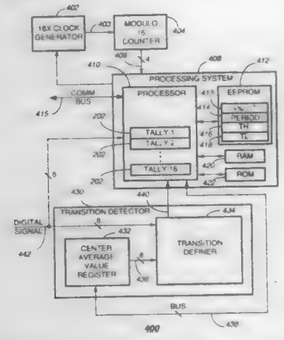
a modulation-precision calculation component (**900**) which receives said reference data from said complete symbol-demodulation/parameter-estimation component (**400**) and calculates modulation-precision ϵ data and/or modulation-error data for each symbol.

5,724,389

METHOD AND APPARATUS FOR DETECTING A PRESENCE OF A PREDETERMINED BAUD RATE

Paul Marko, Pembroke Pines, Fla.; Motty Shor, Holon; Mark Rindsberg, Jerusalem, both of Israel, and Craig Wadin, Sunrise, Fla., assignors to Motorola, Inc., Schaumburg, Ill.

Filed Dec. 8, 1995, Ser. No. 569,893
Int. Cl.° H04B *17/02*
U.S. Cl. 375—225 **18 Claims**



7. A baud detector for detecting a presence of a predetermined baud rate in a digital signal, the baud detector comprising:

a clock generator for generating a clock signal operating at a clock rate that is N times the predetermined baud rate, wherein N is a positive integer;

a modulo counter coupled to the clock generator for counting the clock signal, the modulo counter utilizing N states;

a transition detector coupled to the digital signal for sampling the digital signal during a predetermined sampling period to detect transitions of the digital signal; and

a processing system coupled to the transition detector and coupled to the modulo counter for generating N tallies that record how many of the transitions occur coincident with each of the states of the modulo counter over the predetermined sampling period, wherein the processing system is programmed for:

computing a total number of transitions detected over the predetermined sampling period;

forming M groups of the tallies corresponding to contiguous sequential states of the modulo counter, wherein M is a positive integer;

calculating for each group a corresponding group number indicating how many of the transitions are recorded in the tallies of the group;

for each group, defining the group to be transitional in response to the corresponding group number exceeding a predetermined percentage of the total number of transitions; and

determining whether the predetermined baud rate is present in response to the groups that are defined to be transitional.

5,724,390

MLSE BEFORE DEROTATION AND AFTER DEROTATION

David Mark Blaker, Emmaus; Marc Stephen Diamondstein, Allentown, both of Pa.; Gregory Stephen Ellard, Binfield, United Kingdom, and Mohammad Shafiul Mobin, Whitehall, Pa., assignors to Lucent Technologies Inc., Murray Hill, N.J.

Filed Mar. 2, 1994, Ser. No. 205,962
Int. Cl.° H03H *7/30*
U.S. Cl. 375—229 **20 Claims**



1. An equalizer for a receiver operative to receive a signal comprised of a sequence of symbols transmitted to the receiver over a transmission channel by a transmitter, the impulse response function of the channel represented as tap weights, the equalizer for determining a maximum likelihood path representative of a sequence of symbols generated by the transmitter prior to transmission on the transmission channel, the equalizer comprising:

a storage array for storing modified tap weights, the modified tap weights being a product of the tap weights and a vector, the storage array comprising a first array of registers and a second array of registers, the first array of registers for storing a first set of said modified tap weights and the second array of registers for storing a second set of said modified tap weights

a convolver for convolving the modified tap weights with possible states, the convolver having at least one multiplier receiving a modified tap weight as a multiplier and a bit of a possible state as a multiplicand, the at least one multiplier being an accumulator and providing the product of the modified tap weight and the bit of a possible state as a convolved output;

a metric calculator for receiving the convolved output and a received symbol from a sequence of received symbols, the metric calculator providing a branch metric;

an address generator for generating a first address of a register from which to read a modified tap weight, the first address including a most significant bit and least significant bits;

an exclusive OR having a first input, a second input and an output, the first input for receiving a signal capable of changing state, the second input for receiving the most significant bit of the first address produced by the address generator, the exclusive OR providing an output that is the exclusive OR of its two inputs; and

a concatenation circuit for receiving the least significant bits of the first address from the address generator and the output from the exclusive OR, the concatenation circuit for combining the output from the exclusive OR with the least significant bits of the first address from the address generator to form a second address, whereby the second address formed by the concatenation circuit addresses a register in the first array of registers when the signal providing the first input to the exclusive OR is in a first state and the second address formed by the concatenation circuit addresses a register in the second array of registers when the signal providing the first input to the exclusive OR is in the second state.

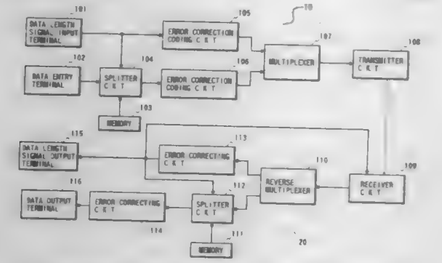
VOL 1208 ISS 1 MR 3 1998 UMI

5,724,391

APPARATUS FOR TRANSMISSION OF VARIABLE LENGTH DATA

Shunichi Takeuchi, Tokyo, and Michinori Masuda, Osaka, both of Japan, assignors to Matsushita Electric Industrial Co., Ltd., Osaka, Japan

Filed Sep. 20, 1996, Ser. No. 717,359
Claims priority, application Japan, Sep. 20, 1995, 7-264715; Feb. 20, 1996, 8-055394
Int. Cl.[6] H04B 1/66
U.S. Cl. 375—240 5 Claims



1. An apparatus for transmission and reception of variable length data comprising:

a transmitter including,

splitting means for splitting the variable length data into first code blocks each having a block length k, when a data length of the variable length data is not a multiple of the block length k, said splitting means converting part of the variable length data to be protected from the errors with a higher degree of priority into a second code block having a length shorter than the block length k;

error correction code converting means for converting the first code blocks into first error-correcting codes each including k information symbols and having a code length n, said error correction code converting means adding dummy bits to the second code block to convert the dummy bit-added second code block into a second error-correcting code, after which the dummy bits are removed from the second error-correcting code to provide a third error-correcting code, and

transmitting means for transmitting a code sequence including the first and third error-correcting codes; and

a receiver including,

receiving means for receiving the code sequence transmitted from said transmitting means;

splitting mean for splitting the code sequence received by said receiving means into the first and third error-correcting codes, and

error correcting means for correcting errors arising in the first and third error-correcting codes, said error correcting means adding dummy bits to the third error-correcting code to correct the errors to the third error-correcting code, after which the dummy bits are removed from the third error-correcting code.

5,724,392

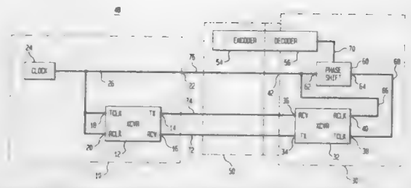
AUTOMATIC PATH DELAY COMPENSATION SYSTEM

John Ramon Klimek, Cupertino, and David Weiss, Palo Alto, both of Calif., assignors to Siemens Business Communication Systems, Inc., Santa Clara, Calif.

Continuation of Ser. No. 131,502, Oct. 4, 1993, abandoned.
This application Jun. 26, 1995, Ser. No. 495,063
Int. Cl.[6] H04B 3/00
U.S. Cl. 375—257 21 Claims

15. A connecting mechanism used for transmission of data, the connecting mechanism comprising:

transmission means for transmitting data; and,



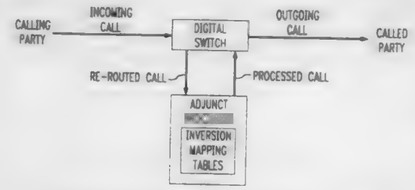
encoding means, physically coupled to the transmission means, for encoding a value which indicates propagation delay through the transmission means.

5,724,393

METHOD AND APPARATUS COMPENSATING FOR EFFECTS OF DIGITAL LOSS INSERTION IN SIGNAL TRANSMISSIONS BETWEEN MODEMS

Nuri Ruhi Dagdeviren, Red Bank, N.J., assignor to Lucent Technologies Inc., Murray Hill, N.J.

Filed Feb. 17, 1995, Ser. No. 390,185
Int. Cl.[6] H04K 1/02
U.S. Cl. 375—296 11 Claims



1. A method for minimizing quantization noise in signal transmissions between a transmitting modem and a receiving modem coupled together via a digital network comprising at least an interexchange carrier digital network, at least the receiving modem being coupled to the digital network via an analog subscriber loop, the digital network decoding of the signal transmissions on the digital network and having means for inserting a predetermined loss in the amplitude levels of transmitted signals for reducing echo impairment in the analog subscriber loop, the method comprising the steps of:

transmitting a first signal originating from the transmitting modem to the digital network via a subscriber loop comprising one of an analog subscriber loop and a digital subscriber loop;

converting the first signal into a first digital signal when the first signal is determined to be an analog signal;

encoding one of the first signal and the first digital signal into a first μ-law code word;

scaling the amplitude level of the first code word up by a predetermined inversion factor by mapping the first μ-law code word into a second μ-law code word such that the second code word comprises an amplitude equal to the amplitude of the first code word plus a gain in the amplitude level of the first code word corresponding to the predetermined loss to be inserted in the amplitude level of the first code word;

mapping the second μ-law code word into a third μ-law code word such that the third code word forms a loss inserted code word comprising an amplitude equal to the amplitude of the second code word minus an amount corresponding to the predetermined loss;

decoding the third μ-law code word to derive a second digital signal;

converting the second digital signal into a second analog signal; and

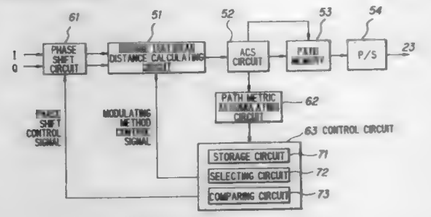
transmitting the second analog signal from the digital network to the receiving modem via the analog subscriber loop.

5,724,394

VITERBI DECODING METHOD AND DECODER CAPABLE OF ELIMINATING PHASE INDETERMINACY

Tamotsu Ikeda, Tokyo; Yasunari Ikeda, Kanagawa, and Takahiro Okada, Chiba, all of Japan, assignors to Sony Corporation, Tokyo, Japan

Filed Jul. 19, 1995, Ser. No. 503,942
Claims priority, application Japan, Jul. 26, 1994, 6-173810
Int. Cl.[6] H04L 87/06
U.S. Cl. 375—341 15 Claims



1. A Viterbi decoder comprising:

phase shifting means for shifting a phase of a reproduced carrier wave of a reception signal in response to a phase-shift control signal, thereby producing a phase-shifted signal;

distance calculating means for receiving said phase-shifted signal to calculate a square Euclidean distance between a signal point of said phase-shifted signal and a signal point defined in a predetermined modulating method selected from among a plurality of predetermined modulating methods:

path metric calculating means for calculating a path metric with respect to each of said phases from said calculated square Euclidean distance value;

path metric accumulating means for accumulating said path metrics obtained from said path metric calculating means during a predetermined time;

selecting means for selecting a minimum value of said accumulated path metrics for each of said phases; and

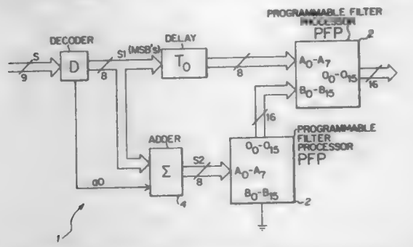
phase-shift control signal producing means for producing said phase-shift control signal used to control said phase shifting means in such a manner that the phase of the reproduced carrier wave of said reception signal is set to a phase corresponding to said minimum path metric value.

5,724,395

METHOD AND APPARATUS FOR FILTERING DIGITAL SIGNALS

Carla Golla, Sesto San Giovanni, and Alessandro Cremonesi, S. Angelo Lodigiano, both of Italy, assignors to SGS-Thomson Microelectronics S.r.l., Agrate Brianza, Italy

Filed Jan. 28, 1994, Ser. No. 188,569
Claims priority, application European Pat. Off., Jan. 29, 1993, 93830032
Int. Cl.[6] H04B 1/10
U.S. Cl. 375—350 9 Claims



1. A method of filtering digital signals having a high dynamic range comprising the steps of:

splitting an input sampled signal into at least two portions;

addressing each of the at least two portions to a corresponding respective program filter;

performing filtering operations on the portions in parallel and independently in the program filters;

producing an output signal by summing together digital outputs from each program filter;

wherein the step of producing the output signal includes a step of connecting digital outputs of one filter to carry inputs of a preceding filter to sum the digital outputs; and

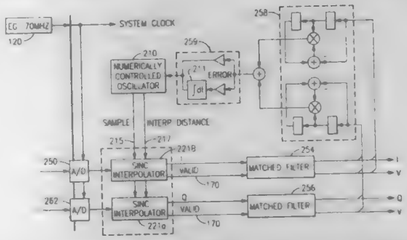
wherein the step of splitting the input sampled signal includes steps of selecting, as a first portion, eight most significant bits of the input signal and obtaining other portions from a parallel sum of the first portion and each remaining bit of the input sampled signal.

5,724,396

SIGNAL PROCESSING SYSTEM

Anthony Peter J. Claydon, Bath, and Richard J. Gammack, Bristol, both of United Kingdom, assignors to Discovision Associates, Irvine, Calif.

Filed Jun. 7, 1995, Ser. No. 480,976
Claims priority, application United Kingdom, Jun. 7, 1995, 9511551
Int. Cl.[6] H04L 7/00
U.S. Cl. 375—355 31 Claims



1. A signal processing apparatus for processing signals that are sampled by a sampler operative at a sampling rate, the signals having a period corresponding to a received symbol rate, the apparatus comprising:

a clock, operative at said sampling rate;

a numerically controlled oscillator operative at periods T; an interpolator receiving samples at said sampling rate; and

a loop filter, coupled to said interpolator and said numerically controlled oscillator and having an output responsive to a difference between said periods T and said period corresponding to said received symbol rate of said sampled signals;

wherein said numerically controlled oscillator is responsive to said output of said loop filter and generates a first output signal that is representative of an interpolation distance between succeeding samples, and said interpolator interpolates said received samples according to said interpolation distance, and produces an output signal representative of interpolated samples, and said numerically controlled oscillator generates said first output signal whenever a state Ω exceeds a division of said symbol period, and said interpolator generates said output signal representative of interpolated samples in response to said first output signal, wherein Ω is a state representative of a number of elapsed operative periods of said numerically controlled oscillator.

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5,724,397

METHOD FOR SYNCHRONIZING A RECEIVER

Simo-Pekka Torsti, Espoo, Finland, assignor to Nokia Telecommunications Oy, Espoo, Finland

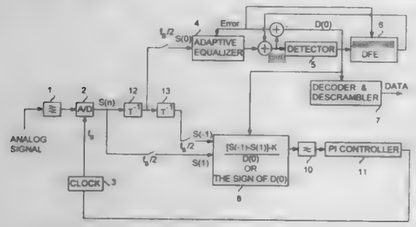
PCT No. PCT/FI95/00067, § 371 Date Aug. 13, 1996, § 102(e) Date Aug. 13, 1996, PCT Pub. No. WO95/22861, PCT Pub. Date Aug. 24, 1995

PCT Filed Feb. 14, 1995, Ser. No. 693,132

Claims priority, application Finland, Feb. 15, 1994, 940706

Int. Cl.[6] H04B *1/38;* H04L *7/00;27/06;25/40*

U.S. Cl. 375—355 6 Claims



1. A method for synchronizing a receiver with the frequency and phase of a received signal, said method comprising the steps of:

(a) taking samples of the received signal at predetermined intervals, at least two samples being taken during the duration of one received symbol;

(b) selecting a decision sample (S(0)) from the samples taken such that said decision sample is preceded by at least one preceding one of said samples and succeeded by at least one subsequent one of said samples;

(c) selecting a first reference sample (S(−1)) from the at least one said sample preceding the decision sample (s(0));

(d) selecting a second reference sample (S(1)) from the at least one said sample subsequent to the decision sample;

(e) calculating a difference (E) of the first (S(−1)) and second (S(1)) reference samples;

(f) comparing the difference with a target value (K);

(g) adjusting the sample-taking frequency used in step (a) on the basis of the comparison made in step (f);

in such a manner that the target value (K) by means of which the synchronization can be carried out roughly is used at first, after which the target value (K) is changed towards an optimum target value to fine-adjust the synchronization.

5,724,398

NUCLEAR FUEL ELEMENTS

Paul Burrow, and Peter Fish, both of Preston, United Kingdom, assignors to British Nuclear Fuels plc, Warrington, United Kingdom

Filed Mar. 15, 1996, Ser. No. 616,322

Claims priority, application United Kingdom, Mar. 16, 1995, 9505302

Int. Cl.[6] G21C *3/32*

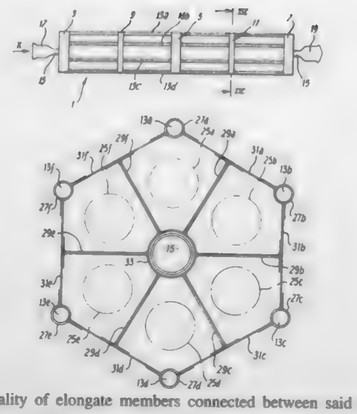
U.S. Cl. 376—433 24 Claims

1. A nuclear fuel element for use in a gas cooled nuclear reactor, the fuel element comprising:

a plurality of fuel pin supports defining a fuel element axis passing through said supports, said fuel pin supports allowing the passage of coolant gas flow therethrough;

a central support rod coincident with said axis and passing through said fuel pin supports;

a plurality of fuel pins suspended between said supports and extending substantially parallel to said element axis, each fuel pin consisting of a metal tube having metal oxide fuel pellets therein; and



a plurality of elongate members connected between said supports, said elongate members extending parallel to said axis, being disposed around said fuel pins and forming an open cage structure allowing the passage of coolant gas therethrough.

5,724,399

TIMER DEVICE

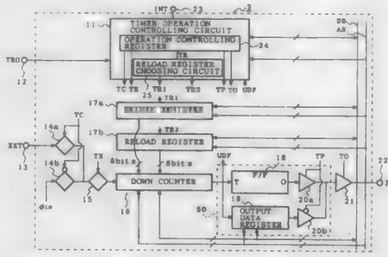
Tatsuya Imakura, Hyogo, Japan, assignor to Mitsubishi Electric Semiconductor Software Co., Ltd., Hyogo, and Mitsubishi Denki Kabushiki Kaisha, Tokyo, both of Japan

Filed Jan. 16, 1996, Ser. No. 587,033

Claims priority, application Japan, Sep. 6, 1995, 7-229246

Int. Cl.[6] G07C *3/02*

U.S. Cl. 377—16 6 Claims



1. A timer device for controlling an external apparatus, said time device comprising:

first input means for receiving a pulse signal output from an external apparatus,

a counter for counting pulses of the pulse signal up to an initial count value and outputting a count ending signal upon counting to the initial count value,

control signal generating means for generating a signal for controlling the external apparatus in response to the count ending signal output by said counter,

second input means for inputting to said counter a state change signal indicating a change of state of the external apparatus, and

count operation controlling means for controlling counting by said counter in response to the state change signal.

5,724,400

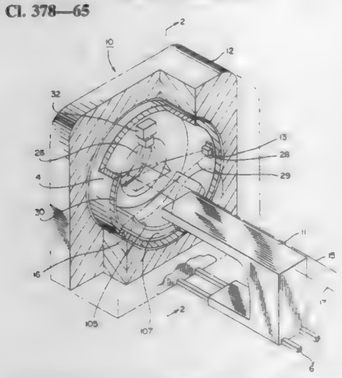
RADIATION THERAPY SYSTEM WITH CONSTRAINED ROTATIONAL FREEDOM

Stuart Swerdloff; Thomas Rockwell Mackie, and Timothy Holmes, all of Madison, Wis., assignors to Wisconsin Alumni Research Foundation, Madison, Wis.

Division of Ser. No. 71,742, Jun. 9, 1993, which is a continuation-in-part of Ser. No. 854,521, Mar. 19, 1992. This application Jun. 25, 1996, Ser. No. 591,335

Int. Cl.[6] A61N *5/10*

U.S. Cl. 378—65 4 Claims



1. A radiation therapy machine for treating a patient with high energy radiation comprising:

a gantry for rotation within a gantry plane;

a table disposed along an axis of translation for supporting a patient and for moving the patient along the axis of translation, the axis of translation positioned within the rotation of the gantry;

a radiation source disposed on the gantry for producing a radiation beam within a fan beam plane substantially parallel to the gantry plane, the beam including a plurality of rays diverging in the beam plane about one central ray, the central ray directed at the patient from a variety of gantry angles along the gantry plane; and

an attenuation means disposed between the radiation source and the patient for independently controlling the intensity of each ray as a function of gantry angle, the attenuation means including:

a plurality of radiation attenuating leaves;

a supporting member positioned generally between the radiation source and the patient for guiding the leaves between a closed state within the radiation beam, each leaf thus occluding one ray of the beam, and an open state outside of the radiation beam to allow unobstructed passage of the ray;

motivation means for independently moving each leaf between the open and closed states; and

timing means communicating with the motivation means for controlling the ratio of the period of time during which each leaf is in the closed state to the period during which each leaf is in the open state to control the average energy fluence of each ray of the beam.

5,724,401

LARGE ANGLE SOLID STATE POSITION SENSITIVE X-RAY DETECTOR SYSTEM

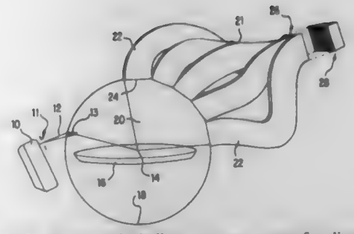
David S. Kurtz, and Clay O. Ruud, both of State College, Pa., assignors to The Penn State Research Foundation, University Park, Pa., and Advanced Technology Materials, Inc., Danbury, Conn.

Filed Jan. 24, 1996, Ser. No. 590,956

Int. Cl.[6] G01N *23/20*

U.S. Cl. 378—171 10 Claims

1. An apparatus for the measurement of properties of a solid material by analysis of x-rays diffracted and/or scattered from the material, the apparatus including an x-ray source for directing a beam of x-rays onto the solid material, a plurality of separate fiber-optic cables having respective input and output ends, said input ends coated with a scintillation material for converting x-radiation into light radiation, said input ends arranged along an arc and being substantially coplanar and being divisible into two or more subgroups, said input ends comprising each subgroup, said input ends being contiguous to thereby define a substantially continuous input arc along any subgroup and hence defining a substantially one dimensional array, said cable output ends arranged side by side to form a two dimensional array, a two dimensional photodetector array in optical alignment with said two dimensional cable output ends, whereby some of the x-rays diffracted and/or scattered from the solid material upon impingement by the x-ray source strike the input ends of the fiber-optic cables and are converted by the scintillation material to light radiation, the light radiation exiting from the output ends of the cable array and thence to the photodetector array.



5,724,402

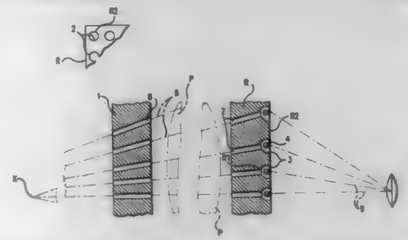
X-RAY SYSTEM WITH IMAGE DIRECTING OPTICS

John K. Grady, XRE Corporation 300 Foster St., Littleton, Mass. 01460

Filed Mar. 6, 1996, Ser. No. 611,885

Int. Cl.[6] H04N *1/00*

U.S. Cl. 378—98.3 31 Claims



1. An X-ray system for radiological examination of a subject comprising:

an X-ray source directing radiation through a subject position;

a planar X-ray receptor beyond the subject position with a first side in the X-ray beam path facing the subject position and an opposite side, the receptor including a plurality of X-radiation responsive units forming at the opposite side a light image of the subject at the opposite side;

means for utilization of the light image

and a plurality of optical components at the opposite side of the X-ray receptor respectively adjacent the radiation responsive units for directing light from respective units in different rays through space at different angles to the utilization means.

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5,724,403

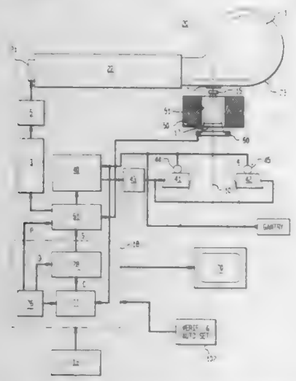
VIRTUAL COMPENSATOR

Ramon Alfredo Carvalho Siochi, Fairfield, and Francisco Miguel Hernandez-Guerra, Concord, both of Calif., assignors to Siemens Medical Systems, Inc., Iselin, N.J.

Continuation-in-part of Ser. No. 504,937, Jul. 20, 1995, Pat. No. 5,563,925. This application Jun. 28, 1996, Ser. No. 671,914

Int. Cl.[6] G21F *5/04*

U.S. Cl. 378—150 25 Claims



1. A method for adjusting radiation output delivered to an object from a radiation source, comprising the following steps:

defining a field on the object for irradiation;

generating a radiation beam having a variable radiation output and a substantially lossless beam path from a radiation source to the object;

dividing the field into multiple sections, each of the multiple sections having defined parameters;

calculating wedge corrections for each of the multiple sections;

defining an opening between the radiation source and the object, the opening being placed over one of the sections, the opening capable of delimiting the radiation beam to the defined parameters of the section; and

using the wedge corrections to treat each of the sections with radiation.

5,724,404

INTEGRATED INTERNATIONAL TELEPHONE CIRCUIT MONITORING SYSTEM

Max Garcia, 1418 Grant St., Hollywood, Fla. 33020; Ben Holzemer, 19601 E. Country Club Dr., #107, Aventura, Fla. 33180; David Butler, 14560 NE. 3 Ct., North Miami, Fla. 33161, and Kevin Collins, 600 S. Dixie Hwy., Ste. 206, Boca Raton, Fla. 33432

Filed Jul. 3, 1995, Ser. No. 498,665

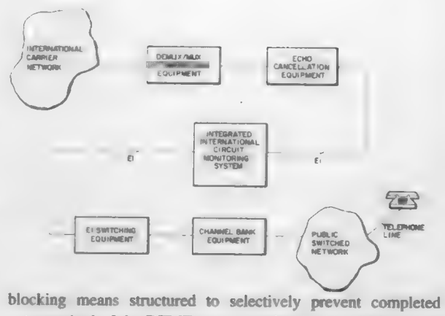
Int. Cl.[6] H04M *3/22;15/00;3/00*

U.S. Cl. 379—34 46 Claims

1. To restrict and substantially prevent abusive international long distance telephone call reorigination, an integrated international telephone circuit monitoring system comprising:

at least one circuit monitoring card disposed on a telephone circuit from a reorigination country into a monitoring system user's country,

said circuit monitoring card being structured and disposed to monitor the telephone circuits of an international circuit bundle and identify and detect DTMF tones associated with telephone call reorigination transmitted over the telephone circuits on a connection completed international call, and



blocking means structured to selectively prevent completed transmittal of the DTMF tones associated with telephone call reorigination over the connection completed international call as detected by said circuit monitoring card.

5,724,405

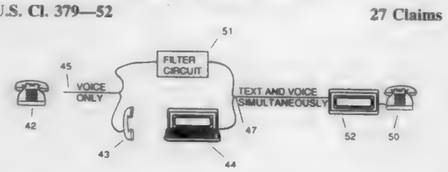
TEXT ENHANCED TELEPHONY

Robert M. Engelke, Madison, and Kevin Colwell, Middleton, both of Wis., assignors to Ultratec, Inc., Madison, Wis.

Continuation-in-part of Ser. No. 842,943, Jan. 9, 1992, Pat. No. 5,351,288, Ser. No. 129,894, Sep. 30, 1993, and Ser. No. 155,061, Nov. 19, 1993, said Ser. No. 842,943is a continuation-in-part of Ser. No. 616,720, Nov. 16, 1990, Pat. No. 5,081,673, which is a continuation of Ser. No. 255,357, Oct. 11, 1988, abandoned, said Ser. No. 129,894and Ser. No. 155,061, , each is a continuation-in-part of Ser. No. 886,552, May 20, 1992, abandoned. This application Mar. 24, 1994, Ser. No. 217,518

Int. Cl.[6] H04M *11/00*

U.S. Cl. 379—52 27 Claims



22. A method for text enhancing telephone communications over one telephone line between a first telephone user who is hard of hearing or is deaf but can speak understandably and a second telephone user who can speak and hear spoken words, the method comprising the steps of

connecting between the first and the second users a relay including speech to digital communications conversion capability such that text of the spoken words of the second user are transmitted at digital communications frequencies on the one telephone line to the first user at the same time as the spoken words of the second user are transmitted over the one telephone line,

at a telephone of the first user, filtering incoming telephone signals to a speaker of the first user so that the frequencies of digital communications are eliminated from the speaker; and

at the telephone of the first user, simultaneously translating the digital communication frequencies received to text and displaying the text in visually readable form so that the first user receives both the spoken words of the second user as well as a text transcription of the spoken words of the second user.

5,724,406

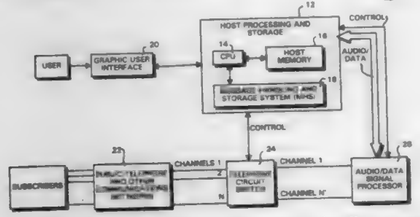
CALL PROCESSING SYSTEM AND METHOD FOR PROVIDING A VARIETY OF MESSAGING SERVICES

Bernard G. Juster, Flushing, N.Y., assignor to Ericsson Messaging Systems, Inc., Woodbury, N.J.

Filed Mar. 22, 1994, Ser. No. 216,105

Int. Cl.[6] H04M *3/50;11/00;3/42*

U.S. Cl. 379—67 76 Claims



1. A call processing method for processing subscriber communications in a message handling system to provide a variety of different communications services including messaging application services, comprising the steps of:

identifying a requested call processing messaging application service in response to a subscriber call;

establishing a set of call processing primitives to perform the requested call processing messaging application service, each primitive performing a single call processing operation;

setting up a service state table that establishes a sequence of logical states for providing the requested call processing messaging application service, each primitive being associated with a state in the service state table in which the primitive is included, and each primitive being associated with one of a variety of different objects or events;

executing the state table to provide the requested call processing messaging application service, wherein execution of each logical state invokes one call processing primitive; and

modifying one or more of the different objects or events to modify the requested call processing messaging application service without modifying the call processing primitives in the one service state table.

5,724,407

NETWORK BASED MULTIMEDIA MESSAGING METHOD FOR NON-CCITT COMPLIANT SWITCHES

Richard F. Bruno, Morristown; Robert E. Markowitz, Glen Rock, both of N.J.; Carlos A. Perea, Bethlehem, Pa.; Peter H. Stuntebeck, Little Silver, and Roy P. Weber, Bridgewater, both of N.J., assignors to AT&T Corp., Middletown, N.J.

Continuation-in-part of Ser. No. 357,473, Dec. 16, 1994, abandoned. This application Mar. 13, 1996, Ser. No. 615,350

Int. Cl.[6] H04M *1/64*

U.S. Cl. 379—67 10 Claims

7. A method of multimedia messaging comprising:

initiating a messaging application and a watchdog application in a multimedia capable station having a display device;

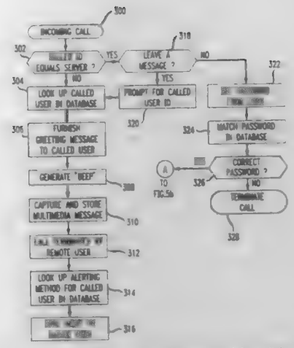
initiating a first multimedia call to a party using said multimedia capable station;

establishing, as part of said initiation, a connection capable of passing X.25 packet messages between said multimedia capable station and a device in a telecommunication network;

signalling said messaging application, using said watchdog application, to indicate that said party is unavailable;

generating a first X.25 packet message in said multimedia capable station and sending said X.25 packet message to said device in said telecommunication network;

receiving a second X.25 packet message from said device server including information identifying a multimedia messaging server capable of recording multimedia messages and furnishing previously stored multimedia messages to multimedia capable stations;



initiating a second multimedia call from said multimedia capable station to said identified multimedia messaging server; and

recording a multimedia message for said party on said identified multimedia messaging server.

5,724,408

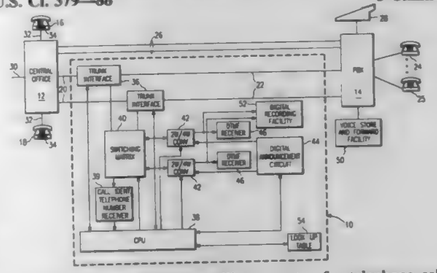
AUTOMATED CALL SCREENING

Sanford J. Morganstein, Elgin, Ill., assignor to Syntellect Technology Corp., Phoenix, Ariz.

Continuation of Ser. No. 861,998, Apr. 1, 1992, Pat. No. 5,347,574, which is a continuation of Ser. No. 568,582, Aug. 16, 1990, Pat. No. 5,109,405, which is a continuation of Ser. No. 217,179, Jul. 11, 1988, Pat. No. 5,029,196. This application Apr. 12, 1994, Ser. No. 226,453

Int. Cl.[6] H04M *1/57;3/54*

U.S. Cl. 379—88 5 Claims



1. A call processor for controlling a route of a telephone call from a calling party, comprising:

a telecommunications interface operable to receive signals from a telephone line;

a call identification number receiver operable to receive a call identification number concurrently transmitted with the telephone call on said telephone line from said telecommunications interface, said call identification number indicating a telephone number of said calling party on said telephone line;

a digital announcement circuit operable to provide a greeting to said calling party, said greeting including a request of said calling party for destination determining information of a receiving party associated with the telephone call, said receiving party being one of a plurality of receiving parties associated with a single main called number;

a receiver circuit operable to decode said destination determining information from said calling party, said destination determining information identifying an extension number associated with said receiving party desired by said calling party;

processing circuitry operable to control elements of the call processor and operable to route the telephone call to a destination associated with said call identification number as programmed by said receiving party desired by said calling party.

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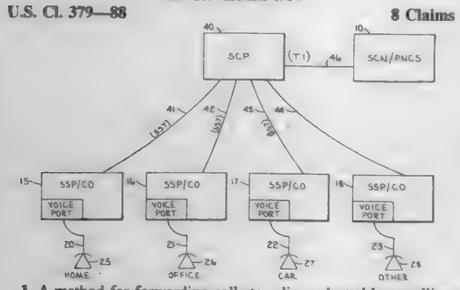
said destination selected from a plurality of destinations associated with said call identification number including said receiving party desired by said calling party and a facility for recording voice messages, each receiving party capable of uniquely programming said processing circuitry to route each telephone call to a destination associated with said call identification number.

5,724,409

SPEED FORWARDING SYSTEM FOR PERSONAL NUMBER COMMUNICATIONS SYSTEM

Dale W. Malik, Dunwoody, and Sonu Mirchandani, Norcross, both of Ga., assignors to BellSouth Corporation, Atlanta, Ga.

Filed Jun. 30, 1994, Ser. No. 268,805
Int. Cl.° H04M *1/64*
U.S. Cl. 379—88 **8 Claims**



1. A method for forwarding calls to a line selected by a calling party, said calling party being a subscriber having a telephone number, said method comprising the steps of:

(A) receiving a communication directed to a predetermined number;

(B) obtaining a calling line identification number for said communication;

(C) looking for said calling line identification number in a table to determine said subscriber associated with said calling line identification number;

(D) if there is only one subscriber associated with said calling line identification number, then proceeding to step (G);

(E) otherwise, receiving a personal identification number from said calling party;

(F) determining which subscriber is associated with both said calling line identification number and said personal identification number; and

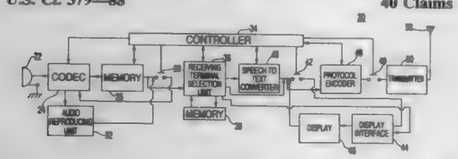
(G) forwarding calls for said subscriber at said telephone number to said line having said calling line identification number.

5,724,410

TWO-WAY VOICE MESSAGING TERMINAL HAVING A SPEECH TO TEXT CONVERTER

Adrian Parvulescu, Fish's Eddy, N.Y., and Andrew Todd Zidel, Hawthorne, N.J., assignors to Sony Corporation, Tokyo, Japan, and Sony Electronics Inc., Park Ridge, N.J.

Filed Dec. 18, 1995, Ser. No. 573,624
Int. Cl.° H04M *1/65;* **G08B** *3/10;* **G10L** *3/00*
U.S. Cl. 379—88 **40 Claims**



1. A voice messaging terminal for communicating with at least one receiving terminal, comprising:

microphone means for receiving a voice message, and for converting said voice message to an analog electrical signal;

first processing means for digitizing said analog electrical signal into a coded digital signal;

a first memory for storing said coded digital signal;

receiving terminal selection means connected to said first memory for determining whether said at least one receiving terminal is capable of reproducing said voice message and for providing a first output of said at least one receiving terminal is not capable of reproducing said voice message and for providing a second output of said at least one receiving terminal is capable of reproducing said voice message;

converter means for converting said coded digital signal into a text message in response to said first output from said receiving terminal selection means;

encoding means for encoding said text message with a communications protocol to provide an encoded text message in response to said first output from said receiving terminal selection means and for encoding said coded digital signal with said communications protocol to provide an encoded digital voice message in response to said second output from said receiving terminal selection means; and,

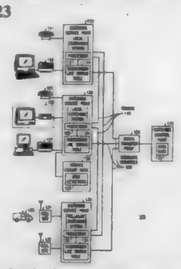
transmitting means for transmitting said encoded text message in response to said first output from said receiving terminal selection means and for transmitting said encoded voice message in response to said second output from said receiving terminal selection means.

5,724,411

METHOD FOR SELECTIVELY ALERTING MULTIPLE TELEPHONES OF AN INCOMING CALL

Allen Eisdorfer, Woodbridge; Jerry Eisdorfer, Somerset, and Jeffrey Charles George, Warren, all of N.J., assignors to AT&T Corp., Middletown, N.J.

Filed Mar. 22, 1995, Ser. No. 408,429
Int. Cl.° H04M *11/00*
U.S. Cl. 379—93.23 **16 Claims**



1. A method for selectively routing incoming calls to a requested called party, wherein the requested called party is at least one of a group of individuals associated with a plurality of telephones, the method comprising:

receiving an incoming call to a special directory number associated with each individual and each one of the plurality of telephones at a local switching system;

responsive to receiving the incoming call, querying a caller to choose a requested called party from among the group of individuals associated with the special directory number;

based on the chosen called party, translating the special directory number of the incoming call into one or more previously stored destination directory numbers, wherein the one or more destination directory numbers are determined by user-established calling parameters;

obtaining from a database a distinctive alert identifier corresponding to at least one of the group of individuals associated with the special directory number;

distinctively alerting one or more destination directory numbers in accordance with the alert identifier obtained from the database; and

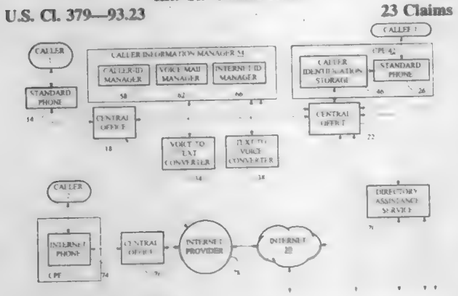
terminating the incoming call to one of the plurality of telephones from which an answer is detected.

5,724,412

METHOD AND SYSTEM FOR DISPLAYING INTERNET IDENTIFICATION ON CUSTOMER PREMISES EQUIPMENT

Thiru Srinivasan, Highlands Ranch, Colo., assignor to U S West, Inc., Englewood, Colo.

Filed Oct. 7, 1996, Ser. No. 727,161
Int. Cl.° H04M *11/00*
U.S. Cl. 379—93.23 **23 Claims**



1. A method for providing to a callee an Internet identification of a telephony caller, comprising:

storing a plurality of Internet identification data items, wherein each said Internet identification data item corresponds to an Internet user and provides Internet addressing data for use in Internet communication with the corresponding Internet user;

receiving, from the caller, a call at a telephony central office, the call being for the callee;

determining the caller's phone number at the central office;

submitting a request, from the central office to said stored plurality of Internet identification data items, for Internet identification information related to the caller, wherein the request includes information related to one of a name of the caller and the phone number of the caller;

receiving, at the central office, Internet identification information corresponding to the caller in response to said step of submitting;

transmitting the Internet identification information corresponding to the caller to a telephony station for the callee during a ringing of the telephony station; and

presenting the caller's Internet identification information to the callee in one of an audio form and a visual form when the callee accesses the telephony station.

5,724,413

HOST COMPUTER DIGITAL SIGNAL PROCESSING SYSTEM FOR COMMUNICATING OVER VOICE-GRADE TELEPHONE CHANNELS

Robert C. Suffern, Chicago, Ill., and Andrew L. Norrell, Nevada City, Calif., assignors to U.S. Robotics, Inc., Skokie, Ill.

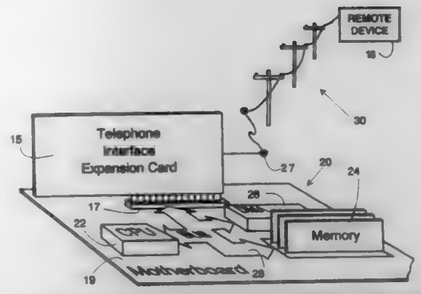
Continuation of Ser. No. 37,075, Mar. 25, 1993. This application Jun. 6, 1995, Ser. No. 466,079
Int. Cl.° H04M *11/00*
U.S. Cl. 379—98 **14 Claims**

12. A method for communicating between a computer system and a remote device via a voice-band telephone circuit, said remote device operating at a remote baud rate, said computer system comprising, in combination:

(i) a microprocessor,

(ii) a memory,

(iii) conductors interconnecting said microprocessor and said memory.



(iv) a hybrid circuit having a bidirectional telephone line port for delivering an incoming voice-band analog signal and receiving an outgoing voice-band analog signal,

(v) a telephone line adapter circuit interconnected to said voice-band telephone circuit and to said hybrid circuit, for (i) selectively connecting and disconnecting said voice-band telephone circuit, (ii) detecting when an active connection has been established with said remote device and (iii) detecting when a ringing signal has been received over said voice-band telephone circuit,

(vi) an incoming sample data register for storing incoming sample data,

(vii) an analog-to-digital converter for converting sample amplitudes of said incoming voice-band analog signal into incoming digital sample values,

(viii) an outgoing sample data register for storing outgoing sample data, and

(ix) a digital-to-analog converter for converting digital sample amplitude values into said outgoing voice-band analog signal,

said method comprising, in combination, the following steps:

operating said analog-to-digital converter at a sampling rate synchronized to a local clock signal to convert sample amplitudes of said incoming voice-band analog signal into a first stream of incoming digital sample values;

operating said microprocessor to execute an interpolation routine stored in said memory, so as to interpolate said first stream of incoming digital sample values to thereby produce a second stream of incoming digital sample values substantially synchronized to said remote baud rate;

operating said microprocessor to execute a modem demodulation routine stored in said memory, so as to translate said second stream of incoming digital sample values into digital data;

operating said microprocessor to execute a modem modulation routine stored in said memory, so as to translate digital data into digital sample amplitude values; and

operating said digital-to-analog converter to convert said digital sample amplitude values into said outgoing voice-band analog signal.

5,724,414

SECURE COMMUNICATION SYSTEM

Spiros Dimolitsas, Gaithersburg; Roderick James Ragland, Bethesda, and Farbad Hemmati, Darnestown, all of Md., assignors to Comsat Corporation, Bethesda, Md.

Continuation-in-part of Ser. No. 65,017, May 24, 1993, Pat. No. 5,404,394. This application Oct. 17, 1994, Ser. No. 324,480
Int. Cl.° H04M *11/00*
U.S. Cl. 379—100.17 **5 Claims**

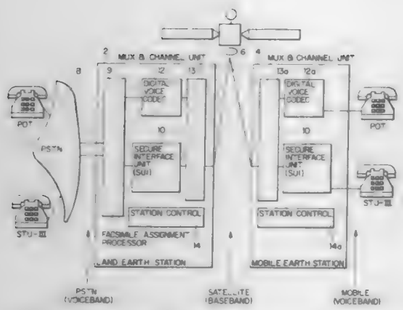
1. A communication unit comprising:

a telephone unit for providing and receiving non-secure data signals;

a secure communication terminal for providing and receiving secure analog voiceband data;

a processing circuit connected to receive secure analog voice-band data from said secure communication terminal and for converting the received secure data into secure baseband data.

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said processing circuit operable for transmitting the secure baseband data, said processing circuit also operable for receiving transmitted baseband data and converting the received baseband data into analog voiceband data;

wherein said processing circuit includes a signal detector for distinguishing between secure data signals received from said secure communication terminal and non-secure data signals received from said telephone unit.

5,724,415

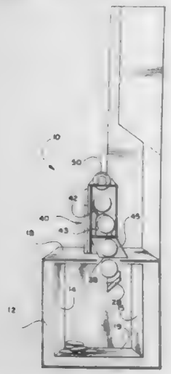
COIN DEFLECTOR FOR A COIN TELEPHONE RECEPTACLE

Woodrow W. Mills, Hoover, Ala.; Marcia Waryjas, Pembroke Pines, Fla., and Denise T. Quarles, Birmingham, Ala., assignors to BellSouth Corporation, Atlanta, Ga.

Filed Jun. 30, 1995, Ser. No. 497,426

Int. Cl.[6] H04M *17/00;* **B65D** *91/00;* **G07F** *1/04*

U.S. Cl. 379—150 **13 Claims**



1. A coin receiving device, comprising:

a coin receptacle that receives failing coins; and

a flat, elongate strip of resilient material attached at one end thereof to a side wall of said receptacle, extending horizontally from said side wall under the path of said falling coins to a free end opposite said attached end, and being angled with respect to the path of said falling coins about a horizontal axis connecting said side wall and said free end of said strip;

said strip being angled about said horizontal axis so as to bounce falling coins generally parallel to said side wall, and said free end being sufficiently far from said side wall to resiliently cause said falling coins to bounce and rotate.

5,724,416

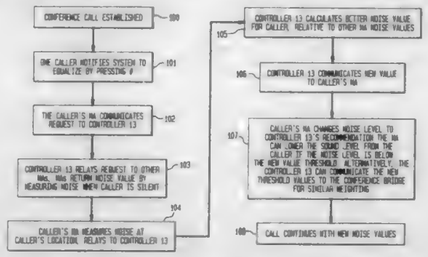
NORMALIZATION OF CALLING PARTY SOUND LEVELS ON A CONFERENCE BRIDGE

Mark Jeffrey Foladare, Kendall Park; Shelley B. Goldman, East Brunswick, and David Phillip Silverman, Somerville, all of N.J., assignors to AT&T Corp

Filed Jun. 28, 1996, Ser. No. 672,767

Int. Cl.[6] H04M *3/42;* **H04Q** *11/04*

U.S. Cl. 379—202 **20 Claims**



1. A method of balancing sound levels of a conference call formed on a network-based conference bridge, the conference call being formed from a plurality of telephone calls, the method comprising the steps of:

receiving a predetermined signal in one telephone call of the conference call;

measuring a sound level of the one telephone call; and

adjusting the sound level of the one telephone call relative to respective sound levels of other telephone calls of the conference call.

5,724,417

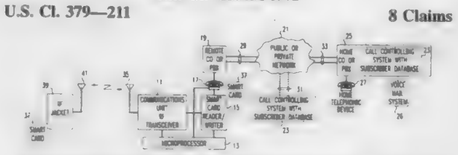
CALL FORWARDING TECHNIQUES USING SMART CARDS

Steven R. Bartholomew, Robbinsville, and Stella Yuen-Chi Norteman, Scotch Plains, both of N.J., assignors to Lucent Technologies Inc., Murray Hill, N.J.

Filed Sep. 11, 1995, Ser. No. 526,622

Int. Cl.[6] H04M *3/42*

U.S. Cl. 379—211 **8 Claims**



1. An automatic call forwarding apparatus for use in conjunction with a telephonic communications system, the apparatus comprising:

(a) a telephonic device coupled to a microprocessor;

(b) a smart card reader/writer coupled to the telephonic device and equipped to read a subscriber telephone number from a smart card;

(c) a communications unit RF transceiver coupled to the telephonic device;

(d) a smart card for storing a subscriber telephone number;

(e) and an RF jacket transceiver adapted to partially and removably encase the smart card and to read a subscriber telephone number from a smart card;

wherein, in response to (i) receipt of the subscriber telephone number from the smart card reader/writer and (ii) establishment of communications between the RF jacket transceiver and the communications unit RF transceiver, the microprocessor instructs the communications system to forward incoming telephone calls for the subscriber telephone number to the telephonic device; and the microprocessor instructs the communications system to cancel forwarding of incoming telephone calls in response to lack of establishment of communications between the RF jacket transceiver and the communications unit RF transceiver.

5,724,418

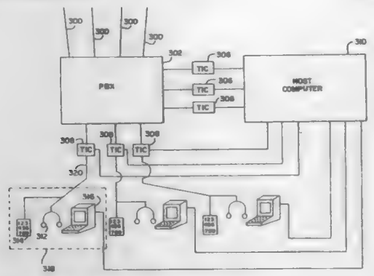
CALL DISTRIBUTOR

Patrick Kevin Brady, Wheaton, Ill., assignor to Teledata Solutions, Inc., Oakbrook Terrace, Ill.

Continuation of Ser. No. 595,861, Feb. 6, 1996, abandoned, which is a division of Ser. No. 450,268, May 25, 1995, Pat. No. 5,557,668, which is a continuation of Ser. No. 904,196, Jun. 25, 1992, abandoned. This application Nov. 27, 1996, Ser. No. 758,063

Int. Cl.[6] H04M *3/58*

U.S. Cl. 379—212 **16 Claims**



1. A call distribution system, comprising:

a telephone switching system;

a plurality of telephony interface devices, each having a telephony connection with said telephone switching system;

a plurality of computers, each having a data connection to a telephony interface device;

a data network connecting said computers;

each of said computers running a control process that controls said telephony interface device to perform telephony functions and sending messages to said remaining computers over said data network;

wherein each control process is capable of controlling said telephony interface device to transfer a telephone call to an available telephony interface device while said control process transfers data associated with said telephone call to another control process and wherein said data is sent in messages sent over said data network;

wherein each control process maintains a table indicating the state of all telephony interface devices, including which telephony interface devices are available to receive a transferred call and which are not, and wherein said control process builds and maintains said table by receiving messages over said data network.

5,724,419

CALL OVERFLOW SYSTEM AND METHOD FOR AN AUTOMATIC CALL DISTRIBUTION SYSTEM

Wayne L. Harbuziuk, Wheaton; Dennis R. Doyle, Plainfield, and James E. Anderson, Glen Ellyn, all of Ill., assignors to Rockwell International Corporation, Costa Mesa, Calif.

Continuation of Ser. No. 538,684, Oct. 3, 1995, abandoned. This application Feb. 20, 1997, Ser. No. 803,558

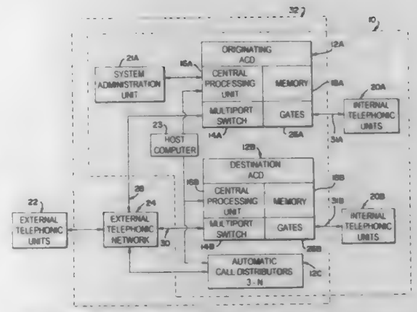
Int. Cl.[6] H04M *3/54;3/50*

U.S. Cl. 379—265 **20 Claims**

1. A call overflow system for transferring an overflow call received from a caller at an originating automatic call distributor to a destination automatic call distributor, the system comprising:

originating compilation means at the originating automatic call distributor for compiling data relating to the overflow call to be transmitted to the destination automatic call distributor, the data including identification of whether the caller attempted to block a caller identification process, the overflow call being a type of telephone call wherein a call identifier is provided through the call identification process to the originating automatic call distributor and originating compilation means even where the caller has requested a blocking of the caller identification process; and

sending means for sending the data from the originating automatic call distributor to the destination automatic call distributor and for transferring the overflow call to the destination automatic call distributor.



5,724,420

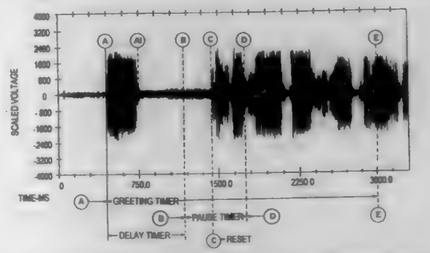
AUTOMATIC CALL DISTRIBUTION WITH ANSWER MACHINE DETECTION APPARATUS AND METHOD

Willard J. Torgrim, Batavia, Ill., assignor to Rockwell International Corporation, Costa Mesa, Calif.

Continuation of Ser. No. 313,973, Sep. 28, 1994, abandoned. This application Jun. 24, 1996, Ser. No. 669,665

Int. Cl.[6] H04M *3/22*

U.S. Cl. 379—372 **11 Claims**



1. In an automatic call distributor having a multiport switch controlled by a central control processing unit and an associated memory for receipt of voice energy from answered telephonic calls through an external telephonic public switching network and to selectively connect said answered calls with internal telephonic units coupled with the multiport switch, the improvement being an answer machine detection apparatus comprising:

means for establishing a first minimum time period that an initial pause in the received voice energy must exceed to indicate the presence of a live voice including

a delay timer for establishing a preselected maximum delay time interval beginning when the received voice energy is initially detected,

a pause timer for establishing a preselected pause time period, and

means for disabling the pause timer from beginning timing in response to any pause until lapse of the end of the preselected maximum delay time interval;

means for establishing a second minimum time period no longer than the first minimum time period that a pause must

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exceed after the lapse of the preselected maximum delay time interval to indicate the presence of live voice including

means for enabling the pause timer to start timing any pause after the lapse of the delay time interval; and

means responsive to lapse of the second minimum time period before the end of any pause to indicate detection of live voice.

5,724,421

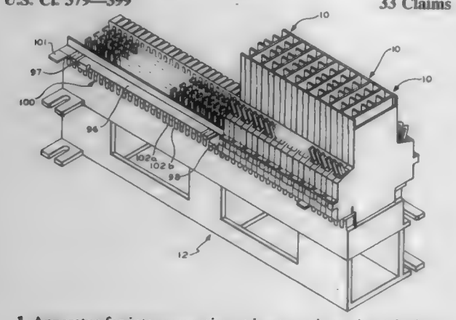
TELEPHONE NETWORK INTERFACE APPARATUS

Avraham Tuvy, Oakhurst; Anthony L. Nieves, Belmar, and Michael P. DiLonardo, Toms River, all of N.J., assignors to Antec Corp., Rolling Meadows, Ill.

Filed Nov. 16, 1995, Ser. No. 559,565

Int. Cl.[6] H04M *1/24*

U.S. Cl. 379—399 **33 Claims**



1. Apparatus for interconnecting at least one incoming telephone company line to at least one telephone subscriber line and for providing a response to signals carried by the incoming telephone company line, the apparatus for being mounted on a connector block including at least a first pair of telephone terminals to which the incoming telephone company line is connected, comprising:

at least one telephone circuit responsive to signals carried by the one incoming telephone company line;

housing means, said telephone circuit mounted in said housing means;

at least one pair of terminal contacts mounted to said housing means and connected to said telephone circuit and for mechanically and electrically engaging the first pair of telephone terminals to mount said housing means to the connector block and to connect said telephone circuit to the incoming telephone company line; and

at least one pair of telephone subscriber terminals mounted to said housing means and connected to said telephone circuit, at least portions of said pair of telephone subscriber terminals extending externally of said housing means for connection to the telephone subscriber line.

5,724,422

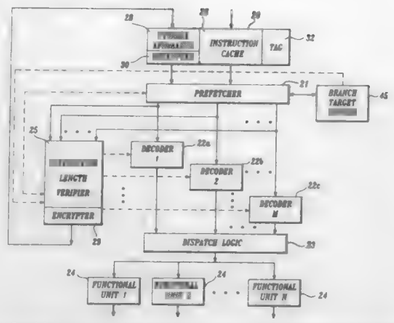
ENCRYPTING AND DECRYPTING INSTRUCTION BOUNDARIES OF INSTRUCTIONS IN A SUPERSCALAR DATA PROCESSING SYSTEM

Shisheng Shang, Kaohsiung; Chung-Chih Chang, Yun-Lin, and Chia-Chang Hsu, Tainan, all of Taiwan, assignors to Industrial Technology Research Institute, Taiwan

Filed Aug. 5, 1996, Ser. No. 693,376

Int. Cl.[6] H04K *1/00*

U.S. Cl. 380—4 **14 Claims**



1. A method for decoding instructions in parallel in a computer system, wherein the computer system includes an instruction cache, a boundary pattern storage, an encrypter, a decrypter, a prefetcher and two or more decoders, said method comprising the steps of:

(a) fetching a set of instructions and a corresponding instruction boundary pattern code from the boundary pattern storage;

(b) decrypting the fetched instruction boundary pattern code into instruction boundary patterns according to a predetermined criteria;

(b) generating instruction boundary patterns according to said fetched set of instructions, if the corresponding instruction boundary pattern contains no pattern information, encrypting said generated instruction boundary patterns into instruction boundary pattern code according to the predetermined criteria, storing said encrypted instruction boundary pattern code in the boundary pattern storage and decoding the instructions in the set of instructions serially according to said generated instruction boundary patterns;

(c) separating the set of instructions according to said corresponding instruction boundary pattern, if the corresponding instruction boundary pattern contains pattern information, verifying if the separated instruction signals were separated correctly, decoding the correctly separated set of instructions in parallel, if the verification was correct, and decoding the instructions subsequent to an incorrectly verified instruction serially, if the verification is incorrect.

5,724,423

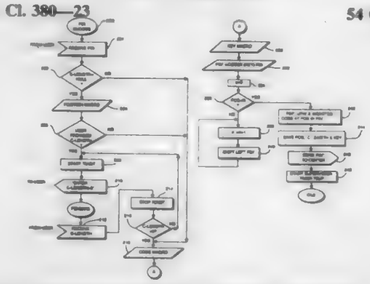
METHOD AND APPARATUS FOR USER AUTHENTICATION

Robert Peter Khello, Norsborg, Sweden, assignor to Telefonaktiebolaget LM Ericsson, Stockholm, Sweden

Filed Sep. 18, 1995, Ser. No. 529,405

Int. Cl.[6] H04K *1/00*

U.S. Cl. 380—23 **54 Claims**



1. In a system for providing user services electronically using a communications network, a method comprising the steps of:

(a) entering a user's personal identification string of two or more characters;

(b) determining a character position of the user's personal identification string;

(c) generating a code;

(d) combining the code with the user's personal identification string at the determined character position to generate a user identification code; and

(e) transmitting the user identification code along with a user's service request over the communications network.

5,724,424

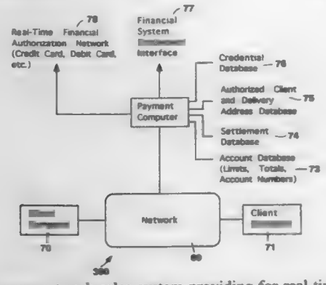
DIGITAL ACTIVE ADVERTISING

David K. Gifford, Weston, Mass., assignor to Open Market, Inc., Cambridge, Mass.

Continuation of Ser. No. 168,519, Dec. 16, 1993, abandoned. This application Nov. 29, 1995, Ser. No. 563,745

Int. Cl.[6] H04K *1/00*

U.S. Cl. 380—24 **58 Claims**



1. An open network sales system providing for real-time authorization of purchase transactions, comprising:

a plurality of buyer computers; and

a plurality of merchant computers;

said plurality of buyer computers and said plurality of merchant computers being interconnected by a public packet switched communications network;

at least one of said plurality of merchant computers being programmed to store digital advertisements in a database;

each one of said buyer computers being programmed to receive a user inquiry and, in response to said user inquiry, to select at least one of said merchant computers and to transmit a network request thereto over said public packet switched communications network;

at least one of said merchant computers being programmed to cause one of said digital advertisements to be communicated to said one of said buyer computers over said public packet switched communications network in response to said network request from said buyer computer;

said one of said buyer computers being programmed to display said one of said digital advertisements, and, in response to a user request, to transmit over said public packet switched communications network to at least one of said merchant computers a purchase message and to cause a payment request, comprising a payment amount, to be transmitted over said public packet switched communications network into a payment system comprising a financial authorization network external to said public packet switched communications network, in order to initiate authorization of purchase of a product having real monetary value advertised in said one of said digital advertisements and in order to initiate recordation of information pertaining to said payment request and an authorization in a settlement database;

at least one of said merchant computers being programmed to receive said purchase message, and to cause said product to be sent to a party conditioned on said purchase transaction having been authorized in real time by said financial authorization network external to said public packet switched communications network, based on an external credit card account or an external demand deposit account having sufficient credit or funds of real monetary value available to a principal making said payment, and conditioned on at least one message transmitted over said public packet switched communications network in connection with purchase of said product not being a replay attack of a message previously transmitted over said public packet switched communications network;

said payment request comprising at least one digital signature of components that include components derived from said payment request, at least one of which digital signatures protects said payment request from forgery, including authenticating an identity of one of a plurality of principals as an originator of said payment request, at least one of which digital signatures protects said payment request from replay attack, and at least one of which digital signatures is computed based on a principal-specific secret key.

5,724,425

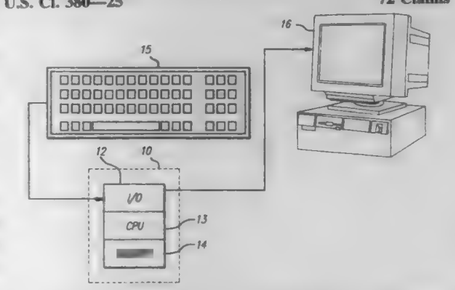
METHOD AND APPARATUS FOR ENHANCING SOFTWARE SECURITY AND DISTRIBUTING SOFTWARE

Sheue-Ling Chang, Cupertino, and James Gosling, Woodside, both of Calif., assignors to Sun Microsystems, Inc.

Filed Jun. 10, 1994, Ser. No. 258,244

Int. Cl.[6] H04L *9/00;9/30;9/32*

U.S. Cl. 380—25 **72 Claims**



23. A method for secure software distribution from a distributor to a recipient comprising the steps of:

(a) receiving, at a recipient's location, a plurality of elements including:

(i) software;

(ii) a cryptographically secured representation of said software, said cryptographically secured representation having been secured by a first encryption key;

(iii) an identifier of said distributor; and

(iv) a cryptographic certification, by a certifier, of a first decryption key corresponding to said first encryption key;

said received elements defining a software passport including at least elements (ii), (iii) and (iv); and

(b) cryptographically verifying said first decryption key using a second, preexisting decryption key unrelated to said distributor and obtained by said recipient without specific knowledge of said certifier; and

(c) cryptographically verifying said software using said verified first decryption key.

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5,724,426

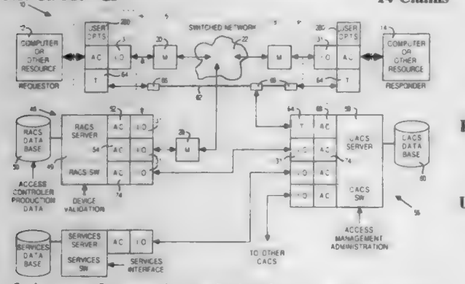
APPARATUS AND METHOD FOR CONTROLLING ACCESS TO AND INTERCONNECTION OF COMPUTER SYSTEM RESOURCES

Peter D. Rosenow, Edmonds, and Roger M. Trafton, Kirkland, both of Wash., assignors to Paralon Technologies, Inc., Seattle, Wash.

Continuation of Ser. No. 186,663, Jan. 24, 1994, Pat. No. 5,483,596. This application Jan. 11, 1996, Ser. No. 584,079

Int. Cl.[6] H04L *9/00;9/32*

U.S. Cl. 380—25 **14 Claims**



1. A system for securely transferring data across a data communication medium between first and second computer system resources, comprising:

first and second access controllers electrically connected to the data communication medium and to respective ones of the first and second resources for transferring the data after verifying that the first and second resources are both associated with at least one authorized access code;

the access controllers each including:

a memory storing a table of encryption keys, a table of algorithms, and a table of authorized resources that associates pairs of resources with authorized access control codes;

a processor generating plural numbers and utilizing the plural numbers, a selected one of the stored algorithms, and a selected one of the stored encryption keys to generate in cooperation with the other access controller a session key; and

a processor using the session key to encrypt the secure data transferred across the data communication medium.

5,724,427

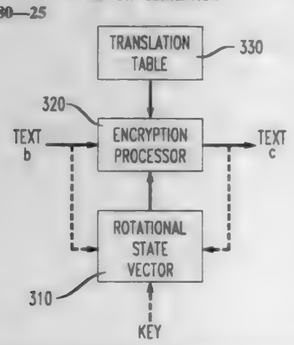
METHOD AND APPARATUS FOR AUTOKEY ROTOR ENCRYPTION

James Alexander Reeds, III, 127 Southgate Rd., New Providence, N.J. 07974

Filed Aug. 17, 1995, Ser. No. 516,369

Int. Cl.[6] H04L *9/38*

U.S. Cl. 380—25 **7 Claims**



1. In an apparatus, a method for encrypting/decrypting data in an array having at least one entry, comprising the steps of

performing a first substitution of the at least one array entry, the first substitution being modified by a first rotational state vector,

performing a second substitution of the at least one array entry, the second substitution being modified by a second rotational state vector;

modifying the first rotational state vector with the array entry before the first substitution; and

modifying the second rotational state vector with the array entry after the second substitution.

5,724,428

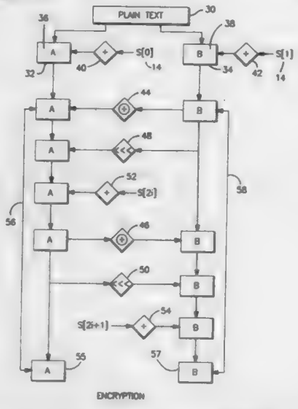
BLOCK ENCRYPTION ALGORITHM WITH DATA-DEPENDENT ROTATIONS

Ronald L. Rivest, Arlington, Mass., assignor to RSA Data Security, Inc., Redwood City, Calif.

Filed Nov. 1, 1995, Ser. No. 548,318

Int. Cl.[6] H04L *9/06*

U.S. Cl. 380—37 **16 Claims**



7. A method of encrypting information comprising the steps of:

(a) selecting a secret key having a predetermined number of bytes, and

(b) encrypting the information using the key and a block cipher that includes data-dependent rotations to generate encrypted data, and wherein the amount of rotation in at least one of the rotations depends on an intermediate result, wherein the block cipher includes steps:

(b.1) segmenting the information, and storing a first part of the information in a first memory register and a second part of the information in a second memory register,

(b.2) rotating a first value stored in the first memory register by a value derived from the contents of the second register, and rotating a second value stored in the second register by a value derived from the contents of the first register,

(b.3) repeating step b.2 by a number of rounds.

5,724,429

SYSTEM AND METHOD FOR ENHANCING THE SPATIAL EFFECT OF SOUND PRODUCED BY A SOUND SYSTEM

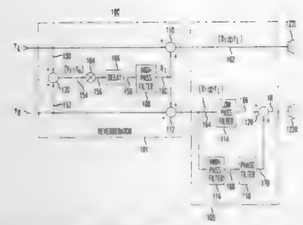
Raja Banerjea, Tinton Falls, N.J., assignor to Lucent Technologies Inc., Murray Hill, N.J.

Filed Nov. 15, 1996, Ser. No. 749,462

Int. Cl.[6] H04S *1/00;* **H03G** *3/00*

U.S. Cl. 381—1 **18 Claims**

1. A sound system for enhancing the spatial effect of sound, comprising:



a reverberator, configured to receive a stereo signal and generate a reverberation signal;

a low-pass filter, coupled to said reverberator, configured to damp a high frequency component of said reverberation signal and produce a low frequency signal;

a high-pass filter, coupled to said reverberator, configured to damp a low frequency component of said reverberation signal and produce a high frequency signal;

a phase shifter, coupled to said high-pass filter, configured to phase shift said high frequency signal and produce a phase shifted high frequency signal; and

an adder, coupled to said low-pass filter and said phase shifter, configured to combine said low frequency signal with said phase shifted high frequency signal for output to a transducer.

5,724,430

AUDIO-VISUAL ARRANGEMENT AND SYSTEM IN WHICH SUCH AN ARRANGEMENT IS USED

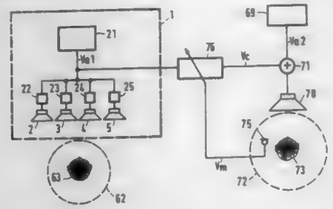
Ronaldus M. Aarts, and Willem F. Druyvesteyn, both of Eindhoven, Netherlands, assignors to U.S. Philips Corporation, New York, N.Y.

Continuation of Ser. No. 408,754, Mar. 22, 1995, abandoned. This application Nov. 12, 1996, Ser. No. 748,118

Claims priority, application European Pat. Off., Mar. 24, 1994, 94200763

Int. Cl.[6] H04R *29/00*

U.S. Cl. 381—59 **19 Claims**



1. An audio-visual arrangement comprising:

a picture screen;

means for causing a picture to be displayed on the picture screen;

means for generating control signals;

electro-acoustic means for generating soundwaves in response to the control signals; and

an audio signal source for applying the control signals to the electro-acoustic means,

the electro-acoustic means comprising:

a plurality of electro-acoustic converters installed on one side of the picture screen for concentrating soundwaves in a listening and viewing area substantially dead opposite to the picture screen, wherein

said means for generating control signals is arranged for driving the electro-acoustic converters; and

said control signals have proportionally decreasing signal strengths for electro-acoustic converters which are further from the center of the plurality of electro-acoustic converters.

5,724,431

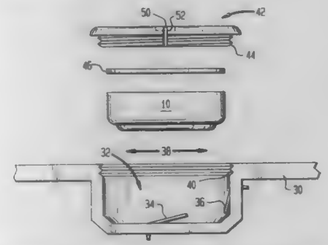
ZINC-AIR DRY CELL HOLDER AND HEARING AID THAT USES IT

James J. Reiter, Champlin, and Gordon Berkholes, Minneapolis, both of Minn., assignors to Siemens Hearing Instruments, Inc., Piscataway, N.J.

Filed Feb. 26, 1996, Ser. No. 606,935

Int. Cl.[6] H04R *25/00*

U.S. Cl. 381—69.2 **3 Claims**



1. A holder for use with a zinc-air dry cell of the type in which a plurality of air holes are located in the cathode, comprising:

a housing having a recess shaped to fit the zinc-air dry cell, said recess having an open end, and the housing having an interior thread at the open end of the recess;

anode and cathode electrodes extending into the recess and positioned to contact the anode and cathode of the dry cell introduced therein through the open end;

a cover that is detachably securable to the housing to cover the open end of the recess and to retain the dry cell therein, the cover having a mating exterior thread for being threaded into said open end and an air port for allowing air to enter the recess, said air port being aligned with at least one air hole in the dry cell located in the recess; and

partially air-permeable sealing means, the sealing means cooperating with the housing and the cover to hermetically seal less than all of said plurality of air holes and thereby prevent air from entering the dry cell therethrough and to permit air to enter at least one of said plurality of air holes, thereby causing the dry cell to produce a potential difference between its anode and its cathode, said sealing means comprising a gasket having a perforation that is aligned with said air port and said at least one air hole when the dry cell is located in the recess.

5,724,432

ACOUSTIC ATTENUATION DEVICE WITH ACTIVE DOUBLE WALL

Pascal Bouvet, Lyons; Jacques Roland, Corenc, and Laurent Gagliardini, Paris, all of France, assignors to Centre Scientifigue et Technique du Batiment, Paris, France

PCT No. PCT/FR94/00520, § 371 Date Feb. 15, 1996, § 102(e) Date Feb. 15, 1996, PCT Pub. No. WO94/27283, PCT Pub. Date Nov. 24, 1994

PCT Filed May 4, 1994, Ser. No. 535,067

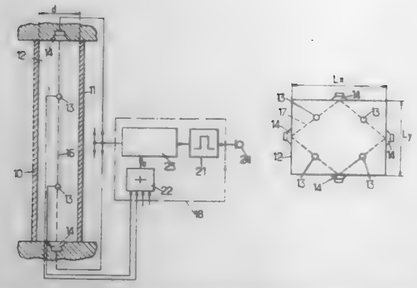
Claims priority, application France, May 6, 1993, 93 05451

Int. Cl.[6] H04B *15/00;* **A61F** *11/06*

U.S. Cl. 381—71 **17 Claims**

1. Acoustic attenuation device, comprising two substantially parallel plates defining a rectangularly shaped internal space therebetween, noise detection means arranged between the two plates, inverse noise emission means arranged between the two plates, and control means for controlling the inverse noise emission means in such a way as to minimize a quantity supplied by the noise detection means, wherein the inverse noise emission means comprise four actuators whose respective positions parallel to the plates correspond approximately to four points constituting the centers of respective sides of the rectangular shape of said internal space wherein the noise detection means comprise four sensors whose respective positions parallel to the plates correspond

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approximately to four points constituting the centers of respective sides of a rhombus whose vertices are the centers of the sides of the rectangular shape of said internal space, wherein the four actuators are controlled in phase, and wherein the quantity to be minimized is represented by the sum of the output signals of the four sensors.

5,724,433

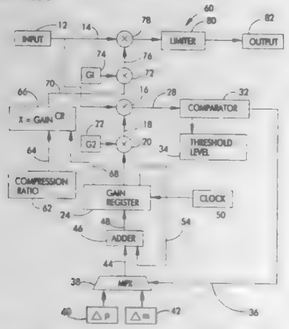
ADAPTIVE GAIN AND FILTERING CIRCUIT FOR A SOUND REPRODUCTION SYSTEM

A. Maynard Engebretson, Ladue, Mo., and Michael P. O'Connell, Somerville, Mass., assignors to K/S HIMPP, Vaerloese, Denmark

Division of Ser. No. 44,246, Apr. 7, 1993. This application Jun. 7, 1995, Ser. No. 477,621

Int. Cl.[6] H04R *75/00*

U.S. Cl. 381—106 **27 Claims**



1. An adaptive gain amplifier circuit comprising:

an amplifier for receiving an input signal in the audible frequency range and producing an output signal;

means for establishing a threshold level for the output signal;

a comparator for producing a control signal as a function of the level of the output signal being greater or less than the threshold level;

a gain register for storing a gain setting;

an adder responsive to the control signal for increasing the gain setting up to a predetermined limit when the output signal falls below the threshold level and for decreasing the gain setting when the output signal rises above the threshold level; and

a preamplifier having a preset gain for amplifying the gain setting to produce a gain signal;

wherein the amplifier is responsive to the preamplifier for varying the gain of the amplifier as a function of the gain signal, wherein the output signal is adaptively compressed.

5,724,434

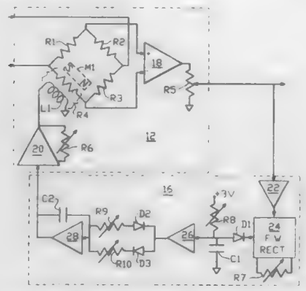
MAGNETORESISTIVE AUDIO LIMITER

Daniel C. Myers, St. Charles, Ill., assignor to Thomas C. Hilbe, Cambria, Calif.

Filed Nov. 7, 1996, Ser. No. 744,398

Int. Cl.[6] H03G *3/00*

U.S. Cl. 381—108 **12 Claims**



1. An electrically-controlled variable gain cell comprising:

a bridge circuit having four arms connected in series in a loop such as to provide four nodes, of which a first diagonally opposite pair is made to receive an audio frequency bridge input signal whereby, under an unbalanced bridge condition, a second diagonally opposite pair of nodes provides a bridge output signal constituting an attenuated replica of the bridge input signal;

three resistors constituting respectively three of the four arms of said bridge circuit;

a magnetoresistive element constituting the fourth of the four arms of said bridge circuit; and

an electrically-controlled magnetic source constructed and arranged to provide a variable-strength magnetic field engaging said magnetoresistive element;

said resistors and said magnetostrictive element being made to have resistive values such that said bridge circuit is slightly unbalanced to the extent of a predetermined offset, whereby said bridge circuit may be controlled with regard to attenuation, defined as amplitude of the bridge output signal divided by amplitude of the bridge input signal, by electrically controlling said magnetic source so as to vary the magnetic field engaging said magnetoresistive element.

5,724,435

DIGITAL FILTER AND METHOD OF TRACKING A STRUCTURE EXTENDING IN THREE SPATIAL DIMENSIONS

Thomas Malzbender, Mountain View, Calif., assignor to Hewlett Packard Company, Palo Alto, Calif.

Continuation of Ser. No. 548,606, Oct. 26, 1995, abandoned, which is a continuation of Ser. No. 228,042, Apr. 15, 1994, abandoned. This application Dec. 18, 1996, Ser. No. 769,179

Int. Cl.[6] G06K *9/00;9/40*

U.S. Cl. 382—103 **22 Claims**

9. A method for tracking a three-dimensional structure defined within a data set including data representing three spatial dimensions, using an image processing device, said method comprising:

selecting a geometric shape that occupies at least two independent dimensions;

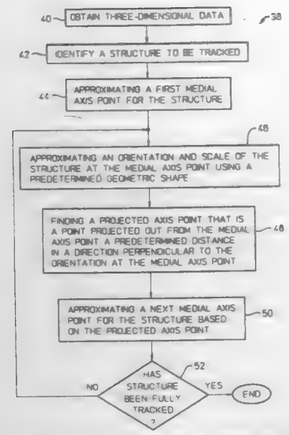
approximating a medial axis point in the three spatial dimensions for the structure to be tracked;

obtaining a best fit between the structure and the geometric shape by three-dimensional processing using at least one of

adjusting size of the geometric shape in at least two independent dimensions to thereby cause the shape to correspond to the structure, and also ascertaining a rotational orientation of the shape around one of the at least two independent dimensions such that the shape corresponds to the structure, or

adjusting position of the geometric shape within the three spatial dimensions and also ascertaining a rotational orientation of the shape around at least two independent axes such that it corresponds to the structure; and

approximating a next medial axis point for the structure based on the best fit and the orientation of the geometric shape.



5,724,436

Patent Not Issued For This Number

5,724,437

DEVICE FOR PARALLEL IMAGE INSPECTION AND INKING CONTROL ON A PRINTED PRODUCT

Harald Bucher, Eschelbronn; Gerhard Fischer, Sinsheim; Wolfgang Geissler, Bad Schoenborn; Werner Huber, Rauenberg; Helmut Kipphan, Schwetzingen; Bernd Kistler, Eppingen; Gerhard Loeffler, Walldorf, and Clemens Rensch, Heidelberg, all of Germany, assignors to Heidelberger Druckmaschinen AG, Heidelberg, Germany

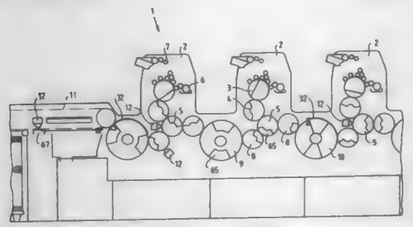
PCT No. PCT/EP94/02033, § 371 Date Apr. 15, 1996, § 102(e) Date Apr. 15, 1996, PCT Pub. No. WO95/00335, PCT Pub. Date Jan. 5, 1995

PCT Filed Jun. 22, 1994, Ser. No. 571,857

Claims priority, application Germany, Jun. 25, 1993, 43 21 177.1

Int. Cl.[6] G06K *9/00*

U.S. Cl. 382—112 **26 Claims**



1. Device for the image inspection of a printed product, comprising:

an image-capturing apparatus delivering image data for reproducing the entire surface of the printed product;

said image-capturing apparatus containing an illumination apparatus, said illumination apparatus illuminating a narrow strip of an image region to be inspected with homogeneous brightness in the longitudinal direction of the strip;

said image-capturing apparatus further containing a photoelectric receiving element, said receiving element picking up light reflected from the image region under inspection, evaluating the light with the aid of spectral filters and converting it into electric signals;

a computing apparatus being connected to said image-capturing apparatus in order to process the image data;

image conductors having a multiplicity of ordered light-conducting fibers provided in said photoelectric receiving element, said image conductors having light-entry surfaces in the form of narrow strips which pick up the reflected light without gap across the entire width of the printed product (**32**);

said light-entry surfaces being uniformly distributed in zones (**44**, **50**) and being disposed along a line lying parallel to the illuminated strip on the printed product (**32**);

said light-entry surfaces of said image conductors (**15**) each being formed of narrow strips and being rectangular, parallel and stacked one above the other at equal intervals;

a front objective lens being disposed in front of each of said narrow strips for imaging the light from one image element onto said multiplicity of ordered light conducting fibers (**49**);

an optical imaging system (**51**) located between said image conductors (**15**) and said photoelectric receiving element for imaging the light, distributed over said multiplicity of ordered light conducting fibers, from said one image element onto a part region of a row of said photoelectric receiving element (**38**); and

said image conductors having light-exit surfaces such that image information leaving said light-exit surfaces is imaged onto an arrangement with in-line, parallel and equally spaced said receiving elements (**38**); each line of said receiving elements (**38**) being associated with precisely one strip of said light-exit surfaces of said image conductors (**15**).

5,724,438

METHOD OF GENERATING MODIFIED PATTERNS AND METHOD AND APPARATUS FOR USING THE SAME IN A CURRENCY IDENTIFICATION SYSTEM

Bradford T. Graves, Arlington Heights, Ill., assignor to Cummins-Allison Corp., Mt. Prospect, Ill.

Continuation-in-part of Ser. No. 340,031, Nov. 14, 1994, and Ser. No. 127,334, Sep. 27, 1993, Pat. No. 5,467,405, which is a continuation of Ser. No. 885,648, May 19, 1992, Pat. No. 5,295,196, which is a continuation-in-part of Ser. No. 475,111, Feb. 5, 1990, abandoned, said Ser. No. 340,031, is a continuation-in-part of Ser. No. 243,807, May 16, 1994, Pat. No. 5,633,949, and Ser. No. 207,592, Mar. 8, 1994, Pat. No. 5,467,406, which is a continuation-in-part of Ser. No. 127,334, May 19, 1992, said Ser. No. 243,807is a continuation-in-part of Ser. No. 127,334, Sep. 27, 1993, and Ser. No. 219,093, Mar. 29, 1994, abandoned, which is a continuation-in-part of Ser. No. 127,334, Sep. 27, 1993. This application Feb. 27, 1995, Ser. No. 394,752

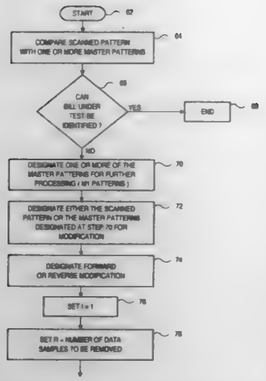
Int. Cl.[6] G06K *9/00*

U.S. Cl. 382—135 **33 Claims**

1. A method of generating modified scanned or master patterns for use in a discrimination system capable of identifying one or more currency bills comprising the steps of:

designating either a scanned pattern or a master pattern for modification, the pattern which is not designated being a non-designated pattern, each of said scanned and master patterns comprising a sequence of data values representing analog variations of characteristic information along a segment of a bill, each of said data values having an associated sequence position;

removing one or more data values from one end of the sequence of data values of said designated pattern; and



inserting at the opposite end of the sequence of data values of said designated pattern a number of data values equal to the number of data values removed, said inserted data values being set equal to selected data values of said non-designated pattern, said selected data values having the same sequence positions in said non-designated pattern as said sequence positions of said designated pattern into which said selected data values are to be inserted.

5,724,439

INSPECTING APPARATUS OF MOUNTED COMPONENT

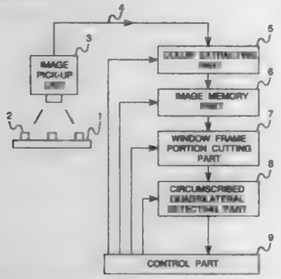
Seiji Mizuoka, Moriguchi; Toshihiko Tsujikawa, Toyonaka; Kenji Okamoto, Hirakata; Kazuhiro Ikurumi, Katano; Youichiro Ueda, Takatsuki, and Masanori Yasutake, Hirakata, all of Japan, assignors to Matsushita Electric Industrial Co., Ltd., Osaka-fu, Japan

Filed Jun. 9, 1994, Ser. No. 257,382

Claims priority, application Japan, Jun. 10, 1993, 5-138216

Int. Cl.[6] G06K *9/00*

U.S. Cl. 382—149 **2 Claims**



1. An inspecting apparatus for inspecting a mounting state of a component mounted on a printed circuit board with adhesive, comprising:

an image pick-up unit for picking up in colors an image of the board after the component is mounted;

a color extracting part for discriminating a portion of the image depicting the adhesive based on a predetermined color distribution of the adhesive and then extracting the thus discriminated adhesive portion of the image as extracted data;

an image cutting part for setting a window frame defining a to-be-inspected portion in the image of the board, and extracting a portion of the image within said window frame as window frame data; and

a deciding part for deciding, based on the extracted data and the window frame data, whether the mounting state of the component includes an unacceptable bulging of the adhesive according to a size or an area of the adhesive portion of the image within the window frame of the image which exhibits a color within the predetermined color distribution of the adhesive;

wherein the component includes at least one electrode, and wherein the window frame is set around a detected position of the at least one electrode;

wherein the deciding part discriminates the presence of unacceptable bulging of the adhesive when the size or area of the adhesive portion of the image within the window frame exceeds a preset value and discriminates the absence of unacceptable bulging of the adhesive when the size or area of the adhesive portion in the window frame does not exceed the preset value.

5,724,440

IMAGE PROCESSING APPARATUS

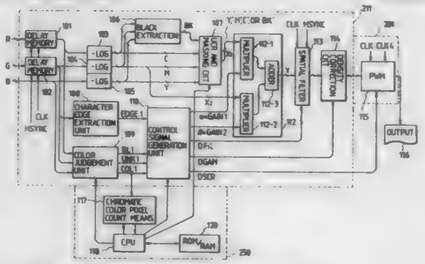
Masahiro Funada, and Shinobu Arimoto, both of Yokohama, Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan

Division of Ser. No. 301,029, Sep. 6, 1994, Pat. No. 5,420,938, which is a continuation of Ser. No. 945,585, Sep. 16, 1992, abandoned, which is a continuation of Ser. No. 560,899, Jul. 31, 1990, abandoned. This application Nov. 23, 1994, Ser. No. 346,292

Claims priority, application Japan, Aug. 2, 1989, 1-200500

Int. Cl.[6] G06K *9/00*

U.S. Cl. 382—162 **20 Claims**



1. An image processing apparatus comprising:

input means for inputting image data representing an original image, the image data having a chromatic component;

judging means for judging, based on the chromatic component of the image data, whether the original image is a monochrome image or a color image;

processing means for processing the image data in accordance with a judgment result of said judging means; and

mode setting means for setting one of a first mode in which said processing means processes the image data in accordance with the judgment result and a second mode in which said processing means processes the image data irrespective of the judgment result;

wherein said judging means comprises saturation judging means for judging the chromatic component of the original image and an achromatic component of the original image.

5,724,441

IMAGE PROCESSING APPARATUS AND METHOD

Tadashi Yoshida, Ichikawa, Japan, assignor to Canon Kabushiki Kaisha, Tokyo, Japan

Filed May 25, 1995, Ser. No. 450,682

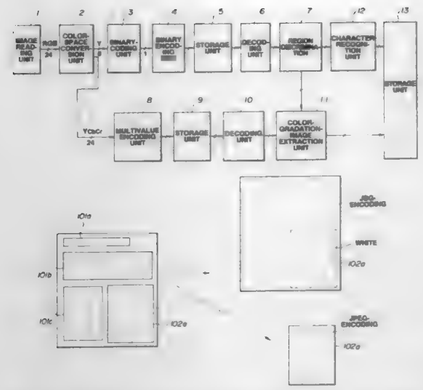
Claims priority, application Japan, May 31, 1994, 6-118624

Int. Cl.[6] H04N *1/419*

U.S. Cl. 382—166 **12 Claims**

1. An image processing apparatus comprising:

quantizing means for quantizing input image data and outputting quantized image data;



first encoding means for encoding the quantized image data output from said quantizing means and generating first encoded data;

second encoding means for encoding the input image data and generating second encoded data;

storage means for storing the first encoded data;

decoding means for decoding first encoded data stored in the storage means;

discriminating means for discriminating an image region from the quantized image data decoded by said decoding means; and

extracting means for extracting character/line-drawing regions from the quantized image data decoded by said decoding means.

5,724,442

APPARATUS FOR PROCESSING INPUT COLOR IMAGE DATA TO GENERATE OUTPUT COLOR IMAGE DATA WITHIN AN OUTPUT COLOR REPRODUCTION RANGE

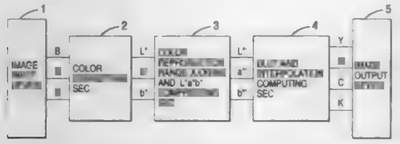
Hitoshi Ogatsu, and Shinji Kita, both of Kanagawa, Japan, assignors to Fuji Xerox Co., Ltd., Tokyo, Japan

Filed Apr. 19, 1995, Ser. No. 426,019

Claims priority, application Japan, Jun. 15, 1994, 6-133260

Int. Cl.[6] G03F *3/08*; **H04N** *1/46*

U.S. Cl. 382—167 **5 Claims**



1. A color image processing apparatus that converts the color of an input color image to a color suitable for an output device by using a direct look-up table, comprising:

color converting means for converting an input color signal into a second color signal in an intermediate color space;

judging means including:

means for generating a representative lattice point data address corresponding to the second color signal, said representative lattice point data address corresponding to an entry in the direct look-up table having both binary data indicating whether the lattice point data is inside or outside of a color reproduction range and direction data indicating a compression direction in said intermediate color space, and

inside/outside judging means for judging whether the representative lattice point data address is located inside or outside the color reproduction range of the output device based on the binary data; and

compression means for compressing the representative lattice point data address based on the direction data when the inside/outside judging means determines that the representative lattice point data address is located outside the color reproduction range of the output device, the compression means including a color reproduction range outermost lattice point detecting section,

wherein the judging means and the compression means repeatedly generate lattice point data addresses located inside the color reproduction range of the output device.

5,724,443

COLOR IMAGE FORMING APPARATUS

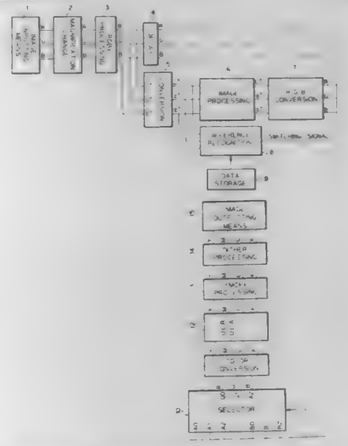
Yoshiaki Nishikawn, Yokohama, Japan, assignor to Ricoh Company, Ltd., Tokyo, Japan

Filed Aug. 4, 1995, Ser. No. 511,189

Claims priority, application Japan, Aug. 31, 1994, 6-207530

Int. Cl.° G03F *3/08*

U.S. Cl. 382—167 **5 Claims**



1. A color image forming apparatus comprising:

image inputting means for reading a color document image and generating RGB data representative of said document image;

L*a*b* converting means for converting said RGB data to L*a*b* data;

image processing means for executing image processing with said L*a*b* data;

RGB converting means for converting data output from said image processing means to RGB data;

YMCK processing means for converting said RGB data to YMCK data;

image outputting means for outputting the color document image by sequentially superposing color materials on a paper in response to said YMCK data;

recognizing means for recognizing L*a*b* data outside a color rendering range of said image outputting means;

storing means storing data representative of a color rendering range particular to said image inputting means and said color rendering range available with said image outputting means, and for supplying said recognizing means with said data;

said image processing means including color correction means for performing color correction only on said L*a*b* data outside the color rendering range of said image outputting means to produce corrected L*a*b* image data defining a color within the color rendering range of said image outputting means and outputting the corrected L*a*b* data to said RGB converting means; and

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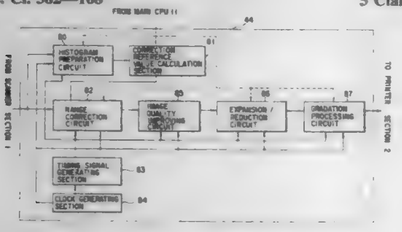
a selecting mechanism for selecting one of said RGB data generated by said image inputting means and said RGB data output from said RGB converting means based on a signal from said recognizing means, and providing the selected RGB data to said YMCK processing means.

5,724,444

IMAGE FORMING APPARATUS

Eiichi Yamanishi, Yokohama, Japan, assignor to Kabushiki Kaisha Toshiba, Kawasaki, Japan

Filed Jun. 7, 1995, Ser. No. 475,650
Claims priority, application Japan, Sep. 16, 1994, 6-221627
Int. Cl.[6] G06K *9/38*
U.S. Cl. 382—168 5 Claims



1. An image forming apparatus comprising:

reading means for reading a document in a main scanning direction, and repeating the reading operation along a sub-scanning direction different from the main scanning direction so as to output a signal representative of a pixel density of each of a range of pixels in each of scanning lines in the document;

calculating means for receiving the signal output from said reading means, and calculating density-frequency data of said each of the scanning lines;

rectified density-frequency data preparing means for rectifying the density-frequency data calculated by said calculating means by use of a weighted coefficient which varies in accordance with a number of scanned scanning lines, thereby preparing rectified density-frequency data;

corrected density-frequency data preparing means for preparing, each time said each of the scanning lines is scanned, corrected density-frequency data of the first scanning line through said each of the scanning lines by using both corrected density-frequency data prepared when a previous scanning line which precedes said each of the scanning lines has been scanned, and the rectified density-frequency data prepared by said rectified density-frequency data preparing means, wherein a total amount of the corrected density-frequency data prepared by said corrected density-frequency data preparing means is smaller than a total amount of non-corrected density-frequency data of the first scanning line through said each of the scanning lines;

correction reference value calculating means for calculating a correction reference value for a pixel density correction by using the corrected density-frequency data prepared by said corrected density-frequency data preparing means, each time said each of the scanning lines is scanned;

pixel density correcting means for correcting the pixel density of said each of the range of pixels of said each of the scanning lines based on the correction reference value; and

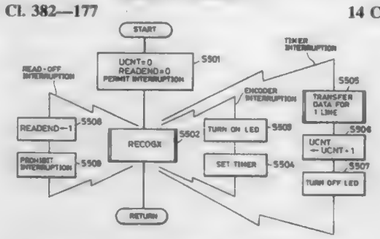
image forming means for forming an image based on the pixel density corrected by said pixel density correcting means.

5,724,445

IMAGE PROCESSING METHOD AND APPARATUS

Toru Niki, Yokohama, Japan, assignor to Canon Kabushiki Kaisha, Tokyo, Japan

Continuation of Ser. No. 913,046, Jul. 14, 1992, abandoned.
This application Dec. 29, 1994, Ser. No. 361,692
Claims priority, application Japan, Jul. 23, 1991, 3-182514
Int. Cl.[6] G06K *9/34*
U.S. Cl. 382—177 14 Claims



1. An image processing apparatus, comprising:

input means for inputting an image;

segmenting means for segmenting one character image from the input image;

recognition means for recognizing said segmented one character image;

first controlling means for controlling operation of said segmenting means and said recognition means such that the one character image segmentation and the segmented one character image recognition are repeated;

detection means for detecting an interruption of said input of the image; and

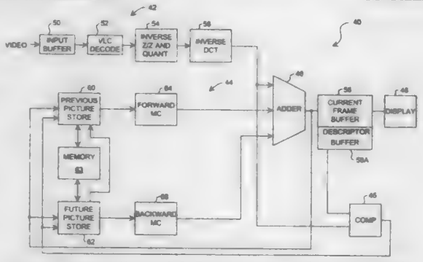
second controlling means for interrupting, in response to said detection of the interruption, said first controlling means and for controlling operation of said segmenting means and said recognition means such that segmentation is repeated without performing recognition until a word is removed from a string of input characters.

5,724,446

VIDEO DECODER APPARATUS USING NON-REFERENCE FRAME AS AN ADDITIONAL PREDICTION SOURCE AND METHOD THEREFOR

Yi Liu; Michael R. Tucker, and Geoffrey S. Strongin, all of Austin, Tex., assignors to Advanced Micro Devices, Inc., Sunnyvale, Calif.

Filed Apr. 18, 1995, Ser. No. 424,037
Int. Cl.[6] G06K *9/36;9/46*
U.S. Cl. 382—233 38 Claims



1. In a system for decoding compressed video information, a method for determining a plurality of pixel values for a macroblock within a frame "N" of a given type, in a sequence of video frames including a previous frame "N–1" of the given type, comprising the steps of:

decoding from the compressed video information a descriptor for the macroblock within the frame "N", said descriptor providing information necessary for directing the computation of pixel values for the macroblock within the frame "N";

comparing the descriptor corresponding to the macroblock within the frame "N" to a descriptor corresponding to a respective macroblock within the previous frame "N–1"; and

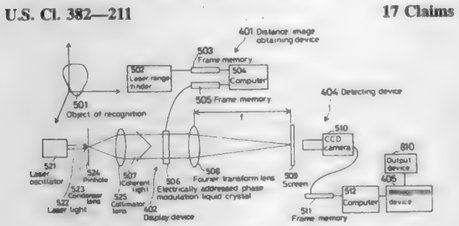
determining a plurality of pixel values corresponding to the macroblock within the frame "N" by reusing a plurality of pixel values corresponding to the respective macroblock within the previous frame "N–1" when the respective descriptors associated with the respective macroblocks within the respective frames "N" and "N–1" differ by less than a predetermined similarity threshold, and otherwise by computation in a manner as directed by the descriptor associated with the macroblock within the frame "N".

5,724,447

OPTICAL TRANSFORM SYSTEM FOR THREE-DIMENSIONAL OBJECT RECOGNITION

Ikutoshi Fukushima, Hachioji, Japan, assignor to Olympus Optical Co., Ltd., Tokyo, Japan

Filed May 16, 1995, Ser. No. 442,347
Claims priority, application Japan, May 17, 1994, 6-102775; Jun. 22, 1994, 6-139934; Jan. 31, 1995, 7-014208
Int. Cl.[6] G02B *27/46*
U.S. Cl. 382—211 17 Claims



1. An image processing apparatus comprising:

means for obtaining a range image as three-dimensional information about an object;

means for displaying obtained range image as a phase distribution;

a Fourier transform optical system including approximately parallel coherent light for reading out the image displayed on said image display means, and a Fourier transform lens for carrying out Fourier transformation on the image read out by said coherent light;

means for detecting a Fourier spectrum image obtained by said Fourier transform optical system;

means for storing reference data including data concerning a vector normal to a surface constituting a reference three-dimensional object which has previously been measured and data concerning an area of the reference three-dimensional object which has previously been measured; and

means for recognizing an object at high speed by comparing information concerning the Fourier spectrum image obtained by said detecting means with said reference data.

5,724,448

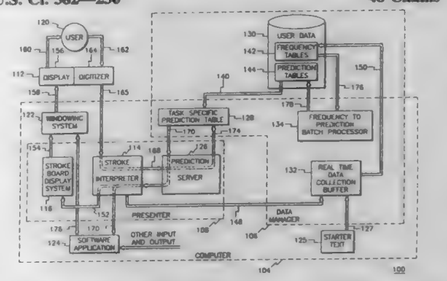
Patent Not Issued For This Number

5,724,449

STROKE SYNTAX INPUT DEVICE

Liam David Cornerford, Carmel, N.Y., assignor to International Business Machines Corporation, Armonk, N.Y.

Division of Ser. No. 232,855, Apr. 25, 1994, Pat. No. 5,479,536, which is a continuation of Ser. No. 799,586, Nov. 27, 1991, abandoned. This application Jun. 22, 1995, Ser. No. 493,426
Int. Cl.[6] G06K *9/00*
U.S. Cl. 382—230 48 Claims



1. A method operating on a computer system which interprets a stroke made by a user with a spatially mapped input device so as to enable the user to cause an action associated with the option to be carried out, said method comprising the steps of:

(1) consulting user data with an index to select a predicted option, said user data indicating the frequency with which each of a plurality of input sequences has occurred, wherein each of said input sequences comprises a subsequent option which occurred immediately after a preceding sequence;

(2) generating a template having a stroke space region through which strokes may be made and a predicted option region representative of said predicted option;

(3) displaying said template on a display;

(4) accumulating the stroke made by the user;

(5) interpreting the stroke in light of a syntax and said template and to determine the option indicated by the stroke;

(6) causing the action associated with the option to be carried out by the further steps of

(a) detecting the occurrence of one said input sequence;

(b) if there is a buffer entry of a buffer having said detected interpreted input sequence as a first input sequence field, then incrementing a first occurrence likelihood field of said buffer entry;

(c) if there is no buffer entry having said detected input sequence as said first input sequence field, then:

(I) creating a new buffer entry;

(ii) setting said first sequence field of said new buffer entry to said detected input sequence; and

(iii) setting said first occurrence likelihood field of said new buffer entry to one; and

(d) repeating steps (a)–(c) for each said input sequence which has occurred;

(21) reading one said buffer entry from said buffer;

(22) determining whether a second input sequence field of a frequency entry of a frequency table equals said first input sequence field of said buffer entry read;

(23) if the determination of step (22) is negative, then writing said buffer entry read to said frequency table so as to maintain an ordering of frequency entries according to said second input sequence fields;

(24) if the determination of step (22) is positive, then adding said first occurrence likelihood field of said buffer entry read to a second occurrence likelihood field of said frequency entry having said second input sequence field equal to said first input sequence field; and

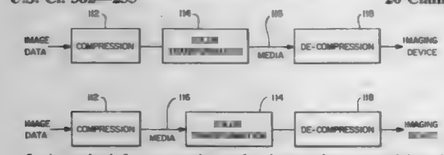
(25) repeating steps (21)–(24) for each said buffer entry in said buffer.

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5,724,450
METHOD AND SYSTEM FOR COLOR IMAGE COMPRESSION IN CONJUNCTION WITH COLOR TRANSFORMATION TECHNIQUES

Kok Chen, Sunnyvale, and Michael Stokes, Cupertino, both of Calif., assignors to Apple Computer, Inc., Cupertino, Calif.

Filed Sep. 30, 1994, Ser. No. 312,975
Int. Cl.[6] G03F *3/08;* **G06F** *15/00*
U.S. Cl. 382—235 **20 Claims**



1. A method for processing color image data comprising the steps of:

compressing said color image data to generate compressed color image data, wherein said compressed color image data can be stored using less storage space than said color image data, and wherein said compressed color image data retains color information associated with said color image data;

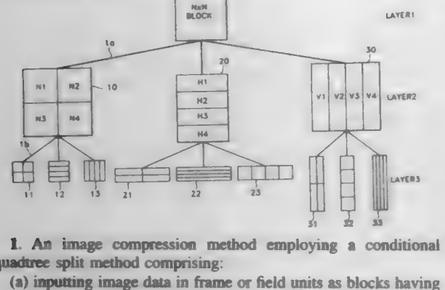
color transforming said compressed color image data to generate compressed, color transformed color image data; and

decompressing said compressed, color transformed color image data to generate transformed color image data suitable for use with a particular color image rendering device.

5,724,451
IMAGE COMPRESSION METHOD AND APPARATUS USING CONDITIONAL QUADTREE SPLIT SYSYEM

Jae-seob Shin; Shi-hwa Lee, and Yang-seock Seo, all of Seoul, Rep. of Korea, assignors to Samsung Electronics Co., Ltd., Kyungki-do, Rep. of Korea

Filed Dec. 27, 1994, Ser. No. 364,442
Claims priority, application Rep. of Korea, Sep. 27, 1994, 94-24351
Int. Cl.[6] C06K *9/36*
U.S. Cl. 382—240 **10 Claims**



1. An image compression method employing a conditional quadtree split method comprising:

(a) inputting image data in frame or field units as blocks having a predetermined size;

(b) generating an average value of all pixels of each block for each block and a sub-block code value corresponding to a distribution value of all pixels in each sub-block for each sub-block for determining whether to perform sequential quad-splitting of the block into one of a plurality of types of sub-blocks according to an image type of the block; and

(c) outputting a quadtree map drawn according to the sub-block code value and the average value of each block, as a bit stream, wherein step (b) comprises:

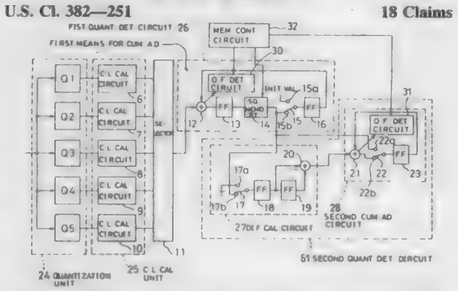
obtaining a distribution value and an average value of all pixels in the block and in each sub-block with respect to the plurality of types of sub-blocks; and

determining whether to split a block or sub-block by comparing the respective distribution value to a threshold value.

5,724,452
QUANTIZATION ESTIMATING METHOD FOR DATA COMPRESSION QUANTIZATION ESTIMATING CIRCUIT OF DATA COMPRESSING APPARATUS

Kazutake Ohara, Osaka, Japan, assignor to Matsushita Electric Industrial Co., Ltd., Osaka, Japan

Filed Apr. 13, 1995, Ser. No. 421,846
Claims priority, application Japan, Apr. 13, 1994, 6-075120
Int. Cl.[6] G06K *9/36*
U.S. Cl. 382—251 **18 Claims**



1. A quantization estimating method for data compression in which there are used M quantizers disposed in order of quantization level qi (i=1–M) with the quantizer having the lowest quantization level ql at which quantization is accomplished most coarsely disposed first, a plurality of data to be encoded are divided into small blocks and large blocks each comprising N small blocks, and each quantizer is determined and selected for each small block,

said quantization estimating method comprising:

a first step of calculating each code length for each small block j (j=0 to N–1) per quantizer i (i=1 to M);

a second step of (i) executing, per quantizer i, cumulative operations of said code lengths respectively obtained for said small blocks j at said first step, said cumulative operations being successively executed in order of quantization level with the quantizer having the lowest quantization level first, (ii) executing an operation of total code length for the large block while storing, per small block j, the results of said cumulative operations of code length, as the intermediate results A (i, 0) to A (i, N–2) and final results A (i, N–1), said results being stored in the form of N stairs, and (iii) determining each quantizer to be commonly used for each large block within the range where no overflow takes place and;

a third step of (i) executing, with the use of said cumulative operation results stored in the form of stairs, an operation of total code length at the time when the quantizer determined for each small block j at said second step is replaced with a quantizer having a higher quantization level at which quantization is accomplished more finely, and (ii) determining, for each small block, a largest number of quantizers which can be replaced within the range where no overflow takes place.

5,724,453
IMAGE COMPRESSION SYSTEM AND METHOD HAVING OPTIMIZED QUANTIZATION TABLES

Viresh Ratnakar, and Miron Livny, both of Madison, Wis., assignors to Wisconsin Alumni Research Foundation, Madison, Wis.

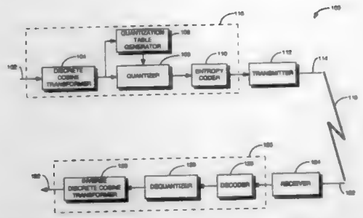
Filed Jul. 10, 1995, Ser. No. 500,000
Int. Cl.[6] G06K *9/36;9/38;9/46*
U.S. Cl. 382—251 **44 Claims**

1. A digital image compression preprocessor for use in a discrete cosine transform-based digital image compression device, the preprocessor comprising:

(a) gathering means for determining discrete cosine transform statistics from input digital image data, wherein the discrete cosine transform statistics include counts related to the number of times each of a plurality of discrete cosine transform coefficients derived from the input digital image data takes a value;

(b) computing means, operatively coupled to the gathering means, for calculating an image distortion array and a rate of image compression array based upon the discrete cosine transform statistics for each of a plurality of possible quantization values; and

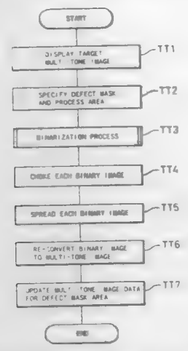
(c) quantization table generating means, operatively coupled to the computing means, for optimizing the rate of image compression array against the image distortion array to derive a rate-distortion-optimal quantization table.



5,724,454
METHOD AND APPARATUS FOR CORRECTING A MULTI-TONE IMAGE

Shigeaki Shimazu, and Souichi Kimura, both of Kyoto, Japan, assignors to Dainippon Screen Mfg. Co., Ltd., Kyoto, Japan

Continuation of Ser. No. 202,243, Feb. 25, 1994, abandoned.
This application Dec. 7, 1995, Ser. No. 573,599
Claims priority, application Japan, Mar. 3, 1993, 5-069261
Int. Cl.[6] G06K *9/42;9/44;9/54;9/60*
U.S. Cl. 382—258 **30 Claims**



1. An apparatus for correcting a multi-tone image comprising:

a first memory for storing first multi-tone image data representing image density for every pixel in said multi-tone image;

binarization mean for comparing said first multi-tone image data with each of a plurality of threshold values to thereby produce a plurality of first binary image data representing a plurality of binary images;

a second memory for storing said plurality of first binary image data;

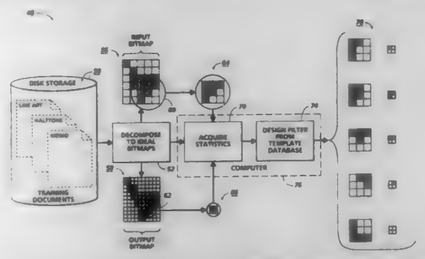
contour correction means for correcting a contour of each of said plurality of binary images by executing image contraction by a predetermined width and image expansion by said predetermined width in this order on each of said plurality of first binary image data, to thereby produce a plurality of second binary image data, said predetermined width being commonly applied to said plurality of binary images; and

restoration means for adding respective values of said plurality of second binary image data at each pixel position to produce second multi-tone image data representing a corrected multi-tone image.

5,724,455
AUTOMATED TEMPLATE DESIGN METHOD FOR PRINT ENHANCEMENT

Reiner Eschbach, Webster, N.Y., assignor to Xerox Corporation, Stamford, Conn.

Filed Dec. 17, 1993, Ser. No. 169,483
Int. Cl.[6] G06K *9/40*
U.S. Cl. 382—260 **18 Claims**



1. A method performed in a programmable computer for automatically creating a template-based filter to be used for filtering of an image bitmap, comprising the steps of:

(a) generating a first resolution image from a training document and storing the first resolution image in a first bitmap memory of the programmable computer;

(b) generating a second resolution image from the training document and storing the second resolution image in a second bitmap memory of the programmable computer;

(c) defining an input template window which may be passed through the first bitmap memory;

(d) defining an output pattern window which may be passed through the second bitmap memory, so that the position of the output pattern window within the second bitmap memory is a function of the position of the input template window within the first bitmap memory;

(e) storing, in a database memory associated with the programmable computer, occurrences of pixel combinations occurring within the input template window and corresponding occurrences of pixel combinations occurring within the output pattern window as the input template window is passed through a plurality of positions within the first bitmap memory; and

(f) deriving, from the database memory, a set of template-pattern pairs which form the template-based filter, wherein each output pattern is representative of a pixel pattern to be generated in response to the detection of a pattern of pixels within a corresponding input template.

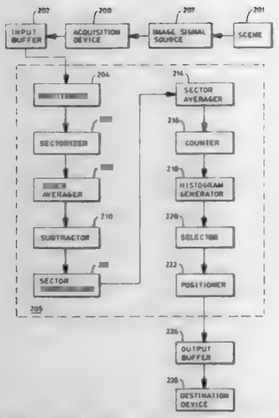
5,724,456
BRIGHTNESS ADJUSTMENT OF IMAGES USING DIGITAL SCENE ANALYSIS

James R. Boyack, Waltham, and Andrew K. Juenger, Hudson, both of Mass., assignors to Polaroid Corporation, Cambridge, Mass.

Filed Mar. 31, 1995, Ser. No. 414,750
Int. Cl.[6] G06T *5/40*
U.S. Cl. 382—274 **16 Claims**

3. An image processing method for processing a digital image signal representing an image, said image containing both luminance data and chrominance data, to optimally map the luminance data to a tonal reproduction capability of a destination application, said method comprising the steps of:

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acquiring the image signal and separating the luminance data from the image signal;

storing said luminance data in an input buffer;

reading and partitioning said luminance data from said input buffer into a plurality of image blocks of predetermined size;

determining an average luminance block value for each said image block;

combining preselected ones of said image blocks of said luminance data into sectors;

determining a difference between a maximum said average luminance block value and a minimum said average luminance block value of each sector, and comparing said difference with a predetermined threshold value;

identifying an active sector as one where said difference exceeds said predetermined threshold value;

determining an average luminance sector value for each active sector as an average of the maximum and minimum average luminance block values of each sector;

weighting and counting a number of active sectors corresponding to each said average luminance sector value;

generating a histogram of said number of active sectors versus said average luminance sector values;

selecting a tonal reproduction range corresponding to the tonal reproduction capability of the destination application; and

mapping said average luminance sector values into said tonal reproduction range of said destination application and generating a digital output signal corresponding to said mapping.

5,724,457

CHARACTER STRING INPUT SYSTEM

Toshikazu Fukushima, Tokyo, Japan, assignor to NEC Corporation, Tokyo, Japan

Filed Jun. 1, 1995, Ser. No. 457,834

Claims priority, application Japan, Jun. 6, 1994, 6-123415

Int. Cl.[6] G06K *9/03;9/00*

U.S. Cl. 382—311 **18 Claims**

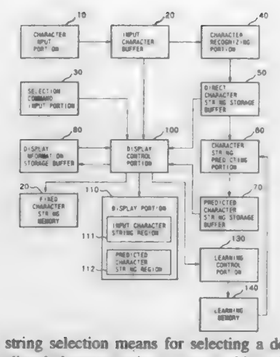
1. A character string input system comprising:

direct character string storage means for storing a character coded direct character string;

character string predicting means for generating predicted character strings immediately following the character string stored in said direct character string storage means;

predicted character string storage means for storing predicted character strings generated by said character string predicting means;

display means for displaying said direct character string stored in said direct character string storage means and said predicted character strings stored in said predicted character string storage means;



character string selection means for selecting a desired one of said predicted character strings among said predicted character strings stored in said predicted character string storage means; and

learning means for storing a result of the selection by said character string selection means as hysteresis information to be referenced upon generation of future candidate character strings by said character string predicting means,

wherein said character string predicting means generates words immediately following the character string as respective ones of said predicted character strings on the basis of a simultaneous appearing certainty of the words with respect to a word corresponding to the character string, and

wherein said character string predicting means generates portions of words as the respective ones of the predicted character strings to be concatenated with the character string as single words on the basis of certainty of connection of characters in the character string and characters in the predicted character strings, the certainty of connection being performed on a character by character basis.

5,724,458

LASER BEAM GENERATION CONTROL SYSTEM FOR OPTICAL BAR CODE SCANNER

Hiroaki Katoh, Kawasaki, Japan; Ichiro Sebata, San Diego, Calif.; Mitsuharu Ishii, and Shinichi Sato, both of Kawasaki, Japan, assignors to Fujitsu Limited, Kawsaki, Japan

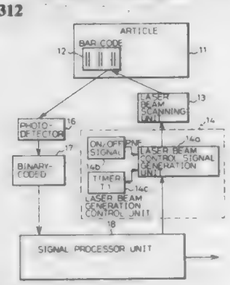
Continuation of Ser. No. 794,226, Nov. 19, 1991, abandoned.

This application Dec. 6, 1994, Ser. No. 354,061

Claims priority, application Japan, Nov. 20, 1990, 2-314606

Int. Cl.[6] G06K *9/00*

U.S. Cl. 382—312 **15 Claims**



1. A laser beam generation control system of an optical mark reader device including a laser beam generating element, a laser beam generation control unit, a laser beam scanner unit for scanning a mark, and a signal processor unit for photoconverting a reflected light and thereby to produce a barcode read signal corresponding to a scanned mark, said laser beam generation control unit comprising:

an ON/OFF generator which generates an ON/OFF output signal defining predetermined duty cycles; and

a drive circuit responsive to the ON/OFF output signal and which turns ON/OFF the laser generating element in accordance with the predetermined duty cycles thereby to generate laser beam intermittently, wherein

the laser beam generation control unit controls the ON/OFF generator to produce a first ON/OFF output signal in which a first time period of the ON portion of a first duty cycle, controlling the intermittent generation of said laser beam, is greater than the time period of completing one complete scan of the scanning pattern by the laser scanner unit, and

the laser beam generation control unit controls the ON/OFF generator to produce a second ON/OFF output signal in which a second time period of a second duty cycle, controlling the intermittent generation of said laser beam, is greater than the time period of completing the first duty cycle.

5,724,459

OPTICAL MODULATION DEVICE AND FIBER OPTIC COMMUNICATION SYSTEM

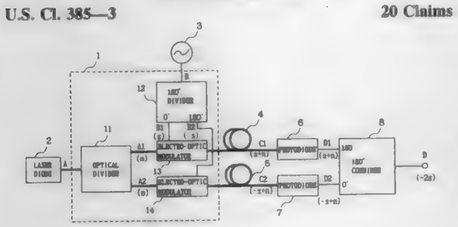
Seiichi Banba, Kyoto; Minoru Sawada, Yawata, and Yasoo Harada, Hirakata, all of Japan, assignors to Sanyo Electric Co., Ltd., Moriguchi, Japan

Filed Jul. 3, 1996, Ser. No. 675,158

Claims priority, application Japan, Jul. 5, 1995, 7-169441

Int. Cl.[6] G02B *6/10*

U.S. Cl. 385—3 **20 Claims**



1. An optical modulation device, comprising:

an optical divider for dividing an inputted light carrier into first and second light carriers including the same noise component n;

a power divider, receiving a high-frequency subcarrier signal generated from a signal source, for dividing the high-frequency subcarrier signal into a first high-frequency subcarrier signal including a signal component s and a second high-frequency subcarrier signal including a signal component −s inverted in phase by 180° with respect to the first high-frequency subcarrier signal and outputting said first and second high-frequency subcarrier signals;

a first external modulator for modulating said first light carrier outputted from said optical divider with said first high-frequency subcarrier signal outputted from said power divider to output a first optical signal including the signal component s and the noise component n; and

a second external modulator for modulating said second light carrier outputted from said optical divider with said second high-frequency subcarrier signal outputted from said power divider to output a second optical signal including the signal component −s and the noise component n.

5,724,460

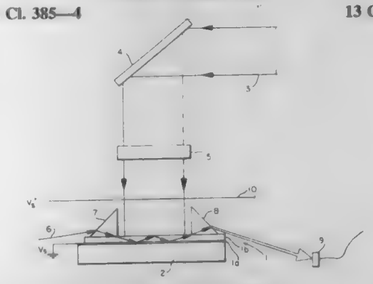
PHOTOREFRACTIVE THIN FILM POLYMER WAVEGUIDE TWO BEAM COUPLING (WTBC) DEVICE

L. Michael Hayden, Mt. Airy; Dan Kokron, Severn, and Stephen M. Evanko, Ellicott City, all of Md., assignors to University of Maryland Baltimore County, Baltimore, Md.

Filed Jun. 26, 1996, Ser. No. 670,449

Int. Cl.[6] G02F *1/295*

U.S. Cl. 385—4 **13 Claims**



1. A polymer waveguide device comprising:

a waveguide comprising a thin photorefractive polymer layer;

a field generating means for applying an electric field to said polymer waveguide; and

a single light source which provides light to a surface of said waveguide;

wherein said waveguide scatters light beams provided by said single light source and said scattered light beams interfere with incident light beams from said light source to create a modulated index pattern in said waveguide, said modulated index pattern diffracting said incident light to launch guided modes in said waveguide.

5,724,461

POLARIZATION-INSENSITIVE DEMULTIPLEXER AND A METHOD OF MANUFACTURE

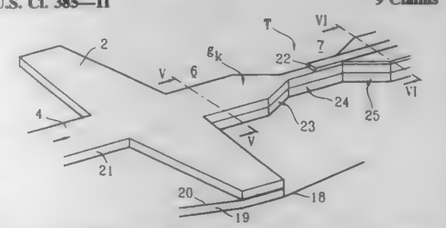
Adrien Bruno, Palaiseau, and Catherine Ramus, Vitry, both of France, assignors to France Telecom, France

Filed Apr. 3, 1996, Ser. No. 627,081

Claims priority, application France, Apr. 5, 1995, 95 04031

Int. Cl.[6] G02B *6/126*

U.S. Cl. 385—11 **9 Claims**



1. A multi-wavelength filter having a bundle of optical waveguides formed on a common substrate and organized in such a manner that the waveguide response of the filter depends on the phase shifting to which light is subject in the optical waveguides of the bundle, the filter being of the type in which insensitivity to polarization is obtained by varying the birefringence of the optical waveguides, each of which has at least two portions along its length that are of different birefringences, wherein said portions are connected together by a mode matcher.

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5,724,462

INTEGRATED OPTICAL SEMICONDUCTOR DEVICE AND OPTICAL GYROSCOPE USINNG THE SAME

Tatemi Ido, Hachioji; Shigehisa Tanaka, Kunitachi; Ryoji Suzuki, Mito, and Toshiya Yuhara, Hitachi, all of Japan, assignors to Hitachi, Ltd., and Hitachi Cable, Ltd., both of Tokyo, Japan

Filed Apr. 15, 1996, Ser. No. 633,305
Claims priority, application Japan, Apr. 20, 1995, 7-094762
Int. Cl.[6] G02B *6/12*
U.S. Cl. 385—14 **28 Claims**

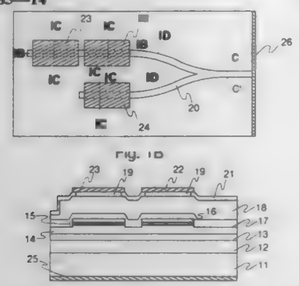


Fig. 1D

1. An integrated optical semiconductor device comprising a super luminescence diode, at least one waveguide type photo-diode and at least one Y-branch integrated on a single semiconductor substrate;

wherein the waveguide structure of said super luminescence diode, said photo-diode and said Y-branch shares common optical guide layers formed by concurrent crystal growth; and

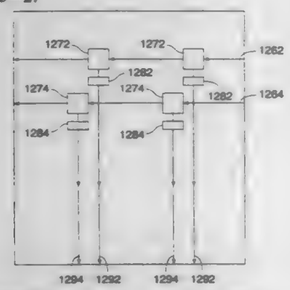
wherein at least part of said optical guide layers are located on the side of said semiconductor substrate away from an active layer of said super luminescence diode and an optical absorption layer of said photo-diode.

5,724,463

PROJECTION DISPLAY WITH ELECTRICALLY CONTROLLED WAVEGUIDE-ROUTING

David A. G. Deacon, Los Altos; William K. Bischel, Menlo Park; Michael J. Brinkman, Redwood City; Edward J. DeWath, Cupertino; Mark J. Dryer, San Jose, and Simon J. Field, Menlo Park, all of Calif., assignors to Deacon Research, Palo Alto, Calif.

Division of Ser. No. 303,848, Sep. 9, 1994, Pat. No. 5,647,036.
This application Feb. 7, 1997, Ser. No. 798,312
Int. Cl.[6] G02B *6/26*
U.S. Cl. 385—27 **7 Claims**



1. An optical beam routing structure comprising:

a solid material for conveying optical energy;

a distribution waveguide segment traversing said solid material along a plane of said solid material;

at least one pixel waveguide segment traversing said solid material along a plane of said solid material and each abutting said distribution waveguide segment at an intersection region;

at least one passive optical energy router being disposed at said intersection region, said passive optical energy router to reflect a portion of said optical energy from said distribution waveguide segment into said pixel waveguide segment;

an optical modulator for each said at least one pixel waveguide segment for individually modulating said portion of said optical energy; and

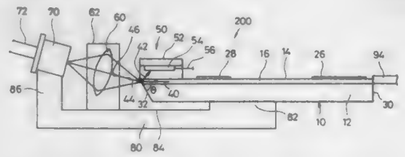
an optical collection element coupled to receive optical energy projected out of said plane for focusing said optical energy at a remote projection surface.

5,724,464

COMPOUND OPTICAL WAVEGUIDE DEVICE

Yoshinari Kozuka, Nagoya, Japan, assignor to NGK Insulators, Ltd., Nagoya, Japan

Filed Sep. 30, 1994, Ser. No. 316,331
Claims priority, application Japan, Oct. 1, 1993, 5-247064
Int. Cl.[6] G02B *6/26;6/42*
U.S. Cl. 385—31 **11 Claims**



1. A compound optical waveguide device comprising:

an optical waveguide substrate having an optical waveguide and an end face at which an end of said optical waveguide is exposed, said end face being inclined at an angle with respect to an optical axis of said optical waveguide for causing a portion of light propagated through said optical waveguide to said end face to be reflected out of said optical waveguide substrate by said end face;

a light-detecting device disposed for detecting the light reflected out of said optical waveguide substrate; and

light supply means for supplying light to said optical waveguide, said light supply means comprising a light source and a further substrate having a further optical waveguide embedded therein, said further substrate having an end face at which an end of said further optical waveguide is exposed, said end face being inclined with respect to an optical axis of said further optical waveguide at an angle complementary to the angle of inclination of said optical waveguide substrate,

wherein said optical waveguide substrate has a film made of dielectric or metal and disposed on said end face, whereby said portion of light propagated through said optical waveguide to said end face is reflected out of said optical waveguide substrate by at least one of an interface between said film and said end face and a surface of said film opposite to a surface thereof which is held in contact with said end face.

5,724,465

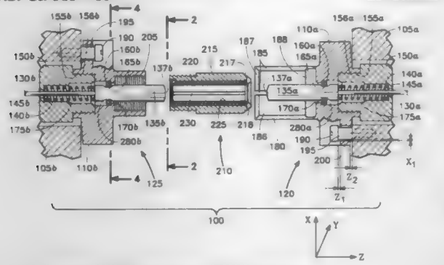
Patent Not Issued For This Number

5,724,466

RUGGEDIZED BLIND MATING CONNECTOR FOR OPTICAL FIBERS

Robert Rickenbach, Thousand Oaks, and Gilbert F. Perleberg, Goleta, both of Calif., assignors to Raytheon E-Systems, Lexington, Mass.

Filed Nov. 16, 1995, Ser. No. 558,429
Int. Cl.[6] G02B *6/36*
U.S. Cl. 385—60 **23 Claims**



1. A connector for optical fibers comprising:

a plug assembly and a first ferrule having a fiber-entry end mounted coaxially therein;

a receptacle assembly and a second ferrule having a fiber-entry end mounted coaxially therein, wherein at least one of said plug-mounted ferrule and said receptacle-mounted ferrule is biased outwardly from a fiber entry-end of said ferrule; and

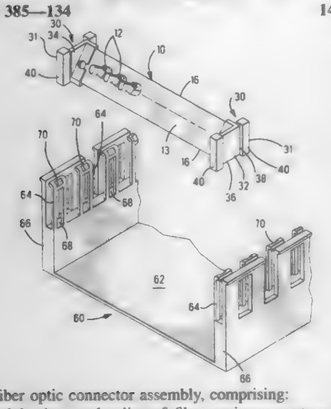
an alignment sleeve for optically connecting said first and second ferrules and maintaining said optical connection during translation of either of said plug assembly and said receptacle assembly in a longitudinal direction relative to the other of said plug assembly and said receptacle assembly.

5,724,467

ADAPTER TO SECURE FIBER OPTIC CONNECTORS WITHIN A TELECOMMUNIATIONS BOX

John P. vandenEnden, Oshawa, and Gregory H. Porter, Newmarket, both of Canada, assignors to The Whitaker Corporation, Wilmington, Del.

Filed Aug. 29, 1996, Ser. No. 705,503
Int. Cl.[6] G02B *6/38*
U.S. Cl. 385—134 **14 Claims**



1. A fiber optic connector assembly, comprising:

a panel having a plurality of fiber optic connectors mounted thereto, the panel having two ends with a securing hole;

an adapter having two adapter members, each of the adapter members having a body with an inner side, an outer side, and two ends, two mounting members extend from the two ends along the outer side of the adapter member, the mounting members being protrusions which extend from the ends of the adapter member beyond the outer side, a panel mounting portion is disposed along the inner side of the adapter member, the panel mounting portion includes an angled slot with opposing walls, the slot being dimensioned to receive the ends of the panel, two recesses extend along each of the opposing walls, the recesses being aligned with each other and with the securing hole;

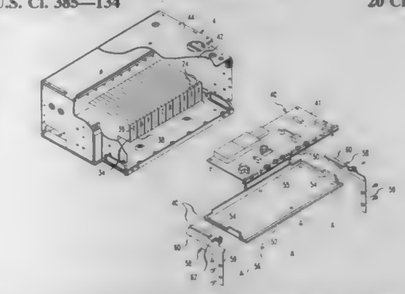
whereby the adapter members are received along both of the ends of the panel, the mounting members being received within adjacent parallel latching arms of a telecommunications box, such that the fiber optic connectors are angled within the box.

5,724,468

ELECTRONIC BACKPLANE DEVICE FOR A FIBER DISTRIBUTION SHELF IN AN OPTICAL FIBER ADMINISTRATION SYSTEM

Frank Salvatore Leone, Berkeley Heights; William Joseph Parzygnat, Morris Township, Morris County; Richard Joseph Pimpinella, Hampton, and Randy Alan Reagan, Morris Plains, all of N.J., assignors to Lucent Technologies Inc., Murray Hill, N.J.

Filed Sep. 9, 1996, Ser. No. 709,939
Int. Cl.[6] G02B *06/36*
U.S. Cl. 385—134 **20 Claims**



1. In an optical fiber administration system having a plurality of fiber distribution shelf assemblies and a central systems controller, a fiber distribution shelf assembly, comprising:

a shelf structure defining a confined space;

a plurality of connection modules supported by said shelf structure within said confined space, wherein each of said connection modules is capable of being controlled by the systems controller;

an electrical backplane device mounted to said shelf structure within said confined space, wherein said electrical backplane couples to the systems controller; and

a plurality of leads electrically coupling said connection modules to said electrical backplane within said confined space, wherein said systems controller and said plurality of connection modules intercommunicate with each other through said electrical backplane assembly.

5,724,469

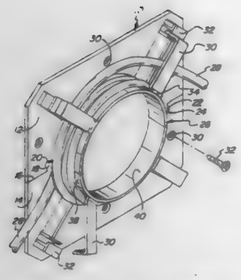
ADJUSTABLE FIBER STORAGE PLATE

Stephen Orlando, Longboat Key, Fla., assignor to Ortronics, Inc., Pawcatuck, Conn.

Filed Jan. 26, 1996, Ser. No. 590,371
Int. Cl.[6] G02B *6/09*
U.S. Cl. 385—135 **18 Claims**

1. A fiber storage plate comprising a base, a portion of a stationary cylindrical ring extending along an axis outward from the base, wherein the ring portion has a radius of curvature at least equal to the minimum bend radius of an optical fiber, and a releasable fiber capturing means extending from an axially outward position on the cylindrical ring to the base plate so as to form a

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radially extending and axially closed fiber storage space wherein fiber can be held in position around the ring portion and adjacent to the base.

5,724,470

TELEVISION SIGNAL RECORDING/REPRODUCING APPARATUS AND METHOD WITH DC SHIFTER

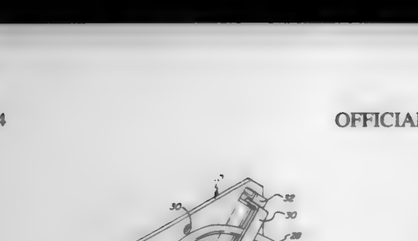
Keiji Kanota, Kanagawa, and Naofumi Yanagihara, Tokyo, both of Japan, assignors to Sony Corporation, Tokyo, Japan

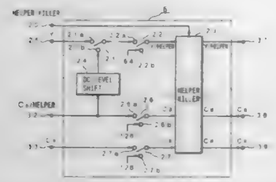
Filed May 30, 1996, Ser. No. 657,980

Claims priority, application Japan, Jun. 5, 1995, 7-161423

Int. Cl.[6] H04N *9/79*

U.S. Cl. 386—9 **19 Claims**





1. An apparatus for recording a television signal, which includes a vertical resolution signal for enhancing vertical resolution and a component video signal which represents a video image comprising:

means for segmenting said television signal into compression blocks for digital compression, wherein some of said compression blocks contain both said vertical resolution signal and said component video signal; and

means for DC shifting said vertical resolution signal within said some compression blocks to a DC setup value, thereby preventing compression distortion resulting from compression of signals of varying DC offsets within said some compression blocks during digital recording.

5,724,471

AUTOMATIC PHASE CONTROL METHOD AND APPARATUS EMPLOYING A REGION DETERMINER

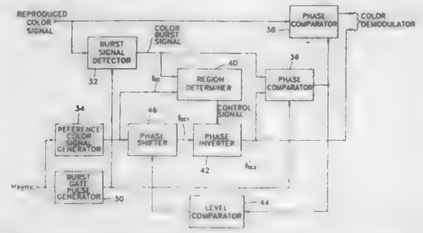
Kyu-yeol Park, Suwon, Rep. of Korea, assignor to Samsung Electronics Co., Ltd., Kyungki-Do, Rep. of Korea

Filed Nov. 8, 1995, Ser. No. 555,096

Claims priority, application Rep. of Korea, Jan. 26, 1995, 95-1416

Int. Cl.[6] H04N *9/70*

U.S. Cl. 386—41 **16 Claims**



1. An automatic phase control method comprising the steps of:

(a) determining whether a first phase difference which is a phase difference between a reproduced color signal and a reference color signal, determined by a detector, is within a positive characteristic region of a phase comparator;

(b) detecting said first phase difference if in step (a) it is determined that said first phase difference is in said positive characteristic region of said phase comparator, and inverting the phase of said reference color signal thereby producing a phase-inverted reference color signal and then detecting a second phase difference which is a phase difference between said reproduced color signal and said phase-inverted reference color signal if it is determined that said first phase difference is not in said positive characteristic region; and

(c) controlling the phase of said reproduced color signal based on one of the first and second phase differences detected in said step (b).

5,724,472

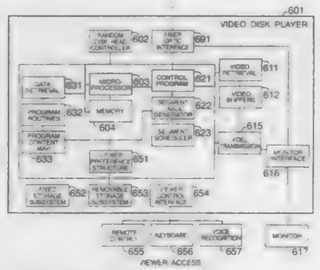
CONTENT MAP FOR SEAMLESSLY SKIPPING A RETRIEVAL OF A SEGMENT OF A VIDEO

Max Abecassis, 19020 NE. 20 Ave., Miami, Fla. 33179

Division of Ser. No. 832,335, Feb. 7, 1992. This application May 1, 1995, Ser. No. 432,507

Int. Cl.[6] H04N *5/91;9/79*

U.S. Cl. 386—52 **10 Claims**



1. A content map comprising:

a plurality of segment definitions defining a plurality of segments of a video responsive to an at least one preestablished content category;

a descriptor associated with at least one of the segment definitions responsive to said at least one preestablished content category; and

a linkage of said plurality of segment definitions for enabling a video player, responsive to a preference with respect to said at least one preestablished content category and by means of a buffering, to seamlessly skip a retrieval of an at least one segment of said video, said video being provided by a single source, and thereby play from said single source a seamless version of said video differing in length than the length of said video.

5,724,473

AUTOMATIC GUIDE-CHANNEL MAPPING METHOD OF A VCR

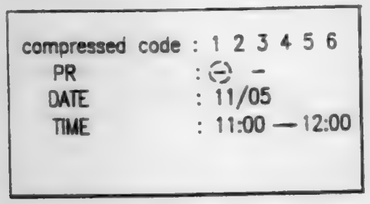
Kyoung Kou Yoo, Kyungki-do, Rep. of Korea, assignor to LG Electronics Inc., Seoul, Rep. of Korea

Filed Jul. 17, 1995, Ser. No. 502,893

Claims priority, application Rep. of Korea, Jul. 19, 1994, 17370/1994

Int. Cl.[6] H04N *5/91;* **G11B** *5/00*

U.S. Cl. 386—83 **1 Claim**



1. An automatic guide-channel mapping method of a VCR, comprising the steps of:

decoding compressed code;

determining whether a guide channel and a specific local broadcasting channel number have been mapped by the decoded compressed code;

displaying a blank field corresponding to said specific local broadcasting channel number wherein said step of displaying comprises displaying a reserved date of recording, a starting time, and an ending time of a local broadcasting channel reserved to be recorded as said decoded information of said compressed code on said screen of said display on a screen of a display when the guide channel and the specific local broadcasting channel have not been mapped;

inputting the specific local broadcasting channel number in the displayed blank field; and

storing the specific local broadcasting channel number and the guide channel after mapping.

5,724,474

DIGITAL RECORDING AND REPRODUCING APPARATUS AND INDEX RECORDING METHOD

Masaki Oguro, Tokyo, and Ken Iizuka, Kanagawn, both of Japan, assignors to Sony Corporation, Tokyo, Japan

PCT No. PCT/JP94/01608, § 371 Date May 25, 1995, § 102(e) Date May 25, 1995, PCT Pub. No. WO95/09419, PCT Pub. Date Apr. 6, 1995

PCT Filed Sep. 29, 1994, Ser. No. 446,642

Claims priority, application Japan, Sep. 30, 1993, 5-268053

Int. Cl.[6] H04N *5/76*

U.S. Cl. 386—95 **18 Claims**

1. A digital recording and reproducing apparatus for recording and reproducing digital video auxiliary information and digital audio auxiliary information to and from a magnetic tape having tracks thereon, each of said tracks having a video area in which a digital video signal is recorded and an audio area in which a digital audio signal is recorded, said video and audio areas having video auxiliary and audio auxiliary areas, respectively, said apparatus comprising:

means for recording video auxiliary information including video recording start identification information representing an initiation of a recording operation into said video auxiliary areas of a first predetermined number of successive tracks representing a first predetermined period of time when said recording operation is initiated; and

means for recording audio auxiliary information including audio recording start identification information representing said initiation of said recording operation into said audio auxiliary areas of a second predetermined number of successive tracks representing a second predetermined period of time when said recording operation is initiated, said first predetermined period of time being different from said second predetermined period of time.

5,724,475

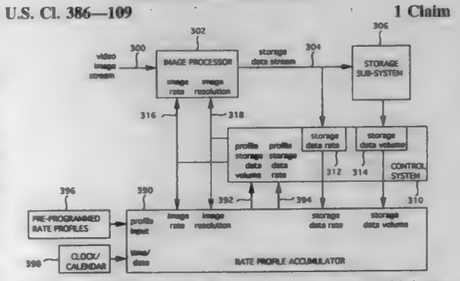
COMPRESSED DIGITAL VIDEO RELOAD AND PLAYBACK SYSTEM

Jeff P. Kirsten, 939 Azalea Dr., Sunnyvale, Calif. 94086

Filed May 18, 1995, Ser. No. 444,286

Int. Cl.[6] H04N *5/917;5/91*

U.S. Cl. 386—109 **1 Claim**



1. A recording system for video image streams, said image streams having attributes including rate and resolution, said recording system comprising:

an image processor, said image processor having an input for an image stream, an output for emitting a storage data stream, and at least one image attribute control input for varying one of said attributes of said storage data stream;

a storage sub-system, said storage sub-system accepting said storage data stream, wherein said storage sub-system permits overwriting of previously written data according to a replacement process, said storage sub-system having storage attributes including the rate of data entering storage, the volume of data accumulated in storage, the volume of storage space remaining, and a storage capacity, said storage capacity being equal to the sum of said volume of data accumulated in storage and said volume of storage space remaining; and

a control means for dynamically adjusting the quantity of data entering said storage sub-system according to a predetermined criteria by producing said at least one image attribute control input, said control means monitoring at least one of said storage attributes, wherein said predetermined criteria during said replacement process is that said volume of data accumulated in storage remains substantially equal to said storage capacity and substantially all data younger than a program-

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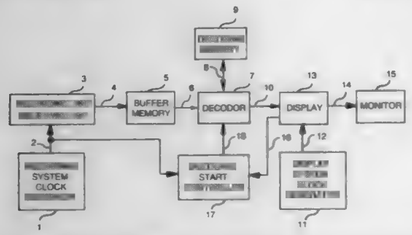
mable time interval are retained, said time interval being programmable without regard for said storage capacity.

5,724,476

METHOD AND APPARATUS FOR EXTENDING AND REPRODUCING COMPRESSED MOVING PICTURES

Mitsuyoshi Suzuki, Tokyo, Japan, assignor to Mitsubishi Denki Kabushiki Kaisha, Tokyo, Japan

Filed Nov. 28, 1995, Ser. No. 563,624
Claims priority, application Japan, Jul. 18, 1995, 7-181562
Int. Cl.[6] H04N 5/917;5/91
U.S. Cl. 386—109 33 Claims



1. A method for extending and reproducing compressed moving pictures in a system where a display system clock from a display unit is asynchronous with a data transferring clock from a recording unit or receiving unit (referred to as recording unit) comprising the steps of:

setting a hold threshold time which is in advance of a recording system or receiving system time (referred to as recording system time) by a predetermined frame time period; and

correcting a timing by holding a display system time for one displaying frame when the display system time becomes equal to said hold threshold time;

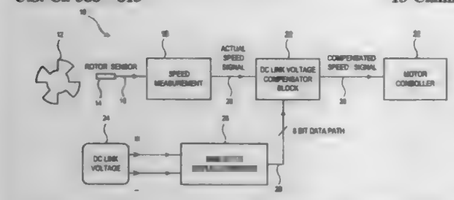
wherein the moving pictures are displayed in response to the corrected display system time.

5,724,477

COMPENSATION FOR INPUT VOLTAGE VARIATION IN AN ELECTRIC MOTOR DRIVE

Paul Donald Webster, Headingley; Geoffrey Thomas Brown, Hemingbrough, and David Mark Sugden, Ilkley, all of United Kingdom, assignors to Switched Reluctance Drives, Ltd., Harrogate, United Kingdom

Filed Jun. 7, 1995, Ser. No. 472,957
Claims priority, application United Kingdom, Apr. 20, 1995, 9508051
Int. Cl.[6] G05F 1/10
U.S. Cl. 388—815 13 Claims



1. A method of compensating for deviations in actual DC link voltage from a desired DC link voltage in an electric drive system including a machine controller that controls a machine in response to a speed signal, the machine including a rotor, and stator windings, the rotor rotating at an actual rotor speed during operation of the machine, wherein the machine controller selectively applies the actual DC link voltage to the machine stator windings, the method comprising the steps of:

periodically sampling the actual DC link voltage and converting the sampled DC link voltage into a digital representation;

periodically sampling the actual rotor speed and converting the sampled actual rotor speed to a digital representation;

generating a compensation factor from the digital representation of the sampled DC link voltage;

multiplying the digital representation of the actual rotor speed by the compensation factor to produce a compensated speed signal; and

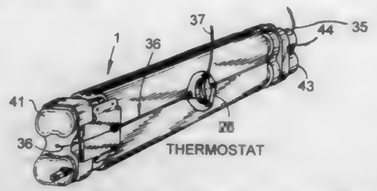
transmitting the compensated speed signal to the electric machine controller and using the compensated speed signal to control the application of the actual DC link voltage to the machine stator windings.

5,724,478

LIQUID HEATER ASSEMBLY

Carl Thweatt, South Haven, Mich., assignor to TruHeat Corporation, Allegan, Mich.

Filed May 14, 1996, Ser. No. 647,713
Int. Cl.[6] F24H 1/10
U.S. Cl. 392—484 25 Claims



1. A liquid heater including four or more elongated tubular members, said tubular members having a selected outer configurated shape;

an elongated heat conductive member having a central axis and four or more elongated openings having axes spaced about said central axis;

said openings each having a shape generally conforming to said selected outer configurated shape of said tubular members and each receiving one of said tubular members, each of the walls of said openings being in close contact with the outer wall of said tubular member which extends therethrough;

an elongated heating element electrically isolated from said heat conductive member, said elongated heating element having a cross sectional dimension greater than the distance said openings are spaced one from another; and

said heat conductive member being constructed of solid heat conductive material substantially encompassing the entire outer walls of said tubular member for conducting heat radiated from said heating element to said tubular members for heating water flowing through said tubular members.

5,724,479

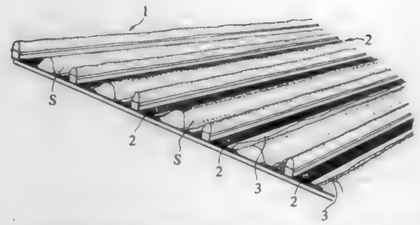
FLUID FLOW CONTROLLING MEMBER

Kei Takahashi, 14-16, Achi 1-chome, Kurashiki-shi, Okayama-ken, Japan

Filed Dec. 28, 1995, Ser. No. 580,168
Claims priority, application Japan, Dec. 28, 1994, 6-339265; Dec. 30, 1994, 6-339259; Nov. 27, 1995, 7-333909
Int. Cl.[6] F28D 7/00; F28F 3/00;21/00; F24J 2/22
U.S. Cl. 392—496 20 Claims

19. A fluid flow controlling member having a fluid absorbing layer comprising:

a primary flow path means of a certain width, to which fluid is supplied, having a relatively small capacity of containing the fluid so that it absorbs part of the flowing fluid and the remaining fluid moves along the surface of the primary flow path means in an exposed manner, and



a secondary flow path means having a width substantially smaller than the width of said primary flow path means, said secondary flow path means being located on a side of said primary flow path means and having a relatively large capacity of containing fluid, said secondary flow path means being supplied with the flowing fluid from the side of the primary flow path means which enters at the side edge of the secondary flow path means and flows through it, whereby the fluid-saturated secondary flow path means defines a boundary area for restrictedly holding the side region of the fluid flow of the primary flow path means and control the fluid flow in an equilibrium,

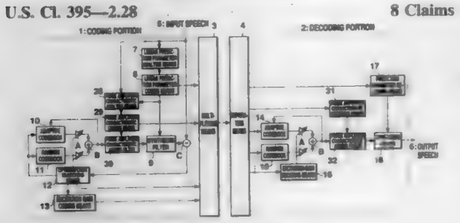
said fluid absorbing layer forming a number of the fluid flows neighboring to each other.

5,724,480

SPEECH CODING APPARATUS, SPEECH DECODING APPARATUS, SPEECH CODING AND DECODING METHOD AND A PHASE AMPLITUDE CHARACTERISTIC EXTRACTING APPARATUS FOR CARRYING OUT THE METHOD

Tadashi Yamaura, Kamakura, Japan, assignor to Mitsubishi Denki Kabushiki Kaisha, Tokyo, Japan

Filed Oct. 26, 1995, Ser. No. 548,448
Claims priority, application Japan, Oct. 28, 1994, 6-264832
Int. Cl.[6] G10L 3/02;9/00
U.S. Cl. 395—2.28 8 Claims



1. A speech coding apparatus comprising:

linear prediction parameter analysis means;

linear prediction parameter coding means;

excitation signal generating means;

a synthesis filter for synthesizing an output signal of said linear prediction parameter coding means and an excitation signal output from said excitation signal generating means;

phase amplitude characteristic coding means for quantizing and coding a short-term phase amplitude characteristic which is obtained by analyzing a linear prediction residual signal of input speech signal; and

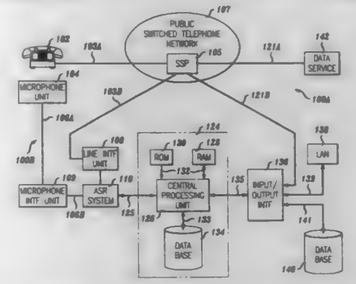
a phase amplitude characteristic adding filter for adding said short-term phase amplitude characteristic to said excitation signal.

5,724,481

METHOD FOR AUTOMATIC SPEECH RECOGNITION OF ARBITRARY SPOKEN WORDS

Roger Borgan Garberg, Naperville, and Michael Allen Yudkowsky, Chicago, both of Ill., assignors to Lucent Technologies Inc., Murray Hill, N.J.

Filed Mar. 30, 1995, Ser. No. 413,330
Int. Cl.[6] G10L 5/06; G41H 9/00; H04M 1/64
U.S. Cl. 395—2.52 15 Claims



1. In an automatic speech recognition (ASR) system having a first data base that stores word models and correlation data on which word recognition decisions are at least partially based, a method of utilizing information stored in a supplemental second data base to enhance capability of the ASR system, the method comprising:

receiving a first spoken input from a user;

the ASR system recognizing the first spoken input from the user;

identifying and retrieving text stored in the supplemental data base using the first spoken input, wherein the retrieved text is not a representation of the first spoken input;

creating a template of the text retrieved from the supplemental data base; and

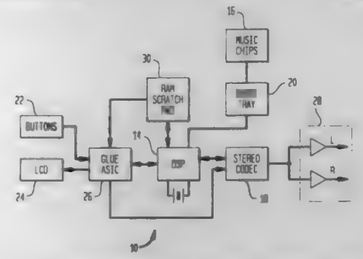
using the template to recognize a second spoken input.

5,724,482

SMART TRAY FOR AUDIO PLAYER

Anthony James Grewe, Holmdel; Nuggehally Sampath Jayant, Gillette; Kevin Alan Shelby, Red Bank, and Howard M. Singer, Marlboro, all of N.J., assignors to Lucent Technologies Inc., Murray Hill, N.J.

Filed May 22, 1995, Ser. No. 447,322
Int. Cl.[6] G10L 9/00; G11C 27/00
U.S. Cl. 395—2.92 20 Claims



1. A tray apparatus for use in an audio system, wherein pre-recorded music is digitally encoded in addressable memory of integrated circuit music chips and music from said chips is played on an associated solid state audio player which includes a processor, said tray apparatus comprising:

receiving means adapted to establish a communication with at least one of said music chips;

said receiving means further adapted for coupling said tray apparatus with said audio player; and

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processing means coupled to said receiving means, said processing means being operative to interface with said processor in said audio player and perform selected search commands requested by said processor with respect to information stored on said music chips, said processing means selectiveley accessing a track of said information stored on one of said music chips, said processing means also being adapted to provide a data path between said music chips and said digital signal processor for decoding of said pre-recorded music.

5,724,483

FUZZY LOGIC ELECTRONIC CONTROLLER AND ASSOCIATED METHOD FOR SETTING UP MEMORIES THEREOF

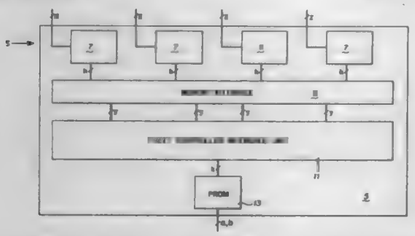
Rizzotto Gianguido, Civate; Poluzzi Rinaldo, Milan, and Andrea Pagni, Romano, all of Italy, assignors to SGS-Thomson Microelectronics S.r.l., Agrate Brianza, Italy

Division of Ser. No. 22,347, Feb. 24, 1993. This application Jun. 7, 1995, Ser. No. 470,184

Claims priority, application European Pat. Off., Feb. 28, 1992, 92833095

Int. Cl.[6] G06F *15/18*

U.S. Cl. 395—3 **14 Claims**



1. A fuzzy logic electronic controller wherein predetermined membership functions of logic variables are subjected to inference operations configured essentially as IF-THEN rules having at least one front preposition and at lease one rear implication, comprising:

an input section including a plurality of fuzzyfiers arranged in parallel, each fuzzyfier having at least one analog input and at least one digital input for convening input signals into fuzzy logic signals;

a central control unit including a plurality of storage modules having data of the front prepositions of the IF-THEN rules stored therein, each storage module corresponding to a fuzzyfier in the input section and each storage module having an input coupled to a respective corresponding fuzzyfier output, a fuzzy controller inference unit for carrying out logic operations based on the IF-THEN rules using data from the storage modules, an interface circuit, coupling the storage modules, an interface circuit, coupling the storage modules to the fuzzy controller inference unit, and an additional storage module coupled to the output of the fuzzy controller inference unit having data of the rear implications of the IF-THEN rules stored therein; and

a defuzzyfier section, coupled to an output of the additional storage module of the central control unit, for converting a result of an inference operation back to an analog or digital signal;

wherein the interface circuit comprises a number of identical circuits corresponding in number to a number of storage modules in the plurality of storage modules, each circuit including a buffer register having in input coupled to one of the storage modules and an output, a finite state machine having an input coupled to the output of the buffer register and an output, and a read only memory having an input coupled to the output of the finite state machine.

5,724,484

DATA PROCESSING METHODS AND APPARATUS FOR SUPPORTING ANALYSIS/JUDGEMENT

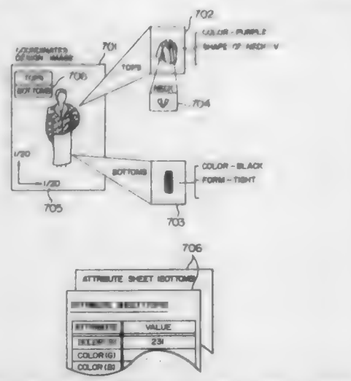
Akira Kagami; Michitaka Kosaka, both of Sagamihara, and Hiroaki Oyama, Yokohama, all of Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Continuation of Ser. No. 853,515, Mar. 18, 1992, Pat. No. 5,450,314. This application Jun. 6, 1995, Ser. No. 472,064

Claims priority, application Japan, Mar. 20, 1991, 3-080359

Int. Cl.[6] G06F *19/00*

U.S. Cl. 395—10 **15 Claims**



1. A database preparing method for preparing a design database from which design database image elements are retrievable to build composite design images for decision making, the method comprising the steps of:

a) inputting a design image into a processing unit, the design image being a combination of a plurality of separable image elements;

b) extracting at least one of said separable image elements from said inputted design image;

c) recording characteristic data which identifies said extracted image element;

d) storing (1) said characteristic data and (2) said corresponding design image into a storage means; and

e) repeating steps (a), (b), (c) and (d) to build said design database.

5,724,485

ADAPTIVE CROSS CORRELATOR APPARATUS COMPRISING ADAPTIVE CONTROLLER FOR ADAPTIVELY ADJUSTING TRANSFER FUNCTIONS OF TWO FILTERS

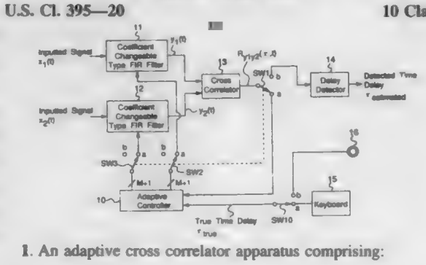
David Rainton, Soraku-Gun, Japan, assignor to ATR Human Information Processing Research Laboratories, Kyoto, Japan

Filed Sep. 26, 1995, Ser. No. 533,857

Claims priority, application Japan, Sep. 30, 1994, 6-236809

Int. Cl.[6] G06F *15/00*

U.S. Cl. 395—20 **10 Claims**



1. An adaptive cross correlator apparatus comprising:

first receiving means for receiving a signal and outputting the received signal as a first signal;

second receiving means for receiving a further signal and outputting the received further signal as a second signal, said second receiving means provided at a position different from that of said first receiving means;

first filtering means for filtering the first signal outputted from said first receiving means with a first changeable transfer function and outputting a filtered first signal;

second filtering means for filtering the second signal outputted from said second receiving means with a second changeable transfer function and outputting a filtered second signal;

cross correlator means for calculating a cross correlation value by using a predetermined cross correlation function based on the filtered first signal outputted from said first filtering means and the filtered second signal outputted from said second filtering means; and

adaptive control means for calculating a discriminant function value representing a misclassification measure of the first and second signals, based on the cross correlation value outputted from said cross correlator means and a true delay between the first and second signals, and for adaptively adjusting the first transfer function of said first filtering means and the second transfer function of said second filtering means so that the calculated discriminant function value becomes a minimum.

5,724,486

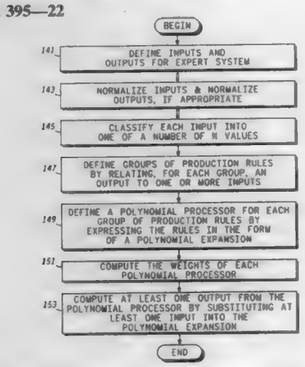
METHOD FOR STRUCTURING AN EXPERT SYSTEM UTILIZING ONE OR MORE POLYNOMIAL PROCESSORS

Shay-Ping T. Wang, Long Grove, Ill., assignor to Motorola Inc., Schaumburg, Ill.

Filed Aug. 21, 1995, Ser. No. 517,519

Int. Cl.[6] G06F *15/18*

U.S. Cl. 395—22 **39 Claims**



1. A method for learning production rules of an expert system comprising the steps of:

(a) defining a plurality of inputs and outputs for said expert system:

(b) defining at least one group of production rules by relating, for said at least one group, one of said outputs to one or more of said inputs in a certain manner;

(c) defining a polynomial processor, for said at least one group of production rules, comprising a plurality of computing elements; and

(d) computing the weights of the polynomial processor.

5,724,487

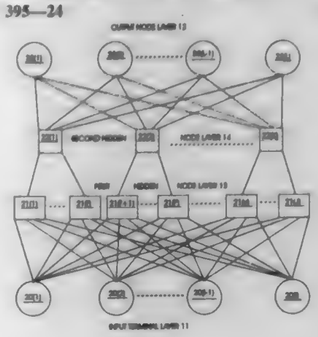
NEURAL NETWORK FOR MAXIMUM LIKELIHOOD CLASSIFICATION WITH SUPERVISED AND UNSUPERVISED TRAINING CAPABILITY

Roy L. Streit, 110 Ethel Dr., Portsmouth, R.I. 02871

Filed Jul. 7, 1995, Ser. No. 499,336

Int. Cl.[6] G06E *1/00*; **G06F** *15/18*

U.S. Cl. 395—24 **10 Claims**



1. A neural network for classifying input vectors to one of a plurality of outcome classes comprising:

an input layer comprising a plurality of input terminals each for receiving a component of an input vector;

two hidden layers, including (i) a first hidden layer having "H" first layer nodes, each being connected to the input terminals for receiving the input vector components from the input terminals and for generating a first layer output value representing the absolute value of the sum of the difference between a function of each input vector component and a threshold value, wherein the threshold value is determined as

$$t_i = uTL - Ts_i,$$

where "u" is a mean vector of training input vectors used to train the neural network during the training operation, "L" is a Choleski factor of a covariance matrix for the training input vectors, "T" and "−T" represent a transpose and inverse transpose operation, respectively, and "s_i" represents a vector defining a surface point on an H-component grid defined on a unit sphere having a number of dimensions corresponding to the number of components of an input vector, and (ii) a second hidden layer including a plurality of second layer nodes each for generating an outcome class component value, each second layer node being connected to predetermined ones of the first layer nodes and generating in response to the first layer output values an outcome class component value representing a function related to the exponential of the negative square of the sum of first layer output values from the first layer nodes connected thereto; and

an output layer comprising a plurality of output nodes each associated with an outcome class, each output node receiving a plurality of outcome class component values, each associated with an outcome class component and each representing a contribution of the outcome class component to the outcome class determination, each output node performing a summation operation in connection with the value of product of each outcome class component and an associated outcome class component weighting value to generate an outcome class value, the collection of outcome class values from all of the output nodes identifying the outcome class associated with the input vector.

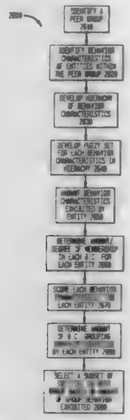
VOL 1208 ISS 1 MR 3 1998 UMI

5,724,488

FUZZY LOGIC ENTITY BEHAVIOR PROFILER

Robert Theodore Prezioso, Long Valley, N.J., assignor to International Business Machines Corporation, Armonk, N.Y.

Continuation of Ser. No. 236,731, Apr. 29, 1994, Pat. No. 5,577,169. This application Aug. 30, 1996, Ser. No. 697,900
Int. Cl.[6] G06F *17/00*
U.S. Cl. 395—61 1 Claim



1. A system for profiling behavior of an entity comprising:

a. means for identifying a peer group having a plurality of entities, each entity exhibiting one or more behavioral characteristics;

b. means for determining a behavioral characteristic set of two or more of the behavioral characteristics that contribute to an entity profile that indicates a target behavior;

c. means for determining an amount of behavior characteristic each entity exhibits for each behavior characteristic in the behavior characteristic set;

d. means for defining a behavior characteristic fuzzy set for each behavior characteristic in the behavior characteristic set, each behavior characteristic fuzzy set defined using statistics of the respective amount of behavior characteristic exhibited by the entities in the peer group and each behavior characteristic fuzzy set being a function that represents an amount of membership one or more individual entities has in the respective behavior characteristic for an amount of behavior characteristic the individual entity exhibits;

e. means for using the behavior characteristic fuzzy sets to determine the amount of membership the individual entity has in each respective behavior characteristic in the behavior characteristic set;

f. means for scoring the amount of membership of each behavior characteristic for the individual entity to determine a score of each of the behavior characteristics in the behavior characteristic set for the individual entity, the score determined from a scoring fuzzy set having a scoring surface that maps the amount of membership of the behavior characteristic to the score; and

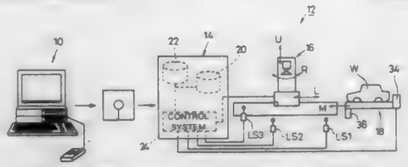
g. means for combining the the scores of each of the behavior characteristics in the behavior characteristic set for the individual entity to develop a composite used as an entity profile, the composite representing the degree of membership that the individual entity has in the target behavior.

5,724,489

APPARATUS FOR AND METHOD OF GENERATING ROBOT TEACHING DATA ON OFFLINE BASIS

Masanao Yamamoto; Nobuhiro Okabe; Junichi Matsumoto, and Shinsuke Taniguchi, all of Sayama, Japan, assignors to Honda Giken Kogyo Kabushiki Kaisha, Tokyo, Japan

Filed Sep. 25, 1995, Ser. No. 533,436
Int. Cl.[6] G05B *19/18;19/42*
U.S. Cl. 395—80 5 Claims



1. An offline teaching apparatus for generating robot teaching data on an offline basis in a facility where a workpiece and a working robot operate in coaction with each other, comprising:

environment setting means for setting working environments for a working robot, workpiece moving means for moving a workpiece, and workpiece detecting means for detecting a workpiece, as environment model data;

teaching data setting means for setting at least a position and speed of the working robot with respect to the workpiece, as robot teaching data;

workpiece movement control means for controlling movement of said workpiece moving means according to the environment model data;

workpiece monitor means for monitoring a status of the workpiece detected by said workpiece detecting means according to the environment model data;

position calculating means for calculating a position of the workpiece moving means according to the environment model data;

speed correcting means for correcting the speed of the working robot in the robot teaching data based on said position calculated by said position calculating means, after said workpiece monitor means has confirmed the detection of the workpiece by said workpiece detecting means; and

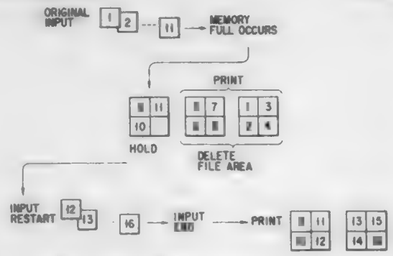
robot control means for controlling operation of the working robot according to the environment model data based on the robot teaching data according to the corrected speed of the working robot.

5,724,490

IMAGE FORMING APPARATUS FOR DETECTING FULL OF FILE BUFFER

Masako Shibaki, Yokohama; Toshiharu Takahashi, and Miki Hamanaka, both of Kawasaki, all of Japan, assignors to Kabushiki Kaisha Toshiba, Kanagawa-ken, Japan

Filed Dec. 19, 1995, Ser. No. 573,953
Claims priority, application Japan, Jan. 31, 1995, 7-014494
Int. Cl.[6] G06F *15/00*
U.S. Cl. 395—114 13 Claims



1. An image forming apparatus comprising:

means for reading an image of an original;

means for storing the image of a plurality of originals read by the reading means;

means for performing image formation on the basis of a specification by which the image of at least two of the originals stored in the storing means is formed on a single image formation medium;

means for detecting that the storing means becomes full;

means for, when the detecting means detects that the storing means becomes full while the reading means performs a series of read operations, distinguishing the images stored in the storing means into a first group having a sufficient number of images for image forming on the image forming medium and into a second group having an insufficient number of images for image forming on the image forming medium;

means for deleting the first group stored in the storing means after the image formation of the first group on the image formation medium; and

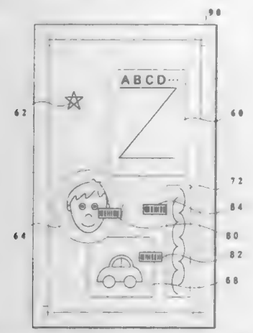
means for keeping the second group stored in the storing means without deleting, for storing a remaining image in an area in which the first group had been stored, and for forming the remaining image with the second group on the image forming medium.

5,724,491

COMMAND SHEET FOR PREPRESS, AND DEVICE AND METHOD FOR PREPARING THEREOF

Hideaki Kashihara, Kyoto, Japan, assignor to Dainippon Screen Mfg. Co., Ltd., Kyoto, Japan

Filed Jan. 31, 1994, Ser. No. 188,993
Claims priority, application Japan, Jan. 29, 1993, 5-013567; Jan. 29, 1993, 5-013590; Mar. 31, 1993, 5-073245; Mar. 31, 1993, 5-073266
Int. Cl.[6] G06F *15/00;* H04N *1/387*
U.S. Cl. 395—117 15 Claims



1. A prepress command sheet preparing device comprising:

corresponding component memory means for storing electronic data for corresponding image components, corresponding text components, and corresponding linework components respectively corresponding to image components, text components, and linework components,

identifier output means for outputting electronic data for identifiers,

layout paper memory means for storing electronic data for layout papers for prepress command sheets,

component layout means for determining locations of the corresponding image components, corresponding text components, and corresponding linework components to be laid out on the layout paper according to memory contents in the corresponding component memory means and the layout paper memory means,

identifier layout means which retrieves identifiers associated with at least respective corresponding image components from the identifier output means, and lays out the identifiers at a position where at least a part of the respective identifiers overlaps with respective corresponding image components and

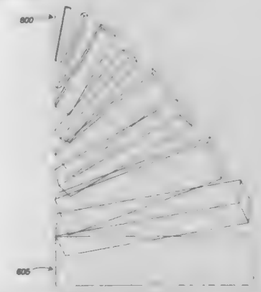
output means for outputting on the layout paper corresponding image components, corresponding text components, corresponding linework components, and identifiers capable of being read either electrically, magnetically, or optically.

5,724,492

SYSTEMS AND METHOD FOR DISPLAYING CONTROL OBJECTS INCLUDING A PLURALITY OF PANELS

Joseph H. Matthews, III, Redmond; Steven Alfred Isaac, NE. Bellevue, and William Hong Vong, Seattle, all of Wash., assignors to Microsoft Corporation, Redmond, Wash.

Filed Jun. 8, 1995, Ser. No. 488,993
Int. Cl.[6] G06T *15/70*
U.S. Cl. 395—119 19 Claims



1. In an interactive system including a display and an input device and having a graphical user interface, a method for displaying a three-dimensional object having a plurality of panels, comprising the steps of:

receiving a first input signal;

displaying, in response to the first input signal, an opening transition in which the object moves from an initial position and initial orientation to a final position and final orientation, the opening transition revealing the plurality of panels associated with the object;

displaying the object at the final position in the final orientation, the object being displayed as a two-dimensional object with only the first panel visible on the display;

receiving a second input signal; and

rotating, in response to the second input signal, the object so that a second panel of said plurality of panels is visible on the display.

5,724,493

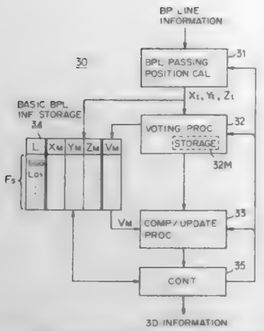
METHOD AND APPARATUS FOR EXTRACTING 3D INFORMATION OF FEATURE POINTS

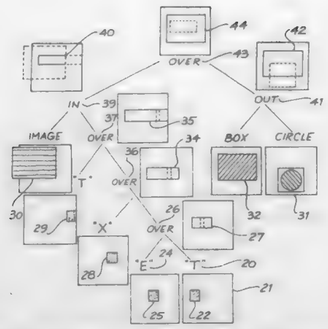
Eiichi Hosoya, Zama; Takeshi Ogura, Atsugi, and Mamoru Nakanishi, Isehara, all of Japan, assignors to Nippon Telegraph & Telephone Corporation, Tokyo, Japan

Filed Dec. 12, 1995, Ser. No. 571,272
Claims priority, application Japan, Dec. 13, 1994, 6-309007; Mar. 9, 1995, 7-050197; Jul. 5, 1995, 7-192550; Sep. 12, 1995, 7-259440
Int. Cl.[6] G06T *17/00*
U.S. Cl. 395—124 31 Claims

1. A 3D information extracting apparatus for extracting 3-dimensional information about feature points on an object by projecting corresponding feature points in a plurality of images of said object, taken at different visual angles, back into a 3-dimensional space of a predetermined size, divided by a plurality of voxels into equally spaced cross sections defining voxel slices

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therebetween, and by calculating 3-dimensional positions on which back-projection lines concentrate, said apparatus comprising:

(a) basic back-projection line information storage means which, letting at least one of said plurality of images be defined as a basic image and each back-projection line from said basic image as a basic back-projection line, has areas each for storing maximum point information about said each basic back-projection line, said maximum point information containing a maximum value of a voting score on said each basic back-projection line in the past and the voxel position where said maximum value was obtained;

(b) voting means which counts, for each basic back-projection line, the number of back-projection lines projected back from the other images and passing through voxels through which said each basic back-projection line passes, and calculates a voting score corresponding to the count value;

(c) compare/update means which compares, for each back-projection line, said voting score calculated by said voting means with said maximum value of said maximum point information stored in said area of said basic back-projection line information storage means corresponding to said each basic back-projection line and, if the former is larger than the latter, updates said maximum point information in said area of said basic back-projection line information storage means with new maximum point information consisting of said voting score and the voxel position where said voting score is obtained; and

(d) control means which controls said voting means and said compare/update means to repeat processing of obtaining said voting score and processing of comparing/updating said maximum point information for each voxel on said each basic back-projection line in said 3-dimensional space and, after completion of said processing, reads out of said area of said basic back-projection line information storage means said voxel position where the maximum value of voting score is obtained and outputs it as said 3-dimensional information of said feature points on said object.

5,724,494

OPTIMIZATION METHOD FOR THE EFFICIENT PRODUCTION OF IMAGES

George Politis, MacQuarie Fields, Australia, assignor to Canon Information Systems Research Australia Pty Ltd, and Canon Kabushiki Kaisha

Filed Jul. 21, 1995, Ser. No. 505,752

Claims priority, application Australia, Jul. 25, 1994, PM7043

Int. Cl.[6] G06F *15/00*

U.S. Cl. 395—134 **21 Claims**

1. A method of producing an image formed from a series of statements and multiple graphical elements, the method being performed by a computer and comprising the steps of:

determining an expression tree comprising a plurality of nodes from the series of statements and the graphical elements for the construction of the image by parsing and executing the series of statements one or more of which include operations which are used to create the expression tree, and

for each node in the tree, constructing a bounding box about locations at which graphical elements of the node and corresponding descendant nodes of the expression tree are active in the production of the image.

5,724,495

Patent Not Issued For This Number

5,724,496

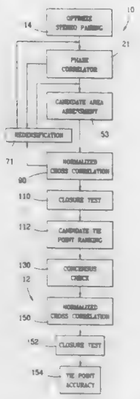
METHOD FOR AUTONOMOUS DETERMINATION OF TIE POINTS IN IMAGERY

Fenton Lynwood Givens, Dallas, and Ronald Lloyd Bowden, Parker, both of Tex., assignors to E-Systems, Inc., Dallas, Tex.

Continuation of Ser. No. 478,972, Jun. 7, 1995, Pat. No. 5,577,181. This application Oct. 30, 1996, Ser. No. 739,789

Int. Cl.[6] G06F *15/00*

U.S. Cl. 395—140 **6 Claims**



1. A method for selecting tie points within a sequence of overlapping digital images, comprising the steps of:

identifying tie point locations from the sequence of overlapping digital images by phase correlation at a reduced resolution; and

refining the identified tie point locations to sub-pixel accuracy by normalized cross correlation at full resolution to select the tie points within the sequence of overlapping digital images.

5,724,497

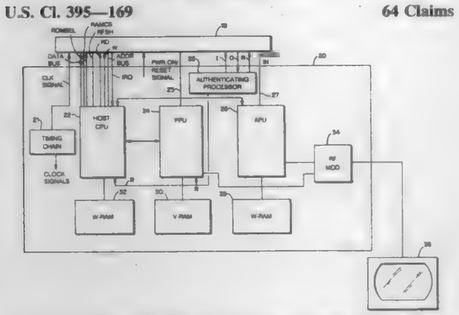
PROGRAMMABLE GRAPHICS PROCESSOR HAVING PIXEL TO CHARACTER CONVERSION HARDWARE FOR USE IN A VIDEO GAME SYSTEM OR THE LIKE

Jeremy E. San, London; Ben Cheese, Melbourn Royston; Carl N. Graham, and Peter R. Warnes, both of London, all of England, assignors to A/N Inc., Redmond, Wash.

Continuation of Ser. No. 827,201, Jan. 30, 1992, abandoned. This application Nov. 10, 1994, Ser. No. 337,142

Int. Cl.[6] G06F *15/00*

U.S. Cl. 395—169 **64 Claims**



1. In a video game system for use with a display screen, said video game system having a main unit for receiving a video game cartridge and including a game microprocessor for executing a video game program, and a video memory for storing character data including address data for identifying a matrix of bits defining a character to be displayed on said display screen, a display frame being defined by a combination of characters, said video game cartridge comprising:

a program memory for storing at least some of the instructions of said video game program, and

a conversion circuit coupled to said program memory for receiving display data in terms of a pixel specification which identifies the location of a pixel for display on said display screen for processing said pixel specification and for converting said pixel specification data into character data.

5,724,498

METHOD AND APPARATUS FOR CONCEALING CHARACTER MODIFICATIONS MADE FOR TEXT COMPOSITION PURPOSES

Nicholas I. Nussbaum, Seattle, Wash., assignor to Adobe Systems Incorporated, San Jose, Calif.

Filed Jun. 7, 1995, Ser. No. 472,185

Int. Cl.[6] B41J *19/58*

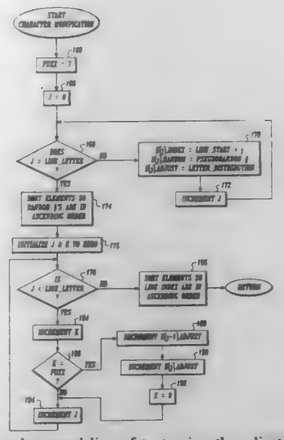
U.S. Cl. 395—171 **11 Claims**

1. A computer-implemented method of composing a line of text to improve the appearance of a page of text in which the line of text occurs, comprising:

storing in a computer memory a line of text having characters and an original shape and width associated with each character;

applying a preprogrammed strategy to select some, but not all, of the characters in the stored line of text for modification, according to a pattern that makes the selections appear random;

adjusting the width associated with each selected character in the stored line of text by modifying the shape of the selected character; and



composing the stored line of text using the adjusted width for each selected character and the original width for each remaining character in the stored line of text.

5,724,499

IMAGE GENERATING APPARATUS

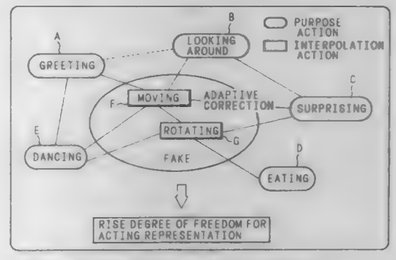
Soichi Nishiyama; Masatoshi Arai, and Koichi Murakami, all of Kawasaki, Japan, assignors to Fujitsu Limited, Kawasaki, Japan

Filed Jan. 5, 1995, Ser. No. 369,110

Claims priority, application Japan, Jan. 7, 1994, 6-000455; Mar. 15, 1994, 6-044480; Mar. 17, 1994, 6-047541; Oct. 28, 1994, 6-265728; Dec. 28, 1994, 6-328847

Int. Cl.[6] H04N *1/21*

U.S. Cl. 395—173 **32 Claims**



1. An image generating apparatus, comprising:

a command interpreting unit for interpreting a command requesting a generation of an intended image;

an information storage unit for storing information required for generating an image;

an image selecting unit for selecting an image from said information storage unit in accordance with an interpretation result from said command interpreting unit; and

an image display unit for displaying the image selected by said image selecting unit,

said information storage unit including an image information unit storing image information, and a reference information unit storing information to which reference is made in selecting an image from said image information unit, thus allowing said image selecting unit to select images that substantially correspond to the content of interpretation from said command interpreting unit in accordance with the information from said reference information unit.

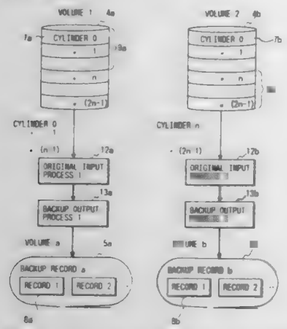
VOL 1208 ISS 1 MR 3 1998 UMI

5,724,500

MULTIPLE WRITING VOLUME BACKUP METHOD

Yoshiaki Shinmura, Chigasaki, and Hiroshi Matsui, Kamakura, both of Japan, assignors to Hitachi, Ltd., Tokyo, and Hitachi Software Engineering Co., Ltd., Kanagawa-ken, both of Japan

Continuation of Ser. No. 112,114, Aug. 26, 1993, abandoned. This application May 16, 1995, Ser. No. 442,353
Claims priority, application Japan, Sep. 8, 1992, 4-239260
Int. Cl.[6] G06F *11/00*
U.S. Cl. 395—182.04 7 Claims



7. A method for producing backup data, comprising the steps of:

inputting data, into a data processing unit concurrently from a plurality of different addressable storage regions, each of which resided on different volumes of multiwritten storage volumes of an external storage unit, wherein one of said storage volumes has data contents the same as another one of said storage volumes and has an addressing structure the same as that of said another one of said storage volumes; and

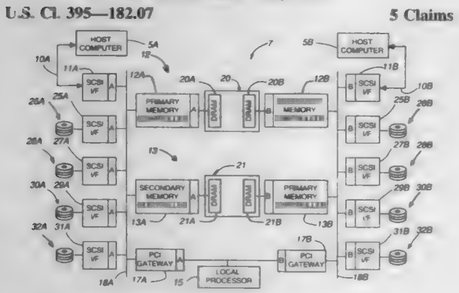
outputting the input data from the data processing unit to backup volumes in such a manner that the input data from each of said addressable storage regions is (i) attached with information indicative of an address order of the original storage region from which the input data was inputted and (ii) arranged in the address order as it was in the original storage region, whereby the data contents contained in one of said storage volumes are copied to said backup volumes.

5,724,501

QUICK RECOVERY OF WRITE CACHE IN A FAULT TOLERANT I/O SYSTEM

Matthew C. Dewey, Broomfield, and Ellen F. Jones, Golden, both of Colo., assignors to EMC Corporation, Hopkinton, Mass.

Filed Mar. 29, 1996, Ser. No. 626,245
Int. Cl.[6] G06F *12/10;13/14*
U.S. Cl. 395—182.07 5 Claims



3. A computer system comprising:

at least one host computer:

a plurality of storage controllers coupled to said at least one host computer, at least one subset of said plurality of storage controllers being coupled together through at least one data path, each of said at least one subset of said plurality of storage controllers having a local cache memory for storing respective data and associated metadata;

at least one data storage unit coupled to a computer mass storage bus coupling said at least one subset of said plurality of storage controllers;

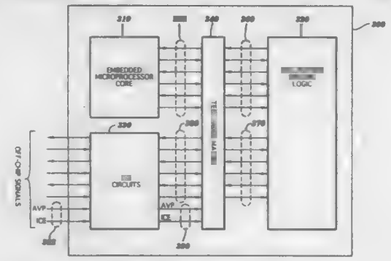
whereby said metadata from said cache memory of a second one of said subset of said plurality of storage controllers may be copied to said cache memory of a first one of said subset of said plurality of storage controllers through said at least one host computer for access to selected portions of said data stored in said cache memory of said second one of said plurality of storage controllers by reference to said metadata copied from said second storage controller cache memory.

5,724,502

TEST MODE MATRIX CIRCUIT FOR AN EMBEDDED MICROPROCESSOR CORE

Cory Ansel Cherichetti, Burlington; Peter Stewart Colyer, Essex Junction, and David Robert Stauffer, Milton, all of Vt., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Aug. 7, 1995, Ser. No. 511,943
Int. Cl.[6] G06F *11/00*; H03K *17/80*
U.S. Cl. 395—183.04 6 Claims



1. An integrated circuit comprising:

at least one microprocessor;

a logic circuit;

signal routing means coupled between the microprocessor and the logic circuit, for routing microprocessor operational signals directly to the logic circuit, for routing microprocessor test signals to the microprocessor, and for routing logic test signals to the logic circuit;

a plurality of I/O circuits coupled to a plurality of I/O pads;

wherein the signal routing means operates in one of a plurality of mutually-exclusive states, and wherein the signal routing means comprises a test mode matrix having a first bus coupled to the microprocessor, having a second bus coupled to the logic circuit, and having a third bus coupled to the plurality of I/O circuits, and wherein:

the test mode matrix couples the first bus to the second bus in a first of the plurality of states;

the test mode matrix couples the first bus to the third bus in a second of the plurality of states; and

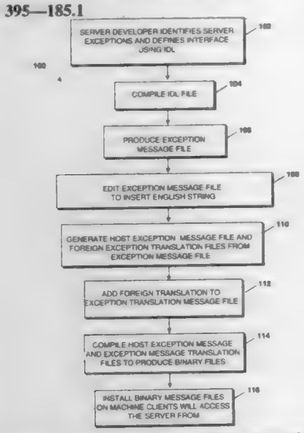
the test mode matrix couples the second bus to the third bus in a third of the plurality of states.

5,724,503

METHOD AND APPARATUS FOR INTERPRETING EXCEPTIONS IN A DISTRIBUTED OBJECT SYSTEM

Ron Kleinman, Santa Clara; Ken M. Cavanaugh, III, Montara, and Mark W. Hapner, San Jose, all of Calif., assignors to Sun Microsystems, Inc., Palo Alto, Calif.

Filed Mar. 31, 1995, Ser. No. 414,775
Int. Cl.[6] G06F *11/30*
U.S. Cl. 395—185.1 24 Claims



1. A computer-implemented method for interpreting exceptions received by a host computing system intended for use in a distributed object computing environment, the method comprising the computer controlled steps of:

receiving by said host computing system an exception identifier that uniquely identifies an exception raised by a remotely located device within said distributed object computing environment;

utilizing the exception identifier to help identify an exception tag that uniquely identifies said exception within said distributed object computing environment and that can be used by the host computing system to locate a message string that corresponds to the exception identifier, the exception tag including a domain name and a message identifier and being distinct from said exception identifier;

utilizing the domain name of said identified exception tag to help identify an exception message file resident on the host computing system that corresponds to the remotely located device; and

accessing the identified exception message file utilizing the message identifier of said identified exception tag to locate a message string that corresponds to the exception identifier, said message string containing a message for said host computing system that explains said exception raised by said remotely located device.

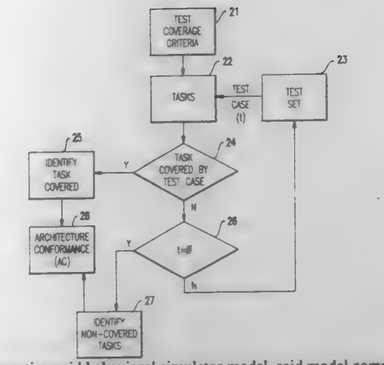
5,724,504

METHOD FOR MEASURING ARCHITECTURAL TEST COVERAGE FOR DESIGN VERIFICATION AND BUILDING CONFORMAL TEST

Aharon Aharon, Doar Na Misgav, Israel; Laurent Fournier, South Burlington, Vt.; Alon Gluska, Kiriat Yam, Israel; Yossi Lichtenstein, Ramat-Gan, Israel, and Yossi Malka, Haifa, Israel, assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Jun. 1, 1995, Ser. No. 457,903
Int. Cl.[6] G06F *11/00*; G06G *7/48*
U.S. Cl. 395—183.09 8 Claims

1. A computer-implemented method of generating test vectors for hardware design verification, having a behavioral simulator model representing an architecture corresponding to the hardware design, the method comprising the steps of:



generating said behavioral simulator model, said model comprising a plurality of conditional branch statements and logical function statements conditional thereon;

generating a set of test input cases corresponding to said behavioral simulator model;

receiving and storing a test coverage criteria, said test coverage criteria establishing a criteria which an execution of a sub-plurality of said conditional branch statements and of said function statements must meet to constitute an execution of said behavioral simulator model;

generating a plurality of logical coverage tasks, each of said logical coverage tasks having an executable sub-plurality of said conditional branch statements and said logical function statements, and each of said plurality of tasks being in accordance with said received test coverage criteria;

for each test input case in said set of test input cases, selecting the test input case and executing the selected test input case on the behavioral simulator model;

determining which of said plurality of logical coverage tasks are executed by each test input case executed on the behavioral simulator model; and

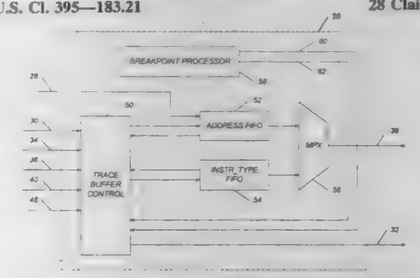
identifying all of the logical coverage tasks of the behavioral simulator model that were not executed by the test input cases, based on a repeating of said determining step for each test input case.

5,724,505

APPARATUS AND METHOD FOR REAL-TIME PROGRAM MONITORING VIA A SERIAL INTERFACE

Pramod Vasant Argade; Michael Richard Betker, both of Allentown, and Shaun Patrick Whalen, Wesconsville, all of Pa., assignors to Lucent Technologies Inc., Murray Hill, N.J.

Filed May 15, 1996, Ser. No. 647,852
Int. Cl.[6] G01R *31/28*
U.S. Cl. 395—183.21 28 Claims



1. An integrated circuit having a digital processor including a serial port and a processor core for executing a plurality of types of instructions input to the digital processor, said integrated circuit comprising:

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first receiving means, connected to the processor core, for receiving a first signal indicative of the one of said plural types of instructions processed by the processor core;

second receiving means, connected to the processor core, for receiving a second signal indicative of a destination address of an instruction processed by the processor core and, when said instruction is of a discontinuity type, a return address of said processed instruction;

trace recording means, connected to the first and second receiving means, operable for conducting a program trace of the processor core, said program trace being representative of said first and said second signals, said trace recording means comprising trace compression means being operable to compress said program trace; and

output means for sending out said compressed program trace via the serial port.

5,724,506

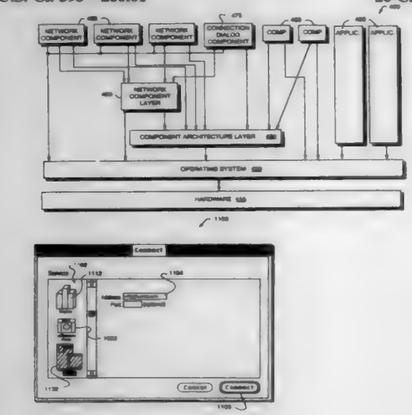
REPLACEABLE AND EXTENSIBLE CONNECTION DIALOG COMPONENT OF A NETWORK COMPONENT SYSTEM

Michael A. Cleron, Menlo Park; John S. Evans, Mountain View; Stephen Fisher, Menlo Park; Patrick A. Holleran, Santa Cruz, all of Calif.; Richard Ford, Arlington, Va.; Richard J. Donnelly, San Jose, and Timo Bruck, Mountain View, both of Calif., assignors to Apple Computer, Inc., Cupertino, Calif.

Filed May 5, 1995, Ser. No. 435,213

Int. Cl.[6] G06F *15/00*

U.S. Cl. 395—200.01 **20 Claims**



1. An extensible and replaceable network-oriented component system for providing services directed to resources coupled computer networks, the system residing on a computer including a component architecture layer interfacing with an operating system to control the operations of the computer, the system comprising:

a network component layer coupled to the component architecture layer in cooperating relation; and

a connection dialog component defined by the network component layer for enabling a user to specify address information of a particular resource coupled to the computer networks, the connection dialog component being replaceable and extensible by other connection dialog-type components in response to the cooperating relationship between the network component layer and the component architecture layer.

5,724,507

LAN ADAPTER FOR CHANGING CONTROL SIGNAL TO A VALUE INDICATING SILENCE WHEN THE CONTROL SIGNAL IS CHANGED INTO A VALUE INDICATING OCCURRENCE OF TRANSFER REQUEST

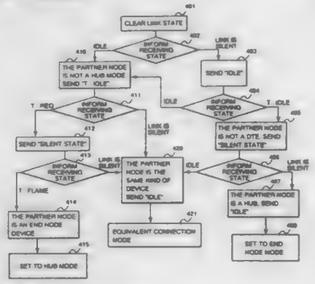
Kazuko Iwatsuki, Musashikosugi-hausu, 2-19-1-208, Shimokodanaka, Nakahara-ku, Kawasaki-shi, Kanagawa-ken 211, Japan, and Hiroyuki Wada, #207 Hooyuuparesu-hadano, 10-57, Shi-cho, Hadano-shi, Kanagawa-ken 257, Japan

Filed Mar. 2, 1995, Ser. No. 397,369

Claims priority, application Japan, Mar. 2, 1994, 6-032469; Nov. 14, 1994, 6-279344

Int. Cl.[6] G06F *13/00*

U.S. Cl. 395—200.02 **17 Claims**



1. A LAN adapter, comprising:

a port controller;

a signal processor; and

a frame send-receive controller the, wherein:

said port controller sends a control signal and a frame to a send-receive partner node (end node) which is connected thereto via a LAN and receives a control signal and a frame from said send-receive partner node;

said frame send-receive controller changes the control signal which is output to said signal processor into a control signal having a value indicating Silence when the value of the the control signal which is relayed from said send-receive partner node via said port controller is changed into a value indicating an occurrence of a transfer request, receives the frame which is received by said port controller, changes the control signal to be output to said signal processor into a control signal having a value indicating an occurrence of a transfer request when a frame is to be sent to said port controller, and sends the frame to be transferred from said port controller to said send-receive partner node after the value of the control signal which is relayed from said send-receive partner node via said port controller is changed into a value indicating Silence; and

the signal processor relays the control signal which is output by said frame send-receive controller to said port controller, relays the control signal which is received by said port controller to said frame send-receive controller, outputs the control signal having a value indicating an occurrence of a transfer request to said frame send-receive controller when a control signal which is input from said send-receive partner node via said port controller is changed from a value indicating a receivable state into a value indicating an Idle state, and controls the relay of the control signal for said port controller and said frame send-receive controller so that said frame send-receive controller enters the state that it inputs a control signal having a value indicating an occurrence of said transfer request when said send-receive partner node outputs the control signal of the value indicating the occurrence of the transfer request.

5,724,508

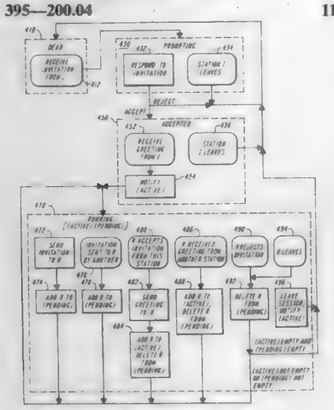
APPARATUS FOR COLLABORATIVE COMPUTING

Daniel L. Harple, Jr., Dillsburg, and Richard H. Pizzarro, Mechanicsburg, both of Pa., assignors to InSoft, Inc., Mountain View, Calif.

Filed Mar. 9, 1995, Ser. No. 401,922

Int. Cl.[6] G06F *13/00*

U.S. Cl. 395—200.04 **11 Claims**



9. A collaborative comprising system for a computer network comprising:

a first application module at a network node for providing a first network-independent collaborative computing function;

a second application module at the network node for providing a second network-independent collaborative computing function;

a first conference engine at the network node including a first collaborative computing state machine for processing data and event task requests from the first application module, distributing data and events over the network, receiving data and events from the network, and providing data and event information to the first application module, wherein the first conference engine is coupled to the first application module;

a second conference engine at the network node including a second collaborative computing state machine for processing data and event task requests from the second application module, distributing data and events over the network, receiving data and events from the network, and providing data and event information to the second application module, wherein the second conference engine is coupled to the second application module;

means for connecting the first conference engine to the network; and

means for connecting the second conference engine to the network.

5,724,509

METHOD AND APPARATUS FOR SYNCHRONIZING IMPLEMENTATION OF CONFIGURATION INFORMATION IN A COMMUNICATION SYSTEM

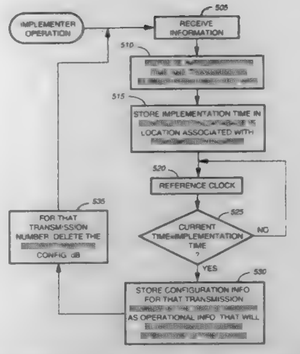
James Alan Starkweather, Grapevine; Orlando Jesus Perdomo, Fort Worth; Deborah L. Rutan, Saginaw, and Srinivas Miriyala, Arlington, all of Tex., assignors to Motorola, Inc., Schaumburg, Ill.

Filed Apr. 22, 1996, Ser. No. 636,008

Int. Cl.[6] G06F *17/00*

U.S. Cl. 395—200.5 **22 Claims**

1. A communication system for synchronizing implementation of configuration information, the communication system comprising:



a network manager for transmitting the configuration information; and

communication devices coupled to the network manager for receiving the configuration information and responding with confirmations indicating that the configuration information is acceptable,

wherein, in response to receiving the confirmations, the network manager provides to the communication devices an implementation time, occurrence of which results in the communication devices beginning to utilize the configuration information.

5,724,510

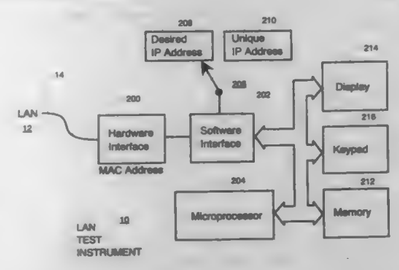
METHOD OF CONFIGURING A VALID IP ADDRESS AND DETECTING DUPLICATE IP ADDRESSES IN A LOCAL AREA NETWORK

Manfred Ruediger Arndt, and Frank John Actis, both of Colorado Springs, Colo., assignors to Fluke Corporation, Everett, Wash.

Filed Sep. 6, 1996, Ser. No. 709,346

Int. Cl.[6] G06F *13/00*

U.S. Cl. 395—200.5 **8 Claims**



1. In a LAN test instrument for inserting into a LAN containing a plurality of devices having ARP caches, a method for configuring a desired IP address in said LAN test instrument without disrupting said LAN, comprising:

(a) monitoring data traffic in said LAN for a predetermined period of time;

(b) determining at least one local address range based on said data traffic;

(c) prompting a user for said desired IP address based on said local address range;

(d) generating an ARP request with a unique IP address as a source IP address and said desired IP address as a target IP address; and

(e) if no reply is received from said devices, generating a second ARP request with said desired IP address as said source IP address and as said target address wherein said LAN test

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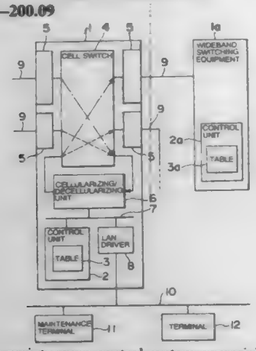
instrument is configured with said desired IP address without corrupting said ARP caches.

5,724,511

REMOTE MAINTENANCE CONTROL SYSTEM

Haruo Moritomo, Kanagawa, Japan, assignor to Fujitsu Limited, Kanagawa, Japan

Filed Aug. 24, 1995, Ser. No. 519,042
Claims priority, application Japan, Dec. 26, 1994, 6-322215
Int. Cl.[6] H02G *1/00*
U.S. Cl. 395—200.09 **6 Claims**



1. A remote maintenance control system comprising:
a plurality of wideband switching equipments connected via a wideband line;
a maintenance terminal connected via a local area network to at least one of said plurality of wideband switching equipments;
an interface unit accommodating said wideband line;
a table for registering an address of at least said plurality of wideband switching equipments to be connected to make the interface unit correspond to the address;
control means, provided in each of said wideband switching equipments, for controlling the transfer of maintenance data and including:
allocation means for allocating the address to each of said wideband switching equipments;
setting means for setting a virtual channel connection for transferring the maintenance data between said wideband switching equipments; and
selection means for selecting whether to transfer the maintenance data to other wideband switching equipment or to transfer the maintenance data to said maintenance terminal connected via the local area network with reference to said table.

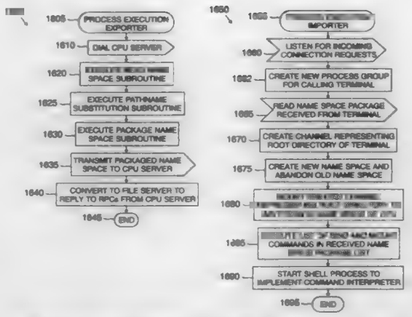
5,724,512

METHODS AND APPARATUS FOR STORAGE AND RETRIEVAL OF NAME SPACE INFORMATION IN A DISTRIBUTED COMPUTING SYSTEM

Philip Steven Winterbottom, Gillette, N.J., assignor to Lucent Technologies Inc., Murray Hill, N.J.

Filed Apr. 17, 1995, Ser. No. 424,137
Int. Cl.[6] G06F *15/163;17/30*
U.S. Cl. 395—200.12 **16 Claims**

1. A method performed by a first processor in a distributed computing system for invoking execution of a processing task on a remote processor, said processing task operating on a first name space associated with said first processor, said first name space being formed by a plurality of name space modification commands, said method comprising the steps of:
establishing a communication link between said first processor and said remote processor;
identifying the plurality of name space modification commands that form said first name space, said plurality of identified



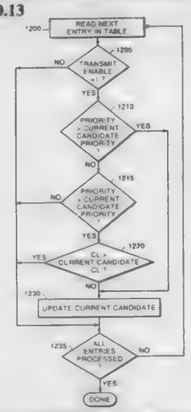
name space modification commands including at least one dynamic name space modification command; and
transmitting said plurality of name space modification commands to said remote processor for execution of said processing task by said remote processor on a name space modified in accordance with said transmitted plurality of name space modification commands.

5,724,513

TRAFFIC SHAPING SYSTEM FOR ASYNCHRONOUS TRANSFER MODE NETWORKS

Michael Ben-Nun, Jerusalem; Simoni Ben-Michael, Givat Zeev, and Moshe De-Leon, Jerusalem, all of Israel, assignors to Digital Equipment Corporation, Maynard, Mass.

Filed Jun. 30, 1994, Ser. No. 268,606
Int. Cl.[6] G06F *13/00;15/163*
U.S. Cl. 395—200.13 **21 Claims**



1. A method for controlling the transmission of cells from a network node, comprising the steps of:
periodically scanning a table, said table having a number of entries, said number of entries less than a number of virtual circuits connected with said network node, each one of said entries indicating a virtual circuit connected with said network node, each one of said entries corresponding with one of one or more transmit queues, said step of scanning including incrementing a first accumulator and a second accumulator in each one of said table entries, and setting a transmit enable bit in each said table entry having a first accumulator value greater than or equal to a first predetermined value and having a second accumulator value greater than or equal to a second predetermined value;
selecting, responsive to said step of scanning, one of said table entries having said transmit enable bit set; and

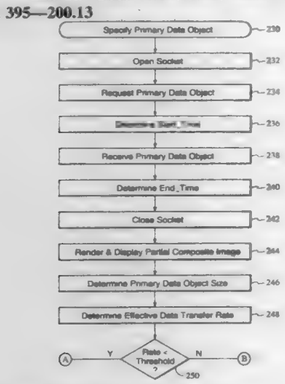
transmitting, responsive to said step of selecting, a cell on a virtual circuit indicated by said selected one of said table entries.

5,724,514

SYSTEM, METHOD AND APPARATUS FOR CONTROLLING THE TRANSFER OF DATA OBJECTS OVER A COMMUNICATIONS LINK

Armando Daniel Arias, San Bruno, Calif., assignor to Netmanage, Cupertino, Calif.

Filed Nov. 25, 1994, Ser. No. 344,900
Int. Cl.[6] G06F *13/38;13/42;* **H04L** *5/22*
U.S. Cl. 395—200.13 **16 Claims**



1. A data processing system comprising:
(a) a first computer;
(b) a second computer in communication with the first computer through at least one communications link;
(c) a means for obtaining a primary data object having an object size and a transfer time over the communications link, said primary data object being capable of identifying at least one secondary data object;
(d) a means for determining the object size of the primary data object;
(e) a means for determining the transfer time of the primary data object;
(f) a means for determining an effective transfer rate for the communications link using the transfer time and object size;
(g) a means for performing a comparison of the effective transfer rate to a predetermined value; and
(h) a means for determining a number of concurrent secondary data object transfers to request based upon the comparison.

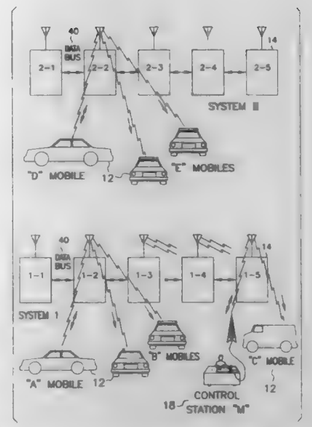
5,724,515

PACKET RADIO COMMUNICATION SYSTEM

Keith W. Barnes, and Donald R. Bauman, both of Waseca, Minn., assignors to E. F. Johnson Company, Burnsville, Minn.

Filed Mar. 6, 1996, Ser. No. 611,639
Int. Cl.[6] G06F *17/00*
U.S. Cl. 395—200.17 **36 Claims**

1. A packetized communication system, comprising a transmitter for transmitting packets, the packets comprising:
a standard format indicator which is set to a first boolean state for the packets which conform to a predefined standard and which is set to a second boolean state for the packets which do not conform to the predefined standard;
a format type indicator for identifying a type of nonstandard packet for the packets which do not conform to the predefined standard; and



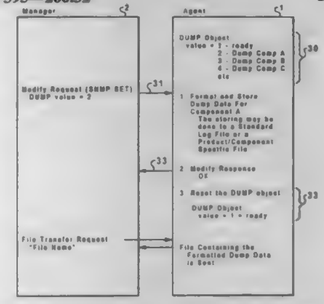
nonstandard information for the packets which do not conform to the predefined standard.

5,724,516

SYSTEM FOR DYNAMICALLY CREATING AND RETRIEVING FORMATTED DUMP DATA BY SETTING VALUE IN DUMP OBJECT INDICATING THAT THE DUMP AGENT IS TO GENERATE FORMATTED DUMP DATA

Leo Temoshenko, Raleigh, N.C., assignor to International Business Machines Corporation, Armonk, N.Y.

Filed Sep. 6, 1995, Ser. No. 524,280
Int. Cl.[6] G06F *17/30*
U.S. Cl. 395—200.32 **10 Claims**



1. Apparatus for managing a network and executing by data processing equipment for dynamically creating and retrieving formatted dump data, said network being of the type having a plurality of nodes coupled by connecting links, having a given process operating on said network at one of said nodes, and having an agent operating on said network at each of said nodes separate from said process, comprising:
means for sending a first command from a manager at one of said nodes to one of said agents at a different one of said nodes to set a value in a dump object in said one of said agents, said value indicating that said agent is to execute a selected command among a plurality of commands;
means for processing said dump object having said value in said one of said agents by executing the selected command to dynamically generate said formatted dump data whereby said formatted dump data becomes part of said dump object;
means for sending a second command from said manager at said one of said nodes to said one of said agents to request that

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said formatted dump data be sent from said dump object of said agent to said manager; and

means for sending said formatted dump data from said agent to said manager.

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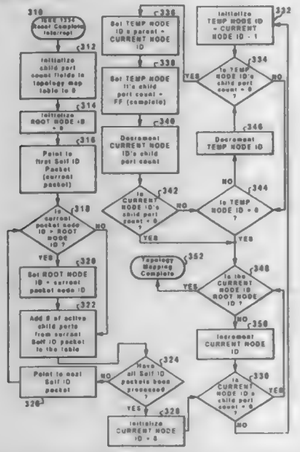
METHOD FOR GENERATING A TOPOLOGY MAP FOR A SERIAL BUS

Sherri E. Cook, Boca Raton, and Andrew B. McNeill, Jr., Deerfield, both of Fla., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Sep. 27, 1994, Ser. No. 313,679

Int. Cl.[6] G06F *13/00*

U.S. Cl. 395—200.57 **13 Claims**



1. In a computer system, including a host computer, comprising an acyclic serial bus and a plurality of nodes coupled to said acyclic serial bus, each node having an identification packet, a method for mapping a node topology comprising the steps of:

A. storing in the host computer a topology mapping table for the plurality of nodes information from all of said identification packets associated with each node of said plurality of nodes;

B. establishing a root node based upon the information found in said identification packets;

C. establishing at least one branch node among said plurality of nodes based on said information;

D. selecting a first available branch node among said at least one branch node based on said information;

E. identifying any of said plurality of nodes that are child nodes to said first available branch node;

F. upon identification of all child nodes of said branch node, selecting a next available branch node based upon said information; and

G. upon identification of said next available branch, identifying any of said plurality of nodes that are children nodes to said next available branch node, then repeat steps E and G until said root node is processed as a branch node.

5,724,518

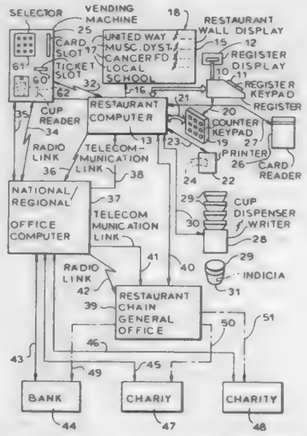
METHOD OF AND SYSTEM FOR CORRELATING CHARITABLE CONTRIBUTIONS

Edward Helbling, 47 Annandale Rd., Commack, N.Y. 11725

Continuation of Ser. No. 215,372, Mar. 21, 1994, Pat. No. 5,546,303, which is a continuation-in-part of Ser. No. 12,743, Feb. 3, 1993, abandoned. This application Feb. 28, 1996, Ser. No. 608,486

Int. Cl.[6] G06F *17/60*

U.S. Cl. 395—201 **3 Claims**



1. A method of collecting and correlating charitable contributions, comprising the steps of:

(a) from a central location remote from a collection station, transmitting to said collection station information as to availability of a premium offered for a charitable contribution and a selection of charities benefiting from charitable contributions;

(b) displaying at said collection station respective symbols of the charities of said selection;

(c) at said collection station tendering said charitable contribution, enabling donor selection from said symbols of one of said charities to benefit from the charitable contribution tendered, registering said charitable contribution tendered to the charity selected, communicating from said collection station to said central location information as to amounts of contributions tendered for the respective charities, and issuing an information carrier to each donor indicating a corresponding premium, a selected charity and an amount contributed; and

(d) in response to said information carrier, at a vending location issuing to respective donors the premiums indicated on the respective information carriers.

5,724,519

COMPLEMENTARY TRANSISTOR CIRCUIT AND AMPLIFIER AND CRT DISPLAY DEVICE USING THE SAME

Kazuo Kato, Ibaraki-ken; Hideo Sato; Takashi Sase, both of Hitachi, and Kenkichi Yamashita, Katsuta, all of Japan, assignors to Hitachi, Ltd., Tokyo, Japan

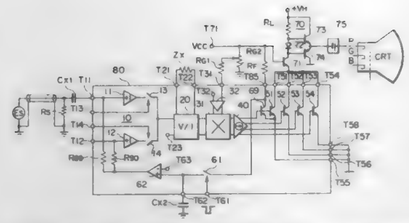
Filed Feb. 15, 1990, Ser. No. 480,673

Claims priority, application Japan, Feb. 17, 1989, 1-036170; May 15, 1989, 1-118661; May 15, 1989, 1-118662; May 15, 1989, 1-118665

Int. Cl.[6] G09G *5/00*

U.S. Cl. 345—204 **13 Claims**

1. A CRT display device for displaying an input video signal on a CRT, said CRT display device comprising:



a video amplifier including a high-voltage output stage and a driving stage for driving the high voltage output stage, wherein said driving stage amplifies the input video signal, and said high voltage output stage converts an output signal from said driving stage into a high voltage signal which is applied to a cathode of said CRT,

said driving stage including a voltage-to-current conversion circuit and an amplifier circuit, wherein said driving stage, including said voltage-to-current conversion circuit and said amplifier circuit, is comprised of complementary transistor circuits including NPN and PNP bipolar transistors to provide a current operation in response to said input video signal and to amplify the input video signal, wherein at least one of the complementary transistor circuits of said driving stage is configured such that an input signal thereto is received by a differential pair of NPN transistors and an output from the commonly connected emitters of the differential pair of NPN transistors is applied to the base of a PNP transistor arranged as an emitter follower in the voltage-to-current conversion circuit.

5,724,520

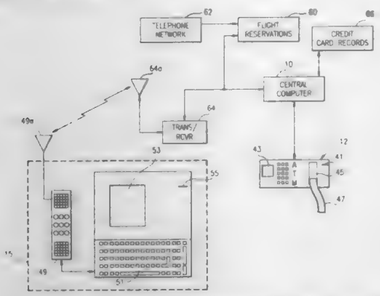
ELECTRONIC TICKETING AND RESERVATION SYSTEM AND METHOD

Joel R. Goheen, Boca Raton, Fla., assignor to Anthony V. Pugliese, Boca Raton, Fla.

Continuation of Ser. No. 74,072, Jun. 8, 1993, abandoned. This application Nov. 21, 1994, Ser. No. 342,658

Int. Cl.[6] G06F *17/60*

U.S. Cl. 395—205 **5 Claims**



1. A method for validating a prescheduled activity that requires prepayment of monies, in order to eliminate paper tickets, said method comprising the steps of:

making a prescheduled reservation for a particular individual and a particular activity;

accessing pre-payment for the activity from the individual;

storing reservation and prepayment data in a central data bank;

issuing a plastic identification card to the individual, the card having stored thereon only an identification number corresponding to the individual;

using the identification card at predetermined locations to verify the reservation and prepayment data stored in the central data bank for the pre-scheduled activity, the identification card being used for automatic validation at the predetermined locations to permit the individual to participate in the activity without requiring a paper ticket; and

deleting the reservation and pre-payment data of the individual from the central data bank after the individual completes the activity;

whereby the same identification card is used over and over again for additional prescheduled activities without the need for either issuing a new identification card or ticket or for updating the identification card prior to each prescheduled activity because the identification card and the number stored thereon continue to identify a particular individual after the individual's reservation and pre-payment data for a particular activity is deleted from the central data bank.

5,724,521

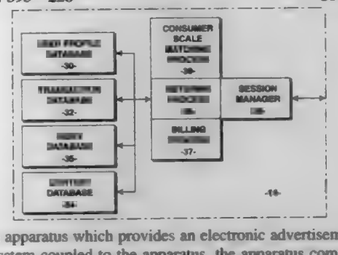
METHOD AND APPARATUS FOR PROVIDING ELECTRONIC ADVERTISEMENTS TO END USERS IN A CONSUMER BEST-FIT PRICING MANNER

Rick Dedrick, Hillsboro, Oreg., assignor to Intel Corporation, Santa Clara, Calif.

Filed Nov. 3, 1994, Ser. No. 333,950

Int. Cl.[6] H01J *13/00*

U.S. Cl. 395—226 **18 Claims**



1. An apparatus which provides an electronic advertisement to a client system coupled to the apparatus, the apparatus comprising:

an index database which stores a title associated with the electronic advertisement;

a user profile database which stores a set of characteristics corresponding to individual end users of the client systems coupled to the apparatus;

a session manager which makes the electronic advertisement available to each client system of the set of client systems; and

a consumer scale matching process which compares the set of characteristics stored in the user profile database to a consumer scale associated with the electronic advertisement, wherein the consumer scale matching process indicates a fee to be charged to the advertiser based on the comparison.

5,724,522

METHOD FOR TRYING-ON APPAREL ELECTRONICALLY WHILE PROTECTING PRIVATE DATA

Akira Kagami, Sagamihara; Toshiyuki Ono; Haruko Nagaoka, both of Kawasaki, and Mitsuo Sudo, Tokyo, all of Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Filed Nov. 13, 1995, Ser. No. 556,538

Claims priority, application Japan, Nov. 17, 1994, 6-283514

Int. Cl.[6] G06F *17/60*

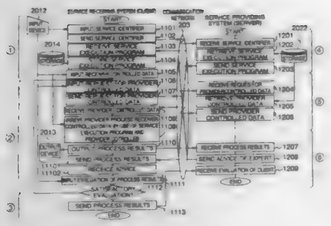
U.S. Cl. 395—226 **8 Claims**

1. A method of online interactive service wherein a client as a service receiving system:

requests a server as a service providing system for a service to thereby receive therefrom a program corresponding to the service;

inputs information having a high degree of secrecy from an input device of the client;

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requests the server for desired data;

operates the program and the data for the information to execute an irreversible process;

sends a result of the irreversible process to the server to receive an opinion of an expert;

repeats thereafter, when evaluation of a user for the process result is not satisfactory, the operation to request the server for another data to achieve the irreversible process until the evaluation becomes satisfactory; and

transmits a final decision of the user to the server.

5,724,523

ELECTRONIC INCOME TAX REFUND SYSTEM UTILIZING THE TAX REFUND TO UNDERWRITE ISSUANCE OF A SECURED CREDIT CARD

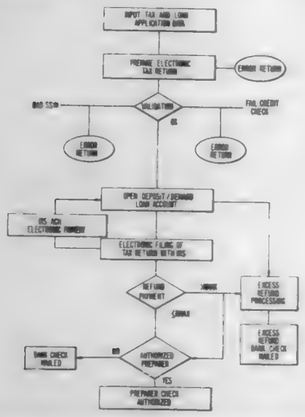
Ross N. Longfield, Far Hills, N.J., assignor to Benefical Franchise Company, Inc., Wilmington, Del.

Continuation of Ser. No. 18,941, Feb. 17, 1993, abandoned, which is a continuation-in-part of Ser. No. 270, Jan. 4, 1993, abandoned, which is a continuation of Ser. No. 615,903, Nov. 20, 1990, Pat. No. 5,193,057, which is a continuation of Ser. No. 384,654, Jul. 25, 1989, abandoned, which is a continuation of Ser. No. 146,324, Feb. 21, 1988, Pat. No. 4,890,228.

This application Jun. 19, 1995, Ser. No. 491,615

Int. Cl.[6] G06F *17/60*

U.S. Cl. 395—235 **15 Claims**



1. An electronic data processing system for preparing income tax returns, authorizing refund payments and obtaining a secured credit card comprising:

a) at least one electronic data processing means for executing programmed arithmetic and logical processes and storing data;

b) at least one data input means at a tax preparer site for inputing tax return data and credit card application data to said at least one data processing means;

c) means implemented by said at least one data processing means for processing tax return data and creating electronic tax return data files;

d) means implemented by said at least one data processing means for processing secured credit card application data and electronically creating a deposit and loan account file which is used to create a deposit and loan account and a collateral account file which is used to create a collateral account at a remote financial institution for receipt of tax refund payments which are used to fund the collateral for issuance of a credit card after which said deposit and loan account is automatically closed;

e) means implemented by said at least one data processing means for processing said tax return data files and said deposit and loan account file and for electronically transmitting electronic tax return data to at least one electronic data processing means controlled by at least one tax collecting authority and for authorizing receipt by said financial institution of an electronic funds transfer from said at least one electronic data processing means controlled by at least one tax collecting authority into said deposit and loan account; and

f) means implemented by said at least one data processing means for electronically processing said tax return data files, said deposit and loan account file, and said collateral account file and authorizing transfer of funds from said deposit and loan account to said collateral account to establish collateral for the issuance of the secured credit card.

5,724,524

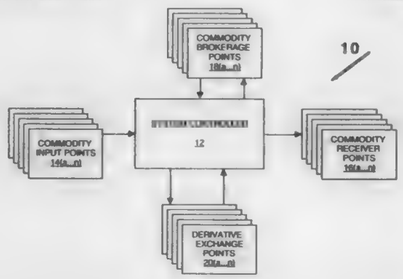
METHOD AND SYSTEM FOR LISTING, BROKERING, AND EXCHANGING CARRIER CAPACITY

William M. Hunt, Shelton, and Paul A. Levitsky, Bridgeport, both of Conn., assignors to Pitney Bowes, Inc., Stamford, Conn.

Filed Dec. 15, 1995, Ser. No. 572,769

Int. Cl.[6] G06F *17/60*

U.S. Cl. 395—237 **16 Claims**



1. A method for listing and brokering carrier space comprising the steps of:

(a) identifying a plurality of characteristics of said carrier space and entering said plurality of characteristics into a data processing system to establish a first exchange market for said carrier space based upon said plurality of characteristics;

(b) identifying a market value for said carrier space and listing said value on said first exchange market

(c) determining a class of derivatives based upon a pre-selected subset of said plurality of characteristics; and

(d) establishing a second exchange market in respect of said derivatives.

5,724,525

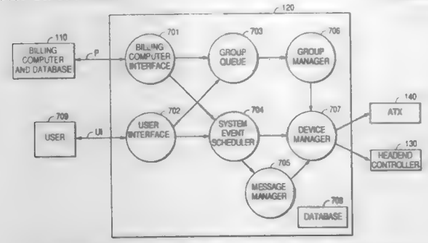
SYSTEM AND METHOD FOR REMOTELY SELECTING SUBSCRIBERS AND CONTROLLING MESSAGES TO SUBSCRIBERS IN A CABLE TELEVISION SYSTEM

Robert J. Beyers, II, Snellville; Gregory S. Durden, Jonesboro; M. Kent Ivey, Chamblee, and Curt M. Kuban, Snellville, all of Ga., assignors to Scientific-Atlanta, Inc., Norcross, Ga.

Continuation of Ser. No. 18,933, Feb. 16, 1993, abandoned. This application Mar. 28, 1995, Ser. No. 412,090

Int. Cl.[6] G06F *157/00*

U.S. Cl. 395—240 **33 Claims**



1. A method for selecting cable television terminals from a first computer coupled to a system control computer coupled to said cable television terminals, the method comprising the steps of:

selecting a group of subscribers through the use of desired criteria combined through logical operators which act upon a first database residing on said first computer, and forming therefrom a subscriber list comprising a plurality of cable television terminal identifiers each corresponding to a member of said group;

creating an on-screen message at said first computer intended for display to members of said group; and

transmitting said subscriber list and said on-screen message from said first computer to said system control computer.

5,724,526

ELECTRONIC INTERPRETING MACHINE

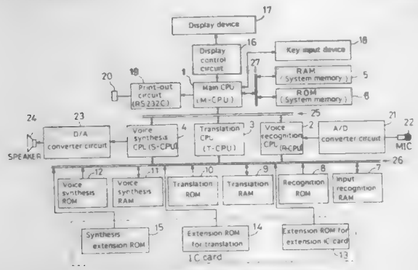
Hisao Kunita, Mie, Japan, assignor to Sharp Kabushiki Kaisha, Osaka, Japan

Filed Dec. 15, 1995, Ser. No. 573,400

Claims priority, application Japan, Dec. 27, 1994, 6-326234

Int. Cl.[6] G10L *5/00*

U.S. Cl. 395—277 **9 Claims**



1. An electronic interpreting machine comprising:

vocal input means for vocal input of language;

dictionary means incorporating an input language dictionary for recognizing an input language vocally input as first language and one or more output language dictionary for translating the first language into another language;

language setting means for setting the input language as the first language and the output language as the second language;

voice recognition means for recognizing the first language with reference to the dictionary means and storing it;

translating means for translating the first language which has been recognized into the selected second language with reference to the dictionary means;

voice information generating means for generating voice information representing the translated second language; and

voice output means for giving output of the generated voice information, the maximum amount of language information which can be vocally input being set beforehand, while the ratio of the amount of information which has been input to the vocal input means, to the maximum amount of input information which can be input in real time is computed and the result of computation is output.

5,724,527

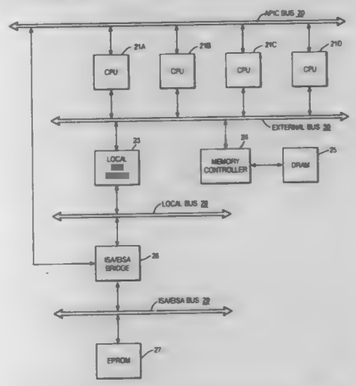
FAULT-TOLERANT BOOT STRAP MECHANISM FOR A MULTIPROCESSOR SYSTEM

Milind Karnik, Aloha; Joseph Batz, Beaverton; Keshavan Tiruvallur; Andrew Glew, both of Hillsboro; Frank Binns, Beaverton; Shreekant Thakkar, and Nitin Sarangdhar, both of Portland, all of Oreg., assignors to Intel Corporation, Santa Clara, Calif.

Filed Dec. 28, 1995, Ser. No. 579,932

Int. Cl.[6] G06F *15/177*

U.S. Cl. 395—308 **31 Claims**



1. A method of starting-up a multiprocessor (MP) computing system which includes a plurality of processors coupled to a system bus and a dedicated bus, the method comprising the steps of:

(a) comparing by each processor in the MP system, a vector field of a boot message issued on the dedicated bus by a first processor with an identification (ID) of the processor, a match indicating that the first processor is a bootstrap processor (BSP);

(b) halting other processors in the MP system which are not the BSP;

(c) issuing a final message on the dedicated bus by the BSP;

(d) receiving the final message by the BSP;

(e) fetching a reset vector via the system bus by the BSP;

(f) issuing a wake-up message on the dedicated bus by the BSP to the other processors.

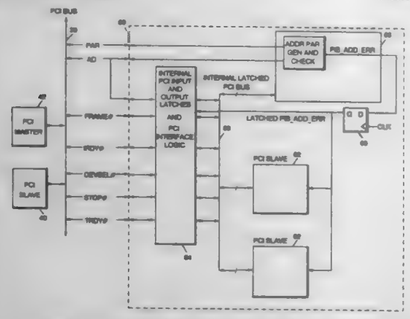
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5,724,528

PCI/ISA BRIDGE HAVING AN ARRANGEMENT FOR RESPONDING TO PCI ADDRESS PARITY ERRORS FOR INTERNAL PCI SLAVES IN THE PCI/ISA BRIDGE

Amy Kulik; William Alan Wall, both of Austin, Tex., and Daniel R. Cronin, III, Lake Worth, Fla., assignors to International Business Machines Corp., Armonk, N.Y.

Continuation of Ser. No. 351,194, Nov. 30, 1994, abandoned.
This application Jul. 19, 1996, Ser. No. 683,867
Int. Cl.[6] G06F *13/00*
U.S. Cl. 395—308 4 Claims



1. A bridge for interfacing between a first bus and a second bus of a computer system with at least one master on said first bus which sends commands including a device address and address parity data, the master treating a command as invalid if a device select signal is not returned within a predetermined interval, the bridge comprising:

at least one slave device;

an internal bus coupled to said at least one slave device and connected to receive such a command;

logic for latching such a command received at said internal bus to be readable by said at least one slave device;

logic for passing a device select signal from said at least one slave device to said first bus as an indication that said at least one slave device has claimed said command, said at least one slave device also having logic that upon detecting an address parity error attempts to abort the command by asserting a stop signal; and

logic for testing address and parity data at the time of latching the corresponding command to the internal bus and asserting an error signal in the event of an address parity error and associated logic which in response to said error signal blocks the device select and stop signal from being asserted on the first bus, whereby the command may continue to be accepted elsewhere by another slave device on the system within said predetermined interval established by the master.

5,724,529

COMPUTER SYSTEM WITH MULTIPLE PC CARD CONTROLLERS AND A METHOD OF CONTROLLING I/O TRANSFERS IN THE SYSTEM

Stephen A. Smith, Palo Alto, and Jafar Naji, Glenbare, both of Calif., assignors to Cirrus Logic, Inc., Fremont, Calif.

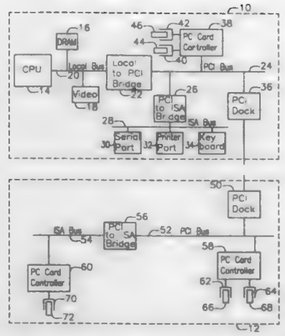
Filed Nov. 22, 1995, Ser. No. 561,777
Int. Cl.[6] G06F *13/00*
U.S. Cl. 395—309 20 Claims

1. A computer system comprising:

a processor;

a first bus coupled to the processor, and a second bus coupled to the first bus by a bridge; and

at least one controller coupled to the first bus and at least one controller coupled to the second bus, each said controller coupled to the first bus having:



at least one socket in which a device is connectable, each socket being separately addressable at an input/output (I/O) address through the controller by the processor,

a socket pointer register, each socket pointer register being loadable with socket pointer information that uniquely identifies the at least one socket among all of the sockets of the plurality of controllers,

an index register and at least one data register pointed to by an index stored in the index register,

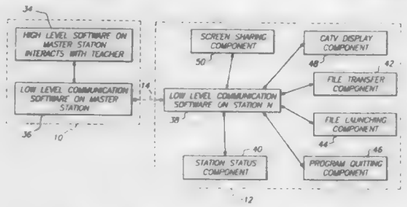
in which each said controller coupled to the first bus updates the index register when the processor writes to an I/O address, without acknowledging the write on the first bus, and recognizes addressing of the at least one socket of the controller by the processor, by comparing the socket pointer information with the updated index in the index register, and when at least a portion of the socket pointer information matches at least a portion of the updated index, updating with write data the data register pointed to by the index register.

5,724,530

SUPERVISORY CONTROL SYSTEM FOR NETWORKED MULTIMEDIA WORKSTATIONS THAT PROVIDES REMOTE LAUNCHING OF FILES

Michael Victor Stein, San Jose, and Paul Richard Wenker, Milpitas, both of Calif., assignors to Apple Computer, Inc., Cupertino, Calif.

Filed Jul. 25, 1994, Ser. No. 280,342
Int. Cl.[6] G06T *1/00*
U.S. Cl. 395—329 33 Claims



1. In a computer network of the type including at least one master workstation and a plurality other workstations, a method for launching a user-manipulatable file at selected ones of the other workstations from the master workstation, comprising the steps of:

selecting a file stored at the master workstation;

transmitting an identification of the selected file to each of the other workstations at which the file is to be launched, said identification including the name of the file and at least one other attribute pertaining to the selected file;

locating the selected file from those stored at each of said other workstations; and

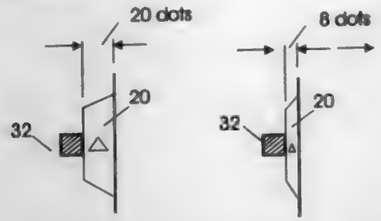
opening the selected file at each of said other workstations so that the file is in a state to be manipulated by users at said other workstations.

5,724,531

METHOD AND APPARATUS OF MANIPULATING AN OBJECT ON A DISPLAY

Shichiro Miyashita, Yamato; Toru Tachibana, Yokohama, and Yuhgoh Tanabe, Tokyo-to, all of Japan, assignors to International Business Machine Corp., Armonk, N.Y.

Filed Jul. 22, 1996, Ser. No. 681,341
Claims priority, application Japan, Jul. 28, 1995, 7-193669
Int. Cl.[6] G06F *3/14*
U.S. Cl. 395—339 12 Claims



9. A method for operating an object displayed on a screen, comprising the steps of:

(a) excluding a neighborhood of a display area for said object from a movable range for a pointer displayed on a screen;

(b) detecting a movement of said pointer;

(c) determining that said pointer is located in said neighborhood;

(d) changing said display area for said object when it is determined at said step (c) that said pointer is located in said neighborhood; and

(e) transmitting an event indicating a selection of said object to an application program when it is determined at said step (c) that said pointer is located in said neighborhood.

5,724,532

METHOD AND APPARATUS FOR EXCHANGING INFORMATION BETWEEN APPLICATION PROGRAMS ACCORDING TO A DRAG AND DROP OPERATION

Allan Thomson, Cupertino, Calif., assignor to Bay Networks, Inc., Santa Clara, Calif.

Continuation of Ser. No. 331,028, Oct. 27, 1994, abandoned.
This application Jan. 27, 1997, Ser. No. 791,007
Int. Cl.[6] G06F *3/00*
U.S. Cl. 395—346 7 Claims

1. A computer implemented method for communicating information between a first application program and a second application program utilizing a drag and drop operation between windows, comprising the steps of:

a) generating at the first application program a list of objects that the first application may send;

b) defining at the first application program a drag site for maintaining the first list of objects;

c) registering by the first application program the drag site with a first exchange manager associated with the first application program;

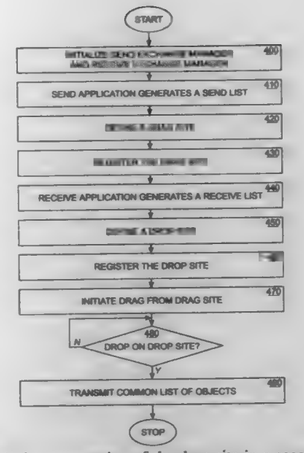
d) generating at the second application program a second list of objects that indicate the types of objects that may be received;

e) defining at the second application program a drop site for maintaining the second list of objects;

f) registering by the second application program the drop site with a second exchange manager associated with the second application program;

g) selecting a graphical representation of the drag site in the first window according to user input;

h) dragging the graphical representation of the drag site from a first window associated with the first application program to a



graphical representation of the drop site in a second window associated with the second application program according to user input;

i) dropping the graphical representation of the drag site on the graphical representation of the drop site according to user input;

j) requesting at the second exchange manager an object from the first list of objects having a type indicated by the second list of objects in response to the step of dropping the graphical representation of the drag site on the graphical representation of the drop site according to user input;

k) transmitting the object from the first exchange manager to the second exchange manager; and

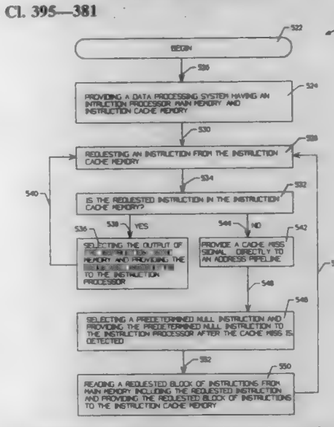
l) transmitting the object from the second exchange manager to the second application program.

5,724,533

HIGH PERFORMANCE INSTRUCTION DATA PATH

John S. Kuslak, Blaine, and Gary J. Lucas, Pine Springs, both of Minn., assignors to Unisys Corporation, Blue Bell, Pa.

Filed Nov. 17, 1995, Ser. No. 558,246
Int. Cl.[6] G06F *9/312*
U.S. Cl. 395—381 39 Claims



1. In a data processing system having an instruction processor, a main memory, and an instruction cache memory having an output, wherein the instruction cache memory provides a plurality of requested instructions to the instruction processor until the instruc-

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tion processor requests a selected instruction that is not resident within the instruction cache memory, wherein the instruction cache memory detects a cache miss and provides a cache miss signal; the instruction cache memory then reads a requested block of instructions that includes the selected instruction from the main memory, the improvement comprising:

a. a selector coupled to the instruction cache memory and the instruction processor, said selector selecting the output of the instruction cache memory such that the plurality of requested instructions are provided to the instruction processor up until a cache miss is detected, said selector selecting a predetermined null instruction and providing the predetermined null instruction to the instruction processor after the cache miss is detected.

5,724,534

TRANSFERRING INSTRUCTIONS INTO DSP MEMORY INCLUDING TESTING INSTRUCTIONS TO DETERMINE IF THEY ARE TO BE PROCESSED BY AN INSTRUCTION INTERPRETER OR A FIRST KERNEL

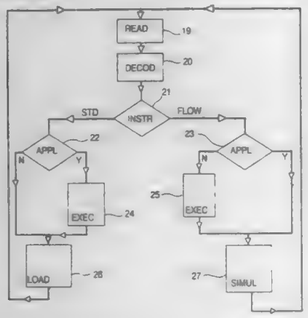
Alain Boursier, Le Mans; Louis Giron, Mulsanne, and Marie Goude, Le Mans, all of France, assignors to U.S. Philips Corporation, New York, N.Y.

Filed Jun. 27, 1994, Ser. No. 266,048

Claims priority, application France, Jun. 30, 1993, 93 08002

Int. Cl.[6] G06F *9/24*

U.S. Cl. 395—385 **11 Claims**



11. A system, comprising:

(a) an external memory for storing an application program having a plurality of individual instructions; and

(b) a digital signal processor comprising

(1) a program memory;

(2) executing means for executing instructions stored in said program memory;

(3) an instruction interpreter means for interpreting at least some of said instructions from said application program;

(4) transfer control software stored in said program memory for controlling transfer of said instructions of said application program from said external processor to said program memory; and

(5) means responsive to said transfer control software for transferring instructions from said external memory to said program memory under control of said transfer control software,

said control software reading on an instruction-by-instruction basis each instruction to be transferred from the external memory and testing a characteristic of said each instruction prior to transferring said each instruction from the external memory into the program memory.

5,724,535

DATA PROCESSING SYSTEM

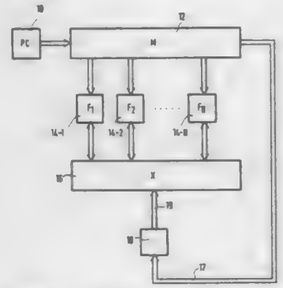
Roberto Woudsma, Eindhoven; Andrew C. Turley, Nijmegen, both of Netherlands, and David P. Elias, Hobart, Australia, assignors to U.S. Philips Corporation, New York, N.Y.

Filed Sep. 15, 1995, Ser. No. 529,182

Claims priority, application European Pat. Off., Sep. 15, 1994, 94202663

Int. Cl.[6] G06F *9/06;9/44;9/40*

U.S. Cl. 395—391 **10 Claims**



1. A data processing system, comprising:

data processing units, each of which comprises data terminals;

a program counter coupled to program memory means, addressing an instruction word, the instruction word comprising a number of command fields and the program memory means, coupled to the data processing units, applying each command field to a respective data processing unit;

connection elements which connect different data terminals, each connection element physically connecting at least two inputs and at least two outputs from among the data terminals, the connection elements being coupled to the program memory means to receive a control signal embodied in the instruction word, the control signal making a selection as to between which inputs and outputs thereof an own data connection is established by the connection element, the instruction word comprising a control field; and

an expander for selecting together, coupled between said program memory means and said connection elements, under control of the control field, at least the own data connections which are established by a first and a second one of the connection elements, the expander providing a number of feasible first selections for the own data connection of the first connection element and, for each feasible first selection, only a respective, possibly empty, group of second selections for the data connection of the second connection element, at least two of the respective groups deviating from one another in more respects than necessary for restriction to consistent data connections.

5,724,536

METHOD AND APPARATUS FOR BLOCKING EXECUTION OF AND STORING LOAD OPERATIONS DURING THEIR EXECUTION

Jeffery M. Abramson, Aloha; Haitham Akkary, Portland; Andrew F. Glew, Hillsboro; Glenn J. Hinton; Kris G. Konigsfeld, both of Portland, and Paul D. Madland, Beaverton, all of Oreg., assignors to Intel Corporation, Santa Clara, Calif.

Filed Jan. 4, 1994, Ser. No. 177,164

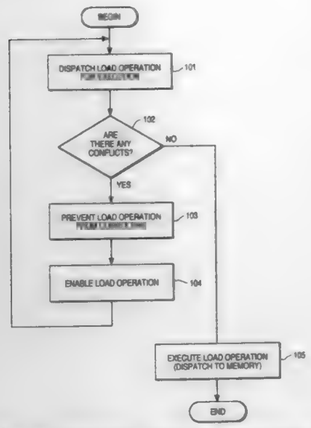
Int. Cl.[6] G06F *13/00*

U.S. Cl. 395—392 **32 Claims**

17. A method comprising the steps of:

dispatching a load operation to an execution unit in a processor for execution;

detecting at least one address and resource dependency including prior store conditions, including the steps of



detecting if a prior store operation has an invalid address;

detecting whether the address of the load operation matches a split store address, wherein the step of detecting whether the address of the load operation matches comprises the steps of subtracting 32 from the local address and comparing the result to the store address,

aborting the load operation when a prior store condition is detected; and

redispatching the load operation after the dependency no longer exists, such that the load operation completes execution.

5,724,537

INTERFACE FOR CONNECTING A BUS TO A RANDOM ACCESS MEMORY USING A TWO WIRE LINK

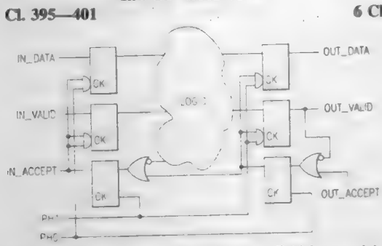
Anthony Mark Jones, Yate Bristol, United Kingdom, assignor to Discovision Associates, Irvine, Calif.

Continuation of Ser. No. 485,744, Jun. 7, 1995, abandoned, which is a division of Ser. No. 399,799, Mar. 7, 1995, abandoned. This application Mar. 6, 1997, Ser. No. 812,820

Claims priority, application United Kingdom, Mar. 24, 1994, 9405914; Feb. 28, 1995, 9503964

Int. Cl.[6] G06F *12/00*

U.S. Cl. 395—401 **6 Claims**



1. An apparatus for connecting a bus to a RAM comprising:

a single address generator providing complete addresses that is clocked at a first clock rate;

a RAM interface, comprising:

a plurality of swing buffers connected to a bus for receiving therefrom a plurality of data words from a source at a second clock rate;

a control coupled to said swing buffers;

a two-wire link connecting said control with said address generator wherein a request/acknowledge protocol is implemented therebetween via said link, wherein said two-wire link comprises: a sender, a receiver, and a clock connected to said sender and said receiver, wherein data is transferred from said sender to said receiver upon a transition of said clock only when said sender is ready and said receiver is ready;

wherein the interface is clocked at a third clock rate that is asynchronous with said first clock rate and said second clock rate, and data is transferred between a selected swing buffer and a RAM in response to a first signal that is generated by said control when said control receives an address from the address generator and said control receives a second signal from said selected swing buffer via said communication link.

5,724,538

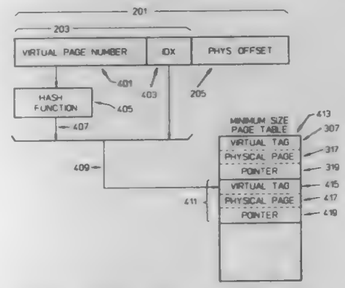
COMPUTER MEMORY ADDRESS CONTROL APPARATUS UTILIZING HASHED ADDRESS TAGS IN PAGE TABLES WHICH ARE COMPARED TO A COMBINED ADDRESS TAG AND INDEX WHICH ARE LONGER THAN THE BASIC DATA WIDTH OF THE ASSOCIATED COMPUTER

Dale C. Morris, Menlo Park; Jerome C. Huck, Palo Alto, and William R. Bryg, Saratoga, all of Calif., assignors to Hewlett-Packard Company, Palo Alto, Calif.

Continuation of Ser. No. 44,854, Apr. 8, 1993, abandoned. This application Feb. 27, 1996, Ser. No. 607,622

Int. Cl.[6] G06F *12/10*

U.S. Cl. 395—416 **11 Claims**



1. A computer apparatus having a basic data width, incorporating virtual memory to physical memory translation apparatus of the type having a TLB and a page table, comprising:

a first storage means storing a virtual tag wherein the number of bits in the virtual tag exceeds the basic data width of the computer;

the virtual tag having a reduced tag section wherein the number of bits in the reduced tag section is equal to, or less than, the basic data width of the computer;

the virtual tag having an index section including the virtual tag bits excluded from the reduced tag section;

a hash function operative to produce an output string of bits from the reduced tag bits;

a page table index including said output string bits combined with said index section bits; and

a page table including a reduced tag entry, where the reduced tag entry is a reduced tag, and an associated physical page address;

wherein after a TLB miss, the page table points to a page table reduced tag entry which is compared to the reduced tag entry of the virtual tag.

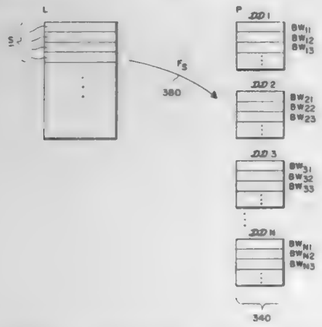
VOL 1208 ISS 1 MR 3 1998 UMI

5,724,539

SYSTEM FOR SELECTIVELY STORING STRIPES OF DATA IN TRACKS OF DISKS SO THAT SUM OF TRANSFER RATES OF STRIPES MATCH COMMUNICATION BANDWIDTH TO HOST

Charles Michael Riggle, Colorado Springs, Colo., and Bruce D. Buch, Westboro, Mass., assignors to Digital Equipment Corporation, Maynard, Mass.

Continuation of Ser. No. 854,102, Mar. 19, 1992, abandoned. This application Apr. 5, 1994, Ser. No. 223,378
Int. Cl.[6] G06F *12/00*
U.S. Cl. 395—427 14 Claims



1. An apparatus for writing data to a plurality of disk drives, the apparatus comprising:

means for receiving a transfer unit from a computer host through a communication channel having a bandwidth;

means for dividing the transfer unit into a number of stripes of data of predetermined size;

means for selecting tracks on different disk drives for storage of the stripes of data, each track requiring a different track data transfer rate, the tracks being so selected that a sum of the data transfer rates is substantially equal to the bandwidth of the communication channel; and

means for storing each stripe of data on the corresponding selected track.

5,724,540

MEMORY SYSTEM HAVING A COLUMN ADDRESS COUNTER AND A PAGE ADDRESS COUNTER

Masatsugu Kametani, Tsuchiura, Japan, assignor to Hitachi, Ltd., Tokyo, Japan

Continuation-in-part of Ser. No. 79,852, Jun. 22, 1993, Pat. No. 5,335,336, which is a continuation of Ser. No. 329,306, Mar. 27, 1989, abandoned. This application Aug. 31, 1993, Ser. No. 113,811
Claims priority, application Japan, Mar. 28, 1988, 63-074145; Aug. 31, 1992, 4-232416
Int. Cl.[6] G06F *12/02*
U.S. Cl. 395—421.1 30 Claims



1. A memory control system for accessing a memory array for data processing, comprising:

a memory array having a column address input for receiving a column address and a page address input for receiving a page address,

wherein memory cells included in said memory array are designated by a combination of said column address provided as a column pointer and said page address provided as a page pointer;

a processor for accessing said memory array through a bus system including a data bus, an address bus and a control bus, and generating an access instruction; and

an access control unit for receiving access information via said access instruction and generating an access address to said memory array inclusive of both said column pointer and said page pointer, said access control unit being coupled to said processor and including a page address controller and a column address controller,

wherein said page address controller includes (i) page register means for storing therein a page address, a first offset address and a mode of a predetermined calculation, which are received from said processor via said bus system, and (ii) page address counter means for performing said predetermined calculation on said page address and said first offset address for generating a page portion of said access address,

wherein said column address controller includes (i) column register means for storing therein a column address, a second offset address and a mode of a preselected calculation, which are received via said bus system from said processor, and (ii) column address counter means for performing said preselected calculation on said column address and said second offset address for generating a column portion of said access address,

wherein succeeding access addresses are generated on a basis of said page address counter means performing said predetermined calculation on said page address and said first offset address and said column address counter means performing said preselected calculation on said column address and said second offset address, said column address controller generating a trigger signal for starting said page address controller during a time when said processor is accessing said memory array, and

wherein said access control unit further includes address output means, coupled to said page address controller and said column address controller, for outputting said access address and said succeeding access addresses on a basis of said page address and said column address, in response to said access instruction, in order to access said memory array by said processor, the data bus of said bus system coupling said processor to a data terminal of said memory array.

5,724,541

APPARATUS AND METHOD FOR RANDOMLY ACCESSING SEQUENTIAL ACCESS STORAGE

Junichi Tsukamoto, Tokyo; Koichi Goto, and Shinichi Fukushima, both of Kanagawa, all of Japan, assignors to Sony Corporation, Tokyo, Japan

Filed Jul. 13, 1995, Ser. No. 501,828
Claims priority, application Japan, Jul. 20, 1994, 6-189895
Int. Cl.[6] G06F *12/00*
U.S. Cl. 395—438 16 Claims

1. An information storage device for randomly accessing data items upon an instruction from a host processor to access said data items stored in a sequential access storage means that is loaded into access means that sequentially accesses said sequential access storage means, comprising:

random access storage means for storing said data items in randomly accessed storage locations;

read/write means for performing a series of read/write operations to read said data items from and to write said data items to said random access storage means;

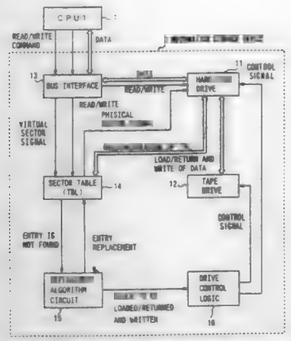


table means for establishing a correspondence between blocks of data items in said random access storage means and blocks of data items in said sequential access storage means in which the same data items are stored; and

control means operable, upon loading of said sequential access storage means, for causing said read/write means to copy said blocks of data items in said sequential access storage means to corresponding blocks of data items in said random access storage means whose correspondence is established by said table means,

for receiving said instruction from said host computer requesting access of respective blocks of data items in said sequential access storage means and causing said read/write means to perform said series of read/write operations on corresponding blocks of data items copied from said sequential access storage means to said random access storage means, thereby randomly accessing data items stored on said sequential access storage means,

for updating, after said read/write means completes said series of read/write operations, those respective blocks on said sequential access storage means whose corresponding blocks that were copied to said random access storage means have been rewritten by said read/write means.

5,724,542

METHOD OF CONTROLLING DISK CONTROL UNIT

Yuichi Taroda, Kawasaki; Kazuma Takatsu, Yokohama; Sanae Kamakura, Kawasaki; Nobukazu Kirigaya, Kawasaki, and Hideaki Ohmura, Kawasaki, all of Japan, assignors to Fujitsu Limited, Kawasaki, Japan

Filed Sep. 8, 1994, Ser. No. 303,192
Claims priority, application Japan, Nov. 16, 1993, 5-286339
Int. Cl.[6] G11B *5/09*
U.S. Cl. 395—440 13 Claims

1. A control method in a disk control unit provided between a host apparatus and a disk device and having a channel adapter for interfacing the host apparatus, a device adapter for interfacing the disk device, and a cache memory, wherein one CKD track is partitioned into a plurality of FBA blocks each of which is a fixed length and the disk device is accessed in FBA block units, said method comprising the steps of:

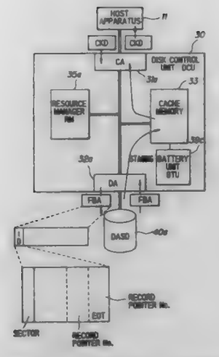
providing, at a prescribed position of an FBA block, an ID portion indicating a corresponding relationship between a number of each CKD record contained in the FBA block and a position of each CKD record;

computing a FBA block number corresponding to a parameter value contained in a head positioning command when the head positioning command has been issued from the host apparatus in a CKD format;

positioning a head at the beginning of a FBA block designated by said computed FBA block number;

reading and developing in said cache memory, by said device adapter, all blocks from said designated FBA block to a final FBA block within the CKD track to which said designated FBA block belongs; and

retrieving a CKD record, which has been designated by the host apparatus, in said cache memory by said channel adapter by referring to said corresponding relationship between a number of said designated CKD record and a position of the designated CKD record.

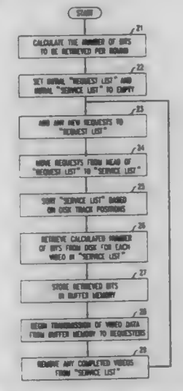


5,724,543

VIDEO DATA RETRIEVAL METHOD FOR USE IN VIDEO SERVER ENVIRONMENTS THAT USE STRIPED DISKS

Banu Ozden, Summit; Rajeev Rastogi, New Providence, and Abraham Silberschatz, Summit, all of N.J., assignors to Lucent Technologies Inc., Murray Hill, N.J.

Filed Jun. 19, 1995, Ser. No. 491,755
Int. Cl.[6] G06F *13/14*
U.S. Cl. 395—441 15 Claims



1. A method for retrieving a stored sequence of bits representing video information, the sequence of bits having been stored on a fixed plural number, "m," of disks in accordance with a disk striping technique wherein the sequence of bits are adapted to be retrieved in a plurality of individual rounds, the method comprising the steps of:

retrieving, in a given one of said plurality of individual rounds, a predetermined number, "d," of said bits from said fixed plural number of disks; and

storing said predetermined number of said bits in a buffer memory having a given fixed capacity,

wherein said predetermined number "d" has been calculated based on said fixed plural number "m" and on said given fixed capacity of said buffer memory, and wherein said predetermined number

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"d" has been calculated further based on one or more performance characteristics of said disks.

5,724,544

IC MEMORY CARD UTILIZING DUAL EEPROMS FOR IMAGE AND MANAGEMENT DATA

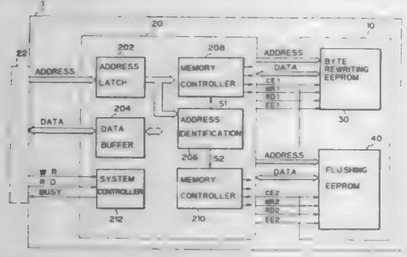
Seiki Nishi, Tokyo, Japan, assignor to Fuji Photo Film Company, Limited, Kanagawn, Japan

Continuation of Ser. No. 832,394, Feb. 7, 1992, abandoned. This application Dec. 22, 1994, Ser. No. 361,476

Claims priority, application Japan, Feb. 18, 1991, 3-043969

Int. Cl.[6] G06K *19/06;* **G06F** *12/00*

U.S. Cl. 395—442 **13 Claims**



5. An IC memory card for receiving recording data, supervisory data associated with said recording data, and an address associated therewith from a host processor and for storing the recording data and the supervisory data, said IC memory card comprising:

a first memory for storing a predetermined number of blocks of the recording data;

a second memory for storing the supervisory data which is rewritable on a byte-by-byte basis, an amount of the supervisory data, to be rewritten in units of bytes, being much smaller than the predetermined number of blocks of the recording data, wherein a memory capacity of said first memory is larger than a memory capacity of said second memory;

control means for determining whether said address corresponds to said first memory or said second memory, selecting said first or second memory corresponding to said address, and writing and reading the recording data or the supervisory data in and out of the selected first or second memory;

wherein said first memory comprises a flashing type EEPROM; and said second memory comprises a byte rewriting type EEPROM.

5,724,545

MEMORY CARD WITH CAPACITY-INDEPENDENT 3-LINE ADDRESSING SYSTEM

Serge Skorski, Le Pré du Moulin, 01250 Tossiat, France

PCT No. PCT/FR91/00785, § 371 Date Apr. 5, 1994, § 102(e) Date Apr. 5, 1994, PCT Pub. No. WO93/07620, PCT Pub. Date Apr. 19, 1993

PCT Filed Oct. 7, 1991, Ser. No. 211,534

Claims priority, application France, Apr. 12, 1990, 9004980

Int. Cl.[6] G06F *12/00;9/26;9/32*

U.S. Cl. 395—442 **6 Claims**

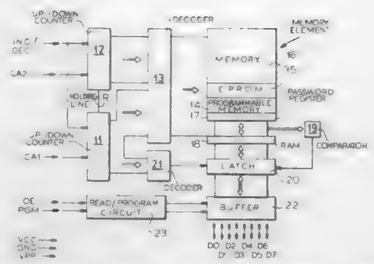
1. An independent and portable electronic memory card for use in a reading and writing apparatus, said memory card comprising:

a card-shaped support;

a memory element on said support;

an 8-to-16 bit first up/down counter on said support connected to said memory element for addressing said memory element by 8 to 16 bits;

a 10-to-18 bit second up/down counter on said support connected to said first counter by a holding line and connected to said memory element for addressing said memory element by 10 to 18 additional bits; and



a connector on said support for connecting said memory element and said up/down counters to said apparatus, said connector comprising:

a first contact for transmitting pulses independently to said 8-to-16 bit first up/down counter to increment or decrement an address of said memory element by 1 at each application of a pulse to said 8-to-16 bit first up/down counter,

a second contact for transmitting pulses independently to said 10-to-18 bit second up/down counter to increment/decrement said 10-to-18 bit second up/down counter by 1 and increment or decrement said address of said memory element by 2^8 to 2^{16} at each application of a pulse to said 10-to-18 bit second up/down counter,

a common exclusive third contact connected to both of said counters for transmitting to said counters an electrical signal for determining by a logic level of said electrical signal the incrementing or decrementing of each of said up/down counters,

a set of eight data contacts (D0 to D7),

an electrical supply contact (VCC),

a ground contact (GND),

a read-order contact (OE),

a program/writing-order contact (PGM), and

a writing-supply contact (VPP).

5,724,546

INFORMATION PROVIDING AND COLLECTING APPARATUS WITH ASSOCIATED PRIMARY AND SECONDARY RECORDING MEDIUMS

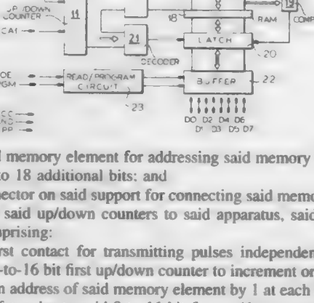
Kyoya Tsutsui, Kanagawa, Japan, assignor to Sony Corporation, Tokyo, Japan

Continuation of Ser. No. 191,117, Feb. 3, 1994, abandoned. This application Oct. 22, 1996, Ser. No. 735,209

Claims priority, application Japan, Feb. 27, 1993, 5-063345

Int. Cl.[6] G06F *12/08*

U.S. Cl. 395—444 **10 Claims**



2. An information providing and collecting apparatus comprising:

reproducing means for reproducing information recorded in a primary recording medium;

selector means for selecting a portion to be transferred to a secondary recording medium of information recorded in said primary recording medium; and

recording means for recording, into said secondary recording medium, select information specified by said selector means, wherein information recorded in said primary recording medium is information recorded while simultaneously being divided by information dividing means.

5,724,547

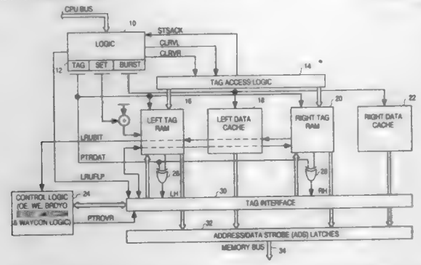
LRU POINTER UPDATING IN A CONTROLLER FOR TWO-WAY SET ASSOCIATIVE CACHE

Sundaravarathan Rajagopalan Iyengar, and James Nadir, both of Santa Clara, Calif., assignors to Intel Corporation, Santa Clara, Calif.

Continuation of Ser. No. 486,132, Jun. 6, 1995, Pat. No. 5,530,833, which is a continuation of Ser. No. 245,805, May 17, 1994, abandoned, which is a continuation of Ser. No. 691,240, Apr. 25, 1991, abandoned. This application Jun. 27, 1996, Ser. No. 671,446

Int. Cl.[6] G06F *12/12*

U.S. Cl. 395—455 **20 Claims**



13. Apparatus for selecting a way, within a cache directory, for storing a received tag address, the received tag address being associated with data to be stored in a cache associated with the cache directory and the cache directory comprising first and second ways each configured to store a tag address, the apparatus comprising:

means for automatically configuring a pointer for identifying either the first or the second way as storing a tag address associated with data stored within the cache that has been least recently used; and

means for selecting the first way for storage of the received tag address if the first way is identified by the pointer.

5,724,548

SYSTEM INCLUDING PROCESSOR AND CACHE MEMORY AND METHOD OF CONTROLLING THE CACHE MEMORY

Hiromasa Takahashi, and Hideyuki Iino, both of Kawasaki, Japan, assignors to Fujitsu Limited, Kawasaki, Japan

Continuation of Ser. No. 859,305, May 18, 1992, abandoned. This application Jun. 6, 1995, Ser. No. 469,373

Claims priority, application Japan, Sep. 18, 1990, 2-246102

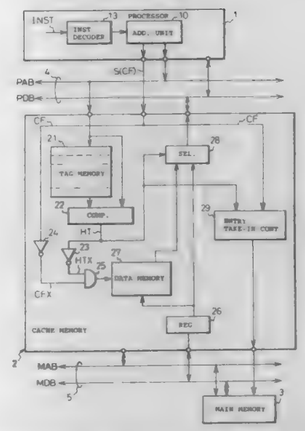
Int. Cl.[6] G06F *12/08*

U.S. Cl. 395—465 **16 Claims**

1. A processor for gaining access to data in a cache memory, comprising:

means for accessing said data in said cache memory by a sequential address data access or by a non-sequential address data access;

means for outputting a discrimination signal indicative of whether said accessing of said data in said cache memory is by said sequential address data access or by said non-sequential address data access;



means for causing said processor to cause said cache memory to execute a normal cache operation when the discrimination signal indicates said accessing of data is by said sequential address data access; and

means for causing said processor to bypass said cache memory and to gain direct access to a main memory when the discrimination signal indicates said accessing of data is by said non-sequential address data access.

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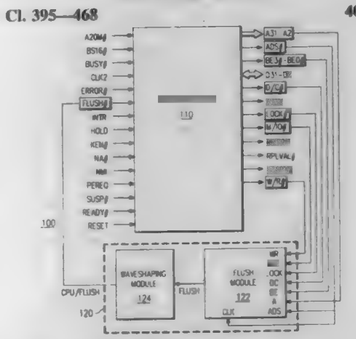
CACHE COHERENCY WITHOUT BUS MASTER ARBITRATION SIGNALS

Thomas D. Selgas, Garland, Tex.; Thomas B. Brightman, Niwot, Colo., and William C. Patton, Jr., Plano, Tex., assignors to Cyrix Corporation, Richardson, Tex.

Continuation of Ser. No. 935,564, Aug. 26, 1992, abandoned, which is a continuation-in-part of Ser. No. 864,399, Apr. 6, 1992, abandoned. This application Oct. 1, 1993, Ser. No. 131,043

Int. Cl.[6] G06F *13/00*

U.S. Cl. 395—468 **40 Claims**



1. A data processor suitable for operation in a shared memory computer system, comprising an execution unit operably coupled with a buffer including addressable data storage locations accessible by said execution unit, and a detector coupled to said processor to detect signals generated by said processor representing at least one of (A) accesses to I/O space, and (B) accesses to memory

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mapped I/O space, and to output a data invalidation signal to at least some of said data storage locations of said buffer in response to said detection.

5,724,550

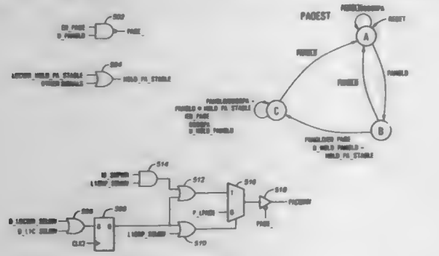
USING AN ADDRESS PIN AS A SNOOP INVALIDATE SIGNAL DURING SNOOP CYCLES

Jeffrey C. Stevens, Spring, Tex., assignor to Compaq Computer Corporation, Houston, Tex.

Continuation of Ser. No. 339,086, Nov. 4, 1994, Pat. No. 5,617,557. This application Jun. 4, 1996, Ser. No. 658,004

Int. Cl.[6] G06F *12/16*

U.S. Cl. 395—473 **7 Claims**



1. A computer system, comprising:

a microprocessor connected to a bus, the microprocessor including an internal cache memory, an invalidation pin and a plurality of address pins, and wherein the internal cache memory has a plurality of portions and is coupled to the invalidation pin and the plurality of processor address pins but uses a first number of the plurality of processor address pins during a snoop cycle, the first number being less than the full number in the plurality of processor address pins;

a main memory coupled to the bus for storing data, said main memory supplying data to the internal cache of the microprocessor;

a disk drive for storing data, said disk drive providing data to the main memory when a read command is received from the microprocessor;

a circuit for invalidating a portion of the internal cache memory, comprising:

a plurality of circuit address pins each coupled to one of the processor address pins;

a snoop cycle generator coupled to the bus for generating a snoop cycle on the bus;

an address signal provider coupled to said snoop cycle generator and said plurality of circuit address pins for providing a plurality of address signals to said plurality of circuit address pins, wherein said address signal provider provides a snoop address on said plurality of address signals to a first number of said plurality of circuit address pins corresponding to the first number of the plurality of processor address pins if a snoop cycle is generated on the bus; and

an invalidation signal provider coupled to said snoop cycle generator, said address signal provider, and one of said plurality of circuit address pins for providing an invalidation signal to said one of said circuit address pins, wherein said one of said circuit address pins is other than one of said first number of said circuit address pins, and wherein said one of said circuit address pins is further coupled said invalidation pin in addition to being coupled to a corresponding one of the processor address pins.

5,724,551

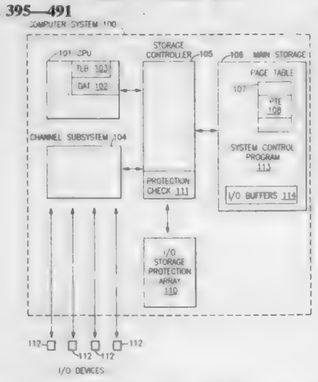
METHOD FOR MANAGING I/O BUFFERS IN SHARED STORAGE BY STRUCTURING BUFFER TABLE HAVING ENTRIES INCLUDE STORAGE KEYS FOR CONTROLLING ACCESSES TO THE BUFFERS

Paul Gregory Greenstein, Croton-on-Hudson; Richard Roland Guyette, LaGrangeville, and John Ted Rodell, Wapplingers Falls, all of N.Y., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed May 23, 1996, Ser. No. 652,765

Int. Cl.[6] G06F *12/14*

U.S. Cl. 395—491 **21 Claims**



1. Program code recorded on a medium for transferring the program code to a computer processor for execution, the program code embodying a method of managing I/O buffers in a shared main storage of a data processing system, the method comprising the steps of:

structuring an I/O buffer table (IOTB) in the shared storage with an IOTB entry for each I/O buffer to be setup,

storing in the IOTB entry for an associated I/O buffer: a size indicator to indicate a size for the I/O buffer, an address to a location of the I/O buffer in the shared main storage, and an I/O storage key for controlling accesses to the I/O buffer,

setting an in-use indicator to an in-use state in the entry to lock each IOTB entry prior to setting up an associated I/O buffer for preventing interference with buffer setup,

allocating in the shared main storage a number of blocks of storage indicated by the size indicator in the IOTB entry for each I/O buffer to be setup, and fixing the blocks of allocated storage for each I/O buffer to prevent paging out to I/O of any block in an I/O buffer,

loading each I/O storage key from a respective entry in the IOBT into an I/O storage key array of a storage controller at locations corresponding to locations of blocks in an associated I/O buffer, and

setting the in-use indicator in the respective entry to a not-in-use state to prevent use of a respective I/O buffer until the I/O buffer is assigned to a using program.

5,724,552

DISK ARRAY MANAGEMENT UNIT FOR DISTRIBUTIVELY RECORDING DATA IN A PLURALITY OF DISKS DEPENDING ON THE DATA ACCESS FREQUENCY

Masami Taoda, Yokohama, Japan, assignor to Kabushiki Kaisha Toshiba, Kawasaki, Japan

Filed Jul. 15, 1994, Ser. No. 275,671

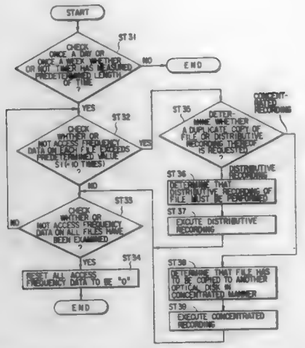
Claims priority, application Japan, Jul. 16, 1993, 5-176965

Int. Cl.[6] G06F *12/02*

U.S. Cl. 395—492 **8 Claims**

1. A disk array apparatus comprising:

a plurality of disk drives each for executing data access to a disk;



management means for preparing a media group including a plurality of disks which are assigned in correspondence to the disk drives;

count means for counting the number of times of the data access with respect to each of the disk drives, said count means operating when the data access is executed by any of the disk drives; and

control means, operating when the number of times certain data recorded in a disk is accessed exceeds a predetermined number of times in a predetermined time interval, for dividing the certain data into a plurality of data segments, and for distributively recording the data segments in at least two of disks of the media group prepared by the management means.

5,724,554

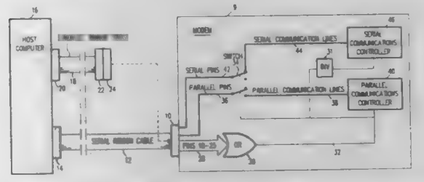
APPARATUS FOR DUAL SERIAL AND PARALLEL PORT CONNECTIONS FOR COMPUTER PERIPHERALS USING A SINGLE CONNECTOR

Steven Gish, Shingle Springs, Calif., assignor to Intel Corporation, Santa Clara, Calif.

Filed Nov. 30, 1994, Ser. No. 347,268

Int. Cl.[6] G06F *3/00;3/023*

U.S. Cl. 395—500 **14 Claims**



1. For use with a multi-pin cable socket having first pins, second pins and third pins, said first pins being at ground only upon a condition that a parallel cable is inserted in said socket, said second pins being associated with serial operation and said third pins being associated with parallel operation, an apparatus comprising:

serial communication lines;

parallel communication lines;

logic means connected to said first pins;

switch means connected to said second pins, said third pins, said serial communication lines, said parallel communication lines and to said logic means for connecting said second pins to said serial communication lines upon a condition that said first pins are not at ground and for connecting said third pins to said parallel communication lines upon a condition that said first pins are at ground.

5,724,553

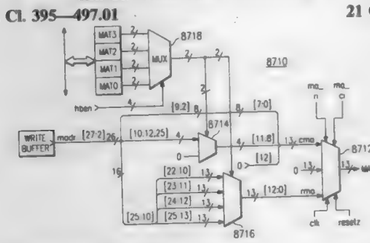
ELECTRONIC SYSTEM WITH CIRCUITRY FOR GENERATING MEMORY COLUMN ADDRESSES USING MEMORY ARRAY TYPE BITS IN A CONTROL REGISTER

Akio Shigeeda, Dallas, Tex., assignor to Texas Instruments Incorporated, Dallas, Tex.

Division of Ser. No. 404,702, Mar. 15, 1995. This application Jun. 7, 1995, Ser. No. 474,850

Int. Cl.[6] G06F *12/00;* **G11C** *8/00*

U.S. Cl. 395—497.01 **21 Claims**



1. An electronic system comprising:

a bus;

a control register for storing a memory array type code indicating a particular one of a plurality of memory array types; and

a column address selector circuit having inputs receiving a plurality of address lines of the bus, having outputs, and having control inputs receiving the contents of said control register, for selectively communicating a number of the address lines to its outputs as a column address responsive to the memory array type code stored in said control register; and

a memory coupled to the output of said column address selector circuit.

5,724,555

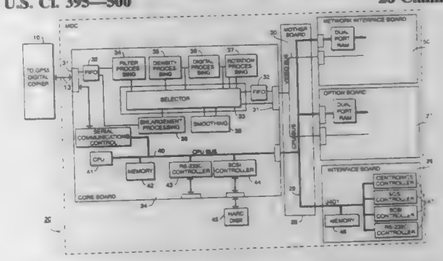
NETWORK INTERFACE BOARD FOR DIGITAL COPIER

Robert D. Wadsworth, Costa Mesa, Calif., assignor to Canon Kabushiki Kaisha, Tokyo, Japan

Filed Mar. 23, 1995, Ser. No. 409,034

Int. Cl.[6] G06F *13/00*

U.S. Cl. 395—500 **28 Claims**



1. In a copier having an interface bus connected to a core board, the core board being connected to plural boards via a video bus and a CPU bus, the core board controlling each of the boards connected thereto by master/slave communication routed via the CPU bus; the improvement including a network interface board for exporting scanning and printing functionality of the copier to a computerized local area network, the network interface board comprising:

a network interface for issuing and responding to requests for network services on the local area network;

a video bus interface for interfacing to the video bus, over which video data is transmitted between the core board and the network interface board;

a CPU bus interface for interfacing to the CPU bus, over which commands, requests and access inquiries are transmitted between the core board and the network interface board to effect the master/slave communication; and

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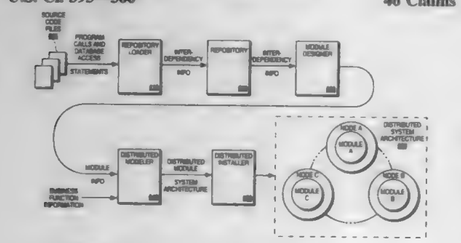
a multitasking processor for responding to local area network requests for scanning and printing services and for concurrently processing those scanning and printing requests by reading and writing video data to the video bus, the multitasking processor effecting the master/slave communication over the CPU bus so as to read and write the video data to the video bus, the master/slave communication comprising receiving an access inquiry from the core board over the CPU bus, responding to the access inquiry by issuing requests over the CPU bus to the core board to issue further commands including commands to read or write video data over the video bus, and reading or writing the video data on the video bus in response to commands received from the core board.

5,724,556

METHOD AND APPARATUS FOR DEFINING AND CONFIGURING MODULES OF DATA OBJECTS AND PROGRAMS IN A DISTRIBUTED COMPUTER SYSTEM

Benny Souder, Belmont; Lip Boon Doo, San Jose; Curtis Elsbernd, San Mateo, and Peter Lim, Redwood City, all of Calif., assignors to Oracle Corporation, Redwood Shores, Calif.

Filed Apr. 14, 1995, Ser. No. 422,042
Int. Cl.[6] G06F *3/00;7/00*
U.S. Cl. 395—500 46 Claims



1. A distributed system modeler comprising:

means for receiving interdependency information specifying interdependencies between a plurality of data objects and programs;

means for satisfying a pre-determined set of criteria by defining a plurality of modules based upon said interdependency information wherein each module of said plurality of modules represents a different grouping of a portion of said plurality of data objects and programs;

means for specifying a distributed system by assigning said plurality of modules to nodes in said distributed system; and

means for assigning a distributed transfer methodology between modules in said distributed system.

5,724,557

METHOD FOR DESIGNING A SIGNAL DISTRIBUTION NETWORK

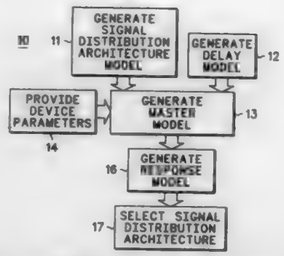
Ronald V. McBean, Sr., Gilbert, Ariz., assignor to Motorola, Inc., Schaumburg, Ill.

Filed Jul. 10, 1995, Ser. No. 499,838
Int. Cl.[6] G06F *11/25*
U.S. Cl. 395—500 20 Claims

1. A computer implemented method for designing a signal distribution network architecture, comprising the steps of:

generating a signal distribution network architecture model having at least one parameter;

generating a delay model describing a temporal relationship of inputs and corresponding outputs of the signal distribution network architecture;



providing a plurality of sets of values for the at least one parameter of the signal distribution network architecture;

inserting the signal distribution network architecture model into the delay model to generate a master model;

iteratively inserting the plurality of sets of values for the at least one parameter of the signal distribution network architecture model into the delay model to generate a response model; and

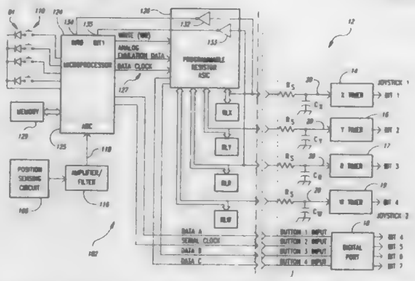
selecting the signal distribution network architecture model in accordance with the response model, which provides a design for the signal distribution network architecture.

5,724,558

SYSTEM AND METHOD FOR DYNAMIC DATA PACKET CONFIGURATION

Mark K. Svancarek, Redmond; Manolito E. Adan, Woodinville; Michael W. Van Flandern, Redmond, all of Wash., and Hajime Suzuki, Kanagawa-ken, Japan, assignors to Microsoft Corporation, Redmond, Wash.

Filed Jul. 31, 1995, Ser. No. 509,364
Int. Cl.[6] G06F *3/14*
U.S. Cl. 395—500 33 Claims



1. A system for the transfer of digital data from a positional control device to a computer game port having a joystick position analog input line and a first joystick button digital input line, the system comprising:

a position sensor within the positional control device to generate digital position data; and

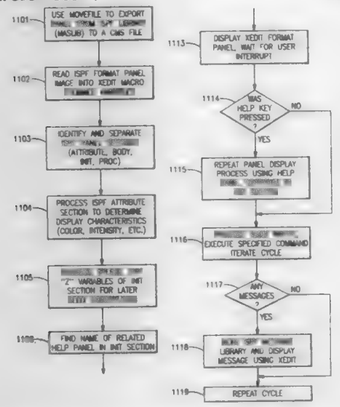
a data register for coupling to the game port to receive said digital position data from said position sensor and to transfer said digital position data to the first joystick button digital input line, whereby said digital position data is transferred to the game port using the first joystick button digital input line in the game port.

5,724,559

METHOD FOR DISPLAYING ISPF PANELS IN A VM NON-ISPF ENVIRONMENT

Terry Lyn Masemore, Thurmont, Md., assignor to International Business Machines Corporation, Armonk, N.Y.

Continuation of Ser. No. 142,024, Oct. 28, 1993, abandoned. This application Mar. 4, 1996, Ser. No. 611,436
Int. Cl.[6] G06F *9/455*
U.S. Cl. 395—500 13 Claims



1. In a data processing system having a display device connected to a central processor, said central processor being capable of retrieving from storage a selected display panel definition specifying the layout of a display panel for display by said display device, said display panel definition being stored in a first data format compatible with a first display program, a method of displaying said display panel using a second display program resident on said central processor, said first data format being incompatible with said second display program, said method being operable at run time and comprising the steps of:

retrieving said selected display panel definition from storage;

converting the retrieved display panel definition from said first data format into a second data format, said second data format specifying the same layout as said first data format but being compatible with said second display program; and

displaying the display panel represented by the converted display panel definition on said display device using said second display program.

5,724,560

DISPLAY GRAPHICS ADAPTER FOR PROCESSING DIFFERENT PIXEL SIZES IN A WINDOWING SYSTEM

Charles Ray Johns, and John Thomas Roberson, both of Austin, Tex., assignors to International Business Machines Corporation, Armonk, N.Y.

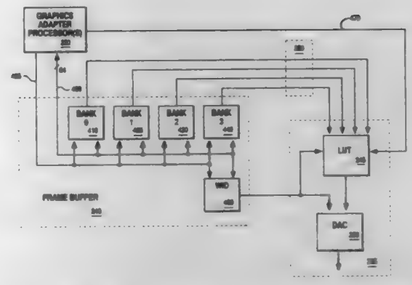
Filed Dec. 14, 1995, Ser. No. 572,697
Int. Cl.[6] G06T *1/60*
U.S. Cl. 395—510 18 Claims

1. A graphics adapter comprising:

means for providing a plurality of pixels, each pixel containing a plurality of slices;

means for gathering common slices from consecutive pixels of said plurality of pixels;

means for transferring said gathered common slices in a single transfer cycle, each transferred slice being from a different one of said plurality of pixels; and



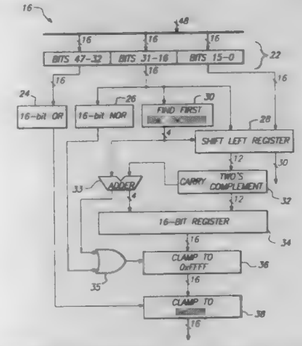
means for receiving said slices and forming each of said different ones of said plurality of pixels from said transferred slices.

5,724,561

SYSTEM AND METHOD FOR EFFICIENTLY DETERMINING A FOG BLEND VALUE IN PROCESSING GRAPHICAL IMAGES

Gary Tarolli, Concord, Mass., and Scott Sellers, Menlo Park, Calif., assignors to 3Dfx Interactive, Incorporated, Mountain View, Calif.

Filed Nov. 3, 1995, Ser. No. 552,746
Int. Cl.[6] G06F *15/00;13/00*
U.S. Cl. 395—523 12 Claims



1. A method for determining a fog value for a pixel in a computer system having a memory, the fog value based upon an exponential fog function, the method comprising the steps of:

receiving a first value representing an inverse of a depth component of the pixel, said first value having a first portion and a second portion;

generating a floating point signal of said second portion having the steps of:

identifying a second value equal to the number of binary zeros preceding the first binary one in the second portion;

repeatedly shifting a most significant bit of said second portion a first number of times to generate a shifted value, said first number of times one greater than said second value;

performing a complement operation on said shifted value to generate a complement value;

concatenating said second value and a portion of said complement value to generate said floating point signal;

setting said floating point signal to zero if all bits in said first portion are not equal to a third value; and

setting said floating point signal equal to a value comprised of all binary ones if a first number of most significant bits in said second portion are all equal to a fourth value; and

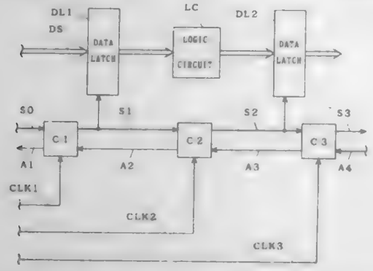
determining the fog value using said floating point signal.

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5,724,562
CLOCK-SYNCHRONIZED C-ELEMENT GROUP FOR CONTROLLING DATA TRANSFER

Masahiko Ishiwaki, and Harufusa Kondoh, both of Tokyo, Japan, assignors to Mitsubishi Denki Kabushiki Kaisha, Tokyo, Japan

Filed Nov. 20, 1995, Ser. No. 559,654
Claims priority, application Japan, Dec. 21, 1994, 6-318789
Int. Cl.[6] G06F *1/04*
U.S. Cl. 395—551 **22 Claims**



1. A group of clock-synchronized C-elements for controlling data transfer, comprising:

a plurality of data latches which are connected to each other in a cascade configuration; and

a plurality of clock-synchronized C-elements which are connected to each other in a cascade configuration in correspondence with said plurality of data latches, to control transfer of data between said plurality of data latches,

wherein each one of said plurality of clock-synchronized C-elements is connected to a corresponding one of clock signal input lines for inputting a corresponding one of clock signals,

said clock signals supplied to adjacent C-elements of said plurality of clock-synchronized C-elements are in a relationship that after one of said clock signals presents one type of level change and then presents another type of level change, another one of said clock signals presents said one type of level change,

and each one of said plurality of clock-synchronized C-elements starts controlling transfer of data in synchronization with said one type of level change of a corresponding one of said clock signals and ceases controlling transfer of data before the corresponding one of said clock signals presents said one type of level change once again.

5,724,563
PIPELINE PROCESSSOR

Katsuya Hasegawa, Suita, Japan, assignor to Matsushita Electric Industrial Co., Ltd., Kadoma, Japan

Filed Apr. 8, 1996, Ser. No. 629,216
Claims priority, application Japan, Apr. 12, 1995, 7-086844
Int. Cl.[6] G06F *9/32;9/38*
U.S. Cl. 395—580 **8 Claims**

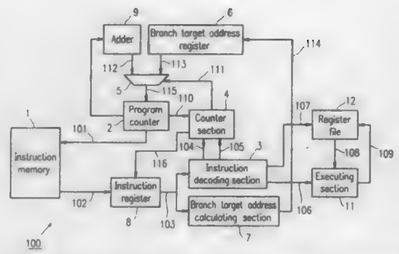
1. A pipeline processor for executing a predictive branch instruction defining a number of at least one instruction which is to be executed in succession after the predictiye branch instruction is given before a control flow is changed, comprising:

a program counter for holding an address of an instruction to be fetched;

an instruction memory for outputting an instruction corresponding to the address held by the program counter;

an instruction register for fetching and holding the instruction output from the instruction memory;

an instruction decoding section for decoding the instruction held by the instruction register, thereby judging whether or not the instruction is the predictive branch instruction;



a counter section for holding a counter value and comparing the counter value with a predetermined threshold value, the counter value being initialized to the number defined by the predictive branch instruction and being decremented in synchronization with an increment of the program counter;

an adder for incrementing the address held by the program counter and providing the incremented address as a sequential instruction address;

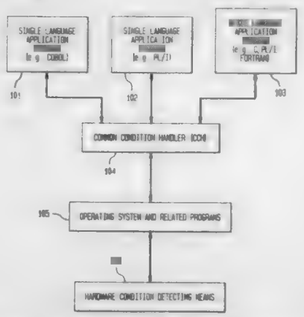
a branch target address register for providing a branch target address of the predictive branch instruction; and

a selector for selecting one of the sequential instruction address and the branch target address of the predictive branch instruction in accordance with a comparison result obtained by the counter section.

5,724,564
COMPUTER PROGRAM PRODUCT AND PROGRAM STORAGE DEVICE FOR REPRESENTING AND SIGNALING RUN-TIME PROGRAM CONDITIONS

Ralph Oscar Conder, Deerfield Beach; Jeffrey Allen Grantz. Boca Raton, both of Fla.; Scott Alan Plaetzer, Rochester, Minn.; Robert Milton Smith, Morgan Hill, Calif., and William Nicholas John Tindall, Toronto, Canada, assignors to International Business Machines Corporation, Armonk, N.Y.

Division of Ser. No. 755,708, Sep. 6, 1991, Pat. No. 5,455,949.
This application Jun. 6, 1995, Ser. No. 465,711
Int. Cl.[6] G06F *13/00;9/00;9/445;9/445*
U.S. Cl. 395—581 **9 Claims**



4. A program storage device readable by a machine, tangibly embodying a program of instructions executable by the machine to perform method steps for handling conditions in a computer system, each condition having a quantified severity, said method steps comprising:

(1) calling a subroutine from a routine in a program;

(2) detecting a condition;

(3) storing a feedback token describing the condition to thereby record information about the condition for subsequent use, the token including:

(a) a condition identifier;

(b) a format code for the condition identifier;

(c) a severity code for the condition;

(d) a control code for a facility identifier; and

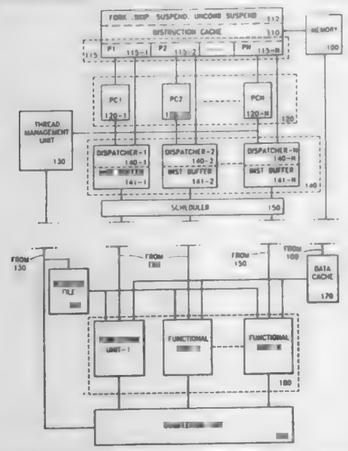
(e) a facility identifier;

(4) returning said feedback token to said routine in said program.

5,724,565
METHOD AND SYSTEM FOR PROCESSING FIRST AND SECOND SETS OF INSTRUCTIONS BY FIRST AND SECOND TYPES OF PROCESSING SYSTEMS

Pradeep Kumar Dubey, White Plains, N.Y.; Charles Roberts Moore, and Terence Matthew Potter, both of Austin, Tex., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Feb. 3, 1995, Ser. No. 383,282
Int. Cl.[6] G06F *9/30*
U.S. Cl. 395—595 **16 Claims**



1. A method of processing instruction threads, comprising the steps of:

initiating execution by a processing system of a first set of instructions including a particular instruction, said particular instruction including an indication of a second set of instructions;

in response to execution of said particular instruction and to said processing system being of a first type, continuing execution by said processing system of said first set while initiating execution of said second set; and

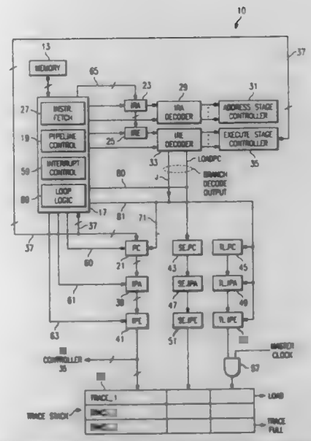
in response to execution of said particular instruction and to said processing system being of a second type, continuing execution by said processing system of said first set without initiating execution of said second set.

5,724,566
PIPELINED DATA PROCESSING INCLUDING INTERRUPTS

Gary L. Swoboda, Sugar Land; Mark R. Hammes, Houston; Douglas Deao, Brookshire, all of Tex.; Keith Balmer, Bedford, and Nick ing-Simmons, Huntingdon, both of England, assignors to Texas Instruments Incorporated, Dallas, Tex.

Continuation of Ser. No. 180,172, Jan. 11, 1994, abandoned.
This application Oct. 31, 1996, Ser. No. 742,277
Int. Cl.[6] G06F *9/00*
U.S. Cl. 395—595 **22 Claims**

1. A data processor which performs operations specified by a sequence of instructions fetched consecutively from a memory, comprising:



a program counter for holding an address of the next instruction to be fetched from memory;

an instruction pipeline which permits the data processor to perform operations specified by a first instruction, which has already been fetched from a first address in memory, while simultaneously fetching from memory a second instruction at a second address contained in said program counter;

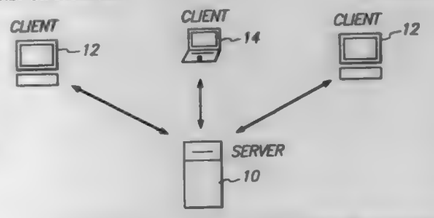
an address pipeline which is coupled to said program counter and which, for each instruction in the sequence, maintains the corresponding address therein while said data processor performs the operations specified by the instruction; and

interrupt handling circuitry for ensuring proper sequential resumption of instruction execution after a processor interrupt occurs, said interrupt handling circuitry including an interrupt controller coupled to said program counter and said address pipeline for transferring said first and second addresses from said address pipeline and said program counter, respectively, into a temporary storage memory before execution of the interrupt.

5,724,567
SYSTEM FOR DIRECTING RELEVANCE-RANKED DATA OBJECTS TO COMPUTER USERS

Daniel E. Rose, Cupertino; Jeremy J. Bornstein, Redwood City; Kevin Tiene, Cupertino, and Dulce B. Ponceleón, Palo Alto, all of Calif., assignors to Apple Computer, Inc., Cupertino, Calif.

Filed Apr. 25, 1994, Ser. No. 231,656
Int. Cl.[6] G06F *17/30*
U.S. Cl. 395—602 **39 Claims**



1. An information access system for automatically presenting users with information items of interest, comprising:

a computer system containing a database of information items available to be presented to users of the system;

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at least one access device for enabling users to communicate with the computer system and access any of the items of available information;

means for storing a user profile for each user having access to the available items of information;

means for raking the likely degree of interest for each of the available items of information in accordance with a user profile;

means for presenting the items of information to an access device in order of ranking and enabling a user to retrieve each item;

means for enabling the user to indicate that user's interest in each retrieved item of information; and

means for updating the user's profile in response to indications of interest provided by the user.

5,724,568

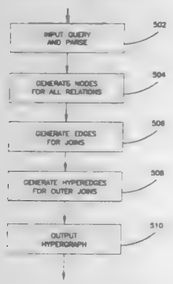
REORDERING COMPLEX SQL QUERIES CONTAINING INNER AND OUTER JOIN OPERATIONS USING HYPERGRAPHS AND REQUIRED SETS

Gautam Bhargava, Cupertino; Piyush Goel, Monte Sereno, and Balakrishna Ragmavendra Iyer, San Jose, all of Calif., assignors to International Business Machines Corporation, Armonk, N.Y.

Division of Ser. No. 326,461, Oct. 20, 1994. This application Jun. 5, 1995, Ser. No. 464,268

Int. Cl.[6] G06F *17/30*

U.S. Cl. 395—602 **21 Claims**



1. A method of representing an SQL query in a memory of a computer, comprising the steps of:

(a) generating a set of nodes in the memory of the computer corresponding to relations referenced in the query;

(b) generating an edge between two of the nodes in the memory of the computer corresponding to a first operation involving a predicate between the two nodes wherein the first operation comprises a join operation;

(c) generating one or more hyperedges between two of the nodes in the memory of the computer corresponding to a second operation involving a predicate that references a plurality of relations in the query, wherein the second operation is selected from a group comprising a left outer join, a right outer join, or a full outer join operation; and

(d) enumerating all required sets that identify constraints on associative re-orderings of the relations in the query using the generated hyperedges, wherein the required sets are generated only for left, right, and full outer joins in the query.

5,724,569

APPARATUS FOR EVALUATING DATABASE QUERY PERFORMANCE HAVING LIBRARIES CONTAINING INFORMATION FOR MODELING THE VARIOUS SYSTEM COMPONENTS OF MULTIPLE SYSTEMS

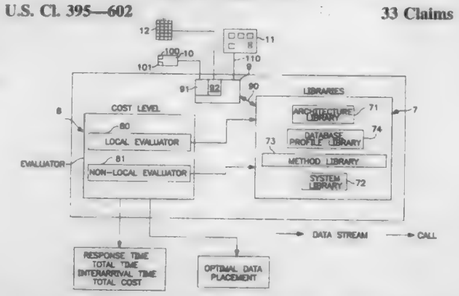
Frédéric Andres, Paris, France, assignor to Bull S.A., Paris, France

Continuation of Ser. No. 952,756, Jan. 13, 1993, abandoned. This application Jun. 28, 1995, Ser. No. 496,149

Claims priority, application France, Mar. 29, 1991, 91 03915

Int. Cl.[6] G06F *17/30*

U.S. Cl. 395—602 **33 Claims**



1. An apparatus for adaptable performance evaluation of an application, including queries by analytical resolution of a data base, comprising an information processing system having a given architecture, including a modeling knowledge memory library containing knowledge of a specific environment of the data base and a local optimizer which uses a performance evaluator to evaluate the application and select an optimal plan for execution thereof, using the information of the knowledge library including information on said given architecture, said knowledge library including:

an architecture library modeling hardware architectures;

a system library modeling operational and transactional systems supported by the hardware architectures;

an access and operation method library modeling algorithms used by a data management system; and

a data base profile library for collecting knowledge on data base layout and statistics for an application; and further wherein:

said evaluator is operable to evaluate the application as a function of at least one parameter selected among a plurality of parameters, said plurality of parameters being defined by projected filter algorithms applied to said knowledge library.

5,724,570

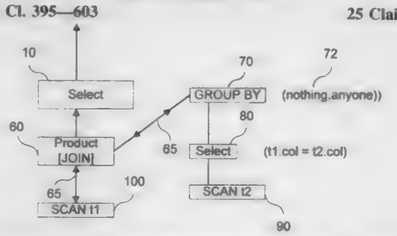
METHOD AND APPARATUS FOR A COMPLETE SQL SUBQUERY ELIMINATION PROCESS

Hansjorg Zeller, Los Altos, Calif., and Pedro Celis, Austin, Tex., assignors to Tandem Computers Incorporated, Cupetino, Calif.

Filed Jun. 7, 1995, Ser. No. 480,963

Int. Cl.[6] G06F *17/30*

U.S. Cl. 395—603 **25 Claims**



5. An apparatus for the elimination of SQL subqueries, comprising:

a parser provided to convert a nested SQL language query to a dataflow tree diagram with nodes of expessional operators and relational operators; and

a subquery transformer provided to transform the dataflow tree diagram to a transformed dataflow tree diagram in which no expression node has a relational node as its child, the transfornation proceeding in accordance with at least one rule selected from the group of SQL transformation rules NR3, NR4, NR5, NR6, and NR7.

5,724,571

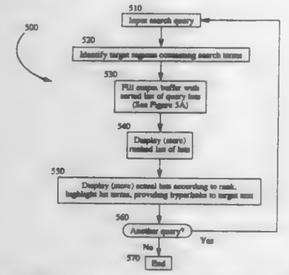
METHOD AND APPARATUS FOR GENERATING QUERY RESPONSES IN A COMPUTER-BASED DOCUMENT RETRIEVAL SYSTEM

William A. Woods, Winchester, Mass., assignor to Sun Microsystems, Inc., Palo Alto, Calif.

Filed Jul. 7, 1995, Ser. No. 499,268

Int. Cl.[6] G06F *17/30*

U.S. Cl. 395—605 **13 Claims**



1. A method for locating information in documents in a database stored in a memory coupled to a processor, the method being carried out by program steps executed by said processor, including the steps of:

(1) receiving a search query including at least one query term;

(2) generating at least one hit passage from said documents, said hit passage including at least one hit term corresponding to said at least one query term;

(3) for at least a first hit term and a second hit term corresponding, respectively, to at least a first query term and a second query term, determining a first distance between said first and second hit terms and a second distance between said first and second query terms;

(4) generating a factor having a magnitude based upon a comparison of said first distance with said second distance; and

(5) generating a score for said hit passage incorporating the magnitude of said factor;

wherein said hit passage has a size based upon a size of said search query.

5,724,572

METHOD AND APPARATUS FOR PROCESSING NULL TERMINATED CHARACTER STRINGS

James N. Dieffenderfer, Apex; Harry I. Linzer, and Thomas Andrew Sartorius, both of Raleigh, all of N.C., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Nov. 18, 1994, Ser. No. 341,789

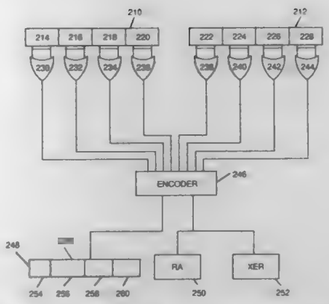
Int. Cl.[6] G06F *7/10*

U.S. Cl. 395—606 **18 Claims**

1. A logic circuit for detecting a null byte in a character string comprised of at least one character, comprising:

register means for storing said character string;

means for performing a logical OR operation on each character of said character string to produce a result;



encoder means for interpreting said result of each said logical OR operation to produce an output which contains null byte detection information; and

output register means for holding said output produced by said encoder means.

5,724,573

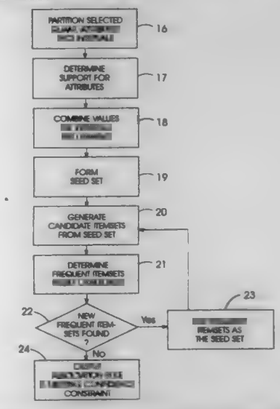
METHOD AND SYSTEM FOR MINING QUANTITATIVE ASSOCIATION RULES IN LARGE RELATIONAL TABLES

Rakesh Agrawal, and Ramakrishnan Srikant, both of San Jose, Calif., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Dec. 22, 1995, Ser. No. 577,945

Int. Cl.[6] G06F *17/30*

U.S. Cl. 395—606 **30 Claims**



1. A method for identifying quantitative association rules from a table of records, each record having a plurality of attributes associated therewith, the attributes including quantitative and categorical attributes, each attribute having a value, the method comprising the steps of:

partitioning the values of each quantitative attribute from a selected group of quantitative attributes into a respective plurality of intervals;

determining a support for each value of the categorical attributes and the non-partitioned quantitative attributes, and a support for each interval of the partitioned quantitative attributes, the support for a value being a number of records in the table whose attribute values include the value, the support for an interval being a number of records in the table whose attribute values are part of the interval;

for each quantitative attribute, combining adjacent values of the attribute if the attribute is not partitioned, or adjacent intervals

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of the attribute if the attribute is partitioned, into ranges, as long as the support for each range is less than a maximum support;

identifying items with at least a minimum support, each item representing a quantitative attribute and a range, or a categorical attribute and a value, the items with at least the minimum support making up a seed set;

generating candidate itemsets from the seed set, each itemset being a set of items and having a support, the support of the itemset being a number of records in the table which support the itemset;

determining frequent itemsets from the candidate itemsets, the frequent itemsets being those itemsets whose support is more than the minimum support, the determined frequent itemsets becoming the next seed set;

repeating the steps of generating candidate itemsets and determining frequent itemsets until all the frequent itemsets are found; and

outputting an association rule when the support of a selected frequent itemset bears a predetermined relationship to the support of a subset of the selected frequent itemset, thereby satisfying a minimum confidence constraint, the association rule being an expression of the form →Y where X and Y are itemsets.

5,724,574

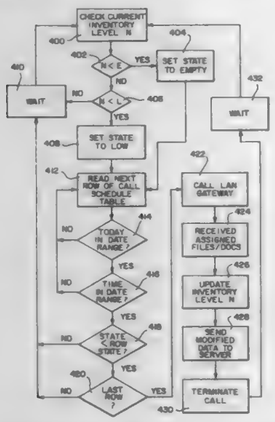
METHOD AND APPARATUS FOR TRANSFERRING DATA TO A REMOTE WORKSTATION USING COMMUNICATIONS ESTABLISHED AS A BACKGROUND FUNCTION AT TIME WORKSTATION

William N. Stratigos, and Richard S. Yien, both of New York, N.Y., assignors to Remote Systems Company, LLC, Scarsdale; Empire Blue Cross/Blue Shield, NY, both of N.Y., and Wang Software N.Y., Inc.

Continuation of Ser. No. 424,152, Apr. 17, 1995, Pat. No. 5,568,489, which is a continuation of Ser. No. 169,327, Dec. 17, 1993, Pat. No. 5,446,740. This application Apr. 2, 1996, Ser. No. 630,042

Int. Cl.[6] G06F *15/00;* **H04J** *3/12*

U.S. Cl. 395—610 **9 Claims**



1. A communications method established as a background function of a remote workstation to which a plurality of discrete data files are transferred from a central location while data processing is enabled in the foreground, said communications method comprising the steps of:

initiating, according to predetermined criteria, a connection over the communication lines from the remote workstation to the central location without user intervention as a background function;

identifying a group of data files on which the user is to perform data processing in the foreground;

transmitting the group of data files to the remote workstation as a background function; and

terminating the telephone connection after the transfer is complete.

5,724,575

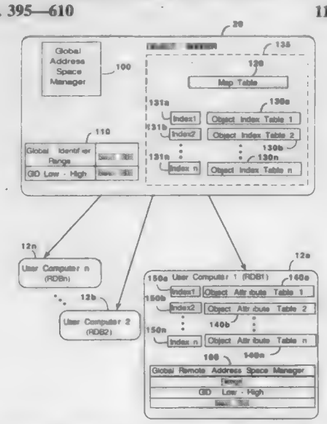
METHOD AND SYSTEM FOR OBJECT-BASED RELATIONAL DISTRIBUTED DATABASES

Michael K. Hoover, Roswell; Barrick H. Miller, Marietta; Kurt Schurenberg, Roswell, and Richard A. Daigle, Atlanta, all of Ga., assignors to ActaMed Corp., Atlanta, Ga.

Continuation of Ser. No. 202,493, Feb. 25, 1994, Pat. No. 5,560,005. This application Jul. 1, 1996, Ser. No. 674,024

Int. Cl.[6] G06F *17/30;15/163*

U.S. Cl. 395—610 **118 Claims**



1. A method of operating a distributed data processing system including a plurality of remotely located user computers that process user data in user databases and at least one object broker computer,

the user computers being interconnected with the object broker computer via a data communication network,

the user computers being operative to perform data processing operations upon user data in response to user commands, comprising the steps of:

(a) creating an object instance by assigning a unique object identifier to data items associated with a particular subject;

(b) storing the data items associated with the subject at the user computer in association with the object identifier;

(c) at the object broker computer, storing the locations of the user computers in a mapping table in association with object identifiers;

(d) associating a selected object identifier with data items stored in each of a plurality of user computers, some of the data items associated with the selected object identifier at a first one of the plurality of user computers being different from corresponding data items associated with the selected object identifier at a second one of the plurality of user computers;

(e) in response to a query to the object broker computer for data relating to the particular subject, retrieving the selected object identifier;

(f) in response to retrieval of an object identifier for the subject in the preceding step, retrieving the location of a selected one of the plurality of user computers associated with the selected object identifier; and

(g) retrieving data stored at the selected one of the plurality of user computers associated with the selected object identifier via the data communication network.

5,724,576

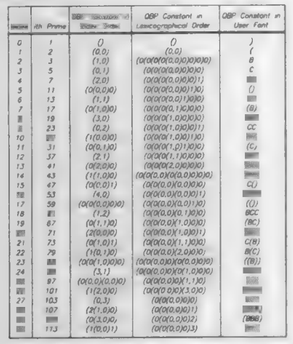
METHOD AND APPARATUS FOR THE GENERATION AND MANIPULATION OF DATA STRUCTURES

Jack J. Letourneau, San Francisco, Calif., assignor to Prime Arithmetics, Inc., San Francisco, Calif.

Continuation of Ser. No. 623,628, Dec. 6, 1990. This application Apr. 3, 1995, Ser. No. 415,591

Int. Cl.[6] G06F *17/30*

U.S. Cl. 395—611 **34 Claims**



1. An apparatus for creating, manipulating and displaying data structures, comprising:

an interface circuit configured to communicate with an external structure including a call from said external structure;

a memory circuit coupled to said interface circuit and configured to store a table of prime numbers with a unique data structure associated with each prime number;

a processor circuit coupled to said interface circuit and said memory circuit and configured to associate said call from said external structure with a portion of said table, manipulate a portion of said table in response to said call and provide an output to said external structure corresponding to said call and associated with a portion of said table.

5,724,577

METHOD FOR OPERATING A COMPUTER WHICH SEARCHES A RELATIONAL DATABASE ORGANIZER USING A HIERARCHICAL DATABASE OUTLINE

Francis E. Exley, Arlington, Va.; Glenn C. McCoy, Nichols, N.Y.; Susan C. Nicholson, Owego, N.Y., and Eric Masselle, Vestal, N.Y., assignors to Lockheed Martin Corporation, Bethesda, Md.

Filed Jun. 7, 1995, Ser. No. 472,763

Int. Cl.[6] G06F *17/30*

U.S. Cl. 395—611 **3 Claims**

1. A computer method to facilitate user organization and manipulation of data, including the steps of:

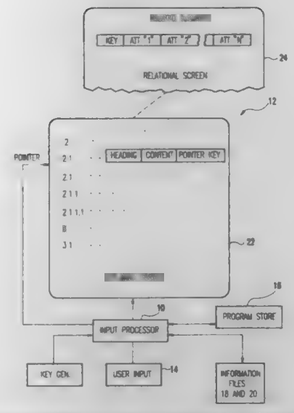
presenting a user with a first display screen that prompts the user to enter each of a plurality of data elements respectively as a heading in a hierarchical outline displayed on the display screen;

generating a unique identifier, which is unique to each said heading in said hierarchical outline inputted by a user in response to said prompt presented by said first display screen;

presenting the user with a second display screen that prompts the user to enter data in a relational data base respectively related to each said heading in a hierarchical outline;

generating, as an indexable attribute for said relational data base, said unique identifier unique to each said heading in the hierarchical outline to which said data in a relational data base inputted by a user in response to said prompt presented by said second display screen is related;

storing data inputted by a user prompted by said first display screen in the hierarchial data base with said unique identifier;



storing data inputted by a user prompted by said second display screen in the relational data base including said unique identifier, whereby said unique identifier serves as a pointer to link said hierarchical data base and said relational data base;

searching for specified attributes in said relational data base responsive to a user input and creating a corresponding subset of the hierarchical data base using the unique identifier corresponding to the unique identifier for the specified attributes in the relational data base.

5,724,578

FILE MANAGING SYSTEM FOR MANAGING FILES SHARED WITH A PLURALITY OF USERS

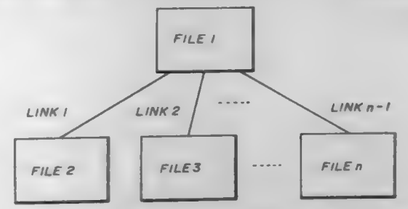
Masanobu Morinaga; Masahiko Murakami; Tadashige Iwao; Satoshi Okuyama; Noriyuki Fukuyama; Masahiro Matsuda, and Sumiyo Taoka, all of Kawasaki, Japan, assignors to Fujitsu Limited, Kawasaki, Japan

Filed Sep. 7, 1995, Ser. No. 524,576

Claims priority, application Japan, Dec. 7, 1994, 6-303944

Int. Cl.[6] G06F *17/30*

U.S. Cl. 395—611 **18 Claims**



1. A file managing system for managing a plurality of files being accessed by a plurality of users, said plurality of files including a first file and a second file linked to said first file by a link which relates said first file to said second file, said file managing system comprising:

first means for defining file controlling information which is provided to the files and represents a status of rights given to each of said users to operate the files and whether each of said users is permitted to change information including the status of the rights, each of said users being permitted to perform a processing which corresponds to one of the rights the status of which is in an on-state, said file controlling information being produced for each of said files;

second means for defining link controlling information for operations for the files and the link, said link controlling

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information including link information representing a condition of said link between said first file and said second file and first propagation information which represents whether a change in said file controlling information corresponding to said first file is to be reflected to said file controlling information corresponding to said second file, said link controlling information further including information which represents whether each of said users is permitted to use said link, said link controlling information being produced for each of said files; and

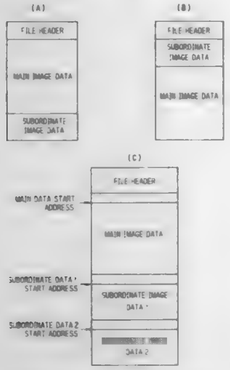
first controlling means for controlling access of each of said users to said files and access of each of users to said link in accordance with said file controlling information and said link controlling information, said first controlling means including second controlling means for controlling operations including the access of each of said users to said files in accordance with said first information and said second controlling means including third controlling means for controlling a change of said file controlling information corresponding to said second file when said file controlling information corresponding to said first file is changed.

5,724,579

SUBORDINATE IMAGE PROCESSING APPARATUS

Takeshi Suzuki, Hachiohji, Japan, assignor to Olympus Optical Co., Ltd., Tokyo, Japan

Filed Mar. 6, 1995, Ser. No. 399,336
Claims priority, application Japan, Mar. 4, 1994, 6-059884
Int. Cl.° G06F *17/30*
U.S. Cl. 395—615 10 Claims



1. An image processing apparatus comprising:

first subordinate image producing means for producing first subordinate image data by extracting part of a photographically obtained or externally supplied main image data of a predetermined image area,

second subordinate image producing means for producing second subordinate image data by extracting part of the first subordinate image data produced by the first subordinate image producing means, and

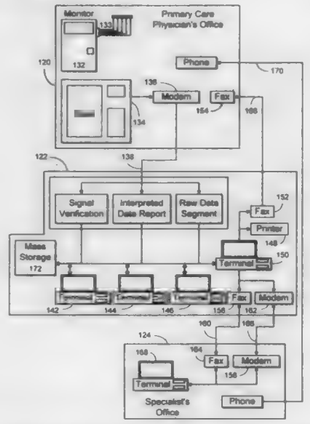
means for storing the main image data and the first and second subordinate image data in a same file.

5,724,580

SYSTEM AND METHOD OF GENERATING PROGNOSIS AND THERAPY REPORTS FOR CORONARY HEALTH MANAGEMENT

Richard I. Levin, New York, N.Y., and Michael W. Cox, Point Pleasant, N.J., assignors to qmed, Inc., Lawrence Harbor, N.J.

Continuation of Ser. No. 414,510, Mar. 31, 1995, abandoned.
This application Mar. 20, 1997, Ser. No. 822,177
Int. Cl.° G06F *17/30*
U.S. Cl. 395—615 24 Claims



1. A system at a centralized data management center for a patient at a remote location, comprising:

means for converting information regarding a condition of said patient into data;

a first telecommunications means for transferring said data to said centralized data management center from said remote location; and

processing means at said centralized data management center for receiving said data and for automatically generating an alphanumeric comprehensive management and prognosis report including a specific therapy for said patient based on analysis of said data wherein said comprehensive management and prognosis report is indicative of one of a first class wherein said report is non-reflective of a serious medical condition and a second class wherein said report is reflective of a serious medical condition whereby, when report falls within said second class, said data is reviewed and confirmed by a specialist.

5,724,581

DATA BASE MANAGEMENT SYSTEM FOR RECOVERING FROM AN ABNORMAL CONDITION

Fumihiko Kozakura, Kawasaki, Japan, assignor to Fujitsu Limited, Kawasaki, Japan

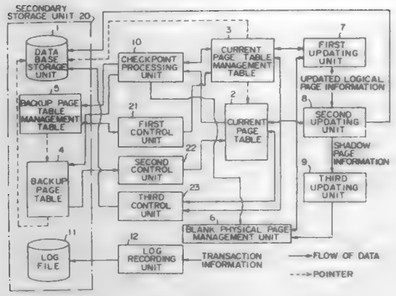
Filed Dec. 14, 1994, Ser. No. 355,530
Claims priority, application Japan, Dec. 20, 1993, 5-320461
Int. Cl.° G06F *17/30*
U.S. Cl. 395—618 21 Claims

1. A data base management system comprising:

a secondary storage unit having data base storing means for storing data divided into physical pages, each physical page corresponding one-to-one to a logical page;

a current page table for managing position information about a latest physical page storing latest updated data and a shadow physical page storing the data before a latest update in each of the logical pages;

a current page table management table for pointing to a shadow page table which is a copy of the current page table at a checkpoint, and a latest page table which is the current page table as updated after the checkpoint;



blank physical page management means for managing unused physical pages in the secondary storage unit;

first updating means which accesses said current page table management table when data in a logical page is updated by a transaction, said first updating means referring to management information about said blank physical page management means when a shadow page table does not exist corresponding to the page table containing the position information about the physical page corresponding to the logical page and obtaining an unused physical page, thereafter said first updating means copying the data in the latest updated page table to the physical page and enters the copied data in said current page table management table as the latest page table for the logical page and a page table before the latest update as the shadow page table, said first updating means updating said blank physical page management means to indicate the obtained physical page as being used, and checks the position information about the physical page corresponding to the logical page in said current page table according to the management information in said current page table management table, and refers to the management information in said blank physical page management means if the shadow physical page corresponding to the logical page does not exist according to the position information thereafter obtaining a presently unused physical page from said data base storing means and entering the unused physical page in said current page table as the latest physical page of the logical page;

second updating means for writing the updated data of the logical page to the latest physical page corresponding to the logical page to be updated which is entered in said current page table by referring to said current page table updated by said first updating means, and changing the position information pointing to the shadow page corresponding to the logical page in said current page table such that the information points to the updated physical page; and

third updating means for updating said blank physical page management means to indicate that the shadow physical page is unused.

5,724,582

MEDICAL IMAGE ARCHIVING WITH LOSSY IMAGES ON TWO OR MORE RECORDABLE CDS

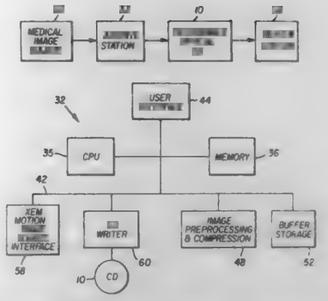
Geraldine Ann Pelanek, Webster, and Paul B. Condit, Pittsford, both of N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.

Filed May 27, 1994, Ser. No. 250,140
Int. Cl.° G46F *17/60*
U.S. Cl. 395—620 12 Claims

1. A medical image storage system for storing a set of digital medical images comprising:

at least first and second separate and transportable digital storage media;

each of said at least first and second digital storage media having



a first storage area of said medium which stores losslessly compressed digital medical images; and

a second storage area of said medium which stores lossy compressed medical images corresponding to said losslessly compressed digital medical images;

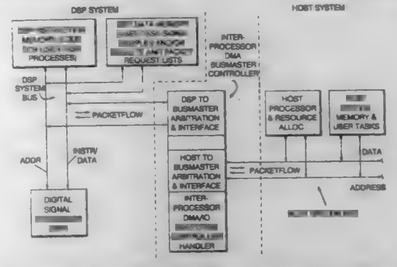
wherein said at least first and second digital storage media store a set of digital medical images, such that an entire set of lossy compressed digital medical images are stored in the second storage area of each of said at least first and second digital storage media, and wherein the storage of said set of losslessly compressed digital medical images is split between the first storage areas of said at least first and second digital storage media.

5,724,583

SYSTEM FOR HANDLING REQUESTS FOR DMA DATA TRANSFERS BETWEEN A HOST PROCESSOR AND A DIGITAL SIGNAL PROCESSOR

Donald Edward Carmon, Durham; William George Crouse, and Malcolm Scott Ware, both of Raleigh, all of N.C., assignors to International Business Machines Corporation, Armonk, N.Y.

Division of Ser. No. 143,199, Oct. 26, 1993, abandoned, which is a division of Ser. No. 761,534, Sep. 18, 1991, abandoned.
This application Feb. 6, 1995, Ser. No. 384,192
Int. Cl.° G06F *13/00;15/16*
U.S. Cl. 395—650 4 Claims



1. A method of controlling DMA data transfers in a multi-media task computer system having a digital host processor, DP, for executing user task programs and a digital signal processor, DSP for executing digital signal processor programs in support of execution requirements of said user task programs, an interprocessor for direct memory access input and output, DMA/IO, for controlling the movement of DMA data transfer packets between said DP and said DSP, and data and address buses interconnecting said DMA/IO with said DP and with said DSP, the method executing in said DMA/IO comprising the steps of:

writing pacing markers into a queue in memory of DMA data transfer requests at precise intervals as a means of stopping and starting processing of lists of DMA data transfer requests;

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sending, at the moment a pacing marker is read by said DSP, a start pacing signal to said DMA/IO as a signal to proceed with the next DMA data transfer to be processed;

receiving said start pacing signal sent by an operating system for said DSP, said start pacing signal sent in response to said pacing markers inserted at regularly occurring time intervals in said queue of said DMA data transfer requests;

accessing, in response to said start pacing signal from said operating system for said DSP, a plurality of said data transfer packets to be transferred between said DP and said DSP in accordance with said DMA data transfer requests;

moving said plurality of data transfer packets to a buffer memory within said DMA/IO;

accessing a memory where said plurality of data transfer packets are to be written; and

transferring said plurality of data transfer packets to said memory before another start pacing signal from said operating system for said DSP is received and without intervention by said DP.

5,724,584

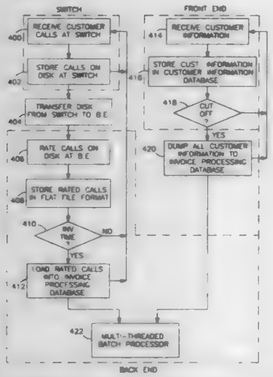
METHOD AND APPARATUS FOR PROCESSING DISCRETE BILLING EVENTS

Michael S. Peters; Clayton Walter Holt, both of Greensboro, and David J. Arnold, Jr., Asheboro, all of N.C., assignors to Teleflex Information Systems, Inc., Greensboro, N.C.

Continuation of Ser. No. 229,538, Apr. 19, 1994, abandoned, which is a continuation of Ser. No. 203,193, Feb. 28, 1994, abandoned. This application Aug. 15, 1996, Ser. No. 698,277

Int. Cl.[6] G06F *15/40*

U.S. Cl. 395—671 **15 Claims**



1. A symmetrical multiprocessing system for processing a batch of discrete events, said discrete events comprising a plurality of independent sub-events, said system comprising:

a first receiving means for receiving and storing transaction data until a desired processing time;

a second receiving means for receiving and storing customer information into a first database until the desired processing time;

means for indicating the desired processing time;

relational database means, responsive to the means for indicating, for receiving the transaction data from the first receiving means, for relationally downloading customer information from the first database and for generating a second database comprising said batch of discrete events to be processed at the desired processing time;

distributing means for distributing each discrete event into one of a plurality of segments, each segment comprising a sequence of at least one discrete event to be processed;

a plurality of symmetrical multi-tasking processors for processing said segments, each of said discrete events within a single segment being sequentially processed and each independent sub-event within a single discrete event being sequentially processed;

initiating means for initiating each of said plurality of segments generated by said distribution means on said symmetrical multi-tasking processors;

first shared memory means accessible by each of said plurality of symmetrical multi-taking processors for storing a control program for controlling the operation of said plurality of symmetrical multi-tasking processors, wherein said segments are distributed among the plurality of symmetrical multi-tasking processors; and

second shared memory means communicating with each of said plurality of symmetrical multi-tasking processors for storing each processed discrete event.

5,724,585

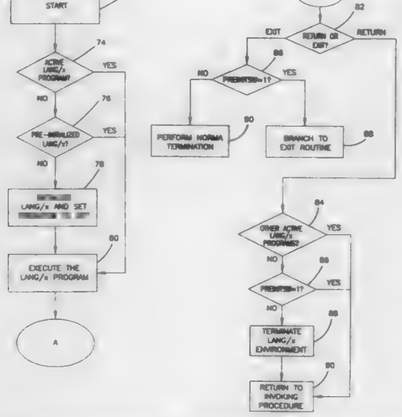
METHOD FOR PROCESSING AN APPLICATION TERMINATION INITIATED FROM A PRE-INITIALIZED COMPUTER LANGUAGE EXECUTION ENVIRONMENT

Anthony Hassitt, Los Altos, and Tsuneo Horiguchi, San Jose, both of Calif., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Oct. 6, 1995, Ser. No. 540,112

Int. Cl.[6] G06F *9/00*

U.S. Cl. 395—672 **36 Claims**



1. A method of executing a program in a computer, comprising the steps of:

(a) executing a first computer program in a first language execution environment in the computer;

(b) pre-initializing a second language execution environment for a second computer program from the first computer program executing in the computer, wherein the first language execution environment is different from the second language execution environment;

(c) executing the second computer program in the second language execution environment in the computer;

(d) intercepting an attempted termination of the second computer program in the computer; and

(e) transferring control to an exit termination routine in the first computer program after the attempted termination is intercepted.

5,724,586

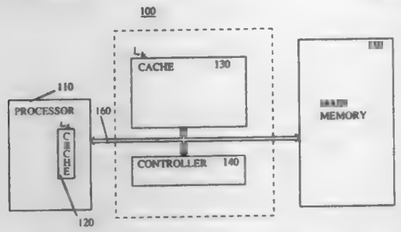
METHOD FOR IMPROVING CACHE LOCALITY OF A COMPUTER PROGRAM

Jan Sterling Edler, Plainsboro; Kai Li, Princeton, and James F. Philbin, Metuchen, all of N.J., assignors to NEC Research Institute, Inc., Princeton, N.J.

Filed Sep. 30, 1996, Ser. No. 724,562

Int. Cl.[6] G06F *9/46*

U.S. Cl. 395—672 **9 Claims**



1. A method for improving the cache locality of an application executing in a computer system, said method comprising the computer implemented steps of:

decomposing the application into one or more threads;

scheduling the successive execution of said threads such that if there exists a next thread to be executed, it is likely to reside in cache, wherein said scheduling includes the steps of:

identifying a tour of said threads in a space that satisfies a requirement for reducing cache misses; and

providing one or more hints associated with each of said threads;

wherein said space is k-dimensional space and each of said threads is represented by a corresponding point in the space and each point is defined by at least one hint associated with said thread.

5,724,587

SYSTEM FOR CONTROLLING TASK EXECUTION IN A HOST PROCESSOR BASED UPON THE MAXIMUM DMA RESOURCES AVAILABLE TO A DIGITAL SIGNAL PROCESSOR

Donald Edward Carmon, Durham; William George Crouse, and Malcolm Scott Ware, both of Raleigh, all of N.C., assignors to International Business Machines Corporation, Armonk, N.Y.

Continuation of Ser. No. 270,519, Jul. 5, 1994, abandoned, which is a continuation of Ser. No. 761,534, Sep. 18, 1991, abandoned. This application Jun. 8, 1995, Ser. No. 474,713

Int. Cl.[6] G06F *9/00;12/00*

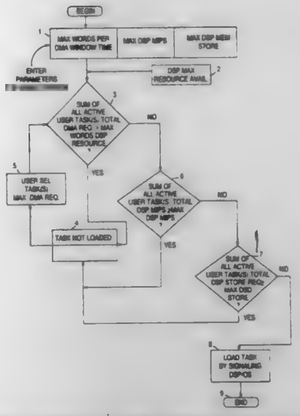
U.S. Cl. 395—674 **6 Claims**

1. A method of controlling operation in a multimedia computer system having a first digital processor, DP, for executing user task programs, a second digital processor, DSP, for executing digital signal processing programs in support of execution requirements of said user task programs in said DP, and a host system bus for moving data and direct memory access (DMA) transfer requests between said DP and said DSP, the method comprising steps executed at said DP of:

receiving, through said host system bus, DSP resource parameters of maximum words per DMA window of time, maximum DSP million instructions per second (MIPS), and maximum DSP memory storage;

receiving a user selected DSP task's maximum DSP resource requirements;

determining if a sum of words per DMA window of time of all active DSP user tasks being executed at said DSP plus the words per DMA window of time of newly requested tasks to be executed at said DSP is greater than or equal to said parameter of maximum words per DMA window of time;



if said sum of words per DMA window of time is less than said parameter of maximum words per DMA window of time, determining if a sum of MIPS for all active DSP user tasks being executed at said DSP plus the sum of MIPS for newly requested tasks to be executed at said DSP is greater than or equal to said parameter of maximum DSP MIPS;

if said sum of MIPS for all active user tasks being executed at said DSP is less than said parameter of maximum DSP MIPS, determining if a sum of DSP memory storage requirements for all active DSP user tasks being executed at said DSP plus DSP memory storage requirements for newly requested user tasks being executed at said DSP is greater than or equal to said parameter of maximum DSP memory storage; and

loading said user selected DSP task if said sum of DSP memory storage requirements for all active and newly requested DSP user tasks being executed at said DSP is less than said parameter of maximum DSP memory storage.

5,724,588

METHOD AND SYSTEM FOR NETWORK MARSHALLING OF INTERFACE POINTERS FOR REMOTE PROCEDURE CALLS

Richard Douglas Hill, Kirkland; Antony S. Williams, Redmond; Robert G. Atkinson, Woodinville, all of Wash.; Tom Corbett, Eugene, Oreg.; Paul Leach, Seattle, Wash.; Shannon John Chan, Bellevue, Wash.; Alexander Adams Mitchell, Redmond, Wash.; Edward K. Jung, Redmond, Wash., and Craig Henry Wittenberg, Mercer Island, Wash., assignors to Microsoft Corporation, Redmond, Wash.

Continuation of Ser. No. 158,627, Nov. 29, 1993, Pat. No. 5,511,197, which is a continuation-in-part of Ser. No. 975,775, Nov. 13, 1992, abandoned. This application Jun. 7, 1995, Ser. No. 485,046

Int. Cl.[6] G06F *13/00*

U.S. Cl. 395—684 **37 Claims**

1. A method in a computer system for providing a client with access to a client implementation of an interface corresponding to a server implementation of the interface provided by a server, comprising:

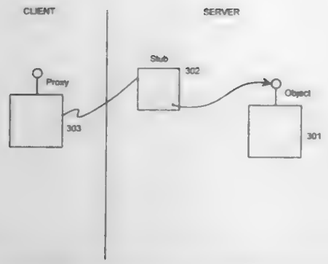
under control of the server, sending to the client an indication of unmarshalling code and information for use by the unmarshalling code to provide the client implementation of the interface that corresponds to the server implementation of the interface; and

under control of the client,

receiving the indication of the unmarshalling code and the information; and

executing the indicated unmarshalling code to generate a pointer to the client implementation of the interface in accordance with the received information

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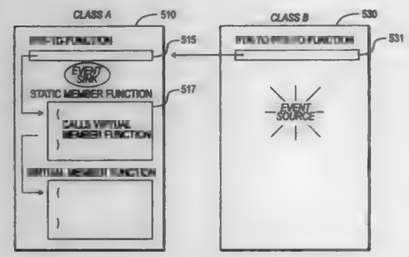
whereby the client uses the generated pointer to access the client implementation of the interface.

5,724,589

DEVELOPMENT SYSTEM WITH A PROPERTY-METHOD-EVENT PROGRAMMING MODEL FOR DEVELOPING CONTEXT-FREE REUSABLE SOFTWARE COMPONENTS

Ivar Wold, Boston, Mass., assignor to Borland International, Inc., Scotts Valley, Calif.

Filed Oct. 13, 1995, Ser. No. 542,505
Int. Cl.[6] G06F *9/44*
U.S. Cl. 395—701 30 Claims



1. In a computer system, a method for creating context-free C++ software components which are executable by a computer program operating on said computer system, the method comprising:

creating from a first C++ class a first component having an event source, said first C++ class comprising class data members and class methods operative on said data members, said event source comprising an event which occurs in said first component at runtime;

creating from a second C++ class a second component having an event sink, said second C++ class comprising class data members and class methods operative on said data members, said event sink comprising an event handler for processing said event which occurs in said first component at runtime, said second component being unaware of said class data members and class methods which comprise said first class;

connecting said event source to said event sink by performing substeps of:

(i) storing in said second component a pointer to a dispatcher method in said second component, said dispatcher method capable of invoking said event handler;

(ii) storing in said first component at runtime a pointer to said pointer to said dispatcher method, so that said dispatcher method can be invoked by said first component at runtime; and

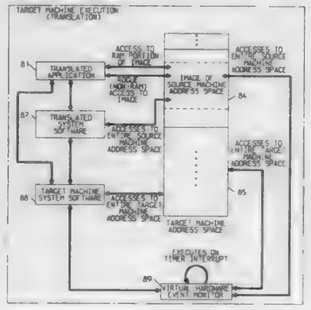
upon occurrence of said event in said first component at runtime, invoking by said first component said dispatcher method of said second component, whereupon said dispatcher method invokes said event handler for runtime processing of said event.

5,724,590

TECHNIQUE FOR EXECUTING TRANSLATED SOFTWARE

John Charles Goettelmann, Point Pleasant; Ronald George Hiller, Old Bridge; Irvan Jay Krantzler, Eatontown; Christopher James Macey, Red Bank, and Mark Logan Tuomenoksa, Shrewsbury, all of N.J., assignors to Lucent Technologies Inc., Murray Hill, N.J.

Continuation of Ser. No. 533,489, Sep. 25, 1995, which is a continuation of Ser. No. 136,720, Oct. 13, 1993, which is a continuation of Ser. No. 850,238, Mar. 11, 1992, which is a continuation of Ser. No. 280,767, Dec. 6, 1988. This application Sep. 18, 1996, Ser. No. 715,308
Int. Cl.[6] G06F *9/00*
U.S. Cl. 395—707 34 Claims



1. An apparatus, comprising:

a target processor for executing translated object code computer programs;

one or more storage devices representing a plurality of storage locations addressable by the target processor;

some of the storage locations containing data representing an image of an address space of a source processor dissimilar to the target processor, such that at least some object code which is executable on the source processor is not executable on the target processor;

some others of the storage locations containing a translation of an object code computer program which before translation is executable by the source processor but not by the target processor, the object code computer program being expressed in terms of a first instruction set, at least one of the instructions of the first instruction set having primary and side effects, and the translation of the object code computer program having been created in part by (i) expansion of the instructions of the object code computer program into a plurality of intermediate language instructions which explicitly replicate the primary and side effects of the instructions of the object code computer program and (ii) elimination of certain ones of the intermediate language instructions which do not affect any substantial functionality of the object code computer program, the translation of the object code computer program being executable on the target processor without further translation;

means for monitoring one or more locations containing data representing the image and corresponding to a predetermined peripheral device associated with the source processor; and

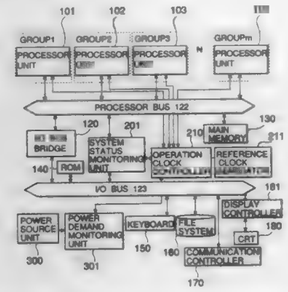
means responsive to the monitoring means for updating a storage location outside the image corresponding to a predetermined peripheral device associated with the target processor.

5,724,591

MULTIPROCESSOR SYSTEM WITH REDUCED POWER MODE AND IMPROVED VARIATION OF POWER DEMAND

Tsutomu Hara, Fujisawa; Takashi Maruyama, Ebina; Hitoshi Yoshidome, Kawasaki; Ryuichi Hattori, and Tsunehiro Tobita, both of Yokohama, all of Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Filed Jan. 26, 1996, Ser. No. 592,236
Claims priority, application Japan, Jan. 27, 1995, 7-011821
Int. Cl.[6] G06F *1/32;1/26*
U.S. Cl. 395—750 20 Claims



1. A multiprocessor system having plural processor units including:

a reception circuit for receiving a setting demand requesting one of a first mode in which each of said plural processor units is in a normal state and a second mode in which each of said plural processor units is in a low power-demand state whose consumed power is smaller than that of the normal state; and

a setting circuit for classifying said plural processor units into plural groups, each group containing at least one processor unit, to successively set said plural groups to the normal state in turn when said reception circuit receives a setting demand requesting the first mode, and to successively set said plural processor units to the low power-demand state in turn when said reception circuit receives a setting demand requesting the second mode,

wherein said setting circuit measures the total power demand of said plural processor units when said reception circuit receives the setting demand requesting one of the first mode or the second mode, calculates the difference between the measured total power demand and a total power demand of said plural processor units in the requested mode, and collectively sets the plural processor units to the normal state or the low power-demand state in accordance with the requested mode when the calculated difference is smaller than a predetermined value.

5,724,592

METHOD AND APPARATUS FOR MANAGING ACTIVE POWER CONSUMPTION IN A MICROPROCESSOR CONTROLLED STORAGE DEVICE

Richard P. Garner, Cameron Park, Calif., assignor to Intel Corporation, Santa Clara, Calif.

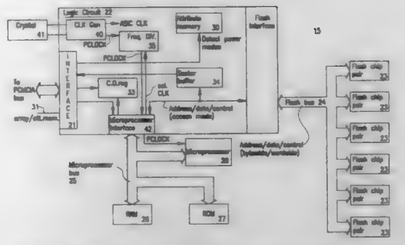
Continuation of Ser. No. 414,190, Mar. 31, 1995, abandoned.
This application Dec. 5, 1996, Ser. No. 760,325
Int. Cl.[6] G06F *1/32*
U.S. Cl. 395—750.04 23 Claims

1. A flash electrically-erasable programmable read only memory (EEPROM) device comprising:

a flash EEPROM array;

a memory which stores indications of power modes in which the flash EEPROM device can be read from or written to;

a configuration register which stores a power mode configuration value, provided by a host processor, which corresponds to one of the power mode indications stored in the memory; and



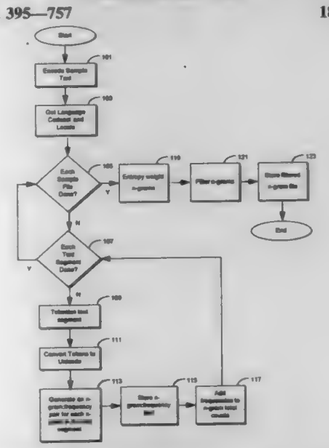
a microprocessor, responsive to commands from the host processor, for reading the configuration register and for controlling operations related to the flash EEPROM array in accordance with the power mode configuration value.

5,724,593

MACHINE ASSISTED TRANSLATION TOOLS

James E. Hargrave, III, Longmont, and Yves I. Savourel, Boulder, both of Colo., assignors to International Language Engineering Corp., Boulder, Colo.

Continuation of Ser. No. 484,981, Jun. 7, 1995, abandoned.
This application Jan. 24, 1997, Ser. No. 789,594
Int. Cl.[6] G06F *17/28*
U.S. Cl. 395—757 18 Claims



1. A translation memory comprising:

a computer usable medium having computer readable data embodied therein, the computer readable data further comprising:

an aligned file having a number of source language text segments encoded in a computer readable format, each of the source language text segments positioned at a unique address in the computer usable medium and paired with a target language text segment encoded in computer readable format;

an inverted index comprising a listing of source language letter n-grams, wherein each listed n-gram includes an associated entry for an entropy weight for the listed letter n-gram, a count of the number of source language text segments in the aligned file that include an entry for the listed letter n-gram, and a pointer to a unique location in the computer usable memory; and

a posting vector file having a posting vector associated with each listed n-gram in the inverted index, each posting vector positioned at one of the unique locations pointed to in the inverted index, each posting vector including:

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i) a plurality of document identification numbers each corresponding to a selected one of the source language text strings in the aligned file, and

ii) a number of entropy weight values, each of the number of weight values associated with one document identification number.

17. A method for creating an inverted index to a file containing a plurality of text strings comprising the steps of:

creating a list of letter n-grams wherein each listed letter n-gram has an entropy weight greater than a preselected threshold:

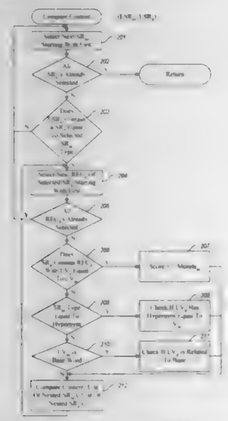
for each listed letter n-gram, determining a set of the plurality of text strings in which the letter n-gram appears.

5,724,594

METHOD AND SYSTEM FOR AUTOMATICALLY IDENTIFYING MORPHOLOGICAL INFORMATION FROM A MACHINE-READABLE DICTIONARY

Joseph E. Pentheroudakis, Seattle, Wash., assignor to Microsoft Corporation, Redmond, Wash.

Filed Feb. 10, 1994, Ser. No. 195,346
Int. Cl.[6] G06F *17/27*
U.S. Cl. 395—760 **28 Claims**



1. A method in a computer system for determining whether a derived word is morphologically related to a putative base word combined with a morpheme, the method comprising the steps of:

combining semantic information derived from a definition of the morpheme with the putative base word;

comparing semantic information derived from a definition of the derived word to the combined semantic information; and

determining whether the comparison indicates derivational relatedness of the derived word to the putative base word, the derivational relatedness indicating whether the derived word is morphologically related to the putative base word.

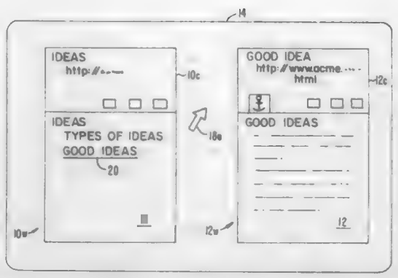
5,724,595

SIMPLE METHOD FOR CREATING HYPERTEXT LINKS

Donald R. Gentner, Palo Alto, Calif., assignor to Sun Microsystems, Inc., Mountain View, Calif.

Filed Jun. 19, 1996, Ser. No. 666,792
Int. Cl.[6] G06F *3/00*
U.S. Cl. 395—762 **13 Claims**

1. In a hypertext authoring system wherein original and target hypertext pages are displayed, with the address of the target hypertext page specified by a target URL and with the title of the target hypertext page enclosed by opening and closing hypertext title tags, an improved computer-implemented method for creating



a hypertext link to said hypertext target page at a specified location in said original hypertext page comprising the steps of:

displaying a link creating icon for the target hypertext page;

automatically creating a link from the original hypertext page to the target hypertext page at said specified location in the original page when said link creating icon is dragged from said target hypertext page and dropped at said specified location, with the link including the URL of said target hypertext page;

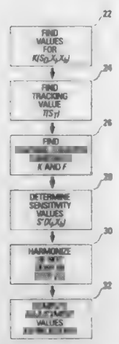
automatically inserting the title text of said target hypertext page at said link.

5,724,596

ALGORITHMIC CHARACTER-SPACE ADJUSTMENT COMPUTED FROM CHARACTER-SEQUENCE-BASED CONSTANTS AND FONT SIZE

Stephen P. Lathrop, 14 Western Ave., Hull, Mass. 02045

Filed Aug. 25, 1992, Ser. No. 935,512
Int. Cl.[6] G06F *17/21*
U.S. Cl. 395—781 **16 Claims**



1. For displaying type characters, an apparatus comprising:

A) a computer for computing, for each of a plurality of character sequences (X_j, X_k) of font size s, where X_j and X_k are respectively the first and second characters in a sequence, an adjustment value A(s, X_j,X_k) in accordance with a formula that, in relative units, is essentially as follows:

$$A(s,\chi_j,\chi_k) = \sum_{n=1}^{K} C_n(\chi_j,\chi_k)\, s^{r_n},$$

where the C_n's are non-zero constants with respect to s, $r_n \neq 0$ for at least one value of n, the values of r_n differ for different values of n, K is an integer greater than 1, and the variation in A(s, X_j,X_k) with respect to s is not the same for all (X_j,X_k); and

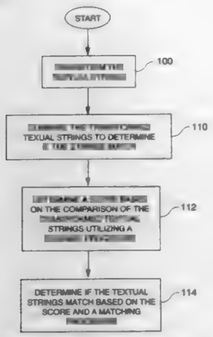
B) an imaging system, responsive to the adjustment values thus computed, for displaying the character sequences such that the characters are spaced apart by distances adjusted in accordance with those adjustment values.

5,724,597

METHOD AND SYSTEM FOR MATCHING NAMES AND ADDRESSES

Robert John Cuthbertson; Jianhua Zhu, both of Lafayette; Rodolphe J. Nassif, Louisville; Patrick Pfeffer, Lafayette, and Srdjan N. Kovacevic, Westminster, all of Colo., assignors to U S West Technologies, Inc., Boulder, Colo.

Filed Jul. 29, 1994, Ser. No. 282,945
Int. Cl.[6] G06F *17/21*
U.S. Cl. 395—793 **14 Claims**



1. A computerized method for determining if a first textual string corresponds to a second textual string stored in a database, the method comprising:

receiving the first textual string;

retrieving the second textual string from the database;

transforming each of the first and second textual strings into a plurality of components based on a plurality of predefined filters;

comparing the plurality of components of the first transformed textual string to the plurality of components of the second transformed textual string utilizing a plurality of predefined comparison algorithms to obtain a plurality of differences between each pair of compared components;

generating a scoring matrix including a penalty for each of the compared components representing a least degree of difference among the plurality of differences determined by each of the plurality of comparison algorithms; and

generating a match signal indicating the first textual string corresponds to the second textual string based on the scoring matrix.

5,724,598

Patent Not Issued For This Number

5,724,599

MESSAGE PASSING AND BLAST INTERRUPT FROM PROCESSOR

Keith Balmer, Bedford, England; Karl M. Guttag, Sugar Land; Robert J. Gove, Plano, both of Tex.; Nicholas Ing-Simmons, Huntingdon, and Iain Robertson, Bedfordshire, both of England, assignors to Texas Instrument Incorporated, Dallas, Tex.

Filed Mar. 8, 1994, Ser. No. 208,171
Int. Cl.[6] G06F *15/00*
U.S. Cl. 395—800 **28 Claims**

1. A multiprocessor system comprising:

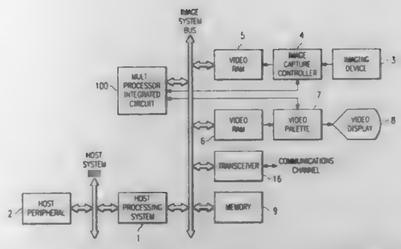
a command word bus;

a plurality of data processors, each data processor connected to said command word bus and including

a command circuit for generating a command word on said command word bus having a first set of fields identifying a type of command and a second set of fields identifying particular ones of said plurality of processors to which that command word is directed, said command circuit generating at least one reset command word for resetting at least one of said data processors at a time other than initial application of electrical power, said command circuit of only a predetermined subset of said plurality of data processors may generate said reset command word directed to ones of said plurality of data processors other than itself,

a decoder coupled to said command circuit having a command register for decoding the command word, including said reset command word, said decoder of each of said plurality of data processors detects whether said reset command word is directed to the at least one of said data processors, and

a reset control circuit connected to said decoder for resetting the at least one of said data processors into a state corresponding to initial application of electrical power upon receiving a reset command word by said decoder if and only if said reset command word is directed to the at least one of said data processors.

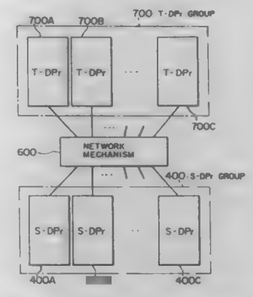


5,724,600

PARALLEL PROCESSOR SYSTEM

Yoshifumi Ogi, Kawasaki, Japan, assignor to Fujitsu Limited, Kawasaki, Japan

Filed Sep. 8, 1995, Ser. No. 525,171
Claims priority, application Japan, Dec. 6, 1994, 6-302499
Int. Cl.[6] G06F *13/00*
U.S. Cl. 395—800 **7 Claims**



3. A parallel processor system comprising plural processors which operate in parallel, said plural processors including a set of processors (hereinafter referred to as a source data processor group) each storing plural subsets (hereinafter referred to as subchunks) obtained by dividing nearly equally a cluster of data (hereinafter referred to as a chunk) to be subjected to a sole process, and a set of processors (hereinafter referred to as a target data processor group) to which plural data items (hereinafter referred to as an entity) that form said subchunks stored into each processor belonging to said source data processor group and can be processed independently are transferred from each processor belonging to said source data processor group;

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wherein each processor belonging to said source data processor group applies a predetermined evaluation function to each entity forming independently said subchunk, obtains the output value of said predetermined evaluation function corresponding to each entity, and then transfers an entity to which said output value is added to one of said processors belonging to said target data processor group; each processor including a queue mechanism that stores sequentially entities to be transferred corresponding respectively to all processors belonging to said target data processor group, and storage number detecting means that detects the number of entities to be transferred which are stored to said queue mechanism;

wherein each processor belonging to said target data processor group transfers with equal frequency a transmission start instruction to all processors belonging to said source data processor group when an entity from each processor belonging to said source data processor group becomes receivable, refers to the output value of said predetermined evaluation function added to an entity when said entity from each processor belonging to said source data processor group is accepted, and stores the accepted entity sorted by the output value added to this entity;

wherein each processor belonging to said source data processor group includes a transfer destination processor decision table which holds a count value showing how many entities with the output value of a second designation factor have been transferred to a processor with the identifier of a first designation factor, said first designation factor being the identifier of each processor belonging to said target data processor group, said second designation factor being the output value of said predetermined evaluation function;

wherein each processor belonging to said source data processor group refers to a count value corresponding to the output value in said transfer destination processor decision table when the output value of said predetermined evaluation function corresponding to an entity to be transferred is obtained, recognizes how many entities with said output value have been already transferred to each processor belonging to said target data processor group, decides the processor with the smallest count value as An entity transfer destination, And then increments said count value by a value obtained by adding one to the number of entities to be transferred in said queue mechanism detected at that time by said storage number detecting means or by a value obtained by multiplying this added value by a constant except 0.

5,724,601

SWITCHING STATE DETECTING APPARATUS, CONTROL UNIT AND TRANSMISSION UNIT FOR WAKING UP A MICROCOMPUTER

Ryoichi Kobayashi, Naka-gun, and Noboru Sugiura, Mito, both of Japan, assignors to Hitachi, Ltd., Tokyo, Japan

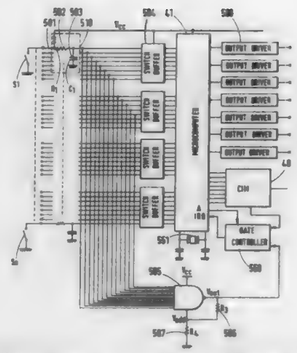
Continuation of Ser. No. 492,967, Jun. 21, 1995, abandoned, which is a continuation of Ser. No. 852,373, Mar. 13, 1992, abandoned. This application Jun. 11, 1996, Ser. No. 673,785
Claims priority, application Japan, Mar. 19, 1991, 3-054347
Int. Cl.[6] H03K *3/00*
U.S. Cl. 395—800 **7 Claims**

1. A switching apparatus comprising:

switching means for selectively outputting as an output one of a first voltage value and a second voltage value at a time,

a passive filter receiving said output of said switching means for providing an output value dependent upon said output of said switching means,

comparator means for comparing said output value of said passive filter with a predetermined reference voltage value and providing a bi-state output voltage therefrom, said comparator means changing said reference voltage value from a first threshold value to a second threshold value when said output voltage of said comparator means changes from one state to another state for preventing said comparator means output voltage from hunting, and



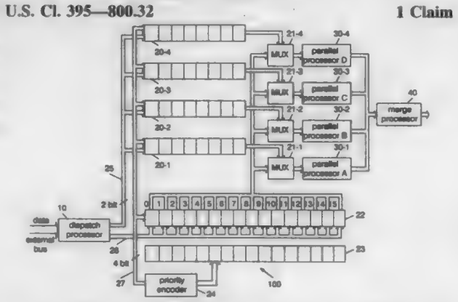
voltage divider means connected to provide voltage division of the output voltage of said comparator means, wherein an output voltage of said voltage divider means is superposed on said first threshold value to provide said second threshold value.

5,724,602

MULTIPROCESSOR APPARATUS

Nobuyoshi Tanaka, Yamato, and Akihiro Ogura, Sagamihara, both of Japan, assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Oct. 7, 1996, Ser. No. 729,736
Claims priority, application Japan, Dec. 26, 1995, 7-339048
Int. Cl.[6] G06F *15/76*
U.S. Cl. 395—800.32 **1 Claim**



1. A multiprocessor information handling system which distributes sequentially received data sets to a plurality of pipe lines for processing, comprising:

(a) a dispatch processor for distributing said received data sets to said pipe lines;

(b) a plurality of parallel processors, provided on each of said pipe lines one by one, for processing distributed data sets;

(c) a data buffer for temporarily storing more than one data sets sequentially outputted by said dispatch processor;

(d) a plurality of pointer buffers, provided on each of said pipe lines before the corresponding parallel processor, for temporarily holding storage positions in said data buffer where data sets distributed to the corresponding parallel processor are stored;

(e) a priority encoder for determining storage positions in said data buffer where the next distributed data set should be stored, and for writing the determined storage positions in the pointer buffers of the corresponding pipe lines;

(f) a plurality of multiplexers, provided on each of said pipe lines between the parallel processor and the pointer buffers, for reading data sets from the storage positions in said data buffer where the corresponding pointer buffer indicates, and transmitting the data sets to the corresponding parallel processor; and

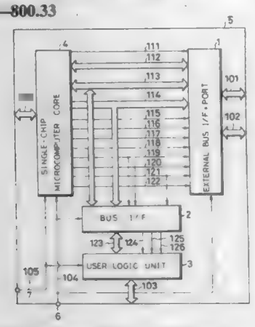
(g) a merge processor for merging data sets processed by said parallel processors.

5,724,603

SINGLE-CHIP MICROCOMPUTER WITH ASYNCHRONOUSLY ACCESSIBLE USER DESIGNED CIRCUIT

Yukihiro Nishiguchi, Tokyo, Japan, assignor to NEC Corporation, Tokyo, Japan

Filed Oct. 14, 1994, Ser. No. 323,093
Claims priority, application Japan, Oct. 13, 1993, 5-280144
Int. Cl.[6] G06F *13/00*
U.S. Cl. 395—800.33 **12 Claims**



1. A single-chip microcomputer comprising:

a microcomputer core which has a central processing unit (CPU), a memory unit, a peripheral function unit, and a main internal bus interconnecting said units under control of a CPU operation clock signal supplied from said CPU;

an external bus interface circuit forming an asynchronous interface between said single-chip microcomputer and external circuits exterior thereto by enabling said single-chip microcomputer to have asynchronous access independent of said CPU operation clock signal to and from said external circuits;

an asynchronous internal bus for interconnecting said microcomputer core and said external bus interface circuit so as to enable said asynchronous access to and from said external circuits;

a logic circuit for receiving said asynchronous access from both said microprocessor core and said external circuits through said asynchronous internal bus to provide functions specific to a user of said single-chip microcomputer; and

a bus interface circuit forming an interface between said asynchronous internal bus and said logic circuit by providing an asynchronous access control signal based on an access control signal supplied through said asynchronous internal bus.

5,724,604

DATA PROCESSING SYSTEM FOR ACCESSING AN EXTERNAL DEVICE AND METHOD THEREFOR

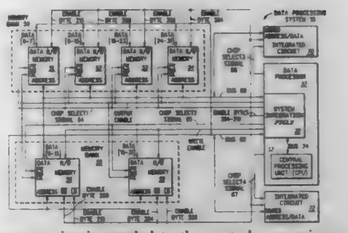
William C. Moyer, Dripping Springs, Tex., assignor to Motorola, Inc., Schaumburg, Ill.

Filed Aug. 2, 1995, Ser. No. 510,510
Int. Cl.[6] G06F *12/06*
U.S. Cl. 395—800.43 **30 Claims**

1. A data processor, comprising:

a central processing unit for communicating a plurality of address values, a plurality of data values, and a plurality of control values; and

a system integration unit, the system integration unit, comprising:



a compare circuit coupled to the central processing unit for receiving the plurality of address values, the compare circuit providing a compare signal indicating an address range which includes a first one of the plurality of address values;

a control circuit coupled to the central processing unit for receiving the plurality of control values and coupled to the compare circuit for receiving the compare signal, the control circuit providing a first control value corresponding to a first external device and the control circuit providing a plurality of internal control signals;

a control register coupled to the control circuit for receiving the first control value, the control register selectively providing a first enable byte control value in response to the first control value; and

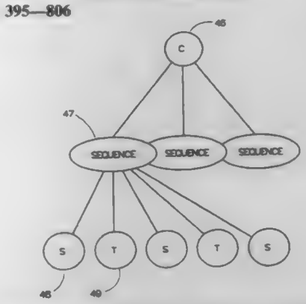
a decode logic circuit coupled to the control register for receiving the first enable byte control value, coupled to the control circuit for receiving the plurality of internal control signals, and coupled to the central processing unit for receiving the plurality of address values, the decode logic circuit logically combining the first enable byte control value, a portion of the plurality of internal control signals, and a portion of the plurality of address values to provide a first enable byte signal in one of a second and a third logic state, wherein the first enable byte signal performs a write enable function when in the second logic state and the first enable byte signal performs a byte enable function when in the third logic state.

5,724,605

METHOD AND APPARATUS FOR REPRESENTING AND EDITING MULTIMEDIA COMPOSITIONS USING A TREE STRUCTURE

Michael J. Wissner, Boston, Mass., assignor to Avid Technology, Inc., Tewksbury, Mass.

Continuation of Ser. No. 236,244, Apr. 21, 1994, abandoned, which is a continuation of Ser. No. 920,260, Jul. 27, 1992, abandoned, which is a continuation-in-part of Ser. No. 867,133, Apr. 10, 1992, abandoned. This application Mar. 31, 1995, Ser. No. 415,091
Int. Cl.[6] G06F *17/30*
U.S. Cl. 395—806 **24 Claims**



20. A digital information product defining a multimedia composition comprising a sequence of components, comprising:

a computer-readable medium; and

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digital logic, stored on the computer-readable medium and defining a representation of the sequence using an indication of a tree having a plurality of leaves, wherein each leaf of the plurality of leaves of the tree represent components to be placed in the sequence and each having a duration, and wherein the tree relating the components has a plurality of nodes, each node having a plurality of subnodes, and wherein each node stores a value indicative of a total duration of all subnodes and leaves of the node, whereby a root node stores a value indicative of a total duration of the sequence.

5,724,606

EXTENDED PERIPHERAL BUS WITH BIDIRECTIONAL TRANSMISSION

Phillip M. Stevens, Attleboro; George Stephan, Taunton; Matthew H. Trask, Bourne, and Barry M. Kasindorf, Franklin, all of Mass., assignors to International Business Machines Corporation, Armonk, N.Y.

Continuation of Ser. No. 340,308, Nov. 14, 1994, abandoned. This application May 12, 1997, Ser. No. 854,590

Int. Cl.[6] G06F *13/00;13/38*

U.S. Cl. 395—821 **5 Claims**



1. A data communications system, comprising:

a peripheral bus for communicating information bidirectionally;

a central processor coupled to the peripheral bus;

an input device coupled to the central processor to supply it with input data through the peripheral bus;

a plurality of external modules coupled in series in an open chain to the peripheral bus between the central processor and the input device to receive and transmit information bidirectionally on the peripheral bus from and to the central processor;

each of the modules being identified by a unique address to receive and process only that information associated with the respective address and to pass, without processing, any information that has an address different than the address of the respective module along the open chain of external modules; and

each of the modules includes a buffer register to accumulate data intended for another module, when said another module is not able to receive the data intended for said another module.

5,724,607

METHOD FOR REMOTE CONTROL MESSAGE TRANSMISSION DELAY COMPENSATION BY PROVIDING PSEUDO-RESPONSE MESSAGE BASED ON PRIOR RECEIVED RESPONSES STORED IN LOOK-UP TABLE

Anders Terje Brandt, Soborg, Denmark, assignor to RE Technology AS, Copenhagen, Denmark

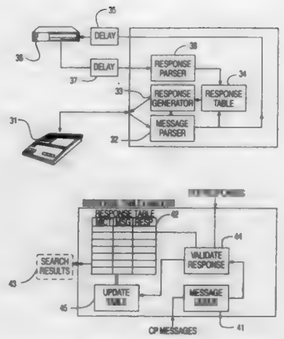
Filed May 8, 1996, Ser. No. 643,286

Int. Cl.[6] G06F *3/00;9/00;11/30*

U.S. Cl. 395—825 **8 Claims**

1. A method for use in a system comprising a remote controlling unit and a controlled unit controlled by said controlling unit,

the controlling unit sending control-unit messages (commands and/or requests) to the controlled unit and the controlled unit responding to these control-unit messages by sending



response messages (acknowledgements and/or information words) back to the controlling unit, and the controlling unit requiring the response messages back within a certain maximum acceptable delay time, wherein the transmission of messages from the controlling unit to the controlled unit and back comprises a total delay exceeding said maximum acceptable delay time and the method comprising storing and updating of a response table close to the controlling unit comprising control-unit messages previously sent from the controlling unit to the controlled unit and corresponding response messages previously received from the controlled unit in response to these control-unit messages and using this response table as a look-up table for generating a pseudo-response message to each control-unit message within the maximum acceptable delay time accepted by the controlling unit, which pseudo-response message is the most recently received response message to the corresponding control-unit message.

5,724,608

MEDICAL IMAGE SYSTEM USING DUAL ADDRESS GENERATORS TO ALLOW CPU ACCESSED THREE-DIMENSIONAL BODY IMAGE DATA IN ACCORDANCE WITH ONE-DIMENSIONAL STORAGE ADDRESS IN DUAL MEMORIES SIMULTANEOUSLY

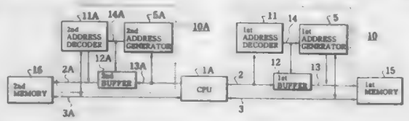
Hisanori Tohara, Ootawarashi, Japan, assignor to Kabushiki Kaisha Toshiba, Kanagawa-ken, Japan

Continuation of Ser. No. 959,098, Oct. 9, 1992, abandoned. This application Jul. 1, 1996, Ser. No. 673,596

Claims priority, application Japan, Oct. 11, 1991, 3-263462

Int. Cl.[6] G06F *13/00*

U.S. Cl. 395—827 **11 Claims**



1. A medical image data processing apparatus comprising:

first storage means for storing three-dimensional body image data in accordance with a one-dimensional storage address system characteristic to the apparatus;

calculation means for producing three-dimensional first address data in accordance with a viewing address system based on three-dimensional spatial coordinates and for processing body image data read from the first storage means to generate a viewable image in accordance with the three-dimensional first address data;

first address generating means coupled to said calculation means and said first storage means and responding to the three-dimensional first address data received from the calculation means to generate one-dimensional second address data structured in accordance with the storage address system to access

body image data in the first storage means for readout to the calculation means for the viewable image;

second address generating means coupled between said calculation means and a second storage means through a second bus; and

said first and second storage means are simultaneously accessible by said calculation means.

5,724,609

APPARATUS FOR TRANSFER-CONTROLLING DATA BY DIRECT MEMORY ACCESS

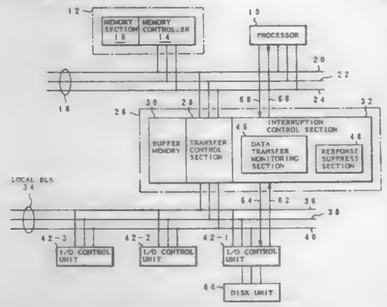
Seido Hatae, and Kazuyuki Mitsuishi, both of Kawasaki, Japan, assignors to Fujitsu Limited, Kawasaki, Japan

Filed Dec. 19, 1994, Ser. No. 358,724

Claims priority, application Japan, Jan. 25, 1994, 6-006290

Int. Cl.[6] H01J *3/00*

U.S. Cl. 395—842 **10 Claims**



1. A data transfer control apparatus, comprising:

a system bus;

a processor connected to said system bus;

a main storage unit connected to said system bus;

a local bus having a data transfer speed that is equal to or greater than that of said system bus;

an input/output control unit connected to said local bus;

an input/output unit connected to and under control of said input/output control unit;

a data transfer control section, connected between said system bus and said local bus, for transferring data, upon receipt of an input/output request from said processor, without depending upon said processor, with said input/output unit through said main storage unit connected to said system bus and said input/output unit connected to said local bus;

a buffer memory for temporarily storing data to be transferred by said data transfer control section;

an interruption control section which, upon detection of an input/output end interrupt signal sent out from said input/output control unit upon completion of data transfer of said input/output unit, notifies completion of data transfer to said processor, and communicates an interruption acknowledge signal issued by said processor upon receipt of the input/output end interrupt signal to said input/output control unit;

a data transfer monitor section which determines the completion of data transfer from said buffer memory to said main storage unit; and

a response suppress section which, upon detection of the input/output end interrupt signal in said interruption control section, suppresses output of the input/output end interrupt signal to said processor, and upon acquisition of an indication of completion of data transfer in said data transfer monitor section, and provides an output of said input/output end interrupt signal to said processor.

5,724,610

SELECTOR BANK SUBSYSTEM OF CDMA SYSTEM USING A PAIR OF FIRST PROCESSORS FOR SELECTING CHANNELS BETWEEN CDMA INTERCONNECT SUBSYSTEM AND MOBILE SERVICE SWITCH CENTER

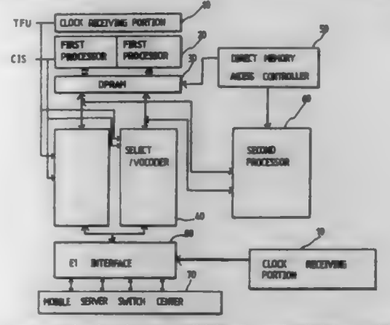
Jin Soo Han, Daejeon, and Yoon Chae Cheong, Kyoungki-do, both of Rep. of Korea, assignors to Hyundai Electronics Industries Co., Ltd., Kyoungki-do, Rep. of Korea

Filed Jun. 7, 1995, Ser. No. 478,030

Claims priority, application Rep. of Korea, Jun. 30, 1994, 94-15638

Int. Cl.[6] G06F *13/00*

U.S. Cl. 395—842 **2 Claims**



1. A selector bank subsystem (SBS) of a code division multiple access (CDMA) system, comprising:

an SBS block, said SBS block being composed of a pair of first processors for controlling a traffic frame communication with a CDMA interconnect subsystem (CIS) by selecting a channel between the CIS and a mobile service switch center (MSC); a dual port RAM DPRAM for storing a traffic frame by the control of the first processors and being access-controlled by a direct memory access controller (DMAC); a second processor for controlling the DMAC; a medium speed link (E1) interface portion for interfacing a frame data with the MSC by receiving synchronism from a timing and frequency unit of a global positioning signal receiver; and

a selector/vocoder block being linked between the DPRAM and the E1 interface as a plurality of extensible card forms, and for receiving the traffic frame to the E1 interface portion after digital signal processing.

5,724,611

AUTOMATIC CACHE CONTROLLER SYSTEM AND METHOD THEREFOR

David Ross Evoy, Tempe, Ariz., assignor to VLSI Technology, Inc., San Jose, Calif.

Filed Apr. 25, 1996, Ser. No. 637,513

Int. Cl.[6] G06F *13/00*

U.S. Cl. 395—848 **16 Claims**

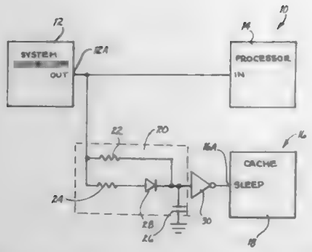
1. An automatic cache controller system comprising, in combination:

a processor;

system controller means coupled to said processor for providing a clock signal to said processor when said processor needs to be enabled and for stopping said clock signal to said processor when said processor needs to be disabled;

cache memory means coupled to said system controller means for storing information; and

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signalling means coupled to said system controller means and to said cache memory means for monitoring said clock signal and for sending a signal to enable said cache memory means when said processor is enabled and for sending a signal to disable said cache memory means when said processor is disabled.

5,724,612

INFORMATION TRANSFER APPARATUS AND INFORMATION RECORDING APPARATUS INCLUDING TRANSFER CONTROL MEANS FOR DETERMINING A TRANSFER SEQUENCE OF PLURAL INFORMATION BLOCKS

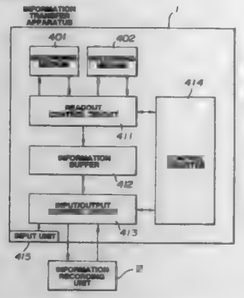
Naoya Haneda, Tokyo, and Kyoya Tsutsui, Kanagawa, both of Japan, assignors to Sony Corporation, Tokyo, Japan

Filed Nov. 29, 1994, Ser. No. 346,413

Claims priority, application Japan, Nov. 29, 1993, 5-298303

Int. Cl.[6] G06F *13/00*

U.S. Cl. 395—853 **8 Claims**



1. An apparatus for transferring information comprising:

a recording medium having transfer information recorded thereon, and

transfer control means for determining a transfer sequence of plural information blocks when the transfer information recorded on said recording medium is read out as said information blocks based upon a transfer control information received from an information recording unit, said transfer control means transmitting said information blocks to said information recording unit in accordance with the determined transfer sequence; and

wherein said transfer control information includes an information indicating the degree of parallelism of transfer and wherein said transfer control means determines said transfer sequence based upon an information quantity of the transfer information and the degree of parallelism of the transfer.

5,724,613

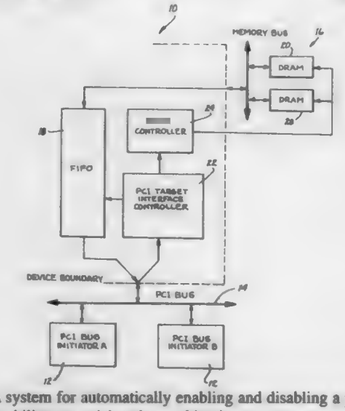
SYSTEM AND METHOD FOR AUTOMATICALLY ENABLING AND DISABLING A PREFETCHING CAPABILITY

Philip Wszolek, Phoenix, Ariz., assignor to VLSI Technology, Inc., San Jose, Calif.

Filed May 6, 1996, Ser. No. 643,350

Int. Cl.[6] G06F *12/00;13/00*

U.S. Cl. 395—853 **16 Claims**



1. A system for automatically enabling and disabling a prefetching capability comprising, in combination:

memory means for storing data in said system;

at least two Peripheral Component Interconnect (PCI) initiator means for initiating data reads from said memory means;

First In First Out (FIFO) means coupled to said memory means for storing data transferred from said memory means;

PCI target interface controller means coupled to said at least two PCI initiator means for receiving requests of said data reads from said at least two PCI initiator means, for signalling retrieval of requested data of said data reads from said memory means, and for signalling for prefetching of sequentially located data from said memory means after a predetermined number of consecutive data requests from at least one PCI initiator means of said at least two PCI initiator means; and

memory controller means coupled to said PCI target interface controller means and to said memory means for transferring said requested data of said data reads to said FIFO means and for transferring said sequentially located data to said FIFO means after said predetermined number of consecutive data requests from said at least one PCI initiator means of said at least two PCI initiator means.

5,724,614

CIRCUITS PROVIDE INPUT/OUTPUT MODULE CONNECTIONS HAVING THE INPUT RECEPTACLE BEING CONNECTED TO NEUTRAL WIRING TERMINAL AND THE OUTPUT RECEPTACLE BEING CONNECTED TO HOT WIRING TERMINAL

Milton Ward Garland, Waynesboro; Arthur James Marshall, Gettysburg, and John Anthony Ecton, Jr., Greencastle, all of Pa., assignors to Frick York International, Waynesboro, Pa.

Filed Oct. 10, 1995, Ser. No. 541,974

Int. Cl.[6] G06F *13/00*

U.S. Cl. 395—863 **4 Claims**

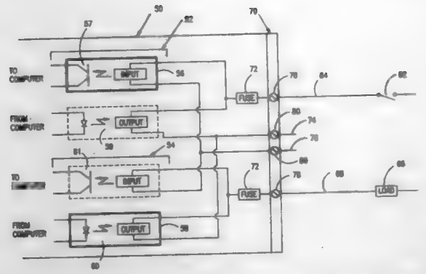
1. A digital input/output circuit board for selectively electrically connecting a plurality of field devices to a computer so that the field devices either supply inputs to the computer through input modules or receive outputs from the computer through output modules, the input/output circuit board comprising:

a plurality of circuits, each of said circuits including an input receptacle for removably mounting an input module and an output receptacle for removably mounting an output module, and each said circuit being adapted to be electrically connected to a computer by way of one of the input and output modules;

a plurality of separate field wiring terminals electrically connected to said circuits, said field wiring terminals being adapted to attach to field wires to electrically connect said circuits to separate field devices;

a common neutral wiring terminal adapted to attach to a neutral power wire, each said input receptacle being electrically connected to said neutral wiring terminal; and

a common hot wiring terminal adapted to attach to a hot power wire, each said output receptacle being electrically connected to said hot wiring terminal.



5,724,615

COMMUNICATION CIRCUIT RECEIVING DATA SELECTABLY SYNCHRONIZED TO THE RISING OR FALLING EDGE OF A TIMING SIGNAL PROVIDED FROM THE DATA SOURCE

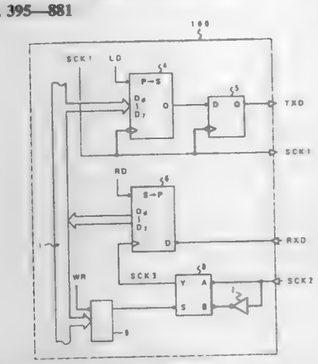
Kimiyasu Ishii, Kawasaki, Japan, assignor to Ricoh Company, Ltd., Tokyo, Japan

Filed May 19, 1995, Ser. No. 444,874

Claims priority, application Japan, Jun. 6, 1994, 6-147071; Apr. 28, 1995, 7-105757

Int. Cl.[6] G06F *13/42*

U.S. Cl. 395—881 **19 Claims**



8. An integrated circuit comprising:

a central processing unit that performs predetermined processing;

a communication circuit that provides data communication between said central processing unit and another communication circuit that is external to said integrated circuit, comprising,

data receiving means for receiving data items from a received signal at either a time according to a given timing signal or at a different time, said given timing signal being directly received by said data receiving means from another communication circuit; and

time differing means for providing said different time to said data receiving means so that said data receiving means is configured to receive said data items when said another communication circuit uses a same timing convention or a different timing convention than said data receiving means.

5,724,616

LENS DRIVING SYSTEM FOR CAMERA WITH ANTI-VIBRATION FUNCTION

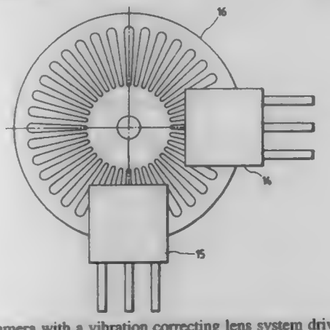
Kazuharu Imafuji, Kawasaki; Nobuhiko Terui, Ichikawa; Sueyuki Ohishi, Tokyo, and Tatsuo Amanuma, Ageo, all of Japan, assignors to Nikon Corporation, Tokyo, Japan

Filed Jan. 24, 1995, Ser. No. 377,330

Claims priority, application Japan, Feb. 4, 1994, 6-012826; Mar. 17, 1994, 6-047252

Int. Cl.[6] G03B *5/02;* **H04N** *5/228*

U.S. Cl. 396—55 **15 Claims**



1. A camera with a vibration correcting lens system driven by a motor to perform anti-vibration, said camera comprising:

a disk, having slits and light-shielding portions, coupled to the motor; and

photointerrupters to generate an interrupter signal output during a rotation of said disk, said slits and said light-shielding portions each having a width that makes a duty of the interrupter signal output of said photointerrupters to be approximately fifty percent.

5,724,617

PHOTOGRAPHING APPARATUS HAVING VIBRATION REDUCING MECHANISM

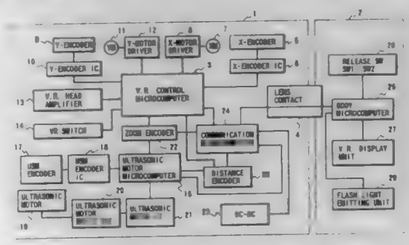
Shinichi Hirano, Utsunomiya; Tatsuo Amanuma, Ageo; Fumiya Taguchi, Kawasaki; Tadao Kai, Kawasaki, and Yoshio Imura, Kawasaki, all of Japan, assignors to Nikon Corporation, Tokyo, Japan

Filed Sep. 5, 1996, Ser. No. 708,507

Claims priority, application Japan, Sep. 7, 1995, 7-229862; Sep. 8, 1995, 7-231375; Sep. 14, 1995, 7-236974

Int. Cl.[6] G03B *17/00*

U.S. Cl. 396—55 **53 Claims**



VOL 1208 ISS 1 MR 3 1998 UMI

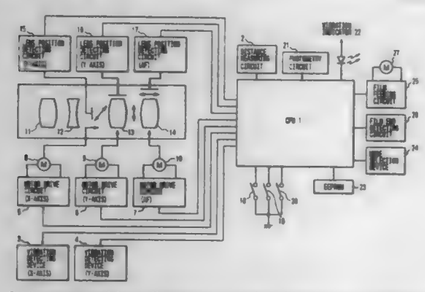
1. A photographing apparatus having a vibration reducing mechanism, comprising:
a photographing optical system;
a preparatory flash device to prevent pink-eye;
a vibration reducing mechanism to detect a vibration quantity of an optical axis of said photographing optical system and to move a whole or a part of said photographing optical system relative to a photographing picture;
a detecting unit to detect the fact that said vibration reducing mechanism is in an operable state; and
a control unit to stop said preparatory flash device when said vibration reducing mechanism is in an operable state.

5,724,618

CAMERA WITH VIBRATION CORRECTION FUNCTION

Hidenori Miyamoto, Urayasu; Toshiyuki Nakamura, Tokyo, and Tatsuo Amanuma, Ageo, all of Japan, assignors to Nikon Corporation, Tokyo, Japan

Division of Ser. No. 373,790, Jan. 17, 1995, Pat. No. 5,623,704. This application Jan. 13, 1997, Ser. No. 782,386
Claims priority, application Japan, Apr. 22, 1994, 6-85079; Apr. 22, 1994, 6-85080; Apr. 22, 1994, 6-85081; Apr. 28, 1994, 6-92651
Int. Cl.[6] G03B *5/00*
U.S. Cl. 396—55 **7 Claims**



1. A camera with a vibration correction function, comprising:
a vibration detecting device for detecting an amount of vibration of said camera;
a vibration correcting device for correcting said vibration based on an output of said vibration detecting device;
a variable power lens; and
a control device for controlling said vibration detecting device so as not to be driven during a refractive power varying operation of said variable power lens.

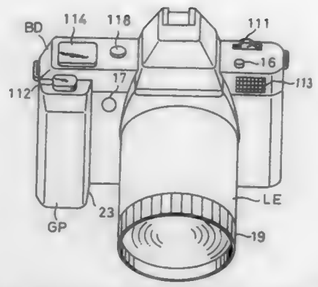
5,724,619

EYE-START OF CAMERA

Masataka Hamada, Osakasayama; Kenji Ishibashi, Sakai; Hiroshi Ueda, Habikino; Hiroshi Ootsuka, Sakai, and Yoshihiro Hara, Kishiwada, all of Japan, assignors to Minolta Co., Ltd., Osaka, Japan

Continuation of Ser. No. 481,204, Jun. 7, 1995, Pat. No. 5,613,166, which is a continuation of Ser. No. 200,009, Feb. 22, 1994, abandoned, which is a continuation of Ser. No. 885,615, May 19, 1992, Pat. No. 5,315,339. This application Nov. 5, 1996, Ser. No. 743,182
Claims priority, application Japan, May 22, 1991, 3-147916; May 23, 1991, 3-149984; May 23, 1991, 3-149985; May 24, 1991, 3-149987; May 24, 1991, 3-149988; Jun. 27, 1991, 3-156675
Int. Cl.[6] G03B *17/00*
U.S. Cl. 396—82 **12 Claims**

1. An autofocus camera comprising:
a focal point detecting means having a plurality of focal point detection areas for determining an object distance, said focal point detecting means having a plurality of calculation methods for determining an object distance;
a zoom lens driving means capable of performing a plurality of zooming modes;
a discriminating means for discriminating between zooming; and
a selecting means for selecting one of said plurality of calculation methods based on a discrimination result of said discriminating means.

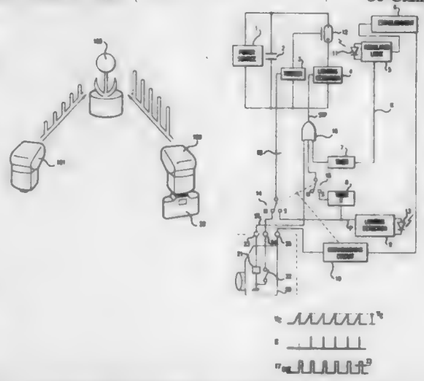


5,724,620

WIRELESS LIGHT-AMPLIFYING STROBE SYSTEM AND STROBE DEVICE USABLE WITH THE SYSTEM

Nobuyoshi Hagiuda, Yokohama; Hideki Matsui, Fujisawa; Ryotaro Takayanagi, Yokohamashi, and Hiroshi Sakamoto, Kawasaki, all of Japan, assignors to Nikon Corporation, Tokyo, Japan

Continuation of Ser. No. 201,389, Feb. 24, 1994, abandoned. This application Jan. 30, 1996, Ser. No. 594,370
Claims priority, application Japan, Mar. 10, 1993, 5-076118
Int. Cl.[6] G03B *15/03*
U.S. Cl. 396—182 **30 Claims**



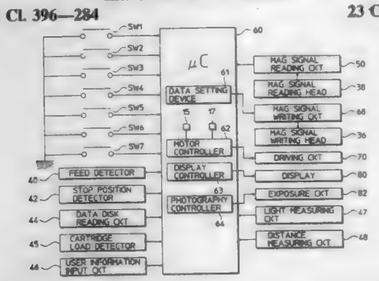
1. A wireless light amplifying strobe system for a camera controlling light emission of multiple strobes, comprising:
a distinguishing circuit located within each of the strobes that automatically sets each of the strobes to be in one of two states: a primary state when one of the strobes is attached to the camera and operates in a wired manner as a primary strobe, the primary strobe being capable of repeatedly emitting intermittent primary flashes of light; with each exposure and an auxiliary state when at least one of the strobes is not attached to the camera and operates in a wireless manner as at least one auxiliary strobe, the at least one auxiliary strobe being capable of repeatedly emitting auxiliary flashes of light; with each exposure
a light intensity determination circuit within the primary strobe that determines an intensity of each of the intermittent primary flashes of light based on photographic information conveyed from the camera, the photographic information including a distance from the camera to an object being photographed, a diaphragm value of a lens being used on the camera and a speed of film being used in the camera; and
a detector in the at least one auxiliary strobe for detecting commencement of each of the intermittent primary flashes of light of the primary strobe without monitoring cessation of each of the intermittent primary flashes of light and actuating the at least one auxiliary strobe to emit the auxiliary flashes in response to each of said intermittent primary flashes of light.

5,724,621

CAMERA PROVIDED WITH A MAGNETIC RECORDING DEVICE

Yasuaki Serita, Sakai; Kenji Tsuji, Kashiwara, and Hiroyuki Okada, Sakai, all of Japan, assignors to Minolta Co., Ltd., Osaka, Japan

Filed Jun. 6, 1995, Ser. No. 463,638
Claims priority, application Japan, Jun. 8, 1994, 6-126492
Int. Cl.[6] G03B *17/24;7/00*
U.S. Cl. 396—284 **23 Claims**



1. A camera detachably mountable with a film cartridge which accommodates a photographic film and has a film state indicator operable to indicate an exposed state in which the entire film is already exposed, the camera comprising:
a film feeding device which feeds the film in a first direction and in a second direction opposite to the first direction;
a recording device which records specified data on the film when the fill is fed in the first direction;
a judging device which judges whether the specified data is recorded on the film when the film is being fed in the second direction; and
a setting device which is responsive to the judging device and associated with the film state indicator of the film cartridge, and is operable to cause the film state indicator to indicate the exposed state, independently of the actual exposure state of the film, when the specified data is judged not to be recorded on the film.

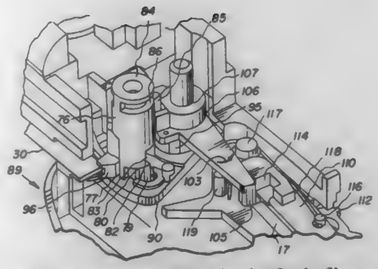
5,724,622

FILM METERING MECHANISM

Edward Norman Balling, Rochester; David Clinton Smart, Fairport; Dennis Roland Zander, Penfield, and Thomas Edgar Dussinger, Henrietta, all of N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.

Filed Dec. 22, 1995, Ser. No. 577,288
Int. Cl.[6] G03B *1/04;17/04;17/38*
U.S. Cl. 396—396 **31 Claims**

1. A camera, for use with a film cartridge and a perforated filmstrip, said camera comprising:
a body portion having a cartridge chamber for the film cartridge and a film chamber for the filmstrip;
a high energy lever returnable to a cocked position;
a locking lever attached to said body portion, said locking lever being movable between a pawl locking position and a pawl unlocking position, said locking lever being biased toward said pawl locking position;
a film metering pawl movable into and out of engagement with perforations of the filmstrip, said film metering pawl including a slotted portion receiving said locking lever when said locking lever is in said pawl locking position to lock said pawl in engagement with said perforations and prevent winding of the filmstrip into the cartridge; and
a release element attached to said body portion, said release element moving said locking lever to said pawl unlocking position when said high energy lever is returned to said cocked position, to unlock said pawl.

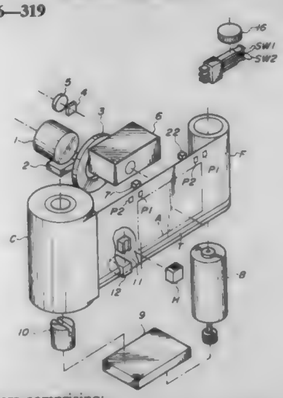


5,724,623

CAMERA USING A FILM WITH A MAGNETIC MEMORY PORTION

Hideo Tamamura, Yokohama, Japan, assignor to Canon Kabushiki Kaisha, Tokyo, Japan

Continuation of Ser. No. 171,779, Dec. 22, 1993, abandoned, which is a continuation of Ser. No. 865,240, Apr. 8, 1992, abandoned. This application Jun. 7, 1995, Ser. No. 473,956
Claims priority, application Japan, Apr. 26, 1991, 3-122996
Int. Cl.[6] G03B *17/24*
U.S. Cl. 396—319 **87 Claims**



1. A camera comprising:
a first detection unit which detects perforations of a film, arranged at a first position where the perforations of the film pass;
a second detection unit which detects the perforations of the film, arranged at a second position where the perforations of the film pass, said second detection unit being shifted from the first position in a direction in which the film is transported; and

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a determination device which determines an information writing frequency for writing information to the film in accordance with a detection result of said first detection unit without using a detection result of said second detection unit, and controls a movement of the film in accordance with the detection result of said second detection unit.

5,724,624

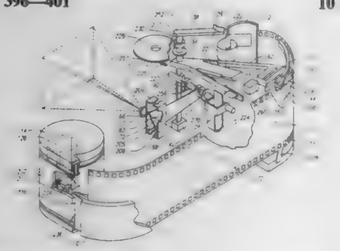
SIMPLIFIED TRIGGER, SHUTTER AND FILM ADVANCE SYSTEM SUCH AS FOR USE IN A CAMERA

Michael S. Demaree, P.O. Box 262, Porterville, Calif. 93258, and John E. Demaree, 1178 Hayes St., Irvine, Calif. 92770

Continuation-in-part of Ser. No. 382,914, Feb. 3, 1995, which is a continuation-in-part of Ser. No. 78,737, Jun. 16, 1993, Pat. No. 5,387,957. This application Dec. 29, 1995, Ser. No. 578,208

Int. Cl.[6] G03B *17/42*

U.S. Cl. 396—401 **10 Claims**



1. A camera comprising

a housing including an aperture in an exterior wall, a wedge stop, and a film track for receiving film;

a lens mounted adjacent said aperture;

a shutter rotatably mounted in said housing, said shutter being rotatable between a rest position and an actuated position, said shutter covering the aperture in the rest position and opening the aperture in the actuated position to allow light to enter said housing and thereby expose the film;

a substantially unitary trigger rotatably mounted in said housing and having consecutive first, second and third positions, said trigger comprising an arm and a strike bar constructed and arranged to advance from said first position, through said second position, to said third position, said arm engaging a sprocket hole in the film at said first position and advancing the film until reaching said second position, said strike bar engaging said wedge stop between said first and third positions, and said arm engaging and releasing said strike bar from said wedge stop at said third position to thereby allow said strike bar to strike said shutter and rotate said shutter from said rest position to said actuated position.

5,724,625

BELT-DRIVEN SHUTTERS

David Reynolds Dowe, Holley, N.Y., assignor to Eastman Kodak Company, Rochester, N.Y.

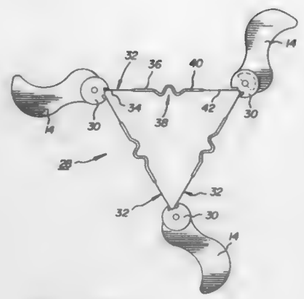
Filed Jun. 7, 1996, Ser. No. 660,315

Int. Cl.[6] G03B *9/20*

U.S. Cl. 396—497 **11 Claims**

4. A belt-driven shutter mechanism including a shutter frame with an aperture, a plurality of hubs rotatably positioned around the aperture, a corresponding plurality of shutter blades, one blade being supported by each hub, and a belt attached to each of the hubs so that rotation of one of the hubs rotates a corresponding one of the shutter blades, which applies tension to the belt to rotate a remainder of the plurality of hubs and shutter blades, is characterized by:

the belt comprising a corresponding plurality of sections having ends; and



each of the hubs including a radially extended recess open through a peripheral surface of the respective hub, adjacent ends of adjacent sections of the belt being attached to a respective one of the hubs at attachment points located within the recess of the respective one of the hubs.

5,724,626

PHOTOSENSITIVE MATERIAL TRANSPORTING APPARATUS

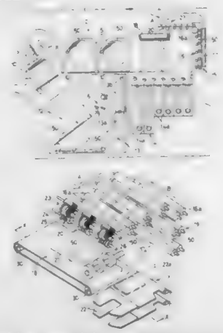
Kenji Todoki, Wakayama, Japan, assignor to Noritsu Koki Co., Ltd., Wakayama-ken, Japan

Filed Oct. 24, 1996, Ser. No. 736,442

Claims priority, application Japan, Oct. 25, 1995, 7-277796

Int. Cl.[6] G03D *3/08;* **G03B** *27/32*

U.S. Cl. 396—612 **6 Claims**



1. A photosensitive material transporting apparatus comprising:

a transport passage for transporting developed photosensitive material;

a transporting pinch roller mechanism disposed along the transport passage of the photosensitive material and capable of transporting the material by pinching it;

a discharging pinch roller mechanism disposed at an exit of the transport passage and having a higher transporting speed than the transporting pinch roller mechanism; and

a torque limiter attached to a roller of the discharging pinch roller mechanism for rendering the roller freely rotatable in response to a torque greater than a predetermined value.

5,724,627

IMAGE FORMING APPARATUS WHICH CALCULATES TONER CONSUMPTION IN ACCORDANCE WITH TONE CORRECTION

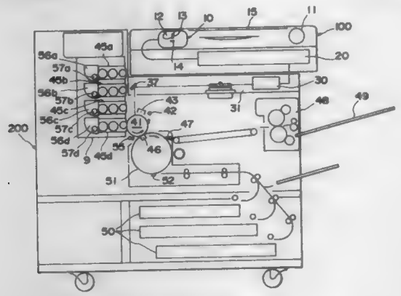
Yukihiko Okuno, Toyokawa; Masaki Tanaka, Toyohashi, and Naoyoshi Kinoshita, Aichi-Ken, all of Japan, assignors to Minolta Co., Ltd., Osaka, Japan

Filed Nov. 17, 1995, Ser. No. 558,103

Claims priority, application Japan, Nov. 18, 1994, 6-284925

Int. Cl.[6] G03G *15/08*

U.S. Cl. 399—27 **12 Claims**



1. An image forming apparatus comprising:

print means for printing an image with a developer, based on print data, said print means having a plurality of tone correction relationships for converting image data expressing density of each pixel of an image to be printed into print data;

selection means for selecting one of said tone correction relationships, wherein said print means prints an image based on print data converted by said tone correction relationship selected by said selection means; and

calculation means for calculating an amount of developer consumed by said print means, said calculation means having a plurality of coefficients corresponding to said tone correction relationships and calculating the amount of the consumed developer by multiplying pixel frequency at each density level of the image data by said coefficients corresponding to the selected tone correction relationship.

5,724,628

FIXING DEVICE WITH ENDLESS BELT AND PLURAL HEATERS

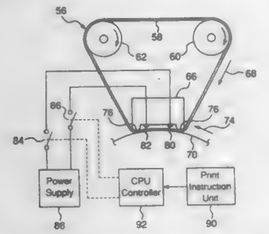
Eiichi Sano, Takatsuki, Japan, assignor to Minolta Co., Ltd., Osaka, Japan

Filed Feb. 13, 1997, Ser. No. 800,132

Claims priority, application Japan, Feb. 14, 1996, 8-026644; Feb. 14, 1996, 8-026647

Int. Cl.[6] G03G *15/70*

U.S. Cl. 399—33 **23 Claims**



1. A fixing device for use in an image forming apparatus, by which one or more toner images are fixed on a sheet substrate, comprising:

(a) an endless belt;

(b) a plurality of members, arranged inside the belt, for rotatably supporting the endless belt;

(c) drive means for rotating the belt;

(d) nip forming means, arranged outside the belt in circumferential contact therewith to form a nipping region extended a certain length in a rotational direction of the belt, for nipping and transporting the sheet with the belt;

(e) a plurality of heating means, each of the heating means being arranged adjacent the nipping region, extended in a transverse direction of the belt, and spaced apart a certain distance from the neighboring heating means in a rotational direction of the belt;

(f) a plurality of switching means, each switching means switching the associated heating means from a heating state to a non-heating state and vice versa, respectively; and

(g) switch control means for controlling the plurality of switching means depending upon the number of toners to be fixed on the sheet;

(h) wherein the distance between the two neighboring heating means is so determined that a temperature of the belt heated by one of the two neighboring heating means is maintained until a subsequent heating by the other.

5,724,629

LIQUID DEVELOPER MONITORING DEVICE, LIQUID DEVELOPER CONTROLLING SYSTEM, AND IMAGE FORMING APPARATUS USING SAME

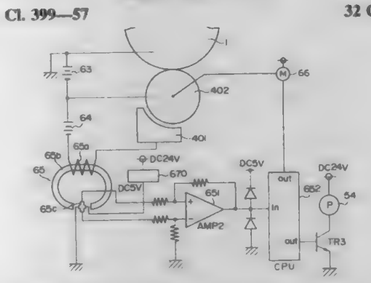
Shuji Iino, Muko; Toshimitsu Fujiwara, Kobe; Hidetoshi Miyamoto, Takatsuki, and Masami Yamada, Osaka, all of Japan, assignors to Minolta Co., Ltd., Osaka, Japan

Filed Jun. 28, 1996, Ser. No. 671,880

Claims priority, application Japan, Jun. 28, 1995, 7-162192

Int. Cl.[6] G03G *15/10*

U.S. Cl. 399—57 **32 Claims**



1. A liquid developer monitoring device comprising:

(a) an electrode for contacting a liquid developer comprising a liquid medium and electrically charged toner particles dispersed therein;

(b) an electrically conductive roller which is immersed in the liquid developer;

(c) an electric power source which applies a bias voltage between said electrode and said roller so as to deposit the toner particles on the roller;

(d) a sensor which measures magnitude of current flowing between said electrode and said roller during the deposition of toner particles; and

(e) a remover which removes toner particles deposited on the roller so as to provide a fresh surface on the roller.

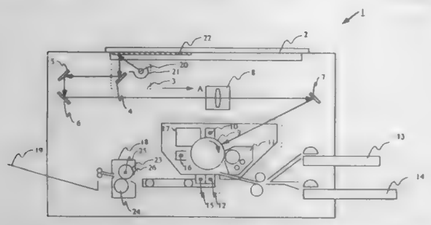
VOL 1208 ISS 1 MR 3 1998 UMI

5,724,630

IMAGE FORMING APPARATUS WITH STANDBY TEMPERATURE CONTROL OF THERMAL FIXING

Tamaki Mashiba, Nara, Japan, assignor to Sharp Kabushiki Kaisha, Osaka, Japan

Filed Mar. 6, 1996, Ser. No. 611,427
Claims priority, application Japan, Mar. 6, 1995, 7-045347
Int. Cl.[6] G03G *15/20*
U.S. Cl. 399—70 7 Claims



1. An image-forming apparatus equipped with a thermal fixing device which fixes a toner image on a sheet, said apparatus comprising:

storage means for storing the image formation history information including the number of image forming processes implemented in the past; and

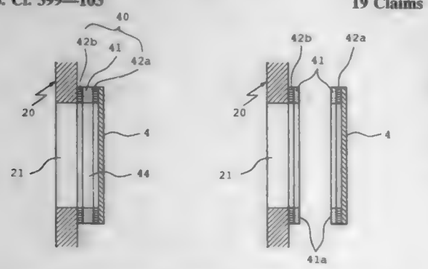
temperature control means for calculating the use frequency based on the image formation history information stored in the storage means to control the temperature of the thermal fixing device on standby based on the calculated use frequency.

5,724,631

SEAL CONSTRUCTION AND SEAL MEMBER

Koshiro Nakao, Nishiomiya, Japan, assignor to Minolta Co., Ltd., Osaka, Japan

Filed Aug. 2, 1996, Ser. No. 691,342
Claims priority, application Japan, Aug. 4, 1995, 7-219744
Int. Cl.[6] G03G *15/08*
U.S. Cl. 399—103 19 Claims



1. A seal construction for sealing an aperture, comprising:

a first adhesive layer for attachment to a periphery of an aperture;

a second adhesive layer adhering to a film member; and

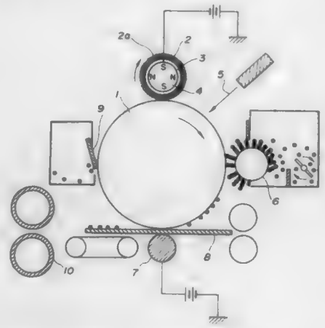
a substrate having the first adhesive layer and the second adhesive layer on bilateral sides thereof, said substrate being capable of splitting and staying partially adhered to the first adhesive layer and the second adhesive layer.

5,724,632

CHARGING APPARATUS AND ELECTROPHOTOGRAPHIC APPARATUS

Fumihiro Arahira; Shuichi Aita; Tsutomu Kukimoto, all of Yokohama; Kiyoshi Mizoe, Kawasaki, and Yoshifumi Hano, Inagi, all of Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan

Filed Dec. 17, 1996, Ser. No. 767,802
Claims priority, application Japan, Dec. 18, 1995, 7-347539; Dec. 18, 1995, 7-347541
Int. Cl.[6] G03G *15/02*
U.S. Cl. 399—174 22 Claims



1. A charging apparatus, comprising:

an electrophotographic photosensitive member comprising a photosensitive layer provided on a conductive supporting member; and

a charging member comprising magnetic particles, in contact with said electrophotographic photosensitive member, for charging said electrophotographic photosensitive member when a voltage is applied to said charging member,

wherein a layer of said electrophotographic photosensitive member most separated from the conductive supporting member has a volume resistivity between 10^8 Ω.cm and 10^{15} Ω.cm, and

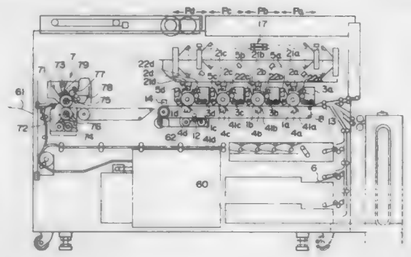
wherein the magnetic particles have a hygroscopic property such that a ratio H/L of a maximum value H to a minimum value L of an amount of water contained within the particles is at least 1 and less than 4.

5,724,633

IMAGE FORMING APPARATUS IN WHICH DIFFERENT COLOR TONERS HAVE SUBSTANTIALLY EQUAL CHARGE AMOUNTS

Koji Amemiya, Tokyo, Japan, assignor to Canon Kabushiki Kaisha, Tokyo, Japan

Filed Jul. 19, 1996, Ser. No. 684,929
Claims priority, application Japan, Jul. 20, 1995, 7-207516
Int. Cl.[6] G03G *15/01*
U.S. Cl. 399—223 7 Claims



1. An image forming apparatus comprising:

a plurality of photosensitive members;

charging means provided respectively with each of said photosensitive members for charging said photosensitive members;

exposing means for exposing said charged photosensitive members by an image light;

a plurality of developing means provided corresponding to each of said photosensitive members for developing an electrostatic image by toners of different colors;

transfer means for sequentially conveying a toner image carrying medium to a transfer position of each of said photosensitive members and transferring the toner images of different colors superimposed on the toner image carrying medium; and

color mixing means for mixing the colors of the superimposed toner images,

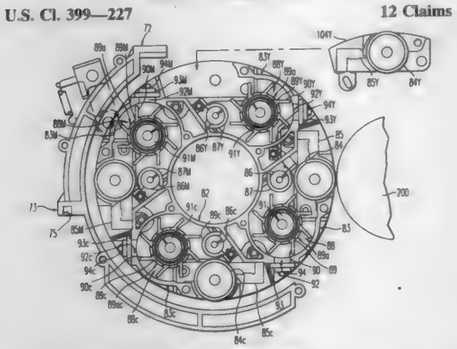
wherein a charge amount of the toner for developing the electrostatic latent image on each of said photosensitive members are substantially equal.

5,724,634

IMAGE FORMING DEVICE IN WHICH DEVELOPER ROLLER SPEED IS CONTROLLED IN DEVELOPER TRANSFER TO A PHOTOCONDUCTIVE DRUM

Takayuki Maruta, Tokyo, Japan, assignor to Ricoh Company, Ltd., Tokyo, Japan

Filed Apr. 29, 1996, Ser. No. 639,962
Claims priority, application Japan, Apr. 28, 1995, 7-129361
Int. Cl.[6] G03G *15/01*
U.S. Cl. 399—227 12 Claims



1. An image forming device, comprising:

a photosensitive drum having a first motor disposed to rotate the photosensitive drum;

an optical unit disposed to create a charged pattern corresponding to an original image on the photosensitive drum;

a revolver developing device to apply developer to the photosensitive drum to create a visible image on the photosensitive drum, the revolver developing device including a plurality of developing devices and a second motor disposed to rotate the revolver developing device and the plurality of developing devices, each developing device having a developing roller for carrying developer and a third motor disposed to rotate the developing roller of each developing device, wherein a rotation speed of each developing roller is determined so that the developer on the developing roller moves relative to the photosensitive member in a direction of a tangent line of developing roller against the surface of the photosensitive drum when the developer on the developing roller comes in contact with the photosensitive drum, and Vr+Vs−Vp≠0 where (Vr) is a speed of the revolver developer device, (Vs) is a speed of the developer roller, and (Vp) is a speed of the photosensitive drum; and

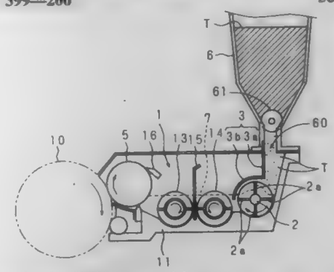
a transfer system disposed to transfer the visible image to a sheet.

5,724,635

DEVELOPING DEVICE AND IMAGE FORMING APPARATUS USING THE DEVELOPING DEVICE

Shigeki Nagaoka, and Hidenori Fujioka, both of Hyogo, Japan, assignors to Fujitsu Limited, Kawasaki, Japan

Continuation of Ser. No. 429,772, Apr. 27, 1995, abandoned.
This application Mar. 24, 1997, Ser. No. 822,761
Claims priority, application Japan, Jul. 7, 1994, 6-156234; Feb. 21, 1995, 7-032694
Int. Cl.[6] G03G *15/08*
U.S. Cl. 399—260 56 Claims



1. A developing device, comprising:

a toner hopper for storing toner, the toner hopper having an outlet through which the toner stored therein is discharged;

a stirrer for mixing and transferring the toner from the hopper with developer including magnetic particles, and which is provided with blades radially provided on its rotary axis and spiral screws alternately in the axis direction;

a screw means for transferring the developer from the stirrer in accordance with the rotation thereof and along the rotary axis thereof, the screw means being located adjacent to said stirrer;

a developing roller adjacent to said screw means, the developing roller comprising an outer cylinder and inner magnets which magnetically attract a toner content of the developer on the surface of the outer cylinder transferred from said screw means;

a circulating chamber for allowing the developer to circulate from said stirrer to said developing roller by way of said screw means; and

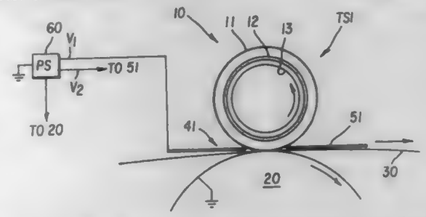
a dispersion-preventing plate including a plate-like upright portion suspended from the outlet of the toner hopper, and a cover portion connected with a lower end of said upright portion, said cover portion having a shape of a part of a cylinder for covering a part of the stirrer.

5,724,636

METHOD AND APPARATUS FOR TRANSFERRING A TONER IMAGE TO A RECEIVER SHEET USING AN ELECTRICAL BIAS

Thomas N. Tombs; John W. May, both of Rochester, and Bruce R. Benwood, Churchville, all of N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.

Filed Nov. 12, 1996, Ser. No. 745,728
Int. Cl.[6] G03G *15/16*
U.S. Cl. 399—313 25 Claims



14. An apparatus for electrostatically transferring a toner image from a toner image bearing member to a receiver sheet, the apparatus comprising:

VOL 1208 ISS 1 MR 3 1998 UMI

a movable toner image bearing member supporting a toner image;

a rotatable transfer roller located proximate the toner image bearing member so as to cooperate with the toner image bearing member to define a toner transfer nip for transferring in an in-nip region the toner image to a receiver sheet moving within the nip, the transfer roller having a resistive outer layer;

first means for applying a first contact voltage to the resistive outer layer at first points in or proximate a post-nip region to establish a post-nip electrical voltage distribution in the post nip region of the transfer roller that is immediately downstream with respect to the in-nip region of the transfer roller, the first points being within or proximate the post-nip region; and

second means for applying a second contact voltage to the resistive outer layer at second points in or proximate a pre-nip region to establish a pre-nip electrical voltage distribution in the pre-nip region of the transfer roller that is immediately up-stream with respect to the in-nip region of the transfer roller.

5,724,637

FIXING ROLLER HAVING LOW RESISTANCE LAYER AND FIXING APPARATUS USING SAME

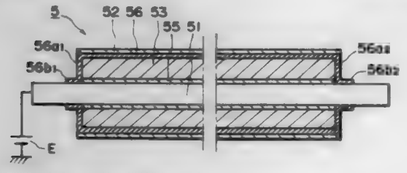
Hisaaki Senba, deceased, late of Yokohama, by Reiko Senba, legal representative, and Shigeaki Takada, Tokyo, both of Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan

Filed Sep. 5, 1996, Ser. No. 706,559

Claims priority, application Japan, Sep. 8, 1995, 7-257041

Int. Cl.[6] G03G *15/20*

U.S. Cl. 399—333 **58 Claims**



1. A fixing apparatus comprising:

a movable member;

a rotatable member for forming a nip with said movable member;

wherein a recording material carrying an unfixed toner image is fed by said nip therethrough, and the unfixed toner image is fixed while it is being fed thereby;

wherein said rotatable member comprises an electroconductive core, a low resistance layer electrically connected with said core and provided outside said core, and an insulation layer outside the low resistance layer;

means for applying a bias voltage to said core of said rotatable member;

an insulation member for covering an end surface of the low resistance layer of said rotatable member.

5,724,638

FIXING DEVICE FOR IMAGE FORMING APPARATUS

Mitsuru Isogai; Takashi Yamada, both of Aichi-Ken; Tetsuro Ito, Anjo; Noboru Yonekawa, and Taizou Oonishi, both of Toyokawa, all of Japan, assignors to Minolta Co., Ltd., Osaka, Japan

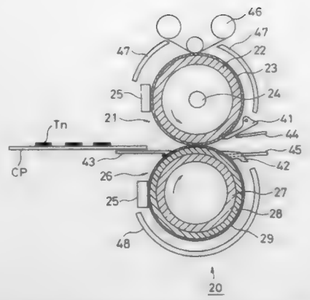
Filed Sep. 13, 1996, Ser. No. 716,676

Claims priority, application Japan, Sep. 14, 1995, 7-260946; Sep. 14, 1995, 7-260947

Int. Cl.[6] G03G *15/20*

U.S. Cl. 399—333 **27 Claims**

1. A fixing device for an image forming apparatus having fixing means formed of a heating convey rotatable member for heating and fixing a toner image formed on a recording medium,



said heating convey rotatable member having a release layer on the surface thereof, and said release layer being formed of a material whose spectral emissivity in a wave range of wavelength of 5 to 10 μm is 0.65 or less.

5,724,639

FIXING DEVICE HAVING SURFACES WITH DIFFERENT THERMAL CHARACTERISTICS

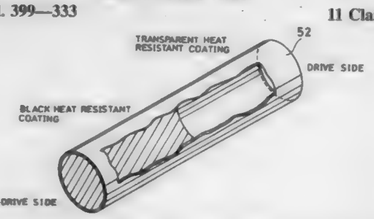
Toshihiro Tamura; Toshiaki Kagawa, both of Sakurai, and Shogo Yokota, Fujiidera, all of Japan, assignors to Sharp, Kabushiki Kaisha, Osaka, Japan

Filed Dec. 17, 1996, Ser. No. 767,625

Claims priority, application Japan, Dec. 18, 1995, 7-328866

Int. Cl.[6] G03G *15/20*

U.S. Cl. 399—333 **11 Claims**



1. A fixing device for fixing a toner image by heating and pressuring recording paper transported between a fixing roller and a press member,

the fixing device comprising:

a first area and a second area on an inner surface of the fixing roller in a lengthwise direction of the fixing roller,

wherein the surfaces of the first and second areas have different thermal characteristics from each other.

5,724,640

FLOATING BACKER AND MOUNT FOR CLEANING BLADES AND SPOTS BLADES ON BELT IMAGING SURFACES

Bruce E. Thayer, Webster, N.Y., assignor to Xerox Corporation, Stamford, Conn.

Filed Jan. 21, 1997, Ser. No. 786,545

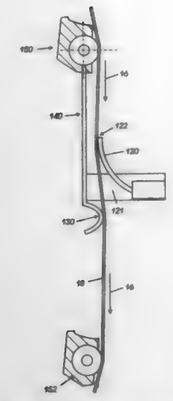
Int. Cl.[6] G03G *21/00;15/00*

U.S. Cl. 399—351 **11 Claims**

1. An apparatus for removing particles from a moving surface after transfer of an image therefrom, comprising:

a device for removing particles from the surface, said removing device having two ends, a free end opposite a fixed end, said free end tangentially contacting the surface;

a mount having a first end and a second end opposite said first end, said removing device having the fixed end coupled to said first end of said mount;



a floating backer being attached to said second end of said mount oppositely adjacent said removing device, having the surface between said floating backer and said removing device;

a frame having said mount attached thereto, said mount having said removing device and said floating backer coupled thereto; and

a first fixed backer from which said frame having said removing device and said floating backer mounted thereon is pivoted.

5,724,641

IMAGE FORMING APPARATUS COMPRISING A STAPLER RELATIVELY MOVABLE IN THE POSITIONS OF THE ORIGINAL DISCHARGE TRAY AND THE SHEET DISCHARGE TRAYS

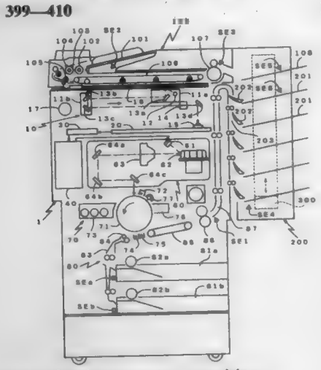
Yoshihiro Shojo, Itami; Shizuo Yuge; Keichi Kinoshita, both of Toyokawa, and Yoshio Sakagawa, Takatsuki, all of Japan, assignors to Minolta Co., Ltd., Osaka, Japan

Filed Jun. 4, 1996, Ser. No. 660,325

Claims priority, application Japan, Jun. 5, 1995, 7-162776; Dec. 14, 1995, 7-348095

Int. Cl.[6] G03G *15/00*

U.S. Cl. 399—410 **18 Claims**



1. An image forming apparatus comprising:

an original set tray on which originals are set;

image reading means for reading an image on at least one of the originals;

image forming means for forming an image on a sheet on the basis of the image on the original read by the image reading means;

an original discharge tray onto which the originals from which the images have been respectively read are discharged;

a plurality of sheet discharge trays onto which the sheets respectively having the images formed thereon are discharged;

an automatic document feeder for leading the originals set on said original set tray to the position of said image reading means one original at a time, and then discharging the original onto the original discharge tray;

distributing means for distributing the sheets respectively having the images formed thereon among the plurality of sheet discharge trays; and

a stapler relatively movable in the positions of said original discharge tray and the plurality of sheet discharge trays.

5,724,642

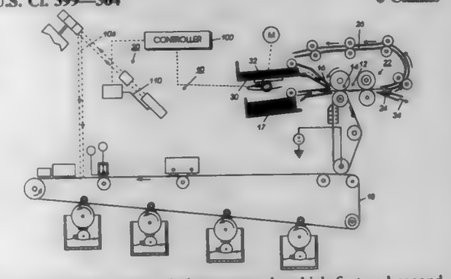
DUPLEX COLOR PRINTING SYSTEM WITH CURL CONTROL BY SHEET ROTATION BETWEEN PRINTING OPPOSING SIDES

Gerald F. Caln, Rochester, N.Y., assignor to Xerox Corporation, Stamford, Conn.

Filed Sep. 27, 1996, Ser. No. 719,531

Int. Cl.[6] G03G *21/00*

U.S. Cl. 399—364 **6 Claims**



1. In a duplex color printing system, in which first and second plural color images are respectively printed on the first and second sides of copy sheets fed to be printed one side at a time, a process of reducing copy sheet feeding jams due to color printing sheet curl; the improvement comprising:

printing a first plural color image on a first side of a copy sheet with said copy sheet in a first orientation,

then automatically rotating said copy sheet by 90 degrees from said first orientation into a second orientation and printing said copy sheet to print a second plural color image on the second side of said copy sheet with said copy sheet in said second orientation.

5,724,643

LIGHTWEIGHT HIGH STIFFNESS SHAFT AND MANUFACTURING METHOD THEREOF

Bruce Ewing, Martinsville, Ind., assignor to Allison Engine Company, Inc., Indianapolis, Ind.

Filed Jun. 7, 1995, Ser. No. 470,180

Int. Cl.[6] B22F *3/12;3/14;7/04;5/00*

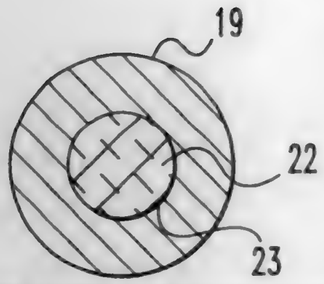
U.S. Cl. 419—8 **35 Claims**

1. A method for manufacturing a high stiffness power transmission shaft, comprising:

providing a tube having in its interior a material made from a powder metal having a modulus of elasticity greater than the modulus of elasticity of said tube; and

creating a metallurgical bond between the tube and the material so that the shaft has a modulus of elasticity greater than the

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modulus of elasticity that the tube would have without the material being bonded to it.

5,724,644

METHOD OF AND RECEIVER FOR PROCESSING AND REPRODUCING A MESSAGE

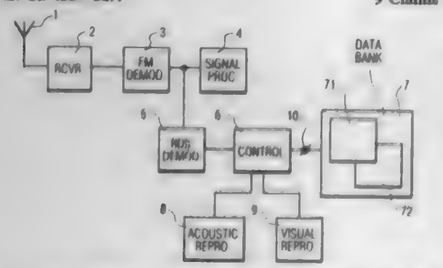
Derk J. C. Wassink; Heinz W. Wetsels, and Frans A. Westra, all of Eindhoven, Netherlands, assignors to U.S. Philips Corporation, New York, N.Y.

Filed Dec. 19, 1995, Ser. No. 574,827

Claims priority, application European Pat. Off., Dec. 20, 1994, 942036914

Int. Cl.[6] H04B *1/16*

U.S. Cl. 455—38.4 **9 Claims**



1. A receiver for receiving a message in a code which is independent of the method of reproduction and the processing thereof, said receiver comprising:

input means for receiving said message;

demodulating means for demodulating said message;

a data bank;

acoustic reproducing means;

visual reproducing means;

control means having a first input coupled to receive said demodulated message, and input/output means coupled to the data bank supplying codes contained in said message to said data bank and for receiving data from said data bank relating to the codes in the message, said control unit further including means coupled to said acoustic reproducing means and said visual producing means for reproducing the message on the basis of data read from the data bank,

characterized in that the control means comprises means for dividing the message into a first part and a second part in such a manner that the first part comprises a primary designation, which is characteristic of the message, and the second part comprises a secondary designation, and the control means further comprises means for reproducing at least the first part by the acoustic reproducing means and, selectively, the second part by the visual reproducing means.

5,724,645

CIRCUIT FOR CONTROLLING A RADIO-FREQUENCY OUTPUT VOLTAGE LEVEL AND IDENTIFYING THE CONTINUITY OF AN INTER FACILITY LINK CABLE USING A LOW FREQUENCY SIGNAL, AND METHOD THEREOF

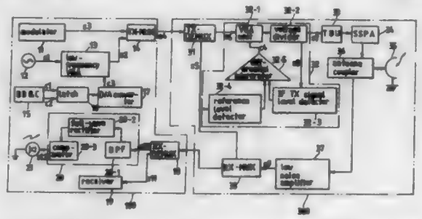
Kweon Na, Seoul, Rep. of Korea, assignor to Hyundai Electronics Industries Co., Ltd., Kyoungki-do, Rep. of Korea

Filed Aug. 10, 1995, Ser. No. 513,540

Claims priority, application Rep. of Korea, Dec. 31, 1994, 94-40388

Int. Cl.[6] H04H *1/00*

U.S. Cl. 455—3.2 **8 Claims**



4. A method of controlling a radio-frequency (RF) output voltage level and identifying continuity of an inter facility link (IFL) cable using a low frequency signal, comprising the steps of:

multiplexing an intermediate frequency (IF) signal with a low-frequency signal to produce a multiplexed signal;

transmitting the multiplexed signal from an indoor unit to an outdoor unit by a transmission (TX) cable;

separating the IF signal from the low frequency signal;

detecting a reference level, from the low-frequency signal, the low-frequency signal being level-controlled in one level out of a plurality of levels

adjusting gain of a variable gain amplifier (VGA) amplifying and the separated IF signal in accordance with the reference level so as to control a level of an IF TX signal input to a transmit block upconverter

amplifying an output from the transmit block upconverter in a power amplifier so as to controllably produce said RF output voltage level feeding back the separated low frequency signal from the outdoor unit to the indoor unit, detecting a level of the feedback low frequency signal at the indoor unit to determine a normal IFL cable state.

5,724,646

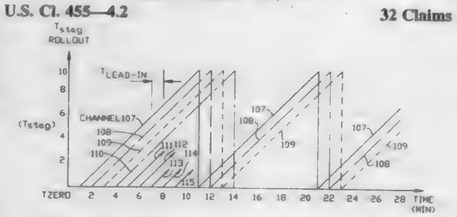
FIXED VIDEO-ON-DEMAND

Alan George Ganek, Chappaqua; Louis Paul Herzberg, Monsey; Antonio Ruiz, Yorktown Heights, and Barry Edward Willner, Briarcliff Manor, all of N.Y., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Jun. 15, 1995, Ser. No. 490,747

Int. Cl.[6] H04N *7/10;7/173*

U.S. Cl. 455—4.2 **32 Claims**



1. A method of providing video-on-demand of the type wherein a video program is repeatedly transmitted at a staggered time interval from a video-on-demand-server to a viewbox wherein the viewbox receives a request for the video program, the method comprising the steps of:

repeatedly transmitting a beginning portion of the video program from the video-on-demand-server to the viewbox at a second staggered time interval;

and at a receiver end:

selecting a next commenced beginning portion of the video program for output by the viewbox, responsive to the request for the video program;

selecting and storing an in-progress one of a plurality of repeated transmissions of the video program in a buffer associated with the viewbox, responsive to the request for the video program; and

contiguously splicing an immediately previous transmission of the video program stored in the buffer, to a conclusion of the beginning portion of the video program, for output by the viewbox.

5,724,647

WIRELESS COMMUNICATION SYSTEM

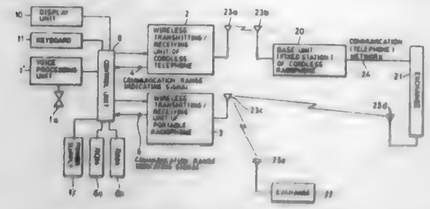
Hideaki Sato, Yokohama, Japan, assignor to Canon Kabushiki Kaisha, Tokyo, Japan

Division of Ser. No. 20,991, Apr. 5, 1993, Pat. No. 5,517,553, which is a division of Ser. No. 316,486, Feb. 27, 1989, Pat. No. 5,210,785. This application Mar. 16, 1995, Ser. No. 404,986

Claims priority, application Japan, Feb. 29, 1988, 63-44572; May 16, 1988, 63-116847

Int. Cl.[6] H04B *7/00*

U.S. Cl. 455—54.1 **4 Claims**



1. A communication terminal device comprising

plural wireless communication means including first wireless communication means for performing wireless communication with a direct exchange and second wireless communication means for performing wireless communication with a base unit connected to a communication line from an exchange;

selection means for selecting one of the first and second wireless communication means; and

communication means for performing communication using the wireless communication means selected by said selecting means,

wherein said selection means preferentially selects said second wireless communication means after power is supplied or a calling operation is performed regardless of a selection of an operator, even if said second wireless communication means has a lower signal quality than said first wireless communication means.

5,724,648

METHOD OF FACILITATING TALKGROUP COMMUNICATION IN A PEER-TO-PEER

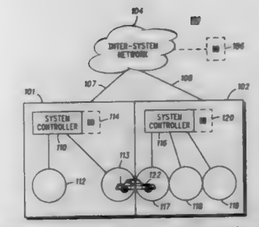
Mark Shaughnessy, 1242 Victoria Ct., Algonquin, Ill. 60102; Daniel McDonald, 71 Hampton St., Cary, Ill. 60013, and Michael Sasuta, 1661 Blackburn, Mundelein, Ill. 60060

Continuation of Ser. No. 330,495, Oct. 28, 1994, abandoned. This application Sep. 6, 1996, Ser. No. 709,420

Int. Cl.[6] H04B *1/00;7/00*

U.S. Cl. 455—56.1 **16 Claims**

1. In a communication network of plural peer-to-peer systems, each having a system controller commonly coupled to a shared



dynamically alterable talkgroup information database, an improved method of mobility management of talkgroup members as each travels amongst the plural peer-to-peer systems, the method comprising the peer-to-peer system performed steps of:

identifying a request to register, by a first talkgroup member associated with a first talkgroup, from a first communication unit present in the coverage area of a first peer-to-peer system;

when the first talkgroup is not currently registered with the first peer-to-peer system, dynamically updating the talkgroup information database to register the first talkgroup as an active talkgroup in the first peer-to-peer system, so as to allow tracking, throughout the communication network, where talkgroup members of the first talkgroup are currently registered, thus facilitating communications amongst talk group members in different peer-to-peer systems for current and future call processing use;

registering the first communication unit with the first peer-to-peer system; and

assigning system resources, by the system controller associated with the first peer-to-peer system, to allow the first talkgroup member associated with the registered first communication unit to establish communications with talkgroup members currently registered in associated peer-to-peer systems throughout the communication network.

5,724,649

VOLTAGE REGULATION CIRCUIT FOR A RADIO WITH PLURAL RECEIVERS

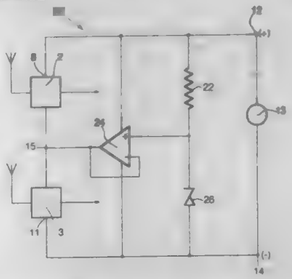
Laurent Carlon, Meylan, and Bertrand Debever, La Terrasse, both of France, assignors to Atral, Crolles, France

Filed Jun. 27, 1995, Ser. No. 495,788

Claims priority, application France, Jun. 29, 1994, 94 08020

Int. Cl.[6] H04B *1/16*

U.S. Cl. 455—132 **11 Claims**



1. Device for receiving signals, in particular two radio signals containing a same information to be received, on two channels characterized by different carrier frequencies for each of the channels, comprising:

a direct current electrical power supply which provides a supply voltage subject to decrease;

a first receiver and a second receiver, said two receivers being responsive at a same time to different carrier frequencies, said two receivers being disposed in series between the two poles of said electrical power supply, said first receiver having a first operating voltage and said second receiver having a

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second operating voltage that is relatively lower than said first operating voltage, one terminal of one of said receivers being connected to one pole of said power supply, one terminal of the other receiver being connected to the other pole of said power supply and the other terminals of said receivers being connected together as common terminals; and

voltage regulator means for regulating voltages between said terminals of said receivers to the respective operating voltages of said receivers when a voltage between said terminals of said electrical power supply is above said first operating voltage of said first receiver, and for regulating the voltage between said terminals of said second receiver to said second operating voltage when the voltage between said terminals of said electrical power supply decreases below said first operating voltage.

whereby, when respective signals to be received by said receivers contain the same information to be received, the information is correctly receivable independently by both receivers when the voltage of said electrical power supply is above said first operating voltage and the information is correctly receivable by said second receiver having said second relatively lower operating voltage even though said first receiver having said first relatively higher operating voltage loses reception capability due to decrease in voltage between the terminals thereof to below said first operating voltage.

5,724,650

RADIO RECEIVING SELECTING BROADCAST FREQUENCIES BASED UPON STORED TIME DATA

Hiroshi Shirakawa, Tokyo, Japan, assignor to Sony Corporation, Tokyo, Japan

Filed May 1, 1995, Ser. No. 431,745
Claims priority, application Japan, May 17, 1994, 6-127003
Int. Cl.[6] H04B *1/16*
U.S. Cl. 455—181.1 **9 Claims**

TIME DIFFERENCE DATA JISA	DAYLIGHT SAVING DATA FLOW	NAME OF PLACE	ZONE
0		LONDON	EUROPE/ WEST AFRICA
+1		C. EURO	
+2		CAIRO	CAIRO, ATHENS
+3		JEDDA	MIDDLE EAST/ EAST AFRICA
+4		DUBAI	
+5		KARACHI	KARACHI
+6		DHAKA	DHAKA
			ASIA/
+9		TOKYO	TOKYO, SOUL
+12		AUKLND	AUKLAND, FIJI
-11		SAMOA	SAMOA
-10		HAWAII	HAWAII, TAHITI
-3		RIO	RIODE JANEIRO
-2		FR. I.SL	
-1		AZORES	AZORES ISLANDS

FROTSL FREQUENCY TABLE

1. A radio receiver comprising:

a phase-locked loop circuit having a frequency dividing circuit for frequency-converting a frequency of a received signal by changing a frequency dividing ratio of said frequency dividing circuit;

storage means for storing a radio broadcasting service area subdivided into a plurality of areas based upon a time difference between the local time of said plurality of areas and Greenwich standard time and frequency data receivable in each of said plurality of areas;

timer means for setting local time; and

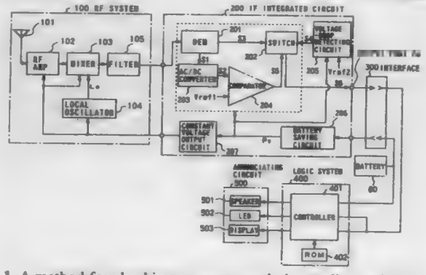
control means for reading frequency data from said storage means based upon the time difference between the local time set by the timer means and Greenwich standard time and for setting said frequency dividing ratio of said phase-locked loop circuit based on said read frequency data.

5,724,651

METHOD AND APPARATUS FOR CHECKING A POWER SUPPLY IN A RADIO RECEIVER

Satoshi Takahashi, and Masahiro Matai, both of Tokyo, Japan, assignors to NEC Corporation, Japan

Filed Jul. 25, 1995, Ser. No. 506,846
Claims priority, application Japan, Jul. 25, 1994, 6-192816
Int. Cl.[6] H04B *17/00*
U.S. Cl. 455—226.4 **30 Claims**



1. A method for checking a power supply in a radio receiver, the radio receiver comprising a local oscillator for generating a local oscillating signal which is to be mixed with a radio-frequency signal, the method comprising the steps of:

a) supplying power to the local oscillator intermittently;

b) detecting a voltage level of the power supply within a predetermined time period after the power is supplied to the local oscillator, the predetermined time period being determined in advance based on a rise time of the local oscillator; and

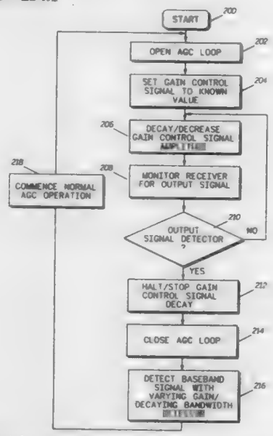
c) checking the power supply based on the voltage level.

5,724,652

METHOD FOR ACQUIRING A RAPID AUTOMATIC GAIN CONTROL (AGC) RESPONSE IN A NARROW BAND RECEIVER

David J. Graham, Davie; Dane E. Blackburn, Sunrise, both of Fla., and Kenneth A. Hansen, Round Rock, Tex., assignors to Motorola, Inc., Schaumburg, Ill.

Filed Oct. 24, 1996, Ser. No. 736,177
Int. Cl.[6] H04B *1/06*
U.S. Cl. 455—234.1 **11 Claims**



1. A method for acquiring a rapid automatic gain control (AGC) response in a narrow band receiver employing an AGC loop having a maximum stable closed loop response rate, the AGC loop having a stage for receiving a control signal having an amplitude, the method comprising the steps of:

opening the AGC loop;

setting the control signal amplitude to a known value;

altering the control signal amplitude;

monitoring the narrow band receiver for a signal state;

upon detection of the signal state;

halting control signal amplitude alteration; and

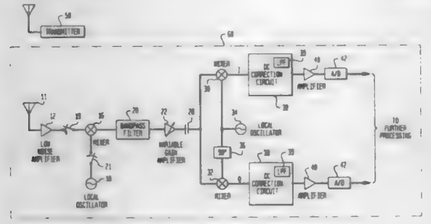
closing the AGC loop.

5,724,653

RADIO RECEIVER WITH DC OFFSET CORRECTION CIRCUIT

Thomas Wesley Baker, Orefield; Paul Cooper Davis, Reading; Douglas D. Lopata, Boyertown, all of Pa.; Owe George Petersen, Brookfield, Wis., and Trudy Dawn Stetzler, Reading, Pa., assignors to Lucent Technologies Inc., Murray Hill, N.J.

Filed Dec. 20, 1994, Ser. No. 359,782
Int. Cl.[6] H04B *1/12*
U.S. Cl. 455—296 **10 Claims**



1. A radio receiver comprising:

(a) an input adapted to receive an input radio signal;

(b) intermediate frequency (IF) means for generating an IF signal from said input radio signal;

(c) demodulation means coupled to said intermediate frequency means for demodulating said IF signal into an inphase (I) signal and a quadrature (Q) signal; said demodulation means includes:

(i) first and second mixers for respectively providing said I and Q output signals from said IF signal;

(ii) first and second DC correction circuits respectively coupled to said first and second mixers and each respectively including a low pass filter, each said first and second DC correction circuits being adapted to respectively store a first DC offset of said first mixer and a second DC offset of said second mixer prior to reception of said input signal and to subtract said first and second DC offsets of said first and second mixers during reception of said input signal;

(d) switching means for periodically suspending application of said IF signal to said demodulation means, said DC correction circuits sampling said DC offsets during time intervals in which said IF signal is suspended;

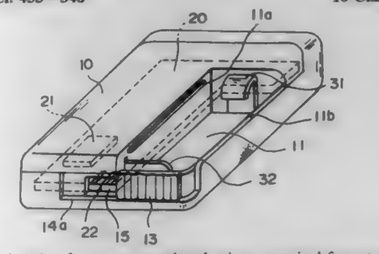
wherein said low pass filter of each said DC correction circuit is configured to settle during said time intervals in which said IF signal is suspended, said intermediate frequency means includes a third mixer coupled between said input and said demodulation means and coupled to a local oscillator, and said switching means comprises a first switch coupled between said third mixer and said input and a second switch coupled between said local oscillator and said third mixer, said first and second switches periodically suspending application of said IF signal to said demodulation means.

5,724,654

HOUSING FOR PAGER RECEIVER HAVING BATTERY COVER LOCKING PIECE WHICH EXPOSES TERMINAL FOR EXTERNAL ACCESS

Hiroyasu Yamada, Shizuoka, and Toshiyuki Tamaru, Tokyo, both of Japan, assignors to NEC Corporation, Tokyo, Japan

Filed Sep. 22, 1995, Ser. No. 532,051
Claims priority, application Japan, Sep. 22, 1994, 6-227626
Int. Cl.[6] H04B *1/08*
U.S. Cl. 455—348 **10 Claims**



1. A housing for a pager receiver having a terminal for external access for communication with an external device, comprising:

a battery receptacle portion;

a battery cover removably covering said battery receptacle portion;

a locking piece for locking said battery cover at a position covering said battery receptacle portion; and

an opening portion for external connection of said terminal for providing external access,

wherein said locking piece in a first position locks said battery cover in said position of covering said battery receptacle portion and closing said opening portion; and

wherein said locking piece in a second position is released and exposes said opening portion at another position wherein said battery cover is released from locking; and

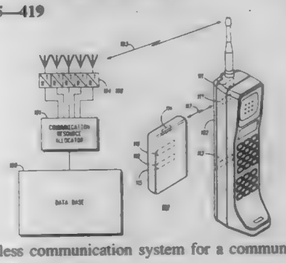
wherein said locking piece in a third position exposes said opening portion by sliding toward said battery receptacle portion.

5,724,655

METHOD AND APPARATUS FOR OPERATING A COMMUNICATION UNIT CONSISTING OF MULTIPLE DEVICES

Gary W. Grube, Palatine, and Timothy W. Markison, Hoffman Estates, both of Ill., assignors to Motorola, Inc., Schaumburg, Ill.

Continuation of Ser. No. 226,740, Apr. 12, 1994, abandoned.
This application Sep. 21, 1995, Ser. No. 531,958
Int. Cl.[6] H04Q *7/32*
U.S. Cl. 455—419 **16 Claims**



1. A wireless communication system for a communication unit comprising:

a wireless communication unit that includes a communication processor, a first transceiver that transceives information with a communication system on a first wireless communication

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path and a second transceiver that transceives unit control information with an application device on a second wireless communication path; and

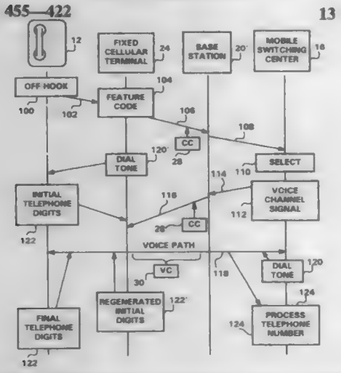
an application device that includes an application storage element, an application processor, and a transceiver that transceives the unit control information to the communication unit on the second wireless communication path, wherein the application device is a device separate from the wireless communication unit, and wherein the application processor performs the bulk of the processing for the wireless communication unit.

5,724,656

METHOD AND APPARATUS FOR PROVIDING AN IMPROVED CALLER INTERFACE IN A FIXED CELLULAR COMMUNICATIONS SYSTEM

Kim Phuong Vo, Mount-Royal; Daniel Dufour, Blaineville, both of Canada, and Håkan Olsson, Sollentuna, Sweden, assignors to Telefonaktiebolaget LM Ericsson, Stockholm, Sweden

Filed Oct. 2, 1995, Ser. No. 538,157
Int. Cl.[6] H04M *11/00*
U.S. Cl. 455—422 **13 Claims**



1. In a fixed cellular system, a method for call set-up comprising the steps of:

detecting an off-hook event for a standard telephone set;

transmitting a signal indicative of the detected off-hook event over a control channel of a cellular air interface;

applying a first dial tone to the standard telephone set;

receiving from the standard telephone set digit signals indicative of a telephone number of a called party in response to the first dial tone;

storing the telephone number;

responsive to cellular telephone system receipt of the off-hook event signal, selecting a voice channel of the cellular air interface to carry the call;

establishing a voice path connection between the cellular telephone system and the telephone set, the voice path comprising in part the selected voice channel;

applying a second dial tone to the voice path connection;

transmitting over the established voice path digit signals indicative of the stored telephone number in response to the second dial tone; and

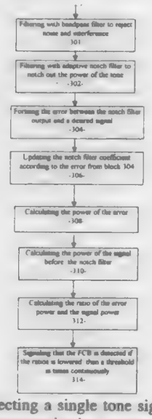
processing of the voice path transmitted digit signals by the cellular telephone system to complete the call to the called party.

5,724,657

ADAPTIVE FREQUENCY CORRECTION BURST DETECTOR FOR GSM HANDSET SYSTEM

Jingdong Lin, Irvine, and Ker Zhang, Newport Beach, both of Calif., assignors to Rockwell International Corporation, Newport Beach, Calif.

Filed Sep. 29, 1995, Ser. No. 537,376
Int. Cl.[6] H04B *17/00*
U.S. Cl. 455—423 **15 Claims**



1. A method of detecting a single tone signal within a wireless transmission in a telecommunication system, said telecommunication system comprising at least one base station and at least one mobile station, said base station broadcasting said wireless transmission for said mobile station to receive, said single tone signal having a nominal frequency within a predetermined frequency range, said mobile station receiving said wireless transmission to generate complex input samples, s(n), said method comprising the steps of:

(a) bandpass filtering said complex input samples, s(n), to generate a first filtered output r(n);

(b) filtering said first filtered output r(n) with an adaptive notch filter to generate a second filtered output, y(n);

(c) comparing said second filtered output with a predetermined signal, d(n), to form an error signal e(n), wherein, e(n)=d(n)−y(n);

(d) updating said adaptive notch filter based on said error signal to generate an updated second filtered output, y(n);

(e) estimating a power of said updated second filtered output;

(f) estimating a power of said first filtered output r(n);

(g) forming a ratio of said powers from said updated second filtered output and said first filtered output;

(h) comparing said ratio with a predetermined threshold and if said ratio is continuously lower than said predetermined threshold for a predetermined duration, declaring said single tone signal is detected.

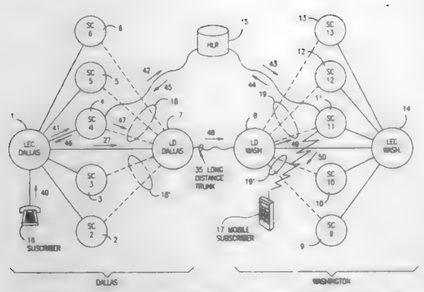
5,724,658

CALL ROUTING TO WIRELESS ROAMERS IN MOBILE TELECOMMUNICATION SYSTEMS

S. Kamran Hasan, Dallas, Tex., assignor to MCI Communications Corporation, Washington, D.C.

Filed Aug. 21, 1995, Ser. No. 517,119
Int. Cl.[6] H04Q *7/22;7/24*
U.S. Cl. 455—445 **19 Claims**

1. A method of serving a roaming subscriber in a telecommunications system comprising a plurality of wireless service carriers that serve a first geographic area and that can each communicate with at least one corresponding roaming subscriber in said first geographic area, and a wired exchange carrier that can communicate with said wireless service carriers and having access to a trunk providing communication between a second geographic area and said first geographic area, said method comprising:



assigning a distinct call routing parameter to each of said wireless service carriers;

receiving at said wired exchange carrier via said trunk a call destined for one of said roaming subscribers, said call including a routing number corresponding to the roaming address of said one roaming subscriber and the call routing parameter corresponding to the wireless service carrier serving said one roaming subscriber;

sending the call from said wired exchange carrier selectively to said serving wireless service carrier in response to said call routing parameter; and,

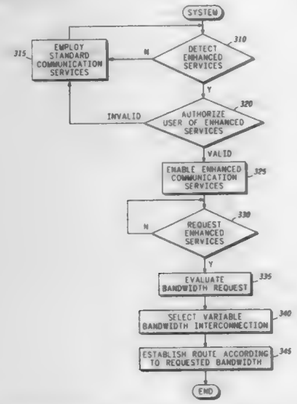
establishing a communication channel between said serving wireless service carrier and said one roaming subscriber in response to the said routing number, such that the same routing number is available for use by each of said wireless service carriers to route to its said corresponding subscriber a call selectively sent to it in response to its distinct call routing parameter.

5,724,659

MULTI-MODE VARIABLE BANDWIDTH REPEATER SWITCH AND METHOD THEREFOR

Brian Michael Daniel, Phoenix; Rodrigo Ibanez-Meier, Chandler, and Sibnath Basuthakur, Phoenix, all of Ariz., assignors to Motorola, Inc., Schaumburg, Ill.

Filed Jul. 1, 1996, Ser. No. 673,584
Int. Cl.[6] H04Q *7/00*
U.S. Cl. 455—452 **21 Claims**



1. In a communication system having a standard services region and an enhanced services region for providing enhanced services to users, a method for dynamically allocating bandwidth through a variable bandwidth repeater switch to a subscriber unit in said enhanced services region, said variable bandwidth repeater switch having a plurality of interconnections between said subscriber unit and said standard services region, said method comprising the steps of:

detecting availability of said enhanced services;

when said subscriber unit requests said enhanced services, evaluating availability of requested bandwidth; and

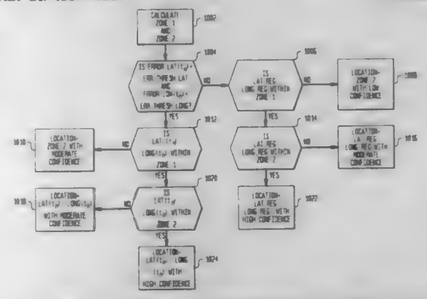
when said requested bandwidth is available, allocating said requested bandwidth to said subscriber unit in response to request for said enhanced services.

5,724,660

METHOD AND APPARATUS FOR LOCATING A MOBILE STATION BY COMPARING CALCULATED LOCATION AREA WITH GPS COORDINATES

Nicolas Kauser, and Alan Denis MacDonald, both of Bellevue, Wash., assignors to AT&T Wireless Services, Inc., Middletown, N.J.

Continuation-in-part of Ser. No. 472,082, Jun. 7, 1995. This application Feb. 20, 1996, Ser. No. 603,793
Int. Cl.[6] G01C *21/00;* **G01S** *3/02;* **H04B** *7/26*
U.S. Cl. 455—456 **32 Claims**



1. A method for locating a mobile telephone within the geographic serving area of a mobile telephone system, wherein said mobile telephone is capable of sending signals to and receiving signals from antennas located in cells within the geographic serving area, and wherein said mobile telephone comprises a GPS receiver/processor, the method comprising the steps of:

receiving signal strength data representing the signal strengths of signals being received by the mobile telephone from a first plurality of antennas;

calculating a first location area of the mobile telephone as the geographic coverage area of a serving cell cite;

calculating a second location area of the mobile telephone using said signal strength data;

receiving GPS coordinates representing a GPS location of the mobile telephone; and

comparing the first and second calculated location areas with the GPS location to determine the location of said mobile telephone.

5,724,661

CORDLESS TELEPHONE SYSTEM WHICH CONVERTS A PROTOCOL FOR CALL CONNECTION

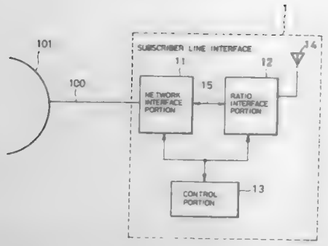
Masaru Nagashima, Tokyo, Japan, assignor to NEC Corporation, Tokyo, Japan

Filed Dec. 27, 1995, Ser. No. 578,863
Claims priority, application Japan, Dec. 28, 1994, 6-337477
Int. Cl.[6] H04Q *7/30*
U.S. Cl. 455—462 **7 Claims**

1. A cordless telephone system comprising:

a subscriber line interface wired to a subscriber line of a subscriber network; and

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a cordless terminal connected to said subscriber line interface via a radio communication connection,

said subscriber line interface including only interface conversion means for performing conversion between a wired signal of said subscriber line and a radio signal of said cordless terminal,

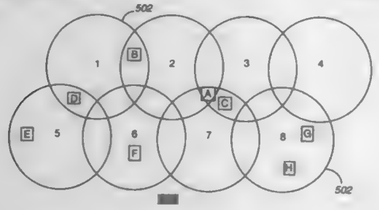
said interface conversion means of said subscriber line interface including a network interface portion for establishing interface with the subscriber network, a radio interface portion for radio interface with said cordless terminal and a control portion which converts a protocol for call connection into a signal to be processed by at least one of said subscriber network and said cordless terminal.

5,724,662

METHOD AN APPARATUS IN A RADIO COMMUNICATION SYSTEM FOR ASSIGNING AND UTILIZING SETS OF TRANSMITTERS

Steven Jeffrey Goldberg, Fort Worth, and Thomas Casey Hill, Trophy Club, both of Tex., assignors to Motorola, Inc., Schaumburg, Ill.

Filed May 17, 1996, Ser. No. 649,559
Int. Cl.[6] H04R *7/12*
U.S. Cl. 455—503 **20 Claims**



1. A method in a radio communication system for forming and utilizing sets of base station transmitters selected from a plurality of base station transmitters to provide radio coverage in a plurality of dynamically assigned simulcast areas for communicating simultaneously with a plurality of portable transceivers, the method comprising the steps of:

forming the sets of base station transmitters, wherein each set includes all base station transmitters dominant to one of the plurality of portable transceivers having a message queued therefor, a base station transmitter being defined to be dominant when the base station transmitter can affect communications with the one of the plurality of portable transceivers even when different data transmissions are sent from all others of the plurality of base station transmitters;

determining a group of the sets of base station transmitters, wherein no base station transmitter is included more than once in group; and

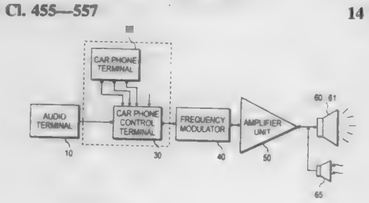
simultaneously transmitting from the sets of base station transmitters of the group, wherein the base station transmitters included in each of the sets of the group transmit, in simulcast, the message queued for the one of the plurality of portable transceivers to which the base station transmitters of the set are dominant.

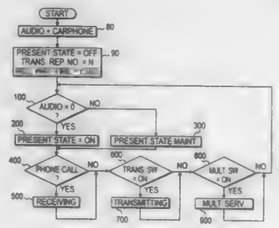
5,724,663

CAR PHONE CONNECTED TO A VEHICLE AUDIO UNIT HAVING VISUAL INDICATION

Jong-Yong Lee, Kyungki-Do, Rep. of Korea, assignor to Hyundai Motor Company, Ltd., Seoul, Rep. of Korea

Filed Aug. 16, 1995, Ser. No. 515,943
Claims priority, application Rep. of Korea, Aug. 16, 1994, 94-20057; Aug. 16, 1994, 94-20058; Aug. 16, 1994, 94-20059
Int. Cl.[6] H04Q *7/32*
U.S. Cl. 455—557 **14 Claims**





1. A method of operating a telephone device having a plurality of telephone jacks, connectable with an audio unit, a plurality of speakers, and a plurality of microphones, all located in a vehicle, comprising the steps:

connecting the telephone device with the audio unit;

connecting the plurality of telephone lacks with the plurality of speakers and microphones;

setting parameters disposed in the telephone device for a telephone operation to be combined with the use of the audio unit to carry out the telephone operation;

receiving an incoming telephone signal through one of the telephone jacks;

visually indicating the incoming telephone signal to be received by the telephone device;

terminating the visual indication and carrying out a conversation operation, if the incoming telephone signal is received by the telephone device;

waiting a predetermined time and terminating the visual indication, if the incoming telephone signal is not received by the telephone device;

transmitting an outgoing telephone signal through one of the telephone jacks; and

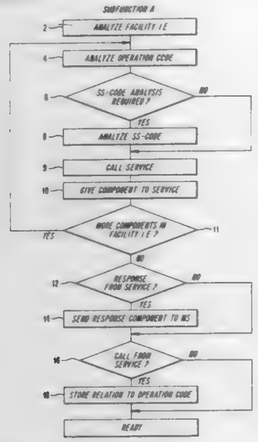
selectively activating one of the telephone jacks to carry out the telephone operation.

5,724,664

METHOD FOR SIGNALLING IN A TELECOMMUNICATION SYSTEM

Sven Jörgen Lantto, Tullinge, Sweden, assignor to Telefonaktiebolaget LM Ericsson, Stockholm, Sweden

Filed Feb. 9, 1994, Ser. No. 193,845
Claims priority, application Sweden, Feb. 10, 1993, 9300430
Int. Cl.[6] H04Q *7/22*
U.S. Cl. 455—560 **17 Claims**



17. In a system including signalling between a mobile station and a mobile services switching center, wherein functionality in the system includes basic operations and supplementary service operations, a method of separating handling of supplementary service operations from handling of information elements related to basic call functions, wherein supplementary service procedures are defined in the signalling by means of a protocol having rules requiring that all supplementary service procedures be specified as operations that describe contents of forward message components and back message components, wherein the forward message components and back message components are included in an auxiliary information element that is sent alternatively in certain call related messages, or in messages for non-call related supplementary service procedures, wherein the auxiliary information element carries an arbitrary number of components belonging to different operations, each operation in a supplementary service being identified by an operation code including a value to which corresponds a certain operation, the value being specified in the protocol in which the operations are specified, said method comprising the steps of:

using a support functionality to perform the steps of:

in the mobile services switching center, performing the steps of:

receiving an invoke component from the mobile station;

analyzing the received invoke component to identify an operation code value, thereby identifying a supplementary service operation and a receiving supplementary service;

checking syntax of data included in the invoke component, the data corresponding to the supplementary service operation and conveying information to the receiving supplementary service;

giving the received invoke component to the receiving supplementary service;

receiving, in response, from the receiving supplementary service, a request to send a response to the mobile station; and

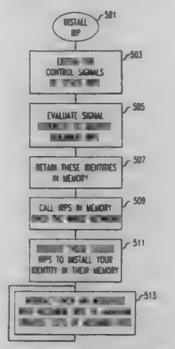
receiving from a second supplementary service a syntactically formulated component, and in response, incorporating the syntactically formulated component in a first auxiliary information element and sending the first auxiliary information element in a message to the mobile station.

5,724,665

WIRELESS COMMUNICATION BASE STATION

Salman Yousef Abbasi, Clifton; Farhad Barzegar, Hillsborough Township, Somerset County; Albert Benzimra, Maplewood; Irwin Gerszberg, Kendall Park; Thomas Gerard Gvoth, Wayne; Eugene Thomas Kendig, Brick Township, Ocean County; Jeffrey Stephen Martin, Dover; Thomas Mark Oplinger, Morristown; Richard F. Pace, Washington; Srini Ramamurthy, Lake Hiawatha; Jesse Eugene Russell, Piscataway, and Thomas T. Shen, East Hanover, all of N.J., assignors to Lucent Technologies Inc., Murray Hill, N.J.

Continuation-in-part of Ser. No. 158,090, Nov. 24, 1993, abandoned. This application Apr. 24, 1995, Ser. No. 429,215
Int. Cl.[6] H04Q *7/30*
U.S. Cl. 455—561 **3 Claims**



1. An intelligent wireless communication base station for application to a wireless radio telephone communication system providing personal communication service serving a plurality of mobile wireless personal communicators with a service area including a plurality of neighboring intelligent wireless communication base stations comprising:

a radio transceiver for communicating with mobile wireless personal communicators and with neighboring intelligent wireless communication base stations,

a digital interface for communicating with a digital telephone switch included in a land line telephone network;

a controller connected to the radio transceiver and the digital interface for controlling message processing and communications between the intelligent wireless communication base station and the land line telephone network, and with the mobile wireless personal communicators and by wireless communications through the radio transceiver with neighboring intelligent wireless communication base stations, including:

a data processor and a memory, the data processor including a stored control program having the process steps of:

commanding the transceiver to generate set up and control messages;

commanding the transceiver to monitor set up and control channel transmissions of neighboring intelligent wireless communication base stations and determine signal strength measurements of set up signals for control of selecting channels for mobile wireless personal communicator use and further commanding the transceiver to store and update in memory a list of neighboring intelligent wireless communicate base stations and further commanding the transceiver to control exchange through the radio transceiver of set up information with these neighboring intelligent wireless base stations;

commanding the digital interface to send a message to the neighboring intelligent wireless base stations over the land line telephone network, the message containing a request to be included on a neighbor list at the neighboring base station receiving the message;

enable registering of mobile wireless personal communicators in the vicinity of the intelligent wireless communication base station to allow the mobile wireless personal communicators

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to receive incoming calls from the land line telephone network and direct those calls to wireless personal communicators so registered; and paging mobile wireless personal communicators for facilitation of call set up.

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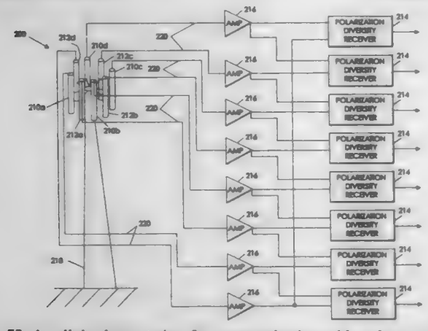
POLARIZATION DIVERSITY PHASED ARRAY CELLULAR BASE STATION AND ASSOCIATED METHODS

Paul W. Dent, Stehag, Sweden, assignor to Ericsson Inc., Research Triangle Park, N.C.

Continuation-in-part of Ser. No. 217,301, Mar. 24, 1994. This application May 11, 1995, Ser. No. 439,116

Int. Cl.[6] H04B *1/40*

U.S. Cl. 455—562 **54 Claims**



52. A cellular base station for communicating with at least one mobile station in a cellular communications system over one of a plurality of cellular communications channels, said base station comprising:

a first antenna defining a first coverage area, wherein said first antenna receives signals having a first polarization from the mobile station over the cellular communications channel and transmits signals having a second polarization to the mobile station over the cellular communications channel to thereby provide polarization isolation;

a second antenna adjacent said first antenna defining a second coverage area, wherein said second antenna receives signals having said second polarization from the mobile station over the cellular communications channel and transmits signals having said first polarization to the mobile station over the cellular communications channel to thereby provide polarization isolation; and

support means for supporting said first and second receive antennas so that said first and second coverage areas overlap thereby defining an overlap coverage area.

5,724,667

PORTABLE TELEPHONE HAVING REMOVABLE TRANSDUCER

Hiroshi Furuno, Tokyo, Japan, assignor to Sony Corporation, Tokyo, Japan

Continuation of Ser. No. 341,804, Nov. 18, 1994, abandoned. This application Jul. 7, 1997, Ser. No. 889,085

Claims priority, application Japan, Nov. 19, 1993, 5-314287

Int. Cl.[6] H04B *1/38*

U.S. Cl. 455—575 **3 Claims**

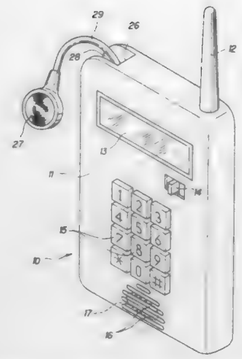
1. A portable telephone comprising:

a transducer earphone;

a main body of said portable telephone removably housing said transducer earphone and fixedly housing a microphone;

a cord connecting said transducer earphone and said main body;

take-up means for taking up said cord into said main body; and,



switching means for switching between an on-hook state and an off-hook state of said portable telephone in conjunction with removal of said cord from said main body and the taking up of said cord by said take-up means, said switching means comprising:

a first switch for setting said off-hook state, said first switch being actuated by removing said transducer earphone from said main body; and,

a second switch for setting said on-hook state, said second switch being actuated upon commencement of the taking-up movement of said cord.

5,724,668

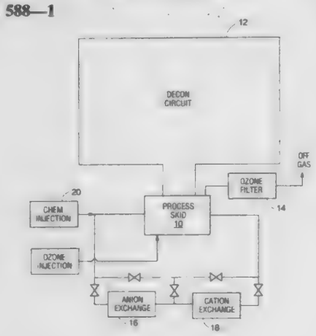
METHOD FOR DECONTAMINATION OF NUCLEAR PLANT COMPONENTS

Christopher John Wood, Mountain View, Calif.; David Bradbury, Tresham, and George Richard Elder, Northwood Green, both of United Kingdom, assignors to Electronic Power Research Institute, Palo Alto, Calif.

Filed Nov. 7, 1995, Ser. No. 554,454

Int. Cl.[6] G21F *9/00*

U.S. Cl. 588—1 **11 Claims**



1. A process for decontaminating a contaminated material comprising:

providing a solution containing less than 50 milli-moles of fluoroboric acid per liter;

contacting the fluoroboric acid solution with a material which causes the oxidation potential (Eh) of the solution to range from about 500 to about 1200 mV versus a Standard Calomel Electrode;

contacting the fluoroboric acid solution with the contaminated material; and,

removing a contaminant from the contaminated material by continuously contacting the fluoroboric acid solutions with a cation exchange resin to remove the contaminants from the solution and to regenerate the fluoroboric acid in situ for use in continuous decontamination.

5,724,669

METAL DECONTAMINATION PROCESS AND SYSTEMS FOR ACCOMPLISHING SAME

Thomas S. Snyder, 214 Briarcliff Ave., Oak Ridge, Tenn. 37830; Thomas V. Congedo, 1460 Laurel Dr., Pittsburgh, Pa. 15235; William H. Carder, 12009 Butternut La., Knoxville, Tenn. 37922; George Collins, 103-M Gates Dr., Oak Ridge, Tenn. 39830; Ellen V. Gray, 205 Outer Dr., Oak Ridge, Tenn. 37830, and Frank H. Ruddy, 2101 Pendleton Dr., Monroeville, Pa. 15146

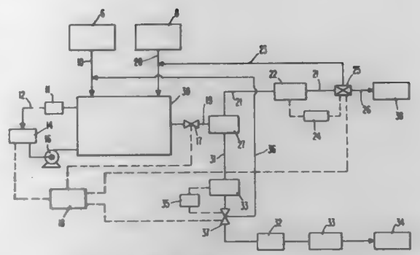
Filed Oct. 15, 1996, Ser. No. 732,558

Int. Cl.[6] G21E *9/00*

U.S. Cl. 588—2 **19 Claims**

1. A method for on-line monitoring a molten process phase to determine the extent of extraction of radioactive species from a contaminated metal, comprising:

(a) mixing a radioactive waste metal, said waste metal contaminated with at least one radioactive species, within an inorganic flux composition within a furnace and melting the waste metal and flux composition to form a molten furnace composition;



(b) extracting said radioactive species from the waste metal into the flux composition;

(c) periodically removing a portion of the molten furnace composition from the furnace and separating the molten furnace composition into a sampling molten flux phase and a sampling molten metal phase; and

(d) analyzing either the sampling molten flux phase or the sampling molten metal phase to determine the extent of extraction of the radioactive species from the waste metal into the flux compositions, the level of the radioactive species in the sampling molten flux phase, or the level of the radioactive species in the sampling molten metal phase.

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DESIGNS

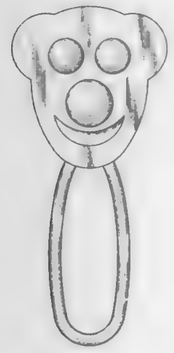
GRANTED March 3, 1998

ERRATA

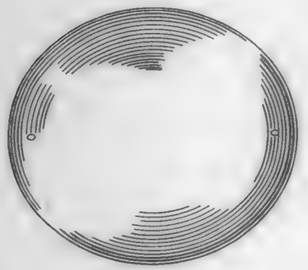
For CLASS	See PATENT NO.
D13–103	D391,622

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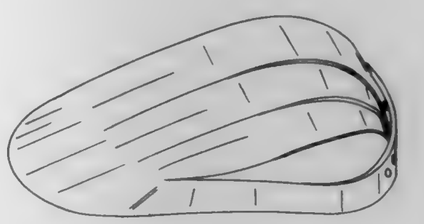
391,385
MEDICAL SUCKER
Norma J. Steele, 136 Westhaven Dr., Forest City, Iowa 50436-2209
Filed May 16, 1997, Ser. No. 70,832
Term of patent 14 years
LOC (6) Cl. 01 - *01*
U.S. Cl. D1—104



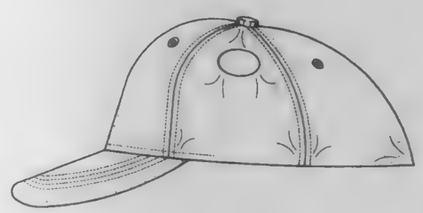
391,386
ATHLETIC CUP
Shelley Sinclair, 2828 E. Second St., Long Beach, Calif.
Filed Oct. 27, 1995, Ser. No. 45,715
Term of patent 14 years
LOC (6) Cl. 02 - *01*
U.S. Cl. D2—711



391,387
SUN PROTECTION DISPOSABLE CAP
Eduard Pogrebitsky, 2111 Washington Ave., Santa Monica, Calif. 90403, and Michael Guz, 1441 Veteran Ave., #319, Los Angeles, Calif. 90024
Continuation-in-part of Ser. No. 51,000, Mar. 4, 1996. This application Jul. 22, 1996, Ser. No. 57,298
Term of patent 14 years
LOC (6) Cl. 02 - *03*
U.S. Cl. D2—876

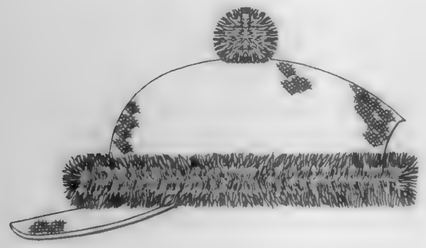


391,388
HEAD CAP
Laura Higgins, and Jerry Piotrowicz, both of Indianapolis, Ind., assignors to Babesball Cap, Inc., Belize, Belize
Filed Nov. 24, 1995, Ser. No. 47,110
Term of patent 14 years
LOC (6) Cl. 02 - *03*
U.S. Cl. D2—882

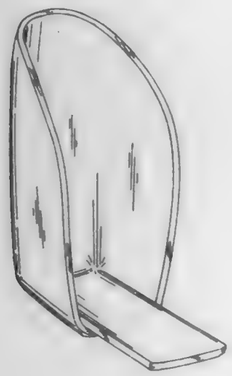


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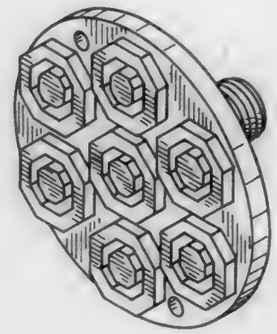
391,389
SEASONAL CAP
James R. Ramirez, Jr., 212 Brush Creek Blvd., 4E, Kansas City, Mo. 64112
Filed Feb. 27, 1997, Ser. No. 67,340
Term of patent 14 years
LOC (6) Cl. 02 - *03*
U.S. Cl. D2—882



391,390
SHOE INSERT
Drake J. Pallister, 103 Rte. 516, Matawan, N.J. 07747
Filed Aug. 8, 1996, Ser. No. 58,136
Term of patent 14 years
LOC (6) Cl. 02 - *04*
U.S. Cl. D2—961



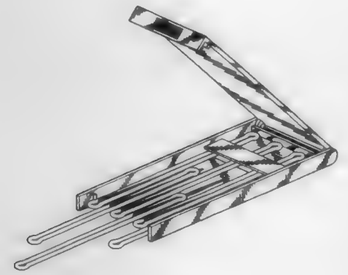
391,391
GOLF SPIKE
George Colias, 6815 Honors Ct., Charlotte, N.C. 28210
Filed May 28, 1997, Ser. No. 71,359
Term of patent 14 years
LOC (6) Cl. 02 - *04*
U.S. Cl. D2—962



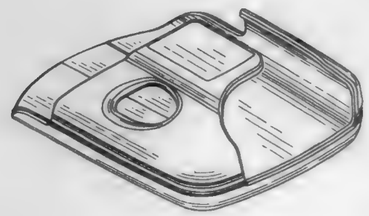
391,392
PET UMBRELLA
Kathleen S. Adams, 3948 Senasac Ave., Long Beach, Calif. 90808
Filed Jul. 22, 1996, Ser. No. 57,282
Term of patent 14 years
LOC (6) Cl. 03 - *03*
U.S. Cl. D3—5



391,393
CONTAINER WITH TIE TAMERS
Chik Sum Chan, Hong Kong, Hong Kong, assignor to Kado Industrial Company Limited, Hong Kong, Hong Kong
Filed Mar. 31, 1997, Ser. No. 68,747
Claims priority, application United Kingdom, Jan. 14, 1997, 2062393
Term of patent 14 years
LOC (6) Cl. 03 - *01*
U.S. Cl. D3—201

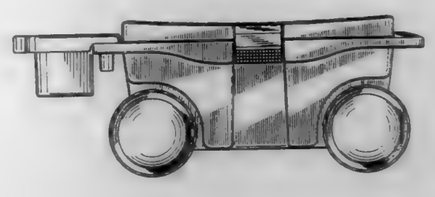


391,394
PAGER HOLSTER
Alan James Dutson; Son Quang Le, both of Fort Worth, and Peter Iezzi, Keller, all of Tex., assignors to Motorola, Inc., Schaumburg, Ill.
Filed Jan. 10, 1997, Ser. No. 64,805
Term of patent 14 years
LOC (6) Cl. 03 - *01*
U.S. Cl. D3—218

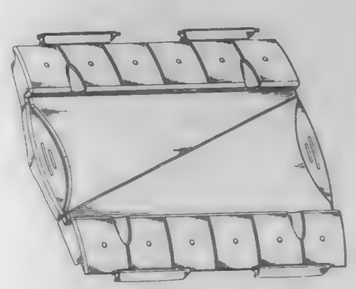


391,395
Patent Not Issued For This Number

391,396
STORAGE BOX WORK SEAT
Zvi Yemini, Tel Aviv, Israel, assignor to Zag Industries Ltd., Rosh Haayin, Israel
Filed Jan. 27, 1997, Ser. No. 65,389
Term of patent 14 years
LOC (6) Cl. 03 - *01*
U.S. Cl. D3—279

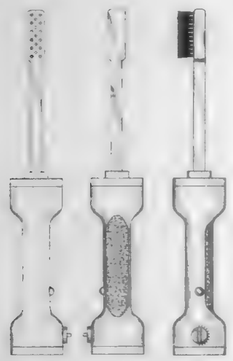


391,397
STORAGE BOX LID
Randall W. Calmeise, 1293 S. Main St., Akron, Ohio 44301
Filed Aug. 9, 1996, Ser. No. 58,231
Term of patent 14 years
LOC (6) Cl. 03 - *99*
U.S. Cl. D3—326

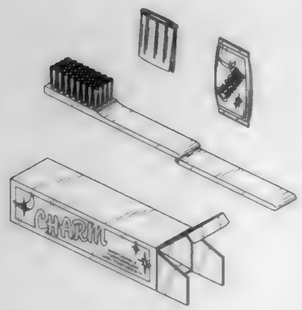


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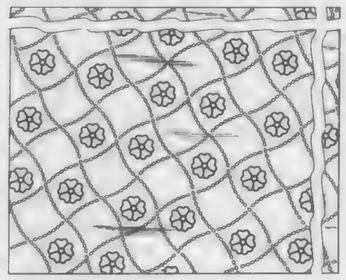
391,398
SIGNALING POWERED TOOTH BRUSH
Valerie A. Howell, 1285 Dean St Suite 4-L, Brooklyn, N.Y. 11216
Filed Apr. 24, 1997, Ser. No. 69,782
Term of patent 14 years
LOC (6) Cl. 04 - *02*
U.S. Cl. D4—101



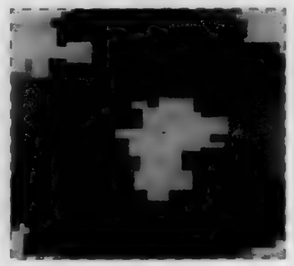
391,399
TOOTHBRUSH KIT
Sally R. Mills, 1615 Jackson, Sioux City, Iowa 51105
Filed May 12, 1997, Ser. No. 69,872
Term of patent 14 years
LOC (6) Cl. 04 - *02*
U.S. Cl. D4—108



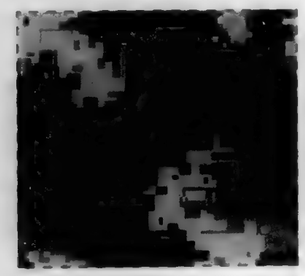
391,400
PAPER TOWEL
Sandra A. Enderby, New Franken, Wis., assignor to Irving Tissue, Dieppe, Canada
Filed Aug. 29, 1996, Ser. No. 58,976
Claims priority, application Canada, Feb. 29, 1996, 1996-0460
Term of patent 14 years
LOC (6) Cl. 05 - *06*
U.S. Cl. D5—37



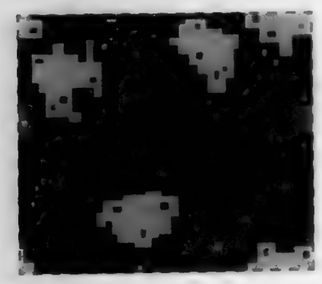
391,401
CAMOUFLAGE PATTERN APPLIED TO SHEET MATERIAL
Ira A. Josephs, 415 Grand St. #1307, New York, N.Y. 10002
Filed Feb. 11, 1997, Ser. No. 66,344
Term of patent 14 years
LOC (6) Cl. 05 - *05*
U.S. Cl. D5—58



391,402
CAMOUFLAGE PATTERN APPLIED TO SHEET MATERIAL
Ira A. Josephs, 415 Grand St. #1307, New York, N.Y. 10002
Filed Feb. 11, 1997, Ser. No. 66,346
Term of patent 14 years
LOC (6) Cl. 05 - *05*
U.S. Cl. D5—58



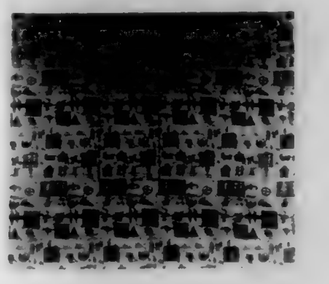
391,403
CAMOUFLAGE PATTERN APPLIED TO SHEET MATERIAL
Ira A. Josephs, 415 Grand St. #1307, New York, N.Y. 10002
Filed Feb. 11, 1997, Ser. No. 66,347
Term of patent 14 years
LOC (6) Cl. 05 - *05*
U.S. Cl. D5—58



391,404
SHEET MATERIAL WITH RANDOM CONTRASTING FLAKE PATTERN
Edward Charles Small, Aberdeen, and Brian Edward Evans, Kintore, both of Scotland, assignors to The Wiggins Teape Group Limited, Basingstoke, England
Filed Jun. 1, 1995, Ser. No. 39,665
Claims priority, application United Kingdom, Dec. 2, 1994, 2043684
Term of patent 14 years
LOC (6) Cl. 05 - *06*
U.S. Cl. D5—63

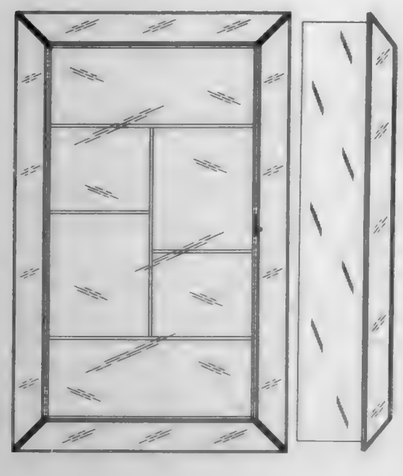


391,405
FABRIC
Sang Hyun Sung, Seoul, Rep. of Korea, assignor to Kiho Co., Ltd., Inchon, DPR of Korea
Filed Apr. 24, 1996, Ser. No. 53,593
Claims priority, application DPR of Korea, Nov. 23, 1995, 22617
Term of patent 14 years
LOC (6) Cl. 05 - *05*
U.S. Cl. D5—63

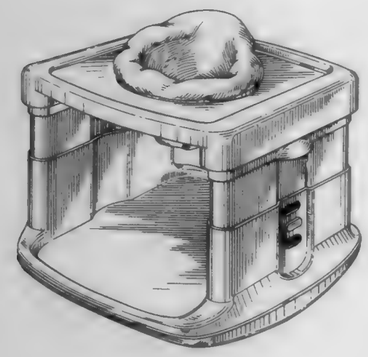


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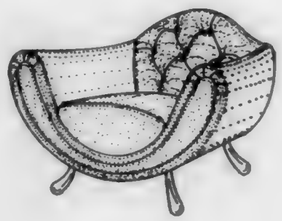
391,406
SHADOW BOX
Peter Field, 4295 S. Arville St., Las Vegas, Nev. 89103
Filed Aug. 19, 1996, Ser. No. 58,548
Term of patent 14 years
LOC (6) Cl. 06 - *07*
U.S. Cl. D6—302



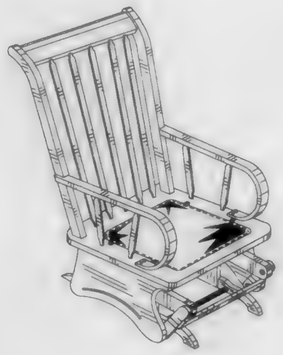
391,407
CHILDREN'S FURNITURE
Jon R. Rossman, Chelmsford, and Bryan R. Hotaling, Arlington, both of Mass., assignors to The First Years Inc., Avon, Mass.
Filed Oct. 25, 1996, Ser. No. 61,508
Term of patent 14 years
LOC (6) Cl. 06 - *01*
U.S. Cl. D6—333



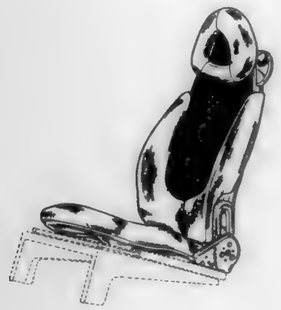
391,408
SEAT
Rick C. Lee, San Francisco, Calif., assignor to American West Furniture Manufacturers, Inc., Santa Clara, Calif.
Filed Apr. 9, 1997, Ser. No. 69,390
Term of patent 14 years
LOC (6) Cl. 06 - *01*
U.S. Cl. D6—334



391,409
GLIDING ROCKER CHAIR
Michael W. Brooks, Union, Tenn., assignor to Brooks Mfg., Co., Inc., Tazewell, Tenn.
Filed May 29, 1996, Ser. No. 54,698
Term of patent 14 years
LOC (6) Cl. 06 - *01*
U.S. Cl. D6—344



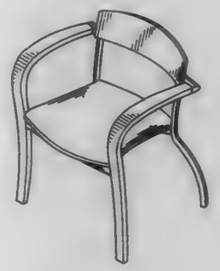
391,410
SEAT FOR A VEHICLE
Johann Tomforde, Sindelfingen; Jans Manske, Weil der Stadt, and Olivier de Vries, Stuttgart, all of Germany, assignors to MC Micro Compact Car AG, Biel, Switzerland
Filed Dec. 6, 1996, Ser. No. 63,381
Term of patent 14 years
LOC (6) Cl. 06 - *01*
U.S. Cl. D6—356



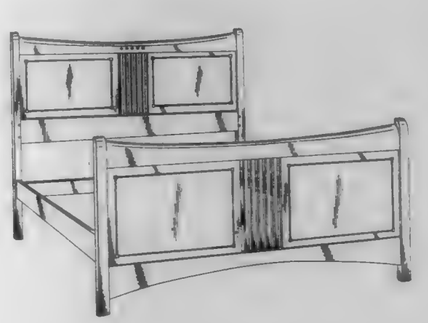
391,411
SEAT
Guy A. Walters, III, High Point, and Avis Edward Tobin, Jr., Thomasville, both of N.C., assignors to Thomasville Furniture Industries, Inc., Thomasville, N.C.
Continuation-in-part of Ser. No. 29,993, Oct. 30, 1994, abandoned. This application Sep. 26, 1995, Ser. No. 44,539
Term of patent 14 years
LOC (6) Cl. 06 - *01*
U.S. Cl. D6—379



391,412
CHAIR
Paul A. James, and Mehmet Ergelen, both of Rochester, N.Y., assignors to Hon Industries, Inc., Muscatine, Iowa
Filed May 1, 1996, Ser. No. 55,802
Term of patent 14 years
LOC (6) Cl. 06 - *01*
U.S. Cl. D6—379



391,413
BED
William E. De Blaay, Manlius, N.Y., assignor to L. & J. G. Stickley Inc., Manlius, N.Y.
Filed Jan. 21, 1997, Ser. No. 65,143
Term of patent 14 years
LOC (6) Cl. 06 - *01*
U.S. Cl. D6—393

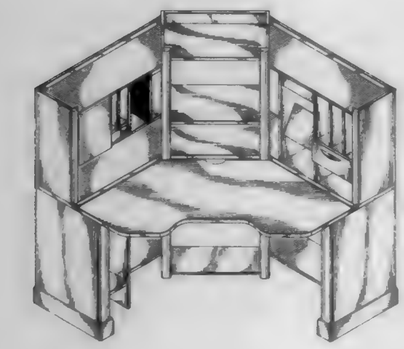


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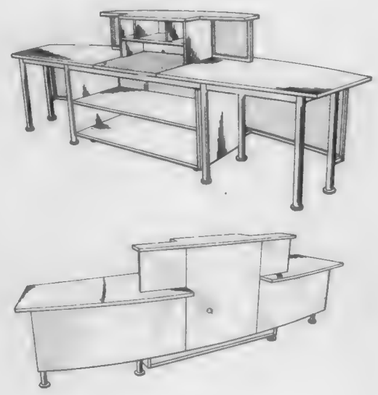
391,414
CONVERTIBLE CRIB IN ADULT BED CONFIGURATION
Lou Proano, and Rene D. Proano, both of 1648 Channelside Trail, Baldwinsville, N.Y. 13027
Filed Dec. 24, 1996, Ser. No. 64,228
Term of patent 14 years
LOC (6) Cl. 06 - *01*
U.S. Cl. D6—395



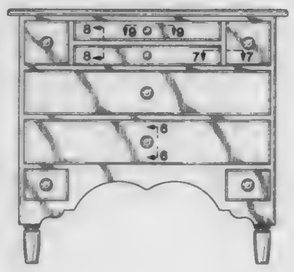
391,415
CORNER COMPUTER WORKSTATION
Michael P. O'Sullivan, Lamar, Mo., and Edwin P. Lochridge, Atlanta, Ga., assignors to O'Sullivan Industries, Inc., Lamar, Mo.
Filed Oct. 16, 1996, Ser. No. 61,114
The portion of the term of this patent subsequent to Jul. 29, 2011, has been disclaimed.
Term of patent 14 years
LOC (6) Cl. 06 - *04*
U.S. Cl. D6—426



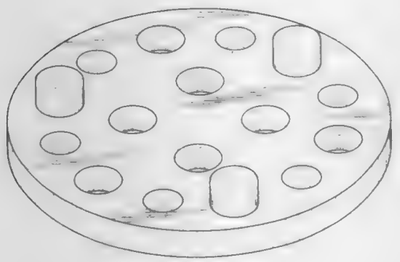
391,416
WORK TABLE
Antonio Canton Gongora; Carlos Jesús Cruz Fernandez; José María Munagorri Enriquez, and Juan Carlos Rayo Ortigüela, all of Madrid, Spain, assignors to Telefonica de España, S.A., Madrid, Spain
Filed Nov. 22, 1996, Ser. No. 62,763
Claims priority, application Spain, May 22, 1996, 137550
Term of patent 14 years
LOC (6) Cl. 06 - *04*
U.S. Cl. D6—426



391,417
CHEST
Lawrence E. Tabbia, 102 E. Pleasant Grove Rd., Jackson, N.J. 08527
Filed Oct. 17, 1996, Ser. No. 61,175
Term of patent 14 years
LOC (6) Cl. 06 - *04*
U.S. Cl. D6—445



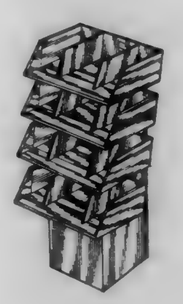
391,418
PAINT BRUSH AND PAINT ROLLER STORAGE HOLDER
Jon C. Roberts, 796 W. Central Ave, Titusville, Pa. 16354
Filed May 16, 1997, Ser. No. 70,815
Term of patent 14 years
LOC (6) Cl. 06 - *04*
U.S. Cl. D6—457



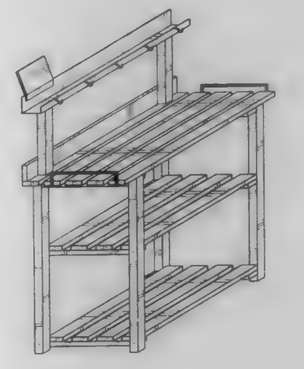
391,419
DISPLAY STAND
Andrea Walters, Dresden, Ohio, and Durward L. Staten, Mountain View, Ark., assignors to The Longaberger Company, Dresden, Ohio
Filed Jul. 30, 1996, Ser. No. 57,706
Term of patent 14 years
LOC (6) Cl. 06 - *04*
U.S. Cl. D6—458



391,420
FLOOR DISPLAY STAND
Wilton M. Connor, 1133 Queens Rd., Charlotte, N.C. 28207; Gregory R. Buchanan, 1710 Reservation Rd., Rock Hill, S.C. 29730, and Daniel E. Hagood, 805 Ramah Church Rd., Clover, S.C. 29710
Filed Aug. 30, 1996, Ser. No. 58,992
Term of patent 14 years
LOC (6) Cl. 06 - *04*
U.S. Cl. D6—473



391,421
SHELVING APPARATUS
Jerry Steelman, Minnetonka, Minn., assignor to Prairie Leisure Designs, Minneapolis, Minn.
Filed May 31, 1996, Ser. No. 55,246
Term of patent 14 years
LOC (6) Cl. 06 - *04*
U.S. Cl. D6—479



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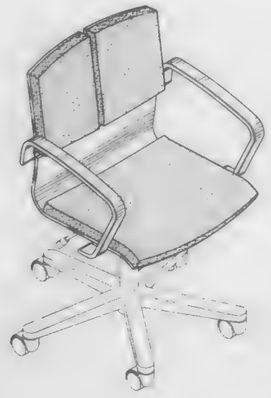
391,422
TABLE
Sally Sirkin Lewis, 715 N. Canon Dr., Beverly Hills, Calif. 90210
Filed Sep. 20, 1996, Ser. No. 60,306
Term of patent 14 years
LOC (6) Cl. 06 - *03*
U.S. Cl. D6—484



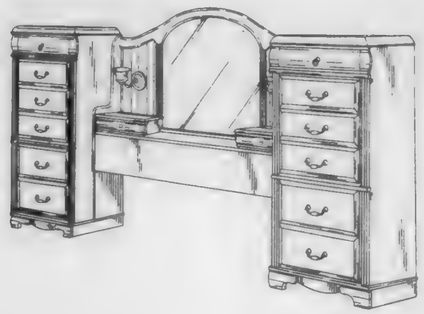
391,423
UTILITY CHAIR SUPPORT-FRAME
Roger K. Leib, 208 S. McCadden Pl., Los Angeles, Calif. 90004-1054
Filed Nov. 1, 1995, Ser. No. 45,873
Term of patent 14 years
LOC (6) Cl. 06 - *06*
U.S. Cl. D6—500



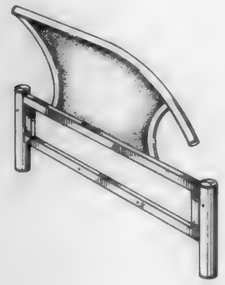
391,424
CHAIR SEAT
William B. Raftery, 4864 Waltham Crossing, NW., Canton, Ohio 44718
Filed Jan. 3, 1997, Ser. No. 64,493
Term of patent 14 years
LOC (6) Cl. 06 - *06*
U.S. Cl. D6—500



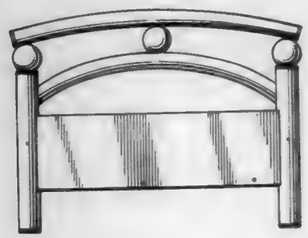
391,425
HEADBOARD UNIT
Marion W. Bell, Jr., Moreno Valley, Calif., assignor to Blackhawk Furniture, Riverside, Calif.
Filed Nov. 21, 1996, Ser. No. 62,685
Term of patent 14 years
LOC (6) Cl. 06 - *01*
U.S. Cl. D6—505



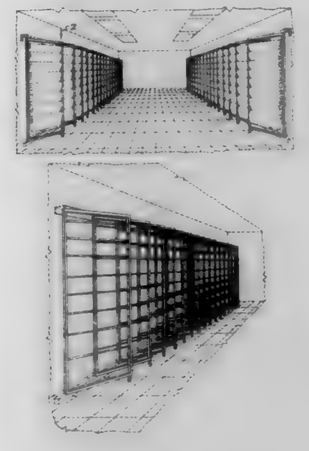
391,426
SIDEBOARD FOR FUTON BED
John Yeh, 660 S. Aberdeen, Anaheim Hills, Calif. 92807
Filed Dec. 2, 1996, Ser. No. 63,223
Term of patent 14 years
LOC (6) Cl. 06 - *06*
U.S. Cl. D6—505



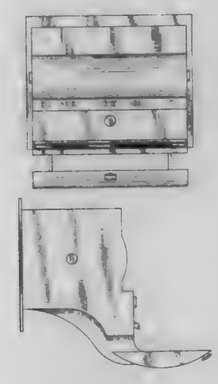
391,427
SIDEBOARD FRAME FOR FUTON BED
John Yeh, 660 S. Aberdeen, Anaheim Hills, Calif. 92807
Filed Dec. 2, 1996, Ser. No. 63,231
Term of patent 14 years
LOC (6) Cl. 06 - *06*
U.S. Cl. D6—505



391,428
RACK FOR DISPLAYING ROLLED GOODS
Gary W. Loflin, 722-2A Salem St., Thomasville, N.C. 27360
Continuation of Ser. No. 35,249, Feb. 23, 1995, abandoned.
This application Jan. 16, 1996, Ser. No. 47,059
Term of patent 14 years
LOC (6) Cl. 08 - *08*
U.S. Cl. D6—515

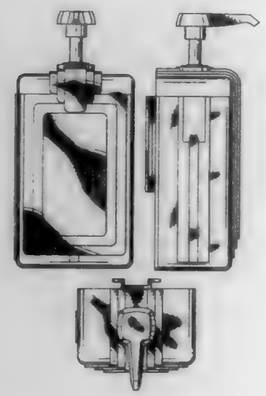


391,429
MOTORIZED TOILET TISSUE DISPENSER
Ralph Davis, 1843 N. Sierra Way, San Bernardino, Calif. 92405
Filed Mar. 19, 1997, Ser. No. 69,205
Term of patent 14 years
LOC (6) Cl. 23 - *02*
U.S. Cl. D6—523

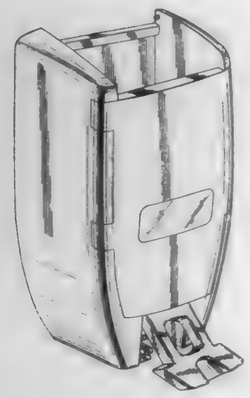


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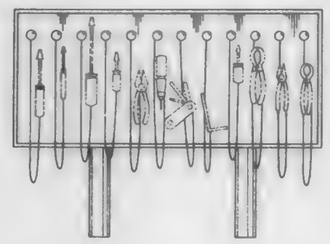
391,430
COSMETIC DISPENSER
Laureen L. Schmidt, 3454 McFarlin Blvd., #1, Dallas, Tex. 75205
Filed Dec. 10, 1996, Ser. No. 63,560
Term of patent 14 years
LOC (6) Cl. 07 - *07*
U.S. Cl. D6—545



391,431
LIQUID SOAP DISPENSER
Allen Eugene Brandenburg, Austin, and John Ethan Maldonado, San Antonio, both of Tex., assignors to Kimberly-Clark Worldwide, Inc., Neenah, Wis.
Filed Mar. 28, 1997, Ser. No. 68,723
Term of patent 14 years
LOC (6) Cl. 07 - *07*
U.S. Cl. D6—545



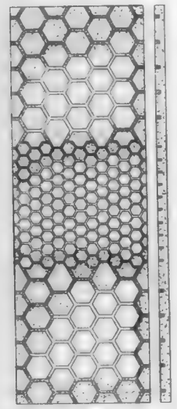
391,432
TOOLBOARD
Dennis John Adamovich, Atlanta, Ga., assignor to The Coca-Cola Company, Atlanta, Ga.
Filed Nov. 20, 1996, Ser. No. 62,643
Term of patent 14 years
LOC (6) Cl. 06 - *04*
U.S. Cl. D6—569



391,433
HOOK RACK
Young-Sik Whang, Morton Grove, Ill., assignor to Selfix, Inc., Chicago, Ill.
Filed Feb. 14, 1997, Ser. No. 66,493
Term of patent 14 years
LOC (6) Cl. 08 - *08*
U.S. Cl. D6—569



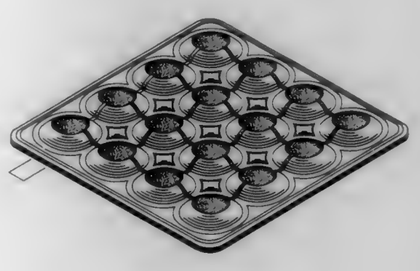
391,434
MATTRESS TOPPER OR PAD
Denys Denney, Bear, Del., and Jose D.M. Contreras, Boothwyn, Pa., assignors to Foamex L.P., Linwood, Pa.
Filed Apr. 30, 1997, Ser. No. 70,120
Term of patent 14 years
LOC (6) Cl. 06 - *09*
U.S. Cl. D6—596



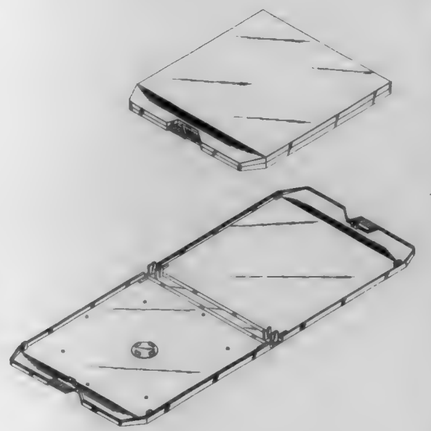
391,435
INFLATABLE CUSHION
Rong-Jyh Song, Miao-Li Hsien; Tsung-Ping Yen, Taipei; Jui-Yi Weng, and Yuan-Chen Chen, both of Taoyuan Hsien, all of Taiwan, assignors to Aqua-Marine International, Inc., Taipei Hsien, Taiwan
Filed Mar. 27, 1997, Ser. No. 69,314
Term of patent 14 years
LOC (6) Cl. 06 - *09*
U.S. Cl. D6—604



391,436
INFLATABLE AIR CUSHION
Robert W. Pekar, Florence, Mass., assignor to Dielectrics Industries, Chicopee, Mass.
Division of Ser. No. 61,484, Oct. 24, 1996. This application Apr. 15, 1997, Ser. No. 69,628
Term of patent 14 years
LOC (6) Cl. 06 - *09*
U.S. Cl. D6—604

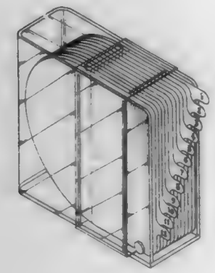


391,437
COMPACT DISC CASE
Russell Moore, and Christopher Robin Gale, both of Victoria, Australia, assignors to Discover Packaging Pty Ltd., Toorak, Australia
Filed Oct. 7, 1996, Ser. No. 60,747
Term of patent 14 years
LOC (6) Cl. 03 - *01*
U.S. Cl. D6—634

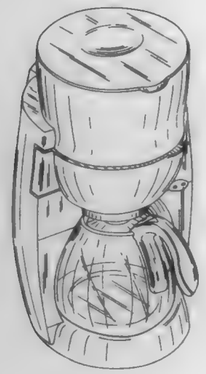


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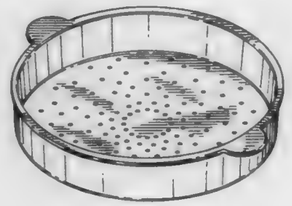
391,438
COMPACT DISK ORGANIZER
Michael A. Stewart, Minnetonka, and Steven L. Sandahl, Arden Hills, both of Minn., assignors to Sunrise Packaging, Inc., Blaine, Minn.
Filed Dec. 3, 1996, Ser. No. 63,266
Term of patent 14 years
LOC (6) Cl. 06 - *04*
U.S. Cl. D6—634



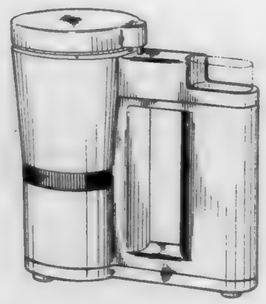
391,439
COFFEE MAKER AND CARAFE
Steve O. Mork, Lowell, Mich.; Ronald J. Vish, Somerville, and Jason E. Short, Cambridge, both of Mass., assignors to Amway Corporation, Ada, Mich.
Filed Feb. 7, 1997, Ser. No. 66,210
Term of patent 14 years
LOC (6) Cl. 07 - *01*
U.S. Cl. D7—309



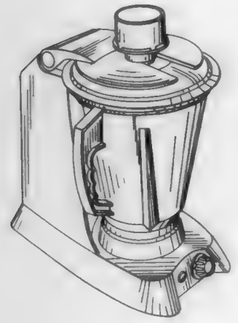
391,440
MICROWAVE STEAMER
Morison S. Cousins, Winter Park, Fla., assignor to Dart Industries Inc., Orlando, Fla.
Filed Oct. 23, 1995, Ser. No. 45,529
Term of patent 14 years
LOC (6) Cl. 07 - *02*
U.S. Cl. D7—360



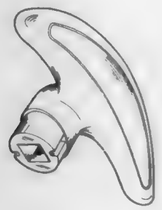
391,441
DRY MILL
Yosuke Tanaka, Hyogo; Toshio Hara, Osaka, and Kazuo Takada, Nara, all of Japan, assignors to Sanyo Electric Co., Ltd., Osaka, Japan
Filed Jun. 5, 1996, Ser. No. 55,376
Claims priority, application Japan, Dec. 25, 1995, 7-39326
Term of patent 14 years
LOC (6) Cl. 31 - *00*
U.S. Cl. D7—372



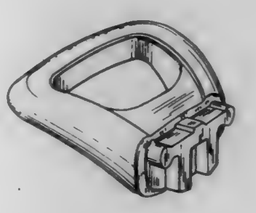
391,442
MIXER FOR FOOD AND DRINKS
Jarl Sundquist, Sollentuna, Sweden, assignor to AB Hälde Maskiner, Kista, Sweden
Filed Dec. 12, 1996, Ser. No. 63,655
Claims priority, application Sweden, Jun. 12, 1996, 96-1332
Term of patent 14 years
LOC (6) Cl. 31 - *00*
U.S. Cl. D7—378



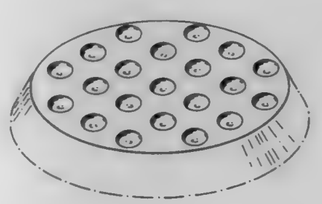
391,443
HANDLE FOR COOKING UTENSILS
Florence Candianides, Annecy Le Vieux, France, assignor to Tefal S.A., Rumilly, France
Filed Jan. 27, 1997, Ser. No. 65,237
Claims priority, application France, Jul. 26, 1996, 964393
Term of patent 14 years
LOC (6) Cl. 07 - *02*
U.S. Cl. D7—393



391,444
PAN HANDLE
Francesco Munari, Campo, Italy, assignor to La Termoplastic F.B.M. S.R.L., Arsago Seprio, Italy
Filed Mar. 31, 1997, Ser. No. 69,657
Claims priority, application Hague Agreement, Oct. 7, 1996, DM/037819
Term of patent 14 years
LOC (6) Cl. 07 - *02*
U.S. Cl. D7—394



391,445
TRAY BOTTOM
Mary E. Toth, 42 Henrietta Ave., Buffalo, N.Y. 14207, and Patrick J. Schack, 45 Greenhill terrace, West Seneca, N.Y. 14224
Filed Sep. 9, 1996, Ser. No. 59,379
Term of patent 14 years
LOC (6) Cl. 07 - *97*
U.S. Cl. D7—396.6



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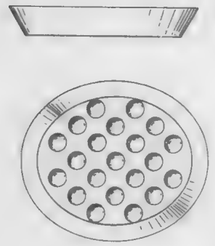
391,447
WATER BOTTLE
Steven Reid, 4555 Pine St. 8G, Riverside, Calif. 92501
Filed Mar. 27, 1997, Ser. No. 68,686
Term of patent 14 years
LOC (6) Cl. 07 - *01*
U.S. Cl. D7—510



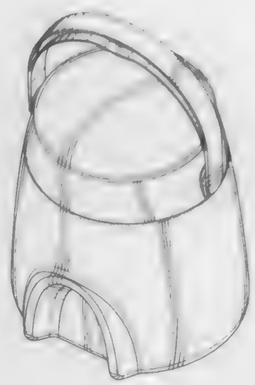
391,448
SQUEEZE BOTTLE FOR FILTERING AND PURIFYING DRINKING WATER
Robert H. Winer, Morris Township, N.J., and David L. Petrucci, Wolcott, Conn., assignors to Sovereign Marketing Corp., Fairfield, N.J.
Filed May 2, 1997, Ser. No. 70,233
Term of patent 14 years
LOC (6) Cl. 07 - *01*
U.S. Cl. D7—510



391,449
SERVING TRAY
Mary E. Toth, 42 Henrietta Ave., Buffalo, N.Y. 14207, and Patrick J. Schack, 45 Greenhill Ter., West Seneca, N.Y. 14224
Filed Sep. 9, 1996, Ser. No. 59,344
Term of patent 14 years
LOC (6) Cl. 07 - *01*
U.S. Cl. D7—550



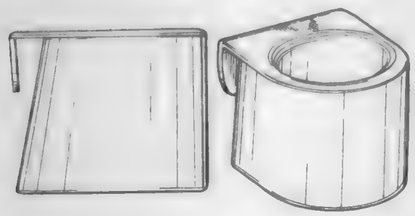
391,450
WATER COOLER
Kevin Rausch, Wooster, Ohio, assignor to Rubbermaid Specialty Products Inc., Wooster, Ohio
Filed Jun. 4, 1996, Ser. No. 55,355
Term of patent 14 years
LOC (6) Cl. 07 - *07*
U.S. Cl. D7—605



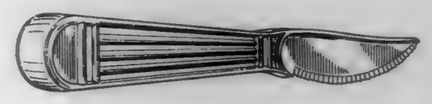
391,451
INSULATED BOTTLE
Panayiotis Todorya, Athens, Greece, assignor to Thermosport Enterprises, Athens, Greece
Filed Oct. 18, 1995, Ser. No. 45,367
Term of patent 14 years
LOC (6) Cl. 07 - *01*
U.S. Cl. D7—606



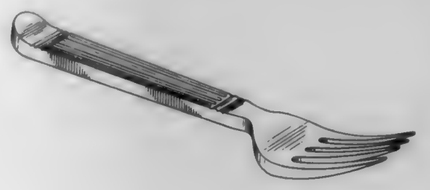
391,452
DRINK HOLDER
Klaus Huebert, Steinheim, Germany, assignor to Dr. Ing. h.c.F. Porsche AG, Weissach, Germany
Filed Feb. 26, 1997, Ser. No. 67,217
Claims priority, application Germany, Aug. 26, 1996, 96 07 206.7
Term of patent 14 years
LOC (6) Cl. 07 - *06*
U.S. Cl. D7—620



391,453
EATING UTENSIL
Peter R. Iacovelli, Fountain Inn, S.C., assignor to Dispoz-O-Plastics, Inc., Fountain Inn, S.C.
Filed Feb. 19, 1997, Ser. No. 66,650
Term of patent 14 years
LOC (6) Cl. 07 - *03*
U.S. Cl. D7—650

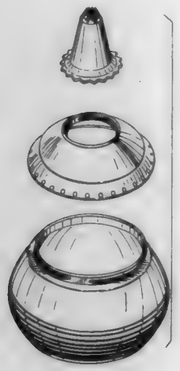


391,454
EATING UTENSIL
Peter R. Iacovelli, Fountain Inn, S.C., assignor to Dispoz-O-Plastics, Inc., Fountain Inn, S.C.
Filed Feb. 19, 1997, Ser. No. 66,649
Term of patent 14 years
LOC (6) Cl. 07 - *03*
U.S. Cl. D7—653

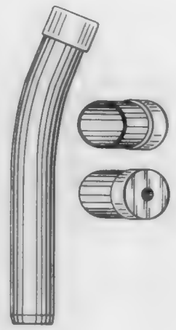


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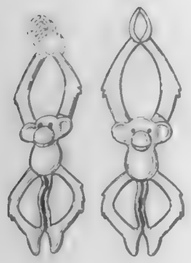
391,455
CAKE DECORATOR
Nele Wallays, Antwerp, Belgium, assignor to Dart Industries Inc., Orlando, Fla.
Filed Sep. 6, 1996, Ser. No. 59,314
Term of patent 14 years
LOC (6) Cl. 07 - *04*
U.S. Cl. D7—669



391,457
CUTLERY TOOL FOR POTATOES
William H. Mason, III, St. Paul, Minn., assignor to Uncommon Conglomerates, Inc., St. Paul, Minn.
Filed Nov. 7, 1996, Ser. No. 62,121
Term of patent 14 years
LOC (6) Cl. 07 - *06*
U.S. Cl. D7—693



391,456
MONKEY SHAPED TONGS
Louis F. Henry, and Bruce Anconn, both of New York, N.Y., assignors to B. Via International Housewares, Inc., Englewood Cliffs, N.J.
Filed Oct. 25, 1996, Ser. No. 61,564
Term of patent 14 years
LOC (6) Cl. 07 - *06*
U.S. Cl. D7—684



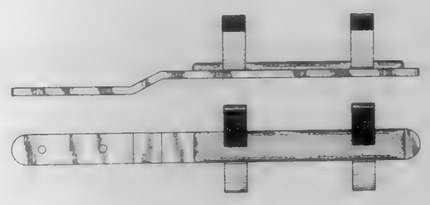
391,458
PUMPKIN SAW
Ian T. Allison, P.O. Box 1705, Santa Rosa, Calif. 95402
Filed Sep. 16, 1996, Ser. No. 59,776
Term of patent 14 years
LOC (6) Cl. 07 - *06*
U.S. Cl. D7—696



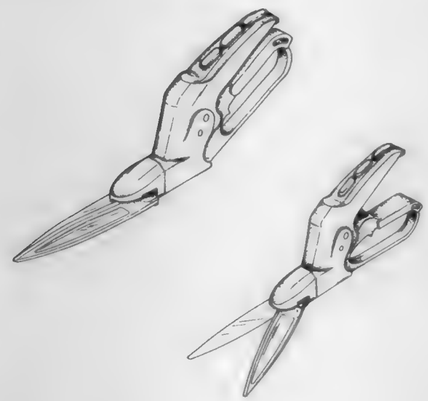
391,459
STAKE FOR PLANTS OR TREES
Léandre Vachon, 2549 chemin de l'Aéroport, Thetford Mines, Quebec, Canada, G6G 5R7
Division of Ser. No. 49,841, Feb. 1, 1996, Pat. No. Des. 379,417. This application Aug. 14, 1996, Ser. No. 58,390
Term of patent 14 years
LOC (6) Cl. 08 - *01*
U.S. Cl. D8—1



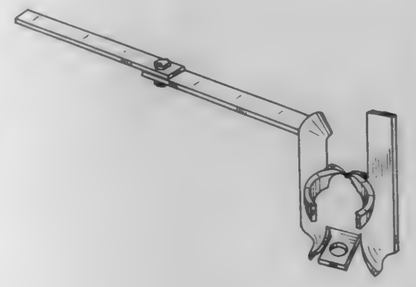
391,461
SUPPORT ARM BRACE WITH GRIP ENHANCER FOR USE WITH A LAWN AND HEDGE TRIMMING APPARATUS
Mary E. Smoak, and Charles C. Johnson, both of 3683 Irwin Way, Columbus, Ga. 31906
Filed Oct. 23, 1996, Ser. No. 64,110
Term of patent 14 years
LOC (6) Cl. 08 - *01*
U.S. Cl. D8—8



391,460
SHEAR
Chin-Sung Wu, 7, Lane 30, Tung Lung Road, Lu Kang Town, Changhua, Taiwan
Filed Jan. 16, 1997, Ser. No. 65,013
Term of patent 14 years
LOC (6) Cl. 08 - *01*
U.S. Cl. D8—5



391,462
LEFT HANDED STAND TORCHFOOT
Fate King, Jr., 329 Diamond St., Mound City, Ill. 62963
Filed Sep. 6, 1996, Ser. No. 59,276
Term of patent 14 years
LOC (6) Cl. 08 - *05*
U.S. Cl. D8—71



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Patent Not Issued For This Number

391,464

POCKET KNIFE

Bertrand Barre, Limonest, and Francis LePage, Lyons, both of France, assignors to Barre Inst. of Research & Design Sarl, Limonest, France

Filed May 30, 1996, Ser. No. 55,060

Claims priority, application France, Nov. 30, 1995, 956591

Term of patent 14 years

LOC (6) Cl. 08 - *05*

U.S. Cl. D8—99



391,465

KNIFE

Louis S. Glesser, Golden, Colo., assignor to Spyderco, Inc., Golden, Colo.

Filed Oct. 16, 1996, Ser. No. 61,101

Term of patent 14 years

LOC (6) Cl. 08 - *03*

U.S. Cl. D8—99



391,466

PULL

Gerald Caugh, Rockford; Kevin DeWald, Spring Lake, and Deborah Mattson, Plainwell, all of Mich., assignors to Belwith International, Grandville, Mich.

Division of Ser. No. 43,404, Sep. 1, 1995, Pat. No. Des. 380,134, which is a division of Ser. No. 15,019, Nov. 5, 1993, Pat. No. Des. 369,289. This application Nov. 22, 1995, Ser. No. 47,104

Term of patent 14 years

LOC (6) Cl. 08 - *06*

U.S. Cl. D8—305



391,467

TOILET SEAT HANDLE

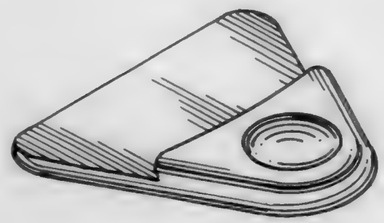
Loren J. Cooke, 283 John Mike Rd., Port Angeles, Wash. 98363

Filed May 30, 1996, Ser. No. 55,047

Term of patent 14 years

LOC (6) Cl. 23 - *02*

U.S. Cl. D8—307



391,468

CABINET HANDLE

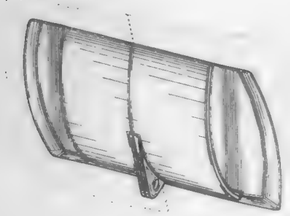
Andre Doxey, Beaverton, Oreg., and Vincent L. Haley, Orrville, Ohio, assignors to Rubbermaid Incorporated, Wooster, Ohio

Filed Jun. 6, 1996, Ser. No. 55,498

Term of patent 14 years

LOC (6) Cl. 08 - *06*

U.S. Cl. D8—313



391,469

DOORKNOB SECURITY COVER ASSEMBLY

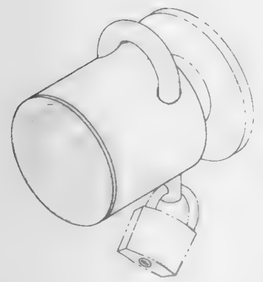
Rex L. Foushee, 9375 Joshua St., Apple Valley, Calif. 92308

Filed Jul. 21, 1997, Ser. No. 73,300

Term of patent 14 years

LOC (6) Cl. 08 - *07*

U.S. Cl. D8—346



391,470

KEY DECODER TOOL FOR USE BY LOCKSMITHS IN DETERMINING THE TUMBLER CODING OF LOCKS

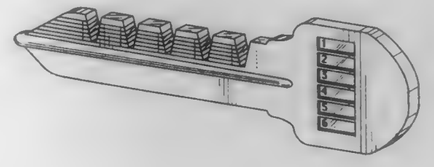
Leroy W. Johnson, and Deborah Johnson, both of 5102 Shady Bluff St., Durham, N.C. 27704

Filed Oct. 8, 1996, Ser. No. 60,820

Term of patent 14 years

LOC (6) Cl. 08 - *07*

U.S. Cl. D8—347



391,471

PILASTER

Douglas D. Amstutz, Muskegon, Mich., and Virginia L. Durfey, Columbus, Ohio, assignors to Amstore Corporation, Muskegon, Mich.

Filed Jul. 9, 1996, Ser. No. 56,826

Term of patent 14 years

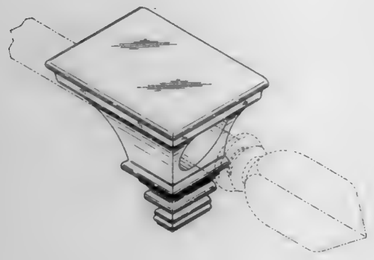
LOC (6) Cl. 08 - *05*

U.S. Cl. D8—349



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391,472
WINDOW TREATMENT ACCESSORY
Charles F. Smiley, Waunakee, and Cindy R. Jaggi, Verona, both of Wis., assignors to Springs Window Fashions Division, Inc., Middleton, Wis.
Filed Feb. 28, 1997, Ser. No. 67,614
Term of patent 14 years
LOC (6) Cl. 08 - *05*
U.S. Cl. D8—363



391,473
SNAP HOOK
Roman F. Striebel, Duxbury, Mass., assignor to Suncor Marine & Industrial, Inc., Pembroke, Mass.
Filed Apr. 24, 1997, Ser. No. 69,519
Term of patent 14 years
LOC (6) Cl. 08 - *05*
U.S. Cl. D8—367



391,474
SNAP HOOK
Roman F. Striebel, Duxbury, Mass., assignor to Suncor Marine & Industrial, Inc., Pembroke, Mass.
Filed Apr. 24, 1997, Ser. No. 69,520
Term of patent 14 years
LOC (6) Cl. 08 - *05*
U.S. Cl. D8—367



391,475
SNAP HOOK
Roman F. Striebel, Duxbury, Mass., assignor to Suncor Marine & Industrial, Inc., Pembroke, Mass.
Filed Apr. 24, 1997, Ser. No. 69,521
Term of patent 14 years
LOC (6) Cl. 08 - *05*
U.S. Cl. D8—367



391,476
CURTAIN ROD
Wayne S. Gourlay, Cambridge, Wis., assignor to Spring Window Fashions Division, Inc., Middleton, Wis.
Filed Jan. 28, 1997, Ser. No. 65,536
Term of patent 14 years
LOC (6) Cl. 08 - *05*
U.S. Cl. D8—376



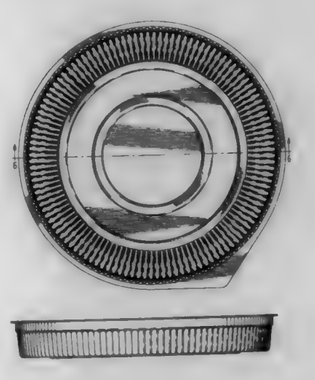
391,477
SECURING CLAMP FOR USE DURING EARTHQUAKES
Terry R. Bennett, 15609 Saul St., Canyon Country, Calif. 91351
Filed Oct. 21, 1994, Ser. No. 30,169
Term of patent 14 years
LOC (6) Cl. 08 - *08*
U.S. Cl. D8—394



391,478
COMBINED BOTTLE AND CAP
Victor D'Arrigo, 100 Riegelman St., Staten Island, N.Y. 10302
Filed Feb. 6, 1996, Ser. No. 49,993
Term of patent 14 years
LOC (6) Cl. 09 - *03*
U.S. Cl. D9—307



391,479
PACKAGING CONTAINER
Mario Poitras, New Brunswick, Canada, assignor to McCain Foods Limited, Canada
Filed Jul. 8, 1996, Ser. No. 56,698
Claims priority, application Canada, Jan. 8, 1996, 1996-0039
Term of patent 14 years
LOC (6) Cl. 09 - *07*
U.S. Cl. D9—429

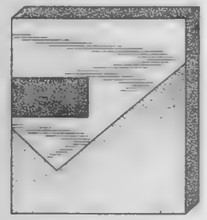


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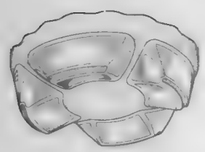
391,480

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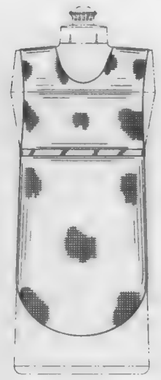
391,481
CARTON
Stephen Oxley, Beverley, United Kingdom, assignor to T. J. Smith & Nephew Limited, Hull, United Kingdom
Filed Jun. 21, 1996, Ser. No. 56,104
Claims priority, application United Kingdom, Dec. 21, 1995, 2052945
Term of patent 14 years
LOC (6) Cl. 09 - *07*
U.S. Cl. D9—432



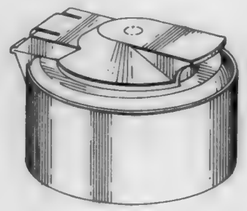
391,482
CONTAINER BOTTOM
David J. Wiemann, O'Fallon, and John W. Cooley, Hazelwood, both of Mo., assignors to Anheuser-Busch Incorporated, St. Louis, Mo.
Filed Aug. 15, 1996, Ser. No. 58,475
Term of patent 14 years
LOC (6) Cl. 09 - *07*
U.S. Cl. D9—434



391,483
BOTTLE APRON
Janie B. Freeman, 1656 W. 79th St., Chicago, Ill. 60620
Filed Jul. 5, 1996, Ser. No. 56,657
Term of patent 14 years
LOC (6) Cl. 09 - *01*
U.S. Cl. D9—444



391,484
DISPENSER CAP
Evans Santagiuliana, Vicenza, Italy, assignor to TAPLAST SPA, Povolaro, Italy
Filed Dec. 5, 1996, Ser. No. 63,309
Term of patent 14 years
LOC (6) Cl. 09 - *07*
U.S. Cl. D9—449



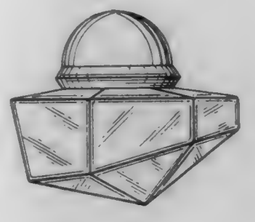
391,485
BOTTLE
Frederick N. Biesecker, II, Villanova, and Gregory Sprishen, Collegeville, both of Pa., assignors to Drug Plastics and Glass Company, Inc., Boyertown, Pa.
Filed Sep. 30, 1996, Ser. No. 60,527
Term of patent 14 years
LOC (6) Cl. 09 - *01*
U.S. Cl. D9—500



391,486
BOTTLE
Fabien Baron, New York, N.Y., assignor to Elizabeth Arden Co., Division of Conopco, Inc., New York, N.Y.
Filed Sep. 6, 1996, Ser. No. 58,310
Term of patent 14 years
LOC (6) Cl. 09 - *01*
U.S. Cl. D9—516



391,487
COMBINED FRAGRANCE BOTTLE AND CAP
Ilana V. Jivago, 9454 Wilshire Blvd., 6th Floor, Beverly Hills, Calif. 90212
Filed Apr. 28, 1997, Ser. No. 69,550
Term of patent 14 years
LOC (6) Cl. 09 - *01*
U.S. Cl. D9—521



391,488
SPRAY BOTTLE
Walter F. Klima, Jr., Travelers Rest, S.C., and William L. Klima, Stafford, Va., assignors to Sprayex L.L.C., Stafford, Va.
Filed Feb. 3, 1997, Ser. No. 66,179
Term of patent 14 years
LOC (6) Cl. 09 - *01*
U.S. Cl. D9—524



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391,489
COCKED-NECK BOTTLE
Stuart H. Feen, Libertyville, Ill., assignor to Plastic Bottle Corporation, Libertyville, Ill.
Filed Sep. 5, 1995, Ser. No. 43,488
Term of patent 14 years
LOC (6) Cl. 09 - *01*
U.S. Cl. D9—526



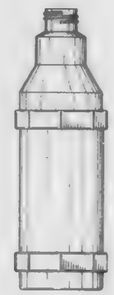
391,490
COMBINED CONTAINER AND CAP
Edwin J. Wilson, Mequon, Wis., assignor to A & V, Inc., Sussex, Wis.
Division of Ser. No. 46,869, Nov. 20, 1995, Pat. No. Des. 379,924. This application Jan. 14, 1997, Ser. No. 64,913
Term of patent 14 years
LOC (6) Cl. 09 - *01*
U.S. Cl. D9—528



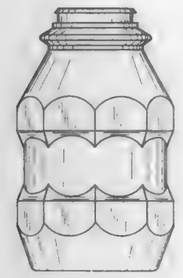
391,491
OINTMENT DISPENSER
Frank J. Lang, Warrenville, Ill., assignor to Federal Package Network, Inc., Chaska, Minn.
Filed Jul. 16, 1996, Ser. No. 57,100
The portion of the term of this patent subsequent to Jan. 13, 2012, has been disclaimed.
Term of patent 14 years
LOC (6) Cl. 09 - *01*
U.S. Cl. D9—529



391,492
INDUSTRIAL BOTTLE
Ephraim Pang, 8471 Quince Orchard Blvd., Gaithersburg, Md. 20878
Filed Nov. 21, 1996, Ser. No. 62,693
Term of patent 14 years
LOC (6) Cl. 09 - *01*
U.S. Cl. D9—538



391,493
CONTAINER
Roger C. Panella, 118 Glover Rd., and Scott M. Brunke, 3118 Mercer Rd., both of New Castle, Pa. 16105
Filed Feb. 27, 1997, Ser. No. 67,104
Term of patent 14 years
LOC (6) Cl. 09 - *01*
U.S. Cl. D9—538



391,494
WINE BOTTLE
Thomas H. Bond, San Francisco, Calif., assignor to Franzia Winery, Ripon, Calif.
Filed Nov. 1, 1996, Ser. No. 61,915
The portion of the term of this patent subsequent to Dec. 16, 2011, has been disclaimed.
Term of patent 14 years
LOC (6) Cl. 09 - *01*
U.S. Cl. D9—546



391,495
COMBINED CONTAINER AND CAP FOR PERFUMES AND COSMETIC PRODUCTS
Pierre Dinand, Levallois Perret, France, assignor to Euroitalia S.r.l., Monza, Italy
Filed Oct. 24, 1996, Ser. No. 61,487
Claims priority, application Italy, Jul. 30, 1996, MI9600442
Term of patent 14 years
LOC (6) Cl. 09 - *01*
U.S. Cl. D9—573



391,496
WATCHCASE
Hitoshi Azegami, and Toshiaki Kume, both of Chiba, Japan, assignors to Seiko Instruments Inc., Japan
Filed Dec. 30, 1996, Ser. No. 64,364
Term of patent 14 years
LOC (6) Cl. 10 - *02*
U.S. Cl. D10—30



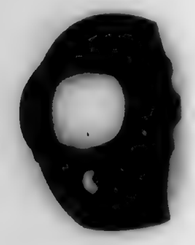
179-264 O.G.-98-29: QL3

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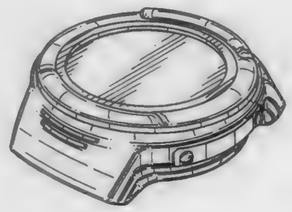
391,497
WATCHCASE
Toshiaki Kume, and Takeshi Wada, both of Chiba, Japan, assignors to Seiko Instruments Inc., Japan
Filed Dec. 30, 1996, Ser. No. 64,397
Term of patent 14 years
LOC (6) Cl. 10 - *02*
U.S. Cl. D10—30



391,498
WATCHCASE
Toshiaki Kume, and Takeshi Wada, both of Chiba, Japan, assignors to Seiko Instruments Inc., Japan
Filed Dec. 30, 1996, Ser. No. 64,399
Term of patent 14 years
LOC (6) Cl. 10 - *02*
U.S. Cl. D10—30



391,499
BEZEL AND CASING FOR A WATCH
John T. Houlihan, 334 Tepi Dr., Southbury, Conn. 06798; Luis B. Jimenez, Casa Nuestra Subd Bankal, #19, Lapu-Lapu City, 6015, Philippines, and Richard J. Toth, 799 SW. 17th St., Boca Raton, Fla. 33432
Filed Apr. 30, 1997, Ser. No. 70,156
Term of patent 14 years
LOC (6) Cl. 10 - *02*
U.S. Cl. D10—30



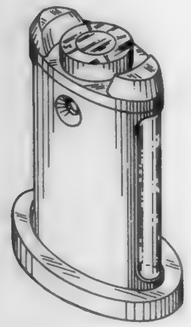
391,500
WATCH AND STRAP
Janet G. Brzezinski, Middlebury, Conn., assignor to Timex Corp., Middlebury, Conn.
Filed Jun. 5, 1997, Ser. No. 71,626
Term of patent 14 years
LOC (6) Cl. 10 - *02*
U.S. Cl. D10—32



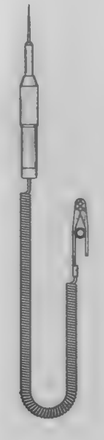
391,501
WATCH
Barbara Giardiello, Naples, Italy, assignor to ARTIME SPA, Neuchatel, Switzerland
Filed May 9, 1997, Ser. No. 70,511
Claims priority, application WIPO, Jan. 15, 1997, DMA/003563
Term of patent 14 years
LOC (6) Cl. 10 - *02*
U.S. Cl. D10—39



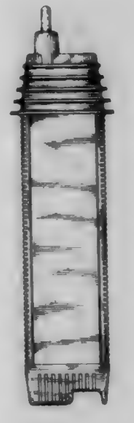
391,502
CALORIMETRIC WATTMETER FOR TESTING MICROWAVE OVENS
Paul G. Moerman, P.O. Box 3053, San Luis Obispo, Calif. 93403
Filed Nov. 29, 1996, Ser. No. 63,169
Term of patent 14 years
LOC (6) Cl. 10 - *04*
U.S. Cl. D10—75



391,503
EXPANDABLE WIRE CURRENT TESTER
Samuel Van Dyk, 323 N. 18th St., Prospect Park, N.J. 07508
Filed Dec. 23, 1996, Ser. No. 64,123
Term of patent 14 years
LOC (6) Cl. 10 - *04*
U.S. Cl. D10—78



391,504
VOLTAGE TESTER
Daniel Arnoux; Axel Arnoux, and Claude Genter, all of Paris, France, assignors to Societe Chauvin Arnoux, France
Filed Apr. 22, 1997, Ser. No. 68,980
Term of patent 14 years
LOC (6) Cl. 10 - *04*
U.S. Cl. D10—78



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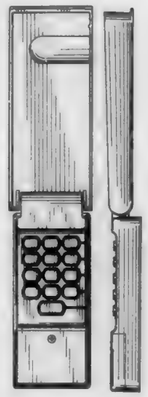
391,505
ELECTRONIC PERSONAL WEIGHING SCALES
Patrick Juteau, Rumilly, France, assignor to Tefal S.A., Rumilly, France
Filed Aug. 13, 1996, Ser. No. 58,633
Claims priority, application France, Feb. 23, 1996, 961148
Term of patent 14 years
LOC (6) Cl. 10 - *04*
U.S. Cl. D10—92



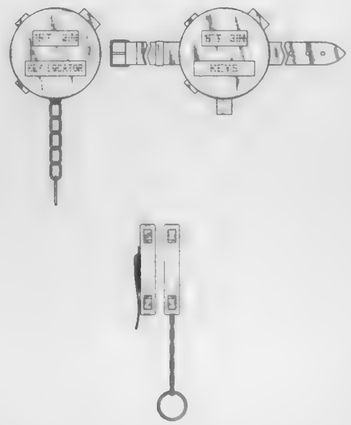
391,506
HANDLE
Steven Bellofatto, Closter, and Scott Salmon, Jersey City, both of N.J., assignors to Healthscan Products, Inc., Cedar Grove, N.J.
Filed Apr. 10, 1997, Ser. No. 69,096
Term of patent 14 years
LOC (6) Cl. 10 - *04*
U.S. Cl. D10—103



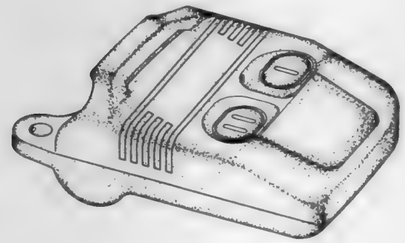
391,507
GARAGE DOOR KEYLESS ENTRY SYSTEM
Loren E. Doppelt, Palatine; Mark Siegler, Brookfield; Gary Prokop, Wheaton; Marianne Grisdale, and Mark D. Dziersk, both of Chicago, all of Ill., assignors to The Chamberlian Group, Inc., Elmhurst, Ill.
Filed Jan. 11, 1996, Ser. No. 48,648
Term of patent 14 years
LOC (6) Cl. 10 - *05*
U.S. Cl. D10—104



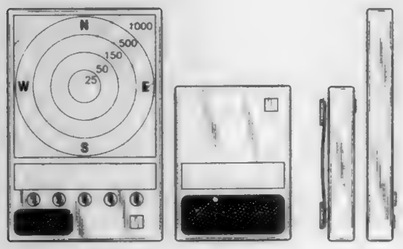
391,508
COMBINED TRANSMITTER AND RECEIVER FOR LOCATING LOST KEYS
Roslyn Lucas, 28 Searing St., Hempstead, N.Y. 11550
Filed May 8, 1997, Ser. No. 70,474
Term of patent 14 years
LOC (6) Cl. 10 - *05*
U.S. Cl. D10—104



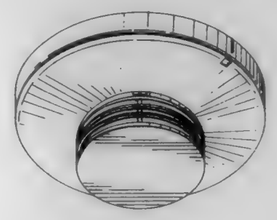
391,509
REMOTE CONTROL TRANSMITTER FOR A CAR ALARM SYSTEM
Shih-Ming Hwang, 17811 Sky Park Cir., Suite D&E, Irvine, Calif. 92614
Filed May 9, 1997, Ser. No. 70,508
Term of patent 14 years
LOC (6) Cl. 10 - *05*
U.S. Cl. D10—104



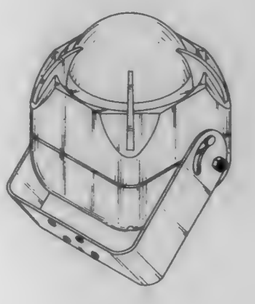
391,510
COMBINED TRANSMITTER AND RECEIVER FOR LOCATING LOST CHILDREN
Domenic Leo, and Oxana Leo, both of 126 Upper Canada Drive, North York, Ontario, Canada, M2P 1S4
Filed Jun. 12, 1997, Ser. No. 72,320
Term of patent 14 years
LOC (6) Cl. 10 - *05*
U.S. Cl. D10—104



391,511
HOUSING FOR A FIRE ALARM
Tsuyoshi Kadono, Osaka, Japan, assignor to Matsushita Electric Works, Ltd., Osaka-fu, Japan
Filed Dec. 2, 1996, Ser. No. 62,896
Claims priority, application Japan, May 31, 1996, 8-16131
Term of patent 14 years
LOC (6) Cl. 10 - *05*
U.S. Cl. D10—106

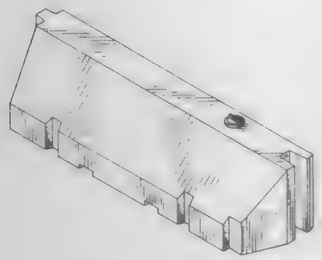


391,512
EMERGENCY ALARM
Mick Ch, No. 18, Lane 201, Chungho Street, Chupei, Hsinchu Hsien, Taiwan
Filed Jun. 24, 1997, Ser. No. 72,927
Term of patent 14 years
LOC (6) Cl. 10 - *05*
U.S. Cl. D10—106

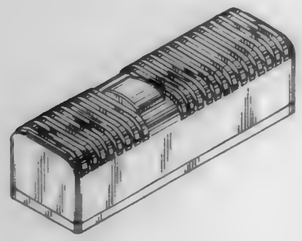


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391,513
HOLLOW BARRIER
James C. Brown, 2121 Skyhawk Dr., Fort Wayne, Ind. 46815
Filed Jan. 9, 1997, Ser. No. 64,693
Term of patent 14 years
LOC (6) Cl. 10 - *05*
U.S. Cl. D10—113



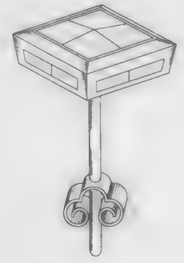
391,514
PUSH BUTTON FOR WIRELESS DOOR CHIME
Thomas J. Ryan, Del Mar, Calif., assignor to Fred. M. Schildwachter & Sons, Inc., Bronx, N.Y.
Filed Jul. 14, 1997, Ser. No. 74,063
Term of patent 14 years
LOC (6) Cl. 10 - *05*
U.S. Cl. D10—118



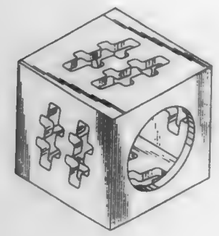
391,515
WATCH BRACELET
Amelia Kennedy, Woodbury, Conn., assignor to Timex Corp., Middlebury, Conn.
Filed Feb. 25, 1997, Ser. No. 66,966
Term of patent 14 years
LOC (6) Cl. 11 - *01*
U.S. Cl. D11—13



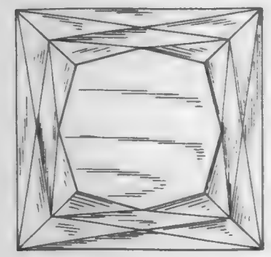
391,516
EARRING
Premkumar Kothari, Mumbai, India, assignor to Fine Jewellery (India) Ltd., Bombay, India
Filed Nov. 29, 1996, Ser. No. 63,170
Term of patent 14 years
LOC (6) Cl. 11 - *01*
U.S. Cl. D11—75



391,517
JEWELRY CUBES
Michael Gusky, Fort Lauderdale, Fla., assignor to Aurafin Corporation, Sunrise, Fla.
Division of Ser. No. 47,769, Dec. 12, 1995. This application Oct. 11, 1996, Ser. No. 63,417
Term of patent 14 years
LOC (6) Cl. 11 - *01*
U.S. Cl. D11—81



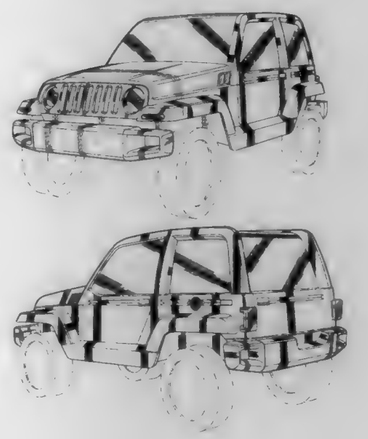
391,518
GEMSTONE
Christopher Slowinski, 19 Westwoods Rd., Lake Success, N.Y. 11020, and Avraham Siman-Tov, c/o Lili Diamonds, Diamond Exchange Bldg. Maccabi 834, 1 Jabotinsky St., Ramat Gan, Israel
Filed Jan. 23, 1996, Ser. No. 49,329
Term of patent 14 years
LOC (6) Cl. 11 - *03*
U.S. Cl. D11—90



391,519
ALIEN FIGURINE
Steven A. Silvers, 1751 Colgate Pl., Union, N.J. 07083
Filed Feb. 2, 1996, Ser. No. 50,769
Term of patent 14 years
LOC (6) Cl. 11 - *02*
U.S. Cl. D11—160



391,520
VEHICLE BODY
Robert T. Laster, Rochester, Mich., assignor to Chrysler Corporation, Auburn Hills, Mich.
Filed Sep. 20, 1996, Ser. No. 60,046
Term of patent 14 years
LOC (6) Cl. 12 - *08*
U.S. Cl. D12—91

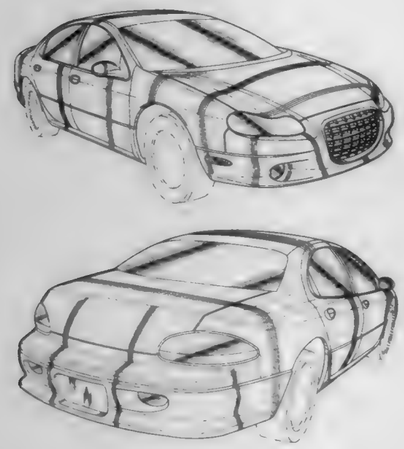


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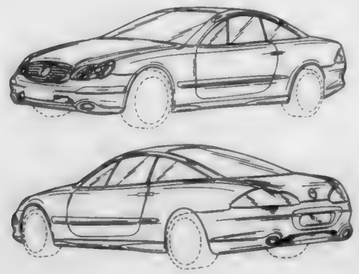
391,521
AUTOMOBILE
Erwin K. Lui, Trabuco Canyon, Calif., assignor to Toyota Jidosha K.K., Aichi-ken, Japan
Filed Nov. 15, 1996, Ser. No. 62,446
Term of patent 14 years
LOC (6) Cl. 12 - *08*
U.S. Cl. D12—92



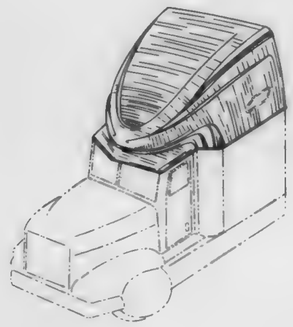
391,522
VEHICLE BODY
Mark D. Hall, Rochester Hills; Darrel L. Morley, Birmingham, and William A. Dayton, Northville, all of Mich., assignors to Chrysler Corporation, Auburn Hills, Mich.
Filed Dec. 11, 1996, Ser. No. 63,622
Term of patent 14 years
LOC (6) Cl. 12 - *08*
U.S. Cl. D12—92



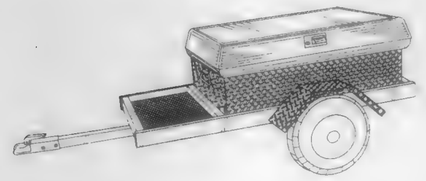
391,523
MOTOR VEHICLE BODY
Bruno Sacco; Harald Leschke, both of Sindelfingen, Germany; Olivier Pierre Boulay, and Anthony W. K. Lo, both of Tokyo, Japan, assignors to Mercedes-Benz AG, Stuttgart, Germany
Filed Mar. 31, 1997, Ser. No. 68,760
Claims priority, application Germany, Sep. 30, 1996, 96 08 461.8
Term of patent 14 years
LOC (6) Cl. 12 - *08*
U.S. Cl. D12—92



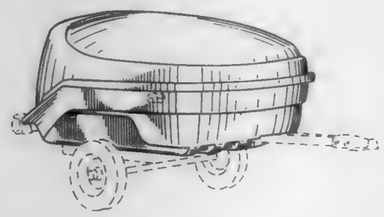
391,524
EXTERIOR SHELL OF A VEHICLE ROOF
Robert W. Anderson, Detroit, and John G. Woodward, Rochester, both of Mich., assignors to Navistar International Transporation Corp., Chicago, Ill.
Continuation of Ser. No. 51,781, Mar. 18, 1996, abandoned. This application Dec. 19, 1996, Ser. No. 63,956
Term of patent 14 years
LOC (6) Cl. 12 - *08*
U.S. Cl. D12—96



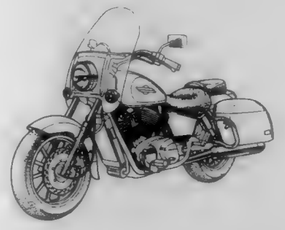
391,525
MOTORCYCLE TRAILER
Richard H. Savitski, 14255 88th St. NE., Elk River, Minn. 55330
Filed Oct. 10, 1996, Ser. No. 60,928
Term of patent 14 years
LOC (6) Cl. 12 - *10*
U.S. Cl. D12—102



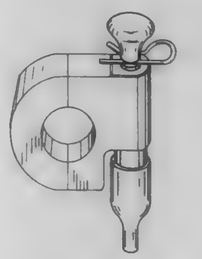
391,526
TRAILER BODY
John J. Kass, and Richard McCoy, both of Granger, Ind., assignors to Reese Products, Inc., Elkhart, Ind.
Filed Sep. 23, 1996, Ser. No. 63,557
Term of patent 14 years
LOC (6) Cl. 12 - *10*
U.S. Cl. D12—102



391,527
MOTORCYCLE
Takashi Maruyama, and Mitsuru Yamamoto, both of Saitama, Japan, assignors to Honda Giken Kogyo Kabushiki Kaisha, Tokyo, Japan
Filed Dec. 31, 1996, Ser. No. 64,422
Claims priority, application Japan, Jul. 12, 1996, 8-20898
Term of patent 14 years
LOC (6) Cl. 12 - *11*
U.S. Cl. D12—110

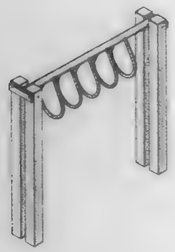


391,528
MOTORCYCLE IGNITION KILL SWITCH
Wayne Pingel, and Donna Pingel, both of Adams, Wis., assignors to Pingel Enterprise, Inc., Adams, Wis.
Filed Sep. 24, 1996, Ser. No. 60,194
Term of patent 14 years
LOC (6) Cl. 12 - *11*
U.S. Cl. D12—114



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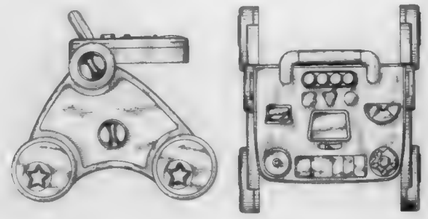
391,529
BICYCLE RACK
Gerald P. Skalka, Potomac, Md., assignor to Victor Stanley, Inc., Dunkirk, Md.
Division of Ser. No. 49,585, Nov. 28, 1995. This application Oct. 21, 1996, Ser. No. 60,729
Term of patent 14 years
LOC (6) Cl. 12 - *11*
U.S. Cl. D12—115



391,530
BICYCLE FRONT FORK SUSPENSION LOWER TUBE
Paul H. Turner, Boulder, Colo., assignor to RockShox, Inc., San Jose, Calif.
Filed Jul. 15, 1996, Ser. No. 56,999
Term of patent 14 years
LOC (6) Cl. 12 - *11*
U.S. Cl. D12—118



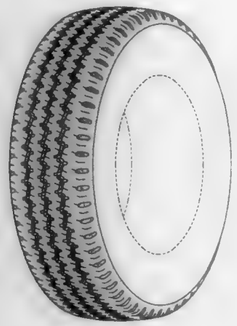
391,531
BABY WALKER
Kai-Shun Mak, Kwai Chung, Hong Kong, assignor to Hop Lee Cheong Industrial Company Limited, Hong Kong, Hong Kong
Filed Sep. 25, 1996, Ser. No. 62,983
Term of patent 14 years
LOC (6) Cl. 12 - *12*
U.S. Cl. D12—130



391,532
TIRE
Tsai-Jen Lo, No.215,Meei-Kong Road,Ta-Suen, Chang-Hwa, Taiwan
Filed Apr. 12, 1996, Ser. No. 52,975
Term of patent 14 years
LOC (6) Cl. 12 - *15*
U.S. Cl. D12—140

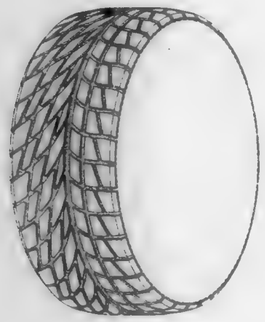


391,533
TIRE TREAD
Christian Labbe, Meix-le-Tige, and Claude Lardo, Walzing, both of Belgium, assignors to The Goodyear Tire & Rubber Company, Akron, Ohio
Filed Jul. 17, 1996, Ser. No. 57,129
Term of patent 14 years
LOC (6) Cl. 12 - *15*
U.S. Cl. D12—143



391,534
Patent Not Issued For This Number

391,535
TIRE TREAD
Christopher Paul Johenning, Wadsworth, and Randall Raymond Brayer, North Canton, both of Ohio, assignors to The Goodyear Tire & Rubber Company, Akron, Ohio
Filed Feb. 6, 1997, Ser. No. 66,180
Term of patent 14 years
LOC (6) Cl. 12 - *15*
U.S. Cl. D12—147

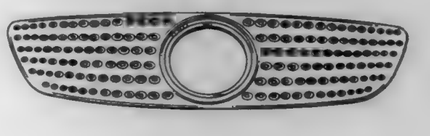


391,536
Patent Not Issued For This Number

391,537
TIRE TREAD
Paul Bryan Maxwell, Munroe Falls, Ohio, assignor to The Goodyear Tire & Rubber Company, Akron, Ohio
Filed Mar. 12, 1997, Ser. No. 67,802
Term of patent 14 years
LOC (6) Cl. 12 - *15*
U.S. Cl. D12—148



391,538
EXTERIOR SURFACE CONFIGURATION OF A MOTOR VEHICLE GRILL
Bruno Sacco; Harald Leschke, both of Sindelfingen, Germany; Olivier Pierre Boulay, and Anthony W. K. Lo, both of Tokyo, Japan, assignors to Mercedes-Benz AG, Stuttgart, Germany
Filed Mar. 31, 1997, Ser. No. 68,778
Claims priority, application Germany, Sep. 30, 1996, M 96 08 461.8
Term of patent 14 years
LOC (6) Cl. 12 - *16*
U.S. Cl. D12—163

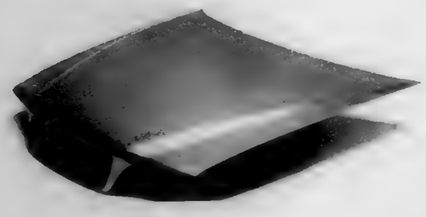


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391,539
STEERING WHEEL FOR A MOTOR VEHICLE
Bruno Sacco, Sindelfingen, and Peter Pfeiffer, Böblingen, both of Germany, assignors to Mercedes-Benz AG, Stuttgart, Germany
Filed Apr. 1, 1997, Ser. No. 68,403
Term of patent 14 years
LOC (6) Cl. 12 - *16*
U.S. Cl. D12—176



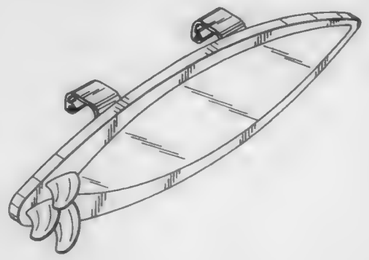
391,540
HOOD FOR AN AUTOMOBILE
Peter Douglas Horbury, Kenilworth, England, assignor to Aktiebolaget Volvo, Gothenborg, Sweden
Filed Feb. 25, 1997, Ser. No. 67,132
Claims priority, application Sweden, Aug. 28, 1996, 96-1781
Term of patent 14 years
LOC (6) Cl. 12 - *16*
U.S. Cl. D12—173



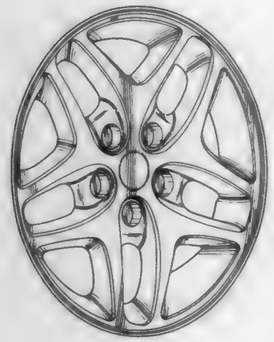
391,541
BACK WINDSHIELD FOR A VEHICLE
Solomon Woods, 11476 Newgate La., Cincinnati, Ohio 45240
Filed Mar. 3, 1997, Ser. No. 67,427
Term of patent 14 years
LOC (6) Cl. 12 - *16*
U.S. Cl. D12—183



391,542
REARVIEW MIRROR
Mark J. Feighan, 311 Nautilus St., La Jolla, Calif. 92037
Filed May 23, 1996, Ser. No. 54,859
Term of patent 14 years
LOC (6) Cl. 12 - *16*
U.S. Cl. D12—187



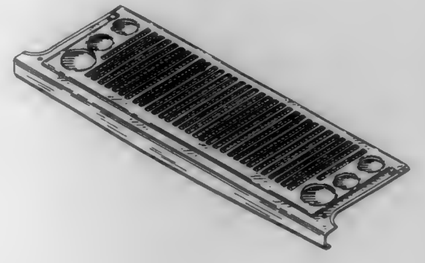
391,543
VEHICLE WHEEL FRONT FACE SEGMENT
Donald A. Renkert, Royal Oak, Mich., assignor to Chrysler Corporation, Auburn Hills, Mich.
Filed Dec. 9, 1996, Ser. No. 63,498
Term of patent 14 years
LOC (6) Cl. 12 - *16*
U.S. Cl. D12—209



391,544
WHEEL
Frank Noriega, 9246 Claymore St., Pico Rivera, Calif. 90660
Filed Mar. 11, 1997, Ser. No. 67,577
Term of patent 14 years
LOC (6) Cl. 12 - *16*
U.S. Cl. D12—209



391,545
PICK-UP TRUCK TAILGATE LINER
Ronald C. Arndt, Montello, and Patrick J. Quigley, Portage, both of Wis., assignors to Penda Corporation, Portage, Wis.
Filed Sep. 30, 1996, Ser. No. 60,452
Term of patent 14 years
LOC (6) Cl. 12 - *06*
U.S. Cl. D12—221

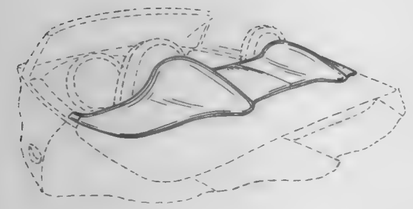


391,546
SUN BONNET FOR A WATERCRAFT
Thomas H. Frink, 246 Avenida Del Pontiente, San Clemente, Calif. 92672, and Darrin Eugene Davidson, 3719 Indian Hills Dr., Lake Havasu City, Ariz. 86406
Filed Jul. 22, 1997, Ser. No. 73,659
Term of patent 14 years
LOC (6) Cl. 12 - *06*
U.S. Cl. D12—317

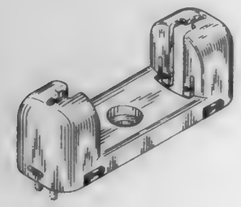


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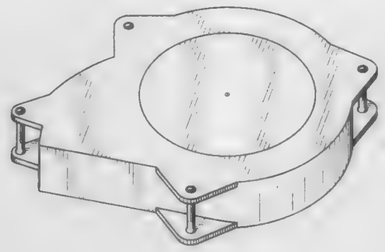
391,547
REAR CAP FOR A MOTOR VEHICLE
Klaus-Peter Lehmann, Mühlacker, and Markus Schmid, Mönsheim, both of Germany, assignors to Dr. Ing. h.c.F. Porsche, Weissach, Germany
Filed Feb. 28, 1997, Ser. No. 67,353
Claims priority, application Germany, Aug. 29, 1996, M 96 07 413.2; Dec. 18, 1996, M 96 10 825.8
Term of patent 14 years
LOC (6) Cl. 12 - *16*
U.S. Cl. D12—401



391,548
LAMP SOCKET
Katunori Sato, Shioya-gun; Hiroyoshi Nishihara, and Kazuaki Murata, both of Tokyo, all of Japan, assignors to Moriyama Sangyo Kabushiki Kaisha, Tokyo, Japan
Filed Jun. 3, 1996, Ser. No. 55,245
Claims priority, application Japan, Dec. 22, 1995, 7-38635
Term of patent 14 years
LOC (6) Cl. 13 - *03*
U.S. Cl. D13—134



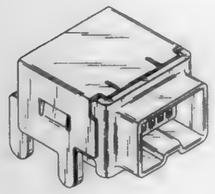
391,549
CORD REEL
Randolph Peter Ness, Ryley, Canada, assignor to The Reel-Thing Innovations Inc., Sherwood Park, Canada
Filed May 6, 1996, Ser. No. 54,014
Claims priority, application Canada, Nov. 4, 1995, 1995-2462
Term of patent 14 years
LOC (6) Cl. 13 - *03*
U.S. Cl. D13—140



391,550
SOCKET FOR AN EXTENSION CORD
Albert Stekelenburg, Taipei, Taiwan, assignor to All Line Inc., Taipei, Taiwan
Filed Oct. 2, 1996, Ser. No. 60,599
Term of patent 14 years
LOC (6) Cl. 13 - *03*
U.S. Cl. D13—143



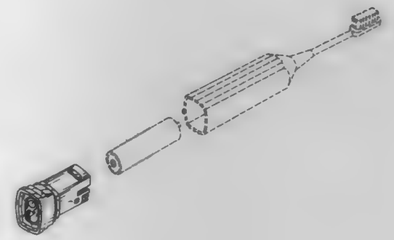
391,551
ELECTRICAL CONNECTOR
Naoyuki Ono, Tokyo, Japan, assignor to SMK Corporation, Tokyo, Japan
Filed Sep. 4, 1996, Ser. No. 59,172
Claims priority, application Japan, Mar. 4, 1996, 8-5820
Term of patent 14 years
LOC (6) Cl. 13 - *03*
U.S. Cl. D13—147



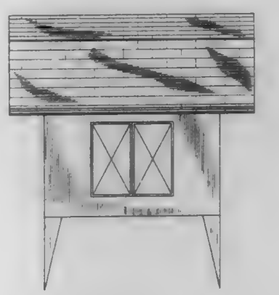
391,552
ELECTRIC CONNECTOR
Atsushi Nishio, and Masaru Onuki, both of Ibaraki, Japan, assignors to Mitsumi Electric Co., Ltd., Tokyo, Japan
Filed Sep. 18, 1996, Ser. No. 59,936
Claims priority, application Japan, May 24, 1996, 8-15251
Term of patent 14 years
LOC (6) Cl. 13 - *03*
U.S. Cl. D13—147



391,553
SWITCH BOX
Eiji Okada, 5-15-5, Nakanobu, Shinagawa-ku, Tokyo, Japan
Filed Feb. 21, 1996, Ser. No. 51,026
Claims priority, application Japan, Aug. 24, 1995, 7-24646
Term of patent 14 years
LOC (6) Cl. 13 - *03*
U.S. Cl. D13—158

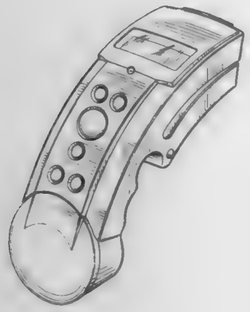


391,554
PLUG BARN
Roger L. Latchaw, 300 Elvin Ct., Lansing, Mich. 48913
Filed Jul. 22, 1996, Ser. No. 57,269
Term of patent 14 years
LOC (6) Cl. 13 - *03*
U.S. Cl. D13—184

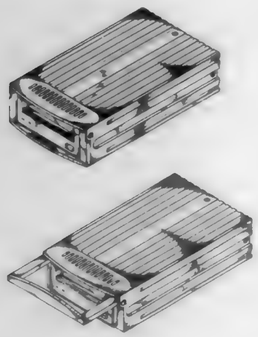


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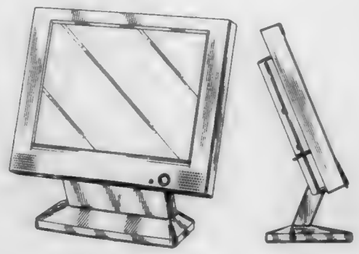
391,555
PERSONAL SHOPPING TERMINAL
Joerg Schlieffers, Setauket, and Thomas Rosiak, Eastport, both of N.Y., assignors to Symbol Technologies, Inc., Holtsville, N.Y.
Filed Apr. 16, 1997, Ser. No. 69,717
Term of patent 14 years
LOC (6) Cl. 14 - *02*
U.S. Cl. D14—100



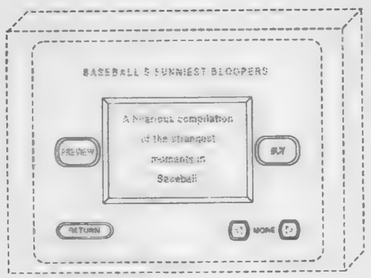
391,556
REMOVABLE COMPUTER STORAGE MODULE
Richard A. Corrington, Tustin, and Alan B. Gordon, Costa Mesa, both of Calif., assignors to Micronet Technology, Inc., Irvine, Calif.
Filed Mar. 15, 1996, Ser. No. 51,667
Term of patent 14 years
LOC (6) Cl. 14 - *02*
U.S. Cl. D14—107



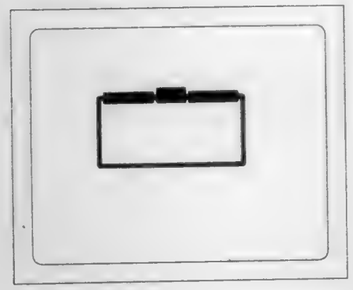
391,557
LIQUID CRYSTAL DISPLAY
Chikako Tada; Masaru Tochishita, and Yutaka Kohno, all of Osaka, Japan, assignors to Matsushita Electric Industrial Co., Ltd., Japan
Filed Mar. 13, 1997, Ser. No. 68,171
Claims priority, application Japan, Sep. 20, 1986, 8-28145
Term of patent 14 years
LOC (6) Cl. 14 - *02*
U.S. Cl. D14—113



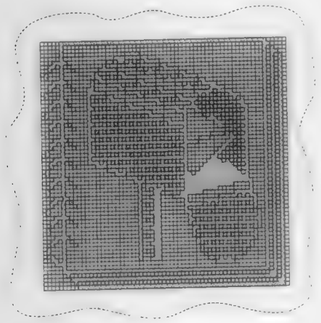
391,558
SET OF ICONS FOR A DISPLAY SCREEN OF A VIDEO MONITOR
Marsh S. Marshall, Jr., Washington, D.C.; Morgan C. J. Almeida, London, England; Peter C. Stonier, Washington, D.C., and George D. Escobar, Herndon, Va., assignors to Bell Video Services Company, Reston, Va.
Filed Oct. 5, 1994, Ser. No. 29,433
Term of patent 14 years
LOC (6) Cl. 14 - *02*
U.S. Cl. D14—114.1



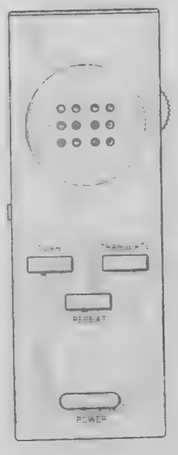
391,559
MODAL WINDOW FOR A COMPUTER DISPLAY SCREEN
James P. Faris; Lauralee A. Alben, both of 317 Arroyo Secco, Santa Cruz, Calif. 95060, and Jeffrey E. Tycz, 310 Atlantic Ave., Santa Cruz, Calif. 95062
Filed May 5, 1995, Ser. No. 38,452
Term of patent 14 years
LOC (6) Cl. 14 - *02*
U.S. Cl. D14—114.1



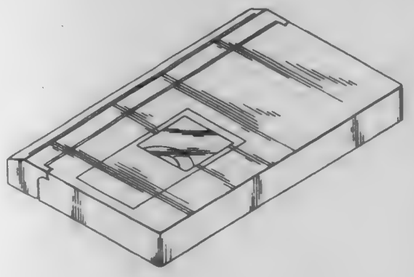
391,560
"MANAGEMENT OF THE HISTORY OF MAIL RECEIVED ACTIVATION" ICON FOR A DISPLAY SCREEN
Makoto Wanishi, Tokyo; Masato Ikemori, Kawasaki; Kaeko Kariya, Inagi; Hiroshi Matsuda, Yokohama; Makoto Morioka, Kawasaki; Kazuo Hattori, Yokohama; Hiroshi Suzuki, Kawasaki, and Daisaburo Murai, Tokyo, all of Japan, assignors to Fujitsu Limited, Kawasaki, Japan
Division of Ser. No. 592,317, Oct. 1, 1990. This application May 27, 1997, Ser. No. 71,305
Term of patent 14 years
LOC (6) Cl. 14 - *99*
U.S. Cl. D14—114.3



391,561
COMBINED SCANNER AND TRANSLATOR
Raul Escalante, 1112 W. 14th St., Portales, N. Mex. 88130-6622
Filed Apr. 3, 1997, Ser. No. 68,869
Term of patent 14 years
LOC (6) Cl. 14 - *02*
U.S. Cl. D14—116

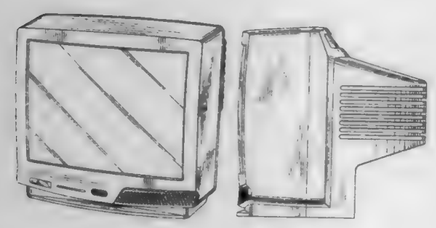


391,562
VIDEO CASSETTE
Kazushi Kirihara, and Michio Akita, both of Tokyo, Japan, assignors to Sony Corporation, Tokyo, Japan
Continuation-in-part of Ser. No. 43,702, Sep. 11, 1995, Pat. No. Des. 377,791. This application Jan. 10, 1997, Ser. No. 64,735
Term of patent 14 years
LOC (6) Cl. 14 - *99*
U.S. Cl. D14—121

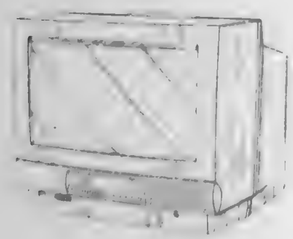


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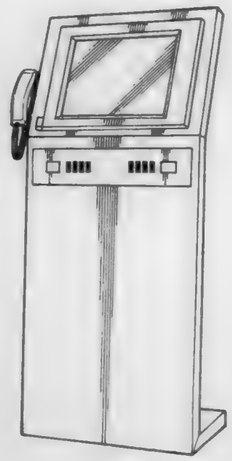
391,563
TELEVISION RECEIVER
Takashi Inoue, Nara; Toshikazu Asanuma, Osaka, and Masakazu Nakamura, Hyogo, all of Japan, assignors to Matsushtia Electric Industrial Co., Ltd., Osaka, Japan
Filed Feb. 6, 1997, Ser. No. 66,183
Claims priority, application Japan, Sep. 4, 1996, 8-26475
Term of patent 14 years
LOC (6) Cl. 14 - *03*
U.S. Cl. D14—126



391,564
COMBINED TELEVISION RECEIVER WITH VIDEO TAPE RECORDER
Mitsuru Takami, and Hiroyuki Maeno, both of Osaka, Japan, assignors to Matsushita Electric Industrial Co., Ltd., Osaka, Japan
Filed Feb. 25, 1997, Ser. No. 67,052
Claims priority, application Japan, Sep. 4, 1996, 8-26476
Term of patent 14 years
LOC (6) Cl. 14 - *03*
U.S. Cl. D14—129



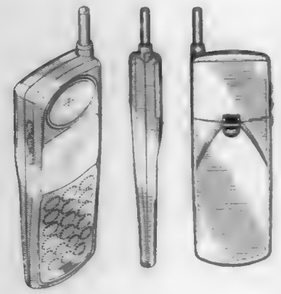
391,565
VISUAL INFORMATION TERMINAL
Aki Nanjo, Tokyo to, Japan, assignor to Fujitsu General Limited, Japan
Filed Jan. 30, 1997, Ser. No. 65,617
Claims priority, application Japan, Aug. 9, 1996, 8-24013
Term of patent 14 years
LOC (6) Cl. 14 - *03*
U.S. Cl. D14—130



391,566
MOBILE TELEPHONE
Yeo Chung Sun, and Jeremy Sun Ting-Kung, both of Singapore, Singapore, assignors to Telefonaktiebolaget LM Ericsson, Stockholm, Sweden
Filed Sep. 12, 1996, Ser. No. 59,489
Claims priority, application Sweden, Mar. 13, 1996, 96-0593
Term of patent 14 years
LOC (6) Cl. 14 - *03*
U.S. Cl. D14—138



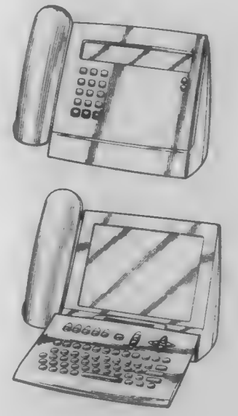
391,567
PORTABLE TELEPHONE
Albert L. Nagele, Wilmette, Ill.; James D. Domoleczny, Sr., Duluth, Ga., and Tonya A. Torri, Grayslake, Ill., assignors to Motorola, Inc., Schaumburg, Ill.
Filed Feb. 28, 1997, Ser. No. 67,026
Term of patent 14 years
LOC (6) Cl. 14 - *03*
U.S. Cl. D14—138



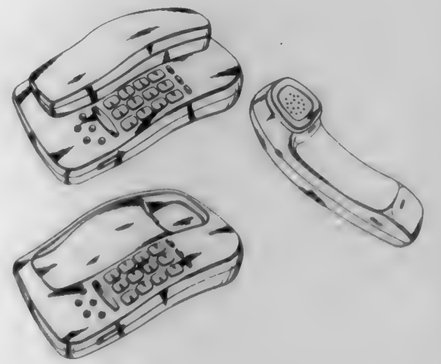
391,568
CELLULAR PHONE
James P. Carlson, 13414 Wiley Martin Dr., Cypress, Tex. 77429
Filed May 16, 1997, Ser. No. 71,044
Term of patent 14 years
LOC (6) Cl. 14 - *03*
U.S. Cl. D14—138



391,569
COMBINATION E-MAIL/TELEPHONE APPLIANCE
Robert D. Brunner, Los Gatos, and James R. Toleman, San Francisco, both of Calif., assignors to Diba, Inc., Menlo Park, Calif.
Filed Dec. 12, 1996, Ser. No. 63,680
Term of patent 14 years
LOC (6) Cl. 14 - *03*
U.S. Cl. D14—144

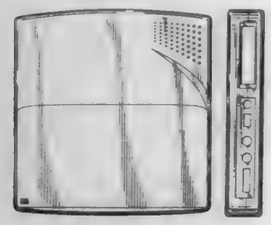


391,570
TELEPHONE
Daniele Rosati, Katonah, N.Y., and Anthony Solomita, Norwalk, Conn., assignors to Conair Corporation, Stamford, Conn.
Filed May 16, 1997, Ser. No. 69,860
Term of patent 14 years
LOC (6) Cl. 14 - *03*
U.S. Cl. D14—151



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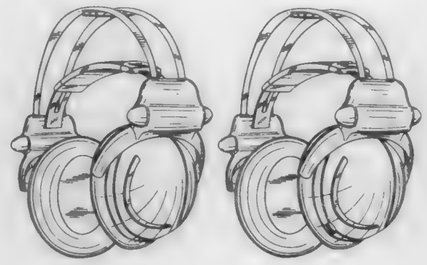
391,571
OPTICAL DISC PLAYER
Masafumi Ito; Shigeru Hasegawa; Keiji Tsunoda, and Tooru Katayama, all of Musashino, Japan, assignors to TEAC Corporation, Japan
Filed Apr. 28, 1997, Ser. No. 69,552
Claims priority, application Japan, Oct. 31, 1996, 8-32923
Term of patent 14 years
LOC (6) Cl. 14 - *01*
U.S. Cl. D14—156



391,572
RADIO WITH EARPHONES
Stuart Harvey Lee, New York, N.Y., assignor to Oneworld Enterprises Limited, Hong Kong
Filed Aug. 27, 1996, Ser. No. 58,881
Claims priority, application United Kingdom, Feb. 28, 1996, 2054487
Term of patent 14 years
LOC (6) Cl. 14 - *03*
U.S. Cl. D14—192



391,573
HEADPHONE
Mitsuhiro Nakamura, Tokyo, Japan, assignor to Sony Corporation, Tokyo, Japan
Filed Sep. 6, 1996, Ser. No. 59,291
Term of patent 14 years
LOC (6) Cl. 14 - *01*
U.S. Cl. D14—205



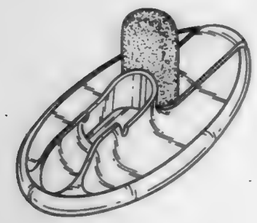
391,574
LOUDSPEAKER
Ching-Chen Chen, Taichung Hsien, Taiwan, assignor to Kostar Electronics Co., Ltd., Taichung Hsien, Taiwan
Filed Feb. 28, 1997, Ser. No. 66,958
Term of patent 14 years
LOC (6) Cl. 14 - *01*
U.S. Cl. D14—211



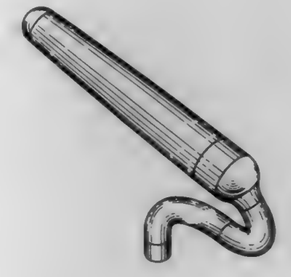
391,575
HEADSET EARCUP
James T. Bergin, Rochdale, and Richard M. Urella, Charlton, both of Mass., assignors to David Clark Company Inc., Worcester, Mass.
Filed Apr. 21, 1995, Ser. No. 37,822
Term of patent 14 years
LOC (6) Cl. 14 - *01*
U.S. Cl. D14—223



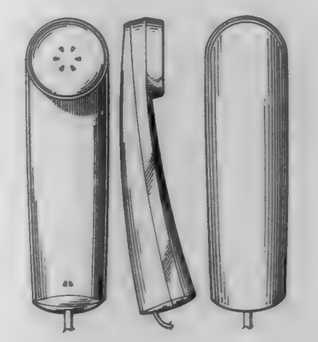
391,576
EARBUD STABILIZER
James Mullin, Pleasanton; Kenneth Olson, Los Gatos, and Peter Otto Schmidt, Campbell, all of Calif., assignors to Hello Direct, Inc., San Jose, Calif.
Filed May 16, 1997, Ser. No. 70,809
Term of patent 14 years
LOC (6) Cl. 14 - *01*
U.S. Cl. D14—223



391,577
COVER FOR A MICROWAVE ANTENNA AND DOWNCONVERTER
Todd G. Brehmer, San Jose, and Allen F. Podell, Palo Alto, both of Calif., assignors to Pacific Monolithics, Inc., Sunnyvale, Calif.
Filed Jul. 12, 1996, Ser. No. 56,975
Term of patent 14 years
LOC (6) Cl. 14 - *03*
U.S. Cl. D14—230

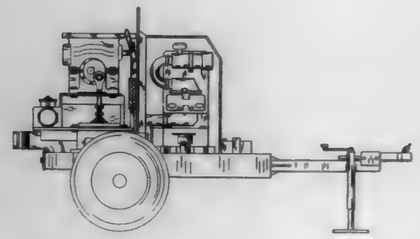


391,578
HANDSET FOR A TELEPHONE APPLIANCE
Robert D. Brunner, Los Gatos, and James R. Toleman, San Francisco, both of Calif., assignors to Diba, Inc., Menlo Park, Calif.
Filed Dec. 12, 1996, Ser. No. 63,681
Term of patent 14 years
LOC (6) Cl. 14 - *03*
U.S. Cl. D14—248

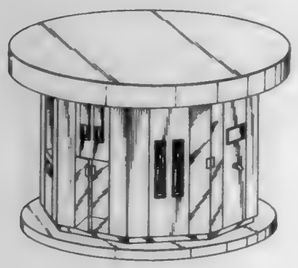


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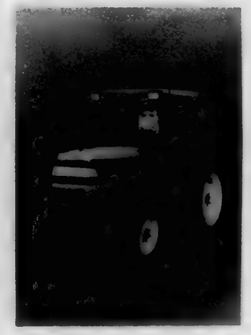
391,579
MOBILE DOUBLE DIAPHRAGM PUMP
Douglas D. Myers, 6246 Riviera Manor Dr., Jacksonville, Fla. 32216
Filed Mar. 10, 1997, Ser. No. 67,711
Term of patent 14 years
LOC (6) Cl. 15 - *02*
U.S. Cl. D15—7



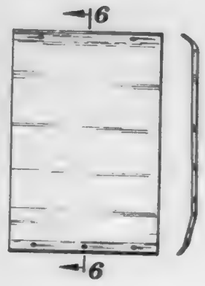
391,580
MULTIPURPOSE UTILITY STATION FOR USE AT E.G. A PETROL STATION, PROVIDING E.G. SUPPLIES OF AIR, OIL, SCREEN WASHER FLUID, COOLANT AS WELL AS WASHING FACILITIES
Stein Alvern, Oslo, and Øyvind Alvern, Hjellestad, both of Norway, assignors to Alvern Norway A/S, Norway
Filed Oct. 16, 1996, Ser. No. 61,113
Claims priority, application Norway, Apr. 24, 1996, D960268
Term of patent 14 years
LOC (6) Cl. 15 - *02*
U.S. Cl. D15—9.1



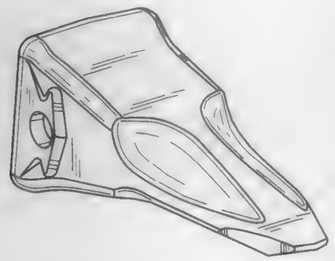
391,581
AGRICULTURAL TRACTOR
Hisato Kato, and Kenichi Sato, both of Sakai, Japan, assignors to Kubota Corporation, Osaka, Japan
Filed Dec. 4, 1996, Ser. No. 63,299
Claims priority, application Japan, Jun. 5, 1996, 8-16715
Term of patent 14 years
LOC (6) Cl. 15 - *03*
U.S. Cl. D15—23



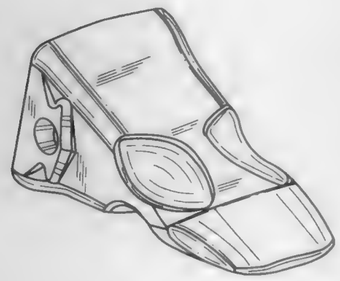
391,582
SKID SHOE
Mark W. Bruns, Gibbon, Minn., assignor to May-Wes Manufacturing, Gibbon, Minn.
Division of Ser. No. 46,505, Nov. 16, 1995, Pat. No. Des. 382,570. This application Sep. 25, 1996, Ser. No. 60,267
Term of patent 14 years
LOC (6) Cl. 15 - *03*
U.S. Cl. D15—28



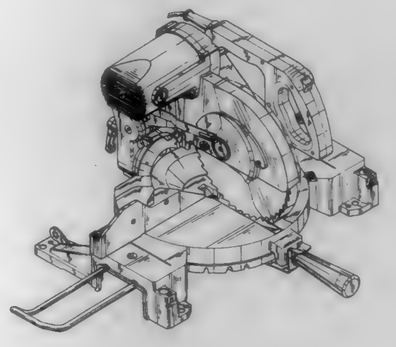
391,583
DIGGER TOOTH
Jorge Pallas Moreno, Premia De Mar, Spain, assignor to Metalogenia, S.A., Premia De Mar, Spain
Filed Jun. 14, 1996, Ser. No. 55,901
Claims priority, application Spain, Dec. 14, 1995, 136465
Term of patent 14 years
LOC (6) Cl. 15 - *03*
U.S. Cl. D15—29



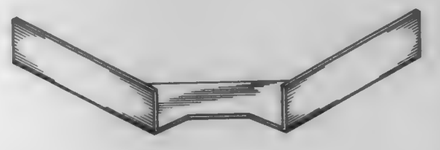
391,584
DIGGER TOOTH
Jorge Pallas Moreno, Premia de Mar, Spain, assignor to Metalogenia, S.A., Premia de Mar, Spain
Filed Jun. 14, 1996, Ser. No. 55,903
Claims priority, application Spain, Dec. 14, 1995, 136465
Term of patent 14 years
LOC (6) Cl. 15 - *03*
U.S. Cl. D15—29



391,585
MITER SAW
Ruey-Zon Chen, Taiwan, China, assignor to Rexon Industrial Corp., Ltd., Taichung, Taiwan
Filed Nov. 6, 1996, Ser. No. 62,058
Term of patent 14 years
LOC (6) Cl. 15 - *09*
U.S. Cl. D15—133



391,586
RIGHT ANGLE WELDING BRACKET
Robert B. Walker, 5340 Harrison Rd., Paradise, Calif. 95969
Filed Mar. 21, 1996, Ser. No. 52,006
The portion of the term of this patent subsequent to Dec. 12, 2009, has been disclaimed.
Term of patent 14 years
LOC (6) Cl. 15 - *09*
U.S. Cl. D15—141

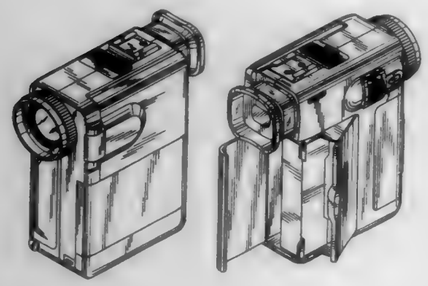


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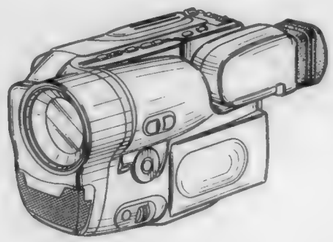
391,587
MICROSCOPE
Nobuo Hashimoto, Kawasaki, Japan, assignor to Nikon Corporation, Tokyo, Japan
Filed Jun. 14, 1995, Ser. No. 40,276
Term of patent 14 years
LOC (6) Cl. 16 - *06*
U.S. Cl. D16—131



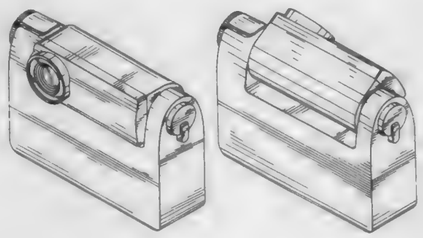
391,588
VIDEO CAMERA COMBINED WITH VIDEO TAPE RECORDER
Kaoru Sumita, Tokyo, Japan, assignor to Sony Kabushiki Kaisha, Tokyo, Japan
Filed Jul. 15, 1996, Ser. No. 57,042
Term of patent 14 years
LOC (6) Cl. 16 - *01*
U.S. Cl. D16—202



391,589
VIDEO CAMERA WITH VIDEO TAPE RECORDER
Masahito Ohwada, Yokohama, Japan, assignor to Canon Kabushiki Kaisha, Tokyo, Japan
Continuation of Ser. No. 44,259, Sep. 21, 1995, abandoned.
This application Jul. 16, 1996, Ser. No. 57,115
Claims priority, application Japan, Mar. 23, 1995, 7-7780
Term of patent 14 years
LOC (6) Cl. 16 - *01*
U.S. Cl. D16—202



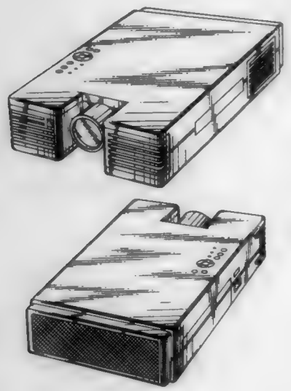
391,590
ELECTRONIC STILL CAMERA INCORPORATING A MONITOR DISPLAY
Kaoru Sumita, Tokyo, Japan, assignor to Sony Corporation, Tokyo, Japan
Filed Jul. 25, 1996, Ser. No. 57,478
Term of patent 14 years
LOC (6) Cl. 16 - *01*
U.S. Cl. D16—202



391,591
LIQUID CRYSTAL PROJECTOR
Masami Kikuchi, Kodaira; Takashi Akiyama, Sayama, and Shuichi Harada, Machida, all of Japan, assignors to Citizen Watch Co., Ltd., Tokyo, Japan
Filed Jul. 16, 1996, Ser. No. 57,103
Term of patent 14 years
LOC (6) Cl. 16 - *02*
U.S. Cl. D16—229



391,592
VIDEO PROJECTOR
Harumi Sakamoto, and Kiyomi Usui, both of Tochigi-ken, Japan, assignors to Sharp Kabushiki Kaisha, Osaka, Japan
Filed Mar. 27, 1997, Ser. No. 68,302
Claims priority, application Japan, Oct. 28, 1996, 8-32558
Term of patent 14 years
LOC (6) Cl. 16 - *02*
U.S. Cl. D16—231



391,593
HIGH POWER SPECTACLES
Richard E. Feinbloom, New York, N.Y., assignor to Designs for Vision, Inc., Ronkonkoma, N.Y.
Filed Oct. 8, 1996, Ser. No. 60,163
Term of patent 14 years
LOC (6) Cl. 16 - *06*
U.S. Cl. D16—300

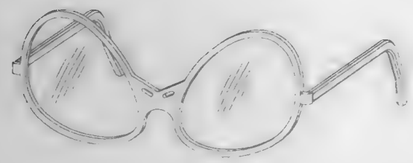


391,594
GOGGLES
Mun Young Huh, 222-904, Mokdong Shinsigagi Apartment, 902, Mokdong, Yangchunku, Seoul, Rep. of Korea
Filed Feb. 28, 1995, Ser. No. 35,508
Claims priority, application Rep. of Korea, Aug. 31, 1994, 94-18952
Term of patent 14 years
LOC (6) Cl. 16 - *06*
U.S. Cl. D16—304



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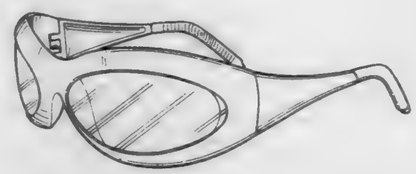
391,595
EYEGLASSES
Richard L. Boney, Jr., 2934 Risser Ave., Orlando, Fla. 32812
Filed Dec. 4, 1996, Ser. No. 63,295
Term of patent 14 years
LOC (6) Cl. 16 - *06*
U.S. Cl. D16—320



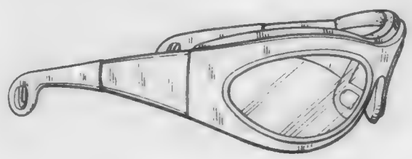
391,596
SUNGLASSES
Luciano Simioni, Montebelluna, Italy, assignor to Killer Loop S.p.A., Pederobba, Italy
Filed Jan. 14, 1997, Ser. No. 64,917
Claims priority, application Italy, Jul. 24, 1996, DM/037064
Term of patent 14 years
LOC (6) Cl. 16 - *06*
U.S. Cl. D16—321



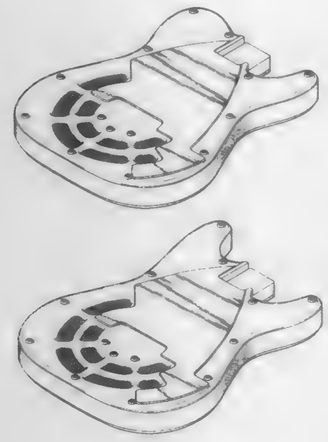
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SUNGLASSES
Luciano Simioni, Montebelluna, Italy, assignor to Killer Loop S.p.A., Pederobba, Italy
Filed Nov. 13, 1996, Ser. No. 62,330
Claims priority, application Italy, May 17, 1996, TV9600030
Term of patent 14 years
LOC (6) Cl. 16 - *06*
U.S. Cl. D16—326



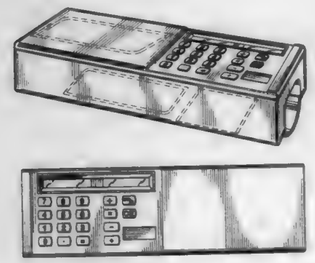
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SUNGLASSES
Luciano Simioni, Montebelluna, Italy, assignor to Killer Loop S.p.A., Pederobba, Italy
Filed Nov. 13, 1996, Ser. No. 62,352
Claims priority, application Italy, May 17, 1996, TV9600030
Term of patent 14 years
LOC (6) Cl. 16 - *06*
U.S. Cl. D16—326



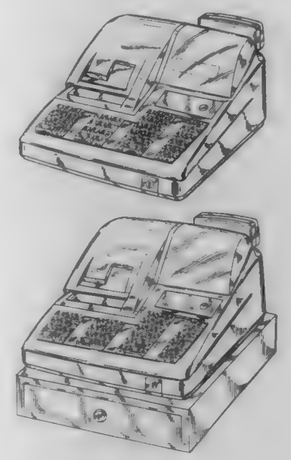
391,599
GUITAR BODY
Charles A. Lindert, P.O. Box 172, Chelan, Wash. 98816
Filed Sep. 9, 1996, Ser. No. 59,332
The portion of the term of this patent subsequent to Dec. 9, 2011, has been disclaimed.
Term of patent 14 years
LOC (6) Cl. 17 - *03*
U.S. Cl. D17—20



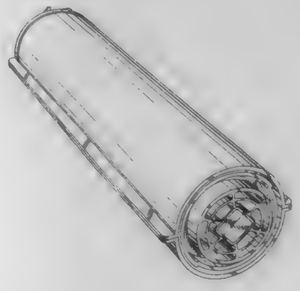
391,600
CALCULATOR WITH ADVERTISING SPACES FOR SHOPPING CART HANDLE
Charles H. Hood, Tulsa, Okla., assignor to ADDvantage Media Group, Inc., Tulsa, Okla.
Filed Feb. 13, 1996, Ser. No. 50,281
Term of patent 14 years
LOC (6) Cl. 18 - *01*
U.S. Cl. D18—2



391,601
CASH REGISTER
Yukio Kanaoka, Hiroshima-ken, Japan, assignor to Sharp Kabushiki Kaisha, Osaka, Japan
Filed Oct. 17, 1996, Ser. No. 61,173
Claims priority, application Japan, Apr. 17, 1996, 8-11222; Apr. 19, 1996, 8-11223
Term of patent 14 years
LOC (6) Cl. 18 - *01*
U.S. Cl. D18—4

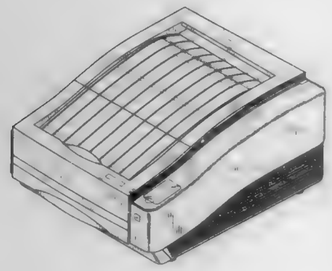


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TONER CARTRIDGE
Kazuo Jyoroku, Osaka, Japan, assignor to Mita Industrial Co., Ltd., Osaka, Japan
Filed May 2, 1996, Ser. No. 53,968
Claims priority, application Japan, Nov. 7, 1995, 7-33597
Term of patent 14 years
LOC (6) Cl. 16 - *03*
U.S. Cl. D18—43

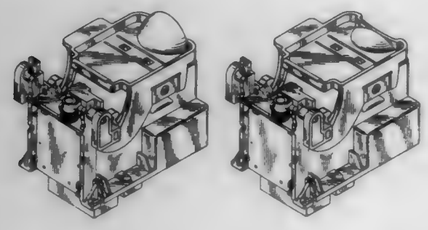


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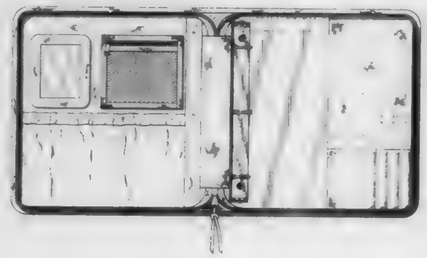
391,603
PRINTER
Takashi Ikenaga, Tokyo, Japan, assignor to Sony Kabushiki Kaisha, Tokyo, Japan
Filed Dec. 11, 1996, Ser. No. 63,596
Term of patent 14 years
LOC (6) Cl. 14 - *02*
U.S. Cl. D18—50



391,604
PRINT HEAD OF INK JET PRINTER
Fujio Akahane, and Kohji Watanabe, both of Suwa, Japan, assignors to Seiko Epson Corporation, Tokyo, Japan
Division of Ser. No. 43,029, Aug. 23, 1995, Pat. No. Des. 379,637. This application Aug. 16, 1996, Ser. No. 58,492
Claims priority, application Japan, Feb. 23, 1995, 7-4719; Feb. 23, 1995, 7-4720; Apr. 28, 1995, 7-12168
Term of patent 14 years
LOC (6) Cl. 18 - *02*
U.S. Cl. D18—56



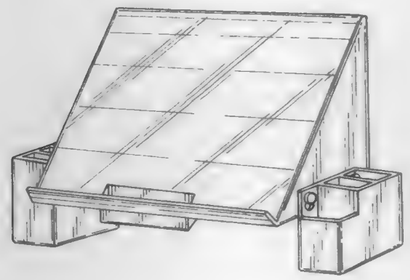
391,605
BINDER
John Wyant, Dayton, Ohio, assignor to The Mead Corporation, Dayton, Ohio
Division of Ser. No. 52,531, Apr. 4, 1996, Pat. No. Des. 382,900. This application Mar. 14, 1997, Ser. No. 67,817
Term of patent 14 years
LOC (6) Cl. 19 - *04*
U.S. Cl. D19—27



391,606
FOUNTAIN PEN
Philippe Compte, Paris, France, assignor to S.T. Dupont S.A., France
Filed Jan. 30, 1997, Ser. No. 65,580
Claims priority, application France, Aug. 22, 1996, 964812
Term of patent 14 years
LOC (6) Cl. 19 - *06*
U.S. Cl. D19—51



391,607
LOTTERY SCRATCH BOARD
Joseph J. Russo, 15038 Florence Dr., Maple Hts., Ohio 44137
Filed Nov. 15, 1995, Ser. No. 46,474
Term of patent 14 years
LOC (6) Cl. 19 - *02*
U.S. Cl. D19—78



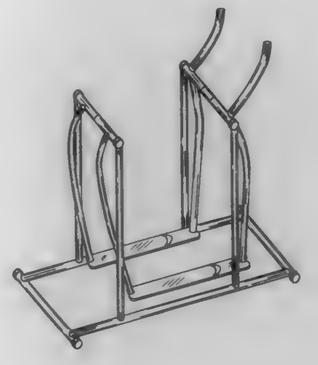
391,608
SNACK VENDING MACHINE FRONT PANEL
George Russell Fink, St. Louis; Robert John Reese, St. Charles, both of Mo.; Steven C. Gamper, Atlanta, and David Scott Rowley, Powder Springs, both of Ga., assignors to UniDynamics Corporation, Stamford, Conn.
Filed Oct. 28, 1996, Ser. No. 61,627
Term of patent 14 years
LOC (6) Cl. 20 - *01*
U.S. Cl. D20—8



391,609
KARATE CANINE
Leon Cruz, 15 Jardine Pl., Brooklyn, N.Y. 11233
Filed Apr. 24, 1997, Ser. No. 69,785
Term of patent 14 years
LOC (6) Cl. 21 - *01*
U.S. Cl. D21—161

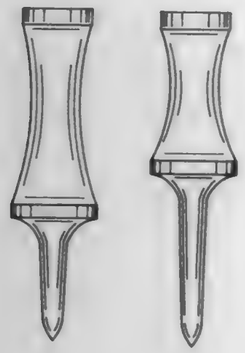


391,610
STRIDING DEVICE
Royce H. Husted, R.R. 4, Box 550, Forest, Va. 24551
Filed Oct. 24, 1996, Ser. No. 61,463
Term of patent 14 years
LOC (6) Cl. 21 - *02*
U.S. Cl. D21—192

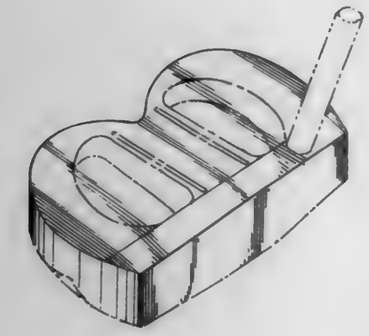


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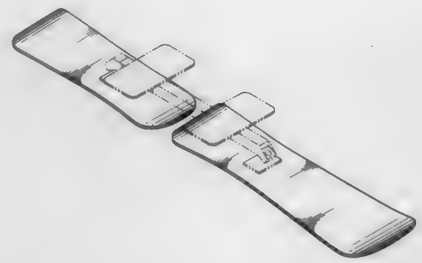
391,611
GOLF TEE
Ernest Eugene Brayford, 1555 E. Holt Blvd., Ontario, Calif. 91761
Filed Jun. 20, 1996, Ser. No. 56,028
Term of patent 14 years
LOC (6) Cl. 21 - *02*
U.S. Cl. D21—208



391,612
TOP AND SIDE SURFACES OF A GOLF PUTTER HEAD
James T. Moore, 2003 Foxcroft Dr., LaGrange, Ga. 30240
Continuation-in-part of Ser. No. 53,724, Apr. 29, 1996. This application Dec. 19, 1996, Ser. No. 63,953
Term of patent 14 years
LOC (6) Cl. 21 - *02*
U.S. Cl. D21—217



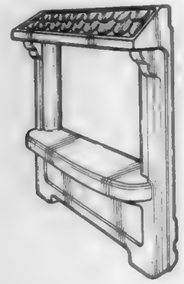
391,613
TWO PIECE SNOWBOARD
Walter D. Shannon, Tacoma, Wash., assignor to AXXIS Sport, Inc., Seattle, Wash.
Filed Mar. 1, 1996, Ser. No. 51,341
Term of patent 14 years
LOC (6) Cl. 21 - *02*
U.S. Cl. D21—228



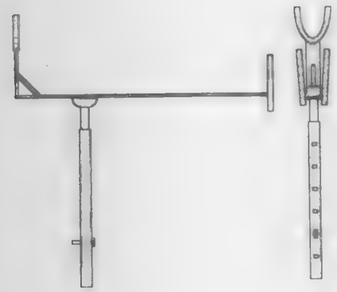
391,614
POOL CUE CONTROLLER
Christopher Meredith, 3 Whero La., Nantucket, Mass. 02554
Filed May 1, 1997, Ser. No. 70,161
Term of patent 14 years
LOC (6) Cl. 21 - *01*
U.S. Cl. D21—232



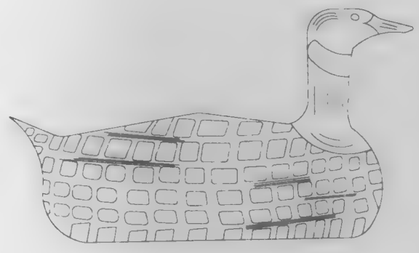
391,615
WINDOW PANEL FOR PLAYGROUND STRUCTURE
Mitchell L. Wilgus, Farmington, Mo., assignor to Little Tikes Commercial Play Systems, Inc., Farmington, Mo.
Filed Aug. 29, 1996, Ser. No. 58,939
Term of patent 14 years
LOC (6) Cl. 21 - *03*
U.S. Cl. D21—240



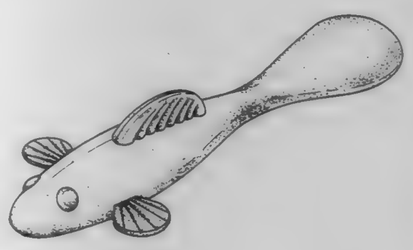
391,616
RIFLE REST
Kenneth L. Plybon, 2454 Edwardsville Rd., Hardy, Va. 24101
Filed Apr. 17, 1997, Ser. No. 69,808
Term of patent 14 years
LOC (6) Cl. 22 - *01*
U.S. Cl. D22—108



391,617
GOOSE BLIND
Curtis J. Hill, Warba, Minn., assignor to Sports My Way, Grand Rapids, Minn.
Filed Jul. 16, 1996, Ser. No. 57,071
Term of patent 14 years
LOC (6) Cl. 22 - *05*
U.S. Cl. D22—125



391,618
ARTIFICIAL BAIT FOR FISHING
Osamu Yano, Kanagawa-ken, Japan, assignor to Zeal Co., Ltd., Isehara, Japan
Filed Aug. 5, 1996, Ser. No. 57,946
The portion of the term of this patent subsequent to Oct. 28, 2011, has been disclaimed.
Term of patent 14 years
LOC (6) Cl. 22 - *05*
U.S. Cl. D22—133



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391,619

FISHING LURE

David A. Storm, Norman, Okla., assignor to Storm Plastics, Inc., Norman, Okla.

Filed Jun. 18, 1997, Ser. No. 72,477

Term of patent 14 years

LOC (6) Cl. 22 - *05*

U.S. Cl. D22—133



391,620

FISHERMAN'S DIP NET WITH BUILT IN WEIGHT SCALE

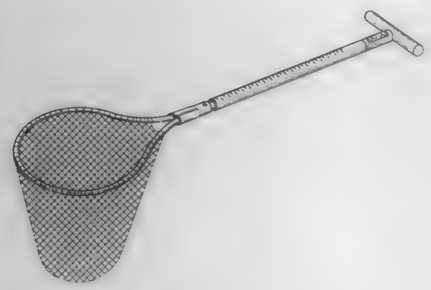
William J. Lucas, and Hubert G. Lovelady, both of 4352 Wildt Rd., San Antonio, Tex. 78222

Filed Jan. 13, 1997, Ser. No. 64,875

Term of patent 14 years

LOC (6) Cl. 22 - *05*

U.S. Cl. D22—135



391,621

REEL SEAT FOR FISHING ROD

Mitsuyoshi Oyama, Musashino; Shigeru Yamamoto, and Teiji Matsubara, both of Higashikurume, all of Japan, assignors to Daiwa Seiko, Inc., Tokyo, Japan

Filed Dec. 17, 1996, Ser. No. 63,841

Claims priority, application Japan, Jun. 20, 1996, 8-18307

Term of patent 14 years

LOC (6) Cl. 22 - *05*

U.S. Cl. D22—142



391,622

BATTERY PACK HOUSING FOR A PORTABLE RADIO/TELEPHONE

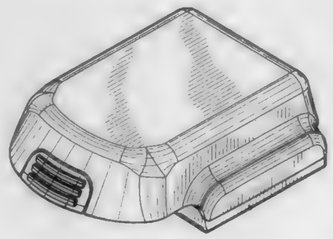
Due Huynh, Lawrenceville, and Willard F. Amero, Jr., Flowery Branch, both of Ga., assignors to Motorola, Inc., Schaumburg, Ill.

Filed Apr. 23, 1997, Ser. No. 69,021

Term of patent 14 years

LOC (6) Cl. 13 - *02*

U.S. Cl. D13—103



391,623

Patent Not Issued For This Number

391,624

CANISTER FOR INLINE FEEDER

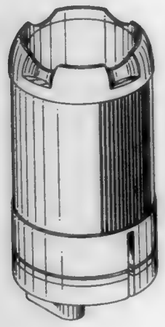
Joseph A. King, 142 Chevy Chase Dr., Wayzata, Minn. 55343

Filed Dec. 23, 1996, Ser. No. 64,118

Term of patent 14 years

LOC (6) Cl. 23 - *01*

U.S. Cl. D23—209



391,625

SPRINKLER

Gregory Sabatta, P.O. Box 423, Milnertton, 7435, South Africa

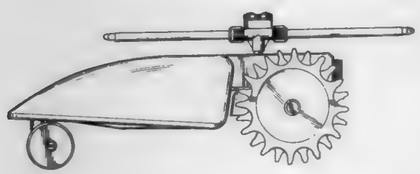
Filed Mar. 29, 1996, Ser. No. 62,975

Claims priority, application South Africa, Oct. 3, 1995, A95/8950

Term of patent 14 years

LOC (6) Cl. 23 - *01*

U.S. Cl. D23—220



391,626

DESIGN FOR THE TANK OF A HAND OPERATED COMPRESSED AIR SPRAYER

Clark F. Spriegel, Attica, N.Y., assignor to R.E. Chapin Manufacturing Works, Inc., Batavia, N.Y.

Filed Feb. 26, 1997, Ser. No. 67,019

Term of patent 14 years

LOC (6) Cl. 23 - *01*

U.S. Cl. D23—225



391,627

PISTOL HOSE NOZZLE WITH ADJUSTABLE SPRAY

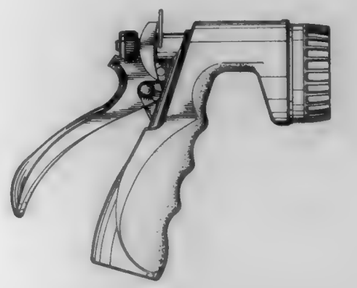
John W. Goodin, Coto De Caza, Calif., assignor to L.R. Nelson Corporation, Peoria, Ill.

Filed Dec. 15, 1995, Ser. No. 47,935

Term of patent 14 years

LOC (6) Cl. 23 - *01*

U.S. Cl. D23—226



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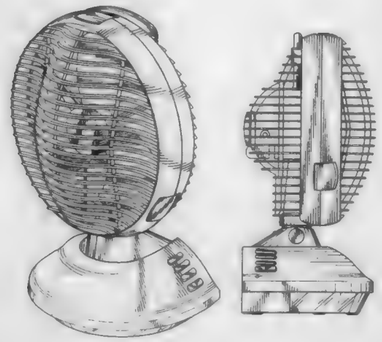
391,628
GASKET
James A. Carwile, 810 E. Columbia St., Boonville, Ind. 47601
Filed Apr. 10, 1996, Ser. No. 53,049
Term of patent 14 years
LOC (6) Cl. 23 - *01*
U.S. Cl. D23—269



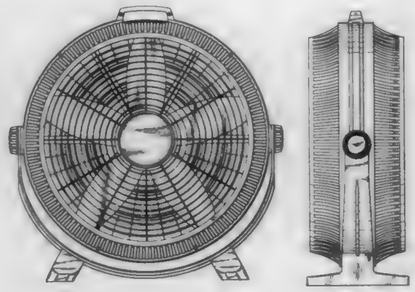
391,629
WALL-MOUNT SHOWER HOLDER
Adolf Gottwald, Iserlohn, Germany, assignor to Friedrich Grohe AG, Hemer, Germany
Filed Jun. 16, 1997, Ser. No. 72,913
Claims priority, application Germany, Jan. 29, 1997, M 97 [illegible]
Term of patent 14 years
LOC (6) Cl. 23 - *02*
U.S. Cl. D23—301



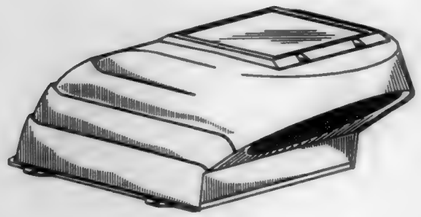
391,630
FAN
Yiu Kwong Wan, Hong Kong, Hong Kong, assignor to Fee Tat Holdings (H.K.) Limited, Hong Kong
Filed May 12, 1997, Ser. No. 70,616
Claims priority, application United Kingdom, Nov. 11, 1996, 2060719
Term of patent 14 years
LOC (6) Cl. 23 - *04*
U.S. Cl. D23—382



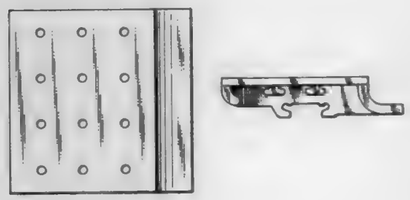
391,631
PIVOT FAN
Charles Litvin, 1065 Stable La., West Chester, Pa. 19382
Filed Jul. 16, 1997, Ser. No. 73,709
Term of patent 14 years
LOC (6) Cl. 23 - *04*
U.S. Cl. D23—382



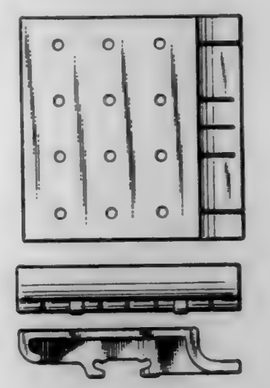
391,632
COMBINED AIR VENT COVER AND SOLAR PANEL
Allen C. Thomas, 5513 W. Sligh Ave., Tampa, Fla. 33634
Continuation-in-part of Ser. No. 38,369, May 4, 1995, Pat. No. Des. 367,007. This application Apr. 17, 1996, Ser. No. 53,202
Term of patent 14 years
LOC (6) Cl. 23 - *04*
U.S. Cl. D23—393



391,633
MULTI-PIECE WIDE STOKER KEY FOR STOKERS FEEDING STEAM GENERATOR FURNACES
Milton A. Fong, South Windsor; Mark R. Hapgood, Tolland, and Ivan Semyanko, East Granby, all of Conn., assignors to Combustion Engineering, Inc., Windsor, Conn.
Filed Dec. 30, 1996, Ser. No. 64,336
Term of patent 14 years
LOC (6) Cl. 23 - *03*
U.S. Cl. D23—396



391,634
ONE PIECE WIDE STOKER KEY FOR STOKERS FEEDING STEAM GENERATOR FURNACES
Milton A. Fong, South Windsor; Mark R. Hapgood, Tolland, and Ivan Semyanko, East Granby, all of Conn., assignors to Combustion Engineering, Inc., Windsor, Conn.
Filed Dec. 30, 1996, Ser. No. 64,353
Term of patent 14 years
LOC (6) Cl. 23 - *03*
U.S. Cl. D23—396

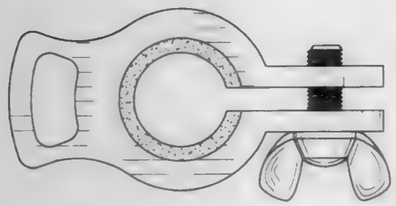


391,635
ASH BUCKET
Robert Murray Jack, c/o R.R. #3, Site 4, Box 13, Barnsville, New Brunswick, Canada, EOG 120
Filed Sep. 20, 1996, Ser. No. 60,087
Term of patent 14 years
LOC (6) Cl. 09 - *09*
U.S. Cl. D23—420

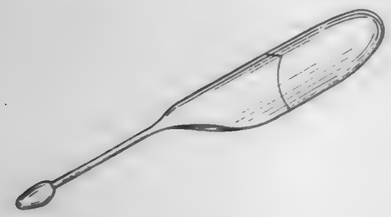


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391,636
CATHETER POLE ATTACHMENT
Donna Marie Zwerk, 220 W. Oak, Vassar, Mich. 48768
Filed Jun. 12, 1997, Ser. No. 72,317
Term of patent 14 years
LOC (6) Cl. 24 - *02*
U.S. Cl. D24—128



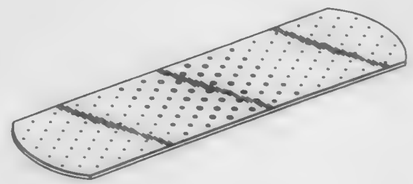
391,637
NOSTRIL CLEANING DEVICE
Josiah S. Harry, Oakwood College, Box 166; Colby A. Matlock, Oakwood College, Edwards Hall, both of Huntsville, Ala. 35896, and Paul D. Wilson, 331 SW. 31st Ave., Fort Lauderdale, Fla. 33312
Filed Jan. 23, 1997, Ser. No. 65,201
Term of patent 14 years
LOC (6) Cl. 24 - *02*
U.S. Cl. D24—141



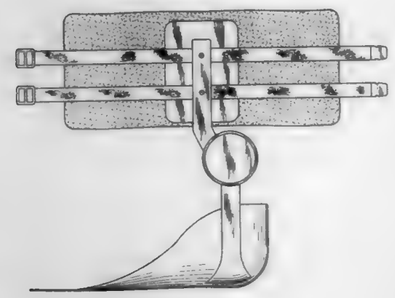
391,638
ELECTRONICALLY CONTROLLED CONTRAST MEDIA INJECTOR FOR MEDICAL DIAGNOSTIC IMAGING
John C. Coons, Cincinnati; Pamela K. Jacobs, Loveland, and Robert G. Bergen, Westchester, all of Ohio, assignors to Liebel-Flarsheim Company, Cincinnati, Ohio
Filed Nov. 22, 1996, Ser. No. 62,734
Term of patent 14 years
LOC (6) Cl. 24 - *01*
U.S. Cl. D24—160



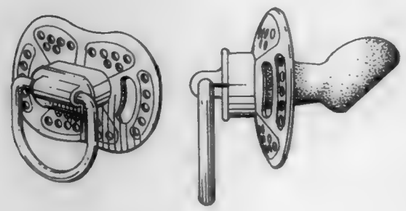
391,639
BANDAGE BACKING
Wayne K. Dunshee, Maplewood, and Donald G. Peterson, Shoreview, both of Minn., assignors to Minnesota Mining and Manufacturing Company, St. Paul, Minn.
Filed Feb. 17, 1995, Ser. No. 35,049
Term of patent 14 years
LOC (6) Cl. 24 - *04*
U.S. Cl. D24—189



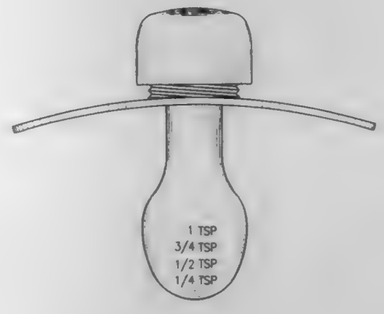
391,640
COMBINED DROP FOOT AND ANKLE BRACE
Ernie David Oviedo, Jr., 1045 Cinnamon La., Corona, Calif. 91720
Filed Apr. 4, 1997, Ser. No. 69,701
Term of patent 14 years
LOC (6) Cl. 24 - *04*
U.S. Cl. D24—192



391,641
PACIFIER
Valerie Fields, Woodstock, and Greg Yehl, Snellville, both of Ga., assignors to Lisco, Inc., Tampa, Fla.
Filed May 12, 1997, Ser. No. 70,613
Term of patent 14 years
LOC (6) Cl. 24 - *04*
U.S. Cl. D24—194



391,642
LIQUID DISPENSING PACIFIER
Richard F. Fountain, 235 ½ Sanovia St., Exeter, Pa. 18643
Filed May 13, 1997, Ser. No. 70,678
Term of patent 14 years
LOC (6) Cl. 24 - *04*
U.S. Cl. D24—194



391,643
INFANT TEETHER
Tim Pinckney Fletcher, Acworth, Ga., assignor to Lisco, Inc., Tampa, Fla.
Filed Apr. 29, 1997, Ser. No. 70,357
Term of patent 14 years
LOC (6) Cl. 24 - *04*
U.S. Cl. D24—195

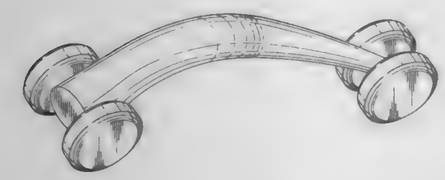


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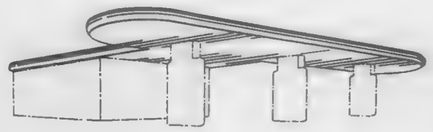
391,644
INFANT TEETHER
Tim Pinckney Fletcher, Acworth, Ga., assignor to Lisco, Inc., Tampa, Fla.
Filed Apr. 29, 1997, Ser. No. 70,360
Term of patent 14 years
LOC (6) Cl. 24 - *04*
U.S. Cl. D24—195



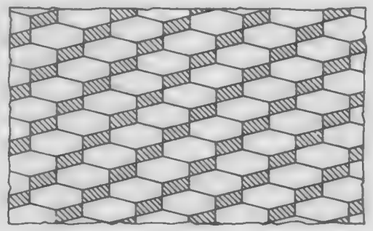
391,645
BODY MASSAGER
Kuo-Ching Chien, No. 7 Lane 74 Gong 5 Road Lung Tan Hsiang, Taoyuan Hsien, Taiwan
Filed Mar. 11, 1997, Ser. No. 68,588
Term of patent 14 years
LOC (6) Cl. 24 - *04*
U.S. Cl. D24—211



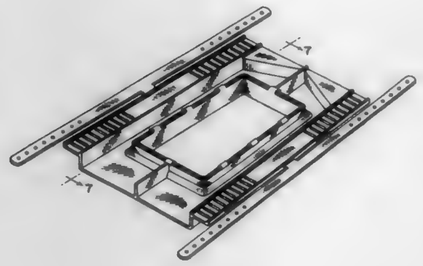
391,646
SERVICE STATION CANOPY
Charles E. Broudy, Philadelphia, Pa., assignor to Petro Canada
Filed May 10, 1995, Ser. No. 38,639
Claims priority, application Canada, Dec. 9, 1994, 1994-2447
Term of patent 14 years
LOC (6) Cl. 25 - *02*
U.S. Cl. D25—56



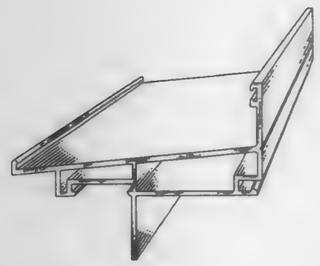
391,647
PAVING
Harald von Langsdorff, 1688 Caverly Crt., Mississauga, Ontario, Canada, L5L 3L7, and Fritz von Langsdorff, Blütenstrasse 12, D-76437, Rastatt, Germany
Filed Oct. 20, 1994, Ser. No. 29,965
Claims priority, application Canada, Sep. 27, 1994, 1994-1848
Term of patent 14 years
LOC (6) Cl. 25 - *01*
U.S. Cl. D25—157



391,648
BUILDING ELEMENT FOR SEALING AROUND AN APERTURE IN AN UNDERROOF
Peter Sølbeck, 203 Rungsted Strandvej, DK-2960 Rungsted, Denmark
Continuation of Ser. No. 29,743, Oct. 14, 1994, abandoned.
This application Dec. 2, 1996, Ser. No. 63,219
Claims priority, application Denmark, Apr. 15, 1994, MA0330/94; Oct. 4, 1994, 0869/94
Term of patent 14 years
LOC (6) Cl. 25 - *02*
U.S. Cl. D25—60



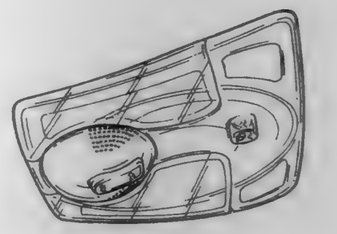
391,649
WINDOW COMPONENT EXTRUSION
Brian C. Opielski, Malvern; Jeffrey B. Hersh, Wayne, both of Pa.; Ann Moss, Boonsboro, Md.; Chandrahas Gandhi, Butler, Pa., and Dennis Westphal, Parma, Mich., assignors to CertainTeed Corporation, Valley Forge, Pa.
Filed Dec. 9, 1996, Ser. No. 63,500
Term of patent 14 years
LOC (6) Cl. 25 - *01*
U.S. Cl. D25—124



391,650
FLUORESCENT LAMP
Frederick Hetzel, North Royalton, and Robert Scott McFeely, Valley View, both of Ohio, assignors to General Electric Company, Schenectady, N.Y.
Filed Jan. 9, 1997, Ser. No. 64,717
Claims priority, application United Kingdom, Jul. 9, 1996, 2057601
Term of patent 14 years
LOC (6) Cl. 26 - *04*
U.S. Cl. D26—3

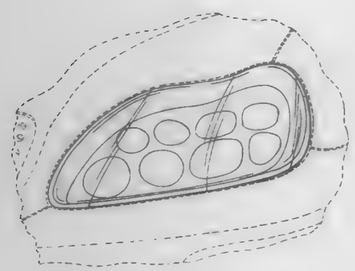


391,651
FRONTAL SURFACE CONFIGURATION OF A VEHICLE INTERIOR LIGHT ASSEMBLY
Bruno Sacco, Sindelfingen; Peter Pfeiffer, Böblingen; Michael Mauer, Egglingen, and Anmer Mahmud, Ehningen, all of Germany, assignors to Mercedes-Benz AG, Stuttgart, Germany
Filed Feb. 28, 1997, Ser. No. 67,356
Claims priority, application Germany, Aug. 29, 1996, M 96 07 407.8
Term of patent 14 years
LOC (6) Cl. 26 - *06*
U.S. Cl. D26—28



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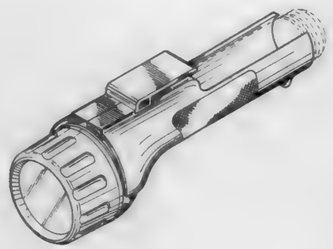
391,652
EXTERIOR SURFACE CONFIGURATION OF A MOTOR VEHICLE FRONT LIGHT ASSEMBLY
Bruno Sacco; Harald Leschke, both of Sindelfingen, Germany; Olivier Pierre Boulay, and Anthony W. K. Lo, both of Tokyo, Japan, assignors to Mercedes-Benz AG, Stuttgart, Germany
Filed Mar. 31, 1997, Ser. No. 69,035
Claims priority, application Germany, Sep. 30, 1996, 96 08 461.8
Term of patent 14 years
LOC (6) Cl. 26 - *06*
U.S. Cl. D26—28



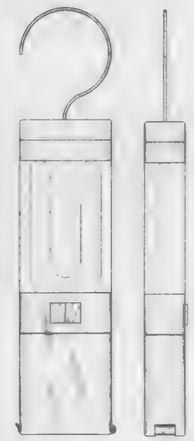
391,653
LIGHT STICK
Timothy D. F. Ford, 7 Redfern Place, Beaconsfield, Québec, Canada, H8W 4M7, and Michel S. Côté, 1753 Norman Bethune, Laval, Québec, Canada, H7M 4E8
Filed Apr. 4, 1997, Ser. No. 69,698
Term of patent 14 years
LOC (6) Cl. 26 - *02*
U.S. Cl. D26—37



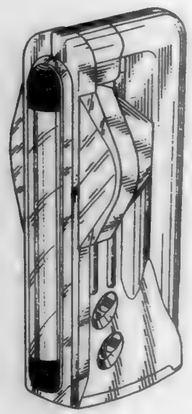
391,654
FLASHLIGHT
Robert W. Matthes; Richard K. Pallo, both of Buckingham, Pa.; Scott D. Price, Singapore, Singapore; Roger Q. Smith, Reisterstown, Md., and Velissa Van Scoyoc, Pottstown, Pa., assignors to Black & Decker Inc., Newark, Del.
Continuation of Ser. No. 57,931, Aug. 5, 1996, abandoned.
This application Jun. 25, 1997, Ser. No. 72,831
Term of patent 14 years
LOC (6) Cl. 26 - *02*
U.S. Cl. D26—37



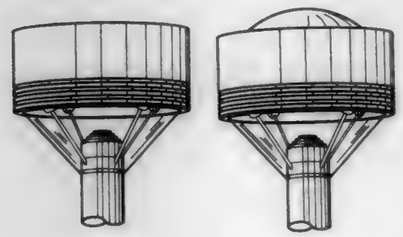
391,655
BATTERY POWERED DROP LIGHT
Boyd Hughes, 876 Ervin Dr., Lexington, N.C. 27292
Filed Jul. 3, 1997, Ser. No. 73,185
Term of patent 14 years
LOC (6) Cl. 26 - *02*
U.S. Cl. D26—37



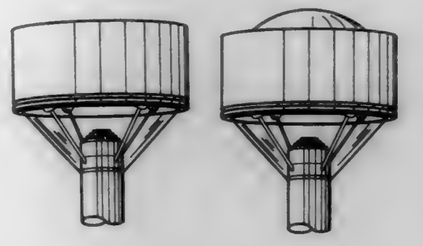
391,656
COMBINED FLOURESCENT LAMP AND FLASHLIGHT
Yiu Kwong Wan, New Territories, Hong Kong, assignor to Fee Tat Holdings (H.K.) Limited, Hong Kong
Filed Nov. 8, 1996, Ser. No. 62,189
Claims priority, application United Kingdom, May 9, 1996, 2056208
Term of patent 14 years
LOC (6) Cl. 26 - *02*
U.S. Cl. D26—42



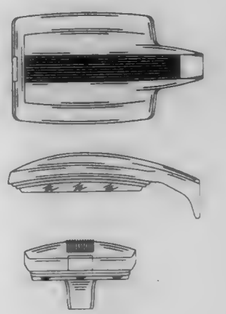
391,657
LUMINAIRE
Wayne W. Compton, Chino Hills, Calif., assignor to Kim Lighting Inc., City of Industry, Calif.
Filed Jun. 19, 1996, Ser. No. 56,015
Term of patent 14 years
LOC (6) Cl. 26 - *03*
U.S. Cl. D26—68



391,658
LUMINAIRE
Wayne W. Compton, Chino Hills, Calif., assignor to Kim Lighting Inc., City of Industry, Calif.
Filed Jun. 19, 1996, Ser. No. 56,017
Term of patent 14 years
LOC (6) Cl. 26 - *03*
U.S. Cl. D26—68

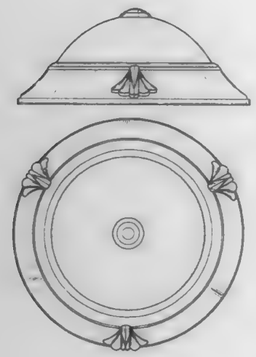


391,659
SIDE MOUNT LIGHTING FIXTURE
Robert J. Gaskins, Pleasanton, and Joel S. Cohen, Oakland, both of Calif., assignors to Thomas Lighting, Inc., San Leandro, Calif.
Filed May 2, 1997, Ser. No. 70,241
Term of patent 14 years
LOC (6) Cl. 26 - *03*
U.S. Cl. D26—71

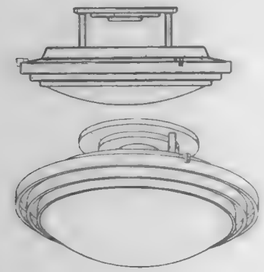


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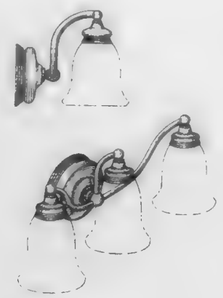
391,660
CEILING LAMP
Lian Pan, Taoyuan Hsien, Taiwan, assignor to Evergreen-Lite Enterprises Co., Ltd., Taoyuan Hsien, Taiwan
Filed Jun. 3, 1997, Ser. No. 71,599
Term of patent 14 years
LOC (6) Cl. 26 - *05*
U.S. Cl. D26—85



391,661
PENDANT LAMP
Lian Pan, Taoyuan Hsien, Taiwan, assignor to Evergreen-Lite Enterprises Co., Ltd., Taoyuan Hsien, Taiwan
Filed Jun. 3, 1997, Ser. No. 71,600
Term of patent 14 years
LOC (6) Cl. 26 - *05*
U.S. Cl. D26—86



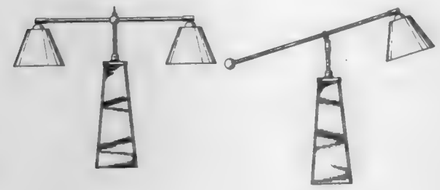
391,662
WALL LAMP
Pasquale Miranda, 154 Sleepy Hollow Rd., Briarcliff Manor, N.Y. 10510
Filed Jun. 20, 1997, Ser. No. 72,592
Term of patent 14 years
LOC (6) Cl. 26 - *05*
U.S. Cl. D26—87



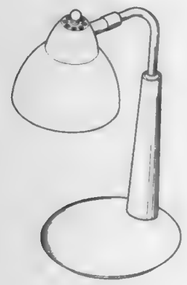
391,663
NIGHT LIGHT
Gérald Serre-Vives, Eloise, France, assignor to Tefal S.A., Rumilly, France
Filed Jun. 4, 1997, Ser. No. 71,695
Claims priority, application France, Dec. 6, 1996, 966903
Term of patent 14 years
LOC (6) Cl. 26 - *05*
U.S. Cl. D26—99



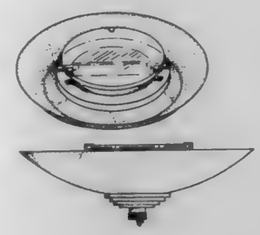
391,664
LAMP
Sally Sirkin Lewis, 715 N. Canon Dr., Beverly Hills, Calif. 90210
Filed Oct. 3, 1996, Ser. No. 60,646
Term of patent 14 years
LOC (6) Cl. 26 - *05*
U.S. Cl. D26—107



391,665
DESK LAMP
Roger Yang, Hsien, Taiwan, assignor to Be-Yang Industrial Corp., Hsien, Taiwan
Filed Mar. 20, 1997, Ser. No. 67,841
Term of patent 14 years
LOC (6) Cl. 26 - *05*
U.S. Cl. D26—108



391,666
LAMP HEAD WITH PROTECTIVE LENS
Danny Lavy, 225 Chabanel Street W #500, Montreal, PQ, H2N 2C9, Canada, H2N 2C9
Filed Nov. 26, 1996, Ser. No. 63,069
Term of patent 14 years
LOC (6) Cl. 26 - *05*
U.S. Cl. D26—118

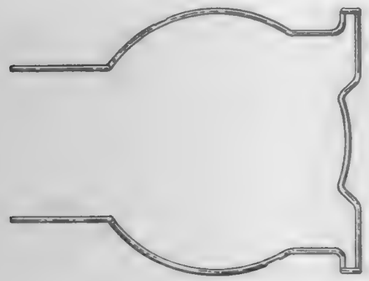


391,667
GLASS SHADE FOR LIGHTING FIXTURE
Pasquale Miranda, 154 Sleepy Hollow Rd., Briarcliff Manor, N.Y. 10510
Filed Jun. 20, 1997, Ser. No. 72,590
Term of patent 14 years
LOC (6) Cl. 26 - *05*
U.S. Cl. D26—133

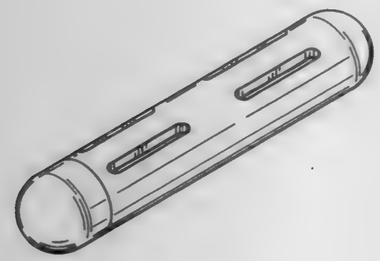


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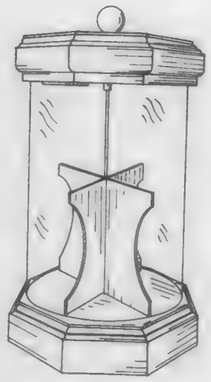
391,668
LIGHTING FIXTURE MOUNT
Henry B. David, Glendale, Calif., assignor to Melco Wire Products Co., San Fernando, Calif.
Filed Feb. 11, 1997, Ser. No. 66,322
Term of patent 14 years
LOC (6) Cl. 08 - *05*
U.S. Cl. D26—138



391,669
CIGAR HUMIDIFIER
Stephen DuBow, P.O. Box 7861, Newport Beach, Calif. 92660
Filed Mar. 31, 1997, Ser. No. 69,659
Term of patent 14 years
LOC (6) Cl. 27 - *06*
U.S. Cl. D27—187



391,670
CLEAR-SIDED HUMIDOR FOR VERTICAL CIGAR STORAGE WITH EXTERNALLY-MOUNTED HUMIDISTAT
Harry M. Hargrove, P.O. Box 7714, Long Beach, Calif. 90807-0714
Filed Jul. 1, 1996, Ser. No. 56,490
Term of patent 14 years
LOC (6) Cl. 27 - *06*
U.S. Cl. D27—189



391,671
BACK MOISTURIZER APPLICATOR
Barbara A. H. Spencer, 998 Hearst Rd., Willits, Calif. 95490
Filed Aug. 30, 1996, Ser. No. 59,005
Term of patent 14 years
LOC (6) Cl. 28 - *02*
U.S. Cl. D28—7



391,672
HAIR AND BODY ORNAMENT
Natalee Wolff Nahoum, 51 Magnolia Rd. Briarcliffe Manor, New York, N.Y. 10510
Filed Jul. 1, 1994, Ser. No. 25,484
Term of patent 14 years
LOC (6) Cl. 28 - *03*
U.S. Cl. D28—41



391,673
HAIR BAND
Rebecca Lee, 120 Main St., Nyack, N.Y. 10960
Filed Feb. 28, 1995, Ser. No. 35,511
Term of patent 14 years
LOC (6) Cl. 28 - *03*
U.S. Cl. D28—41



391,674
Q-SHAPED HAIR OR WRIST ACCESSORY
Katharine E. Meehan, 2023 Sprucewood Ct., Mt. Pleasant, S.C. 29464
Filed Jan. 26, 1996, Ser. No. 49,473
Term of patent 14 years
LOC (6) Cl. 28 - *03*
U.S. Cl. D28—41



391,675
FIGURE-8 SHAPED HAIR OR WRIST ACCESSORY
Katharine E. Meehan, 2023 Sprucewood Ct., Mt. Pleasant, S.C. 29464
Filed Jan. 26, 1996, Ser. No. 49,474
Term of patent 14 years
LOC (6) Cl. 28 - *03*
U.S. Cl. D28—41



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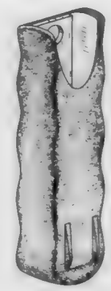
391,676
RECHARGEABLE SHAVER
Joseph M. Sulik, Bridgeport, Conn., assignor to Remington Corportion L.L.C., Bridgeport, Conn.
Filed Oct. 15, 1996, Ser. No. 61,011
Term of patent 14 years
LOC (6) Cl. 28 - *03*
U.S. Cl. D28—51



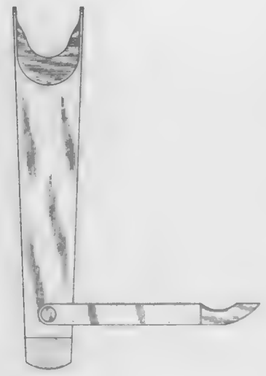
391,677
MANICURING TOOL
Dominic Bianco, 582 Yetman Ave., Staten Island, N.Y. 10307
Filed Jul. 23, 1996, Ser. No. 57,326
Term of patent 14 years
LOC (6) Cl. 28 - *03*
U.S. Cl. D28—57



391,678
CLIPPER CATCHER
Garfield Litton, Glenrock, N.J., assignor to Revlon Consumer Products Corporation, New York, N.Y.
Filed Aug. 28, 1996, Ser. No. 59,713
Term of patent 14 years
LOC (6) Cl. 28 - *03*
U.S. Cl. D28—62



391,679
FINGERNAIL CLIPPER CATCHER
Michael D. Harrison, and Karen Anne Forrest, both of 61181 Regional Rd 27 RR3, Welland Ontario, Canada, L3B 5N6
Filed Apr. 24, 1997, Ser. No. 69,907
Term of patent 14 years
LOC (6) Cl. 28 - *03*
U.S. Cl. D28—62



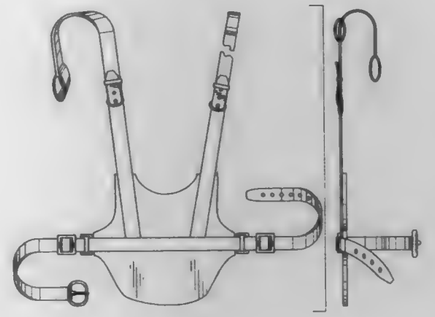
391,680
FLOSSING DEVICE WITH ADJUSTABLE HEAD
Gee F. Lee, 4539 North Troy, Chicago, Ill. 60625
Filed May 9, 1997, Ser. No. 72,136
Term of patent 14 years
LOC (6) Cl. 28 - *03*
U.S. Cl. D28—64



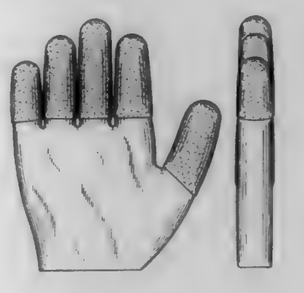
391,681
LIPSTICK CONTAINER
Chin-Yi Huang, No. 4, Lane 155, Tan Pei Road, Yueh Mei Li, Ho Mei Chen, Chang Hua Hsien, Taiwan
Filed Mar. 3, 1997, Ser. No. 67,302
Term of patent 14 years
LOC (6) Cl. 28 - *03*
U.S. Cl. D28—85



391,682
MOTORCYCLE HARNESS FOR CHILDREN
Carol Palembas, 12050 S. M52 Hwy., Perry, Mich. 48872-9112
Filed Apr. 24, 1995, Ser. No. 37,905
Term of patent 14 years
LOC (6) Cl. 30 - *04*
U.S. Cl. D29—101

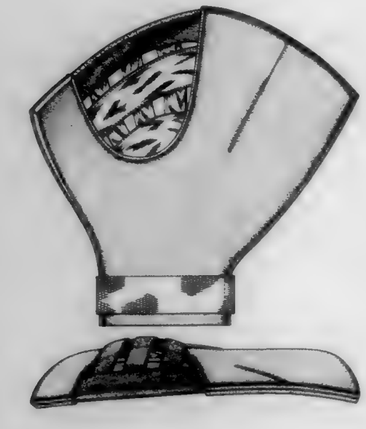


391,683
FLAVORED HAND PROTECTION GLOVE
Robert J. Heringer, 5061 Dutcher Ave., Irvine, Calif. 92714
Filed Jul. 1, 1996, Ser. No. 56,504
Term of patent 14 years
LOC (6) Cl. 29 - *02*
U.S. Cl. D29—113

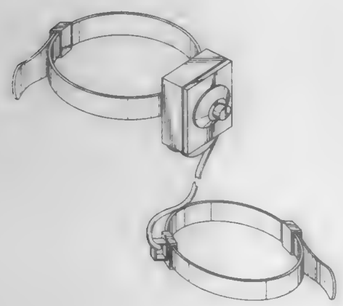


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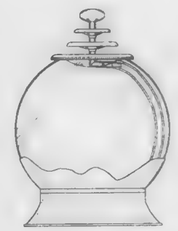
391,684
SPORTS GLOVE FOR PLAYING BALL
John Scott Cooper, 4023 Lurline Dr., Honolulu, Hi. 96816
Filed Mar. 18, 1996, Ser. No. 50,638
Term of patent 14 years
LOC (6) Cl. 29 - *02*
U.S. Cl. D29—115



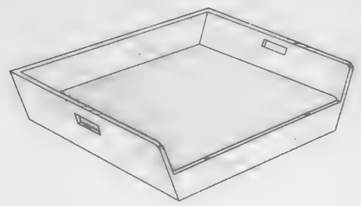
391,685
SAFETY HARNESS FOR HUNTERS
Brent L. Kinniburgh, 213 Woodland Hills Dr., Oxford, Miss. 38655
Filed Sep. 25, 1995, Ser. No. 44,450
Term of patent 14 years
LOC (6) Cl. 29 - *02*
U.S. Cl. D29—124



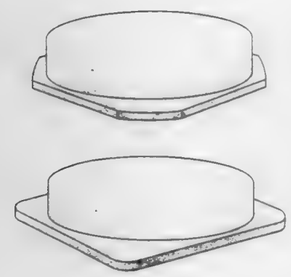
391,686
COMBINED FOUNTAIN AND FISH BOWL
William Shuie, 4FL., No. 87, Pu Shin Rd., Tao Yuan City, Taiwan
Filed Feb. 1, 1996, Ser. No. 49,824
Term of patent 14 years
LOC (6) Cl. 30 - *02*
U.S. Cl. D30—104



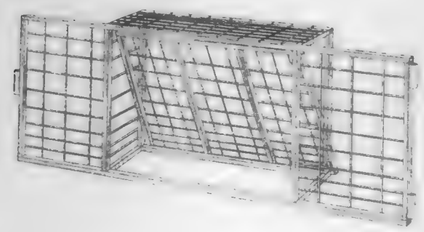
391,687
BED FOR PETS
Franklin D. McMahon, New York, N.Y., assignor to Univier Corp., New York, N.Y.
Filed Dec. 24, 1996, Ser. No. 64,220
Term of patent 14 years
LOC (6) Cl. 30 - *06*
U.S. Cl. D30—118



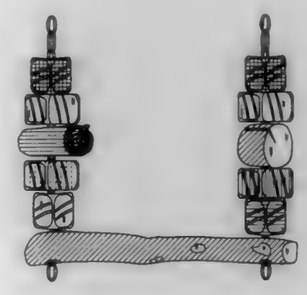
391,688
CUSHIONS FOR PETS
Franklin D. McMahon, New York, N.Y., assignor to Univier Corp., New York, N.Y.
Filed Dec. 24, 1996, Ser. No. 64,239
Term of patent 14 years
LOC (6) Cl. 30 - *06*
U.S. Cl. D30—118



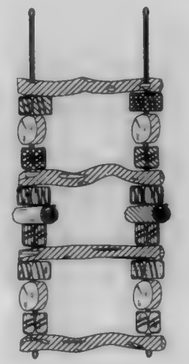
391,689
HEADER PANEL
Curtis E. Blackwell, and Virginia Blackwell, both of 1074 Larkspur, New Braunfels, Tex. 78130
Filed May 14, 1996, Ser. No. 54,402
Term of patent 14 years
LOC (6) Cl. 30 - *02*
U.S. Cl. D30—119



391,690
BIRD PERCH SWING
Debbie Edlebeck, and David J. Day, both of 10270 Atchison Rd., Dayton, Ohio 45458
Filed May 14, 1996, Ser. No. 54,470
Term of patent 14 years
LOC (6) Cl. 30 - *02*
U.S. Cl. D30—119

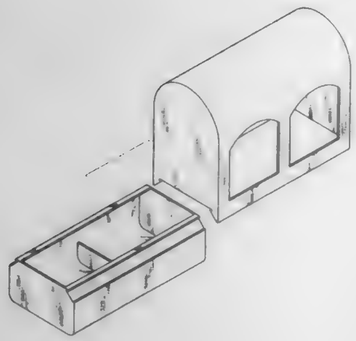


391,691
BIRD PERCH LADDER
Debbie Edlebeck, and David J. Day, both of 10270 Atchison Rd., Dayton, Ohio 45458
Filed May 14, 1996, Ser. No. 54,479
Term of patent 14 years
LOC (6) Cl. 30 - *02*
U.S. Cl. D30—119

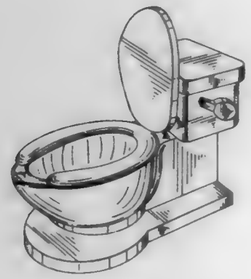


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391,692
FERRET FEEDER
Lynn Seier, 4045 Freemansburg Ave., Easton, Pa. 18045-5590
Filed Nov. 18, 1996, Ser. No. 62,535
Term of patent 14 years
LOC (6) Cl. 30 - *07*
U.S. Cl. D30—121



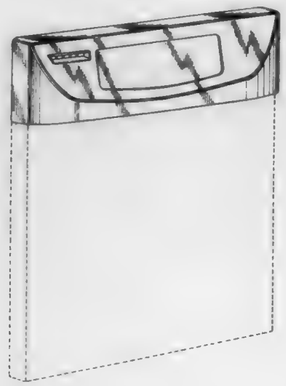
391,693
DOG DISH
Keith S. Janiak, New Britain, Conn., assignor to Bridgett Janiak; Mary Scanlon, and Maureen Scanlon, New Britain, Conn.
Filed May 3, 1996, Ser. No. 55,817
Term of patent 14 years
LOC (6) Cl. 30 - *03*
U.S. Cl. D30—129



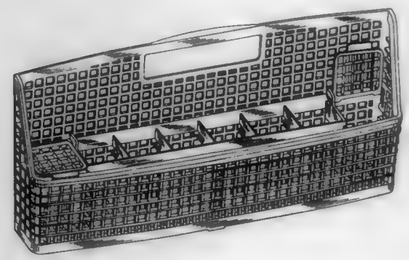
391,694
SELF-SHORTENING HALTER ROPE
George L. Eichhorn, 6181 Raven Rd., Helena, Mont. 59601
Filed Feb. 23, 1996, Ser. No. 50,961
Term of patent 14 years
LOC (6) Cl. 30 - *09*
U.S. Cl. D30—153



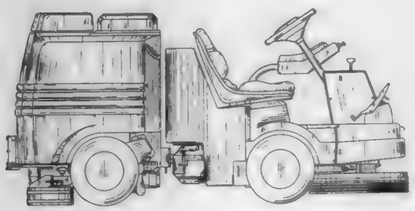
391,695
CONSOLE FOR AN APPLIANCE FRONT PANEL
Mark W. Baldwin, St. Joseph; Frederick N. Bournay, Jr., Benton Harbor; John M. DeBoer, Stevensville, and John Allan Tinkham, St. Joseph, all of Mich., assignors to Whirlpool Corporation, Benton Harbor, Mich.
Filed Jan. 7, 1997, Ser. No. 64,604
Term of patent 14 years
LOC (6) Cl. 15 - *05*
U.S. Cl. D32—3



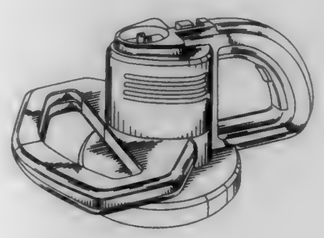
391,696
SILVERWARE BASKET
Frederick N. Bournay, Jr., Benton Harbor, and John Allan Tinkham, St. Joseph, both of Mich., assignors to Whirlpool Corporation, Benton Harbor, Mich.
Filed Jan. 14, 1997, Ser. No. 64,900
Term of patent 14 years
LOC (6) Cl. 15 - *05*
U.S. Cl. D32—3



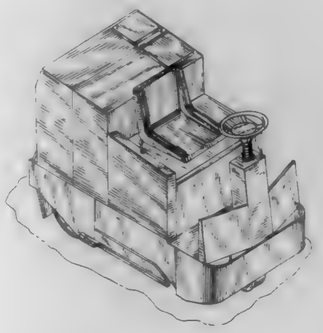
391,697
ARTICULATED FLOOR CLEANER
Christopher M. Knowlton, Pinehurst, N.C., and Robert J. O'Harn, Castle Rock, Colo., assignors to Windsor Industries, Inc., Englewood, Colo.
Filed May 6, 1996, Ser. No. 54,101
Term of patent 14 years
LOC (6) Cl. 15 - *05*
U.S. Cl. D32—4



391,698
ELECTRICALLY-POWERED WAXER
Robert E. McCracken, Tucson, Ariz., and James B. Watson, Conyers, Ga., assignors to Waxing Corporation of America, Inc., Elmhurst, Ill.
Filed Oct. 20, 1995, Ser. No. 46,675
Term of patent 14 years
LOC (6) Cl. 15 - *05*
U.S. Cl. D32—15

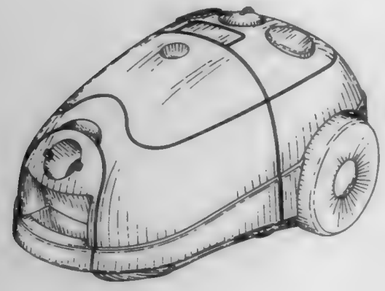


391,699
SCRUBBER MACHINE
Charles T. Creecy, 218 13th St., Racine, Wis. 53403
Filed Dec. 13, 1996, Ser. No. 63,739
Term of patent 14 years
LOC (6) Cl. 15 - *05*
U.S. Cl. D32—16



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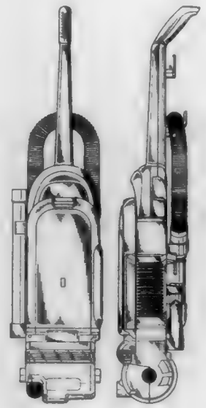
391,700
VACUUM CLEANER
Sean Patrick Hughes, Groningen, Netherlands, assignor to U.S. Philips Corporation, New York, N.Y.
Filed Dec. 23, 1996, Ser. No. 64,117
Claims priority, application WIPO, Jun. 28, 1996, DMA003369
Term of patent 14 years
LOC (6) Cl. 15 - *05*
U.S. Cl. D32—21



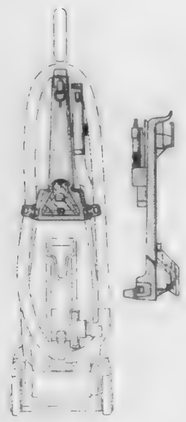
391,701
ELECTRIC VACUUM CLEANER
Takashi Sato; Kazuhiko Yamagiwa, both of Osaka, and Kazuhiro Fujita, Hyogo, all of Japan, assignors to Matsushita Electric Industrial Co., Ltd., Osaka, Japan
Filed Jan. 6, 1997, Ser. No. 64,566
Claims priority, application Japan, Jul. 11, 1996, 8-20928
Term of patent 14 years
LOC (6) Cl. 15 - *05*
U.S. Cl. D32—22



391,702
VACUUM CLEANER UPPER PORTION
Richard A. Wareham, and David W. Moine, both of North Canton, Ohio, assignors to The Hoover Company, North Canton, Ohio
Filed Jan. 10, 1997, Ser. No. 64,767
Term of patent 14 years
LOC (6) Cl. 15 - *05*
U.S. Cl. D32—31



391,703
TOOL CADDY
Daniel R. Miller, Massillon; Vincent L. Weber, North Lawrence; Roland J. Knouff, Massillon; Edgar A. Maurer, Canton, and Joseph W. Clifford, North Canton, all of Ohio, assignors to The Hoover Company, North Canton, Ohio
Filed Jan. 10, 1997, Ser. No. 64,768
Term of patent 14 years
LOC (6) Cl. 15 - *05*
U.S. Cl. D32—31



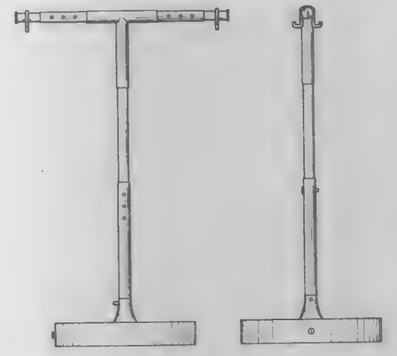
391,704
STEAM CLEANING WAND
Richard S. Facer, 700 Canfield Dr., Lompoc, Calif. 93436
Filed May 24, 1996, Ser. No. 54,880
Term of patent 14 years
LOC (6) Cl. 15 - *05*
U.S. Cl. D32—32



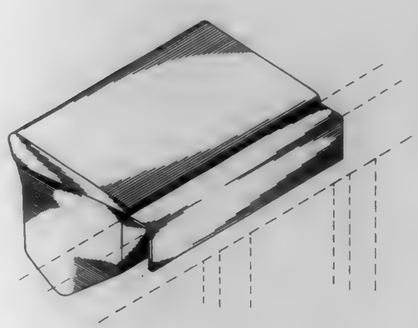
391,705
ROTATABLE TUBE SCRUBBER
Brian Good, 30 Essex La., Trumbull, Conn. 06611
Filed Mar. 4, 1996, Ser. No. 51,117
Term of patent 14 years
LOC (6) Cl. 06 - *99*
U.S. Cl. D32—35



391,706
RACK TO FACILITATE EASY CLEANING OF MINI-BLINDS
Jeannine Elaine Malcolm, 3 Home Park Ct., Kingston, Mass. 02364
Filed Nov. 22, 1996, Ser. No. 63,038
Term of patent 14 years
LOC (6) Cl. 08 - *99*
U.S. Cl. D32—35

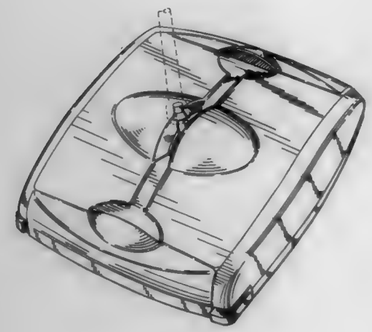


391,707
CLOTHES PIN BOX
Noel Tremblay, 4720 Bergeron, Delisle, Québec, Canada, G0W 1L0
Filed Aug. 21, 1996, Ser. No. 58,734
Term of patent 14 years
LOC (6) Cl. 08 - *99*
U.S. Cl. D32—36



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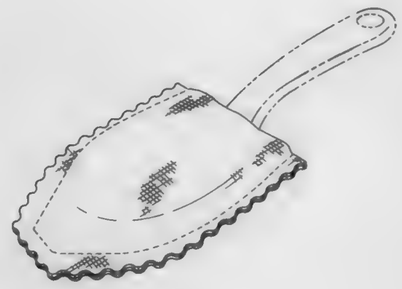
391,708
CARPET SWEEPER
Eugene M. Canavan, and Oliver Hood, both of Dublin, Ireland, assignors to Bissell, Inc., Grand Rapids, Mich.
Filed Nov. 15, 1996, Ser. No. 62,484
Term of patent 14 years
LOC (6) Cl. 15 - *05*
U.S. Cl. D32—38



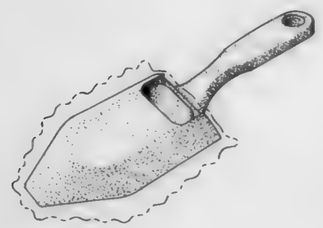
391,709
PAD FOR CLEANING FLOORS
Gregor Kohlruss, Pater-Eugen-Breitenstein-Str. 1, 46325 Borken; Ulrich Lersch, Rustr. 10, 50259 Pulheim, and Hubert Wiesner, Grüner Weg 21, 46354 Südlohn, all of Germany
Filed Jul. 9, 1996, Ser. No. 56,801
Claims priority, application Germany, Jan. 10, 1996, 96 00 156.9
Term of patent 14 years
LOC (6) Cl. 08 - *05*
U.S. Cl. 32—40



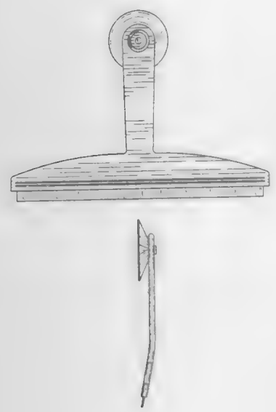
391,710
WIPER SHEET FOR HANDY MOP
Masahito Hanaoka, Tokyo, Japan, assignor to Kao Kabushiki Kaisha, Tokyo, Japan
Filed Aug. 22, 1996, Ser. No. 58,760
Claims priority, application Japan, Feb. 23, 1996, 8-004475
Term of patent 14 years
LOC (6) Cl. 08 - *05*
U.S. Cl. D32—40



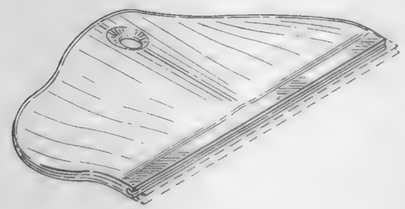
391,711
HANDY MOP
Masahito Hanaoka; Youichi Suzuki; Fumihiko Yoshiro, and Harunobu Hirayama, all of Tokyo, Japan, assignors to Kao Kabushiki Kaisha (Kao Corporation), Tokyo, Japan
Filed Sep. 30, 1996, Ser. No. 60,461
Claims priority, application Japan, Apr. 15, 1996, 8-10464
Term of patent 14 years
LOC (6) Cl. 08 - *05*
U.S. Cl. D32—40



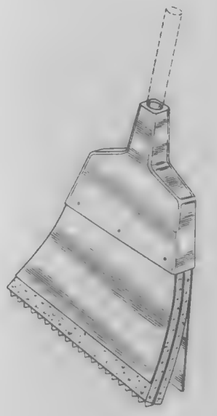
391,712
SQUEEGEE
Robert A. Immerman, Shaker Heights, Ohio, assignor to Inter-Design, Inc., Solon, Ohio
Filed Dec. 27, 1995, Ser. No. 48,389
Term of patent 14 years
LOC (6) Cl. 08 - *05*
U.S. Cl. D32—41



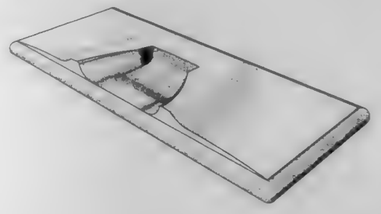
391,713
SQUEEGEE
Douglas M. Laib, Orlando, Fla., assignor to Dart Industries Inc., Orlando, Fla.
Filed Dec. 11, 1996, Ser. No. 63,605
Term of patent 14 years
LOC (6) Cl. 08 - *05*
U.S. Cl. D32—41



391,714
COMBINED BROOM AND RAKE
Holger F. Kilander, H.C. 75, Box 152, Hackensack, Minn. 56452
Filed Feb. 18, 1997, Ser. No. 67,264
Term of patent 14 years
LOC (6) Cl. 08 - *05*
U.S. Cl. D32—42

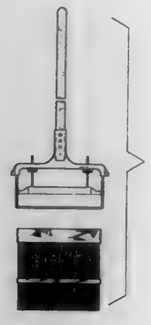


391,715
CLEANING IMPLEMENT MOUNTING SURFACE
Aram J. Irwin, and James W. Settelmayer, Jr., both of Cincinnati, Ohio, assignors to The Procter & Gamble Company, Cincinnati, Ohio
Filed Sep. 24, 1996, Ser. No. 60,215
Term of patent 14 years
LOC (6) Cl. 04 - *01*
U.S. Cl. D32—50

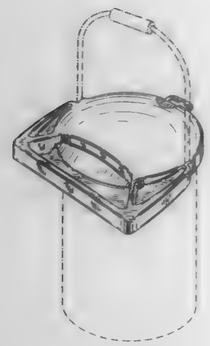


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391,716
COMBINED DUAL CLAMP MOP HOLDER AND MOP HEAD
Charles Franklin Lyles, Sr., 2027 Featherbed La., Woodlawn, Md. 21207
Filed Jan. 23, 1997, Ser. No. 65,196
Term of patent 14 years
LOC (6) Cl. 04 - *01*
U.S. Cl. D32—51



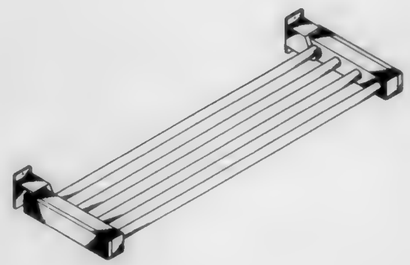
391,717
LID/SEAT FOR A BUCKET
Harvey L. Stein, Annapolis, Md., assignor to Hometown Advantage, Inc., Annapolis, Md.
Filed Aug. 8, 1996, Ser. No. 58,153
Term of patent 14 years
LOC (6) Cl. 19 - *06*
U.S. Cl. D32—54



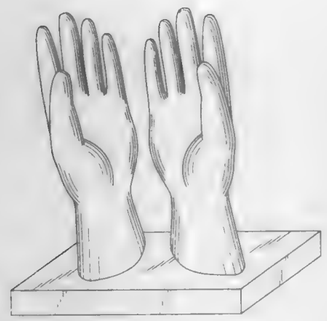
391,718
FLOWER DRYER
Russell Cagas, 211 5th Avenue, Ottawa, Canada, K1S 2N1
Filed Nov. 25, 1996, Ser. No. 62,794
Claims priority, application Canada, Nov. 12, 1996, 1996-2581
Term of patent 14 years
LOC (6) Cl. 07 - *05*
U.S. Cl. D32—58



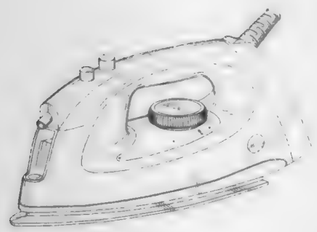
391,719
ELECTRIC DRYING RACK
Kevin Anderson, Upper Hutt, New Zealand, assignor to Hydra-flow Industries Limited, Upper Hutt, New Zealand
Filed Feb. 20, 1997, Ser. No. 67,010
Term of patent 14 years
LOC (6) Cl. 07 - *05*
U.S. Cl. D32—58



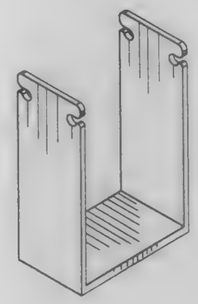
391,720
GLOVE HOLDER AND SHAPE RETAINER
Ronald L. Schoenewolf, 14007 Wheatbridge, Houston, Tex. 77041
Filed Jun. 9, 1997, Ser. No. 71,795
Term of patent 14 years
LOC (6) Cl. 07 - *05*
U.S. Cl. D32—59



391,721
ELECTRIC IRON
Osamu Kondo, Osaka; Toru Abe, Hyogo, and Masakatsu Maeda, Nara, all of Japan, assignors to Matsushita Electric Industrial Co., Ltd., Japan
Filed Jan. 30, 1997, Ser. No. 65,611
Claims priority, application Japan, Aug. 21, 1996, 8-25011
Term of patent 14 years
LOC (6) Cl. 07 - *05*
U.S. Cl. D32—70



391,722
PLASTIC BAG SUPPORT
Alex T. Sheppard, 18032 Vanowen St., Reseda, Calif. 91335
Filed Mar. 7, 1997, Ser. No. 67,566
Term of patent 14 years
LOC (6) Cl. 09 - *09*
U.S. Cl. D34—5

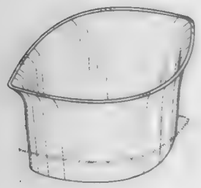


391,723
TRASH RECEPTACLE HOLDER
Kenneth G. McCombs, Frederick, Md., assignor to Miscellaneous Metal, Inc., Frederick, Md.
Filed Apr. 3, 1997, Ser. No. 68,873
Term of patent 14 years
LOC (6) Cl. 09 - *09*
U.S. Cl. D34—5

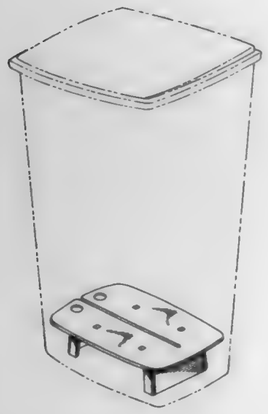


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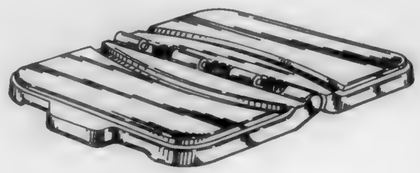
391,724
FLEXIBLE BAG FILLING SUPPORT
Bobby Dee Blackburn, 1303 Oakwood Rd., Jonesboro, Ga. 30236
Filed Apr. 25, 1997, Ser. No. 69,535
Term of patent 14 years
LOC (6) Cl. 09 - *09*
U.S. Cl. D34—5



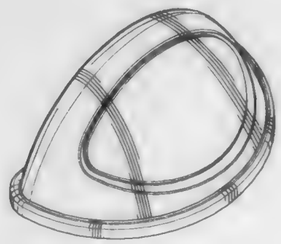
391,725
TRASH BAG ROLL RETAINER/DISPENSER
Benito Triglia, Peekskill, N.Y., assignor to Innovative Product Development Corp., Yorktown Heights, N.Y.
Filed Sep. 20, 1996, Ser. No. 60,058
Term of patent 14 years
LOC (6) Cl. 09 - *09*
U.S. Cl. D34—10



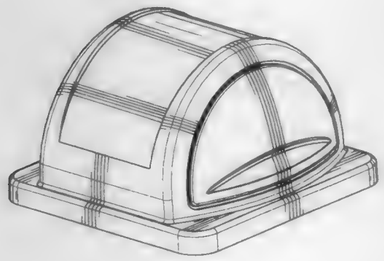
391,726
CONTAINER COVER
Richard T. Williams, Clarendon Hills, Ill., and Edward H. Wysocki, Kentwood, Mich., assignors to Waste Management, Inc., Oak Brook, Ill., and Cascade Engineering, Inc., Grand Rapids, Mich.
Filed Feb. 18, 1997, Ser. No. 66,641
Term of patent 14 years
LOC (6) Cl. 09 - *09*
U.S. Cl. D34—11



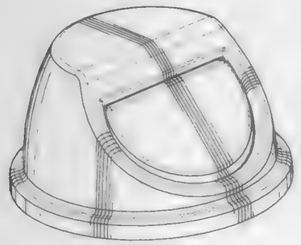
391,727
REFUSE CONTAINER LID
Paul E. Delmerico, Winchester, Va., assignor to Rubbermaid Commercial Products Inc., Winchester, Va.
Filed Mar. 11, 1997, Ser. No. 67,780
Term of patent 14 years
LOC (6) Cl. 09 - *09*
U.S. Cl. D34—11



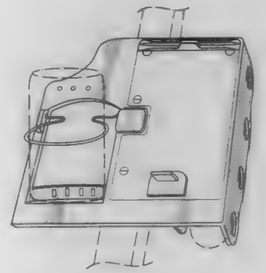
391,728
LID FOR TRASH CONTAINER
Paul E. Delmerico, Winchester, Va., assignor to Rubbermaid Commercial Products Inc., Winchester, Va.
Filed Mar. 11, 1997, Ser. No. 67,786
Term of patent 14 years
LOC (6) Cl. 09 - *09*
U.S. Cl. D34—11



391,729
LID FOR REFUSE CONTAINER
Paul E. Delmerico, Winchester, Va., assignor to Rubbermaid Commercial Products Inc., Winchester, Va.
Filed Mar. 11, 1997, Ser. No. 67,787
Term of patent 14 years
LOC (6) Cl. 09 - *09*
U.S. Cl. D34—11



391,730
UTILITY TRAY FOR GOLF CLUB CARTS
Jessie Li-Kuo Wang, 46980 Ocotillo Ct., Fremont, Calif. 94539
Filed Oct. 21, 1996, Ser. No. 61,430
Term of patent 14 years
LOC (6) Cl. 12 - *02*
U.S. Cl. D34—15

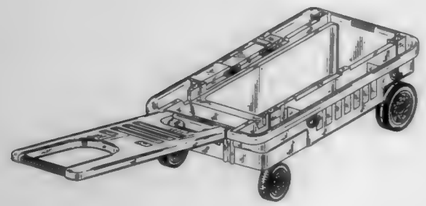


391,731
GOLF TROLLEY
Fang-Li Wu, Tainan Hsien, Taiwan, assignor to Sports World Enterprise Co., Ltd., Tainan Hsien, Taiwan
Filed Dec. 3, 1996, Ser. No. 62,917
Claims priority, application Taiwan, Sep. 20, 1996, 85307873
Term of patent 14 years
LOC (6) Cl. 12 - *02*
U.S. Cl. D34—15

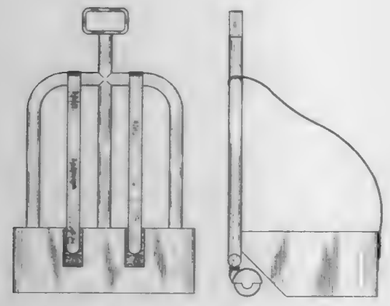


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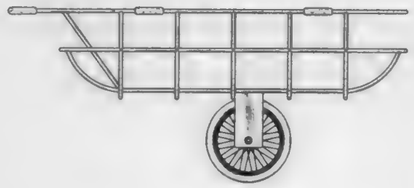
391,732
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Kenneth J. Spear, Vienna; Rudy F. Planthaber, Mineral Wells, both of W. Va., and Steven F. Brooker, Marietta, Ohio, assignors to O. Ames Co., Parkersburg, W. Va.
Filed May 5, 1997, Ser. No. 69,607
Term of patent 14 years
LOC (6) Cl. 12 - *02*
U.S. Cl. D34—19



391,733
BACKPACK CART
Deborah Williams, 3020 Oakwood La., Torrance, Calif. 90505
Filed Jan. 21, 1997, Ser. No. 65,131
Term of patent 14 years
LOC (6) Cl. 12 - *02*
U.S. Cl. D34—24



391,734
CART FOR TRANSPORTING HARVESTED DEER
John A. Meigey, 366 Beach Pond Rd., Voluntown, Conn. 06384
Filed Mar. 24, 1997, Ser. No. 68,263
Term of patent 14 years
LOC (6) Cl. 12 - *02*
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LIST OF PATENTEES

TO WHOM

PATENTS WERE ISSUED ON THE 3rd DAY OF MARCH, 1998

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Abe, Isao: *See*—
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Abe, Noriyuki; Abo, Toshimi; and Shinohara, Toshirou, to Nissan Motor Co., Ltd. Chip damage detecting circuit for semiconductor IC. 5,723,875, Cl. 257-48.000.

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Abecassis, Max. Content map for seamlessly skipping a retrieval of a segment of a video. 5,724,472, Cl. 386-52.000.

Abo, Toshimi: *See*—
Abe, Noriyuki; Abo, Toshimi; and Shinohara, Toshirou, 5,723,875, Cl. 257-48.000.

Abramov, Igor. Booklet filing device. 5,722,692, Cl. 281-43.000.

Abrams, Kenneth J., to Amoco Corporation. Process for preparing aromatic carboxylic acids with efficient energy recovery. 5,723,656, Cl. 562-412.000.

Abrams, Robert S.; and Garren, Robert Thomas, Jr., to Capitol Vial, Inc. Process and apparatus for making a leak proof cap and body assembly. 5,723,085, Cl. 264-238.000.

Abramson, Jeffery M.; Akkary, Haitham; Glew, Andrew F.; Hinton, Glenn J.; Konigsfeld, Kris G.; and Madland, Paul D., to Intel Corporation. Method and apparatus for blocking execution of and storing load operations during their execution. 5,724,536, Cl. 395-392.000.

Abuknesha, Ramadan Arbi, to GEC-Marconi Limited. Immunological detection using two detectable labels. 5,723,304, Cl. 435-7.900.

Achterrath-Tuckermann, Ute: *See*—
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ActaMed Corp.: *See*—
Hoover, Michael K.; Miller, Barrick H.; Schurenberg, Kurt; and Daigle, Richard A., 5,724,575, Cl. 395-610.000.

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Adachi, Chihaya: *See*—
Sasaki, Masaomi; Tamura, Hiroshi; Shimada, Tomoyuki; Suzuki, Tetsuro; Tanaka, Chiaki; Kishida, Kouji; Katayama, Akira; Nagai, Kazukiyo; Adachi, Chihaya; Tamoto, Nozomu; Anzai, Mitsutoshi; and Imai, Akihiro, 5,723,243, Cl. 430-96.000.

Adachi, Hidefumi; Hashimoto, Yoshikatsu; and Nishimura, Mitsunori, to Hitachi, Ltd. Throttle valve control device for internal combustion engines. 5,722,366, Cl. 123-337.000.

Adams, Carl A.: *See*—
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Adams, Mark D.: *See*—
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Adams, Michael Wayne: *See*—
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Adan, Manolito E.: *See*—
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Ade, Inc.: *See*—
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Adkins, Rick L.; and Slack, William E., to Bayer Corporation. Liquid amines. 5,723,670, Cl. 564-404.000.

Administrators of Tulane Educational Fund, The: *See*—
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Adobe Systems Incorporated: *See*—
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Advanced Micro Devices, Inc.: *See*—
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Heavlin, William D., 5,724,251, Cl. 364-491.000.
Hsia, Edward; Hamilton, Darlene; and Hernandez, Jose H., 5,724,365, Cl. 371-21.100.
Liu, Yi; Tucker, Michael R.; and Strongin, Geoffrey S., 5,724,446, Cl. 382-233.000.
Moore, Bradley T.; Dawson, Robert; Fulford, H. Jim, Jr.; Gardner, Mark I.; Hause, Frederick N.; Michael, Mark W.; and Wristers, Derick J., 5,723,238, Cl. 430-30.000.
Ray, S. Doug, 5,723,876, Cl. 257-48.000.
Runaldue, Thomas Jefferson; and Cheng, Yi, 5,723,991, Cl. 327-105.000.
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Advanced Technology Materials, Inc.: *See*—
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Aerospatiale Societe Nationale Industrielle: *See*—
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AGR International, Inc.: *See*—
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Agrawal, Rakesh; and Srikant, Ramakrishnan, to International Business Machines Corporation. Method and system for mining quantitative association rules in large relational tables. 5,724,573, Cl. 395-606.000.

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Ahr, Nicholas Albert: *See—*
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Aigner, Helmut R.; and Small, Steven D., to Schlage Lock Company. Method for attaching faceplate mounting tabs to a mortise lock housing and tabs and housings adapted for that method. 5,722,276, Cl. 70-451.000.

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Akagi, Yasaburo; Takechi, Nobuyuki; and Nonomura, Muneo, to Takeda Chemical Industries, Ltd. Microparticle preparation and production thereof. 5,723,269, Cl. 424-497.000.

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Kim, Ji-Hong; Park, Sun-Yi; Kim, Seong-Ju; and Park, Joo-Hyeon, to Korea Kumho Petrochemical Co., Ltd. Acetal group-containing alkoxy-styrene polymers, method of preparing the same and chemical amplified photoresist composition mainly comprising the same. 5,723,258, Cl. 430-270.100.

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Kimura, Tokiya; Shindo, Takeshi; and Ikeda, Kazutaka, to Ishihara Sangyo Kaisha Ltd. N-Pyridyltoluidine-containing fungicidal water dispersible granules. 5,723,141, Cl. 424-408.000.

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King, Robert W.; Barker, Christopher S.; and Seeger, Christoph, to Avid Therapeutics, Inc.; and Fox Chase Cancer Center. Cultured cell line that inducibly expresses the hepatitis B virus genome, and uses thereof for screening antiviral substances. 5,723,319, Cl. 435-69.300.

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Kobayashi, Ryoichi; and Sugiura, Noboru, to Hitachi, Ltd. Switching state detecting apparatus, control unit and transmission unit for waking up a microcomputer. 5,724,601, Cl. 395-800.000.

Kobayashi, Seiji; Okamura, Hiroshige; Yamatsu, Hisayuki; and Kashiwagi, Toshiyuki, to Sony Corporation. Information recording medium wherein multi-bit digital information is represented by a shift amount of a pit edge, recording apparatus, reproducing apparatus, and recording and reproducing apparatus therefor. 5,724,330, Cl. 369-59.000.

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Stubbs, Gerald; and Culver, James N., to Vanderbilt University; and Univ. of Maryland Biotechnology Institute. Transgenic plants expressing disassembly deficient viral coat proteins. 5,723,750, Cl. 800-205.000.

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Zinner, Reinhard: *See*—
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Zook, Christopher P., to Cirrus Logic, Inc. Cyclical redundancy check method and apparatus, 5,724,368, Cl. 371-37.700.

Zosimov, Alexandr Vasilievich; Lunin, Valeriy Vasilievich; and Maksimov, Yuriy Mikhailovich, to Catalytic Sciences, Ltd. Process for removal of organo-sulfur compounds from liquid hydrocarbons, 5,723,039, Cl. 205-696.000.

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NOTE— Arranged in accordance with the first significant character or word of the name (in accordance with city and telephone directory practice).

ECI Telecom Ltd.: *See*—
Piasecki, Joshua; and Sourani, Sason, RE. 35,740, Cl. 379-100.000.

Piasecki, Joshua; and Sourani, Sason, to ECI Telecom Ltd. Telecommunication system, RE. 35,740, Cl. 379-100.000.

Sourani, Sason: *See*—
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Anderson, Douglas G.: *See*—
Nelson, Thomas D.; and Anderson, Douglas G., B1 365,690, Cl. 43-113.000.

Avery Dennison Corporation: *See*—
Popat, Ghanshyam H., B1 389,414, Cl. 428-40.000.

Bayer Aktiengesellschaft: *See*—
Heidenreich, Klaus; Depcik, Hans-Werner; and Radojewski, Hans, B1 594,204, Cl. 264-492.000.

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Fetters, Lewis J.; and Bi, Le-Khac, B1 985,830, Cl. 525-192.000.

Booz, George W.: *See*—
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Cone, Stanley H.: *See*—
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Depcik, Hans-Werner: *See*—
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Ecolab Inc.: *See*—
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Goldin, Barry R.: *See*—
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Heidenreich, Klaus; Depcik, Hans-Werner; and Radojewski, Hans, to Bayer Aktiengesellschaft. Process for annealing thermoplastically-shaped plastics parts. B1 594,204, Cl. 264-492.000.

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Hou, Jack, to Giftec, Ltd. Toy music rocking chair. B1 033,933, Cl. 446-301.000.

Kabushiki Kaisha Toshiba: *See*—
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Button, Richard J., 10,269, Cl. Plt.-88.100.
van Rijn, Magdalena J. M., to RijnPlant. Anthurium plant named 'Leny'. 10,272, Cl. Plt.-88.100.

LIST OF STATUTORY INVENTION REGISTRATIONS

APPLICANTS TO WHOM
STATUTORY INVENTION REGISTRATIONS WERE ISSUED ON THE
3rd DAY OF MARCH, 1998

Lucent Technologies Inc.: *See*—
Partridge, B. Waring, III, H1,714, Cl. 348-14.000.
Partridge, B. Waring, III, to Lucent Technologies Inc. Automatic still image transmission upon call connection. H1,714, Cl. 348-14.000.
Pearlman, Ted Louis; and Zidel, Andrew Todd, to Sony Corporation; and Sony Electronics, Inc. Remote alarm for personal intelligent communicators. H1,713, Cl. 340-311.100.
Sony Corporation: *See*—
Pearlman, Ted Louis; and Zidel, Andrew Todd, H1,713, Cl. 340-311.100.
Sony Electronics, Inc.: *See*—
Pearlman, Ted Louis; and Zidel, Andrew Todd, H1,713, Cl. 340-311.100.
Zidel, Andrew Todd: *See*—
Pearlman, Ted Louis; and Zidel, Andrew Todd, H1,713, Cl. 340-311.100.

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CLASSIFICATION OF PATENTS

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NOTE—First number, class; second number, subclass; third number, patent number

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409 D.723,184
421 D.723,185
429 D.723,186
430.1 D.723,187
453 D.723,188
577 D.723,189

CLASS 428

36.1 B1 4,977,016
36.9 B1 5,389,414
40 D.723,190
40.1 D.723,191
41.8 D.723,192
64.1 D.723,193
65.3 D.723,194
95 D.723,195
100 D.723,196
122 D.723,197
D.723,198
141 D.723,199
158 D.723,200
172 D.723,201
181 D.723,202
194 D.723,203
195 D.723,223
198 D.723,204
206 D.723,205
209 D.723,206
215 D.723,207
216 D.723,208
D.723,209
219 D.723,210
D.723,211
328 D.723,212
332 D.723,213
336 D.723,214
364 D.723,215
373 D.723,216
374 D.723,217
401 D.723,218
402 D.723,219
411.1 D.723,220
426 D.723,221
469 D.723,222
483 D.723,224
570 D.723,225
593 D.723,226
688 D.723,227
694 ML D.723,228

CLASS 429

12 D.723,229
19 D.723,230
104 D.723,231
203 D.723,232
245 D.723,233

CLASS 430

5 D.723,234
D.723,235
D.723,236
30 D.723,237
D.723,238
49 D.723,239
54 D.723,240
58 D.723,241
66 D.723,242
96 D.723,243
97 D.723,244
106 D.723,245
109 D.723,246
110 D.723,247
D.723,248
D.723,249
117 D.723,250
126 D.723,251
137 D.723,252
166 D.723,253
190 D.723,254
203 D.723,255
252 D.723,256
270.1 D.723,257
D.723,258
272.1 D.723,259
278.1 D.723,260
285.1 D.723,261
286.1 D.723,262
321 D.723,264
374 D.723,263
376 D.723,265
398 D.723,266
399 D.723,267
430 D.723,268
517 D.723,270
D.723,271
522 D.723,272
527 D.723,273
528 D.723,274
D.723,275
D.723,276
567 D.723,277
D.723,278
569 D.723,279
574 D.723,280

CLASS 431

10 D.722,821
25 D.722,822
43 D.722,823
125 D.722,824

CLASS 432

138 D.722,825

CLASS 433

9 D.722,826
20 D.722,827
69 D.722,828
90 D.722,829
D.722,830
155 D.722,831
214 D.722,832
217.1 D.722,833

CLASS 434

128 D.722,834
218 D.722,835
272 D.722,836

CLASS 435

1.2 D.723,281
1.3 D.723,282
4 D.723,283
D.723,284
D.723,285
5 D.723,286
D.723,287
6 D.723,288
D.723,289
D.723,290
D.723,291
D.723,292
D.723,293
D.723,294
D.723,295
D.723,296
D.723,297
D.723,298
7.1 D.723,299
D.723,300
D.723,301
D.723,302
7.21 D.723,305
7.5 D.723,303
7.9 D.723,304
7.93 D.723,306
24 D.723,307
34 D.723,308
69.1 D.723,309
D.723,310
D.723,311
D.723,312
D.723,313
D.723,314
D.723,315
69.2 D.723,316
69.3 D.723,319
69.5 D.723,318
91.1 D.723,320
115 D.723,321
145 D.723,322
172.3 D.723,323
173.6 D.723,324
176 D.723,325
199 D.723,326
201 D.723,327
209 D.723,328
240.2 D.723,329
252.3 D.723,330
320.1 D.723,332
325 D.723,333
366 D.723,331
375 D.723,335

CLASS 436

1 D.723,336
55 D.723,337
56 D.723,338
73 D.723,339
79 D.723,340
171 D.723,341
172 D.723,342
506 D.723,343
518 D.723,344
D.723,345
523 D.723,346

CLASS 437

8 D.723,347
23 D.723,348
31 D.723,349
43 D.723,350
D.723,351
44 D.723,352
51 D.723,353
53 D.723,354
56 D.723,355
57 D.723,356
D.723,357
60 D.723,358
D.723,359
107 D.723,360
180 D.723,361
190 D.723,362
205 D.723,363
209 D.723,364
228 D.723,366
248 D.723,367
763 D.723,368

CLASS 438

106 D.723,369
156 D.723,370
157 D.723,371
164 D.723,372
253 D.723,373
D.723,374
258 D.723,375
270 D.723,376
303 D.723,377
309 D.723,378
398 D.723,379
634 D.723,380
633 D.723,381
653 D.723,382
692 D.723,387
719 D.723,383
756 D.723,384
763 D.723,385
787 D.723,386

CLASS 439

63 D.722,837
79 D.722,839
98 D.722,840
D.722,841
139 D.722,842
157 D.722,843
194 D.722,844
267 D.722,845
318 D.722,846
320 D.722,847
342 D.722,848
352 D.722,849
404 D.722,850
D.722,851
417 D.722,852
419 D.722,853
528 D.722,854
578 D.722,855
D.722,856
595 D.722,857
601 D.722,858
607 D.722,859
619 D.722,860
701 D.722,861
709 D.722,862
718 D.722,863

CLASS 440

5 D.722,864
12 D.722,865
67 D.722,866

CLASS 441

D.722,867

CLASS 442

170 D.723,388

CLASS 445

3 D.722,868
D.722,869
28 D.722,870

CLASS 446

153 D.722,871
301 B1 Re.33,933
456 D.722,872
D.722,873
476 D.722,874

CLASS 451

8 D.722,875
10 D.722,876
41 D.722,877
49 D.722,878
281 D.722,879
466 D.722,881

CLASS 453

11 D.722,882

CLASS 454

69 D.722,884
155 D.722,883
167 D.722,885
229 D.722,886
256 D.722,887

CLASS 455

3.2 D.724,645
4.2 D.724,646
38.4 D.724,644
54.1 D.724,647
56.1 D.724,648
132 D.724,649
181.1 D.724,650
226.4 D.724,651
234.1 D.724,652
296 D.724,653
348 D.724,654
419 D.724,655
422 D.724,656
423 D.724,657
445 D.724,658
452 D.724,659
456 D.724,660
462 D.724,661
503 D.724,662
557 D.724,663
560 D.724,664
561 D.724,665
562 D.724,666
575 D.724,667

CLASS 460

114 D.722,888

CLASS 463

17 D.722,890
20 D.722,891
47 D.722,893

CLASS 464

37 D.722,894
68 D.722,895
180 D.722,896

CLASS 468

862 D.723,389

CLASS 472

60 D.722,897

CLASS 473

211 D.722,898
289 D.722,899
291 D.722,900
305 D.722,901
384 D.722,903
451 D.722,905
471 D.722,906
474 D.722,907
483 D.722,902
567 D.722,908

CLASS 474

87 D.722,909

CLASS 476

36 D.722,910

CLASS 477

3 D.722,911
40 D.722,500
64 D.722,912
148 D.722,913
187 D.722,914

CLASS 482

2 D.722,915
57 D.722,916
72 D.722,917
D.722,918
79 D.722,919
83 D.722,920
100 D.722,921
136 D.722,922
140 D.722,923

CLASS 492

24 D.722,924

CLASS 493

849 D.722,925

CLASS 494

37 D.722,926

CLASS 501

70 D.723,390
86 D.723,391
92 D.723,392
104 D.723,393
112 D.723,394
134 D.723,395
135 D.723,396

CLASS 502

D.723,397
103 D.723,398
113 D.723,399
126 D.723,400
213 D.723,401
232 D.723,402
304 D.723,403
350 D.723,404

CLASS 503

227 D.723,405

CLASS 504

114 D.723,406
115 D.723,407
139 D.723,408
214 D.723,409
215 D.723,410
238 D.723,411
243 D.723,412
246 D.723,413
252 D.723,414
269 D.723,415

CLASS 507

110 D.723,416

CLASS 508

455 D.723,417
511 D.723,418
589 D.723,419

CLASS 510

101 D.723,420
114 D.723,421
166 D.723,422
188 D.723,423
240 D.723,424
299 D.723,425
337 D.723,426
361 D.723,427
408 D.723,429
417 D.723,430
426 D.723,431
447 D.723,432
457 D.723,433
475 D.723,434
481 D.723,428
499 D.723,435

CLASS 514

2 D.723,436
D.723,437
D.723,438
12 D.723,439
D.723,440
D.723,441
18 D.723,442
D.723,443
D.723,444
21 D.723,446
29 D.723,447
33 D.723,448
50 D.723,449
63 D.723,450
139 D.723,486
155 D.723,452
165 D.723,453
169 D.723,454
D.723,455
D.723,456
183 D.723,457
D.723,458
211 D.723,459
237.8 D.723,460
247 D.723,461
249 D.723,462
D.723,463
250 D.723,464
254 D.723,451
255 D.723,465
D.723,466
258 D.723,467
D.723,468
262 D.723,469
269 D.723,470
272 D.723,471
274 D.723,472
294 D.723,473
307 D.723,474
324 D.723,475
331 D.723,476
337 D.723,477
340 D.723,478
365 D.723,479
369 D.723,480
376 D.723,481
393 D.723,482
399 D.723,483
406 D.723,484
410 D.723,485
415 D.723,487
449 D.723,488
450 B1 5,498,631
456 D.723,489
466 D.723,490
478 D.723,491
538 D.723,492
539 D.723,493
562 D.723,494
563 D.723,495
633 D.723,496
634 D.723,497
669 D.723,498
703 D.723,499
717 D.723,500
736 D.723,501
738 D.723,502
741 D.723,503
825 D.723,504
885 D.723,505

CLASS 518

702 D.723,506

CLASS 521

51 D.723,507
61 D.723,508
79 D.723,506
114 D.723,509
182 D.723,510

CLASS 522

35 D.723,511
55 D.723,512
63 D.723,513

CLASS 523

161 D.723,514
179 D.723,515
205 D.723,516
303 D.723,517
324 D.723,518
404 D.723,519
455 D.723,520

CLASS 524

36 D.723,522
100 D.723,523
268 D.723,521
376 D.723,524
424 D.723,525
451 D.723,526
D.723,527
492 D.723,528
D.723,529
495 D.723,530
496 D.723,531
525 D.723,532
572 D.723,533
590 D.723,534
591 D.723,535
D.723,536
604 D.723,537
608 D.723,538
831 D.723,548

CLASS 525

63 D.723,539
78 D.723,540
92 D.723,541
92 J D.723,542
98 D.723,543
130 D.723,544
192 13
194 D.723,545
240 D.723,546
333.4 D.723,549
344 D.723,550
391 D.723,551
453 D.723,552

CLASS 526

62 D.723,553
204 D.723,554
210 D.723,555
254 D.723,556
272 D.723,557
277 D.723,558
329.7 D.723,559
351 D.723,560

CLASS 528

12 D.723,561
44 D.723,562
61 D.723,563
73 D.723,564
111 D.723,565
205 D.723,566
310 D.723,567
D.723,568
D.723,569
337 D.723,570
353 D.723,571
392 D.723,572
423 D.723,573
493 D.723,574

CLASS 530

317 D.723,575
324 D.723,576
D.723,577
326 D.723,578
329 D.723,579
332 D.723,580
350 D.723,581
351 D.723,582
387.3 D.723,583
408 D.723,584
413 D.723,585
817 D.723,588

CLASS 534

761 D.723,586
854 D.723,587

CLASS 536

1.11 D.723,589
4.1 D.723,590
22.1 D.723,591
23.1 D.723,592
D.723,593
D.723,594
23.6 D.723,595
24.3 D.723,596
D.723,597
25.3 D.723,598
D.723,599
57 D.723,600
165 D.723,601

CLASS 540

500 D.723,602
539 D.723,603
556 D.723,604
567 D.723,605
578 D.723,606

CLASS 544

1 D.723,607
277 D.723,609
283 D.723,608
298 D.723,610
330 D.723,611
334 D.723,612
356 D.723,613
376 D.723,614
388 D.723,615

CLASS 546

18 D.723,616
94 D.723,617
121 D.723,618
250 D.723,619
280.1 D.723,620
339 D.723,621
D.723,622

CLASS 547

66 D.723,628

CLASS 548

262.4 D.723,623
263.2 D.723,624
408 D.723,625
467 D.723,626
557 D.723,627

CLASS 549

85 D.723,629
89 D.723,630
277 D.723,631
331 D.723,632
426 D.723,633
510 D.723,634
D.723,635
529 D.723,636
D.723,637

CLASS 552

558 D.723,638

CLASS 554

154 D.723,639

CLASS 556

11 D.723,640
13 D.723,641
18 D.723,642
440 D.723,643
466 D.723,644

CLASS 558

132 D.723,645

CLASS 560

27 D.723,646
30 D.723,647
38 D.723,648
124 D.723,649
127 D.723,650
169 D.723,651
179 D.723,652
196 D.723,653
227 D.723,654

CLASS 562

58 D.723,655
412 D.723,656
480 D.723,658
485 D.723,659
519 D.723,660
577 D.723,661
579 D.723,662

CLASS 564

78 D.723,663
82 D.723,664
142 D.723,665
253 D.723,666
302 D.723,667
304 D.723,668
307 D.723,669
D.723,670
405 D.723,671
424 D.723,672
487 D.723,673

CLASS 568

317 D.723,675
323 D.723,676
342 D.723,677
395 D.723,678
406 D.723,679
455 D.723,680
646 D.723,681
655 D.723,682
678 D.723,683
683 D.723,684
688 D.723,685
697 D.723,686
D.723,687
724 D.723,688
D.723,689
726 D.723,690
727 D.723,691
729 D.723,692
D.723,693
799 D.723,694
851 D.723,695
869 D.723,696
910 D.723,697
913 D.723,698

CLASS 570

134 D.723,699
168 D.723,700
175 D.723,701
177 D.723,702
231 D.723,703
241 D.723,704

CLASS 585

D.723,705
250 D.723,706
358 D.723,708
362 D.723,709
444 D.723,707
467 D.723,710
D.723,711
513 D.723,712
533 D.723,713
638 D.723,714
724 D.723,715
734 D.723,716

CLASS 588

1 D.724,668
2 D.724,669
213 D.723,717
252 D.722,927
256 D.722,928
257 D.722,929

CLASS 600

D.722,930
29 D.722,932
123 D.722,933
201 D.722,934
214 D.722,935
243 D.722,936

CLASS 601

23 D.722,937

CLASS 602
18 D.722,939
19 D.722,940
32 D.722,941
D.722,942
57 D.722,943

CLASS 604
4 D.722,944
5 D.722,946
8 D.722,948
22 D.722,945
29 D.722,947
33 D.722,949
48 D.722,950
51 D.722,952
D.722,953
110 D.722,951
121 D.722,955
131 D.722,956
141 D.722,957
169 D.722,958
174 D.722,959
195 D.722,960
254 D.722,961
264 D.722,962
282 D.722,963
317 D.722,964
344 D.722,965
364 D.722,966
385.1 D.722,967
390 D.722,969
391 D.722,968

CLASS 606
3 D.722,970
5 D.722,971
7 D.722,972
34 D.722,975
D.722,976
D.722,977
87 D.722,978
D.722,979
128 D.722,980
148 D.722,981
151 D.722,982
180 D.722,985
192 D.722,986
193 D.722,983
198 D.722,984
201 D.722,987
205 D.722,988
D.722,989
207 D.722,990
223 D.722,991
228 D.722,992

CLASS 607
5 D.722,994
D.722,995
17 D.722,996
28 D.722,997
30 D.722,998
32 D.722,999
68 D.723,001
114 D.723,002

CLASS 623
1 D.723,003
D.723,004
4 D.723,005
8 D.723,006
11 D.723,007
13 D.723,008
15 D.723,009
D.723,010
16 D.723,011
D.723,012
17 D.723,013
18 D.723,014
20 D.723,015
D.723,016
21 D.723,018

CLASS 660
29 D.722,931

CLASS 800
2 D.723,718
200 D.723,719
D.723,720
D.723,721
D.723,722
D.723,723
D.723,724
D.723,725
D.723,726
D.723,727
D.723,728
D.723,729
D.723,730
D.723,731
D.723,732
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D.723,735
D.723,736
D.723,737
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D.723,744
D.723,745
205 D.723,746
D.723,747
D.723,750
D.723,751
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D.723,760
D.723,761
D.723,762
D.723,763
D.723,764
D.723,765
D.723,766

CLASSIFICATION OF DESIGNS

D1— 391,385
D2— 711 391,386
876 391,387
882 391,388
391,389
961 391,390
962 391,391
D3— 5 391,392
201 391,393
218 391,394
279 391,396
326 391,397
D4— 391,398
391,399
D5— 37 391,400
391,401
391,402
391,403
63 391,404
391,405
D6— 302 391,406
333 391,407
334 391,408
344 391,409
356 391,410
379 391,411
391,412
393 391,413
395 391,414
426 391,415
391,416
445 391,417
457 391,418
458 391,419
473 391,420
479 391,421
484 391,422
500 391,423
391,424
505 391,425
391,426
391,427
515 391,428
523 391,429
545 391,430
391,431
569 391,432
391,433
596 391,434
604 391,435
391,436
634 391,437
391,438
D7— 309 391,439
360 391,440
372 391,441
378 391,442
393 391,443
394 391,444
396.6 391,445
510 391,447
391,448
550 391,449
605 391,450
606 391,451
620 391,452
650 391,453
653 391,454
391,455
684 391,456
693 391,457
391,458
D8— 1 391,459
5 391,460
8 391,461
71 391,462
99 391,464
391,465
305 391,466
307 391,467
313 391,468
346 391,469
347 391,470
349 391,471
363 391,472
367 391,473
391,474
391,475
376 391,476
394 391,477
D9— 307 391,478
429 391,479
432 391,481
434 391,482
444 391,483
449 391,484
500 391,485
516 391,486
521 391,487
524 391,488
526 391,489
528 391,490
529 391,491
538 391,492
391,493
546 391,494
573 391,495
D10— 30 391,496
391,497
391,498
391,499
32 391,500
39 391,501
75 391,502
78 391,503
391,504
92 391,505
103 391,506
104 391,507
391,508
391,509
391,510
106 391,511
391,512
391,513
113 391,514
D11— 13 391,515
75 391,516
391,517
391,518
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PATENTS

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5,723,691
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DESIGN PATENTS

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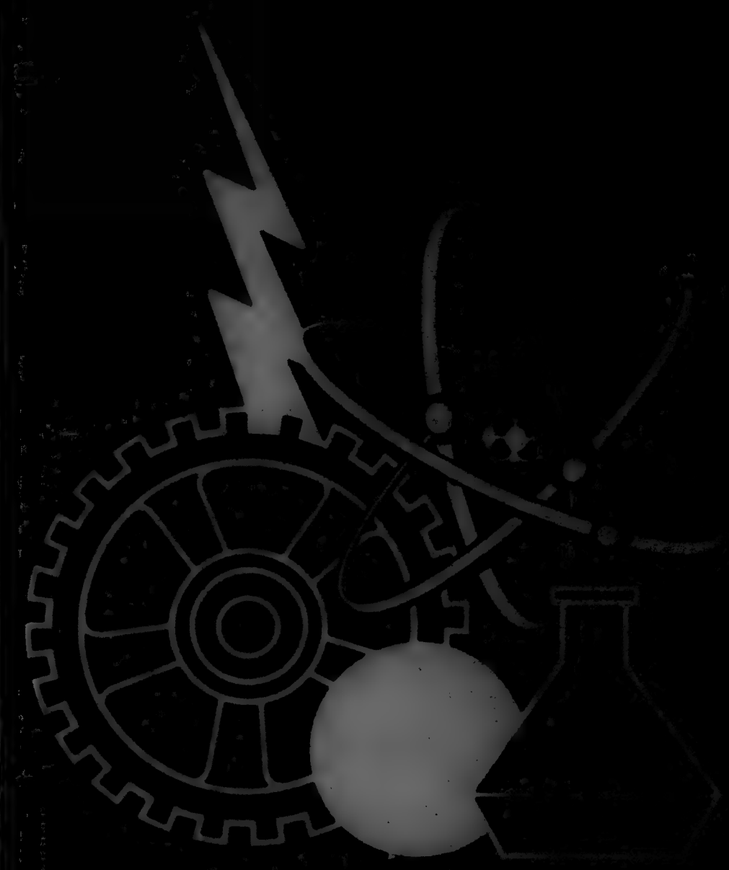
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Patent Cooperation Treaty (PCT) Information

For information concerning PCT member countries, see the notice appearing in the *Official Gazette* at 1205 O.G. 4, on December 2, 1997.

For use of the European Patent Office as an International Searching Authority for international applications filed in the United States Receiving Office, see the notice appearing in the *Official Gazette* at 1022 O.G. 52, on September 28, 1982.

For use of the European Patent Office as an International Preliminary Examining Authority for international applications filed in the United States Receiving Office, see the notices appearing in the *Official Gazette* at 1080 O.G. 2, on July 7, 1987, and at 1091 O.G. 2, on June 7, 1988. There is no longer a limit on the number of such international applications accepted for international preliminary examination by the European Patent Office; see the notice appearing at 1116 O.G. 32, on July 17, 1990.

The search fee of the European Patent Office was increased, effective January 1, 1998, and was announced in the *Official Gazette* at 1205 O.G. 3, on December 2, 1997.

International fees were changed, effective on May 1, 1997, due to a change in the exchange rate of the U.S. dollar with regard to the Swiss franc, and were announced in the *Official Gazette* at 1197 O.G. 69, on April 22, 1997. The basic fee and the designation fee were further changed effective January 1, 1998 and were announced in the *Official Gazette* at 1205 O.G. 3, on December 2, 1997.

Certain domestic PCT fees and charges for International Search and Preliminary Examination were changed, effective October 1, 1997, and were announced in the *Official Gazette* at 1201 O.G. 63, on August 19, 1997.

The schedule of PCT fees (in U.S. dollars), effective January 1, 1998, is as follows:

International Application (PCT Chapter I) fees:	
Transmittal fee	240.00
Search Fee	
U.S. Patent and Trademark Office (USPTO) as International Searching Authority (ISA)	
— No corresponding prior U.S. national application filed under 35 U.S.C. 111(a)	700.00
— Corresponding prior U.S. national application filed under 35 U.S.C. 111(a)	450.00
— Supplemental search fee, per additional invention (payable only upon invitation)	210.00
European Patent Office as ISA	1250.00
International fees	
Basic fee	455.00
Basic supplemental fee (for each page over 30)	10.00
Designation fee per country or region	
— For the first 11 national or regional offices designated	105.00
— For each designation in excess of 11 offices	No Charge
Precautionary designation fee and confirmation fee for each precautionary designation confirmed (PCT Rule 15.5)	
— Designation fee	105.00
— Confirmation fee	52.50
International Application (PCT Chapter II) fees associated with filing a Demand for Preliminary Examination:	
Handling fee	162.00
Preliminary examination fee	
USPTO as International Preliminary Examining Authority (IPEA)	
— USPTO was ISA in PCT Chapter I	490.00
— Additional examination fee, per additional invention (payable only upon invitation)	140.00
— USPTO was not ISA in PCT Chapter I	750.00
— Additional examination fee, per additional invention (payable only upon invitation)	270.00

U.S. National Stage Fees	Small Entity	Regular
Basic National fee		
USPTO was IPEA		
— All claims presented satisfied provisions of PCT Article 33(2) to (4)	49.00	98.00
— All claims presented did not satisfy provisions of PCT Article 33(2) to (4)	360.00	720.00
USPTO was ISA but not IPEA	395.00	790.00
USPTO was neither ISA nor IPEA		
— Search report has not been prepared by the European Patent Office or the Japanese Patent Office	535.00	1070.00
— Search report has been prepared by the European Patent Office or the Japanese Patent Office	465.00	930.00
Other National fees		
— For each independent claim in excess of 3	41.00	82.00
— For each claim in excess of 20	11.00	22.00
— For each application containing a multiple dependent claim	135.00	270.00
— Surcharge for filing oath or declaration after the time limit applicable under PCT Article 22 or 39(l)	65.00	130.00
— Processing fee for filing English translation after the time limit applicable under PCT Article 22 or 39(l)	130.00	130.00

Nov. 10, 1997

BRUCE A. LEHMAN
Assistant Secretary of Commerce and Commissioner of Patents and Trademarks

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Notice of Maintenance Fees Payable

Title 37 Code of Federal Regulations (CFR), Section 1.362(d) provides that maintenance fees may be paid without surcharge for the six-month period beginning 3, 7, and 11 years after the date of issue of patents based on applications filed on or after Dec. 12, 1980. An additional six-month grace period is provided by 35 U.S.C. 41(b) and 37 CFR 1.362(e) for payment of the maintenance fee with the surcharge set forth in 37 CFR 1.20(h), as amended effective Dec. 16, 1991. If the maintenance fee is not paid in the patent requiring such payment the patent will expire on the 4th, 8th, or 12th anniversary of the grant.

Attention is drawn to the patents which were issued on March 7, 1995 for which maintenance fees due at 3 years and six

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months may now be paid. The patents have patent numbers within the following ranges:

Utility Patents 5,394,563 through 5,396,660
Reissue Patents based on the above identified patents.

Attention is drawn to the patents which were issued on March 5, 1991 for which maintenance fees due at 7 years and six months may now be paid. The patents have patent numbers within the following ranges:

Utility Patents 4,996,720 through 4,998,295
Reissue Patents based on the above identified patents.

Attention is drawn to the patents which were issued on March 3, 1987 for which maintenance fees due at 11 years and six months may now be paid. The patents have patent numbers within the following ranges:

Utility Patents 4,646,362 through 4,648,135
Reissue Patents based on the above identified patents.

No maintenance fees are required for design or plant patents.

Payments of maintenance fees in patents should be directed to "Commissioner of Patents and Trademarks, Box M. Fee, Washington, D.C. 20231."

For patents based on applications filed on or after Dec. 12, 1980, but before Aug. 27, 1982, patent owners must establish small entity status according to 37 CFR 1.27 if they have not done so and if they wish to pay the small entity amount.

The current amounts of the maintenance fees due at 3 years and six months, 7 years and six months, and 11 years and six months are set forth in 37 CFR 1.20(e)-(g), as amended Oct. 1, 1997, which are reproduced below:

37 CFR § 1.20 Post-issuance fees

(e) For maintaining an original or reissue patent, except a design or plant patent, based on an application filed on or after Dec. 12, 1980, in force beyond 4 years; the fee is due by three years and six months after the original grant:

By a small entity (§ 1.9(f)) $525.00
By other than a small entity $1,050.00

(f) For maintaining an original or reissue patent, except a design or plant patent, based on an application filed on or after Dec. 12, 1980 in force beyond 8 years; the fee is due by seven years and six months after the original grant:

By a small entity (§ 1.9(f)) $1,050.00
By other than a small entity $2,100.00

(g) For maintaining an original or reissue patent, except a design or plant patent, based on applications filed on or after Dec. 12, 1980 in force beyond 12 years; the fee is due by eleven years and six months after the original grant:

By a small entity (§ 1.9(f)) $1,580.00
By other than a small entity $3,160.00

The amount of the surcharge for paying the maintenance fee during the grace period or after expiration of the patent are set forth in 37 CFR 1.20(h), and (i) which are reproduced below:

(h) Surcharge for paying a maintenance fee during the 6 month grace period following the expiration of three years and six months, seven years and six months, and eleven years and six months after the date of the original grant of a patent based on an application filed on or after Dec. 12, 1980:

By a small entity (§ 1.9(f)) $65.00
By other than a small entity $130.00

(i) Surcharge for accepting a maintenance fee after expiration of a patent for non-timely payment of a maintenance fee where the delay is shown to the satisfaction of the Commissioner to have been:

(1) unavoidable $700.00
(2) unintentional $1,640.00

Notice of Expiration of Patents Due to Failure to Pay Maintenance Fee

35 U.S.C. 41 and 37 CFR 1.362(g) provide that if the required maintenance fee and any applicable surcharge are not paid in a patent requiring such payment, the patent will expire at the end of the 4th, 8th or 12th anniversary of the grant of the patent depending on the first maintenance fee which was not paid.

According to the records of the Office, the patents listed below have expired due to failure to pay the required maintenance fee and any applicable surcharge.

PATENTS WHICH EXPIRED December 31, 1997
DUE TO FAILURE TO PAY MAINTENANCE FEES

Patent Number	Serial Number	Issue Date
Re. 32,821	07/009,253	01/03/89
(4,562,356)	(06/641,835)	(12/31/85)
4,561,121	06/651,803	12/31/85
4,561,138	06/566,224	12/31/85
4,561,139	06/572,349	12/31/85
4,561,143	06/632,489	12/31/85
4,561,146	06/539,646	12/31/85
4,561,149	06/293,883	12/31/85
4,561,152	06/572,664	12/31/85
4,561,164	06/577,315	12/31/85
4,561,170	06/626,572	12/31/85
4,561,171	06/481,396	12/31/85
4,561,185	06/594,091	12/31/85
4,561,190	06/557,293	12/31/85
4,561,194	06/672,665	12/31/85
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4,561,214	06/355,301	12/31/85
4,561,215	06/593,092	12/31/85
4,561,218	06/699,707	12/31/85
4,561,221	06/503,151	12/31/85
4,561,224	06/571,324	12/31/85
4,561,227	06/601,044	12/31/85
4,561,237	06/648,628	12/31/85
4,561,243	06/561,075	12/31/85
4,561,245	06/735,285	12/31/85
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4,561,250	06/346,249	12/31/85
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4,561,255	06/507,608	12/31/85
4,561,256	06/554,603	12/31/85
4,561,258	06/694,469	12/31/85
4,561,263	06/660,663	12/31/85
4,561,269	06/614,189	12/31/85
4,561,270	06/558,917	12/31/85
4,561,275	06/497,428	12/31/85
4,561,280	06/571,050	12/31/85
4,561,283	06/529,608	12/31/85
4,561,284	06/604,893	12/31/85
4,561,291	06/639,686	12/31/85
4,561,292	06/740,705	12/31/85
4,561,293	06/535,754	12/31/85
4,561,297	06/581,063	12/31/85
4,561,298	06/626,063	12/31/85
4,561,306	06/666,570	12/31/85
4,561,308	06/589,448	12/31/85
4,561,311	06/576,041	12/31/85
4,561,321	06/553,653	12/31/85
4,561,337	06/611,367	12/31/85
4,561,344	06/582,523	12/31/85
4,561,345	06/664,759	12/31/85
4,561,354	06/658,131	12/31/85
4,561,360	06/617,752	12/31/85
4,561,381	06/564,245	12/31/85
4,561,389	06/697,438	12/31/85
4,561,390	06/741,038	12/31/85
4,561,393	06/620,338	12/31/85
4,561,398	06/619,176	12/31/85
4,561,400	06/643,712	12/31/85
4,561,405	06/682,589	12/31/85
4,561,407	06/605,909	12/31/85
4,561,408	06/573,175	12/31/85

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4,561,412	06/650,111	12/31/85
4,561,414	06/626,176	12/31/85
4,561,425	06/574,732	12/31/85
4,561,429	06/540,837	12/31/85
4,561,432	06/532,361	12/31/85
4,561,451	06/410,205	12/31/85
4,561,454	06/620,538	12/31/85
4,561,456	06/570,034	12/31/85
4,561,457	06/585,210	12/31/85
4,561,462	06/696,846	12/31/85
4,561,466	06/439,283	12/31/85
4,561,467	06/665,171	12/31/85
4,561,472	06/591,588	12/31/85
4,561,476	06/659,606	12/31/85
4,561,478	06/595,966	12/31/85
4,561,480	06/654,848	12/31/85
4,561,491	06/671,310	12/31/85
4,561,495	06/645,824	12/31/85
4,561,498	06/591,858	12/31/85
4,561,499	06/639,713	12/31/85
4,561,500	06/561,985	12/31/85
4,561,501	06/508,709	12/31/85
4,561,505	06/502,489	12/31/85
4,561,506	06/512,864	12/31/85
4,561,512	06/613,994	12/31/85
4,561,513	06/622,119	12/31/85
4,561,517	06/476,134	12/31/85
4,561,525	06/549,307	12/31/85
4,561,526	06/453,813	12/31/85
4,561,527	06/575,742	12/31/85
4,561,534	06/658,354	12/31/85
4,561,535	06/581,072	12/31/85
4,561,537	06/524,056	12/31/85
4,561,542	06/674,360	12/31/85
4,561,550	06/533,213	12/31/85
4,561,551	06/526,324	12/31/85
4,561,561	06/650,509	12/31/85
4,561,564	06/643,685	12/31/85
4,561,573	06/410,010	12/31/85
4,561,574	06/592,132	12/31/85
4,561,582	06/401,608	12/31/85
4,561,583	06/605,011	12/31/85
4,561,586	06/646,747	12/31/85
4,561,590	06/453,995	12/31/85
4,561,595	06/495,338	12/31/85
4,561,603	06/694,952	12/31/85
4,561,614	06/447,695	12/31/85
4,561,616	06/625,854	12/31/85
4,561,619	06/578,795	12/31/85
4,561,620	06/604,683	12/31/85
4,561,628	06/645,073	12/31/85
4,561,638	06/687,949	12/31/85
4,561,640	06/586,135	12/31/85
4,561,649	06/540,504	12/31/85
4,561,668	06/597,082	12/31/85
4,561,671	06/491,142	12/31/85
4,561,673	06/560,845	12/31/85
4,561,677	06/581,718	12/31/85
4,561,680	06/756,575	12/31/85
4,561,690	06/524,581	12/31/85
4,561,693	06/503,227	12/31/85
4,561,701	06/541,731	12/31/85
4,561,702	06/608,605	12/31/85
4,561,704	06/584,989	12/31/85
4,561,705	06/486,364	12/31/85
4,561,711	06/685,651	12/31/85
4,561,713	06/528,430	12/31/85
4,561,721	06/564,097	12/31/85
4,561,739	06/740,311	12/31/85
4,561,744	06/673,061	12/31/85
4,561,747	06/620,707	12/31/85
4,561,757	06/708,202	12/31/85
4,561,762	06/560,113	12/31/85
4,561,770	06/624,781	12/31/85
4,561,781	06/615,617	12/31/85
4,561,783	06/717,464	12/31/85
4,561,789	06/623,292	12/31/85
4,561,791	06/746,012	12/31/85
4,561,793	06/586,913	12/31/85
4,561,810	06/560,396	12/31/85
4,561,813	06/501,217	12/31/85
4,561,814	06/281,602	12/31/85
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4,561,847	06/599,667	12/31/85
4,561,855	06/416,308	12/31/85
4,561,858	06/491,256	12/31/85
4,561,864	06/660,020	12/31/85
4,561,867	06/679,903	12/31/85
4,561,873	06/677,253	12/31/85
4,561,874	06/648,809	12/31/85
4,561,889	06/545,245	12/31/85
4,561,892	06/617,010	12/31/85
4,561,897	06/641,529	12/31/85
4,561,899	06/673,925	12/31/85
4,561,903	06/672,145	12/31/85
4,561,909	06/551,503	12/31/85
4,561,911	06/645,764	12/31/85
4,561,916	06/627,031	12/31/85
4,561,919	06/641,614	12/31/85
4,561,929	06/696,700	12/31/85
4,561,940	06/629,257	12/31/85
4,561,941	06/444,783	12/31/85
4,561,943	06/628,265	12/31/85
4,561,946	06/637,889	12/31/85
4,561,949	06/526,936	12/31/85
4,561,952	06/590,139	12/31/85
4,561,953	06/622,422	12/31/85
4,561,959	06/559,660	12/31/85
4,561,960	06/668,242	12/31/85
4,561,962	06/674,720	12/31/85
4,561,971	06/664,187	12/31/85
4,561,974	06/576,408	12/31/85
4,561,975	06/468,704	12/31/85
4,561,983	06/638,595	12/31/85
4,561,985	06/392,712	12/31/85
4,561,988	06/666,337	12/31/85
4,561,989	06/635,578	12/31/85
4,561,995	06/363,784	12/31/85
4,562,008	06/459,947	12/31/85
4,562,011	06/555,720	12/31/85
4,562,015	06/612,923	12/31/85
4,562,017	06/532,151	12/31/85
4,562,018	06/695,721	12/31/85
4,562,019	06/636,063	12/31/85
4,562,022	06/490,070	12/31/85
4,562,028	06/610,047	12/31/85
4,562,029	06/696,953	12/31/85
4,562,030	06/543,181	12/31/85
4,562,035	06/320,978	12/31/85
4,562,036	06/526,765	12/31/85
4,562,040	06/721,663	12/31/85
4,562,041	06/512,094	12/31/85
4,562,063	06/680,426	12/31/85
4,562,065	06/680,425	12/31/85
4,562,066	06/680,424	12/31/85
4,562,067	06/570,138	12/31/85
4,562,071	06/498,237	12/31/85
4,562,077	06/543,347	12/31/85
4,562,080	06/634,767	12/31/85
4,562,081	06/600,167	12/31/85
4,562,082	06/589,624	12/31/85
4,562,089	06/663,760	12/31/85
4,562,090	06/556,291	12/31/85
4,562,091	06/668,360	12/31/85
4,562,094	06/719,598	12/31/85
4,562,097	06/556,573	12/31/85
4,562,101	06/489,594	12/31/85
4,562,103	06/434,234	12/31/85
4,562,105	06/595,021	12/31/85
4,562,119	06/641,893	12/31/85
4,562,120	06/640,409	12/31/85
4,562,123	06/649,605	12/31/85
4,562,129	06/534,144	12/31/85
4,562,137	06/454,396	12/31/85

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4,562,142	06/655,435	12/31/85
4,562,147	06/503,824	12/31/85
4,562,149	06/463,990	12/31/85
4,562,154	06/522,545	12/31/85
4,562,156	06/512,857	12/31/85
4,562,159	06/249,369	12/31/85
4,562,162	06/665,388	12/31/85
4,562,173	06/675,557	12/31/85
4,562,178	06/683,676	12/31/85
4,562,190	06/627,612	12/31/85
4,562,192	06/576,700	12/31/85
4,562,193	06/512,144	12/31/85
4,562,194	06/636,204	12/31/85
4,562,196	06/597,732	12/31/85
4,562,201	06/401,751	12/31/85
4,562,206	06/587,444	12/31/85
4,552,208	06/466,694	12/31/85
4,562,213	06/491,727	12/31/85
4,562,222	06/683,659	12/31/85
4,562,228	06/727,200	12/31/85
4,562,230	06/550,764	12/31/85
4,562,232	06/685,378	12/31/85
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4,562,271	06/652,921	12/31/85
4,562,272	06/248,268	12/31/85
4,562,275	06/592,987	12/31/85
4,562,282	06/745,639	12/31/85
4,562,283	06/681,593	12/31/85
4,562,288	06/574,092	12/31/85
4,562,289	06/714,731	12/31/85
4,562,292	06/524,528	12/31/85
4,562,299	06/680,833	12/31/85
4,562,310	06/594,931	12/31/85
4,562,315	06/652,802	12/31/85
4,562,316	06/618,265	12/31/85
4,562,317	06/635,530	12/31/85
4,562,320	06/216,498	12/31/85
4,562,324	06/594,714	12/31/85
4,562,328	06/648,684	12/31/85
4,562,336	06/576,901	12/31/85
4,562,338	06/514,271	12/31/85
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4,889,791	07/304,790	12/26/89

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4,889,793	07/104,208	12/26/89
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5,272,967	07/819,117	12/28/93
5,272,968	07/947,547	12/28/93
5,272,971	07/929,984	12/28/93
5,272,979	07/859,407	12/28/93
5,272,981	07/907,043	12/28/93
5,272,984	07/975,788	12/28/93
5,272,989	07/818,070	12/28/93
5,272,993	07/945,735	12/28/93

Patent Number	Serial Number	Issue Date
5,272,996	07/915,815	12/28/93
5,272,998	06/836,118	12/28/93
5,272,999	07/983,239	12/28/93
5,273,004	07/990,027	12/28/93
5,273,007	07/955,722	12/28/93
5,273,011	07/964,961	12/28/93
5,273,013	08/033,806	12/28/93
5,273,014	07/893,419	12/28/93
5,273,021	07/684,822	12/28/93
5,273,038	07/801,914	12/28/93
5,273,050	07/789,089	12/28/93
5,273,055	07/989,529	12/28/93
5,273,057	08/005,239	12/28/93
5,273,059	07/830,075	12/28/93
5,273,067	07/773,967	12/28/93
5,273,072	07/841,389	12/28/93
5,273,084	07/859,876	12/28/93
5,273,092	07/856,182	12/28/93
5,273,094	07/726,386	12/28/93
5,273,106	07/918,217	12/28/93
5,273,108	07/964,092	12/28/93
5,273,125	07/879,600	12/28/93
5,273,126	07/752,599	12/28/93
5,273,127	07/686,742	12/28/93
5,273,137	07/944,609	12/28/93
5,273,150	07/857,926	12/28/93
5,273,158	07/979,330	12/28/93
5,273,160	08/014,728	12/28/93
5,273,164	07/953,859	12/28/93
5,273,168	07/971,306	12/28/93
5,273,177	07/916,465	12/28/93
5,273,178	08/050,728	12/28/93
5,273,179	07/945,696	12/28/93
5,273,183	07/839,471	12/28/93
5,273,185	07/935,498	12/28/93
5,273,190	07/919,940	12/28/93
5,273,193	07/318,641	12/28/93
5,273,203	08/038,418	12/28/93
5,273,204	07/173,468	12/28/93
5,273,208	07/989,161	12/28/93
5,273,210	07/848,348	12/28/93
5,273,217	07/793,118	12/28/93
5,273,218	07/811,883	12/28/93
5,273,221	07/887,120	12/28/93
5,273,230	07/804,636	12/28/93
5,273,233	07/829,377	12/28/93
5,273,234	07/921,974	12/28/93
5,273,238	07/987,843	12/28/93
5,273,240	07/876,366	12/28/93
5,273,246	07/946,287	12/28/93
5,273,247	07/970,789	12/28/93
5,273,248	07/973,297	12/28/93
5,273,255	07/769,877	12/28/93
5,273,260	07/794,404	12/28/93
5,273,267	07/792,366	12/28/93
5,273,271	08/051,188	12/28/93
5,273,275	07/896,158	12/28/93
5,273,282	08/024,510	12/28/93
5,273,283	07/912,828	12/28/93
5,273,284	07/952,356	12/28/93
5,273,289	07/923,623	12/28/93
5,273,290	07/909,037	12/28/93
5,273,291	08/037,365	12/28/93
5,273,296	07/851,685	12/28/93
5,273,297	07/901,066	12/28/93
5,273,298	07/973,274	12/28/93
5,273,300	07/883,132	12/28/93
5,273,304	07/958,810	12/28/93
5,273,305	07/803,481	12/28/93
5,273,306	07/969,233	12/28/93
5,273,313	07/886,411	12/28/93
5,273,318	07/960,205	12/28/93
5,273,320	07/823,263	12/28/93
5,273,327	07/841,995	12/28/93
5,273,329	07/979,528	12/28/93
5,273,331	08/055,183	12/28/93
5,273,332	07/882,425	12/28/93
5,273,335	07/973,062	12/28/93
5,273,337	08/011,895	12/28/93
5,273,338	07/899,080	12/28/93
5,273,339	07/940,014	12/28/93
5,273,345	07/942,414	12/28/93
5,273,351	07/983,416	12/28/93
5,273,355	07/872,437	12/28/93
5,273,356	07/995,979	12/28/93
5,273,360	07/994,458	12/28/93
5,273,371	07/908,090	12/28/93
5,273,374	07/784,399	12/28/93
5,273,384	07/949,795	12/28/93
5,273,389	07/852,968	12/28/93
5,273,396	07/902,346	12/28/93
5,273,399	07/568,882	12/28/93
5,273,404	07/901,120	12/28/93
5,273,406	07/758,749	12/28/93
5,273,412	08/057,411	12/28/93
5,273,430	07/999,270	12/28/93
5,273,435	07/915,473	12/28/93
5,273,449	07/922,460	12/28/93
5,273,454	07/962,606	12/28/93
5,273,461	07/936,624	12/28/93
5,273,462	07/768,277	12/28/93
5,273,465	08/016,325	12/28/93
5,273,466	07/863,778	12/28/93
5,273,468	08/020,381	12/28/93
5,273,469	07/847,950	12/28/93
5,273,471	07/931,833	12/28/93
5,273,480	07/966,880	12/28/93
5,273,484	07/839,562	12/28/93
5,273,487	07/995,786	12/28/93
5,273,491	07/784,413	12/28/93
5,273,497	07/962,404	12/28/93
5,273,499	07/781,260	12/28/93
5,273,501	07/930,722	12/28/93
5,273,503	08/067,377	12/28/93
5,273,512	07/927,093	12/28/93
5,273,515	07/918,263	12/28/93
5,273,519	07/781,559	12/28/93
5,273,520	07/757,844	12/28/93
5,273,528	07/911,486	12/28/93
5,273,529	07/985,891	12/28/93
5,273,533	07/849,520	12/28/93
5,273,538	08/019,609	12/28/93
5,273,539	08/024,211	12/28/93
5,273,542	07/944,455	12/28/93
5,273,544	07/896,310	12/28/93
5,273,555	07/956,099	12/28/93
5,273,561	07/996,324	12/28/93
5,273,569	07/433,829	12/28/93
5,273,606	07/807,610	12/28/93
5,273,612	07/959,412	12/28/93
5,273,618	07/721,549	12/28/93
5,273,619	07/875,538	12/28/93
5,273,620	07/881,071	12/28/93
5,273,625	07/844,323	12/28/93
5,273,627	07/649,269	12/28/93
5,273,647	07/807,443	12/28/93
5,273,648	07/913,219	12/28/93
5,273,649	07/772,098	12/28/93
5,273,652	07/912,237	12/28/93
5,273,673	07/937,011	12/28/93
5,273,674	07/952,908	12/28/93
5,273,679	07/684,175	12/28/93
5,273,682	07/628,362	12/28/93
5,273,684	08/035,522	12/28/93
5,273,688	07/803,931	12/28/93
5,273,690	07/901,952	12/28/93
5,273,697	08/045,192	12/28/93
5,273,702	07/790,222	12/28/93
5,273,707	07/798,863	12/28/93
5,273,709	07/933,859	12/28/93
5,273,719	07/901,853	12/28/93
5,273,728	07/825,794	12/28/93
5,273,734	07/464,049	12/28/93
5,273,736	07/958,634	12/28/93
5,273,743	07/808,193	12/28/93
5,273,748	07/497,125	12/28/93

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Patent Number	Serial Number	Issue Date
5,273,753	07/730,884	12/28/93
5,273,761	07/831,710	12/28/93
5,273,765	08/016,050	12/28/93
5,273,781	07/745,187	12/28/93
5,273,782	07/926,433	12/28/93
5,273,785	07/746,642	12/28/93
5,273,786	07/768,865	12/28/93
5,273,795	08/034,107	12/28/93
5,273,797	07/464,812	12/28/93
5,273,798	07/739,187	12/28/93
5,273,808	07/586,680	12/28/93
5,273,818	07/784,617	12/28/93
5,273,836	07/885,906	12/28/93
5,273,852	07/848,099	12/28/93
5,273,853	07/536,841	12/28/93
5,273,867	07/898,144	12/28/93
5,273,883	07/977,694	12/28/93
5,273,887	07/496,155	12/28/93
5,273,891	07/773,997	12/28/93
5,273,895	07/966,705	12/28/93
5,273,911	07/846,793	12/28/93
5,273,913	07/980,155	12/28/93
5,273,918	07/823,052	12/28/93
5,273,931	07/894,308	12/28/93
5,273,948	07/903,334	12/28/93
5,273,953	07/663,911	12/28/93
5,273,957	07/801,456	12/28/93
5,273,958	07/871,788	12/28/93
5,273,959	07/971,239	12/28/93
5,273,976	07/964,662	12/28/93
5,273,978	07/992,004	12/28/93
5,273,979	07/738,997	12/28/93
5,273,980	07/951,624	12/28/93
5,273,986	07/907,987	12/28/93
5,273,988	07/854,144	12/28/93
5,273,989	07/683,068	12/28/93
5,273,991	07/921,888	12/28/93
5,273,997	07/897,667	12/28/93
5,273,998	07/963,383	12/28/93
5,274,003	07/837,229	12/28/93
5,274,022	07/838,033	12/28/93
5,274,023	07/429,431	12/28/93
5,274,031	07/435,057	12/28/93
5,274,039	07/918,999	12/28/93
5,274,040	07/961,948	12/28/93
5,274,042	07/834,623	12/28/93
5,274,044	07/920,695	12/28/93
5,274,046	08/001,926	12/28/93
5,274,052	07/903,473	12/28/93
5,274,065	07/967,012	12/28/93
5,274,070	07/698,410	12/28/93
5,274,084	07/980,677	12/28/93
5,274,086	07/806,374	12/28/93
5,274,088	07/908,259	12/28/93
5,274,093	07/930,307	12/28/93
5,274,096	07/852,593	12/28/93
5,274,097	07/682,785	12/28/93
5,274,098	07/864,547	12/28/93
5,274,099	07/596,984	12/28/93
5,274,108	07/993,789	12/28/93
5,274,123	07/956,027	12/28/93
5,274,126	07/893,771	12/28/93
5,274,129	07/714,265	12/28/93
5,274,133	08/006,605	12/28/93
5,274,136	07/907,342	12/28/93
5,274,139	08/023,379	12/28/93
5,274,145	07/654,973	12/28/93
5,274,148	07/926,426	12/28/93
5,274,154	08/079,789	12/28/93
5,274,160	08/004,923	12/28/93
5,274,172	07/903,305	12/28/93
5,274,178	07/995,081	12/28/93
5,274,185	07/912,824	12/28/93
5,274,204	07/769,634	12/28/93
5,274,214	07/997,973	12/28/93
5,274,215	07/970,922	12/28/93
5,274,216	07/541,129	12/28/93
5,274,223	07/948,582	12/28/93
5,274,226	07/977,474	12/28/93
5,274,238	07/868,395	12/28/93
5,274,256	07/943,117	12/28/93
5,274,266	08/015,040	12/28/93
5,274,283	07/726,183	12/28/93
5,274,291	07/833,297	12/28/93
5,274,298	07/811,605	12/28/93
5,274,299	07/895,572	12/28/93
5,274,304	07/861,547	12/28/93
5,274,318	07/922,199	12/28/93
5,274,332	06/551,626	12/28/93
5,274,344	07/878,912	12/28/93
5,274,352	07/901,873	12/28/93
5,274,357	07/831,861	12/28/93
5,274,358	07/947,349	12/28/93
5,274,359	08/003,651	12/28/93
5,274,362	08/034,797	12/28/93
5,274,367	07/566,389	12/28/93
5,274,379	07/915,302	12/28/93
5,274,381	07/955,165	12/28/93
5,274,385	07/900,877	12/28/93
5,274,390	07/802,961	12/28/93
5,274,397	07/699,887	12/28/93
5,274,401	07/896,504	12/28/93
5,274,404	07/687,730	12/28/93
5,274,405	07/755,025	12/28/93
5,274,435	07/841,421	12/28/93
5,274,439	07/861,147	12/28/93
5,274,447	07/856,750	12/28/93
5,274,508	07/776,240	12/28/93
5,274,527	07/812,639	12/28/93
5,274,531	07/716,093	12/28/93
5,274,533	07/645,652	12/28/93
5,274,535	07/960,527	12/28/93
5,274,548	07/706,394	12/28/93
5,274,563	07/855,003	12/28/93
5,274,564	07/760,386	12/28/93
5,274,570	08/047,387	12/28/93
5,274,573	07/681,228	12/28/93
5,274,582	07/724,267	12/28/93
5,274,606	07/858,170	12/28/93
5,274,607	07/964,652	12/28/93
5,274,650	07/813,682	12/28/93
5,274,672	07/785,963	12/28/93
5,274,688	07/863,807	12/28/93
5,274,693	07/554,133	12/28/93
5,274,696	07/680,952	12/28/93
5,274,708	07/890,762	12/28/93
5,274,710	07/798,504	12/28/93
5,274,711	07/436,428	12/28/93
5,274,719	07/889,884	12/28/93
5,274,724	07/850,931	12/28/93
5,274,736	07/599,696	12/28/93
5,274,774	07/879,059	12/28/93
5,274,789	07/660,486	12/28/93
5,274,821	07/938,302	12/28/93
5,274,823	07/860,829	12/28/93

Patents Reinstated Due to the Acceptance of a Late Maintenance Fee From 01/02/98

Patent Number	Serial Number	Filing Date	Issue Date	Granted Date
4,529,470	06/419,533	09/17/82	07/16/85	01/08/98
4,830,409	07/085,175	08/14/87	05/16/89	01/06/98

Patent Number	Serial Number	Filing Date	Issue Date	Granted Date
4,834,270	07/179,854	04/11/88	05/30/89	01/05/98
4,835,978	07/189,757	05/03/88	06/06/89	01/05/98
4,858,478	07/232,659	08/16/88	08/22/89	01/05/98
5,104,661	07/648,315	01/29/91	04/14/92	01/08/98
5,134,080	07/536,165	06/11/90	07/28/92	01/05/98
5,212,772	07/653,777	02/11/91	05/18/93	01/07/98
5,232,746	07/628580	12/17/90	08/03/93	01/05/98
5,250,139	07/846,961	03/06/92	10/05/93	01/05/98

Reissue Applications Filed

Notice under 37 CFR 1.11(b). The reissue applications listed below are open to inspection by the general public in the indicated Examining Groups and copies may be obtained by paying the fee therefor (37 CFR 1.12(b)).

5,171,383, Re. S.N. 08/950,602, Oct. 15, 1997, Cl. 148/564, METHOD OF MANUFACTURING A DIFFERENTIALLY HEAT TREATED CATHETER GUIDE WIRE, Kyuta Sagae, Owner of Record: *Terumo Kabushiki Kaisha, Tokyo, Japan,* Attorney or Agent: Barry E. Bretschneider, Ex. Gp.: 1304

5,458,903, Re. S.N. 08/947,416, Oct. 8, 1997, Cl. 426/551, HIGH FAT BISCUIT MIX AND PRODUCTS RESULTING THEREFROM, Cynthia A. Colson, et. al., Owner of Record: *The Pillsbury Co., Minneapolis, Minn.,* Attorney or Agent: John J. Gresens, Ex. Gp.: 1302

5,472,869, Re. S.N. 08/986,005, Dec. 5, 1997, Cl. 800/200, STABLE TRANSFORMATION OF MAIZE CELLS BY ELECTROPORATION, Richard A. Krzyzek, et. al., Owner of Record: *DeKalb Genetics Corp., DeKalb, Ill.,* Attorney or Agent: Henry L. Brinks, Ex. Gp.: 1803

5,475,539, Re. S.N. 08/988,743, Dec. 11, 1997, Cl. 360/035.1, IMAGE DATA RECORDING SYSTEM INCLUDING MEMORY CARD, Masaharu Orii, Owner of Record: *Casio Computer Co., Ltd., Tokyo, Japan,* Attorney or Agent: Thomas Langer, Ex. Gp.: 2513

5,487,232, Re. S.N. 08/994,595, Dec. 19, 1997, Cl. 042/051, DETONATOR ASSEMBLY, William E. Osborne, et. al., Owner of Record: *The Marlin Firearms Co.,* Attorney or Agent: Guy D. Yale, Ex. Gp.: 2201

5,563,483, Re. S.N. 08/990,822, Dec. 15, 1997, Cl. 318/283, CONTROL FUNCTION-POWER OPERATED LIFT GATE, David J. Kowall, et. al., Owner of Record: *Chrysler Corp., Auburn Hills, Mich.,* Attorney or Agent: Gregory A. Stobbs, Ex. Gp.: 2107

Requests for Reexamination Filed

Notice under 37 CFR 1.11(c). The requests for reexamination listed below are open to inspection by the general public in the indicated Examining Groups. Copies of the requests and related papers may be obtained by paying the fee therefor established in the Rules (37 CFR 1.19(a)).

In the event correspondence to the patent owner is not received, this notice will be considered to be constructive notice to the patent owner and reexamination will proceed (37 CFR 1.248(a)(5) and 1.525(b)).

D. 336,885, Reexam. No. 90/004,884, Sept. 19, 1997, Cl. D12/203, COMBINED VEHICLE RUNNING BOARD AND FENDER FLARE UNIT, Marvin A. Hart, et. al., Owner of Record: *Prestigious Accessories, Inc., Winona, Tex.,* Attorney or Agent: Daniel V. Thompson, Thompson and Howison, Dallas, Tex., Ex. Gp.: 2904, Requester: Owner

4,317,227, Reexam. No. 90/004,886, Jan. 2, 1998, Cl. 029/860, MULTI-MODE AUTOMATIC CHANNEL FREQUENCY SYNTHESIS SYSTEM, Peter C. Skerlos, Owner of Record: *Zenith Electronics Corp., Glenview, Ill.,* Attorney or Agent: Thomas E. Hill, John H. Coult, Zenith Electronics Corp., Glenview, Ill., Ex. Gp.: 3641, Requester: Sughrue Mion Zinn MacPeak and Seas, Washington, D.C.

4,903,695, Reexam. No. 90/004,888, Jan. 9, 1998, Cl. 606/004, METHOD AND APPARATUS FOR PERFORMING A KERATOMILEUSIS OR THE LIKE OPERATION, John W. Warner, et. al., Owner of Record: *Visx Inc., Santa Clara, Calif.,* Attorney or Agent: Hopgood Calimafde Kalil Blaustein and Judlowe, New York, N.Y., Ex. Gp.: 3309, Requester: Fulbright and Jaworski, Washington, D.C.

4,963,952, Reexam. No. 90/004,890, Jan. 9, 1998, Cl. 257/228, MULTIPINNED PHASE CHARGE-COUPLED DEVICE, James R. Janesick, Owner of Record: *California Institute of Technology, Pasadena, Calif.,* Attorney or Agent: Smith-Hill and Bedell, Portland, Oreg., Ex. Gp.: 2508, Requester: Owner

5,108,388, Reexam. No. 90/004,889, Jan. 9, 1998, Cl. 606/005, LASER SURGERY METHOD, Stephen L. Trokel, Owner of Record: *Visx, Inc., Santa Clara, Calif.,* Attorney or Agent: Oblon Spivak McClelland Maier and Neustadt, Arlington, Va., Ex. Gp.: 3309, Requester: Fulbright and Jaworski, Washington, D.C.

5,153,977, Reexam. No. 90/004,885, Dec. 30, 1997, Cl. 029/455.1, METHOD FOR MAKING DOUBLE-WALLED INSULATING METAL CONTAINER, Shouji Toida, et. al., Owner of Record: *Nippon Sanso Corp., Tokyo, Japan,* Attorney or Agent: Scully Scott Murphy and Presser, Garden City, N.Y., Ex. Gp.: 3641, Requester: Richardson and Folise, Michael J. Folise, Seattle, Washington

5,215,393, Reexam. No. 90/004,887, Jan. 8, 1998, Cl. 400/621, DOCUMENT FEEDING DEVICE, Tommy Wincent, Owner of Record: *Swecoin AB, Stockholm, Sweden,* Attorney or Agent: Rockey Milnamow and Katz, Ltd., Chicago, Ill., Ex. Gp.: 3307, Requester: Owner

5,626,160. Reexam. No. 90/004,827, Nov. 5, 1997, Cl. 135/024, UMBRELLA HAVING MEANS FOR OPENING AND CLOSING THE SAME AUTOMATICALLY, Chin-Sung Ko, Owner of Record: *Inventor,* Attorney or Agent: Beveridge DeGrandi Weilacher and Young, Washington, D.C., Ex. Gp.: 3621, Requester: Bruce H. Troxell, Bacon and Thomas, Alexandria, Va.

Notice of Expiration of Trademark Registrations Due To Failure to Renew

15 U.S.C. 1059 provides that each trademark registration may be renewed for periods of ten years from the end of the expiring period upon payment of the prescribed fee and the filing of an acceptable application for renewal. This may be done at any time within six months before the expiration of the period for which the registration was issued or renewed, or it may be done within three months after such expiration on payment of an additional fee.

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According to the records of the Office, the trademark registrations listed below are expired due to failure to renew in accordance with 15 U.S.C. 1059.

TRADEMARK REGISTRATIONS WHICH EXPIRED
DECEMBER 29, 1997
DUE TO FAILURE TO RENEW

Reg. Number	Serial Number	Reg. Date
115,937	71/098,938	03/27/1917
344,380	71/382,823	03/23/1937
344,385	71/383,390	03/23/1937
344,399	71/384,468	03/23/1937
344,400	71/384,495	03/23/1937
344,419	71/385,389	03/23/1937
344,424	71/385,532	03/23/1937
344,426	71/385,568	03/23/1937
344,433	71/385,685	03/23/1937
344,466	71/384,896	03/23/1937
344,469	71/384,956	03/23/1937
344,484	71/386,340	03/23/1937
643,093	72/008,720	03/26/1957
643,097	72/012,868	03/26/1957
643,102	72/008,158	03/26/1957
643,104	72/011,278	03/26/1957
643,106	72/010,285	03/26/1957
643,107	71/699,675	03/26/1957
643,112	71/688,153	03/26/1957
643,118	72/005,072	03/26/1957
643,122	72/008,508	03/26/1957
643,125	72/011,966	03/26/1957
643,127	71/699,500	03/26/1957
643,149	72/013,718	03/26/1957
643,165	72/009,316	03/26/1957
643,183	72/012,316	03/26/1957
643,190	72/008,058	03/26/1957
643,194	72/013,046	03/26/1957
643,195	72/013,234	03/26/1957
643,196	72/013,238	03/26/1957
643,202	72/002,885	03/26/1957
643,207	72/008,572	03/26/1957
643,219	72/011,782	03/26/1957
643,224	71/697,828	03/26/1957
643,226	71/700,019	03/26/1957
643,230	72/008,450	03/26/1957
643,235	72/013,004	03/26/1957
643,240	72/012,128	03/26/1957
643,250	72/011,330	03/26/1957
643,253	72/013,760	03/26/1957
643,254	72/004,267	03/26/1957
643,258	72/004,268	03/26/1957
643,261	72/007,803	03/26/1957
643,269	72/004,266	03/26/1957
643,279	72/004,972	03/26/1957
643,282	72/002,958	03/26/1957
643,283	72/004,985	03/26/1957
643,287	72/007,861	03/26/1957
643,289	72/011,851	03/26/1957
643,293	72/012,821	03/26/1957
643,294	71/687,035	03/26/1957
643,298	71/700,576	03/26/1957
643,302	72/007,170	03/26/1957
643,307	72/010,597	03/26/1957
643,309	72/011,135	03/26/1957
643,313	72/011,301	03/26/1957
643,324	72/002,863	03/26/1957
643,330	72/011,809	03/26/1957
643,337	72/010,088	03/26/1957
643,339	71/693,686	03/26/1957
643,355	72/004,876	03/26/1957
643,357	72/006,780	03/26/1957
643,360	72/008,807	03/26/1957
643,369	72/010,523	03/26/1957
643,374	72/011,122	03/26/1957
643,378	71/659,057	03/26/1957
643,384	72/006,439	03/26/1957
643,386	72/008,687	03/26/1957
643,387	72/008,688	03/26/1957
643,389	72/009,366	03/26/1957
643,390	71/697,319	03/26/1957
643,396	72/010,851	03/26/1957
643,398	72/005,985	03/26/1957
643,405	71/669,730	03/26/1957
643,408	71/669,731	03/26/1957
1,061,473	73/061,183	03/22/1977
1,061,481	73/097,886	03/22/1977
1,061,482	73/070,324	03/22/1977
1,061,483	73/075,824	03/22/1977
1,061,485	73/012,672	03/22/1977
1,061,486	73/025,583	03/22/1977
1,061,489	73/075,826	03/22/1977
1,061,491	73/078,350	03/22/1977
1,061,494	73/089,046	03/22/1977
1,061,497	73/096,959	03/22/1977
1,061,498	73/097,154	03/22/1977
1,061,499	73/096,488	03/22/1977
1,061,500	73/096,489	03/22/1977
1,061,503	73/080,589	03/22/1977
1,061,504	73/082,077	03/22/1977
1,061,505	73/084,294	03/22/1977
1,061,514	73/071,761	03/22/1977
1,061,517	73/089,786	03/22/1977
1,061,518	73/095,262	03/22/1977
1,061,520	73/097,362	03/22/1977
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1,061,615	73/092,650	03/22/1977
1,061,617	73/062,309	03/22/1977
1,061,622	73/074,206	03/22/1977
1,061,627	73/086,313	03/22/1977
1,061,632	73/093,680	03/22/1977
1,061,635	73/037,558	03/22/1977
1,061,636	73/040,249	03/22/1977
1,061,637	73/050,676	03/22/1977
1,061,638	73/051,418	03/22/1977
1,061,641	73/062,029	03/22/1977
1,061,642	73/067,595	03/22/1977
1,061,644	73/069,994	03/22/1977
1,061,647	73/075,321	03/22/1977
1,061,649	73/080,636	03/22/1977
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1,061,659	73/088,137	03/22/1977
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1,061,665	73/091,670	03/22/1977
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1,061,668	73/094,309	03/22/1977
1,061,671	73/094,661	03/22/1977
1,061,674	73/086,907	03/22/1977
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1,061,679	73/090,650	03/22/1977
1,061,680	73/092,233	03/22/1977
1,061,681	73/057,503	03/22/1977
1,061,686	73/089,694	03/22/1977
1,061,692	73/047,927	03/22/1977
1,061,695	73/063,862	03/22/1977
1,061,696	73/064,403	03/22/1977
1,061,699	73/071,882	03/22/1977
1,061,701	73/081,119	03/22/1977
1,061,702	73/081,120	03/22/1977
1,061,703	73/092,209	03/22/1977
1,061,704	73/092,211	03/22/1977
1,061,705	73/092,212	03/22/1977
1,061,706	73/092,213	03/22/1977
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1,061,708	73/062,953	03/22/1977
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1,061,717	73/093,145	03/22/1977
1,061,718	73/093,146	03/22/1977
1,061,719	73/093,147	03/22/1977
1,061,721	73/012,741	03/22/1977
1,061,722	73/048,394	03/22/1977
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1,061,734	73/074,858	03/22/1977
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1,061,751	73/093,222	03/22/1977
1,061,755	73/023,702	03/22/1977
1,061,761	73/035,979	03/22/1977
1,061,772	73/095,020	03/22/1977
1,061,773	73/095,839	03/22/1977
1,061,779	73/068,805	03/22/1977
1,061,780	73/069,304	03/22/1977
1,061,781	73/070,133	03/22/1977
1,061,782	73/071,821	03/22/1977
1,061,786	73/088,601	03/22/1977
1,061,787	73/090,038	03/22/1977
1,061,788	73/093,944	03/22/1977
1,061,789	73/064,757	03/22/1977
1,061,800	73/055,392	03/22/1977
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1,061,805	73/092,756	03/22/1977
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1,061,809	73/098,847	03/22/1977
1,061,810	73/098,850	03/22/1977
1,061,811	73/098,851	03/22/1977
1,061,813	73/098,856	03/22/1977
1,061,815	73/099,056	03/22/1977
1,061,816	73/099,057	03/22/1977
1,061,818	73/079,356	03/22/1977
1,061,823	73/080,696	03/22/1977
1,061,827	73/063,012	03/22/1977
1,061,829	73/069,847	03/22/1977
1,061,834	73/089,517	03/22/1977
1,061,841	73/069,745	03/22/1977
1,061,846	73/088,380	03/22/1977
1,061,847	73/095,470	03/22/1977
1,061,849	73/065,903	03/22/1977
1,061,854	73/096,459	03/22/1977
1,061,857	73/062,076	03/22/1977
1,061,860	73/071,264	03/22/1977
1,061,866	73/095,681	03/22/1977
1,061,873	73/078,386	03/22/1977
1,061,875	73/079,672	03/22/1977
1,061,888	73/097,063	03/22/1977
1,061,896	73/077,150	03/22/1977
1,061,897	73/059,057	03/22/1977
1,061,901	73/051,097	03/22/1977
1,061,902	73/057,655	03/22/1977
1,061,903	73/058,150	03/22/1977
1,061,905	73/072,428	03/22/1977
1,061,908	73/084,098	03/22/1977
1,061,909	73/087,085	03/22/1977
1,061,910	73/058,833	03/22/1977
1,061,911	73/077,877	03/22/1977
1,061,914	73/049,213	03/22/1977
1,061,916	73/068,760	03/22/1977

Service by Publication

A petition to cancel the registrations identified below having been filed, and the notice of such proceeding sent by certified mail to registrants at their last known address having been returned by the Postal Service as undeliverable, notice is hereby given that unless the registrants listed herein, their assigns or legal representatives, shall enter an appearance within thirty days of this publication, the cancellation will proceed as in the case of default.

Olde World Cheese Shop, Inc., South Pasadena, Fla., Reg. No. 1,348,723, for the mark "THE OLDE WORLD CHEESE SHOP", Canc. No. 22,770.

Flair-Fold Inc., East Farmingdale, N.Y., Reg. No. 1,106,680, for the mark "FLAIR-FOLD REGENCY", Canc. No. 25,905.

JEAN BROWN
Technical Program Manager
Trademark Trial
and Appeal Board, for
ROBERT M. ANDERSON
Deputy Assistant Commissioner
for Trademarks

Patents Available For License or Sale

29/078,953 DIGITAL WATCH

Contact: Russell B. Coplen
2832 Santa Paula Ct.
Sacramento, Calif. 95821
(voice) : (916) 488-5218

08/851,213 ADJUSTABLE AUXILIARY AUTOMOTIVE SUNVISOR

Contact: Richard Wantz
Kessler Corp.
North Town Business Center
1525 Port Clinton Rd.
Fremont, Ohio 43420
(voice) : (800) 537-1133
(other) : (419) 332-6496

4,467,545 PERSONALIZED SAFETY METHOD AND APPARATUS FOR A HAND HELD WEAPON

Contact: Fred Shaw
P.O. Box 573
Gloucester, Mass. 01930
(voice) : (978) 281-5664

5,592,742 CUTTING EDGE ARRANGEMENT

Contact: Paul A. Schnose
Evenson McKeown Edwards & Lenahan
1200 G St., N.W., Suite 700
Washington, D.C. 20005-3814
(voice) : (202) 628-8800
(fax) : (202) 628-8844

5,688,007 CONTACT LENS INSERTER/REMOVER

Contact: Joann J. Jefferson
P.O. Box 6582
Charlotesville, Va. 22906
(fax) : (804) 293-0710

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Errata

"All reference to Patent No. 5,695,691 to John McLaughlin, et al., of Pennsylvania, for COLLOIDAL PARTICLES OF SOLID FLAME RETARDANT AND SMOKE SUPPRESSANT COMPOUNDS AND METHODS FOR MAKING THEM appearing in the Official Gazette of December 9, 1997, should be deleted since no patent was granted."

"All reference to Patent No. 5,697,300 to Thomas E. Lewis, et al., of New Hampshire, for METHOD AND APPARATUS FOR LASER IMAGING OF LITHOGRAPHIC PRINTING MEMBERS BY THERMAL NON-ABLATIVE TRANSFER appearing in the Official Gazette of December 16, 1997, should be deleted since no patent was granted."

"All reference to Patent No. 5,706,890 to Ben J. Sloan, et al., of Texas, for TEMPERATURE CONTROL APPARATUS AND METHOD WITH RECIRCULATED COOLANT appearing in the Official Gazette of January 13, 1998, should be deleted since no patent was granted."

"All reference to Patent No. 5,710,291 to Xiu C. Wang, et. al., of Illinois., for PROCESS FOR THE SELECTIVE ALKYLATION OF BETAXOLOL INTERMEDIATES appearing in the Official Gazette of January 20, 1998, should be deleted since no patent was granted."

"All reference to Patent No. 5,714,527 to Josef H. Jilek, et. al., of Austria, for METHOD OF REDUCING YELLOWING OF WATER-BORNE ROAD MARKING PAINTS AND COMPOSITION USED THEREIN appearing in the Official Gazette of February 3, 1998, should be deleted since no patent was granted."

"All reference to Patent No. 5,715,041 to Leigh A. Mazion, et. al., of Minnesota, for LIGHT-TIGHT BAG HAVING A TRAPPED AIR EXIT appearing in the Official Gazette of February 3, 1998, should be deleted since no patent was granted."

"All reference to Patent No. 5,715,404 to Howard P. Katseff, et. al., of Manalapan, New Jersey, for MULTIMEDIA NETWORKED SYSTEM DETECTING CONGESTION BY MONITORING BUFFERS' THRESHOLD AND COMPENSATING BY REDUCING VIDEO TRANSMITTAL RATE THEN REDUCING AUDIO PLAYBACK RATE appearing in the Official Gazette of February 3, 1998, should be deleted since no patent was granted."

"All reference to Patent No. 5,715,994 to Richard N. Beneroff, et. al., of New Jersey, for CUSHIONED BOXES appearing in the Official Gazette of February 10, 1998, should be deleted since no patent was granted."

"All reference to Patent No. 5,716,296 to Helmut Umlauft, of Austria, for TENNIS RACKETS appearing in the Official Gazette of February 10, 1998, should be deleted since no patent was granted."

"All reference to Patent No. 5,716,647 to Larry S. Schlesinger, et. al., of Iowa, for GALLIUM-CONTAINING COMPOUNDS FOR THE TREATMENT OF INFECTIONS CAUSED BY INTRACELLULAR PATHOGENS AND PATHOGENS CAUSING CHRONIC PULMONARY INFECTION appearing in the Official Gazette of February 10, 1998, should be deleted since no patent was granted."

"All reference to Patent No. 5,717,341 to William J. Premerlani, et. al., of New York, for SELF-TUNING AND COMPENSATING TURN FAULT DETECTOR appearing in the Official Gazette of February 10, 1998, should be deleted since no patent was granted."

"All reference to Patent No. 5,718,290 to Gary L. Rytlewski, of Texas, for DUAL ACTION VALVE INCLUDING A BUILT IN HYDRAULIC CIRCUIT appearing in the Official Gazette of February 17, 1998, should be deleted since no patent was granted."

"All reference to Patent No. 5,720,443 to James E. Vara, of Texas, for ENHANCED STORAGE SYSTEM FOR ELECTRICAL APPLIANCES POWERCORDS AND ADAPTERS appearing in the Official Gazette of February 24, 1998, should be deleted since no patent was granted."

Certificates of Correction for the Week of March 10, 1998

D. 280,910	5,606,267	5,654,976	5,678,078
D. 384,142	5,607,595	5,655,241	5,678,673
D. 384,143	5,607,862	5,655,694	5,678,881
D. 386,984	5,608,575	5,656,188	5,678,937
D. 387,086	5,608,740	5,656,384	5,678,987
D. 387,377	5,609,310	5,657,413	5,679,091
D. 387,529	5,609,352	5,657,676	5,679,170
Re. 35,475	5,609,643	5,658,700	5,679,336
Re. 35,515	5,609,926	5,658,917	5,679,763
4,900,291	5,610,217	5,658,967	5,680,524
4,978,467	5,610,694	5,659,444	5,680,867
5,060,208	5,612,462	5,659,538	5,680,918
5,074,342	5,613,065	5,659,821	5,681,022
5,095,261	5,613,955	5,660,517	5,681,265
5,240,957	5,615,095	5,660,595	5,681,301
5,311,792	5,616,143	5,662,038	5,681,634
5,349,590	5,617,920	5,662,130	5,681,854
5,354,524	5,618,082	5,662,432	5,682,067
5,372,846	5,618,911	5,663,269	5,682,166
5,375,161	5,619,264	5,663,622	5,682,325
5,426,585	5,620,385	5,663,839	5,682,532
5,437,004	5,623,684	5,664,059	5,682,656
5,440,523	5,625,689	5,664,489	5,682,745
5,442,045	5,626,915	5,665,370	5,683,247
5,445,946	5,629,267	5,665,557	5,683,286
5,449,355	5,630,167	5,665,611	5,683,878
5,451,949	5,630,950	5,666,162	5,684,003
5,455,237	5,631,157	5,666,254	5,684,067
5,470,290	5,631,967	5,666,295	5,684,349
5,478,423	5,632,280	5,666,328	5,684,585
5,482,641	5,632,870	5,666,570	5,684,675
5,484,552	5,633,531	5,666,595	5,684,884
5,492,520	5,633,597	5,667,197	5,685,344
5,498,879	5,634,330	5,667,631	5,685,629
5,514,573	5,634,600	5,668,062	5,686,200
5,517,412	5,635,280	5,668,452	5,686,208
5,519,308	5,635,467	5,668,459	5,686,254
5,520,689	5,638,104	5,668,521	5,686,278
5,523,423	5,639,624	5,668,584	5,686,459
5,538,512	5,639,725	5,668,626	5,687,204
5,538,613	5,641,482	5,669,234	5,688,336
5,538,735	5,641,593	5,669,394	5,688,411
5,539,595	5,642,346	5,669,682	5,688,868
5,539,882	5,642,366	5,669,998	5,689,032
5,554,119	5,642,899	5,670,403	5,689,291
5,556,794	5,643,783	5,670,465	5,689,378
5,556,953	5,644,184	5,671,338	5,689,981
5,563,162	5,644,356	5,672,380	5,691,289
5,567,409	5,645,647	5,672,401	5,691,328
5,568,023	5,645,774	5,672,438	5,691,885
5,569,985	5,645,906	5,672,862	5,692,138
5,576,718	5,646,373	5,672,888	5,692,153
5,582,733	5,646,626	5,672,930	5,692,167
5,584,251	5,646,659	5,673,027	5,692,330
5,584,832	5,646,945	5,673,270	5,692,481
5,587,769	5,646,989	5,673,320	5,692,535
5,588,129	5,647,333	5,673,354	5,692,624
5,589,662	5,648,345	5,673,601	5,693,041
5,591,868	5,648,353	5,673,768	5,693,080
5,600,021	5,648,591	5,674,856	5,693,083
5,601,553	5,648,630	5,675,189	5,693,316
5,601,617	5,649,206	5,675,731	5,693,413
5,602,116	5,649,996	5,676,153	5,693,665
5,602,682	5,650,867	5,676,346	5,693,671
5,602,753	5,650,885	5,676,712	5,693,906
5,602,957	5,651,837	5,676,794	5,694,088
5,604,133	5,652,959	5,677,675	5,694,354
5,606,028	5,654,792	5,678,058	5,694,859

5,695,210	5,696,330	5,697,305	5,698,491	5,699,617	5,702,552	5,705,051
5,695,237	5,696,364	5,697,425	5,698,592	5,700,195	5,703,023	5,707,335
5,695,297	5,696,416	5,697,987	5,698,647	5,700,746	5,703,446	5,707,614
5,695,700	5,696,873	5,698,060	5,698,706	5,700,991	5,703,960	5,707,657
5,695,998	5,697,039	5,698,171	5,698,743	5,701,223	5,704,465	5,708,304
5,696,135	5,697,248	5,698,308	5,698,783	5,702,398	5,705,009	

Admissibility of Electronic Records in Interferences

Pursuant to 37 CFR § 1.671, electronic records are admissible as evidence in interferences before the Board of Patent Appeals and Interferences to the same extent that electronic records are admissible under the Federal Rules of Evidence. The weight to be given any particular record necessarily must be determined on a case-by-case basis.

BRUCE H. STONER, Jr.
Chief Administrative Patent Judge

January 12, 1998

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Summary of Final Decisions
Issued by the
Trademark Trial and Appeal Board
January 19-23, 1998

Date Issued	Type of Case(1)	Proceeding or App'n. No.	Party/Parties	Issue	TTAB Decision	Opposer's/ Petitioner's Mark and Goods/Services	Applicant's/ Respondent's Mark and Goods/Services	Mark and Goods Cited by Examining Attorney	Citable as Precedent of TTAB
1-20	CANC (SJ)	23,672	Zoom Telephonics, Inc. v. Model American Computer Corp.	Abandonment	Petition to Cancel Denied (on cross motions for summary judgment)		"MODEL AMERICAN" [computer hardware, namely, processor, keyboard, monitor and memory unit and computer utility programs]		No
1-23	EX	74/708,824	Unisys Corp.	2(e)(1)	Refusal Affirmed		"SERVER/CLIENT" [computer software, namely, a series of object-oriented software development programs used to build programs, run and manage networks; printed publications, namely, programmer, operator, installation and maintenance manuals for use with object-oriented software development tools used to build programs, run and manage networks]		No
1-23	EX	74/569,856	Digirad Corp.	2(d)	Refusal Reversed		"DIGIRAD" [solid state gamma radiation sensors, signal processors and display apparatus for use in medical isotopic tracing and medical nuclear imaging]	"DIGIRAY" [and design] [electronic digital x-ray system comprising an x-ray scanning beam tube and detector for medical use; computer software for use with an electronic digital x-ray system]	Yes

(1)EX = EX PARTE APPEAL; OPP = OPPOSITION; CANC = CANCELLATION; CU = CONCURRENT USE; (SJ) = SUMMARY JUDGMENT; (R) = REQ. FOR RECONSIDERATION; (MD) = MOTION TO DISMISS; (MR) = MOTION TO REOPEN

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Box 313b	Petitions under 37 CFR 1.313(b) to withdraw a patent application from issue after payment of the issue fee and any papers associated with the petition, including papers necessary for filing a continuing application.
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Box POST REG FEE	Affidavits, renewals, corrections and amendments.
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Box 9	Coupon orders for U.S. patent and trademark copies.
Box 10	Orders for certified copies of PTO documents.
Box 11	Electronic Ordering Service (EOS).
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Box 14	Mail directed to the APS Contracts Office.
Box 16	Deposit Account Replenishment Checks.
Box 17	Invoices directed to the Office of Finance.
Box 171	Vacancy Announcement Applications.
Box Assignment	All assignment documents except those filed with new applications.
Box EEO	Mail for the Office of Civil Rights.
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	New Haven Free Public Library	Not Yet Operational
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LAWRENCE J. GOFFNEY Jr., Assistant Commissioner for Patents
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STEPHEN G. KUNIN, Deputy Assistant Commissioner for Patent Policy

PATENT EXAMINING GROUPS	Phone number Area Code 703	New Case Date*
CHEMICAL EXAMINING GROUPS		
GENERAL METALLURGICAL, INORGANIC, PETROLEUM AND ELECTRICAL CHEMISTRY, ENGINEERING AND DESIGNS, GROUP 1100—THEODORE MORRIS, Director	308-0661	11/03/96
ORGANIC CHEMISTRY, DRUG, BIO-AFFECTING AND BODY TREATING COMPOSITION, GROUP 1200/2900—JOHN E. KITTLE, Director	308-1235	05/14/96
SPECIALIZED CHEMICAL INDUSTRIES AND CHEMICAL ENGINEERING, GROUP 1300—RICHARD V. FISHER, Director	308-0651	05/06/96
HIGH POLYMER CHEMISTRY, PLASTICS, COATING, PHOTOGRAPHY STOCK MATERIALS AND COMPOSITIONS, GROUP 1500—MARY LEE, Acting Director	308-2351	04/14/96
BIOTECHNOLOGY, GROUP 1800—JOHN J. DOLL, Director	308-0196	08/31/95
ELECTRICAL EXAMINING GROUPS		
INDUSTRIAL ELECTRONICS, PHYSICS AND RELATED ELEMENTS, GROUP 2100—STEWART LEVY, Director	308-1782	10/09/95
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COMPUTER SYSTEMS AND COMPUTER APPLICATION, GROUP 2300—JOSEPH J. ROLLA, Director	305-3900	02/02/96
SPECIAL COMPUTER APPLICATIONS: COMPUTER GRAPHICS, BUSINESS PRACTICES, & DIAGNOSTIC TESTING, GROUP 2400—GERALD GOLDBERG, Director	305-3900	11/17/95
ELECTRONIC AND OPTICAL SYSTEMS AND DEVICES, GROUP 2500—JANICE A. HOWELL, Director	308-0956	05/27/96
TELECOMMUNICATIONS, GROUP 2600—JIN F. NG, Director	305-3900	06/06/95
DESIGN, GROUP 2900—JOHN E. KITTLE, Director	305-3293	02/27/96
MECHANICAL EXAMINING GROUPS		
HANDLING AND TRANSPORTATION MEDIA, GROUP 3100—JOHN F. TERAPANE, JR., Director	308-1113	11/10/95
MATERIAL SHAPING, ARTICLE MANUFACTURING AND TOOLS, GROUP 3200—ETHEL CROSS, Director	308-1148	08/13/96
MEDICAL INSTRUMENTS, DIAGNOSTIC EQUIPMENT AND TREATMENT DEVICES; SURGERY AND SURGICAL SUPPLIES; AMUSEMENT AND EXERCISING DEVICES; ANIMAL HUSBANDRY; SPORTING GOODS; TOBACCO PRODUCTS AND MANUFACTURING EQUIPMENT; AND PRINTING, GROUP 3300—J.J. LOVE, Director	308-0858	12/27/95
SOLAR, HEAT, POWER, AND FLUID ENGINEERING DEVICES, GROUP 3400—DONALD G. KELLY, Director	308-0861	01/02/96
GENERAL CONSTRUCTION, PETROLEUM AND MINING ENGINEERING, GROUP 3500—A.L. SMITH, Director	308-2168	10/01/96

*A communication from the examiner should have been received in most applications filed prior to this date.

Patents will Expire as Follows:
(1) The term of any utility or plant patent that is in force on or results from an application filed before June 8, 1995 is the greater of the 20 year term provided in 35 U.S.C. 154(a)(2) or 17 years from grant subject to any terminal disclaimers. 35 U.S.C. 154(c)(1).
(2) All utility and plant patents granted on applications having an actual United States filing date on or after June 8, 1995 are granted for a term which begins on the date on which the patent is granted and ends 20 years from the date on which the application was filed in the United States. If the application contains a specific reference to an earlier application under 35 U.S.C. 120, 121 or 365(c), the patent term ends twenty years from that date on which the earliest application was filed. 35 U.S.C. 154(a)(2).
(3) All design patents are granted for a term of 14 years from the date of the grant.
However, the term of any patent may have been curtailed by disclaimer under the provisions of 35 U.S.C. 153, have lapsed due to failure to pay maintenance fees, or have been extended under the provisions of 35 U.S.C. 154, 155, or 156. Thus, if more reliable information is needed with respect to a particular patent, then the specific patent file should be reviewed to determine the actual date of patent expiration.

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TRADEMARK OPERATION

Bruce A. Lehman, Commissioner
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David E. Bucher, Director, Trademark Examining Office
Condition of Trademark Applications as of February 1, 1998

Law Office	Oldest Date New*	Oldest Date Amendment Filed
Law Office 101—Ron Williams, Managing Attorney, (703) 308–9101—4th Floor Foods, Beverages, Wines & Spirits—Int. Classes 29, 30, 31, 32, 33 Services—Int. Classes 35, 36, 37, 38, 39, 40, 41, 42	08/20/97	12/15/97
Law Office 102—Thomas Shaw, Acting Managing Attorney, (703) 308–9102—5th Floor Scientific Equipment & Furniture—Int. Classes 9, 20 Services—Int. Classes 35, 36, 37, 38, 39, 40, 41, 42	07/09/97	11/17/97
Law Office 103—Michael A. Szoke, Acting Managing Attorney, (703) 308–9103—5th Floor Scientific Equipment & Furniture—Int. Classes 9, 20 Services—Int. Classes 35, 36, 37, 38, 39, 40, 41, 42	07/02/97	01/20/98
Law Office 104—Sidney Moskowitz, Managing Attorney, (703) 308–9104—6th Floor Unwrought metals, Industrial Equipment, Tools, Installation, Vehicles, Firearms, Musical Instruments, Building Materials & Floor Coverings—Int. Classes 6, 7, 8, 11, 12, 13, 15, 19, 27 Services—Int. Classes 35, 36, 37, 38, 39, 40, 41, 42	05/16/97	11/12/97
Law Office 105—Thomas Howell, Managing Attorney, (703) 308–9105—6th Floor Chemicals, Paints, Lubricants, Pharmaceuticals, Medical Apparatus & Tobacco—Int. Classes 1, 2, 4, 5, 10, 34 Services—Int. Classes 35, 36, 37, 38, 39, 40, 41, 42	06/27/97	11/30/97
Law Office 106—Mary Sparrow, Managing Attorney, (703) 308–9106—7th Floor Cosmetics, Cleaning Preparations, Paper Products & Toys—Int. Classes 3, 16, 28 Services—Int. Classes 35, 36, 37, 38, 39, 40, 41, 42	06/19/97	11/05/97
Law Office 107—Thomas Lamone, Managing Attorney, (703) 308–9107—7th Floor Cosmetics, Cleaning Preparations, Paper Products & Toys—Int. Classes 3, 16, 28 Services—Int. Classes 35, 36, 37, 38, 39, 40, 41, 42	09/12/97	12/02/97
Law Office 108—David Shallant, Managing Attorney, (703) 308–9108—8th Floor Precious metals, Fibers, Leather goods, Housewares, Cordage, Yarns, Fabrics, Clothing & Notions— Int. Classes 14, 17, 18, 21, 22, 23, 24, 25, 26 Services–Int. Classes 35, 36, 37, 38, 39, 40, 41, 42	06/07/97	10/06/97
Law Office 109—Deborah Cohn, Managing Attorney, (703) 308–9109—8th Floor Precious metals, Fibers, Leather goods, Housewares, Cordage, Yarns, Fabrics, Clothing & Notions—Int. Classes 14, 17, 18, 21, 22, 23, 24, 25, 26 Services—Int. Classes 35, 36, 37, 38, 39, 40, 41, 42	10/09/97	12/07/97
**Collective Marks—Class 200		
**Certification Marks—Classes A & B		
Office of Trademark Services—Terron Simms, Director, (703) 308-9100		
Trademark Assistance Center—(703) 308-9000		
Pre-Examination—Alan Lambert, Supervisor, (703) 308-9401 ext. 188		
Intent-To-Use—(ITU)—(703) 308-9500		
Post Registration Section—Mary Bowman, Supervisor, (703) 308-9500 ext. 126		
Affidavits Under Sections 8 & 15 (All Classes)	12/15/97	—0—
Renewals (All Classes)	12/15/97	—0—
Section 12(c) Publications (All Classes)	11/24/97	—0—

1. ** Assigned to all Law Office

2. Applicants with inquiries concerning the status of their applications and a touch telephone should call (703) 305–8747 from 6:30 a.m. to Midnight EST, Monday through Friday. This automated voice system will provide the current status of your application. Applicants are urged not to file unnecessary inquiries concerning the status of their applications. See SECTION 411 of the TRADEMARK MANUAL OF EXAMINING PROCEDURE.

3. * These dates identify the oldest unassigned new case in each Law Office. All cases with earlier dates have either been examined and made the subject of an action or are currently being worked on by the assigned examining attorney.

REEXAMINATIONS

MARCH 10, 1998

Matter enclosed in heavy brackets [ ] appears in the patent but forms no part of this reexamination specification; matter printed in italics indicates additions made by reexamination.

B1 4,535,907 (3455th)
CATHODE-RAY TUBE

Kiyoshi Tokita, Fukaya; Toshinao Sone, Kumagaya, and Michio Nakamura, Fukaya, all of Japan, assignors to Tokyo Shibaura Denki Kabushiki Kaisha, Kawasaki, Japan

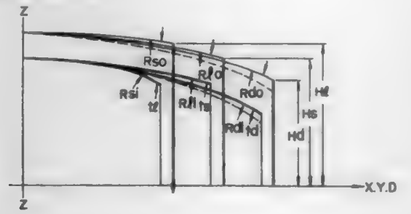
Reexamination Request No. 90/004,181, Mar. 13, 1996.

Reexamination Certificate for Patent 4,535,907, issued Aug. 20, 1985, Ser. No. 586,147, Mar. 5, 1984.

Claims priority, application Japan, Mar. 9, 1983, 58-37435; Mar. 9, 1983, 58-37436

Int. Cl.[6] H01J *61/30*

U.S. Cl. 220—2.1 A



AS A RESULT OF REEXAMINATION, IT HAS BEEN DETERMINED THAT:

Claims **1–3** are determined to be patentable as amended.

Claim **4**, dependent on an amended claim, is determined to be patentable.

New claim **5** is added and determined to be patentable.

1. A cathode-ray tube comprising:

a glass panel section constituting a glass envelope having a tube axis, said glass panel section including a substantially rectangular faceplate, whose inner and outer surfaces are curved *and non-spherical*, and a skirt extending from a peripheral portion of said faceplate along the tube axis, wherein when ts, tl and td respectively denote thickness of said faceplate in the vicinity of the center portion of the short side, that in the vicinity of the center portion of the long side and that in the vicinity of the corner, and Hs, Hl and Hd respectively represent length of the skirt at the center portion of the short side, that at the center portion of the long side and that at the corner as the length of each of them is measured between the outer surface of said faceplate and the end portion of said skirt along the tube axis, then, the thicknes of said faceplate and the length of said skirt have relations defined by the following equations of inequalities (1) and (2):

$$H_s \leq H_l \leq H_d \quad (1),$$

$$t_s \leq t_l \text{ and } t_d \leq t_l \quad (2).$$

B1 4,537,322 (3456th)
GLASS ENVELOPE FOR A CATHODE-RAY TUBE

Hisafumi Okada, Hyogo; Yoshio Suzuki, and Shigeo Takenaka, both of Fukaya, all of Japan, assignors to Tokyo Shibaura Denki Kabushiki Kaisha, Kawasaki, Japan

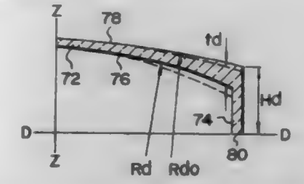
Reexamination Request No. 90/004,182, Mar. 13, 1996.

Reexamination Certificate for Patent 4,537,322, issued Aug. 27, 1985, Ser. No. 560,105, Dec. 12, 1983.

Claims priority, application Japan, Dec. 13, 1982, 57-217098; Mar. 9, 1983, 58-37437

Int. Cl.[6] H01J *61/30*

U.S. Cl. 220—2.1 A



AS A RESULT OF REEXAMINATION, IT HAS BEEN DETERMINED THAT:

Claims **4** and **6** are cancelled.

Claims **1**, **2**, **5**, and **7** are determined to be patentable as amended.

Claims **3** and **8**, dependent on an amended claim, are determined to be patentable.

New claim **9** is added and determined to be patentable.

1. A glass envelope for a cathode-ray tube having a tube axis comprising:

a glass panel section including a faceplate and a skirt, said faceplate having two face surfaces on opposite sides of said faceplate, a substantially rectangular shape with long and short sides, a curved inner surface on one face surface thereof and a curved outer surface on the other face surface thereof, and said skirt extending from a peripheral portion of said faceplate along the tube axis,

said inner surface including a first inner surface radius of curvature Rsi set within a first plane including the tube axis and passing through center points of long sides of said faceplate, a second inner surface radius of curvature Rli set within a second plane including the tube axis and passing through center points of short sides of said faceplates and a third inner surface radius of curvature Rdi set within a third plane including the tube axis and a diagonal line connecting a pair of diagonally opposite corners of said faceplate,

said outer surface including a first outer surface radius of curvature Rso set within said first plane, a second outer surface radius of curvature Rlo set within said second plane and a third outer surface radius of curvature Rdo set within said third plane, [and]

said inner and outer surface radii of curvature being defined by the following inequalities (1) and (2), respectively:

$$Rsi < Rli \text{ and } Rsi < Rdi \quad (1),$$

$$Rso < Rlo \text{ and } Rso < Rdo \quad (2),$$

wherein at least one of said radii of curvature Rsi, Rli, Rdi, Rso, Rlo or Rdo form a compound curve,

and wherein said inner and outer surface radii of curvature are in accordance with the following relationships:

$$(Rso-Rsi) > (Rlo-Rli) \text{ and}$$

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(Rso–Rsi)×(Rdo–Rdi): and

wherein length Hs, length Hl and length Hd, which respectively represent the length of said skirt at a center point of a short side thereof, at a center point of a long side thereof and at a corner thereof, when measured between the outer surface and an end portion of the skirt along said tube axis, satisfy the relationship:

$$Hl \geq Hs \geq Hd.$$

B1 4,870,105 (3457th)

PHOSPHORUS BINDER

John S. Fordtran, Dallas, Tex., assignor to Braintree Laboratories, Inc., Braintree, Mass.

Reexamination Request No. 90/004,483, Dec. 13, 1996.

Reexamination Certificate for Patent 4,870,105, issued Sep. 26, 1989, Ser. No. 35,341, Apr. 7, 1987.

Int. Cl.[6] A61K 31/19;47/00

U.S. Cl. 514—557

AS A RESULT OF REEXAMINATION, IT HAS BEEN DETERMINED THAT:

The patentability of claims **1–8** is confirmed.

1. A method for inhibiting gastrointestinal absorption of phosphorous in an individual, comprising:

orally ingesting a quantity of calcium acetate sufficient to bind with phosphorous in the gastrointestinal tract.

B1 5,080,895 (3458th)

SPECIFIC ANTIBODY-CONTAINING SUBSTANCE FROM EGGS AND METHOD OF PRODUCTION AND USE THEREOF

Hideo Tokoro, Tokyo, Japan, assignor to Ghen Corporation, Gifu, Japan

Reexamination Request No. 90/004,638, May 16, 1997.

Reexamination Certificate for Patent 5,080,895, issued Jan. 14, 1992, Ser. No. 679,839, Apr. 1, 1991.

Continuation of Ser. No. 338,417, Aug. 4, 1988, abandoned, which is a continuation of Ser. No. 933,187, Nov. 21, 1986, abandoned.

Claims priority, application Japan, Nov. 25, 1985, 60-264108; Sep. 17, 1986, 61-218859

Int. Cl.[6] A61K *39/395*

U.S. Cl. 424—157.1

AS A RESULT OF REEXAMINATION, IT HAS BEEN DETERMINED THAT:

Claims **1–2**, and **4–7** are determined to be patentable as amended.

Claim **3**, dependent on an amended claim, is determined to be patentable.

New claims **8–11** are added and determined to be patentable.

1. A method for preventing or treating an intestinal infectious disease in a neonatal **[**mammal**]** *piglet or calf* caused by a pathogenic organism, said method comprising orally administering to a neonatal **[**mammal**]** *piglet or calf*, which has not acquired resistance to a specific antibody-containing substance, said specific antibody-containing substance being obtained **[**from he**]** *from the* overall ovum, the yolk **[**of**]** *or* the albumen of eggs laid by hens which have been immunized against **[**a**]** *said* pathogenic organism as an antigen in an effective amount for preventing or treating an intestinal infectious disease caused by said pathogenic organism, said specific antibody-containing substance containing a specific antibody which is active against said antigen.

B1 5,366,318 (3459th)

SUMP ASSEMBLY

Rodney E. Brancher, Media, Pa., assignor to Environ Products, Inc., Lionville, Pa.

Reexamination Request No. 90/004,537, Feb. 3, 1997.

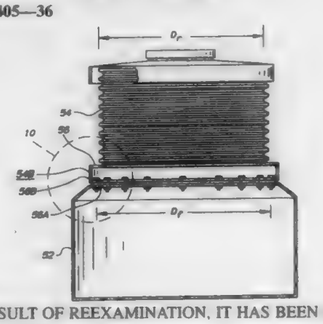
Reexamination Certificate for Patent 5,366,318, issued Nov. 22, 1994, Ser. No. 108,537, Aug. 19, 1993.

Division of Ser. No. 718,436, Jun. 26, 1991, abandoned, which is a continuation-in-part of Ser. No. 555,210, Jul. 18, 1990, abandoned.

The portion of the term of this patent subsequent to Aug. 18, 1997, has been disclaimed.

Int. Cl.[6] E03F *5/00*

U.S. Cl. 405—36



AS A RESULT OF REEXAMINATION, IT HAS BEEN DETERMINED THAT:

The patentability of claims **1-7** are now disclaimed.

1. A sump assembly comprising:

a hollow base having a bottom wall, an upstanding side wall and a circumferentially extending radially inwardly directed flange extending from the upper edge of the base;

an elongated generally tubular riser section having a circumferentially extending radially inwardly directed flange at its lower terminal edge confronting and overlying the base flange;

a cover mounted over the open upper end of the riser;

seal means disposed between the confronting faces of the riser and base flanges; and

a plurality of circumferentially spaced fasteners for securing the riser flange and base flange together with the seal means interposed therebetween, said fasteners engaging through holes located on a circle generally greater in diameter than that of the tubular riser section.

B1 5,456,498 (3460th)

NEGOTIABLE INSTRUMENT FRAUD DETECTOR AND PROCESSOR

Edwin B. Greene, 60K Crescent Rd., Greenbelt, Md. 20770, assignor to Edwin B. Greene, Greenbelt, Md.

Reexamination Request No. 90/004,315, Jul. 26, 1996.

Reexamination Certificate for Patent 5,456,498, issued Oct. 10, 1995, Ser. No. 169,207, Dec. 20, 1993.

Int. Cl.[6] B42D *15/00*

U.S. Cl. 283—70

AS A RESULT OF REEXAMINATION, IT HAS BEEN DETERMINED THAT:

Claims **1–12** are cancelled.

[12. An automatic bank scanning and processing system in combination with a check comprising:

said check having a planar member of generally rectangular configuration and having a width and height and bank identification information and an area for receiving a date of making the negotiable instrument on one side thereof, said planar member further having a first field area on said one side for receiving indicia within said first field area designating a maker of the negotiable instrument, said planar member having a second field area on said one side for receiving indicia within said second area designating a payee of the negotiable instrument and said planar member having a third field area on said one side for receiving a numeric amount of said negotiable instrument; and

fluorescent ink means having a known frequency emission when exposed to ultraviolet light applied as a background coating upon said negotiable instrument within at least one of said first, second, and third field areas, said fluorescent ink means being operable for receiving visible indicia placed within said at least one of said first, second, and third field areas and upon said fluorescent ink means background, said fluorescent ink means being further operable for selectively permitting a scanner to read the said at least one of said first, second, and third field areas of said check for optically rendering indicia placed upon said background coating,

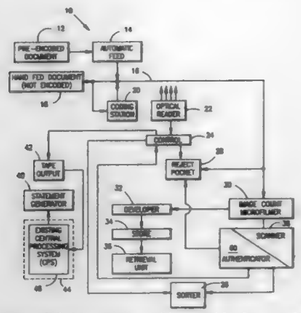
said system including a scanning apparatus for directing ultraviolet light onto said negotiable instrument wherein information located within said at least one of said first, second, and third field areas, regardless of location on the negotiable instrument, may be automatically detected and scanned;

an ultraviolet light source directed at said coating for actuating an emission of a particular frequency spectrum along a path;

a detector for recognizing said particular frequency spectrum;

a notch filter disposed in said path of said emission between said coating and said detector for blocking emissions that are not in said particular frequency spectrum; and

means for developing a signal when said detector does not recognize said particular frequency spectrum.**]**



B1 5,460,967 (3461st)

RECYCLE PROCESS FOR THE PRODUCTION OF LOW-COST SOLUBLE COLLAGEN

David J. Fink, Shaker Heights, and Richard S. Brody, Worthington, both of Ohio, assignors to Ranpak Corporation, Concord, Ohio

Reexamination Request No. 90/004,377, Oct. 8, 1996.

Reexamination Certificate for Patent 5,460,967, issued Oct. 24, 1995, Ser. No. 250,803, May 27, 1994.

Continuation-in-part of Ser. No. 78,932, Jun. 16, 1993, Pat. No. 5,316,942.

Int. Cl.[6] C12P *21/00;* **C12N** *9/99*

U.S. Cl. 435—273

AS A RESULT OF REEXAMINATION, IT HAS BEEN DETERMINED THAT:

The patentability of claims **1–13** is confirmed.

Claim **14** is determined to be patentable as amended.

Claims **15–31**, dependent on an amended claim, are determined to be patentable.

14. A method for producing a solution of soluble collagen comprising:

(a) providing a ground slurry of an insoluble collagen;

(b) adding a proteolytic enzyme to said ground slurry;

(c) reacting said ground slurry with said proteolytic enzyme to produce a solution of soluble collagen *wherein the soluble collagen has a molecular weight of at least about 300,000 daltons; and*

(d) withdrawing said solution of soluble collagen as product.

B1 5,509,826 (3462nd)

VERY LOW PROFILE CARD EDGE CONNECTOR

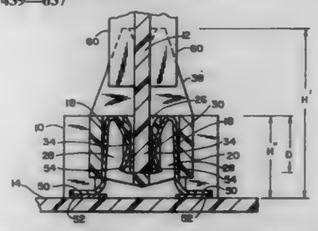
Robert C. White, Cliffside Park, N.J., assignor to Burndy Corporation, Norwalk, Conn.

Reexamination Request No. 90/004,337, Aug. 22, 1996.

Reexamination Certificate for Patent 5,509,826, issued Apr. 23, 1996, Ser. No. 142,172, Oct. 22, 1993.

Int. Cl.[6] H01R *23/70*

U.S. Cl. 439—637



AS A RESULT OF REEXAMINATION, IT HAS BEEN DETERMINED THAT:

Claims **1–16** are cancelled.

Claim **17** is determined to be patentable as amended.

New claim **18** is added and determined to be patentable.

17. An electrical connector comprising:

a housing having a receiving area, end supports located at opposite ends of the receiving area, and support outriggers, the outriggers extending outward from two lateral sides of the housing *and from lateral sides of the end supports at a bottom of the housing, the outriggers further having bottom sides that are generally co-planar with one another* at a bottom of the housing;

electrical contacts mounted to the housing; and

metal through-hole latches connected to the housing and extending from the bottom of the housing, each latch having a pair of spring legs with at least one latch having its pair of spring legs oriented differently than one of the other pairs of spring latches.

B1 5,560,096 (3463rd)

METHOD OF MANUFACTURING FEMORAL KNEE IMPLANT

Ron Y. Stephens, Memphis, Tenn., assignor to Smith & Nephew Richards Inc., Memphis, Tex.

Reexamination Request No. 90/004,575, Mar. 6, 1997.

Reexamination Certificate for Patent 5,560,096, issued Oct. 1, 1996, Ser. No. 376,930, Jan. 23, 1995.

Int. Cl.[6] B23P *13/04*

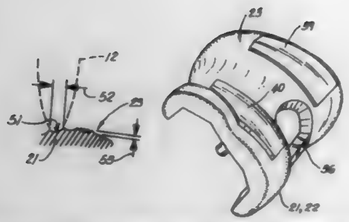
U.S. Cl. 29—558

AS A RESULT OF REEXAMINATION, IT HAS BEEN DETERMINED THAT:

The patentability of claims **1–18** is confirmed.

1. A method of manufacturing a distal femoral knee prosthesis comprising the steps of:

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a) forming a rough prosthesis workpiece member that has the approximate size and shape of a final, polished distal femoral prosthesis the workpiece member including a generally "J" shaped articular surface portion to be finished;
b) attaching the prosthesis member to a fixator;
c) movably supporting the fixator adjacent a rotary grinder wheel;
d) controlling relative motion between the rotary grinder and the prosthesis member workpiece with a computer;
e) shaping a curved articular surface of the prosthesis member by engaging the prosthesis member with the rotary grinder wheel that forms a plurality of grooved portions;
f) preliminary polishing the articular surface to remove the grooved portions; and
g) secondarily polishing the articular surface until it has a highly polished mirror finish.

REISSUES

MARCH 10, 1998

Matter enclosed in heavy brackets [ ] appears in the original patent but forms no part of this reissue specification; matter printed in italics indicates additions made by reissue.

Re. 35,741

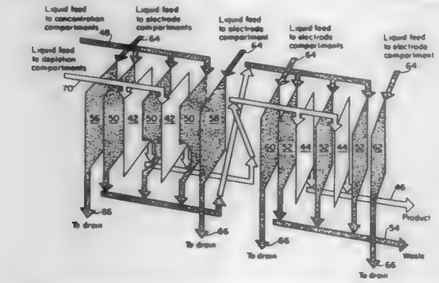
PROCESS FOR PURIFYING WATER

Yoram Oren, Beer Sheva, Israel; Anthony J. Giuffrida, Andover, Mass.; Stephen M. Ciaccio, Londonderry, N.H., and Gary C. Ganzi, Lexington, Mass., assignors to Millipore Corporation, Bedford, Mass.

Original No. 5,154,809, dated Oct. 13, 1992, Ser. No. 417,950, Oct. 6, 1989. Continuation of Ser. No. 613,075, Mar. 8, 1996, abandoned, which is a continuation of Ser. No. 322,187, Oct. 12, 1994, abandoned, which is a continuation of Ser. No. 908,913, Sep. 18, 1986, Pat. No. 4,925,541, which is a division of Ser. No. 762,804, Aug. 2, 1985, Pat. No. 4,632,745, which is a continuation of Ser. No. 628,930, Jul. 9, 1984, abandoned, said Ser. No. 417,950 is a continuation-in-part of Ser. No. 275,314, Nov. 23, 1988, Pat. No. 4,931,160, which is a continuation of Ser. No. 48,161, May 11, 1987, abandoned. Application for reissue Dec. 27, 1996, Ser. No. 778,714

Int. Cl.[6] B01D *61/48*

U.S. Cl. 204—524 **28 Claims**



1. [The process for purifying water to remove organics and ionic species therein which comprises:

passing said water through ion depletion compartments of an electrodeionization apparatus, said electrodeionization apparatus comprising:] *A process for removing organic and ionic species from a liquid which comprises the steps of:*

a) providing an electrodeionization apparatus which comprises:

i) a cathode compartment at a first end of [said] *the* apparatus,

ii) an anode compartment at [an] *a second* end of [said] *the* apparatus opposite [said] *the* first end,

[a plurality of said ion depletion compartments alternating with ion concentration compartments positioned between said cathode compartment and said anode compartment,

an anion permeable membrane and a cation permeable membrane,

said anion permeable membrane and said cation permeable membrane being bonded to a spacer to effect sealing against water leakage between said ion depletion compartment and

each of said ion depletion compartments containing a mixture of anion resin beads of substantially uniform size and cation resin beads of substantially uniform size.]

iii) at least one ion concentrating compartment positioned adjacent to at least one ion depleting compartment, the ion depleting compartment comprising a mixture of anion exchange resin beads having a substantially uniform size and cation exchange resin beads having a substantially uniform size positioned between an anion exchange membrane and a cation exchange membrane, the ion depleting and ion concentrating compartments being positioned between the cathode compartment and the anode compartment, wherein the ion concentrating compartments are free of ion exchange resin,

b) passing a first liquid through the ion depleting compartments,

c) simultaneously passing a second liquid for accepting ions from [said water,] *the first liquid* through [said] *the* concentration compartments [while said water is passed through said ion depletion compartments],

d) applying an electrical voltage between an anode in [said] *the* anode compartment and a cathode in [said] *the* cathode compartment, and

e) recovering [purified water] *the first liquid* from [said depletion] *the depleting* compartment.

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PLANT PATENTS

GRANTED MARCH 10, 1998

Illustrations for plant patents are usually in color and therefore it is not practicable to reproduce the drawing.

10,273

HYBRID TEA ROSE PLANT NAMED 'JACLION'

Keith W. Zary, Thousand Oaks, Calif., assignor to Bear Creek Gardens, Inc., Medford, Oreg.

Filed Dec. 3, 1996, Ser. No. 759,937
Int. Cl.[6] A01H *5/00*
U.S. Cl. Plt.—11 **1 Claim**

1. A new and distinct variety of rose plant of the hybrid tea class, substantially as herein shown and described, characterized particularly as to novelty by the unique combination of its vigorous, upright branching growth habit; its formal, hybrid tea-shaped flower in attractive pastel shades; its glossy, dark green, leathery foliage; its resistance to powdery mildew and rust; and its very pleasant, light-to-moderate scent.

10,274

'ARYEH' PISTACHIO TREE

Amram Nevo, P.O. Box 500, Omer 84965, Israel

Filed Oct. 28, 1996, Ser. No. 739,493
Int. Cl.[6] A01H *5/00*
U.S. Cl. Plt.—30.1 **1 Claim**

1. A new and distinct variety of pistachio tree substantially as illustrated and described which is somewhat remotely similar to the 'Kerman' pistachio tree, but from which it is distinguished in a number of respects including that the trees are capable of producing a high quality crop with many fewer hours of winter chilling, the trees are more narrow and taller permitting the trees to be planted with greater density and by producing its crop which is mature for commercial harvesting and shipment approximately one week before the 'Kerman' pistachio tree in Omer, Israel.

10,275

'SHUFRA' PISTACHIO TREE

Amram Nevo, Post Office Box 500, Omer, 84965, Israel

Filed Oct. 28, 1996, Ser. No. 739,494
Int. Cl.[6] A01H *5/00*
U.S. Cl. Plt.—30.1 **1 Claim**

1. A new and distinct variety of pistachio tree substantially as illustrated and described which is somewhat remotely similar to the 'Kerman' pistachio tree, but from which it is distinguished in a number of respects including that the trees are capable of producing a high quality crop with many fewer hours of winter chilling; the trees are compact and thus can be planted in patterns of greater density; and by producing its crop which is mature for commercial harvesting and shipment approximately September 5, or about eight days earlier than the 'Kerman' pistachio tree in Omer, Israel.

10,276

APPLE TREE NAMED 'DELBLUSH'

Gérard Guillier, Commentry, France, assignor to Société des Pépiniéres et Roseraies Georges Delbard, Commentry, France

Filed May 28, 1996, Ser. No. 654,169
Int. Cl.[6] A01H *5/00*
U.S. Cl. Plt.—35.1 **1 Claim**

1. A new and distinct cultivar of apple tree having the following combination of characteristics:

(a) forms attractive yellow fruit of excellent flavor and texture when mature commonly possessing an orange overcolor on a portion of the skin,
(b) forms fruit flesh that well resists darkening upon exposure to ambient conditions,
(c) forms attractive medium green foliage having an acuminate apex and a rounded base, and
(d) commonly yields an apple crop mid to late in the season;

substantially as herein shown and described.

10,277

PLUM TREE 'TEAK GOLD'

R. A. Yates, deceased, late of Capel, Australia, by Neal William Yates, legal representative, assignor to TEAK Enterprises, Capel

Filed Mar. 29, 1996, Ser. No. 625,024
Int. Cl.[6] A01H *5/00*
U.S. Cl. Plt.—38.1 **1 Claim**

1. A new and distinct variety of plum tree, substantially as illustrated and described, characterized by its medium size, compact growth habit and being a regular and productive bearer of large, firm, attractive, semi-freestone fruit with excellent flavor, aroma and eating quality. The fruit is further characterized by relatively uniform maturity throughout the tree, its ability to hold firm on the tree after maturity (shipping ripe) and its ability to ship and store well under cold room regime and on the grocer's shelf.

10,278

PETUNIA PLANT NAMED 'SUNBELKUHO'

Yasuyuki Murakami, Shiga, Japan, assignor to Suntory Limited, Osaka, Japan

Filed Nov. 20, 1996, Ser. No. 751,429
Int. Cl.[6] A01H *5/00*
U.S. Cl. Plt.—68.1 **1 Claim**

1. A new and distinct variety of petunia plant, substantially as herein illustrated and described, characterized particularly as to novelty by (A) being a decumbent habit plant having long stems, (B) an over-abundant branching, particularly secondary branching is strong, and great profusion blooms, the whole bush remaining in bloom for a considerable period of time, (C) flowers are single and very small, the petals having a white color, and the bottom color of the corolla throat and the outside color of corolla tube are light greenish yellow (D) a high resistance to rain, heat, drought and pest.

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PETUNIA PLANT NAMED 'SUNBELKUBU'

Yasuyuki Murakami, Shiga, Japan, assignor to Suntory Limited, Osaka, Japan

Filed Nov. 20, 1996, Ser. No. 751,432

Int. Cl.[6] A01H *5/00*

U.S. Cl. Plt.—68.1 **1 Claim**

1. A new and distinct variety of petunia plant, substantially as herein illustrated and described, characterized particularly as to novelty by (A) being a decumbent habit plant having long stems, (B) an over-abundent branching, particularly secondary branching is strong, and great profusion blooms, the whole bush remaining in bloom for a considerable period of time, (C) flowers are single and very small, the petals having a vivid purple color, and the bottom color of the corolla throat is bright greenish yellow and the outside color of corolla tube is pale yellow green and (D) a high resistance to rain, heat, drought and pest.

10,280

AGLAONEMA PLANT NAMED 'BLACK LANCE'

B. Frank Brown, Valkaria, Fla., assignor to Sunshine Foliage World, Zolfo Springs, Fla.

Filed Nov. 18, 1996, Ser. No. 751,866

Int. Cl.[6] P01H *8/00*

U.S. Cl. Plt.—88.1 **1 Claim**

1. A new and distinct cultivar of Aglaonema plant named 'Black Lance', as illustrated and described.

PATENTS

GRANTED March 10, 1998

ERRATA

For CLASS	See PATENT NO.
600–300	5,724,968
138–149	5,725,028
241–259	5,725,166
281–021	5,725,196
273–121	5,725,210
432–242	5,725,371
096–017	5,725,645
204–534	5,725,749
428–375	5,725,889
436–167	5,726,068
544–244	5,726,174
546–156	5,726,305
365–185	5,726,882
395–209	5,726,884

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PATENTS

GRANTED MARCH 10, 1998

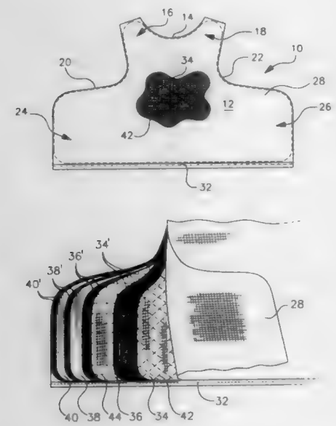
GENERAL AND MECHANICAL

5,724,670

MULTI-COMPONENT BALLISTIC VEST

Allen L. Price, Rising Sun, Md., assignor to Safariland Ltd., Inc., Ontario, Calif.

Filed Oct. 3, 1996, Ser. No. 725,535
Int. Cl.[6] F41H *1/02*
U.S. Cl. 2—2.5 **15 Claims**



1. A multi-component ballistic vest of a soft body armor type comprising:

a composite protective panel having ballistic resistance comprising a first flexible sub-panel on a strike side of the vest, a second flexible sub-panel positioned adjacent the first sub-panel, a third flexible sub-panel positioned adjacent to the second sub-panel, and a fourth flexible sub-panel on a body side of the vest,

the first flexible sub-panel comprising a first group of flexible woven fabric layers arranged in a stack in face-to-face surface contact, each first woven fabric layer comprising an array of woven high molecular weight high tensile strength ballistic-resistant polymeric fibers, the individual first woven fabric layers being secured to each other to form a flexible unitary first sub-panel,

the second flexible sub-panel comprising a second group of flexible woven fabric layers arranged in a stack in face-to-face surface contact, each second woven fabric layer comprising an array of woven ultra high molecular weight high tensile strength ballistic-resistant polymeric fibers, the individual second woven fabric layers being secured to each other to form a flexible unitary second sub-panel,

the third flexible sub-panel comprising a group of flexible imperforate ballistic fiber-reenforced plastic sheets arranged in a stack in face-to-face surface contact, each fiber-reinforced sheet of the third sub-panel comprising an array of non-woven ballistic-resistant plastic fibers embedded in a resinous matrix type film, the individual ballistic fiber-reinforced plastic sheets of the third sub-panel being secured to each other to form a flexible unitary third sub-panel;

the fourth flexible sub-panel comprising a group of flexible imperforate ballistic fiber-reinforced plastic sheets arranged in a stack in face-to-face surface contact, each imperforate plastic sheet of the fourth sub-panel comprising an array of non-woven plastic fibers embedded in a resinous matrix type film, the individual fiber-reinforced sheets of the fourth sub-panel being secured to each other to form a flexible unitary fourth sub-panel,

the ballistic resistance of the composite ballistic package being provided essentially in its entirety from the strike side of the composite panel through the first, second, third and fourth sub-panels to the body side of the ballistic package; the first, second, third and fourth flexible sub-panels having a combined areal weight not greater than about 1.0 pound per square foot and having an NIJ standard maximum backface of about 44 mm with a ballistic resistance that prevents projectile penetration of the combined first, second, third and fourth flexible sub-panels according to NIJ Standard 0101.03 for Threat Level III-A.

5,724,671

FINISHED SWIMMING CAPS, AND COMPOSITIONS AND METHODS FOR PRODUCING SAME

John B. Theders, 26881 Mirlo Cir., Mission Viejo, Calif. 92691

Filed Jul. 12, 1996, Ser. No. 679,107
Int. Cl.[6] A42B *1/12*
U.S. Cl. 2—68 **15 Claims**



1. A swimming cap comprising:

a cap body including a cap-shaped member having an inner surface and an opposing outer surface;

a finish located on said outer surface, said finish formed from a composition comprising a reactable silicon-containing component in an amount effective to form a coating including at least one of said reactable silicon-containing component and a product thereof on said outer surface of said cap-shaped member contacted with said composition, and a starch component present in an amount effective in providing non-stick properties to said outer surface of said cap-shaped member.

5,724,672

MULTI-PURPOSE BAG

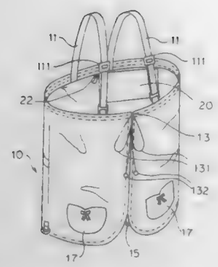
Kui-Sen Chen, No.1, Lane 356, Hsing-Hsueh St., Hsi-Hu Chen, Changhua Hsien, Taiwan

Filed Jun. 18, 1996, Ser. No. 665,373
Int. Cl.[6] A41D *1/22*; B65D *30/00*
U.S. Cl. 2—69 **2 Claims**

2. A structure convertible to a dress or a shoulder bag, comprising a bag body having a pair of belts whose ends are respectively engaged to an interior of an upper lateral side on a front and a rear piece of the bag body, an adjusting buckle to adjust a length of each of said pair of belts; wherein, a metallic string hole is provided on an upper middle section of the rear piece of the bag body for a string enveloped along the upper lateral side of the bag body to pass therethrough and to attach to a closed ring body of a fastening hook; both ends of said string being ended with a cap,

179–265 O.G.–98–2: QL3

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said ends respectively suspended out of a right side of the upper lateral side of the bag body to enable being tied up in a slip knot;

a zipper member is disposed, extending from a right side edge and a bottom edge to a lower section of a left side edge of the bag body;

a fastening ring is disposed at a lower middle section of the front piece of the bag body for attaching the fastening hook when drawn downwards;

a little pocket disposed at a lower middle section of the front piece, having a little zipper set engaged around four edges thereof and a first adhesive belt corresponding and fastened to a second adhesive belt disposed on the bag body, along with a holding ear at an interior upper middle side; said little pocket being closeable by the little zipper set so as to store the bag body for easy carrying;

whereby, the bag body when not stored in the reversible pocket has a double function of being convertible and supportable by said pair of belts as the shoulder bag or the dress.

5,724,673

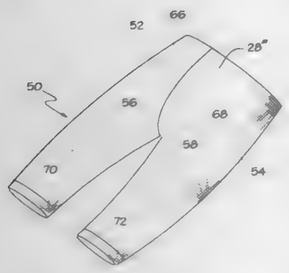
FIREFIGHTER GARMENT WITH LOW FRICTION LINER SYSTEM INCLUDING PATCHES

Donald Aldridge, New Carlisle, Ohio, assignor to Lion Apparel, Inc., Dayton, Ohio

Division of Ser. No. 151,408, Nov. 12, 1993, Pat. No. 5,539,928. This application Apr. 2, 1996, Ser. No. 626,502

Int. Cl.[6] A41D *13/00*

U.S. Cl. 2—81 **14 Claims**



13. A firefighter garment having a body portion adapted to cover and protect a portion of a wearer's body, said body portion comprising:

a plurality of layers of protective materials; and

at least one patch attached to at least one of said layers and positioned between two of said layers, said patch made of high-lubricity material and forming a low friction interface between said two of said layers of said garment.

5,724,674

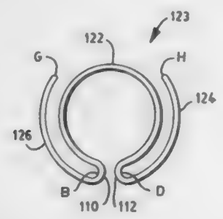
REINFORCED SLEEVE FOR SURGICAL GOWN

David Loring Covington, Cumming, Ga., and David James Alexander, Alpharetta, Ga., assignors to Kimberly-Clark Corporation, Neenah, Wis.

Continuation of Ser. No. 286,038, Aug. 4, 1994, abandoned. This application Jun. 27, 1996, Ser. No. 671,272

Int. Cl.[6] A41D *13/00;13/08;13/12;27/10*

U.S. Cl. 2—114 **12 Claims**



1. A gown sleeve comprising:

a single piece of material folded upon itself to form at least two integral layers bounded by at least two fold lines, said fold lines being attached to form a seam;

wherein one of the layers forms the sleeve and another layer forms an overlapping reinforcing layer adapted to substantially encircle at least a portion of a wearer's forearm.

5,724,675

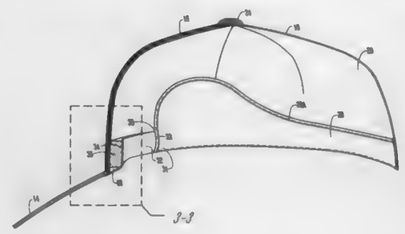
CAP WITH CROWN FORMED OF TWO SEGMENTS

Charles A. Lipkin, Golden Valley, and Eugene E. Lassek, Columbia Heights, both of Minn., assignors to Adcom of Iowa, Grant City, Mo.

Filed Sep. 17, 1996, Ser. No. 710,322

Int. Cl.[6] A42B *1/04*

U.S. Cl. 2—195.1 **23 Claims**



1. A cap having a crown portion comprised of a plurality of gores, a visor extending outwardly from a forward lower edge of the crown portion, an earflap portion foldable with respect to the crown and extending rearwardly around the lower periphery of said crown portion from one side thereof to the other, and an upstanding band secured to the inside of said crown portion at the forward lower edge thereof, the improvement comprising,

said crown portion comprising only a forward segment and a rearward segment directly connected together,

said rearward segment having an outer edge comprising a single piece of elastic material.

5,724,676

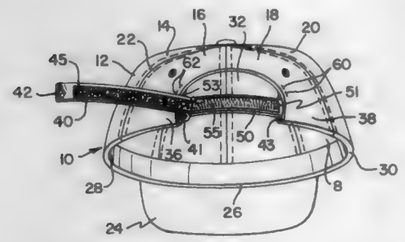
SIZE ADJUSTABLE HAT

Dominic Amendolia, 78 Old Cow Pasture La., Kinnelon, N.J. 07405, and John Chiarello, 699 Cooper Ave., Oradell, N.J. 07649

Filed May 6, 1996, Ser. No. 643,366

Int. Cl.[6] A42B *1/22*

U.S. Cl. 2—195.2 **12 Claims**



1. A size adjustable hat having a crown and a sweatband lying along an inner surface of the crown, the sweatband secured along a lower internal periphery of the crown, the crown having a downwardly directed crown opening at the back of the crown, the hat having a size adjustment system extending across the crown opening comprising:

an inner strap having a secured end and a free end, the secured end secured in a fixed position to the sweatband proximal to a margin of the crown opening and proximal to the lower periphery of the crown, the free end of the inner strap extending toward an opposite margin of the crown opening proximal to the lower periphery of the crown;

an outer strap extending adjacent to and in general longitudinal alignment with the inner strap, the outer strap having a secured end and a free end, the secured end secured in a fixed position on an opposite side of the crown opening from the secured end of the inner strap, the outer strap secured end secured to the crown proximal to a margin of the crown opening and proximal to the lower periphery of the crown, the free end of the outer strap extending through a first complementary shaped slot provided between the lower periphery of the crown and the sweatband on an opposite side of the crown opening from the fixed end of the outer strap in order to allow the free end of the outer strap to pass through the first complementary shaped slot for positionment between the sweatband and the lower periphery of the crown; and

cooperating flexible universally adjustable means for releasably engaging the inner strap to the outer strap in a transverse plane.

5,724,677

MULTI-PART HEADBAND AND RESPIRATOR MASK ASSEMBLY AND PROCESS FOR MAKING SAME

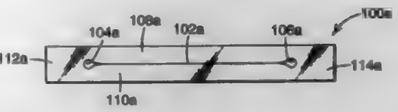
John W. Bryant; Desmond T. Curran, both of Durham, United Kingdom; James F. Dyrud, New Richmond, Wis.; Christopher P. Henderson, Durham, United Kingdom; Harold J. Seppala, St. Paul, Minn., and Elfed I. Williams, Llanelli, United Kingdom, assignors to Minnesota Mining and Manufacturing Company, St. Paul, Minn.

Filed Mar. 8, 1996, Ser. No. 614,785

Int. Cl.[6] A62B *18/08*

U.S. Cl. 2—206 **19 Claims**

1. A multi-part headband attachable to a face mask blank, the face mask blank having left and right headband attachment locations defining a headband path, the multi-part headband comprising a headband material extendable along the headband path between the left and right attachment locations, the headband material having at least one longitudinal score line, whereby the at least one longitudinal score line defines at least a two-part headband.



5,724,678

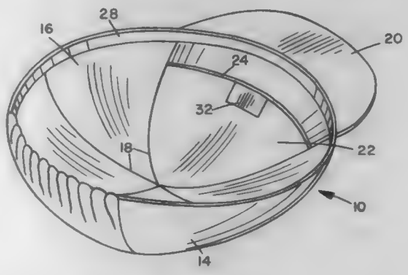
HAT WITH STORAGE POCKET

Timothy P. McCallum, 6717 Neptune Pl., San Diego, Calif. 92037-5921, and Frank C. Del Pizzo, Jr., 1505 Villa Chase Ct., Marietta, Ga. 30068

Filed Dec. 27, 1995, Ser. No. 578,989

Int. Cl.[6] A42B *1/04*

U.S. Cl. 2—209.13 **11 Claims**



1. A hat, comprising:

a head covering member shaped for forming a hat for covering part of the head of a wearer and having a first peripheral edge defining a head receiving opening, a front portion, a rear portion, opposite side portions and a crown for covering the crown of a wearer's head, the head covering member having an outer face and an inner face;

a pocket located at the inner face of the head covering member, the pocket extending from a location spaced above the peripheral edge in the front portion of the head covering member upwardly towards the crown, whereby at least the majority of the pocket is located entirely within a dead space of the head covering member which is designed to be above a wearer's eyebrows and not contact the wearer's head when the hat is worn, the pocket having an access opening;

a releasable fastener for releasably closing the pocket opening; and

the pocket having an outer layer, an inner layer, and a pull tab secured to the outer layer adjacent the access opening whereby a user may pull said pull tab to release the fastener and open the pocket opening.

5,724,679

ATHLETIC PANTS WITH BACK POCKET

Gerald L. Hans, 2624 Green Oak Place, Los Angeles, Calif. 90068

Filed Aug. 15, 1996, Ser. No. 698,022

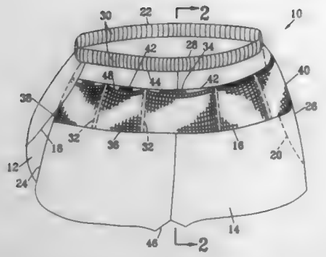
Int. Cl.[6] A41D *1/06;27/20*

U.S. Cl. 2—238 **9 Claims**

1. Athletic pants equipped with an expandable pocket structure, said athletic pants comprising:

a front panel formed with a set of left edge and right edge portions;

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a back panel having an inner surface and an outer surface and formed with a left, right and top edge portion,

said left and right edge portions of the front and back panels being at least partially attached along the respective edge portions, thereby enabling said panels to move freely,

said pocket structure comprising:

an inner layer that extends laterally across the outer surface of the back panel and having left, right and top edge portions and is affixed at its left, right and top edge portions adjacent to the corresponding edge portions of the back panel,

an outer layer that is coextensive with said inner layer forming an enclosure and including left and right edge portions affixed adjacent to the corresponding back panel edge portions;

whereby said pocket structure is free to expand upon having articles deposited therein without interfering with said front and back panels.

5,724,680

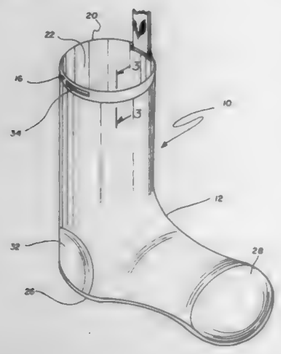
LINER FOR RUBBER BOOTS

Andrew J. Cesnick, and Michael W. Cesnick, both of 71 Spruce St., Natrona, Pa. 15065

Filed Nov. 12, 1996, Ser. No. 774,250

Int. Cl.[6] A41B *11/00*

U.S. Cl. 2—239 **8 Claims**



1. A liner for rubber boots to provide a second layer of foot protection comprising in combination:

an inner sock of water proof material having an over sized foot shape for loosely enclosing a wearer's foot, the sock having an upper portion with a semi-rigid interior member and an upper edge defining an opening therein, the sock having a sole portion, the upper portion having a pair of horizontal slots therethrough, each one of the horizontal slots being in symmetrical alignment with another of the horizontal slots;

at least two elongated strips of non-slip fabric being composed of waterproof material and having an adhesive on one side thereof, the adhesive of the two strips allowing the strips to be attached to the sole of the sock, the two strips being attached to the sole of the inner sock in a parallel orientation relative to the sole and in a substantially spaced and parallel orientation relative to one another, the two strips being attached to the inner sock prior to the wearer positioning the inner sock within a rubber boot for disallowing movement of the inner sock within the rubber boot; and

at least one elongated strap having a first end and a second end, the first end having a fastening means attached thereto and the second end having a receiving means for coupling with the fastening means of the first end, the first end of the strap being passed through at least one of the horizontal slots of the inner sock and around a belt of the sock wearer and coupling with the second end forming a support loop, the support loop supporting the inner sock around the wearer's foot when positioned within the rubber boot.

5,724,681

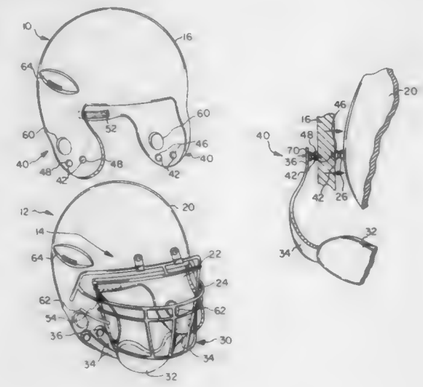
SHOCK-ABSORBING HELMET COVER

Bob Sykes, 1816 E Oakland Park Blvd, Apartment 65, Oakland Park, Fla. 33306

Filed Nov. 22, 1996, Ser. No. 755,170

Int. Cl.[6] A42B *3/00*

U.S. Cl. 2—425 **17 Claims**



1. A protective cover apparatus for a helmet comprising a helmet shell with a helmet outer surface and a face exposing opening bordered by a helmet male snap fastener half protruding from the helmet outer surface, a helmet anchoring chin strap assembly having a strap extending from said strap assembly, said strap having a strap female snap fastener half which engages said helmet male snap fastener half bordering said face exposing opening, comprising:

a shock-absorbing layer having a layer inner surface and a layer outer surface and which extends over the helmet outer surface and over said helmet male snap fastener half;

a shock-absorbing layer attachment assembly comprising an attachment mechanism including a fastener interconnection structure passing through said layer at a location corresponding to and directly over said helmet male snap fastener half, said interconnection structure having a structure inside end to which is affixed a cover female snap fastener half for removably engaging the corresponding said helmet male snap fastener half, and said interconnection structure having a structure outside end to which is affixed a cover male snap fastener half to engagingly receive said strap female snap fastener half such that said chin strap assembly may be attached with said cover in place over the helmet.

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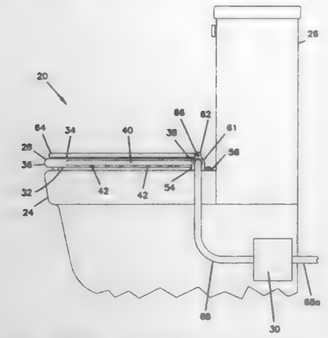
TOILET VENTILATION SYSTEM

Steven Johnson, R.R. 1 Box 154A, Puposky, Minn. 56667

Filed Sep. 5, 1996, Ser. No. 711,689

Int. Cl.[6] A47K *13/00*

U.S. Cl. 4—217 **4 Claims**



1. A toilet ventilation system comprising:

a toilet bowl;

a toilet seat having a bottom surface positioned opposite from a top seating surface and a back end positioned opposite from a front end, the toilet seat defining an inner duct located within the toilet seat and a plurality of ventilation apertures extending between the inner duct and the bottom surface of the toilet seat, the toilet seat also having a left side opposite from a right side;

first and second generally co-axially aligned pivot members integral with the back end of the toilet seat, the first pivot member extending laterally outward from one of the left and right sides of the toilet seat, and the second pivot member extending laterally outward from the other of the left and right sides of the toilet seat, the first pivot member defining a first axial opening in fluid communication with the inner duct;

first and second bracket members fixedly connected to the toilet bowl, the first and second bracket members defining looped portions through which the first and second pivot members respectively extend to mount the toilet seat on the toilet bowl, the first and second pivot members being free to pivot with respect to the first and second bracket members such that the toilet seat is pivotally movable between a raised position and a lowered position;

a fixedly positioned ventilation conduit providing fluid communication between the first axial opening of the first pivot member and a source of vacuum; and

a swivel structure providing a generally fluid tight connection between the fixedly positioned ventilation conduit and the first pivot member, the swivel structure being constructed and arranged to allow the first pivot member to pivotally rotate with respect to the ventilation conduit while maintaining the fluid tight connection.

5,724,683

HINGE MECHANISM FOR SUPPORTING THE SEAT OR THE SEAT LID OF A TOILET BOWL

Akira Sorimachi, and Kanetsugu Miyazaki, both of Kanagawa, Japan, assignors to Katoh Electrical Machinery Co., Ltd., Kanagawa, Japan

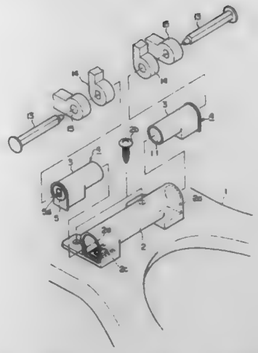
Filed Oct. 13, 1995, Ser. No. 543,126

Claims priority, application Japan, Oct. 20, 1994, 94-255855; Sep. 26, 1995, 95-010133 U

Int. Cl.[6] A47K *13/12*

U.S. Cl. 4—248 **7 Claims**

1. A hinge mechanism for supporting a seat or a seat lid of a toilet bowl, comprising:



a substantially cylindrical case having a bearing wall formed within said case and mounting means for mounting on said toilet bowl;

a shaft having an oval hole in axial direction thereof, and rotatably inserted in said cylindrical case;

a hinge pin for supporting the seat or the seat lid, said hinge pin having oval sections and inserted in said oval hole so as to rotate with said shaft;

a cam mechanism comprising a slider axially slidably mounted on said shaft within the case so as to turn together with the shaft, and a cam member fixedly mounted on said bearing wall and having a center hole and rotatably receiving the shaft therein; and

a compression spring wound around the shaft and compressed between the shaft and slider so as to urge the slider resiliently toward the cam member, wherein the compression spring, the slider, and a working surface of the cam member are designed so that the shaft has a lower torque than a torque of the seat or the seat lid between from 0° to a predetermined opening angle and has an equal torque in a middle opening angle of the seat or the seat lid, and has a higher torque than the torque of the seat or the seat lid between from a predetermined opening angle to a maximum opening angle.

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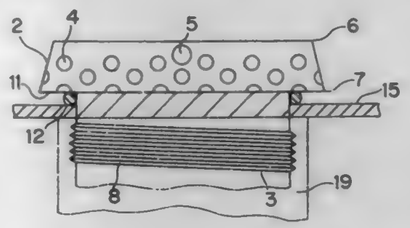
RAISED STRAINER

Peter Fedorvich Paar, 125 High St., Ashland, Mass. 01721

Filed Nov. 6, 1996, Ser. No. 744,638

Int. Cl.[6] E03C *1/26*

U.S. Cl. 4—288 **3 Claims**



3. A strainer for attachment to a sink opening to strain out foreign particles while allowing water to pass through the sink opening in combination with a tool, comprising:

a housing having a top, bottom and sides,

said top having a perforated surface extending across the entire top,

said sides extending between said top and said bottom of said housing,

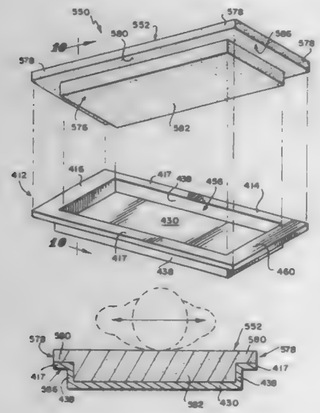
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said sides tapering from said top to said bottom so that said bottom is wider than said top,
a threaded portion extending from said bottom,
said sides having a plurality of apertures therethrough,
at least one of said apertures in said sides being larger than the other apertures,
means engaging said threaded portion to secure said housing to a sink opening, and wherein
said tool has an outside diameter which is slightly smaller than said larger aperture in said rim,
whereby said tool is adapted to be inserted into said larger aperture in order to turn said housing and thereby secure said housing to said sink.

5,724,685
STEP DECK FOR A BED

Matthew W. Weismiller, Batesville, Ind.; Gregory W. Branson, Batesville, Ind.; Kenneth L. Kramer, St. Paul, Ind.; Philip D. Palermo, Celina, Ohio; David J. Ulrich, Sunman, Ind.; David A. Albersmeyer, Batesville, Ind.; Jason C. Brooke, Greensburg, Ind.; Eric R. Meyer, Greensburg, Ind., and John D. Miller, Brookville, Ind., assignors to Hill-Rom, Inc., Batesville, Ind.

Filed Aug. 4, 1995, Ser. No. 511,547
Int. Cl.[6] A47C *27/156;27/16;* **A61G** *7/00*
U.S. Cl. 5—600 **20 Claims**

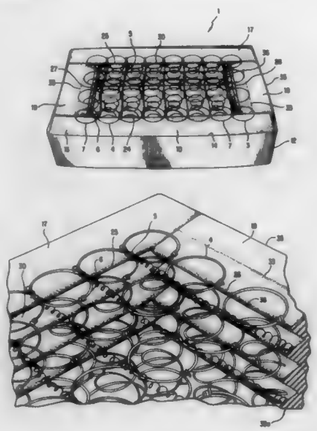


1. A support assembly for supporting a body, the support assembly comprising:
a deck including an upper deck portion, a lower deck portion coupled to the upper deck portion by a deck side wall so that the lower deck portion is spaced apart from the upper deck to define a central, longitudinal recess in the deck, the lower deck portion extending across the deck to provide a lower deck support surface; and
a mattress resting on the deck, the mattress including a generally planar upper mattress section having an upwardly-facing body support surface and a bottom surface engaging the upper deck portion, a central projection extending downwardly from the upper mattress section into the recess, the central projections having a bottom surface engaging the lower deck support surface and a side wall being located adjacent the deck side wall.

5,724,686
CUSHION OR MATTRESS BORDER SUPPORT

Charles H. Neal, Henrico County, Va., assignor to Eastern Sleep Products, Inc., Richmond, Va.

Filed Feb. 25, 1997, Ser. No. 805,734
Int. Cl.[6] A47C *27/05;23/04*
U.S. Cl. 5—717 **9 Claims**



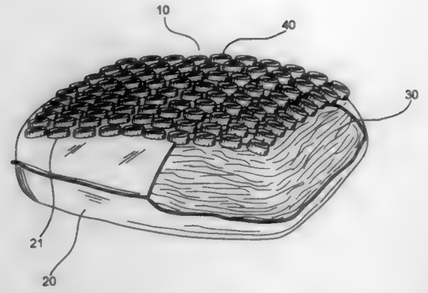
1. A border support for a mattress or the like comprising:
(a) a coil spring unit having at least one row of coil springs;
(b) at least one foam strip positioned along at least a portion of an outer side of an outermost row of said coil springs; and
(c) a support band positioned about the outermost wall of said foam strip;
wherein said foam strip has at least one longitudinal groove formed on the inside wall of said foam strip, and said portions of said outer side of said outermost coil springs extend inwardly into said groove for a distance such that the outer edge of said groove is approximately aligned with the vertical center line of said outermost coil springs, and said foam strip has a down sloping indentation on the top of said foam strip starting at approximately midway the distance from the outermost wall of said foam strip to said inside wall and extends to the edge of said inside wall, said outermost coil springs have top convolutions that extend over said down sloping indentation.

5,724,687
JADE PILLOW

Young Ho Kim, 3959 W. 182nd St., Apt. 234, Torrance, Calif. 90504

Filed Jul. 31, 1996, Ser. No. 688,951
Int. Cl.[6] A47C *20/00*
U.S. Cl. 5—944 **1 Claim**

1. A therapeutic cushion comprising an outer cover, cushion fill, and a quadrangular lattice of cylindrical members, wherein said cushion fill and said quadrangular lattice of cylindrical members are disposed within said outer cover, wherein said cushion fill and said quadrangular lattice of cylindrical members are removable from said outer cover:
a) said quadrangular lattice of cylindrical members comprising a plurality of cylindrical members which are woven together by thread, each of said cylindrical members connected to a plurality of other said cylindrical members, thereby forming said quadrangular lattice of cylindrical members;
1) a plurality of beads being strung along portion of said thread between said cylindrical members preventing said cylindrical members from sliding along said thread; and
2) said cylindrical members being made of jade; and

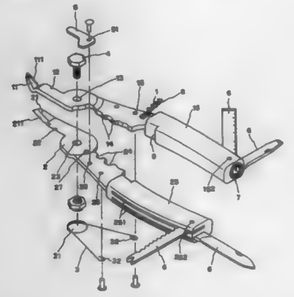


b) said outer cover having a plurality of apertures accommodating said lattice of cylindrical members, and being made of a material which can be easily washed.

5,724,688
MULTIPURPOSE TOOL

Chin-Chuan Chen, 7F, No. 13, Lane 364, Sec. 1, Kee Lung Rd., Taipei, Taiwan

Filed Aug. 2, 1994, Ser. No. 284,827
The portion of the term of this patent subsequent to Aug. 2, 2014, has been disclaimed.
Int. Cl.[6] B25B *7/22*
U.S. Cl. 7—128 **7 Claims**

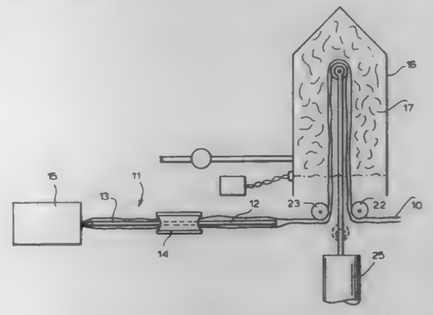


1. A multipurpose tool comprising:
a first elongated, flat blade having a front end terminating in an upward scissors portion and a rear end fixedly fastened with a handle, a V-cut at one side adjacent to the upward scissors portion, a pivot hole between the upward scissors portion and the handle, a serrated portion longitudinally disposed at an opposite side adjacent to the handle, a spring mounting hole adjacent to the serrated portion;
a second elongated, flat blade having a front end terminating in an upward scissors portion moved to act against the upward scissors portion of said first elongated, flat blade and a rear end fixedly fastened with a handle, a V-cut at one side adjacent to the upward scissors portion of said second elongated, flat blade and acted against the V-cut on said first elongated, flat blade to cut or strip electric wires, a pivot hole between the upward scissors portion and handle of said second elongated, flat blade and pivotally connected to the pivot hole of said first elongated, flat blade, a serrated portion longitudinally disposed at an opposite side and acted against the serrated portion of said first elongated, flat blade to crimp things, a spring mounting hole adjacent to the serrated portion of said second elongated, flat blade;
a pivot fastened to the pivot holes on said first and second elongated, flat blades permitting said first and second elongated, flat blades to act as a pair of scissors;
a torsional spring mounted around said pivot between the pivot holes of said first and second elongated, flat blades, having two opposite ends respectively fastened to the spring mounting holes of said first and second elongated, flat blades; and
a limit plate pivotally fastened to said second elongated, flat blade and releasably stopped against said first elongated, flat blade to limit the relative turning angle of said first and second elongated, flat blades.

5,724,689
METHOD AND APPARATUS FOR TREATING KNITTED FABRIC

William D. Milligan, Matthews; Fritz Witt, Charlotte, and Hong Peng, Greensboro, all of N.C., assignors to Tubular Textile LLC, Lexington, N.C.

Filed Oct. 11, 1996, Ser. No. 728,481
Int. Cl.[6] D06B *3/10*
U.S. Cl. 8—149.3 **11 Claims**



1. The method of treating knitted fabric, in which a continuous web of the fabric is laterally distended to predetermined width and then finish processed, which comprises
(a) presenting the fabric in substantially dry condition and in generally flat form,
(b) steaming the fabric by
(i) guiding said fabric upwardly into, and then downwardly out of an open bottom steam chamber, and
(ii) supplying said steam chamber with saturated steam substantially at atmospheric pressure,
(c) immediately after steaming, spreading the steamed fabric to said predetermined width, and
(d) immediately thereafter finish processing said fabric.

6. An apparatus for treating knitted fabric and of the type including means for spreading, steaming and finish processing the fabric, which comprises
(a) supply means for supplying knitted fabric in substantially dry condition and in generally flat form,
(b) a generally vertically oriented, open bottom housing forming a substantially closed steam chamber,
(c) means for guiding fabric, received from said supply means, upwardly into said steam chamber and then downwardly out of said chamber,
(d) means for supplying saturated steam at atmospheric pressure to the interior of said steam chamber to maintain upper portions of said chamber substantially filled with said saturated steam,
(e) fabric spreading means positioned adjacent the open bottom of said steam chamber for receiving and laterally distending fabric exiting said chamber, and
(f) finish processing means positioned to receive fabric from said spreading means.

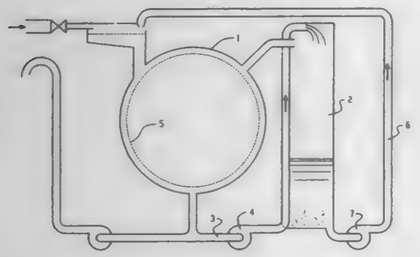
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5,724,690

CLOTHES WASHING MACHINE WITH WATER RECOVERY RESERVOIR AND IMPROVED WASHING CYCLE

Piero Babuin, Pordenone, and Silvano Cimetta, Treviso, both of Italy, assignors to Electrolux Zapussi Electrodomestici S.p.A., Pordenone, Italy

Filed Feb. 28, 1996, Ser. No. 608,254
Claims priority, application Italy, Mar. 7, 1995, PN95A0015
Int. Cl.[6] D06F *39/08*
U.S. Cl. 8—158 15 Claims



1. A method of rinsing clothes in a clothes washing machine, the clothes washing machine having a washing tub (1), a drum (5) rotatably arranged within said tub and adapted to hold the washload, a liquor recovery reservoir (2), a liquor transfer conduit (3) connecting a lower portion of said washing tub with the inner volume of said reservoir, a second conduit (6) connecting the inner volume of said reservoir with the inner volume of said washing tub, and a pump (7) provided in said second conduit, said machine being adapted to perform, during a regular washing program, at least one washing phase followed by a plurality of general rinsing phases, and being also adapted to perform, at pre-settable times, spin extraction phases at a high revolution speed of the drum, the method characterized in that during any one of the general rinsing phases, a second rinse process is integrated in said general rinsing phase and comprising the steps of:

transferring substantially all removable rinsing liquor from the tub to said reservoir,

spinning the drum holding the washload at the high revolution speed to extract liquor from the washload,

draining, and discharging from the machine, the liquor extracted from the washload during said high-speed spinning of the drum, and

returning the liquor stored in said reservoir to the tub.

5,724,691

DEPLOYABLE BRIDGE ASSEMBLED FROM INDIVIDUAL COMPONENTS

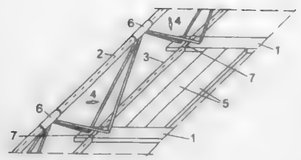
Hans-Norbert Wiedeck, Muelheim an der Ruhr, and Wolfgang Diefendahl, Straelen, both of Germany, assignors to Krupp Foerdertechnik GmbH, Duisburg, Germany

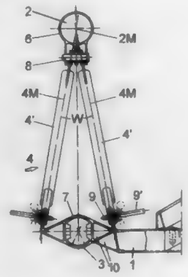
Filed Mar. 15, 1996, Ser. No. 616,633
Claims priority, application Germany, Mar. 23, 1995, 195 10 [illegible]
Int. Cl.[6] E01D *15/133;6/00;15/00*
U.S. Cl. 14—2.4 11 Claims

1. A deployable bridge assembled from individual components, comprising:

cross girders and pavement slabs disposed between the cross girders, the cross girders each having opposite ends;

first and second continuous girders each disposed along one of the opposite ends, respectively, of the cross girders, each continuous girder comprising an upwardly pointing truss having top and bottom chords and truss members arranged between the top and bottom chords and connected to the top and bottom chords at top and bottom nodal points, respectively, the top and bottom chords each being divided in regions of the top and bottom nodal points into a plurality of top chord members and bottom chord members, each continuous girder further including connecting elements which connect the top chord members together and the bottom chord members together, the truss members each being affixed at a top end to the connecting elements of the top chords and at a bottom end to one of (a) a respective one of the connecting elements of the bottom chords and (b) a respective end of the cross girders.



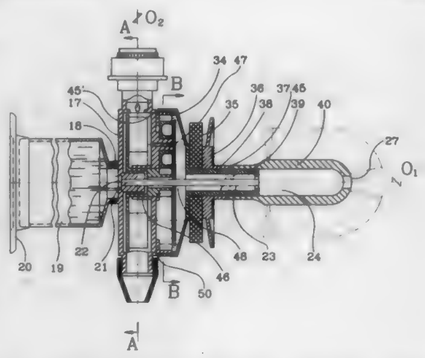


5,724,692

DEVICE FOR WASHING HOLLOW ARTICLES

Sam Zhadanov, and Eli Zhadanov, both of 1120 E.Linden Ave., Linden, N.J. 07036

Filed Jun. 3, 1996, Ser. No. 660,154
Int. Cl.[6] B08B *9/20*
U.S. Cl. 15—69 8 Claims



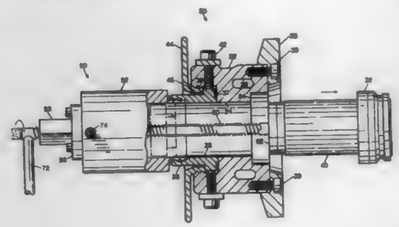
1. A device for washing hollow objects, comprising a working instrument; a hollow housing forming an inner chamber; a rotor rotatable in said chamber under the action of water; means for connecting said rotor to said working instrument for washing an object; water inlet and water outlet means for supplying water into said chamber and withdrawing at least a part of water from said chamber, said water inlet and said water outlet means being formed as a water inlet nozzle and a water outlet nozzle arranged coaxially with one another, wherein said chamber has an axis, said water inlet nozzle and said water outlet nozzle having a common axis coinciding with said axis of said chamber, said rotor having an axis of rotation located on said common axis.

5,724,693

APPARATUS FOR CLEANING EXTRUDER HEAD

Roger Barnett, Lorette, Tenn., assignor to ACD Tridon Inc., Burlington, Canada

Filed Apr. 19, 1996, Ser. No. 636,756
Int. Cl.[6] B08B *9/00*
U.S. Cl. 15—104.05 8 Claims



1. Tool for dislodging extrudate from an extruder head defining a longitudinal opening through which extrudate may flow, the opening having a threaded termination for cooperation with a die clasp to retain a die in the extruder head, wherein the tool comprises:

a hollow mounting hub threaded at one end to cooperate with said opening when the die clasp is removed, and adapted to mount the tool to the extruder head;

a plunger having a stop at one end mounted to a shaft extending longitudinally through said mounting hub; and

thrust means associated with the plunger and adapted to reciprocate the plunger between a retracted position in which the plunger is housed in the hub and an extended position in which the plunger protrudes from the hub, said plunger being dimensioned to be received in said opening with the stop in abutment with extrudate lodged in the opening and the thrust means being adapted to dislodge extrudate from the extruder head in an extended position of the plunger with the stop remote from the mounting hub.

5,724,694

SELF-SQUEEZING MOP

Larry I. Lewis, 2612 Saxon Pl., Rockford, Ill. 61114

Filed Jan. 10, 1997, Ser. No. 781,652
Int. Cl.[6] A47L *13/44*
U.S. Cl. 15—119.1 14 Claims

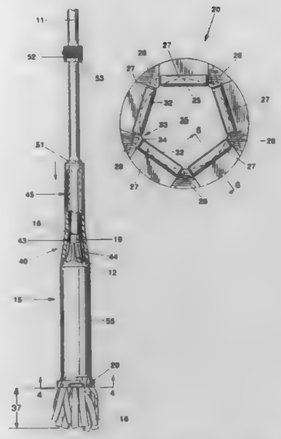
1. A self-squeezing mop comprising:

an elongate handle including first and second ends,

a mop head including non-woven stranded absorbent material releaseably attached to the first end of the handle,

a hollow cylinder disposed about an axis and mounted substantially coaxially for longitudinal movement along a portion of the handle near the first end between a retracted position and an extended position, the cylinder having a squeeze end and a grip end, the squeeze end substantially adjacent to the first end in the retracted position, and the squeeze end located beyond the first end in the extended position, and

a squeeze ring on the squeeze end for compressing the absorbent material, the squeeze ring carrying a plurality of rollers spaced angularly about the axis, the rollers arranged to compress the absorbent material as the cylinder travels from the retracted to the extended position, thereby using a linear squeezing action to remove an amount of liquid carried by the absorbent material, the absorbent material having sufficient body to avoid bunching in the cylinder as the cylinder travels from the extended to retracted position.

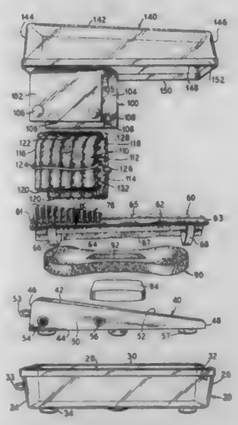


5,724,695

FOOT BRUSH ASSEMBLY

Michael A. Galizia, 153 Sussex Ct., Roselle, Ill. 60172

Filed Aug. 29, 1996, Ser. No. 705,563
Int. Cl.[6] A46B *11/00*
U.S. Cl. 15—160 19 Claims



10. A foot brush assembly comprising:

a base member including top and bottom walls, opposed sidewalls and front and rear walls;

a loofa base pad disposed over said top wall of said base member, said loofa base pad including a front edge and rear edge, the bottom of the foot being rubbed against said loofa base pad;

a brush on said loofa base pad adjacent the front edge thereof, said brush including a plurality of bristles extending generally upwardly away from said loofa base pad, the toes and bottom of the foot being rubbed against the bristles;

first and second spaced apart elastic base pad straps on said loofa base pad for removably securing said loofa base pad to said base member, said first and second base pad straps extending around and abutting said sidewalls and said lower wall of said base member;

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a sponge disposed between said base member and said loofa base pad, the sponge including a cavity therein adapted to receive a bar of soap;

a bridge member removably secured over the top of said base member and positioned adjacent the front wall of said base member to define a foot receiving cavity between said bridge member and said base member, said bridge member including an inner and outer surface opposed side walls and a top wall therebetween, said opposed sidewalls of said bridge member being removably secured to said sidewalls of said base member respectively;

a loofa bridge pad removably secured to the inner surface of said bridge member;

a brush on said bridge pad including a plurality of bristles extending the length of, and generally perpendicularly away from, said loofa bridge pad, the top and sides of the toes and the foot being rubbed against said brush when the foot is placed inside said cavity defined by said bridge member; and

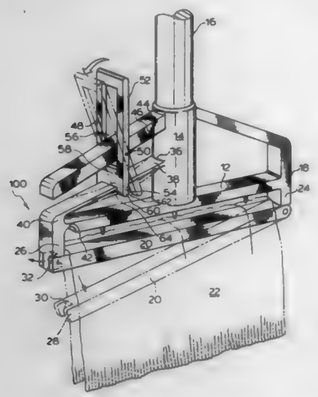
a plurality of elastic bridge pad straps on said loofa bridge pad for removably securing said loofa bridge pad to said bridge member, said bridge pad straps extending around and abutting said outer surface of said bridge member.

5,724,696

MOP HEAD RETAINER

Silvio Di Giammarino, 59 Talman Court, Concord, Ontario, Canada, L4K 4L5

Filed Dec. 4, 1996, Ser. No. 760,630
Int. Cl.[6] A47L *13/258*
U.S. Cl. 15—150 **10 Claims**



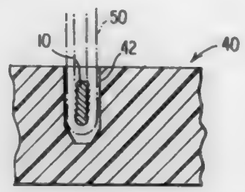
1. A mop head retainer for a mop head, having a shank for connection to a mop handle, an elongated body secured at its middle to the shank, and a jaw cooperable and pivotal with respect to said body to releasably grip and retain a mop head between said jaw and said body and release it therefrom, wherein said elongated body is provided with ends, retaining means, and opposite, spaced first and second terminal extensions downwardly extending from said ends of the body, said first terminal extension is provided with a lower free end, said second terminal extension is provided with a lower free end with a surface and an upper end, and said jaw has a plane of rotation and is provided with a secured end and a free end, the secured end of said jaw being pivotably secured to the lower free end of said first extension, the free end of the jaw and the surface of the lower free end of the second extension being provided with co-operating engagement means releasable upon spacing apart of said lower free end of said second extension and the free end of said jaw, so that when engaged, said jaw and said body are secured in spaced parallel orientation; the retaining means being provided with an elongated semi-rigid release member having first and second ends, said first end of said member is attached to said shank at a point spaced from said body, said second end of said member is attached to the upper end of said second terminal extension, whereby downward pressure on a part of said release member between its ends causes deflection of said release member to move said second terminal extension and consequently move the lower end of said second terminal extension away from said jaw to release said engagement means when in an engaged position and permit said jaw to open, and removal of said downward pressure causes said release member and said second terminal extension to return to their original positions to permit re-engagement of said engagement means when said jaw is to be engaged; a protective member secured to said shank and extending towards the upper end of said second terminal extension, said release member being positioned between said protective member and said body, whereby said protective member protects said release member from flexing and thereby disengaging said engagement means; the improvement comprising said protective member is provided with a pressure member having an abutable portion downwardly extending towards and adjacent said release member and operably abutable with said release member to effect said downward pressure on said part of said release member to effect said release of said engagement means.

5,724,697

TOOTHBRUSH CONSTRUCTION

Martin Howard Klee, Highland Park, N.J., and Francis Patrick Paciullo, Branchburg, N.J., assignors to Colgate-Palmolive Company, New York, N.Y.

Filed Aug. 2, 1996, Ser. No. 692,818
Int. Cl.[6] A46B *3/16*
U.S. Cl. 15—205 **8 Claims**



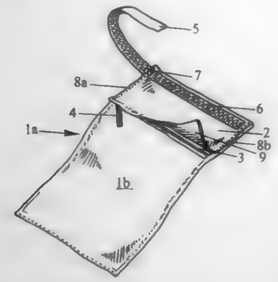
1. A toothbrush head staple and tuft construction for holding a U-shaped tuft of bristles in said head, said head having an upper surface and a hole extending downwardly from said head upper surface, said tuft of bristles having a bight portion and having vertically extending legs, said tuft of bristles located in said hole in said head, the legs of the U-shaped tuft extending substantially vertically upward from said bight portion and extending beyond said head upper surface, said staple being generally flat and lying in a vertical plane and having opposed major sides and a bottom edge, one of said major sides of said staple being providing with roughened areas, said bottom edge bearing against said tuft bight portion and being rounded where said bottom edge contacts said tuft bight portion, said staple having vertically extending edges which engage diametrically opposing portions of said hole, said tuft bight portion located within said hole, whereby the tendency of said bottom edge of said staple to weaken the tuft at said tuft bight portion is lessened.

5,724,698

FOLDED POCKET TOWEL

Deborah Koch M. Mondragon, 13416 Reindeer St., Moreno Valley, Calif. 92553

Filed Apr. 8, 1996, Ser. No. 628,932
Int. Cl.[6] A41D *27/00*
U.S. Cl. 15—209.1 **1 Claim**



1. An elongated folded pocket towel for cleaning equipment as well as drying perspiration from hands and face of a user, said towel comprising:

an elongated generally rectangular fabric piece formed from a washable absorbent cloth material, said fabric piece having a first portion folded about an axis perpendicular to said elongation with part of lateral sides thereof being secured to a remaining second portion to form a pocket, said first portion has a length along said elongation substantially shorter than a length of said second portion along said elongation;

a tabbed zipper means attached between and to said portions to define a closable entrance to the pocket;

a free end part of the first portion overlies the zipper means and forms a flap which conceals said zipper means;

a first elongated strap lying in the fold between the first and second portions of the fabric piece and secured thereto, the first strap extends from said fold and has one of hook and loop fasteners thereon;

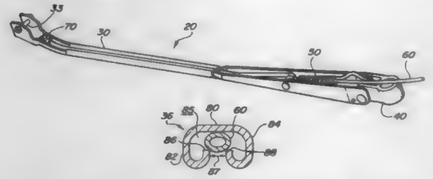
a second elongated strap secured to the first portion of the fabric piece and having the other of hook and loop fasteners thereon, wherein the straps cooperate together to form adjustable attaching means for attaching the pocket towel to a variety of equipment and apparatus.

5,724,699

WINDSHIELD WIPER ARM ASSEMBLY WITH FLUID TUBE

Daniel P. Bexten, Columbus, Miss., assignor to United Technologies Motor Systems, Inc., Columbus, Miss.

Continuation of Ser. No. 357,677, Dec. 16, 1994, abandoned. This application Apr. 22, 1996, Ser. No. 637,007
Int. Cl.[6] B60S *1/46;1/32*
U.S. Cl. 15—250.04 **1 Claim**



1. A windshield wiper arm supporting a wiper blade, said arm comprising:

an elongated flexible fluid delivery tube having a given diameter, and

a longitudinally elongated member having:

an inboard end portion,

an outboard end portion, and

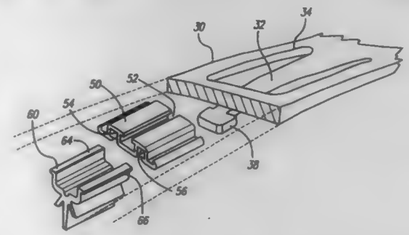
an intermediate portion extending longitudinally between said inboard end portion and said outboard end portion, said intermediate portion having a longitudinally extending base, said base having a pair of side edges and a pair of first bends, each bend defining a side wall relative to and extending from said base, each wall having a second bend such that an end region of each wall extends toward the base and wherein each end region has an edge that faces the base said end regions defining a reduced width opening to a channel defined between said walls, said opening having a width less than said diameter of said tube, said width being sufficient to allow said flexible tube to be inserted through said opening into said channel with non-destructive deformation of the tube and to retain said tube in said channel.

5,724,700

LOW PROFILE, FLAT SPRING WINDSHIELD WIPER ASSEMBLY

Joel Steven Marks, Los Angeles, Calif., assignor to WorkTools, Inc., Chatsworth, Calif.

Filed Oct. 31, 1994, Ser. No. 331,705
Int. Cl.[6] B60S *1/28;1/38*
U.S. Cl. 15—250.41 **16 Claims**



9. A windshield wiper frame assembly comprising:

a resilient, flat strip body having a topside and an underside side, the body including a curvature bending downward toward the underside;

resilient fingers each cantilevered from the body extending within a respective opening in the body, wherein each resilient finger is biased downward and includes an enlarged distal end;

an elongated spline having at least two co-planer wiper attachment channels and a frame attachment channel with a reduced width opening extending along a length of the spline, wherein the enlarged distal ends of the resilient fingers are slidably received within the frame attachment channel and held laterally with respect thereto; and

a wiper blade having co-planer runners extending along a length thereof engaging the co-planer wiper attachment channels.

5,724,701

H.V.A.C. DUCT CLEANING SYSTEM

Edward Ames Jones, 242 W. Glen Ave., Ridgewood, N.J. 07450

Filed Aug. 15, 1994, Ser. No. 290,540
Int. Cl.[6] F23J *3/02*
U.S. Cl. 15—304 **10 Claims**

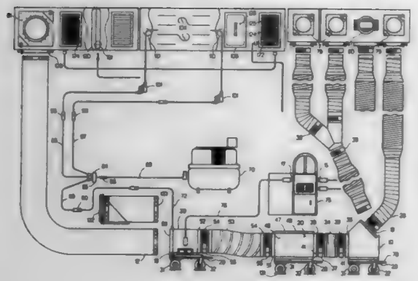
6. An H.V.A.C. duct cleaning system comprising:

a tube axial blower having first and second ends for creating an air flow;

variable frequency drive means interconnected with the tube axial blower for varying the speed of the tube axial blower;

preliminary filter means interconnected with the first end of the tube axial blower for filtering the air flow; and

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duct connection means for connecting the preliminary filter means to a H.V.A.C. duct.

5,724,702

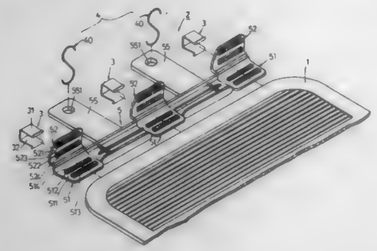
Patent Not Issued For This Number

5,724,703

POSITIONING DEVICE FOR POSITIONING A MAT IN A CAR

Sheng-Ho Wu, No. 7, Fu-Chiang Rd., Kuan-Tien Hsiang, Tainan Hsien, Taiwan

Filed Dec. 31, 1996, Ser. No. 775,405
Int. Cl.[6] A47G *27/04*
U.S. Cl. 16—4 6 Claims



1. A positioning device for positioning a mat in a car, said positioning device comprising:

an elongated clamping base formed with at least one lower clamping unit and at least one upper clamping unit having a rear edge hinged to a corresponding said lower clamping unit;

at least one spring unit provided on said clamping base for biasing said upper clamping unit toward the corresponding said lower clamping unit; and

a hook unit having a first end connected to said clamping base and a second end adapted to be hooked at a desired position in the car;

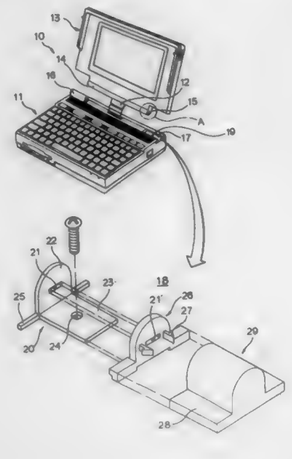
whereby, said upper and lower clamping units are adapted to clamp an edge portion of the mat therebetween, said spring unit ensuring tight engagement between said upper and lower clamping units and the edge portion of the mat.

5,724,704

DETACHABLE HINGE DEVICE FOR PORTABLE NOTEBOOK COMPUTER

Yong-Seok Seo, Kyonggi-do, Rep. of Korea, assignor to Sam-Sung Electronics Co., Ltd., Suwon, Rep. of Korea

Filed Mar. 18, 1996, Ser. No. 616,555
Claims priority, application Rep. of Korea, Apr. 6, 1995, 6762/1995
Int. Cl.[6] E05D *7/10*
U.S. Cl. 16—254 12 Claims



1. A hinge device, comprising:

a projection having first and second sides and extending from a lower edge of a first element;

a hinge member having first and second ends extending outwardly from said first and second sides of said projection, respectively;

a first attachment unit positioned on a second element and connecting to said first end of said hinge member; and

a second attachment unit detachably mounted on said second element and having a first groove for receiving said second end of said hinge member, said projection and said first and second attachment units defining an axis about which said first element rotates relative to said second element, said second attachment unit comprising;

a bracket, comprising:

a vertical plate having said first groove formed therein for receiving said second end of said hinge member;

a horizontal plate extending perpendicularly from said vertical plate; and

a supporting rod formed along an extended border line between said vertical plate and said horizontal plate;

an injection molding connected to said bracket, said injection molding having a second groove corresponding to said first groove formed in said vertical plate and a fastener extending outwardly in a direction away from said vertical plate; and

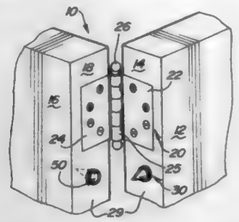
a cover connected to said fastener of said injection molding, said cover having a flange for accommodating insertion of said cover into a channel formed in said second element.

5,724,705

DOOR SECURITY APPARATUS

David H. Hauser, 3544 Franklin Rd., Bloomfield Hills, Mich. 48302

Filed May 9, 1996, Ser. No. 644,033
Int. Cl.[6] E05D *5/02*
U.S. Cl. 16—388 5 Claims



1. A door security device for use in securing a door against unauthorized entry, the door having a hinge edge having hinges for interconnecting the door to a doorway hinge side, the security device comprising:

a pin having an elongated body with an exposed portion and a threaded portion, said threaded portion being adapted to be threaded into the hinge edge or hinge side;

a cavity adapted to be formed in the other of the hinge edge or hinge side for receipt of the exposed portions, the cavity is defined by an elongated body having a partially threaded exterior and an interior which is open to receipt of the exposed portion;

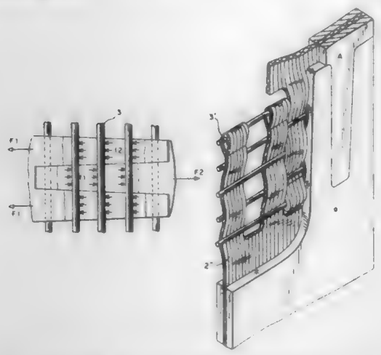
the exposed portion being adapted to be received within the cavity once the door is closed to prevent opening of the door by removal of the hinge pins.

5,724,706

DISCONNECTABLE AND RECONNECTABLE COUPLING DEVICE

Horst Jakob, Deaux, France, assignor to ASER, Saint-Chamond, France

PCT No. PCT/FR95/01519, § 371 Date Sep. 16, 1996, § 102(e) Date Sep. 16, 1996, PCT Pub. No. WO96/16279, PCT Pub. Date May 30, 1996
PCT Filed Nov. 17, 1995, Ser. No. 666,433
Claims priority, application France, Nov. 21, 1994, 94 13918
Int. Cl.[6] F16G *3/00*
U.S. Cl. 24—38 17 Claims



1. Disconnectible and reconnectible junction device for a conveyor band, said junction device having two flat elements of complementary shapes, each of the two flat elements having oblong strips directed respectively towards a front of each of the two flat elements and connected in a longitudinal direction to a rear part of the element, the two flat elements separated one from the other by notches of a shape complementary to those of the corresponding strips of the other element, the strips of each one of the elements having a plurality of transversal holes for linking stems, said linking stems being spaced apart in a transversal direction to the conveyor band and which are located approximately in the middle of the thickness of the strips, each of said plurality of transversal holes spaced one from the other in the longitudinal direction, in such a way that when the strips of the two elements are in an interleaved position, the plurality of transversal holes are in alignment,

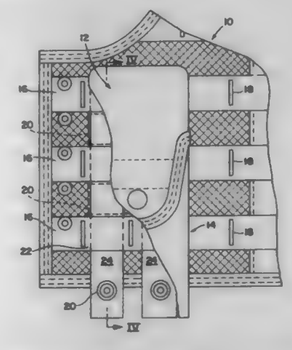
the junction device further comprising reinforcement means formed from at least two layers, said reinforcement means adhering to a constituent material of the junction device, wherein the reinforcement means comprises two layers located inside the junction device elements in two planes parallel one to the other and parallel to faces of the junction device, above and below the plurality of transversal holes 1 for the strip fastening stems and extending to the rear part of the elements, the reinforcement layers being flexible and providing in the longitudinal direction of the junction device a controlled extensibility conferring to the junction device first elasticity properties in combination to second elasticity properties of the constituent material of the junction device.

5,724,707

INTERLOCK ATTACHING STRAP SYSTEM

John Kirk, Ashland, Mass.; Gerald E. Tatton, San Antonio, Tex., and Paul Dersain, Worcester, Mass., assignors to The United States of America as represented by the Secretary of the Army, Washington, D.C.

Filed Jun. 17, 1996, Ser. No. 668,032
Int. Cl.[6] A44B *21/00*
U.S. Cl. 24—3.7 17 Claims



1. An interlocking attaching system for removably securing objects to a garment, said system comprising:

at least one object and a garment;

said object having means thereon for removably engaging said garment and means thereon for removably receiving said engaging means in an interlocking fashion;

said garment having means thereon for removably receiving said engaging means in an interlocking fashion;

means operably associated with said engaging means and said object for removably securing said engaging means to said object after said engaging means has passed through said receiving means on said garment and said receiving means on said object in an interlocking fashion;

said engaging means on said object comprises at least one strap, said strap attached at one end thereof to said object and said strap having an other end;

said receiving means on said garment comprises a plurality of spaced apart webbings, said webbings being secured to said

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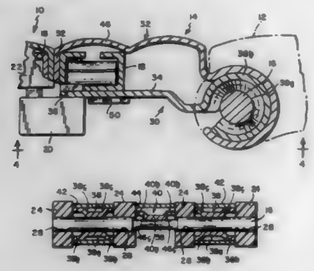
garment at spaced apart locations such that the spacing between locations is of sufficient size to receive said strap therethrough; and p1 said means on said object for removably receiving said strap comprises a plurality of spaced apart webbings.

5,724,708

END CONNECTOR ASSEMBLY FOR WATCHBAND

Stephen F. Bert, North Scituate, R.I., assignor to Textron, Inc., Providence, R.I.

Filed Dec. 3, 1996, Ser. No. 758,726
Int. Cl.[6] A44C 5/18
U.S. Cl. 24—265 B 7 Claims



1. A connector for joining an end of an expansible watch band to a watch case, the end of said watchband having a terminal top link, the watch case having first lugs separated by first sockets, with aligned apertures extending through said first lugs, said connector comprising:

a metal bottom component having a front end and a rear end, the rear end of said bottom component being configured to underlie said terminal top link, the front end of said bottom component having mutually spaced projections, at least two of said projections defining hollow guides;

a metal top component having a front end and a rear end, the rear end of said top component being configured to overlie the rear end of said bottom component and to capture said terminal top link therebetween, the front end of said top component having mutually spaced flanges aligned with and bent onto and around the projections on said bottom component to form second lugs separated by second sockets;

means for fixedly interconnecting said top component to said bottom component, said first and second lugs being adapted to be received respectively in said second and first sockets, with said hollow guides aligned with said apertures; and

a pin axially inserted through said aligned hollow guides and apertures to establish a pivctal connection between said watch case and said end connector, said hollow guides having reduced diameter portions contacting said pin and enlarged diameter portions contacting said flanges.

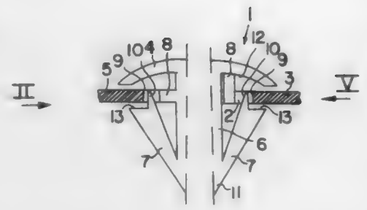
5,724,709

EXPANSION ANCHOR WITH POSITIONING PROJECTION AND STOPPER MEMBER

Roland Kittmann, Reichertshausen, and Alfred Gürtler, Feldkirchen, both of Germany, assignors to Panduit GmbH, Bad Homburg v.d.H, Germany

Filed Jul. 10, 1995, Ser. No. 500,084
Claims priority, application Germany, Jul. 9, 1994, 94 11 165.0 U
Int. Cl.[6] A44B 17/00
U.S. Cl. 24—453 20 Claims

1. An expansion anchor to be anchored in a hole of one member to connect thereto another member, said expansion anchor comprising:



a head adapted to abut a surface of the one member;

a shaft extending from a side of said head and adapted to be inserted through the hole in the one member;

said shaft having extending therefrom fins that are deflectable toward said shaft upon insertion of said fins with said shaft into the hole and that are resiliently expandable away from said shaft when said fins have passed through the hole, such that said fins are adapted to abut an opposite surface of the one member to prevent removal of said anchor from the hole;

at least one stopper member positioned relative to said shaft to cooperate with an inner edge of the hole to maintain a desired position of said shaft laterally relative to the hole, said at least one stopper member being located at said side of said head;

said fins having respective projections dimensioned to, when said fins have passed through the hole, extend into the hole and adapted to cooperate with the inner edge thereof to maintain the desired lateral position; and

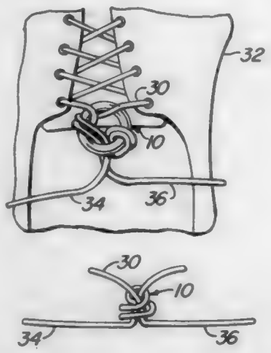
said at least one stopper member and said projections being located at different, non-overlapping positions relative to said shaft.

5,724,710

FASTENER FOR SECURING AN OBJECT

Michael T. Hancock, 334-1/2 E. 10th St., Azusa, Calif. 91702

Filed Apr. 17, 1995, Ser. No. 422,798
Int. Cl.[6] A43C 7/06
U.S. Cl. 24—712.7 11 Claims



1. An apparatus for securing at least one object, comprising:

a fastener of resilient material defining an opening therethrough for receiving said lines

at least two lines extending from said at least one object to be secured and through said fastener opening, and

at least two lines extending from said at least one object to be secured and through said fastener opening, and

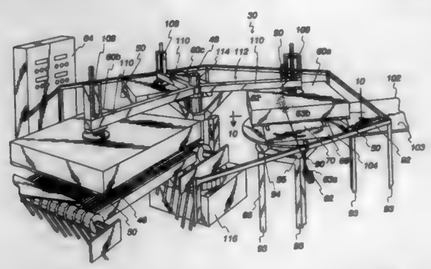
said fastener being deformed by stresses produced by the pulling of said lines extended through said opening in opposite directions from said fastener to apply pressure to the fastener to distort and roll the fastener into a configuration defining at least one loop to provide a gripping action between said fastener and said lines produced by fastener distortion and friction between said lines and said fastener.

5,724,711

APPARATUS FOR MAKING STEEL WOOL FILTER PADS AND RELATED METHOD

Alexander Krupnik, Northbrook; Leonid Vaysberg, Des Plaines, and Mieczystow Boczek, Chicago, all of Ill., assignors to Global Material Technologies Incorporated, Chicago, Ill.

Continuation of Ser. No. 204,522, Mar. 1, 1994, abandoned. This application Nov. 1, 1995, Ser. No. 551,537
Int. Cl.[6] B23P 17/06
U.S. Cl. 29—4.52 3 Claims



1. A method of making steel wool pads, each of which has a length substantially exceeding its width, and each of which comprises at least two superposed layers of steel wool webbing, each said layer having steel filaments oriented in a predominant direction, the predominant direction of each layer being substantially different from the predominant direction of each other superposed layer immediately adjacent thereto, said method comprising the steps of:

continuously feeding said web providing a web of steel wool having a predominant filament orientation;

sequentially cutting from said web of steel wool a plurality of substantially square segments, whereby the predominant filament orientation of each segment is substantially the same as that of each other segment;

rotating each segment relative to its immediately successive segment;

superposing said segments after rotation thereof, thereby fabricating a substantially square stack of said segments with the predominant filament orientation of each segment being substantially different relative to the predominant filament orientation of its immediately adjacent superposed segment;

and then cutting said substantially square stack into at least two substantially rectangular pads, each having a length and width smaller than that of said substantially square stack, the length of each said rectangular pad substantially exceeding its width.

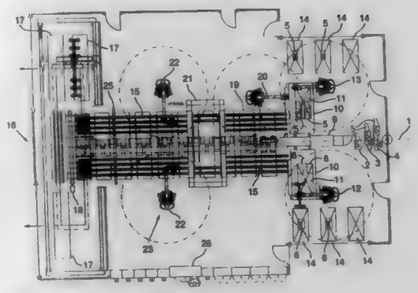
5,724,712

METHOD AND APPARATUS FOR AUTOMATED PROCESSING AND HANDLING OF WELDED SHEET METAL BLANKS

Bob R. Bishop, R.R. #3, Percywright Rd., Newmarket, Onario, Canada

Continuation-in-part of Ser. No. 358,528, Dec. 19, 1994, Pat. No. 5,634,255. This application Oct. 9, 1996, Ser. No. 728,381
Claims priority, application Canada, Nov. 3, 1994, 2135038
Int. Cl.[6] B21D 39/03; B23P 21/00; B23K 11/06
U.S. Cl. 29—430 18 Claims

1. A method of automatically welding and handling welded tailored blank composites, each completed blank composite consisting of two or more sheet component parts of equal or unequal thickness welded together along weld seams, the method comprising the steps of:



transferring first and second sheet component parts from respective input stacks of said first and second sheet component parts to a welding machine;

assembling the sheet component parts disposed in an abutting joint configuration;

welding the joint along a weld seam thus defining a welded blank composite;

conveying the welded blank composite in a timed step manner from the welding machine to an output stacking machine via a magnetic stepping conveyor; and

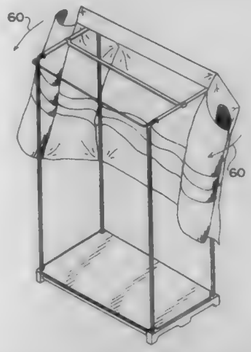
transferring the welded blank composite from the conveyor to an output stack of completed composites with a stacking machine.

5,724,713

METHOD OF ERECTING AN INTERNALLY SUPPORTED GARMENT BAG

Gilbert J. Holtz, 182 Tibbetts Rd., Yonkers, N.Y. 10705

Filed Mar. 4, 1996, Ser. No. 610,485
Int. Cl.[6] B21D 39/00
U.S. Cl. 29—452 1 Claim



1. In a method of erecting an internally supported garment bag having front, rear, top and opposite side panels cooperating to bound a garment storage compartment characterized by a T-shaped configuration of two horizontally oriented first and second zippers and a third vertically oriented zipper in said garment front panel to provide an opening in said front panel incident to positioning said garment bag on an internal support, a garment bag-erecting method comprising the steps of interconnecting cooperating support components into a three-dimensional construction for occupancy within said garment storage compartment of said garment bag, urging in movement in laterally opposite directions from a site of meeting along paths of movement adjacent an upper edge of said garment bag front panel zipper pull means of said first and second zippers incident to providing detached upper edges in parallel relation to bottom edges of said front panel on opposite sides of rectangular flaps in said garment front panel, urging in ascending

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movement along a path centrally of said garment bag front panel up to a site of meeting of said first and second zippers a zipper pull means of said third zipper incident to releasing said rectangular flaps from said garment bag front panel which rectangular flaps bound a large-sized front panel opening therebetween, positioning said garment bag top panel in covering relation over a top of said three-dimensional construction incident to projecting a top of said three-dimensional construction through said large-sized front panel opening, wrapping in circumferential relation said rectangular flaps about opposite sides of said three-dimensional construction and into a position forward of a front of said three-dimensional construction to contribute to placement of said garment bag in supported relation upon said three-dimensional construction, urging said zipper pull means of said first and second zippers in closing movement towards each other to contribute to a taut fit of said garment bag upon said three-dimensional construction, and urging alternately said zipper pull means of said third zipper in ascending and descending movement to close and open said garment storage compartment, whereby said three-zipper operating mode facilitates use and preparation for use of said garment bag.

5,724,714

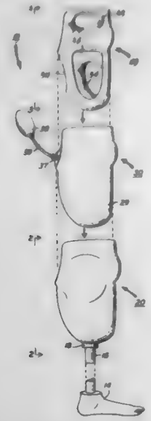
PROSTHETIC SOCKET CONTAINING INFLATABLE MEANS

Michael G. Love, 6280 Walkers Corners Rd., South Byron, N.Y. 14557

Continuation-in-part of Ser. No. 65,808, May 21, 1993, Pat. No. 5,405,405. This application May 10, 1994, Ser. No. 236,703

Int. Cl.° **A16F** *2/80*

U.S. Cl. 29—458 **3 Claims**



1. A method of making a composite socket assembly for a prosthetic appliance for a residual limb, comprising the steps of:

(a) forming a first plastic socket by molding a suitable material over a cast of a residual limb;

(b) reinforcing said first plastic socket at preselected locations, thereby providing at least one preselected weight bearing area for said residual limb in nonreinforced areas of said first socket;

(c) forming a pattern for an air bladder over an outer surface of said first socket;

(d) forming a second plastic socket by molding a suitable material over an outer surface of said pattern, thereby forming an assembly including said cast, said first plastic socket, said second plastic socket, and said pattern sandwiched between said first and second sockets;

(e) breaking the cast out of said assembly, thereby leaving said first socket; said air bladder pattern and said second socket in place;

(f) disassembling said first socket from said second socket, and forming an air bladder from said pattern, and

(g) assembling said first socket with said air bladder and said second socket thereby forming a composite socket assembly having a uniform outer socket, an internal socket with at least one selected pressure point in a nonreinforcing area, with an inflatable bladder disposed between side walls of said inner and outer sockets.

5,724,715

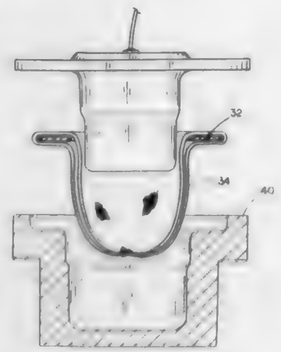
COMPOSITE FLANGE FOR DRIVE SHAFTS

Duane V. Byerly, Lincoln, Nebr.; George F. Olson, Lincoln, Nebr., and James T. Heard, Lincoln, Nebr., assignors to Addax, Inc., Lincoln, Nebr.

Filed Jul. 2, 1996, Ser. No. 674,472

Int. Cl.° **B60G** *11/02*

U.S. Cl. 29—460 **1 Claim**



1. A method for fabricating a composite flange for drive shafts, comprising the steps of:

(a) repeatedly folding an elongate tube of braided fiber back upon itself a plurality of times to create a shortened tube of multiple layers;

(b) inserting a flat ring approximately half way into said shortened tube and drawing one end of said shortened tube back through said flat ring to form a flanged tube having a disc end and an open end;

(c) closing said open end of said flanged tube to create a cup-shaped flange preform;

(d) inserting said flange preform into a flange mold;

(e) injecting a liquid resin into said mold; and

(f) curing said resin.

5,724,716

METHOD FOR TERMINATING WIRE OR OTHER ELONGATED GENERALLY RIGID ELEMENTS

Randal J. Perisho, Moberly; Tave E. Hass, Columbia; David R. Webb, Excello; Steve W. Ancell, Huntsville; Jeff E. Tayon, Moberly, and David L. Crossgrove, Livonia, all of Mo., assignors to Dura Automotive Systems, Inc., Moberly, Mo.

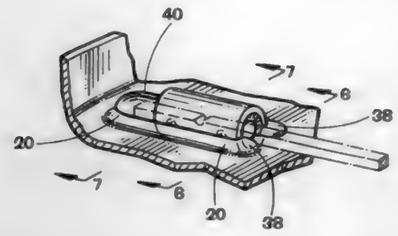
Division of Ser. No. 541,737, Oct. 10, 1995, Pat. No. 5,566,432, which is a continuation of Ser. No. 104,185, Aug. 9, 1993, abandoned. This application May 2, 1996, Ser. No. 643,013

Int. Cl.° **B23P** *11/00*

U.S. Cl. 29—517 **7 Claims**

1. A method of terminating an elongated, generally rigid member, comprising the steps of:

providing a deformable sleeve member having an aperture therethrough, said aperture sized and configured to receive at least a portion of said elongated generally rigid member;



providing a mounting member including a deformable portion, said deformable portion including a pair of generally opposed sidewalls defining a channel therebetween, said channel configured to receive said deformable sleeve and said elongated, generally rigid member;

assembling said elongated, generally rigid member said deformable sleeve member, and said mounting member with said elongated, generally rigid member extending through said deformable sleeve member and with said deformable sleeve member engaging said channel of said mounting member; and

applying a force to said deformable sleeve member and to said mounting member, thereby cooperatively deforming each of said members sufficiently to cause said deformable sleeve member to engage said elongated, generally rigid member and to cause said sleeve member and said mounting member to cooperatively engage one another to secure said elongated, generally rigid member to said mounting member.

5,724,717

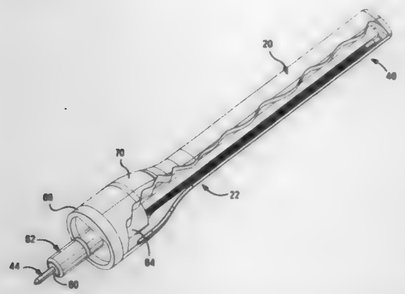
METHOD OF MAKING AN ELECTRICAL ARTICLE

Stephen Daniel Gherardini, Harrisburg; Scott Keith Mickievicz, Denver; Richard Nicholas Whyne, Mechanicsburg, and John Anthony Woratyla, Camp Hill, all of Pa., assignors to The Whitaker Corporation, Wilmington, Del.

Filed Aug. 9, 1996, Ser. No. 711,191

Int. Cl.° **H01P** *11/00*; **H01Q** *9/00*

U.S. Cl. 29—600 **4 Claims**



1. A method for making an electrical article comprising the steps of:

providing a conductive lead frame having a first contact section adapted to be electrically and mechanically secured to a discrete second conductive member and a holding section proximate said first contact section adapted to hold a portion of said discrete second conductive member;

providing said discrete second conductive member, said second member including a first connecting end for electrical connection to said first contact section of said lead frame, a second connecting end for electrical connection to another electrical article, said discrete member being adapted to be held by said holding section of said lead frame;

positioning said discrete member on said holding section with said first connecting end in engagement with said first contact section of said lead frame;

terminating said first connecting end to said first contact section defining a termination, said lead frame and said second conductive member defining a subassembly;

overmolding said subassembly with dielectric material in preselected areas thereof including portions of said lead frame and said second conductive member; and

removing at least said holding section from said overmolded subassembly thereby defining an electrical article.

5,724,718

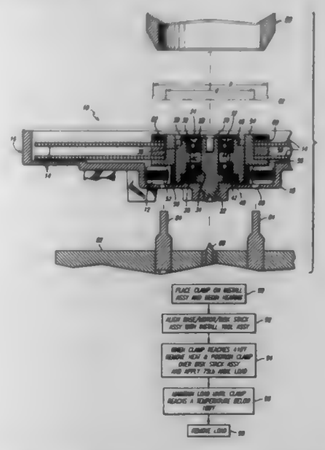
PROCESS FOR ASSEMBLING A CLAMP RING TO A DISK STACK ASSEMBLY

Michael B. Moir, and Khosrow Mohajerani, both of Newbury Park, Calif., assignors to Seagate Technology, Inc., Scotts Valley, Calif.

Division of Ser. No. 422,057, Apr. 14, 1995, abandoned. This application Aug. 26, 1996, Ser. No. 705,056

Int. Cl.° **G11B** *17/038*; **B23P** *11/02*

U.S. Cl. 29—603.03 **22 Claims**



1. A process for assembling a clamp ring having uniformly spaced apart inner and outer cylindrical walls, to a disk stack assembly of a computer disk drive unit, comprising the steps of:

placing a lower surface of the clamp ring over components of the disk stack assembly to be clamped together such that only a portion of the lower surface comprising an arcuate rolling contact surface having a fixed radius of curvature, bears against the underlying disk stack assembly components;

applying an axial load to the clamp ring causing the clamp ring to flex, thus moving contact between the lower surface and the underlying disk stack assembly components radially along the arcuate rolling contact surface; and

removing the axial load from the clamp ring.

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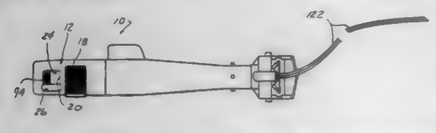
METHOD OF MANUFACTURING A STEERING COLUMN STALK SWITCH APPARATUS

Daniel J. DuRocher, Leonard, and Ellsworth S. Miller, Rochester Hills, both of Mich., assignors to ITT Corporation, New York, N.Y.

Continuation of Ser. No. 124,667, Sep. 21, 1993, Pat. No. 5,473,809, which is a continuation of Ser. No. 972,615, Nov. 6, 1992, abandoned. This application Dec. 11, 1995, Ser. No. 570,330

Int. Cl.[6] H01H *11/00*

U.S. Cl. 29—622 **8 Claims**



1. A method of manufacturing a steering column stalk switch apparatus comprising the steps of:

forming a shaft with first and second opposed end portions;

arranging first and second co-axially arranged housing portions independently coaxially rotatable with respect to each other to form an elongated substantially closed stalk switch housing;

connecting the first end portion of the shaft to the first housing portion for rotation of the shaft with rotation of the first housing portion;

providing a first bearing engaged with the shaft and the second housing portion for co-axially and rotatably supporting the shaft within the second housing portion; and

pivotally extending a lever from a switch housing, the lever extending at least partially through the second housing and receiving the shaft therethrough.

5,724,720

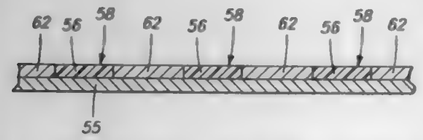
METHODS OF FORMING LITHIUM ELECTRODES

Mark E. Tuttle, Boise, Id., assignor to Micron Communications, Inc., Boise, Id.

Division of Ser. No. 660,034, Jun. 6, 1996, Pat. No. 5,642,562, which is a continuation of Ser. No. 538,985, Oct. 5, 1995, Pat. No. 5,542,959, which is a division of Ser. No. 271,012, Jul. 6, 1994, Pat. No. 5,480,462, which is a continuation-in-part of Ser. No. 205,611, Mar. 2, 1994, Pat. No. 5,547,781, Ser. No. 205,957, Mar. 2, 1994, Pat. No. 5,432,027, and Ser. No. 206,051, Mar. 2, 1994, Pat. No. 5,486,431. This application Oct. 23, 1996, Ser. No. 735,929

Int. Cl.[6] H01M *4/08*

U.S. Cl. 29—623.5 **24 Claims**



1. A method of forming a lithium electrode comprising the following steps:

providing an electrically conductive sheet having an exposed surface, the electrically conductive sheet being comprised of a material to which elemental lithium will adhere;

masking the electrically conductive sheet with a material to which elemental lithium will not appreciably adhere, the masking defining a masked portion and an unmasked portion, the unmasked portion of the conductive sheet having a cross-sectional size and shape of the desired electrode being formed;

applying molten lithium to the masked electrically conductive sheet to cause elemental lithium to adhere to the unmasked portion but not appreciably adhere to the masked portion;

solidifying the elemental lithium on the unmasked portion to in situ form a lithium electrode on the unmasked portion; and

after solidifying, removing the masking material from the masked portion of the conductive sheet.

5,724,721

ELECTRODE MASK APPLICATION PROCESS FOR FORMING AN ELECTROLYTIC CELL

Denis G. Fauteux, Acton, and Martin Van Buren, Chelmsford, both of Mass., assignors to Mitsubishi Chemical Corporation, Tokyo, Japan

Filed Nov. 27, 1996, Ser. No. 757,229

Int. Cl.[6] H01M *10/12*

U.S. Cl. 29—623.5 **11 Claims**



1. A process for fabricating an electrolytic cell comprising the steps of:

fabricating a first electrode with an active material;

fabricating a second electrode with an active material;

creating an electrode mask by applying an electrochemically inert curable medium, relative to the first and second electrodes and an associated electrolyte, onto a limited portion of the active material of at least one of the first and second electrodes;

applying the electrolyte to the electrochemically inert medium, and, in turn, to the associated one of the first and second electrodes;

attaching the other one of the first and second electrodes to the electrolyte so that at least a portion of the electrolyte is sandwiched between the first and second electrodes and, is, in turn, on top of the electrochemically inert medium, and, whereby the other one of the first and second electrodes has at least a peripheral region adjacent the applied electrochemically inert medium.

5,724,722

PART STATE DETECTING DEVICE FOR MOUNTER

Kazuhisa Hashimoto, Iwata, Japan, assignor to Yamaha Matsudoki Kabushiki Kaisha, Iwata, Japan

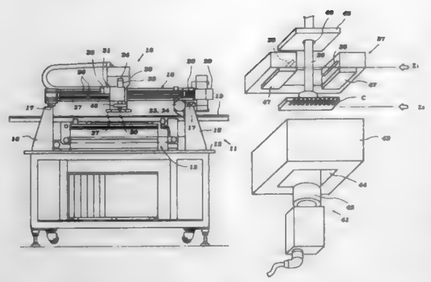
Filed Jan. 30, 1996, Ser. No. 593,496

Claims priority, application Japan, Feb. 2, 1995, 7-016180

Int. Cl.[6] H05K *3/30;13/04*

U.S. Cl. 29—740 **12 Claims**

1. A component handling device for accurately placing components on a substrate comprising a mounting head, an operational device connected to said mounting head for moving said mounting head between a plurality of positions, a first sensing station carded by said mounting head and comprised of an emitter and a receptor spaced by a gap for forming a sensing area, a second sensing station, spaced from said first sensing station, said second sensing station containing a second sensing device comprised of a camera held in a fixed position for sensing the condition of a component, a component pickup device for holding and releasing components, a support for supporting said pickup device for movement within said mounting head upon operation of said operational device and for movement relative to said mounting head for selectively positioning the component held by said pickup device in a first position in said sensing area for sensing of its condition by said first sensing



device therein or in a second position spaced from said sensing area for sensing by said second sensing device in said second sensing station, and a light source carded by said mounting head in proximity to said first sensing station for illuminating said component held by said component pickup device at least when said component is positioned in said second position for facilitating sensing with said camera.

5,724,723

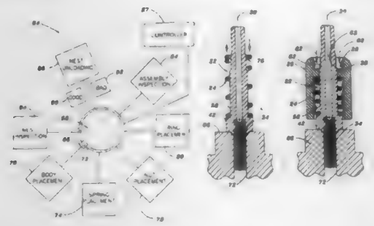
APPARATUS FOR ASSEMBLING AN OPTICAL FIBER CONNECTOR

Kenneth Norman Saliba, Tewksbury, Mass.; Joseph Leon Kaminski, III, and Richard Eugene Benner, both of Harrisburg, Pa., assignors to The Whitaker Corporation, Wilmington, Del.

Division of Ser. No. 350,446, Dec. 6, 1994, Pat. No. 5,625,731. This application May 23, 1996, Ser. No. 652,077

Int. Cl.[6] H01R *43/26;* **B23P** *19/04;* **G02B** *6/36*

U.S. Cl. 29—754 **11 Claims**



1. An apparatus for assembling an optical fiber connector, said optical fiber connector including an elongated body having a longitudinal axis and opposed free ends, a coupling nut operatively associated with said elongated body, biasing means positioned between said elongated body and said coupling nut, and retaining means being attachable to said elongated body abutting said coupling nut for retaining said biasing means in compression between said coupling nut and said elongated body, said apparatus comprising:

a fixture for positioning said elongated body in a selected orientation with one free end of said elongated body being exposed;

means for placing said elongated body in retaining engagement with said fixture in a selected orientation;

means for placing said biasing means on said elongated body over said exposed free end;

means for placing said coupling nut in a selected orientation on said elongated body over said exposed free end, said coupling nut positioned on said elongated body abutting said biasing means; and

means for mounting said retaining means on an outside surface of said elongated body, said means for mounting said retaining means on said elongated body locating said retaining means on said elongated body in a position for compressing said biasing means between said coupling nut and said elongated body.

5,724,724

ASSEMBLY SYSTEM FOR ASSEMBLING PRODUCT COMPRISING A PLURALITY OF PARTS

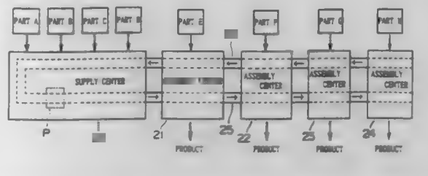
Daisaku Kugo, Nagnoknkyo, Japan, assignor to Murata Manufacturing Co., Ltd., Japan

Continuation of Ser. No. 221,403, Mar. 31, 1994, abandoned. This application Apr. 30, 1996, Ser. No. 640,213

Claims priority, application Japan, Mar. 31, 1993, 5-098501

Int. Cl.[6] B23P *21/00*

U.S. Cl. 29—787 **19 Claims**



1. An assembly system for assembling a plurality of different types of products, each of said types of products including at least one common part which is used in all of said types of products, and each of said types of products also including one or more non-common parts unique to that type of product, respectively, and not used in the remaining said types of products, said common parts being different from said non-common parts, said assembly system comprising:

a supply jig having a plurality of holding portions for holding a plurality of said common parts one by one and positioning said common parts therein;

a supply center for inserting said common parts into said holding portions of said supply jig;

a plurality of assembly centers, each of said assembly centers being so constructed and arrange to assemble and discharge a completed respective one of said types of products such that each of said types of products is assembled completely at a different one of said assembly centers and such that said assembly center operate in parallel whereby the operation of one assembly center does not affect the operation of the other assembly centers, each of said assembly centers comprising:

at least one supply means for supplying the non-common parts required for complete assembling the type of product assembled by that assembly center such that each of said assembly centers supplies a unique set of non-common parts to the type of product assembled; and

discharge means for receiving assemblies completed by that assembly center and for discharging the assemblies directly from the assembly system,

each of said assembly centers having assembly means for assembling the type of product it assembles by removing said common parts from said supply jig when it is located at said assembly center and removing said non-common parts from its said at least one supply means; and

a carrier for carrying said supply jig between said supply center and said assembly centers.

5,724,725

Patent Not Issued For This Number

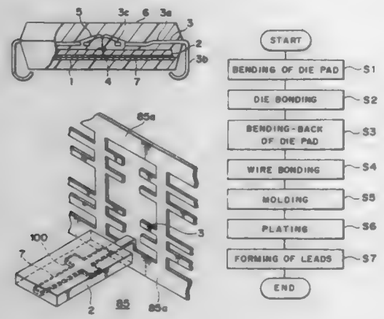
VOL 1208 ISS 2 MR 10 1998 UMI

5,724,726

METHOD OF MAKING LEADFRAME FOR LEAD-ON-CHIP (LOC) SEMICONDUCTOR DEVICE

Yoshihiro Tomita; Naoto Ueda; Yoshirou Nishinaka; Shunichi Abe, and Hideyuki Ichiyama, all of Itami, Japan, assignors to Mitsubishi Denki Kabushiki Kaisha, Tokyo, Japan

Division of Ser. No. 325,637, Oct. 19, 1994, Pat. No. 5,535,509, which is a division of Ser. No. 70,990, Jun. 4, 1993, abandoned. This application Mar. 13, 1996, Ser. No. 614,552
Claims priority, application Japan, Jun. 5, 1992, 4-145697
Int. Cl.[6] H01R *43/00*; H01L *21/60*
U.S. Cl. 29—827 4 Claims



1. A method for producing a semiconductor device having an lead-on-chip structure wherein leads extend across a semiconductor chip, the semiconductor device using a leadframe including a die pad for supporting a semiconductor chip, a plurality of leads extending toward the die pad, each of the leads having an inner lead portion and an outer lead portion, and an outer frame connecting the die pad and the leads to each other wherein only one end of the die pad is connected to the outer frame so that the die pad may be bent with respect to the outer frame; the method comprising:

bending the die pad outward from the outer frame;

die-bonding a semiconductor chip to the bent die pad;

bending the die pad having the semiconductor chip attached toward the outer frame such that the inner lead portion of each of the leads extends generally parallel to the semiconductor chip with a predetermined spacing between the each inner lead portion and the semiconductor chip;

wire-bonding the inner lead portions of the leads to corresponding electrodes on the semiconductor chip;

molding to seal the semiconductor chip and die pad into one body with the outer lead portion of each of the leads exposed outside the body; and

separating the semiconductor device from the outer frame of the leadframe and forming the outer lead portion of each of the leads.

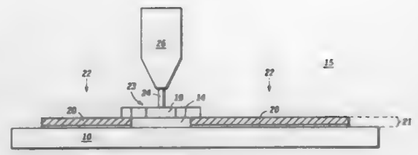
5,724,727

METHOD OF FORMING ELECTRONIC COMPONENT

Mona A. Chopra, Austin, Tex.; Everitt W. Mace, Hutto, Tex., and Brian D. Young, Austin, Tex., assignors to Motorola, Inc., Schaumburg, Ill.

Filed Aug. 12, 1996, Ser. No. 689,571
Int. Cl.[6] H05K *3/30*
U.S. Cl. 29—832 20 Claims

1. A method of forming an electronic component comprising the steps of:



providing a substrate having a surface;

forming a first layer of dielectric powder on the surface of the substrate;

sintering at least a portion of the first layer of dielectric powder to form a first solid layer of dielectric material on the surface of the substrate;

forming a first layer of conductive powder overlying the first solid layer of dielectric material; and

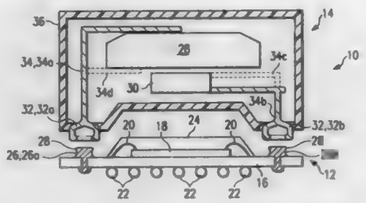
sintering at least a portion of the first layer of conductive powder to form a first solid layer of conductive material over the first solid layer of dielectric material, wherein the first solid layer of conductive material has a pattern and the first solid layer of dielectric material provides an underlying insulation layer for the first solid layer of conductive material, whereby the first solid layer of dielectric material underlies the first solid layer of conductive material.

5,724,728

METHOD OF MOUNTING AN INTEGRATED CIRCUIT TO A MOUNTING SURFACE

Robert H. Bond, Plano, and Harry M. Siegel, Hurst, both of Tex., assignors to SGS-Thomson Microelectronics, Inc., Carrollton, Tex.

Division of Ser. No. 346,499, Nov. 29, 1994, Pat. No. 5,642,265. This application Nov. 3, 1995, Ser. No. 552,917
Int. Cl.[6] H05K *3/34*
U.S. Cl. 29—840 6 Claims



1. A method of mounting an integrated circuit to a printed circuit board, the method comprising the steps of:

mounting a ball grid array substrate having a semiconductor device attached thereto onto a printed circuit board; and

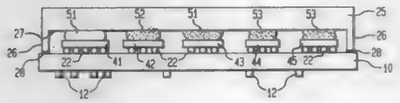
attaching a module having a non-ball grid array substrate and containing an auxiliary component to said ball grid array substrate such that terminals on said ball grid array substrate and connectors on the module provide both physical and electrical connections.

5,724,729

METHOD AND APPARATUS FOR COOLING OF CHIPS USING A PLURALITY OF CUSTOMIZED THERMALLY CONDUCTIVE MATERIALS

Raed A. Sherif, Hopewell Junction; Mark Gerard Courtney; David Linn Edwards, both of Poughkeepsie, all of N.Y.; Albert Joseph Fahey, Pasadena, Calif.; Gregory Scott Hopper, Fishkill, N.Y.; Sushumna Iruvanti, Wappingers Falls, N.Y.; Charles Frederick Jones, Poughkeepsie, N.Y., and Gaetano Paolo Messina, Hopewell Junction, N.Y., assignors to International Business Machines Corporation, Armonk, N.Y.

Continuation of Ser. No. 455,463, May 31, 1995, Pat. No. 5,604,978, which is a division of Ser. No. 349,232, Dec. 5, 1994. This application Apr. 15, 1996, Ser. No. 632,718
Int. Cl.[6] H05K *3/34*
U.S. Cl. 29—840 18 Claims



1. A method to provide a customized thermally conductive path between a plurality of chips and a thermal cap, comprising the steps of:

(a) securing said chips to a substrate,

(b) placing at least one first thermally conductive material on a first chip, and at least one second thermally conductive material on a second chip, wherein the thermal conductivity of said first thermally conductive material is different than the thermal conductivity of said second thermally conductive material, and wherein said at least one first thermally conductive material is selected from a group consisting of thermal oil, thermal paste, thermal grease and thermal compound, and

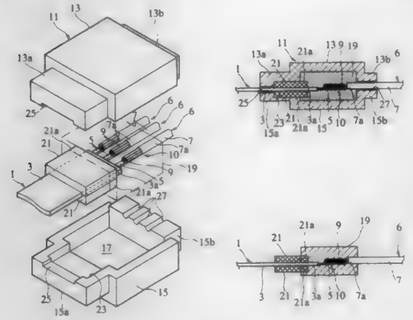
(c) securing said thermal cap to said substrate.

5,724,730

METHOD OF PROTECTING CONDUCTIVE PART OF FLAT CABLE

Yoshiyuki Tanaka, Shizuoka-ken, Japan, assignor to Yazaki Corporation, Tokyo, Japan

Filed Feb. 9, 1996, Ser. No. 598,834
Claims priority, application Japan, Feb. 16, 1995, 7-027976
Int. Cl.[6] H01R *43/24*:*43/02*
U.S. Cl. 29—868 6 Claims



1. A method of protecting a conductive connecting part of a flat cable, at which said flat cable is electrically connected to an object, said flat cable comprising a conductor and an insulating cover part for enveloping a major portion of said conductor, said object including another conductor to be connected to said conductor of said flat cable, said method comprising the steps of:

connecting a portion of said conductor, not enveloped by said insulating cover part of said flat cable to said conductor of said object at said conductive connecting part;

arranging a protective member at an exterior of said insulating cover part in a direction of thickness of said insulating cover part;

interposing said protective member between opposing molding dies in the direction of thickness, and accommodating said conductive connecting part of said flat cable in a leak-tight manner in a cavity defined by said molding dies;

supplying insulating material in said cavity, thereby insert-molding an insulating member for enclosing said conductive connecting part; and

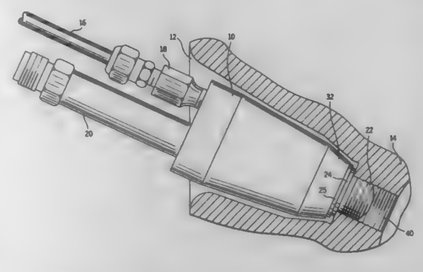
wherein each of said molding dies is provided, on both sides of said cavity, with a recess for holding said protective member and a groove for holding said object, respectively.

5,724,731

METHOD OF FIELD INSTALLING A PRE-COMBUSTION CHAMBER FOR AN INTERNAL COMBUSTION ENGINE

Art Black, 476 Wilcrest, Houston, Tex. 77042, and Tom Riggs, 22602 Bobolink Cir., Tomball, Tex. 77375

Filed Dec. 7, 1995, Ser. No. 568,507
Int. Cl.[6] B23P *15/00*
U.S. Cl. 29—888.011 7 Claims



1. A method for installing a pre-combustion chamber in a walled spark plug well of an internal combustion engine, comprising the steps of:

a. inserting a centering mandrel in the spark plug hole of a spark plug well in the engine;

b. placing a tool on the mandrel for modifying the walls of the spark plug well;

c. removing the tool from the mandrel after the walls of the spark plug well have been modified;

d. removing the mandrel;

e. installing a pre-combustion chamber in the modified spark plug well.

5,724,732

METHOD AND APPARATUS FOR SUPPORTING PUSH RODS

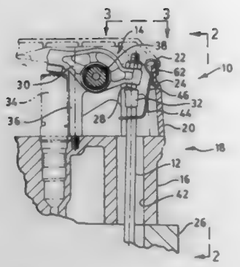
Tracy A. Arnold, East Peoria; Robert L. Davis, and Edward J. Gunnar, both of Peoria, all of Ill., assignors to Caterpillar Inc., Peoria, Ill.

Filed Nov. 18, 1996, Ser. No. 748,741
Int. Cl.[6] B23P *19/04*
U.S. Cl. 29—888.01 16 Claims

1. An apparatus for supporting a plurality of spaced push rods in place during installation of a rocker arm assembly on a cylinder head of an internal combustion engine, comprising:

a structural member located at a preselected location relative to said cylinder head; and

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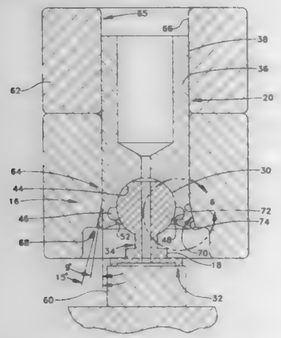
a bracket having first and second spaced end portions and an intermediate portion having a plurality of push rod receiving notches, said first and second spaced end portions being removably connected to the structural member of the engine and said notches being spaced a preselected distance apart to receive and maintain each of the push rods at a preselected location and orientation relative to the cylinder head.

5,724,733

METHOD OF PRODUCING A PISTON ASSEMBLY

William K. Engel, Peoria, Ill.; Michael H. Hinrichsen, Goodfield, Ill.; Howard Savage, Joliet, Ill.; Donald H. Sherman, Morton, Ill., and Kenneth R. Watts, Washington, Ill., assignors to Caterpillar Inc., Peoria, Ill.

Filed Aug. 8, 1996, Ser. No. 694,345
Int. Cl.[6] B23P *11/00*
U.S. Cl. 29—888.02 **5 Claims**



1. A method for producing a piston assembly having a piston mechanically connected to a slipper and adapted for use in a hydraulic pump or motor having a barrel with a bore defined therein to slidably receive the piston, the method comprising the steps of:

forming the slipper with a spherical ball disposed at one end thereof;

forming the piston with a body portion having a cylindrical outer surface extending longitudinally therealong and a connecting portion disposed at one end thereof, the connecting portion having a cavity defined therein with a substantially spherical bottom surface spaced from the one end thereof, a groove defined in the end portion within the cavity between the spherical bottom surface and the one end, and a contoured portion having an inner surface and an angled outer surface projecting outwardly beyond the outer surface of the piston body between the bottom of the cavity and the one end thereof;

inserting the spherical ball of the slipper into the cavity of the connecting portion to contact the spherical bottom surface;

forcing the contoured portion of the connecting portion inwardly to move the inner surface thereof into sliding contact with a portion of the spherical ball to secure the spherical ball within the cavity and to substantially longitudinally align the outer surface thereof with the outer surface of the piston body;

hardening the outer surface of the piston along its entire length to a predetermined depth and hardness; and

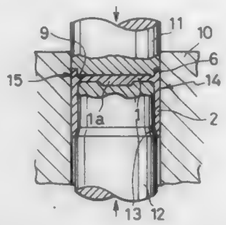
finishing the outer surface of the piston along its entire length to a predetermined size.

5,724,734

METHOD OF FORMING A TAPPET IN AN INTERNAL COMBUSTION ENGINE

Masahito Hirose, Hayama-cyo, and Kazufumi Nakamura, Fujisawa, both of Japan, assignors to Fuji Oozx Inc., Kanagawa-Ken, Japan

Filed Nov. 22, 1995, Ser. No. 561,845
Int. Cl.[6] B23P *15/00*
U.S. Cl. 29—888.43 **6 Claims**



1. A method of forming a tappet in an internal combustion engine, the tappet comprising a cylindrical portion with an upper wall, and an annular side wall for a shim which contacts a cam, the cylindrical portion being fitted in an engagement bore of a cylinder head, the annular side wall being formed continuously with the cylindrical portion at an outer circumference of the upper wall, the method comprising the steps of:

press processing a metal powder to form a tappet rough body which comprises said cylindrical portion such that the upper side wall becomes larger than the tappet to be manufactured in axial size;

sintering the tappet rough body; and

carrying out re-compression processing to strengthen the upper wall a connecting portion between the upper wall and the cylindrical portion, and a connecting portion between the upper wall and the annular side wall to make a final tappet.

5,724,735

METHOD FOR CONSTRUCTING A CATALYTIC EXHAUST TREATMENT DEVICE FOR AUTOMOTIVE VEHICLE

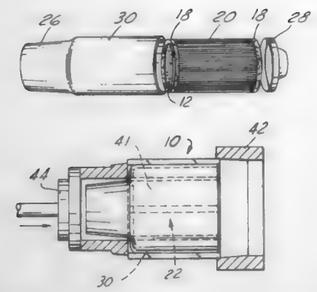
Walter D. Ickes, Plymouth, and Andrew J. Montalbano, Taylor, both of Mich., assignors to Ford Global Technologies, Inc., Dearborn, Mich.

Continuation of Ser. No. 336,714, Nov. 9, 1994, abandoned, which is a division of Ser. No. 254,627, Jun. 6, 1994, abandoned. This application Dec. 18, 1996, Ser. No. 769,291
Int. Cl.[6] F01N *3/28;* **B23P** *15/00*
U.S. Cl. 29—890 **7 Claims**

1. A method for constructing a catalytic exhaust treatment device for an automotive vehicle, comprising the steps of:

forming a generally cylindrical container having an inside diameter surface defining an inside diameter;

preparing a generally cylindrical catalytic ceramic substrate having a cylindrical surface for insertion into said container by applying an intumescent mat to the central portion of the



cylindrical surface of the substrate, and by applying a support seal to each end of the substrate, such that each seal extends between an end of the mat and an end of the substrate;

inserting the prepared substrate into the container; and

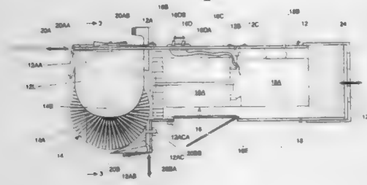
swaging the container over substantially its entire portion of its length which is occupied by the prepared substrate such that the diameter of the container is reduced to an extent that the inside diametral surface of the container compresses the seals and the mat.

5,724,736

HAIR CUTTING DEVICE

James E. Smith, 10 Elm St., Saraland, Ala. 36571

Filed Nov. 5, 1996, Ser. No. 744,094
Int. Cl.[6] B26B *19/44*
U.S. Cl. 30—133 **9 Claims**



1. An improved hair cutting device (**10**) comprising:

A) a housing (**12**) which comprises a housing front (**12A**) having a housing front vertical member (**12AA**) and a housing front horizontal member (**12AB**) attached to a housing front bottom support member (**12AC**), the housing (**12**) further comprises a housing middle (**12B**) and a housing rear (**12C**) having a housing door (**12D**) removably attached thereto forming a chamber therein, the housing (**12**) further comprises a housing left member (**12L**) and a housing right member (**12R**) extending perpendicularly downwardly therefrom;

B) a brush (**14**) which comprises a plurality of brush bristles (**14A**) extending perpendicularly from a brush spindle (**14B**) which is rotatably mounted at opposite distal ends to the housing left member (**12L**) and the housing right member (**12R**), respectively;

C) a vacuum (**16**) which comprises a vacuum motor (**16A**) fastened to a vacuum fan (**16B**) by a rotating vacuum shall (**16C**), the vacuum motor (**16A**) is electrically connected to a vacuum switch (**16D**);

D) a power means (**18**) is electrically connected to the vacuum switch (**16D**), when a user activates the vacuum switch (**16D**), hair clippings (**24**) are drawn into the chamber;

E) at least one upper cutting blade (**20A**) is positioned in the housing front vertical member (**12AA**) of the housing front (**12A**), the at least one upper cutting blade (**20A**) is adjustably fastened to the housing front (**12A**) by an upper cutting blade adjustment means (**20AA**) having an upper cutting blade fastener (**20AB**), the upper cutting blade adjustment means (**20AA**) functions to adjust an angle and protrusion length of the at least one upper cutting blade (**20A**), the brush (**14**) functions to lift the user's hair into a position wherein the at least one upper cutting blade (**20A**) functions to sever the user's hair forming hair clippings (**24**); and

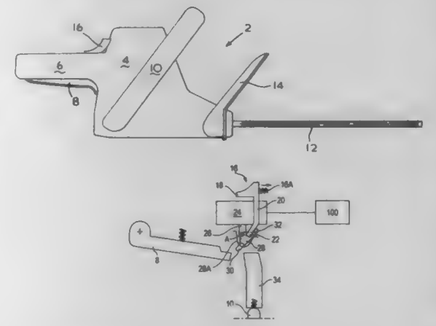
F) a comb (**22**) is positioned along a longitudinal edge of the housing front vertical member (**12AA**) behind the at least one upper cutting blade (**20A**), the comb (**22**) functions to separate the user's hair during cutting thereof.

5,724,737

SWITCH MECHANISM

Kevin Stones, Bishop Auckland, United Kingdom, assignor to Black & Decker Inc., Newark, Del.

Continuation of Ser. No. 155,729, Nov. 22, 1993, abandoned. This application Nov. 1, 1995, Ser. No. 551,390
Claims priority, application United Kingdom, Nov. 25, 1992, 9224660
Int. Cl.[6] A01G *3/053;* **F16P** *3/18;* **B26B** *19/02*
U.S. Cl. 30—228 **12 Claims**



1. A tool comprising:

an electric motor;

a primary handle;

a secondary handle separated by a distance from said primary handle;

a primary contact mechanism connected to said primary handle;

a secondary contact mechanism connected to said secondary handle;

said primary and secondary contact mechanisms being movable by grip contact on said primary and secondary handles;

a switch for actuating said electric motor;

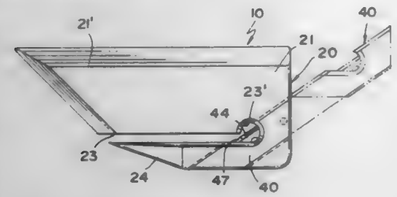
first and second projections associated with the switch;

said switch being switched on to provide electric power to said motor when both said primary and secondary contact mechanisms contact, respectively, said first and second projections, such contact resulting from gripping of said primary handle and said secondary handle, and said switch being switched off by releasing the contact between at least one of the first and second projections and at least one of said primary and secondary contact mechanisms; and

movable interlocking means for preventing actuation of said switch when said movable interlocking means is disposed in a first position, and for allowing actuation of the switch when said movable interlocking means is disposed in a second position.

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5,724,738
ENVELOPE OPENER WITH DISPOSABLE BLADE
Franco Ballarini, 2132 W. 62 St., Hialeah, Fla. 33016
Filed Dec. 13, 1996, Ser. No. 764,388
Int. Cl.[6] B26B *29/00*
U.S. Cl. 30—294 2 Claims



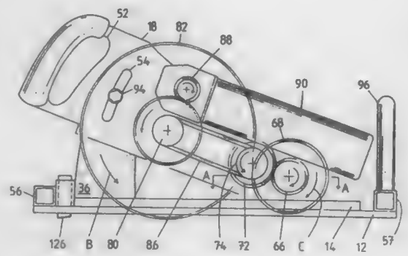
1. An opener for envelopes comprising:
A) a flat member with a straight slot defining an elongated pointed position and said slot ending with a bay and said flat member including a channel positioned adjacent to said bay and disposed at an angle with respect to said slot, said angle being between 30 and 75 degrees; and
B) curling means removably received within said channel and including cutting edge that is exposed within said bay wherein said cutting means includes a blade member and a cutout that exposes said cutting edge when aligned with said bay.

5,724,739
SELF-DEFENSE KNIFE
D. Patrick Hutton, P.O. Box 339, Kimberling City, Mo. 65686
Filed Jun. 24, 1996, Ser. No. 668,727
Int. Cl.[6] B26B *3/00*
U.S. Cl. 30—356 4 Claims



1. A self-defense knife for a user to fend off an aggressor, comprising:
a blade and an attached handle that together lie in substantially the same plane, wherein each of the blade and the handle are shaped to define generally in that plane a curved-ribbon shape, the blade and the handle being attached together in a shallow-V or gull wing shape;
the blade having an inner convex edge, which is blunt, and, a generally opposite outer concave edge which is sharp;
the handle having an inner convex spine which meets the convex blunt edge of the blade at a vertex or cusp of the V- or gull wing shape;
the blade and the handle being given a chosen V- or gull wing shape in adaptation for allowing a user to clench the handle in hand, with the blade extending in the direction of the user's elbow, and with his or her thumb resting on the handle and extended and pointed in the axially opposite direction from his or her elbow, such that if the user slightly rotates and flexes his or her wrist he or she can comfortably rest the blunt edge against his or her wrist, with the heel of his or her palm nested in the vertex or cusp of the V- or gull wing shape, in order that, if the user lifts his or her forearm as to block a kick or a punch from aggressor, then the user shall automatically present the sharp edge at the aggressor and with the blade supported by the wrist in a preferred, proper position;
wherein the combined shapes of the convex blunt edge of the blade, and, the convex spine of the handle, are, cooperatively shaped and proportioned for a given user such that the convex blunt edge, if the knife is held in the preferred proper alignment, extends from its origin in the vertex or cusp of the V- or gull wing shape to rest substantially against the wrist of the given user and hence substantially close up any sizable gap or interspace between itself and the user's wrist or palmar heel, in order to allow the user to deny the aggressor an opportunity to reach fingers into such a gap and undesirably grab the user's wrist.

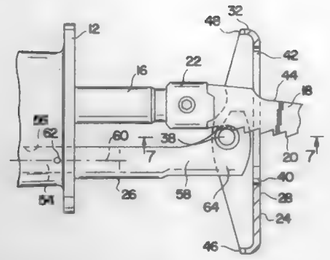
5,724,740
TWIN BLADE SAW
John Waldron Bishop, Lot 12 Elleker Road, Albany, W.A. 6330, Australia
PCT No. PCT/AU95/00010, § 371 Date Jul. 8, 1996, § 102(e) Date Jul. 8, 1996, PCT Pub. No. WO95/18691, PCT Pub. Date Jul. 13, 1995
PCT Filed Jan. 9, 1995, Ser. No. 669,453
Claims priority, application Australia, Jan. 10, 1994, PM3272
Int. Cl.[6] B23D *47/08*
U.S. Cl. 30—375 8 Claims



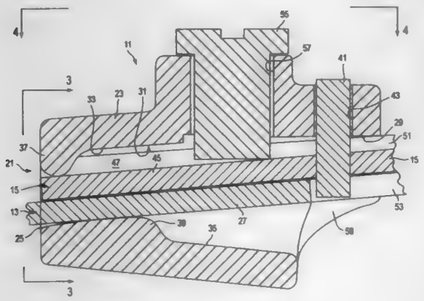
1. A portable twin blade saw comprising a horizontal main base having a slot formed therein, a frame base horizontally pivotally attached to the main base and having an apertured section, a member having an aperture formed therein, the member being vertically slidably mounted to the apertured section, an arm and first and second saw blades, the first saw blade having a first saw blade shaft mounted in the aperture of the member and in a first aperture of the arm such that the arm pivots about a centre of the first aperture, the second saw blade having a second saw blade shaft mounted in a second aperture of the arm, a driving means arranged such that the first and second saw blades are in driving communication with said driving means and a motor arranged to drive the first and second saw blades via the driving means.

5,724,741
RECIPROCATING SAW WITH PIVOTING SHOE
Thomas R. Bednar, Pewaukee, Wis., assignor to Milwaukee Electric Tool Corporation, Brookfield, Wis.
Filed Mar. 12, 1996, Ser. No. 613,590
Int. Cl.[6] B27B *19/02*
U.S. Cl. 30—376 16 Claims

1. A reciprocating saw for cutting a workpiece, said saw comprising:
a main body;
a reciprocating spindle extending from said main body;
a saw blade connected to said spindle and including a cutting edge for cutting the workpiece;
a shoe pivotally mounted relative to said main body at a pivot axis; and
a shoe support extending from said main body and pivotally supporting said shoe at said pivot axis, said pivot axis being substantially adjacent to said cutting edge such that said pivot axis moves through the workpiece at substantially the same time as said cutting edge.

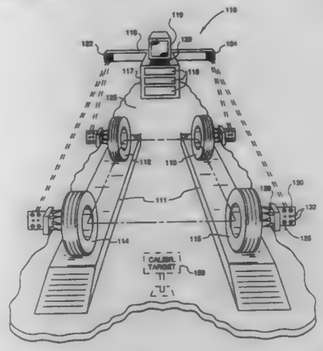


5,724,742
RECIPROCATING SAW BLADE CLAMP
Benjamin J. Grabowski, Joppa, Md., assignor to Black & Decker Inc., Newark, Del.
Filed Jul. 26, 1996, Ser. No. 687,850
Int. Cl.[6] B27B *19/02*
U.S. Cl. 30—392 11 Claims



5. A reciprocating saw comprising:
a motor;
a gear train connected to the motor;
a drive shaft connected to and driven by the gear train;
a saw blade clamp for clamping a layered assembly of a saw blade and the drive shaft of a saw comprising:
a sleeve having (a) a front opening for receiving a shank of the saw blade, (b) a rear opening for receiving the drive shaft, (c) a cavity axially extending between the front and rear openings, and (d) top and bottom opposed sidewalls;
the drive shaft fixed to the sleeve and axially extending through the rear opening and along the cavity;
a first projection located adjacent the front opening, extending into the cavity from the top sidewall and engaging one side of the assembly;
a second projection for engaging a second side of the assembly;
the second projection extending from the bottom sidewall at a location between the first projection and the rear opening; and
a bias member (a) adjustably attached to the sleeve and (b) engaged with one side of the assembly.

5,724,743
METHOD AND APPARATUS FOR DETERMINING THE ALIGNMENT OF MOTOR VEHICLE WHEELS
Bernie Fergus Jackson, Los Gatos, Calif., assignor to Snap-On Technologies, Inc., Lincolnshire, Ill.
Continuation-in-part of Ser. No. 122,550, Sep. 29, 1993, Pat. No. 5,535,522, which is a continuation-in-part of Ser. No. 940,935, Sep. 4, 1992, abandoned. This application Oct. 10, 1995, Ser. No. 544,378
Int. Cl.[6] G01B *11/275*
U.S. Cl. 33—288 26 Claims

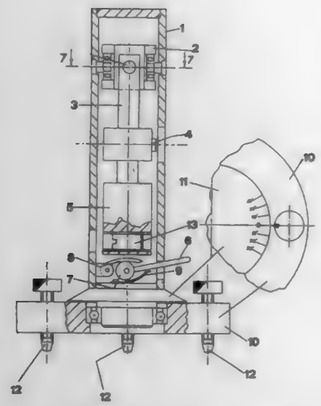


1. An apparatus for determining the alignment of motor vehicle wheels comprising:
target means including at least first and second target objects for attachment to wheels on respective first and second sides of a vehicle under inspection, each said target object including a plurality of visually perceptible, geometrically configured target elements having known geometric characteristics and positional interrelationships;
optical inspection means defining a spatial reference system and including first and second cameras respectively forming first and second viewing paths intersecting said first and second target objects when they are attached to wheels of a vehicle under inspection, each said camera being operable to inspect an image of a corresponding target object as viewed along its corresponding viewing path and to generate image information describing the geometric characteristics and positional interrelationships of the imaged target elements;
processing means for relating such image information to predetermined reference information describing the known geometric characteristics and positional interrelationships of said target elements and for determining the position and angular orientation of said first and second target objects relative to said spatial reference system and generating first and second position and orientation information commensurate therewith; and
means responsive to said first and second position and orientation information and operative to indicate the position and alignment of the wheels to which said first and second targets are attached.

5,724,744
SELF-LEVELING DEVICE MOUNTED ON A ROTATING BASE FOR PROJECTING LASER RAYS
Mario Doriguzzi Bozzo, Milan, Italy, assignor to Micro Italiana S.p.A., Arzignano, Italy
Continuation-in-part of Ser. No. 223,698, Apr. 6, 1994, abandoned. This application Mar. 12, 1996, Ser. No. 614,350
Claims priority, application Italy, Apr. 7, 1993, VI93A0050
Int. Cl.[6] G01C *1/00;5/00*
U.S. Cl. 33—291 1 Claim

1. A device self-leveling for projecting laser rays in a horizontal position on a wall, said device having an oscillating apparatus, said

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device comprising a sleeve (**1**), a base (**10**), said base (**10**) including means for permitting the rotation of said sleeve (**1**), a universal joint located within said sleeve, said universal joint supporting said oscillating apparatus which is self-leveling under the force of gravity and which includes an oscillating stem (**3**) connected to said universal joint, a source of laser rays (**4**) orthogonal to and carried by said stem (**3**), a weight (**5**) connected to said stem (**3**) beneath said source of laser rays (**4**), said oscillating stem (**3**), said source of laser rays (**4**) and said weight (**5**) being free to oscillate under the action of said universal joint, a mechanical means for interrupting the oscillations of said weight (**5**), said mechanical means comprising a blade (**8**) movably mounted on said sleeve (**1**) for contact with said weight (**5**), a cam (**7**) operatively engaging said blade (**8**) actuated by a lever (**6**) to move said blade (**8**) into contact with said weight (**5**), and a spring (**9**) biasing said lever (**6**) so as to normally separate said blade (**8**) from said weight (**5**), a screw (**13**) located on said weight (**5**) for regulating the position of said laser rays, so that said laser rays are always projected in a horizontal position on a wall when the oscillating apparatus is in equilibrium, said sleeve (**1**) being connected with a graduated ringnut (**11**) whereby upon rotation of said sleeve the angular displacement of said laser rays from a reference on said base (**10**) can be determined.

5,724,745

METHOD AND MANUALLY GUIDE COORDINATE MEASURING APPARATUS FOR MEASURING A WORKPIECE

Kurt Brenner, Satteldorf, Germany; Karl Seitz, Oberkochen, Germany; Klaus Herzog, Aalen, Germany, and Werner Lotze, Dresden, Germany, assignors to Carl-Zeiss-Stiftung, Heidenheim/Brenz, Germany

Filed Sep. 25, 1995, Ser. No. 533,274

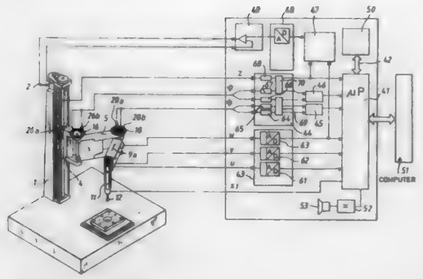
Claims priority, application Germany, Sep. 23, 1994, 44 33 917.8

Int. Cl.[6] **G01B** *7/004*

U.S. Cl. 33—503 **29 Claims**

1. A method for measuring a geometric element of a workplace with a manually guided coordinate measuring apparatus including a probe, a supporting mechanism for the probe to permit movement of the probe in several spatial directions, the probe having a probe pin having a probe element such as a probe ball thereon,

a first plurality of sensors for continuously measuring the respective movements in said spatial directions for generating movement signals (ϕ, ψ, z) indicative of said movements throughout the measuring operation; a plurality of sensing devices for continuously measuring deflections of said probe pin relative to said supporting mechanism and for generating deflection signals (u, v, w) indicative of said deflections throughout the measuring operation;



the method comprising the steps of:

bringing said probe element into contact with said geometric element; and,

processing at least one of said signals (ϕ, ψ, z, u, v, w) to generate control signals which characterize the start and end of a measurement operation on the geometric element of the workpiece.

5,724,746

DENTAL RECORDING APPARATUS

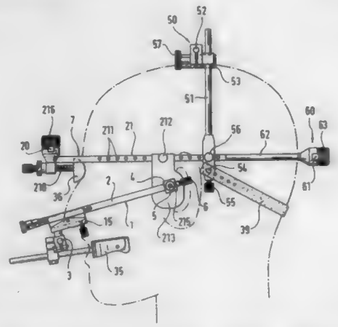
Heinz Mack, Taxisstr. 41, D-80637 München, Germany

Filed Nov. 16, 1995, Ser. No. 558,655

Claims priority, application Germany, Nov. 25, 1994, 44 41 991.0

Int. Cl.[6] **A61C** *19/045*

U.S. Cl. 033—514 **3 Claims**



1. A dental recording apparatus for recording movements of the jaw joints in relation to the skull, the apparatus comprising (A) an adjustable upper recording bow securable on the bridge of the nose and on the area of the temples and having a nose bridge support, measuring/recording plates, an upper reference indicator and a rubber strap, and (B) a lower recording bow connected to the movable lower jaw by means of a tray or a clamping arrangement, the lower recording bow having, on both side arms secured on a cross bar, arrangements into which a recording and measuring arrangement is introduced for allowing continuous recording of movements in all 3 planes, for plotting the vertical and horizontal movements and at the same time measuring the axial displacements of the horizontal movements mechanically, electronically, acoustically or optically and recording these via an auxiliary device,

(1) the upper recording bow including

(a) positioning means having an earplug thereon, and pins for positioning of the lower recording bow, the positioning means being replaced later by the measuring/recording plates,

(b) a perpendicularly arranged vertical frame having support bars connected in an upper area to an adjustable cross bar

on which a head cushion is secured, and provided in a lower area with laterally adjustable and lockable side spacers,

(c) a rear U-shaped auxiliary frame which, for purposes of parallelization of the side arms, is adjustable to a front spacing between the side arms and attachable on the side arms, the U-shaped auxiliary frame comprising a cross bar and lockable longitudinal bar, and

(d) a nose bridge support adjustable in a longitudinal direction and laterally displacable on the front cross bar,

(2) the lower recording bow for positioning on the pins of the positioning means of the upper recording bow including sleeves guided through attachments at a rear end of the side arms, the sleeves being fitted on the pins and locked by means of the locking screws, and

(3) the positioning means being replaceable by the measuring/recording plates and, on the lower recording bow, the sleeves being replaceable by the recording and measuring arrangements after casting-on of the tray or securing of a corresponding clamping arrangement on the lower jaw, and after positioning of the upper recording bow and of the lower recording bow.

5,724,747

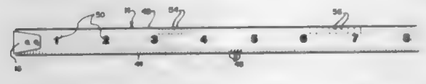
BRICK MASON'S SPACING TAPE

Jeffrey Poorman, 190 N. 300 W., Springville, Utah 84663

Filed Apr. 15, 1996, Ser. No. 632,000

Int. Cl.[6] **G01B** *3/02*

U.S. Cl. 33—759 **1 Claim**



1. A new and improved brick mason's spacing tape adapted for use in association with bricks and mortar, the apparatus comprising, in combination:

a housing formed in a generally rectangular configuration with a front surface, a rear surface and an essentially hollow interior, the housing being divided into front and rear halves coupled together by a plurality of screws, the housing having a front side wall formed in a generally V-shaped configuration with an apex at it's center point, the front side wall having a lower extent with an aperture extending therethrough and into the hollow interior of the housing, the front side wall having an upper extent including a generally rectangular shaped slidable switch coupled thereto, the slidable switch including a plurality of grooves to provide a firm gripping surface for the user, the housing including tape rolling means operatively coupled to the switch, the rear surface of the housing including a generally inverted J-shaped belt clip affixed thereto, the belt clip having an outer segment including a circular aperture extending therethrough;

a measuring tape formed in elongated planar rectangular configuration and measuring about ten feet in length, the tape having an outboard end including a hook member, the tape being linearly extendable from the housing in an operative orientation, the tape being rolled within the hollow interior of the housing and operatively coupled to the tape rolling means in a stored orientation, the tape having an upper surface with a first edge and a second edge, the first edge including numerical incremental line markers spaced 1/16 of an inch from each other, the first edge including inch demarcating numerals positioned at each one inch interval, long incremental line markers extending across the upper surface of the tape from the first edge to the second edge adjacent to each numeral; and

the second edge of the tape including first and second groups of lettered incremental line markers, the first group of lettered markers commencing from the three inch demarcating numeral and repeating every six inches, the first group of lettered markers being spaced 1/16 of an inch from each other and positioned in alignment with the numerical incremental line markers of the first edge of the tape, the first group of lettered markers assist with the alignment of small bricks along a receiving surface, the second group of lettered markers commencing from the six inch demarcating numeral and repeating every six inches, the second group of lettered markers being spaced 1/8 of an inch from each other and in alignment with every second numerical incremental line marker of the first edge of the tape, the second group of lettered markers assist with the alignment of large bricks along a receiving surface, the first group of lettered markers and the second group of lettered markers giving the measuring tape duality of use by allowing the user to measure small and large bricks respectively, a user positioning the tape against a brick wall to aid in vertically or horizontally aligning bricks to be laid during construction of a brick structure.

5,724,748

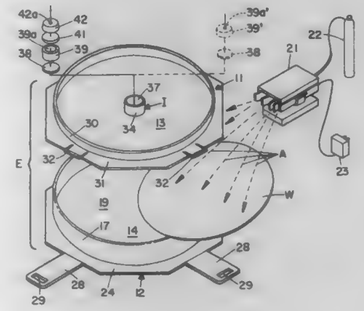
APPARATUS FOR PACKAGING CONTAMINANT-SENSITIVE ARTICLES AND RESULTING PACKAGE

Ray G. Brooks; Timothy W. Brooks, both of 2505 Custer Ct., Irving, Tex. 75062, and Stephen L. Fowler, 3551 Moore-Duncan Hwy., Moore, S.C. 29369

Filed Jul. 24, 1996, Ser. No. 685,697

Int. Cl.[6] **F26B** *19/00*

U.S. Cl. 34—90 **14 Claims**



1. A package for storing contaminant-sensitive articles in a contaminant-free environment comprising, in combination, a pair of half-sections of polymeric material, each of said half-sections having a bottom wall and a side wall, said half-sections arranged for overlying, sliding engagement from a spaced-apart, open position into a stop position with said side walls in telescoping relationship to form a closed enclosure having an interior for accommodating one or more contaminant-sensitive articles, sealing means operatively associated with at least one of said side walls for sealing said enclosure interior in said stop position, resilient clamping means on said half-sections for yieldingly urging said half-sections into said stop position against said sealing means to seal said enclosure interior and means on said enclosure for introducing a purging gas into said sealed enclosure interior to move said half-sections out of said stop position against said clamping means to thereby relieve excessive gas pressure in said enclosure interior.

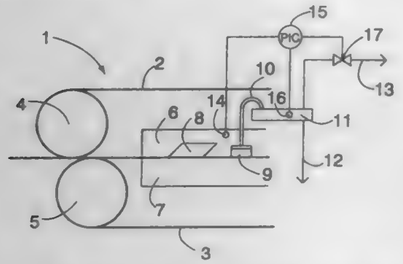
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5,724,749

SIPHON FOR REMOVING CONDENSATE FROM A PLANAR BAND

Jarmo Puumalainen, Tampere, and Tero Toikka, Kangasala, both of Finland, assignors to Valmet Corporation, Helsinki, Finland

Filed Jan. 28, 1997, Ser. No. 789,276
Claims priority, application Finland, Apr. 12, 1996, 961641
Int. Cl.° F26B *13/26*
U.S. Cl. 34—95 **6 Claims**



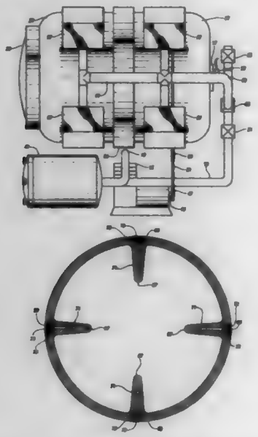
1. A siphon for removing condensate from the surface of a planar band, said siphon comprising an inlet opening on the side facing the surface for conducting the condensate into the siphon, and a discharge channel for removing the collected condensate from the siphon, a separate slide shoe which is substantially planar on the side facing the surface of the band, said slide shoe being intended to be in contact with the surface of the band, and at least one loading element for pressing the slide shoe towards the surface of the band.

5,724,750

CLOTHES DRYER WITH PELTIER EFFECT HEATING, INFRARED HEATING, AND VACUUM DRYING CAPABILITIES

Vergel F. Burress, 3118 Pleasant Valley, Sachse, Tex. 75048

Filed Nov. 16, 1995, Ser. No. 558,390
Int. Cl.° F26B *3/34*
U.S. Cl. 34—267 **10 Claims**



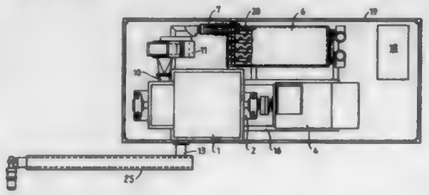
1. A clothes dryer for drying wet clothes, wherein the dryer comprises:
- a drum, having an inner surface, an open end for admitting the clothes, and a closed end opposite the open end;
- a door, adapted to close upon the open end of the drum, and forming an airtight seal thereon;
- a bearing, attached to the drum for admitting and connecting a vacuum line to the interior of the drum via an aperture defined in the drum, an airtight seal being formed between the aperture, the bearing, and the vacuum line;
- a vacuum pump, connected to the vacuum line;
- rotating means for rotating the drum;
- heating means for heating the clothes;
- a vacuum shutoff valve, located in the vacuum line between the drum and the vacuum pump; and
- a pressure equalization valve, connected to the vacuum line at a point between the drum and the vacuum shutoff valve, for restoring atmospheric pressure inside the drum.

5,724,751

PROCESS AND APPARATUS FOR DRYING ORGANIC OR INORGANIC MATERIALS

Olav Ellingsen, Florø , Norway, assignor to Thermtech A/S, Floro, Norway

PCT No. PCT/NO94/00005, § 371 Date Jul. 2, 1996, § 102(e) Date Jul. 2, 1996, PCT Pub. No. WO95/18946, PCT Pub. Date Jul. 13, 1995
PCT Filed Jan. 7, 1994, Ser. No. 666,567
Int. Cl.° F26B *3/00*
U.S. Cl. 34—354 **11 Claims**



8. A method of drying organic or inorganic material or a mixture thereof, said material containing a liquid or liquids, which comprises introducing said material interiorly of a rotating rotor carrying on its periphery oscillating rotor blades, said rotor rotating about the axis of a process chamber having an inner surface with substantially axially extending ribs, said rotating rotor causing the material introduced interiorly of said rotor to be propelled radially outwardly of said axis of rotation and to expel liquid or liquids from said materials, and the oscillating rotor blades and the opposing ribs causing vibrational forces and turbulence to be induced into the outwardly flowing liquid so as to form a mist.

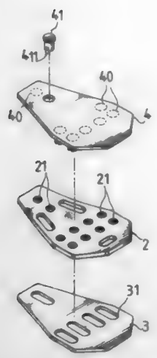
5,724,752

WATER-PROOFING LOCATING DEVICE OF A BICYCLE SHOE

Wen-Hwa Lin, No. 41, 36th Rd., Industrial Park, Taichung, Taiwan

Filed Dec. 16, 1996, Ser. No. 764,927
Int. Cl.° A43B *5/00;* **G05G** *1/14*
U.S. Cl. 36—131 **1 Claim**

1. A water-proof bicycle shoe locating device adapted for fastening to the sole of a bicycle shoe for permitting the bicycle shoe to be secured to one pedal of a sports bicycle, the device comprising a rigid locating plate having rows of screw holes adapted for mounting locating screws selectively, a rubber cushion adapted for fastening to said locating plate at an outer side and having a plurality of oblong through holes corresponding to the rows of screw holes of said locating plate, and a rubber packing plate adapted for fastening to said locating plate at an inner side, said rubber packing plate comprising a plurality of downward split rods adapted for fitting into the screw holes of said locating plate to seal the gaps, and a plurality of cut lines respectively disposed around each of said downward split rods for permitting said downward split rods to be selectively detached from said rubber packing plate for permitting a respective locating screw to pass.

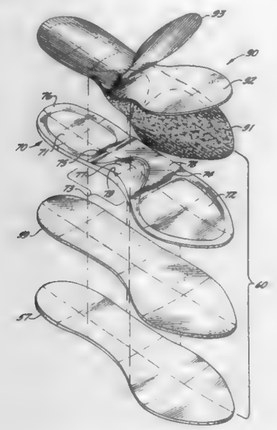


5,724,753

FOOTWEAR SYSTEM

James L. Throneburg, 625 W. Bell St., Statesville, N.C. 28687; James G. McLelland, Statesville, N.C.; Victor J. Gallenstein, Maysville, Ky.; Leon E. Kelley, Needham, Mass., and Douglas H. Richie, Long Beach, Calif., assignors to James L. Throneburg, Statesville, N.C.

Continuation of Ser. No. 467,820, Jun. 6, 1995, abandoned, which is a continuation of Ser. No. 216,264, Mar. 21, 1994, Pat. No. 5,595,005, which is a continuation-in-part of Ser. No. 97,086, Jul. 23, 1993, abandoned. This application Oct. 7, 1996, Ser. No. 726,551
Int. Cl.° A43B *13/12;13/14*
U.S. Cl. 36—91 **13 Claims**



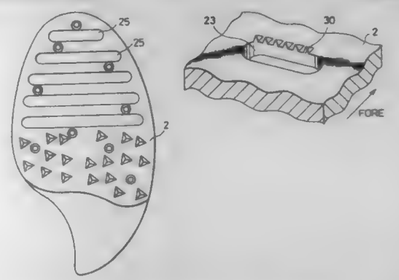
1. An innersole for inserting into a shoe to enhance the comfort thereof, said innersole comprising:
- a backing layer and a molded foam layer overlying said backing layer and secured thereto, said backing layer and molded foam layer having substantially the same overall configuration,
- said innersole including a ball portion, a heel portion, and a raised arch portion extending therebetween,
- said raised arch portion extending across substantially the entire width of the innersole in the form of a substantially flat plateau, said plateau including oppositely inclined fore and aft portions for providing a smooth transition with said ball portion and a major area of said heel portion, said arch portion further including a hump extending upwardly from said substantially flat plateau, said hump having a greater thickness along a medial portion of said arch portion and a decreasing thickness toward a central portion thereof; and
- said heel portion having a thickened outer peripheral edge defining a raised heel ridge, so as to provide additional support for side heel areas of the wearer.

5,724,754

HARD PLATE FOR SPIKED TRACK SHOES

Akira Kataoka, Kobe; Masanobu Inohara, Akashi; Rvuichi Tsukita; Toshio Suma, both of Kobe, and Kiyohiro Saito, Akashi, all of Japan, assignors to Asics Corporation, Japan

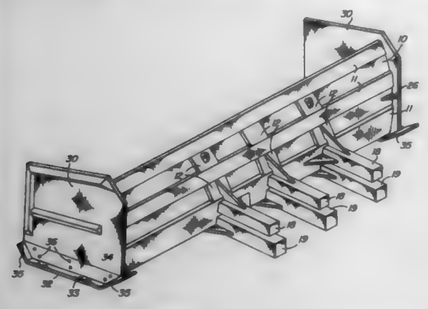
Division of Ser. No. 465,752, Jun. 6, 1995, Pat. No. 5,581,913, which is a division of Ser. No. 361,477, Dec. 22, 1994, Pat. No. 5,483,760, which is a continuation of Ser. No. 68,128, May 27, 1993, abandoned, which is a continuation-in-part of Ser. No. 58,065, May 5, 1993, abandoned. This application Sep. 4, 1996, Ser. No. 707,373
Claims priority, application Japan, May 13, 1992, 4-146297; Apr. 23, 1993, 5-97704; May 13, 1993, 5-111927
Int. Cl.° A43B *5/00;* **A43C** *15/00*
U.S. Cl. 36—134 **16 Claims**



1. A hard plate for a spiked track shoe comprising:
- a propulsion region for gripping ground surface and suppressing rearward slippage of the track shoe relative to the ground surface, said propulsion region being provided with a plurality of transverse grooves extending perpendicularly relative to a center line of said shoe on a substantially overall anterior forefoot portion in at least about one-half a forefoot portion;
- a braking region for buffering landing impact on the ground surface and for rapidly gripping the ground surface upon landing, said braking region being provided with a plurality of first large projections having a pyramid shape on an outer side of a posterior forefoot portion, said first large projections are aligned outwardly from the center line of said shoe in a first inclined direction at a first predetermined angle, wherein a base of one side face of each of said first large projections is orthogonal with said first inclined direction, and wherein said one side face of each of said first large projections is oriented substantially forwardly in said first inclined direction; and
- a balance and acceleration region for maintaining right and left balances on contact with the ground surface and for providing a propulsion force at a start dash moment, said balance and acceleration region being provided with a plurality of second large projections having a pyramid shape on an inner side of said posterior forefoot portion, wherein said second large projections are aligned inwardly from said center line of said shoe in a second inclined direction at a second predetermined angle, and wherein a base of one side face of each of said second large projections is orthogonal with said second inclined direction, and wherein said one side face of said second large projection is oriented substantially rearwardly in said second inclined direction.

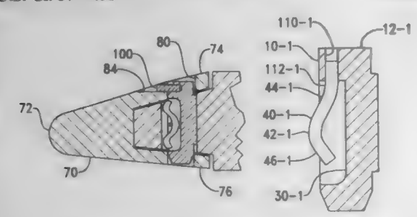
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5,724,755
SNOW PUSHER
Michael P. Weagley, 7436 E. River Rd., Rush, N.Y. 14543
Filed Oct. 28, 1996, Ser. No. 738,862
Int. Cl.[6] E01H 5/04
U.S. Cl. 37—233 4 Claims



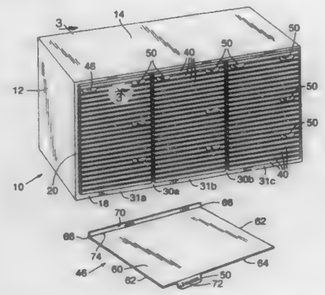
1. A snow pusher, including:
an upstanding transverse blade with a front, back, and bottom, said blade including a plurality of horizontal and vertical reinforcing channels on the back thereof;
a reversible rubber edge removably fastened to said blade and extending along and below the bottom thereof;
a vertical side plate extending forward from each end of said blade;
a wear shoe removably mounted on each side plate for sliding contact on a ground surface, said shoe having inclined front and rear ramp surfaces;
an upper horizontal row of posts, and a parallel lower row of larger posts, extending rearward from said blade, said rows defining an open slot for removable insertion therein of driving means to move said snow pusher; and
means to releasably secure said blade to said driving means.

5,724,756
BUCKET TIP RETENTION MEANS
Preston L. Gale, Mackinaw, Ill., assignor to Caterpillar Inc., Peoria, Ill.
Filed Jan. 6, 1997, Ser. No. 779,192
Int. Cl.[6] E02F 9/28
U.S. Cl. 37—458 23 Claims



1. A retention pin (**10**) for retaining a bucket tip (**70**) to a bucket tip adapter (**90**) for an excavator bucket, said retention pin (**10**) comprised of:
a pin main body (**20**) having a pin front face (**22**) defining a locking clip groove (**30**) and a pin rear face (**26**) including a positioning shoulder (**60**) extending therefrom, said locking clip groove (**30**) being defined by a locking clip groove floor (**34**) and parallel, spaced-apart locking clip groove walls (**32**), said pin main body (**22**) further defining a transverse clip retaining pin bore (**52**); and
a resilient locking clip element (**40**) disposed in said locking clip groove (**30**), said locking clip element (**40**) including a first locking portion (**44**) and a second locking portion (**46**).

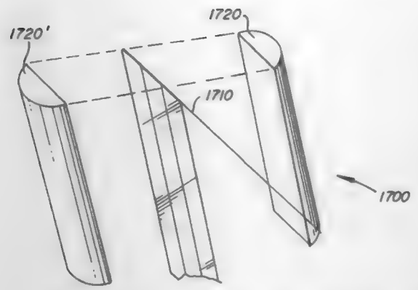
5,724,757
INDEX CARDS FOR ORGANIZING AUDIO OR VIDEO MEDIA CONTAINERS
Ronald William Warden, P.O. Box 835, Gold Beach, Oreg. 97444
Filed Oct. 17, 1995, Ser. No. 544,324
Int. Cl.[6] B42F 21/00
U.S. Cl. 40—360 8 Claims



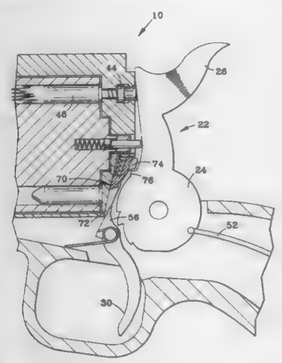
1. An index card for organizing compact disc containers, audio tape containers, and video tape containers to be stored in a stack relationship, the index card comprising:
a card body having a front edge, a side edge, and a rear edge, wherein the card body is sufficiently large to extend between the front edge and the rear edge or the side edge of one of the containers;
a viewable tab extending outwardly from the front edge of the card body to a sufficient distance that the viewable tab extends beyond the container, wherein the viewable tab can be read between adjacent containers
a retainer lip inclined at an angle from the side edge or rear edge of the card body, wherein the lip is sufficiently spaced from the front edge of the card body to fit against an edge of the container when the index card is placed against the container with the viewable tab extending outwardly from the front edge of the card body; and
a storage device having a plurality of slots, and the index card is positioned within at least one of the slots of the storage device, with the viewable tab extending outwardly from the slot such that the viewable tab can be viewed when a container is stored in the slot, and the lip extends across the slot to wedge the index card in the slot.

5,724,758
DEVICE AND METHOD FOR PRODUCING LENTICULAR IMAGES WITH MOTION
Stephen Gulick, Jr., Rochester, N.Y., assignor to Eastman Kodak Company, Rochester, N.Y.
Filed Apr. 27, 1995, Ser. No. 430,076
Int. Cl.[6] G03B 25/02
U.S. Cl. 40—454 5 Claims

1. A lenticular device comprising:
a light transmissive layer having a plurality of image frames recorded thereon;
a first lenticular material positioned on one surface of the light transmissive layer; and
a second lenticular material positioned on an opposite surface of the light transmissive layer so as to permit the viewing of the plurality of image frames through either said first or said second lenticular material.

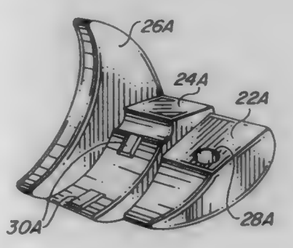


5,724,759
SAFETY MECHANISM FOR SINGLE ACTION FIREARMS
Benjamin Kilham, P.O. Box 37, Lyme, N.H. 03768
Filed Oct. 23, 1996, Ser. No. 735,502
Int. Cl.[6] F41A 17/00
U.S. Cl. 42—66 10 Claims



1. A safety mechanism for a firearm having;
a frame,
an external pivotably mounted hammer having a base region pivotably mounted to the frame, the hammer being manually rotatable from a hammer rest position to a hammer cocked position and, when released from the hammer cocked position, rotating towards a hammer fire position,
a means for biassing the hammer, when released from the hammer cocked position, to rotate towards the hammer fire position,
a sear notch in the hammer,
a trigger pivotably mounted below the hammer,
the trigger being moveable from a trigger ready-to-fire position to a hammer release position,
a sear on the trigger which engages the sear notch of the hammer when the trigger is in the ready-to-fire position and the hammer is in the hammer cocked position and becomes disengaged from the sear notch when the trigger is rotated to the hammer release position,
the sear preventing the hammer from rotating to the hammer fire position when the sear is engaged with the sear notch,
a trigger biassing means which biasses the trigger such that the sear will be urged into engagement with the sear notch when the hammer is moved to the hammer cocked position,
a cartridge-receiving chamber in front of the hammer, and
a firing pin associated with the hammer and mounted in a position to strike and fire a cartridge in the cartridge-receiving chamber in front of the hammer,
the safety mechanism comprising:
a safety channel in the frame;
a trigger block configured to slidably engage said safety channel as it moves between a lower trigger block position and an upper trigger block position, said trigger block having a block upper region and a block lower region;
a block lower region engaging surface provided on the trigger,
said block lower region of said trigger block being configured to slidably engage said block lower region engaging surface of the trigger and so configured as to raise said trigger block from said lower trigger block position to said upper trigger block position as the trigger is rotated from the trigger ready-to-fire position to the hammer release position;
means for biassing said trigger block towards said lower trigger block position; and
hammer blocking means engaging the hammer and preventing forward movement of the hammer and firing pin against a cartridge in the chamber when said trigger block is in said lower trigger block position,
said block upper region of said trigger block being positioned with respect to the hammer so that the hammer will cause the firing pin to strike and fire the cartridge in the chamber when said trigger block is in said upper trigger block position.

5,724,760
TRIGGER SAFETY DEVICE
F. Richard Langner, P.O. Box 14706, Scottsdale, Ariz. 85267
Filed Mar. 24, 1997, Ser. No. 823,372
Int. Cl.[6] F41A 17/54
U.S. Cl. 42—70.07 14 Claims



1. A trigger safety lock for guns having a trigger guard and a trigger therein with a space between the rear of the trigger and the trigger guard, said safety lock including in combination:
a rigid plug having at least a central portion configured to frictionally fit into said space between the rear of said trigger and said trigger guard to prevent depression of said trigger to fire the gun, said central portion of said rigid plug having first and second opposite sides;
a stepped-down ejector extension on the first side of said central portion and extending laterally therefrom beyond said trigger guard when said plug is in said space for engagement by a user of the gun to force said plug laterally out of said space, said ejector extension dimensioned with a thickness less than that of said central portion to permit said ejector extension to freely pass through said space; and
a flange on the second side of said central portion of said rigid plug overlapping at least part of one of said trigger and said trigger guard in engagement therewith with said central portion of said rigid plug located in said space.

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5,724,761
FIREARM BARREL MUZZLE PORTION MOUNTED COMPLETE FIREARM SIGHT AND MOUNT
John W. Bergacker, 1009 Northeast 104th St., Miami Shores, Fla. 33138
Filed Oct. 22, 1996, Ser. No. 736,054
Int. Cl.[6] F41G *1/41*
U.S. Cl. 42—100 **7 Claims**



1. A firearm optical sight and mount for use on a firearm that has both a breech end and a muzzle end portion of a barrel for mounting an optical sight and mount on said muzzle end portion of said barrel comprising an optical generally tubular sight and mount for mounting said optical generally tubular shaped sight and mount on said muzzle end portion of said barrel of said firearm, said optical sight and mount having means for making said optical sight and mount light in weight comprising primarily a non-metallic material and the maximum weight W of said optical sight and mount is determined in accordance with the following:

$$W = 10 - L$$

where:

$$L = \frac{X}{\text{II}}$$

W = Weight of said optical sight and mount in ounces

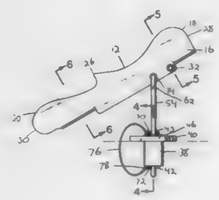
X = Distance to center of gravity of said optical sight and mount measured in inches from said breech end of said barrel.

5,724,762
FISHING LURE RETRIEVAL DEVICE
Jack Thompson, 500 S. 9th, Independence, Kans. 67301
Filed Jul. 16, 1996, Ser. No. 680,657
Int. Cl.[6] A01K *97/24*
U.S. Cl. 43—17.2 **20 Claims**



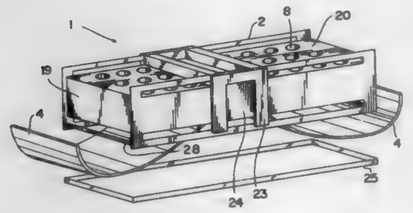
1. A fishing lure retrieval device comprising:
a body presenting marginal walls and separate, first and second lure-receiving openings therethrough with a pair of separate fishing line-clearing passageways each extending from a marginal wall of the body and communicating with a respective opening, said first opening having an effective open area substantially larger than the effective open area of said second opening,
said body further including a pair of adjacent, elongated, diverging segments cooperatively defining a concavity therebetween with cutting means mounted on one of said segments for severing of an object received in said concavity; and
elongated handle means operatively coupled with said body for permitting manipulation of the body,
each of said segments including an inner side wall surface in opposition to the side wall surface of the other segment, said segment side wall surfaces cooperatively defining a throat region leading to said concavity, said cutting means being secured to one of said segments and having a severing edge extending into said concavity.

5,724,763
FISHING ROD HOLDER
Marion L. Rasmussen, 2619 Grizzly Hollow Way, Stockton, Calif. 95207
Filed May 13, 1996, Ser. No. 645,552
Int. Cl.[6] A01K *97/10*
U.S. Cl. 43—21.2 **4 Claims**



1. A new and improved fishing rod holder with swiveling and nodding capabilities, comprising, in combination:
a trough-like support for a fishing rod having parallel side plates and with upper edges and lower edges and with a pair of integrally formed straps coupling the lower edges of the plates in a fixed orientation for receiving the handle portion of a fishing rod, the upper edge of the plates having complimentary recesses for receiving portions of the fishing rod handle being supported for precluding linear movement, the side plates having a leading edge for the passage of a leading edge of a fishing rod therefrom and a trailing edge for the passage of the trailing edge of a fishing rod handle therefrom with pairs of concentric apertures passing through the plates at spaced locations adjacent to the leading edge of the plates;
an annular base of a cylindrical configuration and a flange at the upper extent integrally formed therewith, the base having spaced axial apertures extending therethrough;
an associated metal bushing with a central aperture removably received in the aperture of the base and a radially enlarged shoulder positioned on the upper surface of the base;
a shaft having a long linear lower extent positionable in the aperture of the bushing with diametric apertures extending therethrough at spaced locations above the bushing and below the base, the shaft having an upper end curved with a horizontal portion positionable through preselected aligned apertures in the plates and with an aperture at the free end of the upper end and a cotter pin extending therethrough;
an upper cotter pin and a lower cutter pin extending through the upper and lower apertures of the shaft for supporting the shaft in a preselected position with respect to the bushing; and
a lanyard having releasable coupling means at its opposed ends for attachment to the cotter pins extending through the shaft for securement purposes.

5,724,764
STORAGE BOX
Charles Kent Alsup, P.O. Box 1425, Beaver, Utah 84713
Filed Oct. 10, 1995, Ser. No. 541,728
Int. Cl.[6] A01K *97/06*
U.S. Cl. 43—54.1 **9 Claims**



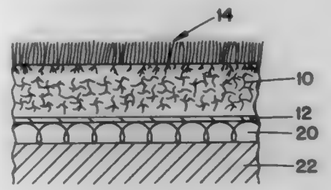
1. A storage box for storing a multiplicity of items comprising:
a box having two sides, two ends, a top and a bottom, and a multiplicity of compartments for storing items,
an endless belt rotatable around said box,
an aperture through said endless belt,
said endless belt capable of being rotated so that said aperture can be moved to at least a first and a second position,
in said first position said aperture is not aligned with any of said compartments, whereby said items in said storage compartments can not be removed from said storage compartments,
in said second position said aperture is aligned with a single storage compartment, and
wherein there is a second endless belt which moves in a direction perpendicular to said endless belt,
said second endless belt having an aperture therethrough,
whereby said aperture in said endless belt and said aperture in said second endless belt must be aligned in order to remove an item in said single storage compartment.

5,724,765
HERBICIDE APPLICATOR WITH VEGETATION GRABBING JAWS
Walter A. Wegner, 3805 Hwy. E South, Pittsville, Wis. 54466
Filed Jan. 22, 1996, Ser. No. 589,282
Int. Cl.[6] A01G *13/00;* **A01C** *23/00*
U.S. Cl. 47—1.5 **16 Claims**



1. An apparatus for applying a liquid to a plant, said apparatus comprising:
a shaft;
a pair of opposing jaws movably attached to the shaft with each jaw having an absorbent pad attached thereto, the pair of opposing jaws having a plurality of needles which penetrate the plant when the pair of opposing jaws is moved together;
a reservoir for the liquid;
a conduit system which carries the liquid from the reservoir to the absorbent pad on each jaw; and
an actuator coupled to the pair of opposing jaws and operable by a user to move the pair of opposing jaws so that the absorbent pads come together to grasp the plant there between.

5,724,766
HYGROSCOPIC ROCK WOOL MAT OF LOW WEIGHT PER UNIT VOLUME CAPABLE OF PROVIDING IMMEDIATE LANDSCAPING TO ROOFS OR SIMILAR SURFACES
Wolfgang Behrens, Trespenmoor 25, D-27243 Gross Ippener, Germany
Filed Oct. 13, 1995, Ser. No. 543,009
Claims priority, application Germany, Oct. 13, 1994, 44 36 443.1
Int. Cl.[6] A01C *1/04*
U.S. Cl. 47—56 **15 Claims**



1. A hygroscopic mat for providing landscaping in finished form to roofs or similar surfaces immediately upon application to said roofs or similar surfaces consisting essentially of (a) a rock wool mat having a thickness of approximately 2.0 to 3.5 cm and weight per unit volume between approximately 30 and 80 kg/m^3 that enable it to be rolled up and (b) living plants positioned within said rock wool mat wherein the roots of such plants provide mechanical strength to said mat to create a finished landscaping product that is capable of being readily transported in rolled form to said roofs or similar surfaces where it is unrolled and installed to provide said immediate landscaping.

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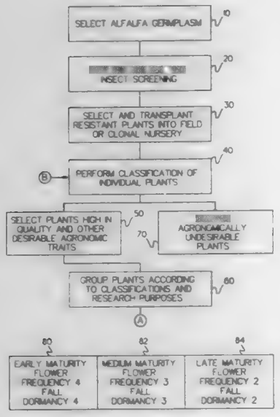
ALFALFA PRODUCTS AND METHOD FOR PRODUCING ALFALFA PRODUCTS FOR A SEQUENTIAL HARVESTING SYSTEM

Paul L. F. Sun, Roscoe, Ill., assignor to Dairyland Seed Co., Inc., West Bend, Wis.

Continuation of Ser. No. 362,183, Dec. 22, 1994, abandoned. This application Oct. 22, 1996, Ser. No. 735,098

Int. Cl.[6] A01H *1/00;4/00*

U.S. Cl. 47—58 **28 Claims**



1. A method for synthesizing an alfalfa product wherein the alfalfa product has an improved uniformity of a preselected trait, wherein the method for synthesizing the alfalfa product comprises the step of:

(a) selecting alfalfa germplasm coding for genetically desirable agronomic triats;

(b) growing a plurality of alfalfa plants from the alfalfa germplasm;

(c) classifying each one of the plurality of alfalfa plants by the preselected trait into a parent trait class, wherein the preselected trait is selected from the group consisting of flowering date, flower frequency and maturity rate;

(d) growing a progeny for one of the plurality of alfalfa plants;

(e) classifying the progeny by the preselected trait into a progeny trait class; and

(f) synthesizing the alfalfa product from any plurality of alfalfa plants or or progeny whose progeny trait class is the same as the parent trait class.

28. A method for synthesizing an alfalfa product wherein the alfalfa product has an improved uniformity of two or more preselected traits, wherein the method for synthesizing the alfalfa product comprises the steps of:

(a) selecting alfalfa germplasm coding for genetically desirable agronomic traits;

(b) growing a plurality of alfalfa plants from the alfalfa germplasm;

(c) classifying each one of the plurality of alfalfa plants by the two or more preselected traits into a parent trait class, wherein the two or more preselected traits are selected from the group consisting of flowering date, flower frequency and maturity rate;

(d) growing a progeny for one of the plurality of alfalfa plants;

(e) classifying the progeny by the two or more preselected traits into a progeny trait class; and

(f) synthesizing the alfalfa product from any plurality of alfalfa plants or progeny whose progeny trait class is the same as the parent trait class.

5,724,768

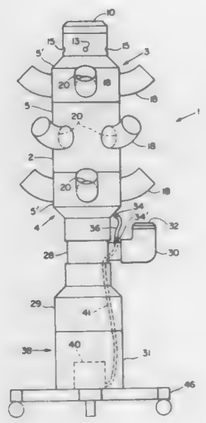
AEROPONIC PLANT GROWTH APPARATUS AND METHOD

Paul R. Ammann, Jr., 9 Joline Rd., Kendall Park, N.J. 08824

Filed Apr. 29, 1996, Ser. No. 639,552

Int. Cl.[6] A01G *31/00*

U.S. Cl. 47—62 **14 Claims**



1. Aeroponic plant growing apparatus comprising:

(a) an essentially vertically oriented elongate plant chamber having upper and lower ends and a tubular side wall, said chamber having a bore defining a plant root receiving zone and said side wall comprising a plurality of plant receiving apertures therethrough;

(b) spray means comprising at least one spray nozzle stationed at the upper end of said plant chamber, said spray means being oriented to spray liquid plant nutrient solution downwardly through the bore of said chamber, thereby to wet plant roots residing within said zone;

(c) means to supply liquid plant nutrient solution to said spray means; and

(d) means to induct atmospheric air and to exhaust stagnant air from said chamber during operation of said spray means.

5,724,769

MOTOR VEHICLE WINDOW CONSTRUCTION WITH PULL-PULL CABLE SYSTEM

Todd E. Cripe, Elkhart, Ind.; Darren M. Grumm, Cassopolis, Mich.; Raymond S. Butler, Elkhart, Ind.; Roger E. Schamanek, Rochester Hills, and Dennis J. Buening, Waterford, both of Mich., assignors to Excell Industries, Inc., Elkhart, Ind.

Continuation-in-part of Ser. No. 369,345, Jan. 6, 1995, Pat. No. 5,542,214. This application Mar. 29, 1996, Ser. No. 624,130

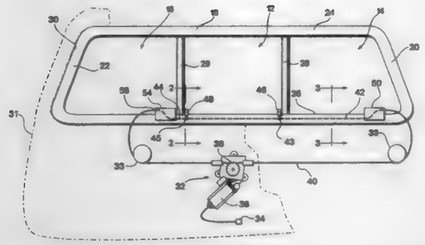
Int. Cl.[6] E05F *11/53*

U.S. Cl. 49—360 **27 Claims**

1. A motor vehicle window construction in a motor vehicle, comprising, in combination:

frame means mounted in a window recess in a vehicle body comprising a circumferential frame member with a first cable directional block integral with a lower horizontal portion of the frame member;

a slider subassembly comprising a transparent pane and being slidably mounted in the frame means for sliding laterally back and forth between a full open position and a closed position in a laterally extending slider travel channel in the lower horizontal portion of the frame member; and



a pull-pull cable drive subassembly for moving the slider subassembly laterally back and forth between its full open and closed positions, the pull-pull cable drive subassembly comprising:

drive apparatus mounted to the vehicle body remote from the circumferential frame member, comprising a drive motor having an output member and a drive drum operatively engaging the output member for rotation upon actuation of the drive motor; and

drive cable attached to the slider subassembly and wrapped around the drive drum for pulling the slider subassembly substantially laterally in a first direction toward its full open position upon rotation of the drive drum in a first rotational direction, and for pulling the slider subassembly substantially laterally in a second direction toward its closed position upon rotation of the drive drum in an opposite rotational direction, the slider subassembly and drive cable together forming a closed loop from the drive drum, with a first drive cable segment extending laterally from the slider subassembly toward a left side of the frame member and a second drive cable segment extending laterally from the slider subassembly toward a right side of the frame member;

wherein a section of the first drive cable segment extends in a first cable channel in the substantially horizontal lower portion of the frame member, and the first cable directional block forms a curved internal passageway guiding the drive cable from the first cable channel to a first entry point.

5,724,770

SLIDING DOOR TOP GUIDE AND BOTTOM BRACKET ASSEMBLY

Thomas H. McAfee, 3302 Rossmoor Way, Los Alamitos, Calif. 90740

Filed Nov. 8, 1996, Ser. No. 745,954

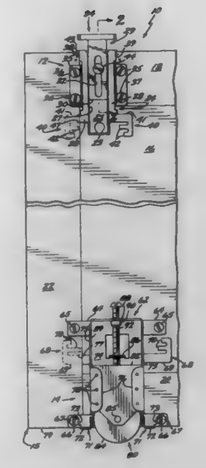
Int. Cl.[6] E05D *13/00*

U.S. Cl. 49—409 **17 Claims**

1. A sliding door and adjustable guide assembly for travel in an upper track, said sliding door including a panel having respective upper and lower ends and further having opposite sides, a pair of horizontally extending rails engaged with said panel at said respective upper and lower ends of said panel, and a pair of vertically extending stiles, having respective upper and lower ends, engaged with said panel at said opposite sides thereof, said assembly comprising:

at least one bracket assembly, having an upper end, and configured for mounting to said panel adjacent said upper end thereof and including a bracket housing having an upper end and respective opposite sides; and

a top guide assembly comprising a vertical stem slidably engaged with said bracket housing for displacement of said stem relative to said bracket housing and a follower assembly



including a body connected to said stem and sized for making a close fit in said upper track, said follower assembly further including at least one deflectable tab extending outwardly from said body for deflectable engagement with an inner wall of said upper track.

5,724,771

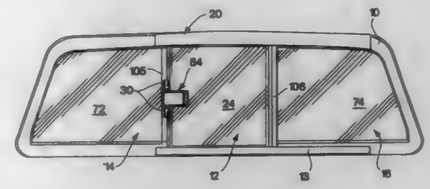
WINDOW ASSEMBLY WITH UNITARY ANTI-THEFT PROJECTION

Ronnie G. Gipson, Dearborn, Mich., assignor to Excel Industries, Inc., Elkhart, Ind.

Filed Mar. 29, 1996, Ser. No. 624,131

Int. Cl.[6] E05B *55/00*

U.S. Cl. 49—449 **9 Claims**



1. A window assembly comprising, in combination:

a frame comprising a molded plastic circumferential frame member and at least one molded plastic post segment within and unitary with the circumferential frame member;

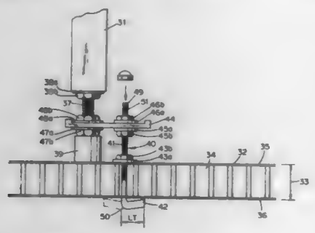
a sliding pane slidable from an open position to a closed position;

a latch assembly comprising a latch keeper positioned on one of the post segment and the sliding pane, and a latch attached to another of the post segment and the sliding pane, whereto the latch releasably engages the latch keeper to secure the sliding pane to the frame in its closed position; and

anti-theft means resisting disengagement of the latch from the latch keeper by inboard displacement of the sliding pane in the closed position, wherein the anti-theft means comprises at least one anti-theft projection unitary with the post segment.

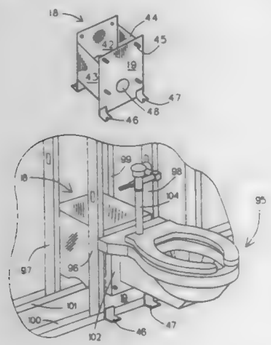
VOL 1208 ISS 2 MR 10 1998 UMI

5,724,772
RESTRAINING CLAMP
Ted McGill, Cupertino, Calif., assignor to Advanced Micro Devices, Inc., Sunnyvale, Calif.
Filed Dec. 8, 1994, Ser. No. 355,261
Int. Cl.° E04F *19/00*
U.S. Cl. 52—27 **64 Claims**



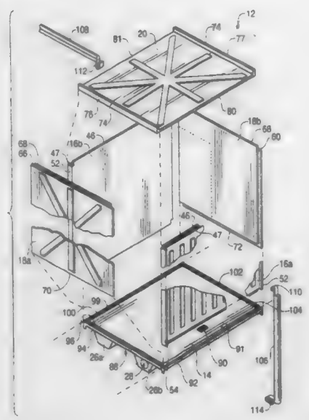
1. In combination:
(i) an article of furniture having legs;
(ii) a floor having a plurality of grid openings, a top surface on which the legs stand and a bottom surface; and
(iii) an element for restraining the legs comprising:
(a) a plate having first and second openings; and
(b) a bolt comprising a generally linear shaft having a threaded portion extending to at least a first end thereof and an anchoring leg extending at an angle from a second end; wherein,
the bolt extends through one of the grid openings in the floor with the anchoring leg tightly engaging the bottom surface of the floor, the first end of the bolt shaft extends through the grid opening above the top surface of the floor and is tightly engaged to the floor at the top surface, the threaded portion of the bolt is tightly engaged within the first opening of the plate, and the table leg is tightly engaged within the second opening of the plate.

5,724,773
BUILDING MODULE PROVIDING READILY ACCESSIBLE UTILITY CONNECTIONS
Gerald W. Hall, 141 Roswell Ave., Long Beach, Calif. 90803
Filed Sep. 25, 1995, Ser. No. 533,185
Int. Cl.° E03C *1/00;1/20;1/322;* **E04H** *1/00*
U.S. Cl. 52—34 **15 Claims**



1. A building module comprising
two adjacent, parallel frames comprised of vertical studs, said frames each being approximately the size of the wall of a room, said frames held fixedly spaced apart,
an off-the-floor water closet comprising waste discharge conduit [redacted]
waste conduit junction means,
water closet carrier means disposed between said parallel frames, said water closet carrier means being comprised of front and back structural means, at least one of said front and back structural means connected to provide support for said off-the-floor water closet means,
said water closet carrier means adapted to receive said waste conduit junction means within said water closet carrier means, and
wherein said waste conduit junction means is connected to said waste discharge conduit means of said off-the-floor water closet,
structural means independent of said waste conduit junction means rigidly connecting said front and back structural means with respect to each other, and
wherein said independent structural means rigidly holds said front and back structural means apart, with respect to each other, independently of said vertical studs and wherein said module comprises a plurality of walls forming one or more rooms in said module, and
wherein at least said front structural means is comprised of a plate and
wherein said module has no floor.

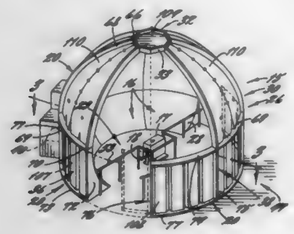
5,724,774
MODULAR BUILDING ASSEMBLY AND METHOD OF ASSEMBLING THE SAME
James W. Rooney, 12015 Corral Dr., Fairfax Station, Va. 22039
Continuation-in-part of Ser. No. 279,010, Jul. 22, 1994, abandoned. This application Jun. 21, 1996, Ser. No. 667,599
Int. Cl.° E04H *1/12*
U.S. Cl. 52—79.5 **17 Claims**



1. A modular building assembly for providing shelter or storage space, comprising:
a plurality of building units including two end building units and at least one inner building unit, each of said building units configured for releasable engagement with an adjacent one of said plurality of building units, each of said building units having
a floor panel, said floor panel having a pair of floor supports extending along a length of an exterior surface of said floor panel, at least one of said floor supports defining a passageway therethrough for receiving air, said floor supports of each of said building units positioned to abut said floor supports of an adjacent one of said building units so that said at least one of said floor supports of adjacent ones of said building units is able to communicate for passage of air,

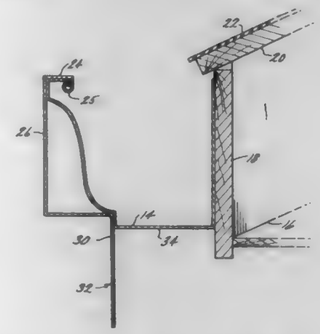
two side wall panels each having a lower end and an upper end, each of said two side wall panels formed to be releasably mounted to said floor panel, a first of said two side wall panels formed for mounting along a first edge of said floor panel and a second of said two side wall panels formed for mounting along a second edge of said floor panel opposite said first edge of said floor panel, and
a roof panel having upwardly extending flanges along a first edge and a second edge thereof, said first edge of said roof panel being opposite said second edge of said roof panel, said roof panel formed to releasably mount to and extend over said upper end of each of said two side wall panels, said roof panel formed for operably resting atop said upper end of each of said two side wall panels, said roof panel being substantially planar;
each of said two end building units having an end panel with a lower end and an upper end, said lower end of a first end panel formed to be releasably mounted to a third edge of said floor panel of one of said two end building units, said lower end of a second end panel formed to be releasably mounted to a fourth edge of said floor panel of the other of said two end building units, said upper end of each said end panel formed to releasably mount to and support said roof panel of an associated one of said two end building units;
a plurality of side brackets each formed to be releasably mounted to said two side wall panels of said building units, each of said side brackets having a lip portion at a first end thereof, said first end formed to be positioned adjacent said roof panel of an associated one of said building units; and
a plurality of roof brackets each formed for mating engagement with said upwardly extending flanges of each said roof panel, each of said roof brackets having a lip portion at a first end and a second end thereof, said lip portion of each of said roof brackets formed for interlocking engagement with said lip portion of one of said side brackets.

5,724,775
MULTI-PIECED, PORTABLE PROJECTION DOME AND METHOD OF ASSEMBLING THE SAME
Richard W. Zobel, Jr., Raleigh; David T. Bennett, Chapel Hill; Raymond L. Idaszak, Apex, and Dennis Kovach, Cary, all of N.C., assignors to Alternate Realities Corporation, Research Triangle Park, N.C.
Filed Jan. 29, 1996, Ser. No. 593,041
Int. Cl.° E04H *3/22;* **G03B** *21/56*
U.S. Cl. 52—82 **81 Claims**



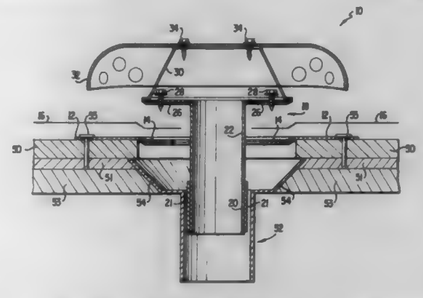
1. A rigid panel for constructing a self-supporting, multi-piece dome, said dome being configured to receive a hemispherical optical projection on an inner surface, said panel comprising:
a rigid body portion having an arcuate inner view surface, said inner view surface configured to define a spherical sector, said body portion being formed of a material comprising a polymeric material and a opacifier, said material having a predetermined color and surface texture, at least one of said color or surface texture being selected so that said inner view surface is suitable for receiving an image thereon; and
at least one edge portion adjacent said inner view surface, said at least one edge portion extending along a portion of the periphery of said body portion and configured to mate with an edge portion of at least one additional rigid dome panel.

5,724,776
DECORATION DEVICE
John L. Meadows, Jr., 15 Elvira Dr., Rockfall, Conn. 06481
Filed Feb. 28, 1995, Ser. No. 395,920
Int. Cl.° E04D *13/15*
U.S. Cl. 52—94 **16 Claims**



1. A decorative device for a gutter, comprising:
an elongated strip, said elongated strip cross sectionally having,
(1) a first vertical portion, and
(2) a second portion depending generally upwardly from said first portion,
a series of cut outs in said first portion of said elongated strip; and
means for fastening said elongated strip to the gutter.

5,724,777
ROOF DRAIN ARRANGEMENT AND METHOD
Richard M. Hubbard, 24 Park St., Haverhill, Mass. 01932
Filed Nov. 17, 1995, Ser. No. 559,527
Int. Cl.° E04B *7/18*
U.S. Cl. 52—198 **17 Claims**



1. A roof drain arrangement mounted on an existing drain opening on a roof, said arrangement comprising:
a base plate having a center opening approximately corresponding in size to a cross-section of said existing drain opening, said base plate being positioned directly on said roof so that said center opening of said base plate is in substantial alignment with said cross-section of said existing drain opening, said base plate having an upper surface;
an insert portion approximately corresponding in cross-sectional size to said cross-section of said existing drain opening, said

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insert portion being inserted into said existing drain opening and having a flange portion adjacent to and surrounding an upper end of said insert portion, said flange portion having a lower surface which rests on said base plate when said insert portion is inserted into said existing drain opening; and

sealing means disposed between said lower surface of said flange portion and said upper surface of said base plate for sealing an area therebetween.

5,724,778

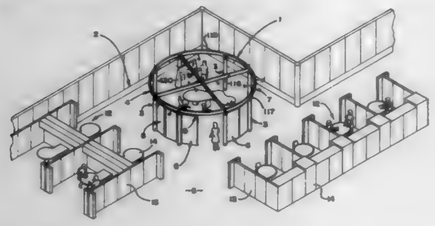
FURNITURE SYSTEM

Paul T. Corneli, Grand Rapids, Mich.; Robert J. Luchetti; Gregg R. Draudt, both of Cambridge, Mass.; Kurt S. Bodden, Boston, Mass., and Linda K. Zimmer, Eugene, Oreg., assignors to Steelcase Inc., Grand Rapids, Mich.

Continuation of Ser. No. 774,563, Oct. 8, 1991, Pat. No. 5,511,348, which is a continuation-in-part of Ser. No. 480,219, Feb. 14, 1990, abandoned. This application May 25, 1995, Ser. No. 450,255

Int. Cl.[6] E04B *2/00*

U.S. Cl. 52—239 **29 Claims**



1. A furniture kit particularly adapted to support temporary group activities in open plans, and the like, comprising;

a plurality of overhead beam segments, each having a beam connector positioned adjacent opposite ends thereof, and a hanger positioned along at least one side thereof; said overhead beam segments including at least one perimeter segment arranged to form a closed, top plan perimeter, and at least one cross-beam segment extending interior of the perimeter formed by said perimeter segment;

a plurality of overhead support columns, each having a column connector positioned adjacent an upper end thereof, and a foot positioned adjacent a lower end thereof for abutment with an open floor surface of an associated building room;

a plurality of connectors, each having a first connector shaped for detachable connection with said beam connector at the adjacent ends of at least two of said overhead beam segments arranged in an end-to-end fashion, and a second connector shaped for detachable connection with said column connector at the upper end of one of said overhead support columns, such that a plurality of said overhead beam segments may be detachably interconnected to form a rigid framework with a closed plan shape, that is supported on the floor surface of the building room by at least two of said overhead support columns at a predetermined elevation above average user height; and

a plurality of panels, each being constructed to permit easy, manual, bodily translation of the same by an adult user, and including a connector for detachably connecting the same with the hanger of any one of said overhead beam segments in a manner in which each of said panels hangs downwardly from said framework in a generally vertical orientation, and is readily and easily manually removable therefrom by the user, such that said panels can be manually positioned on the perimeter segment of said framework to define a group workspace portion of the floor surface which is at least spatially and visually distinct from the rest of the floor surface, and is sufficiently large to comfortably accommodate a plurality of adult users therein for communal communications and actions, and said panels can be manually positioned on the cross-beam segment of said framework to subdivide the group workspace into at least two, sub-group workspaces which are at least spatially and visually distinct from one another, and are sufficiently large to accommodate at least one adult user therein for breakout-type communications and actions.

5,724,779

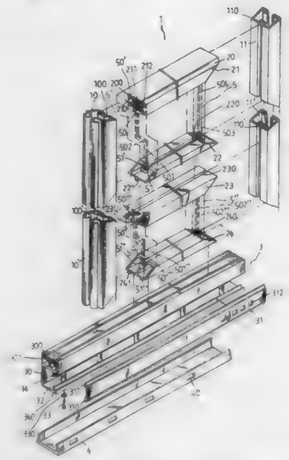
PARTITION WALL UNIT

Ching-Chang Chang, No. 323, Chien-Feng Rd.,, Feng-Tien Li, Ping-Tung City Ping-Tung Hsien, Taiwan

Filed Oct. 18, 1996, Ser. No. 734,446

Int. Cl.[6] E04B *2/74*

U.S. Cl. 52—239 **2 Claims**



1. A partition wall unit comprised of a bottom rail, a plurality of unit panels connected with one another by tongue-and-groove joints and supported on said bottom rail, and a bottom cover channel covered on said bottom rail at a bottom side, said unit panel comprising a first top sash, a second top sash connected to a bottom side of said first top sash, a first intermediate sash spaced from and disposed in parallel to said second top sash, a second intermediate sash connected to a bottom side of said first intermediate sash, a bottom sash spaced from and disposed in parallel to said second intermediate sash, a first front face panel and a first rear face panel connected in parallel between said second top sash and said first intermediate sash, a second front face panel and a second rear face panel connected in parallel between said second intermediate sash and said bottom sash, a first upper stile profile and a second upper stile profile bilaterally connected between said second top sash and said first intermediate sash to hold said first front face panel and said first rear face panel in place, and a first lower stile profile and a second lower stile profile bilaterally connected between said second intermediate sash and said bottom sash to hold said second front face panel and said second rear face panel in place, said first top sash having two downward coupling flanges raised from a bottom side thereof along the length, said second top sash comprising two longitudinal sash coupling grooves bilaterally disposed at a top side thereof along the length and forced into engagement with the downward coupling flanges of said first top sash, a longitudinal top center groove equally spaced between said longitudinal sash coupling grooves, and a longitudinal bottom center groove, said first intermediate sash comprising a longitudinal top center groove at a top side thereof, and a downward coupling flange raised from a bottom side thereof, said second intermediate sash comprising a longitudinal top center groove at a top side thereof forced into engagement with the downward coupling flange of said first intermediate sash, and a

longitudinal bottom center groove at a bottom side thereof, said bottom sash comprising a longitudinal top center groove, and two downward coupling flanges bilaterally raised from a bottom side thereof, said first and second upper stile profiles having a respective longitudinal coupling groove at an inner side, said first and second lower stile profiles having a respective longitudinal coupling groove at an inner side, said first front face panel and said first rear face panel having a respective top flange abutted against each other and fitted into the longitudinal bottom center groove of said second top sash, a respective bottom flange abutted against each other and fitted into the longitudinal top center groove of said first intermediate sash, a respective left side flange abutted against each other and fitted into the longitudinal coupling groove of said first upper stile profile, a respective right side flange abutted against each other and fitted into the longitudinal coupling groove of said second upper stile profile, said second front face panel and said second rear face panel having a respective top flange abutted against each other and fitted into the longitudinal bottom center groove of said second intermediate sash, a respective bottom flange abutted against each other and fitted into the longitudinal top center groove of said bottom sash, a respective left side flange abutted against each other and fitted into the longitudinal coupling groove of said first lower stile profile, a respective right side flange abutted against each other and fitted into the longitudinal coupling groove of said second lower stile profile, said bottom rail being mounted within said bottom cover channel, and comprised of an elongated base frame and a cover plate attached to and covering said elongated base frame, said base frame comprising two longitudinal coupling grooves bilaterally disposed on a top side of an upper section thereof and respectively coupled to the downward coupling flanges of said bottom sash, two horizontal coupling grooves vertically spaced at a front side thereof and facing each other, a plurality of downwardly disposed vertical female screw rods, and adjusting screws and nuts respectively fastened to said female screw rods adjusting the elevation of said bottom rail in said bottom cover channel, said cover plate comprising two longitudinal coupling flanges raised along two opposite long sides thereof and respectively forced into engagement with the horizontal coupling grooves of said base frame, and a plurality of electric socket mounting holes, said bottom cover channel being attached to a bottom side of said bottom rail, having a plurality of elongated slots through which fingers can be inserted for turning said nuts inside said bottom cover channel.

5,724,780

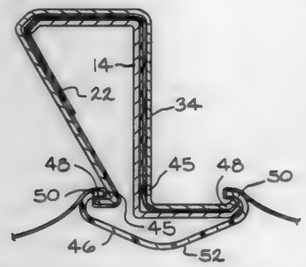
METAL BUILDING ROOF STRUCTURE

Richard M. Bolich, Toledo, Ohio, assignor to Owens-Corning Fiberglas Technology, Inc., Summit, Ill.

Filed Jun. 7, 1995, Ser. No. 478,130

Int. Cl.[6] E04B *1/74*

U.S. Cl. 52—407.4 **12 Claims**



1. A metal building roof structure, comprising:

a plurality of purlins in a parallel arrangement, each purlin having a generally vertical leg and a generally horizontal top leg;

insulation support sheets depending from the horizontal legs of adjacent purlins;

a plurality of purlin caps, each purlin cap including a generally horizontal top portion positioned on tip of the horizontal top leg of one of the purlins, two generally vertical portions extending downwardly from the horizontal top portion, and shoulders extending from the vertical portions, each purlin cap being placed over an insulation support sheet so that the vertical portions of each purlin cap cause the insulation support sheet to substantially conform to the shape of the vertical leg of a purlin; and

a plurality of trim strips, each trim strip having opposing tabs mounted on said shoulders.

5,724,781

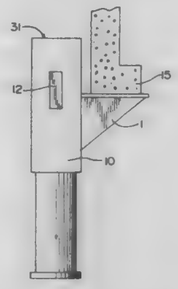
METHOD FOR RAISING FOUNDATIONS

Billie Horace Matthias, 4301 Thicket Dr., and Sydney Alan Ardoin, 417 Clearfield Dr., both of Garland, Tex. 75043

Filed May 17, 1996, Ser. No. 649,232

Int. Cl.[6] E02D *35/00*

U.S. Cl. 52—741.11 **1 Claim**



1. A method of raising and supporting the undersurface of a foundation or slab of a building, the method comprising the steps of:

digging a hole alongside the foundation and for a short distance underneath the foundation;

placing a bracket within said hole and alongside the slab or the foundation, said bracket comprising a tubular section having a channel running through said bracket so as to define a central axis parallel to said channel, said bracket having an engagement plate in connection with a portion of said tubular section and extending from said tubular section in a direction perpendicular to said central axis, said bracket having a slot having an axis of direction running through said tubular section and perpendicular to said central axis, said slot further extending in a direction parallel to said central axis; said slot being at a point on said tubular section opposite said engaging plate;

placing said engaging plate beneath the undersurface of the slab;

directing a piling assembly through said central axis by feeding a series of pipes through said channel, said piling assembly including a bottom most pipe having a friction collar in connection so as to create a hole that is of greater diameter than a diameter of said series of pipes when said assembly is forced downward, and having a topmost pipe at the top of said series of pipes;

driving said piling assembly through said central axis until a predetermined resistance is encountered;

attaching a jacking assembly to said bracket and said topmost pipe;

lifting said foundation by means of said jacking assembly for a distance until said foundation has reached a predetermined level so as to create a gap between said slot in said bracket and said topmost of said series of pipes;

placing at least one pin through said slot so to rest upon said topmost pipe and thus support said building upon said series of pipes.

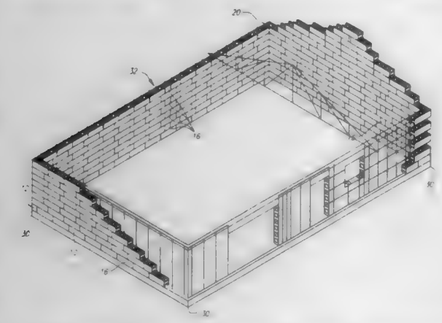
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5,724,782

SYSTEM AND METHOD FOR CONSTRUCTING BUILDINGS (AND OTHER STRUCTURES) CAPABLE OF WITHSTANDING SUBSTANTIAL NATURAL FORCES

Ronald D. Rice, and Joshua W. Lavender, both of 2870 NE. 26th St., Fort Lauderdale, Fla. 33305

Filed May 23, 1994, Ser. No. 247,905
Int. Cl.[6] E04B *1/00*
U.S. Cl. 52—745.05 5 Claims



1. A method for constructing a structure capable of withstanding substantial natural forces, said method comprising the steps of:
forming a slab foundation;
coupling a first plurality of "J" track supports to a perimeter section of said slab foundation;
coupling a second plurality of "J" track supports to said slab foundation, said second plurality of "J" track supports being parallel to and spaced a selected distance from said first plurality of "J" track supports;
setting a pair of bottom surfaces of a plurality of expanded polystyrene form blocks into said first and second plurality of "J" track supports to form a first course of said expanded polystyrene form blocks around said perimeter of said slab foundation;
stacking and coupling additional courses of said expanded polystyrene form blocks onto said first course of said blocks to form a shell of a wall around said perimeter of said slab foundation, said shell of said wall having a plurality of horizontal and vertical columns formed therein by said courses of said expanded polystyrene form blocks;
positioning steel reinforcing bars within said shell of said wall between said courses of said expanded polystyrene form blocks;
positioning steel reinforcing bars vertically at selected locations within said shell of said wall; and
depositing in a continuous lift a selected amount of concrete into said horizontal and vertical columns within said shell of said wall, such that said horizontal and vertical columns of said shell of said wall are filled with concrete and such that no cold joints are formed within said concrete.

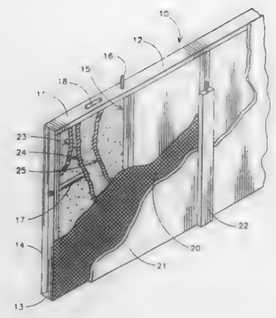
5,724,783

BUILDING PANEL APPARATUS AND METHOD

Theodore O. Mandish, 5055 State Rd. 46, Mims, Fla. 32754

Continuation-in-part of Ser. No. 173,058, Dec. 27, 1993, Pat. No. 5,417,023, which is a division of Ser. No. 368,362, Jan. 4, 1995, Pat. No. 5,555,698. This application Sep. 16, 1996, Ser. No. 714,352
Int. Cl.[6] E04B *2/56*; E04C *2/20*
U.S. Cl. 52—745.05 9 Claims

1. A wall building process comprising the steps of:
selecting a waste recycling material;
converting the selected waste recycling material into an aggregate material;
damping said waste recycling aggregate material with water;



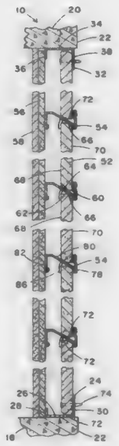
coating said converted waste recycling material with a coating mixture including cement and microsilica;
mixing said coated aggregate recycling material in a cement and water mixture; and
placing said mixed aggregate recycling material and cement and water mixture into a building wall unit and curing said cement to thereby create an improved wall structure.

5,724,784

SHAFT WALL AND HORIZONTAL METAL STUD THEREFOR

Robert J. Menchetti, Buffalo, N.Y., assignor to National Gypsum Company, Charlotte, N.C.

Continuation-in-part of Ser. No. 93,026, Jul. 19, 1993, abandoned, which is a continuation-in-part of Ser. No. 858,797, Mar. 27, 1992, abandoned. This application Feb. 8, 1995, Ser. No. 385,673
Int. Cl.[6] E04B *2/30;2/78*
U.S. Cl. 52—483.1 31 Claims



1. A hollow wall, extending vertically upwardly from a floor, readily assembleable from a first outer side and suitable for construction where a second inner side is relatively inaccessible, comprising:
(a) means, at each end of said hollow wall, for receiving and grasping ends of horizontally extending studs and maintaining the position of said studs, providing a substantially vertically aligned end of said hollow wall;

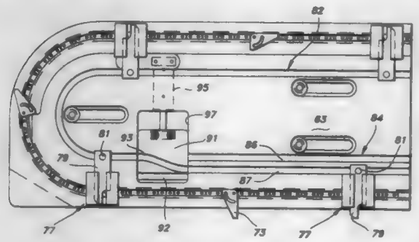
(b) at least one horizontally disposed, elongate, metal stud, said stud having an inner flange, a central web and an outer flange, said web extending between and connecting said inner and outer flanges;
(c) at least first and second gypsum boards, each of said boards having an upper edge and a lower edge, said lower edge of said first gypsum board being immediately above said stud and supported on said central web of said stud, said upper edge of said second gypsum board being immediately below said stud and disposed against and supporting said central web of said stud substantially below said lower edge of said first gypsum board, said gypsum board edges being spaced inwardly from said outer flange of said stud and being substantially adjacent said inner flange;
said stud having opposed ends grasped by said receiving and grasping means, and said stud maintaining said gypsum boards in vertically aligned position; and
(d) additional gypsum board affixed to an outer face of said outer flange of said stud.

5,724,785

ARTICLE PACKAGING MACHINE WITH IMPROVED OVERHEAD FLIGHT ASSEMBLY

Don B. Malanowski, Marietta, Ga., assignor to Riverwood International Corporation, Atlanta, Ga.

Filed Jun. 7, 1996, Ser. No. 660,432
Int. Cl.[6] B65B *21/00*
U.S. Cl. 53—48.1 12 Claims



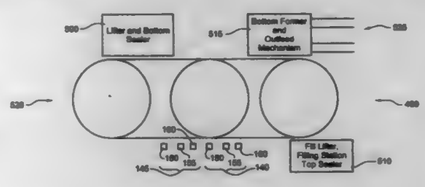
1. An article packaging machine for packaging articles of a first size and a second size, such as bottles or cans into cardboard containers, said packaging machine comprising:
a frame;
carton conveyor means mounted to said frame for conveying cartons along a predetermined carton path;
an infeed conveyor assembly on one side of said carton path for conveying articles along prescribed paths and directing the articles in groups toward open cartons moving along said carton path;
an overhead flight assembly including an endless conveyor having an upper flight and a lower flight with said lower flight of said endless conveyor being positioned to overlie cartons on said carton path and being oriented substantially along the direction of carton movement;
said endless conveyor having an upstream end and a downstream end and being driven to move said lower flight of said endless conveyor from said upstream end to said downstream end at a rate synchronized with the rate at which cartons are conveyed along said carton path;
an array of pusher lug assemblies mounted at spaced intervals along the length of said endless conveyor for engaging and pushing along the upper portions of cartons being conveyed along said carton path;
said endless conveyor including first and second sets of aligned pusher lug assemblies, where each said set of pusher lug assemblies have fingers that are retracted as said pusher lug assemblies pass over said upper flight, and that only said second set includes fingers that are operably retractable as they pass over said lower flight; and
means for selectively extending said fingers of said second set when cartons of said second size are being conveyed along said carton path and retracting said fingers of said second set when cartons of said first size are being conveyed along said carton path.

5,724,786

CONTROL SYSTEM HAVING ERROR CORRECTING APPARATUS

Ashok Singh, Chicago, Ill.; Robert Massey, Paddock Lake, Wis., and Olof Stark, Ystad, Sweden, assignors to Tetra Laval Holdings & Finance S.A., Pully, Switzerland

Continuation-in-part of Ser. No. 315,414, Sep. 28, 1994. This application Jun. 7, 1995, Ser. No. 475,396
Int. Cl.[6] B65B *57/08*
U.S. Cl. 53—52 50 Claims



21. A packaging machine comprising:
a) a plurality of packaging stations, each of the packaging stations executing one or more processes to fill and seal a plurality of packages;
b) an endless belt conveyor carrying the plurality of packages;
c) a servomotor connected to drive the endless belt conveyor through an intermediate drive mechanism to thereby transport the plurality of packages between the plurality of packaging stations;
c) a flag member connected for co-movement with the endless belt conveyor;
d) a controller for driving the servomotor in accordance with a predetermined motion profile, the predetermined motion profile defining motion characteristics of the endless belt conveyor as the endless belt conveyor moves from an index start position to an index end position within a predetermined time frame;
e) a sensor fixed between the index start position and the index end position and generating an output signal indicative of the flag member reaching a predetermined position between the index start position and the index end position, the controller detecting a time of occurrence of the output signal and comparing the time of occurrence with a reference time, comparison between the time of occurrence and the reference time being used by the controller to alter the predetermined motion profile to assist the endless belt conveyor in reaching the index end position by the end of the predetermined time frame; and
f) first and second index end position sensors disposed proximate the index end position and generating an index end position signal to the controller when the flag member reaches the index end position, the first and second index end position sensors being spaced apart a distance corresponding to a width of the flag member along a direction of travel of the flag member.

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5,724,787

APPARATUS FOR THE PRODUCTION OF PACKAGES

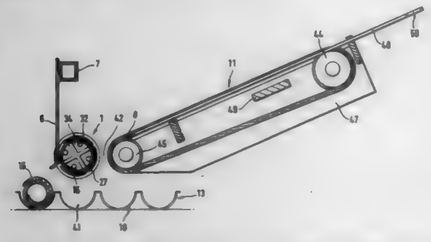
Günter Diete, Obergünzburg, Germany, assignor to Firma Dixie-Union GmbH & Co. KG, Kempten, Germany

Filed Sep. 9, 1996, Ser. No. 711,266

Claims priority, application Germany, Sep. 9, 1995, 295 14 511 U; Feb. 24, 1996, 296 03 395 U

Int. Cl.[6] B65B *63/04*

U.S. Cl. 53—119 **8 Claims**



5. An apparatus for the production of packages of sliced food product, said apparatus comprising:

conveyor means for successively receiving slices of food product,

a slice rolling facility located downstream of said conveyor means for receiving slices from said conveyor means, said rolling facility rolling slices into individual rolls, and

a package located downstream of said rolling facility for receiving rolls of product from said facility with at least some rolls located adjacent to one another,

said slice rolling facility having at least one rotationally driven rolling mandrel which grasps a leading edge of a slice delivered from said conveyor means,

said rolling mandrel including four equidistantly spaced parallel bars which are each held at one end by a support, the support and the bars being rotatable about an axis, at least some of the bars being a same distance from the axis, the sliced food product being insertable, generally radially to the axis, between two neighboring bars.

5,724,788

FOUNDRY CORE ASSEMBLING APPARATUS

Reiner Rommel, Brühl, and Ulf Stangier, Ketsch, both of Germany, assignors to Adolf Hottinger Maschinenbau GmbH, Mannheim, Germany

PCT No. PCT/DE94/00808, § 371 Date Apr. 15, 1996, § 102(e) Date Apr. 15, 1996, PCT Pub. No. WO95/10374, PCT Pub. Date Apr. 20, 1995

PCT Filed Jul. 14, 1994, Ser. No. 632,406

Claims priority, application Germany, Oct. 13, 1993, 43 34 857.2

Int. Cl.[6] B65B *35/54*

U.S. Cl. 53—154 **6 Claims**

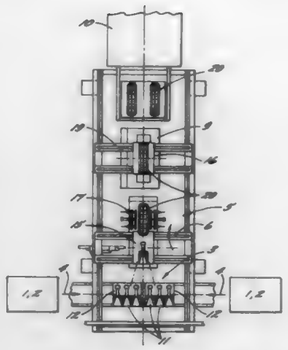
1. An apparatus for assembling foundry cores to form ready-to-cast core packs, and comprising

a transfer station,

a pair of core shooting machines positioned on opposite sides of the transfer station and so that the core shooting machines define a transverse direction extending therebetween,

a pair of pallets mounted for movement along the transverse direction between respective ones of the core shooting machines and the transfer station, with each pallet being configured for supporting a plurality of side-by-side cores which are aligned in the transverse direction and so that the cores supported on the pair of pallets may be aligned at the transfer station in a side-by-side arrangement extending in the transverse direction,

at least one manipulator for grasping the cores while in the side-by-side arrangement at the transfer station and stacking the cores on top of each other, and



at least one adhesive applicator for applying adhesive to a surface of at least some of the cores so as to secure together the stacked cores and form an integral core pack.

5,724,789

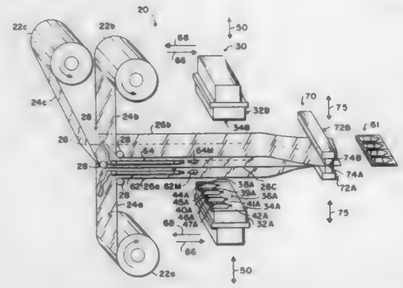
MULTI-COMPARTMENT PACKAGE, SYSTEM AND METHOD

Arthur P. Corella, 8166 Vanscoy Ave., North Hollywood, Calif. 91602

Continuation-in-part of Ser. No. 651,110, May 27, 1996, which is a continuation-in-part of Ser. No. 317,186, Oct. 3, 1994, Pat. No. 5,531,358, which is a continuation-in-part of Ser. No. 014,753, Nov. 1, 1993, Pat. No. Des. 354,221. This application Aug. 19, 1996, Ser. No. 699,036

Int. Cl.[6] B65B *9/02*

U.S. Cl. 53—450 **7 Claims**



6. A process for continuously manufacturing, in repetitive cycles, peripherally sealed packaging having a plurality of sealed juxtaposed compartments, each compartment containing a material, said process comprising the steps of:

feeding at least three coflexuous supplies of flexible film sheeting, each extending in a generally planar portion, so that the portions are aligned and mutually parallel, thereby determining two opposed outer portions and at least one inner portion, each pair of adjacent portions separated by a predetermined distance;

forming simultaneously a first lateral seal and opposed side seals peripherally determining and common to a plurality of rearwardly open juxtaposed compartments;

injecting a material between each pair of adjacent portions;

forming a second lateral seal of the package, opposed to the first lateral seal and common to the plurality of compartments; and

disengagingly holding the fully sealed package in fixed position in the interim between repetitive cycles to thereby maintain the feeding sheet portions in alignment between the feeding step and the sealing step.

5,724,790

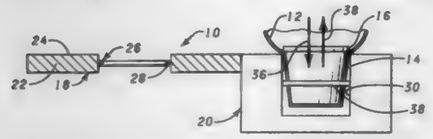
METHOD FOR SECURING A DECORATIVE COVER ABOUT A POT MEANS

Donald E. Weder, Highland, Ill., assignor to Southpac Trust International

Continuation of Ser. No. 539,034, Oct. 4, 1995, Pat. No. 5,617,702, which is a continuation of Ser. No. 165,154, Dec. 10, 1993, abandoned, which is a continuation of Ser. No. 979,389, Nov. 19, 1992, abandoned, which is a continuation of Ser. No. 832,096, Feb. 6, 1992, abandoned, which is a continuation-in-part of Ser. No. 765,416, Sep. 26, 1991, Pat. No. 5,105,599, which is a continuation of Ser. No. 530,491, May 29, 1990, abandoned, which is a continuation of Ser. No. 315,169, Feb. 24, 1989, abandoned. This application Oct. 30, 1996, Ser. No. 741,245

Int. Cl.[6] B65B *11/58;27/00*

U.S. Cl. 53—399 **5 Claims**



4. A method for forming a cover about at least a portion of an outer peripheral surface of a pot having a pot opening in an upper end and for securing the cover about at least a portion of the outer peripheral surface of the pot such substantially uncovered by the cover away from the cover former and into the object opening of the band applicator; and

automatically removing the band from the band applicator and automatically positioning the band about the cover for securing the cover in position about at least a portion of the outer peripheral surface of the pot such that the the pot opening in the upper end of the pot remains substantially uncovered by the cover.

5,724,791

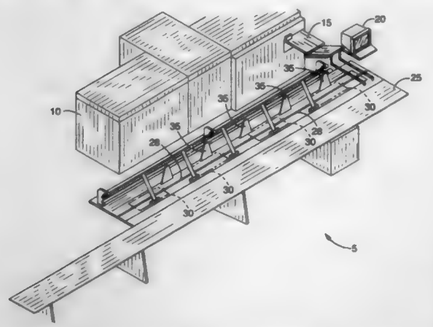
DYNAMIC MOTION CONTROL SYSTEM AND METHOD FOR TRANSFERRING DOCUMENTS

Jeff M. Pishny, Folsom; Marc J. Fagan, Davis; Remesh Kuruppath, Sacramento; Steven L. Mulkey, Cameron Park, and Jonathan D. Emigh, Somerset, all of Calif., assignors to United States Computer Services, Sacramento, Calif.

Filed Mar. 14, 1995, Ser. No. 403,335

Int. Cl.[6] B65B *57/14;59/02*

U.S. Cl. 53—501 **15 Claims**



1. A system for coordinating an operational speed of a document transferring device that receives incoming packets of documents having a predetermined number of document pages within each of the packets with an interval of time required to receive each incoming packet, comprising:

a) a document transferring device and

b) means for coordinating the operational speed of said document transferring device with the interval of time required to receive each incoming packet, wherein said coordinating means is a computer programmed to implement the steps:

i) determining for a first incoming packet a number of document pages within said first incoming packet;

ii) establishing for a second incoming packet following said first incoming packet a number of document pages within said second incoming packet; and

iii) adjusting the operational speed of the transferring device based on said page determinations for both said first and said second incoming packets.

5,724,792

APPARATUS FOR PRODUCING BAG PACKAGES

Klaus Domke, Ditzingen, Germany; Joerg Starkmann, Waiblingen, Germany; Christoph Lampl, Fellbach, Germany; Holger Lachenmaier, Leutenbach, Germany; Wolfgang Bischet, Vaihingen, Germany, and Gerald Keicher, Altbach, Germany, assignors to Robert Bosch GmbH, Stuttgart, Germany

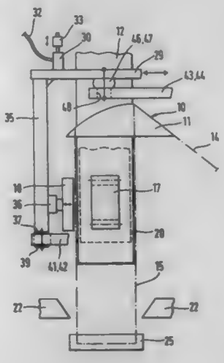
PCT No. PCT/DE96/00435, § 371 Date Jan. 27, 1997, § 102(e) Date Jan. 27, 1997, PCT Pub. No. WO96/29246, PCT Pub. Date Sep. 26, 1996

PCT Filed Mar. 12, 1996, Ser. No. 737,622

Claims priority, application Germany, Mar. 23, 1995, 195 10 554.0

Int. Cl.[6] B65B *1/22;9/20*

U.S. Cl. 53—525 **20 Claims**



1. An apparatus for producing bag packages, having a forming shoulder (**11**) and a forming pipe (**12**) for forming a tube (**15**) of a strip of packaging material (**14**) that can be heat-sealed on at least one side, comprising a device (**17**) for feeding the tube (**15**) a longitudinal seam sealing device (**18**) and a crosswise seam sealing and cutting device (**25**), and a filling pipe (**20**) for feeding a product into an end of the tube, the forming shoulder (**11**), the forming pipe (**12**) and the longitudinal seam sealing device (**18**) are rigidly joined to one another and are operatively connected by means of an oscillation generator (**30**, **50**).

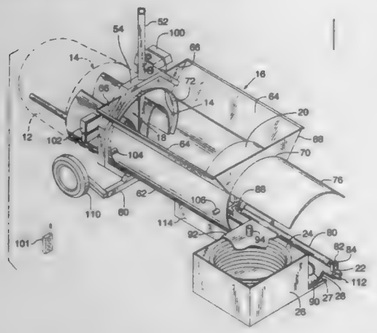
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5,724,793

MATERIALS BAGGER AND SYSTEM

Larry R. Inman, Astoria; Ronald V. Garvin, Warrenton, and Michael C. Stenblom, Astoria, all of Oreg., assignors to Ag-Bag International, Ltd., Warrenton, Oreg.

Continuation of Ser. No. 510,794, Aug. 2, 1995, abandoned.
This application Sep. 27, 1996, Ser. No. 720,310
Int. Cl.[6] B65B *43/42*
U.S. Cl. 53—576 7 Claims



1. A system for bagging large quantities of loose material such as grain and materials to be composted whereby a large bag containing such material is filled at and stored in the field, said system comprising:

a mobile bagging machine including a tunnel having an opening there through and a forward and rearward end, a materials holding channel permanently mounted to and extending forwardly of the tunnel, said channel having an open top receiving sequential loads of loose material to be bagged, and a piston having a solid rear face sized ad configured to closely fit the channel and the forward end of said tunnel, said piston mounted for reciprocating movement between a retracted position forward of the material deposited in the channel and through the channel into the forward end of the tunnel for movement of the material from the channel into the tunnel;

a bag having an end opening and mounted on and surrounding the rearward end of the tunnel and closing the rear opening, said bag provided on said tunnel in a folded condition and upon receiving the material forced through the tunnel and into the bag by the piston, said machine being advanced as the bag is filled, the bag accordingly being deployed off the tunnel;

said tunnel, channel, piston and bag functioning as an integral on site unit and it cooperation with hauling units hauling multiple loads of the material to the site, said channel sequentially receiving said multiple loads and said reciprocating piston in a plurality of reciprocating movements, sequentially moving said loads through the channel and tunnel for deposit into said bag;

controls controlling said sequential movement of the piston and for selectively positioning the piston in the tunnel entry as desired for holding the material in the bag between loads;

a conduit extended from the exterior of the machine into and through the tunnel and into the bag, and a length of pipe mounted on the machine for feeding of the pipe through the conduit and into the material being bagged; and

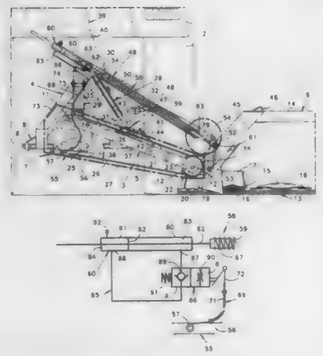
said conduit connectable to a media source with said piston closing the tunnel front and opening with the bag in a partially filled condition for circulating media from the media source into the material in the bag between loads.

5,724,794

CUTTING DEVICE WITH A CONTROL DEVICE

Michel Wolff, Waltenheim Sur Zorn, France, assignor to Kuhn S.A., Saverne Cedex, France

Filed Jan. 29, 1996, Ser. No. 593,678
Claims priority, application France, Jan. 27, 1995, 95 01142
Int. Cl.[6] A01D *34/66*
U.S. Cl. 56—6 35 Claims



1. A cutting device comprising:

a cutting mechanism which, while in operation, works crosswise to a direction of operation;

a hitching structure designed to be connected to a motor vehicle;

a support beam joined to the hitching structure with a first journal having an axis directed towards a front, and to the cutting mechanism with a second journal having an axis directed to the front; and

a traction element which is comprised of at least one draw-spring and a control device, said at least one draw-spring designed, while in operation, to lighten the cutting mechanism and said control device designed to invalidate the action of said at least one draw-spring when the cutting device is uncoupled from the motor vehicle, said control device being comprised of at least a rod, said rod having one end attached to said at least one draw-spring;

wherein the control device comprises a cylinder which includes: said rod;

a body;

a piston connected to said rod which divides the body into first and second chambers; and

a fluid circuit which has a device which allows the fluid to enter into the first chamber located on a side of the at least one draw-spring when the at least one draw-spring must be tightened, and allows the fluid to leave said first chamber when the at least one draw-spring must be relaxed.

5,724,795

Patent Not Issued For This Number

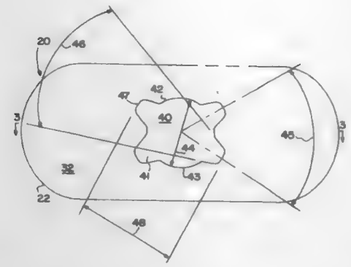
5,724,796

MOWING BLADE WITH STAR

Gerhard Plamper, Valley City, Ohio, assignor to MTD Products Inc., Cleveland, Ohio

Continuation of Ser. No. 130,713, Oct. 4, 1993, abandoned.
This application Nov. 25, 1996, Ser. No. 755,627
Int. Cl.[6] A01D *34/76;34/82*
U.S. Cl. 56—17.5 67 Claims

1. An interconnection shape for a mower blade having a longitudinal axis and a central drive hole for use with a rotating shaft having a corresponding key shape,



the interconnection shape comprising at least two key slots, all of said key slots directly interconnecting the shaft to the blade passing substantially equal torque therebetween respectively, said key slots extending outward off of the drive hole, said key slots having center lines,

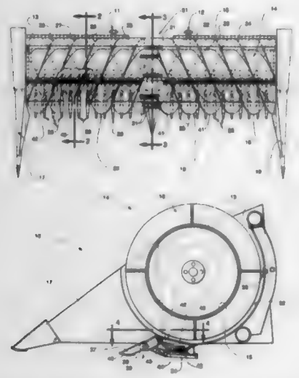
and said center lines of said key slots being located at an angle of greater than 45° to a reference line run through the center of the drive hole perpendicular to the longitudinal axis of the mower blade with no active key slot having an angle of less than 45°.

5,724,797

CROP GUIDE FOR FORAGE HARVESTER ROW CROP ATTACHMENT

Robert A. Wagstaff, Lancaster, and Larry D. Hall, New Holland, both of Pa., assignors to New Holland North America, Inc., New Holland, Pa.

Filed Dec. 19, 1996, Ser. No. 770,070
Int. Cl.[6] A01D *45/02;45/10*
U.S. Cl. 56—53 11 Claims



1. In a row crop attachment for a field traversing forage harvester having a crop inlet for receiving cut row crop material comprising a lower stalk portion and an upper portion, said row crop attachment comprising

a main frame adapted to be attached to said forage harvester, said main frame including a crop outlet located adjacent said crop inlet for receiving cut row crop material,

an auger mounted on said main frame generally transverse to the direction of travel of the forage harvester and forwardly of said crop outlet,

means for rotating said auger,

said auger comprising a tube and flighting mounted on said tube for urging the upper portion of standing row crop material downwardly and inwardly, as said forage harvester traverses a field in which rows of crop are standing,

a transverse cutting assembly mounted below said auger, said cutting assembly including cutting means for cutting the lower stalk portion of said standing row crops, and

stalk engaging elements for engaging the lower stalk portion, said stalk engaging elements mounted below said auger and forward of said cutting assembly for cooperating with said flighting to guide said lower stalk portion of said standing row crop to said cutting means under conditions where said auger is rotated in a direction to urge the crop material downwardly and inwardly toward said crop inlet, the improvement comprising

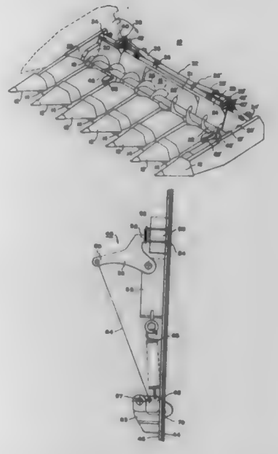
means for grasping said lower portions of said standing row crop under conditions where said stalk engaging elements are cooperating with said flighting to guide the lower portions of said standing row crop to said cutting means which is located under said auger.

5,724,798

LATCH FOR A FOLDING CORN HEAD

Joel C. Stefl, and Edwin J. Zeitvogel, both of Byron, N.Y., assignors to Byron Enterprises Inc., Byron, N.Y.

Filed Jul. 8, 1996, Ser. No. 680,503
Int. Cl.[6] A01D *45/02*
U.S. Cl. 56—119 7 Claims



1. In a corn head having a fixed frame and a pivotable frame foldable and unfoldable between a harvesting configuration and a non-harvesting configuration, a latch for securing the pivotable frame to the fixed frame, said latch being disposed on one of said pivotable and fixed frames, said latch comprising:

a) an actuator disposed on one of said frames and responsive to contact with the other of said frames; and

b) an overcenter catch connected to and rotatable by said actuator in a first direction to engage a latching surface on the other of said frames and in a second and opposite direction to disengage said catch from said latching surface, said engaging and disengaging being solely from said responsive contact of said actuator with the other of said frames.

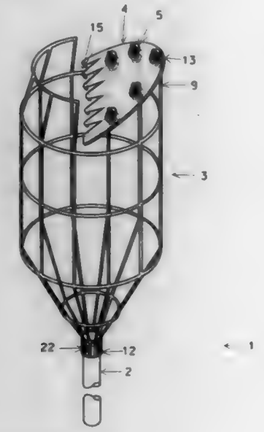
VOL 1208 ISS 2 MR 10 1998 UMI

5,724,799

FRUIT PICKER

Chih-Yu Hsia, 301 Warren Way, Arcadia, Calif. 91007

Filed Jan. 17, 1996, Ser. No. 587,481
Int. Cl.[6] A01D *46/24*
U.S. Cl. 56—339 14 Claims



1. A fruit picker comprising:
a) a pole;
b) a cutter mounting device;
c) one end of said pole connecting to one edge of said cutter mounting device;
d) a cutter, which is a plate having a cutting wedge on one edge and a narrowed section on opposite edge;
e) said cutting wedge consisting of at least a knife edge;
f) said narrowed section of said cutter connecting to said cutter mounting device on the edge which is opposite to the edge where said pole connects with said cutter mounting device;
g) a fruit holder mounting device, which has a top frame and a bottom frame;
h) said bottom frame being mounted on one end of at least a mounting leg;
i) the other end of said mounting leg connecting to said cutter mounting device;
j) said bottom frame of said fruit holder mounting device having "L"-shaped crosssection;
k) said top frame of said fruit holder mounting device being able to engage with said "L"-shaped crosssection of said bottom frame of said fruit holder mounting device;
l) and a fruit holder, which is a holder made of flexible material and which is clamped onto said fruit holder mounting device by said top frame and said bottom frame of said fruit holder mounting device.

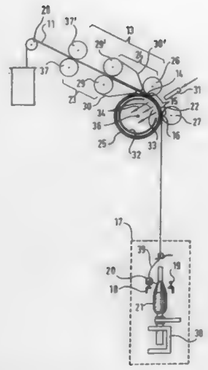
5,724,800

RING SPINNING METHOD AND A YARN MADE THEREBY

Angelo Lucca, Seuzach, and Herbert Stalder, Kollbrunn, both of Switzerland, assignors to Rieter Machine Work, Ltd., Winterthur, Switzerland

Division of Ser. No. 488,124, Jun. 7, 1995, Pat. No. 5,651,244.
This application Nov. 19, 1996, Ser. No. 746,990
Claims priority, application Germany, Jun. 23, 1994, 442 20 23.5
Int. Cl.[6] D02G *3/02*
U.S. Cl. 57—243 1 Claim

1. A twisted yarn composed of fibers of a length less than or equal to 60 mm and characterized in having a yarn count in a range of from Ne 6 to Ne 16, a twist factor within a range of up to 100 USTER, a hairiness less than an USTER 25% curve, an irregularity less than an USTER 5% curve, and neps of less than an USTER 5% curve.

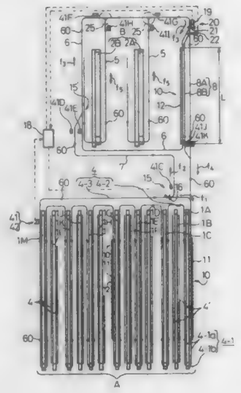


5,724,801

SYSTEM TO CONVEY BOBBINS BETWEEN ROVING FRAMES AND FINE SPINNING FRAMES

Takashi Kogiso, Mizunami, Japan, and Noritaka Adachi, Amagun, Japan, assignors to Howa Machinery, Ltd., Japan

Continuation of Ser. No. 435,422, May 10, 1995, abandoned.
This application Dec. 6, 1996, Ser. No. 761,480
Claims priority, application Japan, May 13, 1994, 6-124407
Int. Cl.[6] D01H *9/10;9/14*
U.S. Cl. 57—281 8 Claims



1. A conveyor system, for transporting bobbins between a roving operation area provided with at least one roving frame and a fine spinning operation area provided with a plurality of fine spinning frames, comprising:
a plurality of bobbin carriages for carrying bobbins;
first overhead means for conveying bobbin carriages in the fine spinning operation area;
second overhead means for conveying bobbin carriages in the roving spinning operation area;
first branched means for connecting the first and second overhead means for transporting bobbin carriages with the bobbins from the first overhead means to the second overhead means;

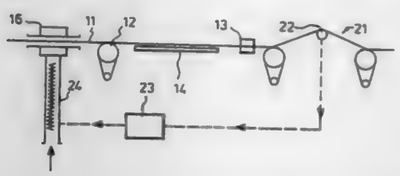
second branched means for connecting the first and second overhead means for transporting bobbin carriages with the bobbins from the second overhead means to the first overhead means; and
means for moving the bobbin carriages along the first and second overhead means and the first and second branched means;
said first overhead means comprising a first single overhead rail constructing a first single closed loop which loops around the fine spinning frames of the fine spinning operation area for permitting recirculation of the bobbin carriages along the first single closed loop;
said second overhead means comprising a second single overhead rail constructing a second single closed loop which is arranged around the at least one roving frame of the roving spinning operation area for permitting recirculation of the bobbin carriages along the second single closed loop, and at least one doffing rail connected to the second single overhead rail and arranged along the corresponding roving frame;
said fine spinning frames in the fine spinning operation area are arranged in rows, each of the fine spinning frames having a creel for bobbins and spinning parts for roving from corresponding bobbins on the creel;
the first single overhead rail of the first overhead means being a serpentine shape having looped parts that loop around the opposite ends of the rows of fine spinning frames alternately along the direction of movement of the bobbin carriages, and straight parts extending between the looped parts, the direction of the movement of the bobbin carriages being reversed between successive straight parts;
two successive straight parts of the first single overhead rail being arranged adjacent to the creel in one row of said fine spinning frames, and the next adjacent row of said fine spinning frames being without straight parts adjacent to its creel; and
stationary auxiliary bobbin hangers being arranged at the creel of said adjacent row that is without adjacent straight parts;
the first branched means including a first single branched rail, so that said first single branched rail is used for the fine spinning frames along the first closed loop for returning empty bobbins to the at least one roving frame along the second closed loop, and the second branched means including a second single branched rail, so that the second single branched rail is used for the fine spinning frames along the first closed loop for receiving full bobbins from the at least one roving frame along the second closed loop.

5,724,802

METHOD OF TEXTURING YARN

Peter William Foster, Alderley Edge, Great Britain, assignor to University of Manchester Institute of Science and Technology, Manchester, Great Britain

PCT No. PCT/GB94/01594, § 371 Date Apr. 26, 1996, § 102(e) Date Apr. 26, 1996, PCT Pub. No. WO95/04175, PCT Pub. Date Feb. 9, 1995
PCT Filed Jul. 25, 1994, Ser. No. 586,922
Claims priority, application United Kingdom, Jul. 28, 1993, 9315638
Int. Cl.[6] D01H *7/46;7/92*
U.S. Cl. 57—290 26 Claims



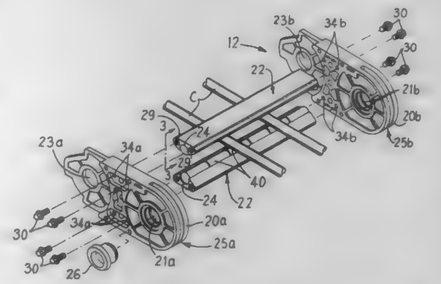
1. A method of making a bulked yarn by false twist texturing a yarn, comprising the steps of:
(a) supplying the yarn through a twist trap to a false twist device so that the yarn is twisted in between the twist trap and the false twist device, but not upstream of the twist trap;
(b) heating the yarn and then cooling the thus twisted yarn before the false twist device;
(c) the yarn being heated before the twist trap so that it is at an elevated temperature, between the twist trap and the false twist device before being cooled while twisted;
(d) controlling the said elevated temperature using a feed back control arrangement wherein the feedback control arrangement comprises:
(1) relaxing tension in the yarn in a relaxation zone downstream the false twist device, so that the false twisted yarn develops bulk;
(2) making a measurement on the yarn representative of the bulk of the yarn thus developed; and
(3) controlling the temperature to keep the bulk measurement constant.

5,724,803

POWER SUPPLY CHAIN WITH ROLLER BAR CARRIER

Kevin I. Pea, Mayville, Wis., assignor to Hubbell Incorporated, Orange, Conn.

Filed May 4, 1995, Ser. No. 434,740
Int. Cl.[6] F16G *13/16*
U.S. Cl. 59—78.1 9 Claims



1. In a power supply chain comprising a plurality of power supply conduit carriers, said carriers each including first and second side links and at least one elongated cross-piece member connected between the side links, said cross-piece member having a channel extending along the length thereof, and a plurality of cylindrical rollers disposed in end-to-end array along the length of and residing in the channel for rotation therein relative to the cross-piece member by engagement with one or more power supply conduits in said carrier.

5,724,804

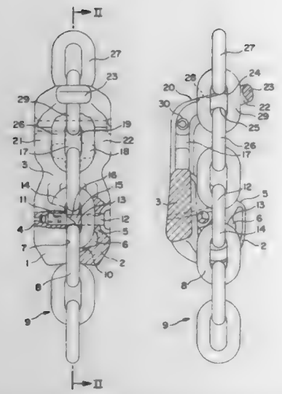
SHORTENING CLAW

Reinhard Smetz, Baldingen, Germany, assignor to RUD-Kettenfabrik Rieger & Dietz GmbH.u.Co., Aalen, Germany

PCT No. PCT/DE94/01539, § 371 Date Jul. 11, 1996, § 102(e) Date Jul. 11, 1996, PCT Pub. No. WO95/17620, PCT Pub. Date Jun. 29, 1995
PCT Filed Dec. 22, 1994, Ser. No. 669,542
Claims priority, application Germany, Dec. 23, 1993, 43 44 935.2
Int. Cl.[6] F16G *17/00*
U.S. Cl. 59—93 8 Claims

1. A double-prong shortening claw having two hooks and a back (3), said two hooks being connected to each other by said back, said two hooks being arranged essentially parallel to each other, and each of said two hooks defining a prong;

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said two hooks defining an insertion slot (7) proximate to said prongs (1, 2), said insertion slot (7) adapted to receive a link (8) of a chain strand (9);

said two hooks defining a pocket (6) having side walls (4, 5) for receiving and supporting a chain link adjacent to said chain link received in said insertion slot (7);

said insertion slot (7) being defined along a predetermined plane and said pocket (6) being oriented such that it is essentially perpendicular to said predetermined plane of said insertion slot (7);

a securing element operatively associated with said shortening claw for providing a stop at an end of said chain link received in said insertion slot (7) for securely retaining said adjacent chain link received in said pocket (6);

said shortening claw defining a pull-through opening (17) in said back (3) and oriented above said pocket (6) for said chain strand (9) having said adjacent link (14) received in said pocket (6), or for a second chain strand (31) connectable to said chain strand (9) having said adjacent link (14) received in said pocket (6);

said shortening claw defining an inlet slot (19) leading into said pull-through opening (17), said inlet slot being oriented along a center plane common to a center plane of said insertion slot (7), said back (3) having an angled end (20) remote from said pocket (6), said inlet slot (19) extending into said angled end (20) of said back (3);

said inlet slot (19) being defined by sidewalls (21, 22) and a cross-yoke (23) connecting said sidewalls at an end of said inlet slot (19) remote from said pull-through opening (17), said sidewalls (21, 22) of said inlet slot (19) supporting an end of a chain link (26) of said chain strand (9) having said adjacent link (14) received in said pocket (6) or of said second chain strand (31) connectable to said chain strand (9) having said adjacent link (14) received in said pocket (6).

5,724,805

POWER PLANT WITH CARBON DIOXIDE CAPTURE AND ZERO POLLUTANT EMISSIONS

Dan S. Golomb, Newton; Yulin Shao, Stoneham, and Gilbert J. Brown, Westford, all of Mass., assignors to University of Massachusetts-Lowell, Lowell, Mass.

Filed Aug. 21, 1995, Ser. No. 517,542

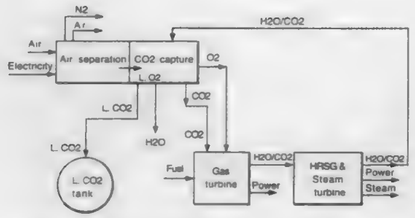
Int. Cl.[6] F02G *3/00*; **F02B** *43/00*

U.S. Cl. 60—39.02 **23 Claims**

1. A power plant comprising

an air separation unit arranged to separate oxygen from air and produce a stream of substantially pure liquid oxygen;

a gas turbine arranged to combust a fuel in the presence of substantially pure oxygen gas and carbon dioxide gas, and to produce an exhaust gas comprising water and carbon dioxide; and



a carbon dioxide removal unit arranged to recover carbon dioxide gas from the exhaust gas, recycle a portion of the recovered carbon dioxide gas for passage through said gas turbine, and liquefy the remainder of the recovered carbon dioxide gas for removal from the plant;

wherein said carbon dioxide removal unit is thermally integrated with said air separation unit by directing the stream of liquid oxygen from said air separation unit to said carbon dioxide removal unit to liquefy the remainder of the recovered carbon dioxide gas, the liquid oxygen thereby evaporating and forming cold oxygen gas which is directed to cool the recycled carbon dioxide gas prior to passage of the carbon dioxide gas through said gas turbine, and the oxygen gas is then directed to said gas turbine.

5,724,806

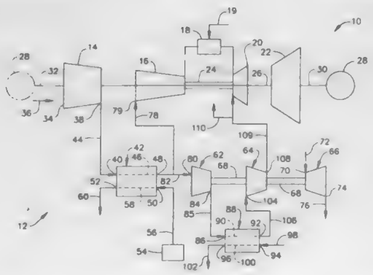
EXTRACTED, COOLED, COMPRESSED/INTERCOOLED, COOLING/COMBUSTION AIR FOR A GAS TURBINE ENGINE

Michael W. Horner, West Chester, Ohio, assignor to General Electric Company, Cincinnati, Ohio

Filed Sep. 11, 1995, Ser. No. 526,393

Int. Cl.[6] F02C *7/14*

U.S. Cl. 60—39.07 **9 Claims**



1. A system for cooling at least a first portion of a gas turbine engine having a high pressure compressor and a core gas stream, said cooling system comprising:

a plurality of compressors disposed in serial flow relationship with one another and effective for compressing air, each of said compressors having an inlet and an outlet, wherein said inlet of a first, upstream one of said compressors receives air having a pressure which is less than or equal to a pressure of the core gas stream at an entrance to the high pressure compressor of the engine, said upstream compressor producing a first compressed airflow, said upstream compressor comprising a low pressure compressor of the engine, and a second compressor comprising a first auxiliary compressor producing a second compressed airflow;

a first intercooler effective for reducing a temperature of said first compressed airflow, said first intercooler having a first inlet and a first outlet for said first compressed airflow receiving cooling from said first intercooler, said first inlet in fluid flow communication with said outlet of said upstream compressor and said first outlet in fluid flow communication with said inlet of said second compressor, said first intercooler further including a second inlet and a second outlet for a first coolant fluid providing cooling to said first intercooler, said first compressed airflow received by said first inlet of said first intercooler comprising an entire portion of the airflow discharging through said outlet of said low pressure compressor of the engine, said first compressed airflow discharging from said first outlet of said first intercooler split into a first portion in fluid flow communication with the high pressure compressor of the engine and a second portion in fluid flow communication with said inlet of said first auxiliary compressor;

wherein an airflow discharging from a last, downstream one of said compressors is used for cooling said at least a first portion of the engine.

5,724,807

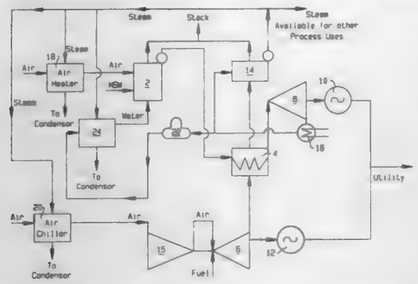
COMBINED GAS TURBINE-STEAM CYCLE WASTE-TO-ENERGY PLANT

Wolfram G. Schuetzenduebel, Pike Road, Ala., and Daniel M. Smith, Pembroke Pines, Fla., assignors to Montenay International Corp., Miami, Fla.

Division of Ser. No. 449,399, May 23, 1995, Pat. No. 5,623,822. This application Jan. 28, 1997, Ser. No. 790,247

Int. Cl.[6] F02C *6/00*

U.S. Cl. 60—39.464 **10 Claims**



1. A waste treatment facility which operates efficiently and reduces boiler plant corrosion comprising:

a) a high pressure waste heat recovery boiler having a recovery boiler steam outlet, said waste heat recovery boiler being designed and configured to burn municipal, commercial, or industrial waste to generate saturated steam at a pressure of at least 1000 psia from feed water;

b) a high pressure steam superheater, having at least a first side and a second side, said first side having a steam inlet in fluid communication with the recovery boiler steam outlet, said steam superheater being designed and configured to superheat steam having a pressure of at least 1000 psia;

c) the first side of said steam superheater having a superheated steam outlet for the exit of superheated steam having a pressure of at least 1000 psia;

d) a combustion turbine having a combustion gas outlet, said combustion turbine being designed and configured to burn fuel to power the combustion turbine, and wherein the combustion gas outlet is in fluid communication exclusively with the second side of the steam superheater and the combustion gas provides heat to superheat steam flowing through the first side of said steam superheater;

e) a steam turbine designed and configured to operate by means of superheated steam having a pressure of at least 1000 psia, said steam turbine having an inlet in fluid communication with said superheated steam outlet of said steam superheater; and

f) said steam superheater having a combustion gas outlet in exclusive fluid communication with a combustion turbine exhaust gas heat recovery unit.

5,724,808

AIR-FUEL RATIO CONTROL SYSTEM FOR INTERNAL COMBUSTION ENGINES

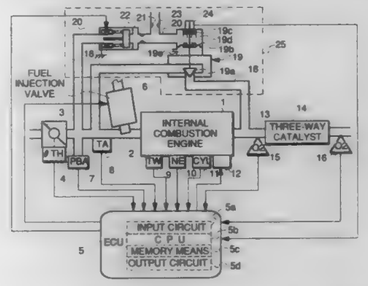
Hiroshi Ito; Yoshiharu Abe; Tsuyoshi Takizawa, and Yoshihisa Hara, all of Wako, Japan, assignors to Honda Giken Kogyo Kabushiki Kaisha, Tokyo, Japan

Filed Apr. 26, 1996, Ser. No. 639,896

Claims priority, application Japan, Apr. 26, 1995, 7-125829

Int. Cl.[6] F01N *3/28*

U.S. Cl. 60—276 **13 Claims**



1. In an air-fuel ratio control system for an internal combustion engine including an exhaust passage, and a catalyst arranged in said exhaust passage for purifying exhaust gases emitted from said engine, said air-fuel ratio control system including first air-fuel ratio-detecting means arranged at a location upstream of said catalyst for detecting concentration of a particular component of said exhaust gases, and air-fuel ratio control means for controlling an air-fuel ratio of a mixture supplied to said engine in response to an output from said first air-fuel ratio-detecting means,

the improvement comprising:

sulfur poisoning-detecting means for detecting deterioration of said catalyst caused by sulfur poisoning; and

control parameter-changing means for changing a control parameter for use in controlling an operation of said engine when said deterioration of said catalyst caused by sulfur poisoning is detected.

5,724,809

DEVICE FOR DETERMINING DETERIORATION OF A CATALYTIC CONVERTER FOR AN ENGINE

Noritake Mitsutani, and Shin Adachi, both of Toyota, Japan, assignors to Toyota Jidosha Kabushiki Kaisha, Toyota, Japan

Filed Jun. 6, 1996, Ser. No. 659,628

Claims priority, application Japan, Jun. 12, 1995, 7-144690; Jul. 27, 1995, 7-191527; Mar. 13, 1996, 8-055891

Int. Cl.[6] F01N *3/18*

U.S. Cl. 60—276 **8 Claims**

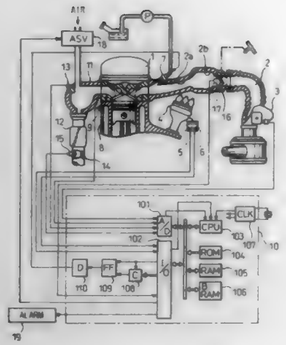
1. A device for determining deterioration of a catalytic converter having an O_2 storage capability and disposed in an exhaust gas passage of an engine comprising:

an upstream air-fuel ratio sensor disposed in an exhaust gas passage of an engine upstream of a catalytic converter for detecting an air-fuel ratio of an exhaust gas upstream of the catalytic converter;

a downstream air-fuel ratio sensor disposed in the exhaust gas passage of the engine downstream of the catalytic converter for detecting the air-fuel ratio of the exhaust gas downstream of the catalytic converter;

air-fuel ratio feedback control means for controlling the air-fuel ratio of the exhaust gas flowing into the catalytic converter based on, at least, the output signal of the upstream air-fuel ratio sensor in such a manner that the air-fuel ratio of the exhaust gas flowing into the catalytic converter becomes a predetermined target value;

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determining means for determining whether the catalytic converter has deteriorated based on, at least, the output of the downstream air-fuel ratio sensor when the air-fuel ratio of the exhaust gas is controlled by the air-fuel ratio feedback control means;

air flow detecting means for detecting the flow rate of intake air drawn into the engine;

prohibiting means for prohibiting the determining means from performing the determining operation of deterioration of the catalytic converter when the flow rate of intake air drawn into the engine is larger than or smaller than a predetermined allowable flow range; and

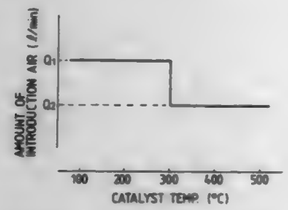
determining condition setting means for setting said allowable flow range in accordance with the operating conditions of the engine.

5,724,810

CONTROLLING APPARATUS FOR INTRODUCTION AIR INTO AN EXHAUST PIPE OF AN INTERNAL COMBUSTION ENGINE

Yasuhiko Hosoya; Toshiki Kuroda, and Hideaki Katashiba, all of Hyogo, Japan, assignors to Mitsubishi Denki Kabushiki Kaisha, Tokyo, Japan

Division of Ser. No. 463,634, Jun. 6, 1995, Pat. No. 5,566,547, which is a division of Ser. No. 78,465, Jun. 18, 1993, Pat. No. 5,493,858. This application Jul. 3, 1996, Ser. No. 675,606
Claims priority, application Japan, Jun. 23, 1992, 4-164811
Int. Cl.[6] F01N *3/22*
U.S. Cl. 60—276 **11 Claims**



1. An apparatus for controlling the introduction of air into an exhaust pipe of an internal combustion engine, comprising:

an air pump which introduces air into the exhaust pipe of the internal combustion engine upstream of a catalyst;

a heater which heats the air introduced by the air pump; and

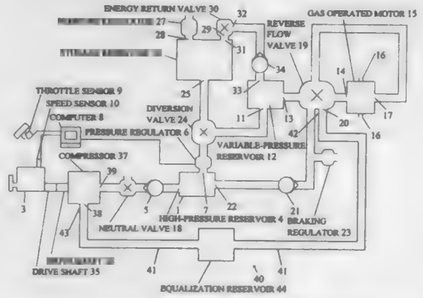
a controller for: operating said air pump at the same time as said heater; introducing an amount of air from said air pump which has been heated into said exhaust pipe in an amount greater than a minimum amount of air necessary for reaction when the catalyst is activated until the temperature of the catalyst reaches a predetermined temperature; and reducing and controlling the amount of air introduced into said heater to the amount of air necessary for the catalyst when the temperature of the catalyst exceeds a predetermined temperature.

5,724,811

OPTIMIZED GAS-BASED TRANSMISSION

Dale Gibby, 399 Westland Dr., Brigham City, Utah 84302

Filed Oct. 24, 1995, Ser. No. 547,431
Int. Cl.[6] F16D *39/00*
U.S. Cl. 60—409 **19 Claims**



1. An optimized gas-based transmission, which comprises:

a compressor having an input drive shaft that is connected to a rotatable drive shaft of an engine such that when the rotatable drive shaft turns the input drive shaft of said compressor, air is drawn into the input of the compressor, conducted through the compressor, and pushed through the output of the compressor;

a high-pressure reservoir, the input of which high-pressure reservoir is connected to the output of the compressor so that when the rotatable drive shaft turns the input drive shaft of the compressor, the air from the output of the compressor is forced into the input of the high-pressure reservoir;

a first pressure regulator, the input of which first pressure regulator is attached to the output of the high-pressure reservoir;

a variable-pressure reservoir, the input of which variable-pressure reservoir is attached to the output of the first pressure regulator to receive the air from the high-pressure reservoir when the first pressure regulator permits such gas to flow from its input to its output; and

a gas-operated drive motor, the input of which gas-operated drive motor is connected to the output of the variable-pressure reservoir so that when sufficient pressure exists within the variable-pressure reservoir, the air will enter the input of the gas-operated drive motor, cause the drive shaft of the gas-operated drive motor to rotate, and exit the gas-operated drive motor through the output of the gas-operated drive motor.

5,724,812

VARIABLE DISPLACEMENT APPARATUS AND METHOD OF USING SAME

William E. Baker, 8178 Rimridge La., San Diego, Calif. 92126

Filed Feb. 16, 1996, Ser. No. 602,659
Int. Cl.[6] F16D *39/00*
U.S. Cl. 60—490 **12 Claims**

1. A variable displacement apparatus, comprising:

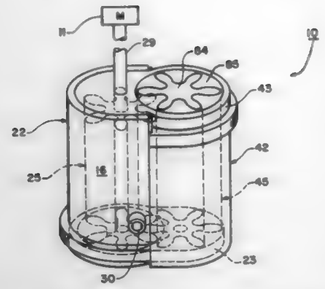
a pair of housing parts axially slidably sealably interconnected for defining an interior pumping chamber of a continuously variable volume;

a pair of end plates for helping to further define said pumping chamber, one of the end plates being fixed sealably to one of the housing parts and the other one of the end plates being fixed sealably to the other one of the housing parts for enabling the volume of the pumping chamber to be adjusted when the housing parts move axially relative to one another;

a pair of meshing elongated pumping members rotatably mounted in a parallel axially extending manner in the respective housing parts for pumping fluid from one side of the pumping chamber to another side of the pumping chamber;

at least one of the end plates having a rotatable member mounted sealably therein and having a shaped opening for receiving axially slidably sealingly therewithin one of the meshing pumping members to facilitate the movement of said end plates toward and away from one another; and

an input port and an output port on the housing parts in fluid communications with said pumping chamber to facilitate admitting fluid to said pumping chamber and to facilitate discharging fluid from said pumping chamber to provide a pumping operation, whereby the discharge from the outlet can be continuously adjusted depending on the adjustment of the volume of the pumping chamber.

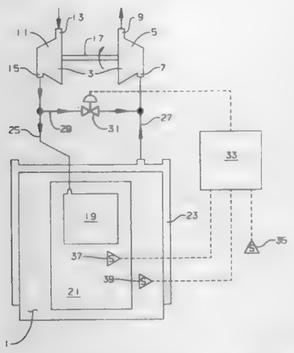


5,724,813

COMPRESSOR BY-PASS AND VALVING FOR A TURBOCHARGER

Thomas R. Fenelon, Chillicothe; Robert L. Hercey, Peoria, both of Ill., and Gerald A. Hill, Lafayette, Ind., assignors to Caterpillar Inc., Peoria, Ill.

Filed Jan. 26, 1996, Ser. No. 592,818
Int. Cl.[6] F02B *37/00*
U.S. Cl. 60—606 **3 Claims**



1. A method of preventing surging in a turbocharger utilized in a diesel engine, the turbocharger having a compressor portion in fluid communication with an inlet manifold for supplying combustion air to the engine, a turbine portion in fluid communication with an exhaust manifold for directing exhaust gases from the engine to the turbine portion of the turbocharger, a bypass valve in fluid communication with the compressor and turbine portions and a controller which operates the bypass valve based on empirical fixed data points specific to the engine, turbocharger and bypass system comprising the steps of:

sensing changes in engine speed, inlet manifold pressure and atmospheric pressure,

responding to these changes, the controller determining when the compressor portion of the turbocharger is approaching a surging operating condition to operate the bypass valve to bypass a portion of the combustion air from the compressor portion to the turbine portion of the turbocharger and

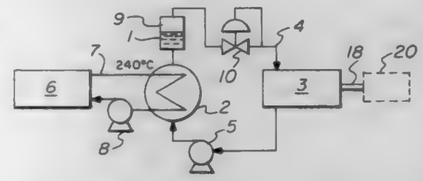
increasing the mass flow of combustion air from the compressor portion of the turbocharger an amount sufficient to prevent the compressor portion from surging.

5,724,814

VAPOR FORCE ENGINE

Livien D. Ven, Desguinlei 206, B-2018 Antwerpen, Belgium, and Andre R. Vincent, Avenue Du Parc 71, B-4053 Embourg, Belgium

Continuation of Ser. No. 277,524, Jul. 19, 1994, abandoned. This application May 6, 1997, Ser. No. 851,553
Claims priority, application Belgium, Aug. 9, 1993, 09300826
Int. Cl.[6] F01K *23/10*
U.S. Cl. 60—618 **3 Claims**



1. An improved low temperature engine including a vaporizable fluid, an evaporator for vaporizing said fluid, a vapor-driven piston-type engine, and a closed fluid circuit in which the fluid is vaporized, coupled to the vapor-driven piston-type engine for work, condensed, and returned to the evaporator, the improvement comprising:

a vapor input and a fluid output coupled to said vapor-driven piston-type engine;

a heat exchanger having an input and an output coupled to said vapor-driven piston-type engine, said heat exchanger receiving a low temperature fluid from said engine fluid output and generating a vaporized fluid for said engine vapor input for driving said piston engine;

an explosion engine cooled by a circulating fluid and serving as an external source of heat;

a common drive shaft coupled to both the piston-type engine and the explosion engine;

a radiator on said explosion engine for cooling said circulating fluid and forming said heat exchanger such that the explosion engine circulating fluid is a primary fluid and said low temperature fluid is a secondary fluid that flows through said radiator in heat exchange relationship with and is vaporized by the heat of said primary fluid to drive said vapor piston engine; and

said low-temperature secondary fluid is 1,1-dichloro 2,2,2-trifluoroethene having an atmospheric evaporation temperature less than 30° C. (86° F.) and having evaporation characteristics such that high-pressure vapor greater than 10 bar is provided to said piston-type engine as said vapor input.

5,724,815

Patent Not Issued For This Number

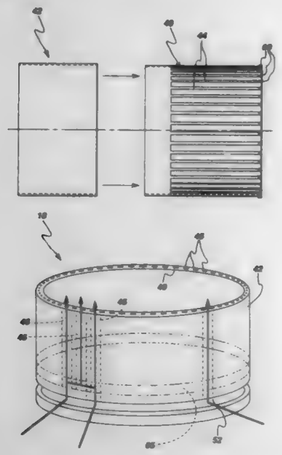
VOL 1208 ISS 2 MR 10 1998 UMI

5,724,816

COMBUSTOR FOR A GAS TURBINE WITH COOLING STRUCTURE

Ann Melinda Ritter, Albany; Robert Patrick Campbell, Loudonville; Melvin Robert Jackson, Niskayuna; Ross Anthony McLean, Ballston Spa; Mitchell Reuben Cohen, Troy; Nesim Abuaf, Schenectady; Sanjay Marc Correa, Niskayuna; Lance Gordon Peterson, Ballston Spa; Myron Clyde Muth, West Charlton; Adrian Maurice Beltran, Ballston Spa; Constantinos Minas, Slingerlands; David Robert Schumacher, Scotia, and Jeffrey Alan Graves, Niskayuna, all of N.Y., assignors to General Electric Company, Schenectady, N.Y.

Filed Apr. 10, 1996, Ser. No. 627,807
Int. Cl.[6] F02C *1/00*
U.S. Cl. 60—752 22 Claims



1. A hot gas control structure for a turbine comprising:
an inner member having a plurality of grooves formed on an outer surface thereof;
an outer member operatively positioned over the inner member; and
a plurality of axial cooling passages operatively positioned between the outer member and the inner member, for providing cooling compressed air to cool an inner surface of the inner member, the plurality of axial cooling passages providing the cooling compressed air in a substantially parallel flow path to the plurality of grooves formed on the outer surface of the inner member.

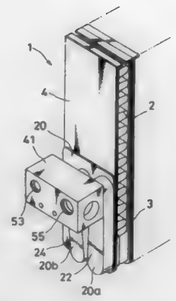
5,724,817

LAMINATED HEAT EXCHANGER

Kunihiko Nishishita, Konan, Japan, assignor to Zexel Corporation, Tokyo, Japan

Filed Sep. 11, 1995, Ser. No. 526,237
Claims priority, application Japan, Sep. 9, 1994, 6-241984
Int. Cl.[6] F25B *41/04*
U.S. Cl. 62—216 5 Claims

1. A laminated heat exchanger comprising:
a plurality of fluidly connected laminated tube elements each defining a pair of tanks and a U-shaped passage establishing fluid communication between said pair of tanks, wherein said pairs of tanks of said plurality of tube elements define a pair of tank groups, one of said tank groups defines two tank sub groups which are formed by partitioning said one of said tank groups at a specific position, and the other of said pair of tank groups is defined by a number of said tanks connected in series;



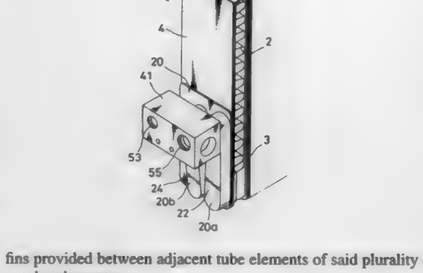
fins provided between adjacent tube elements of said plurality of tube elements;
a first end plate located at a first end of said plurality of tube elements in a direction of lamination of said tube elements, said first end plate having a first hole fluidly communicating with one of said tank sub groups and a second hole;
a pipe providing fluid communication between the other of said tank sub groups and said second hole of said first end plate;
a second end plate located at a second end of said plurality of tube elements in a direction of lamination of said tube elements;
a plate structure connected to said first end plate so as to define an outlet passage and an inlet passage extending from said first hole and second hole, respectively, to a central portion of said first end plate;
an intake portion connected to said intake passage at an end thereof which is remote from said second hole;
an outlet portion connected to said outlet passage at an end thereof which is remote from said first hole; and
a block type expansion valve including a block main body brazed on said intake portion and outlet portion during brazing of said heat exchanger, and a temperature sensing, flow metering valve mounted in said block body after brazing said heat exchanger.

5,724,818

THERMOELECTRIC COOLING MODULE AND METHOD FOR MANUFACTURING THE SAME

Yuji Iwata, and Noriyasu Sasa, both of Hokkaido, Japan, assignors to Aisin Seiki Kabushiki Kaisha, Kariya, Japan

Filed Jul. 25, 1996, Ser. No. 686,490
Claims priority, application Japan, Jul. 27, 1995, 7-191867; May 30, 1996, 8-136886
Int. Cl.[6] H01L *35/34*
U.S. Cl. 62—3.7 18 Claims



1. A thermoelectric cooling module, in which a solid electronic device required to have temperature stability is cooled due to the Peltier effect of P-type and N-type thermoelectric semiconductor elements, comprising:

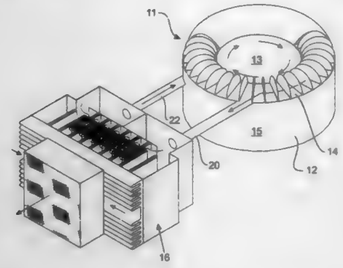
a heat radiating section comprising a heat radiating electrode having a fin-shaped portion for heat radiation integrally formed;
a heat absorbing section comprising a heat absorbing electrode having a contacting surface contacted directly with said electric device; and
a thermoelectric conversion section comprising said P-type and N-type thermoelectric semiconductor elements interposed between and electrically connected by said heat radiating section and said heat absorbing section.

5,724,819

THERMOELECTRIC COOLING CENTRIFUGE

John W. Boeckel, 1232 Georgia Hill Rd., Southbury, Conn. 06488, and Michael J. Parisi, 5207 Main St., Trumbull, Conn. 06611

Continuation-in-part of Ser. No. 476,870, Jun. 7, 1995, Pat. No. 5,551,241, which is a continuation-in-part of Ser. No. 204,561, Mar. 2, 1994, Pat. No. 5,433,080. This application Aug. 28, 1996, Ser. No. 704,350
Int. Cl.[6] F25B *21/02*
U.S. Cl. 62—3.7 4 Claims



1. A thermoelectrically cooled centrifuge comprising:
an electric motor driven rotor;
an hermetically sealable centrifuge housing adapted and constructed to contain said rotor;
a thermoelectric module having a cooling side and a heating side;
said centrifuge housing and said thermoelectric module being fluidly connected by an egress conduit and an ingress conduit;
said egress conduit having a pump means to move a fluid from said centrifuge housing to the cooling side of said thermoelectric module to thereby cool said fluid;
said ingress conduit having a pump means to move said fluid from said cooling side of said thermoelectric module to said centrifuge housing.

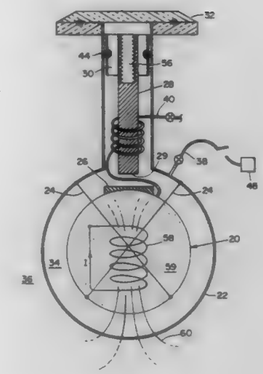
5,724,820

PERMANENT MAGNET SYSTEM BASED ON HIGH-TEMPERATURE SUPERCONDUCTORS WITH RECOOLING AND RECHARGING CAPABILITIES

Yukikazu Iwasa, Weston, Mass., assignor to Massachusetts Institute of Technology, Cambridge, Mass.

Filed Feb. 9, 1996, Ser. No. 599,607
Int. Cl.[6] F25B *19/00*
U.S. Cl. 62—51.1 20 Claims

1. An apparatus for generating a magnetic field comprising:
a superconducting magnet in thermal contact with a cold body, the magnet operating in a persistent state at a temperature below its critical temperature T_c, for generating a magnetic field;
insulation surrounding the cold body for minimizing heat input to the magnet; and



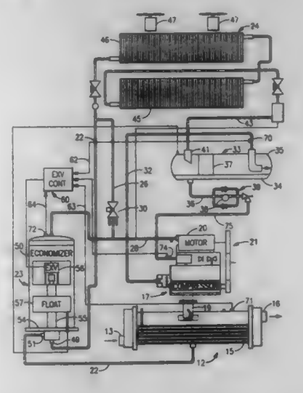
a cooling device adapted to be placed in thermal contact with the cold body for cooling the magnet upon the magnet temperature rising to a first temperature T_1, T_1 being less than T_c, the cooling device thereby cooling the magnet until the magnet temperature lowers to a second temperature T_2, such that the superconducting magnet continues to generate a magnetic field over an extended period of time and over a range of temperatures between T_2 and T_1 before recooling is required.

5,724,821

COMPRESSOR OIL PRESSURE CONTROL METHOD

Richard G. Lord, Tullahoma, Tenn., and Kenneth J. Nieva, Baldwinsville, N.Y., assignors to Carrier Corporation, Syracuse, N.Y.

Filed Jun. 28, 1996, Ser. No. 671,970
Int. Cl.[6] F25B *31/00;43/02*
U.S. Cl. 62—84 12 Claims



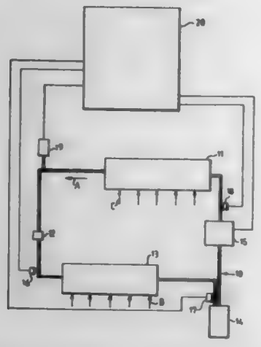
1. A method for controlling oil pressure of a compressor in an air conditioning system of the type wherein the oil pressure is dependent on the pressure difference between the suction and discharge of the compressor, said system having an evaporator, said method comprising the steps of:
determining oil pressure differential in said compressor;
comparing said determined oil pressure differential to a predetermined minimal oil pressure differential; and
on the condition that said determined oil pressure differential is less than said minimum oil pressure differential reducing an operating pressure of said evaporator to increase said oil pressure.

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5,724,822
DETERMINING THE AMOUNT OF WORKING FLUID IN A REFRIGERATION OR HEAT PUMP SYSTEM

Nils Gustaf Hjalmar Williamsson Jonsson, Täby; Mats Hugo Rolf Dahlgren, Stocksund, and Eric Gustav Granryd, Täby, all of Sweden, assignors to Nira Automotive AB, Enebyberg, Sweden

PCT No. PCT/SE92/00900, § 371 Date Jun. 26, 1995, § 102(e) Date Jun. 26, 1995, PCT Pub. No. WO94/16273, PCT Pub. Date Jul. 21, 1994
PCT Filed Dec. 30, 1992, Ser. No. 481,252
Claims priority, application Sweden, Jul. 3, 1991, 91 02077
Int. Cl.[6] F25B *49/02*
U.S. Cl. 62—129 **18 Claims**



1. A method for determining the existing amount of working fluid in a compressor-operated refrigeration or heat pump system, said method comprising:

sensing the existing values of at least two variable quantities (t_{16}, t_{17}, t_{18}, p_{19}), consisting of the temperature or pressure of the working fluid at different preselected places in the system, at a moment when the system is in operation;

utilizing the sensed values of said quantities or at least one value of at least one other quantity (x_1, x_2), derived from said sensed values, for determining an approximate value of the magnitude of the existing amount of working fluid in the system based upon a previously established relationship between the magnitude of the existing amount of working fluid in the system and the value or values, respectively, of the utilized quantity or quantities (t_{16}, t_{17}, t_{18}, p_{19}, x_1 x_2);

characterized by the steps of:

determining at least two different preliminary approximate values of the magnitude of the existing amount of working fluid in the system while utilizing values of at least partially different variable quantities; and

determining a resultant approximate value based upon said preliminary values.

5,724,823
ABSORPTION OVER-CONCENTRATION CONTROL

David M. Martini; Christopher P. Serpente, both of Liverpool; Harold W. Sams, Jamesville, and Marvin C. Decker, Skaneateles, all of N.Y., assignors to Carrier Corporation, Syracuse, N.Y.

Filed Oct. 10, 1996, Ser. No. 728,205
Int. Cl.[6] F25B *15/00*
U.S. Cl. 62—148 **15 Claims**

1. An over-concentration control system for use with an absorption machine of the type which uses an operating liquid comprising a solution of an ionic solute in a refrigerant solvent, said operating liquid being characterized by a concentration indicative of the quantity of said solute dissolved in said solvent, and by a phase diagram having a crystallization boundary that defines the combinations of concentrations and temperatures which correspond to conditions of saturation in said solution, comprising:

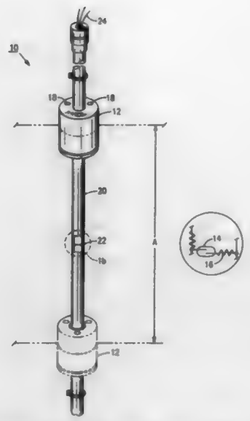
means for storing in a memory, a representational phase diagram of the absorption cycle of said machine, said representational phase diagram including a plurality of predetermined respective combinations of concentrations and temperatures, including those lying on the crystallization boundary;

means responsive to the depth of said solution at a predetermined location in the machine for continuously generating a concentration signal indicative of the concentration of said liquid;

a temperature sensor for generating a temperature signal indicative of the temperature of said liquid;

means for comparing said sensed concentration and temperature of said liquid to said stored combinations of concentrations and temperatures which lie on said crystallization boundary and for generating a difference signal representative thereof; and

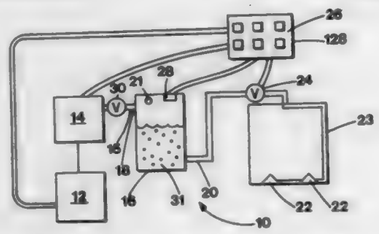
means responsive to the magnitude of said difference signal for changing the operating state of said machine as necessary to prevent said liquid from reaching a combination of concentration and temperature that lies on said crystallization boundary.



5,724,824
EVAPORATIVE COOLING DELIVERY CONTROL SYSTEM

David A. Parsons, 930 Tahoe Blvd. #802-324, Incline Village, Nev. 89451

Filed Dec. 12, 1996, Ser. No. 766,587
Int. Cl.[6] F28D *3/00*
U.S. Cl. 62—171 **4 Claims**



3. An evaporative cooling delivery system for use in the cabin of an open air vehicle, the delivery system having operatively connected a power supply, refillable water reservoir, a supply of water in the reservoir, and a plurality of nozzles for discharging a fine fog of water to absorb heat by evaporation, the improvement comprising:

an electronic control module to control the flow rate of the water from the reservoir;

a compressor to provide pressurized air to the reservoir;

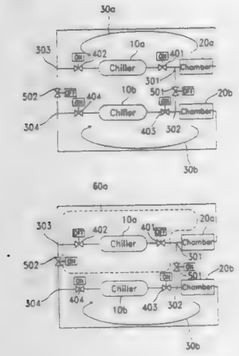
a valve disposed between the nozzles and the reservoir, said valve being responsive to control signals from the control module to vary the flow of water between said reservoir and said nozzles; and

means to activate and adjust said delivery system between continuous, intermittent and pulsing operation wherein said module adjusts the operation of said compressor and said solenoid valve accordingly.

5,724,825
AUTOMATIC TEMPERATURE CONTROLLING SYSTEM

Wen Hong Lee, Hsinchu, Taiwan; Thomas Chang, Taichung, Taiwan, and Simon Chang, Chiayi, Taiwan, assignors to Mosel Vitelic Inc., Hsinchu, Taiwan

Filed Sep. 11, 1996, Ser. No. 712,523
Int. Cl.[6] F25D *17/02*
U.S. Cl. 62—185 **9 Claims**



1. An automatic temperature controlling system, said system comprising:

at least two chambers having first temperature controlling paths operable simultaneously for providing coolant circulations while said system is in normal condition, and having second temperature controlling paths operable one at a time for providing at least one coolant circulation while said system is in an abnormal condition; at least two chillers connected to said chambers for controlling the temperature of said chambers by circulating coolant respectively;

a pair of first normal-on valves responsive to said chillers for controlling the condition of said first temperature controlling paths respectively, each said first normal-on valve is located between each said chiller and said chamber in the flow direction of the coolant;

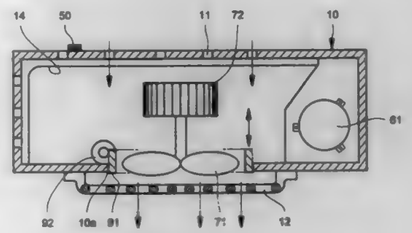
a pair of second normal-on valves responsive to said chillers for controlling the condition of said first temperature controlling paths respectively, each said second normal-on valve is located between each said chamber and said chiller in the flow direction of the coolant; and

a pair of normal-off valves responsive to said chillers for controlling the condition of said second temperature controlling paths respectively, said pair of normal-off valves are located between said first temperature controlling paths.

5,724,826
OUTSIDE AIR CONDITIONER UNIT WITH A CONTROLLER FOR VARYING THE INTENSITY OF AIR FLOW

Geun Phil Han, Incheon-city, Rep. of Korea, assignor to Samsung Electronics Co., Ltd., Suwon, Rep. of Korea

Filed Dec. 18, 1995, Ser. No. 574,144
Claims priority, application Rep. of Korea, Dec. 16, 1994, 94-34686
Int. Cl.[6] F25B *39/04;* **F01D** *25/24*
U.S. Cl. 62—183 **7 Claims**



1. An air conditioner, comprising:

a housing;

a heat exchanger in the housing for circulating a refrigerant;

a fan in the housing for circulating outside air across the heat exchanger;

a temperature sensor for sensing a temperature of the outdoor air;

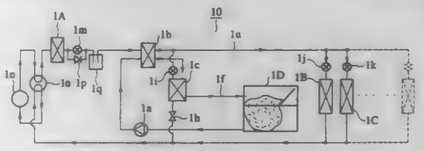
a controller connected to the temperature sensor for determining a difference between the sensed outdoor air temperature and a reference temperature to determine in response to that difference, whether the heat exchanger is in an overload condition; and

a flow-regulating mechanism connected to the controller for increasing an intensity of air flow produced by the fan when an overload condition is determined, the flow-regulating mechanism comprising a hollow cylinder in which the fan is coaxially disposed, the fan being movable axially relative to the fan to vary the intensity of the air flow.

5,724,827
ICE REGENERATIVE AIR CONDITIONER SYSTEM

Hiroichi Yamaguchi, and Toshihiro Yamamoto, both of Kanagawa-ken, Japan, assignors to Kabushiki Kaisha Toshiba, Kawasaki, Japan

Filed Mar. 12, 1996, Ser. No. 614,150
Claims priority, application Japan, Mar. 15, 1995, 7-056257
Int. Cl.[6] F25D *17/02*
U.S. Cl. 62—201 **12 Claims**



1. An ice regenerative air conditioner system for generating ice by using a super-cooled liquid and for accumulating said ice, which comprises:

an outdoor heat exchanger for exchanging heat between outside air and a coolant gas in order to condense said coolant gas to a coolant;

a plurality of indoor heat exchangers for exchanging heat between indoor air and said coolant in order to cool said indoor air;

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a first heat exchanger placed in series with said plurality of indoor heat exchangers for heating a cooled-liquid by exchanging heat between said cooled-liquid and said coolant supplied from said outdoor heat exchanger;

a second heat exchanger placed in parallel with said plurality of indoor heat exchangers for generating a super-cooled liquid by exchanging heat between said coolant and said cooled-liquid heated by said first heat exchanger; and

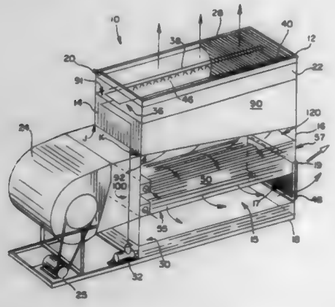
an ice storage tank connected to said first heat exchanger and said second heat exchanger for generating and accumulating said ice.

5,724,828

COMBINATION DIRECT AND INDIRECT CLOSED CIRCUIT EVAPORATIVE HEAT EXCHANGER WITH BLOW-THROUGH FAN

Branislav Korenic, Columbia, Md., assignor to Baltimore Aircoil Company, Inc., Jessup, Md.

Filed Apr. 21, 1995, Ser. No. 426,029
Int. Cl.[6] B01F *3/04*
U.S. Cl. 62—305 **49 Claims**



1. In a heat exchange apparatus, a method of exchanging heat comprising the steps of:

providing a direct evaporative heat exchange section and an integral indirect evaporative heat exchange section, said indirect section conducting a fluid stream within a plurality of individual circuits comprising said indirect section, and said direct section comprised of a fill bundle each of said heat exchange sections having a top side, a bottom side, an inboard side, an outboard side, an air inlet and an air outlet, said inboard and outboard side of each said heat exchange section defining a respective direct and indirect heat exchange section width, said direct and indirect heat exchange section widths being substantially equal;

placing said direct section above said indirect section;

providing a means above said direct section top side for spraying an evaporative liquid generally downwardly across said direct section;

passing said evaporative liquid from said direct section downwardly across said individual circuits of said indirect evaporative heat exchange section in order for said liquid to indirectly exchange heat with said fluid stream within said circuits;

providing at least one means for moving an ambient stream of air into a air inlet of said apparatus, said inlet having a horizontal extent and a vertical extent, said air inlet in communication with an air entry zone common to each of said heat exchange sections;

splitting said air stream within said entry zone into a first air stream and a second air stream, said first air stream flowing upwardly into said direct heat exchange section air inlet, which said inlet is associated with said bottom side of said direct section, and said second air stream flowing downwardly into said indirect heat exchange section air inlet, which said inlet is associated with said top side of said indirect section, said first air stream flowing countercurrent with said evaporative liquid within said direct section and said second air stream flowing concurrent with said evaporative liquid within said indirect section, said first air stream evaporatively exchanging heat with said evaporative liquid in said direct section before exiting said air outlet, which said outlet is associated with said top side of said direct section, said second air stream evaporatively exchanging heat with said evaporative liquid in said indirect section before exiting said air outlet, which said outlet is associated with said bottom side of said indirect section;

collecting substantially all of said evaporative liquid exiting said indirect section in a sump;

pumping substantially all of said collected evaporative liquid upwardly to said direct evaporative heat exchange section for redistribution; and

enclosing said sump, said spray means, and each of said heat exchange sections within a single structure, said structure having a generally open roof above said spray means, a generally solid base for containing said sump, a from wall, a near wall, and a pair of side walls interconnecting with said roof, base and front and rear walls.

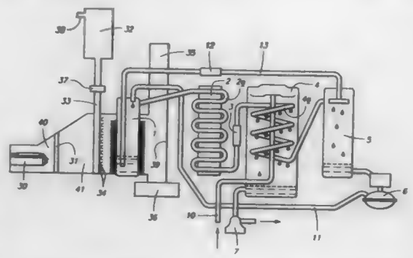
12. The method of claim 1 wherein said fill bundle contains a plurality of fill sheets, each of said fill sheets having a short side edge, a long side edge, and a face therebetween.

5,724,829

CHILLER HEATING ASSEMBLY

Frank Schubach, and Gary Schubach, both of 1419 N. Thierman Rd., Spokane, Wash. 99212

Filed Feb. 8, 1996, Ser. No. 598,393
Int. Cl.[6] F25B *33/00*
U.S. Cl. 62—497 **18 Claims**



1. A heating assembly for use with a generator, comprising:

a. a waste oil heater assembly which produces particulate matter suspended in a gas in forced convection relation to a generator and which become deposited on the exterior of the generator;

b. a source of compressed gas disposed in forced discharge relation to the generator to remove the particulate matter from the generator.

5,724,830

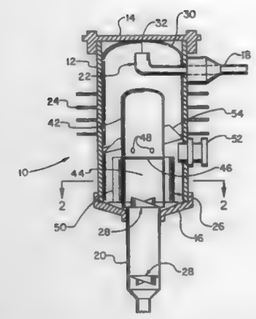
FLUID INDUCTION AND HEAT EXCHANGE DEVICE

Michael Tracy Otis, 16827-B Alamosa, Fountain Hills, Ariz. 85268, and Mark Stephen Shepherd, 6723 Plymouth Rd. #7, Stockton, Calif. 95207-2327

Filed Jul. 19, 1996, Ser. No. 684,503
Int. Cl.[6] F25B *39/04*
U.S. Cl. 62—509 **23 Claims**

21. A device positionable in a gas line, said device comprising:

a main body including at least one exterior side wall, a first end panel and a second end panel;



a first inflow conduit entering into the main body wherein the first inflow conduit is in vapor communication with the inflow gas line;

a second outflow conduit extending from the main body wherein the second outflow conduit is in vapor communication with the outflow gas line;

rotational inducer means for causing gas within the main body to rotate, relative to a side wall thereof, into a helical pattern as the gas moves through the main body toward the second end panel thereof;

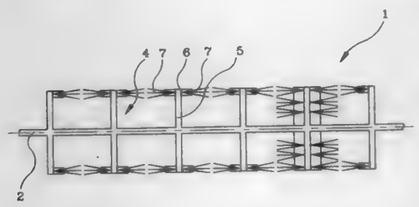
radial infuser means positioned within the main body proximal to the second end panel thereof, the radial infuser means comprising an interior body positioned within the main body wherein the interior body comprises at least one exterior side wall, an end cap, and at least one inner containment chamber positioned in vapor communication with the second outflow conduit, and further wherein the interior body has a smaller interior radius than does the main body, and still further wherein the interior body comprises means for collecting the rotating gas from the main body and consolidating the rotating gas within the inner containment chamber wherein the rotating fluid is contained and wherein a decrease in the radius of rotation within the inner containment chamber causes an amplification of the velocity of the rotating gas prior to the time the gas exits the device.

5,724,831

METHOD OF AND APPARATUS FOR COOLING FOOD PRODUCTS

Lev Reznikov, 1510 Ocean Pkwy, #A17, Brooklyn, N.Y. 11230, and Zachary Schulman, 30 Spring Meadow Rd., Mount Kisco, N.Y. 10536

Filed Nov. 24, 1995, Ser. No. 562,577
Int. Cl.[6] F25J *5/00*
U.S. Cl. 62—603 **5 Claims**



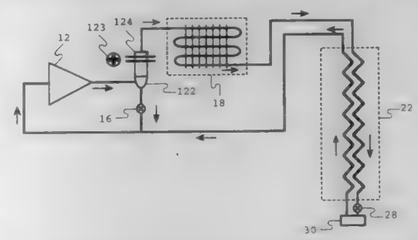
1. A method of cooling food products in a container, comprising the steps of supplying liquid carbon dioxide through a distributor pipe; discharging the liquid carbon dioxide from the distributor pipe through a plurality of nozzles; and arranging the nozzles on the distributor pipe so that jets of liquid carbon dioxide ejecting by the nozzles extend substantially along a longitudinal axis of the distributor pipe and toward one another to collide substantially between two neighboring ones of the nozzles.

5,724,832

SELF-CLEANING CRYOGENIC REFRIGERATION SYSTEM

William A. Little, Palo Alto, Calif., and Igor Sapozhnikov, San Jose, Calif., assignors to MMR Technologies, Inc., Mountain View, Calif.

Continuation-in-part of Ser. No. 412,529, Mar. 29, 1995, Pat. No. 5,617,739. This application Sep. 18, 1996, Ser. No. 710,508
Int. Cl.[6] F25J *1/00*
U.S. Cl. 62—613 **23 Claims**



1. A method of closed-cycle low-temperature refrigeration comprising:

compressing a multi-component refrigerant in a compressor to form a high-pressure refrigerant stream containing contaminants;

separating a vapor fraction from the refrigerant stream;

filtering droplets of contaminants from the vapor fraction;

condensing a portion of the vapor fraction to form a condensate;

placing the vapor fraction and the condensate in phase-equilibrium with each other;

dissolving into the condensate residual contaminants present in the vapor fraction while the vapor fraction and the condensate are in phase-equilibrium;

removing the filtered droplets and the condensate containing the residual contaminants from the vapor fraction to produce a purified vapor stream; and

passing the purified vapor stream through low-temperature stages of a refrigeration cycle and thereafter back to the compressor.

5,724,833

CONTROL SCHEME FOR CRYOGENIC CONDENSATION

Barnard James Devers, Greenville, Tex., assignor to Phillips Petroleum Company, Bartlesville, Okla.

Filed Dec. 12, 1996, Ser. No. 764,347
Int. Cl.[6] F25J *1/00*
U.S. Cl. 62—625 **10 Claims**

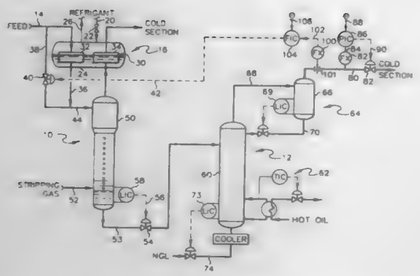
1. Apparatus for controlling condensation of a gaseous hydrocarbon feedstream predominating in methane and containing heavier hydrocarbon components, and a benzene contaminate, said apparatus comprising:

(a) heat exchanger means, having a bypass conduit for cooling and partially condensing the feedstream, thereby defining a partially condensed stream;

(b) a bypass control valve operably located in said bypass conduit for adjusting the portion of said feedstream that bypasses said heat exchanger means;

(c) a first separation column for receiving said partially condensed stream and for absorbing said benzene contaminant and separating liquid and vapor;

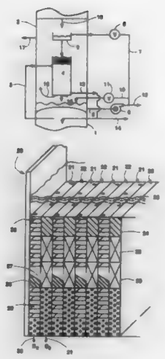
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(d) means for withdrawing an overhead vapor stream from said first separation column;
(e) a second separation column for receiving a bottoms liquid stream withdrawn from said first separation column, and for separating liquid and vapor;
(f) first conduit means for withdrawing an overhead vapor stream and a second conduit means for withdrawing a bottoms liquid stream from said second separation column;
(g) means for establishing a first signal representative of the actual flow rate of vapor in the overhead vapor stream withdrawn from said second separation column in said first conduit means;
(h) means for establishing a second signal representative of the desired flow rate of vapor in the overhead vapor stream withdrawn from said second separation column;
(i) means for comparing said first signal and said second signal for establishing a third signal responsive to the difference between said first signal and said second signal, wherein said third signal is scaled to be representative of the position of said bypass control valve required to maintain the actual flow rate in said first conduit, represented by said first signal, substantially equal to the desired flow rate represented by said second signal; and
(j) means for manipulating said bypass control valve operably located in said bypass conduit in response to said third signal.

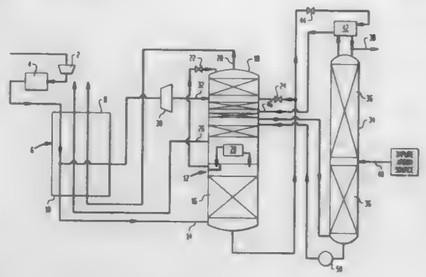
5,724,834
DOWNFLOW PLATE AND FIN HEAT EXCHANGER FOR CRYOGENIC RECTIFICATION
Vijayaraghavan Srinivasan, Williamsville, N.Y.; Michael James Lockett, Grand Island, N.Y., and John Harold Ziemer, Grand Island, N.Y., assignors to Praxair Technology, Inc., Danbury, Conn.
Division of Ser. No. 286,233, Aug. 5, 1994, Pat. No. 5,438,836. This application May 24, 1995, Ser. No. 449,044
Int. Cl.[6] F25J *3/04*
U.S. Cl. 62—643 **7 Claims**

1. A method for vaporizing a liquid by indirect heat exchange with a vapor comprising:
(A) providing a heat exchanger having at least one first passage and at least one second passage in alternating sequence;
(B) passing liquid into said first passage(s) and down through said first passage(s) through a section comprising a one stage distribution enhancement means for achieving a well distributed flow of liquid, said one stage distribution enhancement section comprising perforated hardway fins wherein the perforation area in the lower portion of the section exceeds the perforation area in the upper portion of the section;
(C) passing said well distributed liquid from said first passage(s) into said second passage(s);
(D) passing vapor into said first passage(s) below the point where said well distributed liquid is passed from said first passage(s); and
(E) passing vapor and liquid cocurrently through said first and second passages respectively and vaporizing said liquid in



said second passage(s) by indirect heat exchange with said vapor in said first passage(s) during said cocurrent flow.

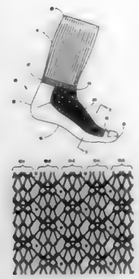
5,724,835
AIR SEPARATION
Christopher J. Hine, Guildford, England, assignor to The BOC Group plc, Windlesham, England
Filed Jan. 4, 1996, Ser. No. 582,817
Claims priority, application United Kingdom, Jan. 11, 1995, 9500514
Int. Cl.[6] F25J *1/00*
U.S. Cl. 62—646 **5 Claims**



1. A method of separating air comprising;
compressing, pre-purifying and cooling air;
subjecting resulting air to a first rectification in which the air is separated into a nitrogen-rich fraction and an oxygen-rich fraction;
withdrawing a further oxygen fraction, enriched in argon from the first rectification, and subjecting the further oxygen fraction to a second rectification in which relatively pure argon is separated from oxygen; and
supplying from an independent source to an intermediate location of the second rectification a stream of relatively impure argon comprising argon, oxygen and nitrogen.

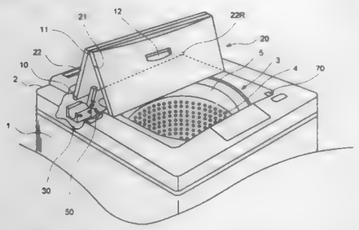
5,724,836
SOCK WITH BREATHABLE PANEL
David Green, High Point, N.C., assignor to Sara Lee Corporation, Winston-Salem, N.C.
Filed Jul. 16, 1996, Ser. No. 680,990
Int. Cl.[6] A41B *11/00*
U.S. Cl. 66—185 **35 Claims**

1. A sock having a foot section, the foot section comprising:



(a) a sole section intermediate a toe section and a heel section, the sole section including internal-facing terry loops to form a cushion; and
(b) a breathable instep panel positioned atop the sole section substantially over the top of the wearer's foot, and wherein the instep panel comprises a stitch that is more open than the stitch of the sole section.

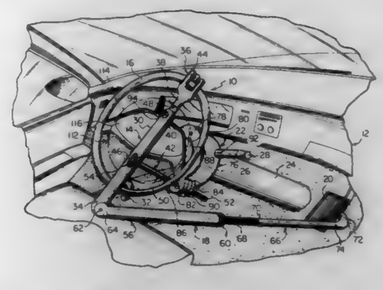
5,724,837
CLOTHES WASHER HAVING A MOTOR-DRIVEN LID OPENING AND CLOSING MECHANISM
Jeong Soo Shin, Suwon, Rep. of Korea, assignor to Samsung Electronics Co., Ltd., Suwon, Rep. of Korea
Filed Jul. 16, 1996, Ser. No. 680,852
Claims priority, application Rep. of Korea, Nov. 9, 1995, 1995-40470
Int. Cl.[6] D06F *37/10*
U.S. Cl. 68—196 **7 Claims**



1. A clothes washer comprising:
a housing forming a clothes-access opening at the top thereof;
a water tub mounted in the housing;
a lid disposed at the top of the housing for opening/closing the access opening, the lid including a first member hinged to the housing, and a second member hinged to the first member, the first and second members being foldable to an open state and unfoldable to a closed state; and
a motor-driven lid opening/closing mechanism for selectively moving the lid to the open and closed states, wherein the lid opening/closing mechanism comprises a motor mounted on the housing, a cam member fixed to a drive shaft of the motor, and a following member fixed to the lid and arranged to be displaced by the cam member during rotation of the drive shaft.

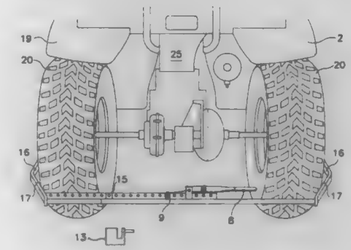
5,724,838
ANTI-THEFT DEVICE FOR A MOTOR VEHICLE
David Alicea, 23-21 93rd St., East Elmhurst, N.Y. 11369
Filed Mar. 14, 1997, Ser. No. 818,295
Int. Cl.[6] B60R *25/02*
U.S. Cl. 70—18 **25 Claims**

1. An anti-theft device for a motor vehicle comprising:



a) a clamp adapted to be mounted in a releasable manner to a steering wheel of the motor vehicle, to prevent rotation of the steering wheel;
b) a bracket pivotally extending from said clamp and adapted to be connected in a releasable manner to a brake pedal of the motor vehicle, to prevent operation of the brake pedal; and
c) a cover coupled to said clamp and adapted to be affixed in a releasable manner about a steering column of the motor vehicle, to prevent access to an ignition switch in the steering column and to prevent movement of a gearshift lever on the steering column.

5,724,839
VEHICLE LOCKING MEANS WITH WHEEL CLAMPS
Gary A. Thering, 11079 Millers Rd., Lyndonville, N.Y. 14098
Filed May 1, 1997, Ser. No. 846,834
Int. Cl.[6] B60R *25/00*
U.S. Cl. 70—18 **7 Claims**



1. A universal vehicle locking device comprising two interfitting mating rods, two clamps and a locking structure, said rods having means to movably fit together and means to extend outwardly to fit from wheel to wheel in a plurality of sizes of vehicles, said rods each having clamps on their terminal outer portion, a first of said rods having a series of apertures therein that will cooperate with the other rod to fix and lock each to the other, said clamps having inner surfaces that will permit only clamp contact with tires on both sides of said vehicle on an outside portion of said tires and an external portion of a wheel rim, said clamps adapted to extend into said wheel rim on only an outside portion of said rim, said locking structure comprising an apertured tab located on a second of said two interfitting rods and a lock which fits through said apertured tab and one aperture of said series of apertures to lock each of said rods to the other.

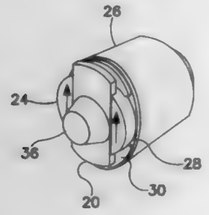
VOL 1208 ISS 2 MR 10 1998 UMI

5,724,840

CAM LOCK

Thomas J. DiVito, Southington, Conn., assignor to Kaba High Security Locks Corporation, Southington, Conn.

Filed Mar. 21, 1996, Ser. No. 620,124
Int. Cl.[6] E05B 9/04
U.S. Cl. 70—371 13 Claims



1. Locking apparatus for selectively blocking access to an aperture which extends through a mechanical member, the aperture having an axis and a width and an area measured transverse to said aperture axis, the mechanical member having a thickness measured along the axis of the aperture between opposite ends of the aperture, said locking apparatus comprising:

a tubular housing, said housing having a pair of oppositely disposed ends and defining a housing axis which extends between said ends, said housing having a maximum cross-sectional area measured transverse to said housing axis which exceeds the area of the aperture to be blocked whereby said housing may engage the mechanical member about the periphery of the aperture at a first end of the aperture and thereby cover the aperture;

a key operated cylinder lock mounted within said tubular housing, said cylinder lock including a shell having a fixed rotational orientation relative to said housing and a plug which is rotatable within and relative to said shell about an axis of rotation which is oriented generally parallel to said housing axis, said shell and plug having cooperating pin tumblers for selectively enabling or preventing relative rotation between said shell and plug, said plug having oppositely disposed first and second ends and a keyway which extends from said plug first end, said plug further having an axial extension at said second end thereof, said keyway being accessible via a first of said housing oppositely disposed ends, said plug axial extension projecting beyond said second of said housing ends, said cylinder lock being supported within said housing for limited motion in a direction parallel to said housing axis, relative rotation between said shell and plug being enabled by insertion of a properly bitted key in said keyway;

means disposed in said housing for resiliently biasing said cylinder lock toward said first end of said housing; and

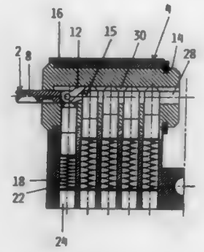
a retaining cam affixed to said plug axial extension, said cam having a blade mounted for rotation with said plug, said blade having a mechanical member engaging first face which is oriented generally transversely with respect to said axis of rotation, said blade having a length measured transversely with respect to said axis of rotation which exceeds the width of the aperture to be blocked, said blade being displaced from said housing maximum cross-section by a distance which exceeds the thickness of the mechanical member having the aperture to be blocked, said blade extending unequal distances from said axis of plug rotation in a pair of opposite directions, said first face of said blade engaging the apertured mechanical member at the second end of the aperture in a pair of oppositely disposed angularly displaced regions whereby the mechanical member is captured between said housing means and said blade.

5,724,841

KEY AND CYLINDER LOCK UNIT

Renato Botteon, Vittorio Veneto, Italy, assignor to Silca, S.p.A., Italy

PCT No. PCT/EP95/04870, § 371 Date May 29, 1997, § 102(e) Date May 29, 1997, PCT Pub. No. WO96/20325, PCT Pub. Date Jul. 4, 1996
PCT Filed Dec. 11, 1995, Ser. No. 836,977
Claims priority, application Italy, Dec. 27, 1994, VE94A0052
Int. Cl.[6] E05B 19/08;27/04
U.S. Cl. 70—493 5 Claims



1. A key and cylinder lock unit, in which said key comprises a shank provided with a pattern and with at least one movable member positioned at a front end thereof, said lock comprising a plug housed within a cylinder and provided with a plurality of substantially radial pins formed in two parts movable along corresponding radial channels provided partly in said plug and partly in said cylinder and, by means of springs, maintained with one end in a longitudinal seat provided in said plug for the insertion of said shank of said key, wherein:

said plug comprises along said seat a longitudinal groove closed at the key introduction end and housing a tapered end of all the pins, which completely traverse said seat;

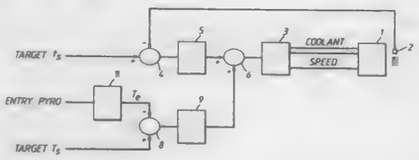
said movable member of said shank is of such a shape as to be able to be deviated towards said longitudinal groove as a result of a progressive introduction of said shank into said seat, and to engage the end of successively encountered pins in order to shift them axially until they are able to slide along a surface of said shank comprising said pattern.

5,724,842

ROLLING OF METAL STRIP

Robert John Beattie, Dorset, United Kingdom; Philip Francis Round, Dorset, United Kingdom, and Andrew Storey, Dorset, United Kingdom, assignors to Davy McKee (Poole) Limited, Dorset, England

Filed Feb. 20, 1996, Ser. No. 600,973
Claims priority, application United Kingdom, Aug. 26, 1993, 9317928
Int. Cl.[6] B21B 37/00
U.S. Cl. 72—12.2 7 Claims



1. A method of rolling metal strip in a rolling mill which has means for determining the temperature of the strip entering the mill, means for determining the temperature of the strip exiting from the mill and means for applying liquid coolant to the strip, said method comprising the steps of

accelerating the mill to an initial rolling speed based on the rolling speed of strip previously rolled in the mill and the difference in entry temperature between the strip being rolled and the previously rolled strip;

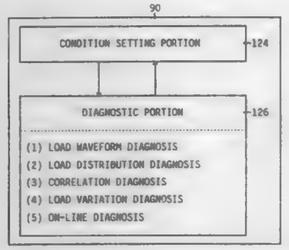
obtaining a signal representing the difference between the temperature of the strip exiting the mill and a target exit temperature and employing said difference signal to control both the quantity of liquid coolant applied to the strip and the variation of the rolling speed from said initial rolling speed in the sense to reduce said difference signal substantially to zero.

5,724,843

METHOD OF DIAGNOSING PRESSING MACHINE BASED ON DETECTED PHYSICAL VALUE AS COMPARED WITH REFERENCE

Kazunari Kirii, Aichi-ken, and Masahiro Shinabe, Toyota, both of Japan, assignors to Toyota Jidosha Kabushiki Kaisha, Japan

Continuation of Ser. No. 200,399, Feb. 23, 1994, abandoned. This application Aug. 21, 1996, Ser. No. 697,256
Claims priority, application Japan, Feb. 25, 1993, 5-63406; Feb. 16, 1994, 6-19201
Int. Cl.[6] B21D 22/20
U.S. Cl. 72—17.2 7 Claims



1. A diagnostic method of diagnosing a press for determining the presence of any abnormality that deteriorates quality of a product manufactured by a pressing operation performed on a blank while a main slide of the press is reciprocated, the method comprising the steps of:

detecting a selected one of a plurality of characteristics of a load generated at a selected portion of the press prior to a production run of the press, while the main slide is moved without the blank;

determining the selected characteristic of the load detected prior to the production run of the press; and

comparing the determined characteristic of the load with a predetermined reference that permits the product to have an intended quality, and thereby determining the presence or absence of an abnormality, based on a result of comparing the determined characteristic of the load with said predetermined reference.

5,724,844

INNER GROOVED TUBE FORMING APPARATUS

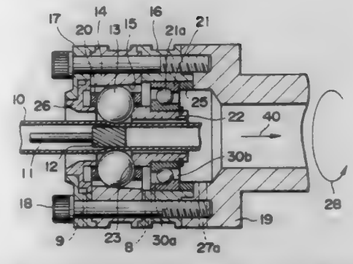
Chikara Saeki, Hatano, Japan, assignor to Kabushiki Kaisha Kobe Seiko Sho, Kobe, Japan

Filed Dec. 31, 1996, Ser. No. 775,306
Claims priority, application Japan, Jan. 19, 1996, 8-007915
Int. Cl.[6] B31D 53/06
U.S. Cl. 72—75 14 Claims

1. An inner grooved tube forming apparatus comprising:

a grooved plug adapted to be inserted into a mother tube;

a ball track retaining outer ring through which said mother tube is inserted, said outer ring having an inner surface formed as a ball track area;



a plurality of balls kept in contact with an outer surface of said mother tube and said ball track area, and adapted to be rolled on said outer surface of said mother tube as being rotated around said mother tube by rotation of said outer ring, whereby a wall of said mother tube is pressed between said balls and said grooved plug to transfer a shape of a groove formed on said grooved plug to an inner surface of said mother tube;

a ball retainer accommodated in said outer ring, for retaining said balls at a radial position outside of a rotation track of the center of each ball in a radial direction of said mother tube; and

a thrust support member rotatably supported by a bearing mounted inside said outer ring, said thrust support member having a ball contact area kept in contact with said balls, for applying to said balls a force having a direction opposite to a moving direction of said mother tube;

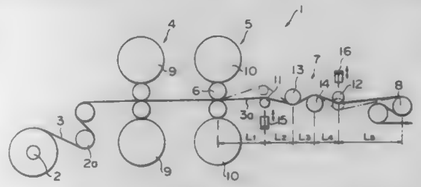
wherein said ball track area is formed with a first groove extending in a circumferential direction of said mother tube, a radius of curvature of said first groove in a plane containing the axis of said mother tube and the center of each ball being larger than a radius of each ball.

5,724,845

BOWING CORRECTION APPARATUS FOR TEMPER ROLLING MILL

Tadaaki Yasumi, and Yuji Shimoyama, both of Chiba, Japan, assignors to Kawasaki Steel Corporation, Hyogo, Japan

Filed Aug. 12, 1996, Ser. No. 689,642
Int. Cl.[6] B21D 1/05
U.S. Cl. 72—161 15 Claims



1. A bowing correction apparatus for a temper rolling mill, the temper rolling mill including a bridle roll and a rolling stand having work rolls, the bridle roll being positioned downstream of the work rolls in a running direction of running of a cold-rolled steel sheet; the bowing correction apparatus comprising:

a pair of vertically shiftable bowing correction auxiliary rolls being positioned between the work rolls and the bridle roll, the cold-rolled steel sheet contacting circumferential portions of said pair of bowing correction auxiliary rolls to correct bowing of the cold-rolled steel sheet when at least one of said pair of bowing correction auxiliary rolls is vertically shifted; and

a plurality of deflector rolls positioned between said pair of bowing correction auxiliary rolls, said plurality of deflector rolls altering the running direction of the cold-rolled steel

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sheet, said pair of bowing correction auxiliary rolls and said plurality of deflector rolls being arranged in the running direction of the cold-rolled steel sheet such that successive ones of said pair of bowing correction auxiliary rolls and said plurality of deflector rolls are alternately positioned on upper and lower surfaces of the cold-rolled steel sheet,

wherein said pair of bowing correction auxiliary rolls and said plurality of deflector rolls are spaced from each other and satisfy conditions:

$1.5 \leq L_2/D \leq 3$ and

$1.5 \leq L_4/D \leq 3$,

where L_2 is a horizontal distance a between center of a bowing correction auxiliary roll of said pair of bowing correction auxiliary rolls that is adjacent said work rolls and a deflector roll of said plurality of deflector rolls that is adjacent the work rolls, L_4 is a horizontal distance between a center of the other of said pair of bowing correction auxiliary rolls that is adjacent the bridle roll and another of said plurality of deflector rolls that is adjacent the bridle roll, and D is a diameter for each of said pair of bowing correction auxiliary rolls.

5,724,846

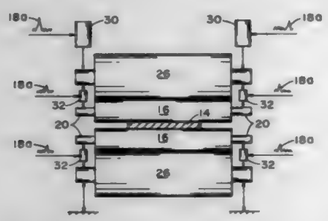
INTERRUPTION OF ROLLING MILL CHATTER BY INDUCED VIBRATIONS

Albert C. Wang, Murrysville; K. Wing Chang; L. Duane Dunlap, both of Pittsburgh; Jing Luo, Monroeville; D. Frederick Stewart, Export, all of Pa.; Michael L. Barry, Maryville, and Terry C. Lee, Alcoa, both of Tenn., assignors to Aluminum Company of America, Pittsburgh, Pa.

Filed Jan. 31, 1996, Ser. No. 594,542

Int. Cl.[6] B21B *31/00*

U.S. Cl. 72—237 **10 Claims**



1. A method of preventing roll chatter in a rolling mill stand during the process of directing a strip of material through the stand, the stand having a natural frequency of vibration, the method comprising:

introducing into the mill a vibration frequency component that is non-synchronous with that of the stand to prevent mill rolls from vertically oscillating at a certain octaval frequency in any generally large, uncontrollable manner, the prevention of roll chatter at said frequency preventing surface marking of the strip.

5,724,847

INTEGRATED WIRE FEED AND DRAW APPARATUS

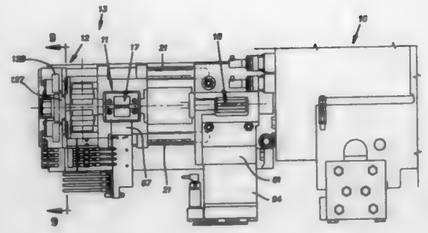
William H. Hite, Tiffin, Ohio, assignor to The National Machinery Company, Tiffin, Ohio

Filed May 31, 1996, Ser. No. 653,669

Int. Cl.[6] B21C *1/20;1/28*

U.S. Cl. 72—285 **21 Claims**

1. A wire feeding apparatus comprising a frame, a movable set of grippers mounted on said frame for reciprocation in a feed direction, an actuator for opening and closing the movable set of grippers in a gripping direction perpendicular to the feed direction, a drive for reciprocating said movable gripper set along the feed



direction, a stationary set of grippers mounted on said frame stationarily with respect to the feed direction, an actuator for opening and closing the stationary set of grippers in a gripping direction perpendicular to the feed direction, said frame and at least one of said set of grippers being arranged, for loading of a new length of wire stock, to recieve such wire stock in a loading direction generally perpendicular to said feed direction and generally perpendicular to the opening and closing direction of said one of said grippers, a draw die on said frame and support means on said frame for receiving said draw die in an operative position by movement thereof in said loading direction.

5,724,848

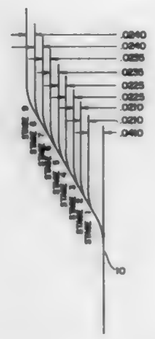
SYSTEM AND PROCESS FOR NECKING CONTAINERS

Anton A. Aschberger, Downers Grove, Ill., assignor to Crown Cork & Seal Company, Inc., Philadelphia, Pa.

Continuation of Ser. No. 636,040, Apr. 22, 1996, abandoned. This application Dec. 4, 1996, Ser. No. 759,189

Int. Cl.[6] B21D *22/00;22/21*

U.S. Cl. 72—356 **7 Claims**



1. A process of incrementally necking an upper end of a metallic container that has a first radius, comprising steps of:

(a) die pressing the upper end of the metallic container so the upper end is reformed to a second radius, the second radius being less than the first radius by a first distance; and

(b) after step (a), die pressing the upper end of the metallic container so the upper end is reformed to a third radius that is less than the second radius by a second distance, and wherein said second distance is greater than said first distance, whereby the process is performed in steps that increase in the amount of radial reduction that is applied, rather than in equal amounts of reduction as has heretofore been conventional.

5,724,849

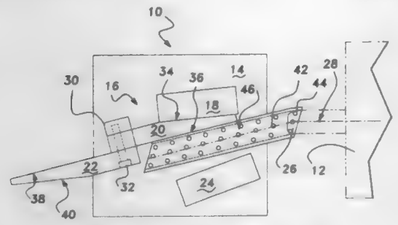
PROCESS FOR FORMING A TUBE FOR USE IN A SOUND ATTENUATING MUFFLER

Norman J. Frossard, Jr., Aberdeen, Miss., assignor to Tanneco Automotive Inc.

Filed Oct. 31, 1996, Ser. No. 741,944

Int. Cl.[6] B21D *41/00*

U.S. Cl. 72—369 **20 Claims**



1. An apparatus for shaping an object comprising:

a bench;

a plurality of stop blocks coupled to said bench, said blocks being adjustably positionable for fixing said object at a plurality of preselected angles; and

an inside/outside end sizing machine proximate said bench and in operative relation with said plurality of stop blocks, said inside/outside end sizing machine having members for capturing an end of said object and aligning a centerline of said end with a centerline of said machine while said stop blocks prevent a remainder of said object from moving from said preselected angle.

5,724,850

REAR FORK FOR A MOTORCYCLE

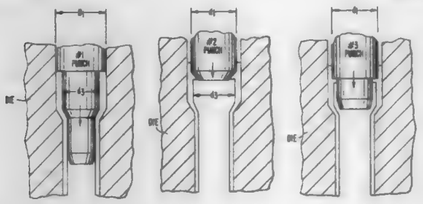
Toshio Yamagiwa, and Hiroki Makino, both of Saitama, Japan, assignors to Honda Giken Kogyo Kabushiki Kaisha, Tokyo, Japan

Continuation-in-part of Ser. No. 217,891, Mar. 25, 1994, abandoned. This application Dec. 7, 1995, Ser. No. 568,553

Claims priority, application Japan, Mar. 26, 1993, 5-090584

Int. Cl.[6] B21K *21/12*

U.S. Cl. 72—370 **15 Claims**



1. A method of forming a rear fork for a motorcycle comprising the steps of:

selecting a pivot pipe having a first end, a second end, a longitudinal axis, a substantially uniform wall thickness, and a substantially uniform inside diameter;

placing said first end of said pivot pipe in a die;

pressing a first portion of a first punch into said first end of said pipe in a direction along said longitudinal axis of said pipe, said first portion having an outside diameter larger than said inside diameter of said pivot pipe, thereby increasing an inside diameter of said first end of said pivot pipe to a first expanded diameter to form a first expanded diameter portion;

retaining said first end of said pivot pipe in said die while pressing a second punch into said first end of said pipe in a direction along said longitudinal axis of said pipe, said second punch having an outside diameter larger than said first portion of said first punch, thereby increasing the inside diameter of a portion of said first end of said pivot pipe to a second expanded diameter to form a second expanded diameter portion while maintaining said outside diameter of the first portion fixed to thereby form a flange in said first end of said pivot pipe between said first expanded diameter portion and said second expanded diameter portion such that said flange extends inwardly from each sidewall surface which forms said first expanded diameter portion and said second expanded diameter portion.

5,724,851

METHOD AND APPARATUS FOR FORMING A LEAF SPRING EYE

Michael Rivard, Coatsworth, Canada, assignor to Eaton Corporation, Cleveland, Ohio

Filed Apr. 30, 1996, Ser. No. 641,455

Int. Cl.[6] B21D *19/12*

U.S. Cl. 72—379.2 **4 Claims**



1. A method of forming an eye at an end of an elongate leaf spring blank having a longitudinal axis, said method including the steps of:

heating the blank to a predetermined temperature;

holding the heated blank in a working position with a cantilevered portion extending for a predetermined length from a rotary eye pin having a central rotational axis disposed in transverse relationship to the longitudinal axis of the blank;

engaging and rolling the cantilevered portion about the rotary eye pin for a predetermined circumferential length with a forming plate and thereby rotating the eye pin in response thereto while urging the eye pin in a direction towards the forming plate; and

removing the eye pin from the eye.

5,724,852

PORTABLE SMALL REBAR BENDING MACHINE

Jimmy Dale Lee, 7787 La Mesa, Buena Park, Calif. 90620

Filed Aug. 2, 1996, Ser. No. 691,397

Int. Cl.[6] B21D *7/08*

U.S. Cl. 72—389.6 **17 Claims**

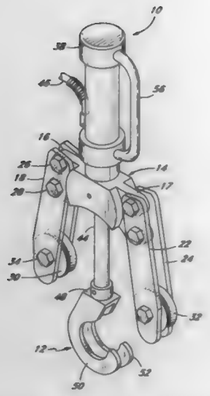
1. First and second rebars and a portable rebar bending machine for bending the first rebar around the second rebar, said rebar bending machine comprising:

a frame;

first and second anvils mounted on said frame, said first and second anvils being spaced from each other to define a rebar line therebetween, the first rebar received against and extending between said first and second anvils substantially along said rebar line; and

a cylinder mounted on said frame, said cylinder having a piston rod extending therefrom, and rebar engagement means mounted on said piston rod and spaced from said rebar line to engage the second rebar so that the first rebar is disposed between said anvils and the second rebar, said piston rod

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moving by means of adding fluid pressure to said cylinder so that said rebar engagement means moves the second rebar towards the first rebar and across said rebar line to cause the first rebar to be bent around the second rebar.

5,724,853

MEANS FOR A DISCONNECTABLE BRACING OF A PULLING DEVICE

Uno Johansson, Linköping, Sweden, assignor to Uno Liner System AB, Svedengatan 2, S-582 73 Linkoping, Sweden

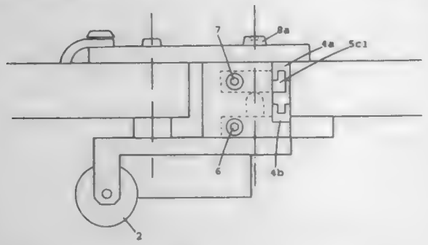
PCT No. PCT/SE95/00826, § 371 Date Dec. 23, 1996, § 102(e) Date Dec. 23, 1996, PCT Pub. No. WO96/01158, PCT Pub. Date Jan. 18, 1996

PCT Filed Jul. 5, 1995, Ser. No. 765,610

Claims priority, application Sweden, Jul. 6, 1994, 9402385

Int. Cl.[6] B21D *1/12*

U.S. Cl. 72—457 **2 Claims**



1. A device for the detachable securing of a supporting arrangement (1) to a substantially rectangular repair platform (3) constructed of beams, on which a damaged vehicle is intended to be secured during the work of repairs, whereby said beams, on their respective outwardly facing sides are constructed with channel-shaped profiled members (4*a*, 4*b*) placed in an area of the upper and lower horizontal edges of said sides, having mutually facing openings, said profiled members being conventionally used for the fixing of equipment for repair work, characterized in that, at the respective beam, the lower profiled member (4*b*) projects below the outwardly facing lower edge line of the beam side; in that the supporting arrangement (1) is constructed with a member, on the one hand, for engagement with at least the upper side of the channel-shaped profiled member and with the front sides of the channel-shaped members, and, on the other hand, for engagement into the upper channel-shaped member and behind the downwardly-projecting part of the lower channel-shaped profiled member below the forward lower edge line.

5,724,854

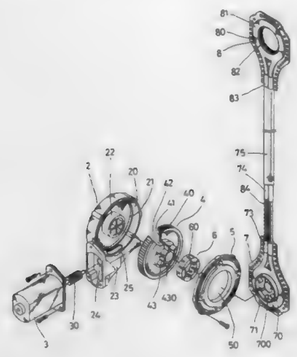
TRANSMITTING DEVICE FOR AN AUTOMOBILE ELECTRIC WINDOW

Kun Chu Chen, Taipei, Taiwan, assignor to Ching-Yun Huang, Tainan Hsien, Taiwan

Filed May 14, 1996, Ser. No. 645,829

Int. Cl.[6] F16H *27/02*

U.S. Cl. 74—89.21 **1 Claim**



1. A motion transmitting device in combination with an automobile electric window comprising:

a) a housing having a cylindrical configuration with an integral end wall closing one end of the cylindrical configuration and an opposite open end to form an interior cavity, an annular wall formed integrally with the end wall and extending into the interior cavity, and a projecting shaft formed integrally with the end wall and projecting into the interior cavity;

b) a motor base on the housing, the motor base communicating with the interior chamber through a slot in the housing;

c) a motor mounted on the motor base and having a worm fixed to a motor output shaft;

d) a worm gear rotatably mounted in the interior chamber and engaging the worm through the slot, the worm gear having a first side with a first recess accommodating the annular wall and a second recess, deeper than the first recess, accommodating the projecting shaft therein, the worm gear having a second side with a first leaf shaft extending centrally therefrom, the first leaf having a plurality of first leaves extending substantially radially therefrom;

e) a cap removably attached to the housing so as to extend over the open end of the cylindrical configuration, the cap having a central opening;

f) an elastic shaft connector attached to the first leaf shaft so as to rotate therewith and extending through central opening of the cap;

g) a lower chain protector attached to the cap and having a second leaf shaft with a plurality of second leaves extending substantially radially therefrom, the second leaf shaft connected with the elastic shaft connector, the lower chain protector having a lower chain groove around the second leaf shaft;

h) an upper chain protector forming an upper chain groove extending around an upper gear rotatably located in the upper chain protector;

i) a pair of flexible tubes located side by side and extending between the lower and upper chain protectors;

j) an endless chain extending in the lower chain groove, around the second leaf shaft, through a first of the pair of tubes, in the upper chain groove, around the upper gear and through a second of the pair of tubes; and,

k) a protective cover wrapping a length of the pair of flexible tubes between the upper and lower chain protectors.

5,724,855

TRANSMISSION GEAR FOR LINEAR WIPER SYSTEMS

Gunter Mayer, Tamm, and Wolfgang Scholl, Gemmrigheim, both of Germany, assignors to ITT Automotive Europe GmbH, Frankfurt, Germany

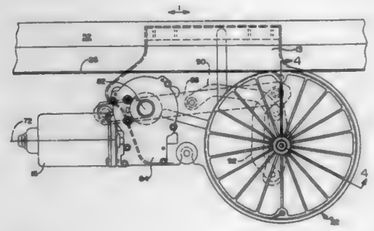
PCT No. PCT/EP93/02544, § 371 Date Jul. 12, 1995, § 102(e) Date Jul. 12, 1995, PCT Pub. No. WO94/08826, PCT Pub. Date Apr. 28, 1994

PCT Filed Sep. 20, 1993, Ser. No. 416,697

Claims priority, application Germany, Oct. 10, 1992, 42 34 201.5

Int. Cl.[6] F16H *27/02*; B60S *1/26*

U.S. Cl. 74—89.22 **12 Claims**



1. A windscreen cleaning means, comprising:

a wiper arm supported by a carriage, said carriage being in turn supported by a tensile member performing reciprocating movements,

a driving means,

a gear cooperating with said driving means and being connected to a shaft in a non-rotating manner, said gear transforming rotary movements of said driving means into oscillating movements of said shaft, and

a transmission gear actuating the carriage and connected to the shaft, with the shaft being an actuating part of the transmission gear, said transmission gear transforming the oscillating movements of said shaft into the reciprocating movements of said tensile member, said transmission gear comprising

a hollow cylindrical pot-shaped part rotatably arranged on the shaft and assuming a function of a housing for said transmission gear, and

a hub with an external toothed gear extending in a coaxial relationship with an axis of the shaft, and axially extending into a cavity of the housing, the external toothed gear being in engagement with at least one intermediate toothed gear having two rows of teeth which, in turn, is driven by a shaft toothed gear connected in a non-rotating manner to the shaft, wherein

the at least one intermediate toothed gear is provided within the cavity of the housing.

5,724,856

SHIFTER FOR MANUAL TRANSMISSIONS

Ottmar Back, Waiblingen, Germany, assignor to Daimler-Benz AG, Stuttgart, Germany

Filed Aug. 21, 1996, Ser. No. 700,855

Claims priority, application Germany, Aug. 21, 1995, 195 30 616.3

Int. Cl.[6] F16H *63/16*

U.S. Cl. 74—335 **8 Claims**

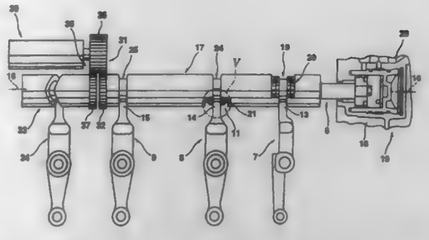
1. A shifting device for manual gear transmission having a main transmission and an additional transmission located in-line in a power flow, comprising:

a shifter shaft of said main transmission;

a positioning motor coaxially mounted with said shifter shaft;

shifter forks of the main transmission;

a stepping motor arranged in parallel with said shifter shaft, said shifter shaft being coupled with both the positioning motor and the stepping motor;



coupling members mounted in an offset manner on the shifter shaft, each of said coupling members corresponding with one of said shifter forks, said stepping motor actuating the coupling members into corresponding rotational angle positions via a first auxiliary transmission;

a shifter roller arranged coaxially with the shifter shaft, said shifter roller being coupled with the stepping motor for actuating an additional shifter fork of the additional transmission via a second auxiliary transmission;

two free-running clutches having blocking directions opposite relative to one another, one of said two free-running clutches linking the shifter shaft with a coaxial gear of the first auxiliary transmission and another of said two free-running clutches connecting the shifter roller of the additional transmission with another coaxial gear of the second auxiliary transmission.

5,724,857

STEERING GEAR APPARATUS OF RACK-AND-PINION TYPE

Yoshisada Wada, Okazaki, Japan; Takahiro Iwase, Anjo, Japan; Kunio Hayashi, Aichi-gun, Japan; Kazuhiko Tsuda, Nagoya, Japan; Shigemi Shioya, Okazaki, Japan, and Yasushi Hayashida, Nishikamo-gun, Japan, assignors to Toyota Jidosha Kabushiki Kaisha, Toyota, Japan

Continuation of Ser. No. 441,939, May 16, 1995, Pat. No. 5,596,904. This application Sep. 10, 1996, Ser. No. 711,595

Claims priority, application Japan, May 17, 1994, 6-102982

Int. Cl.[6] B62D *3/12*

U.S. Cl. 74—422 **4 Claims**



1. A steering gear apparatus of the rack-and-pinion type including a pinion formed with a toothed portion, a rack member formed with a toothed portion which is brought into meshing contact with the toothed portion of said pinion in such a manner that a steering effort is applied to the meshed portion of said toothed portions of said pinion and said rack member at a predetermined angle relative to an axis line of said rack member, and resilient means for resiliently biasing said rack member toward said pinion,

wherein one of the toothed portions of said pinion and said rack member is formed larger in width than the other toothed portion, and wherein the other toothed portion smaller in width includes a plurality of first teeth with each first tooth extending widthwise from and between opposite ends of said pinion or said rack member while the toothed portion larger in width is formed with second teeth to be brought into contact with the first teeth of the other toothed portion, and wherein recessed spaces between said teeth of the toothed portion

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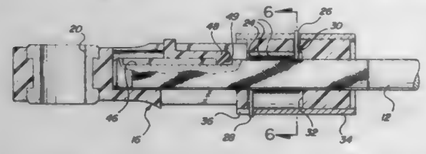
larger in width have end faces in the tooth width direction that are brought into contact with corresponding end faces in the tooth width direction between said teeth of the other toothed portion smaller in width.

5,724,858

INFINITE ADJUSTMENT FOR MOTION TRANSMITTING REMOTE CONTROL ASSEMBLY

Scott Polando, Oxford, Mich., assignor to Teleflex Incorporated, Plymouth Meeting, Pa.

Filed May 30, 1996, Ser. No. 657,634
Int. Cl.[6] G05G *5/06*; F16C *1/22*
U.S. Cl. 74—502.6 **14 Claims**



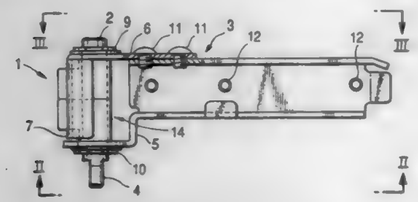
1. A motion transmitting remote control assembly (**10**) comprising:
a conduit (**14**);
a flexible motion transmitting core element movably supported by said conduit (**14**);
an adjustment mechanism for adjusting the length of one of said conduit (**14**) and said core element (**12**);
said adjustment mechanism including a female member (**16**) and male member (**12**) slidably supported in said female member (**16**), a coil spring (**24**) coiled about said male member (**12**) for gripping engagement with said male member (**12**) to prevent relative movement between said male member (**12**) and said female member (**16**);
said spring (**24**) having a first end (**26**) secured to said female member (**16**) to prevent circumferential movement of said first end (**26**) of said spring (**24**) relative to said female member (**16**), said spring (**24**) having a second end (**28**) circumferentially moveable relative to said female member (**16**) between a gripping position preventing axial movement of said male member (**12**) relative to said spring (**24**) and an uncoiled release position allowing axial movement of said male member (**12**) relative to said spring (**24**); and
a detent for selectively retaining said second end (**28**) of said spring (**24**) in said release position.

5,724,859

SHAFT LOCK MECHANISM

Tsuneo Yamada, Kashiwazaki, Japan, assignor to Kato Springs Work Co., Ltd., Tokyo, Japan

Continuation-in-part of Ser. No. 969,989, Nov. 2, 1992, abandoned. This application Dec. 14, 1995, Ser. No. 572,680
Claims priority, application Japan, Nov. 5, 1991, 3-090492 U
Int. Cl.[6] G05G *5/06*
U.S. Cl. 74—531 **7 Claims**



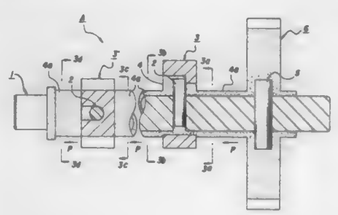
1. A shaft lock mechanism (**1**) comprising:
a shaft (**2**);
a support member (**14**) rotatably enclosing said shaft (**2**) and support member **14** comprising a cylindrical part (**16**) elastically gripping said shaft (**2**), a base part (**15**) extending from said cylindrical part (**16**) in a radially outward direction, and a clearance (**17**) extending along the length of said shaft (**2**) within cylindrical part (**16**);
a bracket (**3**) comprising first support plate (**5**) and second support plate (**6**) rotatably supporting said shaft (**2**); and
a connecting member (**7**), one end of said connecting member (**7**) being attached to the inside surface of said first support plate (**5**) and the other end of said connecting member (**7**) extending to said second support plate (**6**), said connecting member (**7**) being provided with a slit (**13**), said base part (**15**) of said support member (**14**) being inserted into said slit (**13**) to fix said base part (**15**) with respect to said shaft (**2**).

5,724,860

CAM FIXING CONSTRUCTION FOR CAM SHAFT

Hideo Sekiguchi, Mikata; Akihiko Matsuoka, Iwata; Seiji Sato, Mie-ken; Shosaku Chiba, Niiza, and Hiroshi Kasai, Tokyo-to, all of Japan, assignors to NTN Corporation, Osaka, and Honda Giken Kabushiki Kaisha, Tokyo, both of Japan

Filed Apr. 30, 1996, Ser. No. 640,315
Claims priority, application Japan, May 10, 1995, 7-112047
Int. Cl.[6] F01L *1/04*
U.S. Cl. 74—567 **4 Claims**



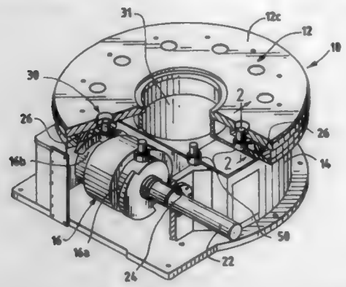
1. A cam fixing construction for a cam shaft comprising:
a shaft;
a locking member disposed at a predetermined position on said shaft;
a cam piece having a recess axially extending from one end surface to another end surface thereof, said cam piece having a passage axially extending from said one end surface to said other end surface, said recess having a bottom wall and opposite side walls, said recess and said passage communicating with each other, said cam piece being fitted on an outer peripheral surface of said shaft such that said locking member is firmly disposed in said recess;
a resin molding of a resin material formed into a space defined between said recess of said cam piece and said outer peripheral surface of said shaft and said locking member, said resin material filled into said space through said passage; and
wherein
said cam piece is fixed in position in the axial direction by engagements between said locking member and said bottom wall and between said locking member and said resin molding, and is fixed in the rotative direction by engagements between said locking member and said opposite side walls.

5,724,861

CAM FOLLOWER MOUNTING ASSEMBLY AND METHOD

Josef Mang, Lake Villa, Ill., assignor to Emerson Electric Company, St. Louis, Mo.

Filed Mar. 27, 1996, Ser. No. 618,564
Int. Cl.[6] F16H *53/06*
U.S. Cl. 74—569 **4 Claims**



1. A cam follower mounting assembly in combination with a mounting member having first and second cam follower mounting surfaces and a bore between said mounting surfaces, comprising:
a cam follower having a mounting shaft received in said bore and defining a longitudinal shaft axis, said mounting shaft having a cam follower member rotatably disposed on a first shaft end proximate said first cam follower mounting surface and a second shaft end proximate said second cam follower mounting surface, said second end having a threaded internal bore extending from an axial shaft end surface coaxial with said longitudinal axis,
a screw having a threaded shaft threadably received in said threaded internal bore,
a washer disposed between said screw and said second cam follower mounting surface, and
said threaded shaft of said screw being threaded into said threaded internal bore of said mounting shaft substantially coaxially with said longitudinal axis to secure said cam follower on said mounting member with reduced bending forces on said mounting shaft to improve alignment of said mounting shaft with respect to said mounting member.

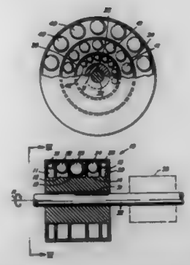
5,724,862

DYNAMIC BALANCING METHOD AND APPARATUS

R. Craig Hannah, Calgary, Canada; Paul Wierzba, Calgary, Canada; John P. M. Doyle, Calgary, Canada, and Randy W. Perusse, Calgary, Canada, assignors to ETI Technologies Inc., Guernsey, Channel Islands

Division of Ser. No. 419,641, Apr. 10, 1995, which is a continuation-in-part of Ser. No. 246,864, May 20, 1994, which is a continuation-in-part of Ser. No. 66,307, May 21, 1993, Pat. No. 5,460,017, which is a continuation-in-part of Ser. No. 887,340, May 21, 1992, abandoned, which is a continuation of Ser. No. 175,320, Dec. 29, 1993. This application Jun. 7, 1995, Ser. No. 478,220
Int. Cl.[6] F16F *15/22*
U.S. Cl. 74—573 R **4 Claims**

1. A method of removing imbalance through use of an apparatus that includes a first annular continuous race in which is positioned at least one weight so that the weight is completely enclosed within the first annular race and a second annular race spaced from the first annular race and containing at least one second weight, comprising:
initiating rotation of the apparatus about a rotational axis;
fixing the at least one first weight in position within the first annular race during initiation of rotation of the apparatus by urging a movable collar into contacting engagement with the at least one first weight;



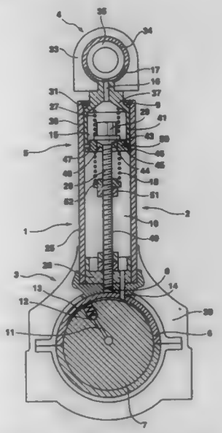
allowing the at least one second weight in the second annular race to freely move within the second annular race while the at least one weight in the first annular race is fixed in position;
continuing rotation of the apparatus about the rotational axis to increase rotational speed of the apparatus;
moving the collar out of contacting engagement with the at least one first weight when the apparatus reaches a predetermined rotational speed so that the at least one first weight freely moves within the first annular race and removes imbalance.

5,724,863

CONNECTING ROD

Michael Krämer, Notzingen, Germany, and Karlwalter Schmidt, Lindau, Germany, assignors to Daimler Benz AG, Stuttgart, Germany

Filed Aug. 15, 1996, Ser. No. 698,093
Claims priority, application Germany, Aug. 17, 1995, 195 30 191.9
Int. Cl.[6] G05G *1/00*
U.S. Cl. 74—583 **14 Claims**



1. A connecting rod for transmitting energy between a piston structure and a crankshaft of a piston machine, said connecting rod comprising two connecting rod parts which are movable relative to one another in longitudinal direction but are operatively interconnected by an energy storage device, one of said connecting rod pangs being connected to said piston structure by a piston bearing structure supported by said piston structure and the other of said connecting rod parts being a tubular body and having at its end a crank bearing support structure with a crank bearing for rotatably mounting said other connecting rod part on a crankshaft, said energy storage device being a fluid spring utilizing a fluid disposed in said connecting rod as a spring, said fluid spring includeing a delay structure effective in the operating direction of said fluid spring and comprising a disc, slidably disposed in said tubular

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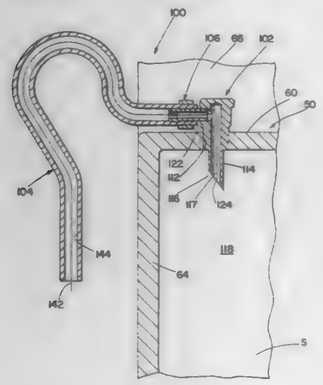
body and defining a leakage flow passage providing for communication between said hollow space and said pump space and being calibrated so as to permit a predetermined leakage flow for limiting fluid flow from one side of said tubular body to the other.

5,724,864

DRIVE AXLE BREATHER

Mark E. Rodgers, Augusta; Leo J. Wenstrup, Portage; Dale J. Kubicek, Gobles; Lawrence P. Wagle, Fulton; Anthony Militello, Portage; Timothy J. Morscheck, Kalamazoo, and Robert E. Crepas, Mattawan, all of Mich., assignors to Eaton Corporation, Cleveland, Ohio

Filed Jul. 18, 1996, Ser. No. 683,350
Int. Cl.[6] F16H *57/02*
U.S. Cl. 74—606 R 39 Claims



1. A breather assembly for a vehicular drive axle mechanism of the type having an axle housing defining an upper wall and a side wall, one of said walls having a breather aperture therethrough, said housing defining an interior cavity containing rotatable gearing and a lubricant sump, said breather assembly comprising:

a fitting member having a body portion for sealing receipt in said aperture with a first end within said cavity and a second end exterior of said cavity, a substantially vertically extending drainback tube portion extending downwardly from said first end of said body portion into said cavity and defining an interior breather opening at the lower end thereof and a connecting tube portion extending substantially horizontally from said second end of said body portion and defining an interior passage communicating with and substantially perpendicular to an interior passage defined by said drainback tube portion and extending to said interior breather opening; and

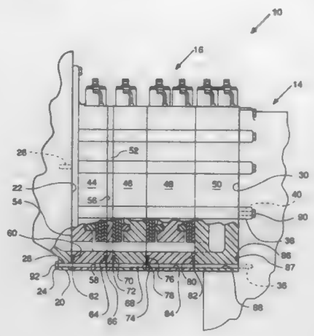
a hollow formed hose member having a first end for fluid connection with said connecting tube portion, a substantially horizontally extending first hose portion extending outwardly from said first end, a substantially upwardly and outwardly curved second hose portion extending from said first hose portion, and a generally downwardly curved third hose portion extending from said second hose portion, and a second end defining an exterior breather opening.

5,724,865

CASELESS TRANSMISSION STRUCTURE

F. Michael Boone, Canton, Ill., assignor to Caterpillar Inc., Peoria, Ill.

Continuation of Ser. No. 572,450, Dec. 14, 1995, abandoned. This application Jan. 17, 1997, Ser. No. 877,425
Int. Cl.[6] F16D *13/58*; F16H *57/02*
U.S. Cl. 74—606 R 5 Claims



1. A transmission arrangement having a flywheel housing section and a drop box housing section, comprising:

a central section having a plurality of clutch housings positioned adjacent each other between the flywheel housing and the drop box housing, each of the clutch housings having a surface which includes a groove;

a seal positioned in the groove for sealing between adjacent clutch housing; and

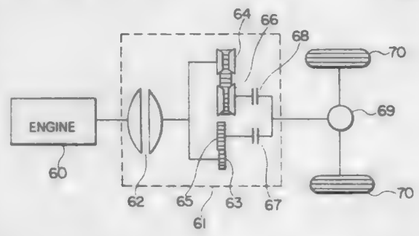
a mounting bolt extending through the plurality of clutch housings from the flywheel housing to the drop box housing for clamping and positioning the plurality of clutch housing therebetween.

5,724,866

METHOD AND AN APPARATUS FOR CONTROLLING A CAR EQUIPPED WITH AN AUTOMATIC TRANSMISSION HAVING A LOCKUP CLUTCH

Toshimichi Minowa, Ibaraki-ken; Yutaka Nishimura; Ken'ichi Kawashima, both of Katsuta; Hiroshi Kurolwa, Hitachi, and Masahiko Ibamoto, Katsuta, all of Japan, assignors to Hitachi, Ltd., Japan

Continuation of Ser. No. 521,411, Aug. 30, 1995, Pat. No. 5,580,334, which is a division of Ser. No. 25,211, Mar. 2, 1993, Pat. No. 5,468,196. This application Aug. 21, 1996, Ser. No. 700,854
Claims priority, application Japan, Mar. 2, 1992, 4-044376
Int. Cl.[6] F16H *37/02*
U.S. Cl. 74—664 2 Claims



1. An apparatus for controlling a car equipped with an automatic transmission having a lockup clutch, comprising:

a transmission gear mechanism having a predetermined transmission ratio; and

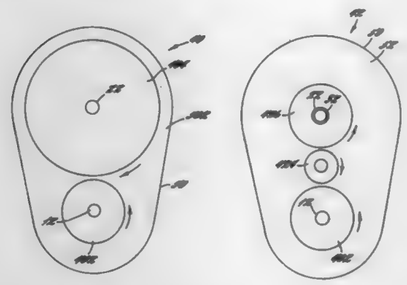
a continuously variable transmission for continuously varying a transmission ratio from a lowest transmission ratio equal to the predetermined transmission ratio of the transmission gear mechanism to a highest transmission ratio.

5,724,867

AIRBOAT TRANSMISSION

W. Bishop Jordan, 245 Quayside Cir., Maitland, Fla. 32751

Filed Sep. 28, 1995, Ser. No. 535,767
Int. Cl.[6] F16H *1/22*
U.S. Cl. 74—665 K 11 Claims



1. An airboat transmission for driving a pair of coaxial, counter-rotating propellers, the transmission comprising:

a case having an interior space;

a drive shaft extending into the interior space of the case and rotatable in a first direction;

a first hollow driven shaft extending into the interior space of the case affixable for rotation to an outer propeller of an airboat;

a second hollow driven shaft extending into the interior space of the case and positioned in surrounding, generally coaxial arrangement to the first hollow driven shaft, the second driven shaft shorter than the first driven shaft, the second driven shaft affixable for rotation to an inner propeller of the airboat;

a first gear train housed in the interior space of the case comprising:

a drive gear coaxially affixed to the drive shaft; and

a first driven gear coaxially affixed to the first hollow shaft, the first driven gear rotatable by the drive gear, wherein when the drive shaft rotates in the first direction, the drive gear is rotated in the first direction, the first driven gear is rotated in a second direction opposite in sense to the first direction, and the first hollow shaft is driven in the second direction; and

a second gear train housed in the interior space of the case comprising:

the drive gear;

a second driven gear rotatably affixed to the case and axially spaced from the first driven gear, the second driven gear rotatable by the drive gear; and

a third driven gear axially spaced from the first driven gear and coaxially affixed to the second hollow shaft, the third driven gear rotatable by the second driven gear, wherein when the drive shaft rotates in the first direction, the drive gear thereby rotated in the first direction, the second driven gear is rotated in the second direction, the third driven gear is rotated in the first direction, and the second hollow shaft is rotated in the first direction;

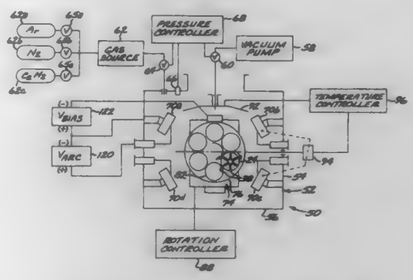
wherein the first and the second gear trains permit an optimization of efficiency, and a use of counter-rotating propellers confers improved strength and stability characteristics to the airboat.

5,724,868

METHOD OF MAKING KNIFE WITH CUTTING PERFORMANCE

Harold L. Knudsen, Escondido; Nathan K. Meckel, La Mesa, both of Calif.; Herbert M. Gabriel, Bensheim, Austria, and Harold O. Knudsen, Sherwood, Oreg., assignors to Buck Knives, Inc., and Molecular Metallurgy, Inc., both of El Cajon, Calif.

Filed Jan. 11, 1996, Ser. No. 585,177
Int. Cl.[6] C23C *14/22*
U.S. Cl. 76—104.1 15 Claims



1. A method for preparing a knife, comprising the steps of:

providing a knife blade blank having a blade edge region with two sides;

providing a deposition apparatus comprising

at least two linear deposition sources, each of the deposition sources lying parallel to an axis and each of the deposition sources being a source of a cationic species,

an anion source of an anionic species reactive with the cationic species to produce a coating material,

a substrate support adapted for rotational movement about the axis, and

a substrate heater;

mounting the knife blade blank in the substrate support such that the blade edge region lies generally parallel to the axis and such that the blade edge region faces each respective deposition source at about its position of closest approach to the respective deposition source;

heating the knife blade blank to a substrate deposition temperature;

rotating the substrate support about the axis; and

operating the deposition sources to deposit the respective coating material onto the knife blade blank, the steps of heating, rotating, and operating to occur simultaneously.

5,724,869

AUTOMATIC CORK REMOVER

Robert A. May, 521 E. 7th Ave., Salt Lake City, Utah 84103

Filed Jun. 7, 1996, Ser. No. 659,951
Int. Cl.[6] B67B *7/04*
U.S. Cl. 81—3.2 21 Claims

1. An apparatus for removing a cork from a bottle, said apparatus comprising:

a housing having an outer sleeve, said outer sleeve defining a channel having an open end;

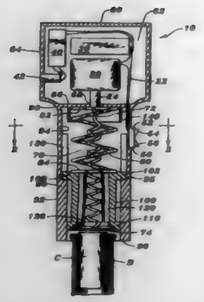
a motor disposed in said housing;

a power supply electrically associated with said motor;

a corkscrew mechanically associated with said motor for rotation through operation of said motor;

a shuttle positioned within said outer sleeve channel for displacement along a length of said channel, said shuttle defining a recess therein for removably receiving said cork, said corkscrew extending into said recess, said shuttle having a longitudinal axis;

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spring means associated with said shuttle for biasing said shuttle toward said open end of said channel; and

a guide means for precluding a rotation with respect to said outer sleeve of said shuttle about its longitudinal axis when the shuttle is positioned in a first length of said channel while permitting a rotation of said shuttle about its longitudinal axis when said shuttle is positioned in a second length of said channel.

5,724,870

STRIPPING PLIERS

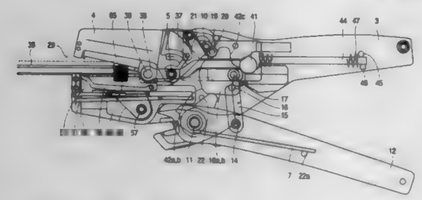
Ulrich Wiebe, Dorentrup; Hartmut Schmode, Blomberg; Armin Herzog, Detmold; Joachim Kornfeld, Viotho; Detlev Hetland, Detmold; Bernd David, Detmold; Gunther Hanning, Detmold; Thorsten Bornefeld, Schlangen, and Gernot Siegmund, Detmold, all of Germany, assignors to Weidmüller Interface GmbH & Co., Detmold, Germany

Filed Mar. 29, 1996, Ser. No. 624,986

Claims priority, application Germany, Mar. 31, 1995, 195 12 132.5

Int. Cl.[6] H02G *1/12*

U.S. Cl. 81—9.43 **20 Claims**



1. Stripping pliers comprising:

a pliers housing;

two clamping jaws pivotable relative to each other, the clamping jaws being connected to the pliers housing, a mouth of the pliers being formed between the two clamping jaws;

at least one stripping member being positioned in the mouth, the at least one stripping member being displaceable in a longitudinal direction of the mouth; two handles pivotable relative to each other, the handles being connected to the pliers housing, a first one of the handles and a first one of the clamping laws being rigidly connected to the pliers housing, the first clamping jaw being on a side of the housing opposite to a side having the first handle, a second one of the handles and a second one of the clamping laws being pivotably mounted on the pliers housing;

a drive device in the pliers housing, the drive device being operatively connected to the at least one stripping member and including at least one cam disc, the drive device being driven by pivoting of the handles, driving of the drive device pivots the clamping jaws relative to each other and longitudinally displaces the stripping member, the at least one cam disc controlling pivoting of the clamping jaws and longitudinal displacement of the stripping member during driving of the drive device; and

a control element mounted on the second clamping jaw, the second clamping jaw having a section projecting beyond a pivot axis of the clamping jaw towards a rear end of the pliers, the control element being articulated on the section of the second clamping jaw, the control element cooperating with a guide surface of the at least one disc during driving of the drive device.

5,724,871

STRIPPING TOOLS

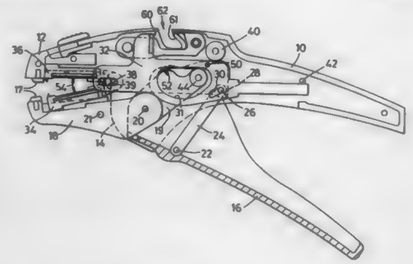
Jonathan Richard Wall, Oxley, Great Britain, assignor to Ross Courtney Limited, West Midlands, United Kingdom

Continuation of Ser. No. 524,353, Sep. 6, 1995, abandoned. This application Mar. 3, 1997, Ser. No. 810,241

Claims priority, application United Kingdom, Oct. 12, 1994, 9420577

Int. Cl.[6] H02G *1/12*

U.S. Cl. 81—9.43 **6 Claims**



1. A wire stripper for stripping a portion of insulating sheath from a cable comprising: a body having a first outer jaw; a second outer jaw pivoted on said body; a pair of inner jaws supported between said outer jaws; a lever pivoted on said body; an actuator coupled to said inner jaws and supported by said body for selective linear movement and against lateral movement relative to said body for displacing said inner jaws axially of the cable relative to said outer jaws; a cam pivoted on said actuator for linear movement therewith and engaging said second outer jaw; and link means pivoted at one end to said lever and at an opposite end to said cam for enabling said cam to pivot initially relative to said actuator and effect the closing of said outer jaws about the sheath of such cable and the closing of the inner jaws to cut a portion of the sheath and thereafter effect linear displacement of said actuator and said inner jaws to strip the cut portion of the sheath from the cable.

5,724,872

SOCKET SPANNER HAVING A NUT RETAINING DEVICE

Leo Shih, No. 5, Lane 54, San Min Rd, Sec 3, Taichung, Taiwan

Filed Jun. 28, 1996, Ser. No. 672,859

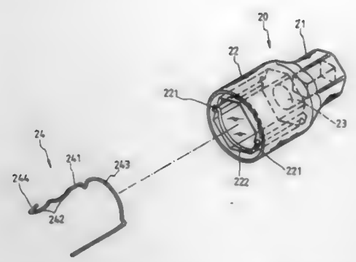
Int. Cl.[6] B25B *13/02*

U.S. Cl. 81—125 **9 Claims**

1. A socket spanner comprising a socket and a U-shaped elastic body, said socket having a fitting end, a drive end and an intermediate section located between said fitting end and said drive end and provided therein with a center hole in communication with a fitting hole of said fitting end, said pivoting end being configured to receive a handle, and said fitting hole being configured to receive a nut;

wherein said fitting hole of said fitting end contains a pair of grooves respectively provided on two opposite inner walls of said fitting hole for engaging said U-shaped elastic body, said fitting hole further contains a circular slot located in an outer end of an inner wall of said fitting hole also for engaging said U-shaped elastic body;

further wherein said U-shaped elastic body comprises an arcuate head portion and two arms extending therefrom, said arcuate head portion lying in a plane, said two arms are received by said pair of grooves, respectively, of said fitting hole and at lease one of said two arms is provided with two protruded portions capable of retaining a nut held in said fitting hole, and said at least one of said two arms is provided at a free end thereof with a curved portion lying in a plane parallel with said plane of said arcuate head portion and lying wholly within said circular slot.



5,724,873

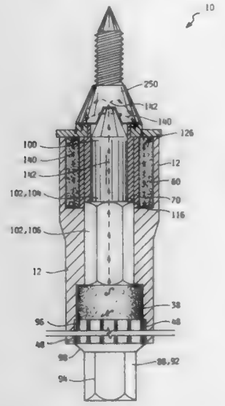
COMPOSITE MAGNETIC-FIELD SCREWDRIVER

George Hillinger, 129 N. LeDoux Rd., Beverly Hills, Calif. 90211

Filed Jul. 12, 1996, Ser. No. 679,236

Int. Cl.[6] B25B *23/12*

U.S. Cl. 81—451 **17 Claims**



1. A composite magnetic-field screwdriver comprising:

a) a non magnetic-conductive housing having:

(1) an upper sleeve, a polygon sleeve, a lower magnet sleeve and a drill chuck connector sleeve,

(2) a ring magnet having an outer surface and an inner surface, wherein said ring magnet is inserted into the upper sleeve with the outer surface of said ring magnet interfacing with the upper sleeve,

(3) an upper non magnetic-conductive sleeve inserted into said upper ring magnet wherein the area inward from said non magnetic-conductive sleeve forms a drill bit cavity,

(4) a circular magnet frictionally inserted into the lower magnet sleeve,

(5) a non magnetic-conductive drill chuck connector frictionally inserted into the drill chuck connector sleeve, and

b) a magnetic-conductive tool bit comprising:

(1) a magnetic-conductive bit body having an upper section integral with a lower section that further having a lower surface, wherein the upper and lower sections are dimensioned to slidably fit into the tool bit cavity and the polygon sleeve respectively, with the lower surface interfacing with said circular magnet,

(2) a non magnetic-conductive sleeve having an upper edge and an inside diameter dimensioned to surround the upper section of said tool bit, and

(3) a magnetic-conductive tool-bit gripping disc having a center bore dimensioned to fit over and be attached to the upper edge of said non magnetic-conductive sleeve.

5,724,874

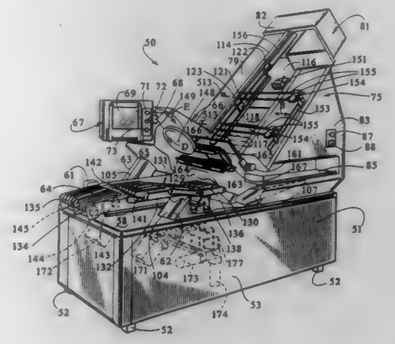
METHOD OF MANUFACTURING FOOD LOAF SLICE GROUPS

Scott A. Lindee, New Lenox, Ill.; Wilbur A. Janssen, New Lenox, Ill., and Thomas C. Wolcott, Oak Lawn, Ill., assignors to Formax, Inc., Mokena, Ill.

Continuation of Ser. No. 320,750, Oct. 11, 1994, abandoned. This application Jul. 25, 1996, Ser. No. 690,327

Int. Cl.[6] B26D *7/30*

U.S. Cl. 83—27 **5 Claims**



2. A method of manufacturing two series of groups of food loaf slices comprising the following steps:

A1. driving a first food loaf at a first constant loaf feed speed in a first loaf feed direction toward engagement with a continuously cyclically driven knife blade for X knife blade cycles so that the knife blade cuts a slice from the first food loaf in each knife blade cycle;

A2. driving a second food loaf at a second constant loaf feed speed in a second loaf feed direction, parallel to the first loaf feed direction, toward engagement with the knife blade for X knife blade cycles so that the knife blade cuts a slice from the second food loaf in each knife blade cycle;

B. collecting successive food loaf slices cut in steps A1 and A2 on a receiver to form two groups of X food loaf slices, one from each loaf, on the receiver;

C. driving both food loaves away from the knife blade at a given speed for a given time interval Y;

D. again driving both the food loaves toward the knife blade at their respective given speeds for a second time interval Y to counteract step C;

E. discharging the two groups of food loaf slices from the receiver onto a plural-belt scale conveyor driven in a forward direction away from the knife blade;

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F. after step E, weighing the two groups of food loaf slices by means of two weighing grids each positioned below but interleaved with the belts of the scale conveyor to generate two weight signals, one representative of the weight of the food loaf slice group cut from the first food loaf and the other representative of the weight of the food loaf slice group cut from the second food loaf;

F1. effectively lowering the scale conveyor relative to the two weighing grids once during each step F to deposit any group of food loaf slices present on the scale conveyor on a weighing grid;

F2. after sub-step F1, restoring the scale conveyor to its original level above the weighing grids to lift the food loaf slice group from the weighing grid;

F3. weighing each empty weighing grid at a time when the scale conveyor is at its original level above the weighing grids to generate two tare weight signals;

F4. subtracting each tare weight signal of sub-step F3 from the corresponding weight signals of step F to generate two weight control signals relating to the net weight of a stack of food loaf slices;

I. recording two target weights, one for a group of food loaf slices cut from the first food loaf and the other for a group of food loaf slices cut from the second food loaf; and

J. adjusting the first and second loaf feed speeds of steps A1 and A2 in accordance with differences between the target weights of step I and the related weight control signals of step F4;

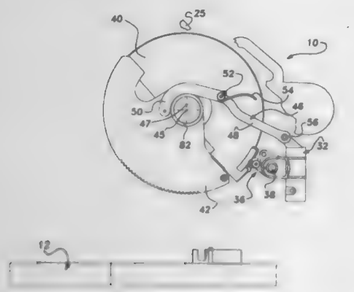
and repeating steps A through F and J in manufacturing two series of food loaf slice groups, each group including X slices.

5,724,875

GUARD AND CONTROL APPARATUSES FOR SLIDING COMPOUND MITER SAW

Daryl S. Meredith, Hampstead; Scott Price, Pylesville, and William R. Stumpf, Kingsville, all of Md., assignors to Black & Decker Inc., Newark, Del.

Filed Oct. 10, 1995, Ser. No. 541,667
Int. Cl.[6] B23D *45/04*
U.S. Cl. 83—397 14 Claims



1. A cutting device for performing cutting operations on a workpiece, said cutting device comprising:

a base assembly for receiving the workpiece;

a support interconnected with said base assembly;

a drive assembly including a motor, an arbor shaft rotatable about an arbor axis, and a cutting tool driven by said motor about said arbor shaft, said drive assembly being pivotally interconnected with said support for selective pivotal movement of said motor and said cutting tool relative to said support assembly between an at-rest position wherein said cutting tool is out of engagement with the workpiece when the workpiece is on said base and an operational position wherein said cutting tool is in a cutting engagement with the workpiece when the workpiece is on said base; and

a guard assembly including a fixed guard partially surrounding a cutting periphery of said cutting tool and a movable guard, said fixed guard being fixedly interconnected with said drive assembly, and said movable guard being pivotally interconnected with said drive assembly for pivotal movement about said arbor shaft between a closed position surrounding a predetermined portion of the cutting periphery of said cutting tool and an open position covering a lesser portion of the cutting periphery of said cutting tool than when in said closed position, said guard assembly further including a linkage assembly for drivingly moving said movable guard between said closed and said open positions as said drive assembly is moved between said at-rest and said operational positions, respectively, said linkage assembly including:

a first link having an inner end pivotally interconnected with said support at a fixed location thereon and an opposite intermediate end;

a second link having an outer end pivotally interconnected with said movable guard and an opposite intermediate end pivotally interconnected with said intermediate end of said first link for pivotal movement relative thereto about an intermediate linkage axis;

an intermediate roller rotatably interconnected with said intermediate ends of said first and second links for rotation about said intermediate linkage axis; and

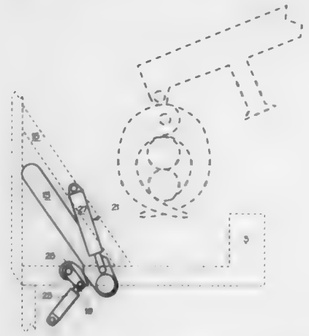
a cam surface fixed relative to said drive assembly and said fixed guard and engageable by said roller for rotation of said roller thereon.

5,724,876

PORTABLE CAM-LINK LOG CUTTING APPARATUS

Calvin S. Johnson, Union Grove, N.C., assignor to CTR Manufacturing, Inc., Union Grove, N.C.

Filed Nov. 9, 1995, Ser. No. 556,173
Int. Cl.[6] B27B *17/08*
U.S. Cl. 83—602 19 Claims



1. A log cutting apparatus, comprising:

three separate support frame members removably attachable to form a support frame defining a log cutting area onto which a log is loaded for supporting therein the log to be cut, said three separate support frame members including a first support frame member defining said log cutting area for supporting therein a first end of the log to be cut, a second support frame member for supporting a second end of the log to be cut, and a linking support frame member removably attachable to both said first support frame member and said second support frame member for interlinking in fixed disposition said first support frame member to said second support frame member,

means for removably attaching said linking support frame member to said first and said second support frame members for disassembly and transport of said support frame,

a log cutting arm mounted to said support frame adjacent said log cutting area, and

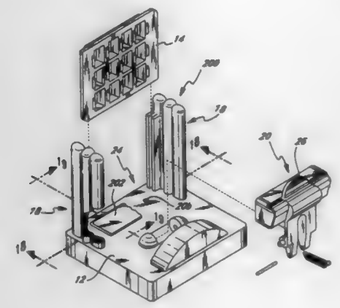
at least one hydraulic cylinder extending between said support frame and said cutting arm for actuating log cutting movement of said cutting arm.

5,724,877

TOOL FOR CUTTING FOOD PRODUCTS

Milo M. Kensrue, Irvine, Calif., assignor to Bagel Trap, Inc., Irvine, Calif.

Continuation-in-part of Ser. No. 33,899, Mar. 19, 1993, Pat. No. 5,361,666. This application Aug. 23, 1994, Ser. No. 294,376
The portion of the term of this patent subsequent to Mar. 19, 2013, has been disclaimed.
Int. Cl.[6] B26D *3/30*
U.S. Cl. 83—870 3 Claims



1. A tool used to hold upright a bagel of a given width and having opposed sides, resting on an edge of the bagel, while a user with one hand grasps the tool and with the other hand manually slices the bagel into segments of selected thicknesses by slicing the bagel from edge to edge with a blade of a knife, including

a base having a top surface which supports the bagel by the edge of the bagel,

an upright support removably mounted to the base and having opposed lateral sides and opposed face walls,

a pair of knife blade guide members attached to the base opposite each other, each guide member positioned near one of the opposed sides of the upright support and spaced apart to provide a cutting zone, and

positioning means interactive with the upright support to regulate the thickness of the sliced segments of the bagel, said positioning means interacting with the upright support by removal of said support and reversing the position of said support by remounting in a reverse orientation so that the positions of the face walls are reversed, with the one face wall that is next to the cutting zone changing its position and the other face wall being moved next to the cutting zone, and

a movable member adjacent the upright support that is moved by the user into engagement with the bagel in the cutting zone and bears firmly against the bagel, pressing the bagel between the movable member and the support while the bagel is being sliced, and

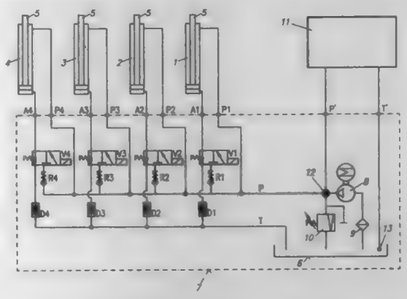
a cutting pad in said cutting zone, said pad comprising a polyester based thermoplastic polyurethane having a Sore A hardness between 75 and 100 that resists being cut by the blade of the knife as the blade cuts through the bagel being supported on said top surface of said support.

5,724,878

HYDRAULIC OPERATING MECHANISM FOR A CONVERTIBLE TOP

Klaus Stolle, Altonstadt, and Ulrich Baudermann, Tübingen, both of Germany, assignors to Hoerbiger GmbH, Schongau, and Bara Electronic GmbH, Ammorbach, both of Germany

Filed Jul. 25, 1996, Ser. No. 687,197
Claims priority, application Austria, Aug. 1, 1995, 1309/95
Int. Cl.[6] F01B *1/00*; B60J *7/00*
U.S. Cl. 91—165 5 Claims



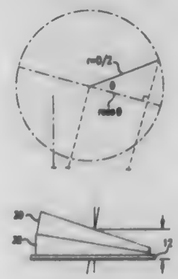
1. A hydraulic operating mechanism for a vehicle convertible top comprising a plurality of hydraulic cylinders (1–4) connected to a common pressure circuit (p) via separate switching elements (V1–V14), a control means (11) connected to the switching elements for controlling operation thereof according to a predetermined sequence, and a feedback unit connected to the control means for the end position control of the hydraulic cylinders, said feedback unit including at least one pressure sensor (12) incorporated into said pressure circuit, an output signal of which in relation to time, together with predetermined switching sequences of said separate switching elements, serves to control end position of said hydraulic cylinders.

5,724,879

METHOD AND APPARATUS FOR CONTROLLED AXIAL PUMP

Rodney D. Hugelman, Champaign, Ill., assignor to White Mose, Inc., West Lafayette, Ind.

Filed Feb. 8, 1996, Ser. No. 598,725
Int. Cl.[6] F01B *3/00*
U.S. Cl. 92—12.2 9 Claims



1. Apparatus for controlling an axial pump having a drive shaft with an axis of rotation and a plurality of pistons parallel to and surrounding an extension of said axis of rotation beyond said drive shaft, comprising:

a. a base member surrounding said shaft and rigidly mounted on and rotatable with said shaft, said base member including a flat surface surrounding said shaft and facing said pistons, and

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b. a first wedge member rotatably mounted on said base member between said base member and said pistons, said first wedge member having first and second opposed nonparallel flat faces, said first of said opposed faces of said first wedge member engaging said flat surface of said base member and said second of said opposed faces of said first wedge member being in driving relationship to said pistons,

c. whereby rotation of said first wedge member relative to said base member adjusts the angle formed by said axis and said second of said opposed faces of said first wedge member to control movement of said pistons.

9. A method of controlling an axial pump having a drive shaft with an axis of rotation and a plurality of pistons parallel to and surrounding an extension of said axis of rotation beyond said drive shaft, comprising:

a. providing a base member surrounding said shaft, rigidly mounted on and rotatable with said shaft and with a flat surface facing said pistons,

b. providing a wedge member rotatably mounted on said base member between said base member and said pistons, and

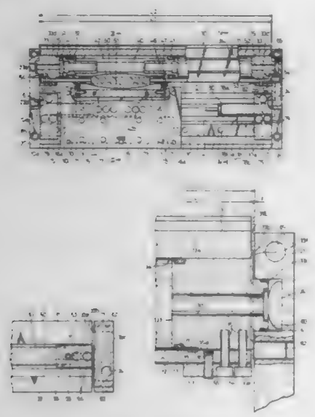
c. rotating said wedge member to change the angle one surface of said wedge member forms with said axis to control movement of said pistons.

5,724,880

RODLESS POWER CYLINDER INCLUDING A SECURING MEMBER FOR THE INNER SEAL BAND WHICH PASSES THROUGH THE SLIT IN THE CYLINDER BARREL

Mitsuo Noda, Ichinomiya, Japan, assignor to Howa Machinery Ltd., Japan

Filed Dec. 23, 1996, Ser. No. 772,625
Claims priority, application Japan, Dec. 27, 1995, 7-353896
Int. Cl.[6] F01B *29/00*
U.S. Cl. 92—88 **9 Claims**



1. A rodless power cylinder comprising:

a cylinder barrel provided with a slit on the wall and extending parallel to the axis of the cylinder barrel;

plug members, individually disposed at both ends of the cylinder barrel and inserted into the bore thereof;

a piston member disposed in the bore of the cylinder barrel and movable therein in the axial direction;

an external carriage disposed outside of the cylinder barrel and coupled to the piston by a coupling member through the slit of the cylinder barrel so that said carriage moves integrally with the piston member along said slit;

an inner seal band having both ends disposed on the wall of the bore of the cylinder barrel along said slit so that the opening of the slit on the wall of the bore of the cylinder barrel is covered by said inner seal band;

an outer seal band having both ends disposed on the outer surface of the cylinder barrel along said slit so that the opening of the slit on the outer surface of the cylinder barrel is covered by said outer seal band;

securing means for securing the ends of the inner seal band to the plug members, said securing means includes fitting members individually, disposed on the outer surface of the cylinder barrel at each end thereof and fixed to the respective plug members by a fixing member through the slit of the cylinder barrel and a securing member fixed to said fitting member and extending through said slit so as to secure the end of the inner seal band on the surface of the plug member.

7. A method for assembling a rodless power cylinder having a cylinder barrel with an axial slit opening on the side wall, plug members inserted into the bore of the cylinder barrel at both ends thereof and an inner seal band disposed in the cylinder barrel along the slit in such a manner that the inner seal band covers the opening of the slit on the wall of the bore of the cylinder barrel and that both ends of the inner seal band are held between the respective plug members and the wall of the bore of the cylinder barrel, said method comprising:

fitting one of the plug members at one end of the cylinder barrel with one end of the inner seal band in place;

holding the other end of the inner seal band on the wall of the bore of the cylinder barrel near the other end thereof in such a manner that said other end of the inner seal band covers the slit opening;

placing a cover band having a length larger than the distance between said end of the inner seal band and the other end of the cylinder barrel on the inner wall of the cylinder barrel so that said other end of the inner seal band is covered by one end of said cover band and that the other end of the cover band extends outside of the cylinder barrel;

inserting the other plug member into the bore of the other end of the cylinder barrel so that both the cover band and said other end of the inner seal band are held between said other plug member and the wall of the bore of the cylinder barrel; and

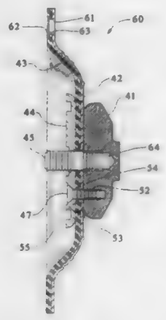
removing the cover band from the bore of the cylinder barrel by pulling said other end of the cover band towards a direction outside of the cylinder barrel.

5,724,881

DIAPHRAGM ASSEMBLY FOR FLUID POWERED DIAPHRAGM PUMPS

Steven M. Reynolds, Lucas, Ohio, assignor to Warren Rupp, Inc., Mansfield, Ohio

Filed Mar. 11, 1997, Ser. No. 814,240
Int. Cl.[6] F16J *3/02*
U.S. Cl. 92—100 **19 Claims**



8. An assembly for a two-piece diaphragm, the assembly comprising:

an outer plate engaging an overlay diaphragm, the overlay diaphragm being disposed between the outer plate and a backup diaphragm, the backup diagram being disposed between the overlay diaphragm and an inner plate,

the inner and outer plates being held in alignment by a centrally disposed stud that extends through the inner plate to the outer plate,

the inner and outer plates being connected by a first screw that extends through the inner plate and is threadably connected to the outer plate,

the overlay diaphragm comprising a first radially spaced hole for accommodating the first screw, the first radially spaced hole for accommodating the first screw comprising a first peripheral flange extending toward the backup diaphragm,

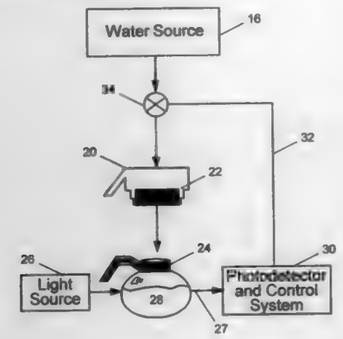
the backup diaphragm comprising a central hole for accommodating the stud and a first radially spaced hole for accommodating the first screw and the first peripheral flange of the overlay diaphragm.

5,724,882

BREWED BEVERAGE MAKER WITH OPTICAL FEEDBACK SYSTEM

James M. Gallas, 1615 Wood Quat, San Antonio, Tex. 78249, and Gerry Zajac, 2 S. 624 Marie Curie La., Warrenville, Ill. 60555

Continuation-in-part of Ser. No. 368,700, Jan. 4, 1995, abandoned. This application Feb. 22, 1996, Ser. No. 605,632
Int. Cl.[6] A47J *31/40*
U.S. Cl. 99—285 **8 Claims**



1. A coffee maker having an optical system for controlling the concentration of the coffee that is made, comprising:

a coffee maker including a source of hot water, basket for holding ground coffee, and a receptacle for collecting brewed coffee from the basket;

a supply control valve coupled to the source hot water, the supply control valve being selectively operable to direct hot water into the basket, to direct hot water through a bypass conduit into the receptacle, or to block the flow of hot water from the source;

a control system comprising a red or near infrared light source and it photodetector, the light source providing a beam of light directed through the entire receptacle; the photodetector being positioned to intercept the beam of light after it has passed through the entire receptacle;

the control system further comprising a comparator for comparing an output from the photodetector to a preselected threshold valve corresponding to a desired coffee concentration: the comparator being operable to a signal indicating whether the concentration of the coffee in the receptacle is above or below the desired concentration;

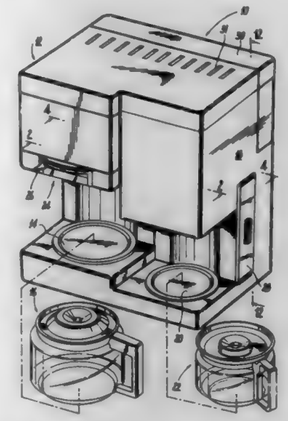
the control system being coupled to the supply control valve to operate the valve in response to the signal provided by the comparator.

5,724,883

HOT/COLD BEVERAGE BREWING DEVICE

Boris Usherovich, Staten Island, N.Y., assignor to Franklin Industries, L.L.C., Brooklyn, N.Y.

Filed May 28, 1996, Ser. No. 653,917
Int. Cl.[6] A47J *31/00;31/50*
U.S. Cl. 99—290 **24 Claims**



1. A beverage brewing device for dispensing a brewed beverage comprising:

a housing;

a water reservoir located within the housing;

a heater for heating water placed in the reservoir;

a filter basket for containing beverage media, said filter basket having an outlet;

means for delivering water from the heater to a location above the filter basket to permit hot water to contact beverage media in the filter basket to brew a beverage;

a first container for collecting the hot brewed beverage;

a cooling system located within the housing for cooling the hot brewed beverage, said cooling system including a removable cold retaining element which contacts the brewed beverage to cool said beverage; and

a deflector member movable from a first position which permits the hot brewed beverage to flow from the outlet of the filter basket to the first container, to a second position which directs the hot brewed beverage to the cooling system to reduce the temperature of the brewed beverage.

5,724,884

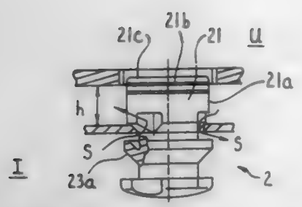
VALVE FOR A COOKING UTENSIL

Wolfgang Fischbach, Daaden, Germany, assignor to Heinrich Baumgarten KG, Neunkirchen, Germany

Filed Nov. 12, 1996, Ser. No. 746,316
Claims priority, application Germany, Nov. 15, 1995, 295 18 107.9 U
Int. Cl.[6] A47J *27/092;* **F16K** *17/02*
U.S. Cl. 99—337 **15 Claims**

1. In a valve for a cooking utensil which is adapted to be operated with excess pressure and closed with a lid, comprising a valve member arranged in a valve opening provided in the lid, said valve member being axially aligned and moveable within said valve opening, the improvement comprising said valve member having a valve piston, said valve piston having means for indicating the pressure provided outside of the cooking utensil, a control collar for controlling said valve opening, said control collar being larger in diameter than said valve and into engagement with an inside surface of said lid encircling said valve opening and axially movable with respect to said valve opening in response to a

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pressure in the cooking utensil and is initially maintained oriented within the cooking utensil, and a stop piece constantly remaining within the cooking utensil, said stop piece partly covering said valve opening and contacting said lid when said control collar has passed through said valve opening, and at least said control collar consisting of an elastic material so that it can be urged through said valve opening to a location outside of the cooking utensil in response to the pressure in the cooking utensil exceeding the operating pressure, said axial movement orienting said control collar outside of the cooking utensil being stopped by said stop piece contacting an inside surface of said lid.

5,724,885

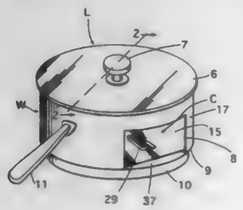
SPATTER SHIELDING AND VAPOR VENTING DEVICE FOR FRYING PAN

William Cheng Uy, 621 Parkridge Dr., Hockessin, Del. 19707

Filed Jan. 29, 1997, Ser. No. 791,761

Int. Cl.[6] A23L *1/00;* **A47J** *27/00;37/10;* **B65D** *1/40*

U.S. Cl. 99—341 **8 Claims**



1. The product of a spatter shielding and vapor venting device for mounting on a frying pan and covering the entire open area of said frying pan, said device comprising:

(a) a vertical hollow cylindrical wall having an open top with a top rim, a vertical bottom flange and a peripheral horizontal flange attached to said wall near the bottom flange, an opening in the wall spaced above the horizontal flange and forming a window through said wall, a window cover having an outer periphery the same shape as and substantially the same size as the opening to completely cover the opening, and a transparent lid covering the open top of said wall,

(b) said wall further having a handle attached to and extending radially outwardly from said wall, said handle being spaced from said opening,

(c) said window cover is selected from the group consisting of a swinging cover with a hinged top edge, a curtain comprising a plurality of resilient vertically extending strips, and an open-ended fabric sleeve,

(d) said lid further having an outer perimeter, a bottom side, a cylindrical flange extending from said bottom side and spaced inwardly from the perimeter, and a means to space the bottom of said lid and outside surface of said cylindrical flange from the top rim and inside wall of said hollow cylindrical wall to form a peripheral venting gap, wherein the means of spacing is selected from the group consisting of at least three radial ridges extending from said flange to the outer perimeter and at least three bumps on the top rim of said hollow cylindrical wall,

(e) the improvement in which said peripheral horizontal flange being attached to the bottom rim of said hollow cylindrical wall and extending radially inwardly from said wall to the top rim of said vertical bottom flange,

(f) whereby the improved shielding and venting device is placed onto the frying pan with the vertical bottom and peripheral horizontal flanges engaging the uppermost portion of the inner wall and the top wall of the pan respectively, the window cover allowing the insertion of a cooking instrument into the device to allow access to the pan interior without removal of the device from the pan and the peripheral venting gap allowing the pan to be vented without removal of the lid.

5,724,886

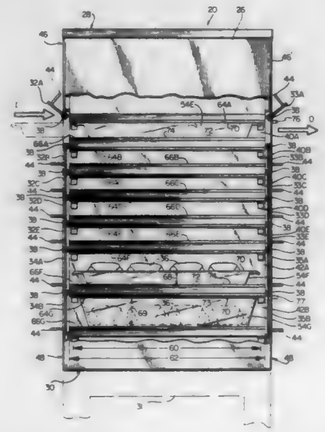
COOKED FOOD STAGING DEVICE AND METHOD

Henry T. Ewald, Schaumburg, Ill.; Jimmie L. Coffey, St. Charles, Ill.; Patricia A. Venetucci, Hawthorn Woods, Ill., and Gerald A. Sus, Frankfort, Ill., assignors to Restaurant Technology, Inc., Oak Brook, Ill.

Continuation of Ser. No. 439,160, May 11, 1995, abandoned. This application Jun. 18, 1996, Ser. No. 665,781

Int. Cl.[6] A47J *37/00*

U.S. Cl. 99—374 **16 Claims**



1. A device for holding a plurality of previously cooked food portions at elevated temperatures, comprising:

at least one discrete compartment for holding the food portions, said compartment having a compartment height and being bounded by an upper heated compartment surface and a lower heated compartment surface;

a cabinet defining a volume that encloses said at least one compartment therein, said cabinet including at least one inlet opening for inserting the food portions into said compartment and an outlet opening opposite said inlet opening for removing the food portions contained in said at least one compartment, said inlet and outlet openings located on opposed sides of said cabinet; and

at least one tray for containing the previously cooked food portions, said tray including a tray bottom and a tray sidewall, said tray sidewall extending upwardly from said tray bottom and terminating at an upper edge, wherein said tray has a height that is zero to about 0.25 inches less than the height of said compartment such that when said tray is stored in said compartment, evaporation of liquid from the cooked food portions contained within that said tray is restricted.

5,724,887

FRYING DEVICE

Jan Hakvoort, Urk, Netherlands, assignor to Hakvoort Horeca B.V., Netherlands

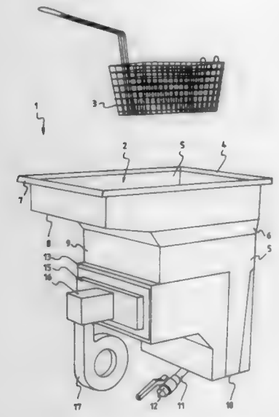
PCT No. PCT/NL95/00264, § 371 Date Jan. 27, 1997, § 102(e) Date Jan. 27, 1997, PCT Pub. No. WO96/03910, PCT Pub. Date Feb. 15, 1996

PCT Filed Aug. 1, 1995, Ser. No. 776,365

Claims priority, application Netherlands, Aug. 1, 1994, 9401261

Int. Cl.[6] A47J *37/12*

U.S. Cl. 99—403 **5 Claims**



1. Frying device, comprising a frying tank with a drain cock and heating means for heating the frying medium, which frying tank consists of an upper and a lower part, which upper part has side walls and an upper part bottom, and in which upper part bottom a bottom tank or shaft extends downwards and has side walls and a lower part bottom, and which frying tank can be filled with a frying medium such as fat or oil for deep-frying, and of which the side wall of the shaft is in open connection with the upper part of the frying tank by way of a number of pipes which pipes are placed at an angle to the horizontal, so that by means of the pipes the frying medium in the shaft is in open communication to the frying medium in the rest of the frying tank, and which drain cock is provided in the bottom of the frying tank, in order to be able of emptying the frying tank, characterized in that a side wall of the shaft or bottom tank contains a large number of openings and the bottom of the upper part contains the same number of openings and that by means of a tube each opening in the side wall of the shaft is interconnected to a opening in the bottom of the upper part and that the tubes are directly heated by the heating means.

5,724,888

PRINTED IMAGE AFTER-PROCESSING APPARATUS

Sadanao Okuda, Tokyo, Japan; Takahito Tojima, Tokyo, Japan, and Takashi Isozaki, Tokyo, Japan, assignors to Riso Kagaku Corporation, Tokyo, Japan

Filed Oct. 26, 1995, Ser. No. 548,550

Claims priority, application Japan, Nov. 2, 1994, 6-269828

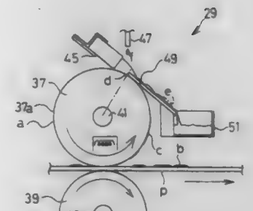
Int. Cl.[6] B41L *13/04*

U.S. Cl. 101—116 **4 Claims**

1. A printed image after-processing apparatus comprising,

supplying means for supplying an excess ink removing liquid, said excess ink removing liquid being incompatible with a printing ink forming a printed image on a printing sheet and having a surface tension lower than that of said printing ink;

a rotating contact member coated with the excess ink removing liquid supplied from the supplying means;



a counter member situated adjacent to the rotating contact member and having a surface roughness of 0.5 μm or less, said counter member feeding said printing sheet after being printed between said counter member and said rotating contact member to thereby bring a printed surface of said printing sheet into contact with said rotating contact member; and

cleaning means contacting said rotating contact member for cleaning the same.

5,724,889

STENCIL SHIFTER

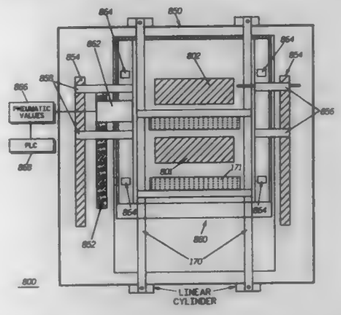
Lam Cheow Aun; Teik Jin Tan, and Ping Chow Teoh, all of Penang, Malaysia, assignors to Motorola, Inc., Schaumburg, Ill.

Filed May 13, 1996, Ser. No. 645,402

Claims priority, application Malaysia, Sep. 22, 1995, PI9502827

Int. Cl.[6] B05C *17/00*

U.S. Cl. 101—127.1 **5 Claims**



1. A stencil shifter for a Surface Mount Technology printer for paste stenciling a first side of a board and a second side of a double-sided board, the shifter comprising:

a master frame providing a reference at its periphery;

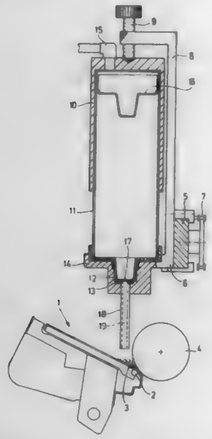
a stencil holder carriage frame slidably mounted within the master frame and for holding an integral stencil having a plurality of sieves, the plurality of sieves including at least a first sieve for paste stenciling the first side of a board and a second sieve for paste stenciling the second side of the board;

an optical sensor for determining what side the board is randomly facing and providing a feedback signal; and

a pneumatic motion controller for shifting the stencil holder carriage frame in response to the feedback signal.

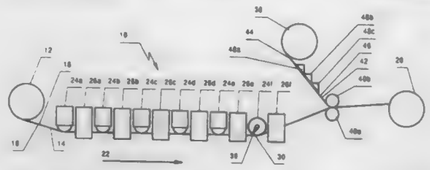
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5,724,890
PRINTING PRESS
Jürgen Deschner, Leon-Rot, and Tobias Müller, Hirschberg, both of Germany, assignors to Heidelberger Druckmaschinen Aktiengesellschaft, Heidelberg, Germany
Filed Apr. 5, 1996, Ser. No. 628,260
Claims priority, application Germany, Apr. 5, 1995, 195 12 727.7
Int. Cl.[6] B41F *31/06;31/08*
U.S. Cl. 101—366 **14 Claims**



1. An ink fountain for the inking unit of a rotary printing press said ink fountain comprising:
a filling device for filling said ink fountain with ink;
a carriage for mounting said filling device;
an elongated beam;
mounting structure for mounting said carriage on said elongated beam to permit said carriage to move along said elongated beam;
said carriage being movably mounted on said elongated beam with said mounting structure;
said filling device being mounted on said carriage;
a monitoring device for monitoring the ink level in said ink fountain, said monitoring device comprising:
at least one sensor;
said at least one sensor having a sensing structure to determine the ink level in said ink fountain;
said at least one sensor being firmly attached to and being movable with said carriage to move along with said filling device; and
said at least one sensor being connected to said filling device to actuate said filling device to supply ink to said ink fountain upon said at least one sensor sensing an ink level below a predetermined ink level;
said rotary printing press comprising a plurality of rollers;
said plurality of rollers comprising:
a plurality of ink application rollers;
a plate cylinder;
a blanket cylinder; and
a sheet drum;
said ink fountain comprising:
an ink fountain roller;
an ink metering device for producing an ink profile on said ink fountain roller; and
an ink reservoir to supply ink to said ink metering device;
said filling device having a first direction of travel along said elongated beam;
said at least one sensor being disposed to move with said filling device in said first direction of travel and being disposed to precede said filling device upon movement of said filling device in said first direction of travel;
said monitoring device comprising at least two sensors;
said at least two sensors being a first sensor and a second sensor;
said second sensor of said at least two sensors being firmly attached to said carriage; and
said second sensor being disposed to move with said filling device in said first direction of travel and being disposed to follow said filling device upon movement of said filling device in said first direction of travel.

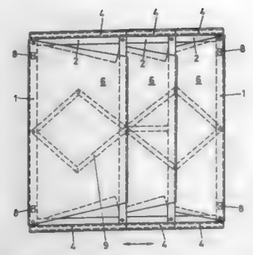
5,724,891
METHOD FOR MANUFACTURING A DISPLAY
Douglas I. Lovison, Rancho Santa Fe, Calif., assignor to Chromium Graphics, Carlsbad, Calif.
Continuation-in-part of Ser. No. 382,132, Feb. 1, 1995, abandoned. This application Jun. 25, 1996, Ser. No. 670,626
Int. Cl.[6] B41F *1/10;1/14*
U.S. Cl. 101—490 **15 Claims**



1. A method for manufacturing a display which comprises the steps of:
extending a continuous substrate through at least three printing stations between a supply roller and a receiving unit;
rotating said receiving unit to transfer said substrate from said supply roller to said receiving unit;
rotationally depositing translucent inks at a first said printing station to form a pattern on said substrate, said pattern being one of a plurality of sequential said patterns on said continuous substrate;
rotationally depositing opaque ink at a second said printing station onto selected portions of each said pattern on said continuous substrate;
rotationally depositing viscuos translucent ink at a third said printing station to form one or more extraordinarily thick ridges on selected portions of each said pattern on said continuous substrate;
curing said inks on said substrate; and
laminating a metalized substrate onto said substrate over said translucent inks, said opaque ink and said viscous translucent ink.

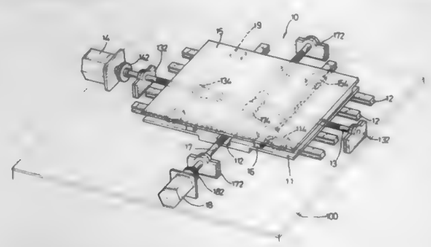
5,724,892
INNER COVERING FOR THE CONNECTING CORRIDORS BETWEEN RAIL VEHICLES
Norbert Melzer, Engen, Germany, assignor to Flat-Sig Schienenfahrzeuge AG, Switzerland
PCT No. PCT/CH95/00222, § 371 Date Aug. 2, 1996, § 102(e) Date Aug. 2, 1996, PCT Pub. No. WO96/10510, PCT Pub. Date Apr. 11, 1996
PCT Filed Oct. 3, 1995, Ser. No. 647,969
Claims priority, application Switzerland, Oct. 3, 1994, 2982/94
Int. Cl.[6] B60D *5/00*
U.S. Cl. 105—17 **10 Claims**

1. An inner covering for a connecting corridor between a first car body and a second car body of a vehicle, the inner covering comprising:
a first vertical spar pivotally attached to the first car body, the first vertical spar having an upper end and a lower end;
a second vertical spar pivotally attached to the second car body, the second vertical spar having an upper end and a lower end;
an upper guide rail having a telescopically variable length;



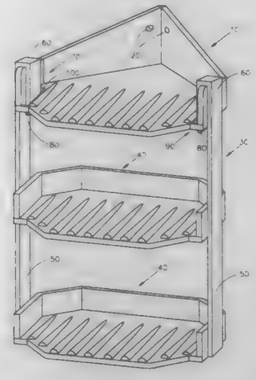
a lower guide rail having a telescopically variable length;
an upper horizontal spar disposed in the upper guide rail and pivotally attached to the upper ends of the first and second vertical spars;
a lower horizontal spar disposed in the lower guide rail and pivotally attached to the lower ends of the first and second vertical spars; and
a cover plate coupled to the first vertical spar.

5,724,893
SERVO-TYPE SHAKING TABLE ASSEMBLY
Yuan-jyi Lee, Taichung Hsien; Chao-hsi Cheng, and Kelson Z. Y. Yen, both of Taichung, all of Taiwan, assignors to Taichung Machinery Works Co. Ltd., Taiwan
Filed Oct. 15, 1996, Ser. No. 731,296
Int. Cl.[6] F16H *25/22*
U.S. Cl. 108—20 **4 Claims**



1. A shaking table assembly comprising:
a plurality of first linear guides arranged in parallel with each other;
a supporting table slidably mounted on said first linear guides along a longitudinal direction thereof;
a first ball screw rotatably disposed under said supporting table and arranged in parallel with said first linear guides;
a first nut fixedly mounted on an underside of said supporting table and meshing with said first ball screw;
a first servo motor directly connected with said first ball screw for rotating said first ball screw which co-operates with said first nut to move said supporting table along the longitudinal direction thereof;
a plurality of second linear guides fixedly mounted on a top surface of said supporting table and arranged in parallel with each other and perpendicular to said plurality of first linear guides;
a testing table slidably mounted on said second linear guides along a longitudinal direction thereof;
a second ball screw rotatably disposed under said testing table and arranged in parallel with said second linear guides;
a second nut fixedly mounted on an underside of said testing table and meshing with said second ball screw; and
a second servo motor directly connected with said second ball screw for rotating said second ball screw which co-operates with said second nut to move said testing table along the longitudinal direction thereof.

5,724,894
CORNER SHELF UNIT
Alexander Knorovsky, 4202 Green Ave., Los Alamitos, Calif. 90720
Filed Jun. 28, 1996, Ser. No. 671,692
Int. Cl.[6] A47B *23/00*
U.S. Cl. 108—42 **4 Claims**

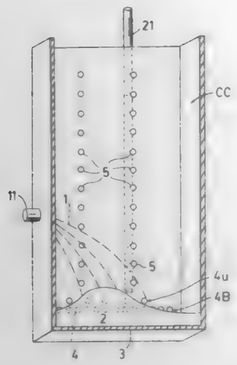


1. A combination shelf device and supporting wall, comprising:
a first, generally triangular shaped, horizontal shelf, providing a means for mounting the horizontal shelf in correspondence with a corner of the supporting wall; and a shelf assembly, comprising at least one further horizontal shelf, and, formed integrally therewith, a pair of laterally positioned, opposing, vertically oriented, means for suspension, each of the suspension means providing a U-shaped means for engagement with the first shelf, the suspension means and the engagement means positioned and adapted such that the shelf assembly is suspended by the suspension means in a position below the first shelf;
wherein the pair of suspension means are elongate straps positioned on opposing sides of the at least one further shelf and extending upwardly therefrom; and
wherein each of the engagement means with the first shelf is a U-shaped hanger providing an L-shaped ridge at a terminal end thereof, the terminal end and the L-shaped ridge of each of the engagement means engaging one of a pair of laterally spaced apertures in the first shelf, each of the ridges being of such shape as to lock into one of the apertures.

5,724,895
DEVICE FOR DISTRIBUTION OF OXYGEN-CONTAINING GAS IN A FURNACE
Erik Uppstu, Siivikkala, Finland, assignor to Oy Polyrec AB, Tammerfors, Finland
PCT No. PCT/FI93/00488, § 371 Date May 23, 1995, § 102(e) Date May 23, 1995, PCT Pub. No. WO94/12829, PCT Pub. Date Jun. 9, 1995
PCT Filed Nov. 18, 1993, Ser. No. 436,477
Claims priority, application Finland, Nov. 23, 1992, 925305
Int. Cl.[6] F23G *7/04*
U.S. Cl. 110—238 **6 Claims**

1. In an arrangement for distribution of oxygen-containing gas jets in a furnace including a combustion chamber surrounded by flat walls on opposite sides of said combustion chamber, a floor, and means mounted above the floor for delivering solid or liquid fuel particles into said combustion chamber, said arrangement comprising a plurality of first gas inlet ports each comprising means for creating a respective oxygen-containing gas jet and disposed in at least one horizontal row, the improvement comprising:

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means for increasing vertical stratification and decreasing horizontal stratification in the combustion chamber comprising additional gas inlet ports extending through at least two of said flat walls,

said additional gas inlet ports being disposed at more than six different elevations above said first gas inlet ports and in a pattern of vertical spaced-apart rows with said additional gas inlet ports being spaced so as to be not in direct facing relationship with one another and so that jets of gas emerging from said additional gas inlet ports in said at least two flat walls avoid substantial direct collision, and

wherein the number of said additional gas inlet ports at any single horizontal level is substantially fewer than said plurality of first gas inlet ports.

5,724,896

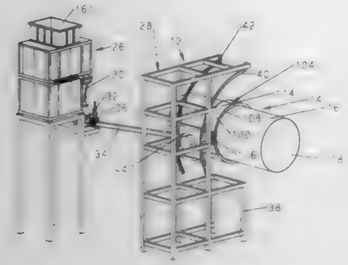
METHOD AND APPARATUS FOR PROVIDING SUPPLEMENTAL FUEL TO A ROTARY KILN

Larry E. Koenig, c/o Komar Industries, Inc. 4425 Marketing Pl., Groveport, Ohio 43125

Filed Mar. 20, 1996, Ser. No. 619,037

Int. Cl.[6] F27B *7/20*

U.S. Cl. 110—246 **27 Claims**



1. An apparatus for providing supplemental fuel to a rotary kiln comprising:

a feeder for receiving supplemental fuel from a fuel source and for injecting said supplemental fuel into an interior of said kiln; and

a feeder support for moving said feeder synchronously with said kiln only during a portion of rotation of said kiln less than a complete rotation thereof so that said feeder remains in alignment with an opening in said kiln a period of time sufficient to allow said feeder to inject said fuel through said opening.

5,724,897

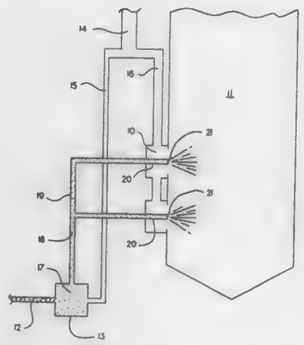
SPLIT FLAME BURNER FOR REDUCING NO_x FORMATION

Bernard P. Breen, Pittsburgh; John P. Blonda, Coraopolis, both of Pa.; James E. Gabrielson, Plymouth, Minn., and Anthony Hailo, Springdale, Pa., assignors to Duquesne Light Company, and Energy Systems Associates, both of Pittsburgh, Pa.

Continuation-in-part of Ser. No. 359,800, Dec. 20, 1994, Pat. No. 5,568,777. This application Oct. 28, 1996, Ser. No. 738,742

Int. Cl.[6] F23C *1/10*

U.S. Cl. 110—261 **4 Claims**



4. A method for reducing the NO_x in a pulverized coal-fired furnace comprising the steps of:

(a) placing a diffuser where a primary-air/coal pipe discharges a mixture of air and coal into a furnace;

(b) positioning a plurality of fuel splitters to define a plurality of partially open areas and a plurality of blocked areas of said diffuser; and

(c) dividing said mixture of air and coal into a plurality of streams of air and coal to pass through said plurality of partially open areas into said furnace for combustion under initially fuel rich conditions; and

(d) directing a portion of said mixture of air and coal through the interior of said fuel splitters such that it bypasses said diffusers and enters said furnace.

5,724,898

GRATE FOR A FIRING SYSTEM

Peter von Böckh, Hölstein, and Martin Zweifel, Haslen, both of Switzerland, assignors to Asea Brown Boveri AG, Baden, Switzerland

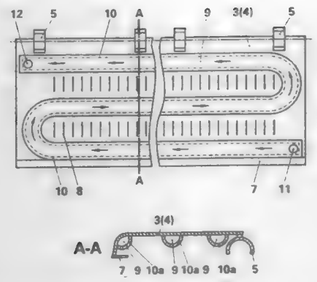
Filed Jul. 31, 1996, Ser. No. 688,775

Claims priority, application Germany, Aug. 2, 1995, 195 28 310.4

Int. Cl.[6] F23K *3/12*

U.S. Cl. 110—291 **20 Claims**

1. A grate for a firing system, with at least one grate conveyor having a plurality of fixed bar rows and moving bar rows alternating in the longitudinal direction, which are limited on both sides by side walls and which are composed of liquid-cooled grate plates, said grate plates being provided with a multiplicity of orifices or slits, arranged in groups, for the supply of primary air and each being pivotably connected respectively to a fixed and a movable grate plate carrier in the region of their rear end and resting with their front end on the adjacent grate plate, the grate plates of a grate plate row being connected in each case by connection means arranged underneath these, in such a way that adjacent grate plates are displaceable relative to one another to a limited extent in the grate longitudinal direction and are pivotable to a limited extent with respect to the grate plate carrier assigned to them, wherein there are provided, on the underside of the grate plate, cooling



ducts which are located between the orifices or slits, these cooling ducts being formed, on the one hand, by the grate plate itself and, on the other hand, by hollow profiles attached to the grate plate.

5,724,899

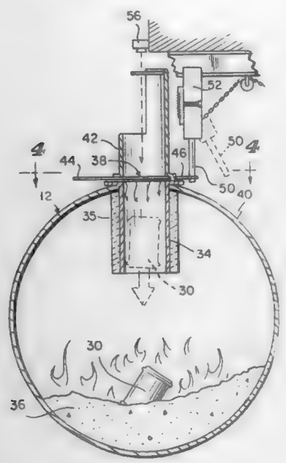
MODIFIED CEMENT KILN FOR BURNING COMBUSTIBLE SOLID WASTE AS SUPPLEMENTAL FUEL

Theodore J. Reese, Ft. Myers, Fla.; Eric R. Hansen, Shawnee, Kans., and Michel R. Benoit, Greene, R.I., assignors to Cadence Environmental Energy, Inc., Michigan City, Ind., and Ash Grove Cement Company, Overland Park, Kans.

Continuation of Ser. No. 84,547, Jun. 28, 1993, Pat. No. 5,337,603, which is a continuation of Ser. No. 978,154, Nov. 17, 1992, Pat. No. 5,224,433, which is a continuation of Ser. No. 826,026, Jan. 27, 1992, abandoned, which is a continuation of Ser. No. 731,625, Jul. 17, 1991, Pat. No. 5,083,516, which is a continuation of Ser. No. 613,238, Nov. 9, 1990, Pat. No. 5,058,513, which is a continuation of Ser. No. 412,287, Sep. 25, 1989, Pat. No. 4,974,529, which is a division of Ser. No. 347,075, May 16, 1989, abandoned, which is a division of Ser. No. 275,402, Nov. 23, 1988, Pat. No. 4,850,290. This application Aug. 9, 1994, Ser. No. 287,945

Int. Cl.[6] F23G *7/00*

U.S. Cl. 110—346 **5 Claims**



5. A method for charging combustible solid waste to a rotary cement kiln comprising a rotating kiln cylinder to burn said waste in contact with in-process mineral material, said method comprising the steps of

(1) modifying said cement kiln to provide a port in the rotating kiln cylinder at a point along its length where waste charged through the port will contact calcining mineral during kiln operation, said port having a closure movable between a port-closed and a port-opened position, and means for moving the closure between a port-closed and port-opened position at predetermined times during kiln cylinder rotation and further modifying said cement kiln to provide a drop tube communicating with said port and extending into the kiln cylinder to prevent the in-process mineral material from contacting the closure;

(2) positing combustible waste in alignment with said port during rotation of the kiln cylinder;

(3) moving the port closure to the port-opened position and allowing the waste to fall through the port to contact in-process mineral material;

(4) moving the port closure to the port-closed position; and,

(5) repeating steps 2–4 during kiln operation.

5,724,900

METHOD AND PLANT FOR CARBONIZING AND BURNING WASTE

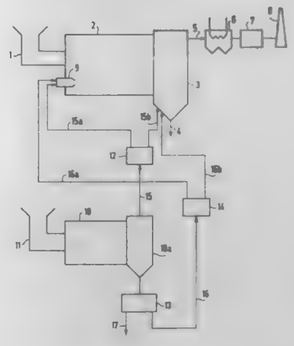
Herbert Tratz, Ottensoos, Germany, assignor to Siemens Aktiengesellschaft, Muenchen, Germany

Filed Jun. 2, 1995, Ser. No. 458,489

Claims priority, application Germany, Jun. 10, 1994, 44 20 420.5

Int. Cl.[6] F23G *5/027*

U.S. Cl. 110—346 **9 Claims**



1. A method for waste processing, which comprises:

presorting waste into a first portion of household garbage and a second portion to be processed;

low-temperature carbonizing the first portion of household garbage and creating low-temperature carbonization gas and low-temperature carbonization residue;

separating off a carbon-rich fraction from the low-temperature carbonization residue;

burning the second portion of waste; and

supplying at least some of a low-temperature carbonization gas and the carbon-rich fraction of the low-temperature carbonization residue formed in the low-temperature carbonization as fuel for a support flame for burning hazardous waste.

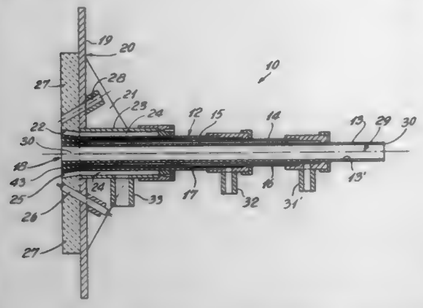
VOL 1208 ISS 2 MR 10 1998 UMI

5,724,901

OXYGEN-ENRICHED GAS BURNER FOR INCINERATING WASTE MATERIALS

Christophe Guy, Montreal, Canada; Jamal Chaouki, Pointe-Claire, Canada, and Jean-Guy Chouinard, Verdun, Canada, assignors to Gaz Metropolitan and Company Limited, Montreal, Canada

Filed Nov. 2, 1995, Ser. No. 552,280
Int. Cl.[6] F23G 5/00
U.S. Cl. 110—346 9 Claims



7. A method of incinerating a waste material comprising the steps of:

i) providing a burner housing having a gas injection nozzle provided with adjustable circumferential ports to vary the shape of a high temperature flame produced at said nozzle, pressure control means to control the pressure of oxygen, gas and air fed to respective ones of said ports with an outer one of said ports receiving said air, said injection nozzle having an axial feed port,

ii) controlling said adjustable circumferential ports and pressure control means to produce a flame having a desired characteristic dependent on said waste material to be incinerated,

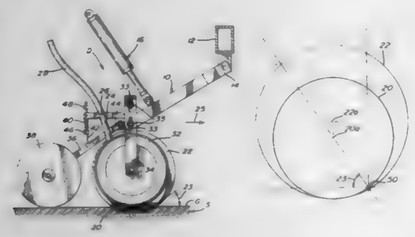
iii) feeding said waste material into said axial feed port and out into said flame at the center of said circumferential ports and axially of said flame at a controllable flow rate whereby to incinerate said waste material without substantially affecting the combustion of said gas.

5,724,902

MINIMUM TILLAGE SEEDING DEVICE

Luc Janelle, St-Germain; Claude Laguë , Québec, and Sylvio Tessier, Pont Rouge, all of Canada, assignors to Université Laval of Cité Universitaire, Quebec, Canada

Filed Mar. 14, 1994, Ser. No. 212,901
Int. Cl.[6] A01C 5/00
U.S. Cl. 111—164 20 Claims



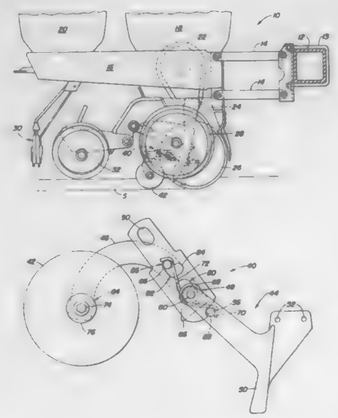
1. A minimum-tillage seeding device comprising frame means, furrow opener means mounted to said frame means for producing a furrow in soil when displaced in a direction of travel of said seeding device, delivery means for supplying at least one substance in the furrow, said furrow opener means comprising first and second disks adapted to be partly introduced in the soil, said first disk being smaller than said second disk and extending in a substantially vertical plane which is substantially parallel to said direction of travel of said seeding device, said first and second disks contacting one another at respective lower front portions thereof, said second disk extending in a non vertical plane and away from said first disk as said second disk extends both rearwardly and upwardly from said lower front portions, said first and second disks thus defining a substantially V-shaped configuration when viewed from said direction of travel, said second disk being angled relative to said direction of travel for cutting through residues and the soil and for displacing a volume of soil to form the furrow while said first disk retains at least part of the soil so displaced on a side of the furrow, whereby the substance can be fed from said delivery means in the furrow at a desired depth.

5,724,903

SEED FIRMING WHEEL SUPPORT

Alfred Dean Yoder, Geneseo, Ill., and Loyd Thomas Hubbard, Jr., Hampton, Ill., assignors to Deere & Company, Moline, Ill.

Filed Oct. 16, 1996, Ser. No. 731,473
Int. Cl.[6] A01C 5/06
U.S. Cl. 111—194 14 Claims



1. A support for a seed firming wheel of an agricultural planter, the support comprising:

a forked frame having a seed tube guard portion which is provided with a mounting assembly for mounting the forked frame to the agricultural planter, the forked frame being provided with two rearwardly extending arms, the two rearwardly extending arms having a cross member, the forked frame defining a seed tube opening through which the seed tube of the planter is maintained in the center of a seed planting furrow, the forked frame also being provided with a pivot assembly, the pivot assembly having a spring assembly for applying a down pressure to the seed firming wheel;

a link pivotally mounted to the pivot assembly of the forked frame and extends rearwardly from the seed tube opening; and

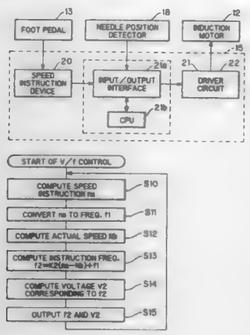
the seed firming wheel being rotatively mounted to the link for firming seeds in a seed planting furrow.

5,724,904

SEWING MACHINE CONTROL DEVICE WITH AN INVERTER FOR CONTROLLING AN INDUCTION MOTOR

Ikuzo Kondo, Chita, Japan; Yoshiharu Higuchi, Yokkaichi, Japan, and Kazuhisa Ito, Aichi-ken, Japan, assignors to Brother Kogyo Kabushiki Kaisha, Nagoya, Japan

Filed Dec. 9, 1996, Ser. No. 762,144
Claims priority, application Japan, Dec. 8, 1995, 7-320737
Int. Cl.[6] D05B 69/18
U.S. Cl. 112—277 13 Claims



1. A sewing machine control device comprising:

an induction motor for driving a sewing machine, said sewing machine having a needle bar movably disposed at a position and moving at a moving speed;

an inverter for driving said induction motor, said inverter outputting an AC driving signal having a voltage and a frequency;

a speed instruction device for outputting a speed instruction signal indicative of a target speed of said induction motor;

a needle position detector for generating a detection signal indicative of the position and the moving speed of the needle bar, the moving speed of the needle bar being correlated with an actual speed of the sewing machine; and

a control unit for controlling said inverter based on the detection signal generated from said needle position detector and the speed instruction signal output from said speed instruction motor is brought into coincidence with the target speed of the sewing machine,

wherein said control unit comprises:

deviation computing means for computing the actual speed of the sewing machine based on the detection signal generated from said needle position detector, and for computing a deviation between the actual speed of the sewing machine and the target speed of the sewing machine;

basic frequency setting means for setting a basic frequency of the AC driving signal output from said inverter based on the target speed of the sewing machine; and

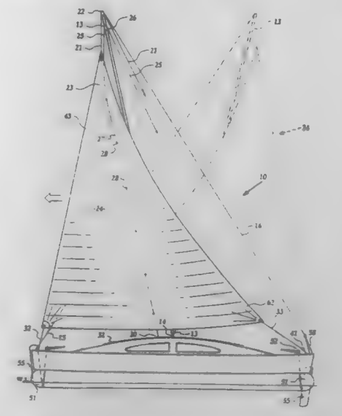
output frequency setting means for setting an output frequency of said inverter upon correcting the basic frequency based on the actual speed of the sewing machine computed by said deviation computing means and the target speed of the sewing machine.

5,724,905

SAILBOATS

John Kingston Pizzey, Brisbane, Australia, assignor to Sarrinen Pty Ltd, Australia

PCT No. PCT/AU93/00377, § 371 Date Oct. 16, 1995, § 102(e) Date Oct. 16, 1995, PCT Pub. No. WO94/16941, PCT Pub. Date Aug. 4, 1994
PCT Filed Jul. 26, 1993, Ser. No. 492,017
Claims priority, application Australia, Jan. 22, 1993, PL6945; May 31, 1993, PL9108
Int. Cl.[6] P63B 35/00
U.S. Cl. 114—39.1 21 Claims



1. A proa sailing vessel comprising

a hull assembly comprising a leeward hull and a windward hull both having underwater shapes which are substantially symmetrical about a central athwartships axis;

a mast assembly supported on the leeward hull and extending upwardly;

a sail assembly supported by the mast assembly, wherein the sail assembly is inclined to leeward of the leeward hull, whereby wind will spill from the sail as it inclines further to leeward before the windward hull is pivoted to a position out of the water;

running rigging means interconnected with said mast assembly and said sail assembly for causing the centre of effort of the sail assembly to be disposed forwardly of said central athwartships axis upon commencement of sailing in either direction, whereby the tendency of the vessel to round up to windward resulting from the leeward inclination of the sail assembly is counteracted by the forward position of the centre of effort of the sail assembly providing a counter tendency of the vessel to bear away from the wind.

5,724,906

WIND RESISTANCE REDUCING STRUCTURE OF A SHIP

Kwang-Chang Lee, 4F. No. 1-3, ChungHsiao St., Chung Ho City, Taipei, Taiwan

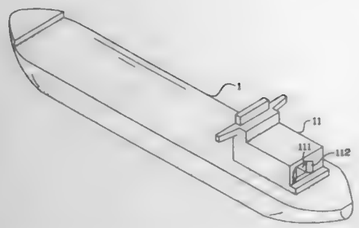
Filed Jan. 22, 1997, Ser. No. 787,378
Int. Cl.[6] B63B 29/02
U.S. Cl. 114—71 2 Claims

1. A wind structure comprising

a navigating bridge superstructure of a ship defined between two spaced walls,

a wind tunnel extending between said two spaced walls and having a gate movably mounted at each of said two spaced walls to define opposed ends of said wind tunnel and said two gates being selectively controlled to open and close the opposed ends of said wind tunnel so as to allow wind currents to pass through said wind tunnel through the open gates When

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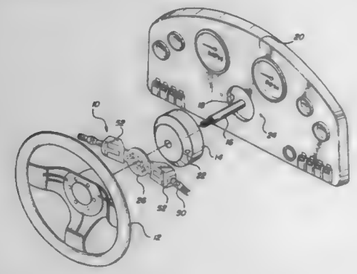
the ship is navigated against the wind and to navigate the ship with the wind when the gates are closed.

5,724,907

WATERCRAFT STEERING MOUNTED ACCESSORY CONTROL ASSEMBLY

Larry K. Castelluccl, Reading, Pa., assignor to Teleflex Incorporated, Plymouth Meeting, Pa.

Filed Jul. 23, 1996, Ser. No. 685,250
Int. Cl.[6] B63H *25/00*
U.S. Cl. 114—144 R **16 Claims**



1. A watercraft accessory switch assembly for controlling trim and/or other accessories and positioned between the steering wheel and the bezel housing surrounding the steering shaft, said assembly comprising:

a bracket including a mounting section and at least one radially extending arm,

a switch assembly supported by said arm and including an operating lever extending radially from the end thereof, and

characterized by said mounting section of said bracket including mounting holes for attachment to the bezel housing.

5,724,908

REMOTE CONTROLLED BOAT DRAIN VALVE

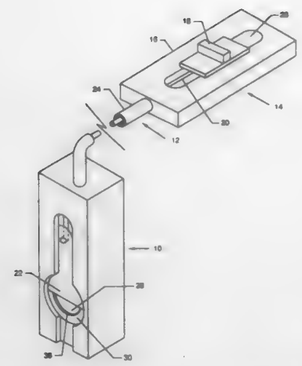
Richard Murray, 701 Central Ave., Buffalo, Minn. 55313

Filed Apr. 25, 1996, Ser. No. 637,868
Int. Cl.[6] B63B *13/00*
U.S. Cl. 114—197 **3 Claims**

1. A remote controlled boat drain system for a boat member valve comprising:

a. a boat drain housing including a configured slide gate channel;

b. a slide gate in said slide gate channel;



c. a threaded means extending at a right angle into said boat drain housing about a lower portion of said slide gate channel for engaging through a member of a boat; and,

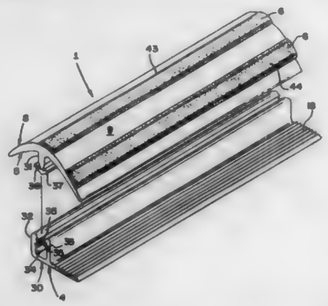
d. actuator means connected to said slide gate.

5,724,909

PASSIVE PATHWAY MARKING SYSTEM

Robert F. Pitman, San Jose, and Daniel L. Garrison, Campbell, both of Calif., assignors to Burke Industries, Inc., San Jose, Calif.

Filed Feb. 19, 1997, Ser. No. 804,026
Int. Cl.[6] G09F *13/20*; **F21K** *2/00*
U.S. Cl. 116—202 **11 Claims**



10. A source of photoluminescence for attachment to a building structure to be used as part of a back-up lighting system, said source of photoluminescence comprising:

a) a base member made of relatively inflexible material which attaches to said building structure, said base member being formed with an attachment flange that can be used for mechanical interlock with said building structure and said base member also being formed with a receiving track, said receiving track consisting of a pair of cooperating legs which form a cavity, each of said cooperating legs being formed with a tooth that juts into said cavity;

b) a support member made of relatively flexible material releasably attached to said base member, said support member being formed with a cover member that in cooperation with said building structure hides said base member from view when said source of photoluminescence is attached to said building structure, said cover member also being formed with an outer surface; said support member also being formed with an attachment arm for releasably attaching said support member to said base member, said attachment arm being dimensioned for receipt between said cooperating legs of said receiving track, said attachment arm being formed with cooperating outwardly disposed tabs that mechanically interlock with said teeth of said cooperating legs of said receiving track when said attachment arm is received by said receiving track; and

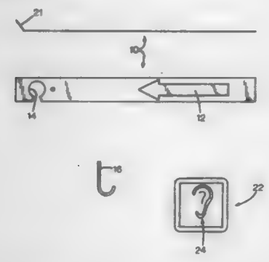
c) photoluminescent material made of relatively flexible material affixed to said outer surface of said cover member.

5,724,910

SIGNALLING DEVICE

Robin John Annesley, 1166 Alder Avenue, Moose Jaw, Saskatchewan, Canada, S6H 0Y7, and Dorothy Yakiwchuk, 1156 3rd Avenue N.W., Moose Jaw, Saskatchewan, Canada, S6H 3T8

Filed Aug. 4, 1995, Ser. No. 511,379
Int. Cl.[6] G08B *5/00*
U.S. Cl. 116—209 **17 Claims**



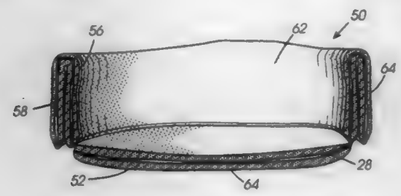
1. An emergency under-door signalling apparatus including a paddle comprising an elongate, thin strip of stiff material and a luminescent marker on at least one surface of the strip adjacent a first end, the strip having a second end opposite the first end, the second end having a door stop extending upwardly at an obtuse angle relative to the strip.

5,724,911

BED FOR A HOUSEHOLD PET

John B. McAlister, 424 Camping Creek Ct., Chapin, S.C. 29036

Filed Sep. 12, 1996, Ser. No. 712,790
Int. Cl.[6] A01K *1/035*
U.S. Cl. 119—28.5 **18 Claims**



1. A process of making a cushion for a cat, comprising the steps of:

strewing raw unwoven polyester in a series of layers having a thickness;

heating said series of layers to a first temperature;

cooling said series of layers;

cutting said series of layers into sheets;

forming said sheets into a right cylinder having a closed end, an open end, and a cylinder wall; and

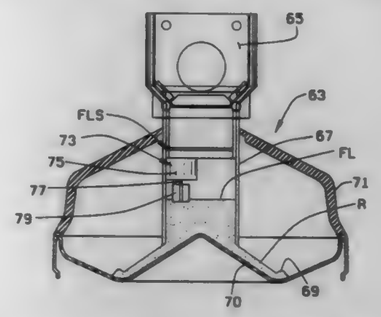
folding said cylinder wall from said open end to said closed end to form an annular upright wall having a thickness twice that of said cylinder wall, said annular upright wall extending from said closed end of said cylinder.

5,724,912

APPARATUS AND METHOD FOR SENSING THE LEVEL OF A FLUENT SOLID MATERIAL

Thomas J. Cull, Decatur, Ill., assignor to The GSI Group, Inc., Assumption, Ill.

Filed Oct. 4, 1995, Ser. No. 538,910
Int. Cl.[6] A01K *5/00*; **H01H** *35/00*
U.S. Cl. 119—57.2 **17 Claims**



1. A sensor for detecting a predetermined level of a solid, fluent material, said sensor comprising an electric motor having an output shaft which rotates upon energization of the motor, means for energizing said motor, means mounted on said output shaft and rotatable therewith for engagement with said solid, fluent material when the latter is at or above said predetermined level thereby to stop rotation of said output shaft, and means responsive to the stoppage of rotation of said output shaft for indicating that solid, fluent material has attained said predetermined level said indicating means comprising means for monitoring the electrical parameters supplied to said motor for energization thereof, and means for generating a signal upon at least one said electrical parameters changing to a predetermined value responsive to the stoppage of the rotation of said motor.

5,724,913

Patent Not Issued For This Number

5,724,914

DOG FEEDER WITH EAR-DEFLECTING, ROTATABLE COVER

David A. Nemeth, Upland, Calif., assignor to Tidy Feed Industries, Inc., Las Vegas, Nev.

Filed Nov. 15, 1996, Ser. No. 751,082
Int. Cl.[6] A01K *5/00*
U.S. Cl. 119—61 **13 Claims**

1. A pet feeder device comprising, in combination:

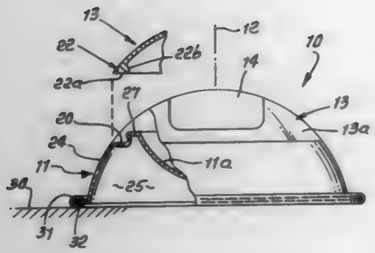
a) a bowl-shaped base, defining an upright central axis,

b) a cover extending over said base, the cover having a vertical opening through which a pet's nose may be projected to access food in the base, said opening extending eccentrically relative to said axis,

c) the cover having an annular rim portion supported on the base to allow cover rotation relative to the base, as the pet's snout in said opening pushes sidewardly on the cover,

d) and means associated with said rim portion to provide releasable connection thereof to the base.

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e) there being support surfaces on the cover and the base allowing rotatable sliding of the cover on the base, said support surfaces including an annular ledge on one of the cover and base, and annularly spaced protrusions on the other of said cover and base, said protrusions slidably engaging said annular ledge, and there being protective structure projecting adjacent and above the level of the ledge for blocking access of food in the base to said ledge.

5,724,915

MATERIAL FOR THE TREATMENT OF PET EXCRETION AND METHOD OF PRODUCING THE SAME MATERIAL

Kengo Ochi; Yuko Kawasaki, both of Mitoyo; Takashi Sumiya, and Yukio Zenitani, both of Kyoto, all of Japan, assignors to Sanyo Chemical Industries, Ltd., Kyoto, and Uni-Charm Corporation, Ehime, both of Japan

Filed Jul. 5, 1996, Ser. No. 676,008

Claims priority, application Japan, Jul. 7, 1995, 7-195854

Int. Cl.[6] A01K *29/00*

U.S. Cl. 119—173 **17 Claims**

1. A material for treating excretions of pet animals comprising:

100 parts by weight of a substrate (A) selected from the group consisting of an inorganic powder, short organic fibers, crushed cellulose, and granulated forms of each of said powder, fibers, and cellulose, the substrate (A) having a surface; and

from 5 to 300 parts by weight of water-absorbent resin/fiber composite (B) as a coating on the surface of said substrate (A), said composite (B) being a mixture of from 50 to 95% by weight of a water-absorbent resin fine powder, from 5 to 50% by weight of a fibrous substance having an average fiber length of from 50 to 2,000 μm and from 0 to 10% by weight of a hydrophilic thermoplastic substance.

5,724,916

SYNTHETIC HORSE BEDDING

Scott Brodie, and Dean Corke, both of 66 Dudley St., Coogee NSW 2034, Australia

PCT No. PCT/AU93/00370, § 371 Date Jan. 20, 1995, § 102(e) Date Jan. 20, 1995, PCT Pub. No. WO94/02003, PCT Pub. Date Feb. 3, 1994

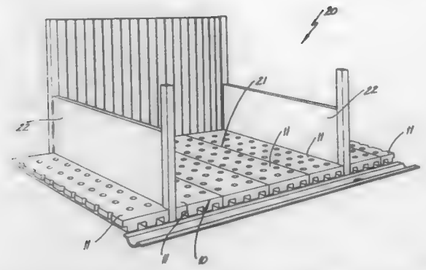
PCT Filed Jul. 22, 1993, Ser. No. 374,640

Claims priority, application Australia, Jul. 22, 1992, PL3651

Int. Cl.[6] A01K *1/015*

U.S. Cl. 119—525 **22 Claims**

1. A floor/wall matting comprising a compressible support layer with an upper cover layer of moisture impervious puncture resistant material, said matting having a plurality of apertures therethrough sized to at least allow passage of animal fluid waste from the upper cover layer of said matting to a plurality of drainage channels extending along an underside of said matting, said drainage channels being formed on the underside of the support layer.



5,724,917

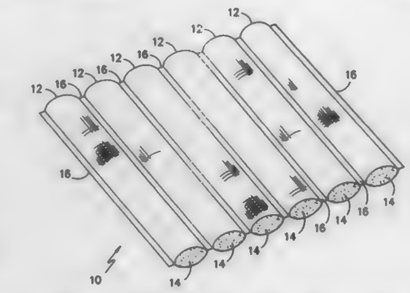
CATTLE MATTRESS

Robert W. Dodson, LaGrange, and Jules A. Haneburger, Newnan, both of Ga., assignors to Milliken Research Corporation, Spartanburg, S.C.

Filed Jun. 21, 1996, Ser. No. 668,638

Int. Cl.[6] A01K *1/015*

U.S. Cl. 119—526 **5 Claims**



1. A cattle mattress comprising a woven fabric having areas of double weave forming tubes, a layer of single weave fabric between the formed tubes, soft particulate material in said formed tubes and means closing the ends of said tubes to prevent the escape of the particulate material.

5,724,918

AUTOMATIC WASHING AND DRYING MACHINE FOR ANIMALS

Vicente Navalon-Chicote, Cambrils, Spain, assignor to Leadercan, S.L., Cambrils, Spain

Filed Mar. 3, 1997, Ser. No. 810,526

Int. Cl.[6] A01K *13/00*

U.S. Cl. 119—668 **11 Claims**

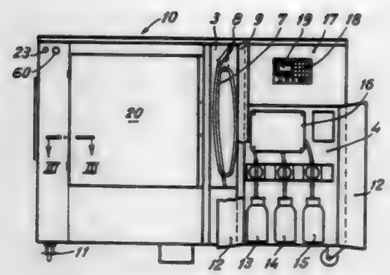
1. A washing device for washing and drying of an animal, the device comprising:

a first compartment for accommodating an animal;

a second compartment including drying means for heating and driving drying air through said first compartment, said second compartment including hydraulic circuit means for recirculating and renewing fluid flow through said first compartment, said hydraulic circuit means including a first tank for fresh fluid and a second tank for recirculated fluid;

a third compartment including a hose with a spray nozzle;

a fourth compartment including a container for holding a predetermined fluid selectively in communication with said hydraulic circuit means, said fourth compartment having control means for controlling when said container is connected to said hydraulic circuit means and for controlling operation of said hydraulic circuit means and said dryer means.



5,724,919

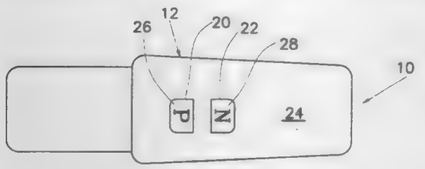
DEVICE FOR ACHIEVING ANIMAL RESPONSE

Randal D. Boyd, Knox, and Walter J. Frankewich, Blount, both of Tenn., assignors to Radio Systems Corporation, Knoxville, Tenn.

Filed Sep. 4, 1996, Ser. No. 707,703

Int. Cl.[6] A01K *15/00*

U.S. Cl. 119—719 **16 Claims**



1. A device for achieving animal response, said device comprising:

a first oscillator circuit for producing a first output frequency in a range for soothing the animal;

a second oscillator circuit for producing a second frequency in a range of disturbing the animal;

a first switch for initiating operation of said first oscillating circuit;

a second switch for initiating operation of said second oscillating circuit;

a further oscillator circuit for receiving said second frequency and for varying said second frequency through a wide range to produce an oscillating frequency;

a sound-producing element for receiving one of said first frequency and said oscillating frequency to produce an audible sound according to one of said frequencies; and

a power source.

5,724,920

ANIMAL SEAT BELT RESTRAINT

Stephen A. Meisman, 1087 Island Ave., Tarpon Springs, Fla. 34689; Karen A. Meisman; Michael P. Meisman, both of 4911 48th Ave. North, St. Petersburg, Fla. 33709, and Richard L. Meisman, 3229 Bluff Blvd., Holiday, Fla. 34691

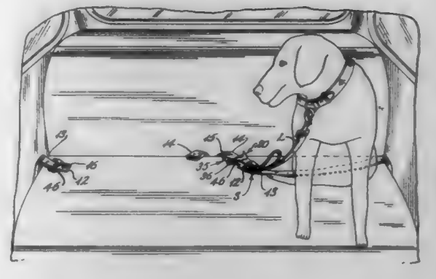
Filed Dec. 18, 1996, Ser. No. 769,135

Int. Cl.[6] A01K *27/00*

U.S. Cl. 119—771 **20 Claims**

1. A restraint device for connecting an animal leash or lead intermediate a seat belt buckle receiver and a latch tab in cooperation with a seat belt system, the device comprising,

a keeper having a body portion with first and second ends and opposite side edge portions, at least one opening formed in said body adjacent said first end thereof, a flange extending from and generally transversely to said body portion, an enclosed slot in said flange of a size to cooperatively receive a latch tab therethrough whereby a conventional leash or lead may be extended through said at least one opening and secured to said keeper and said latch tab inserted through said enclosed slot and into a buckle receiver to thereby lock the leash or lead to a seat belt system.



5,724,921

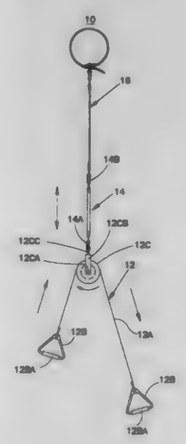
PET LEASH

Shari Bell, 3533 River Heights Crossing, Mariette, Ga. 30067

Filed Jul. 19, 1996, Ser. No. 684,419

Int. Cl.[6] A01K *27/00*

U.S. Cl. 119—795 **8 Claims**



1. An improved pet leash (**10**) comprising:

a) a pulley system (**12**) which comprises a pulley cable (**12A**) slidably engaged over a pulley wheel (**12C**) and secured thereon by means of a pulley wheel brace (**12CB**) which is connected to the pulley wheel (**12C**) by means of a pulley wheel pin (**12CA**) inserted there through, either distal end of the pulley cable (**12A**) is insertable through a pulley handle housing (**12BB**) which is integrally connected to a pulley handle (**12B**), the pulley handle (**12B**) further has an overlapping pulley handle pad (**12BA**); and

b) an elastic cord (**14**) having a cord first attachment means (**14A**) on one distal end, the cord first attachment means (**14A**) interlocks a pulley wheel attachment means (**12CC**) movably secured to the pulley wheel (**12CC**), a cord second

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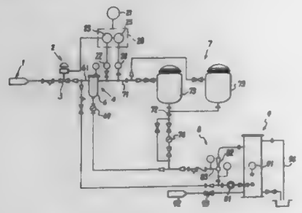
attachment means (14B) located on the opposite distal end of the cord (14) connects the cord (14) to a conventional leash (16).

5,724,922

LOW-TEMPERATURE STEAM GENERATOR

Akihiko Agata, Isahaya, Japan, assignor to Shin-Ei Kabushiki Kaisha, Nagasaki-ken, Japan

Filed Jun. 12, 1996, Ser. No. 662,019
Claims priority, application Japan, Jul. 3, 1995, 7-189843
Int. Cl.[6] F22G 3/00
U.S. Cl. 122—459 3 Claims



1. In a low-temperature steam generator comprising a steam generating unit, a pressure reducing unit that reduces pressure of steam generated in the steam generating unit to below atmospheric pressure, a cooling unit that changes the lower-pressure steam from the pressure reducing unit into saturated steam by cooling, and a vacuum producing unit leading from the cooling unit to a steam emitting system of a steam consuming device that applies vacuum suction to the emitted steam and collects drainage therefrom, the improvement comprising:

a vacuum pressure reducing valve disposed in said pressure reducing unit so as to provide low pressure steam at a preset output pressure based on a signal from a pressure control unit without regard to atmospheric pressure and reduces the pressure of the steam from the steam generating unit to below atmospheric pressure;

a pressure sensor that detects pressure of the low-pressure steam admitted into a heat-exchange zone of the steam consuming device and connected to the pressure control unit that controls the output pressure of the vacuum pressure reducing valve to the preset output pressure level; and

a temperature sensor that detects a temperature of the heat-exchange zone of the steam consuming device and connected to the pressure control unit that controls the output pressure of the vacuum pressure reducing valve to a pressure corresponding to a desired saturation temperature so that the temperature in the heat-exchange zone is controlled thereto;

wherein the cooling unit comprises,

a spray nozzle provided in an entrance duct through which the low-pressure steam is admitted into the cooling unit to discharge sprays of drainage having been filtered through a filter, and

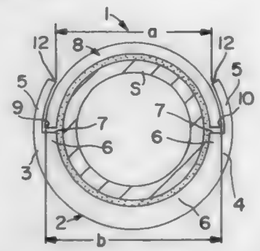
a cooler proper connected to said entrance duct and constructed of multistage perforated constricting plates that make a narrow cylindrical passageway through which the low-pressure steam passes and a water separation zone provided in a part of the cylindrical passageway that separates water droplets from the low-pressure steam.

5,724,923

REFRACTORY SHIELD DESIGN FOR SUPERHEATER TUBES

Kenneth E. Green, Auburn, Mass., assignor to Saint-Gobain/Norton Industrial Ceramics Corp., Worcester, Mass.

Filed May 19, 1995, Ser. No. 445,437
Int. Cl.[6] F22B 37/06; F27D 37/10
U.S. Cl. 122—511 8 Claims



1. A refractory shield for protecting a superheater tube against environmental attack, comprising:

a) a first partial-tube having a C-shaped cross section, the C-shaped cross section having first and second ends, each end comprising an outer radial portion and an inner radial portion, each outer radial portion having a concave inner surface and extending farther than each inner radial portion to define a seat at the terminus of each inner radial portion, to define a seat at the terminus of each inner radial portion, each outer radial portion terminating in an end having an inner tip;

b) a second partial-tube having a C-shaped cross section, the C-shaped cross section terminating in first and second ends, each end having an outer tip;

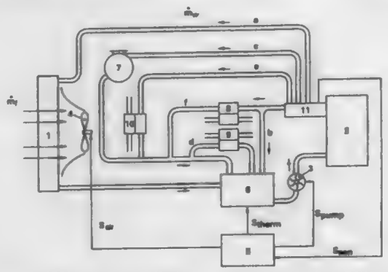
wherein the ends of the second partial-tube oppose the seats of the first partial-tube, each end of the second partial tube has a convex outer surface corresponding to the concave inner surface of the corresponding outer radial portion of the first partial tube, and the distance between the outer tips of the second partial-tube is greater than the distance between the inner tips of the first partial-tube, and wherein the refractory is selected from the group consisting of silicon carbide, alumina, zirconia, magnesia, chromia, and mixtures thereof.

5,724,924

METHOD FOR CONTROLLING A COOLING CIRCUIT FOR AN INTERNAL-COMBUSTION ENGINE USING A COOLANT TEMPERATURE DIFFERENCE VALUE

Karsten Michels, Braunschweig, Germany, assignor to Volkswagen AG, Wolfsburg, Germany

Filed Feb. 6, 1996, Ser. No. 611,344
Claims priority, application Germany, Mar. 8, 1995, 195 08 104.8
Int. Cl.[6] F01P 7/02
U.S. Cl. 123—41.12 9 Claims



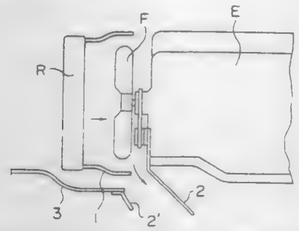
1. A method for controlling a cooling circuit of an internal combustion engine having at least one coolant pump for controlling the rate of flow of coolant in the coolant circuit, a radiator in which heat is exchanged between air passing through the radiator and coolant in the radiator, a fan for controlling the flow of air through the radiator, and a control unit for controlling the speed of the coolant pump comprising the steps of controlling the speed of the coolant pump and the fan when the coolant temperature is below a predetermined low limit temperature value as a function of a required temperature difference between the coolant temperatures at a coolant inlet to the engine and at a coolant outlet from the engine, which is determined using at least two engine operating parameters which affect engine temperature, one of the inlet and outlet temperatures being sensed and the other being determined according to the at least two engine operating parameters, and controlling the speed of the coolant pump and the speed of the fan when the coolant temperature is above the predetermined selected low limit temperature value as a function of both the required temperature difference and a required coolant operating temperature.

5,724,925

WIND DIRECTING DEVICE FOR AUTOMOTIVE ENGINE COOLING FAN

Haruyasu Ito, West Bloomfield, Mich., assignor to Usui Kokusai Sangyo Kaisha Ltd., Japan

Filed Dec. 30, 1996, Ser. No. 775,252
Int. Cl.[6] F01P 7/10
U.S. Cl. 123—41.49 4 Claims



1. A wind directing device for use with a cooling fan mounted at a front end of an automotive engine and a radiator spaced forwardly from said fan such that said fan draws cooling air through said radiator, said wind directing device comprising:

a shroud extending from said radiator and into surrounding relationship to said fan;

an undercover disposed in spaced relationship below said radiator and said shroud; and

a guide wall mounted to the front of said engine and in spaced relationship to said shroud and said undercover, said guide wall projecting rearwardly from the front end of the engine and downwardly beyond the shroud and the undercover.

5,724,926

ROTARY VALVE ASSEMBLY FOR AN INTERNAL COMBUSTION ENGINE

Robert O. Wilke, Westmont, Ill., assignor to Eagle Heads, Ltd., Westmont, Ill.

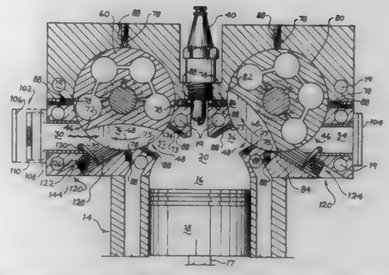
Filed Dec. 22, 1995, Ser. No. 576,927
Int. Cl.[6] F01L 7/02
U.S. Cl. 123—80 BA 26 Claims

1. A mode changer for a rotary valved internal combustion engine comprising:

a housing;

a body member disposed within the housing, the body member adapted to communicate with an outer surface of a rotary valve, the body member comprising a plurality of plates;

a resilient member disposed in the housing capable of biasing the body member against the outer surface of the rotary valve; and



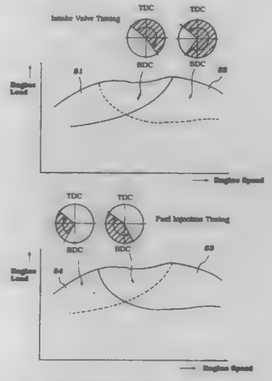
an engageable member to selectively move the body member.

5,724,927

DIRECT CYLINDER INJECTED ENGINE AND METHOD OF OPERATING SAME

Yuichi Suzuki, Iwata, Japan, assignor to Yamaha Hatsudoki Kabushiki Kaisha, Iwata, Japan

Filed Apr. 29, 1996, Ser. No. 639,484
Claims priority, application Japan, Apr. 27, 1995, 7-104022
Int. Cl.[6] F01L 13/00
U.S. Cl. 123—90.15 30 Claims



1. A direct cylinder fuel injected engine comprised of a cylinder block defining a cylinder bore, a piston reciprocating in said cylinder bore, a cylinder head assembly affixed to said cylinder block and closing one end of said cylinder bore, said cylinder head, said piston, and said cylinder bore forming a variable volume chamber, intake passage means terminating at at least one intake port communicating with said variable volume chamber for delivering an intake charge thereto, exhaust passage means extending from at least one exhaust port for discharging combustion products from said combustion chamber, a poppet type intake valve cooperating with said intake port for controlling the flow therethrough, a poppet type exhaust valve for cooperating with said exhaust port for controlling the flow therethrough, means for operating said intake and exhaust valves in timed sequence with the rotation of the output shaft of said engine and including means for varying at least the time of closing of said intake valve relative to the position of said piston within said cylinder bore, a fuel injector for injecting fuel into said variable volume chamber, and control means responsive to engine speed and engine load for controlling the timing of closing of said intake valve so that said intake valve closes before the piston reaches bottom dead center position on its intake stroke when said engine is operating at a high load in low and medium speed ranges and for effecting the closing of the intake valve after the piston has reached its bottom dead center position and is moving upwardly on the compression stroke under other engine running conditions.

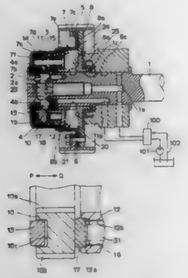
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5,724,928

VALVE TIMING ADJUSTMENT DEVICE FOR INTERNAL COMBUSTION ENGINE

Yasushi Morii, Nagoya, Japan; Tomomasa Oonishi, Kariya, Japan, and Michio Adachi, Obu, Japan, assignors to Denso Corporation, Kariya, Japan

Filed Dec. 5, 1996, Ser. No. 759,421
Claims priority, application Japan, Dec. 28, 1995, 7-342656
Int. Cl.[6] F01L *1/344*
U.S. Cl. 123—90.17 13 Claims



1. A valve timing adjustment device for an internal combustion engine, said valve timing adjustment device rotating a driving side rotating body relative to a driven side rotating body, said valve timing adjustment device comprising:

a transmitting member disposed between a driving side rotating body and a driven side rotating body, for rotating said driving side rotating body relative to said driven side rotating body by moving in an axial direction;

driving means formed separately from said transmitting member and including a moving body for transmitting driving power to said transmitting member, said moving body being moved in the axial direction; and

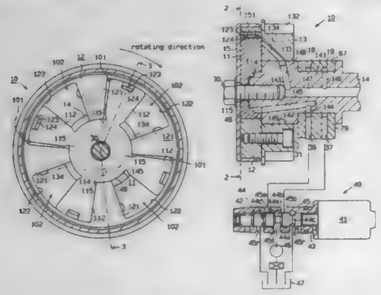
damping means disposed between said transmitting member and said moving body wherein said damping means is a hydraulic damper including a piston portion and a cylinder portion for reciprocatingly movably supposing said piston portion.

5,724,929

ENGINE VARIABLE VALVE TIMING MECHANISM

Kazuhisa Mikame, Nagoya; Ken Asakura, and Tatsuo Iida, both of Toyota, all of Japan, assignors to Toyota Jidosha Kabushiki Kaisha, Toyota, Japan

Filed Apr. 7, 1997, Ser. No. 835,252
Claims priority, application Japan, Apr. 9, 1996, 8-086481; Mar. 18, 1997, 9-064123
Int. Cl.[6] F01L *1/344*
U.S. Cl. 123—90.17 20 Claims



1. An apparatus for adjusting valve timing of a valve of an engine, the valve being actuated by a cam, the apparatus comprising:

a camshaft for driving the cam, the camshaft having a circumferential surface and a first end, wherein the first end has an end face;

a first rotor fixed to the end face of the camshaft, the first rotor having radially extending vanes;

a second rotor arranged to surround the first rotor and to be rotatable relative to the first rotor, the second rotor having a recess formed therein, the recess being divided by the vane into a first pressure chamber and a second pressure chamber;

a first passage defined in the camshaft, for supplying hydraulic fluid to the first pressure chamber to change the rotational phase of the second rotor with respect to the camshaft, the first passage having an upstream end and a downstream end with respect to the direction of fluid flow during filling of the first hydraulic chamber, the first passage having a downstream opening in the end face; and

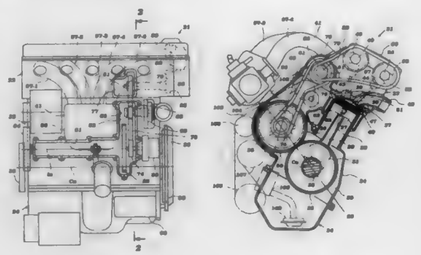
a second passage defined in the camshaft for supplying hydraulic fluid to the second pressure chamber to change the rotational phase of the second rotor with respect to the camshaft, the second passage having an upstream end and a downstream end with respect to the direction of fluid flow during filling of the second hydraulic chamber, the second passage having a downstream opening in a surface of the camshaft other than the end face.

5,724,930

TIMING CASE COVER FOR ENGINE

Kenichi Sakurai; Tatsuo Niiyama, and Masahiro Uchida, all of Iwata, Japan, assignors to Yamaha Hatsudoki Kabushiki Kaisha, Iwata, Japan

Filed Oct. 21, 1996, Ser. No. 734,652
Int. Cl.[6] F01L *1/02*
U.S. Cl. 123—90.31 29 Claims



1. An engine comprised of a main body assembly comprised of a cylinder head member, a cylinder block member and a crankcase member affixed together, said cylinder block member forming a plurality of cylinder bores containing pistons reciprocating therein, said cylinder block member and said crankcase member defining a crankcase chamber in which a crankshaft is rotatably journaled, means for driving said crankshaft from said pistons, said cylinder head member, said cylinder block member and said pistons forming combustion chambers, a plurality of flow passages formed in said cylinder head member and serving said combustion chambers, valves supported in said cylinder head member for controlling the flow through said flow passages, at least one camshaft journaled for rotation in a cam chamber formed in said cylinder head member for actuating at least some of said valves, said cam chamber being surrounded by a planar surface of said cylinder head member closed by a cam cover, an intermediate shaft journaled for rotation in a cavity formed in one of said engine body members at one side thereof that extends in a plane that is disposed at an angle to said planar surface and which intersects the plane defined by said planar surface in a longitudinally extending line which is parallel to a rotational axis of said intermediate shaft, a first drive for driving said intermediate shaft from said crankshaft a second drive for driving said camshaft from said intermediate shaft, an opening formed in said one side of said one body member into said cavity, and a removable cover closing said opening, said opening being in overlying relationship to at least one of said drives and said intermediate shaft and extending longitudinally in the direction of said intermediate shaft rotational axis.

11. An engine comprised of a main body assembly comprised of a cylinder head member, a cylinder block member and a crankcase member affixed together, said cylinder block member forming a plurality of cylinder bores containing pistons reciprocating therein, said cylinder block member and said crankcase member defining a crankcase chamber in which a crankshaft is rotatably journaled, means for driving said crankshaft from said pistons, said cylinder head member, said cylinder block member and said pistons forming combustion chambers, a plurality of flow passages formed in said cylinder head member and serving said combustion chambers, valves supported in said cylinder head member for controlling the flow through said flow passages, at least one camshaft journaled for rotation in said cylinder head member for actuating at least some of said valves, an intermediate shaft journaled for rotation in a cavity formed one of said engine body members at one side thereof, a first drive for driving said intermediate shaft from said crankshaft a second drive for driving said camshaft from said intermediate shaft, an opening formed in said one side of said one body member into said cavity, and a removable cover closing said opening, said opening being in overlying relationship to at least one of said drives and said intermediate shaft, said intermediate shaft being journaled by bearing surfaces formed directly in said one body member and said removable cover.

having a first position wherein flow of temperature control fluid between the engine and the radiator is inhibited, and a second position wherein flow of temperature control fluid between the engine and the radiator is permitted;

a second control valve for controlling flow of temperature control fluid between the engine and the exhaust heat assembly, the second control valve having a first position wherein flow of temperature control fluid between the engine and the exhaust heat assembly is inhibited, and a second position wherein flow of temperature control fluid between the engine and the exhaust heat assembly is permitted; and

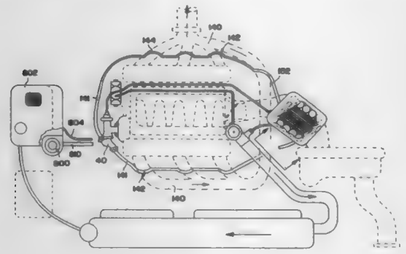
an engine computer for controlling the actuation of the control valves between their first and second positions, the engine computer receiving the engine operation parameter signal and the ambient condition signal, the engine computer comparing the engine operation parameter signal to a first engine temperature threshold value and controlling the actuation of the first control valve as a function of that comparison, and the engine computer comparing the engine operation parameter signal and the ambient condition signal to a set of predetermined values having an ambient condition component and an engine operation parameter component, the engine computer controlling the actuation of the second control valve as a function of that comparison.

5,724,931

SYSTEM FOR CONTROLLING THE HEATING OF TEMPERATURE CONTROL FLUID USING THE ENGINE EXHAUST MANIFOLD

Thomas J. Hollis, 5 Roxbury Dr., Medford, N.J. 08055, assignor to Thomas J. Hollis, Medford, N.J.

Filed Dec. 21, 1995, Ser. No. 576,609
Int. Cl.[6] F02N *17/02*
U.S. Cl. 123—142.5 R 34 Claims



1. A temperature control system for an internal combustion engine having an engine block, a water pump, and an exhaust manifold, the temperature control system controlling flow of temperature control fluid through the engine, the temperature control system comprising:

a first sensor for sensing an engine operation parameter which is indicative of the temperature of the engine oil and for providing an engine operation parameter signal indicative thereof;

a second sensor for sensing an ambient condition and for providing an ambient condition signal indicative thereof;

an exhaust heat assembly positioned adjacent to the exhaust manifold adapted for receiving a flow of temperature control fluid, the exhaust heat assembly permitting heat from the exhaust manifold to be conducted to the temperature control fluid;

a first control valve for controlling flow of temperature control fluid between the engine and a radiator, the first control valve

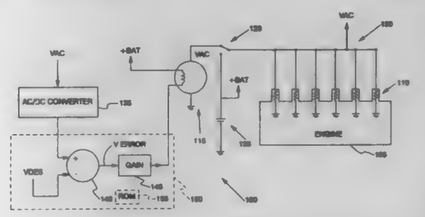
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5,724,932

ALTERNATING CURRENT CONTROL APPARATUS AND METHOD FOR GLOW PLUGS

James A. Antone, Edwards, Ill., assignor to Caterpillar Inc., Peoria, Ill.

Filed Oct. 18, 1996, Ser. No. 733,888
Int. Cl.[6] F02P *19/02*
U.S. Cl. 123—145 A 16 Claims



1. An apparatus for controlling the power consumed by a plurality of glow plugs of a multi-cylinder internal combustion engine, comprising:

a voltage sensor for sensing the voltage across a glow plug and producing a signal relative to the magnitude of the sensed voltage;

a memory device for storing a software map containing a plurality of preselected voltage magnitudes that correspond to a plurality of engine operating parameters;

a microprocessor for receiving the sensed signal, the microprocessor selecting the one of the plurality of preselected voltage magnitudes, comparing the magnitude of the sensed signal with the preselected magnitude, and responsively producing a current command signal; and

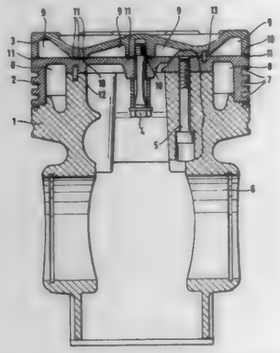
an alternator for receiving the current command signal and responsively delivering alternating current to the glow plugs.

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5,724,933
PISTON UNIT FOR AN INTERNAL COMBUSTION ENGINE

Aulis Silvonen, Vaasa; Trygve Ahlroth, Vasa, and Pasi Hallaaho, Laihia, all of Finland, assignors to Wartsila Diesel International Ltd Oy, Helsinki, Finland

Filed Mar. 6, 1996, Ser. No. 610,597
Claims priority, application Finland, Mar. 9, 1995, 951105
Int. Cl.[6] F02F *3/00*
U.S. Cl. 123—193.6 **13 Claims**



1. A piston unit for an internal combustion engine, especially for a large diesel engine, said piston unit having a longitudinal axis and comprising:

an upper part that bounds a combustion chamber of the engine when the piston unit is fitted in a cylinder of the engine, the upper part being uniform and having a central region,

a middle part that is formed with grooves for receiving piston rings,

a fastening means extending along a central axis of the piston unit and holding the upper part of the piston unit in contact with the middle part thereof by engagement with the central region of the upper part, said fastening means including a bolt having a threaded portion in engagement with the upper part of the piston unit a shank passing through an aperture in the middle part, and a head spaced from the middle part and the fastening means further including a sleeve in force transmitting relationship between the head of the bolt and the middle part of the piston unit, and

a lower part attached to the middle part,

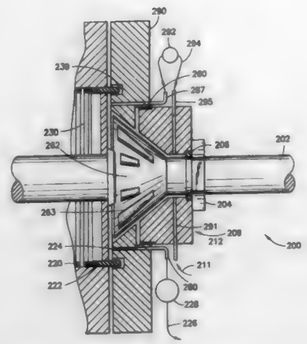
and wherein the upper part is of better heat resistance than either the middle part or the lower part.

5,724,934
MODULAR ROTARY ENGINE, AND OIL SLINGER AND RACE SEAL SUBASSEMBLIES THEREOF

John A. Faraci, 2615 Shenandoah Ave., Durham, N.C. 27704, and Anthony J. Nino, 4408 Regis Ave., Durham, N.C. 27705

Continuation-in-part of Ser. No. 143,088, Oct. 26, 1993, Pat. No. 5,517,816. This application May 21, 1996, Ser. No. 651,687
Int. Cl.[6] F01M *9/06*
U.S. Cl. 123—196 R **18 Claims**

1. A combustion engine, comprising a rotatable shaft, and an engine housing including a block having a cavity therein constructed and arranged to receive in said cavity a bearing and race/seal plug, a bearing in said cavity, and a race/seal plug engaging said block cavity and removably secured therein, said race/seal plug having (1) an opening therethrough for passage of the rotatable shaft therethrough, (2) a race/seal plug cavity receiving and engaging said bearing, and (3) having a front face formed for tool-assisted securing of the race/seal plug to the housing, said race/seal plug defining with said bearing a race/seal assembly, with

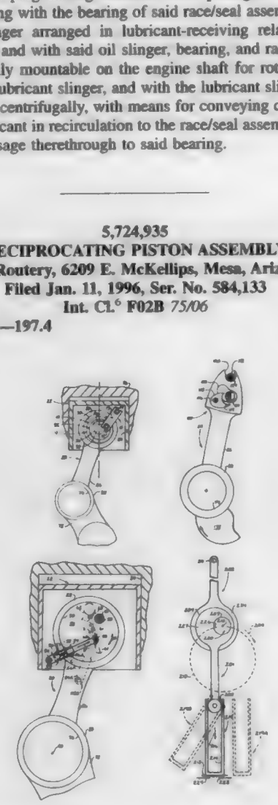


said race/seal plug having lubricant flow passages therethrough communicating with the bearing of said race/seal assembly, with a lubricant slinger arranged in lubricant-receiving relationship to said bearing, and with said oil slinger, bearing, and race/seal plug being coaxially mountable on the engine shaft for rotation of the bearing and lubricant slinger, and with the lubricant slinger directing lubricant centrifugally, with means for conveying centrifugally directed lubricant in recirculation to the race/seal assembly bearing plug, for passage therethrough to said bearing.

5,724,935
RECIPROCATING PISTON ASSEMBLY

Edward E. Routery, 6209 E. McKellips, Mesa, Ariz. 85205

Filed Jan. 11, 1996, Ser. No. 584,133
Int. Cl.[6] F02B *75/06*
U.S. Cl. 123—197.4 **4 Claims**



1. In combination with a reciprocating piston apparatus, said apparatus including

a cylinder;

a piston positioned in and operatively associated with said cylinder to define a combustion chamber and to reciprocate through a plurality of positions in said cylinder, said combustion chamber

(i) having a specific shape, dimension, and volume for each of said plurality of positions of said piston in said cylinder, and

(ii) having a volume which continuously changes when said piston reciprocates in said cylinder;

a crankshaft; and,

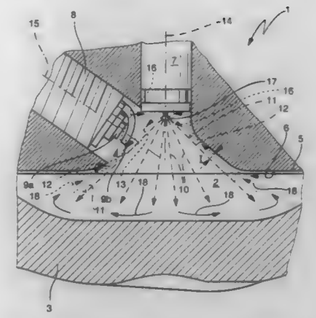
a conecting rod including a first end connected to said piston and a second end connected to said crankshaft, said crankshaft moving said piston and said connecting rod between a distal substantially motionless position and a proximate substantially motionless position such that said piston reciprocates in said cylinder in two opposing directions of travel and through said plurality of positions;

the improvements comprising constant volume means interconnecting said second end of said connecting rod and said crankshaft to alter said specific shape, dimension, and volume of said combustion chamber when said piston is in a selected position intermediate said distal position and said proximate position, said constant volume means momentarily halting the travel of said piston in said selected position such that the volume of said combustion chamber remains constant while said crankshaft rotates.

5,724,936
ENGINE COMPONENT LAYOUT FOR OUTBOARD MOTOR

Takayuki Osakabe, Hamamatsu, Japan, assignor to Sanshin Kogyo Kabushiki Kaisha, Shizuoka, Japan

Filed Mar. 27, 1996, Ser. No. 622,964
Claims priority, application Japan, Mar. 27, 1995, 7-068088
Int. Cl.[6] F02B *77/00*
U.S. Cl. 123—198 R **22 Claims**



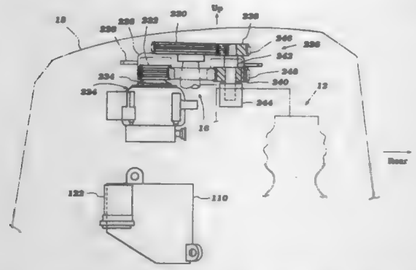
fuel into said combustion chamber in a cone-like pattern whereby the fuel is mixed with combustion air admitted to the combustion chamber to form a combustible mixture, and a spark plug with electrodes mounted in said conical cylinder head portion in such a way that said electrodes are disposed outside the superficies of said cone-like fuel injection pattern, said internal cylinder head wall having a conical portion around said cone-like fuel injection pattern which, at least in the area of said spark plug, extends at a distance from said conical cylinder head wall portion and has a superficies which is essentially parallel to said conical cylinder head wall portion so as to provide for a gap between the fuel cone superficies and the conical cylinder head wall portion.

5,724,937
INTERNAL COMBUSTION ENGINE WITH DIRECT FUEL INJECTION

Martin Bezner, Walheim; Günter Karl, Esslingen; Klaus Meier, Leutenbach, and Helmut Schorn, Esslingen, all of Germany, assignors to Mercedes Benz AG, Stuttgart, Germany

Filed Dec. 10, 1996, Ser. No. 763,081
Claims priority, application Germany, Dec. 15, 1995, 195 46 945.3
Int. Cl.[6] F02M *19/00*
U.S. Cl. 123—275 **11 Claims**

1. An internal combustion engine with direct fuel injection having a piston disposed in a cylinder of the engine and a cylinder head with an internal wall which together delineate a combustion chamber, an injector mounted in said cylinder head so as to inject

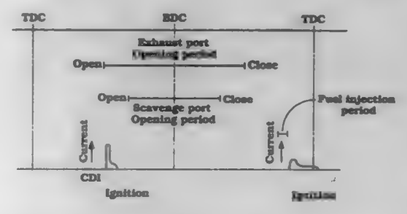


1. An engine comprising a vertically-oriented output shaft which rotates a drive pulley attached to said output shaft at an upper end of said engine, a generator mounted at a side of said engine and including a driven pulley positioned at a level below said drive pulley, and an intermediate pulley system operating between said drive pulley and said driven pulley to transmit power from said output shaft to said generator.

5,724,938
IGNITION SYSTEM FOR A TWO CYCLE ENGINE

Akira Yamada, Hamamatsu, Japan, assignor to Yamaha Hatsudoki Kabushiki Kaisha, Iwata, Japan

Continuation of Ser. No. 764,531, Sep. 24, 1991, abandoned. This application Apr. 15, 1993, Ser. No. 48,580
Claims priority, application Japan, Sep. 26, 1990, 2-257935
Int. Cl.[6] F02P *15/00*
U.S. Cl. 123—305 **37 Claims**



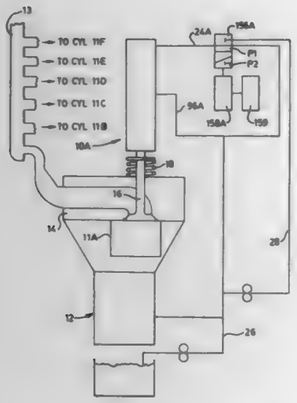
1. An ignition system for an internal combustion engine comprising a combustion chamber which varies cyclically between a minimum volume condition (TDC) and a maximum volume condition (BDC), induction means for delivering a combustible charge to said combustion chamber, and exhaust means for discharging a burnt charge from said combustion chamber, said ignition system comprising an ignition system circuit and a set of electrodes in communication with said ignition system circuit, said electrodes located within said combustion chamber of said engine; said ignition system circuit producing an electrical spark at said electrodes after a combustible charge has been introduced by said induction means into said combustion chamber and as said combustion chamber approaches TDC condition for initiating combustion and a second electrical spark after said combustible charge has been ignited and burned sufficiently to leave an un-combustible mixture at said electrodes and as said combustion chamber approaches BDC condition and before another combustible charge is introduced by said induction means into said combustion chamber for serving the sole purpose of cleaning deposits from said electrodes.

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5,724,939
EXHAUST PULSE BOOSTED ENGINE COMPRESSION BRAKING METHOD

James J. Faletti, Spring Valley, and David E. Hackett, Washington, both of Ill., assignors to Caterpillar Inc., Peoria, Ill.

Filed Sep. 5, 1996, Ser. No. 708,619
Int. Cl.[6] F02D *13/04*
U.S. Cl. 123—322 13 Claims



1. A method of compression braking of an internal combustion engine having three or more combustion chambers, each combustion chamber being in flow communication with an exhaust valve movable between an open position and a closed position for selectively placing three or more combustion chambers in flow communication with a common exhaust manifold having an average pressure therein, the method comprising the steps of:

opening a first exhaust valve in flow communication with a first combustion chamber at a time corresponding to an elevated pressure condition in the first combustion chamber relative to the average pressure;

opening a second exhaust valve in flow communication with a second combustion chamber substantially simultaneously with the opening of the first exhaust valve and at a time corresponding to a lower but increasing pressure condition in the second combustion chamber relative to the average pressure; and

maintaining at least a third exhaust valve, in flow communication with a third combustion chamber, in the closed position throughout a period of time during which either of the first exhaust valve or the second exhaust valve is in the open position.

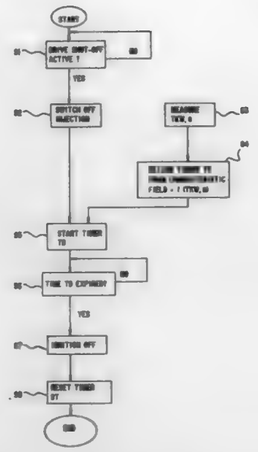
5,724,940
METHOD FOR CONTROLLING AN INTERNAL COMBUSTION ENGINE IN OVERRUN MODE

Christian Hoffmann, Regensburg, Germany, and Achim Koch, Tegernheim, Germany, assignors to Siemens Aktiengesellschaft, Munich, Germany

Filed Dec. 23, 1996, Ser. No. 777,932
Claims priority, application Germany, Dec. 21, 1995, 195 48 054.6
Int. Cl.[6] F02D *43/00*
U.S. Cl. 123—325 7 Claims

1. A method for controlling an internal combustion engine with a cylinder and an intake tube in overrun mode, the method which comprises:

sensing the engine for overrun mode and, when the overrun mode is detected, shutting off a fuel supply to the cylinder of the engine;

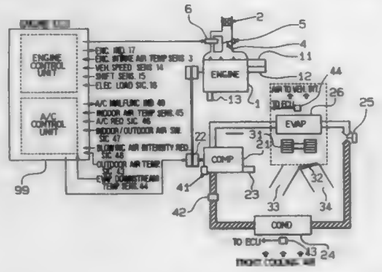


maintaining ignition after shutting off the fuel supply for a given time period, determining the given time period from a degradation of a fuel wall film present in the intake tube, and shutting off the ignition after the given time period.

5,724,941
MALFUNCTION DIAGNOSIS DEVICE OF AN INTERNAL COMBUSTION ENGINE CONTROLLER

Hideki Suzuki, Chita-gun, Japan, and Yoshiyuki Okamoto, Anjou-city, Japan, assignors to Nippondenso Co., Ltd., Kariya-city, Japan

Filed Jan. 29, 1996, Ser. No. 593,722
Claims priority, application Japan, Jan. 30, 1995, 7-12623
Int. Cl.[6] F02D *41/22;43/00;* B60H *1/32*
U.S. Cl. 123—339.15 21 Claims



1. A malfunction diagnosis device of an internal combustion engine controller, said diagnosis device comprising:

operational parameter estimation means for detecting an internal combustion engine operational parameter;

intake air volume manipulation means for increasing and decreasing an internal combustion engine inlet air volume;

idle rotation speed control means for making an internal combustion engine actual rotation speed converge to a target rotation speed by adjusting said intake air volume manipulation means based on a deviation between said internal combustion engine actual rotation speed and said target rotation speed during an internal combustion engine idle operating state;

an auxiliary device operational state detection means for detecting an auxiliary device operational parameter;

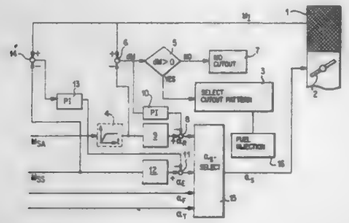
auxiliary device malfunction determination means for determining that said auxiliary device has a malfunction when said internal combustion engine operational parameter is out of a first predetermined range and said auxiliary device operational parameter is out of a second predetermined range; and

malfunction degree detection means for determining said auxiliary device malfunction is a malfunction which aggravates emissions or fuel consumption after said auxiliary device malfunction determination means determines said auxiliary device malfunction.

5,724,942
METHOD AND APPARATUS FOR REGULATING ENGINE TORQUE

Kurt Maute, Sindelfingen; Wolfgang Strauss, Denkendorf, and Hartmut Weckermann, Stuttgart, all of Germany, assignors to Mercedes-Benz AG

Filed Dec. 13, 1996, Ser. No. 767,253
Claims priority, application Germany, Dec. 13, 1995, 195 46 554.7
Int. Cl.[6] F02D *31/00*
U.S. Cl. 123—352 6 Claims



1. Method for regulating engine torque of an engine having a fuel injection system, said method comprising the steps of:

determining an engine torque deviation between a set engine torque and actual engine torque of said engine;

cutting out fuel injection to said engine in accordance with a cutout pattern which is selected from a set of predetermined cutout patterns as a function of said engine torque deviation; and

concurrently with said cutting out of fuel injection, implementing an engine torque reducing throttle position control, whereby said actual engine torque is adjusted to said set engine torque.

5,724,943
ELECTRONIC FUEL INJECTION SYSTEM AND IGNITION SYSTEM

David H. Blount, 6728 Del Cerro Blvd, San Diego, Calif. 92120, and James O. Blount, 5012 Lawson Ave., Gulfport, Miss. 39501

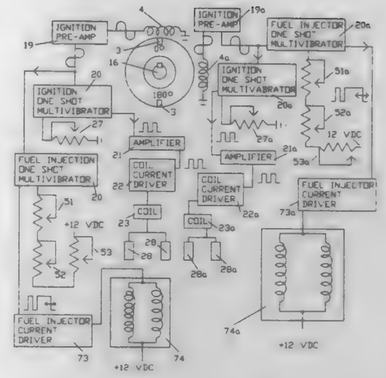
Continuation-in-part of Ser. No. 348,320, Dec. 2, 1994, Pat. No. 5,549,090. This application Aug. 21, 1996, Ser. No. 700,879
Int. Cl.[6] F22D *1/00*
U.S. Cl. 123—414 7 Claims

1. A combined ignition and fuel injection system for an engine comprising:

variable resistance sensor means for manifold pressure, throttle position, and air temperature;

a crankshaft position sensor means comprising at least one magnet on a disk adapted to be rotated by a crankshaft;

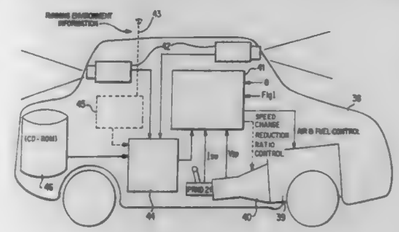
circuit means comprising a pick-up coil responsive to said at least one magnet to output a signal to a first amplifier which is operable to send a signal to both an ignition multivibrator and a fuel injection multivibrator, each of said variable sensor means connected to said fuel multivibrator to control the duration of each fuel injection pulse, and variable resistance dwell control means to control the duration of an ignition signal from said ignition multivibrator.



5,724,944
CONTROL APPARATUS AND A CONTROL METHOD FOR A VEHICLE

Toshimichi Minowa, Tokai-mura; Satoshi Kuragaki, Hitachinaka, both of Japan, and Junichi Ishii, Novi, Mich., assignors to Hitachi, Ltd., Tokyo, Japan

Continuation of Ser. No. 695,345, Aug. 9, 1996, Pat. No. 5,638,790, which is a continuation of Ser. No. 365,444, Dec. 28, 1994, abandoned. This application Mar. 13, 1997, Ser. No. 816,703
Claims priority, application Japan, Dec. 28, 1993, 5-334926
Int. Cl.[6] F02D *43/04;* F02M *51/00;* B60K *41/04*
U.S. Cl. 123—436 1 Claim



1. A control device for a power train of a vehicle which controls at least one of an air flow quantity supplied into an engine of said vehicle, a fuel quantity supplied into said engine of said vehicle, an ignition timing of said engine, and a transmission speed change ratio, comprising:

at least one outer environment receiver for receiving the outer environment of the vehicle;

a running condition determining means for determining a current running condition of the vehicle;

a calculating means for calculating a targeted torque of one of an output torque of said engine and an output torque of said transmission corresponding to a value of said outer environment and a value of said running condition;

means for outputting control data in response to said calculated target torque; and

at least one of control actuators which control at least one of said air flow quantity, fuel quantity, ignition timing, and transmission speed change ratio in accordance with said control data.

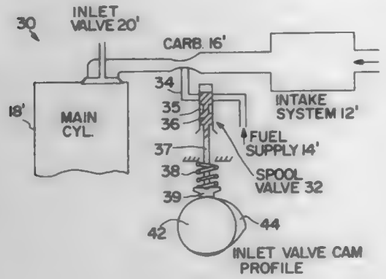
VOL 1208 ISS 2 MR 10 1998 UMI

5,724,945

CARBURETOR AIR/FUEL RATIO CONTROL FOR SINGLE CYLINDER ENGINES

James C. Swain, Columbus, Ohio, assignor to Gas Research Institute, Chicago, Ill.

Filed Sep. 18, 1996, Ser. No. 710,558
Int. Cl.[6] F02M 17/14
U.S. Cl. 123—437 14 Claims



1. An apparatus for facilitating the control of the air/fuel ratio for a single cylinder internal combustion engine having an air/fuel charge inlet and a corresponding at least one inlet valve which is closed during at least a portion of each engine operating cycle, a carburetor, a source of air for delivery to the carburetor, a source of fuel for delivery to the carburetor, a passage extending between the source of fuel and the carburetor, a passage extending between the source of air and the carburetor, a passage extending between the carburetor and the air/fuel charge inlet; the apparatus for facilitating the control of the air/fuel ratio comprising:

means, disposed external to the carburetor, for interrupting the flow of fuel from the source of fuel to the carburetor, operably disposed along a fluid flow path between the source of fuel and the carburetor;

means for actuating the means for interrupting the flow of fuel, operably configured to actuate the interrupting means during that portion of each engine operating cycle during which the at least one inlet valve is closed, the timing of the actuating means being mechanically controlled.

5,724,946

FUEL RAIL AND INJECTOR ASSEMBLY

Anthony Louis Franchitto, Virginia Beach, Va., assignor to Siemens Automotive Corporation, Auburn Hills, Mich.

Filed Nov. 22, 1996, Ser. No. 755,053
Int. Cl.[6] F02M 55/02
U.S. Cl. 123—470 7 Claims

1. A fuel rail and injector assembly including a fuel delivery rail having an injector cup and a fuel injector having a mounting end mountable in the injector cup, said assembly characterized by:

a receiving section integral with and extending circumferentially around the injector cup including a necked down portion and retaining portion, and

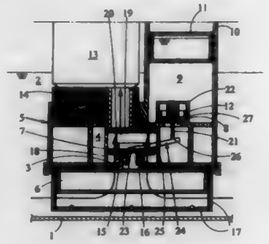
an engaging section integral with and extending circumferentially around the injector mounting end urgeable through said necked down portion and receivable in said retaining portion for snap fastening together the fuel injector and the fuel rail injector cup.

5,724,947

FUEL PUMP UNIT

Hiroshi Takaki, and Yujiro Hayashi, both of Soja, Japan, assignors to OM Corporation, Okayama, Japan

Filed Mar. 13, 1997, Ser. No. 816,505
Int. Cl.[6] F02M 37/04
U.S. Cl. 123—509 2 Claims



1. A fuel pump unit having a switching mechanism for switching between a main tank and a reserver, the switching mechanism comprising a main tank valve linked to a float rising and falling in proportion with the level of remaining fuel inside a main tank of a fuel tank and a reserve valve opening and closing in linkage with the main tank valve, wherein

the main tank valve closes a valve seat therefor provided near a main fuel inlet communicating with a fuel intake passage of the fuel pump unit,

the reserve valve closes a valve seat therefor provided near an auxiliary fuel inlet communicating with the fuel intake passage, and

a rocking member is disposed with a support point thereof located between the main tank valve and the reserve valve, the rocking member having a force point pivotally attached to the main tank valve for pushing up the reserve valve with an action point thereof when the main tank valve closes the main fuel inlet, thereby opening the auxiliary fuel inlet.

5,724,948

BIOGAS DRIVEN GENERATOR SET

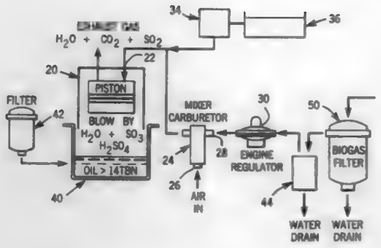
James L. King, Sheboygan, Wis., and Timothy Mintner, Elkhart Lake, Wis., assignors to Kohler Co., Kohler, Wis.

Filed Oct. 1, 1996, Ser. No. 724,199
Int. Cl.[6] F02M 21/04
U.S. Cl. 123—527 12 Claims

1. A biogas fuel supply system for providing fuel to the intake of an internal combustion engine, which comprises:

a carburetor having an air intake and a biogas intake, the carburetor being operable to mix air with a stream of biogas supplied to the carburetor biogas intake and deliver the mixture to said engine intake;

a reservoir for storing acid-neutralizing oil; and



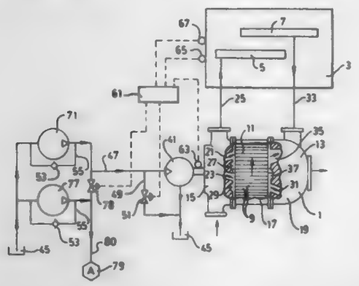
an injector coupled to the reservoir for receiving acid neutralizing oil and injecting it into the engine intake for a preset time interval when the engine is shut down.

5,724,949

HYDRAULIC DRIVE FOR A PRESSURE WAVE SUPERCHARGER UTILIZED WITH AN INTERNAL COMBUSTION ENGINE

Cho Y. Liang, Peoria, Ill., assignor to Caterpillar Inc., Peoria, Ill.

Filed Nov. 6, 1996, Ser. No. 744,551
Int. Cl.[6] F02B 33/42;39/08
U.S. Cl. 123—559.2 4 Claims



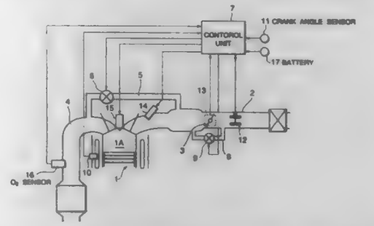
1. An hydraulic drive system for a pressure wave supercharger comprising a housing, a circular array of a plurality of elongated chambers forming a rotor, which is rotatably disposed within the housing, the pressure wave supercharger being cooperatively associated with an internal combustion engine to compress incoming combustion air supplied to the engine, characterized by a hydraulic motor coupled to the rotor to rotate the rotor relative to the housing, a first hydraulic pump driven by the engine for providing pressurized hydraulic fluid to the hydraulic motor to drive the motor when the engine is running, a second hydraulic pump for providing pressurized hydraulic fluid to the hydraulic motor to drive the motor, a flow control valve for controlling the flow of hydraulic fluid flowing from the first and second hydraulic pumps to the hydraulic motor, means for shutting off the flow of hydraulic fluid from the second to the hydraulic motor, and a controller which operates the flow control valve to regulate the hydraulic fluid provided to the hydraulic motor and control the speed of the rotor to synchronize the pressure wave action within the elongated chambers of the rotor and supply combustion air to the engine at the proper volume and density and which operates the means for shutting off the flow of hydraulic fluid from the second hydraulic pump to the hydraulic motor when the engine is operating above a predetermined speed, whereby the first pump provides hydraulic fluid to the hydraulic motor when the engine is operating and the second pump only provides hydraulic fluid to the hydraulic motor when the engine speed is below the predetermined speed.

5,724,950

EXHAUST GAS RECIRCULATING CONTROLLER

Toshikazu Shino, Chigasaki, and Kazushige Yokota, Zama, both of Japan, assignors to Nissan Motor Co., Ltd., Kanagawa, Japan

Filed Feb. 18, 1997, Ser. No. 801,894
Claims priority, application Japan, Mar. 21, 1996, 8-064566
Int. Cl.[6] F02D 41/14; F02M 25/07
U.S. Cl. 123—676 5 Claims



1. An exhaust gas recirculation controller for use with an engine, said engine comprising an intake passage and exhaust passage connected by an exhaust gas recirculation passage provided with an exhaust recirculation valve, comprising:

means for detecting a running state of said engine,

means for setting a target exhaust gas recirculation rate according to said running state,

means for computing a total intake air flow cross-sectional area of said engine comprising said air intake passage,

means for setting a first correction amount of said target exhaust gas recirculation rate according to an exhaust pressure of said engine,

means for setting a target opening amount of said exhaust gas recirculation valve based on said target exhaust recirculation rate, total intake flow cross-sectional area and first correction value, and

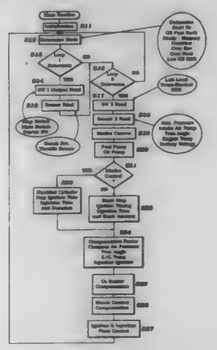
means for controlling the opening of said exhaust gas recirculating valve to the target opening.

5,724,951

ENGINE CONTROL SYSTEM AND METHOD

Kyoji Mukumoto, Iwata, Japan, assignor to Yamaha Matsudoki Kabushiki Kaisha, Iwata, Japan

Filed Mar. 29, 1996, Ser. No. 625,174
Claims priority, application Japan, Mar. 31, 1995, 7-074783
Int. Cl.[6] F02D 41/14
U.S. Cl. 123—687 18 Claims



1. An internal combustion engine having a plurality of combustion chambers, a fuel/air charging system for delivering a fuel/air charge to said combustion chambers for combustion therein, a

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fuel/air ratio sensor for measuring the fuel/air ratio, feedback control means for controlling the fuel/air ratio supplied to said engine to maintain the desired fuel/air ratio therein by shifting between the rich side of said desired ratio and the lean side of said desired ratio, means for sensing an undesirable engine condition, means for disabling the running of at least one of said combustion chambers when the undesirable engine condition is sensed, and means for discontinuing feed back control when the combustion chamber running is disabled.

5,724,952

AIR-FUEL RATIO CONTROL SYSTEM FOR INTERNAL COMBUSTION ENGINES

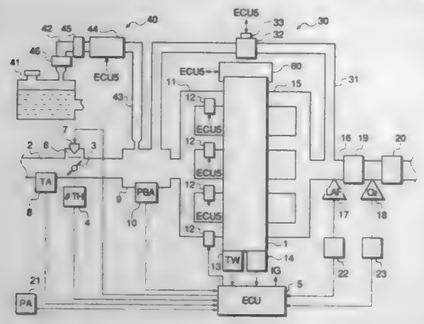
Kotaro Miyashita; Hirofumi Mutoh; Katsushi Watanabe; Yukio Noda, and Fumio Hara, all of Wako, Japan, assignors to Honda Giken Kogyo Kabushiki Kaisha, Tokyo, Japan

Filed Jun. 7, 1996, Ser. No. 660,390

Claims priority, application Japan, Jun. 9, 1995, 7-168073; Jun. 9, 1995, 7-168075; Jun. 9, 1995, 7-168076

Int. Cl.[6] F02D *41/14*; F01N *3/20*

U.S. Cl. 123—688 **15 Claims**



1. An air-fuel ratio control system for an internal combustion engine having an exhaust passage, comprising:

air-fuel ratio-detecting means arranged in said exhaust passage, for generating an output proportional to concentration of oxygen in exhaust gases emitted from said engine;

air-fuel ratio feedback control means for controlling an air-fuel ratio of a mixture supplied to said engine to a desired air-fuel ratio in response to said output from said air-fuel ratio-detecting means by the use of a proportional term and an integral term;

inversion period-calculating means for calculating a repetition period of inversion of said output from said air-fuel ratio-detecting means with respect to a predetermined reference value; and

deterioration-detecting means for detecting deterioration of said air-fuel ratio-detecting means, based on said repetition period of inversion of said output from said air-fuel ratio-detecting means calculated by said inversion period-calculating means.

5,724,953

INACTIVE STATE DETERMINING METHOD OF OXYGEN SENSOR FOR VEHICLE

Hun Jung, Seoul, Rep. of Korea, assignor to KIA Motors Corporation, Seoul, Rep. of Korea

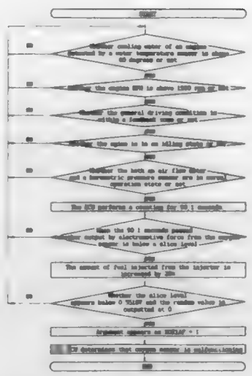
Filed Jun. 28, 1996, Ser. No. 674,237

Claims priority, application Rep. of Korea, Apr. 24, 1996, 96-12707

Int. Cl.[6] F02D *41/22*; G01M *19/00*

U.S. Cl. 123—688 **6 Claims**

1. An inactive-state determining method of an oxygen sensor, comprising the steps of:



determining whether the oxygen sensor is in a condition where the oxygen sensor can be activated;

determining whether an engine is in an idle state;

counting a predetermined time;

determining whether electromotive force from the oxygen sensor is below a slice level even after the predetermined time is passed;

injecting an amount of fuel increased by 20%; and

determining whether the electromotive force of the oxygen sensor is below the slice level even when the increased fuel is injected.

5,724,954

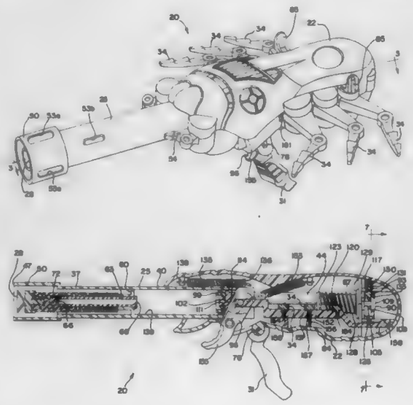
PROJECTILE LAUNCHER AND COCKING MECHANISM FOR SAME

Joseph J. Smith, Cincinnati, Ohio, assignor to Hasbro, Inc., Pawtucket, R.I.

Filed Jan. 23, 1997, Ser. No. 788,902

Int. Cl.[6] F41B *11/14*; *11/18*

U.S. Cl. 124—66 **25 Claims**



1. A projectile launcher comprising:

a housing;

a projectile launch tube slidably joined to the housing for movement between a first position and a second position, wherein the launch tube includes a first portion for releasably mounting a projectile and a hollow second portion in fluid communication with the first portion;

a launch tube spring biasing the launch tube toward the first position;

a piston slidably disposed in the housing for movement from an uncocked position to a cocked position in response to the launch tube moving from the first position to the second position, and from the cocked position to the uncocked position to compress fluid in the second portion of the launch tube;

a piston spring biasing the piston toward the uncocked position;

a sear slidably joined to the housing for releasably retaining the piston in the cocked position; and

release means for sliding the sear to release the piston from the cocked position.

5,724,955

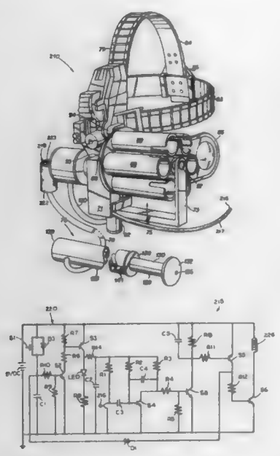
VOICE ACTIVATED COMPRESSED AIR TOY GUN

Lonnie G. Johnson, Smyrna, and John T. Applewhite, Atlanta, both of Ga., assignors to Johnson Research & Development Company, Inc.

Continuation-in-part of Ser. No. 730,619, Oct. 21, 1996, which is a continuation-in-part of Ser. No. 699,431, Aug. 19, 1996, which is a continuation-in-part of Ser. No. 494,407, Jun. 26, 1995, Pat. No. 5,592,931, which is a continuation-in-part of Ser. No. 441,229, May 15, 1995, Pat. No. 5,596,978. This application Jan. 27, 1997, Ser. No. 788,225

Int. Cl.[6] F41B *11/00*; F41A *9/61*

U.S. Cl. 124—72 **12 Claims**



1. A compressed air toy gun for firing projectiles comprising:

launch tube means for holding and launching at least one projectile;

pump means for compressing air;

a first pressure chamber in fluid communication with said pump means and in fluid communication with said launch tube means;

conduit means for conveying compressed air from said pump means to said first pressure chamber as said pump means is actuated; and

sound activated control valve means for controlling the flow of compressed air from said first pressure chamber to said launch tube means in response to the detection of an audible signal, and

head harness means for supporting said launch tube means adjacent the head of a person.

5,724,956

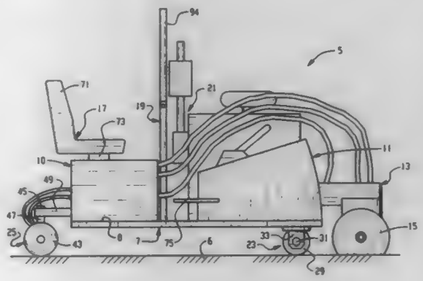
RIDING SAW FOR CUTTING CONCRETE AND SIMILAR MATERIALS

Frederick A. Ketterhagen, Burlington, Wis., assignor to Diamond Products Joint Venture, Elyria, Ohio

Filed Mar. 6, 1996, Ser. No. 611,545

Int. Cl.[6] B24D *1/04*

U.S. Cl. 125—13.01 **11 Claims**



1. A riding saw for cutting concrete and similar materials comprising a main support frame having a fore end and an aft end, said main support frame having mounted thereto a blade drive mechanism for supporting and rotating a rotary cutting blade and a pair of front wheels mounted to said main support frame, said support frame having mounted at its aft end a steerable drive wheel powered for rotation by a hydraulic motor, extending above the main support frame is a seat for supporting a rider, and mounted on said main support frame is a steering assembly having a steering device located in the proximity of said seat, said steering assembly being mechanically linked to said drive wheel thereby allowing a rider to adjust the position of said drive wheel via the manipulation of said steering device, wherein said steering assembly includes a support tube extending vertically up from said main support frame and said steering device comprises a vertical portion and a horizontal portion, said vertical portion of said steering device being supported for rotation within said support tube and being attached to said drive wheel by a steering link.

5,724,957

INTRAPULMONARY DELIVERY OF NARCOTICS

Reid M. Rubsamen, Berkeley, Calif., and Lester John Lloyd, Orinda, Calif., assignors to Aradigm Corporation, Hayward, Calif.

Continuation of Ser. No. 331,047, Oct. 28, 1994, abandoned, which is a continuation-in-part of Ser. No. 11,289, Jan. 29, 1993, abandoned. This application Jul. 28, 1995, Ser. No. 508,982

Int. Cl.[6] A61M *11/00*

U.S. Cl. 128—200.14 **18 Claims**

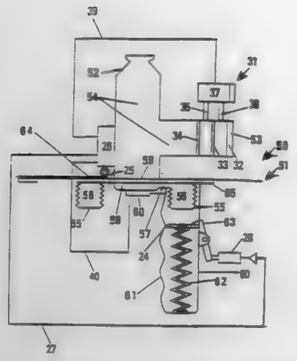
1. A method of administering an analgesic drug, comprising

(a) determining a drug release point based on real time values of both a patient's inspiratory flow rate and inspiratory volume;

(b) positioning a disposable container and disposable porous membrane in a drug release position wherein the porous membrane has pores having a diameter in the range of 0.25 to 2.5 microns;

(c) releasing an aerosolized dose of a formulation comprised of a carrier and an analgesic drug through the membrane at the determined inspiratory flow rate in a range of 0.10 to about 2.0 liters/second and inspiratory volume in a range of about 0.15 to about 0.8 liters; and

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(d) repeating steps (a), (b) and (c) in a manner such the releasing repeatedly occurs at substantially the same inspiratory flow rate and inspiratory flow volume and a new porous membrane is positioned in the drug release position for each positioning step (b) and releasing step (c);

wherein the method is carried out with and steps (a)–(d) are performed by a hand-held, self-contained device.

5,724,958

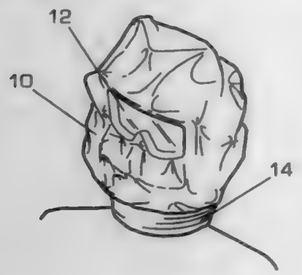
BREATHING HOOD

Brian Farnworth, Delta, Canada, and Scott Howard Yule, Burnaby, Canada, assignors to M.E.T.A. Research Inc., Richmond, Canada

Filed May 28, 1996, Ser. No. 654,422

Int. Cl.[6] A62B *17/00*

U.S. Cl. 128—201.23 **20 Claims**



1. A breathing hood having a capacity to receive a user's head and provide a volume therein in the form of an air space to provide an air supply for the user to breathe for a preselected period of time, said hood including means to substantially prevent the ingress of liquid water there into when submerged, means for permitting transfer of gasses including oxygen and carbon dioxide between inside of said hood and outside air, passage means in said hood to facilitate movement of air to breathing apertures of said user from areas of said hood remote from said breathing apertures and a transparent waterproof window formed in said hood in position to permit said user to see out of said hood.

5,724,959

POWDER INHALER WITH SPECIFIC ORIFICE AND BAFFLE ARRANGEMENT

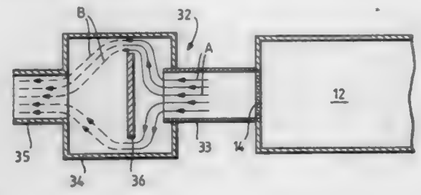
John Jackson McAughey, Didcot, United Kingdom, and John Nigel Pritchard, King's Langley, United Kingdom, assignors to AEA Technology PLC, Didcot, United Kingdom

Continuation of Ser. No. 975,949, Feb. 25, 1993, abandoned. This application Sep. 16, 1994, Ser. No. 307,290

Claims priority, application United Kingdom, Oct. 2, 1990, 9021433

Int. Cl.[6] A61M *15/08;16/00;* **B05D** *7/14;83/26*

U.S. Cl. 128—203.15 **8 Claims**



1. A dry powder inhaler comprising a dispensing chamber into which dry powder is introduced in operation, a duct and a mouthpiece through which a patient may inspire, the dispensing chamber being connected via the duct to the mouthpiece; the chamber, the duct and the mouthpiece together defining a flow path such that at least the bulk of the inspired air flows through the chamber, then through the duct, and then through the mouthpiece; wherein there is at least one means within the duct to define at least one orifice forming part of the flow path for air, and for particles of the powder carried by the air, there being a portion of the duct downstream of the orifice and the orifice being of narrower width than that portion of the duct downstream thereof; and means to deviate substantially all the air flow through the orifice abruptly along successive L-shaped paths, whereby larger particles of the powder carried by the air flow undergo impaction due to their inertia whereas smaller particles are carried along with the air flow, the deviating means comprising an impactor in the duct between the said orifice and the mouthpiece, the impactor comprising a stationary plate substantially transverse to the flow direction through the orifice but spaced along the duct from the orifice, of larger projected area than the orifice and of such a shape that any line through the orifice extending parallel to the direction of the air flow at the center of the orifice is obstructed by the plate.

5,724,960

INSERT DEFINING A MEASURING CHAMBER OF AN INHALER DEVICE

Pascal Bruna, Rouen, France, assignor to Valois S.A., Le Neubourg, France

PCT No. PCT/FR95/00474, § 371 Date Jan. 3, 1997, § 102(e) Date Jan. 3, 1997, PCT Pub. No. WO95/28980, PCT Pub. Date Nov. 2, 1995

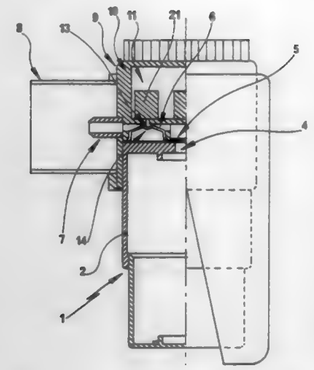
PCT Filed Apr. 12, 1995, Ser. No. 727,596

Claims priority, application France, Apr. 20, 1994, 94 04711

Int. Cl.[6] A61M *15/00*

U.S. Cl. 128—203.15 **16 Claims**

1. An inhaler device for inhaling substance in powder form, the device comprising a body (**9**), a compressed air pump (**1**) including a pump body (**2**) and a pump chamber (**4**), an expulsion duct (**6**) connected via a flap valve (**5**) to the pump chamber (**4**) and opening out into an outlet endpiece (**7**) through which the substance is dispensed, a substance reservoir (**11**) connected to said expulsion duct (**6**), and a substance measuring chamber (**13**) disposed fixedly in said expulsion duct (**6**), the device being characterized in that said measuring chamber (**13**) comprises an insert (**14**) having a top portion (**16**) projecting into said expulsion duct (**6**) in sealed manner through an opening provided for that purpose



in said duct (**6**), said top portion (**16**) of said insert (**14**) being of a shape that is suitable for retaining a predetermined quantity of substance.

5,724,961

VALVE ARRANGEMENT AND A BREATHING REGULATOR WHICH INCLUDES SUCH A VALVE ARRANGEMENT

Rolf Tistrand, Alingsås, Sweden, assignor to Poseidon Industri AB, Vastra Frolunda, Sweden

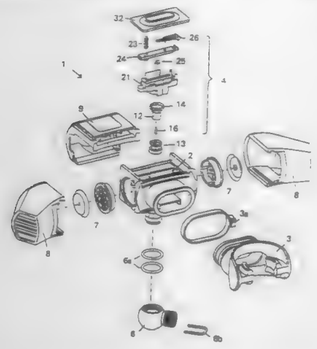
PCT No. PCT/SE94/01043, § 371 Date Jun. 26, 1996, § 102(e) Date Jun. 26, 1996, PCT Pub. No. WO95/12519, PCT Pub. Date May 11, 1995

PCT Filed Nov. 4, 1994, Ser. No. 624,622

Claims priority, application Sweden, Nov. 5, 1993, 9303662

Int. Cl.[6] A62B *7/04*

U.S. Cl. 128—205.24 **10 Claims**



1. A valve arrangement intended particularly, but not exclusively, for underwater breathing apparatus (**1**), comprising an outlet side, an inlet (**11**) through which gas can pass to the outlet side from a gas source at a pressure above atmospheric pressure, a movable valve means (**12**) which is mounted for movement in a seating (**13**) and which functions to close the gas inlet, and a servo device (**21**) for regulating the valve means, characterized in that

the movable valve means (**12**) includes an elastomeric bladder (**14**) at the end of the valve means opposite the inlet, and an axially extending through-penetrating hole (**15**) which connects the inlet (**11**) with the bladder interior; and

in that the servo device includes a servo housing (**21**) to which the bladder (**14**) is sealingly connected and which includes a closable through-penetrating hole (**22**) for operating the valve arrangement, said hole (**22**) connecting the bladder interior with the outlet side (**2**);

wherein in a first operational state of the valve arrangement, the through-penetrating hole (**22**) in the servo housing (**21**) is closed and, as a result, the gas in the bladder exerts on the valve means (**12**) a pressure which exceeds the pressure acting on the valve means from the inlet side, therewith moving the valve means to a position in which said valve means (**12**) prevents gas from flowing from the gas inlet (**11**);

and in a second operational state of the valve arrangement, the through-penetrating hole (**22**) in the servo housing (**21**) is open and the pressure acting on the valve means (**12**) on the inlet side exceeds the pressure in the bladder (**14**), therewith moving the valve means to a position in which gas is permitted to flow from the gas inlet (**11**) through openings (**35**) provided in the valve seating (**13**), and out to the outlet side (**2**).

5,724,962

VALVE FOR USE IN CONNECTION WITH AN INHALER APPARATUS

Mika Tapio Vidgrén, Kuopio, and Tapio Antti Kaplas, Kerava, both of Finland, assignors to Orion-Yhtymä Oy, Espoo, Finland

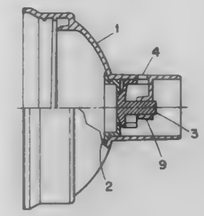
PCT No. PCT/FI93/00421, § 371 Date Apr. 12, 1995, § 102(e) Date Apr. 12, 1995, PCT Pub. No. WO94/08651, PCT Pub. Date Apr. 28, 1994

PCT Filed Oct. 14, 1993, Ser. No. 416,732

Claims priority, application Finland, Oct. 15, 1992, 924661

Int. Cl.[6] A61M *16/00*

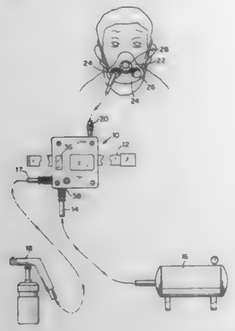
U.S. Cl. 128—205.24 **13 Claims**



1. A valve for use in connection with aerosol spacers to be mounted on a metered dose inhaler, comprising a frame portion having one end for attachment to a chamber portion of an aerosol spacer and an opposite end defining a mouthpiece that possesses a longitudinal axis, the mouthpiece being defined by a wall portion which possesses an inner surface, said mouthpiece having at least one air outlet aperture positioned in said wall portion for expiratory air and an air inlet aperture for air to be inhaled via the chamber portion of the aerosol spacer, and a flap fitted inside the mouthpiece, the flap comprising an end portion for closing the air inlet aperture during exhalation and a closing leaf for closing the at least one air outlet aperture during inhalation, the whole flap being slidably movable in a direction substantially parallel to the longitudinal axis of the mouthpiece to cause the closing leaf to slide along the inner surface of the wall portion so that upon inhalation the flap will slide to a position to open the air inlet aperture and close the at least one air outlet aperture, and so that upon exhalation the flap will slide to a position to open the at least one air outlet aperture and close the air inlet aperture.

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5,724,963
PORTABLE AIR RESPIRATOR
Larry E. Seeley, 4228 Marine Pkwy., New Port Richey, Fla. 34652
Filed Oct. 27, 1995, Ser. No. 549,298
Int. Cl.[6] A62B *18/10*
U.S. Cl. 128—206.15 14 Claims





1. A portable respirator system for use in combination with a source of compressed air and a hand-held, air-driven work implement to provide breathable air to an operator of said implement when driven by said source of compressed air, the improvement comprising:

a respirator mask having an inlet for breathable air and an outlet for exhalation adapted to be worn by said operator said inlet having no filter therein and no filter being carried by said mask;

a filter system comprising a housing adapted to be carded by an operator and having a first outlet port in communication with the inlet to said mask, a second outlet port adapted to be operably coupled to a work implement and an inlet port adapted to be coupled to and to receive compressed air from said source thereof;

carrying means, separate from said mask, for releasably attaching said housing to said operator;

diverter valve means disposed in said housing coupled to said inlet port for continually diverting a flow of compressed air from said source to said second outlet port, and for directing a predetermined controlled flow of compressed air to said first outlet port and further including cooling means for cooling said predetermined flow; and

filter means disposed in said housing between said valve means and first outlet port for receiving the predetermined flow, filtering the same and expelling the filtered flow into said first outlet port.

5,724,964
DISPOSABLE FACE MASK WITH ENHANCED FLUID BARRIER
Kevin K. Brunson, Argyle; Frank D. Rasberry, Bedford, and Albert R. Rich, Jr., Watauga, all of Tex., assignors to Tecnol Medical Products, Inc., Fort Worth, Tex.
Continuation-in-part of Ser. No. 168,090, Dec. 15, 1993, abandoned, which is a continuation-in-part of Ser. No. 278,930, Jul. 20, 1994, Pat. No. 5,553,608. This application Jul. 6, 1995, Ser. No. 499,063
Int. Cl.[6] A62B *7/10*
U.S. Cl. 128—206.19 27 Claims

1. A disposable face mask comprising:

a filter body having an opening sized to cover the nose and mouth of a wearer, the body having top and bottom edges with the top edge arranged to extend across the nose of the wearer and the bottom edge arranged to extend under the chin of the wearer;

the top edge having ends opposite from each other and the bottom edge having ends opposite from each other;

first securing means attached to the filter body adjacent to each end of the top edge and arranged to extend generally about the back of the head of the wearer in an approximate linear continuation from the top edge, the first securing means for urging the top edge into tight engagement with the wearer to prevent fluid flow between the top edge and the wearer;

second securing means attached to the filter body adjacent to each end of the bottom edge and arranged to extend generally over the top of the head of the wearer in an approximate linear continuation from the bottom edge, the second securing means for urging the bottom edge into tight engagement with the wearer to prevent fluid flow between the bottom edge and the wearer;

a first strip of gasket-type sealing material disposed within the filter body adjacent to the opening and extending along the top edge;

the first securing means and the second securing means each having a respective first end and a second end with the first end of the first securing means and the first end of the second securing means disposed adjacent to each other and the second end of the first securing means and the second end of the second securing means disposed adjacent to each other;

a second strip of gasket-type sealing material disposed within the filter body adjacent to the opening and extending along the bottom edge; and

the first sealing strip and the second sealing strip cooperating with each other to form a fluid barrier between the opening of the filter body and the face of the wearer.

5,724,965
NASAL MASK
Patrick M. Handke, Monroeville; John R. Starr, Leechburg, and Doris Wong, Trafford, all of Pa., assignors to Respironics Inc., Pittsburgh, Pa.
Filed Jun. 6, 1995, Ser. No. 470,982
Int. Cl.[6] A61M *16/06*
U.S. Cl. 128—207.13 10 Claims

1. A respiratory mask for engaging a user's face to provide an interface for nasal delivery of breathing gas to the user, said mask comprising:

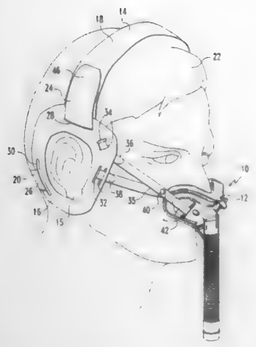
a mask assembly;

said mask assembly including a seal means which is engagable with a user's face to provide a sealed interface therewith only within a sealing area surrounding the nares of the user;

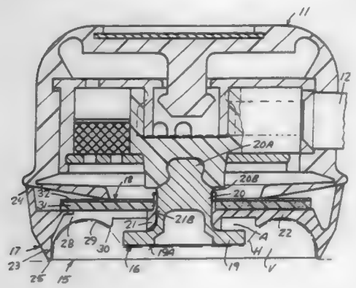
said seal means including a flexible seal which forms a chamber surrounding the nares of the user of containing gas pressure and to permit the gas pressure to support said flexible seal and engage said flexible seal in sealing engagement with the user's face;

gas inlet means for conveying breathing gas into said chamber for delivery of the breathing gas to the nares of the user and to support said flexible seal; and

said mask assembly being of a form that said sealing area is bounded at its upper extremity by the lower end of the user's nose including the tip and lateral flanks thereof, and at its lower extremity by the user's upper lip.



5,724,966
BIOMEDICAL ELECTRODE
Stig Lundbäck, Vaxholm, Sweden, assignor to Humanteknik AB, Vaxholm, Sweden
PCT No. PCT/SE94/01082, § 371 Date May 14, 1996, § 102(e) Date May 14, 1996, PCT Pub. No. WO95/13743, PCT Pub. Date May 26, 1995
PCT Filed Nov. 16, 1994, Ser. No. 649,635
Claims priority, application Sweden, Nov. 16, 1993, 9303788
Int. Cl.[6] A61B *5/04*
U.S. Cl. 128—639 9 Claims

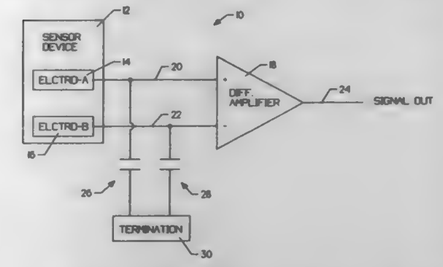


1. An absorber assembly for use in a biomedical electrode, comprising:

an electrically insulative support member having a disk shaped configuration with a forward major surface, an opposed rearward major surface and a projecting central hub portion extending from a first end spaced from the forward major surface to a second end spaced from the rearward major surface and having a central aperture extending therethrough and defining an electrode receiving space; and

a contaminant absorber disposed on the rearward major surface adjacent the second end of the hub portion.

5,724,967
NOISE REDUCTION APPARATUS FOR LOW LEVEL ANALOG SIGNALS
K. L. Venkatachalam, Palo Alto, Calif., assignor to Nellcor Puritan Bennett Incorporated, Pleasanton, Calif.
Filed Nov. 21, 1995, Ser. No. 590,269
Int. Cl.[6] A61B *5/00*
U.S. Cl. 128—633 7 Claims

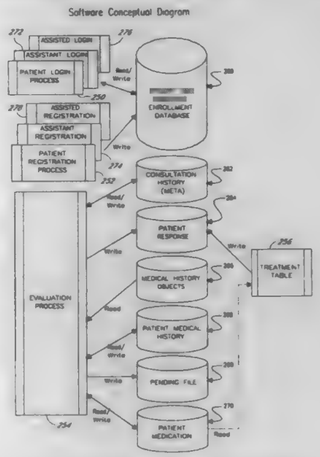


1. Apparatus for improving the signal-to-noise ratio of an analog signal having a noise component, comprising:

a. a sensor device for providing the analog signal between an anode and a cathode thereof, at least a portion of the noise component of the analog signal being produced by a stray impedance to the anode and a stray impedance to the cathode, said anode and said cathode being sized such that the stray impedance to the anode and the stray impedance to the cathode are substantially balanced;

b. a differential amplifier coupled to said anode and said cathode of said sensor device for amplifying said analog signal, said differential amplifier having a common-mode rejection capability thereby at least partially rejecting the common mode noise component from the analog signal.

5,724,968
COMPUTERIZED MEDICAL DIAGNOSTIC SYSTEM INCLUDING META FUNCTION
Edwin C. Iliff, La Jolla, Calif., assignor to First Opinion Corporation, San Diego, Calif.
Filed Dec. 29, 1993, Ser. No. 176,857
Int. Cl.[6] A61B *6/00*; G06F *15/42*
U.S. Cl. 128—630 16 Claims



1. An automated medical advice system, comprising:

a computer;

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input means, connected to the computer, for receiving information from a patient;

output means, connected to the computer, for transmitting information to the patient;

a consultation history database stored in the computer, the database comprising a time ordered sequence of records, each record indicative of a patient's diagnostic consultation including the following fields: a date, a medical problem, an anatomical system, and a cause of the problem;

means for searching the consultation history database using a match pattern to identify records having the match pattern; and

means for analyzing the frequency of the patient's diagnostic consultations, wherein the records identified by the searching means permit assessment of an improvement or a deterioration of the patient's medical condition.

5,724,969

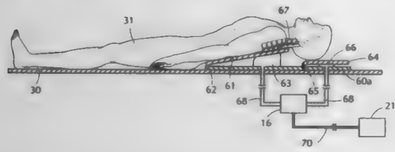
Patent Not Issued For This Number

5,724,970

MULTIPOSITIONAL MRI FOR KINEMATIC STUDIES OF MOVABLE JOINTS

Jan Votruba, Elmont; Rajendra Shenoy, Commack, and Raymond V. Damadian, Woodbury, all of N.Y., assignors to Fonar Corporation, Melville, N.Y.

Filed Apr. 6, 1993, Ser. No. 43,505
Int. Cl.[6] A61B *5/055*
U.S. Cl. 128—653.2 **71 Claims**



1. A magnetic resonance imaging apparatus for taking magnetic resonance images of at least one movable joint of a patient, said apparatus having a primary field magnet assembly with an imaging volume, a patient handling system, and a radio frequency transmitter and receiver system, the improvement comprising:

(a) an elongated support for supporting and positioning one or more anatomical regions of said patient contiguous said movable joint, said elongated support being disposed on a patient bed of said patient handling system and comprising:

(1) a substantially planar base plate disposed on a portion of said patient bed; and

(2) at least a first and a second hinged member each hingably connected at one end to said base plate, each said hinged member pivoting from a position substantially parallel to the plane of said base plate to an angular position transverse to said plane; and

(b) means for controlling the angular positions of said hinged members and the displacement of said anatomical regions of said patient disposed thereon to position said movable joint of said patient within said imaging volume to acquire magnetic resonance image data through said radio frequency transmitter and receiver system of said movable joint at a multiplicity of positions.

5,724,971

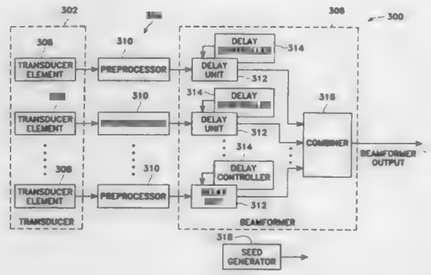
Patent Not Issued For This Number

5,724,972

METHOD AND APPARATUS FOR DISTRIBUTED FOCUS CONTROL WITH SLOPE TRACKING

Joseph G. Petrofsky, Cupertino, Calif., assignor to Acuson Corporation, Mountain View, Calif.

Filed May 2, 1996, Ser. No. 640,550
Int. Cl.[6] A61B *8/00*
U.S. Cl. 128—661.01 **42 Claims**



1. In an ultrasonic imaging system having an array of transducers, each transducer for converting received energy into an echo signal, a method for dynamically focusing the received energy, the method comprising the steps of:

computing a delay function for the echo signal at a predetermined focal range, wherein a delay of the echo signal with respect to range has a slope; and

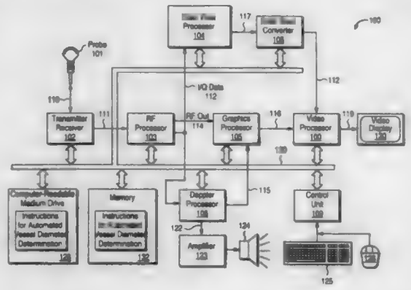
varying the delay function to track the slope, thereby determining the delay function for a next focal range.

5,724,973

METHOD AND APPARATUS FOR AUTOMATED VASCULAR DIAMETER DETERMINATION

Ray Steven Spratt, San Jose, Calif., assignor to Diasonics Ultrasound, Inc., Santa Clara, Calif.

Filed Aug. 29, 1996, Ser. No. 705,333
Int. Cl.[6] A61B *8/00*
U.S. Cl. 128—661.03 **18 Claims**



1. A method for determining a diameter of a first region enclosed in a second region internal to a living organism, wherein the first and second regions consist of different cellular matter, said method comprising the steps of:

a) generating a plurality of trial diameters, each trial diameter within said plurality of trial diameters having an inner and outer region, and each trial diameter within said plurality of trial diameters having a different length;

b) generating an ultrasonic measurement of the inner region and the outer region for each trial diameter within said plurality of trial diameters;

c) determining a difference of the ultrasonic measurements corresponding to the inner and outer regions of each trial diameter of the plurality of diameters; and

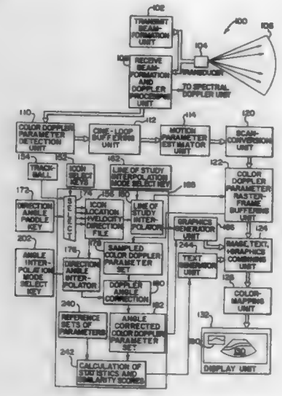
d) selecting a trial diameter from the plurality of diameters that approximately corresponds to the diameter of the first region, wherein a difference of the ultrasonic measurements for the inner and outer regions is greatest for the trial diameter approximately corresponding to the diameter of the first region, relative to other trial diameters of said plurality of trial diameters.

5,724,974

TWO-DIMENSIONAL ULTRASOUND DISPLAY SYSTEM

Leonard James Goodsell, Jr., Palo Alto; Janice L. Marshall, Sunnyvale; Ismayil M. Guracar, Redwood City; Matthew I. Haller, San Francisco, and Christopher R. Cole, Cupertino, all of Calif., assignors to Acuson Corporation, Mountain View, Calif.

Filed Mar. 22, 1996, Ser. No. 620,283
Int. Cl.[6] A61B *8/00*
U.S. Cl. 128—661.09 **16 Claims**



1. An ultrasound interpolation method comprising the following steps:

obtaining a two-dimensional ultrasound image containing motion data;

inputting velocity direction angle information for a line of study on the image; and

interpolating and providing velocity direction angles for performing Doppler angle corrections to information related to said motion data at points along the line of study in response to said velocity direction angle information.

5,724,975

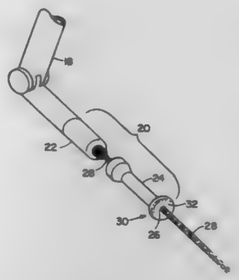
ULTRASONIC DETECTION SYSTEM FOR TRANSMYOCARDIAL REVASCULARIZATION

Charles Christopher Negus, Taunton; Eileen A. Woodruff, Millis; Robert I. Rudko, Holliston, and Stephen J. Linbares, Taunton, all of Mass., assignors to PLC Medical Systems, Inc., Franklin, Mass.

Filed Dec. 12, 1996, Ser. No. 764,052
Int. Cl.[6] A61B *8/00*
U.S. Cl. 128—661.09 **17 Claims**

1. An ultrasonic detection system for detecting a concealed coronary blood vessel in transmyocardial revascularization, comprising:

laser means for creating a laser beam;



laser handpiece means, responsive to said laser means, for contacting the wall of a heart and creating a channel therein with said laser beam;

an ultrasonic detector in said handpiece means; and

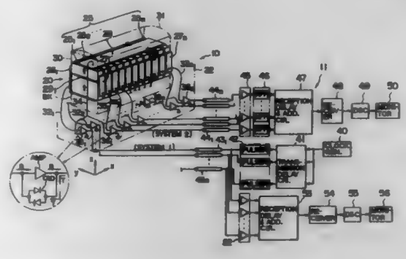
indicator means, responsive to said ultrasonic detector, for indicating the presence of a coronary vessel concealed in the heart wall so that it can be avoided by the laser beam.

5,724,976

ULTRASOUND IMAGING PREFERABLE TO ULTRASOUND CONTRAST ECHOGRAPHY

Yoshitaka Mine, Nishinasuno-Machi; Makoto Hirama; Hiroyuki Tsujino, both of Otawara, and Shiroh Saitoh, Kawasaki, all of Japan, assignors to Kabushiki Kaisha Toshiba, Kawasaki, Japan

Filed Dec. 27, 1995, Ser. No. 578,977
Claims priority, application Japan, Dec. 28, 1994, 6-327934; Jan. 9, 1995, 7-001447
Int. Cl.[6] A61B *8/00*
U.S. Cl. 178—662.03 **78 Claims**



1. An ultrasound probe, comprising:

a transducer formed with a piezoelectric member for performing a conversion between an electric signal and an ultrasound signal bidirectionally; and

at least three electrodes including a ground electrode attached to the piezoelectric member so as to have a passband characteristic of at least two kinds of frequency components whose center frequencies retain a multiple relation with each other and represent a multi-humped frequency characteristic.

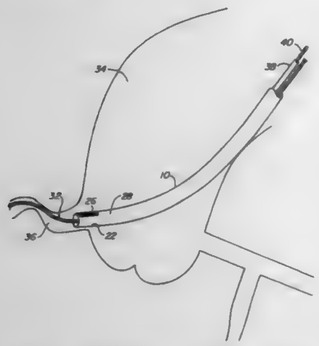
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5,724,977

ROTATIONAL CORRELATION OF INTRAVASCULAR ULTRASOUND IMAGE WITH GUIDE CATHETER POSITION

Paul Yock, Hillsborough, Calif.; Yue-Teh Jang, Fremont, Calif., and Stephen M. Salmon, Sunnyvale, Calif., assignors to Cardiovascular Imaging Systems Inc., Sunnyvale, Calif.

Continuation of Ser. No. 470,673, Jun. 6, 1995. This application Sep. 4, 1996, Ser. No. 708,386
Int. Cl.[6] A61B *8/00*
U.S. Cl. 128—662.06 **25 Claims**



1. A method for introducing an imaging catheter to a body lumen, said method comprising:

introducing a guiding catheter so that a distal end of the guiding catheter is positioned at a preferred location within the body lumen, wherein said distal end is shaped so that a mark on the distal end is disposed in predetermined orientation relative to the body lumen;

introducing an imaging catheter through the guiding catheter; and

producing with the imaging catheter an image of the mark while in the guiding catheter, whereby the relative orientation of the produced image and the body lumen vasculature is known.

5,724,978

ENHANCED ACCURACY OF THREE-DIMENSIONAL INTRALUMINAL ULTRASOUND (ILUS) IMAGE RECONSTRUCTION

Harm Tenboff, Mountain View, Calif., assignor to Cardiovascular Imaging Systems, Inc., Sunnyvale, Calif.

Filed Sep. 20, 1996, Ser. No. 717,153
Int. Cl.[6] A61B *8/12*
U.S. Cl. 128—662.06 **32 Claims**

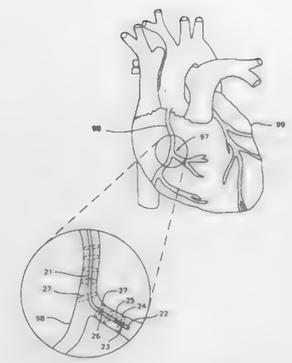
1. A method for imaging an organ or internal structure within a body to obtain three-dimensional reconstruction a region of interest of the organ or internal structure, said method comprising the steps of:

providing an intraluminal ultrasound imaging system capable of obtaining echographic images of the surrounding of a catheter imaging tip located inside the body of a patient;

providing a catheter tracking system comprising at least one ultrasound transducer mounted adjacent the imaging tip of an intraluminal ultrasound catheter for insertion into a patient, and a plurality of transducers located away from said intraluminal ultrasound catheter so as to form a reference frame with respect to the intraluminal ultrasound catheter tip;

positioning the intraluminal ultrasound catheter imaging tip within the region of interest within the organ or internal structure,

obtaining a plurality of echographic images during movement of the catheter using the intraluminal ultrasound imaging system, each image corresponding to an echographic data set;



recording the positions of the catheter axis with respect to each echographic data set obtained during movement;

recording the position of the catheter tip during movement using the catheter tracking system; and

stacking the images around a three-dimensional curved catheter movement trajectory by positioning the origin of a first image at a first recorded position, and positioning subsequent images at their respective distances from the first image and perpendicular to the catheter axis at the recorded positions along the curve.

5,724,979

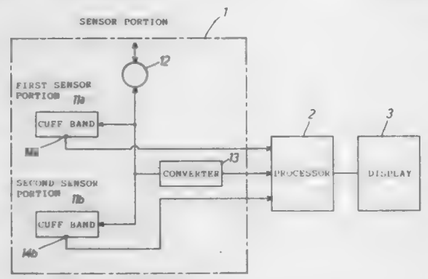
Patent Not Issued For This Number

5,724,980

PULSE DIAGNOSIS METER

Yoshinobu Nakamura, 18-3, Yoneyama 4-chome, Niigata-shi, Niigata-ken, Japan, and Kiyoharu Nakamura, 3295, Oaza-Nishidani, Koshiji-machi Santo-gun, Niigata-ken, Japan

Filed Oct. 1, 1996, Ser. No. 725,667
Claims priority, application Japan, Jan. 19, 1996, 8-025975
Int. Cl.[6] A61B *5/02*
U.S. Cl. 128—679 **8 Claims**



1. A pulse diagnosis meter comprising:

a blood pressure sensor section having two sensors with similar structure, each sensor producing pressure signals;

a processor section, including processor means for simultaneously detecting contraction blood pressures in accordance with said pressure signals from each of the sensors, respectively, for calculating a difference between the contraction blood pressures from each of the sensors, and for determining whether or not the difference is equal to or greater than a predetermined value; and

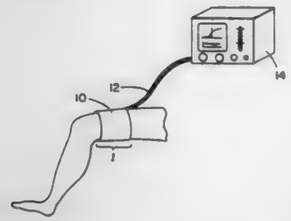
a display section, including display means for displaying the detected blood pressures, the difference value and a representation of the determination.

5,724,981

PERIPHERAL ARTERIAL MONITORING INSTRUMENTS

Howard P. Apple, Tampa, Fla., assignor to Johnson & Johnson Medical, Inc., Arlington, Tex.

Continuation of Ser. No. 56,103, May 3, 1993, Pat. No. 5,417,220, and a continuation-in-part of Ser. No. 823,909, Jan. 22, 1992, Pat. No. 5,218,968, and Ser. No. 453,519, Dec. 20, 1989, Pat. No. 5,103,833. This application Nov. 22, 1994, Ser. No. 343,801
Int. Cl.[6] A61B *5/02*
U.S. Cl. 128—687 **12 Claims**



1. Instrumentation for performing measurements of the vital signs comprising:

an inflatable cuff;

means, connected to said cuff for inflating and deflating said cuff;

means for detecting pressure levels of said cuff;

means for removing quantified decrements of air from said cuff;

means for computing values of oscillation volume from said quantified decrements of air; and

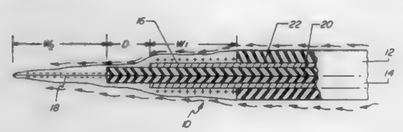
means for computing arterial volume as a function of said values of said oscillation volume and cuff pressure, wherein said computing means comprise means for estimating said arterial volume and creating a volume versus pressure curve.

5,724,982

APPARATUS AND METHOD FOR MEASURING FLUID FLOW

John Herman Schnurer, Yellow Springs, and Robert F. Freund, Waynesville, both of Ohio, assignors to Modern Technologies Corp., Dayton, Ohio

Continuation of Ser. No. 168,637, Dec. 16, 1993, Pat. No. 5,439,003. This application Jun. 7, 1995, Ser. No. 485,737
Int. Cl.[6] A61B *5/026*
U.S. Cl. 128—692 **8 Claims**



1. A measuring device for measuring blockage caused by an occlusion in a blood vessel comprising:

a probe for placing in the vessel near the occlusion, said probe having a pair of conductors;

a circuit coupled to said pair of conductors for generating a signal using only said pair of conductors, said signal corresponding to the movement of ions as blood flows past said probe as ions are replenished to said pair of conductors; and

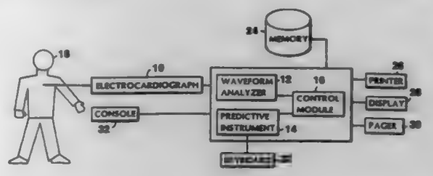
a display coupled to said circuit for receiving said signal and generating a display corresponding indicating a size of the occlusion.

5,724,983

CONTINUOUS MONITORING USING A PREDICTIVE INSTRUMENT

Harry P. Selker, Wellesley, and John L. Griffith, Natick, both of Mass., assignors to New England Center Hospitals, Inc., Boston, Mass.

Continuation-in-part of Ser. No. 283,951, Aug. 1, 1994, Pat. No. 5,501,229. This application Mar. 25, 1996, Ser. No. 621,246
Int. Cl.[6] A61B *5/04*
U.S. Cl. 128—696 **5 Claims**



1. An apparatus for continuously monitoring the medical condition of a patient, said apparatus comprising:

a medical instrument which during use monitors one or more clinical features of the patient;

a predictive instrument receiving output from the medical instrument, said predictive instrument programmed to complete a monitoring cycle in which it uses the output from the medical instrument to compute a probability of a medical outcome or diagnosis based on the monitored one or more clinical features; and

a control module causing said predictive instrument to periodically repeat the monitoring cycle;

a detector module receiving the computed probabilities resulting from the repeated monitoring cycles and computing therefrom a change-of-condition measure,

said detector module further configured to compare during each monitoring cycle the computed change-of-condition measure for that monitoring cycle to a threshold value and if in excess of said threshold value to generate an alarm notification.

5,724,984

MULTI-SEGMENT ECG ELECTRODE AND SYSTEM

Jeffrey M. Arnold, Wellesley, Mass.; Paul Albrecht, Bedford, Mass.; Richard J. Cohen, Waban, Mass., and Harvey Levin, Chester, N.H., assignors to Cambridge Heart, Inc., Bedford, Mass.

Continuation-in-part of Ser. No. 379,375, Jan. 26, 1995, and a continuation-in-part of Ser. No. 557,883, Nov. 14, 1995, and a continuation-in-part of Ser. No. 665,434, Jun. 18, 1996, abandoned. This application Jul. 17, 1996, Ser. No. 682,076
Int. Cl.[6] A61B *5/0408*
U.S. Cl. 128—696 **30 Claims**

1. A multi-segment ECG electrode, comprising:

a flexible basepad,

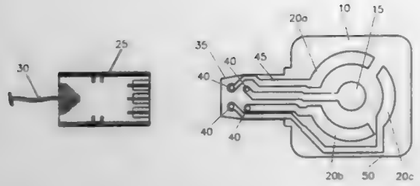
a central conductive segment defined on the basepad,

exterior conductive segments defined on the basepad and positioned around the central segment, and

conductive traces extending from the central conductive segment and from each of the exterior conductive segments to a common region of the basepad,

wherein:

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an average position of the exterior segments corresponds to a position of the central segment,

the basepad further comprises a connection tail,

the common region of the basepad is located at the connection tail, and

a hole extends through the connection tail.

5,724,985

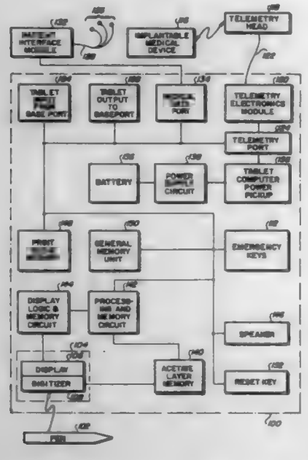
USER INTERFACE FOR AN IMPLANTABLE MEDICAL DEVICE USING AN INTEGRATED DIGITIZER DISPLAY SCREEN

Jeffery D. Snell, Oak Park, and Thomas G. Levin, Northridge, both of Calif., assignors to Pacesetter, Inc., Sylmar, Calif.

Filed Aug. 2, 1995, Ser. No. 510,367

Int. Cl.[6] A61N *1/00*

U.S. Cl. 128—697 **50 Claims**



1. An analyzer-programmer for use with an implantable medical device, said analyzer-programmer comprising:

circuitry for receiving information pertaining to a patient's medical condition and an implantable medical device implanted in said patient, said circuitry for receiving information including a telemetry circuit for enabling transmissions between said analyzer-programmer and said implantable medical device;

a digitizer pen input device;

an integrated digitizer display screen unit for displaying an image representative of said information and for receiving hand-written input through use of said digitizer pen input device by direct placement of a pen tip of said digitizer pen input device on said integrated digitizer display screen unit; and

a processor circuit for selectively adjusting said displayed image and said transmissions between said analyzer-programmer and said implantable medical device in accordance with input received by said integrated digitizer display screen unit through use of said digitizer pen input device.

5,724,986

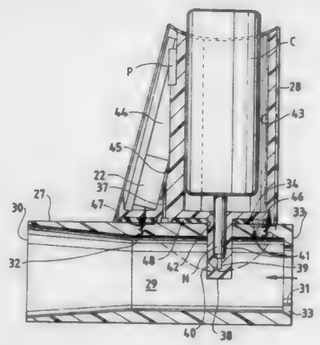
CASING AND SPIROMETER FOR METERED DOSE INHALER

William C. Jones, Jr., and Scott E. Jones, both of Chicago, Ill., assignors to Jones Medical Instrument Co., Oakbrook, Ill.

Filed Nov. 6, 1995, Ser. No. 554,552

Int. Cl.[6] A61M *15/00*

U.S. Cl. 128—725 **22 Claims**



1. An apparatus for dispensing a metered amount of aerosolized medication and for measuring breathing functions of a human subject, said apparatus comprising: a casing defining a cavity, a first opening through which the subject inhales from the cavity or exhales into the cavity, a second opening through which air enters the cavity when the subject inhales or discharges from the cavity when the subject exhales, obstruction means for obstructing the flow through the cavity and developing back pressure in the cavity, and a third opening in fluid communication with the cavity between the first opening and the obstruction means; pressure sensing means in fluid communication with the third opening for sensing, between the first opening and the obstruction means, back pressure of breath moving through the cavity, developed by the obstruction means between the first opening and the obstruction means; said casing also defining an open pocket for receiving a pressurized canister and passageway means including a fourth opening for discharging the contents of the canister from the canister directly into the cavity of the casing; and means for indicating when to activate medication at a predetermined inspiratory flow during an inspiratory procedure.

5,724,987

NEUROCOGNITIVE ADAPTIVE COMPUTER-AIDED TRAINING METHOD AND SYSTEM

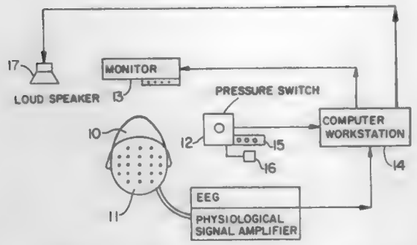
Alan Gevins, San Francisco, Calif.; Harrison Leong, San Francisco, Calif.; Isabel Sam-Vargas, San Francisco, Calif., and Michael Smith, San Francisco, Calif., assignors to Sam Technology, Inc., San Francisco, Calif.

Continuation-in-part of Ser. No. 183,621, Jan. 19, 1994, Pat. No. 5,447,166, which is a continuation-in-part of Ser. No. 766,826, Sep. 26, 1991, Pat. No. 5,295,491. This application Jul. 20, 1995, Ser. No. 504,653

Int. Cl.[6] A61B *5/0476*

U.S. Cl. 128—731 **50 Claims**

1. A method in computer based training of a human trainee for a computer to automatically assess learning related changes in the trainee's brain state, including the steps of:



(a) presenting the trainee with a battery of learning tasks in which the trainee operates the computer using a muscle operated computer input control means;

(b) while the trainee performs the learning tasks, detecting and analyzing the brain waves of the trainee with an EEG (electroencephalograph) device having at least one electrode removably connected to the trainee to determine neurocognitive scores of the trainee's focused attention;

(c) comparing the trainee's scores of focused attention with previously obtained normal score standards of focused attention; and

(d) automatically adjusting a portion of a learning program being run by the computer if the trainee's on-line neurocognitive scores of focused attention are a predetermined amount below or above a threshold value based upon the previously obtained normal score standards of focused attention.

5,724,988

BONE MARROW KIT

T. Michael Dennehey, Arlington Heights; Joseph C. West, Jr., Lake Villa, and James W. Yang, Vernon Hills, all of Ill., assignors to Baxter International Inc., Deerfield, Ill.

Continuation of Ser. No. 779,479, Oct. 18, 1991, abandoned. This application Jul. 12, 1993, Ser. No. 90,552

Int. Cl.[6] A61B *5/02;19/00;* **A61M** *5/60;1/00*

U.S. Cl. 128—767 **24 Claims**



1. A collection container for collecting a biological suspension to be filtered comprising:

a flexible body defining an interior having an inlet opening and an outlet opening; and

a filter including a rigid frame, having a screen secured thereto, extending from the outlet opening into the interior for a distance sufficient to allow at least some particulate to settle on a bottom of the interior and allow fluid to still flow through the filter and the filter being so constructed and arranged so as to filter fluid that enters the interior prior to the fluid entering the outlet opening.

7. An inline filter for filtering biological suspensions comprising:

a body defined by two flexible sheets of plastic sealed along edges thereof to form an interior having an inlet and an outlet opening; and

a filter comprising a screen that is sealed along the edges of the sheets so as to extend across an entire width and for an entire length of the interior and divide the interior into a first section and a second section, the screen being so located that the inlet opening is in the first section and the outlet opening is in the second section and fluid entering the interior from the inlet must flow through the screen prior to entering the outlet opening.

15. A bone marrow kit comprising:

a collection container for receiving a bone marrow containing fluid having a body that defines an interior and an inlet opening and an outlet opening and including a prefilter, said prefilter having a rigid frame that supports a flexible filter member, and said prefilter extending from the outlet opening into the interior of the collection container so that fluid must flow through the prefilter to exit the collection container through the outlet opening;

a first inline filter member coupled to the outlet opening of the collection container, the first inline filter member having a flexible plastic body that defines an interior, and an inlet opening and an outlet opening and the interior including a filter so constructed and arranged that fluid that enters the inlet opening must flow through the filter to exit the first inline filter member through the outlet opening; and

a container for receiving a resultant filtered bone marrow containing fluid having an interior in fluid communication with the outlet opening of the first inline filter member.

17. A method for manufacturing an inline filter comprising the steps of:

placing a screen between two sheets of a flexible plastic material;

sealing the sheets of flexible plastic together along a resultant seal line having a width to seal edges thereof to create an interior having a length and a width including the screen and to trap a perimeter of the screen within a portion of the width of the resultant seal line between the sheets of flexible plastic so that the screen extends across the entire length and width of the interior, the screen not extending for the entire width of the resultant seal line; and

locating an inlet opening and an outlet opening on opposite sides of the screen.

23. A method for filtering a bone marrow containing fluid comprising the steps of:

collecting the bone marrow containing fluid in a collection container having flexible wall members and a prefilter extending from an outlet opening of the container into an interior of the container;

allowing bone chips, large fatty deposits, and clot-like fibrin materials to collect at a bottom portion of the interior while allowing fluid flow through the prefilter and into the outlet opening of the container;

manually manipulating the wall members of the collection container to dislodge cells trapped in the prefilter;

passing the fluid from the outlet opening through an inline filter member having a flexible body having an inlet and outlet opening and a screen located between the inlet and outlet opening for filtering fluid that enters the inlet before it enters the outlet opening; and

collecting the filtering fluid from the outlet opening of the inline filter member.

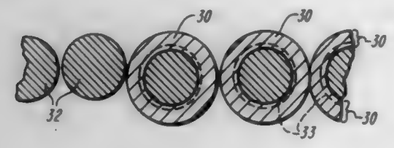
VOL 1208 ISS 2 MR 10 1998 UMI

5,724,989

RADIOPAQUE MEDICAL DEVICES

Paul J. Dobson, Hingham, Mass., assignor to The MicroSpring Company, Inc., Norwell, Mass.

Filed Jun. 20, 1995, Ser. No. 492,921
Int. Cl.[6] A61B 5/00
U.S. Cl. 128—772 13 Claims



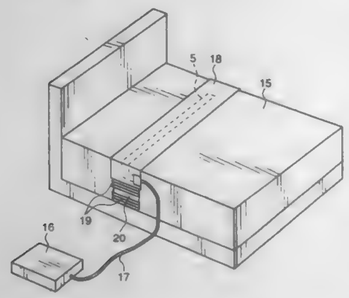
1. In a guide wire assembly including
a longitudinally-extending core having a distal tip, and
a helically wound spring coaxially surrounding the core, secured to the distal tip and extending proximally therefrom, that improvement wherein:
the coils of a distal portion of the spring include an annular layer of substantially uniform thickness of radiopaque material circumferentially surrounding a central wire portion of a different material.

5,724,990

HUMAN MONITORING APPARATUS

Hiroyuki Ogino, Nara, Japan, assignor to Matsushita Electric Industrial Co., Ltd., Osaka, Japan

Division of Ser. No. 224,104, Apr. 6, 1994, Pat. No. 5,479,939, which is a continuation of Ser. No. 784,438, Dec. 20, 1991, abandoned. This application Dec. 29, 1995, Ser. No. 581,116
Claims priority, application Japan, Mar. 9, 1990, 2-58270; Mar. 12, 1990, 2-60218; May 25, 1990, 2-135893; Jun. 20, 1990, 2-161822
Int. Cl.[6] A61B 5/103
U.S. Cl. 128—782 12 Claims



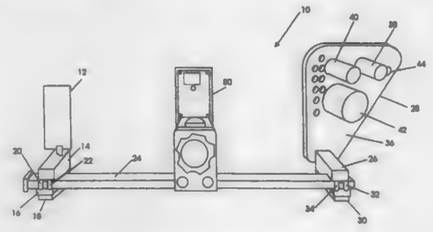
1. A body movement monitoring apparatus comprising:
body movement detecting means which includes at least one piezo-electric element disposed on a surface supporting a body and that detects a rough body movement of the body on the surface, the rough body movement being a movement whereby the position of the body on the surface is substantially altered, and a fine movement of the body on the surface, the fine body movement being movement associated with one of heartbeat and respiration, the body movement detecting means producing a signal that is proportional to an amount of the movement of the body;
absence judging means for judging that there is no fine body movement and no rough body movement indicative of an absence of the body on the surface responsive to the signal of the body movement detecting means being below a first value;
presence judging means for judging a presence of the body on the surface by detecting the fine body movement, which is accomplished by determining that the signal of the body movement detecting means is above the first set value and below a second value; and
body movement judging means for judging that the body has produced the rough body movement responsive to the signal of the body movement detecting means being above the second value.

5,724,991

WRIST FIXATION DEVICE FOR ELBOW STRESS EXAMINATION

Arie M. Rijke, Rte. 10 Box 133, Charlottesville, Va. 22903, and Henry T. Goitz, 22656 Wildwood, St. Clair Shores, W. Va. 48081

Continuation-in-part of Ser. No. 19,602, Feb. 19, 1993, Pat. No. 5,462,068. This application Oct. 31, 1995, Ser. No. 550,578
Int. Cl.[6] A61G 15/00
U.S. Cl. 128—845 6 Claims



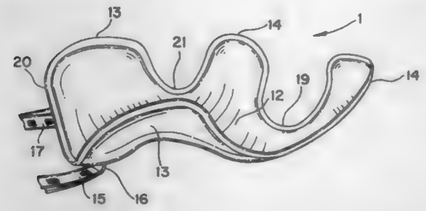
1. A device for positioning a patient's elbow for examination during a diagnostic procedure, by reproducibly positioning said patient's wrist, in a predetermined supine position relative to said patient's body, said body being in a vertical plane, said device comprising:
a) a support member, said support member being in said vertical plane and positioned to receive securing means to maintain said wrist in a predetermined supine position by placing said patient's palm in a horizontal plane, said horizontal plane being horizontal relative to said vertical plane, said support member having multiple receiving means, said multiple receiving means being spaced at predetermined distances from one another and providing horizontal and vertical adjustability for said securing means;
b) securing means for receiving and securing said patient's palm and wrist in said supine position, said securing means being carried in said horizontal plane by said multiple receiving means and including;
i) a first wrist retaining member, said first wrist retaining member extending normal from said support member and repositioned, within said multiple receiving means, to contact said patient's palm in said horizontal plane,
ii) a second wrist retaining member, said second wrist retaining member extending normal from said support member and repositionable, within said multiple receiving means, to contact the posterior portion of said patient's wrist, and
iii) wrist securing member to secure said wrist in said predetermined supine position;
c) base connection means, said base connection means connecting said support member to a base surface, said base surface being at substantially right angles to said support member,
whereby securing said patient's wrist in said supine position in said horizontal plane positions said patient's elbow to elicit widening of the medial joint space.

5,724,992

INTRA-OPERATIVE BODY IMMOBILIZER

Kai Ip, 5 Sandra Rd., Hillsborough, Calif. 94010

Filed Jan. 5, 1996, Ser. No. 583,595
Int. Cl.[6] A61G 15/00
U.S. Cl. 128—845 5 Claims



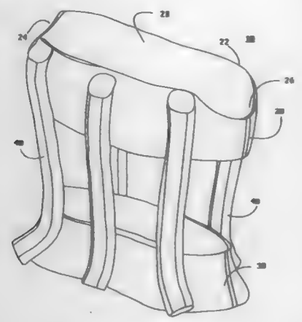
1. A body immobilization and support device for use with an operating table which will be tilted during an operation so that the patient is placed in a head down position, comprising:
a generally rigid shell,
said shell having a back portion which is generally contoured to the back of a patient, and
having side engaging means for preventing said patient from rolling off a side of said operating table,
said shell also having a pair of shoulder engaging means for engaging said patient's shoulders for preventing said patient from sliding off an end of said operating table,
aperture means extending between said shoulder engaging means for allowing a patient's head to protrude therethrough, and
a slot extending between said side engaging means and said shoulder engaging means for allowing a patient's arms to protrude therethrough,
whereby said patient's body, when placed in a head down position, will be supported solely by said shoulder engaging means and no weight will be placed on a patient's neck,
said shell further including fastening means for securing said shell to said operating table and preventing movement of said shell with respect to said operating table when used in an extreme head down position.

5,724,993

INFLATABLE SPINAL TRACTION DEVICE

Matthew J. Dunfee, Jordan, Minn., assignor to Antigee Advantage International, Inc., Minneapolis, Minn.

Continuation-in-part of Ser. No. 474,780, Jun. 7, 1995, abandoned. This application Dec. 29, 1995, Ser. No. 580,708
Int. Cl.[6] A61F 5/37
U.S. Cl. 128—874 13 Claims



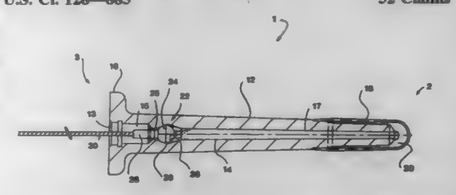
1. An ambulatory spinal traction device for applying primarily vertically directed forces to an anatomical region of a human spine wherein the device comprises:
at least one upper horizontal support member;
at least one lower horizontal support member; and
a plurality of vertical support members, each fixedly attached at a first end and at a second end to the at least one upper support member and the at least one lower support member, respectively, wherein the plurality of vertical support members is distributed both posteriorly and anteriorly to the upper and lower horizontal support members, wherein each of the plurality of vertical support members contains therein at least one fillable bladder, wherein the at least one bladder of each of the plurality of vertical support members is in fluid communication with a filling means, and wherein each vertical support member is spaced from an adjacent vertical support member by a predetermined distance to provide overall flexibility to the device.

5,724,994

FLUIDLY EXPANDABLE URETHRAL PLUG ASSEMBLY WHICH RECEIVES FLUID FROM AN EXTERNAL SOURCE AND METHOD FOR CONTROLLING URINARY INCONTINENCE

John G. Simon, Boston, Mass.; Carl J. Wisnosky, Spencer, Mass.; Paul D. McLaughlin, Scituate, Mass.; Sharad Joshi, Watertown, Mass.; Leo C. Felice, Pascoage, R.I., and Christopher C. Coulter, Newton Upper Falls, Mass., assignors to UroMed Corporation, Needham, Mass.

Continuation-in-part of Ser. No. 124,264, Sep. 20, 1993, and Ser. No. 103,812, Aug. 6, 1993, which is a continuation of Ser. No. 746,364, Aug. 16, 1991, abandoned, which is a continuation-in-part of Ser. No. 636,285, Dec. 31, 1990, Pat. No. 5,090,424. This application May 1, 1995, Ser. No. 432,276
Int. Cl.[6] A61F 5/48
U.S. Cl. 128—885 52 Claims



1. A remove-to-void plug for use in the urethra to control urinary incontinence, said plug to be inserted into the urethral opening, comprising:
a plug forming body being closed to urine having a channel therein and having a proximal end and a distal end,
a fluid-impermeable balloon affixed to the distal end of said plug forming body and fluidly coupled with said channel, said balloon having an outer surface free of protrusions,
a valve positioned within said channel of said plug forming body, said valve having a chord affixed thereto,
a fluid source external to said plug forming body, said fluid source being removably coupled to the proximal end of said plug forming body, said fluid source transmitting fluid through said channel, displacing said valve and inflating said balloon, said valve being reversely displaced after inflation to maintain said balloon in an inflated state.

5,724,995

METHOD FOR SCREENING FACTORS ON A PARALYSIS MODEL AND METHOD FOR OBTAINING THIS MODEL

Sophie Feldblum, 24 Avenue de Suffren, 75015 Paris, France

Filed Nov. 16, 1995, Ser. No. 558,887
Claims priority, application France, Nov. 21, 1994, 94 13905
Int. Cl.[6] A61B 19/00
U.S. Cl. 128—898 19 Claims

1. Method for testing a candidate factor with neuroprotective and/or neuroregenerative function, which comprises:

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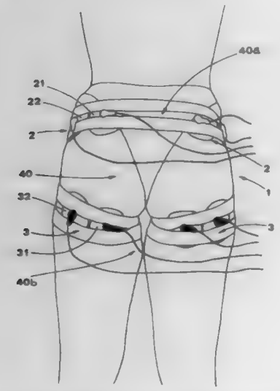
administering a candidate factor with neuroprotective and/or neuroregenerative function to an animal having a paralysis which is total but reversible with predetermined duration, and determining the capacity of the candidate factor to reduce the duration of the paralysis.

5,724,996

METHOD FOR CONTROLLED STIMULATION OF PREDETERMINED PARTS OF THE HUMAN BODY BY APPLICATION OF VARIABLE ELECTRIC SIGNALS

Luigi Piunti, Porto D'Ascoli, Italy, assignor to Galaxy-Top International S.p.A., Benedetto del Tronto, Italy

Filed Nov. 15, 1996, Ser. No. 749,468
Int. Cl.[6] A61N *1/36*
U.S. Cl. 128—898 **10 Claims**



1. A method for controlled stimulation of predetermined areas of a human body to improve physiological parameters in the body areas comprising:
- providing a plurality of electrodes of positive electric polarity and a plurality of electrodes of negative electric polarity;
- providing electric voltage for the positive electrodes and the negative electrodes, the voltage having a frequency and an intensity which are variable in a predetermined way;
- arranging said positive electrodes and negative electrodes in peripheral positions of said body areas to be stimulated, and subsequently activating the positive and negative electrodes in a prefixed sequence, concentrating electromagnetic waves in said body areas;
- arranging the positive electrodes substantially side by side, to first peripheral positions of said areas, these positions being closer to the heart, arranging the negative electrodes substantially side by side, to second peripheral positions of said areas, the second peripheral positions being farther from the heart.

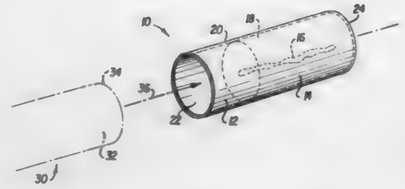
5,724,997

DISPOSABLE FLAVORED FILTER FOR CIGARETTES

Mickey Lee Smith; Barry Smith Fagg, both of Winston-Salem; John Douglas Weber, Clemmons, and David Nicholas Iauco, Winston-Salem, all of N.C., assignors to R. J. Reynolds Tobacco Company, Winston-Salem, N.C.

Filed Dec. 21, 1995, Ser. No. 576,427
Int. Cl.[6] A24B *5/00*
U.S. Cl. 131—331 **14 Claims**

1. A disposable flavored filter adapted to be attached to a cigarette by a user, said filter having a mouth end and an insertion end, at least one filter segment located at said mouth end, said filter segment comprising a smoke filtration material, at least one flavorant disposed in said filter material, said insertion end having a hollow portion defining a cylindrical void space having an axial length of about 10 mm for slidably receiving about 10 mm of one end of a cigarette axially inserted therein by the user, said filter having at least one paper wrapping wrapped about said one filter segment and forming said void space at the insertion end of the filter whereby a cigarette to be smoked by the user is axially and slidably inserted into said void space by the user such that when the cigarette is fully inserted into the void space it is fully extended in the smoking position and is removably retained in such space.

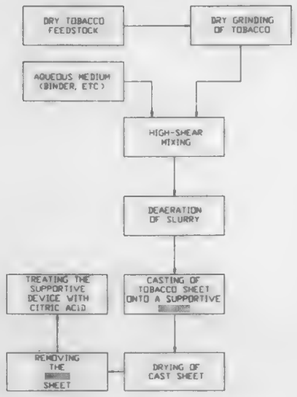


5,724,998

RECONSTITUTED TOBACCO SHEETS AND METHODS FOR PRODUCING AND USING THE SAME

Grant Gellatly, Chester; Gus Keritsis, Richmond, and Susan E. Wrenn, Chesterfield, all of Va., assignors to Philip Morris Incorporated, New York, N.Y.

Continuation of Ser. No. 342,686, Nov. 21, 1994, abandoned, which is a continuation of Ser. No. 865,964, Apr. 9, 1992, abandoned. This application Aug. 20, 1996, Ser. No. 697,123
Int. Cl.[6] A24B *15/00*
U.S. Cl. 131—372 **2 Claims**



1. A process of manufacturing a reconstituted tobacco sheet suitable as a component of a cigarette cut filler, comprising the steps of:
- (a) preparing a slurry comprising mixture of tobacco dust with a mean particle size in the range of from about 120 mesh to about 400 mesh, a binder consisting of a guar gum and an aqueous medium, said slurry having a total solids content from about 15% to about 30%, said step of preparing the slurry being free of any introduction of non-tobacco fiber;
- (b) casting the slurry onto a supportive device;
- (c) drying the cast slurry to form a reconstituted tobacco sheet; and
- (d) removing the reconstituted tobacco sheet from the supportive device;

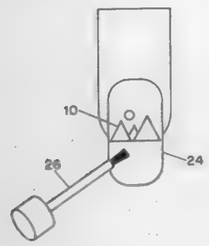
wherein said binder is about 8% or less of the total solids content of said slurry; and
wherein the amount of said binder is at a tobacco to binder weight ratio of from about 50:1 to about 10:1.

5,724,999

METHOD OF DECORATING A FINGER NAIL

Ho Choong Kim, 105 Windham Loop, Staten Island, N.Y. 10314

Filed Dec. 5, 1996, Ser. No. 759,440
Int. Cl.[6] A45D *24/00*
U.S. Cl. 132—200 **6 Claims**



1. A method of decorating a finger nail comprising the steps of providing a piece of
- a glossy coated paper having a size not less than the size of the finger nail and
- bearing a desired printed image,
- applying a film-forming substance in liquid form over the image to the piece of paper, the substance including a resin and a solvent and being capable of forming upon evaporation of the solvent a film that is sufficiently flexible and extensible to permit the film and image to conform to the surface of the finger nail,
- allowing the substance to dry and form the film,
- wetting the paper under the film with water,
- removing the paper from the film and image to form a film blank bearing the image and substantially free of paper fibers,
- cutting the blank to a size and shape to fit the margins of the cuticle bordering the finger nail,
- applying the sized and shaped blank to the finger nail,
- applying a settable nail top coat substance in liquid form over the blank,
- and allowing the top coat to dry.

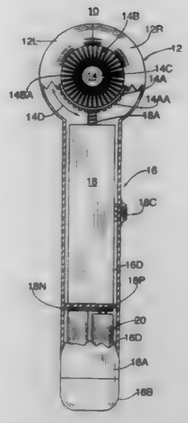
5,725,000

HAIR TWISTING DEVICE

Mary-Charlotte Rice, P.O. Box 1226, St. Thomas, Virgin Islands (U.S.), 00804

Filed Mar. 14, 1996, Ser. No. 622,765
Int. Cl.[6] A45D *24/00*
U.S. Cl. 132—210 **9 Claims**

1. A hair curling device consisting essentially of:
- an annular comb housing having a circular central aperture forming a passage therethrough, said comb housing comprising two symmetrical pieces forming a right half and a left half of said comb housing, respectively;
- an annular comb secured within said housing having a plurality of teeth which project into said passage of said comb housing, each of said teeth having a length shorter than the radius of said central aperture of said comb housing so as to provide a comb opening within said passage;
- a handle housing secured to said comb housing and extending radially therefrom, said handle housing having a handle compartment formed therein and a removable cover for selectively closing said compartment;
- an electric motor disposed within said handle compartment, said motor being operatively connected to said annular comb so as to cause rotation of said comb within said comb housing; and
- a power supply disposed within said handle compartment and electrically connected to said motor.

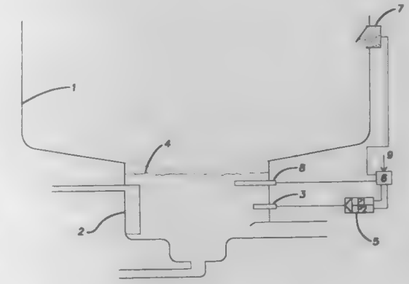


5,725,001

DISHWASHER WITH PH-CONTROLLED PROGRAM PRE-SELECTION

Jürgen Vogel, Emskirchen, Germany, assignor to AEG Hausgerate GmbH, Nuremberg, Germany

Filed Oct. 3, 1996, Ser. No. 725,613
Claims priority, application Germany, Oct. 10, 1995, 195 37 669.2
Int. Cl.[6] B08B *13/00*
U.S. Cl. 134—57 D **7 Claims**



1. A dishwasher comprising a dispensing device for adding detergent, electronic program controls connected to operate the dispenser, and a probe for measuring the pH of wash liquid in the dishwasher, wherein the program controls are provided with wash programs such that an appropriate one of the wash programs is selected based on a pH value of wash liquid (4) in the dishwasher as measured by said probe.

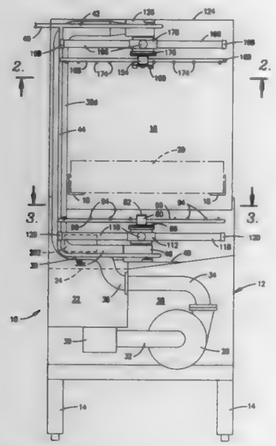
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5,725,002

DISH WASHING MACHINE HAVING INTERCHANGEABLE TOP AND BOTTOM SPRAY ARMS

Russell L. Payzant, Olathe, Kans., assignor to TCA, Inc., Kansas City, Kans.

Filed Jul. 24, 1996, Ser. No. 685,497
Int. Cl.[6] A47L *15/23*
U.S. Cl. 134—95.3 14 Claims



1. In a washing machine of the type used to wash dishes and the like, a spray assembly comprising:

a generally cylindrical drum on the machine having a hollow interior for receiving liquid to be sprayed, said drum having a substantially vertical axis and a plurality of ports for discharging the liquid laterally;

a vertical support centered on the axis of said drum;

a hub carrying a plurality of radially extending spray arms each adapted to spray the liquid, said hub having an interior channel communicating with open ends of said spray arms and receiving incoming liquid from said ports;

bearing means for supporting said hub for rotation around said drum, said bearing means being arranged to situate said channel at a location to receive liquid discharging laterally through said ports and to transfer the liquid to said spray arms as the hub rotates around said drum, said bearing means comprising

a pair of annular races spaced vertically apart and extending around said support, said races having outer edges and opposing faces presenting an annular track centered on said axis;

a plurality of ball elements in said track providing for relative rotation of said races; and

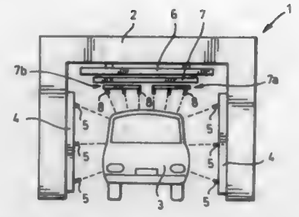
a shell holding said races together adjacent said outer edges and connected to said hub.

5,725,003

VEHICLE WASHING APPARATUS

Seppo Jaakkonen, Moisio, Finland, assignor to Tammermatic Ltd., Tampere, Finland

Filed Apr. 19, 1996, Ser. No. 634,720
Claims priority, application Finland, Apr. 21, 1995, 951923
Int. Cl.[6] B08B *3/02*
U.S. Cl. 134—123 9 Claims



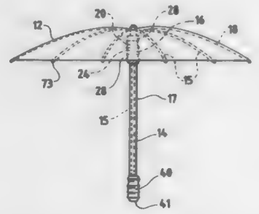
1. A vehicle washing apparatus comprising a frame, the frame and the vehicle to be cleaned being arranged to move with respect to each other lengthwise of the vehicle to be cleaned; lateral sprayers for spraying water to clean the sides of the vehicle; and overhead sprayers for spraying water to wash the upper part of the vehicle, the overhead sprayers being arranged to swing synchronously back and forth in the transverse direction of the vehicle to be cleaned, wherein the overhead sprayers are arranged in at least two groups, the overhead sprayers of one group being arranged to swing synchronously with the overhead sprayers of the other group to the opposite direction, the at least two groups being arranged in adjacent positions in the transverse direction of the vehicle to be cleaned, and the overhead sprayers belonging to one and the same group are mechanically interconnected.

5,725,004

SUPPORTED CANOPY

Peter V. Moulder, 2734 St. Charles Ave., New Orleans, La. 70130

Filed May 15, 1996, Ser. No. 649,904
Int. Cl.[6] A45B *19/02*
U.S. Cl. 135—20.2 28 Claims



1. In a canopy structure of the type having a support structure and an openable canopy extending a canopy operator comprising:

a conduit system including a plurality of stiffenable tubes extending along the portion of the openable canopy to be supported, the conduit system further including a storage vessel and a central conduit in the support structure connecting the storage vessel to the stiffenable tubes;

a supply of liquid in the storage vessel; and

means for changing the pressure in the conduit system by moving the liquid between the storage vessel and the stiffenable tubes to cause said stiffenable tubes to stiffen and relax said pressure changing means being on said support structure and in communication with the conduit system.

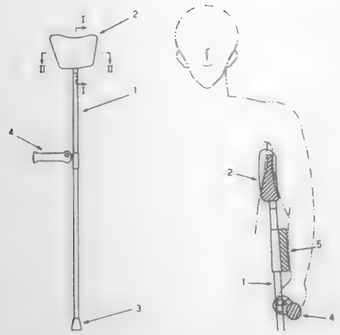
5,725,005

WALKING ASSISTANCE CRUTCH

Takuya Yamasaki, Kochi, Japan, and Keizo Ohta, Okayama, Japan, assignors to Ohta Inc. (Ohta Kabushiki Kaisha), Okayama, Japan

Continuation of Ser. No. 331,361, Oct. 27, 1994. This application Feb. 16, 1996, Ser. No. 602,688
Claims priority, application Japan, Nov. 4, 1993, 5-275348
Int. Cl.[6] A61H *3/02*
U.S. Cl. 135—73 8 Claims

1. A walking assistance crutch comprising a crutch main body including an armpit rest at an upper end of said crutch main body, said armpit rest being of a substantially square shape in side view,



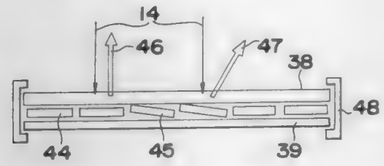
a foot portion at a lower end of said crutch main body, and a handle grip at an intermediate portion of said crutch main body, wherein an outer portion of said armpit rest is made of soft material so as to comfortably support a user's arm and side of chest, an intermediate portion of said armpit rest which is held beneath the shoulder of said user is formed to have substantially a triangular cross section when viewed from a front and rear of said armpit rest with an apex of said triangle facing upwardly both side surfaces of said armpit rest are concave to substantially conform to contours of an inner side of an upper arm and a side of a user's chest, and front and rear portions of said armpit rest are formed to have thicknesses larger than said intermediate portion of said armpit rest.

5,725,006

SOLAR BATTERY CELL, A SOLAR BATTERY MODULE, AND A SOLAR BATTERY MODULE GROUP

Yoshitatsu Kawama; Takashi Ishihara; Satoshi Arimoto; Hiroaki Morikawa; Akihiro Takami; Yoshinori Matsuno; Hideo Naomoto, and Yoichiro Nishimoto, all of Amagasaki, Japan, assignors to Mitsubishi Denki Kabushiki Kaisha, Tokyo, Japan

Filed Nov. 28, 1995, Ser. No. 563,420
Claims priority, application Japan, Jan. 31, 1995, 7-014189
Int. Cl.[6] H01L *31/048;31/052*
U.S. Cl. 136—251 18 Claims



18. A solar battery module group comprising a planar array of a plurality of solar battery modules,

each solar battery module comprising a plurality of solar battery cells wherein photoelectric current generated from light incident upon the power generation layer thereof is obtained by an external load from an electrode formed on the power generation layer, said cells being arrayed on a substrate,

a glass cover placed over the plurality of solar battery cells arrayed on said substrate,

a resin filling the space between the glass cover and the substrate, and

a frame securing the resin and solar battery cells arrayed between the glass cover and the substrate; and

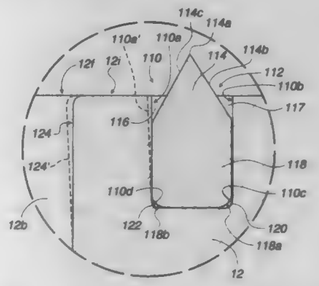
characterized by the plurality of arrayed solar battery modules being solar battery modules wherein the component solar battery cells thereof individually reflect the light incident thereon in different directions.

5,725,007

VALVE MECHANISM AND METHOD FOR MAKING SAME

William L. Stubbs, 4705 Huasna Rd., Arroyo Grande, Calif. 93420

Filed Jul. 7, 1995, Ser. No. 499,412
Int. Cl.[6] F16L *55/18*
U.S. Cl. 137—15 20 Claims



1. A method of forming a seal between a cavity in a valve body of a diaphragm valve and a port provided in said valve body, comprising:

providing a circumferential groove in a surface of said valve body surrounding said port;

disposing an elastic sealing material in said groove, said sealing material having an extension portion which at least partially extends out of said groove past said surface of said valve body, and said sealing material being configured to provide a void within said groove between said extension portion and a sidewall of said groove; and

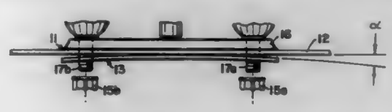
bringing a valve member into a closed position in which said valve member closes said port and elastically compresses said extension portion such that said extension portion at least partially fills said void within said groove.

5,725,008

REINFORCING MEMBER ATTACHED TO A SINK AT A PLACE OF INSTALLATION OF A FAUCET SET

Floyd M. Johnson, 1726 E. Iowa Ave., St. Paul, Minn. 55106

Filed Jun. 3, 1996, Ser. No. 660,224
Int. Cl.[6] F16K *11/10*
U.S. Cl. 137—15 34 Claims



1. A method to install a faucet set on a planar stainless steel sink mounting flange using a sealing gasket, the method comprising:

(a) placing a faucet set having at least a hot and a cold water inlet and a gasket having mounting apertures conforming to the hot and cold inlets, on an installation flange of a sink, of said sink mounting flange having apertures conforming to the faucet set water inlet ports, on the sink mounting flange, said gasket forming a seal between the faucet set and the flange;

(b) placing a sheet-like resilient member having a center and adapted to the installation of the faucet set using the threaded

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inlets, the member having a first uninstalled configuration and a second installed configuration, wherein in the first uninstalled configuration the resilient member comprising opposite arcuate ends such that the member symmetrically departs from planarity from the center to each end of the resilient member by an intentionally introduced angle of less than 5°, and wherein in the installed configuration, the sheet-like member becomes substantially planar, the planarity caused by securing the ends of the member to the planar mounting flange, wherein the member and its stress compresses the gasket to prevent leaks;

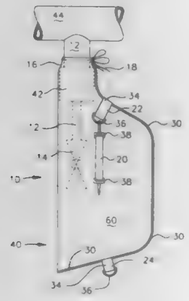
(c) introducing installation hardware onto the threaded water inlet ports in such a way as to introduce stress in the resilient member resulting in a strain in the resilient member that compresses the gasket.

5,725,009

FITTING REMOVAL FLUID DISCHARGE BAG

Ramon D. Mallow, Sr., 4302 McNeil St., Dallas, Tex. 75227, and Roger B. Batsel, Sr., 1302 Batsel Dr., Bowling Green, Ky. 42103

Filed Dec. 17, 1996, Ser. No. 767,934
Int. Cl.[6] F16K *43/00;* **F16L** *35/00*
U.S. Cl. 137—15 **19 Claims**



1. A method for removing a fitting from an end of a piping system while containing and redirecting fluid discharge from the pipe system comprising:

a) breaking loose a connection between a fitting and a piping system;

b) enclosing the fitting in a bag made of a resilient flexible material;

c) attaching the bag to the piping system;

d) forming slack in the material of the bag between an upper portion of the bag and a lower portion of the bag by adjustment of straps which connect the upper portion of the bag to the lower portion of the bag to allow for manipulation of the fitting within the bag; and

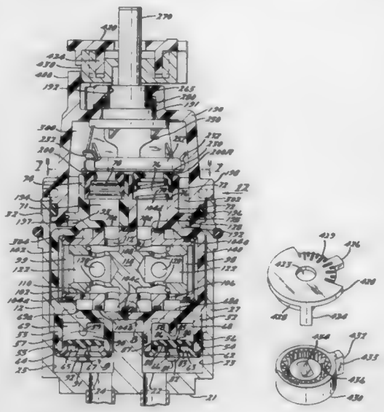
e) removing the fitting from the piping system by manipulation of the connection between the fitting and the piping system through the material of the bag.

5,725,010

PRESSURE BALANCED MIXING VALVE

Garry Marty, Fishers, and Diana Smolkin, Indianapolis, both of Ind., assignors to Masco Corporation of Indiana, Indianapolis, Ind.

Continuation of Ser. No. 487,267, Jun. 7, 1995, abandoned, which is a continuation of Ser. No. 324,036, Oct. 14, 1994, abandoned, Ser. No. 68,846, May 27, 1993, abandoned, and Ser. No. 921,191, Jul. 28, 1992, abandoned. This application Sep. 26, 1996, Ser. No. 720,275
Int. Cl.[6] F16K *11/06*
U.S. Cl. 137—100 **17 Claims**



1. A mixing valve comprising:

a housing having a side wall and a bottom wall defining a cavity, said bottom wall having first and second supply ports and an outlet port;

a housing cap removably mounted on said housing;

a valve plate having a first outlet aperture and a second outlet aperture rotatably mounted in said housing cap;

a cartridge non-rotatably disposed in said cavity intermediate said bottom wall and said valve plate;

said cartridge having a second chamber therein, first inlet passageway upstream of said chamber in communication at its downstream end with said chamber and at its upstream end with said first supply port, second inlet passageway upstream of said chamber in communication at its downstream end with said chamber and at its upstream end with said second supply port, first outlet passageway downstream of said chamber in communication at its upstream end with said chamber and at its downstream end with said valve plate, and second outlet passageway downstream of said chamber in communication at its upstream end with said chamber and at its downstream end with said valve plate;

third outlet passageway intermediate said valve plate and said outlet port in communication at its upstream end with said valve plate and at its downstream end with said outlet port;

means to rotate said valve plate to align and misalign said first outlet aperture with said first outlet passageway and said second outlet aperture with said second outlet passageway to thereby open and close communication between said first and second outlet passageways and said third outlet passageway to vary at least the amount of fluid passing into said third outlet passageway;

means for adjusting the maximum temperature of the fluid exiting from said outlet port including

an axially extending stop flange on the exterior of said housing cap adjacent its top;

an orienting stem ring having an opening having a rotational asymmetric shape to receive a complementary shaped stem at only one rotated orientation, and an annular shaped seat cavity; and

a disc shaped stop member having a central opening to receive said stem, an axially protruding annular section complementary to said annular shaped seat cavity so that said stop member can be received in said seat cavity in a plurality of rotated positions, and a stop shoulder adapted to engage said stop flange to prevent further rotational movement of said stop member; and

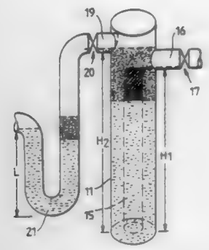
means within said chamber to even the pressures of the fluids from said first and second supply ports that are delivered to said outlet port.

5,725,011

APPARATUS FOR DRAINAGE OF OIL AND WATER FROM A SURFACE, ESPECIALLY FROM THE DECK OF A TANKER

Hans Hermensson, Odine vai 79, N-3472 Bodalen, Norway

PCT No. PCT/NO94/00030, § 371 Date Aug. 7, 1995, § 102(e) Date Aug. 7, 1995, PCT Pub. No. WO94/17890, PCT Pub. Date Aug. 18, 1994
PCT Filed Feb. 3, 1994, Ser. No. 500,927
Claims priority, application Norway, Feb. 8, 1993, 930434
Int. Cl.[6] B01D *17/032*
U.S. Cl. 137—172 **6 Claims**



1. An apparatus for drainage of two non-miscible liquids of different specific gravities from an essentially horizontal surface, comprising

a well-forming container having a bottom portion, a sidewall, and an upper opening defined by the upper edge of said sidewall, said upper edge to be essentially flush with the horizontal surface when said container is in use;

said container being further provided with first and second outlet means in an upper portion of said sidewall, the first outlet means being at a lower level than the second outlet means;

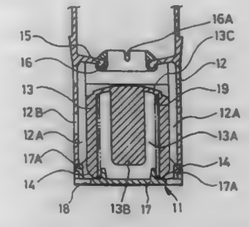
and a tube disposed within said container, said tube having a lower open end positioned adjacent said bottom portion of said container and an upper open end extending in a sealing manner through said sidewall of said container and connecting to said first outlet means so as to be in fluid communication therewith, whereby when said container and said tube are in operation and are filled with two non-miscible liquids of different specific gravities, the liquid having the highest specific gravity fills said container and said tube up to the level of said first outlet means, wherein said first outlet means comprises an outlet tube that is provided with a shut-off valve, and wherein said valve in a gate valve having a damper that is arranged to close from below and upwards, so that the upper edge of the damper determines the outlet level of the valve whereby the outlet level of said valve may be controlled.

5,725,012

STOP VALVE STRUCTURE

Hiroshi Ohsaki; Hiroshi Shimamura, both of Ibaraki-ken, and Katsuyuki Kido, Seto, all of Japan, assignors to Kyosan Denki Co., Ltd., Sashima-Gun, Japan

Filed Sep. 3, 1996, Ser. No. 706,912
Claims priority, application Japan, Sep. 8, 1995, 7-255818
Int. Cl.[6] F16K *24/04*
U.S. Cl. 137—202 **10 Claims**



1. A stop valve structure accommodated in a fuel tank comprising:

a casing;

a float disposed inside the casing for reciprocating movement within the casing;

a bottom wall defining a lower end of said casing; and

at least one hole provided along a periphery of the bottom wall;

wherein a valve opening is selectively opened and closed by reciprocating movement of the float within the casing in accordance with a liquid fuel level within the casing; and

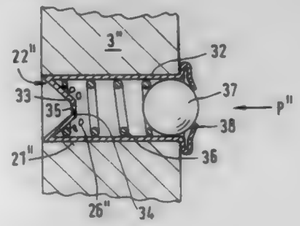
wherein said float is provided with a tapered portion at a lower end thereof such that an outside diameter of said float becomes smaller toward the lower end of the casing.

5,725,013

BUSH INSERT WITH ORIFICE FOR A LIQUID-CONTAINING HOUSING

Vladimir Premiski, Zuelpenich-Buervenich, and Mark Silk, Cologne, both of Germany, assignors to Ford Global Technology, Inc., Dearborn, Mich.

Filed Nov. 20, 1995, Ser. No. 559,665
Claims priority, application Germany, Dec. 16, 1994, 44 44 773.6
Int. Cl.[6] F16K *27/00*
U.S. Cl. 137—454.2 **3 Claims**



2. A valve for fluid flow comprising:

a bush insert located in a passage opening, the bush having a wall extending at least partially through said a passage opening, and a base formed as a cone, whose apex is directed toward the liquid in said housing and spaced from the wall;

an orifice formed in said base and located at the apex of the cone;

a first valve seat located at an end of the bush insert opposite the orifice;

a ball located within the bush insert adjacent the wall, between the first valve seat and orifice;

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a spring located within the insert, urging the ball toward the first valve seat.

5,725,014

GAS CONTROL VALVE

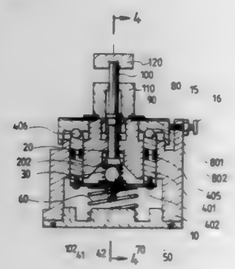
Hsing-Fu Liu, No. 564-1, Dong Guan St., Dong Shi Chen, Taichung, Taiwan

Filed Mar. 14, 1996, Ser. No. 615,981

Claims priority, application China, Mar. 17, 1995, 95-2-05022.6

Int. Cl.[6] F16K *17/00*

U.S. Cl. 137—460 **3 Claims**



1. A gas control valve comprising:

a body including an upper portion having a bore formed therein, including a lower portion having a room formed therein and including a middle portion having a hole formed therein for communicating said bore with said room, said body including a valve seat formed between said hole and said room, said body including a pair of apertures formed therein and including an inlet communicating with said room for allowing gas to flow into said room and including an outlet pathway communicating with said bore,

a plate slidably engaged in said room and including two posts secured thereto and slidably engaged in said apertures of said body,

means for biasing said plate toward said valve seat,

means for biasing said plate away from said valve seat,

a first ball member supported on said plate for engaging with said valve seat so as to block said hole,

a rod slidably engaged in said bore and said hole and including a lower portion extended inward of said valve seat for disengaging said first ball member from said valve seat,

means for biasing said rod away from said valve seat,

said first ball member being forced to engage with said valve seat in order to block said hole so as to prevent the gas from flowing through said hole to said outlet pathway when the gas has a pressure large enough to force said first ball member to engage with said valve seat, and

means for adjusting a moving distance between said ball member and said valve seat said plate includes an opening for engaging with said ball member, said adjusting means includes a sleeve secured in said opening of said plate and having an inner thread, and includes a screw threadedly engaged with said inner thread of said sleeve and adapted to be engaged with said body for adjusting a distance between the plate and the cap.

5,725,015

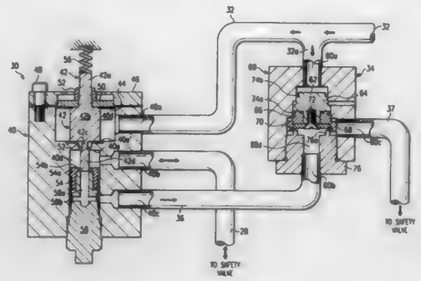
PILOT-OPERATED SAFETY RELIEF VALVE ASSEMBLY

Michael Andrew Theodos, Alexandria, and Roger Dale Danzy, Pineville, both of La., assignors to Dresser Industries, Inc., Dallas, Tex.

Filed Apr. 29, 1996, Ser. No. 642,024

Int. Cl.[6] F16K *31/124*

U.S. Cl. 137—488 **22 Claims**



1. A pilot-controlled safety relief valve assembly comprising:

a housing;

a piston movable between an open and a closed position in a chamber defined in the housing in response to predetermined changes in the system fluid pressure to control the flow of the system fluid through the housing, the chamber containing a control fluid the pressure of which controls the movement of the piston; and

a pilot valve comprising:

a body member having a first passage connected to the chamber of the safety relief valve for maintaining a pressure of the control fluid in the chamber;

a second passage communicating with the first passage; and

a piston movable in the body member between closed and open positions to respectively maintain the control fluid pressure in the first passage and enable the control fluid to pass from the first passage to the second passage; and

a regulator connected to the second passage of the pilot valve for receiving the control fluid from the pilot valve and venting a portion of the control fluid, said regulator preventing the remaining control fluid from venting so as to maintain a fluid pressure in the chamber of the safety relief valve to modulate the movement of the piston of the safety relief valve from its closed to its open position, said regulator reducing the control fluid pressure in the chamber of the safety relief valve to a predetermined percentage of the pressure of the system fluid.

5,725,016

PRESSURE COMPENSATING VALVE FOR A FUEL TANK

Hans Nickel, Cottenweiler, Germany, assignor to Andreas Stihl, Waiblingen, Germany

Filed Mar. 4, 1996, Ser. No. 610,263

Claims priority, application Germany, Mar. 3, 1995, 295 03 574.9

Int. Cl.[6] F16K *17/19*

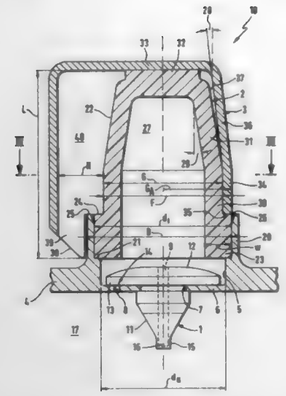
U.S. Cl. 137—493.1 **19 Claims**

1. A pressure compensating valve for a fuel tank of a work apparatus such as a portable handheld work apparatus equipped with an internal combustion engine, the fuel tank having a tank wall and the pressure compensating valve comprising:

a housing cap defining an inner space and being impermeable to air;

a pressure compensating stub on said tank wall and terminating within said housing cap;

pressure compensating aperture means formed in said tank wall to open into said stub;



valve means for controlling said aperture means for venting and ventilating said fuel tank;

passage means for connecting said inner space with the atmosphere;

a finely porous filter element;

first interface means for fixedly holding said filter element in said stub whereby said aperture means opens into said filter element;

said housing cap being mounted on said filter element; and,

second interface means for holding said housing cap on said filter element.

5,725,017

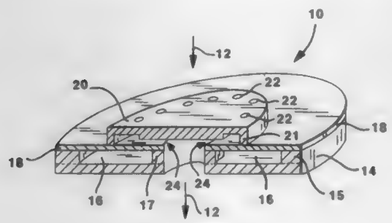
IN-LINE PRESSURE CHECK VALVE FOR DRUG-DELIVERY SYSTEMS

Dennis D. Elsberry, New Hope, Minn., and Richard H. Comben, St. Paul, Minn., assignors to Medtronic, Inc., Minneapolis, Minn.

Filed Jan. 27, 1997, Ser. No. 789,693

Int. Cl.[6] F16K *15/00*

U.S. Cl. 137—517 **8 Claims**



1. A pressure control valve, comprising:

a substrate having a central orifice therein;

a flexible membrane defining one wall of a sealed chamber formed in said substrate;

an inlet control element, disposed over said orifice and supported by said membrane such that a gap is normally defined between said inlet control element and said substrate;

wherein a pressure differential, between external pressure and pressure in said chamber, results in deformation of said membrane such that said inlet control element is drawn toward said substrate, thereby eliminating said gap and closing said valve.

5,725,018

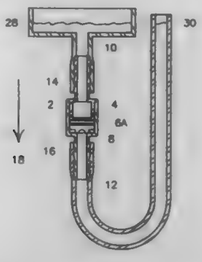
GRAVITY CHECK VALVE

Joseph R. Paczonay, 3050 Aptos Hill La., Aptos, Calif. 95003

Filed Sep. 16, 1994, Ser. No. 306,972

Int. Cl.[6] A47G *19/22*

U.S. Cl. 137—528 **4 Claims**



1. In combination:

liquid supply means including a container defining a container interior for containing liquid and having a container outlet communicating with said container interior;

a check valve for controlling dispensing of liquid from the container including a check valve housing defining a check valve housing interior, inlet defining means connected to said container and defining a first liquid flow path extending downward from said container interior to said check valve housing interior, outlet defining means communicating with said check valve housing interior and spaced from and disposed below said inlet defining means, said check valve housing defining a valve sealing seat at said inlet defining means and a porous valve seat at said outlet defining means, and a valve member positioned in said valve housing interior between said inlet defining means and said outlet defining means and movable between a sealing position wherein said valve member engages said valve sealing seat and prevents the flow of liquid from said check valve housing interior toward said container through said first liquid flow path and a non-sealing position spaced from said valve sealing seat and adjacent to said porous valve seat; and

flow path means defining a second liquid flow path connected to said check valve housing for receiving liquid from the check valve housing interior through said outlet defining means, said flow path means defining a liquid exit opening communicating with said second liquid flow path and elevated relative to said inlet defining means, said valve member being constructed of material having a density less than the density of the liquid supplied by said liquid supply means whereby said valve member will be buoyed upwardly by liquid in said valve housing interior to said sealing position in engagement with said valve sealing seat when the pressure drop from said inlet defining means to said outlet defining means is less than or equal to zero and will move to said non-sealing position when the liquid pressure at said inlet defining means exceeds the liquid pressure at said outlet defining means.

5,725,019

PRESSURE RETAINING VALVE

Egon Kohlstädt, Vlotho, Germany, assignor to ASV Stubbe GmbH & Co. KG, Germany

PCT No. PCT/EP95/01777, § 371 Date May 8, 1996, § 102(e) Date May 8, 1996, PCT Pub. No. WO95/31658, PCT Pub. Date Nov. 23, 1995

PCT Filed May 11, 1995, Ser. No. 640,924

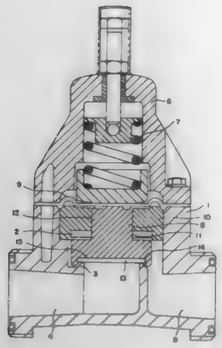
Claims priority, application Germany, May 13, 1994, 9407952 U

Int. Cl.[6] F16K *15/06*

U.S. Cl. 137—543.21 **5 Claims**

1. Pressure retaining valve comprising:

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a housing which has a housing inlet passage, a housing outlet passage and a connecting passage in between,

a valve piston which is movable in the housing and has a valve shaft,

a valve seat being associated with the valve piston, the valve piston being biased by a spring in the direction towards the valve seat and, in the closed position, sealing the connecting passage between the housing inlet passage and the housing outlet passage,

an isolating membrane which is clamped in the housing and separates the spring and the valve piston,

a guide disc arranged between the isolating membrane and the valve seat,

the guide disc surrounding and slidably guiding the valve shaft, and

the guide disc and the valve shaft forming a narrow annular gap acting as a throttling point.

5,725,020

RUNOFF TONGUE FOR FLUID FLOW DIVIDER

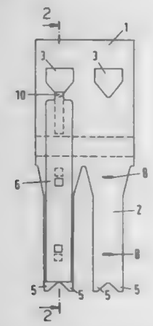
Hans-Peter Streuber, Solingen, Germany, assignor to Julius Montz GmbH, Hilden, Germany

Filed Jul. 8, 1996, Ser. No. 674,706

Claims priority, application Germany, Jul. 7, 1995, 195 24 774.4

Int. Cl.[6] F15B *1/00*; B05B *1/36*

U.S. Cl. 137—561 A **16 Claims**



1. A runoff tongue (**2**) for a channel distributor having an end wall (**1**) formed with a fluid outlet opening (**3**), wherein

said runoff tongue (**2**) is an extension of said end wall (**1**); and

a curved guide element (**6**) is mounted on said runoff tongue, runs parallel to a longitudinal axis of said tongue, and has a laterally central region (**6***b*) which contacts said end wall (**1**), thereby defining wedge-shaped spaces (**9**) between said guide element (**6**) and said tongue (**2**) for channeling of fluid toward an end (**5**) of said tongue.

5,725,021

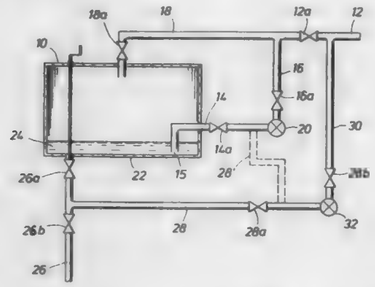
SYSTEM FOR RETRIEVING WASTE DRILLING MUD

James Leslie Dallas, 26 Beechfield Road, Elgin, Moray, Scotland, 1V30 3RT

Filed Dec. 7, 1995, Ser. No. 568,954

Int. Cl.[6] E21B *21/10*

U.S. Cl. 137—563 **10 Claims**



1. A system for retrieving waste drilling mud from a mud pit having a backload line for use in filling the pit and a dump line extending from a lower portion of the pit for use in draining the pit, the system comprising:

(a) a first valve on the dump line;

(b) a first pipe connecting to the dump line above said first valve to the backload line; and

(c) pump means for pumping mud from the dump line to the backload line.

5,725,022

DIRECTION CONTROL VALVE

Keisuke Taka, and Kazunori Ikei, both of Tochigi-ken, Japan, assignors to Komatsu Ltd., Tokyo, Japan

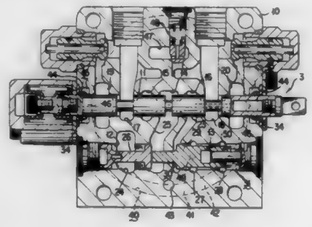
PCT No. PCT/JP95/00438, § 371 Date Sep. 10, 1996, § 102(e) Date Sep. 10, 1996, PCT Pub. No. WO95/25227, PCT Pub. Date Sep. 21, 1995

PCT Filed Mar. 15, 1995, Ser. No. 714,075

Claims priority, application Japan, Mar. 15, 1994, 6-44063

Int. Cl.[6] F15B *13/08*

U.S. Cl. 137—596 **4 Claims**



1. A direction control valve, in which a spool bore having an inlet port, an actuator port and a tank port is formed in a valve block, a spool slidable between positions for establishing and blocking communication of said input port, said actuator port and said tank port, is disposed within said spool bore, said input port and said tank port open to a first mateable surface and a second mateable surface of said valve block, and a plurality of such valve blocks are stacked and connected with mating the first mateable surface and the second mateable surface for establishing communications between said input ports and between said tank ports of said valve blocks,

CHARACTERIZED in that

an annular groove is formed in said second mateable surface of said valve block at a position outside of said ports, a drain confluence passage communicating with a drain passage is formed with an opening in said first mateable surface and said second mateable surface, an oil seal for sealing between said spool bore and said spool is provided and a back surface side of said oil seal is communicated with said annular groove.

5,725,023

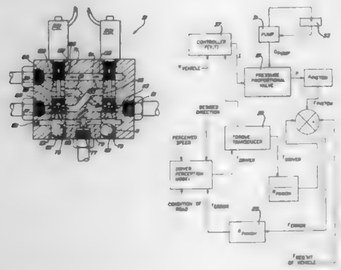
POWER STEERING SYSTEM AND CONTROL VALVE

Santo Anthony Padula, Lake Orion, Mich., assignor to Lectron Products, Inc., Rochester Hills, Mich.

Filed Feb. 21, 1995, Ser. No. 391,542

Int. Cl.[6] F17D *3/00*

U.S. Cl. 137—596.17 **29 Claims**



1. An apparatus for use in a power steering system comprising:

a valve having a left turn assist outlet and a right turn assist outlet, said valve operable for controlling pressure of steering fluid through at least one of said turn assist outlets;

a sensor for detecting steering wheel induced torque, said sensor generating a signal upon detection of said torque; and

said valve selectively varying said pressure as a function of said signal generated by said sensor;

said valve further including:

a body;

a first bore disposed within said body having a first port;

a supply inlet supplying fluid to said first port;

a linearly displaceable first spool disposed in said first bore;

a second port of said first bore communicating with a first one of said turn assist outlets;

a third port in said first bore communicating with a second one of said turn assist outlets;

a return outlet;

a fourth port in said first bore communicating with said return outlet;

a second bore disposed in said body and having a first port communicating with said supply inlet;

a second port in said second bore communicating with a first exchange passageway which communicates with said third port of said first bore;

a third port of said second bore communicating with said second of said turn assist outlets;

a fourth port of said second bore communicating with a second exchange passageway which further communicates with a fifth port in said first bore, said fifth port in said first bore communicating with said second port in said first bore;

a return passageway communicating between said fourth port in said first bore and a fifth port in said second bore; and

a sixth port in said second bore communicating with said return outlet.

5,725,024

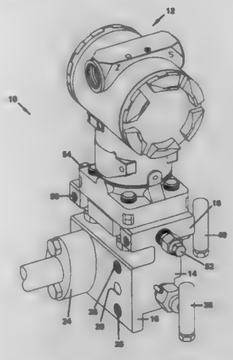
MANIFOLD VALVE HAVING CONTROLLED VENT PORT INTEGRAL WITH FLANGE

Spencer M. Nimberger, Houston, Tex., assignor to PGI International, Ltd., Houston, Tex.

Filed Aug. 21, 1996, Ser. No. 697,260

Int. Cl.[6] F17D *1/00*

U.S. Cl. 137—597 **1 Claim**



1. A one-piece integrally formed manifold having a first inlet port, a first outlet port, and a first internally disposed primary flow passageway providing fluid communication between said first inlet and outlet ports; a second inlet port, a second outlet port, and a second internally disposed primary flow passageway providing fluid communication between said second inlet and outlet ports; and all internally disposed crossover passageway providing fluid communication between said first and second primary flow passageways, said manifold consisting of:

a body portion consisting of a front surface, a rear surface, a first and a second side surface, and a bottom surface, wherein said first and second inlet ports are disposed on a preselected one of said rear and bottom surfaces, a first blocking valve mounted on said first side surface and operatively disposed in said body portion at a position whereat said first blocking valve is capable of controllably directing and selectively blocking fluid flow through said first primary flow passageway, a second blocking valve mounted on said second side surface and operatively disposed in said body portion at a position whereat said second blocking valve is capable of controllably directing and selectively blocking fluid flow through said second primary flow passageway, and a crossover valve mounted on said front surface and operatively disposed in said body at a position whereat said crossover valve is capable of controllably directing and selectively blocking fluid flow between said first and second primary flow passageways;

a flange portion integrally formed with said body portion and consisting of a top surface, a front surface disposed in parallel relationship with the front surface of said body portion, a rear surface disposed in parallel relationship with the rear surface of said body portion, a first side surface disposed in coplanar relationship with the first side surface of said body portion, and a second side surface disposed in coplanar relationship with the second side surface of said body portion, said first and second outlet ports being disposed in said top surface, a first vent port and a second vent port being disposed in said front surface of the flange portion and separately configured for connection to a drain conduit, a first vent passage disposed within said flange portion and extending between said first vent port and said first outlet port and a second vent passage disposed within said flange portion and extending between said second vent port and said second outlet port, a first vent port control valve mounted on said first side surface of said flange portion in parallel alignment with said first blocking valve and operatively disposed within said flange portion at a position whereat said first vent port control valve is capable of

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selectively directing and controllably blocking fluid flow between said first outlet port and said first vent port, and a second vent port control valve mounted on a second side surface of said flange portion in parallel alignment with said second blocking valve and operatively disposed within said flange portion at a position whereat said second vent port control valve is capable of selectively directing and controllably blocking fluid flow between said second outlet port and said second vent port; and

a web portion extending between said body portion and consisting of a front surface in parallel alignment with the front surface of said body portion, a rear surface in parallel alignment with the rear surface of said body portion, a first side surface in coplanar alignment with the first side of said body portion, and a second side surface in coplanar alignment with the second side surface of said body portion.

5,725,025

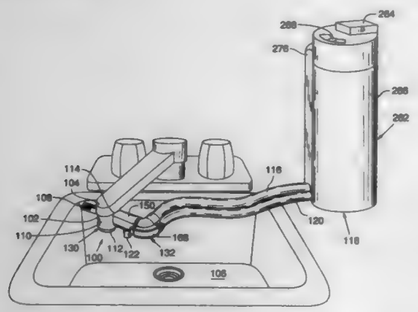
FLUID FILTRATION SYSTEM WITH QUICK-RELEASE FLUID HOSE FITTING

Eric Y. Park, Portland, Oreg.; David Knaub, Portland, Oreg.; David Thorpe, Portland, Oreg.; Howard Barney, Portland, Oreg., and Joshua Hoyt, Portland, Oreg., assignors to Ziba Design, Inc., Portland, Oreg.

Division of Ser. No. 372,649, Jan. 13, 1995, Pat. No. 5,549,010. This application Aug. 16, 1996, Ser. No. 689,699

Int. Cl.[6] **F16K** *11/044;* **F16L** *37/28*

U.S. Cl. 137—872 **12 Claims**



1. A manually actuatable fluid flow diverter adapted to receive a quick-release fluid conduit attachment fitting, comprising:

a body through which a primary pathway extends between a primary inlet and a primary outlet and through which a secondary pathway extends to a diverter inlet for delivery of fluid flow to a discharge outlet;

a valve stem positionable within the body to direct incoming fluid flow selectively through the primary pathway or the secondary pathway;

a conduit extension formed as an integral part of the body and having an inlet conduit in fluid communication with the diverter inlet, the conduit extension terminating at an end surface; and

a quick-release fitting including a holder for holding a conduit that matably connects to the inlet conduit at the end surface of the conduit extension, the fitting having a manually actuatable attachment mechanism that includes a pivotable lever arm that cooperates with a complementary member in the conduit extension to secure the fitting and diverter body together when the diverter is in use and to facilitate manual actuation of the lever arm to disconnect the fitting from the diverter body when it is not in use.

5,725,026

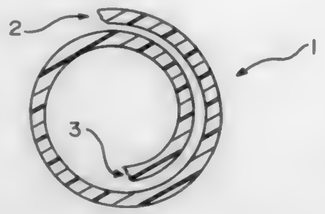
CONDUIT LINING SYSTEM AND METHOD OF LINING A CONDUIT

Lembit Maimets, Richmond Hill, Canada, assignor to Link-Pipe, Inc., Ontario, Canada

Filed Nov. 6, 1996, Ser. No. 744,668

Int. Cl.[6] **F16L** *55/18*

U.S. Cl. 138—97 **23 Claims**



1. A method of lining a conduit with the use of a liner, said liner longitudinally extending and transversely curled in a pre-installation position, said liner having longitudinally extending locking edges, said liner being capable of being uncurled into an installation position to form a longitudinally extending generally cylindrically shaped liner for placement adjacent an interior surface of the conduit to be lined, said method comprising the steps of:

positioning a predetermined length of said liner within the conduit to be lined in said curled pre-installation position of said liner;

placing a torpedo-shaped member at one end of said predeterminate length of said liner; and

exerting a force to move said torpedo-shaped member within said liner to move said liner from said curled pre-installation position to said uncurled installation position, whereby movement of said torpedo-shaped member within said liner causes said locking edges of said liner to become engaged thereby locking said liner in place adjacent an interior surface of the conduit to be lined.

5,725,027

WEFT FEEDER

Gerard Cox, Geldrop, Netherlands, assignor to TE Strake B.V., Deurne, Netherlands

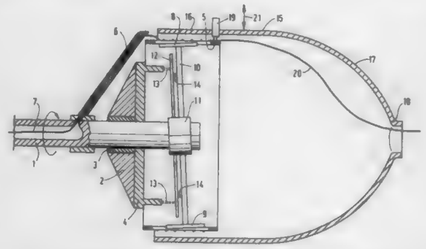
PCT No. PCT/NL95/00154, § 371 Date Oct. 30, 1996, § 102(e) Date Oct. 30, 1996, PCT Pub. No. WO95/30033, PCT Pub. Date Nov. 9, 1995

PCT Filed Apr. 28, 1995, Ser. No. 737,082

Claims priority, application Netherlands, May 3, 1994, 9400726

Int. Cl.[6] **D03D** *47/36;* **B65H** *1/22*

U.S. Cl. 139—452 **7 Claims**



1. A pre-unwinding device for use in a spoolless weaving loom using a weft injector, said device comprising:

a winding body having a central axis;

a central shaft enclosed by a housing, whereby thread can be taken from a supply coil, and said winding body by a relative rotation of the central shaft and, be wound on the winding body in adjacent eventually separated strands, whereby the winding body has an adjustable diameter in a plane perpendicular to the central shaft;

a receiving cylinder;

said winding body being situated within and surrounded by said receiving cylinder;

said receiving cylinder being provided with a stopping device having such shape and position that at the moment that thread discharge from the winding body is ended, the stopping device can be activated within the receiving cylinder;

said receiving cylinder and said stopping device being moveable in a plane which is almost perpendicular to the central axis of the winding body.

5,725,028

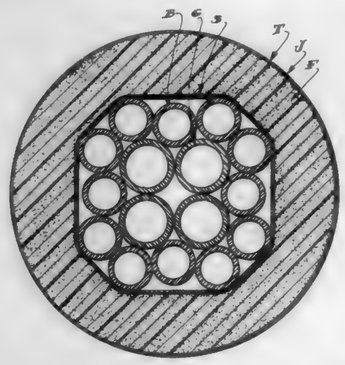
TRUNK LINE

James M. Cleland, 4200 Via Norte St., Cypress, Calif. 90630

Filed May 13, 1996, Ser. No. 645,425

Int. Cl.[6] **F16L** *9/14*

U.S. Cl. 138—149 **15 Claims**



1. An improved trunk-line comprising a plurality of elongate beer lines and glycol lines made of flexible plastic tubing in parallel juxtaposition; an elongate sheath of high tensile strength, tear resistant, impervious flexible plastic material tightly engaged about and extending longitudinally of the assembly of beer and glycol lines and holding the lines in set position relative to each other; an elongate tube of soft, flexible, resilient, thermal insulating foam plastic material engaged about and extending longitudinally of the sheath; and, a skin of impervious, soft, flexible and resilient plastic material about and extending longitudinally of the tube, the plastic materials of which the parts of the trunk-line are established have low indexes of heat conductivity.

5,725,029

TENSION CONTROL APPARATUS FOR WEFT THREADS

Heinz-Peter Loehr, Maria-Thann, Germany, and Rainer Schuster, Lindau, Germany, assignors to Lindauer Dornier Gesellschaft mbH, Lindau, Germany

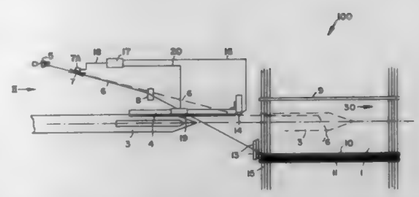
Filed Sep. 18, 1996, Ser. No. 710,524

Claims priority, application Germany, Sep. 27, 1995, 195 35 895.3

Int. Cl.[6] **D03D** *47/38;47/34;51/34*

U.S. Cl. 139—453 **20 Claims**

1. In a loom having a weft thread selector arrangement adapted to receive a plurality of different weft threads and to respectively select from said plurality of threads and present a single selected weft thread that is to be inserted into a loom shed of the loom, an improved thread tension control apparatus comprising a plurality of weft thread brakes respectively arranged thread-flow-upstream from said weft thread selector arrangement to receive respective ones of the plurality of weft threads running through said brakes, a first thread tension sensor arranged on a first plane thread-flow-downstream from said weft thread selector arrangement to sense a tension of the selected weft thread, and a control loop arranged to connect said first thread tension sensor to said brakes.



5,725,030

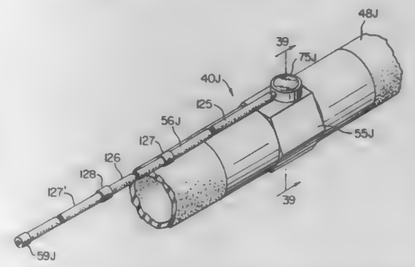
FUEL DISPENSING SYSTEM AND METHODS OF MAKING THE SAME

Jeffrey M. Berger, Springfield; Randy C. Foster, Strafford; Timothy J. Hampton, Willard; Jack S. Hargus, Marshfield; Richard L. Marsh, Springfield, all of Mo., and David A. Masseth, La Habra, Calif., assignors to Dayco Products, Inc., Dayton, Ohio

Division of Ser. No. 514,041, Oct. 2, 1995, Pat. No. 5,622,212, which is a division of Ser. No. 304,994, Sep. 13, 1994, Pat. No. 5,456,296, which is a division of Ser. No. 151,093, Nov. 12, 1993, Pat. No. 5,361,810, which is a division of Ser. No. 962,537, Oct. 16, 1992, Pat. No. 5,305,806. This application Feb. 20, 1997, Ser. No. 803,562

Int. Cl.[6] **B65B** *3/18;* **B67D** *5/06*

U.S. Cl. 141—59 **8 Claims**



1. In a hose assembly for a system comprising a liquid fuel source, a dispensing nozzle and said hose assembly that has a first fluid passage therein for conveying said liquid fuel in one direction from said source to said nozzle that is adapted to dispense said liquid fuel into a container and a second fluid passage therein for returning vapors associated with said liquid fuel from said container, said hose assembly comprising a flexible inner hose having an outer peripheral surface and defining said first fluid passage therein, and a flexible outer hose having an inner peripheral surface and being disposed around said inner hose, said inner peripheral surface of said outer hose and said outer peripheral surface of said inner hose defining said second fluid passage therebetween, said hose assembly having a venturi section therein that tends to remove liquid from a normal drape area of said hose assembly when the same is being utilized to dispense said liquid fuel into said container and an inlet member in said venturi section, the improvement wherein said venturi section has inlet means that is adapted to be positioned in said second fluid passage generally at

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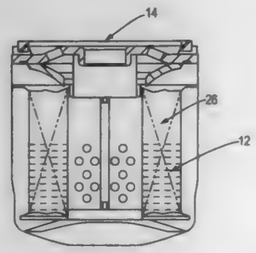
the actual drape area of said hose assembly even when said actual drape area is disposed intermediate said normal drape area and said nozzle or is disposed intermediate said normal drape area and said source as well as when said actual drape area is disposed generally at said normal drape area, said inlet means comprising a single flexible tube interconnected to said inlet member in said venturi section, said tube comprising a plurality of separate tubular sections and a plurality of tubular filter elements interconnecting said tubular sections.

5,725,031

METHOD FOR INTRODUCING PTFE INTO A SPIN-ON OIL FILTER

Gerard Walter Bilski, Perrysburg, Ohio; Charlie Probasco, New Paris, Ohio, and Robert Franklyn Voigt, Greenville, Ohio, assignors to AlliedSignal Inc., Morristown, N.J.

Filed Aug. 1, 1996, Ser. No. 691,272
Int. Cl.[6] B65B *1/04*
U.S. Cl. 141—2 **4 Claims**



1. A method for introducing PTFE into a spin-on oil filter having a filter media disposed around a centertube having holes formed therein, an inlet, and an outlet, in fluid communication with the centertube, comprising the steps of:
   a) positioning the oil filter in a generally upright position with the outlet at the top;
   b) introducing a quantity of a colloidal suspension of PTFE particles less than 2 microns in size suspended in a petroleum product into the centertube through the outlet to partially fill the center tube to an initial height; and,
   c) waiting a period of time for substantially all of the quantity of the PTFE colloidal suspension to be drawn within intricacies of the filter media from the centertube by capillary forces and rising within the filter media beyond the initial height in the centertube so that substantially none of the quantity of the PTFE colloidal suspension remains in the centertube.

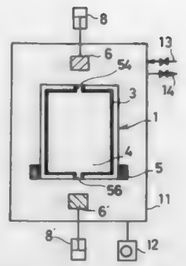
5,725,032

LIQUID CRYSTAL CELL FILLING METHOD AND APPARATUS

Nobumasa Oshima, Hirakata, and Hideyuki Abe, Himeji, both of Japan, assignors to Ayumi Industry Company Limited, Hyogo-ken, Japan

Filed Feb. 5, 1997, Ser. No. 795,052
Claims priority, application Japan, Feb. 9, 1996, 8-48058
Int. Cl.[6] B65B *1/04*
U.S. Cl. 141—70 **17 Claims**

1. A method for filling a liquid crystal cell with liquid crystal, said liquid crystal cell including two substrates joined together with a seal disposed along the peripheries thereof whereby a liquid crystal cavity to be filled with liquid crystal is defined by said substrates and said seal, said cell including, in the seal in the top and bottom edges of the cell, at least one top liquid crystal inlet opening and at least one bottom liquid crystal inlet opening which are in communication with the liquid crystal cavity, said cell being



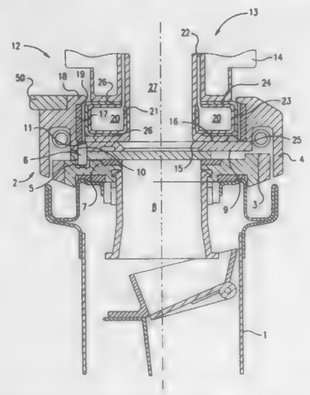
adapted to be placed in a vacuum chamber in which liquid crystal supply means are also disposed, said method comprising the steps of reducing the pressure in said vacuum chamber, bringing the liquid crystal supply means into contact with the respective ones of said top and bottom inlet openings of said liquid crystal cell, and, thereafter, returning the pressure in the vacuum chamber to an atmospheric pressure, whereby the liquid crystal is supplied into said liquid crystal cavity.

5,725,033

FILLING SYSTEM FOR ROBOT-CAPABLE FILLING OF A VEHICLE WITH FUEL

Reinhard Steinkaemper, Winnenden; Adolf Kremer, Remseck; Ronald Schmid, Ohmden; Andreas Fischer, Reichenbach, and Andreas Mueller, Stuttgart, all of Germany, assignors to Mercedes-Benz AG, Stuttgart, Germany

Filed Sep. 5, 1996, Ser. No. 706,560
Claims priority, application Germany, Sep. 5, 1995, 195 32 775.6
Int. Cl.[6] B65B *1/04;* **B60K** *15/05*
U.S. Cl. 141—346 **12 Claims**



1. A filling system for automated filling of a motor vehicle with fuel, comprising:
   a filler nozzle;
   a tank filler neck of the motor vehicle;
   a docking extension provided with a central opening mounted on said filler neck, said docking extension having an upper section which rotates said docking extension around an axis of symmetry for opening and closing a tank of said motor vehicle;
   wherein said filler nozzle has an outlet end forming an end effector which docks said filler nozzle with a positive connection between said filler nozzle and said docking extension, positive locking elements being distributed around a circumference of said outlet end and said docking extension in a

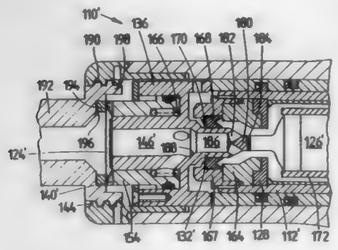
tooth-like manner so as mesh with one another when said filler nozzle is in a filling state;
wherein said docking extension and said filler nozzle form docking partners, radially movable ones of said positive elements being mounted on one of said docking partners, and being operable fluidically in a radial direction;
wherein rigid ones of said positive elements are mounted on the other of said docking partners; and
wherein said radially movable positive elements are completely retracted into their respective docking partner and are lockable in a circumferential direction and an axial direction in a latching position via a locking action.

5,725,034

PRESSURIZED FLUID DISPENSING NOZZLE

David Andrew Fry, St. Kilda, and David Richard Brooks, Boronia Park, both of Australia, assignors to Gogas (Australia) Pty. Ltd., Victoria, Australia

PCT No. PCT/AU94/00248, § 371 Date Apr. 10, 1996, § 102(e) Date Apr. 10, 1996, PCT Pub. No. WO94/18818, PCT Pub. Date Sep. 1, 1994
PCT Filed May 13, 1994, Ser. No. 549,778
Claims priority, application Australia, May 14, 1993, PL 8814; Oct. 28, 1993, PM 2101
Int. Cl.[6] B67D *5/37*
U.S. Cl. 141—347 **33 Claims**



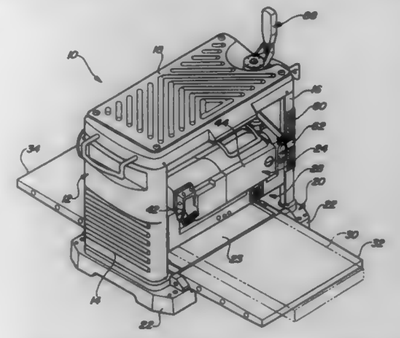
1. A pressurized fluid dispensing nozzle comprising a connector for coupling the nozzle to a tank inlet which connector is adapted to contact said tank inlet, a valve for controlling the dispensing flow of fluid through the nozzle in a forward generally axial direction, a sealing nose-piece which is engageable with a seal face of the tank inlet for providing a seal between the nozzle and the tank inlet when the nozzle is coupled to the tank inlet and a valve actuator which is displaceable rearwardly towards a valve actuating condition by engagement of the sealing nose-piece with the seal face of the tank inlet, the sealing nose-piece being provided on a sealing sleeve through which the fluid is dispensed to an outlet end of the nozzle defined by said nose-piece, the sealing sleeve being axially displaceable in opposed directions relative to the connector and to the valve actuator, and wherein axial displacement of the sealing sleeve in the forward direction is actuated by the dispensing flow of pressurized fluid through the nozzle when the valve is open whereby when the nozzle is coupled to the tank inlet the nose-piece is driven by the pressurized fluid into engagement with said seal face.

5,725,035

APPARATUS FOR ADJUSTING THE RELATIVE POSITIONS OF TWO COMPONENTS OF A POWER TOOL

Louis M. Shadeck, Timonium, Md., assignor to Black & Decker Inc., Newark, Del.

Filed Jun. 5, 1996, Ser. No. 659,685
Int. Cl.[6] B27C *1/02*
U.S. Cl. 144—117.1 **20 Claims**



13. A planing machine for planing a surface of a workpiece, the planing machine comprising:
   a carriage assembly including at least one rotatable cutting blade, said carriage assembly further including an aperture having a plurality of internal threads;
   a workpiece support member disposed vertically relative to said carriage assembly so as to define a selectively adjustable workpiece opening therebetween;
   a plurality of vertical support columns interconnecting said carriage assembly and said workpiece support member;
   one of said carriage assembly being slidably mounted to said plurality of support columns for selective bi-directional movement along a path of travel and said workpiece support member slidably mounted to said plurality of support columns for selective bi-directional movement along a path of travel;
   a first drive rod including a plurality of external threads in meshing engagement with the plurality of internal threads, said first drive rod being rotatable in a first direction and a second direction; and
   a biasing member in constant biasing engagement with said carriage assembly such that constant outboard engagement of said internal threads and said external threads is maintained as said first drive rod is rotated in said first and second directions.

5,725,036

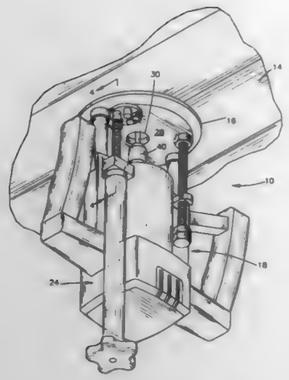
PLUNGE ROUTER WITH PRECISION ADJUSTMENT MECHANISM AND CONVERSION KIT

Daniel L. Walter, 510 Center St., Chardon, Ohio 44024

Continuation of Ser. No. 652,096, May 23, 1996, abandoned. This application Feb. 18, 1997, Ser. No. 801,195
Int. Cl.[6] B27C *5/00*
U.S. Cl. 144—135.2 **14 Claims**

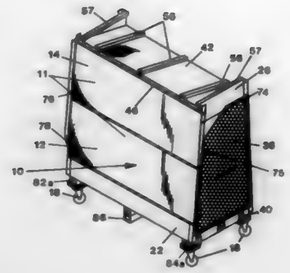
1. A plunge router constructed for free hand use or mounting beneath a work table comprising:
   a. a base adapted to be connected to a work table and defining a central opening;
   b. a router head assembly comprising a drive motor, a drive shaft, a collet and a housing, said drive shaft projecting from said motor toward said base in alignment with said base opening so that a router bit mounted in said collet can project through said opening for engaging a work piece on the table top;

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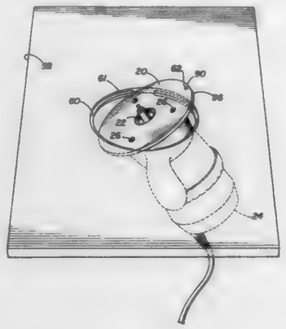
c. a plunge guide assembly supporting said router head assembly for movement toward and away from said base;
d. said router head assembly biased toward a default position spaced away from said base a maximum extent along said plunge guide assembly;
e. a retracted position adjusting mechanism coacting between said base and said head assembly for blocking movement of said head assembly to said first default position from a second, adjusted retracted position, said retracted position adjusting mechanism comprising a threaded force transmitting member fixed to said base and projecting toward said head assembly, an abutment element projecting from said head assembly transverse to the direction of extent of said threaded member and an adjustment member threaded to said force transmitting member and engagable with said abutment element to adjustably change said head assembly second retracted position;
f. said head assembly further comprising a second head assembly abutment element; and,
g. a precision adjustment mechanism for moving said head assembly a precise distance from said second position to precisely position a router bit relative to said base opening, said adjustment mechanism comprising a first positioner fixed to said base and extending to said second abutment element, a second positioner engaging said second abutment element and said first positioner and a drive transmission coupling said first and second positioners, said drive transmission operative to shift said second positioner along said first positioner to change the distance between said base and said second abutment element, said second positioner comprising a manually actuatable structure disposed remote from said second abutment element, said manually actuatable structure operating said drive transmission to incrementally shift said head assembly for precisely positioning a router bit.

5,725,037
MOBILE TOOL STORAGE BOX AND WORK BENCH COMBINATION
Kenneth P. Faulhaber, 327 Elm Dr., Casselberry, Fla. 32707
Filed Sep. 24, 1996, Ser. No. 719,249
Int. Cl.[6] B25H *1/12*
U.S. Cl. 144—285 **29 Claims**



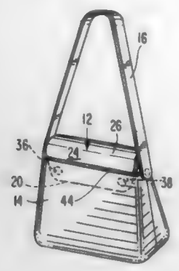
1. A portable workshop having a storage mode as well as an active mode in which working surfaces are presented for use by a carpenter or other craftsman, said workshop comprising a front surface in which upper and lower bottom hinged doors of generally rectangularly-shaped configuration are operatively mounted, said workshop also having a rear surface and a pair of end surfaces interconnecting said front and rear surfaces, and an upper member operatively associated with upper edges of said front, rear and end surfaces, said upper member serving with said surfaces to define an enclosed space suitable for the storage of tools and the like, a wheeled base member serving as the support for said front, rear and end surfaces, and means operatively associated with said upper and lower doors for causing said doors to open and close together, and means for causing said doors, when opened, to reside in essentially a horizontal attitude, so as to serve as work surfaces for use by the carpenter or other craftsman.

5,725,038
ROUTER BASEPLATE AND TABLE
Edwin C. Tucker, Ottawa, and Lloyd Sevack, Nepean, both of Canada, assignors to Lee Valley Tools Ltd., Ottawa, Canada
Filed Aug. 29, 1996, Ser. No. 705,319
Int. Cl.[6] B27M *1/00;* **B27C** *5/02;* **B25H** *1/00*
U.S. Cl. 144—371 **23 Claims**



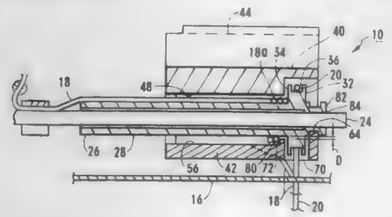
1. A router table top, comprising a table top plate penetrated by an opening for receiving a router baseplate, the opening comprising a hole sufficiently larger than the baseplate to receive the baseplate, and structure for supporting at least a portion of the baseplate when the baseplate is positioned within the hole substantially flush with the top side of the table top plate, which structure is not present in at least two opposed regions adjacent to the hole so that the baseplate while attached to a router can pass through the top plate and be seated on the supporting structure by tilting the baseplate relative to the top of the table top plate as the baseplate passes through the regions.

5,725,039
HANDBAG WITH REVERSIBLE FLAP
Maurizio Macinai, Scandicci, Italy; Kellee Hughes, and Stephen Gatsik, both of New York, N.Y., assignors to Manetti Farrow Incorporated, New York, N.Y.
Filed Jun. 18, 1996, Ser. No. 665,677
Int. Cl.[6] A45C *3/08;13/08;13/12*
U.S. Cl. 150—104 **20 Claims**



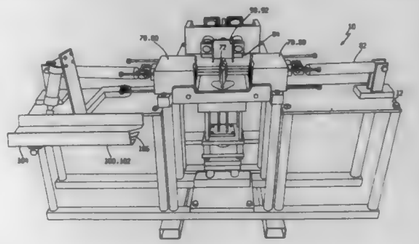
1. A handbag with a reversible flap, comprising:
a handbag body having an open top, a front and a rear;
a flap having a front cover portion for covering at least part of the front of the handbag body, a rear attachment portion and a bend portion between the front and rear portions for bending over the open top of the handbag body;
the flap comprising an inner panel having an inner surface and an outer panel having an outer surface, the inner and outer panels being connected to each other at least at a part of the front cover portion and being free of each other at the bend portion and at the attachment portion so that bending of the flap in one direction permits relative sliding of the panels in the bend and rear attachment portions so that at one time, the bend portion can be bent in one direction for exposing the outer surface and, at a different time, the bend portion can be bent in an opposite direction for exposing the inner surface, the relative sliding of the panels in the bend and attachment portions accommodating bending of the bend portion without damaging the inner and outer surfaces;
at least one first attachment member connected to the rear of the handbag body; and
at least one double-sided second attachment member connected to the rear attachment portion of the flap for detachably engaging the first attachment member for connecting the flap to the body.

5,725,040
SUSPENSION CORD WINDING DEVICE FOR WINDOW COVERING
Douglas R. Domel, Chatsworth, Calif., assignor to Harmonic Design, Inc., Chatsworth, Calif.
Filed Jun. 20, 1996, Ser. No. 666,249
Int. Cl.[6] E06B *9/30*
U.S. Cl. 160—170 R **7 Claims**



1. A window covering, comprising:
at least one suspension cord;
a plurality of slats engaged with the suspension cord;
a horizontally-oriented head rail formed with an opening through which the suspension cord extends;
a tilt rod disposed in the head rail;
a hollow spindle surroundingly engaged with the tilt rod and rotatable therewith, the spindle including a winding surface defining a first end, the suspension cord establishing a plurality of coils on the winding surface at least when the slats are not in a fully lowered configuration; and
a guide finger fixedly disposed in the head rail adjacent the opening and extending therefrom toward the spindle with the suspension cord extending through the opening between the finger and the first end, the finger being oriented such that the finger contacts at least one coil, thereby pushing coils of the suspension cord formed on the winding surface away from the finger such that successive coils are established on the winding surface of the spindle without overlapping.

5,725,041
MOLDING MACHINE
Eugene F. Schultz, 10423-80th Ave., Clear Lake, Minn. 55319-9620
Filed Jun. 14, 1996, Ser. No. 663,647
Int. Cl.[6] B22D *31/00;45/00;29/00*
U.S. Cl. 164—5 **19 Claims**



1. A static pour, gravity feed permanent mold machine for molding a casting from molten metal heated in a furnace, comprising:
a chassis,
means for holding a removable, reusable die,
a removable, reusable die,
casting ejection means for automatically ejecting the casting from said die,
mobile gating means for automatically forming a gating system adapted for carrying the molten metal into said die, said gating system having a narrowed opening for engaging the casting,
automatic degating means for severing said gating system from the casting while said gating system and the casting are still hot,
automatic casting receiver means for removing the casting from the mold machine, and
means for automatically transporting molten metal to the mold machine and automatically returning said gating system back to the furnace for re-heating.

18. A method of static pour, gravity feed permanent mold casting comprising the steps of:
inserting a reusable, removable die into a die holder,
forming a gating system above the die by bringing together separate gating blocks, each of which forms one-half of a riser cavity and one-half of a sprue cavity,
ladling molten metal from a furnace,
pouring molten metal into the die through the sprue cavity, filling the casting and the riser cavity,
allowing the molten metal to cool to a plastic state,
separating the gating blocks to allow access to the gating system,

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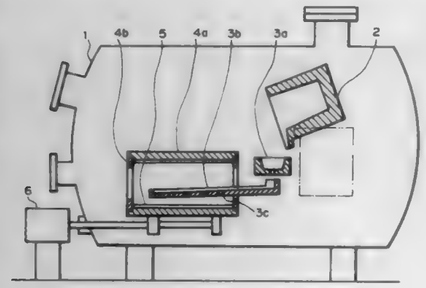
severing the gating system from the casting while the gating system and the casting are still hot,
returning the gating system to the furnace for remelting while the gating system is still hot,
ejecting the casting from the die, and
removing the casting from the mold machine.

5,725,042

METHOD FOR PRODUCING HYDROGEN-ABSORBING ALLOY

Yoichi Hirose, Saitama, Japan; Shiro Sasaki, Saitama, Japan; Hiroshi Hasegawa, Saitama, Japan; Uremu Hosono, Saitama, Japan, and Masahide Utsunomiya, Saitama, Japan, assignors to Showa Denko K.K., Tokyo, Japan

Filed Dec. 24, 1996, Ser. No. 773,709
Claims priority, application Japan, Dec. 26, 1995, 7-351596
Int. Cl.[6] B22D *13/12*
U.S. Cl. 164—114 **14 Claims**



1. A method for producing a hydrogen-absorbing alloy, comprising the steps:
preparing a rotary body having a cylindrical inner surface;
rotating the rotary body around its longitudinal axis;
preparing melt of the hydrogen-absorbing alloy; and,
pouring, on the cylindrical mold surface formed by the cylindrical inner surface, the melt of the hydrogen-absorbing alloy at an average depositing speed of approximately 0.1 cm/second or less, thereby centrifugally casting and rapidly cooling the melt of the hydrogen-absorbing alloy on the cylindrical mold surface.

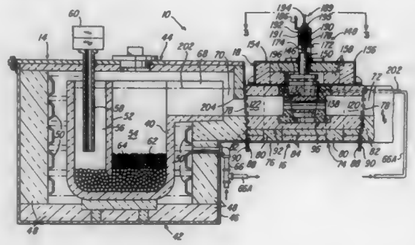
12. A method for producing a hydrogen-absorbing alloy, comprising the steps:
preparing a rotary body having a cylindrical inner surface which forms the cylindrical mold surface;
rotating the rotary body around its longitudinal axis;
preparing melt of the hydrogen-absorbing alloy;
pouring the melt of the hydrogen-absorbing alloy on the mold surface to a predetermined bottom portion, thereby centrifugally casting and rapidly cooling the melt of the hydrogen-absorbing alloy on the cylindrical inner mold surface; and,
adjusting the rotary speed of the rotary body and the pouring amount of melt such that the melt poured to the predetermined bottom portion solidifies during one rotation of the rotary body.

5,725,043

LOW PRESSURE CASTING PROCESS AND APPARATUS

Richard L. Schaefer; Carl W. D. Schaefer; James M. Williamson, all of Dayton, and Norman L. Miller, Huber Heights, all of Ohio, assignors to Frank W. Schaefer, Inc., Dayton, Ohio

Division of Ser. No. 263,240, Jun. 28, 1994, Pat. No. 5,590,681, which is a continuation-in-part of Ser. No. 86,822, Jul. 2, 1993, abandoned. This application Sep. 17, 1996, Ser. No. 710,410
Int. Cl.[6] B22D *18/04*
U.S. Cl. 164—119 **35 Claims**



1. A low pressure metal casting process in which molten metal is delivered from a master furnace to a molten metal holding chamber of a holding furnace of a low pressure casting machine having a housing within which said holding furnace is located and a riser tube, said process comprising the steps of:
providing a launder assembly between said master furnace and said holding furnace;
providing a valve for controlling the flow of molten metal between said master furnace and said holding furnace, said valve including a valve closure member; and
casting metal parts by a sequence of operating steps comprising:
a. opening said valve to permit the molten metal within said master furnace and said holding furnace to seek a substantially uniform level;
b. preventing the flow of molten metal from said master furnace to said casting machine by closing said valve;
c. while said valve is closed, introducing a gas under pressure into said holding furnace above the level of the molten metal so that molten metal will rise up the riser tube into a molten metal-receiving cavity located adjacent the top of said riser tube, while at the same time, applying a gas under pressure into a chamber above said valve closure member;
d. reducing the pressure of the gas above the molten metal in the holding furnace and above said valve closure member to or near to atmospheric pressure; and
e. after reducing the pressure of the gas above the molten metal, reopening said valve to permit the molten metal within said master furnace and said holding furnace to seek a substantially uniform level.

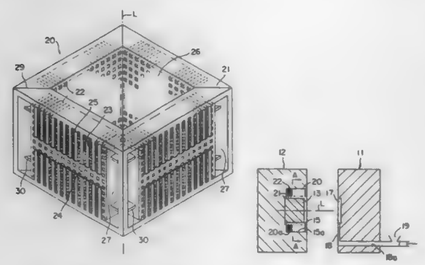
16. A low pressure metal casting apparatus comprising:
a master furnace that has a reservoir for holding a pool of molten metal;
a low pressure casting machine comprising a metal holding furnace having a holding chamber for holding molten metal, a lid closing and sealing said holding furnace, and a riser tube extending through said lid downwardly into said molten metal and upwardly to a molten metal-receiving cavity;
a launder assembly extending from said master furnace to said holding chamber and constructed to provide a molten metal conduit from said master furnace to said chamber, said master furnace, said launder assembly, and said low pressure casting machine metal holding furnace being constructed to receive a pool of molten metal;
a valve assembly within said launder assembly comprising a valve having a passageway located within the molten metal and through which the molten metal can flow, said valve further having a valve closure member for closing said passageway, said valve when said passageway is closed providing a barrier to the flow of molten metal between said master furnace and said chamber;
said valve assembly further comprising a valve chamber formed above said valve closure member and a valve operating mechanism operable to selectively move said valve closure member between two positions, one in which said passageway is open and one in which said passageway is closed;
means for supplying gas under pressure into the holding furnace above the pool of metal within said holding chamber when said valve closure member closes said passageway to cause molten metal to rise up said riser tube; and
means for supplying gas under pressure into said valve chamber above said valve closure member.

5,725,044

CASTING METHOD USING A FORMING DIE

Koji Hirokawa, 1053, Ota-Machi, Isesaki-shi, Gunma-ken, Japan

Filed Aug. 25, 1995, Ser. No. 519,170
Claims priority, application Japan, Aug. 30, 1994, 6-205543; Sep. 26, 1994, 6-229962; Oct. 4, 1994, 6-240352; Mar. 20, 1995, 7-060967; Mar. 29, 1995, 7-071645; Apr. 18, 1995, 7-092807
Int. Cl.[6] B22D *29/00;* **B22C** *1/00*
U.S. Cl. 164—131 **24 Claims**



1. A casting method using a forming die for formation of an outer surface of a cast product, comprising the steps of:
providing the forming die having inner side surfaces and outer mount surfaces, the die being made of a plastic material;
setting the forming die, for formation of the outer surface of the cast product, on an inner surface of a cavity of a casting die;
pouring a molten metal into the cavity of the casting die to form the cast product including projecting portions communicating between the inner side surfaces and the outer mount surfaces of the forming die; and
taking the cast product and the forming die out of the casting die.

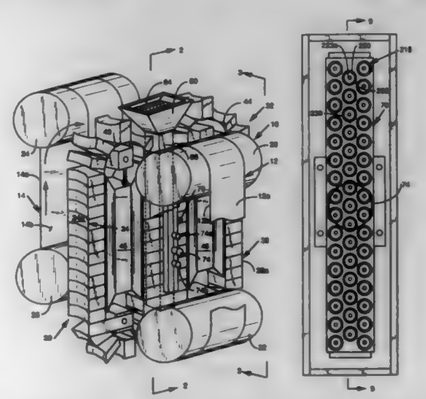
5,725,045

APPARATUS FOR REMOVING SAND ON A DEMOLDED CAST

Makoto Fukihara, Toyokawa, Japan, and Toshiki Takamura, Toyokawa, Japan, assignors to Sintokogio, Ltd., Nagoya, Japan

Filed Jun. 27, 1996, Ser. No. 671,629
Claims priority, application Japan, Jun. 30, 1995, 7-187925
Int. Cl.[6] B22D *29/00;* **A47L** *5/38*
U.S. Cl. 164—404 **1 Claim**

1. An apparatus for removing sand on a demolded cast comprising
elevator means supported by a stationary frame disposed above the demolded cast,
an elevator frame mounted on the elevator means, the elevator frame **6** being formed such that a ceiling plate is connected to



a bottom plate having a number of through holes by means of vertical plates with a given vertical interval provided therebetween, and
a number of cylindrical air-ejecting nozzles, each of which is fitted movably up and down in the through hole, and each of which has a stopping part at its upper end, which part is sized so that it can rest on the upper surface of the bottom plate.

5,725,046

VERTICAL BAR CASTER

Adam J. Sartschev, Allison Park, and Joshua C. Liu, Murrysville, both of Pa., assignors to Aluminum Company of America, Pittsburgh, Pa.

Filed Sep. 20, 1994, Ser. No. 310,142
Int. Cl.[6] B22D *11/06*
U.S. Cl. 164—431 **12 Claims**

1. A vertical bar caster for casting molten metal into metallic bar in a casting zone, said vertical bar caster having an upper portion and a lower portion with said molten metal being introduced into said upper portion and said metal product exiting said lower portion, said vertical bar caster further including (i) a pair of movable opposed belts each having a casting surface and a cooling surface; (ii) a pair of movable opposed dam block means, said dam block means including a plurality of dam blocks having one end mounted to an orbiting support and a casting surface opposite said mounting end, said casting surface of said belts and said casting surfaces of said dam blocks defining a bar casting zone for solidifying said molten metal into said metallic bar; and (iii) a plurality of nozzles disposed in a cooling wall of a cooling bar means for directing a jet of coolant at said cooling surface of said belt, said nozzles in said upper portion each including a concave guiding surface having a first depth such that said jet of coolant creates a vacuum to pull said belts toward said nozzles such that belt distortion is resisted and said nozzles in said lower portion each including a guiding surface that is either (x) concave having a

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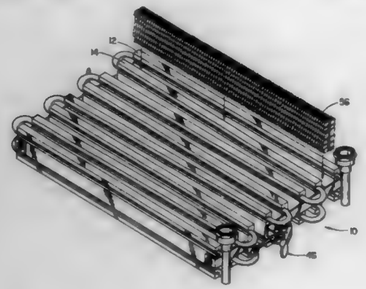
second depth, said second depth being less than said first depth of said concave guiding surfaces of said nozzles in said upper portion, or (y) substantially flat such that said jet of coolant creates a pressure to push said belt away from said nozzles such that intimate surface-to-surface contact between said casting surfaces of said belt and the solidifying molten metal is maintained.

5,725,047

HEAT EXCHANGER

Robert R. Lopez, Boxford, Mass., assignor to Lytron Incorporated, Woburn, Mass.

Filed Jan. 13, 1995, Ser. No. 372,631
Int. Cl.[6] F28D *1/047*
U.S. Cl. 165—149 **26 Claims**



1. A heat exchanger comprising:
a cooling frame including a first frame portion and a second frame portion; and
a fin module positionable between said first frame portion and said second frame portion;
said first frame portion being an integral extrusion having smooth side, top and bottom faces, and a passage therethrough having openings at opposing end faces.

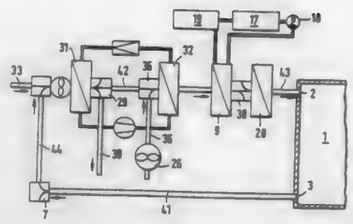
5,725,048

PROCESS FOR COOLING DRIVE COMPONENTS AND HEATING THE PASSENGER COMPARTMENT OF A MOTOR VEHICLE, ESPECIALLY AN ELECTRICALLY DRIVEN VEHICLE, AND ARRANGEMENT FOR IMPLEMENTING THE PROCESS

Roland Burk, Kornwestheim; Thomas Heckenberger, Leinfelden-Echterdingen; Hans-Joachim Krauss, Stuttgart, and Michael Loehle, Esslingen, all of Germany, assignors to Behr GmbH & Co., Stuttgart, Germany

PCT No. PCT/EP92/00466, § 371 Date Aug. 11, 1993, § 102(e) Date Aug. 11, 1993, PCT Pub. No. WO92/16389, PCT Pub. Date Oct. 1, 1992
PCT Filed Oct. 1, 1992, Ser. No. 98,352
Claims priority, application Germany, Mar. 19, 1991, 41 08 958.8
Int. Cl.[6] F25B *29/00*
U.S. Cl. 165—42 **10 Claims**

1. A device for cooling drive components and for controlling a temperature inside a passenger compartment, of a motor vehicle, comprising:
a cooling circuit through which a coolant is circulated for cooling the drive components;
a refrigerant circuit including a condenser and an evaporator; and
an air-guide duct through which an air current is circulated and arranged to exchange heat with said cooling circuit and said refrigerant circuit, said air-guide duct extending from an outflow opening of the passenger compartment to an intake-air opening thereof, said air-guide duct including



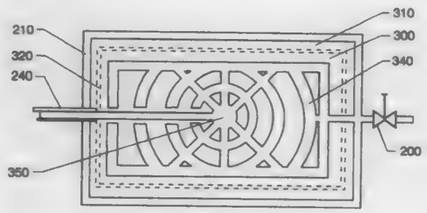
an inflow air-current control element for mixing the air current from said passenger compartment with a fresh air flow,
a heat exchanger, disposed downstream of said inflow air-current control element, for transferring heat from said coolant of said cooling circuit to the mixed air current of the air-guide duct,
an outflow air-current control element, disposed downstream of said heat exchanger, for dividing the mixed air current of the air-guide duct into an air component introduced into the passenger compartment and an exhaust air component drawn off into the environment, and
a bypass duct having a first end disposed upstream of the inflow air-current control element and a second end connected to said outflow air-current control element such that a bypass flow of said bypass duct is introduced into the passenger compartment and said mixed air current is drawn off into the environment,
wherein said evaporator is disposed upstream of the inflow air-current control element and said condenser is disposed downstream of the inflow air-current control element but upstream of the outflow air-current control element.

5,725,049

CAPILLARY PUMPED LOOP BODY HEAT EXCHANGER

Theodore D. Swanson, Columbia, Md., and Paul Wren, deceased, late of Severna Park, Md., by Patricia A. Wren, executrix, assignors to The United States of America as represented by the Administrator of the National Aeronautics and Space Administration, Washington, D.C.

Filed Oct. 31, 1995, Ser. No. 551,263
Int. Cl.[6] F28D *15/00*
U.S. Cl. 165—104.26 **4 Claims**



1. A capillary pumped loop for transferring heat from one body part to another body part, said capillary pumped loop including:
capillary evaporator means for vaporizing a liquid refrigerant into liquid by transferring heat wherein said capillary evaporator means includes a wick having a pattern of liquid feeder grooves for promoting even fluid distribution, said grooves formed in a top portion of said wick;
condenser means for turning a vaporized liquid refrigerant into a liquid by transferring heat from said vaporized liquid;
a first tube section connecting an output port of said capillary evaporator means to an input of said condenser means;
a second tube connecting an output of said condenser means to an input port of said capillary evaporator means; and

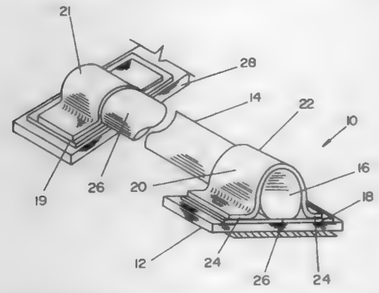
said liquid feeder grooves including a central liquid reservoir connected to said second tube section for receipt of said liquid refrigerant;
said wick further having a plurality of parallel grooves formed in a bottom portion of said wick with each of said grooves connected in parallel fashion to a common vapor header which is connected to said first tube section and formed in said bottom of said wick.

5,725,050

INTEGRATED CIRCUIT WITH TAPED HEAT PIPE

George A. Meyer, IV, Conestoga, and Jerome E. Toth, Hatboro, both of Pa., assignors to Thermal Corp., Georgetown, Del.

Filed Sep. 3, 1996, Ser. No. 706,882
Int. Cl.[6] F28D *15/00*
U.S. Cl. 165—104.33 **6 Claims**



4. An apparatus for transferring heat between a surface and a heat pipe comprising:
heat conductive tape with a first face and a second face, each coated with adhesive, the first face of which is attached to a surface;
a heat pipe one part of which is attached to the second face of the heat conductive tape; and
a heat conducting clamp formed with a "U" section and two flanges attached to the ends of the "U" section, with the "U" section fitted around and in contact with the heat pipe, and the flanges attached to the second face of the heat conductive tape.

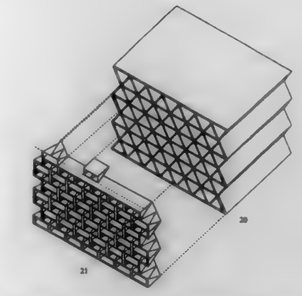
5,725,051

HEAT EXCHANGER

Wessel Bart Veltkamp, Son, Netherlands, assignor to Level Energietechniek B.V., Son, Netherlands

PCT No. PCT/NL93/00227, § 371 Date Jun. 29, 1995, § 102(e) Date Jun. 29, 1995, PCT Pub. No. WO94/10520, PCT Pub. Date May 11, 1994
PCT Filed Nov. 2, 1993, Ser. No. 424,463
Claims priority, application Netherlands, Nov. 5, 1992, 92.01945
Int. Cl.[6] F28D *7/16*
U.S. Cl. 165—165 **2 Claims**

1. Heat exchanger comprising ducts (5) of a first type and ducts (5) of a second type, the ducts (5) of both types having an identical cross-section, being parallel and at least partially mutually adjacent arranged in a housing (1), and in cross-section arranged in a regular pattern, the ducts (5) being separated by separating walls (3,4) wherein substantially each of the separating walls (3,4) is bounded on at least one side by a duct (5) of the first type and by a duct (5) of the second type at the other side, the heat exchanger comprising at least one connecting piece (6) adapted for connecting one end of the ducts (5) of the first type to a first connection (14) and one end of the ducts of the second type to a second connection (15), characterized in that substantially each of the



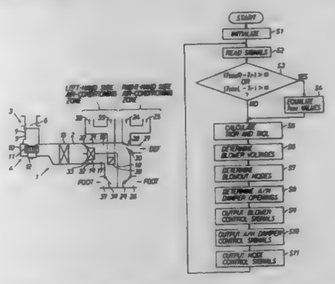
sides of the duct of the first type is adjacent to a side of a duct of a second type and ducts of both the first and second types each have the cross-section of an isosceles triangle, characterized in that the connecting piece comprises a plate provided with openings and arranged on the end of the holder, wherein the openings are arranged such that openings connected to ducts of the same type are arranged in straight lines and that all openings leading to ducts of the same type are connected to a manifold.

5,725,052

DUAL ZONE AIR-CONDITIONING SYSTEM FOR MOTOR VEHICLES WITH IMPROVED AIR FLOW RATE

Takayoshi Kawai, Hoi-gun; Tomohisa Yoshimi, Gamagouri; Yuji Honda; Tomotsugu Terada, both of Okazaki; Yuji Ito, Ichinomiya, and Katsuhiko Samukawa, Obu, all of Japan, assignors to Nippondenso Co., Ltd., Kariya, Japan

Filed Sep. 30, 1994, Ser. No. 315,962
Claims priority, application Japan, Oct. 1, 1993, 5-247235; Dec. 17, 1993, 5-317948
Int. Cl.[6] F25B *29/00*; **B60H** *1/00*
U.S. Cl. 165—203 **9 Claims**



7. An air-conditioning system for a motor vehicle, said system comprising:
a first air passage for sending air to a first air-conditioning zone in a passenger compartment;
a second air passage for sending air to a second air-conditioning zone in said passenger compartment;
an air blower for blowing air within said first air passage and said second air passage towards said passenger compartment;
first temperature setting means for setting a first set temperature of said first air-conditioning zone;
second temperature setting means for setting a second set temperature of said second air-conditioning zone;
compartment temperature detecting means for detecting a compartment temperature of said passenger compartment;
air flow rate determination means for determining an air flow rate of said system based on one of said first set temperature and said second set temperature from which a deviation of said compartment temperature is larger, and on said compartment temperature; and

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air flow rate control means for controlling said air flow based on said air flow rate determined by said air flow rate determination means;

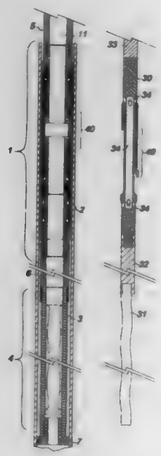
wherein said air flow rate determination means is further for setting a value of one of said first and second set temperatures from which said deviation of said compartment temperature is smaller to a value of one of said first and second set temperatures from which said deviation of said first and second set temperatures is larger to obtain a set of revised set temperatures, and for determining said air flow rate based on said set of revised set temperatures.

5,725,053

PUMP ROTOR PLACER

James L. Weber, 707, 1100 - 8th Avenue S.W., Calgary, Alberta, Canada, T2P 3T9

Filed Aug. 12, 1996, Ser. No. 700,310
Int. Cl.[6] E21B *43/00*
U.S. Cl. 166—105 **5 Claims**



1. An improved rotor placer located within an oil well in which a sucker rod string extends down the bore of production tubing and is drivably connected to the rotor of a progressive cavity pump, the stator which is connected to the bottom of the production string, and in which a tubular housing is connected between the production string and stator, a driveshaft installable within the housing and connected between the rod string and the rotor, and bearings interposed between the driveshaft and housing for concentrically and axially stabilizing the rod string, the improvement comprising:

a sleeve having a cylindrical wall and forming a bore for accepting the driveshaft, the axial length of the sleeve being shorter than the tubular housing,

a tubular housing assembled from at least two parts and having radially distended walls for forming a bore intermediate its ends which is large enough in diameter to accept the sleeve positioned concentrically therein and forming an annular space therebetween;

bearing means located in the annular space for concentrically, axially and rotatably positioning the sleeve;

means for connecting the housing parts once the bearings and sleeves have been installed therein;

passageways formed in the driveshaft for conducting fluids past the bearings means and on up to the production tubing;

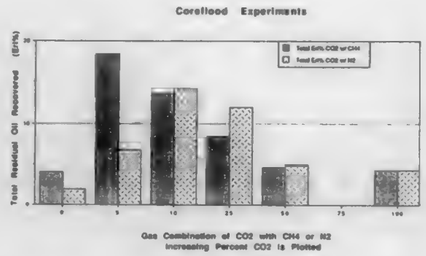
means for releasably latching the driveshaft and sleeve together so that the sleeve is locked concentrically and axially to the driveshaft.

5,725,054

ENHANCEMENT OF RESIDUAL OIL RECOVERY USING A MIXTURE OF NITROGEN OR METHANE DILUTED WITH CARBON DIOXIDE IN A SINGLE-WELL INJECTION PROCESS

Sara Shayegi, Baton Rouge, La.; Philip A. Schenewerk, Baton Rouge, La., and Joanne M. Wolcott, Baton Rouge, La., assignors to Board of Supervisors of Louisiana State University and Agricultural & Mechanical College, Baton Rouge, La.

Filed Aug. 21, 1996, Ser. No. 700,796
Int. Cl.[6] E21B *43/16;43/18*
U.S. Cl. 166—263 **7 Claims**



2. A method of recovering oil from an oil-bearing subterranean formation penetrated by a well, comprising the steps of:

(a) injecting via said well an mount of carbon dioxide into said formation sufficient to establish in the vicinity of said well a zone of oil in contact with said carbon dioxide;

(b) injecting via said well a gas into said formation, wherein said gas is selected from the group consisting of methane, nitrogen, and mixtures thereof; wherein said injection of said gas forms a gas mixture with said carbon dioxide; and wherein said carbon dioxide comprises about 5 percent to about 50 percent by volume at reservoir conditions of said gas mixture;

(c) shutting in said well for a predetermined period of time; and

(d) producing said well and recovering said oil from said formation.

5,725,055

UNDERGROUND MEASUREMENT AND FLUID SAMPLING APPARATUS

Mario Schirmer, 159 University Ave., Apt. 803, Waterloo, Ontario, Canada, N2l 3E8; Georg Teutsch, Silcher Weg 30, 72827 Wanweil, and Thomas Ptak, Friedenstr. 7„ 7542 Schomberg 4, both of Germany

Filed Mar. 7, 1996, Ser. No. 612,213
Int. Cl.[6] E21B *47/00;49/08*
U.S. Cl. 166—264 **29 Claims**

1. A measurement and fluid sampling apparatus for use in a borehole in the earth having a rigid wall, said apparatus comprising:

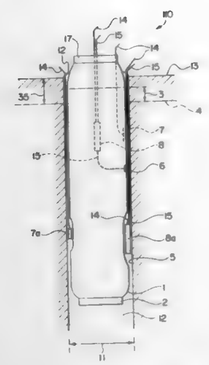
(a) a flexible tubular member for placement within said borehole, said member having an interior surface, an exterior surface, a proximal end and a distal end;

(b) means for inflating said tubular member such that said inflation urges said exterior surface into contact with said rigid wall of said borehole;

(c) means for deflating said tubular member;

(d) means for sampling fluid contained from said borehole; and

(e) means for measurement in said borehole wherein said means for measurement is selected from the group consisting of a thermocouple, pressure sensing means, means for fluid extraction or absorption from said wall, fiber optic sensing means,



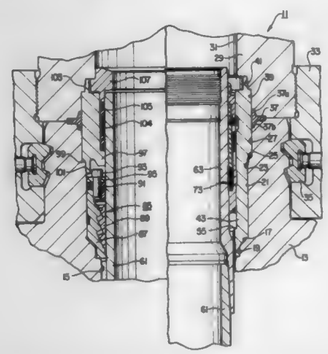
seismic sensing means, electrical conductivity sensing means and pH sensing means.

5,725,056

WELLHEAD ASSEMBLY WITH REMOVABLE BOWL ADAPTER

Kenneth Thomson, East Kilbride, Scotland, assignor to ABB Vetco Gray Inc., Houston, Tex.

Filed Sep. 27, 1995, Ser. No. 534,436
Int. Cl.[6] E21B *33/04*
U.S. Cl. 166—382 **25 Claims**



1. In a wellhead assembly having a wellhead housing which has a bore and which is located at an upper end of a string of casing extending into a well, an improved apparatus for supporting and sealing the casing comprising in combination:

an adapter sleeve in the bore of the wellhead housing, the adapter sleeve having an inner diameter which is spaced from the casing hanger and has a profile located therein;

a casing hanger seal assembly, at least a portion of the casing hanger seal assembly engaging the profile; wherein:

the casing hanger seal assembly includes a casing hanger seal, an energizing member which is moved downward to set the casing hanger seal, and a locking member for locking the energizing member in a set position; and

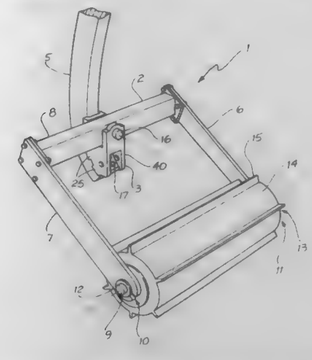
the profile of the adapter sleeve contains a locking groove for receiving the locking member.

5,725,057

DEVICE FOR CRUSHING STUBBLE

Kenneth Noel Taylor, 23 Gilbert St, Walgett, NSW, Australia, 2832

Filed May 30, 1995, Ser. No. 454,550
Claims priority, application Australia, May 31, 1994, PM5982
Int. Cl.[6] A01B *39/08*
U.S. Cl. 172—122 **18 Claims**



1. A device for crushing stubble constructed to be attached to a drive assembly including a main frame connected to a drive means, the drive assembly effecting motion of the device across the stubble in a predefined direction comprising:

a rotatable crushing means,

a subframe for supporting the crushing means, and coupling means for coupling the subframe to the main frame,

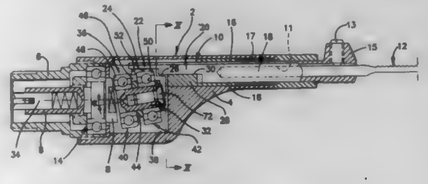
wherein the coupling means includes a pivot connection which permits pivotable movement of the subframe relative to the main frame about an axis substantially parallel to the predefined direction of motion.

5,725,058

HAND-HELD RECIPROCATING TOOL

Rolf Eriksson, Hagersten, Sweden, assignor to Dentatus AB, Hagersten, Sweden

PCT No. PCT/SE94/00348, § 371 Date Oct. 17, 1995, § 102(e) Date Oct. 17, 1995, PCT Pub. No. WO94/23879, PCT Pub. Date Oct. 27, 1994
PCT Filed Apr. 19, 1994, Ser. No. 532,790
Claims priority, application Sweden, Apr. 19, 1993, 9301273-0
Int. Cl.[6] B23D *49/04*
U.S. Cl. 173—114 **12 Claims**



1. A hand tool comprising:

a rotatable portion having a shaft which is oblique relative to a rotational axis of said rotatable portion;

a non-rotatable portion having a projection extending therefrom for being driven by said shaft;

two annular ball races having an outer surface which extends around said shaft and has an annular channel therein, said projection engaging said channel so as to impart reciprocating

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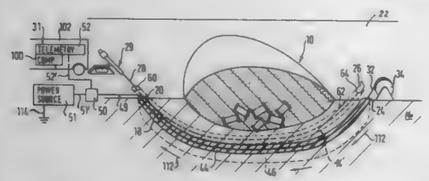
longitudinal motion to said non-rotatable portion when said rotatable portion rotates.

5,725,059

METHOD AND APPARATUS FOR PRODUCING PARALLEL BOREHOLES

Arthur F. Kuckes, Ithaca, N.Y.; J. Gaenger, and H. J. Bayer, both of Ettlingen, Germany, assignors to Vector Magnetics, Inc., Ithaca, N.Y.

Filed Dec. 29, 1995, Ser. No. 581,500
Int. Cl.[6] E21B *7/04;47/09*
U.S. Cl. 175—45 **33 Claims**



1. A method of drilling parallel, generally horizontal boreholes, comprising:

drilling a first borehole from an entrance location to an exit location;

pulling a guide cable into said first borehole while withdrawing the drill string used to drill the first borehole;

supplying a first guide current to said guide cable to produce a first magnetic field surrounding the guide cable;

drilling a second borehole within said magnetic field;

measuring selected parameters including parameters of said first magnetic field within said second borehole;

producing a second current in said second borehole and modulating said second current in accordance with the measured parameters to produce a corresponding modulated second magnetic field;

detecting said modulated second magnetic field at said guide cable to produce in said guide cable a third current corresponding to said measured parameters;

determining from said measured parameters the distance and direction from one of said boreholes to the other of said boreholes; and

controlling the direction of drilling of said second borehole in accordance with said determined distance and direction.

26. Telemetry apparatus for borehole, comprising:

a drill stem for drilling a borehole;

a sensor probe within said drill stem for producing data signals to be transmitted;

a drill stem transmitter responsive to said data signals to produce a corresponding first magnetic field;

a telemetry cable within and responsive to said first magnetic field to produce corresponding magnetically induced voltages; ami

a receiver connected to said cable to detect said voltages.

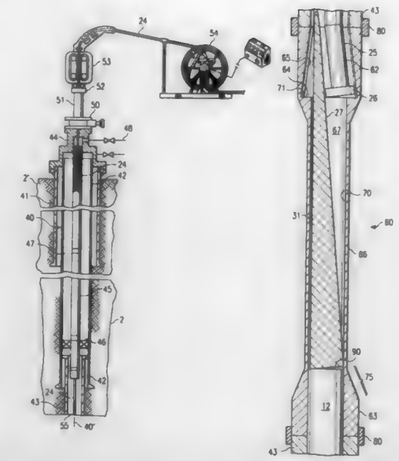
5,725,060

MILL STARTING DEVICE AND METHOD

Curtis G. Blount, Anchorage, Ak.; Lumar L. Gantt, Anchorage, Ak.; David D. Hearn, Anchorage, Ak., and Gregory S. Walz, Anchorage, Ak., assignors to Atlantic Richfield Company, Los Angeles, Calif.

Filed Mar. 24, 1995, Ser. No. 409,246
Int. Cl.[6] E21B *7/04*
U.S. Cl. 175—61 **20 Claims**

1. A mill starting device for use in a pipestring in a wellbore comprising an elongate tubular member having a long axis and adapted to be carried by said pipestring, said tubular member having an outer surface and an elongate internal cavity extending along said long axis and ending in first and second openings at either end thereof, said cavity defining an inner surface of said tubular member, said cavity having a first diameter along said long axis including both said end openings, said first diameter terminating at said inner surface, a shoulder at least at one location along the length of said tubular member, said shoulder extending at an angle to said long axis, said shoulder starting at said inner surface and extending a finite distance outwardly therefrom toward said outer surface and terminating at an outer edge, said shoulder extending around at least a portion of the periphery of said inner surface, an inclined wall in the vicinity of said shoulder, said wall starting at said inner surface and extending to said outer edge of said shoulder, whereby a notch resulting from the coaction of said inclined wall and said shoulder provides a stop for a mill that is to be used to cut a window in said pipestring, said stop providing a known location where said window will be started and a recess such that said mill, when put into operation, will preferentially bite into said tubular member and thereby be directed toward said tubular member and away from any other equipment that is located in said cavity adjacent said shoulder.

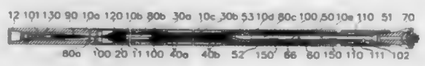


5,725,061

DOWNHOLE DRILL BIT DRIVE MOTOR ASSEMBLY WITH AN INTEGRAL BILATERAL SIGNAL AND POWER CONDUCTION PATH

Donald H. Van Steenwyk, San Marino; Michael S. Orcutt-Clenard, Atascadero, both of Calif., and James Robbie Higginbotham, Lafayette, La., assignors to Applied Technologies Associates, Inc., Paso Robles, Calif.

Filed May 24, 1996, Ser. No. 653,636
Int. Cl.[6] E21B *4/04;47/01*
U.S. Cl. 175—104 **20 Claims**



1. A downhole drill bit drive motor for use in drilling boreholes in the earth comprising:

a) an outer case;

b) a drive motor supported within said outer case;

c) a mechanical shafting means to provide a driving torque to an attached drill bit;

d) a coupling means connected to said mechanical shafting means to provide mechanical connection to and to accommodate eccentric or angular motions of said drive motor;

e) a bearing assembly to provide radial and axial support for said mechanical shafting means; and

f) a bilateral electrical conductor extending axially through said motor, said coupling means and said mechanical shafting means to a connection proximate said drill bit, said electrical conductor including

(1) at least one electrically conducting wire,

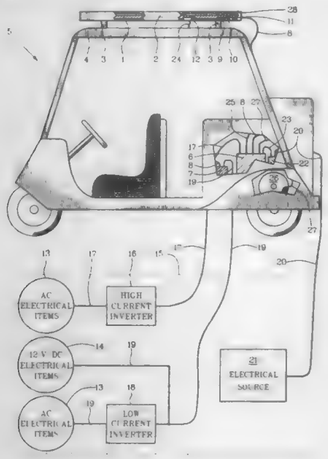
(2) at least one rotary electrical connection means providing rotational capability for said at least one conducting wire.

5,725,062

VEHICLE TOP SOLAR POWER GENERATOR

Paul A. Fronek, P.O.Box 341, Paisley, Fla. 32767

Filed Jun. 17, 1996, Ser. No. 662,664
Int. Cl.[6] B60L *9/00*
U.S. Cl. 180—2.2 **13 Claims**



1. A vehicle-top solar-power generator comprising:

a photovoltaic frame having mounting brackets with which the photovoltaic frame is positioned on a vehicle at a design distance vertically above an attachment portion of the vehicle;

one or more photovoltaic panels positioned horizontally in the photovoltaic frame;

a junction block on the photovoltaic frame having positive connectors in electrical communication with positive electrical output lines from the photovoltaic panels and having negative connectors in electrical communication with negative electrical return lines to the photovoltaic panels;

negative connectors on the junction block being in electrical communication with positive connectors on the junction block;

a tandem photovoltaic-generator line having a positive line attached in electrical communication to a positive connector and to a negative line attached in electrical communication to a negative connector on the junction block;

a primary control regulator and a secondary control regulator attached to the photovoltaic frame;

a regulator switch having a moveable contact member with an input portion in electrical communication with the positive line of the tandem photovoltaic-generator line and an output portion moveable selectively from an off position between a positive lead to the primary control regulator and a positive lead to the secondary control regulator;

the moveable contact member being positional in contact with either the positive lead to the primary control regulator or the positive lead to the secondary control regulator selectively;

a return line in negative-pole return-electrical communication from the primary control regulator and the secondary control regulator to a negative line in the tandem photovoltaic-generator line for return flow to the junction block;

a primary battery on the vehicle;

a tandem primary-regulator line in positive and negative electrical communication between the primary control regulator and the primary battery;

a vehicle electrical motor on the vehicle in tandem electrical communication with the primary battery;

a high-current inverter having tandem electrical input communication with the primary battery and having tandem electrical output communication with select remote alternating current electrical items;

a battery charger in tandem electrical communication of current from a current-supply connector to the primary battery;

a tandem secondary regulator line in positive and negative electrical communication between the secondary control regulator and a low-current receptacle on the photovoltaic frame;

a tandem secondary connector line in electrical communication between the low-current receptacle and a remote low-current battery; and

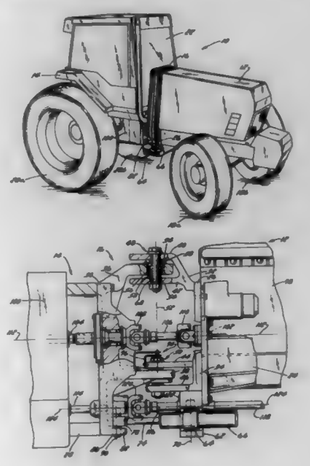
a low-current inverter in electrical transmission of direct current from the remote low-current battery to alternating current for select alternating-current items.

5,725,063

ARTICULATED WORK VEHICLE

Alfred A. Ceragioli, Chicago, and William L. Schubert, Downers Grove, both of Ill., assignors to Case Corporation, Wis.

Filed Aug. 14, 1995, Ser. No. 514,662
Int. Cl.[6] B60K *17/00*
U.S. Cl. 180—14.4 **13 Claims**



1. A work vehicle comprising:

an engine supported in a first section;

a transmission supported in a second section;

first and second pivotal support bearings intersecting a common plane and sharing a common substantially vertical rotational axis defining a rotational axis of an articulation joint pivotally coupling the first section to the second section;

a first drive train intersecting the common plane and extending through the joint below the first support bearing and above the second support bearing, the first drive train being coupled to the engine and to the transmission for transmitting drive power between the engine and the transmission;

a second drive train intersecting the common plane and extending through the joint below the second support bearing, the second drive train being coupled to the transmission and to

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drive elements in the first section for driving wheels supporting the first section; and

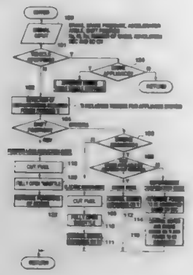
a pair of steering actuators coupled between the first and second sections of the vehicle for selectively articulating the joint.

5,725,064

HYBRID VEHICLE WITH PUMPING LOSS REDUCING FUNCTION

Ryuji Ibaraki, Toyota, Japan; Yutaka Taga, Aichi-gun, Japan, and Seitoku Kube, Toyota, Japan, assignors to Toyota Jidosha Kabushiki Kaisha, Toyota, Japan

Filed May 21, 1996, Ser. No. 651,929
Claims priority, application Japan, Jun. 20, 1995, 7-153092
Int. Cl.[6] B60L *11/02*
U.S. Cl. 180—65.2 **12 Claims**



1. A hybrid vehicle utilizing the mechanical output from at least one of an internal combustion engine and a dynamoelectric machine, comprising:

said internal combustion engine capable of being voluntarily stopped;

said dynamoelectric machine mechanically connected to said internal combustion engine, said dynamoelectric machine capable of being operated at least as an electric motor;

first control means for stopping said internal combustion engine while at the same time causing said dynamoelectric machine to be operated as an electric motor; and

second control means for reducing the pumping loss in said internal combustion engine when said dynamoelectric machine is being operated as an electric motor with said internal combustion engine being in its stopped state.

5,725,065

VEHICLE HOOD ASSEMBLY

Randal S. Knurr, Waterford; James W. Haines, Oak Creek, and Lynn G. Westbrook, Racine, all of Wis., assignors to Textron Inc., Providence, R.I.

Filed Dec. 29, 1995, Ser. No. 580,828
Int. Cl.[6] B62D *25/10*
U.S. Cl. 180—69.2 **13 Claims**

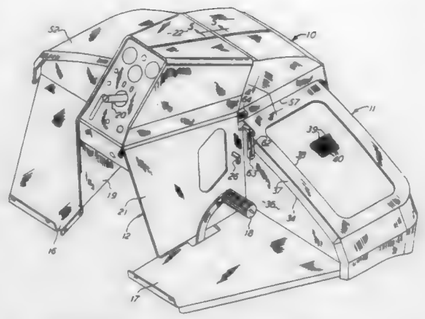
1. In a vehicle having a chassis, an engine, a radiator, and grounds wheels for movement of the vehicle in fore-and-aft directions, the improvement comprising

an assembly of three separable engine hood segments supported on said chassis and being arranged to extend over said engine and said radiator and be in contact with each other,

a first one of said segments extending adjacent said radiator and having an opening therein for the passage of air to said radiator and being free of any physical attachment,

a second one of said segments extending contiguous to said first segment,

a third one of said segments extending in a space directly above said engine in an operative position which is downward and to thereby overlie and be in contact with both said first and said second segments and thereby being arranged to hold said first



and said second segments limited in upward movement and with said third segment having a pivot axis extending horizontally and parallel to said fore-and-aft directions and directly above one of said ground wheels, and said third segment being arranged for pivoting upwardly out of contact with said first and said second segments to a storage position directly above said one of said ground wheels and to thereby release said first and said second segments from said limited upward movement, and

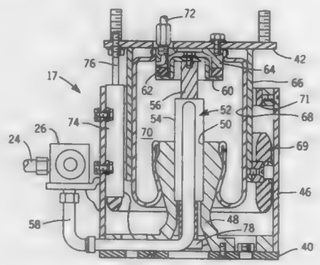
a latch interconnected with said third segment and said chassis and being arranged to releasably hold said third segment downwardly in said operative position.

5,725,066

ACTIVE TRACTOR SUSPENSION SYSTEM

Andrew M. Beard, Winchester, Mass., and Andreas H. von Flotow, Hood River, Oreg., assignors to Applied Power Inc., Butler, Wis.

Continuation of Ser. No. 525,432, Sep. 6, 1995, Pat. No. 5,603,387. This application Jan. 10, 1997, Ser. No. 781,756
Int. Cl.[6] B62D *24/04;33/10*
U.S. Cl. 180—89.12 **13 Claims**



1. An active suspension system for isolating an operator cab from a frame of a tractor, said active suspension system comprising:

at least one vibration isolator including first and second mounts adapted to attach said vibration isolator between the operator cab and the frame, a spring connected between the first and second mounts, a linear actuator connected to the first mount, and an elastomeric vibration isolator connected between said linear actuator and the second mount which is attached to the operator cab;

a sensor which detects movement of the operator cab said sensor being located adjacent to said linear actuator to detect movement at a point that is between said linear actuator and said elastomeric vibration isolator and producing an electrical signal in response to detected movement; and

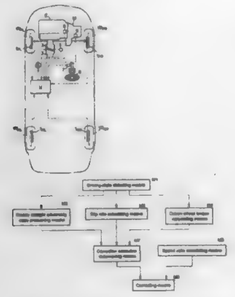
a controller operably connected to the linear actuator and responsive to the electrical signal by producing a control signal which selectively causes the linear actuator to expand and contract between the first and second mounts thereby changing the spacing therebetween, so as to attenuate transmission of movement of the operator cab and the frame.

5,725,067

WHEEL SPEED CORRECTING SYSTEM

Toru Ikeda; Ryoji Mori; Fumiaki Honjyo; Hironobu Kiryu, and Shuji Shiraishi, all of Wako, Japan, assignors to Honda Giken Kogyo Kabushiki Kaisha, Tokyo, Japan

Filed Mar. 8, 1996, Ser. No. 611,782
Claims priority, application Japan, Mar. 9, 1995, 7-050157
Int. Cl.[6] B60K *31/00*
U.S. Cl. 180—197 **5 Claims**



1. A wheel speed correcting system, comprising:

a driving-state detecting means for detecting a driving state of a vehicle, including at least a driven wheel speed and a follower wheel speed;

a steady straight advancing state presuming means for presuming a steady straight advancing state of the vehicle based on an output from said driving-state detecting means;

a slip rate calculating means for calculating a slip rate of the driven wheel based on the output from said driving-state detecting means;

a driven wheel torque calculating means for calculating a torque of the driven wheel based on the output from said driving-state detecting means;

a speed ratio calculating means for calculating a speed ratio of the driven wheel speed to the follower wheel speed;

a correcting means for correcting the driven wheel speed or the follower wheel speed based on an output from said speed ratio-calculating means; and

a correction execution determining means for determining whether to allow execution of the correction of the driven wheel speed by said correcting means, allowing execution of the correction,

when said steady straight advancing state presuming means presumes a steady straight advancing state of the vehicle and the slip rate of the driven wheel calculated by said slip rate calculating means is equal to or smaller than a predetermined value, or

when said steady straight advancing state presuming means presumes the steady straight advancing state of the vehicle and the torque of the driven wheel calculated by said driven wheel torque

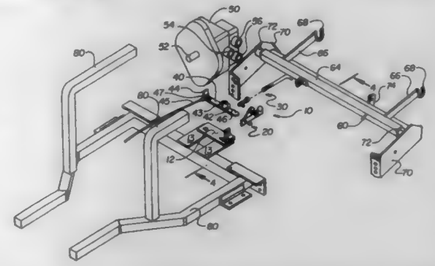
calculating means is equal to or smaller than a predetermined value.

5,725,068

SPEED LIMITING DEVICE FOR UTILITY VEHICLES

Theodore C. Smith, Jr., Wayne, Pa., and Carl Keith, Bruce, Wis., assignors to Smithco, Inc., Wayne, Pa.

Filed Oct. 7, 1996, Ser. No. 726,903
Int. Cl.[6] B60K *23/00;31/00*
U.S. Cl. 180—307 **16 Claims**



1. A device for limiting the speed of a utility vehicle, comprising:

(a) a limiting member;

(b) a linkage having an adjustable length, a first end attached to said limiting member and a second end attached to a deployable apparatus;

(c) whereby as said deployable apparatus is deployed, said linkage moves said limiting member into position to come in contact with a control mechanism which moves in a direction to regulate the speed of said utility vehicle, and as said deployable apparatus is retracted, said linkage moves said limiting member out of position to come in contact with said control mechanism; and

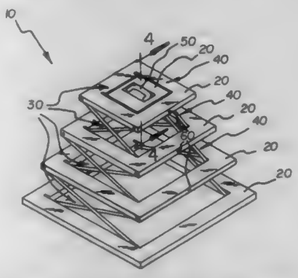
(d) whereby the maximum speed of said utility vehicle with said limiting member in contact with said control mechanism is determined by the adjusted length of said linkage.

5,725,069

EXTENDABLE PYRAMID LADDER SYSTEM

Tom Sullivan, 618 E. 17th St., Munhall, Pa. 15120

Filed Sep. 13, 1996, Ser. No. 718,005
Int. Cl.[6] E06C *1/54*
U.S. Cl. 182—157 **9 Claims**



1. An extendable pyramid ladder system comprising:

a vertical series of planar support members having decreasing surface area and being aligned parallel to one another with the top planar support member having the smallest surface area and where the support members gradually increase in surface area from said top planar support thereby forming a substantially pyramid shaped structure when expanded and said planar members being substantially co-planar when in the storage position;

a left scissors bracket pivotally secured to and positioned between the planar support members; and

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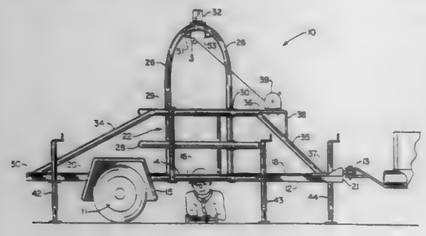
a right scissors bracket pivotally secured to and positioned between the planar support members opposite of the left scissors whereby each upper planar support member is adapted to line within an opening of its corresponding lower planar support member when in the storage position.

5,725,070

TRAILER-BASED SUPPORT FRAME FOR USE IN VERTICALLY TRANSFERRING PERSONS AND EQUIPMENT

Harold J. Eldred, 18 Burnham St., Terryville, Conn. 06786

Filed Feb. 13, 1995, Ser. No. 387,444
Int. Cl.[6] E04G *3/14;* **B66C** *23/18*
U.S. Cl. 182—63 **15 Claims**



1. An apparatus for use in vertically transporting a weight, comprising:
- a trailer-type base configured to be towed by a vehicle, said base supporting wheels rollable on a ground surface,
- support means formed on and rigidly connected to the base, the support means having an igloo-shaped top which includes means for supporting a hoisting device, and
- stabilizing means extendable to contact the ground surface for stabilizing the support means.

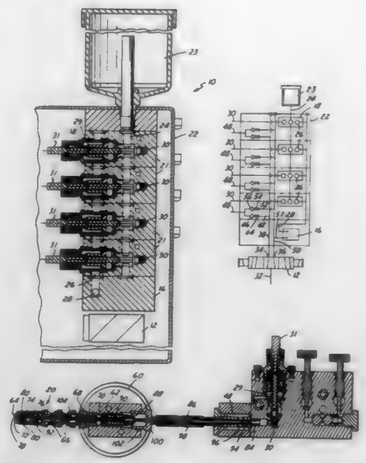
5,725,071

MACHINE CUTTING TOOL SELECTIVE LUBRICATOR WITH AIR BLOW-OFF

Lawrence E. Brice, Sandusky, Mich., assignor to Master Pneumatic-Detroit, Inc., Sterling Heights, Mich.

Filed Jan. 28, 1997, Ser. No. 789,827
Int. Cl.[6] F01M *1/00*
U.S. Cl. 184—6.26 **11 Claims**

1. A system to supply lubricant to at least one machine cutting tool comprising:
- a pulse generator having an inlet constructed for communication with a compressed air supply and an outlet to deliver pulses of compressed air;
- at least one liquid pump having a first inlet constructed for communication with a supply of liquid lubricant, a second inlet in communication with the outlet of the pulse generator and an outlet to deliver a metered quantity of liquid lubricant;
- at least one nozzle in communication with the compressed air supply and with the outlet of the liquid pump and having an outlet constructed to discharge a continuous air stream onto the cutting tool and to discharge atomized lubricant onto the cutting tool;
- a control valve having a first position communicating the air supply with the nozzle and with the pulse generator so that the liquid pump is driven by pulses of air from the pulse generator to supply liquid lubricant to the nozzle while the cutting tool is machining a workpiece and a second position which communicates the air supply with the nozzle and prohibits air flow from the air supply to the pulse generator to stop the pump from supplying liquid lubricant to the machine tool when it is not machining the workpiece and to apply only the continuous air stream to the cutting tool when it is not machining the workpiece.

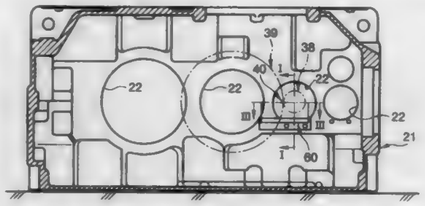


5,725,072

SPEED CHANGE GEAR DEVICE WITH LUBRICATING AUXILIARY VESSEL

Hiromitsu Yamamoto, Kodaira, and Naoki Matsuo, Houya, both of Japan, assignors to Sumitomo Heavy Industries, Ltd., Tokyo, Japan

Filed Dec. 11, 1996, Ser. No. 763,433
Claims priority, application Japan, Dec. 19, 1995, 7-330284
Int. Cl.[6] F16H *1/00*
U.S. Cl. 184—6.12 **4 Claims**



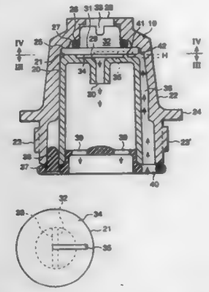
1. A speed change gear device having gears with portions intermeshed with each other, gear shafts which are horizontally placed and laterally positioned at the same level in positions where said gear shafts are held respectively, bearings located on both sides of each gear for rotatably supporting the respective gear shafts, and a housing which accommodates the gear shafts and bearings at the same level, said speed change gear device comprising:
- a collection of oil for lubrication inside a bottom of said housing, wherein the level of said collection of oil is set at a height below said gear shafts and bearings at which the lower end of at least one of said gears is immersed in the oil; and
- at least one lubricating auxiliary vessel for catching oil scooped up from said collection of oil by rotation of said immersed at least one of said gears and forced out of the intermeshing portions, and for introducing the caught oil into at least one of said bearings which is not directly immersed in said collection of oil;
- wherein said at least one lubricating auxiliary vessel is mounted at a position which lies laterally adjacent to and vertically below the intermeshing portions of said gears so as to catch said forced out oil.

5,725,073

FLUID METERING DEVICE AND COMPRESSED AIR LUBRICATOR INCLUDING SAME

Shichao K. Zhou, Highlands Ranch, Colo., assignor to IMI Norgren, Inc., Littleton, Colo.

Filed Jul. 5, 1996, Ser. No. 677,372
Claims priority, application United Kingdom, Jul. 7, 1995, 95 13 949
Int. Cl.[6] F16N *7/34*
U.S. Cl. 184—55.2 **11 Claims**



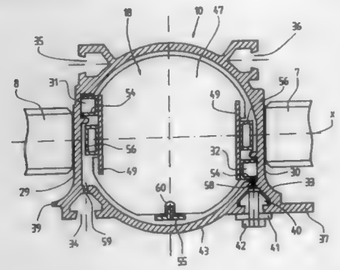
1. An adjustable fluid metering device including a first, fixed member having a substantially central, fluid outlet passageway therein terminating at an upper surface thereof, and a second member superposed on said first member and having a lower surface in contact with said upper surface of the first member, said second member being selectively rotatable relative to the first member, one of said surfaces being planar and defining therein an elongate channel whose inner end communicates with the fluid outlet passageway, and the other surface being peripherally ramped so as to afford, in communication with the outer end of said channel, a peripheral gap between the two surfaces the dimension of which, at the location of said outer end of the channel, varies in dependence upon the selected rotational position of the second member relative to the first member, and a fluid inlet passageway arranged to supply fluid to said peripheral gap and hence to the fluid outlet passageway via said channel.

5,725,074

APPARATUS FOR SUPPORTING AND GUIDING AN ELEVATOR

Utz Richter, Ebikon, Switzerland, and Christoph Liebetrau, Menziken, Switzerland, assignors to Inventio AG, Hergiswil NW, Switzerland

Filed May 13, 1996, Ser. No. 645,409
Claims priority, application Switzerland, Jun. 2, 1995, 01624/95
Int. Cl.[6] B66B *7/02*
U.S. Cl. 187—406 **18 Claims**



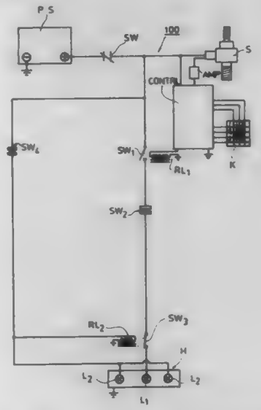
11. An apparatus for supporting and guiding an elevator comprising:
- a pair of guide modules (**10**) for guiding an elevator car (**5**), each said guide module (**10**) including a sectional tubular body having first and second generally planar running surfaces (**29, 30**) formed on an exterior surface thereof for contact with wheels (**8, 7**) mounted on the car (**5**), a plurality of anchoring grooves (**33, 34, 35, 36**) formed on said exterior surface for attaching said sections to one another, a brake arm (**37**) extending outwardly therefrom for contact with a car-arresting device mounted on the car (**5**), third and fourth generally planar running surfaces (**16, 16**) formed on said exterior surface thereof for contact with a pair of guide rollers (**9**) mounted on the car (**5**), and a fifth generally planar running surface (**25**) formed on said exterior surface thereof for contact with another guide roller (**9**) mounted on the car (**5**);
- a shaft head module (**13**) connecting upper ends of said guide modules (**10**) together;
- a foundation module (**12**) connecting lower ends of said guide modules (**10**) together; and
- a plurality of fastening means (**40, 41, 42**) received in said anchoring grooves (**33, 34, 35, 36**) attaching said sections together and attaching said shaft head module (**13**) and said foundation module (**12**) to said guide modules (**10**).

5,725,075

BRAKING PRECAUTIONARY SYSTEM FOR VEHICLES

Shih-Hsiung Chou, c/o Hung Hsing Patent Service Center, P.O. Box 55-1670, Taipei, Taiwan

Filed Dec. 3, 1996, Ser. No. 781,938
Int. Cl.[6] F16D *66/00;* **B60Q** *1/22*
U.S. Cl. 188—1.11 E **5 Claims**



1. A vehicle braking precautionary system including: a braking precautionary circuit (**100**) comprising:
- a speed controller (CONTRL) electrically connected with a speed sensor (S) which is provided for sensing a vehicle driving speed, and operatively receiving a speed signal output from said speed sensor to be compared with a predetermined speed value preset in said speed controller;
- a controller-actuated switch (SW1) normally opened and electrically connected between a power source (P.S.) and a warning lamp (L1);
- a controller relay (RL1) electrically connected to an output of the speed controller (CONTRL) and operatively actuated by an electric signal output from said speed controller (CONTRL) when a driving speed as sensed by the speed sensor (S) exceeds the predetermined value as preset in said speed controller for electromagnetically attracting and closing the controller-actuated switch (SW1); an accelerator contactor switch (SW2) normally opened and operatively switched on as actuated by an accelerator pedal (A) when releasing the

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accelerator pedal and just ready for depressing the brake pedal, with said accelerator contactor switch (SW2) electrically connected between said controller-actuated switch (SW1) and a brake-actuated switch (SW3);

said brake-actuated switch (SW3) normally closed and electrically connected between said accelerator contactor switch (SW2) and said warning lamp (L1);

a brake relay (RL2) electrically connected to a brake contactor switch (SW4) which is operatively actuated by the brake pedal for braking the vehicle and for switching on at least a brake lamp (L2);

said brake relay (RL2) operatively actuated by closing said brake contactor switch (SW4) when depressing the brake pedal for electromagnetically attracting and switching off said brake-actuated switch (SW3); and

said power source (P.S.) powering said speed sensor (S), said speed controller (CONTRL), said warning lamp (L1) and said brake lamp (L2);

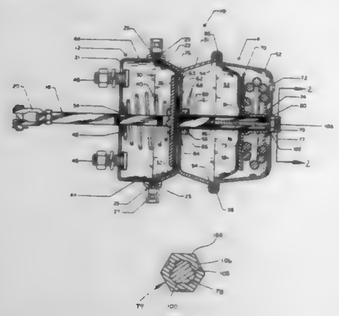
whereby when a high speed of the vehicle is sensed by said speed sensor (S) and exceeds a predetermined speed value as preset in said speed controller (CONTRL), said controller relay (RL1) will be actuated to close the controller-actuated switch (SW1), and upon releasing of the accelerator pedal (A) for decelerating the driving speed to close the accelerator contactor switch (SW2) to close the braking precautionary circuit (100), the warning lamp (L1) will be lit to give precautionary warning to a rear car.

5,725,076

SPRING BRAKE ACTUATOR AND CAGING BOLT THEREFOR

William C. Pierce, and Raymond D. Subdon, both of Muskegon, Mich., assignors to NAI Anchorlok, Inc., Muskegon, Mich.

Continuation of Ser. No. 36,677, Mar. 25, 1993, abandoned.
This application Nov. 5, 1996, Ser. No. 743,801
Int. Cl.[6] F16D 65/24; F16B 39/22
U.S. Cl. 188—170 17 Claims



1. A brake actuating mechanism comprising:

a housing having first and second end walls defining a housing interior with a threaded opening centrally disposed in the second end wall;

an elastomeric diaphragm suspended within the housing and dividing the housing interior into a first chamber and a second chamber, said diaphragm having a centrally disposed aperture defined by an annular edge, said aperture being substantially axially aligned with the opening;

a tubular brake actuating rod disposed in the first chamber for reciprocating movement relative to the housing and having a first end extending through the opening in the first end wall, a second end extending through the aperture in the diaphragm, and an inwardly directed annular flange partially closing the second end of the actuating rod;

a spring disposed within the second chamber between the second end wall and the diaphragm; and

a brake release bolt comprising:

a proximal end and a distal end;

the distal end extending into the actuating rod and having a shoulder adapted to seat on the inwardly directed annular flange of the actuating rod;

the proximal end threaded through the threaded opening in the second end wall of the housing and having at least one flat forming a chord across a circular cross section of the bolt;

a nut having side engagement faces resistant to torque, a central aperture threaded onto the bolt and an embossment formed on the nut only after the nut is threaded onto the bolt in a final position, the side engagement faces remaining resistant to torque after formation of the embossment, the embossment extending inwardly of the central aperture of the nut to a point within the radius of the outer diameter of the bolt on the side of the bolt facing the flat of the bolt;

whereby the embossment prevent rotation of the nut with respect to the bolt so that torque applied to the side engagement faces of the nut rotates the bolt in the threaded opening of the second end wall to move the bolt axially within the actuating rod, whereby the spring can be caged by rotating the nut to withdraw the distal end of the bolt from the housing.

5,725,077

FRICTION PADS FOR USE IN DISC BRAKES

Alfred J. Taylor, Heswall; Susan K. Taylor, Solihull; David A. Hubbard, West Kirby, and Mahmoud Lotfipour, Stockport, all of England, assignors to Sab Wabco (Bromborough) Limited, and Ferodo Limited, both of England

PCT No. PCT/GB94/01964, § 371 Date Mar. 6, 1996, § 102(e) Date Mar. 6, 1996, PCT Pub. No. WO95/07418, PCT Pub. Date Mar. 16, 1995
PCT Filed Sep. 9, 1994, Ser. No. 605,161
Claims priority, application United Kingdom, Sep. 9, 1994, 9318764
Int. Cl.[6] F16D 69/00
U.S. Cl. 188—251 A 10 Claims

1. A friction pad for use in a brake assembly comprising a backing plate having affixed thereto a pad of friction material comprising at least 50% by weight of a ceramic material present in the form of relatively coarse particles of diameter 0.3 mm to 4 mm and a synthetic resin binder, together with a minor amount of a graphite lubricant and a minor amount of a ceramic material in the form of relatively fine particles in the size range 1 to 30 microns.

5,725,078

Patent Not Issued For This Number

5,725,079

FRICTIONAL ENGAGEMENT DEVICE

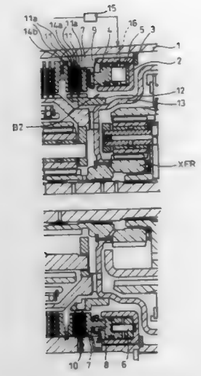
Shogo Matsumoto, and Kiyohito Murata, both of Susono, Japan, assignors to Toyota Jidosha Kabushiki Kaisha, Toyota, Japan

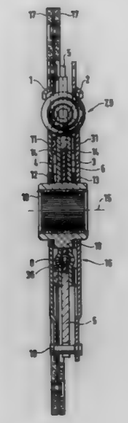
Filed Sep. 13, 1996, Ser. No. 713,446
Claims priority, application Japan, Sep. 14, 1995, 7-236829
Int. Cl.[6] F16D 25/02;25/0638
U.S. Cl. 192—52.5 11 Claims

1. A frictional engagement device for engaging a pair of members relatively rotating around a common axis comprising:

a first frictional engaging element fitted unrotatably and axially movably to one of said relatively rotating members;

a second frictional engaging element unrotatably and axially movably fitted to the other of said relatively rotating members, said second frictional engaging element being disposed engageable to said first frictional engaging element;





a first cam member axially movably fitted to one of said relatively rotating member, said first cam member being disposed apart from said second frictional engaging element, said first cam member having a slanted cam surface;

a second cam member disposed adjacent to said first cam member on a side of said second frictional engaging element, said second cam member having a slanted cam surface parallelly opposing said cam surface of said first cam member;

a piston means fitted to said second cam member, said piston member having a surface engageable to said second frictional engagement element;

a spring seat disposed not touching said piston means in a space formed between said piston means and said second cam member;

a return spring for biasing said second cam member toward said first cam member, said return spring being fixed to an unmovable member on one end and being fitted said spring seat on the other end;

a pushing means for selectively pushing said piston means onto said second frictional element through said second cam member to cause a frictional engagement between said piston means and said second frictional element so that said piston member can be rotationally dragged by said second cam member and generates a cam force for engaging said first frictional engaging element and said second frictional element; and

a friction decreasing means disposed between said spring seat and said second cam member for decreasing a friction between said spring seat and said second cam member so preventing said return spring from being rotationally dragged by said second cam member when said second cam member is rotationally dragged.

5,725,080

CLUTCH FOR MOTOR VEHICLES HAVING A CLUTCH DISC WITH SPRING ELEMENTS CONNECTED IN SERIES

Norbert Lohaus, Schweinfurt, Germany, assignor to Fichtel & Sachs AG, Schweinfurt, Germany

Filed Mar. 22, 1996, Ser. No. 621,162
Claims priority, application Germany, Mar. 24, 1995, 195 10 833.7
Int. Cl.[6] F16D 13/64; F16F 15/12
U.S. Cl. 192—70.17 11 Claims

1. A friction clutch assembly for a friction clutch for a motor vehicle, said friction clutch assembly comprising:

a flywheel;

a clutch housing;

a hub defining an axis of rotation and an axial direction parallel to the axis of-rotation;

a clutch disc disposed within said clutch housing, said clutch disc coaxially surrounding said hub;

a pressure plate disposed within said clutch housing and being movable in the axial direction, said pressure plate being disposed to exert an axial force on said clutch disc in the axial direction;

biasing structure to bias said pressure plate in the axial direction;

a hub member;

said hub member being disposed to coaxially surround said hub;

said clutch disc being disposed between said flywheel and said pressure plate;

said clutch disc comprising at least one friction lining;

said at least one friction lining being configured and disposed to contact said pressure plate and said flywheel during engagement of said clutch disc with said flywheel;

said at least one friction lining being disposed substantially between said pressure plate and said flywheel; said clutch disc further comprising:

at least one disc-shaped component having an axis of rotation and being coaxial with said hub; said at least one disc-shaped component comprising:

a first cover plate comprising at least one aperture;

a second cover plate comprising at least one aperture; and

an intermediate part being disposed axially between said first cover plate and said second cover plate, said intermediate part comprising at least one aperture;

said at least one aperture in each of said first cover plate, said second cover plate and said intermediate part comprising a first edge, a second edge, a third edge, and a fourth edge;

said first edge of each said at least one aperture being disposed a first distance from said axis of rotation and said second edge being disposed a second distance from said axis of rotation;

each of said first distances being greater than said second distances;

said third edge and said fourth edge of each said at least one aperture in said first cover plate, said second cover plate and said intermediate part extending substantially radially outward with respect to the axis of rotation and being disposed substantially opposite one another;

a connecting structure;

said first cover plate and said second cover plate being non-rotatably connected one to another by said connecting structure;

said at least one friction lining being disposed on one of said first cover plate and said second cover plate;

said at least one aperture of said first cover plate, said second cover plate, and said intermediate part being aligned with one another;

said aligned at least one aperture of said first cover plate, said second cover plate and said intermediate part forming at least one window;

said clutch disc further comprising at least one spring element;

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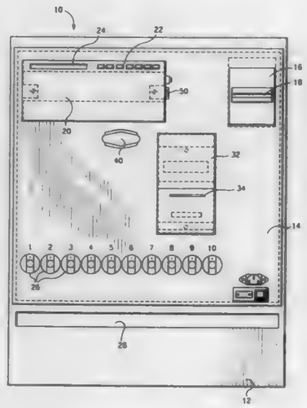
said at least one spring element having a substantially central longitudinal axis;
said at least one spring element comprising a first end being substantially perpendicular to the longitudinal axis and a second end being substantially perpendicular to the longitudinal axis;
said at least one spring element comprising a plurality of first spring elements and a plurality of second spring elements;
one of said plurality of first spring elements and one of said plurality of second spring elements being disposed within said at least one window;
said first end of said one of said plurality of first spring elements being substantially adjacent each of said third edges of said at least one window;
said first end of said one of said plurality of second spring elements being substantially adjacent each of said fourth edges of said at least one window;
said second end of said one of said plurality of first spring elements and said second end of said one of said plurality of second spring elements facing substantially toward one another;
said at least one window having said one of said plurality of first spring elements and one of said plurality of second spring elements disposed therein being at least one spring window;
said at least one spring window being a plurality of circumferentially spaced spring windows;
said clutch disc further comprising at least one additional component;
said at least one additional component being disposed between said first cover plate and said second cover plate;
said at least one additional component being substantially disc-shaped and having an axis of rotation and being coaxial with said hub;
said at least one additional component comprising an internal portion and an external portion;
said at least one additional component comprising a first disc member and a second disc member;
said first disc member and said second disc member being non-rotationally connected to said hub;
said intermediate part being disposed between said first disc member and said second disc member;
said external portion of said at least one additional component comprising at least one radially outwardly extending arm member;
said at least one arm member extending at least peripherally into said at least one aperture of said intermediate part;
said at least one arm member comprising a plurality of arm members;
said arm members being circumferentially spaced apart from one another;
said arm members each comprising an inner portion, a first edge, a second edge, and a peripheral portion;
said first edge of said arm members being substantially adjacent said second end of said first spring element and said second edge of said arm members being substantially adjacent said second end of said second spring element;
said clutch disc further comprising a friction device disposed within said cover plates to reduce vibrations of elements disposed between said first cover plate and said second cover plate;
said friction device being disposed radially between:
a) said first and second spring elements; and
b) said hub;
said friction device being disposed axially between said at least one additional component and at least one of:
a) said first cover plate; and
b) said second cover plate;
said arm members of one of said disc members comprising a bend, said bend being bent toward the other of said disc members;
said arm members comprising said bend axially extend into said apertures of said intermediate part; and
said bend being a substantially right angle bend.

5,725,081

DIGITAL DEPOSIT AND DISPENSING SAFE

Scott H. Meeker, Temecula, Calif., assignor to Phelps-Tointon, Inc., Vista, Calif.

Filed Oct. 16, 1995, Ser. No. 543,477
Int. Cl.[6] G07F *7/04*
U.S. Cl. 194—206 **18 Claims**



1. A combination money deposit and dispensing safe comprising:
a generally box-like housing having a front, back and sides and defining a chamber for securing money;
a bill receiving unit mounted in said front of said housing and having means for receiving and validating bills of various denominations and generating a signal proportionate to the denomination of a validated bill;
a cash dispensing unit mounted in said front of said housing, said dispensing unit comprising a plurality of cash cartridges each adapted to contain a plurality of units of cash corresponding in denominational value to and constituting change for a respective denomination of the bills to be received and validated,
each of said cartridges including a manually operable dispensing tray for dispensing units of cash from the respective cartridge one unit of cash at a time,
said dispensing unit including means responsive to a proportionate signal from said bill receiving unit for enabling a single operation of the dispensing tray of a single cash cartridge that contains units of cash corresponding in denominational value to the denomination of the validated bill and to enable the dispensing of a unit of cash proportionate to said signal.

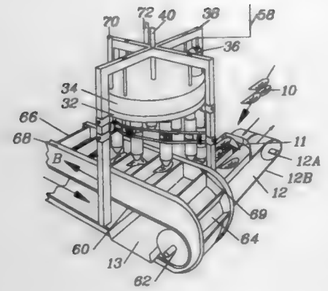
5,725,082

METHOD AND APPARATUS FOR TRANSFERRING BODIES OF SEMI-RIGID TO NON-RIGID STRUCTURE, SLIPPERY SURFACE, AND IRREGULAR SHAPE FROM A BIN OR CONVEYOR TO RECEPTION LINE

Douglas R. Connell, 1901 Cypress Rd., St. Cloud, Minn. 56303

Filed Sep. 11, 1996, Ser. No. 712,383
Int. Cl.[6] B65G *17/46*
U.S. Cl. 198—471.1 **21 Claims**

1. A method of transferring objects from a first location to a second location comprising:
locating an object pick-up means above the first location containing at lest one object,
moving the object pick-up means downwardly toward and in close proximity to the object in the first location, applying a vacuum to said pick-up means to move the object into engagement with the pick-up means and retain the object on said pick-up means,
moving the pick-up means and object retained thereon during the application of vacuum to said pick-up means upwardly above said first location,
transporting the pick-up means and object retained thereon during application of vacuum to said pick-up means from above said first location a ta position above the second location,
releasing the object from the pick-up means whereby the object moves away from the pick-up means to the second location, and cleaning the pick-up means after the object has been released from the pick-up means.

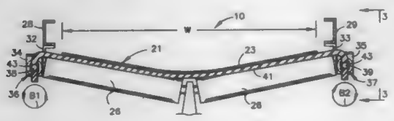


5,725,083

STRIP BLADE CONVEYOR BELT CLEANER

Richard A. Archer, Paducah, Ky., assignor to Arch Environmental Equipment, Inc., Paducah, Ky.

Filed Dec. 9, 1996, Ser. No. 762,456
Int. Cl.[6] B65G *45/16*
U.S. Cl. 198—499 **6 Claims**



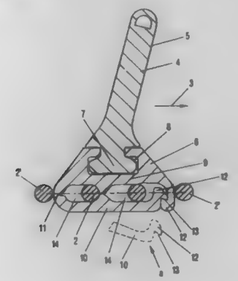
1. A conveyor belt cleaner for cleaning one surface of a conveyor belt, the conveyor belt having a given width W, the conveyor belt having a material delivery run of length L extending from a tail pulley to a head pulley and a return run of length L extending from the head pulley back to the head pulley, the conveyor belt cleaner comprising:
a cleaner blade formed of an elongated strip of flexible elastomer material having a predetermined thickness, a predetermined width W2 much smaller than L, and a length greater than W, extending transversely of the conveyor belt;
first and second fasteners affixed to the opposite ends of the cleaner blade;
and at least one tensioner, connected to the first fastener, for applying a tensioning force longitudinally to the cleaner blade to maintain the cleaner blade in contact with the one surface of the conveyor belt.

5,725,084

CONVEYOR BELT, COMPRISED OF PARALLEL BELTS AND TRANSVERSELY EXTENDING RODS CONNECTED THERETO, FOR AGRICULTURAL MACHINES

Sebastian Jäger, Borchersstr. 2, D-30559 Hannover, Germany

Filed Nov. 15, 1996, Ser. No. 749,985
Int. Cl.[6] B65G *15/54*
U.S. Cl. 198—848 **16 Claims**



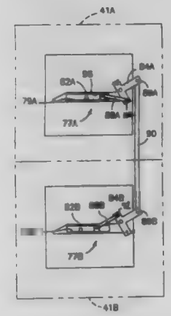
1. A conveyor belt for a conveying device, said conveying belt moveable in a longitudinal direction thereof on the conveying device and comprising:
at least two pull-resistant, parallel belts extending in a longitudinal direction of said conveyor belt;
bending-resistant rods connected perpendicularly to said at least two parallel belts so as to be spaced apart from one another;
follower members, comprising a base with an upper portion and a lower portion, for entraining goods to be conveyed on said conveyor belt;
said follower members connected with said base to said rods such that said upper portion is positioned above a conveying plane defined by said rods and said lower portion is positioned below said conveying plane;
said upper portion and said lower portion connected to one another with an interlocking hook connection.

5,725,085

INTERLOCK ARRANGEMENT FOR CIRCUIT BREAKER COMPARTMENTS

Raymond K. Seymour, Plainville; Michael C. Guerrette, Bristol; William H. Calder, and Dennis J. Doughty, both of Plainville, all of Conn., assignors to General Electric Company, New York, N.Y.

Filed May 24, 1996, Ser. No. 653,596
Int. Cl.[6] H01H *9/26*
U.S. Cl. 200—50.33 **16 Claims**



1. A circuit breaker compartment interlock assembly comprising:

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a first circuit breaker interlock mounted on a first circuit breaker within a first circuit breaker compartment, said first circuit breaker including a first operating mechanism arranged for separating a first pair of contacts, and associated with a first contact push rod extending from said first circuit breaker to sense whether said first contacts within said first circuit breaker are closed and associated with a first circuit breaker trip rod associated with said first operating mechanism to actuate said first circuit breaker trip rod and separate said first contacts;

a first compartment interlock mounted in said first compartment interacting with said first circuit breaker interlock and with a second compartment interlock mounted in a second circuit breaker compartment containing a second circuit breaker, said second circuit breaker including a second operating mechanism arranged for separating a second pair of contacts for causing said first circuit breaker interlock to actuate said first circuit breaker trip rod and separate said first contacts;

a second circuit breaker interlock associated with a second contact push rod extending from said second circuit breaker to sense whether said second contacts within said second circuit breaker are closed and with a second circuit breaker trip rod for actuating said second trip rod to separate said second contacts said first circuit breaker interlock comprising a first yoke pivotally mounted on a first interlock support and a first detector lever connecting with said first yoke to thereby rotate said first yoke and actuate said first trip rod, said first yoke is connected with said first detector lever by means of a first spring force, said second circuit breaker interlock comprises a second yoke pivotally mounted on a second interlock support and a second detector lever connecting with said second yoke to thereby rotate said second yoke and actuate said second trip rod, and said second yoke is connected with said second detector lever by means of a second spring force, said second spring force being greater than said first spring force.

5,725,086

HAND TOOL

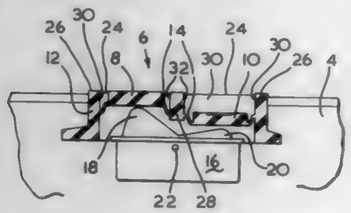
Vince Cooper, Durham City, United Kingdom, assignor to Black & Decker Inc., Newark, Del.

Filed Nov. 22, 1995, Ser. No. 561,762

Claims priority, application United Kingdom, Nov. 25, 1994, 9423847

Int. Cl.[6] H01H *19/06*

U.S. Cl. 200—302.3 **3 Claims**



1. A key pad for an on/off switch of a powered device wherein the switch includes a rocker element with two rocker components which are pivoted about a pivot point by applying pressure selectively to one of the two rocker components, which comprises:

a continuous wall of a prescribed height and a prescribed thickness which forms a cell having an inner side surface extending continuously around the cell;

a beam extending across an intermediate portion of the cell to form a first compartment and a second compartment enclosed within the continuous wall and defined by the beam;

the beam having a first side surface and a second side surface on opposite sides of the beam which interface with the portions of the inner side surfaces of the continuous wall to further define the first and second compartments, respectively;

a first actuator pad having side edges and located within the first compartment;

a first deformable section of the first actuator pad integrally formed with an intermediate portion of the inner side surface of the continuous wall and with an intermediate portion of the first side surface of the beam which combine to form an inner wall surface of the first compartment;

the first deformable section of a thickness less than the prescribed thickness formed integrally with and extending outward from the side edges of the first actuator pad;

a second actuator pad having side edges and located within the second compartment;

a second deformable section of a thickness less than the prescribed thickness formed integrally with and extending outward from the side edges of the second actuator pad;

the second actuator pad integrally formed with an intermediate portion of the inner side surface of the continuous wall and with an intermediate portion of the second side surface of the beam which combine to form an inner wall surface of the second compartment; and

the first actuator pad being located over a first of the two rocker components for engagement therewith and the second actuator pad being located over a second of the two rocker components for engagement therewith when a pressure is applied against the first and second actuator pads inward of the first or second compartments, respectively.

5,725,087

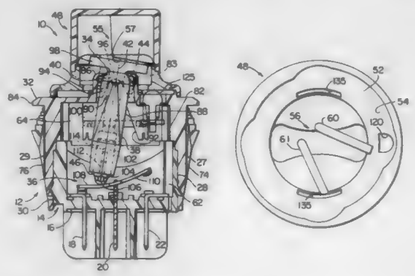
ROTARY SWITCH THAT CONVERTS TO ROTARY ACTION, A TOGGLE STYLE SWITCHING MECHANISM

Milton N. Ives, Stuart, Fla., assignor to Carlingswitch, Inc., Plainville, Conn.

Filed Oct. 7, 1996, Ser. No. 726,809

Int. Cl.[6] H01H *21/80*

U.S. Cl. 200—330 **19 Claims**



1. An electric switch comprising:

a switch case having an enclosed switch cavity defined by a bottom wall in which openings are provided for terminals, laterally spaced front and rear walls, opposed end walls integrally connected to said bottom wall and to each other, and a top cover in communication with said front, rear, and opposed end walls, said top cover having a central opening extending therethrough and defining a socket therein;

at least one movable contact provided in said enclosed switch cavity;

an actuator positioned in said enclosed switch cavity and having, a shoulder portion in pivotal communication with said socket for movement on a lateral pivot axis, a downwardly depending portion in communication with said at least one movable contact, and an upwardly extending portion extending from said shoulder, through said top cover aperture said upwardly extending portion including an upper section;

a knob rotatably mounted on said switch case on an axis oriented perpendicular to said lateral pivot axis of said actuator; and

cam means defined in part by said actuator upwardly extending portion and in part by said knob such that rotation of said knob causes said actuator shoulder to pivot in said socket to at least one predetermined limit position, and said downwardly depending portion to move said movable contact toward said at least one predetermined limit position; and

said knob further including a downwardly open interior knob cavity defined by a cavity wall, an exterior surface, and at least one opening in said exterior surface extending through said cavity wall into said interior knob cavity; and wherein

said top cover has an upper surface, and at least one indicating means carried by said upper surface and is visible through said at least one opening.

5,725,088

SWITCH FOR USE IN ELECTRONIC DEVICES

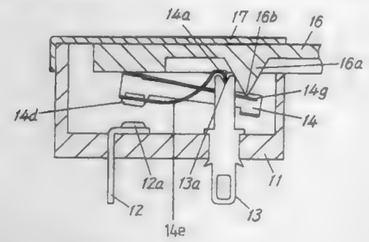
Mitsuo Aimi, Osaka, Japan, assignor to Matsushita Electric Industrial Co., Ltd., Japan

Filed May 10, 1996, Ser. No. 644,051

Claims priority, application Japan, May 17, 1995, 7-118174

Int. Cl.[6] H01H *15/06*

U.S. Cl. 200—542 **8 Claims**



1. A switch comprising:

an insulating case having a common terminal and a stationary terminal provided on a bottom thereof, said common terminal having a recessed pivot on an upper end thereof and said stationary terminal having a contact;

a change-over plate having a sliding surface and an engaging portion engaged with said pivot of said common terminal, disposed such that said engaging portion is positioned further from said bottom of said insulating case than at least a portion of said sliding surface, said change-over plate being rotatable about said pivot of said common terminal;

a slider having a projecting slide portion brought into contact with said sliding surface of said change-over plate, disposed such that said slider can slide along said sliding surface; and

a frame covering an upper opening of said insulating case to accommodate said change-over plate and said slider therein,

wherein said projecting slide portion of said slider is always positioned below said engaging portion of said change-over plate, and said change-over plate is rotated about said pivot of said common terminal when said slider slides along said sliding surface, bringing a contact provided on one end of said change-over plate into contact with said contact of said stationary terminal.

5,725,089

STRAP TOWING SYSTEM

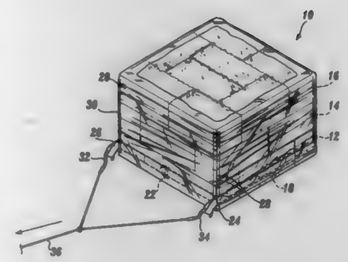
Jeffrey A. Ravet, Ellensburg, Wash., and Richard L. Carter, Tempe, Ariz., assignors to Anderson Hay & Grain Co., Inc., Ellensburg, Wash.

Filed Oct. 2, 1996, Ser. No. 723,625

Int. Cl.[6] B65D *71/00*

U.S. Cl. 206—83.5 **5 Claims**

1. A unit of cargo including multiple bales of hay bound together comprising:



a plurality of bales of hay arranged in at least a first layer of multiple rows, said bales defining a stack with vertical peripheral sides, said stack being generally in the shape of a right rectangular polyhedron.

a strap surrounding at least the first layer and engaging the vertical sides thereof, the strap including loops affixed thereto adjacent vertical corners of the stack, and

binding means comprising an elongated sheet of a polymeric film, said film being stretched and wrapped in multiple layers about the vertical peripheral sides of the stack to bind the bales together as a cargo unit.

5,725,090

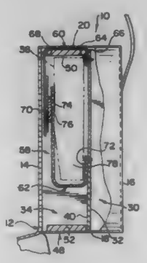
CARRYING CASE FOR ELECTRONIC EQUIPMENT

Scott Vermillion, Chicago, and Louis H. Bernbaum, Lake Forest, both of Ill., assignors to High Sierra Sport Company, Vernon Hills, Ill.

Filed Feb. 21, 1996, Ser. No. 604,437

Int. Cl.[6] B65D *85/38*

U.S. Cl. 206—320 **22 Claims**



1. A carrying case for electronic equipment, comprising:

a frame defining an area for placing the electronic equipment therein such that said frame is in at least partial surrounding relation relative to the electronic equipment, said frame including a top frame portion and side frame portions extending generally perpendicularly from opposite ends of said top frame portion;

a sling having a first flexible material section depending from a front edge of said top frame portion such that a free end portion of said first flexible material section is positioned a predetermined distance from the top frame portion, and a second flexible material section having a back portion positioned in substantially the same vertical plane defined by a back edge of said top frame portion and having a free opposite end portion; and

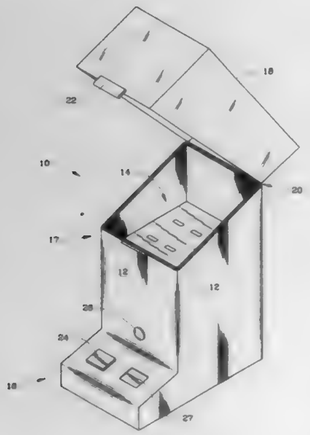
a fastener for releasably securing to each other the free end portions of said first and second sections to define a cradle in said area;

wherein the electronic equipment is adapted to be supported in vertically spaced relation from a support surface on which the carrying case rests as long as said fastener maintains said free

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end portions of said first and second sections in releasably fastened relation relative to each other, and wherein the opening of said fastener allows movement of the first and second sections of the sling to provide access to the electronic equipment from the front of said area.

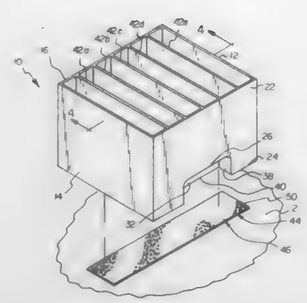
5,725,091
VACUUM TOOTHBRUSH HOLDER
Norwood B. Knoebel, 13634 187th Pl. North, Jupiter, Fla. 33478
Filed Mar. 28, 1996, Ser. No. 623,140
Int. Cl.[6] B65D *85/20*
U.S. Cl. 206—209.1 **14 Claims**



1. A toothbrush storage apparatus comprising: a housing means having an inner chamber accessible by a moveable top, said inner chamber receivably containing toothbrushes therein, and a vacuum means incorporated within said housing means for evacuating air from said inner chamber, wherein a vacuum seal is achieved within said inner chamber for sanitary storage of said toothbrushes contained therein.

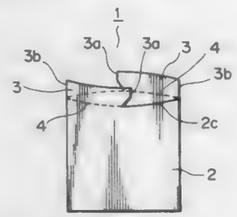
5,725,092
PORTABLE STORAGE RACK
Gregory Irvin Spears, 4346 Florida St., Perry, Ohio 44081
Filed Apr. 17, 1997, Ser. No. 842,911
Int. Cl.[6] B65D *85/57;85/575*
U.S. Cl. 206—307.1 **10 Claims**

1. A portable storage rack for holding the cases of information media and being for removable attachment to a surface, said portable storage rack comprising:
a front wall;
a rear wall being substantially parallel to said front wall and being spaced apart from said front wall;
a first side wall having a bottom edge and being extended between said front wall and said rear wall, said bottom edge having a handle cutout;
a second side wall having a bottom edge and being extended between said front wall and said rear wall, said second side wall being substantially parallel to said first side wall and being spaced apart from said first side wall, said bottom edge having a handle cutout;



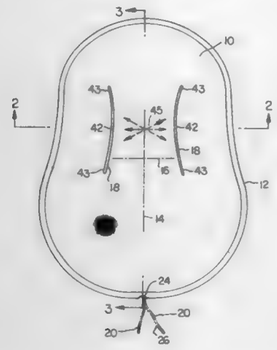
a sub-floor portion being positioned above said first side wall bottom edge and said second side wall bottom edge, said sub-floor portion being extended between said front wall and said rear wall;
a rectangular storage space being defined by said front wall, said rear wall, said first side wall, said second side wall and said sub-floor portion;
a base floor being positioned below said sub-floor portion and being extended between said front wall and said rear wall;
a plurality of evenly spaced apart dividing walls each being disposed within said storage space and each being extended between said first side wall and said second side wall, said dividing walls being for separating and holding the cases of information media; and
a removable fastening means for removably attaching said base floor to a surface.

5,725,093
DISK CASE
Toshitsugu Yamaguchi; Ryouju Takagishi; Akihito Nakabayashi, and Yoshiyuki Shimoi, all of Tokyo, Japan, assignors to Toshiba-EMI Limited, Tokyo, Japan
Continuation of Ser. No. 503,901, Jul. 18, 1995, abandoned. This application Feb. 26, 1997, Ser. No. 811,597
Claims priority, application Japan, Jul. 18, 1994, 6-165136
Int. Cl.[6] B65D *85/57*
U.S. Cl. 206—308.1 **8 Claims**



1. A disk case, comprising:
a body having two sides connected to each other along corresponding first portions of their respective peripheries, the two sides being unconnected at respective adjacent second portions of their peripheries to define an opening which is sized for receiving and accommodating a disk with the body; and
tongue pieces respectively provided at said two sides along said opening,
wherein said tongue pieces are formed so that they each have respective distal inner ends which can be placed in an overlapping relationship with each other to cooperate with each other to retain the disk within the body,
wherein a plurality of perforations is provided between said case body and each of said tongues, said perforations enabling a separation of said case body from said tongues.

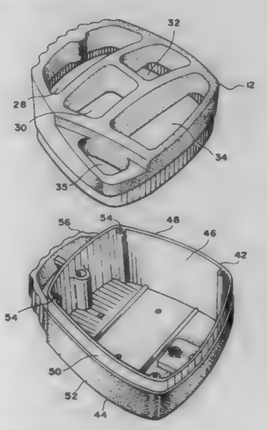
5,725,094
PROTECTIVE COVER FOR A STRINGED MUSICAL INSTRUMENT
Luis M. Moral, 242 S. Sycamore, Los Angeles, Calif. 90036
Filed Apr. 23, 1996, Ser. No. 636,226
Int. Cl.[6] A45C *11/00*
U.S. Cl. 206—314 **6 Claims**



1. A protective cover for a stringed musical instrument, wherein the instrument has front and back surface; said cover comprising:
a single fabric panel having a peripheral edge, and a cord-accommodation passage extending along said peripheral edge; said passage having a single cord access opening therein;
said fabric panel being a woven fabric material comprised of elastic threads, whereby said panel is stretchable from its normal unstressed condition;
a flexible cord extending within said passage, said cord having end sections thereof extending through said access opening;
a cord-clamping means movable along the end sections of said cord;
said fabric panel being adapted for placement against the back surface of a stringed instrument sound box so that edge areas of the fabric panel are in facial engagement with the box front surface;
said cord end sections being manually movable, while said cord-clamping means is held in a position proximate to the cord access opening; whereby the cord is tensioned to stretch the fabric panel against the sound box front and back surfaces;
said fabric panel having two parallel pleats spaced from the peripheral edge of the panel to lie against the back surface of the sound box when the panel is installed on the box; said pleats being operable to generate a tensile force in the fabric normal to the direction taken by the pleats.

2. A protective cover for a stringed musical instrument, wherein the instrument has front and back surface; said cover comprising:
a single fabric panel having a peripheral edge, and a cord-accommodation passage extending along said peripheral edge; said passage having a single cord access opening therein;
said fabric panel being a woven fabric material comprised of elastic threads, whereby said panel is stretchable from its normal unstressed condition;
a flexible cord extending within said passage, said cord having end sections thereof extending through said access opening;
a cord-clamping means movable along the end sections of said cord;
said fabric panel being adapted for placement against the back surface of a stringed instrument sound box so that edge areas of the fabric panel are in facial engagement with the box front surface;
said cord end sections being manually movable, while said cord-clamping means is held in a position proximate to the cord access opening; whereby the cord is tensioned to stretch the fabric panel against the sound box front and back surfaces;
said fabric panel having a longitudinal axis and a transverse axis;
said panel containing two pleats extending parallel to said longitudinal axis, said pleats being equidistant from the longitudinal axis of the panel to generate tensile forces in the panel generally parallel to the panel transverse axis.

5,725,095
GOLF BAG WITH PUTTER WELL AND LIFT HANDLE
Edwin Beck, Boston, Mass., and Chuck Heidenreich, Westfield, Mass., assignors to Lisco, Inc., Tampa, Fla.
Filed Jun. 20, 1996, Ser. No. 667,158
Int. Cl.[6] A63B *55/00*
U.S. Cl. 206—315.8 **5 Claims**

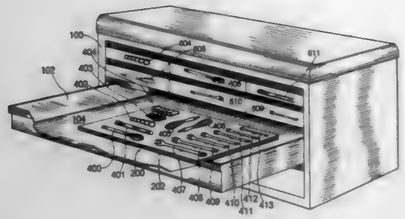


2. A golf bag comprising:
a top formed in a generally cylindrical configuration with a lower surface and an upper surface, the top being formed with spacers forming openings and with a smaller front opening constituting a generally triangular putter well, the lower surface of the top being formed with at least one downwardly facing recess;
a bottom formed in a generally cylindrical configuration with a lower surface and with a peripheral wall terminating in an upper surface, the upper surface of the peripheral wall being formed with at least one upwardly facing recess in alignment with the downwardly facing recess of the top, the bottom having a wall adjacent to but located above the lower surface and extending outwardly of the peripheral wall and an aperture therethrough for constituting a handle;
an exterior cover having an upper edge coupled over the periphery of the top adjacent to its lower surface and coupled over the periphery of the bottom adjacent to its upper surface; and
at least one essentially rigid support with an upper end received within the downwardly facing recess of the top and with a lower end received within the upwardly facing recess of the bottom.

5,725,096
MAGNETIC SYSTEM OF TOOL MANAGEMENT
Stanley Winnard, 2528 Clearspring Dr. North, Irving, Tex. 75063
Continuation-in-part of Ser. No. 318,912, Oct. 5, 1994. This application May 12, 1995, Ser. No. 439,997
Int. Cl.[6] A45C *11/26*
U.S. Cl. 206—350 **28 Claims**

1. A system of tool management and inventory control comprising:

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(a) a magnetically attracting material sized and dimensioned to magnetically attract a plurality of tools, said magnetically attracting material having a top surface and a bottom surface and having a plurality of spaced apart apertures extending from said top surface through said magnetically attracting material to said bottom surface, the apertures being a plurality of sizes or shapes for accommodating a plurality of tools, and the apertures organized in a substantially planar array; and,

(b) indicia disposed on said magnetically attracting material describing a tool corresponding to at least one of the apertures.

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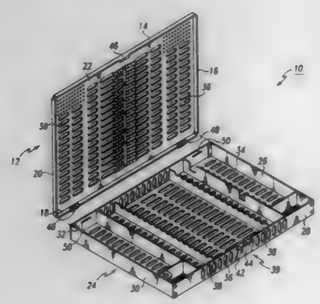
INSTRUMENT CASSETTE ASSEMBLY

Todd E. Bettenhausen, Indianapolis, Ind., and Cary A. Bettenhausen, Indianapolis, Ind., assignors to Sterilization Cassette Systems, Inc., Greenwood, Ind.

Filed Oct. 25, 1996, Ser. No. 738,012

Int. Cl.[6] B65D *45/16*; A61L *2/20*

U.S. Cl. 206—439 **16 Claims**



1. An instrument cassette and sterile wrap assembly, comprising:

a base having an upright sidewall and a horizontal bottom wall, said upright sidewall having a lower slot and an upper aperture defined therein;

a latch member having a lower section, an intermediate section and an upper section, wherein (1) said lower section extends through said slot defined in said base, (2) said intermediate section is substantially planar, and (3) said upper section (i) extends through said upper aperture defined in said base, and (ii) has a slot defined therein;

a lid having a horizontal top wall and a tongue member attached thereto, wherein said tongue member extends through said slot defined in said upper section of said latch member when said lid is latched to said base; and

a sterile wrap which envelops said base, said latch member and said lid, wherein said sterile wrap is juxtaposed to said bottom wall of said base, an entire first side of said intermediate section of said latch member, and said top wall of said lid.

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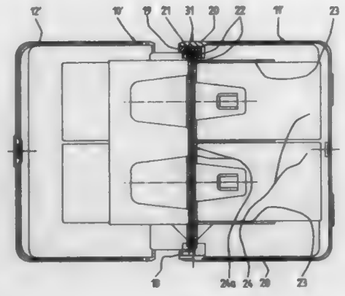
PORTABLE, FOLDING RECEPTACLE OR BOX WALLET FORM MADE FROM A PLASTIC MATERIAL

Josef Seifert, Grosselfingen, and Josef Kurz, Haigerloch 3-Owingen, both of Germany, assignors to Kurz Kunststoffe GmbH, Haigerloch, Germany

Continuation of Ser. No. 890,570, May 28, 1992, abandoned. This application Oct. 17, 1994, Ser. No. 324,137

Int. Cl.[6] A45C *11/00*

U.S. Cl. 206—472 **9 Claims**



1. A portable, folding receptacle or box comprising:

two cover elements, each of said cover elements having a front marginal edge, a rear marginal edge a first side marginal edge and a second side marginal edge, said first side, second side, and front marginal edges of both of said cover elements including an integrally formed marginal wall, said marginal walls being formed vertically from a horizontal plane of each of said cover elements, the two marginal walls engaging each other in the closed condition of the receptacle by means of projections and recesses, the marginal walls of the first and second side marginal edges of one cover element being terminated at their rear ends by said projections, said projections being semicircular in shape;

mounting blocks mounted to inner surfaces of said protections;

an elastic single-piece back hinge interconnecting the two cover elements at said rear marginal edges, said back hinge comprising a plurality of alternating ridges forming solid ribs and grooves extending parallel to said rear marginal edges, said grooves having base walls extending between pairs of ridges which are of substantially reduced thickness compared to the ridges' extension in a direction generally perpendicular to an adjacent base wall, thereby forming a film-joint hinge.

5,725,099

VACUUM BREAKER VENT VALVE PACKAGING AND INSTALLATION SYSTEM

Kurt S. B. Ericson, Schilde, Belgium, assignor to Studor Trading Ltd., Gibralter

Filed Mar. 1, 1996, Ser. No. 609,712

Int. Cl.[6] B65D *45/16*

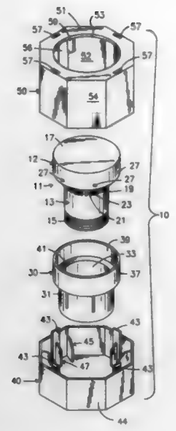
U.S. Cl. 206—576 **5 Claims**

1. A packaging system for a valve comprising,

a first and second housing half releasably locked together enclosing the valve and a separate coupler therefore;

the first housing half having an opening at a first and second end and a plurality of ribs mounted on an inner wall for frictionally mounting a cap portion of the valve so that a top portion of the valve cap fills the first opening of the first housing,

the second housing half having a closed first end and an open second end, the second end having substantially the same opening configuration as the second end of the first housing so that the first and second housing halves will mate together, and



multiple wall channels mounted on an inner wall surface of the first housing mating with integral projecting legs from the second end of the second housing half to releasably hold the two housing halves together.

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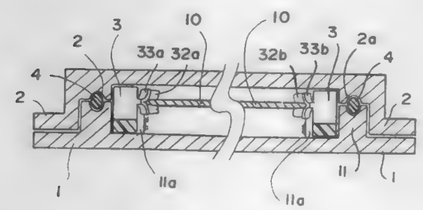
SEMICONDUCTOR WAFER CASE

Naoki Yamada, Miyazaki, Japan, assignor to Komatsu Electronic Metals Co., Ltd., Hiratsuka, Japan

Filed Nov. 14, 1996, Ser. No. 749,972

Int. Cl.[6] B65D *85/30*

U.S. Cl. 206—710 **2 Claims**



1. A semiconductor wafer case for horizontally storing a single semiconductor wafer, comprising at least two holders arranged at opposite ends of the wafer case and inside the wafer case, each of the holders having first arm with a contact surface for holding an edge of the single semiconductor wafer, the arm extending horizontally from the edge and the contact surface extending horizontally along the edge of the single semiconductor wafer and having a V-shaped cross section where opposing sides of the V-shape contact upper and lower portions of the edge of the single semiconductor wafer, wherein the holders are freely removable from the wafer case.

5,725,101

THIN-PLATE SUPPORTING CONTAINER

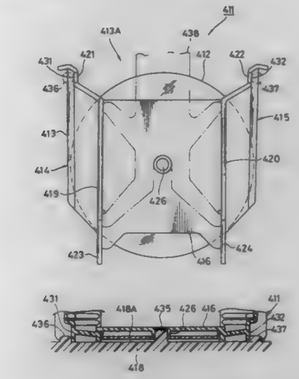
Takeyoshi Kakizaki, and Yukihiro Hyobu, both of Tokyo, Japan, assignors to Kakizaki Manufacturing Co., Ltd., Japan

Division of Ser. No. 599,928, Feb. 12, 1996. This application Sep. 24, 1996, Ser. No. 718,845

Claims priority, application Japan, Jun. 26, 1995, 7-159136; Jul. 7, 1995, 7-006915; Aug. 18, 1995, 7-210552; Aug. 18, 1995, 7-210553

Int. Cl.[6] B65D *85/48*

U.S. Cl. 206—711 **4 Claims**



1. A thin-plate supporting container comprising:

a casing having first and second opposed side walls, an open end serving as an inlet/outlet port, through which thin plates are loaded and unloaded from the container by a robot, and a rear end;

first and second pluralities of spaced parallel ribs extending along interior surfaces of said first and second walls, respectively, the ribs of said first plurality being aligned with corresponding ribs of said second plurality, along a line perpendicular to said opposed side walls, to define plural stages for holding the thin plates; and

a bottom wall for said container when said ribs are horizontally positioned and a carrier fitting on said bottom wall for mating with a fitting on a horizontal surface of a support base to thereby locate said container on the support base, said carrier fitting being located at a position vertically aligned with centers of thin plates within the container when said ribs are horizontally positioned.

5,725,102

METHOD AND DEVICE FOR SEPARATING HEAVY PARTICLES FROM A PARTICULATE MATERIAL

Lennart Gustavsson, Vaxjo, Sweden, assignor to ABB Fläkt AB, Stockholm, Sweden

PCT No. PCT/SE94/00591, § 371 Date Nov. 30, 1995, § 102(e) Date Nov. 30, 1995, PCT Pub. No. WO95/00261, PCT Pub. Date Jan. 5, 1995

PCT Filed Jun. 16, 1994, Ser. No. 553,508

Claims priority, application Sweden, Jun. 18, 1993, 9302114

Int. Cl.[6] B07B *7/04*

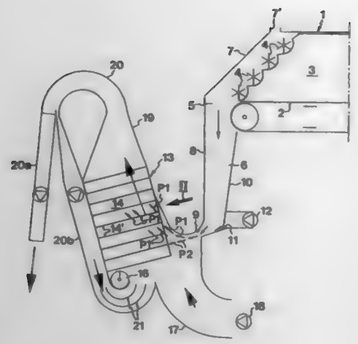
U.S. Cl. 209—143 **7 Claims**

2. A device for separating heavy particles from a particulate material, the particulate material containing the heavy particles comprising:

a first station for containing a supply of particulate material containing heavy particles;

a second station for receiving particulate material from which heavy particles have been removed;

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a Coanda sifter;

means for directing a substantially downwardly-directed flow of the particulate material from the first station to the Coanda sifter;

the Coanda sifter having a downwardly-facing, convexly single-curved surface for imparting a direction of motion to particles of the particulate material, the direction of motion being dependent on a weight of the particles;

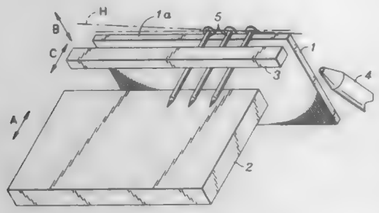
a zigzag sifter disposed between the Coanda sifter and the second station, the zigzag sifter having a plurality of zigzag-shaped, substantially vertical walls which are substantially perpendicular to an axis of curvature of the single-curved surface the walls defining channels between them, the channels extending upwards in zigzag fashion, the zigzag sifter being arranged relative to the Coanda sifter such that the zigzag sifter is adapted to receive particles from the Coanda sifter in a lower portion of the zigzag sifter and in a side of the zigzag sifter.

5,725,103

BEND DETECTOR

Nobuyuki Yasuda, Osaka, Japan, and Masatoshi Yasuda, Osaka, Japan, assignors to Yutaka Works, Ltd., Osaka, Japan

Filed Aug. 7, 1996, Ser. No. 694,632
Int. Cl.° B07C *9/00*
U.S. Cl. 209—691 **3 Claims**



1. A bend detector for detecting headed rod members for bending, said bend detector comprising:

a first elongated member inclined in a longitudinal direction;

a second elongated member extending parallel to said first elongated member at a lower level than said first elongated member, said first and second elongated members being spaced from each other so that said headed rod members can roll and move on said first and second elongated members with their head caught on said first elongated member and their tip resting on said second elongated member, and

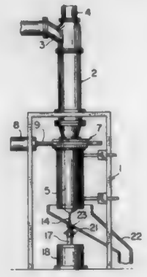
an elongated beam provided so as to extend parallel to said first and second elongated members at a position between said first and second elongated members and spaced upwardly from said first and second elongated members by a distance slightly larger than the diameter of a shank of said headed rod member.

5,725,104

VALVE CONSTRUCTION FOR HIGH DENSITY PULP CLEANER

Gerald O. Walraven, 4029 Snake Island Rd., Sturgeon Bay, Wis. 54235

Continuation of Ser. No. 330,429, Oct. 27, 1994, abandoned.
This application Sep. 6, 1996, Ser. No. 711,959
Int. Cl.[6] B04C *5/14;* **F16K** *31/44*
U.S. Cl. 209—733 **17 Claims**



1. An apparatus for removing high density contaminants from cellulosic pulp, comprising a cleaning vessel including an upper separating chamber and a lower reject chamber communicating with the lower end of the separating chamber, inlet means for introducing cellulosic pulp into said separating chamber, first outlet means for discharging cellulosic pulp from said separating chamber, means for swirling the pulp within the separating chamber to cause high density contaminants in said pulp to migrate downwardly from the separation chamber into said reject chamber, upper valve means located between the separating chamber and the reject chamber for controlling the flow of pulp therebetween, second outlet means disposed at the lower end of said reject chamber, lower valve means for controlling the flow through said second outlet means, said lower valve means including an annular valve seat bordering said second outlet means and having a downwardly converging sealing surface, said lower valve means also including a valve member disposed in the reject chamber and having a downwardly converging outer surface disposed to engage said valve seat and having a generally convex upper surface, and power operated drive means secured to said valve member and disposed outwardly of said reject chamber for moving said valve member from a closed to an open position and for moving said valve member from said open position to said closed position, said power operated drive means extending through said second outlet means and into said reject chamber when said valve member is in the open position.

5,725,105

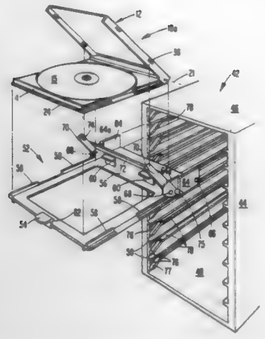
RACKS AND CARRIERS FOR CD-CASES

Brian Timothy Boland, 6 Plowman Place, Flynn Act 2615, Australia

Filed Nov. 1, 1995, Ser. No. 551,485
Claims priority, application Australia, Nov. 1, 1994, PM9158; May 26, 1995, 20312/95
Int. Cl.[6] A47G *29/00*
U.S. Cl. 211—40 **8 Claims**

1. A CD storage rack comprising:

a frame;



a plurality of carriers each adapted for storage of a CD-case, each of said plurality of carriers being slidably mountable within said frame for movement between a back storage position and a front access position, each of said plurality of carriers having

a support tray adapted to support a CD-case so that a hinge of the CD-case is positioned toward a back portion of an associated carrier, and

two parallel, strip-like side-arms each having a front end and a rear end, each of said side-arms being mounted on said support tray by said rear end for pivotal movement about a pivot axis which is substantially coincident with an axis along the hinge of a CD-case supported by said support tray, said side-arms extending in a front-to-back direction and being resiliently flexible in a side-to-side direction, said side-arms being spaced apart and adapted to resiliently engage the sides of a lid of a CD-case loaded in said associated carrier, said side-arms being pivotable between a first position corresponding to the position of the lid of a closed CD-case loaded in said associated carrier and a second position corresponding to the position of the lid of an open CD-case loaded in said associated carrier; and

arm operating means operatively connecting said side-arms and said frame of said storage rack to pivot said side-arms to said second position to effect automatic opening of a CD-case loaded in said associated carrier upon said associated carrier moving to said front access position.

5,725,106

RACK APPARATUS FOR COMPOUND BOWS

William J. Wilson, 320 E. Aspen, Cottonwood, Ariz. 86326

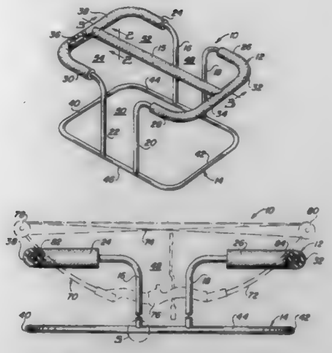
Filed Jun. 20, 1996, Ser. No. 666,950
Int. Cl.[6] A47F *7/00*
U.S. Cl. 211—13.1 **11 Claims**

1. A rack apparatus for storing and transporting compound bows comprising in combination:

a pair of generally horizontal and spaced apart holding members for providing direct contact support for a compound bow;

a base connected to the holding members for supporting the holding members to protect the compound bow while being stored and transported;

a longitudinal element secured to the base and beneath the bow disposed on the pair of holding members; and



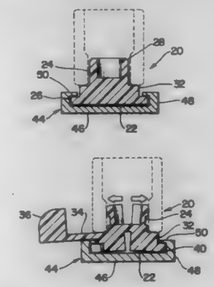
means for securing the bow to the longitudinal element during storage and transport.

5,725,107

LOCKING HOLDER FOR INTERCHANGEABLE BIT MEMBER

Andrew E. Dembicks, 5308 Boca Marina Cir. North, Boca Raton, Fla. 33487

Filed Sep. 19, 1995, Ser. No. 530,767
Int. Cl.[6] A47F *7/00*
U.S. Cl. 211—70.6 **21 Claims**



1. A holder system for securely storing one or more interchangeable bit members having integral shaft receiving members, said system comprising:

(a) a rotator member comprised of a base portion formed transverse to a central axis and having an eccentric cam surface defined on its outer periphery;

a cylindrical lower body formed on top of said base portion and projecting axially upward therefrom, the circular perimeter defined by said lower body inwardly offset from said eccentric cam surface;

a receiving member axially aligned with and projecting upwardly from said lower body;

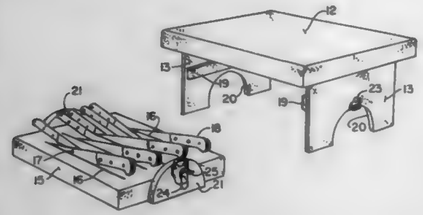
said base portion, said lower body, and said receiving member divided along said central axis to form two opposing sides separated by a gap, said two sides joined by a resilient bridge member; and

(b) channel guide means comprised of opposing channel sidewalls formed on an elongated channel base;

said base of said rotator member positioned within said channel guide means between said opposing side walls, whereby rotation of said rotator member about said central axis causes said sidewalls to selectively engage said eccentric cam surface, said engagement causing said resilient bridge member to flex so that the two opposing sides of said receiving member pivot outwardly from said central axis to engage a shaft receiving member of a bit.

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5,725,108
CUTTING BLOCK AND KNIFE SAVER
Nathan S. Olson, P.O. Box 120, Vienna, Mo. 65582, assignor to Nathan S. Olson, Vienna, Mo.
Filed Dec. 9, 1996, Ser. No. 762,542
Int. Cl.[6] A47F 7/00
U.S. Cl. 211—70.7 **6 Claims**



6. A cutting block and a knife carrying block combination comprising:

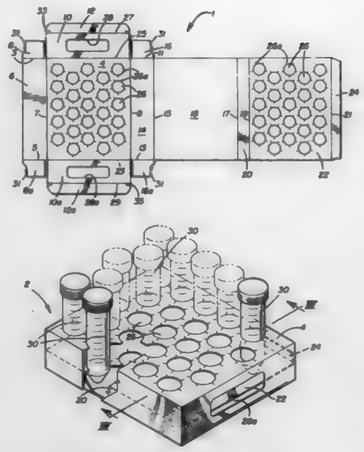
a) a knife carrying block having a surface formed with knife blade slots to carry knives with said blades in said slots;

b) a cutting block having a material cutting surface and spaced support legs under said cutting surface in position to embrace said knife carrying block;

c) locking means on said spaced legs and on said knife carrying block releasably retaining said cutting block embracing said knife carrying block; and

wherein said knife blades have handles exposed at said knife blade slots, and said cutting block legs have elements retaining said knife handles on said knife carrying block with said securing means in releasable retention holding said blocks in an embraced position.

5,725,109
RACK FOR HOLDING TUBES AND THE LIKE IN AN UPRIGHT POSITION
Tom Moulton, San Francisco, Calif., and Bob Hill, Novato, Calif., assignors to LABCON, North America, San Rafael, Calif.
Continuation of Ser. No. 531,098, Sep. 20, 1995, abandoned, which is a continuation of Ser. No. 154,190, Nov. 18, 1993, abandoned. This application Feb. 10, 1997, Ser. No. 795,239
Int. Cl.[6] A47G 29/00
U.S. Cl. 211—73 **3 Claims**



1. A blank for forming a rack for holding tubes and the like in an upright position, comprising:

a) a rectangular top panel having a plurality of substantially round holes formed to receive an elongated object, wherein each of said round holes is adapted to be relatively smaller in diameter than the elongated object it is formed to receive, and wherein one or more of said holes formed to receive the elongated object has one dr more slits, radiating from the edge of that hole, thereby allowing said holes to easily partially deform when the elongated object of greater size than that hole is inserted and holding the elongated object with friction, and further wherein said plurality of holes formed to receive said elongated objects are arranged in a pattern of staggered rows, thereby allowing the rows to be placed more closely to each other;

b) a rectangular first side section hingedly attached to one edge of said top panel, having first and second end sections, the edges of said first side section connecting to said first and second end sections being normal to the edge of attachment of said first side section to said top panel;

c) two rectangular flaps, one hingedly attached to an edge of the top panel normal to said first side section, the other hingedly attached to the edge distal the attachment of said top panel to the first flap, each flap further having a flange section hingedly attached to the edge distal to the edge of attachment of said top panel, and wherein a hole is formed in one or both of said flaps, thereby forming a view port;

d) a rectangular second side section hingedly attached to the edge of said top panel distal to the edge where the top panel attaches to said first side section, having first and second end sections, the edges of said second side section connecting to said end sections being normal to the edge of attachment of said second side section to said top panel;

e) a rectangular bottom panel, hingedly attached to said second side section on the edge distal to the attachment of said top panel to said second side section;

f) a rectangular first support section hingedly attached to said bottom panel on the edge distal to the attachment of said bottom panel to said second side section;

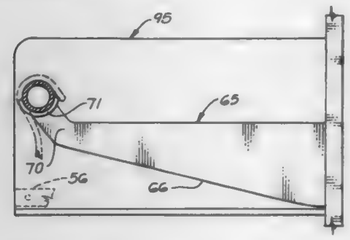
g) a rectangular intermediate panel hingedly attached to said first support section on the edge distal to the attachment of said first support section to said bottom panel, having a plurality of holes formed to receive an elongated object and in such a pattern that the holes formed will align with the holes formed in said top panel when the blank is assembled into a rack, and wherein each of said holes is adapted to be relatively smaller in diameter than the elongated object it is formed to receive, and wherein one or more of said holes formed to receive the elongated object has one or more slits radiating from the edge of that hole, thereby allowing said holes to easily partially deform when the elongated object of greater size than that hole is inserted and holding the elongated object with friction;

h) a rectangular second support section hingedly attached to said intermediate panel on the edge distal to the attachment of said second support section to said intermediate panel;

wherein said first and second end sections on said rectangular first side and said second side are fixable respectively to said two rectangular flaps, said first support is fixable to said first side section proximate said bottom panel, and said second support is fixable to said second side section proximate said top panel, wherein said flanges are fixable to said bottom

panel, and whereby said rack permits viewing above and below said intermediate panel.

5,725,110
SPACE ORGANIZING SYSTEM
Richard G. Kluge, Lake Geneva, Wis., and John R. Sterling, Woodstock, Ill., assignors to John Sterling Corporation, Richmond, Ill.
Filed Jan. 23, 1997, Ser. No. 787,641
Int. Cl.[6] A47F 7/00
U.S. Cl. 211—87.01 **14 Claims**



1. A system for organizing the interior space of a closet into compartments involving horizontal shelves, clothes rods and drawers supported on a vertical closet wall, comprising in combination:

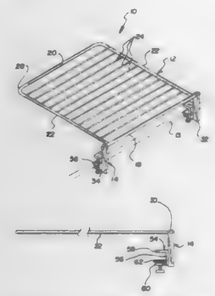
an elongated, rigid hanger rail mounted horizontally across the upper margin of the vertical closet wall, characterized by an angularly upwardly extending mounting edge formed along one margin of the rail's planar body and oriented to extend outwardly of said closet wall in operation;

a plurality of vertically, elongated standards of substantially U-shaped cross section each formed by parallel side walls integral with a cross connecting front wall;

said side walls having registeringly aligned slotted openings formed adjacent one end thereof and oriented for receiving said mounting edge therein whereby to suspend said standards vertically from said hanger rail; and

a locking screw moveable through the front wall of each vertically suspended standard for engaging said mounting edge whereby to lock each standard to said hanger rail.

5,725,111
WINDOW MOUNTED DRYING RACK
Eunha Choi, 140-36 Negundo Ave., Flushing, N.Y. 11355
Filed Aug. 27, 1996, Ser. No. 703,633
Int. Cl.[6] A47F 5/00
U.S. Cl. 211—119.1 **4 Claims**



1. A new and improved window mounted drying rack apparatus comprising, in combination:

a rack formed in a generally rectangular configuration and including a rear axle, a front bar and two parallel side bars, a plurality of interior rods being coupled between the side bars along the entire length of the side bars, the interior rods having a smaller diameter than the bars and being positioned parallel to the front bar and rear axle, the rear axle having a greater length than the front bar and rods, the rear axle having two free ends each including a bore extending therein, the side bars having a front extent formed continuously with the front bar, the side bars having a rear extent affixed to the rear axle;

two brackets each being formed in an elongated generally rectangular configuration with a rounded upper extent and a linear lower extent, each bracket having an inner face and an outer face, the outer face of each bracket including an outer groove, the inner face of each bracket including a cylindrical bore positioned therein adjacent its upper end, a small circular aperture extending through the approximate center point of each bore, two inserts each being formed in a cylindrical configuration with an outer flange, one insert being affixed within each bore in the ends of the rear axle, the free ends of the axle being positioned within the recesses of the brackets, each flange including a plurality of detents extending therefrom, each recess within the respective brackets including a plurality of indents, the detents of the flanges adapted to be positioned within the indents of the brackets, the interior end of each insert having a plurality of screw threads, and adjustment knob being positioned through each bracket and threadedly coupled within each insert, each adjustment knob having an intermediate flange positioned within the outer groove of each bracket, loosening the adjustment knobs functioning to permit angle adjustment of the rack, tightening of the adjustment knobs functioning to lock the rack in place; and

a clamp assembly including two C-shaped mounting members, each mounting member including a vertical segment affixed to each bracket, each C-shaped member further including upper and lower horizontal segments, the lower segment of each C-shaped member having a central threaded aperture extending therethrough, a metal plate including an upper surface coated with rubber positioned adjacent to the lower segment of each C-shaped member, two clamp knobs each having a cylindrical gripping end and a threaded upper end, each upper end being coupled through the threaded aperture in the lower segment of each S-shaped member and affixed within the metal plate thereof, in an operative orientation each C-shaped member of the clamping assembly being positioned round a window sill, the rubber coated metal plate engaging the lower surface of the window sill, the clamp knobs being tightened by a user to secure the clamps unto the window sill, a user then draping clothes over the rack and across the internal rods to affect drying of clothes.

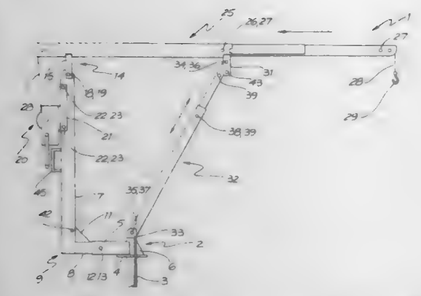
5,725,112
CRANE
Donald Frederick Thorby, Burrawong Park, Binnaway, New South Wales 2395, Australia
Continuation of Ser. No. 244,848, Sep. 14, 1994, abandoned. This application Mar. 18, 1996, Ser. No. 617,181
Claims priority, application Australia, Dec. 17, 1991, PL 6049
Int. Cl.[6] B66C 23/44
U.S. Cl. 212—180 **8 Claims**

1. A crane (**1**) for a motor vehicle, the crane comprising:

a mounting base (**2**) for mounting to a tray of a motor vehicle rotatably about an axis of rotation;

an elongate base frame member (**8**) for attachment to said mounting base (**2**) and having a longitudinal axis extending substantially parallel to said tray when said base frame member (**8**) is attached to said mounting base (**2**) and said mounting base (**2**) is mounted to said tray, said base frame member (**8**) being pivotal about said axis of rotation of said mounting base (**2**);

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a post (7) having one end for connection to said base frame member (8) and then extending substantially perpendicularly from said base frame member (8) at a position offset from said axis of rotation, said post (7) further having an opposite end;

a telescopic lifting arm (25) having first means for connection to said opposite end of said post (7) and pivotal movement in a plane defined by said longitudinal axis of said base frame member (8) and said post (7) when said base frame member (8) is connected to said post (7);

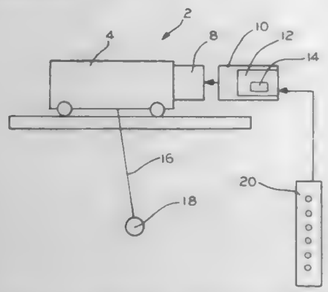
a telescopic brace (32) having second means at one end for connection to said lifting arm (25) and, when connected, pivotal movement from a position for use extending between said mounting base (2) and said lifting arm (25) to a folded position in which said telescopic brace (32) is disengaged from said mounting base (2) and pivots about said second means (31) to engage said first means (15), and said post (7), said brace (32) and said lifting arm (25) are substantially parallel.

5,725,113

METHOD FOR DEACTIVATING SWING CONTROL ON A CRANE

Chris X. Habisohn, 1505 Falcon La., Hoffman Estates, Ill. 60192

Filed Oct. 28, 1996, Ser. No. 739,023
Int. Cl.[6] B66C *19/00*
U.S. Cl. 212—275 **4 Claims**



1. A method for deactivating a load oscillation dampener on a crane, said load being suspended by a hoisting rope attached to the carriage of the crane, said carriage being driven by a motor means responsive to a drive signal, said drive signal being produced by a motion controller in response to operator motion commands including direction signals, said motion controller including said load oscillation dampener, said method including the steps of:

(a) applying a first direction signal, corresponding to a first direction, to the motion controller for initiating carriage motion in said first direction and activating said load oscillation dampener to produce carriage motion that damps load oscillation;

(b) removing said first direction signal from said motion controller and applying a second direction signal corresponding to a direction opposite to that of said first direction while said carriage is still traveling, to perform a reverse plugging action;

(c) detecting said reverse plugging action; and,

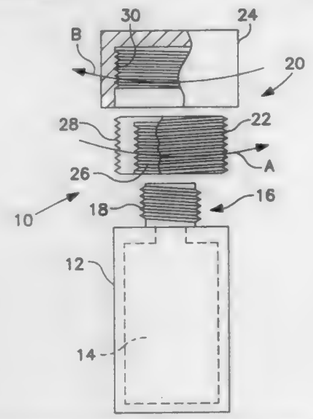
(d) deactivating said load oscillation dampener upon detection of said reverse plugging action.

5,725,114

CHILD RESISTANT CAP AND CONTAINER INCORPORATING SAME

E. Steven Pickman, 209 Montowese St., Branford, Conn. 06405

Filed Sep. 16, 1996, Ser. No. 714,199
Int. Cl.[6] A61J *1/00*
U.S. Cl. 215—204 **15 Claims**



1. A child resistant container apparatus, comprising:

(a) container means for containing a substance and having an opening;

(b) a first inner cap member for removably covering the opening;

(c) first means for rotationally engaging the first cap with the opening in a first direction of rotation;

(d) a second outer cap member for removably covering the first cap; and

(e) second means for rotationally engaging the second cap with the first cap in a second direction of rotation, wherein the first direction of rotation is opposite to the second direction of rotation, wherein the first inner cap and the second outer cap have a true opening position wherein the first inner cap and the second outer cap are engaged for rotation in the second direction, and wherein the integrity of the first inner cap is maintained regardless of rotation and position of the second outer cap.

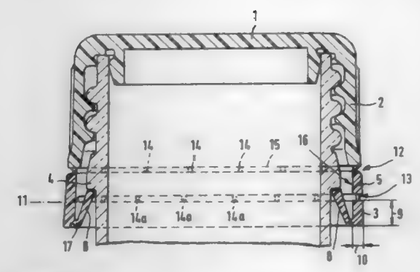
5,725,115

CLOSURE CAP WITH TETHER

Udo Bösl, Eimeldingen, Germany, and Michael Kirchgessner, Egringen, Germany, assignors to Crown Cork AG, Reinach, Switzerland

Filed Jan. 5, 1996, Ser. No. 582,356
Claims priority, application Switzerland, Feb. 21, 1995, 502/95
Int. Cl.[6] B65D *41/32*
U.S. Cl. 215—252 **11 Claims**

1. Closure cap for the closure of a container mouth, the closure comprising:



a cap base;

a cap wall abutting said cap base;

a retaining ring being arranged on the lower edge of said cap wall, said retaining ring engaging beneath a retaining element when the closure cap is in position on the container mouth; and

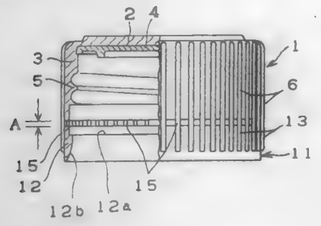
a tether, one end of said tether being connected firmly with the lower edge of the cap wall and the other end of said tether being connected firmly to the retaining ring, wherein the tether runs between the cap wall and the retaining ring along the circumference of the closure cap, characterized in that the retaining ring possesses on its inside surface a plurality of tongues protruding radially inwards, said tongues being directed upwards towards the cap base in order to engage beneath the retaining element on the container mouth and extending upwards beyond the upper edge of the retaining ring when the closure cap is in position on the container mouth.

5,725,116

CONTAINER CAP HAVING MEANS FOR EVIDENCING CRAFTY UNCAPPING OR SAFE SEALING

Kazuo Takai, Hachioji, Japan, assignor to Cosmo Precision Co., Ltd., Hachioji, Japan

Continuation of Ser. No. 544,323, Oct. 17, 1995, abandoned. This application Feb. 7, 1997, Ser. No. 796,601
Claims priority, application Japan, Oct. 19, 1994, 6-280018
Int. Cl.[6] B65D *41/34*
U.S. Cl. 215—252 **7 Claims**



1. A screw cap comprising:

a main cap portion including a cylindrical lateral wall having an inner surface and an outer surface, said cylindrical lateral wall having screw threads formed on said inner surface;

a ring portion having an inner surface and an outer surface, said ring portion having a projection formed on said inner surface, said ring portion being spaced below said main cap portion; and

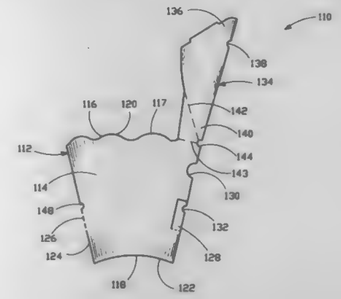
a group of vertical splines, molded in one piece with the ring portion and the main cap portion, extending adjacent from an upper edge of the cylindrical lateral wall on said outer surface of said main cap portion downward adjacent to a lower edge on said outer surface of said ring portion thereby connecting said ring portion to said main cap portion, the portion of the vertical splines extending between the main cap portion and the ring portion being severable upon removal of the main cap portion.

5,725,117

APPARATUS FOR FORMING A CONTAINER TO HOLD A DRINKING CUP AT THE BOTTOM END OF THE CONTAINER AND TO HOLD FOOD IN THE UPPER PORTION OF THE CONTAINER

Pejman Berjis, Beverly Hills, Calif., assignor to Devine Holdings, LLC, Los Angeles, Calif.

Continuation-in-part of Ser. No. 329,227, Oct. 26, 1994, Pat. No. 5,573,131. This application May 24, 1996, Ser. No. 656,012
Int. Cl.[6] B65D *21/32*
U.S. Cl. 220—4.03 **15 Claims**



1. An apparatus for forming a container to hold food and used in conjunction with a drinking cup having a lid, the apparatus comprising:

a generally frusto-conical shaped body having a wider top end with a top opening, a narrower bottom end with a bottom opening, a chamber between the two openings and a sidewall; and

b. panel means having a first end and a second end, the second end attached to said wider top end of said frusto-conical shaped body such that the panel means can be folded downward and into said chamber, where the first end connects to said sidewall of said frusto-conical shaped body;

c. whereby the drinking cup is first inserted through said frusto-conical shaped body and through said bottom opening such that a portion of the drinking cup lies below said bottom end of said frusto-conical shaped body and a portion of the drinking cup rests above said bottom end of said frusto-conical shaped body and is gripped by said sidewall at the location of said bottom opening and the lid rests within said frusto-conical shaped body and forms a bottom to said chamber and said panel means is folded within said chamber to retain the drinking cup and the lid in its position and prevent the drinking cup and the lid from sliding out of said frusto-conical shaped body.

5,725,118

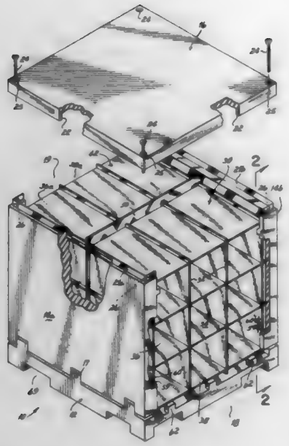
MODULAR SIDE-LOADING CONTAINER SYSTEM

Charles L. Slager, Hudsonville, Mich.; William J. Vroon, Holland, Mich., and Brian E. Bouwens, Hudsonville, Mich., assignors to Bradford Company, Holland, Mich.

Filed Apr. 12, 1996, Ser. No. 631,060
Int. Cl.[6] B65D *85/00*
U.S. Cl. 220—4.28 **23 Claims**

1. A container for holding product therein during shipment and providing ready access to the product, comprising:

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a body including a base, at least two rigid side walls coupled to the base to extend vertically upwardly therefrom, and a removable cover positioned on upper edges of the side walls, the body having at least one open side;

a first product grid positioned in the body, the product grid comprising a plurality of generally vertically oriented support walls and a plurality of generally horizontally oriented support walls operably interconnected together and forming a first plurality of generally horizontally disposed product bins;

at least one of said product bins having an outside open end and being disposed such that the outside open end faces outwardly of an open side of the container for horizontally receiving a product to be shipped and for providing horizontal access to the product from a side of the container;

a flexible internal wall structure positioned at an inside open end of at least one of the product bins for forming a flexible end wall for the bin;

the container body including a mounting structure thereon for securing at least one additional rigid side wall to the body for forming a container body closed on all sides;

whereby the container provides horizontal access to the products therein and is retrofittable into a container which is accessed vertically.

5,725,119

COLLAPSIBLE CONTAINER WITH INTEGRALLY SUPPORTED

Judson A. Bradford, Holland, Mich., and Robert M. Zink, Grand Haven, Mich., assignors to Bradford Company, Holland, Mich.

Filed Feb. 28, 1996, Ser. No. 608,476

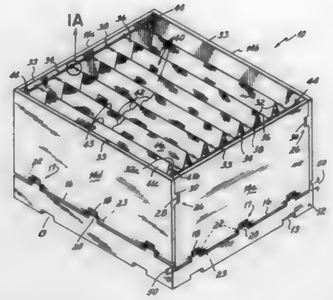
Int. Cl.[6] B65D *6/18*

U.S. Cl. 220—6 **30 Claims**

1. A reusable and returnable container for holding product therein during shipment and subsequently being returned generally empty of product for reuse, comprising:

a body having a bottom and at least two side walls coupled to the bottom, the side walls configured for being movable between an erected position for containing a product placed in the container and a collapsed position for reducing the size of the container for return;

a dunnage structure positioned generally inside of the body, the dunnage structure having an upper edge with a longitudinal axis spanning between said side walls and supported by the side walls, the upper edge forming an opening for receiving a product placed in the container for shipment when the side walls are in an erected position;



the upper edge of the dunnage structure operable for flexing transversely to said longitudinal axis to relax the dunnage structure when the side walls are moved to a collapsed position such that the relaxed dunnage structure is generally positioned in the reduced size container for return;

whereby the container provides reusable dunnage which is usable with the container when it is shipped and subsequently remains with the container when it is returned for being reused when the container is again shipped.

5,725,120

CONTAINERS

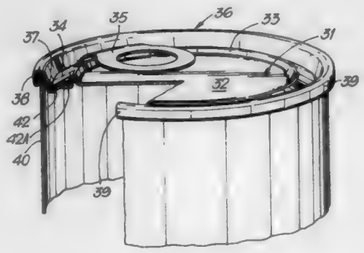
Christopher Paul Ramsey, Wantage, and Graham Martin Gossedge, Didcot, both of United Kingdom, assignors to Carnaudmetalbox (Holdings) USA, Inc., Wilmington, Del.

Filed May 16, 1995, Ser. No. 442,113

Claims priority, application United Kingdom, May 21, 1994, 9410228

Int. Cl.[6] B65D *17/40*

U.S. Cl. 220—276 **30 Claims**



1. A thermally processable container which is subject to elevated pressures during processing comprising a lid (**1**, **10**, **21**, **31**, **31A**, **52**, **55**, **71**) and a metal container body (**8**, **13**, **28**, **40**, **70**), said metal container body (**8**, **13**, **28**, **40**, **70**) having a side wall portion (**7**, **14**, **29**, **50**, **64**, **78**) from one end of which extends an inclined annular portion (**9**, **18**, **30**, **42**, **46**, **61**, **74**) defining a mouth of the container body (**8**, **13**, **28**, **40**, **70**),

said lid (**1**, **10**, **21**, **31**, **31A**, **52**, **55**, **71**) comprising a generally transversely extending central panel portion (**2**, **11**) surrounded by a downwardly inclined peripheral annular flange (**3**, **12**, **25**, **34**, **54**, **59**, **72**) which is bonded to said inclined annular portion (**9**, **18**, **30**, **42**, **46**, **61**, **74**) of the side wall so as to form a seal therewith,

said annular flange (**3**, **12**, **25**, **34**, **54**, **59**, **72**) of said lid (**1**, **10**, **21**, **31**, **31A**, **52**, **55**, **71**) being inclined at an angle of between 5° and 85° to the central panel portion (**2**, **11**) in order to cooperate with the inclined annular portion (**9**, **18**, **30**, **42**, **46**, **61**, **74**) of the side wall;

the central panel portion (**2**, **11**) being upwardly deformable during thermal processing and returned to its original shape after thermal processing; and

the upward deformation of said central panel portion (**2**, **11**) during thermal processing effects a 10% increase in volume of the lidded container so as to limit increase in pressure in the container to no more than 5 p.s.i.

5,725,121

CLOSURE FOR CONTAINERS OF LIQUID, GRANULAR OR POWDERY PRODUCTS

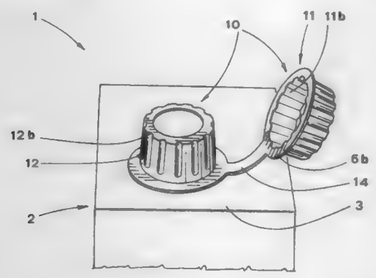
Belloli Gianpaolo, Pianoro, Italy, assignor to Catta 27 S.R.L., Crespellano, Italy

Filed Jun. 25, 1996, Ser. No. 673,683

Claims priority, application Italy, Jun. 27, 1995, BO95A0321

Int. Cl.[6] B65D *55/16*

U.S. Cl. 220—375 **3 Claims**



1. A closure for a container of liquid, granular or powdery products, provided with a pouring opening, said closure consisting essentially of:

a hub defined by a tubular central body having a frustum of cone shape, an upper free edge and a base fixed outwardly to the container, peripherally to the pouring opening;

a cap removably mateable with the hub in correspondence to a closed condition of the closure and having a downwardly depending skirt, the cap skirt having a corresponding frustum of cone shape, a flexible tongue for hingely connecting the cap and the base of the hub, the tongue integrally formed with the cap and the hub;

a sheet element peripherally welded to an upper edge of the hub and removable in correspondence to a first opening condition for providing access to the product packaged inside the container;

hooking means for maintaining the cap and the hub joined in correspondence to the closed condition, the hooking means including first members on a side inner surface of the cap and second members on a side wall of a central body of the hub, said first and second members being mateable in complementary correspondence to produce the closed condition, and wherein the first members and the second members consist respectfully of a series of recesses and a series of grooves respectively disposed parallel to the tubular central body of the hub, the first members extending on along the substantial length of the skirt, the second members extending from the upper free edge toward the base, and a gap between the lowermost portion of the second members and the base on said hub.

5,725,122

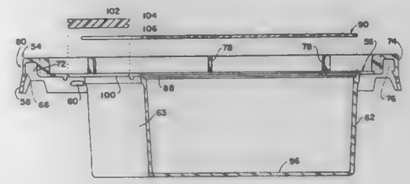
STORAGE LIDS FOR CONTAINERS

Joseph B. Murphy, Worcester; Henry J. Blanchette, Leominster, both of Mass., and Richard P. Smagala, Glens Falls, N.Y., assignors to Plastican, Inc., Leominster, Mass.

Division of Ser. No. 480,959, Jun. 7, 1995, abandoned, which is a continuation of Ser. No. 13,069, Feb. 3, 1993, abandoned. This application Feb. 21, 1996, Ser. No. 604,454

Int. Cl.[6] B65D *53/00*

U.S. Cl. 220—521 **21 Claims**



1. A removable molded plastic lid for closing off the open end of a plastic pail, said lid comprising, in combination:

a circular rim having means for releasably locking said lid to the open end of a pail;

a circular crown formed integral with and extending inwardly from said rim, at least a portion of said crown being located below said rim so as to define a well into which the bottom end of a second pail may be placed for stacking purposes, said crown having an opening; and

a receptacle formed integral with and depending from said crown at said opening, said receptacle having an open top end that is substantially flush with said crown and a closed bottom end, said receptacle being sized and shaped so as to extend downwardly into a pail when said lid is locked to said pail in closing off relation with the open end of the pail.

5,725,123

SYSTEM FOR CLOSING CONTAINERS

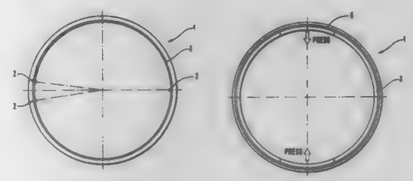
Hans Otto-Nagels, Bovenden, Germany, assignor to Heraeus Instruments GmbH, Hanau, Germany

Filed Feb. 27, 1997, Ser. No. 805,653

Claims priority, application Germany, Sep. 2, 1996, 196 08 009.6

Int. Cl.[6] B65D *43/08*

U.S. Cl. 220—796 **6 Claims**



1. A system for closing cylindrical containers comprising a cover cap, said cover cap comprising a cover surface, gripping surfaces, markings corresponding to said gripping surfaces, and a cover apron, said cover apron having an inner periphery surface and at least one elevation on the inner periphery surface of said cover apron, said at least one elevation positioned such that two opposite sections of the inner periphery surface describing arcs of at least 130° have no elevations thereon, wherein said at least one elevation can be pressed against an outer surface of said cylindrical container to thereby securely cover the container in a non-positive manner.

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5,725,124

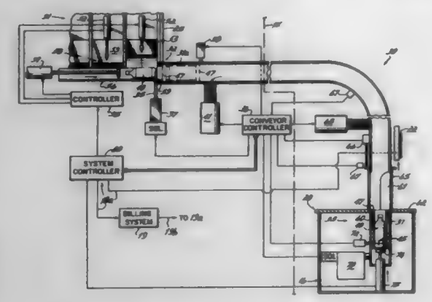
PRODUCT VENDING AND PNEUMATIC DELIVERY SYSTEM AND METHOD

Rafael T. Bustos, Alpharetta, and John D. Howard, Temple, both of Ga., assignors to L&P Property Management Company, Chicago, Ill.

Continuation-in-part of Ser. No. 449,935, May 25, 1995, Pat. No. 5,586,686, which is a continuation-in-part of Ser. No. 404,243, Mar. 15, 1995, abandoned. This application Dec. 12, 1995, Ser. No. 571,253

Int. Cl.[6] B23Q *7/04*

U.S. Cl. 221—211 **17 Claims**



1. A method of vending a packaged product comprising the steps of:

receiving a signal at a product supply terminal from a remotely located customer terminal;

loading, at the product supply terminal, in response to the signal, from the customer terminal, a packaged product into an inlet end of a tube of a pneumatic conveyor; then

pneumatically conveying the product through the tube to the customer terminal; then

developing pneumatic back-pressure behind a floating element that forms a slidable seal with the tube ahead of the moving container with the floating element in an upstream position in the tube; and then

gradually releasing the back-pressure as the product moves against the element and the element moves with the product toward a downstream position in the tube to apply a gradually decreasing upstream force on the element until the product comes to rest at the customer terminal.

5,725,125

METHOD OF AND MEANS FOR PROVIDING MULTIPLE FLAVORED BEVERAGES FROM A DISPENSING VALVE FROM A BEVERAGE DISPENSING UNIT

Brian P. Bessette, Colchester; William T. Guyette, Burlington, both of Vt., and William J. Eckardt, Oneonta, N.Y., assignors to Emperor Tea Company, Ltd., Williston, Vt.

Filed Sep. 25, 1995, Ser. No. 533,439

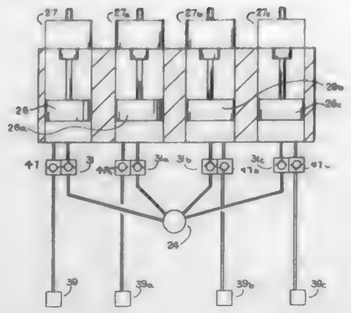
Int. Cl.[6] G01F *11/00*

U.S. Cl. 222—1 **6 Claims**

1. A method for providing multiple flavored beverages from a dispensing valve from a beverage dispensing unit, for use by drinking fountain locations in order to provide a flavored beverage from a multiple number of flavors in a limited amount of space, comprising the steps of:

providing a housing for supporting and protecting the components of the novel beverage dispensing unit, said housing having a base unit for the support of the components of the beverage dispensing unit and a support frame for the mounting of internal components of the beverage dispensing unit;

providing means for supplying liquid, base product and power for the beverage dispensing unit by providing a base product supply line, liquid supply line and power supply line;



providing means for controlling the liquid, base product and power for beverage dispensing unit by means of control valves;

providing a flavor system for the beverage dispensing unit by means of a flavor block with the base product and liquid in order to inject flavors where desired in order to produce a flavored beverage and using flavor containers for storing the flavors, ejecting flavor from said flavor containers with flavor container pistons and having driving means causing the flavor container pistons to move and displace flavor from the flavor container to the flavor block and using a check valve to prevent backflow;

providing at least one dispensing head for delivering the liquid, base product and flavor to a serving container; and

providing means for controlling and directing the beverage dispensing unit.

4. Means for providing multiple flavored beverages from a dispensing valve from a beverage dispensing unit, for use in drinking fountain locations in order to provide a flavored beverage from a multiple number of flavors in a limited space, comprising:

housing means for protecting the beverage dispensing unit;

said housing means comprising a rigid structure;

said housing means having at least one support frame for mounting the internal components within said housing means;

power supply means for providing a source of power to said beverage dispensing unit;

said power supply means comprising means for allowing power to flow to said beverage dispensing unit;

a plurality of supply lines for allowing the flow of base product and liquid from storage sources to said beverage dispensing unit;

means for directing the flow of base product and liquid from said storage sources to said beverage dispensing unit;

said flow directing means comprising flow control valves on said base product supply line and said liquid supply line;

said flow directing means further comprising base product and liquid dispensing values positioned in series with said base product supply line and said liquid supply line;

a flavor system;

said flavor system comprising means for introducing different flavors into said base product and or said liquid;

said introduction means of said flavor system comprising a flavor block positioned where desired;

said flavor system comprising container means for storing said multiple flavors;

said flavor system having a check valve for preventing base product or liquid from entering said flavor container means;

said flavor system further having drive means for directing said flavors from said flavor container to said flavor block;

said drive means comprising a flavor container piston for driving said flavor from said flavor container to said flavor block;

said flavor container piston having a motor for driving said flavor container piston;

a beverage delivery system for directing the flow of base product, flavor and liquid into a serving container;

operational control means for providing the oversight and control of said beverage dispensing unit; and

said operational control means comprising a logic board for processing input and output signals from said beverage dispensing unit.

5,725,126

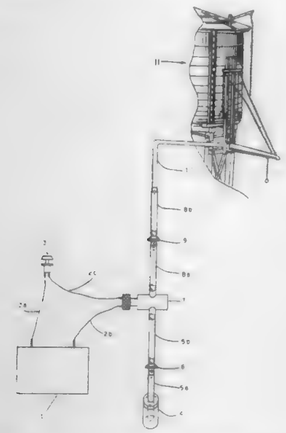
PUMP SYSTEM FOR TRANSPORTING LIQUID SMOKE FOR MODEL RAILROADS

Matthew N. Poissant, Portsmouth, Va., assignor to Samsung Electronics Co., Ltd., Suwon, Rep. of Korea

Filed Mar. 17, 1995, Ser. No. 406,377

Int. Cl.[6] G01F *11/00*

U.S. Cl. 222—78 **1 Claim**



1. A system for dispensing liquid smoke into a model railroad engine comprising:

a model railroad system;

a reservoir sized to contain a quantity of liquid therein;

a rigid tube for dispensing;

a electrical driven pump coupled between said reservoir and said rigid tube for pumping liquid from said reservoir to said tube to draw a pre-determined quantity of liquid from the reservoir through the tube;

a electrical power source to drive said pump by means of electrical wires; and

a push button assembly oriented in a manner to open and close said power source to activate said electrical pump through said wires; and

at least two fluid passages in fluid communication with said pump; said fluid passages oriented between said pump and said reservoir and said rigid tube to draw liquid from the reservoir through the rigid tube by means of said electrical power activated by said push button to draw the pre-determined quantity of liquid.

5,725,127

DEVICE FOR MELTING AND DISPENSING METERED AMOUNTS OF THERMOPLASTIC ADHESIVE

Heinrich Wolfgang Steinel, Bad Worishofen, Germany, assignor to Steinel GmbH & Co. KG, Herzebrock-Clarholz, Germany

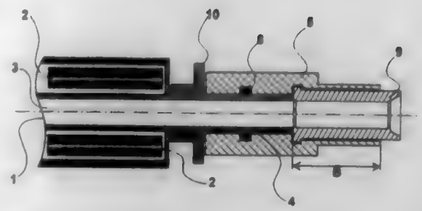
Filed Jul. 24, 1995, Ser. No. 506,513

Claims priority, application Germany, Aug. 2, 1994, 94 12 462.0

Int. Cl.[6] B67D *5/62*

U.S. Cl. 222—146.5 **9 Claims**

1. Device for melting and dispensing metered amounts of thermoplastic adhesive, comprising:



a heatable melting chamber having a connecting sleeve formed at an entry side thereof;

a sealing collar having a through opening in an axial direction through which the adhesive can be inserted into the melting chamber, said sealing collar comprising a heat-proof first part and a resilient second part that is enclosed in an overlapping region by said first part, said first part mounted onto said connecting sleeve; and

a sealing ring between said connecting sleeve and said first part of said sealing collar, said sealing ring being retained within an annular groove of an inner wall of said first part.

5,725,128

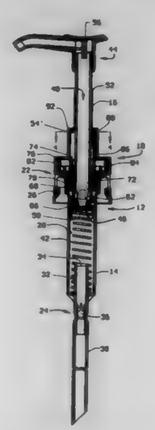
MANUALLY OPERATED RECIPROCATING LIQUID PUMP THAT LOCKS AND SEALS IN UP AND DOWN POSITIONS

Donald D. Foster, St. Charles, Mo., assignor to Contico International, Inc., St. Louis, Mo.

Filed Mar. 8, 1996, Ser. No. 612,667

Int. Cl.[6] B67B *5/00*

U.S. Cl. 222—153.13 **30 Claims**



1. A manually operable reciprocating liquid pump comprising:

a pump housing having a pump chamber;

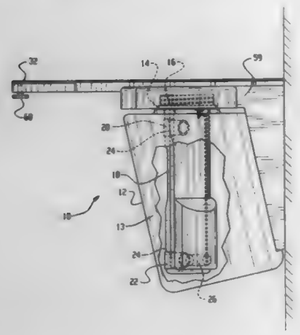
a piston mounted in the pump chamber for reciprocating movement therein between a discharge position and a charge position of the piston in the pump chamber;

a piston rod connected to the piston for moving the piston in the pump chamber, the piston rod having a discharge shoulder and a charge shoulder spaced from each other on the piston rod; and,

a lock on the pump housing that is selectively operable to engage with the discharge shoulder and lock the piston in the discharge position in the pump chamber, and engage with the charge shoulder and lock the piston in the charge position in the pump chamber.

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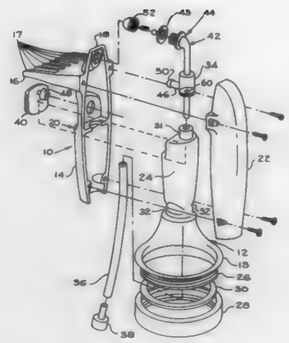
5,725,129
DUAL-CONTAINER FOAM DISPENSER
David S. Chapin; Charles E. Hughes; Steven G. Palmer, all of Raleigh, N.C., and Matthew Williams, Wooster, Ohio, assignors to American Sterilizer Company, Mentor, Ohio
Filed Jun. 6, 1995, Ser. No. 465,952
Int. Cl.[6] B67D *5/06*
U.S. Cl. 222—190 **10 Claims**



1. A dual-container foam dispenser comprising:
an outer container for receiving a foamable liquid;
an inner container disposed within the outer container and comprising an upper valve and a lower valve, each valve being biased open with a biasing force to provide fluid communication between the outer and inner containers;
a porous diffusing element disposed within the inner container in communication with an air receiving passage which selectively receives pulses of air under pressure, the pores of the diffusing element being substantially uniform and microscopic;
a foam outlet in fluid connection with the inner container and located above the upper valve;
a homogenizing filter disposed between the inner container and the foam outlet;
wherein when the pulse of air under pressure is supplied to and through the pores of the diffusing element and into the inner container, (i) a sufficient pressure is created within the inner container to overcome the biasing force of the upper and lower valves closing each valve and substantially precluding fluid flow between the inner and outer containers, (ii) the flow of air through the diffusing element pores into the inner container generates a foam from the foamable liquid in the inner container substantially external to the diffusing element, and (iii) forces the foam upward through the inner container, through the homogenizing filter, and out the foam dispenser through the foam outlet; and
wherein when pressure in the inner container falls below the biasing force alleviating any pressure gradient existing between the inner and outer containers, fluid flow is permitted in either direction between the inner and outer containers through the upper and lower valves to prevent leakage of foam out of the foam outlet and permit the levels of any fluids in the inner and outer containers to become equalized.

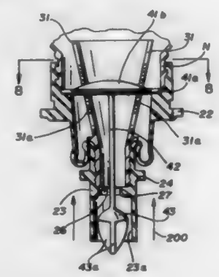
5,725,130
COMB AND DISPENSER UNIT
Kim C. Kluge, Cedarburg, and Douglas W. Kluge, Milwaukee, both of Wis., assignors to Kluge Slide Duplication, Inc., Brown Deer, Wis.
Filed Aug. 31, 1995, Ser. No. 522,132
Int. Cl.[6] B67D *5/06*
U.S. Cl. 222—192 **16 Claims**

1. A comb and dispenser unit, comprising:



a reservoir having a base with a substantially flat bottom surface upon which said reservoir can be stably stored;
a handle portion coupled to said reservoir and including a pump actuator in fluid communication with said reservoir and a nozzle;
a comb portion coupled to said handle portion and having comb teeth arranged substantially in a row and extending away from said handle portion and perpendicular to a longitudinal axis of said unit in extension planes substantially parallel to a preferred actuation plane of the pump actuator whereby a combing function is performed by moving said unit substantially along a combing axis generally parallel to said longitudinal axis; and
a nozzle portion including said nozzle and coupled to said comb portion for spraying a fluid pumped from said reservoir into material to be combed at points above engagement of said comb teeth and the material to be combed.

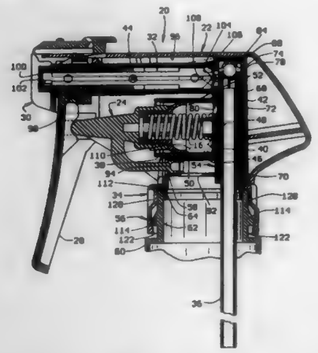
5,725,131
POWDER DISPENSING DISPENSER VALVE AND DISPENSING ASSEMBLY
Ronald F. Bell, Uniontown; Michael J. Dolan, Akron; John M. Tosill, Barberton, and J. Christopher Wysocki, Stow, all of Ohio, assignors to GOJO Industries, Inc., Cuyahoga Falls, Ohio
Filed May 24, 1996, Ser. No. 652,987
Int. Cl.[6] B65D *37/00*
U.S. Cl. 222—196 **23 Claims**



1. A dispensing assembly for dispensing powdery material from a dispenser having a body for holding a container for the material and an actuating lever, comprising:
(a) a flexible tube apparatus including
(1) a base for releasable attachment to the container and
(2) hollow collapsible tube projecting from said base and being engagable with the actuating lever;

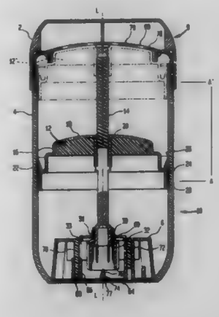
(b) an elongate valve receivable within said tube means and including
(1) a stop member disposed on one end and
(2) a closure member disposed on the opposed end and dimensioned to selectively close off the interior of said tube means;
(c) said tube being collapsible upon selective movement of the lever; and
(d) said tube being movable relatively of said valve whereby said tube is moved out of closing position with respect to said closure member of said valve.

5,725,132
DISPENSER WITH SNAP-FIT CONTAINER CONNECTION
Donald D. Foster, St. Charles, and Mark Ochs, High Ridge, both of Mo., assignors to Contico International, Inc., St. Louis, Mo.
Filed Sep. 25, 1996, Ser. No. 719,724
Int. Cl.[6] B67D *5/40*
U.S. Cl. 222—383.1 **19 Claims**



18. A dispenser comprising:
a container for containing fluid to be dispensed; and
a manually operated reciprocating fluid pump adapted to be secured to the container;
the fluid pump including a pump mechanism, an intake port adapted for fluid communication with liquid contained in the container, an intake liquid flow path providing fluid communication between the intake port and the pump mechanism, a discharge port, a discharge liquid flow path providing fluid communication between the pump mechanism and discharge port, a closure cap portion configured for releasably securing the fluid pump to the container, and a seal portion engageable with the container and shaped and configured for providing a fluid-tight seal between the fluid pump and the container;
the container including a neck having a mouth therein for passage therethrough of liquid in the container, the container further including a flange circumscribing and extending radially outwardly from the neck of the container, the flange including a generally downwardly facing surface;
the closure cap portion comprising a generally annular-shaped skirt, at least one protrusion extending generally radially inwardly from an inside surface of the skirt, the protrusion of the closure cap portion and the flange of the container being configured for a resilient snap-fit engagement of the protrusion with the generally downwardly facing surface of the flange when the seal portion of the fluid pump is brought into engagement with the container to releasably maintain the seal portion in fluid-tight sealing engagement with the container;
the closure cap portion further including a first camming surface, and the container further including a second camming surface, the first and second camming surfaces being shaped and configured to engage one another in a manner to cause separation of the protrusion from the flange upon simultaneous application of a radial force against the closure cap and rotation of the closure cap relative to the container, the closure cap portion and container being shaped and configured to permit rotation of the closure cap portion on the container while maintaining the seal portion in fluid-tight sealing engagement with the container when the closure cap is devoid of such radial force.

5,725,133
DOSE CONTROL DISPENSER
Mark John Iula, Valley Cottage, N.Y., assignor to Chesebrough-Pond's USA Co., Division of Conopco, Inc., Greenwich, Conn.
Filed Jan. 31, 1996, Ser. No. 593,315
Int. Cl.[6] B67D *5/42*
U.S. Cl. 222—390 **14 Claims**



1. A dispenser comprising:
a container for storing a dispensable chemical product, the container having a dispensing end and a closed end which are opposite one another and located along a longitudinal axis traversing a length of the container;
an elevator having a cross-section congruent to an internal cross-section of the container and mounted for axial movement within the container;
a rotatable shaft attached to the elevator for imparting upward movement thereto, the shaft being parallel to the longitudinal axis of the container;
a compartment located below the elevator at the closed end of the container;
a means for axially advancing the elevator within the container comprising a ratchet wheel with a plurality of teeth circumferentially surrounding the wheel;
a means for axially reciprocating the elevator, the means for axially advancing and reciprocating the elevator being received within the compartment; and
a button mounted within the compartment and adapted to be manually depressed in a direction generally transverse to the longitudinal axis of the container and capable of activating both the means for axially advancing and axially reciprocating the elevator, the means for axially reciprocating comprising a ramp attached to the button projecting inwardly and having an upper surface, the upper surface being slidably positioned below the ratchet wheel and contacting a lower surface thereof, and a spring means above the ratchet wheel for pressing the ratchet wheel downward against the ramp.

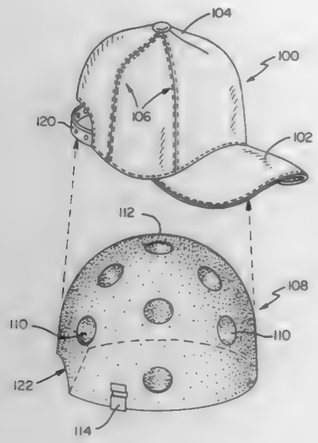
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5,725,134

SUPPORTING DEVICE AND METHOD FOR PRESERVING THE SHAPE AND INTEGRITY OF A CAP

Brian Richard Weltge, 715 E. Schantz Ave., Dayton, Ohio 45419

Continuation of Ser. No. 593,262, Jan. 29, 1996. This application Jan. 28, 1997, Ser. No. 789,820
Int. Cl.° A42C *1/00*; D06C *15/00*
U.S. Cl. 223—24 4 Claims



1. A method for preserving the shape and integrity of a cap comprising the steps of:

forming a cap supporting device as a hemispherical block of compressible, resilient material having a substantially planar lower surface and an upper domed surface shaped generally to conform to the inside of a crown section of a cap and being larger than said cap to receive said supporting device;

compressing said cap supporting device including said upper domed surface by manually gripping said cap supporting device without substantial contact with said cap prior to insertion into said cap;

inserting said cap supporting device in the compressed state into said crown section of said cap; and

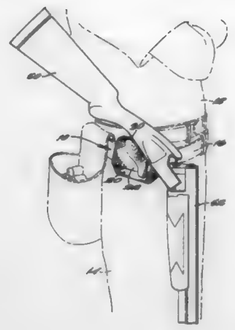
releasing said cap supporting device within said crown section of said cap so that said cap supporting device is retained within said crown section of said cap by frictional engagement between the released cap supporting device and the inside surface of said crown section of said cap without extending su' .tantially below a bottom portion of said crown section of said cap.

5,725,135

SHOTGUN HOLSTER

James A. Daniel, 7 Foxfield La., Blythewood, S.C. 29016

Filed Aug. 26, 1996, Ser. No. 703,102
Int. Cl.° F41C *33/00*
U.S. Cl. 224—249 20 Claims



1. A holster for supporting a shotgun in the broken position by a belt worn on a shooter, said holster comprising:

a first piece having a top end; and

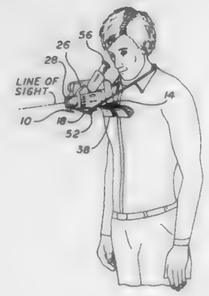
a second piece attached to said first piece to define a belt loop therebetween, said first piece and said second piece formed to define an opening between said first piece and said second piece, said opening adapted to receive a trigger guard wherein a shotgun is supported by said first piece and said second piece, said second piece having a lobe dimensioned to cover the trigger guard when the shotgun is in said holster.

5,725,136

VIDEO CAMERA HOLDER

Danny Shires, 8525 Variel Ave., Canoga Park, Calif. 91304

Filed Mar. 19, 1996, Ser. No. 627,797
Int. Cl.° G03B *17/56*
U.S. Cl. 224—257 17 Claims



1. A camera holder for retaining a camera, wherein the camera has a lens, the lens having a line of sight, the camera holder being retained against the torso of user in such a way that the line of sight of the camera lens is substantially horizontal, the camera holder comprising:

(a) a support structure adapted to firmly retain a camera having a first end and a second end and having a length;

(b) a body rest member having a body rest surface, the body rest member being attached to the first end of the support structure;

(c) first and second lateral members extending laterally in opposite directions from the second end of the support structure, each lateral member having a proximal end and a distal end; and

(d) a neck strap having opposed neck strap ends, each neck strap end being attached to the distal end of a corresponding lateral member;

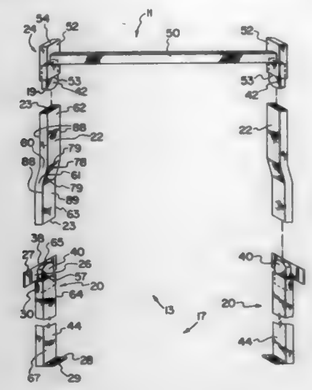
so that, when the camera is retained by the support structure, the user of the camera can safely hold the camera in a generally horizontal orientation without the use of the user's hands by running the neck strap around behind the user's neck and resting the body rest surface against the front of the user's torso.

5,725,137

CARRIER RACK AND RACK RETAINER

Brian Macdonald, 799 Delmonte Place, Victoria, B.C., Canada, V8Y 2W3

Filed Feb. 11, 1997, Ser. No. 798,625
Claims priority, application Canada, Jun. 17, 1996, 2179259
Int. Cl.° B60R *9/00*
U.S. Cl. 224—405 22 Claims



1. For supporting a generally horizontally aligned generally rigid load in or for use with a cargo space at least in part delimited by a floor and generally vertical side walls, a combination comprising:

(a) a rack comprised of at least two assemblable rack segments, each rack segment comprised of one bridge and an associated pair of struts,

each strut being a generally vertically extending bridge support column, each strut having an upper end portion extending along a longitudinal axis of the upper end portion and a lower end portion, each strut provided intermediate its end portions with a set of bends providing an offset from one end portion to the other end portion of the strut such that the end portions are generally parallel to each other but not collinear, and

each bridge comprising a transverse beam and means for mating each end of the transverse beam with the upper end portion of a discrete one of the associated pair of struts in a selected one of at least two rotated positions of the strut about the longitudinal axis of the upper end portion of the strut;

(b) a rack retainer comprised of at least two pairs of pillars, each pillar being a generally vertically extending strut support column, each pillar having an upper end portion and mounting means for mounting the associated pillar generally adjacent to one of the side walls, the pillars, when so mounted, forming at least two spaced pairs of pillars having one pillar of each pair mounted adjacent to each side wall; and

(c) means for mating the lower end portion of each strut of the pair of struts associated with a discrete one of the bridges with the upper end portion of a discrete pillar of a discrete one of the pairs of pillars when the upper end portion of that strut is mated with a discrete end of the transverse beam of the bridge in a selected one of the rotated positions of that strut about the longitudinal axis of the upper end portion of that strut and when that pair of pillars is mounted adjacent to a side wall, said means for mating comprised of a pair of mating portions consisting of the lower end portion of that strut having one of an open interior cross-section extending vertically and a tongue extending vertically downward therefrom and the upper end portion of the corresponding pillar having one of an open interior cross-section extending vertically and a discrete tongue protruding generally vertically therefrom selected to mate with the lower end portion of that strut in each of the rotated positions of that strut,

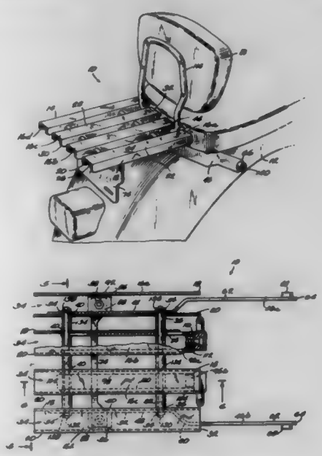
whereby, when each end of the transverse beam of a bridge is mated with the upper end portion of a discrete one of the associated pair of struts, a rack segment is completed having a spacing between the lower end portions of the associated pair of struts determined by the selected rotated positions of the associated pair of struts, whereby each rack segment may be mated with a discrete one of the pairs of pillars thereby forming a horizontal supporting beam for a portion of the load, and whereby two or more spaced ones of the rack segments form a rack for supporting the load.

5,725,138

MOTORCYCLE LUGGAGE RACK AND BACKREST ASSEMBLY

Phillip J. Zagrodnik, Hartland, Wis., assignor to Harley-Davidson Motor Company, Milwaukee, Wis.

Filed Jul. 26, 1996, Ser. No. 686,752
Int. Cl.° B62J *1/28*
U.S. Cl. 224—413 17 Claims



1. A luggage rack and backrest assembly comprising:

a luggage rack portion;

an adjustment member slidably connected to said luggage rack portion; and

a backrest detachably connected to said adjustment member.

5,725,139

BACKPACK WITH ADJUSTMENTS FOR BODY SIZE

Patrick D. Smith, Golden, Colo., assignor to Mountainsmith, Inc., Golden, Colo.

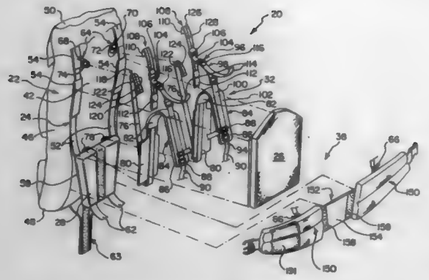
Filed Aug. 15, 1994, Ser. No. 291,587
Int. Cl.° A45F *3/08*
U.S. Cl. 224—637 10 Claims

1. A backpack for wearing on the back of a user comprising;

a pack;

a waistbelt operatively connected to the pack including two weight-bearing portions of the waistbelt which are attached to the waistbelt to define a gap between the two weight-bearing portions to create a pocket to receive the hipbone of the user to relieve pressure of the waistbelt on the hipbone, wherein the waistbelt includes a pair of longitudinally-extending, vertically spaced-apart straps, one being an upper strap and one being a lower strap, each strap having an upper and a lower side edge and further wherein the lower edge of the upper strap is attached so as to be longer than the upper edge of the

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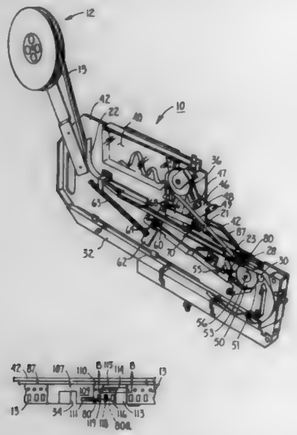
upper strap and the upper edge of the lower strap is attached so as to be longer than the lower edge of the lower strap to define the pocket between the two straps.

5,725,140

TAPE FEEDER FOR A SURFACE MOUNT PLACEMENT SYSTEM

Jerome L. Weber, Escondido, Calif., and George M. Wohlhieter, Escondido, Calif., assignors to Amistar Corporation, San Marcos, Calif.

Filed Sep. 9, 1996, Ser. No. 708,852
Int. Cl.[6] B65H *20/00;23/00;* **B65G** *65/04*
U.S. Cl. 226—139 **22 Claims**



1. A tape feeder operable in a surface mount placement system for providing parts contained in a tape with two edges, a top surface and a bottom surface, and a sequence of pockets for carrying the parts, the tape feeder comprising:

an actuating lever reciprocateable between two positions;

a cam with two surfaces on the actuating lever;

a sprocket wheel with teeth for engaging the bottom surface;

a first reciprocateable linkage with a ratchet link in driving engagement with the sprocket wheel, the first linkage interlocked with the actuating lever for rotating the sprocket wheel to advance the tape when the actuating lever is moved to a first position;

a shutter for contacting the top surface of the tape to retain a part in a pocket;

a second reciprocateable linkage interlocked with the actuating lever, the second linkage including a cam follower for being engaged by a first cam surface to move the shutter in a first direction with the tape when the actuating lever is moved to the first position, and for being engaged by the second cam surface to move the shutter in a second direction opposite to the first direction when the actuating lever is moved to the second position; and

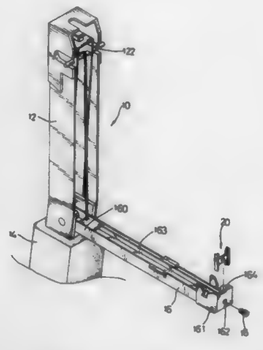
a member disposed laterally of the shutter, above an edge of the tape, for contacting a portion of the top surface to retain the portion of the top surface in a plane when the tape is engaged by the sprocket wheel.

5,725,141

STRIKE-TYPE BINDING DEVICE

William H. N. Chi, 8F-2, No. 92, Chingcheng Rd., West Dist., Taichung, Taiwan

Filed Aug. 9, 1996, Ser. No. 694,943
Int. Cl.[6] B25C *5/16*
U.S. Cl. 227—109 **3 Claims**



1. A strike-type binding device (**10**) comprising:

a striking bracket (**12**) having a first end portion and a second end portion;

a handle portion (**14**) fixedly mounted on the first end portion of said striking bracket (**12**);

a staple magazine (**16**) having a guiding channel (**163**) longitudinally defined therein for receiving staples (**30**; **32**) and including a first end portion (**160**) pivotally engaged with the first end portion of said striking bracket (**12**) and a second end portion (**161**) having a chamber (**164**) defined therein and communicating with said guiding channel (**163**); and

a staple positioning member (**20**) mounted in said chamber (**164**) and including a first side having a first receiving space (**24**) defined therein and a second side having a second receiving space (**26**) defined therein, said first and second receiving spaces (**24**, **26**) having a dimension different from each other for receiving staples (**30**; **32**) of different sizes therein.

5,725,142

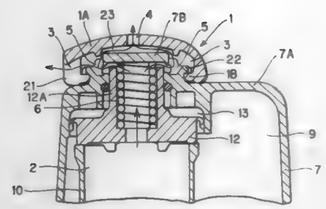
PNEUMATIC FASTENER DRIVING TOOL HAVING AIR EXHAUST ARRANGEMENT

Masao Hamada, Hitachinaka, Japan, assignor to Hitachi Koki Co., Ltd., Tokyo, Japan

Filed Aug. 27, 1996, Ser. No. 703,891
Claims priority, application Japan, Sep. 14, 1995, 7-236542
Int. Cl.[6] B25C *1/04*
U.S. Cl. 227—130 **5 Claims**

1. A pneumatic fastener driving tool comprising:

a body portion defining therein a compressed air chamber in which compressed air is accumulatable, a compressed air exhaust port being provided at an upper portion of the body portion, the body portion having a top wall having an upper surface;



a drive piston reciprocally movable in the body portion for driving or ramming a driven member in one direction, the compressed air in the compressed air chamber being applicable to the drive piston for its movement in the one direction;

and a cover member provided over the top wall of the body portion for covering the exhaust port, the cover member being formed of an elastic or resilient material and having an exhaust passage and an exhaust opening through which exhaust air through the exhaust port is discharged to an atmosphere, the cover member having a lower surface normally in surface contact with the upper surface of the top wall;

and the improvement comprising:

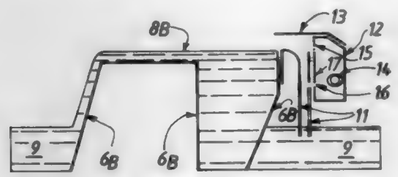
the cover member having a top wall formed with a through hole for discharging the exhaust air which may be accidentally entered into a space defined between the lower surface of the top wall of the cover member and the upper surface of the top wall of the body portion.

5,725,143

METHOD AND MACHINE FOR WAVE SOLDERING OR TINNING

Marc Leturmy, Garanciere, France, assignor to L'Air Liquide, Societe Anonyme pour l'Etude et l'Exploitation des Procedes Georges Claude, Paris, France

Filed Jun. 3, 1996, Ser. No. 659,042
Claims priority, application France, May 7, 1996, 96 05724
Int. Cl.[6] H05K *3/34;* **B23K** *1/00;3/00*
U.S. Cl. 228—37 **20 Claims**



1. Wave soldering or tinning machine comprising:

a solder reservoir;

a means that forms at least one solder wave having a laminar form and including a flat surface;

a means for bringing a piece to be soldered or tinned into contact with said laminar wave; and

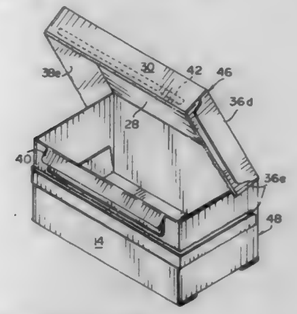
means for injection of a gas in the vicinity of the wave comprising an injector located in a position adjacent to and downstream from the wave and provided with a wall facing the solder wave, wherein said wall has at least a first group of openings positioned so as to produce a first gas jet directed toward the flat surface of the solder wave.

5,725,144

COLLAPSIBLE PAPERBOARD CARTON

James L. Stone, Grand Rapids, Mich., and Timothy P. Burda, Cincinnati, Ohio, assignors to Tenneco Packaging, Evanston, Ill.

Filed Jun. 26, 1996, Ser. No. 690,453
Int. Cl.[6] B65D *5/355*
U.S. Cl. 229—101 **9 Claims**



1. A collapsible carton, comprising:

opposing front and back panels;

opposing top and bottom panels generally bridging said opposing front and back panels and being separated by an unobstructed gap;

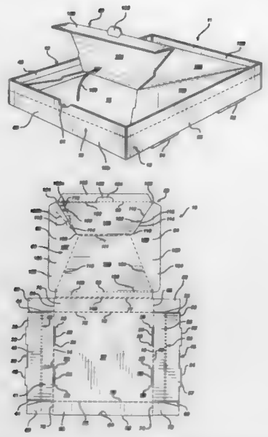
a first pair of accordion panels connecting said front panel to said bottom panel, said first pair of accordion panels overlapping and abutting each other and being directly adhered to a first adjacent portion of said carton; and

a second pair of accordion panels connecting said back panel to said bottom panel, said second pair of accordion panels overlapping and abutting each other and being directly adhered to a second adjacent portion of said carton, said unobstructed gap being reduced in response to said first pair of accordion panels being overlapped and said second pair of accordion panels being overlapped.

5,725,145

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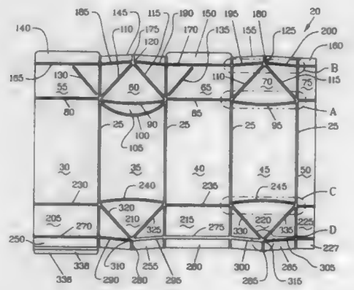
(B) a vent opening is formed along each of said slits.

5,725,147

GABLE TOP CARTON AND CARTON BLANK WITH CURVED SIDE CREASES

Tommy Bo Göran Ljungström, Buffalo Grove, and David R. Anchor, Itasca, both of Ill., assignors to Tetra Laval Holdings & Finance S.A., Pully, Switzerland

Continuation of Ser. No. 238,923, May 6, 1994, Pat. No. 5,474,232. This application Nov. 22, 1995, Ser. No. 562,317
Int. Cl.[6] B65D *5/08*
U.S. Cl. 229—137 **7 Claims**



1. A gable top carton comprising:

a) a gabled structure having an opening end and a closed end, the opening end having an access opening and a fin seal proximate the access opening;

b) a plurality of side panels engaging said gabled structure, at least one of said plurality of side panels engaging said gabled structure at said opening end;

c) a first curved score line defining a curved crease formed at the engagement between at least one of said plurality of side panels and said gabled structure, the first curved score line extending between and joining vertical score lines defining the at least one of said plurality of side panels at first and second end points; and

d) a second curved score line disposed adjacent said first curved score line and extending between and joining the vertical score lines defining the at least one of said plurality of side panels at first and second end points, the first and second end points of the second curved score line being immediately adjacent the first and second end points of the first curved score line, the first and second curved score lines defining an indent surface proximate said access opening, the indent surface being deformable by said user to increase the size of said access opening without substantial opening of the top fin seal.

5,725,146

BOX WITH RAISED STRUCTURALLY ENHANCED TOP COVER HAVING VENT OPENINGS

Michael Dominick Luberto, Edgewater, N.J., assignor to Arnold Berson, Hackensack, N.J., a part interest

Filed Oct. 25, 1996, Ser. No. 738,043
Int. Cl.[6] B65D *5/66*
U.S. Cl. 229—120 **20 Claims**

1. A box comprising:

(a) a bottom wall;

(b) a peripheral side wall attached to a periphery of said bottom wall; and

(c) a top cover including:

(i) a rear edge hingedly attached to said side wall,

(ii) a front edge,

(iii) two side edges between said front edge and said rear edge,

(iv) two slits in said top cover, each slit extending from at least one of:

(A) said front edge, and

(B) one said side edge to an inner point of said top cover,

(v) a first fold line interconnecting said inner points of said top cover to form a lift flap between said first fold line and said two slits,

(vi) two second fold lines extending from said first fold line toward said rear edge, and

(vi) said top cover being bent along said first and second fold lines such that:

(A) said first fold line defines a high position of said top cover, and

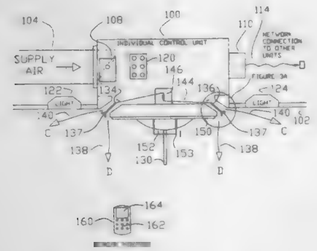
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5,725,148

INDIVIDUAL WORKSPACE ENVIRONMENTAL CONTROL

Thomas B. Hartman, 9905 39th Dr. NE., Marysville, Wash. 98270-9116

Filed Jan. 16, 1996, Ser. No. 586,337
Int. Cl.[6] F24F *7/00;7/02*
U.S. Cl. 236—49.3 **37 Claims**



1. A method of improving comfort for a user occupying a substantially closed individual workspace within a building, the building further including a primary supply of conditioned air available to the workspace, and the method comprising the steps of:

determining a cooling setpoint temperature for the workspace;

selecting a cooling threshold temperature for the workspace greater than the cooling setpoint temperature for the workspace;

monitoring the workspace so as to detect occupancy of the workspace;

monitoring a temperature of the workspace;

if occupancy of the workspace is detected and the workspace temperature exceeds the setpoint temperature, providing conditioned air from the primary supply into the workspace to cool the workspace; and

while occupancy of the workspace is detected and the workspace temperature exceeds the cooling threshold temperature, additionally and automatically providing supplemental comfort services so as to improve comfort for the user without directly affecting load on the building primary supply.

5,725,149

SUPPORT DEVICE FOR RAILWAY RAILS

Armand Goossens, Beukenlaan, 35, 1560 Hoeilaart, Belgium

Filed May 15, 1996, Ser. No. 647,766
Claims priority, application Belgium, Jul. 26, 1995, 09500652
Int. Cl.[6] E01B *1/00*
U.S. Cl. 238—382 **37 Claims**

1. A support device for railway rails designed for fixing a crosstie to a concrete slab, said crosstie having a base and side faces, said support device comprising:

a boot made of elastic material, having a bottom and a peripheral sidewall attached to the bottom and extending, at the base, substantially perpendicularly upwards from said bottom, said boot being configured to envelop the crosstie from the base thereof up to a predetermined height on the side faces of the crosstie,

said boot including a first region and a second region for contact with the crosstie, the first region being formed at a free margin of the sidewall, and the second region being vertically spaced from the first region and formed by a peripheral bead disposed around the crosstie and exhibiting a predetermined dynamic stiffness,

an inner surface of the sidewall being slanted towards the inside of the boot with respect to the side faces of the crosstie starting from a zone located at the height of the bead and ending at an upper edge thereof so as to form a space between the slanted inner surface and the side faces of the crosstie,

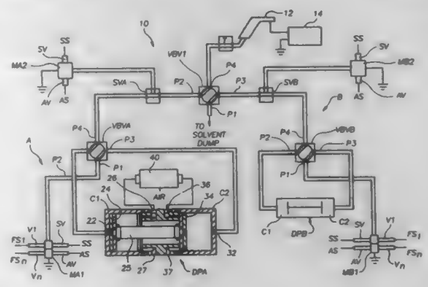
said inner surface of the sidewall exhibiting, in each corner thereof, a recess having a cross section which increases from an upper free margin of the sidewall to a predetermined vertical height on the inner surface.

5,725,150

METHOD AND SYSTEM FOR AN IMPROVED VOLTAGE BLOCK

Harold T. Allen, Indianapolis, Ind.; Edward T. Feldman, Buffalo Grove, Ill.; Varce E. Howe, Zionsville, Ind.; Ghaffar Kazkaz, Mount Prospect, Ill.; Jerry L. McPherson, Jr., Greenfield, and James Scharfenberger, Indianapolis, both of Ind., assignors to Illinois Tool Works Inc., Glenview, Ill.

Continuation-in-part of Ser. No. 429,019, May 3, 1995, Pat. No. 5,632,816. This application May 15, 1996, Ser. No. 647,857
Int. Cl.[6] B05B *5/025*
U.S. Cl. 239—3 **8 Claims**



1. A method for supplying a selected fluid to a dispenser, which is usable to supply an electrically conductive coating material at a first electrical potential to an electrostatic dispenser at a second electrical potential, the method comprising steps of:

coupling one of at least two subsystems to the dispenser with a system voltage blocking valve to supply a selected coating material from the subsystem coupled to the dispenser;

electrically isolating the subsystem coupled to the dispenser from the subsystem not coupled to the voltage blocking valve;

directing the selected coating material from a first supply manifold and into a first piston cylinder of the subsystem coupled to the dispenser with a first four-port voltage blocking valve

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of the subsystem coupled to the dispenser, and directing the selected coating material from a second piston cylinder of the subsystem coupled to the dispenser to the system valve with the first four-port voltage blocking valve of the subsystem coupled to the dispenser; and

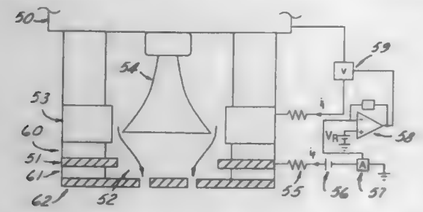
directing solvent from a second supply manifold and into a first piston cylinder of the subsystem not coupled to the dispenser with a second four-port voltage blocking valve of the subsystem not coupled to the dispenser, and directing solvent from a second piston cylinder of the subsystem not coupled to the dispenser to the system valve with the second four-port voltage blocking valve of the subsystem not coupled to the dispenser to remove fluid from the subsystem not coupled to the dispenser and a portion of the system voltage blocking valve.

5,725,151

ELECTROSPRAY FUEL INJECTION

Robert Eugene Hetrick, Dearborn Heights, Mich., and Michael Howard Parsons, Ann Arbor, Mich., assignors to Ford Global Technologies, Inc., Dearborn, Mich.

Filed Oct. 3, 1996, Ser. No. 725,040
Int. Cl.[6] B05B *5/025*
U.S. Cl. 239—3 **15 Claims**



1. A fuel injection system for an internal combustion engine comprising:

fuel injection means having a valve stem near an end of said injection means for injecting fuel into an intake air passageway of said engine;

an anode and a cathode, located adjacent said valve stem;

a first electrical power supply and a resistor, which produce a potential difference and a resulting injection current between said anode and said cathode, thus imparting electrical charge in fuel leaving said injection means and causing the entrainment of current in a fuel flow for purposes of manipulating the dispersion of fuel in said passageway; and

at least one additional electrode downstream of said anode and said cathode and electrically isolated therefrom which is used for controlling the dispersion of fuel.

5,725,152

AIR FRESHENER DISPENSER

Muneki Akyu, Nara, Japan, assignor to Okamoto Industry Co., Ltd., Nara, Japan

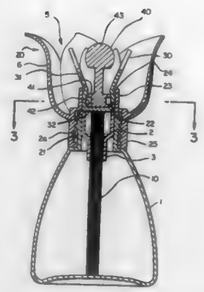
Filed Mar. 26, 1996, Ser. No. 622,123
Claims priority, application Japan, Oct. 25, 1995, 7-277815
Int. Cl.[6] A61L *9/04*
U.S. Cl. 239—45 **13 Claims**

1. An air freshener dispenser comprising:

a container having a neck with an opening for containing a fragrant liquid composition;

a wick depending downwardly into the container supported by a wick holder;

a head assembly monolithically molded including a hollow cylindrical member suitable for mating the head assembly with the neck of the container, an exterior ornamental part extending upwardly and outspreadly from the outermost of



the cylindrical member, a plurality of retaining means formed on the top of the cylindrical member to extend uprightly therefrom and disposed circumferentially at a predetermined interval to surround an opening matching with the container opening;

an emanator medium of an absorbent material removably retained in the head assembly, having a bottom part and ambient parts; and

a fixing member substantially comprising a shaft and a flat bottom, vertically inserted into an inner space defined by the retaining means of the head assembly for connecting the emanator medium to the head assembly, thereby holding the bottom part of the emanator medium in fluid contact with the top of the wick as well as causing the ambient parts of the emanator medium to stand upright.

5,725,153

OSCILLATING CAPILLARY NEBULIZER

Lanqing Wang, and Richard F. Browner, both of Atlanta, Ga., assignors to Georgia Tech Research Corporation, Atlanta, Ga.

Filed Jan. 10, 1995, Ser. No. 370,734
Int. Cl.[6] A61M *16/00;11/02*
U.S. Cl. 239—102.1 **8 Claims**

1. A nebulizer for nebulizing a liquid sample provided to said nebulizer, said nebulizer comprising:

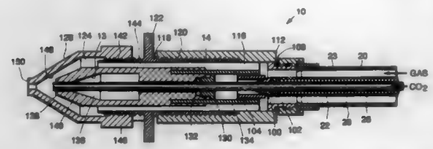
a first outer capillary tube having an inner diameter and an outer diameter, a second flexible inner capillary tube having an inner diameter and an outer diameter, said outer diameter of said second flexible capillary tube being smaller than said inner diameter of said first capillary tube, said second capillary tube being coaxially arranged within said first capillary tube such that an annular spacing exists between the outer diameter of said second flexible capillary tube and the inner diameter of said first capillary tube, means for mounting said second flexible capillary tube and said first capillary tube in the coaxial arrangement, said second flexible capillary tube having a distal end and a proximal end, said means for mounting having a gas flow opening formed therein for allowing gas to flow into the space between the outer diameter of the flexible inner capillary tube and the inner diameter of the outer capillary tube, said proximal end of said second flexible inner capillary tube being open for allowing a liquid sample to be introduced into said second flexible capillary tube, and wherein gas is introduced through the gas flow opening and the liquid sample is introduced through the opening in said proximal end of said second flexible capillary tube at flow rates sufficient to cause liquid being projected from said distal end of said second flexible capillary tube to be nebulized due to oscillation of said second flexible capillary tube, wherein the gas flow rate generates a standing wave along the axial direction of at least a portion of said second flexible inner capillary tube which causes the liquid being projected from said distal end of said second flexible inner capillary tube to break up into substantially uniform droplets.

5,725,154

DENSE FLUID SPRAY CLEANING METHOD AND APPARATUS

David P. Jackson, 6098 Ruberta, Glendale, Calif. 91201

Filed Aug. 18, 1995, Ser. No. 516,530
Int. Cl.[6] B05B *1/24;15/00;7/10;7/12*
U.S. Cl. 239—135 **21 Claims**



1. A spray gun for spraying a particulate of a dense fluid comprising:

a spray gun body having a central bore from a proximal to a distal end along a central axis, and including a gas passageway radially spaced from the central bore;

a nozzle coupled to the distal end of the spray gun body, the nozzle having converging walls and a distal end orifice;

a snow delivery tube mounted within the central bore of the spray gun body;

a grounding helix about the snow delivery tube;

means for supplying a heated ionized gas to the gas passageway; and

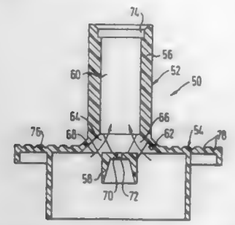
means for supplying an expanded dense fluid particulate stream through the snow delivery tube.

5,725,155

AEROSOL-FOAM DISPENSER HEAD

Bernhard Grunenberg, Langenfeld; Hans Dieter Harbort, Meddewade, and Lutz Maske, Elmenhorst, all of Germany, assignors to Henkel Kommanditgesellschaft auf Aktien, Duesseldorf, Germany

PCT No. PCT/EP94/01853, § 371 Date Feb. 2, 1996, § 102(e) Date Feb. 2, 1996, PCT Pub. No. WO94/28759, PCT Pub. Date Dec. 22, 1994
PCT Filed Jun. 7, 1994, Ser. No. 556,999
Claims priority, application Germany, Jun. 11, 1993, 9308745 U
Int. Cl.[6] B05B *7/30*
U.S. Cl. 239—343 **8 Claims**



1. A dispensing head for a foam aerosol, comprising a one piece component for attachment to a pack containing a solution of an active substance, said component including:

a flow channel formed in an elongated first cylinder housing section;

a first opening at an exit end of said flow channel for ejecting foam therefrom;

a second opening at an opposite end of said flow channel, said second opening having a cross-section significantly larger than that of said first opening;

a fine meshed sieve arranged within and transverse to the longitudinal axis of said flow channel proximate to said first opening;

an interior channel section having a top portion located in the plane of said second opening below said flow channel, said interior channel section being configured for receiving a rammer of a valve of said pack containing means for forming an insoluble driver gas, said interior channel section including a throttle third opening concentric with said second opening, said third opening having a relatively small cross-section compared to the diameter of said flow channel in the direction of flow;

a plurality of spaced apart circumferentially arranged struts rigidly connected between an interior portion of said first cylindrical housing section about said second opening and said interior channel section for retaining the latter in position, there being openings between said struts;

a second cylindrical housing section having an interior space of substantially greater diameter than said second opening, said second cylindrical housing section being formed concentric with and immediately below said first cylindrical housing section, and surrounding said interior channel section; and

an annular wall section rigidly formed around said second opening for connecting said first and second cylindrical housing sections, together;

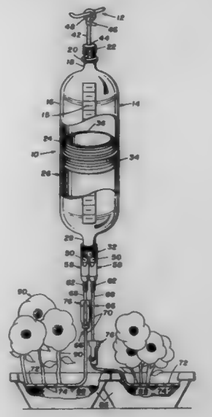
whereby insoluble driver gas flowing through said third opening entrains air from the interior of said second cylindrical housing section through the openings between said struts.

5,725,156

MOISTURE FEEDING APPARATUS FOR PLANTS

Hong Ku Park, 203 Southcrest Dr., Huntsville, Ala. 35802

Filed Sep. 18, 1995, Ser. No. 529,338
Int. Cl.[6] B05B *9/03;1/20*
U.S. Cl. 239—379 **17 Claims**



1. An apparatus adapted for suspension over at least one plant bed for dispensing a predetermined amount of liquid on a continuous and consistent basis to said plant bed, said apparatus comprising:

a first fluid reservoir means having a valveless exit passage for continuously passing said liquid therethrough, a container having an upper chamber and a lower chamber, and means for securing said upper chamber to said lower chamber comprising a hollow, generally, cylindrical ring which telescopes within said upper chamber and said lower chamber;

support means for supporting said first fluid reservoir means above said at least one plant bed;

a second fluid reservoir means disposed in communication with said exit passage of said first fluid reservoir means to receive fluid therefrom;

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fluid metering means carried in said second fluid reservoir means to receive and meter the amount of fluid entering said second fluid reservoir means from said first fluid reservoir means;

tube means communicating with said second fluid reservoir means and said at least one plant bed to direct fluid from said second fluid reservoir means to said at least one plant bed; and

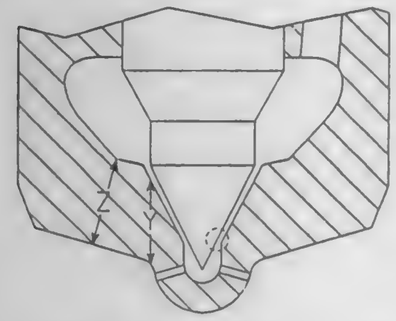
means secured to said tube means for applying a variable closure pressure to said tube means to control the amount of fluid flowing therethrough, said pressure being variable in a range from zero pressure to an amount which is sufficient to completely shut-off fluid flow.

5,725,157

INJECTOR NOZZLE VALVE

Frank DeLuca, Enfield, Conn., assignor to Buescher, Alfred J., Shaker Heights, Ohio

Filed Sep. 6, 1995, Ser. No. 523,952
Int. Cl.[6] F02M *61/20*
U.S. Cl. 239—533.9 **10 Claims**



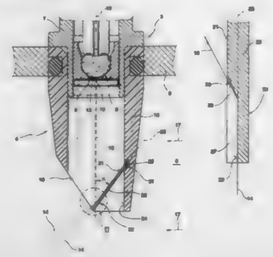
1. In a diesel injection nozzle comprising a nozzle body chamber, a sac below said body chamber, said sac having an annular entry edge at its top past which fluid flows when passing from said body chamber to said sac, an open-centered conical body seat at the bottom of the chamber and ending at said annular entry edge, a plurality of injection orifices spaced below said body seat in said sac and opening from said sac to the exterior of said injection nozzle, a valve extending through the body chamber and having a conical bottom face or seat generally complementary to said body seat and having a given included angle, said valve and valve seat being movable to a seated position in sealing relation against said body seat to cut off fluid flow to said sac, a spring urging said valve to said seated position, said valve having a differential-area portion exposed to said nozzle body chamber whereby the valve is urged upwardly from said seated position to a fully raised position, said upward urging being by hydraulic pressure in said chamber and being against the bias of said spring, said conical bottom face or seat of said valve, in the said fully raised position of said valve, extending down the majority of the axial extent of said conical body seat from the top thereof along the axial length thereof and into the vicinity of said annular entry edge of said sac, and said valve in said fully raised position providing a given minimum cross-sectional flow area for fluid passing from said injection nozzle chamber to said sac, the improvement wherein said conical bottom face or seat of said valve is annularly notched at said vicinity of said annular entry edge of said sac, said annular notching forming an annular notch extending down from an annular upper notch boundary on said conical bottom face of said valve, said upper notch boundary being of a greater diameter than said annular entry edge of said sack whereby said minimum cross-sectional flow area is greater than that associated with an otherwise identical valve that does not have such annular notching.

5,725,158

FUEL INJECTION VALVE FOR AN INTERNAL COMBUSTION ENGINE

Michael Klaski, Erdmannhausen; Georg Harter, Hemmingen, and Harald Walter, Ludwigsburg, all of Germany, assignors to Robert Bosch GmbH, Stuttgart, Germany

Filed Jan. 22, 1996, Ser. No. 589,685
Claims priority, application Germany, Jan. 31, 1995, 195 02 915.1
Int. Cl.[6] B05B *1/26;* **F02M** *61/00*
U.S. Cl. 239—533.12 **7 Claims**



1. A fuel injection valve for an internal combustion engine, the valve having a longitudinal axis and having at least one metering opening from which fuel emerges in the form of a cord-like jet, the valve comprising:

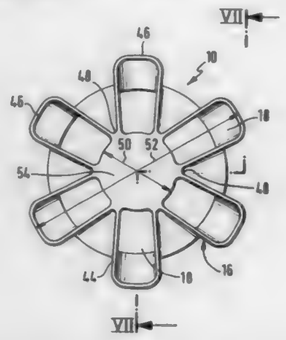
a deflecting surface disposed in an interior portion of the valve, the deflecting surface having at least one of a receiving depression and an outflow depression for deflecting and shaping the fuel jet, the deflecting surface being disposed such that the fuel strikes the deflecting surface and subsequently emerges from the valve obliquely to the valve longitudinal axis.

5,725,159

AIR DIRECTING DEVICE FOR A HAIR DRYER

Ralf Dorber, Schmitten, Germany, and Dieter Liebenthal, Maintal, Germany, assignors to Braun Aktiengesellschaft, Frankfurt, Germany

Filed Jan. 19, 1996, Ser. No. 588,824
Int. Cl.[6] B05B *1/14*
U.S. Cl. 239—553.3 **45 Claims**



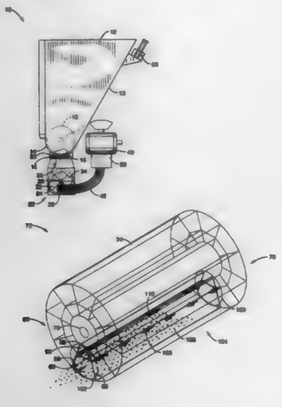
1. An air directing device for an air-moving appliance, comprising a body member having an air inlet region and an air outlet region and defining an air plenum communicating air therebetween, wherein the air outlet region comprises a plurality of air exit regions directing exiting air into a plurality of non-convergent air exit streams at the air outlet region, the air outlet region further comprising a centrally disposed air impingement structure, said central air impingement structure at least partially bounding the air exit regions, whereby a mean exit air velocity of air discharged from the air exit regions measured adjacent the air outlet region is in a ratio from about 0.8:1 to about 1.4:1 compared to a mean air velocity emanating from the air moving appliance without the air directing device.

5,725,160

CHIP BLOWER APPARATUS

Derick E. Harper, Wilton, Calif., and Gordon D. Hammond, Elk Grove, Calif., assignors to Saf-T-Source, Inc., Elk Grove, Calif.

Filed Apr. 29, 1996, Ser. No. 639,693
Int. Cl.[6] B65G *53/46*
U.S. Cl. 239—654 **19 Claims**



1. A chip blower apparatus, comprising:

(a) a hopper, said hopper having a center portion;

(b) an air lock feeder, said air lock feeder including a housing with first and second ends, said air lock feeder having an opening communicating with said hopper, said air lock feeder including an inlet port adjacent said first end, said air lock feeder including an outlet port adjacent said second end;

(c) agitating means, included in said hopper, for transporting material toward the center portion of said hopper, for preventing bridging of said material in said hopper, and for directing said material toward said opening communicating with said air lock feeder; and

(d) blower means for providing pressurized air to said air lock feeder.

5,725,161

ELECTROSTATIC COATING SYSTEM INCLUDING IMPROVED SPRAY GUN FOR CONDUCTIVE PAINTS

Ronald J. Hartle, Amherst, Ohio, assignor to Nordson Corporation, Westlake, Ohio

Filed Feb. 28, 1995, Ser. No. 395,808
Int. Cl.[6] B05B *5/00*
U.S. Cl. 239—690 **52 Claims**

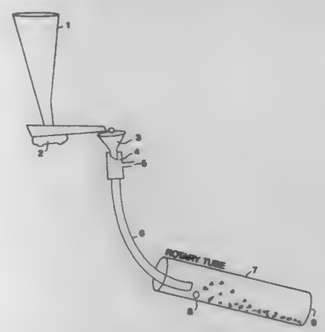
1. An apparatus for use in applying electrostatically charged coating material to an object, said apparatus comprising a spray gun having a handle portion which is electrically grounded, an extension portion connected to and extending outward from said handle portion, said extension portion being formed of a material which is electrically nonconductive, a nozzle connected with said extension portion to direct a flow of electrostatically charged coating material toward the object, a preformed fluid tube having first and second end portions interconnected by an arcuate bend portion, said tube being preformed to a desired configuration from a material which is electrically nonconductive and which maintains the configuration to which it is preformed, said tube being removably installed in said spray gun, and a coating material conduit connector connected to said first end portion of said tube to connect a coating material conduit with said tube to enable coating material to be conducted from the coating material conduit to said tube through the coating material conduit and said coating material conduit connector.

5,725,162

FIRING SOL-GEL ALUMINA PARTICLES

Ajay K. Garg; Arup K. Khaund, both of Northborough; Lawrence E. Orne, Leominster, and Mark R. Young, Boylston, all of Mass., assignors to Saint Gobain/Norton Industrial Ceramics Corporation, Worcester, Mass.

Filed Apr. 5, 1995, Ser. No. 417,169
Int. Cl.[6] B02C *19/00;19/12*
U.S. Cl. 241—1 **21 Claims**



12. A process for explosively comminuting a composition comprising a dried but unfired seeded sol-gel alumina, said composition comprising from about 20 to about 40% by weight of volatilizable material which comprises feeding the composition into a tubular rotary furnace having a hot zone maintained at a temperature of from about 600° C. to about 1500° C. in which the tube is inclined at an angle of from about 2° to about 20° to the horizontal and rotated at from about 2 to about 20 rpm.

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5,725,163

HYDRAULIC CONTROL SYSTEM FOR GYRATORY CRUSHER PROVIDED WITH SAFETY SYSTEM FOR OVERLOAD CONDITIONS

Jarmo Eloranta, Pirkkala, and Kari Rikkonen, Tampere, both of Finland, assignors to Nordberg-Lokomo OY, Tampere, Finland

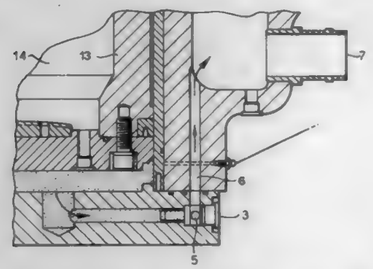
PCT No. PCT/FI95/00015, § 371 Date Jul. 9, 1996, § 102(e) Date Jul. 9, 1996, PCT Pub. No. WO95/19224, PCT Pub. Date Jul. 20, 1995

PCT Filed Jan. 16, 1995, Ser. No. 669,460

Claims priority, application Finland, Jan. 17, 1994, 940288

Int. Cl.[6] B02C *2/04*

U.S. Cl. 241—33 7 Claims



1. A hydraulic control system for a gyratory crusher in which a main shaft of the crusher is supported hydraulically by a piston movable in a cylinder and the crusher is lubricated by a lubricating circuit, the system comprising:

a tank for hydraulic fluid,

a pump unit and inlet lines which lead hydraulic fluid from the tank into the cylinder and into the lubricating circuit,

a return line which leads hydraulic fluid from the cylinder and from the lubricating circuit into the tank, and

a pressure relief valve connected to the inlet line and having associated therewith an opening pressure at which the relief valve opens, and a by-pass line connected between the relief valve and lubricating circuit, such that when the pressure in the cylinder exceeds the opening pressure of the relief valve, fluid flows from the cylinder through the relief valve to the lubricating circuit and further to the return line.

5,725,164

METHOD OF WINDING A RIBBON FREE YARN PACKAGE

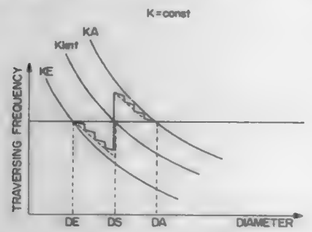
Tobias Binner, Radevormwald, Germany, assignor to Barmag AG, Ramscheid, Germany

Filed May 29, 1996, Ser. No. 657,040

Claims priority, application Germany, May 29, 1995, 195 19 573.6

Int. Cl.[6] B65H *54/38*

U.S. Cl. 242—18.1 16 Claims



1. A method of winding an advancing yarn onto a rotating package, and comprising the steps of

winding the advancing yarn onto the rotating package while the yarn is traversed at a rated traversing frequency,

determining a critical winding ratio range at which undesirable pattern formations would normally occur,

monitoring the winding ratio during the winding step, and

upon entry of the monitored winding ratio into the critical winding ratio range, decelerating the traversing frequency, then rapidly increasing the traversing frequency to a value above the rated traversing frequency, and then decelerating the traversing frequency, so that upon exiting from the critical winding ratio range, the traversing frequency assumes the value of the rated traversing frequency.

5,725,165

METHOD OF MONITORING THE MOVING YARN AT A WINDING STATION OF AN AUTOMATIC WINDING FRAME

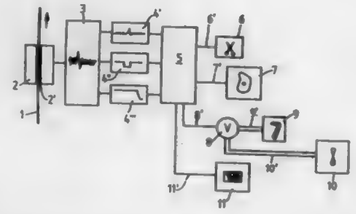
Rolf Haasen, Mönchengladbach; Heribert Kargel, Viersen, and Horst Kippe, Mönchengladbach, all of Germany, assignors to W. Schlafhorst AG & Co., Moenchengladbach, Germany

Continuation-in-part of Ser. No. 275,998, Jul. 15, 1994, abandoned. This application Dec. 11, 1996, Ser. No. 764,691

Claims priority, application Germany, Jul. 17, 1993, 43 23 994.3

Int. Cl.[6] B65H *63/00;63/02*

U.S. Cl. 242—36 6 Claims



1. A method for monitoring a traveling yarn at a winding station of an automatic winding machine having an electronic slub catcher which produces a first electric signal responsive to yarn movement and a second electric signal responsive to yarn diameter being outside a predetermined tolerance range as the yarn passes through the slub catcher, the first signal being identified as a dynamic yarn signal and the second signal being identified as a yarn cutting signal, the method comprising the steps of:

providing means associated with the electronic slub catcher for producing a third electric signal responsive to the presence of yarn in the electronic slub catcher, said third signal being identified as a static yarn signal;

producing said static yarn signal using said third electric signal producing means; and

monitoring and evaluating said static yarn signal.

5,725,166

SWING TYPE CRUSHER

Hiroshi Nakayama, Chiba, Japan, and Koichiro Ogushi, Saga, Japan, assignors to Nakayama Iron Works, Ltd., Takeo, Japan

Filed Dec. 29, 1995, Ser. No. 580,621

Claims priority, application Japan, Nov. 10, 1995, 7-317173

Int. Cl.[6] B02C *1/02*

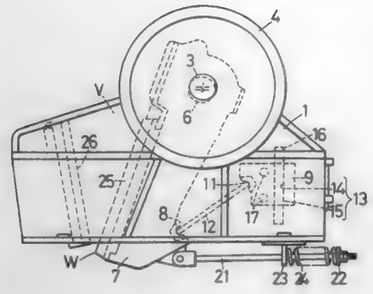
U.S. Cl. 241—259.1 8 Claims

1. A swing type crusher comprising:

a body;

a fixed tooth plate secured to said body;

a swing member adapted to swing relative to said fixed tooth plate;



a movable tooth plate secured to said swing member;

eccentric rotation support means provided on said body for eccentrically rotatably supporting an upper end portion of said swing member to move said movable tooth plate such that a point disposed at a lower portion thereof moves in a closed loop;

swing support means for swingably supporting said swing member while swinging, said swing support means being swingably engaged at one end with a first defined portion on said swing member and at the other end thereof with a second defined portion on said body and comprising a rigid plate extending between said first defined portion of said swing member and said second defined portion of said body so that a distance between said two ends is kept constant;

said fixed tooth plate and said movable tooth plate defining a crushing space which is narrow at a lower end portion thereof and wide at an upper end portion thereof, and in which a material to be broken is cast and crushed;

said second defined portion lying below said eccentric rotation support means, said first defined portion lying such that a vertical line passing through said first defined portion lies between a vertical line passing through said second defined portion and a vertical line passing through a lower end portion of said fixed tooth plate;

said second defined portion being movably secured to said body;

said second defined portion being movable in a direction in which a width of the lower end portion of said crushing space narrows, and at the same time, a stroke of a lower end portion of said movable tooth plate reduces; and

means for driving said eccentric rotation support means selectively in opposite, forward and backward directions whereby, by rotation of said eccentric rotation support means in one direction, cooperation of said movable tooth plate on said swing member with said fixed tooth plate on said body facilitates crushing of materials of high hardness and, by rotation of said eccentric rotation support means in the opposite direction, effects a different cooperation between said tooth plates that facilitate crushing of non-rigid materials.

5,725,167

PROCESS FOR WINDING FIBER STRAND ON A BOBBIN

Charles A. Garwood, Thomasville, N.C., and James E. Saunders, Lexington, N.C., assignors to PPG Industries, Inc., Pittsburgh, Pa.

Filed Dec. 19, 1995, Ser. No. 574,870

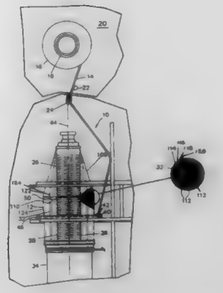
Int. Cl.[6] B65H *54/28;55/04*

U.S. Cl. 242—26.3 16 Claims

1. A process for winding a fiber strand about a bobbin to form a wound package, the process comprising the steps of:

(a) winding a fiber strand about a portion of a bobbin supported upon a rotatable collector of a winder to form a primary layer of a wound package, the primary layer having an overall length, an upper portion and a lower portion, each of the upper portion and lower portion having a length which is less than the overall length, the primary layer comprising a plurality of sublayers, each of the plurality of sublayers comprising a plurality of layers, each of the plurality of layers of the sublayers being successively wound upon a preceding layer and having a length which is less than the preceding layer, each of the plurality of layers of the sublayers having an outer layer having a length which corresponds generally to the length of the lower portion, such that the primary layer is formed; and

(b) forming a secondary layer comprising a plurality of layers upon the primary layer, each of the plurality of layers being successively wound upon a preceding layer and having a length which is less than the preceding layer, the length of each of the plurality of layers having a midpoint which corresponds to a midpoint of the overall length of the primary layer, such that a wound package is formed.



5,725,168

MAGNETIC RECORDING AND REPRODUCING APPARATUS FOR CONTROLLING THE TENSION OF A MAGNETIC TAPE

Eiji Yokoyama; Masato Nagasuwa; Kazuo Mori; Seiji Kishikawa; Masami Tomita, and Nobuzumi Kurihara, all of Nagaokakyo, Japan, assignors to Mitsubishi Denki Kabushiki Knisha, Tokyo, Japan

Continuation of Ser. No. 186,503, Jan. 26, 1994, abandoned, which is a continuation of Ser. No. 624,418, Dec. 6, 1990, abandoned. This application Nov. 7, 1996, Ser. No. 745,102

Claims priority, application Japan, Dec. 6, 1989, 1-315465; Jan. 16, 1990, 2-7591; Jun. 25, 1990, 2-170815; Jun. 28, 1990, 2-173545; Jun. 29, 1990, 2-169886; Jun. 29, 1990, 2-173571; Jul. 5, 1990, 2-180125; Jul. 12, 1990, 2-186485; Jul. 13, 1990, 2-186191

Int. Cl.[6] G11B *15/46;23/42*

U.S. Cl. 242—334.6 15 Claims

1. A magnetic reproducing apparatus which is capable of controlling tension of a magnetic tape, the apparatus comprising:

tape feeding means for feeding said magnetic tape at a predetermined speed to a rotary drum accommodating a magnetic head;

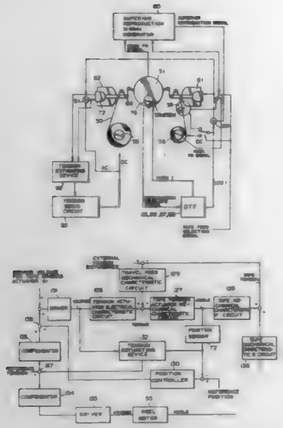
a tape tension actuator, provided on an entrance side of said rotary drum and including a movable tension roller which movably comes into contact with said magnetic tape, for changing a tension of said magnetic tape in accordance with an input drive voltage applied thereto;

tension roller position detecting means for detecting a position of said movable tension roller and outputting a detected displacement signal indicative of the detected position; and

a tension control circuit for controlling the tension of said magnetic tape on said movable tension roller, said tension control circuit including

a simulation circuit for electrically simulating an (input voltage)/(displacement) dynamic transfer characteristic of a relationship between input drive voltage of said tape tension actuator and displacement of said movable tension roller, said simulation circuit outputting an estimated displacement signal indicative of an estimated displacement of

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said movable tension roller for the input drive voltage applied to said tape tension actuator,

a feedback circuit for obtaining an estimated error signal based on a difference between the estimated displacement signal and the detected displacement signal the estimated error signal being fed back to said simulation circuit so that the difference between the estimated displacement signal and the detected displacement signal becomes zero, and

conversion means, coupled to said feedback circuit, for converting the estimated error signal into a tension estimation signal which represents an estimated tension of said magnetic tape on said movable tension roller,

said tension control circuit outputting a tension control signal to said tape tension actuator for controlling tape tension based on the tension estimation signal, the tension control signal representing an amount of change in tension of said magnetic tape on said movable tension roller caused by an external tension disturbance of said magnetic tape.

5,725,169

CASSETTE, STORAGE CASE AND LABEL TO BE APPLIED TO SUCH CASSETTE AND STORAGE CASE

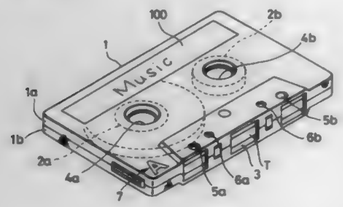
Hirokazu Odagiri, Miyagi, Japan, assignor to Sony Corporation, Tokyo, Japan

Filed Aug. 24, 1995, Ser. No. 519,001

Claims priority, application Japan, Aug. 31, 1994, 6-207724

Int. Cl.[6] G11B *23/087*

U.S. Cl. 242—344 **8 Claims**



1. A cassette comprising:

a cassette housing with a recording medium stored therein; and

means disposed on an outer surface of said cassette housing, for indicating information to the user of the cassette, said means being made of a material capable of emitting absorbed energy as light, said material being directly applied to said cassette housing.

5,725,170

FILM CARTRIDGE

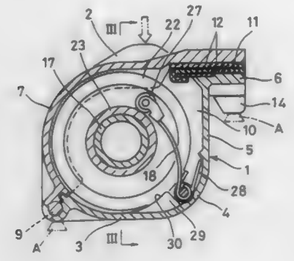
Takuji Yamaguchi, Wakayama, Japan, assignor to Noritsu Koki Co., Ltd., Wakayama, Japan

Filed May 31, 1996, Ser. No. 655,826

Claims priority, application Japan, Jun. 13, 1995, 7-145862

Int. Cl.[6] G03B *17/26*

U.S. Cl. 242—348.1 **9 Claims**



1. A film cartridge comprising:

a cartridge body including a pair of end plates, a front plate extending between said end plates, and a film inlet forming plate integral with and extending outwardly from a top end of said front plate;

a cover mounted to said cartridge body to be movable relative thereto between an open position and a closed position;

retaining means for retaining said cover in said closed position;

said cover defining, when in said closed position, a film storage space with said cartridge body and a film inlet/outlet port with said film inlet forming plate;

a spool mounted in said film storage space and having opposite ends supported on said end plates and capable of being driven from outside thereof;

a guide plate pivotally supported at a first end thereof for guiding a film inserted through said film inlet/outlet port onto an outer periphery of said spool, said guide plate having a second end resiliently pressed toward said outer periphery of said spool for pressing the film against said spool; and

guide members positioned upstream of said first end of said guide plate, relative to a direction of winding the film on said spool, said guide members having guide edges to smoothly guide a leading end of the film toward said guide plate.

5,725,171

VCR HAVING A REEL BRAKE DEVICE

Seong-Ick Ahn, Seoul, Rep. of Korea, assignor to Daewoo Electronics Co., Ltd., Seoul, Rep. of Korea

Filed Sep. 24, 1996, Ser. No. 719,030

Claims priority, application Rep. of Korea, Sep. 29, 1995, 95-26991

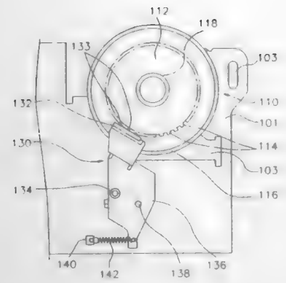
Int. Cl.[6] G11B *15/48*

U.S. Cl. 242—355.1 **7 Claims**

1. A VCR having a reel brake device comprising:

a reel table formed with a reel portion rotated by being wound with a tape at the center thereof, a gear portion for transmitting a rotating force to said reel table at the outermost periphery thereof, and a friction portion formed between said reel portion and said gear portion to provide a structure that said reel portion, said friction portion, and said gear portion are rotated together, wherein the friction portion is formed with friction projections along a circumferential plane thereof;

a brake member capable of swinging about a hinge shaft by a predetermined angle toward said friction projections, and



being formed with correspondent projections on a friction plane in contact with said friction projections; and

means for controlling the swinging angle of said brake member.

5,725,172

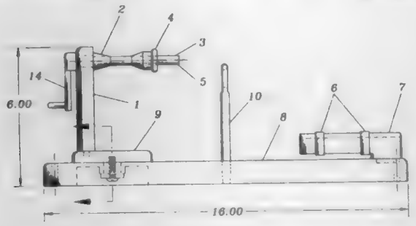
FISHING LINE WINDER FOR FLY AND SPIN REELS

Robert F. Koehler, 20332 Clark St., Woodland Hills, Calif. 91367-5506, and David F. Hanggee, 7015 Wyngate St., Tujunga, Calif. 91042

Filed Mar. 7, 1996, Ser. No. 612,182

Int. Cl.[6] A01K *89/00;* **B65H** *54/00*

U.S. Cl. 242—395 **12 Claims**



1. A device for winding and unwinding line, the device comprising:

a base plate having a top surface and an undersurface, said base plate mounting above said top surface a reel support and a spool winding means for winding and unwinding line, said reel support mounted in operative relation for transferring line to and from said spool winding means, said spool winding means being coupled to a turntable, said turntable for allowing said spool winding means to rotate upon said baseplate in degree increments for right or left handed winding and unwinding.

5,725,173

MOVABLE APPARATUS FOR INSTALLING FLEXIBLE SIGN PANELS

Vladimir Yasnogorodskiy, Oak Park; David U. Hillstrom, Novi, and W. Douglas Schellig, Bloomfield Hills, all of Mich., assignors to Marketing Displays, Inc., Farmington Hills, Mich.

Continuation-in-part of Ser. No. 251,592, May 31, 1994. This application Dec. 1, 1995, Ser. No. 565,899

Int. Cl.[6] B65H *16/06;* **A47G** *5/02*

U.S. Cl. 242—396.1 **35 Claims**

1. A trolley mechanism for use in installing a flexible sign panel member along a vertical oriented facing of a frame structure, said frame structure having a pair of elongated substantially parallel, vertically spaced apart frame members on which the trolley member is adapted to be positioned and moved along, said sign panel member being installed from a roll of sign panel material adapted to be positioned on said trolley member, said trolley member comprising:

a housing structure;

a roller mechanism on said housing structure for allowing movement of said trolley on said frame structure, said roller mechanism comprising a roller member adapted to be positioned on a first one of said pair of parallel frame members;

at least one locking member on said housing structure adapted to mate with one of said parallel frame members and selectively allow locking of said housing structure at various positions along said frame structure; and

at least one stop block member on said housing structure for mating with one of said pair of parallel frame members and preventing said trolley member from being removed from said frame structure.

5,725,174

WINDING APPARATUS FOR A YARN ADVANCING AT A CONSTANT SPEED

Georg Kothmeier, Ingolstadt, Germany, assignor to Barmag-Spinnzwirn GmbH, Chemnitz, Germany

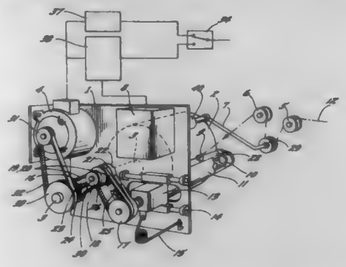
PCT No. PCT/DE95/00719, § 371 Date Apr. 26, 1996, § 102(e) Date Apr. 26, 1996, PCT Pub. No. WO95/33671, PCT Pub. Date Dec. 14, 1995

PCT Filed Jun. 2, 1995, Ser. No. 592,362

Claims priority, application Germany, Jun. 6, 1994, 44 19 774.8; Jul. 2, 1994, 44 23 315.9; Dec. 7, 1994, 44 43 515.0

Int. Cl.[6] B65H *59/38*

U.S. Cl. 242—413.5 **5 Claims**



1. An apparatus for winding an advancing yarn, and comprising

a winding spindle which is adapted to coaxially receive a winding tube,

a drive motor for rotating the winding spindle,

a yarn traversing mechanism for reciprocating the advancing yarn transversely along the winding spindle,

a compensating arm system for monitoring the slack of the advancing yarn upstream of the yarn traversing mechanism and which includes a pivotally mounted compensating arm which is pivoted upon a difference between the take up speed and the speed of the advancing yarn,

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a sensor for sensing the pivotal position and determining the speed of pivotal movement of the compensating arm, and generating a pivotal position value and a speed of pivotal movement value, which speed of pivotal movement value represents the direction of movement and the speed of the compensating arm, and

controller means which acts to superimpose the pivotal position value and the speed of pivotal movement value of the sensor and so as to produce a control value which controls the speed of the drive motor as a function of the superimposed values.

5,725,175

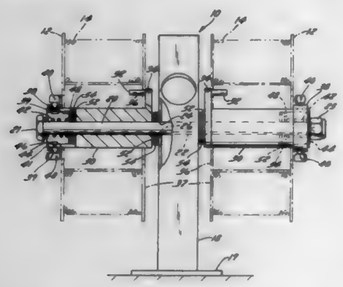
SINGLE TENSION ADJUSTMENT FOR DUAL WIRE ROLLS

Francis Thundathil, Menasha, Wis., assignor to The Miller Group, Ltd., Appleton, Wis.

Continuation of Ser. No. 262,467, Jun. 20, 1994, abandoned. This application Jan. 26, 1996, Ser. No. 592,621

Int. Cl.[6] B65H *59/02*

U.S. Cl. 242—423.2 **5 Claims**



1. A stand for supporting a pair of spools, from which wire is simultaneously withdrawn and fed into a thermal spray gun with the same tension said stand having a keyed opening on each side, a bolt having a keyway aligned in the keyed openings in the stand, a hub mounted on the bolt on each side of the stand, one of the wire spools adapted to be mounted on each of the hubs, means mounted on each of the hubs for connecting said spools to said hubs so that said spools rotate in conjunction with one another, a fiber friction washer mounted on the bolt on each end of each hub, a keyed washer mounted on the bolt in alignment with the keyway, a spring mounted on each end of the bolt in abutting engagement with each of the keyed washers and a nut provided on one end of the bolt wherein adjustment of the nut simultaneously adjusts the compressive force of the springs on each of the fiber friction washers to maintain the same tension on each of the wires being drawn into the thermal spray gun.

5,725,176

METHOD AND APPARATUS FOR CONVOLUTE WINDING

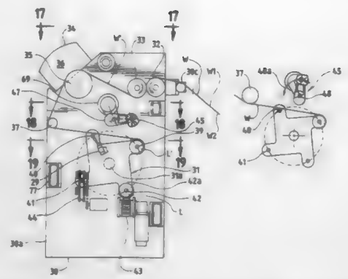
Richard J. Vigneau, Green Bay, Wis., assignor to Paper Converting Machine Co., Green Bay, Wis.

Filed Jan. 19, 1996, Ser. No. 589,049

Int. Cl.[6] B65H *35/10*

U.S. Cl. 242—521 **19 Claims**

1. In a method for winding an elongate web having first and second sides into a convolutely wound roll, the steps of providing a center wind rewinder defining an upstream to downstream path having in sequence web direction changing means and a turret indexably rotatable about a first axis and equipped with a plurality of orbiting, circumferentially spaced rotatable mandrels, said rewinder also having articulatable arm means indexably rotatable about a second axis outside the orbit of said mandrels,



advancing a web at a predetermined speed in said path from said web direction changing means onto a first mandrel on said turret and winding said web on said first mandrel,

moving a second mandrel into confronting relation with said web first side upstream of said first mandrel while continuing to wind said web on said first mandrel,

moving an articulatable part of said arm means into contact with said web second side to press said web toward said second mandrel, and

rotating each of said articulatable arm means and the articulatable part thereof through 360° so that the resultant speed of the articulatable part is at least as great as said web predetermined speed so as to sever said web and start winding said web about said second mandrel.

5,725,177

PAPER WEB WINDING SYSTEM WITH A TEAR STRIP FOR SEVERING THE PAPER WEB

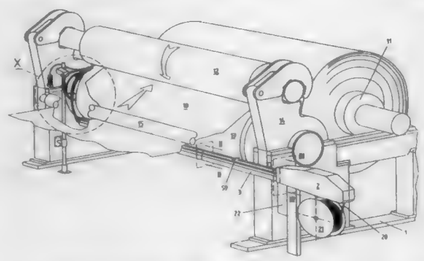
Klaus Bartelmuss, and Heinz Bartelmuss, both of A-8833, Teufenbach 63, Austria

Filed Oct. 17, 1995, Ser. No. 544,072

Claims priority, application Austria, Oct. 17, 1994, A 1960/94

Int. Cl.[6] B65H *35/08*

U.S. Cl. 242—526.2 **14 Claims**



1. A device for severing a paper web wound on a first drum, and for initiating the winding of the paper web on a second, empty drum, comprising:

a guide rail extending substantially transversely to a traveling paper web, a carriage movably guided along said guide rail, and a holding device disposed in said carriage;

a tear strip for severing the paper web, a supply of said tear strip mounted on one side of said paper web, said tear strip having an end adapted to be held by said holding device in said carriage and being movable by said carriage along said guide rail from the one side of the paper web to another side thereof; and

wherein, prior to severing the paper web, said tear strip is moved to extend along said guide rail from the one side of the paper web to the other side thereof and wherein, for severing the paper web, said tear strip is wound on the second drum starting from the other side of the paper web and to the one

side thereof, such that the paper web is severed and transferred to the second drum.

5,725,178

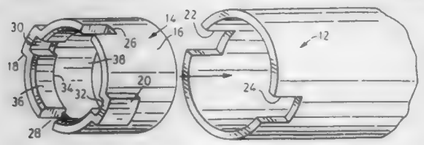
TUBULAR CORE ASSEMBLIES FOR ROLLS OF PAPER OR OTHER SHEET MATERIAL

Daniel Kewin, Brantford, Canada, assignor to 927246 Ontario Inc., Brantford, Canada

Continuation of Ser. No. 541,281, Oct. 12, 1995, Pat. No. 5,595,356. This application Jan. 3, 1997, Ser. No. 778,592

Int. Cl.[6] B65H *75/50*

U.S. Cl. 242—613.5 **8 Claims**



1. A tubular core assembly for a roll of paper or other sheet material comprising:

a hollow cylindrical core member formed of paperboard material, and an annular end member of plastic material within each opposite end portion of the core member, each end member having an outer annular surface secured to the inner annular surface of the core member and an inner annular surface shaped to receive a roll supporting chuck,

each end member having a radial thickness between said inner and outer annular surfaces thereof relative to the thickness of the core member in the range of from about 0.75:1 to about 1.5:1,

each end member having a lug at the respective end of the tubular core assembly, said core member having a lug-receiving notch at each end receiving said lug of the respective end member to facilitate transmission of torque and axial chuck pressure from the end member to the core member,

each annular end member having a notch for receiving a projection of a roll supporting chuck, said notch extending inwardly from the respective end of the tubular core assembly immediately radially inwardly of the lug, and

each end member also having a further notch for receiving a projection of a roll supporting chuck, said further notch being located diametrically opposite the first mentioned notch.

5,725,179

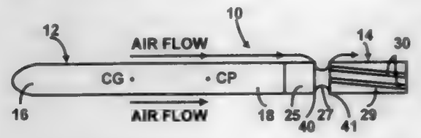
EXPANSION WAVE SPIN INDUCING GENERATOR

Stewart Gilman, Wharton, N.J.; Andrew Gowarty, Stroudsburg, Pa., and Anthony Farina, Hackettstown, N.J., assignors to The United States of America as represented by the Secretary of the Army, Washington, D.C.

Filed Nov. 4, 1996, Ser. No. 743,596

Int. Cl.[6] F42B *10/00;5/24*

U.S. Cl. 244—3.24 **11 Claims**



1. A projectile to be fired from a non-rifled tube, comprising in combination:

an elongated forebody;

a stabilizer including a peripheral contour and secured to a tail end of said forebody for enhancing the projectile flight stability and for imparting spin to the projectile;

said stabilizer including a connecting member that extends integrally into a forward section, a peripheral channel and a grooved aft section;

said connecting member securing said stabilizer to said forebody;

said forward section having a generally smooth cylindrical shape;

said peripheral channel extending along said peripheral contour of said stabilizer, adjacent to said forward section, having a generally semi-circular cross-section, and directly contacting said grooved aft section, for generating an expansion wave that directs air flow immediately over said grooved aft section, in order to increase the air flow over said grooved aft section, resulting in an increased lift force; and

said grooved aft section being cylindrically shaped relative to a longitudinal axis, and having a plurality of equally spaced, circumferentially positioned grooves which traverse the entire axial length of said aft section, and which are angled relative to the longitudinal axis.

5,725,180

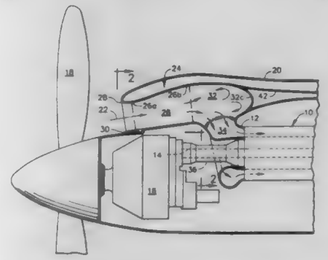
AIRCRAFT ENGINE PITOT PLENUM INTAKE

Anthony J. Chamay, Marblehead, Mass., and Isaac Zelazny, Pusanjin-Ku, Rep. of Korea, assignors to General Electric Company, Cincinnati, Ohio

Filed Dec. 29, 1995, Ser. No. 581,708

Int. Cl.[6] B64D *33/02;* **F02C** *7/05*

U.S. Cl. 244—53 B **10 Claims**



1. An intake for channeling air flowing past a propeller to an inlet of an aircraft engine driving the propeller through a gearbox and drive shaft comprising:

an axial diffuser for diffusing said air, and having an inlet for receiving said air, and an outlet at an opposite end for discharging said air;

a plenum disposed colinearly with said diffuser in flow communication therewith for collecting said air therefrom and turning said air radially inwardly along an aft wall thereof; and

a converging scroll disposed radially inwardly from said plenum in flow communication therewith for accelerating said air, and configured to coaxially join said engine inlet for channeling said air thereto.

5,725,181

AIRCRAFT ENGINE THRUST MOUNT

Kenneth E. Hey, Seattle, Wash., assignor to The Boeing Company, Seattle, Wash.

Filed May 1, 1996, Ser. No. 640,698

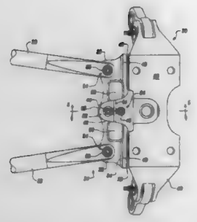
Int. Cl.[6] B64D *27/26*

U.S. Cl. 244—54 **23 Claims**

1. A thrust mount for supporting a jet engine having a flame and an engine support structure attachment fitting, the thrust mount comprising:

(a) a central clevis extending from a forward surface of the attachment fitting and defining a longitudinal direction, the

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central clevis including first and second connection locations, the first connection location being positioned forwardly of the second connection location and generally aligned in said longitudinal direction;

(b) an evener bar extending in a lateral direction generally transverse to said longitudinal direction and having first and second connection locations generally aligned in said longitudinal direction and corresponding to the first and second connection locations of the central clevis, the evener bar including an aft edge portion facing the forward surface of the attachment fitting;

(c) first and second thrust links each having a first end connected to the engine frame and a second end connected to the evener bar;

(d) first connection mechanism for connecting the first connection location of the central clevis to the first connection location of the evener bar; and

(e) second connection mechanism for connecting the second connection location of the central clevis to the second connection location of the evener bar;

(f) wherein one of the first and second connection mechanisms transfers thrust loads between the engine frame and the engine support structure attachment fitting during normal operations.

5,725,182

TURBO FAN ENGINE THRUST REVERSER

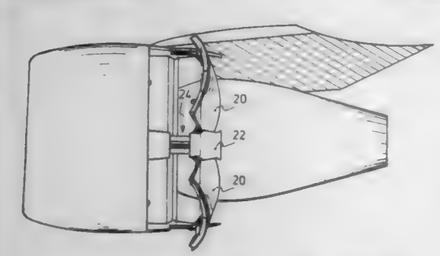
Laurent Georges Valleroy, Le Havre, France, assignor to Societe Hispano Suiza, Colombes Cedex, France

Filed Feb. 20, 1996, Ser. No. 603,448

Claims priority, application France, Feb. 21, 1995, 95 01959

Int. Cl.[6] B64C *15/02;* **F02K** *3/06*

U.S. Cl. 244—110 B **5 Claims**



1. A thrust reverser for a turbofan jet engine comprising:

a) an inner housing having a rear edge;

b) a fan cowling extending around a portion of the inner housing along a central axis so as to define therebetween a bypass duct, the fan cowling having a rear edge portion disposed forwardly of the rear edge of the housing; and,

c) at least one thrust reverser flap assembly comprising:

i) a plurality of individual guides attached to the fan cowling and extending rearwardly of the rear edge portion of the fan cowling;

ii) a plurality of carriages, each carriage slidably connected to one of the plurality of guides so as to move relative to the fan cowling in a direction generally parallel to the central axis between first and second positions;

iii) a thrust reverser flap having a rear flap edge disposed forwardly of the rear edge of the inner housing and pivotally attached to two of the plurality of carriages; and

iv) a linkrod pivotally connected to the thrust reverser flap and to the inner housing such that, when the carriages are in the first position the thrust reverser flap is in a forward thrust position whereby an outer surface of the thrust reverser flap is substantially flush with an outer surface of the fan cowling, and when the carriages are in the second position, the thrust reverser flap is in a reverse thrust position redirecting gases passing through the bypass dust in a reverse thrust direction.

5,725,183

MULTICONTACT SPACING CONTROL DEVICE

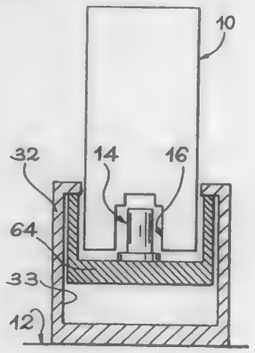
Freddy Geyer, Tanneron; Gérard Vezain, Mandelieu, and Christian Roux, Grasse, all of France, assignors to Aerospatiale Societe Nationale Industrielle, France

Filed Aug. 30, 1995, Ser. No. 520,847

Claims priority, application France, Aug. 30, 1994, 94 10424

Int. Cl.[6] B64D *1/12;* **B64G** *1/64*

U.S. Cl. 244—161 **14 Claims**



1. A device for controlling the spacing of two members normally maintained in contact with one another, said device comprising:

an ejection means, adapted to applying a spacing force between said members;

a male element connected to a first of said members and having a first pair of stepped cylindrical surfaces; and

a female element connected to a second of said members and having a second pair of stepped cylindrical surfaces;

wherein said first and second pairs of cylindrical surfaces are complementary surfaces having generatrixes parallel to said spacing force, each of the cylindrical surfaces of the first pair being fitted over an identical length into the cylindrical surfaces of the second pair when the ejection means is not actuated, whereas the cylindrical surfaces of the first and second pairs simultaneously lose contact upon actuation of the ejection means.

5,725,184

BRAKE RUDDER PEDAL SYSTEM FOR LIGHT AIRCRAFT

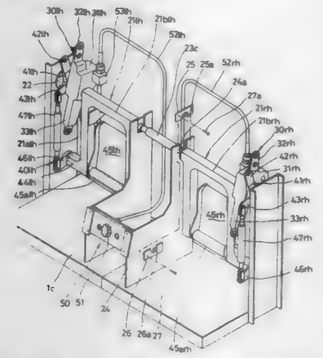
Q-Seop Kang, Daejon, Rep. of Korea; Chan-Won Jun, Daejon, Rep. of Koren, and Ki-Du Lee, Daejon, Rep. of Korea, assignors to Agency For Defense Development, Daejon, Rep. of Korea

Filed May 31, 1996, Ser. No. 656,092

Claims priority, application Rep. of Korea, Jun. 1, 1995, 14499/1995

Int. Cl.[6] B64C *13/06*

U.S. Cl. 244—235 **8 Claims**



1. A brake rudder pedal system for a light aircraft having a pedal assembly comprising rudder and steering operation means for manipulating a rudder and steering mechanism, and brake operation means for operating a brake mechanism, said pedal assembly comprising:

a pair of pedal bodies whose tops are rotatably supported between hull frames;

said rudder and steering operation means being rotatably connected to said pedal bodies thereoutside, said means having upper first arms connected to a rudder operating flexible cable and to moving-left-and-right flexible cable, and lower second arms connected to the steering mechanism by a steering rod;

said brake operating means having a brake pedal whose lower portion is rotatably supported to said pedal bodies, and a brake lever connected to said brake pedal and for operating said brake mechanism; and

pedal position controller means having a control handle rotatably disposed on a gauge board cover, a pair of transmission flexible cables rotated while connected to said control handle, a control nut supported to said pedal bodies to be movable forward and rearward, a support block supported to said connection arm to be movable forward and rearward, and a control screw rod supported to said support block while idling at its original position, said control screw rod being screw-fastened to said nut and whose top is fixedly connected to said transmission flexible cable.

5,725,185

CABLE CLAMP BRACKET ASSEMBLY

William T. Auclair, Winsted, Conn., assignor to Electric Motion Company, Inc., Winsted, Conn.

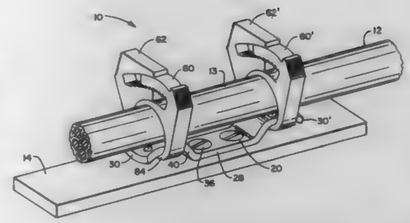
Filed Feb. 29, 1996, Ser. No. 608,670

Int. Cl.[6] F16L *3/08*

U.S. Cl. 248—74.2 **20 Claims**

1. A cable clamp assembly for mounting a cable to a fixed structure comprising:

bracket means defining a longitudinal axis and comprising a base and first and second clips comprising inverted saddle portions and extending longitudinally from opposite locations of said base; and



first and second clamps, each of said clamps being a self-locking hose-type clamp comprising an engagement surface defining an opening for receiving a said inverted saddle portion and the cable, wherein said engagement surface circumferentially clamps said cable to the inverted saddle portion.

5,725,186

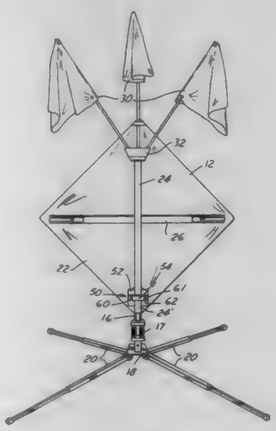
UNIVERSAL FLEXIBLE SIGN MOUNTING DEVICE

David U. Hillstrom, Novi, Mich., and James J. Mason, Northville, Mich., assignors to Marketing Displays, Inc., Farmington Hills, Mich.

Continuation of Ser. No. 382,292, Jan. 31, 1995, abandoned. This application Jan. 9, 1997, Ser. No. 780,538

Int. Cl.[6] F16M *11/00*

U.S. Cl. 248—176.1 **8 Claims**



1. A bracket mechanism for holding a sign to a sign stand, the sign having a vertically oriented cross-brace member, said bracket mechanism comprising:

a rear panel member having 9 first vertically oriented elongated edge and a second vertically oriented elongated edge;

a first side panel member attached to said first elongated edge;

a second side panel member attached to said second elongated edge;

said rear panel member and said first and second elongated edges forming a generally U-shaped channel member with an open side adapted to receive a portion of the vertically oriented cross-brace member;

a first flange member attached to said first side panel member;

a second flange member attached to said second panel member;

an arm member having two ends and being positioned across said open side of said U-shaped channel member, a first end of said arm member being pivotably attached to said first flange member, and the second end of said arm member being releasably connected to said second flange member; and

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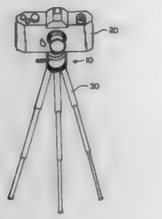
a locking member in operative association with said U-shaped channel member for tightly securing said portion of said vertically oriented cross-brace member in said bracket mechanism.

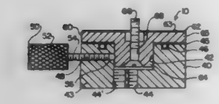
5,725,187

CAMERA MOUNT DEVICE

John Vo, Powell, Ohio, assignor to Columbus Camera Group, Inc., Columbus, Ohio

Filed Jul. 1, 1996, Ser. No. 673,143
Int. Cl.[6] F16M *11/00*; **G03B** *17/00*
U.S. Cl. 248—178.1 **7 Claims**





1. A camera mount device for rotatably mounting a camera to a tripod comprising:

a camera support member for securely fastening said camera to said support member;

a camera mount housing;

a downwardly extending flange extending from the bottom of said camera mount housing having a first planer face and a first bore and forming an upper pivot member;

wherein one of said camera mount housing and said camera support member has a recess and the other of said camera mount housing and said camera support member has a complementary projection adapted to be received in said recess to rotatably connect said camera mount housing and said camera support member;

a stop member having a shaft with a friction element at the terminal end thereof rotatably mounted in one of said camera mount housing and said camera support member and movably between a first position in which said friction element engages the other of said camera mount housing and said camera support member and a second position in which said friction element is disengaged from the other of said camera mount housing and said camera support member;

a tripod mount housing;

an upwardly extending flange extending from the top of said tripod mount housing having a second planer face and a second bore and forming a lower pivot member;

a pivot mounted in said first and second flange bores to provide a pivot axis for upper and lower pivot members;

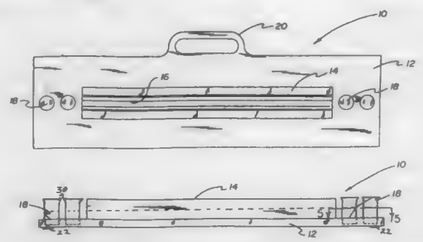
attachment means for attaching said tripod mount housing to said tripod.

5,725,188

LAWN CHAIR LEVELING BLOCK

Manuel D. Monteiro, Jr., P.O. Box 928, Hyannis, Mass. 02601-0928

Filed Dec. 14, 1995, Ser. No. 572,734
Int. Cl.[6] F16M *11/24*
U.S. Cl. 248—188.4 **9 Claims**



1. A portable leveler and stabilizer for a lawn chair having a continuous U-shaped leg frame, which leveler and stabilizer comprises:

a) an elongated support pad for leveling and supporting said lawn chair on a ground surface and having a top surface and a bottom surface;

b) an elongated U-shaped axial groove formed in the top surface of the support pad, the groove having a depth and width designed and sufficient to receive and cradle directly therein the U-shaped leg frame of the lawn chair; and

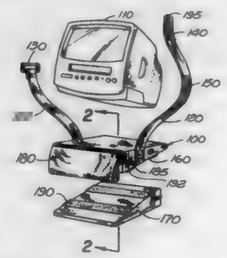
c) the support pad characterized by at least one blind circular hole at each end of said groove, and having a depth substantially the same as the depth of said groove, the blind holes axially aligned with the axis of said groove, and each blind hole designed to receive and support therein, where required, at least one end of a vertical leg of said lawn chair to accommodate lawn chairs of variable width in the vertical legs.

5,725,189

MEDIA MOUNTING DEVICE FOR MOTOR VEHICLES

Richard Landy, Cnstaic, Calif., assignor to QS Holding Company, Irving, Tex.

Filed Jun. 5, 1996, Ser. No. 658,576
Int. Cl.° A44B *1/18*
U.S. Cl. 248—205.2 **20 Claims**



1. An apparatus comprising:

a first wedge-shaped stand portion;

a second wedge-shaped stand portion; and

detachable coupling means to couple the first stand portion and the second stand portion,

wherein the pair of stand portions define a first device retention angle relative to the horizontal when the tapered end of said first stand portion is adjacent to said tapered end of said second stand portion, and

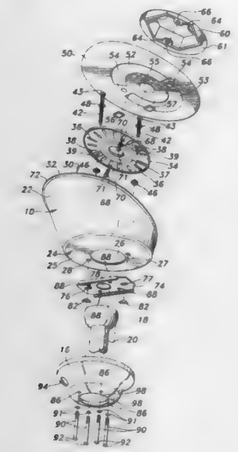
wherein the pair of stand portions define a second device retention angle relative to the horizontal when the tapered end of the first stand portion is diagonally opposite said tapered end of said second stand portion.

5,725,190

SLOPED CEILING ADAPTOR

Jim Cuthbertson, Valinda, Calif.; Ray Chin, Philips Ranch, Calif., and Craig Chandler, Huntington Beach, Calif., assignors to Hunter Fan Company, Memphis, Tenn.

Filed Dec. 15, 1994, Ser. No. 356,142
Int. Cl.[6] B42F *13/00*
U.S. Cl. 248—343 **15 Claims**



1. An adaptor mounting plate for mounting a slope angle extension cover to a ceiling having a slope greater than 32 degrees, said extension cover having a top end to be positioned parallel to said mounting plate and a bottom end at an angle to said top end, said mounting plate comprising:

a body,

a portion of said body including a set of radial slots adapted to receive screw means for attaching said body to a junction box mounted in a recess in said ceiling so that a rotational position of said body can be easily adjusted for alignment of a pair of said slots with screw receiving holes provided on said junction box; and

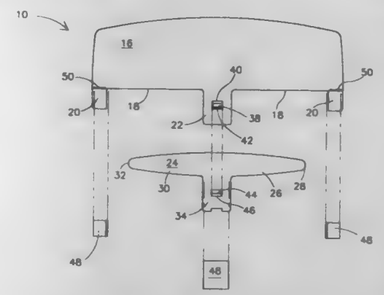
a pair of deformations of said body each having a side wall portion and a bottom wall portion extending at oblique angles to the portion of said body which includes said radial slots for alignment of said bottom wall portions of said deformations parallel to said bottom end of said extension cover when said cover is mounted on said body, holes being provided through said bottom wall portions of said deformations for receiving screw means for attaching said extension cover to said body in such a manner that the mounting angle of the ceiling is reduced and the top end of the extension cover extends substantially parallel to said portion of said body including said radial slots and the bottom end of the extension cover extends substantially parallel to said bottom wall portions of said deformations.

5,725,191

NOTEBOOK COMPUTER COPY CLIP

Bradley M. Nemeth, Oak Ridge, Tenn., assignor to Brauner-Nemeth, Inc., Palo Alto, Calif.

Filed Dec. 27, 1996, Ser. No. 773,576
Int. Cl.[6] B41J *11/02*
U.S. Cl. 248—442.2 **11 Claims**



1. A notebook computer copy clip for holding at least one document relative to a notebook computer screen, said notebook computer copy clip being releasably mountable on either side or the top of the notebook computer screen, said notebook computer copy clip comprising:

a spring member defining a substantially planar configuration and being fabricated from a flexible, resilient material, said spring member defining a first side having a substantially linear configuration, a pair of outer tabs, one each being disposed at each end of said first side, and a central tab disposed at a central portion of said first side, said spring member being flexible such as to be mounted on the notebook computer screen, said pair of outer tabs engaging a front surface of the notebook computer screen and said central tab engaging a rear surface of the notebook computer screen when said spring member is mounted on the notebook computer screen;

a facia member defining a substantially planar configuration and being fabricated from said flexible, resilient material, said facia member defining an upwardly extending wing and a downwardly extending wing and a central tab extending therefrom and corresponding to said spring member central tab, an end of each of said upwardly and downwardly extending wings engaging said spring member and said facia member central tab being biased away from said spring member when said spring member is mounted on the notebook computer screen; and

an engagement device for securing said facia member to said spring member proximate said spring member central tab and said facia member central tab.

5,725,192

ADJUSTABLE ARTIST'S EASEL

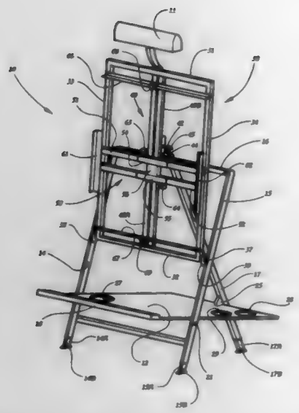
Robert E. Cloninger, 745 Ashebrook Park Rd., Dallas, N.C. 28034

Filed Aug. 22, 1996, Ser. No. 701,241
Int. Cl.[6] A47B *97/04*
U.S. Cl. 248—458 **15 Claims**

1. An adjustable easel for supporting an artist's canvas, comprising:

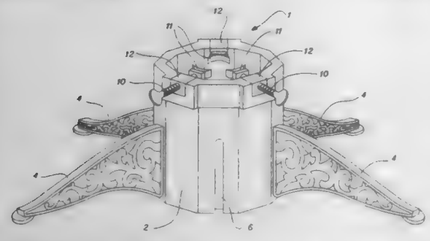
(a) a base including a pair of spaced-apart front legs, a horizontal cross bar connecting the front legs together, and a rear leg attached to the cross bar; and a base frame including spaced-apart top and bottom segments and spaced-apart side segments attached to the top and bottom segments, said bottom segment including opposing end pins engaging the front legs to support said base frame in an adjustable upright position;

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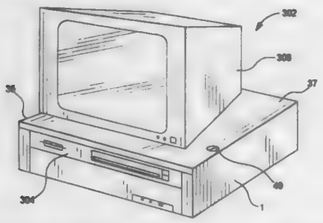
(b) a rotatably adjustable canvas frame attached to the base frame for engaging the canvas and holding the canvas in a stable condition for painting;
(c) mounting means for interconnecting the base frame and the canvas frame together, and defining an axis of rotation about which the canvas frame rotates relative to the base frame; and
(d) lock means cooperating with the mounting means for releasibly locking said canvas frame in one of a plurality of predefined positions relative to the base frame.

5,725,193
CHRISTMAS TREE STAND
William E. Adams, Portersville, Pa., assignor to Adams Mfg. Corp., Portersville, Pa.
Filed Jan. 16, 1996, Ser. No. 585,092
Int. Cl.[6] A47G *33/12*; A01G *9/12*
U.S. Cl. 248—523 **23 Claims**



1. A tree stand comprising:
a. a generally cylindrical container having an open top, closed bottom and a wall extending therebetween which together define a central cavity having a cavity diameter and sized to receive a tree trunk, the container also having a plurality of container connectors on an exterior surface thereof, the connectors being sized and configured to releasably receive one end of a leg;
b. a plurality of tree trunk holders attached to the container near the open top;
c. a plurality of legs, one for each container connector, the plurality of legs sized and configured so that all of the legs can be placed in the container for storage and shipping, each leg having a first end releasably attached to a container connector, the first end having a height which is not greater than the diameter of the container cavity and a length half of which is less than the depth of the cavity; and
d. an inner cup placed within the cavity of the container and having a diameter sized to receive the tree trunk.

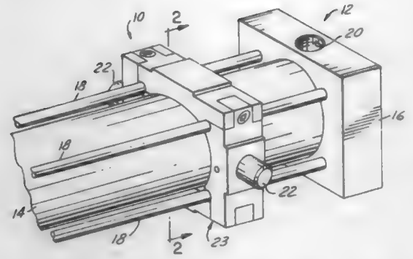
5,725,194
COMPUTER COMPONENT SECURITY DEVICE WITH TOP PLATE
Kenneth P. Glynn, Raritan Township, Hunterdon County, N.J., assignor to Ideal Ideas, Inc., Flemington, N.J.
Continuation-in-part of Ser. No. 380,033, Jan. 30, 1995, and Ser. No. 592,057, Jan. 26, 1996. This application May 16, 1996, Ser. No. 649,012
Int. Cl.[6] F16M *13/00*
U.S. Cl. 248—551 **18 Claims**



1. A computer component securing device, which comprises:
(a) a main housing having a storage portion and a pair of table securing portions, said storage portion having a bottom, sidewalls, and a partially open front, said table securing portions each having a bottom, an outer sidewall and a back and having at least one cut-out in said bottoms for passing a table securing device at least partially therethrough;
(b) a positioning means for positioning a first computer component and a second computer component so as to have a first, open position wherein the first computer component may be inserted and removed from said storage portion and the second computer component may be stacked on top of the first computer component and so as to have a second, closed position such that an inserted first computer component and a stacked second computer component cannot be removed therefrom, but so as to expose the functional aspects of the first computer component and the second computer component for utilization by a user when said positioning means is in its second, closed position, said positioning means being connected to said main housing;
(c) locking means connected to said positioning means and said main housing and being adapted so as to permit locking and unlocking of said positioning means and said main housing when said positioning means is in its second, closed position; and,
(d) clamp-type table securing means extending through said at least one opening in said main housing and connected to said main housing inside said main housing, and having an attachment mechanism outside of said main housing which is securably connectable to a table, wherein said table securing means may be attached to a table from operating it from the inside of said main housing by rotation of a screw-mechanism located entirely within said main housing and, when said positioning means is in its second, closed position and is locked, said table securing means screw-mechanism is unaccessible and said table securing means cannot be unattached from said table without damaging said device or a table to which it is attached.

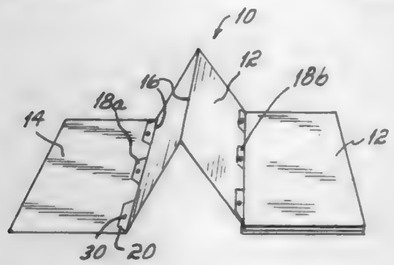
5,725,195
CYLINDER TRUNNION MOUNT
Jonathan P. Cotter, 7642 Bingham, Dearborn, Mich. 48126
Continuation of Ser. No. 373,382, Jan. 17, 1995, abandoned. This application Jan. 7, 1997, Ser. No. 779,062
Int. Cl.[6] F16M *1/00*
U.S. Cl. 248—659 **16 Claims**

1. A trunnion mount for a fluid-actuated cylinder assembly having a casing tube and a plurality of tie rods, said trunnion mount comprising:



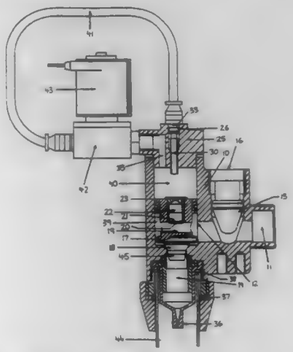
at least three members, each member having a body with opposed ends and a gripper adjacent each end, a first connector portion at one end of each body, all of said first connector portions being substantially identical, a second connector portion at the other end of each body, all of said second connector portions being substantially identical, each said first connector portions being constructed to inter-engage with an adjacent second connector portion of an adjacent member, said members being constructed and arranged so that in an end-to-end assembly said first connector portion at one end of each and every of said members is removably connected to and inter-engaged with said second connector portion at the other end of an adjacent member to form a framework with an open center encircling the casing tube of the cylinder, and so that adjacent grippers of adjacent members releasably engage and grip an associated tie rod disposed between them for releasably clamping the framework to the tie rods of the cylinder assembly.

5,725,196
VARIABLE BOOK
Joachim Scheel, Am Bach 14, 27801 Doetlingen-Hockensberg, Germany
Filed Aug. 23, 1995, Ser. No. 518,497
Claims priority, application Germany, Aug. 26, 1994, 9413757 U
Int. Cl.[6] B42F *3/00;5/00*
U.S. Cl. 281—21.1 **16 Claims**



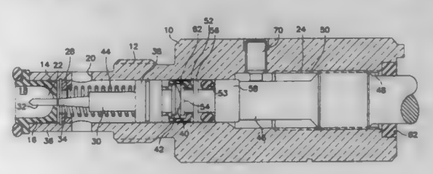
1. A book which can be varied with respect to a range of information comprising concertina-folded sheets detachably connected to one another with one sheet being folded to comprise at least two sheets of the book, wherein the concertina-folded sheets comprise:
first sheet and last sheets, each sheet having one edge detachably connected with an edge of an adjacent sheet; and
other sheets between the first and last sheet having first and opposite edges, each of the other sheets having a first edge detachably connected to an opposite edge of a first adjacent sheet and each of the other sheets having an opposite edge detachably connected with a first edge of a second adjacent sheet.

5,725,197
MAINS PRESSURE FLUSHER VALVE
Stephen A. Hill, Donnybrook, Australia, assignor to Dianna Adele Hill, Caufield, and Karen Louise Hill, Brighton, both of Australia
Continuation of Ser. No. 284,541, Aug. 8, 1994. This application Oct. 9, 1996, Ser. No. 731,121
Claims priority, application Australia, Feb. 7, 1992, PL0752; Sep. 16, 1992, PL4759
Int. Cl.[6] F16K *31/12*
U.S. Cl. 251—44 **20 Claims**



1. A mains pressure valve which comprises:
(a) a main chamber having an inlet for fluid, an outlet for fluid and an upper portion;
(b) a discharge chamber downstream of and communicating with the outlet of the main chamber;
(c) a piston located in the main chamber which is movable into and out of sealing engagement with the outlet of the main chamber and having an internal passageway which communicates between the upper portion of the main chamber and the inlet;
(d) a non-return valve located in the discharge chamber, the non-return valve adapted to restrict fluid having been discharged from the outlet of the main chamber and through the non-return valve from flowing through the outlet and into the main chamber;
(e) a port in the upper portion of the main chamber above the piston which permits fluid to flow therethrough; and
(f) a control valve associated with the port to regulate the flow of fluid through the port.

5,725,198
NON-ROTATING NEEDLE VALVE
Steven A. Jandl, Lodi, Wis., and Duncan P. L. Bathe, Madison, Wis., assignors to Ohmeda Inc., Liberty Corner, N.J.
Filed Feb. 20, 1996, Ser. No. 602,537
Int. Cl.[6] F16K *31/50*
U.S. Cl. 251—122 **2 Claims**



1. A needle valve for control of the flow of gas, said needle valve comprising a valve housing, said valve housing having an inlet and an outlet and defining a flow path for the flow of gas between said inlet and said outlet, a valve seat in said flow path

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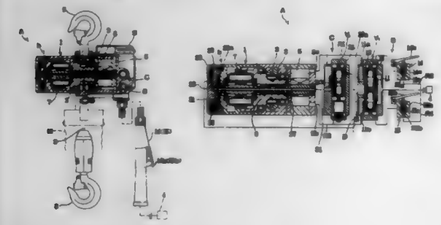
including an opening, a needle having a distal end and a proximal end, said distal end having a constant diameter for a predetermined length and a tapered portion located immediately inwardly of said constant diameter portion and having a taper that increases in diameter toward said proximal end, said distal end positioned within said valve seat opening and movable toward and away from said valve seat opening to decrease and increase, respectively, the flow of gas through said seat passing from said inlet to said outlet through said valve seat opening when said tapered portion of said needle is movable within said valve seat opening and to maintain the flow of gas constant through said valve seat opening irregardless of the position of said constant diameter portion of said needle within said valve seat opening, biasing means adapted to bias said needle away from said valve seat, an adjusting means threadedly engaged within said valve housing, said adjusting means being rotatable with respect to said housing to move said adjusting means laterally within said valve housing toward and away from said valve seat, said adjusting means having a distal end contacting the proximal end of said needle to move said needle toward and away from said valve seat for varying and maintaining the constant flow of gas through said valve seat opening.

5,725,199

AIR HOIST INCLUDING BRAKE FEATURE

Katsuji Yamamoto, Miyaki-gun, Japan, assignor to Toku Pneumatic Tool Mfg. Co., Ltd., Saga, Japan

Filed May 2, 1996, Ser. No. 642,004
Claims priority, application Japan, Jul. 12, 1995, 7-176321
Int. Cl.[6] B66D *1/10*
U.S. Cl. 254—360 **4 Claims**



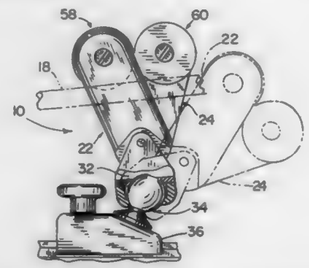
1. A winding machine comprising:
a winding portion having a chain wound therein for hanging goods;
an air supply source;
an air motor for rotating said winding portion by air to be supplied from said air supply source;
an air amount adjustment mechanism for controlling a speed of rotation of said air motor interposed between said air motor and said air supply source; and
a rotation suspending mechanism for suspending rotation of said air motor;
wherein said air amount adjustment mechanism comprises an air supply valve and an operation unit;
wherein said air supply valve comprises a variable aperture; an air flow passage connecting said air supply source to said air motor through said variable aperture; and a spool disposed so as to slide within said air supply valve; in which an opening of said variable aperture is variable in accordance with an amount in which said spool slides;
wherein said operation unit is disposed to slide said spool by supplying air to said air supply valve from said air supply source through a variable valve disposed therein so as to be variable in an opening area thereof; and
wherein said rotation suspending mechanism comprises a brake portion and a braking valve; in which said brake portion is provided with a brake piston biased so as to press a braking plate mounted on an end portion of a rotary shaft of said air motor and to release pressing of the braking plate by means of pressure of air and in which said braking valve has a brake spool disposed therein and an air flow passage connecting said air supply source to said brake portion through a variable aperture and having said air flow passage disposed therein so as to be variable in the opening area thereof through which air passes in an amount varying in accordance with an amount in which said brake spool slides.

5,725,200

SNATCH BLOCK ASSEMBLY

William F. Gordon, 18775 W. State Line Rd., Antioch, Ill. 60002

Filed Feb. 28, 1997, Ser. No. 808,401
Int. Cl.[6] B66D *1/00*
U.S. Cl. 254—398 **24 Claims**



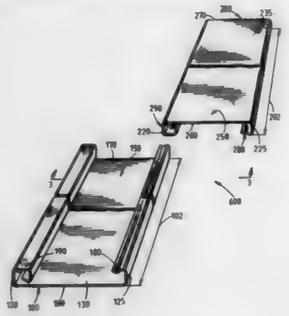
1. A snatch block assembly for engaging a line between its ends, comprising:
a base engageable with a support;
first and second spaceable arms extending from and movably mounted to the base, each arm defining an inner end mounted to the base and an outer end spaced from the inner end; and
line-engaging structure provided on the outer end of each arm;
wherein the line is capable of being engaged with one of the line-engaging structures by inserting the line between the arms and engaging the arms, moving the line toward the base, and moving the line into engagement with the line-engaging structures.

5,725,201

ADJUSTABLE WIDTH PANEL ASSEMBLY

Leopold Parth, Ft. Thomas, Ky., assignor to North American Pipe Corporation, Houston, Tex.

Filed Dec. 11, 1995, Ser. No. 552,187
Int. Cl.[6] E04H *17/16*
U.S. Cl. 256—24 **1 Claim**



1. An adjustable-width panel assembly having a width, the panel assembly comprising:

(a) at least one first panel member, having a desired length, a connecting portion, first and second side portions, top and bottom edges, and inner and outer surfaces;
(b) at least one second panel member, having a desired length, a connecting portion, first and second side portions, top and bottom edges, and inner and outer surfaces; and
(c) laterally adjustable connection means for connecting the connecting portion of the first panel member to the connecting portion of the second panel member, the laterally adjustable connection means including:
(1) a first matable means proximate the connecting portion of the first panel member, the first matable means including a generally hook-shaped member disposed at least partially along the length of the first panel member, the generally hook-shaped member including: (a) a body portion with a length, the body portion extending from the inner surface of the first panel member generally transverse to the first panel member; (b) an arm portion extending generally angularly from the body portion generally in the direction away from the first side portion of the first panel member and generally in the direction of the inner surface of the first panel member; and (c) a channel disposed between the body portion and the arm portions of the hook-shaped member; and
(2) a second matable means proximate the connecting portion of the second panel member, the second matable means including a generally box-shaped member disposed at least partially along the length of the second panel member, the generally box-shaped member having: (a) a first body portion extending from the inner surface of the second panel member generally transverse to the second panel member; (b) a second body portion disposed proximate the first body portion of the box-shaped member and extending generally in the direction away from the second side portion of the first panel member; (c) a leg portion disposed proximate the second body portion of the box-shaped member, extending generally in the direction of the inner surface of the second panel member, being adapted to be insertable into the channel of the hook-shaped member of the first panel member, and having a length less than the length of the body portion of the hook-shaped member of the first matable means; and (d) an arm portion disposed proximate the leg portion, extending generally angularly in the general direction of the first body portion of the box-shaped member, and being adapted to be insertable into the channel of the hook-shaped member of the first panel member, whereby at least a portion of the box-shaped member of the second matable means is loosely engageable with at least a portion of the hook-shaped member of the first matable means to loosely interconnect the first and second panel members such that each of the inter-connected panel members is laterally moveable relative one another.

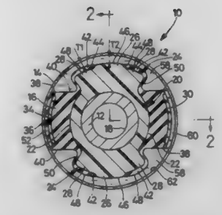
5,725,202

FLUID-FILLED ELASTIC BUSHING HAVING DISPLACEMENT RESTRICTOR WITH ELASTIC BUFFER AND STIFF ABUTTING PART

Yorikazu Nakamura; Masahiro Shimizu, both of Kasugai; Setsuo Nishi, Toyota, and Atsuhiko Murayama, Aichi-ken, all of Japan, assignors to Tokai Rubber Industries, Ltd., and Toyota Jidosha K.K., both of Japan

Filed Jan. 16, 1996, Ser. No. 586,005
Claims priority, application Japan, Jan. 17, 1995, 7-005054
Int. Cl.[6] F16F *13/00*
U.S. Cl. 267—140.12 **14 Claims**

1. A fluid-filled elastic bushing comprising:
a center shaft member;
an outer cylindrical member disposed radially outwardly of said center shaft member with a suitable radial spacing therebetween;
an elastic body interposed between and elastically connecting said center shaft member and said outer cylindrical member,



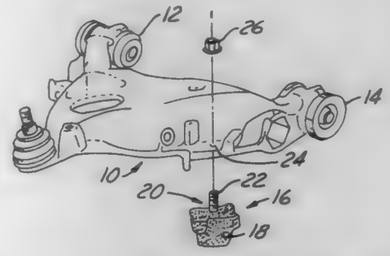
said elastic body and said outer cylindrical member at least partially defining at least one fluid chamber filled with a non-compressible fluid; and
displacement restricting means, provided in at least one of said at least one fluid chamber, for restricting an amount of relative displacement of said center shaft member and said outer cylindrical member in a radial direction thereof, said displacement restricting means comprising a stop portion which protrudes from one of said center shaft member and said outer cylindrical member toward the other member,
said stop portion including an abutting part having an end face which is opposed to said other member, at least one side supporting part and at least one shoulder surface provided between said abutting part and said at least one side supporting part, said at least one side supporting part being opposed to said other member with a distance therebetween as viewed in a load-receiving direction, which distance is larger than a distance between said end face of said abutting part and said other member as viewed in said load-receiving direction, and said displacement restricting means further comprising at least one buffer layer which is disposed in close contact with said at least one shoulder surface and which is made of an elastic material whose stiffness is lower than that of a material of said abutting part, said at least one buffer layer and said abutting part being opposed to said other member in said load-receiving direction such that said at least one buffer layer is brought into abutting contact with said other member prior to abutment of said abutting part against said other member.

5,725,203

LOW COST JOUNCE BUMPER

David Bowman Lloyd, Canton, Mich., assignor to Ford Global Technologies, Inc., Dearborn, Mich.

Filed Jan. 16, 1996, Ser. No. 586,355
Int. Cl.[6] F16F *1/36*; B60G *11/22*
U.S. Cl. 267—153 **11 Claims**



1. A jounce bumper apparatus for use in an suspension system of a motor vehicle, said jounce bumper apparatus consisting of:
a threaded fastener having a head, a threaded portion extending therefrom and a shoulder disposed between said threaded portion and said head and having a width smaller than a width of said head of said threaded fastener yet greater than a width of said threaded portion;
said head having an upper bonding surface and a lower bonding surface; and

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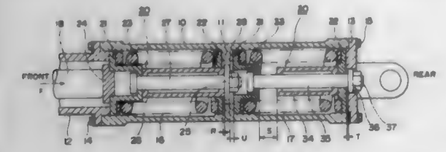
an elastomeric body bonded directly to said head and including a base portion extending upward from said upper bonding surface and a seal member bonded to said lower bonding surface.

5,725,204

IDLER SHOCK-ABSORBING DEVICE FOR CRAWLER BELT

Tsuyoshi Yoshida, Katano, Japan, assignor to Kabushiki Kaisha Komatsu Seisakusho, Tokyo, Japan

Filed Mar. 13, 1996, Ser. No. 615,023
Int. Cl.[6] B60G *11/14;* **B62D** *65/14*
U.S. Cl. 267—289 **20 Claims**



16. A shock-absorbing device which is suitable for connection to an idler guiding a crawler belt, said shock-absorbing device comprising:

a first spring and a second spring which are suitable for absorbing an external force applied to the idler;

a spring box having a front end and a rear end and a bore having a bore wall extending from said front end to said rear end, said spring box containing said first spring and said second spring, said spring box having a partition wall protruding radially inwardly from and integral with said bore wall at the center of a longitudinal direction of the spring box to thereby form a first spring chamber between said front end and said partition wall and a second spring chamber between said partition wall and said rear end;

a flange bolted to the front end of the spring box;

a bracket bolted to the rear end of the spring box;

said first spring and a first spring pushing member being positioned in said first spring chamber; and

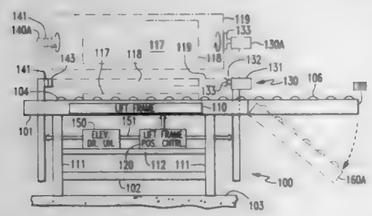
said second spring and a second spring pushing member being positioned in the second spring chamber.

5,725,205

DOOR ASSEMBLY APPARATUS HAVING LIFT FRAME AND TRANSLATABLE AND ROTATABLE COMPONENT CAPTURE UNITS

Carl O'Berg, Melbourne, Fla., assignor to Braid Sales and Marketing, Inc., Melbourne, Fla.

Filed May 14, 1996, Ser. No. 611,643
Int. Cl.[6] B25B *1/20*
U.S. Cl. 269—37 **16 Claims**



1. A multiple workpiece assembly comprising:

a table having a top frame;

a lift frame supported by said table adjacent to said top frame and being configured to support a first workpiece thereon, said lift frame being controllably adjustable relative to said top frame; and

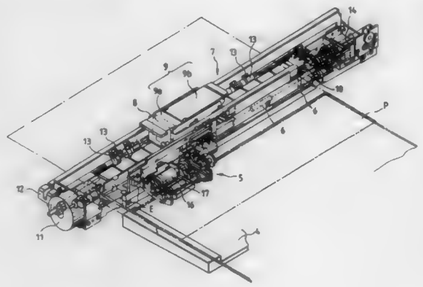
a workpiece grasping and manipulation unit mounted with said table and being operative to grasp a second workpiece that has been placed upon said top frame and to provide for manipulation of the orientation of said second workpiece relative to said first workpiece supported by said lift frame, so as to enable said first and second workpieces to be joined together into an assembled workpiece, while being supported by said lift frame and said second workpiece capture unit.

5,725,206

SHEET FEEDING APPARATUS

Noriyuki Sugiyama, Kawasaki, Japan, assignor to Canon Kabushiki Kaisha

Filed Apr. 11, 1995, Ser. No. 420,214
Claims priority, application Japan, Apr. 13, 1994, 6-074813; Mar. 30, 1995, 7-073337
Int. Cl.[6] B65H *11/00*
U.S. Cl. 271—9.09 **10 Claims**



1. A sheet feeding operable in one of a manual mode and an automatic mode, comprising:

common sheet supporting means for supporting a sheet inserted in the manual mode and sheets stacked in the automatic sheet supply mode thereon;

sheet feeding means for feeding out a sheet from the sheets supported on said sheet supporting means;

sheet conveying means disposed downstream of said sheet feeding means for conveying the sheet fed out by said sheet feeding means;

a stopper disposed between said sheet feeding means and said sheet conveying means for regulating the sheets on said sheet supporting means at a regulating position, said stopper retracted from the regulating position in accordance with a sheet feeding action by said sheet feeding means in the automatic sheet supply mode, and being in a retracted position in the manual mode; and

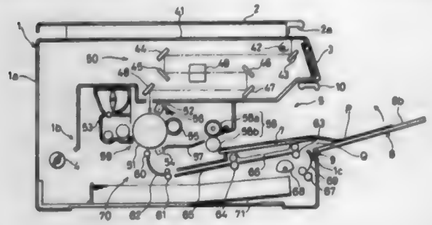
control means for controlling said sheet feeding means and said sheet conveying means so that, in the automatic sheet supply mode, the sheet is fed out from said sheet supporting means by said sheet feeding means and then conveyed by said sheet conveying means; and, in the manual mode, the sheet inserted manually to said sheet conveying means is conveyed by said sheet feeding means and said sheet conveying means.

5,725,207

SHEET FEEDING/DISCHARGING DEVICE DESIGNED FOR IMAGE FORMING APPARATUS

Masanobu Deguchi, Kashiba, Japan, assignor to Sharp Kabushiki Kaisha, Osaka, Japan

Filed Jun. 2, 1995, Ser. No. 458,876
Claims priority, application Japan, Jul. 28, 1984, 6-177287
Int. Cl.[6] B65H *5/00*
U.S. Cl. 271—9.09 **24 Claims**



1. A sheet feeding/discharging device designed for an image forming apparatus, comprising:

a first tray for receiving sheets discharged from the image forming apparatus; and

a second tray for receiving the sheets discharged from said image forming apparatus, said second tray being projected in a sheet discharge direction to a greater extent than said first tray, said second tray being formed at a different level from said first tray,

wherein an opening for feeding sheets in a main body of said image forming apparatus is formed as a gap between said first tray and said second tray said second tray being positioned at a lower level than said first tray at the gap, and

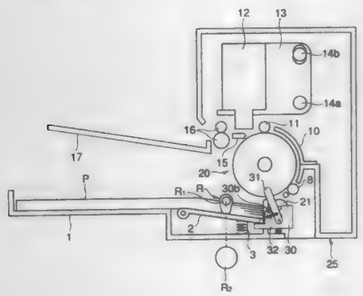
the first and second trays are independently formed and are separated and distinct from each other.

5,725,208

SHEET SUPPLYING AND CONVEYING APPARATUS

Yasuo Miyauchi, Machida, Japan, assignor to Canon Kabushiki Kaisha, Tokyo, Japan

Continuation of Ser. No. 628,447, Apr. 5, 1996, abandoned.
This application Jun. 19, 1997, Ser. No. 879,136
Claims priority, application Japan, Apr. 10, 1995, 7-084288
Int. Cl.[6] B65H *5/00*
U.S. Cl. 271—10.09 **25 Claims**



1. A sheet supplying and conveying apparatus comprising:

a sheet supporting means for supporting sheets;

a convey roller contacted with the sheet supported by said sheet supporting means with a predetermined sheet supplying pressure for feeding out the sheet and conveying the sheet around said convey roller by a rotation thereof;

a separation rotary member urged against said convey roller with predetermined separation pressure for separating the sheets fed out by said convey roller one by one;

a torque limiter (i) for permitting rotation of said separation rotary member in a sheet conveying direction when a rotational torque directing toward the sheet conveying direction and having a value greater than a predetermined value acts on said separation rotary member and (ii) for preventing the rotation of said separation rotary member in the sheet conveying direction when the rotational torque having a value smaller than the predetermined value acts on said separation rotary member; and

a pressure releasing means for releasing the sheet supplying pressure and the separation pressure on the way of the conveyance of the sheet by said convey roller.

15. A sheet supplying and conveying apparatus comprising:

a liftable/lowerable sheet supporting means for supporting sheets;

a convey roller having a function for feeding out the sheet supported by said sheet supporting means and a function for conveying the fed sheet;

a guide means disposed along a periphery of said convey roller for cooperating with said convey roller to convey the sheet; and

a separation means urged against said convey roller for separating the sheets from said sheet supporting means by said convey roller one by one;

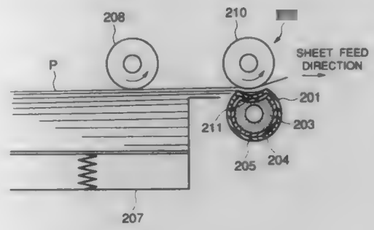
wherein said convey roller is constituted by a plurality of elastic rollers disposed coaxially, and a hardness of the elastic roller against which said separation means is urged is smaller than that of the other elastic rollers.

5,725,209

SHEET SUPPLY APPARATUS

Masahiro Takahashi, Yokohama, and Shigehisa Ishibashi, Kawasaki, both of Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan

Continuation of Ser. No. 536,433, Sep. 29, 1995, abandoned.
This application Jun. 5, 1997, Ser. No. 869,922
Claims priority, application Japan, Sep. 30, 1994, 6-261130
Int. Cl.[6] B65H *3/52*
U.S. Cl. 271—122 **17 Claims**



1. A sheet supply apparatus comprising:

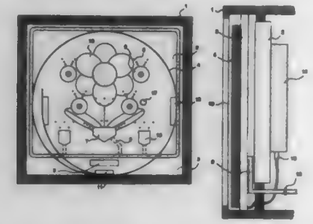
supply rotary means rotated in a sheet supplying direction; and

separation rotary means contacted with said supply rotary means and rotated in a sheet returning direction opposite to the sheet supplying direction,

said separation rotary means having an inner first layer made of elastic porous resin material, a second layer disposed outside of the first layer and made of art impregnated resin coating impregnated into a surface of the porous resin material, and an outer third layer made of a coating resin material, a hardness of the inner first layer being selected smaller than hardness of said supply rotary means so that a periphery of said separation rotary means is elastically concaved by said supply rotary means.

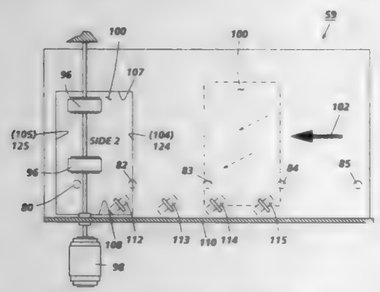
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5,725,210
GAME MACHINE
Toshiharu Yamaguchi, Gifu, Japan; Norihiko Seo, Kanagawa, Japan, and Shunpei Yamazaki, Tokyo, Japan, assignors to Semiconductor Energy Laboratory Co., Ltd., Kanagawa, Japan
Continuation of Ser. No. 361,098, Dec. 21, 1994, abandoned.
This application Jun. 10, 1996, Ser. No. 660,714
Claims priority, application Japan, Dec. 27, 1993, 5-354093
Int. Cl.[6] A63F 7/02
U.S. Cl. 273—121 B 15 Claims



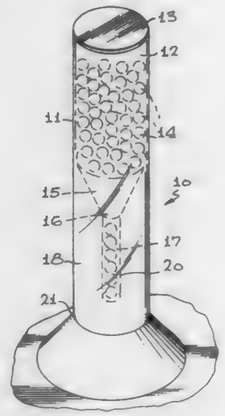
7. A game machine comprising:
a variable display having an electronic display device; and
a game board including a transparent area arranged with a nail, a decoration, and a winning port which are provided in front of the variable display.

5,725,211
METHOD AND APPARATUS FOR REGISTERING IMAGES ON THE FRONT AND THE BACK OF A SINGLE SHEET OF PAPER
Kenneth F. Blanchard, Walworth, and Richard C. Schenk, Webster, both of N.Y., assignors to Xerox Corporation, Stamford, Conn.
Filed Aug. 28, 1995, Ser. No. 520,148
Int. Cl.[6] B65H 7/02
U.S. Cl. 271—265.02 15 Claims



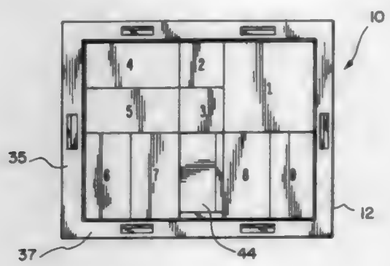
1. An apparatus for registering a first image printed on a first side of a sheet and a second image printed on a second side of the sheet with one another at a transfer station, comprising:
a transport for moving the sheet to the transfer station, said transport moving the first side of the sheet to the transfer station to have the first image printed thereon; means for inverting the sheet to move the second side of the sheet to the transfer station to have the second image printed thereon;
a first sensor for detecting a first edge of the sheet before printing the first image on the first side of the sheet;
a second sensor for detecting the first edge of the sheet after printing the first image on the first side of the sheet and before printing the second image on the second side of the sheet, with the sheet being inverted after printing the first image on the first side of the sheet so that the first edge is a leading edge of the sheet in a direction of movement of the sheet before inverting the sheet and a trailing edge of the sheet after inverting the sheet in the direction of movement of the sheet; and
a controller, responsive to the said first sensor and said second sensor, for regulating said transport so as to position the sheet at the transfer station to print the first image on the first side of the sheet and the second image on the second side of the sheet in registration with one another.

5,725,212
RANDOM NUMBER SELECTOR
Peter A. Garrett, 148 Palos Verdes Blvd., #8, Redondo Beach, Calif. 90277
Filed Sep. 29, 1995, Ser. No. 536,568
Int. Cl.[6] A63F 3/06
U.S. Cl. 273—144 R 4 Claims



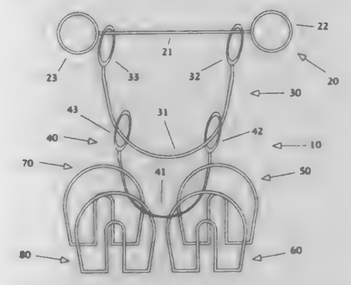
1. A random number selector comprising:
a cylindrical housing having an internal storage compartment, a display chamber and a funnel interconnecting said storage compartment with said display chamber;
a multiplicity of numbered spheres loosely disposed in said storage compartment adapted to be stirred wherein a limited number of said spheres adapted and capable of being introduced into said display chamber via said funnel from said storage compartment filled with a fluid submerging said multiplicity of spheres therein;
said fluid occupying said funnel and said display chamber about said limited number of spheres;
means for directing said limited number of spheres into said display chamber;
magnifying means carried on said housing immediately adjacent to said display chamber for visually enlarging numbers carried on each sphere of said limited number;
said limited number of spheres are capable of being randomly separated from said multiplicity of spheres; and
said means for directing said limited number of spheres includes magnetic material embedded in each of said spheres and a magnet disposed in said housing adjacent said display chamber whereby a magnetic field force draws said limited number of spheres through said funnel into said display chamber.

5,725,213
PUZZLE CONSTRUCTION
Otto Kuczynski, 715 Terrace Heights, Wyckoff, N.J. 07481
Filed Jan. 24, 1997, Ser. No. 787,306
Int. Cl.[6] A63F 9/08
U.S. Cl. 273—153 S 3 Claims



1. In a puzzle of the type including a rectangular base piece, a raised rectangular frame surrounding the sides of said base piece and defining therewith a recessed platform; and a plurality of rectangular flattened pieces which are positionable on said platform within said frame, and of dimensions and number when so positioned in mutual lateral contact as to provide a single rectangular void space among the pieces; the said flattened pieces being slidable on the plane of said platform subject to lateral restraint by one another; and the object of the puzzle being to proceed from a designated starting configuration of the flattened pieces, and interchange the respective initial positions of designated of the flattened pieces by successive sliding movements of pieces into and out of the said void space; the improvement comprising:
said flattened pieces being slidingly interengaged with adjacent such pieces, and said frame and pieces adjacent thereto being slidingly interengaged, whereby the said pieces may be interslid in the plane of said platform on which they are disposed in an effort to solve said puzzle, while maintaining integrity of the entire puzzle and precluding removal of the pieces from the said plane;
each of said flattened pieces having recessed tracks on two adjoining lateral edges and a projecting fin-like tab extending along the remaining two lateral edges; the frame defining with said base piece a further recessed track extending along two sides of said platform; the tabs of adjacent flattened pieces being engaged in the said tracks; and the frame defining with said based piece a rail extending along the remaining two sides of said platform for being received in the adjacent tracks of said flattened pieces;
said frame and base piece being interlocked by means which are manually actuatable by the user of the puzzle to enable separation and subsequent reassembly of the base piece and frame; whereby the user upon concluding that the movements of the flattened pieces to a then arrived at configuration will not enable solution of the puzzle, may disengage the base and frame, restore the flattened pieces to their starting configuration, and then reassemble the frame and base piece, thereby enabling restarting of his or her efforts to solve the puzzle;
said puzzle further including user readable indicia defining the initial arrangement of the pieces of said puzzle, to enable the user to configure the pieces to the starting configuration for said puzzle; each of said flattened pieces being provided with said user readable indicia; and the said platform being provided with user readable indicia matching the indicia of said flattened pieces; the indicia on said platform defining the initial arrangement of the pieces of said puzzle to enable the user to configure the pieces to said starting configuration.

5,725,214
FOUR HORSESHOE WIRE PUZZLE
Martin Adams, 351 Huntbourne Way NE, Calgary, AB, Canada, T2K 3Y3
Filed Dec. 23, 1996, Ser. No. 772,365
Int. Cl.[6] A63F 9/08
U.S. Cl. 273—158 1 Claim



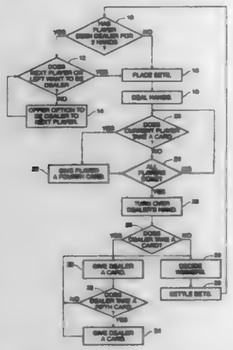
1. A wire-form puzzle, comprising:
(A) a generally planar dumbbell capture element comprising:
(a) a straight wire body having a left and a right end;
(b) a right ring, carried by the right end; and
(c) a left ring, carried by the left end;
(B) an upper swing capture element, carried by the dumbbell capture element, comprising:
(a) a crescent shaped wire body having a left and a right end, the wire body having an overall length that is approximately 1.5 times the length of the straight wire body of the dumbbell capture element; and
(b) a right ring, carried by the right end, the right loop engaging the straight wire body of the dumbbell capture element; and
(c) a left ring, carried by the left end, the left loop engaging the straight wire body of the dumbbell capture element; and
(C) a lower swing capture element, carried by the upper swing capture element, comprising:
(a) a crescent shaped wire body having a left and a right end, and having a length that is approximately equal to the length of the straight wire body of the dumbbell capture element;
(b) a right ring, carried by the right end, the right ring engaging the crescent shaped wire body of the upper swing capture element; and
(c) a left ring, carried by the left end, the left ring engaging the crescent shaped wire body of the upper swing capture element, thereby allowing the lower swing capture element to be pivoted between a first position where the crescent shaped wire body is opposite the straight wire body of the dumbbell capture element and a second position where the crescent shaped wire body is adjacent to the straight wire body of the dumbbell capture element; and
(D) four generally planar horseshoe shaped loops, initially carried by the lower swing capture element, each horseshoe shaped loop comprising an inner wire segment and an outer wire segment, the inner and outer wire segments connected by left and right end wires, thereby forming left and right legs separated by a middle portion and an indentation, wherein the distance between the inner wire segment and the outer wire segment is greater than an inside diameter of the left and right rings carried by the dumbbell capture element, the upper swing capture element and the lower swing capture element, and wherein a point formed by the inner wire segment of the horseshoe shaped loops is sized to allow clearance passage into any of the wire rings and wherein the indentation is sized to allow clearance passage by any of the wire rings.

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5,725,215
METHOD FOR PLAYING A CARD GAME

Michael A. Hesse, Westlake Village, Calif., assignor to Helix Information Services, Inc., Westlake Village, Calif.

Filed Jun. 26, 1996, Ser. No. 670,362
Int. Cl.[6] A63F *1/00*
U.S. Cl. 273—292 **4 Claims**



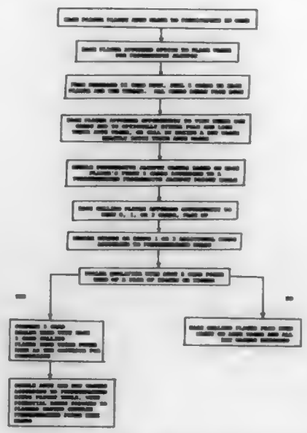
1. A method of playing a card game comprising:
providing at least one deck of standard playing cards with the sevens through tens removed;
establishing numerical values for each card in the deck by assigning numerical cards their face value and Aces=1, Jacks=0, Queens=0, and Kings=0 with no suit designation;
identifying one player as a "Dealer";
requiring each player and the Dealer to wager a sum of money before the play;
dealing each player and the Dealer a hand of three cards face down;
optionally adding only one card face down to each player's hand at the player's request so that each player has a maximum of four cards in his/her hand;
turning over the Dealer's hand;
optionally adding one card face up to the Dealer's hand at the Dealer's request and if a first additional card is added to the Dealer's hand then optionally adding a second additional card face up to the Dealer's hand at the Dealer's request;
separately establishing a value for each player's hand and the Dealer's hand by totalling up the numerical value of the cards and successively reducing the total by ten until the total is between zero and nine; and
separately comparing the value of each player's hand with the value of the Dealer's hand and awarding the money to a winner between that player and the Dealer wherein the player is the winner if the value of the player's hand is greater than or equal to the value of the Dealer's hand and wherein the Dealer is the winner if the value of the Dealer's hand is greater than the value of the player's hand.

5,725,216
METHODS OF PLAYING POKER GAMES

Daniel A. Jones, Las Vegas, Nev., assignor to Progressive Games, Inc., Ft. Lauderdale, Fla.

Filed Oct. 13, 1995, Ser. No. 542,817
Int. Cl.[6] A63F *1/00*
U.S. Cl. 273—292 **38 Claims**

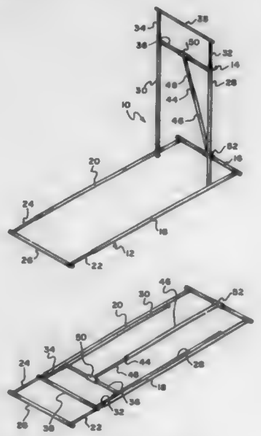
28. In a method of playing a house banked live casino poker card game, the improvement comprising the steps of:
(a) dealing card hands to a dealer and to at least one player;
(b) affording said at least one player an option to either fold, stand or discard and draw at least one card, said dealer either standing or discarding and drawing one or more cards pursuant to a predetermined procedure based upon the poker rank of the dealer's hand; and
(c) if said at least one player has not folded, determining whether said player is a winning player by comparing said player hand with said dealer hand.



5,725,217
PORTABLE DART BOARD STAND

Michael S. White, Middletown, Pa., assignor to Charles Wilson, Philadelphia, Pa., and Bill A. Kraynik, Sicklerville, N.J.

Filed Jan. 28, 1997, Ser. No. 789,938
Int. Cl.[6] F41J *1/10*
U.S. Cl. 273—407 **9 Claims**

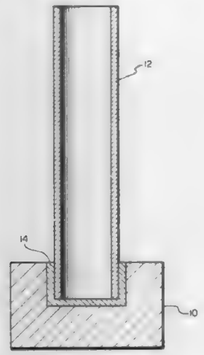


1. A portable dart board stand comprising:
a base frame including a first transverse member, two opposing primary elongated tubular members extending from said first transverse member from opposite ends thereof, a second transverse member, two opposing secondary elongated tubular members extending from said second transverse member from opposite ends thereof, each of said secondary elongated tubular members having an end telescopically mounted to a corresponding one of said primary elongated tubular members;
a support frame including a lower transverse member, two opposing lower elongated tubular members extending from said lower transverse member from opposite ends thereof, an upper transverse member, two opposing upper elongated tubular members extending from said upper transverse member from opposite ends thereof, each of said lower elongated tubular members having an end pivotally secured to a corresponding one of said primary elongated tubular members, each of said upper elongated tubular members having an end telescopically mounted to a corresponding one of said lower elongated tubular members, and
said support frame being adapted to be moved from an upright configuration, wherein said support frame extends perpendicularly from said base frame, to a collapsed configuration, wherein said support frame extends along the same plane as said base frame.

5,725,218
HIGH TEMPERATURE SEAL FOR JOINING CERAMICS AND METAL ALLOYS

P. Subraya Maiya, Darien; John J. Picciolo, Lockport; James E. Emerson, Plainfield; Joseph T. Dusek, Lombard, and Uthamalingam Balachandran, Hinsdale, all of Ill., assignors to The University of Chicago, Chicago, Ill.

Filed Nov. 15, 1996, Ser. No. 749,980
Int. Cl.[6] F16J *15/14*; C03C *8/24*
U.S. Cl. 277—1 **24 Claims**



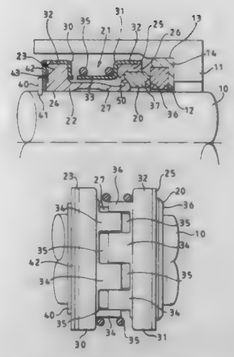
1. A fritted sealant material for sealing a ceramic tube of Sr, Fe, and Co oxides to an oxidation resistant nickel-based metal alloy, said sealant material comprising a compound of Sr oxide and boric oxide and Sr, Fe, $Co_{0.5}O_x$ present in the range of about 30 to about 70 percent by weight of the fritted sealant material.

5,725,219
MECHANICAL FACE SEAL WITH ELASTOMERIC BELLOWS UNIT AND INTERMESHING DRIVE BANDS

James Gilbert, Little Chalfont, United Kingdom, assignor to John Crane UK Limited, Slough, United Kingdom

Filed Mar. 25, 1997, Ser. No. 822,740
Claims priority, application United Kingdom, Mar. 30, 1996, 9606815
Int. Cl.[6] F16J *15/34*
U.S. Cl. 277—8 **11 Claims**

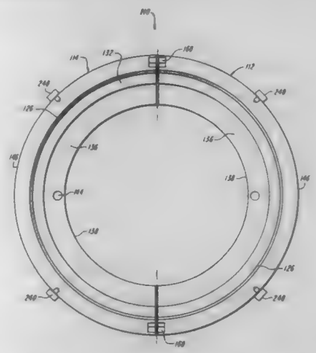
1. A mechanical face seal for providing a fluid-tight seal between a pair of relatively rotatable components comprising a first sealing ring mounted in fixed axial and rotational relationship and sealed with respect to a first component and a second sealing ring mounted in fixed rotational relationship with respect to a second component, said second sealing ring being sealed with respect to said second component by means of an elastomeric bellows unit, whereby the second sealing ring is movable axially with respect to the second component, a pair of tubular drive bands being mounted coaxially of the bellows unit in axially spaced apart relationship to one another, the outer end of one drive band engaging one end of the bellows unit and applying a radial load thereto forcing it into driving and sealing engagement with said second component and the outer end of the other drive band engaging the other end of the bellows unit and applying a radial load thereto forcing it into driving and sealing engagement with the second sealing ring, the inner ends of the drive bands being of equal diameter and having axially extending castellations, the castellations of one drive band intermeshing with the castellations of the other drive band, whereby the drive bands may be telescoped and torsional loads may be reacted between the second component and the second sealing ring by the ends of the bellows unit and the drive bands, resilient means acting between the drive bands to bias them apart and urge opposed sealing faces of the first and second sealing rings into sealing engagement.



5,725,220
SECURING AND CENTERING DEVICES FOR A SPLIT MECHANICAL SEAL

Marlen S. Clark, Newburyport, Mass., and Henri V. Azibert, Windham, N.H., assignors to A.W. Chesterton Company, Stoneham, Mass.

Division of Ser. No. 168,874, Dec. 16, 1993. This application May 16, 1995, Ser. No. 442,319
Int. Cl.[6] F16J *9/00*
U.S. Cl. 277—9.5 **5 Claims**



1. A split mechanical seal for mounting to a housing containing a rotating shaft, said mechanical seal comprising
at least two arcuate gland segments having an inner surface defining a chamber and a pair of axially extending segment sealing faces,

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at least two arcuate holder segments having an outer surface and concentrically disposed about said shaft and within said chamber, said holder segments being radially inwardly spaced from said gland segment inner surfaces, and

centering means for substantially uniformly separating said holder segment outer surface from said gland segment inner surface, thereby centering said shaft within said chamber, said centering means including a plurality of protrusions formed on one of said gland segment inner surfaces and said holder segment outer surfaces.

5,725,221

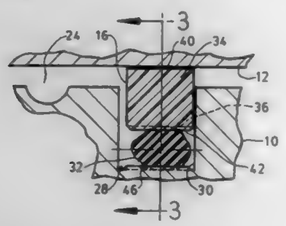
TWO PIECE SEAL

Lev Pekarsky, W. Bloomfield, and Charles Gregory Hartinger, Farmington Hills, both of Mich., assignors to Ford Global Technologies, Inc., Dearborn, Mich.

Continuation of Ser. No. 364,360, Dec. 27, 1994, abandoned. This application Aug. 8, 1996, Ser. No. 695,251

Int. Cl.[6] F16J *9/00*

U.S. Cl. 277—29 **10 Claims**



1. A sealing system, comprising:

a first member having a groove, said groove having a first surface at the base of said groove;

a second member positioned adjacent said first surface, said second member having a first end, a second end and a fluid passage therebetween, the fluid passage providing for continual fluid communication between the ends of the second member; and

a third member having a third surface adjacent said second member with projections extending toward and engaging said second member to impede relative movement therebetween; and

a fourth member positioned adjacent said third member, said third member sealingly engageable between said first and fourth members.

5,725,222

GASKET

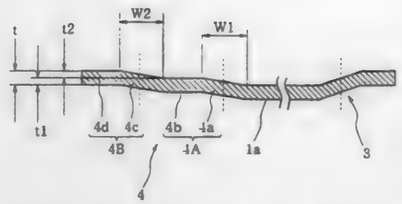
Jun Kobayashi, Fukushima, Japan, assignor to Nok Corporation, Tokyo, Japan, and Toyota Jidosha Kabushiki Kaisha, Toyota, Japan

Filed Mar. 12, 1996, Ser. No. 614,137

Int. Cl.[6] F16J *15/00*

U.S. Cl. 277—207 R **8 Claims**

1. A gasket comprising a base plate having a gasket periphery, a bore positioned in the gasket periphery, a flat reference plane, and a half bead structure integrally formed at least on one side of said flat reference plane of said base plate, said half bead structure having plural half beds each comprising a slope portion and a planar portion, the planar portions being parallel to said reference plane, and said half bead structure being formed around the gasket



periphery and around said bore, and each of said structures comprises said plural half beads and the structures arranged both on one side of said base plate.

5,725,223

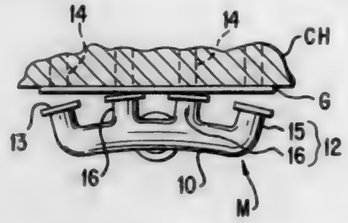
MANIFOLD GASKET WITH DIFFERENT SEALING BEADS

Kenji Yamada, Tokyo, Japan, and Yoshio Miyaoh, Tokyo, Japan, assignors to Ishikawa Gasket Co., Ltd., Tokyo, Japan

Filed Dec. 13, 1996, Ser. No. 764,226

Int. Cl.[6] F16J *15/00*

U.S. Cl. 277—235 B **7 Claims**



1. A manifold gasket for a manifold with at least three manifold holes arranged side by side, comprising:

a first metal plate for constituting the manifold gasket, said first metal plate having two outer holes and at least one inner hole situated between the two outer holes, said outer and inner holes corresponding to said at least three manifold holes, and a plurality of bolt holes for fixing the manifold gasket and the manifold, and

two outer beads and at least one inner bead formed on the first metal plate, each one outer bead surrounding each outer hole and said at least one inner bead surrounding said at least one inner hole, each outer bead, when the manifold gasket is compressed with a predetermined constant torque, forming a surface pressure less than that of the at least one inner bead and providing compressibility more than that of the at least one inner bead upon receiving a further compression force so that when the manifold is heated, the outer beads are compressed to absorb deformation of the manifold to securely seal around the manifold holes.

5,725,224

LOWER LEG ROLLING APPARATUS

David R. Kerr, 64 Braeburn Rd., Hyde Park, Mass. 02136

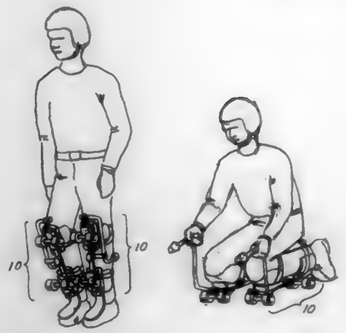
Filed Sep. 26, 1995, Ser. No. 534,222

Int. Cl.[6] A63C *17/00*

U.S. Cl. 280—11.19 **9 Claims**

1. A rolling apparatus for use in securement to a lower leg of a person comprising:

a) an elongate body portion with an upperside and an underside, front and rear ends, and presenting planar upper and lower surfaces;



b) a plurality of roller trucks secured to the underside of said body portion, positioned adjacent opposite front and rear ends thereof; and

c) a means for securing said planar upper surface of said elongate body to a lower leg of said person.

5,725,225

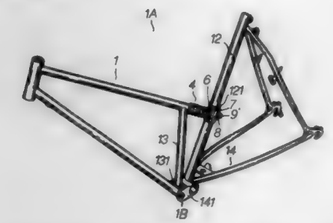
SHOCK-ABSORBING ASSEMBLY OF BICYCLE

Yen-Pin Lai, 199 Wu Tung South Rd., Pu Hsin Hsiang, Changhua, Taiwan

Filed Feb. 3, 1997, Ser. No. 794,541

Int. Cl.[6] B62K *3/02*

U.S. Cl. 280—275 **4 Claims**



1. A bicycle frame with shock-absorbing assembly including a top tube, a seat tube and a down tube of the bicycle; the combination comprises:

a connection rod fastened with one end of the top tube of the bicycle and provided with a front threaded segment, a rear threaded segment, a smooth segment located between said front threaded segment and said rear threaded segment, and a circular groove contiguous to said rear threaded segment;

a position restricting nut having inner threads engaged with said front threaded segment of said connection rod;

a coil spring fitted over said connection rod such that said coil spring is located by said position restricting nut;

a dustproof jacket of a tubular construction and fitted over said coil spring such that one end of said dustproof jacket is fitted over one end of said connection rod, and that another end of said dustproof jacket is fitted over another end of said connection rod;

a resilient locating ring having one edge in contact with said another end of said dustproof jacket, said locating ring further having another edge opposite in location to said one edge;

a front reinforcing member provided with a through hole, and a projection engaged with said another edge of said resilient locating ring such that said projection retains securely said coil spring, and that said front reinforcing member is engaged with a connection sleeve of the seat tube of the bicycle;

a rear reinforcing member engaged with the connection sleeve of the seat tube of the bicycle such that said rear reinforcing member is opposite in location to said front reinforcing member, said rear reinforcing member provided with a through hole for receiving said connection rod vin said through hole of said front reinforcing member, a through hole of the seat tube and a through hole of the connection sleeve of the seat tube;

wherein said connection rod is engaged with the seat tube such that said connection rod is received in the connection sleeve of the seat tube, and that said rear threaded segment of said connection rod is engaged with a fastening nut and an adjusting nut, and that said circular groove of said connection rod is engaged with a C-shaped retaining ring; and

wherein the top tube of the bicycle is fastened with one end of a first support rod which is fastened at another end thereof with a juncture of the seat tube and the down tube of the bicycle, said first support rod further fastened pivotally with a second support rod by a pivot.

5,725,226

DAMPED BICYCLE FORK WITH FLOATING PISTON, DIVERSE FLUIDS AND MECHANICAL BLOCKING

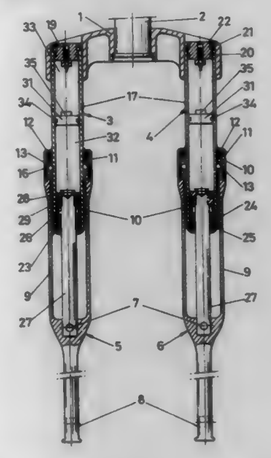
Antonio Cabrerizo-Pariente, Pintor Ignacio Díaz de Olano, 11 bajo 01008 Vitoria (Alava), Spain

Filed Oct. 18, 1995, Ser. No. 544,506

Claims priority, application Spain, Oct. 18, 1994, 9402642

Int. Cl.[6] B62K *25/00*

U.S. Cl. 280—276 **2 Claims**



1. A damped bicycle fork, being of the type that is comprised of a bridge (**1**), to whose ends a plurality of parallel frames are connected, each one of the frames being defined by a vertical support (**3** or **4**) and a bottom element (**5** or **6**) both coupled telescopically; the vertical support comprising a first cylindric tube (**17**) connected at its top to the bridge (**1**) while the bottom part of the first cylindric tube (**17**) is inserted into a second cylindric tube (**9**) of the bottom element, screwed into a top portion of the second cylindric tube (**9**) is a nut (**11**) provided with a scraper (**12**), that contacts against the external surface of the first cylindric tube (**17**), inside of the first cylindric tube (**17**), is a floating ram or piston (**31**) that separates two chambers, a top nitrogen gas chamber (**33**) and a bottom oil chamber (**32**), the first cylindric tube (**17**) closing in its top part by a cap (**19**) that comprises a nitrogen gas filling valve (**22**); a damping blocking system is connected to the nut (**11**) in the top portion of the second cylindric tube (**9**); each vertical support is autonomous and independent and each vertical support includes a rod (**27**), through a top end of the rod (**27**) a piston (**28**) is adjusted against a side inside surface of the oil chamber of the first cylindric tube (**17**), a tube shaped part (**23**) provided with an O-ring seal, as well as a sealing gasket (**26**) and a guide bush (**25**) are all disposed

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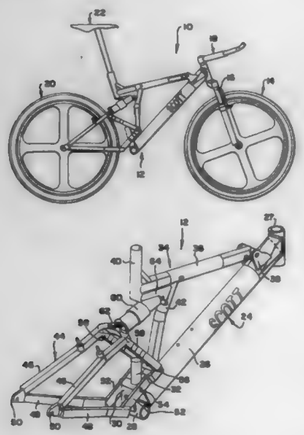
in the bottom part of the first cylindric tube (**17**); the rod (**27**) contacts with the sealing gasket (**26**) and connects to the lower portion of the bottom element (**5** or **6**) by means of a pin (**7**), the piston (**28**) is fastened to the top end of the rod (**27**) and has a plurality of through holes (**29**).

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SUSPENSION SYSTEM FOR A BICYCLE

Steven A. Mayer, Golden, Colo., assignor to Schwinn Cycling & Fitness Inc., Boulder, Colo.

Filed Jul. 20, 1995, Ser. No. 504,612
Int. Cl.[6] B62K *25/00*
U.S. Cl. 280—284 **26 Claims**



18. A suspension frame assembly for a bicycle comprising:

a main frame portion having a first end and a second end, said first end structured and dimensioned to accommodate a steering fork and said second end structured and dimensioned to accommodate a pedal crankset;

an intermediate frame portion having first and second ends, said first end being pivotable relative to the first end of said main frame portion and said second end structured and dimensioned to support a seat assembly for limited vertical movement relative to said main frame portion;

a rear frame portion including means for operative connection to a rear wheel;

said rear frame portion including upper means pivotably connected to said intermediate frame portion and said rear frame portion further including means pivotably connected to said main frame portion whereby said rear frame portion is pivotably connected to both said main frame portion and said intermediate frame portion and permitting vertical movement of said intermediate frame portion carrying said seat assembly; and

shock absorber means connecting said rear frame portion to said intermediate frame portion, said shock absorber means constraining relative movement of said seat assembly and said rear frame portion when said seat assembly and said rear frame portion move relative to said main frame portion;

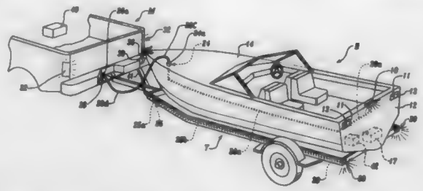
wherein said intermediate frame portion includes a frame member disposed forwardly of said shock absorber means and pivotably connected to said rear frame portion.

5,725,228

TRAILERABLE RECREATIONAL VEHICLES AND WATERCRAFT WITH REAR LIGHTS FOR SAFE TOWING ON A TRAILER

David T. Livingston, 4445-54th SW., Seattle, Wash. 98116

Filed May 28, 1996, Ser. No. 654,336
Int. Cl.[6] B60G *1/26*
U.S. Cl. 280—414.1 **16 Claims**



11. A trailerable recreational vehicle, trailer, and towing vehicle combination comprising:

(a) a trailerable recreational vehicle having at least one electrically-powered rear light, the light mounted on a surface of the trailerable recreational vehicle and facing rearward when the light is powered, the recreational vehicle having a receiver mounted thereon, the receiver in communication with a power source; the power source in electrical communication with the at least one rear light;

(b) a trailer, the trailerable recreational vehicle mounted thereon for transportation; and

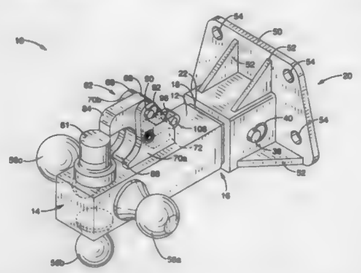
(c) a towing vehicle for towing the trailer, the towing vehicle having a transmitter mounted thereon, the transmitter transmitting a signal to the receiver mounted on the trailerable recreational vehicle.

5,725,229

TOW HITCH APPARATUS

Wesley I. McWethy, 1621 Hiawatha Ave., Stockton, Calif. 95205

Filed Aug. 29, 1996, Ser. No. 705,590
Int. Cl.[6] B60D *1/06*
U.S. Cl. 280—416.1 **12 Claims**



1. A tow hitch apparatus, comprising:

(a) a shank, said shank including a plurality of side faces;

(b) a plurality of different sized tow balls, said tow balls fixedly mounted on said shank;

(c) a pintle, said pintle fixedly mounted on one said face of said shank;

(d) a latch block, said latch block fixedly mounted on said face of said shank adjacent said pintle;

(e) a latch member, said latch member pivotally mounted on said latch block, said latch member pivotally moving between an open position and a closed position; and

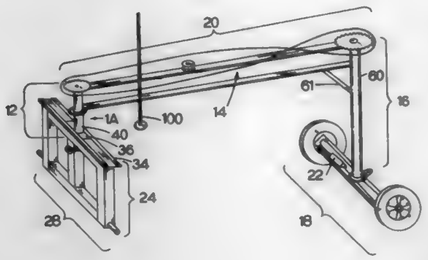
(f) means for automatically locking said latch member in said closed position when a Lunette eye coupler is engaged on said pintle.

5,725,230

SELF STEERING TANDEM HITCH

Joseph L. Walkup, Rural Rte. 1 Box 112, Stoutsville, Mo. 65283

Filed Jun. 17, 1996, Ser. No. 665,335
Int. Cl.[6] B62D *13/00*
U.S. Cl. 280—442 **18 Claims**



1. A self steering tandem hitch comprising:

a first upright support shaft having a top end and a bottom end, said first upright support having an attachment device attachable to a tractor;

a pivot joint attached to said top end of said first upright support shaft;

a front bottom twist plate having a top surface and bottom surface, said bottom surface attached to said pivot joint;

a front shaft having a bottom end and a top end, said bottom end attached to a center area of said top surface of said front bottom twist plate, said front shaft extending upward in an inline parallel alignment with said first upright support;

a front top twist plate having a center opening, top surface and a bottom surface that rests and rotates upon said top surface of said front bottom twist plate, said front shaft extending through said center opening on said front top twist plate;

a front tube having a top end, bottom end and side wall, said front tube installed over said front shaft with said bottom end rigidly attached to said top surface of said front top twist plate, said top end of said front shaft extending through said top end of said front tube, said front tube rotatable about said front shaft;

a main beam having a front end, rear end and center portion, said front end attached to said side wall of said front tube, said main beam extending perpendicular from said front tube;

a rear upright tube having a top end, bottom end and side wall, said side wall of said rear upright tube attached to said rear end of said main beam in a perpendicular relationship;

an upper rear twist plate rigidly attached to said bottom end of said rear upright tube, said upper rear twist plate having a center opening and a bottom surface;

a rear shaft insertable into and rotatable within said rear upright tube, said rear shaft having a top end and bottom end, said top end of said rear shaft extending through said top end of said rear upright tube and said bottom end of said rear shaft extending through said bottom end of said rear upright tube;

a bottom rear twist plate rigidly attached to said bottom end of said rear shaft, said bottom rear twist plate having a top surface and bottom surface, said top surface contacts and rotates upon said bottom surface of said upper rear twist plate;

an axle having wheels rigidly attached to said bottom surface of said bottom rear twist plate, said axle being rotatable in respect to said main beam by said rear shaft rotating within said rear upright tube;

an attachment means on said axle for attachment of a second farm implement;

a steering device attached to said axle to pivot said wheels on said axle in respect to said axle to cause a rear end of said self steering tandem hitch to maintain a left or right offset position, amount of said offset being determined by amount of pivot of said wheel in respect to said axle;

a front sprocket rigidly fixed to said top end of said front shaft, said front sprocket being rotated in respect to said main beam as the tractor on which said self steering tandem hitch is being used negotiates turns, said front sprocket being non-rotatable in respect to the tractor;

a rear sprocket rigidly fixed to said top end of said rear shaft, said rear sprocket having a predetermined gear ratio to said front sprocket, said rear shaft and said axle rotate as said rear sprocket rotates; and

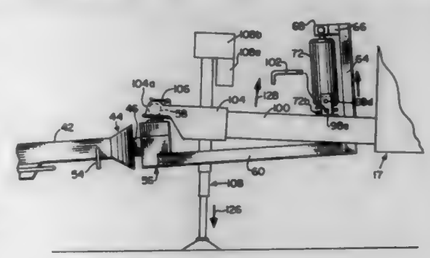
a steering apparatus around and joining said front sprocket and said rear sprocket, said steering apparatus configured to rotate said rear sprocket in an opposite direction of said front sprocket as said front sprocket rotates thereby maintaining alignment of said second farm implement to a first farm implement attached to the tractor as the tractor negotiates turns and corners.

5,725,231

TRAILER HITCH

Malcolm D. Buie, 1620 Lobdell Ave., Baton Rouge, La. 70806-8246

Filed Nov. 20, 1995, Ser. No. 560,657
Int. Cl.[6] B60D *1/14*
U.S. Cl. 280—455.1 **12 Claims**



1. A trailer hitch stabilizer assembly connectable to a trailer having two beams rigidly connected to an end piece for receiving a ball hitch, said trailer hitch stabilizer assembly being adapted for quick and easy connection to a pivoting trailer hitch assembly connected to a tractor having a rear axle, said pivoting trailer hitch assembly having a pivoting draw bar having a front end and a rear end, the front end of said draw bar being pivotally connected to said tractor at a point closely adjacent to said rear axle of said tractor, the rear end of said draw bar being supported by an arcuate support member attached to said tractor and having a hollow receiver connected thereto, said trailer hitch assembly connectable to a trailer comprising:

a. a horizontal tongue for connection to said receiver,

b. a hitch block rigidly connected to said tongue, said hitch block having a ball hitch connected thereto,

c. two generally horizontal elongated stabilizer bar means for selectively decreasing the downward forces on the rear end of said tractor when said trailer is connected to said tractor, each of said elongated stabilizer bar means having a front end and a rear end, said front end of each of said stabilizer bars being rigidly connected to said hitch block,

d. a rigid lower cross bar rigidly connected to each of said stabilizer bars at the rear end thereof,

e. a first vertical support bar connected perpendicularly upward from the rear end of one of said horizontal stabilizer bars, and a second vertical support bar connected perpendicularly upward from the rear end of the other of said horizontal stabilizer bars,

f. a rigid upper cross member connected to each of said support bars at the upper end thereof,

g. at least two air cylinders having an upper end and a lower end, said upper end of said air cylinders being connected to said rigid upper cross member,

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h. an elongated air cylinder cross member connected to said lower ends of each of said air cylinders, said elongated cross member having two ends,

i. at least two chains, each of said two chains having an upper end and a lower end, the upper end of each of said chains being connected to said rigid upper cross member, said lower end of each of said chains being connected to said air cylinder cross member, and

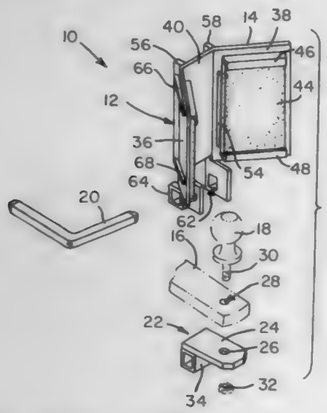
j. two bracket means connected to each end of said elongated air cylinder cross member for placement over said two beams of said trailer.

5,725,232

TRAILER HITCH GUIDE

Thomas R. Fleming, 14020A Maugansville Rd., Maugansville, Md. 21767

Filed Feb. 27, 1996, Ser. No. 606,728
Int. Cl.[6] B60D *1/06*
U.S. Cl. 280—477 15 Claims



1. A trailer hitch guide, comprising:

a V-shaped plate having a pair of angularly diverging arm panels adapted for mounting upon a draw bar in surrounding relation to a hitch ball carried on the draw bar;

a pair of resilient pads, each of said pads being, respectively, secured to one of said arm panels; and,

at least one pair of cooperating, L-shaped flanges affixed one above the other to one of said arm panels for slidably receiving one of said resilient pads therebetween.

5,725,233

PORTABLE TONGUE FOR TRAILERS

Calvin J. Gee, Somerville, and John M. Matkin, Boaz, both of Ala., assignors to GMT, Inc., Boaz, Ala.

Continuation-in-part of Ser. No. 5,789, Jan. 19, 1993, Pat. No. 5,348,333, and a continuation-in-part of Ser. No. 209,241, Mar. 14, 1994, Pat. No. 5,465,993. This application Nov. 8, 1995, Ser. No. 555,298
Int. Cl.[6] B60D *1/167;1/52*
U.S. Cl. 280—491.5 14 Claims

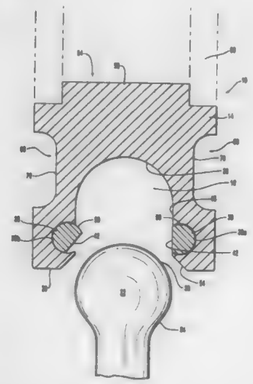
1. A detachable hitch apparatus for releasably coupling a vehicle and a trailer frame, said hitch apparatus comprising: a coupling assembly having first and second end portions and vehicular securing means secured to said first end portion for releasably securing said coupling assembly to the vehicle; a pair of arms extending in a direction opposed to said vehicular securing means, each of said arms having a first end and a second end, said first end of each said arm being secured to said vehicular securing means; an upstanding support means secured to the upper surface of said first end of each said arm; releasable attachment means associated with each said second end of said arms for releasably securing said pair of arms to the trailer frame with said frame being supported by said upstanding support means, said releasable attachment means comprising first coupling means including a transverse support member extending outwardly from said second ends of said arms, a pair of extendible members at opposite ends of said transverse support member, each said extendible member having a first projection thereon; second coupling means for releasably secured relation with said first coupling means, said second coupling means including a second projection for engaged, secured, relation with said first projection of a respective said extendible member; means for securing said first and second projections in releasably coupled relation; and, means for securing said second coupling means to the trailer frame.

5,725,234

BALL-TYPE COUPLER FOR TRAILERS AND THE LIKE

Floyd A. Colibert, 2995 W. 6220 South, West Jordan, Utah 84084

Filed Oct. 24, 1995, Ser. No. 547,387
Int. Cl.[6] B60D *1/06*
U.S. Cl. 280—512 24 Claims



1. A ball-type coupler for holding trailers and the like to a ball mounted on a vehicle, the coupler comprising:

housing means having a void defined therein for receiving the ball, a diameter of the void being slightly larger than the ball, the housing having a first channel disposed so as to communicate with the void, and a second channel disposed on an opposite side of the void, the second channel also communicating with the void;

one rod disposed in the first channel and another rod disposed in the second channel, each rod having a noncylindrical section disposed adjacent the void, the rods having a central axis of rotation and being rotatable thereabout between (i) a first position wherein the noncylindrical section of the rods extend into the void a sufficient distance to prevent the ball sliding within the void past the rotatable rods, and (ii) a second position wherein the noncylindrical section of the rods do not extend into the void sufficiently to prevent the ball from passing the rods; and

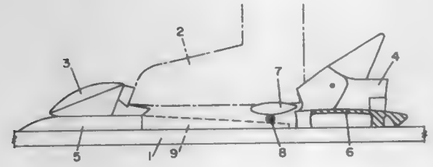
actuator means disposed in communication with the rods for rotating the rods between the first position and the second position.

5,725,235

DEVICE FOR IMPROVED EDGE CONTROL DISTRIBUTION FOR A SKI BINDING

Alfred Boehm, Polling, and Werner Messerschmidt, Garmisch-Partenkirchen, both of Germany, assignors to Marker Deutshcland GmbH, Germany

Filed Feb. 17, 1995, Ser. No. 390,058
Int. Cl.[6] A63C *7/10*
U.S. Cl. 280—605 1 Claim



1. A device for supporting a ski boot on a ski, and channeling at least some of a skier's weight to the center region of the ski, said device comprising:

a ski binding toe piece and a ski binding heel piece for fixing a ski boot on said ski;

a toe spacer plate and a heel spacer plate fixedly secured between an upper surface of said ski and said toe and heel pieces respectively;

a ski brake assembly including a brake pedal positioned for engagement with a bottom surface of the heel portion of the skier's boot and aligned with the longitudinally axis of the skier's tibia;

a continuation portion having a forward end fixedly attached to said toe spacer plate and extending rearwardly therefrom, said continuation portion having a free rearward end portion which is movable in a longitudinal direction relative to the upper surface of said ski in response to bending movements of said ski and an upper surface which declines in a rearwardly direction to form a downwardly sloping ramp; and,

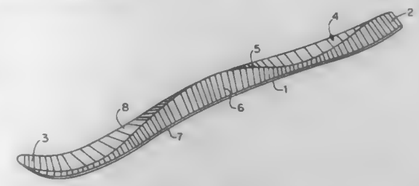
a support member positioned between said brake pedal and said rearward end portion of said ramp and in engagement therewith when said ski boot is secured to said toe and heel pieces, wherein said support member is movable relative to said ramp in a longitudinal direction along said ramp in response to bending movements of said ski.

5,725,236

SKI WITH IMPROVED PROFILE

Milena Stephanova, Seyssinet Pariset, France, and Jacques Perenon, Voiron, France, assignors to Skis Rossignol SA, France

Filed Jun. 1, 1994, Ser. No. 252,440
Claims priority, application France, Jun. 2, 1993, 93 06807
Int. Cl.[6] A63C *5/04*
U.S. Cl. 280—609 17 Claims



14. A pair of .skis including a right ski and a left ski, each ski of the pair having a tip region, a heel region, and a central zone, the right ski comprising:

a running sole having longitudinal sides and a longitudinal axis;

an inside edge and an outside edge, each edge formed on one of the longitudinal sides of said running sole; and,

an upper face including two side faces being non-parallel to said running sole, said at least two side faces intersecting each other above said running sole to create a right ridge extending longitudinally between the heel region and the tip region of the ski and is formed tangent said inside edge of the right ski, said right ridge being asymmetrical with respect to a longitudinal mid-plane through said longitudinal axis of said running sole, said left ski comprising:

a running sole having longitudinal sides and a longitudinal axis;

an inside edge and an outside edge, each edge formed on one of the longitudinal sides of said running sole; and,

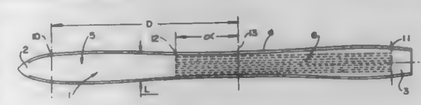
an upper face including two side faces being non-parallel to said running sole, said at least two side faces intersecting each other above said running sole to create a left ridge extending longitudinally between the heel region and the tip region of the ski and is formed tangent said inside edge of the left ski, said left ridge being asymmetrical with respect to a longitudinal mid-plane through said longitudinal axis of said running sole, said right ridge and said left ridge being optical isomers of each other.

5,725,237

SKI HAVING A SOLE STRUCTURED IN ACCORDANCE WITH THE DISTRIBUTION OF PRESSURE ALONG THE SKI

Bertrand Krafft, Aix Les Bains, France; Gilles Silva, Le Montcel, France, and Jacques Le Masson, Cran Gevrier, France, assignors to Salomon S.A., Metz-Tessy, France

Filed Nov. 28, 1994, Ser. No. 348,862
Claims priority, application France, Dec. 9, 1993, 93 15019
Int. Cl.[6] A63C *5/04*
U.S. Cl. 280—609 42 Claims



1. A snow ski comprising:

a lower gliding surface having a substantially flat profile;

said gliding surface comprises a front contact line and a rear contact line, a front portion and a rear portion;

said rear portion of said gliding surface extending rearwardly to said rear contact line from a transverse line located between a boot center line and a distance forward of the boot center line

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equal to 0.4 times a distance separating said boot center line from said front contact line;

said front portion of said gliding surface extending forwardly to said front contact line from said transverse line; and

said front portion of said gliding surface comprising a structured surface, including a smooth or lightly structured surface, and said rear portion of said gliding surface comprising a structured surface, including a strongly structured surface, said strongly structured surface of said rear portion of said gliding surface having a measured roughness parameter value Rtm greater than a measured roughness parameter value Rtm of any portion of said structured surface of said front portion of said gliding surface.

5,725,238

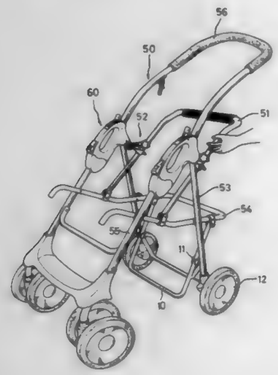
STROLLER WITH A STANDING MEANS

Li-Chu Chen Huang, No. 99, Fuchou 7th St., Chiayi, Taiwan

Filed Jul. 2, 1996, Ser. No. 677,463

Int. Cl.[6] B62B *7/08*

U.S. Cl. 280—642 **2 Claims**



1. A stroller comprising a handle, a first supporting rod, a second supporting rod pivotally connected with said first supporting rod and having a folding means securely mounted thereon, a guarding rib, a U-shaped rib pivotally connected with said first supporting rod, said second supporting rod and said guarding rib, and at least four wheels each pivotally connected to a distal end of one of said first supporting rod and said second supporting rod, the improvement wherein:

a substantially U-shaped standing means is provided to pivotally connect to said U-shaped rib for supporting said stroller when the stroller is being folded.

5,725,239

ADAPTIVE LOAD DEPENDENT SUSPENSION SYSTEM

Simon Anne de Molina, Merchtem, Belgium, assignor to Monroe Auto Equipment, Monroe, Mich.

Filed Mar. 26, 1996, Ser. No. 624,731

Int. Cl.[6] B60G *11/27;17/08*

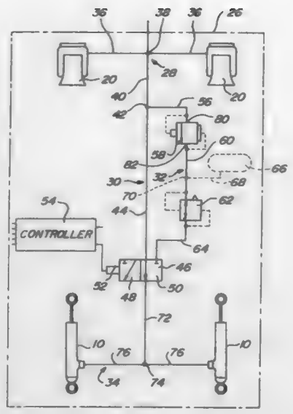
U.S. Cl. 280—711 **28 Claims**

1. A suspension damping system for use with a vehicle having a chassis, the damping system including:

a spring interconnecting an unsprung portion of the vehicle and the vehicle chassis, said spring having a fluid therein;

a shock absorber interconnecting the unsprung portion and the vehicle chassis;

a first pressure circuit for conveying said fluid at a first pressure between said spring and said shock absorber;



a second pressure circuit for conveying said fluid at a second pressure between said spring and said shock absorber, said first and second pressures being different; and

means for selectively and discretely restricting passage of fluid to that of said first pressure or to that of said second pressure.

5,725,240

AIR BAG MODULE

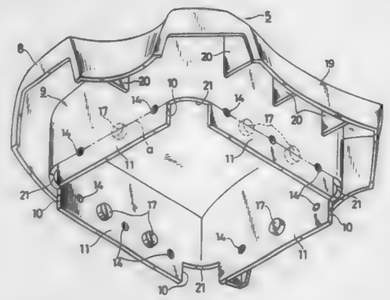
Kenji Kurita, Kanagawa, Japan, assignor to NSK Ltd., Tokyo, Japan

Filed Sep. 27, 1995, Ser. No. 534,993

Claims priority, application Japan, Sep. 29, 1994, 6-235218

Int. Cl.[6] B60R *21/16*

U.S. Cl. 280—728.2 **5 Claims**



1. An air bag module comprising:

(a) a housing for being mounted on a vehicle body, said housing having a base plate portion and a support plate portion bent down from said base plate portion, said support plate portion being provided with first engagement portions; and

(b) a cover fixedly secured on said housing, said cover having:

a cover portion having dimensions sufficient to cover said base plate portion of said housing,

a mounting plate portion extending from said cover portion and located outside said support plate portion,

second engagement portions maintained in engagement with said first engagement portions, said second engagement portions being formed at said mounting plate portion and being divided into two groups shifted in phase in a direction in which said mounting plate portion extends, said second engagement portions in one of the groups and said second engagement portions in the other group being

located on single planes, respectively, and said single planes extending across the direction in which said mounting plate portion extends, and

first and second indentations formed in said mounting plate portion at plural locations spaced from each other in a peripheral direction of said mounting plate portion, deepest portions of said first and second indentations being substantially coincided with said single planes, respectively;

wherein said first engagement portions are divided in two groups shifted in phase in a direction in which said support plate portion extends so that, upon assembling said cover with said housing, said first engagement portions in the two groups are brought into engagement with said second engagement portions in the two groups, respectively.

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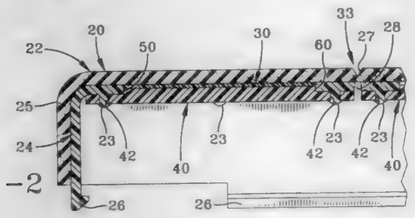
AIR BAG COVER ASSEMBLY

Michael Allen Schenck, Miamisburg, Ohio, assignor to General Motors Corporation, Detroit, Mich.

Filed Apr. 23, 1996, Ser. No. 636,857

Int. Cl.[6] B60R *21/16*

U.S. Cl. 280—731 **13 Claims**



1. An air bag cover assembly comprising:

a container having an inner substrate layer and an outer layer overlying the substrate layer;

the substrate layer having a switch aperture extending entirely therethough to provide a hole in the substrat layer;

a membrane horn switch positioned within the switch aperture and directly beneath the outer layer such that compression of the outer layer of the container activates the membrane horn switch while avoiding compression of the substrate layer; and

a backing plate mounted to the substrate layer beneath the membrane horn switch and overlying the switch aperture to capture the membrane horn switch within the switch aperture between the backing plate and the outer layer.

5,725,242

AIRBAG SQUIB WITH SILICON CIRCUIT AND ENERGY STORAGE

Horst Belau, Clarkston; Charles R. Cook, Jr., Rochester Hills, both of Mich.; Marten Swart, Obertroeugling, Germany, and Mark A. Parsons, Rochester, Mich., assignors to Siemens Automotive Corporation, Auburn Hills, and Ford Motor Company, Dearborn, both of Mich.

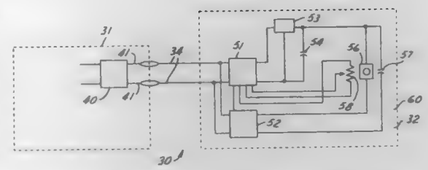
Filed Feb. 9, 1996, Ser. No. 599,613

Int. Cl.[6] B60R *21/26;21/32*

U.S. Cl. 280—735 **25 Claims**

1. A control arrangement for a deployable airbag of a vehicle, the vehicle having at least one fault sensor for providing a fault signal in response to the occurrence of a fault condition which would require the deployment of the deployable airbag, the control arrangement comprising:

an airbag electronic control unit for receiving at an input thereof a first signal responsive to the fault signal, and for producing at an output thereof in response to the first signal a deployment command signal that indicates that the deployable airbag is to be deployed;



airbag controller means for receiving at an input thereof the deployment command signal, said airbag controller means being provided with;

communication control means for receiving the deployment command signal;

squib means for firing in response to the deployment command signal whereby the deployable airbag is deployed; and

energy control means coupled to the communication control means and said squib means for transferring a predetermined deployment energy to said squib means in response to the deployment command signal; and

communication coupling means coupled at a first end thereof to said output of said airbag electronic control unit, and at a second end thereof to said input of said airbag controller means, for forming a propagation path for the deployment command signal.

5,725,243

GAS GENERATOR

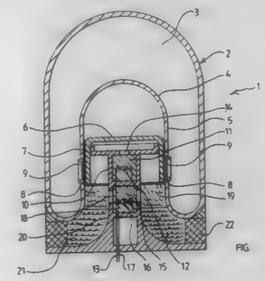
Torbjorn Skanberg, Hovas, Sweden, assignor to Autoliv Development AB, Vargarda, Sweden

Filed Nov. 7, 1995, Ser. No. 554,774

Claims priority, application United Kingdom, Nov. 8, 1994, 9422521.6

Int. Cl.[6] B60R *21/26*

U.S. Cl. 280—737 **22 Claims**



1. A gas generator for generating gas for use in a vehicle safety device, comprising:

a pressure vessel containing a compressed gas including at least one oxidizing gas, the pressure vessel having defined therein at least one opening which is normally closed; and

means to open the at least one opening in response to a signal including (a) a duct leading from the at least one opening towards an outlet for communicating with a vehicle safety device, and (b) a solid fuel located within the duct arranged to be oxidized with the at least one oxidizing gas when the at least one oxidizing gas passes through the duct after the opening has been opened, the solid fuel being in the form of a structure that is restrained within the duct.

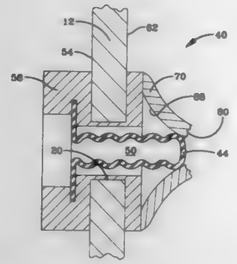
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5,725,244

AIRBAG VENTING MECHANISM

David James Cundill, Leicester, England, assignor to Breed Automotive Technology, Inc., Lakeland, Fla.

Filed Jul. 9, 1996, Ser. No. 677,149
Int. Cl.[6] B60R 21/30
U.S. Cl. 280—739 17 Claims



1. An inflatable airbag comprising:

airbag material having an outer surface and an inner surface, said inner surface defining an inflation chamber into which inflation gas is directed to inflate the airbag, said airbag material having a ventilation opening therein for venting inflation gas form the inflation chamber, said ventilation opening having a peripheral edge;

a venting member secured to said airbag material in the region of the peripheral edge of said ventilation opening, said venting member comprising a gas permeable material having an outer surface and an inner surface, said inner surface defining an extension of the inflation chamber, said venting member being expandable from a first compressed configuration inside the inflation chamber to a second configuration which extends outside the inflation chamber; and,

a retaining member for retaining said venting member in said first configuration, the retaining member having a frangible region which is located at least partially in juxtaposition with the ventilation opening in the airbag material and the venting member, the frangible region of the retaining member being breakable when the inflation pressure in the airbag reaches a preselected level and the venting member being expandable in response to the inflation pressure in said inflation chamber to said second configuration extending through the broken portion of the retaining member and beyond the outer surface of the airbag material, the retaining member sealing said ventilation opening until the frangible region is broken.

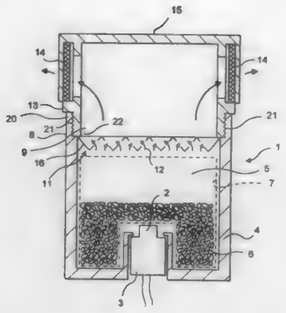
5,725,245

DIFFUSER PLATE FOR AN AIRBAG GAS GENERATOR

Peter O'Driscoll, Los Altos, Calif., and Donald Backlund, San Jose, Calif., assignors to United Technologies Corporation, Hartford, Conn.

Filed Sep. 17, 1996, Ser. No. 724,046
Int. Cl.[6] B60R 21/28
U.S. Cl. 280—740 7 Claims

1. A gas generator for a passive restraint device comprising a housing with a combustion chamber having an end defining a gas passage, solid gas generating fuel located in the combustion chamber, and a diffuser plate having a plurality of orifices to pass a gas generated by the combustion of the solid fuel therethrough, the diffuser plate mounted in the gas passage and a port area of from about 50 to about 90 percent of the gas passage cross-sectional area adjacent to the fuel, the diffuser plate having a greater surface area than the cross-sectional area of the gas passage.

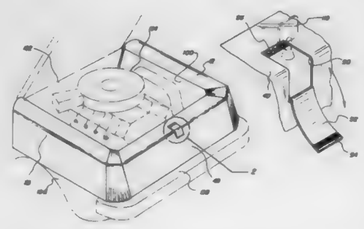


5,725,246

AUTOMOBILE FENDER PROTECTING DEVICE

Jeff Zimmerman, E. 2921 Rockwell Ave., Spokane, Wash. 99207

Filed Dec. 26, 1995, Ser. No. 578,213
Int. Cl.[6] B60J 11/00
U.S. Cl. 280—770 1 Claim



1. An automobile fender protecting device for wrapping around fenders and grill area of an automobile for protection thereof comprising, in combination:

a left fender cover having a first end portion and a second end portion, the left fender cover having an upper section and a lower section, the left fender cover covering a left fender of an automobile with the upper section covering an upper part of the left fender and extending into an engine compartment of the automobile and the lower section laying down over a lower part of the left fender;

a right fender cover having a first end portion and a second end portion, the right fender cover having an upper section and a lower section, the right fender cover covering a right fender of an automobile with the upper section covering an upper part of the right fender and extending into an engine compartment of the automobile and the lower section laying down over a lower part of the right fender;

a grill cover having a stretchably expandable first end portion and a stretchably expandable second end portion, the grill cover having an upper section and a lower section wherein the stretchably expandable first and second end portion extend between the upper section and lower section of the grill cover, the grill cover covering a front section of the automobile with the upper section laying over a radiator and core support and the lower section laying down over a grill of the automobile, the stretchably expandable first end portion secured to the first end portion of the right fender cover, the stretchably expandable second end portion secured to the first end portion of the left fender cover, a central portion of the grill cover having a flapped opening therein;

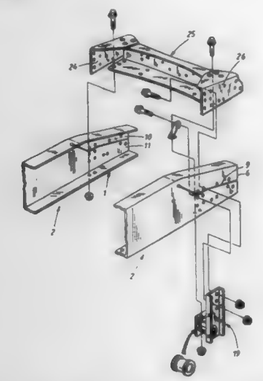
a pair of securement straps each having free ends and hooked ends, one of the free ends secured to the upper section of the right fender cover at the second end portion thereof, an opposing free end secured to the upper section of the left fender cover at the second end portion thereof, each of the hooked ends securable to a fire wall of an automobile.

5,725,247

END SECTION OF FRAME MEMBER

Nils Nilsson, Göteborg, Sweden, and Göran Levin, Göteborg, Sweden, assignors to AB Volvo, Sweden

PCT No. PCT/SE94/00935, § 371 Date May 30, 1996, § 102(e) Date May 30, 1996, PCT Pub. No. WO95/10442, PCT Pub. Date Apr. 20, 1995
PCT Filed Oct. 7, 1994, Ser. No. 628,611
Claims priority, application Sweden, Oct. 12, 1993, 9303335
Int. Cl.[6] B62D 21/00
U.S. Cl. 280—781 6 Claims



1. A frame member including an end for a load-bearing vehicle comprising an upper support section, a lower support section, a connecting section joining said upper and lower support sections, said frame member including an end section having a height representing the distance between said upper and lower support sections which decreases in the direction towards said end, said end section including an upper end portion and a lower end portion separated by a gap, said upper and lower end portions meeting at a central end portion, and attachment means for maintaining the relative positions of said upper and lower end portions, said attachment means including first affixing means for affixing said attachment means to said upper end portion and second affixing means for affixing said attachment means to said lower end portion.

5,725,248

WEBBING HEIGHT ADJUSTER

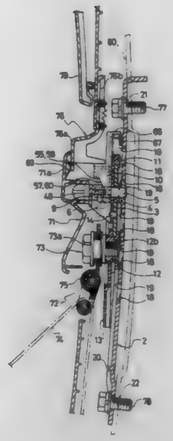
Katsumi Inoue, Gamoh-gun, and Kazutomo Isonaga, Wako, both of Japan, assignors to Takata Corporation, and Honda Motor Co., Ltd., both of Tokyo, Japan

Filed Jul. 25, 1996, Ser. No. 687,200
Claims priority, application Japan, Aug. 2, 1995, 7-197424
Int. Cl.[6] B60R 22/20
U.S. Cl. 280—801.2 4 Claims

1. A webbing height adjuster comprising:

a guide rail fixed to a vehicle body and provided with a predetermined number of engaging portions formed in a longitudinal direction;

a movable member disposed on the guide rail to be slidable in the longitudinal direction and on which a webbing support is mounted;



a lock pin disposed in the movable member to be movable in directions of engaging and slipping off one of said engaging portions;

biasing means always biasing the lock pin in a direction of engaging one of the engaging portions;

a control member slidably mounted on said movable member and having a pair of side walls to sandwich said lock pin, each of said side walls having a notched groove which opens in the slipping off direction and a cam face formed in the notched groove, said control member controlling a movement of said lock pin in the directions of engaging and slipping off by sliding relative to said movable member; and

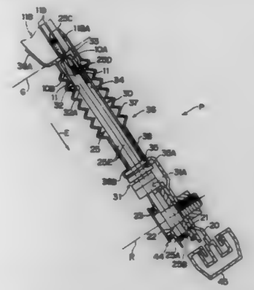
a driven pin mounted to said lock pin to form a T-shape together with said lock pin, end portions of the driven pin engaging said cam faces to be driven by a movement of the cam faces due to the sliding of said control member.

5,725,249

PRELOADER APPARATUS

Seiji Nishide, and Hideki Tanaka, both of Aichi-ken, Japan, assignors to Kabushiki Kaisha Tokai-Rika-Denki-Seisakusho

Filed Jul. 10, 1996, Ser. No. 678,042
Claims priority, application Japan, Jul. 13, 1995, 7-177737
Int. Cl.[6] B60R 22/46
U.S. Cl. 280—806 11 Claims



1. A preloader apparatus for retracting, upon quick deceleration of a vehicle, a buckle apparatus with which a tongue plate for holding a webbing is engaged so as to fasten the webbing onto an occupant of the vehicle, said preloader apparatus comprising:

a wire connected to said buckle apparatus and adapted to retract said buckle apparatus; and

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a supporting member for supporting said wire so as to maintain a predetermined portion of said wire in an extended state and whose supporting function is canceled upon retraction of said buckle apparatus,

said wire including a loop portion and being connected to said buckle apparatus via said loop portion,

the predetermined portion of said wire being composed of two parallel portions, each of which extends from said loop portion in parallel with the other portion, said supporting member having a support portion for supporting part of said parallel portions in the vicinity of said loop portion, said support portion being sheared off upon retraction of said buckle apparatus so as to cancel the supporting function, and said supporting member having a plate-shaped portion which extends along said parallel portions so as to guide said buckle apparatus when said buckle apparatus is retracted.

5,725,250

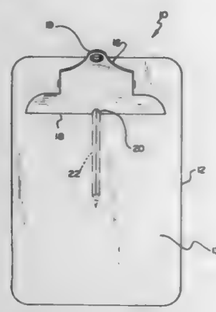
WRITING INSTRUMENT ENGAGING CLIPBOARD

Jose Roberto Balderrama, 6745 Dublin Ter., Colorado Springs, Colo. 80918-1326

Continuation of Ser. No. 353,637, Dec. 12, 1994, abandoned. This application Nov. 14, 1996, Ser. No. 749,075

Int. Cl.[6] B42F *9/00*

U.S. Cl. 281—45 **5 Claims**



1. A writing instrument engaging clipboard comprising:

a planar member;

a spring-loaded hinge mounted to an upper portion of the planar member; and

a clip member pivotally mounted to the spring-loaded hinge, the clip member having a straight engaging edge and a leveraging arm opposite the straight engaging edge, the clip member pivotable between an engaged position and a disengaged position by the leveraging arm, the straight engaging edge of the clip member abutting a front face of the planar member when the clip member is in the engaged position,

the clip member having an aperture therein extending into contiguous communication with the straight engaging edge of the clip member for capturing a writing instrument in a parallel relationship against the planar member when the clip member is in the engaged position,

the aperture being defined by an aperture edge including a pair of lateral edge portions and an end edge portion, the end edge portion having a substantially semi-circular shape approximating the profile of a writing instrument to thereby maximize abutting contact between the end edge portion of the aperture and a writing instrument extending through. the aperture, the pair of lateral edge portions extending from the end edge portion in a spaced substantially parallel relationship and intersecting the straight engaging edge of the clip member at a substantially perpendicular angle to the straight engaging edge such that the pair of lateral edge portions are positioned closely adjacent to a writing instrument extending through the aperture and abutting the end edge portion,

whereby the clip member is located closely adjacent to a writing instrument extending through the aperture to thereby maximize retention of the writing instrument against the planar member by the clip member.

5,725,251

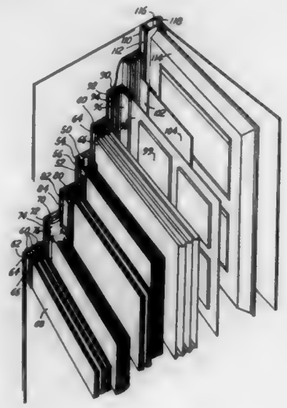
MODULAR BINDER SYSTEM

Bruce E. Heggeland, 1480 Exeter Ct., Barrington, Ill. 60610

Filed May 3, 1996, Ser. No. 642,301

Int. Cl.[6] B42D *3/00*

U.S. Cl. 281—48 **1 Claim**



1. A modular binding system comprising in combination:

a back section including a longitudinal spine, a lateral slot on one side of the spine and a lateral arm with a rib on the end of the arm on the other side of the spine, said rib sized to slidably fit in the slot whereby multiple back sections may be attached together side by side by engaging the rib and slot of adjacent sections;

said back section further including a longitudinal shaped channel intermediate the rib and slot; and

an item holder slidably engaged with the channel, said item holder including a longitudinal flange on one side thereof, having a cross section congruent with the cross section of the shaped channel of the back section and said flange further including a cross bar means to hold the flange in the channel, said holder further including means for attaching an item to the holder on the opposite side thereof, said means for attaching being selected from a variety of alternatives.

5,725,252

PROMOTIONAL BOOKLET

Terrance R. Crum, Colorado Springs, Colo., and Frederick I. Reinbold, Jr., Grand Prairie, Tex., assignors to Williamson Printing Corporation, Dallas, Tex.

Filed Jul. 11, 1996, Ser. No. 680,204

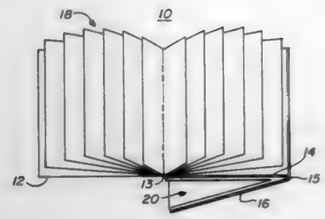
Int. Cl.[6] G09B *29/00*

U.S. Cl. 283—34 **10 Claims**

1. A promotional booklet comprising:

a cover having first, second, and third integrally formed panels foldable in a Z shape, said first and second panels forming one compartment when folded over each other and the second and third panels forming a second separate compartment when folded over each other;

a plurality of information pages turnably attached in the first compartment between the first and second panels;



a rectangular sheet having a plurality of fold lines forming a plurality of individual adjacent panels that can be folded to form only one panel in plan view; and

attachment means for fastening each of the two adjacent panels of the rectangular sheet in the second compartment to a corresponding one of the second and third Z-shaped cover panels such that, when the panels are folded in a Z shape, only a single panel is formed in plain view so as to allow the information pages in the first compartment to be turned without exposing the rectangular sheet, the rectangular sheet in the second compartment to be unfolded without exposing the information pages, or to use both the information pages and the rectangular sheet in both compartments simultaneously.

5,725,253

IDENTIFICATION SYSTEM

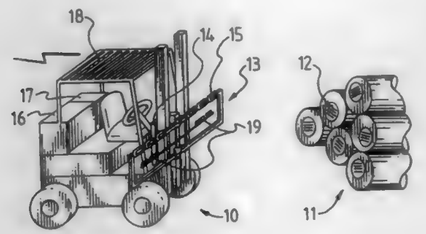
Harold Terrence Salive; Kevin George Slade, and Rachel Keene Salive, all of Auckland, New Zealand, assignors to Kiwisoft Programs Limited, Auckland, New Zealand

Continuation of Ser. No. 199,316, Mar. 3, 1994, Pat. No. 5,607,187. This application Aug. 5, 1996, Ser. No. 691,823

Claims priority, application New Zealand, Oct. 9, 1991, 240172

Int. Cl.[6] B42D *15/00*

U.S. Cl. 283—67 **12 Claims**



1. An identification system for identifying each of a plurality of items, comprising:

a plurality of machine-readable labels, each of said labels being capable of being applied to one of the items and comprising a substrate carrying contrasting indicia on at least one surface,

said contrasting indicia including at least one distinctive marking which defines a frame of reference for an area containing an adjoining information-holding field, said information-holding field containing a plurality of information-carrying indicia, and wherein at least one of (a) said distinctive marking, (b) said information carrying indicia, and (c) further indicia on the substrate, comprises orientation indicia indicating an orientation of the label,

machine vision equipment to view an image containing a plurality of the items with the labels applied thereto, conversion means to convert the image to machine readable form, and processing means to process the thus-converted image.

5,725,254

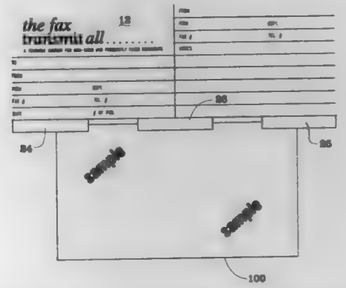
FACSIMILE DOCUMENT CARRIER

Heidi Olson, Barrington, Ill., assignor to Hico Products, Inc., Barrington, Ill.

Filed May 13, 1996, Ser. No. 647,722

Int. Cl.[6] B42D *1/00*

U.S. Cl. 283—72 **18 Claims**



1. A document carrier for facsimile machines, said carrier comprising:

a single sheet of flexible two surface material having a top and bottom edge defining a length therebetween and two side edges defining a width; indicia means on a first side surface of said sheet; and a tab means for securing a document to a lower portion of said sheet, said tab means is formed from at least one cut-line extending from said bottom edge inwardly a predetermined distance; wherein said sheet is insertable into a facsimile machine with said tab means maintaining a document in position during facsimile scanning.

5,725,255

FIXTURE FOR FITTING PIPE JOINT TO CHANGE-OVER VALVE

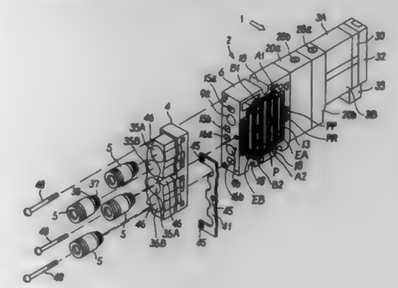
Bunya Hayashi, and Makoto Ishikawa, both of Yawara-mura, Japan, assignors to SMC Corporation, Tokyo, Japan

Filed Jul. 22, 1996, Ser. No. 685,982

Claims priority, application Japan, Aug. 7, 1995, 7-221063

Int. Cl.[6] F16L *35/00*

U.S. Cl. 285—26 **3 Claims**



1. A change-over valvé, comprising:

a valve body;

a port block attached to said valve body, said port block having multiple ports substantially in a line;

pipe joints attached to said pert block for connecting tubes to said multiple ports;

an insertion groove formed in one side of the port block extending to a depth so as to reach a part of said multiple ports;

a metal fixture in sheet form shaped to fit in said insertion groove and having multiple recesses arranged along one edge

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thereof so as to engage said pipe joints when inserted in the insertion groove; and

means for fastening the metal fixture to the port block.

5,725,256

Patent Not Issued For This Number

5,725,257

PIPE JOINT

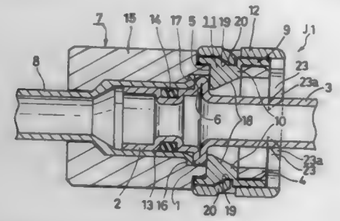
Hideto Sakane, Saitama, Japan; Hisayuki Yagi, Saitama, Japan; Nobuyuki Okuda, Tochigi, Japan, and Koichi Inoue, Ibaraki, Japan, assignors to Honda Giken Kogyo Kabushiki Kaisha, Tokyo, Japan, and Showa Aluminum Corporation, Osaka, Japan

Filed May 14, 1996, Ser. No. 645,562

Claims priority, application Japan, May 17, 1995, 7-118702

Int. Cl.[6] F16L *35/00*

U.S. Cl. 285—81 **12 Claims**



1. A pipe joint comprising a pipe having a spigot formed with an annular projection on an outer periphery of an end of said pipe, a member having a socket including a tubular portion for receiving said spigot therein and formed with an aperture in a peripheral wall of said tubular portion, said socket being internally formed with a bearing portion for receiving and bearing on said annular projection of said pipe adjacent said spigot in said socket, a resilient stopper mountable on said tubular portion of said socket and having a fitting portion fitted in said aperture, a resilient tubular stopper holder covering at least a major portion of an entirety of said stopper, and fixing means for fixing said stopper holder with said stopper covered with said stopper holder, said fitting portion of said stopper being fitted into said aperture of said socket so as to project inwardly and said stopper being mounted on said tabular portion of said socket, said annular projection of said spigot being fixedly positioned between said bearing portion and said fitting portion of said stopper, and wherein said stopper holder is formed with at least one lug extending from a rear end of said stopper holder in an inward direction so as to be beyond an outer periphery of said annular projection of said spigot.

5,725,258

FLUID QUICK CONNECTOR

Rick A. Kujawski, Macomb, Mich., assignor to Bundy Corporation, Warren, Mich.

Continuation of Ser. No. 392,498, Feb. 23, 1995. This application Jan. 13, 1997, Ser. No. 782,618

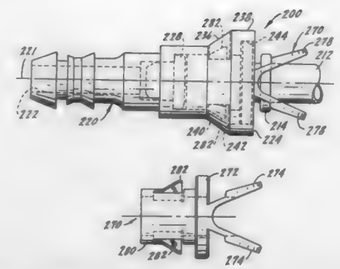
Int. Cl.[6] F16L *37/084*

U.S. Cl. 285—308 **5 Claims**

1. A coupling comprising:

a hollow connector body defining a fluid chamber and at least one locking slot open to said fluid chamber;

a male member having a tubular portion received in one end of said connector body and an upset portion disposed outside of said connector body; and



a retainer having a sleeve portion extending into said fluid chamber, said sleeve portion having at least one locking tab engaging said at least one slot defined by said connector body to secure said retainer to said connector body, wherein said engagement between said tab and said slot occurs inside of said connector body, said retainer further having a locking portion which engages said upset portion to secure said male member to said connector body, wherein said engagement between said upset portion and said locking portion occurs outside of said connector body.

5,725,259

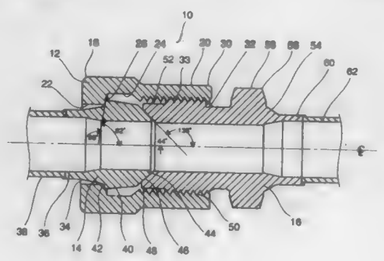
CONDUIT COUPLING

Carroll P. Dials, 1385 Kalmar Dr., Cincinnati, Ohio 45240

Filed Dec. 19, 1996, Ser. No. 769,667

Int. Cl.[6] F16L *19/02*

U.S. Cl. 285—334.4 **7 Claims**



1. A conduit coupling, which includes:

a female piece having a first end having a first inner open surface of a predetermined diameter and a second inner open surface of a predetermined diameter greater than said diameter of said first inner open surface and coaxial therewith and having a shoulder defined therebetween and a second end having a threaded inner open surface therein coaxial with said first and second inner open surfaces and wherein said first and second inner open surfaces and threaded inner open surface are in communication with one another and define an axial opening through said female piece;

an internal piece having a first end connectable to a conduit and having a predetermined outer diameter less than said first inner open surface to permit passage through said opening, an intermediate portion having an outer diameter greater than said diameter of said first inner open surface and having a collar formed between said first end and said intermediate portion disposable adjacent said shoulder, and a second end having an outer surface tapered at a predetermined angle; and

a male piece having a first end having an outer threaded surface to be complimentary received adjacent said inner threaded open surface of said second end of said female piece and having an inner tapered surface portion to be complimentary received adjacent said outer tapered surface of said second end of said internal piece and tapered at an angle of 180° less said predetermined angle, and a second end having an outer surface portion configured to readily enable threading of said first end of said male piece to said second end of said female piece and a terminal portion connectable to a conduit, wherein said predetermined angle substantially equates to 90° less a beating surface angle formed between said threaded surface of said second end of said female piece less a beating surface angle formed between said threaded surfaces less a friction angle formed between said inner and outer tapered surfaces.

5,725,260

LOCKING ARRANGEMENT FOR WINDOWS, DOORS OR THE LIKE

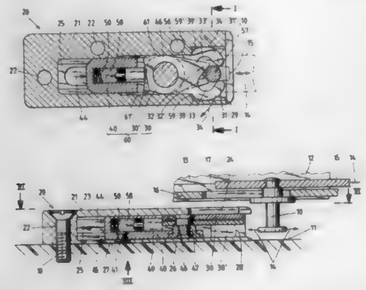
Werner Eikmeier, Erkrath; Dietger Frick, and Werner Riedel, both of Velbert, all of Germany, assignors to Wilhelm Weidtmann GmbH & Co. KG, Velbert, Germany

Filed Nov. 1, 1995, Ser. No. 551,557

Claims priority, application Germany, Nov. 8, 1994, 44 39 903.0; Aug. 2, 1995, 195 28 320.1

Int. Cl.[6] E05C *19/10*

U.S. Cl. 292—129 **18 Claims**



1. A locking arrangement for windows and doors, with a movable control member at a wing or at a frame of the window on the one hand and with a stationary counter-member at the frame or wing on the other hand, wherein the movable control member is arranged so as to be stationary at a connecting rod, but the connecting rod is displaceable longitudinally by means of a handle, and the control member is displaceable relative to the stationary counter-member along a displacement path between at least one closing position and a releasing position, wherein:

the counter-member has at least one hook lever which is swivelable transversely to the displacement direction of the control member and has a hook opening which is defined on a side remote of a swivel bearing of said hook lever by an outer hook leg;

said hook lever is swiveled toward the control member in a closing position of the arrangement until said hook opening receives the control member and said outer hook leg engages in front of the control member, whereas in the releasing position of the arrangement the hook lever is swiveled away from the control member until said outer hook leg leaves the displacement path of the control member;

the hook lever is mounted such that the control member carries the hook lever in displacement therewith when the control member is displaced between the releasing position and closing position and displaces the hook lever in a compulsory manner in a housing of the counter-member between a slide-out position defining the releasing position and a slide-in position determining the closing position;

a guide surface is provided which holds said hook lever swiveled toward the control member in the slide-in position, but renders the lever swivelable in the slide-out position;

the hook opening is defined or limited on its side facing the swivel bearing by an inner hook leg;

the inner and outer hook legs extend at an inclination to the displacement direction of the control member as viewed in the slide-out position or in the slide-in position of the hook lever; and

the control member strikes against the outer hook leg when the control member is displaced into its slide-out position, but strikes against the inner hook leg when displaced in its slide-in position, so that a force is exerted by the control member on one or the other inclined hook leg with a force component which causes the hook lever to swivel toward the control member or causes the hook lever to swivel away from the control member.

5,725,261

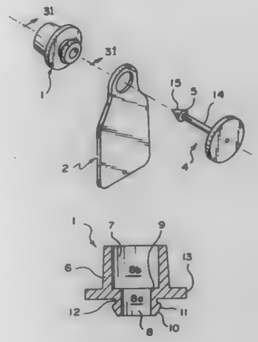
IDENTIFICATION TAG AND ANCHOR FOR USE IN DISPLAYING INDICIA INCLUDING GRAPHICS AND TEXT

Erwin P.G. Rahn, Rochester, N.Y., assignor to MFI Associates, Inc., Rochester, N.Y.

Filed Dec. 20, 1995, Ser. No. 574,714

Int. Cl.[6] B65D *55/00;* **F16B** *19/00*

U.S. Cl. 292—307 R **3 Claims**



1. An anchor for use with an identification tag, the identification tag having an aperture to receive a portion of an animal-piercing member, the animal piercing member having a retaining surface, comprising:

(a) a main body including an integral boss having a central aperture therethrough, the main body extending to an internal shoulder for contacting the retaining surface of the animal-piercing member to preclude passage of the retaining surface in a longitudinal direction while permitting passage in an opposite direction;

(b) a continuous, uninterrupted tapered fitting surface defining an end of the anchor;

(c) a peripheral groove for having a diameter less than the diameter of the aperture of the identification tag;

(d) an outer convexly rounded surface intermediate the tapered fitting surface and the groove; and

(e) a circumferential flange projecting radially outwardly from an outer surface of the body to locate the groove intermediate to the outer convexly rounded surface and the flange, the flange having an outside diameter greater than the outer convexly rounded surface;

wherein the central aperture comprises a first diameter defined by inner walls of the circumferential flange, tapered fitting surface, peripheral groove, and outer convexly rounded surface, and a second diameter defined by an inner wall of the main body, wherein the second diameter is greater than the first diameter;

and wherein a larger portion of the central aperture is defined by the second diameter than by the first diameter.

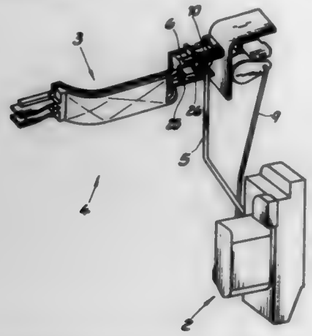
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5,725,262

PULL-TYPE HANDLE FOR MOTOR-VEHICLE DOOR LATCH

Dietmar Kritzler, Lüdenscheid, Germany, assignor to Kiekert AG, Heiligenhaus, Germany

Filed May 24, 1996, Ser. No. 653,763
Claims priority, application Germany, Jun. 2, 1995, 195 19 738.0; Jul. 6, 1995, 195 24 568.7
Int. Cl.[6] E05B 3/00
U.S. Cl. 292—336.3 6 Claims



1. In combination with a motor-vehicle door latch mounted on a door and having a vertically displaceable actuating element serving to open the latch, an actuating system comprising:
an outside door handle;
a mounting plate supporting the handle on the door above the latch and forming with the handle an actuator;
means including a vertical pivot on the mounting plate for horizontal movement of the handle by pivoting about a vertical axis on the plate between an unactuated position generally flush with the door and an actuated position spaced horizontally outward from the door;
a coupling lever pivoted on the door about a horizontal axis and having one arm connected to the handle and another arm;
a link extending vertically between the other arm and the actuating element, whereby when the handle is displaced horizontally into the actuated position the lever is pivoted and the link is displaced vertically.

5,725,263

DOOR SECURING DEVICE

Ernest L. Rodriguez, 15736 Wedgeworth Dr., Hacienda Heights, Calif. 91745

Filed Apr. 3, 1997, Ser. No. 825,758
Int. Cl.[6] E05C 17/44
U.S. Cl. 292—338 11 Claims

2. A door securing device comprising:
an upper housing member adapted to be mounted about a door knob rose, the upper housing member encasing a locking mechanism with a trigger;
a lower housing member adapted to be mounted to a lower door portion and having a bottom opening, the lower housing member having a rear wall with a pair of sprocket frames projecting therefrom;
a cable guard with a cable therein for coupling with the trigger, the cable guard being coupled with the upper housing member and the lower housing member;
a door stop mechanism being housed within the lower housing member, the door stop mechanism having a stop wedge with a top side having a track, and a bottom side with a stopper, the door stop mechanism having a first sprocket member and a second sprocket member being rotatably coupled between the pair of sprocket frames, the first member capable of engaging the track;



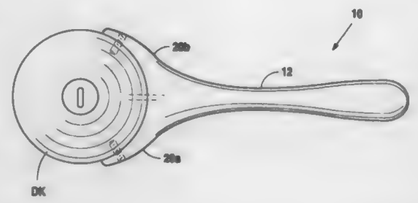
a chain for engaging the first and second sprocket members, the chain being coupled with the cable for allowing the chain to be pulled when the trigger is being rotated, and allowing simultaneously rotation of the first and second sprocket for moving the first sprocket along the track and the stopper within the bottom opening; and
a pair of guide plates with each having a fixed guide rod and each being mounted to the stop wedge block, the fixed guide rods being capable of guiding the movement of the stop wedge block about the first sprocket.

5,725,264

DOORKNOB ATTACHMENT

Louis B. Villarreal, 812 Prado, San Antonio, Tex. 78225

Filed Oct. 25, 1996, Ser. No. 736,805
Int. Cl.[6] E05B 1/00
U.S. Cl. 292—347 11 Claims



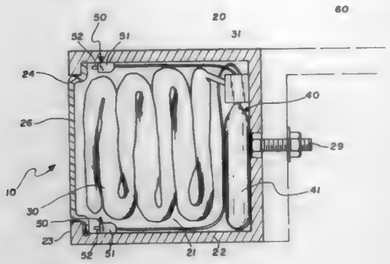
1. A device for attaching to a doorknob, the device comprising:
a rigid body, said body having two arms and an elongated handle member, the elongated handle member having a removed end and a near end, the near end joining the two arms, the two arms forming a semicircular face portion and each arm having a hole near a removed end thereof, wherein the longitudinal axis of the elongated handle member breaks the semicircular face portion midway between the removed ends of the two arms;
a pin having a longitudinal axis aligned with the longitudinal axis of the elongated handle member adjacent the handle member extending from the body at a point where the longitudinal axis of the elongated handle member intersects the semicircular face portion of the body; and
fasteners insertable through the holes of the arms for engaging the surface of the doorknob after the pin has been inserted therein and for holding the body to the doorknob.

5,725,265

AIR BAG SYSTEM FOR VEHICLE BUMPERS

Jeff Baber, 180 Baber St., Heflin, Ala. 36264

Filed Jan. 16, 1997, Ser. No. 783,357
Int. Cl.[6] B60R 19/20
U.S. Cl. 293—107 8 Claims



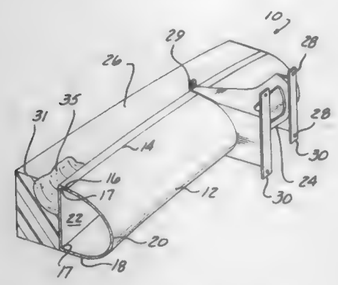
1. An air bag system for a bumper of a vehicle comprising:
a containment member having a hollow interior, said containment member securable to at least one of the front and the rear of said vehicles, said containment member comprising a support member having an impact face having an opening therein, and an expellable panel fitted within said opening and releasably secured to said support member; and
a deflated air bag enclosed within said hollow interior of said containment member, said deflated air bag inflatable and deployable outwardly from said containment member when said containment member is impacted whereby said deflated air bag expels said expellable panel.

5,725,266

D-SECTION BUMPER

Jeffrey A. Anderson, Clarksville; Robert B. Senior, Holland, and Gregory J. Filipek, Ionia, all of Mich., assignors to American Bumper & Mfg. Co., Ionia, Mich.

Filed Jun. 24, 1996, Ser. No. 669,234
Int. Cl.[6] B60R 19/03
U.S. Cl. 293—120 2 Claims



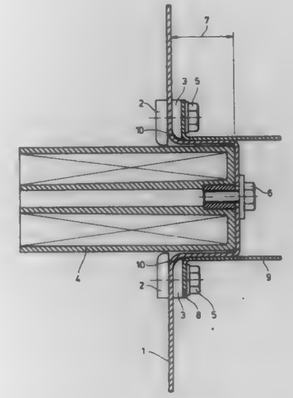
1. A bumper system for a vehicle comprising:
a single beam member constructed of metallic material having a cross-section including an planar wall and an substantially semi-circular wall joined to define a D-shaped configuration, wherein the substantially semi-circular wall faces the vehicle and further comprising a single longitudinal piece of foam attached to the planar wall, wherein the foam is approximately three inches thick and the foam has a cored section measuring less than 15 inches long and located proximate to the planar wall.

5,725,267

ENERGY-ABSORBING ELEMENT

Ulrich Grosser, Kürten, and Boris Koch, Wermelskirchen, both of Germany, assignors to Bayer Aktiengesellschaft, Germany

Filed May 8, 1996, Ser. No. 646,877
Claims priority, application Germany, May 22, 1995, 195 18 366.5
Int. Cl.[6] B60R 19/34
U.S. Cl. 293—133 2 Claims



1. An absorption element for absorbing kinetic energy in a safety structure in vehicles comprising a metal absorption sheet, a holding-down device for the sheet and a support for the sheet, supporting structure for supporting the absorption sheet, the holding-down device and the support for the sheet, releasable fastening elements holding the absorption sheet between the holding-down device and the support for the sheet at a predetermined force, and a movable piston adjacent to the metal absorption sheet, and wherein the supporting structure has a cavity for receiving the piston whereby the piston penetrates into the supporting structure together with the metal absorption sheet connected thereto during the absorption of energy, and wherein the metal absorption sheet is pulled through the holding-down device and the support for the sheet during the absorption of energy to thereby additionally absorb energy as a result of fiction.

5,725,268

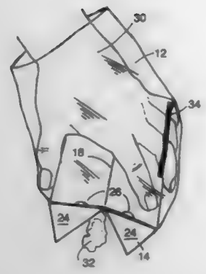
PET WASTE RETRIEVAL AND DISPOSAL DEVICE

Joseph C. Besasie, 2107 E. Wood Pl., Shorewood, Wis. 53211, and Robert P. Ryan, 940 Glenview Ave., Wauwatosa, Wis. 53213

Filed Oct. 17, 1996, Ser. No. 732,919
Int. Cl.[6] A01K 29/00; E01H 1/12
U.S. Cl. 294—1.3 7 Claims

1. A device for retrieving and disposing of pet feces comprising
a bag formed of flexible sheet material having an open end and a closed end,
a tray having a bottom panel having an interior surface and an exterior surface, attached to said closed end of said bag, said panel having a central score line defining two panel halves which are pivotable relative to each other along said score line, the exterior surface of each of said panel halves being adhered to said closed end of said bag, an end panel hingedly connected to the edge of each of said panel halves opposite said score line, and side walls hingedly connected to each end of both halves of said panel said end panels and said side

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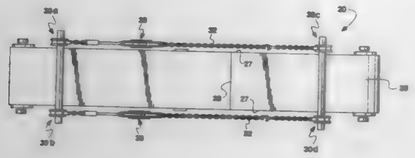


walls being pivotable from a position folded against the interior of said bottom panel to a use position perpendicular to said panel, whereby said tray can be manipulated manually from within said bag to retrieve pet feces, and said bag subsequently inverted thereover to enclose said tray and said feces.

5,725,269
CONVEYOR BELT CLAMPING AND PULLING APPARATUS

William James Daniels, Orland Park, Ill., and Gary Edward Mitas, Downers Grove, Ill., assignors to Flexible Steel Lacing Company, Downers Grove, Ill.

Continuation-in-part of Ser. No. 61,162, May 13, 1993, Pat. No. 5,431,371. This application May 22, 1995, Ser. No. 445,744
Int. Cl.[6] B25B *25/00*
U.S. Cl. 294—132 25 Claims

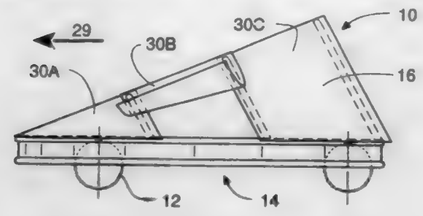


1. In a belt pulling and clamping apparatus, the combination comprising:
a frame;
first and second clamping members associated with the frame for clamping upper and lower sides of a belt end;
at least one clamping lever mounted on the frame for exerting a force on at least one of the first and second clamping members to clamp the belt therebetween;
a pulling means connected to the clamping lever for pivoting the lever to exert a force on the clamping lever to cause the first and second clamping members to tightly grip a belt end therebetween; and
substantially vertical guiding surfaces on the frame along which the one of the first and second clamping members may slide vertically, and which limit twisting and rotation of the clamping members as the clamping lever moves to cause the clamping members to tightly grip the belt end under high loading forces from the pulling means.

5,725,270
FLAT SHEET VEHICLE BODY

Gregg R. Fleishman, 6071 Hargis St., Los Angeles, Calif. 90034

Filed Sep. 19, 1994, Ser. No. 308,150
Int. Cl.[6] B60R *27/00*
U.S. Cl. 296—185 3 Claims

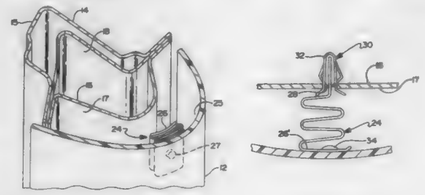


1. A vehicle body comprising a frame and a skin attached thereto, said skin including at least one bent elastic sheet, wherein substantially the entirety of said skin forms a single substantially ruled surface.

5,725,271
ENERGY ABSORBING AUTOMOTIVE VEHICLE BODY STRUCTURE

Rasik N. Patel, Canton; Guy Allen Breckenridge, Westland, and Saeed David Barbat, Farmington Hills, all of Mich., assignors to Ford Global Technologies, Inc., Dearborn, Mich.

Filed Jan. 23, 1997, Ser. No. 788,097
Int. Cl.[6] B60R *21/09*
U.S. Cl. 296—189 16 Claims



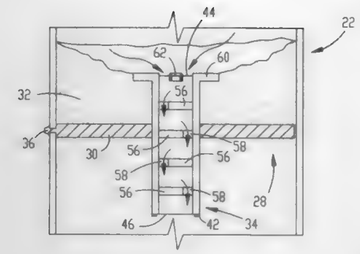
1. An automotive vehicle body structure comprising:
a structural member which forms a load-bearing portion of a vehicle, a trim component mounted to said structure member; and
a plurality of energy absorbing elements mounted to said trim component and spaced relative to one another along a longitudinal length of said trim component and laterally across the width of said trim component, each of said energy absorbing elements having a serpentine shape and extending from said trim component toward said structural member such that a distal end of said energy absorbing elements are spaced from, but adjacent to, said structural member in non-contacting relationship therewith, said energy absorbing element being deformable in response to a force which causes said distal end of said elements to contact said structural member to absorb and dissipate the energy generated by the force.

5,725,272
DRAIN ASSEMBLY FOR ACOUSTIC BAFFLE SYSTEM

David Jones, Northville, Mich., assignor to SIKA Corporation, Southfield, Mich.

Filed Jun. 27, 1996, Ser. No. 670,151
Int. Cl.[6] B60R *27/00*
U.S. Cl. 296—208 16 Claims

1. A drain assembly for use with an acoustic baffle apparatus for sealing a cavity of a vehicle body at a predetermined cross section

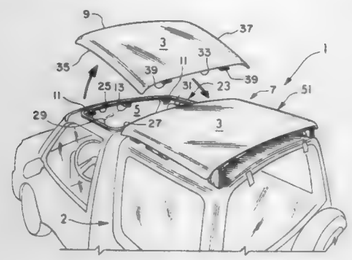


of the cavity, wherein the acoustic baffle apparatus includes a piece of heat expandable sealing material and a support element for supporting the piece of sealing material at the predetermined cross section while the sealing material is heated and expands to seal the cavity at the cross section, the drain assembly comprising:
a body having a pair of side pieces that are connected together to form a drain passage having upper and lower ends, each side piece including a C-shaped sidewall section and a plurality of baffles secured to the sidewall section in spaced relation to one another defining a serpentine path between the upper and lower ends; and
an upper flange protruding circumferentially from the side wall adjacent the upper end for directing the sealing material outward away from the upper end of the passage when the material is heated and expands, the drain assembly draining fluid from within the cavity above the apparatus and baffling noise passing through the drain passage.

5,725,273
VEHICLE ROOF ASSEMBLY WITH REMOVABLE AND STORAGE COCKPIT COVER

Dallas L. Vernon, Louisville; Brian C. Coppom, Boulder; John C. Dinsmoor, III, Westminster, and Barry Van Everen, Loveland, all of Colo., assignors to Bestop, Inc., Broomfield, Colo.

Filed Oct. 20, 1995, Ser. No. 546,410
Int. Cl.[6] B60J *7/11*; B60R *9/04*
U.S. Cl. 296—218 24 Claims

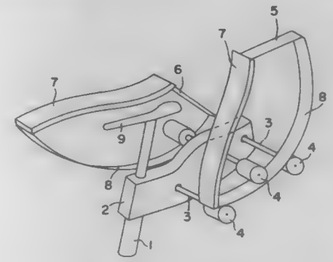


1. A hardtop roof assembly for a passenger vehicle having a passenger cockpit, said roof assembly having front and rear roof sections, said roof assembly further having an opening in the front roof section above said passenger cockpit, a completely removable and hard cockpit cover, means for removably securing said cockpit cover to said front roof section of said roof assembly over said opening, a storage rack, means for mounting said storage rack over said rear roof section of said roof assembly, and means for selectively securing said cockpit cover to said storage rack wherein said cockpit cover can be completely removed from the remainder of said roof assembly including said front and rear roof sections and said storage rack and then selectively secured to said storage rack for transport with said passenger vehicle if desired.

5,725,274
BICYCLE SEAT

Josef Bergmeister, Weilheimer Strasse 2, 82418 Murnau, Germany

Filed Mar. 27, 1996, Ser. No. 622,839
Claims priority, application Germany, Mar. 31, 1995, 195 12 016.7
Int. Cl.[6] B62J *1/04*
U.S. Cl. 297—201 9 Claims

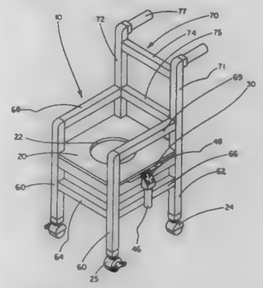


1. A bicycle seat for a bicycle, said bicycle seat comprising a pair of seat halves having upper seat surfaces, and means for supporting each of the seat halves for movement about a pivotal axis, said seat halves and upper seat surfaces being movable about the pivotal axis from a horizontal position to a downwardly inclined position, said pivotal axis being located above said upper seat surfaces with said seat halves in the horizontal position.

5,725,275
CHAIR FOR DISABLED

Lenora Wigfall, 1371 Manor Dr., San Pablo, Calif. 94806

Filed Jan. 16, 1997, Ser. No. 783,356
Int. Cl.[6] A47C *3/025*
U.S. Cl. 297—284.1 13 Claims



13. A chair for disabled, comprising:
a seat having a centrally positioned opening and a lower face, said lower face having a front portion and a rear portion;
a first front vertical leg having a caster;
a second front vertical leg having a caster, said first front vertical leg and said second front vertical leg being spaced apart and being coupled to said seat and downwardly depending from said front portion of said lower face;
a first rear vertical leg having a caster;
a second rear vertical leg having a caster, said first rear vertical leg and said second rear vertical leg being spaced apart and being coupled to said seat and downwardly depending from said rear portion of said lower face;
a retracting central seat panel having a retracting means and being slidably mounted to said lower face of said seat, said retracting central panel being positionable beneath said centrally positioned opening by said retracting means whereby

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said centrally positioned opening may be closed by said retracting central seat panel;

wherein said retracting central seat panel comprising a first central seat panel portion and a second central seat panel portion, said first central seat panel portion and said second central seat panel portion being slidably mounted to said lower face of said seat; and

wherein said retracting means comprises a cable winch system being operatively connected to said first central seat panel portion and said second central seat panel portion, said first central seat panel portion and said second central seat portion being positionable beneath said centrally positioned opening by said cable winch system whereby said centrally positioned opening may be closed by said first central seat panel portion and said second central seat portion.

5,725,276

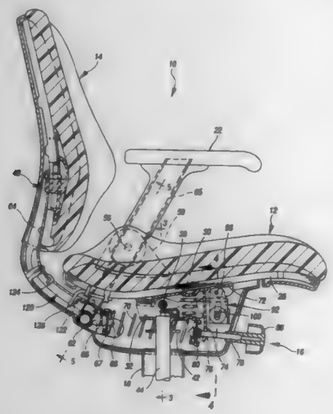
TILT BACK CHAIR AND CONTROL

Jonathan Ginat, 26 W. 9th St., New York, N.Y. 10011

Filed Jun. 7, 1995, Ser. No. 481,718

Int. Cl.° A47C *3/00*

U.S. Cl. 297—289 **19 Claims**



1. A chair comprising:

a seat member;

a bracket assembly mounted to said seat member and having means for connection of said seat member to a base pedestal, said bracket assembly further including pivot means for pivotable movement of said seat member relative to said base pedestal;

a pair of back support brackets each connected to said seat member along opposite edges thereof and extending upwardly from said seat member;

a generally U-shaped frame member having opposed end portions extending from an intermediate portion, said end portions each being pivotally connected to one of said back support brackets with said intermediate portion disposed beneath said seat member; and

a back support member connected at a first end to the intermediate portion of said frame member and at a second end to a back member.

5,725,277

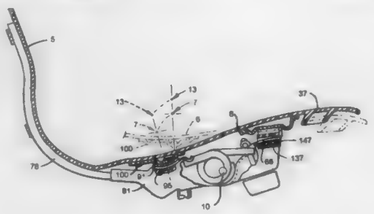
SYNCHROTILT CHAIR

Glenn A. Knoblock, Kentwood, Mich., assignor to Steelcase Inc., Grand Rapids, Mich.

Continuation of Ser. No. 285,632, Aug. 1, 1994, Pat. No. 5,567,012, which is a continuation-in-part of Ser. No. 797,717, Nov. 25, 1991, Pat. No. 5,333,934, which is a continuation of Ser. No. 738,808, Jul. 31, 1991, abandoned, which is a continuation of Ser. No. 850,528, Apr. 10, 1986, Pat. No. 5,050,931. This application Jul. 18, 1996, Ser. No. 683,385

Int. Cl.° A47C *3/026*

U.S. Cl. 297—300.4 **16 Claims**



1. A tilt back chair adapted for synchrotilt movement, comprising:

a base;

a control housing attached to said base, said housing having a front edge;

a back support pivotally connected to said control housing permitting rotation of said back support between upright and reclined positions;

said back support having a back shell, a cushion, an upright, and lower stretcher portions fixedly attached to the lower ends of said upright, and said lower stretcher portions having forward ends connecting said back support to said control housing;

springs mounted within said control housing in operative communication with said back support for biasing said back support including said back shell into a normally fully upright position;

a seat supported on said base, said seat comprising a generally planar shell comprising a semi-rigid resiliently flexible sheet, and having top and bottom surfaces and forward and rearward portions;

said forward portion of the seat being engaged with the said front edge of control housing;

the rearward portion of said seat being supported upon and in sliding engagement with said lower stretcher portions such that recline of said back support causes at least a portion of said seat to flex, and simultaneously tilts the rear portion of said seat downwardly with said chair back when chair back is reclined from the fully upright position rearwardly;

whereby, the angle by which said back support tilts with respect to a stationary point is greater than the angle by which said rearward portion of the seat tilts with respect to a stationary point, thereby achieving the synchrotilt movement.

5,725,278

CHAIR BACK HEIGHT ADJUSTER

Karen Christina Verbeek, Aurora, Canada, assignor to ITW Plastiglide, Concord, Canada

Filed Oct. 3, 1996, Ser. No. 723,650

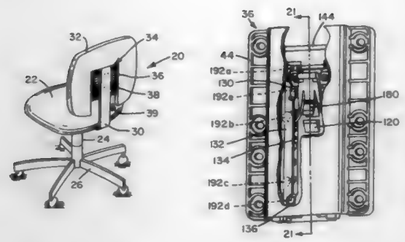
Int. Cl.° B60N *2/16;2/22*

U.S. Cl. 297—353 **20 Claims**

1. A device for positionally adjusting and releasably locking a chair backrest in any of a plurality of positions on a seat support member comprising:

a first bracket means adapted to be rigidly secured to said backrest;

second bracket means adapted to be rigidly secured to said seat support member and slidably received in said first bracket



means for sliding movement between two extreme, longitudinally spaced, first and second positions; and

locking means for releasably locking said second bracket means to said first bracket means, comprising:

a longitudinal array of lock stop members on said second bracket confronting a lock element on said first bracket, said lock stop members each having a locking surface and said lock element having lock tongue means for cooperative locking association with said locking surfaces of said lock stop members, said lock element further having path tracking means;

longitudinal guide means on said second bracket and defining a first longitudinal path and a second longitudinal path, said guide means having respective ends defining said first and second extreme positions and providing access means between said paths;

said lock element tracking means adapted to engage and cooperate with said first and second paths, wherein, when said path tracking means is in engagement with said first path, said lock element is forced into engagement with a selected one of said lock stop members and when said path tracking means is in engagement with said second path, said lock element is held out of engagement from all lock stop members and means adjacent said respective access means to permit movement of said path tracking means from one path to the other path.

5,725,279

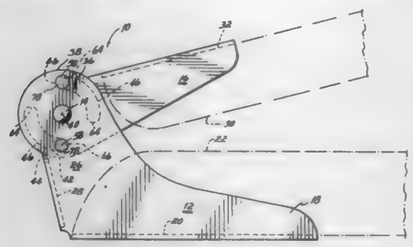
FOLDING SEAT HINGE

Richard W. Ward, West Chester, and Edward W. Hand, III, Cincinnati, both of Ohio, assignors to W.K. Manufacturing Corporation, Arnold, Mo.

Filed Sep. 3, 1996, Ser. No. 707,235

Int. Cl.° B60N *2/02*

U.S. Cl. 297—378.1 **26 Claims**



1. A hinge for connecting a folding seat back to a seat bottom, the folding seat back being movable between generally upright and folded positions with respect to the seat bottom, the hinge comprising:

a first member adapted to be connected to one of the seat back and the seat bottom, the first member having an arcuate first slot;

a second member adapted to be connected to the other of the seat back and the seat bottom and being disposed with respect to one side of the first member such that over a full range of relative motion between the first and second members, the second member extends over an area of the slot on the one side of the first member;

a cover plate disposed adjacent an opposite side of the first member, the cover plate sized to fully cover the area of the slot on the opposite side of the first member over the full range of relative motion between the first and second members;

a guide pin mechanically coupled to one of the cover plate and the second member and extending through the first slot in the first member, the first slot in the first member having ends for stopping relative motion between the guide pin and the first slot to define limits of the full range of relative motion between the first and second members; and

a pivot pin securing the first and second members and the cover plate in a hinge assembly that, over the full range of relative motion, does not form pinch points.

5,725,280

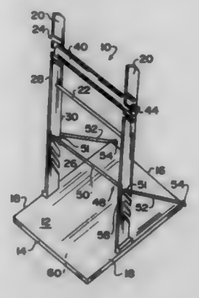
SURGEON'S PERCH

Michael Kushnir, 7807 N. Lake Dr., Fox Point, Wis. 53217

Filed Aug. 5, 1996, Ser. No. 689,196

Int. Cl.° A47C *16/00*

U.S. Cl. 297—423.44 **14 Claims**



14. A surgeon's perch upon which a surgeon can support his torso in a non-standing position, the perch comprising:

a base, said base having a forward end which is trimmable to align with a base of an operating room table, the base further having a rear end and two side edges;

a pair of mirror image support bars, one support bar being engaged to and along each side edge of the base and extending upwardly therefrom, each support bar having an upper end and a lower base engaging end, and each further having a forward end edge and a rear end edge, each support bar further having a first vertical plurality of slots along the upper end, each slot beginning at the forward end edge and extending rearwardly downwardly into the support bar and each support bar having a second vertical plurality of slots along the lower end, each slot beginning at the rear end edge and extending upwardly and forwardly into the support bar;

a two ended perch member, the perch member being engageable with and between a selected pair of slots in the support bars;

a stabilizing foot rest having two ends which are engageable within and between a pair of selected second slots in the lower end of the support bars, each end of said foot rest further including a leg portion which extends perpendicularly therefrom and terminates in a depending end, the leg portions being co-planar and parallel and of a predefined length such that the depending ends of the legs each contact a supporting surface for the perch regardless of which pair of slots is selected, the legs acting as forwardly bracing structures for the support rods.

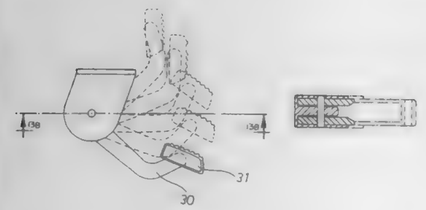
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5,725,281

ADJUSTING MECHANISM FOR A SUPPORT ELEMENT INCLUDED IN A SEAT AND PIVOTABLE IN THE VERTICAL PLANE

Erkki Vairinen, Yliskulma, Finland, assignor to Jukova Oy, Yliskulma, Finland

Division of Ser. No. 436,319, Jul. 7, 1995. This application Feb. 7, 1997, Ser. No. 798,286
Claims priority, application Finland, Nov. 20, 1992, 925275
Int. Cl.[6] A47C 7/50;20/04
U.S. Cl. 297—423.26 4 Claims



1. In an adjusting mechanism for a footrest (**30**, **31**) mounted in front of a seat, on a bottom section of a preceding seat or some other supporting structure, and pivotable in the vertical plane, said mechanism being of a type having a fastening element (**21**) adapted to be mounted on a seat or a separate body member and provided with a transverse through-hole (**20**) for a fulcrum pin to facilitate the pivotable fixing of the footrest (**30**, **31**), and a fastening member (**32**) adapted to be included in the footrest (**30**, **31**) and provided with a through-going opening (**8**) for said fulcrum pin, the improvement comprising:

a pair of said openings (**8**) for said fulcrum pin, each said opening (**8**) being elongated and having a first end and a second end;

a bushing (**6**) provided at said first end of each said opening (**8**) for receiving said fulcrum pin, said bushing being adapted for a relative movement in the longitudinal direction of said opening (**8**) towards said second end of said opening (**8**);

a spring member (**7**) applying an impulsive force between each said bushing (**6**) and the fastening member (**32**); and

first guiding and locking elements (**33**) included on the fastening member (**32**), and second guiding and locking elements (**26**) included in said fastening element (**21**), said first and second guiding and locking elements (**33**, **26**) being in cooperation with each other with said bushings (**6**) located at said first ends and loaded by said spring members (**7**), wherein the pivoting of said footrest (**30**, **31**) to a desired position being effected by shifting said footrest (**30**, **31**) in the longitudinal direction of said openings (**8**) against the action of said spring members (**7**) towards the fulcrum pin which remains stationary relative to said fastening element (**21**), said guiding and locking elements (**33**, **26**) being released from the relative engagement thereof for facilitating the pivoting motion of said footrest (**30**, **31**) to a desired locking position, wherein the spring members (**7**) are adapted to force said footrest (**30**, **31**) back to a position in which said bushings (**6**) are again at said first ends of said openings (**8**) and said guiding and locking elements (**33**, **26**) are in relative engagement;

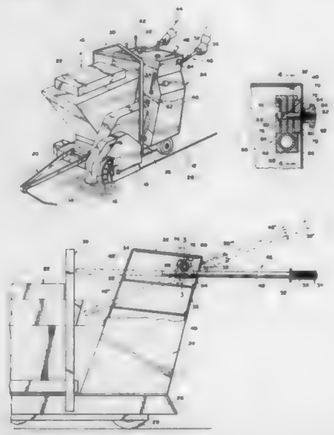
said fastening element (**21**) comprising a body member including two take-up recesses (**23**), and at least one locking shoulder (**26**) on a back wall (**25**) of each said recess (**23**); and said fastening member (**32**) comprising a shaft member (**30**), which is provided at one end with an actual footrest element (**31**) and at another end with a forked end member (**32**) having a pair of legs, said elongated openings (**8**) being formed in said legs, and each of said legs being positioned to be received in one of said take-up recesses (**23**), each said leg having a locking cam (**33**) on a free end thereof, said cam being in cooperation with said at least one locking shoulder (**26**).

5,725,282

ADJUSTABLE HANDLES FOR ROAD SURFACE CUTTING SAWS

James E. Masseth, Jr., Henrietta, N.Y.; James R. Rau, Rochester, N.Y., and David W. Lodge, Canandaiqua, N.Y., assignors to Stone Construction Equipment, Inc., Honeoye, N.Y.

Filed Aug. 20, 1996, Ser. No. 700,086
Int. Cl.[6] E01C 23/09; B25B 01/22
U.S. Cl. 299—39.3 13 Claims



9. A road surface cutting saw having a powered rotatable saw blade to form a vertical cut in a road surface and a generally vertically disposed housing at a rearward end section thereof, a pair of laterally spaced elongated handles mounted on said housing, a pair of clamp assemblies mounted on said housing and clampingly engaging each elongated handle to enable longitudinal adjustment of the elongated handles forwardly and rearwardly of the housing when unclamped and securely clamping the elongated handles in longitudinally adjusted position, a clamping bolt extending through each clamp assembly and connected with the housing to define a pivot axis for each clamp assembly and elongated handle, said pivot axis being substantially transverse of the housing to enable the elongated handles to be adjusted in a generally vertical plane about a substantially transverse axis, said pivot bolt defining the axis of pivotal movement of the elongated handles and clamping and unclamping each clamp assembly.

5,725,283

APPARATUS FOR HOLDING A CUTTING BIT

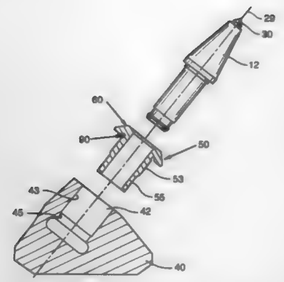
Michael Lee O'Neill, Lucinda, Pa., assignor to Joy MM Delaware, Inc., Wilmington, Del.

Filed Apr. 16, 1996, Ser. No. 633,228
Int. Cl.[6] E21C 35/183;35/197
U.S. Cl. 299—104 25 Claims

1. Apparatus for supporting a cutting bit having an elongated shank and a shoulder, on a cutting element which is moveable in a cutting direction, in a bit holder having a base portion and a body portion, said base portion constructed for attachment to said cutting element, said body portion having a trailing end facing away from the cutting direction and a leading end facing in the cutting direction, said body portion further having a contact face and an aperture coaxial with the cutting bit and extending from said leading end toward said trailing end and defining an inner surface, comprising:

a sleeve member having an annular body member and a collar located at one end of said body member, said body member constructed to be received by said aperture in said body portion through said leading end of said body portion, said body member defining an outer surface having a first tapered portion adjacent said collar, said collar having an inside surface for engagement with said contact face to prevent axial movement of said sleeve member in a direction toward said trailing end, said inside surface having a second tapered portion adjacent said body member and adjoining said first tapered portion to form an undercut area, said sleeve member further having a bore therein for rotatably receiving the shank of the cutting bit such that the shoulder engages said outside surface of said collar; and

retaining means on said outer surface of said sleeve for providing an area of interference fit between said inner surface and said outer surface adapted to prevent rotation and axial movement of the sleeve relative to said body portion while in use.

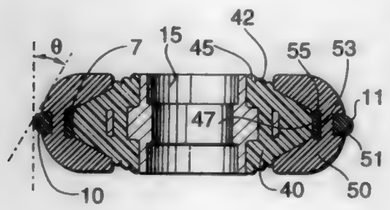


5,725,284

WHEEL FOR IN-LINE SKATES

Geoffrey Boyer, Pointe-Claire, Canada, assignor to Glenn Boyer Technologies Inc., Montreal, Canada

Continuation-in-part of Ser. No. 349,932, Dec. 6, 1994, abandoned. This application Nov. 29, 1995, Ser. No. 564,602
Claims priority, application Canada, Nov. 29, 1994, 2,136,907
Int. Cl.[6] B60B 5/02
U.S. Cl. 301—5.3 23 Claims



1. A wheel for an in-line skate, comprising:

hub means for rotation about an axis;

circular ring means disposed concentrically about said hub means, said ring means having an outer ground engaging peripheral surface; and

core means disposed concentrically about said hub means for at least partially supporting said ring means in a ground engaging position thereof, said core means comprising at least two different parts, said core means having an outer ground engaging peripheral surface and being made of a material having a higher coefficient of friction compared to said ring means, said core means comprising at least one inner core and an annular outer core, said inner and outer cores being made of material having a predetermined durometric hardness; and

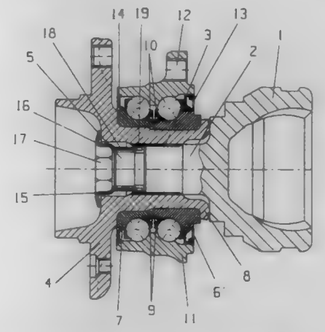
wherein the diameter of said ring means exceeds the diameter of said core means to provide a discrete radial transition from said ground engaging surface of said core means to said ground engaging surface of said ring means.

5,725,285

WHEEL MOUNTING

Peter Niebling, Bad Kissingen; Roland Langer, Schwanfeld, and Vasilis Hassiotis, Niederwerrn, all of Germany, assignors to FAG Automobtechnik AG, Germany

Filed Oct. 23, 1996, Ser. No. 735,901
Claims priority, application Germany, Nov. 22, 1995, 195 43 436.6
Int. Cl.[6] B60B 27/02
U.S. Cl. 301—105.1 8 Claims



1. A wheel mount for a vehicle wheel comprising

a wheel flange connectable with a wheel, the wheel flange including a sleeve portion away from the wheel to which the flange may be secured,

a rolling bearing inner ring supported on the sleeve portion of the wheel flange,

a cardan shaft for being connected to the wheel flange, wherein the shaft and the flange are axially braced relative to each other and rotationally detented relative to each other;

a connection between the cardan shaft and the wheel flange, comprising:

the cardan shaft having a shaft portion with an external screw thread; the sleeve portion of the wheel flange having an internal bore into which the shaft portion of the cardan shaft extends;

a sleeve-like threaded nut which is screwed onto the threaded shaft portion of the cardan shaft, the nut having a radially extending, axially resilient flange shaped and positioned to bear against the wheel flange with prestress, the nut being internally threaded to threadedly receive and tighten to the shaft portion of the cardan shaft, so that through the nut, the cardan shaft and the wheel flange are axially held in position;

the threaded sleeve-like region of the nut having an outer circumference with rotation resisting elements thereon;

the interior of the bore of the wheel flange being splined to receive the rotation resisting elements of the nut, whereby relative rotation of the nut with reference to the wheel flange is restricted and, through the screw connection between the nut and the cardan shaft, relative rotation of the cardan shaft with reference to the wheel flange is restricted.

5,725,286

ANTILOCK LIQUID-PRESSURE CONTROL APPARATUS

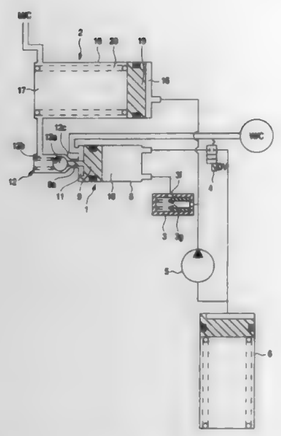
Akihiko Sekiguchi, Saitama, Japan, assignor to Akebono Brake Industry Co., Ltd., Tokyo, Japan

Filed Aug. 9, 1996, Ser. No. 694,702
Claims priority, application Japan, Aug. 9, 1995, 7-203111
Int. Cl.[6] B60T 8/32
U.S. Cl. 303—115.4 3 Claims

1. An antilock liquid-pressure control apparatus comprising:

a first liquid-pressure control mechanism, an inner space thereof being partitioned into a first liquid chamber and a second liquid chamber by a piston;

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a second liquid-pressure control mechanism, an inner space thereof being partitioned into a liquid chamber and a spring container by a piston;

wherein said second liquid chamber in said first liquid-pressure control mechanism is communicatively connected to a wheel cylinder and a pressure chamber of a master cylinder through a valve mechanism which closes a flow path only when an antilock control is executed, said first liquid chamber in said first liquid-pressure control mechanism is communicatively connected to a discharge port of a liquid pressure pump and said liquid chamber in said second liquid-pressure control mechanism through a flow control valve and further to a reservoir through a decay valve, and said spring container in said second liquid-pressure control mechanism communicates with said pressure chamber of said master cylinder, and

wherein in a pressure reduction mode of said antilock control, brake liquid is sucked from said first liquid chamber by a liquid pressure pump, and said sucked brake liquid is accumulatively pressurized in said liquid chamber of said second liquid-pressure control mechanism, and said brake liquid is returned from said spring container to said master cylinder, and in a pressure reapplication mode of said antilock control, said brake liquid is supplied from said liquid chamber of said second liquid-pressure control mechanism to said first liquid chamber, through said flow control valve.

5,725,287

HYDRAULIC MOTOR VEHICLE BRAKE INSTALLATION

Hans-Jorg Feigel, Rosbach; Andreas Klein, Bad Homburg; Ulrich Neumann, Rossdorf, and Lothar Schiel, Hofheim, all of Germany, assignors to ITT Automotive Europe GmbH, Germany

PCT No. PCT/EP95/02809, § 371 Date Jun. 18, 1996, § 102(e) Date Jun. 18, 1996, PCT Pub. No. WO96/04159, PCT Pub. Date Feb. 15, 1996

PCT Filed Jul. 18, 1995, Ser. No. 624,397

Claims priority, application Germany, Aug. 5, 1994, 44 27 799.7

Int. Cl.[6] B60T *8/40*

U.S. Cl. 303—116.4 **7 Claims**

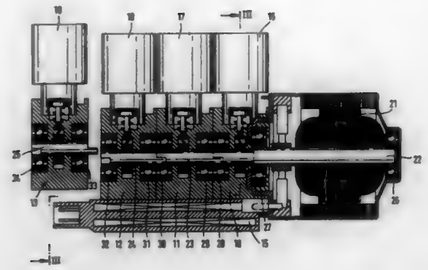
1. A modular hydraulic motor vehicle brake system comprising:

a first modular pump connected to an associated first wheel brake including,

a first housing,

a first rotor enclosed in said first housing, and

a first shaft member connected to the first rotor;



a second modular pump connected to an associated second wheel brake including,

a second housing,

a second rotor enclosed in said second housing, and

a second shaft member connected to the second rotor; and

an electric motor;

wherein said first pump and said electric motor are connected by said first shaft member and wherein said first and second shaft members are coupled together thereby coupling said first and second pumps.

5,725,288

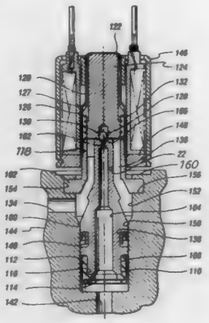
ISOLATION VALVE FOR AN ANTILOCK BRAKE SYSTEM HAVING A CONTROLLED BYPASS

Edward Nelson Fuller, Manchester, Mich., assignor to Kelsey-Hayes Company, Livonia, Mich.

Filed Oct. 27, 1995, Ser. No. 549,277

Int. Cl.[6] B60T *8/36*

U.S. Cl. 303—119.2 **10 Claims**



1. An antilock brake system for an automotive vehicle comprising:

at least one brake assembly associated with at least one wheel of said automotive vehicle, said at least one brake assembly providing a braking torque to said at least one wheel in response to a pressurized brake fluid;

a master brake cylinder responsive to an operator input to provide said pressurized brake fluid to said at least one brake assembly;

a wheel speed sensor associated with each wheel of the vehicle for generating wheel speed signals;

an electronic control for generating antilock brake signals in response to said wheel speed signals indicating an impending wheel lock-up condition;

means for reducing the rate at which said pressurized brake fluid from said master brake cylinder is applied to said at least one brake assembly in response to said antilock signals,

a low pressure accumulator;

a dump valve connected between said at least one brake assembly and said low pressure accumulator for reducing the brake fluid pressure being applied to said at least one brake assembly in response to said antilock brake signals to terminate said lock-up condition; and

a pump connected between said low pressure accumulator and said master brake cylinder to assure the brake fluid pressure in said low pressure accumulator is below a value sufficient to terminate said lock-up condition;

wherein said means for reducing includes a switchable orifice isolation valve having an input passageway, an output passageway, a valve controlling a fluid flow between said input passageway and said output passageway, and a bypass passageway internal to said isolation valve connecting said input passageway to said output passageway in parallel with said valve, said valve having a normally open state providing a full flow fluid passageway between said input passageway and said output passageway and a closed state in response to said antilock signals prohibiting a fluid flow between said input passageway and said output passageway through said valve;

said switchable orifice isolation valve having a normally open state, a closed state, and a third state providing a reduced flow rate between said input passageway and said output passageway in response to the termination of said closed state, said switchable orifice isolation valve switchable between said closed state and said third state after an initial switching from said normally open state to said closed state;

said switchable orifice isolation valve includes

a valve body;

an output fluid passageway axially disposed in said valve body;

an input fluid passageway provided in said valve body offset from said output passageway;

a full flow fluid orifice provided in said valve body to control the fluid flow between said input and output passageways when said switchable orifice isolation valve is in said open state;

a disc disposed adjacent to one end of said valve body, said disc having a reduced flow orifice axially aligned with said output fluid passageway, and a valve seat concentric with said reduced flow orifice on the side opposite said valve body;

a valve member coaxially aligned with said valve seat; and

means for displacing said valve member to engage said valve seat and for displacing said disc into engagement with said valve body to block a fluid flow through said full flow fluid orifice and said reduced flow orifice;

wherein said bypass passageway connects said input fluid passageway to said output fluid passageway in parallel with said full flow fluid orifice.

5,725,289

ELECTROMAGNETICALLY ACTUATED VALVE, IN PARTICULAR FOR SLIP-CONTROLLED HYDRAULIC BRAKE SYSTEMS IN MOTOR VEHICLES

Klaus Mueller, Tamm, Germany; Bernhard Heugle, Grossbottwar, Germany; Kurt Herzog, Bietigheim-Bissingen, Germany; Martin Oehler, Leingarten, Germany; Günther Hohl, Stuttgart, Germany, and Hans-Jürgen Herderich, Kernen, Germany, assignors to Robert Bosch GmbH, Stuttgart, Germany

PCT No. PCT/DE94/01076, § 371 Date Mar. 25, 1996, § 102(e) Date Mar. 25, 1996, PCT Pub. No. WO95/08461, PCT Pub. Date Mar. 30, 1995

PCT Filed Sep. 17, 1994, Ser. No. 617,930

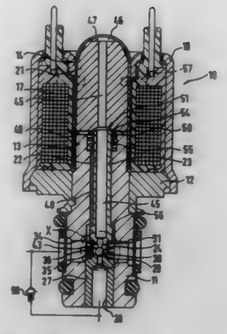
Claims priority, application Germany, Sep. 23, 1993, 43 32 368.5

Int. Cl.[6] B60T *8/36*

U.S. Cl. 303—119.2 **8 Claims**

1. An electromagnetically actuated valve (**10**) for slip-controlled hydraulic brake systems in motor vehicles, in which:

a magnet armature (**21**) is accommodated so that it can be moved longitudinally in a valve dome (**14**), the valve dome (**14**) is surrounded by a magnet coil (**17**), a valve push-rod (**22**) with a closing element (**24**), of a first seat valve (**30**) is



fastened to the valve push-rod remote from the magnet armature (**21**) and is associated with the armature, a valve body (**27**) with a valve seat (**29**) as a pressure medium inlet for the first seat valve (**30**) is arranged in a housing (**11**) of the valve (**10**), when the magnet coil (**17**) is not excited, a first return spring (**31**) raises the closing element (**24**) by a spring force of the first return spring (**31**) from the valve seat (**29**), the first seat valve (**30**) is located in a valve chamber (**35**) which is in connection with a pressure medium outlet of the valve (**10**), the valve chamber (**35**) has a partial valve chamber (**43**), acting as a ram pressure space, from said partial valve chamber (**43**) a first pressure medium passage (**45**) in said valve push-rod (**22**) and said armature extends to a first control chamber (**46**) located at an upper end (**47**) of the magnet armature (**21**) remote from the closing element, a second pressure medium passage. (**48**) extends from the valve chamber (**35**) to a lower end (**50**) of the magnet armature (**21**) near to the closing element, a pressure generated in the partial valve chamber (**43**) brings about a force in the first control chamber (**46**), the force acts counter to the force of the first return spring (**31**) on the magnet armature (**21**), and because of this counter force, the first seat valve (**30**) assumes a partially closed position that differs from a rest position of said seat valve, wherein: the upper end surface (**47**), remote from the closing element, of the magnet armature (**21**) bounds the first control chamber (**46**) and the lower end surface (**50**), near the closing element, of the magnet armature (**21**) bounds a second control chamber (**49**) which is in connection with the second pressure medium passage (**48**), a second valve (**51**) is provided for switching on and off a connection between the first pressure medium passage (**45**) of the push-rod (**22**) and the second control chamber (**49**), in the rest position of the magnet armature (**21**), the second valve (**51**) frees the connection between the first pressure medium passage (**45**) and the second control chamber (**49**) and, when the magnet armature (**21**) is displaced longitudinally out of the rest position of said armature, this second valve (**51**) keeps the connection closed.

5,725,290

VALVE HOUSING CAP WITH REMOVABLE COVER AND EXTERNAL PLUG CONNECTOR

Gerhard Thomas, Fuerth, Germany; Karl Wutz, Sengenthal, Germany, and Klaus Lechner, Eckental, Germany, assignors to Robert Bosch GmbH, Stuttgart, Germany

Filed Jun. 28, 1996, Ser. No. 671,766

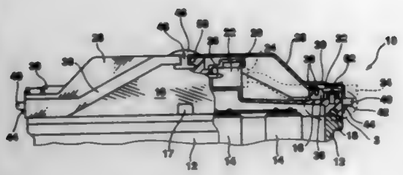
Claims priority, application Germany, Aug. 1, 1995, 195 28 252.3

Int. Cl.[6] B60T *13/00*

U.S. Cl. 303—119.2 **20 Claims**

1. A unit for a vehicle brake system, comprising a housing block, a housing cap which covers electrical components of the unit that are received by the housing block, said housing cap has at least one externally accessible electrical plug connector to which the electrical components are connected, the unit (**10**) has at least one

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removable cover (**28**), which covers said at least one externally accessible plug connector (**20**) and which together with the housing cap (**16**) forms at least one cable leadthrough (**32**) for at least one cable (**34**) of at least one plug (**24**) inserted into the at least one accessible externally plug connector (**20**).

5,725,291

ELECTRONICALLY CONTROLLED BRAKE BOOSTER AND METHOD OF OPERATION THEREOF

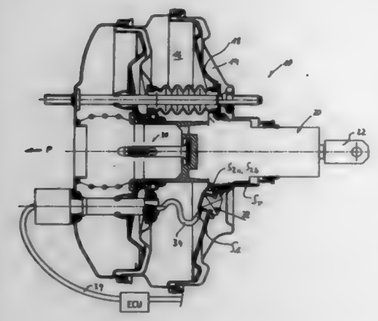
Erwin Michels, Kail, Germany, assignor to Lucas Industries public limited company, Great Britain

Division of Ser. No. 533,754, Sep. 26, 1995. This application Oct. 23, 1996, Ser. No. 735,962

Claims priority, application Germany, Oct. 11, 1994, 44 36 297.8

Int. Cl.[6] B60T *8/44*

U.S. Cl. 303—125 **11 Claims**



1. A method of operation of a vehicle brake system having an electronically controlled brake booster with a movable wall (**18**) between a servo chamber (**14**) and a vacuum chamber (**16**) comprising the following steps:

a) sensing a pressure (p_{AK}) prevailing in the servo chamber (**14**) of said brake booster with a sensor (**32**) arranged at or in said movable wall,

b) producing a first signal which is characteristic for the pressure (p_{AK}, dp) in said serve chamber (**14**), and

c) evaluating the first signal (S_1) in order to produce a first drive signal (S_2) for an electromagnetically operatable control valve device (**20**) of said brake booster (**10**) and

d) outputting said first drive signal (S_{2a}, S_{2b}) to said control valve device (**20**) which causes an operation of said brake booster (**10**) in the sense of building up or reducing a brake pressure (p_B).

5,725,292

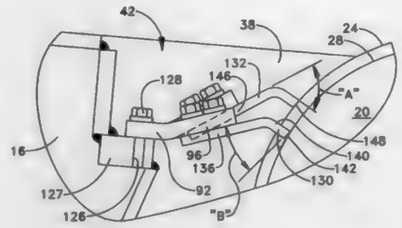
SCRAPING APPARATUS FOR A TRACK IDLER

Dave E. Keedy, Pekin; Jerry D. Fidler, Mossville; Daniel L. Mikrut, Peoria, and Jon S. Burdick, N. Pekin, all of Ill., assignors to Caterpillar Inc., Peoria, Ill.

Filed Jun. 25, 1996, Ser. No. 670,382

Int. Cl.[6] B62D *55/088*

U.S. Cl. 305—110 **18 Claims**



1. A scraping apparatus for a track assembly, comprising:

a frame;

an idler having an upraised center portion and a pair of contact surfaces positioned on opposite sides of the center portion, said idler being rotatably mountable to the frame in a manner wherein said contact surfaces are positioned for engagement with the track assembly;

a scraper assembly defining an elastomeric scraping pad having a first end portion that defines a first scraping portion that is adapted for continuous contact with one of the contact surfaces of the idler, a second scraping portion adapted for continuous contact with the upraised center portion, a third scraping portion adapted for contact with the other of the contact surfaces and a second portion that is mounted to the frame; and

a first slot positioned between the first and second scraping portions and a second slot positioned between the second and third scraping portions, said slots extending inwardly from the first end portion of the elastomeric scraping pad a preselected distance to permit the individual scraping portions to move relative to one another.

5,725,293

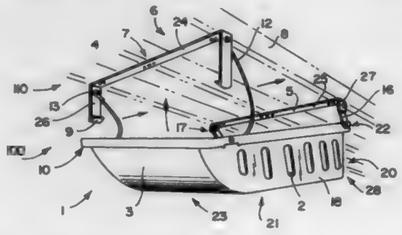
OVERHEAD STORAGE UNIT

Steven R. Wilkening, Grandville, Mich.; Walter B. Herbst, Lake Forest, Ill.; Kurt T. Peterson, Mt. Prospect, Ill., and Aaron B. Eiger, Evanston, Ill., assignors to ODL, Incorporated, Zeeland, Mich.

Filed Aug. 9, 1996, Ser. No. 694,786

Int. Cl.[6] A47F *5/08*

U.S. Cl. 312—248 **16 Claims**



1. A storage unit comprising:

a bin having a front and a rear;

frame means for suspending said bin from the underside of a horizontal surface, said frame means including pivot means for allowing said rear of said bin to pivot with respect to said frame so that said bin can be raised and lowered about said pivot means, said frame means further including retaining means for selectively retaining said front of said bin, said frame means further including rocker means for allowing said pivot means to move toward or away from said retaining means when said bin is moved between a raised retained position and a raised released position, said retaining means retaining said bin in said raised retained position and releasing said bin in said raised released position.

5,725,294

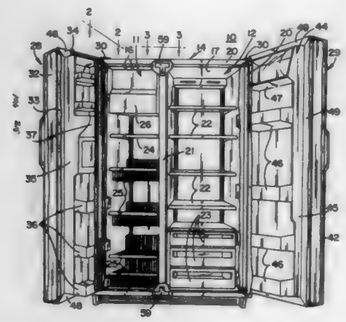
ANTISWEAT REFRIGERATOR CABINET

Stephen Bernard Froelicher, Louisville, Ky., assignor to General Electric Company, Louisville, Ky.

Continuation of Ser. No. 413,247, Mar. 30, 1995. This application Jan. 15, 1997, Ser. No. 784,329

Int. Cl.[6] A47B *96/04*

U.S. Cl. 312—401 **17 Claims**



1. A refrigerator comprising;

an outer case comprising a top wall and side walls;

an inner liner defining a storage compartment with a front opening;

a face adjacent said front opening;

a door selectively engaging said face for closing said front opening;

at least a portion of said face being so disposed that operation of said refrigerator tends to cool said portion of said face to a temperature below the dew point temperature of the surrounding air; and

a thin sheet of material having a high thermal conductivity positioned in substantial surface contact with a inside surface of a side wall of said case, said sheet of material being a metal foil, an edge of said material disposed proximate said face portion and said material projecting from said face portion onto an area of said case side wall having a temperature above the dew point temperature of the surrounding air for assuring that a temperature of said face portion is above the dew point temperature of the surrounding air.

5,725,295

LIGHTING SYSTEM AND BOOTH

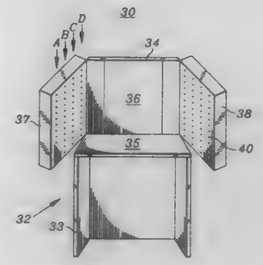
Dominique Moncourtois, Paris, and Francis Vandenbussche, Vaucresson, both of France, assignors to Chanel S.A., Neuilly-sur-Seine, France

Filed Aug. 5, 1996, Ser. No. 692,447

Claims priority, application France, Nov. 8, 1995, 95 13222

Int. Cl.[6] F21V *7/04*

U.S. Cl. 362—32 **17 Claims**



1. A lighting booth, comprising:

a stand;

a mirror mounted to the stand;

first and second panels mounted to the stand adjacent the mirror, each panel defining a plurality of apertures; and

a lighting system including a plurality of light sources and an adjustable power source, each light source being coupled with at least one aperture, and each light source being coupled with the adjustable power source for selecting the intensity of the light emitted thereby such that the light emitted by an outlet end of each light source may be adjusted so as to provide selectable variation in lighting conditions.

5,725,296

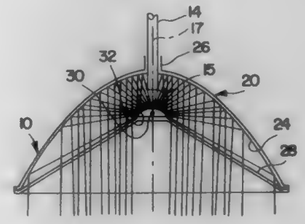
LIGHT HEAD ASSEMBLY WITH REMOTE LIGHT SOURCE

Stephen C. Bibbiani, Deep River, Conn., and Harold W. Lyons, Killingworth, Conn., assignors to Whelen Engineering Company, Inc., Chester, Conn.

Division of Ser. No. 574,278, Dec. 18, 1995, Pat. No. 5,139,153. This application Sep. 16, 1996, Ser. No. 714,450

Int. Cl.[6] F21V *8/00*

U.S. Cl. 362—32 **9 Claims**



1. A light head comprising:

a primary reflector, said primary reflector having a peripheral edge and a concave reflective surface which extends generally in a first direction from said edge, said edge defining a plane, at least a portion of said concave reflective surface having a focal point and being defined by a surface of revolution about an axis, said focal point being intersected by said axis and being located on a side facing said reflective surface; and

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means for simulating a light source located at said focal point, said light source simulating means including:

a three dimensional body having a volume and a convex reflective surface, said convex reflective surface including at least two contiguous portions which generally face in the direction of said primary reflector concave reflective surface, each of said contiguous portions of said convex reflective surface having a radius, said radii being the same and having different points of origin, said points of origin being displaced from said focal point of said portion of said concave reflective surface of said primary reflector;

means for projecting a beam of light into said primary reflector, said beam having an axis; and

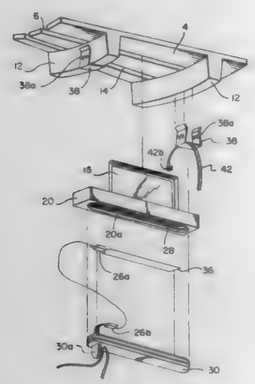
a support for said three dimensional body, said support positioning said three dimensional body on a same side of said plane as said focal point of said portion of said concave reflective surface of said primary reflector and in spaced relation to said primary reflector concave reflective surface, said support also positioning said three dimensional body to substantially eclipse said beam of light emanating from said beam projecting means, said support further orienting said three dimensional body such that an eclipsed beam of light will be incident on said portions of said convex reflective surface and will be reflected thereby to said primary reflector as diverging light rays.

5,725,297

ILLUMINATED METAL GRATE

Judith M. Crowder, and DeAnn McKinley, both of Fort Worth, Tex., assignors to McKinley Tree Grate Co., Inc, Fort Worth, Tex.

Filed Dec. 11, 1995, Ser. No. 570,679
Int. Cl.[6] F21V *9/16*
U.S. Cl. 362—84 **10 Claims**



1. A lighted grate, comprising:

(a) a horizontal grate body (**2**) having bottom and top surfaces, said body containing at least one through opening (**14**) communicating with said top surface; and

(b) means for directing light energy upwardly through said grate body opening, including:

(1) a horizontal housing (**20**) arranged below said grate body, an upper portion of said housing containing a recess (**22**);

(2) a light source (**36**) arranged in a bottom portion of said recess;

(3) a vertical translucent member (**16**) having a lower portion mounted in said recess adjacent said light source for directing light energy upon said translucent member, and an upper portion that extends upwardly from said housing; and

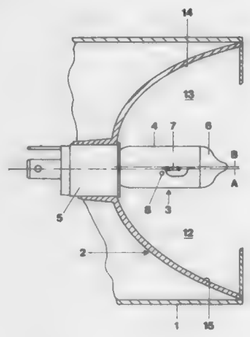
(4) mounting means (**38**) for connecting said housing with said grate body at a position causing said translucent member to extend upwardly within said grate body opening.

5,725,298

VEHICULAR HEADLIGHT PROVIDING HIGH-BEAM AND DEPRESSED-BEAM ILLUMINATION, AND LIGHT SOURCE THEREFOR

Franz-Josef Kalze, Harsewinkel; Wolfgang Peitz, Warstein, and Rolf Kiesel, Aalen, all of Germany, assignors to Hella KG Hueck & Co., Lippstadt, and Patent-Treuhand-Gesellschaft f. elektrische Gluehlampen mbH, Munich, both of Germany

Filed Feb. 20, 1997, Ser. No. 803,387
Claims priority, application Germany, Feb. 23, 1996, 196 06 876.2
Int. Cl.[6] F21M *3/14*
U.S. Cl. 362—214 **20 Claims**



1. A vehicular headlight (**1**) providing both depressed-beam and high-beam illumination, having

a lamp (**3**) including a bulb (**4**) and two light emitting elements (**7, 8; 18**) within the bulb,

wherein a first (**7**) of said light emitting elements defines a main light source (**7**) and is axially located within the bulb, and a second one (**8, 18**) of said light emitting elements defines an auxiliary light source (**8; 18**);

a shadow cap (**9, 25**) partly surrounding the main light source (**7**); and

a reflector (**2**) defining an optical axis (A), and having two segments (**14, 15**), the lamp being mounted within the reflector,

wherein, in accordance with the invention,

the segments (**14, 15**) of the reflector have different contours;

a first one (**14**) of said reflector segments being optically associated with the main light source (**7**);

at least the contour of the first one (**14**) of the segments has a free-formed surface reflection contour;

a second one (**15**) of said reflector segments is optically associated with the auxiliary light source (**8, 18**);

the shadow cap (**9, 25**) has a shadow angle of between 100° and 140° with respect to the light emitted from said main light source (**7**), thereby forming a shadow zone (**12**) and a light zone (**13**) within the reflector,

said shadow cap (**9, 25**) being shaped and positioned with respect to the auxiliary light source (**8, 18**) such that the auxiliary light source is within the shadow zone (**12**) formed by the shadow cap (**9, 25**);

the auxiliary light source is located below the optical axis (A) by an offset of between 0.25 and 2 times the diameter of the auxiliary light source (**8**); and

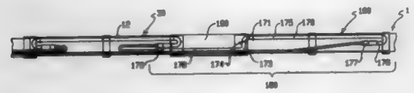
wherein the spatial distribution of the segments (**14, 15**) of the reflector (**2**) is optically associated with said light zone (**13**) and said shadow zone (**12**), respectively, formed by said shadow cap (**9, 25**).

5,725,299

ENCAPSULATED CHARGED GAS LIGHTING APPARATUS

Philip E. Devorris, 305 Fairways, Hollidaysburg, Pa. 16648

Filed Jan. 16, 1996, Ser. No. 587,347
Int. Cl.[6] F21S *3/00*
U.S. Cl. 362—216 **12 Claims**



1. A lighting apparatus, comprising:

a first elongated tubular housing member having at least one open end;

a second elongated tubular housing member having at least one open end;

a sleeve adapted to receive therein the open ends of the first and second housing members;

an adjustable-length charged gas lighting source configured and dimensioned to be received within said first and second tubular housing members, the adjustable-length lighting source comprising:

at least one conducting element for connecting said adjustable-length lighting source to a power source;

a first lighting source configured and dimensioned to be received within the first tubular housing member; and

a second lighting source received within the second tubular housing member and extending within the first tubular housing member, at least a portion of the second lighting source overlapping the first lighting source in a first configuration and configured and dimensioned to adjust the apparent length of the adjustable-length lighting source by reducing said overlapping in a second configuration.

5,725,300

Patent Not Issued For This Number

5,725,301

EARTHQUAKE DETECTION DEVICE

Michael Jung, 7716 Fair Ave., Sun Valley, Calif. 91352

Continuation-in-part of Ser. No. 230,726, Apr. 21, 1994, abandoned. This application Aug. 14, 1995, Ser. No. 518,589
Int. Cl.[6] F21V *25/00*
U.S. Cl. 362—276 **2 Claims**

1. An earthquake detection device comprising:

a) a housing;

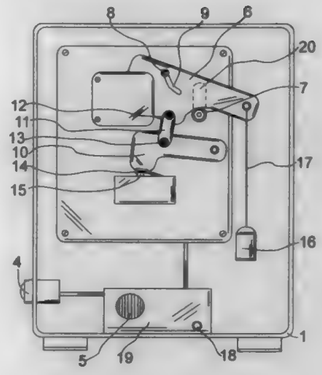
b) said housing encasing a siren, a warning light, a battery, and an inner mechanism;

c) said siren and said warning light existing in a parallel circuit, wherein said battery exists as a power source;

d) said circuit existing as an open circuit when a balance beam is in an upper position;

1) wherein break of said circuit exists at two receptacles positioned adjacently to but not in contact with each other; and

e) said circuit existing as a closed circuit when said balance beam is in a lower position;



1) wherein said circuit may be closed by allowing said receptacles to come into contact with each other;

f) said inner mechanism comprising:

1) said balance beam, wherein said balance beam has a rectangular shape, a left and right side, a middle, and a curved aperture;

a) said balance beam resting on a handle rod, wherein said handle rod is situated under said middle of said balance beam;

b) said curved aperture existing on said left side of said balance beam and accommodating a holding rod, wherein said curved aperture having a left end and a right end;

c) said holding rod fixed to said housing, wherein said balance beam may be situated so that said holding rod is positioned at either of said ends of said curved aperture of said balance beam;

d) a weighted object attached to and suspending from a cord, wherein opposite end of said cord is attached to said right side of said balance beam; and

e) said balance beam being positioned above and rotatably connected to an intermediate connecting shaft, wherein opposite end of said intermediate connecting shaft is rotatably connected to a triggering hammer, wherein said triggering hammer is positioned below said intermediate connecting shaft;

2) said triggering hammer having a left and right side;

a) wherein said triggering hammer is rotatably connected to said housing at said right side of said trigger hammer; and

b) said triggering hammer being situated directly above and in contact with one of said receptacles, wherein said other receptacle is positioned directly below and in contact with previously mentioned receptacle;

3) said handle rod extending through an elongated aperture in said housing, and connecting to a handle which is situated outside of said housing;

a) said elongated aperture being vertically elongated and accommodating up and down movement of said handle rod initiated by pulling up said handle;

b) said balance beam being pulled upward as handle is being pulled, because said handle rod is also pulled upward;

c) wherein said left side of said balance beam descends and said right side of said balance beam ascends as said balance beam is pulled upward, due to said intermediate connecting shaft being rotatably connected to left side of said balance beam and said triggering hammer, and said triggering hammer being rotatably affixed to said housing;

4) wherein when said handle is pulled to an utmost position relative to said elongated aperture, said balance beam slides along said curved aperture until said right end of said curved aperture comes into contact with said holding bar, thereby stabilizing said balance beam in an upper position;

e) wherein said handle and said handle bar return to bottom of said elongated aperture when released, but said balance

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beam remains in said upper position due to said holding bar being located at said right end of said curved aperture;

f) wherein said receptacles, no loner under pressure from said triggering hammer, are separated, thus opening said circuit;

g) wherein when said weighted object sways and vibrates, vibrations cause said curved aperture to slide off said holding bar until said left end of said curved aperture comes in contact with said holding bar, thus displacing said balance beam to lower position, thereby causing said triggering hammer to fall upon said receptacles, thus closing said circuit; and

h) said circuit existing as an open circuit once again by pulling said handle upward, thereby shifting said balance beam to said upper position.

5,725,302

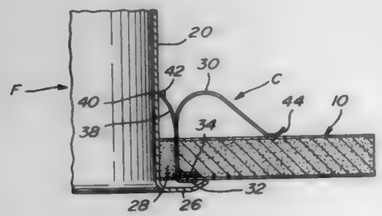
POT LIGHT MOUNTING CLIP

Howard Sirkin, 496 de l'Erabliere, Rosemere, Quebec, Canada, J7A 4M4

Filed Oct. 23, 1995, Ser. No. 546,643

Int. Cl.[6] F21S *1/02*

U.S. Cl. 362—365 **20 Claims**



15. A mounting clip for securing a recessed lighting fixture in a hole defined in a panel, the fixture having a side wall and an outwardly extending flange at a lower end thereof, the panel having inner and outer surfaces, said mounting clip comprising first and second surface engaging means and resilient fixture retaining means, said first surface engaging means being spring loaded with respect to said second surface engaging means, wherein said first and second surface engaging means are adapted to respectively bear against the inner and outer surfaces of the panel, said fixture retaining means extending from said first and second surface engaging means towards the center of the hole and being adapted for frictional engagement with the side wall of the lighting fixture such that the fixture is secured into the hole to the panel.

5,725,303

LAMPSHADE AND GUARD NETTING ARRANGEMENT OF A HALOGEN LAMP

Shih-Ming Lin, No. 132, Hsi Hsin Street, Chuang Ya Tsun Hsiu Shui Hsiang, Chang Hua Hsien, Taiwan

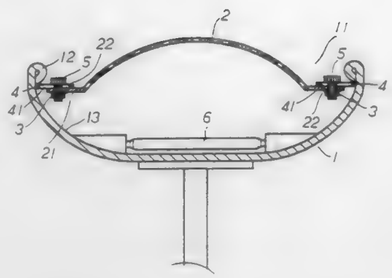
Filed Sep. 30, 1996, Ser. No. 723,363

Int. Cl.[6] F21V *15/00*

U.S. Cl. 362—376 **3 Claims**

1. A guard netting assembly capable of installation within a lampshade having an inside wall and a flange extending inwardly about a periphery of the inside wall of the lampshade, said guard netting assembly comprising:

a guard netting having a rim, said rim having a plurality of mounting holes passing therethrough, and



means in communication with said plurality of mounting holes on said rim of said guard netting for holding said guard netting within the lampshade and below the flange;

said holding means contacting the inside wall of the lampshade to hold said guard netting in place within the lampshade.

5,725,304

BATTERY CONCRETE VIBRATOR

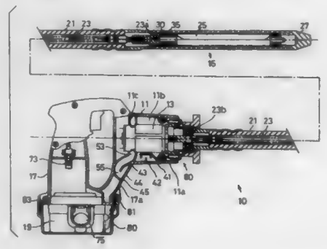
Masahiko Inai, Anjo, Japan, assignor to Makita Corporation, Anjo, Japan

Filed Nov. 27, 1996, Ser. No. 753,670

Claims priority, application Japan, Dec. 13, 1995, 7-324852; Dec. 13, 1995, 7-324853

Int. Cl.[6] B01F *11/00*

U.S. Cl. 366—120 **7 Claims**



1. A concrete vibrator comprising:

a concrete vibrator body including a motor housing with a forward end and a rear end and a handle housing connected to the rear end of said motor housing, and said concrete vibrator body having a lower side;

a vibration rod projecting from the forward end of said motor housing;

a direct current motor being housed in said motor housing for driving said vibration rod about a rotational axis; and

a battery being housed in said handle housing for powering said motor;

wherein said handle housing includes a lower part for accommodating said battery; and

air inlet ports and air exhaust ports are provided in the lower side of said concrete vibrator body and located between the lower end of said handle housing and the forward end of said motor housing.

5,725,305

WHISK

Louise Delbor, Solbergsvagen 5A, S-811 31 Sandviken, Sweden

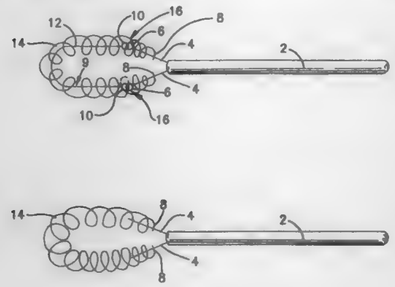
PCT No. PCT/SE95/00592, § 371 Date Nov. 21, 1996, § 102(e) Date Nov. 21, 1996, PCT Pub. No. WO95/32657, PCT Pub. Date Dec. 7, 1995

PCT Filed May 24, 1995, Ser. No. 737,674

Claims priority, application Sweden, May 26, 1994, 9401801

Int. Cl.[6] A47J *43/10*

U.S. Cl. 366—129 **5 Claims**



1. A whisk for whipping, beating and mixing ingredients in a container, comprising a rigid longitudinally extending handle (**1**) having mounting means (**4**) at the lower end and a whipping member comprising a single spirally wound filament (**14**) with end portions, said spirally wound filament (**14**) being flexibly attached to said mounting means (**4**) in such a way that said mounting means (**4**) extends into each end portion of said spirally wound filament (**14**), said spirally wound filament (**14**) being flexible up to 180° in both directions around an end point of said mounting means (**4**).

5,725,306

HIGH EFFICIENCY MIXER FOR MIXING PULP MATERIAL AND TREATMENT SUBSTANCES

Johannes Kappel, Graz, Austria, and Johann Sbaschnigg, Graz, Austria, assignors to Andritz-Patentverwaltungs-Gesellschaft m.b.H., Graz, Austria

PCT No. PCT/AT94/00069, § 371 Date Feb. 15, 1996, § 102(e) Date Feb. 15, 1996, PCT Pub. No. WO94/27713, PCT Pub. Date Dec. 8, 1994

PCT Filed May 18, 1994, Ser. No. 549,751

Claims priority, application Austria, May 24, 1993, 1007/93

Int. Cl.[6] B01F *5/04;15/02*

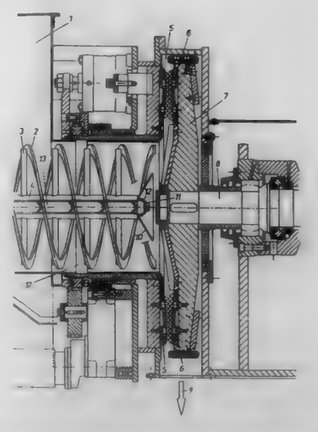
U.S. Cl. 366—157.1 **21 Claims**

1. High-efficiency mixer for fluffing and mixing shredded pulp with treatment additives, having an annular mixing and fluffing zone formed between a disc rotor fixed to a rotor shaft extending along a rotation axis and an annular stator, and having an axially extending central pulp feed channel with a positive conveyor in the channel to convey the shredded pulp to the mixing and fluffing zone, wherein the improvement comprises:

the positive conveyor being a ribbon feeder (**2**, **3**, **4**) fixed to a hollow axially extending rotatable feeder shaft,

a baffle (**10**) shaped like the envelope of a cone, which is firmly connected to the shaft of the ribbon feeder, provided at the end of the ribbon feeder next to the mixing and fluffing zone, to feed the additives and to deflect the pulp emerging from the ribbon feeder to the periphery of the feed channel (**17**),

treatment means for delivering additives through the feeder shaft, the feeder shaft having at least one opening (**12**) at the end of the shaft facing the mixing and fluffing zone in order to discharge additive into the feed pulp immediately before the rotor.



5,725,307

WIRE TEMPERATURE DISTRIBUTION MEASURING METHOD FOR A WIRE ELECTRIC DISCHARGE MACHINE

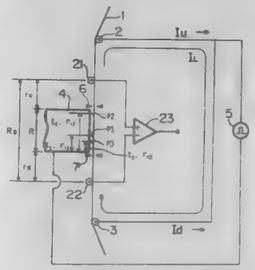
Haruki Obara, Toyama; Yuki Kita, and Masaya Ito, both of Minamitsuru-gun, all of Japan, assignors to Fanuc Ltd., Minamitsuru-gun, Japan

Division of Ser. No. 199,287, Mar. 2, 1994, Pat. No. 5,590,964. This application Feb. 23, 1996, Ser. No. 606,338

Claims priority, application Japan, Jul. 21, 1992, 4-193889

Int. Cl.[6] G01K *1/14;13/00;7/16;3/06*

U.S. Cl. 374—137 **5 Claims**



1. A method of measuring temperature distribution of a wire during a machining operation of a wire electric discharge machining on a workpiece, comprising:

supplying a discharge voltage to the wire via first and second feeders which position the wire, the first and second feeders connected to respective first and second feeder lines;

cutting off the discharge voltage;

detecting an electric discharge position based on upper and lower currents flowing, respectively, from the first and second feeders through the first and second feeder lines, respectively during electric discharge;

measuring a resistance value between the electric discharge position and a second one of two ends of the workpiece based on said upper current, said lower current, and a loop current flowing through the wire and the first and second feeders lines after and as a result of the cutoff of the discharge voltage; and

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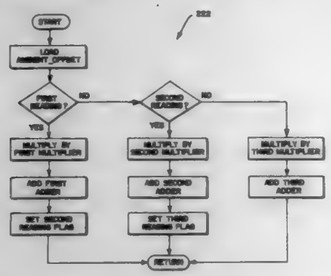
repeatedly performing the steps of detecting an electric discharge position and measuring a resistance value for a plurality of electric discharges, and measuring the temperature distribution of the wire based on the plurality of said resistance values.

5,725,308

QUICK REGISTERING THERMOMETER

Richard P. Smith, Decatur, Ill.; Ned M. Cole, Jr., Lucie, Fla.; Roger B. Whitaker, Springfield, and Dale R. Andrews, Decatur, both of Ill., assignors to RTD Technology, Inc., Decatur, Ill.

Filed Dec. 23, 1994, Ser. No. 363,688
Int. Cl.[6] G01K *7/16;7/42*
U.S. Cl. 374—169 **3 Claims**



1. A quick registering thermometer comprising:
a housing having a probe, the probe at least partially comprised of a heat insulating material;
temperature responsive means mounted on the periphery of the heat insulated portion of the probe;
means communicating with the temperature responsive means for detecting the changes in the temperature of the responsive means
means communicating with the detecting means for converting the detected temperature changes in the temperature responsive means to electrical signals representing a calculated temperature;
means communicating with the converting means for displaying the calculated temperature; and,
error adjustment means is communication with the converting means for changing the calculated temperature as a function of the number of displays by the thermometer in a given period of time.

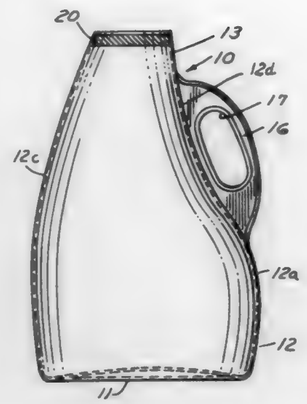
5,725,309

PLASTIC CONTAINER PACKAGE

Gerald R. Robinson, Perrysburg, Ohio, assignor to Owens-Brockway Plastic Products Inc., Toledo, Ohio

Filed Jun. 25, 1996, Ser. No. 671,026
Int. Cl.[6] B65D *30/10*
U.S. Cl. 383—7 **8 Claims**

1. A blow molded plastic container including
a base including a bottom intended to rest upon a supporting surface,
the base having a predetermined average thickness providing sufficient strength and rigidity to maintain its overall shape as molded,
an integral body portion extending upwardly from said base,
said body portion terminating in an open upper end,
said body portion including side walls and end walls merging with respect to one another, said side walls being wider than the end walls,
one of said end walls having a concave portion,
an integral handle extending from said concave portion,



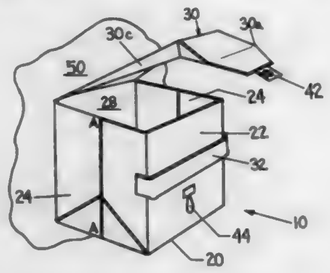
said side walls and end walls tapering toward said open end to define a generally oval open end,
said body portion having an average thickness less than the base predetermined average thickness of said base,
said body portion having an average thickness which is sufficient to maintain its shape as molded,
said body portion having an average thickness which is sufficient to permit the body portion including the open upper end to maintain its shape as molded,
said body portion having a central area with a thickness which is insufficient to maintain its shape as molded during handling without supplementary support,
said side walls of said container being thicker at the center area thereof and thinner adjacent the base,
said open upper end of the container being flexible such that the container can be filled and the upper end can be collapsed and sealed along a line extending generally parallel to said side walls to define a package.

5,725,310

DISPOSABLE ARTICLE RECEIVING DEVICE

Serge Mark Kruczko, Jamaica, N.Y., assignor to J & H Kuntz Enterprises, Ltd.

Filed Sep. 3, 1996, Ser. No. 707,215
Int. Cl.[6] B65D *30/20*
U.S. Cl. 383—11 **15 Claims**



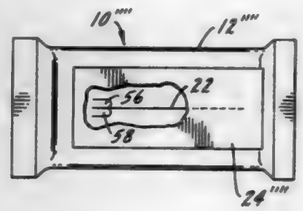
1. A disposable article receiving device which is expandable between a storage position and a use position, the disposable article receiving device comprising:
an envelope body having a front panel, two side panels, a bottom panel, and a rear panel;
a cover flap to cover the envelope body, the cover flap being divided into a front flap section, a rear flap section, and two wing flap sections along each side of the front and rear flap sections, the wing flap sections having fold lines for folding the wing flap section underneath the front and rear flap sections;
means for releasably attaching the cover flap to the front panel of the envelope body; and
means for removably attaching the article receiving device to a suitable surface, wherein
(1) the two side panels have fold lines located thereon for placing each side panel into the storage position,
(2) the wing flap sections of the cover flap are folded underneath the front and rear flap sections, and
(3) a receiving band is attached across the front panel for receiving the cover flap when the article receiving device is in the storage position.

5,725,311

RESEALABLE PACKAGE WITH LABEL PEELING INHIBITING MEANS

Lawrence G. Ponsi, Wheeling, and Steven W. Hickman, Woodstock, both of Ill., assignors to Sage Products, Inc., Crystal Lake, Ill.

Filed Jul. 19, 1996, Ser. No. 684,127
Int. Cl.[6] B65D *33/16*
U.S. Cl. 383—66 **7 Claims**



1. A resealable package, comprising
a. a flexible package body having an internal space therein for housing contents,
b. an elongated opening through the package body to said internal space for accessing the contents,
c. a label having pressure-sensitive adhesive on one side of the label, said label being applied to said package body on a generally uniform surface thereof to conceal said opening, and said label being formed to be repeatedly peeled from said uniform surface of said package body and reapplied thereto, and
d. means for inhibiting peeling of said label past a predetermined location, said inhibiting means comprising a portion of said label coacting with a portion of said package body to temporarily deform at least one of said portions to inhibit peeling past said location, said inhibiting means comprising opposite cuts in said label and an uncut portion of said label between said cuts, said cuts being curved in a concave manner in the direction from which said label is peeled and extending from opposite side edges of said label.

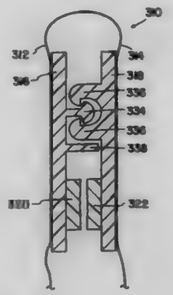
6. A resealable package, comprising
a. a flexible package body having an internal space therein for housing contents,
b. an elongated opening through the package body to said internal space for accessing the contents, said opening comprising an elongated slit,
c. a label having a pressure-sensitive adhesive on one side of the label, said label being applied to said package body on a generally uniform surface thereof to conceal said opening, and said label being formed to be repeatedly peeled from said uniform surface of said package body and reapplied thereto, and
d. means for inhibiting peeling of said label past a predetermined location, said inhibiting means comprising a portion of said label coacting with a portion of said package body to temporarily deform at least one of said portions to inhibit peeling past said location, said portion of said package body comprising a pair of contiguous tabs in said package body at one end of said slit and adhering to said label.

5,725,312

CLOSURE ARRANGEMENT HAVING A PEELABLE SEAL

Timothy J. May, Greenville, Wis., assignor to Reynolds Consumer Products, Inc., Appleton, Wis.

Continuation-in-part of Ser. No. 225,864, Apr. 11, 1994, Pat. No. 5,470,156, Ser. No. 499,619, Jul. 7, 1995, Pat. No. 5,509,735, Ser. No. 499,620, Jul. 7, 1995, Pat. No. 5,489,252, Ser. No. 499,621, Jul. 7, 1995, abandoned, Ser. No. 499,622, Jul. 7, 1995, Pat. No. 5,551,127, Ser. No. 603,145, Feb. 20, 1996, Pat. No. 5,647,671, Ser. No. 225,866, Apr. 11, 1994, Pat. No. 5,486,051, and Ser. No. 443,611, May 18, 1995, Pat. No. 5,513,915, which is a continuation-in-part of Ser. No. 225,866, said Ser. No. 499,619, Ser. No. 499,620, Ser. No. 499,621, Ser. No. 499,622, and Ser. No. 603,145, each is a division of Ser. No. 225,864, said Ser. No. 603,145 is a continuation-in-part of Ser. No. 499,621. This application Sep. 12, 1996, Ser. No. 712,916
Int. Cl.[6] B65D *33/16*
U.S. Cl. 383—210 **4 Claims**



1. A bag comprising:
first and second opposing films having inner and outer surfaces and joined at a fold line and being perforated along the fold line;
first and second opposing base strips each having an inner and outer surface, the outer surfaces of the first and second base strips being securably arranged with respect to the inner surfaces of the respective first and second films;
a peelable strip having a pair of opposing surfaces, one of the surfaces being securably arranged with respect to the inner surface of the first base strip and the other of the surfaces being detachably arranged with respect to the inner surface of the second film to form a peelable seal; and
a pair of interlocking closure profiles being secured to the respective inner surfaces of the first and second base strips.

5,725,313

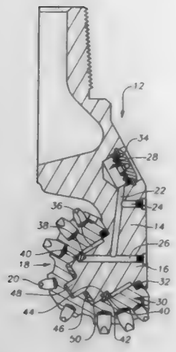
ROLLING CUTTER DRILL BITS

Ranjit Kumar Singh, Singapore, Singapore; Michael Scott Nixon, Houston, Tex., and Jeffery Edward Daly, Cypress, Tex., assignors to Camco International Inc., Houston, Tex.

Filed Jul. 28, 1995, Ser. No. 506,993
Claims priority, application United Kingdom, Aug. 3, 1994, 9415668
Int. Cl.[6] F16C *17/04*
U.S. Cl. 384—93 **27 Claims**

1. A rolling cutter drill bit comprising a body and a plurality of legs, at least one of said legs having a cantilevered bearing spindle,

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a rolling cutter rotatably mounted on the bearing spindle, lubricant delivering means within the bearing spindle, and a floating thrust bearing element configured to carry onward thrust loads from the rolling cutter onto said bearing spindle, said floating thrust bearing element being formed of a wrought alloy material consisting primarily of chromium carbide and cobalt and having a yield strength of less than 120,000 psi and a ductility of at least 5%, both at room temperature.

5,725,314

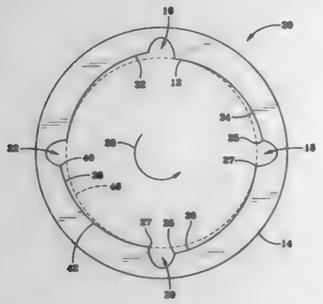
HYDRODYNAMIC BEARING

Heimir Fannar, Mooresville, N.C., assignor to Ingersoll-Rand Company, Woodcliff Lake, N.J.

Division of Ser. No. 568,331, Dec. 6, 1995. This application Oct. 30, 1996, Ser. No. 740,542

Int. Cl.[6] F16C *17/02*

U.S. Cl. 384—118 **8 Claims**



1. A hydrodynamic bearing comprising: a substantially cylindrical hollow body having a height; an inner wall; an outer wall; a plurality of gutters along the inner wall, each of the gutters extending along the height and having a closed end proximate the outer wall, a mouth along the inner wall each mouth defined by a leading edge and a trailing edge; the hollow body further including a plurality of fluid transfer recesses each recess being in fluid receiving communication with a respective gutter, each of the fluid transfer recesses being widest at the respective gutter leading edge and narrowest away from the edge and each gutter extending from the leading edge of one gutter to the trailing edge of the next adjacent gutter.

5,725,315

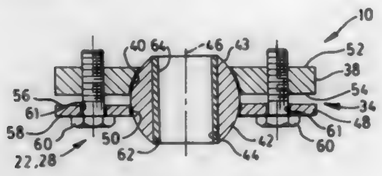
SHAFT SUPPORTING BEARING ARRANGEMENT

Franklin J. Pace, Monon, Ill., assignor to Caterpillar Inc., Peoria, Ill.

Filed Jun. 3, 1996, Ser. No. 657,254

Int. Cl.[6] F16C *23/04*

U.S. Cl. 384—210 **12 Claims**



1. A shaft supporting arrangement, comprising:
a carrier member having a seat;
a spherical member having a bore disposed therethrough, an axis, and an outer spherical surface, said spherical member being disposed in and pivotally movable in said seat;
a bearing disposed in said bore and being adapted for receiving a rotative shaft;
a clamping member connected to said carrier and being movable relative to said carrier member between a first position at which said spherical member is free to pivotally move relative to said carrier member and a second position at which said spherical member is maintained from pivotal movement relative to said carrier member, said clamping member having a seat and being spaced from said carrier member, said seat being forcibly engageable with said outer spherical surface at the second position; and
a plurality of spaced apart adjustment screws screw threadably connected to said carrier member, radially spaced from said axis a predetermined distance, and engageable with said clamping member at a plurality of spaced apart locations, said adjustment screws being screwthreadably movable to force said clamping member seat into engagement with said spherical outer surface.

5,725,316

WHEEL BEARING WITH SENSOR DEVICE

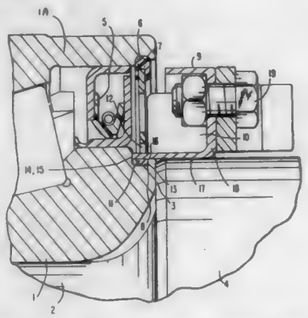
Stefano Barbero, Schweinfurt, Germany; Uwe Brockmüller, Oberwern, Germany; Norbert Huhn, Werneck, Germany, and Achim Müller, Dittelbrunn, Germany, assignors to SKF GmbH, Schweinfurt, Germany

Filed Sep. 23, 1996, Ser. No. 717,633

Claims priority, application Germany, Sep. 22, 1995, 195 35 272.6

Int. Cl.[6] F16C *19/00*

U.S. Cl. 384—448 **13 Claims**



1. A wheel bearing assembly with a sensor device for ABS systems, including a pulse disk engaging a rotating race and a sensor support ring (a) axially interlocked by means of interlocking elements, and (b) frictionally interlocked circumferentially, characterized in that a support ring has axial contact surfaces in contact with a stationary bearing race by which surfaces said support ring can be mounted and forcefit in precise position on a cylindrical surface of the axle member at time of installation, the connection of the axial positioning interlocking elements with the stationary bearing race being releasable at disassembly of the wheel bearing.

5,725,317

HEAD MECHANISM FOR THERMAL PRINTER

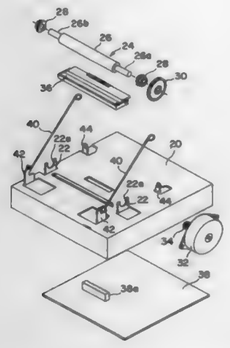
Yoshikazu Gonmori, Tokyo, Japan, and Hitoshi Sato, Tokyo, Japan, assignors to CBM Kabushiki Kaisha, Tokyo, Japan

Filed Nov. 18, 1996, Ser. No. 752,465

Claims priority, application Japan, Nov. 17, 1995, 7-323964

Int. Cl.[6] B41J *11/20*

U.S. Cl. 400—58 **3 Claims**



1. A head mechanism for a thermal printer, comprising:
a main body;
a thermal head secured to said main body;
a platen roller arranged so as to oppose said thermal head and supported on said main body in a freely rotatable and detachable manner; and
a head spring attached to said main body for bringing said platen roller into pressured contact with said thermal head, said head spring comprising a pair of wire members attached at one end to anchor portions formed on said main body and attached at an other end to hook-shape locking portions formed on said main body.

5,725,318

TAPE-SHAPED LABEL PRINTING DEVICE USABLE WITH RIBBON CASSETTES HAVING NEWLY ADDED COLORS

Koshiro Yamaguchi, Kasugai, and Akihiko Niwa, Nagoya, both of Japan, assignors to Brother Kogyo Kabushiki Kaisha, Nagoya, Japan

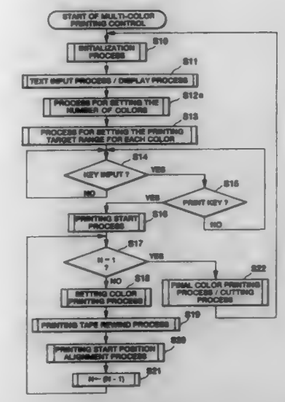
Filed Oct. 10, 1996, Ser. No. 727,990

Claims priority, application Japan, Oct. 17, 1995, 7-268838

Int. Cl.[6] B41J *2/325*

U.S. Cl. 400—120.02 **19 Claims**

1. A tape-shaped label printing device for use with a plurality of freely detachable ribbon cassettes each housing a different colored ink ribbon, the label printing device comprising:
input means for inputting text, such as characters and symbols, and for inputting a variety of commands;
data memory means for storing inputted text data;
print means including a print head for printing on a print tape in colors of the ink ribbons in the ribbon cassettes;



order setting means for setting a printing order for printing text stored in the data memory means in a first plurality of colors using corresponding ones of the different colored ink ribbons; and
print control means for driving the print means to print in the print order set by the order setting means.

5,725,319

SHEET FEEDING APPARATUS

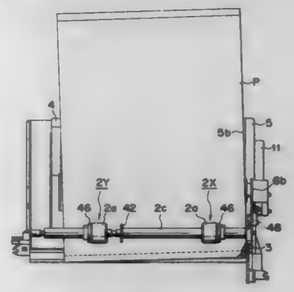
Hiroyuki Saito; Tetsuo Suzuki; Makoto Kashimura, all of Yokohama; Masahiro Taniguro, Ushiku; Koichi Tanno, Kawasaki; Haruyuki Yanagi, Machida; Tetsuhiro Nitta, Yokohama; Makoto Kawarama, Ayase; Hiroyuki Kinoshita, Kawasaki; Masaya Shinmachi, Kawasaki; Tan At Ming, Kawasaki; Kentaro Ohnuma, Kawasaki, and Seiji Ogasawara, Yokohama, all of Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan

Continuation of Ser. No. 352,225, Dec. 8, 1994, abandoned. This application Jul. 2, 1997, Ser. No. 886,890

Claims priority, application Japan, Dec. 15, 1993, 5-315331

Int. Cl.[6] B41J *13/00*

U.S. Cl. 400—629 **23 Claims**



1. An recording apparatus comprising:
a sheet supporting means for supporting sheets;
rotatable sheet supply means for feeding out the sheets supply means having a high friction portion which can be abutted against the sheet to feed out the sheets;
guide means extended in a sheet feeding direction for guiding a side edge of the sheet when the sheet is fed out by said sheet supply means;
a separation pawl arranged at the same side as said guide means in the sheet feeding direction for separating sheets fed out by said sheet supply means one by one;

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spacing means arranged at said rotatable sheet supply means for spacing said high friction portion from the sheet while said sheet is being fed; and

recording means for recording an image on the sheet the skew-feed of which was corrected;

wherein said spacing means acts on the sheet to rotate it in a plane thereof, and one side edge of the sheet is abutted against said guide means by rotating said sheet, thereby correcting a skew-feed of the sheet.

5,725,320

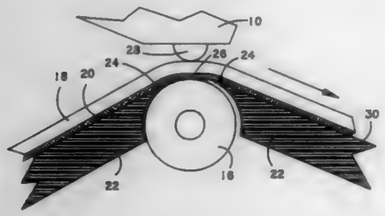
LINERLESS MEDIA AND CUTTING APPARATUS FOR MINIMIZING ADHESIVE PROBLEMS WHEN CUTTING THE MEDIA

Pixie Ann Austin, Marysville, and Allen Crowe, Kirkland, both of Wash., assignors to Intermec Corporation, Everett, Wash.

Filed May 4, 1995, Ser. No. 435,022

Int. Cl.[6] B41J *13/10;* **B32B** *3/00*

U.S. Cl. 400—642 **12 Claims**



1. A print station for printing on linerless adhesive-backed media and cutting said media into individual labels, comprising:

linerless media having a front surface for printing upon and a back surface with adhesive on it wherein a printhead is positioned over the front surface, said adhesive disposed on the back surface in a plurality of equal width areas separated by a plurality of equal width gaps containing no adhesive;

a platen roller positioned over the adhesive opposite the printhead, and including apparatus for preventing the adhesive from sticking to the platen roller;

a pair of bridge members disposed on opposite sides of an area of the platen roller for contacting the adhesive to support the media and positioned to have adjacent ends thereof expose only a narrow area of the platen roller directly under a printing position line of the printhead to the adhesive; and,

a cutting station for cutting said linerless media including a first cutter member sized to fit within a selected one of the plurality of gaps to support the media; and, a second cutter member disposed to interact with said first cutter member to cut the media along a centerline of said selected one of the plurality of gaps.

5,725,321

JOURNAL PRINTER PAPER FEED FAULT DETECTION SYSTEM FOR AUTOMATED TELLER MACHINE

Jeffrey A. Brannan, Canton, Ohio; Kim R. Lewis, Stow, Ohio, and Kenneth J. Schanz, Richmond Heights, Ohio, assignors to InterBold, North Canton, Ohio

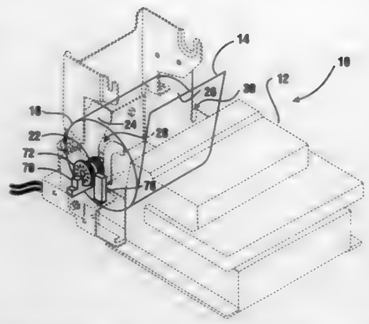
Filed Dec. 7, 1995, Ser. No. 568,887

Int. Cl.[6] B41J *29/48;15/04;* **B65H** *23/06*

U.S. Cl. 400—708 **40 Claims**

21. Apparatus for indicating a fault condition in an automated banking machine with a printer supplied with paper from a paper roll, comprising:

printing means for printing on said paper, and wherein said printing means moves paper from said roll therethrough;



rotating support means for supporting said paper roll and for rotatably moving in connection therewith;

sensing means in operative connection with said rotating support means for sensing rotation of said rotating support means;

drag means for preventing overrunning of said rotating support means beyond a distance said printing means moves said paper;

an electronic circuit in connection with said printing means and said sensing means, wherein said electronic circuit includes means to generate a first fault signal responsive to a failure of said sensing means to sense rotation of said rotating support means after said printer means has operated to move said paper in response to a banking transaction by said automated banking machine.

5,725,322

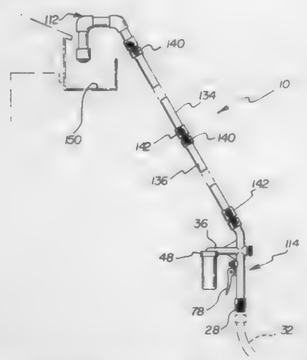
EAVES TROUGH CLEANER

Edward C. Evans, 5314 42nd Ave., Red Deer, Alberta, Canada, T4N-3A4

Filed Aug. 22, 1996, Ser. No. 701,637

Int. Cl.[6] A47L *13/03*

U.S. Cl. 401—42 **1 Claim**



1. A new and improved eaves trough cleaner for removal of debris from rain gutters comprising in combination:

a fluid flow mechanism having a top end and a bottom end and an intermediate portion therebetween, the top end having a top connector being threaded and the bottom end having a bottom connector being threaded for coupling with a hose, the intermediate portion having a cross tubing integral therewith and spaced from the top end, the cross tubing having a first end, a second end and an internal fluid passage therebetween, the second end of the cross tubing having a container coupled thereto, a gasket being positioned between the top of the container and the second end of the cross tubing, the internal passage having a vertical extension at the second end of the cross tubing, the extension being coupled with an elongated flexible tube positioned within the container, the flexible tube having a lower end with a weight for retaining the position of the flexible tube when the container is held in various orientations;

a trigger mechanism being coupled with the intermediate portion and positioned between the cross tubing and the bottom end, the trigger mechanism has a support bracket pivotally supporting the trigger mechanism, the trigger mechanism has a lever portion that engages a regulator valve, the regulator valve has a front portion structure for reception within a valve seat within the opening of the intermediate portion, the regulator valve having a rear portion being engaged by the lever of the trigger mechanism, the regulator valve having a resilient member for urging the regulator valve into engagement with the valve seat for sealing the opening within the fluid flow mechanism, the regulator valve controlling water flow through the fluid flow mechanism when the trigger mechanism being pivoted about the support bracket for urging the regulator valve;

a turn valve mechanism being positioned within the first end of the cross tubing for sealing and unsealing the internal passage thereof;

a cleaning tool having a a U-shape and including a flow control valve and having a fluid release end and a coupling end with an internal threaded portion, the cleaning tool having a nozzle with a plurality of holes being attached to the fluid release end; and

a pair of elongated connector pipes with each pipe having an upper end and a bottom end, the pair of pipes forming a first pipe member and a second pipe member, the bottom end of the first pipe member being releasable coupled with the upper end of the second pipe member, the upper end of the first pipe coupling with the coupling end of the cleaning tool for allowing the cleaning tool to be placed within the eaves trough, the bottom end of the second pipe member coupling with the top end of the fluid flow mechanism when the first pipe being coupled to the cleaning tool, whereby when the fluid flow mechanism being coupled to the hose the trigger mechanism allows water to flow through the pair of elongated connector pipes for release through the nozzle of the cleaning tool within the eaves trough.

(d) a sealing closure member which is configured to be closed by the housing in the retracted position;

(e) a shoulder associated with said writing element; and

(f) a lever having a time-switch projection positioned to frictionally engage said shoulder, said time-switch projection maintaining for a period of time, without external influence, said writing element in a position external to said housing and suitable for writing, said lever being tiltably mounted on said housing and having a release mechanism on one end of said lever, said release mechanism being positioned for immediate release of said time-switch projection from said shoulder when said release switch is depressed, the coefficient of friction between said shoulder and said time switch projection being of a value to cause friction insufficient to overcome the urging of said bias member and insufficient to prevent slow movement between said shoulder and said time switch projection, allowing the time switch element to be driven by said bias member along a path of movement from a beginning position to a position where said shoulder and said time switch projection disengage and said writing element moves to the retracted position.

5,725,323

WRITING APPLIANCE THAT CLOSES AUTOMATICALLY AFTER A GIVEN TIME INTERVAL

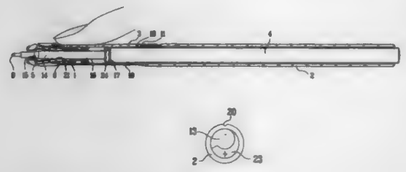
Gotz Ulrich Wittek, London, United Kingdom, assignor to Intergraph Office Innovation N.V., Netherlands Antilles

Continuation of Ser. No. 752,618, Apr. 26, 1993, abandoned. This application Nov. 9, 1994, Ser. No. 337,149

Claims priority, application Germany, Feb. 15, 1989, 39 04 578.1; WIPO, Feb. 14, 1990, PCT/EP90/00240

Int. Cl.[6] B43K *5/16;7/12*

U.S. Cl. 401—114 **17 Claims**

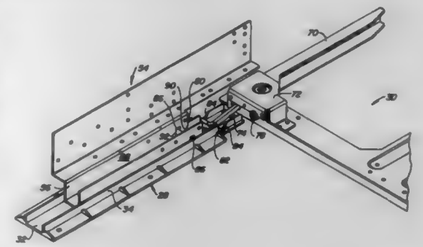


1. A writing implement, comprising:

(a) a housing;

(b) a writing element contained in said housing;

(c) a bias member for urging said writing element into a retracted position;



1. In combination, first and second modules and an apparatus for removably connecting said first and second modules into correct alignment wherein said apparatus comprising:

a latching assembly attached to said first module having a T-shaped pawl pivotally connected to a latch handle, said T-shaped pawl having a shank and a cross-piece with two ends; and,

a slot on said second module capable of operably engaging both of said cross-piece ends of said T-shaped pawl such that when said T-shaped pawl cross-piece ends engage said slot and said handle is moved from an open to a closed position, said first and second modules are connected into correct alignment.

5,725,324

MODULE LATCH ASSEMBLY

John Pavelski, Austin, Tex., assignor to Tandem Computers Incorporated, Cupertino, Calif.

Filed Dec. 21, 1995, Ser. No. 576,747

Int. Cl.[6] F16B *2/18*

U.S. Cl. 403—321 **13 Claims**

5,725,325

LAYING PLANK FOR A ROAD FINISHER

Burkhard Schleiter, Oldenburg, Germany, and Klaus Dieter Bunk, Grossenkneten, Germany, assignors to Svedala Strassenfertiger GmbH, Wardenburg, Germany

Filed Jun. 6, 1995, Ser. No. 466,195

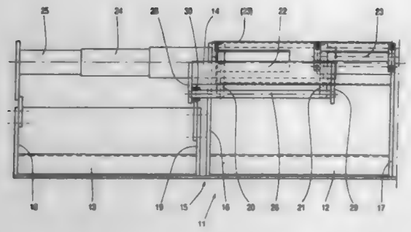
Claims priority, application Germany, Jun. 8, 1994, 44 20 016.1

Int. Cl.[6] E01C *19/48*

U.S. Cl. 404—118 **4 Claims**

1. A laying plank for a road finisher, comprising:

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a longitudinally extending main plank which has two transversely opposite ends and respective end plate connected thereto;

two displacement planks which are associated with the opposite ends of the main plank, and which are provided with respective inner plates directed towards the main plank;

two intermediate slides for displaceably mounting said two displacement planks transversely to the main plank;

two spaced apart outer and inner end plates on each intermediate slide;

guides which are within the main plank, and along which said end plates of the intermediate slides are displaceable transversely to the main plank;

supporting members which connect the end plates of the intermediate slides to one another; and

guide members on the intermediate slides,

said guide members being connected to said supporting members of the intermediate slides; and

said inner plates of the displacement planks being displaceably mounted on said guide members,

wherein said supporting members and said guide members project from an outer end plate of each intermediate slide to such an extent that, when said displacement planks are fully extended, said inner plates of said displacement planks project from said end plates of said main plank.

5,725,326

MOVABLE DAM

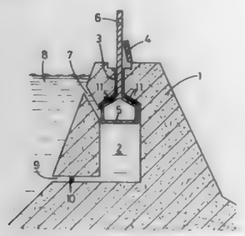
Johann Heinrich Reindert Van den Noort, Zilverschoon 47, 8265 He Kampen, Netherlands

Filed Feb. 9, 1996, Ser. No. 599,601

Claims priority, application Netherlands, Feb. 9, 1995, 9500237

Int. Cl.[6] E02B *7/26*

U.S. Cl. 405—104 **5 Claims**



1. A movable dam for a watercourse, comprising

a housing having an inner chamber and a filling channel formed therein, and

a selectively vertically movable retaining element having a buoyant bottom portion and an integrally formed and vertically outwardly extending wall portion, said retaining element being disposed at least partly within said chamber and alternately disposable between a first position where at least a portion of the wall portion of said retaining element is disposed within the chamber and the buoyant bottom portion is located in a bottom portion of the chamber, and a second position where a substantial part of the wall portion extends through a slot formed in an upper portion of the housing, and which communicates with the chamber, into the external environment such that the buoyant portion of the retaining element is disposed within a top portion of the chamber, said retaining element being movable between the first and second positions by fluid entering the inner chamber through the filling channel.

5,725,327

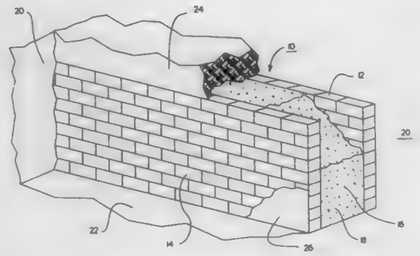
PERMANENT MINE BULKHEAD SEAL AND METHOD FOR CONSTRUCTING SAME

David A. Hussey, Monroeville, Pa., and Fred Stafford III, Newell, W. Va., assignors to Earth Support Services, Glassport, Pa.

Filed Jan. 30, 1996, Ser. No. 593,516

Int. Cl.[6] E02D *29/00;* **E04B** *1/00;* **E21D** *9/00;* **E21F** *1/14*

U.S. Cl. 405—132 **19 Claims**



5. A water-resistant mine bulkhead comprising a pair of walls constructed across a mine entry, and a closed-cell polyurethane foam binding material provided between said walls, said binding material adhering to each of said walls and to the floor, roof and ribs of the mine entry.

5,725,328

SYSTEM AND PROCESS FOR RELINING SEWERAGE PIPE SECTIONS

Klaus-Dieter Schmager, Winterscheid, Germany, assignor to HT Troplast AG, Troisdorf, Germany

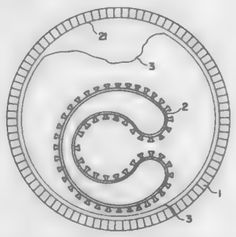
PCT No. PCT/EP93/00974, § 371 Date Oct. 19, 1994, § 102(e) Date Oct. 19, 1994, PCT Pub. No. WO93/21399, PCT Pub. Date Oct. 28, 1993

PCT Filed Apr. 21, 1993, Ser. No. 318,811

Claims priority, application Germany, Apr. 21, 1992, 42 13 068.9

Int. Cl.[6] F16L *55/16;1/00*

U.S. Cl. 405—151 **17 Claims**



1. A system for relining transportation lines, such as sewerage pipelines (**1**), comprising:

an inner tubular thermoplastic inliner (**2**),

a tubular thermoplastic preliner (**3**), disposed, within the sewerage pipeline (**1**) to be restored,

the inner inliner (**2**) being disposed concentrically and internally of said preliner **3**, and having on its exterior means (**4**) to fix a defined annular space (**5**) between the inner inliner and the preliner and for anchoring the inner inliner (**2**) positively in a hardenable composition **6** to be introduced in the annular space (**5**) between the inner inliner and the preliner.

5,725,329

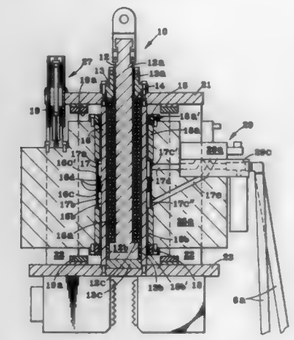
METHOD, SYSTEM AND APPARATUS FOR DRIVING AND PULLING PILINGS

Stephen Chelminski, 30 Danforth Rd., Rindge, N.H. 03461

Filed May 8, 1996, Ser. No. 646,844

Int. Cl.[6] E02D *7/02*

U.S. Cl. 405—232 **20 Claims**



1. A linear vibratory pile driver apparatus to drive and to pull pilings comprising:

a lifting shaft vibration isolated from, but slideably mounted within, a piston assembly, said piston assembly attached to a frame assembly, said frame assembly restricting sliding movement of said lifting shaft within said piston assembly;

means for vibration isolating said lifting shaft from said piston assembly;

a cylinder assembly attached to a reaction mass, said piston assembly vibratorily positioned within said cylinder assembly; and

means for vibratorily driving said piston assembly, by hydraulic fluid, at a selectable frequency thereby vibrating said piston assembly and said attached frame assembly relative to said cylinder assembly attached to said reaction mass assembly.

5,725,330

JOINING ARRANGEMENT

Josef Krings, Heinsberg, Germany, assignor to Wolfgang Richter, Hurtgenwald, Germany

PCT No. PCT/DE94/01284, § 371 Date Jun. 4, 1996, § 102(e) Date Jun. 4, 1996, PCT Pub. No. WO95/16081, PCT Pub. Date Jun. 15, 1995

PCT Filed Oct. 28, 1994, Ser. No. 656,183

Claims priority, application Germany, Dec. 7, 1993, 43 41 626.8

Int. Cl.[6] E02D *5/00*

U.S. Cl. 405—282 **2 Claims**

1. A joining arrangement between a guide profile (**2**), which is U-shaped in cross section, of a lining element (**1**) (support or sheeting plate) and a spreader (**4**) which is held, pivotable around a pivot shaft (**6**) extending transversely to its longitudinal axis, by means of a support shoe (**3**) in the guide profile (**2**), wherein the support shoe (**3**) consists of an elongated support plate (**10**), whose longitudinal axis is disposed parallel with the longitudinal axis of the guide profile (**2**) and can be tilted into the guide profile, a receiver (**14**) for the spreader (**4**), disposed on the top of the support plate (**10**) facing the spreader (**4**), and a drilled-through cylinder piece (**17**) disposed on the underside of the support plate (**10**) and arranged with its axial bore transversely to the longitudinal axis of the guide profile (**2**), wherein the guide profile (**2**) is embodied as a box with a U-profile, respectively one bore (**9**), which is aligned with the bore of the cylinder piece (**17**), leads approximately through the center of the U-shaped legs of the U-profile, and one pair of compression springs (**12, 13**) is releasably disposed in the guide profile (**2**) on both sides of the cylinder piece (**17**),

characterized in that

the pair of helical pressure springs (**12, 13**) consists of springs which, in a top view, are positioned parallel next to each other, that each pair of pressure springs (**12, 13**) is connected as one part with respectively two connecting plates (**21, 22**) which couple the longitudinal ends of the spring, that the connecting plate (**21**) facing the support plate (**10**) has respectively two bores (**23, 24**) extending into the springs of the pairs of springs (**12, 13**), that two pairs of pins (**19, 20**), namely a pin each for insertion into each bore (**23, 24**) of each connecting plate (**21**), have been formed on the underside of the support plate (**10**), and that during the operation the lower connecting plate (**22**) facing the lining element (**1**) is coupled irremovably solidly to the bottom of the guide profile (**2**).

5,725,331

PROCESS FOR INSTALLATING A TIGHT CROSSING IN THE WALL OF A CELL

Jacques Martinez, Loriol-du-Comtat, France, assignor to Commissariat a l'Energie Atomique, Paris, France

Filed May 9, 1996, Ser. No. 644,032

Claims priority, application France, May 12, 1995, 95 05653

Int. Cl.[6] G21C *13/02*

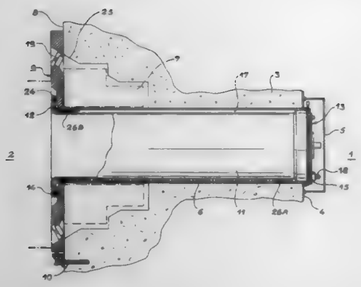
U.S. Cl. 405—303 **7 Claims**

1. Process for installing a tight crossing in the wall (**3**) of a tight cell, the latter comprising a thick wall (**3**), a metal skin (**4**) placed in the interior (**1**) of the cell against the wall (**3**), a passage through the wall (**3**) and the skin (**4**) and a sealing bell (**5**) placed against the skin within the interior (**1**) of the cell, around the passage, the process comprising the following successive stages:

a) placing a sleeve (**6**) in the passage,

b) regulating the perpendicularity between the outside of the wall (**3**) and the sleeve (**6**),

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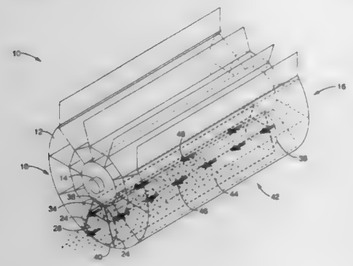
c) fitting a base plate (**9**) against the outer wall (**8**) of the cell wall (**3**),
d) welding the sleeve (**6**) to the base plate (**9**),
e) fitting within the sleeve (**6**) a guide tube (**11**) equipped with a tight double door (**13**) positioned facing the cell interior, under the sealing bell (**5**),
f) release of the sealing bell (**5**),
g) fitting a joint holder ring (**15**) through the interior of the cell to insulate the cell from the exterior (**2**) at the guide tube (**11**) and sleeve (**6**).

5,725,332

AIR LOCK FEEDER APPARATUS

Derick E. Harper, Wilton, and Gordon D. Hammond, Elk Grove, both of Calif., assignors to Saf-T-Source, Inc., Elk Grove, Calif.

Filed Apr. 29, 1996, Ser. No. 639,686
Int. Cl.[6] B65G *53/08*
U.S. Cl. 406—67 **10 Claims**



1. An air lock feeder apparatus, comprising:
(a) a housing, said housing including first and second ends, said housing including an inlet port adjacent said first end, said housing including an outlet port adjacent said second end, said housing including a laterally facing opening;
(b) a shaft, said shaft rotatably mounted within said housing between said first and second ends;
(c) a plurality of vanes, said vanes coupled to said shaft, said vanes extending laterally from said shaft, said plurality of vanes defining a plurality of chambers within said housing; and
(d) supercharger means for increasing the output of air entrained solid material exiting said chambers.

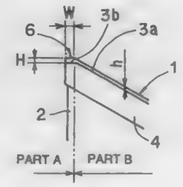
5,725,333

SPIRAL END MILL AND METHOD OF MANUFACTURING THE SAME

Makoto Abe, Hyogo, Japan; Yuichiro Kohno, Hyogo, Japan; Nobuo Yasuhira, Osaka, Japan; Shuji Ueda, Osaka, Japan; Kiyoji Aburaya, Shiga-ken, Japan; Seiji Nakatani, Osaka, Japan, and Makoto Kawanishi, Osaka, Japan, assignors to Sumitomo Electric Industries, Ltd., Osaka, Japan, and Matsushita Electric Industrial Co., Ltd., Kadoma, Japan

Filed Apr. 2, 1996, Ser. No. 626,476
Claims priority, application Japan, Apr. 6, 1995, 7-081046
Int. Cl.[6] B23C *5/10*
U.S. Cl. 407—54 **17 Claims**





1. A spiral end mill having a hard sintered compact being arranged on an insert portion of said spiral end mill and a negative relief face having a chamfer for reducing the angle of an axial rake being provided on a forward end of said insert portion, said spiral end mill comprising:
a first circular land portion being provided along an outer peripheral portion of said insert portion excluding said negative relief face to have a substantially constant first width; and
a second circular land portion, having a substantially constant second width, being provided on an outer peripheral portion of said negative relief face of said insert portion to be continuous with said first circular land portion;
wherein a helix angle of a line being defined by said second circular land portion and a peripheral flank is smaller than that of said first circular land portion; and
wherein said negative relief face has a width in the range of at least 0.05 mm and not more than 0.5 mm.

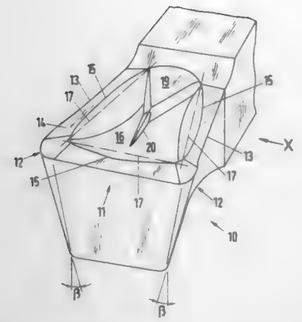
5,725,334

CUTTING INSERT

José Agustin Paya, Mühlheim, Germany, assignor to Widia GmbH, Essen, Germany

Continuation of Ser. No. 530,144, Sep. 20, 1995, abandoned. This application Mar. 24, 1997, Ser. No. 822,477
Claims priority, application Germany, Mar. 29, 1993, 43 10 131.3
Int. Cl.[6] B23B *27/08*
U.S. Cl. 407—117 **15 Claims**

1. A cutting insert formed with:
a plurality of cutting edges each having a center;
a cutting surface spaced inward from the cutting edges; and
a continuous land having an outer periphery at the cutting edges and a wholly curved and nonstraight inner periphery spaced inward therefrom and outwardly delimiting the cutting surface, the land dipping at the inner periphery generally at the center of each edge toward the surface and thereby forming generally at the center of each edge at the inner periphery a region of minimal height above the surface and having a varying width that is at its minimum value at the center of each edge.

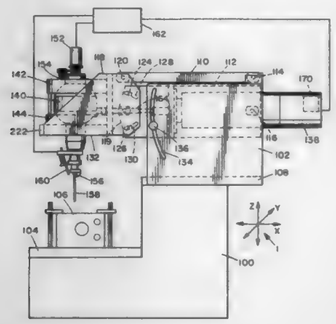


5,725,335

APPARATUS FOR MACHINING VALVE SEATS IN AN ENGINE CYLINDER HEAD

Brice Harmand, San Diego, Calif., and Pierre Harmand, Annecy, France, assignors to Harmand Family Limited Partnership, San Diego, Calif.

Continuation of Ser. No. 490,468, Jun. 14, 1995, Pat. No. 5,613,809. This application Jan. 24, 1997, Ser. No. 786,760
Int. Cl.[6] B23B *41/12;47/26;* **B24B** *15/02*
U.S. Cl. 408—83.5 **20 Claims**



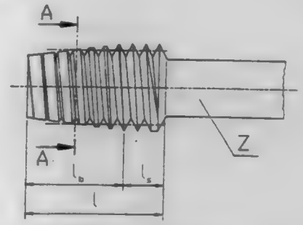
1. An assembly for machining an engine cylinder head having a plurality of valve seats, the assembly comprising:
a retention means for retaining the engine cylinder head in a fixed position on a work surface;
a base disposed adjacent the work surface and having a first means for movement in a first x-y plane with respect to the work surface, the first means for movement having a first limited range of movement within the first x-y plane;
a support frame attached to the base so that the support frame overhangs the engine cylinder head retained by the retention means, the support frame having a bottom edge, wherein the bottom edge remains parallel to the first x-y plane;
a spherical support assembly slidably disposed on the support frame, the spherical support assembly having a second means for movement in a second x-y plane and having a second limited range of movement much smaller than the first limited range of movement;
a spherical housing supported within the spherical support assembly so that the spherical housing can be pivoted around a centroid of the spherical housing;
a spindle at least partially retained within the spherical housing and having a lower portion extending below the support frame, the spindle being rotatable within the spherical housing and axially translatable along a substantially vertical line running through the centroid of the spherical housing;
a cutting tool attached to and extending from the lower portion of the spindle so that the cutting tool is concentrically rotatable with the spindle;
spindle height adjustment means mounted within the support frame for controlling the height of the cutting tool relative to the engine cylinder head;
a drive motor mounted on the base, the drive motor providing a rotational driving force; and
a transmission linkage for linking the drive motor to the spindle for providing the rotational driving force for rotating the spindle.

5,725,336

THREAD TAPPING CUTTING TOOL

Laszlo Vilmanyi; Laszlone Vilmanyi; Gabor Vilmanyi, all of H-1091, Harrok utta S., and Janos Simon, H-1155, Rakos ut 94, all of Budapest, Hungary

PCT No. PCT/HU93/00019, § 371 Date Aug. 10, 1995, § 102(e) Date Aug. 10, 1995, PCT Pub. No. WO94/17946, PCT Pub. Date Aug. 18, 1994
PCT Filed Mar. 31, 1993, Ser. No. 495,586
Claims priority, application Hungary, Feb. 11, 1993, P9300345
Int. Cl.[6] B23G *5/06*
U.S. Cl. 408—219 **14 Claims**



1. A thread tapping cutting tool, comprising:
a shank having an end section for fitting to a tool; and
a threaded working part having a tap drill outer diameter, and including:
a chamfer portion at least one half of a length of said working part, said chamfer portion having plane surface lands at an outer edge thereof, a relief angle of said plane surface lands being greater than 5 degrees;
a control portion; and
at least two thread cutting wings separated by flutes in said working part, each of said at least two thread cutting wings having a width of not more than 0.2 times said tap drill outer diameter and not less than 0.02 times said tap drill outer diameter, a core diameter of said cutting wings being defined by a depth of said flutes, said core diameter being not more than 0.35 times said tap drill outer diameter.

5,725,337

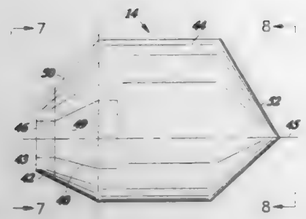
SELF CENTERING SPADE DRILL

Donald Paul Cochran, 11821 Hubbard St., Moreno Valley, Calif. 92557

Filed Jun. 16, 1995, Ser. No. 490,902
Int. Cl.[6] B23B *51/02*
U.S. Cl. 408—224 **3 Claims**

1. An improved self-centering spade drill comprising a base having a front end and back end, the base coaxial with the

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longitudinal axis of the drill; at least three plates extending the length of the base and longitudinally beyond the front end of the base and extending radially the length of the base and longitudinally beyond the front end of the base and extending radially outward from the longitudinal axis, each plate having an inner edge, an outer edge, a front edge, and a rear edge, the front edge of the plates constituting the cutting end of the drill and the back edge of the plates constituting the attachment and support end of the drill, the fronts of the plates adjoined at the longitudinal axis of the drill, the back of the plates joined to the base, the front edge of each plate angled backward from the longitudinal axis to the outer edge of the plate, the front edges of the plates forming a drill point on the longitudinal axis, the outer portion of the back edge of each plate angled forward from the base to the outer edge of the plate, the back edge of each plate tapered to a blunt wedge adapted to be received in a drill holder, the back of the base and the back edge of each plate being adapted to be received by and secured by the drill holder.

5,725,338

DRILL BIT HAVING A HEMISPHERICAL HEAD WITH AN EVOLUTIVE CUT

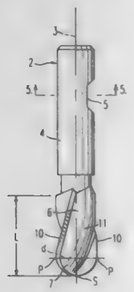
Maurice Jean Cabaret, Ponthierry; Christian Thierry Daude, Vaux Le Penil; Daniel Marcel Eugène Lavocat, Ballancourt; Jean Pierre Leboulanger, Chartrettes; Michel Lebrun, Machault; François Masson, Evry; Gilles Rouge, Dourdan, and Bernard Gilbert Roy, Volgre, all of France, assignors to Societe Nationale D'Etude Et De Construction De Moteurs D'Aviation "Snecma" , Paris, France

Continuation of Ser. No. 354,812, Dec. 8, 1994, abandoned. This application Jan. 8, 1997, Ser. No. 780,233

Claims priority, application France, Dec. 8, 1993, 93 14697

Int. Cl.[6] B23B *51/00*

U.S. Cl. 408—230 **3 Claims**



1. A helically grooved drill bit defining a longitudinal axis and having an outer diameter at an end portion of the bit, said drill bit having a cutting end which has a generally hemispherical shape, said cutting end defining a point of said bit on said longitudinal axis and having four cutting lips, two of said cutting lips being disposed so as to have an offset end-to-end relationship at said point of said bit, and each of said cutting lips having a cutting edge defining a cutting angle which is evolutive, varying from 0° at said point of said bit to a value predetermined in accordance with the material to be machined at a position where said cutting edge intersects said outer diameter of said bit, and a clearance angle which varies correspondingly, but in the opposite sense, from said point of said bit to said position.

5,725,339

CRANKSHAFT WORKING METHOD

Hirokazu Yoshita, Ishikawa-ken, Japan, assignor to Kabushiki Kaisha Komatsu Seisakusho, Tokyo, Japan

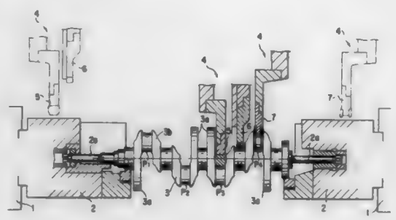
PCT No. PCT/JP94/00540, § 371 Date Sep. 19, 1995, § 102(e) Date Sep. 19, 1995, PCT Pub. No. WO94/22625, PCT Pub. Date Oct. 13, 1994

PCT Filed Mar. 31, 1994, Ser. No. 525,549

Claims priority, application Japan, Mar. 31, 1993, 5-073453

Int. Cl.[6] B23C *3/06*

U.S. Cl. 409—132 **8 Claims**



1. A method of machining a crankshaft, said method comprising:

working an outer peripheral surface of one of a first pin and a first journal of a crankshaft with a first cutter which is mounted to one of two cutter heads of a crankshaft mill, and

working a side surface of a first counterweight disposed adjacent to said outer peripheral surface of said one of said first pin and said first journal with said first cutter, wherein said working of said outer peripheral surface and said working of said side surface are performed simultaneously; and

forming an R groove on one of said first pin and said first journal with a second cutter mounted to the other of said two cutter heads.

5,725,340

TIP DRESSER

Toshiharu Nakajima, Yokkaichi, Japan; Tadashi Goto, Mieken, Japan; Satoru Machimura, Suzuka, Japan; Shinji Hoshino, Suzuka, Japan, and Hiroshi Ohtani, Suzuka, Japan, assignors to Honda Giken Kogyo Kabushiki Kaisha, Tokyo, Japan

Filed Nov. 21, 1995, Ser. No. 567,347

Claims priority, application Japan, Nov. 22, 1994, 6-287951

Int. Cl.[6] B23C *3/12*

U.S. Cl. 409—140 **8 Claims**

1. A tip dresser for reforming an electrode tip of a resistance welder comprising:

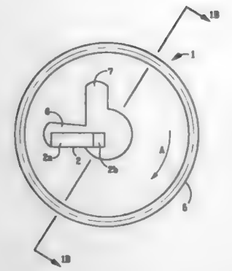
a cutter holder for securing a cutter element, said cutter element having a first machining edge for machining a tip end of said electrode tip, and a second machining edge for machining a bevel side surface of said electrode tip;

means for rotating said cutter holder;

said cutter holder is formed with frusto-conical concave recesses formed inwardly from the opposite ends thereof;

said cutter element is mounted to said cutter holder such that said machining edges slightly extend over said concave recesses; and

said holder is formed therein with:



a first aperture for discharging cutting chips, said first aperture being formed along said second machining edge, and said first aperture being formed on a forward front side of said second machining edge in a rotating direction of said cutter element; and

a second aperture for discharging cutting chips, said second aperture being formed on a forward front side of said first machining edge in a rotating direction of said cutter element.

5,725,341

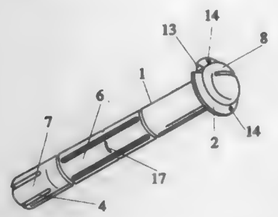
SELF FUSING FASTENER

Oskar Hofmeister, 1201 E. Las Palmaritas, Phoenix, Ariz. 85020

Filed Jan. 8, 1997, Ser. No. 780,206

Int. Cl.[6] F16B *13/04;* **E16B** *39/02*

U.S. Cl. 411—23 **20 Claims**



1. An improved fastener that comprises:

a) a tube having a bore extending there through, said tube having a first end and a second end, said tube having a first tube section with said first end, and a second tube section with said second end, a middle tube section between said first and said second tube sections, said second tube section is internally tapered to narrow the bore as the taper proceeds from the second end, said second tube section having a plurality of longitudinal slots, said slots circumferentially disposed around said second tube section and extending there through, said slots extending from the second end for the partial length of said second tube section, said middle section having a plurality of longitudinal slits, said slits circumferentially disposed around said middle tube section and extending therethrough,

b) a flange extending radially outward from the first end of said tube,

c) a shoulder extending radially inward from the second end of said tube,

d) an adhesive mass disposed within said tube,

e) a plug disposed within the bore of said second tube section, said plug having a bore, said plug bore concentrically aligned with said fastener tube bore, said plug captured inside said second tube section by said shoulder and the narrowed tapered section,

f) a serrated member protruding from said plug and contacting said tube's inner surface whereby an interference contact is made between the serrated member and said tube wall preventing plug rotation,

g) a screw having a head end and a threaded end, said screw extending through said tube bore, the thread end engaged with said plug.

5,725,342

SPREADER DOWEL

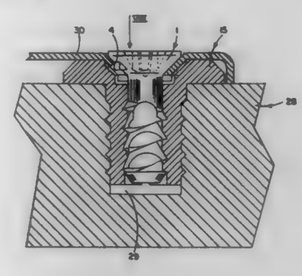
Wilfried Gehrer, Hoechst, Austria, assignor to Grass AG, Austria

Filed Mar. 29, 1996, Ser. No. 623,541

Claims priority, application Germany, Mar. 30, 1995, 195 11 446.9

Int. Cl.[6] F16B *31/02*

U.S. Cl. 411—33 **1 Claim**



1. A spreader dowel comprising a one-piece dowel component and a noncircular spreader screw wherein the dowel component has an inner notch formed to fit the outer contour of the spreader screw, and the spreader screw has at least one thread convolution formed as a spreader cam radially projecting on opposite sides of the spreader screw defining a somewhat oval-shaped cross-section, and wherein said inner notch of the dowel component has a cross-section defined by opposing mirror symmetrical arcuate ends and opposing sides including straight portions diametrically opposite one another and slanted inwardly pointing straights.

5,725,343

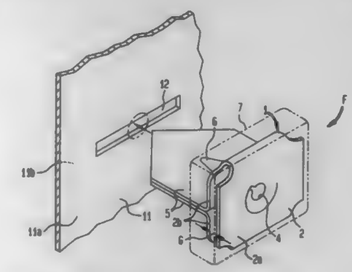
SEALING FASTENER

Edward John Smith, Bonita Springs, Fla., assignor to Eustathios Vassiliou, Newark, Del.

Filed Oct. 29, 1996, Ser. No. 741,337

Int. Cl.[6] F16B *13/06;43/02*

U.S. Cl. 411—55 **43 Claims**



1. A fastener comprising:

(a) a substantially flat head portion having a perimeter, an upper side, and a lower side, the upper side having a hole, the hole

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having a first diameter and a first axis, the first axis being substantially perpendicular to the substantially flat head portion;

(b) a neck having an opening and two substantially flat neck portions, the neck extending from the lower side of the substantially flat head portion at a substantially right angle with respect to the substantially flat head portion;

(c) two substantially flat legs extending from the neck, each leg having an inner surface, the two surfaces of the two legs being at an initial substantial contact with each other, the legs being adapted to expand in opposite direction upon insertion through the hole of an expanding member;

(d) a funnel configuration at a leg region where the legs start extending from the neck, the funnel having a second axis substantially coinciding with the first axis; and

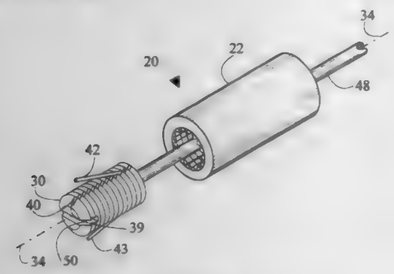
(e) an elastic body integrally molded at the lower side of the substantially flat head portion wherein the elastic body is selected from a group comprising plastisol, polyurethane, and a mixture thereof.

5,725,344

POSITIONING DEVICE AND METHOD OF USE

Frank P. Petrella, Burbank, Calif., assignor to G. W. Lisk Company, Inc., Clifton Springs, N.Y.

Filed Feb. 1, 1997, Ser. No. 794,776
Int. Cl.[6] F16B *39/04;39/22*
U.S. Cl. 411—299 **1 Claim**



1. A positioning device, comprising:

a threaded receptacle, said receptacle having first threads longitudinally extending around a first central axis;

said first threads having a plurality of circumferentially spaced longitudinal grooves;

a screw member having second threads sized to threadably engage said first threads of said threaded receptacle, said second threads longitudinally extending around a second central axis;

said screw member having a tip end for insertion into said threaded receptacle, and an opposite head end;

said second threads having an outer thread radius and an inner thread radius, said radii measured from said second central axis;

said screw member having at least one longitudinal slot penetrating said second threads, said slot having a bottom portion located at a bottom radius from said second central axis which is less than said inner thread radius;

an elongated spring member having a first end and an opposite second end, said first end fixedly positioned in said slot, said second end extending toward said head end of said screw member, said second end outwardly biased away from said second central axis;

said spring member having a radial width, said radial width equal to or less than the difference between said inner radius and said bottom radius;

so that when said screw member is rotatably inserted into and threadably engages said threaded receptacle, said spring member sequentially engages said spaced longitudinal grooves in incremental detent stops; and,

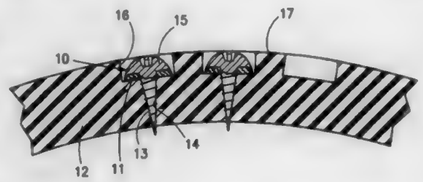
said tip end of said screw member further including an integral elongated axial member oriented along said second axis.

5,725,345

TIRE REPAIR SCREW WITH SEALING MATERIAL

Peng Zhov, 14802 Millicent Ct., Centreville, Va. 22020

Continuation-in-part of Ser. No. 312,227, Sep. 26, 1994, Pat. No. 5,494,391. This application Feb. 15, 1996, Ser. No. 602,000
Int. Cl.[6] F16B *33/00;43/02*
U.S. Cl. 411—369 **2 Claims**



1. A screw-type closure for repairing a puncture in a vehicle tire, comprising:

a tapered body portion having an upper end with a first diameter and a lower end having a tapered point smaller than said first diameter, said body portion having a conical surface tapering inwardly and downwardly from said first diameter to said point;

a convex spiral thread on said conical surface of said body portion shaped to cut into a vehicle tire when the body portion is inserted into a puncture in a vehicle tire to thereby cause said conical surface to engage the vehicle tire around the puncture;

an enlarged head portion on, and concentric with, said upper end of said body portion, said head portion having an upper surface and a lower surface, said lower surface having a larger diameter than said first diameter;

a driving slot in said upper surface of said head portion for receiving a driving tool for rotatably driving said body portion to insert said body portion into the puncture;

an annular sealing slot in said lower surface of said head portion, said slot surrounding said upper end of said body portion and having an outer annular wall which cooperates with the upper surface of said head portion to provide a downwardly facing cutting edge round the outer circumference of and at the lower surface of said head portion; and

an adhesive flexible rubber sealing material in said sealing slot and in contact with the walls of said slot, said adhesive material being driven into sealing contact with a tire surface surrounding a puncture upon insertion of the body portion into said puncture.

5,725,346

SELF-LOADING BALE HANDLING AND TRANSPORTING APPARATUS

Glenn A. Davina, Klamath Falls, Oreg., assignor to Sunny D Manufacturing, Inc., Klamath Falls, Oreg.

Filed Jan. 17, 1996, Ser. No. 587,649
Int. Cl.[6] A01D *90/02*
U.S. Cl. 414—111 **21 Claims**

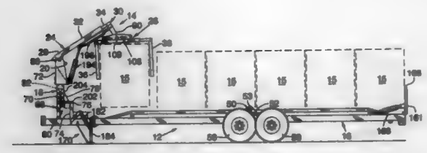
18. A bale transporting trailer having a conveyor belt, the trailer comprising:

a first bed;

a second bed aligned with the first bed;

a pivot connecting the first bed to the second bed; and

a pivot actuator operable to pivot the second bed from a first position, in which the second bed trails the first bed, to a second position in which the second bed substantially overlies the first bed.

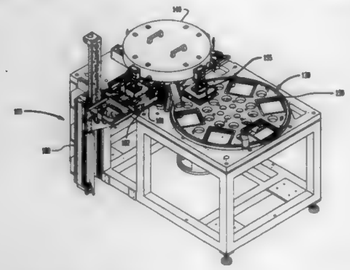


5,725,347

CAROUSEL PIN STACKER

Mark Hansen, Orange County, N.Y., assignor to International Business Machines Corporation, Armonk, N.Y.

Filed May 17, 1996, Ser. No. 651,192
Int. Cl.[6] B65H *39/065*
U.S. Cl. 414—223 **22 Claims**



1. An apparatus for assembly of a stack of lamina including

a first supply station,

a second supply station,

an alignment station,

a first further station,

a head transport assembly carrying first, second and third heads at locations allowing simultaneous alignment of said first, second and third heads with a respective one of said first supply station, said second supply station, said alignment station, and said further station, and

means for moving said head transport assembly and controlling said first, second and third heads such that materials at said first supply station are alternately transported to said alignment station and said further station and material from said second supply station is transported to said alignment station between operations for transport of material at said first supply station to said alignment station.

5,725,348

DUMPSTER AND VEHICLE MOUNTED LIFTING ARM THEREFOR

William K. Drake, General Delivery, Kenton, Manitoba, Canada, ROM OZO

Filed Mar. 11, 1996, Ser. No. 630,962
Int. Cl.[6] B66F *09/18*
U.S. Cl. 414—408 **19 Claims**

1. A material storage and transportation apparatus comprising:

a transportation vehicle;

a storage box attached to the transportation vehicle having a bottom wall, side walls extending upwards from the bottom wall to a top, and an opening at a top;

a dumpster for storing material therein positioned on a supporting surface and having an opening at a top;

and an articulated lifting arm for lifting the dumpster from the supporting surface to a position above the storage box for dumping the stored material into the storage box through the opening at the top thereof, said articulated lifting arm having:

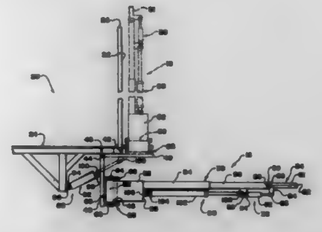
a base member including fixing means mounting the base member beneath the storage box;

an arm member having a first end and a second end, and having connection means at the first end for connecting the arm member to the base member;

first positioning means for moving the arm member from a transportation position lying beneath the storage box to a substantially horizontal lifting position extending outwards from a side of the storage box;

an attachment member being arranged at the second end of the arm member for engaging the dumpster, and having removable and reengageable connection means for connecting to said dumpster;

and lifting means for lifting the second end of the arm member such that the dumpster is moved to the dumping position above the storage box for dumping the material into said storage box.

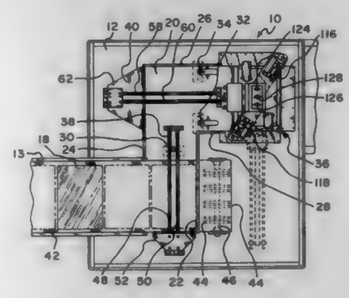


5,725,349

METHOD AND APPARATUS FOR REMOVING SHRINKWRAP FROM A PACKAGE OF BOTTLES

Francis J. Garvey, Newfield, and William J. Garvey, Sweetwater, both of N.J., assignors to Garvey Corporation, Blue Anchor, N.J.

Filed Mar. 26, 1996, Ser. No. 622,674
Int. Cl.[6] B65B *69/00;* **B65G** *65/02*
U.S. Cl. 414—412 **11 Claims**



1. An apparatus for removing shrinkwrap from a plurality of articles encased in the same and arranged in the form of a substantially rectangular package comprising:

a base frame having an upper support surface;

a first cutting means extending upwardly through said support surface;

a second cutting means extending upwardly through said support surface and being spaced from said first cutting means;

a first pusher means for moving said package along said support surface, said first cutting means effectuating a lengthwise cut through said shrinkwrap on the bottom of said package when said first pusher means moves said package along said support surface;

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a second pusher means for moving said package across said support surface, said second cutting means effectuating a widthwise cut through the shrinkwrap on the bottom of said package when said second pusher means moves said package across said support surface, and

debagging means for removing said shrinkwrap from said plurality of articles, said debagging means including a vertical channel positioned adjacent said second cutting assembly, said vertical channel having an upper end and a lower end; a lower platen secured to said base frame for supporting said articles and being vertically movable within said channel, and friction means secured to the support surface around the periphery of said vertical channel for engaging said shrinkwrap.

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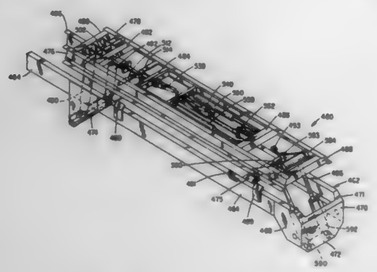
DETACHABLE TRUCK BODY AND HANDLING MECHANISM

Ronald E. Christenson, Parsons, Tenn., assignor to McNeilus Truck and Manufacturing, Inc., Dodge Center, Minn.

Continuation-in-part of Ser. No. 398,954, Mar. 2, 1995, Pat. No. 5,562,390, which is a continuation-in-part of Ser. No. 377,146, Jan. 24, 1995. This application Dec. 28, 1995, Ser. No. 580,321

Int. Cl.[6] B60P *1/64*

U.S. Cl. 414—491 **11 Claims**



1. A mechanized, self-contained vehicle-mounted system for handling the exchange positioning and tilting of detachable modular containers to be carried by a vehicle chassis, as material hauling truck bodies, including integral means for latching/locking and receiving/separating said container, said system comprising:

(a) vehicle chassis for supporting a modular container;

(b) container mounting sub-frame carried on said chassis;

(c) sub-frame operating mechanism connected between said sub-frame and said chassis for manipulating said sub-frame relative to said chassis, said sub-frame operating mechanism further comprising means for raising and lowering said sub-frame parallel to and relative to said chassis and for tilting said sub-frame relative to said chassis by raising a front end relative to the rear end thereof; and

(d) container manipulation mechanism carried by said sub-frame for positioning said container along said chassis and said sub-frame, said container manipulation mechanism further comprising reciprocally operating pawl mechanisms including spaced oppositely directed spring-biased independently retractable pawls mounted on a longitudinally reciprocating inner frame slidably mounted in said sub-frame and including a bi-directional linear actuating device for powering said inner frame.

5,725,351

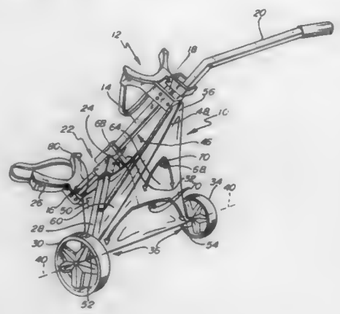
GOLF ACCESSORY BAG FOR GOLF PULL CARTS

Chris P. Guibert, 4433 Third Ave. Northwest, and Cameron J. Von Wald, 1703 Ninth Ave. Southeast, both of Rochester, Minn. 55901

Filed Jun. 18, 1996, Ser. No. 667,954

Int. Cl.[6] B62B *1/12*

U.S. Cl. 414—646 **17 Claims**



1. A combination golf pull cart and golf accessory bag comprising:

(a) a golf pull cart comprising:

(i) a frame having a bottom, a throat portion, a foldable handle extending from the throat portion, and an underside disposed below the frame;

(ii) a pair of retractable legs engaged to the frame, a wheel rotatably mounted on each leg, the retractable legs having a first open operative position, and a second retracted storage position;

(iii) a golf bag platform extending outwardly from the frame to a golf bag side of the frame and proximate to the bottom;

(iv) a triangular space proximate to the underside extending between the pair of retractable legs when positioned in the first open operative position said triangular space positioned away from the golf bag side of the frame, said triangular space extending to a location proximate to the golf bag platform, and said triangular space extending upwardly to a location proximate to the throat portion; and

(b) the golf accessory bag affixed to the frame and positioned in the triangular space, the golf accessory bag comprising:

(i) a shell defining at least one compartment;

(ii) a door in communication with each of the compartments; and

(iii) a means for affixation of the golf accessory bag to the golf pull cart.

5,725,352

MULTI-ARTICULATE ARM TYPE TRANSPORT DEVICE

Sadao Tanaka, Kanagawa, Japan, assignor to Sony Corporation, Tokyo, Japan

PCT No. PCT/JP94/01978, § 371 Date May 22, 1996, § 102(e) Date May 22, 1996, PCT Pub. No. WO95/14555, PCT Pub. Date Jun. 1, 1995

PCT Filed Nov. 22, 1994, Ser. No. 649,722

Claims priority, application Japan, Nov. 22, 1993, 5-314013; Jan. 28, 1994, 6-024951

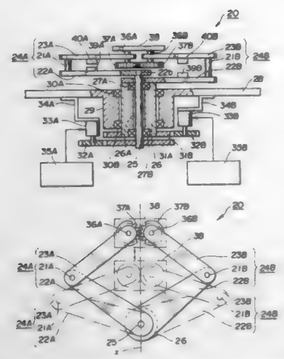
Int. Cl.[6] B25J *18/00*

U.S. Cl. 414—741.5 **9 Claims**

1. A multi-articulate arm type transporting device comprising:

first and second link sets which each include a first link arm and a second link arm which are rotatably connected to each other by first and second connecting shafts;

first and second driving means for independently rotating the first link arms of each of said first and second link sets, about a common axis of rotation;



first and second controllers for respectively and independently controlling said first and second driving means, said first and second controllers being responsive to an input to induce said first and second driving means to respectively rotate the first link arms of the left link set and the right link set to predetermined halt positions which are close to and non-coincident with a neutral position wherein the first and second link arms of each of said first and second link sets are aligned with each other;

a transport table connected to distal ends of the second link arms of said first and second link sets, the second link arms being rotatably connected to the first link arms, said transport table being designed for supporting an article to be transported thereon; and

posture controlling means operatively connected with said transport table for controlling the posture of the transport table when moved by said first and second sets of links.

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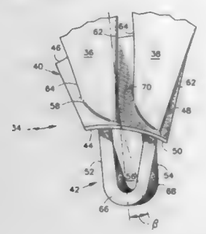
TURBINE ENGINE ROTOR DISK

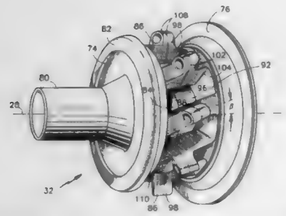
Alfred Paul Matheny, Jupiter, Fla., and Chen Yu J. Chou, Cincinnati, Ohio, assignors to United Technologies Corporation, Hartford, Conn.

Filed Dec. 4, 1996, Ser. No. 759,830

Int. Cl.[6] F01D *5/32*

U.S. Cl. 416—214 A **15 Claims**





1. A gas turbine engine rotor assembly disk for rotation around an axis of rotation, comprising:

a forward web;

a plurality of first stub shafts, each having a first axial end, a first web end attached to said forward web, and a length extending between said first axial end and said first web end, wherein said first stub shafts extend out from said forward web skewed from the axis of rotation;

an aft web;

a plurality of second stub shafts, each having a second axial end, a second web end attached to said aft web, and a length extending between said second axial end and second web end, wherein said second stub shafts extend out from said aft web skewed an amount substantially equal to that of said first stub shafts relative to the axis of rotation;

wherein said first and second stub shafts are equal in number, and similarly spaced around the axis of rotation of said disk; and

a plurality of fasteners, attaching said first and second stub shafts to one another.

5,725,354

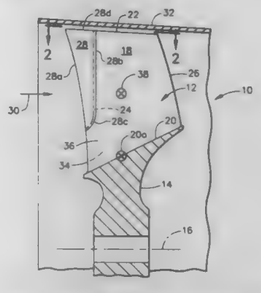
FORWARD SWEPT FAN BLADE

Aspi R. Wadia, Loveland, Ohio; Ian F. Prentice, Cincinnati, Ohio; David W. Crall, Loveland, Ohio, and Carl C. Koch, Cincinnati, Ohio, assignors to General Electric Company, Cincinnati, Ohio

Filed Nov. 22, 1996, Ser. No. 754,345

Int. Cl.[6] F04D *29/38*

U.S. Cl. 416—224 **14 Claims**



1. A gas turbine engine fan blade configured for extending radially outwardly from a perimeter of a rotor disk, comprising:

a main body having a radially spaced apart root and tip, and axially spaced apart leading edge and trailing edge;

a front shell fixedly joined to at least a portion of said body leading edge to collectively define with said body an airfoil having first and second opposite sides extending between said root, tip, shell, and trailing edge for pressurizing air flowing thereover; and

said shell being hollow to offset toward said trailing edge a collective center of gravity of said airfoil and increase linearity of a stacking axis of said blade radially outwardly of a center of gravity of said body root.

5,725,355

ADHESIVE BONDED FAN BLADE

David W. Crall, Loveland, Ohio; Christopher C. Glynn, Hamilton, Ohio; Bruce C. Busbey, Loveland, Ohio; Jack W. Baldwin, West Chester, Ohio, and Ian F. Prentice, Cincinnati, Ohio, assignors to General Electric Company, Cincinnati, Ohio

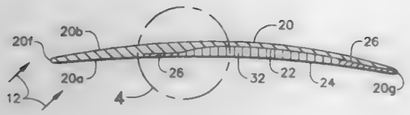
Filed Dec. 10, 1996, Ser. No. 762,759

Int. Cl.[6] F04D *29/38*

U.S. Cl. 416—229 A **13 Claims**

1. A gas turbine engine fan blade comprising:

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a spar including first and second opposite sides having a fatigue-life enhanced surface layer, with said first side including a cavity bounded in part by said surface layer;

a skin closing said cavity; and

means for bonding said skin to said spar for maintaining said enhanced surface layer inside said cavity.

5,725,356

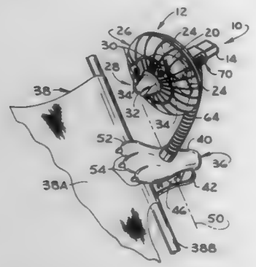
PORTABLE FAN DEVICE

C. Michael Carter, 10182 Natural Bridge Rd., St. Louis, Mo. 63134-3301

Continuation of Ser. No. 430,440, Apr. 28, 1995, abandoned. This application Dec. 23, 1996, Ser. No. 779,975

Int. Cl.[6] F04D *29/64*

U.S. Cl. 416—240 **23 Claims**



6. A portable character fan device for use on a child's stroller, the fan device comprising:

a fan including:

(a) a housing;

(b) an electric motor in the housing;

(c) a self-contained power source associated with the housing for selectively powering the motor;

(d) means for moving air comprising a shaft connected to the motor for rotation by the motor, a hub on the shaft and a plurality of blades projecting radially outwardly from the hub;

(e) a shroud connected to the housing and substantially enclosing said air moving means while permitting air movement through the shroud; and

a face depicted on the shroud;

a clamp for releasably clamping onto the stroller, the clamp having the shape of a foot whereby the face and foot cooperate to form a character; and

a support extending between and interconnecting the housing and the clamp.

5,725,357

MAGNETICALLY SUSPENDED TYPE PUMP

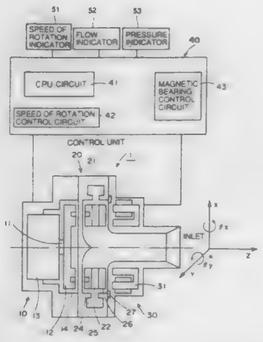
Tsugito Nakazeki; Hiroyoshi Ito, both of Shizuoka, and Teruaki Akamatsu, Kyoto, all of Japan, assignors to NTN Corporation, Osaka, Japan

Filed Mar. 29, 1996, Ser. No. 623,760

Claims priority, application Japan, Apr. 3, 1995, 7-77876; Apr. 14, 1995, 7-89260

Int. Cl.[6] F04B *49/00*

U.S. Cl. 417—18 **11 Claims**



1. A magnetically suspended type pump in which an impeller is supported within a case by a magnetic bearing without contact and said impeller is rotated by a motor whose speed can be controlled by magnetic coupling through a partition therebetween, comprising:

processing means for obtaining a correlation between current flowing in said motor and fluid flow or between current flowing in said motor and outlet pressure;

control means for changing a speed of rotation of said motor based on the correlation between current and flow or between current and pressure obtained by said processing means, thereby controlling flow or pressure; and

correction means for correcting flow or pressure obtained from blood viscosity which is obtained from disturbance response of said impeller supported by said magnetic bearing.

5,725,358

PRESSURE REGULATED ELECTRIC PUMP

Jeffrey D. Bert, Richmond, Va., and Christopher L. Strong, Boulder, Colo., assignors to Binks Manufacturing Company, Franklin Park, Ill.

Filed Aug. 30, 1995, Ser. No. 521,472

Int. Cl.[6] F04B *49/06*

U.S. Cl. 417—44.2 **12 Claims**

1. A pressure regulated electric pump for delivering at least a minimum volume flow rate of pumped liquid, comprising:

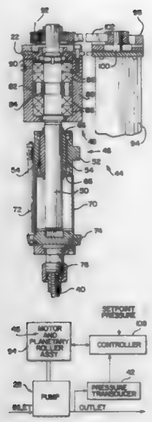
a positive displacement double acting reciprocating pump having an outlet for delivering pumped liquid and an inlet for connection to a supply of liquid;

means for sensing the pressure of pumped liquid;

an electric motor having a rotary output;

a planetary roller screw assembly coupled between said electric motor rotary output and said pump for converting said rotary output of said motor to a reciprocating output that reciprocates said pump through pumping strokes; and

controller means responsive to said pressure sensing means for controlling the direction and speed of rotation of said motor rotary output to operate said pump through pumping strokes



at rates controlled to maintain a substantially constant pressure of pumped liquid despite changes in the volume flow rate of pumped liquid.

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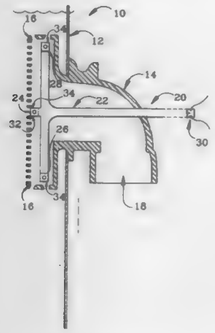
POOL PUMP CONTROLLER

Paul A. Dongo, Camarillo, Calif., and David Garber, Ventura, Calif., assignors to B&S Plastics, Inc., Oxnard, Calif.

Filed Oct. 16, 1996, Ser. No. 732,605

Int. Cl.[6] F04B *49/06*

U.S. Cl. 417—44.9 **17 Claims**



1. A pool pump controller, comprising:

a fluid pressure sensor comprising:

a diaphragm switch connectable to provide an electrical signal responsive to a change in fluid pressure, said switch comprising:

a housing with an interior chamber,

a pressure port in said housing for transmitting a pressure signal to said chamber,

a diaphragm mounted within said chamber to move in response to a pressure change from said pressure port, the diaphragm including a projecting obstruction member, and

an opto-coupler connected to complete an optical transmission for one position of said diaphragm, with said obstruction member obstructing said optical transmission for a second diaphragm position, said opto-coupler producing an electrical signal indicative of whether its transmission is obstructed, and

a pneumatic tube connected at one end to said diaphragm switch, the other end of the tube forming at least one input port having an opening and a check valve placed within the opening to block the flow of water into said pneumatic tube,

a relay connected to respond to said electrical signal from said opto-coupler so that, when the controller is used to control a pump motor, the relay can be connected to close a current path to the motor.

5,725,360

LOAD SENSOR FOR VARIABLE DISPLACEMENT PUMPS

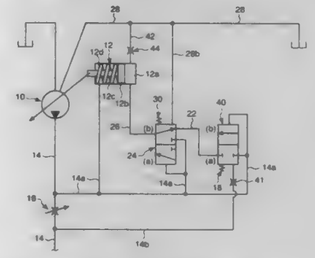
Satoshi Matsumoto; Norio Saitoh; Shigeru Matsuo, and Yasuo Kato, all of Kanagawa, Japan, assignors to Toshiba Machine Co., Ltd., Tokyo, Japan

Filed Jun. 7, 1995, Ser. No. 477,819

Claims priority, application Japan, Jun. 8, 1994, 6-126365

Int. Cl.[6] F04B *49/00*

U.S. Cl. 417—218 **7 Claims**



1. A system for controlling a discharge flow rate of a variable displacement pump, said system comprising:

a tank line coupling said variable displacement pump to a tank in which oil is pooled;

a discharge line coupled to said variable displacement pump;

a variable flow restricting valve provided on said discharge line for restricting a discharge flow rate of said discharge line to cause a pressure difference between an upstream and a downstream from said variable flow restricting valve;

an upstream discharge line coupled to said discharge line at the upstream of said variable flow restricting valve;

a downstream discharge line coupled to said discharge line at the downstream of said variable flow restricting valve;

a discharge flow rate controller for controlling the discharge flow rate of said variable displacement pump, said discharge flow rate controller comprising first and second chambers separated from one another by a head of a piston accommodated in said controller, said second chamber coupled to said upstream discharge line, said piston mechanically connected to a valve involved in said variable displacement pump so that a motion of said valve is controlled by a motion of said piston;

a pressure compensated valve coupled to said first chamber of said discharge flow rate controller, said pressure compensated valve coupled to said tank line and also coupled to said upstream discharge line to sense both pressures of said tank line and said upstream discharge line so that said pressure compensated valve switches to connect and disconnect said first chamber to and from said upstream discharge line according to a magnitude of a difference in the pressure between the upstream discharged line and said tank line;

a load sensing valve coupled to said pressure compensated valve, said load sensing valve further coupled to said upstream discharge line and coupled to said downstream discharge line to sense both pressures of said upstream and downstream discharge lines so that said load sensing valve switches to connect and disconnect said pressure compensated

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valve to and from said upstream discharge line according to a magnitude of a difference in the pressure between the upstream and downstream discharge lines; and

a bypass with a flow restricting valve for coupling said first chamber of said discharge flow rate controller to said tank line to thereby allow a part of the oil in the first chamber to escape through said bypass to said tank line with a restriction to increase of an escaping oil flow rate when a highly pressured oil is rapidly injected into said first chamber of said discharged flow rate controller as a result of switching operations of both said pressure compensated valve and said load sensing valve.

5,725,361

HYDRAULIC UNIT

Jörg Dantlgraber, Lohr/Main, Germany, assignor to Mannesmann Rexroth GmbH, Lohr/Main, Germany

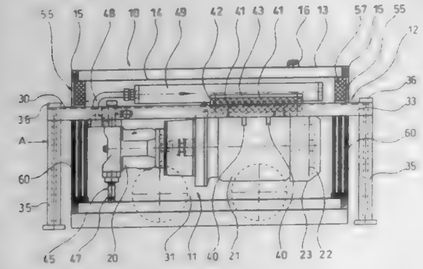
PCT No. PCT/EP94/00247, § 371 Date Jul. 5, 1995, § 102(e) Date Jul. 5, 1995, PCT Pub. No. WO94/18459, PCT Pub. Date Aug. 18, 1994

PCT Filed Jan. 28, 1994, Ser. No. 495,437

Claims priority, application Germany, Feb. 2, 1993, 43 02 843.8; Aug. 4, 1993, 43 26 139.6; Oct. 30, 1993, 43 37 131.0

Int. Cl.[6] F04B *39/00*

U.S. Cl. 417—312 **22 Claims**



1. A hydraulic unit comprising:

a capsule, and a pump unit including a pump disposed in a space within said capsule;

a container disposed within said capsule, said container comprising an internal outer wall and an external outer wall which encloses said internal outer wall and is spaced apart from said internal outer wall to define an oil-receiving space between said internal outer wall and said external outer wall;

a sound-dampening element covering the space in which the pump is disposed; and

wherein said internal outer wall is spaced apart from said pump unit to define an inner air-receiving space which separates said oil receiving space from said pump unit to accomplish a damping of sound emanating from said pump unit.

5,725,362

PUMP ASSEMBLY

Lawrence P. Zepp, Fort Wayne, Ind., and Robert J. Loubier, Roanoke, Ind., assignors to Xolox Corporation, Fort Wayne, Ind.

Filed May 9, 1995, Ser. No. 436,170

Int. Cl.[6] F04B *17/03*

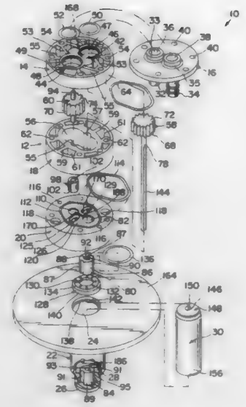
U.S. Cl. 417—366 **56 Claims**

1. A pump assembly, comprising:

a frame;

a stator coupled to the frame;

a rotor associated with the stator and configured to include a bore;



a housing configured to define a cavity in which the rotor is disposed, the cavity having a closed end and an open end;

a first bearing secured in the closed end of the housing;

a pump element disposed adjacent to and driven by the rotor and stator; and

a solid shaft coupled to the pump element, disposed within and extending through the bore of the rotor, and journaled in the first bearing.

5,725,363

MICROMEMBRANE PUMP

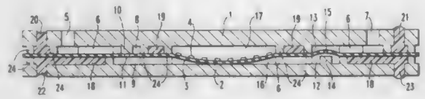
Burkhard Büstgens, Karlsruhe; Gerhard Stern, Pfinztal; Wolfgang Keller, Hambrücken; Dieter Seidel, Eggenstein-Leopoldshafen, and Dieter Maas, Oftersheim, all of Germany, assignors to Forschungszentrum Karlsruhe GmbH, Karlsruhe, Germany

Filed Jun. 24, 1996, Ser. No. 669,106

Claims priority, application Germany, Jan. 25, 1994, 44 02 119.4

Int. Cl.[6] F04B *17/00*

U.S. Cl. 417—413.1 **7 Claims**



1. A micromembrane pump comprising a pump housing top part, a pump housing bottom part and a membrane structure disposed between the housing top and bottom parts, one of said housing top and bottom pans forming with said membrane structure a pump chamber, said membrane structure further defining with said housing parts flow channels in communication with said pump chamber, said housing parts including valve structures forming with said membrane structure valves for pumping a fluid, said membrane structure further forming in the areas of said pump chamber a pump membrane and, in the area of said valves, assuming valving functions for controlling the flow of fluid through said pump, heating means disposed on said membrane structure adjacent said pump chamber and a cavity system formed in at least one of said housing parts adjacent said membrane, said cavity system being filled with cement for joining said membrane with said housing parts.

5,725,364

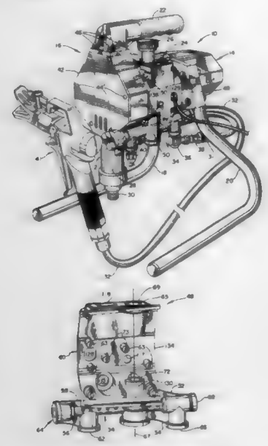
PRESSURE CONTROL MODULE

Frank G. Mirazita, Coon Rapids, Minn., assignor to Wagner Spray Tech Corporation, Minneapolis, Minn.

Filed Feb. 20, 1996, Ser. No. 594,026

Int. Cl.[6] F04B *49/06*

U.S. Cl. 417—44.2 **26 Claims**



1. A pressure control module comprising

a. a fluid manifold having an inlet port, an outlet port, and a transducer recess for mounting a pressure transducer, wherein the inlet port, outlet port and transducer recess are in fluid communication with each other; and

b. a pressure control mounting frame having a wall section forming a cover with an aperture located therein for mounting a pressure control apparatus on a common axis with the transducer recess

wherein the fluid manifold and pressure control mounting frame are formed of a single die-cast aluminum part.

5,725,365

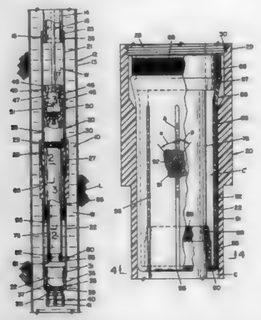
ROLLING DIAPHRAGM SEAL ARRANGEMENT FOR A SUBMERSIBLE PUMP SYSTEM

Fred D. Solomon, 979 Meadow Park Dr.; Charles S. Solomon, 604 Lois Dr., both of Akron, Ohio 44333, and Dale F. Solomon, 730 Pin Oak Dr., Wadsworth, Ohio 44281

Filed Dec. 12, 1995, Ser. No. 571,198

Int. Cl.[6] F04B *53/12*

U.S. Cl. 417—552 **24 Claims**



1. A submersible pump cylinder for immersion in and displacement of a fluid comprising, a cylindrical housing, a plunger assembly positioned for reciprocating motion within said cylindrical housing, a flexible sleeve attached to said cylindrical housing and to said plunger assembly and overlapped to maintain a convolution which moves during the reciprocating motion of said plunger assembly, and a balance valve associated with said plunger assembly maintaining a selected higher fluid pressure within said convolution of said flexible sleeve, whereby said flexible sleeve is maintained in engagement with said housing and said plunger assembly and substantially without frictional interengagement during motion of said plunger assembly.

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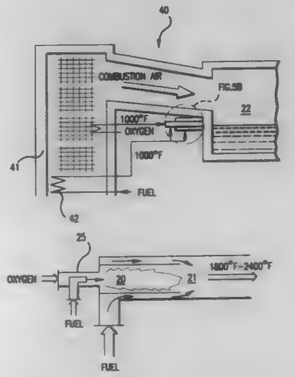
HIGH-HEAT TRANSFER, LOW-NOX OXYGEN-FUEL COMBUSTION SYSTEM

Mark J. Khinkis, Morton Grove; Hamid A. Abbasi, Darien, and Roman E. Grosman, Lombard, all of Ill., assignors to Institute of Gas Technology, Des Plaines, Ill.

Continuation-in-part of Ser. No. 219,496, Mar. 28, 1994, abandoned. This application Feb. 29, 1996, Ser. No. 609,065

Int. Cl.[6] F23M *3/04*; **F23D** *11/44*

U.S. Cl. 431—10 **12 Claims**



1. A process for combustion of a mixture of fuel and oxidant comprising:

preheating at least a portion of said fuel by preburning a first portion of said portion of said fuel with a preburn oxidant having an amount of oxygen greater than the amount of oxygen in air, forming precombustion products;

mixing said preheated fuel with any remaining portion of said fuel, at least a portion of an oxidant required for complete combustion of said fuel, and said precombustion products and igniting said mixture, forming a flame; and

then forming soot within said flame to produce a luminous flame.

5,725,367

METHOD AND APPARATUS FOR DISPERSING FUEL AND OXIDANT FROM A BURNER

Mahendra L. Joshi, Altamonte Springs, Fla.; Lee Broadway, Eustis, Fla., and Patrick J. Mohr, Mims, Fla., assignors to Combustion Tec, Inc., Apopka, Fla.

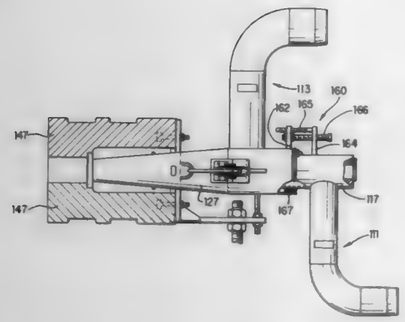
Continuation-in-part of Ser. No. 366,621, Dec. 30, 1994, Pat. No. 5,545,031. This application Dec. 28, 1995, Ser. No. 580,126

Int. Cl.[6] F23C *5/00*

U.S. Cl. 431—8 **11 Claims**

1. A method of dispersing fuel and oxidant from a burner, the method including the steps of:

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dispersing the fuel in a downstream direction from an inner nozzle in a generally planar fuel layer, the inner nozzle having upper and lower substantially planar walls in the downstream direction converging with respect to each other; and

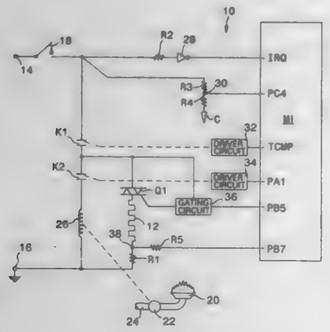
dispersing the oxidant in the downstream direction from an outer nozzle spaced about said inner nozzle and having upper and lower substantially planar walls in the downstream direction converging with respect to each other and in the downstream direction side walls diverging with respect to each other, and contacting the dispersed oxidant with the dispersed fuel.

5,725,368

SYSTEM FOR PROVIDING RAPID WARM-UP OF ELECTRICAL RESISTANCE IGNITER

Jeffrey N. Arensmeier, St. Louis, Mo., assignor to Emerson Electric Co., St. Louis, Mo.

Filed Feb. 20, 1997, Ser. No. 801,000
Int. Cl.[6] F23N *5/00*
U.S. Cl. 431—66 **8 Claims**



8. A method of controlling energizing of an electrical resistance igniter, the method comprising:

determining the voltage value of a power source effective for energizing the igniter;

determining the resistance value of said igniter; and

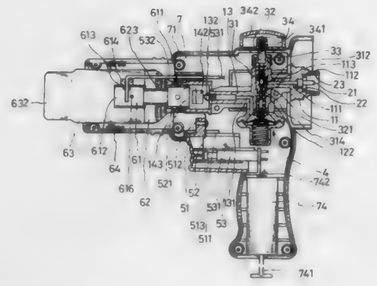
applying power from said power source to said igniter based on said values of voltage and resistance for effecting heating of said igniter to a specified temperature value in a specified time.

5,725,369

GAS TORCH HAVING A GAS REGULATING DEVICE

Chin-Lin Tsai, 3F, No. 94, Sec. 4, Chung Hsin Rd., San Chung City, Taipei Hsien, Taiwan

Filed Feb. 26, 1997, Ser. No. 806,608
Int. Cl.[6] F23D *14/28*
U.S. Cl. 431—344 **12 Claims**



1. A gas torch, comprising:

a body which is integrally formed and being provided with a connecting socket having a slot directed to a chamber disposed longitudinally, the bottom of said body being provided with a neck portion connecting a central slot and an upper disk plate such that the chamber defined by said upper disk plate can be connected with a duct of a tube, the tube being extended with an extended socket having a flange at rear portion, the peripheral of said flange being provided with one or at least one holes for air supplying, the front portion being provided with end dowels disposed in stepping manner;

a pivoting device being connected to said connecting socket such that a gas-can can be attached thereof for supplying vaporized gas therefrom;

a control device **3** being connected to said chamber for supplying/stopping the gas supplied from said slot to said control device;

a regulating device being disposed in the bottom of said body, said regulating device including a valve, a membrane, a coil spring and a lower disk, said valve including a central rod having an O-ring enveloped thereon, said O-ring being stopped by a retaining ring and a barrel being provided with a shaft hole for said central rod passing therethrough, the lower end of said central rod being connected with a coil spring after it passes through said shaft hole and the bottom of said central rod being welded with a bottom dowel such that said central rod can be moved up and down, said membrane being made from resilient material and having a stepped disk configuration such that said upper disk and said lower disk being disposed therein, said membrane being provided with a membrane hole for receiving a bottom dowel therein, said membrane being provided with a membrane ring having a thinner thickness in the central portion, said membrane further including a projected ring opposite to said membrane hole for receiving a spring disposed thereon such that said spring can be disposed within said lower disk chamber of said lower disk, wherein said lower disk, membrane and the upper disk can be aligned and connected with each other, wherein when the gas is supplied to the upper disk chamber via those described route, the excess gas pressure will move said membrane and coil spring downward simultaneously such that said coil spring is extended to move said central rod downward which in turn closes said shaft hole by means of said O-ring, by this arrangement, said liquefied gas will keep on vaporizing and the pressure of it will be remained constantly, when the gas pressure within said upper disk chamber is reduced, said membrane and said spring will resume to its original position such that said central rod is moved upward to release said shaft hole, accordingly, the gas is again supplied to said upper disk chamber;

an piezoelectricity device including a key disposed at said housing, said key being interconnected with a conducting plate and a piezo means having a conducting wires enveloped with a insulating tube, said piezo means being extended into a burning nozzle to ignite the mixture of gas and air therein;

a burning nozzle generally including a tail portion of a mixing tube attached to an end dowel for receiving the mixture of gas and air which can be injected through its front opening, the end portion of said conducting wire being extended into said mixing tube via a front hole to ignite the mixture of gas and air can be ignited; and

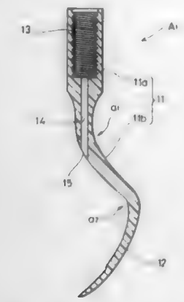
a housing being configured by a left half and a right half which jointly defines space therebetween for receiving and enclosing those described components, the inner wall of said halves being provided with a plurality of dowels and holes for positioning aforesaid components.

5,725,370

DENTAL TIP

Hiroshi Himeno, Sapporo, Japan; Kazuko Himeno, 3-1-4, Tomioka 5-jo, Teine-ku, Sapporo-shi, Hokkaido, Japan; Kenichi Kita, Takarazuka, Japan, and Tadashi Imanishi, Yokohama, Japan, assignors to Kazuko Himeno, Hokkaido, Japan, and Takarazuki Plastic Industry Co., Ltd., Hyogo, Japan

Filed Dec. 29, 1995, Ser. No. 581,203
Claims priority, application Japan, Dec. 29, 1994, 6-339797
Int. Cl.[6] A61C *1/07*
U.S. Cl. 433—86 **21 Claims**



1. A dental tip comprising:

a curved distal end portion adapted to act on a region to be subjected to dental treatment; and

a proximal end portion adapted to be connected to a drive source,

said distal and proximal end portions being made of a molded composite-material comprising a plastic base material and at least one of an inorganic filler and an organic filler compounded therewith.

5,725,371

Patent Not Issued For This Number

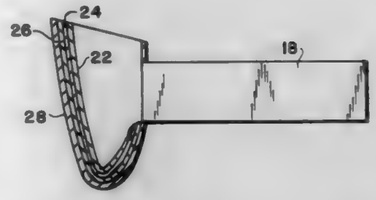
5,725,372

TOOTH SHADE GUIDE

Joel Leon, 326 Round Hill Rd., Greenwich, Conn. 06830

Filed Mar. 20, 1996, Ser. No. 618,578
Int. Cl.[6] A61C *19/10*
U.S. Cl. 433—26 **3 Claims**

1. A tooth shade guide comprising:



a tooth shaped member having an open space adapted to receive a post or anchor in a patient's mouth; said tooth shaped member having a front surface, a rear surface, two curved opposite side surfaces connected between said front and rear surfaces and an occlusal surface connected to said front surface, said side surfaces and said rear surface; said front, rear, occlusal and side surfaces defining said open space; said open space having an opening opposite said occlusal surface for receiving said post or anchor into said open space; said front surface and said side surfaces having a specified shape, color and finish which replicates the appearance of the front and side surfaces of a corresponding artificial tooth such that when said tooth shaped member is positioned over a post or anchor in a patient's mouth the appropriate color can be selected for an artificial tooth;

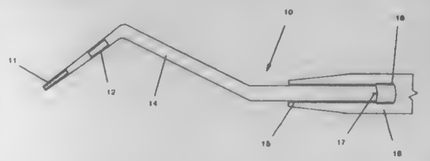
said shade guide further including a substantially straight handle member extending rearwardly from said rear surface of said tooth shaped member.

5,725,373

PERIODONTAL PROBE TIP FOR DIAGNOSING PERIODONTITIS AND DENTAL DECAY

Richard T. Yeh, 13572 Montague St., Arleta, Calif. 91331

Filed Jul. 17, 1996, Ser. No. 682,275
Int. Cl.[6] A61C *19/04*
U.S. Cl. 433—72 **4 Claims**



3. Apparatus for diagnosing an inflammation related to gum disease and tooth decay comprising;

a periodontal probe tip having,

a means for measuring periodontal pocket depth by a graduated scale,

a means for sensing a temperature increase by periodontal tip chromatic change,

a means for sensing acidity by a periodontal probe tip end paper band color change,

whereby bacterial activity is determined by measuring periodontal pocket depth, sensing the temperature change between the bottom and the mouth of the periodontal pocket, and sensing the acidity around a tooth.

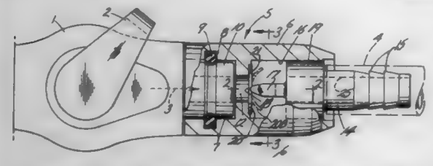
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5,725,374

COUPLER WITH CHECK VALVE FOR A DENTAL EJECTOR HOSE

Barry S. Young, Tualatin, Oreg., assignor to Dental Components, Inc., Newberg, Oreg.

Filed Mar. 18, 1996, Ser. No. 617,081
Int. Cl.[6] A61C *17/14*
U.S. Cl. 433—95 **3 Claims**



1. A coupler with check valve for attaching a vacuum hose to a dental ejector valve, said coupler comprising:

a tubular housing having a first end defining a socket for connection to the dental ejector valve, a second end for connection to the vacuum hose, said housing defining a passageway between said first and second ends, a ring in said socket for engagement with the ejector valve, said housing having an annular valve seat spaced from said socket and said second end, said annular valve seat encircling said passageway,

a tubular vacuum hose connector having first and second ends, said connector first end having an enlarged head insertably engaged with said second end of said housing, said vacuum hose connector second end adapted to be connected to said vacuum hose,

a flexible disk in said housing in place on and cooperable with said valve seat to close the passageway in said housing when said disk is in a non-flexed condition,

a disk engaging means extending axially from said head of the vacuum hose connector for biasing portions of the disk into engagemment with the housing valve seat, and

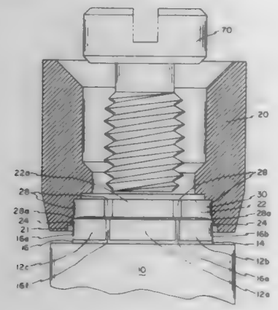
said disk having segments displaceable from said seat in response to a fluid flow in one direction through said passageway, said disk in sealing engagement with said valve seat in the absence of said fluid flow to block any fluid flow in a direction opposite to said one direction.

5,725,375

ANTI-ROTATIONAL CONNECTING MECHANISM

Dan Paul Rogers, Royal Palm Beach, Fla., assignor to Implant Innovations, Inc., Palm Beach Gardens, Fla.

Filed May 25, 1995, Ser. No. 451,083
Int. Cl.[6] A61C *8/00*
U.S. Cl. 433—172 **28 Claims**



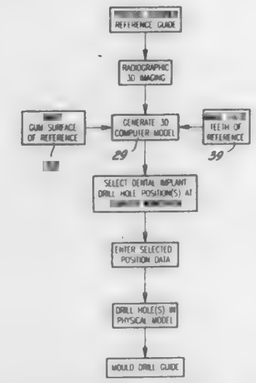
1. In a means for connecting a rigid first part to a rigid second part comprising an interlocking post and socket, in which said post extends outwardly along a longitudinal axis from a base of said first part to a free end of said first part and said socket is a recess in said second part extending from an outer end of said second part to a base within said second part one of said parts comprising a dental implant bearing one of said post and socket and the other of said parts comprising a dental component bearing the other of said post and socket, said post having generally flat external sidewalls parallel to said longitudinal axis, said socket having generally flat internal sidewalls parallel to said external sidewalls, said internal and said external sidewalls having non-circular cross sections defining a polygon having a plurality of corners, the improvement wherein upon initial penetration said post fits loosely into said socket and at least one of said post and socket has engagement means on its sidewalls for frictionally engaging the sidewalls of the other in a sliding contact when said free end of said post penetrates further into said socket toward said base of said socket.

5,725,376

METHODS FOR MANUFACTURING A DENTAL IMPLANT DRILL GUIDE AND A DENTAL IMPLANT SUPERSTRUCTURE

Michel Poirier, 1, Chemin Normandie, Ste-Agatha-des Monts, Quebec, Canada, J8C 2Q5

Filed Feb. 26, 1997, Ser. No. 806,938
Int. Cl.[6] A61C *13/12;8/00*
U.S. Cl. 433—172 **7 Claims**



1. A method of manufacturing a dental implant drill guide, comprising the steps of:

a) imaging a jawbone and tissue structure with a reference to a gum surface to produce a three-dimensional computer graphics model;

b) selecting at least one implant drill hole position for at least one dental implant using said model, said position being specified in three dimensions, including a hole termination point and orientation, and being referenced to said gum surface reference,

c) entering at least one set of implant drill hole position coordinates into a computer controlled precision manufacturing device;

d) providing a drill template body having a first surface for mating with a gum surface of the jawbone;

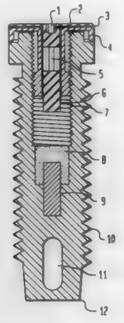
e) using said precision manufacturing device to provide a fixed orientation drill guide socket in said template body for each one of said at least one drill hole position entered in step (c) with a corresponding position and orientation.

5,725,377

DENTAL IMPLANT APPARATUS

Jeffrey Richard Lemler, 2 Bobby Close, Mamaroneck, N.Y. 10543, and Seymour Saslow, 199 Caroline St., Saratoga Springs, N.Y. 12866-3414

Filed Mar. 29, 1996, Ser. No. 625,047
Int. Cl.[6] A61C *8/00*
U.S. Cl. 433—173 **30 Claims**



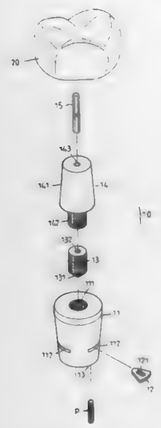
22. A method of enhancing in a patient the growth of bone cells and bone tissue surrounding a dental implant comprising the steps of: forming a dental implant having a titanium implant portion intended to be implanted into bone tissue, forming a cavity in said titanium implant portion, fastening a first material in said cavity, filling said cavity with an electrolyte, forming a cap for sealingly engaging said titanium implant portion and closing said cavity, fastening a second material to said cap, sealingly engaging said cap and said implant portion to activate coaction between said first material, said electrolyte and said second material to produce an electrical charge about the surface of said implant portion to stimulate the growth of bone cells and bone tissue.

5,725,378

ARTIFICIAL TOOTH ASSEMBLY

Hong-Chi Wang, 58, Ma Yuan West St., Taichung, Taiwan

Filed Aug. 16, 1996, Ser. No. 689,712
Int. Cl.[6] A61C *8/00*
U.S. Cl. 433—173 **1 Claim**



1. An artificial tooth assembly comprising:

a denture base made of titanium alloy,

said denture base comprising a cylinder seat, a plurality of plates, a threaded stud, a post and a hexagonal rod,

said cylinder seat having a threaded hole formed on a longitudinal center of said cylinder seat, a plurality of longitudinal slots formed on a bottom of said cylinder seat, and a plurality of transverse slots formed on a periphery of said cylinder seat,

each of said longitudinal slots communicating with each of said corresponding transverse slots,

an oblong hole formed on each of said plates,

a hexagonal recess hole formed on a longitudinal center of said threaded stud,

said threaded stud having a cone-shaped end,

said post having a threaded lower portion and a truncated-cone mount connecting said threaded lower portion of said post,

a hexagonal through hole formed on a longitudinal center of said post passing through said truncated-cone mount and said threaded lower portion of said post,

said plates inserted in said corresponding transverse slots,

a plurality of bolts inserted in said corresponding longitudinal slots and said corresponding oblong holes to position said corresponding plates,

said threaded stud inserted in said cylinder seat via said threaded hole of said cylinder seat,

said threaded lower portion of said post inserted in said cylinder seat via said threaded hole of said cylinder seat to push said cone-shaped end of said threaded stud reaching a bottom end of said threaded hole of said cylinder seat,

said hexagonal rod passing through said hexagonal through hole and said hexagonal recess hole to fasten said post and said threaded stud together,

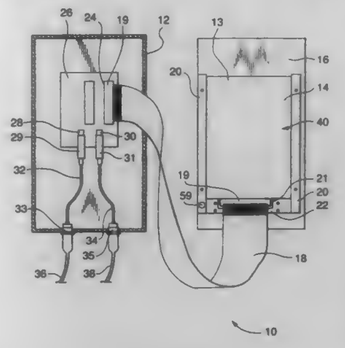
an artificial tooth crown having a lower recess hole formed on a lower center of said artificial tooth crown, and said truncated-cone mount inserted in said lower recess hole of said artificial tooth crown.

5,725,379

BRAILLE LEARNING APPARATUS

Albert William Perry, 1836 Feltham Road, Victoria, B.C., Canada, V8N 2A6

Filed Feb. 11, 1997, Ser. No. 798,629
Int. Cl.[6] G09B *21/00;5/00;* **G06K** *9/00*
U.S. Cl. 434—113 **20 Claims**



15. A braille learning apparatus comprising:

a set of cards, each individual card having a pattern of braille dots embossed on a surface of the card and two electrically connected contacts at a unique set of discrete spaced positions on the card, with a preselected correspondence between the pattern of braille dots embossed on the surface of the card and the selected positions of the contacts;

means for storing data representing the correspondence between the pattern of braille dots embossed on the surface of each individual card and the positions of the contacts on that card;

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position sensing means for sensing the positions of the contacts on a card; and

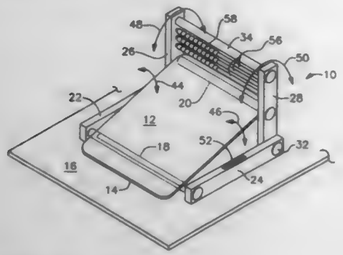
means for producing a distinct sound in response to the positions of the contacts on a card based upon the stored data representing the correspondences, each said distinct sound being uniquely correlated with a selected one set of the positions of the contacts.

5,725,380

COMBINATION WRITING BOARD AND ABACUS

Kim Kennelly, 140 Ingrid Pl., Oldsmar, Fla. 34677

Filed Jan. 14, 1997, Ser. No. 783,118
Int. Cl.[6] G06C *1/00*; G09B *1/02;19/02*
U.S. Cl. 434—203 **15 Claims**



1. A teaching aid, comprising:

a first pair of parallel, transversely spaced apart frame members, each frame member of said first pair of frame members having a forward end and a rearward end;

a second pair of parallel, transversely spaced apart frame members that are connected to respective rearward ends of said frame members of said first pair of frame members;

a lower support rod having its opposite ends secured to respective forward ends of said first pair of frame members;

an upper support rod having its opposite ends secured to said respective frame members of said second pair of frame members at respective preselected points between opposite ends of said respective frame members of said second pair of frame members;

a writing board supported by said upper and lower support rods;

an abacus means supported by said frame members of said second pair of frame members;

said upper support rod being positioned at an elevation higher than said lower support rod so that said writing board is inclined at a predetermined angle with respect to a horizontal plane when said teaching aid is supported on a horizontal support surface and deployed in an operable configuration.

5,725,381

MOTIVATION SYSTEM FOR CHILDREN

Richard Craig Kollath, 12336 Rollingwood Ct., Gulfport, Miss. 39503, and Richard Lee Huffman, 520 Beach Blvd. #501, Biloxi, Miss. 39530

Filed Oct. 3, 1996, Ser. No. 725,168
Int. Cl.[6] G09B *19/00*
U.S. Cl. 434—238 **6 Claims**

1. A motivation system for a child comprising:

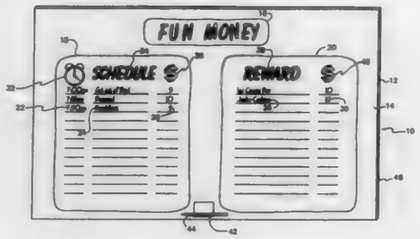
(A) a sheet, said sheet comprising:

(1) a front surface, said front surface including:

(a) a schedule area, said schedule area including:

(i) a task listing area for displaying at least one task assigned to the child;

(ii) a value listing area aligned with said task listing area for displaying a reward value for successfully completing said at least one task; and



(iii) a time completion listing area aligned with said task listing area and said value listing area for displaying a time of day by which the child must perform said at least one task in order for said at least one task to be considered successfully completed;

(b) a reward area, said reward area including:

(i) a reward listing area for displaying at least one reward to be earned by the child; and

(ii) a redemption value listing area aligned with said reward listing area for displaying an amount of reward value required by the child to redeem said at least one reward; and

(2) a rear surface;

(B) currency in various denominations for distribution to the child upon earning a value of an individual piece of currency; and

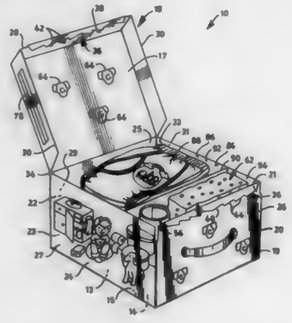
(C) at least one coupon having a value and a reward for one of purchase by and distribution to the child upon earning said value of said coupon, said coupon adapted for redemption by the child to receive said reward of said coupon.

5,725,382

SELF-CONTAINED, INTERACTIVE TOILET TRAINING KIT FOR CHILDREN AND CAREGIVERS

James Andrew Walter; Shirlee Ann Weber, and Mark Thomas Cammarota, all of Neenah, Wis., assignors to Kimberly-Clark Worldwide, Inc.

Filed Aug. 30, 1996, Ser. No. 709,246
Int. Cl.[6] G09B *19/00*
U.S. Cl. 434—258 **11 Claims**



1. A self-contained, interactive toilet training kit, comprising:

a case including a bottom wall, a continuous side wall forming with said bottom wall an interior and an opening, and a lid comprising an inner surface and being moveable between a closed position that covers said opening and an open position that exposes said opening,

an interactivity device for instructing a child in toilet training,

an activity device for use by the child in toilet training,

a partition forming at least two compartments in said interior, one of said compartments containing at least one training pant, and the other of said compartments containing at least one of said activity device and said interactivity device, and

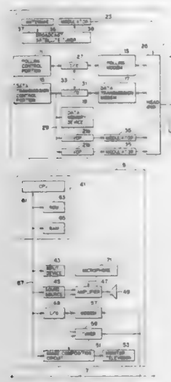
a learning graphic on said inner surface of said lid for instructing a child in toilet training.

5,725,383

DATA TRANSMISSION SYSTEM

Yasuhiro Funahashi; Kazunori Ikami; Osamu Nishimura; Yuji Kiyohara, all of Nagoya; Yoshihiko Hibino, Gifu-ken, and Yuichi Yasutomo, Nagoya, all of Japan, assignors to Brother Kogyo Kabushiki Kaisha, and Xing Inc., both of Nagoya, Japan

Continuation of Ser. No. 275,424, Jul. 15, 1994, abandoned.
This application Sep. 26, 1996, Ser. No. 721,273
Claims priority, application Japan, Jul. 16, 1993, 5-177014
Int. Cl.[6] G09B *15/06*; G10H *7/00*
U.S. Cl. 434—307 A **4 Claims**



1. A karaoke system for controlling transmission of information data via a transmission line from a central control unit to a plurality of terminals, the karaoke system comprising:

a central control unit; and

a plurality of terminals connected to the central control unit via a transmission line,

wherein said central control unit comprises polling signal transmitting means for successively transmitting polling signals to the plurality of terminals, via the transmission line, over a predetermined channel,

wherein each of the plurality of terminals comprises,

request signal transmitting means for transmitting an information transmission request signal via the transmission line to the central control unit, in response to the received polling signal, when the each terminal desires transmission of an information data from the central control unit, wherein the request signal transmission means of each of the terminals desiring the transmission of a desired information data transmits the information transmission request signal attached with a code indicating the information data desired by the terminal,

song selecting means for selecting a karaoke song desired to be sung from a plurality of karaoke songs, and

processing means for processing lyric data and accompaniment data of the information data transmitted from said central control unit, to thereby display a lyric image for the selected karaoke song and play an accompaniment sound for the selected karaoke song,

wherein the central control unit further comprises,

data transmission means for transmitting, via the transmission line over a channel different from the predetermined channel, the information data to each of the terminals that has transmitted the information transmission request signal,

information transmission request signal receiving means for receiving the information transmission request signals transmitted from the terminals,

judging means for judging whether each of the plurality of terminals requests the transmission of the information data,

data storing means for storing a plurality of information data, each information data having the lyric data and the accompaniment data for a corresponding one of the plurality of karaoke songs selectable by the song selecting means, and

data selecting means for selecting the desired information data from the plurality of information data, in accordance with the code attached to the information transmission request signal, the data transmission means transmitting the selected information data to the corresponding terminal,

wherein the polling signal transmission means continually and repeatedly transmits the polling signals in succession to all of the plurality of terminals regardless whether the data transmission means transmits the information data to the terminals, and wherein the polling signal transmission means includes first modulating means for modulating the polling signals into alternating current signals of a first predetermined frequency band and the data transmission means includes second modulating means for modulating the information data into alternating current signals of a second predetermined frequency band different from the first predetermined frequency band, and

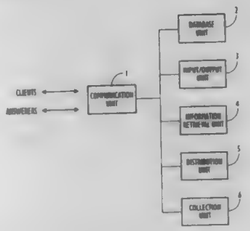
output means for multiplexing the polling signals modulated by the first modulating means and the information data modulated by the second modulating means and for outputting the multiplexed signals to the transmission line, along which the multiplexed signals are transmitted toward the plurality of terminals.

5,725,384

QUESTIONNAIRE AGENCY SYSTEM AND METHOD FOR CONDUCTING QUESTIONNAIRE ON PEOPLE WHO MEET CONDITIONS

Tomiko Ito, Kanagawa, Japan, and Ryoichi Ishibashi, Kanagawa, Japan, assignors to Fujitsu Limited, Kanagawa, Japan

Filed Jan. 22, 1996, Ser. No. 589,851
Claims priority, application Japan, Apr. 24, 1995, 7-098786
Int. Cl.[6] G09B *3/00*
U.S. Cl. 434—350 **21 Claims**



1. A questionnaire agency system for intermediating a questionnaire client and answerers each having a terminal connected to a network and conducting questionnaire for the client, comprising:

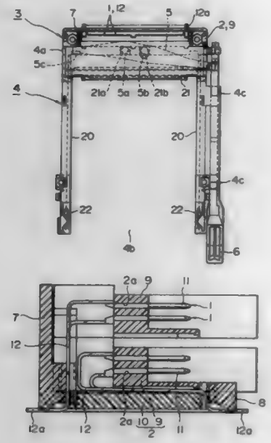
a database to store answerer information containing individual information about a plurality of answerers:

an input/output unit to input an answerer condition specified by a first client; and

an information retrieval unit to compare said individual information of said answerers contained in said answerer information with said condition to thereby automatically retrieve a first answerer who meets said condition among said plurality of answerers, and to choose said first answerer as a receiver of a questionnaire of said first client.

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5,725,385
PC CARD CONNECTOR
Yasunari Takano, Miyagi-ken, Japan; Hidehiro Nakamura, Miyagi-ken, Japan, and Shin Yoshida, Miyagi-ken, Japan, assignors to Alps Electric Co., Ltd., Tokyo, Japan
Filed Feb. 27, 1996, Ser. No. 607,479
Claims priority, application Japan, Mar. 8, 1995, 7-048813
Int. Cl.[6] H01R *9/09*
U.S. Cl. 439—64 **4 Claims**



1. A PC card connector wherein a plurality of pin contacts are secured in a pin housing in a predetermined arrangement such that each of the plurality of pin contacts has a long and narrow terminal end protruding out from said pin housing, and a front end portion of said terminal end is soldered onto a mounting surface of a printed board, said PC card connector comprising:

first and second pin holders secured to said pin housing such that bottom surfaces of said first and second pin holders are positioned opposite the mounting surface of said printed board at a close distance, each of said first and second pin holders having a number of parallel guide grooves for receiving the terminal ends of said plurality of pin contacts,

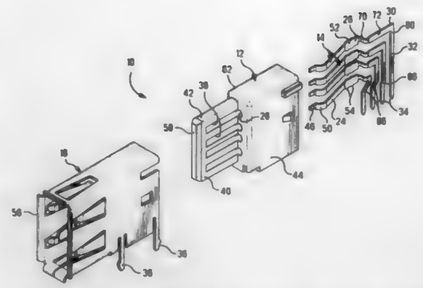
wherein the bottom surfaces of said first and second pin holders are in resilient contact with the front end portions of said terminal ends, and

wherein said first and second pin holders are secured to said pin housing such that they are disposed, respectively, at the front and at the back of said pin housing, respectively, along the direction of insertion and removal of a PC card.

5,725,386
BOARD-MOUNTABLE ELECTRICAL CONNECTOR
Wayne Samuel Davis, Harrisburg, and Robert Neil Whiteman, Jr., Middletown, both of Pa., assignors to The Whitaker Corporation, Wilmington, Del.
Continuation-in-part of Ser. No. 653,144, May 24, 1996, abandoned. This application Aug. 30, 1996, Ser. No. 705,932
Int. Cl.[6] H01R *9/09*
U.S. Cl. 439—79 **12 Claims**

1. An electrical connector comprising:

an insulative housing extending from a mating face to a rear face and further including a board-mounting face orthogonal to said mating face, and a plurality of contacts disposed in respective passageways of said housing following insertion of said contacts into said rear face, each said contact including contact sections exposed along said mating face, a body section extending therefrom toward said rear face to a right angle section, and a vertical section depending from said right angle section to a solder tail depending below said board-mounting face for electrical connection with corresponding conductive sections of a circuit board;



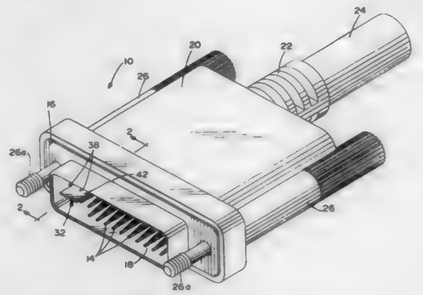
said contact sections being arrayed in a vertical row along said mating face horizontally offset toward one side of said housing, with body sections of said contacts being proximate said one side in respective said passageways, and said right angle sections and vertical sections being arrayed in a vertical row along said rear face substantially centered horizontally with respect to said housing;

each said contact body section including an offset portion spaced inwardly from said mating face and forwardly of said right angle section of said contact and extending horizontally from said one side of said housing substantially to a center thereof;

said housing including wall sections beneath and adjacent to said right angle sections of respective said contacts and extending rearwardly beyond said vertical sections thereof, and each said wall section including a vertical slot extending forwardly from a rear edge thereof to a location forwardly of said vertical section of said contact, such that said vertical section of said contact extends therethrough upon full insertion into said housing,

whereby said slots of said wall sections hold top portions of said vertical contact sections in a selected position for aligning said solder tails with respective said conductive portions of said circuit board.

5,725,387
SYSTEM FOR TERMINATING THE SHIELD OF A HIGH SPEED CABLE
Michael O'Sullivan, Willowbrook; David L. Brunker, Naperville; Gary S. Manchester, Naperville, and Paul Murphy, Naperville, all of Ill., assignors to Molex Incorporated, Lisle, Ill.
Filed Mar. 1, 1996, Ser. No. 609,577
Int. Cl.[6] H01R *4/66*
U.S. Cl. 439—98 **25 Claims**



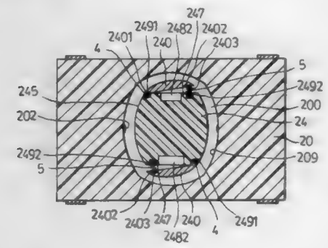
1. A termination assembly comprising:

a cable having an inner conductor, an inner dielectric at least a portion of surrounding said inner conductor, a metallic shield surrounding at least a portion of said inner dielectric and an outer insulating jacket surrounding at least a portion of said metallic shield, a portion of said outer jacket being removed to expose an exposed portion of said metallic shield;

a thermally insulating member positioned between said metallic shield and said inner dielectric of said cable; and

a conductive terminating member at least partially disposed in a dielectric housing of an electrical connector, said terminating member having a gripping portion positioned in registry with said exposed portion of said metallic shield, said gripping portion gripping said metallic shield without deformation of said insulating member such that said metallic shield is disposed between said insulating member and said gripping portion.

5,725,388
ROTATABLE SPRING ACTUATED THREE PART INSULATED SAFETY ELECTRICAL SOCKET
Brian Huang, Kaohsiung, Taiwan, assignor to Auto Search Industrial Instrument Co., Ltd., Kaohsiung, Taiwan
Filed Feb. 5, 1996, Ser. No. 596,484
Int. Cl.[6] H01R *29/00*
U.S. Cl. 439—188 **4 Claims**



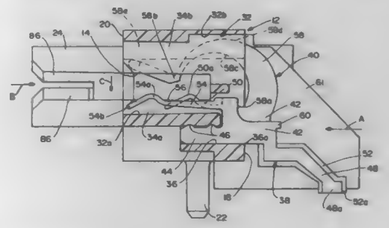
1. A safety electrical socket, comprising:

a rear insulative body having a generally flat face, a cavity which is formed in said flat face and which has two opposed, narrower side walls, a pair of contacts fixed respectively to said narrower side walls, and two wires connected respectively to said contacts for supplying electrical power to said contacts;

a front insulative body having opposed first and second faces, a through bore extending from said first face to said second face, said second face being generally flat, said through bore being formed of a first section of a smaller diameter which is adjacent to said first face, a second section which is adjacent to said second face, and a first shoulder which is formed between said first and second sections, said front insulative body being detachably connected to said rear insulative body so that said second face abuts said flat face of said rear insulative body and said through bore of said front insulative body is concentric with said cavity of said rear insulative body, said cavity having a size which is smaller than that of said second section of said through bore, thereby defining a second shoulder between said second face of said front insulative body and said flat face of said rear insulative body;

a receptable body having a cylindrical front portion with first and second ends, an annular flange extending radially from said second end of said front portion, and a rear portion extending coaxially from said second end of said front portion, said rear portion having two opposite wider sides, said front portion being inserted coaxially and slidably into said first section of said through bore so that said receptacle body can be moved between a first position, where said annular flange abuts said first shoulder and said first end of said front portion of said receptacle body extends out of said first face of said front insulative body, and a second position, where said annular flange abuts said second shoulder and said rear portion of said receptacle body extends into said cavity of said rear insulative body, said front portion having a pair of socket openings which extends from said first end to said second end thereof, each of said wider sides of said rear portion having an axially extending groove which is connected to a respective one of said socket openings, a conductor which is disposed over said axially extending groove and which has a first end connected pivotally to a first side of said axially extending groove and a second end located on the other side of said axially extending groove, and a biasing member which is mounted between a second side of said axially extending groove and said second end of said conductor in order to urge said conductor to move away from said axially extending groove, so that when a pair of contact blades of an electrical plug are inserted into the socket openings and extend into said axially extending grooves and when said receptacle body in said second position is rotated by a predetermined angle, said conductors can be depressed by said contacts of said rear insulative body against the biasing force of said biasing blades which are received in said axially extending grooves, and so that when said receptacle body is further rotated by the predetermined angle in a reverse direction, said conductors can be moved away from said axially extending grooves and be disengaged from said contact blades and said contacts.

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EDGE CARD CONNECTOR
Dennis Keith Scheer, Downers Grove, Ill., assignor to Molex Incorporated, Lisle, Ill.
Filed Nov. 9, 1995, Ser. No. 555,437
Int. Cl.[6] H01R *13/62*
U.S. Cl. 439—328 **12 Claims**



1. An edge connector for receiving a printed circuit board having a mating edge and a plurality of contact pads adjacent the edge, said connector comprising: an elongated dielectric housing having a board-receiving slot for receiving the mating edge of the printed circuit board, and a plurality of one-piece ground/power contact elements and a plurality of signal contact elements, said ground/power contact elements and said signal contact elements being mounted in the housing along at least one side of the slot and alternating lengthwise along said slot, said plurality of ground/power contact elements having first and second spring arms, said first spring arm having a contact portion extending into the slot for contacting a respective one of the contact pads on one side of the printed circuit board, each of said plurality of signal contact elements having a spring arm with a contact portion extending into the slot for contacting a different respective one of said contact pads on said one side of the printed circuit board, a surface on the housing at said one side of the slot defining a datum plane beyond which the contact portion of the first spring arm extends into the slot, said second spring arm having a contact portion extending into said slot for contacting the printed circuit board on a side opposite said one side of the board and biasing said one side of the board against said datum plane and said contact portions of said first spring arms, the first and second spring arms projecting from a base portion of said ground/power contact elements, said ground/

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power and said signal contact elements having board-mounting feet projecting beyond the elongated housing generally in a line therealong,

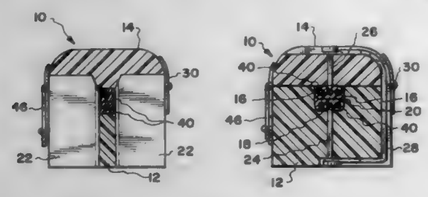
each said second spring arm being generally C-shaped and extending from the base portion in a generally uniformly decreasing cross-section from a relatively wide base end at the base portion to a relatively narrow distal end, said contact portion of said second spring arm being positioned generally adjacent said relatively narrow distal end of said generally C-shaped second spring arm for contacting the printed circuit board.

5,725,390

ELECTRICAL SPLICE BOX

Edward Francis Watts, 5320 Maple View Cir., Camarillo, Calif. 93012

Filed Nov. 13, 1996, Ser. No. 749,406
Int. Cl.[6] H01R *4/24*
U.S. Cl. 439—410 **16 Claims**



1. An electrical connector comprising:

a receiving base comprising electrically insulating material, said base having a pair of opposing side walls and a bottom wall connected thereto, said walls defining a trough therebetween, said bottom wall further having an electrically conductive base spike extending into said trough parallel to said side walls, said base spike further being generally equidistant from said side walls;

a top cover comprising electrically insulating material, said cover having a conductive spear extending from the bottom of said cover;

each of said side walls having a connecting blade member extending an equivalent distance into said trough; and

a means to electrically connect said base spike to said cover spear.

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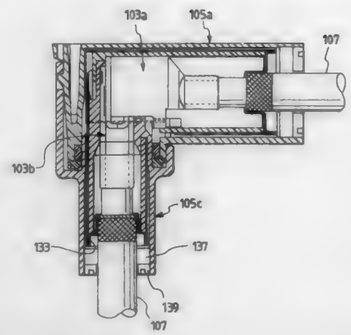
INSULATING STRUCTURE FOR A SHIELDED CONNECTOR

Satoki Masuda; Mitsuhiro Matsumoto, and Hidehiko Kuboshima, all of Shizuoka, Japan, assignors to Yazaki Corporation, Tokyo, Japan

Division of Ser. No. 528,221, Sep. 14, 1995. This application Oct. 11, 1996, Ser. No. 729,155
Claims priority, application Japan, Sep. 16, 1994, 6-221849; Jan. 18, 1995, 7-5940
Int. Cl.[6] H01R *9/05*
U.S. Cl. 439—582 **1 Claim**

1. An insulating structure in a shielded connector constituted by a male connector and a female connector, wherein in each of said male and female connectors, an inner housing is provided in an outer housing with a gap therebetween, a terminal reception chamber for receiving a terminal is formed in each of said inner housings, and a metal shell covering said inner housings is inserted into said gap, said insulating structure comprising:

an annular projecting portion surrounding a male terminal on a fitting end surface of said inner housing of said male connector, said annular projecting portion projects toward said female connector which is to be mated to said male connector;



a cylindrical fitting portion to be fitted to the inside of said annular projecting portion when said connectors are fitted to each other formed in said inner housing of said female connector;

a female terminal in which an engagement groove is formed in a side surface thereof is disposed in said fitting portion;

a terminal engagement portion extending outside said fitting portion when said female terminal is inserted into said fitting portion elastically to engage with said engagement groove, said terminal engagement portion is a cutout formed in the circumferential wall of said fitting portion;

an outer circumferential wall surrounding said fitting portion and being formed on said inner housing of said female connector to thereby form a gap between said outer circumferential wall and said fitting portion, into which said terminal engagement portion extends; and

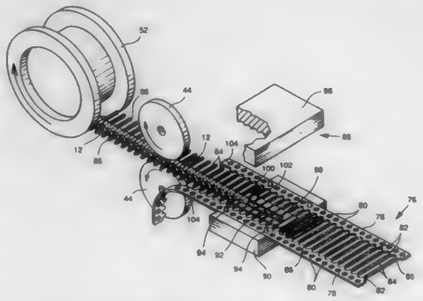
said annular projecting portion is fitted into said space when said connectors are fitted to each other.

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CONTINUOUS MOLDED ELECTRICAL CONNECTOR WITH PINS

Giuseppe Bianca, Temecula, Calif., and Robert M. Bogursky, Encintas, Calif., assignors to Autosplice Systems, Inc., San Diego, Calif.

Continuation-in-part of Ser. No. 498,536, Jul. 5, 1995, Pat. No. 5,616,053. This application Nov. 22, 1996, Ser. No. 755,298
Int. Cl.[6] H01R *13/40*
U.S. Cl. 439—590 **28 Claims**



1. A continuous elongated injection-molded length of insulating material containing a plurality of spaced approximately in-line electrical or mechanical parts incorporated in and along substantially the length of said insulating material, comprising:

(a) a consecutive series of injection-molded segments of insulating material,

(b) each segment comprising a consecutive series of connected integral, insulated units comprised of first leading and second trailing end units and a plurality of middle units between the end units, said middle units each being of insulating material and separated along their length from each other by severance means, some middle and end units being molded around an electrical or mechanical part, the first and second end units forming portions in line with the spaced electrical or mechanical parts,

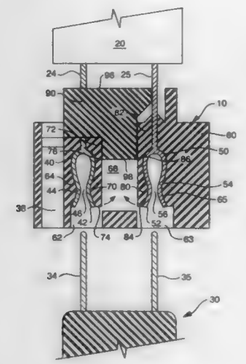
(c) except for the end segments, the second end unit of each segment being nested within the first end unit of the adjacent segment whereby successive segments are integrally coupled by their respective second and first end units with their respective electrical or mechanical part aligned.

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ELECTRICAL CONNECTOR WITH VARIABLE PLUG RETENTION MECHANISM

Jeffrey A. Steininger, Fort Wayne, Ind., and Stephen B. Leonard, Caledonia, Wis., assignors to S. C. Johnson & Son, Inc., Racine, Wis.

Filed Sep. 23, 1996, Ser. No. 710,803
Int. Cl.[6] H01R *13/40*
U.S. Cl. 439—597 **13 Claims**



1. An electrical connector for connecting an electrical plug having prongs to circuitry, said connector comprising:

a pair of electrically conductive sockets adapted to receive the plug prongs, each socket having an inner leg and an outer leg defining a narrow portion which is narrower than a respective plug prong;

an elastically deformable supporting member supporting said sockets, said supporting member having a pair of cantilevered inner supports supporting said inner legs and defining a cavity between said sockets into which said inner supports can be elastically deflected to allow said inner legs to deflect when the plug prongs are inserted into said sockets past said narrow portions; and

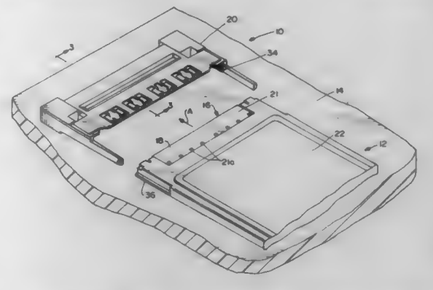
an intermediate member disposed in the cavity and contacting each of said inner supports at a fulcrum point at which said intermediate member opposes deflection of said inner supports into the cavity, causing said inner legs to grip the plug prongs with a retention force when the plug prongs are inserted into said sockets past said narrow portions.

5,725,394

GROUNDING SYSTEM FOR IC CARDS

Emanuel G. Banakis, Naperville; Richard A. Hays, Montgomery; Kenneth F. Janota, Lisle, and Harold Keith Lang, Fox River Grove, all of Ill., assignors to Molex Incorporated, Lisle, Ill.

Filed Oct. 11, 1996, Ser. No. 731,231
Int. Cl.[6] H01R *13/648*
U.S. Cl. 439—607 **10 Claims**



1. A grounding system for an electrical connector assembly which receives an IC card, the IC card including a receptacle connector at a front insertion end of the card and a receptacle grounding shield on a top surface of the receptacle connector, the grounding system comprising:

a header connector including a dielectric connector housing into which at least the front insertion end of the IC card is inserted, and a plurality of terminals mounted in the connector housing having pin portions for mating to corresponding terminals in the IC card, and

a grounding shroud generally extending over the pin portions of said terminals and including a main body plate having a plurality of ground contact portions formed therein for engaging corresponding contacts on the receptacle grounding shield of the IC card, each ground contact portion comprising a generally C-shaped spring arm having opposite ends of the C integrally joined to the shroud and the portion of the spring arm between the ends being formed downwardly for engaging a contact of the receptacle grounding shield,

wherein each of said C-shaped spring arms is stamped out of an opening in the main body plate and said ends of each spring arm are integrally joined at opposite edges of the opening and wherein adjacent spring arms are mirror-image C-shapes such that the opening of the C-shape of one spring arm faces the opening of the C-shape of an adjacent spring arm,

whereby, upon engaging the contact of the receptacle grounding shield, the C shape of the spring arms causes the ground contact portions to deflect about two separate axes.

5,725,395

UNIVERSAL SERIAL BUS CONNECTOR

Su-Lan Yang Lee, 4th Floor, No. 506-2, Yuan-Shan Road, Chung Ho City, Taipei Hsien, Taiwan

Filed Aug. 12, 1996, Ser. No. 695,559
Int. Cl.[6] H01R *13/648*
U.S. Cl. 439—610 **2 Claims**

1. A universal serial bus connector, comprising:

a lower casing having a hollow cartridge provided with an entrance thereto,

an upper casing adapted to be disposed on said lower casing, thereby closing said entrance into the cartridge, and

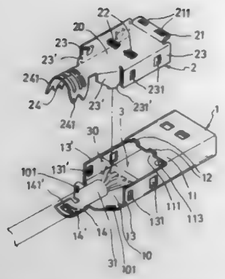
a plastic housing sandwiched between said lower and upper casings, a cable being terminated within said plastic housing;

said lower casing comprising:

a base board,

a cable seat at a rear end thereof, the cable seat having a ground lead fixing section, a clip lever being formed thereon.

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a pair of first lateral walls, each extending upwardly along a respective side of the base board, at least one latch hole being disposed on each of said first lateral walls,

an upper side of the cartridge extending between said first lateral walls and spaced from the base board, thereby providing room for said plastic housing therebetween, at least one lug upwardly extending from the upper side of the cartridge substantially at the entrance thereto, and

a pair of slits on said base board, each slit being positioned between a respective one of said first lateral walls and said cable seat;

said upper casing comprising:

a face board,

a coupling latch plate at a front end of the face board, said coupling latch plate having at least one through hole engaging said at least one lug on the upper side of the cartridge,

a clip seat extending from a rear end of the face board and cooperating with said clip lever for clipping the ground lead,

a pair of second lateral walls, each extending downwardly along a respective side of the face board, at least one latch hook extending inwardly from each of said second lateral walls and engaging said at least one latch hole on a respective first lateral wall of the lower casing, and

a pair of slope side walls, each extending downwardly from the face board between a respective one of said second lateral walls and said clip seat, a projecting plate being formed at a lower edge of each of said slope side walls, said projecting plate engaging a respective one of said slits on the base board of the lower casing;

a first stopper plate projecting downwardly from the face board of the upper casing,

a second stopper plate projecting upwardly from the base board of the lower casing,

said first stopper plate engaging a rear end of said plastic housing, said second stopper plate engaging a front end of said plastic housing, thereby preventing said plastic housing from being inadvertently displaced from a proper position thereof within said lower and upper casings; and

said base board of the lower casing further having a sensing protuberance upwardly extending therefrom, and said plastic housing further having a dent formed on a bottom thereof and engaging said sensing protuberance, once said plastic housing has been disposed in said proper position thereof.

5,725,396

CONNECTION DEVICE FOR THE POLES OF ELECTRIC ACCUMULATORS

Olimpio Stocchiero, Via Kennedy, 4 - 36050, Montorso Vicentino, Italy

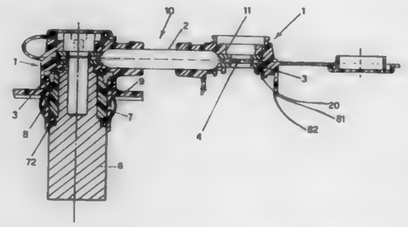
PCT No. PCT/EP94/03285, § 371 Date Jun. 14, 1996, § 102(e) Date Jun. 14, 1996, PCT Pub. No. WO95/10857, PCT Pub. Date Apr. 20, 1995

PCT Filed Oct. 4, 1994, Ser. No. 617,784

Claims priority, application Italy, Oct. 12, 1993, V193A0159

Int. Cl.[6] H01R *13/52*

U.S. Cl. 439—627 **5 Claims**



1. A connection device for preventing leakage of electrolyte from an accumulator and for electrically connecting the poles of said accumulators comprising:

a connecting electrical cable having end portions;

a conductor ring for each end portion;

a fillister head screw for electrically and mechanically connecting each connector ring of the cable to a corresponding pole of the accumulator;

an insulation coating formed of plastic material circumferentially arranged around each conductor ring and having an opening with respective larger and smaller diameters, the insulation coating further having a first annular wall in the shape of a cylinder of said first diameter sized for receiving the head of the connecting screw for engaging the conductor ring, said first annular wall extending along a selected distance of said head and cooperating therewith in order to form a watertight seal for preventing leakage of electrolyte from the accumulator, wherein the opening in the insulation coating has a second annular wall concentric with the first annular wall and having the larger diameter, the first and second walls forming a stepped wall portion for engaging a corresponding portion of the screw head; and

a lid for engaging and sealing the opening to the insulation coating over the head of the screw.

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DIVISIONAL TYPE CONNECTOR

Makoto Fukamachi, Yokkaichi, Japan, and Satoru Nishide, Yokkaichi, Japan, assignors to Sumitomo Wiring Systems, Ltd., Japan

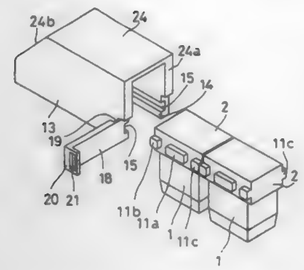
Filed Aug. 2, 1995, Ser. No. 510,271

Claims priority, application Japan, Aug. 9, 1994, 6-209235

Int. Cl.[6] H01R *13/502*

U.S. Cl. 439—701 **16 Claims**

1. An electrical connector assembly comprising a frame defining a frame opening, a closure member hingedly connected to the frame for the frame opening, and a plurality of electrical connectors insertable in the frame through said frame opening, each connector comprising a body having at least one electrical wire protruding therefrom, the frame and connectors having co-operating register members adapted to engage and guide said connectors one by one into said frame, and said closure member



retaining a plurality of connectors in said frame when positioned to close said frame opening.

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ELECTRICAL CONNECTOR INCORPORATING CONTACT-LOCKING GRID

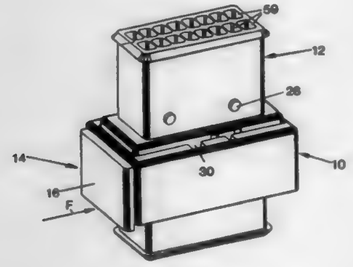
Patrice Cappe, Faverolles, France, assignor to Framatome Connectors International, Courbevoie, France

Filed Feb. 12, 1996, Ser. No. 600,211

Claims priority, application France, Feb. 10, 1995, 95 01577

Int. Cl.[6] H01R *13/514*

U.S. Cl. 439—752 **4 Claims**



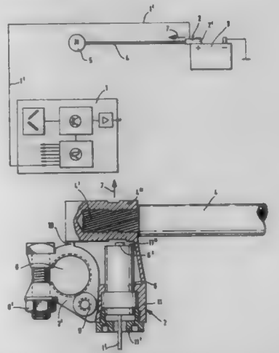
1. An electrical connector comprising:

(a) a plug having a plug housing comprising slots parallel to a direction of insertion and adapted to receive first electrical contacts, and a contact-locking grid adapted to be inserted in said plug housing in a direction opposite to said direction of insertion until a contact-locking position is reached;

(b) a mounting base having a rectangular housing comprising slots for insertion of second electrical contacts and parallel to the direction of insertion, said mounting base delimiting a cavity for housing a grid which locks said second electrical contacts in place in said plug housing in a direction opposite said direction of insertion, until a contact-locking position in said mounting base is reached;

(c) a drawer movable in said mounting base transversely to said direction of insertion, said drawer having sides incorporating slots comprising an oblique portion for forced travel of pegs of said plug housing, so that the travel of the drawer in one direction causes insertion of said plug in said cavity, and, in an opposite direction, removal of said plug;

(d) wherein said grid comprises at least one tab adapted to form a stop blocking said plug prior to engagement of said pegs in said slots in said drawer when said grid is incompletely inserted, said tab being joined to a body of said grid by a thin part forming a hinge which is adapted to bend and move said tab out of a path of a plug component when said grid is completely inserted.



1. A battery cable terminal comprising a cable terminal (**2'**) having a clamping bore (**8**) defined therethrough for retention to a battery post for use in a vehicle, a safety separator (**2**) attached to the cable terminal, the safety separator (**2**) being adapted to be located between a battery (**3**) and an on-board cable end (**4'**) of the vehicle and being operable in response to an accident, the safety separator (**2**) including a housing (**11**) having a fixed part which is integral with the cable terminal (**2'**) and a separable fastening device (**10; 12, 13**) which secures the on-board cable end (**4'**) of an on-board system, and a powered drive element (**6**) located between the fixed part of the housing and the cable end (**4'**) such that when said drive element is actuated the cable end (**4'**) is released, the powered drive element (**6**) has a control line (**1'**) effecting actuation of said drive element in dependence on an accident sensor (**1**).

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CONNECTING TERMINAL SECTION STRUCTURE

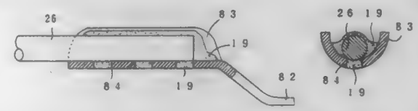
Seiichi Morikawa, Chiba; Naoyuki Ono, and Taketo Takata, both of Tokyo, all of Japan, assignors to SMK Co., Ltd., and Sony Corporation, both of Tokyo, Japan

Filed Jun. 12, 1996, Ser. No. 664,015

Claims priority, application Japan, Jun. 12, 1995, 7-167885

Int. Cl.[6] H01R *4/02*

U.S. Cl. 439—874 **11 Claims**



1. A connecting terminal portion of a contact configured for connecting a lead wire to a terminal portion by a solder connection, the terminal portion having a groove, the groove having a diameter which is a little larger than a diameter of the lead wire, said terminal portion including at least one small hole therein to discharge air trapped in the solder connection and to enable molten

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solder to flow into a bottom of the groove spontaneously by surface tension, but not to flow out downwardly therefrom,

wherein said groove includes a longitudinal opening along one portion thereof and said small hole is positioned opposite said longitudinal opening.

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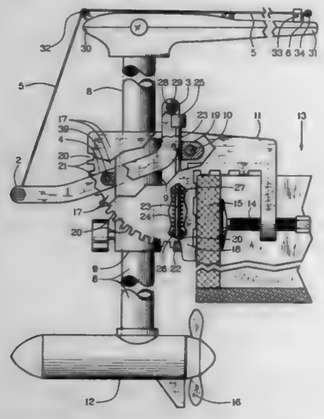
TROLL MOTOR TILT TRIGGER

Nolan A. Smith, 16037 E. Sunflower Trial, Orlando, Fla. 32828

Filed Apr. 10, 1997, Ser. No. 835,648

Int. Cl.[6] B63H *5/125*

U.S. Cl. 440—6 **19 Claims**



1. A troll-motor tilt trigger comprising:

a fulcrum base on an exterior portion of a steering housing in which a troll-motor rod is pivotal horizontally for directing thrust of a water screw rotated by a troll motor attached to a bottom end of the troll-motor rod;

a trigger lever having a line-attachment end, a latch-release end and a fulcrum section that is intermediate the line-attachment end and the latch-release end;

the line-attachment end being on an aft side of the steering housing, the latch-release end being proximate a press end of a latch-release rod that is slidable collinearly with the steering housing at a forward side of the steering housing, and the fulcrum section being pivotal on the fulcrum base on an exterior portion of the steering housing; and

a ratchet-release line having a lever end attached to the line-attachment end of the trigger lever and the ratchet-release line having a handle end that is extended to proximate a steering handle on a top portion of the troll-motor rod.

5,725,402

WIRELESS MARINE PROPULSION TRIM/TILT CONTROL SYSTEM

Gregory S. Marsh, 15135 Memorial Dr., Apt. 5109, Houston, Tex. 77079

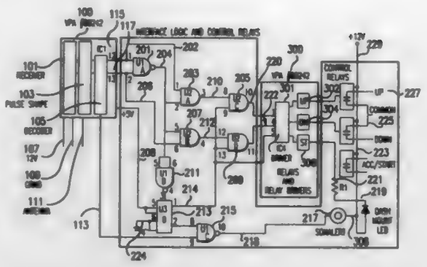
Filed Jul. 1, 1996, Ser. No. 674,144

Int. Cl.[6] B63H *5/125*

U.S. Cl. 440—53 **3 Claims**

1. A control apparatus for the relay actuated, electrically driven tilt/trim system of a marine propulsion unit of a boat comprising:

a plurality of wireless transmitter means for creating signals, each transmitter means having a first control means for selectively producing a first wireless signal in response to a first external command and a second control means for selectively producing a second wireless signal responsive to a second external command;



receiver means for detecting said first and second wireless signals;

first decoding means responsive to the receiver means for producing a first electrical output responsive to said first signal and a second electrical output responsive to said second signal;

relay means responsive to the electrical output of the decoding means for providing a first relay closure responsive to said first electrical output and a second relay closure responsive to said second electrical output, said relay means being adapted to actuate said electrically driven tilt/trim system;

a third decoding means responsive to the receiver means for producing a third electrical output responsive to the combination of the first signal and the second signals, and;

a third relay means responsive to said third electrical output for controlling the flow of electricity to the boat.

5,725,403

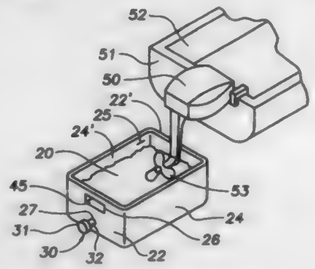
MARINE OUTBOARD MOTOR FLUSH AND RUN TANK AND METHOD OF FLUSHING A MARINE OUTBOARD MOTOR

James T. Ridolfo, 144 Portland St., New Orleans, La. 70124

Filed Nov. 18, 1996, Ser. No. 751,502

Int. Cl.[6] B63H *20/30*

U.S. Cl. 440—88 **12 Claims**



1. A method of flushing an outboard marine motor using a marine outboard motor flush and run tank wherein the marine outboard motor flush and run tank comprises a flush trough member, fluid inlet means and fluid outlet means, said method of flushing an outboard marine motor comprising the steps of:

(a) placing a propeller member of the outboard marine motor into the confines of the fluid trough member;

(b) coupling a fluid line to the fluid inlet means;

(c) coupling a cap member to the fluid outlet means;

(d) pouring an organic detergent into the fluid trough member;

(e) filling the fluid trough member with fresh water via the coupled fluid line;

(f) starting said outboard marine motor;

(g) siphoning a mixture of said organic detergent and said fresh water into a coolant system of said outboard marine motor;

(h) purging said mixture from said coolant system into said fluid trough member;

(i) inspecting the purged mixture;

(j) opening the fluid outlet means;

(k) flushing from the fluid outlet means the purged mixture having salt, silt and other material mixed therein;

(l) simultaneous to step (k), replenishing the fresh water in the flush trough member;

(m) maintaining a fresh water level at a preferred level;

(n) monitoring the mixture for the salt, the silt, and the other material; and

(o) repeating steps (g)–(n) until the mixture is substantially clear.

5,725,404

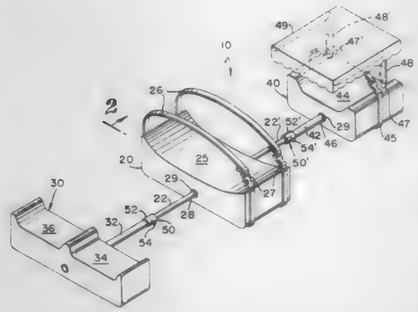
FLOATING BED ASSEMBLY

Jesus Gomez, 6034 SW. 27 St., Miami, Fla. 33155

Filed Sep. 11, 1996, Ser. No. 712,032

Int. Cl.[6] B63B *35/74*

U.S. Cl. 441—130 **5 Claims**



1. A means device for supporting a user over a body of water, comprising:

A) first floating means having an upperside with a substantially concave surface for corresponding to and cooperatively supporting the lumbar portion of a user;

B) second floating means having an upperside with a sufficiently large area to support a user's feet; and

C) third floating means having an upperside with a sufficiently large area to support a user's head, and further including elongated rigid means for connecting said first and third floating means passing through said second floating means.

5,725,405

METHOD AND APPARATUS FOR POSITIONING SPARK PLUG ELECTRODES

Hiroshi Nakatani, Kuwana, Japan, assignor to Nippondenso Co., Ltd., Kariya, Japan

Filed Mar. 26, 1996, Ser. No. 621,685

Claims priority, application Japan, Apr. 14, 1995, 7-113929

Int. Cl.[6] H01T *21/02*

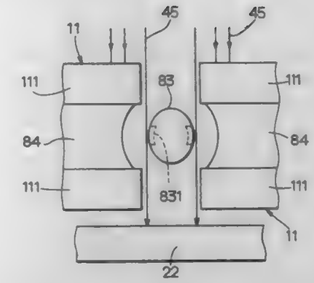
U.S. Cl. 445—4 **12 Claims**

6. A method for positioning a noble metal member provided on a center electrode toward an end of a ground electrode in a spark plug, said method comprising the steps of:

fixing one of said center electrode and said ground electrode on a fixed base;

irradiating a signal light from a radial side of said center electrode;

turning the other of said center electrode and said ground electrode relative to said one of said center electrode and said ground electrode; and



detecting an amount of said light passing by said center electrode and thereby determining a relative position of said noble metal member of said center electrode to said ground electrode based on a detected value of said light amount.

5,725,406

PLASMA ADDRESSED DISPLAY DEVICE

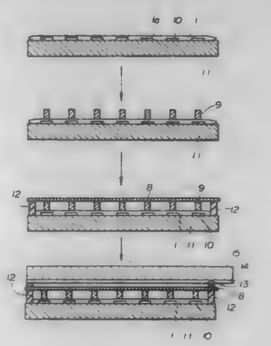
Takahiro Togawa, Kanagawa, Japan, assignor to Sony Corporation, Tokyo, Japan

Division of Ser. No. 519,402, Aug. 25, 1995. This application Nov. 7, 1996, Ser. No. 745,064

Claims priority, application Japan, Aug. 26, 1994, 6-202107

Int. Cl.[6] H01J *9/26*

U.S. Cl. 445—24 **4 Claims**



1. A method for preparing a plasma addressed liquid crystal display device having a plasma cell and a display cell stacked together, comprising the steps of:

forming a plurality of discharge electrodes on a substrate;

covering the vicinity of contact areas of said discharge electrodes with an insulating film;

forming barrier ribs on the discharge electrodes covered by said insulating film;

grinding the top of said barrier ribs;

arranging a microsheet glass on the ground barrier ribs and bonding the microsheet glass to the substrate with a sealing member to form a plasma cell; and

joining said plasma cell and said display cell together.

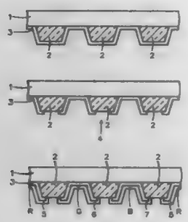
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5,725,407

PROCESS FOR MANUFACTURING A LUMINESCENT DISPLAY SCREEN THAT FEATURES A SLOPING STRUCTURE

Nan-Chou D. Liu, Chutung; Jammy Chin-Ming Huang, and Jin-Yuh Lu, both of Taipei, all of Taiwan, assignors to Industrial Technology Research Institute, Hsinchu, Taiwan

Filed Apr. 8, 1996, Ser. No. 630,707
Int. Cl.[6] H01J *9/227*
U.S. Cl. 445—52 18 Claims



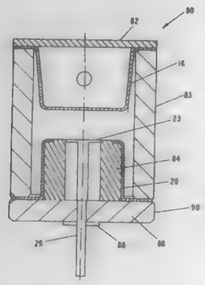
1. A method for manufacturing a color luminescent screen comprising:
(a) providing a glass substrate having a smooth surface;
(b) by means of screen printing, forming a black matrix, on said surface, said black matrix further comprising a patterned layer having an upper surface and sloping edges such that said black matrix is larger at the level of the substrate surface than at the level of said upper surface;
(c) depositing a layer of a transparent conductor on said substrate and on said black matrix;
(d) selectively etching said transparent conductor so that it is removed from the upper surface of the black matrix; and
(e) forming, by means of electrophoresis, blue, green, and red phosphor areas over said transparent conductor.

5,725,408

COLD CATHODE VACUUM DISCHARGE TUBE

Gordon E. Boettcher, Albuquerque, N. Mex., assignor to Sandia Corporation, Albuquerque, N. Mex.

Division of Ser. No. 535,795, Sep. 28, 1995. This application Oct. 3, 1996, Ser. No. 725,421
Int. Cl.[6] H01J *9/02*
U.S. Cl. 445—58 8 Claims



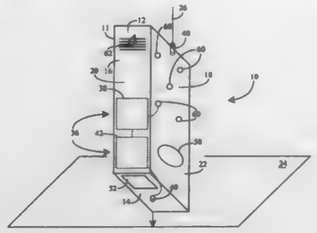
1. A method of manufacturing a cold cathode vacuum discharge tube, the method comprising the step of coating a surface of a trigger probe ceramic by a method selected from the group consisting of carbon vapor deposition and diamond-like carbon deposition.

5,725,409

SOUND-EMITTING TOPPLING GAME ELEMENT AND METHOD FOR PLAYING A GAME

Scott R. Brunton, 320 S.E. 63rd, Portland, Oreg. 97215

Filed Feb. 8, 1995, Ser. No. 386,301
Int. Cl.[6] A63H *5/00*
U.S. Cl. 446—2 3 Claims



1. A game element for disposition on a surface by a user, comprising:
a body, said body being disposed in contact with the surface in an upright position relative to the surface; and
a sound emission assembly incorporated in said body, said assembly emitting a sound component directly from said body when said body moves from said upright position in a predetermined displacement, said sound emission assembly including sound production circuitry and a sound actuation mechanism, said sound production circuitry producing and emitting said sound component and said sound actuation mechanism sensing said movement of said body and, in response thereto, enabling said sound production circuitry, said body including a side, and said body is uprightly disposed by placing said side in contact with the surface, and said sound actuation mechanism comprises a mechanical switch disposed on said side, said mechanical switch being depressed when said body is upright and extending when said body is moved from said upright position in said predetermined displacement, such that said extension of said switch enables said sound production circuitry.

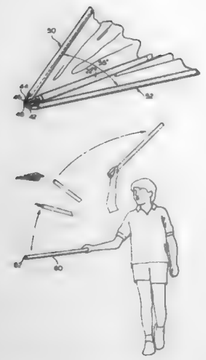
5,725,410

PROJECTILE AND LAUNCHER TOY

Allan Brooks Robinson, R.R. #1; Russell Victor Robinson, and Kelly Thomas Robinson, both of R.R. #2, all of Dunsford, Ontario, Canada, K0M 1L0

PCT No. PCT/CA95/00208, § 371 Date Oct. 8, 1996, § 102(e) Date Oct. 8, 1996, PCT Pub. No. WO95/28212, PCT Pub. Date Oct. 26, 1995
PCT Filed Apr. 12, 1995, Ser. No. 718,442
Claims priority, application Canada, Apr. 14, 1994, 2121278
Int. Cl.[6] A63H *27/01*
U.S. Cl. 446—62 10 Claims

1. A projectile and a launching tube in combination, said tube being hollow and open at one end, wherein the projectile exits from the open end of the tube, said projectile comprising:
a nose, said nose defining a forward end of the projectile;
a pair of wings, each one of said pair of wings having a leading edge, each of said pair of wings being symmetrically disposed about a longitudinal axis of said projectile, wherein when said wings are in a position for flying, said leading edges extend outwardly at an oblique angle with respect to the longitudinal axis, said pair of wings being inwardly foldable to a prelaunching position such that each said leading edge is configured to pivot toward the longitudinal axis;
a peripheral sleeve disposed on each said wing and adjacent to each said leading edge;
a central sleeve extending adjacent to the longitudinal axis;
a plurality of reinforcing members, one of said reinforcing members being disposed within each said peripheral sleeve and said central sleeve, wherein each said reinforcing member is elongated and substantially inflexible; and
a wire comprising a resilient deformable material, said wire biasing said pair of wings into the position for flying, said wire comprising first, second, and third segments diverging from a common point of connection, wherein the common point is disposed at said nose, said first segment being connected to said reinforcing member disposed within said central sleeve, said second and third segments connected to different ones of said reinforcing members disposed within each said peripheral sleeve, and said reinforcing members disposed within said peripheral sleeves being pivotally connected to said reinforcing member disposed within said central sleeve.

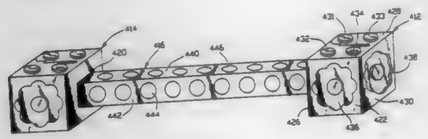


5,725,411

CONSTRUCTION BEAM BLOCK TOY WITH SELECTIVE ANGULAR INTERLOCK

Kenneth P. Glynn, Raritan Township, N.J., assignor to Ideal Ideas, Inc., Flemington, N.J.

Filed Mar. 25, 1994, Ser. No. 218,158
Int. Cl.[6] A63H *33/08*
U.S. Cl. 446—128 22 Claims



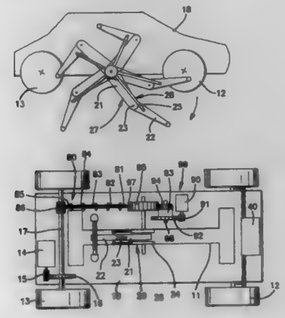
1. A selective angular interlocking block toy comprising:
a. a block body having a plurality of facets;
b. an octa-arc connector on at least one of said plurality of facets, said octa arc connector having a recessed surface area circumscribed by an outer perimeter of arcs of eight symmetrically arranged, overlapping circles configured in a generally circular orientation, said recessed surface area being connectable to at least one other block body having at least one facet configured with a plurality of protrusions in a predetermined pattern for being inserted against said recessed surface area and being pinched by said outer perimeter of arcs.

5,725,412

JUMPING MECHANISM FOR A RADIO CONTROLLED TOY CAR

Zenichi Ishimoto, Tokyo, Japan, assignor to Nikko Co., Ltd., Tokyo, Japan

Filed Sep. 9, 1996, Ser. No. 711,233
Claims priority, application Japan, Sep. 7, 1995, 7-229749
Int. Cl.[6] A63H *17/00*
U.S. Cl. 446—437 6 Claims



1. A jumping mechanism in a toy vehicle comprising:
a chassis of said toy vehicle;
an opening portion in said chassis of said toy vehicle, said opening portion having a slender shape;
a rotatable rotary shaft on said chassis and extending in a lateral direction, perpendicular to a longitudinal direction of said opening portion;
means for rotating said rotary shaft 360 degrees and mechanically connected to a first portion of said rotary shaft; and
at least a rotation arm mechanically connected to a second portion of said rotary shaft, said rotation arm extending in a perpendicular direction to said rotary shaft and said rotation arm having a rotation center being positioned over said opening portion so that said rotation arm rotates in a plane perpendicular to said rotary shaft, and so that when said rotation arm is directed downward, said rotation arm penetrates said opening portion of said chassis wherein a distal end of said rotation arm is positioned below a bottom level of said toy vehicle from a position above said bottom level.

5,725,413

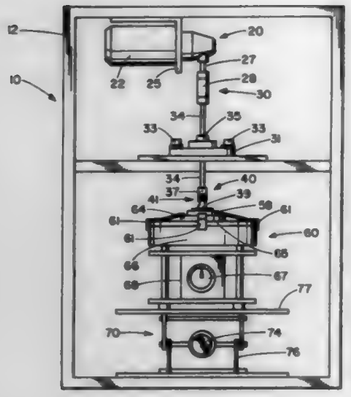
APPARATUS FOR AND METHOD OF POLISHING AND PLANARIZING POLYCRYSTALLINE DIAMONDS, AND POLISHED AND PLANARIZED POLYCRYSTALLINE DIAMONDS AND PRODUCTS MADE THEREFROM

Ajay P. Malshe; Hameed A. Naseem, and William D. Brown, all of Fayetteville, Ark., assignors to Board of Trustees of the University of Arkansas, Little Rock, Ark.

Filed May 6, 1994, Ser. No. 239,362
Int. Cl.[6] B24B *1/00;7/19;7/30*
U.S. Cl. 451—41 29 Claims

1. A process for treating a first superhard surface comprising abrasively contacting the superhard surface with a second superhard surface at sufficient pressure and velocity to polish the first

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superhard surface, wherein the abrasive contacting occurs in the presence of a liquid treating agent and a polishing agent.

5,725,414

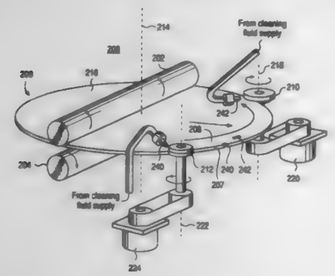
APPARATUS FOR CLEANING THE SIDE-EDGE AND TOP-EDGE OF A SEMICONDUCTOR WAFER

Monsour Moinpour, Cupertino, Calif.; Ilan Berman, Sunnyvale, Calif., and Young C. Park, Mountain View, Calif., assignors to Intel Corporation, Santa Clara, Calif.

Filed Dec. 30, 1996, Ser. No. 777,519

Int. Cl.[6] B24B *1/00*

U.S. Cl. 451—41 **11 Claims**



1. An apparatus for cleaning a top-edge and a side-edge of a wafer, said apparatus comprising:

a first roller that rotates said wafer about a first axis of rotation at a first speed;

a second roller that rotates about a second axis of rotation at a second speed different than said first speed, said second axis of rotation being substantially parallel to said first axis of rotation, said second roller further comprising a first external surface that is coaxial with said second axis of rotation and a second external surface that is substantially perpendicular to said first external surface, said first and second external surfaces forming a corner region at a juncture between the two surfaces, said first and second external surfaces comprising an abrasive material for cleaning said top-edge and said side-edge of said wafer due to a difference in tangential velocity at the contact points between the said abrasive material and said top-edge and said side-edge of said wafer.

5,725,415

GRINDING MACHINE AND METHOD OF SHARPENING GRASS MOWER BEDKNIVES

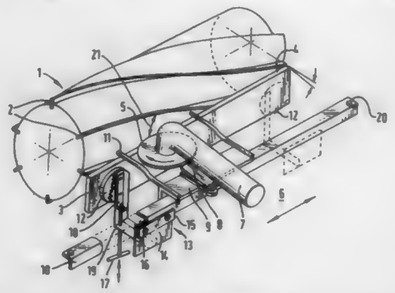
Stephen G. Bernhard, Bilton Road, Rugby, Warwickshire CV 22 7DT, United Kingdom

Filed Jan. 11, 1996, Ser. No. 585,042

Claims priority, application United Kingdom, Feb. 23, 1995, 9403640

Int. Cl.[6] B24B *1/00*

U.S. Cl. 451—45 **11 Claims**



10. A method of sharpening the bedknife of a reel mower, comprising orienting the complete mower to expose the bedknife, attaching to the mower a portable grinder which comprises a guide rail, a grinding wheel assembly for receiving a rotary grinding wheel which assembly is mounted for movement to and fro along said guide rail, including the steps of adjusting attachment means to orientate said guide rail relative to said bedknife so that it is substantially parallel thereto and adjusting said grinding wheel assembly to introduce deflector means to operate between the bedknife and an adjacent rotary blade of the mower and to bring said grinding wheel into position so that blade face of said bedknife can be ground throughout its length during which grinding process said rotary blade automatically is deflected during movement of said grinding wheel assembly.

5,725,416

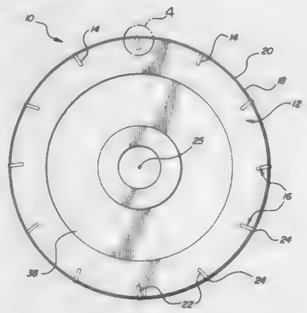
APPARATUS AND METHOD FOR MAKING AND USING A COMBINED CUTTING/GRINDING WHEEL

Jerry Russell, 95 Windsor Rd., Rochester Hills, Mich. 48307

Filed Dec. 10, 1996, Ser. No. 761,970

Int. Cl.[6] B24B *1/00*

U.S. Cl. 451—54 **19 Claims**



14. A method for making a combined cutting/grinding tool comprising a grinding wheel including a central rotational axis and an exterior circumferential surface comprising a grinding surface for profiling an object surface of a product to be manufactured, and an insert including a cutting portion protruding integrally outward from the grinding surface, said method including the steps of:

providing the grinding wheel;

providing a slot in the grinding wheel grinding surface;

profiling the grinding surface to correspond to a desired profile to be formed in an object surface of a manufactured object;

providing an abrasive on the grinding surface;

providing an insert with a body portion shaped to fit within the slot; and

inserting and securing the body portion of the insert into the slot with the cutting portion extending radially outward from the grinding surface relative to the central rotational axis of the grinding wheel.

5,725,417

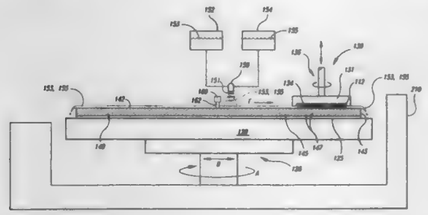
METHOD AND APPARATUS FOR CONDITIONING POLISHING PADS USED IN MECHANICAL AND CHEMICAL-MECHANICAL PLANARIZATION OF SUBSTRATES

Karl M. Robinson, Boise, Id., assignor to Micron Technology, Inc., Boise, Id.

Filed Nov. 5, 1996, Ser. No. 743,861

Int. Cl.[6] B24B *53/00*

U.S. Cl. 451—56 **56 Claims**



1. A method for conditioning a planarizing surface of a polishing pad having a body with a planarizing surface, the method comprising the steps of:

forming a discrete stratum from the body at the planarizing surface of the polishing pad, the discrete stratum being soluble in a wash fluid in which the body is otherwise substantially insoluble; and

removing the discrete stratum from the polishing pad with the wash fluid leaving a newly exposed planarizing surface across the polishing pad.

5,725,418

GRINDING UNIT

Thomas Glebmanns, 10 Cedardale Ct., Palm Coast, Fla. 32137

PCT No. PCT/EP94/02740, § 371 Date Mar. 8, 1996, § 102(e) Date Mar. 8, 1996, PCT Pub. No. WO95/07166, PCT Pub. Date Mar. 16, 1995

PCT Filed Aug. 18, 1994, Ser. No. 596,243

Claims priority, application Germany, Sep. 10, 1993, 43 30 670.5

Int. Cl.[6] B24B *55/04*

U.S. Cl. 451—65 **10 Claims**

1. A grinding unit for producing standardized tools, including end milling or slot cutters, reamers, twist reels, screw taps, comprising:

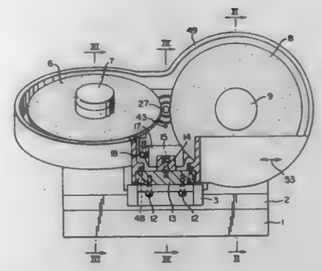
a grinding spindle holder that is adapted to be mounted on a base;

two non-adjustable yet exchangeable grinding spindles that are spaced from one another on said grinding spindle holder and are each provided with a respective grinding wheel;

a carraige that is movable on first guide means on said grinding spindle holder transverse to axes of said grinding spindles;

a workpiece holder that is movable on second guide means on said carriage transverse to a direction of movement of said carriage, said workpiece holder being provided for a workpiece that is to be clamped in between said spaced-apart grinding wheels; and

a protective housing that is secured to said carriage and extends axially over and closely around said workpiece holder, said protective housing being provided with an extension that is adapted to said grinding wheels and extends closely around same, said protective housing also having at least one cover means to provide access to said workpiece holder and said grinding wheels.



5,725,419

APPARATUS FOR REMOVING EXCESS MATERIAL FROM WORKPIECES

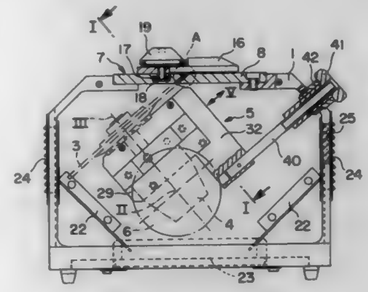
Erwin Osthoff, Hohenstrasse 19, D-71711 Steinheim, Germany, and Horst Osthoff, Kirchenweinbergstrasse 131, D-71672 Marbach, Germany

Filed Nov. 9, 1995, Ser. No. 556,110

Claims priority, application Germany, Nov. 9, 1994, 44 39 735.6

Int. Cl.[6] B24B *9/00*

U.S. Cl. 451—241 **15 Claims**



1. An apparatus for removing excess material from a workpiece, comprising:

substantially planar workpiece support surface means having upper and lower sides with an opening penetrating therethrough and extending in predetermined direction;

guide means in said workpiece support surface means extending into said opening in a direction substantially normal to said predetermined direction, said guide means being adapted to receive said excess material for movement relative to said opening; and

rotatably driveable tool means of substantially circular configuration mounted below said workpiece support surface means and comprising a peripheral material removal segment extending into said opening to a point below said upper side of said workpiece support surface means and intersecting said guide means.

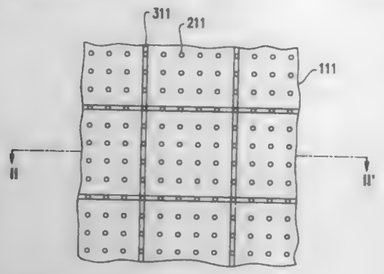
VOL 1208 ISS 2 MR 10 1998 UMI

5,725,420

POLISHING DEVICE HAVING A PAD WHICH HAS GROOVES AND HOLES

Koji Torii, Tokyo, Japan, assignor to NEC Corporation, Tokyo, Japan

Filed Oct. 22, 1996, Ser. No. 731,916
Claims priority, application Japan, Oct. 25, 1995, 7-277836
Int. Cl.[6] B24B 5/00
U.S. Cl. 451—285 20 Claims



1. A polishing pad, comprising:

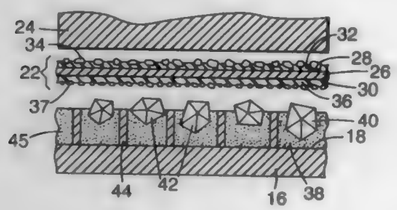
a surface having a plurality of holes and a plurality of grooves, wherein a distance from a first groove of said grooves to a second groove of said grooves proximate said first groove is larger than a distance from a first hole of said holes to a second hole of said holes proximate said first hole.

5,725,421

APPARATUS FOR ROTATIVE ABRADING APPLICATIONS

Brian D. Goers, Minneapolis; Troy W. Heuermann, Maplewood, and Gary M. Palmgren, Lake Elmo, all of Minn., assignors to Minnesota Mining and Manufacturing Company, St. Paul, Minn.

Filed Feb. 27, 1996, Ser. No. 607,757
Int. Cl.[6] B24B 21/00
U.S. Cl. 451—303 19 Claims



1. A support shoe for supporting an abrasive tape having an abrasive face and an opposed back face, the support shoe comprising:

a pressure face including a frictional engagement material for frictionally engaging the back face of the abrasive tape, wherein the frictional engagement material comprises:

a plurality of cells; and

a first frictional engagement surface comprising a plurality of particles distributed and arranged within the plurality of cells, wherein at least some of the plurality of particles are fixed within and extend from the plurality of cells, so that when the back face of the abrasive tape contacts the first frictional engagement surface, the plurality of particles attenuate relative movement between the abrasive tape and the pressure face in response to shear forces induced during abrading,

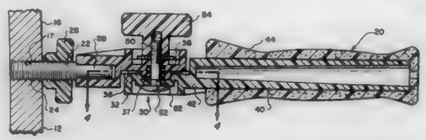
wherein the pressure face has a length and a major axis that is parallel to the length of the pressure face, wherein the plurality of cells are arranged in a plurality of rows having a cell axis that is parallel to the plurality of rows, and wherein the major axis of the pressure face is parallel to the cell axis.

5,725,422

AUTO BODY BUFFING MACHINE WITH HANDLE ANGULARLY ADJUSTABLE TO DIFFERENT FIXED POSITIONS

Joseph F. Leweck, 1117 E. Main St., Santa Paula, Calif. 93060

Filed Dec. 24, 1996, Ser. No. 772,933
Int. Cl.[6] B24B 23/00
U.S. Cl. 451—359 8 Claims



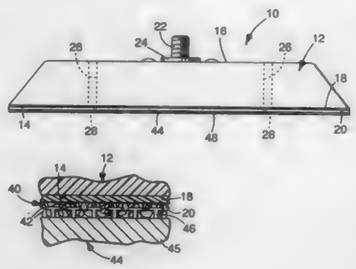
1. An auto body buffing/grinding machine comprising a housing, a main handle fixedly secured to the housing, a threaded opening in the housing, an auxiliary handle supportable from the threaded opening and that is angularly adjustable by more than ninety degree to different fixed positions, and that also includes manually operated locking means for locking the auxiliary handle in a desired angular position.

5,725,423

ABRADING APPARATUS

John L. Barry, North St. Paul; Donald R. Bell, White Bear Township, Ramsey County, both of Minn.; Jason A. Chesley, Hudson, Wis.; Harold E. Rude, Roseville, Minn.; William F. Sheffield, Oakdale, Minn.; David F. Slama, Vadnais Heights, Minn., and Alan N. Stephens, Warwickshire, United Kingdom, assignors to Minnesota Mining and Manufacturing Company, St. Paul, Minn.

Continuation of Ser. No. 181,195, Jan. 13, 1994, Pat. No. 5,607,345. This application Mar. 3, 1997, Ser. No. 807,978
Int. Cl.[6] B24D 11/02
U.S. Cl. 451—539 24 Claims



1. A back-up pad for supporting and releasably engaging an abrasive article, the back-up pad comprising:

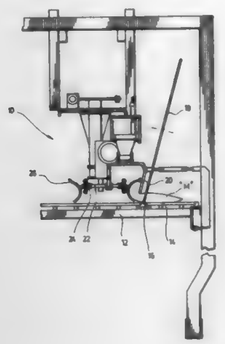
a support member including a major surface, and an engaging surface adjoining said major surface, said engaging surface comprising a loop material having projecting loops with a density of at least 30 loops per square centimeter, wherein each of said loops has a breaking strength of at least 60 grams.

5,725,424

MIDDLE SPLITTER

Yvon Dufour; Jean-Guy Roy, both of Saint-Anselme; Marcel Couture, St-Henri, and Steve LaPointe, Pintembre, all of Canada, assignors to G. E. Leblanc Inc., Saint-Anselme, Canada

Filed Feb. 14, 1997, Ser. No. 800,515
Int. Cl.[6] A22C 17/02;21/00
U.S. Cl. 452—160 20 Claims



1. A machine middle for use to process a carcass middle in such a manner as to split said middle into two parts, said middle having a shoulder-adjacent end and including half of the animal's spine, said machine comprising:

a work table having a longitudinal axis

a conveyor belt extending over said work table to move said carcass longitudinally in a forward direction with the shoulder-adjacent end of said middle positioned forwardly, said conveyor belt being longitudinally slotted;

a circular saw lying in a plane substantially perpendicular to the conveyor belt and parallel to said longitudinal axis, said saw extending in the slot of the conveyor belt and being positioned in such a manner as to cut the middle laid on said conveyor belt when said middle moves forward;

a guide extending from upstream of the saw down to the same with respect to the forward direction of said conveyor belt, said guide being parallel to said longitudinal axis and extending slightly above the conveyor belt to hold the middle flat against said conveyor belt while said middle is cut by the saw;

a caterpillar driving means extending from upstream of the saw down to and past the saw with respect to said forward direction, said caterpillar driving means being parallel to the conveyor belt and having a contour belt mounted onto a belt support of longitudinal shape having longitudinal sides and rounded ends, said contour belt having a series of adjacent peripheral protruding plates shaped and positioned to engage the middle adjacent the spine that is part thereof, said caterpillar driving means also having a first rotatably mounted shaft extending perpendicularly to said conveyor belt, said first rotatably mounted shaft engaging positively said contour belt;

a motor for driving the first rotatably mounted shaft into rotation and thus for driving said contour belt of said caterpillar driving means into rotation so that the longitudinal side of the contour belt nearest the saw moves in the same forward direction as the conveyor belt, whereby said caterpillar driving means pulls said middle forward toward the circular saw and pushes the spine toward the adjacent guide; and

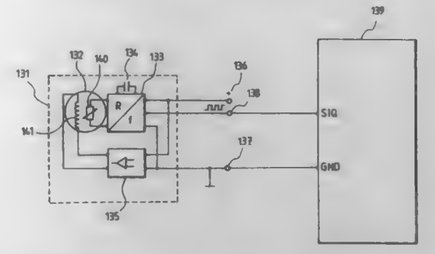
pressure-exerting means for pushing the caterpillar driving means towards the guide in a direction substantially transverse to said longitudinal axis so that said caterpillar driving means exerts a pressure onto the spine to straighten it up while the middle is cut.

5,725,425

SENSOR SYSTEM FOR CONTROLLING VENTILATION SYSTEMS IN VEHICLES

Hanns Rump, Unna-Massen, Germany; Norbert Pieper, Selm, Germany; Jörg Hiller, Wetter, Germany, and Olaf Kiesewetter, Geschwenda, Germany, assignors to Auto Electronics Corporation, Seoul, Rep. of Korea

PCT No. PCT/KR95/00033, § 371 Date Aug. 29, 1996, § 102(e) Date Aug. 29, 1996, PCT Pub. No. WO95/29435, PCT Pub. Date Nov. 2, 1995
PCT Filed Apr. 6, 1995, Ser. No. 700,398
Claims priority, application Germany, Apr. 27, 1994, 44 14 594.2; Oct. 15, 1994, 44 36 938.7
Int. Cl.[6] B61D 27/00; E21B 43/00
U.S. Cl. 454—75 39 Claims



1. Sensor system to control ventilation systems in vehicles in recirculation or air input mode dependent on the pollution levels in the air outside the vehicle, with a gas sensor element (**52**) the electrical resistance of which sinks in the presence of reducing gases and which rises in the presence of oxidizing gases, and an evaluation unit (**51**), the output of which is connected to the controller of the ventilation unit characterized by the fact that the sensor system is so organized that increase of a signal fed into the evaluation unit following an rise in the concentration of reducing gases is approximately quatitively equivalent to fall of the gas sensor signal fed into the evaluation unit (**51**) following a rise in the concentration of oxidizing gases, that the evaluation unit (**51**) calculates the rise or fall per time unit in the gas sensor signals which are fed into it and the evaluation unit (**51**) generates a switch signal to adjust the ventilation system to recirculation mode as soon as the measured increase or decrease in the gas sensor signal per time unit numerically exceeds a threshold limit.

5,725,426

PORTABLE AND DISPOSABLE STERILIZED OPERATING ENVIRONMENT

Henry Alvarez, 3218 Ponce De Leon Blvd., Coral Gables, Fla. 33134

Filed Dec. 26, 1995, Ser. No. 578,282
Int. Cl.[6] F24F 3/16
U.S. Cl. 454—187 15 Claims

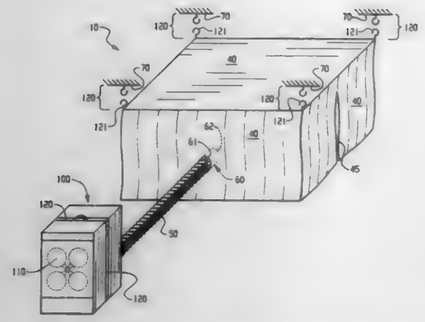
1. A portable sterilized operating environment capable of being secured to an associated rigid support, comprising:

at least one large, substantially flexible material panel being structured to be substantially collapsible so as to facilitate storage and transportability thereof,

fasteners structured and disposed to removably secure said flexible material panel to said associated rigid support such that said flexible material panel at least partially defines and drapes over an operating area,

said flexible material panel further including a generally hood like configuration, having an at least partially open bottom end, and structured to be effectively and quickly draped over the operating area without requiring removal of items within the operating area, the panel including first and second layers defining a pocket therebetween, the first layer having plural perforations communicating with the operating area,

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at least one flow through passage structured to direct fluid flow into said operating area defined by said flexible material panel,

a purified air supply structured to sterilize air flow therethrough and direct said sterilized air into said flow through passage, and

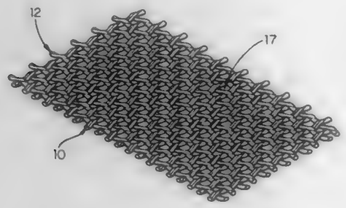
said flow through passage being connected in fluid flow communication with the panel pocket for expanding the flexible material panel into an operating area defining and enclosing orientation and in fluid communication with the perforations disposed in the first layer of the flexible material panel and thereby establish a laminar flow of sterile air which continuously evacuates non-sterile air freely through said open bottom end of said flexible material panel and maintains a sterile operating environment.

5,725,427

FABRIC AIR DIFFUSER, METHOD FOR DIFFUSING AIR, AND METHOD FOR ATTENUATING NOISE ASSOCIATED WITH FLOWING AIR

Keith G. Koerber, Goffstown, N.H., assignor to Chemfab Corporation, Merrimack, N.H.

Filed Jan. 24, 1996, Ser. No. 590,102
Int. Cl.[6] F24F *13/06*
U.S. Cl. 454—296 **11 Claims**



1. A fabric air diffuser for an air supply duct, the diffuser comprising:

a frame for connecting the diffuser to the air supply duct; and

an open-weave, fabric sheet mounted in the frame, the sheet for changing the direction of the air upon exiting the sheet;

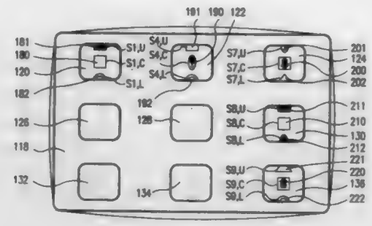
wherein the sheet is flat, is composed of an essentially non-combustible material, and is coated with a soil-resistant non-combustible composition.

5,725,428

VIDEO SLOT MACHINE

Klaus Achmüller, Kalsdorf, Austria, assignor to Atronic Casino Technology Distribution GmbH, Espelkamp, Germany

Filed Mar. 9, 1995, Ser. No. 401,937
Int. Cl.[6] A63F *5/04*
U.S. Cl. 463—20 **20 Claims**



1. A slot machine device comprising

an input sensor for sensing tokens delivered to a slot machine;

a processor connected to the input sensor for receiving information about tokens entered into the slot machine and for initiating a cycle of the slot machine;

a first pseudo random number generator connected to the processor for being triggered upon sensing a token input;

a background position control unit connected to the first pseudo random number generator for associating a plurality of position pointer addresses to a signal from the first pseudo random number generator;

a display including a video screen and having a plurality of display zones for displaying symbols determined for each display zone of the plurality of display zones;

a virtual background reel memory including a plurality of virtual background reel memory sections, where each virtual background reel memory section is coordinated to a corresponding one of the plurality of position pointer addresses and connected to the processor for delivering to the processor a final configuration of the cycle, and wherein said each virtual background reel memory section determines coded symbol signal values of a plurality of main display symbols, where each of the plurality of main display symbols is displayed in a center of one of the plurality of display zones;

a winning combination memory connected to the processor for allowing the processor to compare the plurality of pointer position addresses of the virtual background reel memory with winning combinations;

an output control connected to the processor for delivering a winning payout amount when a winning combination was delivered by the plurality of pointer position addresses of the plurality of virtual background reel memory sections wherein a number of display zones is larger than a number of virtual background reel memory sections;

a video reel memory connected to the virtual background reel memory for determining coded symbol signal values of subsidiary display symbols associated with said each of the plurality of main display symbols;

a display control circuit connected to the display and connected to the video reel memory for receiving the coded symbol signal values of the subsidiary display symbols determined by the video reel memory and for receiving the coded symbol values of the plurality of main display symbols determined by the virtual background reel memory, wherein the display control circuit controls the display by displaying the plurality of main display symbols and by displaying the subsidiary display symbols associated with said each of the plurality of main display symbols; and

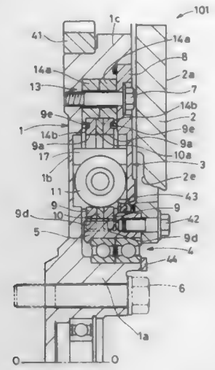
a symbol memory connected to the display control circuit for delivering symbol signals corresponding to coded symbol signal values received from the video reel memory.

5,725,429

FLYWHEEL MECHANISM

Naoki Yanagida, Wilmslow, Great Britain, assignor to Exedy Corporation, Osaka, Japan

Filed Aug. 11, 1994, Ser. No. 289,363
Claims priority, application Japan, Aug. 20, 1993, 5-205998
Int. Cl.[6] F16F *15/00*
U.S. Cl. 464—24 **5 Claims**



1. A flywheel assembly comprising:

a first flywheel connectable to the drive shaft of an engine;

a bearing mounted to a central portion of said first flywheel;

a boss mounted to said bearing concentric with said flywheel, said boss formed with a plurality of serrations on an outer radial surface thereof;

a viscous fluid damping mechanism coupled to said first flywheel having a pair of first disk shaped plates formed with a central aperture, said central aperture formed with a plurality of serrations engaged with said serrations on said boss; and

a second disk shaped plate having a central aperture through which said boss extends, said second plate being rotatable relative to said boss, said second plate disposed between said pair of first disk shaped plates, a portion of said second disk shaped plate extending into said viscous fluid damping mechanism;

wherein said serrations on said pair of first disk shaped plates and said serrations on said boss are closely adhered to one another to maintain relative position between said pair of first disk shaped plates and said second disk shaped plate such that said second disk shaped plate rotates between and relative to said pair of first disk shaped plates;

wherein said viscous fluid damping mechanism defines an annular chamber, said annular chamber having at least one slider element disposed therein, said slider element defining at least two chambers in said annular chamber; and

said second disk shaped plate is formed with at least one first protrusion extending into said slider, said first protrusion defining a first and second small division chamber within said slider, each of said pair of first disk shaped plates is formed with at least one second protrusion which extends into said slider, and said first protrusion is larger than said second protrusion in a circumferential direction.

5,725,430

FAIL-SAFE SHEAR ELASTOMERIC COUPLING

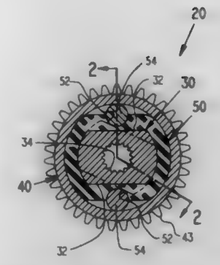
James R. Barickman, and Thomas A. David, both of Erie, Pa., assignors to Lord Corporation, Cary, N.C.

Filed Sep. 30, 1996, Ser. No. 723,334
Int. Cl.[6] F16D *3/76*
U.S. Cl. 464—89 **11 Claims**

1. A shear elastomeric drive coupling including a first inner metallic member connectable to a first one of a drive and a driven member, a second outer metallic member connectable to a second one of said drive and said driven members, an intermediate elastomeric member at least partially bonded to at least one of said inner and outer metallic members,

said coupling being characterized by said inner metallic member having a pair of opposed generally longitudinally extending flat surfaces, said elastomeric member having a pair of pockets radially adjacent said opposed flat surfaces, each pocket receiving a rigid pin which is rigidly connected to said outer member such that said rigid pin is immovable relative to said outer member in any direction and rests in said pocket,

whereby when said inner member turns with respect to said outer member through a predetermined angular amount, a portion of said respective flat surface will compress a portion of said elastomeric member to a point where there is cushioned contact between said flat surface and said pin such that said drive coupling is fail-safed against failure of said elastomeric member and its bond.

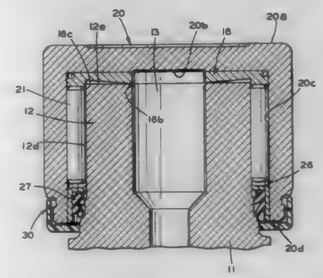


5,725,431

THRUST WASHER FOR UNIVERSAL JOINT HAVING PRELOADING THRUST SURFACES

Gerald L. Myers, Maumee, and James T. Reynolds, Toledo, both of Ohio, assignors to Dana Corporation, Toledo, Ohio

Filed Sep. 26, 1996, Ser. No. 717,230
Int. Cl.[6] F16C *33/10;3/41;* **F16D** *3/205*
U.S. Cl. 464—128 **20 Claims**



1. A thrust washer adapted to provide a pre-loading force between a bearing cup rotatably mounted on a trunnion of a universal joint cross member comprising:

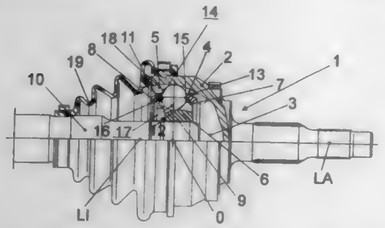
an annular disk defining an inner surface, an outer surface, and an outer circumferential surface, said annular disk having an aperture formed therethrough defining an inner circumferential surface, a portion of said inner surface being tapered from adjacent said inner circumferential surface toward said outer circumferential surface such that a thickness of said annular disk defined between said portion of said inner surface and said outer surface is at a maximum adjacent said inner circumferential surface.

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5,725,432
CONSTANT VELOCITY UNIVERSAL BALL JOINTS WITH WINDOW SURFACES AND BALL SURFACES HAVING A DESIRED ROUGHNESS

Herbert Konegen, Rösrath; Peter Seigert, Lohmar; Hans Schreiber, Völklingen-Ludweiler, and Frank Tenhumberg, Troisdorf, all of Germany, assignors to GKN Automotive AG, Lohmar, Germany

Filed Sep. 23, 1996, Ser. No. 710,863
Claims priority, application Germany, Sep. 23, 1995, 195 35 431.1
Int. Cl.[6] F16D *3/223*
U.S. Cl. 464—145 **8 Claims**



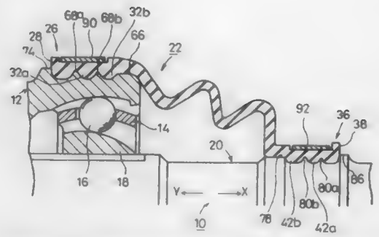
1. A constant velocity universal ball joint comprising:
an outer part which defines a first longitudinal axis constituting a rotational axis of the outer part, a cavity in the outer part defining an inner face with outer tracks distributed around the longitudinal axis;
an inner part defining a longitudinal axis constituting a rotational axis of the inner part, said inner part accommodated in the cavity of the outer part so as to be pivotable in all directions around a joint articulation center, an outer face in said inner part includes inner tracks;
the outer tracks and the inner tracks forming opposed pairs;
torque transmitting balls accommodated in said opposed pairs;
a cage arranged between the inner face of the cavity of the outer part and the outer face of the inner part, windows in said cage, said windows being distributed in accordance with the pairs of outer and inner tracks and said bails in said windows and guided between spaced window faces (**15**, **16**) and supported during the transmission of torque on at least one of said window faces and surfaces of the balls being ground and including a surface roughness parameter R_z DIN of 0.5 to 3 μm or R_{y5} ISO of 0.5 to 3 μm and a hardness of 58 to 66 HRC and said outer and inner tracks and said window faces of the cage are hardened to a hardness of 58 to 62 HRC.

5,725,433
BOOT ATTACHMENT STRUCTURE FOR ROTARY JOINT

Satoru Kudo; Kazuo Momiyama, and Yasuhisa Nagayama, all of Mooka, Japan, assignors to Honda Giken Kogyo Kabushiki Kaisha, Tokyo, Japan

Filed Nov. 20, 1995, Ser. No. 558,756
Claims priority, application Japan, Nov. 24, 1994, 6-289617
Int. Cl.[6] F16D *3/84*
U.S. Cl. 464—175 **16 Claims**

14. A boot structure in combination with a rotary joint, comprising:
a rotary joint comprising a housing and a shaft;
a bellows-shaped boot adapted to be installed on said housing and said shaft of the rotary joint;
two attachment portions of said bellows-shaped boot being mounted respectively on an outer circumferential surface of the housing and the shaft;
the outer circumferential surface of said housing including a circumferential surface area, a toothed surface area composed of circumferential teeth and circumferential grooves, and a stopper engageable by a tip end of one of said attachment

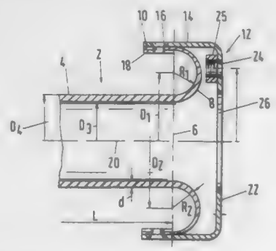


portions of said bellows-shaped boot, said circumferential surface area, said toothed surface area and said stopper being successively arranged in that named order in a direction in which the bellows-shaped boot is installed onto the housing;
an outside diameter of said housing being disposed at said circumferential surface area which is at least equal to a smallest inside diameter of said bellows-shaped boot at the one attachment portion thereof, said circumferential surface area, said circumferential teeth of the toothed surface area and said stopper having diameters that are progressively greater in that named order;
the outer circumferential surface of said shaft including a first large-diameter circumferential surface area, a toothed surface area composed of circumferential teeth and circumferential grooves, and a second large-diameter circumferential surface area engageable by a tip end of the other attachment portion of said bellows-shaped boot, said first large-diameter circumferential surface area, said toothed surface area and said second large-diameter circumferential surface area being successively arranged in that named order in a direction in which the bellows-shaped boot is installed onto the shaft; and
an outside diameter of said shaft being disposed at said first large-diameter circumferential surface area which is at least equal to a smallest inside diameter of said bellows-shaped boot at the other attachment portion thereof, said first large-diameter circumferential surface area, said circumferential teeth of the toothed surface area and said second large-diameter circumferential surface area having diameters that are progressively greater in that named order.

5,725,434
SHAFT OF FIBRE-REINFORCED MATERIAL

Werner Haben, Brunswick, Germany, and Arno Rudolf Erich Karl Pabsch, Brunswick, Germany, assignors to Deutsche Forschungsanstalt fur Luft-un Raumfahrt e. V., Cologne, Germany

Filed Nov. 28, 1995, Ser. No. 562,220
Claims priority, application Germany, Nov. 28, 1994, 44 42 268.7; France, Nov. 22, 1995, 9513847; Germany, Nov. 27, 1995, 195 44 008
Int. Cl.[6] F16C *3/02*
U.S. Cl. 464—181 **10 Claims**



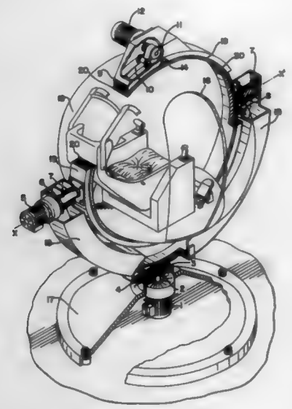
1. A shaft disposed along a longitudinal axis said shaft comprising:

a cylindrical tubular portion having opposed ends, said tubular portion being fabricated from elements made of synthetic resins reinforced by wound fibers; and
an elastically deformable coupling flange formed at one of said ends of the tubular portion, said coupling flange also being fabricated from elements made of synthetic resins reinforced by wound fibers, said coupling flange having
a curved portion terminating in a free edge, said wound fibers being cross-wound at an angle to the axis of the shaft and extending beyond the length of the tubular portion to the free edge of the coupling flange in a position in which the free edge of the coupling flange overlaps the tubular portion, said flange being curved approximately 180° degrees and having a substantially constant inner radius,
a cylinder-ring-shaped portion disposed adjacent the free edge of the curved portion, and
a dish-shaped connection element having a cylindrical inner wall connected to the cylinder-ring-shaped portion, said cylindrical inner wall of the connection element overlapping the outside of said cylinder-ring-shaped portion of the coupling flange.

5,725,435
ELECTRO-MECHANICAL AMUSEMENT SIMULATOR WITH GRAVITATIONAL EFFECTS

Mario Sergio De Castro Faria, Crispin Mira St., N° 171/302 Centro Floranopolis, SC, Brazil

Continuation of Ser. No. 416,795, Apr. 12, 1995, abandoned. This application May 15, 1996, Ser. No. 648,411
Claims priority, application Brazil, Aug. 13, 1993, 9303426-1
Int. Cl.[6] A63G *31/02*
U.S. Cl. 472—47 **10 Claims**

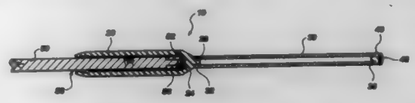


1. An electro-mechanical simulator with gravitational effects comprising:
a. a spherical cabin for containing an object whereby said spherical cabin has first, second and third axes;
b. an inner ring having an outer circumference and being attachable to said cabin;
c. an external ring having an inner circumference;
d. a bearing between said inner ring and said external ring for allowing said inner ring to move relative to said external ring about said third axis;
e. a beam;
f. a means for rotating said beam about said first axis whereby said beam is in communication with said external ring which is in communication with said inner ring such that when said beam rotates about said first axis, said external ring and said inner ring there together rotate about said first axis;
g. a means for rotating said external ring about said second axis; and
h. a means for rotating said inner ring about said third axis comprising a transmission means for transmitting force substantially about an outer circumference of said inner ring.

5,725,436
BILLIARD CUE STICK EXTENSION

Cathy Miller, P.O. Box 1036, Grantsville, Utah 84029, and Michial E. Miller, 250 E. Winslow Ave., #C, Salt Lake City, Utah 84029

Continuation-in-part of Ser. No. 17,047, Jan. 4, 1994, abandoned. This application Mar. 6, 1996, Ser. No. 633,872
Int. Cl.[6] A63D *15/08*
U.S. Cl. 473—46 **12 Claims**



1. A billiard cue stick extension comprising a shaft defining an inner diameter and an internal cavity adapted for frictionally and releasably receiving the tip of a billiard cue stick, an elongate rod for increasing the effective length of the cue stick, said rod extending from the shaft such that the rod and the billiard cue stick have the same central axis when the cue stick is inserted in the cavity, and a tip on an end of the rod opposite the shaft, said tip for impacting a billiard ball;
wherein the shaft further comprises a first end defining a bottom to the cavity and an opposing second end, said shaft tapering radially inwardly toward the second end to define an aperture to the cavity such that the shaft frictionally engages the billiard cue stick at the bottom and at the aperture without engaging said billiard cue stick along a substantial portion of the shaft between said bottom and said aperture.

5,725,437
BILLIARD/POOL CUE

Allan McCarty, Royal Oak, and Steve Titus, Whitmore Lake, both of Mich., assignors to Lorraine C. McCarty, Royal Oak, Mich.

Filed Sep. 29, 1994, Ser. No. 314,864
Int. Cl.[6] A63D *15/14*
U.S. Cl. 473—49 **19 Claims**

1. A billiard/pool cue comprising:
a shaft having first and second opposed ends;
a ferrule mounted on the first end of the shaft; and
a tip mounted on the ferrule;
the ferrule formed of a material having greater compression than the compression of the material forming the shaft to compress on impact of the tip with a ball to absorb a portion of impact forces imposed by the ball on the shaft, the ferrule formed of a material having a modulus of elasticity of less than 0.35×10^6 psi.

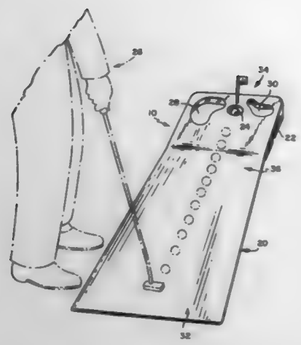
5,725,438
PRACTICE PUTTING GREEN WITH SIMULATED HAZARDS

James J. Dennesen, Hampstead, N.H., assignor to Dennco, Inc., Salem, N.H.

Filed Jan. 24, 1996, Ser. No. 590,789
Int. Cl.[6] A63B *69/36*
U.S. Cl. 473—163 **4 Claims**

1. A golf practice putting green comprising:

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a putting mat having a distal end, the putting mat defining a putting surface and a plurality of openings proximate to the distal end, the putting surface having a texture that simulates grass on a putting green;

a wedge shaped incline located underneath the distal end of the putting mat, the incline having a flat surface including a plurality of cavities, the cavities communicating with each other underneath the incline surface such that they form a resting place for a golf ball;

a conventional golf cup defined by one of the openings in the putting mat being superimposed over one of the cavities in the incline;

at least one noncircular simulated golf hazard defined by the remaining openings in the putting mat being superimposed over the remaining cavities in the incline, and whereby a putted golf ball that falls into either the cup or the hazard comes to rest at the resting place; and

an electrically powered return mechanism located at the resting place such that when the putted golf ball comes to rest at the resting place the return mechanism propels the golf ball away from the distal end of the putting mat.

5,725,439

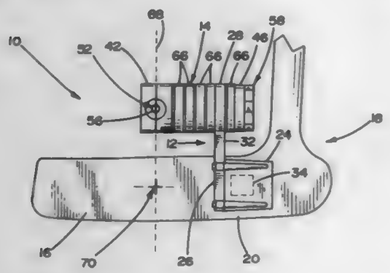
GOLF CLUB ALIGNMENT DEVICE

Keith D. Halsey, 2824 2nd St., Santa Monica, Calif. 90405, and Witold F. Siekaj, 20812 Hillside, Topanga, Calif. 90408

Filed Jan. 19, 1996, Ser. No. 588,702

Int. Cl.[6] A63B *69/36*

U.S. Cl. 473—220 **20 Claims**



1. A golf club laser alignment device adapted for attachment to a golf club having a ball striking face, the golf club laser alignment device comprising:

a laser assembly adapted for providing a guiding light beam used to properly align a golf club;

a mounting bracket including a distal end and a proximal end, wherein the laser assembly is mounted at the proximal end of the mounting bracket such that the laser assembly is adapted to be positioned over a sweet spot of a golf club and direct a guiding light beam at a target; and

means for attaching the distal end of the mounting bracket solely to the striking face of a golf club such the laser assembly is adapted to be positioned over a sweet spot of a golf club and direct a guiding light beam at a target.

5,725,440

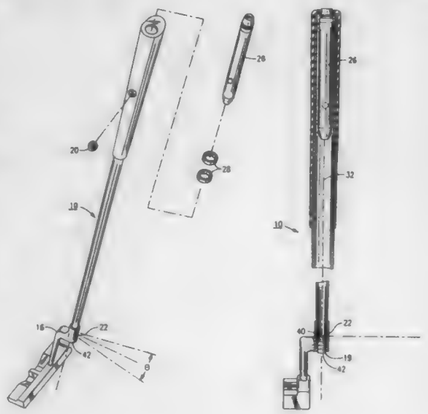
LASER-GUIDED GOLF CLUB PUTTER

Mark J. Finney, 2354 Hunt Rd., Camillus, N.Y. 13031

Continuation-in-part of Ser. No. 631,538, Apr. 12, 1996, abandoned. This application May 8, 1997, Ser. No. 853,333

Int. Cl.[6] A63B *69/36*

U.S. Cl. 473—220 **12 Claims**



1. A laser-guided golf club for putting a golf ball, comprising:

a shaft having a first end and a second end;

a head having a bottom side, said head located at said first end of said shaft;

a grip located at said second end;

a hosel located between said shaft and said head, said hosel in communication with said shaft, said hosel including a first aperture and a second aperture therein, said first aperture located at least as high above the bottom of said head as the diameter of a standard golf ball and positioned such that said first aperture faces the direction the golf ball will travel when struck by said head, said second aperture located coaxially to said shaft;

means for generating a laser light beam, said laser generating means located within said shaft and positioned such that a laser light beam is downwardly directed through said shaft and into said hosel;

means for activating said laser generating means; and,

a beam splitter located within said hosel such that said laser light beam is split such that a first portion of said laser light beam is reflected through said first aperture in the direction the golf ball will travel when struck by said head and such that a second portion of said laser light beam passes through said beam splitter and through said second aperture.

5,725,441

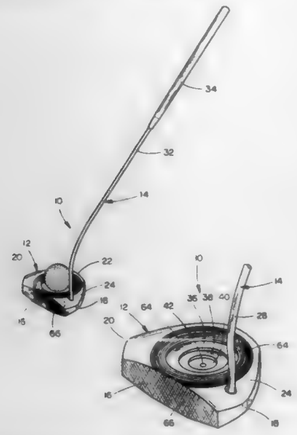
GOLF PUTTER

Randy Jensen, 14021 Marinda Plz. No. 3, Omaha, Nebr. 68144, and Norman Stoakes, 6831 S. 145th St., Omaha, Nebr. 68137

Filed Feb. 20, 1996, Ser. No. 603,230

Int. Cl.[6] A63B *53/04*

U.S. Cl. 473—251 **11 Claims**



1. A mallet-style putter, comprising,

a clubhead including a transversely extended upright flat face, opposite heel and toe ends, a rearward end, and top and bottom surfaces,

a shaft having a lower end connected to said clubhead adjacent the heel end thereof, said shaft extending upwardly and outwardly from said clubhead,

said top surface of said clubhead having a plurality of stepped concentric circular cavities formed therein including at least an uppermost and outermost largest diameter cavity and a lowermost and innermost smallest diameter cavity, said cavities being transversely centered relative to said clubhead with the center of said cavities offset from said club face by a dimension greater than the radius of said largest diameter cavity thereby to impart perimeter weighting to said clubhead,

the diameters and depths of said circular cavities being operative to partially receive and support a golf ball thereon throughout a smooth putting stroke of said putter, yet enable said golf ball to rock out of position and fall off the clubhead if the putting stroke accelerates or decelerates too quickly,

the diameters and depths of said circular cavities being such that the bottom of a golf ball supported on said cavities is situated below the top of said top surface by a dimension equal to between ⅛th and ¼th the diameter of the golf ball.

5,725,442

MULTI-PIECE SOLID GOLF BALL

Hiroshi Higuchi; Hisashi Yamagishi, and Junji Hayashi, all of Chichibu, Japan, assignors to Bridgestone Sports Co., Ltd., Tokyo, Japan

Filed Jun. 13, 1996, Ser. No. 661,779

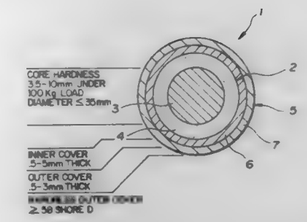
Claims priority, application Japan, Jun. 14, 1995, 7-171521

Int. Cl.[6] A63B *37/06;37/12*

U.S. Cl. 473—376 **3 Claims**

1. A multi-piece solid golf ball comprising a core including an inner sphere and at least one layer surrounding the inner sphere and a cover enclosing the core and consisting of inner and outer cover layers, characterized in that

said inner sphere has a hardness A expressed by a distortion of 3.5 to 10.0 mm under a load of 100 kg which is lowest among the ball layers,



said outer cover layer has a hardness of at least 58 degrees on Shore D which is highest among the ball layers, and

the ratio A/B is between 1.1/1 and 4.0/1 wherein said inner sphere has a hardness A and said ball has a hardness B, both expressed by a distortion under a load of 100 kg.

5,725,443

COATED GOLF BALL

Kazushige Sugimoto, Shirakawa, and Kuniyasu Horiuchi, Kobe, both of Japan, assignors to Sumitomo Rubber Industries, Ltd., Hyogo-ken, Japan

Filed Oct. 27, 1995, Ser. No. 549,316

Claims priority, application Japan, Oct. 27, 1994, 6-263521

Int. Cl.[6] A63B *37/12*

U.S. Cl. 473—378 **8 Claims**

1. A coated golf ball comprising a golf ball body and a paint layer formed thereon, wherein said paint layer is formed from a urethane paint which contains an isocyanate group-containing organic modified polysiloxane in an amount of 0.1 to 20% by weight based on an amount of resin components in the paint.

5,725,444

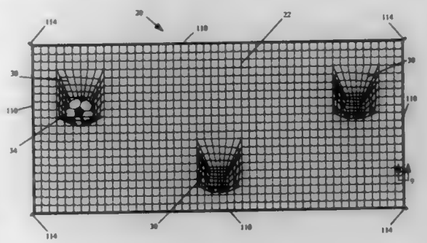
DEVICE FOR TRAINING SOCCER PLAYERS

Donald G. Heden, 3902 Sunstone Dr., Houston, Tex. 77068

Filed Mar. 12, 1997, Ser. No. 819,702

Int. Cl.[6] A63B *63/00*

U.S. Cl. 473—446 **20 Claims**



1. An athletic training device, which comprises:

a) a flexible body component, said body component having a top edge, a bottom edge, and two side edges, said body component having a plurality of apertures, each aperture having a substantially square perimeter; and

b) a plurality of pockets extending outwardly from the plane defined by said body component, said pockets being interconnected to said aperture perimeters, said pockets being adapted to receive at least one soccer ball.

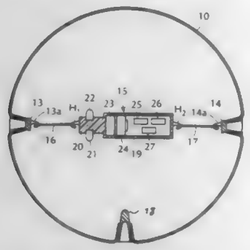
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5,725,445

FLASHING LIGHT PNEUMATIC PLAYBALL

Melvin Kennedy, and Susan Matsumoto, both of 825 Marbella La., Lantana, Fla. 33462

Filed Feb. 28, 1997, Ser. No. 808,179
Int. Cl.[6] A63B *43/06*
U.S. Cl. 473—570 10 Claims



I. A pneumatic playball adapted to emit light flashes each time the ball is bounced, said playball comprising:

A: a spherical casing having diametrically opposed poles and internal plugs provided at the poles formed of flexible, translucent synthetic plastic material enclosing air having an internal pressure above atmospheric to impart bounce characteristics to the ball; and

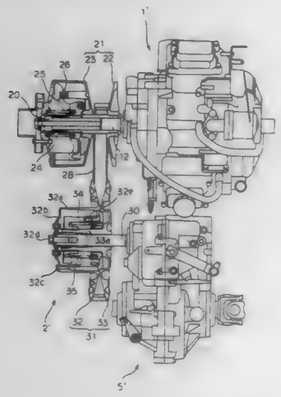
B: a light flashing unit suspended within the casing to occupy a position along a diametrical axis extending between said poles from said internal plugs and including at least one light-emitting diode (LED), a battery and a motion-sensing switch effectively coupling the battery to the LED to cause the LED to produce light flashes only when the ball is bounced to close the switch.

5,725,446

BELT-TYPE AUTOMATIC TRANSMISSION

Hidetoshi Kakn, Kakogawa, and Kiyohito Takano, Kobe, both of Japan, assignors to Kawasaki Jukogyo Kabushiki Kaisha, Hyogo, Japan

Filed Mar. 1, 1996, Ser. No. 609,862
Claims priority, application Japan, Mar. 2, 1995, 7-070817
Int. Cl.[6] F16H *59/14;59/36*
U.S. Cl. 474—13 3 Claims



1. A belt-type automatic transmission comprising:

a first pair of sheaves provided on a driving shaft, the first pair of sheaves having a first fixed sheave which cannot move in the axial direction and a first movable sheave which is caused to approach the first fixed sheave by the force which is increased with a revolution speed,

a second pair of sheaves provided on a driven shaft, the second pair of sheaves having a second fixed sheave which cannot move in the axial direction and a second movable sheave which is caused to approach the second fixed sheave by an elastic force,

a V belt mounted around the pairs of sheaves on the driving and driven shafts,

wherein the maximum opening between the first pair of sheaves on the driving shaft is restricted so as not to loosen the V belt,

a clutch for starting movement provided between a prime mover and the driving shaft,

a torque cam provided for applying said elastic force to the second movable sheave between said second movable sheave and the second fixed sheave,

a link means provided for connecting the second fixed sheave to the driven shaft and for mutually transmitting a revolving torque between the driven shaft and the second fixed sheave, and

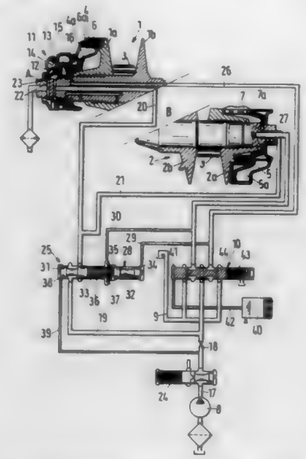
wherein said link means includes means wherein a part of said revolving torque is coupled to said torque cam for enabling the second movable sheave to move towards the second fixed sheave when the revolving torque is transmitted from the driven shaft to the second fixed sheave.

5,725,447

POWER TRAIN WITH INFINITELY VARIABLE RATIO TRANSMISSION

Oswald Friedmann, Lichtenau; Urban Panther, Seelbach, and Ivo Agner, Bad Homburg, all of Germany, assignors to LuK Getriebe-Systeme GmbH, Bühl/Baden, Germany

Filed Dec. 14, 1995, Ser. No. 572,536
Claims priority, application Germany, Dec. 15, 1994, 44 44 648.9; Dec. 21, 1994, 44 45 648.4
Int. Cl.[6] F16H *59/00*
U.S. Cl. 474—18 39 Claims



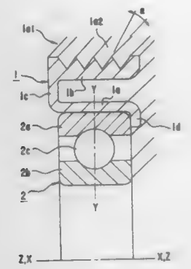
1. A power train, particularly for use in motor vehicles, comprising an infinitely variable ratio transmission including an input portion having a first adjustable pulley, an output portion having a second adjustable pulley, an endless flexible torque transmitting element trained over said pulleys, and first and second primary adjusting units arranged to determine the extent of torque transmitting engagement between said flexible element and the respective pulleys, said primary adjusting units being actuatable by a fluid at a pressure which is variable at least as a function of torque to be transmitted by the transmission; means for generating said pressure including a hydromechanical torque sensor arranged to transmit at least a portion of torque to one of said input and output portions and including a plenum chamber arranged to receive pressurized fluid from a source and having an outlet, and a regulating valve for controlled evacuation of fluid from said plenum chamber by way of said outlet, said regulating valve having at least two components movable relative to each other in dependency upon the magnitude of torque being applied between said input and output portions to maintain the fluid in said plenum chamber at a pressure which is a function at least of the applied torque and which is transmittable to said adjusting units; transmission ratio changing means including an additional adjusting unit for at least one of said pulleys, said additional adjusting unit being arranged to operate in parallel with the respective primary adjusting unit and to receive fluid from said source; a ratio selecting valve connected between said source and said additional adjusting unit; and a pressure regulating valve connected between said source and said plenum chamber in parallel with said ratio selecting valve to influence the pressure of fluid at least at an inlet of said ratio selecting valve.

5,725,448

IDLER PULLEY

Yoshio Kato, Iwara; Motoharu Niki, Iwata; Tsutomu Mizutani, Mie-ken; Tadahisa Suzuki, Tenryu; Yoshiaki Suzuki, Iwata; Masahiro Muranaka, Iwata; Takahiro Koremoto, Iwata, and Masao Fukuwaka, Iwata, all of Japan, assignors to NTN Corporation, Osaka, Japan

PCT No. PCT/JP95/02717, § 371 Date Nov. 1, 1996, § 102(e) Date Nov. 1, 1996, PCT Pub. No. WO96/20362, PCT Pub. Date Jul. 4, 1996
PCT Filed Dec. 27, 1995, Ser. No. 696,905
Claims priority, application Japan, Dec. 28, 1994, 6-326786; Dec. 28, 1994, 6-328673; Dec. 28, 1994, 6-328688; Dec. 28, 1994, 6-328710; Dec. 28, 1994, 6-329010
Int. Cl.[6] F16H *55/36*
U.S. Cl. 474—43 9 Claims



1. An idler pulley wherein a pulley body having a pulley peripheral surface to be contacted by a belt is fitted on an outer diameter of an outer race of a ball bearing or a pulley peripheral surface to be contacted by a belt is integrally formed on an outer diameter of an outer race of a ball bearing, said idler pulley being characterized in that

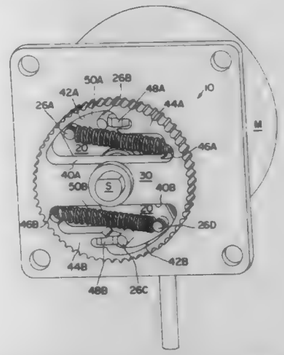
rolling elements of said ball bearing are in contact with raceway surfaces of an inner race and said outer race of said ball bearing which have a predetermined inclination defined therebetween.

5,725,449

IMPACT PULLEY

Daniel Clark Park, West Linn, Oreg., assignor to Bell & Howell Mail Processing Systems, Durham, N.C.

Filed Oct. 18, 1996, Ser. No. 731,876
Int. Cl.[6] F16H *55/14*
U.S. Cl. 474—94 19 Claims



1. An impact pulley apparatus for use with a high-speed media processing apparatus by driven attachment to a rotatable shaft of a motor associated therewith to absorb impact energy encountered by the high-speed media processing apparatus, said impact pulley apparatus comprising:

(a) a base plate for mounting on said rotatable shaft such that rotation of said shaft causes identical and simultaneous rotation of said base plate;

(b) a pulley member operatively connected to said base plate; and

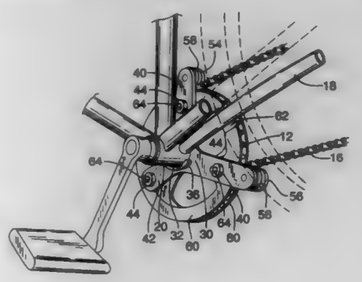
(c) biasing means operatively connecting said base plate and said pulley member in a biased relationship such that said pulley member is substantially identically rotatable with rotation of said base plate in one direction in a non-actuated position until an amount of impact energy is encountered by said pulley member sufficient for said pulley member to biasedly rotate in said direction less than said base plate in an actuated position to absorb the impact energy.

5,725,450

DEVICE FOR PREVENTING DERAILMENT OF A BICYCLE CHAIN

Theodore A. Huskey, Portland, Oreg., assignor to Joshua Paris, Portland, Oreg.

Filed Aug. 21, 1996, Ser. No. 701,046
Int. Cl.[6] F16H *7/14*
U.S. Cl. 474—116 10 Claims



1. A bicycle comprising:

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a drive sprocket having a configured periphery forming sprocket teeth, a driven sprocket associated with a bicycle wheel and an endless chain entrained around the sprockets and interconnecting the sprockets whereby powered rotation of the drive sprocket produces rotation of the driven sprocket and the bicycle wheel associated therewith;

said chain engaging and disengaging from the drive sprocket at entry and exit positions, a rim provided adjacent each side of the drive sprocket, and upper and lower guide rollers positioned at the entry and exit positions, and said sprocket, rims and guide rollers cooperatively providing an encircling guide way through which the chain is guided onto the sprocket for restricting any wave effect generated by a loosened chain condition from traveling around the drive sprocket such as to derail the chain from the sprocket.

5,725,451

CONTROL SYSTEM FOR AUTOMATIC TRANSMISSION

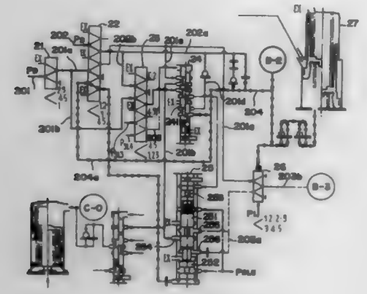
Kazumasa Tsukamoto, Toyota, Japan; Masahiko Ando, Okazaki, Japan; Masahiro Hayabuchi, Anjo, Japan; Akira Fukatsu, Anjo, Japan; Masato Kaigawa, Toyota, Japan; Kagenori Fukumura, Toyota, Japan; Hidehiro Oba, Aichi-gun, Japan; Yasuo Hojo, Nagoya, Japan; Hiromichi Kimura, Okazaki, Japan, and Atsushi Tabata, Okazaki, Japan, assignors to Aisin Aw Co., Ltd., Japan

Continuation-in-part of Ser. No. 457,542, Jun. 1, 1995, abandoned. This application Jul. 17, 1996, Ser. No. 683,861

Claims priority, application Japan, Jun. 2, 1994, 6-142203; Sep. 27, 1994, 6-256116

Int. Cl.[6] F16H *61/00*

U.S. Cl. 475—128 **18 Claims**



1. A control system for an automatic transmission having a gear shift mechanism including first and second frictional engagement elements, respectively operated by first and second servo mechanisms, for establishing a first gear stage with said first frictional engagement element being applied and said second frictional engagement element being released and a second gear stage with said first frictional engagement element being released and said second frictional engagement element being applied, the control system including a hydraulic circuit comprising:

a first oil passage for feeding an oil pressure to said first servo mechanism;

a second oil passage for feeding an oil pressure to said second servo mechanism;

first valve means located in said first oil passage for regulating the oil pressure of said first oil passage, responsive to the oil pressure of said second oil passage, during a shift from said first gear stage to said second gear stage; and

second valve means for selectively feeding or shutting off the oil pressure of said first oil passage to and from said first servo mechanism.

5,725,452

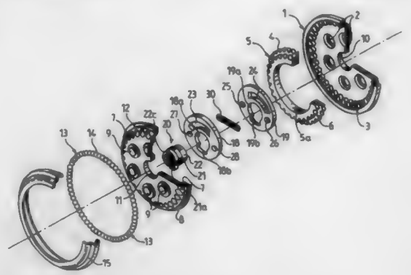
CLEARANCE TAKE-UP ARTICULATION FOR AN AUTOMOBILE SEAT

Georges Droulon, St. Georges des Groseillers, and Francois Baloche, Flers, both of France, assignors to Bertrand Faure Autombile "BFA", Massy, France

Continuation-in-part of Ser. No. 258,200, Jun. 10, 1994, Pat. No. 5,536,217. This application Apr. 15, 1996, Ser. No. 632,274

Int. Cl.[6] F16H *1/32*

U.S. Cl. 475—162 **22 Claims**



1. An articulation for an automobile seat comprising

a mobile flange;

a fixed flange comprising a fixed flange inner toothing;

an eccentric means positioned between said mobile flange and said fixed flange for biasing an articulation element, said eccentric means comprising

a driving axis provided with an outwardly extending snug;

a pair of opposed discs rotatable about said driving axis relative to one another, each disc having a central recess and an arc-shaped window formed therethrough, the central recess of each of said discs surrounding said axis and having a hollow housing extending therefrom adapted for receiving said snug; and

a resilient member housed within the arc-shaped windows of said discs;

said discs ensuring a clearance take-up and irreversibility of the articulation when spaced apart from one another.

5,725,453

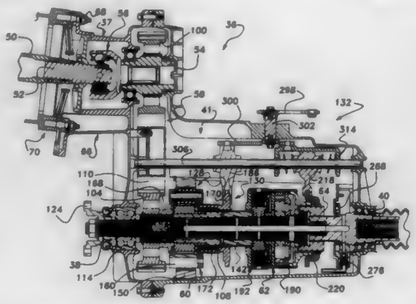
ON-DEMAND DOUBLE OFFSET TRANSFER CASE

John D. Zalewski, Liverpool, N.Y., and James S. Brissenden, Baldwinsville, N.Y., assignors to New Venture Gear, Inc., Troy, Mich.

Filed Aug. 17, 1995, Ser. No. 516,442

Int. Cl.[6] F16H *37/08;48/06*

U.S. Cl. 475—204 **26 Claims**



1. A power transfer apparatus for transferring drive torque from a vehicular drivetrain to first and second drivelines, comprising:

a housing;

an input supported for rotation in said housing, said input including a first input member rotatably driven by the drivetrain about a first rotary axis, a second input member supported for rotation about a second rotary axis that is angled relative to said first rotary axis, and a constant velocity universal joint interconnecting said second rotary member for rotation with said first input member;

an output supported for rotation in said housing, said output including first and second output members respectively interconnected to the first and second drivelines, at least one of said output members being supported for rotation about a third rotary axis that is offset from said second rotary axis; and

torque transfer means interconnecting said output to said input for selectively transferring drive torque from said second input member to at least one of said first and second output members.

5,725,454

SHIFT CONTROL SYSTEM FOR AUTOMATIC TRANSMISSION

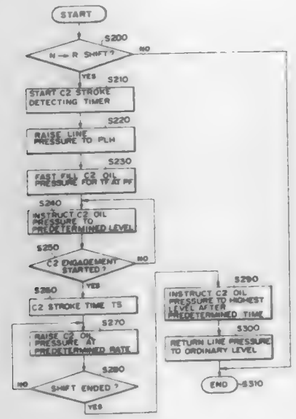
Hideki Yasue, Toyota, and Hiromichi Kimura, Okazaki, both of Japan, assignors to Toyota Jidosha Kabushiki Kaisha, Toyota, Japan

Filed Nov. 4, 1996, Ser. No. 743,146

Claims priority, application Japan, Nov. 9, 1995, 7-290953

Int. Cl.[6] F16H *61/08*

U.S. Cl. 477—155 **13 Claims**



1. A shift control system for an automatic transmission to execute a clutch-to-clutch shift by applying a first frictional engagement element and releasing a second frictional engagement element and another shift by applying said first frictional engagement element to cause a rotational change in a predetermined rotary member, comprising:

stroke time detecting means for detecting, at a shift other than said clutch-to-clutch shift, a stroke time to be taken from the feed of an oil pressure to said first frictional engagement element to the start of the engagement; and

clutch-to-clutch shift control means for controlling said clutch-to-clutch shift on the basis of the stroke time which is detected by said stroke time detecting means.

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FORWARD CLUTCH AND LOCKUP CLUTCH CONTROL IN AN AUTOMATIC TRANSMISSION CONTROL SYSTEM

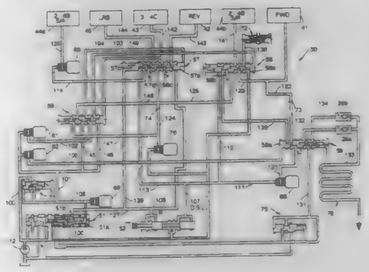
Shinya Kamada; Kenji Sawa; Hiroshi Shinozuka, all of Hiroshima; Tomoo Sawazaki, Higashihiroshima; Koichi Yamamoto, Hiroshima; Kazushi Kurokawa, Hiroshima; Takamichi Teraoka, Hiroshima; Masakazu Hombo, Hiroshima; Naotaka Hirami, Hiroshima; Yasunori Kanda; Akinobu Aoki, both of Higashihiroshima; Tatsuhiko Iwasaki, Aki-gun, and Takeyoshi Kawa, Hiroshima, all of Japan, assignors to Mazda Motor Corporation, Hiroshima-ken, Japan

Filed Jan. 30, 1996, Ser. No. 593,620

Claims priority, application Japan, Jan. 31, 1995, 7-036256; Mar. 7, 1995, 7-047244; Mar. 31, 1995, 7-100005; Dec. 29, 1995, 7-354275

Int. Cl.[6] F16H *61/00*

U.S. Cl. 477—62 **15 Claims**



1. A hydraulic pressure control system for an automatic transmission of the type having a torque converter and a plurality of friction coupling elements which include at least a specific friction coupling element unlocked in specific forward gears and locked in gears other than the specific forward gears and a lock-up clutch for mechanically coupling an input shaft and an output shaft of said torque converter together and are selectively operated with hydraulic pressure for providing desired gears, said hydraulic pressure control system comprising:

pressure control means for controlling operating pressure with which said specific friction coupling element is locked;

a lock-up control valve for connecting and disconnecting pressure communication between said pressure control means and said lock-up clutch;

control source pressure supply means for introducing control source pressure into said specific friction coupling element as said operating pressure while said lock-up control valve connects pressure communication between said pressure control means and said lock-up clutch; and

switching means for disconnecting communication of said control source pressure from said specific friction coupling element to unlock said specific friction coupling element while said lock-up control valve connects pressure communication between said pressure control means and said lock-up clutch before a gear shift from one of said specific forward gears to a gear other than said specific forward gears.

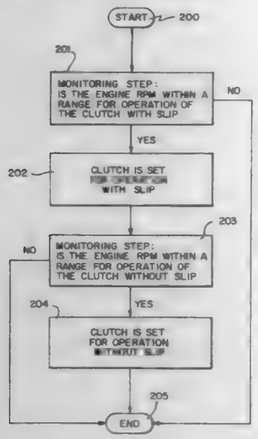
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5,725,456

METHOD OF REGULATING THE OPERATION OF A TORQUE TRANSMISSION APPARATUS

Robert Fischer, Bühl, and Jochen Stinus, Inzlingen, both of Germany, assignors to Luk Getriebe Systeme GmbH, Bühl, Germany

Filed Jun. 6, 1995, Ser. No. 469,030
Claims priority, application Germany, Oct. 29, 1994, 44 38 689.3
Int. Cl.[6] F16D *3/14;13/64*
U.S. Cl. 477—174 **18 Claims**



1. A method of regulating the operation of a torque transmitting apparatus which comprises a clutch operable with as well as without slip and having a clutch disc including a torsional vibration damper, the clutch receiving torque from a prime mover having a range of useful RPMs and a nominal torque range with irregularities including torsional vibrations tending to develop at least within a portion of said nominal torque range and the clutch transmitting torque to a power train, comprising a first step of dividing the range of RPMs into a plurality of partial ranges in dependency upon at least one characteristic value; a second stop of operating the clutch with slip within at least one of said partial ranges in which, in the absence of slip, the power train develops a torsional vibration resonance, for damping torsional vibrations developing within said at least one partial range; and a third step of damping torsional vibrations in at least one other partial range by resorting to at least one of the following: (a) operating the clutch without slip, and (b) intentionally preventing the operation of the clutch with slip to thus achieve a torque transmission by the clutch which is essentially free of slip, the apparatus otherwise exhibiting a torsional vibration resonance in the event of operation of the clutch with slip within said at least one other partial range.

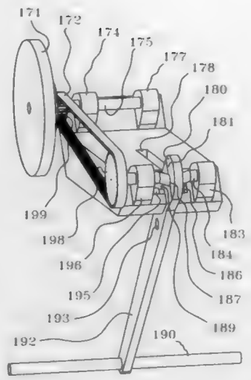
5,725,457

SIX BAR EXERCISE MACHINE

Joseph Douglas Maresh, PO Box 645, West Linn, Oreg. 97068-0645

Filed Sep. 28, 1995, Ser. No. 535,566
Int. Cl.[6] A63B *22/00*
U.S. Cl. 482—57 **8 Claims**

1. An exercise apparatus, comprising:
a frame;
a crank (**184**, **225**) mounted on said frame and rotatable about a crank axis;
a rigid support (**192**, **219**) having a first end, a second, opposite end, and an intermediate portion disposed therebetween, wherein said first end is rotatably connected to said crank at a point radially displaced from said crank axis;



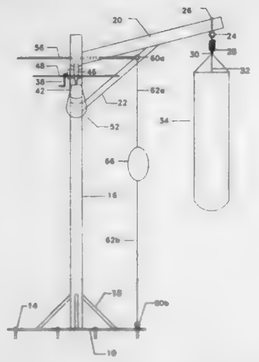
a rigid member (**195**, **204**) interconnected between said frame and said intermediate portion of said rigid support;
a foot support (**190**, **217**) connected to said second end of said rigid support; and
a resistance means connected to at least one of said crank and said rigid support, for resisting movement of at least one of said crank and said rigid support relative to said frame.

5,725,458

THREE BAG WORKOUT APPARATUS

Jerry Newman, 3837 Thompson Creek Ct., San Jose, Calif. 95135, and John N. Newman, Jr., 2466 Wooding Ct., San Jose, Calif. 95128

Continuation of Ser. No. 206,770, Mar. 7, 1994, abandoned.
This application Mar. 28, 1995, Ser. No. 411,393
Int. Cl.[6] A63B *69/34*
U.S. Cl. 482—87 **7 Claims**



1. A three bag workout apparatus for use by a person inside a structure having a rigid floor, a ceiling and walls comprising a planar base member adapted to rest on the rigid floor of the structure, a central upstanding member having top and bottom portions and four circumferentially spaced-apart adjacent sides, means for rigidly attaching the bottom portion of the upstanding member to the base member, a punching bag, a heavy bag and a speed bag, means carried by the upstanding member adapted for supporting the punching bag, the heavy bag and the speed bag from the upstanding member in circumferentially spaced-apart positions about three of the adjacent sides of the upstanding member and means for rigidly mounting the base member to the rigid floor within the structure so that the apparatus extends

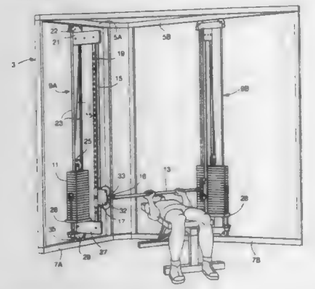
upwardly from the rigid floor free of the walls and the ceiling, the support means including a bar extending horizontally from the upstanding member for use in performing chin-ups and an additional bar extending horizontally from the first named bar for use as a hand grip, the support means further including flexible means carried by the additional bar and the base member for supporting the punching bag between the additional bar and the base member, the fourth side of the upstanding member being free of workout equipment so as to permit the apparatus to be placed adjacent a wall within the structure whereby the apparatus permits a three bag workout by the person in a relatively small area within the structure without damage to the walls and the ceiling of the structure.

5,725,459

EXERCISE APPARATUS PROVIDING SIMULATED FREE WEIGHT EXERCISES AND COMPACT STOWAGE

Marco L. Rexach, 4th St. No. H6—Mansions of Garden Hills, Guaynabo, Puerto Rico, 00966

Filed May 3, 1996, Ser. No. 642,539
Int. Cl.[6] A63B *21/06*
U.S. Cl. 482—92 **43 Claims**



1. An exercise apparatus comprising:
a framework supporting two adjustable exercise resistance units and mounting the two exercise resistance units for horizontal movement toward and away from each other in intersecting planes, each unit comprising a flexible line segment operably connected to a source of exercise resistance and having a respective end portion equipped with a connector adapted to be attached to a movable exercise member, said framework mounting such that they said resistance units movable to respective positions wherein the units are operable by a user in conjunction with each other to perform exercises;
said exercise resistance units supporting such that said respective end portions are maintained in respective vertically adjustable rest positions, each said line segment being extensible against a bias of a respective one of said sources of exercise resistance, independently of the other line segment, to allow the respective end portion to move away from its rest position, each said line segment being independently retractable, by said bias, to return the end portion to its rest position.

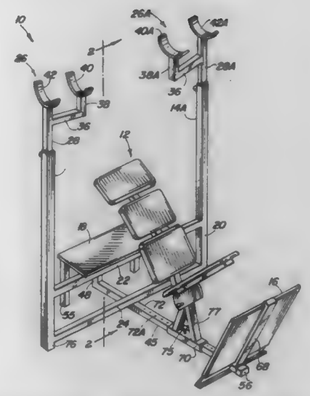
5,725,460

ADJUSTABLE WEIGHT LIFTER'S BENCH

John P. Marsh, 3820 E. Briarwood Terrace, Phoenix, Ariz. 85044

Filed Jul. 15, 1996, Ser. No. 683,582
Int. Cl.[6] A63B *21/078*
U.S. Cl. 482—104 **13 Claims**

1. An exercise apparatus for supporting both a weight lifter and dumbbells of the type having weights supported on the ends of an axially extending bar, said exercise apparatus comprising:
(a) a frame having a front and a rear and having spaced-apart, generally vertically extending supports defining an exercise area therebetween;



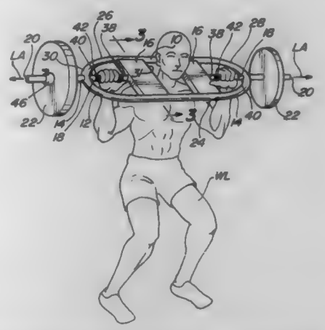
(b) a bench attached to said frame positioned within said exercise area, said bench having a forward end and a rear end and extending longitudinally on said frame; and
(c) weight racks on said supports at a location laterally outward of the bench, said weight racks being disposed to support dumbbells thereon in a static position with the axis of the bars of the dumbbells being generally horizontal and extending toward said rear end defining an acute angle with respect to the axis of the bench to ergonomically accommodate removal and replacement of the dumbbells on the racks by a weight lifter said weight racks having one end attached, respectively, to said supports, and another end cantilevered into said exercise area from said supports so as to support the dumbbells substantially within said exercise area.

5,725,461

WEIGHT LIFTING APPARATUS

Wayne M. Bogard, II, 1105 Markham St., Flint, Mich. 48507

Filed Feb. 16, 1996, Ser. No. 601,288
Int. Cl.[6] A63B *21/075*
U.S. Cl. 482—106 **11 Claims**



1. A weight lifting apparatus for use by a weight lifter for weight training through attachment to a resistive force, the apparatus comprising:
a frame including a front member and a back member;
a first shoulder rest and a second shoulder rest, said first and second shoulder rests being spaced apart and defining a pair of shoulder rests, each of said shoulder rests having an underside, each of said undersides having a concavity defined therein, said pair of spaced-apart shoulder rests connecting said front and back members, said front member, said back

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member, and said shoulder rests defining an enclosed space, wherein the top sides of the weight lifter's shoulders may be nested within said concavities when the weight lifting apparatus is in use; and

means formed on said frame for receiving the resistive force, said front member defining a first plane, said back member defining a second plane, said first shoulder rest defining a third plane, and said second shoulder rest defining a fourth plane, said first, second, third, and fourth planes being substantially coplanar.

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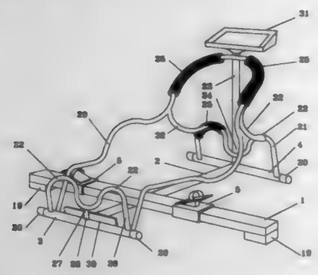
RECIPROCAL INHIBITION EXERCISE DEVICE

Tom Jones, 4531 Scenario Dr., Huntington Beach, Calif. 92649

Filed Sep. 5, 1995, Ser. No. 523,780

Int. Cl.[6] A63B *21/02*

U.S. Cl. 482—129 **8 Claims**



1. An apparatus for human reciprocal inhibition exercise comprising:

a leg beam attached perpendicular to a bottom cross member wherein the leg beam has a pair of foot pad slides slidably mounted thereon;

the leg beam having longitudinally a leg beam right slot and a leg beam left slot defined therein and the foot pad slides each have an elastic support connector cooperatively located to slide in the leg beam right slot and the leg beam left slot;

an elastic force element attached to the elastic support connector of the foot pad slide in the leg beam left slot and a second elastic force element attached to the elastic support connector of the foot pad slide in the leg beam right slot with each elastic force element independently attached to a leg beam middle plate;

a foot pad pedestal attached to each of the foot pad slides and a stirrup attached by a means for attachment to each of the foot pad pedestals;

a back support member and a front support member attached perpendicular to the bottom cross member;

a front vertical support member attached to the front support member; and

an exercise grip bar attached to the front vertical support member and attached to the back support member.

5,725,463

ABDOMINAL EXERCISE DEVICE

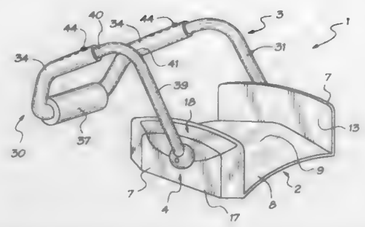
Dennis J. Colonello, Studio City, Calif.; Robert R. Schnabel, Jr., Navarre, Ohio, and John R. Collis, Minneapolis, Minn., assignors to Fitness Quest, Inc., Canton, Ohio

Filed Jun. 11, 1996, Ser. No. 664,222

Int. Cl.[6] A63B *23/02*

U.S. Cl. 482—140 **15 Claims**

11. An abdominal exercise device including: a body cage having a substantially U-shaped configuration with a pair of spaced side members for grasping by a user and an intervening member providing head and neck support for the user during use of the device, wherein the upper torso of the user is adapted to be located between said side members;



spaced-apart pivot means operatively connected to free ends of the body cage side members and located in a fixed position on a support member providing pivotal movement to the body cage;

pad means mounted on the intervening member for supporting the head and neck of a user located between said side members; and

the support member includes spaced-apart side walls and pivot means formed on each of said side walls, said pivot means includes a ball and socket, said sockets being formed with concave recesses in the spaced-apart side walls and said balls being mounted on the free ends of the side members and formed with a cylindrical portion which is rotatably trapped with said concave recess of the socket.

5,725,464

METHOD AND APPARATUS FOR THE AUTOMATIC REPLACEMENT OF RIM SHAPED SIZE REDUCTION TOOLS OF SIZE REDUCTION MACHINES, MORE SPECIFICALLY KNIFE RIMS OF WOOD FLAKING MACHINES

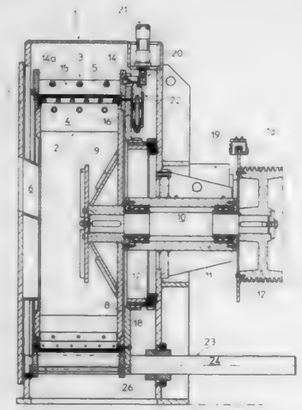
Wilhelm Pallmann, Zweibruecken, Germany, assignor to Pallman Maschinenfabrik GmbH & Co.KG, Zweibruecken, Germany

Filed May 20, 1996, Ser. No. 650,853

Claims priority, application Germany, May 19, 1995, 195 18 354.1

Int. Cl.[6] B23Q *3/155*

U.S. Cl. 483—1 **7 Claims**



1. Method for the replacement of size reduction tools arranged in a rim like manner in size reduction machines, said size reduction tools being removably fastened in a centered way to a carrying element rotatably or fixedly arranged in a machine housing,

whereby a worn out tool rim is pulled out of the machine housing in an axial direction when a housing door is open by means of a pulling carriage slidable in the machine housing and then an overhauled tool rim is pulled into the machine housing and be fastened there onto its carrying element, wherein the improvement comprises: a programmed sequence control stops the machine when its power consumption rises, then disengages the tool rim automatically from its carrying element and after automatic opening of the housing door, moves the tool rim out of the machine housing on the pulling carriage where it is automatically replaced by an overhauled tool rim which is automatically engaged to its carrying element after having been pulled into the machine housing whereupon the housing door is automatically closed and the size reduction machine restarts automatically.

5,725,465

METHOD FOR OPERATING A ROLLER AND CORRESPONDING ROLLER

Karl-Heinz Küsters, Krefeld, Germany, assignor to Eduard Kusters Maschinenfabrik GmbH & Co. KG, Krefeld, Germany

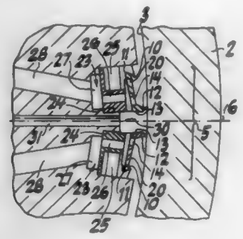
PCT No. PCT/DE94/00929, § 371 Date Jun. 24, 1996, § 102(e) Date Jun. 24, 1996, PCT Pub. No. WO95/10660, PCT Pub. Date Apr. 20, 1995

PCT Filed Aug. 12, 1994, Ser. No. 624,571

Claims priority, application Germany, Oct. 8, 1993, 43 34 347.3

Int. Cl.[6] B23P *15/00*

U.S. Cl. 492—7 **13 Claims**



1. A roller comprising:

a rotating hollow roller comprising a working roller circumference;

a non-rotating cross-beam which passes through the hollow roller lengthwise;

a radial distance between an inside circumference of the hollow roller and an outside circumference of the cross-beam around an entire length of the inside circumference of the hollow roller, thereby forming longitudinal chambers in a space between the hollow roller and the cross-beam;

a sealing arrangement which compartmentalizes the longitudinal chambers, the sealing arrangement being affixed on the cross-beam, the sealing arrangement comprising end cross-seals provided at opposite ends of the longitudinal chambers, the sealing arrangement further comprising longitudinal seals which extend along a length of the cross-beam on opposite sides of the cross-beam, each longitudinal seal comprising two sealing strips parallel to one another and closely adjacent one another in the circumferential direction, one longitudinal edge of the sealing strips resting against the inside circumference of the hollow roller;

a gas feed line for a compressed gas, the gas feed line filling at least the longitudinal chamber located on a side of hollow roller nearest the roller nip with compressed gas;

a fluid feed line for a fluid pressure medium, the fluid feed line filling a space between the sealing strips with a sealing fluid at a pressure that exceeds a pressure of the compressed gas; and

a fluid removal device for the fluid pressure medium, the fluid removal device removing sealing fluid which has penetrated into the longitudinal chambers from the longitudinal chambers.

5,725,466

PERIPHERALLY DRILLED ROLL FOR THE TREATMENT OF WEB MATERIAL

Bernd Eppli, Königsbronn, Germany; Erich Vomhoff, Königsbronn, Germany, and Heinz-Michael Zaoralek, Königsbronn, Germany, assignors to Schwabische Huttenwerke GmbH, Aalen-Wasseralfingen, Germany

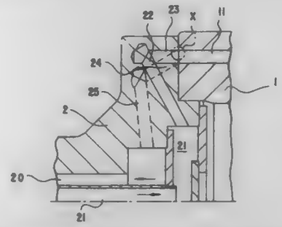
PCT No. PCT/EP95/00364, § 371 Date Apr. 16, 1996, § 102(e) Date Apr. 16, 1996, PCT Pub. No. WO95/22730, PCT Pub. Date Aug. 24, 1995

PCT Filed Feb. 1, 1995, Ser. No. 507,302

Claims priority, application Germany, Feb. 16, 1994, 44 04 922.6

Int. Cl.[6] F28D *11/02*

U.S. Cl. 492—16 **19 Claims**



1. Peripherally drilled roll for the heat treatment of web material, comprising

a) a roll body (**1**) having axially parallel drilled passages (**11**, **12**) disposed just beneath its surface for guiding a heat-carrying fluid,

b) at least one flange pin (**2**) bolted to the front end of said roll body (**1**) having a central bore (**20**, **21**),

c) supply and discharge passages (**22**, **23**; **24**, **25**) for the heat-carrying fluid in the flange pin (**2**), and

d) connecting passages (**31**, **32**) in the flange pin for the axially parallel drilled passages,

characterized in that

e) said supply and discharge passages (**22**, **23**; **24**, **25**) are formed as blind holes meeting in said flange pin (**2**) and produce the flow connection between said central bore (**20**, **21**) and the front end ports of the axially parallel drilled passages (**11**, **12**), and that

f) said connecting passages (**31**, **32**) of said axially parallel drilled passages (**11**, **12**) are configured in said flange pin (**2**) as blind holes meeting therein.

5,725,467

METHOD OF AND APPARATUS FOR MAKING A TOW OF FILTER MATERIAL FOR TOBACCO SMOKE

Firdausia Chehab, Hamburg; Stefan Fietkau, Westerau, and Peter-Franz Arnold, Hamburg, all of Germany, assignors to Hauni Maschinenbau AG, Hamburg, Germany

Filed Nov. 14, 1995, Ser. No. 557,462

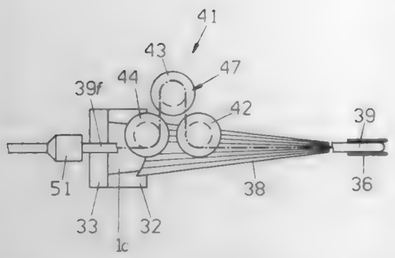
Claims priority, application Germany, Dec. 9, 1994, 44 43 866.4

Int. Cl.[6] B31C *13/00*

U.S. Cl. 493—42 **17 Claims**

1. A method of making a substantially rod-like filler of filter material for tobacco smoke, comprising the steps of advancing a continuous flow of filamentary filter material along a first path through a series of processing stations, including spreading out the

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flow, applying to the spread-out flow a plasticizer for filamentary filter material, and thereupon gathering the plasticized flow to convert the flow into a substantially rod-like stream which advances along a section of said first path; and moving said rod-like stream through a filler processing station along a second path, said section of said first path merging into said second path and said advancing step further including advancing successive increments of the flow along said section of said path in a predetermined plane, changing the direction of advancement of said rod-like stream at least once within said predetermined plane, and deflecting said rod-like stream entirely at least once subsequent to said gathering step from and substantially transversely of said predetermined plane.

8. Apparatus for making a substantially rod-like filler of filter material for tobacco smoke, comprising a source of a continuous flow of filamentary filter material; means for advancing the filter material from said source first along a first path and thereupon along a second path through a filler processing station, said first path having a section merging into said second path; for spreading, processing and gathering successive increments of the flow in said first path ahead of said section of said first path to convert the flow into a substantially rod-like stream, said advancing means including means for maintaining the like stream in a predetermined plane along a portion of said section of said first path and means for changing the direction of movement of successive increments of the rod-like stream in said predetermined plane subsequent to gathering of said successive increments of the flow in said first path by said gathering means; and means for deflecting successive increments of said rod-like stream entirely at least once from and substantially transversely of said predetermined plane.

5,725,468

APPARATUS AND METHOD USING VACUUM TO FORM A FLAT-PANELED FLOWER POT OR FLOWER POT COVER

Donald E. Weder, Highland, Ill., and Joseph G. Straeter, Highland, Ill., assignors to Southpac Trust International, Inc.

Continuation of Ser. No. 196,683, Feb. 15, 1994, Pat. No. 5,575,746, which is a continuation of Ser. No. 965,459, Oct. 23, 1992, Pat. No. 5,286,246, which is a continuation of Ser. No. 805,412, Dec. 10, 1991, Pat. No. 5,176,609. This application Mar. 11, 1996, Ser. No. 615,340

Int. Cl.[6] B31B *1/44*

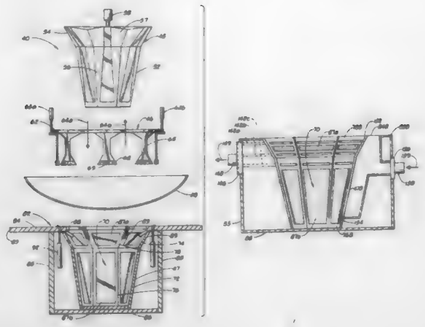
U.S. Cl. 493—154 **22 Claims**

1. An apparatus for forming a sheet of material into a flower pot or flower pot cover, the apparatus comprising:

a female die having an upper end, a lower end, and an opening and the female die having a plurality of forming surfaces;

a male die having an upper end, a lower end, and a plurality of mating surfaces, each mating surface corresponding to one of the forming surfaces of the female die;

means for moving at least one of the male die and the female die back and forth between a resting position wherein the male die is spaced a distance from the female die and a forming position wherein the male die is disposed in the opening of the female die; and



vacuum means for producing a vacuum at each one of the forming surfaces of the female die for drawing portions of the sheet of material toward the forming surfaces of the female die as the male die is moved into the opening of the female die wherein each forming surface of the female die cooperates with the corresponding mating surface of the male die to form the sheet of material into a flower pot or flower pot cover when the male die is disposed in the opening of the female die and wherein a heat-insulating material is disposed upon at least one of the plurality of mating surfaces of the male die and the plurality of forming surfaces of the female die.

5,725,469

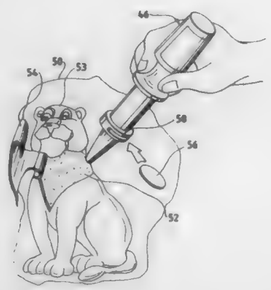
TOY FOR DECORATING ARTICLES

Jeffrey G. Rehkemper, 1636 N. Wells, Chicago, Ill. 60614, and Steven Rehkemper, 1030 N. State St., Chicago, Ill. 60610

Filed Feb. 12, 1996, Ser. No. 600,247

Int. Cl.[6] B31B *3/44;3/88*

U.S. Cl. 493—167 **4 Claims**



1. A device for forming funnel shaped decorative cups adapted to be connected to an adhearable base surface comprising an elongated housing assembly having at one end at funnel shaped outlet passage and its other end a reciprocable handle, a plunger disposed within said housing assembly and secured to said reciprocable handle, means for biasing the handle and plunger to a raised position, said housing defining an opening under said plunger when in the raised position for receiving an insert disposed below said plunger to be formed into a cup where by when the handle and plunger are lowered against said biasing means by the actuation of said handle the plunger extends through the outlet passage and engages the insert located in said opening to form the insert into a funnel shaped cup and move it out of said outlet passage where it can be adhered to a base surface for ornamental purposes.

5,725,470

PROCESS FOR SOIL REMEDIATION

Virginia L. Lazarowitz, Hatfield, Pa.; Allen D. Urfer, Plainfield, Ind., and George A. Smith, Newton, Pa., assignors to Henkel Corporation, Plymouth Meeting, Pa.

Continuation of Ser. No. 588,582, Jan. 18, 1996. This application May 19, 1997, Ser. No. 858,411

Int. Cl.[6] A62D *3/00*

U.S. Cl. 588—249 **20 Claims**

1. A process for the remediation of soil containing volatile organic compounds which comprises the steps of:

(1) forming an emulsifier comprising:

(a) from about 70 to about 99% by weight of a sugar surfactant selected from the group consisting of an alkyl polyglycoside having the general formula I:

$$R_1O(R_2O)_b(Z)_a \qquad I$$

wherein R_1 is a monovalent organic radical having from about 6 to about 30 carbon atoms; R_2 is divalent alkylene radical having from 2 to 4 carbon atoms; Z is a saccharide residue having 5 or 6 carbon atoms; b is a number having a value from 0 to about 12; a is a number having a value from 1 to about 6, a glucamide having the general formula II:

$$R_4-\overset{O}{\overset{\|}{C}}-\overset{R_3}{\overset{|}{N}}-Y \qquad (II)$$

wherein R_3 is H, C_1–C_4 hydrocarbyl, 2-hydroxy ethyl, 2-hydroxy propyl, or a mixture thereof, and R_4 is a C_5–C_{31} hydrocarbyl moiety, preferably straight chain C_7–C_{19} alkyl or alkenyl, or mixtures thereof; and Y is a polyhydroxyhydrocarbyl moiety having a linear hydrocarbyl chain with at least 3 hydroxyls directly connected to the chain, or an alkoxylated derivative thereof, and mixtures thereof: and

(b) from about 1 to about 30% by weight of a nonionic surfactant, other than said sugar surfactant which, when combined with said sugar surfactant, provides a hydrophilic-lipophilic balance of from about 8.0 to about 13.0;

(2) mixing said emulsifier with said unwanted contaminants to form a stable emulsion; and

(3) removing said stable emulsion from said soil.

5,725,471

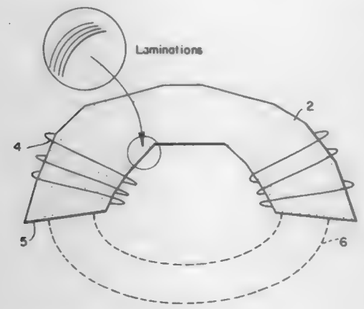
MAGNETIC NERVE STIMULATOR FOR EXCITING PERIPHERAL NERVES

Kent Davey, New Smyrna Beach, Fla., assignor to Neotonus, Inc., Marietta, Ga.

Filed Nov. 28, 1994, Ser. No. 345,572

Int. Cl.[6] A61N *1/00*

U.S. Cl. 600—13 **44 Claims**



1. A magnetic nerve stimulator comprising:

(a) an arc shaped core spanning an angle of less than three hundred sixty degrees (360°), said arc shaped core comprising vanadium permendur;

(b) a stimulator coil, said coil at least partially wrapped around said core; and

(c) electric current means connected to said stimulator coil to create a current flow in said stimulator coil that causes said stimulator coil and said core to generate a magnetic field.

5,725,472

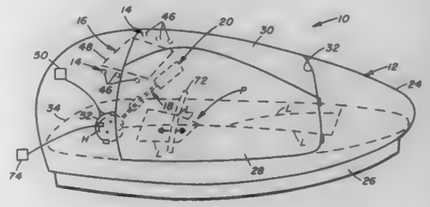
PSYCHOTHERAPY APPARATUS AND METHOD FOR THE INPUTTING AND SHAPING NEW EMOTIONAL PHYSIOLOGICAL AND COGNITIVE RESPONSE PATTERNS IN PATIENTS

Lawrence R. Weathers, West 1525-8th Ave., Spokane, Wash. 99204

Filed Dec. 18, 1995, Ser. No. 574,196

Int. Cl.[6] A61G *10/00*

U.S. Cl. 600—21 **24 Claims**



1. A psychotherapy apparatus for inputting and shaping new emotional, psychological and cognitive response patterns in a patient, said apparatus comprising:

(a) means for isolating a patient from external stimuli;

(b) means for presenting visual and auditory stimuli to the patient;

(c) means for delivering a flow of air to the proximity of nostrils of the patient for inhalation of the flow of air by the patient;

(d) means for controlling the temperature of the flow of air delivered to the proximity of the patient's nostrils and inhaled by the patient to thereby control the temperature of the patient's hypothalamus;

(e) means for physiologically monitoring the patient and feeding back data about the patient; and

(f) means for receiving and responding to the feedback of patient data and for coordinating and timing the occurrence of the visual and auditory stimuli with the controlling of the temperature of the flow of air delivered to the proximity of the patient's nostrils and inhaled by the patient to assist in the shaping of the new emotional, psychological and cognitive response patterns in the patient.

5,725,473

SEXUAL AID

Larry Thornell Taylor, 503 Woodland Hills Rd. West, Columbia, S.C. 29210

Filed Aug. 28, 1995, Ser. No. 520,135

Int. Cl.[6] A61F *5/00*

U.S. Cl. 600—38 **7 Claims**

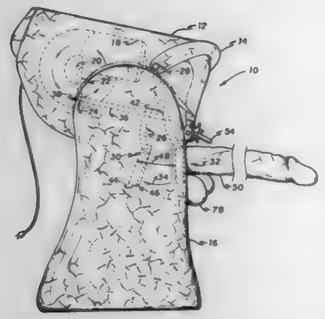
1. A sexual aid apparatus comprising:

a housing;

a dildo having a length;

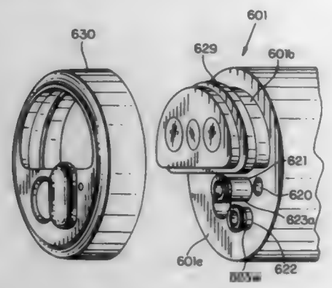
a pair of pseudo-testicles loosely mounted proximate to said dildo: and

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drive means for urging said dildo through an arcuate path generally coincident with said length of said dildo relative to said housing.

5,725,474
FRONT END STRUCTURE OF ENDOSCOPE
Naoki Yasui; Hiroshi Iwata; Hiroyuki Katsurada; Keiji Ito, and Takayuki Ogino, all of Tokyo, Japan, assignors to Asahi Kogaku Kogyo Kabushiki Kaisha, Tokyo, Japan
Division of Ser. No. 342,250, Nov. 18, 1994, abandoned. This application Sep. 12, 1996, Ser. No. 711,873
Claims priority, application Japan, Nov. 26, 1993, 5-296530
Int. Cl.[6] A61B *1/04*
U.S. Cl. 600—127 **2 Claims**



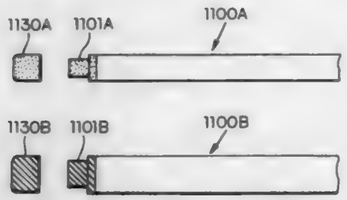
1. An endoscope including a front end body which is provided at a front end of an insertion portion of said endoscope and a substantially cylindrical end cap of a resilient material which is elastically deformed to be detachably attached to an outer peripheral surface of said front end body; said endoscope further comprising:

positioning surfaces on said end cap and said front end body adapted to mate to establish a predetermined relative angular position between said end cap and said front end body in a rotational direction; and,

a combination of at least one engageable projection and at least one recess provided on said front end body and said end cap to prevent said front end body from accidentally coming out of said end cap, said engageable projection and recess being positioned so as to require said end cap to elastically deform to enable said engageable projection to engage said recess;

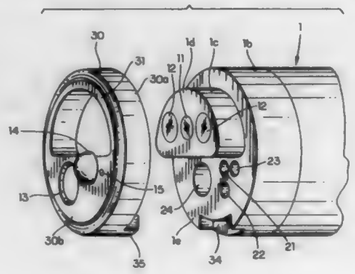
wherein when said end cap is attached to said front end body, said positioning surfaces mate to cause said predetermined relative angular position to be assumed by said front end body and said end cap without any elastic deformation of said end cap as required to establish an engagement of said engageable projection with said recess.

5,725,475
FRONT END STRUCTURE OF ENDOSCOPE
Naoki Yasui, Tokyo, Japan; Hiroshi Iwata, Tokyo, Japan; Hiroyuki Katsurada, Tokyo, Japan; Keiji Ito, Tokyo, Japan, and Takayuki Ogino, Tokyo, Japan, assignors to Asahi Kogaku Kogyo Kabushiki Kaisha, Tokyo, Japan
Division of Ser. No. 342,250, Nov. 18, 1994, abandoned. This application Sep. 12, 1996, Ser. No. 712,843
Claims priority, application Japan, Mar. 15, 1994, 6-042988
Int. Cl.[6] A61B *1/04*
U.S. Cl. 600—127 **1 Claim**



1. A front end structure of an endoscope comprising a front end body connected to a front end of an insertion portion of said endoscope, said front end body having an outer peripheral surface portion and a front end side; and an end cap formed of a resilient material detachably attached to said front end body at said front end side thereof, said end cap having an outer peripheral surface portion and a rear end adjacent to said outer peripheral surface portion of said front end body; wherein said outer peripheral surface portion of said front end body is exposed to the environment when said end cap is attached to said front end body; and wherein said exposed outer peripheral surface portion of said front end body and said outer peripheral surface of said end cap have different colors at least at a boundary portion therebetween.

5,725,476
FRONT END STRUCTURE OF ENDOSCOPE
Naoki Yasui; Hiroshi Iwata; Hiroyuki Katsurada; Keiji Ito, and Takayuki Ogino, all of Tokyo, Japan, assignors to Asahi Kogaku Kogyo Kabushiki Kaisha, Tokyo, Japan
Division of Ser. No. 342,250, Nov. 18, 1994, abandoned. This application Sep. 12, 1996, Ser. No. 712,866
Claims priority, application Japan, Nov. 18, 1993, 5-288567
Int. Cl.[6] A61B *1/04*
U.S. Cl. 600—127 **2 Claims**

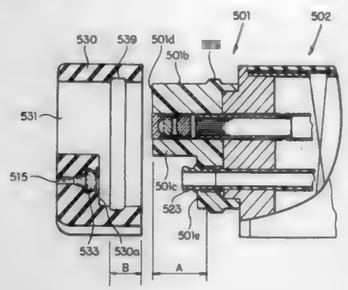


1. A front end structure of an endoscope comprising:

a front end body, a front end surface of said front end body, a plurality of fluid outlet ports opening on said front end surface, a recess extending rearwardly from said front end surface disposed on an outer edge of said front end surface and an engageable shield projection extending forwardly from said front end surface to a projection front end surface, said engageable shield projection having a viewing window and an illuminating window substantially flush on said projection front end surface; and

an end cap formed of a resilient material, said end cap having an end cap front surface, an end cap rear surface and a through hole extending therethrough from said end cap rear surface to said end cap front surface into which said engageable shield projection is inserted when said end cap is mounted on said front end body whereby said projection front end surface aligns substantially with said end cap front surface when said end cap rear surface abuts said front end body front end surface; an end cap projection extending rearwardly from an outer edge of said end cap rear surface, said end cap projection being configured to mate with said front end body recess and disposed to fit into said recess when said engageable shield projection is inserted in said through hole; and a nozzle passage extending though said end cap, said nozzle passage aligning with said plurality of fluid outlet ports and discharging onto said window when said end cap is mounted on said front end body.

5,725,477
FRONT END STRUCTURE OF ENDOSCOPE
Naoki Yasui; Hiroshi Iwata; Hiroyuki Katsurada; Keiji Ito, and Takayuki Ogino, all of Tokyo, Japan, assignors to Asahi Kogaku Kogyo Kabushiki Kaisha, Tokyo, Japan
Division of Ser. No. 342,250, Nov. 18, 1994, abandoned. This application Sep. 12, 1996, Ser. No. 712,872
Claims priority, application Japan, Nov. 18, 1993, 5-288567; Nov. 26, 1993, 5-296530; Dec. 1, 1993, 5-301426; Jan. 24, 1994, 6-5491; Mar. 15, 1994, 6-42987; Mar. 15, 1994, 6-42988
Int. Cl.[6] A61B *01/04*
U.S. Cl. 600—127 **1 Claim**



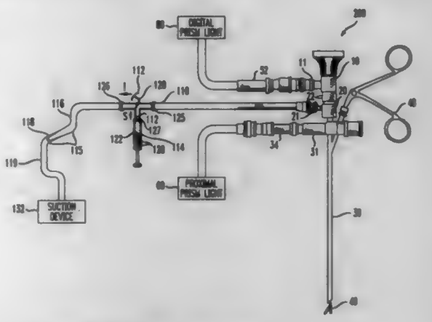
1. A front end structure of an endoscope, comprising:

a front end body on a distal end of an insertion portion of said endoscope, said front end body having a connecting pipe for being connected to a fluid source; and

an end cap of a resilient material, said end cap being detachably attached to said front end body and having a passage extending through said end cap, said passage having a connecting hole for connecting said passage with said connecting pipe forming a fluid passage for discharging fluid;

wherein said connecting pipe has an outer peripheral diameter gradually increasing toward an end edge thereof, said end edge being rounded, said connecting hole having an inner peripheral diameter gradually increasing toward an outer end surface of said end cap so that said connecting pipe is insertable in said connecting hole and forms a fluid-tight seal when said end cap is attached to said front end body.

5,725,478
METHODS AND APPARATUS FOR PROVIDING SUCTION AND/OR IRRIGATION IN A RIGID ENDOSCOPE WHILE MAINTAINING VISUAL CONTACT WITH A TARGET AREA THROUGH THE ENDOSCOPE
Saad A. Saad, 3 Kimball Turn, Holmdel, N.J. 07733
Filed Mar. 14, 1996, Ser. No. 615,100
Int. Cl.[6] A61B *1/12*
U.S. Cl. 600—157 **9 Claims**



1. An endoscopic system, comprising:

a rigid endoscope including:

i. a tubular sheath instrument channel;

ii. an antifog tube including a port, the antifog tube being inserted into the tubular sheath instrument channel; and

iii. a straight telescope inserted into the antifog tube;

a suction/irrigation apparatus including:

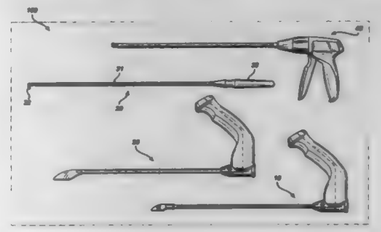
i. an extension tube having a first end coupled to the port of the antifog tube;

ii. a valve having a first, second and third port for selectively coupling one of the second and third ports to the first port, the first port being coupled to a second end of the extension tube;

iii. a connecting tube coupled to the second port of the valve and adapted for coupling the second port to a suction device; and

iv. a syringe coupled to the third port of the valve for providing irrigation fluid.

5,725,479
METHOD AND DEVICES FOR ENDOSCOPIC VESSEL HARVESTING
Gary W. Knight, West Chester, Ohio; Julia C. Taylor, Seattle, Wash.; Michael F. Clem, Maineville, Ohio; Felmont F. Eaves, III, Stone Mountain, and Alan B. Lumsden, Atlanta, both of Ga., assignors to Ethicon Endo-Surgery, Inc., Cincinnati, Ohio
Division of Ser. No. 546,461, Oct. 20, 1995, Pat. No. 5,667,480. This application Aug. 15, 1996, Ser. No. 698,530
Int. Cl.[6] A61B *11/02*
U.S. Cl. 600—210 **9 Claims**

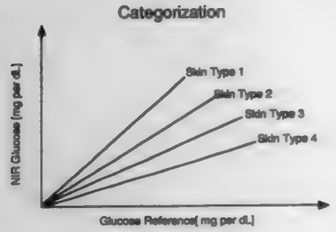


1. A kit for removing a vessel from a patient's body comprising:

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an optical dissector comprising a shaft having a lumen therethrough for receiving an endoscope therein and a transparent concave head connected to a distal end of the shaft, the head having a spoon-shape and defining cavity; and
an optical retractor.

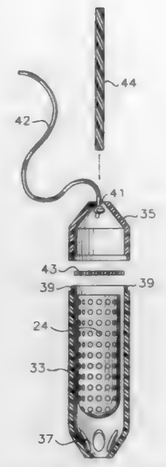
5,725,480
NON-INVASIVE CALIBRATION AND CATEGORIZATION OF INDIVIDUALS FOR SUBSEQUENT NON-INVASIVE DETECTION OF BIOLOGICAL COMPOUNDS
Gary M. Oosta, Gurnee; Tuan A. Elstrom, Lake Bluff; Eric B. Shain, Glencoe, all of Ill., and Thomas G. Schapira, Bristol, Wis., assignors to Abbott Laboratories, Abbott Park, Ill.
Filed Mar. 6, 1996, Ser. No. 611,912
Int. Cl.[6] A61B *8/14*
U.S. Cl. 600—310 **10 Claims**



1. A process of calibrating an individual in preparation for the non-invasive measurement of a biological compound across the skin of that individual, comprising the steps of:
(a) determining the contribution of one or more skin parameters to the non-invasive measurement and (b) correcting for the contribution of the one or more skin parameters in the subsequent non-invasive measurement of the biological compound, wherein the skin parameters include at least one member selected from the group consisting of melanin, non-melanin chromophores, skin thickness, water content, fat content, temperature, blood flow, skin quality, skin elasticity, hair follicles, sebaceous glands, permeability, proteins, and amino acids, and wherein the subsequent non-invasive measurement of the biological compound requires non-ionizing radiation.

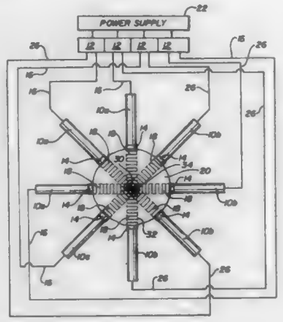
5,725,481
METHOD AND APPARATUS FOR COLLECTING VAGINAL FLUID AND EXFOLIATED VAGINAL CELLS FOR DIAGNOSTIC PURPOSES
Robert L. Buck, Lake Oswego, and William H. Fleming, Hillsboro, both of Oreg., assignors to A. Fem Medical Corporation, Portland, Oreg.
Filed May 17, 1996, Ser. No. 651,048
Int. Cl.[6] A61B *10/00*
U.S. Cl. 600—572 **11 Claims**

1. A kit for collecting vaginal fluid and/or exfoliated vaginal cells comprising:
a housing; said housing receiving at least one fluid absorbent media; said fluid absorbent media being an interlabial pad; said housing further receiving at least one container; said container for receiving said interlabial pad after said interlabial pad has absorbed an amount of fluid and/or exfoliated



cells for delivery of said saturated interlabial pad to a medical diagnostic facility.

5,725,482
METHOD FOR APPLYING HIGH-INTENSITY ULTRASONIC WAVES TO A TARGET VOLUME WITHIN A HUMAN OR ANIMAL BODY
Richard P. Bishop, P.O. Box 10495, Burke, Va. 22009
Filed Feb. 9, 1996, Ser. No. 599,297
Int. Cl.[6] A61B *17/022*
U.S. Cl. 601—2 **13 Claims**

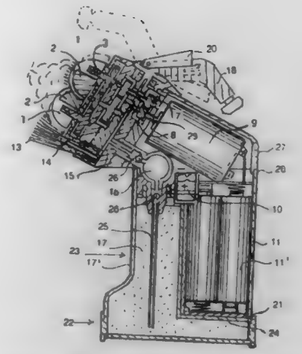


1. A method of applying high intensity vibrational energy to a target volume disposed within a contiguous surrounding medium, comprising the steps of:
introducing vibrational energy into a medium from a first actuator member;
introducing vibrational energy into said medium from a second actuator member;
establishing a first standing pressure wave within said medium between said first actuator member and said second actuator member, said first standing pressure wave having a first longitudinal axis extending through said first actuator member and said second actuator member;
directing said first standing pressure wave through a target volume, said target volume being disposed within said medium and being contiguous with said medium;
positioning an antinode of said first standing pressure wave within said target volume;

introducing vibrational energy into said medium from a third actuator member; introducing vibrational energy into said medium from a fourth actuator member;
establishing a second standing pressure wave within said medium between said third actuator member and said fourth actuator member, said second standing pressure wave having a second longitudinal axis extending through said third actuator member and said fourth actuator member;
directing said second standing pressure wave through said target volume;
positioning an antinode of said second standing pressure wave within said target volume;
wherein said step of introducing vibrational energy into said medium from a first actuator member comprises oscillating a first surface of said first actuator member in a direction parallel to said first longitudinal axis;
wherein said step of introducing vibrational energy into said medium from a second actuator member comprises oscillating a second surface of said second actuator member in a direction parallel to said first longitudinal axis;
wherein said step of introducing vibrational energy into said medium from a third actuator member comprises oscillating a third surface of said third actuator member in a direction parallel to said second longitudinal axis;
wherein said step of introducing vibrational energy into said medium from a fourth actuator member comprises oscillating a fourth surface of said fourth actuator member in a direction parallel to said second longitudinal axis;
wherein said first surface, said second surface, said third surface and said fourth surface are each in contact with said medium;
wherein said first surface and said second surface are each oscillated at a first frequency;
wherein said third surface and said fourth surface are each oscillated at a second frequency;
wherein said step of establishing a first standing pressure wave within said medium between said first actuator member and said second actuator member further comprises generating a first wave length of said first standing pressure wave in said medium adjacent to said first surface, said first wave length being shorter than a first distance measurable across said first surface;
wherein said step of establishing a first standing pressure wave within said medium between said first actuator member and said second actuator member further comprises generating a second wave length of said first standing pressure wave in said medium adjacent to said second surface, said second wave length being shorter than a second distance measurable across said second surface;
wherein said step of establishing a second standing pressure wave within said medium between said third actuator member and said fourth actuator member further comprises generating a third wave length of said second standing pressure wave in said medium adjacent to said third surface, said third wave length being shorter than a third distance measurable across said third surface;
and wherein said step of establishing a second standing pressure wave within said medium between said third actuator member and said fourth actuator member further comprises generating a fourth wave length of said second standing pressure wave in said medium adjacent to said fourth surface, said fourth wave length being shorter than a fourth distance measurable across said fourth surface.

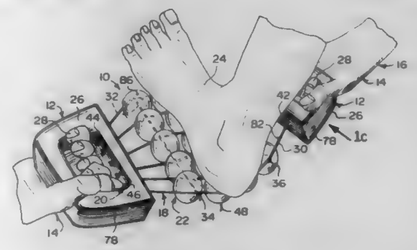
5,725,483
MASSAGING DEVICE
Grigory Podolsky, 33-34 77th. St. #5-H, Jackson Heights, N.Y. 11372
Filed Feb. 22, 1994, Ser. No. 199,669
Int. Cl.[6] A61H *1/00;15/02;* A46B *11/02*
U.S. Cl. 601—15 **12 Claims**

1. A massaging device, comprising:
a housing formed with a hollow interior;



means forming a reservoir of a flowable substance in said housing;
pump means in said housing for pumping the substance along a path thereof;
a universal head on said housing and having a center axis;
a plurality of massaging elements formed with respective axes of symmetry extending parallel to the center axis;
actuating means in said housing for actuating said massaging elements and including a plurality of driven shafts rotatable about respective rotation axes extending parallel to said central head axis, each of said massaging elements being mounted rotatably fixedly on a respective driven shaft and having the respective axis of symmetry offset from a respective one of said axes of rotation, said massaging elements being displaceable along respective paths toward and away from said central axis between inner and outer positions and being adjacent one another in said inner position, and
magnetic means for generating magnetic vortexes upon displacement of said massaging members between said inner and outer positions.

5,725,484
MANUAL PERSONAL MASSAGER
Bruce Stanwood Burnham, 600 Merrimon Ave., apt. 6-H, Asheville, N.C. 28804
Filed Feb. 5, 1996, Ser. No. 596,606
Int. Cl.[6] A61H *15/00*
U.S. Cl. 601—128 **18 Claims**



1. A manual personal massager comprising:
a) a pair of handles to be gripped by the hands of a person;
b) a web network grid including:
i) a plurality of longitudinal filaments;
ii) a plurality of transverse filaments; and
iii) means for connecting said transverse filaments to said longitudinal filaments in extending spaced apart parallel relationships thereacross;
c) means for attaching opposite ends of said web network grid to said pair of handles;

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d) a plurality of massaging members carried in said web network grid and moved back and forth by the movement of said pair of handles; and

e) a plurality of sheaths placed upon said longitudinal filaments between said connecting means, so as to stabilize said massaging members in said web network grid.

5,725,485

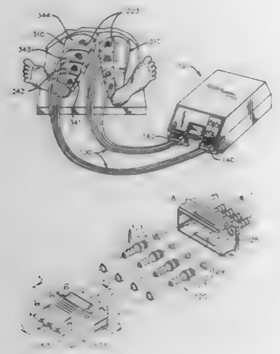
CONNECTOR FOR A GRADIENT SEQUENTIAL COMPRESSION SYSTEM

Philip P. Ribando; Kenneth M. Bolam; Donald H. Peeler, all of Charlotte, N.C., and Terry L. Sandman, Toledo, Ohio, assignors to Beiersdorff Jobst, Inc., Charlotte, N.C.

Continuation of Ser. No. 222,829, Apr. 5, 1994, Pat. No. 5,588,954. This application Jun. 26, 1996, Ser. No. 673,622

Int. Cl.[6] A61H *7/00*

U.S. Cl. 601—152 **22 Claims**



1. A compression system for applying gradient sequential compression to a limb of a patient and accelerating deep venous blood flow in the limb from a source of pressurized fluid, comprising:

an elongated pressure sleeve surrounding at least a portion of the limb, the sleeve defining a plurality of inflatable chambers each having a means for attachment to the source of pressurized fluid;

an inflating means for inflating said chambers, said inflating means having a connector interface comprising at least one outlet port;

a connector for providing a continuous fluid passageway between the source of pressurized fluid and said chambers, said connector comprising:

a flexible plastic conduit having a first end and a second end, wherein said conduit comprises a plurality of elongate tubes integrally formed in spaced relation, each of said tubes having an exterior surface and an interior surface;

at least one fitting attached to said first end of said conduit and forming a fluid-tight seal therewith, said fitting having means for forming a fluid-tight seal with said outlet port to communicate the pressurized fluid;

a grip portion attached to said first end of said conduit and gripping said conduit to guide said fitting while permitting independent movement of said fitting, said grip portion releasably retaining said fitting in fluid-tight relationship with said outlet port; and

at least one coupler attached to said second end of said conduit, wherein the number of said fittings and the number of said couplers is the same as the number of said tubes, and wherein each of said fittings is attached to one of said tubes at said first end and each of said couplers is attached to one of said tubes at said second end.

5,725,486

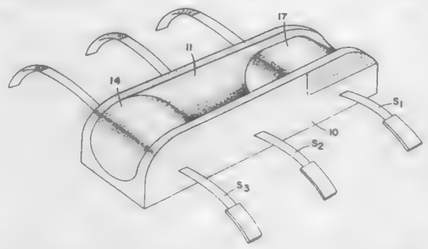
ORTHOTIC LEG ELEVATOR

Ian Engelman, 27 Valley View Rd., Newtown, Conn. 06470

Filed Mar. 4, 1996, Ser. No. 610,494

Int. Cl.[6] A61F *5/00*

U.S. Cl. 602—5 **9 Claims**



1. An orthotic leg elevator for keeping a leg of a human subject out of contact with a bed or other surface, said elevator comprising:

A. a rectangular block of predetermined length having a top side and a bottom side, said top side having a concave trough that extends the length of the block in parallel to the bottom side to cradle the leg of the subject received therein so that the foot is then adjacent a front end of the block and projects thereabove, and his knee is then adjacent a rear end of the block;

B. a removable Achilles tendon supporting arched piece nested adjacent the front end of the trough and underlying the Achilles tendon of the leg cradled in the trough whereby a front portion of the leg extends above the top side of the block;

C. a removable knee-supporting arched piece nested adjacent the rear end of the trough and underlying the joint of the knee whereby a rear portion of the leg extends above the top side of the block and the knee cap projects above the block; and

D. detachable straps to secure the leg to the block at spaced apart positions; one of said straps being adapted to engage the leg just above the ankle, a second of said straps being adapted to engage the leg at a position intermediate the ankle and the knee and a third of said straps being adapted to engage the leg above the knee to firmly secure the leg to the leg elevator regardless of the activity of the subject.

5,725,487

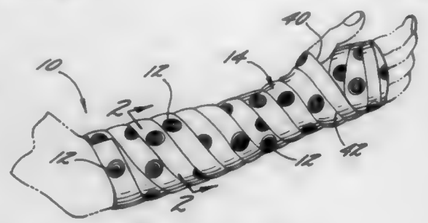
ORTHOPEDIC CASTING TAPE

Horace L. Freeman, Burlington, N.C.; Richard Green, Livingston, N.J., and James V. Snipes, Clemmons, N.C., assignors to Johnson & Johnson Professional, Inc., New Brunswick, N.J.

Filed Jun. 7, 1995, Ser. No. 481,912

Int. Cl.[6] A61F *13/00;15/00;* **A61L** *15/00*

U.S. Cl. 602—8 **33 Claims**



1. An orthopedic casting tape comprising:

an open mesh fibrous tape and a hardenable liquid resin coated onto said fibrous tape, said fibrous tape being a fibrous knit tape comprising primarily unbulked continuous polymeric filaments and being defined by a plurality of wales extending substantially longitudinally along the fibrous tape, at least a portion of the wales comprising an elastic filamentary material in an amount sufficient that said fibrous tape has a longitudinal extensibility of greater than about 5 percent before coating with said resin, said fibrous tape further comprising a plurality of courses extending generally transverse to said plurality of wales, said courses being present in said fibrous tape in an amount of at least 15 courses per inch in a relaxed state, and said wales being present in an amount sufficient such that said casting tapes has at least about 325 openings per square inch in a relaxed state.

5,725,488

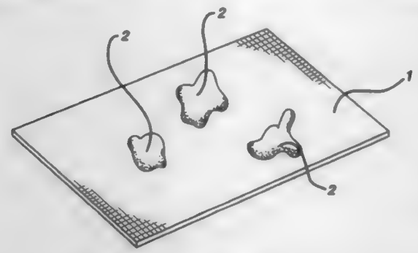
PRINTED FIBERGLASS BANDAGES AS ORTHOPAEDIC CASTING TAPES

Hee Kyung Yoon, Easton, and Edward L. Cho, Taunton, both of Mass., assignors to Johnson & Johnson Professional, Inc., Raynham, Mass.

Filed Feb. 14, 1992, Ser. No. 836,032

Int. Cl.[6] A61L *15/00*

U.S. Cl. 602—8 **8 Claims**



1. An orthopaedic bandage comprising:

a. a fibrous substrate having a surface at least 50% of the fibers on said surface having a Young's Modulus greater than 8×10^6 pounds per square inch;

b. printing material on said surface comprised of a plastisol and pigment; and

c. a curable resin coating on said substrate and said printing material.

5,725,489

SPLINT STRUCTURE

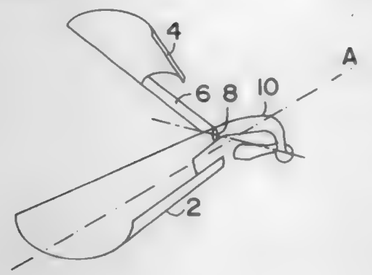
Jonathan Bar-Or, Mobile Post Menashe; Roger H. Nathan, Herzlia, and Harold Weingarden, Raanana, all of Israel, assignors to N.E.S.S. Neuromuscular Electrical Stimulation Systems Ltd., Raanana, Israel

Filed Oct. 11, 1995, Ser. No. 540,819

Claims priority, application Israel, Oct. 12, 1994, 111264

Int. Cl.[6] A61F *5/00;5/01*

U.S. Cl. 602—21 **6 Claims**



1. A forearm-hand splint for use by a handicapped person, comprising:

a first elongate jaw having a wrist end and a substantially straight and continuous, concave structure at least approximately conforming to sections of the palmar side of a limb;

a second elongate jaw having a wrist end and a substantially straight and continuous, concave structure at least approximately conforming to sections of the dorsal side of said limb;

the first jaw and the second jaw defining an opening at the wrist end of each of the jaws for passage therethrough of the limb of a person,

a first joint between the jaws, located adjacent to the wrist end of the first jaw and the second jaw, including pivot means having an axis which extends in a direction perpendicular to the longitudinal extent of said jaws so that said jaws are articulated to one another to the effect of permitting said jaws to include with one another a range of different angles, from an angle small enough for said jaws to clampingly surround said limb, to an angle large enough to at least permit said limb to be freely introduced between said two jaws to be easily donned and doffed by a person with a minimum of residual hand function in the limb to which the splint is to be applied.

5,725,490

ELASTIC WRIST BRACE WITH SUPPORT AND LONGITUDINALLY EXTENDING FASTENER

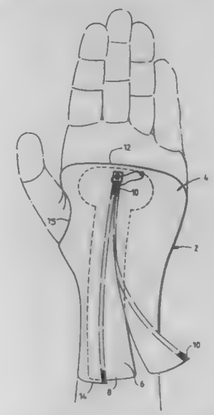
Sebastian Conran, London, England, assignor to Patricia Wyndham, Petersfield, England

Continuation of Ser. No. 362,460, May 4, 1995, abandoned. This application Feb. 27, 1997, Ser. No. 807,312

Claims priority, application United Kingdom, Jul. 3, 1992, 9214224

Int. Cl.[6] A61F *5/01;13/00*

U.S. Cl. 602—21 **19 Claims**



1. A wrist brace comprising a sleeve adapted to extend in a longitudinal direction from a hand region of a wearer to a forearm region, the sleeve being made from a material which is elastic in the circumferential and longitudinal directions, and a preformed support removably positioned in the sleeve, the support extending longitudinally of the sleeve for supporting the wrist of a wearer, wherein the sleeve is provided with a longitudinally extending zip fastening means permitting the brace to be fastened about the wrist of a wearer by pulling together portions of the sleeve material against its circumferential elasticity, or permitting the brace to be removed, the zip fastening means having a fastening member and being operated by movement of the fastening member in said longitudinal direction.

18. A wrist brace for preventing excessive motion of a wearer's wrist while allowing motion of the fingers and thumb, comprising

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a sleeve of material extending in a longitudinal direction from a first opening at one end of the sleeve to a second opening at the other end of the sleeve, the sleeve being adapted to encircle the wrist and hand of the wearer in a circumferential direction, said material being elastic in both the longitudinal and circumferential directions, and a support being positioned in the sleeve, the first opening being for the wearer's fingers and part of the palm of the wearer's hand, the second opening being for the wearer's forearm and there being a third opening for the wearer's thumb, the brace also comprising longitudinally extending zip fastening means extending from the second opening to adjacent the first opening, along a region of the sleeve which, in use, overlies the palm of the wearer, the longitudinally extending zip fastening means having a fastening member and being operated by longitudinal movement of the fastening member to tighten the sleeve around the wearer's wrist against the circumferential elasticity of the sleeve material.

5,725,491

METHOD OF FORMING A BIODEGRADABLE FILM DRESSING ON TISSUE

Arthur J. Tipton; Shawn M. Fujita, and Richard L. Dunn, all of Fort Collins, Colo., assignors to Atrix Laboratories, Inc., Fort Collins, Colo.

Continuation of Ser. No. 70,499, Jun. 2, 1993, abandoned, which is a continuation of Ser. No. 849,896, Mar. 12, 1992, abandoned, which is a continuation-in-part of Ser. No. 788,032, Dec. 23, 1991, Pat. No. 5,340,849, which is a division of Ser. No. 513,782, Apr. 24, 1990, Pat. No. 5,278,201, which is a division of Ser. No. 252,645, Oct. 3, 1988, Pat. No. 4,938,763. This application Nov. 8, 1994, Ser. No. 336,017

Int. Cl.[6] A61F *13/00;15/00;* **A61K** *31/74;* **A61M** *35/00*

U.S. Cl. 602—43 **2 Claims**

1. A method of forming an in situ microporous biodegradable film dressing on human or animal tissue, comprising:

(a) dispensing an effective amount of a liquid polymer composition on the tissue, the liquid polymer composition having a formulation of,

(i) a biodegradable or bioerodible thermoplastic polymer insoluble in an aqueous based fluid; and

(ii) an organic solvent miscible to dispersible in the aqueous based fluid; and

(b) contacting the liquid polymer composition with the aqueous based fluid that is applied to the tissue before dispensing step (a) and to the liquid polymer composition after dispensing step (a) to coagulate or solidify the composition to form the film dressing on the tissue.

5,725,492

EXTRACORPOREAL CIRCULATION APPARATUS AND METHOD

Stephen R. Igo, Clear Lake Shores, and James W. Meador, Houston, both of Tex., assignors to Cormedics Corp, Clear Lake Shores, Tex.

Filed Mar. 4, 1996, Ser. No. 610,622

Int. Cl.[6] A61M *37/00*

U.S. Cl. 604—4 **13 Claims**

1. An extracorporeal blood circulation apparatus comprising circuitry including:

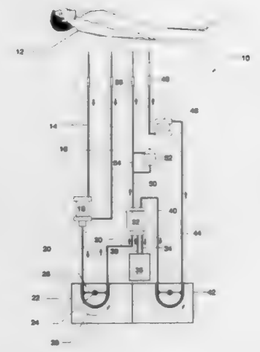
(a) an inlet line adapted to receive blood from a patient,

(b) an outlet line adapted to return blood to the patient,

(c) a fluid circuit for fluid communication between the inlet and the outlet line,

(d) at least one pump acting on the fluid circuit to circulate blood therethrough and out the outlet line, and

(e) one or more nitric oxide gas feeds to said fluid circuit, at least one being upstream of said pump,



(f) a container comprising a source of nitric oxide connected to one or more nitric oxide gas feeds.

5,725,493

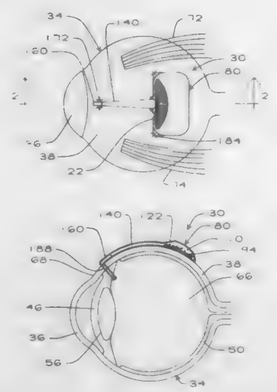
INTRAVITREAL MEDICINE DELIVERY

Robert Logan Avery, 659-C Del Parque Dr., Santa Barbara, Calif. 93103, and Jeffrey Kevin Luttrull, 3160 Telegraph Rd. Suite 230, Ventura, Calif. 93003

Filed Dec. 12, 1994, Ser. No. 353,804

Int. Cl.[6] A61M *5/00;35/00*

U.S. Cl. 604—9 **28 Claims**



8. A device for delivering medicine into the vitreous cavity of an eye including an eyelid and an eyeball, said eye also having conjunctiva and Tenon's capsule covering the eyeball, comprising a housing having a reservoir for holding a supply of medicine, a tube having one end connected to the housing in communication with the reservoir and an opposite end, and means for attaching the housing to an eyeball so that the housing and both ends of the tube are under the conjunctiva and Tenon's capsule whereby the housing and the tube are covered by the conjunctiva and Tenon's capsule, said opposite end of the tube being adapted to project through the eyeball into the vitreous cavity, the housing having wall portions surrounding the reservoir, one of said wall portions including a reservoir refilling means which faces anteriorly of the eye when the housing is attached to the eyeball and which is then accessible to a refilling instrument, said refilling means allowing a refilling instrument to introduce medicine through the conjunctiva and Tenon's capsule into the reservoir but preventing medicine from escaping from the reservoir.

5,725,494

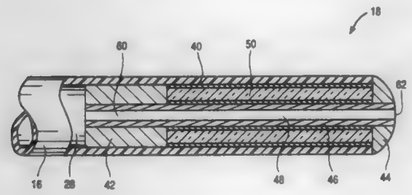
APPARATUS AND METHODS FOR ULTRASONICALLY ENHANCED INTRALUMINAL THERAPY

Axel F. Brisken, Fremont, Calif., assignor to Pharmasonics, Inc., Mountain View, Calif.

Filed Nov. 30, 1995, Ser. No. 565,575

Int. Cl.[6] A61B *17/20*

U.S. Cl. 604—22 **37 Claims**



1. A catheter comprising:

a catheter body having a proximal end and a distal end;

a tail mass attached to the catheter body;

a longitudinally oscillating driver engaging and extending distally from the tail mass;

an interface member engaging a distally forward surface of the oscillating driver, wherein the mass of the interface member is much less than that of the tail mass; and

a spring element connecting the tail mass to the interface member, wherein the spring element has a spring force which is selected to permit resonant driving by the longitudinally oscillating driver.

5,725,495

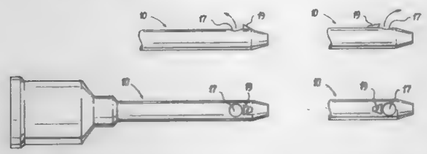
PHACOEMULSIFICATION HANDPIECE, SLEEVE, AND TIP

Igor Strukel, and William Banko, both of New York, N.Y., assignors to Surgical Design Corporation, Long Island City, N.Y.

Division of Ser. No. 458,409, Jun. 2, 1995. This application Jun. 7, 1996, Ser. No. 660,287

Int. Cl.[6] A61M *3/00*

U.S. Cl. 604—44 **12 Claims**



1. A surgical instrument for removing a cataract through an incision in an eye, comprising:

irrigation means for providing a liquid;

aspiration means for aspirating the liquid;

a handpiece;

an infusion sleeve connected to said handpiece, said sleeve having a distal end and a proximal end, said sleeve including at least one infusion port for infusing a liquid from said irrigation means, said sleeve having means for directing the infused liquid through the at least one infusion port, wherein said directing means includes at least one projection disposed on at least one of an internal and external surface of said sleeve adjacent to said at least one infusion port, said at least one projection extends beyond the remaining surface surrounding said at least one infusion port on said at least one of said internal and external surfaces; and

a needle disposed within said sleeve and connected to said aspiration means, said needle having a distal end comprising a tip.

5,725,496

METHOD FOR INTRALUMINALLY INDUCING CARDIOPLEGIC ARREST AND CATHETER FOR USE THEREIN

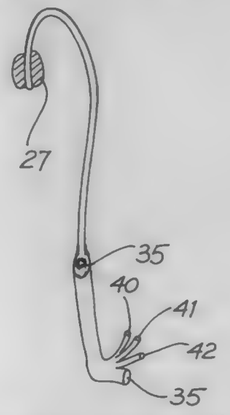
William S. Peters, Tamarama, Australia, assignor to Heartport, Inc., Redwood City, Calif.

Division of Ser. No. 159,815, Nov. 30, 1993, Pat. No. 5,433,700. This application Apr. 24, 1995, Ser. No. 427,384

Claims priority, application Australia, Dec. 3, 1992, PL6170

Int. Cl.[6] A61M *31/00*

U.S. Cl. 604—49 **1 Claim**



1. A method of occluding a patient's ascending aorta and supplying oxygenated blood from a cardiopulmonary bypass system, comprising the steps of:

providing a catheter having a proximal portion, a distal portion, an occluding member, a lumen, a blood flow path, an outlet, and an opening, the distal portion extending from the proximal portion and having a smaller cross-sectional size than the proximal portion, the occluding member being mounted to the distal portion and having a collapsed shape and an expanded shape, the expanded shape being configured to occlude a patient's ascending aorta, the lumen extending through the proximal portion and being fluidly coupled to the outlet which is positioned distal to the occluding member, the blood flow path extending through the proximal portion, the opening being in fluid communication with the blood flow path;

coupling the blood flow path to a cardiopulmonary bypass system, the cardiopulmonary bypass system supplying oxygenated blood;

delivering the oxygenated blood to a patient through the blood flow path;

positioning the occluding member in the patient's ascending aorta;

expanding the occluding member after the positioning step so that the occluding member occludes the patient's ascending aorta; and

introducing cardioplegic fluid through the lumen to arrest the patient's heart.

5,725,497

INJECTION DART SYSTEM

Keith F. Woodruff, Mountainside, N.J.; David Alan Peterson, Pipersville, Pa., and Kendra Beth Eager, Newtown, Pa., assignors to American Cyanamid Company, Madison, N.J.

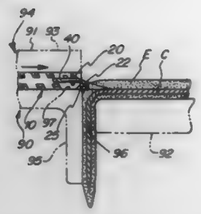
Filed Jun. 7, 1995, Ser. No. 473,347

Int. Cl.[6] A61M *31/00*

U.S. Cl. 604—49 **12 Claims**

1. A method for implanting a drug into an animal body, said method being performed with a system for injecting an implant

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dart into an animal body part composed of a layer of soft tissue over bone or cartilage, said system including a housing having an elongated bore dimensioned to receive the dart and terminating in a forward opening in said housing, engagement means for receiving and retaining the body part, means for positioning said engagement means relative to said housing, and means in communication with said bore near the rear of said housing for imparting a forwardly directed accelerating force to a dart which has been received in said bore, said forward opening being defined by a perimeter of said bore, said method comprising the steps of:

positioning said engagement means relative to said housing so that the body part is retained on said engagement means and disposed in front of said opening with the cartilage or bone thereof outside the perimeter of the bore;

pivoting said engagement means relative to said housing to vary a space defined between a first engagement surface on said housing and a second engagement surface on said engagement means for retaining the body part in said space;

placing in said bore an implant dart containing said drug; and

using said means in communication with said bore for accelerating said dart towards and out of said forward opening.

5,725,498

DEVICE AND METHOD FOR SEALING PUNCTURE WOUNDS

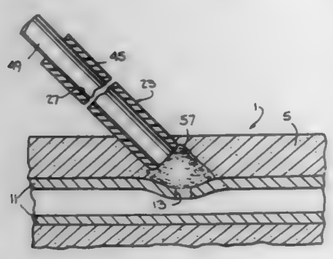
Ernst Janzen, Laren, Netherlands; Gunter Ruttgers, Stolberg, Germany; Lawrence Saper, New York, and Sid Wolvek, Brooklyn, both of N.Y., assignors to Datascope Investment Corp., Montvale, N.J.

Continuation of Ser. No. 318,380, Oct. 5, 1994, which is a division of Ser. No. 746,339, Aug. 16, 1991, Pat. No. 5,391,183, which is a continuation-in-part of Ser. No. 634,478, Dec. 27, 1990, abandoned. This application Sep. 12, 1996, Ser. No. 712,772

Claims priority, application European Pat. Off., Sep. 21, 1990, 90 118 186

Int. Cl.[6] A61M *31/00*

U.S. Cl. 604—51 **8 Claims**



1. A method for sealing a puncture in a blood vessel separated from the skin of a patient by a layer of tissue, said layer of tissue including a tissue channel communicating between said puncture and the patient's skin, said method comprising the steps of:

inserting a hemostatic material into said tissue channel, and advancing said hemostatic material through said tissue channel to a position adjacent the outside wall of said blood vessel in a manner such that said hemostatic material is never freely exposed within the lumen of the blood vessel during said advancement.

5,725,499

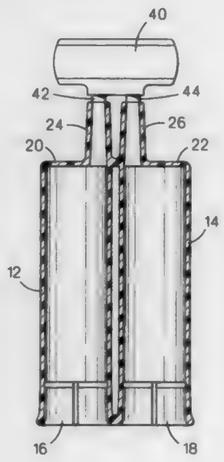
DUAL BARRELED SYRINGE AND METHODS OF ASSEMBLY AND USE

Jerome Silverstein, North Franklin, Conn., and Charles Frey, Bozrah, Conn., assignors to Plas-Pak Industries, Inc., Norwich, Conn.

Filed May 11, 1994, Ser. No. 241,294

Int. Cl.[6] A61M *37/00*

U.S. Cl. 604—82 **5 Claims**



1. A plunger assembly for a dual barreled syringe, said plunger assembly comprising:

(a) two parallel plungers cojoined by a flange at first ends thereof against which manual pressure may be applied to force sealing members disposed at a second end thereof through barrels of a body of said dual barreled syringe to discharge materials from said barrels; and

(b) joining means, spaced from said flange, attached to, extending between, and joining said plungers to maintain said plungers in relatively rigid, parallel alignment.

5,725,500

CONTAINERS FOR LIQUID MEDICAMENTS

Clemens Micheler, Planegg, Germany, assignor to Eli Lilly and Company, Indianapolis, Ind.

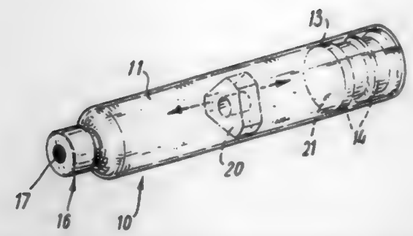
Filed May 23, 1996, Ser. No. 652,078

Claims priority, application United Kingdom, Jun. 2, 1995, 9511169

Int. Cl.[6] A61M *37/00*

U.S. Cl. 604—82 **12 Claims**

1. A container for a liquid medicament suspension having a piston operable therein and an outlet therefrom, and containing a solid mixing element, wherein the mixing element and the inner surface of the container are shaped to co-operate and constrain the mixing element against significant lateral movement but permit axial movement, the mixing element being shaped to permit flow of suspension from either side of the element to the other as the element moves axially.



5,725,501

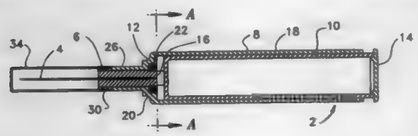
SAFETY SYRINGE SYSTEM

Edward Lichtenberg, 2401 Pennsylvania Ave., Apt. 18 B27, Philadelphia, Pa. 19130

Filed Jan. 3, 1997, Ser. No. 775,971

Int. Cl.[6] A61M *5/00*

U.S. Cl. 604—110 **16 Claims**



1. A syringe system for injecting a fluid into the body comprising:

(a) A tube having a body section and a second section with a seat at said second section;

(b) A plunger slidingly positioned in said tube with a distal end and a proximal end and a cap fastened to said proximal end;

(c) A needle holder slidingly located within said tube at said second section and holding a needle;

(d) An elastomeric O-ring located in said seat and in contact with said needle holder to frictionally hold said needle holder with said needle within said tube at said second section during injection of said fluid;

(e) Means for forcibly ejecting said needle holder from the frictional hold of said O-ring and separating said needle holder from said tube,using one hand and;

(f) A discard container for storage and disposal of said needle holder and needle after use.

5,725,502

Patent Not Issued For This Number

5,725,503

RATCHETING NEEDLE PROTECTOR ASSEMBLY

Jeffery D. Arnett, Ypsilanti, Mich., assignor to Aeroquip Corporation, Maumee, Ohio

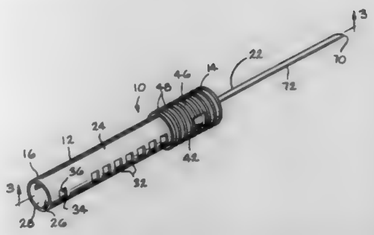
Filed Aug. 7, 1996, Ser. No. 694,508

Int. Cl.[6] A61M *5/00*

U.S. Cl. 604—162 **11 Claims**

1. A ratcheting needle protector assembly, comprising:

a body having a first end and a second end, said body defining a channel extending longitudinally between said first and second ends, said body defining receiving means for receiving a pawl of a ratchet arm between said first and second ends;



a needle hub having an external portion, an internal portion and a tracking member movably mounted on said body, said tracking member positioned in said channel, said needle hub including a ratchet arm having a pawl adapted to be received by said receiving means; and

a needle mounted on said internal portion of said needle hub, whereby movement of said needle hub from said first end to said second end of said body causes movement of said needle from outside said body to inside said body, said pawl being received by said receiving means to prevent movement of said needle hub and said needle from said second end to said first end.

5,725,504

SPINAL EPIDURAL NEEDLE ASSEMBLIES

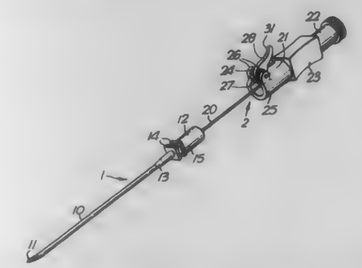
Michael Norman Collins, Folkestone, England, assignor to Smiths Industries Public Limited Company, London, England

Filed Jan. 9, 1997, Ser. No. 780,778

Claims priority, application United Kingdom, Jan. 19, 1996, 9601147

Int. Cl.[6] A61M *5/178*

U.S. Cl. 604—165 **6 Claims**



1. A spinal epidural needle assembly comprising: an epidural needle assembly having an epidural needle and a hub at a machine end of said epidural needle; and a spinal needle assembly having a spinal needle and a hub at a machine end of said spinal needle, said spinal needle being insertable within said epidural needle to a position in which a patient end of said spinal needle projects beyond a patient end of said epidural needle, wherein one of said hubs has a cam member, said cam member being movable between a first rest position where said spinal needle assembly is freely movable relative to said epidural needle and a second rest position where said two hubs are clamped together so as to prevent longitudinal displacement of said spinal assembly relative to said epidural assembly.

5,725,505

Patent Not Issued For This Number

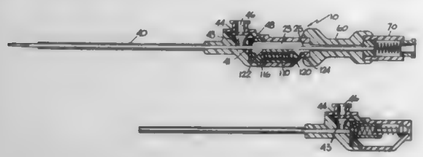
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5,725,506

DEVICE FOR PARACENTESIS AND THORACENTESIS

Shirley K. Freeman, Pine, Colo.; David Skinkle, Evergreen, Colo., and Bonnie B. Vivian, Evergreen, Colo., assignors to Denver Biomaterials, Inc., Evergreen, Colo.

Filed Jan. 5, 1996, Ser. No. 583,813
Int. Cl.[6] A61M *5/178*
U.S. Cl. 604—169 **19 Claims**



1. An apparatus useful for fluid withdrawal,
- a housing, the housing having a distal end and a proximal end and a chamber extending through the housing from the distal end to the proximal end;
- a catheter extending from the distal end of the housing;
- a needle assembly including at least one needle, the needle assembly removably extending through the housing chamber and the catheter;
- a chamber valve that may be opened or closed, the valve being disposed between the needle assembly and the chamber, and the valve having at least two sealing points, so that the valve is open when the needle assembly extends through the chamber and the valve is closed when the needle assembly is withdrawn from the housing, the valve preventing fluid and gaseous communication through the chamber when it is closed;
- a handle removably attached to the housing, the handle being connected to the needle assembly so that the needle assembly may be removed from the housing chamber by removing the handle form the housing; wherein the needle assembly comprises;
- an outer needle having a proximal end and a sharp distal end;
- an inner needle having a proximal end and a blunt distal end, the inner needle being slidably contained within the outer needle; and
- a biasing element engaged with the inner needle and the outer needle so that the distal end of the inner needle projects distal to the distal end of the outer needle when no force is applied to the distal end of the inner needle.

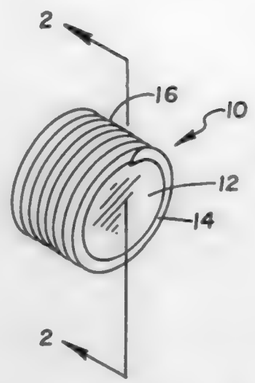
5,725,507

SELF-SEALING INJECTION SITES AND PLUGS

Timothy B. Petrick, Brooklyn Park, Minn., assignor to Mentor Corporation, Santa Barbara, Calif.

Continuation of Ser. No. 205,995, Mar. 4, 1994, abandoned. This application Oct. 30, 1996, Ser. No. 739,617
Int. Cl.[6] A61M *5/24*
U.S. Cl. 604—201 **32 Claims**

1. A self-sealing body for use as an injection site with a syringe needle, said self-sealing body comprising:
- an elastomeric core member defining a circumferential outer surface and a longitudinal axis, a first side, and a second side, said elastomeric core member being initially tensioned along said longitudinal axis so as to deform said elastomeric core member radially inwardly; and
- a filament wrapping member wound spirally so as to circumferentially surround at least a portion of said circumferential outer surface of said elastomeric core member and generally uniformly compress said elastomeric core member inwardly in said radial direction such that the syringe needle may be inserted entirely through said elastomeric core member to create an insertion passage from said first side to said second side without piercing said filament wrapping member, and further such that the syringe needle may be completely withdrawn from said elastomertic core member with the radial compression of said filament wrapping member on said elastomeric core member sealing the insertion passage created by the syringe needle, said elastometric core member initially being generally deformed from an undeformed configuration prior to said filament wrapping member being wrapped spirally thereabout, said filament wrapping member preventing said elastomeric core member from returning to said undeformed configuration and thereby generally uniformly compressing said elastomeric core member.

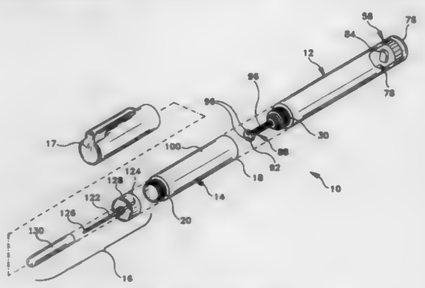


5,725,508

QUICK CONNECT MEDICATION DELIVERY PEN

Lawrence H. Chanoch, Mahwah, and John B. Wilson, Wanaque, both of N.J., assignors to Becton Dickinson and Company, Franklin Lakes, N.J.

Continuation-in-part of Ser. No. 263,591, Jun. 22, 1994. This application Sep. 28, 1994, Ser. No. 314,179
Int. Cl.[6] A61M *5/00*
U.S. Cl. 604—207 **6 Claims**



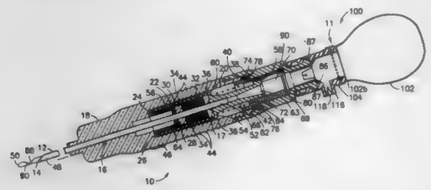
1. A medication delivery pen comprising:
- a disposable medication-containing cartridge having a plunger in sliding fluid tight engagement within said cartridge;
- a cartridge assembly for holding said cartridge and having opposed proximal and distal ends with said proximal end having an array of threads;
- a reusable pen body assembly for mounting on said cartridge assembly and including a housing with opposed proximal and distal ends, said distal end having an array of threads dimensioned and having a pitch for threaded engagement with said array of threads at said proximal end of said cartridge assembly;
- a lead screw having a proximal end disposed in said housing and a distal end projecting beyond said distal end of said housing for selective engagement with said plunger to push said plunger in said distal direction, said lead screw having a plurality of threads extending between said proximal end and said distal end of said lead screw and having a pitch substantially equal to said pitch of said array of threads at said distal end of said housing; and
- anti-rotation means for preventing relative rotation between said lead screw and said housing when said housing is being threaded to said cartridge assembly, whereby said lead screw moves in a distal direction in said cartridge assembly as said housing is threadedly moved in a distal direction into said cartridge assembly, said anti-rotation means comprising:
  - a rotatable disk having a textured circumference that is mounted at said distal end of said housing to rotate with said lead screw; and
  - a plurality of ribs in said cartridge assembly for mating with said textured circumference of said disk to prevent rotation of said lead screw when said housing is threaded to said cartridge assembly.

5,725,509

AIR INTRODUCTION SYSTEM FOR MEDICAL NEEDLES

Frank A. Scarfone, Boca Raton; David Turkel, Miami, both of Fla., and David P. Gordon, Stamford, Conn., assignors to Symbiosis Corporation, Miami, Fla.

Continuation-in-part of Ser. No. 223,454, Apr. 5, 1994. This application Nov. 17, 1994, Ser. No. 341,528
Int. Cl.[6] A61M *5/00*
U.S. Cl. 604—217 **21 Claims**



1. An air introduction system for use with a medical needle assembly having an open proximal end, a sharp distal end for piercing the epidermis of a patient, and a proximal female luer means, said system comprising:
- a) a flexible air bladder means for introducing air into the open proximal end of the needle assemble, said bladder means having an open distal end attachable to the open proximal end of the needle assemble to provide fluid communication with the open proximal end of the needle assembly; and
- b) a hollow male luer adapter having an open proximal end, a male luer means at its distal end for coupling to the proximal female luer means, and an air valve means coupled to said flexible air bladder means, and an air valve means for permitting air to enter said bladder means through said air valve means but not to exit through said air valve means, wherein

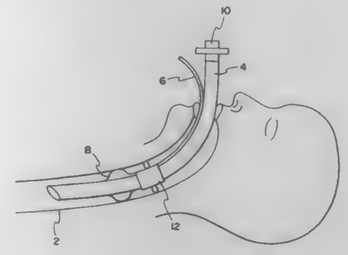
said distal end of said flexible air bladder means is coupled to and in fluid communication with said proximal end of said hollow male luer adapter.

5,725,510

ENDOTRACHEAL TUBE

Michael Hartmann, Möslestrasse 12, D-79232 March, Breisgau, Germany, and Bert Müller, Rue des Alpes 6 A, CH-1020 Renens, Switzerland

PCT No. PCT/EP94/01621, § 371 Date Feb. 21, 1996, § 102(e) Date Feb. 21, 1996, PCT Pub. No. WO94/27652, PCT Pub. Date Dec. 8, 1994
PCT Filed May 19, 1994, Ser. No. 545,570
Claims priority, application Germany, May 20, 1993, 43 16 920.1
Int. Cl.[6] A61M *5/00*
U.S. Cl. 604—265 **5 Claims**



1. An endotracheal tube comprising:
- a) an elongated tubular member having a first end and a second end;
- b) at least one blocking cuff positioned along the outer surface of said tubular member for forming a seal against the trachea of a patient and between said first and second ends; and
- c) said outer surface of said tubular member provided with an antimicrobial agent disposed adjacent said at least one blocking cuff, said antimicrobial agent is selected from the group consisting of silver evaporation deposit, silver salt coating and metal foil, said foil further comprising at least one of silver, a silver evaporate coating and a silver salt coating whereby during use said antimicrobial agent is caused to release metal ions into the fluid medium collecting about said at least one cuff to provide an antimicrobial barrier around said tube for preventing the passage of germs therearound.

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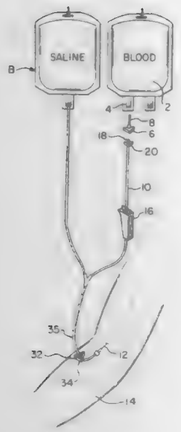
METHOD AND APPARATUS FOR PREVENTION OF BLOOD-TYPE MISMATCHES

Sharon A. Urrutia, 105 Vista La., Louisville, Colo. 80027

Filed Sep. 7, 1995, Ser. No. 524,753
Int. Cl.[6] A61M *25/00*
U.S. Cl. 604—280 **3 Claims**

1. An apparatus for preventing mismatching of blood types between a blood bag and a patient comprising:
- a first connector for sealably connecting with an outlet of the blood bag, said connector having means for piercing the bag and allowing access thereto when inserted into the outlet, said connector further having a configuration-coding corresponding to the blood-type of the blood in the bag; and
- blood tubing for fluidly connecting with the bag through said first connector at a first end and with the patient at a second end, said tubing having a second connector at said first end, said second connector having a configuration-coding corresponding to the blood-type of the patient, said codings of said

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first and second connectors being necessarily matching in order to allow said connectors to sealably connect.

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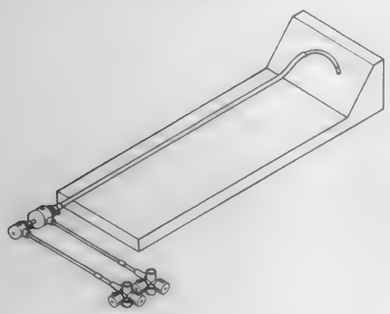
GUILDING INTRODUCER SYSTEM FOR USE IN THE LEFT ATRIUM

John F. Swartz, Tulsa, Okla.; John D. Ockuly, Minnetonka, Minn.; John J. Fleischhacker, Minnetonka, Minn., and James A. Hassett, Bloomington, Minn., assignors to Daig Corporation, Minnetonka, Minn.

Division of Ser. No. 333,791, Nov. 3, 1994, Pat. No. 5,564,440, which is a continuation-in-part of Ser. No. 147,168, Nov. 3, 1993, Pat. No. 5,497,774. This application Feb. 8, 1996, Ser. No. 597,392

Int. Cl.[6] A61M *25/00*

U.S. Cl. 604—280 **7 Claims**



1. A guiding introducer system comprised of an inner guiding introducer containing a lumen therethrough and an outer guiding introducer containing a lumen therethrough, wherein the inner guiding introducer is advanced into the lumen of the outer guiding introducer and wherein said guiding introducers are used in combination, and a dilator containing distal and proximal ends, wherein said dilator curves at its distal end in a simple curve with a radius of about 3.0 to about 4.0 in. with an arc of about 20 to about 40 degrees.

5,725,513

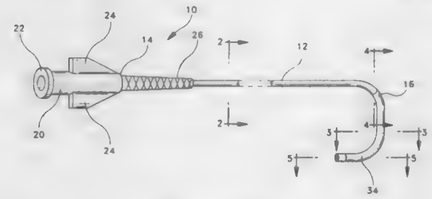
THIN WALL CATHETER WITH REINFORCING SLEEVE

Byung H. Ju, Golden Valley; Michael G. O'Connor, Blaine, and Eric M. Lovgren, Buffalo, all of Minn., assignors to Schneider (USA) Inc, Plymouth, Minn.

Division of Ser. No. 350,779, Dec. 7, 1994, Pat. No. 5,599,325, which is a continuation-in-part of Ser. No. 245,428, May 18, 1994, Pat. No. 5,403,292. This application Feb. 3, 1997, Ser. No. 794,607

Int. Cl.[6] A61M *25/00*

U.S. Cl. 604—280 **16 Claims**



1. An intravascular catheter comprising:

an elongated tubular body having a proximal end, a distal end and a lumen extending therebetween, the tubular body comprising:

(a) an inner layer consisting essentially of an unmodified polyamide polymer;

(b) a reinforcing means at least partially surrounding the inner layer; and

(c) an outer polymeric layer having a predetermined durometer hardness in the range of from about 50 Shore D to about 75 Shore D, the outer layer at least partially covering said reinforcing means.

5,725,514

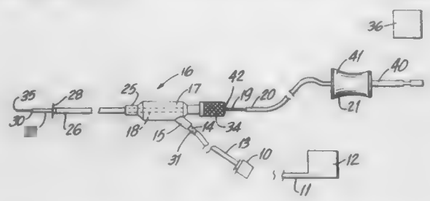
ADJUSTABLE MINIATURE PANORAMIC ILLUMINATION AND INFUSION SYSTEM FOR RETINAL SURGERY

Avi Grinblat, New York, N.Y., and Stanley Chang, Scarsdale, N.Y., assignors to A.V.I. - Advanced Visual Instruments, Inc., New York, N.Y.

Continuation-in-part of Ser. No. 290,554, Aug. 15, 1994, Pat. No. 5,545,153. This application Aug. 8, 1996, Ser. No. 700,560

Int. Cl.[6] A61N *01/30;* **A61M** *35/00*

U.S. Cl. 604—294 **5 Claims**



1. An illuminating and infusion system used in connection with eyeball surgery, comprising:

(a) a fluid conduction tube to be connected to a source of infusion fluid;

(b) a single optical fiber having an outer diameter and a proximal end adapted to be connected to a source of light at the proximal end and having a free opposite distal end, said distal end adapted to provide illumination within an eyeball during the eye surgery;

(c) a juncture device having a bore therethrough with an inner diameter, the fluid conduction tube being connected to the juncture device to conduct the infusion fluid to the juncture device bore;

(d) a plate adapted to be removably attached to the eyeball during surgery and a needle cannula fixed to the plate, the needle cannula having a bore with an inner diameter and having a free distal end;

(e) a connecting tube having a bore and connected between the needle cannula and the juncture device; the connecting tube being an elongated and flexible tube;

(f) the optical fiber being within the bores of the juncture device, the connecting tube and the needle cannula and the distal end of the optical fiber adapted to illuminate beyond the free distal end of the needle cannula, the outer diameter of the optical fiber being smaller than the inner diameter of the juncture bore, and needle cannula bore thereby permitting infusing fluid to flow around the optical fiber within the bores; and

(g) finger-operable optical fiber securing means on the juncture device to secure the optical fiber and to permit changing the position of the optical fiber within the juncture device by finger non-tool operation by the user during the surgery while the plate remains attached to the eyeball and thereby permitting adjustment of the position of the distal end of the optical fiber relative to the distal end of the needle cannula.

5,725,515

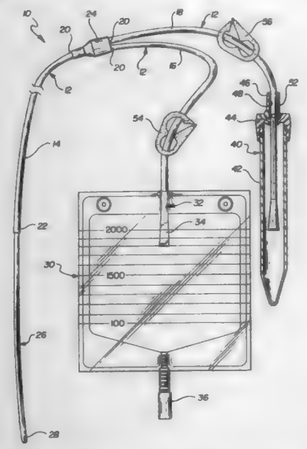
URINE SAMPLING AND BLADDER DRAINAGE SYSTEM

Donald J. Propp, Dewitt, Mich., assignor to Tri-State Hospital Supply Corporation, Howell, Mich.

Continuation of Ser. No. 332,882, Nov. 1, 1994, abandoned. This application Feb. 21, 1996, Ser. No. 604,262

Int. Cl.[6] A61M *1/00;* **A61F** *5/44;* **A61B** *5/00*

U.S. Cl. 604—317 **7 Claims**



1. A urine sampling and bladder drainage system comprising:

a tubing set having first, second, and third tube portions, each tube portion having a first and second end, the first end of each tube portion being connected in bifurcated fashion to and in communication with the first ends of the other two tube portions;

a urinary catheter connected to the second end of the first tube portion permitting inflow of urine into said tubing set during catheterization;

a drainage device connected to the second end of the second tube portion permitting collection of urine from said tubing set during draining;

a removable sampling device vented to permit gravity flow connectable to the second end of the third tube portion permitting collection of urine from said catheter during sampling independent of flow communication with said drainage device;

a first clamping means at an intermediate location of said second tube portion to control urine flow through said second tube portion; and

a second clamping means at an intermediate location of said third tube portion to control urine flow through said tube portion;

wherein urine is selectively communicable through said second and third tube portions for draining or sampling most recently produced urine during catheterization.

5,725,516

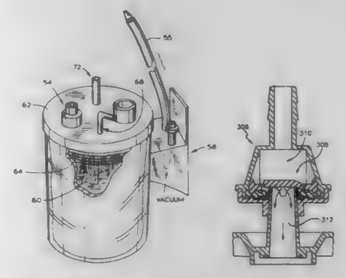
SUCTION CANISTER SYSTEM

Charles Cook, Whitehouse, Tex.; David G. Garber, Jacksonville, Tex.; Steven B. Sanford, Jacksonville, Tex., and Phillip M. Summers, Kenner, La., assignors to Allegiance Healthcare Corp.

Continuation-in-part of Ser. No. 86,782, Jul. 1, 1993, Pat. No. 5,470,324. This application Jun. 7, 1995, Ser. No. 486,021

Int. Cl.[6] A61M *1/00*

U.S. Cl. 604—319 **23 Claims**



20. A suction cannister comprising:

a container for receiving fluids having a wall defining an opening therein and further having an inside and an outside;

a cover for the container for sealing the opening in the container;

a suction port associated with at least one of the container and the cover;

a port in at least one of the container and the cover for providing a passageway between the inside of the container and the outside of the container, the port including a port wall extending longitudinally to a port rim defining a port opening for providing the passageway between the inside and the outside, the port wall also including a first side external to the passageway and a second side within the passageway and a surface which defines a passageway from the first side of the port wall to the second side of the port wall, the surface being in spaced relation to and distinct from the port rim.

5,725,517

ABSORBENT WOVEN ARTICLE INCLUDING RADIOPAQUE ELEMENT WOVEN THEREIN AND ANCHORED AT THE ENDS THEREOF

Autry O. V. DeBusk, Knoxville, Tenn., assignor to DeRoyal Industries, Inc., Powell, Tenn.

Continuation-in-part of Ser. No. 640,486, May 1, 1996, which is a continuation-in-part of Ser. No. 539,677, Oct. 5, 1995, Pat. No. 5,575,781. This application Sep. 10, 1996, Ser. No. 711,543

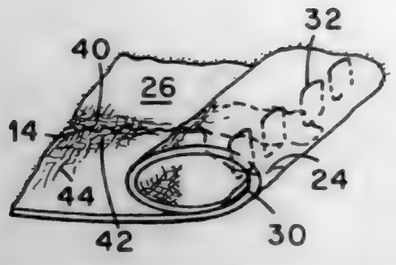
Int. Cl.[6] A61F *13/15;13/20*

U.S. Cl. 604—362 **5 Claims**

1. An absorbent article useful in medical applications comprising

a length of web having first and second ends and a top surface, said web being woven of absorbent yarns,

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at least one yarn-like radiopaque element having first and second opposite ends and being woven into said length of web and extending substantially fully between said first and second ends of said length of web,

said radiopaque element including an elastomeric material impregnated with a material which is opaque to X-rays and having a coefficient of friction substantially less than the coefficient of friction of said absorbent yarns and being substantially more resistant to shrinkage in length than said absorbent yarns when said length of web is subjected to washing,

at least said first end of said length of web being folded inwardly of said length of web and in overlying relationship to said top surface of said web to define a first fold, said first end of said radiopaque element being folded inwardly with said first fold,

said at least first fold being further folded inwardly of said length of web and in overlying relationship to said top surface of said web to define a second fold that includes said first fold therein, said first end of said radiopaque element contained within said first fold being folded inwardly with said second fold, whereby said first and second ends of said radiopaque element are mechanically captured and anchored within first and second folds such that upon washing of said length of web said radiopaque element is caused to assume a nonstraight geometry while being constrained by neighboring ones of said absorbent yarns to the general plane of said web.

5,725,518

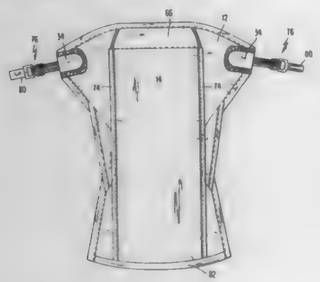
REUSABLE DIAPER HAVING GUSSETED PAD INSERT

Fredrica Coates, Earlysville, Va., assignor to Tailored Technologies, Inc., Earlysville, Va.

Continuation of Ser. No. 104,700, Aug. 11, 1993, Pat. No. 5,409,476. This application Nov. 14, 1994, Ser. No. 339,677

Int. Cl.[6] A61F *13/15*

U.S. Cl. 604—391 **4 Claims**



1. A diaper, comprising:

a fluid resistant diaper shell;

a sling of fluid resistant material connected only at its upper and lower ends to the shell, wherein facing surfaces of said fluid resistant shell and sling contact each other when worn;

a pad of fluid absorbent material at least on a surface of said sling facing away from said shell;

the sling having a width greater than the width of said pad, with opposite sides of said sling being folded around the sides of said pad and wrapped inward on a pad surface facing away from said shell to form side barriers for entrapping fluid.

5,725,519

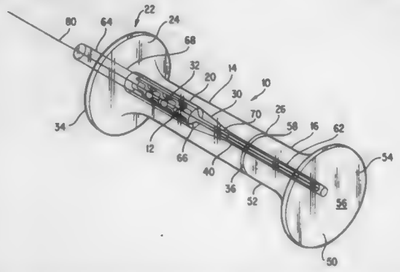
STENT LOADING DEVICE FOR A BALLOON CATHETER

Abraham Penner, Tel-Aviv, and Ofer Nativ, Rishon Lezion, both of Israel, assignors to Medtronic InStent Israel Ltd., Holon, Israel

Filed Sep. 30, 1996, Ser. No. 724,543

Int. Cl.[6] A61B *19/00*

U.S. Cl. 606—1 **21 Claims**



1. A device for loading a stent onto a balloon catheter comprising:

(a) a proximal component having an orifice with a gradually tapering portion sized and configured to be smaller in diameter than the diameter of said stent prior to loading and passing therethrough, and a first pulling means for facilitating movement of said proximal component;

(b) a distal component having a tube secured thereto and extending therefrom and into said orifice, said tube having an original diameter sized to hold a tip of a balloon catheter within a stent, and second pulling means for facilitating relative movement of said distal component with respect to said proximal component, such that movement of said proximal component with respect to said distal component causes said tube, the stent and the tip of a balloon catheter to pass through said gradually tapering portion of said orifice thereby crimping the stent onto the tip of said balloon catheter.

5,725,520

Patent Not Issued For This Number

5,725,521

DEPTH STOP APPARATUS AND METHOD FOR LASER-ASSISTED TRANSMYOCARDIAL REVASCULARIZATION AND OTHER SURGICAL APPLICATIONS

Richard L. Mueller, Sunnyvale, Calif., assignor to Eclipse Surgical Technologies, Inc., Sunnyvale, Calif.

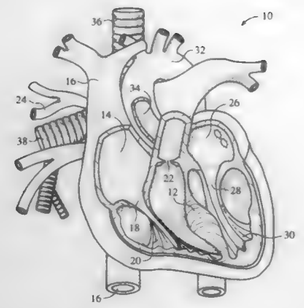
Filed Mar. 29, 1996, Ser. No. 627,701

Int. Cl.[6] A61B *17/36*

U.S. Cl. 606—7 **25 Claims**

1. A catheter device with a depth stop device for tissue removal comprising:

a tissue removal device which has i) a proximal end adapted for coupling to an energy source and ii) a distal end that includes at least one member that effectuates tissue removal;



an outer sleeve which has a proximal end and a distal end, the outer sleeve defines a central axis of the catheter device;

an inner sleeve which has a distal end that attaches to the outer sleeve's distal end, the inner sleeve translates within the outer sleeve, and the tissue removal device's distal end axially translates within the inner sleeve; and

the depth stop device which attaches to the outer sleeve's distal end section, the depth stop device is an annular member that slides on the inner sleeve, the annular member is axially compressible and radially expandable, the distal end of the outer sleeve has an extension beyond the depth stop member forming a stabilizing tissue contacting end portion for the catheter device;

thereby maintaining predetermined positioning of the catheter device's distal end relative to the tissue removal device.

5,725,522

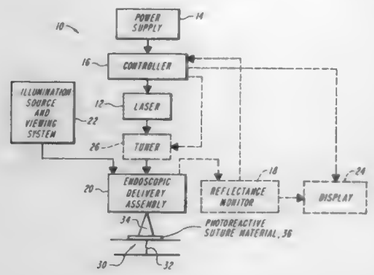
LASER SUTURING OF BIOLOGICAL MATERIALS

Edward L. Sinofsky, Dennis, Mass., assignor to Rare Earth Medical, Inc., W. Yarmouth, Mass.

Continuation-in-part of Ser. No. 327,583, Oct. 24, 1994, Pat. No. 5,540,677, which is a continuation of Ser. No. 57,000, May 3, 1993, abandoned, which is a continuation-in-part of Ser. No. 804,791, Dec. 9, 1991, Pat. No. 5,207,670, which is a continuation-in-part of Ser. No. 538,977, Jun. 15, 1990, Pat. No. 5,071,417. This application Jun. 7, 1995, Ser. No. 479,950

Int. Cl.[6] A61N *5/06*

U.S. Cl. 606—8 **16 Claims**



1. An apparatus for joining biological materials comprising:

a suture means for delivering a photoreactive suture material to an anastomotic site, the suture material comprising a crosslinking agent such that upon irradiation of said suture means the crosslinking agent adheres to the biological material;

laser means for delivering laser radiation to said anastomotic site to activate the crosslinking agent and induce bonding of the suture material to the biological material, thereby providing a suture between segments of biological material; and

a tubular casement, housing at least a portion of both the suture means and the laser means to facilitate delivery of the suture material and radiation.

5,725,523

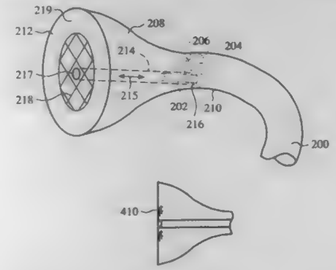
LATERAL-AND POSTERIOR-ASPECT METHOD AND APPARATUS FOR LASER-ASSISTED TRANSMYOCARDIAL REVASCULARIZATION AND OTHER SURGICAL APPLICATIONS

Richard L. Mueller, 1049 Kiel Ct., Sunnyvale, Calif. 94089

Filed Mar. 29, 1996, Ser. No. 627,704

Int. Cl.[6] A61B *17/36*

U.S. Cl. 606—15 **14 Claims**



1. A contact scope device for performing a transmyocardial revascularizttion (TMR) procedure comprising:

a hollow outer lumen having a proximal end and a distal end;

a scope portion located at the distal end of the contact scope device, the scope portion including:

a contact viewing portion for contact with a wall of the heart, the contact viewing portion defining at least one port adapted for receiving at least one TMR working component for performing TMR on the wall of the heart, the contact viewing portion further including a friction surface area for gripping tissue adjacent the heart wall and providing stability for the contact viewing scope during the TMR procedure;

a main body portion disposed between the contact viewing portion and the distal end of the outer lumen; and

visualization means for viewing tissue of the wall of the heart through the contact viewing portion.

5,725,524

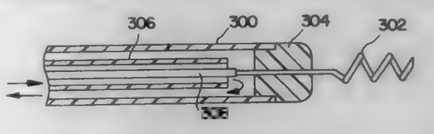
APPARATUS FOR R-F ABLATION

Peter M.J. Mulier, St. Paul, and Michael F. Hoey, Shoreview, both of Minn., assignors to Medtronic, Inc., Minneapolis, Minn.

Division of Ser. No. 303,246, Sep. 8, 1994, Pat. No. 5,609,151. This application Jan. 3, 1996, Ser. No. 581,013

Int. Cl.[6] A61B *17/39;5/04;* **A61N** *1/05*

U.S. Cl. 606—41 **11 Claims**



1. An ablation catheter system, comprising:

an elongated catheter body having a proximal end and a distal end and comprising a first tube having an internal longitudinal lumen;

a hollow conductive electrode mounted to the distal end of said catheter body and having an internal lumen coupled to the internal lumen of said first tube;

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fluid delivery means coupled to the internal lumen of said first tube for delivering a conductive fluid to said internal lumen of said first tube:

means for cooling said conductive fluid while in said internal lumen of said first tube; and

a source of R-F electrical energy, coupled to said electrode.

5,725,525

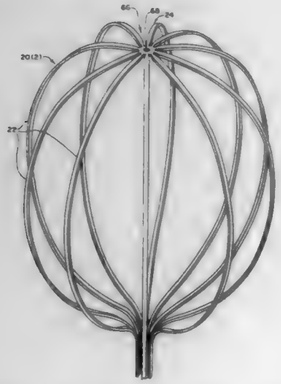
MULTIPLE ELECTRODE SUPPORT STRUCTURES WITH INTEGRAL HUB AND SPLINE ELEMENTS

Thomas F. Kordis, Sunnyvale, Calif., assignor to EP Technologies, Inc., Sunnyvale, Calif.

Continuation of Ser. No. 206,427, Mar. 4, 1994, abandoned, which is a continuation-in-part of Ser. No. 33,640, Mar. 16, 1993, abandoned. This application Jan. 16, 1996, Ser. No. 587,244

Int. Cl.[6] A61B *17/39*

U.S. Cl. 606—41 **8 Claims**



1. An electrode support structure mountable at the distal end of a catheter having a central axis, comprising

a hub formed of a flat structure having a center and a circumferential periphery and being adapted to be affixed to a distal end of the catheter, with said hub oriented normal to the central axis of the catheter and with the center of said hub in alignment with the central axis of the catheter,

at least three, generally flexible spline elements for supporting electrodes radiating in a circumferentially spaced relationship around the circumferential periphery of said hub, the spline elements and hub being integrally formed from a single sheet of material, said spline elements being of one piece with said flat structure and extending laterally from the surface of said flat structure, and including electrical leads for electrically connecting said electrodes to an external power source.

5,725,526

TRANSPORT CARRIAGE FOR AN EXTERNAL FIXATOR

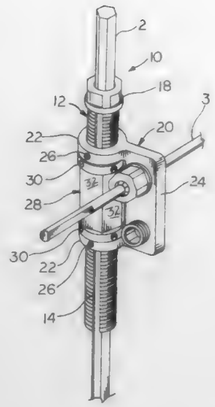
Randall N. Allard, Plymouth; Kenneth S. Jackson, Warsaw; John E. Meyers, Columbia City; James F. Hanneken, North Manchester, all of Ind., and Ronald Lakatos, Columbus, Ohio, assignors to Zimmer, Inc., Warsaw, Ind.

Continuation-in-part of Ser. No. 562,724, Nov. 27, 1995. This application Mar. 28, 1996, Ser. No. 623,093

Int. Cl.[6] A61B *17/60*

U.S. Cl. 606—57 **8 Claims**

1. A transport carrier for connection to an external fixation device for use in orthopaedic procedures, the carrier includes a first sleeve being externally threaded, means carried by said first sleeve



configured to lock said first sleeve to said external fixation device, a clamp means carried by said first sleeve configured to engage at least one bone pin, second sleeve means being internally threaded and in threaded engagement with said first sleeve and rotatable relative thereto to shift said clamp means along said first sleeve, and means to selectively rotationally fix the second sleeve to the first sleeve.

5,725,527

ANCHORING MEMBER

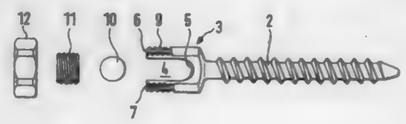
Lutz Biedermann, Villingen; Jürgen Harms, Karlsruhe, both of Germany, and Harry L. Shufflebarger, Miami, Fla., assignors to Biedermann Motech GmbH, Schwenningen, Germany

Continuation of Ser. No. 244,397, May 20, 1994, Pat. No. 5,545,165. This application Mar. 27, 1996, Ser. No. 625,405

Claims priority, application Germany, Sep. 10, 1992, 42 34 118.3

Int. Cl.[6] A61B *17/70*

U.S. Cl. 606—61 **7 Claims**



1. An anchoring member for attachment to a vertebra, the anchoring member comprising:

a head having a U-shaped channel with two legs and an open end, said legs having an internal thread and an external thread,

a fastening member having an external thread engaging the internal thread of said legs,

a spigot open at the top and bottom and having an internal thread engaging the external thread of the legs,

the fastening member and the spigot being structured and arranged to engage the surface of a rod,

the internal and external threads of the head having a length to permit the fastening member and spigot to engage the rod whereby the tightening of the fastening member and the spigot fixes the rod in place and the exertion of an expanding force by the fastening member on the rod causes a force on the legs against the spigot to fix together the head, the fastening member and the spigot.

5,725,528

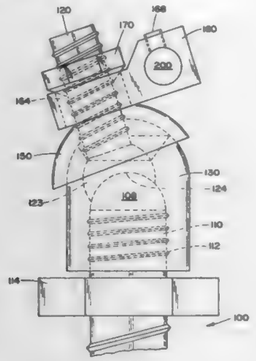
MODULAR POLYAXIAL LOCKING PEDICLE SCREW

Joseph P. Errico, Far Hills; Thomas J. Errico, Summit; James D. Ralph, Oakland, and Steven Tatar, Montville, all of N.J., assignors to Third Millennium Engineering, LLC, Summit, N.J.

Filed Feb. 12, 1997, Ser. No. 799,720

Int. Cl.[6] A61B *17/70*

U.S. Cl. 606—61 **10 Claims**



1. A modular polyaxial pedicle screw assembly, comprising:

a bone screw having a shaft portion and an upper portion having a hemispherical upper portion which is coaxial with said shaft portion and a threading disposed on the upper circumferential surface of said upper portion disposed below said hemispherical upper portion;

a stem having an upper post portion and a lower portion, the lower portion having a wider diameter than the upper post portion, and forming a socket having the same radius of curvature as the hemispherical upper portion of the bone screw, said socket being shaped to nest and initially rotate on said hemispherical upper portion of said screw, and said exterior surface of said lower portion having a rounded conformation;

a cuff having a hollow cylindrical body having an opening in a top thereof having a diameter greater than that of the upper post portion and less than that of the lower portion of the stem, and a threading on a lower interior surface thereof, which threading is coaxial with said opening in said top and is mateable with said threading on said upper circumferential surface of said upper portion of said screw, and such that prior to complete securing of the cuff on the upper portion the stem may polyaxially rotate relative to the shaft with the post portion extending through the opening in the top of the cuff through a range of orientations including orientations which are coaxial and non-coaxial relative to the cuff and bone screw, and such that by complete securing of the cuff on the upper portion of the screw the curvate socket is crush locked in the hemispherical upper portion, thereby preventing further motion of the post relative to the shaft; and

means for coupling a rod to the stem.

5,725,529

BONE FASTENER

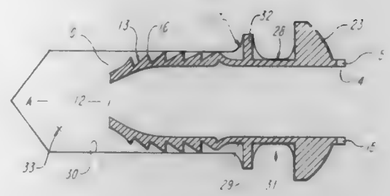
James E. Nicholson, Lincoln; Rickey D. Hart, North Attleboro, and John Rice, Lincoln, all of Mass., assignors to Innovasive Devices, Inc., Marlborough, Mass.

Continuation-in-part of Ser. No. 765,445, Sep. 25, 1991, Pat. No. 5,268,001, which is a continuation-in-part of Ser. No. 588,055, Sep. 24, 1990, Pat. No. 5,088,147. This application Dec. 6, 1993, Ser. No. 163,130

Int. Cl.[6] A61B *17/56*

U.S. Cl. 606—72 **15 Claims**

1. A fastener for coupling an object to bone comprising,



an substantially cylindrical member of expandable material for insertion into an opening in a bone, the member including an outer surface having structure for expandable engagement with an inner surface of the bone opening, said expandable member having an axial channel defined therein extending at least partially between proximal and distal ends thereof, the distal end of the expandable member includes a radially-outwardly projecting portion for engagement with the object to be coupled to the bone.

a washer having defined therein a central bore, a portion of the insertion element disposed within said bore, said washer being adapted for movement on said shaft, wherein said washer and said projecting portion each have a surface in facing relationship, each of said surfaces having a different radius of curvature to allow for the washer to move relative to the insertion element, and

an elongated element for insertion into said expandable member, the insertion element including a channel for engagement with a suture, at least a portion of said insertion element including an outer diameter greater than an inner diameter of the axial channel of the expandable member for expansion thereof upon engagement therewith, whereby, by insertion of said insertion element, the expandable member is irreversibly expanded to obtain a pressure fit with said opening in said bone.

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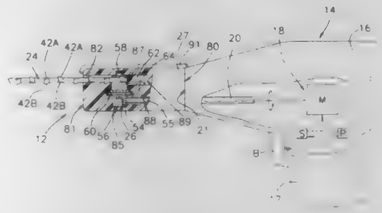
SURGICAL SAW AND METHODS THEREFOR

John A. Popken, 3909 Bogey Ct., Longmont, Colo. 80503

Filed Jun. 19, 1996, Ser. No. 665,832

Int. Cl.[6] A61B *17/14*

U.S. Cl. 606—82 **25 Claims**



1. A surgical saw comprising

a pair of flexible, endless cutting bands having cutting edges for resecting anatomical tissue;

an elongate guide arm for each cutting band, said guide arms being disposed parallel to and coplanar with one another for guiding said cutting bands for movement in defined paths;

a housing for mounting said guide arms in parallel, coplanar relationship; and

a drive system for driving said cutting bands to move around said guide arms, respectively, in said defined paths to resect the anatomical tissue.

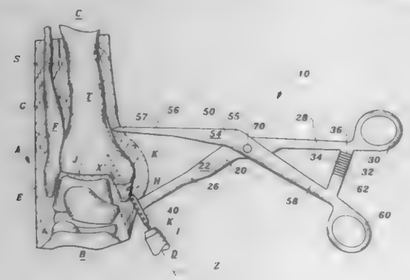
VOL 1208 ISS 2 MR 10 1998 UMI

5,725,531
REAMING DEVICE
Jules S. Shapiro, 1725 W. Harrison #328, Chicago, Ill. 60612
Filed Dec. 27, 1995, Ser. No. 578,070
Int. Cl.[6] A61B *17/56*
U.S. Cl. 606—85 10 Claims



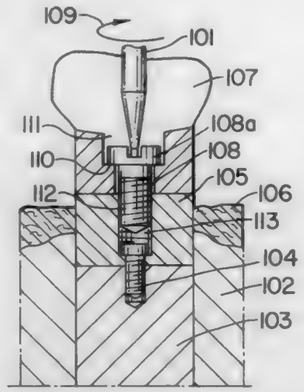
1. A device for removing cartilage from the end of a bone comprising:
an elongated handle having first and second ends;
a first rasping head connected to the first end of the elongated handle and having a concave rasping surface and means for removing cartilage on the rasping surface;
a second rasping head connected to the second end of the elongated handle and having a convex rasping surface and means for removing cartilage on the rasping surface, the concave and convex surfaces having substantially mating contours whereby a bone end prepared by the concave rasping surface can mate with a bone end prepared by the convex rasping surface.

5,725,532
INTEGRATED SURGICAL REDUCTION CLAMP AND DRILL GUIDE
Steven Shoemaker, 2226 Thurton Dr., Roseville, Calif. 95747
Filed Sep. 10, 1996, Ser. No. 711,274
Int. Cl.[6] A61B *17/90;17/28*
U.S. Cl. 606—96 18 Claims



7. A non-opposing surgical reduction clamp and drill guide for supporting fractured bone fragments during orthopedic bone repair surgery, comprising:
a reference leg having a tip;
a guide leg having a means to linearly guide the orientation of a drill-driven fractured bone fixation device to a desired location oriented along an alignment axis of said guide means, wherein said guide means includes a hollow cylinder fixed to an end of said guide leg, said hollow cylinder having a bore extending from an inlet end to an outlet end, said outlet end oriented closer to said tip of said reference leg than said inlet end;
a means to couple said reference leg and said guide leg together in a manner allowing a pivoting movement of the guide leg and reference leg relative to each other about a pivot point;
said alignment axis oriented in a plane including said tip of said reference leg, but diverging from the location of said tip such that a linear distance from said pivot point to said alignment axis is greater than a linear distance from said pivot point to said tip of said reference leg.

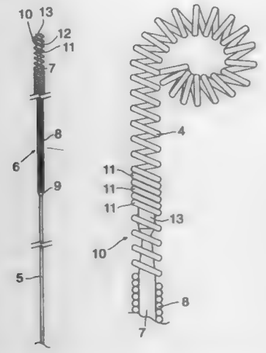
5,725,533
TORSIONAL TIGHTENER FOR BONE ANCHORING OR IMPLANT ELEMENTS/TOOLS
Lennart Carlsson, Mölndal, Sweden, assignor to Nobel Biocare AB, Goteborg, Sweden
Continuation of Ser. No. 386,180, Feb. 9, 1995, abandoned, which is a continuation of Ser. No. 109,110, Aug. 19, 1993, abandoned, which is a continuation of Ser. No. 665,765, Mar. 8, 1991, abandoned. This application Nov. 12, 1996, Ser. No. 745,313
Claims priority, application Sweden, Mar. 9, 1990, 9000836
Int. Cl.[6] A61B *17/58*
U.S. Cl. 606—101 16 Claims



1. A compact torsional tightener system for anchoring implants in bone or dentine, said torsional tightener system comprising:
a torsional tightener sufficiently compact to be inserted into the mouth of a patient;
a transformerless electric motor with a small rotating mass operating at a speed of about 10,000 to about 15,000 revolutions per minute and powered by an energy supply circuit, said motor imparting a high level of torque to said implants with a high degree of sensitivity over a small range;
a controller for controlling a speed of said motor;
a selector for selecting an operating range of speeds and torques based upon the hardness of the bone or dentine in which the implants are being anchored;
a torsional tightening part actuated by the motor and cooperating with the implants;
a gear part interconnected with said motor and said torsional tightening part for converting said speed of said motor to a slower speed that is imparted to said torsional tightening part;
an electrical energy supply connected to the electric motor, said electrical energy supply varying the electrical energy supplied to the electric motor as a function of a torsional resistance from the implants;
means for releasing said torsional tightener at a preset torque based upon the rotational mass of the tightener, the structural strength of the implants to be anchored, and the hardness of the bone or dentine in which the implants are to be anchored;

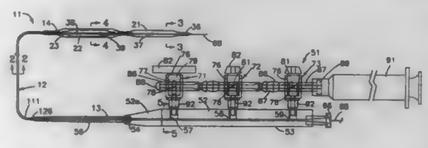
means for determining said preset torque, said determining means including a predetermined parameter value of the supplied electrical energy; and
controlling means for sensing the torque from the implants being anchored and for interrupting the energy supply circuit of the electric motor at said predetermined parameter value such that said controlling means controls the rotational inertia in the motor, motor shaft, and implants so as to permit said motor, motor shaft and implants to rotate beyond a point where they are located when the electrical energy is interrupted to bring about a torsional tightening moment near a preselected optimal point substantially near but not exceeding a breaking point of the implants;
wherein a majority of the increasing torsional resistance from the bone or dentine is imparted to the implants by the bone or dentine over ¼ to ½ turn of the implants, and said controlling means interrupts said energy supply circuit such that the effect of the rotational energy after interruption causes said implants to rotate by at most 10°.

5,725,534
METHOD OF MANUFACTURING AN ASSEMBLY FOR POSITIONING AN EMBOLIZATION COIL IN THE VASCULAR SYSTEM, AND SUCH AN ASSEMBLY
Erik Edelboe Rasmussen, Soeborg, Denmark, assignor to William Cook Europe A/S, Denmark
Filed Jun. 7, 1995, Ser. No. 484,854
Claims priority, application Denmark, Jan. 3, 1995, 0005/95
Int. Cl.[6] A61B *17/00*
U.S. Cl. 606—108 8 Claims



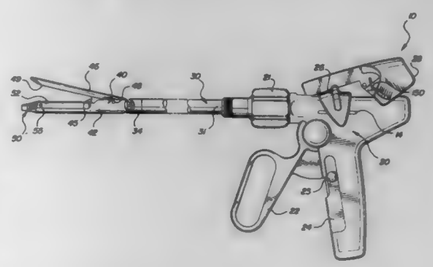
1. An assembly for positioning an embolization coil (4) in a vascular system, comprising a guidewire having a relatively flexible distal section (6), which has a central core (7) and a threading coil (10) having distal turns (11), which are arranged with such mutual spacing (12) that the embolization coil can be threaded in and out of the threading coil; wherein the distal section (6) of the guidewire has an elongated, rotationally symmetrical member (13) having an outer diameter, which is a fraction smaller than an inner diameter of the embolization coil, and having a length, which is longer than at least three of the distal turns (11) of the threading coil; and wherein the distal turns of the threading coil are fixed to an external side of the member; wherein the central core (7) in the flexible distal section (6) of the guidewire comprises the member, a proximal portion (14; 14') and an intermediate portion (15; 15') with a decreasing diameter towards the member (13); and wherein the threading coil is a distal end of a wirecoil (8), a proximal end of which is fastened to said proximal portion.

5,725,535
MULTIPLE BALLOON STENT DELIVERY CATHETER AND METHOD
Anant V. Hegde, 36105 Touluse St., Newark, Calif. 94560; Deepak R. Gandhi, 911 Bowen Ave., San Jose, Calif. 95123; Thomas Bourne, 2650 California St., Apt. 96, Mountain View, Calif. 94040, and James R. Kermode, 1080 Kildare Ave., Sunnyvale, Calif. 94087
Filed Sep. 20, 1996, Ser. No. 717,299
Int. Cl.[6] A61F *11/00*
U.S. Cl. 606—108 13 Claims



1. A multiple balloon catheter for use in a vessel of a patient and for use with an inflation/deflation device comprising a flexible elongate tubular member having proximal and distal extremities, a distal balloon mounted on the distal extremity of the flexible elongate tubular member, coaxial inner and outer balloons mounted on the distal extremity of the flexible elongate member proximal of the distal balloon, said flexible elongate tubular member having balloon inflation lumens therein in communication with the interiors of the distal balloon and the inner and outer coaxial balloons and a manifold secured to the proximal extremity of the flexible elongate tubular member in communication with the inflation lumens and adjusted to be coupled to the inflation/deflation device and valve means carried by the inflation/deflation manifold for inflating the distal balloon and the inner and outer coaxial balloons one at a time or in unison without removal of the inflation/deflation device from the manifold.

5,725,536
ARTICULATED SURGICAL INSTRUMENT WITH IMPROVED ARTICULATION CONTROL MECHANISM
Jeffrey R. Oberlin, Augusta, and Mark A. Penrod, Battle Creek, both of Mich., assignors to Richard-Allen Medical Industries, Inc., Richland, Mich.
Filed Feb. 20, 1996, Ser. No. 602,204
Int. Cl.[6] A61B *17/10*
U.S. Cl. 606—139 25 Claims



23. An articulated linear stapling instrument for use in laparoscopic surgical procedures comprising:
a handle;
an elongated shaft having a distal end and a proximal end, said proximal end of said shaft being coupled to said handle;
a tip pivotally coupled to said distal end of said shaft for articulation about an articulation axis and including two opposed jaws pivotally coupled for movement between an open position and a closed position;

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an actuator mounted for movement on said handle and operatively connected to said tip such that movement of said actuator causes articulation of said tip; and

a lever mounted on said handle, said lever being moveable between a raised position and a lowered position such that movement of said lever causes said opposed jaws to move from their open position to their closed position;

wherein said lever, in its raised position, is disengaged from said actuators and said lever, in its lowered position, engages and immobilizes said actuator such that articulation of said tip is precluded when said opposed jaws are in their closed position.

5,725,537

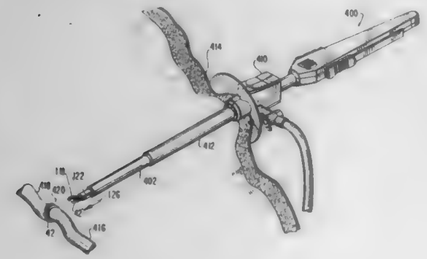
METHOD OF PERFORMING A VESSEL ANASTOMOSIS USING A SURGICAL CLIP APPLIER

David T. Green, Westport; Henry Bolanos, Norwalk; Kenneth E. Toso, Wilton; Daniel E. Alesi, Sherman; Robert J. Geiste, Milford, and Frank C. Maffei, Shelton, all of Conn., assignors to United States Surgical Corporation, Norwalk, Conn.

Continuation of Ser. No. 467,952, Jun. 6, 1995, abandoned, which is a continuation of Ser. No. 311,049, Sep. 23, 1994, abandoned, which is a continuation-in-part of Ser. No. 134,017, Oct. 8, 1993, abandoned, which is a continuation-in-part of Ser. No. 959,201, Oct. 9, 1992, abandoned. This application Sep. 13, 1996, Ser. No. 713,733

Int. Cl.° A61B *17/00*

U.S. Cl. 606—143 **14 Claims**



1. A method for endoscopically performing anastomosis procedures in vascular surgery comprising the steps of:

(a) inserting a trocar assembly through a body wall to a position adjacent to respective sections of first and second vessel portions;

(b) everting the respective sections of the first and second vessel portions and positioning the sections in adjacent relation to each other;

(c) providing a clip applying instrument including a handle assembly, an endoscopic body portion extending distally from the handle assembly, a pair of jaws supported adjacent to a distal end of the endoscopic body portion, and a series of clips;

(d) inserting the endoscopic body portion through the trocar assembly to a position adjacent to the respective sections of the first and second vessel portions;

(e) positioning the jaws about a portion of the everted sections of the vessel portions;

(f) actuating the handle assembly to close the jaws and crimp a clip positioned therebetween;

(g) releasing the handle assembly to open the jaws and release the crimped clip;

(h) positioning the jaws of the instrument about an unclipped portion of the everted sections of the first and second vessel portions; and

(i) repeating steps (f) to (h) to apply a plurality of clips to the everted sections of the first and second vessel portions.

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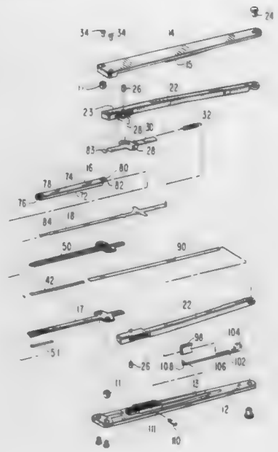
SURGICAL CLIP APPLIER

David T. Green, Westport, Conn.; Henry Bolanos, East Norwalk, Conn.; Kenneth E. Toso, Portchester, N.Y.; Daniel E. Alesi, Sherman, Conn.; Robert Geiste, Milford, Conn., and Frank C. Maffei, Shelton, Conn., assignors to United States Surgical Corporation, Norwalk, Conn.

Continuation of Ser. No. 492,863, Jun. 20, 1995, abandoned, which is a continuation of Ser. No. 134,017, Oct. 8, 1993, abandoned, which is a continuation-in-part of Ser. No. 959,201, Oct. 9, 1992, abandoned. This application Sep. 13, 1996, Ser. No. 713,772

Int. Cl.° A61B *17/00*

U.S. Cl. 606—143 **48 Claims**



1. A surgical clip applicator comprising:

a housing;

a pair of handles pivotally connected to said housing and actuable in a tweezer-like manner, each of said handles having a proximal and a distal end and being pivotally mounted to said housing at said proximal ends;

a pair of jaws extending from said housing for receiving and deforming a clip therebetween;

means extending from said housing for holding a series of clips;

a U-shaped channel assembly slidably mounted in said housing;

means connected to said channel assembly for sliding said channel assembly in a distal direction in response to closing of said handles to move said jaws towards each other;

a pusher bar slidably mounted for movement in a distal direction in said channel assembly for advancing said series of clips along said holding means;

first spring means connected between said handles for biasing said channel assembly in a proximal direction;

second spring means biasing said pusher bar in a distal direction to urge said series of clips in a distal direction to push a foremost clip from said series of clips to a position between said jaws; and

means for translating tension of said second spring means to said pusher bin.

5,725,539

SURGICAL INSTRUMENT USED TO CLAMP A VESSEL OR THE LIKE

Ulrich Matern, Bollschweil, Germany, assignor to Klinikum Der Albert-Ludwigs-Universität Freiburg, Freiburg, Germany

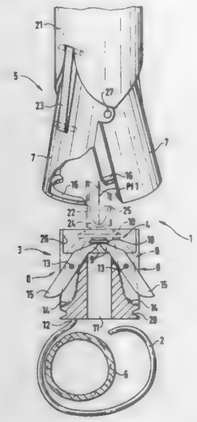
PCT No. PCT/EP94/03916, § 371 Date May 30, 1996, § 102(e) Date May 30, 1996, PCT Pub. No. WO95/15121, PCT Pub. Date Jun. 8, 1995

PCT Filed Nov. 26, 1994, Ser. No. 647,904

Claims priority, application Germany, Dec. 1, 1993, 43 40 821.4

Int. Cl.° A61B *17/08*

U.S. Cl. 606—151 **16 Claims**



1. In combination, a surgical instrument (**1**) and a lock assembly (**3**) which is applied by the surgical instrument to clamp one of a vessel, a hollow organ and a body part using a thread, the combination comprising:

a lock assembly (**3**) having a thread holder (**4**) which is movable between an open position, in which a thread can be inserted or released, and a closed position, in which the thread is held firmly in position, such that a thread can be applied around the one of the vessel, hollow organ and body part and inserted in the thread holder when the thread holder is in the open position and be held when the thread holder is actuated to the closed position to act as a releasable clamp; and

a surgical instrument (**1**) having a shaft with a lock assembly holder (**5**) located at a distal end thereof, the lock assembly holder including actuating members that are releasably coupled with the lock assembly (**3**) in a coupled position for positioning the lock assembly and moving the thread holder (**4**) between the open and closed positions to effectuate clamping.

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Patent Not Issued For This Number

5,725,541

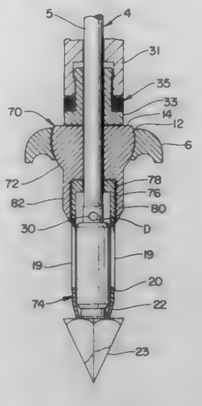
SOFT TISSUE FASTENER DEVICE

William E. Anspach, III, Stuart, and Eddy H. Del Rio, Royal Palm Beach, both of Fla., assignors to The Anspach Effort, Inc., Palm Beach Gardens, Fla.

Continuation-in-part of Ser. No. 589,779, Jan. 22, 1996. This application Feb. 27, 1997, Ser. No. 806,733

Int. Cl.° A61B *17/00*

U.S. Cl. 606—151 **15 Claims**



1, An expandable fastener device for attaching soft body tissue to bone, said fastener device having an annular body, head means for affixing said soft body tissue to the bone made from a bioabsorbable polymer material being attached to the top of said annular body for contacting the soft body tissue, a shaft extending through said head means and said annular body, said shaft having a drill point below said annular body for extending through the soft tissue and drilling in bone for placing the soft body tissue against the bone, said annular body being expandable radially into the bone when compressed for fixing said annular body in place and said drill point and said shaft, drill point and said annular body being made from a surgical metallic material, said head having internal threads formed in a recess formed therein and said annular body having external threads complementing said internal threads and being in threadable engagement therewith.

5,725,542

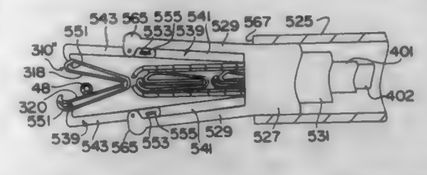
MULTIFUNCTIONAL SPRING CLIPS AND CARTRIDGES AND APPLICATORS THEREFOR

InBae Yoon, 2101 Highland Ridge Dr., Phoenix, Md. 21131

Continuation of Ser. No. 401,002, Mar. 9, 1995. This application Feb. 27, 1997, Ser. No. 807,083

Int. Cl.° A61B *17/08*

U.S. Cl. 606—157 **27 Claims**



1. In combination, an elongate applicator and a multifunctional clip for use in endoscopic and open operative procedures, said applicator comprising a longitudinal axis, a proximal end, a distal end carrying forceps including first and second forceps members movable between a closed position and an open position and a handle at said proximal end operable to move said forceps mem-

VOL 1208 ISS 2 MR 10 1998 UMI

bers between said open and closed positions, said clip comprising a body having first and second opposed portions, said first opposed portion including a first outer segment and a first inner segment connected with said first outer segment, said second opposed portion including a second outer segment and a second inner segment connected with said second outer segment, a first grasping surface carried by said first inner segment, a second grasping surface carried by said second inner segment, and a base connecting a proximal end of said first outer segment to a proximal end of said second outer segment, said first inner segment extending from a distal end of said first outer segment in the direction of said base, said second inner segment extending from a distal end of said second outer segment in said direction of said base with said inner segments disposed between said outer segments, said first inner segment having a first outwardly facing surface facing said first outer segment and a first inwardly facing surface facing opposite said first outwardly facing surface, said second inner segment having a second outwardly facing surface facing said second outer segment and a second inwardly facing surface facing said first inwardly facing surface such that said first and second inwardly facing surfaces define said first and second grasping surfaces, respectively, said multifunctional clip being biased to a grasping position wherein said first and second grasping surfaces are urged toward one another, said first and second forceps members engaging said distal ends of said first and second outer segments, respectively, with said forceps members in said closed position, said first and second forceps members being movable, with said forceps members in engagement with said distal ends of said outer segments, from said closed position to said open position to move said clip from said grasping position to a receiving position wherein said first and second grasping surfaces are moved away from one another to receive a structure therebetween and from said open position toward said closed position to permit said clip to move from said receiving position toward said grasping position due to said bias to grasp the structure between said grasping surfaces.

5,725,543

MEDICAL INSTRUMENT FOR ATHERECTOMY

Falah Redha, Lindenstrasse 17, CH-8302 Kloten, Switzerland

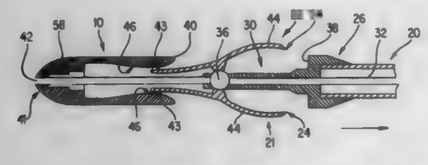
PCT No. PCT/EP94/00730, § 371 Date May 23, 1995, § 102(e) Date May 23, 1995, PCT Pub. No. WO94/20033, PCT Pub. Date Sep. 15, 1994

PCT Filed Mar. 9, 1994, Ser. No. 335,870

Claims priority, application Germany, Mar. 11, 1993, 43 07 642.4

Int. Cl.[6] A61B *17/22*

U.S. Cl. 606—159 47 Claims



1. In a medical instrument for removing deposits on the walls of at least one of arteries and veins having at least one partially hollow body (**10–14**) that can be introduced into said at least one of said arteries and said veins, having at least one of a traction means and an actuation means (**20**) that are removable from said at least one of said arteries and said veins, and having a plurality of cutting bodies (**21**, **22**), each of said cutting bodies (**21**, **22**) having at least one cutting edge (**24**) that points in a traction direction and removes the deposits,

the improvement comprising:

a base body (**26**, **27**) protruding at least partially into the at least partially hollow body (**10–14**), and said plurality of cutting bodies (**21**, **22**) extending in the traction direction pivotally connected to said base body (**26**, **27**).

5,725,544

METHOD AND INSTRUMENT FOR ESTABLISHING THE RECEIVING SITE OF A CORONARY ARTERY BYPASS GRAFT

Jorgen A. Rygaard, Gentofte, Denmark, assignor to Oticon A/S, Hellerup, Denmark

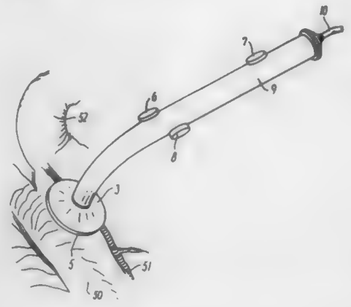
PCT No. PCT/DK94/00148, § 371 Date Aug. 22, 1996, § 102(e) Date Aug. 22, 1996, PCT Pub. No. WO95/17127, PCT Pub. Date Jun. 29, 1995

PCT Filed Apr. 12, 1994, Ser. No. 663,133

Claims priority, application Denmark, Dec. 23, 1993, 1455/93

Int. Cl.[6] A61F *17/00*

U.S. Cl. 606—167 3 Claims



1. A method of locating a constriction in a coronary artery and performing an arteriotomy distally thereof which comprises locating the site of a constriction in a coronary artery having a lumen therein by scanning said artery with a non-invasive sensing instrument capable of detecting said constriction, said sensing instrument having associated therewith a cutting instrument comprised of a cutter and means for moving said cutter into a position for making an incision, and after locating said constriction, moving said cutting member into a cutting position distal of said constriction and making an incision through the wall of said artery into the lumen thereof.

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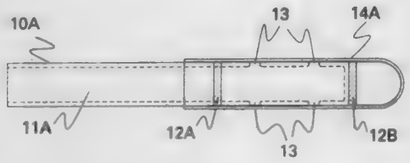
BALLOON DISSECTOR

Melvyn Bircoll, 2700 Casiano Rd., Los Angeles, Calif. 90077

Filed Sep. 27, 1996, Ser. No. 722,472

Int. Cl.[6] A61M *29/00*

U.S. Cl. 606—192 19 Claims



1. A surgical dissector comprising:

a) a hollow rigid tube having a first end adapted to receive a flowing medium and an opening located proximate to a second end of said hollow rigid tube;

b) two anchors positioned on each side of said opening in said hollow rigid tube, each of said anchors totally encircling said hollow rigid tube and bonded to said hollow rigid tube;

c) an elastic expandable balloon being secured to said two anchors, an interior portion of said expandable balloon in communication with an interior portion of said hollow rigid tube; and

d) a film interposed between said expandable balloon and said hollow rigid tube between said two anchors, said film adapted to prevent said elastic expandable balloon from bonding to said hollow rigid tube.

5,725,546

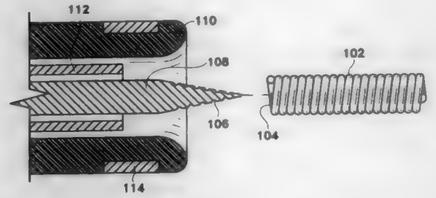
DETACHABLE MICROCOIL DELIVERY CATHETER

Gene Samson, Milpitas, Calif., assignor to Target Therapeutics, Inc., Fremont, Calif.

Filed Jun. 24, 1994, Ser. No. 265,580

Int. Cl.[6] A61M *29/20*

U.S. Cl. 606—191 6 Claims



1. A combination pusher-coil for occluding a vessel at a selected vascular site within the vessel comprising:

(a) a helically wound coil having a proximal end and an opening in that coil proximal end for accepting an engaging tip on a pusher wire, and

(b) a pusher wire having a longitudinal axis and a distal engaging tip,

said distal engaging tip having an outer surface with grooves formed therein said outer surface is unitary with the distal engaging tip, said distal engaging tip for entering the opening in the proximal end of the helically wound coil.

5,725,547

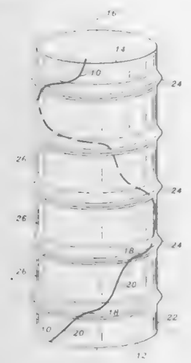
CORRUGATED STENT

Timothy A. M. Chuter, 4263 Kerwood Ct., San Diego, Calif. 92130

Filed Jan. 4, 1996, Ser. No. 582,942

Int. Cl.[6] A61M *29/00*

U.S. Cl. 606—194 11 Claims



1. An improved stent having a corrugated stent envelope which is designed to maximize the expansion ratio, source of expansion, flexibility, and resistance to compressive forces while minimizing shortening and compliance, comprising a multiplicity of intertwining individual stent limbs which define a stent envelope, each stent limb extending from one end of the stent to the other, each stent limb spiraling around the long axis of the stent, each stent limb continuously bending to form a series of alternating transversely oriented sections and longitudinally oriented sections running the length of the stent limb, all the stent limbs having the same configuration, the stent envelope having alternating first and second rings forming the corrugated stent envelope and running the length of the stent, the first rings corresponding to the transversely oriented sections of the stent limbs, and the second rings corresponding to the longitudinally oriented sections of the stent limbs, the stent envelope at each first ring of the stent having a greater diameter than at the adjacent second rings.

5,725,548

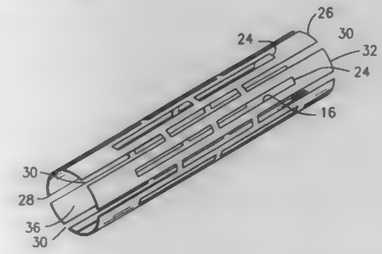
SELF-LOCKING STENT AND METHOD FOR ITS PRODUCTION

Swaminathan Jayaraman, Bangalore, India, assignor to Iowa India Investments Company Limited, Isle of Man

Filed Apr. 8, 1996, Ser. No. 629,318

Int. Cl.[6] A61M *29/00*

U.S. Cl. 606—198 13 Claims



1. An expandable vascular stent comprising:

a tubular shaped member having first and second ends and a wall surface disposed between the first and second ends, the wall surface having a plurality of parallel rows of longitudinal and spaced apart end to end slots, an alternating row of slots terminating at a portion of the tubular shaped member spaced from the first and second ends,

the tubular shaped member having been formed from a flat rectangular sheet with opposed longitudinal edges, at least three, spaced apart suture holes along each opposed longitudinal edge, the holes from each longitudinal edge overlapping when the sheet is formed into the tubular shaped member and suture thread through each overlapping hole retaining the stent in its tubular shape,

the tubular shaped member capable of being compressed over a balloon catheter and expanded within a desired portion of a blood vessel so that it is locked in place after the catheter is removed.

5,725,549

COILED STENT WITH LOCKING ENDS

Sharon Lam, San Jose, Calif., assignor to Advanced Cardiovascular Systems, Inc., Santa Clara, Calif.

Division of Ser. No. 209,827, Mar. 11, 1994, Pat. No. 5,556,413. This application Sep. 12, 1996, Ser. No. 712,873

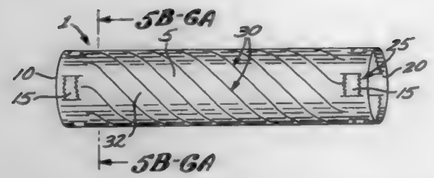
Int. Cl.[6] A61M *29/00*

U.S. Cl. 606—198 5 Claims

1. An intraluminal stent implantable in a body lumen, comprising:

a cylindrical body formed from at least one strip disposed along a longitudinal direction, having a first end and a second end perpendicular to the longitudinal edges of said strip, further having a tab and a slot for receiving a tab located at the first

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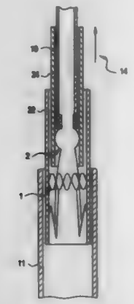
end and the second end, said body and said ends further having a first reduced diameter and an adjustable second expanded diameter, wherein at least one said end of said at least one strip is radiopaque.

5,725,550

FILTRATION UNIT FOR RETAINING BLOOD CLOTS

Guy Nadal, Poitiers, France, assignor to B. Braun Celsa (Societe Anonyme), Chasseneuil Du Poitou, France

Filed Aug. 9, 1996, Ser. No. 689,623
Claims priority, application France, Aug. 10, 1995, 95 09737
Int. Cl.[6] A61F *2/02*; A61B *17/00*
U.S. Cl. 606—200 7 Claims



1. A blood filtration unit adapted to be implanted within a vessel of a patient body, especially for retaining blood clots therein, the blood filtration unit comprising:

a first blood filter adapted to be temporarily implanted in the vessel, during a first period of time, said first blood filter comprising:

a filtration structure having an axis and being adapted for having a first reduced diameter in a first radially folded state, for the implantation thereof, and a second enlarged diameter greater than the first diameter, in a radially expanded state, upon implantation of said filtration structure in the vessel,

an elongated flexible support-stem having an end fixed to said filtration structure, the elongated support stem having a length enough for controlling a movement of the filtration structure, from outside the patient body,

a first catheter adapted to be introduced into the vessel and adapted for containing the first blood filter in its first radially folded state, for the implantation thereof in the vessel

a second blood filter adapted to be permanently implanted in the vessel, during a second period of time following the first period of time, the second blood filter having a central hole for allowing the passage therethrough of the first blood filter in its first radially folded state, the second blood filter being adapted for having a first reduced diameter in a first radially folded state, for the implantation thereof in the vessel, and a second enlarged diameter greater than the first diameter, in a second radially expanded state, upon implantation of said second blood filter in the vessel,

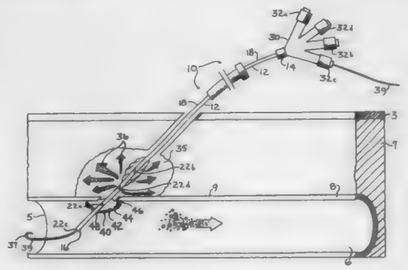
a second catheter adapted to be introduced in the vessel and adapted for containing the second blood filter in its first radially folded state, for the implantation thereof in the vessel, and/or for containing the first blood filter in its first radially folded state for removing thereof out of the vessel, at the end of said first period of time.

5,725,551

METHOD AND APPARATUS FOR ARTERIGTOMY CLOSURE

Gene Myers, 2727 S. Tamiami Trail, Suite 2A, Sarasota, Fla. 34239, and William S. Coury, 2830 Bay Shore Cir., Sarasota, Fla. 34234

Continuation-in-part of Ser. No. 97,401, Jul. 26, 1993, Pat. No. 5,486,195. This application Apr. 27, 1995, Ser. No. 429,817
Int. Cl.[6] A61B *17/00*
U.S. Cl. 606—213 47 Claims



1. An apparatus for sealing an arteriotomy site comprising:

a. a first elongated flexible catheter having a proximal end, a distal end, an external surface, and a wall portion defining at least one lumen extending substantially the entire length of said first catheter, and at least one opening through the external surface of said first catheter located adjacent the distal end, such that the proximal end of the lumen is in fluid communication with the external surface of said first catheter via said opening;

b. a means located adjacent the distal end of said first catheter for temporarily occluding the intravascular opening of the arteriotomy site when said occluding means is positioned in the intravascular space of the patient's artery proximate to the arteriotomy site;

c. a means for delivering a material to the arteriotomy site that is capable of forming a substantially fluid tight seal of the arteriotomy site; and

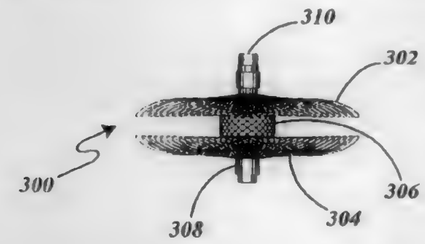
d. a means for debriding subcutaneous tissue from the exterior surface of the anterior arterial wall proximate to the arteriotomy site comprised of an extravascular expandable member on the external surface of said first catheter adjacent the distal end thereof and located at a first predetermined distance therefrom, wherein said extravascular expandable member is a second balloon surrounding a portion of the external surface of said first catheter and having a closed volume, said second balloon overlying a second opening in the external surface of said first catheter wherein the closed volume of said second balloon is in fluid communication with a second lumen of said catheter such that said second balloon may be inflated or deflated by a fluid added or removed respectively through the second lumen of said first catheter.

5,725,552

PERCUTANEOUS CATHETER DIRECTED INTRAVASCULAR OCCLUSION DEVICES

Frank Kotula, Maple Grove; Kurt Amplatz, and Curtis Amplatz, both of St. Paul, all of Minn., assignors to AGA Medical Corporation, Golden Valley, Minn.

Continuation-in-part of Ser. No. 272,335, Jul. 8, 1994. This application May 14, 1996, Ser. No. 647,712
Int. Cl.[6] A61B *17/08*
U.S. Cl. 606—213 12 Claims



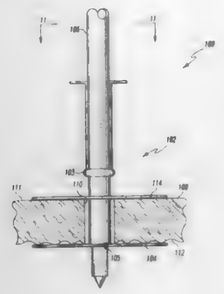
1. A collapsible medical device, comprising a plurality of metal strands woven into a tubular woven metal fabric having a proximal end and a distal end, each end having a means for securing each end attached to said tubular woven metal fabric, thereby gathering said strands and inhibiting unraveling of the strands, said tubular woven metal fabric having an expanded preset configuration shaped to create an occlusion of an abnormal opening in a body organ, said expanded preset configuration being in a shape of a bell and deformable to a lesser cross-sectional dimension for delivery through a channel in a patient's body, the woven metal fabric having a memory property whereby the medical device tends to return to said expanded preset configuration when unconstrained.

5,725,553

APPARATUS AND METHOD FOR PROTECTING A PORT SITE OPENING IN THE WALL OF A BODY CAVITY

Stephen P. Moenning, 124 Hibiscus, Punta Gorda, Fla. 33950

Continuation-in-part of Ser. No. 608,644, Feb. 29, 1996. This application May 30, 1996, Ser. No. 656,430
Int. Cl.[6] A61B *17/08*
U.S. Cl. 606—213 18 Claims



1. A medical apparatus, comprising:

a trocar assembly including a cannula and a trocar;

a sleeve having a number of sealing members extending therefrom and a passageway extending therethrough, said trocar assembly being positioned within said passageway of said sleeve; and

a lock member which has hole defined therein, said sleeve extending through the hole,

wherein said lock member comprises (1) a first lock portion, and (2) a second lock portion which is securable to said first lock portion,

wherein said first lock edge of includes (1) a first shaft extending from an edge of said first lock portion, and (2) a clip extending from an end of said first shaft,

wherein said second lock portion includes (1) a channel defined therein which receives the first shaft and the clip, and (2) an opening defined therein which is connected to the channel, and

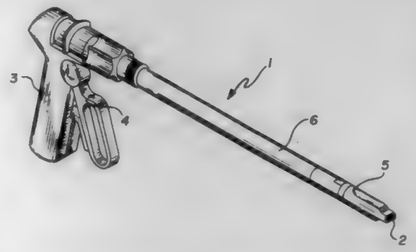
wherein the clip is exposed through the opening when the first lock portion is coupled to the second lock portion.

5,725,554

SURGICAL STAPLE AND STAPLER

Denise M. Simon, Richland, Mich., and Randall J. Hoyt, Kalamazoo, Mich., assignors to Richard-Allan Medical Industries, Inc., Richland, Mich.

Filed Oct. 8, 1993, Ser. No. 134,555
Int. Cl.[6] A61B *17/04*
U.S. Cl. 606—219 7 Claims



1. A surgical stapler for closing staples to join incised tissue comprising: a staple, wherein said staple comprises;

a staple base having symmetric right and left portions joined at one central bend portion;

a right leg and a left leg extending from said right and left portions, each of said legs having a proximal end and a distal end, wherein said proximal end of said right leg joins said right portion at a right upper bend and said proximal end of said left leg joins said left portion at a left upper bend;

an anvil for supporting said staple base as said staple is closed; and

a former having two prongs separated by a gap for closing or forming said staple around said anvil;

wherein said former has surfaces which correspond to and bear on said right and left portions for centering said staple on said anvil prior to closing said staple.

5,725,555

ATRAUMATIC NEEDLE FOR SURGICAL SUTURING MACHINES

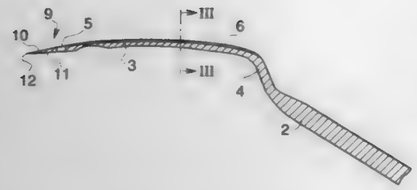
Clemens Moll, Königsbergerstrasse D52076, Aachen, Germany

PCT No. PCT/EP94/02945, § 371 Date Feb. 23, 1996, § 102(e) Date Feb. 23, 1996, PCT Pub. No. WO95/09568, PCT Pub. Date Apr. 13, 1995
PCT Filed Sep. 3, 1994, Ser. No. 612,851
Claims priority, application Germany, Oct. 1, 1993, 43 33 545
Int. Cl.[6] A61B *17/06*
U.S. Cl. 606—223 10 Claims

1. An atraumatic needle for use in surgical suturing machines, the atraumatic needle comprising:

a plunger for receiving the atraumatic needle in a needle holder, the needle holder being moved on an arc-shaped path: and

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an essentially cylindrical and curved shaft connected to said plunger, said shaft defining an inner curvature side and an outer curvature side with an eye for the passage of a thread and a tip joining the eye, a radius of curvature of said shaft substantially corresponding to a radius of curvature of said path of movement, said tip having an area with an outer curvature side surface with a flattened region of said shaft and an inner curvature side surface with a flattened region of said shaft, said flattened regions extending at acute angles in relation to one another and defining a cutting line located on an outer radius of curvature of said shaft to form an edge, said edge being directed at a right angle to a longitudinal axis of said shaft and being located essentially on an outer radius of curvature of said shaft.

5,725,556

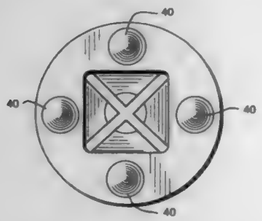
SUTURE LOCKING APPARATUS

Thomas V. Moser, Bedford, and James P. Ryan, Amherst, both of N.H., assignors to M & R Medical, Inc., Bedford, N.H.

Filed Dec. 15, 1995, Ser. No. 573,291

Int. Cl.[6] A61B *17/04*

U.S. Cl. 606—232 **18 Claims**



1. A suture locking apparatus for use with a suture having a diameter and a plurality of spaced apart protrusions, said suture locking apparatus comprising:

a base member having a horizontal plane and an aperture therethrough, said aperture having an attachment surface;

a plurality of substantially rigid, triangular-shaped leaves, each of said leaves having a top and bottom surface, each of said triangular-shaped leaves having a base and an apex, and each of said leaves further having an attachment region, adjacent to said base; wherein, each of said leaves is attached to said base member at the attachment surface of said base member via said attachment region, such that said leaves form a polyhedron with the apex of each leaf immediately adjacent to the apex of the other, thus, said leaves providing a suture opening; and wherein at least one of said leaves articulates with said base, and with each leaf in an unstressed state having an angle defined by a plane coincident with the top surface of that leaf and said horizontal plane of said base, wherein the angle of each leaf is substantially equal to the angle of the other leaves and the angle of each leaf ranges from at least ten degrees but less than fifty degrees.

5,725,557

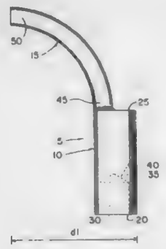
SUTURE ANCHOR

Roland F. Gatturna, Walpole, Mass.; James E. Nicholson, Lincoln, Mass., and James O'Leary, Medford, Mass., assignors to Mitek Surgical Products, Inc., Westwood, Mass.

Continuation of Ser. No. 327,584, Oct. 24, 1994, Pat. No. 5,554,171, which is a continuation of Ser. No. 981,011, Nov. 24, 1992, Pat. No. 5,358,511, which is a continuation of Ser. No. 853,261, Mar. 18, 1992, Pat. No. 5,192,303, which is a continuation of Ser. No. 711,145, Jun. 6, 1991, abandoned, which is a continuation of Ser. No. 439,452, Nov. 20, 1989, Pat. No. 5,046,513, which is a continuation of Ser. No. 51,367, May 18, 1987, Pat. No. 4,898,156. This application Aug. 27, 1996, Ser. No. 703,526

Int. Cl.[6] A61B *17/04*

U.S. Cl. 606—232 **3 Claims**



1. A suture anchor for anchoring a suture in bone, said suture anchor comprising:

(a) a body having a longitudinal axis;

(b) at least one barb, said barb having a first end and a second end and being curved in an unstressed state and being capable of being deformed to a substantially straight configuration, said first end of said barb being fixed to said body, wherein a length of said body as measured along said longitudinal axis is less than the length of said barb when said barb is in said substantially straight configuration; and

(c) attachment means for attaching a suture to said suture anchor.

5,725,558

DEVICE FOR INFLUENCING LOW-FREQUENCY ELECTRICAL AND MAGNETIC FIELDS

Ulrich Warnke, Scheidt, Germany, assignor to Dr. Fischer Aktiengesellschaft, Vaduz, Liechtenstein

PCT No. PCT/EP93/03126, § 371 Date Jul. 15, 1994, § 102(e) Date Jul. 15, 1994, PCT Pub. No. WO94/11062, PCT Pub. Date May 26, 1994

PCT Filed Nov. 9, 1993, Ser. No. 256,636

Claims priority, application Germany, Nov. 17, 1992, 42 38 829.5

Int. Cl.[6] A61N *2/00*

U.S. Cl. 607—3 **49 Claims**

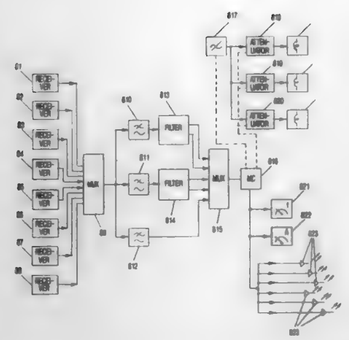
1. A device for influencing localized low-frequency electric and magnetic alternating fields acting on a conductive structure within a delimited space, said device comprising:

a first receiving device for picking up the electric and magnetic fields as oriented electric and magnetic field components of a system of coordinates;

a measuring device connected to said receiving device for determining amplitude, frequency, and orientation of the field components picked up with said receiving unit;

a control member;

a transmitter, connected to said control member and said control member connected to said measuring device, said transmitter



comprising a device for generating a counter field within said delimited space;

wherein said control member, said transmitter and said device for generating a counter field are adjustable with regard to frequency, magnitude and coordinate orientation of said counter field such that said counter field generated within the delimited space at least approximately compensates by interference the effect of the electric and magnetic alternating fields on the conductive structure;

wherein said transmitter generates via said device for generating an oscillation field within said space, said oscillation field having a frequency lower than a frequency of said counter field.

5,725,559

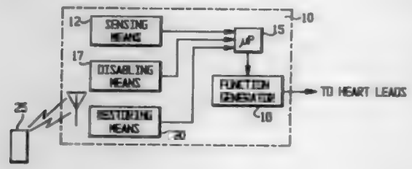
PROGRAMMABLY UPGRADABLE IMPLANTABLE MEDICAL DEVICE

Eckhard Alt, Ottobrunn, Germany, and Lawrence J. Stotts, Lake Jackson, Tex., assignors to Intermedics Inc., Angleton, Tex.

Filed May 16, 1996, Ser. No. 648,707

Int. Cl.[6] A61N *1/39*

U.S. Cl. 607—5 **16 Claims**



1. An implantable cardioverter/defibrillator device adapted to be upgraded from time to time to enable the device to provide additional therapy for treatment of dysrhythmias in a patient in whom the device is implanted, as the needs of the patient for such treatment undergo change, said device comprising means for providing a plurality of functions corresponding to different levels of therapy for treatment of dysrhythmias; means for sensing different types of dysrhythmias; means responsive to each different type of dysrhythmia sensed by said sensing means for enabling said function providing means to provide a level of therapy appropriate to the respective sensed dysrhythmia; means for programmably disabling at least some of said plurality of functions; means for selectively restoring the disabled functions; and means for precluding the restoration of disabled functions except upon access through a security code.

5,725,560

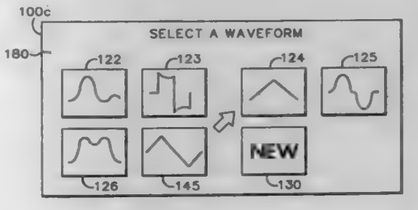
DEFIBRILLATOR WITH WAVEFORM SELECTION CIRCUITRY

Gregory Dean Brink, McMinnville, Oreg., assignor to Hewlett-Packard Company, Palo Alto, Calif.

Filed Jun. 20, 1996, Ser. No. 668,569

Int. Cl.[6] A61N *1/39*

U.S. Cl. 607—5 **20 Claims**



1. A defibrillator comprising:

memory;

an energy storage device;

defibrillator contacts for applying a defibrillation waveform to a patient from the energy storage device;

a switch, operatively coupled between said energy storage device and said defibrillator contacts;

waveform selection circuitry for generating a reference waveform,

a modulator using said reference waveform as an input to control said switch to give said defibrillation waveform a desired shape;

a user interface to allow a user to select a selected waveform from a plurality of waveforms stored in memory,

wherein said reference waveform is generated from said selected waveform by said waveform selection circuitry; and

wherein said user interface also allows said user to draw a new waveform on a display screen and store said new waveform as one of a plurality of waveforms stored in memory.

5,725,561

METHOD AND APPARATUS FOR VARIABLE RATE CARDIAC STIMULATION

John C. Stroebel, Blaine; Michael F. Hess, Minneapolis, and H. Toby Markowitz, Roseville, all of Minn., assignors to Medtronic, Inc., Minneapolis, Minn.

Filed Jun. 9, 1995, Ser. No. 489,262

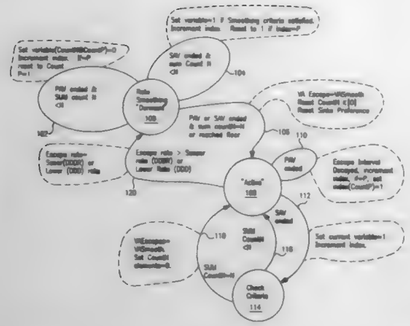
Int. Cl.[6] A61N *1/362*

U.S. Cl. 607—9 **21 Claims**

1. A cardiac pulse delivery and sensing apparatus comprising:

a housing adapted to be implanted in an individual said housing

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containing means for generating and delivering stimulating pulses to an electrical connection outside said housing said electrical connection arranged and disposed for electrical connection to sensing and stimulating pulse delivery lead means and wherein said lead mean are configured and designed to allow for implantation so as to be in close association with said individual's heart so as to provide electrical connection between said heart and said electrical connection,

a timing and control processor circuit and a memory circuit within said housing having control of the timing of delivery of said stimulating pulses and for timing said sensed heart signals and for storing values related to such timing in an associated portion of said memory circuit and wherein said processor circuit comprises as least two processors; a rate smoothing determining processor for determining whether rate smoothing criteria are met in sensed signals from said heart when a rapid rate drop is detected and; a rate support determining processor for determining from said values related to such timing when to maintain a support rate, said maintenance of support rate processor having two modes, a tracking mode which follows an intrinsic atrial rate and a decay mode which allows the support rate to fall in a controlled manner and wherein said timing and control processor circuit also comprises circuit means for adjusting the timing of said stimulating pulses in response to said rate smoothing processor and rate support processor's determining.

5,725,562

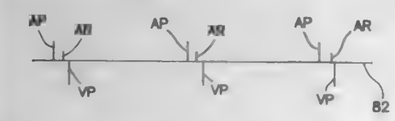
RATE RESPONSIVE CARDIAC PACEMAKER AND METHOD FOR DISCRIMINATING STAIR CLIMBING FROM OTHER ACTIVITIES

Todd J. Sheldon, 3889 Princeton Trail, Eagan, Minn. 55123

Continuation-in-part of Ser. No. 413,733, Mar. 30, 1995, abandoned. This application Jun. 28, 1996, Ser. No. 668,524

Int. Cl.[6] A61N *1/365*

U.S. Cl. 607—19 **27 Claims**



1. A method of pacing a patient's heart at a pacing rate dependent on patient activity and posture particularly during stair climbing comprising the steps of:

deriving a body posture tilt signal having a characteristic varying with the degree to which the patient posture is in an upright stance or leaning forward;

detecting patient footsteps;

deriving a patient activity signal having a signal level dependent on the frequency of patient footsteps recurring over a time unit;

deriving a rate control signal from the body posture tilt signal and the patient activity signal correlated to the physiologic demand on the patient's heart;

defining physiologic escape intervals as a function of the rate control signal to establish a physiologic pacing rate;

generating pacing pulses at the physiologic pacing rate; and

applying the pacing pulses to the patient's heart.

5,725,563

ELECTRONIC DEVICE AND METHOD FOR ADRENERGICALLY STIMULATING THE SYMPATHETIC SYSTEM WITH RESPECT TO THE VENOUS MEDIA

Antoine Klotz, 1 Coeur de Maule, 78580 Maule, France

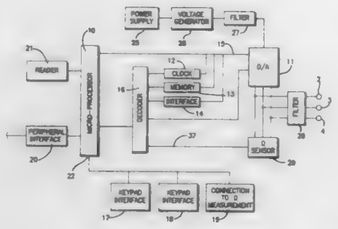
PCT No. PCT/FR94/00442, § 371 Date Oct. 23, 1995, § 102(e) Date Oct. 23, 1995, PCT Pub. No. WO94/23791, PCT Pub. Date Oct. 27, 1994

PCT Filed Apr. 20, 1994, Ser. No. 537,794

Claims priority, application France, Apr. 21, 1993, 93 04687

Int. Cl.[6] A61N *1/36*

U.S. Cl. 607—62 **22 Claims**



5. An electronic device for implementing a method for adrenergic stimulation of the sympathetic nervous system concerned with circulation, the device comprising:

at least two electrodes for being disposed on a body of a patient;

means (**10**) for generating electrical pulses (**35**) between said at least two electrodes (**2, 3, 4**);

means (**7, 19**) for measuring continuously the impedance of all the cytoplasm between the electrodes (**2, 3, 4**); and

means for adapting continuously the voltage of the pulses applied to the patient to maintain the current at a constant value during a stimulation session regardless of variation in the cytoplasm during the stimulation session.

5,725,564

METHOD AND APPARATUS FOR TREATING DYSPHAGIA WITH ELECTRICAL STIMULATION

Marcy L. Freed, Pepper Pike, Ohio; Leonard A. Freed, Kailua, Hi.; Michael O. Christian, Beachwood, Ohio; Howard Tucker, Cleveland Heights, Ohio; Bernard Kotton; Erol M. Beytas, both of Beachwood, Ohio, and Marie Asmar, Richmond Heights, Ohio, assignors to ESD Limited Liability Company, Beachwood, Ohio

Filed Oct. 27, 1995, Ser. No. 549,046

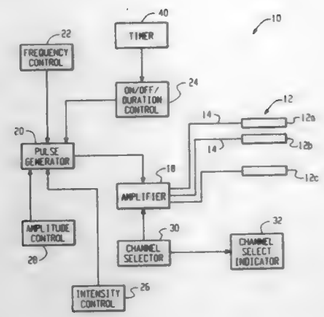
Int. Cl.[6] A61N *1/18*

U.S. Cl. 607—72 **25 Claims**

1. An electrical pharyngeal neuromuscular stimulator comprising:

a plurality of electrodes adapted to be selectively placed in electrical contact with tissue of a pharyngeal region of an associated animal;

a generator for generating a series of electrical pulses in electrical contact with each of the plurality of electrodes, the generator including,



a pulse rate modulator for generating each of the electrical pulses having a frequency generally fixed at 80 hertz,

a pulse width modulator for generating each pulse of the series of electrical pulses at a duration generally fixed at 300 microseconds, and

a governor for regulating the electrical pulses such that at least one of current so as not to exceed 4.4 milliamps RMS or power so as not to exceed 9.6 MW RMS.

5,725,565

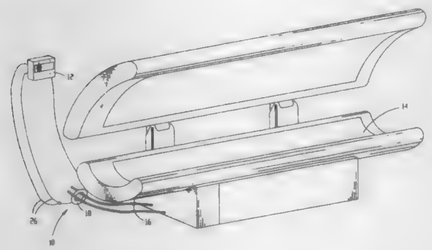
TANNING BED SAFETY DEVICE

Daniel E. Smith, 421 Santa Fe Ave., Branson, Mo. 65616

Filed Dec. 4, 1995, Ser. No. 567,523

Int. Cl.[6] A61N *5/06*

U.S. Cl. 607—88 **3 Claims**



1. A tanning bed safety device for use with a tanning bed controller coupled with a tanning bed having a plurality of tanning bed bulbs, the tanning bed controller including a timer and a switch means responsive to the timer for controlling operation of the tanning bed, said tanning bed safety device comprising:

sensing means for sensing the operation of the tanning bed independently of the operation of the tanning bed controller;

monitoring means for monitoring the operation of the timer; and

alarm activating means responsive to said sensing means and said monitoring means for activating an alarm signal if the tanning bed remains in operation after the timer has stopped operating,

said sensing means including a heat sensor for sensing the temperature of the tanning bed bulbs for sensing the operation of the tanning bed.

5,725,566

METHOD AND KIT FOR PASSIVATING PROBES FOR ACTIVE IMPLANTABLE MEDICAL DEVICES

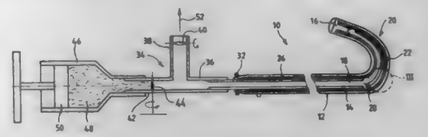
Guy Pioger, Paris, France; Jean-Francois Ollivier, Guyancourt, France, and Alain Ripart, Gif Sur Yvette, France, assignors to ELA Medical S.A., Montrouge, France

Filed Dec. 6, 1996, Ser. No. 760,442

Claims priority, application France, Dec. 8, 1995, 95 14580

Int. Cl.[6] A61N *1/05*

U.S. Cl. 607—125 **20 Claims**



1. A process of passivating in situ a probe tip of an active implantable medical device, the probe (**10**) having an insulating sheath (**12**) made of a supple material, an internal conductor (**14**) terminated at its distal extremity by an electrode (**16**), an axial canal (**18**) defining an internal volume along its length, and a support element (**22**) at its distal extremity (**20**) in the neighborhood of the electrode, the support element having a rigidity greater than the combination of the sheath and the conductor for shaping and/or reinforcing the distal extremity, comprising:

(a) providing a volume of solidifiable material in a fluid state;

(b) injecting said solidifiable material into the insulating sheath so that the solidifiable material coats at least a portion of said support element; and

(c) changing the solidifiable material from a fluid state to a solid state, thereby immobilizing at least a portion of said support element inside said sheath.

5,725,567

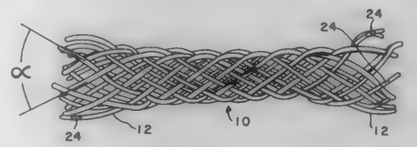
METHOD OF MAKING A INTRALUMENAL DRUG ELUTING PROSTHESIS

Rodney G. Wolff, Minnetonka Beach, and Vincent W. Hull, Ham Lake, both of Minn., assignors to Medtronic, Inc., Minneapolis, Minn.

Division of Ser. No. 171,361, Dec. 21, 1993, Pat. No. 5,545,208, which is a continuation-in-part of Ser. No. 815,560, Dec. 27, 1991, abandoned, which is a continuation of Ser. No. 486,580, Feb. 28, 1990, abandoned. This application Apr. 27, 1995, Ser. No. 430,526

Int. Cl.[6] A61F *2/06;2/04*

U.S. Cl. 623—1 **12 Claims**



1. A method for making a device for local intralumenal administration of drugs comprising:

(a) providing a plurality of a first, structural filament;

(b) providing a second, bioabsorbable polymeric filament having a drug compounded therein,

(c) weaving the first, structural filaments and the second, bioabsorbable polymeric filament into a tubular, open-ended body, said first and second filaments woven helically along a center line of the tubular body as a common axis and woven in opposing helical directions such that the tubular body is variable in radial diameter under axial movement of opposite ends of the body relative to each other and woven with at least a portion of the second, bioabsorbable filament exposed at an exterior surface of the tubular body.

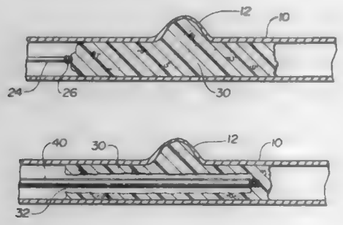
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5,725,568

METHOD AND DEVICE FOR RECANALIZING AND GRAFTING ARTERIES

Roger N. Hastings, Maple Grove, Minn., assignor to Scimed Life Systems, Inc., Maple Grove, Minn.

Filed Jun. 27, 1995, Ser. No. 495,791
Int. Cl.[6] A61F 2/06
U.S. Cl. 623—1 24 Claims



1. A medical device comprising a biocompatible polymeric material which is adapted to be delivered in a first state to a repair site in a vessel, said material being adapted to fill the repair site in its first state and being further adapted to be hardened in situ to form a plug at the repair site, said plug being adapted to have to lumen formed therein in situ, whereby said vessel is recanalized and a polymeric graft is created therein.

5,725,569

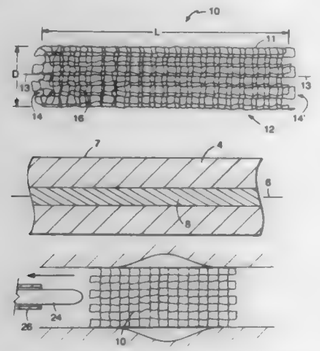
Patent Not Issued For This Number

5,725,570

TUBULAR MEDICAL ENDOPROSTHESES

Kevin R. Heath, Providence, R.I., assignor to Boston Scientific Corporation, Watertown, Mass.

Continuation of Ser. No. 282,776, Jul. 29, 1994, abandoned, which is a continuation of Ser. No. 910,631, Jul. 8, 1992, abandoned, which is a continuation-in-part of Ser. No. 861,253, Mar. 31, 1992, abandoned. This application Feb. 29, 1996, Ser. No. 608,967
Int. Cl.[6] A61F 2/06; A61M 29/02
U.S. Cl. 623—1 26 Claims



1. A self-expanding implantable tubular medical stent device, comprising;

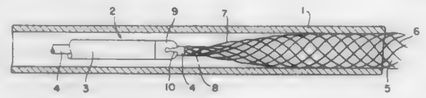
a catheter carrying a stent, said stent being elastically compressed to a small diameter for delivery into a body and capable of being elastically expanded to a larger diameter, said stent being formed of metal wire configured to substantially define a tube when said stent is expanded to said larger diameter, said wire composed of a core and a sheath surrounding said core, said core being formed of a first metal and said sheath being formed of a second metal, the first metal having greater density than the second metal and the second metal having greater elasticity than the first metal.

5,725,571

CATHETER WITH A STENT

Christian Imbert, Versoix; Eugen Hofmann, Zurich, and Marc Gianotti, Wiesendangen, all of Switzerland, assignors to Schneider (Europe) A.G., Bulach, Switzerland

Division of Ser. No. 433,281, Apr. 28, 1995, Pat. No. 5,607,466, which is a continuation of Ser. No. 10,102, Jan. 28, 1993, abandoned. This application Nov. 20, 1996, Ser. No. 752,273
Claims priority, application European Pat. Off., Feb. 3, 1992, 92200294
Int. Cl.[6] A61F 2/06; 29/00
U.S. Cl. 623—1 3 Claims



1. In a catheter with a self-expanding cylindrical vessel support consisting of a permeable mesh of crossing rigid filaments, wherein the vessel support expands during use from a tensioned state with a small circumference into a relaxed state supporting the vessel wall with a large circumference which is uniform over its length, due to its intrinsic force owing to its radial elasticity, with a displaceable tubular outer catheter shank which receives the tensioned vessel support in itself at its distal end and from which the vessel support can be released for use thereof, with a displaceable inner catheter in the interior of the tubular outer catheter shank which axially supports the vessel support at its proximal end, wherein the outer catheter shank is retracted relative to the inner catheter to release the vessel support, wherein the vessel support is fixed at its proximal end and secured such that it forms a permeable mesh cone which opens itself with the vessel support and of which the radius slowly increases to the radius of the relaxed vessel support, wherein the vessel support is rigidly secured on the inner catheter by means of the mesh cone and wherein the vessel support is constricted to the external diameter of the inner catheter at the proximal end of the mesh cone;

wherein the improvement comprises that the vessel support overlaps with and is connected to the inner catheter in an overlapping portion at the proximal end of the mesh cone only by a layer of binder, the overlapping portion has an outer diameter defined by the outer diameter of the proximal end of the mesh cone, and the vessel support is unattached to the inner catheter at its distal end.

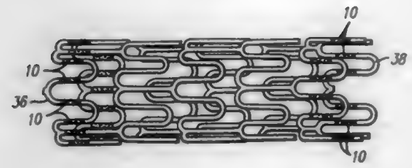
5,725,572

RADIOPAQUE STENT

Sharon S. Lam, San Jose, Calif.; John J. Frantzen, Copperopolis, Calif., and Farhad Khosravi, Newton, Mass., assignors to Advanced Cardiovascular Systems, Inc., Santa Clara, Calif.

Continuation of Ser. No. 564,936, Nov. 30, 1995, abandoned, which is a continuation of Ser. No. 233,046, Apr. 25, 1994, abandoned. This application Aug. 8, 1997, Ser. No. 908,906
Int. Cl.[6] A61F 2/06
U.S. Cl. 623—1 10 Claims

1. A longitudinally flexible stent having high visibility under fluoroscopy for permanently implanting in a body lumen, comprising:



a plurality of cylindrical elements which are interconnected so as to be generally aligned on a common longitudinal axis;

at least one connecting element for interconnecting the cylindrical elements, the at least one connecting element configured to interconnect only the cylindrical elements that are adjacent to each other;

the plurality of cylindrical elements formed into a serpentine pattern including a plurality of peaks and valleys;

the stent further being constructed of deforming components that undergo deformation upon expansion of the stent and components that remain undeformed upon expansion of the stent; and

a radiopaque material exclusively affixed to portions of the undeformed components at least at the distal end and the proximal end of the intravascular stent so that the radiopaque material is visible under fluoroscopy and the distal stent end and the proximal stent end can be easily located in the body lumen where the stent is implanted.

5,725,573

MEDICAL IMPLANTS MADE OF METAL ALLOYS BEARING COHESIVE DIAMOND LIKE CARBON COATINGS

Geoffrey Dearnaley, and James Lankford, Jr., both of San Antonio, Tex., assignors to Southwest Research Institute, San Antonio, Tex.

Continuation-in-part of Ser. No. 472,495, Jun. 7, 1995, Pat. No. 5,605,714, which is a continuation-in-part of Ser. No. 220,234, Mar. 29, 1994, Pat. No. 5,593,719. This application Apr. 10, 1996, Ser. No. 630,141
Int. Cl.[6] A61F 2/24; C23C 14/00; B05D 3/00; B32B 9/00
U.S. Cl. 623—2 36 Claims

20. A titanium base component of a medical implant comprising a coating of diamond-like carbon produced by a process comprising:

exposing said component to a vacuum at a pressure of about 10^{-5} torr or less;

heating said component to at least about 600° C.–650° C. (1112°–1202° F.);

depositing onto said component an intermediate material selected from the group consisting of silicon, germanium, and a combination thereof, in an amount sufficient to form an intermetallic material selected from the group consisting of titanium-silicide, titanium-germanide, and a combination thereof at said outer surface of said substrate cohesively bonded to an interlayer of said intermediate material;

substantially simultaneous with said depositing of said intermediate material, bombarding said intermediate material with a first energetic beam of ions at a first energy, a first ion arrival ratio, and for a first amount of time sufficient to form said intermetallic bonding layer cohesively bonded to said interlayer;

condensing a diamond-like carbon precursor onto said interlayer at a second temperature and for a second amount of time sufficient to form a film of precursor molecules on said interlayer, wherein said second temperature is sufficiently low that said diamond-like carbon precursor is not vaporized off of said substrate;

substantially simultaneous with said depositing of said intermediate material, bombarding said diamond-like carbon precursor with a second energetic beam of ions at a second energy, a second ion arrival ratio, and for a third amount of time sufficient to form a carbide bonding layer selected from the group consisting of silicon-carbide, germanium-carbide, and a combination thereof, cohesively bonded to a coating of diamond-like carbon.

5,725,574

INTRAOCULAR LENSES AND METHODS FOR MAKING SAME

Tuan A. Nguyen, Fountain Valley, Calif., assignor to Allergan, Waco, Tex.

Continuation of Ser. No. 315,736, Sep. 30, 1994, abandoned, which is a continuation of Ser. No. 126,728, Sep. 24, 1993, abandoned, which is a continuation of Ser. No. 933,410, Aug. 21, 1992, abandoned. This application Feb. 20, 1996, Ser. No. 603,510
Int. Cl.[6] A61F 2/16
U.S. Cl. 623—6 19 Claims



1. An intraocular lens comprising:

an optic; and

at least one fixation member integral with and extending from said optic, said optic and said at least one fixation member being made from a compressed item having a compressed thickness, said compressed item comprising a polymer selected from the group consisting of methyl methacrylate homopolymers, methyl methacrylate-containing copolymers and mixtures thereof, said compressed item being derived by subjecting an item which comprises said polymer and which has a thickness to compression along a single axis substantially parallel to said thickness to reduce said thickness, provided that said at least one fixation member has a reverse bend strength of at least about 164 g.

5,725,575

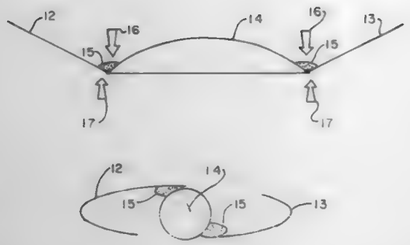
IN VIVO MODIFICATION OF REFRACTIVE POWER OF AN INTRAOCULAR LENS IMPLANT

Francis E. O'Donnell, Jr., 709 The Hamptons La., Town & Country, Mo. 63017

Continuation of Ser. No. 100,138, Aug. 2, 1993, Pat. No. 5,549,668, which is a continuation of Ser. No. 950,224, Sep. 24, 1992, Pat. No. 5,288,293. This application Apr. 23, 1996, Ser. No. 636,830
Int. Cl.[6] A61F 2/16
U.S. Cl. 623—6 1 Claim

1. An intraocular lens implant formed of materials when subjected to laser energy providing for a variation in its refractive power, said variation in the lens refractive power capable of performance either before or after the lens has been implanted, wherein said implant incorporating an optic lens, a pair of haptics extending from approximate opposite sides of said optic lens, and a segment of material located at the juncture where the haptics connect with the optic lens, said material being formed of one of hydrogel and collagen, said material being subject to expansion or contraction when exposed to laser energy when aimed at the said

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material of the haptic-lens junction, the laser energy being applied in the vicinity of 1064 nanometers, such that when laser energy is directed upon the segment of material providing for a variation in the angular relationship between the haptics and the optic lens.

5,725,576

POLYMER MATERIAL FOR MAKING AN ELASTIC INTRAOCULAR LENS AND A LENS BASED ON SAID MATERIAL

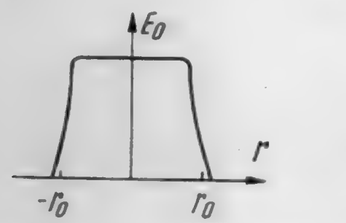
Svyatoslav Nikolaevich Fedorov; Leonid Feodosicvich Linnik, both of Moscow; Valery Mikhailovich Treushnikov, and Elena Alexandrovna Viktorova, both of Nizhny Novgorod, all of Russian Federation, assignors to Mezhotraslevoi Nauchno-Tekhnichesky Kompiex "Mikrokhirurgia Glaza" , Moscow, and Tovarischestvo S Ogranichennoi Otvetstvennostju "Svetoplastik" , Nizhny Novgorod, both of Russian Federation

Filed May 31, 1996, Ser. No. 656,693

Claims priority, application Russian Federation, Jun. 1, 1995, 95108279

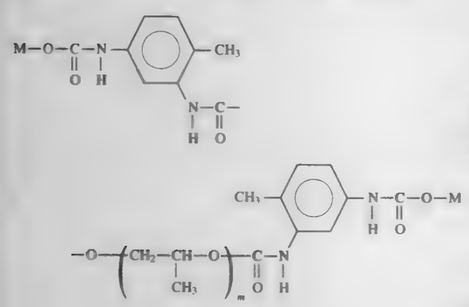
Int. Cl.[6] A61F *2/16*

U.S. Cl. 623—6 **4 Claims**



1. A polymer material for making an elastic intraocular lens, which is a mixture of components consisting essentially of:

oligourethanemethacrylate having the following structural formula:



-continued

Where M = $-CH_2-CH_2-O-\overset{\overset{O}{\|}}{C}-\overset{\overset{CH_3}{|}}{C}=CH_2$ m = 60–150;

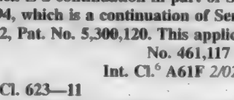
methylcarbitol methacrylate

$$CH_2=\overset{\overset{CH_3}{|}}{C}-\overset{\overset{O}{\|}}{C}-O-C_2H_4-O-C_2H_4-O-CH_3;$$

methacrylic acid

$$CH_2=\overset{\overset{CH_3}{|}}{C}-COOH$$

and 2,2'-dimethoxy-2-phenylacetophenone



taken in ratios that ensure the ability of the mixture to cure under the effect of UV radiation.

5,725,577

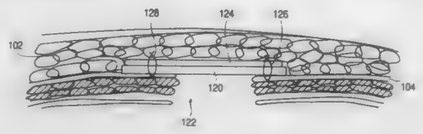
PROSTHESIS FOR THE REPAIR OF SOFT TISSUE DEFECTS

Allen Saxon, 57 Overbrook Rd., Barrington, Ill. 60010

Continuation-in-part of Ser. No. 2,394, Jan. 13, 1993, abandoned. This application Mar. 1, 1993, Ser. No. 24,233

Int. Cl.[6] A61F *2/08;* **A61B** *17/00*

U.S. Cl. 623—11 **20 Claims**



1. A substantially planar prosthesis for the repair of a hernia consisting of:

a first layer comprising expanded polytetrafluoroethylene which substantially does not incorporate into the host tissue, and

a second layer comprising a material selected from the group of materials consisting of a material which substantially incorporates into the host tissue, a material which increases the structural integrity of the prosthesis, and a material which does both.

5,725,578

TEMPORARY IMPLANT WITH TRANSPONDER AND METHODS FOR LOCATING AND INDENTIFYING

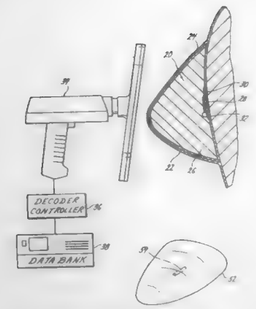
Terry R. Knapp, Neuchatel, and Elizabeth Mary Belsey, Duillier, both of Switzerland, assignors to Lipomatrix Incoporated, Neuchatel, Switzerland

Continuation-in-part of Ser. No. 375,811, Jan. 20, 1995, which is a continuation-in-part of Ser. No. 938,833, Aug. 31, 1992, which is a continuation-in-part of Ser. No. 221,706, Apr. 1, 1994, which is a continuation of Ser. No. 934,785, Aug. 24, 1992, Pat. No. 5,300,120. This application Jun. 5, 1995, Ser. No. 461,117

Int. Cl.[6] A61F *2/02; 2/54*

U.S. Cl. 623—11 **7 Claims**

1. A method for identifying an implant adapted for temporary implantation in a human, said method comprising the steps of:



associating a transponder with said implant;

encoding said transponder with a unique tag corresponding to an information entry in a registry; and

contemporaneously implanting said implant and said transponder in a human.

5,725,579

PROCESS FOR TREATING BONE TISSUE AND CORRESPONDING IMPLANTABLE BIOMATERIALS

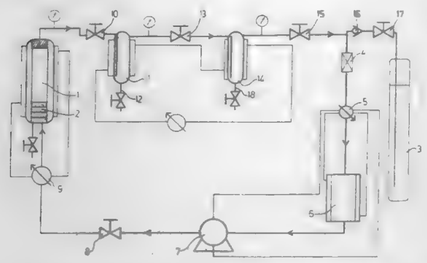
Jacques Fages, Portet Sur Garonne; Alain Marty, Toulouse; Didier Combes, Escalquens, and Jean-Stéphane Condoret, Toulouse, all of France, assignors to Bioland, Toulouse, France

Continuation of Ser. No. 163,775, Dec. 9, 1993, abandoned. This application Dec. 6, 1995, Ser. No. 568,406

Claims priority, application France, Dec. 21, 1992, 92.15577

Int. Cl.[6] A61F *2/28;2/54*

U.S. Cl. 623—16 **21 Claims**



1. A process for treating bone tissue to obtain implantable bone grafting tissue with improved mechanical strength, comprising the steps of:

a) obtaining bone tissue;

b) removing any organic matter present about said bone tissue; and

c) treating said bone tissue with a fluid in supercritical state adapted to obtain a tissue containing less than 2% fat on average, said fluid penetrating throughout said bone tissue.

5,725,580

HOLE CAPS FOR PROSTHETIC IMPLANTS

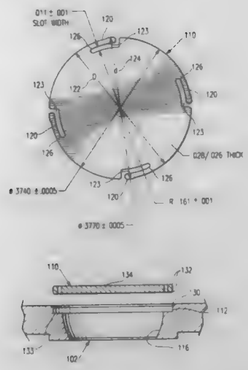
Raymond J. Cloutier, Gainesville, Fla., and Cary M. Mauldin, Lake City, Fla., assignors to Exactech, Inc., Gainesville, Fla.

Continuation of Ser. No. 357,855, Dec. 16, 1994, abandoned. This application Jul. 11, 1996, Ser. No. 680,276

Int. Cl.[6] A61F *2/28*

U.S. Cl. 623—16 **9 Claims**

1. A hole cap for a prosthetic implant, comprising:



a. a substantially flat disk having a disk shaped inner region surrounded by an annular shaped perimeter region the disk shaped inner region having a smooth voidless surface; and

b. at least one compression spring formed by a slot cut into the perimeter region of the disk, wherein the compression spring extends slightly beyond an outer diameter of the disk, but is deflected into an area defined by the slot, and wherein the cap is shaped to be received by a substantially round counter-bored hole formed into a prosthetic implant, the counter-bored hole having an inner bore and a larger outer bore such that said disk shaped inner region of the hole cap forms a substantially continuous surface along the prosthetic implant over the inner bore of the counter-bored hole and the slot cut into the perimeter region lies entirely over an area of the counter-bored hole between respective perimeters of the outer bore and inner bore, whereby debris is prevented from passing through said slots from above the disk to an area below the disk when the hole cap is inserted into the counter-bored hole.

5,725,581

ANCHORING ELEMENT SUPPORTING PROSTHESES OR A JOINT MECHANISM FOR A RECONSTRUCTED JOINT

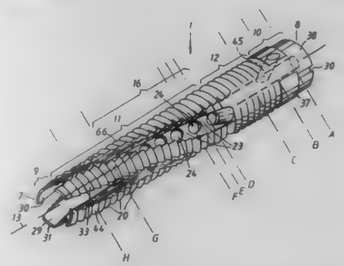
Per-Ingvar Brånemark, Molndal, Sweden, assignor to Medevelop AB, Sweden

Continuation of Ser. No. 549,910, Oct. 30, 1995, abandoned, which is a continuation of Ser. No. 145,071, Oct. 27, 1993, abandoned. This application Nov. 27, 1996, Ser. No. 757,901

Claims priority, application Sweden, Oct. 29, 1992, 92 03 181-4

Int. Cl.[6] A61F *2/28;* **A61B** *17/86*

U.S. Cl. 623—16 **17 Claims**



1. An essentially rotationally symmetric one piece anchoring element for supporting a prosthesis or parts thereof, said anchoring element including:

a central bore extending longitudinally through said element;

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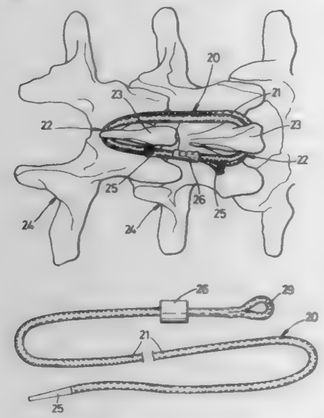
a generally cylindrical outer surface;
an inner end portion at a first end of said element;
an outer end portion at a second end of said element opposite said first end;
external threads spiraling around said bore and extending over a major portion of said outer surface, and
at least one open slit extending from said inner end portion toward said outer end portion, and extending from said outer surface to said central bore;
said outer end portion being operatively constructed for connection with said prosthesis or parts thereof;
said inner end portion being operatively constructed for insertion and anchoring in bone tissue;
said slit being of a spiral form with respect to said bore and extending lengthwise over a major lengthwise part of said outer surface, said external threads extending over at least said major lengthwise part;
said slit being of a first pitch and said external threads being of a second pitch, said first pitch being substantially greater than said second pitch;
said slit being provided with cutting edges for cutting bone tissue by rotating said anchoring element as said inner end portion is inserted into a hole in said bone tissue; and
also said slit having directional spirality which is the same as directional spirality of said external threads.

5,725,582

SURGICAL IMPLANTS

David Robin Bevan, Gower; Richard William Porter, Doncaster; John Anthony Norman Shepperd, Telham, nr. Battle, and Peter William Phillips, Evesham, all of Great Britain, assignors to Surgicraft Limited, Worchestershire, Great Britain

PCT No. PCT/GB93/01746, § 371 Date Aug. 8, 1995, § 102(e) Date Aug. 8, 1995, PCT Pub. No. WO94/04088, PCT Pub. Date Mar. 3, 1994
PCT Filed Aug. 18, 1993, Ser. No. 387,710
Claims priority, application United Kingdom, Aug. 19, 1992, 9217578
Int. Cl.[6] A61F *2/44*
U.S. Cl. 623—17 **16 Claims**



1. A surgical implant (**20**) comprising a hank formed from a single strand (**21**) of flexible biocompatible material with at least one bight (**22**) at each end of the hank, a tail (**25**) extending from at least one end, and at least one crimpable sleeve-like element (**26**) encircling part of the hank intermediate the bights (**22**), characterized in that the sleeve-like element (**26**) is formed of ductile material and encircles at least overlapping end lengths (**27**) of the strand,

and further characterized by a pair of hooking members (**30**), each having a broad flat hook portion (**31**) for engaging one part of the spinal column, integrated with an oppositely directed and reverse facing round hook portion (**32**) engageable with the bight or bights (**22, 29**) at one end of the hank.

5,725,583

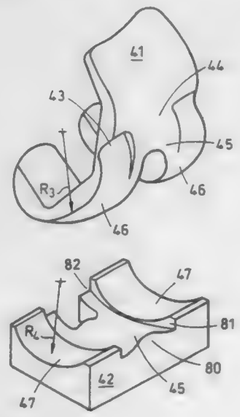
Patent Not Issued For This Number

5,725,584

KNEE PROSTHESIS WITH FEMORAL, TIBIAL CONFORMITY

Peter Stanley Walker, 13 Pembroke Road, Moor Park, Middlesex, England, HA8 2HP, and John Nevil Insall, 170 East End Ave., New York, N.Y. 10128

Continuation of Ser. No. 373,323, Mar. 10, 1995, abandoned. This application Apr. 26, 1996, Ser. No. 638,085
Claims priority, application United Kingdom, May 18, 1993, 9310193
Int. Cl.[6] A61F *2/38*
U.S. Cl. 623—20 **7 Claims**



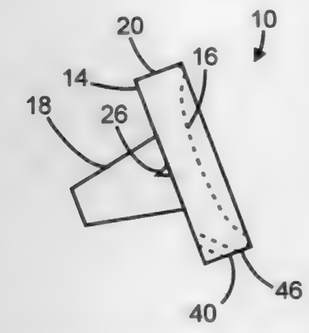
1. A knee prosthesis comprising:
a one part bicondylar femoral component;
a tibial component; and
at least one meniscal component interposed between the femoral and tibial components, said meniscal component including slide means for slidingly supporting said meniscus component on said tibial component and for guiding said meniscal component for anterior-posterior sliding movement with respect to said tibial component; and means for permitting relative pivoting movement of the femoral component in the meniscal component throughout a normal range of flexion, said femoral component comprising condylar surfaces separated by a patella bearing surface of defined width which is shaped in a sagittal plane so as to provide in use a normal patella lever arm corresponding in a natural knee to the distance between a center of tibial/femoral contact pressure and a line extending through the patella, each condylar surface being shaped for substantial conformity with a corresponding tibial bearing surface on a meniscal component through said normal range of flexion, each said condylar surface including a portion being recessed anteriorly thereby providing a recess in each said condylar surface, the recesses being separated by a patella bearing surface, and the meniscal component having projecting portions, each projecting portion providing a contact surface corresponding with a respective said recess when the prosthesis is in extension, thus facilitating said substantial conformity and reduced contact stresses throughout said normal range of flexion without shortening said patella lever arm.

5,725,585

ANATOMICALLY CORRECT GREAT TOE IMPLANT AND SURGICAL PROCEDURE FOR IMPLANTING THE SAME

Robert A. Zobel, 333 E. Downing, Mesa, Ariz. 85213

Filed Feb. 27, 1997, Ser. No. 807,758
Int. Cl.[6] A61F *2/42*
U.S. Cl. 623—21 **9 Claims**



1. An implant for replacing a portion of a proximal phalanx in a great toe joint, the implant comprising a substantially reniform bearing surface for contacting a metatarsal in the great toe joint, the implant further comprising:
a rear portion coupled to the substantially reniform bearing surface, the rear portion configured to be permanently attached to the proximal phalanx;
a side surface coupling the substantially reniform bearing surface to the rear portion; and
at least one hole extending between the side surface and the rear portion.

5,725,586

HOLLOW BONE PROSTHESIS WITH TAILORED FLEXIBILITY

Robert E. Sommerich, Norton, Mass., assignor to Johnson & Johnson Professional, Inc., Raynham, Mass.

Filed Sep. 29, 1995, Ser. No. 536,816
Int. Cl.[6] A61F *2/36*
U.S. Cl. 623—22 **12 Claims**

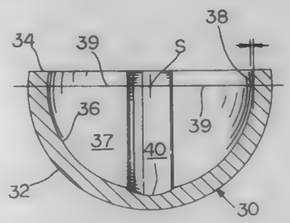
1. A bone prosthesis of the type having a stem insertable in a bone for fixation thereto, wherein the stem is a generally elongated spike which provides an outer surface forming a contact region adapted for contacting a length of the bone, and wherein the stem further is hollow with a non-monotonically decreasing interior surface, said outer and said interior surface producing therebetween a wall thickness of the stem, the wall thickness having at least one region of locally increased thickness effective to achieve a growth sustaining level of strain transfer to surrounding bone along said contact region.

5,725,587

ACETABULAR CUP ASSEMBLY

Frank D. Garber, Pierceton, Ind., assignor to Zimmer, Inc., Warsaw, Ind.

Filed Dec. 14, 1995, Ser. No. 572,459
Int. Cl.[6] A61F *2/34*
U.S. Cl. 623—22 **9 Claims**



1. A modular acetabular cup assembly comprising:
a shell component including a concave spherical surface terminating in an annular rim to define an open inner cavity, said shell concave surface having a recess defined therein and an annular surface portion extending radially beyond the lateral diametrical plane of said shell concave surface, and
a bearing component including an end surface and a convex spherical surface having a contour complimentary to said shell concave surface for concentric engagement therewith,
said bearing component being insertable into said shell inner cavity in a first position wherein the lateral diametrical plane of said bearing convex surface is sideways or not parallel to the lateral diametrical plane of said shell concave surface and said bearing end surface is positioned over said recess for insertion therein, and being rotatable within said shell inner cavity to a second position wherein said bearing convex surface is seated concentrically over said shell concave surface and said shell surface portion converges partially over said bearing component to secure said bearing component within said shell inner cavity.

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5,725,588

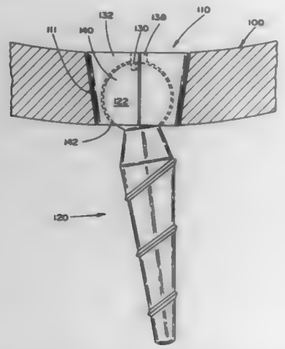
ACETABULAR CUP HAVING POLYAXIAL LOCKING SCREWS

Joseph P. Errico, Far Hills, N.J.; Thomas J. Errico, Summit, N.J., and James D. Ralph, Oakland, N.J., assignors to Fastenetix, LLC, Summit, N.J.

Continuation-in-part of Ser. No. 421,087, Apr. 13, 1995, Pat. No. 5,520,690. This application Apr. 15, 1996, Ser. No. 632,560

Int. Cl.[6] A61F 2/28

U.S. Cl. 623—22 9 Claims



1. An acetabular cup having polyaxial locking anchoring screws for securing said cup within a recess of surrounding bone, comprising:

an acetabular cup having a plurality of through holes having a constant linear taper;

a corresponding plurality of coupling elements, each of said coupling elements being insertable into a corresponding one of said through holes; and

a plurality of bone screws, each of said bone screws having a semi-spherical head portion and a shaft, said shaft portion being insertable through the corresponding through hole and into the surrounding bone, and said semi-spherical head portion being rotationally freely mounted in the coupling element prior to insertion and such that the shaft of the bone screw and the coupling element may be inserted into a corresponding through hole and said shaft of the bone screw may be inserted into the surrounding bone at a selected angle within a predetermined range of angles relative to the acetabular cup and thereby locking said coupling element and said semi-spherical head within said hole of said acetabular cup at said selected angle.

5,725,589

TAPERED HIP-JOINT SOCKET WITHOUT TAPER LOCK

Hans-Georg Pfaff, Ostfildern; Ernst Hoch, Notzingen, and Harmut Kälberer, Deizisau, all of Germany, assignors to Cera GmbH, Innovatives-Keramik-Engineering, Plochingen, Germany

Continuation of Ser. No. 344,348, Nov. 22, 1994, abandoned. This application Apr. 17, 1996, Ser. No. 634,113

Claims priority, application Germany, Nov. 26, 1993, 43 40 304.2; Jan. 29, 1994, 44 02 675.7

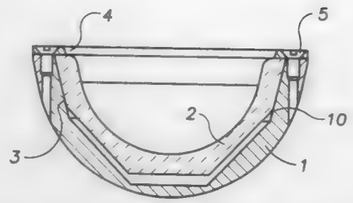
Int. Cl.[6] A61F 2/32

U.S. Cl. 623—22 8 Claims

1. A hip-joint socket for insertion into bone tissue comprising:

an outer metal shell having a conical bearing surface where the outer metal shell has a face and an inner edge; and

a removable inner antifriction liner of a ceramic material having a contact surface with a conical configuration wherein the antifriction liner lies upon the bearing surface without self-locking and is fixed in the metal shell by a retaining ring, where the retaining ring is fastened by screws on the face of the metal shell and the retaining ring extends beyond the inner edge of the metal shell.



5,725,590

ELEMENT FOR TEMPORARILY INCREASING THE RIGIDITY OF AN ORTHOPAEDIC PROSTHESIS

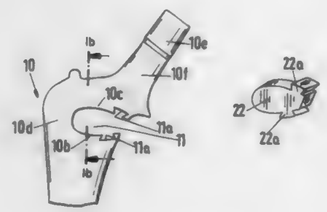
Jean Maumy, Montauban, France, and Roland Baege, Wiesendangen, Switzerland, assignors to Sulzer Medizinaltechnik AG, Winterthur, Switzerland

Continuation of Ser. No. 287,548, Aug. 8, 1994, abandoned. This application Jun. 4, 1996, Ser. No. 658,990

Claims priority, application European Pat. Off., Aug. 30, 1993, 93810617

Int. Cl.[6] A61F 2/32

U.S. Cl. 623—22 3 Claims



1. An orthopaedic prosthesis comprising

a metallic body defining first and second elastic elements, the elastic elements defining a recess therebetween and being deflectable towards each other into the recess, the recess defining an inner surface; and

a biodegradable or bioreabsorbable insert positioned within the recess of the metallic body, the insert comprising a shape substantially complementary to the inner surface of the recess to prevent deflection of the elastic elements towards each other, the insert having a side surface sized to frictionally engage the inner surface of the recess such that the inner surface of the recess frictionally retains the insert therein, the insert having a temporary load bearing capability that degrades over time to thereby increase the elastic properties of the prosthesis body.

5,725,591

ACETABULAR BEARING SYSTEM

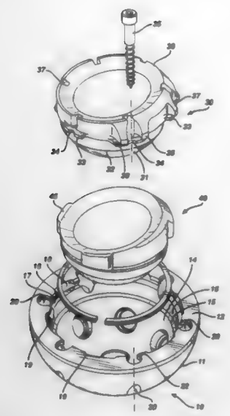
Alfred F. DeCarlo, Jr., Stamford, Conn.; George B. Cipolletti, Wilton, Conn., and Leda Hewka, New York, N.Y., assignors to Johnson & Johnson Professional, Inc., Raynham, Mass.

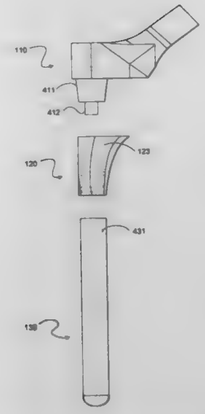
Filed Aug. 13, 1996, Ser. No. 696,310

Int. Cl.[6] A61F 2/32

U.S. Cl. 623—22 7 Claims

1. A prosthetic acetabular cup system for surgical implantation comprising:





an outer shell comprising: a cavity for receiving a liner, the liner forming a bearing for receiving a ball portion of a ball and socket joint, said cavity defining a plane through which the liner enters the cavity, and said cavity comprising an axis perpendicular to said plane;

a plurality of acetabular cup liners from which a liner may be selected to be placed within said outer shell for implanting into a patient;

each of said plurality of liners comprising a cavity and a circumferential rim about said cavity extending out of said plane when said liner is inserted into said shell, each of said plurality of liners having a plurality of selectable orientations, said plurality of selectable orientations being angularly displaced from one another about said axis and relative to said plane;

said plurality of acetabular liners comprising:

a first liner and a second liner;

wherein said system comprises a first fixation device for fixing the first liner to the shell in one of said plurality of orientations and a second fixation device different from said first fixation device for fixing the second liner to the shell in one of said plurality of orientations;

wherein said first liner is arranged so that an orientation is first selected from said plurality of orientations before said liner is inserted into said shell and said first fixation device fixes said first liner in a said orientation within said shell when said first liner is inserted into said shell; and

wherein said second liner is arranged so that an orientation is selected after said liner is inserted into said shell and said second fixation device fixes said second liner in a said orientation after said liner is inserted into said shell and then said orientation is selected.

5,725,592

MODULAR PROSTHESIS HAVING NECK COMPONENT CONNECTED TO STEM COMPONENT THROUGH CAVITY IN BODY COMPONENT

Patrick M. White, Sacramento; Daniel E. E. Hayes, Jr., Placerville, and Robert-Jan Enzerink, Davis, all of Calif., assignors to Hayes Medical, Inc., Sacramento, Calif.

Filed Oct. 29, 1996, Ser. No. 739,389

Int. Cl.[6] A61F 2/32

U.S. Cl. 623—22 23 Claims

1. A modular assembly used in the replacement of a portion of a bone, the modular assembly comprising:

a stem component for insertion into the bone, said stem component having a distal portion and a proximal portion;

a body component connected to said stem component, said body component defining a cavity and including a first taper; and

a neck component connected to said stem component through said cavity said neck component including a second taper that mates with said first taper:

wherein the distal portion of the stem component has a shape which fits within said bone;

wherein the body component has a shape such that at least a portion of the body component fits within said bone;

wherein the neck component has a shape which interlocks with the body component; and

wherein the proximal portion of the stem component is shaped to engage with the neck component.

5,725,593

TOTAL ANATOMIC HIP PROSTHESIS

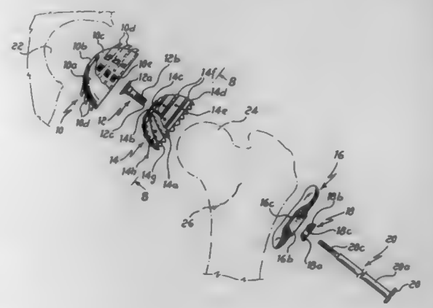
Francesco Caracciolo, Via Sangallo, 2 - 20133 Milan, Italy

Continuation of Ser. No. 531,349, Sep. 20, 1995, abandoned. This application Oct. 30, 1996, Ser. No. 739,929

Claims priority, application Italy, Feb. 22, 1995, MI95A0322

Int. Cl.[6] A61F 2/34;2/36

U.S. Cl. 623—22 15 Claims

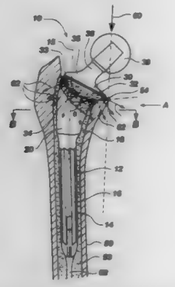


1. Total anatomic hip prosthesis for patients who do not need the femoral head removed, which comprises a hemispherical prosthetic acetabulum, a hemispherical cap insertable into a cavity inside said acetabulum and a stabilizing ring positioned outside said acetabulum and connectable thereto, said acetabulum adapted to fit in said iliac fossa through said stabilizing ring which includes a junction and is provided on its external circumference with hooks, said cap being provided with anchorage means for fitting by pressure on said femoral head, an outside surface of said cap having round projections to reduce the friction with the inner surface of said

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cavity inside said acetabulum, said cap being further connected with holding means adapted to hold it stably on the femoral head.

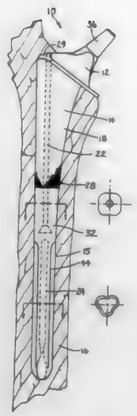
5,725,594
PROXIMAL CONICAL STEM
Timothy McTighe, Chagrin Falls, Ohio; Jerry Kee, Salt Lake City, Utah, and Paul Mraz, Chagrin Falls, Ohio, assignors to Ortho Development Corporation, Draper, Utah
Continuation of Ser. No. 274,956, Jul. 14, 1994, abandoned. This application Feb. 12, 1996, Ser. No. 600,118
Int. Cl.[6] A61F *2/34*
U.S. Cl. 623—23 **23 Claims**



1. A prosthetic component implantable into a hollow interior portion of a first bone, said prosthetic component comprising:
elongate stem means having a distal section and an opposing proximal section including a circumferential proximal end, said stem means further including a long axis; and
support plate means having first and second opposing sides, said first side being disposed upon the circumferential proximal end of the stem means and including at least one flared plate surface having a medial section and flaring outwardly from said proximal end in a distal to proximal direction such that at least a portion of said medial section forms an angle with the long axis of the stem means which is greater than ninety degrees.

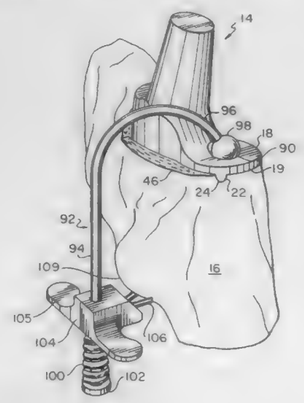
5,725,595
CANNULATED CEMENTLESS HIP STEM PROSTHESIS
Ramon B. Gustilo, Eden Prairie, Minn., assignor to Orthopaedic Innovations, Inc., Minneapolis, Minn.
Continuation of Ser. No. 335,678, Nov. 8, 1994, abandoned. This application Feb. 20, 1996, Ser. No. 603,408
Int. Cl.[6] A61F *2/32*
U.S. Cl. 623—23 **21 Claims**

1. A femoral stem component of a femoral hip prosthesis having an anterior surface, a posterior surface, a medial surface, a lateral surface, and a proximal pole generally opposite a distal pole along a longitudinal axis, the prosthesis generally wider medially proximate the proximal pole and suitable for implantation in a living being, the femoral stem component comprising:
a proximal portion including the proximal pole and a centrally located cylindrical bore open proximate the proximal pole and generally aligned along the longitudinal axis of the prosthesis suitable for slidably and telescopically receiving an aligning rod therethrough;
a transition portion, distal to the proximal portion, including a centrally located cavity aligned along the longitudinal axis, the cavity having a shape generally narrow proximally and substantially wider distally resulting from thinning of the stem wall, the cavity in open communication with the cylindrical bore proximally; and
a flexible shell portion, distal to the transition portion and including the distal pole, the flexible shell portion including a



centrally located shell cavity, an opening into the shell cavity proximate the distal pole, and a longitudinally oriented slot in open communication with the shell cavity and the opening, the shell cavity in open communication with the transition portion cavity proximally;
wherein the transition portion and slotted flexible shell provide for a femoral stem component that is substantially flexible distally proximate the flexible shell relative to the proximal portion.

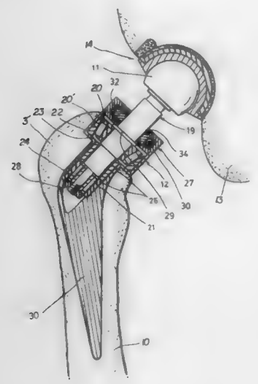
5,725,596
CLAMP FOR USE WITH A BONE PROSTHESIS
Dennis W. Burke, 245 Highland St., Milton, Mass. 02186
Division of Ser. No. 451,129, May 26, 1995, Pat. No. 5,624,443, which is a division of Ser. No. 183,077, Jan. 18, 1994, Pat. No. 5,480,453, which is a continuation of Ser. No. 979,615, Nov. 20, 1992, abandoned. This application Aug. 29, 1996, Ser. No. 705,537
Int. Cl.[6] A61F *2/36*
U.S. Cl. 623—23 **8 Claims**



5. A combination comprising:
a prosthesis including an elongated stem adapted to fit into a cavity formed on an upper proximal surface of a bone and a collar extending from a proximal end of said stem in a direction generally transverse to a direction of elongation of said stem, said collar having an upper surface and a lower

surface, the lower surface of said collar being adapted to rest in contact with the upper proximal surface of the bone; and
apparatus structured to clamp said prosthesis into the cavity of the bone, said apparatus comprising:
a first portion engaging the upper surface of said collar at a location spaced in the direction generally transverse to the direction of elongation of said stem from said stem of said prosthesis;
a second portion structured to engage the bone, said second portion being interconnected with said first portion; and
apparatus interconnecting said first portion and said second portion and applying a force between said first portion and said second portion for providing clamping of said prosthesis in the bone.

5,725,597
ARTIFICIAL HIP-JOINT
Sung Kwan Hwang, Ra-dong 604, Saja Apt., San 71, Koyo 2-dong, Songpa-ku, Seoul 138-112, Rep. of Korea
Filed Nov. 8, 1996, Ser. No. 747,098
Claims priority, application Rep. of Korea, Nov. 9, 1995, 95 40456
Int. Cl.[6] A61F *2/28*
U.S. Cl. 623—23 **10 Claims**



1. An artificial hip-joint comprising an artificial acetabulum cup implanted in the acetabulum of a user's pelvic bone, the artificial acetabulum cup consisting of a hollow hemispherical member made of a metal and a polyethylene layer formed on the inner surface of the hemispherical member, and a femur head holder fixed to a femur, the femur head holder comprising a spherical metal femur head pivotally held in the artificial acetabulum cup, wherein the femur head holder further comprises:
a shaft coupled at an upper end thereof to the femur head and adapted to support the femur head;
a housing extending inclinedly through the greater trochanter of the femur and adapted to receive the shaft therein in such a manner that it rotates with respect to the shaft; and
bearing means mounted between the shaft and the housing and adapted to support axial and radial load applied to the shaft at the femur head by the weight of the user, the bearing means allowing the housing to rotate with respect to the shaft when the user performs a movement involving a rotation of the femur head in the acetabulum cup, so that the movement of the user can be conducted while preventing the rotation of the femur head in the acetabulum cup.

5,725,598
PROSTHETIC LEG
Van L. Phillips, Rancho Santa Fe, Calif., assignor to Flex-Foot, Inc., Aliso Viejo, Calif.
Continuation of Ser. No. 74,040, Jun. 8, 1993, Pat. No. 5,464,441, which is a continuation of Ser. No. 464,201, Jan. 12, 1990, Pat. No. 5,217,500. This application Jun. 6, 1995, Ser. No. 466,200
Int. Cl.[6] A61F *2/74*
U.S. Cl. 623—27 **11 Claims**



1. A prosthetic leg comprising, a flat elongated leg element having an upper section and a lower section, said leg element being substantially straight and being fabricated from superimposed laminates maintained in operative relationship by an encapsulating polymer and susceptible to bending stress determined by the thickness of the laminates, said leg element having a cross-section that is substantially thinner in the fore-and-aft direction and substantially wider in a side-to-side direction such that it is capable of bending in the fore-and-aft direction, but not significantly in the side-to-side direction, said leg element being operatively and demountably secured at said upper section to a socket and operatively demountably and directly and rigidly secured at said lower section to a prosthetic foot whereby said leg element provides energy storage and release and whereby said foot can be selectively demounted and replaced without requiring replacement or adjustment of said leg element.

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5,725,599

PROCESS FOR MINERAL TANNING, RE-TANNING OR LEATHER AFTER-TREATMENT

Bernard Danner, Riedisheim, France; Eckardt Häuser, Backnang, Germany; Jürg Heller, Oberwil, Switzerland; Heribert Schmitz, Heilbronn, Germany, and André Vallotton, Aesch, Switzerland, assignors to Clariant Finance (BVI) Limited, Tortola, Virgin Islands (Br.)

Continuation of Ser. No. 158,745, Nov. 30, 1993, abandoned, which is a continuation of Ser. No. 932,479, Aug. 20, 1992, abandoned. This application Mar. 20, 1995, Ser. No. 407,339

Claims priority, application Germany, Aug. 22, 1991, 41 27 818.6

Int. Cl.[6] **C14C** *3/18;3/08*

U.S. Cl. 8—94.21 **22 Claims**

1. A process for the treatment of leather or pelts which comprises treating said leather or pelts with the alkali metal or ammonium salt of a polymeric carboxylic acid (A) containing α-hydroxyacrylic acid units at a process stage selected from:

before the mineral tanning of said leather or pelts;

directly after the mineral tanning of said leather or pelts;

directly before the mineral re-tanning of said leather or pelts;

after the mineral re-tanning of the leather or pelts; and

during fatliquoring, wherein the fatliquor includes polyvalent metal cations.

5,725,600

PROCESS FOR IMPROVING THE RESULTS OF COSMETIC TREATMENTS PERFORMED ON BLEACHED HAIR

Laurence Caisey, Vitry-sur-Seine, France; Christian Monnais, Neuilly-sur-Seine, France, and Henri Samain, Bievres, France, assignors to L'Oreal, Paris, France

Filed May 3, 1995, Ser. No. 433,795

Claims priority, application France, May 4, 1994, 94 05470; May 4, 1994, 94 05469; May 4, 1994, 94 05468

Int. Cl.[6] **D06L** *3/04*

U.S. Cl. 8—103 **9 Claims**

1. In a cosmetic hair treatment process comprising bleaching said hair and applying a cosmetic treatment to said bleached hair, the improvement which comprises irradiating said hair with a laser beam to achieve said bleaching, said irradiating comprising delivering an energy density per pulse of 0.1 to 1.2 J/cm^2 for a wavelength of 532 nm, said energy density not being greater than that which degrades the keratinous fibers of said hair, wherein the energy density is multiplied by a correction factor equal to λ/532 for a radiation having a wavelength λ, expressed in nm, other than 532.

5,725,601

PROCESS FOR PRODUCING WATER-ABSORBENT CROSS-LINKED, CARBOXYALKYLATED CELLULOSE-CONTAINING MATERIAL

Kozo Tajiri, Tokyo; Masayo Maeda, Kawasaki, and Haruo Tsukamoto, Matsudo, all of Japan, assignors to New Oji Paper Co., Ltd., Tokyo, Japan

Continuation-in-part of Ser. No. 512,223, Aug. 7, 1995, abandoned. This application Aug. 1, 1996, Ser. No. 691,098

Claims priority, application Japan, Aug. 9, 1994, 6-187303

Int. Cl.[6] **D04H** *1/64;* **A61L** *15/00*

U.S. Cl. 8—120 **12 Claims**

1. A process for producing a water-absorbent cross-linked, carboxyalkylated cellulose-containing material, comprising the steps of:

impregnating a cellulose-containing material with an aqueous reaction solution containing a carboxyalkylating agent, an alkali metal hydroxide, and a cross-linking agent for cellulose and having an initial water content of 50 to 90% by weight, in the impregnated aqueous reaction solution, the carboxyalkylating agent being present in a molar ratio to glucose groups of cellulose in the cellulose-containing material, of 0.7 to 2.0;

adjusting the water content of the aqueous reaction solution impregnated in the cellulose-containing material to a level of from 20 to 60% by weight and of at least 5% by weight below the initial water content, by evaporating away a portion of water from the impregnated aqueous reaction solution; and

subjecting the resultant aqueous reaction solution-impregnated cellulose-containing material to a simultaneous carboxyalkylating and cross-linking reaction procedure by heating it at a temperature of 50° to 110° C., while maintaining the water content in the impregnated aqueous reaction solution at the level of 20 to 60% by weight and of at least 5% by weight below the initial water content, to convert cellulose in the cellulose-containing material to cross-linked, carboxyalkylated cellulose.

5,725,602

HAIR DYE COMPOSTION CONTAINING A PRODUCT OF GRINDING PLANTS OR PARTS OF PLANTS OF THE SPECIES IMPATIENS BALSAMINA, AND ITS APPLICATION

Béatrice Belcour-Castro, La Riche, and Richard Martin, Roche Corbon, both of France, assignors to L'Oreal, Paris, France

Filed Feb. 29, 1996, Ser. No. 609,987

Claims priority, application France, Mar. 1, 1995, 95 02361

Int. Cl.[6] **A61K** *7/13*

U.S. Cl. 8—405 **14 Claims**

1. Hair dyeing process comprising the steps of:

a) obtaining a composition in the form of an aqueous dispersion containing a product of grinding plants or parts of plants of the species *Impatiens balsamina*, in an appropriate liquid carrier, said dispersion forming a pulp which has a consistency that is sufficient to coat the hair and to adhere thereto without running after the application to the hair;

b) bringing the hair to be dyed into contact with the composition as obtained in a) above;

c) and maintaining the said contact for a sufficient period to obtain the desired colour.

5,725,603

PROCESS FOR THE DIRECT DYING OF KERATINOUS FIBRES USING NATURAL DYES AND WATER VAPOR

Marie-Pascale Audousset, Asnieres, and Jean-Michel Sturla, Saint-Cloud, both of France, assignors to L'Oreal, Paris, France

Continuation of Ser. No. 357,751, Dec. 16, 1994, abandoned. This application Mar. 20, 1996, Ser. No. 619,137

Claims priority, application France, Dec. 22, 1993, 93 15482

Int. Cl.[6] **A61K** *7/13*

U.S. Cl. 8—405 **13 Claims**

1. A process for the direct dyeing of keratinous fibres comprising the step of:

directly dyeing said fibres, said fibres having previously been contacted with a composition containing at least one natural dye, by contacting said fibres with a gas containing water vapour, said gas having a temperature of at least 85° C. for a

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contact time between the gas and the fibres of less than two minutes.

5,725,604

THERMOFIXING OF DYES IN PRESENCE OF POLYMERIZABLE COMPOUND AND AN INITIATOR

Katharina Fritzsche, Weil am Rhein, Germany, and Alex Känzig, Therwil, Switzerland, assignors to Ciba Specialty Chemicals Corporation, Tarrytown, N.Y.

PCT No. PCT/EP94/02955, § 371 Date Mar. 14, 1996, § 102(e) Date Mar. 14, 1996, PCT Pub. No. WO95/08018, PCT Pub. Date Mar. 23, 1995

PCT Filed Sep. 5, 1994, Ser. No. 615,226

Claims priority, application Switzerland, Sep. 16, 1993, 02 7[illegible]/93

Int. Cl.[6] D06P *1/52;1/66*

U.S. Cl. 8—543 **26 Claims**

1. A process for dyeing or printing organic material, which comprises applying at least one dye selected from those containing a chromophore radical from the monoazo, polyazo, metal complex azo, anthraquinone, phthalocyanine, formazan, azomethine, nitroaryl, dioxazine, phenazine, stilbene, triphenylmethane, xanthene, thioxanthone, naphthoquinone, pyrenequinone or perylenetetracarbamide series which contains an acrylamide, methacrylamide, bromoacrylamide or chloroacrylamide reactive group, at least one colourless cationic compound containing at least one polymerizable double bond, and at least one polymerization initiator and optionally further auxiliaries to the organic material and then subjecting it to thermofixation.

5,725,605

DISPERANT CONCENTRATE BASED ON DEGRADATION PRODUCTS OF POLYSACCHARIDES IN THE DYEING OF TEXTILES

Birgit Maunz, Erbach, Germany; Dieter Hietsch, Illertissen, Germany, and Joerg Schad, Illertissen, Germany, assignors to Gruenau Illertissen GmbG, Illertissen, Germany

PCT No. PCT/EP94/03124, § 371 Date Mar. 28, 1996, § 102(e) Date Mar. 28, 1996, PCT Pub. No. WO95/09265, PCT Pub. Date Apr. 6, 1995

PCT Filed Sep. 19, 1994, Ser. No. 619,678

Claims priority, application Germany, Sep. 28, 1993, 43 32 816.4

Int. Cl.[6] B01F *17/52;* **C09B** *67/02;67/46*

U.S. Cl. 8—553 **16 Claims**

8. The process of dispersing a textile finish composition comprising combining said textile finish composition with a liquid dispersant concentrate which is stable against clouding at a temperature of from 10° C. to 35° C., said concentrate comprising:

(a) from 20% to 50% by weight of the degradation products of polysaccharides containing uronic acid units;

(b) from 0.1% to 10% by weight of polyvinyl pyrrolidone; and

(c) the remainder, water, all weights being based on the weight of said concentrate, said concentrate having a viscosity from 10 to 500 mPa.s as measured at 20° C. with a Broodeld viscosimeter spindle no. 1.

15. A process as in claim **8** wherein said textile finish composition contains a dye.

16. A process as in claim **15** further including contacting a textile material with said textile finish composition.

5,725,606

AZO DYE MIXTURES AND THE USE THEREOF

Guido Jordine, Freiburg, Germany, assignor to Ciba Specialty Chemicals Corporation, Tarrytown, N.Y.

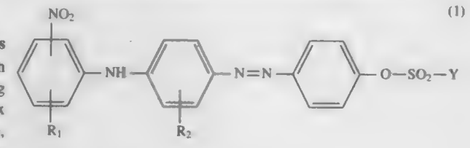
Filed Apr. 22, 1996, Ser. No. 635,813

Claims priority, application Switzerland, Apr. 26, 1995, 1194/95

Int. Cl.[6] D06P *3/06;3/16*

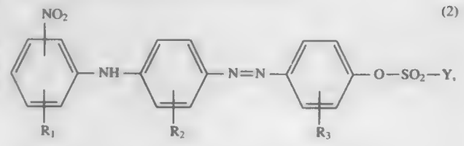
U.S. Cl. 8—641 **6 Claims**

1. A dye mixture, comprising at least one dye of formula



(1)

together with at least one dye of formula



(2)

wherein R_1 is sulfo, R_2 is hydrogen, R_3 is C_1–C_4alkyl, and Y is phenyl which is unsubstituted or substituted by C_1–C_4alkyl, which dye mixture contains at least 10% by weight of one or more than one dye of formula (1), based on the total amount of the dyes of formulae (1) and (2).

5,725,607

METHOD FOR REDUCING THE TOXICITY OF SPENT LIQUORS AND NOVEL CATIONIC DYES

Henry Giera; Felix Reichel, both of Gladbach; Horst Berneth, Leverkusen; Thomas Böcker, Leichlingen, all of Germany; Karin Hassenrück, Mt. Pleasant, S.C.; Karl Lange, Fukuoka, Japan, and Karlheinrich Meisel, Odenthal, Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Germany

Filed Jun. 25, 1996, Ser. No. 670,045

Claims priority, application Germany, Jul. 3, 1995, 195 24 134.7

Int. Cl.[6] D06P *1/41*

U.S. Cl. 8—654 **8 Claims**

1. A method for reducing the toxicity of spent liquors from dyeing with cationic dyes of mixtures thereof, which comprises the steps of computing the electrostatic shielding energy of cationic dyes, selecting those dyes which have a computed electrostatic shielding energy and dyeing with one or more of said selected dyes of ≧50 kcal/mol.

5,725,608

PROCESS AND APPARATUS FOR MATERIAL SEPARATION BY CRYSTALLIZATION FROM THE MELT

Axel König, Stuttgart; Joachim Ulrich, Bremen, both of Germany, and Oskar Fischer, Buchs, Switzerland, assignors to Santrade Ltd., Lucerne, Switzerland

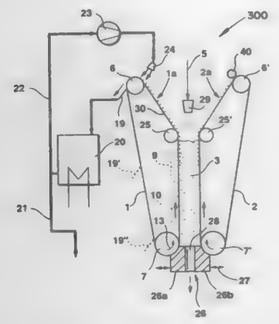
PCT No. PCT/EP95/01617, § 371 Date Mar. 29, 1996, § 102(e) Date Mar. 29, 1996, PCT Pub. No. WO95/30466, PCT Pub. Date Nov. 16, 1995

PCT Filed Apr. 28, 1995, Ser. No. 581,595

Claims priority, application Germany, May 5, 1994, 44 15 544.9

Int. Cl.[6] B01D *9/00;* **C07L** *7/14*

U.S. Cl. 23—295 R **16 Claims**



1. A process of inducing crystallization in a melt, comprising the steps of:

A) forming a vertical gap between opposed upright sections of respective movable endless belts;

B) introducing a melt into an upper end of the gap for downward travel therein;

C) cooling the upright sections;

D) moving the cooled sections upwardly during steps B and C such that crystallization occurs in the melt, and crystallate clings to at least one of the cooled sections and is conveyed thereby upwardly and out of the gap; and

E) removing the crystallate from the at least one cooled section.

5,725,609

WATER IN VISCOUS HYDROCARBON EMULSION COMBUSTIBLE FUEL FOR DIESEL ENGINES AND PROCESS FOR MAKING SAME

Hercilio Rivas; Gustavo A. Nuñez; Tulio Colmenares, and Manuel Chirinos, all of Caracas, Venezuela, assignors to Intevep, S.A., Caracas, Venezuela

Filed Feb. 9, 1996, Ser. No. 599,305

Int. Cl.[6] C10L *1/00*

U.S. Cl. 44—301 **3 Claims**

1. A process for utilizing a viscous hydrocarbon as a combustible fuel for a diesel engine comprising:

(a) providing a hydrocarbon in water emulsion having a hydrocarbon to water ratio of from about 60:40 to about 90:10 and a non-ionic surfactant in an amount of ≧2000 ppm, said hydrocarbon being characterized by an API gravity of ≦16° API and a viscosity of ≧100 cPs at 122° F. and said surfactant having an ethylene oxide (EO) content of ≧ about 10;

(b) subjecting said hydrocarbon in water emulsion to temperature and mixing energy conditions so as to invert said hydrocarbon in water emulsion into a water in hydrocarbon emulsion characterized by a mean water drop diameter of ≦4 μm and a maximum drop diameter of ≦10 μm, wherein the temperature increases with an increase in the EO content of the surfactant and the mixing energy increases with a decrease in the hydrocarbon content;

(c) atomizing said water in hydrocarbon emulsion; and

(d) burning the water in hydrocarbon emulsion in a diesel engine.

5,725,610

ADDITIVE COMPOSITION FOR COLD OPERABILITY OF MIDDLE DISTILLATES

Despina Vassilakis, Lyons; Robert Leger, Taluyers; Nathalie Cerqueda, Vienne, all of France; Wolfgang Ritter, Haan, Germany; Thomas Reichert, Meersbusch, Germany, and Stephan von Tapavicza, Erkrath, Germany, assignors to Elf Antar France, Courbevoie, France, and Henkel Kommanditgesellschaft Auf Aktien, Dusseldorf, Germany

PCT No. PCT/FR94/01138, § 371 Date Aug. 13, 1996, § 102(e) Date Aug. 13, 1996, PCT Pub. No. WO95/09220, PCT Pub. Date Apr. 6, 1995

PCT Filed Sep. 29, 1994, Ser. No. 612,839

Claims priority, application France, Sep. 30, 1993, 93 11664

Int. Cl.[6] C10L *1/22*

U.S. Cl. 44—331 **22 Claims**

1. Additive composition comprising a combination of (i) and (ii), as follows:

(i) 60% to 94% by weight of an antisedimentation additive of weight-average molecular mass of approximately 300 to 10,000, resulting from the reaction

(a) of at least one aliphatic compound selected from the group consisting of maleic and alkylmaleic anhydrides, alkenylsuccinic anhydrides wherein alkenyl radical contains from 10 to 32 carbon atoms, dicarboxylic acids and alkyl diesters thereof,

(b) and of a polyamine containing a primary amine functional group, corresponding to the general formula

where R is a saturated aliphatic radical containing from 1 to 32 carbon atoms, R' is selected from the group consisting of the hydrogen atom and saturated aliphatic radicals containing from 1 to 32 carbon atoms, n is an integer between 2 and 4 and m is an integer between 1 and 4, the said reaction taking place after dilution of the said aliphatic compound and of the said polyamine in a hydrocarbon solvent of boiling point of between 70° C. and 250° C. with a ratio of the molar concentrations of the said polyamine to the said aliphatic compound of between 0.3 and 0.8 and at a temperature of between 120° and 200° C. and

(ii) 6% to 40% by weight of a stabilizing-dispersant additive of weight-average molecular mass between 15,000 and 50,000, resulting from the reaction of

(A) from at least one stage of esterification of a saturated linear alcohol containing from 6 to 24 carbon atoms with a compound selected from the group consisting of acrylic acid and its halides

(B) and from at least one stage of polymerization of the ester obtained at the previous esterification stage with itself or with a copolymerizing compound selected from the group consisting of maleic, alkylmaleic and alkenylsuccinic anhydrides, acrylic acid, fumaric acid and the esters of these acids, to form a polymer,

the polymer thus obtained containing more than 20% by weight of alkyl chains containing 12 and 14 carbon atoms and more than 10% by weight of alkyl chains containing 16 and more carbon atoms.

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17. Crude oil middle distillate composition including a major proportion of crude oil middle distillate and a minor proportion of an additive composition according to claim 1.

5,725,611

METHODS FOR REDUCING FOULING DEPOSIT FORMATION IN JET ENGINES

Bruce E. Wright, The Woodlands, and William L. Witzig, Montgomery, both of Tex., assignors to BetzDearborn Inc., Trevose, Pa.

Division of Ser. No. 368,076, Jan. 3, 1995, Pat. No. 5,621,154, which is a continuation-in-part of Ser. No. 230,031, Apr. 19, 1994, abandoned. This application Aug. 12, 1996, Ser. No. 695,491

Int. Cl.[6] C10L *1/26*

U.S. Cl. 44—375 **4 Claims**

1. A finished fuel composition comprising a turbine combustion fuel oil, an ester of polyalkenylthiophosphonic acid, and air, wherein said composition is present in a jet engine combustion chamber.

5,725,612

ADDITIVES FOR MINIMIZING INTAKE VALVE DEPOSITS, AND THEIR USE

Dennis J. Malfer; William J. Colucci, both of Glen Allen, and Randall M. Franklin, Mechanicsville, all of Va., assignors to Ethyl Corporation, Richmond, Va.

Filed Apr. 10, 1997, Ser. No. 837,246

Int. Cl.[6] C10L *1/18*

U.S. Cl. 44—415 **44 Claims**

1. A Mannich product composition formed from (i) one mole part of at least one substituted hydroxyaromatic compound having on the ring both (a) an aliphatic hydrocarbyl substituent derived from a polyolefin having a number average molecular weight in the range of about 500 to about 3000, and (b) a C_{1-4} alkyl; (ii) from 0.8 to 1.5 mole part(s) of at least one aliphatic polyamine having one and only one primary or secondary amino group in the molecule; and (iii) from 0.8 to 1.3 mole part(s) of at least one aldehyde, with the proviso that the mole ratio of aldehyde to amine is 1.2:1 or less.

5,725,613

METHOD TO REDUCE OXIDATIVE DETERIORATION OF BULK MATERIALS

Robert A. Reeves, Arvada; Mark H. Berggren, Golden, and Charlie W. Kenney, Littleton, all of Colo., assignors to Hazen Research, Inc, Golden, Colo.

Filed Jul. 8, 1996, Ser. No. 677,637

Int. Cl.[6] C10L *9/00*

U.S. Cl. 44—501 **42 Claims**

1. A method to reduce oxidative deterioration of solid fuel material comprising particles having a size of greater than about 5 mm, said method comprising the steps of:

directly contacting said solid fuel material with a heat transfer medium, wherein said heat transfer medium is not air; and

reducing a temperature of said solid fuel material below about 10° C. through said contacting step.

5,725,614

APPARATUS FOR FLUIDIZED-BED GASIFICATION AND MELT COMBUSTION

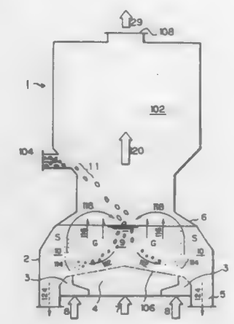
Yoshio Hirayama; Takahiro Oshita, both of Kanagawa-ken; Chikashi Tame, Tokyo; Shuichi Nagato, Kanagawa-ken; Tetsuhisa Hirose, Tokyo; Norihisa Miyoshi, Kanagawa-ken; Seiichiro Toyoda, Tokyo; Shugo Hosoda, Kanagawa-ken; Shosaku Fujinami, and Kazuo Takano, both of Tokyo, all of Japan, assignors to Ebara Corporation, Tokyo, Japan

Division of Ser. No. 401,370, Mar. 9, 1995, Pat. No. 5,620,488. This application Oct. 24, 1995, Ser. No. 547,126

Claims priority, application Japan, Mar. 10, 1994, 65439; Apr. 15, 1994, 101541; Feb. 9, 1995, 22000

Int. Cl.[6] C10J *3/68;3/00;* **F27B** *15/08*

U.S. Cl. 48—76 **20 Claims**



1. An apparatus for gasifying combustible material to produce combustible gas, said apparatus comprising:

a furnace having a circular horizontal cross-sectional configuration;

a fluidizing gas dispersing mechanism disposed in a bottom portion of said furnace;

a circular bed of fluidized medium disposed within said furnace above said dispersing mechanism;

central supply means for introducing upwardly through a central portion of said dispersing mechanism and into a central portion of said bed an upward stream of a central fluidizing gas;

peripheral annular supply means for introducing upwardly through a peripheral annular portion of said dispersing mechanism and into a peripheral annular portion of said bed an upward stream of a peripheral annular fluidizing gas and surrounding said central fluidizing gas stream;

said central supply means and said peripheral annular supply means being operable respectively to supply said central fluidizing gas stream at a relatively low mass flow velocity and to supply said peripheral annular fluidizing gas stream at a relatively high mass flow velocity sufficient to actively fluidize upwardly said peripheral annular portion of said bed to thereby form an annular fluidized bed and sufficient to thereby create a circulating flow of said fluidized medium centrally downwardly in said central portion of said bed as a central moving bed, then radially outwardly from a lower part of said central moving bed to a lower part of said annular fluidized bed, then upwardly in said annular fluidized bed, and then centrally radially inwardly from an upper part of said annular fluidized bed back to said central moving bed;

said central supply means and said peripheral annular supply means being operable to ensure that a total oxygen content of said central and peripheral annular gas streams is at a level to create a reducing atmosphere in said furnace;

combustible material supply means for supplying combustible material into said furnace and onto said central moving bed such that the combustible material is moved downwardly with said fluidized medium therein, for thereby causing the combustible material to be gasified to thereby generate combustible gas and char, for causing the combustible gas to flow upwardly from said central moving bed of fluidized medium, and for causing the char to pass from said lower part of said central moving bed to said lower part of said annular fluidized bed; and

said circular horizontal cross-sectional configuration defining means for causing the char to be distributed uniformly throughout said annular fluidized bed, such that at least a portion of the char in said annular fluidized bed is combusted by the oxygen of said peripheral annular fluidizing gas stream flowing upwardly therethrough, thereby for ensuring that substantially all of the oxygen in said annular fluidized bed is consumed and is prevented from passing upwardly through said annular fluidized bed and combusting the combustible gas above said circular bed, and thereby for heating said fluidized medium that is flowed from said annular fluidized bed back to said central moving bed, thus serving as a heat source for further gasification of the combustible material.

5,725,615

ENTRAINED BED COAL GASIFICATION REACTOR AND METHOD OF GASIFYING COAL

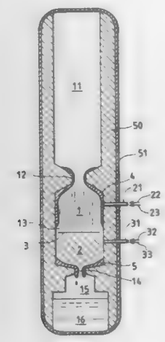
Atsushi Morihara, Hitachinaka, Japan; Takanori Kudo, Hitachi, Japan; Sinji Tanaka, Jyuou-machi, Japan; Shuntaro Koyama, Hitachinaka, Japan, and Eiji Kida, Hiroshima, Japan, assignors to Hitachi, Ltd., Tokyo, Japan, and Babcock-Hitachi Kabushiki Kaisha, Tokyo, Japan

Filed Oct. 2, 1995, Ser. No. 537,438

Claims priority, application Japan, Oct. 5, 1994, 6-241003

Int. Cl.[6] C10J *6/38*

U.S. Cl. 48—77 **29 Claims**



1. An entrained bed gasification reactor comprising burners for forming combustible gas by injecting coal and oxidizer into an upper and a lower gasification chambers, a slag ejection port reducing the cross-section area at the bottom, and coal-oxidizer flow rate control means for setting the ratio of the coal to the oxidizer supplied to said upper burner to such a value that the temperature does not exceed the melting temperature of the coal ash and setting the ratio of the coal to the oxidizer supplied to said lower burner to such a value that the temperature exceeds the melting temperature of the coal ash, which further comprises reaction region control means for changing the ratio of the volume of an upper reaction region formed by said upper burner to the volume of a lower reaction region formed by said lower burner depending on the load so that the ratio of the volume of the lower reaction region is increased as the load increases.

5,725,616

METHOD FOR COMBUSTION OF HYDROCARBONS

Steinar Lynum; Kjell Haugsten, both of Oslo; Ketil Hox; Jan Hugdahl, both of Trondheim, and Nils Myklebust, Trondheim, all of Norway, assignors to Kvaerner Engineering A.S., Lysaker, Norway

PCT No. PCT/NO92/00200, § 371 Date Sep. 22, 1994, § 102(e) Date Sep. 22, 1994, PCT Pub. No. WO94/12205, PCT Pub. Date Jun. 24, 1993

Continuation-in-part of Ser. No. 244,298, Sep. 22, 1994, abandoned. This PCT application Dec. 11, 1992, Ser. No. 582,592

Claims priority, application Norway, Dec. 12, 1991, 914909

Int. Cl.[6] C01B *3/32*

U.S. Cl. 48—127.3 **3 Claims**

1. A method of reducing the discharge of carbon dioxide from a process using the combustion of natural gas or hydrocarbon gas to generate energy, the steps comprising, prior to the process for combustion, feeding substantially all of the said gas to a decomposition reactor including a plasma torch to subject said gas to a pyrolytic process of the type that yields hydrogen and undecomposed gas and then removing the carbon from the hydrogen and the undecomposed gas so that the gas stream exiting the decomposition reactor is substantially hydrogen and undecomposed gas.

5,725,617

ABRASIVE ARTICLES WITH ENCAPSULATED LUBRICANT

Hironori Hagiwara, Machida, Japan, and Ikuko Yamato, Woodbury, Minn., assignors to Minnesota Mining and Manufacturing Company, St. Paul, Minn.

PCT No. PCT/US95/12924, § 371 Date Mar. 21, 1997, § 102(e) Date Mar. 21, 1997, PCT Pub. No. WO96/11085, PCT Pub. Date Apr. 18, 1996

PCT Filed Oct. 6, 1995, Ser. No. 809,480

Claims priority, application Japan, Oct. 7, 1994, 6-270427

Int. Cl.[6] B21D *3/34*

U.S. Cl. 51—295 **19 Claims**

1. An abrasive article, comprising:

a base substrate comprising a plurality of polymeric fibers adhered to one another at mutual contact point, said substrate having a base weight within the range from 20 to 10,000 g/m^2;

abrasive grains adhered to said substrate; and

a plurality of capsules comprising a continuous shell containing lubricant therein, said shell comprising a cured thermosetting resin, the capsules dispersed throughout the substrate and adhered to the fibers.

5,725,618

BACK WASHING AND REGENERATING APPARATUS FOR DIESEL PARTICULATE FILTER

Mastoshi Shimoda; Tatsuki Igarashi, both of Tokyo, and Takao Tanizawa, Saitama-ken, all of Japan, assignors to Hino Motors, Ltd., Tokyo, Japan

Filed Sep. 10, 1996, Ser. No. 711,803

Claims priority, application Japan, Oct. 16, 1995, 7-266962

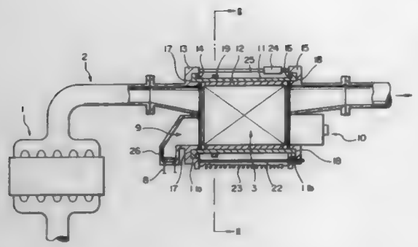
Int. Cl.[6] B01D *41/04*

U.S. Cl. 55—283 **7 Claims**

1. A back washing and regenerating apparatus for a particulate filter in a diesel engine, wherein said particulate filter is placed along an exhaust passage of said diesel engine so that exhaust gas passes from an upstream side to a downstream side of said particulate filter, particulates in the exhaust gas are trapped by said particulate filter, and trapped particulates are separated from said particulate filter by an air blown in a direction from said downstream side to said upstream side of said particulate filter, comprising:

an impact wave generating mechanism is provided downstream of the particulate filter for generating an impact wave by

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instantly releasing a high-pressure air fed to a pressure accumulating chamber under action of a valve body so that the particulates are separated from the particulate filter by the impact wave and said blown air to regenerate said particulate filter, said pressure accumulating chamber being fed with a high pressure air contained in an air tank through a pressurizing port by switching on a first electromagnetic valve, said valve body being opened upon release of high pressure air from a pressure releasing chamber when a second electromagnetic valve is switched on in response to switching commands from a control unit.

5,725,619

DEVICE FOR CLOSING AND EJECTING THE BAG OF A VACUUM CLEANER

Francois Brule, Pacy-sur-Lure, and Pierre Kerboas, Chambray, both of France, assignors to Seb S.A., Ecully, France

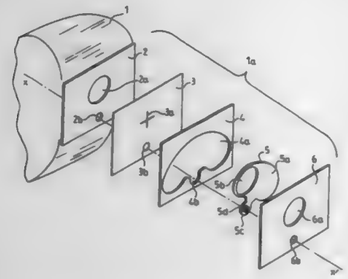
PCT No. PCT/FR94/01411, § 371 Date Jun. 3, 1996, § 102(e) Date Jun. 3, 1996, PCT Pub. No. WO95/15110, PCT Pub. Date Jun. 8, 1995

PCT Filed Dec. 2, 1994, Ser. No. 648,192

Claims priority, application France, Dec. 3, 1993, 93/14756

Int. Cl.[6] B01D *46/00*

U.S. Cl. 55—367 **16 Claims**



1. A disposable vacuum cleaner bag attachable to a vacuum cleaner, said bag having a filling inlet and comprising a rigid assembly extending across said filling inlet and provided to fix said bag to the vacuum cleaner, wherein said rigid assembly comprises a closing device for selectively opening and closing said filling inlet and said closing device comprises:

a planar guide piece having an opening that extends across said filling inlet; and

a planar closing flap held in said opening and pivotably displaceable in said opening between an opening position for exposing said filling inlet and a closing position for blocking said filling inlet, said closing flap and said guide piece being located in a common plane.

5,725,620

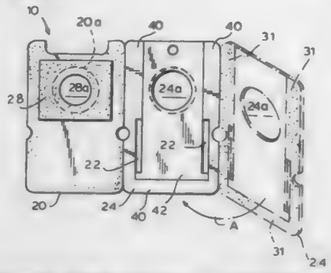
MANUALLY CLOSABLE VACUUM CLEANER BAG

Humberto Perea, Paterson; Mark D. Bosses, Montvale, both of N.J., and Uri Milstein, Flushing, N.Y., assignors to Home Care Industries, Inc., Clifton, N.J.

Filed Jun. 10, 1996, Ser. No. 661,225

Int. Cl.[6] B01D *46/02*

U.S. Cl. 55—367 **8 Claims**



1. A manually closable collar for a vacuum cleaner bag, comprising:

a collar adapted to be secured to an air bag and formed from a single blank of relatively rigid material folded to define three overlying and generally planar panels, each of said panels defining an aperture therethrough, said apertures being initially aligned in said collar to enable the passage of air therethrough and into the air bag, the middle panel of said collar defining:

(i) a fixed, raceway element adhesively secured to at least one of the outer panels of said collar, and

(ii) a detachable slider element secured to said raceway element only by various nicks, said slider element having a first portion defining said aperture of said middle panel and a second portion which is unapertured; when detached from said raceway element by a user breaking the various nicks, said slider element being manually slidably movable from a first or open position, wherein said aperture of said middle panel is aligned with the apertures of said outer panels, to a second or closed position, wherein said second portion blocks air flow between said apertures of said outer panels.

5,725,621

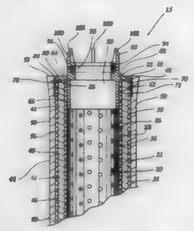
FILTER END CAP ATTACHMENT

Dean Mac Pruette, Blacksburg, Va., and Allan Bradford Thomas, Charlotte, N.C., assignors to Flair Corporation, Ocala, Fla.

Filed Jul. 7, 1995, Ser. No. 499,632

Int. Cl.[6] B01D *29/23;46/02*

U.S. Cl. 55—377 **18 Claims**



1. A filter element for use in a filter system having at least one conduit, comprising:

a porous inner core;

a filter medium positioned exterior to said inner core; and

a first end cap, said end cap having a body portion and a plurality of engagement portions formed integrally with said body and projecting away therefrom, said plurality of engagement portions having sufficient resiliency to allow engagement between said plurality of engagement portions and said at least one conduit to provide the sole support for said filter element within said filter system.

5,725,622

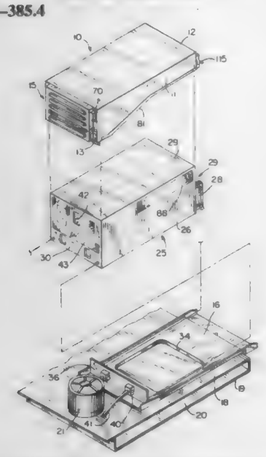
HOOD FOR USE ON AVIONIC LINE REPLACEABLE UNIT

Frederick A. Whitson, Oconomowoc, Wis.; Laurence J. Heckel, Germantown, Wis.; Balaji J. Mathur, Greendale, Wis., and Laurence J. Presberg, Milwaukee, Wis., assignors to Electronic Cable Specialists, Inc., Franklin, Wis.

Filed Sep. 4, 1996, Ser. No. 706,518

Int. Cl.[6] B01D *46/00*

U.S. Cl. 55—385.4 **12 Claims**



1. A hood adapted for mounting to an avionic box for directing the flow of coolant air over an end wall, a top wall extending longitudinally from the end wall, over opposite sidewalls that extend longitudinally from the end wall and have laterally spaced apart outside surfaces, over at least one of the sidewalls having inlets for air to enter the box for exiting from its bottom, the hood comprising:

an end wall having margins defining an air inlet opening that is to be positioned adjacent to the end wall of the avionic box when the hood is mounted to the box,

a top wall extending longitudinally from said end wall of the hood for being supported in spaced relationship with the top wall of an avionic box to define a longitudinally extending coolant air passageway cooperatively with the box,

said hood having longitudinally extending sidewalls depending unitarily from said top wall terminating in edges, and

said sidewalls having corresponding inside surfaces spaced apart from each other by a greater distance than the space between the outside surfaces of the avionic box on which the hood is to be mounted for defining coolant air passageways extending longitudinally along opposite sidewalls of the hood and over the position of air inlet holes in the walls of the box,

gasket members disposed on said edges of the sidewalls of the hood to prevent coolant air from leaking to the atmosphere from said passageways along the sidewalls,

means including a gasket fastened on said **35** top of the hood remotely from said end wall of the hood to support said top of the hood on an avionic box and effect a seal between said top of the hood and the top of the box on which the hood is mounted and to maintain said top of the hood spaced from the top of the avionic box on which the hood is mounted,

a door hingedly mounted to said end wall of the hood for cooperating with said air inlet opening in said end wall of the hood, said door having a wall with louvers for infeed of coolant air, said door defining a recess for containing an exchangeable filter element that is disposed sealingly to said margins of said inlet opening when said door is closed.

5,725,623

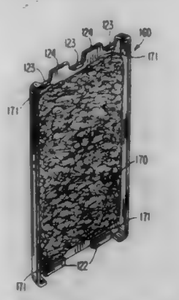
FILTER AND ACCESSORY MOUNT FOR UPRIGHT VACUUM CLEANER EXHAUST PORT

Leonard E. Bowerman, Abingdon, Va.; Jeffrey P. Chandler, Blountville, Tenn.; Peter Hoekstra, Bristol, Tenn., and Carla B. Rogers, Kingsport, Tenn., assignors to Electrolux Corporation, Atlanta, Ga.

Division of Ser. No. 527,696, Sep. 13, 1995, Pat. No. 5,685,894. This application Jan. 22, 1997, Ser. No. 786,289

Int. Cl.[6] B01D *35/02*

U.S. Cl. 55—490 **12 Claims**



1. For use with an air filter adapter base having (a) a base plate with at least one opening therein for the passage of exhaust air therethrough, (b) releasable engagement structure, and (c) a first rib extending substantially continuously around said at least one opening therein and protruding therefrom, an air filter unit comprising:

a filter carrier having (a) at least one opening therein for the passage of exhaust air therethrough, (b) complementary engagement structure complementary to said releasable engagement structure, and (c) a second rib extending substantially continuously around said at least one opening therein and protruding toward said base when said complementary engagement structure engages said releasable engagement structure; and

a filter, said filter being substantially permanently attached to said filter carrier by being at least tacked thereto; wherein:

when said filter carrier is attached to said base:

said first and second ribs extend substantially parallel to one another, separated by a separation distance, creating a separation space, and

said filter is captured between said filter carrier and said base, edges of said filter being captured between said first and second ribs and being deformed into a tortuous path thereby for creating a seal in said separation space against passage of air through said separation space.

5,725,624

AIR FILTER FOR THE INTAKE AIR OF AN INTERNAL-COMBUSTION ENGINE

Volker Ernst, Sachsenheim, Germany, and Arthur Klotz, Remseck, Germany, assignors to Filterwerk Mann & Hummel GmbH, Ludwigsburg, Germany

Continuation of Ser. No. 422,594, Apr. 12, 1995, abandoned. This application Jul. 31, 1996, Ser. No. 688,824

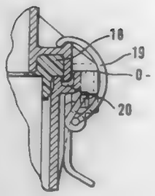
Claims priority, application Germany, Apr. 14, 1994, 44 12 474.0

Int. Cl.[6] B01D *46/52*

U.S. Cl. 55—502 **5 Claims**

1. An air filter for the intake air of an internal combustion engine, said filter comprising a housing, an air filter insert arranged

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in the housing, and a cover which closes off the housing; said air filter insert comprising an essentially rectangular cartridge having a surrounding seal, and the entire seal having a uniform Shore A hardness in the range of from 7 to 25 and being clamped between the housing and the cover in such a manner that it separates an unfiltered air chamber within the filter from a filtered air chamber within the filter; said filter further comprising at least one clamp for clamping the cover and housing to each other and simultaneously securing the filter insert in the housing, wherein the cover directly contacts the housing only adjacent each clamp and a clearance exists between the cover and the housing except adjacent each clamp.

5,725,625

METHOD OF MANUFACTURING A MAGNETIC RECORDING DISK USING GLASS SUBSTRATE

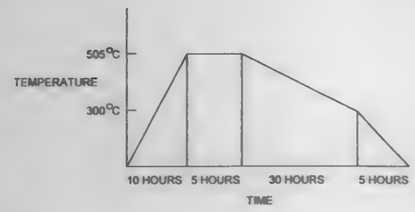
Teruki Kitayama, Oume; Kazuhiko Sekiguchi, Akishima; Teruhisa Fujita; Yoshio Murano, both of Akigawa; Sakuji Yoshihara, Mizuho-machi, and Takeshi Kojima, Yamanashi-Ken, all of Japan, assignors to Hoya Corporation, Japan

Division of Ser. No. 579,319, Dec. 27, 1995, Pat. No. 5,654,057. This application Oct. 24, 1996, Ser. No. 736,475

Claims priority, application Japan, Dec. 28, 1994, 6-339069; Jul. 4, 1995, 7-191259; Oct. 31, 1995, 7-306822; Oct. 31, 1995, 7-306823

Int. Cl.[6] C03C *21/00*

U.S. Cl. 65—30.14 **2 Claims**



1. A magnetic recording disk manufacturing method comprising the steps of:

immersing a glass substrate in a heated chemical reinforcement solution including a molten salt and exchanging ions on the surface layer of said glass substrate with ions in said chemical reinforcement solution to chemically strengthen said glass substrate;

removing said substrate from said chemical reinforcement solution and then annealing said substrate to a temperature higher than the crystallization temperature of said molten salt;

rapidly cooling said glass substrate at a rate at which crystallization of said molten salt deposited on the surface of said glass substrate is prevented;

cleaning the surface layer of said substrate; and

then forming at least a magnetic layer on said substrate.

5,725,626

METHOD FOR MANUFACTURING AN OPTICAL ELEMENT BY BONDING A PLURALITY OF ELEMENTS

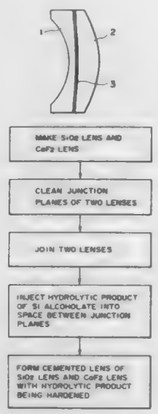
Yasushi Taniguchi, Tokyo, Japan, assignor to Canon Kabushiki Kaisha, Tokyo, Japan

Continuation of Ser. No. 857,122, Mar. 25, 1992, abandoned, which is a continuation of Ser. No. 445,125, Dec. 4, 1989, abandoned, which is a division of Ser. No. 61,551, Jun. 15, 1987, abandoned. This application Dec. 7, 1993, Ser. No. 162,794

Claims priority, application Japan, Jun. 18, 1986, 61-139974; Jun. 18, 1986, 61-139975; Jun. 18, 1986, 61-139976; Jun. 20, 1986, 61-142855

Int. Cl.[6] C03C *27/10;17/23;17/30*

U.S. Cl. 65—37 **8 Claims**



5. A method for manufacturing an optical device for transmitting light in an ultraviolet range comprising the steps of:

(a) selecting a first optical component made of silica;

(b) selecting a second optical component made of a material other than a silica, said material being transparent against light in an ultraviolet range;

(c) cleaning surfaces of said first optical component and said second optical component of said device and forming a silica film on a bonding surface of said second optical component;

(d) providing a hydrolysis product of a silicon alcoholate, said hydrolysis product comprising (i) an amorphous silicon oxide and (ii) a volatilizable liquid;

(e) introducing said hydrolysis product of the silicon alcoholate in a space between said first optical component and the silica film on said second optical component; and

(f) contacting said first optical component and the silica film on said second optical component with said hydrolysis product of the silicon alcoholate in the space between said first optical component and the silica film on said second optical component, thereby joining said first optical component and said second optical component by forming a bond of said amorphous silicon oxide between said first optical component and said second optical component and volatilizing said volatilizable liquid.

5,725,627

GLASS FOR A CONE OF A DISPLAY TUBE, DISPLAY TUBE ENVELOPE COMPRISING A CONE OF SUCH A GLASS AND METHOD OF MANUFACTURING A CONE FROM SUCH A GLASS

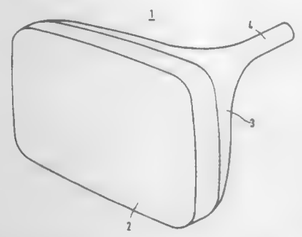
Andreas J. Piers, Bladel, and Jan G. J. Peelen, Eindhoven, both of Netherlands, assignors to U. S. Philips Corporation, New York, N.Y.

Division of Ser. No. 352,412, Dec. 8, 1994, Pat. No. 5,599,752. This application Nov. 4, 1996, Ser. No. 743,591

Claims priority, application Netherlands, Dec. 8, 1993, 09301352

Int. Cl.[6] C03B *9/00;* **C03C** *3/105*

U.S. Cl. 65—72 **2 Claims**



1. A method of manufacturing a cone for a display tube comprising the steps:

recycling screens and cones by crushing them into glass fragments;

cleaning the glass fragments;

mixing the glass fragments with other glass-forming components so as to form a glass composition consisting essentially in weight percent.

SiO_2	>45
Al_2O_3	2.0–6.5
Na_2O	4.5–9.0
K_2O	4.5–9.0
MgO	0.0–4.0
CaO	0.0–4.0
SrO	1.0–7.5
BaO	3.0–7.5
PbO	16–24

and with a refining agent to form a batch;

preparing a glass melt from said batch in a glass furnace; and

pressing said glass melt into a mold for a cone.

5,725,628

REDUCTION OF NICKEL SULFIDE STONES IN GLASS

Edward Nashed Boulos, Troy, Mich., and James Victor Jones, Toledo, Ohio, assignors to Ford Motor Company, Dearborn, Mich.

Filed Aug. 5, 1996, Ser. No. 691,958

Int. Cl.[6] C03B *5/16;5/18;5/225*

U.S. Cl. 65—134.1 **13 Claims**

1. In a method of manufacturing soda-lime-silica glass where the raw materials are mixed together, melted and refined to form a molten glass and nickel compounds being added as a component of said batch or being present as an impurity therein and capable of forming nickel sulfide stone defects, the improvement comprising the step of reducing the formation of nickel sulfide stones by adding oxygen containing manganese compound calculated as manganese dioxide to said batch materials in an amount of 0.01–2.0 wt. % sufficient to reduce the formation of nickel sulfide stones, the ratio of manganese dioxide being at least 1.4 times by weight the amount of nickel present in the glass.

5,725,629

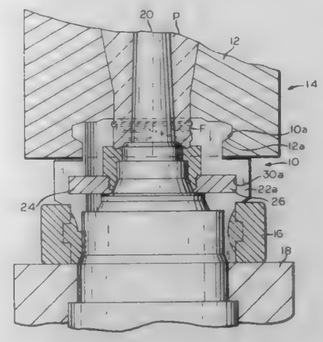
GUIDE RING FOR I.S. GLASS FORMING MACHINE

Dudley T. Olson, Toledo, Ohio, assignor to Owens-Brockway Glass Container Inc., Toledo, Ohio

Continuation of Ser. No. 446,889, May 17, 1995, Pat. No. 5,609,664. This application Jan. 13, 1997, Ser. No. 783,587

Int. Cl.[6] C03B *11/06;9/00*

U.S. Cl. 65—361 **8 Claims**



1. A self-lubricating neck ring assembly for a glass forming machine comprising:

a plurality of neck ring sections, each of said neck ring sections having an opposed pair of ends, said neck ring sections being capable of being positioned end to end to form a substantially continuous mold to from a finish portion of a hollow glass article, said neck ring sections being separable from one another to permit the hollow glass article to be withdrawn therefrom, each of said sections having a slot therein, said slots of said plurality of sections forming a substantially continuous annular slot when said neck ring sections are positioned in end to end alignment; and

a guide ring assembly, said guide ring assembly comprising a larger diameter annular flange member and a smaller diameter annular hub member, said hub member extending coaxially from said flange member and being removably joined to said flange member, said flange member being formed of graphite and being slidably received in said slots of said neck ring sections to guide said neck ring sections as they open and close with respect to one another.

5,725,630

DRY GRANULAR FERTILIZER BLEND AND A METHOD OF FERTILIZING PLANTS

Johnnie R. Roberts, Memphis, Tenn., and Greg Volgas, Bartlett, Tenn., assignors to Helena Chemical Co.

Filed Jul. 31, 1996, Ser. No. 690,507

Int. Cl.[6] C05F *11/08*

U.S. Cl. 71—11 **31 Claims**

1. A method of fertilizing a plant comprising applying a liquid comprising C_1 to about a C_6 alkanoic acid or a salt thereof onto a dry carrier to form a dry granule and placing said granule into the ground in the vicinity of the plant's roots, wherein said dry carrier is not a fertilizer composition containing nitrogenous, phosphatic and potash fertilizers.

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5,725,631

COMPOSITE CHARGE FOR METALLURGICAL PROCESSING

Genrikh Alekseevich Dorofeev, Tula, Russian Federation; Serafim Zakharovich Afonin, Moscow, Russian Federation; Aleksandr Vladimirovich Makurov, Tula, Russian Federation, and Anatolii Georgievich Sitnov, Tula, Russian Federation, assignors to Intermet-Service & Company, Tula, Russian Federation

Filed Jan. 18, 1996, Ser. No. 588,382

Claims priority, application Russian Federation, Feb. 13, 1995, 95-102222

Int. Cl.[6] C22B *1/248*

U.S. Cl. 75—312 13 Claims

1. A composite charge for metallurgical processing, comprising:

40–83 wt. % of a metallic agent comprising an iron-carbon alloy;

17–50 wt. % of an oxide agent; and

0.1–10 wt. % of a carbonaceous agent comprising a mixture of metal carbides and free carbon.

5,725,632

METHOD FOR PROCESSING AND UTILIZING METALLIFEROUS PRESIPITATES FROM THE GAS CLEANING PHASE IN THERMAL WASTE TREATMENT

Günter H. Kiss, Minusio, Switzerland, assignor to Thermoselect AG, Germany

Continuation of Ser. No. 408,906, Mar. 22, 1995, abandoned. This application Mar. 24, 1997, Ser. No. 823,180

Claims priority, application Germany, Mar. 25, 1994, 44 10 473.1; May 5, 1994, 44 15 947.1

Int. Cl.[6] C22B *43/00*

U.S. Cl. 75—416 4 Claims

1. A method for processing hetrogeneous metal-containing deposits recovered from the cleaning of synthesis gas produced during the thermal treatment of wastes containing metals, including volatile metals, in equipment having a heating enclosure and a waste liquid container, said method comprising the steps of:

heating waste materials containing metals and volatile metals in the heating enclosure to produce synthesis gas including metal-containing deposits;

recovering the metal-containing deposits from the synthesis gas;

wet washing the metal-containing deposits with a washing liquid to produce washed metal-containing deposits and a run-off washing liquid;

separating the run-off washing liquid from the washed metal-containing deposits;

drying the washed metal-containing deposits to produce dried metal-containing deposits and a hetrogeneous vapor which contains the volatile metal elements and evaporated washing liquid;

condensing the hetrogeneous vapor to produce recovered evaporated washing liquid, first residual gases and the volatile metal elements;

separating the recovered evaporated washing liquid from the volatile metal elements after condensing the hetrogeneous vapor;

hydrometallergically bringing the dried metal-containing deposits into solution to produce pure metals and metal compounds in the solution while producing second residual gases;

separating the pure metals and metal compounds from the solution to leave a residual solution and third residual gases;

directing the run-off washing liquid, the recovered evaporated washing liquid and the residual solution to the waste liquid container; and

directing the first, second and third residual gases into the heating enclosure.

5,725,633

SULFONATED POLYIMIDE GAS SEPARATION MEMBRANES

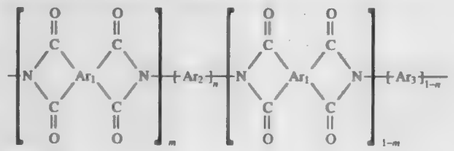
Yurdagul F. Ozcayir, Nashua, N.H.; Gertrud Goetz, Brookline, Mass., and Benjamin Bikson, Brookline, Mass., assignors to Praxair Technology, Inc., Danbury, Conn.

Continuation-in-part of Ser. No. 497,655, Jun. 30, 1995, Pat. No. 5,618,334. This application Jun. 6, 1996, Ser. No. 656,953

Int. Cl.[6] B01D *53/22;71/64;71/68*

U.S. Cl. 95—45 21 Claims

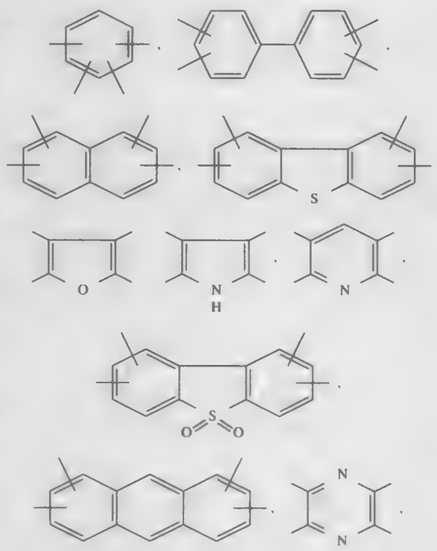
1. A process for separating one or more gases from a mixture of gases comprising the steps of bringing said gaseous mixture into contact with a first side of a gas separation membrane such that a portion of said gas mixture permeates to a second side of said membrane and a portion of said gas mixture is collected as a nonpermeate, the resulting gas mixture on said second side of said membrane being enriched in one or more components over that of the mixture on the first side of said membrane, wherein said gas separation membrane is formed from a sulfonated polyimide comprising repeating units of the formula:



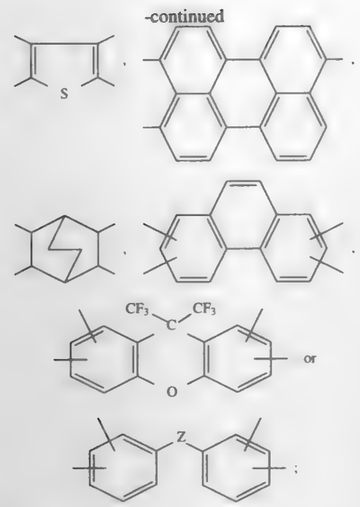
wherein:



is selected from the group consisting of:

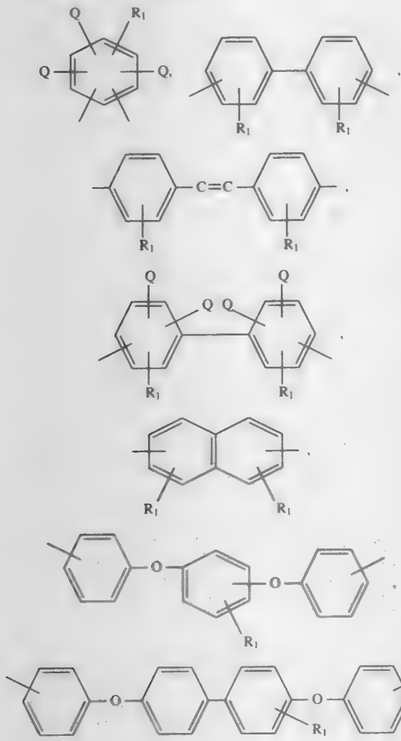


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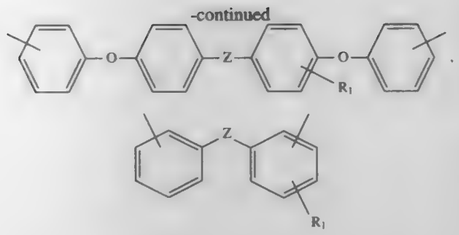


or mixtures thereof;

—Ar_2— is an aromatic sulfonated diamine moiety selected from the group consisting of:

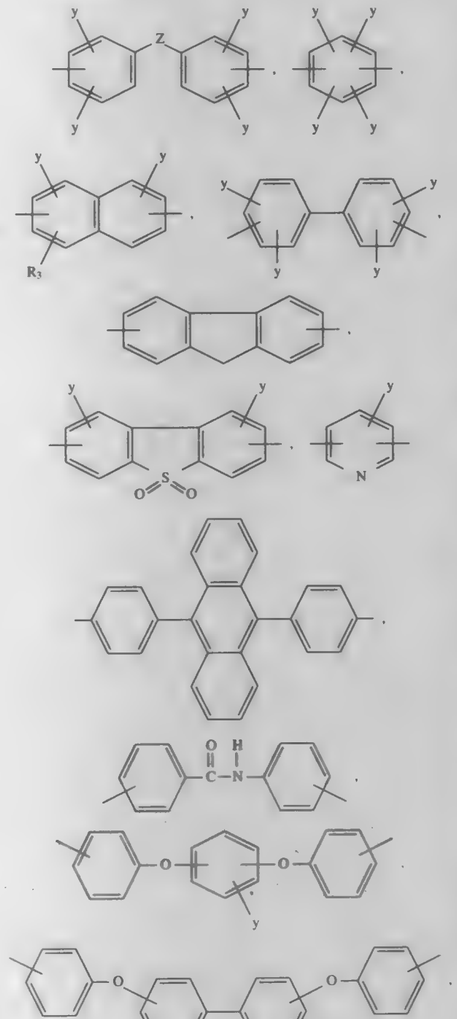


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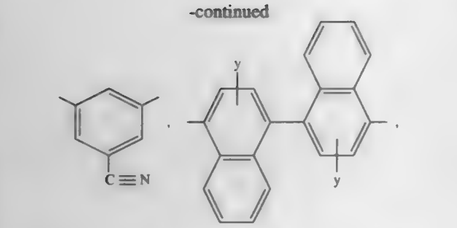
or mixtures thereof;

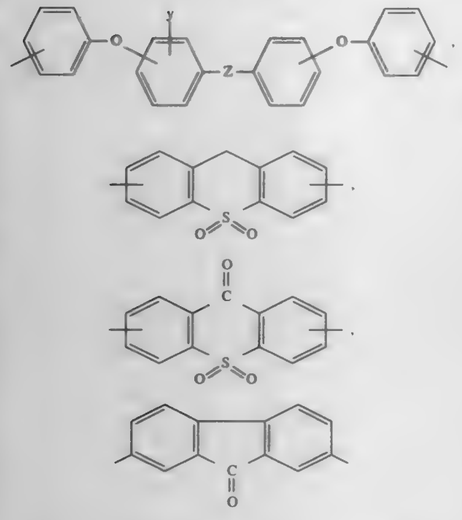
—Ar_3— is an aromatic diamine moiety selected from the group consisting of:

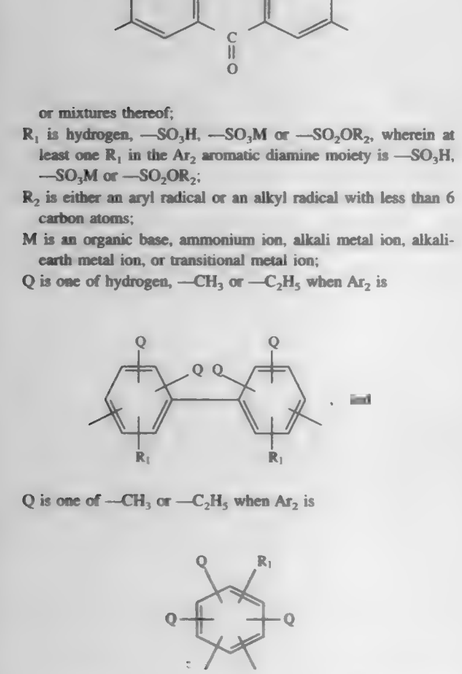


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or mixtures thereof;

R_1 is hydrogen, $-SO_3H$, $-SO_3M$ or $-SO_2OR_2$, wherein at least one R_1 in the Ar_2 aromatic diamine moiety is $-SO_3H$, $-SO_3M$ or $-SO_2OR_2$;

R_2 is either an aryl radical or an alkyl radical with less than 6 carbon atoms;

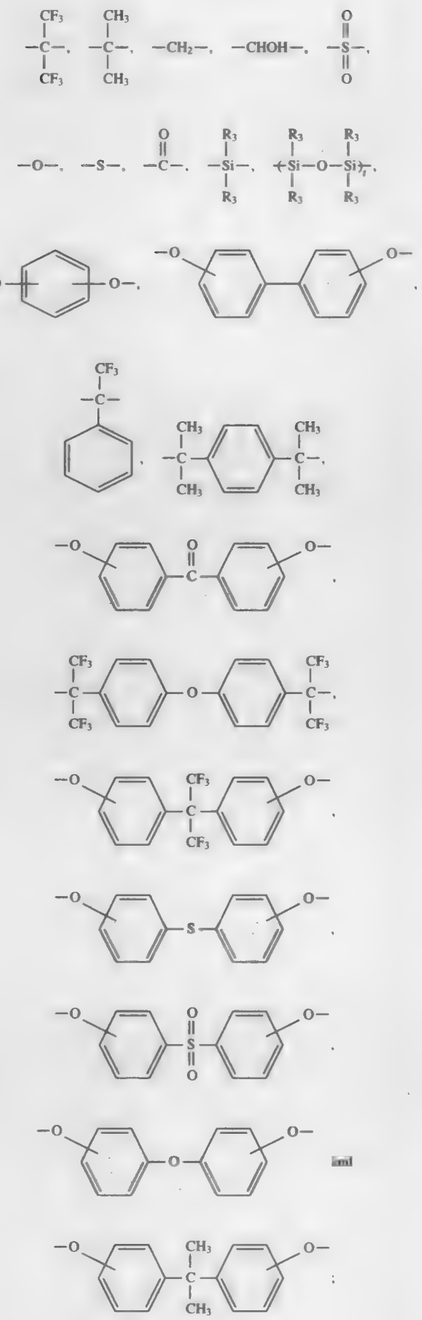
M is an organic base, ammonium ion, alkali metal ion, alkali-earth metal ion, or transitional metal ion;

Q is one of hydrogen, $-CH_3$ or $-C_2H_5$ when Ar_2 is

Q is one of $-CH_3$ or $-C_2H_5$ when Ar_2 is

Y is selected from the group consisting of hydrogen, $-CH_3$, $-C(CH_3)_3$, $-CF_3$, —F, —Cl, —Br, or —I;

Z is selected from the group consisting of:



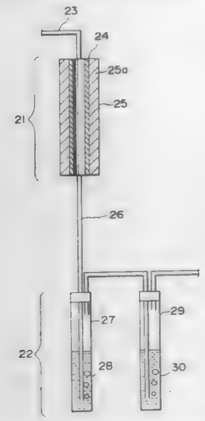
R_3 is an aliphatic radical;
t equals 1 to 6;
n is a fraction from 0.01 to 1 and
m is a fraction from 0 to 1.0.

5,725,634

METHOD FOR COLLECTING IMPURITIES IN THE ATMOSPHERE BY STATE AND APPARATUS FOR ANALYZING THE SAME IN REAL TIME

Masami Takasuga, Tenri, and Toshio Mukai, Nabari, both of Japan, assignors to Sharp Kabushiki Kaisha, Osaka, Japan

Filed Jul. 11, 1996, Ser. No. 678,695
Claims priority, application Japan, Aug. 24, 1995, 7-216231
Int. Cl.[6] B01D *53/22;53/14*
U.S. Cl. 95—45 **3 Claims**

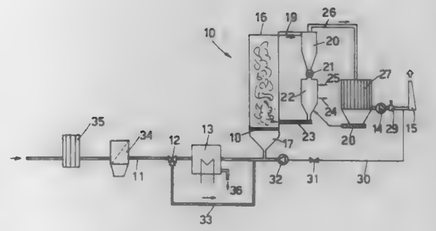


1. An in-atmosphere impurity collecting method comprising the steps of:

introducing an atmosphere into a gas component permeable membrane tube so as to collect a gas component in the atmosphere into a first absorption liquid which is put in contact with an outer peripheral surface of the gas component permeable membrane tube; and

introducing into an impinger the atmosphere which has been put inwardly through the gas component permeable membrane tube and from which the gas component has been collected and subjecting the atmosphere to bubbling in a second absorption liquid so as to collect a particle component in the atmosphere;

thereby collecting impurities in the atmosphere as the gas component and the particle component separately from each other.



cooling the gaseous current to a temperature lower than 80° C.;

then delivering the cooled gaseous current into a reactor containing a fluid bed consisting at least partially of at least one solid adsorbent element in a particulate form; and

contacting the gaseous current with the at least one solid adsorbent element with exchange by adsorption between the gaseous current and the at least one solid adsorption element, the reactor being dimensioned according to the speed of passage of the gaseous current so as to achieve a time of contact between the gaseous current and the at least one solid adsorbent element at least longer than 3 seconds.

5,725,635

METHOD TO REMOVE ORGANIC HALOGENATED MOLECULES FROM GASEOUS CURRENTS AND RELATIVE PLANT

Fulvio Zubini, Trieste; Iginio Colussi, Martignacco; Vittorino Gallo, Muzzana, and Matteo Vittorio Losciale, Udine, all of Italy, assignors to Danieli & C. Officine Meccaniche SpA, Buttrio, Italy

Filed Apr. 5, 1996, Ser. No. 628,267
Claims priority, application Italy, Apr. 7, 1995, UD95A0062
Int. Cl.[6] B01D *45/16;47/10;51/00;53/08*
U.S. Cl. 95—67 **26 Claims**

1. Method to remove organic halogenated molecules from gaseous currents, comprising the steps of:

filtering the gaseous current which contains the organic halogenated molecules;

5,725,636

GAS DEHYDRATION PROCESS

Gilbert Gavlin, Lincolnwood, Ill., and Boris Goltsin, Skokie, Ill., assignors to Gas Research Institute, Chicago, Ill.

Division of Ser. No. 585,636, Jan. 16, 1996, which is a continuation-in-part of Ser. No. 215,757, Mar. 21, 1994, abandoned. This application Sep. 26, 1996, Ser. No. 722,862
Int. Cl.[6] B01D *19/00*
U.S. Cl. 95—231 **22 Claims**

1. A process for dehydrating a gaseous fluid comprising:

contacting said gaseous fluid with a dehydrating composition comprising a glycol selected from the group consisting of ethylene glycol, diethylene glycol, triethylene glycol, and mixtures thereof, and an aromatic solubility depressant selected from the group consisting of phenyl ether, 1,2-diphenylethane, o-terphenyl, triphenylmethane, a benzyltoluene isomeric mixture, a dibenzyltoluene isomeric mixture, a mixture of biphenyl phenyl ethers, biphenyl ether, polyphenyl ethers, and diphenylphenol, alkylated benzene, novolak, 2-phenoxybiphenyl, and a solution comprising by weight about 0–40% diphenylether, about 5–65% biphenylphenylether and about 0–35% polyphenylphenols.

5,725,637

GAS DEHYDRATION PROCESS

Gilbert Gavlin, Lincolnwood, and Boris Goltsin, Skokie, both of Ill., assignors to Gas Research Institute, Chicago, Ill.

Continuation-in-part of Ser. No. 585,636, Jan. 16, 1996, which is a continuation-in-part of Ser. No. 215,757, Mar. 21, 1994, abandoned. This application Oct. 31, 1996, Ser. No. 741,615
Int. Cl.[6] B01D *19/00*
U.S. Cl. 95—231 **19 Claims**

1. A process for dehydrating a gaseous fluid comprising:

contacting said gaseous fluid with a dehydrating composition comprising a glycol selected from the group consisting of triethylene glycol, diethylene glycol, ethylene glycol, and mixtures thereof, at least one neutral organic additive for depressing aromatics solubility, and at least one dissolved salt comprising at least one alkali metal carboxylate.

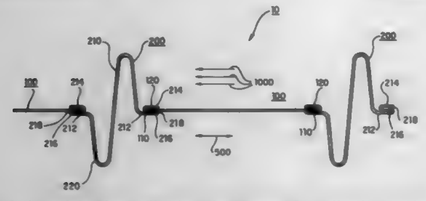
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5,725,638

MODULAR ELECTROSTATIC PRECIPITATION DUST COLLECTION PLATE ASSEMBLY

Steven R. Cross, East Berlin, Pa., and Stuart J. Pass, Owings Mills, Md., assignors to Environmental Elements Corp., Baltimore, Md.

Filed Nov. 21, 1996, Ser. No. 754,706
Int. Cl.[6] B03C *3/47*
U.S. Cl. 96—71 **20 Claims**



1. A modular dust collection plate system for collecting particulates suspended within a gaseous flow in an electrostatic precipitator comprising:

(a) at least one substantially planar panel member having opposing first and second faces and a pair of lateral edge portions, said first and second faces extending between said lateral edge portions said lateral edge portions extending in a longitudinal direction; and,

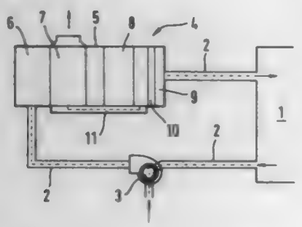
(b) at least one waveform member releasably coupled to said panel member for disrupting said gaseous flow in said electrostatic precipitator, said waveform member extending in said longitudinal direction and having a predetermined curvilinear cross-sectional contour adapted for impeding at least a portion of said gaseous flow passing transversely thereacross, said waveform member terminating respectively at laterally-opposed sides thereof in laterally-projecting flange portions, each of said flange portions having formed thereon joint means for forming a substantially continuous joint with one of said lateral edge portions of said panel member.

5,725,639

DEVICE FOR DRYING AIR FOR MOTOR VEHICLES

Noureddine Khelifa, Stuttgart; Robert Hoeppler, Karlskron, and Wolfgang Odebrecht, Sindelfingen, all of Germany, assignors to Bayerische Motoren Werke Aktiengesellschaft, Munich, and Mercedes-Benz Aktiengesellschaft, Stuttgart, both of Germany

Filed Jul. 26, 1996, Ser. No. 686,749
Claims priority, application Germany, Jul. 28, 1995, 195 27 [illegible]
Int. Cl.[6] B01D *53/04;53/26*
U.S. Cl. 96—112 **20 Claims**



1. A device adapted for drying air in a passenger compartment of a motor vehicle, comprising:

an air guiding housing defining at least two air flow paths, the air guiding housing having an inlet for receiving inlet air to be dehumidified and an outlet for discharging dehumidified air, wherein the outlet is adapted to communicate with the passenger compartment;

two reactors each having an adsorbent for adsorbing moisture in air, one positioned in each of the two air flow paths;

a heat exchanger upstream of the reactors and adapted to heat the inlet air passing therethrough, the heat exchanger having an air passageway for exhausting air to the ambient;

air-flow control elements for directing air to flow through both the reactors,

wherein the flow control elements direct the inlet air through each of the reactors between

an adsorption operation where the flow control elements guide the inlet air to pass through the reactor to dehumidify the inlet air and guide the dehumidified air to the outlet, and

a desorption operation where the flow control elements guide the inlet air to pass through the reactor to dry the reactor and exhaust the air passing through the reactor through the passageway in the heat exchanger and to the ambient,

wherein the flow control elements enables one of the reactors to provide the adsorption operation while the other of the reactors provide the desorption operation, and vice-versa,

wherein the heat exchanger is adapted to heat the inlet air passing through the heat exchanger by transferring heat from air exhausting through the heat exchanger passageway.

5,725,640

COMPOSITION AND PROCESS FOR TREATING A SURFACE COATED WITH A SELF-ACCELERATING AND REPLENISHING NON-FORMALDEHYDE IMMERSION COATING

Nayan E. Joshi, East Brunswick; John E. McCaskie, Whitehouse Station, both of N.J., and Michael T. Boyle, Holland, Pa., assignors to Atotech USA, Inc., N.J.

Division of Ser. No. 389,565, Feb. 16, 1995, Pat. No. 5,543,182, which is a continuation of Ser. No. 121,455, Sep. 16, 1993, abandoned, which is a continuation-in-part of Ser. No. 34,485, Mar. 18, 1993, abandoned. This application May 14, 1996, Ser. No. 645,743
Int. Cl.[6] C23C *22/05;22/08;* **C25D** *5/34*
U.S. Cl. 106—1.05 **13 Claims**

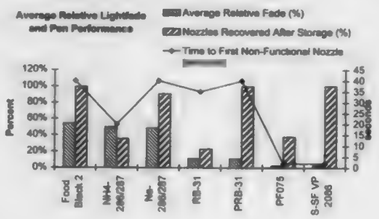
1. A composition of matter for treating a metallic surface prior to microetching said metallic surface and electrolytically applying a metal coating to said surface where said composition of matter comprises a solution of an acid and a salt of hydrazine, an aliphatic amine, heterocyclic amine, aromatic amine, diarylamine, diaminotoluene, methylenedianiline, phenylenediamine or derivatives thereof, the molar ratios of said acids to said acid salt being from 0.5 to about 0.8 to 1.

5,725,641

LIGHTFAST INKS FOR INK-JET PRINTING

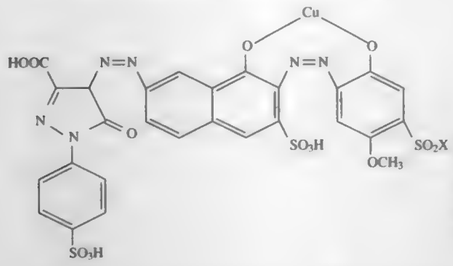
Cheryl A. MacLeod, 5215 SW. Blueberry, Corvallis, Oreg. 97333

Filed Oct. 30, 1996, Ser. No. 741,880
Int. Cl.[6] C09D *11/02*
U.S. Cl. 106—31.5 **36 Claims**



1. An ink-jet ink composition comprising:

from about 1 to about 10 wt % dye having the formula



wherein X is $—CH_2—CH_2—O—H$, or $—CH═CH_2$, or mixtures thereof.

5,725,642

SOLID PAINTING MATERIAL

Yoshimi Kano, Kuki, Japan, and Koji Seki, Kuki, Japan, assignors to Buncho Corporation, Tokyo, Japan, and Kotobuki & Co., Ltd., Kyoto, Japan

Filed Apr. 19, 1996, Ser. No. 635,380
Claims priority, application Japan, May 9, 1995, 7-110411
Int. Cl.[6] C09D *13/00*
U.S. Cl. 106—31.07 **17 Claims**

1. A solid painting material comprising an aliphatic carboxylic acid salt having 8 to 36 carbon atoms as a gel-forming substance, 1 to 40% by weight of a coloring agent, a nonionic surfactant, silica and 0 to 40% by weight of water.

5,725,643

RECORDING INK

Shunichi Higashiyama, Yokkaichi, Japan, assignor to Brother Kogyo Kabushiki Kaisha, Nagoya, Japan

Continuation of Ser. No. 527,085, Sep. 12, 1995, abandoned. This application May 12, 1997, Ser. No. 854,528
Claims priority, application Japan, Sep. 20, 1994, 6-224928
Int. Cl.[6] C09D *11/02;11/14*
U.S. Cl. 106—31.27 **18 Claims**

1. A recording ink comprising:

water;

at least one coloring agent; and

a water soluble co-solvent selected from the group consisting of polyvinyl alcohol, polyvinyl pyrrolidone, methylcellulose and mixtures thereof having a molecular weight of lower than 1,000;

wherein the recording ink has a viscosity greater than 5 cps at 25° C.

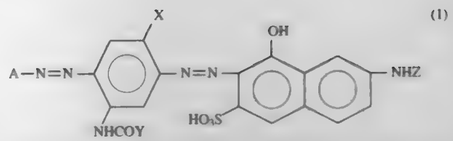
5,725,644

RECORDING LIQUID AND RECORDING METHOD ACCORDING TO INK-JET RECORDING SYSTEM USING THE SAME

Hideo Sano; Hiroshi Takimoto; Toru Nishimura; Masahiro Yamada, and Takashi Hirasa, all of Yokohama, Japan, assignors to Mitsubishi Chemical Corp., Tokyo, Japan

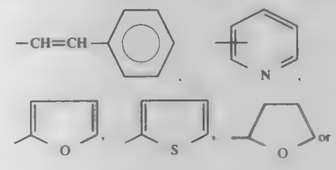
Filed Jul. 12, 1996, Ser. No. 679,069
Claims priority, application Japan, Jul. 14, 1995, 7-178447; Nov. 17, 1995, 7-299450; Nov. 21, 1995, 7-302523; Dec. 20, 1995, 7-331825
Int. Cl.[6] C09D *11/02*
U.S. Cl. 106—31.48 **38 Claims**

1. A recording liquid comprising an aqueous medium and at least one dye selected from compounds whose free acid form represented by the following general formulae (1) through (10):

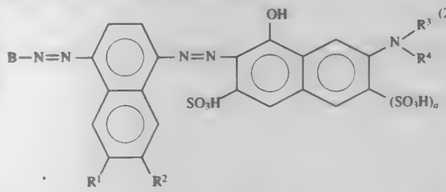


(1)

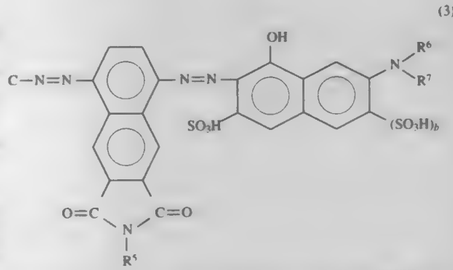
wherein A represents a phenyl group or naphthyl group, which may have a substituent selected from the group consisting of an amino group, an acyl amino group, a hydroxyl group, a carboxylic acid group (—COOH) and a sulfonic acid group ($—SO_3H$); X represents a hydrogen atom, an alkyl group having 1 to 4 carbon atoms or an alkoxy group having 1 to 4 carbon atoms; Y represents



$—CH═CH—CH_3$; and Z represents a hydrogen atom or a phenyl group which may have a substituent,



(2)

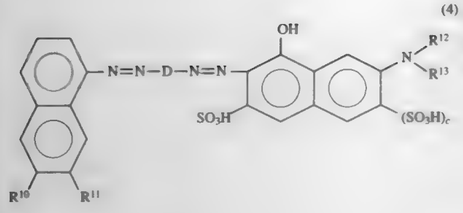


(3)

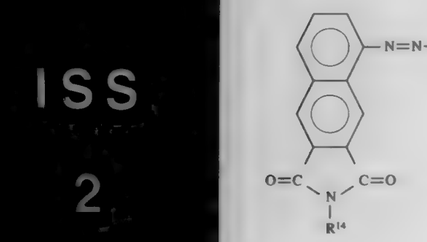
wherein B and C each independently represent a naphthyl group having a substituent of a —COOH group, or a $—SO_3H$ group, or a phenyl group having a substituent selected from the group consisting of a —COOH group, a $—SO_3H$ group, an amino group, an acyl amino group, a hydroxyl group, a halogen atom, a substituted or unsubstituted alkyl group having 1 to 9 carbon atoms and a substituted or unsubstituted alkoxy group having 1 to 9 carbon atoms; R^1 and R^2 each independently represent a —COOH group or a $—CONR^8R^9$ group provided that both of R^1 and R^2 never represent a —COOH group at the same time; R^3 and R^6 each independently represent a hydrogen atom, a phenyl group which may be substituted by a $—SO_3H$ group or a —COOH group, or an alkyl group having 1 to 3 carbon atoms which is substituted with a —COOH group; R^4 and R^7 each independently represent a hydrogen: atom or an alkyl group having 1 to 3 carbon atoms which is substituted with a —COOH group; R^5, R^8 and R^9 each independently represent a hydrogen atom or a substituted or unsubstituted alkyl group having 1 to 9 carbon atoms; a and b each independently are 0 or 1,

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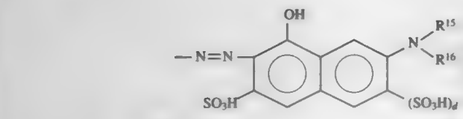
(4)



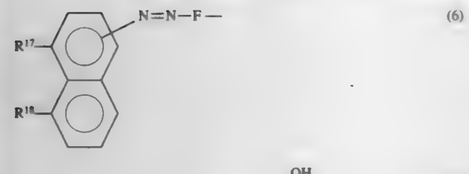
(5)

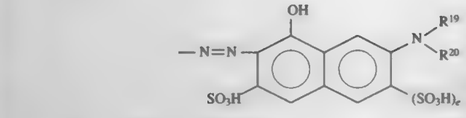


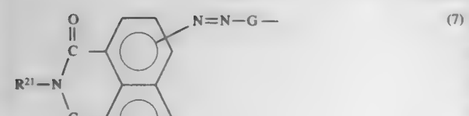
(6)

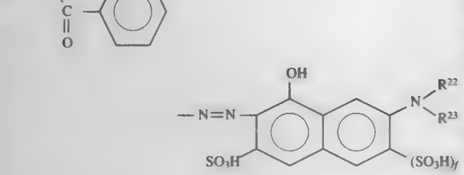


(7)



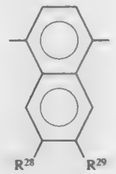




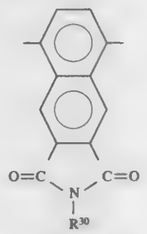


wherein R^{10} and R^{11} each independently represent a —COOH group or a —$CONR^{24}R^{25}$ group provided that both of R^{10} and R^{11} never represent a —COOH group at the same time; R^{17} and R^{18} each independently represent a —COOH, group or a —$CONR^{26}R^{27}$ group provided that both of R^{17} and R^{18} never represent a —COOH group at the same time; D, E, F and G each independently represent the groups represented by the formula [I] or [II]; R^{12}, R^{15}, R^{19} and R^{22} each independently represent a hydrogen atom, a phenyl group which may be substituted with a —SO_3H group or a —COOH group, or an alkyl group having 1 to 3 carbon atoms which is substituted with a —COOH group; R^{13}, R^{16}, R^{20} and R^{23} each independently represent a hydrogen atom or an alkyl group having 1 to 3 carbon atoms which is substituted with a —COOH group; R^{14}, R^{21}, R^{24}, R^{25}, R^{26} and R^{27} each independently represent a hydrogen atom or a substituted or unsubstituted alkyl group having 1 to 9 carbon atoms; and c, d, e and f each independently are 0 or 1,

[I]

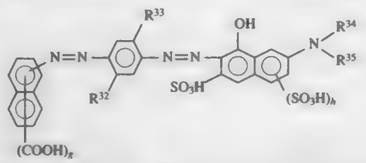


[II]



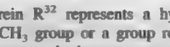
wherein R^{28} and R^{29} each independently represent a —COOH group or a —$CONR^{31}R^{32}$ group provided that both of R^{28} and R^{29} never represent a —COOH group at the same time; and R^{30}, R^{31} and R^{32} each independently represent a hydrogen atom or a substituted or unsubstituted alkyl group having 1 to 9 carbon atoms,

(8)



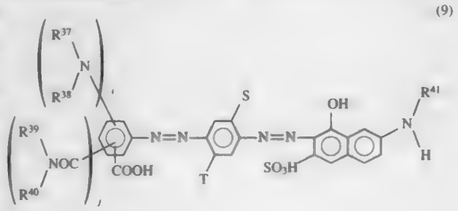
wherein R^{32} represents a hydrogen atom, a —CH_3 group, an —OCH_3 group or a group represented by the formula [III], R^{33} represents a hydrogen atom, a —CH_3 group or an —OCH_3 group when R^{32} represents a hydrogen atom, a —CH_3 group or an —OCH_3 group; or R^{33} represents a hydrogen atom, a substituted or unsubstituted alkyl group having 1 to 9 carbon atoms or a substituted or unsubstituted alkoxy group having 1 to 9 carbon atoms when R^{32} represents a group represented by the formula [III]; R^{34} represents a hydrogen atom, a phenyl group which may be substituted with a —SO_3H group or a —COOH group, or an alkyl group having 1 to 3 carbon atoms which is substituted with a —COOH group; R^{35} represents a hydrogen atom or an alkyl group having 1 to 3 carbon atoms which is substituted with a —COOH group; g is 1 or 2; and h is 0 or 1,

[III]



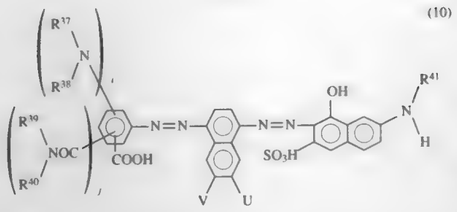
wherein Q represents —CO— or —SO_2—; and R^{36} represents an alkyl group having 1 to 6 carbon atoms or an aryl group having 6 to 12 carbon atoms,

(9)



-continued

(10)



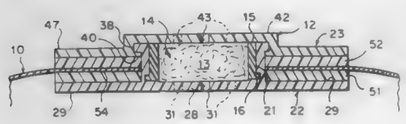
wherein R^{37}, R^{38}, R^{39} and R^{40} each independently represent an alkyl group having 1 to 4 carbon atoms which may be substituted with a morpholino group, an alkoxy group having 1 to 4 carbon atoms or an alkoxy-alkoxy group having 2 to 8 carbon atoms, or a hydrogen atom; R^{37} and R^{38} or R^{39} and R^{40} may be combined with a nitrogen atom, to which R^{37} and R^{38} or R^{39} and R^{40} are bonded, to form morpholino group, provided that both of R^{37} and R^{38} never represent a hydrogen atom at the same time; S and T each independently represent an alkoxy group having 1 to 4 carbon atoms, an alkyl group having 1 to 4 carbon atoms, or an acyl amino group having 2 to 9 carbon atoms; U and V each independently represent a —COOH group, a substituted or unsubstituted carbamoyl group or a morpholino carbonyl group, provided that both of U and V never represent a COOH group at the same time: R^{41} represents a hydrogen atom or a phenyl group which may be substituted by a —COOH group; and i and j each independently is either 0 or 1, provided that both of i and j are never 0 at the same time.

5,725,645

VENT ASSEMBLIES FOR WASTE DISPOSAL BAGS

Terry J. Wickland, Golden, Colo., and Emily Brassell, Arvada, Colo., assignors to Nuclear Filter Technology, Inc., Golden, Colo.

Filed Nov. 18, 1996, Ser. No. 751,739
Int. Cl.[6] B01D *46/30*
U.S. Cl. 96—17 **10 Claims**



1. A vent assembly for mounting in an opening through a wall wherein the vent assembly comprises:

a base plate for positioning on one side of the wall in alignment with the opening, the base plate having an annular wall projecting therefrom for extending through the opening in the wall and for defining a chamber, the base plate having an array of through-holes in alignment with the chamber and a first flange portion;

a ring fitted into the chamber, the ring defining a space therein;

a compressible mass of fibrous material within the ring for filtering fluid which passes through the vent;

a cap plate having a second flange portion and a perforated center portion, the cap plate cooperating in fixed relation with the base plate to enclose the ring within the chamber of the base plate to retain the compressible fibrous material within the space in the ring, the second flange portion on the cap being in alignment with the first flange portion on the base plate; and

sealing means disposed between the first and second flange portions for sealing engagement with opposite surfaces of the wall adjacent the opening.

5,725,646

WATER-BASED OFFSET LITHOGRAPHIC PRINTING INK

Ramasamy Krishnan, Colonia; Marilyn C. Yamat, Bogota, and Hugo Babij, Waldwick, all of N.J., assignors to Sun Chemical Corporation, Fort Lee, N.J.

Filed Mar. 13, 1996, Ser. No. 614,587
Int. Cl.[6] C09D *11/08;11/14*
U.S. Cl. 106—31.73 **8 Claims**

1. A single-fluid water-based, fountain solution free offset lithographic printing ink comprising:

(a) 10 to 70 wt. %, based on the weight of the ink, of a macromolecular binder comprising:

(i) macromolecular binders which are soluble in water regardless of the pH of the water, present in an amount of up to 5 wt. %, based on the weight of the ink; and

(ii) macromolecular rosin salt binders which are soluble in water at a pH ranging from 7.5 to 10, present in an amount of 10–70 wt. %, based on the weight of the ink; and

(iii) macromolecular binders comprised of aqueous emulsions, present in an amount of up to 20 wt. %, based on the weight of the ink;

(b) a pigment, present in the amount of 2–30 wt. %, based on the weight of the ink; and

(c) a hydroxyethylethylene urea re-wetting agent, present in the amount of 0.5–10 wt. %, based on the weight of the ink.

5,725,647

PIGMENTED INKS AND HUMECTANTS USED THEREWITH

James G. Carlson, Lake Elmo, and Richard J. Kuo, St. Paul, both of Minn., assignors to Minnesota Mining And Manufacturing Company, St. Paul, Minn.

Filed Nov. 27, 1996, Ser. No. 757,897
Int. Cl.[6] C09D *11/00*
U.S. Cl. 106—31.86 **15 Claims**

1. An ink, comprising:

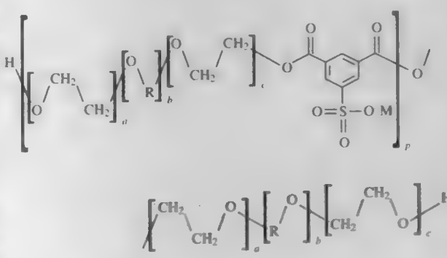
(a) an aqueous medium,

(b) a pigment,

(c) a dispersant, and

(d) a humectant selected from the group consisting of compounds of the following formula (I):

Formula (I)



where "M" is a cation, p ranges from about 1 to about 10, and wherein the sum (a+c) ranges from about 2 to about 50, b

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ranges from 0 to about 20, and R is an alkyl, aryl, or aralkyl group of less than about 10 carbons.

5,725,648

PAPER COATINGS CONTAINING GUAR OR REDUCED MOLECULAR WEIGHT GUAR

Michael J. Brown, Newark, Del., and Teng-Shau Young, Wilmington, Del., assignors to Hercules Incorporated, Wilmington, Del.

Filed Sep. 25, 1996, Ser. No. 719,375
Int. Cl.[6] C09D *7/12;105/00*
U.S. Cl. 106—162.8 **29 Claims**

1. A paper coating composition comprising pigment, adhesive binder and rheology modifier wherein the rheology modifier comprises guar and at least one other water-soluble polymer selected from the group consisting of cellulose ethers, natural and modified starches, xanthan and mixtures thereof.

5,725,649

PIGMENT COMPOSITIONS

Alastair McAlpine Marr, Paisley, Scotland, assignor to Ciba Specialty Chemicals Corporation, Tarrytown, N.Y.

Filed Aug. 20, 1996, Ser. No. 699,958
Int. Cl.[6] C09B *67/50*
U.S. Cl. 106—411 **20 Claims**

1. A composition comprising copper phthalocyanine containing from 0–4 chlorine atoms having a crystal size in the range of from 0.01 to 0.2 μm, and from 10 to 15% by weight of an ionic complex formed from copper phthalocyanine sulphonic acid and a quaternary amine of the formula (I)

$$N(R_1R_2R_3R_4)X^- \quad (I)$$

where R_1 is a C_1–C_6 alkyl group; R_2 is a C_1–C_{18} alkyl group; R_3 is the same as R_2 or is a hydroxyethyl or ethoxylated ethyl group having up to 5 ethyleneoxy units: R_4 is a hydroxyethyl or ethoxylated ethyl group having up to 5 ethyleneoxy units; and X is a halogen atom.

5,725,650

POLYETHYLENE GLYCOL TREATED CARBON BLACK AND COMPOUNDS THEREOF

Cindy L. Flenniken, Indianapolis, Ind.; Jameel Menashi, and Robert S. Whitehouse, both of Lexington, Mass., assignors to Cabot Corporation, Billerica, Mass.

Division of Ser. No. 406,525, Mar. 20, 1995. This application Jul. 20, 1995, Ser. No. 504,789
Int. Cl.[6] C09C *1/56;* **C08K** *9/04;5/06;* **C05D** *7/24*
U.S. Cl. 106—476 **8 Claims**

1. A treated carbon black comprising carbon black treated with at least one polyethylene glycol having a weight average molecular weight of from greater than 20,000 to about 100,000.

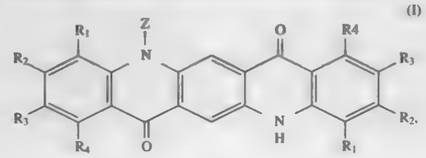
5,725,651

MONO-N-ALKYL-QUINACRIDONE PIGMENTS

John Zambounis, Basel, Switzerland, and Jin Mizuguchi, Yokohama, Japan, assignors to Ciba Specialty Chemicals Corporation, Tarrytown, N.Y.

PCT No. PCT/EP95/03463, § 371 Date Mar. 10, 1997, § 102(e) Date Mar. 10, 1997, PCT Pub. No. WO96/08536, PCT Pub. Date Mar. 21, 1996
PCT Filed Sep. 2, 1995, Ser. No. 793,933
Claims priority, application United Kingdom, Sep. 14, 1994, 9418495
Int. Cl.[6] C09B *48/00*
U.S. Cl. 106—497 **17 Claims**

1. A N-alkyl-quinacridone pigment represented by formula (I)



wherein Z is C_1–C_{18}-alkyl which is unsubstituted or substituted by F, Cl, Br, —OH, —O—C_1–C_{18}-alkyl, C_3–C_7-cycloalkyl, phenyl or naphthyl; R_1, R_2, R_3 and R_4 are each independently of the other (i) H, (ii) F, Cl or Br, (iii) —OH, (iv) —CN, (v) —NO_2, (vi) C_1–C_{18}-alkyl, phenyl or naphthyl, which alkyl, phenyl or naphthyl is unsubstituted or substituted by F, Cl, Br, —OH, —CN, —NO_2, pheny or naphthyl, which phenyl or naphthyl is unsubstituted or substituted by F, Cl, Br, C_1–C_{18}-alkyl or —O—C_1–C_{18}-alkyl, a heterocyclic aromatic residue, —$OCOR_5$, —OR_6, —$COOR_5$, —$N(R_6)(R_7)$ or —$CON(R_6)(R_7)$, in which R_5 is C_1–C_{18}-alkyl, phenyl, naphthyl or benzyl, which alkyl, phenyl, naphthyl or benzyl is unsubstituted or substituted by F, Cl, Br, C_1–C_{18}-alkyl or —O—C_1–C_{18}-alkyl, and in which R_6 and R_7 are each independently of the other C_1–C_{18}-alkyl which is unsubstituted or substituted by —CN or —OH; C_3–C_7-cycloalkyl, phenyl or naphthyl, which cycloalkyl, phenyl or naphthyl is unsubstituted or substituted by F, Cl, Br, C_1–C_{18}-alkyl or —O—C_1–C_{18}-alkyl, or R_6 and R_7 together with the N atom form a 5-membered or 6-membered hetero ring; (vii) —OR_8, in which R_8 is C_1–C_{18}-alkyl, phenyl, naphthyl or C_3–C_7-cycloalkyl, which alkyl, phenyl, naphthyl or cycloalkyl is unsubstituted or substituted by F, Cl, Br, C_1–C_{18}-alkyl or —O—C_1–C_{18}-alkyl, or benzyl, (viii) —SR_8, (ix) —$N(R_6)(R_7)$, (x) —$COOR_5$, (xi) —$N(R_9)COR_5$, in which R_9 is C_1–C_{18}-alkyl, phenyl, naphthyl or C_3–C_7-cycloalkyl, which alkyl, phenyl, naphthyl or cycloalkyl is unsubstituted or substituted by F, Cl, Br, C_1–C_{18}-alkyl or —O—C_1–C_{18}-alkyl, benzyl or the residue —COR_5, or in which R_9 together with the N atom form a heterocyclic ring, (xii) —$N(R_8)COOR_5$, (xiii) —$NR_8CON(R_9)(R_7)$, (xiv) —SO_2R_5 or —SOR_5, (xv) —SO_2OR_5, (xvi) —$CON(R_6)(R_7)$, (xvii) —$SO_2N(R_6)(R_7)$, (xviii) —N=N-R_{10}, in which R_{10} is the residue of a coupling component, or phenyl which is unsubstituted or substituted by F, Cl, Br, C_1–C_{18}-alkyl or —O—C_1–C_{18}-alkyl, or (xix) —$OCOR_5$, in which substituents (ix)–(xiv) R_5, R_6 and R_7 are as defined under (vi) and R_8 is as defined under (vii), except the compound in which R_1, R_2, R_3 and R_4 are H and Z is methyl.

5,725,652

LIGHTWEIGHT, LOW WATER CONTENT EXPANDED SHALE, CLAY AND SLATE CEMENTITIOUS COMPOSITIONS AND METHODS OF THEIR PRODUCTION AND USE

David M. Shulman, 7445 S. Milwaukee Way, Littleton, Colo. 80122

Continuation-in-part of Ser. No. 537,466, Oct. 2, 1995, Pat. No. 5,622,556, which is a continuation-in-part of Ser. No. 358,858, Dec. 19, 1994, Pat. No. 5,580,378. This application Aug. 21, 1996, Ser. No. 701,117
Int. Cl.[6] C04B *16/08*
U.S. Cl. 106—677 **40 Claims**

1. A load bearing cementitious product comprising:

(a) from 40 to 99% by volume of an aqueous cementitious mixture comprising cement, expanded shale, clay and slate; and
(b) from 1 to 60% by volume of micronized polystyrene foam particles;
said cementitious product having an overall water content of from 0.005% to 20% by volume.

5,725,653

Patent Not Issued For This Number

5,725,654

CEMENT COMPOSITION

Edward T. Shawl, Wallingford, Pa.; Xinhau Zhou, West Chester, Pa., and Kenneth G. McDaniel, West Chester, Pa., assignors to Arco Chemical Technology, L.P., Greenville, Del.

Filed Jun. 6, 1997, Ser. No. 870,779
Int. Cl.[6] C04B *24/12*
U.S. Cl. 106—727 **8 Claims**

1. A cement composition comprising cement and an addition copolymer of (a) an adduct of a polyether polyol and an ethylenically unsaturated isocyanate with (b) an ethylenically unsaturated carboxylic acid.

5,725,655

METHOD FOR NEW CONCRETE FROM OLD CONCRETE

Robert L. Catterton, 3639 Branhum St., Edgewater, Md. 21037; Tony H. Harris, 7335 St. Mary Ave., LaPlata, Md. 20646, and Steven C. Harris, 12500 Meadowood Dr., Silver Spring, Md. 20910

Filed Sep. 17, 1996, Ser. No. 714,271
Int. Cl.[6] C04B *18/04*
U.S. Cl. 106—738 **2 Claims**

1. A concrete composition consisting of portland cement, sand and a coarse aggregate, wherein the coarse aggregate consists of a mixture of (a) recycled concrete having a size of 1 ½" to 200 mesh, (b) recycled concrete having a size of 1" to 4 mesh, (c) recycled concrete having a size of ¾" to 4 mesh, and (d) recycled asphalt, said composition having a 21 day compressive strength of at most 4090 PSI.

5,725,656

GYPSUM COMPOSITION

Semyon Shimanovich, Brooklyn, N.Y.; Christian Meyer, Demarest, N.J., and Leon Cukrowski, Jackson Heights, N.Y., assignors to The Trustees of Colombia University in the City of New York, New York, N.Y.

Filed May 29, 1996, Ser. No. 654,704
Int. Cl.[6] C04B *11/00;28/14*
U.S. Cl. 106—778 **18 Claims**

1. A plaster composition which comprises:
(a) calcium sulfate hemihydrate,
(b) an acrylic latex,
(c) an alcohol selected from the group consisting of aliphatic alcohols and defoaming agents, and
(d) a melamine-formaldehyde polymer, wherein ingredients (b), (c) and (d) are present in amounts which are sufficient to: (1) retard the set time and increase the flow of a wet plaster composition formed upon adding water to the plaster composition, and (2) increase the strength of a set gypsum composition formed upon hardening after adding water to the plaster composition.

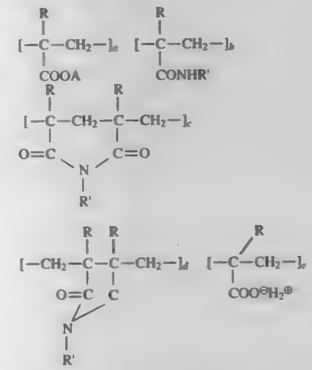
5,725,657

CEMENT ADMIXTURE PRODUCT

David Charles Darwin, 9009 Blue Pool, Columbia, Md. 21045, and Ellis Martin Gartner, 1105 Tanley Rd., Silver Spring, Md. 20904

Division of Ser. No. 505,985, Jul. 24, 1995, Pat. No. 5,665,158. This application Mar. 24, 1996, Ser. No. 823,781
Int. Cl.[6] C04B *24/12*
U.S. Cl. 106—808 **10 Claims**

1. An ammonium salt imidized acrylic polymer represented by the structural formula:



wherein each R independently represents hydrogen atom or a methyl (CH_3—) group; R' represents a hydrogen atom or a C_2–C_{10} oxyalkylene group represented by $(BO)_nR''$ in which O represents an oxygen atom, B represents a C_2–C_{10} alkylene group or mixtures thereof, R'' represents a C_1–C_{10} alkyl and n represents an integer of from 1–200, or mixtures thereof; A represents hydrogen atom, a C_1–C_{10} alkyl group, R' or an alkali metal, alkaline earth metal or ammonium cation or a mixture thereof; $HZ^{\oplus}$ represents an ammonium cation of a carboxylic acid anion wherein Z is a group $X_2N(BO)_zR'''$ such that X represents hydrogen, $(BO)_zR'''$ or mixtures thereof and R''' represents H, C_1–C_{10} alkyl group or BNH_2; B represents a C_2–C_{10} alkylene group or mixture of said groups and z is from 5 to 200; and a, b, c, d, and e are numerical values representing molar percentage of the polymers structure such that a is a value of about 50 to 90; the sum of c+ d is a value of from about 2 to the numerical value of [100–(a+e)]; and b is a remainder value of [100–(a+c+d+e)]; and e is a value of from 0.1 to 10.

5,725,658

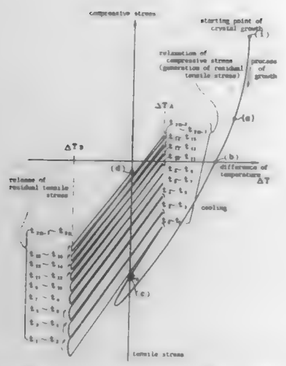
HEAT-TREATMENT METHOD OF GROUPS III-V COMPOUND SEMICONDUCTOR MATERIALS

Shin-ichi Sawada, Osaka, Japan, assignor to Sumitomo Electric Industries, Ltd., Osaka, Japan

Filed Apr. 6, 1995, Ser. No. 417,773
Claims priority, application Japan, Oct. 24, 1994, 6-284285
Int. Cl.[6] C30B *19/10*
U.S. Cl. 117—54 **16 Claims**

1. A heat-treatment method for heat treating groups III–V compound semiconductor materials, said method comprising the steps of:
sealing a crystal of groups III–V compound semiconductors in a tube;
placing the tube in a chamber with heaters;
heating the crystal from room temperature to an upper limit temperature T_A;
cooling the crystal from the upper limit temperature T_A to a lower limit temperature T_1, said cooling being conducted so that the crystal is change from the upper limit temperature T_A to the lower limit temperature T_1 at a falling speed B;

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repeatedly heating and cooling the crystal between the lower limit temperature T_1 and the upper limit temperature T_h in an alternating manner more than twice, said repeated heating step comprising heating the crystal from the lower limit temperature T_1 to the upper limit temperature T_h at a rising speed A, and said repeated cooling step comprising cooling the crystal from the upper limit temperature T_h to the lower limit temperature T_1 at the falling speed B; and

cooling the crystal from the upper limit temperature T_h to room temperature;

wherein the upper limit temperature T_h is less than a melting point of the crystal but more than 800° C., the lower limit temperature T_1 is less than the upper limit temperature T_h but more than 800° C., the chamber has a temperature that is uniformly changed in a range between the upper limit temperature T_h and the lower limit temperature T_1, and the falling speed B is higher than the rising speed A.

5,725,659

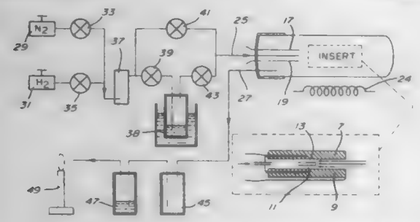
SOLID PHASE EPITAXY REACTOR, THE MOST COST EFFECTIVE GAAS EPITAXIAL GROWTH TECHNOLOGY

Fareed Sepehry-Fard, 7790 Gouin West, Montreal, Quebec, Canada, H4K 2K2

Continuation-in-part of Ser. No. 322,292, Oct. 3, 1994, abandoned. This application Dec. 26, 1995, Ser. No. 587,782

Int. Cl.[6] C30B *25/02*

U.S. Cl. 117—84 **6 Claims**



1. A deposition process for growing uniform thickness layers of material, comprising:

disposing a source wafer and a substrate wafer substantially parallel to one another within a reaction chamber, said source wafer comprising said material;

providing a transport agent vapor in said chamber substantially at atmospheric pressure;

causing said vapor to flow substantially evenly across said wafers;

setting a space between said source wafer and said substrate wafer to less than a mean free path of a reactive species of oxido-reduction of said material;

heating said source wafer and said substrate wafer substantially evenly with a difference in temperature between said source wafer and said substrate wafer; and

maintaining said temperature difference between said source wafer and said substrate wafer to effect deposition of said material transported from said source wafer to said substrate wafer as a result of oxidoreduction reaction of said material, said vapor and said substrate.

5,725,660

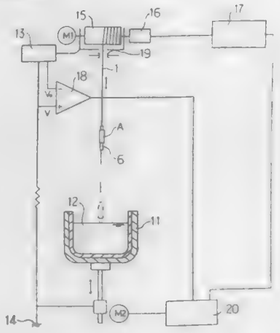
SEMICONDUCTOR SINGLE CRYSTAL GROWING APPARATUS

Yoshinobu Hiraishi, Omura, Japan, assignor to Komatsu Electronic Metals Co. Ltd., Hiratsuka, Japan

Filed Nov. 29, 1996, Ser. No. 758,475

Int. Cl.[6] C30B *35/00*

U.S. Cl. 117—201 **5 Claims**



1. A semiconductor single crystal growing apparatus for growing a semiconductor single crystal by using the Czochralski method, comprising:

a detecting means for detecting an electrical contact position at which a seed electrically contacts a melt in a crucible;

a seed-holding means mounted vertically and telescopically for holding the seed;

a suspending means for suspending the seed-holding means and for lifting, lowering and rotating the seed-holding means;

a pulse generating means for generating pulses proportional to a distance in which the seed is lowered;

a counting means for counting a number of pulses during a time period when the seed is lowered from a datum position to the electrical contact position, and generating signals for detecting a level of the melt surface based on the number of pulses; and

control means for determining a distance between the level of the melt surface and the front end of the seed based on the signals.

5,725,661

EQUIPMENT FOR PRODUCING SILICON SINGLE CRYSTALS

Izumi Fusegawa, Fukushima-ken, Japan; Toshiro Hayashi, Fukushima-ken, Japan; Tomohiko Ohta, Fukushima-ken, Japan, and Masayuki Arai, Fukushima-ken, Japan, assignors to Shin-Etsu Handotai Co., Ltd., Tokyo, Japan

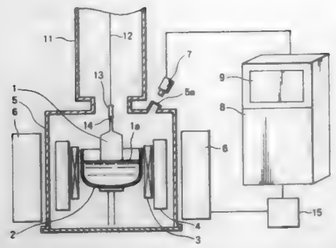
Filed Jul. 1, 1996, Ser. No. 699,719

Claims priority, application Japan, Jul. 4, 1995, 7-191086

Int. Cl.[6] C30B *35/00*

U.S. Cl. 117—202 **2 Claims**

1. An equipment for producing silicon single crystals wherein a magnetic-field generating apparatus is provided outside of a single crystal growth furnace to form a silicon single crystal pulling



apparatus, an opeerator controlled operation control apparatus is provided for controlling operation of said pulling apparatus, a silicon single crystal is pulled under control of said operation control apparatus during application of a magnetic field of said magnetic-field generating apparatus to silicon melt contained in a quartz crucible of said pulling apparatus; characterized in that said operation control apparatus is disposed as spaced by a distance from said pulling apparatus to cause an intensity of the magnetic field immediately close to said operation control apparatus to be 300 gausses or less during pulling operation of the silicon single crystal.

5,725,662

PROCESSING SECTION IN GEL COAT PROCESSING UNIT FOR SEEDS

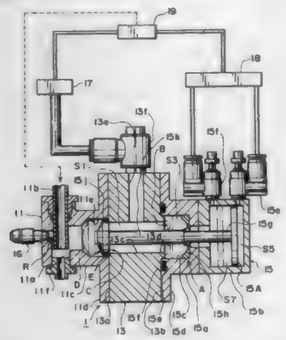
Kazushi Nakatsukasa, and Yasushi Kohno, both of Susono, Japan, assignors to Yazaki Corporation, Tokyo, Japan

Filed Dec. 11, 1996, Ser. No. 763,438

Claims priority, application Japan, Dec. 13, 1995, 7-324677

Int. Cl.[6] B05C *3/00*

U.S. Cl. 118—13 **9 Claims**



1. A processing device in a gel coat processing unit for seeds for manufacturing gel-coated seeds made by coating seeds with polymeric gel, wherein said seed is introduced from an outside into a passageway filled with a gelatinizer which becomes said polymeric gel by hardening and a coated seed made by coating said seed with said gelatinizer is dropped from said passageway, comprising:

a gel storing means for communicating with said passageway, wherein said gel storing means is supplied with said gelatinizer from an outside thereof;

an opening-closing valve for opening and closing an aperture between said passageway and said gel storing means; and

an extension-contraction member for extending and contracting an internal space of said gel storing means, said extension-contraction member moving in said gel storing section linked with an opening and closing of said opening-closing valve, said extension-contraction member being movable between a first position where an internal space of said gel storing means has a minimum capacity corresponding to a position when said opening-closing valve is opened and a second position where said internal space of said gel storing means has a maximum capacity which is equal to said minimum capacity plus an amount of said gelatinizer used for said coated seed corresponding to a position when said opening-closing valve is closed.

5,725,663

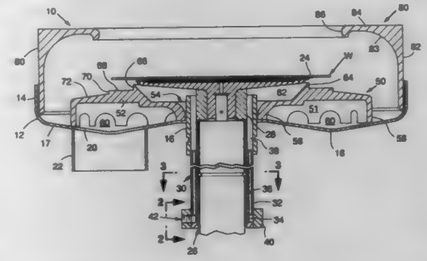
APPARATUS FOR CONTROL OF CONTAMINATION IN SPIN SYSTEMS

William Parrette, Milpitas, Calif., assignor to Solitec Wafer Processing, Inc., San Jose, Calif.

Filed Jan. 31, 1996, Ser. No. 593,323

Int. Cl.[6] B05C *11/02;13/00;13/02;5/00*

U.S. Cl. 118—52 **8 Claims**



1. Apparatus for spin coating a substrate comprising, in combination:

a bowl having a central axis,

a baffle surface positioned above the inside bottom surface of said bowl,

a chuck member having a top surface for supporting and spinning a substrate, said chuck member positionable coaxially within said bowl with the bottom surface of the substrate closely spaced from said baffle surface,

said baffle surface including an upwardly outwardly angled surface which ends in an edge close to the outer edge of said chuck member and the lower surface of the substrate, and means for directing a gas stream radially outwardly between the bottom surface of the substrate and said baffle surface to block reverse air flow under the substrate and to direct any liquid particulate under the substrate radially outwardly of said bowl.

5,725,664

SEMICONDUCTOR WAFER PROCESSING APPARATUS INCLUDING LOCALIZED HUMIDIFICATION BETWEEN COATING AND HEAT TREATMENT SECTIONS

Mitsuhiro Nanbu; Naruaki Iida; Hideaki Gotou; Masanori Tateyama; Yuji Yoshimoto; Tomoko Ishimoto, all of Kumamoto; Hidetami Yaegashi, Tokyo; Yasunori Kawakami, Kikuchi; Takahide Fukuda, Kumamoto; Akihiro Fujimoto, Kumamoto-ken; Takashi Takekuma, Yamaga, and Hiroyuki Matsukawa, Kumamoto, all of Japan, assignors to Tokyo Electron Limited, Tokyo, and Tokyo Electron Kyushu Limited, Tosu, both of Japan

Continuation of Ser. No. 331,083, Oct. 28, 1994, Pat. No. 5,565,034. This application Aug. 5, 1996, Ser. No. 692,436

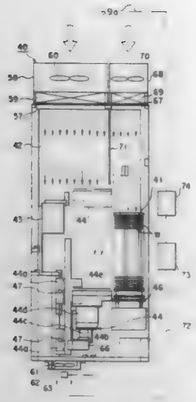
Claims priority, application Japan, Oct. 29, 1993, 5-294479; Nov. 5, 1993, 5-300960; Nov. 12, 1993, 5-307133; Nov. 12, 1993, 5-307467; Nov. 12, 1993, 5-307468

Int. Cl.[6] B05C *5/00*

U.S. Cl. 118—52 **23 Claims**

1. An apparatus for subjecting a plurality of objects to coating and heating treatments, comprising:

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a coating section for subjecting said objects to a coating treatment one by one to form a film on each of said objects;

an interface section coupled to the coating section and including a holder and a conveyor for loading objects which have undergone said coating treatment into the holder;

a heating section coupled to the interface section for subjecting objects, which have undergone said coating treatment and been loaded into said holder, to a heating treatment all together;

a casing for forming a surrounding space which surrounds said conveyer and said holder at said interface section and does not surround said coating section and said heating section; and

dehumidifying means in communication with the surrounding space formed by said casing for dehumidifying said surrounding space.

5,725,665

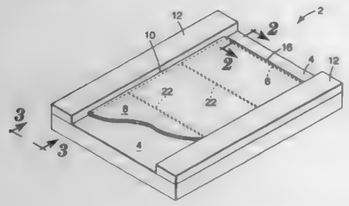
COATER ENCLOSURE AND COATING ASSEMBLY INCLUDING COATER ENCLOSURE

Robert A. Yapel, Oakdale, Minn.; Thomas M. Milbourn, Mahtomedi, Minn.; Aparna V. Bhave, Woodbury, Minn., and Lawrence B. Wallace, Newport, Minn., assignors to Minnesota Mining and Manufacturing Company, St. Paul, Minn.

Filed May 1, 1996, Ser. No. 641,407

Int. Cl.[6] B05C *5/00*

U.S. Cl. 118—64 **21 Claims**



1. In combination an enclosure and coating apparatus comprising a coating apparatus comprising a coater face for the flow of a fluid thereover in the form of a film, the film having one or more edges contacting the coating apparatus at one or more edge contact surfaces, including edge contact surfaces at one or more of an uppermost feed slot and along the length of the coater face, the enclosure defining a partially enclosed space above the edge contact surfaces at the uppermost feed slot and along the length of the coater face, wherein the enclosure has a shape that allows visibility of and access to a substantial portion of the coater face.

5,725,666

APPARATUS FOR IMPROVING THE UNIFORMITY OF A LIQUID CURTAIN IN A CURTAIN COATING SYSTEM

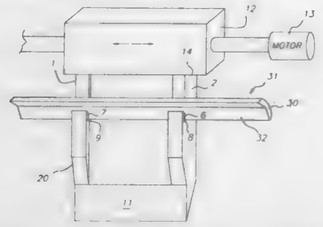
Jean-Marie Baumlin, Chalon sur Saone, France, assignor to Eastman Kodak Company, Rochester, N.Y.

Filed May 7, 1996, Ser. No. 643,836

Claims priority, application France, May 19, 1995, 95 [illegible]269

Int. Cl.[6] B05C *5/00*

U.S. Cl. 118—324 **9 Claims**



1. Apparatus for improving the uniformity of a liquid curtain in a coating device comprising a lip at which a liquid composition to be coated on a medium leaves the coating device to form a vertical curtain in free fall, the lip comprising a front face on which the liquid composition flows by gravity, and a rear face, the lip having a length measured transversally to the flow of said liquid composition; the apparatus comprising means for, prior to the coating of the medium, forcing the liquid composition which flows over the front face of the lip to wet the rear face of the lip over a predetermined distance greater than the distance over which the liquid composition would naturally wet the rear face.

5,725,667

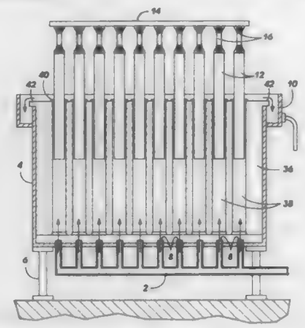
DIP COATING APPARATUS HAVING A SINGLE COATING VESSEL

Mark C. Petropoulos, Ontario; Geoffrey M. T. Foley, Fairport; Eugene A. Swain, Webster; David J. Kilmer, Ontario; Mark S. Thomas, Williamson; Stanley J. Pietrzykowski, Jr.; Robert S. Foltz, both of Rochester; Peter J. Schmitt, Ontario, and Richard P. Millonzi, Webster, all of N.Y., assignors to Xerox Corporation, Stamford, Conn.

Filed Mar. 1, 1996, Ser. No. 609,368

Int. Cl.[6] B05C *3/02;3/00;13/00;21/00*

U.S. Cl. 118—407 **10 Claims**



1. A dip coating apparatus comprising:

(a) a single coating vessel capable of containing a batch of substrates vertically positioned in the vessel, wherein there is absent vessel walls defining a separate compartment for each of the substrates:

(b) a coating solution disposed in the vessel, wherein the solution is comprised of a solvent that gives off a solvent vapor and a material selected from the group consisting of a charge generating material and a charge transport material; and

(c) a solvent vapor uniformity control apparatus which minimizes any difference in solvent vapor concentration encountered by the batch of the substrates in the air adjacent the solution surface, thereby improving coating uniformity of the substrates.

5,725,668

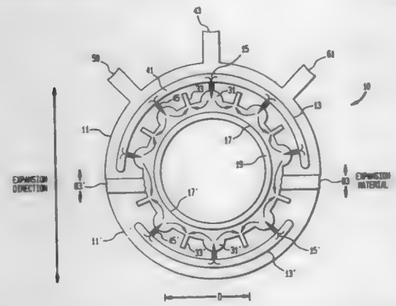
EXPANDABLE FLUID TREATMENT DEVICE FOR TUBLAR SURFACE TREATMENTS

Elizabeth F. Foster, Friendsville, Pa.; Jeffrey C. Hedrick, Park Ridge, N.J.; Stephen L. Tisdale, Endwell, and Alfred Viehbeck, Fishkill, both of N.Y., assignors to International Business Machines Corporation, Armonk, N.Y.

Continuation of Ser. No. 523,883, Sep. 6, 1995, abandoned. This application Dec. 19, 1996, Ser. No. 770,067

Int. Cl.[6] B05C *1/04*

U.S. Cl. 118—411 **19 Claims**



1. An apparatus for applying a fluid to an outer surface of an elongated work piece, said elongated work piece having a longitudinal axis and a cross sectional shape perpendicular to said longitudinal axis, comprising:

a head member having an interior wall with a cross sectional shape configured for substantially conformance with said cross sectional shape of said elongated work piece;

said interior cross sectional shape defining said interior wall of said head member,

said head member has an input end and an output end;

said interior wall containing a recessed means for applying said fluid to a surface of said elongated member which recessed means comprises a plurality recessed jets for applying said fluid to said outer surface and a plurality of recessed output ports for recovering said fluid applied to said outer surface to restrict loss of the fluid from the head.

5,725,669

CAR BODY SURFACE TREATMENT DEVICE

Nobert Heckmann, Morschen Konnefeld, Germany, assignor to ABB Fläkt AB, Stockholm, Sweden

PCT No. PCT/EP95/01125, § 371 Date Dec. 12, 1996, § 102(e) Date Dec. 12, 1996, PCT Pub. No. WO95/26311, PCT Pub. Date Oct. 5, 1995

PCT Filed Mar. 24, 1995, Ser. No. 722,121

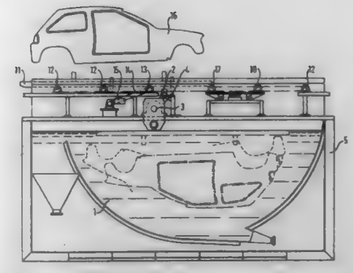
Claims priority, application Germany, Mar. 25, 1994, 44 10 477.4

Int. Cl.[6] B05C *3/02*

U.S. Cl. 118—423 **17 Claims**

1. A device for the surface treatment of one or more car bodies (**16**), comprising

a rotating device (**2**) to which at least one car body (**16**) mounted on a loading carriage (**11**) is detachably connectable and which dips said car body (**16**) into a treatment bath (**1**) by rotation and in turn guides said body out of said bath by rotation,



conveyor means (**12**, **13**, **17**, **18**) for carrying said loading carriage (**11**) on to or away from said rotating device (**2**),

said conveyor means (**12**, **13**, **17**, **18**) are attached outside said treatment bath (**1**), and

said conveyor means (**17**, **18**) located within the area of rotation of said rotating device (**2**) can be moved out of or into said area of rotation.

5,725,670

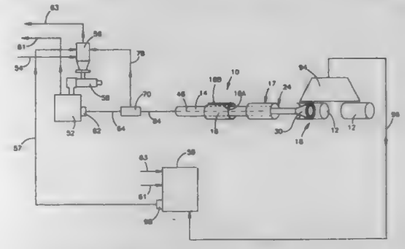
APPARATUS FOR POWDER COATING WELDED CANS

Timothy Edward Wilson, Amherst, Ohio; Masafumi Matsunaga, Yokohama; Wataru Kakuta, Kanagawa, both of Japan; Raymond J. Merk, Chicago, Ohio; Ronald E. Niemiec, Elyria, Ohio; Laurence B. Saidman, Avon Lake, Ohio; Gerald W. Crum, Elyria, Ohio, and William L. Palmer, Lakewood, Ohio, assignors to Nordson Corporation, Westlake, Ohio

Continuation-in-part of Ser. No. 393,150, Feb. 17, 1995, abandoned, which is a continuation-in-part of Ser. No. 198,506, Feb. 18, 1994, abandoned. This application Jan. 16, 1996, Ser. No. 587,327

Int. Cl.[6] B05C *19/00*

U.S. Cl. 118—629 **19 Claims**



1. A system for electrostatically coating at least a portion of the interior surface of hollow container bodies moving along a predetermined path with a coating powder, said system comprising:

a) a powder coating gun for spraying air-entrained coating powder within said hollow container bodies to form a coating of said coating powder on said at least a portion of the interior surface of said hollow container bodies, said powder coating gun being mounted to a downstream end of a welding arm of a can forming machine;

b) a delivery passage extending through said welding arm for transporting said air-entrained coating powder through said welding arm, said delivery passage connected at an upstream end to a densifer and at a downstream end to said powder coating gun for supplying said air-entrained coating powder to said powder coating gun; and

c) the densifer being connected to said delivery passage for venting off air and coating powder from said air-entrained coating powder prior to delivering said coating powder to increase the flow rate of coating powder flowing through said delivery passage to said powder coating gun.

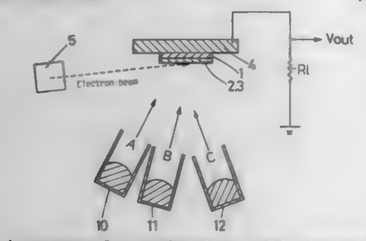
VOL 1208 ISS 2 MR 10 1998 UMI

5,725,671

APPARATUS FOR MANUFACTURING CHALCOPYRITE FILM

Mikihiko Nishitani, Nara, Japan; Takayuki Negami, Katano, Japan, and Takahiro Wada, Hirakata, Japan, assignors to Matsushita Electric Industrial Co., Ltd., Kadoma, Japan

Division of Ser. No. 420,183, Apr. 11, 1995, Pat. No. 5,633,033.
This application Feb. 4, 1997, Ser. No. 795,289
Claims priority, application Japan, Apr. 18, 1994, 6-078720
Int. Cl.[6] C23O *16/00*
U.S. Cl. 118—665 7 Claims



I. An apparatus for manufacturing an ABC_2 chalcopyrite thin film layer, A representing Cu or Ag, B representing In, Ga or Al, and C representing S, Se or Te, the apparatus comprising:

a substrate holder,

means provided on said substrate holder for heating a substrate;

a plurality of element supplying means, each for supplying element A, element B or element C onto said substrate and for controlling the supplying operation of the respective elements, and

monitoring means for monitoring a physical property of said thin film layer deposited on said substrate, said physical property selected from the group consisting of an electrical resistance of said thin film, an intensity of light reflected from said thin film layer, and an intensity of an infrared ray transmitted through said thin film layer,

wherein said physical property of said thin film layer abruptly changes at a first time point when the A/B ratio in said thin film layer changes from an element A-excessive state to the stoichiometric composition ratio of the ABC_2, and demonstrates a stable value at a second time point when the A/B ratio becomes an element B-excessive state, the second time point occurring after the stable value persists for a substantial time period, and

wherein said monitoring is performed in order to determine an end point of depositing said thin film layer, the end point being the second time point.

5,725,672

APPARATUS FOR THE HIGH SPEED, LOW PRESSURE GAS JET DEPOSITION OF CONDUCTING AND DIELECTRIC THIN SOLD FILMS

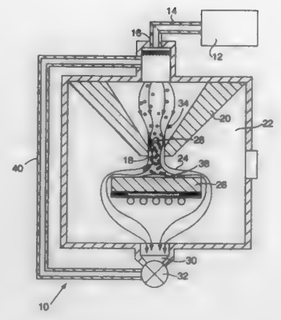
Jerome J. Schmitt, Madison, and Bret L. Halpern, Bethany, both of Conn., assignors to Jet Process Corporation, New Haven, Conn.

Continuation of Ser. No. 132,122, Oct. 5, 1993, abandoned, which is a continuation of Ser. No. 1,895, Jan. 7, 1993, abandoned, which is a continuation of Ser. No. 277,234, Nov. 29, 1988, abandoned, which is a division of Ser. No. 888,590, Dec. 12, 1985, Pat. No. 4,788,082, which is a continuation-in-part of Ser. No. 579,676, Feb. 13, 1984, abandoned. This application Jan. 24, 1995, Ser. No. 377,672
Int. Cl.[6] C23C *16/00*
U.S. Cl. 118—715 28 Claims

1. An apparatus for depositing a condensable gaseous material entrained in an inert carrier gas as a solid film on a substrate, said apparatus comprising:

(a.) a deposition chamber having a plurality of ports;

(b.) carrier gas means for supplying an inlet flow of carrier gas to a first port;



(c.) a gas jet nozzle means positioned on a one of said deposition chamber ports having an interior cavity bounded by an interior cavity wall, an inlet port and an outlet orifice positioned at a distal end of said nozzle cavity from said gas jet inlet port, said gas jet means positioned within said chamber for receiving said carrier gas at said inlet port and generating a high speed gas jet through said gas jet nozzle means interior cavity with a selected gas jet speed Mach number at the orifice of at least 0.1 and for presenting said high speed gas jet to said chamber through said orifice;

(d.) a means for locating the substrate within said deposition chamber: at a first substrate position to receive said high speed gas jet at a substrate upper surface;

(e.) a means for generating condensable gaseous material for presentation to the high speed gas jet so as to entrain said gaseous condensable material within said carrier gas jet away from said interior cavity wall;

(f.) a transport means for effecting relative lateral movement between said gas jet and the substrate so as to deposit said entrained condensable gaseous material on said substrate upper surface forming a film with a uniform thickness; and

(g.) a pump means for evacuating gas from said deposition chamber at a How rate that maintains said carrier gas jet speed at the selected Mach number and at a pressure below atmospheric pressure.

5,725,673

SEMICONDUCTOR WAFER PROCESS CHAMBER WITH SUSCEPTOR BACK COATING

Roger N. Anderson; H. Peter W. Hey, both of San Jose; Israel Beinglass, Sunnyvale, and Mahalingam Venkatesan, San Jose, all of Calif., assignors to Applied Materials Inc., Santa Clara, Calif.

Division of Ser. No. 624,878, Mar. 27, 1996, which is a division of Ser. No. 221,118, Mar. 31, 1994, Pat. No. 5,551,982.
This application Sep. 25, 1996, Ser. No. 719,580
Int. Cl.[6] C23C *16/00*
U.S. Cl. 118—715 7 Claims

1. An apparatus for processing a substrate, said apparatus comprising:

a chamber having a side wall;

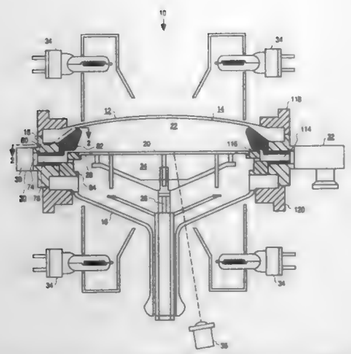
a wafer support member which divides said chamber into an upper portion and a lower portion;

an upper liner seated against the inner surface of said side wall in the upper portion of said chamber; and

a lower liner seated against the inner surface of said side wall in the lower portion of said chamber;

an exhaust passage through said side wall;

at least one passage extending from said upper portion of said chamber through said upper liner to said exhaust passage; and



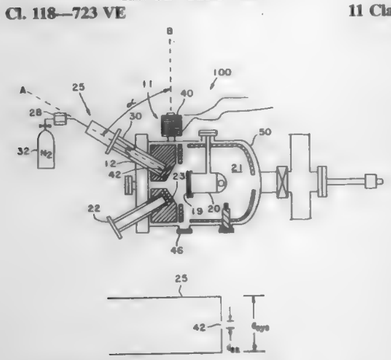
at least one passage extending from said lower portion of said chamber through said lower liner to said exhaust passage.

5,725,674

DEVICE AND METHOD FOR EPITAXIALLY GROWING GALLIUM NITRIDE LAYERS

Theodore D. Moustakas, Dover, Mass., and Richard J. Molnar, Medford, Mass., assignors to Trustees of Boston University, Boston, Mass.

Division of Ser. No. 371,708, Jan. 13, 1995, which is a continuation-in-part of Ser. No. 113,964, Aug. 30, 1993, Pat. No. 5,385,862, which is a continuation of Ser. No. 670,692, Mar. 18, 1991, abandoned. This application Nov. 17, 1995, Ser. No. 560,498
Int. Cl.[6] C23C *16/00*
U.S. Cl. 118—723 VE 11 Claims



1. An epitaxial growth system comprising:

an epitaxial growth chamber;

a substrate support located within the growth chamber for supporting a substrate;

a gallium source for introducing gallium into the growth chamber and directing gallium towards the substrate;

a plasma assisted nitrogen source for introducing activated nitrogen species into the growth chamber and directing the activated nitrogen species towards the substrate, the activated nitrogen species comprising ionic nitrogen species and neutral excited species, wherein the neutral excited species comprise atomic nitrogen species and excited molecular species, the plasma assisted nitrogen source comprising an exit aperture through which the activated nitrogen species pass; and

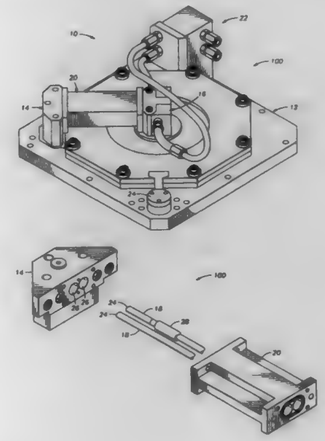
means for controlling the ratio of the neutral excited species versus the ionic nitrogen species, said means for controlling the ratio of the neutral excited species versus the ionic nitrogen species comprising means for varying the diameter of the exit aperture of the plasma assisted nitrogen source.

5,725,675

SILICON CARBIDE CONSTANT VOLTAGE GRADIENT GAS FEEDTHROUGH

Gary L. Fong, Sunnyvale; Vincente Lim, Newark, and Visweswaren Sivaramakrishnan, Santa Clara, all of Calif., assignors to Applied Materials, Inc., Santa Clara, Calif.

Filed Apr. 16, 1996, Ser. No. 632,877
Int. Cl.[6] C23C *16/00*
U.S. Cl. 118—723 E 12 Claims



7. An apparatus for providing a gas to a processing chamber, comprising:

a) a gas inlet manifold into which process gases are introduced from a gas source;

b) a gas outlet manifold which is connected to a power source and provides an inlet into the chamber;

c) at least one gas line extending between the gas inlet and the gas outlet;

d) an insulative housing disposed about the gas line; and

e) a resistive member consisting essentially of a semi-conductive homogenous material, the resistive member disposed about the gas line to prevent the transfer of energy applied to the gas outlet from being transferred to the gas in the gas line.

5,725,676

THERMALLY INHIBITED STARCHES AND FLOURS AND PROCESS FOR THEIR PRODUCTION

Chung-Wai Chiu, Westfield, N.J.; Eleanor Schiermeyer, Bound Brook, N.J.; David J. Thomas, Flemington, N.J., and Manish B. Shah, Somerset, N.J., assignors to National Starch and Chemical Investment Holding Corporation, Wilmington, Del.

Continuation-in-part of Ser. No. 296,211, Aug. 25, 1994, which is a continuation-in-part of Ser. No. 99,753, Jul. 30, 1993, abandoned. This application Jan. 18, 1995, Ser. No. 374,279
Int. Cl.[6] C08B *30/00*
U.S. Cl. 127—34 6 Claims

1. A process for making a thermally-inhibited, non-pregelatinized granular starch which comprises the steps of:

(a) dehydrating the non-pregelatinized granular starch to substantially anhydrous or anhydrous; and

(b) while maintaining the dehydrated, non-pregelatinized granular starch substantially anhydrous or anhydrous, heat treating at a temperature of 100° C. or greater for a period of time sufficient to inhibit the starch.

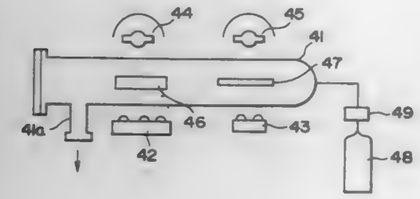
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5,725,677

DRY CLEANING PROCESS FOR CLEANING A SURFACE

Rinji Sugino; Masaki Okuno, and Yasuhisa Sato, all of Kawasaki, Japan, assignors to Fujitsu Limited, Kawasaki, Japan

Division of Ser. No. 3,384, Jan. 12, 1993, Pat. No. 5,578,133.
This application Jun. 19, 1996, Ser. No. 666,808
Claims priority, application Japan, Jan. 13, 1992, 4-004162; Jul. 22, 1992, 4-195041
Int. Cl.[6] B08B 5/00; C23F 1/00; C03C 23/00
U.S. Cl. 134—1 18 Claims



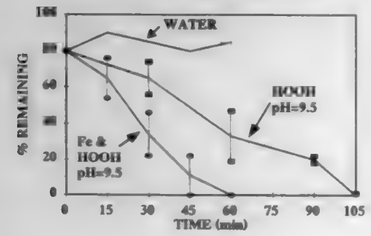
1. A dry cleaning method for removing metal contaminants from a surface of an oxide film such that no substantial etching of said oxide film occurs, comprising the steps of:
supplying a halide gas containing an element that is selected from the group IIIa elements, group IVa elements and the group Va elements in a form of halide, to said oxide film, thereby dry cleaning said surface of said oxide film.

5,725,678

AQUEOUS-BASED CLEANER FOR THE REMOVAL OF RESIDUE

Frederick S. Cannon, State College, and Frederick R. Brant, Berline, both of Pa., assignors to The Penn State Research Foundation, University Park, Pa.

Continuation of Ser. No. 399,309, Mar. 6, 1995, abandoned.
This application Jun. 20, 1996, Ser. No. 667,260
int. Cl.[6] B08B 3/08
U.S. Cl. 134—1 20 Claims



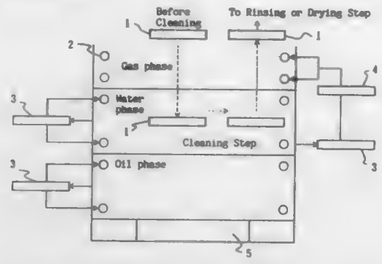
1. A method for the removal of organic residues from a surface of industrial equipment or components thereof comprising the step of contacting said industrial equipment or components with an aqueous peroxide-iron solution for a period of time sufficient to remove said organic residues, wherein said solution has an iron concentration above 1×10^{-4}M.

5,725,679

CLEANING PROCESS AND DETERGENT USED THEREFOR

Kozo Kitazawa, and Atsushi Tamura, both of Wakayama, Japan, assignors to Kao Corporation, Tokyo, Japan

Filed Sep. 29, 1995, Ser. No. 536,526
Claims priority, application Japan, Oct. 13, 1994, 6-275713
Int. Cl.[6] B08B 9/04
U.S. Cl. 134—10 8 Claims



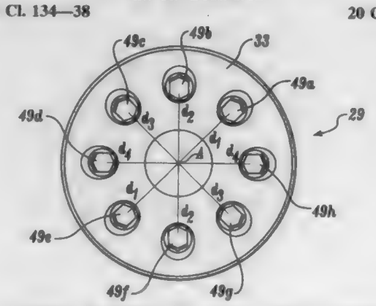
1. A process for cleaning an object comprising the steps of:
adding a detergent composition comprising one or more nonionic surfactants to a cleaning vessel;
separating said detergent composition comprising said one or more nonionic surfactants into a water phase layer and an oil phase layer in said cleaning vessel, wherein said water phase layer has a lower content of organic components of said detergent composition than the oil phase layer; and
cleaning said object in the water phase layer.

5,725,680

METHOD FOR CLEANING A SURFACE BY USING ROTATING HIGH PRESSURE FLUID STREAMS

George J. Mathieus, 498 Turkey Ranch Rd., Goldendale, Wash. 98620

Division of Ser. No. 396,562, Mar. 1, 1995, Pat. No. 5,617,886.
This application Oct. 20, 1995, Ser. No. 546,407
Int. Cl.[6] B08B 3/02
U.S. Cl. 134—38 20 Claims



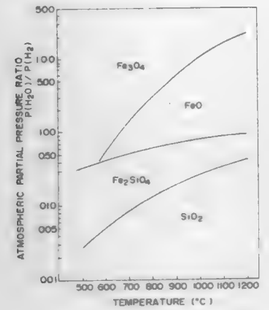
1. A method for cleaning dirt, grease, oxides or calcification from a surface or stripping the exterior layer of molecules from a surface comprising the steps of:
applying separate rotating high pressure fluid streams from a single source onto the surface to be cleaned or stripped in at least two substantially circular concentric stream patterns; and
cleaning or stripping entire areas of the surface between adjacent ones of the circular concentric stream patterns after the high pressure fluid streams initially impinge on the surface and as they are angularly deflected therefrom, said single source comprising a head adapted to be mounted on, and rotatable around, a high pressure fluid gun, said head having a longitudinal axis, a face with a center, and a fluid conduit therein, and at least two sets of jets on said face of said head, said jets communicating with said fluid conduit for passage of high pressure fluid through said head and said jets, each of said sets having at least one jet, each of said sets of jets being disposed at an acute angle from the longitudinal axis of said head, each of said jets being disposed at a different distance front the center of said face, the distances of said sets of jets being selected such that rotation of said nozzle causes separate high pressure fluid streams from each of said sets of jets to impinge upon the surface to be cleaned or stripped in a number of substantially circular concentric jet stream patterns equivalent to the number of said sets of jets, the distances of said sets of jets from the center of said face further being selected such that entire areas of the surface between adjacent ones of the circular concentric jet stream patterns are also cleaned or stripped by the high pressure fluid streams after they initially impinge on the surface and as they are angularly deflected therefrom.

5,725,681

PROCESS FOR PRODUCING GRAIN ORIENTED SILICON STEEL SHEET, AND DECARBURIZED SHEET

Hirotake Ishitobi; Takafumi Suzuki; Michiro Komatsubara, and Hiroi Yamaguchi, all of Okayama, Japan, assignors to Kawasaki Steel Corporation, Japan

Filed Sep. 3, 1996, Ser. No. 707,122
Claims priority, application Japan, Sep. 7, 1995, 7-230103
Int. Cl.[6] H01F 1/14
U.S. Cl. 148—113 8 Claims



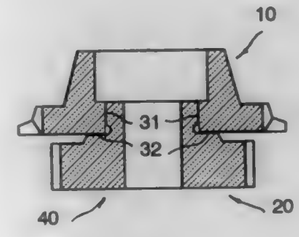
1. In a process for producing a grain oriented silicon steel sheet wherein a grain oriented silicon steel slab is subjected to hot rolling, subsequently subjected to cold rolling, then subjected to decarburization annealing, and thereafter subjected to finishing annealing, the steps which comprise:
prior to said decarburization annealing step, adhering a silicon compound to said steel sheet, said silicon compound essentially comprising Si, O and H or Si and O,
said silicon compound being applied to the surface of said steel sheet in an amount of about 0.5 to 7.0 mg per square meter, expressed as weight of Si;
performing decarburization annealing in an atmosphere containing steam and hydrogen and in at least three successive steps a temperature rising step, a successive earlier decarburization holding step and a later decarburization holding step while adjusting said atmosphere in each said step to an atmospheric composition, expressed as the atmosphere ratio of the steam partial pressure to the hydrogen partial pressure,
adjusting said atmosphere ratio in said earlier decarburization holding step to less than about 0.7; and
adjusting said atmosphere ratio in said later decarburization holding step and in said temperature rising step to values lower than said atmosphere ratio in said earlier decarburization holding step.

5,725,682

BRAZING METHOD

Akira Hashimoto, Higashihiroshima, Japan, assignor to Mazda Motor Corporation, Hiroshima, Japan

Filed Feb. 2, 1996, Ser. No. 595,687
Claims priority, application Japan, Feb. 2, 1995, 7-039314
Int. Cl.[6] C23C 8/20
U.S. Cl. 148—220 10 Claims



1. A brazing method for brazing at least two metal components, said brazing method comprising the steps of:
positioning a brazing alloy, containing copper (Cu) and manganese (Mn) as its main components, in close proximity to a position where the metal components are to be brazed;
carburizing the metal components with the brazing alloy attached thereto at a temperature higher than a melting point of the brazing alloy; and
quenching the metal components after said step of carburizing.

5,725,683

MANUFACTURING CLEAR COATED ALUMINUM ALLOY LIGHTING SHEET

Daniel L. Serafin, Wexford, Pa.; Paul B. Schultz, Murrysville, Pa.; Albert L. Askin, Lower Burrell, Pa.; Paula Hinds, Lawrenceville, Ga.; David A. Linde, Bettendorf, Iowa, and Robert E. Bombalski, New Kensington, Pa., assignors to Aluminum Company of America, Pittsburgh, Pa.

Filed Mar. 28, 1996, Ser. No. 625,583
Int. Cl.[6] C22F 1/04; C23C 22/37
U.S. Cl. 148—265 18 Claims

1. A process for making an unanodized aluminum sheet product having a reflective surface protected by a polymer coating, comprising:
(a) hot rolling an ingot of the AA 1000, 3000 or 5000 series to a sheet having a thickness of less than about 0.30 inch, annealing the hot rolled sheet for about 1–224 hours at a temperature greater than its exit temperature after hot rolling and in the range of about 600°–700° F., and cold rolling the annealed sheet to a thickness of about 0.010 to 0.072 inch;
(b) chemically brightening a surface of an aluminum alloy sheet by immersing said surface in an aqueous acidic solution, achieving a total reflectance of greater than 89%;
(c) without anodizing said sheet, chemically conversion coating the brightened surface to generate an adherent film of a metal compound;
(d) coating the unanodized brightened surface with a polymer by contacting said surface with a solution comprising a UV-stable polymer dissolved in an organic solvent and then evaporating said solvent; and
(e) curing the polymer-coated surface at an elevated temperature.

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AMORPHOUS HARD MAGNETIC ALLOY, AMORPHOUS HARD MAGNETIC CAST ALLOY, AND METHOD FOR PRODUCING THE SAME

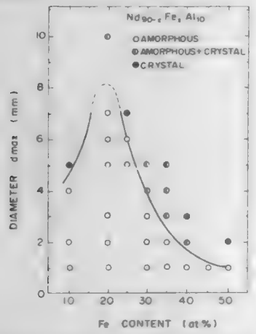
Akihisa Inoue, 1-7 Yukigaya, Otsuka-cho, Ota-ku, Tokyo, Japan; Tao Zhang, Miyagi-ken, Japan, and Akira Takeuchi, Miyagi-ken, Japan, assignors to Alps Electric Co., Ltd., Tokyo, Japan, and Akihisa Inoue, Tokyo, Japan

Filed Dec. 3, 1996, Ser. No. 753,863

Claims priority, application Japan, Dec. 8, 1995, 7-320897

Int. Cl.[6] H01F *1/153*

U.S. Cl. 148—304 **12 Claims**



1. An amorphous hard magnetic alloy having the following general formula:

$$A_x—(Fe_{1-a}Co_a)_y—D_z$$

wherein A represents at least one element selected from the group consisting of Nd, Sm, Pr and Pm; D represents at least one element selected from the group consisting of Al, Ga, and Ge; suffixes x, y, and z satisfy $50 \leqq x \leqq 75$, $10 \leqq y \leqq 45$, and $5 \leqq z \leqq 15$ atomic percent, and suffix a satisfies $5 \leqq a \leqq 0.5$.

5,725,685

SOFT MAGNETIC ALLOY THIN FILM WITH NITROGEN-BASED AMORPHOUS PHASE

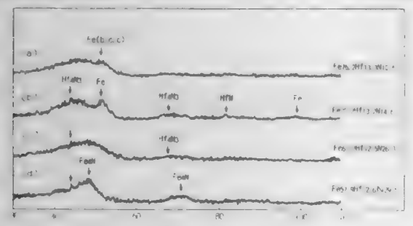
Yasuo Hayakawa, and Akihiro Makino, both of Nagaoka, Japan, assignors to Alps Electric Co., Ltd., Tokyo, Japan

Continuation of Ser. No. 412,497, Mar. 28, 1995, Pat. No. 5,656,101. This application Oct. 29, 1996, Ser. No. 739,352

Claims priority, application Japan, Mar. 28, 1994, 6-57890

Int. Cl.[6] H01F *1/147*

U.S. Cl. 148—306 **3 Claims**



1. A soft magnetic alloy thin film comprising:

a fine crystalline phase with an average crystalline grain size of 10 nm or less in diameter and having a body-centered cubic structure mainly composed of Fe;

an amorphous phase having a nitrogen (N) compound as the main composition; and

an element M incorporated in at least the amorphous phase, the element M consisting of at least one element selected from the group consisting of Ti, Zr, Hf, V, Nb, Ta, and W;

wherein said amorphous phase comprises at least 50% of the structure of said thin film; and

wherein said soft magnetic alloy thin film has a composition consisting essentially of $Fe_aM_bN_c$, where the compositional ratios a, b, and c are atomic percentages, wherein:

$60 \leqq a \leqq 80$,

$7 \leqq b \leqq 26$, and

$10 \leqq c \leqq 22$, and

wherein the amorphous phase includes one or more compounds selected from the group consisting of M_4N_3, Fe_4N and MN.

5,725,686

MAGNETIC CORE FOR PULSE TRANSFORMER AND PULSE TRANSFORMER MADE THEREOF

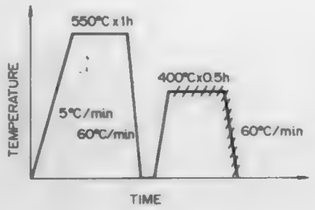
Yoshihito Yoshizawa, Fukaya; Yoshio Bizen, Yasugi; Shin Nakajima, and Shunsuke Arakawa, both of Kumagaya, all of Japan, assignors to Hitachi Metals, Ltd., Tokyo, Japan

Filed Jul. 20, 1994, Ser. No. 277,583

Claims priority, application Japan, Jul. 30, 1993, 5-189647; Aug. 10, 1993, 5-198057

Int. Cl.[6] H01F *1/147*

U.S. Cl. 148—307 **13 Claims**



1. A magnetic core for a pulse transformer, which is formed of a thin strip of nanocrystalline soft magnetic alloy in which fine nanocrystalline grains having a grain size of not more than 50 nm occupy at least 50 volume % of the structure, wherein the relative initial permeability at −20° C. and 50° C. is not less than 50,000, wherein said nanocrystalline soft magnetic alloy consists essentially of, by atomic percent, not less than 0.1% and not more than 3% of at least one element selected from the group consisting of Cu and Au, not less than 1% and not more than 10% of at least one element selected from the group consisting of Ti, Zr, Hf, V, Nb, Ta, Mo and W, not less than 12% and less than 16.5% of Si, not less than 4% and less than 9% of B, and the balance of Fe.

5,725,687

WEAR-RESISTANT HIGH PERMABILITY ALLOY AND METHOD OF MANUFACTURING THE SAME AND MAGNETIC RECORDING AND REPRODUCING HEAD

Yuetsu Murakami, and Katashi Masumoto, both of Sendai, Japan, assignors to The Foundation: The Research Institute of Electric and Magnetic Alloys, Japan

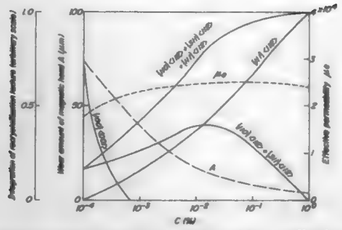
Filed Oct. 30, 1995, Ser. No. 550,502

Claims priority, application Japan, Nov. 16, 1994, 6-319002

Int. Cl.[6] H01F *1/00*

U.S. Cl. 148—312 **2 Claims**

1. A wear-resistant high permeability alloy consisting essentially of by weight of Ni 60–90%, Nb 0.5–14%, C 0.0003–0.7% and the remainder Fe and having a recrystallization texture of



{110}<112>+{311}<112>+{111}<112> with an effective permeability of more than 3000 at 1 KHz and a saturated flux density of more than 4000G.

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ROLLING BEARING

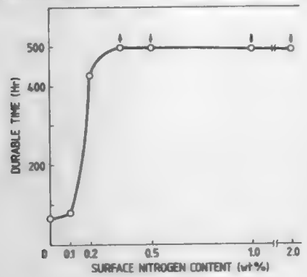
Hiromi Sugi, Kanagawa; Takashi Nagato, Tokyo, and Kenji Yamamura, Kanagawa, all of Japan, assignors to NSK Ltd., Tokyo, Japan

Continuation of Ser. No. 325,975, Oct. 21, 1994, abandoned. This application Feb. 25, 1997, Ser. No. 813,927

Claims priority, application Japan, Oct. 21, 1993, 5-263811

Int. Cl.[6] C23C *8/26;* **F16C** *33/22*

U.S. Cl. 148—318 **8 Claims**



1. A rolling bearing, comprising:

an inner ring;

an outer ring; and

a plurality of rolling elements rotatable between said inner ring and said outer ring;

wherein at least one of said inner ring, said outer ring, and said rolling elements contains chromium within a range of 7.0 to 25.0 wt. %, and contains nitrogen within a range of from 0.2 to 5.0 wt. % at least in a surface portion thereof; and

wherein said surface portion has a depth of at least 50 μm from a surface thereof.

5,725,689

STEEL WIRE OF HIGH STRENGTH EXCELLENT IN FATIGUE CHARACTERISTICS

Seiki Nishida; Junji Nakashima; Osami Serikawa, and Ikuo Ochiai, all of Kimitsu, Japan, assignors to Nippon Steel Corporation, Tokyo, Japan

PCT No. PCT/JP94/01665, § 371 Date Nov. 28, 1995, § 102(e) Date Nov. 28, 1995, PCT Pub. No. WO95/26422, PCT Pub. Date Oct. 5, 1995

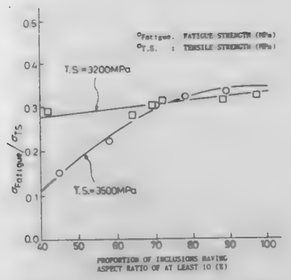
PCT Filed Oct. 5, 1994, Ser. No. 553,283

Claims priority, application Japan, Mar. 28, 1994, 6-057261

Int. Cl.[6] C22C *38/026*

U.S. Cl. 148—320 **6 Claims**

1. A steel wire of high strength excellent in fatigue characteristics comprising, by mass %, 0.7 to 1.1% of C, 0.1 to 1.5% of Si, 0.1 to 1.5% of Mn, up to 0.02% of P, up to 0.02% of S and the balance Fe and unavoidable impurities, and containing nonmetallic inclusions at least 80% of which comprise 4 to 60% of CaO+MnO, 22 to 87% of SiO_2 and 0 to 46% of Al_2O_3 and have melting points up to 1,500° C., and at least 70% of which have aspect ratios of at least 10.



5,725,690

LONG-LIFE INDUCTION-HARDENED BEARING STEEL

Tatsuro Ochi, Muroran, Japan, and Yuji Kawauchi, Muroran, Japan, assignors to Nippon Steel Corporation, Tokyo, Japan

PCT No. PCT/JP95/02394, § 371 Date Jul. 18, 1996, § 102(e) Date Jul. 18, 1996, PCT Pub. No. WO96/16195, PCT Pub. Date May 30, 1996

PCT Filed Nov. 24, 1995, Ser. No. 676,336

Claims priority, application Japan, Nov. 24, 1994, 6-289643

Int. Cl.[6] C22C *38/02;38/06*

U.S. Cl. 148—320 **11 Claims**

1. A long-life induction-hardened bearing steel consisting essentially of, in terms of percent by weight:

C: 0.45 to 0.70%,

Si:0.05 to 1.70%,

Mn: 0.35 to 2.0%,

S: 0.001 to 0.03%,

Al: 0.010 to 0.07%,

N: 0.003 to 0.015%,

Total Mg: 0.0005 to 0.0300%,

P: not more than 0.025%,

Ti: not more than 0.0040%,

Total O: not more than 0.0020%,

and the balance consisting of iron and unavoidable impurities.

5,725,691

NICKEL ALUMINIDE ALLOY SUITABLE FOR STRUCTURAL APPLICATIONS

Chain T. Liu, Oak Ridge, Tenn., assignor to Lockheed Martin Energy Systems, Inc., Oak Ridge, Tenn.

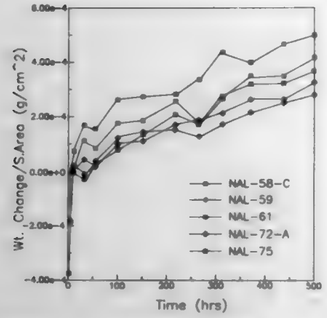
Continuation of Ser. No. 200,915, Feb. 22, 1994, abandoned, which is a continuation of Ser. No. 913,858, Jul. 15, 1992, abandoned. This application Feb. 29, 1996, Ser. No. 609,010

Int. Cl.[6] C22C *19/03*

U.S. Cl. 148—409 **5 Claims**

1. A nickel aluminide alloy composition comprising 0.7 to 1.6 atomic percent molybdenum, about 49.1±0.8 atomic percent aluminum, and a remainder of said alloy composition being nickel,

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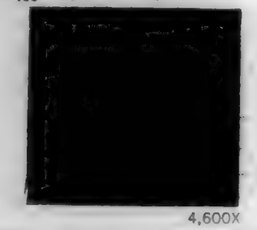
said molybdenum being substituted for both nickel and aluminum atoms in said alloy composition.

5,725,692

NICKEL BASE SUPERALLOY ARTICLES WITH IMPROVED RESISTANCE TO CRACK PROPAGATION

Daniel P. DeLuca, Tequesta; Charles M. Biondo, Jupiter; Howard B. Jones, Stuart, and Chris C. Rhemer, Palm Beach Gardens, all of Fla., assignors to United Technologies Corporation, Hartford, Conn.

Filed Oct. 2, 1995, Ser. No. 537,341
Int. Cl.[6] C22C *19/05*
U.S. Cl. 148—410 **6 Claims**



1. A nickel base, gamma prime precipitation strengthened alloy having an improved resistance to crack propagation, the alloy having a γ solvus temperature and consisting essentially of:

	(wt. %) range	(wt. %)
Carbon	0.13	0.17
Chromium	8.0	8.80
Cobalt	9.00	11.00
Molybdenum	0.50	0.80
Tungsten	9.50	10.50
Titanium	0.90	1.20
Aluminum	5.30	5.70
Tantalum	2.80	3.30
Hafnium	1.20	1.6
Iron	—	0.25
Columbium	—	0.10
Nickel	remainder	

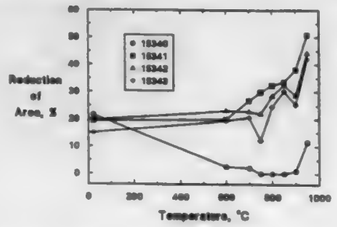
the alloy having a microstructure which is essentially free of script carbides, gamma—gamma prime eutectic islands and porosity, wherein the microstructure consists essentially of a plurality of regularly occurring large barrier gamma prime precipitates having a grain size between about 2 microns and about 20 microns and a continuous field of fine cuboidal gamma prime precipitates having a grain size between about 0.3 microns and about 0.7 microns surrounding the large barrier gamma prime precipitates, wherein said alloy is processed by: heat treating the alloy at a temperature sufficiently above its gamma prime solvus temperature to dissolve substantially all gamma—gamma prime eutectic islands and script carbides without causing incipient melting; cooling to about 2135° F. at between about 0.1° F./minute and about 5° F./minute; rapid vacuum cooling to below about 1000° F.; hot isostatic pressing the alloy to eliminate porosity; precipitation heat treating the alloy at about 1975° F. +/– about 25° F. for four hours; and air cooling the alloy to room temperature followed by aging.

5,725,693

FILLER METAL ALLOY FOR WELDING CAST NICKEL ALUMINIDE ALLOYS

Michael L. Santella, Knoxville, and Vinod K. Sikka, Oak Ridge, both of Tenn., assignors to Lockheed Martin Energy Systems, Inc., Oak Ridge, Tenn.

Filed Mar. 6, 1996, Ser. No. 611,863
Int. Cl.[6] C22C *19/05*
U.S. Cl. 148—428 **6 Claims**



4. A filler metal alloy for welding cast nickel aluminide alloys consisting essentially of from about 15 to about 17 wt. % chromium, from about 4 to about 5 wt. % aluminum, greater than zero to about 1.5 wt. % molybdenum, from about 1 to about 4.5 wt. % zirconium, equal to or less than about 0.01 wt. % yttrium, equal to or less than about 0.01 wt. % boron and the balance being nickel.

5,725,694

FREE-MACHINING ALUMINUM ALLOY AND METHOD OF USE

Subhasish Sircar, Richmond, Va., assignor to Reynolds Metals Company, Richmond, Va.

Filed Nov. 25, 1996, Ser. No. 756,302
Int. Cl.[6] C22C *21/00*
U.S. Cl. 148—439 **20 Claims**

1. A free-machining lead free aluminum alloy comprising an aluminum alloy including a low melting point eutectic compound consisting essentially of indium, tin and bismuth in a volume percent of said lead free aluminum alloy which firstly causes the low melting point compound to soften or melt during machining and secondly generates chip-like machining debris.

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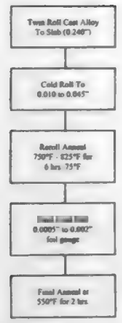
METHOD OF MAKING ALUMINUM ALLOY FOIL AND PRODUCT THEREFROM

Bennie R. Ward, Richmond; Richard E. Hughes, Toano, and James P. Martin, Powhatan, all of Va., assignors to Reynolds Metals Company, Richmond, Va.

Filed Mar. 26, 1996, Ser. No. 624,728
Int. Cl.[6] C22C *21/00*
U.S. Cl. 148—552 **14 Claims**

13. A method of making an aluminum alloy foil comprising the steps of:

a) providing an aluminum alloy melt consisting essentially of, in weight percent, silicon between about 0.65 and 0.70, iron between about 0.60 and 0.65, a maximum of 0.05 Cu, a maximum of 0.03 Mn, a maximum of 0.02 Mg, a maximum of 0.02 Cr, a maximum of 0.03 Zn, a maximum of 0.03 Ti, with the balance aluminum and unavoidable impurities, wherein the silicon is equal to or greater than the iron;



b) twin roll casting said aluminum alloy melt into a cast slab of a thickness less than or equal to about 0.240 inches (6 mm);

c) cold rolling said cast slab into an intermediate thickness ranging between 0.010 inches to 0.045 inches (0.25 and 1.14 mm);

d) reroll annealing said intermediate gauge strip at a temperature equal to or less than 825° F. (441° C.) for a period of time;

e) final cold rolling said annealed intermediate gauge strip to a foil having a thickness ranging between 0.0005 and 0.0020 inches; and

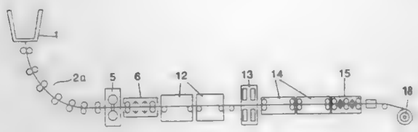
f) final annealing said foil to fully recrystallize said foil.

5,725,696

PROCESS AND PLANT FOR PRODUCTION OF RAW STAINLESS STEEL CASTINGS

Gerald Maresch, Modling, Austria, and Edgar Braun, Upper St. Clair, Pa., assignors to Andritz-Patentverwaltungs-Gesselschaft m.b.H., Graz, Austria

PCT No. PCT/EP94/02215, § 371 Date Apr. 8, 1996, § 102(e) Date Apr. 8, 1996, PCT Pub. No. WO95/02706, PCT Pub. Date Jan. 26, 1995
PCT Filed Jul. 6, 1994, Ser. No. 581,567
Claims priority, application Austria, Jul. 13, 1993, 1375/93
Int. Cl.[6] C21D *8/02;9/60;9/573*
U.S. Cl. 148—601 **32 Claims**



1. Process for production of stainless steel strips in which cast steel material in the form of a continuous strip having a leading end and a tail end is coiled onto a roll after it is cast into the strip, uncoiled from the roll, heat treated in a heat treatment system having at least one stage and de-scaled in a de-scaling system having at least one stage, wherein the improvement comprises:

discontinuously uncoiling the strip from the roll, said step of uncoiling commencing prior to heat treating and de-scaling,

pushing the strip through the heat treatment system and through the de-scaling system until the leading end of the strip comes out of the de-scaling system, and

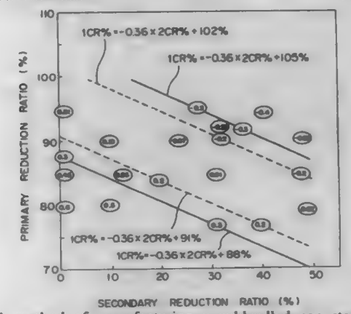
pulling the strip through the the heat treating system and the de-scaling system by means which engage the strip after the leading end of the strip comes out of the de-scaling system.

5,725,697

METHOD OF MANUFACTURING COLD-ROLLED CAN STEEL SHEET HAVING LESS PLANAR ANISOTROPY AND GOOD WORKABILITY

Chikako Fujinaga, Chiba, Japan; Akio Tosaka, Chiba, Japan; Toshiyuki Kato, Chiba, Japan; Kaku Sato, Chiba, Japan, and Hideo Kuguminato, Chiba, Japan, assignors to Kawasaki Steel Corporation, Kobe, Japan

Filed Dec. 21, 1994, Ser. No. 360,348
Claims priority, application Japan, Dec. 24, 1993, 5-328730
Int. Cl.[6] C21D *8/04*
U.S. Cl. 148—603 **3 Claims**



1. A method of manufacturing a cold-rolled can steel sheet having less planar anisotropy and achieving good workability, comprising the steps of:

rough-rolling a continuously-cast slab having a composition essentially consisting of C:0.004 wt % or lower; Mn:0.05–0.5 wt %; P:0.02 wt % or lower; Al:0.005–0.07 wt %; N:0.004 wt % or lower, and Nb:0.001–0.018 wt %, the rest being Fe and unavoidable impurities;

hot-rolling a resultant sheet bar which is completed at a finishing rolling temperature at an Ar3 transformation point or higher;

coiling the resultant sheet bar at a temperature range from 450°–570° C.; and

performing primary cold rolling followed by continuous annealing, which is performed at a recrystallization temperature or higher, and then secondary cold rolling, said primary and secondary cold rolling steps being respectively performed at reduction ratios satisfying the conditions of:

$$91\% \leqq CR_1\% - 0.36 \times CR_2\% \leqq 102\%$$

wherein CR_1: reduction ratio of said primary cold rolling

CR_2: reduction ratio of said secondary cold rolling;

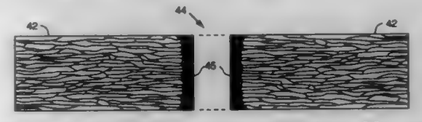
wherein said cold-rolled can steel sheet has a planar anisotropy value which satisfies the condition of $|\Delta r| \leqq 0.2$ and has a Lankford value of at least 1.4.

5,725,698

FRICTION BORING PROCESS FOR ALUMINUM ALLOYS

Murray W. Mahoney, Camarillo, Calif., assignor to Boeing North American, Inc., Seal Beach, Calif.

Filed Apr. 15, 1996, Ser. No. 632,729
Int. Cl.[6] C22F *1/00*
U.S. Cl. 148—695 **18 Claims**



13. A method of forming a corrosion resistant layer of fine grain microstructure around a hole in an aluminum alloy material, comprising the steps of:

providing a tool having a rotating shaft;

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providing said rotating shaft with a boring segment having helical threads;
inserting said rotating boring segment into the material;
working, frictionally heating, and extracting a portion of the material with said rotating boring segment without a cutting action; and
adjusting the rotational velocity and insertion rate of the boring segment such that working extends around the hole beyond the diameter of the boring segment and such that frictional heat generated in the hole causes rapid recrystallization of the worked metal.

5,725,699

METAL COMPLEXES FOR USE AS GAS GENERANTS

Jerald C. Hinshaw, Farr West; Daniel W. Doll, North Ogden; Reed J. Blau, Richmond, all of Utah, and Gary K. Lund, Malad, Id., assignors to Thiokol Corporation, Ogden, Utah

Continuation-in-part of Ser. No. 184,456, Jan. 19, 1994, abandoned. This application Jul. 26, 1995, Ser. No. 507,552

Int. Cl.[6] C06B *45/10*

U.S. Cl. 149—19.1 **76 Claims**

1. A gas generating composition formulated from ingredients comprising:
at least one complex of,
a metal cation,
ammonia ligand, and
sufficient oxidizing anion to balance the charge of the metal complex,
wherein said composition contains about 48.5% to less than about 100% by weight of said complex; and
at least 0.1% by weight of at least one additional ingredient selected for inclusion said gas generating composition.

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HEAVY DUTY PNEUMATIC TIRES

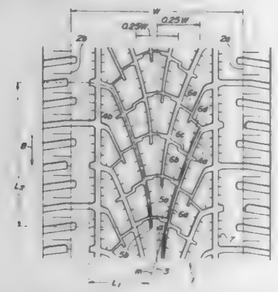
Yasufumi Ichiki, Tokyo, Japan, assignor to Bridgestone Corporation, Tokyo, Japan

Filed Sep. 28, 1995, Ser. No. 535,749

Claims priority, application Japan, Sep. 28, 1994, 6-233547; Sep. 8, 1995, 7-231385

Int. Cl.[6] B60C *115/00*

U.S. Cl. 152—209 R **6 Claims**



1. A heavy duty pneumatic tire comprising; a tread portion provided at its surface with a plurality of main grooves arranged on both sides with respect to an equatorial plane at a given interval in a circumferential direction of the tire, said main grooves curvedly extending in a converging direction from each side end of the tread toward the equatorial plane and terminate on the equatorial plane or in the vicinity thereof to form a directional pattern, auxiliary grooves connecting adjacent main grooves on each side of said equatorial plane thereby forming a block pattern along said equatorial plane in which a terminal of a main groove lies within a block, a circumferential groove arranged on each side of said equatorial plane in side regions of said tread portion, lateral grooves crossings a circumferential groove to define in each side portion a row of blocks positioned between said circumferential groove and a side end of the tread portion, each main groove terminating at one of said block so as not to communicate with the side end of said tread portion, wherein, said tread portion has a negative ratio and the negative ratio is not more than 0.3, and terminals of the main grooves are located within 25% of a tread width (W) centered around the equatorial plane, and a portion of the main groove located in a zone ranging from the equatorial plane to at least 25% of the tread width (W) is inclined such that an inclination angle (α) of a tangential line (m) drawn to said portion with respect to the equatorial plane gradually increases in accordance with the separation from the equatorial plane, and a continuously projection length (L_1) of the main groove in the axial direction is not less than 30% of the tread width (W) and a continuously projection length (L_2) Of the main groove in the circumferential direction is not less than 70% of the tread width (W).

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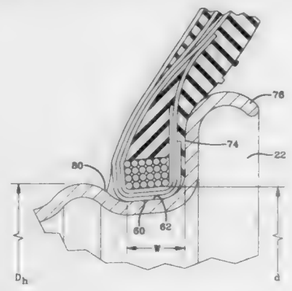
LOW PRESSURE ALL TERRAIN VEHICLE TIRE

Timothy Michael Rooney, Munroe Falls, Ohio, and Thomas Reed Oare, Suffield, Ohio, assignors to The Goodyear Tire & Rubber Company, Akron, Ohio

Filed Mar. 13, 1996, Ser. No. 596,908

Int. Cl.[6] B60C *15/02*

U.S. Cl. 152—540 **9 Claims**



1. In combination, a low pressure ATV pneumatic tire and a rim, the tire comprising:
a pair of axially-spaced bead cores wherein each one of the bead cores have wire filaments positioned relative to one another to form a base side, a radially outermost side, and first and second sides extending between the base and radially outermost side, the base side being substantially linear, the width of the base side of the bead cores being between greater than 0.25" and less than 0.36" and the inner diameter of the bead core as measured at the base side is d;
a carcass having at least one ply, the ply having a central portion and lateral edge portions, each lateral edge portion being folded axially and radially outwardly around one of the bead cores; and,
a bead heel surface, the bead heel surface being radially inward of one of the bead cores and interfacing with the associated wheel rim, the bead heel surface having a length; and the rim comprising:
a hump and a rim flange, the rim flange having an axially inward surface, the distance between the hump and the axially inward surface of the rim being the bead seat, the length of the bead heel surface being between 80% and 125% of the length of the bead seat, the hump having a diameter D_h; and
wherein the inner diameter d of the bead core is in the range of less than 0.020 inches greater than D_h to 0.030 inches less than D_h.

5,725,702

HEAVY DUTY PNEUMATIC RADIAL TIRES WITH DEFORMATION-ABSORBING RUBBER LAYER COVERING TURNUP PORTION OUTER SURFACE

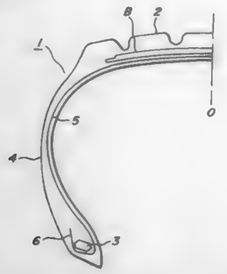
Hiroshi Nakamura; Hiroyuki Iida, and Makoto Tsuruta, all of Kadaira, Japan, assignors to Bridgestone Corporation, Tokyo, Japan

Filed Apr. 4, 1996, Ser. No. 628,237

Claims priority, application Japan, Apr. 5, 1995, 7-079996; May 30, 1995, 7-131948; Mar. 22, 1996, 8-066543

Int. Cl.[6] B60C *15/00;15/06*

U.S. Cl. 152—541 **18 Claims**



1. A heavy duty pneumatic radial tire comprising; a tread portion, a pair of sidewall portions extending inward from both side ends of the tread portion in a radial direction of the tire, a pair of bead portions extending inward from the sidewall portions and containing a pair of bead cores therein, at least one radial carcass ply extending between the bead cores and wound around each of the bead cores from inside of the tire toward the outside thereof to form a turnup portion and containing cords having a modulus of elasticity of not less than 2500 kg/mm^2 therein, a bead filler extending upward and taperingly from the bead core over an outward end of the turnup portion in the radial direction and comprised of at least two rubber stocks in which a lower part near to the bead core is a hard rubber stock and an upper part is a soft rubber stock, at least a part of an outer surface of the turnup portion in axial direction of the tire being covered with a deformation-absorbing rubber layer arranged along the soft rubber stock to extend outward over the outward end of the turnup portion in the radial direction and having a Shore A hardness of not more than 55°, and a length of the outer surface of the turnup portion covered with the deformation-absorbing rubber layer being 3 to 30 times a diameter of the cord included in the turnup portion.

7. A heavy duty pneumatic radial tire comprising; a tread portion, a pair of sidewall portions extending inward from both side ends of the tread portion in a radial direction of the tire, a pair of bead portions extending inward from the sidewall portions and containing a pair of bead cores therein, at least one radial carcass ply extending between the bead cores and wound around each of the bead cores from inside of the tire toward the outside thereof to form a turnup portion and containing cords having a modulus of elasticity of not less than 2500 kg/mm^2 therein, a bead filler extending upward and taperingly from the bead core over an outward end of the turnup portion in the radial direction and comprised of at least two rubber stocks in which a lower part near to the bead core is a hard rubber stock and an upper part is a soft rubber stock, at least a part of an outer surface of the turnup portion in axial direction of the tire being covered with a deformation-absorbing rubber layer arranged along the soft rubber stock to extend outward over the outward end of the turnup portion in the radial direction and having a Shore A hardness of not more than 55°, and a maximum thickness of the deformation-absorbing rubber layer in the axial direction being 1 to 10 times the diameter of the cord included in the turnup portion.

13. A heavy duty pneumatic radial tire comprising; a tread portion, a pair of sidewall portions extending inward from both side ends of the tread portion in a radial direction of the tire, a pair of bead portions extending inward from the sidewall portions and containing a pair of bead cores therein, at least one radial carcass ply extending between the bead cores and wound around each of the bead cores from inside of the tire toward the outside thereof to form a turnup portion and containing cords having a modulus of elasticity of not less than 2500 kg/mm^2 therein, a bead filler extending upward and taperingly from the bead core over an outward end of the turnup portion in the radial direction and comprised of at least two rubber stocks in which a lower part near to the bead core is a hard rubber stock and an upper part is a soft rubber stock, at least a part of an outer surface of the turnup portion in axial direction of the tire being covered with a deformation-absorbing rubber layer arranged along the soft rubber stock to extend outward over the outward end of the turnup portion in the radial direction and having a Shore A hardness of not more than 55°, and a ply end rubber similar to a coating rubber of the carcass ply being arranged on the outward end of the turnup portion so as to extend inward from the outward end along at least one side surface of the turnup portion in the radial direction.

5,725,703

METHOD FOR PLACING A TREAD STRIP, CUT TO THE REQUIRED LENGTH FROM A QUASI-CONTINUOUS TREAD STRIP BAND SPLICED FROM TREAD STRIP PORTIONS, ONTO A BELT BUILDING DRUM

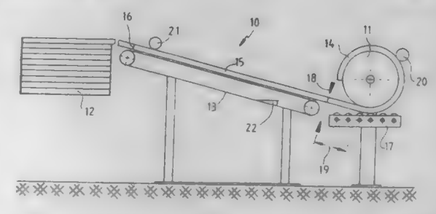
Klaus Gerloff, Isernhagen, Germany, assignor to Continental Aktiengesellschaft, Hanover, Germany

Filed Jun. 2, 1995, Ser. No. 459,120

Claims priority, application Germany, Jun. 4, 1994, 44 19 545.8

Int. Cl.[6] B29D *30/30*

U.S. Cl. 156—130 **4 Claims**



1. In a method for placing a tread strip of the required length onto a belt building drum; the improvement comprising the steps of:
preparing by cutting tread strip portions to a length that is smaller than the circumference of the belt building drum from a continuous tread strip supply;
collecting the tread strip portions in a storage device;
feeding sequentially the tread strip portions to the belt building drum and forming a quasi-continuous tread strip band by splicing, in a direction of feeding, the rear edge of a leading tread strip portion to the leading edge of the next tread strip portion;
determining the required length of the tread strip to be applied to the belt building drum according to a size parameter of the belt building drum; and
cutting said quasi-continuous tread strip band to said required length.

5,725,704

PROCESS FOR THE PRODUCTION OF A MULTI-LAYER COMPOSITE ARTICLE HAVING FASTENERS AFFIXED TO A SURFACE THEREOF AND THE ARTICLE PRODUCED THEREBY

Michael Gallagher, Hampton, N.H., and Steven Souders, Plymouth, Mich., assignors to Davidson Textron, Inc., Dover, Del.

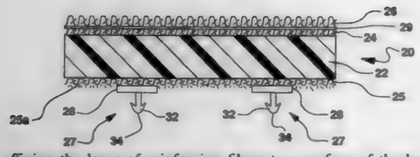
Filed Dec. 21, 1995, Ser. No. 576,252

Int. Cl.[6] B29C *65/06;* **B32B** *3/06*

U.S. Cl. 156—66 **13 Claims**

1. A method of making a composite panel having at least one integral fastener for fastening the panel to a support structure, the method comprising the steps of:
providing a base material;
providing a layer of a plurality of reinforcing fibers;

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affixing the layer of reinforcing fibers to a surface of the base material by means of a thermosetting binder and causing the binder to set, the thermosetting binder encapsulating the entire layer of reinforcing fibers;

providing one or more fastening means formed of a thermoplastic resin;

liquefying a portion of the fastening means and at the same time physically removing a portion of the thermoset binder from a surface portion of the layer of reinforcing fibers by spin welding and permitting the liquified portion of the fastening means to permeate the portion of the layer of reinforcing fibers which has become free of the thermoset binder; and

permitting the molten thermoplastic material of the fastening means to solidify, thereby forming a bond and affixing the fastening means to the surface of the panel.

5,725,705

DUST-CONTROL MAT HAVING EXCELLENT DIMENSIONAL STABILITY AND METHOD OF PRODUCING THE SAME

Yuji Nagahama; Kazushi Sumimoto, and Junji Taguchi, all of Suita, Japan, assignors to Duskin Co., Ltd., Japan

Filed Sep. 12, 1995, Ser. No. 527,138

Int. Cl.[6] B32B *3/02;* **D04H** *11/08*

U.S. Cl. 156—148 **5 Claims**



1. A process for producing a dust-control mat comprising:

providing a woven or nonwoven fabric sheet and a flossy nonwoven fiber web containing low-melting fibers;

preparing a base cloth by bonding the flossy nonwoven fiber web to said sheet by needle punching or spot heat-adhering;

implanting piles onto one surface of the base cloth by tuffeting from a side of the web of the base cloth;

heat-treating the base cloth so as to melt or soften the low-melting fibers in the flossy nonwoven fiber web and to fix the piles on the base cloth; and

forming an elastomer backing on a non-pile surface of the base cloth.

5,725,706

LASER TRANSFER DEPOSITION

Eben Daniel Thoma, Winston-Salem, N.C.; Richard Taylor Williams, Winston-Salem, N.C., and Jeff Cherng-chou Wu, Clemmons, N.C., assignors to The Whitaker Corporation, Wilmington, Del.

Filed Mar. 12, 1996, Ser. No. 628,752

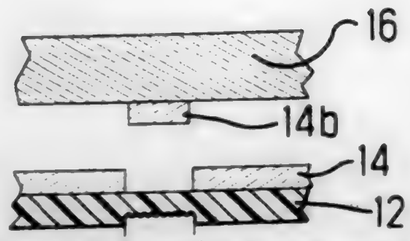
Int. Cl.[6] B05D *3/06*

U.S. Cl. 156—150 **16 Claims**

1. In a method for producing a smooth and continuous pressure bonded layer of a material, selected from the group consisting of conductive, semiconductive, superconductive and insulating materials, on a base substrate through the driving force of a pulsed laser, the improvement comprising in combination therewith, the steps of

(a) selecting a laser absorptive material which will provide structural support for said material for pressure bonding to said base substrate;

(b) applying thereto a thin layer of said material for pressure bonding to said base substrate;



(c) placing said base substrate and said thin layer of material on said laser absorptive material in a vacuum, then placing said base substrate in close proximity to said thin layer of material; and

(d) directing pulsed laser energy toward said laser absorptive material and said layer to be pressure bonded, whereby said laser energy is absorbed by said laser absorptive material causing heating and vaporization thereof to a controlled depth of said laser absorptive material, leaving remaining portions of said laser absorptive material unvaporized after said vaporization to act as a support for the material to be bonded, after bonding, the thin material adheres to the base substrate when the remaining continuous absorptive material is peeled away, said vaporization providing the necessary pressure for pressure bonding on to said base material, and no laser transparent material is used to provide structural support.

5,725,707

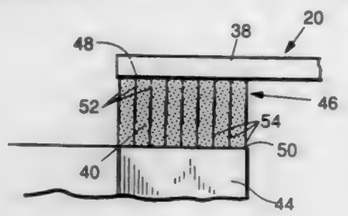
ENHANCED CONDUCTIVE JOINTS FROM FIBER FLOCKING

Robert W. Koon, Palos Verdes, and Thomas E. Steelman, Torrance, both of Calif., assignors to Northrop Grumman Corporation, Los Angeles, Calif.

Filed Apr. 10, 1995, Ser. No. 419,579

Int. Cl.[6] H01B *01/04;* **H01R** *04/58*

U.S. Cl. 156—157 **28 Claims**



1. A method of achieving conductivity between a first surface edge and a second surface edge of a structural joint comprising the steps of:

(a) mounting a first set of conductive fibers to extend outwardly normal from the first surface edge of the structural joint by use of electrostatic flocking;

(b) mounting a second set of conductive fibers to extend outwardly normal from the second surface edge of the structural joint by use of electrostatic flocking;

(c) positioning said first and second sets of conductive fibers located on the first and second surface edges of the structural joint such that said first and second sets of conductive fibers interdigitate with respect to each other wherein said first and second sets of conductive fibers produce an overall electrical conductivity sufficient to simulate a constant conducting surface across the structural joint, whereby an electromagnetic seal is formed across the structural joint which improves the electrical conductivity, reduces the susceptibility to mechanical and thermal fatigue failures associated with structural joints and is highly corrosion resistant in use.

5,725,708

REMOVAL OF TAPED SPLICES

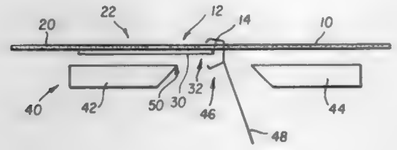
Anthony Earle, Harrow Weald, and Edward Charles Timothy Samuel Glover, London, both of England, assignors to Eastman Kodak Company, Rochester, N.Y.

Filed Jul. 9, 1996, Ser. No. 677,055

Claims priority, application United Kingdom, Jul. 29, 1995, 9515630

Int. Cl.[6] B31F *5/06;* **B32B** *35/00*

U.S. Cl. 156—157 **4 Claims**



1. A method of joining two filmstrips using splicing tape and subsequently removing the splicing tape therefrom, the method being characterised by the steps of:

a) forming an aperture in a trailing edge of a first filmstrip;

b) joining the trailing edge of the first filmstrip to a leading edge of a second filmstrip using splicing tape, a portion of the splicing tape overlapping a portion of the aperture formed in the trailing edge of the first filmstrip;

c) gripping the portion of the splicing tape overlapping the aperture;

d) pulling the splicing tape out of contact with the trailing edge of the first filmstrip; and

e) drawing the remainder of the splicing tape over a surface to separate it from the leading edge of the second filmstrip.

5,725,709

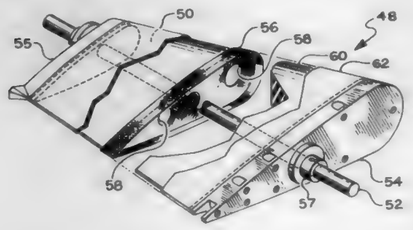
FABRICATION METHOD FOR AN INFLATABLE DEPLOYABLE CONTROL STRUCTURE FOR AEROSPACE VEHICLES

Duane Lowell Jensen, Byron, Calif., assignor to Lockheed Missiles & Space Co., Inc., Sunnyvale, Calif.

Filed Oct. 13, 1995, Ser. No. 542,926

Int. Cl.[6] B64C *9/00;* **B65H** *81/00*

U.S. Cl. 156—169 **30 Claims**



1. A method of fabricating a flexible filament-reinforced pressure membrane for providing an inflatable, deployable control structure for aerospace vehicles and which is deployable from a folded, compactly stowed position to an aerodynamic shape, deployed position, and wherein said control structure assumes a desired noncircular or noncylindrical cross-sectional configuration when in said deployed position, the method comprising the steps of:

a) providing a mandrel having a noncircular or noncylindrical cross-sectional configuration corresponding to a desired aerodynamic deployed shape for the control structure;

b) interposing, in a crosswise direction of the mandrel, a plurality of integral rib members at predetermined intervals along an axial direction of the mandrel, each integral rib member being sized to define a particular cross-section of the control structure;

c) applying a base layer of elastomeric rubber material on the mandrel in regions lying between the integral rib members;

d) impregnating yarns of filaments with a resin formed from said elastomeric rubber material and applying a first ply layer of said impregnated yarns over said base layer of elastomeric rubber material such that said impregnated yarns of said first ply layer are oriented in a substantially axial direction of said mandrel;

e) providing a plurality of woven cloth attachments, each of which having a first inboard end attached to a respective one of said plurality of integral rib members, and a second outboard end overlying a portion of said base layer of elastomeric rubber material and said first ply layer;

f) applying a second layer of elastomeric rubber material so as to at least cover said second outboard ends of said cloth attachments and also cover mutually adjacent end margins of said base layer of elastomeric rubber material that form in regions surrounding said plurality of integral rib members;

g) impregnating additional yarns of said filaments with said resin formed from said elastomeric rubber material and applying a second ply layer of said impregnated yarns to said mandrel by a hoop winding method such that the filaments of said second ply layer are oriented substantially transverse with respect to said axial direction of said mandrel;

h) said impregnated yarns of said second ply layer being applied to provide a layer thickness greater than a corresponding thickness of said first ply layer in order to form an unbalanced ply filament wound laminate wherein the axially oriented yarns of said first ply layer are concentrated near a neutral axis of said laminate as seen in cross section view thereby facilitating concentric folding of the control structure about a center axis;

i) curing the control structure so that said base and second layers of elastomeric rubber material flow together to form a seamless, airtight pressure membrane; and

j) removing said mandrel from the control structure after cure.

5,725,710

PRODUCTION OF FIBER-REINFORCED COMPOSITES BY PULTRUSION WITH THERMOPLASTIC POWDER PRETREATMENT

Bernhard Pfeiffer, Kelkheim; Detlef Skaletz, Mainz; Horst Heckel, Darmstadt, all of Germany; Anne Texier, Lille, France, and Joachim Heydweiller, Rüsselsheim, Germany, assignors to Hoechst Aktiengesellschaft, Frankfurt, Germany

Continuation of Ser. No. 280,498, Jul. 26, 1994, abandoned. This application Feb. 5, 1996, Ser. No. 595,447

Claims priority, application Germany, Jul. 28, 1993, 43 25 260.5

Int. Cl.[6] B29C *70/00;70/18*

U.S. Cl. 156—180 **20 Claims**

1. A process for producing fiber-reinforced thermoplastic composites with continuous fiber strands, which comprises applying thermoplastic powder in a pretreatment step by pulling the fiber strands through an agitated aqueous thermoplastic powder dispersion via deflectors, removing the dispersing medium, melting the thermoplastic powder onto the fibers, and subsequently applying additional thermoplastic material by impregnating the fiber strands in a melt pultrusion wherein the fiber strands are pulled through a melt of the thermoplastic material.

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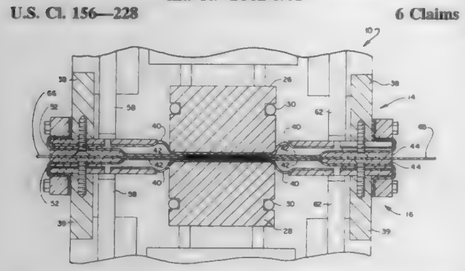
PRESS APPARATUS AND METHODS FOR FUSING OVERLAPPED THERMOPLASTIC SHEET MATERIALS

Philip A. Taylor, Columbus, Ohio, assignor to GR Systems, Columbus, Ohio

Division of Ser. No. 492,214, Jun. 19, 1995, Pat. No. 5,635,014. This application Dec. 23, 1996, Ser. No. 771,508

Int. Cl.[6] B30B *5/02*

U.S. Cl. 156—228 **6 Claims**



1. In a method of bonding together workpieces of thermoplastic sheet material supported in press-type apparatus having a platen, an inflatable diaphragm set having a pair of membranes positioned in the platen, a heat source movable into and from contact with the inflatable diaphragm set, and a source of pressurized fluid, the steps of:

clamping the supported workpieces with the platen and with the membranes of said compliant diaphragm set in an non-inflated condition;

moving the heat source into contact with the diaphragm set to thereby commence heating the clamped workpieces with heat conducted through the membranes of said non-inflated diaphragm set;

inflating the diaphragm set around its periphery with pressurized fluid flowed from the source of pressurized fluid to between said membranes to thereby further clamp the clamped workpieces;

continuing the heating of the additionally clamped workpieces by continuing the contact of the heat source with the inflated diaphragm set until the workpieces are sufficiently heated for thermal bonding purposes;

retracting the heat source from contact with the inflated diaphragm set;

flowing pressurized fluid from the source of pressurized fluid between the membranes of diaphragm set sufficient to cool the heated and clamped workpieces thereby causing bonding of the workpieces together while clamped; and

deflating said pair of membranes of the inflated diaphragm set and unclamping the bonded workpieces prior to removal of the bonded workpieces from the press-type apparatus.

5,725,712

DRY PAINT TRANSFER PROCESS FOR MAKING HIGH DOI AUTOMOTIVE BODY PANELS

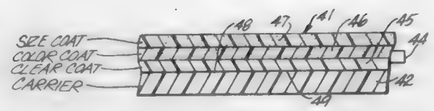
Patrick Leon Spain, Lowell, and Keith Lawson Truog, Crown Point, both of Ind., assignors to Avery Dennison Corporation, Pasadena, Calif.

Continuation of Ser. No. 346,548, Nov. 29, 1994, which is a continuation of Ser. No. 179,765, Jan. 10, 1994, abandoned, which is a continuation of Ser. No. 25,827, Mar. 3, 1993, abandoned, which is a continuation of Ser. No. 873,708, Apr. 22, 1992, abandoned, which is a continuation of Ser. No. 424,302, Nov. 22, 1989, abandoned, which is a continuation-in-part of Ser. No. 162,917, Mar. 2, 1988, abandoned, which is a continuation-in-part of Ser. No. 31,984, Mar. 27, 1987, abandoned. This application Mar. 13, 1995, Ser. No. 402,960

Int. Cl.[6] B32B *31/00*

U.S. Cl. 156—230 **66 Claims**

1. A dry paint transfer process for making a plastic vehicular body part having an exterior automotive quality paint coat on a



contoured outer surface of the body part, in which the paint coat on the body part has a glossy clear coat/color coat paint finish with a distinctness-of-image of at least about 60, which comprises:

(a) coating an optically clear weatherable and hardenable thermoplastic and thermoformable polymeric clear coat material onto a smooth high gloss surface of a carrier comprising a flexible high temperature-resistant polymeric casting sheet, in which the clear coat polymeric material comprises a blend of a fluoropolymer and an acrylic resin;

(b) hardening the clear coat polymeric material to form a thermoplastic and thermoformable optically clear film having a first, exposed face and a second face contiguous with the smooth surface of the carrier;

(c) applying to the first, exposed face of the clear film a pigmented color coat comprising a thermoplastic and thermoformable polymeric material with pigments distributed therein, and hardening the color coat to form a clear coat/color coat paint film supported by the carrier;

(d) laminating the clear coat/color coat paint film to a preformed continuous and self-supporting thermoformable resinous backing sheet by the steps of adhering the color coat side of the clear coat/color coat paint film to the resinous backing sheet and separating the carrier from the composite of the backing sheet and the clear coat/color coat paint film to expose the second face of the clear coat as a glossy, smooth outer surface transferred from the surface of the carrier, the composite of the backing sheet and the clear coat/color coat paint film being thermoformable and thereby having an elongated state in which the paint film is sufficiently pliable under the application of heat and pressure during thermoforming to stretch the clear coat/color coat paint film when conforming the film to a contoured shape; and

(e) thermoforming the composite of the backing sheet and the clear coat/color coat paint film to thermoplastically form a three-dimensionally shaped paint-coated laminate which retains its contoured shape upon thermoforming and in which regions of the clear coat/color coat paint film are subjected to said elongated state while the paint film on said laminate retains said glossy, smooth outer surface, the paint film on said laminate having an instrument-measured distinctness-of-image value of 60 or greater following said thermoforming, the laminate thereby providing the outer component of a vehicular body part having a contoured outer surface with a clear coat/color coat paint film of exterior automotive quality.

5,725,713

PAPER SHEETS OR WEBS WITH SEPARABLE SELF-ADHESIVE LABELS

Jules Fischer, Widen, Switzerland, assignor to Folien Fischer AG, Dottikon, Switzerland

PCT No. PCT/CH94/00162, § 371 Date Jun. 15, 1995, § 102(e) Date Jun. 15, 1995, PCT Pub. No. WO95/05281, PCT Pub. Date Feb. 23, 1995

PCT Filed Aug. 17, 1994, Ser. No. 424,318

Claims priority, application Switzerland, Aug. 18, 1993, 2466/93

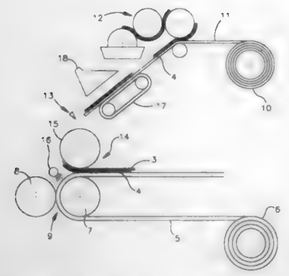
Int. Cl.[6] B32B *31/00*

U.S. Cl. 156—247 **22 Claims**

1. A process for the production of a paper sheet or web (**1**) with self-adhesive labels (**2**) separable from the paper web, the process comprising the steps of:

providing a paper web (**5**);

passing the paper web (**5**) through a punching device (**9**), punching labels (**2**) from the paper web wherein the punching is a punching through the web and completely around the periph-



ery of the labels such that the labels are free of any connection with the paper web after the paper web passes through the punching device;

applying contact adhesive (**4**) together with and on separating paper (**3**) to the paper web (**5**) adjacent the labels (**2**) and to the labels, thereby producing a paper web with labels adhered therto by the contact adhesive;

wherein the application of the contact adhesive (**4**) together with and on the separating paper (**3**) to the paper web (**5**) and the labels is performed only after the labels (**2**) have been punched out of the web and wherein the punched out labels are held and fixed in position in the paper web until the labels are adhered to the paper web by the separating paper coated with the contact adhesive.

5,725,714

METHOD FOR MAKING COMPONENTS OF ABSORBENT UNDERGARMENT

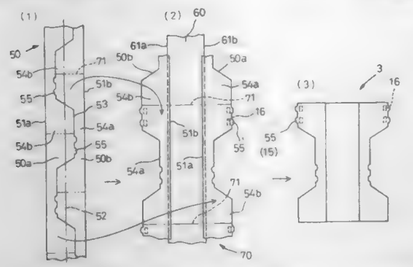
Yoshihisa Fujioka, Kagawa-ken, Japan, and Yasushi Sayama, Kagawa-ken, Japan, assignors to Uni-Charm Corporation, Ehime-ken, Japan

Filed Sep. 25, 1996, Ser. No. 720,157

Claims priority, application Japan, Sep. 29, 1995, 7-253468

Int. Cl.[6] A61F *13/15;13/56;13/58;* **B32B** *31/08*

U.S. Cl. 156—259 **4 Claims**



1. A method for making components of an undergarment comprising steps of subjecting a first continuous web having side edges to cutting in a longitudinal direction along an alternative concave-convex cutting line between said side edges to thereby form a first partial web and second partial web that each has a series of alternating concave edge portions and a series of alternating convex edge portions, longitudinally shifting the first partial web relative to the second partial web by a predetermined pitch so that the concave and convex edge portions of the first partial web are exactly aligned with the corresponding concave and convex edge portions of the second partial web, respectively, and bonding outer edges of these first and second partial webs remote from their concave and convex edge portions to respective outer edges of a second continuous web to form a composite web, said method being characterized in that said method further comprises steps of utilizing said cutting line to form in said concave and convex edge portions of said first and second partial webs second concave and convex edge portions which are able to be respectively aligned simultaneously as said first and second partial webs are aligned to each other and smaller than the first-mentioned concave and convex edge portions; and forming fastening regions used to fasten said undergarment around the wearer's waist on and/or adjacent said second convex edge portions.

5,725,715

SQUEEZABLE TUBULAR CONTAINER AND PROCESS FOR THE PRODUCTION THEREOF

Keizo Makuuchi; Fumio Yoshii, both of Takasaki; Yasuo Futami, Ichihara; Masanobu Ishiyama; Gen Miyamoto, both of Ichihara; Hideo Kushida, Yachiyo; Sei Nakajima, Chiba; Takahiro Kurihara, Fujioka; Ryoji Sugawara, Funabashi; Hideshi Kawachi, Iwakuni, and Mikio Nakagawa, Ohno-cho, all of Japan, assignors to Mitsui Petrochemical Industries, Ltd.; Yoshino Kogyosho Co., Ltd., and Japan Atomic Energy Research Institute, all of Tokyo, Japan

Continuation of Ser. No. 453,673, May 30, 1995, Pat. No. 5,565,160, which is a continuation of Ser. No. 139,753, Oct. 22, 1993, abandoned. This application Jul. 2, 1996, Ser. No. 674,406

Claims priority, application Japan, Oct. 26, 1992, 4-287906; Apr. 14, 1993, 5-087636; Apr. 14, 1993, 5-087637

Int. Cl.[6] B29C *71/04*

U.S. Cl. 156—275.5 **7 Claims**

1. A process for the production of a squeezable tubular container, which comprises irradiating only an outer surface of a tubular container formed from a composition containing a polyethylene having a density of 0.900 to 0.975 g/cm^3 and an ethylene/propylene copolymer having a density smaller than 0.900 g/cm^3 and a crystallinity of 40% or less, with an electron beam to crosslink the composition, said ethylene/propylene copolymer being in an amount of 5 to 50% by weight based on a total amount of the polyethylene and said ethylene/propylene copolymer, thereby providing the tubular container which is sterilizable at 121° C., has a hot water free shrinkage factor of 3% or less, and shows a resisting force of 1.5 kgf or less.

5,725,716

STRUCTURE FORMING METHOD AND APPARATUS

LeRoy Payne, 3300 Nicholas La., Molt, Mont. 59057

PCT No. PCT/US95/05450, § 371 Date Sep. 9, 1996, § 102(e) Date Sep. 9, 1996, PCT Pub. No. WO95/30541, PCT Pub. Date Nov. 16, 1995

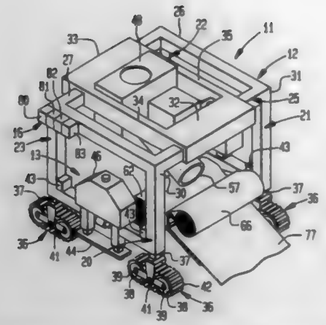
Continuation-in-part of Ser. No. 239,540, May 9, 1994, Pat. No. 5,496,434, which is a continuation-in-part of Ser. No. 870,927, Apr. 20, 1992, Pat. No. 5,330,603, which is a continuation-in-part of Ser. No. 753,344, Aug. 30, 1991, Pat. No. 5,145,282, which is a continuation-in-part of Ser. No. 521,442, May 10, 1990, Pat. No. 5,049,006, which is a continuation-in-part of Ser. No. 417,501, Oct. 5, 1989, Pat. No. 4,955,760, which is a continuation-in-part of Ser. No. 235,205, Aug. 23, 1988, Pat. No. 4,875,784. This PCT application May 4, 1995, Ser. No. 714,086

Int. Cl.[6] B32B *31/00;31/06;31/08;31/12*

U.S. Cl. 156—276 **20 Claims**

1. A method of forming a continuous structure including the steps of preselecting a liquid reactive resin forming material, a particulate solid additive material, a porous blanket, and a thin fibrous sheet, mixing said additive particles with said liquid resin forming material substantially continuously in a proportion significantly greater than that of said liquid resin forming material, encapsulating substantially all of said additive particles with said liquid resin forming material to a preselected thickness, forming a pool of the resulting mixture between said blanket and said fibrous sheet, advancing said blanket and said sheet at a rate sufficient to create movement of said additive particles within said pool and maintain said additive particles in suspension, migrating part of said liquid resin forming material through said blanket and said

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sheet substantially uniformly prior to gelling of said liquid resin forming material to form a continuous resin matrix within said structure.

8. Mobile continuous structure forming apparatus including a supporting portion, a raw material supplying portion, a mixing portion, a matrix forming portion and a control portion; said supporting portion including a plurality of spaced upstanding frame members of adjustable length, a plurality of generally horizontally disposed frame sections joining adjacent upper ends of said upstanding frame members, one pair of opposed frame sections being of adjustable length, support sections extending between said adjustable opposed pair of said frame sections, pivotable carriage means extending downwardly from lower ends of said upstanding frame members, said mixing and matrix forming portions extending downwardly adjustably from said support sections between said spaced upstanding frame members; said raw material supplying portion including a plurality of reservoirs operatively connected with said supporting portion, said reservoirs being connected independently with said mixing portion through flexible conduit means; said mixing portion including a generally vertically oriented elongated enclosed mixing chamber disposed between said support sections, said mixing chamber including an upper liquid mixing section with a first rotatable mixing element disposed therein, said mixing chamber including a lower liquid/solid particle mixing section disposed below said upper mixing section and connected thereto at an obtuse angle, a solid particle feeding hopper connected to said lower mixing section at a point thereon above its connection with said upper mixing section, a second open rotatable mixing element disposed within said lower mixing section of said mixing chamber; said matrix forming portion including mixture distributing means adjacent an outlet of said mixing chamber, pressure applying means disposed subsequent to said mixture distributing means; said control portion including programmable memory means, coordinating means, sensing means, actuating means, and circuitry transmitting signals from said sensing means to said coordinating means for comparison with said memory means and activation of said actuating means to form and maintain a uniform resin matrix forming mixture with a preselected major proportion of solid particles and to form with said mixture a continuous resin matrix within said structure.

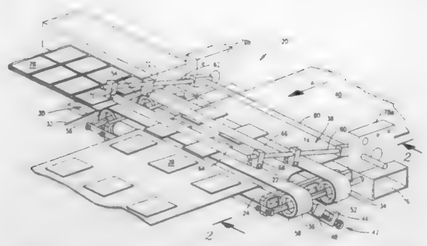
5,725,717

APPLICATION OF ROWS OF LABELS TO A PACKAGING FILM

James R. Harte, Overland Park, Kans., and Michael L. Kennedy, Grain Valley, Mo., assignors to Koch Supplies, Inc., Kansas City, Mo.

Filed Aug. 27, 1996, Ser. No. 703,553
Int. Cl.[6] B65C *3/02;9/00;9/18*
U.S. Cl. 156—299 **20 Claims**

1. An apparatus for placing labels on a packaging film two rows at a time, said apparatus comprising:
a packaging film supply;
a label supply;



means for routing said packaging film through said apparatus, said means comprising a first roller, second roller and third roller, said third roller movably mounted with respect to said first and second rollers;
means for transporting two rows of labels from said label supply across said film; and
means for pressing said labels transported by said means for transporting to said packaging film.

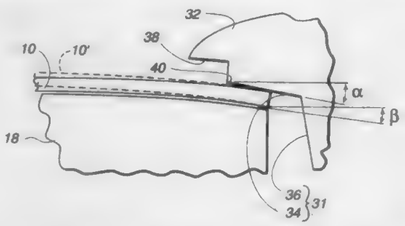
17. A method of placing labels two rows at a time upon a packaging film comprising the steps of:
delivering a packaging film;
routing said film to first and second label placement locations;
extending said film a distance between said first and second label placement locations which is greater than the shortest distance between said locations;
delivering a number of labels;
transporting said labels in two rows across said film; and
pressing said labels to said film.

5,725,718

CLAMP RING FOR DOMED HEATED PEDESTAL IN WAFER PROCESSING CHAMBER

Thomas Joseph Banholzer, and Dan Marohl, both of San Jose, Calif., assignors to Applied Materials, Inc., Santa Clara, Calif.

Continuation of Ser. No. 238,185, May 4, 1994, abandoned, which is a continuation of Ser. No. 37,988, Mar. 24, 1993, abandoned, which is a continuation-in-part of Ser. No. 967,076, Oct. 27, 1992, abandoned. This application Aug. 24, 1994, Ser. No. 295,182
Int. Cl.[6] C23F *1/02*
U.S. Cl. 156—345 **16 Claims**



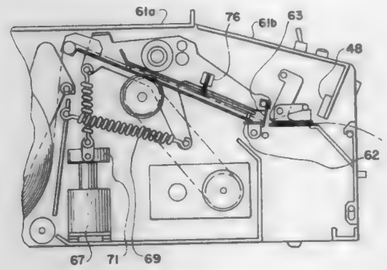
1. A clamp for holding a substrate being processed against a domed pedestal, comprising:
an outer peripheral section defining an inner aperture to expose a major portion of the substrate; and
an inner seat surface, formed in the outer peripheral section, for holding a peripheral portion of the substrate against the domed pedestal, said inner seat surface being inclined, in use, toward a domed peak of said domed pedestal at a first angle α away from a plane perpendicular to a direction in which said substrate is held against said domed pedestal, said angle α being greater than an angle β, away from said perpendicular, of a tangent to the domed pedestal at the point of which said substrate is held against said domed surface.

5,725,719

LINERLESS LABEL PRODUCT, METHOD OF MAKING, APPARATUS AND METHOD FOR DISPENSING THE PRODUCT

Janusz Szczepaniec, Willow Spring; Ronald W. Rumple; Peter A Walter, both of Schaumburg, and Drew A. Yaeger, Woodridge, all of Ill., assignors to Wallace Computer Services, Inc., Lisle, Ill.

Filed Jun. 26, 1995, Ser. No. 494,709
Int. Cl.[6] B26D *5/00;* **B32B** *31/00*
U.S. Cl. 156—353 **13 Claims**



13. In combination, a novel linerless product and dispenser therefor comprising: a housing providing a wound web roll of predetermined width in a chamber, said web having first and second faces, said first face being coated with pressure sensitive adhesive while said second face is coated with release material, the pressure sensitive adhesive on said first face being interrupted at longitudinally spaced areas to provide transversely extending bands free of pressure sensitive adhesive, signal-stimulating means operably associated with said bands, and the area of said web being each pair of adjacent bands being a label equipped with informational indicia, means in said housing defining a path connecting said chamber and said outlet, draw roll means adjacent said chamber in said path, means in said path for sensing said signal-stimulating means and delivering an actuating signal in response to said sensing, and web cutting means in said path between said draw roll means and outlet and responsive to said actuating signal to transversely sever said web in said bands.

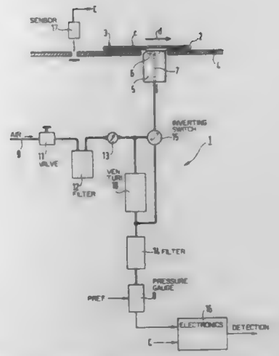
5,725,720

DETECTOR FOR ENVELOPES MADE OF PLASTIC, AND FLAT ARTICLE PROCESSING EQUIPMENT INCLUDING SUCH A DETECTOR

Gilbert Micaletti, Pomponne, France, and Claude Mitte, Cormeilles, France, assignors to Alcatel Postal Automation Systems, Gentilly Cedex, France

Filed Nov. 29, 1995, Ser. No. 564,394
Claims priority, application France, Nov. 29, 1994, 94 14295; Jul. 28, 1995, 95 09230
Int. Cl.[6] B32B *31/00*
U.S. Cl. 156—364 **9 Claims**

1. An apparatus for discriminating between mail in a paper envelope and mail in a plastic envelope, comprising
means for conveying said mail;
a pneumatic device for deforming a subject envelope to be inspected by applying suction to said subject envelope as said subject envelope is conveyed past said pneumatic device by said means for conveying said mail, and for outputting a pressure signal; and
a controller for receiving said pressure signal and for measuring a variation in pressure resulting from deformation of said subject envelope, and for determining whether said subject envelope is a plastic envelope based on said variation in pressure.

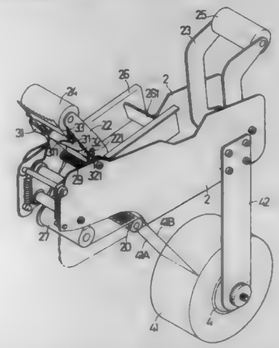


5,725,721

MECHANISM OF A BAND ATTACHING DEVICE OF A CASE SEALING MACHINE FOR PREVENTING THE BAND FROM FALLING DOWN

Tsuang-Hang Yeh, No. 21, Hsin-Jen 4th Street, Ta-Li City, Taichung Hsien, Taiwan

Filed Mar. 1, 1996, Ser. No. 609,528
Int. Cl.[6] B31F *1/00*
U.S. Cl. 156—468 **4 Claims**



1. A mechanism of a band attaching device of a case sealing machine for preventing the band from falling down, said band attaching device comprising two locating boards, a front and a rear band pressing wheel supports which are movable relative to each other via a linking support and urged by a strong spring, a front and a rear band pressing wheels disposed on the front and rear band pressing wheel supports, a band cutting blade support, a band cutting blade disposed thereon, a first band guiding wheel through which a band upward passes and a band reel support on which a band reel is disposed, two band stopper boards being secured on the front band pressing wheel support under the front band pressing wheel, the band stopper boards respectively extending from two lateral sides to the center and being inclined toward the front side of the front band pressing wheel, free ends of the band stopper boards defining a clearance, a second band guiding wheel embossed with checker on surface being disposed on the front band pressing wheel support under the band stopper boards, whereby after the band is pulled out from the band reel support, the band first upward passes through the first band guiding wheel on the adhesive-free face and then upward passed through the second band guiding wheel and the space between the band stopper boards on the adhesive face with the end of the band tangent to the front

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band pressing wheel on the adhesive-free face, said mechanism being characterized in that:

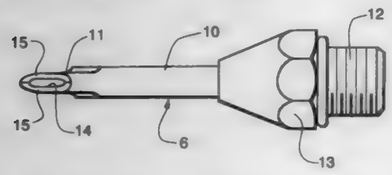
a fourth band guiding wheel is disposed between the band stopper boards and the second band guiding wheel, the fourth band guiding wheel having a shaft end movable within a shaft hole of the front band pressing wheel support, whereby when the shaft end is positioned at a relatively high position in the shaft hole, a section of band between the front edge of the outer surface of the fourth band guiding wheel and front band pressing wheel is tangent to or not in contact with the band stopper boards, while when the shaft end is positioned at a lowest position in the shaft hole, the front edge of the outer surface of the fourth band guiding wheel intersects the band stopper boards.

5,725,722

HOT-MELT APPLICATOR TIP

J. Michael Eshleman, Manheim, Pa., assignor to Armstrong World Industries, Inc., Lancaster, Pa.

Filed Nov. 27, 1995, Ser. No. 563,206
Int. Cl.[6] B23K *11/08*
U.S. Cl. 156—502 **1 Claim**



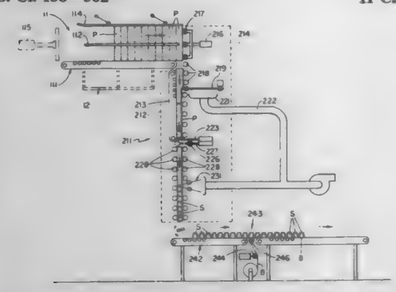
1. A hot-melt applicator tip comprising a tubular shaft portion and a distal end portion in which a slot is located, the slot having a width of about 0.01" to about 0.03" and a length of about 0.15" to about 0.5", the length of the slot is greater than the width of the distal end portion, the distal end portion comprising two beveled surfaces, the slot being disposed between the two beveled surfaces, the angle between the two beveled surfaces being about 80° to about 100°, a portion of the two beveled surfaces intersecting along a line, the line forming an angle of about 40' to about 60' from a line perpendicular to the axis of the tubular shaft portion.

5,725,723

APPARATUS FOR MAKING PIPE INSULATION

George C. Cusick, and Gerald W. Miller, both of Leeds, Ala., assignors to Mineral Products & Technology, Inc., Leeds, Ala.

Filed May 20, 1996, Ser. No. 650,759
Int. Cl.[6] B32B *31/18*
U.S. Cl. 156—502 **11 Claims**



1. Apparatus for forming a substantially rigid tube made from a plurality of longitudinally extending trapezoidal segments of a material having a defined thickness, comprising in combination:

a. means for severing a bat of said material of said defined thickness to form faces aligned relative to a first surface of said material to iteratively form trapezoidal segments of said material wherein each trapezoid has a base side which forms a portion of the exterior of said tube, wherein the volume of said bat is substantially equal to the volume of said segments;

b. means for orienting each trapezoidal segment in a common orientation including means, mounted intermediate said severing means and an output conveyor, for engaging said segments and rotating said segments through a predetermined arc such that said segments are placed on said conveyor with the base side of each segment in a predetermined position;

c. means for abutting said trapezoidal segments along adjacent longitudinal edges thereof with said base sides thereof lying along a common plane, including a supporting conveyor adapted to support said segments on said base sides and means movable concomitantly with said supporting conveyor for engaging the ends of said segments laterally to maintain said segments orientation relative to said supporting conveyor as said segments move thereon; and,

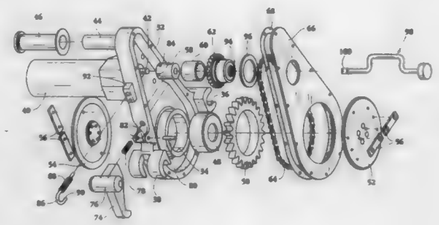
d. means for affixing a backing to said base sides to form an integral section of material for forming a tube by folding said integral section along said abutting longitudinal edges, including means for applying glue to one surface of an elongated sheet of backing material, means for introducing said elongated sheet beneath said base sides of said segments adjacent said supporting conveyor and beneath said means for engaging.

5,725,724

PLASTIC PIPE FACER FOR BUTT FUSION APPLICATION

Bill Dean Andrew, Tulsa, Okla., and Richard Leroy Goswick, Tulsa, Okla., assignors to TDW Delaware, Inc., Wilmington, Del.

Filed Nov. 18, 1996, Ser. No. 746,926
Int. Cl.[6] B32B *31/00*
U.S. Cl. 156—535 **11 Claims**



1. A facer for use with a plastic pipe butt fusion machine of the type that supports two lengths of plastic pipe in spaced apart, end-to-end relationship, comprising:

a housing supportable to a butt fusion machine;

a driven gear rotatably supported by said housing;

first and second paralleled facer plates affixed to opposed surfaces of said driven gear, each facer plate having pipe end shapers thereon;

a motor having a drive shaft, the motor being supported to said housing;

an overriding clutch connected to said drive shaft;

a drive gear supported in rotational relationship with said overriding clutch and in force transmitting relationship with said driven gear; and

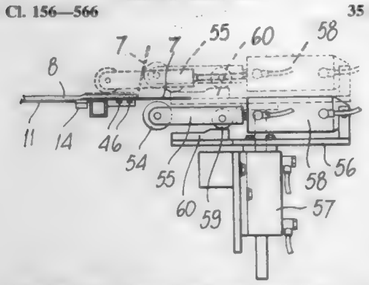
a crank connectable to said drive gear whereby said drive gear and thereby said facer plates may be selectably rotated either manually, employing the crank, or by use of said motor.

5,725,725

AUTOMATIC SOCK LABELING MACHINE

Sergio Salvetti, Chiari, Italy, assignor to Conti Complett S.p.A., Milan, Italy

Filed Dec. 13, 1995, Ser. No. 571,787
Claims priority, application Italy, Dec. 23, 1994, MI94A2644
Int. Cl.[6] B65C *9/00*
U.S. Cl. 156—566 **35 Claims**



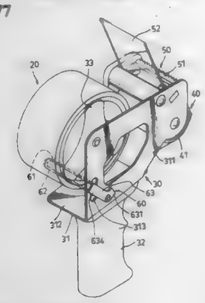
1. Automatic sock labeling machine comprising a conveyor element extending along a path from a station for loading socks on said conveyor element to a station for unloading labeled socks from said conveyor element, said conveyor element being movable with a translatory motion in an advancement direction extending along the path from said station for loading socks to said station for unloading labeled socks, the sock labeling machine further comprising, positioned along the path of said conveyor element, a station for positioning a label astride the top of a pair of mutually superimposed socks, said conveyor element comprising a belt for supporting socks, said station for positioning a label astride the top of a pair of mutually superimposed socks comprising means for depositing a label on said belt such that a supported portion of said label is supported on said belt and a protruding portion of said label protrudes from a longitudinal edge of said belt, said pair of mutually superimposed socks being loadable at said station for loading socks such that a lower side of the top of said pair of mutually superimposed socks rests upon said supported portion of said label, said station for positioning further comprising means for engaging said protruding portion of said label and for folding said protruding portion over the top of said pair of mutually superimposed socks which have been loaded upon said supported portion of said label such that said protruding portion assumes a folded position adjacent an upper side of the top of said pair of mutually superimposed socks.

5,725,726

TAPE DISPENSER WITH A CONTACT ROLLER

Ta-Cheng Yu, Taichung Hsien, Taiwan, assignor to Yang Bey Industrial Co., Ltd., Taichung Hsien, Taiwan

Filed Oct. 28, 1996, Ser. No. 738,810
Int. Cl.[6] B32B *31/00*
U.S. Cl. 156—577 **3 Claims**



1. A tape dispenser, comprising:

a support;

a tape-mounting member mounted rotatably on said support to hold a tape reel thereon;

a positioning roller mounted on said support and spaced apart from said tape-mounting member for holding a stripped portion of a tape which is unreeled from the tape reel; and

a contact roller mounted movably on said support adjacent to said tape-mounting member for rotation about an axis parallel to that of said tape-mounting member, said contact roller being adjustable in distance from said tape-mounting member so as to constantly contact a surface of an unstripped portion of the tape on the tape reel and to permit the stripped portion of the tape to be transferred from said unstripped portion to said contact roller as soon as the stripped portion leaves the unstripped portion;

wherein said contact roller includes a shaft which is mounted movably on said support, and a rotatable sleeve provided around said shaft to contact the tape reel; and

wherein said support has a base plate and a side plate which extends upwardly from one side of said base plate, all of said tape mounting member, said positioning roller, and said contact roller being mounted on and substantially perpendicular to said side plate above said base plate; and further

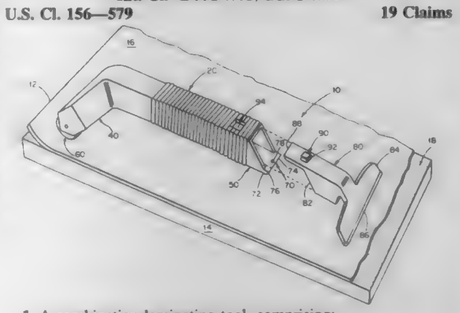
wherein said side plate has an elongated hole, said shaft having one end attached to said side plate in said elongated hole for sliding along said elongated hole.

5,725,727

COMBINATION LAMINATING TOOL

Joseph P. Tutewohl, 71 Reid Ave., Rockville Centre, N.Y. 11570

Filed Feb. 13, 1996, Ser. No. 600,534
Int. Cl.[6] B44C *7/02;* **B25G** *3/00*
U.S. Cl. 156—579 **19 Claims**



1. A combination laminating tool, comprising:

an elongated handle having a first end and an opposite second end;

a freely-rotatable roller supported at said first end of said handle;

a generally planar laminate edge presser comprising a planar blade supported by and extending from said opposite second end of said handle;

a detachable generally planar veneer presser; and

means for releasably attaching said veneer presser to said opposite second end of said handle.

5,725,728

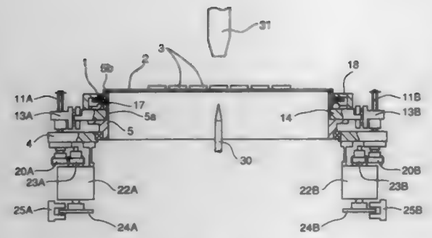
PELLET PICK-UP DEVICE

Shigeru Fuke, Musashino; Tsuneharu Arai, Fussa, and Osamu Nakamura, Kokubunji, all of Japan, assignors to Kabushiki Kaisha Shinkawa, Tokyo, Japan

Filed Sep. 17, 1996, Ser. No. 715,189
Claims priority, application Japan, Sep. 18, 1995, 7-263490
Int. Cl.[6] B32B *35/00*
U.S. Cl. 156—584 **4 Claims**

1. A pellet pick-up device equipped with a wafer sheet stretching mechanism which includes a wafer sheet supporting means on

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which a wafer sheet to which pellets are pasted is placed, a wafer sheet stretching means which is installed above said wafer sheet supporting means, and a vertical driving means which moves said wafer sheet stretching means upward and downward so as to stretch said wafer sheet when said wafer sheet stretching means is moved downward by said vertical driving means, wherein said vertical driving means comprises synchronously driven first and second motors which raise and lower portions of said wafer sheet stretching ring that are symmetrical with respect to a center of said wafer sheet supporting means.

5,725,729

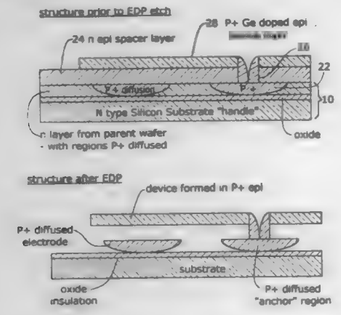
PROCESS FOR MICROMECHANICAL FABRICATION

Paul Greiff, Wayland, Mass., assignor to The Charles Stark Draper Laboratory, Inc., Cambridge, Mass.

Continuation of Ser. No. 312,326, Sep. 26, 1994, abandoned. This application Aug. 15, 1996, Ser. No. 698,479

Int. Cl.[6] H01L *21/3105*

U.S. Cl. 156—657.1 **19 Claims**



1. A process for fabricating a micromachined structure, said process comprising the steps of:

selecting a starting wafer having a first single crystal silicon substrate with at least one dielectric surface and a second single crystal silicon substrate bonded to said at least one dielectric surface of said first silicon substrate;

masking, patterning and diffusing said second single crystal silicon substrate with a first impurity in selected regions forming at least one of an electrode region and an anchor region;

depositing a first sacrificial layer of single crystal silicon over said at least one of said electrode region and said anchor region, forming a gap spacer;

depositing a first device layer of single crystal silicon over said gap spacer, said first device layer being doped in selected areas with an impurity to impart etch resistance to form a first device layer that has etch resistant areas;

masking and patterning said first device layer forming a suitable geometry for said micromachined structure; and etching away said first sacrificial layer of single crystal silicon leaving said micromachined structure while preserving said dielectric surface.

5,725,730

AQUEOUS DISPERSIONS CONTAINING CARBOXYLIC ACIDS AND/OR RESINIC ACIDS FOR DEINKING PRINTED WASTEPAPER

Heinz-Gerd Smolka; Klaus Lehmann, both of Illertissen; Hans Hawel, Voehringen; Dieter Schraml, Illertissen, and Klaus Hornfeck, Mettmann, all of Germany, assignors to Gruenau Illertissen, Illertissen, Germany

Continuation of Ser. No. 142,646, Oct. 25, 1993, abandoned, which is a continuation of Ser. No. 848,993, Apr. 20, 1992, abandoned. This application Oct. 24, 1994, Ser. No. 328,335

Claims priority, application Germany, Oct. 19, 1989, 39 34 882.2; WIPO, Oct. 10, 1990, PCT/EP90/01698

The portion of the term of this patent subsequent to Apr. 20, 2012, has been disclaimed.

Int. Cl.[6] D21C *5/02*

U.S. Cl. 162—5 **5 Claims**

1. The process of regenerating wastepaper containing printing ink comprising the steps of;

(1) fiberizing said wastepaper in an aqueous alkaline deinking solution containing no foam inhibitors and a deinking effective quantity of a deinking agent consisting of (a) a C_6–C_{22} carboxylic acid or resinic acid and (b) a C_6–C_{22} oxoalcohol alkoxylated with from about 2 to less than 6 moles of a C_2–C_4 alkylene oxide to detach ink particles from said wastepaper, and

(2) removing the detached ink particles from the deinking solution.

5,725,731

2-OXETANONE SIZING AGENTS COMPRISING SATURATED AND UNSATURATED TAILS, PAPER MADE WITH THE 2-OXETANONE SIZING AGENTS, AND USE OF THE PAPER IN HIGH SPEED CONVERTING AND REPROGRAPHIC OPERATIONS

Clement L. Brungardt, Oxford, Pa.; John C. Gast, Hockessin, and Jian-Jian Zhang, Wilmington, both of Del., assignors to Hercules Incorporated, Wilmington, Del.

Filed May 8, 1995, Ser. No. 439,057

Int. Cl.[6] D21C *3/20;* **C07D** *305/12*

U.S. Cl. 162—72 **49 Claims**

1. A sizing composition for paper made under alkaline conditions that is not solid at 35° C. and comprises a mixture of 2-oxetanone compounds that are the reaction product of a reaction mixture comprising fatty acids from:

(a) a feedstock comprising primarily unsaturated fatty acid, and

(b) a feedstock comprising primarily straight chain saturated fatty acid, provided that about 10–85 mole % of the fatty acids comprise the straight chain saturated fatty acid and about 90–15 mole % of the fatty acids comprise the unsaturated fatty acid.

5,725,732

PROCESS FOR TREATING HARDWOOD PULP WITH AN ENZYME MIXTURE TO REDUCE VESSEL ELEMENT PICKING

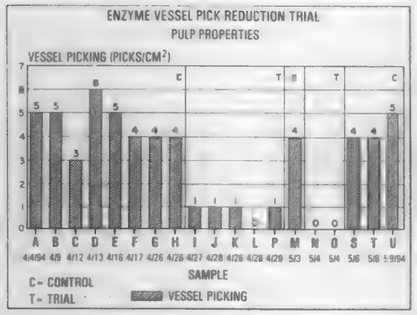
Elwood W. Cooper, III, Dover, Pa., assignor to P. H. Glatfelter Company, Spring Grove, Pa.

Continuation of Ser. No. 344,582, Nov. 18, 1994, abandoned. This application Jul. 9, 1996, Ser. No. 677,276

Int. Cl.[6] D21H *25/02*

U.S. Cl. 162—72 **25 Claims**

1. A process for reducing unbleached hardwood vessel element picking in chemically digested hardwood pulps comprising treating unbleached hardwood brownstock pulp with an enzyme mixture comprised of cellulases and xylanases in an amount of about 0.5 to about 0.01 weight percent, based on the weight of the hardwood pulp, the mixture having a cellulase activity of at least 200 EGU/g, in a pH range of 7 to 8, at a temperature from about 100° to about 150° F. for a reaction time of about 30 to about 180 minutes, whereby the hardwood vessel element picking for pulps used in the printing or book publishing industry is substantially reduced.



5,725,733

PROCESS FOR PRODUCING FOAM BODIES CONTAINING CELLULOSE-CONTAINING MIXTURES AND FOAM BODIES PRODUCED THEREFROM

Edgar Brandauer, Halle; Norbert Habelski, Luppenau/OT Löpitz; Jana Löffler, Unterschobling; Frank Ramhold, and Ingwalt Friedemann, both of Halle, all of Germany, assignors to Schweitzer, Vodermair & Schimmer-Wottrich GBR, Vaterstetten, Germany

Filed Apr. 30, 1996, Ser. No. 640,055

Claims priority, application Germany, May 2, 1995, 195 15 594.7; Dec. 12, 1995, 195 46 295.5; Dec. 12, 1995, 195 46 296.3

Int. Cl.[6] B29B *67/20*

U.S. Cl. 162—101 **28 Claims**

1. Process for producing foam bodies having various properties and containing cellulose-containing materials, comprising

providing a pulp made of water and a material selected from the group consisting of old paper, old cardboard, and other broken up or partially broken up, cellulose-containing material as a starting mixture material;

adding an additive selected from the group consisting of a foaming agent, an expanding agent, a stabilizer, other cellulose-containing materials not broken up, a silicate material, residual and waste material to the cellulose-containing starting mixture material;

wherein the starting mixture material contains additives in such an amount that the pH of the mixture is from 3 to 12, and thus is selectively alkaline, neutral or acidic;

using each additive jointly or alternatively;

said adding taking place in the process at certain times and in defined amounts; and

said pulp being later subjected to a thermal treatment.

23. A foam body comprising

(a) cellulose containing dry mass;

(b) a tenside;

(c) a binder stabilizer;

(d) an expanding agent; and

(e) a milling powder.

5,725,734

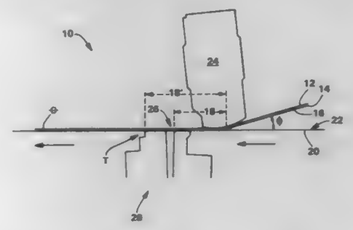
TRANSFER SYSTEM AND PROCESS FOR MAKING A STRETCHABLE FIBROUS WEB AND ARTICLE PRODUCED THEREOF

Jeffrey Bruce Herman, Bala Cynwyd; John Ghordis Trumbull, Lima, both of Pa., and Richard Ignatius Wolkowicz, Cumming, Ga., assignors to Kimberly Clark Corporation, Neenah, Wis.

Filed Nov. 15, 1996, Ser. No. 751,526

Int. Cl.[6] D21H *15/04*

U.S. Cl. 162—111 **21 Claims**



9. A machine direction-extensible fibrous web formed by a process comprising:

forming a fibrous web from an liquid suspension of fibrous material, the fibrous web having a consistency ranging from about 12% to about 38%;

transporting the fibrous web on a first carrier fabric at a first velocity to a lengthened transfer zone that begins at a transfer shoe and terminates at a portion of a transfer head and has a machine direction oriented length ranging from about 0.75 inches to about 10 inches;

guiding the first carrier fabric and fibrous web over the transfer shoe so they converge at a first angle with a second carrier fabric moving along a linear path through the lengthened transfer zone at a second velocity which is less than the first velocity, wherein the first angle is sufficient to generate centrifugal force to aid transfer of the fibrous web to a second carrier fabric and wherein the first and second carrier fabrics begin diverging immediately after the transfer shoe at a second angle such that the distance between the first and second carrier fabrics through the lengthened transfer zone is approximately equal to the thickness of the fibrous web;

applying a sufficient level of gaseous pressure differential at the transfer head to complete the separation of the fibrous web from the first carrier fabric and attachment to the second carrier fabric; and

drying the fibrous web,

wherein the resulting fibrous web has greater machine direction extensibility than fibrous webs processed with the same carrier fabrics in differential speed transfer processes without a lengthened transfer zone.

5,725,735

RECYCLING OLEFIN POLYMER-CONTAINING PAPER

Alvin Guttag, Apt. No. 108, 415 Russell Ave., Gaithersburg, Md. 20877

Division of Ser. No. 205,641, Mar. 4, 1994, Pat. No. 5,466,333, which is a continuation-in-part of Ser. No. 517,801, May 2, 1990, abandoned, which is a division of Ser. No. 213,342, Jun. 30, 1988, Pat. No. 4,952,426. This application May 31, 1995, Ser. No. 455,528

Int. Cl.[6] D21B *1/08;* **D21H** *11/14*

U.S. Cl. 162—147 **23 Claims**

1. A paper obtained from a recycled printed paper that has been deinked, said printed paper containing a coating of a plastic olefin polymer thereon, wherein said deinked paper is treated by either:

(A) treating said deinked paper with an oxidizing agent, wherein the oxidizing agent is used in an amount sufficient to increase

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the adherence of printing ink to said plastic olefin polymer, and then reforming said oxidized deinked paper into recycled paper, or

(B) reforming said deinked paper into recycled paper, and then treating said recycled paper with an oxidizing agent, wherein the oxidizing agent is used in an amount sufficient to increase the adherence of printing ink to said plastic olefin polymer,

said deinked paper consisting essentially of a member of the group consisting of

(1) fibers containing both (a) cellulose and (b) a plastic olefin polymer;

(2) fibers which are a mixture of (a) cellulose fibers and (b) fibers containing both (i) cellulose and (ii) a plastic olefin polymer;

(3) fibers which are a mixture of (a) cellulose fibers, (b) fibers of a plastic olefin polymer, and (c) fibers containing both (i) cellulose and (ii) a plastic olefin polymer; and

(4) fibers which are a mixture of (a) fibers of a plastic olefin polymer and (b) fibers containing both (i) cellulose and (ii) a plastic olefin polymer,

wherein at least some of said plastic olefin polymer is exposed to the surface of said deinked paper or recycled paper of steps (A) or (B).

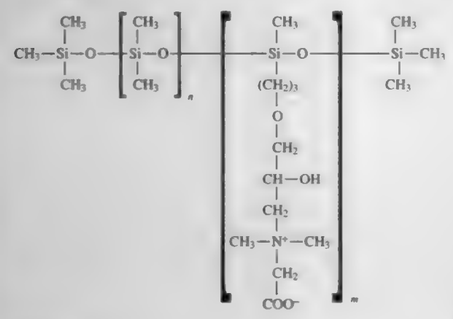
5,725,736

TISSUE CONTAINING SILICONE BETAINES

Wen Zyo Schroeder, Appleton, Wis., and Gary Lee Shanklin, Appleton, Wis., assignors to Kimberly-Clark Worldwide, Inc., Neenah, Wis.

Filed Oct. 25, 1996, Ser. No. 738,201
Int. Cl.[6] D21H *11/00*
U.S. Cl. 162—164.4 **14 Claims**

1. A soft tissue comprising from about 0.01 to about 10 weight percent, based on fiber, of a silicone betaine compound having the following structure:



wherein

m=1– 100; and

n=1–1000.

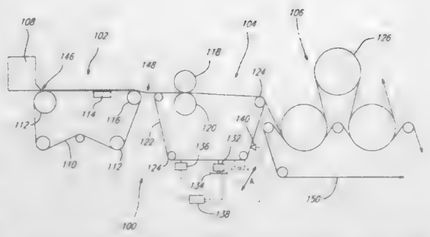
5,725,737

APPARATUS FOR THE DETECTION OF HOLES AND PLUGGED SPOTS

Ivan I. Pikulik, Pointe Claire; P. Daniel Gilbert, and Jean Hamel, both of Dorval, all of Canada, assignors to Pulp and Paper Research Institute of Canada, Pointe Claire, Canada

Filed Sep. 18, 1996, Ser. No. 710,519
Int. Cl.[6] G01N *15/08*; D21F *7/06*
U.S. Cl. 162—263 **7 Claims**

1. An apparatus for detecting plugged sites and holes of an endless pervious traveling fabric for supporting a paper web in a papermaking machine, said apparatus comprising:



i) nozzle means having a nozzle orifice positioned and arranged to engage a surface of said pervious traveling fabric which is not supporting the paper web, for directing, under an essentially constant pressure, a stream of water through interstices of said pervious traveling fabric;

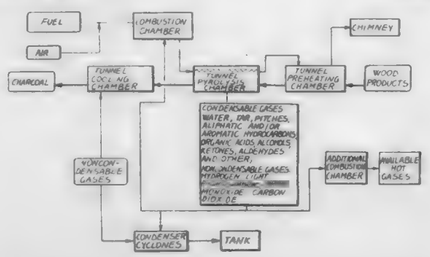
ii) a pressure pulse sensor operably housed in said nozzle means for sensing pressure changes developed in the stream, responsive to interruptions of water flow through said pervious traveling fabric.

5,725,738

METHOD AND APPARATUS FOR PRODUCING WOOD CHARCOAL BY PYROLYSIS OF WOOD-LIKE PRODUCTS OR VEGETABLE BIOMASSES IN GENERAL

Osvaldo Brioni, Via Dante, 3, 24030 Solza (prov. of Bergamo), and Dario Buizza, Via Ugo Foscolo, 28, 25035 Ospitaletto (prov. of Brescia), both of Italy

Filed Feb. 13, 1996, Ser. No. 600,636
Claims priority, application Italy, Nov. 10, 1995, MI95A2324
U
Int. Cl.[6] C10B *53/02*; F23G *5/027*
U.S. Cl. 201—14 **34 Claims**



1. Method for producing wood charcoal by pyrolysis of wood products, or vegetable biomasses in general, comprising the steps of: loading the wood products onto transport trolleys; introducing said trolleys, which contain the wood products, in a treatment tunnel in which a pyrolysis chamber is formed; indirectly heating the wood products inside said pyrolysis chamber until pyrolysis of the wood products is obtained, with continuous extraction, from said pyrolysis chamber, of the gas generated by the pyrolysis process; and extracting the trolleys from said tunnel to unload from the trolleys the charcoal that constitutes the residue of the pyrolysis of the wood products.

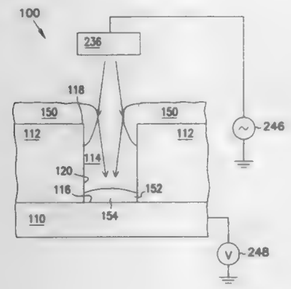
16. Apparatus for producing vegetable charcoal by pyrolysis of wood products, or vegetable biomasses in general, comprising: a treatment tunnel; means for moving, along said tunnel, trolleys for loading the wood products to be treated; means for separating the inside of said tunnel from the outside environment; at least one pyrolysis chamber being formed in said tunnel, said pyrolysis chamber being provided with means for the indirect heating of the wood products, which are introduced in said pyrolysis chamber, to a temperature adapted to achieve the pyrolysis of said wood products; and means for extracting from said pyrolysis chamber the gas generated by the pyrolysis process.

5,725,739

LOW ANGLE, LOW ENERGY PHYSICAL VAPOR DEPOSITION OF ALLOYS

Yongjun Hu, Boise, Id., assignor to Micron Technology, Inc., Boise, Id.

Filed Jul. 8, 1996, Ser. No. 677,659
Int. Cl.[6] C23C *14/34*
U.S. Cl. 204—192.3 **25 Claims**



1. A method for depositing a material, comprising an alloy or a composite, into a recess, having an upper and lower surface, the method comprising the steps of:

sputtering from a target, comprised of the material, onto the upper surface to form a layer of deposited material; and

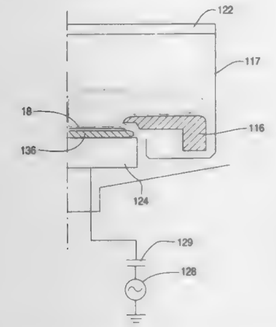
resputtering the layer of deposited material to redeposit onto the lower surface a resputtered layer of material, having a stoichiometry different than that of the layer of deposited material.

5,725,740

ADHESION LAYER FOR TUNGSTEN DEPOSITION

Ivo Raaijmakers, San Jose, Calif., assignor to Applied Materials, Inc., Santa Clara, Calif.

Filed Jun. 7, 1995, Ser. No. 482,682
Int. Cl.[6] C23C *14/34*
U.S. Cl. 204—192.12 **13 Claims**



1. A method of eliminating free exposed titanium from an edge of a substrate having sequentially sputtered layers of titanium and titanium nitride thereon, wherein a portion of said substrate was masked by a clamping ring during sputter deposition so that free titanium remains, comprising

a) mounting the substrate on a substrate support in a processing chamber, and

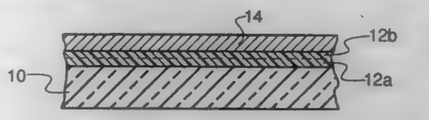
b) exposing the free exposed titanium on the substrate to a nitrogen-containing plasma to form TiN from the exposed titanium.

5,725,741

METHOD OF FORMING RECORDABLE OPTICAL ELEMENT USING LOW ABSORPTION

Pranab K. Raychaudhuri, Rochester, and Fridrich Vazan, Pittsford, both of N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.

Filed Apr. 12, 1996, Ser. No. 631,352
Int. Cl.[6] C23C *14/34*
U.S. Cl. 204—192.26 **6 Claims**



1. A method of forming a recordable element including a substrate and having on its surface, in order, an optical recording layer and a light reflecting layer, the optical recording layer having at least two sublayers of different compositions, comprising the steps of:

a) forming in a sputtering chamber on the substrate surface a first sublayer of a thickness by sputtering at least two elements having Ge and Te, or alloys thereof, in a flowing environment of a hydrocarbon gas and an inert gas wherein the flow rate of the hydrocarbon gas is selected relative to the flow rate of the inert gas to provide the first sublayer with an elemental R_{min} reflectivity in the range of 40–60%;

b) forming in the sputtering chamber on the first sublayer a second sublayer of a thickness by sputtering at least two elements having Ge and Te, or alloys thereof, in a flowing environment of hydrocarbon gas and the inert gas, with the flow rate of the hydrocarbon gas being selected to be greater than when forming the first sublayer so that the elemental R_{min} reflectivity of the second layer is in the range of about 70–85%;

c) forming a reflecting layer on the second sublayer; and

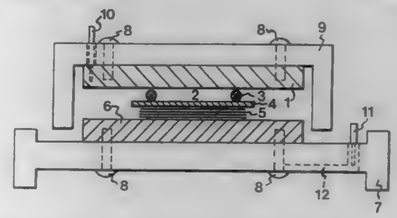
d) selecting the thicknesses of the first and second sublayers, and the reflecting layer such that the reflectivity of the recording element is about or greater than 70% for a laser wavelength of about 780 nm.

5,725,742

DEVICE FOR ELECTROLYTIC OXIDATION OF SILICON WAFERS

Hermann Georg Grimmeiss, Lund, Sweden; Anders Christer Lindbladh, Lund, Sweden; Carl-Fredrik Anton Mandenius, Huddinge, Sweden, and Mats Otto Persson, Löddeköpinge, Sweden, assignors to Daimler-Benz AG, Stuttgart, Germany

PCT No. PCT/SE94/00237, § 371 Date Nov. 13, 1995, § 102(e) Date Nov. 13, 1995, PCT Pub. No. WO94/21845, PCT Pub. Date Sep. 29, 1994
PCT Filed Mar. 17, 1994, Ser. No. 522,406
Claims priority, application Sweden, Mar. 17, 1993, 9300881
Int. Cl.[6] C25D *17/00*; *17/06*
U.S. Cl. 204—224 R **3 Claims**



1. A device, which device comprises: a plate anode and a plate cathode as well as an arrangement enclosing electrolyte and holding a silicon wafer between and spaced from said anode and cathode, characterised in that:

(a) the anode and the cathode, both arranged horizontally and adapted to hold the silicon wafer horizontally there between,

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(b) the anode and the cathode are larger than the silicon wafer, when said wafer is present,
(c) the holder arrangement consists of loose spacers provided between the silicon wafer, when said wafer is present, and the respective electrodes,
(d) said spacers adapted to enclose the electrolyte when between the respective electrodes and said wafer when said wafer is in place, and
(e) the electrodes and spacers being adapted to be held together only by gravity in a stack with said silicon wafer when said wafer is present.

5,725,743

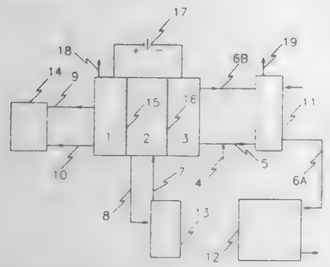
ELECTRODE SYSTEM AND USE IN ELECTROLYTIC PROCESSES

Daniel J. Vaughan, 36 Paxon Dr., Wilmington, Del. 19803

Continuation of Ser. No. 419,237, Apr. 10, 1995, abandoned, which is a continuation-in-part of Ser. No. 142,919, Oct. 29, 1993, Pat. No. 5,423,960. This application Jun. 3, 1996, Ser. No. 656,755

Int. Cl.[6] C25B *9/04*

U.S. Cl. 204—242 **6 Claims**



1. An apparatus for use in an electrolytic process comprising a power source, at least one electrically conductive current element selected from the group consisting of rods, bars and tubes, arranged vertically within a com,artment; an electrically conductive fiber element selected from the group consisting of a fibrous mat, non-woven felt, a felt with a fabric reinforcement, a single fiber or mat of fibers or a fabric at least sufficiently surrounding said current element to provide electrical contact with a substantial amount of the surface area of said current element said current element within an electrolyte disposed within said compartment, said current element and said fiber element being of an electrolyte-resistant material suitable for anodic or cathodic electrochemical reactions wherein said power source is in electrical contact with said current element outside of said compartment.

5,725,744

CELL FOR THE ELECTROLYSIS OF ALUMINA AT LOW TEMPERATURES

Vittorio de Nora, Sandrigham House, Bahamas, and Jean-Jacques Duruz, Geneva, Switzerland, assignors to Moltech Invent S.A., Luxembourg

PCT No. PCT/EP92/02666, § 371 Date Sep. 26, 1994, § 102(e) Date Sep. 26, 1994, PCT Pub. No. WO93/10281, PCT Pub. Date May 27, 1993

Continuation of Ser. No. 244,250, Sep. 26, 1994, abandoned.

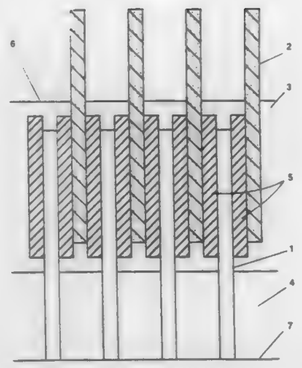
This PCT application Nov. 19, 1992, Ser. No. 636,895

Claims priority, application Austria, Mar. 24, 1992, 92510212

Int. Cl.[6] C25C *3/08;3/14*

U.S. Cl. 204—244 **21 Claims**

1. An electrolysis cell having a top and a bottom, for the production of aluminium by the electrolysis of alumina dissolved in a molten salt electrolyte containing halides using substantially non-consumable anodes cooperating with a cathode arrangement in a multimonopolar arrangement of interleaved anodes and cathodes,



said anodes and cathodes having sides and ends, said anodes and cathodes also having facing operative surfaces which are upright and in spaced substantially parallel relationship, wherein the spacing between the facing active anode and cathode surfaces is arranged for upward circulation of electrolyte by gas lift, and wherein spaces are provided outside the multipolar arrangement of anodes and cathodes for downward circulation of electrolyte and for replenishment of alumina in the electrolyte, comprising:

members of electrically non-conducting material arranged adjacent the edges of the facing anodes, to form electrolyte circulation guide means.

5,725,745

ELECTRODE FEEDER FOR PLATING SYSTEM

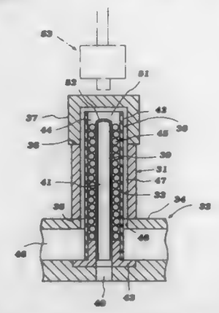
Hirohiko Ikegaya, Iwata, Japan, assignor to Yamaha Hatsudoki Kabushiki Kaisha, Iwata, Japan

Filed Feb. 27, 1996, Ser. No. 607,579

Claims priority, application Japan, Feb. 27, 1995, 7-038540

Int. Cl.[6] C25B *11/00*

U.S. Cl. 204—284 **49 Claims**



1. An electrical anode arrangement for plating cylindrical bores of work pieces, said anode being comprised of a tubular electrode comprised of an outer hollow tubular shell and an inner hollow tubular shell around which the cylinder bore to be plated is received, said electrode and said cylindrical bore forming a flow path comprised of a first axially extending tubular section formed between the outer surface of said outer hollow tubular shell and the inner surface of said cylinder bore and a second axially extending cylindrical section formed by the inner surface of said inner hollow tubular shell, means for forming a generally radially extending flow path section between said first and said second axial sections at one end of said cylinder bore, at least one of said shells being perforated, the tubular space between said shells being sized and shaped for filling with soluble pellets of the material to be plated upon said cylindrical bore, and means for adding make-up pellets to said tubular space from a point spaced axially beyond said cylinder bore.

5,725,746

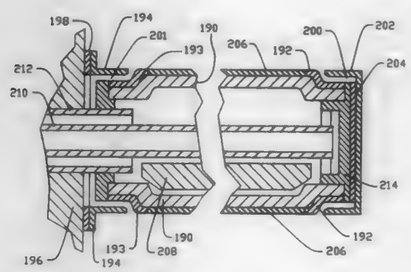
SHIELDING FOR ARC SUPPRESSION IN ROTATING MAGNETRON SPUTTERING SYSTEMS

Eric R. Dickey, and Erik J. Bjornard, both of Northfield, Minn., assignors to Viratec Thin Films, Inc., Faribault, Minn.

Continuation of Ser. No. 158,729, Nov. 29, 1993, Pat. No. 5,470,452, which is a continuation of Ser. No. 16,492, Feb. 10, 1993, abandoned, which is a continuation of Ser. No. 823,026, Jan. 15, 1992, abandoned, which is a continuation of Ser. No. 565,921, Aug. 10, 1990, abandoned. This application Mar. 21, 1995, Ser. No. 408,022

Int. Cl.[6] C23C *14/34*

U.S. Cl. 204—298.21 **3 Claims**



1. A rotating cylindrical magnetron sputtering apparatus for sputtering a thin film of a selected coating material on a substrate using a gas discharge, comprising:

an evacuable coating chamber;

a cathode including an elongated cylindrical tubular member having a layer of target material at the surface thereof and having a racetrack-shaped sputtering zone extending along the length of said tubular member with a turn around region at each end thereof, said turn around regions including a collar material having a sputtering rate less than that of said target material and a melting point higher than that of said target material, wherein a contiguous surface of said tubular member, extending over a majority of said sputtering zone, is substantially free of said collar material;

means for rotatably supporting said tubular member in said coating chamber; and

means for transporting said substrate past said sputtering zone to receive the thin film, said thin film being substantially free of said collar material at least in an area between the edges of said substrate.

5,725,747

ELECTROCHEMICAL MEASUREMENT CELL

Alexander Pinkowski, Rothenberg, Germany, and Tiziana Chierchié, Rothenberg, Germany, assignors to ProMinent Dosiertechnik GmbH, Heidelberg, Germany

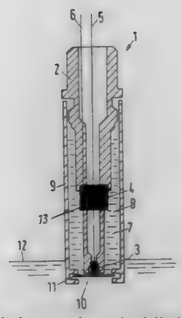
Filed Apr. 24, 1996, Ser. No. 636,960

Claims priority, application Germany, Apr. 26, 1995, 195 15 392.8

Int. Cl.[6] G01N *27/26*

U.S. Cl. 204—415 **6 Claims**

1. An electrochemical measurement cell comprising an electrode holder containing a working electrode and a counter electrode, said electrode holder surrounded by an electrolyte space containing an electrolyte, having a leak rate no greater than one-half of the volume of the electrolyte space for a period of one to six months, wherein the electrolyte comes into contact with the electrodes,



wherein the electrolytic space is partly delimited by a hydrophilic membrane.

5,725,748

PROCESS AND INSTALLATION FOR TREATING CELLULOSE WASTE LYE

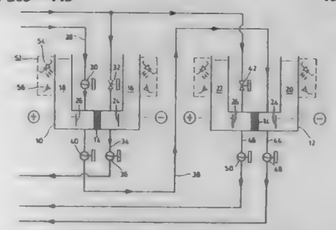
Burkhard Brandt, Paderborn, Germany, and Gerhard Born, Krefeld, Germany, assignors to Chemische Werke Zell-Wildhausen GmbH, Duesseldorf, Germany

Continuation of Ser. No. 522,735, Sep. 1, 1995, abandoned. This application Jul. 22, 1997, Ser. No. 898,163

Claims priority, application Germany, Mar. 1, 1993, 43 06 260.1

Int. Cl.[6] B01D *61/44*

U.S. Cl. 205—445 **40 Claims**



1. In a process for producing lignin sulfonic acids by an electrochemical treatment of cellulose waste lye containing lignin sulfonates, in which mass transport takes place through a diaphragm or membrane between a cathode chamber and an anode chamber, and in which cationogenic components are removed from cellulose waste lye containing lignin sulfonates and lignin sulfonic acids are produced from the waste lye, the improvement which comprises:

feeding cellulose waste lye to the anode chamber, feeding water to the cathode chamber, carrying out the electrochemical treatment at a constantly regulated electrical direct current

removing the cationogenic components only from cellulose waste lye in the anode chamber and not from the cathode chamber, and

isolating stable lignin sulfonic acids from the anode chamber.

5,725,749

PROCESS FOR THE SEPARATION OF LACTULOSE

Hendrik Pluim, Weesp, Netherlands, assignor to Duphar International Research B.V., Weesp, Netherlands

Continuation of Ser. No. 498,899, Jul. 6, 1995, abandoned. This application Oct. 29, 1996, Ser. No. 740,398

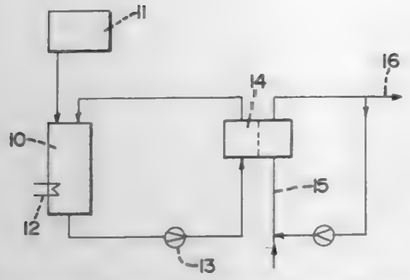
Claims priority, application European Pat. Off., Jul. 11, 1994, 94201997

Int. Cl.[6] B01D *61/44;61/48*

U.S. Cl. 204—534 **7 Claims**

1. A process for the separation of lactulose from a mixture of lactulose and lactose in the presence of a weak acid capable of

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reversibly forming a complex with lactulose, by using an electrodialysis equipment including an anode and a cathode compartment separated by a plurality of parallel compartments comprising alternating diluate compartments and concentrate compartments, wherein adjacent compartments are separated from each other by permselective membranes; said process being characterized by:

(a) continuously passing an alkaline aqueous solution of lactulose, lactose and said complex forming weak acid through the diluate compartments, each diluate compartment being bound by a bipolar membrane at its lateral side facing the cathode and at its opposite lateral side by an anion exchange membrane, separating said compartment from its adjacent concentrate compartment, with the proviso that the bipolar membrane separating the cathode compartment and adjacent diluate compartment can optionally be replaced by an anion exchange membrane;

(b) continuously passing a carrier fluid through the coucentrate compartments, each concentrate compartment being bound at its lateral side facing the anode by a bipolar membrane and at its opposite lateral side by said anion exchange membrane, with the proviso that the bipolar membrane separating the anode compartment and adjacent concentrate compartment can optionally be replaced by a cation exchange membrane; and

(c) maintaining an electric potential between anode and cathode which transports complexed lactulose preferentially to lactose from said diluate compartments to said concentrate compartments, in order to enrich the carrier fluid with complexed lactulose.

5,725,750

PROCESS FOR PRODUCING POROUS IRON METAL BODY

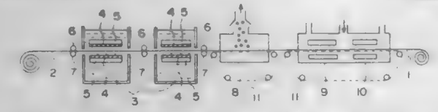
Toshiyasu Tsubouchi, and Tomohiko Ihara, both of Itami, Japan, assignors to Sumitomo Electric Industries, Ltd., Japan

Filed Mar. 26, 1997, Ser. No. 828,251

Claims priority, application Japan, Apr. 19, 1996, 8-898623; Feb. 21, 1997, 9-937968

Int. Cl.[6] C25D *1/08;3/20*

U.S. Cl. 205—75 **6 Claims**



1. A process for producing a porous iron metal body which comprises coating the surface of a conductive porous base material by iron electroplating, removing the base material by roasting, and then performing a reduction reaction on the coating, in which in the step of iron electroplating an acid iron plating bath comprising at least one compound selected from the group consisting of acid aluminum compounds and acid titanium compounds is used, and an anode containing at least one element selected from the group consisting of aluminum and titanium and having a surface area not smaller than ⅓ of and not larger than that of the base material to be plated is used; and the reduction reaction comprises a two-step heat treatment in which the iron structure is improved by increasing crystallization in a first step and subsequently softened in a second step.

5,725,751

PROCESS FOR THE ELECTRO-OXIDATION OF PHOTOGRAPHIC SOLUTIONS

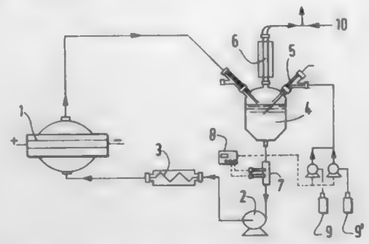
Philippe Gerald Robert, Givry, France, assignor to Eastman Kodak Company, Rochester, N.Y.

Filed Feb. 6, 1996, Ser. No. 597,227

Claims priority, application France, Mar. 3, 1995, 95 02729

Int. Cl.[6] C02F *1/461*

U.S. Cl. 205—687 **7 Claims**



1. A process for the electrooxidation of a photographic solution comprising one or more used non-diluted developer, the process comprising the step of:

(a) electro-oxidating the photographic solution in a single compartment electrolytic cell comprising at least one platinum anode and at least one cathode, and

(b) maintaining the pH of the photographic solution constant at a value above or equal to 10.5 from the start of the electro-oxidation to 10 to 25% of the total electrolysis time, and

(c) introducing an antifoaming agent in an amount less than the amount required for preventing foam formation when pH is not maintained constant.

5,725,752

ELECTROKINETIC DECONTAMINATION OF LAND

John Garry Sunderland, Chester, and Edward Pelham Lindfield Roberts, South Wirral, both of United Kingdom, assignors to EA Technology Ltd., Chester, United Kingdom

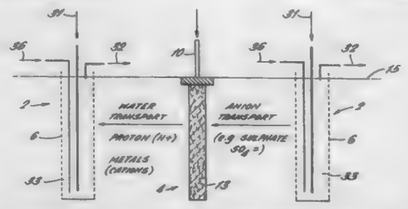
PCT No. PCT/GB94/02319, § 371 Date Apr. 18, 1996, § 102(e) Date Apr. 18, 1996, PCT Pub. No. WO95/11095, PCT Pub. Date Apr. 27, 1995

PCT Filed Oct. 22, 1993, Ser. No. 628,749

Claims priority, application United Kingdom, Oct. 22, 1993, 9321791

Int. Cl.[6] C25C *1/22*

U.S. Cl. 205—687 **16 Claims**



1. A method for electrokinetic decontamination of land or other material comprising soil, wherein a substantially DC electric field is applied between at least one cathode and at least one anode to thereby generate oxygen at the anode, the anode being a carbon felt wrapped around current and electrolyte feed means, and wherein the carbon felt is in direct contact with the soil.

5,725,753

APPARATUS AND METHOD FOR CLEANING SEMICONDUCTOR WAFERS

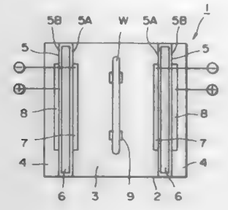
Yasuyuki Harada, Tokyo, Japan, and Shigeyoshi Netsu, Kuala Lumpur, Malaysia, assignors to Pre-Tech Co., Ltd., Tokyo, Japan, and Shin-Etsu Handotai Co., Ltd., Tokyo, Japan

Filed Apr. 26, 1996, Ser. No. 638,233

Claims priority, application Japan, Apr. 28, 1995, 7-106094; Oct. 11, 1995, 7-292592

Int. Cl.[6] C02F *1/461*

U.S. Cl. 205—746 **19 Claims**



1. An apparatus for the cleaning treatment of a semiconductor wafer which comprises:

(a) a rectangular or square vessel for containing an aqueous medium for cleaning of a semiconductor wafer by holding the semiconductor wafer in a workpiece holder in a substantially vertical disposition in a center part thereof, said vessel being partitioned in the lengthwise direction into a cathode compartment at the center and a pair of anode compartments on both sides of the cathode compartment;

(b) a pair of partitions each partitioning the cathode compartment and one of the anode compartments, each partition being formed of a pair of hydrogen-ion exchange membranes, one, facing the cathode compartment and, the other, facing the anode compartment, to form a flow passage therebetween;

(c) a pair of cathode plates each bonded to one of the ion exchange membranes on the surface facing the cathode compartment; and

(d) a pair of anode plates each bonded to one of the ion exchange membranes on the surface facing the anode compartment at such a position approximately to oppose to the cathode plate.

5,725,754

METHOD OF MEASURING THE CONCENTRATION OF IONS IN SOLUTION

Rona Elizabeth Belford, 50 (2) Spylaw Road, Edinburgh EH10 5BL, United Kingdom

Filed Mar. 13, 1996, Ser. No. 614,736

Int. Cl.[6] G01N *27/26*

U.S. Cl. 205—789 **8 Claims**

1. A method of measuring the concentration of ions in a solution, comprising applying an a.c. signal across an ion-sensitive material immersed in the solution and measuring one of the real and imaginary components of the impedance of the ion-sensitive material separately from the other of said components.

5,725,755

CATALYTIC DEWAXING PROCESS FOR THE PRODUCTION OF HIGH VI LUBRICANTS IN ENHANCED YIELD

T. Reginald Forbus, Newton, Pa., assignor to Mobil Oil Corporation, Fairfax, Va.

Filed Sep. 28, 1995, Ser. No. 536,012

Int. Cl.[6] C10G *45/58*

U.S. Cl. 208—27 **8 Claims**

1. A catalytic hydrodewaxing pour point temperature reduction process for producing liquid hydrocarbon lubricant base stock from waxy, high viscosity index hydrocarbon feedstock in improved yield and viscosity index over solvent dewaxing pour point reduction methods, said process comprising:

contacting a feedstream comprising hydrogen and said feedstock with shape selective metallosilicate catalyst particles in a catalytic hydrodewaxing zone under hydrodewaxing conditions controlled to produce said base stock having said improved viscosity index and yield, wherein said process is ended when said feedstock high viscosity index is lowered to not less than 90 without regard to the base stock pour point temperature produced, whereby said base stock is produced at a yield of at least 80 weight percent; and

mixing pour point depressant additive into said base stock to lower the pour point temperature of said base stock.

5,725,756

IN SITU MITIGATION OF COKE BUILDUP IN POROUS CATALYSTS WITH SUPERCRITICAL REACTION MEDIA

Bala Subramaniam, and Said Saim, both of Lawrence, Kans., assignors to Center For Research, Inc., Lawrence, Kans.

Filed Apr. 18, 1995, Ser. No. 424,872

Int. Cl.[6] C10G *9/16*

U.S. Cl. 208—48 R **14 Claims**

1. A method to minimize catalyst deactivation rate and coke laydown, and maximize desired reaction rate in hydrocarbon processing, comprising:

providing a feed stream including hydrocarbon feed stock components;

pretreating said feed stream to reduce peroxide content;

establishing reactor startup conditions by contacting an inert cosolvent stream with a quantity of catalyst at a desired catalyst temperature of 1.0–1.2 critical temperature of said cosolvent stream and at a pressure between the critical pressure of said cosolvent stream and a pressure necessary to establish the fluid density of the cosolvent stream of not more than 0.65 gm/cc;

thereafter contacting said feed stream with said catalyst to generate a reaction mixture stream including formed reaction products, inert cosolvents, and hydrocarbon reactants under supercritical conditions, said contacting at a desired catalyst temperature of about 1–1.2 critical temperature of the resulting reaction mixture and at a pressure between the critical pressure of the reaction mixture and a pressure necessary to establish said reaction mixture fluid density of greater than 0.65 gm/cc.; and

separating the products, reactants and inert cosolvent in said product stream by isothermal, stepwise, pressure reduction.

5,725,757

REACTOR FOR UV RADIATION FOR THE TREATMENT OF LIQUIDS

Patrick Binot, Bussy Saint-Martin, France, assignor to OTV Omnium de Traitements et de Valorisation (Societe Anonyme), St. Maurice Cedex, France

Filed Jan. 16, 1996, Ser. No. 586,486

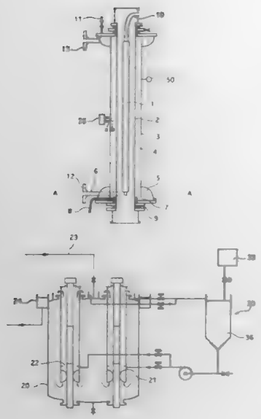
Claims priority, application France, Jan. 16, 1995, 95 00616

Int. Cl.[6] C02F *1/32*

U.S. Cl. 210—85 **13 Claims**

1. A UV radiation reactor for treating liquids, comprising:

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at least one high or medium pressure UV radiation emitter arranged coaxially inside a protective sheath transparent to UV to form an assembly installed coaxially inside a tubular shell having an internal face reflecting at least 30% of the UV radiation having a wavelength ranging from 250 nm to 260 nm incident on said internal face, the liquid to be treated flowing in a pipe in an active chamber defined by said internal face of said shell and an external face of said sheath,

a washing means linked to said active chamber, the washing means adapted to circulate cleaning liquid in said active chamber,

an air injector provided upstream from said active chamber to inject air into said cleaning liquid during washing so as to increase turbulence in said cleaning liquid,

means to submit the liquid m be treated entering said active chamber to a symmetric loss of load at least three times higher than an asymmetric loss of load observed in the liquid to be treated before entering said reactor, including an injection chamber provided coaxially at one end of said shell and at least one inlet nozzle arranged for introduction of the liquid to be treated into said reactor through said injection chamber, said injection chamber communicating with said active chamber through a circular slot.

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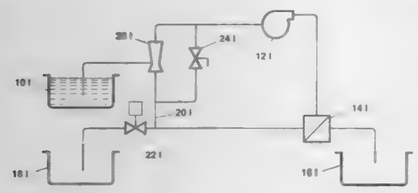
FILTRATION SYSTEM AND ASSEMBLY

Allan S. Chace, Worthington, Ohio, and Karl C. Huff, Chicago, Ill., assignors to Water Refining Inc., Worthington, Ohio

Filed Aug. 22, 1996, Ser. No. 697,336

Int. Cl.[6] B01D *35/00;15/00*

U.S. Cl. 210—85 **12 Claims**



1. Apparatus for continuously separating feed fluid mixture into purified fluid mixture and residual fluid mixture, said apparatus assembled so that said residual fluid mixture is recirculated within a closed recirculating loop comprising:

a means to separate and remove said purified fluid mixture from said residual fluid mixture,

b. means to suck(pull) said feed fluid mixture into said separating means, so that said feed fluid mixture becomes mixed with part of said residual fluid mixture, the force of said means to suck is controlled by flow of said residual fluid mixture,

c. means to by-pass a portion of said residual fluid mixture around said means to suck, said by-pass having means to control said flow of residual fluid mixture controlling sucking force, and control back pressure of said residual fluid mixture upstream from said by-pass,

d. single means to recirculate said residual fluid mixture, said means to recirculate located downstream of said means to suck, and downstream of said means to by-pass,

e. means to remove a portion of said residual fluid mixture from said closed recirculating loop, said means to remove located downstream from said means to separate and upstream from said means to suck,

wherein the rate of separation in the separation means is dependent upon said means to control back pressure upstream of said by-pass, said means to separate located downstream from said means to recirculate.

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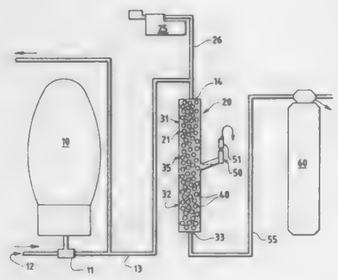
REACTOR APPARATUS FOR TREATING WATER IN IRON REMOVAL SYSTEM

John L. Schlafer, Woodberry, Minn.; Lori Nyland, Burlington, Vt., and William Raatz, Wyoming, Minn., assignors to Eco-water Systems, Inc., Woodbury, Minn.

Filed Mar. 29, 1996, Ser. No. 625,659

Int. Cl.[6] C02F *1/72*

U.S. Cl. 210—120 **11 Claims**



1. An oxygen/water reactor apparatus for use in a system for removing dissolved iron from water, which system includes separate sources of air and water and a filter for removing iron oxide from water, the reactor apparatus comprising:

A. a vessel defining a reaction chamber comprising first and second sections, the vessel having (1) an inlet connectable to a source of air and to a source of water and (2) an outlet connectable to the iron filter for removing iron oxide from water;

B. first baffle means disposed in the first section of the reaction chamber for dissolving oxygen in the water to oxidize dissolved iron in the water;

C. second baffle means disposed in the second section of the reaction chamber for removing excess gases from the water, whereby water suitable for residential use is provided, wherein said first and second baffle means comprise unsupported individual bodies; and

D. air vent means operably connected to the second section of the reaction chamber to vent excess air from the second section of the reaction chamber.

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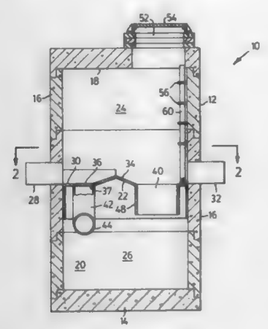
ENHANCED SEPARATOR TANK

Joseph Gordon Monteith, Mississauga, Canada, assignor to Stormceptor Corporation, Rockville, Md.

Filed May 3, 1996, Ser. No. 642,651

Int. Cl.[6] B01D *21/02*

U.S. Cl. 210—170 **7 Claims**



1. A tank interceptor for rainwater and waste-water, comprising:

a container including a bottom wall, a side wall and a top wall, said walls defining an internal chamber,

a partition dividing the chamber into a by-pass compartment above the partition and a treatment compartment below the partition, the partition having an upper surface,

an inlet through the side wall adjacently above said upper surface of the partition, the inlet being adapted to permit liquid to flow into the by-pass compartment,

an outlet through the side wall adjacently above the upper surface of the partition, the outlet being adapted to permit liquid to flow out of said by-pass compartment,

the upper surface of the partition being configured to include a raised portion which isolates the inlet from the outlet, while being spaced from the top wall of the container, the raised portion requiring that liquid entering through the inlet and seeking to reach the outlet through the by-pass compartment must overflow the raised portion in order to do so,

first and second openings through the partition on the inlet side and the outlet side, respectively, of the raised portion,

a first pipe commencing substantially at said first opening, extending downward therefrom, and opening into said treatment compartment at an intermediate vertical location therein,

a second pipe commencing substantially at said second opening, extending downward therefrom, and opening into said treatment compartment at an intermediate vertical location therein,

whereby said openings and pipes communicate the by-pass compartment with the treatment compartment,

the openings and corresponding pipes being such that liquid, without having to overflow said raised portion, can travel from the inlet to the outlet by passing through the first opening into the treatment compartment, thence through the treatment compartment, thence through the second opening into the by-pass compartment, thence to the outlet,

one of said openings and the corresponding pipe having an internal diameter large enough to allow passage of a maintenance worker from said by-pass compartment into said treatment compartment,

an access opening through the top wall of the container, positioned such that maintenance personnel can, without having to enter the container, pass a snorkel through the access opening and said one of the openings in the partition, in order to pump out the contents of the treatment compartment.

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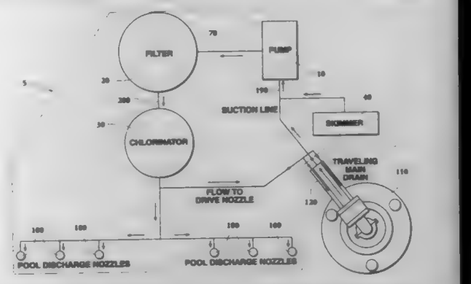
MODULAR FILTER / CIRCULATION SYSTEM AND TRAVELING MAIN DRAIN FOR IN-GROUND SWIMMING POOLS

Harold L. Phillips, 602 S. Brady St., Claremore, Okla. 74017

Filed Feb. 24, 1997, Ser. No. 805,945

Int. Cl.[6] E04H *4/16*

U.S. Cl. 210—169 **11 Claims**



1. A modular water filtration and circulation system for use in a swimming pool containing water, said swimming pool having a bottom, sides, and upper side edges, said system containing the circulatory, filtration, and piping requirements for said swimming pool, comprising:

(a) a modular housing mounted adjacent to an upper side edge of said pool and communicating with a surface of the water in the pool when the pool is filled;

(b) a skimming aperture in said modular housing through which water is skimmed from the surface of the water in the swimming pool;

(c) pump means within said modular housing, said pump means having an input vacuum side and an output pressure side;

(d) a filter within said modular housing for filtering liquids by passing them therethrough, said filter having

(1) an intake port for supplying water to said filter and communicating with said output pressure side of said pump, and

(2) an outlet port for carrying filtered water away from said filter;

(e) a bi-directional coupling mounted on said housing and enclosing a pressure member communicating with the outlet port of said filter and a vacuum member communicating with the input vacuum side of said pump,

(f) said vacuum member drawing water from said swimming pool and not being connected to a swimming pool main drain, and,

(2) said pressure member returning filtered water to said swimming pool; and,

(f) a plurality of pool discharge nozzles mounted on said housing and communicating with said filter outlet, said pool discharge nozzles returning filtered water to said swimming pool.

5,725,762

SEPARATION TREATMENT SYSTEM

Thomas Beal, Barrington, N.H.; Steven McHenry, Eliot, and John M. Rummler, Kittery Point, both of Me., assignors to Wastech International, Inc., Portsmouth, N.H.

Continuation-in-part of Ser. No. 53,402, Apr. 28, 1993, Pat. No. 5,447,630. This application May 22, 1995, Ser. No. 445,726

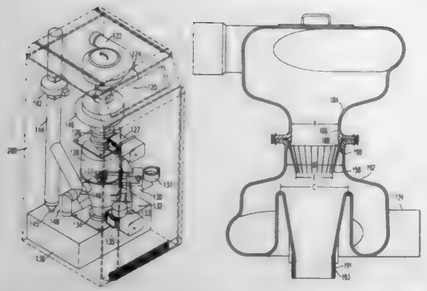
Int. Cl.[6] C02F *1/38;11/10*

U.S. Cl. 210—181 **37 Claims**

35. A separation treatment system comprising:

a separator including an upper part and a lower part, said upper part including an inlet chamber including inlet means, said inlet means including a pipe extending tangentially from said inlet chamber and merging with said inlet chamber over a circumferential portion of said inlet chamber, said upper part

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further including a first necked portion having an inner diameter smaller than an inner diameter of said inlet chamber, said lower part of said separator including an outlet chamber and a second necked portion, said separator including means for connecting said second necked portion of said lower part to said first necked portion of said upper part, and wherein said second necked portion of said lower part has an inner diameter smaller than an inner diameter of said outlet chamber, said outlet chamber further including solid outlet means in the form of a cone extending from a bottom of said outlet chamber, said cone having a top inner diameter larger than the inner diameter of said second necked portion of said lower part, said outlet chamber further including liquid outlet means comprising a pipe extending tangentially from said outlet chamber and merging with said outlet chamber over a circumferential portion of said outlet chamber, said separator further including guide wire means extending from a location of said means for connecting said first and second necked portions, wherein said guide wire means removes solids from liquids travelling along an inner surface of said separator and drops said solids into said solid outlet means while a remainder of said liquid exits said liquid outlet means;

a microwave cavity disposed below said solid outlet means for receiving solids exiting said solid outlet means of said separator, said microwave cavity including a bed of material which receives said solids, and means for subjecting said solids to microwaves for dehydration and combustion of said solids;

an isolation valve disposed between said solid outlet means and said microwave cavity;

a sump disposed below said microwave cavity for collecting residual liquids from solids held on said bed of material.

5,725,763

VACUUM FILTRATION DEVICE SEALABLE VACUUM VENT

Louis L. Bonhomme, Waltham, Mass., and Donald B. Rising, Stow, Mass., assignors to Millipore Corporation, Bedford, Mass.

Filed Jun. 24, 1996, Ser. No. 670,752
Int. Cl.[6] B01D *35/137*
U.S. Cl. 210—188 **11 Claims**

1. A vacuum filtration device, comprising:

(a) filter body having a filter secured within said body;

(b) passageway extending through said body and communicating with the upstream side of said filter for receiving a fluid to be filtered;

(c) a junction mounted on said body on the downstream side of said filter, said junction being adapted to receive a closed container and including sealing means for creating a fluid tight seal between said container and said body, said container for receiving the filtered fluid; and

(d) a vacuum port communicating with said junction, said port being adapted to receive a vacuum source for drawing said fluid through said filter into said container and comprising a sealable and openable vacuum vent which is constructed and arranged to provide, when open, fluid communication among said container, said vacuum source and a gas source.

2. The vacuum filtration device of claim 1 further comprising a filter body vent providing fluid communication between the upstream side of the filter and said vacuum source.

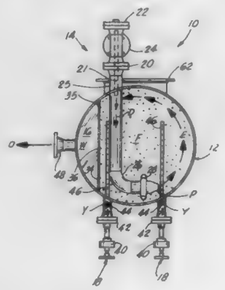
3. The vacuum filtration device of claim 2 wherein a hydrophobic filter is mounted to said filter body vent.

5,725,764

APPARATUS FOR CLARIFYING CONTAMINATED FLUIDS

Paul C. Broussard, Jr., Lafayette, La., assignor to Paul C. Broussard, Sr., Maurice, La.

Continuation-in-part of Ser. No. 444,908, May 18, 1995, Pat. No. 5,522,999, which is a division of Ser. No. 359,406, Dec. 20, 1994, Pat. No. 5,492,622, which is a continuation-in-part of Ser. No. 179,042, Jan. 7, 1994, Pat. No. 5,376,266, which is a continuation-in-part of Ser. No. 123,231, Sep. 20, 1993, Pat. No. 5,407,584, which is a continuation-in-part of Ser. No. 26,877, Mar. 8, 1993, Pat. No. 5,300,222, which is a continuation-in-part of Ser. No. 965,888, Oct. 23, 1992, Pat. No. 5,277,803, which is a continuation of Ser. No. 589,471, Sep. 28, 1990, Pat. No. 5,158,678. This application May 31, 1996, Ser. No. 657,672
Int. Cl.[6] B01D *17/035;17/038;* **C02F** *1/24*
U.S. Cl. 210—221.2 **19 Claims**



1. An apparatus for clarifying a contaminated fluid mixture containing contaminating fluid, principal liquid and solids, the apparatus comprising:

(a) a substantially vertical cylindrical vessel wherein said contaminating fluid and solids are separated from said principal liquid in the contaminated fluid mixture;

(b) means for tangentially introducing said contaminated fluid mixture into the upper portion of said cylindrical vessel so as to establish a swirling body of fluid therein;

(c) aeration means extending into said vessel for introducing a gas into said contaminated fluid mixture in the intermediate portion of said vessel such that the swirling motion of the contaminated fluid mixture causes said gas to rise to an upper surface of said contaminated fluid mixture, thereby entrapping and separating said contaminating fluid from said liquid and solids in said contaminated fluid mixture; and,

(d) means for collecting said contaminating fluid which has risen above the surface of the swirling body of contaminated fluid mixture, said collecting means being positioned in the upper portion of said vessel such that the top portion thereof is positioned above said tangential introducing means, said collecting means comprising:

i) a substantially vertical weir or wall portion spaced from said tangential introducing means and extending laterally in said upper portion of said vessel and defining a collection container having a generally segment shaped cross section with an open top;

ii) a bottom portion connected to said vertical wall portion and the inside wall of said vessel, thereby forming said container open at the top within said upper portion of said vessel; and,

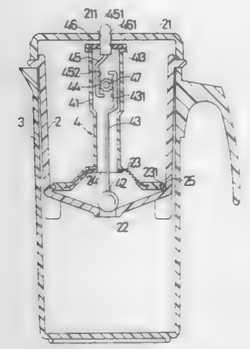
iii) an outlet port provided in the wall of said upper portion of said vessel and in the lower portion of said container, whereby contaminated fluid is removed from said collecting means.

5,725,765

TEA MAKER STRUCTURE

Shun-Tsung Shen, No. 15, Hsi-An lane, Pu-Li Chen, Nan-Tou Hsien, Taiwan

Filed Nov. 18, 1996, Ser. No. 748,538
Int. Cl.[6] A47J *31/10;31/06;31/46*
U.S. Cl. 210—238 **5 Claims**



1. A tea maker structure comprising a percolator cup and a tea cup, the percolator cup being fitted in an opening of top end of the tea cup, a cup cap being disposed on an opening formed on top end of the percolator cup, a bottom of the percolator cup being formed with a water outlet, a filter mesh being disposed above the water outlet, the water outlet being communicated with the tea cup, the opening/closing of the water outlet being controlled by a controlling mechanism, wherein:

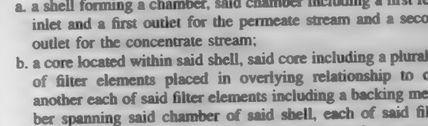
the controlling mechanism includes a hollow casing connected with the filter mesh and upward extending from a center thereof, the casing being communicated with the water outlet, a driving member and a driven member being disposed in the casing, a top end of the driving member protruding beyond a central through hole of the cup cap, a bottom end of the driven member being connected with a water sealing member for blocking the water outlet, a linking member being disposed between the driving member and driven member and pivotally disposed on a shaft radially passed through the casing, whereby the driving member and the driven member are longitudinally movable relative to each other.

5,725,766

SEWAGE DEWATERING EQUIPMENT

Franklin David Deskins, 23 Fairway Dr., Alexandria, Ind. 46001

Division of Ser. No. 419,289, Apr. 10, 1995, Pat. No. 5,660,733. This application Apr. 23, 1996, Ser. No. 636,659
Int. Cl.[6] B01D *24/22*
U.S. Cl. 210—283 **16 Claims**



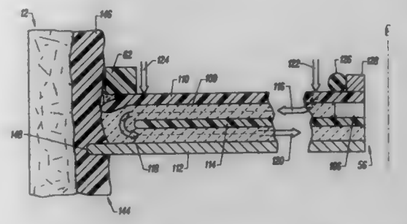
1. In a sand cell, filter or bed for dewatering of sewage composed of water and particulate solids, the improvement comprising a grid having open passageways and positioned horizontally in a layer composed of a particulate material in the sand cell, filter or bed, the open passageways having openings which are larger than said particulate material.

5,725,767

TORSION RESISTANT FILTER STRUCTURE

Joseph Bradley Culkin, Emeryville, Calif., assignor to Calvest Associates, Inc., Stateline, Nev.

Continuation-in-part of Ser. No. 601,864, Feb. 15, 1996, abandoned. This application Sep. 14, 1996, Ser. No. 706,275
Int. Cl.[6] B01D *63/00;24/32*
U.S. Cl. 210—321.75 **31 Claims**



1. A filter cartridge for separation of an aqueous colloidal suspension feed stream into a permeate stream and a concentrate stream in conjunction with a source of torsional force, comprising:

a. a shell forming a chamber, said chamber including a first feed inlet and a first outlet for the permeate stream and a second outlet for the concentrate stream;

b. a core located within said shell, said core including a plurality of filter elements placed in overlying relationship to one another each of said filter elements including a backing member spanning said chamber of said shell, each of said filter elements further comprising an opening adapted to pass the feed stream of said colloidal suspension, said core further comprising reinforcing means for strengthening said opening and securing a filter element backing member thereto, a shaft having a central conduit for collecting permeate in communication with said permeate outlet; and

b. fastening means for connecting said plurality of filter element backing members to said shell.

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5,725,768

GRANULOCYTE REMOVING APPARATUS

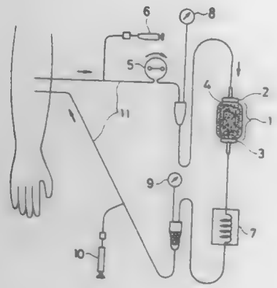
Masakazu Adachi, Takasaki-shi; Masahiro Nakatani, Shiga-ken, and Seiichirou Honda, Yokohama, all of Japan, assignors to Japan Immuno Research Laboratories Co., Ltd., Takasaki, and Sekisui Kagaku Kogyo Kabushiki Kaisha, Osaka, both of Japan

Division of Ser. No. 257,572, Jun. 9, 1994, Pat. No. 9,403,719, which is a continuation of Ser. No. 829,525, Feb. 3, 1992, abandoned, which is a continuation of Ser. No. 609,120, Nov. 2, 1990, abandoned, which is a continuation of Ser. No. 282,216, Dec. 7, 1988, abandoned. This application Dec. 5, 1994, Ser. No. 353,277

Claims priority, application Japan, Dec. 10, 1987, 62-313027; Oct. 24, 1988, 63-267947

Int. Cl.[6] B01D *24/00;39/04*

U.S. Cl. 210—435 5 Claims



1. An external circulation apparatus for in vivo improvement of the granulocyte to lymphocyte ratio in a flow of blood continuously removed from a subject and continuously returned to the subject after improvement of the granulocyte to lymphocyte ratio, said apparatus having a device for contacting the blood with a career for decreasing the granulocyte to lymphocyte ratio in blood, comprising:

a) a granulocyte-adsorbing portion enclosing therein cellulose acetate beads having higher affinity for granulocytes than for lymphocytes;

b) a blood inflow port for causing blood to flow into the adsorbing portion;

c) a blood outflow port for allowing the blood, which has flowed into the adsorbing portion, to flow out of the adsorbing portion,

d) a circulation loop, downstream of said blood outflow port, for the blood exiting from said blood outflow port, including arterial and venous pressure gauges; and

e) blood pumping means.

5,725,769

SOLVENT-RESISTANT MICROPOROUS POLYMIDE MEMBRANES

Warren K. Miller; Scott B. McCray, and Dwayne T. Friesen, all of Bend, Oreg., assignors to Bend Research, Inc., Bend, Oreg.

Filed Jul. 18, 1995, Ser. No. 503,809

Int. Cl.[6] B01D *53/22;71/64*

U.S. Cl. 210—500.39 22 Claims

1. A microporous membrane comprising a copolyimide, said microporous membrane being formed by a process selected from the group consisting of solution-casting and solution-spinning, wherein said copolyimide comprises the imidization reaction product of the diamine/dianhydride condensation reaction product in a solvent of at least three reactants selected from the group consisting of:

(a) two diamines A and A' and

(b) two dianhydrides B and B'

wherein A, A', B, and B' are selected so that

the homopolymer formed from the reaction of A with B, following heat treatment at ≧250° C., has a glass-transition temperature of ≧300° C.,

the homopolymer formed from the imidization condensation reaction of A' with B', following heat treatment at ≧250° C., has a resistance to said solvent that is characterized by absorption of ≦50 wt % of said solvent in pure form at 20° C. for at least 24 hours, and

wherein either said two diamines A and A' or said two dianhydrides B and B', but not both, may be the same,

said membrane having

a nitrogen permeance greater than 1 $Nm^3/m^2.hr.atm$, and

a selectivity for oxygen over nitrogen of less than 2.

5,725,770

WASTE TREATMENT PLANT AND PROCESS

Dick P. Henry, Brisbane, Australia, assignor to Fungi-Gulp Pty. Ltd., Queensland, Australia

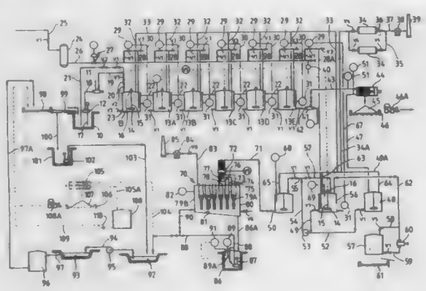
PCT No. PCT/AU95/00145, § 371 Date Sep. 16, 1996, § 102(e) Date Sep. 16, 1996, PCT Pub. No. WO95/25071, PCT Pub. Date Sep. 21, 1995

PCT Filed Mar. 16, 1995, Ser. No. 704,595

Claims priority, application Australia, Mar. 17, 1994, PM 4520

Int. Cl.[6] C02F *3/12;11/14*

U.S. Cl. 210—603 29 Claims



1. A waste treatment process including the steps of:

(i) passing waste material comprising an insoluble component through a bioreactor system including a plurality of bioreactors in series and maintaining said insoluble component as a suspension in said waste material;

(ii) passing treated waste material from said bioreactor system to one or more acidification tanks to reduce the pH below 4.5 to produce free volatile fatty acids for elimination of bacterial pathogens in said treated waste material; and

(iii) separating the insoluble component from the waste material before or after step (ii).

16. A waste treatment plant including:

(i) a bioreactor system including a plurality of bioreactors in series for treatment of waste material;

(ii) one or more acidification tanks to reduce the pH below 4.5 to produce free volatile fatty acids for elimination of bacterial pathogens in said treated waste material; and

(iii) means for separating an insoluble component from said waste material after passage through the bioreactor system.

5,725,771

PROCESS FOR ENZYME PRETREATMENT OF DRILL CUTTINGS

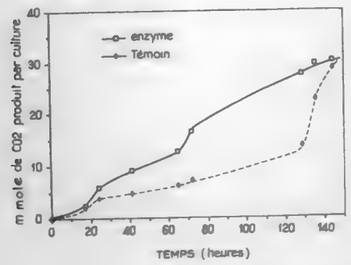
Sophie Aliphat; Frédéric Perie, both of Billere; Christian Zurdo, Pau, and Alain Martignon, Sainte Marie, all of France, assignors to Elf Aquitaine Production, Coubevoie, France

Continuation of Ser. No. 561,008, Nov. 21, 1995. This application Apr. 15, 1996, Ser. No. 632,099

Claims priority, application France, Nov. 21, 1994, 94 13921

Int. Cl.[6] C02F *3/34*

U.S. Cl. 210—606 15 Claims



1. Process for the treatment of synthetic organic drilling mud recovered at the surface of the ground, comprising the steps of:

collecting said mud; and

performing at least one first stage of hydrolysis of at least one carboxylic acid ester present in said mud, wherein said hydrolysis of at least one carboxylic acid ester is performed using a lipase.

5,725,772

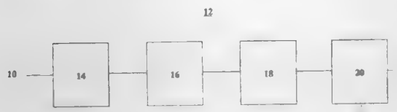
WASTEWATER TREATMENT SYSTEM

Nikhil M. Shirodkar, 675 Washington Blvd., Baltimore, Md. 21230

Filed Oct. 13, 1995, Ser. No. 542,717

Int. Cl.[6] C02F *3/30;* B01D *45/12*

U.S. Cl. 210—622 4 Claims



1. In a method for treating wastewater by introducing raw wastewater to a head of a wastewater treatment process which has at least an aerobic process, and a denitrification process downstream of the aerobic process, passing the wastewater through the aerobic and denitrification processes, forming a sludge from each of the aerobic and denitrification processes, subjecting each sludge to a thickening step, and recycling a liquid component of each thickened sludge to the head of the wastewater treatment process, the improvement comprising eliminating or removing a need for adding an external carbon source to the denitrification process by the steps of:

a) centrifuging the thickened sludge into a substantially solid component and a centrate; and

b) supplying a carbon source to the denitrification process by recycling the centrate directly to the denitrification process.

5,725,773

METHOD AND APPARATUS FOR DETERMINING THE QUANTITY OF OREMIC TOXINS REMOVED BY A HEMODIALYSIS TREATMENT

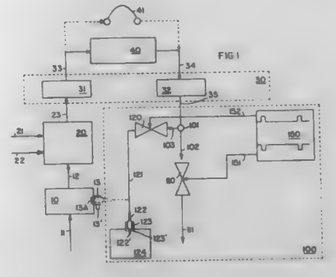
Hans-Dietrich Polaschegg, Oberursel, Germany, assignor to Fresenius AG, Bad Homburg, Germany

Filed Nov. 9, 1995, Ser. No. 555,526

Claims priority, application Germany, Nov. 12, 1994, 44 40 556.1

Int. Cl.[6] B01D *61/26*

U.S. Cl. 210—636 23 Claims



14. A method for carrying out a controlled partial dialysate collection during a dialysis treatment and carrying out a recirculating disinfection cycle separately from said dialysis treatment in a hemodialysis device including a switching valve arrangement with an inlet port, a drain outlet port and a sampling outlet port, an element selected from the group consisting of a dialyzer and a shunt conduit connected upstream of said inlet port, and a dialysate fluid inlet arrangement connected upstream of said element selected from the group consisting of a dialyzer and a shunt conduit,

said method comprising

during said dialysis treatment: flowing used dialysate into said inlet port, alternatingly switching said valve arrangement so that said dialysate flowing into said inlet port alternatingly flows out of said drain outlet port during at least one drain period and out of said sampling outlet port during at least one sampling period, and collecting as a dialysate sample said dialysate flowing out of said sampling outlet port; and

during said disinfection cycle connecting said outlet port to said fluid inlet arrangement, flowing disinfecting medium into said inlet port of said valve arrangement, and switching said valve arrangement so that said disinfecting medium flowing into said inlet port flows out of said sampling outlet port and to said fluid inlet arrangement.

5,725,774

WHOLE BLOOD SEPARATION METHOD AND DEVICES USING THE SAME

Gebhard Neyer, Los Angeles, Calif., assignor to LXN Corp., San Diego, Calif.

Filed Apr. 7, 1995, Ser. No. 418,523

Int. Cl.[6] B01D *37/00;39/00;* G01N *33/48;33/50*

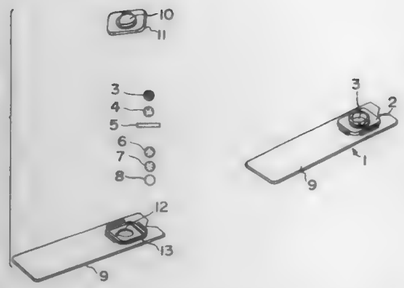
U.S. Cl. 210—645 30 Claims

25. A process for separating plasma from a whole blood sample, comprising:

(a) applying the whole blood sample to a first surface of a permeable non-glass fiber matrix containing (1) a C_3 to C_{20} polyhydroxy alcohol capable of clumping red blood cells and (2) a polycationic polymer, said matrix being porous to red blood cells in the absence of said polyhydroxy alcohol;

(b) flowing said whole blood sample under conditions which allow said sample to flow directionally toward a second surface of said matrix; and

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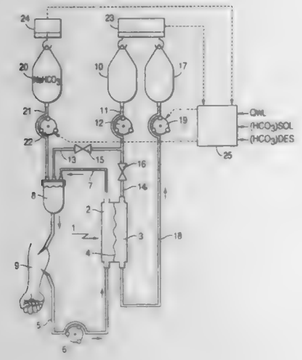
(c) receiving plasma separated from said whole blood sample at said second surface.

5,725,775

ARTIFICIAL KIDNEY DOSING METHOD

Bernard Bene, Irigny, and Jacques Chevallet, Serezin Du Rhone, both of France, assignors to Hospal Industrie, France

Division of Ser. No. 383,208, Feb. 3, 1995, Pat. No. 5,578,223, which is a division of Ser. No. 942,466, Sep. 9, 1992, abandoned. This application Jun. 23, 1995, Ser. No. 493,969
Claims priority, application France, Sep. 10, 1991, 91 11351
Int. Cl.[6] B01D *61/22;61/32;* **A61M** *1/14;1/34*
U.S. Cl. 210—646 **21 Claims**



20. A method for dosing a substance (A) in the blood of a patient, the method comprising the steps of:

connecting the patient to an artificial kidney having an exchanger with two compartments separated by a semipermeable membrane, one of the compartments having an outlet for draining a waste liquid;

perfusing into the patient a liquid containing the substance (A);

draining waste liquid from the outlet; and

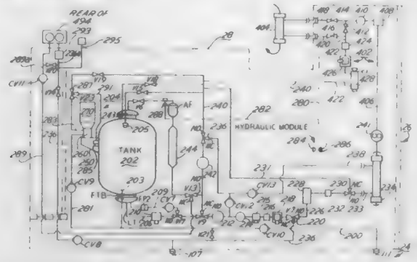
adjusting the concentration of substance (A) in the blood of the patient to a desired concentration $\{A\}_{DES}$ by controlling a flow rate (Q_A) of the perfusion liquid as a function of (1) a clearance Cl of the artificial kidney for the substance (A); (2) the desired concentration $\{A\}_{DES}$; and (3) a concentration $\{A\}_{SOL}$ of substance (A) in the perfusion liquid, whereby during the adjusting step a transfer of substance (A) through the semipermeable membrane is taken into account.

5,725,776

METHODS FOR ULTRAFILTRATION CONTROL IN HEMODIALYSIS

Rodney S. Kenley, Libertyville, Ill.; Dennis M. Treu, Gurnee, Ill.; Tom L. Brose, Gurnee, Ill.; Thomas M. Feldsein, Palatine, Ill., and Kenneth E. Pawlak, Vernon Hills, Ill., assignors to AKSYS, Ltd., Lincolnshire, Ill.

Division of Ser. No. 388,275, Feb. 13, 1995, Pat. No. 5,591,344. This application Mar. 1, 1996, Ser. No. 560,334
Int. Cl.[6] B01D *61/24;61/32;61/34;65/10*
U.S. Cl. 210—646 **11 Claims**



1. A method for improving the control of ultrafiltration of a dialysis patient, comprising the steps of:

filling a substantially non-compliant tank with a batch preparation of dialysate, said tank comprising a cylindrical vessel made from polypropylene reinforced with fibers wound about the exterior surface of said tank;

pumping the dialysate through a dialysate circuit to a dialyzer;

conducting dialysis of the patient's blood at said dialyzer;

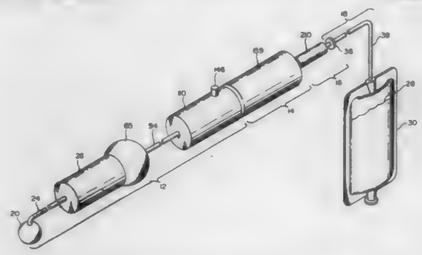
pumping fluid from said dialysate circuit into an ultrafiltration tank; whereby expansion of said substantially non-compliant tank is minimized, permitting accurate measurement of the fluids removed from the patient in said ultrafiltration tank.

5,725,777

REAGENT/DRUG CARTRIDGE

Michael A. Taylor, Encinitas, Calif., assignor to PrisMedical Corporation, Napa, Calif.

Continuation-in-part of Ser. No. 809,272, Dec. 16, 1991, Pat. No. 5,259,954. This application Nov. 9, 1993, Ser. No. 149,319
Int. Cl.[6] B01D *61/00*
U.S. Cl. 210—650 **8 Claims**



6. A method for obtaining injectable quality intravenous solution comprising the steps of:

selecting an appropriate reagent/drug cartridge module; quickly connecting the reagent/drug cartridge module intermediate a potable raw water intake and treatment mechanism and an intravenous bag;

passing treated potable water to said reagent/drug cartridge module; completely compressing the reagent/drug by pressure from a resilient sponge disposed in said reagent/drug cartridge module, as the reagent dissolves;

operating the potable raw water intake and treatment mechanism until the bag is full and the reagent is consumed; and

removing the bag.

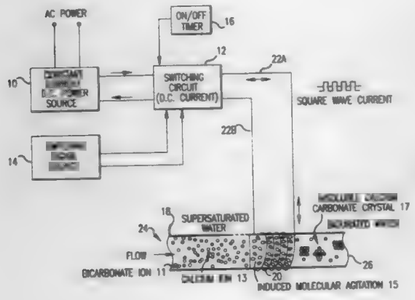
7. The method of claim 6, including the sequential steps of passing the raw water through a microfiltration stage, a deionizing stage, and an activated carbon bed stage before passing the treated water through the reagent/drug module.

5,725,778

CURRENT DRIVER FOR ELECTRONIC DESCALING

Young I. Cho, Cherry Hill, N.J., and Joseph M. Evans, III, Morgantown, Pa., assignors to Electronic Descaling 2000, Inc., Boothwyn, and Drexel University, Philadelphia, both of Pa.

Filed Oct. 17, 1995, Ser. No. 544,156
Int. Cl.[6] C02F *1/48*
U.S. Cl. 210—695 **8 Claims**



1. A method for treating a fluid in a pipe to effect electronic descaling, said method comprising:

providing a coil having first and second terminals, said coil being disposed to provide a field through said fluid;

generating a D.C. current;

applying said D.C. current through electric connections so as to pass through said coil in a first direction from said first terminal to said second terminal;

interrupting said D.C. current to turn off said D.C. current in said coil; and

automatically regulating said D.C. current ahead of said electric connections so as to maintain said D.C. current at a substantially constant intensity.

5,725,779

ANIONIC WATER-SOLUBLE POLYMER PRECIPITATION IN SALT SOLUTION

Joseph J. Mallon, Danbury; Raymond S. Farinato, Norwalk, both of Conn.; Louis Rosati, South Salem, and John J. Freeman, Jr., Valhalla, both of N.Y., assignors to Cytec Technology Corp., Wilmington, Del.

Filed Oct. 3, 1996, Ser. No. 723,628
Int. Cl.[6] C02F *1/54*
U.S. Cl. 210—728 **10 Claims**

1. A process of concentrating a dispersion of suspended solids which comprises dewatering a dispersion of suspended solids by adding to said dispersion an effective amount of an aqueous composition, or solution thereof, comprised of at least one cationic organic salt, at least one kosmotropic salt, and at least one precipitated anionic water-soluble polymer, and separating the resultant concentrated dispersion, wherein said salts are used in amounts effective to precipitate said polymer.

5,725,780

METHOD FOR USING NOVEL HIGH SOLIDS POLYMER COMPOSITIONS AS FLOCCULATION AIDS

Michael M. Carpenter, Moon Township, and Ronald J. Falcione, Canonsburg, both of Pa., assignors to Calgon Corporation, Pittsburgh, Pa.

Continuation of Ser. No. 391,870, Feb. 22, 1995, abandoned. This application Nov. 25, 1996, Ser. No. 758,107
Int. Cl.[6] C02F *1/56*
U.S. Cl. 210—728 **8 Claims**

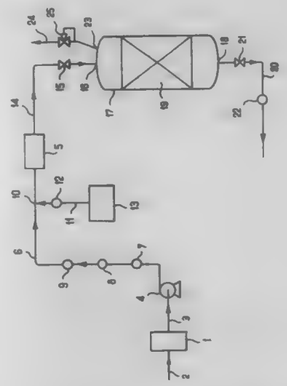
1. A method for flocculating suspended solids from an aqueous system containing said suspended solids and water comprising added to said aqueous system an effective amount of flocculating agent, wherein said flocculating agent is a non-aqueous, water soluble polymer composition containing less than about 5%, based on the weight of said polymer composition, water, a greater than about 60%, based on the weight of said polymer composition, polymer solids, and an effective amount of stabilizer selected from the group consisting of C_4–C_{20} alkyl (meth)acrylate homopolymers and C_4–C_{20} alkyl (meth)acrylate/(meth)acrylic copolymers, to reduce compaction or separation of said composition.

5,725,781

METHOD AND CATALYST FOR FORCED CATALYTIC DEOXYGENATION OF SEA WATER

Jacques Bousquet, Irigny; Jacques Barbier, Montanise, and Jean-Luc Volle, Muret, all of France, assignors to Elf Aquitaine Production, France

PCT No. PCT/FR95/00276, § 371 Date Jan. 11, 1996, § 102(e) Date Jan. 11, 1996, PCT Pub. No. WO95/24360, PCT Pub. Date Sep. 14, 1995
PCT Filed Mar. 10, 1995, Ser. No. 553,474
Claims priority, application France, Mar. 11, 1994, 94 02832
Int. Cl.[6] C02F *1/70*
U.S. Cl. 210—757 **12 Claims**



1. A process for deoxygenation of water, wherein the water is seawater, which process comprises the steps of adding exogenous hydrogen to the water, allowing the added hydrogen to dissolve in the water, obtaining a catalyst which consists essentially of divided platinum in combination with particles of a granular activated carbon support, wherein the divided platinum of the catalyst is present in a surface layer of the activated carbon support particles and the dispersion of the platinum in the catalyst particles, defined as being the ratio of the number of platinum atoms at the surface of the particles to the total number of platinum atoms present in the said particles, is at least 14%, and wherein the catalyst is in a reduced state, and bringing the water which contains the dissolved hydrogen in contact with the catalyst.

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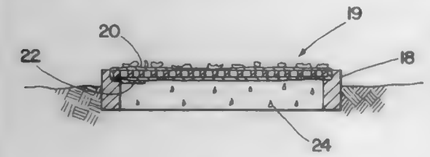
ENVIRONMENTAL FILTER

Andrew W. Chinn; Daniel M. Strawser, Sr., both of Grove City, and Geralde M. Chinn, Columbus, all of Ohio, assignors to Dandy Enterprises Limited, Grove City, Ohio

Division of Ser. No. 439,361, May 11, 1995. This application Dec. 18, 1996, Ser. No. 769,597

Int. Cl.[6] E03F *1/00*

U.S. Cl. 210—767 6 Claims



1. A catch basin water filter, comprising:

a catch basin having an opening configured to receive a grate;

a catch basin grate positioned within said catch basin opening; and

an envelope of filter material enclosing said grate.

5,725,783

CONCENTRATING METHOD AND MEANS THEREFOR

Ebbe Hodén, Mariefred, Sweden, assignor to Sunds Defibrator Industries Aktiebolag, Sweden

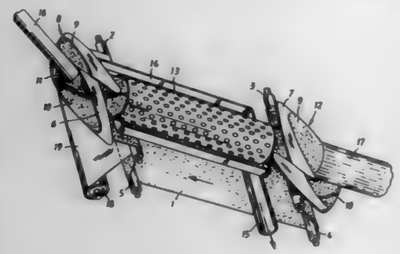
PCT No. PCT/SE93/01017, § 371 Date May 19, 1995, § 102(e) Date May 19, 1995, PCT Pub. No. WO94/12260, PCT Pub. Date Jun. 9, 1994

PCT Filed Nov. 25, 1993, Ser. No. 436,343

Claims priority, application Sweden, Nov. 25, 1992, 9203547

Int. Cl.[6] B01D *37/00*; B30B *9/24*

U.S. Cl. 210—770 56 Claims



1. A method for concentrating a liquid suspension of solid particles comprising providing a screening web moving in an endless path, folding said screening web into a tubular configuration at a first location along said endless path, providing a secondary web of highly liquid permeable material, folding said secondary web into a tubular configuration within said tubular configuration of said screening web, unfolding said screening web from said tubular configuration at a second location along said endless path, introducing said liquid suspension into said tubular configuration of said screening web proximate to said first location whereby said liquid can pass outwardly through said tubular configuration of said screening web and a concentrate of said solid particles can be formed therein, and removing said concentrate from said screening web proximate to said second location.

5,725,784

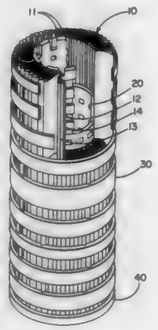
FILTERING METHOD

Stephen A. Geibel, Cortland; Richard C. Stoyell, Moravia; Kenneth M. Williamson, Jamesville, and Scott D. Hopkins, Drydem, all of N.Y., assignors to Pall Corporation, East Hills, N.Y.

Division of Ser. No. 170,934, Dec. 21, 1993, Pat. No. 5,543,047, which is a continuation-in-part of Ser. No. 972,839, Nov. 6, 1992, abandoned. This application Jun. 7, 1996, Ser. No. 660,415

Int. Cl.[6] B01D *37/00*

U.S. Cl. 210—791 20 Claims



1. A filtering method comprising:

passing a fluid in one direction radially through a pleated filter element having laid-over pleats in which a first surface of a first leg of one pleat is in intimate contact with the first surface of an adjoining leg of said one pleat and a second surface of said first leg is in intimate contact with the second surface of an adjoining leg of an adjacent pleat over a substantial portion of the height of the first leg and over a continuous region extending for at least approximately 50% of the axial length of the filter element and

passing a cleaning fluid in the opposite direction radially through the laid-over pleats of the filter elements.

5,725,785

METHOD FOR MANUFACTURING ACCELEROMETER SENSOR

Tatsuya Ishida, and Akihiko Watanabe, both of Aichi-ken, Japan, assignors to Kabushiki Kaisha Tokai Rika Denki Seisakusho, Aichi-ken, Japan

Filed Feb. 21, 1996, Ser. No. 604,720

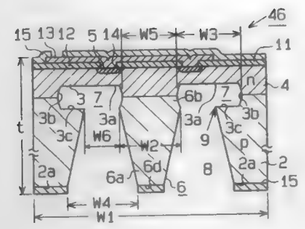
Claims priority, application Japan, Feb. 23, 1995, 7-035513

Int. Cl.[6] H01L *21/00*; B44C *1/22*

U.S. Cl. 216—2 6 Claims

1. A method of manufacturing an accelerometer sensor, said sensor comprising a silicon substrate; an epitaxial layer deposited on said substrate; a strain gauge provided in said epitaxial layer; and a mass portion joining with said epitaxial layer and located in an opening formed in said substrate, said method comprising the steps of:

forming a first P-type silicon area in a part of an upper area of a substrate made of P-type single crystal silicon, by means of impurity doping;



forming an epitaxial layer, made of N-type single crystal silicon, on a side of said silicon substrate, so that said first P-type silicon area is located between said silicon substrate and said epitaxial layer;

forming a second P-type silicon area in a part of said epitaxial layer by means of impurity doping, said first and second P-type silicon areas for use in the formation of an inner space in the sensor;

forming a strain gauge in a part of said epitaxial layer;

forming a resist over said epitaxial layer;

subjecting a composite of said silicon substrate and said epitaxial layer to an anodization in which said silicon substrate is used as an anode, thereby to convert said first and second P-type silicon areas to a porous silicon area;

providing a wiring pattern connected to said strain gauge;

forming a mask with an opening necessary for forming a mass portion on a lower surface of said silicon substrate; and

applying an etching through the opening of said mask to said porous silicon area as well as said silicon substrate, thereby forming a mass portion joining with said epitaxial layer and located in an opening formed in said substrate.

5,725,786

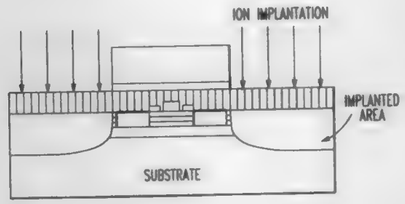
DURABLE MASK AND METHOD OF FABRICATION

Burhan Bayraktaroglu, 409 Buckspur Ct., Millersville, Md. 21108

Filed Nov. 20, 1995, Ser. No. 560,184

Int. Cl.[6] G03F *9/00*

U.S. Cl. 216—12 13 Claims



1. A method of fabricating a durable mask, comprising:

(a) providing a semiconductor substrate;

(b) forming a partially cured polyimide layer over said semiconductor substrate;

(c) forming a heavy metal layer over a portion of said polyimide layer covering a designated portion of said semiconductor substrate, said designated portion of said semiconductor substrate being a portion of said semiconductor substrate to be masked; and

(d) removing portions of said polyimide layer not covered by said heavy metal layer.

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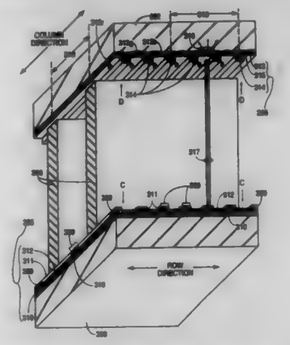
FABRICATION OF LIGHT-EMITTING DEVICE WITH RAISED BLACK MATRIX FOR USE IN OPTICAL DEVICES SUCH AS FLAT-PANEL CATHODE-RAY TUBES

Christopher J. Curtin, Cupertino; Ronald S. Nowicki, Sunnyvale; Theodore S. Fahlen, San Jose; Robert M. Duboc, Jr., Menlo Park, and Paul A. Lovoi, Saratoga, all of Calif., assignors to Candescent Technologies Corporation, San Jose, Calif.

Division of Ser. No. 188,856, Jan. 31, 1994, Pat. No. 5,477,105, which is a continuation-in-part of Ser. No. 12,542, Feb. 1, 1993, Pat. No. 5,589,731, which is a continuation-in-part of Ser. No. 867,044, Apr. 10, 1992, Pat. No. 5,424,605. This application May 25, 1995, Ser. No. 452,609

Int. Cl.[6] C23F *1/00*; C25D *5/02*

U.S. Cl. 216—25 28 Claims



1. A fabrication method comprising the steps of:

creating a dark layer over a main section;

removing selected portions of the dark layer to form a pattern of ridges over the main section such that the ridges are dark, essentially black;

providing a plurality of light-emissive regions over the main section in spaces between the ridges such that the ridges extend further away from the main section than the light-emissive regions; and

creating a light-reflective layer over the light-emissive regions and the ridges.

5,725,788

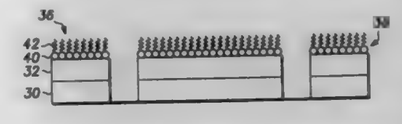
APPARATUS AND METHOD FOR PATTERNING A SURFACE

George N. Maracas, Phoenix, Ariz.; Ronald N. Legge, Scottsdale, Ariz.; Herbert Goronkin, Tempe, Ariz., and Lawrence N. Dworsky, Scottsdale, Ariz., assignors to Motorola, Schaumburg, Ill.

Filed Mar. 4, 1996, Ser. No. 608,022

Int. Cl.[6] B44C *1/22*

U.S. Cl. 216—41 40 Claims



1. A method for patterning a surface of an article comprising the steps of:

providing a layer of flexible material having first and second opposed surfaces;

forming a relief in the first opposed surface of the layer of flexible material, the relief having a plurality of contacting surfaces defining a first pattern, the relief including an indentation defining a second pattern;

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wetting the plurality of contacting surfaces with a solution containing a self-assembled monolayer-forming molecular species thereby providing a wetted plurality of contacting surfaces;

forming on the surface of the article a layer of resist material having an outer surface to which the self-assembled monolayer-forming molecular species binds;

thereafter contacting the wetted plurality of contacting surfaces with the outer surface of the layer of resist material;

thereafter removing the plurality of contacting surfaces thereby forming a self-assembled monolayer of the self-assembled monolayer-forming molecular species on the outer surface of the layer of resist material and thereby providing an exposed area of the outer surface of the resist material having the second pattern; and

etching the exposed area of the outer surface of the resist material with an etchant which is inert with respect to the self-assembled monolayer thereby providing an exposed area of the surface of the article having the second pattern.

5,725,789

AQUEOUS OIL AND WATER REPELLENT COMPOSITIONS

Charles D. Huber, Oakdale, and Michael A. Yandrasits, Hastings, both of Minn., assignors to Minnesota Mining and Manufacturing Company, St. Paul, Minn.

PCT No. PCT/US95/03949, § 371 Date Nov. 13, 1996, § 102(e) Date Nov. 13, 1996, PCT Pub. No. WO96/30584, PCT Pub. Date Oct. 3, 1996

PCT Filed Mar. 31, 1995, Ser. No. 737,686

Int. Cl.[6] D06M *15/576;* **C08L** *75/00;27/12;* **C09K** *3/00*

U.S. Cl. 252—8.62 **35 Claims**

1. A composition for treating fiber containing substrates to impart improved oil and water repellency thereto, comprising:

(a) a polyalkoxylated polyurethane having pendant perfluoroalkyl groups, said polyalkoxylated polyurethane comprising the reaction product of an aliphatic or aromatic tri- or higher order isocyanate, a fluorinated alcohol, amine, or mercaptan, and a poly(oxyalkylene) diol or dithiol; and

(b) a fluorochemical acrylate polymer comprising the reaction product of a fluorinated acrylate or methacrylate monomer, at least one alkyl acrylate or methacrylate monomer, and a polymerizable cationic emulsifier comprising a quaternary amine surfactant.

5,725,790

ORGANOPOLYSILOXANE AND FIBER FINISHING COMPOSITION CONTAINING THE SAME AS MAIN COMPONENT

Yoshihito Osawa, and Satoshi Kuwata, both of Gunma-ken, Japan, assignors to Shin-Etsu Chemical Co., Ltd., Tokyo, Japan

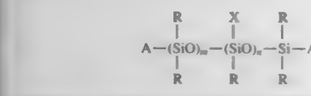
Filed Jan. 10, 1997, Ser. No. 780,841

Claims priority, application Japan, Jan. 12, 1996, 8-021794

Int. Cl.[6] D06M *13/356;* **C08G** *77/14;77/26*

U.S. Cl. 252—8.62 **12 Claims**

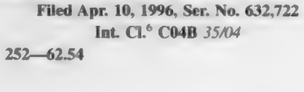
1. An organopolysiloxane represented by the following formula (I):



(I)

wherein R groups are the same or different, and each of them represents an alkyl group containing 1 to 20 carbon atoms or an aryl group containing 6 to 20 carbon atoms; X is a group represented by the following formula (II); A groups are the same or different, and each of them represents an alkoxy group containing 1 to 10 carbon atoms, a hydroxyl group, R or X; m is from 10 to 10,000; and n is from 0 to 500, wherein when n is 0 at least one A group represents X;

(II)



wherein Q^1 and Q^2 are the same or different, and each represents a divalent organic group containing 1 to 20 carbon atoms.

7. A fiber finishing composition containing an organopolysiloxane as a main component, said organopolysiloxane being an organopolysiloxane according to claim 1.

5,725,791

AZEOTROPIC AND AZEOTROPE-LIKE COMPOSITIONS OF 1,1,2,2-TETRAFLUOROETHANE

Donald Bernard Bivens, Kennett Square, Pa.; Brooks Shawn Lunger, Newark, and Akimichi Yokozeki, Greenville, both of Del., assignors to E. I. du pont de Nemours and Company, Wilmington, Del.

Continuation-in-part of Ser. No. 837,416, Feb. 20, 1992, abandoned, which is a division of Ser. No. 676,637, Mar. 28, 1991, Pat. No. 5,182,040. This application Aug. 9, 1993, Ser. No. 104,384

Int. Cl.[6] C09K *5/04;3/30;* **C11D** *7/30*

U.S. Cl. 252—67 **5 Claims**

1. An azeotropic composition consisting essentially of about 80–99 weight percent 1,1,2,2-tetrafluoroethane and about 1–20 weight percent 1,1-difluoroethane, wherein the dew point and the bubble point are both about −19.6° C. at 14.7 psia.

5,725,792

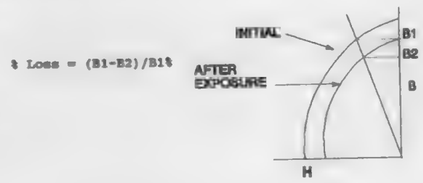
BONDED MAGNET WITH LOW LOSSES AND EASY SATURATION

Viswanathan Panchanathan, Anderson, Ind., assignor to Magnequench International, Inc., Anderson, Ind.

Filed Apr. 10, 1996, Ser. No. 632,722

Int. Cl.[6] C04B *35/04*

U.S. Cl. 252—62.54 **11 Claims**



1. A bonded isotropic magnet comprising a bonding agent and melt spun crystalline particles formed from a composition comprising, on a weight basis, from about 5 to about 25 % rare earth metal, from about 0.5 to about 4.5 % boron wherein the total of said rare earth metal and said boron ranges from about 9 to about 26 %, from about 0.5 to about 3.0% niobium, and the balance principally of iron, said magnet having a coercivity of less than 10 kOe.

5,725,793

AGENTS FOR ABSORPTION MACHINES

Jürgen Keller, Siegen, Germany, and Ralf Peters, Siegen, Germany, assignors to Universitat Siegan, Siegan, Germany

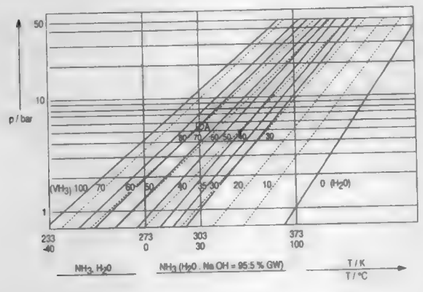
PCT No. PCT/DE93/01218, § 371 Date Jun. 15, 1995, § 102(e) Date Jun. 15, 1995, PCT Pub. No. WO94/13752, PCT Pub. Date Jun. 23, 1994

PCT Filed Dec. 17, 1993, Ser. No. 464,656

Claims priority, application Germany, Dec. 17, 1992, 42 42 602.2

Int. Cl.[6] C10M *173/02;* **C09K** *5/02;5/04*

U.S. Cl. 252—69 **8 Claims**



1. In an absorption agent system for absorption apparatus which absorption agent system comprises an aqueous solution containing ammonia or a methylamine as an absorption agent or refrigerant and water as a solvent, the improvement wherein said solution further contains at least one alkali metal compound selected from the group consisting of NaOH, KOH, $LiOH.H_2O$ and $CsOH.H_2O$ in a concentration of from 2 to 10% by weight of the total weight of the at least one alkali metal compound and water.

5,725,794

ANTIFREEZE COMPOSITION CONTAINING POLY (OXYALKYLENE) -SUBSTITUTED COLORANT

John D. Bruhnke, and Steven E. Brown, both of Spartanburg, S.C., assignors to Milliken Research Corporation, Spartanburg, S.C.

Filed Mar. 13, 1997, Ser. No. 816,294

Int. Cl.[6] C09K *5/00*

U.S. Cl. 252—73 **18 Claims**

1. An antifreeze composition comprising a polyhydric alcohol, a corrosion inhibitor and a poly(oxyalkylene)substituted colorant having the structure ABXYZ, where

A is an organic chromophore;

B is an electrophilic reactive group covalently bonded to A directly or through a linking group;

X is a nucleophilic linking group covalently bonding B and Y, selected from the group consisting of NR, O, S, and 4-oxyanilino (—HN—Ph—O—); where R is selected from the group consisting of H, alkyl, aryl, and YZ;

Y is a poly(oxyalkylene)-containing moiety; and

Z is a terminal group for Y.

5,725,795

OXYGEN ABSORBER AND METHOD FOR PRODUCING SAME

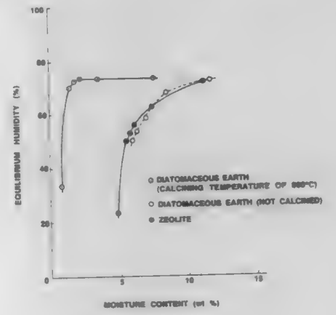
Takashi Kashiba, Tokyo, Japan, assignor to Mitsubishi Gas Chemical Company, Inc., Tokyo, Japan

Continuation of Ser. No. 426,474, Apr. 20, 1995, abandoned, which is a continuation of Ser. No. 974,889, Nov. 12, 1992, abandoned. This application Feb. 1, 1996, Ser. No. 593,169

Claims priority, application Japan, Nov. 13, 1991, 3-296764

Int. Cl.[6] C09K *15/02*

U.S. Cl. 252—188.28 **29 Claims**



1. An oxygen absorber comprising:

iron powder;

0.01 to 20 parts by weight of an oxidation accelerating agent, based on 100 parts by weight of said iron powder;

a filler; and

a moisture donor including granular diatomaceous earth calcined at a temperature of 500° to 1500° C. and having an adsorptivity characterized by an equilibrium humidity of at least 55% at a moisture content of 2% by weight wherein said granular diatomaceous earth is produced using powdery diatomaceous earth extruded and granulated with moisture and calcined at 500° to 1500° C. so that said granular diatomaceous earth is fluid for pouring into a gas-permeable packing material.

5,725,796

LIQUID-CRYSTAL DISPLAY

Ulrich Finkenzeller, Plankstadt; Herbert Plach, Darmstadt; Eike Poetsch, Mühltal, and Volker Reiffenrath, Rossdorf, all of Germany, assignors to Merck Patent Gesellschaft met beschrankter Haftung, Darmstadt, Germany

Division of Ser. No. 847,715, Mar. 6, 1992, abandoned. This application Jun. 5, 1995, Ser. No. 461,737

Claims priority, application Germany, Mar. 6, 1991, 41 07 167.0

Int. Cl.[6] C09K *19/52;* **G02F** *1/13*

U.S. Cl. 252—299.01 **50 Claims**

1. In a liquid crystal display comprising:

two substrates provided with electrode layers and alignment layers thereon which, with a frame, form a cell;

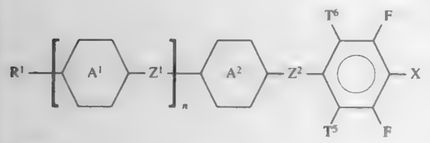
a nematic liquid-crystal mixture having positive dielectric anisotropy which is present in said cell and which forms a liquid-crystal layer; and

said liquid-crystal layer in said cell having a twist angle value of greater than 0° up to and including 600° from alignment layer to alignment layer;

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the improvement comprising:

said liquid crystal mixture is based on superfluorinated compounds of Formula I



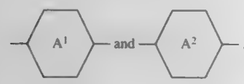
wherein

R^1 is an alkyl, alkoxy, oxaalkyl or alkenyl radical having 1–10 carbon atoms which is unsubstituted or at least monosubstituted by halogen,

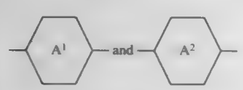
n is 0 or 1,

Z^1 and Z^2, independently of one another, are $—CH_2CH_2—$, —COO—, —OCO— or a single bond,

T^5 and T^6, independently of one another, are H or F,



independently of one another, are each Cyc, Phe, 2-fluoro-1,4-phenylene or 3-fluoro-1,3-phenylene, and one of



is alternatively Pyd, Pyr or Dio

Cyc is trans-1,4-cyclohexylene,

Phe is 1,4-phenylene,

Pyd is pyridine-2,5-diyl,

Pyr is pyrimidine-2,5-diyl,

Dio is trans-1,3-dioxane-2,5-diyl, and

X is F, Cl, OCF_3 or CF_3,

said liquid crystal mixture has a viscosity at 20° C. of less than 30 $mm^2 s^{-1}$ and has a value of

$$\text{fheight}K/\Delta\epsilon \leq 1.5$$

for the quotient of the Frank constant, $\bar{K}$,

$$\bar{K} = K_{11} + \left(\frac{v}{\pi}\right)^2 \left\{ K_{33} - K_{22}\left(1 - \frac{2\pi d}{p \cdot v}\right) \right\}$$

and the dielectric anisotropy, $\Delta\epsilon$,

$$\Delta\epsilon = \epsilon \| - \epsilon \perp$$

when used in a twisted nematic cell, having v equal to $\pi/2$ and $d/p<1$,

wherein

v is the twist angle in rad,

d is the layer thickness in μm,

p is the pitch length in μm, and

K_{11}, K_{22} and K_{33} are the elastic constants for splay, twist and bend, respectively, in 10^{-12}N.

5,725,797

SILACYCLOHEXANE COMPOUND, A PROCESS FOR PRODUCING THE SAME, AND A LIQUID CRYSTAL COMPOSITION COMPRISING THE SAME

Kazuyuki Asakura; Takanobu Takeda; Takaaki Shimizu; Tsutomu Ogihara, and Tatsushi Kaneko, all of Kubiki-mura, Japan, assignors to Shin-Etsu Chemical Co., Ltd., Tokyo, Japan

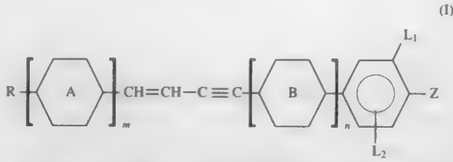
Filed Oct. 31, 1996, Ser. No. 742,626

Claims priority, application Japan, Oct. 31, 1995, 7-283011

Int. Cl.[6] C09K *19/34;19/30;* **G02F** *1/13*

U.S. Cl. 252—299.61 **5 Claims**

1. A silacyclohexane compound represented by the general formula (I):



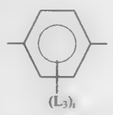
wherein R represents a straight-chain alkyl group having 1 to 10 carbon atoms, a mono or difluoro alkyl group having 1 to 10 carbon atoms, a branched-chain alkyl group having 3 to 8 carbon atoms, a alkoxyalkyl group having 2 to 7 carbon atoms, and a alkenyl group having 2 to 8 carbon atoms;



and



are groups selected from the group consisting of a trans-1 -sila-1,4-cyclohexylene group and a trans-4-sila-1,4 -cyclohexylene group both having a substituent group H, F, Cl, CH_3 or Ar (Ar stands for a phenyl or tolyl group) on silicon at the 1 or 4 position, a trans-1,4-cyclohexylene group, and



provided that at least one group of said six-membered ring A and said six-membered ring B is the trans-1-sila-1,4-cyclohexylene or trans-4-sila-1,4-cyclohexylene group having the substituent group H, F, Cl, CH_3 or Ar (Ar stands for a phenyl or tolyl group) on silicon at the 1 or 4 position; Z represents CN, F, Cl, CF_3, $CClF_2$, CHClF, OCF_3, $OCClF_2$, $OCHF_2$, OCHClF, R, or OR group; L_1 represents H, F or Cl; L_2 and L_3 stand independently for H or F; i represents an integer of 0 to 2; m is 1 or 2; n is 0 or 1; and if m is 2, the two rings are independent and may be the same or different.

5,725,798

CARBOXYLATE COMPOUNDS, LIQUID CRYSTAL MATERIALS LIQUID CRYSTAL COMPOSITIONS AND LIQUID CRYSTAL ELEMENTS

Yuuichirou Tatsuki; Shinichi Nishiyama; Junichi Kawabata; Tooru Yamanaka, and Chiho Tanaka, all of Sodegaura, Japan, assignors to Mitsui Petrochemical Industries, Ltd., Tokyo, Japan

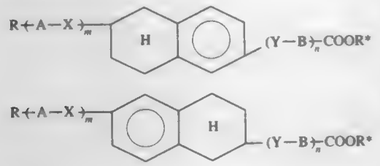
Continuation of Ser. No. 180,452, Jan. 12, 1994, abandoned, which is a continuation-in-part of Ser. No. 995,208, Dec. 23, 1992, abandoned. This application May 8, 1995, Ser. No. 438,036

Claims priority, application Japan, Dec. 27, 1991, 347122; Mar. 13, 1992, 55209; Mar. 13, 1992, 55210

Int. Cl.[6] C09K *19/32;* **C07C** *69/76;* **G02F** *1/13*

U.S. Cl. 252—299.62 **54 Claims**

1. A carboxylic acid ester compound represented by the following formula (I) or (II)

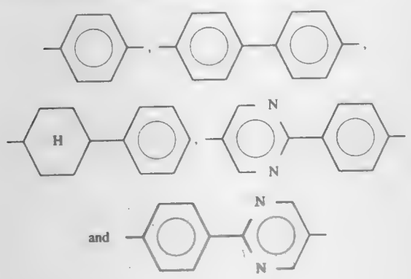


wherein

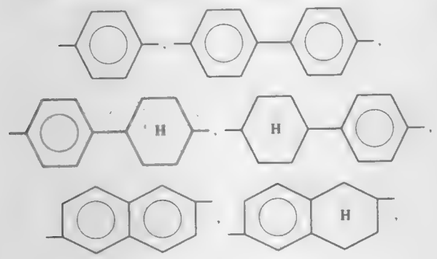
R is a group selected from the group consisting of an alkyl of 3–20 carbon atoms, an alkoxy of 3–20 carbon atoms, a halogenated alkyl of 3–20 carbon atoms and a halogenated alkoxy of 3–20 carbon atoms,

X and Y are independently a group selected from the group consisting of —COO—, OCO—, $—CH_2CH_2—$, $—CH_2O—$, $—OCH_2—$, —S—S—, —CO—CH_2— and $—CH_2—CO—$, or a single bond,

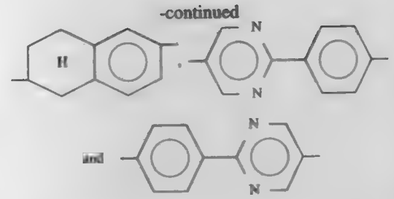
A is a group selected from the group consisting of



B is a group selected from the group consisting of



-continued



R* is an optically active group of 4–20 carbon atoms containing at least one asymmetric carbon atom where hydrogen atoms attached to the carbon atoms constituting said optically active group optionally is substituted with one or more halogen atoms, and

m is 1 or 2 and n is an integer of 0–2.

5,725,799

3,4,5-TRIFLUOROPHENY 4-CYCLOHEXYLBENZOATES

Matthias Bremer, Darmstadt; Volker Reiffenrath, Rossdorf; Detlef Pauluth, Ober-Ramstadt, and Kazuaki Tarumi, Seeheim, all of Germany, assignors to Merck Patent Gesellschaft mit beschrankter Haftung, Darmstadt, Germany

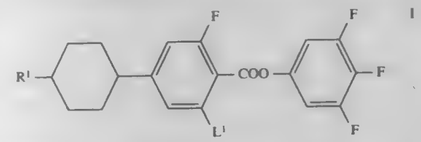
Filed Nov. 1, 1996, Ser. No. 742,321

Claims priority, application Germany, Nov. 4, 1995, 195 41 181.1

Int. Cl.[6] C09K *19/20;19/30*

U.S. Cl. 252—299.67 **4 Claims**

1. 3,4,5-Trifluorophenyl 4-cyclohexylbenzoates of formula I



in which

R^1 is an alkyl or alkenyl radical having up to 18 carbon atoms which is unsubstituted, monosubstituted by CN or CF_3 or substituted by one or more halogen, it also being possible for one or more CH_2 groups in these radicals to be replaced by —O—, —S—, —C≡C—, —OC—O— or —O—CO— in such a way that O atoms are not linked directly to one another, and

L^1 is H or F.

5,725,800

USE OF A COMPOUND BASED ON A RARE-EARTH PHOSPHATE AS A LUMINOPHOR IN PLASMA SYSTEMS

Denis Huguenin, Asnires-sur-Sein, France, assignor to Rhone-Poulenc Chimie, Courbevoie, France

Filed Jun. 25, 1996, Ser. No. 672,523

Claims priority, application France, Jun. 28, 1995, 95 07759

Int. Cl.[6] C09K *11/46*

U.S. Cl. 252—301.4 P **4 Claims**

1. A luminophor for plasmas systems comprising:

(i) a compound based on a phosphate of a rare-earth selected from the group consisting of yttrium, lanthanum, gadolinium or lutecium, and

(ii) a dopant of compound (i) being a mixture of terbium and cerium; and wherein the atomic proportion terbium/cerium+terbium is of at least about 80%.

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5,725,801

DOPED AMORPHOUS AND CRYSTALLINE GALLIUM OXIDES, ALKALINE EARTH GALLATES AND DOPED ZINC GERMANATE PHOSPHORS AS ELECTROLUMINESCENT MATERIALS

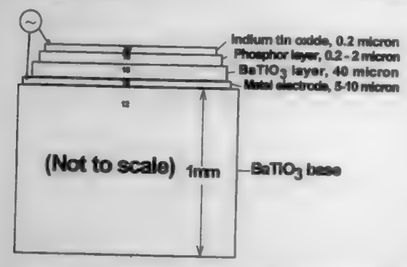
Adrian H. Kitai, 1265 Wilson St. East, Hamilton, Ontario, Canada, L8S 4K6; Tian Xiao, Hamilton, and Guo Liu, Edmonton, both of Canada, assignors to Adrian H. Kitai, Hamilton, Canada

Filed Jul. 3, 1996, Ser. No. 674,842

Claims priority, application United Kingdom, Jan. 5, 1996, 9600225

Int. Cl.[6] C04B *35/00;* **C09K** *11/80;11/55*

U.S. Cl. 252—301.4 R **11 Claims**



1. A phosphor having the formula $CaGa_2O_4$:n%RE wherein RE is a rare earth dopant selected from the group consisting of Eu, Tb, Pr and combinations thereof, n % is the mole percent of RE present in $CaGa_2O_4$, and spans the range in which said rare earths are soluble in $CaGa_2O_4$, said phosphor characterized by electroluminescence when an effective voltage is applied across said phosphor.

5,725,802

PREPARATION OF ULTRAFINE PARTICLES FROM WATER-IN-OIL MICROEMULSIONS

Alba Chittofrati, and Viviana Boselli, both of Milan, Italy, assignors to Ausimont S.p.A., Italy

Filed Jun. 7, 1995, Ser. No. 477,766

Claims priority, application Italy, Jun. 9, 1994, MI94A1212

Int. Cl.[6] B01J *13/00;* **C01G** *49/02*

U.S. Cl. 252—309 **12 Claims**

1. A process for preparing ultrafine inorganic particles, of average size lower than 50 nm, selected from the group consisting of metals, oxides, sulphides and carbonates, starting from microemulsions of water in a perfluoropolyether oil containing metal ions in the aqueous phase and reacting them with a gaseous or vapor reactant.

5,725,803

WATER/OIL MIXED EMULSIFIER, AS WELL AS THE USE THEREOF IN COSMETIC AND PHARMACEUTICAL FORMULATIONS

Walter Engel, Pinneberg, Germany, assignor to Kawes S.L., Barcelona, Spain

Filed Oct. 24, 1996, Ser. No. 736,463

Claims priority, application Germany, Oct. 24, 1995, 195 39 429.1

Int. Cl.[6] B01F *17/30*

U.S. Cl. 252—312 **8 Claims**

1. A water/oil mixed emulsifier comprising a mixture of:

i) a mixture of C-10 to C-28 n-fatty alcohols with the following composition based on the total weight of the emulsifier:

C-10: 0.0 to 1.0 wt. %
C-12: 1.0 to 3.0 wt. %
C-14: 12.0 to 16.0 wt. %
C-16: 16.0 to 21.0 wt. %
C-18: 11.0 to 14.5 wt. %
C-20: 6.0 to 10.0 wt. %
C-22: 7.0 to 11.0 wt. %
C-24: 2.5 to 5.0 wt. %
C-26: 0.5 to 2.5 wt. %
C-28: 0.5 to 1.1 wt. %;

ii) a mixture of C-20 to C-24 2-alkyl alcohols in a quantity of 5 to 23 wt. %; and

iii) phytosterols in a quantity of 6 to 13 wt. %.

5,725,804

NON-CROSSLINKED PROTEIN PARTICLES FOR THERAPEUTIC AND DIAGNOSTIC USE

Richard C. K. Yen, Yorba Linda, Calif., assignor to Hemosphere, Inc., Irvine, Calif.

Continuation-in-part of Ser. No. 212,546, Mar. 14, 1994, Pat. No. 5,616,311, which is a continuation-in-part of Ser. No. 69,831, Jun. 1, 1993, abandoned, and Ser. No. 959,560, Oct. 13, 1992, Pat. No. 5,308,620, which is a continuation-in-part of Ser. No. 641,720, Jan. 15, 1991, abandoned. This application Jun. 6, 1995, Ser. No. 471,650

Int. Cl.[6] A61K *9/64;47/42;* **B01J** *13/00*

U.S. Cl. 252—314 **11 Claims**

1. A method for the preparation of an aqueous suspension of monodisperse non-crosslinked particles of albumin having a size range of from about 50 to about 5000 nanometers in diameter and stable against resolubilization, said method comprising:

(a) forming an aqueous solution containing as solutes:

(i) albumin, and

(ii) polyethylene glycol; and

(b) treating said aqueous solution with a lower alkyl alcohol in an amount sufficient to cause said aqueous solution to become turbid.

5,725,805

COMPOSITION OF MATTER USEFUL AS AN OIL SPILL FLOCCULATING AGENT

Steven Kemnetz, Trenton, and Charles A. Cody, Robbinsville, both of N.J., assignors to Rheox, Inc., Hightstown, N.J.

Division of Ser. No. 421,106, Apr. 13, 1995, Pat. No. 5,558,777. This application Jun. 20, 1996, Ser. No. 667,165

Int. Cl.[6] B01D *17/022;* **B01J** *13/00*

U.S. Cl. 252—315.2 **8 Claims**

1. A composition comprising:

(a) one or more organoclays made by the reaction of smectite clay and one or more quaternary ammonium compounds at a percent organic of from about 80% to about 140% of the cation exchange capacity of the clay and;

(b) waste paper.

5,725,806

DISULFIDE STABILIZERS FOR 3-ISOTHIAZOLONES

Tirthankar Ghosh, Oreland, Pa., assignor to Rohm and Haas Company, Philadelphia, Pa.

Filed Nov. 8, 1996, Ser. No. 747,102

Int. Cl.[6] C07D *277/14*

U.S. Cl. 252—405 **8 Claims**

1. A method of stabilizing non-halogen containing 3-isothiazolone microbicides comprising introducing to said 3-isothiazolone at least one aromatic disulfide compound in an amount sufficient to stabilize said 3-isothiazolone, provided said aromatic disulfide compound is not 2,2'-dithiobisbenzoic acid.

5,725,807

CARBON CONTAINING COMPOSITION FOR ELECTROPLATING

Charles Edwin Thorn, Newport, Ky.; Frank Polakovic, Ringwood, N.J., and Charles A. Mosolf, Juno Beach, Fla., assignors to Electrochemicals Inc., Maple Plain, Minn.

Continuation-in-part of Ser. No. 340,849, Nov. 16, 1994, which is a continuation-in-part of Ser. No. 232,574, May 3, 1994, Pat. No. 5,476,580, which is a continuation-in-part of Ser. No. 62,943, May 17, 1993, Pat. No. 5,389,270. This application Jun. 7, 1995, Ser. No. 486,331

Int. Cl.[6] H01B *1/24;* **C25D** *13/10*

U.S. Cl. 252—510 **87 Claims**

1. A composition consisting essentially of:

A. an effective amount of up to about 20% by weight of electrically conductive carbon black particles;

B. from about 0.2% to less than about 10% by weight of a water dispersible binding agent; and

C. an aqueous dispersing medium;

the constituents of said composition being present in amounts effective to provide an electrically conductive coating which can be electroplated substantially without voids after said composition is applied to an originally-nonconductive through hole surface and dried.

5,725,808

MULTILAYER CO-FIRED CERAMIC COMPOSITIONS AND CERAMIC-ON-METAL CIRCUIT BOARD

Ellen Schwartz Tormey, Princeton Junction, and Ashok Naryan Prabhu, East Windsor, both of N.J., assignors to David Sarnoff Research Center, Inc., Princeton, N.J., and Sharp K.K., Osaka, Japan

Filed May 23, 1996, Ser. No. 652,052

Int. Cl.[6] C03C *3/066;10/04;10/02*

U.S. Cl. 252—514 **17 Claims**

1. A crystallizable glass composition comprising from 25–30% by weight of ZnO, from 20–28% by weight of MgO, from 15–20% by weight of B_2O_3, from 20–30% by weight of SiO_2, up to 10% weight of Al_2O_3, and Co_3O_4.

5,725,809

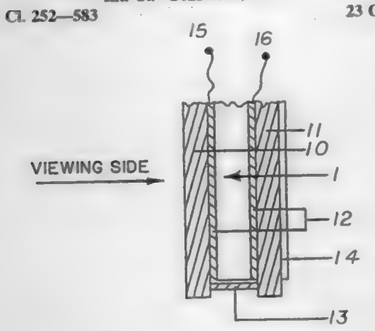
ELECTROCHROMIC ARCHITECTURAL WINDOW

Desaraju V. Varaprasad; Niall R. Lynam; Hamid R. Habibi, and Padma Desaraju, all of Holland, Mich., assignors to Donnelly Corporation, Holland, Mich.

Continuation of Ser. No. 566,507, Dec. 4, 1995, Pat. No. 5,567,360, which is a continuation of Ser. No. 289,939, Aug. 12, 1994, Pat. No. 5,472,643, which is a continuation of Ser. No. 878,176, May 4, 1992, Pat. No. 5,340,503, which is a division of Ser. No. 443,113, Nov. 29, 1989, Pat. No. 5,140,455. This application Oct. 17, 1996, Ser. No. 731,703

Int. Cl.[6] G02F *1/00;1/153*

U.S. Cl. 252—583 **23 Claims**



1. A variable transmission electrochromic architectural window comprising:

first and second spaced optically transparent elements, said elements each having front and rear surfaces and defining a space between the rear surface of said first element and the front surface of said second element;

an electrochromic medium confined in said space whose light transmission is variable upon the application of an electric field thereto;

means for applying an electric field to said electrochromic medium to cause variation in the light transmittance of said medium wherein said means for applying an electric field includes a substantially transparent conductive coating on at least one of said rear surface of said first element and said front surface of said second element;

said electrochromic medium including a solvent and a redox chemical pair in solution in said solvent wherein said redox chemical pair colors under the application of voltage and bleaches in the absence of an applied voltage;

an ultraviolet stabilizer in solution in said solvent whereby said redox chemical pair dissolved in said solvent is provided with enhanced ultraviolet stability;

said electrochromic architectural window having an electrochromically active large area of length dimension at least about 14 cm and of width dimension at least about 14 cm; said electrochromic architectural window exhibiting a steady state leakage current of less than about 2.68 amperes per square meter when a potential of one volt is applied to said electrochromic architectural window whereby coloration uniformity of said electrochromic architectural window is enhanced.

5,725,810

PACKING FOR A COUNTERFLOW HIGH PRESSURE COLUMN

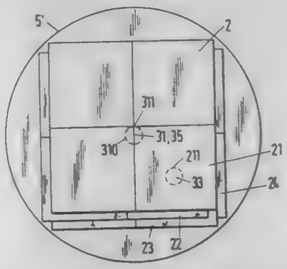
Bernhard Brunner, Ann Arbor, Mich., and Philipp Suess, Seuzach, Switzerland, assignors to Sulzer Chemtech AG, Winterthur, Switzerland

Filed Oct. 16, 1996, Ser. No. 732,026

Claims priority, application European Pat. Off., Nov. 29, 1995, 95810748

Int. Cl.[6] B01F *3/04*

U.S. Cl. 261—112.2 **17 Claims**



1. A packing for a counterflow high pressure column which has a column axis, the packing comprising:

a bundle of strings extending in a direction of the column axis, each of the strings including a stack of packing elements which each comprise a plurality of layers of shaped lamella, each group of adjacent packing elements from different strings of the bundle forming a packing section generally perpendicular to the column axis, the layers of shaped lamella of each packing element oriented with intermediate spaces between the shaped lamella being bounded by transversely disposed lamella of adjacent packing elements in each packing section, the stack of packing elements in each of the strings being eccentrically arranged relative to the string center line with the side surfaces of adjacent packing elements in the string being offset slightly with respect to one another.

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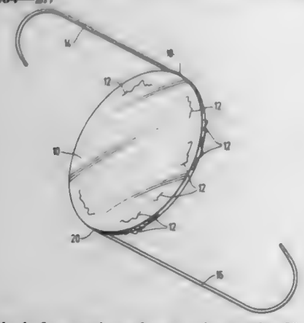
IOL TUMBLING PROCESS

Tien Phuc Nguyen, Costa Mesa; Michael W. Orchowski, Laguna Beach, and Moises A. Valle, Glendale, all of Calif., assignors to Chiron Vision Corporation, Claremont, Calif.

Continuation of Ser. No. 78,285, Jun. 27, 1994, Pat. No. 5,571,558. This application Nov. 4, 1996, Ser. No. 743,639

Int. Cl.[6] B24B *31/00*; B29C *37/02*; B29D *11/00*; B05D *3/12*

U.S. Cl. 264—2.7 16 Claims



1. A method of processing at least one lens made of lens material selected from a group of soft lens material and foldable lens material, the method comprising the steps of:

applying a coating of abrasive material on a plurality of beads;

containing the coated beads in a tumbling container;

adding at least one lens to the tumbling container; and

tumbling the lens with the coated beads to remove at least some lens material from the lens.

5,725,812

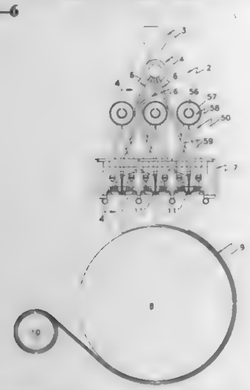
MELT BLOWING APPARATUS AND METHOD FOR FORMING A FIBROUS LAYERED WEB OF FILTER MEDIA INCLUDING A FLUID DISTRIBUTION ARRANGEMENT

Kyung-Ju Choi, Louisville, Ky., assignor to AAF International, Louisville, Ky.

Continuation-in-part of Ser. No. 677,631, Jul. 8, 1996. This application Jul. 22, 1996, Ser. No. 684,699

Int. Cl.[6] D01D *5/08*

U.S. Cl. 264—6 14 Claims



1. Die apparatus for forming a layered web of fibrous filter media comprising: a unitary die body having inlet and outlet faces formed from a preselected heat conductive material, said die body having formed therein at least two preselectively spaced fluid material flow-through passages, each fluid material flow-through passage having a fluid material receiving inlet and a fluid material dispensing outlet adapted to dispense a row of layer forming fibers from said outlet face of said die body with the dispensed fiber layers to be collected in stacked, facing, relation, said die body further having formed therein spaced fluid attenuating passages, each fluid attenuating passage having a fluid attenuating inlet and a fluid attenuating outlet with each fluid attenuating outlet being cooperative with a fluid material dispensing outlet on said outlet face of said die body; and, a uniform fluid attenuating distribution assembly means cooperatively positioned to extend longitudinally in spaced relation opposite said outlet face of said die body to cooperatively communicate with said spaced fluid attenuating passages in said die body, said distribution assembly means including elongated first fluid manifold means connected to a pressurized fluid source and disposed in spaced relation in an elongated second fluid manifold means to provide an annular fluid mixing chamber means therebetween, said first fluid manifold means having fluid outlet means disposed therealong to distribute fluid uniformly in a preselected direction to said annular fluid mixing chamber means, said second fluid manifold means cooperatively communicating with said fluid attenuating passages in said die body.

10. A method of distributing pressurized fiber attenuating fluid to a melt blowing die body comprising: passing pressurized fluid into a first elongated chamber externally of and opposite the fluid outlets of said melt blowing die body; distributing the pressurized fluid uniformly from said first elongated chamber into a second mixing chamber and passing said pressurized fluid to said melt blowing die body.

5,725,813

PROCESS FOR THE PRODUCTION OF SPONGIOSA BONE CERAMIC SHAPED ARTICLES

Berthold Nies, Frankisch-Crumbach, Germany, assignor to Merck Patent Gesellschaft mit beschrankter Haftung, Darmstadt, Germany

Filed Feb. 15, 1996, Ser. No. 601,693

Claims priority, application Germany, Feb. 15, 1995, 195 04 955.1

Int. Cl.[6] B22D *11/01*; A61F *2/28*

U.S. Cl. 264—15 12 Claims

1. A process for the production of spongiosa bone ceramic shaped articles, which comprises mineralizing spongiosa bones in rough preshape pieces by the removal of all organic components, sintering the mineralized bone pieces to ceramic form, and then shaping the bone pieces in ceramic form by treatment in a ball mill made of Al_2O_3 with the addition of balls made of Al_2O_3, in the presence of water, an aqueous salt solution or an organic solvent, whereby mechanically unstable regions of the bone pieces in ceramic form are abraded to give geometrically irregular shaped articles with rounded angles and edges.

5,725,814

EXTRUSION OF AN ARTICLE OF VARYING CONTENT

Holton E. Harris, Westport, Conn., assignor to Harrel, Inc., Norwalk, Conn.

Filed Jun. 7, 1995, Ser. No. 477,437

Int. Cl.[6] B29C *47/92*

U.S. Cl. 264—40.3 31 Claims

1. A process of extruding an extrudate with different materials, the proportions of which vary along the length of the extrudate, including:

providing a first extruder having a first gear pump at an output end thereof,

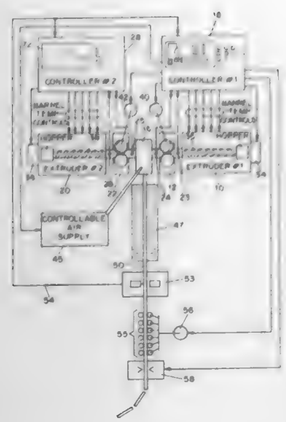
providing at least one further extruder having a second gear pump at an output end thereof,

providing a die,

directing material of a first kind from the first extruder through the first gear pump to the die,

directing material of a second kind from the at least one further extruder through the second gear pump to the die,

providing a controller operatively connected to the first and second gear pumps, and



with the controller, varying the speed of at least one of the first and second gear pumps relative to the remaining of the first and second gear pumps to vary the relative content of the first and second kinds of materials in the extrudate.

5,725,815

FOAM CONTROL AGENTS FOR THE FOOD, PAINT AND PAPER INDUSTRIES

Horst-Werner Wollenweber; Thomas Moeller, both of Duesseldorf; Hans-Juergen Sladek, Krefeld; Heinz-Guenther Schulte, Muelheim; Wolfgang Gress, Wuppertal; Ulrich Eicken, Korschenbroich; Herbert Fischer, Duessldorf, all of Germany, and Christian De Haut, Boissise-le-Roi, France, assignors to Henkel Kommanditgesellschaft auf Aktien, Plymouth Meeting, Pa.

PCT No. PCT/EP94/00683, § 371 Date Nov. 9, 1995, § 102(e) Date Nov. 9, 1995, PCT Pub. No. WO94/21348, PCT Pub. Date Sep. 29, 1994

PCT Filed Mar. 7, 1994, Ser. No. 525,520

Claims priority, application Germany, Mar. 15, 1993, 43 08 140.1

Int. Cl.[6] B29C *65/00*

U.S. Cl. 264—41 15 Claims

1. The process of controlling foam in a foam-generating system consisting of adding to said system a foam-inhibiting effective amount of a block copolymer obtained by reacting a homopolymer or copolymer of alkylene oxides consisting of ethylene oxide and propylene oxide with a diisocyanate or a dicarboxylic acid derivative containing 2 to 44 carbon atoms.

5,725,816

PACKING METHOD

Masato Sagawa, Kyoto, Japan; Hiroshi Nagata, Kyoto, Japan; Toshihiro Watanabe, Muko, Japan; Terumasa Miyoshi, Kiyose, Japan, and Mizuho Kasahara, Koganei, Japan, assignors to Intermetallics Co., Ltd., Kyoto, Japan

Filed Sep. 11, 1996, Ser. No. 712,543

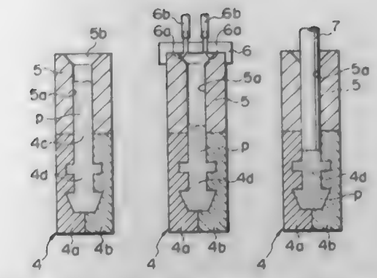
Claims priority, application Japan, Sep. 11, 1995, 7-258120; Dec. 15, 1995, 7-347609

Int. Cl.[6] B29C *43/14*

U.S. Cl. 264—102 21 Claims

1. A packing method comprising the steps of:

supplying a material into a space comprising a space part to be packed with the material and a space connecting with the space part; and



subjecting the space supplied with the material to an air tapping process at least once in which the air-pressure inside the space is switched from a low air-pressure state to a high air-pressure state alternately, thereby packing the material into the space part at a high packing-density.

5,725,817

IONTOPHORETIC STRUCTURE FOR MEDICAL DEVICES

Fredric L. Milder, Brookline, Mass., assignor to Implemed, Inc., Watertown, Mass.

Continuation of Ser. No. 212,157, Mar. 14, 1994, Pat. No. 5,498,248, which is a division of Ser. No. 975,597, Nov. 12, 1992, Pat. No. 5,322,520. This application Mar. 8, 1996, Ser. No. 613,157

Int. Cl.[6] B29C *47/20*

U.S. Cl. 264—104 12 Claims



1. A method of making an antibacterial device comprising:

providing a flowable iontophoretic material; and

extruding said flowable iontophoretic material into a predetermined configuration.

5,725,818

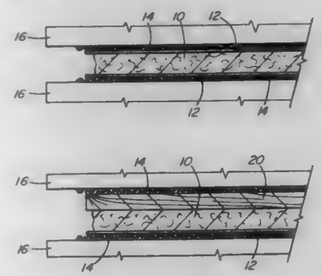
MANUFACTURE OF HOG FUEL BOARD

Gary Ellis Troughton; Ken Lui Chan, and Kenneth Gordon Love, all of Vancouver, Canada, assignors to Forintek Canada Corp., Canada

Filed Jun. 28, 1996, Ser. No. 672,321

Int. Cl.[6] B29C *43/02*

U.S. Cl. 264—112 27 Claims



1. A method of forming a hog fuel board comprising the steps of:

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forming a hog fuel matrix containing between about 70% and 95% bark, the remainder being primarily wood residues, with flexible non-sticking layers on outside surfaces, between screens in a preheated platen press and pressing the matrix in the platen press to preset stops for a predetermined time and at a predetermined pressure to cause adhesives naturally present in the hog fuel to disperse throughout the board.

19. A method of forming a hog fuel coating on a lumber product, comprising the steps of:

placing a hog fuel matrix containing between about 70% and 95% bark, the remainder being primarily wood residues, onto at least one surface of a lumber product with a flexible non-sticking layer on an outside surface of the hog fuel matrix to form a preform assembly;

positioning the assembly in a preheated platen press with a screen between the non-sticking layer and the platen press,

pressing the preform assembly in the platen press to preset stops for a predetermined time and at a predetermined pressure to cause adhesives naturally present in the hog fuel to disperse throughout the assembly.

5,725,819

INJECTION MOLDING METHOD FOR BOARD FOR IC CARD

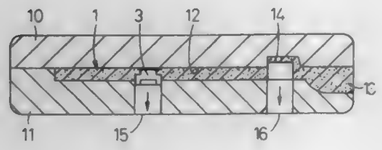
Masayoshi Onishi, Mukou; Seiji Kegai, Yamatokouriyama; Koichi Ozaki, Otokuni-Gun; Kaname Tamada, Ibaraki-Ken, and Hiroyoshi Takagi, Kameoka, all of Japan, assignors to Hitachi Maxell, Ltd., Osaka-Fu, and Maxell Seiki, Ltd., Kyoto-Fu, both of Japan

Filed Jul. 21, 1995, Ser. No. 505,447

Claims priority, application Japan, Jul. 21, 1994, 6-192126; Jul. 21, 1994, 6-192127; May 31, 1995, 7-158561

Int. Cl.[6] B29C *45/38;45/40*

U.S. Cl. 264—161 **19 Claims**



1. A method for manufacturing a board for an IC card, wherein the board comprises a main body having a shape of a plate, and a recess having a space for receiving and adhering a component, the recess being formed in one of the planes of the main body, the recess comprising a bottom wall integrated as one body with the main body, the method comprising the steps of:

providing a pair of molds combined for injection molding, the molds forming a cavity between them for forming the board, one of the molds comprising a slide core facing the cavity so as to be able to protrude into the cavity, the slide core comprising a top portion having a contour of the recess with the bottom wall;

injecting molten resin into the cavity;

moving the slide core into the cavity to a prescribed position after the molten resin is injected and before a constant pressure is applied to the molten resin until the resin begins to solidify;

moving back the slide core to a retracted position after the resin in the cavity solidifies;

opening the molds; and

moving the slide core into the cavity to separate the solidified board.

5,725,820

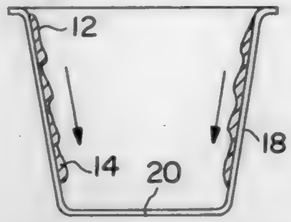
METHOD FOR FORMING A PACKAGE OF ADHESIVE MATERIAL IN A NON-TACKY MOLD

H. Neel Reynolds, Greenville, and Kevin McInerney, Greer, both of S.C., assignors to The Reynolds Company, Greenville, S.C.

Filed Oct. 3, 1996, Ser. No. 724,849

Int. Cl.[6] B29C *70/00;39/10*

U.S. Cl. 264—135 **15 Claims**



1. A process for forming a package of hot melt adhesive material, said process comprising:

forming a bottom surface layer of molten non-tacky polymeric material onto a bottom surface of an open faced rigid container;

depositing a substantially continuous bead of molten non-tacky polymeric material at a predetermined height along inside wall surfaces of the open faced rigid container;

allowing the bead of non-tacky polymeric material to move down said inside wall surfaces by gravity and meet said bottom surface layer of non-tacky polymeric material in the container, the non-tacky polymeric material adhering to and thereby coating said inside wall surfaces and bottom surface with a substantially uniform layer of the non-tacky polymeric material;

allowing the layer of non-tacky polymeric material to solidify in the container thereby forming a substantially rigid mold of the non-tacky polymeric material within the container;

locating the mold of non-tacky polymeric material in a rigid support structure and conveying the mold to a molten adhesive filling device; and

filling the mold at the filling device with a metered amount of molten adhesive and allowing the molten adhesive to solidify within the mold thereby forming a solidified package of hot melt adhesive material encased at least on the bottom and sides in the layer of non-tacky polymeric material.

5,725,821

PROCESS FOR THE MANUFACTURE OF LYOCELL FIBRE

James Martin Gannon, Coventry; Ian Graveson, Nuneaton, and Simon Ashley Mortimer, Coventry, all of United Kingdom, assignors to Courtaulds Fibres (Holdings) Limited, London, United Kingdom

PCT No. PCT/GB95/01440, § 371 Date Dec. 4, 1996, § 102(e) Date Dec. 4, 1996, PCT Pub. No. WO95/35400, PCT Pub. Date Dec. 28, 1995

PCT Filed Jun. 19, 1995, Ser. No. 750,305

Claims priority, application United Kingdom, Jun. 22, 1994, 9412501

Int. Cl.[6] D01D *10/06;* **D01F** *2/02*

U.S. Cl. 264—203 **5 Claims**

1. A process for the manufacture of lyocell fibre with an increased tendency to fibrillation, comprising the steps of:

(1) dissolving cellulose in a tertiary amine N-oxide solvent to form a solution,

(2) extruding the solution through a die to form a plurality of filaments,

(3) washing the filaments to remove the solvent, thereby forming lyocell fibre, and

(4) drying the lyocell fibre,

wherein the degree of polymerisation of the cellulose is not more than about 450 and the concentration of cellulose in the solution is at least 16 percent by weight.

5,725,822

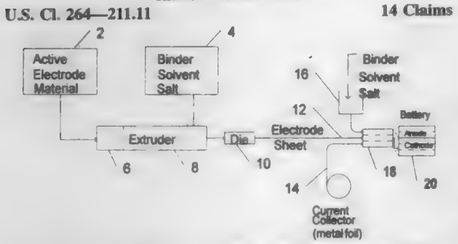
EXTRUSION OF ELECTRODE MATERIAL BY LIQUID INJECTION INTO EXTRUDER BARREL

David Gerard Keller, Baltimore, Md.; Richard Thomas Giovannoni, Reisterstown, Md., and Kenneth Orville MacFadden, Highland, Md., assignors to W. R. Grace & Co.-Conn., New York, N.Y.

Filed May 24, 1996, Ser. No. 653,174

Int. Cl.[6] B29C *47/10*

U.S. Cl. 264—211.11 **14 Claims**



1. A process for forming an electrode sheet product using an extruder having a feed throat and a downstream section, the process comprising the steps of:

mixing active electrode material;

mixing an electrolyte composition;

feeding the active electrode material to the extruder feed throat;

introducing the solid polymer electrolyte composition to the downstream section;

compounding the active electrode material and the solid polymer electrolyte composition in a downstream end of the extruder to provide a compounded compositions; and

extruding the compounded composition into a desired shape.

5,725,823

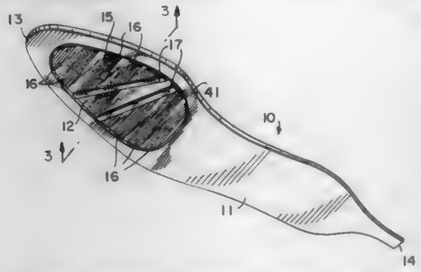
METHOD OF MAKING A SHOE SOLE HAVING CO-MOLDED ANTI-SKID INSERT

Norman H. Finn, Newton, Mass., and Chih-Ming Wu, Taipei, Taiwan, assignors to AmAsia International Ltd., Burlington, Mass.

Division of Ser. No. 502,414, Jul. 14, 1995, abandoned. This application Sep. 10, 1996, Ser. No. 711,792

Int. Cl.[6] B29C *39/12;* **A43B** *13/14*

U.S. Cl. 264—247 **12 Claims**



1. A method of making a shoe sole of first and second polymeric materials, said shoe sole having an anti-skid insert of said first polymeric material, said method comprising the steps of:

providing a mold having a main depression having a shape corresponding to a shape of said shoe sole and an insert depression having a shape corresponding to a shape of said insert, said insert depression having a depth and being separated from said main depression by a raised wall surrounding said insert depression, said raised wall having a height less than said depth;

feeding said first polymeric material into said insert depression in said mold within said raised wall;

feeding said second polymeric material into said main depression in said mold outside said raised wall, and overlying said first polymeric material in said insert depression within said raised wall; and

closing said mold and applying heat and pressure to said first and second polymeric materials in said mold to form a recess in said second polymeric material within which said first polymeric material is located and to laterally separate said first polymeric material from said second polymeric material by a groove formed by said raised wall, thereby forming said shoe sole having said insert.

5,725,824

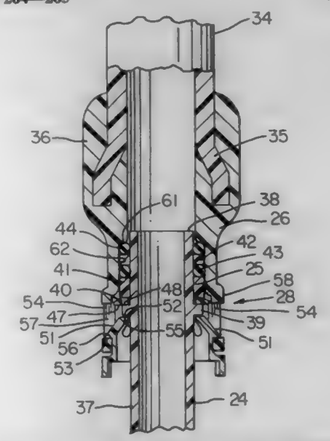
METHOD OF MAKING A TUBULAR HOSE UNIT FOR A BRANCHED HOSE CONSTRUCTION

Randall E. Sellers, Candler, N.C., assignor to Dayco Products, Inc., Dayton, Ohio

Continuation of Ser. No. 387,499, Feb. 13, 1995, abandoned, which is a division of Ser. No. 146,259, Nov. 2, 1993, Pat. No. 5,415,825. This application Jul. 9, 1996, Ser. No. 678,546

Int. Cl.[6] B29C *45/14;57/02*

U.S. Cl. 264—265 **5 Claims**



1. In a method of making a tubular hose unit for a branched hose construction that has opposite ends and a tubular branch extending outwardly therefrom intermediate said opposite ends with a free end means, said tubular hose unit having a free end means adapted to telescope over said free end means of said tubular branch and have fastening means interconnecting the telescoped free end means together, the improved method comprising the steps of: forming said free end means of said tubular hose unit by providing an end of a flexible hose that is formed to have a flared end, said flared end having inner and outer peripheral surfaces that face in opposite directions, molding a first and a second portion onto both said inner and outer oppositely facing peripheral surfaces of said flared end of said flexible hose so as to be coaxial therewith, molding said second portion to include a part of a quick connect/disconnect means extending axially outwardly therefrom so as to be coaxial with said flared end of said flexible hose and with said first portion, wherein said flared end of said flexible hose mechanically interconnects with said first portion, forming said second portion to be substantially tubular and be adapted to telescope over said free end means of said tubular branch, and forming said first and second portions primarily of plastic material.

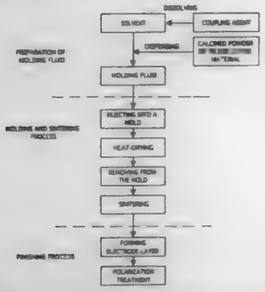
VOL 1208 ISS 2 MR 10 1998 UMI

5,725,825

METHOD OF PRODUCING PIEZOELECTRIC ELEMENT

Hideo Hotomi, Nishinomiya; Kenji Masaki, Nagaokakyo, and Kusunoki Higashino, Osaka, all of Japan, assignors to Minolta Co., Ltd., Osaka, Japan

Filed Jul. 9, 1996, Ser. No. 677,142
Claims priority, application Japan, Jul. 11, 1995, 7-174739
Int. Cl.[6] C04B 33/32
U.S. Cl. 264—434 15 Claims



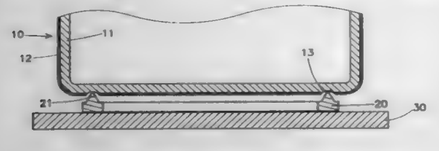
1. A method of producing a cylindrical piezoelectric element having a hollow center comprising:
(a) injecting a molding fluid in a mold having cylindrical cavity and wire-shaped core inserted therein, said molding fluid being prepared by dispersing a calcined powder of piezoelectric material in a solvent containing dissolved coupling agent;
(b) heating to dry the molding fluid injected in the mold so as to obtain a cylindrical member;
(c) removing the cylindrical member from the mold; and
(d) sintering the cylindrical member to obtain a piezoelectric element.

5,725,826

METHOD OF FABRICATING CERAMIC COOKING VESSEL

Goh Kim Guan, 8F-6, No. 100, Hoping E. Rd., Sec. 2, Taipei, Taiwan

Filed May 17, 1996, Ser. No. 650,091
Int. Cl.[6] C04B 33/32
U.S. Cl. 264—600 9 Claims



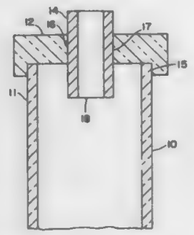
1. A method of fabricating a ceramic cooking vessel for use with a heating device comprising the steps of:
(a) preparing a clay material to adapt said clay material for shape pressing and firing;
(b) forming from said clay material a greenware vessel and a greenware support member, said greenware vessel including an outer bottom surface having formed therein at least one recessed portion, said outer bottom surface of said greenware vessel being substantially coated, except at said recessed portion, with a glaze layer, said greenware support member including a base portion and a raised portion protruding therefrom;
(c) placing said greenware vessel and said greenware support member into a kiln having a support surface, said base portion of said greenware support member being supported on said kiln support surface, said greenware vessel being supported on said greenware support member by supporting engagement of said recessed portion thereof with said raised portion of said greenware support member;
(d) firing said greenware vessel and said greenware support member within said kiln at a temperature approximating 135 degrees Celsius for a time period sufficient to transform said greenware vessel to a pre-dried vessel having a bottom face;
(e) fastening onto said bottom face of said pre-dried vessel at least one electrically conductive membrane; and,
(f) drying said pre-dried vessel in a drying oven to form said ceramic cooking vessel having a bottom heating surface.

5,725,827

SEALING MEMBERS FOR ALUMINA ARC TUBES AND METHOD OF MAKING SAME

William H. Rhodes, Lexington; Alfred E. Feuersanger, Framingham, and Rodrigue Thibodeau, Marblehead, all of Mass., assignors to Osram Sylvania Inc., Danvers, Mass.

Division of Ser. No. 945,556, Sep. 16, 1992, Pat. No. 5,426,343.
This application Mar. 28, 1995, Ser. No. 415,139
Int. Cl.[6] C04B 35/10;35/117
U.S. Cl. 264—614 9 Claims



1. A process comprising:
preparing a homogeneous powdery mixture consisting essentially of highly pure fine alumina having a particle size suitable for sintering, at least one component selected from the group consisting of yttrium oxide and yttrium compounds capable of being converted to yttrium oxide by calcination in an oxidizing atmosphere, the amount of said yttrium oxide being between greater than about 1.0 to about 5.0 percent by weight, and at least one other component selected from the group consisting of magnesium oxide and magnesium compounds capable of being converted to magnesium oxide by calcination in an oxidizing atmosphere, the amount of said magnesium oxide being between about 0.05 to about 0.1 percent by weight;
forming a sealing member for alumina arc tubes from said mixture; and
sealing said alumina arc tube with said sealing member at a temperature between about 1640° C. to about 2050° C. for a period of time sufficient to obtain a long life, high density, hermetically tight sintered seal.

5,725,828

CERAMIC MATRIX COMPOSITES USING MODIFIED HYDROGEN SILSESQUIOXANE RESIN

Gregg Alan Zank, Midland, Mich., assignor to Dow Corning Corporation, Midland, Mich.

Division of Ser. No. 439,263, May 11, 1995, abandoned. This application Oct. 21, 1996, Ser. No. 734,766
Int. Cl.[6] C04B 35/80
U.S. Cl. 264—625 13 Claims

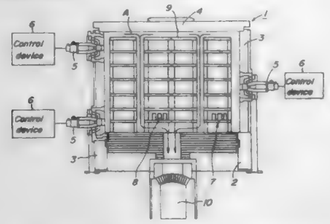
1. A method of forming a fiber-reinforced ceramic matrix composite comprising:
(a) impregnating an assembly of refractory fibers having an interfacial coating thereon with a preceramic matrix mixture comprising modified hydrogen silsesquioxane resin having the structure $(HSiO_{1.5})_x(R_1R_2R_3SiO_{0.5})_y$, wherein R_1, R_2, and R_3 are independently selected from hydrogen, alkyls and aryls, and x is 0.25 to 0.99, y is 0.75 to 0.01 and x+y=1.0;
(b) forming the impregnated assembly of fibers into the desired shape;
(c) curing the formed impregnated assembly of fibers;
(d) heating the cured impregnated assembly of fibers of (c) to a temperature of at least 1000° C. in an inert atmosphere for a time effective to convert the modified hydrogen silsesquioxane resin to a ceramic.

5,725,829

METHOD OF FIRING CERAMIC FORMED BODIES

Kazuhiro Miyahara, Yokkaichi, and Yasuhiro Ito, Aichi Pref., both of Japan, assignors to NGK Insulators, Ltd., Japan

Filed Jul. 28, 1995, Ser. No. 508,699
Claims priority, application Japan, Sep. 5, 1994, 6-211263
Int. Cl.[6] C04B 33/32
U.S. Cl. 264—630 5 Claims



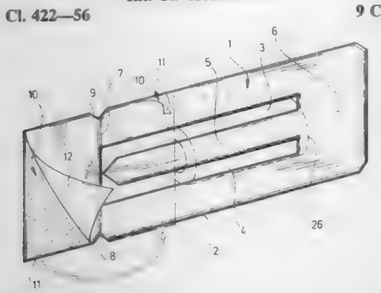
1. A method of firing ceramic formed bodies including a binder by using a firing furnace having at least one burner in which a firing output changes alternately between a first output state and a second output state that is lower than said first output state, comprising a step of maintaining an air ratio of said at least one burner to a level of more than 3 in a temperature range from a temperature at which the binder begins to burn-out to a temperature at which an ignition loss reaction ends.

5,725,830

SEAL FOR A STERILIZING CONTAINER

Wolfgang Taschner, Tuttlingen, Germany, assignor to Aesculap AG, Tuttlingen, Germany

Continuation of Ser. No. 838,427, Mar. 5, 1992, Pat. No. 5,328,661. This application Jan. 28, 1994, Ser. No. 188,430
Claims priority, application Germany, Jul. 19, 1990, 40 22 952.1
Int. Cl.[6] A61L 2/00
U.S. Cl. 422—56 9 Claims



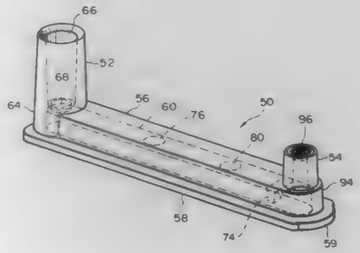
1. In combination:
a sterilizing container having a lower part, a cover sealingly placeable on said lower part and closure means for securing said cover on said lower part, and
a seal constructed and arranged to secure said closure means in a closed position, said seal comprising:
an insert element extending from a connector member and having a free end insertable into a loop of said closure means; and
a contact adhesive on a region of said connector member adjacent to said free end, said region being foldable along a fold line onto and into contact with said free end to enable said contact adhesive to form an unreleasable bond between said contact adhesive region and the free end of said insert element that is inserted into and extends beyond said loop.

5,725,831

NUCLEIC ACID AMPLIFICATION APPARATUS

Allen S. Reichler, Owings Mills, Md.; Peter A. Bourdelle, Glen Rock, Pa., and Raymond F. Cracauer, Plymouth, Minn., assignors to Becton Dickinson and Company, Franklin Lakes, N.J.

Continuation-in-part of Ser. No. 213,304, Mar. 14, 1994. This application Mar. 24, 1995, Ser. No. 409,805
Int. Cl.[6] G01N 21/03
U.S. Cl. 422—56 17 Claims



1. An apparatus for containing a liquid biological sample and for performing a biological process thereon, comprising:
a sample area for receiving a liquid biological sample, said sample area having an orifice for admitting said sample into said sample area;
at least one reaction area in fluid communication with said sample area;
a pneumatic area in pneumatic communication with said reaction area and said sample area;
a pneumatic port in said pneumatic area for connection of said apparatus to a pneumatic aspiration/dispensing means, said aspiration/dispensing means causing the flow of said liquid biological sample between said sample area and said reaction area; and
a sample tower located above said sample area and in fluid communication with said sample area through said orifice for reducing evaporative loss of said liquid biological sample from said sample area and said reaction area, said sample tower having a sample port at an upper end thereof for admitting said liquid biological sample into said sample area through said orifice, said sample tower having said orifice at a lower end thereof;
wherein said orifice is of smaller size than the adjacent portion of said sample area to provide a capillary lock for inhibiting capillary flow of said liquid biological sample from said sample area to said reaction area;
wherein said pneumatic area includes a pneumatic tower for reducing evaporative loss of said liquid biological sample through said pneumatic area, said pneumatic tower having said pneumatic port at an upper end thereof, and wherein said pneumatic port is encircled by a pair of rigid, concentric sealing rings adapted to make sealing contact with a resilient portion of said pneumatic aspiration/dispensing means.

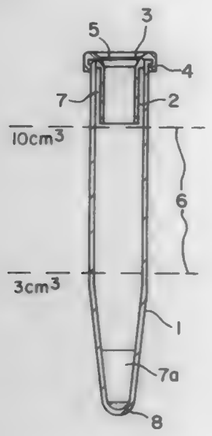
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5,725,832

LABORATORY TEST TUBES FOR THE DOSING OF LIQUIDS

Peter Gundelsheimer, Goldgraben 34, D-67806 Rockenhausen, Germany

Continuation of Ser. No. 307,569, Sep. 21, 1994, abandoned. This application Apr. 4, 1996, Ser. No. 628,232
Claims priority, application Germany, Mar. 25, 1992, 9203973 U; Dec. 22, 1992, 42 43 478.5
Int. Cl.[6] B01L *3/14*
U.S. Cl. 422—102 13 Claims



1. A dosing laboratory test tube comprising:

an outer tube of a first length, said outer tube having an open first end and a closed second end;

an inner tube having a second length which is shorter than said first length, said inner tube having an open outer end and an opening intermediate said open first end and said closed second end of said outer tube, said open outer end being positioned adjacent said open first end of said outer tube when said inner tube is positioned in said outer tube; and

a thickening, that is free of apertures, extending from said inner tube to an inner surface of said outer tube so that, when said inner tube and said thickening are positioned in said outer tube, an intermediate space of constant retention volume is formed between said outer tube and said inner tube, the intermediate space having a width of at least 0.5 mm to a maximum of 1.0 mm, said thickening having an outer diameter corresponding to an inner diameter of said outer tube to fasten said inner tube and said outer tube together in a press fit.

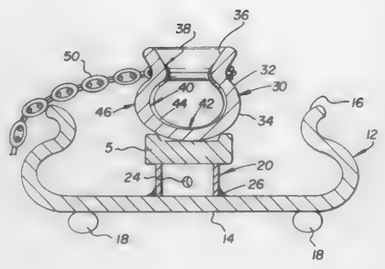
5,725,833

WATER BUFFERED ESSENTIAL OILS SMOKELESS INCENSING SYSTEM

Richard Crafton, 110 W. Seminary Ave., Lutherville, Md. 21093

Filed Nov. 13, 1995, Ser. No. 555,867
Int. Cl.[6] A61L *9/03;* B05B *1/24*
U.S. Cl. 422—125 9 Claims

1. A water buffered essential oil non-open flame incensing system comprising a horizontal fire plate, a metallic fire ring bonded to a center of said fire plate; and a stoneware urn removable positioned upon a standard charcoal piece placed on said fire ring, said urn having a body portion with a rotund belly, a bell lip, a throat defined between said body portion and said bell lip, a continuously curved interior surface with no flat bottom portion, and an exterior surface, said curved interior surface having high fire glazed finish.

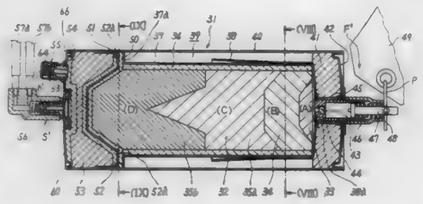


5,725,834

CHEMICAL OXYGEN GENERATOR

Shigeki Nishii, Hyogo; Satoshi Sakamoto, Osaka; Shigeru Kinoi, Hyogo; Satoshi Kubozuka, Hyogo; Tadahiro Taruma, Hyogo, and Shigeto Miyazaki, Hyogo, all of Japan, assignors to Daicel Chemical Industries, Ltd., Osaka, Japan

Filed Apr. 4, 1996, Ser. No. 628,585
Claims priority, application Japan, Apr. 7, 1995, 6-108066; Mar. 14, 1996, 5-85757; Mar. 14, 1996, 5-85758
Int. Cl.[6] A62B *7/08*
U.S. Cl. 422—126 24 Claims



1. In a chemical oxygen generator includes:

(A) an oxygen generating candle having an oxygen source;

(B) a cylindrical thermal insulation filled with said oxygen generating candle;

(C) first support means for supporting one side portion of said cylindrical thermal insulation and said oxygen generating candle;

(D) second support means for supporting another side portion of said cylindrical thermal insulation and said oxygen generating candle;

(E) ignition means arranged at a side of said first support means for igniting said oxygen generating candle;

(F) oxygen supply means arranged at a side of said second support means; and

(G) a tubular housing containing said cylindrical thermal insulation, said first support means and said second support means;

the improvements including a cylindrical member made of material being corrosion resistant, reaction inert and heat resistant to said oxygen generating candle, and covering an outer surface of said cylindrical thermal insulation, and an annular space provided between said cylindrical member and said tubular housing,

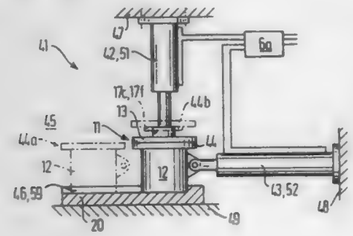
an annular gap between said cylindrical thermal insulation and said cylindrical member whereby oxygen generated as the result of thermally decomposing said oxygen generating candle by triggering of said ignition means, passes through said cylindrical thermal insulation and an said annular gap and is supplied to the outside through said oxygen supply means.

5,725,835

DEVICE FOR INITIATING AND/OR PROMOTING CHEMICAL OR PHYSICAL PROCESSES IN A MATERIAL

Werner Lautenschläger, Waldstrasse 15, D-88299, Leutkirch, Germany

PCT No. PCT/EP94/03742, § 371 Date May 9, 1996, § 102(e) Date May 9, 1996, PCT Pub. No. WO95/13133, PCT Pub. Date May 18, 1995
PCT Filed Nov. 11, 1994, Ser. No. 646,232
Claims priority, application Germany, Nov. 11, 1993, 4338583.4; Jun. 3, 1994, 4419590.7
Int. Cl.[6] B01J *10/00;19/08*
U.S. Cl. 422—129 25 Claims



1. A device for initiating and/or promoting chemical or physical processes in a material, said device comprising:

a reaction chamber which is surrounded by a housing;

a microwave heating means arranged to heat material in the reaction chamber;

said housing comprising a pot-shaped housing underpart and a lid;

and a lifting device for changing the relative vertical positions of the housing underpart and the lid whereby in one relative position the lid covers the housing underpart and in another relative position the lid is removed from the housing underpart;

characterized in that:

said device includes a horizontal actuating device for changing the relative horizontal positions of the housing underpart and the lid whereby in one relative horizontal position the lid and housing underpart are vertically aligned with each other and in another relative horizontal position the lid and housing underpart are relatively horizontally displaced from each other;

said device includes a housing movement control which controls the relative movement of the housing underpart and the lid such that, upon opening of the housing, the lifting device begins to function prior to operation of said horizontal actuating device so that relative horizontal displacement of the housing underpart and lid occur after the lid is removed from the housing underpart; and

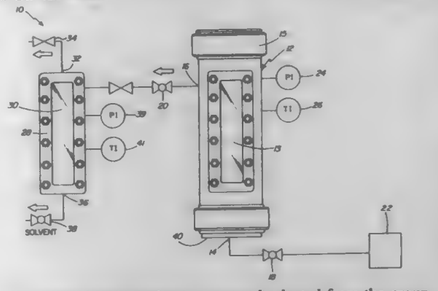
the relative displacement of the housing underpart and the lid is such that the housing underpart with the lid removed is located towards a loading side of the device.

5,725,836

METHOD OF FORMING PARTICLES USING A SUPERCRITICAL FLUID, AEROGEL PARTICLES FORMED THEREBY, AND ANTIPERSPIRANTS CONTAINING AEROGEL PARTICLES

Stephane Fabrice Rouanet, Hyde Park, Mass.; William Edward McGovern, Duxbury, Mass.; Wanging Cao, Alameda, Calif.; John M. Moses, Dedham, Mass.; Angel L. Carrillo, Wellesley, Mass., and Irving M. Klotz, Evanston, Ill., assignors to CF Technologies, Inc., Hyde Park, Mass., and The Gillette Company, Boston, Mass.

Continuation of Ser. No. 333,289, Nov. 2, 1994, which is a continuation-in-part of Ser. No. 149,190, Nov. 8, 1993, abandoned. This application Jun. 1, 1995, Ser. No. 457,522
Int. Cl.[6] A61K *7/34;7/56;* C01F *7/48*
U.S. Cl. 423—462 20 Claims



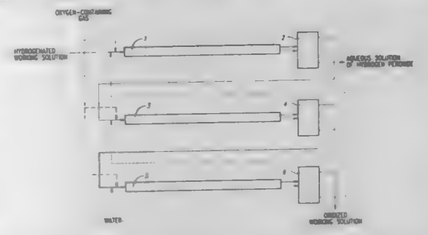
1. An aerogel antiperspirant compound selected from the group consisting of $Al_2(OH)_{6-a}X_a{\cdot}nH_2O$ and $ZrO(OH)_{2-pb}Y_b{\cdot}mH_2O$ wherein X is Cl, Br, I, or NO_3, a is about 0.2 to about 4, n is about 1 to 6, Y is Cl, Br, I, NO_3 or SO_4, b is about 0.8 to about 2, p is the valence of Y, and m is about 1 to 7, and mixtures or complexes thereof, said antiperspirant compound having at least two of the following properties: a surface area greater than about 50 m^2/g a bulk density of less than about 0.75 g/cc, a porosity with a pore volume of at least 0.1 cc/g, and an average particle size of less than about 0.2 micron.

5,725,837

PROCESS FOR THE PREPARATION OF HYDROGEN PEROXIDE

Ilkka Turunen, Oulu, Finland, assignor to Kemira Chemicals Oy, Helsinki, Finland

Filed Feb. 9, 1996, Ser. No. 598,819
Claims priority, application Finland, Feb. 10, 1995, 950582
Int. Cl.[6] C01B *15/023*
U.S. Cl. 423—588 8 Claims



1. In a process for the preparation of hydrogen peroxide by the anthraquinone method, comprising oxidation of a hydrogenated organic working solution to form hydrogen peroxide, extraction of the hydrogen peroxide into an aqueous phase, and recovery of an aqueous solution of hydrogen peroxide,

the improvement comprising carrying out both the oxidation and the extraction in a single reactor having three phases flowing cocurrently which form a mixture, wherein the three phases

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are an organic phase comprising the hydrogenated organic working solution, a gas phase comprising an oxygen-containing gas, and an aqueous phase comprising an aqueous extraction solvent, whereby oxygen dissolves in the working solution, the working solution is oxidized, and hydrogen peroxide is transferred from the working solution to the aqueous phase to form an aqueous hydrogen peroxide solution; and

thereafter subjecting the mixture leaving the reactor to phase separation for recovery of the aqueous hydrogen peroxide solution.

5,725,838

RADIOLABELED D4 RECEPTOR LIGANDS

Alfred Pollak, Toronto; Robert Dunn-Dufault, Guelph, and John Thornback, Toronto, all of Canada, assignors to Resolution Pharmaceuticals, Inc., Mississauga, Canada

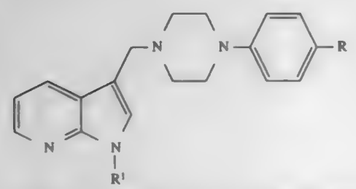
Continuation-in-part of Ser. No. 657,784, May 31, 1996, abandoned. This application Nov. 12, 1996, Ser. No. 747,311

Int. Cl.[6] A61K *51/00;* **A61M** *36/14*

U.S. Cl. 424—1.85 **21 Claims**

1. A compound of Formula (I):

(I)



wherein R is selected from iodo, tri(loweralkyl)tin and a radioisotopically labeled iodide and R^1 is selected from H and alkoxycarbonyl, with the proviso that R is not iodo when R^1 is H.

5,725,839

COMPOSITIONS AND METHODS UTILIZING NITROXIDES IN COMBINATION WITH BIOCOMPATIBLE MACROMOLECULES FOR ERI OR MRI

Jen-Chang Hsia, 35 Starcrest, Irvine, Calif. 92715

Continuation-in-part of Ser. No. 417,132, Mar. 31, 1995, which is a continuation-in-part of Ser. No. 291,590, Aug. 15, 1994, abandoned, which is a continuation-in-part of Ser. No. 107,543, Aug. 16, 1993, abandoned. This application Jun. 7, 1995, Ser. No. 482,202

Int. Cl.[6] A61B *5/055;* **A01N** *33/24;* **C07C** *239/00*

U.S. Cl. 424—9.33 **19 Claims**

1. A method to extend the duration of the signal obtained during electron resonance or nuclear magnetic resonance imaging of a biological structure using a nitroxide as an imaging agent comprising:

administering a first species comprising a membrane permeable nitroxide,

administering a second species comprising a nitroxide having a nitroxyl group capable of accepting an electron from the nitroxide of the first species, and

obtaining an image of the biological structure.

5,725,840

STEROIDAL ESTER CONTRAST MEDIA FOR X-RAY AND MAGNETIC RESONANCE IMAGING

Jo Klaveness; Frode Rise, both of Oslo, Norway; John Varadarajan, Sunnyvale, Calif., and Arne Jørgen Aasen, Jar, Norway, assignors to Nycomed Imaging AS, Oslo, Norway

PCT No. PCT/GB95/00065, § 371 Date Oct. 4, 1996, § 102(e) Date Oct. 4, 1996, PCT Pub. No. WO95/19186, PCT Pub. Date Jul. 20, 1995

PCT Filed Jan. 13, 1995, Ser. No. 669,383

Claims priority, application Norway, Jan. 13, 1994, 940 115

Int. Cl.[6] A61K *49/00;* **C07F** *5/00;* **C07C** *69/96*

U.S. Cl. 424—9.36 **10 Claims**

1. Metabolically labile esters of the formula I

(I)



wherein

R^1 is a substituted or unsubstituted C_{1-20} aliphatic, araliphatic or C_{6-20} aryl group or a C_{1-20} heterocyclic group having one or more hetero atoms selected from O, S and N, said group containing at least one iodine or heavy metal atom; or R^1 is a substituted C_{1-20}-aliphatic group where at least one of the substituents is a paramagnetic metal containing chelate;

R^2 is a hydrogen or a substituted or unsubstituted C_{1-6} aliphatic, C_{6-10} aryl or C_{7-20} araliphatic group;

R^3 is a steroidal group containing at least one alcohol or phenol group and which may be further substituted;

the compound of formula I being metabolisable to products which are soluble in body fluids and are physiologically acceptable.

5,725,841

AEROSOL FORMULATION CONTAINING AN ESTER-, AMIDE-, OR MERCAPTOESTER-DERIVED DISPERSING AID

Daniel C. Duan, St. Paul; James S. Stefely, Woodbury; David W. Schultz, Pine Springs, and Chester L. Leach, Lake Elmo, all of Minn., assignors to Minnesota Mining and Manufacturing Company, St. Paul, Minn.

Continuation of Ser. No. 213,555, Mar. 16, 1994, Pat. No. 5,569,450, which is a continuation-in-part of Ser. No. 32,146, Mar. 17, 1993, abandoned. This application Oct. 28, 1996, Ser. No. 738,519

Int. Cl.[6] A61L *9/04;* **A61K** *31/74;* **C08G** *63/02;63/66*

U.S. Cl. 424—45 **19 Claims**

1. A metered dose inhaler containing a medicinal aerosol formulation, the formulation comprising:

(i) a dispersing aid comprising a compound comprising a chain of units derived from a precursor selected from the group consisting of a hydroxyacid, an amino acid, a mercapto acid, and a combination of any two or more of the foregoing;

(ii) a propellant; and

(iii) a therapeutically effective amount of a particulate drug, wherein the formulation is substantially readily redispersible and upon redispersion does not flocculate, cream, or settle so quickly as to prevent reproducible dosing of the drug.

5,725,842

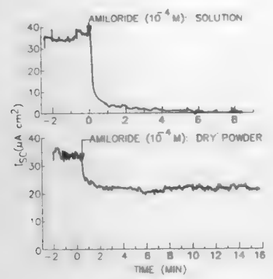
METHOD OF ADMINISTERING AMILORIDE

Richard C. Boucher, Jr., and Michael R. Knowles, both of Chapel Hill, N.C., assignors to The University of North Carolina at Chapel Hill, Chapel Hill, N.C.

Continuation of Ser. No. 218,839, Mar. 28, 1994, abandoned, which is a continuation of Ser. No. 908,579, Jun. 29, 1992, abandoned, which is a continuation of Ser. No. 593,193, Oct. 5, 1990, abandoned. This application Jan. 5, 1996, Ser. No. 583,671

Int. Cl.[6] A61K *9/12*

U.S. Cl. 424—45 **16 Claims**



1. A method of removing retained mucus secretions from the lungs of a human subject in need of such treatment, consisting essentially of:

generating an aerosol suspension of respirable solid, dry particulate amiloride, wherein said solid particulate amiloride is comprised of particles of about 1 to 5 microns, wherein said aerosol suspension is free of liquid amiloride particles; and then

delivering by inhalation said aerosol suspension of respirable solid particulate amiloride to the respiratory system of said subject in an amount sufficient to achieve concentrations of amiloride on the airway surfaces of said subject of from about 10^{-7} to 10^{-3} Moles/liter, wherein the daily dose of said solid particulate amiloride is from about 1 to about 20 milligrams, and wherein said solid particulate amiloride is comprised of particles of about 1 to 5 microns, and whereby said secretions are hydrated and transported from the lung via mucociliary action.

5,725,843

METHODS FOR BLEACHING TEETH SURFACES

Dan E. Fischer, Sandy, Utah, assignor to Ultradent Products, Inc., South Jordan, Utah

Continuation of Ser. No. 378,315, Jan. 25, 1995, which is a continuation of Ser. No. 99,247, Jul. 28, 1993, abandoned, which is a continuation of Ser. No. 985,700, Dec. 2, 1993, abandoned, which is a continuation of Ser. No. 718,210, Jun. 20, 1991, abandoned, which is a division of Ser. No. 497,934, Mar. 22, 1990, abandoned. This application Sep. 27, 1996, Ser. No. 722,549

Int. Cl.[6] A61K *7/16;* **A61C** *5/00*

U.S. Cl. 424—49 **14 Claims**

1. A method for bleaching a person's teeth comprising the following steps:

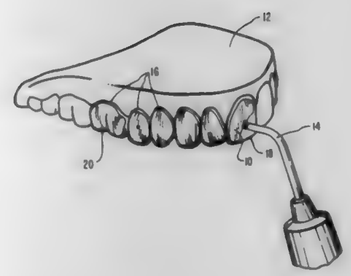
(a) obtaining a dental tray configured to cover a person's tooth surfaces to be bleached and configured to hold a quantity of a dental bleaching composition, the dental tray being configured to exert no significant pressure on the person's teeth and gums;

(b) placing a quantity of the dental bleaching composition within the dental tray, wherein the dental bleaching composition comprises a mixture which includes carboxypolymethylene, including any carboxypolymethylene that has been neutralized, and has a stickiness and resistance to dilution by saliva so that dental bleaching composition is able to retain and hold the dental tray positioned over the person's teeth for a period of time of at least about two hours;

(c) positioning the dental tray over the person's teeth such that a portion of the dental bleaching composition is in contact with the person's tooth surfaces to be bleached;

(d) allowing the dental tray to remain positioned over the person's teeth for a desired period of time, the dental bleaching composition remaining active during at least a portion of the time while the dental tray is positioned over the person's teeth; and

(e) removing the dental tray from the person's teeth.



5,725,844

WATERPROOF COSMETIC OR DERMATOLOGICAL PHOTOPROTECTIVE PREPARATIONS

Heinrich Gers-Barlag, Kummerfeld, Germany; Stefan Hachmann, Norderstedt, Germany; Bente Nissen, Hamburg, Germany, and Sabine Schultz, Hamburg, Germany, assignors to Beiersdorf AG, Hamburg, Germany

PCT No. PCT/EP94/00257, § 371 Date Nov. 27, 1995, § 102(e) Date Nov. 27, 1995, PCT Pub. No. WO94/17780, PCT Pub. Date Aug. 18, 1994

PCT Filed Jan. 29, 1994, Ser. No. 495,643

Claims priority, application Germany, Feb. 11, 1993, 43 03 983.9; Dec. 15, 1993, 43 42 719.7

Int. Cl.[6] A61K *7/42;7/44*

U.S. Cl. 424—59 **14 Claims**

1. A water-resistant cosmetic or dermatological light protection formulation in the form of an O/W emulsion or a hydrodispersion, comprising

one or more cosmetically or pharmaceutically acceptable silanized hydrophobic inorganic pigments, said pigments being incorporated into the oily phase of the emulsions or hydrodispersions,

one or more cosmetically or pharmaceutically acceptable oil-soluble UV filter substances,

one or more film-forming agents

and furthermore, optionally comprising,

one or more cosmetically or pharmaceutically acceptable water-soluble UV filter substances

one or more substances selected from the group consisting of a customary cosmetic or dermatological active compound, an auxiliary or an additive

in a customary cosmetic or pharmaceutical carrier.

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5,725,845

TRANSFER RESISTANT COSMETIC STICK COMPOSITIONS WITH SEMI-MATTE FINISH

Ann Marshall Krog, Red Bank, N.J.; Salvatore Joseph Barone, Staten Island; Natividad R. Jose, Jamaica, both of N.Y., and Gina Alyse McLaughlin, Somerset, N.J., assignors to Revlon Consumer Products Corporation, New York, N.Y.

Filed Nov. 3, 1995, Ser. No. 552,667

Int. Cl.[6] A61K *7/27*

U.S. Cl. 424—64 **20 Claims**

1. An anhydrous cosmetic stick composition with improved transfer resistance comprising, by weight of the total composition:

a) 10–70% era volatile solvent,

b) 0.1–40% of a polymeric organosiloxane emulsifier containing at least one hydrophilic radical and at least one lipophilic radical wherein said emulsifier has the formula:

$MD_xD'_yD''_zM$

wherein each M is a trimethylsiloxy endcap unit; D is $Si[(CH_3)([)(CH_2)_nCH_3]O_{2/2}$wherein n is 1–40, D' is $Si[(CH_3)][(CH_2)_n$-O-PE)$]O_{2/2}$ wherein PE is $(—C_2H_4O)_a(—C_3H_6O)_bH$, where o=0–40 and D" is $Si(CH_3)_2O_{2/2}$, and a=1–100 and b=1–100, and x, y, and z are each independently 0–5000, with the proviso that the compound contains at least one hydrophilic radical and at least one lipophilic radical, and

(c) 0.1–40% of a wax having a melting point of 30° to 120° C.,

(d) 0.1–30% of a fluorinated oil selected from the group consisting of

(i) fluorinated silicones,

(ii) perfluoropolyethers,

(iii) fluoro-guerbet esters, and

(iv) mixtures thereof,

(e) 5–50% of dry particulate matter having a particle size of 0.02 to 200 microns.

5,725,846

CLEAR ANTIPERSPIRANT STICK CONTAINING DIBENZYLIDENE ALDITOL AND HYDROXYALKYL CELLULOSE

Tuan M. Vu, Brighton; Carl F. Iovanni, Cambridge, and Jayant N. Sane, Framingham, all of Mass., assignors to The Gillette Company, Boston, Mass.

Continuation-in-part of Ser. No. 397,450, Mar. 2, 1995, abandoned, which is a continuation of Ser. No. 695,839, Jul. 10, 1996, Pat. No. 5,705,171. This application Feb. 6, 1996, Ser. No. 588,618

Int. Cl.[6] A61K *7/32;7/34;7/36;7/38*

U.S. Cl. 424—65 **20 Claims**

1. A clear gel cosmetic stick comprising a liquid vehicle, an antiperspirant salt dissolved in said liquid vehicle, a dibenzylidene alditol, and a hydroxyalkyl cellulose, wherein the amount of said dibenzylidene alditol comprises about 1.5% by weight or less.

5,725,847

SOLID HAIR-REMOVING COMPOSITION CONTAINING A PARTICULAR STRUCTURING AGENT

Roland De La Mettrie, Le Vesinet; Arnaud De Labbey, Aulnay-Sous-Bois, and Lylan N'Guyen, L'Hay Les Roses, all of France, assignors to L'Oreal, Paris, France

Filed Jul. 11, 1995, Ser. No. 500,749

Claims priority, application France, Jul. 11, 1994, 94-08564

Int. Cl.[6] A61K *7/155*

U.S. Cl. 424—70.1 **34 Claims**

1. A hair-removing composition, comprising:

i) a deformable solid appearance;

ii) hair-removing effective amount of a hair-softening agent contained in a cosmetically acceptable medium, said hair-softening agent being a thiol; and

iii) particles, insoluble in said medium, having a particle diameter ranging from 1 to 300 μm, in a concentration at least equal to a critical pigment charge volume with respect to said composition; wherein

said particles are hollow or expanded thermoplastic resin particles or hollow glass particles, said hollow or expanded thermoplastic resin particles comprising a polymer selected from the group consisting of:

polyamides, acrylonitriles, vinylidene chlorides, vinyl chlorides, expanded acrylics, expanded styrenes, ethyl acrylate, ethyl methacrylate, methyl acrylate, methyl methacrylate, expanded copolymers of vinylidene chloride and acrylonitrile, expanded terpolymers of vinylidene chloride, acrylonitrile and methacrylate, itaconic acid-containing copolymers, citraconic acid-containing copolymers, maleic acid-containing copolymers, fumaric acid-containing copolymers, vinyl acetate, vinyl lactate, vinyl acetate esters, vinyl lactate esters, and porous nylon, and a mixture thereof.

5,725,848

PERMANENT WAVING LOTION AND METHOD OF USE

Edward Borish, Mahwah, N.J.; Bridget Ijeh, Bridgeport, and Thomas M. Schultz, Ridgefield, both of Conn., assignors to Shiseido Co., Ltd., Tokyo, Japan

Continuation of Ser. No. 353,510, Dec. 9, 1994, abandoned. This application Nov. 4, 1996, Ser. No. 740,850

Int. Cl.[6] A61K *7/09*

U.S. Cl. 424—70.5 **5 Claims**

1. A process for providing enhanced permanent waving of hair with substantially less malodor being produced, said process consisting of the following steps

A. forming a permanent waving lotion consisting of:

a. between about 1% and 25% by weight of the total composition of one thiol compound selected from the group consisting of salts and esters of thioglycolic acid,

b. an alkalizing agent consisting of

1. between about 0.1% and 10% by weight of the total composition of an alkanolamine, and

2. between about 0.1% and 3% by weight of the total composition of an alkali metal hydroxide,

c. between about 0.1% and 4% by weight of the total composition of a surfactant,

c. between about 0.1% and 8% by weight of the total composition of a conditioning agent,

d. between about 0.1% and 3% by weight of the total composition of a fragrance, and

e. water forming the balance;

B. moistening hair to be permanently waved;

C. rolling the moistened hair fibers onto curlers for securement thereto;

D. applying the permanent waving lotion to the rolled hair fibers;

E. allowing the permanent waving lotion to remain on the hair for between about 10 and 60 minutes;

F. rinsing the hair with water and blotting to remove excess moisture; and

G. neutralizing or oxidizing the hair by employing a solution comprising one or more agents selected from the group consisting of acidic hydrogen peroxide, bromate, and sodium chlorite.

5,725,849

COMMUNICATION DISRUPTANT FOR CONTROLLING *PANDEMIS HEPARANA*

Fumiaki Mochizuki, Niigata, and Makoto Minamishima, Nagano, both of Japan, assignors to Nagano Prefecture, Nagano, and Shin-Etsu Chemical Co., Ltd., Tokyo, both of Japan

Filed Feb. 28, 1996, Ser. No. 607,938

Claims priority, application Japan, Mar. 1, 1995, 7-41987

Int. Cl.[6] A01N *37/06;31/02*

U.S. Cl. 424—84 **4 Claims**

1. A communication disruptant for controlling *Pandemis heparana* which comprises a combination of (Z)-11-tetradecenyl acetate, (Z)-11-tetradecenol and a contaminating amount of (E)-11-tetradecenyl acetate, wherein the amount of (Z)-11-tetradecenol is not more than 5% and the amount of (E)-11-tetradecenyl acetate is not more than 1% on the basis of the weight of the (Z)-11-tetradecenyl acetate.

5,725,850

USE OF CSF-1 TO TREAT TUMOR BURDEN

Peter Ralph, Orinda; Kong T. Chong, Union City; James Devlin, Lafayette; Robert Zimmerman, Orinda; Sharon Lea Aukerman, Yountville; David B. Ring, Redwood City, and Sylvia Hsieh Ma, Fremont, all of Calif., assignors to Chiron Corporation, Emeryville, Calif.

Division of Ser. No. 220,454, Mar. 31, 1994, Pat. No. 5,556,620, which is a continuation of Ser. No. 24,094, Feb. 26, 1993, abandoned, which is a continuation of Ser. No. 505,256, Apr. 5, 1990, abandoned, which is a continuation-in-part of Ser. No. 243,253, Sep. 14, 1988, abandoned, which is a continuation-in-part of Ser. No. 99,872, Sep. 22, 1987, Pat. No. 5,104,650, which is a continuation-in-part of Ser. No. 876,819, Jun. 20, 1986, abandoned, which is a continuation-in-part of Ser. No. 821,068, Jan. 21, 1986, abandoned, which is a continuation-in-part of Ser. No. 756,814, Jul. 18, 1985, abandoned, which is a continuation-in-part of Ser. No. 744,924, Jun. 14, 1985, abandoned, which is a continuation-in-part of Ser. No. 728,834, Apr. 30, 1985, abandoned, which is a continuation-in-part of Ser. No. 698,359, Feb. 5, 1985, abandoned. This application Jan. 11, 1995, Ser. No. 371,924

Claims priority, application WIPO, Feb. 3, 1986, PCT/WO86/04607

Int. Cl.[6] A61K *38/19*

U.S. Cl. 424—85.1 **14 Claims**

1. A method for treating tumor burden in mammals which comprises administering to said mammal in need thereof an amount of colony stimulating factor-1 (CSF-1) effective to enhance antitumor activity of macrophages, bone marrow derived cells, or monocyte derived cells.

5,725,851

METHOD AND COMPOSITIONS FOR TREATING INJURY

Grace H.W. Wong, South San Francisco, and David V. Goeddel, Hillsborough, both of Calif., assignors to Genentech, Inc., South San Francisco, Calif.

Division of Ser. No. 76,086, Jun. 10, 1993, which is a continuation of Ser. No. 602,849, Oct. 26, 1990, abandoned, which is a continuation-in-part of Ser. No. 507,341, Apr. 10, 1990, abandoned. This application Mar. 28, 1995, Ser. No. 411,224

Int. Cl.[6] A61K *45/05;38/21*

U.S. Cl. 424—85.2 **7 Claims**

1. A method for treating injury resulting from radiation or chemotherapy comprising:

administering to a subject a synergistic cytoprotective dose of at least two members selected from the group consisting of D-factor, growth hormone (GH), tumor necrosis factor (TNF) and IL-1 to the subject, provided that where TNF and IL-1 are both administered a third member is also administered,

wherein the cytoprotective dose is administered prior to, during, or after the subject is exposed to radiation or chemotherapy.

5,725,852

TRANSMUCOSAL THERAPEUTIC COMPOSITION

Yasutaka Igari, Kobe, Japan; Minoru Yamada, Kawanishi, Japan, and Shigehisa Taketomi, Ikeda, Japan, assignors to Takeda Chemical Industries, Ld., Osaka, Japan

Division of Ser. No. 049,402, Apr. 16, 1993, Pat. No. 5,482,706. This application Sep. 12, 1995, Ser. No. 526,987

Claims priority, application Japan, Apr. 17, 1992, 4-097947

Int. Cl.[6] A61K *38/21;38/28;38/29*

U.S. Cl. 424—85.7 **14 Claims**

1. A transmucosal therapeutic composition comprising a physiologically active peptide or protein and an absorption promoting amount of cytidine diphosphate choline.

5,725,853

4 STRAIN DIRECT-FED MICROBIAL

Scott M. Dennis, Urbandale, Iowa; William M. Rutherford, Des Moines, Iowa; Sandra J. Croak-Brossman, Easton, Conn., and Hanna A. Hill, Irvine, Calif., assignors to Pioneer Hi-Bred International, Inc., Des Moines, Iowa

Filed Oct. 18, 1994, Ser. No. 325,023

Int. Cl.[6] C12N *1/20*

U.S. Cl. 424—93.3 **19 Claims**

1. A method of growth promotion of a domesticated meat producing mammal, said method consisting essentially of:

administering to said mammal in conjunction with its normal feed ration, at least 10^3 organisms/gram of diet of a direct-fed microbial consortium of bacteria consisting essentially of *Streptococcus faecium* 301, *Lactobacillus plantatum* 211, *Lactobacillus plantarum* 080, and *Lactobacillus casei* 322.

5,725,854

METHODS OF TREATING DISEASE USING SERTOLI CELLS AN ALLOGRAFTS OR XENOGRAFTS

Helena P. Selawry, Memphis, Tenn., assignor to Research Corporation Technologies, Inc., Tucson, Ariz.

Continuation-in-part of Ser. No. 211,695, Apr. 13, 1994, abandoned. This application Apr. 13, 1995, Ser. No. 421,641

Int. Cl.[6] A01N *63/00;* **C12N** *5/00*

U.S. Cl. 424—93.7 **40 Claims**

1. A method of treating a disease that results from a deficiency of a biological factor in a mammal wherein said method comprises administering Sertoli cells and a therapeutically effective amount of cells that produce said biological factor to a mammal in need of such treatment, wherein said Sertoli cells are administered in an amount effective to create an immunologically privileged site.

5,725,855

METHOD OF TREATING TUMORS WITH $CD8^+$-DEPLETED OR $CD4^+$ T CELL SUBPOPULATIONS

Augusto Carlos Ochoa; Mark L. Saxton, both of Frederick, and Dan L. Longo, Kensington, all of Md., assignors to The United States of America as represented by the Department of Health and Human Services, Washington, D.C., and Regents of the Univ. of Minnesota, Minneapolis, Minn.

Continuation-in-part of Ser. No. 960,297, Oct. 13, 1992, abandoned, which is a continuation of Ser. No. 681,074, Apr. 5, 1991, abandoned. This application Mar. 22, 1994, Ser. No. 215,767

Int. Cl.[6] A61K *35/12;35/14;35/26;35/28*

U.S. Cl. 424—93.71 **4 Claims**

1. A method of treating a mammal having tumors, comprising optionally administering to said mammal an immunosuppressant,

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and then administering to said mammal (1) either a stimulated $CD8^+$—depleted T cell subpopulation or a stimulated $CD4^+$ T cell subsist, and (2) liposomal IL-2;

wherein said stimulated $CD8^+$—depleted T cell subpopulation is produced by:

(i) separating $CD8^+$ lymphocytes from a T cell population to form a $CD8^+$—depleted T cell subpopulation;

(ii) culturing said $CD8^+$—depleted T cell subpopulation in the presence of an anti-CD3 monoclonal antibody, optionally in the presence of IL-2, during a first 48 hour time period of culture to provide a stimulated $CD8^+$—depleted immune cell subpopulation, wherein said IL-2 is present in an amount sufficient to sustain said immune cell subpopulation at about its initial cell density; and

(iii) optionally subculturing the stimulated $CD8^+$—depleted T cell subpopulation in a second medium comprising IL-2, wherein said IL-2 is present in an amount sufficient to sustain said stimulated $CD8^+$—depleted immune cell subpopulation at about its initial cell density, wherein the stimulated $CD8^+$—depleted T cell subpopulation exhibits increased antitumor activity when stimulated with IL-2, due primarily to the enhanced responsiveness to IL-2 of the stimulated $CD8^+$—depleted T cell subpopulation, when compared to a similarly treated undepleted T cell population,

and wherein said stimulated $CD4^+$ T cell subset is produced by:

(i) separating and selecting $CD4^+$ lymphocytes from a T cell population to form a $CD4^+$—depleted T cell population and a $CD4^+$ T cell subset;

(ii) culturing the $CD4^+$ T cell subset in the presence of an anti-CD3 monoclonal antibody, optionally in the presence of IL-2, during a first 48 hour time period of culture to provide a stimulated $CD4^+$ immune cell subset, wherein said IL-2 is present in an amount sufficient to sustain said $CD4^+$ immune cell subset at about its initial cell density; and

(iii) optionally subculturing the stimulated $CD4^+$ T cell subset in a second medium comprising IL-2, wherein said IL-2 is present in an amount sufficient to sustain said $CD4^+$ immune cell subset at about its initial cell density,

wherein the stimulated $CD4^+$ T cell subset exhibits increased antitumor activity when stimulated with IL-2, due primarily to the enhanced responsiveness to IL-2 of the stimulated $CD4^+$ T cell subset when compared to a similarly treated undepleted cell population.

5,725,856

MONOCLONAL ANTIBODIES DIRECTED TO THE HER2 RECEPTOR

Robert M. Hudziak, Blodgett, Oreg.; Axel Ullrich, Portola Valley, and Brian M. Fendly, Half Moon Bay, both of Calif., assignors to Genentech, Inc., South San Francisco, Calif.

Division of Ser. No. 345,091, Nov. 28, 1994, which is a continuation of Ser. No. 143,912, Jan. 12, 1988, abandoned. This application May 23, 1995, Ser. No. 447,489

Int. Cl.[6] A61K *39/00;* **C07K** *16/30;* **C12P** *21/08*

U.S. Cl. 424—130.1 **26 Claims**

1. A method of treating a patient having a carcinoma that overexpresses HER2 receptor comprising administering to said patient an antibody which binds specifically to the extracellular domain of the HER2 receptor in an amount effective to eliminate or reduce the patient's tumor burden.

5,725,857

IMMUNOTOXIN WITH IN VIVO T CELL SUPPRESSANT ACTIVITY AND METHODS OF USE

David M. Neville, Bethesda, and Joshua E. Scharff, Rockville, both of Md., assignors to The United States of America as represented by the Department of Health and Human Services, Washington, D.C.

Continuation-in-part of Ser. No. 34,509, Mar. 19, 1993, abandoned, which is a continuation-in-part of Ser. No. 907,409, Jul. 1, 1992, abandoned, which is a continuation of Ser. No. 653,164, Feb. 11, 1991, Pat. No. 5,167,956. This application Sep. 19, 1994, Ser. No. 308,730

Int. Cl.[6] A61K *39/395;* **C07K** *16/28*

U.S. Cl. 424—183.1 **6 Claims**

1. A method of treating an autoimmune disease in an animal comprising administering to the animal a non-toxic mutant of diphtheria toxin followed by an anti-CD3-CRM9 conjugate which routes by the anti-CD3 pathway, or derivatives thereof, under conditions such that the autoimmune disease is treated.

5,725,858

METHODS OF ENHANCING PRODUCTION PERFORMANCE OF BIRDS COMPRISING ADMINISTRATION OF HETEROLOGOUS PROTEIN COMPRISING AVIAN ALPHA-SUBUNIT INHIBIN PROTEIN

William C. Fioretti, Colleyville, Tex.; Konstantin Kousoulas, Baton Route, and Daniel G. Satterlee, Prairieville, both of La., assignors to Agritech Technologies, Ltd., Grand Prairie, Tex., and Board of Supervisors of Louisiana State Univ. and Agricultural & Mechanical College, Baton Rouge, La.

Continuation-in-part of Ser. No. 395,554, Feb. 28, 1995, abandoned, which is a continuation-in-part of Ser. No. 202,964, Feb. 28, 1994, abandoned. This application Jun. 7, 1995, Ser. No. 481,633

Int. Cl.[6] A61K *38/16;38/02*

U.S. Cl. 424—192.1 **20 Claims**

1. A method which increases egg lay, accelerates onset of egg lay, accelerates onset of maximum egg lay, increases lifetime total egg lay, increases egg production, increases intensity of egg production, prolongs persistence of egg lay, improves egg shell quality, accelerates onset of puberty, accelerates onset of ovulation, prolongs persistence of ovulation, increases sperm production, accelerates onset of sperm production, accelerates onset of maximum sperm production, prolongs persistence of sperm production, improves sperm viability, increases testosterone production, increases ejaculate volume, or increases libido, of a bird, comprising administering an effective mount of a heterologous protein comprising avian alpha-subunit inhibin protein, or an immunogenic fragment thereof, and a carrier protein, to the bird.

5,725,859

PLANT-BASED THERAPEUTIC AGENT WITH VIRUSTATIC AND ANTIVIRAL EFFECT

Osama L.M. Omer, Stelleacker-18, 79618 Rheinfelden, Germany

PCT No. PCT/DE95/00513, § 371 Date Jun. 3, 1996, § 102(e) Date Jun. 3, 1996, PCT Pub. No. WO95/29688, PCT Pub. Date Nov. 9, 1995

PCT Filed Apr. 11, 1995, Ser. No. 586,739

Claims priority, application Germany, May 3, 1994, 44 15 539.5

Int. Cl.[6] A01N *65/00;* **A61K** *35/78*

U.S. Cl. 424—195.1 **4 Claims**

1. A method of treating a patient infected with DNA virus of the herpes family or DNA hepatitis B or hepatitis C viruses, or suffering from chronic allergic rhino-sino-bronchitis, by administering to the said patient a pharmaceutical composition comprising at least two of the compounds selected from the group consisting of

absinthe (artemisia absinthium)
resin of mastic (resin pistacia lenticus)
fruit of delphinium denudatum.

5,725,860

METHOD FOR REDUCING THE RISK OF DEVELOPING DIABETES

Robert Bartlett Elliott, Auckland, New Zealand, assignor to Auckland UniServices Limited, Auckland, New Zealand

PCT No. PCT/NZ95/00025, § 371 Date Aug. 7, 1996, § 102(e) Date Aug. 7, 1996, PCT Pub. No. WO95/24216, PCT Pub. Date Sep. 14, 1995

PCT Filed Mar. 6, 1995, Ser. No. 687,518

Claims priority, application New Zealand, Mar. 7, 1994, 260046

Int. Cl.[6] A61K *38/28;39/10*

U.S. Cl. 424—240.1 **7 Claims**

1. A pharmaceutical composition for the treatment of a mammal at risk of developing diabetes consisting essentially of an effective amount of *Haemophilus pertussis* adjuvant and an effective amount of the A chain peptide of insulin.

5,725,861

PRODUCTS AND PROCESSES FOR GASTRIC CASCADE AND GASTROINTESTINAL DISORDER TREATMENT WITH SAME

Reinhard K. Teichmann, Pfullingen, Germany; Hans-Georg Liebich, München, Germany, and Walter Brendel, deceased, late of Planegg, Germany, by Jutta Brendel, heir, assignors to EFFEM GmbH, Verden/Aller, Germany

Continuation-in-part of Ser. No. 295,224, Aug. 24, 1994, abandoned, and Ser. No. 156,397, Nov. 22, 1993, abandoned, which is a continuation of Ser. No. 846,221, Mar. 4, 1992, abandoned, which is a continuation of Ser. No. 778,787, Oct. 18, 1991, abandoned, which is a continuation of Ser. No. 180,475, Apr. 12, 1988, abandoned, said Ser. No. 295,224 is a continuation of Ser. No. 132,490, Oct. 6, 1993, abandoned, which is a continuation of Ser. No. 47,779, Apr. 15, 1993, which is a continuation of Ser. No. 921,461, Jul. 28, 1992, abandoned, which is a continuation of Ser. No. 499,306, May 16, 1990, abandoned. This application Sep. 16, 1994, Ser. No. 307,943

Claims priority, application Germany, Apr. 15, 1987, 37 12 [illegible]0.6

Int. Cl.[6] A61K *38/00;39/00;39/07;45/00*

U.S. Cl. 424—246.1 **22 Claims**

1. A method for preventing or treating gastrointestinal disorder in an animal or human in need of such prevention or treatment by immunologically stimulating blood flow, production of mucus, and release of digestion regulatory factors within the gastrointestinal tract of the animal or human, comprising:

orally or parenterally immunizing the animal or human more than once with an immunizing effective amount of an ingestible antigen, or a mixture of ingestible antigens; and

orally reintroducing an effective amount of said antigen or said antigens to immunologically induce an immune reaction within the gastrointestinal tract and thereby stimulate blood flow, production of mucus, and release of digestion regulatory factors within the .gastrointestinal tract of the mammal

wherein the animal or human and the gastrointestinal disorder are susceptible to such prevention or treatment by the immunological stimulation of blood flow, production of mucus, and release of digestion regulatory factors within the gastrointestinal tract of the animal or human by the antigen.

5,725,862

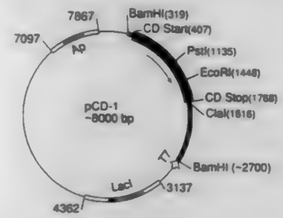
VACCINE FOR *BRANHAMELIA CATARRHALIS*

Timothy F. Murphy, East Amherst, N.Y., assignor to Research Foundation of State University of New York, Amherst, N.Y.

Division of Ser. No. 306,871, Sep. 20, 1994, Pat. No. 5,712,118, which is a continuation-in-part of Ser. No. 129,719, Sep. 29, 1993, Pat. No. 5,556,755. This application Dec. 8, 1995, Ser. No. 569,959

Int. Cl.[6] C07K *14/00;* **C12N** *15/63;* **A61K** *39/00;39/095*

U.S. Cl. 424—251.1 **16 Claims**



1. A vaccine formulation comprising

(a) an immunologically effective amount of CD protein, wherein CD is an isolated and purified outer membrane protein of *Branhamella catarrhalis* of an apparent molecular mass of from 55,000 to 60,000 daltons by SDS-PAGE and which is encoded by a nucleotide sequence shown as an open reading frame in SEQ ID NO. 14; and

(b) a physiological carrier.

5,725,863

POLYPEPTIDES USEFUL IN PREVENTION OF CHLAMYDIA INFECTION

Eddie K. Daniels, Hastings, and Neal E. Woollen, Harvard, both of Nebr., assignors to The United States of America as represented by the Secretary of Agriculture, Washington, D.C.

Filed Sep. 6, 1991, Ser. No. 756,346

Int. Cl.[6] A61K *39/118;* **C07K** *14/295*

U.S. Cl. 424—263.1 **10 Claims**

1. A subunit vaccine against Chlamydia infection comprising (1) a pharmaceutically acceptable carrier and (2) a polypeptide fraction of *Chlamydia psittaci* strain DD-34 consisting of polypeptides having molecular weights of between about 40 and 140 kilodaltons, said fraction comprising a polypeptide having a molecular weight of about 96 kilodaltons.

5,725,864

COMPOSITION FOR SUPPRESSING INFECTION AND GROWTH OF HUMAN IMMUNODEFICIENCY VIRUS

Naoki Yamamoto; Hideki Nakashima, both of Tokyo; Wataru Motsuchi, Sagamihara; Shigeaki Tanaka, Ayase; Shunichi Dosako, Urawa, and Hiroshi Shinmoto, Kawagoe, all of Japan, assignors to Snow Brand Milk Products Co., Ltd., Hokkaido, Japan

Continuation of Ser. No. 97,848, Jul. 27, 1993, abandoned. This application Dec. 22, 1994, Ser. No. 361,862

Claims priority, application Japan, Jul. 28, 1992, 4-220635

Int. Cl.[6] A01N *37/18;* **A61K** *38/16;38/00;* **C07K** *2/00*

U.S. Cl. 424—278.1 **13 Claims**

1. A method for inhibiting and suppressing growth of human immunodeficiency virus in lymphoid cells comprising the steps of:

(a) providing at least one iron-binding protein selected from the group consisting of:

(1) lactoferrin, ovotransferrin and

(2) derivatives of lactoferrin and ovotransferrin, wherein said derivatives are selected from the group consisting of:

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(i) lactoferrin and ovotransferrin peptide conjugates wherein said lactoferrin or said ovotransferrin is conjugated with a peptide consisting essentially of basic amino acids, and

(ii) lactoferrin and ovotransferrin polyamine conjugates wherein said lactoferrin or said ovotransferrin is conjugated with a polyamine; and,

(b) contacting lymphoid cells susceptible to infection by human immunodeficiency virus, with an effective anti-viral amount of said iron-binding protein, said protein being competent to inhibit infection by or suppress growth of human immunodeficiency virus in said cells.

5,725,865

COOLANT COMPOSITIONS

Jean M. Mane, and Jean-Louis Ponge, both of Grasse, France, assignors to V. MANE Fils S.A., France

Filed Aug. 29, 1995, Ser. No. 520,399
Int. Cl.[6] A61K *7/00;9/00*
U.S. Cl. 424—401 **23 Claims**

1. A composition selected from topical products for humans and animals, oral care products, nasal care products and toilet articles which comprises a product base selected from the group consisting of a topically effective product base for humans and animals, an oral care product base, a nasal care product base and a toilet article product base and an effective amount of from 0.001–1.0% by weight, based on the total weight of the composition, of a coolant selected from the group consisting of monomenthyl succinate, alkali metal salts of monomenthyl succinate, alkaline earth metal salts of monomenthyl succinate and mixtures thereof.

5,725,866

TRANSLUCENT COMPOSITION THAT CAN BE APPLIED TO THE NAIL

Roland Ramin, Itteville, France, assignor to L'Oreal, Paris, France

Filed Dec. 4, 1995, Ser. No. 567,099
Claims priority, application France, Dec. 2, 1994, 94 14537
Int. Cl.[6] A23L *1/30;* **A61K** *7/04;7/043;7/42*
U.S. Cl. 424—401 **16 Claims**

1. A composition for application to a nail comprising at least one film-forming agent, at least one plasticizing agent, at least one solvent, and pyrogenic silica, said composition being translucent and thixotropic, and further comprising at least one cosmetically active compound.

5,725,867

ANTIMICROBIAL GLOVES AND A METHOD OF MANUFACTURE THEREOF

Grover C. Mixon, Kingstree, S.C., assignor to Phoenix Medical Technology, Inc., Andrews, S.C.

Filed May 9, 1994, Ser. No. 239,880
Int. Cl.[6] A01N *25/34*
U.S. Cl. 424—402 **7 Claims**

1. An antimicrobial protective glove having an antimicrobial agent homogeneously distributed in a material from which the glove is formed, and in which the agent migrates to the exposed surface of the glove to restore the antimicrobial effect when the agent at the exposed surface has been removed, the glove material comprising by weight percent:

polyvinyl chloride, 48%;

a plasticizer, 48%;

a stabilizer, 3.7%; and

triclosan, 0.3%,

wherein said triclosan internal to the glove material will migrate to the surface of the glove when said triclosan at the surface of the glove is removed.

5,725,868

Patent Not Issued For This Number

5,725,869

MICROSPHERE RESERVOIRS FOR CONTROLLED RELEASE APPLICATION

Ray J. R. Lo, San Leandro, Calif., assignor to Zeneca Limited, London, England

Continuation of Ser. No. 262,416, Jun. 20, 1994, abandoned. This application Oct. 24, 1996, Ser. No. 736,266
Int. Cl.[6] A61K *9/52*
U.S. Cl. 424—408 **19 Claims**

1. A process for producing porous spongy microspheres characterized by an uneven porous surface and a porous internal structure resembling a sponge having a diameter between about 3 and about 300 microns comprising: (a) preparing an organic phase comprising a solution of a polymer and a plasticizer selected from the group consisting of phthalate esters, phosphate esters, citrate, sebacate esters, glycerol, triacetin and acetylated monoglycerides, in an organic solvent; (b) preparing an aqueous phase comprising an aqueous solution of one or more emulsifying agents; (c) combining the organic and aqueous phases under emulsifying conditions to form an emulsion of the organic phase in the aqueous phase; and (d) evaporating the solvent to form said porous, spongy microspheres of uneven porous surface and a porous internal structure resembling a sponge.

5,725,870

METHODS, COMPOSITES AND ARTICLES FOR CONTRACEPTION

Jess G. Thoene, 1308 Brooks St., Ann Arbor, Mich. 48103

Continuation-in-part of Ser. No. 492,478, Jun. 22, 1995, Pat. No. 5,646,189, which is a continuation of Ser. No. 136,697, Oct. 15, 1993, abandoned. This application Jan. 16, 1996, Ser. No. 585,100
Int. Cl.[6] A61F *6/06;* **A61L** *9/04*
U.S. Cl. 424—433 **18 Claims**

1. A method of contraception, comprising topical application of an effective amount of a compound selected from the group consisting of cysteamine, cystamine, phosphocysteamine, and pharmaceutically acceptable salts thereof, to a subject in need thereof.

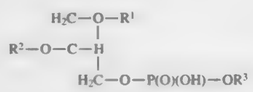
5,725,871

DRUG DELIVERY COMPOSITIONS COMPRISING LYSOPHOSPHOGLYCEROLIPID

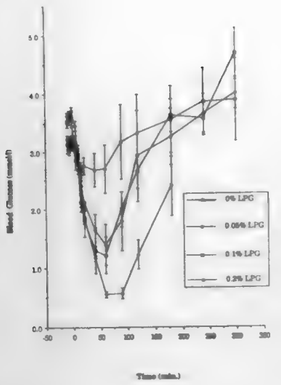
Lisbeth Illum, Nottingham, United Kingdom, assignor to Danbiosyst UK Limited, Nottingham, United Kingdom

Continuation of Ser. No. 834,296, Feb. 18, 1992, abandoned. This application Jun. 15, 1994, Ser. No. 260,611
Claims priority, application United Kingdom, Aug. 18, 1989, 8918879
Int. Cl.[6] A61K *9/08;9/16;38/00*
U.S. Cl. 424—434 **10 Claims**

1. A drug delivery system comprising a pharmacologically active compound and an absorption enhancer in a solution formulated for administration to mucosal surfaces, wherein the absorption enhancer is a lysophosphatidyl glycerol of the general formula I



wherein one of R^1 and R^2 is hydrogen and the other is an alkylcarbonyl group having greater than 14 carbons and less than 30



carbons, and R^3 is 2,3-dihydroxypropyl, or a physiologically acceptable salt thereof, wherein the concentration of the lysophosphatidyl glycerol in the solution is at least 0.05%.

5,725,872

COMPOSITION FOR FOAMS, NOTABLY RECTAL FOAMS, AND FOAMS THUS OBTAINED

André Stamm, Griesheim; Sibel Fuchs neé Sibel Cepik, Geipolshiem, and Pascal Wehrle, Erstein, all of France, assignors to Ferring BV, Hoofdorf, Netherlands

Filed Sep. 17, 1996, Ser. No. 663,049
Claims priority, application France, Dec. 14, 1993, 93 14973
Int. Cl.[6] A61F *9/02;* **A61K** *31/615*
U.S. Cl. 424—436 **64 Claims**

1. A composition for a foam, comprising, by weight based on the total weight of said composition:

(a) more than 25% of mesalazine as an active ingredient in powder form;

(b) from 1 to 20% of a surfactant; and

(c) water;

wherein the powder of said mesalazine active ingredient has a particle size below 20 μm and has a density of between 250 and 450 g/dm^3.

5,725,873

METHOD OF IMPROVING THE GROWTH OR THE EFFICIENCY OF FEED CONVERSION OF AN ANIMAL AND COMPOSITIONS FOR USE THEREIN

Mark E. Cook, Madison, Wis., and Daria L. Jerome, Middleton, Wis., assignors to Wisconsin Alumni Research Foundation, Madison, Wis.

Filed Jul. 22, 1996, Ser. No. 684,785
Int. Cl.[6] C09D *191/00;* **A61K** *39/395;* **A23K** *1/16;* **C07K** *16/26*
U.S. Cl. 424—442 **1 Claim**

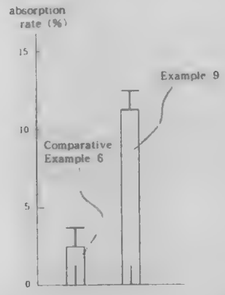
1. A particulate animal feed comprising an inner core of nutrients containing carbohydrates and proteins and an outer layer of an edible fat having cholecystokinin (CCK) antibodies encapsulated therein.

5,725,874

SOLUBILIZER AND EXTERNAL PREPARATIONS CONTAINING THE SAME

Hideshi Oda; Tetsuro Tateishi; Akira Nakagawa; Munehiko Hirano, and Koki Shoho, all of Tosu, Japan, assignors to Hisamitsu Pharmaceutical Co., Inc., Tosu, Japan

PCT No. PCT/JP94/00800, § 371 Date Nov. 16, 1995, § 102(e) Date Nov. 16, 1995, PCT Pub. No. WO94/26309, PCT Pub. Date Nov. 24, 1994
PCT Filed May 18, 1994, Ser. No. 553,615
Claims priority, application Japan, May 19, 1993, 5-139224
Int. Cl.[6] A61F *13/00*
U.S. Cl. 424—443 **27 Claims**



1. A percutaneously absorbable preparation which comprises, by weight, 0.001 to 20% of 3-l-menthoxypropane-1,2-diol as a solubilizer for a drug and 0.001 to 20% of said drug, the balance being other ingredients as adjuvants for said preparation.

5,725,875

PROTECTIVE SKIN COMPOSITION

Charles R. Noll, and Virginia M. Noll, both of Pulaski, Wis., assignors to Microbarriers, Pulaski, Wis.

PCT No. PCT/US94/00304, § 371 Date Jan. 2, 1996, § 102(e) Date Jan. 2, 1996, PCT Pub. No. WO94/15461, PCT Pub. Date Jul. 21, 1994
PCT Filed Jan. 10, 1994, Ser. No. 448,549
Int. Cl.[6] A61L *15/00;* **A01N** *25/24*
U.S. Cl. 424—445 **21 Claims**

1. A protective skin cream composition consisting essentially of:

(i) 15 to 40 wt. % of an alkali-metal fatty acid salt having from 8 to 18 carbon atoms,

(ii) an effective amount of an antimicrobial compound,

(iii) 5 to 20 wt. % of a polyol effective as an emollient,

(iv) 0.5 to 8.0 wt. % of an alkali metal silicate, and

(v) the balance water, said composition being removable with soap and water;

wherein the antimicrobial compound is effective against viruses.

5,725,876

COMPOSITIONS AND METHODS FOR USING LOW-SWELL CLAYS IN NICOTINE CONTAINING DERMAL COMPOSITIONS

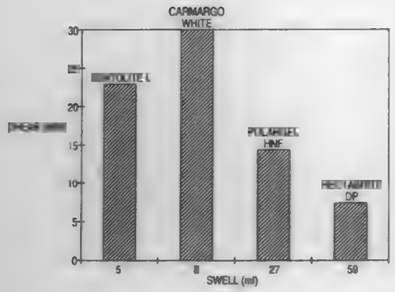
Juan Mantelle, and David Kanios, both of Miami, Fla., assignors to Noven Pharmaceuticals Inc.,, Miami, Fla.

Filed May 17, 1996, Ser. No. 649,512
Int. Cl.[6] A61L *15/20;15/26*
U.S. Cl. 424—449 **16 Claims**

1. A dermal composition comprising a blend of:

one or more acrylic-based polymers in an amount of from about 10–90% w/w, nicotine in an amount of from about 3 to 15% w/w, and a cohesiveness increasing amount of one or more

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low-swell clays in an amount of from about 0.5 to 90% w/w, wherein the low-swell clay has a swell of 3–23 mls as determined by the bentonite USP/NF swelling power test.

5,725,877

Patent Not Issued For This Number

5,725,878

PHARMACEUTICAL COMPOSITION COMPRISING HIV PROTEASE INHIBITING COMPOUNDS

Laman A. Al-Razzak, Libertyville; Kennan C. Marsh, Lake Forest; Dilip Kaul, Waukegan, and Lourdes P. Manning, Grayslake, all of Ill., assignors to Abbott Laboratories, Abbott Park, Ill.

Division of Ser. No. 402,690, Mar. 13, 1995, which is a continuation-in-part of Ser. No. 288,873, Aug. 15, 1994, abandoned, which is a continuation-in-part of Ser. No. 267,331, Jun. 28, 1994, abandoned, which is a continuation-in-part of Ser. No. 188,511, Jan. 28, 1994, abandoned, which is a continuation-in-part of Ser. No. 120,886, Sep. 13, 1993, abandoned. This application May 4, 1995, Ser. No. 435,009

Int. Cl.[6] A61K *9/48*

U.S. Cl. 424—456 **4 Claims**

1. A solid pharmaceutical composition comprising a mixture of (A) a solution of (1) an HIV protease inhibiting compound in the amount of from about 4% to about 30% by weight of the total solution, wherein the HIV protease inhibiting compound is selected from the group consisting of:

N-(2(R)-hydroxy-1(S)-indanyl)-2(R)-phenylmethyl-4(S)-hydroxy-5-(1-(4-(3-pyridylmethyl)-2(S)-N'-(t-butylcarboxamido)-piperazinyl))-pentaneamide;

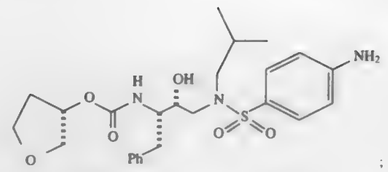
N-tert-butyl-decahydro-2-(2(R)-hydroxy-4-phenyl-3(S)-((N-(N-2-quinolylcarbonyl)-L-asparaginyl)amino)butyl)-(4aS,8aS)-isoquinoline-3(S)-carboxamide;

5(S)-Boc-amino-4(S)-hydroxy-6-phenyl-2(R)-phenylmethylhexanoyl-(L)-Val-(L)-Phe-morpholin-4-ylamide;

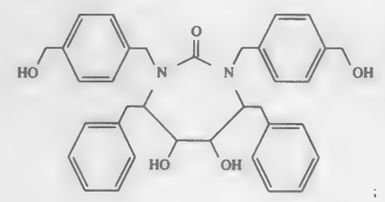
1-Naphthoxyacetyl-beta-methylthio-Ala-(2S,3S)-3-amino-2-hydroxy-4-butanoyl-1,3-thiazolidine-4-t-butylamide;

5-isoquinolinoxyacetyl-beta-methylthio-Ala-(2S.3S)-3-amino-2-hydroxy-4-butanoyl-1,3-thlazolidine-4-t-butylamide;

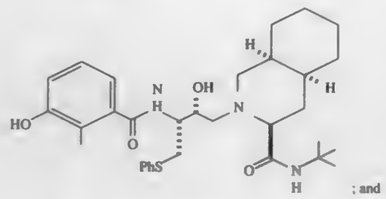
(1S-(1R*(R*),2S*))-N[1](3-((((1,1-dimethylethyl)amino)carbonyl)(2-methylpropyl)aminol-2-hydroxy-1-(phenylmethyl)propyl)-2-((2-quinolinylcarbonyl)amino)-butanediamide;



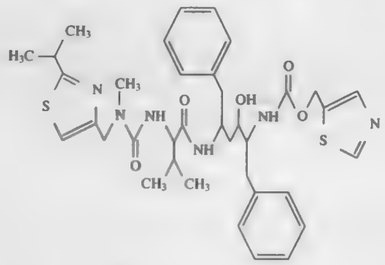
;



;



; and



and (2) a total of from about 0.2 to about 2 molar equivalents (based on the HIV protease inhibiting compound) of (i) a pharmaceutically acceptable acid or (ii) a mixture of pharmaceutically acceptable acids in a pharmaceutically acceptable organic solvent comprising a mixture of (a) a pharmaceutically acceptable alcohol or mixture of pharmaceutically acceptable alcohols in a total amount of from about 2% to about 50% by weight of the total solution, said alcohol or mixture of alcohols being a liquid at about room temperature and (b) a pharmaceutically acceptable solvent or a mixture of pharmaceutically acceptable solvents in a total amount of from about 20% to about 60% by weight of the total solution, said solvent or mixture of solvents having a melting point between about 20° C. and about 60° C., said solvent or mixture of solvents being miscible with the alcohol or mixture of alcohols and providing a homogeneous mixture with the alcohol or mixture of alcohols, said homogeneous mixture being a solid or semi-solid at about 20° C. and (B) a pharmaceutically acceptable granulating agent or a mixture of pharmaceutically acceptable granulating agents.

3. A solid pharmaceutical composition comprising a mixture of (A) a solution of (1) (2S,3S,5S)-5-(N-(N-((N-Methyl-N-((2-isopropyl-4-thiazolyl)methyl)-amino)carbonyl)valinyl)-amino)-2-(N-((5-thiazolyl)methoxycarbonyl)amino)-1,6-diphenyl-3-hydroxyhexane in the amount of from about 4% to about 30% by weight of the total solution and (2) a total of from about 0.2 to about 2 molar equivalents (based on the compound of part (1)) of (i) a pharmaceutically acceptable acid or (ii) a mixture of pharmaceutically acceptable acids in a pharmaceutically acceptable organic solvent comprising a mixture of (a) propylene glycol in the amount of from about 5% to about 40% by weight of the total solution, (b) ethanol in the amount of from about 2% to about 20%, and (c) polyethylene glycol 540 in the amount of from about 20% to about 60% or a total amount of from about 20% to about 60% by weight of the total solution of (i) a saturated polyglycolized glyceride or (ii) a mixture of saturated polyglycolized glycerides and (B) a pharmaceutically acceptable granulating agent or a mixture of pharmaceutically acceptable granulating agents.

5,725,879

VETERINARY TABLET INTENDED ESPECIALLY FOR CATS

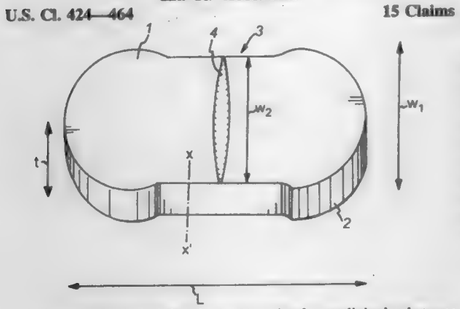
José Daoudal, 10, Avenue General Patton, 53031 Laval, France

Filed Sep. 1, 1994, Ser. No. 300,152

Claims priority, application France, Sep. 1, 1993, 93 10422

Int. Cl.[6] A61K *9/20*

U.S. Cl. 424—464 **15 Claims**



1. A method of administering to an animal a medicinal substance comprising the step of:

presenting to an animal a veterinary tablet constructed and arranged to resist rolling on a surface and said tablet containing a medicinal substance incorporated throughout a matrix.

5,725,880

PHARMACEUTICAL PREPARATION CONTROLLED TO RELEASE MEDICINAL ACTIVE INGREDIENT AT TARGETED SITE IN INTESTINAL TRACT

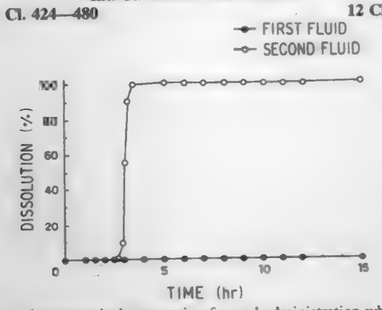
Yoshiyuki Hirakawa, Kobe, Japan; Hiroyuki Yoshino, Suita, Japan; Eiji Fukui, Kakogawa, Japan, and Tami Hanamori, Kobe, Japan, assignors to Tanabe Seiyaku Co., Ltd., Osaka, Japan

Filed Mar. 10, 1995, Ser. No. 402,052

Claims priority, application Japan, Mar. 11, 1994, 6-040911

Int. Cl.[6] A61K *9/32;9/36;9/42*

U.S. Cl. 424—480 **12 Claims**



1. A pharmaceutical preparation for oral administration which is controlled to release a medicinal active ingredient at a targeted site in the intestinal tract comprising

(a) a core containing a medicinal active ingredient and

(b) a press-coated layer comprising an enteric polymer, said layer being provided around said core and said layer being 150–600% by weight based on the weight of said core.

5,725,881

SEMISOLID MIXTURES OF AMORPHOUS OLIGOMERS AND CRYSTALLINE POLYMERS BASED ON LACTIC ACID

Berthold Buchholz, and Günther Entenmann, both of Ingelheim am Rhein, Germany, assignors to Boehringer Ingelheim KG, Ingelheim am Rhein, Germany

Continuation of Ser. No. 143,421, Oct. 26, 1993, abandoned, which is a continuation of Ser. No. 965,452, Oct. 23, 1992, abandoned. This application Oct. 26, 1994, Ser. No. 329,344

Claims priority, application Germany, Oct. 23, 1991, 41 349 54

Int. Cl.[6] A61K *9/10;47/34;* **C08G** *63/08*

U.S. Cl. 424—486 **5 Claims**

1. A bio-compatible, bio-absorbable material suitable for implantation into a warm-blooded animal and which is plastically deformable in a temperature range of from about 20° C. to about 40° C. which consists essentially of a crystalline polymer of D- or L-lactic acid or mixture thereof, which crystalline polymer has a number average molecular weight in the range of from about 600 to about 10,000 and an amorphous viscous oligomer of D- or L-lactic acid or mixtures thereof, which viscous oligomer has a number average molecular weight of less than about 500 and wherein the viscous oligomer constitutes about 5% to about 95% by weight of the bio-compatible, bio-absorbable material.

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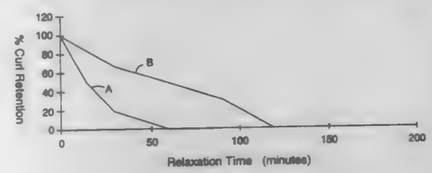
VINYL-SILICONE COPOLYMERS IN COSMETICS AND PERSONAL CARE PRODUCTS

Kanta Kumar; Ramesh C. Kumar, both of Maplewood, and Smarajit Mitra, West St. Paul, all of Minn., assignors to Minnesotn Mining and Manufacturing Company, St. Paul, Minn.

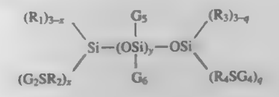
Division of Ser. No. 101,415, Aug. 3, 1993, Pat. No. 5,468,477, which is a continuation-in-part of Ser. No. 881,946, May 12, 1992, abandoned. This application Jun. 5, 1995, Ser. No. 463,158

Int. Cl.[6] A01N *25/10;* **A61K** *9/10;7/02;7/043;7/42*

U.S. Cl. 424—486 **58 Claims**



1. A composition for makeup cosmetics comprising 0.3 to 40% by weight of the composition of a graft or block copolymer of the formula



wherein G_5 represents monovalent moieties which can independently be the same or different selected from the group consisting of alkyl, aryl, alkaryl, alkoxy, alkylamino, fluoroalkyl, hydrogen, and —ZSA;

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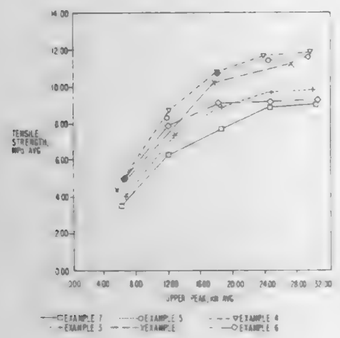
A represents a vinyl copolymeric segment consisting essentially of copolymerized free radically copolymerizable monomer,
Z is a divalent linking group,
G_6 represents monovalent moieties which can independently be the same or different selected from the group consisting of alkyl, aryl, alkaryl, alkoxy, alkylamino, fluoroalkyl, hydrogen, and —ZSA;
G_2 comprises A;
G_4 comprises A;
R_1 represents monovalent moieties which can independently be the same or different and are selected from the group consisting of alkyl, aryl, alkaryl, alkoxy, alkylamino, fluoroalkyl, hydrogen, and hydroxyl;
R_2 can independently be the same or different and represents divalent linking groups;
R^3 represents monovalent moieties which can independently be the same or different and are selected from the group consisting of alkyl, aryl, alkaryl, alkoxy, alkylamino, fluoroalkyl, hydrogen, and hydroxyl;
R^4 can independently be the same or different and are divalent linking groups;
x is an integer of 0–3;
y is an integer of 5 or greater;
q is an integer of 0–3;
wherein at least one of the following is true:
q is an integer of at least 1;
x is an integer of at least 1;
G_5 comprises at least one —ZSA moiety; and
G_6 comprises at least one —ZSA moiety,
the balance of said composition comprising carriers, solvents or vehicle components for makeup cosmetics.

5,725,883

PHARMACEUTICAL EXCIPIENT HAVING IMPROVED COMPRESSIBILITY

John N. Staniforth, Bath, England; Bob E. Sherwood, Amenia, and Edward A. Hunter, Glenham, both of N.Y., assignors to Edward Mendell Co., Inc., Patterson, N.Y.

Continuation-in-part of Ser. No. 370,576, Jan. 9, 1995, Pat. No. 5,585,115. This application Jun. 7, 1995, Ser. No. 486,183
Int. Cl.[6] A61K *9/14*
U.S. Cl. 424—489 **60 Claims**



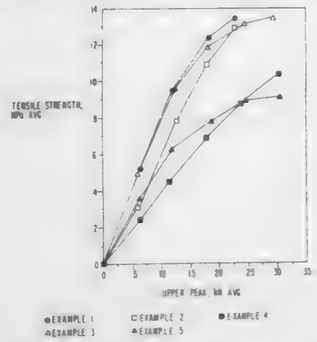
1. An excipient composition comprising a particulate agglomerate of coprocessed microcrystalline cellulose and a surfactant, said surfactant being present in an amount from about 0.1% to about 0.5% by weight of the microcrystalline cellulose, said microcrystalline cellulose and said surfactant being in intimate association with each other.

5,725,884

PHARMACEUTICAL EXCIPIENT HAVING IMPROVED COMPRESSIBILITY

Bob E. Sherwood, Amenia; Edward A. Hunter, Glenham, both of N.Y., and John H. Staniforth, Bath, England, assignors to Edward Mendell Co., Inc., Patterson, N.Y.

Division of Ser. No. 370,576, Jan. 9, 1995, Pat. No. 5,585,115. This application Sep. 30, 1996, Ser. No. 724,613
Int. Cl.[6] A61K *9/14*
U.S. Cl. 424—489 **21 Claims**



1. An aqueous slurry useful in the preparation of a compressible pharmaceutical excipient, comprising a mixture of microcrystalline cellulose and from about 0.1% to about 20% by weight silicon dioxide based on the weight of said microcrystalline cellulose, said silicon dioxide having an average primary particle size from about 1 nm to about 100 μm, the solids content of said aqueous slurry being from about 0.5% to about 25% by weight.

5,725,885

COMPOSITION FOR ENHANCED BIOREMEDIATION OF OIL

Edward A. Felix, Cypress, Tex., and Sandra L. Hruza, Houston, Tex., assignors to BioNutraTech, Houston, Tex.

Continuation-in-part of Ser. No. 51,626, Apr. 22, 1993, Pat. No. 5,443,845. This application Jun. 6, 1995, Ser. No. 471,578
Int. Cl.[6] A61K *9/16*; **C02F** *1/40*
U.S. Cl. 424—490 **9 Claims**



1. A composite material for promoting growth of hydrocarbon degrading microorganisms, comprising:
a water soluble, microbial available nutrient formulation;
an oxygen releasing compound; and

a sacrificial oleophilic, lipophilic, partially oil soluble and biodegradable coating.

5,725,886

MICROCRYSTALLINE CELLULOSE SPHERONIZATION COMPOSITION

David F. Erkoboni, Lawrenceville, N.J.; Scott A. Fiore, Westminster, Colo., and Thomas A. Wheatley, Richboro, Pa., assignors to FMC Corporation, Philadelphia, Pa.

Continuation-in-part of Ser. No. 816,027, Dec. 30, 1991. This application Sep. 26, 1994, Ser. No. 311,800
Int. Cl.[6] A61K *9/16*
U.S. Cl. 424—499 **18 Claims**

1. A microcrystalline cellulose spheronizing agent consisting essentially of particles of a dried slurry of microcrystalline cellulose selected from the group consisting of wet cake and dried wet cake in an aqueous physiologically compatible nonionic hydrocolloid, the weight ratio of the microcrystalline cellulose to the hydrocolloid being from about 97.5:2.5 to about 70:30, and the hydrocolloid being selected from at least one of the group consisting of methylcellulose, hydroxypropyl methylcellulose, hydroxypropyl cellulose, and polyvinylpyrollidone.

5,725,887

METHOD OF PRESERVING OPHTHALMIC SOLUTIONS AND COMPOSITIONS THEREFOR

Stephen M. Martin, Roswell, Ga., and Fu-Pao Tsao, Lawrenceville, Ga., assignors to CIBA Vision Corporation, Duluth, Ga.

Continuation of Ser. No. 339,447, Nov. 14, 1994, Pat. No. 5,607,698, which is a continuation of Ser. No. 99,986, Jul. 29, 1993, abandoned, which is a continuation of Ser. No. 968,224, Oct. 29, 1992, abandoned, which is a continuation of Ser. No. 733,485, Jul. 22, 1991, abandoned, which is a continuation of Ser. No. 376,083, Jul. 6, 1989, abandoned, which is a continuation-in-part of Ser. No. 229,163, Aug. 4, 1988, abandoned. This application Sep. 5, 1996, Ser. No. 709,452
Int. Cl.[6] A61K *31/16*
U.S. Cl. 424—613 **20 Claims**

1. A preserved ophthalmic formulation comprising an eye wetting solution, an eye lubricating solution or comfort solution, or an ophthalmic drug formulation comprising an ophthalmic active agent which is compatible with hydrogen peroxide, any said formulation being effectively preserved by an ocularly compatible amount of stabilized hydrogen peroxide generated from
(a) a source of hydrogen peroxide in sufficient amount to provide hydrogen peroxide in a trace amount from about 10 ppm to 100 ppm; and
(b) one or more ocularly compatible hydrogen peroxide stabilizers in a sufficient amount to stabilize the resultant hydrogen peroxide; the said preserved ophthalmic formulation being suitable to be directly instilled in the eye of a mammal.

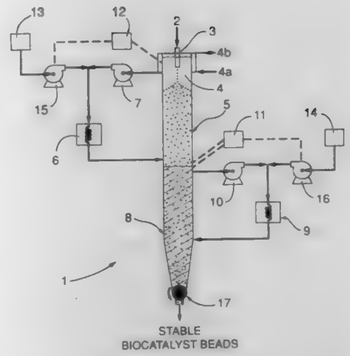
5,725,888

APPARATUS FOR THE PRODUCTION OF GEL BEADS CONTAINING A BIOCATALYST

Charles D. Scott, Oak Ridge; Timothy C. Scott, and Brian H. Davison, both of Knoxville, all of Tenn., assignors to Lockheed Martin Energy Systems, Inc., Oak Ridge, Tenn.

Division of Ser. No. 401,054, Mar. 8, 1995. This application May 22, 1996, Ser. No. 650,253
Int. Cl.[6] B29B *09/10;09/16*
U.S. Cl. 425—6 **3 Claims**

1. An apparatus for producing a gel bead containing a biocatalyst, comprising:
a vessel, the vessel having at least one inlet and at least one outlet, the vessel containing an aqueous liquid phase in a lower region thereof and a non-interacting liquid phase in an upper region thereof, the non-interacting liquid phase having a lower specific gravity than the aqueous liquid phase, the non-interacting liquid phase consisting of an upper region and a lower region;



first introducing means for introducing the aqueous liquid phase into the vessel in the lower region thereof;
second introducing means for introducing the non-interacting liquid phase into the vessel in the upper region thereof;
third introducing means for introducing an aqueous biocatalyst-gel solution in droplet form into the lower region of the non-interacting liquid phase, the aqueous biocatalyst-gel solution containing a gel material, the lower region of the non-interacting liquid phase being maintained at a lower temperature than the aqueous biocatalyst-gel droplet so as to cause the aqueous biocatalyst-gel droplet to solidify into a gel bead;
fixing means for allowing a cross-linking reaction to occur between the biocatalyst-gel droplet and the aqueous liquid phase;
first temperature adjustment means for adjusting the temperature of the aqueous liquid phase;
second temperature adjustment means for adjusting the temperature of the non-interacting liquid phase;
liquid level adjustment means for adjusting the liquid level of the aqueous liquid phase and the non-interacting liquid phase in the vessel;
first removal means for removing the aqueous liquid phase from the lower region of the vessel;
second removal means for removing the non-interacting liquid phase from the upper region of the vessel; and
third removal means for removing the gel bead from the vessel.

5,725,889

PHENOLIC STAIN-RESISTS

Robert Craig Buck, West Grove, Pa., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del.

Filed Sep. 18, 1996, Ser. No. 718,125
Int. Cl.[6] D02G *3/00*; **B32B** *27/42*; **C07C** *315/00*; **B05D** *3/02*
U.S. Cl. 428—375 **12 Claims**

1. A stain-resist composition comprising a resole condensate prepared by reacting a phenolic mixture comprising bis(hydroxyphenyl)sulfone (BHPS) and at least one other phenolic compound with formaldehyde in the presence of a base comprising an inorganic compound having a pKa of 8.5 or higher, at a formaldehyde:phenolic mixture molar ratio in the range between 0.6:1.0 and 4.0:1.0, a base:phenolic mixture molar ratio in the range between 0.1:1.0 and 3.5:1.0, and a molar ratio of said at least one other phenolic compound:BHPS in the range between 0.05:1.0 and 1.0:1.0.

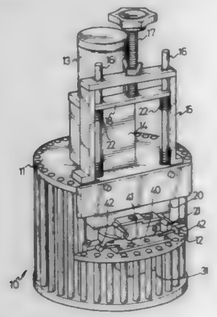
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MECHANISM FOR FORMING A DISTAL FACE OF A FIBER-OPTICS

Yu-feng Cheng, No. 7, Fuhsing St., Tucheng Ind. Dist., Tucheng City, Taipei Hsien, Taiwan

Filed Sep. 4, 1996, Ser. No. 707,715
Int. Cl.[6] B29C *51/18;51/42*
U.S. Cl. 425—384 **4 Claims**



1. A mechanism for forming a distal face of a fiber-optic core comprising:

a base having a plurality of rods;

an upper plate securely connected to said base by said rods;

a gear reduction box mounted on said upper plate and having a motor mounted thereon;

a frame mounted on said upper plate and having two posts provided on two sides thereof and mounted on said base, an adjusting rod inserted at the center of the frame and an adjusting plate abutted by said adjusting rod and extending between said two posts;

a lower plate securely connected with said posts and disposed below and in front of said upper plate, said lower plate having a mirror plate which has a plurality of recesses defined therein;

a first seat provided between said upper plate and said lower plate and movably mounted on said posts, said first seat having a clamp therein;

a second seat provided between said lower plate and said base and movably mounted on said posts;

two first springs provided between said adjusting plate and said first seat on both of said posts;

two second springs provided between said second seat and said base on both of said posts;

a heater securely provided on said second seat; and

a lifter having an axle pivotally connected between said upper plate and said base, an upper protrusion fixedly mounted with said axle and adjacent to said first seat for causing movement of said first seat when the axle is rotated and a lower protrusion fixedly mounted with said axle and adjacent to said second seat for causing movement of said second seat when the axle is rotated,

said axle having a first gear, and a second gear provided on an output end of said gear reduction box and mated with said first gear.

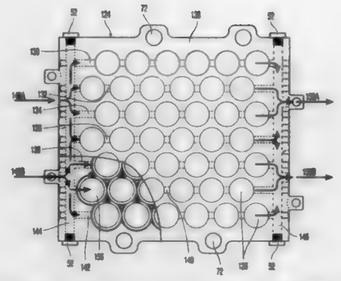
5,725,891

FAST THERMAL RESPONSE MOLD

Walter L. Reid, Jr., Mattapoisett, Mass., assignor to Acushnet Company, Fairhaven, Mass.

Continuation of Ser. No. 455,442, May 31, 1995, abandoned. This application Feb. 18, 1997, Ser. No. 802,036
Int. Cl.[6] B29C *35/04*
U.S. Cl. 425—407 **8 Claims**

1. A mold frame for receiving a plurality of half-molds comprising:



a frame plate member having a plurality of cavities therein, said cavities being configured for receiving replaceable half-molds,

a plurality of half molds, each of said half-molds, when received in a respective one of said cavities, defines a space between itself and the walls of the respective cavity;

a plurality of cavity bores having first and second ends for providing fluid communication between the spaces surrounding the half-molds and defining rows of half-molds;

a cross bore interconnecting the first ends of the cavity bores;

two inlets connected to the cross bore respectively between the first ends of adjacent cavity bores to introduce thermal medium into the cross bore and divert the thermal medium in opposite directions in the cross bore;

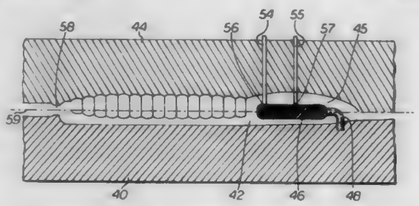
wherein the cross bore directs the thermal medium to the first end of each of the cavity bores to provide parallel flow paths for fluid communication between the spaces surrounding said half-molds in said cavities, such that fluid directly contacts each of said half-molds and only flows through one row of half-molds and the mold frame has a substantially uniform temperature distribution.

5,725,892

APPARATUS FOR CREATING FISHING WORM HAVING ATTRACTANT DISCHARGE ARRANGEMENT

Louie W. Gibbs, Clermont, Fla., assignor to Classic Fishing Products, Inc., Clermont, Fla.

Filed Mar. 26, 1996, Ser. No. 621,893
Int. Cl.[6] B29C *45/44*
U.S. Cl. 425—577 **7 Claims**



1. A mold utilized for creating a fishing worm having an abdominal region intended to receive a feeding stimulant having a stimulating taste to a fish, said mold having first and second sections, with each section having a cavity portion, with each cavity portion representing a part of a desired worm configuration, the cavity portion of one mold section being able to be brought into careful alignment with the cavity portion of the other mold section, after which molten plastic can be injected into the completed mold cavity constituted by the aligned cavity portions of said first and second mold sections, an elongate plug held in place by a small diameter supporting member rigidly mounted in a mid portion of said cavity of said first mold section, at a position corresponding to the abdominal region of the worm to be created, whereby upon molten plastic being inserted into the completed mold cavity, a plastic worm having sidewalls will be defined, with such worm having an essentially closed abdominal cavity resulting from the utilization of said plug, and with said small diameter supporting member causing a hole to be made in the abdominal sidewall of each plastic worm so created.

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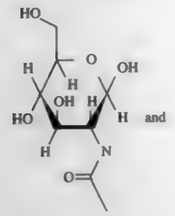
FEEDING COMPOSITION FOR MEMBERS OF THE PENAEUS GENUS OF THE CLASS CRUSTACEA

Alan Owen Pittet, Keyport, N.J.; Phillip G. Lee, Galveston, Tex., and Jennifer C. Ellis, Tacoma, Wash., assignors to International Flavors & Fragrances Inc., New York, N.Y., and Board of Regents, The University of Texas System, Austin, Tex.

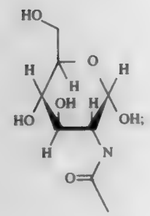
Division of Ser. No. 413,440, Mar. 30, 1995, Pat. No. 5,579,723, which is a continuation-in-part of Ser. No. 279,181, Jul. 22, 1994, Pat. No. 5,474,030. This application Mar. 28, 1996, Ser. No. 623,214
Int. Cl.[6] A23L *1/03*
U.S. Cl. 426—1 **10 Claims**

1. An enhanced feed composition for a member of the *Penaeus genus* of the Class Crustacea comprising (i) a basic feed composition and, intimately admixed therewith, (ii) an attracting and/or stimulating and/or inciting and/or exciting concentration and quantity of at least one feed enhancing substance selected from the group consisting of:

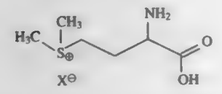
(i) N-acetyl-D-Glucosamine, an epimeric mixture of compounds having the structures:



and

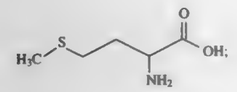


(ii) S-methyl methionine sulfonium halides defined according to the structure:

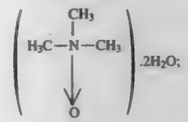


wherein X is a chloride or bromide anion;

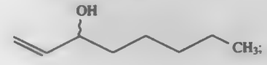
(iii) methionine having the structure:



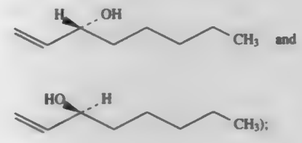
(iv) trimethyl amine oxide hydrate having the structure:



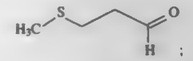
(v) 1-octen-3-ol having the structure:



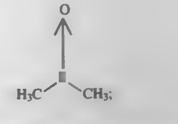
(a mixture of isomers having the structures:



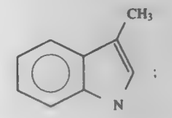
(vi) methional having the structure:



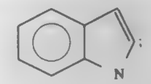
(vii) dimethyl sulfoxide having the structure:



(viii) a 50:50 mole:mole mixture of skatole/indole, skatole having the structure:

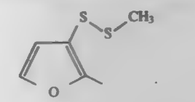


and indole having the structure:



and

(ix) 2-methyl-3-(methyldithio) furan having the structure:



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5,725,894

COCCIDIOSIS-RELIEVING AGENT AND FEED CONTAINING THE SAME

Masaaki Toyomizu, Miyagi, Japan, and Yutaka Nakai, Miyagi, Japan, assignors to Takasago International Corporation, Tokyo, Japan

Filed Feb. 22, 1996, Ser. No. 605,739
Claims priority, application Japan, Feb. 23, 1995, 7-058278
Int. Cl.[6] A23K *1/16;1/18;* **A61K** *35/78;31/60*
U.S. Cl. 426—2 **12 Claims**

1. A method of relieving coccidiosis in animals which comprises adding at least one member selected from the group consisting of cashew nut shell oil and anacardic acids to a feed in an amount effective to relieve coccidiosis and giving animals the resulting feed.

5,725,895

METHOD OF PREPARING A FOOD PRODUCT FROM CRUCIFEROUS SEEDS

Jed W. Fahey, Eldersburg, and Paul Talalay, Baltimore, both of Md., assignors to Johns Hopkins School of Medicine, Baltimore, Md.

Filed Sep. 15, 1995, Ser. No. 528,858
Int. Cl.[6] A23B *7/00*
U.S. Cl. 426—49 **16 Claims**

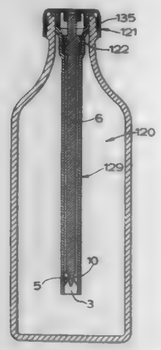
1. A method of preparing a food product rich in glucosinolates, comprising germinating cruciferous seeds, with the exception of cabbage, cress, mustard and radish seeds, and harvesting sprouts prior to the 2-leaf stage, to form a food product comprising a plurality of sprouts.

5,725,896

CARBONATED BEVERAGE PACKAGE

Anthony J. Banks, Weatheroak, Great Britain, assignor to CPB Innovative Technology Limited, Birmingham, England

PCT No. PCT/GB94/00127, § 371 Date Feb. 14, 1996, § 102(e) Date Feb. 14, 1996, PCT Pub. No. WO94/16966, PCT Pub. Date Aug. 4, 1994
PCT Filed Jan. 21, 1994, Ser. No. 500,978
Claims priority, application United Kingdom, Jan. 25, 1993, 9301440; Feb. 16, 1993, 9303055
Int. Cl.[6] B65B *31/00;17/00*
U.S. Cl. 426—112 **32 Claims**



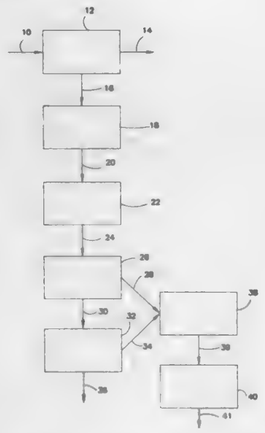
1. A beverage container assembly comprising a container body defining a beverage chamber for containing a beverage, and a gas reservoir unit housed substantially within the container body, adapted to be charged with a gas under super-atmospheric pressure whilst the reservoir unit is outside of the container, and to retain the gas prior to insertion of the unit into the container body, characterised in that the unit has, in its normal position within the container body, a gas reservoir chamber with gas outlet means at the lower end thereof, said gas outlet means being adapted to be opened by valve control means during or subsequent to insertion of the unit into the container body, so as to allow gas in the gas reservoir chamber to issue into beverage present in the container body, the valve control means being movable upwardly away from the gas outlet means and into the gas reservoir chamber so as to allow gas to issue from the gas outlet means and into said beverage.

5,725,897

LOW TEMPERATURE RENDERING PROCESS

Daniel L. Schaefer, Maize, Kans.; M. James Riemann, Derby, Kans., and Michael E. Rempe, Witchita, Kans., assignors to Cargill, Incorporated, Minneapolis, Minn.

Filed Jul. 25, 1995, Ser. No. 506,612
Int. Cl.[6] A23L *1/31*
U.S. Cl. 426—417 **26 Claims**



1. A low temperature rendering process for converting animal trimmings to a meat product, said low temperature rendering process consisting essentially of the steps of:
(a) heating animal trimmings having an average lean content of less than 39% by weight in a heat exchanger having a first-in and first-out arrangement to a temperature in the range of about 90° F. to about 120° F. to form a heated slurry;
(b) separating a solids stream and a liquids stream from the heated slurry, the solids stream containing an increased weight percent of protein and moisture compared with the weight percent of protein and moisture in the heated slurry;
(c) separating a heavy phase and a light phase from the liquids stream, the heavy phase containing an increased weight percent of moisture and water soluble protein compared with the weight percent of moisture and water soluble protein in the heated liquids stream;
(d) combining the solids stream and the heavy phase to form a meat product; and
(e) freezing the meat product.

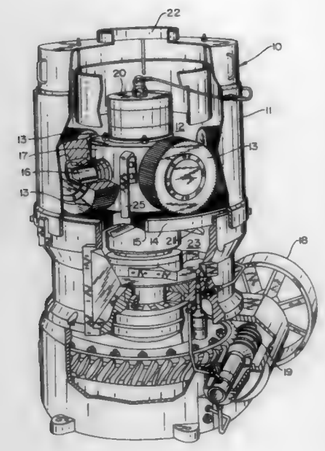
5,725,898

METHOD OF MAKING DENSIFIED FLOWABLE ROASTED AND GROUND COFFEE

Sean Mackay Murphy, Longmeadow, Mass.; Helmut Sieling, and Gerald Sigmund Wasserman, both of Bremen, Germany, assignors to Kraft Foods, Inc., Northfield, Ill.

Filed Apr. 24, 1996, Ser. No. 639,048
Int. Cl.[6] A23F *5/00;5/08;5/12*
U.S. Cl. 426—443 **9 Claims**

1. A process for producing a flowable roasted and ground coffee product in the form of aggregates of granular roasted and ground coffee particles, said aggregates having a median volumetric particle size of from 270 to 1100 μm, a bulk density from 0.5 to 0.7 g/cc and which when brewed will have a brew yield of, from 30 to 41%, comprising:
providing roasted coffee selected from the group consisting of roasted and ground coffee having a median volumetric particle size of at least 250 μm and roasted whole beans;
forcing said roasted coffee through an orifice under conditions of pressure and shear sufficient to grind the coffee and to form the coffee into a dense mass of roasted coffee, said mass being made up of granular roasted and ground coffee particles tightly bonded together, said granular coffee particles having a maximum median volumetric particle size of 270 μm; and
regrinding the dense mass of roasted coffee to produce said aggregates of roasted and ground coffee product.



5,725,899

PROTEIN-LIPID EMULSIFYING AND GELLING COMPOSITION AND METHOD OF PREPARING SAME

Morton S. Cole, 4666 Faries Pkwy., Decatur, Ill. 62525, and Lloyd Steven Young, 1550 Waconia Ave. SW., Cedar Rapids, Iowa 52406

Continuation of Ser. No. 90,008, Oct. 31, 1979, abandoned, which is a continuation-in-part of Ser. No. 887,117, Mar. 16, 1978, abandoned. This application Mar. 20, 1981, Ser. No. 246,081
Int. Cl.[6] A23F *2/38*
U.S. Cl. 426—598 **6 Claims**

1. A process for the prepration of a dry protein-lipid composition comprising:
(a) mixing ingredients consisting essentially of water and 5–30 parts by weight of defatted oil-seed protein material and 7–12 parts by weight of lipids taken from a group consisting of soybean oil, commercial lecithin, or a mixture of both, in proportions which lead to a final product of up to (1) aproximately 17 parts by weight of defatted oil-seed protein material, and (2) 10 parts by weight of said lipids,
(b) homogenizing said ingredients mixed in step (a) into a homogenized aqueous dispersion of defatted oil-seed protein material and lipid materials, and
(c) drying the dispersion to produce a dry powder which consists essentially of up to (1) approximately 17 parts by weight of defatted oil-seed protein material and (2) 10 parts by weight of said lipids.

5,725,900

CO-PRESSING OF OILSEEDS

Jos Willy Ghislain Corneel De Sadeleer, Hoisbeek, Belgium; Bernard Boulet, and Richard Wos, both of Bierne, France, assignors to Cerestar Holding B.V., Sas van Gent, Netherlands

Filed May 10, 1996, Ser. No. 645,961
Claims priority, application United Kingdom, May 15, 1995, 9509811
Int. Cl.[6] A23D *9/02*
U.S. Cl. 426—601 **20 Claims**

1. A method for obtaining oil mixtures comprising wheat germ oil wherein wheat germs in the form of a by-product from flour-milling are mixed with at least one other species of oil-containing germ or seed before pressing.

5,725,901

LONG CHAINED BETA GLUCAN ISOLATES DERIVED FROM VISCOUS BARLEY GRAIN

Gregory J. Fox, Fargo, N. Dak., assignor to Barkley Seeds, Inc., Yuma, Ariz.

Division of Ser. No. 534,368, Sep. 27, 1995, Pat. No. 5,614,242. This application Dec. 18, 1996, Ser. No. 768,923
Int. Cl.[6] A23L *1/10*
U.S. Cl. 426—618 **2 Claims**

1. A purified long chained, waxy hulless, beta glucan isolate, which has a purity of beta glucan isolate greater than 90% with a beta glucan viscosity from 100–3000 cps, with endogenous starch and protein as main impurities, produced by a process which comprises the steps of:
selecting high viscosity waxy hulless barley flour with beta glucan viscosity greater than 15 cps and a long chained beta glucan concentration greater than about 1.0×10^5/ml of a 5% aqueous flour suspension;
making an acidified aqueous flour suspension of this material;
extracting the beta glucan chains by bringing the acidified suspension to about 45 degrees Centigrade, with slow agitation;
diluting the acidified solution with acidified water;
gently stirring the acidified suspension while adding ethanol, precipitating long chained beta glucan;
removing supernatant, washing precipitated beta glucan chains with acidified water to remove adhering starch;
evaluating microscopically the precipitated beta glucan chains to insure length of about 1 mm to about 6 mm; and
drying the beta glucan chains to between about 14% to about 7% moisture, never exceeding drying temperatures of about 35 degrees Centigrade.

5,725,902

EXTRUSION PROCESS FOR MAKING A RECONSTITUTABLE REFRIED BEAN PRODUCT

Nancy Margaret Lesueur-Brymer, Calgary, Canada; Larry D. Schopf, Blue Earth, Minn.; Eugene A. Dust, Blue Earth, Minn., and Rolf E. Rogers, Blue Earth, Minn., assignors to Alberta Wheat Pool, Alberta, Canada

Filed Nov. 13, 1995, Ser. No. 558,140
Int. Cl.[6] A23L *1/20*
U.S. Cl. 426—634 **12 Claims**

1. In an improved extrusion process for making a reconstitutable refried bean product, wherein said process comprises:
introducing a bean grind into a co-rotating twin screw extruder;
adding sufficient water to said extruder to elevate the moisture content of said bean grind to be in the range of 25–40% by weight;
heating said bean grind to a temperature in the range of 100° C. to 185° C. to produce a cooked bean grind dough; and

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extruding the cooked bean grind dough;

the improvement comprising:

advancing and massaging said bean grind towards an extrusion die to gelatinize the bean starch and still maintain starch granule integrity to form a cooked bean grind dough;

providing a die restriction for extruding the cooked bean grind dough such that pressure necessary to force such cooked bean grind dough through the die is approximately equal to the vapour pressure of steam built up in the cooked bean grind dough at the temperature generated inside the extruder, whereby said

cooked bean grind dough is exploded from the die by a force comprising the steam vapor pressure to form a moist granular bean product.

5,725,903

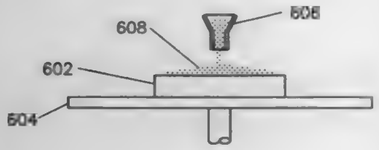
SEDIMENTARY DEPOSITION OF PHOTORESIST ON SEMICONDUCTOR WAFER

Michael D. Rostoker, San Jose, Calif., assignor to LSI Logic Corporation, Milpitas, Calif.

Continuation of Ser. No. 259,332, Jun. 13, 1994, abandoned, which is a division of Ser. No. 906,902, Jun. 29, 1992, Pat. No. 5,320,864. This application Aug. 16, 1995, Ser. No. 515,959

Int. Cl.[6] B05D *1/00;* **G03F** *7/022*

U.S. Cl. 427—58 **6 Claims**



1. A method of applying a conformal layer of photoresist over an underlying semiconductor wafer without a reservoir, comprising the steps of:

mounting a semiconductor wafer having a front surface onto a rotatable platen;

applying a solution of photoresist solids and solvent to the front surface of the semiconductor wafer;

rotating the platen so that the solution of photoresist solids and solvent spreads itself over the front surface of the semiconductor wafer; and

precipitating the photoresist solids out of the solution of photoresist solids and solvent by applying an anti-solvent to the solution to cause the photoresist solids to precipitate onto the face of the semiconductor wafer in a uniform conformal layer.

5,725,904

LIQUID METHYLTIN HALIDE COMPOSITIONS

William Albert Larkin, Monmouth County, N.J., assignor to Elf Atochem North America, Inc., Philadelphia, Pa.

Filed Jun. 2, 1995, Ser. No. 459,958

Int. Cl.[6] B05D *5/12*

U.S. Cl. 427—109 **5 Claims**

1. A composition liquid at 24° C. consisting essentially of a methyl tin halide which is a solid at 25° C. selected from the group consisting of mono methyl tin trichloride, dimethyl tin dichloride and mixtures thereof, and an alkyl tin trichloride which is liquid at 25° C.

5,725,905

METHOD OF MANUFACTURING A COMPONENT WITH A PROTECTIVE ARRANGEMENT WHICH PREVENTS ALUMINIZING OR CHROMIZING DURING GAS DIFFUSION COATING

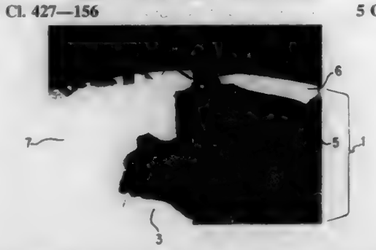
Heinrich Walter, Derching; Horst Pillhöfer, Röhrmoos; Michael Strasser, Kleinberghofen; Frank Brungs, Dachau; Ralph Kropp, München, and Martin Schaipp, Junkenhofen, all of Germany, assignors to MTU Motoren- Und Turbinen-Union, Munich, Germany

Division of Ser. No. 363,225, Dec. 23, 1994, Pat. No. 5,523,165. This application Feb. 26, 1996, Ser. No. 607,299

Claims priority, application Germany, Dec. 23, 1993, 43 44 061.4

Int. Cl.[6] B05D *1/38;* **C23C** *16/06*

U.S. Cl. 427—156 **5 Claims**



1. A method for selectively protecting a component made of an iron-base alloy, cobalt-base alloy or nickel-base alloy with a protective arrangement which protects select areas of the component from aluminizing or chromizing during gas diffusion coating, wherein a first layer acts as an interlayer and a second layer acts as a getter layer for reaction gases, comprising the following steps:

a) depositing a first layer of slip cast material comprising oxide ceramic particles carried in a low-carbon, halide free, liquid vehicle;

b) depositing a second layer comprising metal or a metallic slip, which comprises at least 50% by weight of the base metal of the component and all major alloy constituents of the component;

c) aluminizing or chromizing by gas diffusion coating; and

d) removing the protective arrangement from the component.

5,725,906

PROTECTIVE BARRIER USING POLYMER CONCRETE

William C. Allen, Pasadena, Calif., assignor to Union Oil Company of California, El Segundo, Calif.

Division of Ser. No. 176,549, Jan. 3, 1994, Pat. No. 5,599,857. This application May 22, 1995, Ser. No. 445,635

Int. Cl.[6] B05D *7/22*

U.S. Cl. 427—231 **46 Claims**

1. A process for forming a lining composition protecting the interior of a duct from a fluid contained within said duct, said lining composition having a surface exposed to said fluid, said lining composition comprises:

a rigid polymer concrete comprising at least five weight percent, based on the weight of said polymer concrete, of solid particles dispersed throughout said polymer concrete and at least three weight percent, based on the weight of said polymer concrete, of a co-polymer particle binder said co-polymer particle binder derived from a liquid component comprising above 50 weight percent of a poly-olefinically unsaturated co-monomer and a minor amount of styrene, and wherein said polymer concrete contains less than 1 weight percent of polymerized acrylamide and acrylonitrile; and wherein said process comprising:

mixing styrene, said co-monomer and said solid particles to form a slurry; and

hardening said slurry to form said lining composition containing said rigid polymer concrete comprising said co-polymer binder.

5,725,907

METAL MATERIAL FORMED WITH FLUOROCARBON FILM, PROCESS FOR PREPARING THE MATERIAL AND APPARATUS MADE WITH USE OF THE MATERIAL

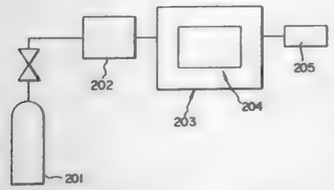
Tadahiro Ohmi, Sendai; Kazuo Chiba, Mishima; Hideo Kume, Numazu; Yutaka Mikasa, Mishima; Matagoro Maeno; Yoshinori Nakagawa, both of Izumi; Hiroto Izumi, Sendai, and Kazuhito Yamane, Sakai, all of Japan, assignors to Hashimoto Chemical Co., Ltd., Osaka-fu, and Mitsubishi Aluminum Co., Ltd., Tokyo-to, both of Japan

Division of Ser. No. 534,985, Sep. 27, 1995, Pat. No. 5,605,742. This application Oct. 16, 1996, Ser. No. 733,746

Claims priority, application Japan, Oct. 28, 1994, 6-288805

Int. Cl.[6] B05D *1/00;* **C23C** *16/00*

U.S. Cl. 427—249 **2 Claims**



1. A process for preparing a metal material characterized by forming a nickel-phosphorus plating layer on a surface of a substrate metal, subsequently fluorinating the nickel-phosphorus plating layer with fluorine, further heat-treating the resulting layer in a nitrogen atmosphere to form a nickel fluoride layer, and contacting a hydrocarbon gas with the nickel fluoride layer to form a carbon layer.

5,725,908

COATING METHOD

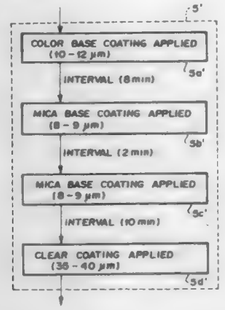
Toshifumi Ogasawara, Hiroshima-ken, Japan, and Toshiyuki Sakoda, Hiroshima-ken, Japan, assignors to Mazda Motor Corporation, Hiroshima-ken, Japan

Continuation of Ser. No. 329,942, Oct. 26, 1994, abandoned. This application Sep. 27, 1996, Ser. No. 721,970

Claims priority, application Japan, Oct. 28, 1993, 5-270106

Int. Cl.[6] B05D *1/36;1/38;5/06*

U.S. Cl. 427—407.1 **7 Claims**



1. A method of coating comprising the steps of

applying a color coating composition on a primer coating layer on a work to form an intercoating layer,

drying the intercoating layer,

applying a color coating composition of a color which is equal to a color of the intercoating layer to form thereon a color base layer, said color base layer being of a thickness less than said intercoating layer and applied at less than full hiding over the intercoating layer;

applying a coating composition containing therein a lustering material on the color base layer by wet-on-wet system to form thereon a lustering material base layer,

applying a clear coating composition on the lustering material base layer by wet-on-wet system to form a clear layer, and then

drying the coating films thus obtained;

wherein the coating has an appearance of being a mixture of colors of the layers and said coating composition for said color base layer and said lustering material base layer comprise the same resin materials.

5,725,909

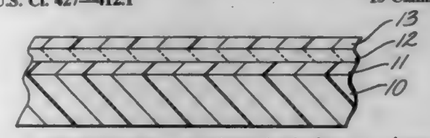
ACRYLATE COMPOSITE BARRIER COATING PROCESS

David G. Shaw; Eric Dawson; Daniel Cline, and Marc Langlois, all of Tuscon, Ariz., assignors to Catalina Coatings, Inc., Tucson, Ariz.

Division of Ser. No. 228,579, Apr. 15, 1994, abandoned, which is a continuation-in-part of Ser. No. 131,328, Oct. 4, 1993, Pat. No. 5,440,446. This application Feb. 9, 1996, Ser. No. 599,596

Int. Cl.[6] B05D *3/08;3/06;1/38;* **C23C** *14/00*

U.S. Cl. 427—412.1 **15 Claims**



1. A method for forming an adherent barrier layer on a thermoplastic substrate comprising the steps of:

heating the surface of the substrate above its melting point and cooling the surface of the substrate below its melting point;

evaporating acrylate monomer having a molecular weight in the range of from 150 to 600;

depositing the evaporated acrylate on the cooled surface of the substrate;

polymerizing the acrylate for forming a cross-linked acrylate layer; and

depositing a layer of oxygen barrier material over the cross-linked acrylate layer.

5,725,910

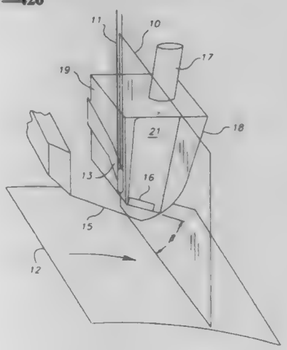
EDGE REMOVAL APPARATUS FOR CURTAIN COATING

William D. Devine, Rochester, N.Y.; Douglas B. Humby, Hilton, N.Y., and Kenneth J. Ruschak, Rochester, N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.

Filed Feb. 5, 1997, Ser. No. 795,987

Int. Cl.[6] B05D *1/30*

U.S. Cl. 427—420 **6 Claims**



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1. A method of curtain coating a support with at least one layer of a liquid coating composition comprising:

a) moving the support along a path through a coating zone;

b) forming one or more layers of coating liquids to form a composite layer;

c) forming a free falling curtain from said composite layer within said coating zone which extends transversely of said path and impinges on said moving support;

d) laterally guiding said falling curtain by edge guides arranged so that the curtain coats less than the width of said support;

e) maintaining said falling curtain in wetting contact with said edge guides by distributing flushing liquid from said edge guides contiguous with said falling curtain;

f) removing liquids from an edge of said falling curtain by providing a blade extending from an edge guide into the falling curtain to intercept a part of the free falling curtain and positioning the blade above the impingement of the falling curtain on the support wherein the blade is angled into the free falling curtain so that the blade is closest to the support where the part of the free falling curtain is intercepted and farthest from the support at an edge guide;

g) removing by suction means the liquids of the free falling curtain intercepted by the blade; and

h) blocking air to said suction means from a direction of the exit of said means and directing said suction means to draw air from a direction of an entrance of said means towards the curtain.

5,725,911

METHOD FOR FORMING A METAL SPRAY COATING

Kazuyoshi Tsuneta; Kenji Hasui, and Toru Taki, all of Nishinasuno-machi, Japan, assignors to Dai Nippon Toryo Co., Ltd., Osaka, Japan

Filed May 24, 1996, Ser. No. 653,022

Claims priority, application Japan, Jun. 22, 1995, 7-155936

Int. Cl.° B05D *1/02;1/36;1/08*

U.S. Cl. 427—421 **10 Claims**

1. A method for forming a metal spray coating, which comprises coating on a substrate to be metal-sprayed, a one pack cold self-crosslinking resin aqueous dispersion containing insoluble solid particles having an average particle size of from 5 to 200 μm, to form a primer layer having a rough surface, and then spraying a metal on the primer layer,

wherein said insoluble solid particles are present in an amount of from 25 to 400 vol %, based on the solid content of said resin aqueous dispersion, and

said resin aqueous dispersion is prepared by mixing an aqueous dispersion of a copolymer (A) containing carbonyl groups, other than carbonyl groups based on carboxyl groups or carboxylic acid ester groups, and a hydrazone or hydrazine compound (B) containing at least two hydrazone or hydrazine residues in its molecule, in such a ratio that the hydrazone or hydrazine residues of the hydrazone or hydrazine compound (B) are from 0.1 to 2 equivalents per equivalent of the carbonyl groups of the copolymer (A).

5,725,912

METHOD OF MANUFACTURING AN ELECTRIC HEATING FILM OF SEMICONDUCTOR

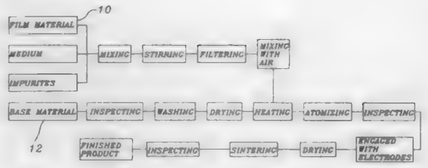
Pan-Tien Lin, P.O. Box 82-144, Taipei, Taiwan

Continuation-in-part of Ser. No. 155,754, Nov. 22, 1993, abandoned. This application Jun. 22, 1995, Ser. No. 493,589

Int. Cl.° C23C *14/12*

U.S. Cl. 427—525 **6 Claims**

1. A method of manufacturing an electric heating film of a semiconductor on a substrate comprising the steps of:



fusing a halide of indium and a halide of tin together by heating;

adding 1–10% of hydrofluoric acid in weight;

mixing said halide and said acid with a medium material at a proportion of 20–60% in weight to form a liquid material;

cleaning a substrate with clean soft water and drying the surface thereof; and

disposing said substrate into a heating furnace wherein said substrate is heated to 400°–800° C. for 10–30 minutes to activate its surface,

spraying said liquid material mixed with air into said heating furnace thereby atomizing and dissolving said liquid material into ions, and letting said ions be accumulated evenly coating the surface of said substrate or directly spraying said liquid material on the activated surface of said substrate thereby forming an electric heating film of semiconductor on said substrate.

5,725,913

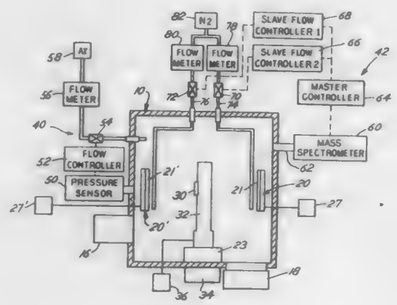
SUPERHARD COMPOSITE MATERIALS INCLUDING COMPOUNDS OF CARBON AND NITROGEN DEPOSITED ON METAL AND METAL NITRIDE CARBIDE AND CARBONITRIDE

Ming-Show Wong, Northbrook, Ill.; Dong Li, Evanston, Ill.; Yin-Wah Chung, Wilmette, Ill.; William D. Sproul, Palantine, Ill.; Xi Chu, Evanston, Ill., and Scott A. Barnett, Evanston, Ill., assignors to Northwestern University, Evanston, Ill.

Division of Ser. No. 388,020, Feb. 14, 1995, which is a continuation-in-part of Ser. No. 973,390, Nov. 9, 1992, abandoned. This application Oct. 23, 1996, Ser. No. 735,685

Int. Cl.° C23C *14/06*

U.S. Cl. 427—530 **12 Claims**



1. A method of making a composite material having high hardness, comprising depositing a plurality of alternating layers of a carbon nitrogen compound in alternating sequence with a metal or metal compound seed material, said carbon nitrogen compound being deposited on a crystal plane of said metal or said metal compound sufficiently lattice-matched with a crystal plane of said carbon nitrogen compound that said carbon nitrogen compound is substantially crystalline, and densifying said layers by ion bombardment to reduce the voids and increase hardness.

5,725,914

PROCESS AND APPARATUS FOR PRODUCING A FUNCTIONAL STRUCTURE OF A SEMICONDUCTOR COMPONENT

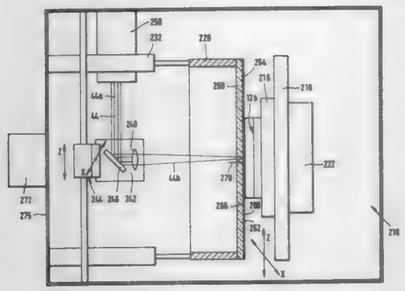
Hans Opower, Krailling, Germany, assignor to Deutsche Forschungsanstalt fuer Luft - und Raumfahrt e.V., Bonn, Germany

Division of Ser. No. 112,785, Aug. 26, 1993, abandoned. This application Sep. 26, 1995, Ser. No. 534,071

Claims priority, application Germany, Sep. 3, 1992, 42 29 399.5

Int. Cl.° B05D *5/12*

U.S. Cl. 427—592 **25 Claims**



1. A method for producing a semiconductor component having at least one of an electrical and optoelectrical function determined by a plurality of layers provided on a substrate, said plurality of layers comprising at least one structured layer having a structure which contributes to the determination of said electrical or optoelectrical function, comprising the step of:

producing said at least one structured layer on said semiconductor component using laser radiation comprising laser pulses with a duration of less than approximately 100 picoseconds;

said laser pulses acting on limited areas of a target material to deposit controlled portions of the target material on limited areas of said substrate;

said limited areas of said substrate being arranged on a side of said target material which is opposite to the side of said target material that said laser pulses are acting on to provide said structure.

5,725,915

LIQUID CRYSTAL DISPLAY

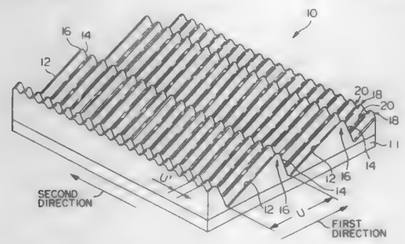
Yoshihiko Ishitaka, and Mitsuru Kano, both of Miyagi-ken, Japan, assignors to Alps Electric Co., Ltd., Tokyo, Japan

Filed Sep. 21, 1995, Ser. No. 532,957

Claims priority, application Japan, Sep. 21, 1994, 6-227067

Int. Cl.° G02F *1/1337*

U.S. Cl. 428—1 **4 Claims**



1. A liquid crystal display comprising:

first and second substrates having opposing surfaces;

liquid crystal disposed between the opposing surfaces of said first and second substrates;

a transparent electrode formed on said first substrate;

an opposite electrode formed on said second substrate;

first and second alignment layers respectively formed on the first and second substrates and contacting said liquid crystal disposed therebetween; and

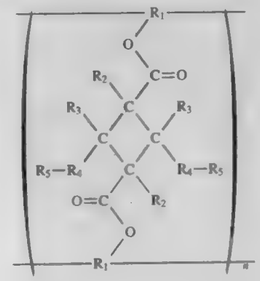
a polarizing filter formed on at least one of said first and second substrates,

wherein respective surfaces of said first and second alignment layers include a plurality of parallel, continuous convex ridges, each adjacent pair of said plurality of ridges being separated by a continuous groove,

wherein each of said plurality of ridges has an irregular, asymmetric repeated form in a longitudinal direction and in a width direction, the repeated form in the longitudinal direction being longer than that in the width direction,

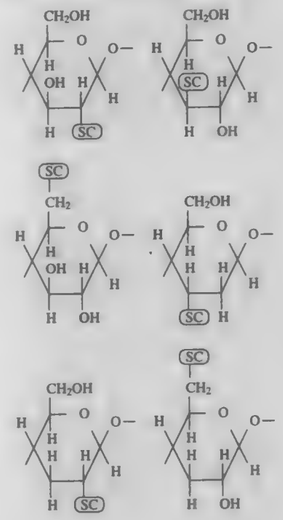
wherein said first and second surfaces are entirely defined by said plurality of ridges and associated grooves such that all portions of the first and second surfaces of the alignment layer are curved with respect to said first and second substrates,

wherein said alignment layer consists of a compound having a repetition structure unit expressed by the following chemical formula:



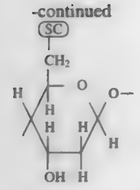
wherein said aromatic groups of each of said repeating structural unit are aligned substantially in said longitudinal direction,

where R1 is selected from a group consisting of



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where R2 is —H, R3 is —H, R4 is —C6H4, and R5 is selected from a group consisting of —NO2, —CN and —C6H4CN.

5,725,916

HEAT-INSULATING PAPER CONTAINER AND METHOD FOR PRODUCING THE SAME

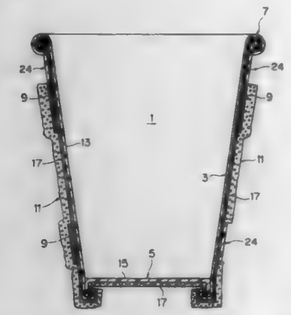
Kenji Ishii, and Tatsuya Koya, both of Chiba-ken, Japan, assignors to Nihon Dixie Company Limited, Tokyo, Japan

Continuation-in-part of Ser. No. 358,761, Dec. 19, 1994, Pat. No. 5,490,631. This application Nov. 16, 1995, Ser. No. 558,482

Claims priority, application Japan, Sep. 26, 1995, 7-272023

Int. Cl.[6] B65D *3/22*

U.S. Cl. 428—34.2 10 Claims



1. A heat-insulating paper container comprising a body member and a bottom panel member, wherein said body member has an inner surface that is laminated with one of an aluminum foil and a first thermoplastic synthetic resin film, and an outer surface of a second thermoplastic synthetic resin film, wherein at least a first part of the outer surface of said body member is coated with a foam suppressing paint containing 5 wt %–40 wt % of a synthetic resin component so that foaming of the second thermoplastic synthetic resin film is suppressed in an area of the outer surface of said body member that has been coated with said foam suppressing paint, and further wherein a heat-insulating layer of the second thermoplastic synthetic resin film is formed by foaming the second thermoplastic resin film in other areas of the outer surface of said body member.

5,725,917

BARRIER LAMINATE WITH IMPROVED INTERLAYER ADHESION

Christopher J. Parks, Ellicott City, Md., assignor to WESTVACO Corporation, New York, N.Y.

Filed Feb. 1, 1996, Ser. No. 595,560

Int. Cl.[6] B32B *7/12;23/06*

U.S. Cl. 428—34.2 9 Claims

1. A container having an outer surface and an inner product contact surface prepared from a laminate consisting essentially of:

(a) a paperboard substrate;

(b) a layer of heat-sealable olefin polymer on one side of the paperboard substrate to provide the outer surface of the container;

(c) an inner sandwich layer on the other side of the paperboard substrate comprising, in sequence, from the paperboard, a first tie layer, an amorphous nylon oxygen barrier layer, and a second tie layer; and,

(d) an inner layer of a heat-sealable olefin polymer on the same side of the paperboard as the inner sandwich layer inwardly from the sandwich layer, to provide the inner product contact surface of the container;

(e) wherein the first and second tie layers consist of an anhydride-modified linear low density polyethylene copolymer to provide enhanced interlayer adhesion.

5,725,918

CARDBOARD AND/OR PAPER BASED MULTILAYER MATERIAL

Luigi Bonifaci, Rome, Italy, assignor to The Procter & Gamble Company, Cincinnati, Ohio

PCT No. PCT/US94/14386, § 371 Date May 9, 1996, § 102(e) Date May 9, 1996, PCT Pub. No. WO95/16558, PCT Pub. Date Jun. 22, 1995

PCT Filed Dec. 13, 1994, Ser. No. 640,900

Claims priority, application European Pat. Off., Dec. 16, 1993, 93870234

Int. Cl.[6] B65D *5/56;5/52*

U.S. Cl. 428—34.2 2 Claims



1. A packaging container made from one blank comprising a multilayer material having two layers of paper and a layer of ethylene vinyl alcohol copolymer attached between said two layers of paper by at least one tie layer, said two layers of paper being outermost layers of said blank, said container being formed by gluing two edges of said blank such that one of said outermost layers at one edge is glued to an outermost layer at another edge.

5,725,919

LEAD-FREE GLASS ENAMELS FOR DECORATING GLASS BEVERAGE CONTAINERS AND METHODS FOR USING THE SAME

Gordon J. Roberts, Parma; John J. Maloney, Solon, and Sivasubraman K. Muralidhar, North Royalton, all of Ohio, assignors to Ferro Corporation, Cleveland, Ohio

Continuation-in-part of Ser. No. 213,497, Mar. 16, 1994, abandoned. This application Mar. 13, 1995, Ser. No. 403,259

Int. Cl.[6] C03C *3/066*

U.S. Cl. 428—34.5 19 Claims

19. A decorated beverage container comprising a glass container having a fired decorative coating formed along at least a portion of the outside surface thereof, said fired decorative coating formed by firing a lead-free glass enamel at a temperature of from about 560° C. to about 640° C. comprising a glass frit consisting of in weight percent from 17% to 28% SiO_2, from 12% to 30% B_2O_3, up to 3% Al_2O_3, up to 13% Na_2O, up to 13% K_2O, up to 14% TiO_2, from 5% to 30% ZnO, up to 14% ZrO_2, up to 6% CeO_2, up to 6% Y_2O_3, from 1% to 8% La_2O_3, up to 1% MgO, up to 5% CaO, up to 10% SrO, up to 16% BaO, from 0.5% to 5% fluoride, a maximum of 5%

each of P_2O_5, Sb_2O_3, WO_3, Bi_2O_3 and MoO_3, with the provisions that the combined weight of Na_2O plus K_2O is in the range of 6% to 13%, that the combined weight of MgO plus CaO plus SrO plus BaO is in the range of 1% to 16% and if the level of MgO is less than about 0.2% then the combined weight of CaO plus SrO plus BaO is at least 4%, that the combined weight of ZrO_2 plus TiO_2 is in the range of 5% to 22%, and that the combined weight of ZrO_2 plus TiO_2 plus La_2O_3 plus CeO_2 plus Y_2O_3 is in the range of 7% to 25%, said fired decorative coating displaying a weight loss of less than 100 mg using a modified ASTM test procedure C675-85.

5,725,920

FIBER-REINFORCED RESIN PIPE HAVING IMPROVED IMPACT RESISTANCE

Ralph S. Friedrich, Hermosa Beach, Calif.; Duane G. Hemphill, Burkburnett, Tex.; Joie L. Folkers; Brian M. Francis, both of Wichita Falls, Tex., and Gordon G. Robertson, Houston, Tex., assignors to Ameron International Corporation, Pasadena, Calif.

Filed May 6, 1996, Ser. No. 642,219

Int. Cl.[6] A47G *19/22;* B28B *21/00*

U.S. Cl. 428—34.7 13 Claims

1. A fiber-reinforced resin pipe comprising:

a structural pipe wall comprising layers of helically wound reinforcing fiber bonded with a resin selected from the group consisting of polyesters resin, vinyl ester resins, epoxy resins, and mixtures thereof; and

an intermediate layer disposed around a surface of the structural pipe wall; and

a fiber-reinforced resin layer disposed around a surface of the intermediate layer, wherein the intermediate layer is formed from a material that is chemically incompatible with the resins that are used to form the structural pipe wall and the fiber-reinforced resin layer.

5,725,921

LINER FOR PROTECTING POLES AGAINST SUB-SOIL DECAY

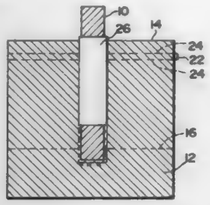
Alexander Wladyslaw Baecker, Westville, and Graham David Shelver, Vorna Valley, both of South Africa, assignors to Biotrans International (Pty) Ltd, Sandton, South Africa

Filed Jun. 17, 1996, Ser. No. 664,830

Claims priority, application South Africa, Jun. 20, 1995, 95/5099; Aug. 29, 1995, 95/7240

Int. Cl.[6] A01N *25/34*

U.S. Cl. 428—34.9 13 Claims



1. A synthetic plastic sleeve provided for protecting a timber pole against subsoil decay, which sleeve comprises a composite structure including at least two sheet material layers of synthetic plastic material of which at least one layer has heat shrink properties and of which the operative outer layer is of a damage resistant material which can protect the remainder of the sleeve during its application onto a pole, the transport of a pole having the sleeve applied thereon and the location of the pole in a body of soil, the sleeve being dimensioned to fit slidably over a pole to be protected, and by being heated, to shrink tightly onto the pole, the synthetic plastic materials forming the sheet material layers of the sleeve having different properties that are selected in terms of the specific conditions of a pole to be protected and the subsoil conditions to which the pole will be exposed, in use, with the synthetic plastic material forming one of the sheet material layers having a dry film biocide comprising a mixture of methyl benzimidazole-2-YLO carbamate, 2 octyl-4 -isothiazolinone-3-one and 3-(3,4-dichlorophenyl)-1,1-dimethyl urea incorporated therein.

5,725,922

SEMICONDUCTIVE SILICONE RUBBER COMPOSITIONS AND SEMICONDUCTIVE SILICONE RUBBER ROLLS

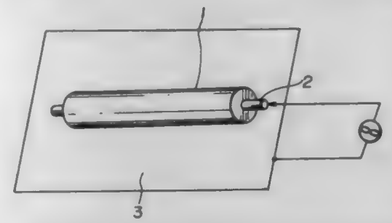
Tsutomu Nakamura, Usui-gun, Japan; Satao Hirabayashi, Usui-gun, Japan; Hiroshi Kikuchi, Minato-ku, Japan; Hirokazu Ando, Minato-ku, Japan, and Takao Mizutani, Minato-ku, Japan, assignors to Shin-Etsu Chemical Co., Ltd., Tokyo, Japan, and Oki Data Corporation, Tokyo, Japan

Filed Jul. 12, 1996, Ser. No. 678,955

Claims priority, application Japan, Jul. 14, 1995, 7-201595

Int. Cl.[6] B32B *15/06;25/20;* C08L *83/00*

U.S. Cl. 428—36.9 14 Claims



1. A seminconductive silicone rubber composition comprising

(A) 100 parts by weight of an organopolysiloxane containing at least two aliphatic unsaturated groups in a molecule and represented by the following average compositional formula:

$$R^1_nSiO_{(4-n)/2} \quad (I)$$

wherein R^1 which may be identical or different is a halogen- or cyano-substituted or unsubstituted monovalent hydrocarbon group and letter n is a positive number of 1.98 to 2.02,

(B) about 5 to 70 parts by weight of reinforcing silica powder having a specific surface area of at least 50 m^2/g,

(C) about 0.1 to 300 parts by weight of an electrically conductive agent,

(D) about 0.1 to 20 parts by weight of a hydrocarbon oil having a heat loss of up to 30% at 200° C./4 hours, and

(E) an amount to cure component (A) of a curing agent.

5,725,923

USE OF A STRIP OF SELF-ADHESIVE FILM FOR TEMPORARY BONDS

Bernd Lühmann, Norderstedt, Germany, assignor to Beiersdorf Aktiengesellschaft, Hamburg, Germany

Filed Nov. 15, 1994, Ser. No. 339,528

Claims priority, application Germany, Nov. 20, 1993, 43 39 604.6

Int. Cl.[6] C09J *7/02*

U.S. Cl. 428—40.1 10 Claims

1. An adhesive element for a temporary bond, comprising

a) a piece of stretchable film carrying adhesive on both faces,

b) means rendering one adhesive area on each face non-adhesive, the resulting non-adhesive area on one face being aligned with the adhesive area on the other face to provide a stretchable film having one adhesive area and one non-adhesive area per face,

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c) the adhesive being such that upon stretching in its plane it loses adhesiveness.

d) whereby upon joining two surfaces by applying one face of the element to one surface and applying the other surface to the other face of the element they are joined and subsequently by moving one of the surfaces laterally the adhesive stretches, loses its adhesiveness and the surfaces are released from one another and from the element

wherein said element has a thickness of about 25 to 3000 μm.

5,725,924

SEALING DEVICE

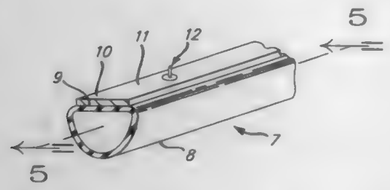
James Frederick Keys, St. Neots, England, assignor to The Standard Products Company, Cleveland, Ohio

Filed Jul. 14, 1995, Ser. No. 502,072

Claims priority, application United Kingdom, Jul. 14, 1994, 9414244; Feb. 28, 1995, 9503968

Int. Cl.[6] **B60J** *10/00;* **B60R** *13/02*

U.S. Cl. 428—40.1 **26 Claims**



1. A sealing device in combination with a vehicle opening of a vehicle, said vehicle opening being defined by at least one vehicle body member, said sealing device comprising an elongated sealing portion having a substantially flat surface running the length of the sealing portion, said sealing portion being secured substantially along its flat surface to an adhesive means having an outer adhesive surface remote from the sealing portion, said outer adhesive surface being secured to the body member, the device further comprising a plurality of protruding members positioned at predetermined intervals along the flat surface and having a protruding end protruding from the outer adhesive surface of the adhesive means, said protruding members being separate members from the sealing portion, said body member including receiving means receiving the protruding members, wherein the protruding members comprise a flat portion opposite the protruding end, said flat portion having a thickness that is less than a thickness of the adhesive means, and wherein the flat portion does not extend beyond the plane of the outer adhesive surface.

5,725,925

PACKING MATERIAL FOR REFRACTORY

Kenji Ichikawa, Okayama; Hajime Asami, Okayama-ken; Kazushi Maruyama, and Junichi Inoue, both of Bizen, all of Japan, assignors to Shinagawa Refractories Co., Ltd., Tokyo, Japan

PCT No. PCT/JP94/00335, § 371 Date Apr. 10, 1996, § 102(e) Date Apr. 10, 1996, PCT Pub. No. WO95/10492, PCT Pub. Date Apr. 20, 1995

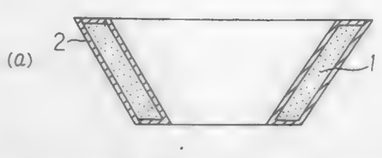
PCT Filed Mar. 2, 1994, Ser. No. 624,633

Claims priority, application Japan, Oct. 15, 1993, 5-258261

Int. Cl.[6] **B32B** *1/04*

U.S. Cl. 428—68 **6 Claims**

1. A refractory nozzle shaped packing base material comprising covering, with an aluminum or its alloy foil, at least a part or the whole of the surfaces of said shaped packing base material for refractory, said material composition comprise inorganic refractory



powder, an inorganic and/or organic fibrous raw material, and a binder, said foil having a thickness of 0.01 to 0.5 mm.

5,725,926

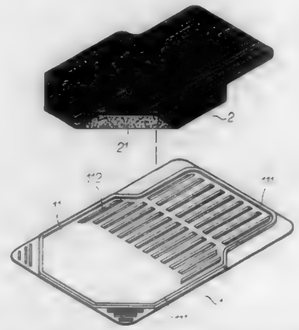
CAR FLOOR MAT

Ming-Ling Wang, 346-2 Chang Yuan Road Chang Sha Village, Hua Tan Hsiang, Changhua, Taiwan

Filed Jan. 16, 1997, Ser. No. 784,299

Int. Cl.[6] **B32B** *3/30;3/02*

U.S. Cl. 428—78 **2 Claims**



1. A car floor mat comprising a mat body made integrally of a rubber material and composed of a dustproof side and a waterproof side; wherein said dustproof side is provided with a rubber fringe, a plurality of straight slots arranged regularly, and a carpet body detachably held in said dustproof side by said rubber fringe; and wherein said waterproof side is provided with a plurality of straight drain trenches and curved drain trenches, and a margin drain trench.

5,725,927

CLEANING CLOTH

Jan-Peter Zilg, Weinheim; Heinrich Laun, Augsburg, and Michel Pässler, Neusass, all of Germany, assignors to Firma Carl Freudenberg, Weinham, Germany

Filed May 23, 1996, Ser. No. 652,209

Claims priority, application Germany, May 23, 1995, P 19518975.2

Int. Cl.[6] **B32B** *3/02;5/14;* **A47K** *7/02*

U.S. Cl. 428—89 **17 Claims**

1. A reusable cleaning cloth for the damp and dry cleaning of surfaces, comprising

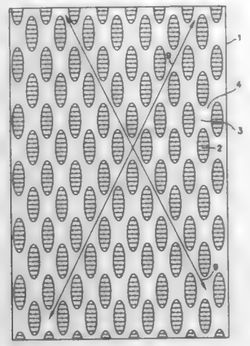
a textile base layer, said base layer having a cleaning side:

a plurality of filament loops obtained by needle tufting of the textile base layer, said plurality of filament loops projecting away from the base layer on the cleaning side, said filament loops being grouped in a plurality of equidirectionally aligned filament-bearing islands that are

evenly spaced from one another;

the filaments of the islands projecting at a height of 0.5 mm to 5 mm out of the base layer of the cloth;

said islands each being between 4 mm and 50 mm in length, and having a width of between 2 mm and 10 mm; the islands further being arranged along the cleaning surface of



the base layer in a staggered formation with respect to their length, so that an island begins on either side of each end of an island; and

the islands being spaced from one another by loop-free, relatively depressed lines extending over the entire extent of the cleaning cloth, the width of these lines between two adjacent long sides of the islands being one to two times the width of the islands, wherein the spacing between adjacent islands is reduced by about ½ to ¼ in regions where adjacent ends of the island approach one another.

5,725,928

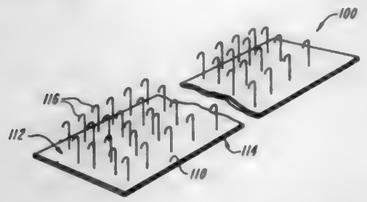
TOUCH FASTENER WITH MAGNETIC ATTRACTANT

Randall B. Kenney, Concord, N.H.; Brian J. Routhier, Leesburg, Va., and Martin L Jacobs, Bedford, N.H., assignors to Velcro Industries B.V., Curacao, Netherlands Antilles

Filed Feb. 17, 1995, Ser. No. 390,876

Int. Cl.[6] **A44B** *21/00*

U.S. Cl. 428—100 **32 Claims**



1. A component of a two component separable hook and loop fastener, said component for use with a loop fastener comprising:

a. a base, having a fastening surface and a non-fastening surface and comprising a magnetically inert constituent that is intimately associated with a magnetic attractant constituent, substantially throughout the entire volume of said base; and

b. extending from said fastening surface of said base and directly attached thereto, a plurality of hook fastening elements comprising a magnetically inert constituent that is intimately associated with a magnetic attractant.

5,725,929

REINFORCED WOOD

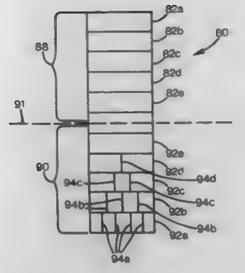
Leslie Cooke, Eugene, Oreg., and Kenneth J. KarisAllen, Nova Scotia, Canada, assignors to Fiber Technologies, Inc., Drain, Oreg.

Filed Aug. 20, 1996, Ser. No. 700,144

Int. Cl.[6] **B27M** *1/08;3/00;* **B32B** *5/26;21/08*

U.S. Cl. 428—106 **25 Claims**

1. A method of preparing a reinforced wood piece, comprising the steps of:



providing a first wood member;

providing a second wood member;

providing a fiber reinforced polymer composite sheet material;

providing a wood body having a tension zone and a compression zone so that a neutral plane is disposed between the tension zone and the compression zone;

attaching the fiber reinforced polymer composite sheet material to the first and second wood members to form a laminated wood stock so that the wood members and the fiber reinforced polymer composite sheet material are intermittently stacked on top of one another;

cutting the laminated wood stock into a plurality of laminated stock pieces; and

attaching at least one laminated stock piece to the wood body so that the fiber reinforced polymer composite sheet material of the laminated stock piece is perpendicular to the neutral plane.

16. A reinforced wood piece comprising:

an elongate laminated wood body having a first wood panel attached to a second wood panel so that a neutral plane is disposed between the first wood panel and the second wood panel; and

a laminated stock piece attached to the laminated wood body, the laminated stock piece including a plurality of wood members and fiber reinforced polymer composite sheet materials that are intermittently disposed so that the wood members are separated by the fiber reinforced polymer composite sheet materials, the fiber reinforced polymer composite sheet materials being perpendicular to the neutral plane of the laminated wood body.

5,725,930

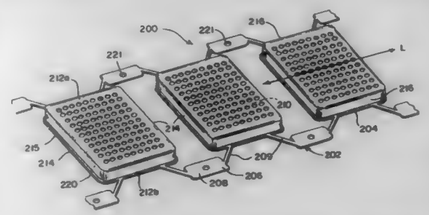
SUPPLY FEEDSTOCK FOR WORKPIECE FINISHING MACHINE

Frank Ziberna, Elmhurst, Ill., assignor to Bi-Link Metal Specialties, Elmhurst, Ill.

Continuation of Ser. No. 123,717, Sep. 20, 1993, Pat. No. 5,503,895. This application Mar. 14, 1996, Ser. No. 615,872

Int. Cl.[6] **B32B** *3/24*

U.S. Cl. 428—131 **26 Claims**



1. A supply strip of workpieces for supplying a succession of individual workpieces to a machine which separates individual workpieces from the supply strip and presents the separated workpieces to a loading means, the machine including means for

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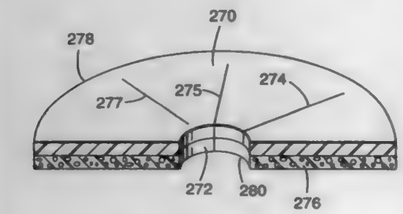
advancing said supply strip therethrough said supply strip comprising: a plurality of individual workpieces assembled in the form of a continuous belt, each workpiece having a presentation surface for engaging a presenting means of said machine, the presentation surface being defined by multiple edges of said workpiece, said individual workpieces being disposed generally adjacent another in a spaced-apart relationship and separated from each other by intervening spaces along a length of said supply strip, the workpieces being interconnected successively with one another by individual webs, the webs extending alongside said workpieces for the length of said supply strip, said webs maintaining said individual workpieces in said spaced-apart relationship, said webs including planar portions defining advancement surfaces of said supply strip which are engaged by the advancement means of said machine, said webs being disposed outside of said workpiece edges, and said web planar portions and said workpiece presentation surfaces being disposed in different planes.

5,725,931

CONSTRAINED LAYER DAMPER WITH SLIT(S) AND/OR CUTOUT(S)

Donald T. Landin, and Shwi-Long Hwang, both of Eagan, Minn., assignors to Minnesota Mining and Manufacturing Company, St. Paul, Minn.

Filed Nov. 3, 1995, Ser. No. 552,392
Int. Cl.[6] B32B *3/24; G11B 3/61*
U.S. Cl. 428—134 **36 Claims**



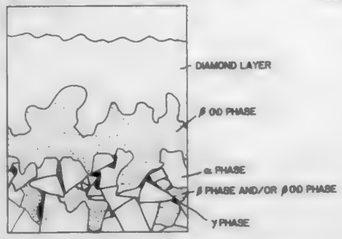
1. A damped article comprising:
(a) an article selected from the group consisting of rotatable storage mires and rotatable spacer articles:
(b) a damper comprising:
a construction comprising:
a layer(s) of vibration damping material attached to one side of a backing wherein the backing has a Young's Modulus greater than that of the layer(s) of vibration damping material;
wherein the construction has a hole passing through the center of the construction;
wherein the construction has a perimeter and the hole has a perimeter;
wherein the construction has at least one slit, each slit independently extending through the backing and optionally further extending through the vibration damping material layer(s), wherein for each slit only one of the following is true: (i) the slit intersects with the perimeter of the hole but not the perimeter of the construction (ii) the slit intersects with the perimeter of the construction but not the perimeter of the hole (iii) the slit intersects with neither the perimeter of the hole nor the perimeter of the construction, wherein the damper has improved vibration damping properties compared to an identical damper not having slit(s); wherein the damper is attached to an outer surface of the article.

5,725,932

CERAMIC-BASED SUBSTRATE FOR COATING DIAMOND AND METHOD FOR PREPARING SUBSTRATE FOR COATING

Satoshi Iio, Gifu; Takahisa Ushida, Aichi; Takashi Okamura, Aichi-gun, and Masakazu Watanabe, Aichi, all of Japan, assignors to NGK Spark Plug Co., Ltd., Aichi, Japan

Filed May 25, 1994, Ser. No. 249,039
Claims priority, application Japan, May 25, 1993, 5-145634; Mar. 23, 1994, 6-075492; Apr. 8, 1994, 6-093936
Int. Cl.[6] C22F *1/00*
U.S. Cl. 428—172 **18 Claims**



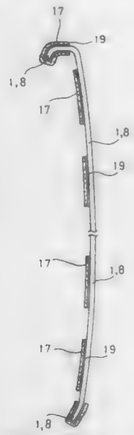
1. A ceramic-based substrate for coating comprising a WC-based cemented carbide having a N-containing surface layer on said carbide piece, said surface layer being based on at least one solid solution selected from the group consisting of a W—Ti—C—N solid solution and a W—Ti—Ta—C—N solid solution and constituting a surface presenting basic surface irregularities so that a surface of said surface layer has a surface roughness R_z of 2 to 20 μm.

5,725,933

WORKING PROTECTION COVER AND PARTS THEREOF AND METHOD OF MANUFACTURING THE WORKING PROTECTION COVER

Hidetoshi Nishiyama, 11-21, Hatsucho, Neyagawa-shi, Osaka-fu, Japan

Division of Ser. No. 464,972, Jun. 5, 1995, Pat. No. 5,585,179, which is a division of Ser. No. 176,903, Jan. 3, 1994, abandoned. This application Jul. 19, 1996, Ser. No. 684,549
Claims priority, application Japan, Jan. 8, 1993, 5-1470; Apr. 1, 1993, 5-74879; May 21, 1993, 5-119381; Jul. 6, 1993, 5-165814
Int. Cl.[6] B65D *65/08;85/68*
U.S. Cl. 428—192 **5 Claims**



1. A flexible protective cover for covering a vehicle body component to partially protect the vehicle body component from being damaged during a vehicle assembly operation, said protective cover comprising:

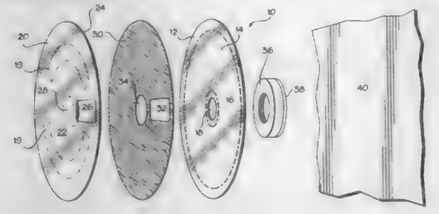
a thermoplastic resin sheet having a predetermined shape, and having upper and lower surfaces and being formed to fit on a portion of the vehicle body component without losing shape;
a non-woven cloth sheet having upper and lower surfaces, the upper surface of said cloth sheet being bonded to the lower surface of said thermoplastic resin sheet;
a non-slip tape made of a foam material composed of polyolefin resin and synthetic rubber and having a large coefficient of friction;
said non-slip tape being bent along its longitudinal center and bonded to the protective cover wherein the bent non-slip tape sandwiches the peripheral edge of the protective cover to prevent the protective cover from slipping off the vehicle body component, said non-slip tape having an outer surface; and
a protective sheet bonded to the outer surface of said non-slip tape in order to protect said non-slip tape and to facilitate separation of protective covers from each other when said protective covers are stacked in a plurality of layers.

5,725,934

MOUNTABLE DISC DISPLAY DEVICE

Glenn Gallant, Winchester, Mass., assignor to Disc Concepts, Inc., Wellesley, Mass.

Filed Mar. 12, 1996, Ser. No. 614,054
Int. Cl.[6] B32B *3/00*
U.S. Cl. 428—195 **11 Claims**



1. A disc display device which comprises:
a first disc formed of a plastic material having a first flat printed surface and a first hole on said first disc,
at least one masking disc formed of a plastic material having a second printed surface, a flat bottom surface and at least one first transparent area for viewing at least a portion of said first printed surface,
said first printed surface of said first disc positioned to be viewed through said at least one transparent area,
one of said at least one masking disc having a bushing secured thereto and positioned to extend through said first hole,
a securing means secured to said bushing to permit said first disc and said at least one masking disc to rotate relative to each other and,
a magnet means on said securing means to attach said display device to a substrate independent of said display device.

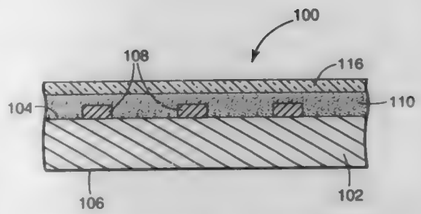
5,725,935

SIGNAGE ARTICLES AND METHODS OF MAKING SAME

J. Sundar Rajan, Woodbury, Minn., assignor to Minnesota Mining and Manufacturing Company, St. Paul, Minn.

Continuation of Ser. No. 335,468, Nov. 7, 1994, abandoned. This application Sep. 26, 1996, Ser. No. 720,266
Int. Cl.[6] B32B *3/00;21/14*
U.S. Cl. 428—195 **18 Claims**

1. A signage article comprising:
a) a first substrate having first and second major surfaces;
b) fused dry toner powder adhered to the first surface of the first substrate, the fused dry toner powder comprising a colorant and a binder, the binder comprising a first adhesive that is non-tacky at about 25° C.; and
c) a second substrate adhered by an adhesive layer to the fused dry toner powder and first surface of the first substrate, the adhesive layer comprising a second adhesive that is transparent and tacky at 25° C., at least one of the first and second substrates being transparent.



5,725,936

Patent Not Issued For This Number

5,725,937

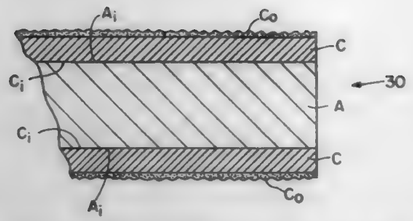
COMPONENT OF PRINTED CIRCUIT BOARDS

James A. Johnston, Windham, N.H., assignor to Johnson & Johnston Associates, Inc., Hampstead, N.H.

Continuation of Ser. No. 899,778, Jun. 17, 1992, abandoned, which is a continuation of Ser. No. 750,798, Aug. 27, 1991, Pat. No. 5,153,050. This application Nov. 12, 1996, Ser. No. 745,435
Int. Cl.[6] B32B *3/00;23/02;27/14;* **C09J** *00/00*
U.S. Cl. 428—209 **8 Claims**

1. A component for use in manufacturing articles such as printed circuit boards comprising:
a laminate constructed of a sheet of copper foil which, in a finished printed circuit board, constitutes a functional element and a sheet of stainless steel which constitutes a discardable element;
one surface of each of the copper sheet and the stainless steel sheet being essentially uncontaminated and engageable with each other at an interface,
a band of flexible adhesive joining the uncontaminated surfaces of the sheets together at their borders and defining a substan-

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tially uncontaminated central zone inwardly of the edges of the sheets and unjoined at the interface.

5,725,938

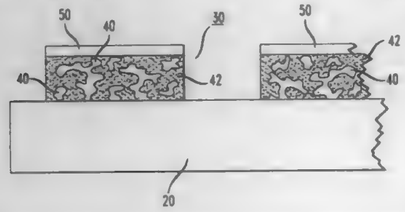
METALLIZATION OF CERAMIC THROUGH APPLICATION OF AN ADHERENT REDUCIBLE LAYER

Sungho Jin, Millington; David Wilfred Johnson, Jr., Bedminster; Henry Hon Law, Berkeley Heights; John Thomson, Jr., Spring Lake, and Thomas Henry Tiefel, North Plainfield, all of N.J., assignors to Lucent Technologies Inc., Murray Hill, N.J.

Continuation of Ser. No. 294,696, Aug. 23, 1994, abandoned. This application Aug. 29, 1996, Ser. No. 699,515

Int. Cl.[6] B32B *3/00;15/00;9/06;* **B22F** *3/00*

U.S. Cl. 428—210 **9 Claims**



1. An electrical device including a metallized portion comprising:

a ceramic substrate; and

a metallized layer disposed on the ceramic substrate, the metallized layer including metallic regions and ceramic regions, the ceramic regions having at least one constituent in common with the ceramic substrate, the metallic and ceramic regions formed from a mixture comprising a reducible ceramic material which forms the metallic regions and a nonreducible ceramic material which forms the ceramic regions, the nonreducible ceramic material being used in an amount ranging from between 20% to 50% by volume of the mixture, the ceramic substrate and at least a portion of the ceramic regions of the metallized layer being sintered to each other such that the sintered ceramic regions are interspersed between metallic regions of the metallized layer.

5,725,939

SYNTHETIC WOOD MEAL, METHOD AND APPARATUS FOR MANUFACTURING THE SAME; SYNTHETIC WOOD BOARD INCLUDING THE SYNTHETIC WOOD MEAL, METHOD AND APPARATUS OF EXTRUSION MOLDING THEREFOR

Sadao Nishibori, Tokyo, Japan, assignor to EIN Engineering Co., Ltd., Tokyo, Japan

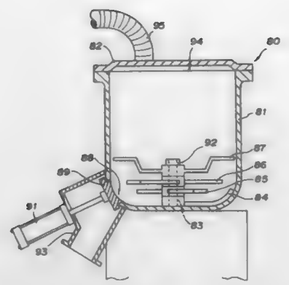
Continuation of Ser. No. 346,625, Nov. 30, 1994, abandoned. This application Sep. 6, 1996, Ser. No. 706,685

Claims priority, application Japan, Feb. 10, 1994, 6-016794

Int. Cl.[6] B29B *9/12;* **B29C** *47/36*

U.S. Cl. 428—292.4 **24 Claims**

1. A synthetic wood meal wherein a thermoplastic resin material of 25 to 80 wt % is stirred and mixed using rotating stirring and impact-applying blades with a cellulose crushed material having a mean particle diameter of 20 mesh or less of 20 to 75 wt %, wherein the cellulose crushed material is dried to a moisture content of 0.1 to 0.3 wt % by the frictional heat generated from the rotation and impact of said blades, creating a mixture, said mixture being kneaded and frictionally heated by the rotation and impact of said blades causing the dried cellulose crushed material to be surrounded by the resin forming a gelatinous mixture, and said kneaded mixture being cooled and pulverized, and regulated to have a particle diameter of 10 mm or less.



4. A synthetic wood board in which thermoplastic resin material of 25 to 80 wt % is stirred and mixed by rotating stirring and impact-applying blades with a cellulose crushed material having a mean particle diameter of 20 mesh or less of 20 to 75 wt %, said crushed material being dried to a moisture content of 0.1 to 0.3 wt % by frictional heat generated by the rotation of said blades, creating a mixture; said rotation of blades kneading said mixture generating frictional heat and causing the cellulose crushed material to be surrounded by the resin forming a gelatinous mixture; said kneaded mixture being cooled, pulverized and regulated to a particle diameter of 10 mm or less, creating a size regulated synthetic wood material; and

said size regulated synthetic wood material being heated, kneaded and squeezed by a screw or screws into a molding die; wherein said material is cooled slowly, while applying a control force against the squeezing force of said material so as to increase the density of said material.

5,725,940

COMPOSITE MOLDED ARTICLE AND METHOD FOR MAKING SAME

Hideo Sakai, Kanagawa-Ken, Japan; Kojiro Motai, Kanagawa-Ken, Japan; Satoru Kishi, Kanagawa-Ken, Japan; Katsuyuki Morita, Kanagawa-Ken, Japan; Nobuyuki Hosoyama, Kanagawa-Ken, Japan; Hiroshi Tanabe, Kanagawa-Ken, Japan; Shuji Iida, Mie-Ken, Japan, and Kiyotaka Nakai, Aichi-Ken, Japan, assignors to Mitsui Toatsu Chemicals, Inc., Kariya, Japan

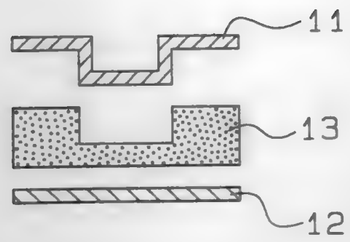
Filed Oct. 27, 1993, Ser. No. 141,602

Claims priority, application Japan, Oct. 27, 1992, 4-288727; Oct. 27, 1992, 4-310823

Int. Cl.[6] B32B *3/26*

U.S. Cl. 428—318.6 **10 Claims**

1. A composite molded article which comprises at least one multilayer board which is prepared by laminating, heating, and pressure-bonding a plurality of prepregs containing thermoplastic polypropylene resin and reinforcement fibers having a volume content of not less than 30% and not more than 85% in a layered configuration wherein each prepreg has the reinforcement fibers arranged in one direction and adjacent prepregs have the reinforcement fibers arranged in different directions, said multilayer board being capable of being deformed into a desired shape at a low pressure when said thermoplastic polypropylene resin is in a melted state, and a thermoplastic foamed polypropylene resin body made from a thermoplastic polypropylene resin of the same type as the multilayer board and having a desired shape, said multilayer board being pressed and joined onto the surface of said thermoplastic foamed polypropylene resin body in the absence of a mechanical fastener or adhesive agent when said multilayer board is heated to not less than a melting temperature of said thermoplastic polypropylene resin.



5,725,941

POWDERED LACQUER FOR COATING SUBSTRATES SUCH AS AUTOMOBILE BODIES

Fritz Mezger, Goegglingen, Germany, assignor to Mercedes-Benz AG, Stuttgart, Germany

Filed Aug. 31, 1995, Ser. No. 522,113

Claims priority, application Germany, Aug. 31, 1994, 44 30 919.8

Int. Cl.[6] B32B *5/16*

U.S. Cl. 428—327 **16 Claims**

1. A multi-layer effect coating whose color effect is based on interference phenomena for coating a substrate surface with a mixture of coating materials that differ from one another in the values of their affinity parameters and multi-layer parameters and their surface tension values relative to air and relative to the substrate surface, wherein said coating materials, following joint application to the substrate surface, separate from the mixture and automatically arrange themselves on the substrate surface in a sequence of different coating layers which is determined by the value of at least one of said parameters and the surface tension value, wherein the coating comprises:

a) a top coating layer comprising plate-shaped color determining interference pigments from liquid crystalline side-chain polymers suspended in a paint vehicle, wherein the pigments align themselves roughly parallel to the substrate surface during separation from the mixture, and

b) a lower coating layer interposed between the top coating layer and the substrate surface, said lower coating layer comprising color pigments with an absorbent action which are black or have a color hue corresponding to a hue of the color-determining interference pigments in the top coating layer.

5,725,942

SHAPED, WATER-EXPANDABLE, SEALANT ARTICLE OF MANUFACTURE

Piero Starita, Leghorn, Italy, and Paolo Gasperini, Leghorn, Italy, assignors to Laviosa Chimica Mineraria S.p.A., Leghorn, Italy

Continuation-in-part of Ser. No. 568,630, Dec. 7, 1995, abandoned. This application Dec. 24, 1996, Ser. No. 773,005

Claims priority, application European Pat. Off., Dec. 30, 1994, 94120936

Int. Cl.[6] B32B *5/16;* **D02G** *3/00;* **C08J** *3/00;* **C08L** *1/00*

U.S. Cl. 428—327 **19 Claims**

1. A self-supporting, shaped, water-expandable article of manufacture suitable for the containment of water seepage through structures to which it is applied, comprising a water-swellable smectite clay, a C2–C6 aliphatic polyhydric alcohol and a binder composed of a copolymer of acrylic esters of lower alkyl alcohols, extruded into a predetermined shape, and wherein said water-swellable smectite clay is present in said article in a greater amount than any other component.

5,725,943

MAGNETIC TAPE CARTRIDGE

Junichi Hirata, Otokuni-gun; Sadamu Kuse, Minoo, and Seigi Kawarai, Ashiya, all of Japan, assignors to Hitachi Maxell, Ltd., Osaka-fu, Japan

Continuation of Ser. No. 925,251, Aug. 6, 1992, abandoned. This application Apr. 4, 1994, Ser. No. 222,341

Claims priority, application Japan, Aug. 10, 1991, 3-225067

Int. Cl.[6] G11B *5/704;5/78*

U.S. Cl. 428—336 **5 Claims**

1. A magnetic tape cartridge for recording and reproducing digital signals having a wavelength of 1 μm or less, comprising:

a magnetic tape including:

a base film which has a glass transition temperature Tg of 70° C., which has a pre-heat-treatment coefficient of thermal shrinkage exceeding 0.6% in its longitudinal direction as measured in an unloaded state after being kept at 105° C. for 30 minutes in a pre-heat-treated and unloaded state, and which subsequently is heat treated at a temperature of 80° to 100° C. for at least one hour to produce a coefficient of thermal shrinkage of 0.6% or less in a longitudinal direction of the tape as measured in an unloaded state after being kept at 105° C. for 30 minutes in an unloaded state; and

a magnetic layer formed on said base film;

wherein said magnetic tape has a total thickness of 14 μm or less; and

wherein said magnetic tape has a coefficient of thermal shrinkage of 0.6% or less in a longitudinal direction of the tape as measured in an unloaded state after being kept at 105° C. for 30 minutes in an unloaded state, said magnetic tape being wound around a hub at least 300 turns.

5,725,944

POLYESTERS FOR METAL LAMINATION

Allan S. Jones, Church Hill, and Alan W. White, Kingsport, both of Tenn., assignors to Eastman Chemical Company, Kingsport, Tenn.

Continuation of Ser. No. 61,946, May 17, 1993, abandoned. This application May 4, 1995, Ser. No. 434,884

The portion of the term of this patent subsequent to May 17, 2013, has been disclaimed.

Int. Cl.[6] B29D *22/00*

U.S. Cl. 428—336 **4 Claims**

1. Biaxially oriented, film material having a thickness of from about 5 to about 50 microns, said film material comprising a copolyester having an inherent viscosity of from about 0.3 to about 1.5 dL/g, and comprising repeat units derived from a dicarboxylic component comprising at least 85 mol % terephthalic acid and a glycol component comprising about 70–90 mol % ethylene glycol and about 30–10 mol % diethylene glycol, wherein, for the glycol component, the total of repeat units from ethylene glycol and diethylene glycol are at least 90 mol % wherein said film has a peel strength on Aluminum of at least about 31.7 g/mm measured at 230° C.

5,725,945

MAGNETIC RECORDING MEDIUM HAVING A FLUORINATED BLOCK POLYMERIC LUBRICANT

Kenji Kohno, Ibaraki, Japan, and Kazushi Miyata, Mishima-gun, Japan, assignors to Hitachi Maxell, Ltd., Osaka, Japan

Continuation of Ser. No. 327,407, Oct. 21, 1994, abandoned. This application Jun. 19, 1996, Ser. No. 668,007

Int. Cl.[6] G11B *5/71*

U.S. Cl. 428—341 **5 Claims**

1. A magnetic recording medium comprising a non-magnetic substrate and a magnetic layer formed on at least one surface of

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said substrate, said magnetic layer containing a fluorine-containing lubricant on or in a surface thereof, wherein said fluorine-containing lubricant is a fluorinated block/non-fluorinated block/fluorinated block triblock copolymer, wherein each of said fluorinated blocks has at least 4 carbon atoms to which a fluorine atom is bonded and said non-fluorinated block has at least 8 carbon atoms and is at least one block selected from the group consisting of a polybutylene adipate group, a polyoxyethylene group and a dodecyl group, and said fluorinated block and said non-fluorinated block are bonded through at least one bond selected from the group consisting of an amide bond, an ester bond, an ether bond, a urethane bond and a urea bond; and

wherein said lubricant is soluble in isopropanol at a concentration of 0.05% or more, by weight.

5,725,946

RECORDING PAPER

Norio Fukushima, Tokyo, Japan; Michiko Okamoto, Tokyo, Japan; Yoshio Yoshida, Tokyo, Japan; Tsuyoshi Yasuda, Tokyo, Japan, and Yoshihiro Kuroyama, Tokyo, Japan, assignors to Nippon Paper Industries, Co., Ltd., Tokyo, Japan

Filed Mar. 29, 1996, Ser. No. 623,746

Claims priority, application Japan, Mar. 31, 1995, 7-100628; Apr. 19, 1995, 7-117810

Int. Cl.[6] B41M *5/00*

U.S. Cl. 428—342 **16 Claims**

1. A recording paper having a recording layer comprising synthetic silica and an aqueous binder as its principal components, said layer being formed on at least one surface of a base paper and the amount of said layer lying within the range of 0.5–4.0 g/m^2 in terms of solids on each surface on which said layer is formed, wherein the critical surface tension of said recording layer surface (γ_c) lies within the limits $43 \leqq \gamma_c \leqq 42$ dyne/cm and, optionally, the contact angle measured using water lies in the range of 100–120°.

5,725,947

COMPOSITE FILM AND USE THEREOF IN THE PRESENCE OF SOLVENTS

Heiner Johannsen, Viersen, Germany, and Richard W. Coates, Neuss-Weckhoven, Germany, assignors to Minnesota Mining And Manufacturing Company, St. Paul, Minn.

PCT No. PCT/US96/05936, § 371 Date Apr. 29, 1996, § 102(e) Date Apr. 29, 1996, PCT Pub. No. WO96/34740, PCT Pub. Date Nov. 7, 1996

PCT Filed Apr. 29, 1996, Ser. No. 637,684

Claims priority, application European Pat. Off., May 5, 1995, 95106807

Int. Cl.[6] C09J *7/02*

U.S. Cl. 428—354 **17 Claims**

1. A thin flexible composite comprising a thin flexible polymeric backing bearing a first adhesive layer comprising a blend of from 10–99 wt. % of an acrylic latex and from 1 to 90 wt. % of heat-activatable urethane latex adhesive, and a second adhesive layer applied on top of said first adhesive layer comprising a pressure-sensitive adhesive which exhibits an initial adhesion as to allow reliable positioning and initial removability of the film composite and adhesion build-up to permanently bond the film composite to the substrate after a prolonged dwell time, wherein the first adhesive layer is a pressure-sensitive adhesive at room temperature against the polymeric backing.

5,725,948

ADHESIVE TAPE FOR ELECTRONIC PARTS AND LIQUID ADHESIVE

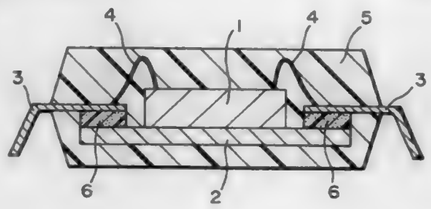
Osamu Oka, and Takeshi Nishigaya, both of Shizuoka, Japan, assignors to Tomoegawa Paper Co., Ltd., Tokyo, Japan

Filed Aug. 28, 1996, Ser. No. 704,068

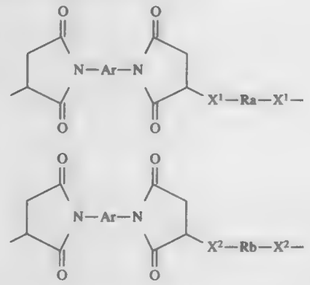
Claims priority, application Japan, Aug. 31, 1995, 7-245150

Int. Cl.[6] B32B *7/12;9/04;15/08;27/00*

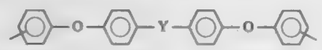
U.S. Cl. 428—355 **7 Claims**



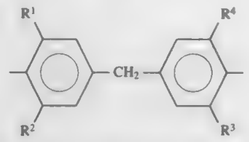
1. An adhesive tape for electronic parts, which comprises an adhesive layer composed of at least a polyimide selected from (I) a polyimide comprising the repeating unit represented by the following formula (1), (II) a polyimide comprising the repeating unit represented by the following formula (2), and (III) a polyimide comprising the repeating units represented by the following formulas (1) and (2) in a suitable proportion, provided on at least one surface of a heat resistance film:



wherein Ar is a divalent group represented by the following formula (3) or the formula (4)



wherein Y is —O—, —CO—, —S—, —SO_2— or —$C(CH_3)_2$—,



wherein R^1, R^2, R^3 and R^4 are each an alkyl group having 1 to 4 carbon atoms or an alkoxy group having 1 to 4 carbon atoms;

Ra represents a divalent group having 2 to 6 benzene rings;

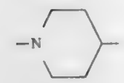
Rb represents an alkylene group having 2 to 20 carbon atoms, an ether group:

—$CH_2CH_2(OCH_2CH_2)_n$— (wherein n is an integer of from 1 to 8), or a dimethylsiloxane group:

—R'—[$Si(CH_3)_2O]_mSi(CH_3)_2$—R'— (wherein R' is an alkyl group having 1 to 10 carbon atoms or —$CH_2OC_6H_4$— and m is an integer of 1 to 20);

X^1 is NH, NR (wherein R is an alkyl group having 1 to 4 carbon atoms or an alkoxy group having 1 to 4 carbon atoms) or S; and

X^2 is NH, NR (wherein R is an alkyl group having 1 to 4 carbon atoms or an alkoxy group having 1 to 4 carbon atoms),



or S.

5,725,949

HOLLOW-FIBER BUNDLE AND MASS-TRANSFER AND/OR HEAT EXCHANGER

Renato Pasquali, Wuppertal, Germany, and Uwe Stein, Heinsberg-Schafhausen, Germany, assignors to Akzo Nobel nv, Arnhem, Netherlands

Filed Dec. 6, 1995, Ser. No. 568,164

Claims priority, application Germany, Mar. 11, 1995, 195 08 895.6; Oct. 20, 1995, 195 39 192.6

Int. Cl.[6] D02G *3/00*

U.S. Cl. 428—364 **15 Claims**



1. A hollow fiber bundle comprising at least one core bundle, which core bundle comprises a carrier thread, at least three hollow fibers and at least one winding thread, in which said core bundle:

said carrier thread has a cross-sectional form which varies along its length,

said hollow fibers are arranged around said carrier thread, and

said at least one winding thread is wound around said hollow fibers of said core bundle.

5,725,950

COATING OF PRECERAMIC ARTICLES WITH SILICON AND/OR CARBON DURING PYROLYSIS TO CERAMIC

Paul Foley, Oldwick, and Linda C. Sawyer, Chatham, both of N.J., assignors to Hoechst Celanese Corp., Somerville, N.J.

Filed Sep. 19, 1986, Ser. No. 909,369

Int. Cl.[6] B32B *1/00;18/00;33/00*

U.S. Cl. 428—367 **8 Claims**

1. A process for producing ceramic fibers coated with elemental carbon or silicon metal which comprises pyrolyzing fibers formed from an organosilicon preceramic polymer to produce ceramic fibers and introducing sufficient amounts of a silicon-containing compound or a hydrocarbon during at least a part of said pyrolyzing step to form a silicon metal or carbon coating on said ceramic fiber, said silicon-containing compound and hydrocarbon having a decomposition temperature no higher than 500° C. at 1 atmosphere.

5. The product produced by the process of claim 1.

5,725,951

LUBRICANT AND SOIL RELEASE FINISH FOR YARNS

Robert Louis Schuette; Phillip DeMott, both of Spartanburg, S.C.; Derek Taylor, Drexel, N.C., and Angel Lee, Spartanburg, S.C., assignors to Milliken Research Corporation, Spartanburg, S.C.

Filed Aug. 28, 1995, Ser. No. 520,059

Int. Cl.[6] D02G *3/00;* **D06M** *10/00*

U.S. Cl. 428—375 **7 Claims**

1. A lubricated textile yarn comprising a textile yarn which has not been formed into a fabric and a finish applied to the yarn as an oil-in-water emulsion having a continuous aqueous phase having a soft release agent incorporated therein, and a discontinuous phase comprised of a lubricating oil, wherein the soil release agent is present on the yarn at an add on of from 0.05 to 3 wt. % owf and the lubricating oil is present on the yarn at an add on of from 0.15 to 6 wt. % owf, and wherein the emulsion comprises at least 45 wt. % water.

5,725,952

INSULATORS

David William Maute Thornley, Minety; Philip Roland Winfield, Latton, both of England; Jeffry Mackevich, Mibrae, and Jeffrey Bennett, Sunnyvale, both of Calif., assignors to Raychem Limited, Swindon, United Kingdom

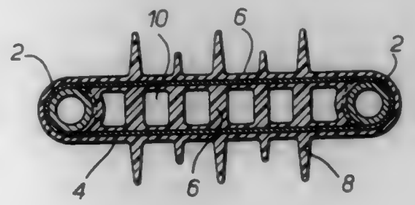
PCT No. PCT/GB93/01210, § 371 Date Dec. 7, 1994, § 102(e) Date Dec. 7, 1994, PCT Pub. No. WO93/26016, PCT Pub. Date Dec. 23, 1993

PCT Filed Jun. 8, 1993, Ser. No. 351,279

Claims priority, application United Kingdom, Jun. 9, 1992, 9212190; Jul. 8, 1992, 9214492; Jul. 14, 1992, 9214967

Int. Cl.[6] D02G *3/00*

U.S. Cl. 428—378 **13 Claims**



1. A method of making a composite article, the article comprising yarn enclosed within outer fusible material, wherein

(i) the yarn, comprising high strength fibers and fusible blocking material, is tensioned into a loop that is wound at least one time around two spaced-apart support members arranged so as to maintain the tension in the loop,

(ii) the yarn and support members are disposed in a mold, and

(iii) the outer fusible material is introduced into the mold in a molten state, the temperature of the outer fusible material being at least to the temperature at which the blocking material fuses, thereby to cause the blocking material to melt and flow between and around the strength fibers of the yarn so as completely to enclose the fibers therewithin, thereby to produce a blocked yarn, and such that the blocked yarn is completely enclosed within the outer fusible material.

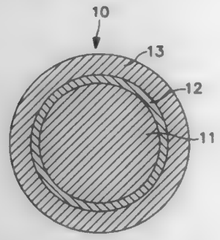
VOL 1208 ISS 2 MR 10 1998 UMI

5,725,953

HEAT-PROOF ELECTRIC WIRE HAVING A BENZIMIDAZOLE-BASED POLYMER COATING

Yasuhiko Onishi, Yokkaichi, Japan; Takashi Itoh, Yokkaichi, Japan, and Yoshihiro Tamura, Yokkaichi, Japan, assignors to Sumitomo Wiring Systems, Ltd., Japan

Filed May 17, 1996, Ser. No. 650,064
Claims priority, application Japan, May 18, 1995, 7-119905
Int. Cl.[6] D02G *3/00*; H01B *7/00*; B32B *27/00*
U.S. Cl. 428—383 7 Claims



1. A heat-resistant insulating material for an element including at least one electrically conductive part, said material consisting essentially of

a first layer comprising at least one first polymer based on at least one benzimidazole monomer, said layer having an internal surface, and an external surface facing away from said internal surface; and

a second and outermost layer comprising at least one second polymer derived from at least one fluorine-containing monomer, said second layer being adhered to said external face of said first layer.

5,725,954

FIBER REINFORCED THERMOPLASTIC COMPOSITE WITH HELICAL FLUTED SURFACE AND METHOD OF PRODUCING SAME

Lawrence V. Montsinger, 1837 Kilmonack La., Charlotte, N.C. 28226

Filed Sep. 14, 1995, Ser. No. 528,202
Int. Cl.[6] B32B *3/00*
U.S. Cl. 428—397 17 Claims



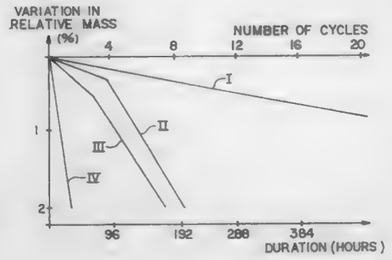
1. An elongate fiber reinforced thermoplastic composite comprising a multiplicity of filamentary fibers, each extending longitudinally of the composite, and a thermoplastic resin matrix impregnating and surrounding said filamentary fibers, said composite having alternating lobes and valleys on its surface defining a fluted cross section, said lobes and valleys extending helically along the longitudinal axis of the composite.

5,725,955

PROCESS FOR PROTECTING PRODUCTS MADE OF COMPOSITE MATERIAL CONTAINING CARBON AGAINST OXIDATION, AND PRODUCTS OBTAINED BY THE SAID PROCESS

Henri Tawil, Le Bouscat; Xavier Bernard, Margaux, and Jean-Claude Cavalier, Le Pian Medoc, all of France, assignors to Societe Europeenne de Propulsion, Suresnes, France

PCT No. PCT/FR92/01245, § 371 Date Jun. 29, 1994, § 102(e) Date Jun. 29, 1994, PCT Pub. No. WO93/13033, PCT Pub. Date Jul. 8, 1993
PCT Filed Dec. 30, 1992, Ser. No. 256,263
Claims priority, application France, Dec. 30, 1991, 91 16321
Int. Cl.[6] B32B *17/00*
U.S. Cl. 428—408 20 Claims



1. A method of providing protection against oxidation for a product made of a composite material containing carbon and a ceramic surface, protection being provided by at least one liquid composition capable of leaving a refractory residue that is non-oxidizing and self-sealing, the method being characterized in that it comprises at least the steps consisting of:

forming on the ceramic surface of the product at least one external coating by means of a composition consisting essentially of a mixture of phosphates, of silica, and of alumina, and belonging to a P_2O_5—SiO_2—Al_2O_3 system; and

after drying, performing a heat treatment at a temperature that is sufficient at least to transform the external coating into an insoluble cement capable of forming a self-sealing glass.

5,725,956

METHOD AND MATERIAL FOR PROTECTING GLASS SURFACES

Richard J. McCurdy, Toledo, Ohio; Kenneth J. Heater, Westerville, Ohio; Alice B. Parsons, Pataskala, Ohio, and J. David Robbins, Worthington, Ohio, assignors to Libbey-Owens-Ford Co., Toledo, Ohio

Continuation-in-part of Ser. No. 170,532, Dec. 20, 1993, Pat. No. 5,451,457. This application Sep. 18, 1995, Ser. No. 529,502
Int. Cl.[6] B32B *17/10*
U.S. Cl. 428—441 9 Claims

1. An article of manufacturing comprising:

a) a plurality of glass sheets; and

b) an interleaving material interposed between said glass sheets, said interleaving material being comprised of a high molecular weight polymer having a number average molecular weight of at least 200,000.

5,725,957

TRANSPARENT SUBSTRATE WITH DIFFUSER SURFACE

Desaraju V. Varaprasad, Holland; Craig A. Dornan, Grand Haven, and Catherine A. Getz, Holland, all of Mich., assignors to Donnelly Corporation, Holland, Mich.

Division of Ser. No. 282,307, Jul. 29, 1994, abandoned. This application Sep. 9, 1996, Ser. No. 708,803
Int. Cl.[6] B32B *9/00*
U.S. Cl. 428—428 23 Claims

1. A faceplate for mounting to a cathode ray tube screen, said faceplate comprising:

a glass substrate, said substrate having inner and outer surfaces;

a reduced gloss, high resolution diffuser surface coating comprising a metal oxide disposed on said outer surface of said substrate; and

an index matching medium on said inner surface of said substrate for contacting the cathode ray tube screen when applied thereto;

said diffuser surface coating having a gloss reading less than about 80 gloss units and a resolution of at least 3 lines per millimeter;

said faceplate being formed separately from the fabrication of the cathode ray tube screen and having reduced glare from ambient light without significant reduction in resolution of images from the cathode ray tube visible through said faceplate.

5,725,958

GAS BARRIER FILM

Shusei Matsuda, Ohtsu, Japan; Kiyoshi Iseki, Ohtsu, Japan; Yoshiharu Morihara, Ohtsu, Japan; Toru Kotani, Ohtsu, Japan; Toshiyuki Oya, Ohtsu, Japan; Toshio Uno, Ohtsu, Japan; Teizo Harima, Ohtsu, Japan; Hideomi Kobe, Ohtsu, Japan, and Yozo Yamada, Ohtsu, Japan, assignors to Toyo Boseki Kabushiki Kaisha, Japan

Continuation of Ser. No. 997,341, Dec. 28, 1992, abandoned. This application Feb. 2, 1996, Ser. No. 597,553
Claims priority, application Japan, Dec. 26, 1991, 3-359629; Jan. 13, 1992, 4-024578; Feb. 6, 1992, 4-056940
Int. Cl.[6] B32B *00/00*
U.S. Cl. 428—446 19 Claims

1. A gas barrier film comprising a plastic film and a thin film formed on at least one surface of said plastic film, said thin film comprising a composite oxide, wherein said composite oxide is a mixture of at least two oxides selected from the group consisting of silicon oxide aluminum oxide, magnesium oxide, and calcium oxide, and wherein the specific gravity of said thin film is from 55% to 86% of Z, which is calculated as follows:

$$Z=a_1\times 2.65+a_2\times 3.97+a_3\times 3.65+a_4\times 3.37,\ a_1+a_2+a_3+a_4=1,$$

a_1, a2, a_3, and a_4 being proportions of silicon oxide, aluminum oxide, magnesium oxide, and calcium oxide in the composite oxide, respectively.

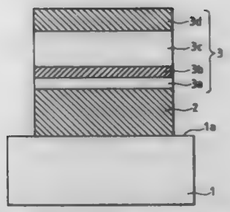
5,725,959

ANTIREFLECTION FILM FOR PLASTIC OPTICAL ELEMENT

Junji Terada, Hiratsuka, Japan; Makoto Kameyama, Funabashi, Japan, and Junichi Sakamoto, Yokohama, Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan

Continuation of Ser. No. 212,837, Mar. 15, 1994, abandoned. This application Nov. 22, 1996, Ser. No. 754,475
Claims priority, application Japan, Mar. 18, 1993, 5-084092; May 28, 1993, 5-151503
Int. Cl.[6] B32B *9/04*
U.S. Cl. 428—448 12 Claims

1. An antireflection film of a plastic optical element, comprising:



an undercoat formed on the optical element and consisting essentially of unsaturated silicon oxide SiO_x (2>x>1) with a thickness within a range from 200 to 300 nm; and

a multi-layered film of a repeating structure, formed on said undercoat and having antireflective characteristics.

5,725,960

MOLDED ARTICLES HAVING HARD COAT LAYER AND METHOD FOR PRODUCING SAME

Yuichiro Konishi, Kawasaki, Japan; Tohru Hosaka, Yokohama, Japan; Mitsushi Tada, Sagamihara, Japan; Tadao Natsuume, Yokosuka, Japan; Nobukazu Takahashi, Yokohama, Japan, and Teiji Kohara, Kawasaki, Japan, assignors to Nippon Zeon Co., Ltd., Tokyo, Japan

PCT No. PCT/JP93/01870, § 371 Date Jun. 7, 1995, § 102(e) Date Jun. 7, 1995, PCT Pub. No. WO94/14878, PCT Pub. Date Jul. 7, 1994
PCT Filed Dec. 24, 1993, Ser. No. 448,557
Claims priority, application Japan, Dec. 28, 1992, 4-361129; Jun. 8, 1993, 5-164059; Aug. 31, 1993, 5-238858; Aug. 31, 1993, 5-238859
Int. Cl.[6] B32B *13/12;27/16;27/28;* G02B *1/10*
U.S. Cl. 428—451 13 Claims

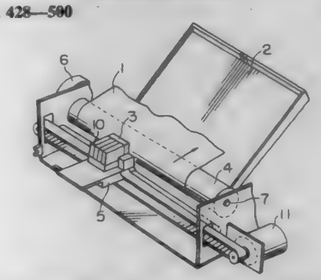
1. A molded article comprising a substrate formed of a thermoplastic norbornene resin having no polar groups, in which the surface of said substrate has been modified to produce a modified surface layer having a surface tension of at least 50 dynes/cm; a primer layer formed on the modified surface layer; and a silicone hard coat layer formed on said primer layer as a top coat layer.

5,725,961

RECORDING MEDIUM HAVING INK-ABSORBENT LAYER

Yoshiyuki Ozawa, Suwa, Japan; Hideo Yamazaki, Suwa, Japan; Kenji Kawada, Yokohama, Japan, and Tetsuya Ochiai, Yokohama, Japan, assignors to Seiko Epson Corp., Tokyo-to, Japan, and Taiho Industries Co., Ltd., Tokyo-to, Japan

Filed Oct. 3, 1996, Ser. No. 720,772
Claims priority, application Japan, Oct. 6, 1995, 7-260215
Int. Cl.[6] B41M *5/00*
U.S. Cl. 428—500 11 Claims



1. A recording medium comprising a substrate and an ink-absorbent layer provided on at least one side of the substrate, the

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ink-absorbent layer being formed of a polymer complex of a basic polymer and a styrene/(meth)acrylic acid polymer, the mixing ratio of the basic polymer and the styrene/(meth)acrylic acid polymer being in the range of from 10:3.5 to 7.

5,725,962

ORIENTED HDPE FILMS WITH METALLIZED SKIN LAYER

Michael J. Bader, Fairport; Jeffrey J. O'Brien, Walworth, and Kelli Lee Riddle, Rochester, all of N.Y., assignors to Mobil Oil Corporation, Fairfax, Va.

Continuation-in-part of Ser. No. 206,574, Mar. 4, 1994, which is a continuation-in-part of Ser. No. 160,551, Dec. 1, 1993, abandoned. This application May 31, 1995, Ser. No. 455,734

Int. Cl.[6] B32B *27/32*

U.S. Cl. 428—515 **5 Claims**

1. A multilayer film structure which comprises:

a) a treated upper skin layer (a) consisting essentially of ethylene-propylene-butene-1 terpolymer and 3 to 30 weight percent based on the weight of the upper skin layer of a low density polyethylene,

b) a base layer comprising high density polyethylene, and

c) a lower skin layer (c) comprising ethylene-propylene-butene-1 terpolymer, 3 to 30 weight percent of a low density polyethylene based on the weight of the lower skin layer and an antiblock component selected from the group consisting of silicone oil and silicone particulate.

5,725,963

MAGNETORESISTANCE EFFECT ELEMENT

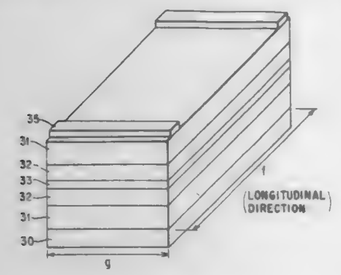
Hitoshi Iwasaki; Yuichi Ohsawa; Reiko Kondoh, all of Yokohama; Susumu Hashimoto, Ebina; Atsuhito Sawabe, Yokosuka; Yuzo Kamiguchi, and Masashi Sahashi, both of Yokohama, all of Japan, assignors to Kabushiki Kaisha Toshiba, Kawasaki, Japan

Division of Ser. No. 144,258, Nov. 1, 1993, Pat. No. 5,549,978. This application May 23, 1996, Ser. No. 652,849

Claims priority, application Japan, Oct. 30, 1992, 4-315648; Mar. 12, 1993, 5-78919; Mar. 15, 1993, 5-53605; Mar. 15, 1993, 5-53612

Int. Cl.[6] G11B *5/127*

U.S. Cl. 428—611 **14 Claims**



1. A magnetoresistance effect element comprising:

a substrate;

a spin valve unit comprising a stacked film formed on said substrate, said stacked film including a first ferromagnetic film a direction of magnetization of which is pinned, a second ferromagnetic film the magnetization of which rotates with a signal magnetic field, and a non-magnetic film disposed between said first and second ferromagnetic films, wherein each of said first ferromagnetic film and said second ferromagnetic films, independently, contains a material selected from the group consisting of Co, CoFe, a CoNi alloy, a CoFeNi alloy and a NiFe alloy, and said non-magnetic film contains a material selected from the group consisting of Cu, Al, Pd, Pt, Rh, Ru, Ir, Au, Ag, CuPd, CuAu and CuNi;

a magnetic film having a higher specific resistance than that of said second ferromagnetic film, formed so as to be in direct magnetic contact with a surface of said second ferromagnetic film, opposite to a surface which is in contact with said non-magnetic film; and

a pair of leads for supplying a current to said stacked film.

5,725,964

FUEL CELL SYSTEM WITH REFORMING DEVICE

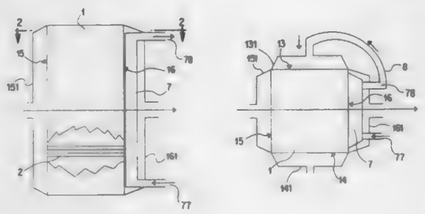
Gerhard Huppmann, Staatsangehörigkeit, Germany, assignor to MTU Motoren-und Turbinen-Union Friedrichshafen GmbH, Germany

Filed Oct. 26, 1995, Ser. No. 548,462

Claims priority, application Germany, Oct. 28, 1994, 44 38 555.2

Int. Cl.[6] H01M *8/06;8/24*

U.S. Cl. 429—20 **12 Claims**



1. A fuel cell system comprising:

a stack of fuel cells which form a fuel cell block, each of said fuel cells having a cathode and an anode;

said fuel cell block having on one side thereof a combustion gas inlet for receiving fresh combustion gas which flows to anodes in said fuel cell block, and a combustion gas outlet through which used combustion gas exits on a side of said fuel cell block opposite said combustion gas inlet;

said fuel cell block also having on another side thereof a cathode gas inlet for receiving fresh cathode gas which flows to cathodes in said fuel cell block, and a cathode gas outlet through which used cathode gas exits on a side of said fuel cell block opposite said cathode gas inlet;

a reforming device heated by heat released by a fuel cell reaction in said fuel cell block, for reforming fresh combustion gas to be supplied to the combustion gas inlet; and

a catalyst arranged in a first area of said reforming device in which said reforming of said combustion gas takes place, said first area having an inlet for receiving fresh combustion gas to be reformed and an outlet connected to said combustion gas inlet of said fuel cell block, through which reformed combustion gas flows to said anodes in said fuel cell block;

wherein said reforming device comprises a heat exchanger located in a stream of exhaust gas exiting directly from said fuel cell block, said heat exchanger having a second area thermally coupled to said first area, through which said stream of exhaust gas is guided from the fuel cell block as a heating gas for heating said reforming device, and a cross-sectional area of the reforming device matches substantially a cross-sectional area of an outlet side of fuel cell block, and the reforming device abuts the fuel cell block.

5,725,965

STABLE HIGH CONDUCTIVITY FUNCTIONALLY GRADIENT COMPOSITIONALLY LAYERED SOLID STATE ELECTROLYTES AND MEMBRANES

Eric D. Wachsman, Palo Alto; Palitha Jayaweera, Fremont; David M. Lowe, Hayward, and Bruce G. Pound, Menlo Park, all of Calif., assignors to Gas Research Institute, Chicago, Ill.

Filed Apr. 25, 1995, Ser. No. 428,629

Int. Cl.[6] H01M *8/10*

U.S. Cl. 429—33 **16 Claims**

1. A stable high conductivity functionally gradient compositionally layered solid state electrolyte, comprising; a dense high oxygen-ion conducting layer having essentially exclusive high oxygen-ion conduction at about 300° to about 800° C. and in contact on one side with a mixed ionic-electronic conducting layer having mixed ionic-electronic conduction at said temperature with one face in contact with said high oxygen-ion conducting layer and its opposite face resistant to a reducing environment which renders said high oxygen-ion conducting layer unstable, said mixed ionic-electronic conducting layer having sufficient thickness to raise the oxygen partial pressure at the interface of said layers to provide high stability and high ionic conduction of said high oxygen-ion conducting layer.

5,725,966

HEAT SENSITIVE JACKET LABEL FOR BATTERY AND BATTERY WITH THE SAME

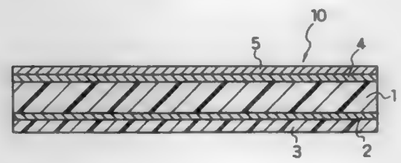
Masanobu Abe; Takeshi Okubo, both of Hirakata; Carl David Walton, Kadoma; Junichi Asaoka, Ikoma; Yasuhiko Shoji, Higashiosaka; Tetsuo Hata, Hirakata; Masakazu Hirayama, Higashiosaka, and Tukeshi Kyogane, Nishinomiya, all of Japan, assignors to Matsushita Electric Industrial Co., LTD., Osaka-Fu, Japan, and Fuji Seal Inc., Osaka, Japan

Filed Dec. 30, 1996, Ser. No. 777,435

Claims priority, application Japan, Jan. 25, 1996, 8-10903; Feb. 29, 1996, 8-43291; May 10, 1996, 8-116111

Int. Cl.[6] H01M *02/02*

U.S. Cl. 429—167 **13 Claims**



1. A heat sensitive jacket label for a battery comprising a base made of a heat-shrinking synthetic resin film and a heat sensitive adhesive layer provided on one surface of said base, wherein a temperature for inducing a heat-shrink of said base is at least 15° C. higher than a temperature for effecting adhesion of said heat sensitive adhesive layer.

5,725,967

BATTERY CONTAINER AND METHOD OF MANUFACTURE

Mark E. Tuttle, Boise, Id., assignor to Micron Communications, Inc., Boise, Id.

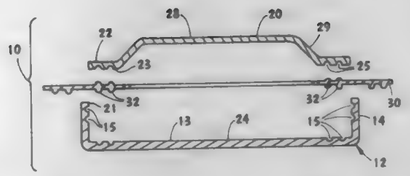
Continuation of Ser. No. 515,128, Aug. 15, 1995, abandoned. This application Mar. 24, 1997, Ser. No. 823,250

Int. Cl.[6] H01M *2/02*

U.S. Cl. 429—185 **14 Claims**

1. A battery container comprising:

a housing for mounting battery components therein, said housing including a portion with a first groove formed therein;



a cover configured for mating engagement with the housing, said cover including a portion with a second groove formed therein;

a gasket placed between the housing and the cover; and

a crimped seam comprising the portion of the housing folded over the portion of the cover with a pressure therebetween and with the gasket deformed within the first and second grooves to form a seal and maintain the pressure.

5,725,968

ALKALINE ION-ABSORBING/DESORBING CARBON MATERIAL ELECTRODE MATERIAL FOR SECONDARY BATTERY USING THE CARBON MATERIAL AND LITHIUM SECONDARY BATTERY USING THE ELECTRON MATERIAL

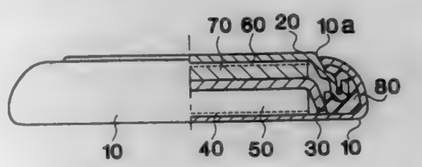
Kenji Sato; Atsushi Demachi; Minoru Noguchi; Naohiko Oki; Kazuhiro Araki, all of Wako, and Morinobu Endo, Suzaka, all of Japan, assignors to Honda Giken Kogyo Kabushiki Kaisha, Tokyo, Japan

Continuation of Ser. No. 160,793, Dec. 3, 1993, abandoned. This application Jan. 24, 1996, Ser. No. 590,874

Claims priority, application Japan, Dec. 7, 1992, 4-351047; May 31, 1993, 5-149759; Jul. 24, 1993, 5-202860; Oct. 13, 1993, 5-278884

Int. Cl.[6] H01M *4/02*

U.S. Cl. 429—218 **27 Claims**



1. A carbon material capable of absorbing and desorbing covalent lithium ions, comprising a poly(phenylene) heat treated at a temperature of 300° to 1000° C., wherein 1 to 20 mol % of monomers of said poly(phenylene) are linked together by o-bonding or m-bonding, and wherein said carbon material has a hydrogen/carbon atomic ratio of 0.15 to 0.6 and has a randomly stacked, condensed aromatic ring structure.

5,725,969

METHOD OF MANUFACTURING PHASE-SHIFTING MASK COMPRISING A LIGHT SHIELD PATTERN ON A PHASE-SHIFTING ATTENUATTING LAYER

Jun Seok Lee, Seoul, Rep. of Korea, assignor to LG Semicon Co., Ltd., Chungcheongbuk-do, Rep. of Korea

Filed Dec. 22, 1995, Ser. No. 576,897

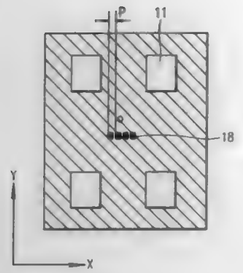
Claims priority, application Rep. of Korea, Sep. 25, 1995, 31652/1995

Int. Cl.[6] G03F *9/00*

U.S. Cl. 430—5 **32 Claims**

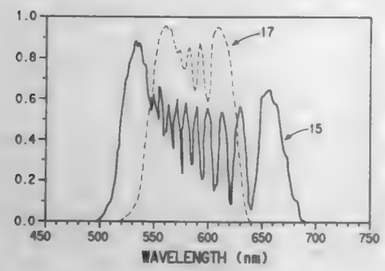
1. A method of manufacturing a phase-shifting and attenuating mask comprising the steps of:

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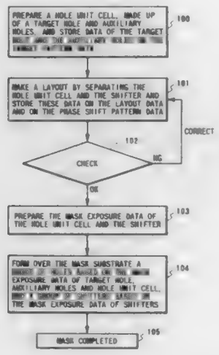
providing a transparent substrate;
forming a phase-shifting and attenuating layer on said transparent substrate;
selectively removing said phase-shifting and attenuating layer to form a half-tone mask having a plurality of transparent regions; and,
forming at least one light shielding pattern on said phase-shifting and attenuating layer between said transparent regions.

5,725,970
BROAD BAND REFLECTION HOLOGRAMS AND A DRY PROCESS FOR MAKING SAME
Paul James Martin, Gloucester City, N.J.; Robert George Melega, and Andrew Michael Weber, both of Wilmington, Del., assignors to E. I. du Pont de Nemours and Company, Wilmington, Del.
Continuation of Ser. No. 590,251, Jan. 23, 1996, abandoned, which is a continuation of Ser. No. 335,020, Nov. 7, 1994, abandoned. This application Sep. 16, 1996, Ser. No. 714,505
Int. Cl.[6] G03H *1/04*
U.S. Cl. 430—2 **17 Claims**



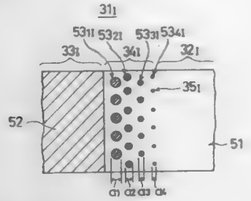
1. A stable element comprising a photohardened photopolymer layer containing a broad band reflection hologram having a reflection bandwidth greater than 60 nm at 20% reflection efficiency, wherein the hologram containing photopolymer layer has been contacted with a diffusion element having a dry diffusion layer, the diffusion layer comprising a diffusible, thermally polymerizable monomer and a binder, the polymerizable monomer comprising at least twelve percent (12%) by weight and selected from the group consisting of a monomer that contains at least two methacrylate groups, pentaerythritol triacrylate, trimethylolpropane triacrylate, ethoxylated bisphenol A diacrylate, and hexamethylene diol diacrylate, diffusion between the dry diffusion layer and the hologram containing photopolymer layer has taken place, and the diffused monomer within the hologram containing photopolymer layer has been thermally polymerized.

5,725,971
METHOD OF MANUFACTURING PHASE SHIFT MASKS AND A METHOD OF MANUFACTURING SEMICONDUCTOR INTEGRATED CIRCUIT DEVICES
Noboru Moriuchi, Oume, Japan; Seiichirou Shirai, Hamura, Japan, and Toshihiko Onozuka, Oume, Japan, assignors to Hitachi, Ltd., Tokyo, Japan
Filed Feb. 13, 1996, Ser. No. 600,736
Claims priority, application Japan, Feb. 27, 1995, 7-037994; Nov. 15, 1995, 7-297106
Int. Cl.[6] G03F *9/00*
U.S. Cl. 430—5 **19 Claims**



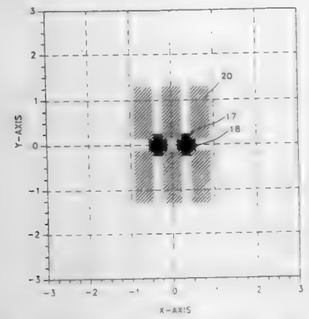
1. A method of manufacturing a phase shift mask used to make a semiconductor integrated circuit device, comprising:
(A) a first hole opening distribution region layout process to lay out a first hole opening distribution region having a number of first hole opening groups of a major surface of a first phase shift mask corresponding to a first hole pattern group arranged over a wafer substantially at a first pitch, by performing layout onto first layout data for the first phase shift mask using a first hole unit cell through computer processing, the first hole unit cell corresponding to each of the first hole opening groups, each first hole opening group having a first real opening and a first auxiliary opening group adjacent to and off peripheral edges of the first real opening so as to surround the first real opening, the first auxiliary opening group being substantially inverted in phase from the first real opening;
(B) a second hole opening distribution region layout process to lay out a second hole opening distribution region having a number of second hole opening groups of the major surface of the first phase shift mask corresponding to a second hole pattern group arranged over the wafer substantially at a second pitch, narrower than the first pitch, each second hole opening group having a second real opening and a second auxiliary opening group adjacent to and off peripheral edges of the second real opening so as to surround the second real opening, the second auxiliary opening group being substantially inverted in phase from the second real opening, by performing layout onto the first layout data for the first phase shift mask using the first hole unit cell through computer processing in such a way that longer sides or side portions of a pair of auxiliary openings belonging to a pair of most closely arranged hole opening groups do not face each other at close distance to the extent that the two auxiliary openings generate undesired light intensity peak on the wafer; and then
(C) a first hole opening distribution region exposing process to expose the first and second hole opening distribution regions onto the major surface of the first phase shift mask according to completed first layout data or according to first mask exposure data generated from the first layout data.

5,725,972
MASK WITH GRADUAL INCREASE IN TRANSMITTANCE FROM OPAQUE TO TRANSPARENT REGION
Shuji Takeshita, Kawasaki, Japan, assignor to Fujitsu Limited, Kawasaki, Japan
Filed Mar. 7, 1996, Ser. No. 612,163
Claims priority, application Japan, May 17, 1995, 7-118792
Int. Cl.[6] G03F *9/00*
U.S. Cl. 430—5 **16 Claims**



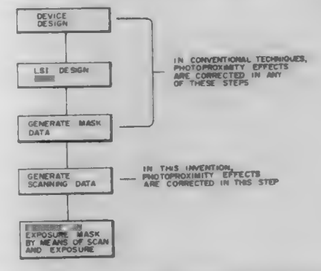
1. An exposure mask comprising:
a mask substrate;
a transparent region defined on said mask substrate;
an opaque region defined on said mask substrate; and
a transition region defined on said mask substrate between said transparent region and said opaque region;
said transition region comprising a plurality of opaque patterns having respective sizes and disposed with respective mutual separations, such that said transmission region increases a transmittance gradually from said opaque region to said transparent region.

5,725,973
PHOTO MASK AND METHOD FOR MANUFACTURING SAME
Woo-sung Han, Kyungki-do, and Chang-jin Sohn, Seoul, both of Rep. of Korea, assignors to Samsung Electronic Co., Ltd., Suwon, Rep. of Korea
Continuation of Ser. No. 370,390, Jan. 10, 1995, abandoned. This application Apr. 16, 1996, Ser. No. 632,834
Claims priority, application Rep. of Korea, Feb. 7, 1994, 94-2310
Int. Cl.[6] G03F *9/00*
U.S. Cl. 430—5 **19 Claims**



1. A clear-field photo mask for transferring a mask pattern onto a semiconductor wafer in a photolithographic procedure using a positive photoresist, comprising:
a transparent substrate;
an opaque mask element formed on the substrate, wherein the opaque mask element blocks light to define an optical transmission area adjoining edges of the opaque mask element that intersect to form a corner; and
an optical transmittance control pattern formed in a portion of the optical transmission area near said corner of said opaque mask element, for reducing rounding of the shadow of said corner during said photolithographic procedure.

5,725,974
METHOD AND APPARATUS FOR PRODUCING SCANNING DATA USED TO PRODUCE A PHOTOMASK
Hiroichi Kawahira, Kanagawa, Japan, assignor to Sony Corporation, Tokyo, Japan
Filed Jun. 28, 1996, Ser. No. 672,916
Claims priority, application Japan, Jun. 30, 1995, 7-188143
Int. Cl.[6] G03F *9/00*; **G21K** *5/00*
U.S. Cl. 430—5 **11 Claims**

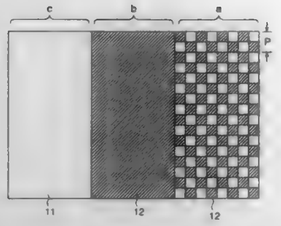


1. An apparatus for generating scanning data used to produce a photomask by means of scanning an energy radiation beam, said apparatus comprising:
scanning data generation means which includes a plurality of scanning microprocessor units which receive mask data associated with said photomask and which generate scanning data in the form of bit-mapped raster data to be used in connection with the scanning of said energy radiation beam;
data storage means including random access memory for storing the scanning data generated by said scanning data generation means;
correction processing means which includes a plurality of correction microprocessor units for performing optical proximity effect correction on the scanning data and for re-storing corrected scanning data in the data storage means; and
output control means for reading the corrected scanning data according to predefined timing and for sequentially transmitting the corrected scanning data to a pattern exposure apparatus;
wherein said correction refers to such a correction which is made on a pattern formed on the photomask so as to obtain a desired resist pattern, and said resist pattern refers to such a pattern which is formed in a resist by exposing said resist to exposure light via said photomask thereby transferring the pattern formed on the photomask to said resist and then developing said resist.

5,725,975
GRADATION MASK AND PROCESS FOR PRODUCING THE SAME
Hiroyuki Nakamura, Tokyo, Japan, and Naoya Hayashi, Tokyo, Japan, assignors to Dai Nippon Printing Co., Ltd., Japan
Continuation of Ser. No. 282,539, Jul. 29, 1994, abandoned. This application Jul. 2, 1996, Ser. No. 675,372
Claims priority, application Japan, Aug. 6, 1993, 5-195962; Aug. 6, 1993, 5-195963
Int. Cl.[6] G03F *9/00*
U.S. Cl. 430—5 **4 Claims**

1. A gradation mask for forming a color filter having a plurality of colored pixels, said gradation mask having spatially stepped transmittance in at least three steps including a first step having substantially 0% transmittance, a second step having substantially 100% transmittance, and at least one additional step having a transmittance between 0% and 100%, said mask comprising:
a transparent substrate sheet; and

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a film of a chromium compound formed on said transparent substrate sheet, said chromium compound film having at least two regions of varying thickness to provide, respectively, said first step having substantially 0% transmittance and said at least one additional step having a transmittance between 0% and 100%, wherein at least one of said at least one additional step is positioned on said transparent substrate sheet adjacent said first and/or second steps.

5,725,976

METHOD FOR MANUFACTURE OF A COLOR FILTER

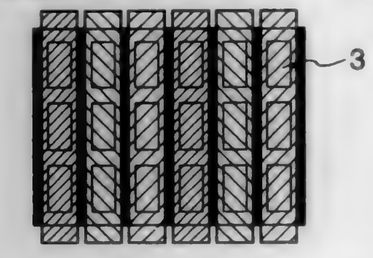
Tsuyoshi Nakano, Funabashi, Japan; Reiko Sasaki, Yachiyo, Japan, and Yoshikatsu Okada, Chiba, Japan, assignors to Sumitomo Chemical Company, Limited, Osaka, Japan

Filed Jan. 22, 1997, Ser. No. 786,291

Claims priority, application Japan, Jan. 30, 1996, 8-037362; Jan. 30, 1996, 8-037363

Int. Cl.[6] G02B *5/20;* **G02F** *1/1335*

U.S. Cl. 430—7 **2 Claims**



1. A method for manufacturing a color filter comprising a transparent substrate; more than one transparent, electrically conductive circuit provided on a surface of the transparent substrate; window-shaped, colored coating films on the more than one transparent, electrically conductive circuit; and frame-shaped light-screening coating films interlaced between the window-shaped, colored coating films; the frame-shaped light-screening coating films have a larger film thickness than the window-shaped, colored coating films; which comprises the steps of:

(a) coating a transparent substrate having a surface carrying more than one transparent, electrically conductive circuit with a negative or positive photoresist composition capable of giving light-screening coating films to form a photoresist layer covering the surface,

(b) patterning the photoresist layer photo-lithographically to form frame-shaped light-screening coating films which are interlaced between window-shaped bare portions and have a predetermined film thickness and a shape defined by lengthwise frames and crosswise frames of the window-shaped bare portions, the lengthwise frames of the light-screening coating films being formed at least to fill gaps formed by the more than one transparent, electrically conductive circuit and the crosswise frames of the light-screening coating films being formed to cross on the more than one transparent, electrically conductive circuit, and then

(c) forming colored coating films to fill the window-shaped bare portions by electrodeposition so as to make the predetermined film thickness of the frame-shaped light-screening coating films more than that of the resulting window-shaped, colored coating films, wherein step (c) includes the step of carrying out the electrodeposition to form window-shaped, colored coating films which at least have lengthwise corner edges piling up high on the light-screening coating films.

5,725,977

METHOD OF FORMING FLUORESCENT SCREEN FOR COLOR CATHODE-RAY TUBE AND EXPOSURE SYSTEM FOR FORMING SAME

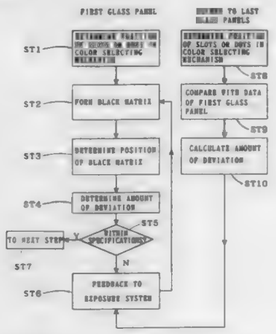
Minoru Hojo; Hiroo Kobayashi; Akira Inoue, and Syunichi Igeta, all of Kyoto, Japan, assignors to Mitsubishi Denki Kabushiki Kaisha, Tokyo, Japan

Continuation of Ser. No. 501,176, Jul. 11, 1995, abandoned. This application Jun. 11, 1997, Ser. No. 873,175

Claims priority, application Japan, Jan. 18, 1995, 7-006012

Int. Cl.[6] H01J *9/227*

U.S. Cl. 430—24 **27 Claims**



1. A method of forming a fluorescent screen for a color cathode-ray tube by forming a black matrix, plural phosphor stripes or plural phosphor dots on an inner surface of a panel of the color cathode-ray tube, said method comprising the steps of:

(a) mounting a color selecting mechanism on said panel such that said panel is paired with said color selecting mechanism;

(b) calculating an alignment reference by gathering an image of a reference slot or dot of said color selecting mechanism;

(c) removing said color selecting mechanism from said panel;

(d) mounting said panel without said color selecting mechanism in an exposure system having a position-adjustable master mask;

(e) adjusting a position of said position-adjustable master mask based on said alignment reference; and

(f) exposing said panel with said position adjustable master mask so as to form said black matrix, said plural phosphor strips or said plural phosphor dots on said inner surface of said panel.

5,725,978

WATER-SOLUBLE PHOTOSENSITIVE RESIN COMPOSITION AND A METHOD OF FORMING BLACK MATRIX PATTERNS USING THE SAME

Shozo Miyazawa, Kanagawa-ken, Japan, assignor to BASF Aktiengesellschaft, Ludwigshafen, Germany, and Toyo Ohka Kogyo Co., Ltd., Kanagawa-ken, Japan

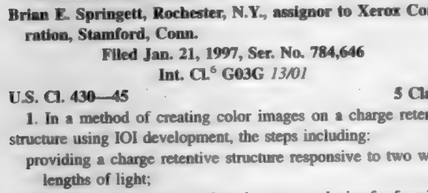
Filed Jan. 24, 1996, Ser. No. 590,475

Claims priority, application Japan, Jan. 31, 1995, 7-034208; Oct. 28, 1995, 7-303723

Int. Cl.[6] G03F *7/012;* **C03C** *5/00*

U.S. Cl. 430—25 **10 Claims**

1. In a water-soluble photosensitive resin composition comprising a high-polymer compound having a structural unit represented by the general formula (I) and a water-soluble polymer, the improvement wherein said water-soluble polymer is either polyvinylpyrrolidone or a copolymer of vinylpyrrolidone and vinylimidazole or both:



(where X is Na, K or NH_4).

5,725,979

METHOD AND IMPLEMENTING SUB-ASSEMBLIES AND ASSEMBLY TO FLATTEN PHOTOGRAPHIC FILM DURING PICTURE-TAKING

Harry Julich, 6807 Winter La., Annandale, Va. 22003

Filed Jun. 7, 1995, Ser. No. 487,302

Int. Cl.[6] G03B *17/00;17/26;17/28;* **G03C** *3/00*

U.S. Cl. 430—30 **49 Claims**

1. A method for flattening a photographic film with emulsion and support at least during an exposure of an image area on the film, said exposure to be followed by film advance or film exchange, comprising the steps of:

(a) fitting the film with systems responsive to an electric force-field

(b) providing a reference surface structure with a reference surface for the film,

(c) applying an electrical force-field to cause the film to be attracted to the reference surface structure and thereby flatten said film against the reference surface at least across the image area and at least during image exposure.

5,725,980

MULTI-WAVELENGTH LASER WHICH AVOIDS EXCESSIVE LIGHT ABSORPTION BY CYAN PIGMENT IN IMAGE-ON-IMAGE ELECTROPHOTOGRAPHY

Brian E. Springett, Rochester, N.Y., assignor to Xerox Corporation, Stamford, Conn.

Filed Jan. 21, 1997, Ser. No. 784,646

Int. Cl.[6] G03G *13/01*

U.S. Cl. 430—45 **5 Claims**

1. In a method of creating color images on a charge retentive structure using IOI development, the steps including:

providing a charge retentive structure responsive to two wavelengths of light;

using beams of a dual wavelength exposure device for forming a plurality of latent electrostatic images on said charge retentive surface, said beams being of different wavelengths; one of said beams having a wavelength capable of transmission through cyan toner and another of said beams having a wavelength capable of transmission through magenta and yellow toner;

developing said plurality of latent electrostatic images with various colors of toner, at least one of which contains cyan pigment;

using said beam having a wavelength capable of transmission through cyan toner, forming other latent electrostatic images in areas of said charge retentive structure with toner containing cyan pigment; and

developing some of said other latent electrostatic images with toner containing magenta pigment and developing some of said other latent electrostatic images with toner containing yellow pigment.

5,725,981

METHOD OF FORMING COLOR IMAGES BY ELECTROPHOTOGRAPHIC PROCESS EMPLOYING A PEELABLE TRANSFER LAYER HAVING A STRATIFIED STRUCTURE

Eiichi Kato, Shizuoka, Japan, assignor to Fuji Photo Film Co., Ltd., Kanagawa, Japan

Filed Aug. 7, 1996, Ser. No. 692,238

Claims priority, application Japan, Aug. 9, 1995, 7-222778

Int. Cl.[6] G03G *13/14*

U.S. Cl. 430—47 **21 Claims**

1. A method of forming a color image by an electrophotographic process comprising forming a peelable transfer layer on a surface of an electrophotographic light-sensitive element, forming a toner image by an electrophotographic process on the transfer layer, heat-transferring the toner image together with the transfer layer onto a receiving material, wherein the transfer layer has a stratified structure composed of a first transfer layer (T_1) which is contact with the surface of electrophotographic light-sensitive element and is formed by an electrodeposition coating method using thermoplastic resin grains (AR) each containing a resin (AH) having a glass transition point of from 20° C. to 140° C. or a softening point of from 30° C. to 180° C. and a resin (AL_1) having a glass transition point of from −40° C. to 40° C. or a softening point of from 0° C. to 60° C. wherein the glass transition point or softening point of resin (AH) is at least 2° C. higher than that of resin (AL_1) and a second transfer layer (T_2) provided thereon containing a resin (AL_2) having a glass transition point of from −40° C. to 35° C. or a softening point of from 0° C. to 45° C.

5,725,982

PHOTOCONDUCTOR FOR ELECTROPHOTOGRAPHY

Sumitaka Nogami; Michihiro Kitazawa, and Katsuhiro Sato, all of Kawasaki, Japan, assignors to Fuji Electric Co., Ltd., Kanagawa, Japan

Filed May 14, 1996, Ser. No. 645,905

Claims priority, application Japan, May 18, 1995, 7-119511

Int. Cl.[6] G03G *5/047*

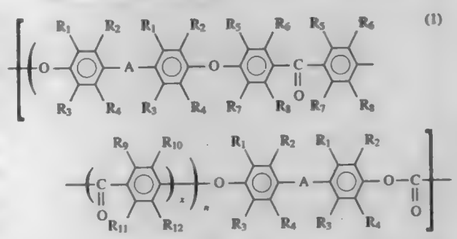
U.S. Cl. 430—58 **4 Claims**

1. A photoconductor, comprising:

a conductive substrate; and

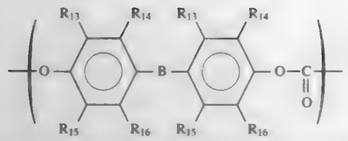
a photosensitive layer which is formed on the conductive substrate and which comprises a charge generation layer and a charge transport layer each comprised mainly of organic material,

wherein the charge transport layer is formed as an outermost layer of the photosensitive layer and includes a copolymer polycarbonate resin containing at least one constitutional unit represented by formula (1) and at least one constitutional unit represented by formula (2):



where A denotes any one of an alkylidene group, a cycloalkylidene group, an allylene group, and an allylene dialkylidene group; R1 to R12 individually denote any one of a hydrogen atom, an alkyl group, an aryl group, and a halogen atom; x is an integer and is 0 or 1; and n is an integer ranging from 1 to 100, and

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(2)

where B denotes any one of an alkylidene group, a cycloalkylidene group, an allylene group, and an allylene dialkylidene group; R13 to R16 individually denote any one of a hydrogen atom, an alkyl group, an aryl group, and a halogen atom.

5,725,983

ELECTROPHOTOGRAPHIC IMAGING MEMBER WITH ENHANCED WEAR RESISTANCE AND FREEDOM FROM REFLECTION INTERFERENCE

Robert C. U. Yu, Webster, N.Y., assignor to Xerox Corporation, Stamford, Conn.

Filed Nov. 1, 1996, Ser. No. 740,679
Int. Cl.[6] G03G *5/14*
U.S. Cl. 430—58 **18 Claims**

1. An electrophotographic imaging member comprising
a supporting substrate having an electrically conductive layer,
a hole blocking layer,
an optional adhesive layer,
a charge generating layer,
a charge transport layer,
an anticurl back coating,
a ground strip layer and
an optional overcoating layer,
at least one of said charge transport layer, anticurl back coating, ground strip layer and overcoating layer comprising a blend of inorganic and organic particles in a weight ratio of between about 3:7 and about 7:3 homogeneously distributed in a film forming matrix, said inorganic and organic particles having a particle diameter less than about 4.5 micrometers.

5,725,984

OMEGA-OXO-ALUMINUM PHTHALOCYANINE DIMER HAVING NOVEL POLYMORPH AND ELECTROPHOTOGRAPHIC PHOTORECEPTOR PREPARED BY USING THE SAME

Yasuhiro Yamasaki, and Kazuyoshi Kuroda, both of Neyagawa, Japan, assignors to Orient Chemical Industries, Ltd., Osaka-fu, Japan

Filed Feb. 12, 1997, Ser. No. 799,419
Claims priority, application Japan, Feb. 13, 1996, 8-025206
Int. Cl.[6] G03G *5/06;* **C09B** *47/04;67/50*
U.S. Cl. 430—58 **12 Claims**

1. μ-Oxo-aluminum phthalocyanine dimer having a novel polymorph which shows diffraction peaks at a Bragg angle (2θ±0.2°) of 6.9°, 9.7°, 13.8°, 15.4°, 23.9°, and 25.9° in a X-ray diffraction spectrum by CuK α-ray.

12. A function separated-form electrophotographic photoreceptor which has a conductive substrate, a charge generating layer on the conductive substrate, and a charge transporting layer on the charge generating layer, wherein the charge generating layer includes any one dimer of claims **1** to **3** or **9** as a charge generator.

5,725,985

CHARGE GENERATION LAYER CONTAINING MIXTURE OF TERPOLYMER AND COPOLYMER

Richard H. Nealey, Penfield, and Martha J. Stegbauer, Ontario, both of N.Y., assignors to Xerox Corporation, Stamford, Conn.

Filed Jan. 21, 1997, Ser. No. 784,642
Int. Cl.[6] G03G *5/05*
U.S. Cl. 430—59 **13 Claims**

1. An electrophotographic imaging member comprising a substrate, a charge generating layer and a charge transport layer, said charge generating layer comprising
photoconductive particles selected from the group consisting of
hydroxygallium phthalocyanine particles and
titanyl phthalocyanine particles
dispersed in a polymer matrix, said matrix comprising a uniform mixture of
a film forming terpolymer reaction product of
vinyl chloride,
vinyl acetate and
maleic acid and
a film forming copolymer reaction product consisting of the reaction of
vinyl chloride and
vinyl acetate,
said matrix comprising between about 95 percent and about 50 percent by weight of said terpolymer and between about 5 percent and about 50 percent by weight of said copolymer, based on the total weight of said matrix in said charge generating layer and said charge generating layer comprising between about 50 percent and about 65 percent by weight of said photoconductive particles based on the total weight of said charge generating layer.

5,725,986

IMAGING PROCESS USING A DIARYLAMINE AND TRITOLYLAMINE IN A CHARGE TRANSPORT LAYER

Steven J. Grammatica, Penfield; Richard L. Schank, Pittsford; Paul J. DeFeo, Sodus Point; Ronald E. Godlove, Bergen, and Robert J. Flanagan, Macedon, all of N.Y., assignors to Xerox Corporation, Stamford, Conn.

Continuation of Ser. No. 176,182, Jan. 3, 1994, abandoned.
This application Mar. 26, 1996, Ser. No. 622,326
Int. Cl.[6] G03G *13/14*
U.S. Cl. 430—126 **8 Claims**

1. An imaging process comprising
(a) providing an electrophotographic imaging member comprising a substrate, a charge generating layer and a charge transport layer comprising a small molecule hole transporting diarylamine, a small molecule hole transporting tritolyl amine and a film forming binder wherein the concentration of said small molecule hole transporting tritolyl amine molecule in said transport layer is between about 50 percent and about 99 percent by weight based on the total weight of small molecule hole transporting material in said transport layer;
(b) depositing a uniform electrostatic charge on said imaging member with a corona generating device to which power is being supplied, said corona generating device comprising at least one bare metal wire adjacent to and spaced from said imaging member;
(c) exposing said imaging member with activating radiation in image configuration to form an electrostatic latent image;
(d) developing said latent image with marking particles to form a toner image;
(e) transfering said toner image to a receiving member;
(f) repeating the depositing, exposing, developing and transfering steps;
(g) resting said imaging member for at least 15 minutes under said corona generating device while said power to said corona generating device is removed and while said corona generating device is emitting effluents;

(h) supplying power to said corona generating device; and
(i) repeating the depositing, exposing, developing and transfering steps at least once.

5,725,987

SUPERCRITICAL PROCESSES

James R. Combes, Burlington; Hadi K. Mahabadi, Etobicoke, and Carl P. Tripp, Burlington, all of Canada, assignors to Xerox Corporation, Stamford, Conn.

Filed Nov. 1, 1996, Ser. No. 740,680
Int. Cl.[6] G03G *9/08*
U.S. Cl. 430—137 **25 Claims**

1. A process for the preparation of a toner composition which comprises heating at a temperature of from about 31° C. to about 200° C. a mixture of supercritical carbon dioxide, metal oxide, and a surface treating component, optionally removing carbon dioxide, and optionally cooling, and wherein said surface treating component reacts with the surface of the metal oxide, thereafter adding the resultant treated metal oxide to a toner comprising resin and colorant.

5,725,988

SOLID TRANSFER NEGATIVE- OR POSITIVE-WORKING COLOR PROOFING ELEMENT

Stephan J. W. Platzer, Califon, N.J., assignor to Bayer Corporation, Pittsburgh, Pa.

Division of Ser. No. 881,442, May 11, 1992, which is a continuation of Ser. No. 261,374, Oct. 21, 1988, Pat. No. 5,213,941. This application Dec. 7, 1993, Ser. No. 163,214
Int. Cl.[6] G03C *1/805;11/12*
U.S. Cl. 430—162 **13 Claims**

1. A photosensitive element which comprises, in order:
i) a substrate having a release surface; and
ii) a single, colored photosensitive layer on said release surface, which photosensitive layer comprises in admixture a light sensitive, negative-working diazonium salt or positive-working naphthoquinone diazide compound in an amount sufficient to photosensitize the layer; a resinous binder composition in an amount sufficient to bind the layer components into a uniform film, which composition contains a major amount of at least one resin selected from the group consisting of a vinyl acetal polymer and a styrene/maleic anhydride copolymer half ester; and at least one colorant in an amount sufficient to uniformly color the layer; and
iii) a nonphotosensitive adhesive layer in direct contact with said photosensitive layer, which adhesive layer comprises greater than 50 percent of one or more thermoplastic polymers, and one or more developing aids capable of promoting the partial removal of the adhesive layer with a developer, is only partially soluble in a developer, nontacky at room temperature, and can be transferred at temperatures between 60° C. and 180° C.

5,725,989

LASER ADDRESSABLE THERMAL TRANSFER IMAGING ELEMENT WITH AN INTERLAYER

Jeffrey C. Chang; John S. Staral; William A. Tolbert; Martin B. Wolk; Claire A. Jalbert, and Hsin-hsin Chou, all of P.O. Box 33427, St. Paul, Minn. 55133-3427

Filed Apr. 15, 1996, Ser. No. 632,225
Int. Cl.[6] G03F *7/34;7/36*
U.S. Cl. 430—201 **16 Claims**

1. A thermal transfer element comprising a substrate having deposited thereon in the following order:
(a) a light-to-heat conversion layer;
(b) an interlayer which does not visibly distort or chemically decompose at temperatures below 150° C., wherein the interlayer comprises a material selected from the group consisting of metals, inorganic compounds, crosslinked organic polymers, thermoplastic organic polymers with a T_g greater than 150° C., and mixtures thereof; and
(c) a thermal transfer layer.

5,725,990

IMAGE FORMATION METHOD

Hiroyuki Hirai, and Yoshiharu Yabuki, both of Kanagawa, Japan, assignors to Fuji Photo Film Co., Ltd., Kanagawa, Japan

Filed Jul. 18, 1996, Ser. No. 683,203
Claims priority, application Japan, Jul. 19, 1995, 7-204024
Int. Cl.[6] G03C *8/10;8/40;1/83;5/29*
U.S. Cl. 430—203 **3 Claims**

1. An image formation method comprising
imagewise exposing a silver halide light-sensitive material comprising a support having thereon a light-sensitive silver halide, a binder, a slightly water soluble basic metal compound, and a dye composition which is decolorized or discolored on heat development;
contacting the surface of the light-sensitive material with a sheet coated with a binder and a compound which forms a complex with a metal ion constituting the basic metal compound and heating them in the presence of a reducing agent and water after or during the imagewise exposing; and
peeling off the sheet to obtain an image on at least one of the light-sensitive material and the sheet,
wherein the dye composition comprises an oil-soluble dye formed by a leuco dye and a color developer, wherein the color developer is a metal salt of an organic acid.

5,725,991

PHOTOSENSITIVE MATERIAL AND METHOD OF PRODUCING OFFSET PRINTING PLATES

Willi-Kurt Gries, Wiesbaden, Germany, assignor to AGFA-Gevaert AG, Leverkusen, Germany

Continuation of Ser. No. 423,851, Apr. 18, 1995, abandoned.
This application Oct. 18, 1996, Ser. No. 733,917
Claims priority, application Germany, May 4, 1994, 44 15 607.3
Int. Cl.[6] G03F *7/032;7/34*
U.S. Cl. 430—258 **14 Claims**

1. A photosensitive material for the production of offset printing plates comprising adhered to one another in the recited order
a) a coating base suitable for offset printing comprising aluminum or aluminum alloy,
b) a hydrophilic coating having a coating weight in the range from 0.001 to 1 g/m^2 consisting essentially of an organic polymer and a free-radical-polymerizable compound,
c) a photopolymerizable coating comprising
(1) a polymeric binder,
(2) a free-radical-polymerizable compound and
(3) a compound or a combination of compounds which is capable of initiating the polymerization of the compound (2) on exposure to actinic radiation, and
d) a transparent covering sheet,
wherein the adhesion of the photopolymerizable coating (c) to one or both of the hydrophilic coating (b) and the covering sheet (d) is altered by exposure to actinic radiation.

13. A method of producing an offset printing form, which comprises imagewise exposing a photosensitive material of claim **1**

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through the covering sheet (d) and developing the exposed material by peeling the covering sheet off the coating base (a).

5,725,992

PROCESS FOR THE PRODUCTION OF A MULTICOLORED IMAGE AND PHOTOSENSITIVE MATERIAL FOR CARRYING OUT THIS PROCESS

Stephan J. W. Platzer, Eltville/Erbach, Germany; Wojciech A. Wilczak, Jersey City, N.J.; Gerhard Buhr, Koenigstein, and Dieter Mohr, Budenheim, both of Germany, assignors to Agfa-Gevaert AG, Leverkusen, Germany

Filed Feb. 19, 1993, Ser. No. 20,829

Claims priority, application Germany, Feb. 19, 1992, 42 04 949.8

Int. Cl.[6] G03C *1/795;* **G03F** *7/027;7/34*

U.S. Cl. 430—260 **21 Claims**

1. A photosensitive material for the production of color proofing films containing

(A) a transparent, flexible plastic film support,

(B) a photopolymerizable layer which consists essentially of

(B1) a polymeric binder,

(B2) a free-radical-polymerizable compound,

(B3) a substituted bistrihalomethyl-s-triazine having an absorption maximum in the range from about 300 to about 380 nm and an absorbance of greater than about 11,000 at the absorption maximum, and an absorbance of less than about 1400 at 400 nm and above, which initiates the polymerization of (B2) on exposure to actinic light, wherein the substituted bistrihalomethyl-s-triazine has a molecular weight of 482 or less per substituted triazine unit, and

(B4) a colored pigment in a primary color of multicolor printing, and

(C) a thermoplastic adhesive layer on the photo-sensitive layer, wherein the photopolymerizable layer comprises based on the weight of the photopolymerizable layer about 12 to about 40% by weight of (B4).

5,725,993

LASER ABLATIVE IMAGING ELEMENT

Joseph F. Bringley; David P. Trauernicht, and Patrick M. Lambert, all of Rochester, N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.

Filed Dec. 16, 1996, Ser. No. 764,892

Int. Cl.[6] B41M *5/26*

U.S. Cl. 430—269 **6 Claims**

1. A process of forming a relatively neutral ablation image for a medical imaging film having an image tone resembling that of silver halide comprising

a) imagewise-exposing, by means of a laser, in the absence of a separate receiving element, a thermal recording element comprising a support having thereon a pigment layer comprising a pigment dispersed in a polymeric binder, said pigment absorbing at the wavelength of a laser used to expose said element, wherein said pigment comprises the formula:

$$M_xA_yQ_z$$

wherein:

M is copper,

A is at least one alkali metal,

Q is at least one of oxygen or sulfur,

x is an integer between 1 and 3,

y is between 0 and about 2, and

z is between about 1 and about 4;

said laser exposure taking place through the pigment side of said element, thereby imagewise-heating said pigment layer and causing it to ablate; and

b) removing the ablated material to obtain said relatively neutral ablation image in said thermal recording element.

5,725,994

NEGATIVE TYPE PHOTOSENSITIVE COMPOSITIONS COMPRISING A HYDROXYIMIDE COMPOUND

Syunichi Kondo, Shizuoka, Japan, assignor to Fuji Photo Film Co., Ltd., Minami-ashigara, Japan

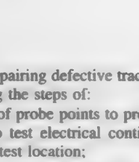
Filed Jun. 3, 1996, Ser. No. 657,193

Claims priority, application Japan, Jun. 14, 1995, 7-147626; Aug. 10, 1995, 7-204743

Int. Cl.[6] G03F *7/004*

U.S. Cl. 430—270.1 **7 Claims**

1. A negative working photosensitive composition comprising an acid precursor, a compound represented by the following general formula (I) and a hydroxyl group-containing linear polymer:



(I)

wherein A represents a divalent substituted or unsubstituted aliphatic residue, or a divalent substituted or unsubstituted aromatic residue.

5,725,995

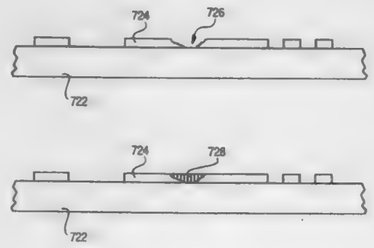
METHOD OF REPAIRING DEFECTIVE TRACES IN AN INTEGRATED CIRCUIT STRUCTURE

Glenn J. Leedy, Jackson, Wyo., assignor to ELM Technology Corporation, Jackson, Wyo.

Continuation of Ser. No. 55,439, Apr. 30, 1993, Pat. No. 5,451,489, which is a division of Ser. No. 775,324, Oct. 11, 1991, Pat. No. 5,225,771, which is a division of Ser. No. 482,135, Feb. 16, 1990, Pat. No. 5,103,557, which is a continuation-in-part of Ser. No. 194,596, May 16, 1988, Pat. No. 4,924,589. This application Jun. 7, 1995, Ser. No. 486,521

Int. Cl.[6] G03F *7/00*

U.S. Cl. 430—315 **8 Claims**



1. A method of repairing defective traces in an integrated circuit structure comprising the steps of:

using a plurality of probe points to probe a trace location and a test location to test electrical continuity between said trace location and a test location;

determining that a trace is formed with a defective portion; and

depositing metal over the defective portion of said trace.

5,725,996

ENERGY SENSITIVE COMPOSITION AND A PROCESS FOR DEVICE FABRICATION USING THIS COMPOSITION

Francis Michael Houlihan, Millington; Howard Edan Katz, Summit, and Marcin Lea Schilling, Basking Ridge, all of N.J., assignors to Lucent Technologies Inc., Murray Hill, N.J.

Continuation of Ser. No. 154,202, Nov. 17, 1993, abandoned. This application Oct. 22, 1996, Ser. No. 731,865

Int. Cl.[6] G03F *7/00*

U.S. Cl. 430—322 **7 Claims**

1. A process for fabricating a device comprising:

exposing a radiation sensitive region on a substrate to radiation to form an image of a pattern, developing the pattern and employing the pattern to define areas to the device, wherein the radiation sensitive material comprises a material including (1) a polymer that is the polymerization product of one or more monomers, wherein at least one of the monomers is selected from the group consisting of phosphonate ester monomers and phosphate ester monomers, and (2) a composition that results in generation of an acidic moiety as a result or irradiation with the radiation wherein the phosphonate ester moieties and the phosphate ester moieties convert to phosphorous acid moieties in the presence of the generated acidic moiety.

5,725,997

METHOD FOR PREPARING A RESIST PATTERN OF T-SHAPED CROSS SECTION

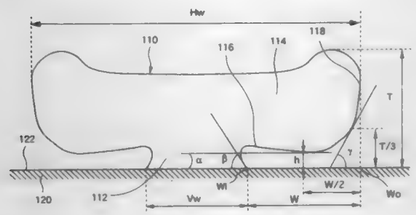
Akifumi Kamijima, Tokyo, Japan, assignor to TDK Corporation, Tokyo, Japan

Filed Jul. 26, 1996, Ser. No. 686,911

Claims priority, application Japan, Jul. 26, 1995, 7-209950

Int. Cl.[6] G03F *7/40*

U.S. Cl. 430—325 **4 Claims**



1. In a method for preparing a resist pattern by a patterning process comprising the steps of coating of a resist composition to form a resist coating, exposure, reversal baking and development in the described order, said resist composition comprising a positive resist compound containing a mixture of an alkali soluble phenol resin and a naphthoquinonediazide and a negative working agent added to the positive resist compound for imparting an image reversal function, the improvement wherein

among process conditions allowing a resist pattern of inverted trapezoidal cross section to be formed, at least one condition is changed by reducing the thickness of the resist coating, reducing an exposure dose, lowering a reversal baking temperature, reducing a reversal baking time, increasing a developer temperature or extending a developing time such that a resist pattern of T-shaped cross section may be formed.

5,725,998

PROCESS FOR DEVELOPING BLACK-AND-WHITE SILVER HALIDE PHOTOGRAPHIC LIGHT-SENSITIVE MATERIALS CONTAINING A HYDRAZINE COMPOUND AND A NUCLEATION COMPOUND, IN A DEVELOPER CONTAINING A DEVELOPING AGENT AND A MERCAPTO COMPOUND

Takeshi Sanpei, Hino, Japan, assignor to Konica Corporation, Japan

Continuation of Ser. No. 386,206, Feb. 9, 1995, abandoned, which is a continuation of Ser. No. 127,773, Sep. 27, 1993, abandoned. This application Apr. 10, 1997, Ser. No. 838,603

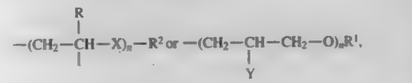
Claims priority, application Japan, Oct. 12, 1992, 4-273007

Int. Cl.[6] G03C *5/18;5/26;1/06*

U.S. Cl. 430—399 **17 Claims**

1. A method of processing an imagewise exposed black and white silver halide photographic light-sensitive material, said method comprising:

wherein R_1 and R_2 each individually represent alkyl, alkenyl, alkinyl, aryl or a heterocycle ; R_3 represents hydrogen, alkyl, alkenyl, alkinyl, aryl, a heterocycle , acyl, sulfonyl, oxycarbonyl or carbamoyl; and R_4 represents a group containing at least one group represented by



$$-(CH_2-\underset{\displaystyle X)_n-R^2 \text{ or } -(CH_2-}{\overset{\displaystyle R}{\overset{|}{CH}}}-\underset{\displaystyle CH-CH_2-O)_nR^1.}{\overset{\displaystyle Y}{\overset{|}{CH}}}$$

is hydrogen or alkyl,

wherein R represents hydrogen, or alkyl, X represents O S, or NH, Y represents hydrogen or OH, and n is an integer of not less than 2, provided that R_1, R_2, R_3 and R_4 may combine with each other to form a ring,

Formula VI-II



wherein R_1 and R_2 each individually represent hydrogen, alkyl, alkenyl, alkinyl, aryl or a heterocycle, provided that R_1 and R_2 may combine to form a ring; T represents a group containing

Formula V-III



wherein R_1 represents hydrogen, alkyl, alkenyl, alkinyl, aryl or a heterocycle; R_2 represents alkyl, alkenyl, alkinyl, aryl or a heterocycle

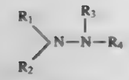


represents a nitrogen-containing heterocyclic ring, provided that R_1 may form a ring together with



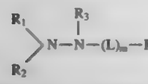
L represents —$CONR_4$—, —$OCONR_4$—, —NR_4CONR_4—, —NR_4COO—, —COO—, —OCO—, —CO—, —$OCOO$—, —NR_4CO—, —SO_2NR_4—, —NR_4SO_2—, —$NR_4SO_2NR_4$—, —SO_2—, —S—, —O—, —NR_4—, or —N== group with the proviso that, when L is —N==, two R_3 groups can be present; wherein R_4 represents hydrogen or alkyl; and n is an integer of 0 or 1;

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Formula VI-I

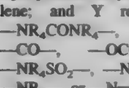
wherein R_1, R_2 and R_3 each individually represent alkyl, alkenyl, alkinyl, aryl or a heterocycle, provided that at least one of R_1, R_2 and R_3 represent alkenyl or alkinyl, or at least one of R_1 and R_2 represents aryl or a heterocycle; and L represents —A—Y— wherein A represents alkylene, and Y represents —$CONR_4$—, —$OCONR_4$—, —NR_4CONR_4—, —NR_4COO—, —COO—, —OCO—, —CO—, —OCOO—, —NR_4CO—, —SO_2NR_4—, —NR_4SO_2—, —$NR_4SO_2NR_4$—, —SO_2—, —S—, —O—, —NR_4— or —N= group with the proviso that when Y is —N=, two R_3 groups are bonded thereto, wherein R_4represents hydrogen or alkyl, provided that R_1, R_2, R_3 and L may combine to form a ring;



Formula V-II

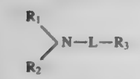
wherein R_1, R_2, and R_4 each individually represent alkyl, alkenyl, alkinyl, aryl or a heterocycle; and R_3 represents hydrogen, alkyl, alkenyl, alkinyl, aryl or a heterocycle ; L represents —CO—, —COO—, —$CONR_5$—, —SO_2—, and —SO_2NR_5— wherein R_5 represents hydrogen, alkyl, alkenyl, aryl or a heterocycle; and m is an integer of 0 or 1, provided that R_1, R_2, R_3 and R_4 may combine with each other to form a ring;

wherein R_1 and R_2 each individually represent alkyl, provided that R_1 and R_2 may combine with each other to form a ring; R_3 represents alkyl, aryl or a heterocycle; A represents alkylene; and Y represents —$CONR_4$—, —$OCONR_4$—, —NR_4CONR_4—, —NR_4COO—, —COO—, —OCO—, —CO—, —OCOO—, —NR_4CO—, —SO_2NR_4—, —NR_4SO_2—, —$NR_4SO_2NR_4$—, —SO_2—, —S—, —O—, —NR_4—, or —N= group wherein R_4 represents hydrogen or alkyl with the proviso that, when Y is —N=, two R_3 groups are bonded thereto;



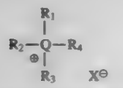
Formula IV

wherein R_1 and R_2 each individually represent hydrogen, alkyl, alkenyl, alkinyl, aryl or a heterocycle; and E represents a group having at least one group represented by —$(CH_2CH_2O)_n$-R' is hydrogen or alkyl and n is an integer of 2 or more, provided that R_1, R_2 and E may combine to form a ring;



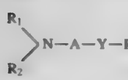
Formula V-I

wherein R_1, R_2, and R_3 each individually represent hydrogen, alkyl, alkenyl, alkinyl, aryl or a heterocycle, provided that R_1, R_2, and R_3 may combine with each other to form a ring and R_1, R_2, and R_3 are not simultaneously hydrogen;



Formula II

wherein Q represents N or P; R_1 R_2, R_3 and R_4 each represent hydrogen, alkyl, alkenyl, alkinyl, aryl, a heterocycle or amino; and X⊖ represents an anion, provided that R_1, R_2, R_3 and R_4 may combine with each other to form a ring;

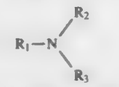


Formula III

developing said material with a developer replenished with a developer replenisher in an amount of not more than 200 ml/m^2 of material processed,

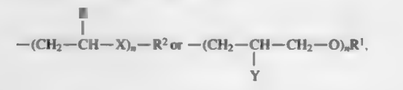
wherein said material comprises a support having provided thereon a silver halide photographic emulsion layer and a hydrophilic colloid layer other than said emulsion layer, at least one of said emulsion layer and said hydrophilic colloid layer containing a hydrazine derivative and at least one compound selected from a compound represented by a formula selected from the group consisting of Formulas I to IV, V-I to V-III, and VI-I to VI-III,

wherein said developer has a pH of 10.0 to 11.2, and comprises (a) a dihydroxybenzene compound, (b) at least one of a 3-pyrazolidone compound and an aminophenol compound, (c) 0.3 to 1.2 mol per liter of a sulfite, and (d) at least one compound represented by Formula (1) to (2)



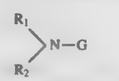
Formula I

at least one group represented by



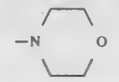
R^1 is hydrogen or alkyl,

wherein R represents hydrogen or alkyl, X represents O, S or NH, Y represents hydrogen or OH, and n is an integer of not less than 2, provided that, when R represents hydrogen, X represents S or NH group,



Formula VI-III

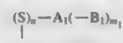
wherein R_1 and R_2 each individually represent hydrogen, alkyl, alkenyl, alkinyl, aryl, or a heterocycle, provided that R_1 and R_2 may combine to form a ring; and G represents a group containing at least one group represented by —$(CH_2CH_2O)_n$-R' wherein n is an integer of not less than 2 and R' is hydrogen or alkyl, containing at least two substituents each selected from the group consisting of —CN, —OH, —OSO_2CH_3, —$SO_2N(CH_2)_2$, —$NHCOCH_3$, and



or a group containing at least one substituent selected from the group consisting of —$CONH_2$, —CONHOH, —$CONHCH_3$, —NH_2, —$NHCONH_2$,—$NHCSNH_2$, —$NHSO_2CH_3$, —$N^+(CH_3)_3$, —O^-, —O^-, —$OCONH_2$, —SO_3^-, —SO_2NH_2, —$SOCH_3$, —SO_2CH_3 and —COO^{31} ;

Formula (1)

wherein Z represents alkyl, aryl or a heterocyclic group, each having a group selected from the group consisting of hydroxy, —SO_3M^1, —$COOM^1$, unsubstituted amino or acetylamino and unsubstituted ammonio or methyl, ethyl, benzyl, ethoxypropyl, cyclohexyl, phenyl, or naphthylammonio wherein M^1 represents a hydrogen, an alkali metal or an unsubstituted ammonium ion; and M represents hydrogen, alkali metal or an unsubstituted amidino which may form a hydrogen halogenide or sulfonate salt,



Formula (2)

wherein A_1 and A_2 each independently represent an aliphatic group, an alicyclic group, aralkyl, aryl, or 5 or 6-membered heterocycle; c and d each independently represent an integer of 1, 2, or 3; n represents an integer of 1 or 2; and B_1 and B_2 independently represent —COOM', —SO_3M', —CON(X)(Y), —S—Z' or —$SO_2N(X)(Y)$ wherein X and Y each represent hydrogen or alkyl having 1 to 8 carbons, or aryl; M' represents a monovalent cation; and Z' represents alkyl having 1 to 8 carbon atoms, or aryl.

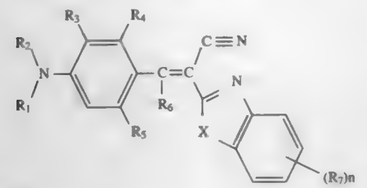
5,725,999

METHINE YELLOW DENSITY CORRECTION DYES FOR COLOR NEGATIVE FILMS WITH MAGNETIC RECORDING LAYERS

Paul Barrett Merkel, Victor, N.Y.; Melvin Michael Kestner, Hilton, N.Y.; David Hoke, Rochester, N.Y., and Jeffrey Walter Schmoeger, Mishiwaka, Ind., assignors to Eastman Kodak Company, Rochester, N.Y.

Filed Dec. 19, 1995, Ser. No. 574,510
Int. Cl.[6] G03C *1/46*
U.S. Cl. 430—504 **29 Claims**

1. A multilayer color negative photographic element comprising a support, at least one light-sensitive silver halide layer sensitive to each of the blue, green and red regions of the visible spectrum, a magnetic recording layer and a yellow or orange-yellow methine density correction dye of structure I,



I

wherein:

R_1 is hydrogen or an alkyl group;

R_2 is an alkyl group or an aryl group;

R_3 is hydrogen, a halogen atom, an alkyl group, an alkoxy group or an aryloxy group;

R_4 is hydrogen or an alkyl group;

R_5 is hydrogen or an alkyl group;

R_6 is hydrogen or an alkyl group;

X is oxygen or sulfur;

each R_7 is independently a substituent selected from the group consisting of a halogen atom, and alkyl, aryl, alkoxy, aryloxy, carbonamido, sulfonamido, carbamoyl, alkoxycarbonyl, aryloxycarbonyl and acyloxy, acyl, sulfamoyl, sulfonyl, sulfoxyl, alkylthio, arylthio and cyano groups;

n is 0, 1, 2 or 3; and

R_1 and R_2 or R_2 and R_3 may join to form a ring.

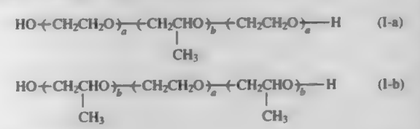
5,726,000

DISPERSION OF FINE SOLID PARTICLES AND METHOD FOR PRODUCING THE SAME

Masatoshi Nakanishi; Yukoh Saitoh, and Masahiro Fukuoka, all of Kanagawa, Japan, assignors to Fuji Photo Film Co., Ltd., Kanagawa, Japan

Continuation of Ser. No. 507,841, Jul. 27, 1995, abandoned.
This application May 8, 1997, Ser. No. 854,054
Claims priority, application Japan, Jul. 27, 1994, 6-193815
Int. Cl.[6] G03C *1/815;1/825*
U.S. Cl. 430—510 **6 Claims**

1. A dispersion of fine solid particles obtained by pulverizing an aqueous slurry of a dye represented by the following general formula (II) in the presence of a polyalkylene oxide represented by the following general formula (I-a) or (I-b) and adding a compound represented by the following general formula (I) such that it is present during and/or after pulverization of the dye:



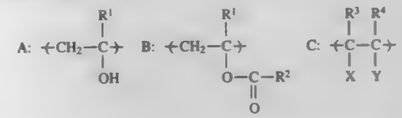
(I-a)

(I-b)

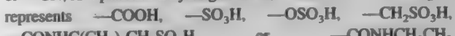


(I)

wherein a and b each represents a value of 5 to 500; R represents a hydrogen atom, a hydrophobic group or a hydrophobic polymer moiety, P represents a group containing at least one structural unit selected from the group consisting of A, B and C, and having a polymerization degree of 10 to 3500, n represents 1 or 2, and m represents 0 or 1,



wherein R^1 represents a hydrogen atom or an alkyl group having 1 to 6 carbon atoms, R^2 represents a hydrogen atom or an alkyl group having 1 to 10 carbon atoms, R^3 represents a hydrogen atom or —CH_3, R^4 represents a hydrogen atom, —CH_3, —CH_2COOH or —CN, X represents a hydrogen atom, —COOH or —$CONH_2$, Y represents —COOH, —SO_3H, —OSO_3H, —CH_2SO_3H, —$CONHC(CH_3)_2CH_2SO_3H$ or —$CONHCH_2CH_2CH_2N^+(CH_3)_3Cl^-$;



(II)

wherein D represents a residue of a compound having a chromophore, X represents a dissociative hydrogen or a group having a dissociative hydrogen, and y is an integer of 1 to 7.

5,726,001

COMPOSITE SUPPORT FOR IMAGING ELEMENTS COMPRISING AN ELECTRICALLY-CONDUCTIVE LAYER AND POLYURETHANE ADHESION PROMOTING LAYER ON AN ENERGETIC SURFACE-TREATED POLYMERIC FILM

Dennis John Eichorst, Fairport, N.Y., assignor to Eastman Kodak Company, Rochester, N.Y.

Filed Jun. 12, 1996, Ser. No. 660,968
Int. Cl.[6] G03C *1/76;1/85*
U.S. Cl. 430—523 **29 Claims**

1. A composite support for an imaging element, comprising a polymeric film having coated thereon an electrically conductive layer and an auxiliary layer coated over the electrically conductive layer, wherein the polymeric film comprises a surface which has been activated by energetic treatment, and wherein the composite support further comprises an adhesion promoting layer comprising an aqueous dispersible, aliphatic, anionic polyurethane binder having an ultimate elongation to break of at least 350 percent either between the polymeric film and the electrically conductive layer or between the electrically conductive layer and the auxiliary layer, and the electrically conductive layer or adhesion promoting layer is in contiguous contact with the activated surface of the polymeric film.

VOL 1208 ISS 2 MR 10 1998 UMI

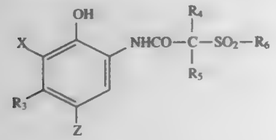
5,726,002

PHOTOGRAPHIC ELEMENT CONTAINING A PARTICULAR CYAN COUPLER DISPERSED IN A PHENOLIC SOLVENT

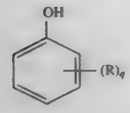
Philip T. S. Lau, and Stanley Wray Cowan, both of Rochester, N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.

Filed Jun. 10, 1996, Ser. No. 665,032
Int. Cl.[6] G03C *7/34*
U.S. Cl. 430—546 **13 Claims**

1. A photographic element comprising a light sensitive silver halide emulsion layer having associated therewith a cyan coupler as represented by formula (I), in combination with a phenolic solvent, as represented by formula (II):



(I)



(II)

wherein:

R_3 represents an alkyl group of 2 to 15 carbon atoms;

R_4 and R_5 each independently represents a hydrogen atom, an alkyl group or an aryl group;

R_6 represents an alkyl or aryl group;

X represents a halogen atom; and

Z represents a hydrogen atom or a group capable of being split off by oxidized color developer; and

each R independently represents a substituent while q represents an integer from 1 to 3;

provided that all R groups taken together contain at least 8 carbon atoms.

5,726,003

CYAN COUPLER DISPERSION WITH INCREASED ACTIVITY

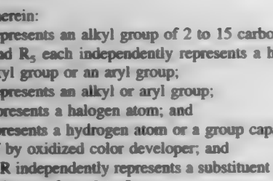
Paul Leo Zengerle, Rochester, N.Y., and Allan Francis Sowinski, Rochester, N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.

Filed Aug. 15, 1996, Ser. No. 698,079
Int. Cl.[6] G03C *7/34*
U.S. Cl. 430—546 **21 Claims**

1. A method of making a silver halide color photographic light sensitive material comprising:

(a) preparing a first dispersion of a phenolic cyan coupler of Formula I dispersed in an aqueous gelatin solution substantially free of permanent organic solvent;

Formula I



wherein

R_1 and R_2 each represent an aliphatic group, an aromatic group, or a heterocyclic group,

R_3 represents a hydrogen atom, a halogen atom, an aliphatic group, or an acylamino group,

X represents a hydrogen atom or a group capable of being released upon a coupling reaction with oxidation product of a developing agent, and

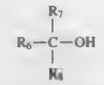
n represents 0 or 1;

(b) preparing a second dispersion of a high-boiling organic solvent having Formula II, III, IV, V or combinations thereof dispersed in an aqueous medium:

Formula II

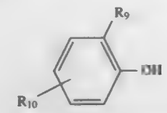
wherein R_4 and R_5 each represent an alkoxycarbonyl group containing not more than 8 carbon atoms, and m is an integer from 1 to 10;

Formula III



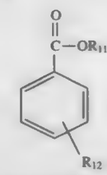
wherein R_6 represents an alkyl group or an alkenyl group, and R_7 and R_8 are individually selected from hydrogen and the group of moieties from which R_6 is selected, provided that the total number of carbon atoms contained in R_6, R_7, and R_8 is at least 10;

Formula IV



wherein R_9 and R_{10} are hydrogen or straight chain or branched chain alkyl groups, at least one of R_9 or R_{10} being a straight chain or branched chain alkyl group, the total number of carbon atoms in R_9 plus R_{10} being from 9 to 20, and R_{10} being in the para or meta position with respect to the phenolic hydroxyl group;

Formula V



wherein R_{11} represents an aliphatic group, an aromatic group, or a heterocyclic group, and R_{12} represents a hydrogen atom, a hydroxy group, an alkoxy group, or an aliphatic group;

(c) combining said first and second dispersions in an aqueous coating solution, wherein the weight ratio in said coating solution of high-boiling organic solvent of formula II, III, IV and V relative to coupler of formula I is from 0.1 to 0.5; and

(d) coating said coating solution on a photographic support.

5,726,004

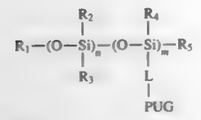
PHOTOGRAPHIC MATERIAL

Beate Weber, Leichlingen, and Jörg Hagemann, Köln, both of Germany, assignors to Agfa-Gevaert, Germany

Filed Sep. 18, 1996, Ser. No. 715,197
Claims priority, application Germany, Sep. 27, 1995, 195 35 939.9
Int. Cl.[6] G03C *1/34;1/42;1/04;7/327*
U.S. Cl. 430—548 **9 Claims**

1. Photographic material comprising at least one photosensitive silver halide emulsion layer and at least one non-photosensitive layer on a support, which said material contains at least one compound of the formula (I) in at least one of the layers,

(I)



in which

R_1 means H, alkyl, $Si(CH_3)_3$ or, together with R_5, a direct bond,

R_2 and R_4 are identical or different and mean hydroxy, alkoxy, alkyl, phenyl, $—OSi(CH_3)_3$ or $—OSi(OR_6)$,

R_3 means alkyl, aryl or alkenyl,

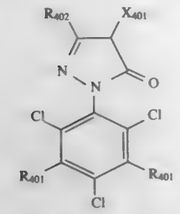
R_5 means OH, alkoxy, $—OSi(CH_3)_3$ or, together with R_1, a direct bond,

R_6 means alkyl,

L means a divalent linking member,

PUG is of one of the formulae (XIII) to (XVI) and the compounds of formulae (XIII) to (XVI) are attached to the polysiloxane skeleton via one of their substituents and the group L

(XIII)

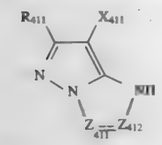


R_{401} means H or Cl,

R_{402} means alkylcarbonylamino, arylcarbonylamino or anilino and

X_{401} means H, Cl, a nitrogen containing heterocycle linked via the N-atom, arylthio, alkylthio or aryloxy:

(XIV)



wherein

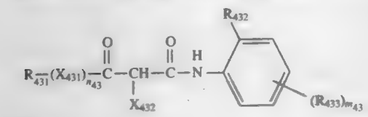
R_{411} means alkyl or aryl

Z_{411} means —N= and Z_{412}—$C(R_{412})$= or Z_{411} means —$C(R_{412})$= and Z_{412}—N=

R_{412} means alkyl or aryl and

X_{411} means H, Cl, aryloxy, a nitrogen containing heterocycle linked via the N-atom, alkylthio or arylthio,

(XV)



wherein

R_{431} means alkyl or aryl,

R_{432} means alkoxy, halogen or aryloxy,

R_{433} means acyl, acylamino, alkyl aryl, alkoxy or halogen,

X_{431} means $—N(R_{431})—$,

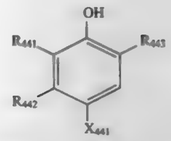
X_{432} means a nitrogen containing heterocycle linked via the N atom,

n_{43} means 0 or 1 and

m_{43} means 1 or 2,

and wherein two radicals R_{431} can form a five to seven membered ring;

(XVI)



wherein

R_{441} means H, Cl or alkoxy,

R_{442} means alkyl or acylamino,

R_{443} means H or acylamino and

X_{441} means H, Cl, acyloxy, alkoxy, aryloxy, alkylthio or arylthio or

R_{441} and R_{442} may form an anellated, optional substituted benzene or oxazole ring

n means 0 to 100 and

m means 2 to 100.

5,726,005

PHOTOGRAPHIC PRINT ELEMENTS CONTAINING CUBICAL GRAIN SILVER IODOCHLORIDE EMULSIONS

Benjamin Teh-Kung Chen, Penfield, N.Y.; James Lawrence Edwards, Rochester, N.Y.; Roger Lok, Rochester, N.Y., and Sanford Howard Ehrlich, Pittsford, N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.

Continuation-in-part of Ser. No. 362,283, Dec. 22, 1994, abandoned. This application May 17, 1996, Ser. No. 649,391
Int. Cl.[6] G03C *1/035;1/34*
U.S. Cl. 430—567 **23 Claims**

1. A photographic print element comprised of

a reflective support and, coated on the support,

at least one image recording emulsion layer unit containing a radiation-sensitive emulsion comprised of a dispersing medium and silver iodochloride grains

WHEREIN the silver iodochloride grains

are comprised of three pairs of equidistantly spaced parallel {100} crystal faces and

contain from 0.05 to 3 mole percent iodide, based on total silver, in a controlled, non-uniform iodide distribution forming a core containing at least 50 percent of total silver, an iodide-free surface shell having a thickness of greater than 50 Å, and a sub-surface shell that contains a maximum iodide concentration.

5,726,006

TABULAR GRAIN SILVER HALIDE EMULSIONS, A METHOD FOR THEIR PREPARATION AND PHOTOGRAPHIC PRODUCTS

Luc Renaud Gourlaouen, Givry, France; Gérard Amédé Désiré Friour, Chalon-Sur-Saone, France; Pierre-Henri Jezequel, Givry, France; Frédéric Xavier Jordi, Saint Vincent En Bresse, France, and Jean-Pascal Francis Lebrat, Chalon-Sur-Saone, France, assignors to Eastman Kodak Company, Rochester, N.Y.

Filed Jul. 9, 1996, Ser. No. 676,550
Claims priority, application France, Jul. 10, 1995, 95 08681
Int. Cl.[6] G03C *1/005;1/035*
U.S. Cl. 430—567 **7 Claims**

1. A method for preparing a photosensitive emulsion comprised of a dispersing medium and silver halide grains containing at least 80 mole percent bromide, based on silver, wherein at least 50% of the projected area of said silver halide grains is accounted for by tabular grains, free of twin planes, having (100) parallel major faces, said method comprising

(1) a step of nucleation whereby a fine grain emulsion is precipitated at a pAg in the range of from 4 to 6.5 and a pH in the

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range of from 2 to 5, while maintaining a stoichiometric excess of silver ion within the dispersing medium for a period of time up to 200 seconds of initiating step (1),

(2) a ripening step at a pAg in the range of from 8 to 9.5 and a pH in the range of from 6 to 8,

(3) a growth step, and

(4) a chemical sensitization step.

5,726,007

LIMITED DISPERSITY EPITAXIALLY SENSITIZED ULTRATHIN TABULAR GRAIN EMULSIONS

Joseph Charles Deaton, Rochester; David Earl Fenton, Fairport, and Allen Keh-Chang Tsaur, Rochester, all of N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.

Filed Sep. 30, 1996, Ser. No. 722,403

Int. Cl.[6] G03C *1/035;1/043*

U.S. Cl. 430—567 **12 Claims**

1. A photographic emulsion comprised of coprecipitated radiation-sensitive silver halide grains containing greater than 70 mole percent bromide, based on silver, and a dispersing medium wherein

(a) the coprecipitated radiation-sensitive grains exhibit a coefficient of variation of less than 30 percent,

(b) greater than 90 percent of total projected area of the coprecipitated radiation-sensitive silver halide is accounted for by grains which are tabular

(1) having {111} major faces,

(2) exhibiting a thickness of less than 0.07 μm, and

(3) having latent image forming chemical sensitization sites on the surfaces of the tabular grains, the chemical sensitization sites including at least one silver salt epitaxially located on said tabular grains, and

(c) the dispersing medium contains a grain dispersity reducing concentration of a polyalkylene oxide block copolymer surfactant comprised of two terminal lipophilic alkylene oxide block units linked by a hydrophilic alkylene oxide block unit accounting for from 4 to 96 percent of the molecular weight of the polymer.

5,726,008

PHOTOGRAPHIC ELEMENTS WITH IMPROVED VEHICLES

Joe Edward Maskasky, Rochester, N.Y., assignor to Eastman Kodak Company, Rochester, N.Y.

Filed Sep. 18, 1996, Ser. No. 715,572

Int. Cl.[6] G03C *1/005*

U.S. Cl. 430—569 **13 Claims**

1. A photographic element comprising a support and, coated on said support, at least one silver halide emulsion layer comprised of radiation-sensitive silver halide grains and hydrophilic colloid vehicle,

wherein

at least 45 percent of the total weight of the hydrophilic colloid vehicle is derived from gelatin and

at least 20 percent of the total weight of the hydrophilic colloid vehicle is derived from a water dispersible starch.

5,726,009

NATIVE-STATE METHOD AND SYSTEM FOR DETERMINING VIABILITY AND PROLIFERATIVE CAPACITY OF TISSUES IN VITRO

Kenneth M. Connors, and Anna Monosov, both of San Diego, Calif., assignors to Anticancer, Inc., San Diego, Calif.

PCT No. PCT/US94/07476, § 371 Date Jun. 4, 1996, § 102(e) Date Jun. 4, 1996, PCT Pub. No. WO95/01455, PCT Pub. Date Jan. 12, 1995

Continuation-in-part of Ser. No. 84,402, Jun. 29, 1993, abandoned, which is a continuation-in-part of Ser. No. 965,602, Oct. 22, 1992, abandoned, which is a continuation of Ser. No. 326,286, Mar. 20, 1989, abandoned. This PCT application Jun. 29, 1994, Ser. No. 578,663

Int. Cl.[6] C12Q *1/68;* **G01N** *33/53*

U.S. Cl. 435—4 **16 Claims**

1. An in vitro method for predicting the effectiveness of treating a preselected tumor tissue of a subject in vivo with an anti-tumor agent, which method comprises:

a) histoculturing, in separate containers, first, second, third and fourth portions of a tumor tissue sample;

b) exposing said first and second portions of said tumor tissue sample to said agent;

c) determining the percentage of viable cells within said first and third portions of said histocultured tumor tissue sample to produce a viable cell index comprising a ratio of viable to non-viable cells in said first and third portions;

d) determining the percentage of proliferating cells within said second and fourth portions of said histocultured tumor tissue sample to produce a growth fraction index comprising a ratio of proliferating to non-proliferating cells in said second and fourth portions; and

e) wherein a reduced viable call index in said first portion as compared to said third portion combined with a reduced growth fraction index in said second portion as compared to said fourth portion substantially increases the reliability of the in vitro as say as predicting in vivo effectiveness of said antitumor agent against said tumor tissue.

5,726,010

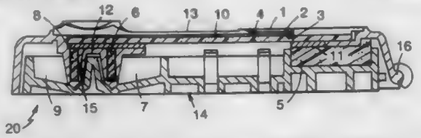
REVERSIBLE FLOW CHROMATOGRAPHIC BINDING ASSAY

Scott M. Clark, Cape Elizabeth, Me., assignor to IDEXX Laboratories, Inc., Westbrook, Me.

Filed Jul. 31, 1991, Ser. No. 738,321

Int. Cl.[6] G01N *33/569;33/543;33/558*

U.S. Cl. 435—5 **36 Claims**



1. A device for performing an assay which determines the presence or quantity of an analyte in a fluid sample by detecting binding of said analyte to at least one immobilized analyte capture reagent after washing unbound material from said immobilized analyte capture reagent, said device comprising:

(a) an elongated solid phase flow matrix, said flow matrix comprising capillary channels capable of driving capillary fluid movement, said flow matrix further comprising

i) a first region adapted for receipt of said fluid sample,

ii) a second region at which said analyte capture reagent is immobilized,

iii) a third region for application of a liquid detector reagent capable of removing unbound substances from said second region;

said second region being positioned intermediate to said first region and said third region;

(b) an absorbent reservoir of high volume capacity, wherein, prior to use of said device, said absorbent reservoir is not in fluidic contact with said flow matrix; said device further comprising means for establishing fluidic contact between said absorbent reservoir and said flow matrix at a position selected so that said second region is between said absorbent reservoir and said third region;

(c) a sealed container of said liquid detector reagent positioned to be introduced at said third region of said matrix;

whereby said flow matrix and said regions thereof are sized and positioned to cause said fluid sample to flow initially along said elongated flow matrix in one direction toward and through said second region, and subsequently, upon introduction of said liquid detector reagent into the third region of said flow matrix, said liquid detector reagent to flow along said elongated flow matrix in a second direction opposite said first direction, through said second region, and into said absorbent reservoir, drawing unbound substances with it.

5,726,011

METHOD FOR DIAGNOSING CHRONIC HEPATITIS B VIRUS INFECTION

David R. Milich, El Cahon, Calif.; Toshiyuki Maruyama, Tokyo, Japan; Florian Schodel, Silver Springs, Md., and Darrel Peterson, Chesterfield, Va., assignors to Virginia Commonwealth University, Richmond, Va.; The Scripps Research Institute, La Jolla, Calif., and Max Planck Gesellschaft, Munich, Germany

Filed Mar. 31, 1994, Ser. No. 221,098

Int. Cl.[6] C12Q *1/70*

U.S. Cl. 435—5 **11 Claims**

1. A method of diagnosing chronic hepatitis B virus (HBV) infection in a subject comprising:

(a) contacting a sample from a subject suspected of having chronic HBV infection with woodchuck hepatitis B virus core antigen; and

(b) detecting the presence in said sample of antibody that binds woodchuck hepatitis B core antigen, wherein the presence of said antibody bound to said woodchuck hepatitis B core antigen indicates chronic hepatitis B virus infection in said subject.

5,726,012

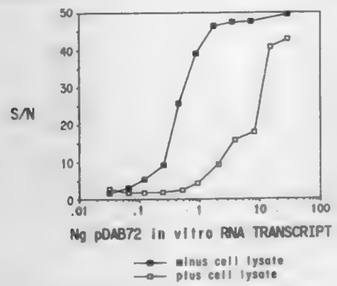
RAPID, HIGH CAPACITY NUCLEIC ACID BASED ASSAY

Lee Terry Bacheler, Newark, Del.; Jeffrey Allan Miller, New London, Pa., and Barry Allen Stone, New Castle, Del., assignors to E. I. du Pont de Nemours and Company, Wilmington, Del.

Continuation of Ser. No. 860,827, Mar. 31, 1992, abandoned. This application Apr. 21, 1994, Ser. No. 231,942

Int. Cl.[6] C12Q *1/70;1/68*

U.S. Cl. 435—5 **14 Claims**



1. A nucleic acid based in vitro method for evaluating anti-infectious agent activity of a compound which comprises:

a) contacting a host capable of supporting replication of an infectious agent with a compound suspected to have anti-infectious agent activity and the infectious agent wherein the compound can be added before, after or with the infectious agent;

b) allowing the infectious agent to attempt to replicate;

c) preparing the product of step (b) in a solution containing a chaotropic agent for subsequent hybridization, said product including the host, infectious agent and compound suspected to have anti-infectious agent activity;

d) hybridizing target nucleic acid contained in the product of step (c) with a capture probe to which is attached a first member of a specific binding pair directly in the solution containing the chaotropic agent to form a capture probe—target nucleic acid complex;

e) diluting the chaotropic solution containing the product of step (d) to a concentration which permits binding of the first member of the binding pair attached to the capture—probe—target nucleic acid complex to a second member of the binding pair;

f) immobilizing the first member of the binding pair—capture probe—target nucleic acid complex on a support to which is attached the second member of the binding pair;

g) removing substantially all non-immobilized components including the chaotropic agent;

h) reacting a reporter probe with immobilized capture probe—target nucleic acid complex to form an immobilized capture probe—target nucleic acid-reporter probe complex wherein the reporter probe is complementary to a portion of the target nucleic acid not including the portion to which the capture probe hybridizes;

i) removing substantially all unreacted reporter probe; and

j) determining the anti-infectious agent activity of the compound by detecting and/or quantitating the product of step (i).

5,726,013

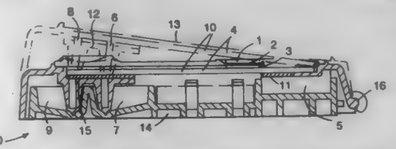
REVERSIBLE FLOW CHROMATOGRAPHIC BINDING ASSAY SYSTEM, KIT, AND METHOD

Scott M. Clark, Cape Elizabeth, Me., assignor to IDEXX Laboratories, Inc., Westbrook, Me.

Continuation of Ser. No. 738,321, Jul. 31, 1991. This application Jun. 7, 1995, Ser. No. 487,469

Int. Cl.[6] G01N *33/569;33/543;33/558*

U.S. Cl. 435—5 **62 Claims**



1. An assay system for performing an assay which determines the presence or quantity of an analyte in a fluid sample suspected of containing the analyte by detecting analyte bound to an immobilized analyte capture reagent after unbound material has been washed away, the system comprising:

(a) an elongated solid phase flow matrix capable of driving fluid movement, the flow matrix comprising,

(i) a first matrix region for receipt of an analyte-containing fluid,

(ii) a second matrix region at which the analyte capture reagent is immobilized, the second matrix region being positioned in between the first matrix region and a third matrix region (iii),

(iii) the third matrix region being for receipt of liquid capable of removing from the second matrix region substances that are not bound to the analyte capture reagent; and

(iv) an absorbent reservoir positioned to contact the matrix at an absorption region, the second matrix region being between the absorption region and the third matrix region;

(b) a mobile analyte binding reagent which is capable of: i) binding to analyte; ii) moving through the matrix; and iii) facilitating detection of analyte bound to the second matrix

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region, said mobile analyte binding reagent comprising an analyte binding component and a detectable label;

whereby operation of the system initially causes movement of analyte-containing fluid in a first direction away from the first matrix region through the second matrix region; and, after introduction of the liquid into the third region of the flow matrix and the absorbent reservoir is in contact with the absorption region of the matrix, flow in the matrix occurs in a second direction opposite the first direction, the second direction being away from the third matrix region and into the second region.

5,726,014

SCREENING ASSAY FOR THE DETECTION OF DNA-BINDING MOLECULES

Cynthia A. Edwards, Menlo Park, Calif.; Charles R. Cantor, Boston; Beth M. Andrews, Watertown, both of Mass., and Lisa M. Turin, Berkeley, Calif., assignors to Genelabs Technologies, Inc., Redwood City, Calif.

Continuation-in-part of Ser. No. 996,783, Dec. 23, 1992, which is a continuation-in-part of Ser. No. 723,618, Jun. 27, 1991, abandoned. This application Sep. 17, 1993, Ser. No. 123,936

Int. Cl.[6] C12Q *1/68*; C12P *19/34*; G01N *33/566*

U.S. Cl. 435—6 **19 Claims**

1. A method of identifying test sequences in duplex DNA to which binding of a test molecule is preferred, comprising

(i) adding a test molecule to be screened to a test reaction mixture comprising

a DNA-binding protein, and

a mixture of duplex DNA test oligonucleotides, each oligonucleotide consisting of (a) a screening sequence adjacent to and not overlapping (b) a test sequence, where said DNA binding protein binds to said screening sequence with a binding affinity that is substantially independent of said test sequence, but where binding of said DNA-binding protein to the screening sequence is affected by binding of test molecules to the test sequence, wherein said mixture contains at least two different oligonucleotides,

(ii) incubating the test molecule in the test reaction mixture for a period sufficient to permit binding of the test molecule to test sequence, in said duplex DNA test oligonucleotide mixture,

(iii) separating test oligonucleotides that are free of DNA-binding protein from test oligonucleotides bound to said DNA-binding protein,

(iv) amplifying test oligonucleotides that are free of DNA-binding protein,

(v) repeating steps (i) to (iv) using as test oligonucleotides in said reaction mixture said amplified test oligonucleotides,

(vi) isolating the amplified test oligonucleotides, and

(vii) sequencing the isolated test oligonucleotides.

5,726,015

METHOD TO DETERMINE METASTATIC POTENTIAL OF TUMOR CELLS

Lynn M. Matrisian, Nashville, Tenn., assignor to Vanderbilt University, Nashville, Tenn.

Continuation of Ser. No. 61,827, May 17, 1993, abandoned, which is a continuation of Ser. No. 700,505, May 15, 1991, abandoned. This application Jan. 10, 1995, Ser. No. 371,082

Int. Cl.[6] C12Q *1/68*

U.S. Cl. 435—6 **7 Claims**

1. A method to determine whether tumor cells will metastasize by detecting the expression of metalloproteinase pump-1 mRNA by said tumor cells, the method comprising the steps of:

a. obtaining a sample of tumor cells and a sample of non-cancerous cells adjacent to said tumor cells;

b. detecting mRNA to metalloproteinase pump-1 proteins in tumor cells and in non-cancerous cells;

c. comparing the detected pump-1 mRNA in the tumor cells with the pump-1 mRNA in the non-cancerous cells; and

d. determining whether the tumor cells will metastasize by detection of a higher level of pump-1 mRNA in the tumor cells than in the non-cancerous cells.

5,726,016

COMPOSITIONS AND METHODS FOR DIAGNOSIS OF DISEASES ASSOCIATED WITH *ACTINOBACILLUS ACTINOMYCETEMCOMITANS* INFECTION

Donald R. DeMuth, Drexel Hill, and Edward T. Lally, West Chester, both of Pa., assignors to The Trustees of the University of Pennsylvania, Philadelphia, Pa.

Filed Jan. 18, 1995, Ser. No. 374,843

Int. Cl.[6] C07H *21/04*; C12Q *1/68*; C12P *19/34*

U.S. Cl. 435—6 **26 Claims**

1. A primer of about 8 to about 80 nucleotides comprising an oligonucleotide of at least 8 nucleotides which specifically anneals to nucleotides +5 to −15 of the leukotoxin promoter in a JP2-like strain of *Actinobacillus actinomycetemcomitans*.

17. A method of determining the presence or absence of a highly toxic strain of *Actinobacillus actinomycetemcomitans* in a human patient comprising

isolating DNA from a sample obtained from said patient,

digesting said DNA with at least one restriction enzyme,

and hybridizing to said DNA a probe which specifically anneals to the ltx promoter region and distinguishes between the leukotoxin promoter sequence of a highly toxic strain of *Actinobacillus actinomycetemcomitans* and the leukotoxin promoter sequence of a nontoxic strain of *Actinobacillus actinomycetemcomitans*.

5,726,017

HIGH AFFINITY HIV-1 GAG NUCLEIC ACID LIGANDS

Michael A. Lochrie, Boulder, Colo., and Larry Gold, Boulder, Colo., assignors to NeXstar Pharmaceuticals, Inc., Boulder, Colo.

Continuation-in-part of Ser. No. 714,131, Jun. 10, 1991, Pat. No. 5,475,096, said Ser. No. 931,473, said Ser. No. 964,624, said Ser. No. 117,991and Ser. No. 536,428, Jun. 11, 1990, abandoned. This application May 19, 1995, Ser. No. 447,172

Int. Cl.[6] C12Q *1/68*; C12P *19/34*; C07H *21/04;21/02*

U.S. Cl. 435—6 **10 Claims**

1. A method for identifying nucleic acid ligands to HIV-1 GAG, comprising:

a) preparing a candidate mixture of nucleic acids;

b) contacting the candidate mixture of nucleic acids with HIV-1 GAG, wherein nucleic acids having an increased affinity to HIV-1 GAG relative to the candidate mixture may be partitioned from the remainder of the candidate mixture;

c) partitioning the increased affinity nucleic acids from the remainder of the candidate mixture; and

d) amplifying the increased affinity nucleic acids to yield a mixture of nucleic acids enriched for nucleic acids with relatively higher affinity and specificity for binding to HIV- 1 GAG, whereby nucleic acids ligands to HIV-1 GAG may be identified.

5,726,018

NUCLEIC ACID BASED ASSAYS TO DETECT A NOVEL MAMMALIAN PROTEIN ASSOCIATED WITH UNCONTROLLED CELL DIVISION

Gary R. Pasternack, Baltimore, Md., assignor to Johns Hopkins University, Baltimore, Md.

Continuation of Ser. No. 314,503, Sep. 28, 1994, , which is a continuation of Ser. No. 561,989, Aug. 1, 1990, abandoned. This application Jun. 6, 1995, Ser. No. 466,603

Int. Cl.[6] C12Q *1/68*; C07H *21/04*

U.S. Cl. 435—6 **11 Claims**

1. A diagnostic method for predicting malignant potential of lymphoid and epithelial tumors, comprising:

providing a sample of human lymphoid or epithelial tissue; and

determining, in the sample, levels or intracellular sites of expression of a gene product expressed from a gene sequence which hybridizes with the nucleotide sequence of SEQ ID NO:4 or its complement.

5,726,019

ANALYSIS OF SPUTUM BY AMPLIFICATION AND DETECTION OF MUTANT NUCLEIC ACID SEQUENCES

David Sidransky, Baltimore, Md., assignor to The Johns Hopkins University School of Medicine, Baltimore, Md.

Continuation of Ser. No. 152,313, Nov. 12, 1993, Pat. No. 5,561,041. This application Dec. 28, 1995, Ser. No. 579,223

Int. Cl.[6] C12Q *1/68*; C12P *19/34*; C07H *21/04*

U.S. Cl. 435—6 **17 Claims**

1. A method for detecting the presence of a target mutant nucleotide sequence in a mammalian nucleic acid in a sputum specimen from a subject having or at risk of having a neoplastic disorder of the head and neck comprising:

a) isolating the nucleic acid present in the sputum specimen;

b) amplifying the nucleic acid; and

c) detecting the presence of the target mutant nucleotide sequence,

wherein the presence of the target nucleotide sequence in the sputum is indicative of a neoplastic disorder of the head and neck.

5,726,020

INHIBITION OF II SYNTHESIS

Robert E. Humphreys, Acton, and Minzhen Xu, Northborough, both of Mass., assignors to University of Massachusetts, Boston, Mass.

Filed Jun. 11, 1996, Ser. No. 661,627

Int. Cl.[6] C12Q *1/68*; G01N *33/53*; C07H *21/00*; C12N *5/00*

U.S. Cl. 435—6 **23 Claims**

1. An expressible reverse gene construct, comprising a DNA molecule which encodes a first mRNA molecule which is complementary to a second mRNA molecule which encodes a mammalian Ii protein, the first mRNA molecule having the ability to hybridize with the second mRNA molecule thereby inhibiting translation of the second mRNA molecule, the first mRNA molecule being complementary with a portion of the second mRNA molecule comprising the translation initiation site through at least a portion of the second exon.

5,726,021

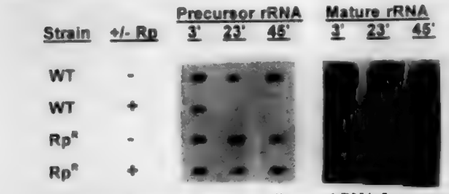
RAPID AND SENSITIVE DETECTION OF ANTIBIOTIC-RESISTANT MYCOBACTERIA USING OLIGONUCLEOTIDE PROBES SPECIFIC FOR RIBOSOMAL RNA PRECURSORS

Theresa B. Britschgi, and Gerard A. Cangelosi, both of Seattle, Wash., assignors to Becton Dickinson and Company, Franklin Lakes, N.J.

Continuation of Ser. No. 261,068, Jun. 16, 1994, abandoned. This application Nov. 27, 1996, Ser. No. 757,180

Int. Cl.[6] C12Q *1/68;1/00*

U.S. Cl. 435—6 **6 Claims**



1. A method of releasing precursor ribosomal RNA from mycobacterial cells, the method comprising the steps of:

(a) pretreating the cells by enzymatic degradation using both lysozyme and protease until their cell walls are rendered porous to expose their cell membranes making the cells susceptible to lysis by steps (b) and (c);

(b) contacting the pretreated cells with a combination of a magnesium chelator, a nonionic detergent and an anionic detergent; and

(c) heating the cells to between about between 75°–99° C. until the mycobacterial cells are lysed, wherein intact precurssor rebosomal RNA is released from the lysed cells.

5,726,022

SUBTRACTIVE HYBRIDIZATION AND CAPTURE METHODS AND KITS FOR DIFFERENTIAL ISOLATION OF NUCLEIC ACIDS INCLUDING DISEASE-ASSOCIATED SEQUENCES

Glenna C. Burmer, Seattle, Wash., assignor to LifeSpan BioSciences, Inc., Seattle, Wash.

Filed Jan. 9, 1997, Ser. No. 781,118

Int. Cl.[6] C12Q *1/68*; C12P *19/34*; C07H *21/04*

U.S. Cl. 435—6 **16 Claims**

1. A method for analyzing or detecting for a target nucleic acid present in a first nucleic acid sample and not in a second nucleic acid sample comprising:

(a) separately fragmenting nucleic acid from the first nucleic acid sample and from the second nucleic acid sample with at least one restriction endonuclease to create first nucleic acid sample fragments and second nucleic acid sample fragments respectively;

(b) ligating a pair of first nucleic acid adaptors to the first nucleic acid fragments, each adaptor having a first restriction site and amplifying the first nucleic acid fragments with a primer complementary to the first nucleic acid adaptors and further containing a ligand binding end;

(c) ligating a pair of second nucleic acid adaptors to the second nucleic acid fragments, each adaptor having a second restriction site different from the first restriction site and amplifying the second nucleic acid fragments with a primer complementary to the second nucleic acid sample adaptors and further containing a ligand binding end; then

(d) combining the first nucleic acid fragments and the second nucleic acid fragments under hybridization conditions; and

(e) isolating double-stranded nucleic acid in which both strands are first nucleic acid fragments which are representative of nucleic acid in the first nucleic acid sample not present in the second nucleic acid sample.

5,726,023

IMMUNE REACTIVITY TO HER-2/NEU PROTEIN FOR DIAGNOSIS AND TREATMENT OF MALIGNANCIES IN WHICH THE HER-2/NEU ONCOGENE IS ASSOCIATED

Martin A. Cheever, Mercer Island, and Mary L. Disis, Renton, both of Wash., assignors to University of Washington, Seattle, Wash.

Continuation of Ser. No. 414,417, Mar. 31, 1995, which is a continuation-in-part of Ser. No. 106,112, Aug. 12, 1993, abandoned, which is a continuation-in-part of Ser. No. 33,644, Mar. 17, 1993, abandoned. This application Jun. 6, 1995, Ser. No. 467,083

Int. Cl.[6] G01N *33/536;33/541;33/566*; C07K *16/30*

U.S. Cl. 435—7.1 **20 Claims**

1. A method of screening for the presence of a malignancy in a warm-blooded animal, wherein a HER-2/neu oncogene is associated with the malignancy, comprising the steps of:

(a) contacting a body fluid, suspected of containing antibodies specific for HER-2/neu protein, with HER-2/neu protein;

(b) incubating the body fluid under conditions and for a time sufficient to allow immunocomplexes to form; and

(c) detecting the presence or absence of immunocomplexes formed between the HER-2/neu protein and antibodies in the body fluid specific for the HER-2/neu protein, thereby determining the presence or absence of the malignancy.

11. A method for detecting changes in the level of antibodies specific for HER-2/neu protein in a human, comprising the steps of:

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(a) contacting a first body fluid sample with HER-2/neu protein;
(b) incubating the sample under conditions and for a time sufficient to allow immunocomplexes to form;
(c) detecting immunocomplexes formed between the HER-2/neu protein and antibodies in the sample that are specific for the HER-2/neu protein;
(d) repeating steps (a), (b) and (c) on a second body fluid sample taken from the same individual at a time subsequent to the first sample; and
(e) comparing the number of immunocomplexes detected in the first and second body fluid samples, thereby determining whether a change in the level of antibody specific for HER-2/neu protein has occurred.

5,726,024

P53AS PROTEIN AND ANTIBODY THEREFOR

Molly F. Kulesz-Martin, Buffalo, N.Y., assignor to Health Research, Inc., Buffalo, N.Y.

Continuation-in-part of Ser. No. 259,612, Jun. 14, 1994, which is a continuation-in-part of Ser. No. 195,952, Feb. 11, 1994, abandoned, which is a continuation-in-part of Ser. No. 100,496, Aug. 2, 1993. This application May 10, 1996, Ser. No. 644,291

Int. Cl.[6] G01N *33/53;33/577;* **C07K** *16/18;16/30*

U.S. Cl. 435—7.1 **5 Claims**

1. A method for determining the presence and concentration of p53as in a cell sample comprising:
a) reacting the cell sample with an antibody which specifically binds to mammalian p53as protein and does not bind to normal p53 from the same species wherein said antibody binds to an epitope present in a peptide unique to p53as, said peptide occurring within the final 50 carboxyl terminal amino acids of p53as;
b) determining the presence and concentration of p53as bound with said antibody; and
c) comparing the determined concentration of p53as in the cell sample with p53as concentrations in normal cell products.

5,726,025

ASSAY AND REAGENTS FOR DETECTING INHIBITORS OF UBIQUITIN-DEPENDENT DEGRADATION OF CELL CYCLE REGULATORY PROTEINS

Marc W. Kirschner, Newton; Randall W. King, and Jan-Michael Peters, both of Brookline, all of Mass., assignors to President and Fellows of Harvard College, Cambridge, Mass.

Filed Apr. 20, 1995, Ser. No. 425,299

Int. Cl.[6] C12Q *1/48;* **G01N** *33/567*

U.S. Cl. 435—7.2 **30 Claims**

1. An assay for identifying an inhibitor of ubiquitin-mediated proteolysis of a cell-cycle regulatory protein, comprising:
(i) providing a cell-free ubiquitin-conjugating system, other than a whole lysate, which system comprises a cell-cycle regulatory protein, an E2 enzyme, a mitotic destruction complex (MDC), including CDC27 and CDC16 and ubiquitin, under conditions which promote MDC-dependent ubiquitination of the regulatory protein, wherein one or both of the CDC27 or CDC16 is provided to the system as a purified, semipurified or recombinant preparation; CDC27 and CDC16;
(ii) contacting the ubiquitin-conjugating system with a candidate agent;
(iii) measuring a level of ubiquitination of the regulatory protein in the presence of the candidate agent; and
(iv) comparing the measured level of ubiquitination in the presence of the candidate agent with a level of ubiquitination of the regulatory protein in the absence of the candidate agent, wherein a statistically significant decrease in ubiquitination of the regulatory protein in the presence of the candidate agent is indicative of an inhibitor of ubiquitination of the regulatory protein.

5,726,026

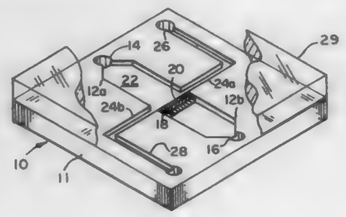
MESOSCALE SAMPLE PREPARATION DEVICE AND SYSTEMS FOR DETERMINATION AND PROCESSING OF ANALYTES

Peter Wilding, Paoli, and Larry J. Kricka, Berwyn, both of Pa., assignors to Trustees of the University of Pennsylvania, Philadelphia, Pa.

Continuation-in-part of Ser. No. 877,702, May 1, 1992, abandoned, Ser. No. 196,021, Feb. 14, 1994, Pat. No. 5,635,358, Ser. No. 250,100, May 26, 1994, abandoned, and Ser. No. 308,199, Sep. 19, 1994, Pat. No. 5,498,392, which is a continuation of Ser. No. 877,662, May 1, 1992, abandoned, said Ser. No. 196,021 is a division of Ser. No. 877,536, May 1, 1992, Pat. No. 5,304,487. This application Nov. 14, 1994, Ser. No. 338,369

Int. Cl.[6] G01N *15/06;33/00;33/48;* **C12P** *19/34*

U.S. Cl. 435—7.21 **28 Claims**



1. A device for preparing a test sample, comprising particulate components, for analysis, said device comprising a sample flow passage having a sample inlet and an outlet in fluid communication and a separator disposed between said inlet and said outlet, said separator having an upstream-facing portion defining a separation zone in said flow passage in which said particulate components are collected, and a flow channel in fluid communication with said separation zone for affording discharge of collected particulate components from said separation zone, said channel having an inlet section for directing a carrier fluid into said separation zone and over the upstream-facing portion of said separator, and a discharge section for directing said carrier fluid from over the upstream-facing portion of said separator and out of said separation zone, at least one of said flow passage and said flow channel sections having at least one mesoscale dimension.

5,726,027

METHOD FOR TREATMENT OF INSULIN RESISTANCE

Jerrold M. Olefsky, Solana Beach, Calif., assignor to The Regents of the University of California, Oakland, Calif.

Filed Mar. 8, 1996, Ser. No. 612,588

Int. Cl.[6] G01N *33/50;33/68*

U.S. Cl. 435—7.21 **1 Claim**

1. A method for determining whether a composition inhibits protein tyrosine phosphatase 1B (PTP1B) binding to phosphorylated insulin receptor rather than phosphatase activity, said method comprising:
incubating the composition with PTP1B polypeptide or with a recombinant cell expressing PTP1B, together with a phosphorylated insulin receptor, for a time and under conditions sufficient to allow the PTP1B and phosphorylated insulin receptor to bind; and determining the composition's inhibition of PTP1B binding to the insulin receptor rather than phosphatase activity.

5,726,028

METHOD FOR DETECTING DISTURBANCES OF THE PROTEIN C/PROTEIN S SYSTEM

Michael Kraus, Marburg, Germany, assignor to Behring Diagnostics GmbH, Marburg, Germany

Filed Aug. 4, 1995, Ser. No. 511,248

Claims priority, application Germany, Aug. 8, 1994, 44 27 785.7

Int. Cl.[6] C12Q *1/56*

U.S. Cl. 435—13 **39 Claims**

1. A method for the qualitative detection and quantitative determination of the functional activity of the protein C/protein S system of clotting in a sample of a plasma, comprising the steps of:
(a) adding an activator of protein C to the diluted or undiluted sample, wherein the sample is not mixed with a second plasma deficient in PC or PS;
(b) optionally adding a contact phase activator;
(c) incubating the reaction mixture;
(d) starting the clotting process by adding calcium ions or other agents that induce clotting, or both; and
(e) determining the clotting activity.

5,726,029

Patent Not Issued For This Number

5,726,030

METHOD FOR AUTOMATICALLY TESTING THE ANTIBIOTIC SENSITIVITY OF A PARAFFINOPHILIC MICROORGANISM

Robert A. Oliar, Milford, and Mitchell S. Felder, Sharon, both of Pa., assignors to Infectech, Inc., Sharon, Pa.

Division of Ser. No. 535,873, Aug. 28, 1995, Pat. No. 5,637,501. This application Jul. 2, 1996, Ser. No. 673,877

Int. Cl.[6] C12Q *1/24;1/04*

U.S. Cl. 435—30 **13 Claims**

1. A method of automatically testing the sensitivity of a paraffinophilic microorganism to different antimicrobial agents and concentrations thereof comprising:
providing a plurality of receptacles each containing an amount of liquid medium, an antimicrobial agent to be tested and said paraffinophilic microorganism to be tested;
placing in each of said receptacles a slide containing a paraffin coating;
automatically sequentially detecting paraffinophilic microorganism growth or the lack thereof on each of said slides by employing a light scatter sensing means; and
determining from said detection by said light scatter sensing means of said paraffinophilic microorganism growth or the lack thereof the sensitivity of said paraffinophilic microorganism to said antimicrobial agent to be tested.

5,726,031

TEST MEDIA AND QUANTITATIVE METHOD FOR IDENTIFICATION AND DIFFERENTIATION OF BIOLOGICAL MATERIALS IN A TEST SAMPLE

Jonathan N. Roth, Goshen, and Gordon L. Bontrager, South Bend, both of Ind., assignors to RCR Scientific, Inc., Goshen, Ind.

Filed Mar. 26, 1996, Ser. No. 622,366

Int. Cl.[6] C12Q *1/04;1/02;1/54;1/10*

U.S. Cl. 435—34 **36 Claims**

1. A method for quantitatively identifying and differentiating specified biological materials in a test sample comprising a plurality of different biological materials, wherein a first one of said biological materials has enzyme specificity for a first chromogenic substrate, and a second one of said biological materials has enzyme specificity for a second chromogenic substrate, and wherein at least some of said biological materials in said test sample are capable of fermenting a carbohydrate, said method comprising the steps of:
providing a test medium capable of forming a matrix or a solid surface with said test sample, said test medium comprising said first chromogenic substrate and said second chromogenic substrate, said first chromogenic substrate capable of forming a water insoluble compound of a first color upon reacting with an enzyme from said first biological material, and said second chromogenic substrate capable of forming a water insoluble compound of a color contrasting with said first color upon reacting with an enzyme from said second biological material; a fermentable component capable of acidifying a portion of the medium upon fermentation, said component comprising a carbohydrate, and said fermentation caused by carbohydrate-fermenting components of said test sample; a pH indicator for causing a third color to be formed upon reaction to said acidification, said third color comprising a colored zone around said carbohydrate-fermenting components; and a nutrient base medium;
adjusting the pH of said test medium to a range conducive for color change of the pH indicator upon acidification of said portion of the medium;
inoculating said test medium with said test sample;
incubating said test medium under conditions conducive for growth of colonies or activity of said biological materials, to thereby produce said contrasting colored water insoluble compounds;
examining said test medium for the presence of colonies having said first color, and having said third colored zone discernable and distinguishable thereabout, said colonies being colonies of said first biological material, and being carbohydrate fermenters; for the presence of colonies having a second color, contrasting with said first color, and having said third colored zone discernable and distinguishable thereabout, such colonies being colonies of said second biological material, and being carbohydrate fermenters; and for the presence of colonies having said first color, and not having said second color or said third colored zone discernable and distinguishable therewith, such colonies being colonies of a third biological material; and
enumerating each of said colonies.

5,726,032

PROCESS FOR THE EFFICIENT PRODUCTION OF 7-ADCA VIA 2-(CARBOXYETHYLTHIO)ACETYL-7-ADCA AND 3-(CARBOXYMETHYLTHIO)PROPIONYL-7-ADCA

Roelof Ary Lans Bovenberg, Rotterdam; Bertus Pieter Koekman, Schipluiden; Andreas Hoekema, Oegstgeest; Jan Metske Van Der Laan, Breda; Jan Verweij, and Erik De Vroom, both of Leiden, all of Netherlands, assignors to Gist-Brocades B.V., Netherlands

PCT No. PCT/EP94/02543, § 371 Date Apr. 4, 1996, § 102(e) Date Apr. 4, 1996, PCT Pub. No. WO95/04148, PCT Pub. Date Feb. 9, 1995

PCT Filed Jul. 29, 1994, Ser. No. 592,411

Claims priority, application European Pat. Off., Jul. 30, 1993, 93202259; Dec. 24, 1993, 93203696

Int. Cl.[6] C12P *35/00;35/02;35/06;* **C12N** *1/15*

U.S. Cl. 435—51 **4 Claims**

1. A process for the preparation and recovery of 7-aminodesacetoxycephalosporanic acid (7-ADCA) by:
a) transforming a *Penicillium chrysogenum* strain with an expandase gene, under the transcriptional and translational regulation of filamentous fungal expression signals;
b) fermenting said strain in a culture medium and adding to said culture medium 3'-carboxymethylthiopropionic acid or a salt or ester thereof suitable to yield 2-(carboxyethylthio)acetyl- and 3-(carboxymethylthio)propionyl-6-aminopenicillanic acid (2-(carboxyethylthio)acetyl- and 3-(carboxymethylthio)propionyl- 6-APA), which are in situ

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expanded to form 2-(carboxyethylthio)acetyl- and 3-(carboxymethylthio)propionyl- 7-ADCA;

c) recovering the 2-(carboxyethylthio)acetyl- and 3-(carboxymethylthio)propionyl- 7-ADCA from the fermentation broth;

d) deacylating said 2-(carboxyethylthio)acetyl- and 3-(carboxymethylthio)propionyl- 7-ADCA; and

e) recovering the crystalline 7-ADCA.

5,726,033

PROCESS FOR PREPARING PROTEINS FROM PROTEIN-CONTAINING SUBSTANCE

Waldemar Neumüller, Göttingen, Germany, assignor to Nupron GmbH Proteinwerk, Hardenberg, Germany

PCT No. PCT/EP94/03857, § 371 Date May 17, 1996, § 102(e) Date May 17, 1996, PCT Pub. No. WO95/14394, PCT Pub. Date Jun. 1, 1995

PCT Filed Nov. 22, 1994, Ser. No. 648,173

Claims priority, application Germany, Nov. 22, 1993, 43 39 743.3

Int. Cl.[6] C12P *21/06;* **A23L** *1/32;* **A23J** *1/00;1/02*

U.S. Cl. 435—68.1 **10 Claims**

1. A process for preparing proteins from a protein-containing substance, comprising the steps of treating said protein-containing substance with a protease to produce a protease-treated protein-containing substance, dispersing said protease-treated protein-containing substance in an alkaline solvent with a pH of over 11.5 and at a temperature of under 30° C., whereby the proteins contained in the protease-treated substance are dissolved, neutralizing the resulting solution of dissolved proteins and concentrating the dissolved proteins contained in said neutralized solution to obtain a concentrate of dissolved proteins.

5,726,034

AGLUCONE ISOFLAVONE ENRICHED VEGETABLE PROTEIN EXTRACT AND PROTEIN MATERIAL, AND HIGH GENISTEIN AND DAIDZEIN CONTENT MATERIALS AND PROCESS FOR PRODUCING THE SAME

Barbara A. Bryan, University City, Mo., and Maryann C. Allred, Collinsville, Ill., assignors to Protein Technologies International, Inc., St. Louis, Mo.

Filed Sep. 6, 1996, Ser. No. 709,026

Int. Cl.[6] C21P *21/06;* **C12N** *9/24;* **A61K** *31/337;35/78*

U.S. Cl. 435—68.1 **50 Claims**

1. A process for producing an aglucone isoflavone enriched extract from a vegetable material comprising:

extracting a vegetable material containing isoflavone conjugates and protein with an aqueous extractant having a pH above about the isoelectric point of said protein in said vegetable material;

separating said extractant from said vegetable material to form an aqueous extract containing said isoflavone conjugates and said protein:

treating said aqueous extract at a temperature of about 2° C. to about 121° C. and a pH of about 6 to about 13.5 for a time period sufficient to convert said isoflavone conjugates to isoflavone glucosides; and

contacting an enzyme capable of cleaving glucoside bonds with said isoflavone glucosides in said aqueous extract at a temperate of about 5° C. to about 75° C. and a pH of about 3 to about 9 for a time period sufficient to convert said isoflavone glucosides to aglucone isoflavones.

5,726,035

RECOMBINANT PRODUCTION OF MAMMALIAN CALCIUM CHANNEL GAMMA SUBUNITS

Scott David Jay, Iowa City, Iowa; Steven Bradley Ellis; Michael Miller Harpold, both of San Diego, Calif., and Kevin Peter Campbell, Iowa City, Iowa, assignors to SIBIA Neurosciences, Inc., La Jolla, Calif., and University of Iowa Research Foundation, Iowa City, Iowa

Continuation of Ser. No. 482,384, Feb. 20, 1990, Pat. No. 5,386,025. This application Nov. 7, 1994, Ser. No. 336,257

Int. Cl.[6] C12N *15/12;* **C07K** *14/435*

U.S. Cl. 435—69.1 **43 Claims**

15. An isolated nonchromosomal nucleic acid molecule comprising a sequence of nucleotides or ribonucleotides that encodes a naturally-occurring γ-subunit of a mammalian voltage-dependent calcium channel.

19. An isolated single-stranded nucleic acid molecule comprising

(a) at least 14 contiguous bases between bases 1 and 1171 as set forth in SEQ ID NO: 1, or

(b) the complement of a sequence of at least 14 contiguous bases between bases 1 and 1171 as set forth in SEQ ID NO: 1, with the proviso that if the molecule is RNA, then the thymidine bases in SEQ ID NO: 1 are replaced with uracil bases;

wherein the nucleic acid molecule is capable of hybridizing under non-stringent conditions to a DNA molecule encoding a naturally occurring mammalian calcium channel γ-subunit protein, wherein non-stringent conditions are those that result in hybrids that form in 20% formamide, 6X SSPE at 42° C. and remain when washed with 0.2X SSPE at 45° C.

5,726,036

GRANULOCYTE-MACROPHAGE COLONY-STIMULATING FACTOR RECEPTOR AND DERIVATIVES THEREOF

Nicos Anthony Nicola; Nicholas Martin Gough, both of Victoria, Australia; David Paul Gearing, Seattle, Wash.; Donald Metcalf, Victoria, Australia, and Julie Ann King, Seattle, Wash., assignors to Amrad Corporation Limited, Victoria, Australia

Division of Ser. No. 351,149, Nov. 23, 1994, Pat. No. 5,629,283. This application Feb. 7, 1995, Ser. No. 384,828

Claims priority, application Australia, Aug. 11, 1989, PJ5743; May 8, 1990, PK0014; WIPO, Aug. 10, 1990, PCT/AU90/00342

Int. Cl.[6] C12N *15/12;* **C07K** *14/715*

U.S. Cl. 435—69.1 **22 Claims**

1. An isolated nucleic acid, comprising a nucleotide sequence having at least 95% identity to at least 18 contiguous nucleotides of SEQ ID NO:4, or a sequence complementary thereto.

5,726,037

HOST CELLS AND METHOD OF PRODUCING SOLUBLE ANALOGUES OF INTEGRINS

Sarah C. Bodary; Cornelia M. Gorman; John W. McLean, all of San Francisco, and Mary A. Napier, Hillsborough, all of Calif., assignors to Genentech, Inc., San Francisco, Calif.

Division of Ser. No. 380,227, Jan. 30, 1995, abandoned, which is a continuation of Ser. No. 218,878, Mar. 28, 1994, abandoned, which is a continuation of Ser. No. 821,337, Jan. 13, 1992, abandoned, which is a continuation of Ser. No. 444,490, Dec. 1, 1989, abandoned, which is a continuation-in-part of Ser. No. 290,224, Dec. 22, 1988, abandoned. This application May 19, 1995, Ser. No. 444,792

Int. Cl.[6] C12N *5/10;15/12*

U.S. Cl. 435—69.1 **11 Claims**

1. A host cell transformed with DNA encoding a soluble analogue of a multiple subunit polypeptide (MSP),

wherein the MSP is an integrin comprising an α and a β subunit, said integrin selected from the group consisting of GPIIb-IIIa; p-150, 95, Mac-1, LFA-1, a leukocyte adhesion receptor; a member of the VLA family; and a heterodimeric receptor that participates directly in intercellular adhesion or adhesion of cells to extracellular matrix proteins;

wherein the soluble analogue comprises (1) a first MSP subunit variant fused at its C-terminus to an immunoglobulin constant domain and (2) a second MSP subunit variant which is not fused to an immunoglobulin constant domain,

wherein the first and the second MSP subunit variants associate naturally with each other, are encoded by discrete nucleic acids, and lack a functional membrane anchor domain.

5,726,038

DNA CONSTRUCT ENCODING THE YAP3 SIGNAL PEPTIDE

Lars Christiansen, Lyngby, and Jens Gunner Litske Petersen, Valby, both of Denmark, assignors to Novo Nordisk A/S, Bagsvaerd, Denmark

PCT No. PCT/DK94/00281, § 371 Date May 25, 1995, § 102(e) Date May 25, 1995, PCT Pub. No. WO95/02059, PCT Pub. Date Jan. 19, 1995

PCT Filed Jul. 8, 1994, Ser. No. 446,646

Claims priority, application Denmark, Jul. 8, 1993, 0828/93

Int. Cl.[6] C12N *15/00*

U.S. Cl. 435—69.1 **16 Claims**

1. A DNA construct comprising the following sequence

5'-P-SP-$(LP)_n$-PS-HP-3'

wherein

P is a promoter sequence,

SP is a DNA sequence encoding the yeast aspartic protease 3 (YAP3) signal peptide,

LP is a DNA sequence encoding a leader peptide, n is 0 or 1,

PS is a DNA sequence encoding a peptide defining a yeast processing site, and

HP is a DNA sequence encoding a polypeptide which is heterologous to a selected host organism.

5,726,039

VECTORS AND TRANSFORMED HOST CELLS FOR RECOMBINANT PROTEIN PRODUCTION AT REDUCED TEMPERATURES

Amos B. Oppenheim, Jerusalem; Hilla Giladi, Mevasseret Zion; Daniel Goldenberg, Ma'ale Adumim; Simi Kobi, Jerusalem, and Idit Azar, Rehovot, all of Israel, assignors to Yissum Research Development Co. of The Hebrew University of Jerusalem, Jerusalem, Israel

Continuation-in-part of Ser. No. 278,281, Jul. 21, 1994, Pat. No. 5,654,169. This application Jul. 20, 1995, Ser. No. 504,718

Int. Cl.[6] C12P *21/02;* **C12N** *15/20;15/73;* **C07H** *21/04*

U.S. Cl. 435—69.1 **26 Claims**

25. A method of producing a protein, comprising the steps of:

transforming a host with a vector comprising a DNA promoter having the nucleic acid sequence of SEQ ID NO:2, 3, 4, 5 or 6 operably linked to a gene encoding a protein,

culturing the host at about 37° C. for a time sufficient to allow an increase in culture density, and

culturing the host at about 20° C. for a time sufficient to produce said protein.

5,726,040

COSMETIC COMPOSITIONS INCLUDING TROPOELASTIN ISOMORPHS

Burt D. Ensley, 7 Colts Neck Dr., Newtown, Pa. 18940, and Matthew Ludmer, 41 Indian Hill Rd., R.D. 3, Katonak, N.Y. 11536

Continuation of Ser. No. 455,647, May 31, 1995, abandoned, which is a continuation of Ser. No. 150,712, Nov. 10, 1993, abandoned. This application May 2, 1996, Ser. No. 641,627

Int. Cl.[6] C12P *21/06;* **A61K** *7/035;7/42;38/16*

U.S. Cl. 435—69.1 **6 Claims**

1. A method of formulating a cosmetic composition, the method comprising steps of:

selecting a human individual on the basis of that individual having youthful-appearing skin, as compared with skin of the individual onto whom the cosmetic is to be applied;

obtaining at least two nucleic acids, each of which encodes a different tropoelastin isomorph that is present in epidermis of the selected human individual with the youthful-appearing skin;

introducing each of the identified nucleic acids into its own expression vector so that a population of expression constructs, each of which encodes a different tropoelastin isomorph, is produced, the population including vectors encoding at least two different tropoelastin isomorphs;

introducing each expression construct into a host cell so that a population of host cells, each of which has received an individual expression construct and expresses a single tropoelastin isomorph therefrom, is produced;

identifying those host cells in the population of the host cells that express one of the at least two tropoelastin isomorphs;

purifying each of the at least two tropoelastin isomorphs from the host cell that produces it; and

combining the at least two purified tropoelastin isomorphs with one another in ratios at which they are found in the epidermis of the selected individual, and also with a cosmetic carrier, to form a cosmetic composition.

5,726,041

METHOD FOR DETECTING A RECEPTOR-LIGAND COMPLEX USING A CYTOCHROME P450 REPORTER GENE

Charles L. Chrespi, Marblehead; Bruce W. Penman, Salem, both of Mass.; Frank J. Gonzalez, Bethesda; Harry V. Gelboin, Chevy Chase, both of Md., and Talia Sher, Rehovot, Israel, assignors to Gentest Corporation, Woburn, Mass., and The United States of America as represented by the Secretary of the Department of Health and Human Services, Washington, D.C.

Filed Aug. 22, 1996, Ser. No. 697,329

Int. Cl.[6] C12N *15/52;15/85;5/22;* **G01N** *33/566*

U.S. Cl. 435—69.1 **5 Claims**

1. A method for detecting the formation of a receptor-ligand complex in a cell, the method involving:

(1) contacting a ligand with a cell that expresses a receptor specifically reactive with the ligand, under conditions to permit formation of the receptor-ligand complex, wherein the cell contains:

(a) a reporter cassette for detecting formation of the receptor-ligand complex, the reporter cassette including a DNA sequence encoding a cytochrome P450 operatively coupled to a promoter, a DNA-responsive element and a polyadenylation signal sequence, wherein the DNA responsive element is responsive to a DNA-binding element present in a receptor-ligand complex, and

(b) a cytochrome P450 catalysis system;

(2) contacting the cell with a substrate for the cytochrome P450 catalysis system under conditions to permit catalysis of the

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substrate by the cytochrome P450 catalysis system to form a cytochrome P450 catalysis system product; and

(3) detecting the cytochrome P450 catalysis system product, wherein the formation of the cytochrome P450 catalysis system product is indicative of the formation of the receptor-ligand complex wherein the reporter cassette is contained on plasmid pT194/T144 296 MSV #39 as contained in the host cell having ATCC No. CRL 11978.

5,726,042

EXPRESSION OF HETEROLOGOUS PROTEINS IN *BACILLUS MEGATERIUM* UTILIZING SPORULATION PROMOTERS OF *BACILLUS SUBTILIS*

Annapur Gurulingappa Shivakumar, Libertyville; Leonard Katz, Waukegan; Lisa Beth Cohen, Lake Forest; Charles Lester Ginsburgh, Oak Forest; Leland Shawn Paul, Island Lake, and Rita Irene Vanags, Hillside, all of Ill., assignors to Abbott Laboratories, Abbott Park, Ill.

Continuation of Ser. No. 349,141, Nov. 17, 1994, abandoned, which is a continuation of Ser. No. 187,778, Jan. 26, 1994, abandoned, which is a continuation of Ser. No. 46,111, Apr. 9, 1993, abandoned, which is a continuation of Ser. No. 933,604, Aug. 21, 1992, abandoned, which is a continuation of Ser. No. 571,007, Aug. 22, 1990, abandoned, which is a continuation of Ser. No. 178,746, Apr. 7, 1988, abandoned. This application Sep. 30, 1996, Ser. No. 722,695

Int. Cl.[6] C12P *21/02*; C12N *15/75*;*15/48*;*15/62*

U.S. Cl. 435—69.1 **16 Claims**

1. A method of expressing a heterologous HIV protein in recoverable form in *Bacillus megaterium*, said method comprising the steps of:

(a) introducing into *Bacillus megaterium* a DNA sequence including the spoVG sporulation promoter of *Bacillus subtilis*, and a structural gene encoding said heterologous HIV protein under the control of said spoVG promoter, wherein said structural gene encodes an HIV-1 gp41 protein or fragments thereof which are capable of reacting with antibodies to said HIV-1 gp41 protein;

(b) culturing said *Bacillus megaterium* under conditions in which said structural gene is expressed from said spoVG promoter; and

(c) recovering said heterologous HIV protein from said *Bacillus megaterium*.

5,726,043

PROCESS FOR THE PRODUCTION OF PROTEASE INHIBITORS

Jutta Heim, Ramlinsburg; Peter Fürst, Basel; Thomas Hottiger, Sissach, all of Switzerland; Jochen Kuhla, Buchheim, Germany, and Gabriele Pohlig, Riehen, Switzerland, assignors to Novartis Corporation, Summit, N.J.

Continuation of Ser. No. 398,725, Mar. 6, 1995, abandoned, which is a continuation of Ser. No. 116,988, Aug. 30, 1993, abandoned. This application Sep. 16, 1996, Ser. No. 715,252

Claims priority, application United Kingdom, Sep. 4, 1992, 9218968.1

Int. Cl.[6] C12P 21/06; C12N 1/15;15/81

U.S. Cl. 435—69.2 **24 Claims**

12. A yeast expression vector comprising a desulphatohirudin expression cassette consisting of the yeast CUP1 promoter operably linked to a first DNA sequence encoding a yeast signal peptide, said first DNA sequence operably linked to a second DNA sequence encoding desulphatohirudin, and a third DNA sequence containing a yeast transcription termination signal.

5,726,044

EXPRESSION AND EXPORT TECHNOLOGY OF PROTEINS AS IMMUNOFUSINS

Kin-Ming Lo, Wellesley, Mass.; Yukio Sudo, Lexington, Mass., and Stephen D. Gillies, Carlisle, Mass., assignors to Fuji ImmunoPharmaceuticals Corp., Lexington, Mass.

Continuation-in-part of Ser. No. 305,700, Sep. 14, 1994, Pat. No. 5,541,087. This application Sep. 14, 1995, Ser. No. 528,122

Int. Cl.[6] C07K *16/46*; C12N *15/13*;*15/11*

U.S. Cl. 435—69.7 **8 Claims**

1. A DNA produced by recombinant DNA techniques for inducing expression and subsequent secretion of a target protein, said sequence being free of immunoglobulin CH1 and comprising a polynucleotide encoding, from its 5' to 3' direction:

A) a secretion cassette which comprises

a signal sequence;

an immunoglobulin Fc region; and

B) a target protein sequence encoding at least a portion of gp120 protein.

5,726,045

MATERIALS AND METHODS FOR CONVERTING DNA TO CO-DNA

Haruo Kagawa; Kazuko Kagawa, both of 13-29 Minami-Inoue-cho, Higashino, Yamashina-ku Kyoto 607, Japan, and Hiroaki Tokimatsu, Haimu-Fushimi C-213, Shimomisu-Yamadono-1, Yoko-Oji, Fushimi-ku Kyoto 612, Japan

Filed Dec. 6, 1995, Ser. No. 567,934

Int. Cl.[6] C12P *19/34*; C12N *9/00*;*9/10*;*9/04*

U.S. Cl. 435—91.1 **4 Claims**

1. A method for converting DNA to CO-DNA comprising the step of:

exposing canonical DNA to an isolated and substantially pure enzyme which catalyzes the conversion of DNA to CO-DNA in the presence of an appropriate buffer and a sugar selected from the group consisting of glucose and 3-deoxy hexonic acid.

5,726,046

METHOD OF PRODUCING SUGARS USING STRONG ACID HYDROLYSIS

William A. Farone, Irvine, and John E. Cuzens, Santa Ana, both of Calif., assignors to Arkenol, Inc., Mission Viejo, Calif.

Continuation of Ser. No. 483,455, Jun. 7, 1995, Pat. No. 5,597,714, which is a continuation-in-part of Ser. No. 38,628, Mar. 26, 1993, Pat. No. 5,562,777. This application Jul. 2, 1996, Ser. No. 674,405

Int. Cl.[6] C13K *1/02*; C12P *19/12*;*19/02*

U.S. Cl. 435—100 **47 Claims**

1. A method of producing sugars from materials containing cellulose and hemicellulose, comprising:

mixing the materials with a solution of about 25–90% acid by weight, thereby at least partially decrystallizing the materials and forming a gel that includes solid material and a liquid portion;

diluting said gel to an acid concentration of from about 20% to about 30% by weight and heating said gel, thereby at least partially hydrolyzing the cellulose and hemicellulose contained in said materials;

separating said liquid portion from said solid material, thereby obtaining a first liquid containing sugars and acids; and

separating the sugars from the acids in said first liquid by resin separation to produce a second liquid containing a total of at least about 15% sugar by weight, which is not more than 3% acid by weight.

5,726,047

PROCESS FOR STEREOSELECTIVELY REDUCING 1-HALO-3-AMINO-4-PHENYL-2-BUTANONE TO THE CORRESPONDING ALCOHOL WITH MICROORGANISMS

Tadashi Sugawn, Akashi, and Kenji Inoue, Kakogawa, both of Japan, assignors to Kaneka Corporation, Osaka, Japan

PCT No. PCT/JP96/01676, § 371 Date Apr. 4, 1997, § 102(e) Date Apr. 4, 1997, PCT Pub. No. WO97/00327, PCT Pub. Date Jan. 3, 1997

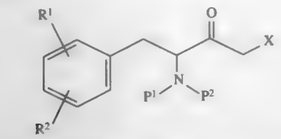
PCT Filed Jun. 19, 1996, Ser. No. 793,134

Claims priority, application Japan, Jun. 19, 1995, 7-176821

Int. Cl.[6] C12P *13/02*

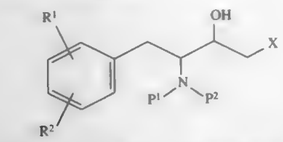
U.S. Cl. 435—129 **11 Claims**

1. A process for producing optically active 1-halo-3-amino-4-phenyl-2-butanol derivatives which comprises bringing an optically active 1-halo-3-amino-4-phenyl-2-butanone derivative of the formula (1)



(1)

wherein X is a halogen atom, R^1 and R^2 each independently is a hydrogen atom, a hydroxyl group which is optionally protected, an alkoxyl group, an alkyl group, a nitro group, an amino group which is optionally protected, or a cyano group, P^1 and P^2 each independently is a hydrogen atom or an amino-protecting group or P^1 and P^2 combined are a phthaloyl group, with the exception of the case in which both P^1 and P^2 are simultaneously hydrogen atoms, into contact with at least one microorganism selected from the group consisting of microorganisms belonging to the genera Candida, Geotrichum, Metschnikowia, Pachysolen, Pichia, Rhodotorula, Trichosporon, Zygosaccharomyces, Botryoascus, Cryptococcus, Citeromyces, Debaryomyces, Williopsis, Kloeckera, Lipomyces, Rhodosporidium, Saccharomycopsis and Wingea and capable of stereoselectively reducing said butanone derivative to the corresponding optically active 1-halo-3-amino-4-phenyl-2-butanol derivative of the formula (2),



(2)

wherein X, R^1, R^2, P^1 and P^2 are as defined above, and recovering the resulting optically active 1-halo-3-amino-4-phenyl-2-butanol derivative.

5,726,048

MUTANT OF GEOTRICHUM CANDIDUM WHICH PRODUCES NOVEL ENZYME SYSTEM TO SELECTIVELY HYDROLYZE TRIGLYCERIDES

Dean A. Oester, Cincinnati, Ohio; Allen L. Hall, Amelia, Ohio, and Stephen J. Vesper, Kettering, Ohio, assignors to Henkel Corporation, Plymouth Meeting, Pa.

Division of Ser. No. 918,328, Jul. 22, 1992, Pat. No. 5,470,741. This application Aug. 9, 1995, Ser. No. 513,193

Int. Cl.[6] C12P *7/64*

U.S. Cl. 435—134 **1 Claim**

1. A method of hydrolyzing oleoyl-containing triglycerides comprising contacting an oleoyl-containing triglyceride with a cell-free supernatant obtained from a biologically pure culture of a strain of *Geotrichum candidum* identified by ATCC deposit no. 74170 and/or mutants of this strain capable of producing the UNLipase enzyme.

5,726,049

ENZYMATIC PREPARATION OF MONIC ACIDS

Esme Faith Hayes, Worthing; John Thomas Sime, Dorking; Stefan Roland Woroniecki, Horsham, and David Alan Yeandle, Lancing, all of England, assignors to SmithKline Beecham p.l.c., Brentford, England

PCT No. PCT/EP94/02030, § 371 Date Feb. 15, 1996, § 102(e) Date Feb. 15, 1996, PCT Pub. No. WO95/02064, PCT Pub. Date Jan. 19, 1995

PCT Filed Jun. 21, 1994, Ser. No. 578,587

Claims priority, application United Kingdom, Jul. 3, 1993, 9313796

Int. Cl.[6] C12N *9/14*;*9/16*

U.S. Cl. 435—136 **3 Claims**

1. An enzyme which hydrolyzes pseudomonic acid to monic acid, the enzyme obtained by treating mycelium from *Streptomyces lividans* NCIMB 11416, by centrifugation and cell disruption followed by fractionation and chromotagraphy.

5,726,050

Z-DNA BINDING PROTEIN AND APPLICATIONS

Alexander Rich, Cambridge, and Alan Herbert, Belmont, both of Mass., assignors to Massachusetts Institute of Technology, Cambridge, Mass.

Filed Jun. 20, 1995, Ser. No. 492,599

Int. Cl.[6] C12N *15/85*;*15/63*;*15/62*;*5/10*

U.S. Cl. 435—172.3 **26 Claims**

1. An expressible genetic construct comprising the following elements which are fused to form a continuous reading frame:

a) DNA encoding double-stranded RNA adenosine deaminase, or a portion thereof which retains Z-DNA binding specificity; and

b) DNA encoding an effector function;

the fusion protein encoded by expressible the genetic construct being characterized by the ability to selectively modify gene expression.

5,726,051

TRANSGLUTAMINASE GENE

Bassam M. Fraij, Payne; Paul J. Birckbichler, Oklahoma City; Manford K. Patterson, Jr., and Robert A. Gonzales, both of Ardmore, all of Okla., assignors to Oklahoma Medical Research Foundation, Oklahoma City, Okla.

Continuation-in-part of Ser. No. 126,119, Sep. 23, 1993, abandoned, which is a continuation of Ser. No. 969,702, Nov. 3, 1992, abandoned. This application May 23, 1994, Ser. No. 247,902

Int. Cl.[6] C12N *9/10*;*15/54*

U.S. Cl. 435—193 **4 Claims**

1. A purified human tissue transglutaminase encoded by a cDNA of about 1.9 kilobases transcribed from an RNA transcript indigenous to human erythroleukemia cells.

5,726,052

RESTRICTION ENDONUCLEASE

Yoshiko Nomura, Kyoto, Japan; Yoshizumi Ishino, Takatsuki, Japan, and Ikunoshin Kato, Uji, Japan, assignors to Takara Shuzo Co., Ltd., Kyoto-fu, Japan

Filed Jul. 26, 1995, Ser. No. 507,615

Claims priority, application Japan, Jul. 28, 1994, 6-194602

Int. Cl.[6] C12P *19/34*; C12N *9/22*

U.S. Cl. 435—199 **4 Claims**

1. A purified restriction endonuclease,

(a) which only recognizes a nucleotide sequence of the following Chemical formula 1 in double stranded deoxyribonucleic acid and only cleaves said nucleotide sequence at the sites marked by arrows,

Chemical formula 1



wherein A, G, T and C represent adenine, guanine, thymine and cytosine, respectively, and

(b) which can be recovered from Streptomyces sp. YH8647 deposited under accession number FERM BP-5022.

5,726,053

RECOMBINANT ZYMOMONAS FOR PENTOSE FERMENTATION

Stephen K. Picataggio, Golden; Min Zhang, Lakewood, both of Colo.; Christina K. Eddy, Saratoga Springs, N.Y., and Kristine A. Deanda, Conifer, Colo., assignors to Midwest Research Institute, Kansas City, Mo.

Continuation-in-part of Ser. No. 228,303, Apr. 15, 1994, Pat. No. 5,514,583. This application Apr. 14, 1995, Ser. No. 421,996

Int. Cl.[6] C12N *1/21;15/74;* C12P *7/06*

U.S. Cl. 435—252.3 **12 Claims**

1. The microorganism *Zymomonas mobilis* containing exogenous genes encoding L-arabinose isomerase, L-ribulokinase, L-ribulose-5-phosphate-4-epimerase, transaldolase and transketolase which is capable of growing on arabinose as a sole carbon source and fermenting said arabinose to ethanol, wherein said microorganism without said genes is incapable of fermenting said arabinose to ethanol.

5,726,054

STRAIN FOR THE PRODUCTION OF 6-DEMETHYLTETRACYCLINE, METHOD FOR PRODUCING THE STRAIN AND VECTOR FOR USE IN THE METHOD

Michael J. Ryan, West Milford, N.J., assignor to American Cyanamid Company, Wayne, N.J.

Filed Jun. 7, 1995, Ser. No. 475,889

Int. Cl.[6] C12N *1/21;15/76;* C12P *29/00;* C07H *21/04*

U.S. Cl. 435—252.35 **19 Claims**

1. An isolated recombinant *S. aureofaciens* cell comprising

(a) at least one genetically engineered CTC 11 gene; and

(b) optionally

(i) a genetically engineered CTC 09 gene;

(ii) a genetically engineered CTC 03 gene; or

(iii) a combination thereof;

wherein:

said CTC 11 gene is chromosomal, extra-chromosomal, or chromosomal and extra-chromosomal;

said CTC 09 gene, CTC 03 gene, or a combination thereof is chromosomal, extra-chromosomal, or a combination thereof;

expression of said CTC 11 gene is enhanced over that of a wild-type *S. aureofaciens* cell; and

optionally, said CTC 09 gene, said CTC 03 gene, or both of said CTC 09 gene and said CTC 03 gene are inactivated.

5,726,055

PROCESS FOR THE PREPARATION OF PHARMACEUTICALLY ACTIVE THIAZOLIDINE COMPOUNDS BY A YEAST REDUCTASE

Richard Mark Hindley, Epsom, and Stefan Roland Woroniecki, Betchworth, both of England, assignors to SmithKline Beecham plc, Brentford, England

PCT No. PCT/GB92/02140, § 371 Date May 19, 1994, § 102(e) Date May 19, 1994, PCT Pub. No. WO93/10254, PCT Pub. Date May 27, 1993

PCT Filed Nov. 19, 1992, Ser. No. 244,263

Claims priority, application United Kingdom, Nov. 19, 1991, 9124513

Int. Cl.[6] C12P *17/00*

U.S. Cl. 435—280 **5 Claims**

1. A process for preparing 5-(4-[2-(N-methyl-N-(2-pyridyl)amino)-ethoxy] -benzyl)-2,4-thiazolidinedione, which comprises, treating 5-(4-[2-(N-methyl-N-(2-pyridyl)amino)ethoxy] benzylidine)-2,4-thiazolidinedione with a free whole yeast cell culture or immobilized whole yeast cells from *Rhodotorula glutinis* CBS 4406 or *Rhodotorula rubra* CBS 6469 as the microbial reductase source and recovering 5-(4-[2-(N-methyl-N-(2-pyridyl)amino)ethoxy]-benzyl)-2,4-thiazolidinedione, or a salt thereof.

5,726,056

FUEL PRODUCT PRODUCED BY DEMETALIZING A FOSSIL FUEL WITH AN ENZYME

Guo-Wei Xu; Kenneth W. Mitchell, and Daniel J. Monticello, all of The Woodlands, Tex., assignors to Energy BioSystems Corporation, The Woodlands, Tex.

Division of Ser. No. 460,116, Jun. 2, 1995, Pat. No. 5,624,844. This application Mar. 17, 1997, Ser. No. 819,590

Int. Cl.[6] C10G *32/00*

U.S. Cl. 435—281 **13 Claims**

1. A demetalized fossil fuel produced by a method comprising the steps of:

(a) contacting a fossil fuel with an oxygenase which degrades porphyrin molecules under conditions suitable for the removal of the metals from the fossil fuel; and

(b) separating the metals from the fossil fuel.

5,726,057

BARLEY β AMYLASE STRUCTURAL GENE

Naohiro Yoshigi, Yaizu, Japan, and Yukio Okada, Yaizu, Japan, assignors to Sapporo Breweries Limited, Tokyo, Japan

PCT No. PCT/JP96/00799, § 371 Date Nov. 25, 1996, § 102(e) Date Nov. 25, 1996, PCT Pub. No. WO96/30525, PCT Pub. Date Oct. 3, 1996

PCT Filed Mar. 27, 1996, Ser. No. 737,597

Claims priority, application Japan, Mar. 27, 1995, 7-092004

Int. Cl.[6] C12N *15/56;15/63*

U.S. Cl. 435—320.1 **3 Claims**

1. An isolated barley β-amylase structural gene consisting of the nucleotide sequence shown in SEQ. ID. No. 1 in attached sequence listing.

5,726,058

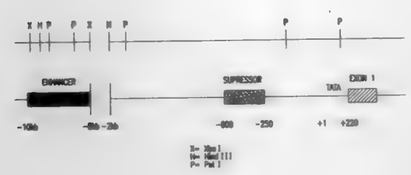
SYNDECAN STIMULATION OF CELLULAR DIFFERENTIATION

Markku Jalkanen, Rauvolantie 79, FIN-20760 Piispanristi; Leena Alanen-Kurki, Piispankatu 6-E-31, Fin-20500 Turku, both of Finland; Petri Auvinen, Kirschgartenstrasse 5, 69126 Heidelberg, Germany; Panu Jaakkola, Kellonsoittajankatu 13 B 20, FIN 20500 Turku, Finland; Sirpa Leppä, Valkintie 14056, Fin 20660 Littoinen, Finland; Markku Mali, Inkereentie 176, FIN-24280 Salo, Finland; Tapani Vihinen, Kasenkatu 11 C 54, FIN 20700, Finland, and Anni Wärri, Johaninkuja 2 AS 2, 21420 Lieto, Finland

Division of Ser. No. 206,186, Mar. 7, 1994, which is a continuation-in-part of Ser. No. 988,427, Dec. 1, 1992, abandoned, said Ser. No. 206,186. This application Jun. 7, 1995, Ser. No. 472,217

Int. Cl.[6] C12N *5/10;15/63;* C07H *21/04*

U.S. Cl. 435—354 **10 Claims**



2. A purified DNA molecule comprising a fragment of SEQ ID NO:3; wherein said fragment of SEQ ID NO :3 enhances expression of a gene operably linked to the promoter of the mouse syndecan gene of SEQ ID NO: 1 in 3T3 cells following treatment with TGF-β and bFGF when said fragment is operably linked to said promoter.

5,726,059

PROSTHETIC RNA AND USE THEREOF TO MODIFY RNA EXPRESSION

Marvin P. Wickens, Madison, Wis., and Michael D. Sheets, Berkeley, Calif., assignors to Wisconsin Alumni Research Foundation, Madison, Wis.

Filed Jun. 6, 1995, Ser. No. 467,038

Int. Cl.[6] C12N *5/00;5/02;15/00;* C07H *21/02*

U.S. Cl. 435—375 **13 Claims**

1. A method for altering translation in a Cell of an mRNA molecule that comprises a polypeptide-encoding portion, the method comprising the step of:

introducing into a cell cultured in vitro a prosthetic RNA molecule comprising a translation-regulating sequence element and a sequence element complementary to a portion of the mRNA molecule, wherein the translation-regulating sequence element is selected from the group consisting of a polyadenylation element, a mRNA localization element, and a 5' GpppG cap, whereby the stability, localization or translation rate of the mRNA molecule is altered relative to that of the mRNA molecule in the absence of said prosthetic RNA molecule.

7. A non-naturally occurring hybrid molecule comprising:

an mRNA molecule comprising a translatable gene sequence coding for a polypeptide; and

a prosthetic RNA molecule comprising a translation-regulating sequence element and a sequence element complementary to a portion of the mRNA molecule, the prosthetic RNA molecule being non-covalently coupled to the mRNA molecule, the translation-regulating sequence element being selected from a group consisting of a polyadenylation element, an mRNA localization element, and a 5' GpppG cap.

5,726,060

METHOD FOR CULTURING MAMMALIAN RESPIRATORY EPITHELIAL CELLS

Michael Anthony Bridges, 3435 West 37th Ave., Vancouver, Canada, V6N 2V5

Continuation-in-part of Ser. No. 081,626, Jun. 23, 1993, abandoned, which is a continuation-in-part of Ser. No. 760,954, Sep. 17, 1991, abandoned. This application Apr. 13, 1995, Ser. No. 421,817

Int. Cl.[6] C12N *5/02;5/06*

U.S. Cl. 435—395 **20 Claims**

1. A method of culturing in vitro non-transformed epithelial cells obtained from the respiratory tract mucosa of a mammalian donor, said method, comprising:

(a) harvesting said epithelial cells from said mucosa by brushing or scraping said cells from underlying tissue;

(b) suspending said epithelial cells in a fluid culture medium to form a cell suspension;

(c) introducing said cell suspension into a first reservoir having a bottom surface comprising an adherence substrate;

(d) introducing additional fluid culture medium into a second reservoir separated from said first reservoir by a fluid permeable baffle;

(e) incubating said cells under conditions suitable for promoting epithelial cell growth for a period of at least 72 hours without removing non-adherent cellular material from said first reservoir; and

(f) changing said fluid culture medium within said second reservoir during said incubation period at intervals of approximately 24–72 hours without disturbing said epithelial cells within said first reservoir, including said non-adherent cellular material.

5,726,061

METHOD OF DIAGNOSING AND MONITORING COLORECTAL CANCER

David Robbins; Robert B. Kirkpatrick, both of King of Prussia, Pa., and Stephen D. Holmes, Great Chishill, England, assignors to SmithKline Beecham Corporation, King of Prussia, Pa.

Filed Oct. 8, 1996, Ser. No. 727,210

Int. Cl.[6] G01N *33/48;33/53;33/537;33/543*

U.S. Cl. 436—64 **4 Claims**

1. A method of screening for colorectal cancer in a patient comprising:

(a) obtaining a sample from a patient;

(b) measuring levels of HC gp-39 (human cartilage glycoprotein-39) in the patient sample; and

(c) comparing the measured levels of HC gp-39 in the patient with levels measured in control samples to determine whether levels of HC gp-39 are elevated in the patient wherein said control samples are samples from normal patients not having colorectal cancer.

5,726,062

METHOD OF DETECTING PROTEIN AND A KIT DETECTING PROTEIN USING THE SAME

Masayuki Numa, Tokyo, Japan, and Masahiko Yamazaki, Tokyo, Japan, assignors to Konica Corporation, Tokyo, Japan

Filed Apr. 16, 1996, Ser. No. 633,043

Claims priority, application Japan, Apr. 19, 1995, 7-093690

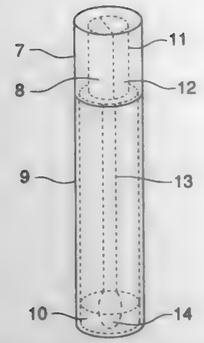
Int. Cl.[6] G01N *33/68*

U.S. Cl. 436—86 **9 Claims**

1. A method for detecting protein present on the surface of a sample comprising the steps of:

transferring a substance present on a subject portion of the surface of the sample to a sampling means which comprises a water absorbable portion comprising a water-insoluble synthetic polymer,

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contacting the substance transferred on the sampling means with a bicichoninic reagent which is capable of forming color upon reaction with protein, and

detecting the presence of protein contained in the substance contacted with the reagent by color formation.

5,726,063

METHOD OF COLORIMETRIC ANALYSIS OF MALONIC DIALDEHYDE AND 4-HYDROXY-2-ENALDEHYDES AS INDEXES OF LIPID PEROXIDATION, KITS FOR CARRYING OUT SAID METHOD, SUBSTITUTED INDOLES FOR USE IN SAID METHOD AND THEIR PREPARATION

Dominique Gerard-Monnier, Vitry Sur Seine; Irène Erdelmeier, Paris; Jean Chaudiere, Saint Maur Des Fosses, and Jean-Claude Yadan, Paris, all of France, assignors to Oxis Isle of Man, Limited, Portland, Oreg.

Continuation of Ser. No. 362,418, Dec. 27, 1994, abandoned. This application Aug. 23, 1996, Ser. No. 702,197

Claims priority, application France, May 6, 1993, 93 05430

Int. Cl.[6] G01N *33/52*; **C07D** *209/04*

U.S. Cl. 436—128 **21 Claims**

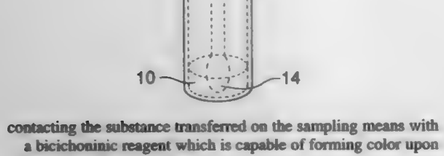
1. A process for colorimetric assay of 4-hydroxy-2-enaldehydes or of malonic dialdehyde (MDA) alone, as lipid peroxidation indices in an aqueous medium, comprising:

a) addition to the said medium of a reagent chosen from compounds of general formula I below and their addition salts with organic or inorganic bases, or with organic or inorganic acids:

(I)

in which formula:

A and C, which may be identical or different, each represent H,



wherein

A and C cannot simultaneously represent H, with:

R^1=H; C_{1-6} alkyl; aralkyl with alkyl representing a linear or branched C_{1-6} group; aryl substituted on the aryl ring with one or several groups identical or different, selected from the group consisting of C_{1-6} alkyl, C_{1-6} alkoxy, hydroxyl, amino and carboxyl; alkyl sulfonate, Y^+; alkyl phosphonate; Y^+; and alkyl carboxylate, Y^+;

R^2=H; —OR^4; F; Cl; Br; I; —NO_2; —$SO_3^-Y^+$; —CN; —$COOR^4$; or —$CONR^5R^6$;

—R^3=H; —OR^4; NR^5R^6; —SR^4; F; Cl; Br; I; —NO_2; —$SO_3^-Y^+$; —CN; —COR^5; —$COOR^4$; or —$CONR^5R^6$;

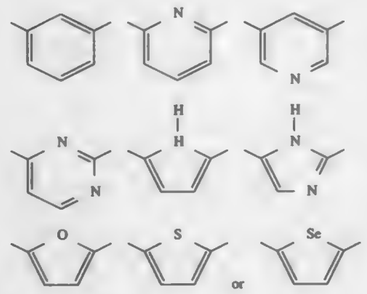
R^4=H; C_{1-6} alkyl; aralkyl with alkyl representing a linear or branched C_{1-6} group; or aryl substituted on the aryl ring with one or several groups identical or different, selected from the group consisting of C_{1-6} alkyl, C_{1-6} alkoxy, hydroxyl, amino and carboxyl;

R^5=H; C_{1-6} alkyl; aralkyl with alkyl representing linear or branched C_{1-6} group; or aryl substituted on the aryl ring with one or several groups identical or different, selected from the group consisting of C_{1-6} alkyl, C_{1-6} alkoxy, hydroxyl, amino and carboxyl;

R^6=H; aryl; aralkyl with alkyl representing a linear or branched C_{1-6} group; or aryl substituted on the aryl ring with one or several groups identical or different, selected from the group consisting of C_{1-6} alkyl, C_{1-6} alkoxy, hydroxyl, amino and carboxyl;

Y^+=cation of an organic or inorganic base;

B=



(b) acidification of the medium which has been thus added to, either by an acid selected from the group consisting of carboxylic acids, sulfonic acids, perchloric acid, hydrochloric acid, hydrobromic acid and sulfuric acid;

(c) incubation of the acidified medium at a temperature between 25° and 60° C., for a sufficient period to obtain a stable coloration due to the formation of a chromophoric addition product of the reagent with all the enaldehydes present in the medium or with malonic dialdehyde alone;

(d) measurement of the absorbance of the colored medium at the absorption wavelength which is specific for the chromophoric addition product of the reagent used, and its utilization for determining the enaldehyde concentration, or the concentration of malonic dialdehyde alone.

5,726,064

METHOD OF ASSAY HAVING CALIBRATION WITHIN THE ASSAY

Grenville Arthur Robinson, London; John Worthington Attridge, Woking; Julie Karen Deacon; Phelim Brinley Daniels, both of Hounslow; Colin Andrew Love, Maidenhead, and Aileen Margaret Thomson, Stanwick, all of United Kingdom, assignors to Applied Research Systems ARS Holding NV, Curacao, Netherlands Antilles

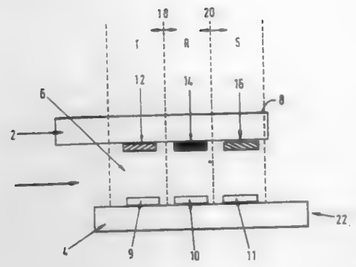
Continuation of Ser. No. 64,107, May 24, 1993, abandoned. This application Sep. 21, 1994, Ser. No. 309,796

Claims priority, application United Kingdom, Nov. 22, 1990, 9025471

Int. Cl.[6] G01N *33/558*

U.S. Cl. 436—514 **21 Claims**

12. A capillary-fill biosensor device suitable for use in assaying a ligand in a liquid sample, said device comprising (1) a measurement zone, (2) at least one spatially distinct calibration zone and, optionally, (3) at least one spatially distinct auxiliary calibration zone wherein



(1) the measurement zone comprises (a) a known amount of a releasable first ancillary specific binding reagent and (b) a measurement surface comprising an immobilized measurement specific binding reagent capable of specifically binding with at least one of the ligand, the first ancillary specific binding reagent, or a first binding partner which specifically binds to said ligand and said first ancillary specific binding reagent, wherein the first ancillary specific binding reagent is provided either on a surface of the measurement zone separate from the measurement surface or prebound to said immobilized measurement specific binding partner reagent,

(2) the calibration zone comprises

(c) a known amount of at least one releasable second ancillary specific binding reagent and a calibration surface comprising an immobilized calibration specific binding reagent having binding sites identical in structure to those of the immobilized measurement specific binding reagent and capable of specifically binding with at least one of the ligand, the second ancillary specific binding partner and a second binding partner which specifically binds to said ligand and said second ancillary specific binding reagent, and, optionally,

(3) the auxiliary calibration zone comprises

(d) an auxiliary calibration surface comprising an immobilized first auxiliary nonspecific binding reagent, wherein the releasable reagents remain in their respective zones without mixing with each other in the assay following either sequential or simultaneous contact with the liquid sample to provide (a) a specific binding complex immobilized on the measurement surface which is correlative of the presence or amount of the ligand in the liquid sample, (b) a calibration specific binding complex immobilized on the calibration surface as a result of an identical specific binding reaction as occurs on the measurement surface so as to provide a measurement correlative of a known amount of said ligand and, optionally, (c) a nonspecific binding complex immobilized on the auxiliary calibration zone to provide a measurement for correcting nonspecific background binding.

18. A specific binding method for determining a ligand in a liquid sample comprising:

(a) contacting the liquid sample with the capillary-fill biosensor device as claimed in claim **12** and

(b) measuring and comparing the amount of the specific binding complex immobilized on the measurement surface, the amount of the calibration specific binding complex immobilized on the calibration surface as a result of an identical specific binding reaction as occurs on the measurement surface so as to provide a measurement correlative of a known amount of said ligand and, optionally, the amount of the nonspecific binding complex immobilized on the auxiliary calibration zone to correct for nonspecific background binding in order to determine the presence or amount of the ligand in the liquid sample.

5,726,065

METHOD OF PREPARING SOLAR CELL FRONT CONTACTS

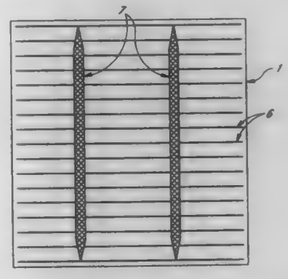
Jozef Szlufcik, Kessel-Lo; Johan Nijs, Linden-Lubbeek, and Roland Jozef Fick, Oud-Turnhout, all of Belgium, assignors to IMEC VZW, Leuven, Belgium

Filed Feb. 21, 1996, Ser. No. 604,666

Claims priority, application European Pat. Off., Feb. 21, 1995, 95870012; Dec. 22, 1995, 95870135

Int. Cl.[6] H01L *31/18*

U.S. Cl. 437—2 **13 Claims**



1. A method of preparing a contact pattern on a semiconductor substrate of a solar cell, said pattern comprising a set of narrow finger lines and wide collector lines that intersect and that are in electrical contact, said method comprising the steps of:

(1) screen printing a masking paste on top of a front surface of said semiconductor substrate using a screen with a pattern structure, thereby forming a printed pattern;

(2) depositing a coating over said front surface;

(3) dissolving said masking paste whereby selectively lifting-off the part of the coating deposited on top of the masking paste; thereafter

(4) etching off oxide layers from areas of said front surface exposed through openings in the coating, wherein said openings are formed through the dissolving and lift-off step (3); and thereafter

(5) screen printing the set of finger lines in said openings formed in said coating using a screen with said pattern structure and drying the set of finger lines.

5,726,066

METHOD FOR MANUFACTURING AN INFRARED SENSOR ARRAY

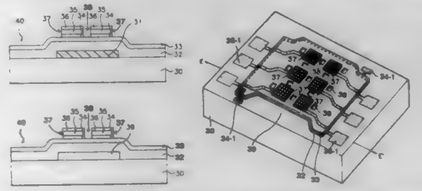
Jun Rim Choi, Seoul, Rep. of Korea, assignor to LG Electronics Inc., Seoul, Rep. of Korea

Division of Ser. No. 401,878, Mar. 10, 1995, abandoned. This application Feb. 13, 1996, Ser. No. 600,548

Claims priority, application Rep. of Korea, Mar. 10, 1994, 4699/1994

Int. Cl.[6] H01L *21/77*

U.S. Cl. 437—3 **10 Claims**



1. A method for manufacturing an infrared sensor array comprising the steps of:

forming a sacrificial layer on a predetermined region of a substrate;

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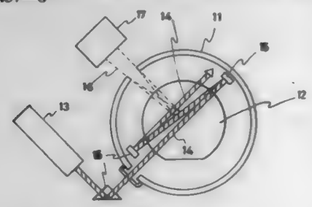
forming a supporter of polycrystalline silicon to cover the sacrificial layer and the substrate on both sides of the sacrificial layer;
forming numbers of infrared sensors arranged at a predetermined distance from each other on the supporter above the sacrificial layer;
forming etching windows on the upper and lower and right and left side of said infrared sensors; and
removing the sacrificial layer to form a space between the supporter and the substrate.

5,726,067

METHOD OF AND APPARATUS FOR MONITORING ETCHING BY-PRODUCTS

Chang Ju Choi, Kyoungki-do, Rep. of Korea, assignor to Hyundai Electronics Industries Co., Ltd., Kyoungki-do, Rep. of Korea

Filed Mar. 21, 1996, Ser. No. 619,299
Claims priority, application Rep. of Korea, Mar. 22, 1995, 95-6128
Int. Cl.[6] G01R *31/26;* **H01L** *21/66;* **B44C** *1/22;* **C03C** *15/00*
U.S. Cl. 437—8 **4 Claims**



1. A method for monitoring a by-product formed upon etching a wafer, comprising the steps of:
selecting an excited electron level capable of being borne by molecules or radicals of the by-product;
directing a laser beam with energy of a wavelength corresponding to the selected excited electron level
along at least two parallel paths to excite the molecules or radicals of the by-product irradiated by the laser beam, thereby forming a primary excited state of the by-product;
detecting a laser induced fluorescent light emitted from the by-product during the transition of the by-product from the primary excited state to a secondary excited state which exhibits an energy level lower than the primary excited state; and
analyzing the detected laser induced fluorescent light.

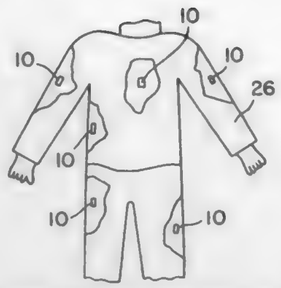
5,726,068

DIFFUSIVE SAMPLER SYSTEM FOR DETERMINING CHEMICAL VAPOR LEVELS

Donald Rivin, Natick, Mass.; Cyrus E. Kendrick, Stow, Mass., and Martin Katz, Wellesley, Mass., assignors to The United States of America as represented by the Secretary of the Army, Washington, D.C.

Filed Jan. 24, 1996, Ser. No. 605,230
Int. Cl.[6] G01N *21/75*
U.S. Cl. 436—167 **15 Claims**

8. A method of determining the effectiveness of a protective garment in protecting an individual from chemical vapors, said method comprising the steps of:
providing a plurality of diffusive samplers, each of said samplers having a container, said container having an impermeable



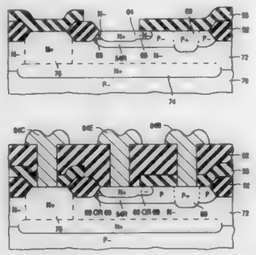
back sheet and a selectively permeable front membrane attached thereto, said front membrane having substantially the same permeation resistance as human skin, and means located within said container for adsorbing said chemical vapors and for providing information with respect to said chemical vapor levels adsorbed thereby;
adhering said plurality of diffusive samplers to preselected locations on the skin of an individual;
clothing said individual in a protective garment;
said samplers comprising high density polyethylene and having a thickness such that said adhering on said skin is with minimal alteration of airflow beneath said garment;
exposing said individual to said chemical vapors; and
analyzing said adsorbing means in order to ascertain the presence of said chemical vapors in order to ascertain the effectiveness of said protective garment.

5,726,069

USE OF OBLIQUE IMPLANTATION IN FORMING EMITTER OF BIPOLAR TRANSISTOR

Hung-Sheng Chen, and Chih Sieh Teng, both of San Jose, Calif., assignors to National Semiconductor Corporation, Santa Clara, Calif.

Filed Dec. 2, 1994, Ser. No. 348,629
Int. Cl.[6] H01H *21/265*
U.S. Cl. 437—31 **40 Claims**



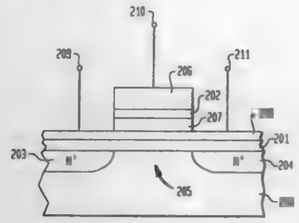
1. A method comprising the steps of introducing first and second dopants of like conductivity type into a semiconductor body having an upper surface to form a surface-adjoining emitter of a bipolar transistor, both dopants being introduced into the semiconductor body upon passing through largely the same opening in a doping shield formed on the semiconductor body's upper surface, the first dopant being so introduced at a greater dosage than the second dopant such that the emitter comprises a main emitter region constituted primarily with the first dopant, the step of introducing the second dopant entailing ion implanting the second dopant into the semiconductor body at a tilt angle of at least 15° relative to a direction generally perpendicular to the semiconductor body's upper surface, part of the second dopant being so implanted into an extension zone that extends laterally beyond the main emitter region and is of opposite conductivity type to the main emitter region.

5,726,070

SILICON-RICH TUNNEL OXIDE FORMED BY OXYGEN IMPLANTATION FOR FLASH EEPROM

Gary Hong, Hsin-Chu, Taiwan, and Ching-Hsiang Hsu, Hsin-Chu, Taiwan, assignors to United Microelectronics Corporation, Hsin-Chu, Taiwan

Continuation of Ser. No. 524,312, Sep. 6, 1995, abandoned. This application Mar. 26, 1996, Ser. No. 622,692
Int. Cl.[6] H01L *21/8247*
U.S. Cl. 437—43 **8 Claims**



1. A process for forming a tunnel oxide for a flash memory cell, comprising
depositing a first SiO_2 layer on a silicon substrate having a first dopant type,
implanting O_2 in said substrate through said first SiO_2 layer, to form a layer of silicon implanted with oxygen,
stripping said first SiO_2 layer,
growing a second SiO_2 layer on said substrate, and
annealing said substrate and said second SiO_2 layer to form a silicon enriched oxide layer between said substrate and said second SiO_2 layer.

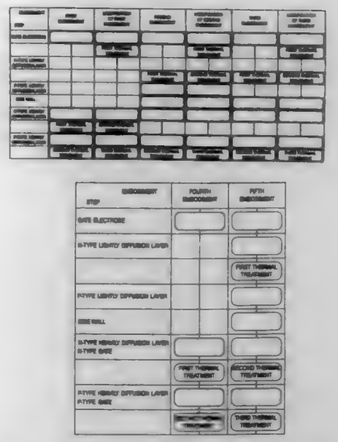
5,726,071

MANUFACTURING METHOD OF CMOS TRANSISTOR

Mizuki Segawa, Kyoto; Yoshiaki Kato, Hyogo; Hiroaki Nakaoka, Osaka; Takashi Nakabayashi, Osaka; Atsushi Hori, Osaka; Hiroshi Masuda, Osaka; Ichiro Matsuo, Kyoto; Akihira Shinohara, Osaka; Takashi Uehara, Osaka, and Mitsuo Yasuhira, Osaka, all of Japan, assignors to Matsushita Electric Industrial Co., Ltd., Osaka, Japan

Division of Ser. No. 443,266, May 17, 1995, Pat. No. 5,618,748, which is a division of Ser. No. 340,375, Nov. 14, 1994, Pat. No. 5,447,872, which is a division of Ser. No. 141,727, Oct. 27, 1993, Pat. No. 5,409,847. This application Jan. 23, 1997, Ser. No. 789,315
Int. Cl.[6] H01L *21/70*
U.S. Cl. 437—57 **2 Claims**

1. A method of manufacturing a CMOS transistor, comprising the steps of:
forming gate electrodes of an N-channel transistor and a P-channel transistor on a semiconductor substrate with a gate insulating layer therebetween;
conducting a first thermal treatment to said gate electrodes;
forming N-type lightly doped diffusion layers to be a source or a drain of the N-channel transistor, using said gate electrode of the N-channel transistor as a mask;
conducting a second thermal treatment to the N-type lightly doped diffusion layers at a lower temperature than that of the first thermal treatment;
forming P-type heavily doped diffusion layers to be a source or a drain of the P-channel transistor, using said gate electrode of the P-channel transistor as a mask;
forming side walls on side surfaces of said gate electrode of the N-channel transistor;
forming N-type heavily doped diffusion layers to be a source or a drain of the N-channel transistor, using said gate electrode and said side walls of the N-channel transistor; and



conducting a third thermal treatment to the N-type heavily doped diffusion layers and the P-type heavily doped diffusion layers at a lower temperature than that of the second thermal treatment.

5,726,072

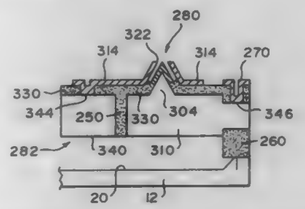
Patent Not Issued For This Number

5,726,073

COMPOUND STAGE MEM ACTUATOR SUSPENDED FOR MULTIDIMENSIONAL MOTION

Z. Lisa Zhang, and Noel C. MacDonald, both of Ithaca, N.Y., assignors to Cornell Research Foundation, Inc., Ithaca, N.Y.

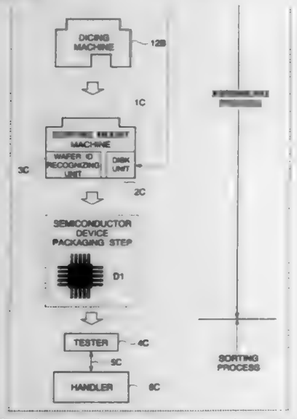
Division of Ser. No. 443,331, May 17, 1995, Pat. No. 5,506,175, which is a division of Ser. No. 69,725, Jun. 1, 1993, Pat. No. 5,536,988. This application Jan. 19, 1996, Ser. No. 588,919
Int. Cl.[6] H01L *21/465*
U.S. Cl. 437—228 **17 Claims**



1. A method for fabricating a microactuator, comprising:
forming a central stage containing submicron-scale components;
supporting said central stage within first, second, and third electrically conductive frames for relative motion of said central stage about an x-axis and a y-axis with respect to said third frame;
electrically isolating segments of said frames from adjacent segments;
interconnecting said frames through electrically conductive bridges between selected segments of said frames to provide conductive interconnect paths from selected segments of said third frame to said stage components.

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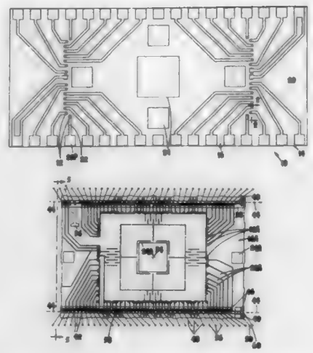
5,726,074
METHOD AND APPARATUS FOR MANUFACTURING SEMICONDUCTOR DEVICE
Manabu Yabe, Tokyo, Japan, assignor to NEC Corporation, Tokyo, Japan
Filed Dec. 8, 1995, Ser. No. 569,842
Claims priority, application Japan, Dec. 8, 1994, 6-331112
Int. Cl.[6] H01L *21/00*
U.S. Cl. 438—10 **3 Claims**



1. A method for manufacturing a semiconductor integrated circuit, including a wafer test process, an assembling process and a sorting process, the method including the steps of:
measuring electric characteristics of a plurality of semiconductor integrated circuits formed on a wafer;
identifying semiconductor integrated circuits of said plurality which are non-defective;
causing a memory means to store the measured electric characteristics of each of said plurality of semiconductor integrated circuits identified as non-defective together with data identifying a position of each of said plurality of the semiconductor integrated circuits identified as non-defective;
cutting said plurality of semiconductor integrated circuits on said wafer into individual semiconductor integrated circuit chips;
classifying said non-defective semiconductor integrated circuit chips on the basis of the respective position data and the electric characteristics of each of said non-defective semiconductor integrated circuit chips read from said memory means into at least two subsets each consisting of non-defective semiconductor integrated circuit chips having the same electric characteristics, said electric characteristics being different from that of semiconductor integrated circuit chips included in the at least one other subset; and
assembling and packaging the non-defective semiconductor integrated circuit chips so that the sorting into each of the at least two subsets is carried out simultaneously therewith.

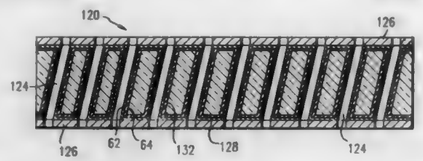
5,726,075
METHOD FOR FABRICATING MICROBUMP INTERCONNECT FOR BARE SEMICONDUCTOR DICE
Warren M. Farnworth, Nampa, Id.; David R. Hembree, Boise, Id., and Derek Gochnour, Boise, Id., assignors to Micron Technology, Inc., Boise, Id.
Filed Mar. 29, 1996, Ser. No. 624,991
Int. Cl.[6] H01L *21/28*
U.S. Cl. 438—18 **36 Claims**

1. A method for forming an interconnect for a semiconductor die, comprising:
forming a conductor on an insulating film;
forming a conductive member on the insulating film in electrical communication with the conductor;
electroplating a metal onto the conductor using the conductive member to provide an electrical path; and



severing the electrical communication between the conductive member and conductor.

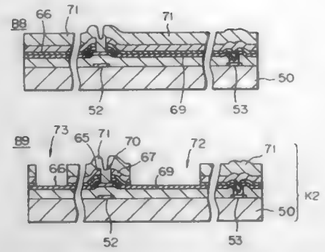
5,726,076
METHOD OF MAKING THIN-FILM CONTINUOUS DYNODES FOR ELECTRON MULTIPLICATION
G. William Tasker, West Brookfield, Mass., and Jerry Randall Horton, Cape Elizabeth, Me., assignors to Center for Advanced Fiberoptic Applications, Southbridge, Mass.
Division of Ser. No. 89,771, Jul. 12, 1993, Pat. No. 5,378,960, which is a continuation of Ser. No. 395,388, Aug. 18, 1898, abandoned. This application Dec. 28, 1994, Ser. No. 365,242
Int. Cl.[6] H01J *41/00*
U.S. Cl. 438—20 **49 Claims**



1. A method of forming a continuous dynode for an electron multiplier comprising the steps of:
forming at least one channel in a substrate said at least one channel having a wall portion; forming at least one thin film on the wall portion of the channel to produce at least one of a current carrying portion and an overlying electron emissive portion, said at least one thin film being formed by at least one of low pressure chemical vapor deposition (LPCVD), liquid phase deposition (LPD), and oxidation and nitriding.

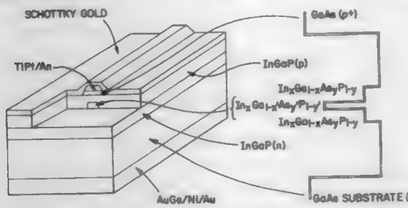
5,726,077
METHOD OF PRODUCING AN ELECTRO-OPTICAL DEVICE
Ken Kawahata, Sendai; Akira Nakano, Furukawa; Hirofumi Fukui, Taiwa-machi; Hiroyuki Hebiguchi, Sendai; Kenji Yamamoto, Shichigahama-machi, and Chisato Iwasaki, Miyagi-ken, all of Japan, assignors to Frontec Incorporated, Sendai, Japan
Filed Jun. 2, 1995, Ser. No. 459,925
Claims priority, application Japan, Jun. 3, 1994, 6-122883; Oct. 17, 1994, 6-251052
Int. Cl.[6] H01L *21/84*
U.S. Cl. 438—30 **11 Claims**

1. A method for producing an electro-optical device in which an electro-optical material is disposed between first and second substrates opposed to each other, at least a portion of opposing surfaces of the first and second substrates is insulative, a plurality of source wirings and a plurality of gate wirings are formed crossing each other on the opposed surface of the first substrate and a transparent pixel electrode and a thin film transistor are



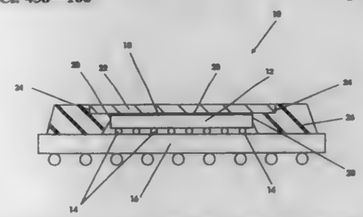
formed at each crossing point between one of the source wirings and one of the gate wirings, wherein the method comprises:
a step B1 of forming a first metal film on the opposed surface of the first substrate,
a first photolithographic step B2 of patterning the first metal film to form a gate electrode and a gate wiring,
a step B3 of forming a first insulator film, a semiconductor active film on the first insulator film, and an ohmic contact film on the semiconductor active film after the first photolithographic step,
a second photolithographic step B4 of patterning the semiconductor active film and the ohmic contact film to form a semiconductor portion above the gate electrode,
a third photolithographic step B5 of patterning the first insulator film to form a contact hole through the first insulator film to the gate wiring,
a step B6 of sequentially forming a transparent conductive film, and a second metal film on the transparent conductive film, after the third photolithographic step,
a fourth photolithographic step B7 of patterning the second metal film, the transparent conductive film and the ohmic contact film to form a source electrode, a source wiring, a drain electrode and a transparent pixel electrode, and to form a channel portion above the gate electrode exposing said semiconductor active film,
a step B8 of forming a passivation film after the fourth photolithographic step, and
a fifth photolithographic step B9 of patterning the passivation film and the second metal film to form a light-permeable opening above the transparent pixel electrode, and to form a contact hole for source wiring and gate wiring connection terminals.

5,726,078
BURIED-RIDGE LASER DEVICE
Manijeh Razeghi, Wilmette, Ill., assignor to Northwestern University, Evanston, Ill.
Division of Ser. No. 543,779, Oct. 16, 1995, Pat. No. 5,663,976. This application Mar. 20, 1997, Ser. No. 821,398
Int. Cl.[6] H01L *21/20*
U.S. Cl. 438—39 **4 Claims**



1. A method of growing buried-ridge structures by low pressure metalorganic chemical vapor deposition comprising the steps of:
a) preparing an n^+ doped GaAs substrate;
b) growing a first cladding layer of n^+ doped GaInP;
c) growing an active layer on said first cladding layer; said active layer having an inner sublayer sandwiched between two outer stoichiometrically different outer sublayers;
d) etching said active layer with a photolithographic resist mask so that only a raised stripe exists;
e) stripping the resist from the raised stripe;
f) etching;
g) growing a second cladding layer, and
h) growing a cap layer.

5,726,079
THERMALLY ENHANCED FLIP CHIP PACKAGE AND METHOD OF FORMING
Eric Arthur Johnson, Greene, N.Y., assignor to International Business Machines Corporation, Armonk, N.Y.
Division of Ser. No. 666,155, Jun. 19, 1996, abandoned. This application Sep. 17, 1996, Ser. No. 715,212
Int. Cl.[6] H01L *21/44*
U.S. Cl. 438—106 **3 Claims**

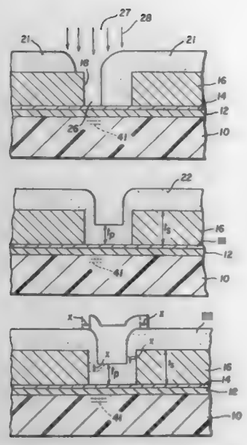


1. A method of forming a flip chip package, comprising:
providing a substrate member having a plurality of electrical contacts disposed thereon;
providing a flip chip having a plurality of electrical contacts disposed on a lower surface, a planar upper surface, and a plurality of edge surfaces extending between said lower and said upper surfaces;
connecting the electrical contacts of said flip chip with selected ones of the electrical contacts on said substrate;
providing a thermally conductive planar member having a plurality of peripherally disposed edge surfaces;
placing said thermally conductive planar member in thermally conductive communication with said upper surface of the flip chip;
placing said thermally conductive planar member, said flip chip, and said substrate member in a mold cavity wherein a predefined portion of said substrate member cooperates with said mold cavity to define a sealable cavity;
injecting a moldable dielectric material into said sealable cavity;
curing said moldable dielectric material and thereby forming a sealed rigid dielectric covering about the edge surfaces of said thermally conductive planar member, the edge surfaces of said flip chip, and said predefined portion of said substrate member and forming an encapsulated flip chip package comprising said thermally conductive planar member, said flip chip, and said predefined portion of said substrate member; and
removing said flip chip package from said sealed covering.

5,726,080
METHOD OF PERFORMING EDGE-ALIGNED IMPLANTS
David L. Losee, Fairport, N.Y.; James P. Lavine, Rochester, N.Y.; Gilbert A. Hawkins, Mendon, N.Y., and Mary R. Suchanski, Rochester, N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.
Filed Nov. 26, 1996, Ser. No. 757,715
Int. Cl.[6] H01L *21/265;21/70;27/00*
U.S. Cl. 438—144 **11 Claims**

1. A method for producing an edge aligned implant beneath an electrode comprising the steps of:
a) providing a dielectric layer on a substrate;
b) forming an etch-stop layer on the dielectric layer;

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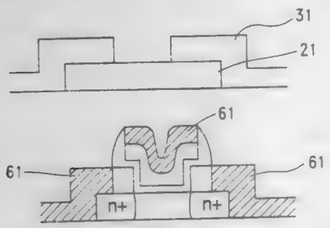
c) forming a sacrificial layer on the etch-stop layer;
d) patterning the sacrificial layer with an opening to expose the etch-stop layer the opening corresponding to gate electrode positions;
e) removing the etch stop layer in the opening;
f) implanting dopant atoms through the opening into the substrate in regions adjacent to at least one edge of the opening;
g) depositing electrode layer into the opening and onto the sacrificial layer; and
h) etching the electrode layer to form a gate electrode region.

5,726,081

METHOD OF FABRICATING METAL CONTACT OF ULTRA-LARGE-SCALE INTEGRATION METAL-OXIDE SEMICONDUCTOR FIELD EFFECT TRANSISTOR WITH SILICON-ON-INSULATOR STRUCTURE

Chih-Hung Lin, Yi-Lan, and Gary Hong, Hsin-Chu, both of Taiwan, assignors to United Microelectronics Corp., Taipei, Taiwan

Filed Oct. 18, 1995, Ser. No. 544,659
Int. Cl.[6] H01L *21/84*
U.S. Cl. 438—163 **16 Claims**



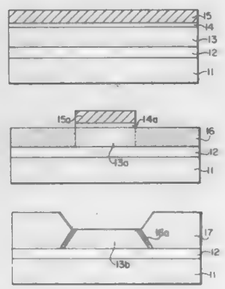
1. A process for fabricating a ULSI MOSFET with SOI (semiconductor-on-insulator) structure on a wafer, said process comprising the following steps of:
forming an oxide layer over said wafer;
forming a first conductive type well on said oxide layer;
depositing a first polysilicon layer on said first conductive type well and over said oxide layer;
forming a photoresist layer on said first polysilicon layer, and defining a channel region;
etching said first polysilicon layer by using said photoresist layer as a mask thereby forming said channel region;
forming a gate oxide layer on said first polysilicon layer and said channel region;
forming a doped polysilicon layer on said gate oxide layer;
patterning said doped polysilicon layer to form a gate electrode;
obliquely implanting a second conductive type of impurities into said first conductive type well to form source and drain regions;
forming side wall spacers on the side walls of said gate electrode;
forming a metal layer on said gate electrode, and said first polysilicon layer;
performing a rapid thermal process on said metal layer to form a salicide layer on said gate electrode, said source and drain regions, respectively; and
etching said salicide layers and said remaining metal layer thereby leaving salicide layer on said gate electrode, said source and drain regions, respectively.

5,726,082

SEMICONDUCTOR DEVICE AND METHOD FOR FABRICATING THE SAME

Chan Kwang Park, Ichon, Rep. of Korea, and Yo Hwan Koh, Ichon, Rep. of Korea, assignors to Hyundai Electronics Industries Co., Ltd., Ichon, Rep. of Korea

Filed Jun. 28, 1996, Ser. No. 670,839
Claims priority, application Rep. of Korea, Jun. 30, 1995, 95-18870
Int. Cl.[6] H01L *21/265*
U.S. Cl. 438—165 **9 Claims**



1. A method for fabricating a semiconductor device comprising the steps of:
preparing a silicon substrate;
sequentially forming a first silicon oxide film and a silicon layer over said silicon substrate;
forming a silicon oxide film over said silicon layer;
forming a nitride film over said silicon oxide film;
selectively removing said nitride film and said silicon oxide film, thereby exposing opposite side portions of said silicon layer;
oxidizing the opposite side portions of said silicon layer at a temperature ranging from 800° C. to 1200° C. using said nitride film left after its selective removal, thereby forming a second silicon oxide film that has a thickness larger than a height of said silicon layer;
completely removing said nitride film and said silicon oxide film, and then sequentially forming a gate oxide film and a gate electrode on said silicon layer; and
implanting impurity ions in portions of said silicon layer, respectively disposed at both sides of said gate electrode, thereby forming source/drain impurity diffusion regions.

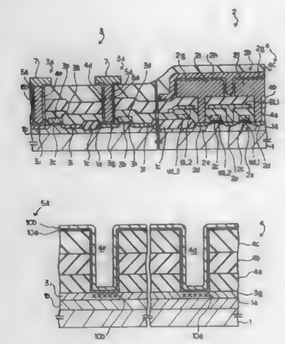
2. The method in accordance with claim 1, wherein said step of oxidizing the opposite side portions of said active layer has a faster oxidation rate at the upper portion of the opposite side portions than the lower portions such that the cross section of the silicon layer has a trapezoidal structure with inclined side walls.

5,726,083

PROCESS OF FABRICATING DYNAMIC RANDOM ACCESS MEMORY DEVICE HAVING STORAGE CAPACITOR LOW IN CONTACT RESISTANCE AND SMALL IN LEAKAGE CURRENT THROUGH TANTALUM OXIDE FILM

Yoshihiro Takaishi, Tokyo, Japan, assignor to NEC Corporation, Tokyo, Japan

Filed Nov. 28, 1995, Ser. No. 562,224
Claims priority, application Japan, Nov. 29, 1994, 6-294394
Int. Cl.[6] H01L *21/8238*
U.S. Cl. 438—210 **10 Claims**



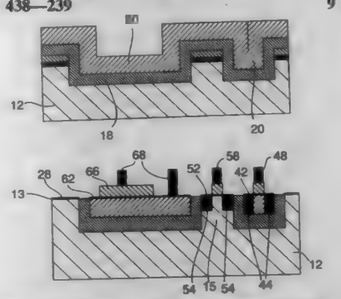
1. A process of fabricating a semiconductor dynamic random access memory device, comprising the steps of:
a) preparing a semiconductor substrate including a first area assinged to a plurality of memory cells and a second area assigned to peripheral circuits, at least one complementary transistor being incorproated in said peripehral circuits;
b) fabricating switching transistors of said plurality of memory cells and said at least one complementary transistor on said semiconductor substrate;
c) covering said switching transistors and said at least on complementary transistor with a lower inter-level insulating structure having first contact holes exposing first impurity regions of said switching transistors;
d) fabricating storage capacitors having respective storage node electrodes respectively held in contact through said first contact holes with said first impurity regions, dielectric films of tantalum oxide covering said storage node electrodes and at least one cell plate electrode held in contact with said dielectric films so as to be opposed to said storage node electrodes; and
e) covering said storage capacitors with an upper inter-level insulating structure having second contact holes exposing second impurity regions of said at least one complementary transistor by using a deposition technique carried out at a first temperature equal to or less than 530 degrees centigrade; and
f) forming at least one interconnection on said upper inter-level insulating structure connected through said second contact holes with said second impurity regions by using techniques carried out at second temperatures not greater than 530 degrees centigrade.

5,726,084

METHOD FOR FORMING INTEGRATED CIRCUIT STRUCTURE

John M. Boyd, Woodlawn; Joseph P. Ellul, and Sing P. Tay, both of Nepean, all of Canada, assignors to Northern Telecom Limited, Montreal, Canada

Division of Ser. No. 289,365, Aug. 11, 1994, abandoned, which is a continuation-in-part of Ser. No. 80,544, Jun. 24, 1993, Pat. No. 5,362,669. This application Apr. 25, 1996, Ser. No. 637,963
Int. Cl.[6] H01L *21/8242*
U.S. Cl. 438—239 **9 Claims**



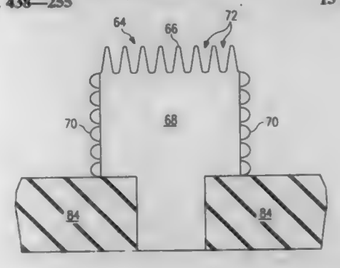
1. A method of fabrication of an integrated circuit structure comprising:
providing an integrated circuit substrate having a planar surface and a plurality of steep-sided trenches defined therein;
filling the trenches with at least one trench filling layer comprising a semiconductor material selected from the group consisting polycrystalline and amorphous semiconductor materials;
planarizing the substrate surface by a step of chemical mechanical polishing to remove parts of the at least one trench filling layer extending above a surface of the substrate, thereby forming a plurality of trench regions filled with semiconductor material and each having a fully planarized surface substantially coplanar with the substrate surface;
and then forming semiconductor devices in the semiconductor substrate and in the semiconductor filled trench regions.

5,726,085

METHOD OF FABRICATING A DYNAMIC RANDOM ACCESS MEMORY (DRAM) CELL CAPACITOR USING HEMISPHERICAL GRAIN (HSG) POLYSILICON AND SELECTIVE POLYSILICON ETCHBACK

Darius Lammont Crenshaw, 3300 W. Park Blvd., Apt. 2242, Plano, Tex. 75075; Rick L. Wise, 604 Post Oak Dr., Plano, Tex. 75025, and Jeffrey McKee, 1517 Laguna Vista Way, Grapevine, Tex. 76051

Filed Mar. 9, 1995, Ser. No. 401,740
Int. Cl.[6] H01L *21/8242*
U.S. Cl. 438—255 **15 Claims**



1. A method for forming a storage node of a capacitor having increased charge storage capacity, comprising the steps of:
a. forming a doped polysilicon region;

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b. depositing a thin layer of hemipherical grain polysilicon having a grain size and film thickness on the same order of magnitude on said doped polysilicon region; and

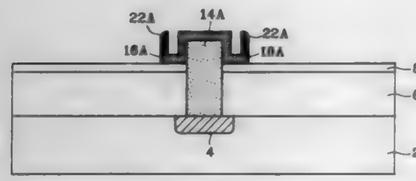
c. without masking said thin layer of hemispherical grain polysilicon, etching said doped polysilicon region and said thin layer of hemispherical grain polysilicon using an etch chemistry that etches said doped polysilicon region faster than said thin layer of hemispherical grain polysilicon to increase an upper surface area of said storage node wherein said etching step continues until all of said hemispherical grain polysilicon is removed from said upper surface of said storage node.

5,726,086

METHOD OF MAKING SELF-ALIGNED CYLINDRICAL CAPACITOR STRUCTURE OF STACK DRAMS

Chung-Cheng Wu, I-Lan, Taiwan, assignor to Mosel Vitelic Inc., Hsinchu, Taiwan

Filed Nov. 18, 1996, Ser. No. 746,842
Int. Cl.[6] H01L *21/8242*
U.S. Cl. 438—253 **21 Claims**



1. A method of fabricating the capacitors of a DRAM cell, said method comprising the step of:

(a) forming MOSFET structures on a silicon substrate, wherein said MOSFET comprises of gate oxide, gate electrode and drain/source regions;

(b) continuously forming the first, second, and third dielectric layers overlaying the surface of said silicon substrate;

(c) etching said first, second, and third dielectric layer to open a cell contact window for said source region of said MOSFET by conventional lithography and plasma-etching techniques;

(d) forming the first polysilicon layer overlaying said third dielectric layer and filling in said cell contact window;

(e) anisotropically etching said first polysilicon layer to form the first polysilicon stud therein said cell contact window;

(f) removing said third dielectric layer to expose said second dielectric layer and said first polysilicon stud;

(g) forming the second polysilicon layer overlaying said second dielectric layer and said first polysilicon stud;

(h) forming the fourth dielectric layer overlaying overlaying said second polysilicon layer;

(i) anisotropically etching said fourth dielectric layer to form the fourth dielectric spacers on the sidewalls of said first polysilicon stud;

(j) forming the third polysilicon layer overlayilng said second dielectric layer, remaining of said second polysilicon layer and said fourth dielectric spacers;

(k) vertically anisotropically etching said second and third polysilicon layers thereby leaving the third polysilicon spacers and said second polysilicon layer underneath on the sidewalls of said first polysilicon stud;

(l) removing said fourth dielectric spacers, the storage node of said capacitor which is consist of the remaining said first polysilicon stud, said second polysilicon layer, and said third polysilicon spacers is constructed;

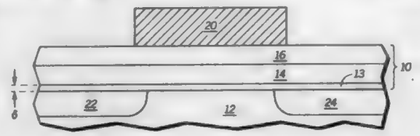
(m) forming the capacitor dielectric layer and top plate of said capacitor by standard integrated circuit processing procedure.

5,726,087

METHOD OF FORMATION OF SEMICONDUCTOR GATE DIELECTRIC

Hsing-Huang Tseng, and Philip J. Tobin, both of Austin, Tex., assignors to Motorola, Inc., Schaumburg, Ill.

Continuation of Ser. No. 875,959, Apr. 30, 1992, abandoned. This application Jun. 9, 1994, Ser. No. 258,360
Int. Cl.[6] H01L *21/318*
U.S. Cl. 438—261 **14 Claims**



9. A method for forming a semiconductor gate dielectric comprising the steps of:

providing a silicon-containing layer having a surface;

forming an oxynitride layer on and in contact with the silicon-containing layer, the oxynitride layer comprising both a nitrogen interface region at the surface of the silicon-containing layer which has a nitrogen concentration and a dielectric region which overlies the nitrogen interface region and has a nitrogen concentration which is less than the nitrogen concentration of the nitrogen interface region, the dielectric region of the oxynitride layer being a thermally grown layer;

forming a deposited dielectric layer overlying the oxynitride layer wherein the deposited dielectric layer is formed by a tetraethlyorthosilicate (TEOS) chemical vapor deposition (CVD) process, the deposited dielectric layer and the oxynitride layer having a common interface wherein a nitrogen concentration at this common interface is less than the nitrogen concentration of the nitrogen interface region; and

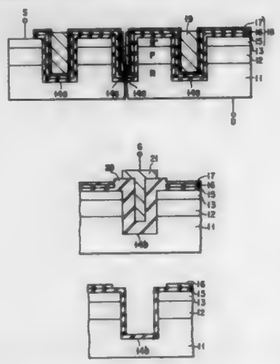
forming a polysilicon gate electrode overlying a top portion of the deposited dielectric layer, wherein the nitrogen interface region is formed so that the nitrogen interface region is not directly in contact with a portion of the polysilicon gate electrode.

5,726,088

METHOD OF MANUFACTURING A SEMICONDUCTOR DEVICE HAVING A BURIED INSULATED GATE

Satoshi Yanagiya; Noboru Matsuda, both of Kawasaki, and Yoshiro Baba, Yokohama, all of Japan, assignors to Kabushiki Kaisha Toshiba, Kawasaki, Japan

Division of Ser. No. 510,654, Aug. 3, 1995, Pat. No. 5,610,422. This application Nov. 18, 1996, Ser. No. 746,846
Claims priority, application Japan, Sep. 29, 1994, 6-235063
Int. Cl.[6] H01L *21/336*
U.S. Cl. 438—270 **2 Claims**



1. A method of manufacturing a semiconductor device, comprising the steps of:

providing a first semiconductor layer of a second conductivity type on a surface of a semiconductor substrate of a first conductivity type;

providing a second semiconductor layer of the first conductivity type on said first semiconductor layer;

forming a plurality of first trenches through said second semiconductor layer and said first semiconductor layer to such a depth as to reach said semiconductor substrate, and then a second trench for connecting said plurality of first trenches to one another;

depositing a first oxide film on a surface of said semiconductor layer as well as on inner surfaces of said plurality of first trenches and said second trench;

depositing a nitride film on said first oxide film;

selectively removing said nitride film to expose said first oxide film formed along the inner surface of said second trench;

growing a second oxide film on said nitride film and said first oxide film;

depositing an electrode material in said first and second trenches, with said second oxide film interposed therebetween; and

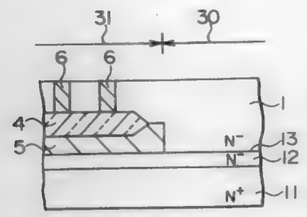
removing part of said electrode material to leave the electrode material only in said plurality of first trenches and leave the electrode material both in and on said second trench.

5,726,089

SEMICONDUCTOR DEVICE AND METHOD FOR FABRICATING THE SAME

Kensuke Okonogi, Tokyo, Japan, assignor to NEC Corporation, Tokyo, Japan

Continuation of Ser. No. 157,243, Nov. 26, 1993, abandoned. This application Nov. 27, 1995, Ser. No. 562,790
Claims priority, application Japan, Nov. 25, 1992, 4-314480
Int. Cl.[6] H01L *21/302*
U.S. Cl. 438—405 **6 Claims**



1. A method for fabricating a semiconductor device having a bonded wafer including a first and a second silicon substrate of a first conductivity type and having a first circuit region in said first silicon substrate and a second circuit region in said first and second silicon substrates, said first silicon substrate having a resistivity higher than the resistivity of the second substrate, said method including steps of:

forming a recess in said first circuit region of said first silicon substrate;

forming an insulating layer within said recess, said insulating layer having an uppermost surface recessed within said recess;

forming a polycrystalline silicon layer covering an entire surface including the surfaces of said insulating layer and said second region of said first silicon substrate;

grinding and polishing at least said polycrystalline silicon layer to cause a surface of said polycrystalline silicon layer to be flush with the surface of said second circuit region of said first silicon substrate;

forming an epitaxial layer on said second substrate;

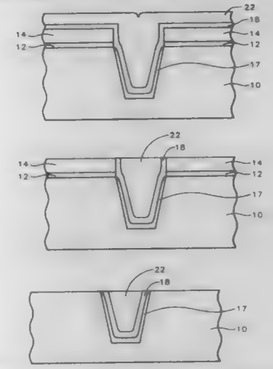
bonding the surfaces of said ground polycrystalline silicon layer and second circuit region of said first silicon substrate to the surface of said epitaxial layer, thereby to obtain said bonded wafer, in which only said polycrystalline silicon layer and the surface of said first substrate are bonded to said surface of said epitaxial layer.

5,726,090

GAP-FILLING OF O_3-TEOS FOR SHALLOW TRENCH ISOLATION

Syun-Ming Jang, Hsin-Chu; Ying-Ho Chen, Taipei, and Chen-Hua Yu, Hsin-Chu, all of Taiwan, assignors to Taiwan Semiconductor Manufacturing Company, Ltd., Hsin-chu, Taiwan

Filed May 1, 1997, Ser. No. 850,135
Int. Cl.[6] H01L *21/76*
U.S. Cl. 438—435 **23 Claims**



1. A method of manufacturing an integrated circuit device comprising:

providing a pad oxide layer over the surface of a semiconductor substrate;

depositing a nitride layer overlying said pad oxide layer;

etching a plurality of isolation trenches through said nitride and said pad oxide layers into said semiconductor substrate;

depositing a plasma enhanced SiH_4 oxide layer over said nitride layer and within said isolation trenches and treating said plasma enhanced SiH_4 oxide layer with N_2 plasma;

thereafter depositing an ozone-TEOS layer overlying said plasma enhanced SiH_4 oxide layer and filling said isolation trenches;

polishing away said ozone-TEOS layer and said plasma enhanced SiH_4 oxide layer stopping at said silicon nitride layer; and

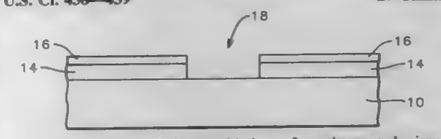
completing the fabrication of said integrated circuit device.

5,726,091

METHOD OF REDUCING BIRD'S BEAK OF FIELD OXIDE USING REOXIDIZED NITRIDED PAD OXIDE LAYER

Chao-Chieh Tsai, Taichung, and Shun-Liang Hsu, Hsin-Chu, both of Taiwan, assignors to Taiwan Semiconductor Manufacturing Company, Ltd., Hsin-Chu, Taiwan

Filed Aug. 29, 1996, Ser. No. 705,451
Int. Cl.[6] H01L *21/76*
U.S. Cl. 438—439 **27 Claims**



19. The method of field oxidation of an integrated circuit wherein said field oxidation has a small bird's beak comprising:

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growing an oxide layer in dry oxygen over the surface of a semiconductor substrate;

annealing said oxide layer in a nitrogen atmosphere whereby said oxide layer is nitrided;

reoxidizing said oxide layer;

depositing a silicon nitride layer overlying said oxide layer;

etching through portions of said silicon nitride and said oxide layers not covered by a mask pattern to said semiconductor substrate so as to provide an opening exposing the portion of said semiconductor substrate that will form said field oxidation;

oxidizing said silicon substrate within said opening wherein said semiconductor substrate is transformed to silicon dioxide wherein said nitrided oxide layer suppresses the formation of said bird's beak whereby said field oxidation is formed with a small said bird's beak; and

removing remaining said oxide layer and said silicon nitride layer completing said field oxidation of said integrated circuit.

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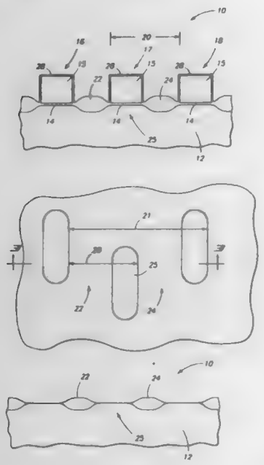
SEMICONDUCTOR PROCESSING METHODS OF FORMING FIELD OXIDATION REGIONS ON A SEMICONDUCTOR SUBSTRATE

Vlju Mathews; Pierre C. Fazan, and Nanseng Jeng, all of Boise, Id., assignors to Micron Technology, Inc., Boise, Id.

Continuation of Ser. No. 427,084, Apr. 20, 1995, abandoned. This application Jun. 17, 1997, Ser. No. 855,764

Int. Cl.[6] H01L *21/76*

U.S. Cl. 438—439 **11 Claims**



1. A semiconductor processing method of forming a pair of adjacent field oxide regions having a minimum pitch of from 0.5 micron to 0.7 micron on a semiconductor substrate, the method comprising the following steps:

forming a sacrificial pad oxide layer over a semiconductor substrate to a thickness of from 20 Angstroms to 100 Angstroms;

forming a patterned masking layer over the sacrificial pad oxide layer and over a desired active area region of the substrate, the masking layer comprising a nitride and having a thickness of from 500 Angstroms to 3000 Angstroms, the patterned masking layer comprising a pair of adjacent masking blocks having a minimum pitch of from 0.5 micron to 0.7 micron;

oxidizing portions of the substrate unmasked by the masking layer in an O_2 comprising ambient at a pressure of at least 15 atmospheres to form at least one pair of adja... field oxide regions on the substrate, the ambient being substantially void of H_2O during the oxidizing, the formed field oxide regions having a location of maximum thickness of from 1500 Angstroms to 3000 Angstroms, the pair of field oxide regions defining an active area therebetween;

removing the patterned masking layer from the substrate;

removing the sacrificial pad oxide layer from over the active area between the pair of field oxide regions;

forming a gate oxide layer on the substrate over the active area between the pair of field oxide regions; and

etching portions of the pair of field oxide regions prior to providing the gate oxide layer, such etching resulting in removal of a total of from 250 Angstroms to 1000 Angstroms of oxide from the field oxide regions prior to provision of the gate oxide layer, such etching resulting in a maximum width of the respective field oxide regions of from 0.20 micron to 0.40 micron and a minimum pitch of the adjacent pair of field oxide regions of from 0.5 micron to 0.7 micron.

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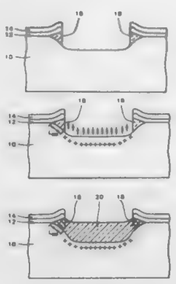
TWO-STEP PLANER FIELD OXIDATION METHOD

Chue-san Yoo, Hsin-Chu, Taiwan, assignor to Taiwan Semiconductor Manufacturing Company Ltd., Hsin-Chu, Taiwan

Filed Dec. 6, 1995, Ser. No. 569,329

Int. Cl.[6] H01L *21/76*

U.S. Cl. 438—443 **14 Claims**



1. A method of fabricating a field isolation structure comprising:

providing a silicon semiconductor substrate;

forming a multilayer oxidation masking structure on said semiconductor substrate having a silicon oxide pad layer and a silicon nitride layer;

forming a mask in said multilayer oxidation masking structure by removing said silicon nitride layer and said silicon oxide pad layer over the regions where said field isolation structures are to be formed; oxidizing said regions of said semiconductor substrate to form a first oxide of said field oxide isolation structure;

etching said first oxide with an anisotropic etching technique to expose the (silicon) surface subjacent to the mask openings but retaining oxide pockets which are formed under the mask edge; growing a silicon oxide screen layer on the exposed silicon surface;

implanting dopant atoms under said silicon oxide screen layer to form a channel stop; and

oxidizing to form a second oxide of said field oxide isolation structure the upper surface of which is co-planar with the adjacent silicon surface.

5,726,094

PROCESS FOR PRODUCING A DIFFUSION REGION ADJACENT TO A RECESS IN A SUBSTRATE

Udo Schwalke, Heldenstein, Germany; Michael Sebald, Hessdorf, Germany, and Ulrich Scheler, München, Germany, assignors to Siemens Aktiengesellschaft, Munich, Germany

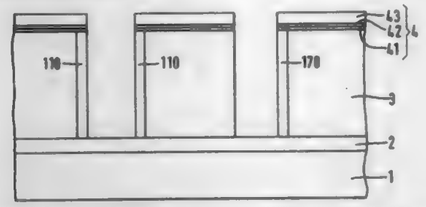
PCT No. PCT/DE95/00123, § 371 Date Aug. 14, 1996, § 102(e) Date Aug. 14, 1996, PCT Pub. No. WO95/22173, PCT Pub. Date Aug. 17, 1995

PCT Filed Feb. 1, 1995, Ser. No. 693,262

Claims priority, application Germany, Feb. 15, 1994, 44 04 757.6

Int. Cl.[6] H01L *21/225*

U.S. Cl. 438—561 **9 Claims**



1. A method for producing at least one diffusion region adjacent to a recess in a substrate, comprising the steps of:

etching at least one recess which extends essentially perpendicularly to a surface of the substrate into the substrate, the substrate having silicon at least on the surface;

applying a diffusion barrier layer over the entire surface;

structuring the diffusion barrier layer using a multi-layer photoresist system having at least two layers;

for structuring the diffusion barrier layer, applying a bottom resist layer which is made opaque by baking out;

applying a top resist layer which is illuminated and developed;

etching the bottom resist layer in an anisotropic dry etching process using the developed top resist layer as a mask;

removing the bottom resist layer and the top resist layer after the diffusion barrier layer has been structured;

depositing a doped layer which is suitable as a diffusion source over the entire surface; and

forming the diffusion region by diffusion out from the doped layer, the structured diffusion barrier layer under the doped layer acting as a mask.

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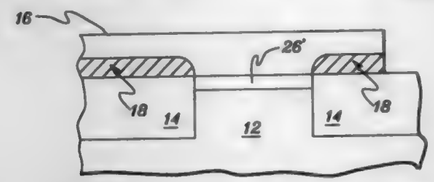
METHOD FOR MAKING MOSFET DEVICE HAVING CONTROLLED PARASITIC ISOLATION THRESHOLD VOLTAGE

Wendell Phillips Noble, Milton, Vt., assignor to International Business Machines Corporation, Armonk, N.Y.

Division of Ser. No. 366,517, Dec. 30, 1994, Pat. No. 5,650,654. This application Oct. 28, 1996, Ser. No. 743,955

Int. Cl.[6] H01L *21/44*

U.S. Cl. 438—454 **8 Claims**



1. A method of forming a trench isolated FET transistor comprising the steps of:

providing a semiconductor substrate with a FET active region isolated by trench oxide boundaries, the FET active region being covered with an oxide and a nitride pad;

depositing a layer of metallurgy of predetermined work function over the substrate including the nitride pad and the trench oxide boundaries;

planarizing the deposited metallurgy until the nitride pad is exposed;

removing the nitride pad and oxide over the FET active region leaving a hole in the deposited metallurgy that exposes the semiconductor substrate at the FET active region;

forming an oxide film over the FET active region of the semiconductor substrate;

depositing polysilicon over the metallurgy of predetermined work function and the oxide film exposed through said hole of the metallurgy;

patterning said polysilicon in accordance with a desired gate wiring pattern so as to provide a gate wiring layer including a gate region of the FET active region; and

etching the metallurgy in accordance with the gate wiring layer so as to leave metallurgy intermediate the gate wiring layer and the oxide of the trench oxide boundaries, whereby the gate wiring layer has a direct interface with the oxide film over the gate region of the FET active region.

5,726,096

METHOD FOR FORMING A TUNGSTEN SILICIDE LAYER IN A SEMICONDUCTOR DEVICE

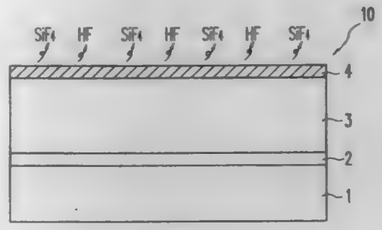
Sung Hee Jung, Seoul, Rep. of Korea, assignor to Hyundai Electronics Industries Co., Ltd., Kyungki-do, Rep. of Korea

Continuation of Ser. No. 357,313, Dec. 16, 1994, abandoned. This application May 28, 1996, Ser. No. 654,003

Claims priority, application Rep. of Korea, Dec. 17, 1993, 93 28140

Int. Cl.[6] H01L *21/28*

U.S. Cl. 438—592 **2 Claims**



1. A method for forming a tungsten silicide layer having a first thickness in a semiconductor device, comprising the following steps of:

(a) loading a wafer having a polysilicon layer thereon into a chamber and depositing a primary tungsten silicide layer on said polysilicon layer by a Chemical Vapor Deposition (CVD) utilizing reaction gases comprising WF_6 and SiH_4;

(b) removing fluorine atoms contained in said primary tungsten silicide layer by introducing SiH_4 gas into said chamber after said reaction gases are cut off;

(c) depositing an additional tungsten silicide layer on said primary tungsten silicide layer by reintroducing said reaction gases into said chamber after said SiH_4 gas is cut off; and

(d) removing fluorine atoms contained in said additional tungsten silicide layer by reintroducing said SiH_4 gas into said chamber, wherein (c) and (d) are sequentially repeated until a tungsten silicide layer having a first thickness is formed on said polysilicon layer.

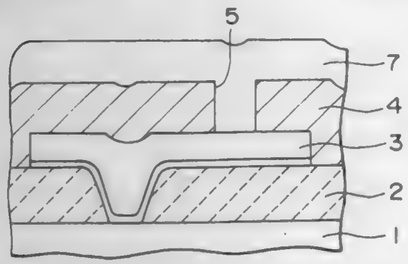
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5,726,097

METHOD OF FORMING MULTILEVEL INTERCONNECTIONS USING HIGH DENSITY PLASMA METAL CLEAN

Toshiharu Yanagida, Kanagawa, Japan, assignor to Sony Corporation, Tokyo, Japan

Filed Jul. 25, 1995, Ser. No. 506,640
Claims priority, application Japan, Jul. 28, 1994, 6-177272
Int. Cl.[6] H01L 21/4763
U.S. Cl. 438—622 17 Claims



1. A method of manufacturing a semiconductor device having multilevel interconnections comprising:

forming a lower interconnecting layer through a first interlayer insulation film on a semiconductor substrate wherein the lower interconnecting layer is an Al-based metal layer,

forming a second interlayer insulation film on said lower interconnecting layer and forming a contact hole in said second interlayer insulation film so as to expose a portion of said lower interconnecting layer;

removing a native oxide film formed on said lower interconnecting layer, said removing being performed by non-oxidative plasma processing using a plasma processing device having a plasma generation source generating a plasma density of between $1\times10^{11}/cm^3$ and $1\times10^{14}/cm^3$, while applying a substrate bias voltage; and

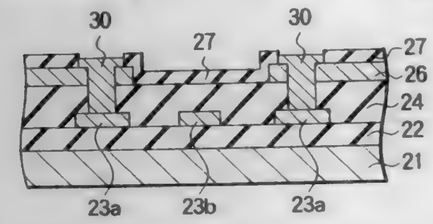
forming an upper interconnecting layer after removing the native oxide film so as to fill said contact hole and contact said lower interconnecting layer.

5,726,098

METHOD OF MANUFACTURING SEMICONDUCTOR DEVICE HAVING MULTILEVEL INTERCONNECTION

Atsushi Tsuboi, Tokyo, Japan, assignor to NEC Corporation, Japan

Filed Sep. 21, 1995, Ser. No. 531,376
Claims priority, application Japan, Sep. 22, 1994, 6-227817
Int. Cl.[6] H01L 21/283;21/31
U.S. Cl. 438—622 6 Claims



1. A method of manufacturing a semiconductor device with a multilevel interconnection comprising:

a first step of forming an underlying interconnection on a semiconductor substrate;

a second step of forming an interlayer insulating film on said semiconductor substrate and said underlying interconnection;

a third step of depositing a metal film on said interlayer insulating film in an interconnection pattern, and patterning a first opening for connecting said metal film to said underlying interconnection, thereby forming an overlying interconnection;

a fourth step of forming a protection film so as to cover surfaces of said overlying interconnection and said interlayer insulating film;

a fifth step of forming a photoresist film on said protection film, and patterning said photoresist film to provide a second opening larger than said first opening in said protection film above said first opening and provide a third opening in a pad-portion forming region on said overlying interconnection;

a sixth step of forming said second opening and said third opening in said protection film with said photoresist film used as a mask, and selectively etching out said interlayer insulating film with said overlying interconnection as a mask, thereby forming a through hole;

a seventh step of removing said photoresist film; and

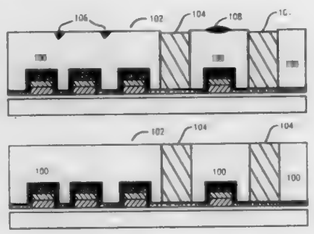
an eighth step of depositing a tungsten film in a through hole and on said protection film, and etching back said tungsten film on said protection film, forming a tungsten plug in said through hole which electrically connects said underlying interconnection to said overlying interconnection.

5,726,099

METHOD OF CHEMICALLY MECHANICALLY POLISHING AN ELECTRONIC COMPONENT USING A NON-SELECTIVE AMMONIUM PERSULFATE SLURRY

Mark Anthony Jaso, Yorktown Heights, N.Y., assignor to International Business Machines Corporation, Armonk, N.Y.

Filed Nov. 7, 1995, Ser. No. 554,880
Int. Cl.[6] H01L 21/461
U.S. Cl. 438—693 6 Claims



1. A method of forming metal patterns in an insulating layer on a semiconductor wafer, said method comprising the steps of:

a) forming a layer of insulating material on a semiconductor wafer;

b) planarizing said insulating layer;

c) forming a pattern in said insulating layer;

d) forming a layer of a conducting material on said insulating layer;

e) removing said conductive layer to expose said insulating layer;

f) chem-mech polishing said exposed insulating layer with a slurry having a removal rate on the same order of magnitude for said conductive material as for said insulating material

wherein the slurry comprises colloidal silica and ammonium persulfate, and wherein the colloidal silica is 8% by weight of the slurry.

5,726,100

METHOD OF FORMING CONTACT VIAS AND INTERCONNECT CHANNELS IN A DIELECTRIC LAYER STACK WITH A SINGLE MASK

John H. Givens, Boise, Id., assignor to Micron Technology, Inc., Boise, Id.

Filed Jun. 27, 1996, Ser. No. 673,773
Int. Cl.[6] H01L 21/02
U.S. Cl. 438—702 30 Claims

1. A process for forming contact vias and interconnect channels in a dielectric layer stack having a lower dielectric layer, an upper dielectric layer, and a primary dielectric etch stop layer sandwiched between the upper and lower dielectric layers, said process comprising the steps of:

(a) forming a photomask on an upper surface of the upper dielectric layer, said photomask having a first set of apertures defining a contact via pattern, each aperture of the first set having a corresponding first critical dimension, said photomask also having a second set of apertures defining an interconnect channel pattern having both linear segments and at least one curved segment which interconnects a pair of linear segments, each linear segment and each curved segment of each aperture of the second set having a corresponding second critical dimension that is less than said first critical dimension;

(b) performing a first etch that is selective for the first dielectric layer over the primary etch stop layer, said first etch continuing until selected first portions of the primary etch stop layer are exposed below each aperture of said first set, but before selected second portions of the primary etch stop layer are exposed below any aperture of said second set;

(c) removing said first portions of the primary etch stop layer; and

(d) performing a second etch that is selective for both the upper dielectric layer and the lower dielectric layer over the primary etch stop layer, said second etch proceeding until said second portions of the primary etch stop layer are exposed and until the lower dielectric layer is perforated below each aperture of said first set.

5,726,101

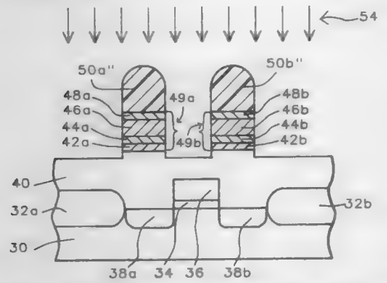
Patent Not Issued For This Number

5,726,102

METHOD FOR CONTROLLING ETCH BIAS IN PLASMA ETCH PATTERNING OF INTEGRATED CIRCUIT LAYERS

Jui-Cheng Lo, Hsinchu, Taiwan, assignor to Vanguard International Semiconductor Corporation, Hsinchu, Taiwan

Filed Jun. 10, 1996, Ser. No. 661,257
Int. Cl.[6] H01L 21/00
U.S. Cl. 438—718 18 Claims



1. A method for controlling a plasma etch bias of a patterned layer formed through plasma etching of a blanket layer formed beneath a patterned photoresist etch mask layer comprising:

forming over a semiconductor substrate a blanket layer;

forming over the blanket layer a patterned photoresist layer;

treating the patterned photoresist layer through a pre-treatment method to form a hardened patterned photoresist layer from the patterned photoresist layer, the hardened patterned photoresist layer being hardened against a flow in a subsequent plasma etch method which is employed in etching a patterned layer from the blanket layer while employing the hardened patterned photoresist layer as an etch mask, the pre-treatment method employing a hardening pre-treatment composition chosen from the group of hardening pre-treatment compositions consisting of:

oxygen plasma hardening pre-treatment compositions;

oxygen/nitrous oxide plasma hardening pre-treatment compositions; and

oxygen/chlorine plasma hardening pre-treatment compositions; and

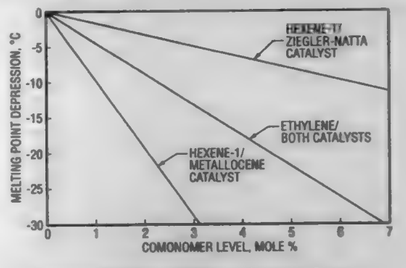
etching through the subsequent plasma etch method the blanket layer to form the patterned layer while employing the hardened patterned photoresist layer as the etch mask.

5,726,103

FIBERS AND FABRICS INCORPORATING LOWER MELTING PROPYLENE POLYMERS

Glenn Allan Stahl, Humble, and James John McAlpin, Houston, both of Tex., assignors to Exxon Chemical Co., Houston, Tex.

Continuation of Ser. No. 248,284, May 24, 1994, abandoned. This application Dec. 12, 1996, Ser. No. 764,036
Int. Cl.[6] B32B 27/00
U.S. Cl. 442—59 9 Claims



1. A composite fabric comprising at least two layers:

a) at least a first layer being a melt blown polymer fabric; and

b) at least a second layer being a spunbond polymer fabric;

wherein said fabrics a) and b) differ in T_m by at least 10° C.;

wherein at least one of said polymers of said first or said second layers is a propylene polymer having an $M_w/M_n \leq 3$, as polymerized, and a propylene tacticity distribution greater than about 90 percent mmmm pentads.

5,726,104

LIGHT-ADMITTING COMPONENT AS RIGID ROOFING

Dieter Hannawacker, Glattbach, Germany; Klaus Oberländer, Hanau, Germany; Norbert Brand, Darmstadt, Germany, and Dieter Bettinger, Freigericht, Germany, assignors to AGOMER Gesellschaft mit beschrankter Haftung, Hanau, Germany

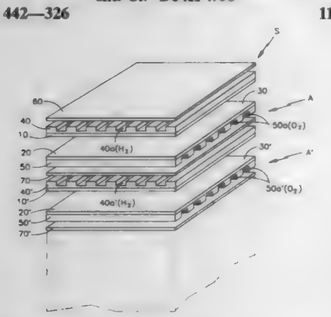
Continuation of Ser. No. 496,244, Jun. 28, 1995, abandoned. This application Oct. 30, 1996, Ser. No. 741,033
Claims priority, application Germany, Jul. 4, 1994, 44 23 154.7
Int. Cl.[6] B32B 27/00
U.S. Cl. 442—286 21 Claims

1. A light-admitting component mounted as a rigid roofing material on a structure comprising a sheet of polyvinylchloride or polycarbonate having an under side and an upper side exposed to weathering, the under side not exposed to weathering having a layer with a non-combustible material that is resistant to flying

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sparks and radiant heat such that said light admitting component meets the requirements of DIN 4102, Part 7.

5,726,105
COMPOSITE ARTICLE
Albert P. Grasso, Vernon, Conn.; Ronald G. Martin, Monson, Mass., and Robert P. Roche, Cheshire, Conn., assignors to International Fuel Cells, South Windsor, Conn.
Filed Apr. 20, 1995, Ser. No. 425,282
Int. Cl.[6] D04H *1/08*
U.S. Cl. 442—326 **11 Claims**



1. A graphitized composite article made by the method of:
forming an uncured composite article having carbon fiber embedded within a matrix of a carbon filler, a thermosetting resin and a solvent;
removing substantially all of the solvent from said uncured composite article;
applying pressure and heat to said uncured composite article to produce a cured compressed composite article;
heating said cured compressed composite article to a first temperature thereby producing a carbonized composite article,
wherein the carbon fiber, the carbon filler and the resin are substantially carbonized; and
heating the carbonized composite article to a second temperature higher than the first temperature, thereby producing a graphitized composite article; whereby the graphitized composite article is substantially impermeable to gases and liquids.

5,726,106
EMI SHIELDING MATERIALS, FIBERS THEREFOR AND METHOD FOR THEIR PREPARATION
Tore Carl Fredrik Klason, Hjälmared 2201, S-441 95, Alingsås, Sweden; Josef Kubat, Vintervägen 14, S-171 34, Solna, Sweden; Anatoliy Tikhonovich Ponomarenko, D. Ulyanova Street, 3, Apt. 114, Moscow, Russian Federation, 117333; Aleksei Vladimirovich Buts, Nemchinovka-1, Michurin Street, 17, Apt. 115, Moscow Region, Russian Federation, 143013; Elena Sergeevna Grinenko, Reutov, Novogireeskaya Street, 8, Apt. 20, Moscow Region, Russian Federation, 143952; Igor Nikolaevich Ponomarev, Orekhovo-Zuev Pr., 8, Apt. 12, Moscow, Russian Federation, 109341, and Vitaliy Georgievich Shevchenko, Orekhovy Boulevard, 51, Apt. 296, Moscow, Russian Federation, 115580
PCT No. PCT/SE95/00229, § 371 Date Nov. 12, 1996, § 102(e) Date Nov. 12, 1996, PCT Pub. No. WO95/23884, PCT Pub. Date Sep. 8, 1995
PCT Filed Mar. 3, 1995, Ser. No. 702,630
Claims priority, application Sweden, Mar. 3, 1994, 9400735
Int. Cl.[6] B32B *27/02*
U.S. Cl. 442—365 **10 Claims**

1. A method for producing highly filled ferromagnetic fibers in which the ferromagnetic filler is treated in an ultrasonic dispenser or a ball mill in the presence of a binder polymer and then the fiber is made by wet spinning from a dispersion containing solution or gel of said polymer through a spinneret so that a fiber of a diameter of 20–30 average diameters of the filler particles is obtained.

6. An EMI shielding material comprising short fibers highly loaded with absorbing ferromagnetic particles uniformly dispersed in the bulk of the product wherein the fibers have a diameter of 20–30 average diameters of the filler particles.

5,726,107
NON-WOVENS OF ELECTRET FIBER MIXTURES HAVING AN IMPROVED CHARGE STABILITY
Jörg Dahringer; Ernst-August Albers, both of Bobingen; Werner Groh, Schwabmünchen, and Achim Heyer, Hattersheim, all of Germany, assignors to Hoechst Aktiengesellschaft, Germany
Filed Aug. 28, 1995, Ser. No. 520,014
Claims priority, application Germany, Aug. 30, 1994, 9414040 U
Int. Cl.[6] A47K *7/02*
U.S. Cl. 442—414 **16 Claims**

1. A non-woven fabric of electret fibers having an improved charge stability and comprising materials which chiefly comprise a fiber-forming polymer obtained by polymerization or polycondensation, and 0.01 to 30% by weight based on the weight of the material, of organic or organometallic charge control agents, wherein the non-woven fabric comprises at least two types of electret fibers which are made of different materials and wherein these materials differ from one another in that they comprise different fiber-forming addition or condensation polymers.

5,726,108
GLASS-CERAMIC MAGNETIC DISK SUBSTRATE
Tomoyuki Taguchi, Nishinomiya, Japan; Hideki Kawai, Kobe, Japan; Tohru Ohara, Akashi, Japan; Ikuo Kuriyama, Nishinomiya, Japan; Hajimu Wakabayashi, Kawanishi, Japan, and Sadao Nakajima, Sakai, Japan, assignors to Yamamura Glass Co., Ltd., Hyogo, Japan
Continuation-in-part of Ser. No. 684,049, Jul. 22, 1996, abandoned. This application Apr. 2, 1997, Ser. No. 825,732
Claims priority, application Japan, Jul. 24, 1995, 7-208375; Jul. 10, 1996, 8-199814; Jan. 28, 1997, 9-028442
Int. Cl.[6] C03C *10/04;10/02*
U.S. Cl. 501—5 **5 Claims**

1. A glass-ceramic magnetic disk substrate which is prepared by forming, then heat treating, and then polishing a crystallizable glass composition comprising, expressed in terms of weight percent on the oxide basis:
from 20 to 45% SiO_2; from 0.5 to 5% P_2O_5;
from 25 to 45% Al_2O_3; from 0 to 2% Li_2O;
from 10 to 25% B_2O_3; from 0 to 2% Na_2O;
from 2 to 12% MgO; from 0 to 3% K_2O;
from 0.5 to 8% TiO_2;
wherein the total of the contents of Li_2O, Na_2O and K_2O is from 0 to 5%; and wherein said magnetic disk substrate comprises a main crystalline phase consisting of at least one member selected from the group consisting of mullite and aluminum borate crystals.

5,726,109
DEEP GRAY COLORED GLASS
Mizuki Ito, and Takashi Kijima, both of Yokohama, Japan, assignors to Asahi Glass Company Ltd., Tokyo, Japan
Filed Oct. 4, 1995, Ser. No. 538,633
Claims priority, application Japan, Oct. 5, 1994, 6-241579
Int. Cl.[6] C03C *3/87*
U.S. Cl. 501—71 **9 Claims**

1. A deep gray colored glass comprising 100 parts by weight of matrix components and coloring components consisting essentially of: from 0.8 to 1.4 parts by weight of total iron calculated as Fe_2O_3, at most 0.21 part by weight of FeO, from 0.05 to 0.095 part by weight of TiO_2, from 0.0005 to 0.015 part by weight of Se and from 0.02 to 0.05 part by weight of CoO, wherein the deep gray colored glass has an excitation purity of 0.7–7%, and the matrix components comprise from 65 to 75 wt % of SiO_2, from 0.1 to 5.0 wt % of Al_2O_3, from 10 to 18 wt % of Na_2O+K_2O, from 5 to 15 wt % of CaO, from 1 to 6 wt % of MgO and from 0.05 to 1.0 wt % of SO_3.

5,726,110
ZIRCONIA-ALUMINA CERAMIC ARTICLE
Debasis Majumdar, Rochester, N.Y.; Dilip K. Chatterjee, Rochester, N.Y., and Robert J. Kress, Rochester, N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.
Filed Mar. 6, 1997, Ser. No. 812,813
Int. Cl.[6] C04B *35/106;35/16*
U.S. Cl. 501—104 **8 Claims**

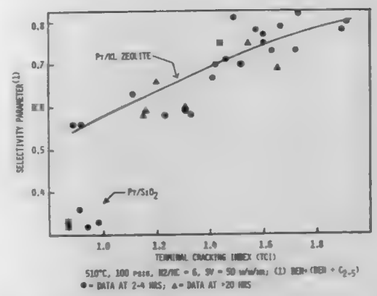
1. A ceramic article comprising:
magnesium-X silicate, wherein X represents lithium, sodium or potassium from about 0.1 to 2 weight percent;
yttria stabilized zirconia and alumina composite from about 99.9 to 98 weight percent wherein the yttria stabilized zirconia has a molar ratio of yttria to zirconia of from 0.5:99.5 to 5:95 and the alumina comprises from 0.1 to 50 percent of the yttria stabilized zirconia and alumina composite.

5,726,111
PAPER/CLAY AND METHOD OF PREPARATION
Rosette Gault, 818 W. Crockett St. #410, Seattle, Wash. 98119
Filed May 26, 1993, Ser. No. 67,114
Int. Cl.[6] C04B *33/00;33/04;33/36*
U.S. Cl. 501—141 **15 Claims**

1. A method of preparing a ceramic mixture that retains a shape and can be fired in a kiln to produce a ceramic figure, comprising the steps of:
preparing a paper pulp from a cellulose-containing non-coated paper; and
adding the paper pulp to a liquid slip ceramic clay to form a paper/clay emulsion and mixing said paper/clay emulsion to a consistency suitable for forming a product for ceramic firing.

5,726,112
METHOD OF REGENERATING DEACTIVATED CATALYSTS
Shun C. Fung, Bridgewater; Samuel J. Tauster, Englishtown, and Jay Y. Koo, Bridgewater, all of N.J., assignors to Exxon Research & Engineering, Florham Park, N.J.
Continuation of Ser. No. 104,255, Aug. 10, 1993, abandoned, which is a continuation of Ser. No. 709,154, Jun. 3, 1991, abandoned, which is a continuation of Ser. No. 432,221, Nov. 6, 1989, abandoned, which is a continuation of Ser. No. 205,567, Jun. 15, 1988, Pat. No. 4,925,819, which is a continuation of Ser. No. 814,027, Dec. 23, 1985, abandoned, which is a continuation of Ser. No. 550,951, Nov. 10, 1983, abandoned.
This application Jun. 6, 1995, Ser. No. 467,239
Int. Cl.[6] B01J *20/34*
U.S. Cl. 502—35 **22 Claims**

1. A process for treating a deactivated monofunctional, non-acidic reforming catalyst comprising L zeolite, at least one Group VIII noble metal, an inorganic binder, and carbon deposits, said process comprising:
a) contacting said catalyst with a gaseous stream comprising inert gas comprising up to about 10 vol. % water at a temperature within the range of about 380° C. to about 540° C. for up to about 10 hours;
b) subjecting said catalyst to a gaseous stream comprising inert gas, 0.1 vol. % to 25 vol. % oxygen, less than about 10 vol. % water, and about 0.005 vol. % to about 10 vol. % of a source of chlorine under conditions comprising a temperature within the range of about 400° C. to about 530° C. effective for dispersing the at least one Group VIII noble metal on the surface of said catalyst; and
c) treating said catalyst with another gas stream comprising a gas comprising less than about 10 vol. % water and from about 0.1 vol. % to about 25 vol. % oxygen, said gas being selected from the group of gases consisting of oxygen, steam, and mixtures of oxygen and steam, under conditions comprising a temperature within the range of about 400° C. to about 540° C. effective to remove excess chlorine from the zeolite catalyst, stabilize the Group VIII noble metal, and result in said Group VIII noble metal being well dispersed over said surface of said catalyst upon subsequent reduction; and
d) contacting said catalyst from which excess chlorine has been removed with another gaseous stream comprising less than about 10 vol. % water, inert gas, and about 1 vol. % to about 25 vol. % hydrogen, at a temperature within the range of about 400° C. to about 530° C. for up to about 10 hours to effect a reduction of said Group VIII noble metal particles of said catalyst.



5,726,113
POROUS CLAY HETEROSTRUCTURES PREPARED BY GALLERY TEMPLATED SYNTHESIS
Thomas J. Pinnavaia, East Lansing, Mich.; Anne H. Galarneau, Palavas les flots, France, and Anis F. Barodawalla, East Lansing, Mich., assignors to Board of Trustees operating Michigan State University, East Lansing, Mich.
Filed Mar. 19, 1996, Ser. No. 618,317
Int. Cl.[6] B01J *21/16*
U.S. Cl. 502—62 **19 Claims**

1. A calcinable intermediate to a heterogeneous calcined clay heterostructure which comprises:
(a) a porous 2:1 layered silicate clay with galleries between layers of the clay containing a porous polymeric inorganic metal oxide and which is filled with a neutral amine surfactant and quaternary onium ions.

5,726,114
METHOD OF PREPARATION OF EX SITU SELECTIVATED ZEOLITE CATALYSTS FOR ENHANCED SHAPE SELECTIVE APPLICATIONS AND METHODS TO INCREASE THE ACTIVITY THEREOF
Clarence D. Chang, Princeton; John D. Lutner, Hamilton Square, both of N.J.; Sharon B. McCullen, Newton, Pa.; Paul G. Rodewald, Rocky Hill, and David S. Shihabi, Pennington, both of N.J., assignors to Mobil Oil Corporation, Fairfax, Va.
Continuation of Ser. No. 141,758, Oct. 27, 1993, abandoned.
This application Aug. 17, 1995, Ser. No. 516,435
Int. Cl.[6] B01J *29/06*
U.S. Cl. 502—64 **14 Claims**

1. A method for modifying a catalytic molecular sieve for shape selective hydrocarbon conversions, comprising exposing the catalytic molecular sieve to at least two ex situ selectivation sequences, wherein each ex situ selectivation sequence includes the steps of:
a) contacting an intermediate pore catalytic molecular sieve with an aqueous emulsion comprising a silicon-containing selectivating agent, a surfactant, and an aqueous component; and
b) calcining the contacted catalytic molecular sieve.

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5,726,115

BRIDGED BIS-AMINO GROUP 4 METAL COMPOUNDS IN A CATALYST COMPOSITION FOR THE PRODUCTION OF ALPHA-OLEFINS

Andrew David Horton, and Jan De With, both of Amsterdam, Netherlands, assignors to Shell Oil Company, Houston, Tex.

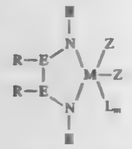
Filed Mar. 11, 1996, Ser. No. 615,551

Claims priority, application European Pat. Off., Mar. 8, 1995, 95200570

Int. Cl.[6] B01J *31/00;* B04J *37/00;* C08F *4/02;4/60*

U.S. Cl. 502—152 9 Claims

1. A catalyst composition comprising a compound represented by the general formula (II)



wherein M is zirconium, hafnium or titanium; each N is a three coordinate nitrogen atom; each E is Si, Ge or Sn; each Z is, independently, a hydride or R; each R is, independently, a hydrocarbyl one or more carbon atoms of which may be substituted by an element selected from Si, O, P, N and S; Q is a neutral Lewis base and m is a integer from 0 to 2; or a dimer thereof; and a second component which is capable of providing a bulky and labile anion[A]$^-$, which anion is substantially non-coordinating and contains at least one boron atom.

5,726,116

FIBRIL AGGREGATES AND METHOD FOR MAKING SAME

David Moy, Winchester, Mass., and Asif Chishti, Lowell, Mass., assignors to Hyperion Catalysis International, Inc., Cambridge, Mass.

Division of Ser. No. 284,917, Aug. 2, 1994, Pat. No. 5,456,897, which is a continuation of Ser. No. 855,122, Mar. 18, 1992, abandoned, which is a continuation of Ser. No. 413,837, Sep. 28, 1989, abandoned. This application May 23, 1995, Ser. No. 447,354

Int. Cl.[6] B01J *21/18;* D01C *5/00*

U.S. Cl. 502—182 30 Claims

1. A process for preparing an aggregate of carbon fibrils comprising contacting a particulate metal catalyst deposited on a support with a carbon-containing gas in a reactor at reaction conditions including temperatures sufficient to produce said aggregate, wherein said support comprises one or more planar surfaces and a surface area of at least 1 m^2/gm.

26. A process for preparing an aggregate of carbon fibrils comprising contacting a supported catalyst comprising a catalytic metal deposited on a particulate support with a carbon-containing gas, wherein said support comprises at least one planar surface and has a surface area of at least 1 m^2/gm.

5,726,117

SORBENT COMPOSITIONS CONTAINING ZINC SUBJECTED TO A STEAM TREATMENT

Gyanesh P. Khare, and Donald H. Kubicek, both of Bartlesville, Okla., assignors to Phillips Petroleum Company, Bartlesville, Okla.

Filed Jun. 7, 1995, Ser. No. 483,358

Int. Cl.[6] B01J *20/00;20/02*

U.S. Cl. 502—400 100 Claims

1. A sorbent composition comprising:

(a) a zinc component;

(b) a colloidal oxide component; and

(c) a metal oxide component;

wherein said composition has been subjected to a temperature in the range of about 50° C. to about 800° C. to remove substantially all of the liquid medium, and wherein said sorbent composition is then subjected to a steaming treatment that comprises contacting said sorbent composition with a steam mixture that comprises water and air.

78. A process to produce a sorbent composition, said process comprising:

(a) contacting a zinc component, a colloidal oxide component, and a metal oxide component to form an agglomeration;

(b) drying said agglomeration at a temperature in the range of about 50° C. to about 300° C. for a time period in the range of about 0.5 hours to about 4 hours to form a dried agglomeration;

(c) calcining said dried agglomeration at a temperature in the range of about 300° C. to about 1300° C. for a time period in the range of about 0.5 to about 24 hours to form a calcined, dried composition;

(d) subjecting said calcined, dried composition to a steaming treatment where said streaming treatment is conducted at a temperature in the range of about 100° C. to about 1100° C. for a time period in the range of about 1 to about 24 hours.

5,726,118

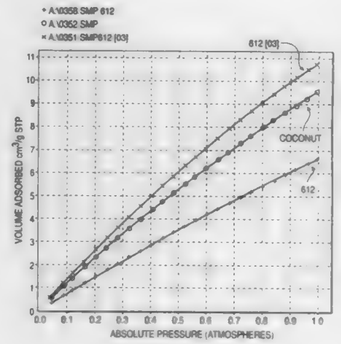
ACTIVATED CARBON FOR SEPARATION OF FLUIDS BY ADSORPTION AND METHOD FOR ITS PREPARATION

Don C. Ivey, Pryor, Okla., and Timothy C. Hoffman, Wagoner, Okla., assignors to Norit Americas, Inc., Pryor, Okla.

Filed Aug. 8, 1995, Ser. No. 512,862

Int. Cl.[6] B01J *20/02;21/18*

U.S. Cl. 502—417 47 Claims



1. An activated carbon composition of matter comprising a mixture of:

(a) a first activated carbon having a plurality of pore sizes, pore volumes and pore surface areas sufficient to selectively adsorb fluids having molecular diameters from about 4 Angstroms to about 4,000 Angstroms; and

(b) a second activated carbon having a plurality of pore sizes, pore volumes, and pore surface areas to selectively adsorb fluids having molecular diameters from about 4 Angstroms to about 4,000 Angstroms;

the pore size distribution of pores in said second activated carbon that adsorbs fluids having molecular diameters from about 4 Angstroms to about 15 Angstroms being greater than that of said first activated carbon;

said second activated carbon being present in an amount sufficient to provide a methane working capacity of said mixture greater than the methane working capacity of said first activated carbon.

15. A process of increasing the methane working capacity of a first activated carbon having a plurality of pore sizes, pore volumes and pore surface areas sufficient to selectively adsorb fluids having molecular diameters from about 4 Angstroms to about 4,000 Angstroms, comprising mixing said first activated carbon with a second activated carbon having a plurality of pore sizes, pore volumes and pore surface areas to selectively adsorb fluids having molecular diameters from about 4 Angstroms to about 4,000 Angstroms to thereby form a mixture;

the pore size distribution of pores in said second activated carbon that adsorb fluids having molecular diameters from about 4 Angstroms to about 15 Angstroms being greater than that of the first activated carbon;

said second activated carbon being present in an amount sufficient to provide a methane working capacity of said mixture greater than the methane working capacity of said first activated carbon.

29. A process of increasing the methane adsorption of a first activated carbon having a plurality of pore sizes, pore volumes and pore surface areas sufficient to selectively adsorb fluids having molecular diameters from about 4 Angstroms to about 4,000, and a second activated carbon having a plurality of pore sizes, pore volumes and pore surface areas to selectively adsorb fluids having molecular diameters from about 4 Angstroms to about 4,000,

wherein the pore size distribution of pores in said first activated carbon that adsorbs fluids having molecular diameters from about 100 Angstroms to about 4,000 Angstroms is greater than that of said second activated carbon,

the pore size distribution of pores in said second activated carbon that adsorb fluids having molecular diameters from about 4 Angstroms to about 15 Angstroms being greater than that of the first activated carbon,

comprising forming a mixture of said first activated carbon and said second activated carbon in amounts sufficient to provide methane adsorption in the mixture, as measured by a methane isotherm, that is greater than the methane adsorption of either activated carbon.

5,726,119

CATALYST FOR EXHAUST GAS PURIFICATION

Hisashi Sera, Hiroshima-ken; Shinobu Miyaura, Hiroshima; Toshiyuki Okabe, Hiroshima, and Hiroshi Murakami, Hiroshima, all of Japan, assignors to Mazda Motor Corporation, Hiroshima, Japan

Continuation of Ser. No. 982,670, Nov. 30, 1992, abandoned. This application Nov. 9, 1994, Ser. No. 338,212

Claims priority, application Japan, Nov. 30, 1991, 3-317154

Int. Cl.[6] B01J *35/04;37/08;32/00;37/00*

U.S. Cl. 502—439 14 Claims

1. A method of forming a catalyst carrier for use with an automobile exhaust gas purification system comprising the steps of:

winding a web-like pre-corrugated metal sheet, formed with corrugations extending in a transverse direction thereof, and a web-like flat metal sheet alternately so as to form a cylindrical roll having a number of honeycomb convolutions;

fixing said web-like pre-corrugated metal sheet and said web-like flat metal sheet in relative positions by welding each corrugation of said web-like pre-corrugated metal sheet to said flat metal sheet at a plurality of points in said transverse direction as said cylindrical roll is formed;

applying a soldering material to opposite end portions of said cylindrical roll after welding each corrugation of said web-like pre-corrugated metal sheet to said flat metal sheet; and

heating said cylindrical roll so as to solder said web-like flat metal sheet and said web-like pre-corrugated metal sheet to each other at said end portions.

5,726,120

CF SHEET FOR CARBONLESS COPY PAPER AND WEATHER RESISTANT TAGS INCORPORATING SAME

Rodney E. Williams, Fremont, Ohio, and Kenneth D. Riggs, Gurnee, Ill., assignors to Moore Business Forms, Inc., Grand Island, N.Y.

Filed Jun. 7, 1995, Ser. No. 488,023

Int. Cl.[6] B41M *5/40*

U.S. Cl. 503—214 6 Claims

1. A coated front sheet for use in carbonless copy paper comprising:

a moisture resistant substrate including polymeric fibers and a latex binder; and

a moisture resistant coating on the substrate containing a latex binder, a phenolic resin color developer, and a pigment.

5,726,121

IMAGE RECEIVING SHEET FOR SUBLIMATION TRANSFER

Hiroyuki Uemura, Mishima, Japan, and Chiharu Nogawa, Shizuoka-ken, Japan, assignors to Ricoh Company, Ltd., Tokyo, Japan

Division of Ser. No. 360,093, Dec. 20, 1994, Pat. No. 5,597,774. This application Sep. 17, 1996, Ser. No. 714,816

Claims priority, application Japan, Dec. 21, 1993, 5-322751

Int. Cl.[6] B41M *5/035;5/38*

U.S. Cl. 503—227 15 Claims

1. A thermal transfer recording process, comprising the steps of:

a) superimposing an image recording medium composed of a sublimating dye on an image receiving sheet; and

b) applying heat imagewise to the image recording medium to transfer an image from the image recording medium to the image receiving sheet,

wherein the running speed of the image receiving sheet is n-times (n>1) as large as that of the image recording medium, and wherein the image receiving sheet comprises a substrate and a dye receiving layer containing an unmodified silicone oil, a modified silicone oil, and a resin.

5,726,122

THERMAL TRANSFER IMAGE RECEIVING SHEET, PRODUCTION PROCESS THEREFOR AND THERMAL TRANSFER SHEET

Hitoshi Saito; Kazunobu Imoto; Takeshi Ueno; Katsuyuki Oshima; Mineo Yamauchi; Hiroshi Eguchi; Hideaki Sato; Hideo Fujimura, and Mikio Asajima, all of Tokyo-to, Japan, assignors to Dai Nippon Printing Co., Ltd., Japan

Division of Ser. No. 281,453, Jul. 27, 1994, Pat. No. 5,593,939, which is a division of Ser. No. 755,116, Sep. 5, 1991, Pat. No. 5,356,853. This application Oct. 22, 1996, Ser. No. 731,883

Claims priority, application Japan, Sep. 7, 1990, 2-235618; Sep. 27, 1990, 2-255162; Sep. 27, 1990, 2-255163; Sep. 27, 1990, 2-255167; Oct. 4, 1990, 2-265105; Oct. 4, 1990, 2-265110; Nov. 2, 1990, 2-297597; Jan. 21, 1991, 3-19192; Mar. 1, 1991, 3-57703

Int. Cl.[6] B41M *5/035;5/38*

U.S. Cl. 503—227 4 Claims



1. A thermal transfer sheet, comprising a substrate film, an intermediate layer disposed on the substrate film, and a dye layer disposed on the substrate film by the medium of the intermediate layer, wherein the dye layer comprises a dye and a binder resin, and the intermediate layer contains bubbles.

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5,726,123

METHOD FOR TREATING COTYLEDONOUS PLANTS

George E. Heinsohn, Elkton, Md., and August S. Bjornson, Wilmington, Del., assignors to DCV Chitin Technologies, L.P., Wilmington, Del.

Filed Feb. 12, 1997, Ser. No. 799,741
Int. Cl.[6] A01N *43/16*; C05F *1/00*; C08B *37/08*
U.S. Cl. 504—140 13 Claims

1. A method for improving the yield of growing cotyledonous plants having their first true leaves comprising (1) applying to the exposed surface of the leaves an aqueous liquid solution having dissolved therein (a) 0.01–1.5% by weight of a salt of chitosan prepared by reaction of chitosan with an acid, in which solution the ratio of acid equivalents to amino groups derived from the chitosan is 1.02–1.20, and (b) 0.05–50% of chitosan oligomers selected from the group consisting of copolymers of D-glucosamine and N-acetyl-D-glucosamine having a degree of polymerization of 2 to 50, based on the weight of chitosan salt exclusive of anion, and (2) repeating step (1) at least one time before harvesting the plant.

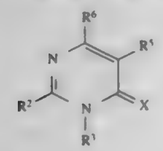
5,726,124

2-ARYLPYRIMIDINES AND HERBICIDAL USE THEREOF

Colin Michael Tice, Philadelphia, Pa.; Vincent Angelo Musco, Southampton, Pa.; Renee Caroline Roemmele, Maple Glen, Pa., and Harlow Lester Warner, Hatboro, Pa., assignors to Rohm and Haas Company, Philadelphia, Pa.

Continuation-in-part of Ser. No. 185,579, Jan. 18, 1994, Pat. No. 5,453,414, which is a continuation-in-part of Ser. No. 62,802, May 20, 1993, Pat. No. 5,300,477, which is a continuation-in-part of Ser. No. 916,247, Jul. 17, 1992, abandoned. This application Oct. 28, 1994, Ser. No. 331,249
Int. Cl.[6] A01N *43/50*; C07D *239/02*
U.S. Cl. 504—193 17 Claims

1. A compound of the formula



wherein

(a) R^2 is a furyl, phenyl, naphthyl, pyridyl, or thienyl group, each of said group is optionally substituted with up to three substituents independently selected from a bromo, chloro, fluoro, $(C_1–C_{12})$alkyl, cyclo$(C_3–C_8)$alkyl, $(C_2–C_{12})$alkenyl, cyclo$(C_3–C_8)$alkenyl, $(C_2–C_{12})$alkynyl, halo$(C_1–C_{12})$alkyl, polyhalo$(C_1–C_{12})$alkyl, halo$(C_2–C_{12})$alkenyl, polyhalo$(C_2–C_{12})$alkenyl, halo$(C_2–C_6)$alkynyl, polyhalo$(C_2–C_6)$alkynyl, $(C_1–C_{12})$alkoxy, $(C_1–C_{12})$alkylthio, $(C_1–C_{12})$alkylsulfonyl, $(C_1–C_{12})$alkylsulfinyl, phenyl, phen$(C_1–C_{12})$alkyl, phen$(C_2–C_{12})$alkenyl, phen$(C_2–C_{12})$alkynyl, cyano, halo$(C_1–C_{12})$alkoxy, hydroxyimino, or nitro group; and when R^2 is pyridyl, such pyridyl group is optionally substituted with oxygen on the nitrogen of the pyridyl group; or R^2 is a furyl, phenyl, naphthyl, pyridyl or thienyl group having a fused ring moiety composed of an oxymethyleneoxy or an oxyethyleneoxy link bonds to adjacent carbon atoms on said group;

(b) R^3 is a $(C_1–C_3)$alkyl, halo$(C_1–C_3)$alkyl, polyhalo$(C_1–C_3)$alkyl, $(C_3–C_4)$alkenyl, $(C_5–C_6)$alkenynyl, $(C_3–C_6)$alkynyl, $(C_1–C_6)$alkoxy$(C_1–C_6)$alkyl, di$(C_1–C_6)$alkoxy$(C_1–C_6)$alkyl, halo$(C_1–C_6)$alkoxy$(C_1–C_6)$alkyl, or 2-oxo$(C_2–C_3)$alkyl, phenyl, trimethylsilyl$(C_3–C_4)$alkynyl or cyano$(C_1–C_6)$alkyl group, each of said $(C_3–C_4)$alkenyl, or $(C_3–C_6)$alkynyl group is optionally substituted with up to five halogens;

(c) R^5 is $(C_1–C_6)$acyl, $(C_1–C_6)$alkoxy$(C_1–C_6)$alkyl, $(C_1–C_6)$alkoxyimino, di$(C_1–C_6)$alkoxy$(C_1–C_6)$alkyl, formyl, hydroxy$(C_1–C_6)$alkyl, hydroxy, $(C_1–C_6)$alkoxy$(C_1–C_6)$alkoxy, aminocarbonyl$(C_1–C_6)$alkyl, $(C_1–C_6)$alkylaminocarbonyl$(C_1–C_6)$alkyl, di$(C_1–C_6)$alkylaminocarbonyl$(C_1–C_6)$alkyl, cyano$(C_1–C_6)$alkyl, or hydroxyimino;

(d) R^6 is a hydrogen, halo, $(C_1–C_8)$alkyl, $(C_2–C_6)$alkenyl, $(C_2–C_6)$alkynyl, halo$(C_1–C_6)$alkyl, polyhalo$(C_1–C_6)$alkyl, halo$(C_2–C_6)$alkenyl, polyhalo$(C_2–C_6)$alkenyl, halo$(C_2–C_6)$alkynyl, polyhalo$(C_2–C_6)$alkynyl, $(C_1–C_6)$alkoxy, $(C_1–C_6)$alkoxy$(C_1–C_4)$alkyl, $(C_1–C_6)$alkylthio, $(C_1–C_3)$alkoxycarbonyl, $(C_1–C_3)$alkoxycarbonyl$(C_1–C_3)$alkyl, $(C_6–C_{10})$aryl, ar$(C_1–C_4)$alkyl, cyclo$(C_3–C_7)$alkyl, $(C_4–C_8)$heterocyclyl selected from a group consisting of furyl, pyridyl and thienyl, $(C_1–C_3)$alkylamino, di$(C_1–C_3)$alkylamino, di$(C_1–C_3)$alkylaminocarbonyl, halo$(C_1–C_6)$alkylthio, polyhalo$(C_1–C_6)$alkylthio, halo$(C_1–C_6)$alkoxy, polyhalo$(C_1–C_6)$alkoxy, $(C_6–C_{10})$aryloxy or cyano group; said $(C_6–C_{10})$aryl, ar$(C_1–C_4)$alkyl and $(C_6–C_{10})$aryloxy groups being optionally substituted with up to three substituents independently selected from bromo; chloro; fluoro; $(C_1–C_{12})$alkyl, cyclo$(C_3–C_8)$alkyl, $(C_2–C_{12})$alkenyl, cyclo$(C_3–C_8)$alkenyl, $(C_2–C_{12})$alkynyl, halo$(C_1–C_{12})$alkyl, polyhalo$(C_1–C_{12})$alkyl, halo$(C_2–C_{12})$alkenyl, polyhalo$(C_2–C_{12})$alkenyl, halo$(C_2–C_6)$alkynyl, polyhalo$(C_2–C_6)$alkynyl; $(C_1–C_{12})$alkoxy, $(C_1–C_{12})$alkylthio, $(C_1–C_{12})$alkylsulfonyl, $(C_1–C_{12})$alkylsulfinyl, phenyl, phen$(C_1–C_{12})$alkyl, phen$(C_2–C_{12})$alkenyl, phen$(C_2–C_{12})$alkynyl, cyano, halo$(C_1–C_{12})$alkoxy, 1,3-dioxalan-2-yl, hydroxyimino, and nitro; and

(e) X is oxygen or sulfur.

5,726,125

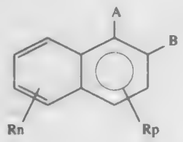
FUNGICIDES FOR THE CONTROL OF TAKE-ALL DISEASE OF PLANTS

Dennis Paul Phillion, St. Charles; Matthew James Graneto, St. Louis, both of Mo.; John Kennedy Pratt, Kenosha, Wis., and Sai Chi Wong, Chesterfield, Mo., assignors to Monsanto Company, St. Louis, Mo.

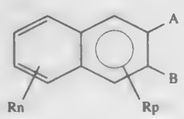
Continuation of Ser. No. 204,610, Mar. 8, 1994, abandoned, which is a continuation-in-part of Ser. No. 43,339, Apr. 6, 1993, abandoned. This application Sep. 11, 1996, Ser. No. 712,139
Int. Cl.[6] C07F *7/02*
U.S. Cl. 504—193 21 Claims

1. A method of controlling disease in a plant caused by Gaeumannomyces sp. in said plant comprising applying to the seed or the soil of said plant a fungicidally effective amount of a fungicide of the formula

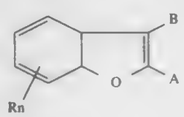
a)



b)

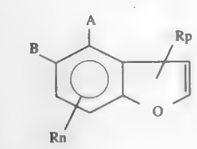


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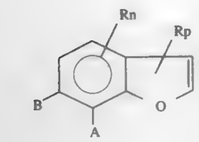


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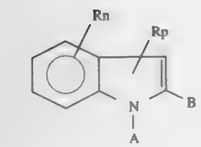
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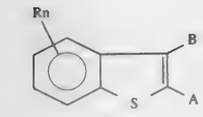
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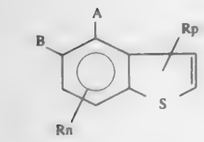
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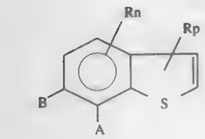
g)



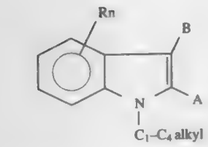
h)



i)



j)



A is —C(X)-amine; B is —W_m—$Q(R_2)_3$; and A can be B when B is A except when the formula is f), then Q cannot be Si;
Q is C or Si;
W is —NH—, —O— or —NCH_3—;
X is O or S;
m is 0 or 1 provided that m is 0 when Q is Si;
n is 0, 1, 2, or 3
is 0, 1 or 2; and n plus p is equal to or less than 3,
each R is independently selected from

a) halo, formyl, cyano, amino, nitro, thiocyanato, isothiocyanato, trimethylsilyl, and hydroxy;

b) $C_1–C_4$ alkyl, alkenyl, alkynyl, $C_3–C_5$ cycloalkyl, and cycloalkenyl, each optionally substituted with halo, hydroxy, thio, amino, nitro, cyano, formyl, phenyl, $C_1–C_4$ alkoxy, alkylcarbonyl, alkylthio, alkylamino, dialkylamino, alkoxycarbonyl, (alkylthio)carbonyl, alkylaminocarbonyl, dialkylaminocarbonyl, alkylsulfinyl, or alkylsulfonyl;

c) phenyl, furyl, thienyl, pyrrolyl, each optionally substituted with halo, formyl, cyano, amino, nitro, $C_1–C_4$ alkyl, alkenyl, alkynyl, alkoxy, alkylthio, alkylamino, dialkylamino, haloalkyl, and haloalkenyl;

d) $C_1–C_4$ alkoxy, alkenoxy, alkynoxy, $C_3–C_6$ cycloalkyloxy, cycloalkenyloxy, alkylthio, alkylsulfinyl, alkylsulfonyl, alkylamino, dialkylamino, alkylcarbonylamino, aminocarbonyl, alkylaminocarbonyl, dialkylaminocarbonyl, alkylcarbonyl, alkylcarbonyloxy, alkoxycarbonyl, (alkylthio)carbonyl, phenylcarbonylamino, phenylamino, each optionally substituted with halo;

each R_2 is independently selected from alkyl, alkenyl, alkynyl, cycloalkyl, cycloalkenyl and phenyl, each optionally substituted with R_4 or halogen; and wherein, when Q is C, R_2 may also be selected from halo, alkoxy, alkylthio, alkylamino, and dialkylamino;
wherein two R_2 groups may be combined to form a cyclo group with Q;
R_4 is $C_1–C_4$ alkyl, haloalkyl, alkoxy, alkylthio, alkylamino, or dialkylamino;
or an agronomic salt thereof.

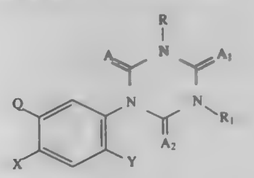
5,726,126

1-(3-HETEROCYCLYPHENYL)-S-TRIAZINE-2,6,6-OXO OR THIOTRIONE HERBICIDAL AGENTS

Alvin Donald Crews, Jr., Voorhees; Philip Mark Harrington, Mercer; Gary Mitchell Karp, Princeton Jct.; Mark Christopher Manfredi, Hamilton, and Michael Anthony Guaciaro, East Windsor, all of N.J., assignors to American Cyanamid Company, Parsippany, N.J.

Continuation-in-part of Ser. No. 459,868, Jun. 2, 1995. This application Nov. 26, 1996, Ser. No. 756,750
Int. Cl.[6] C07D *251/34*; A01N *43/66*
U.S. Cl. 504—227 20 Claims

1. A compound having the structural formula



wherein

X and Y are each independently hydrogen, halogen, nitro, cyano, $C_1–C_4$alkyl, $C_1–C_4$haloalkyl, $C_1–C_4$alkoxy, $C_1–C_4$haloalkoxy or $S(O)_mR_2$;

m is an integer of 0, 1 or 2;

R_2 is $C_1–C_4$alkyl or $C_1–C_4$haloalkyl, phenyl optionally substituted with one to three halogen, $C_1–C_4$alkyl, $C_1–C_4$haloalkyl, $C_1–C_4$alkoxy or $C_1–C_4$haloalkoxy groups; or benzyl optionally substituted with one to three halogen, $C_1–C_4$alkyl, $C_1–C_4$ haloalkyl, $C_1–C_4$alkoxy or $C_1–C_4$haloalkoxy groups;

R is hydrogen, $C_1–C_6$alkyl, $C_2–C_{12}$alkoxyalkyl, $C_3–C_{12}$-alkylcarbonylalkyl, $C_3–C_{12}$haloalkylcarbonylalkyl, $C_3–C_{12}$alkoxycarbonylalkyl, $C_3–C_{12}$haloalkoxycarbonylalkyl, $C_3–C_6$alkenyl, $C_3–C_6$alkynyl, an alkali metal, phenyl optionally substituted with one to three halogen, $C_1–C_4$alkyl, $C_1–C_4$alkoxy or $C_1–C_4$-haloalkoxy groups, or benzyl optionally substituted with one to three halogen, $C_1–C_4$alkyl, $C_1–C_4$alkoxy or $C_1–C_4$-haloalkoxy groups;

R_1 is hydrogen, $C_3–C_6$alkenyl, $C_3–C_6$alkynyl, cyano, $C_1–C_{12}$alkyl optionally substituted with one or more halogen

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atoms, or one cyano, $C(O)R_3$, $C(W)R_4$, $OC(O)R_5$, $CH_2OC(O)R_5$, OR_4, CH_2OR_4 or $CR_6(OR_7)_2$ group, or one phenyl group optionally substituted with one to three halogen, C_1–C_4-alkyl, C_1–C_4alkoxy or C_1–C_4haloalkoxy groups, or phenyl optionally substituted with one to three halogen, C_1–C_4alkyl, C_1–C_4alkoxy or C_1–C_4-haloalkoxy groups;

R_3 is OH, OR_8, SR_8, or NR_9R_{10};

W is O, NOR_9, $NCOR_9$ or $NNHCONH_2$;

R_4, R_5 and R_6 are each independently hydrogen, C_1–C_4alkyl or C_1–C_4haloalkyl;

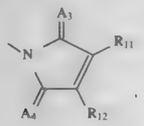
R_7 is C_1–C_4alkyl;

R_8 is C_1–C_6alkyl optionally substituted with C_1–C_4alkoxy, C_1–C_4alkylthio, halogen, hydroxy, C_3–C_6cyclo-alkyl, furyl or phenyl optionally substituted with one or more halogen, cyano, nitro, C_1–C_4-alkyl, C_1–C_4haloalkyl, C_1– C_4alkoxy or C_1–C_4-haloalkoxy groups, C_3–C_6alkenyl optionally substituted with C_1–C_4alkoxy, halogen, C_3–C_4cycloalkyl or phenyl optionally substituted with one or more halogen, cyano, nitro, C_1–C_4alkyl, C_1– C_6haloalkyl, C_1–C_4alkoxy or C_1–C_4haloalkoxy groups, C_3–C_6alkynyl optionally substituted with C_1–C_4alkoxy or halogen, C_3–C_6cycloalkyl, $N{=}C(R_4R_5)$, or an alkali metal, alkaline earth metal, manganese, copper, zinc, cobalt, silver, nickel, ammonium or organic ammonium cation;

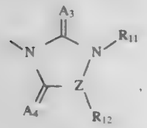
R_9 and R_{10} are each independently hydrogen, C_1–C_4alkyl, benzyl optionally substituted with one or more halogen, cyano, nitro, C_1–C_4alkyl, C_1–C_4-haloalkyl, C–C_4alkoxy or C_1–C_4haloalkoxy groups, or phenyl optionally substituted with one or more halogen, cyano, nitro, C_1–C_4alkyl, C_1–C_4halo-alkyl, C_1–C_4 alkoxy or C_1–C_4haloalkoxy groups;

Q is selected from

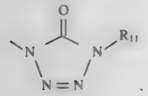
Q1



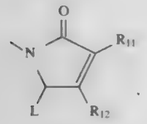
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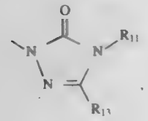
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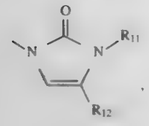
Q4



Q5

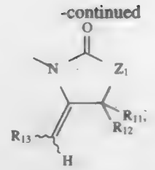


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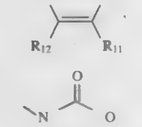


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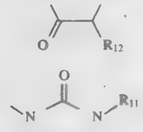
Q7



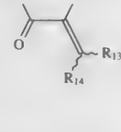
Q8



Q9



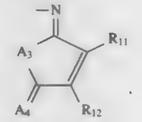
Q10



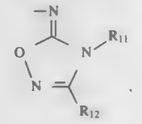
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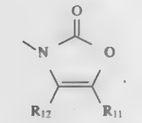
Q12



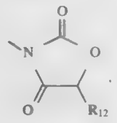
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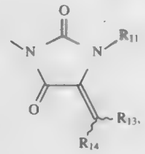
Q14



Q15

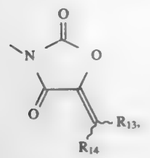


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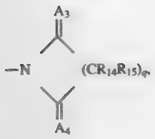


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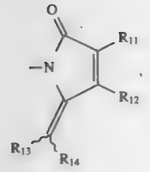
Q17



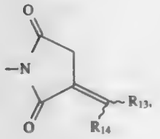
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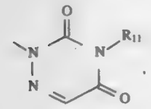
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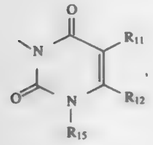
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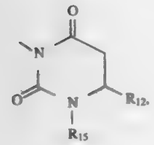
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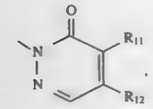
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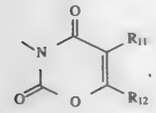
Q23



Q24

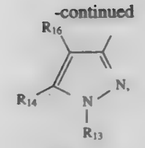


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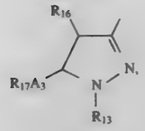


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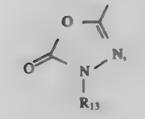
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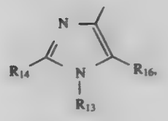
Q27



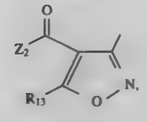
Q28



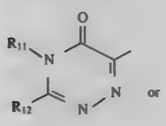
Q29



Q30

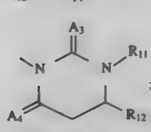


Q31



or

Q32



R_{11} and R_{12} are each independently hydrogen, C_1–C_6alkyl optionally substituted with one or more halogen atoms, or C_3–C_6cycloalkyl optionally substituted with one or more halogen atoms, and when R_{11} and R_{12} are taken together with the atoms to which they are attached, they represent a ring in which R_{11} R_{12} is a C_2–C_5alkylene group optionally interrupted with one group selected from the group consisting of $S(O)_r$ and O, and optionally substituted with one to three methyl groups or one or more halogen atoms, or R_{11} R_{12} is represented by the structure: $—CR_{18}{=}CR_{19}—CR_{20}{=}CR_{21}—$, where R_{18}, R_{19}, R_{20} and R_{21} are each independently hydrogen, halogen or methyl and – – represents a single or double bond;

R_{13}, R_{14} and R_{15} are each independently hydrogen, C_1–C_3alkyl or C_1–C_3haloalkyl;

R_{16} is hydrogen or halogen;

R_{17} is C_1–C_4alkyl or C_1–C_4haloalkyl;

A, A_1, A_2, A_3 and A_4 are each independently O or S;

L is hydroxy, halogen, C_1–C_3alkoxy or C_1–C_3alkylthio;

M is halogen or C_1–C_3alkyl;

Z is N or CH;

Z_1 is NR_9 or O;

Z_2 is OR_7 or NR_9R_{10};

r is an integer of 0, 1 or 2; and

q is an integer of 2, 3 or 4.

VOL 1208 ISS 2 MR 10 1998 UMI

5,726,127

THIOPHENESULFONYLUREA DERIVATIVES AND HERBICIDAL COMPOSITION CONTAINING THE SAME

Dae Whang Kim; Kyeong Yeol Yun; Jae Wook Ryu; Yeon Soo Lee; Seung Kyu Kang, and In Taek Hwang, all of Daejeon, Rep. of Korea, assignors to Korea Research Institute of Chemical Technology, Daejeon, Rep. of Korea

PCT No. PCT/KR94/00161, § 371 Date Jul. 24, 1996, § 102(e) Date Jul. 24, 1996, PCT Pub. No. WO95/13276, PCT Pub. Date May 18, 1995

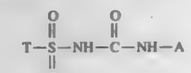
PCT Filed Nov. 9, 1994, Ser. No. 646,352

Claims priority, application Rep. of Korea, Nov. 10, 1993, 93-23890

Int. Cl.[6] A01N *47/36*

U.S. Cl. 504—239 **15 Claims**

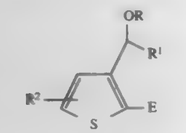
1. A thiophenesulfonylurea derivative represented by the following general formula (I):



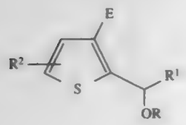
(I)

and a salt thereof, in which

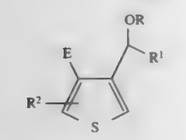
T represents a group T1, T2, or T3 having the following general formula:



T1



T2



T3

wherein

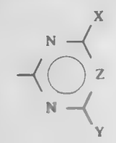
E represents a direct bond;

R represents hydrogen or C_{1-4} acyl;

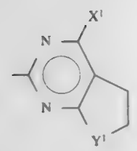
R^1 represents C_{1-6} alkyl substituted with 1 to 3 halogen atoms;

R^2 represents hydrogen, C_{1-3} alkyl, C_{1-3} haloalkyl, halogen, cyano, C_{1-3} alkoxy, C_{1-3} haloalkoxy, amino, methylamino, dimethylamino, or C_{1-2} alkyl substituted with C_{1-2} alkoxy, C_{1-2} haloalkoxy, thiol, methylthio, cyano or hydroxy;

A represents a group selected from the group consisting of A1 to A4 having the following formulae:

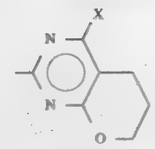


(A1)

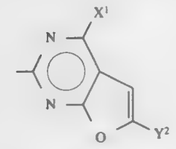


(A2)

-continued



(A3)



(A4)

wherein

X represents hydrogen, C_{1-4} alkyl, C_{1-4} alkoxy, C_{1-4} haloalkyl, C_{1-4} haloalkoxy, C_{1-4} alkylthio, C_{1-4} haloalkylthio, halogen, C_{2-5} alkoxyalkyl, C_{2-5} alkoxyalkoxy, imino, C_{1-3} alkylamino, di(C_{1-3} alkyl)amino or C_{3-5} cycloalkyl;

X^1 represents C_{1-2} alkyl, C_{1-2} alkoxy or C_{1-2} alkylthio;

Y represents hydrogen, C_{1-4} alkyl, C_{1-4} alkoxy, C_{1-4} haloalkoxy, C_{1-4} haloalkylthio, C_{1-4} alkylthio, C_{2-5} alkoxyalkyl, C_{2-5} alkoxyalkoxy, amino, C_{1-3} alkylamino, di(C_{1-3} alkyl)amino, C_{3-4} alkenyloxy, C_{3-4} alkynyloxy, C_{2-5} alkylthioalkyl, C_{1-4} haloalkyl, C_{2-4} alkynyl, azido, cyano, C_{2-5} alkylsulfinylalkyl, C_{2-5} alkylsulfonylalkyl, hydroxymethyl, C_{3-5} cycloalkyl or C_{3-5} cycloalkoxy;

Y^1 represents oxygen or methylene;

Y^2 represents hydrogen or methyl; and

Z represents N or CH;

provided that (1) when X is fluoro, chloro, iodo, Z represents CH and Y represents methoxy, ethoxy, methoxymethylamino, amino, methylamino, dimethylamino or difluoromethoxy and

(2) when X or Y is difluoromethoxy, Z represents CH and

(3) when the total number of carbon atoms of X and Y is 4 or more, R^2 represents a group having up to 4 carbon atoms.

5,726,128

BENZYLOXYPYRIMIDINE DERIVATIVE, PROCESSES FOR PRODUCING THE SAME AND HERBICIDAL COMPOSITION

Hisashi Kanno; Yoshikazu Kubota; Tsutomu Sato, and Masato Arahira, all of Iwaki, Japan, assignors to Kureha Kagaku Kogyo Kabushiki Kaisha, Japan

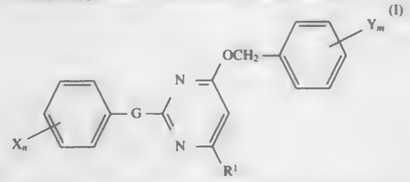
Filed Sep. 8, 1995, Ser. No. 525,059

Claims priority, application Japan, Sep. 14, 1994, 6-247058

Int. Cl.[6] A01N *43/54;* **C07D** *239/46;239/60*

U.S. Cl. 504—243 **8 Claims**

1. A benzyloxypyrimidine derivative of the formula (I):



(I)

wherein R^1 represents hydrogen, a halogen, C_1–C_4 alkyl, C_1–C_4 haloalkyl, C_1–C_4 alkoxy, C_1–C_4 haloalkoxy, C_3–C_5 alkenyloxy, C_1–C_4 alkylthio, or cyano;

each X, which may be identical or different if n is greater than 1, represents a halogen, C_1–C_4 alkyl, C_1–C_4 haloalkyl, C_1–C_4 alkoxy, C_1–C_4 haloalkoxy, or C_1–C_4 haloalkylthio;

each Y, which may be identical or different if m is greater than 1, represents a halogen, C_1–C_4 alkyl, C_1–C_4 haloalkyl, C_1–C_4 alkoxy, or C_1–C_4 haloalkoxy;

G represents O or S; and

n and m each independently represent an integer of 0 to 5.

5,726,129

PYRROLIDINE-2-THIONE DERIVATIVES AS HERBICIDES

Nigel John Barnes, Maidenhead, and Richard Anthony Barber, Reading, both of United Kingdom, assignors to Zeneca Limited, London, England

PCT No. PCT/GB95/01223, § 371 Date Nov. 12, 1996, § 102(e) Date Nov. 12, 1996, PCT Pub. No. WO95/33718, PCT Pub. Date Dec. 14, 1995

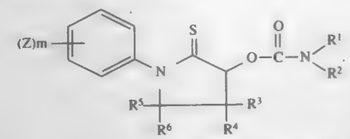
PCT Filed May 26, 1995, Ser. No. 737,538

Claims priority, application United Kingdom, Jun. 2, 1994, 9411008

Int. Cl.[6] A01N *43/36;* **C07D** *207/27*

U.S. Cl. 504—283 **9 Claims**

1. A compound of formula (I):



(I)

Wherein R^1 and R^2 are each independently hydrogen, optionally substituted lower hydrocarbyl, or optionally substituted heteroaryl, or R^1 and R^2 together with the nitrogen atom to which they are attached, form a heterocyclic ring; R^3, R^4, R^5 and R^6 are independently H or C_{1-4} alkyl; Z represents halogen, optionally substituted lower hydrocarbyl, optionally substituted lower hydrocarbyloxy, optionally substituted lower hydrocarbylthio, hydrocarbylsulphinyl, or hydrocarbylsulphonyl, cyano, nitro, CHO, NHOH, $ONR^7R^{7'}$, SF_5, CO(optionally substituted lower hydrocarbyl), acylamino, $COOR^7$, $SO_2NR^8R^9$, $CONR^{10}R^{11}$, OR^{12} or $NR^{13}R^{14}$ where R^7, $R^{7'}$, $R^{7''}$, R^8, R^9, R^{10} and R^{11} are independently H or lower hydrocarbyl; R^{12} is hydrogen, SO_2 lower hydrocarbyl or COR^{15}; R^{13} and R^{14} are independently lower hydrocarbyl, lower hydrocarbyloxy or a group R^{12}; R^{15} is OR^{16}, $NR^{17}R^{18}$, hydrogen or lower hydrocarbyl; R^{16} is lower hydrocarbyl, R^{17} and R^{18} are independently hydrogen or lower hydrocarbyl provided that when there are two or more substituents Z, they may be the same or different; and m is 0 or an integer from 1 to 5.

5,726,130

CUTTING OR GRINDING OIL COMPOSITION

Masami Yamanaka, Ichihara, Japan, assignor to Idemitsu Kosan Co., Ltd., Tokyo, Japan

PCT No. PCT/JP95/00985, § 371 Date Nov. 19, 1996, § 102(e) Date Nov. 19, 1996, PCT Pub. No. WO95/32267, PCT Pub. Date Nov. 30, 1995

PCT Filed May 23, 1995, Ser. No. 737,584

Claims priority, application Japan, May 24, 1994, 6-109770

Int. Cl.[6] C10M *125/22;129/26;129/72*

U.S. Cl. 508—152 **10 Claims**

1. A cutting or grinding oil composition comprising (A) a base oil, (B) at least one compound selected from the group consisting of dibasic carboxylic acids having 2 to 6 carbon atoms, tribasic carboxylic acids having 3 to 6 carbon atoms, and ester derivatives of these dibasic and tribasic acids, and (D) at least one compound selected from the group consisting of perbasic alkali metal sulfonates and perbasic alkaline earth metal sulfonates, the base oil (A) being a mineral oil or a synthetic oil which is a branched olefin, a hydrogenation product of a branched olefin, a polyol ester or an alkyl benzene.

5. A cutting or grinding oil composition comprising (A) a base oil, (B) at least one compound selected from the group consisting of dibasic carboxylic acids having 2 to 6 carbon atoms, tribasic carboxylic acids having 3 to 6 carbon atoms, and ester derivatives of these dibasic and tribasic acids, (C) sulfur or a compound containing sulfur, and (D) at least one compound selected from the group consisting of perbasic alkali metal sulfonates and perbasic alkaline earth metal sulfonates, the base oil (A) being a mineral oil or a synthetic oil which is a branched olefin, a hydrogenation product of a branched olefin, a polyol ester or an alkyl benzene and the compound containing sulfur being a polysulfide or a sulfurized compound.

5,726,131

LUBRICANT OR LUBRICANT CONCENTRATE

Erasmus Froeschmann, Heinrich-Drewes-Strasse 10a, D-2800 Bremen 61, Germany

Continuation of Ser. No. 216,074, Mar. 21, 1994, abandoned, which is a continuation of Ser. No. 33,966, Mar. 19, 1993, abandoned, and Ser. No. 663,182, Feb. 26, 1991, abandoned, which is a continuation-in-part of Ser. No. 294,603, Jan. 30, 1989, abandoned. This application May 24, 1995, Ser. No. 449,083

Claims priority, application Germany, Apr. 10, 1987, 37 12 134.0

Int. Cl.[6] C10M *141/10;141/08*

U.S. Cl. 508—271 **36 Claims**

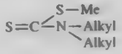
1. A lubricant comprising:

(a) an oil base selected from the group consisting of natural oil, synthetic oil and mixtures thereof;

(b) at least one tetravalent to octavalent alcohol derivative having density (d_{20}) of at least 0.900 and containing at least one quaternary carbon atom in its molecule said alcohol being selected from the group consisting of mono-, di-, and tripentaerythritols, all of the alcoholic groups of which are etherified by an alkyl or aryl halide containing a straight or branched alkyl, aralkyl or aryl group having 6 to 18 carbon atoms;

(c) a sterically hindered phenol;

(d) at least one dialkyldithiocarbamate compound having the formula

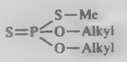


where Me is selected from the group consisting of B, V, Cr, Mo, W, Mn, Co, Ni and mixtures thereof and wherein each alkyl is an alkyl group having 4 to 8 carbon atoms,

(e) at least one compound selected from the group consisting of dialkylaryl-, monoalkyldiaryl-, trialkyl- and triarylphosphite, wherein the alkyl group is straight, branched or cyclic and contains 8 to 12 carbon atoms and the aryl group is a phenyl group substituted in the o- or p- position by an alkyl group having 1 to 6 carbon atoms;

(f) a thiazole, wherein said component (b) is present in an amount of from 0.1 to 40% by weight, said component (d) present in a weight amount of from 0.1 to 10% by weight, said component (e) present in an amount of from 0.1 to 5% by weight, said component (f) present in an amount of from 0.1 to 5% by weight, wherein said percent weight amounts are based on the weight of component (a);

(g) at least one dialkyldithiophospate compound of general formula



wherein Me is selected from the group consisting of Zn MO, oxy-mo, and mixtures thereof and alkyl is an alkyl group having 4 to 8 carbon atoms; and

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(h) an additive selected from antioxidants, metal deactivators, detergents, dispersants, antifoam agents and viscosity index improving agents, wherein said additive is different from any of components (a)–(g).

19. A lubricant comprising:

(a) an oil base selected from the group consisting of natural oil, synthetic oil and mixtures thereof;

(b) at least one tetravalent to octavalent alcohol derivative having density (d_{20}) of at least 0.900 and containing at least one quaternary carbon atom in its molecule, said alcohol being selected from the group consisting of mono-, di-, and tripentaerythritols, all of the alcoholic groups of which are ethoxylated by ethylene oxide and then etherified by an alkyl or aryl halide containing a straight or branched alkyl, aralkyl or aryl group having 6 to 18 carbon atoms;

(c) an anti-oxidant compound having at least one free hydroxyl group on its molecule;

(d) at least one dialkyldithiocarbamate compound having the formula



where Me is selected from the group consisting of B, V, Cr, Mo, W, Mn, Co and Ni, and wherein each alkyl is an alkyl group having 4 to 8 carbon atoms;

(e) at least one compound selected from the group consisting of dialkylaryl-, monoalkyldiaryl-, trialkyl- and triarylphosphite, wherein the alkyl group is straight, branched or cyclic and contains 8 to 12 carbon atoms and the aryl group is a phenyl group substituted in the O- or p- position by an alkyl group having 1 to 6 carbon atoms; and

(f) a thiazole, wherein said component (b) is present in an amount of from 0.1 to 40% by weight, said component (d) present in an amount of from 0.1 to 10% by weight, said component (e) present in an amount of from 0.1 to 5% by weight, said component (f) present in an amount of from 0.1 to 5% by weight, wherein said percent weight amounts are based on the weight of component (a).

20. Lubricant comprising:

(a) a polyglycol oil base;

(b) at least one tetravalent to octavalent alcohol derivative having a density (d_{20}) of at least 0.900 and containing at least one quaternary carbon atom in its molecule, said alcohol being selected from the group consisting of mono-, di-, and tripentaerythritols, all of the alcoholic groups of which are ethoxylated by ethylene oxide and then etherified by an alkyl or aryl halide containing a straight or branched alkyl, aralkyl or aryl group having 6 to 18 carbon atoms;

(c) at least one dialkyldithiocarbamate compound having the formula



where Me is selected from the group consisting of B, V, Cr, Mo, W, Mn, Co and Ni, and wherein each alkyl is an alkyl group having 4 to 8 carbon atoms;

(d) at least one compound selected from the group consisting of dialkylaryl-, monoalkyldiaryl-, trialkyl- and triarylphosphite, wherein the alkyl group is straight, branched or cyclic and contains, 8 to 12 carbon atoms and the aryl group is a phenyl group substituted in the o- or p- position by an alkyl group having 1 to 6 carbon atoms, and

(e) a thiazole,

wherein said component (b) is present in an amount of from 0.1 to 40% by weight, said component (c) present in a weight amount of from 0.1 to 10%, said component (d) present in a weight amount of from 0.1 to 5%, said component (e) present in a weight amount of from 0.1 to 5%, wherein said percent weight amounts are based on the weight of component(a).

21. Lubricant comprising:

(a) a polyglycol oil base,

(b) at least one tetravalent to octavalent alcohol derivative having a density (d_{20}) of at least 0.900 and containing at least one quaternary carbon atom in its molecule, said alcohol being selected from the group consisting of mono-, di- and tripentaerythritols, all the alcoholic groups of which are etherified by an alkyl or aryl halide containing a straight or branched alkyl, aralkyl or aryl group having 6 to 18 carbon atoms;

(c) at least one dialkyldithiocarbamate compound having the formula



where Me is selected from the group consisting of B, V, Cr, Mo, W, Mn, Co and Ni, and mixtures thereof, and wherein each alkyl is an alkyl group having 4 to 8 carbon atoms;

(d) at least one compound selected from the group consisting of dialkylaryl-, monoalkyldiaryl-, trialkyl- and triarylphosphite, wherein the alkyl group is straight, branched or cyclic and contains 8 to 12 carbon atoms and the aryl group is a phenyl group substituted in the o- or p- position by an alkyl group having 1 to 6 carbon atoms, and

(e) a thiazole, wherein said component (b) is present in an amount of from 0.1 to 40% by weight, said component (c) present in a weight amount of from 0.1 to 10%, said component (d) present in a weight amount of from 0.1 to 5%, said component (e) present in a weight amount of from 0.1 to 5%, wherein said percent weight amounts are based on the weight of component (a).

5,726,132

OIL COMPOSITION FOR IMPROVING FUEL ECONOMY IN INTERNAL COMBUSTION ENGINES

Stephen H. Roby, Chesterland; James A. Supp, Parma; John S. Manka, Euclid, and William D. Abraham, South Euclid, all of Ohio, assignors to The Lubrizol Corporation, Wickliffe, Ohio

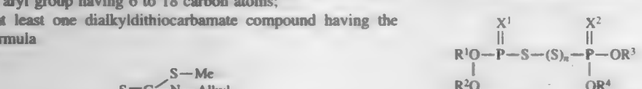
Filed Feb. 28, 1997, Ser. No. 808,698

Int. Cl.[6] C10M *141/10*

U.S. Cl. 508—287 **52 Claims**

1. An engine lubricating oil composition, free of organic ammonium thiophosphate said composition comprising a majority of an oil of lubricating viscosity and a fuel improving amount of:

(A) a compound represented by the formula



(A-I)

wherein in Formula (A-I), R^1, R^2, R^3 and R^4 are independently hydrocarbyl groups, X^1 and X^2 are independently O or S, and n is zero to 3; and

(B) an acylated nitrogen-containing compound having a substituent of at least 10 aliphatic carbon atoms.

5,726,133

LOW ASH NATURAL GAS ENGINE OIL AND ADDITIVE SYSTEM

Alan G. Blahey, and James W. Finch, both of Sarnia, Canada, assignors to Exxon Research and Engineering Company, Florham Park, N.J.

Filed Feb. 27, 1996, Ser. No. 607,502

Int. Cl.[6] C10M *135/18;129/54;129/76*

U.S. Cl. 508—390 **7 Claims**

1. A method for enhancing the resistance of a natural gas engine oil to oxidation, nitration, deposits formation comprising adding to a natural gas engine oil base stock having a kinematic viscosity at 100° C. of about 5 to 16 cSt a minor amount sufficient to contribute a sulfated ash content of about 0.1 to 0.6% ash by ASTM D-874 of an additive mixture comprising a mixture of detergents comprising at least one first alkali or alkaline earth metal salt or mixture thereof of low Total Base Number (TBN) of about 250 and less and at least one second alkali or alkaline earth metal salt or mixture thereof which is more neutral than the first low TBN salt.

5,726,134

MULTIGRADE LUBRICATING COMPOSITIONS

David Robert Adams, Oxfordshire, United Kingdom, assignor to Exxon Chemical Patents Inc., Wilmington, Del.

PCT No. PCT/EP95/02696, § 371 Date Dec. 13, 1996, § 102(e) Date Dec. 13, 1996, PCT Pub. No. WO96/01885, PCT Pub. Date Jan. 25, 1996

PCT Filed Jul. 7, 1995, Ser. No. 750,768

Claims priority, application United Kingdom, Jul. 11, 1994, 9413976

Int. Cl.[6] C10M *163/00*

U.S. Cl. 508—391 **23 Claims**

1. A lubricating oil composition meeting at least the requirements of the Sequence VE test, said composition comprising:

(a) an oil of lubricating viscosity,

(b) an ashless dispersant comprising an oil-soluble polymeric backbone having functional groups in which the hydrocarbon backbone is derived from an ethylene alpha-olefin (EAO) copolymer or alpha-olefin homo- or copolymer having greater than 30% of terminal vinylidene unsaturation, and

(c) two or more detergents comprising at least one alkali metal or alkaline earth metal phenate or salicylate which is present at a level such that the soap derived from the phenate or salicylate provides >32 and <50 wt % of the total soap in the composition.

5,726,135

PHOSPHORUS-FREE AND ASHLESS OIL FOR AIRCRAFT AND TURBO ENGINE APPLICATION

Behrooz A. Khorramian, 130 Woodridge Pl., Leonia, N.J. 07605-1625

Filed Dec. 11, 1996, Ser. No. 763,658

Int. Cl.[6] C10M *135/18*

U.S. Cl. 508—444 **15 Claims**

1. A phosphorus-free ashless lubricating oil for aircraft and turbo engine end-use application comprising:

from about 90 to 97 percent by weight of the final lubricant formulation of synthetic base oil selected from tetraesters of pentaerythritol, triesters of methylolpropane, and mixture thereof; and the base oil optionally further includes one or more of polyol esters selected from adipate diesters, azelate diesters, sebacate diesters, phthalate diesters, and neopentyl diesters as well as optionally one or more of vegetable oils selected from castor oil, sunflower oil, grape seed oil, or lard oil,

from about 0.5 to 4 percent by weight of the final lubricant formulation an antioxidant/extreme pressure additive selected from the group consisting of alkylated or alkarylated dithiocarbamate or combinations thereof,

wherein said the lubricant oil is absolutely free of phosphorus, metals, metal salts, and detergent/dispersant.

5,726,136

MULTIFUNCTIONAL ADDITIVE FOR LUBRICATING OILS COMPATIBLE WITH FLUOROELASTOMERS

Paolo Koch, Melegnano, Italy, assignor to Agip Petroli S.p.A., Rome, Italy

Filed Oct. 5, 1995, Ser. No. 539,478

Claims priority, application Italy, Oct. 19, 1994, MI94A2132

Int. Cl.[6] C10M *145/14;133/04;133/16;* **C08F** *220/18*

U.S. Cl. 508—469 **18 Claims**

1. A polymeric additive, viscosity index improver with a dispersing action and compatible with fluoroelastomers, said polymeric additive basically consisting of a copoly(meth)acrylate characterized in that is it obtained by the copolymerization in an inert solvent of a composition of monomers which comprises:

a) (meth)acrylates having the general formula (I), CH_2=C(R)—$COOR_1$, in a quantity of between 0 and 19% by weight, and wherein R is selected from —H and —CH_3, R_1 is selected from linear or branched, C_1–C_4 alkyl radicals;

b) (meth)acrylates having the general formula (II), CH_2=C(R)—$COOR_2$, in a quantity of between 85 and 98% by weight, wherein R has the above meaning and R_2 is selected from linear or branched alkyl radicals having a number of carbon atoms of between 6 and 25, and mixtures thereof;

c) (meth)acrylates having the general formula (III), CH_2=C(R)—CO—X—R_3, in a quantity of between 1 and 6% by weight, wherein R has the above meaning, —X— is oxygen or —NH— or —NR_4—, wherein R_4 is an alkyl radical having from 1 to 5 carbon atoms, and R_3 is selected from linear, branched or cyclic alkyl radicals having a total number of carbon atoms of between 4 and 20 and a number of tertiary nitrogen atoms of from 1 to 2;

d) (meth)acrylates having the general formula (IV), CH_2=C(R)—$COOR_5$, in a quantity of between 1 and 9% by weight, wherein R has the above meaning and R_5 is selected from linear, branched or cyclic alkyl radicals having a number of carbon atoms of between 2 and 20 and a number of oxygen atoms of the hydroxyl and/or alkoxyl type of between 1 and 2, and mixtures thereof, the term alkoxyl meaning a —OR_6 group, wherein R_6 is a linear or branched C_1–C_4 alkyl radical,

the total percentage of the components from (a) to (d) being equal to 100,

the above composition of polymerizable monomers being further characterized in that the ratio between the equivalents of oxygen of the (meth)acrylates of (d) and the equivalents of nitrogen of the (meth)acrylates of (c) is between 1/1 and 2/1.

5,726,137

LOW SILICONE HAIR CONDITIONING SHAMPOO AND NON-SILICONE HAIR CONDITIONING/STYLE CONTROL SHAMPOO

Amrit Patel, Dayton, and Clarence R. Robbins, Martinsville, both of N.J., assignors to Colgate-Palmolive Company, New York, N.Y.

Continuation of Ser. No. 440,572, May 15, 1995, abandoned, which is a continuation-in-part of Ser. No. 155,251, Nov. 19, 1993, abandoned, which is a continuation-in-part of Ser. No. 984,786, Dec. 3, 1992, Pat. No. 5,346,642, which is a continuation-in-part of Ser. No. 507,335, Apr. 9, 1990, Pat. No. 5,213,716, which is a continuation-in-part of Ser. No. 369,361, Jun. 21, 1989, abandoned, Ser. No. 369,389, Jun. 21, 1989, abandoned, Ser. No. 432,644, Nov. 7, 1989, Pat. No. 5,051,250, and Ser. No. 432,952, Nov. 7, 1989, abandoned.

This application Sep. 27, 1996, Ser. No. 714,928

Int. Cl.[6] C11D *1/94;3/37;1/40;3/43*

U.S. Cl. 510—122 **18 Claims**

1. A hair conditioning shampoo composition comprising, by weight, an aqueous dispersion of:

a) about 1% to about 16% of a water-insoluble lipid phase comprising a long chain aliphatic alcohol having an average of from about 24 to about 50 carbon atoms and from 0 to about 40 ethoxy units;

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b) at least about 0.7% of a water-insoluble, monocationic conditioner compound dissolved in said lipid phase, said monocationic compound being selected from the group consisting of an alkyl amine having a pKa of at least 7.5 selected from the group consisting of distearylamine, distearyl methylamine, behenylamine, behenylmethylamine, behenyldimethylamine, dicetylamine, dicetylmethylamine and tricetylamine;
c) about 3% to about 25% of a water-soluble, anionic, hair cleansing organic surfactant;
d) an amphoteric betaine or sulfobetaine surfactant containing a C_8–C_{18} alkyl or C_8–C_{18} alkanolamido C_2–C_3 alkylene group in its molecular structure, present in said dispersion at a level of at least 0.75 to 1.25 parts by weight per one part by weight of said anionic surfactant;
e) from 0 to about 6% of a water-insoluble, non-volatile silicone hair conditioning agent; and
f) 0.2% to 3% of at least one hair conditioning, water-soluble, film-forming polycationic polymer; the weight ratio of said monocationic conditioner compound to said lipid compound in said lipid phase being in the range of from about 5:1 to about 1:10 and the molar ratio of anionic surfactant to water-insoluble, monocationic compound being in the range of 2:1 to 50:1.

5,726,138

AQUEOUS SOLUTION COMPOSITIONS COMPRISING POLYMER HYDROGEL COMPOSITIONS

Liang Sheng Tsaur, Norwood; Shiji Shen, River Edge, both of N.J.; Margaret Jobling, Bebington, England, and Michael Paul Aronson, West Nyack, N.J., assignors to Lever Brothers Company, Division of Conopco, Inc., New York, N.Y.

Filed Aug. 26, 1996, Ser. No. 703,116
Int. Cl.[6] A61K *7/50*
U.S. Cl. 510—158 **6 Claims**

1. An aqueous composition comprising:
(a) 40–95% by weight aqueous solution having a viscosity greater than 300 centipoises; and
(b) 5% to 60% by wt. of a hydrogel composition comprising:
(i) 0.1 to 30% by wt. hydrogel composition of at least one polymer soluble in water which polymer is insolubilized when placed in the aqueous solution of item (a), wherein said polymer is polyglucosamine;
(ii) 0.2 to 30% by wt. hydrogel composition of a polymer soluble in water, and soluble or dispersible in the aqueous solution of item (a); and
(iii) 1.0 to 60% water insoluble benefit agent entrapped in a network formed by (i) and (ii);
wherein said particles of said benefit agent (iii) have particle size of 0.2 to 200 micrometers;
wherein said hydrogel is greater than 25 micrometers;
and wherein the size of the hydrogel (b) is greater than that of the benefit agent.

5,726,139

GLASS CLEANER COMPOSITIONS HAVING GOOD FILMING/STREAKING CHARACTERISTICS CONTAINING AMINE OXIDE POLYMERS FUNCTIONALITY

Alan David Willey, Cincinnati; Ronald Anthony Masters, Loveland, and Michael Stephen Maile, Maineville, all of Ohio, assignors to The Procter & Gamble Company, Cincinnati, Ohio

Filed Mar. 14, 1996, Ser. No. 615,375
Int. Cl.[6] C11D *1/14*
U.S. Cl. 510—181 **6 Claims**

1. Detergent composition that can clean glass without leaving objectionable levels of spots and/or films consisting essentially of:
(A) from about 0.05% to about 0.5%, by weight of the composition, of PVNO having an average molecular weight of from about 2,000 to about 100,000;
(B) from about 0.5% to about 30%, by weight of the composition, of hydrophobic solvent, having a hydrogen bonding parameter of from about 2 to about 7.7;
(C) from about 0.01% to about 0.3%, by weight of the composition, of a linear alkyl sulfate detergent surfactant having the general formula:

$$R^{11}O—SO_3M$$

wherein M is a suitable counter ion; R^{11} is an alkyl group having a chain length of from about C_8 to about C_{18} or mixtures thereof; wherein more than about 40%, by weight of said surfactant, of said surfactant has a C_{14} chainlength; and
(D) the balance being an aqueous solvent system comprising water and, optionally, non-aqueous polar solvent with only minimal cleaning action selected from the group consisting of methanol, ethanol, isopropanol, ethylene glycol, polypropylene glycol, glycol ethers having a hydrogen bonding parameter of greater than 7.7, and mixtures thereof and any minor ingredients.

5,726,140

WATER-IN-OIL EMULSION HAVING AQUEOUS PHASE EVAPORATION RETARDED WITH WAX

John Distaso, Bensalem, Pa., assignor to Elf Atochem North America, Inc., Philadelphia, Pa.

Continuation of Ser. No. 286,021, Aug. 4, 1994, abandoned, which is a continuation-in-part of Ser. No. 111,812, Aug. 25, 1993, Pat. No. 5,387,363, which is a continuation of Ser. No. 892,458, Jun. 2, 1992, abandoned. This application Sep. 3, 1996, Ser. No. 706,850
Int. Cl.[6] C09D *9/02;* **B05D** *3/02;3/04;* **B32B** *17/08*
U.S. Cl. 510—207 **4 Claims**

1. An alkaline paint stripper formulation with a retarded rate of water evaporation from the water phase, said formulation comprising a water-in-oil emulsion having (a) a water phase comprising water and ammonia and (b) a continuous benzyl alcohol phase comprising benzyl alcohol and a natural or synthetic wax, the wax being slightly in excess of that which would saturate the benzyl alcohol phase.

5,726,141

LOW SUDSING DETERGENT COMPOSITIONS CONTAINING LONG CHAIN AMINE OXIDE AND BRANCHED ALKYL CARBOXYLATES

Kofi Ofosu-Asante, Cincinnati, Ohio, assignor to The Procter & Gamble Company, Cincinnati, Ohio

Continuation of Ser. No. 466,944, Jun. 6, 1995, abandoned, which is a continuation of Ser. No. 187,255, Jan. 25, 1994, abandoned. This application Dec. 20, 1996, Ser. No. 770,887
Int. Cl.[6] C11D *1/83;3/386;10/04*
U.S. Cl. 510—220 **4 Claims**

1. An automatic dishwashing detergent composition consisting essentially of by weight:
(a) from about 0.1% to about 4.0% of a $C_{11\text{-}16}$ secondary soap;
(b) from about 0.5% to about 2% of a $C_{12\text{-}16}$ amine oxide;
(c) from about 0.1% to about 10% nonionic surfactant which does not foam selected from the group consisting of polyethylene, polypropylene, and polybutylene oxide condensates of alkyl phenols, condensation products of aliphatic alcohols with from about 1 to about 25 moles of ethylene oxide, condensation products of ethylene oxide with a hydrophobic base formed by the condensation of propylene oxide with propylene glycol; and mixtures thereof;
(d) from about 2% to about 30% of detergency builder selected from the groups consisting of phosphates, carboxylates, polycarboxylates and mixtures thereof; and
(e) from about 0.01% to about 4% active protease enzyme, active amylase enzyme and mixtures thereof;
wherein said composition has a pH in a 0.1% to 0.4% water solution of between about 8 and about 13.

5,726,142

DETERGENT HAVING IMPROVED PROPERTIES AND METHOD OF PREPARING THE DETERGENT

Terrell L. Partee, Scottsdale; Charles Varker, Phoenix, and Elaine T. Morse, Mesa, all of Ariz., assignors to The Dial Corp, Phoenix, Ariz.

Filed Nov. 17, 1995, Ser. No. 544,434
Int. Cl.[6] C11D *3/10;3/37;11/00*
U.S. Cl. 510—276 **10 Claims**

1. A laundry detergent composition having improved anti-redeposition properties and having a density of about 400 to less than about 900 g/l consisting essentially of:
about 50 to about 95 wt % of a spray dried slurry of a base detergent composition consisting essentially of about 34–50 wt % of an alkali metal carbonate builder as the sole builder, about 1 to 5 wt % sodium polyacrylate having a molecular weight in the range of about 2,000 to about 3,000, about 8 to 35 wt % of an anionic surfactant and optionally an inert diluent selected from the group consisting of alkali metal chloride, sulfate, nitrate and mixtures thereof;
about 5 to 45 wt % of an agglomerated admix formulation consisting essentially of about 13–18 wt % nonionic surfactant and between about 65 and about 85 wt % of sodium carbonate; and
about 0 to about 5 wt % of one or more additives.

5,726,143

ANTI-STATIC DEVICE

Teresa M. Petraia, 1 Barjune Rd., Norwalk, Conn. 06851; Paul R. Purvis, 19 Sleepy Hollow Rd., Ridgefield, Conn. 06877, and William T. Ahlborn, 131 Beard Dr., New Milford, Conn. 06776

Filed Nov. 1, 1996, Ser. No. 742,648
Int. Cl.[6] D06M *10/08*
U.S. Cl. 510—519 **18 Claims**

1. An article for improving anti-static protection of clothing dried in a clothes dryer, comprising:
a substrate;
a layer comprising a first quaternary ammonium anti-static agent, having a first melting point adhered to the substrate; and
a layer comprising a second quaternary ammonium anti-static agent adhered to the layer comprising the first quaternary ammonium anti-static agent having a second melting point lower than the first melting point.

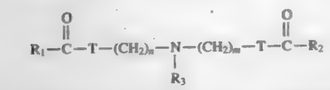
5,726,144

STABLE FABRIC SOFTENER COMPOSITIONS

Jacques Dewez, Battice, Belgium, and Eric Thibert, Herve, Belgium, assignors to Colgate-Palmolive Company, New York, N.Y.

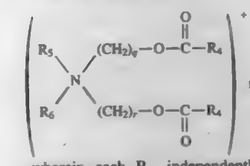
Filed Aug. 30, 1996, Ser. No. 697,799
Int. Cl.[6] D06M *13/46*
U.S. Cl. 510—522 **26 Claims**

1. A fabric softening composition in the form of an aqueous dispersion which is stable in the absence of oily perfume, comprising a mixture of:
(i) from about 3 to about 40% by weight of a fabric softener combination comprising a mixture of (A) and (B) wherein
(A) is an inorganic acid salt of a fabric softening compound of formula (I):



(I)

wherein R_1 and R_2 represent C_{12} to C_{30} aliphatic hydrocarbon groups,
R_3 represents $(CH_2CH_2O)_pH$, CH_3 or H;
T represents O or NH;
n=1 to5,
m=1 to 5, and
p=1 to 10; and
(B) is biodegradable fatty ester quaternary ammonium compound of formula (II):



(II)

wherein each R_4, independently, represent an aliphatic hydrocarbon group having from 8 to 22 carbon atoms, R_5 represents $(CH_2)_s$-R_7 (where R_7 represents an alkoxy carbonyl group containing from 8 to 22 carbon atoms, benzyl, phenyl, (C_1–C_4)-alkyl substituted phenyl, OH or H); R_6 represents $(CH_2)_t$-R_8 (wherein R_8 represents benzyl, phenyl, (C_1–C_4) alkyl substituted phenyl, OH or H); q, r, s and t, each independently represent a number of from 1 to 3; and x is an anion of valence a; and wherein at least about 20% of the hydrocarbon substituent groups present in components (A) and (B) are unsaturated;
(ii) a fatty ester of mono- or polyhydric alcobols having a hydrocarbon chain containing from 1 to about 24 carbon atoms and mono- polycarboxylic acids having a hydrocarbon chain containing from 1 to about 24 carbon atoms provided that the total number of carbon atoms in the ester is equal to or greater than 16 and that at least one of the hydrocarbon radicals in the ester has 12 or more carbon atoms, said fatty ester being present in the composition such that the weight ratio of component (i) to component (ii) is in the range of from about 40:1 to about 5:1; and
(iii) an aqueous carrier including an anti gelling amount of electrolyte whereby in the absence of both an oily perfume and the fatty ester defined in (ii), said fabric softening composition manifests an unstable viscosity whereas in the presence of said fatty ester, the viscosity of said fabric softening composition is stabilized both in the presence of and in the absence of an oily perfume.

5,726,145

COLOR PERFUME CONCENTRATES

Jean Julemont, Verviers, Belgium, and Marianne Mahieu, Ferrieres, Belgium, assignors to Colgate-Palmolive Company, Piscataway, N.J.

Filed Aug. 26, 1996, Ser. No. 703,221
Int. Cl.[6] A61K *7/46*
U.S. Cl. 512—1 **4 Claims**

1. A liquid color/perfume concentrate comprising approximately by weight;
(a) 0.01% to 50% of a polymer bound water soluble nonionic azo dye; and
(b) 50% to 99.99% of a non-water soluble perfume.

5,726,146

NON-STEROIDAL, ANABOLIC DIETARY SUPPLEMENT AND METHOD TO INCREASE LEAN MASS WITHOUT LINKED INCREASE FAT MASS

Anthony L. Almada, Rio Del Mar, and Edward A. Byrd, Pacific Grove, both of Calif., assignors to Natural Supplement Association, Incorporated, Golden, Colo.

Filed Dec. 6, 1994, Ser. No. 349,863
Int. Cl.[6] A61K *38/00;31/70;31/715;31/19*
U.S. Cl. 514—2 **20 Claims**

1. A non-steroidal dietary supplement formulation for increasing lean body mass without increasing body fat mass, said formulation comprising creatine, ribonucleic acid, and taurine in a combined amount sufficient to produce an increase in lean mass in a weight-training individual without a linked increase in fat mass.

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5,726,147

HUMAN MUTANT TISSUE FACTOR COMPOSITIONS USEFUL AS TISSUE FACTOR ANTAGONISTS

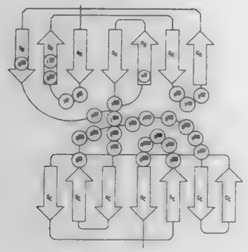
Wolfram Ruf, San Diego, and Thomas S. Edgington, La Jolla, both of Calif., assignors to The Scripps Research Institute, La Jolla, Calif.

PCT No. PCT/US94/06197, § 371 Date Apr. 18, 1995, § 102(e) Date Apr. 18, 1995, PCT Pub. No. WO94/28017, PCT Pub. Date Dec. 8, 1994

Continuation-in-part of Ser. No. 70,154, Jun. 1, 1993, abandoned. This PCT application Jun. 1, 1994, Ser. No. 416,872

Int. Cl.[6] A61K *38/16;* **C07K** *14/745*

U.S. Cl. 514—2 **17 Claims**



1. A mutant human tissue factor protein (mhuTF) having the capacity to bind Factor VII/VIIa and having at least a 40 percent reduced tissue factor procoagulant cofactor activity, wherein said protein comprises the amino acid residue sequence shown in SEQ ID NO 2 from residues 1–218 and includes at least one amino acid residue substitution selected from the group consisting of A16, A17, A39, A40, A42, A44, E44, R44, A67, A104, A105, A106, A131, A136, A145, A146, A147, A198, A199, A200 and A201.

5,726,148

METHOD OF TREATING METABOLIC BONE DISEASES WITH AN IL-1 RECEPTOR

Masakazu Katoh, Hiki-gun, Japan, and Kazuyuki Kitamura, Sakado, Japan, assignors to Hoechst Japan Limited, Tokyo, Japan

Filed Jun. 7, 1995, Ser. No. 487,646

Claims priority, application Japan, Jun. 11, 1994, 6-135275

Int. Cl.[6] A61K *45/05*

U.S. Cl. 514—2 **7 Claims**

1. A method of treating metabolic bone diseases caused by abnormal bone resorption associated with IL-1, comprising administering to a patient in need of such treatment an effective amount of a pharmaceutical composition which comprises as an active ingredient the full length of human IL-1 receptor as identified by SEQ ID NO:1 or the soluble fragment of human IL-1 receptor comprising amino acids 1 to 312 of SEQ ID NO:1.

5,726,149

TREATMENT OF GLOMERULONEPHRITIS WITH DECORIN

Erkki I. Ruoslahti, Rancho Santa Fe, and Yu Yamaguchi, San Diego, both of Calif., assignors to La Jolla Cancer Research Foundation, La Jolla, Calif.

Continuation of Ser. No. 212,702, Jun. 28, 1988, abandoned. This application Jan. 22, 1991, Ser. No. 645,339

Int. Cl.[6] A61K *38/02;38/16;38/39*

U.S. Cl. 514—8 **3 Claims**

1. A method of treating glomerulonephritis in a patient, said method comprising administering decorin to said patient.

5,726,150

Patent Not Issued For This Number

5,726,151

PURIFIED FORM OF STREPTOGRAMINS, ITS PREPARATION AND PHARMACEUTICAL COMPOSITIONS CONTAINING IT

Pascal Anger, Verrières-le-Buisson; Bertrand Bonnavaud, Viroflay; Alain Callet, Orly, and Patrick Lefevre, Vincennes, all of France, assignors to Rhone-Poulenc Rorer S.A., Antony, France

Continuation of Ser. No. 197,984, Feb. 17, 1994, abandoned. This application Jun. 7, 1995, Ser. No. 472,767

Claims priority, application France, Feb. 17, 1993, 93 01787

Int. Cl.[6] A61K *38/12*

U.S. Cl. 514—11 **22 Claims**

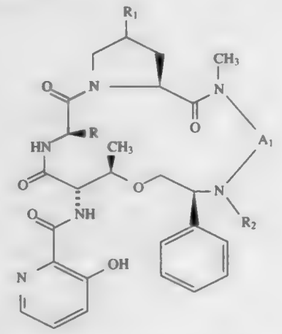
1. An antibiotic product comprising:

at least one Group B streptogramin of the formula (I) and

at least one Group A streptogramin of the formula (II),

wherein said at least one Group B streptogramin of the formula (I) has the formula:

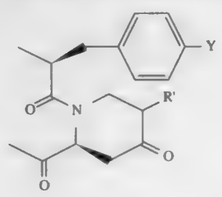
(I)



wherein

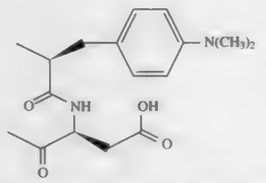
(1) A_1 is a radical of the formula (Ia) or (Ia')

(Ia)



or

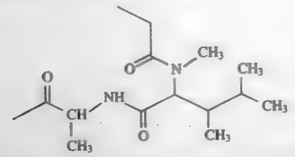
(Ia')



wherein R' is a hydrogen atom or a hydroxyl radical, and Y is a hydrogen atom, a methylamino radical or a dimethylamino radical, and R is an ethyl radical, or when R' represents a hydrogen atom, R can also represent a methyl radical, and R_1 and R_2 each represent a hydrogen atom, or

(2) A_1 is a radical of formula (Ib):

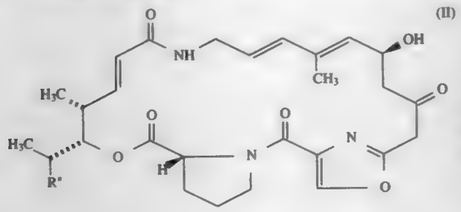
(Ib)



wherein R is an isobutyl radical, and R_1 is a hydroxyl radical and R_2 is a methyl radical;

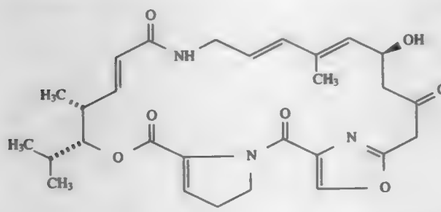
wherein said at least one Group A streptogramin of the formula (II) has the formula:

(II)



wherein R" is a hydrogen atom, a methyl radical or an ethyl radical; and

with the proviso that if Group A streptogramin PIIA of the formula



is present in said product, said PIIA is not the majority component of the Group A streptogramins in said product.

5,726,152

VASCULAR ENDOTHELIAL CELL GROWTH FACTOR II

Marvin L. Bayne, Westfield, N.J.; Gregory L. Conn, Beford Hill, N.Y., and Kenneth A. Thomas, Jr., Chatham Burough, N.J., assignors to Merck & Co., Inc., Rahway, N.J.

Continuation-in-part of Ser. No. 834, Jan. 5, 1993, abandoned, which is a continuation of Ser. No. 586,638, Sep. 21, 1990, abandoned. This application Aug. 31, 1994, Ser. No. 299,185

Int. Cl.[6] A61K *38/18;* **C07K** *14/475*

U.S. Cl. 514—12 **10 Claims**

1. A mammalian vascular endothelial growth factor II, which comprises:

a) an A subunit, wherein said A subunit is selected from the group consisting of a 188 amino acid mature form of an A subunit, wherein said 188 amino acid mature form has the amino acid sequence shown in FIGS. 5 through 5C from Ala 27 to Arg 190 with the substitution of Asn 140 to Lys 140 and the inseftion of the amino acid sequence Lys-Ser-Val-Arg-Gly-Lys-Gly-Lys-Gly-Gln-Lys-Arg-Lys-Arg-Lys-Lys-Ser-Arg-Phe-Lys-Ser-Trp-Ser-Val between Lys 140 and His 141; a164 amino acid mature form of an A subunit, wherein said 164 amino acid mature form has the amino acid sequence shown in FIGS. 5 through 5C from Ala 27 to Arg 190; and a 120 amino acid mature form of an A subunit, wherein said 120 amino acid mature form has the amino acid sequence shown in FIGS. 5 through 5C from Ala 27 to Arg 190 with the conversion of Asn 140 to Lys 140 and the deletion of the amino acid sequence from His 141 to Arg 184; and

b) a B subunit, wherein said B subunit is a 135 amino acid mature form of a B subunit, wherein said 135 amino acid mature form has the amino acid sequence shown in FIGS. 6 through 6B from Ala 24 to Leu 158, and allelic variants thereof; with said growth factor being substantially free of other proteins.

5,726,153

SYNTHETIC PEPTIDES FOR ARTERIAL IMAGING

Robert S. Lees; Ann M. Lees, both of Brookline; Allan Fischman, Boston, all of Mass.; Ing-Lung Shih, Taipei, Taiwan, and Mark A. Findeis, Boston, Mass., assignors to New England Deaconess Hospital Corporation, Boston, Mass.

Division of Ser. No. 469,692, Jun. 6, 1995, abandoned, which is a continuation of Ser. No. 398,046, Feb. 28, 1995, abandoned, which is a continuation of Ser. No. 201,057, Feb. 24, 1994, abandoned, which is a continuation of Ser. No. 48,569, Apr. 6, 1993, abandoned, which is a continuation of Ser. No. 694,929, May 2, 1991, abandoned, which is a continuation-in-part of Ser. No. 518,215, May 3, 1990, abandoned, which is a continuation-in-part of Ser. No. 518,142, May 3, 1990, abandoned, which is a continuation-in-part of Ser. No. 189,130, May 2, 1988, abandoned. This application Jun. 6, 1995, Ser. No. 468,543

Int. Cl.[6] A61K *38/00;38/04;* **C07K** *5/00;7/00*

U.S. Cl. 514—12 **21 Claims**

1. A method for inhibiting the binding of low density lipoprotein to a vascular wall of a subject comprising administering to said subject a therapeutically-effective amount of a synthetic peptide, said peptide characterized in that it:

a) contains thirty or fewer amino acids;

b) is water soluble;

c) contains an amphiphilic domain;. and

d) has an affinity for, and a propensity to accumulate at, a site of vascular injury.

5,726,154

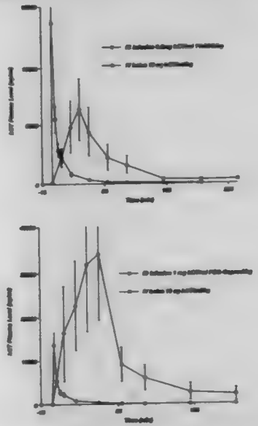
STABILIZATION AND ORAL DELIVERY OF CALCITONIN

Miroslav Baudys, and Sung Wan Kim, both of Salt Lake City, Utah, assignors to University of Utah Research Foundation, Salt Lake City, Utah

Filed Jun. 28, 1996, Ser. No. 671,870

Int. Cl.[6] A61K *38/00;38/02;38/30;* **C07K** *5/00*

U.S. Cl. 514—12 **25 Claims**



1. A human-calcitonin-containing liquid composition for stable storage of human calcitonin for at least about 6 months at about

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4°–25° C. and for intestinal delivery of human calcitonin comprising a selected concentration of human calcitonin dissolved in a liquid medium selected from the group consisting of (a) an aqueous mixture of an effective amount of SDS and an effective amount of an organic acid; and (b) about 90–100% by volume of a mixture of C_8/C_{10} mono- and di-glycerides and about 0–10% by volume of a polar, nonaqueous solvent.

5,726,155

REGULATION OF OXIDATIVE BURST USING LMWG-DERIVED PEPTIDES AND ANALOGS

Gary M. Bokoch, Encinitas, and John T. Curnutte, Hillsborough, both of Calif., assignors to The Scripps Research Institute, La Jolla, Calif.

Continuation-in-part of Ser. No. 102,944, Aug. 2, 1993, abandoned. This application Nov. 15, 1993, Ser. No. 156,552

Int. Cl.[6] A61K *38/00; C07K 5/00;7/00;17/00*

U.S. Cl. 514—13 **3 Claims**

1. A non-toxic peptide that inhibits superoxide production in phagocytic cells, wherein said peptide

(a) displays oxidase-inhibitory activity;

(b) is about 6 to about 20 amino acid residues in length; and

(c) has an amino acid residue sequence corresponding to that of ICS4 (SEQ ID NO 6) or a fragment thereof.

5,726,156

CYTOKINE REGULATORY AGENTS AND METHODS OF USE IN PATHOLOGIES AND CONDITIONS ASSOCIATED WITH ALTERED CYTOKINE LEVELS

Beverly E. Girten; Ali Andalibi; Amaresh Basu, all of San Diego; Patrick Fagan, Escondido; Richard A. Houghten, Del Mar; Costas C. Loulis, Cardiff; Paul Omholt, San Diego; Ronald R. Tuttle, Escondido; Mark J. Suto, San Diego, all of Calif., and Patricia A. Weber, Stevensville, Mont., assignors to Trega Biosciences, Inc., San Diego, Calif.

Continuation-in-part of Ser. No. 484,262, Jun. 7, 1995, abandoned, which is a continuation-in-part of Ser. No. 400,983, Mar. 6, 1995. This application Sep. 12, 1995, Ser. No. 527,056

Int. Cl.[6] A61K *38/00*

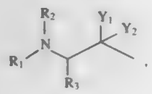
U.S. Cl. 514—16 **31 Claims**

1. A method of enhancing cytokine activity in a subject having a condition characterized by altered or aberrant cytokine activity, comprising administering to the subject an effective amount of a cytokine regulatory agent, comprising

X_1-X_2-His-(D)Phe-Arg-(D)Trp-X_3,

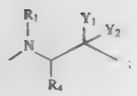
wherein

X_1 is



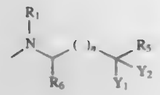
H or $COCH_3$;

X_2 is



and

X_3 is



or R_5;

wherein Y_1 and Y_2 are independently a hydrogen atom, or are taken together to form a carbonyl or thiocarbonyl;

R_1 is H, $COCH_3$, C_2H_5, CH_2Ph, COPh, $COOCH_2Ph$, COO-t-butyl, CH_2CO-(polyethylene glycol) or A;

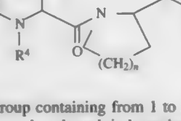
R_2 is H or $COCH_3$;

R_3 is a linear or branched alkyl group having 1 to 6 carbon atoms or a cyclic alkyl group having 3 to 6 carbon atoms;

R_4 is $(CH_2)_m$-$CONH_2$, $(CH_2)_m$-$CONHR_1$ or $(CH_2)_m$-CONHA;

R_5 is OH, OR_3, NH_2, SH, $NHCH_3$, $NHCH_2Ph$ or A; and R_6 is H or R_3;

and wherein "Ph" is C_6H_5, "m" is 1, 2 or 3, "n" is 0, 1, 2 or 3, and "A" is a carbohydrate having the general formula:



5,726,157

Patent Not Issued For This Number

5,726,158

PEPTIDE DERIVATIVES

Philip Duke Edwards, Claymont; John Anthony Schwartz; Mark Morris Stein, both of Wilmington, all of Del.; Diane Amy Trainor, Glen Mills, Pa., and Richard Alan Wildonger, Newark, Del., assignors to Zeneca Inc., Wilmington, Del.

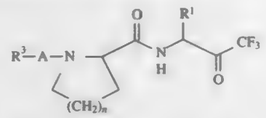
Continuation of Ser. No. 482,617, Feb. 21, 1990, abandoned, which is a division of Ser. No. 5,538, Jan. 20, 1987, Pat. No. 4,910,190, which is a continuation-in-part of Ser. No. 821,150, Jan. 21, 1986, abandoned. This application Jun. 6, 1995, Ser. No. 467,333

Claims priority, application United Kingdom, Jan. 22, 1985, 8501522; Jan. 22, 1985, 8501523; Jan. 22, 1985, 8501524

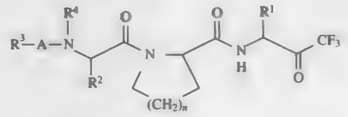
Int. Cl.[6] A61K *38/06;38/07*

U.S. Cl. 514—19 **12 Claims**

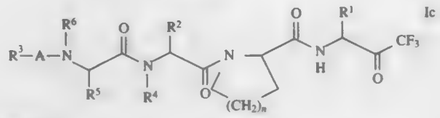
1. A compound of formula Ia, Ib or Ic:



Ia



Ib



Ic

wherein

R^1 is an alkyl group containing from 1 to 5 carbon atoms;

R^2 and R^5 are each selected independently from the group consisting of:

(I) an alkyl group containing from 1 to 10 carbons;

(II) an alkyl group containing from 1 to 6 carbon atoms substituted by at least one member selected from the group consisting of:

(q) aralkoxycarbonyl wherein the aralkoxy group contains from 7 to 13 carbons;

(w) arylsulfonamido wherein the aryl group contains 6, 10 or 12 carbons;

(x) acylsulfonamido containing 1 to 15 carbons, provided that when the acylsulfonamide contains an aryl the aryl may be further substituted by a member selected from fluoro, chloro, bromo, iodo and nitro;

(z) aralkoxycarbonylamino containing from 8 to 13 carbons;

(cc) aryl containing 6, 10 or 12 carbons;

(III) an aryl group of 6 carbons;

R^3 is selected from the group consisting of:

(I) an alkyl group containing from 1 to 12 carbons;

(II) an alkyl group containing from 1 to 12 carbons and from 1 to 4 hetero atoms each of which is selected independently from the group consisting of nitrogen and oxygen;

(III) an alkyl group containing from 1 to 12 carbons, and substituted on carbon by 1 to 3 members selected independently from the group consisting of:

(k) arylcarbonylamino wherein the aryl group contains 6, 10 or 12 carbons;

(l) aralkylcarbonylamino wherein the aralkyl group contains from 7 to 13 carbons;

(n) aralkylaminocarbonyl wherein the aralkyl group contains from 7 to 13 carbons;

(o) carboxy;

(w) arylsulfonamido wherein the aryl group contains 6, 10 or 12 carbons;

(x) acylsulfonamido containing 1 to 15 carbons provided that when the acylsulfonamido contains an aryl the aryl may be further substituted by a member selected from fluoro, chloro, bromo, iodo and nitro;

(y) alkoxycarbonyl wherein the alkoxy group contains from 1 to 6 carbons;

(z) aralkoxycarbonylamino containing from 8 to 13 carbons;

(z)-(2) aryloxy wherein the aryl contains 6, 10 or 12 carbons;

(z)-(3) aryloxy wherein the aryl contains 6, 10 or 12 carbons and is substituted by a member selected from aminocarbonyl, aminocarbonylalkyl where the alkyl has 1 to 3 carbons, alkoxycarbonyl having 2 to 4 carbons, and carboxy;

(bb) alkoxycarbonylamino wherein the alkyloxy group contains from 1 to 6 carbons;

(bb)-(1) alkoxycarbonylamino wherein the alkoxy group contains 1 to 6 carbons and is bonded on carbon to a carbon of an aromatic heterocyclic group as described in (gg) under R^3;

(bb)-(3) aryloxyalkylcarbonylamino wherein the aryl contains 6 or 10 carbons and the alkyl has 1 to 6 carbons;

(cc) aryl containing 6, 10 or 12 carbons;

(dd) aryl containing 6, 10 or 12 carbons and substituted by 1 to 3 members independently selected from the group consisting of chloro, bromo, iodo, fluoro, hydroxy, trifluoromethyl, alkyl containing 1 to 6 carbons, alkoxy containing 1 to 6 carbons, alkoxycarbonyl containing 2 to 6 carbons, carboxy, aminocarbonylalkyl containing 2 to 6 carbons, aminocarbonyl, 5-tetrazolo, and acylsulfonamido containing 1 to 15 carbons, and provided that when the acylsulfonamido contains an aryl the aryl may be further substituted by a member selected from fluoro, chloro, bromo, iodo and nitro;

(ee) cycloalkyl containing from 3 to 15 carbons;

(ff) an aliphatic heterocyclic group of at least 4 atoms containing from 1 to 5 carbons and from 1 to 4 hetero atoms each of which is selected independently from the group consisting of nitrogen and oxygen,

(ff)-(1) an aliphatic heterocyclic oxy group wherein the oxy link is bonded directly to a carbon atom of the aliphatic heterocyclic group of at least 5 atoms containing from 1 to 5 carbons and from 1 to 4 hetero atoms each of which is selected independently from the group consisting of nitrogen and oxygen,

(gg) an aromatic heterocyclic group of from 1 to 15 carbons and from 1 to 4 heteroatoms each of which is selected independently from the group consisting of sulfur, nitrogen and oxygen and which form 1 to 3 five or six-membered rings at least one of which is aromatic, and optionally, wherein up to 3 carbons of the aromatic ring or rings may be substituted with a member of the group consisting of fluoro, chloro, bromo, iodo, trifluoromethyl, alkyl containing from 1 to 6 carbons, alkoxy containing from 1 to 6 carbons, alkanoyl containing from 2 to 6 carbons, carboxy, aminocarbonylalkyl containing from 2 to 6 carbons and aminocarbonyl, and provided further that any nitrogen atom may be substituted by an alkyl group containing from 1 to 6 carbon atoms;

(jj) arylureido wherein the aryl group contains 6, 10 or 12 carbons;

(jj)-(1) arylureido wherein the aryl group contains 6, 10 or 12 carbons and is substituted by 1 to 3 members selected independently from the group consisting of chloro, bromo, iodo, fluoro, hydroxy, trifluoromethyl, alkyl containing from 1 to 6 carbons, alkoxy containing from 1 to 6 carbons, alkoxycarbonyl containing from 2 to 6 carbons, carboxy, aminocarbonylakyl containing from 2 to 6 carbons, aminocarbonyl, 5-tetrazolo, and acylsulfonamido containing from 1 to 15 carbons provided that when the acylsulfonamido contains an aryl the aryl may be further substituted by a member selected from fluoro, chloro, bromo, iodo and nitro;

(IV) an aryl group containing 6, 10 or 12 carbons;

(V) an aryl group containing 6, 10 or 12 carbons substituted by 1 to 3 members selected independently from the group consisting of fluoro, chloro, bromo, iodo, trifluoromethyl, hydroxy, alkyl containing from 1 to 6 carbons, alkoxy containing from 1 to 6 carbons, alkoxycarbonyl containing from 2 to 6 carbons, carboxy, alkylcarbonylamino wherein the alkyl group contains 1 to 6 carbons, 5-tetrazolo, and acylsulfonamido containing from 1 to 15 carbons, and provided that when the acylsulfonamido contains an aryl the aryl may be further substituted by a member selected from fluoro, chloro, bromo, iodo and nitro; or an aryl group containing 6 carbons and substituted by one chloro and one amino;

(VI) a cycloalkyl group containing from 3 to 15 carbons;

(VI)-(1) a cycloalkyl group containing from 3 to 15 carbons, substituted by a member selected from the group consisting of carboxy and alkoxycarbonyl wherein the alkoxy group contains 1 to 4 carbons;

(X) an alkenyl group of 2 to 10 carbons, having at least one double bond and substituted by a member selected from the group consisting of

(a) aryl of 6 or 10 carbons;

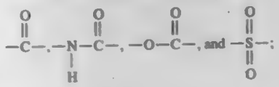
(b) aryl of 6 or 10 carbons substituted by 1 to 3 members selected independently from the group consisting of chloro, bromo, iodo, fluoro, hydroxy, trifluoromethyl, alkyl containing from 1 to 6 carbons, alkoxy containing from 1 to 6 carbons, alkoxycarbonyl containing from 2 to 6 carbons, carboxy, 5-tetrazolo, and acylsulfonamido containing from 1 to 15 carbons and provided that when the acylsulfonamido contains an aryl the aryl may be further substituted by a member selected from fluoro, chloro, bromo, iodo and nitro; and

(c) ureidocarbonyl;

R^4 and R^6 are each hydrogen;

n is 1; and

A is selected from the group consisting of



or hydrate thereof;

or acid- or base-addition salt thereof;

provided that:

(1) alkyls may be straight or branched chain;

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(2) no carbon of an alkyl may be directly bonded to two heteroatoms;
(3) no heteroatom may be directly bonded to a sulfur, nitrogen or oxygen; and
(4) alkenyl of X for R^3 may not be 1,1-disubstituted, and a carbon of a double bond may not be directly bonded to an oxygen or nitrogen.

5,726,159

ANTITHROMBOTIC AGENTS

Aaron L. Schacht, Indianapolis; Robert T. Shuman, Greenwood; Gerald F. Smith, and Michael R. Wiley, both of Indianapolis, all of Ind., assignors to Eli Lilly and Company, Indianapolis, Ind.

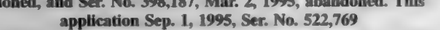
Continuation-in-part of Ser. No. 206,553, Mar. 4, 1994, abandoned, and Ser. No. 398,187, Mar. 2, 1995, abandoned. This application Sep. 1, 1995, Ser. No. 522,769

Claims priority, application South Africa, Feb. 27, 1995, 95/1617

Int. Cl.[6] **A61K** *38/00;* **C07D** *223/16;205/08;239/02;211/26;211/34;* **C07F** *9/06;9/28*

U.S. Cl. 514—19 **42 Claims**

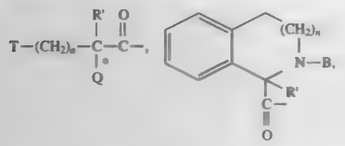
1. A compound having the Formula I

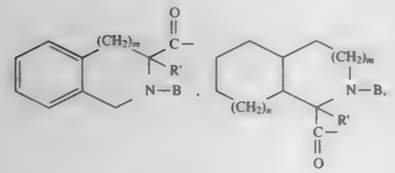


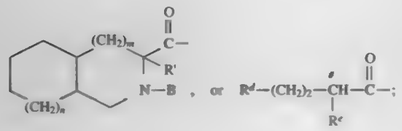
I

wherein

X is prolinyl, homoprolinyl, R^m—$(CH_2)_g$—NH—CH_2—C(O)—,







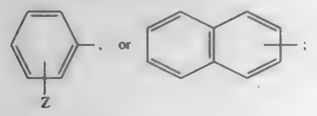
in which

R^d is carboxy or methylsulfonyl;

R^e is NHR^c, $NHCOR^c$ or $NHCOOR^c$; in which

R^c is C_1–C_{10} alkyl, C_3–C_8 cycloalkyl or a (C_3–C_8) cycloalkyl (C_1–C_6) alkyl radical of 4–10 carbons;

T is C_3–C_8 cycloalkyl, C_1–C_8 alkyl,



a is 0, 1 or 2; and

Q is —OH, C_1–C_4 alkoxy, or —NH—A;

A is hydrogen, C_1–C_4 alkyl, R^nSO_2—, $R^nOC(O)$—, $R^nC(O)$—, $R^nC(O)$— or —$(CH_2)_g$—R^m;

g is 1, 2, or 3;

B is hydrogen or C_1–C_4 alkyl;

R' is hydrogen or C_1–C_4 alkyl;

R^n is C_1–C_4 alkyl, C_1–C_4 perfluoroalkyl, —$(CH_2)_g$—R^m, or unsubstituted or substituted aryl, where aryl is phenyl, naphthyl, a 5- or 6-membered unsubstituted or substituted aromatic heterocyclic ring, having one or two heteroatoms which are the same or different and which are selected from sulfur, oxygen and nitrogen, or a 9- or 10-membered unsubstituted or substituted fused bicyclic aromatic heterocyclic group having one or two heteroatoms which are the same or different and which are selected from sulfur, oxygen and nitrogen;

R^m is —$COOR^b$, —SO_2(C_1–C_4 alkyl), —SO_3H, —$P(O)(OR^b)_2$ or tetrazol-5-yl;

R^n is —$COOR^b$ or tetrazol-5-yl;

each R^b is independently hydrogen or C_1–C_4 alkyl;

d is 1, 2, or 3;

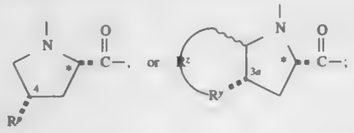
m is 0, 1, or 2;

n is 0, 1, or 2; and

Z is hydrogen, C_1–C_4 alkyl, C_1–C_4 alkoxy, hydroxy, halo or R_aSO_2NH—, where R_a is C_1–C_4 alkyl;

Y is





in which

R^g is C_1–C_6 alkyl, C_3–C_8 cycloalkyl, or —$(CH_2)_p$—L—$(CH_2)_q$—T';

R^p is hydrogen, C_1–C_6 alkyl, C_3–C_8 cycloalkyl, or —$(CH_2)_p$—L—$(CH_2)_q$—T';

where p is 0, 1, 2, 3, or 4; L is a bond, —O—, —S—, or —NH—; q is 0, 1, 2 or 3; and T' is hydrogen, C_1–C_4 alkyl, C_3–C_8 cycloalkyl, —COOH, —$CONH_2$, or Ar, where Ar is unsubstituted or substituted aryl, where aryl is phenyl, naphthyl, a 5- or 6-membered unsubstituted or substituted aromatic heterocyclic ring, having one or two heteroatoms which are the same or different and which are selected from sulfur, oxygen and nitrogen, or a 9- or 10-membered unsubstituted or substituted fused bicyclic aromatic heterocyclic group having one or two heteroatoms which are the same or different and which are selected from sulfur, oxygen and nitrogen;

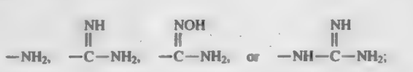
R^y is —CH_2—, —O—, —S—, or —NH—; and

R^z is a bond or, when taken with R^y and the three adjoining carbon atoms, forms a saturated carbocyclic ring of 5–8 atoms, one atom of which may be —O—, —S—, or —NH—;

r is 1, 2 or 3; and

G is —$(CH_2)_s$—R, where s is 0–5, —CH=CH—$(CH_2)_t$—R, where t is 0–3; and

R is

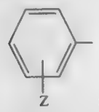


or a pharmaceutically acceptable salt thereof; or a pharmaceutically acceptable solvate of said compound or salt thereof;

provided that A is not hydrogen, C_1–C_4 alkyl, $R^nC(O)$— when R^n is —$COOR^b$, —$(CH_2)_g$—R^m where R^m is $COOR^b$ or t-butyloxycarbonyl when R is —$C(NH)NH_2$ or —NH—$C(NH)NH_2$, Y is

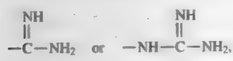


or unsubstituted prolinyl (R^p is hydrogen), and T is



and provided further that R is not amino or guanidino when r=1 and s=0;

and provided further that A is not hydrogen, C_1–C_4 alkyl, methylsulfonyl, $R^nC(O)$— where R^n is —$COOR^b$ or —$(CH_2)_g$—R^m when G is —$(CH_2)_s$—R in which R is

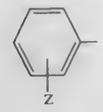


Y is



unsubstituted prolinyl (R^p is hydrogen) or 4-hydroxyprolinyl (R^p is OH), R' is hydrogen, T is cyclohexyl and Q is —NH—A;

and further provided that A is not hydrogen, C_1–C_4 alkyl, R^nSO_2— (where R^n is C_1–C_4 alkyl), $R^nC(O)$— (where R^n is —$COOR^b$) or —$(CH_2)_g$—R^m (where R^m is —$COOR^b$) when T is cyclohexyl or

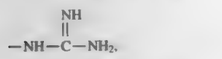


Y is



or unsubstituted prolinyl (R^p is hydrogen), and R is —$C(NH)NH_2$ or —NH—$C(NH)NH_2$;

and provided further that R^nSO_2 is not arylsulfonyl when G is —$(CH_2)_s$—R in which R is



Y is unsubstituted prolinyl (R^p is hydrogen) or 4-methylthioprolinyl (R^p is —SCH_3), and Q is —NH—A.

5,726,160

METHODS FOR TREATING RESPIRATORY DISEASE

John McMichael, Delanson, N.Y., assignor to Milkhaus Laboratories, Inc., Delanson, N.Y.

Continuation of Ser. No. 421,232, Apr. 13, 1995, abandoned. This application Nov. 22, 1996, Ser. No. 755,092

Int. Cl.[6] **A01N** *43/04;* **A61K** *31/70*

U.S. Cl. 514—44 **7 Claims**

1. A method for relieving respiratory congestion in a patient, comprising the step of administering sublingually and in a manner so as not to effect gene transfer and expression, a therapeutically effective amount of DNA in a pharmaceutically acceptable vehicle to a patient having a disease characterized by respiratory congestion, wherein said respiratory congestion is a result of an overproduction of viscous mucus or sputum lodged in said patient's respiratory tract, and wherein said method results in the reduced viscosity of said mucus or said sputum such that there is an increase of production and a reduced accumulation of mucus in said patient's respiratory tract.

5,726,161

POROUS PARTICLE AGGREGATE AND METHOD THEREFOR

Roy L. Whistler, West Lafayette, Ind., assignor to Fuisz Technologies Ltd., Chantilly, Va.

PCT No. PCT/US95/00707, § 371 Date Jul. 12, 1996, § 102(e) Date Jul. 12, 1996, PCT Pub. No. WO95/19376, PCT Pub. Date Jul. 20, 1995

Continuation-in-part of Ser. No. 182,442, Jan. 14, 1994, Pat. No. 5,486,507. This PCT application Jan. 17, 1995, Ser. No. 416,741

Int. Cl.[6] **A61K** *31/715;* **A01N** *43/04;* **C08B** *30/00;* **C07H** *1/00*

U.S. Cl. 514—54 **6 Claims**

1. A composition comprising substantially spherical porous aggregates of starch granules bound together with a binder at least at their points of contact in said aggregates, the surface of said aggregated starch granules cooperating to define an intraaggregate reticulate volume which releasably contains therein a functional substance selected from the group consisting of: salad oils, flavors, insect repellants, insecticides, herbicides, perfumes, moisturizers, soaps, antiperspirants, waxes, body creams and lotions, fertilizers, minerals, vitamins, bacteriostats and therapeutic drug substances.

5,726,162

DIHYDROPYRIDAZINONES, PYRIDAZINONES AND RELATED COMPOUNDS AS FUNGICIDES

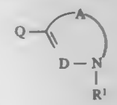
Enrique Luis Michelotti; Anne Ritchie Egan, both of Fort Washington; Ronald Ross, Jr., Jamison, and Willie Joe Wilson, Chalfont, all of Pa., assignors to Rohm and Haas Company, Philadelphia, Pa.

Division of Ser. No. 467,384, Jun. 6, 1995, Pat. No. 5,631,254, which is a division of Ser. No. 221,229, Mar. 31, 1994, Pat. No. 5,552,409, which is a continuation of Ser. No. 749,576, Aug. 28, 1991, abandoned, which is a continuation-in-part of Ser. No. 586,633, Sep. 21, 1990, abandoned. This application Oct. 30, 1996, Ser. No. 741,248

Int. Cl.[6] **C07D** *237/04;295/03;* **A61K** *31/50*

U.S. Cl. 514—63 **8 Claims**

1. A compound of the formula

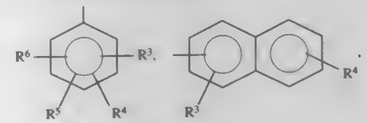


wherein

A is —$(CHR^2)_z$—CHR^7—Z—;
—CR^2=CR^7—Z; or
—CHR^2—CR^7=Y—;

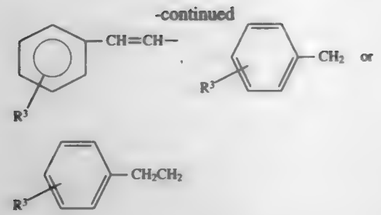
D is CR^2;

Q is an aromatic group selected from



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-continued



Z is carbonyl (C=O), or thiocarbonyl (C=S);

Y is carbon substituted by halo, alkoxy, alkynylthio or triazolyl; wherein

(i) R^1 is alkynyl, haloalkynyl, phenylalkynyl, heterocyclyl, dialkynyl, heterocyclylalkynyl, cycloalkylalkynyl, alkenylalkynyl, hydroxyalkynyl, alkoxyalkynyl, alkanoyloxyalkynyl, formylalkynyl, trialkylsilylalkynyl, trialkyltinalkynyl, haloalkenylalkynyl, carboxyalkynyl, or alkoxycarbonylalkynyl;

R^2 is hydrogen, (C_1–C_3)alkyl, or halogen;

R^7 is hydrogen, (C_1–C_6)alkyl, halogen, alkynylalkenyl, alkynyl, dialkynyl, haloalkynyl, or alkenylalkynyl;

R^3 and R^6 are independently hydrogen, alkoxy or halogen;

R^4 is hydrogen, halogen, alkoxy or nitro; and

R^5 is hydrogen, halogen, nitro, alkyl, alkoxy, alkylthio, haloalkyl, haloalkoxy, haloalkylthio, phenyl, phenoxy or cyano; or

(ii) R^2 and R^7 together form a fused phenyl ring and R^1, R^3, R^4, R^5 or R^6 are as above;

n is 1; and agronomically acceptable salts thereof.

5,726,163

DERMATOLOGIC COMPOSITION

Takako Fujii; Kazuo Hasegawa; Shigeo Tanaka, and Fumio Urushizaki, all of Tokyo, Japan, assignors to Taisho Pharmaceutical Co., Ltd., Tokyo, Japan

PCT No. PCT/JP95/00045, § 371 Date Jul. 17, 1996, § 102(e) Date Jul. 17, 1996, PCT Pub. No. WO95/19762, PCT Pub. Date Jul. 27, 1995

PCT Filed Jan. 19, 1995, Ser. No. 676,253

Claims priority, application Japan, Jan. 19, 1994, 6-4255

Int. Cl.[6] A61K *31/685;31/66;31/575;31/045*

U.S. Cl. 514—78 **1 Claim**

1. A dermatologic composition which comprises a hydrogenated phospholipid having an iodine value of 10 or less and a phosphatidylcholine content of 90% or more, a cholesterol, a diol having a molecular weight of 430 or less and an oily ingredient, in which the hydrogenated phospholipid and the cholesterol are mixed at a ratio of from 1:0.01 to 1:50, the hydrogenated phospholipid and the oily ingredient are mixed at a ratio of from 1:1 to 1:100, and the hydrogenated phospholipid is added in an amount of from 0.01 wt % to 30 wt % based on the total amount of the composition.

5,726,164

NANOSUSPENSIONS FOR INTRAVENOUS ADMINISTRATION

Hans Georg Weder, Rüschlikon, and Peter van Hoogevest, Riehen, both of Switzerland, assignors to Novartis Corporation, Summit, N.J.

Filed Mar. 20, 1996, Ser. No. 619,068

Claims priority, application Switzerland, Mar. 21, 1995, 00804/95

Int. Cl.[6] A61K *31/35;31/55;31/40*

U.S. Cl. 514—80 **11 Claims**

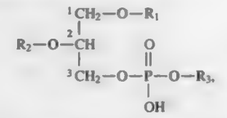
1. A pharmaceutical composition for the intravenous administration of a staurosporin derivative comprising:

a) a staurosporin derivative which is sparingly soluble in water;

b) a polyoxyethylene/polyoxypropylene block copolymer;

c) ethanol and water as carrier liquids in the degree of purity prescribed for intravenous administration; and optionally

d) a phospholipid of the formula



(I)

wherein R_1 is C_{10-20}acyl; R_2 is hydrogen or C_{10-20}acyl; R_3 is hydrogen, 2-trimethylamino-1 -ethyl, 2-amino-1-ethyl, C_{1-4}alkyl, C_{1-5}alkyl substituted by carboxy, C_{2-5}alkyl substituted by hydroxy, C_{2-5}alkyl substituted by carboxy and hydroxy, C_{2-5}alkyl substituted by carboxy and amino, or an inositol or a glyceryl group, or a salt of such a compound; and/or

e) water-soluble excipients suitable for injections.

5,726,165

DERIVATIVES OF 4-(2-AMINOETHYL)PHENOXYMETHYL-PHOSPHONIC AND -PHOSPHINIC ACID AND PHARMACEUTICAL AND VETERINARY USES THEREFOR

Lee James Beeley, Dorking; Mervyn Thompson, Harlow; David Kenneth Dean, Dorking; Nikesh Rasiklal Kotecha, Welwyn Garden City; John Michael Berge, Merstham, and Robert William Ward, Great Dunmow, all of England, assignors to SmithKline Beecham p.l.c., Brentford, England

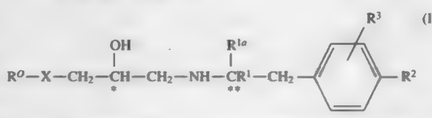
Filed Jun. 5, 1995, Ser. No. 465,486

Claims priority, application United Kingdom, Jul. 29, 1994, 9415304; Nov. 17, 1994, 9423179

Int. Cl.[6] A61K *31/665;31/66;* **C07F** *9/665;9/40*

U.S. Cl. 514—114 **17 Claims**

1. A compound of formula (I):



(I)

or a pharmaceutically acceptable salt thereof, or a pharmaceutically acceptable solvate thereof,

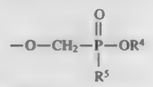
wherein,

R^o represents an aryl group optionally substituted with one, two or three substituents selected from the list consisting of: hydroxy, hydroxymethyl, nitro, amino, alkylamino, dialkylamino, alkylsulphonamido, arylsulphonamido, formamido, halogen, alkoxy and allyl;

X represents O or S;

R^1 and R^{1a} each independently represents hydrogen or an alkyl group;

R^2 represents a moiety of formula (b):



(b)

wherein R^4 represent hydrogen, alkyl, hydroxyalkyl, arylalkyl, aralkyloxyalkyl or cycloalkyl and R^5 represent hydroxy, alkoxy, arylalkyloxy, hydroxyalkyloxy, alkoxyalkyloxy, arylalkoxyalkyloxy or cycloalkyloxy or R^5 represents hydrogen,

alkyl, substituted alkyl, cycloalkyl, aryl, arylalkyl, arylalkyloxyalkyl or R^5 together with OR^4 represents $O(CH_2)_nO$ wherein n is 2, 3 or 4; and

R^3 represents hydrogen, halogen, alkyl or alkoxy.

5,726,166

MALARIA TREATMENTS

John Hugh Lyon Playfair; Janice Taverne, both of London, and Clive Alan Winston Bate, Oxford, all of United Kingdom, assignors to British Technology Group Limited, London, United Kingdom

PCT No. PCT/GB93/00084, § 371 Date Dec. 5, 1994, § 102(e) Date Dec. 5, 1994, PCT Pub. No. WO93/15761, PCT Pub. Date Aug. 19, 1993

PCT Filed Jan. 15, 1993, Ser. No. 290,706

Claims priority, application United Kingdom, Feb. 13, 1992, 9203039

Int. Cl.[6] A61K *31/66;35/12;31/04*

U.S. Cl. 514—129 **6 Claims**

1. A method of treating or preventing clinical manifestations of malaria, caused by infectious plasmodial organisms which express antigens which in the patient stimulate secretion of harmful levels of at least one cytokine, but which do not stimulate secretion of cytokines only by expression of lipopolysaccharide, which method comprises administering to a human in need thereof an effective non-toxic amount of an immunogen, wherein said immunogen is a pharmacologically acceptable material comprising inositol monophosphate or a phosphatidyl inositol, which immunogen stimulates production of antibodies which, in vitro, reduce or abolish secretion, by at least one of human monocytes and mouse peritoneal macrophages, of tumour necrosis factor following stimulation with a phospholipid-containing tumour necrosis factor-inducting antigen other than lipopolysaccharide.

5,726,167

INHIBITION OF PHOSPHATIDYLINOSITOL 3-KINASE WITH VIRIDIN, DEMETHOXYVIRIDIN, VIRIDIOL, DEMETHOXYVIRIDIOL, VIRONE, WORTMANNOLONE, AND ANALOGS THEREOF

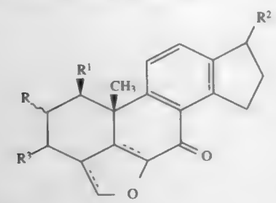
Jeffrey A. Dodge, Indianapolis; Masahiko Sato, and Chris J. Vlahos, both of Carmel, all of Ind., assignors to Eli Lilly and Company, Indianapolis, Ind.

Continuation of Ser. No. 134,337, Oct. 12, 1993. This application Feb. 25, 1997, Ser. No. 805,704

Int. Cl.[6] A61K *31/34*

U.S. Cl. 514—172 **29 Claims**

1. A method of inhibiting phosphatidylinositol 3-kinase in a lysed or whole cell comprising contacting said lysed or whole cell with a compound of formula I, II or III



I

wherein

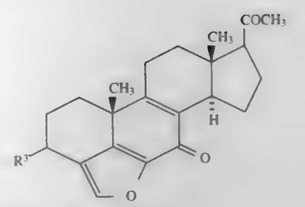
R is H or methoxy;

R^1 is CH_3, OH, OAc, C_1–C_4 alkoxy or methanesulfonate;

R^2 is —OH, —OAc, =O, or —O(C_1–C_4 alkyl); and

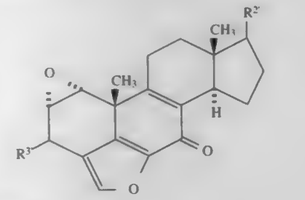
R^3 is —OH, —OAc, =O, or —O(C_1–C_4 alkyl),

providing no more than two of R^1, R^2, and R^3 can be OAc at the same time;



II

wherein $R^{3'}$ is =O or —OH; or



III

wherein

$R^{2'}$ is =O or —OH; and

$R^{3'}$ is as defined above.

5,726,168

LIPOPHILIC BENZOTHIOPHENES

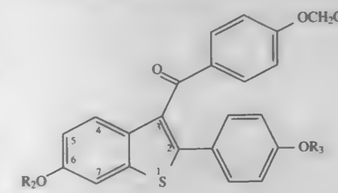
George Joseph Cullinan, Trafalgar, and Raymond Francis Kauffman, Carmel, both of Ind., assignors to Eli Lilly and Company, Indianapolis, Ind.

Filed Sep. 4, 1996, Ser. No. 707,680

Int. Cl.[6] A61K *31/56;31/44;31/445;* **C07D** *333/52*

U.S. Cl. 514—176 **13 Claims**

1. A compound of the formula (I):



(I)

wherein

R_1 is N-pyrrolidinyl or N-piperidinyl;

R_2 and R_3 are independently hydrogen, —CO—(C_{10}–C_{22} alkyl), —CO—(C_{10}–C_{22} branched alkyl), —CO—(C_{10}–C_{22} alkenyl), —CO—(C_{10}–C_{22} polyalkenyl), —CO—(C_{10}–C_{22} alkynyl), or —CO—$(CH_2)_mCOR_4$; provided that when R_1 is N-piperidinyl, neither R_2 or R_3 is —CO—(C_{10}–C_{15} alkyl) or —CO—(C_{10}–C_{15} branched alkyl); and provided one of R_2 or R_3 is not hydrogen;

R_4 is -3-cholesteryl or —$O(CH_2)_2(OR_5)CH_2OR_6$;

R_5 and R_6 are independently hydrogen, —CO—(C_{10}–C_{22} alkyl), —CO—(C_{10}–C_{22} branched alkyl), —CO—(C_{10}–C_{22} alkenyl), —CO—(C_{10}–C_{22} polyalkenyl), or —CO—(C_{10}–C_{22} alkynyl); provided one of R_5 or R_6 is not hydrogen;

n is 0–4; and pharmaceutically acceptable salts and solvates thereof.

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5,726,169

CHLOROPHYLL AND BACTERIOCHLOROPHYLL DERIVATIVES, THEIR PREPARATION AND PHARMACEUTICAL COMPOSITIONS COMPRISING THEM

Avigdor Scherz; Yoram Salomon, both of Rehovot, Israel, and Leszek Fiedor, Cieszyn, Poland, assignors to Yeda Research and Development Co., Ltd., Rehovot, Israel

Filed Jul. 26, 1993, Ser. No. 97,384
Claims priority, application Israel, Jul. 26, 1992, 102645
Int. Cl.[6] A61K *31/40;* **C07D** *487/22*
U.S. Cl. 514—185 **23 Claims**

1. A compound of the formula

X—CO—Y—A—R

wherein

X—CO— is a C17-propionyl residue of a compound selected from the group consisting of a chlorophyll (Chl), bacteriochlorophyll (Bchl), and a Chl and a Bchl in which the central Mg atom is substituted by a different divalent metal atom;

Y is O, S or NH;

A is a covalent bond or a straight or branched, saturated or unsaturated, substituted by one or more functional groups selected from the group consisting of OH, COOH, NH_2, and $CONH_2$, or unsubstituted hydrocarbon chain having from 2 to 20 carbon atoms and containing an end functional group selected from the group consisting of OH, COOH, and NH_2, or such a hydrocarbon chain interrupted by one or more heteroatoms selected from the group consisting of O, S and NH, or by a phenyl ring; and

R is a residue of a compound selected from the group consisting of:

(i) an amino acid containing an OH or SH group, or a derivative thereof selected from the group consisting of esters and N-protected derivatives wherein the protecting group is carbobenzoxy, trityl and tert-butoxycarbonyl, and in which case Y is O or S when A is a covalent bond; and

(ii) a peptide containing an OH or SH group, or a derivative thereof selected from the group consisting of esters and N-protected derivatives wherein the protecting group is carbobenzoxy, trityl and tert-butoxycarbonyl, and in which case Y is O or S when A is a covalent bond.

5,726,170

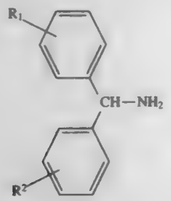
CLAVULANIC ACID SALTS

George Leo Callewaert, Penn, United Kingdom, assignor to Spurcourt Limited, Woodley Reading, United Kingdom

Filed Feb. 22, 1996, Ser. No. 605,367
Claims priority, application United Kingdom, Feb. 25, 1995, 9503839; Oct. 12, 1995, 9520915
Int. Cl.[6] C07D *503/00;* **A61K** *31/395;31/43;31/545*
U.S. Cl. 514—210 **19 Claims**

1. A salt of clavulanic acid and a benzhydrylamine of the formula I

(I)



wherein each of R^1 and R^2 independently represents a hydrogen atom or a radical selected from the group consisting of lower alkyl, haloalkyl, acyloxy and alkoxy.

5,726,171

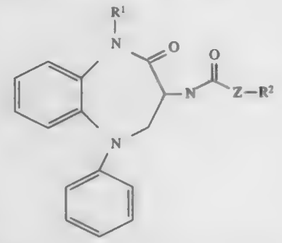
N-(1-ALKYL-5-PHENYL-2,3,4,5-TETRAHYDRO-1H-BENZO[B][1,4]DIAZEPIN-3YL)-ACETAMIDES

David A. Claremon; Nigel Liverton; Garry R. Smith, and Harold G. Selnick, all of c/o Merck & Co., Inc. Sumneytown Pike, West Point, Pa. 19486

Continuation of Ser. No. 476,534, Jun. 7, 1995. This application Mar. 13, 1996, Ser. No. 616,239
Int. Cl.[6] A61K *31/55;* **C07D** *243/12*
U.S. Cl. 514—221 **18 Claims**

1. A compound of the structural formula I

FORMULA I



where

R^1 is C_{1-6} alkyl, either straight or branch chain; substituted C_{1-6}alkyl, either straight or branch chain wherein the substitutents are selected from F, C_{3-8} cycloalkane, —OH, —CF_3;

and

Z is

1) C_{1-6} alkyl, either straight or branched chain,

2) substituted C_{1-6} alkyl, either straight or branched chain, wherein the substitutents are selected from F, NO_2, OH,

2) C_{2-4} alkenylene, either straight or branch chain,

3) —$(CH_2)_m$—W—$(CH_2)_n$— wherein m and n are independently 0, 1, 2, 3 or 4 and W is —O—, —S— or —NH,

4) C_{3-6} cycloalkane,

5) C_{3-6} cycloalkylene, or

6) single bond;

R^2 is

1) phenyl, either unsubstituted or substituted with one or two substituents selected from

a) —NO_2, —OH,

b) —Cl, Br, F, or I,

c) —CF_3,

d) —C_{1-3} alkyl,

e) —C_{1-3} alkoxy,

f) —CN,

g) -methylenedioxy,

2) C_{5-7} cycloalkyl, either unsubstituted or substituted with one or two substitutents selected from

a) —NO_2, OH,

b) —F,

c) —CF_3,

d) —C_{1-3} alkyl,

e) —C_{1-3} alkoxy,

f) —CN,

g) -methylenedioxy,

as the racemates, mixtures of enantiomers, individual diastereomers or individual enantiomers, and pharmaceutically acceptable crystal forms, salts, or hydrates thereof.

5,726,172

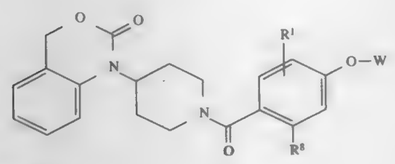
TOCOLYTIC OXYTOCIN RECEPTOR ANTAGONISTS

Michelle A. Sparks, Solebury; Roger M. Freidinger, Lansdale; Debra S. Perlow, Greenville, and Peter D. Williams, Harleysville, all of Pa., assignors to Merck & Co., Inc., Rahway, N.J.

Filed Jan. 6, 1997, Ser. No. 779,296
Int. Cl.[6] C07D *265/12;* **A61K** *31/535*
U.S. Cl. 514—230.5 **13 Claims**

1. A compound of the formula (I)

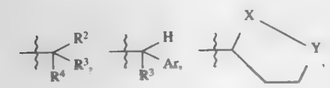
(I)

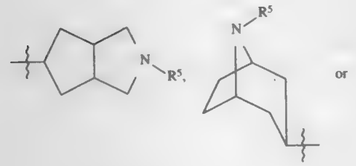


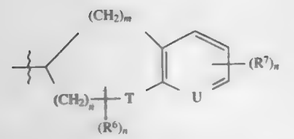
wherein

R^1 is selected from hydrogen or halogen;

W is selected from



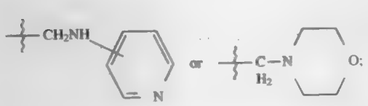




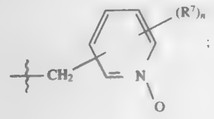
R^2 is selected from hydrogen, halogen or C_{1-5} alkyl;

R^3 is selected from hydrogen, halogen, C_{1-5} alkyl or Ar;

R^4 is selected from $CONH_2$, CO_2R^7, CN, CH_2OR^7, $CH(CH_3)OH$, $CH_2N(R^7)_2$,



R^5 is selected from hydrogen, $COCH_3$, $CO_2C(CH_3)_3$ or



R^6 and R^7 are each independently selected from hydrogen or C_{1-5} alkyl;

R^8 is selected from hydrogen or C_{1-5} alkoxy;

T is selected from O, CH_2 or SO_2;

U is selected from CH or N;

X is selected from $(CH_2)_n$ or $CH(Ph)CH_2$;

Y is selected from O, CH_2, $CHNH_2$, SO_2, $CHNHCOCH_3$, or CO;

Ar is selected from naphthyl, tetrazolyl, thiazolyl, imidazolyl, pyrazinyl, or pyrimidinyl;

m is an integer of from zero to one;

n is an integer of from zero to three;

and the pharmaceutically acceptable salts thereof.

5,726,173

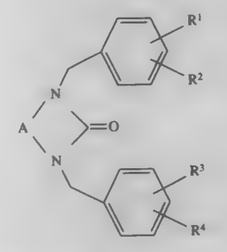
N,N-DI (ARYL) CYCLIC UREA DERIVATIVES AS ANTI-COAGULANTS

Raju Mohan, Moraga, and Michael M. Morrissey, Danville, both of Calif., assignors to Berlex Laboratories, Inc., Richmond, Calif.

Division of Ser. No. 458,598, Jun. 2, 1995, Pat. No. 5,612,363. This application Dec. 12, 1996, Ser. No. 762,888
Int. Cl.[6] A61K *31/535;31/505;* **C07D** *413/10;403/10*
U.S. Cl. 514—235.8 **2 Claims**

1. A compound of formula (II):

(II)



wherein:

A is —$C(R^5)(R^6)$—CH_2—$C(R^9)(R^{10})$—;

R^1 is —$C(NH)NH_2$, —$C(NH)N(H)OR^{11}$, —$C(NH)N(H)C(O)R^9$, or —$C(NH)N(H)C(O)OR^{11}$;

R^2 and R^3 are the same or different and are selected from the group consisting of independently hydrogen, halo, lower alkyl, lower haloalkyl, phenyl, naphthyl, —OR^{11}, —$C(O)OR^{11}$, —$C(O)N(R^{11})R^{12}$, —$N(R^{11})R^{12}$, —$N(H)C(O)R^{11}$, and —$N(H)S(O)_2R^{11}$;

R^4 is halo, lower haloalkyl, imidazolyl, —$C(NH)NH_2$, —$C(NH)NHOR^{11}$, —$C(NH)N(H)C(O)R^9$, —$C(NH)N(H)C(O)OR^{11}$, —OR^{11}, —$C(O)R^{13}$, —$(CH_2)_nC(O)OR^{11}$ (where n is 0 to 6), —$C(O)N(R^{11})R^{12}$, or —$N(R^{11})R^{12}$;

R^5, R^6, R^9 and R^{10} are independently hydrogen, halo, lower alkyl, lower haloalkyl, 4-pyridinyl, —OR^{11}, —$C(O)OR^{11}$, —$C(O)N(R^{11})R^{12}$, phenyl (optionally substituted by one or more substituents selected from the group consisting of halo, hydroxy, lower alkyl, lower haloalkyl, lower alkoxy and —$N(R^{11})R^{12}$), or naphthyl (optionally substituted by one or more substituents selected from the group consisting of halo, hydroxy, lower alkyl, lower haloalkyl, lower alkoxy and —$N(R^{11})R^{12}$);

$R^{11}$and R^{12} are independently hydrogen, lower alkyl, phenyl, naphthyl or lower aralkyl; and

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R^{13} is pyrrolidinyl, 4-morpholinyl, piperazinyl, N-methylpiperazinyl, or piperidinyl; or a pharmaceutically acceptable salt thereof.

5,726,174

NUCLEOSIDE ANALOGS

Choung Un Kim, Madison, Conn.; John C. Martin, San Carlos, Calif.; Bing Uh Luh, Killingworth, and Peter F. Misco, Durham, both of Conn., assignors to Institute of Organic Chemistry and Biochemistry of the Academy of Sciences of the Czech Republic, Czech Rep., and Rega Stichting v.z.w., Belgium

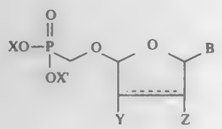
Division of Ser. No. 391,312, Feb. 17, 1995, which is a continuation of Ser. No. 765,774, Sep. 26, 1991, abandoned, which is a continuation-in-part of Ser. No. 481,569, Feb. 22, 1990, abandoned, which is a continuation-in-part of Ser. No. 352,303, May 15, 1989, abandoned. This application Jun. 7, 1995, Ser. No. 488,338

Int. Cl.[6] **C07F** *9/6561;9/6558;9/6512;* **A61K** *31/675*

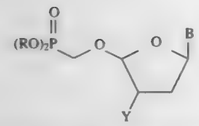
U.S. Cl. 544—244 **18 Claims**

1. A compound of formula (II) or (VIII)

(II)



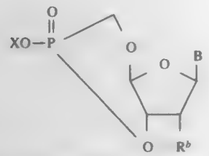
(VIII)



wherein the broken line is an optional bond; X, R and X' are the same or different and are H or alkyl with 1 to 6 carbon atoms;

wherein in the compound of formula (II), Y and Z are the same or different and are H; OH; alkyl having 1 to 6 carbon atoms; alkyl having 1 to 6 carbon atoms which is substituted with halogen, hydroxy, amino or azido; or when the optional double bond is not present, Y and Z are taken together to form an oxygen atom or a methylene group

(III)



wherein in the compound of formula (VIII), Y is halogen, phenylthio or phenylseleno;

wherein in the compound of formula (II), B is hypoxanthine, xanthine, guanine, 8-bromoguanine, 8-chloroguanine, 8-methylguanine, 8-thioguanine, 3-deazaguanine, purine, 2-aminopurine, 2,6-diaminopurine, adenine, or 3-deazaadenine any one of which is substituted at the 9-position;

and, wherein in the compound of formula (VIII), B is hypoxanthine, xanthine, guanine, 8-bromoguanine, 8-chloroguanine, 8-methylguanine, 8-thioguanine, 3-deazaguanine, purine, 2-aminopurine, 2,6-diaminopurine, adenine, 3-deazaadenine, 8-aminoguanine, 8-hydrazinoguanine or 8-hydroxyguanine, any one of which is substituted at the 9-position; and the pharmaceutically acceptable salts thereof.

5,726,175

IMIDAZO[1,2-A]INDENO[1,2-E]PYRAZINE-2-CARBOXYLIC ACID DERIVATIVES, PREPARATION THEREOF AND DRUGS CONTAINING SAME

Jean-Claude Aloup, Villeneuve Le Roi; François Audiau, Charenton Le Pont; Michel Barreau, Montgeron; Dominique Damour, Orly; Arielle Genevois-Borella, Thiais; Patrick Jimonet, Villepreux; Serge Mignani, Chatenay-Malabry, and Yves Ribeill, Villemoisson sur Orge, all of France, assignors to Rhone-Poulenc Rorer S.A., Antony, France

PCT No. PCT/FR95/00951, § 371 Date Jan. 17, 1997, § 102(e) Date Jan. 17, 1997, PCT Pub. No. WO96/02544, PCT Pub. Date Feb. 1, 1996

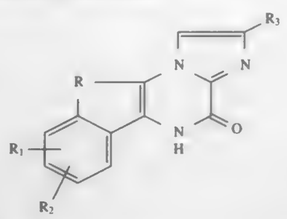
PCT Filed Jul. 17, 1995, Ser. No. 765,817

Claims priority, application France, Jul. 20, 1994, 94 08997

Int. Cl.[6] **C07D** *487/04;487/14;* **A61K** *31/50*

U.S. Cl. 514—250 **64 Claims**

1. A compound of formula (I):



(I)

in which,

R denotes an N-alk, $C(R_4)R_5$, CH—R_5 or C=R_6 radical,

R_1 and R_2, which are identical or different, denote hydrogen or halogen atoms or radicals selected from alkyl, alkoxy, amino, —N=CH-N(alk)alk', nitro, cyano, phenyl, imidazolyl, SO_3H, hydroxyl, polyfluoroalkoxy, carboxyl, alkoxycarbonyl, —NH—CO—$NR_{11}R_{12}$, —N(alk)-CO—$NR_{11}R_{12}$, —N(alk-Ar)—CO—$NR_{11}R_{12}$, —NH—CS—$NR_{11}R_{12}$, —N(alk)-CS—$NR_{11}R_{12}$, —NH—CO—R_{11}, —NH—CS—R_{24}, —NH—C(=NR_{27})—$NR_{10}R_{12}$, —N(alk)-C(=NR_{27})—$NR_{10}R_{12}$, —CO—$NR_{10}R_{12}$, —NH—SO_2—$NR_{10}R_{12}$, —N(alk)-SO_2—$NR_{10}R_{12}$, —NH—SO_2—CF_3, —NH—SO_2-alk, —$NR_{10}R_{13}$, —$S(O)_m$-alk-Ar, —SO_2—$NR_{10}R_{12}$, 2-oxo-1-imidazolidinyl in which position 3 is optionally substituted by an alkyl radical and 2-oxo-1-perhydropyrimidinyl in which position 3 is optionally substituted by an alkyl radical,

R_3 denotes a carboxyl, alkoxycarbonyl or carboxamido radical,

R_4 denotes an alkyl, -alk-Het or phenylalkyl radical in which the phenyl nucleus may be substituted by one or more substituents selected from halogen atoms and alkyl, alkoxy, nitro, amino, hydroxyl, cyano, -alk-NH_2, —$COOR_{10}$ and -alk-$COOR_{10}$ radicals,

R_5 denotes an alkyl radical containing from 1 to 11 carbon atoms in a straight or branched chain, an -alk-Het, —NR_8R_9, —NH—CHO, —NH—$COOR_{17}$, —NH—SO_2R_{24}, —$COOR_{10}$, -alk-$COOR_{10}$, -alk-$CONR_{10}R_{18}$, -alk-$NR_{10}R_{18}$, -alk-OH, -alk-CN, phenylalkyl in which the phenyl nucleus may be substituted by one or more substituents selected from halogen atoms, alkyl, alkoxy, nitro, amino, hydroxyl, cyano, -alk-NH_2, —$COOR_{10}$ and -alk-$COOR_{10}$ radicals, —NH—CO—Ar in which Ar may be substituted by one or more substituents selected from halogen atoms, alkyl, alkoxy, nitro, amino, hydroxyl, cyano, -alk-NH_2, —$COOR_{10}$ and -alk-$COOR_{10}$ radicals, —NH—CO—Het, —NH—CO-alk-Het, —NH—CO-alk-$COOR_{10}$, —NH—CO-alk-$NR_{10}R_{18}$, —NH—CO-alk-Ar in which Ar may be substituted by one or more substituents selected from halogen atoms, alkyl, alkoxy, nitro, amino, hydroxyl, cyano, -alk-NH_2, —$COOR_{10}$ and -alk-$COOR_{10}$ radicals, 1-pyrrolyl which may be substituted by a —$COOR_{10}$ radical, —NH—CO—NH-alk-Ar in which Ar may be substituted by one or more substituents selected from halogen atoms and alkyl, alkoxy, nitro, amino, hydroxyl, cyano, -alk-NH_2, —$COOR_{10}$ and -alk-$COOR_{10}$ radicals, —NH—CO—NH—Het, —NH—CO—NH-alk-Het, —NH—

CO—NH—Ar in which Ar may be substituted by one or more substituents selected from halogen atoms, alkyl, alkoxy, nitro, amino, hydroxyl, cyano, -alk-NH_2, —$COOR_{10}$ and -alk-$COOR_{10}$ radicals, —NH—COalk, —NH—COcycloalkyl, —NH—CO—NH-alk and —NH—CO—NH_2, or R_4 and R_5 form, together with the carbon atom to which they are attached, a cycloalkyl radical,

R_6 denotes a hydrogen atom or a radical which is hydroxyl, an alkyl group having from 1 to 11 carbon atoms in a straight or branched chain, -alk-OH, —$NR_{14}R_{15}$, -alk-$NR_{14}R_{15}$, -alk-Het, —NH—CHO, —COOalk, -alk-$COOR_{10}$, -alk-CO—$NR_{10}R_{21}$, phenylalkyl in which the phenyl nucleus may be substituted by one or more substituents selected from halogen atoms and alkyl, alkoxy, nitro, amino, hydroxyl, cyano, -alk-NH_2, —$COOR_{10}$ and -alk-$COOR_{10}$ radicals, —$R_{16}COOR_{10}$, —CO—$COOR_{10}$, 1-pyrrolyl which may be substituted by a —$COOR_{10}$ or a 2-oxo-2,5-dihydropyrrol-1-yl radical,

R_7 denotes an oxygen atom or an NOH, NO-alk-$COOR_{10}$, NO-alk, CHR_{19}, NR_{10}, $C(COOR_{10})R_{20}$ or $C(CONR_{10}R_{21})R_{20}$ radical,

R_8 denotes a hydrogen atom or an alkyl, -alk-$COOR_{10}$, -alk-$NR_{10}R_{21}$, -alk-Het or phenylalkyl radical in which the phenyl nucleus may be substituted by one or more substituents selected from halogen atoms and alkyl, alkoxy, nitro, amino, hydroxyl, cyano, -alk-NH_2, —$COOR_{10}$ and -alk-$COOR_{10}$ radicals,

R_9 denotes a hydrogen atom or an alkyl radical,

R_{10} denotes a hydrogen atom or an alkyl radical,

R_{11} denotes a hydrogen atom or a radical selected from alkyl having 1 to 9 carbon atoms in a straight or branched chain, -alk-$COOR_{10}$, -alk-Het, -alk-$NR_{12}R_{10}$, phenylalkyl in which the phenyl nucleus may be substituted by one or more substituents selected from halogen atoms and alkyl, alkoxy, nitro, amino, hydroxyl, -alk-NH_2, carboxyl, alkoxycarbonyl, cyano and -alk-$COOR_{10}$ radicals, phenyl which may be substituted by one or more substituents selected from halogen atoms and alkyl, alkoxy, nitro, amino, hydroxyl, -alk-NH_2, carboxyl, alkoxycarbonyl, cyano and -alk-$COOR_{10}$ radicals, or —Het,

R_{12} denotes a hydrogen atom or an alkyl radical,

R_{13} denotes an alkyl, Het or alkoxycarbonyl radical,

each of R_{14} and R_{15}, which are identical or different, denotes an alkyl radical or R_{14} denotes a hydrogen atom and R_{15} denotes a hydrogen atom or an alkyl, -COR_{22}, —CSR_{23} or —SO_2R_{24} radical,

R_{16} denotes a —CHOH-alkyl or —CH(OH)-alkyl chain, wherein said alkyl has 1 to 5 carbon atoms,

R_{17} denotes an alkyl or phenylalkyl radical,

R_{18} denotes a hydrogen atom or an alkyl radical,

R_{19} denotes a hydroxyl, alkyl, -alk-Het, —$NR_{25}R_{25}$, -alk-$COOR_{10}$, —Het or phenyl radical which may be substituted by one or more substituents selected from halogen atoms and alkyl, alkoxy, nitro, amino, hydroxyl, -alk-NH_2, —$COOR_{10}$, cyano and -alk-$COOR_{10}$ radicals or phenylalkyl in which the phenyl nucleus is optionally substituted by one or more substituents selected from halogen atoms and alkyl, alkoxy, nitro, amino, hydroxyl, -alk-NH_2, —$COOR_{10}$, cyano and -alk-$COOR_{10}$ radicals,

R_{20} denotes a hydrogen atom or an alkyl radical,

R_{21} denotes a hydrogen atom or an alkyl radical,

R_{22} denotes an alkyl, cycloalkyl, —COOalk, -alk-$COOR_{10}$ or phenyl radical which may be substituted by one or more substituents selected from halogen atoms and alkyl, alkoxy, nitro, amino, hydroxyl, -alk-NH_2, —$COOR_{10}$, cyano and -alk-$COOR'_{10}$ radicals, phenylalkyl in which the phenyl nucleus may be substituted by one or more substituents selected from halogen atoms and alkyl, alkoxy, nitro, amino, hydroxyl, -alk-NH_2, —$COOR_{10}$, cyano and -alk-$COOR_{10}$ radicals, -alk-$NR_{10}R_{12}$, —NH—Ar in which Ar may be substituted by one or more substituents selected from halogen atoms and alkyl, alkoxy, nitro, amino, hydroxyl, -alk-NH_2, —$COOR_{10}$, cyano and -alk-$COOR_{10}$ radicals, —Het, -alk-Het, -OR_{17}, —NH-alk-Ar in which Ar may be substituted by one or more substituents selected from halogen atoms, alkyl, alkoxy, nitro, amino, hydroxyl, -alk-NH_2, —$COOR_{10}$, cyano and -alk-$COOR_{10}$ radicals, —NH-alk-Het, —NH-alk, —NH_2 and —NH—Het,

R_{23} denotes an —NH-alk, —NH—Ar, —NH—Het or —NH_2 radical,

R_{24} denotes an alkyl or phenyl radical,

each of R_{25} and R_{26}, which are identical or different, denotes an alkyl or cycloalkyl radical,

R_{27} denotes a hydrogen atom or an alkyl radical,

alk denotes an alkyl or an alkylene radical,

alk' denotes an alkyl radical,

m is equal to 0, 1 or 2,

Ar denotes a phenyl radical,

Het denotes a saturated or unsaturated mono- or polycyclic heterocyclic ring containing from 1 to 9 carbon atoms and one or more heteroatoms selected from O, S, and N, which may be substituted by one or more alkyl, phenyl or phenylalkyl radicals,

it being understood that the alkyl, alkylene and alkoxy radicals and the alkyl, alkylene and alkoxy portions of radicals contain 1 to 6 carbon atoms and form a straight or branched chain, the acyl radicals and acyl portions of radicals contain 2 to 4 carbon atoms and the cycloalkyl radicals contain 3 to 6 carbon atoms;

for those compounds in which R_7 denotes an NO-alk, $C(COOR_{10})R_{20}$ or $C(CONR_{10}R_{21})R_{20}$, CHR_{19} radical, an E or Z isomer of said compound of formula I;

for those compounds in which R denotes a CH—R_6 radical and R_6 denotes a —CO—$COOR_{10}$ radical, an E or Z tautomeric form of said compound of formula I; and

for those compounds in which R denotes a $C(R_4)R_5$ or CH—R_6 radical, an enantiomer, a diastereoisomer, or a salt of said compound of formula I.

5,726,176

DIHYDROPYRIDAZINONES, PYRIDAZINONES AND RELATED COMPOUNDS AS FUNGICIDES

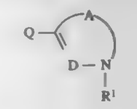
Enrique Luis Michelotti; Anne Ritchie Egan, both of Fort Washington; Ronald Ross, Jr., Jamison, and Willie Joe Wilson, Chalfont, all of Pa., assignors to Rohm and Haas Company, Philadelphia, Pa.

Division of Ser. No. 467,384, Jun. 6, 1995, Pat. No. 5,631,254, which is a division of Ser. No. 221,229, Mar. 31, 1994, Pat. No. 5,552,409, which is a continuation of Ser. No. 749,576, Aug. 28, 1991, abandoned, which is a continuation-in-part of Ser. No. 586,633, Sep. 21, 1990, abandoned. This application Oct. 30, 1996, Ser. No. 740,546

Int. Cl.[6] **C07D** *237/04;295/03;* **A61K** *31/50*

U.S. Cl. 514—252 **9 Claims**

1. A compound of the formula



wherein

A is

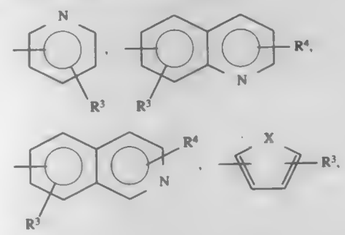
—$(CHR^2)_n$—CHR^7—Z—;

—CR^2=CR^7—Z;

—CHR^2—CR^7=Y—;

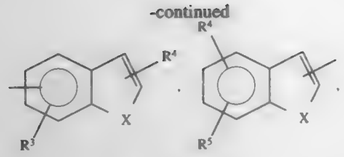
D is nitrogen;

Q is an aromatic group selected from



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-continued



X is oxygen (O) or sulfur (S);

Z is carbonyl (C=O), or thiocarbonyl (C=S);

Y is carbon substituted by halo, alkoxy, alkynylthio or triazolyl; wherein

(i) R^1 is alkenyl, haloalkenyl, phenylalkenyl, alkynylalkenyl, alkynyl, haloalkynyl, phenylalkynyl, heterocyclyl, dialkynyl, heterocyclylalkynyl, cycloalkylalkynyl, alkenylalkynyl, hydroxyalknyl, alkoxyalkynyl, alkanoyloxyalkynyl, formylalkynyl, trialkyl, silylalkynyl, trialkyltinalkynyl, haloalkenylalkynyl, carboxyalkynyl, or alkoxycarbonylalkynyl;

R^2 is hydrogen, (C_1–C_3)alkyl, phenyl, or halogen;

R^7 is hydrogen, (C_1–C_3)alkyl, phenyl, halogen, alkynylalkenyl, alkynyl, dialkynyl, haloalkynyl, or alkenylalkynyl;

R^3 is independently hydrogen, alkoxy or halogen;

R^4 is hydrogen, halogen, alkoxy or nitro; and

R^5 is hydrogen, halogen, nitro, alkyl, alkoxy, alkylthio, haloalkyl, haloalkoxy, haloalkylthio, phenyl, phenoxy or cyano; or

(ii) R^2 and R^3 together form a (C_1–C_3)alkyl, (C_2–C_3)alkylene or carbonyl link and R^1, R^4, R^5, and R^7 are as above; or

(iii) R^2 and R^7 together form a fused phenyl ring and R^1, R^3, R^4, R^5 and R^6 are as above;

n is 1; or agronomically acceptable salts thereof.

5,726,177

INDOLE-DERIVED ARYLPIPERAZINES AS LIGANDS FOR 5HT$_1$-LIKE, 5HT$_{1D}$ AND 5HT$_{1D}$ RECEPTORS

Serge Halazy, Lagarrigue; Michel Perez, Castres; Michael Briley, Gaillac, and Peter Pauwels, Lautrec, all of France, assignors to Pierre Fabre Medicament, Boulogne, France

PCT No. PCT/FR94/01343, § 371 Date May 17, 1996, § 102(e) Date May 17, 1996, PCT Pub. No. WO95/14004, PCT Pub. Date May 26, 1995

PCT Filed Nov. 17, 1994, Ser. No. 648,091

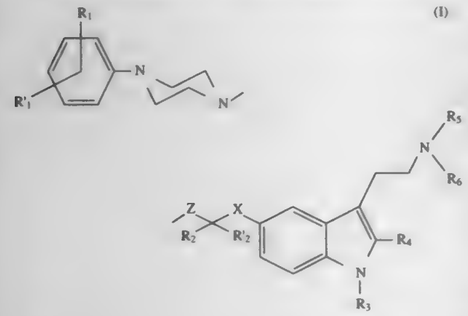
Claims priority, application France, Nov. 19, 1993, 93 13875

Int. Cl.^{6} A61K *31/495;* **C07D** *403/12;417/14*

U.S. Cl. 514—253 **7 Claims**

1. A compound selected from those corresponding to the formula

(I)



in which:

R_1 represents an NH_2, NO_2, NH—NH_2, NH—OH, $NCOR_7$(OH), NR_5R_6, $NHCOR_7$, $NHCONR_5R_7$, $NHSO_2R_7$, $NHCO_2R_7$, SO_2R_7, SO_2NHR_7, $NHCH_2SR_7$, $NHCH_2S(O)R_7$, $NHCH_2SO_2R_7$, CN, $NHCONH_2$, SO_2NH_2, $N(SO_2R_6$, CH_2NHCOR_7, $CH_2NHCONR_5R_6$, $CH_2NHSO_2R_7$, $CH_2NHCO_2R_7$, or OSO_2R_7 radical which can be in the o, m, or p position on the aromatic ring,

R'$_1$ represents a substituent which can be in various positions on the aromatic ring, selected from H, methyl, ethyl, propyl, isopropyl, n-butyl, s-butyl, t-butyl, trifluoromethyl, 2,2,2-trifluoroethyl, phenyl, benzyl, phenethyl, cycloalkyl, OH, SR_5, OR_5, chlorine, fluorine, bromine, and iodine or alternatively R' can be identical to R_1, Z represents C=O, C=S, SO_2, $(CH_2)_n$, or —$CO(CH_2)_n$— in which n is 1 to 5, inclusive,

R_2 and R'$_2$, which are identical or different, each represent a hydrogen atom, a linear or branched alkyl radical, or a phenyl, benzyl, cycloalkyl, or phenyl-alkyl radical which is optionally substituted by a substituent chosen from halogen alkyl, phenyl, carbonyl-derived C_1–C_6 acyl, alkoxy, and alkylthio radicals,

X represents CH_2 or O; the —$C(R_2R'_2)$—X group can also represent a C=C double bond,

R_3 represents a hydrogen atom, a linear or branched alkyl radical, or a phenyl, COR_7, CO_2, CO_2R_7, $CONHR_7$, or SO_2R_7 radical,

R_4 represents a hydrogen, chlorine, fluorine, or bromine atom, or a linear or branched alkyl radical,

R_5 and R_6, which are identical or different, each represent a hydrogen atom, a linear or branched alkyl radical selected from methyl, ethyl, n-propyl, isopropyl, n-butyl, s-butyl, and t-butyl, or an arylalkyl radical selected from benzyl and phenethyl,

R_7 represents a linear or branched alkyl radical having 1 to 5 carbon atoms inclusive, trifluoromethyl, 2,2,2-trifluoroethyl, phenyl, a heterocycle selected from thiophene and isoxazole, or arylalkyl selected from benzyl and phenethyl in which the aromatic ring may be variously substituted in various positions by methyl, ethyl, propyl or butyl, trifluoromethyl, 2,2,2-trifluoroethyl, hydroxyl, thiol, OCH_3, OC_2H_5 or $OCH(Me)_2$, SCH_3 or SC_2H_5, chlorine, fluorine, bromine, or iodine, nitrile, COR_5, CO_2R_5, NO_2, NR_5R_6, $NHSO_2R_5$, $NHCO_2R_5$, $NHCOR_5$, $NHCONR_5$ R_6 or $NHSO_2NR_5R_6$, and its salts which are acceptable in therapeutic use.

5,726,178

ALKYL DERIVATIVES OF TRAZODONE WITH CNS ACTIVITY

Leandro Baiocchi, Pomezia, Italy, assignor to Istituto Ricerca Francesco Angelini S.p.A., Pomezia, Italy

Continuation of Ser. No. 256,352, Jul. 18, 1994, abandoned. This application Nov. 29, 1996, Ser. No. 758,556

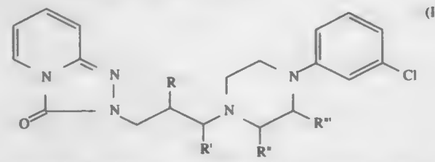
Claims priority, application Italy, Jan. 17, 1992, MI92A0084

Int. Cl.^{6} A61K *31/595;* **C07D** *471/04*

U.S. Cl. 514—253 **2 Claims**

1. A compound of the formula (I)

(I)



wherein R, R' and R" are hydrogen, and R" is methyl, or the acid addition salts thereof with physiologically acceptable organic or inorganic acids.

5,726,179

MUSCARINIC AGONISTS

William S. Messer, Jr., Toledo, Ohio, and Babatunde Ojo, Richmond, Va., assignors to The University of Toledo, Toledo, Ohio

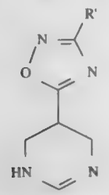
Filed Apr. 1, 1996, Ser. No. 625,144

Int. Cl.^{6} C07D *403/04;* **A61K** *31/505*

U.S. Cl. 514—256 **3 Claims**

1. A compound having the formula (II) below or a pharmaceutically acceptable salt thereof:

(II)



where R' is butynyl.

5,726,180

STABILIZED SOLID PHARMACEUTICAL PREPARATION AND METHOD OF PRODUCING THE SAME

Masahiko Kurihara, Ikeda; Shunichi Itoh, Suita; Kou Moriyama, Tokyo; Mitsutaka Isobe, and Kenichiro Kiyoshima, both of Suita, all of Japan, assignors to Takeda Chemical Industries, Ltd., Osaka, Japan

Division of Ser. No. 266,641, Jun. 28, 1994, Pat. No. 5,604,232. This application Oct. 30, 1996, Ser. No. 742,179

Claims priority, application Japan, Jun. 30, 1993, 5-161158

Int. Cl.^{6} A01N *43/90;* **A61K** *31/33*

U.S. Cl. 514—264 **16 Claims**

1. A solid pharmaceutical preparation stabilized against decomposition which comprises effective amounts of a dextromethorphan, a phenylpropanolamine and ibuprofen as active ingredients, and a caffeine as a stabilizer, the content of the caffeine being 0.5 to 1,000 parts by weight relative to 100 parts by weight of each of said active ingredients.

5,726,181

FORMULATIONS AND COMPOSITIONS OF POORLY WATER SOLUBLE CAMPTOTHECIN DERIVATIVES

Frederick H. Hausheer; Kochat Haridas; Dhanabalan Murali, and Dasharatha Gauravaram Reddy, all of San Antonio, Tex., assignors to BioNumerik Pharmaceuticals, Inc., San Antonio, Tex.

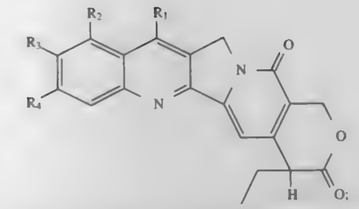
Filed Jun. 5, 1995, Ser. No. 461,385

Int. Cl.^{6} A01N *43/42;* **A61K** *31/44*

U.S. Cl. 514—283 **21 Claims**

1. A pharmaceutical formulation comprising a solution or suspension of N-methyl-2-pyrrolidinone, and a highly lipophilic camptothecin or a camptothecin derivative having a water solubility of 5 micrograms per milliliter or less, said camptothecin or camptothecin derivative having the formula:

(I)



wherein R_1, R_2, R_3, and R_4 are each individually hydrogen, lower alkyl, alkoxy, acyloxy, hydroxy, acyl, halo, amido, or cyano, said pharmaceutical formulation being suitable for oral or parenteral administration to a patient.

5,726,182

QUINOLIZINONE TYPE COMPOUNDS

Daniel T. Chu, Santa Clara, Calif.; Qun Li, Gurnee, Ill.; Curt S. Cooper, Gurnee, Ill.; Anthony K. L. Fung, Gurnee, Ill.; Cheuk M. Lee; Jacob J. Plattner, both of Libertyville, Ill.; Zhenkun Ma, Gurnee, Ill., and Wei-Bo Wang, Park City, Ill., assignors to Abbott Laboratories, Abbott Park, Ill.

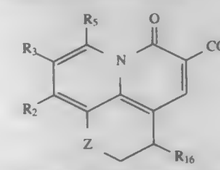
Division of Ser. No. 469,159, Jun. 6, 1995, abandoned, which is a continuation-in-part of Ser. No. 316,319, Sep. 30, 1994, Pat. No. 5,580,872, which is a continuation-in-part of Ser. No. 137,236, Oct. 14, 1993, abandoned, which is a continuation-in-part of Ser. No. 940,870, Oct. 27, 1992, abandoned, which is a continuation-in-part of Ser. No. 517,780, May 2, 1990, abandoned. This application Jun. 7, 1995, Ser. No. 484,632

Int. Cl.^{6} C07D *491/00;498/00;* **A61K** *31/44*

U.S. Cl. 514—291 **11 Claims**

1. A compound having the formula

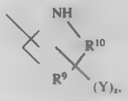
(II)



or a pharmaceutically acceptable salt, ester or amide thereof, wherein

R^2 in formula (I) is selected from the group consisting of (a) halogen, (b) loweralkyl, (c) loweralkenyl, (d) cycloalkyl of from three to eight carbons, (e) cycloalkenyl of from four to eight carbons, (f) loweralkoxy, j) cycloalkyl(loweralkyl), (k) amino, (l) (loweralkyl)amino, (m) aryl(loweralkyl)-amino, (n) hydroxy-substituted (loweralkyl)amino, (o) phenyl, (p) substituted phenyl, (q) bicyclic nitrogen-containing heterocycle and (s) nitrogen-containing heterocycle having the formula

(Ia)



where x is zero, one, two or three;

R^9 is selected from the group consisting of (i) —$(CH_2)_m$— where m is one, two or three, and (ii) —$(CH_2)_nR^{13}(CH_2)_n$— where R^{13} is selected from —S—, —O— and —NH—, R^{10} is CH_1, or when R^9 is selected from option (i) may be O, S or N, n is one or two, and p is one or two; and

Y is independently selected at each occurrence from the group consisting of:

(i) loweralkyl,

(ii) hydroxy,

(iii) halogen,

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(iv) halo(loweralkyl),
(v) amino(lower alkyl),
(vi) lower alkoxy,
(vii) hydroxy-substituted loweralkyl and,
(viii) $NR^{11}R^{12}$ where R^{11} and R^{12} are independently selected from hydrogen, and loweralkyl or, when one of R^{11} and R^{12} is hydrogen, the other is alkanoyl of from one to eight carbon atoms, an alpha-amino acid, or a polypeptide residue of from two to five amino acid;

R^3 is selected from the group consisting of hydrogen, halogen and loweralkoxy;

R^4 is selected from the group consisting of hydrogen, loweralkyl, a pharmaceutically acceptable cation, and a prodrug ester group;

R^5 is selected from the group consisting of (a) hydrogen, (b) halogen, (c) hydroxy, (d) loweralkyl, (e) halo(loweralkyl), (f) loweralkoxy, and (g) $—NR^{13}R^{14}$ where R^{13} and R^{14} are independently selected from the group consisting of hydrogen, loweralkyl, hydroxy-substituted loweralkyl, loweralkoxy(loweralkyl), and alkanoyl of from one to eight carbon atoms; R^{16} is loweralkyl; and Z is —O—.

5,726,183

USE OF QUINOLINE-3-CARBOXAMIDE COMPOUNDS

Bo Nilsson, Helsingborg; Agneta Svedberg, and Per Gjörstrup, both of Lund, all of Sweden, assignors to Pharmcia & Upjohn, Stockholm, Sweden

PCT No. PCT/SE95/00245, § 371 Date Oct. 29, 1996, § 102(e) Date Oct. 29, 1996, PCT Pub. No. WO95/24196, PCT Pub. Date Sep. 14, 1995
PCT Filed Mar. 8, 1995, Ser. No. 704,587
Claims priority, application Sweden, Mar. 10, 1994, 9400810
Int. Cl.[6] A61K *31/47*
U.S. Cl. 514—312 **6 Claims**

1. A method for treating a patient suffering from, or at risk of acquiring, psoriasis or conditions associated with psoriasis, comprising administering to the patient an effective therapeutic dose of N-phenyl-N-methyl-1,2-dihydro-4-hydroxy-1-methyl-2-oxo-quinoline-3 -carboxamide or tautomers thereof, or a pharmaceutically acceptable salt thereof.

5,726,184

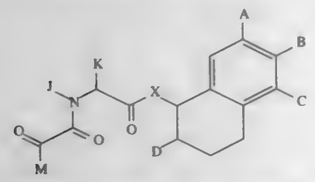
TETRALIN COMPOUNDS WITH IMPROVED MDR ACTIVITY

Robert Edward Zelle, Stowe, Mass., assignor to Vertex Pharmaceuticals Incorporated, Cambridge, Mass.

Filed May 19, 1995, Ser. No. 444,567
Int. Cl.[6] C07D *217/00;211/00;* **A61K** *31/47;31/445*
U.S. Cl. 514—314 **20 Claims**

1. A compound represented by formula (I):

Formula (I)



and pharmaceutically acceptable salts thereof, wherein:

A, B and C are independently selected from hydrogen, halogen, (C1–C6)-straight or branched alkyl, O—(C1–C6)-straight or branched alkyl, $(CH_2)_n$—Ar or $Y(CH_2)_n$—Ar; wherein

Y is O, S or NR_1; wherein

R_1 is (C1–C_6)-straight or branched alkyl and hydrogen;

n is an integer from 0 to 4; and

Ar is a carbocyclic aromatic group selected from the group consisting of phenyl, 1-naphthyl, 2-naphthyl, indenyl, azulenyl, fluorenyl and anthracenyl; or a heterocyclic aromatic group selected from the group consisting of 2-furyl, 3-furyl, 2-thienyl, 3-thienyl, 2-pyridyl, 3-pyridyl, 4-pyridyl, pyrrolyl, oxazolyl, thiazolyl, imidazolyl, pyrazolyl, 2-pyrazolinyl, pyrazolidinyl, isoxazolyl, isotriazolyl, 1,2,3-oxadiazolyl, 1,2,3-triazolyl, 1,3,4-thiadiazolyl, pyridazinyl, pyrimidinyl, pyrazinyl, 1,3,5-triazinyl, 1,3,5-trithianyl, indolizinyl, indolyl, isoindolyl, 3H-indolyl, indolinyl, benzo[b]furanyl, benzo[b]thiophenyl, 1H-indazolyl, benzimidazolyl, benzthiazolyl, purinyl, 4H-quinolizinyl, quinolinyl, 1,2,3,4-tetrahydroisoquinolinyl, isoquinolinyl, 1,2,3,4-tetrahydroisoquinolinyl, cinnolinyl, phthalazinyl, quinazolinyl, quinoxalinyl, 1,8-naphthyridinyl, peridinyl, carbazolyl, acridinyl, phenazinyl, phenothiazinyl and phenoxazinyl; and

wherein:

Ar may contain one or more substituents independently selected from the group consisting of: hydrogen, hydroxyl, halogen, nitro, SO_3H, trifluoromethyl, trifluoromethoxy, (C1–C6)-straight or branched alkyl, O—(C1–C6)-straight or branched alkyl, O-benzyl, O-phenyl, 1,2-methylenedioxy, carboxyl, morpholinyl, piperidinyl and NR_2R_3 and NR_2R_3 carboxamides; wherein

R_2 and R_3 are independently selected from hydrogen, (C1–C5)-straight or branched alkyl and benzyl;

D is selected from the group consisting of hydrogen or $(CH_2)_m$—E; wherein

E is Ar or NR_4R_5; wherein

R_4 and R_5 are independently selected from hydrogen, (C1–C_5)-straight or branched alkyl and (CH_2)Ar or can be taken together to form a 5 or 6 membered heterocyclic ring; and

m is an integer from 1 to 3;

X is O or NR_6; wherein

R_6 is selected from the group consisting of hydrogen, (C1–C_6)-straight or branched alkyl and $(CH_2)_m$—Ar;

J and K are independently (C1–C6)-straight or branched alkyl or Ar-substituted with (C1–C6)-straight or branched alkyl or wherein J and K are taken together to form a five or six membered ring or a five or six membered benzo-fused ring;

M is (C1–C6)-straight or branched alkyl or Ar; and

the stereochemistry at carbon 1 and carbon 2 is independently selected from R or S.

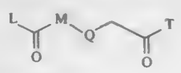
5,726,185

ACETIC ACID DERIVATIVES

Leo Alig, Kaiseraugst; Paul Hadvary, Biel-Benken; Marianne Hürzeler Müller, Däniken; Marcel Müller, Frenkendorf; Beat Steiner, Bättwil, and Thomas Weller, Basel, all of Switzerland, assignors to Hoffmann-La Roche Inc., Nutley, N.J.

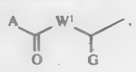
Filed Dec. 1, 1994, Ser. No. 347,736
Claims priority, application Switzerland, Dec. 3, 1993, 03609/93; Oct. 25, 1994, 03198/94
Int. Cl.[6] A61K *31/445;31/43;* **C07D** *211/92;211/08*
U.S. Cl. 514—317 **38 Claims**

1. Acetic acid derivatives of the formula:



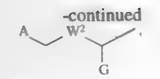
I

wherein L is a group of formula:

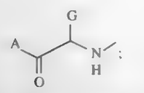


L^1

-continued



, or



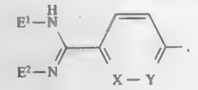
;

L^2

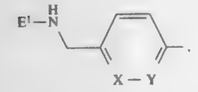
L^3

L^4

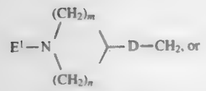
in which any carbonyl group present in the L group and between the L and M groups which does not form an amide can also be present as an oxime; A is a group of formula:



A^1

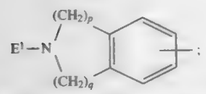


A^2



, or

A^3



A^4

E¹ and E² are H, lower-alkyl, OH, lower-alkoxy, lower-alkoxy-lower-alkyl, carboxy-lower-alkyl, $P(O)(O\text{-lower-alkyl})_2$, $C(O)OR^1$, $OC(O)R^1$, $OC(O)OR^1$ or $C(O)SR^1$, provided that at least one of E¹ and E² is H, or E¹ and E² together with the N atoms to which they are attached are a (5,5-dimethyl or 5-oxo)-4,5-dihydro-1,2,4-oxadiazol-3-yl group;

R' is lower-alkoxy-lower-alkyl, lower-alkyl, lower-alkyl substituted by OH, COOH, lower-alkoxycarbonyl, lower-alkanoyloxy, lower-alkenoyloxy, benzoyloxy which may be substituted, lower-alkyl-CONH, or phenyl which may be substituted, or phenyl which may be bonded via lower-alkylene, or cycloalkyl which may be interrupted by O;

one of X and Y is CH and the other is CH, C-lower-alkyl, C-lower-alkoxy or N;

D is a group $(CH_2)_s$ or $(CH_2)_tO$;

s is 1 to 4;

m and n are 0 to 5 and t is 0 to 3, but m+n is 1 to 5 and each of m+t and n+t is at least 1;

p and q are 0 to 5, but p+q is 2 to 5;

W¹ is CH_2, alkyl-CH, lower-alkyl-OC(O)CH, NH, lower-alkyl-N or lower-alkoxy-lower-alkyl-N;

W² is O, NH, acyl-N or lower-alkyl-OC(O)—N;

G is H or the characterizing group of an α-aminocarboxylic acid,

M is 1,4-piperidinylene bonded via the N atom to the keto group;

Q is O, CH_2, NH, acyl-N or lower-alkyl OC(O)N;

T is NH_2, NH-lower-alkyl, NH-lower-alkyl (COOH or COO-lower-alkyl), lower-alkoxy or lower-alkenyloxy substituted by lower-alkoxy, COOH, COO-lower-alkyl, lower-alkyl-COO or lower-alkyl-OCOO, or a group OT',

T' is H, lower-alkyl, phenyl or pyridyl which may be bonded via lower-alkylene, or cycloalkyl which may be bonded via lower-alkylene and which may be interrupted by O, NH or NCOO-lower-alkyl, with the proviso that

T is not H, lower-alkyl or phenyl-lower-alkyl when L is a group of the formula L1; and A is a group of the formula A1 where one of E¹ and E² is hydrogen and the other is hydrogen, tert-butoxycarbonyl or benzyloxycarbonyl; and one of X and Y is CH and the other is CH or N

and W¹ is NH, lower-alkyl-N or lower-alkoxy-lower-alkyl-N; and Q is O;

as well as hydrates or solvates and physiologically usable salts thereof.

5,726,186

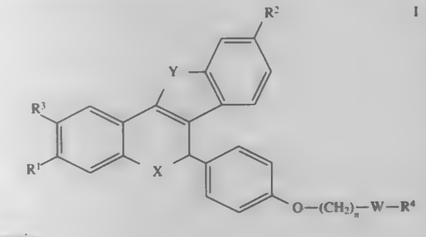
PENTACYCLIC COMPOUNDS, INTERMEDIATES, PROCESSES, COMPOSITIONS, AND METHODS

Timothy Alan Grese, Indianapolis, Ind., assignor to Eli Lilly and Company, Indianapolis, Ind.

Filed Aug. 13, 1996, Ser. No. 696,279
Int. Cl.[6] A61K *31/445;31/41;* **C07D** *405/12;405/14*
U.S. Cl. 514—321 **10 Claims**

1. A compound of formula I:

I



wherein

X is —O—, or —S—;

Y is —O—, —S—, $—CH_2—$, $—CH_2CH_2—$, —CH═CH—, or $—NR^5—$;

R^1, R^2, and R^3 are each independently —H, —OH, $—O(C_1–C_4$ alkyl), $—OCOC_6H_5$, $—OCO(C_1–C_6$ alkyl), $—OSO_2(C_4–C_6$ alkyl), $—OSO_2CF_3$, Cl, or F;

n is 1 or 2;

W is CH_2 or C═O;

R^4 is 1-piperidinyl, 2-oxo-1-piperidinyl, 1-pyrrolidinyl, methyl-1-pyrrolidinyl, dimethyl-1-pyrrolidinyl, 2-oxo-1-pyrrolidinyl, 4-morpholino, dimethylamino, diethylamino, or 1-hexamethyleneimino;

R^5 is $C_1–C_3$ alkyl, $—COC_6H_5$, $—CO(C_1–C_6$ alkyl), $—C(O)OC_6H_5$, $—C(O)O(C_1–C_6$ alkyl), $—SO_2(C_1–C_6$ alkyl), $—SO_2C_6H_5$, or $—SO_2CF_3$; or a pharmaceutically acceptable salt or solvate thereof.

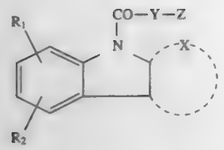
5,726,187

N-ALKYLPIPERIDINYL-4-METHYL CARBOXYLIC ESTERS/AMIDES OF CONDENSED RING SYSTEMS AS 5-HT4 RECEPTOR ANTAGONISTS

Laramie Mary Gaster, Bishop's Stortford; Graham Francis Joiner, Brentwood; Keith Raymond Mulholland, Harlow, and Paul Adrian Wyman, Epping, all of England, assignors to SmithKline Beecham plc, Brentford, United Kingdom

PCT No. PCT/GB93/02130, § 371 Date Apr. 14, 1995, § 102(e) Date Apr. 14, 1995, PCT Pub. No. WO94/08965, PCT Pub. Date Apr. 28, 1994
PCT Filed Oct. 14, 1993, Ser. No. 416,791
Claims priority, application United Kingdom, Oct. 16, 1992, 9221766; Nov. 5, 1992, 9223136; Nov. 5, 1992, 9223140; Mar. 12, 1993, 9305141; May 11, 1993, 9309643
Int. Cl.[6] A61K *31/445;* **C07D** *401/12*
U.S. Cl. 514—323 **10 Claims**

1. Compounds of formula (I-1) or a pharmaceutically acceptable salt thereof:



(I-1)

wherein

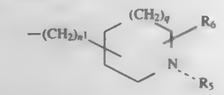
X and the carbon atoms to which it is attached represents phenyl, cyclohexyl or cyclohexenyl optionally substituted by R_3 and R_4;

R_1, R_2, R_3 and R_4 are independently hydrogen, halo, C_{1-6} alkyl, or C_{1-6} alkoxy;

wherein

Y is O or NH;

Z is of sub-formula (a)



(a)

wherein

n^1 is 1 and the azacycle is attached at the 4-position;

q is 1;

R_5 is hydrogen, C_{1-12} alkyl, aralkyl or R_5 is $(CH_2)_z$—R_{10} wherein z is 2 or 3 and R_{10} is selected from cyano, hydroxyl, C_{1-6} alkoxy, phenoxy, C(O)C_{1-6} alkyl, COC_6H_5, —$CONR_{11}R_{12}$, $NR_{11}COR_{12}$, $SO_2NR_{11}R_{12}$ or $NR_{11}SO_2R_{12}$ wherein R_{11} and R_{12} are hydrogen or C_{1-6} alkyl; and

R_6 is hydrogen or C_{1-6} alkyl;

or a compound of formula (I-1) wherein the CO—Y linkage is replaced by a heterocyclic bioisostere.

5,726,188

OPTICALLY ACTIVE IMIDAZOLIDINONE DERIVATIVES AND PROCESSES FOR PREPARING THEM

Yasuo Takano, Kazo, Japan; Kei Okazaki, Nogi-machi, Japan; Takashi Hirayama, Washimiya-machi, Japan, and Tsuyoshi Anraku, Nogi-machi, Japan, assignors to Kyorin Pharmaceutical Co., Ltd., Tokyo, Japan

PCT No. PCT/JP94/01505, § 371 Date Mar. 15, 1996, § 102(e) Date Mar. 15, 1996, PCT Pub. No. WO95/07905, PCT Pub. Date Mar. 23, 1995

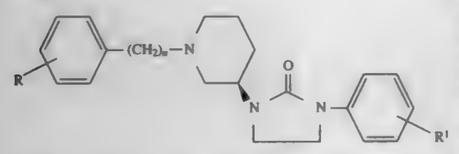
PCT Filed Sep. 12, 1994, Ser. No. 612,827

Claims priority, application Japan, Sep. 17, 1993, 5-254983; Sep. 9, 1995, 60242264

Int. Cl.[6] A61K *31/445;* **C07D** *401/04*

U.S. Cl. 514—326 **11 Claims**

1. A stereoisomer 3-(R)-imidazolidinonyl piperidine of the following structure:



(wherein R and R^1 denote identically or differently hydrogen atoms, halogen atoms, lower alkyl groups which may be substituted by halogen atoms, lower alkoxy groups, lower alkylthio groups, lower alkoxycarbonyl groups, nitro groups, amino groups or cyano groups, and n denotes 1 to 4), or an acid addition salt.

5,726,189

METHOD FOR IMAGING NICOTINIC ACETYLCHOLINERGIC RECEPTORS IN THE BRAIN USING RADIOLABELED PYRIDYL-7-AZABICYCLO [2.2.1]HEPTANES

Edythe D. London, Baltimore; Alane S. Kimes, Perry Hall; Andrew Horti, Columbia; Robert F. Dannals, Sparks, all of Md., and Michael Kassiou, Marrickville, Australia, assignors to The United States of America, represented by The Secretary, Department of Health and Human Services, Washington, D.C., and Johns Hopkins University School of Medicine, Baltimore, Md.

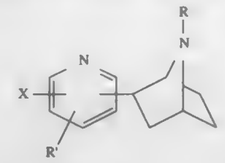
Filed May 3, 1996, Ser. No. 642,636

Int. Cl.[6] A61K *31/44*

U.S. Cl. 514—339 **22 Claims**

1. A method for imaging and quantifying nicotinic acetylcholinergic receptors in a mammal comprising

(a) administering to said mammal a compound of the formula



wherein R is selected from the group consisting of hydrogen, C_1–C_6 alkyl, halo C_1–C_6 alkyl, aryl, and aryl C_1–C_6 alkyl, R' is selected from the group consisting of hydrogen and C_1–C_6 alkyl, and X is selected from the group consisting of hydrogen, halo, and halo C_1–C_6 alkyl, wherein at least one of R, R' and X is radiolabeled and

(b) imaging and quantifying said compound in said mammal as indicative of the presence and quantity of said nicotinic acetylcholinergic receptors in said mammal.

5,726,190

AGONIST-ANTAGONIST COMBINATION TO REDUCE THE USE OF NICOTINE AND OTHER DRUGS

Jed E. Rose, Venice, and Edward D. Levin, Los Angeles, both of Calif., assignors to Robert J. Schaap, Los Angeles, Calif., a part interest

Continuation of Ser. No. 54,144, Apr. 30, 1993, which is a continuation of Ser. No. 855,868, Mar. 23, 1992, Pat. No. 5,316,759, which is a continuation of Ser. No. 231,092, Aug. 11, 1988, abandoned, which is a continuation-in-part of Ser. No. 840,072, Mar. 17, 1986, Pat. No. 4,846,199. This application Nov. 6, 1995, Ser. No. 554,403

Int. Cl.[6] A61K *31/44;9/70*

U.S. Cl. 514—343 **10 Claims**

1. A method of therapeutically treating physiological or psychophysiological dysfunction resulting from dysregulation in which certain receptors of a subject are over-active or under-active due to the action of an endogenous substance in the subject having such dysregulation and thereby resulting in the over-activity or under-activity, said method comprising simultaneously administering to a subject a composition comprised of a first component which is a drug or agonist of the drug and which causes receptors which are responsive to a systemic introduction of that activating drug to become activated, and a second component comprised of an antagonist to the drug or agonist which blocks effects of the drug or agonist that causes activation of these same receptors and which same receptors are also sensitive to the antagonist, the first component being administered in an amount which would improve the physiological or psychophysiological dysfunction resulting from under-activity of those receptors affected by the neurotransmitter and the endogenous substances by increasing the activity of such receptors by activating them, the second component being administered in an amount which improves the physiological or psychophysiological dysfunction resulting from over-activity of said receptors by decreasing activity of the receptors by blocking them, both the drug or agonist and the antagonist being administered in an effective amount to reduce the systemic effects of each other,

counter the physiological or psychophysiological dysfunction and reduce over-activity or under-activity in said receptors caused by the endogenous substance.

5,726,191

AROMATIC CARBOXYLIC ACID ESTERS

Michael Klaus, Weil am Rhein, Germany, and Peter Mohr, Basel, Switzerland, assignors to Hoffmann-La Roche Inc., Nutley, N.J.

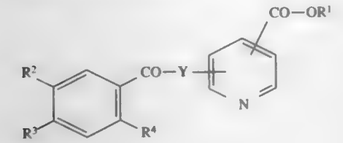
Filed Oct. 23, 1996, Ser. No. 735,941

Claims priority, application Switzerland, Nov. 16, 1995, 3249/95

Int. Cl.[6] A61K *31/44;* **C07D** *213/70;213/63*

U.S. Cl. 514—350 **26 Claims**

1. A compound of the formula



I

wherein

R^1 is hydrogen or C_{1-6}-alkyl;

R^2 is C_{1-6}-alkyl or adamantyl;

R^3 is C_{1-6}-alkyl or hydroxy; or

R^2 and R^3 taken together are —$(CR^6R^7)_n$—;

R^4 is C_{2-8}-alkyl, C_{2-8}-alkenyl, C_{2-8}-alkynyl, —OCH_2R^5 or C_{2-8}-alkanoyl; and hydrogen when R^3 is hydroxy;

R^5 is C_{1-6}-alkyl, C_{2-6}-alkenyl or C_{2-6}-alkynyl;

R^6 and R^7 are hydrogen or C_{1-6}-alkyl;

Y is oxygen or sulphur; and

n is 3, 4 or 5,

or pharmaceutically usable salts of carboxylic acids of formula I.

5,726,192

PLATELET AGGREGATION INHIBITING COMPOUNDS

William Edward Bondinell, Wayne, Pa.; James Francis Callahan, Philadelphia, Pa.; William Francis Huffman, Malvern, Pa.; Richard McCulloch Keenan, Malvern, Pa.; Brian Walter Metcalf, Radnor, Pa.; James Samanen, Phoenixville, Pa., and Tobias Oregon Yellin, Villanova, Pa., assignors to SmithKline Beecham Corporation, Philadelphia, Pa.

PCT No. PCT/US93/12530, § 371 Date Aug. 8, 1995, § 102(e) Date Aug. 8, 1995, PCT Pub. No. WO94/14775, PCT Pub. Date Jul. 7, 1994

PCT Filed Dec. 22, 1993, Ser. No. 464,728

Int. Cl.[6] C07D *213/02;* **A61K** *31/44*

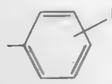
U.S. Cl. 514—352 **6 Claims**

1. A compound of the formula (I):

$$W—Z—(CR'R^{10})_r—U—(CR'_2)_s—V—A \quad (I)$$

wherein:

A is



;

W is R'R"N—;

Z is Het wherein Het is an optionally substituted five or six membered monocyclic ring, or a nine or ten- membered bicyclic ring containing one to three heteroatom;

U and V independently are absent or present as CO, CR'_2, C(=CR'_2), S(O)$_n$, O, NR', CR'OR', CR'(OR")CR'_2, CR'_2CR'(OR"), C(O)CR'_2, CR'_2C(O), CONR', NR'CO, OC(O), C(O)O, C(S)O, OC(S), C(S)NR', NR'C(S), S(O)$_n$NR', NR'S(O)$_n$, N=N, NR'NR', NR'CR'_2, NR'CR'_2, CR'_2O, OCR'_2, C≡C, CR'=CR', or CR'(NR'R")C(O);

each r independently is 0 to 3;

s is 0 to 2;

each R' independently is H, C_{1-4}alkyl, C_{3-7}cycloalkyl-C_{0-4}alkyl, or Ar—C_{0-4}alkyl;

each R" independently is R', —C(O)R', or —C(O)OR^{15};

R^{10} is H, C_{1-4}alkyl, or —NR'R';

each R^{15} independently is C_{1-4}alkyl, C_{3-7}cycloalkyl-C_{0-4}alkyl, or AR—C_{0-4}alkyl;

R^2 is present once or twice as C_{1-4}alkyl, J—CO_2R', CONR', SR', NR'R", C_{1-4}alkoxy, hydroxy, CN, CF_3, halo, or,



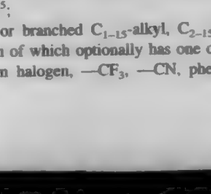
with the proviso that at least one R^2 is J—CO_2R;

J is a single bond, —OCR'_2—, —NR'CR'_2—, CR'_2—CR'_2—, —CR'_2—, —CR'=CR', or —C(O)NR'CR'_2—; and

each R^{14} independently is C_{1-4}alkyl, C_{3-7}cycloalkyl-C_{0-4}alkyl, Ar—C_{0-4}alkyl, C(O)R', CN, NO_2, SO_2R', or C(O)OR^{15};

or a pharmaceutically acceptable salt thereof, provided that:

(1) when V—A is



or

then W—Z—$(CR'R^{10})_r$— is not NHR'.

5,726,193

METHOD FOR TREATING ANXIETY

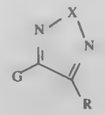
Neil C. Bodick, Indianapolis, Ind.; Franklin P. Bymaster, Brownsburg, Ind.; Walter W. Offen, Indianapolis, Ind., and Harlan E. Shannon, Carmel, Ind., assignors to Eli Lilly and Company, Indianapolis, Ind.

Division of Ser. No. 336,589, Nov. 9, 1994, Pat. No. 5,484,794, which is a continuation-in-part of Ser. No. 332,186, Oct. 31, 1994, Pat. No. 5,488,056. This application May 24, 1995, Ser. No. 449,165

Int. Cl.[6] A01N *43/82*

U.S. Cl. 514—362 **4 Claims**

1. A method for treating anxiety in a human, comprising administering to the human an antianxiety dose of a compound of Formula I



I

wherein

X is oxygen or sulfur;

R is hydrogen, amino, halogen, —CHO, —NO_2, —OR^4, —SR^4, —SOR^4, —SO_2R^4, C_{3-7}-cycloalkyl, C_{4-8}-(cycloalkylalkyl), -Z—C_{3-7}-cycloalkyl, or -Z—C_{4-8}-(cycloalkylalkyl); or

R is phenyl or benzyloxycarbonyl, each of which is optionally substituted with halogen, —CN, C_{1-4}-alkyl, C_{1-4}-alkoxy, —OCF_3, —$CONH_2$ or —$CSNH_2$;

or R is —OR^5Y, —SR^5Y, —OR^5ZY, —SR^5ZY, —O-R^4-Z-R^5 or —S-R^4 -Z-R^5;

R^4 is straight or branched C_{1-15}-alkyl, C_{2-15}-alkenyl, or C_{2-15}-alkynyl, each of which optionally has one or more substituents selected from halogen, —CF_3, —CN, phenyl or phenoxy or

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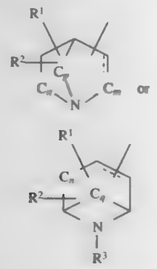
phenyl or phenoxy substituted with halogen, —CN, C_{1-4}-alkyl, C_{1-4}-alkoxy, —OCF_3, —$CONH_2$ or —$CSNH_2$;

Z is oxygen or sulfur,

R^5 is straight or branched C_{1-15}-alkynylene;

Y is a 5 or 6 membered heterocyclic group containing one to four N, O or S atom(s) or a combination thereof, wherein the heterocyclic group is optionally substituted at carbon or nitrogen atom(s) with straight or branched C_{1-6}-alkyl, phenyl or benzyl, or is optionally fused with a phenyl group;

G an azabicyclic ring selected from:



wherein the azabicyclic ring can be attached through any of its carbon atoms to the thiadiazole or oxadiazole ring;

R^1 and R^2 independently are hydrogen or a straight or branched C_{1-5}-alkyl, C_{2-5} alkenyl, C_{2-5}-alkynyl or C_{1-10}-alkoxy group or a straight or branched C_{1-5}-alkyl group substituted with —OH, OR^4, halogen, —NH_2 or carboxy; and R^1 and R^2 may be present at any position, including the point of attachment to the thiadiazole or oxadiazole ring;

R^3 is H or straight or branched C_{1-5}-alkyl, C_{2-5}-alkenyl or C_{2-5}-alkynyl;

m, n and p independently are 0, 1 or 2;

q is 1 or 2; and

— is a single or double bond;

provided that, when X is sulfur and:

a) when G is a 1-azabicyclo(2.2.2)octane or a 1-azabicyclo(3.2.1)octane group, and R^1 and R^2 are hydrogen, then R cannot be chloro;

b) when G is a 1-azabicyclo(2.2.2)octane group and R^1 and R^2 are hydrogen, then R cannot be C_{2-5}alkyloxy or C_{2-5}-alkylthio;

c) when G is a 1-azabicyclo(3.2.1)octane group and R^1 and R^2 are hydrogen, then R cannot be C_{2-4}-alkythio; and

d) when G is a 1-azabicyclo(2.2.1)heptane group and R^1 and R^2 are hydrogen, then R cannot be C_{3-4}-alkythio;

or a pharmaceutically acceptable salt thereof.

5,726,194

ENDOTHELIN RECEPTOR ANTAGONISTS

Mathias Osswald, Zwingenberg; Werner Mederski, Erzhausen; Dieter Dorsch, Ober-Ramstadt; Claudia Wilm, Muhltal; Claus Schmitges, Gross-Umstadt, and Maria Christadler, Rodermark, all of Germany, assignors to Merck Patent Gesellschaft mit beschrankter Haftung, Darmstadt, Germany

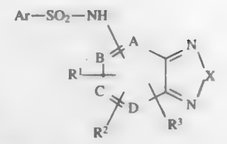
Filed Mar. 18, 1996, Ser. No. 617,342

Claims priority, application Germany, Mar. 18, 1995, 195 09 950.8

Int. Cl.[6] **A61K** *31/41;31/445;* **C07D** *271/12;285/14*

U.S. Cl. 514—362 **13 Claims**

1. A compound of the formula I



I

in which

—A═B—C═D— is a —CH═CH—CH═CH— group in which each H group can independently be replaced by R^1, R^2 or R^3,

Ar is Ph or naphthyl, which is unsubstituted or mono-, di- or trisubstituted by H, Hal, Q, alkenyl having 2 to 6 C atoms, Ph, OPh, NO_2, NR^4R^5, $NHCOR^4$, CF_3, OCF_3, CN, OR^4, $COOR^4$, $(CH_2)_nCOOR^4$, —$(CH_2)_nNR^4R^5$, —N═C═O or $NHCONR^4R^5$,

R^1, R^2 and $R^3$are present only when 1–3 H groups in —A═B—C═D— are replaced thereby and, in each case independently of one another, are Hal, Q, CF_3, NO_2, NR^4R^5, CN, $COOR^4$ or $NHCOR^5$,

R^4 and R^5 in each case independently of one another are H or Q, or together are also —CH_2—$(CH_2)_n$—CH_2—,

Q is alkyl having 1 to 6 C atoms,

Ph is phenyl,

X is O or S,

Hal is F, Cl, Br or I,

n is 1, 2 or 3,

and salts thereof,

excluding the compounds

4-methyl-N-(2,1,3-benzothiadiazol-4-yl)benzenesulfonamide,

4-methyl-N-(2,1,3 -benzothiadiazol-5-yl)benzene-sulfonamide,

4-nitro-N-(2,1,3-benzothiadiazol- 5-yl)-benzenesulfonamide,

4-nitro-N-(2,1,3-benzothiadiazol-4-yl)benzenesuflonamide,

4-amino-N-(2,1,3-benzothia-diazol-5-yl)benzenesulfonamide, and 4-amino-N-(2,1,3-benzothiadiazol-4-yl)-benzenesulfonamide.

5,726,195

AMINOACYL ADENYLATE MIMICS AS NOVEL ANTIMICROBIAL AND ANTIPARASITIC AGENTS

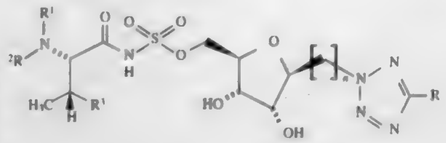
Jason M. Hill, Newtonville; Guixue Yu, Wakefield; Youe-Kong Shue, Sudbury; Thomas M. Zydowsky, Cambridge, all of Mass., and Julius Rebek, La Jolla, Calif., assignors to Cubist Pharmaceuticals, Inc., Cambridge, Mass.

Filed Jul. 16, 1996, Ser. No. 683,809

Int. Cl.[6] **C07D** *217/00;285/00;257/04;409/00*

U.S. Cl. 514—382 **50 Claims**

1. A compound of the Formula:



(a) wherein R is selected from the group consisting of amino, alkyl, aryl, cycloalkyl, alkoxy and aryloxy;

(b) wherein each of R^1 and R^2 is independently selected from the group consisting of hydrido, alkyl, aryl, carboalkoxy, alkylthiocarbonyl, carboxyamido, and acyl;

(c) wherein R^3 is selected from the group consisting of ethyl and methoxy;

(d) wherein n is a number selected from the group consisting of 1 and 2;

and pharmaceutically-acceptable salts thereof.

5,726,196

AROMATASE-INHIBITING COMPOSITION CONTAINING AZOLE DERIVATIVE

Koichi Niimura, Rune-Warabi 1-718, 1-17-30, Chuo, Warabi-shi, Saitama-ken; Akira Kato, 3-41-12, Ogikubo, Suginami-ku; Junko Miyagawa, Umegaoka-ryo, 3-10-23, Umegaoka, Setagaya-ku, both of Tokyo, and Yuko Ikeda, 4-272-D-101, Shinmatsudo, Matsudo-shi, Chiba-ken, all of Japan

Division of Ser. No. 325,161, Oct. 21, 1994. This application Mar. 28, 1996, Ser. No. 623,914

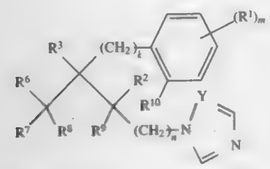
Claims priority, application Japan, Nov. 18, 1993, 5-311056

Int. Cl.[6] **A61K** *31/41;31/415*

U.S. Cl. 514—383 **3 Claims**

1. A method of treating any one of breast cancer, benign breast disease, uterine cancer, pancreatic carcinoma, and Cushing's syndrome, which comprises administering to a patient suffering therefrom an aromatase-inhibiting effective amount of a compound selected from the group consisting of compounds of the formula (I):

(I)



including their stereoisomers and salts thereof, wherein R^1 is Cl or Br; m is 0, 1 or 2; k and n each are independently 0 or 1; R^3, R^6 and R^7 each are H; R^8 and R^9 form a —CH_2—$C(R^{11})$ (R^{12})— bond, wherein R^{11} and R^{12} each are independently H or C_{1-2} alkyl; Y is N or CH; and R^{10} and R^2 form an —O— bond.

5,726,197

ISOINDOLINYL DERIVATIVES

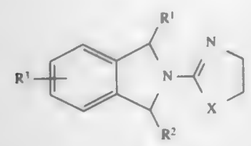
Robin D. Clark, Palo Alto, Calif., and Michael Spedding, Paris, France, assignors to Syntex (U.S.A.) Inc., Palo Alto, Calif.

Filed Nov. 2, 1992, Ser. No. 971,015

Int. Cl.[6] **C07D** *417/04;* **A61K** *31/425*

U.S. Cl. 514—387 **18 Claims**

1. A compound of the formula:



wherein:

R^1 and R^2 are independently hydrogen or lower alkyl;

R^3 is hydrogen, lower alkyl, lower alkoxy, hydroxy, halo, amino, nitro or trifluoromethyl; and

X is —NH—, —O— or —S—;

or a pharmaceutically acceptable salt thereof.

5,726,198

N,N-DI(ARYL) CYCLIC UREA DERIVATIVES AS ANTI-COAGULANTS

Raju Mohan, Moraga, and Michael M. Morrissey, Danville, both of Calif., assignors to Berlex Laboratories, Inc., Richmond, Calif.

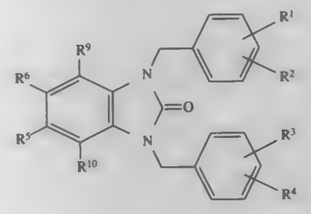
Division of Ser. No. 458,598, Jun. 2, 1995, Pat. No. 5,612,363. This application Dec. 12, 1996, Ser. No. 766,152

Int. Cl.[6] **A61K** *31/415;31/535;* **C07D** *235/26;413/10*

U.S. Cl. 514—387 **6 Claims**

1. A compound of formula (I):

(I)



wherein:

R^1 is —C(NH)NH_2, —C(NH)N(H)OR^{11}, —C(NH)N(H)C(O)R^9, or —C(NH)N(H)C(O)OR^{11};

R^2 and R^3 are the same or different and are selected from the group consisting of independently hydrogen, halo, lower alkyl, lower haloalkyl, phenyl, naphthyl, —OR^{11}, —C(O)OR^{11}, —C(O)N(R^{11})R^{12}, —N(R^{11})R^{12}, —N(H)C(O)R^{11}, and —N(H)S(O)$_2R^{11}$;

R^4 is halo, lower haloalkyl, imidazolyl, —C(NH)NH_2, —C(NH)NHOR^{11}, —C(NH)N(H)C(O)R^9, —C(NH)N(H)C(O)OR^{11}, —OR^{11}, —C(O)R^{13}, —$(CH_2)_n$C(O)OR^{11} (where n is 0 to 6), —C(O)N(R^{11})R^{12}, or —N(R^{11})R^{12};

R^5, R^6, R^9 and R^{10} are independently hydrogen, halo, lower alkyl, lower haloalkyl, 4-pyridinyl, —OR^{11}, —C(O)OR^{11}, —C(O)N(R^{11})R^{12}, phenyl (optionally substituted by one or more substituents selected from the group consisting of halo, hydroxy, lower alkyl, lower haloalkyl, lower alkoxy and —N(R^{11})R^{12}), or naphthyl (optionally substituted by one or more substituents selected from the group consisting of halo, hydroxy, lower alkyl, lower haloalkyl, lower alkoxy and —N(R^{11})R^{12});

R^{11} and R^{12} are independently hydrogen, lower alkyl, phenyl, naphthyl or lower aralkyl; and

R^{13} is pyrrolidinyl, 4-morpholinyl, piperazinyl, N- methylpiperazinyl, or piperidinyl; or a pharmaceutically acceptable salt thereof.

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5,726,199

N-ARYL AND N-ALKYLSULPHONYLAMINALS AS PESTICIDES

Bernd Baasner, Bergisch Gladbach; Hermann Hagemann, Leverkusen; Markus Heil, Leverkusen; Folker Lieb, Leverkusen; Hermann Uhr, Krefeld, and Christoph Erdelen, Leichlingen, all of Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Germany

PCT No. PCT/EP95/00853, § 371 Date Sep. 13, 1996, § 102(e) Date Sep. 13, 1996, PCT Pub. No. WO95/25719, PCT Pub. Date Sep. 28, 1995

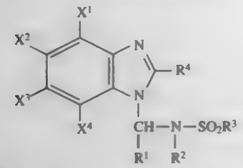
PCT Filed Mar. 8, 1995, Ser. No. 716,255

Claims priority, application Germany, Mar. 21, 1994, 44 09 577.5; Apr. 20, 1994, 44 13 659.5

Int. Cl.[6] A01N *43/52*; **C07D** *235/10*

U.S. Cl. 514—394 **6 Claims**

1. An N-aryl or N-alkylsulfonylaminal of the formula



(Ia)

in which

R^1 represents hydrogen, represents straight-chain or branched alkyl having 1 to 8 carbon atoms or represents optionally monosubstituted or polysubstituted C_6–C_{10}-aryl wherein said substituents are

halogen; cyano; nitro; in each case straight-chain or branched alkyl, alkoxy, alkylthio, alkylsulfinyl or alkylsulfonyl having in each case 1 to 6 carbon atoms; in each case straight-chain or branched halogenoalkyl, halogenoalkoxy, halogenoalkylthio, halogenoalkylsulfinyl or halogenoalkylsulfonyl having in each case 1 to 6 carbon atoms and 1 to 13 identical or different halogen atoms; in each case straight-chain or branched alkoxyalkyl, alkoxyalkoxy, alkanoyl, alkoxycarbonyl or alkoxyiminoalkyl having in each case 1 to 6 carbon atoms in the individual alkyl moieties; divalent dioxyalkylene having 1 to 5 carbon atoms which is optionally monosubstituted or polysubstituted by identical or different substituents selected from the group consisting of halogen, straight-chain or branched alkyl having 1 to 6 carbon atoms, straight-chain or branched halogenoalkyl having 1 to 6 carbon atoms and 1 to 13 identical or different halogen atoms; or phenyl which is optionally monosubstituted or polysubstituted by identical or different substituents selected from the group consisting of halogen, straight-chain or branched alkyl having 1 to 6 carbon atoms, or straight-chain or branched halogenoalkyl having 1 to 6 carbon atoms and 1 to 13 identical or different halogen atoms,

R^2 and R^3 independently of one another represent straight-chain or branched alkyl having 1 to 8 carbon atoms or represent optionally monosubstituted or polysubstituted phenyl wherein said substituents are halogen; cyano; nitro; in each case straight-chain or branched alkyl, alkoxy, alkylthio, alkylsulfinyl or alkylsulfonyl having in each case 1 to 6 carbon atoms; in each case straight-chain or branched halogenoalkyl, halogenoalkoxy, halogenoalkylthio, halogenoalkylsulfinyl or halogenoalkylsulfonyl having in each case 1 to 6 carbon atoms and 1 to 13 identical or different halogen atoms; in each case straight-chain or branched alkoxyalkyl, alkoxyalkoxy, alkanoyl, alkoxycarbonyl or alkoxyiminoalkyl having in each case 1 to 6 carbon atoms in the individual alkyl moieties; divalent dioxyalkylene having 1 to 5 carbon atoms which is optionally monosubstituted or polysubstituted by identical or different substituents selected from the group consisting of halogen, straight-chain or branched alkyl having 1 to 6 carbon atoms, or straight-chain or branched halogenoalkyl having 1 to 6 carbon atoms and 1 to 13 identical or different halogen atoms; or phenyl which is optionally monosubstituted or polysubstituted by identical or different substituents selected from the group consisting of halogen, straight-chain or branched alkyl having 1 to 6 carbon atoms, or straight-chain or branched halogenoalkyl having 1 to 6 carbon atoms and 1 to 13 identical or different halogen atoms,

R^4 represents perfluoroalkyl or partially fluorinated alkyl having in each case 1 to 25 carbon atoms and up to 50 fluorine atoms,

X^1, X^2, X^3 and X^4 independently of one another in each case represent hydrogen; fluorine; chlorine; bromine; iodine; cyano; nitro; represent in each case straight-chain or branched alkyl, alkoxy, alkylthio, alkylsulfinyl or alkylsulfonyl having in each case 1 to 8 carbon atoms; cycloalkyl having 3 to 8 carbon atoms; in each case straight-chain or branched halogenoalkyl, halogenoalkoxy, halogenoalkylthio, halogenoalkylsulfinyl, halogenoalkylsulfonyl having in each case 1 to 6 carbon atoms and 1 to 13 identical or different halogen atoms; divalent dioxyalkylene having 1 to 5 carbon atoms which is optionally monosubstituted or polysubstituted by identical or different substituents consisting of halogen, straight-chain or branched alkyl having 1 to 4 carbon atoms, or straight-chain or branched halogenoalkyl having 1 to 4 carbon atoms and 1 to 9 identical or different halogen atoms; hydroxycarbonyl; in each case straight-chain or branched alkylcarbonyl or alkoxycarbonyl having in each case 1 to 6 carbon atoms in the alkyl moiety; cycloalkyloxycarbonyl having 3 to 8 carbon atoms in the cycloalkyl moiety; or amino or aminocarbonyl each of which is optionally monosubstituted or polysubstituted by identical or different substituents, wherein the substituents for the amino group are

in each case straight-chain or branched alkyl having 1 to 6 carbon atoms; halogenalkyl having 1 to 6 carbon atoms and 1 to 13 halogen atoms; alkoxyalkyl or alkylcarbonyl having in each case 1 to 6 carbon atoms in the individual alkyl moieties; or arylcarbonyl, arylsulfonyl, arylaminocarbonyl or arylmethylsulfonyl having in each case 6 to 10 carbon atoms in the aryl moiety, each of which is optionally monosubstituted or polysubstituted in the aryl moiety by identical or different substituents, wherein the substituents are the same as the aryl substituents as defined in R^1;

or furthermore represent aryl, aryloxy, arylthio, arylsulfinyl, arylsulfonyl, arylsulfonyloxy, arylcarbonyl, aryloxycarbonyl, arylthiomethylsulfonyl or arylazo having in each case 6 to 10 carbon atoms in the aryl moiety, each of which is optionally monosubstituted or polysubstituted in the aryl moiety by identical or different substituents, wherein the substituents are the same as the aryl substituents defined in R^1.

5,726,200

PRO-DRUGS FOR CCK ANTAGONISTS

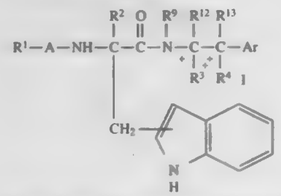
David Christopher Horwell, Foxton; Martyn Clive Pritchard, Swavesey, and Reginald Stewart Richardson, Haverhill, all of England, assignors to Warner-Lambert Company, Morris Plains, N.J.

Division of Ser. No. 227,211, Apr. 13, 1994, Pat. No. 5,554,643, which is a division of Ser. No. 726,653, Jul. 12, 1991, Pat. No. 5,340,825, which is a continuation-in-part of Ser. No. 576,315, Aug. 31, 1990, abandoned. This application Jun. 10, 1996, Ser. No. 661,254

Int. Cl.[6] A61K *31/405*; **C07D** *209/14*

U.S. Cl. 514—419 **10 Claims**

1. A compound of the formula



I

or a pharmaceutically acceptable salt thereof wherein:

R^1 is a cycloalkyl or polycycloalkyl hydrocarbon of from three to twelve carbon atoms with from zero to four substituents each independently selected from the group consisting of a straight or branched alkyl of from one to about six carbon atoms, halogen, CN, OR*, SR*, CO_2R^*, CF_3, NR^5R^6, and $—(CH_2)_nOR^5$ wherein R* is hydrogen, straight or branched alkyl of from one to six carbon atoms, $—(CH_2)_nAr$, —COAr, $—(CH_2)_nOCOAr$, or $—(CH_2)_nNR^5COAr$ and R* may also independently be R** as defined below,

and R** must be present at least once in formula I, and R** is attached to formula I through a metabolically labile bond, R^5 and R^6 are each independently hydrogen or alkyl of from one to about six carbon atoms and n is an integer from zero to six; and R** is $—(CH_2)_nNR^5R^6$, $—(CH_2)_n—B—D^*$ wherein D* is O—COR*, CO_2Ar^2, $OCOAr^2$, NR_5COAr^2, $COAr^2$, $CO_2CH(R)—CO_2R^*$, $CO_2—(CH_2)_nOCOR^*$ where Ar^2 is independently taken from Ar, where m is as defined below, $CONHCH(R)CO_2R^*$ where R is a side chain of a biologically significant amino acid, selected from; alanine, β-alanine, alloisoleucine, allthreonine, arginine, asparagine, aspartic acid, cysteine, glutamic acid, glutamine, glycine, homocysteine, homoserine, isoleucine, isovaline, leucine, lysine, methionine, norleucine, norvaline, ornithine, phenylalanine, serine, threonine, tyrosine, and valine, R is hydrogen only when B is not a bond, $—CO_2CH_2CH_2)N^+(R^*)_3X^{1-}$ when X^{1-} is a pharmaceutically acceptable counter anion,

A is $—(CH_2)_nCO—$, $—SO_2—$, —S(=O)—, —NHCO—, —(CH2)n—C(=O)—,

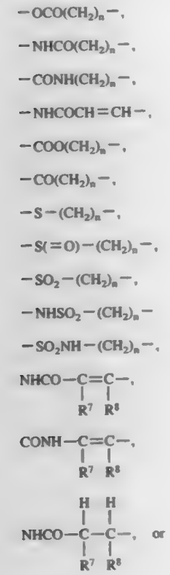
—O—$(CH_2)_n$CO— or —HC=CHCO— wherein n is an integer from zero to six;

R^2 is a straight or branched alkyl of from one to about six carbon atoms, $—HC=CH_2$, —C≡CH, $—(CH_2)_n—CH=CH_2$, $—(CH_2)_n—C≡CH$, $—(CH_2)_nAr$, $—(CH_2)_nOR^*$, $—(CH_2)_nOAr$, $—(CH_2)_n—CO_2R^*$, or $—(CH_2)_nNR^5R^6$ wherein n, R*, R^5 and R^6 are as defined above and Ar is as defined below;

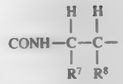
R^3 and R^4 are each independently selected from hydrogen, R^2 and $—(CH_2)_n—B—D$ wherein:

n' is an integer of from zero to three;

B is a bond,



-continued



wherein R^7 and R^8 are each independently selected from hydrogen and R^2 or together form a ring $(CH_2)_m$ wherein m is an integer of from 1 to 5 and n is as defined above;

D is hydrogen,

—COOR*,

$—CH_2NR^5R^*$,

$—CHR^2NR^5R^*$,

$—CH_2OR^*$,

$—CHR^2OR^*$,

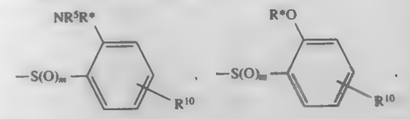
$—CH_2SR^*$,

$—CHR^2SR^*$,

$—CONR^5R^6$,

$—CONR^5R^*$,

an acid replacemnent selected from



wherein m is an integer of from 0 to 2

R^{10} is OR*, NR^5R^*, CH_3, or Cl

HO_3S —,

—PO_3H_2—;

$PhSO_2NHCO$ —,

$CF_3CONHCO$ —,

CF_3SO_2NHCO —,

H_2NSO_2 —,

wherein R*, R^2, R^5, R^6 are as defined above;

R^9 is hydrogen or a straight or branched alkyl of from one to about six carbon atoms; $—(CH_2)_nCO_2R^*$, $—(CH_2)_nNR^5R^*$, wherein n, R*, and R^5 are as defined above or taken from R^3;

R^{12} and R^{13} are each independently hydrogen or are each independently taken with R^3 and R^4, respectively, to form a moiety doubly bonded to the carbon atom; and

Ar is a mono- or polycyclic unsubstituted or substituted carboaromatic or carbo-hydroaromatic moiety.

5,726,201

GEMFIBROZIL CONTAINING PHARMACEUTICAL COMPOSITIONS

Pál Fekete; Erzsébet Fellner, née Kóhalmi; Andrea Sándorfalvy; Dénes Bezzegh; György Ujfalussy; Magdolna Góra, née Hernyes; Imre Klebovich; Sándor Drabant; Attila Mándi; Biborka Maroshelyi, née Kovács; Márta Szántó, and Zsuzsa Szlávy, née Széll, all of Budapest, Hungary, assignors to Egis Gyogyszergyar Rt., Budapest, Hungary

Filed May 15, 1995, Ser. No. 441,687

Int. Cl.[6] A61K *31/34*

U.S. Cl. 514—471 **20 Claims**

1. Oral solid pharmaceutical composition containing as active ingredient gemfibrozil and conventional pharmaceutical auxiliary agents comprising as surfactant bis-(2-ethyl-hexyl)-sodium-

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sulfosuccinate in an amount of 0.05–0.5% by weight, relative to the gemfibrozil content of the composition.

5,726,202

BENIGN PROSTATIC HYPERTROPHY

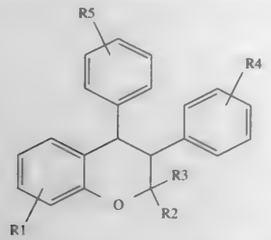
Michael Shalmi, København, Denmark; Niels Dyhr Christensen, København, Denmark; Niels Korsgaard, Værløse, Denmark, and Birgitte Hjort Guldhammer, Hillerød, Denmark, assignors to Novo Nordisk A/S, Bagsvaerd, Denmark

Filed Jul. 11, 1996, Ser. No. 678,275

Int. Cl.[6] A61K *31/40;31/35*

U.S. Cl. 514—422 **18 Claims**

1. A method for treatment or prophylaxis of benign prostatic hypertrophy comprising administering to an adult male patient in need of such treatment or prophylaxis a compound of formula I



(I)

wherein R1, R4, and R5 are individually hydrogen, hydroxy, halogen, trifluoromethyl, lower alkyl, lower alkoxy or (tertiary amino) (lower alkoxy); and R2 and R3 are individually hydrogen or lower alkyl, or a pharmaceutically acceptable salt thereof in a range of from about 0.001–75 mg/kg patient per day.

5,726,203

QINGHAOSU DERIVATIVES AGAINST AIDS

Zelin Li, Institute of Chinese Material Medica, Chinese Academy of Traditional Chinese Medicine, Dongzhimennei, Beijing 100700; Xuande Luo, 9-3-105 Baijiazhuangxiii, Chaowai, Beijing 100020; Yi Zeng, 100, Yingxinjie, Xuanwu District, Beijing 100052, and Lin Ma, Ximen 1401, No. 2, Yabaolu, Chaoyan District, Beihing 100020, all of China

PCT No. PCT/CN94/00056, § 371 Date May 21, 1996, § 102(e) Date May 21, 1996, PCT Pub. No. WO95/03311, PCT Pub. Date Feb. 2, 1995

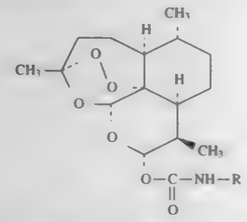
PCT Filed Jul. 19, 1994, Ser. No. 581,629

Claims priority, application China, Jul. 19, 1993, 93108651.5

Int. Cl.[6] A61K *31/335;* **C07D** *323/04*

U.S. Cl. 514—450 **15 Claims**

1. A compound represented by general formula (I) and its pharmaceutical acceptable salt.



(I)

wherein R is selected from the group consisting of C_1–C_4 alkyl, phenyl substituted by a halogen atom, biphenyl unsubstituted or substituted by a halogen atom or a nitro group, and naphthyl unsubstituted or substituted by a halogen atom or a nitro group.

5,726,204

SUKSDORFIN ANALOGS, COMPOSITIONS THEREOF, AND METHODS FOR MAKING AND USING THEREOF

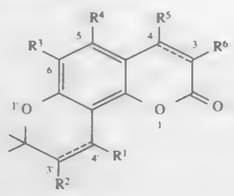
Kuo-Hsiung Lee; Yoshiki Kashiwada; Li Huang; Thomas Tung-Ying Lee, all of Chapel Hill, N.C.; Mark Cosentino, Springfield, Va.; Jim Snider, Hagerstown; Mark Manak, Laurel, both of Md., and Lan Xie, Chapel Hill, N.C., assignors to Biotech Research Laboratories, Rockville, Md., and University of North Carolina at Chapel Hill, Chapel Hill, N.C.

Continuation of Ser. No. 392,558, Feb. 21, 1995, Pat. No. 5,637,589, which is a continuation-in-part of Ser. No. 235,852, Apr. 29, 1994, abandoned, which is a continuation-in-part of Ser. No. 142,992, Oct. 29, 1993, abandoned. This application Jun. 5, 1995, Ser. No. 462,280

Int. Cl.[6] A61K *31/365;* **C07D** *311/94;493/06*

U.S. Cl. 514—455 **32 Claims**

1. A compound having the formula:



wherein R^1, R^2 are cis-β, cis-α, trans-3'-α or trans-3'-β oriented, and wherein

R^1, R^2, R^3 and R^4 are H, $C_{1\text{-}10}$ alkyl $C_{1\text{-}10}$ O-acyl, O-alkyl, O-camphanoyl, amide, or CH_2COOR', where R' is $C_{1\text{-}10}$ alkyl;

R^5 is H, $C_{1\text{-}10}$ alkyl, $C_{1\text{-}10}$ acyl, CF_3, amide or CH_2COOR^7, where R^7 is $C_{1\text{-}10}$ alkyl; and

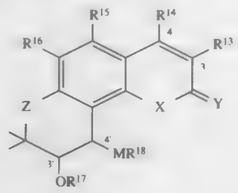
R^6 is H, halogen, $C_{1\text{-}10}$ alkyl, or $—CH_2CH_2NR^7R^8$, where R^8 is $C_{1\text{-}10}$ alkyl, and wherein C3' and C4', and C3 and C4, may be bound by a single or a double bond;

provided that when R^3, R^4, R^5 and R^6 are H, then

(a) R^1 and R^2 are not both $C_{1\text{-}10}$ O-acyl, and

(b) R^1 or R^2 cannot be $C_{1\text{-}4}$ O-alkyl when the other of R^1 or R^2 is $C_{1\text{-}10}$ O-acyl.

25. A compound having the formula:



(III)

wherein

M is O or NH;

X and Z are O;

Y is O, NH or S;

R^{13}, R^{14}, R^{15} and R^{16} are independently hydrogen, halogen, hydroxy, alkoxy, acyloxy, amino, monoalkylamino, dialkylamino, trifluoromethyl, trifluoromethoxy or $—CH_2CONH$-alkyl;

R^{17} and R^{18} are independently hydrogen, $C_{1\text{-}10}$ alkyl, $C_{1\text{-}10}$ acyl, camphanoyl, aryl, trifluoromethylcarbonyl, amide or $—CH_2COOR^{19}$, where R^{19} is $C_{1\text{-}10}$ alkyl or aryl; and

where the configurations at 3' or 4' can be (R) or (S); and R^{17} and R^{18} can be oriented cis-β, cis-α, trans-3'-β or trans-3'-α;

with the proviso that

when M, X, Y and Z are each O and R^{13}, R^{14}, R^{15} and R^{16} are each hydrogen,

then R^{17} or R^{18} are each other than hydrogen, $C_{1\text{-}10}$ acyl or $C_{1\text{-}10}$ alkyl.

5,726,205

O-ACYL-4-PHENYL-CYCLOHEXANOLS, THEIR SALTS, MEDICAMENTS CONTAINING SUCH COMPOUNDS AND THEIR USE, AS WELL AS A METHOD OF PREPARING THEM

Eberhard Woitun, Biberach, Germany; Roland Maier, Biberach, Germany; Peter Müller, Mittelbiberach, Germany; Rudolf Hurnaus, Biberach, Germany; Michael Mark, Biberach, Germany; Bernard Eisele, Biberach, Germany; Ralph-Michael Budzinski, Biberach, Germany, and Gerhard Hallermayer, Maselheim-Sulmingen, Germany, assignors to Karl Thomae GmbH, Biberach An Der Riss, Germany

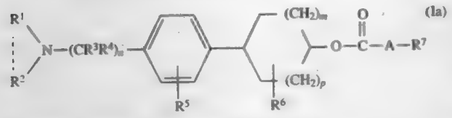
PCT No. PCT/EP94/01276, § 371 Date Jan. 17, 1997, § 102(e) Date Jan. 17, 1997, PCT Pub. No. WO95/29148, PCT Pub. Date Nov. 2, 1995

PCT Filed Apr. 25, 1994, Ser. No. 718,364

Int. Cl.[6] A61K *31/135*

U.S. Cl. 514—538 **7 Claims**

1. A compound of the formula Ia



(Ia)

wherein n, m and p each denote the number 1,

R^1 denotes a hydrogen atom, a straight-chained or branched $C_{1\text{-}4}$-alkyl group which may be substituted by an aminocarbonyl group or, in the 2-, 3- or 4-position, by a hydroxy or alkoxy group, or a 2-propenylene group,

R^2 denotes a hydrogen atom or a $C_{1\text{-}4}$-alkyl group,

R^3 to R^6 each denote a hydrogen atom,

R^7 denotes a phenyl group optionally substituted in the 4-position by a fluorine, chlorine or bromine atom or by a methyl, trifluoromethyl, methoxy, phenyl or nitro group, a 3,4-dichlorophenyl, 2,4-dichlorophenyl, 4-chloro-3-methylphenyl, 4-amino-3-chlorophenyl, 3,4-dimethoxyphenyl, 3,4-methylenedioxyphenyl, 4-amino-3,5-dichlorophenyl or 2-naphthyl group, and

A denotes a bond, a straight-chained or branched $C_{1\text{-}5}$-alkylene group or a $C_{2\text{-}3}$-alkenylene group,

wherein all the above-mentioned alkyl and alkoxy moieties, unless otherwise specified, may contain 1 to 3 carbon atoms, or an enantiomer, diastereomer, geometric isomer or pharmaceutically acceptable salt thereof.

5,726,206

SYNERGISTIC ANTIMICROBIAL COMPOSITIONS CONTAINING A HALOGENATED ACETOPHENONE AND AN ORGANIC ACID

David Oppong, Memphis, Tenn., and Vanja M. King, Memphis, Tenn., assignors to Buckman Laboratories International, Inc., Memphis, Tenn.

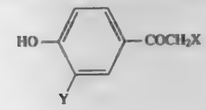
Division of Ser. No. 664,543, Jun. 17, 1996, Pat. No. 5,654,330, which is a division of Ser. No. 468,662, Jun. 6, 1995, Pat. No. 5,527,826, which is a division of Ser. No. 186,917, Jan. 27, 1994, Pat. No. 5,441,981. This application Mar. 3, 1997, Ser. No. 810,673

Int. Cl.[6] A01N *35/00;37/00;37/10*

U.S. Cl. 514—544 **77 Claims**

1. A composition to control the growth of at least one microorganism selected from the group consisting of bacteria, fungi, and mixtures thereof comprising a synergistic microbicidally effective mixture of

(A) a halogenated acetophenone having the formula



in which X is a halogen and Y is a halogen or hydrogen; and

(B) at least one organic acid selected from the group consisting of undecylenic acid, lauric acid, oxalic acid, glycolic acid, citric acid, malic acid, their respective salts, and mixtures thereof.

5,726,207

PROTECTION OF ISCHEMIC MYOCARDIUM AGAINST REPERFUSION DAMAGE

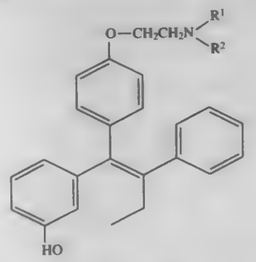
David B. MacLean, Groton, Conn., and David D. Thompson, Groton, Conn., assignors to Pfizer Inc., New York, N.Y.

Filed Feb. 21, 1997, Ser. No. 805,040

Int. Cl.[6] A61K *31/135*

U.S. Cl. 514—648 **3 Claims**

1. A method for inhibiting reperfusion damage in ischemic myocardium comprising administering to a mammal in need of such treatment an effective amount of a compound of formula I



(I)

wherein

R^1 and R^2 may be the same or different provided that, when R^1 and R^2 are the same, each is a methyl or ethyl group, and, when R^1 and R^2 are different, one of them is a methyl or ethyl group and the other is hydrogen or a benzyl group; or a pharmaceutically acceptable salt thereof.

5,726,208

HETEROCYCLIC TERTIARY AMINES

Jean-Louis Peglion, Le Vesinet; Bertrand Goument, Viroflay; Jean-Christophe Harmange, Saint Germain en Laye; Joel Vian, Chaville; Aimée Dessinges, Thiais; Mark Millan, Le Pecq, and Valérie Audinot, Croissy, all of France, assignors to Adir et Compagnie, Courbevoie, France

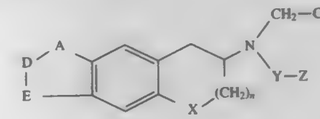
Filed Oct. 11, 1996, Ser. No. 728,759

Claims priority, application France, Oct. 13, 1995, 95 12044

Int. Cl.[6] A61K *31/135;31/165;* **C07C** *211/43;* **C07D** *335/08*

U.S. Cl. 514—656 **7 Claims**

1. A compound selected from the group consisting of those of formula I:

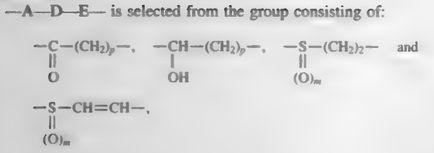


(I)

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wherein:

—A—D—E— is selected from the group consisting of:



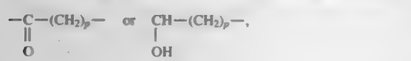
wherein

p is selected from 2 or 3 and

m is selected from zero, 1 or 2;

X is selected from:

$—CH_2—$ and also, when —A—D—E— is selected from



X may also represent oxygen;

n represent:

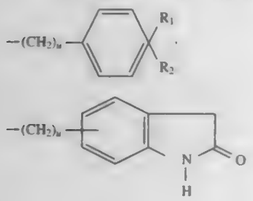
zero or 1 when X represents CH_2 and

solely 1 when X represents oxygen;

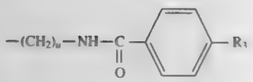
Y is selected from the group consisting of a single bond and $—CH_2—$, and

Z is selected from the group consisting of:

alkyl, alkenyl, and alkynyl, each containing up to 10 carbon atoms inclusive in straight or branched chain and each unsubstituted or substituted by one or more substituent selected from the group consisting of cycloalkyl having from 3 to 7 carbon atoms inclusive, and



and



wherein

u represents an integer of from 1 to 6 inclusive;

R_1 is selected from the group consisting of hydrogen, halogen, hydroxy, alkyl, and alkoxy each containing 1 to 6 carbon atoms inclusive in straight or branched chain;

R_2 is selected from the group consisting of halogen, hydroxy, alkyl, and alkoxy each containing 1 to 6 carbon atoms inclusive in straight or branched chain, phenyl, and groups of formula: $NHCOO—C(CH_3)_3$, NH_2, $NH—COCH_3$, $NHCOCF_3$, $NHSO_2CH_3$, and



wherein R_4 and R_5, which are identical or different, are each selected from hydrogen and straight-chain or branched $(C_1–C_6)$alkyl; and

R_3 is selected from the group consisting of: halogen, hydroxy, straight-chain and branched $(C_1–C_5)$alkoxy, trifluoromethyl, cyano, phenyl, p-aminophenyl, and p-acetylphenyl;

in racemic form and in the form of optical isomers,

and addition salts thereof with pharmaceutically-acceptable acids.

5,726,209

LIQUID FLUOROCARBON EMULSION AS A VASCULAR NITRIC OXIDE RESERVOIR

Stephen F. Flaim, San Diego, Calif., and Jean G. Riess, Nice, France, assignors to Alliance Pharmaceutical Corp., San Diego, Calif.

Filed Jun. 7, 1995, Ser. No. 501,976

Int. Cl.[6] A61K *31/02;33/00*

U.S. Cl. 514—761 **14 Claims**

1. A method for increasing the amount and the stable half-life of nitric oxide circulating in the bloodstream of a patient in need of an increase in the amount and stable half-life of circulating nitric oxide comprising the intravenous administration of an effective amount of a liquid fluorocarbon emulsion.

5,726,210

PROCESS FOR PREPARATION OF ANION EXCHANGE RESIN

Takeshi Teraue, Fukuoka, Japan, and Youichi Tamura, Fukuoka, Japan, assignors to Mitsubishi Chemical Corporation, Tokyo, Japan

Filed Oct. 31, 1996, Ser. No. 741,913

Claims priority, application Japan, Nov. 28, 1995, 7-309219

Int. Cl.[6] C08F *8/32;* **B01J** *39/08;39/20*

U.S. Cl. 521—32 **12 Claims**

1. A process for the preparation of anion exchange resin particles which comprises reacting aromatic crosslinked haloalkyl-containing copolymer particles with an amine in the presence of at least 100 parts by weight, per 100 parts by weight of the copolymer, of water and at least 5 parts by weight, per 100 parts by weight of water, of a water-soluble inorganic salt.

5,726,211

PROCESS FOR MAKING A FOAMED ELASTOMETRIC POLYMER

Jeffrey Curtis Hedrick, Park Ridge, N.J.; James Lupton Hedrick, Pleasanton, Calif.; Jons Gunnar Hilborn, St. Sulpice, Switzerland; Yun-Hsin Liao, W. Nyack, N.Y.; Robert Dennis Miller, San Jose, Calif., and Da-Yuan Shih, Poughkeepsie, N.Y., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Mar. 21, 1996, Ser. No. 620,059

Int. Cl.[6] C08J *9/26*

U.S. Cl. 521—61 **8 Claims**

1. A process for forming a foamed polysiloxane comprising the steps of:

(a) forming an emulsion of liquid droplets dispersed in a continuous liquid phase of polysiloxane precursor;

(b) polymerizing the polysiloxane precursor to form a polysiloxane having dispersed pores filled with the liquid; and

(c) heating the polysiloxane under pressure with a gas to a temperature above about 15° C. below the critical temperature of the liquid and a pressure above about 1 atmosphere below the critical pressure of the liquid to exchange the liquid in the pores with the gas.

5,726,212

POLYMER MEMBRANE HAVING A HIGH PERMEABILITY FOR ALKANOL

Soonhong Yuk, Daejun-si, Rep. of Korea; Sunhang Cho, Daejun-si, Rep. of Korea, and Haibang Lee, Daejun-si, Rep. of Korea, assignors to Korea Research Institute of Chemical Technology, Rep. of Korea

PCT No. PCT/KR94/00124, § 371 Date Mar. 5, 1996, § 102(e) Date Mar. 5, 1996, PCT Pub. No. WO95/09195, PCT Pub. Date Apr. 6, 1995

PCT Filed Sep. 16, 1994, Ser. No. 596,364

Claims priority, application Rep. of Korea, Sep. 27, 1993, 93-19898

Int. Cl.[6] C08J *9/26;9/28;* **B01D** *39/00*

U.S. Cl. 521—62 **4 Claims**

1. A process for preparing alkanol permeation polymer membrane comprising the steps of:

dissolving biocompatible, non-allergenic polymer selected from the group consisting of ethylene/vinylacetate copolymer, ethylene/vinylalchol copolymer, ethylene/ethylacrylate copolymer, vinylchloride/vinylacetate copolymer, polymethacrylate, vinylidenechloride and ethylene/vinyloxyethanol copolymer capable of being dissolved in polar organic solvent in methylene chloride to prepare a first solution;

dissolving cellulose or glycol type polyol compounds selected from the group consisting of hydroxypropylcellulose, hydroxypropylmethylcellulose, polyethyleneglycol, glycerin and ethyleneglycol in cosolvent composed of alkanol and methylene chloride to prepare a second solution;

mixing said first solution with said second solution; and

casting said mixed solution on a glass plate with a controlled thickness;

evaporating the solvent and cosolvent to obtain a polymer membrane.

5,726,213

PVC FOAMED COMPOSITIONS

George F. Beekman, Westchester, Ohio, and Lionel R. Price, Cincinnati, Ohio, assignors to Morton International, Inc., Chicago, Ill.

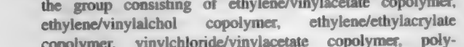
Continuation-in-part of Ser. No. 773,366, Dec. 26, 1996, abandoned. This application Mar. 19, 1997, Ser. No. 821,185

Int. Cl.[6] C08J *9/00*

U.S. Cl. 521—89 **9 Claims**

1. A method for foaming a vinyl chloride polymer comprising heating a mixture consisting essentially of the polymer, a blowing agent, at least one stabilizer selected from the group consisting of:

(A) an organotin mercaptide of a mercaptoalkyl carboxylate having the formula:



I

wherein R^1 is an alkyl radical having from 1 to 8 carbon atoms, R^2 is an alkylene radical having from 2 to 18 carbon atoms, R^3 is hydrogen, a hydrocarbyl radical, a hydroxyhydrocarbyl radical, or $R^4C(=O)OR^5$, wherein R^4 is $(CH_2)_p$, phenylene, or —CH=CH—, and R^5 is a hydrocarbyl radical, p is 0 or an integer from 1 to 8, and y is any number from 1 to 3; and

(B) a sulfide of an organotin mercaptide of Formula I; and, optionally,

and, optionally, at least one organotin salt having the formula;



wherein R' is an alkyl radical having from 1 to 18 carbon atoms, X is a chloride ion or a carboxylate ion, and x is from 1 to 3; with the proviso that when such an organotin salt is not present in the composition, the composition is free from an organotin mercaptoalkylcarboxylate sulfide containing more than about 80% by weight of a monoorganotin bis-(mercaptoalkylcarboxylate)sulfide.

5,726,214

SELF-FOAMING FLUOROPOLYMER COMPOSITION

Marlin Dwight Buckmaster, Vienna, W. Va., and Stuart Karl Randa, Wilmington, Del., assignors to E. I. du Pont de Nemours and Company, Wilmington, Del.

Filed Dec. 26, 1996, Ser. No. 774,164

Int. Cl.[6] C08J *9/00;* **C08F** *14/02*

U.S. Cl. 521—145 **12 Claims**

1. A self-foaming composition comprising melt-fabricable perfluoropolymer having at least 25 carboxyl groups per 10^6 carbon atoms present in said polymer and a nucleating effective amount of foam nucleating agent, at least said 25 carboxyl groups being present as metal salt or said composition containing metal compound for forming said metal salt during melt fabrication of said composition.

5,726,215

STYRENE RESIN COMPOSITION AND SHAPED ARTICLE THEREOF

Shuji Yoshimi, Chiba, Japan; Hayato Kihara, Chiba, Japan, and Takahiro Ishii, Chiba, Japan, assignors to Sumitomo Chemical Company, Limited, Osaka, Japan

Filed Nov. 8, 1995, Ser. No. 555,098

Claims priority, application Japan, Nov. 8, 1994, 6-273477

Int. Cl.[6] C08L *23/02*

U.S. Cl. 521—146 **15 Claims**

1. A styrene resin composition comprising 45 to 92% by weight of a styrene resin (A), 5 to 45% by weight of an olefin resin other than an ethylene-unsaturated carboxylic acid ester copolymer (B) and 3 to 25% by weight of an ethylene-unsaturated carboxylic acid ester copolymer (C), wherein said ethylene-unsaturated carboxylic acid ester copolymer (C) is a member selected from the group consisting of ethylene-methyl methacrylate copolymer, ethylene-ethyl methacrylate copolymer, ethylene-methyl acrylate copolymer, and ethylene-ethyl acrylate copolymer.

5,726,216

TOUGHENED EPOXY RESIN SYSTEM AND A METHOD THEREOF

Christopher J. Janke, Oliver Springs, Tenn.; George F. Dorsey, Farragut, Tenn.; Stephen J. Havens, Knoxville, Tenn., and Vincent J. Lopata, Manitoba, Canada, assignors to Lockheed Martin Energy Systems, Inc., Oak Ridge, Tenn.

Continuation-in-part of Ser. No. 507,569, Jul. 26, 1995. This application Jul. 8, 1996, Ser. No. 676,768

Int. Cl.[6] C08J *3/28;* **C08G** *59/18;65/26;65/28*

U.S. Cl. 522—31 **8 Claims**

1. A method for making a toughened non-thermally cured epoxy resin system comprising the following steps:

Step 1. providing an epoxy resin composition comprising an epoxy resin, a cationic initiator, and a toughening agent wherein said cationic initiator is a diaryliodonium salt said toughening agent being selected from the group consisting of a thermoplastic, a reactive flexibilizer, an elastomer and mixtures thereof; and

Step 2. exposing said epoxy resin composition to high energy ionizing radiation having an instantaneous dose rate greater than about 0.75 kilogray/sec for a period of time sufficient to

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cure said epoxy resin composition thereby forming a toughened non-thermally cured epoxy resin system.

5,726,217

TETRAPHENOL COMPOUNDS AND PROCESS FOR PRODUCING THE SAME

Koji Ichikawa; Haruyoshi Osaki, both of Osaka, and Jun Tomioka, Hyogo, all of Japan, assignors to Sumitomo Chemical Company, Limited, Osaka, Japan

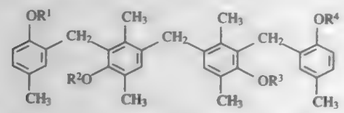
Filed Mar. 8, 1996, Ser. No. 613,243

Claims priority, application Japan, Mar. 8, 1995, 7-048219

Int. Cl.[6] C08F *2/50;* **G03C** *1/695;* **G07C** *39/15;309/53*

U.S. Cl. 522—59 **8 Claims**

1. A tetraphenol compound represented by the formula (I):



(I)

wherein R^1, R^2, R3 and R^4 represent, independently of one another, hydrogen, 1,2-naphthoquinonediazide-4-sulfonyl or 1,2-naphthoquinonediazide-5-sulfonyl.

5,726,218

PHOTO-CONDUCTIVE COMPOSITION AND CRT BULB HAVING PHOTO-CONDUCTIVE LAYER FORMED OF THE SAME

Bong-mo Jeong, Seoul, Rep. of Korea; Min-ho Kim, Suwon, Rep. of Korea; Jae-ho Shim, Seoul, Rep. of Korea; Wan-woo Park, Yongin, Rep. of Korea, and Deuk-yong Yang, Suwon, Rep. of Korea, assignors to Samsung Display Devices Co., Ltd., Kyungki-do, Rep. of Korea

Filed Sep. 4, 1996, Ser. No. 707,475

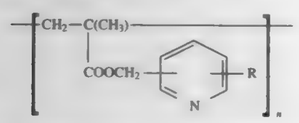
Claims priority, application Rep. of Korea, Dec. 29, 1995, 95-66816

Int. Cl.[6] C08F *2/50*

U.S. Cl. 522—75 **6 Claims**

1. A photo-conductive composition comprising:

5–15 wt % of a charge transmitting substance, represented by the structural formula (1)



(1)

where R is selected from the group consisting of a hydrogen atom, a C_1–C_{10} linear alkyl or branched alkyl group, a halogen atom, an alkylamino group (NR_1), an alkylester group ($COOR_1$) and an α-cyanomethyl alkylketone group ($CH(CN)COR_2$), R_1 and R_2 being selected from the group consisting of a C_1–C_{10} alkyl group, an aryl group, a C_1–C_{10} alkoxy group and an aryloxy group, and n is an integer between 500 and 1000;

1–15 wt % of a charge generating substance which absorbs light in a wavelength range of the ultraviolet region;

70–93.95 wt % of a binder; and

0.05–1 wt % of a surfactant.

5,726,219

RESIN COMPOSITION AND PRINTED CIRCUIT BOARD USING THE SAME

Takeshi Hosomi; Hiroshi Hayai, and Takayuki Baba, all of Fujieda, Japan, assignors to Sumitomo Bakelite Company Limited, Tokyo, Japan

Filed Mar. 4, 1997, Ser. No. 811,175

Claims priority, application Japan, Dec. 26, 1996, 8-347160

Int. Cl.[6] C08F *2/46;283/00*

U.S. Cl. 522—92 **17 Claims**

1. A resin composition comprising the following components (a), (b), (c), (d) and (e) as essential components:

(a) a polyfunctional epoxy resin having an epoxy equivalent of 120–500,

(b) a modified phenol novolac obtained by reacting 20–60 mole % of the phenolic hydroxyl groups of a phenol novolac obtained by condensing a phenol compound with formaldehyde in the presence of an acidic catalyst, with a glycidyl group-containing acrylate or methacrylate,

(c) an epoxy acrylate or epoxy methacrylate compound,

(d) a diluent consisting of a polyfunctional monomer having a plurality of photosensitive functional groups or a polyfunctional monomer having a photosensitive functional group and a heat-sensitive functional group, or a diluent consisting of a combination of the two monomers, and

(e) a photopolymerization initiator.

5,726,220

BIODEGRADABLE POLYMER COMPOSITIONS AND SHRINK FILMS

Yuji Tokushige, Ibaraki-ken; Norio Nakamura; Yoichi Tanifuji, both of Tokyo, and Shuhei Ueda, Ibaraki-ken, all of Japan, assignors to Shin-Etsu Chemical Co., Ltd., Tokyo, Japan

Filed Aug. 28, 1996, Ser. No. 703,994

Claims priority, application Japan, Aug. 30, 1995, 7-222126; Sep. 22, 1995, 7-244012; Sep. 29, 1995, 7-253063; Sep. 29, 1995, 7-253064

Int. Cl.[6] C08K *5/09;* **C08L** *23/08;67/04;83/08*

U.S. Cl. 523—125 **10 Claims**

1. A biodegradable polymer composition comprising a polylactic acid and an ethylene vinyl acetate copolymer having an ethylene content of 20 to 40% by weight and a vinyl acetate content of 60 to 80% by weight.

5,726,221

CORRECTION FLUIDS

Michael Alexiou, Twickenham, United Kingdom, assignor to The Gillette Company, Boston, Mass.

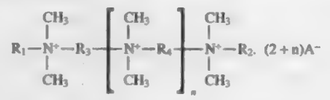
Division of Ser. No. 347,413, Dec. 1, 1994, Pat. No. 5,594,045. This application Oct. 10, 1996, Ser. No. 728,445

Claims priority, application United Kingdom, Jun. 3, 1992, 9211760

Int. Cl.[6] C09D *10/00*

U.S. Cl. 523—161 **14 Claims**

1. A method of covering an ink marking on a substrate, comprising applying to said marking a correction fluid comprising a particulate opacifier, a water-soluble or water-dispersible polymeric binder, water and a di- or tri-quaternary ammonium compound of the formula:



where R_1 and R2, which may be the same or different, are substituted or unsubstituted aliphatic groups containing from 4 to 20 carbon atoms, R_3 and R4, which may be the same or different, are

substituted or unsubstituted alkylene groups containing up to 8 carbon atoms, which groups may be interrupted by one or more ethereal oxygen atoms, wherein A is an anion, and n is 0 or 1.

5,726,222

MICROCAPSULE-TYPE CURING AGENT, METHOD FOR PRODUCING THE SAME, THERMOSETTING RESIN COMPOSITION, PREPREG AND FIBER REINFORCED COMPOSITE MATERIAL

Ryuji Sawaoka, Iyo-gun; Shinji Kouchi, and Toshio Muraki, both of Matsuyama, all of Japan, assignors to Toray Industries, Inc., Japan

Continuation of Ser. No. 401,195, Mar. 9, 1995, abandoned. This application Apr. 7, 1997, Ser. No. 838,443

Claims priority, application Japan, Mar. 15, 1994, 6-043679

Int. Cl.[6] C08K *9/10*

U.S. Cl. 523—211 **19 Claims**

1. A microcapsule-type curing agent comprising (A) a water insoluble curing agent for a thermosetting resin and (B) a water insoluble thermoplastic resin having a softening point higher than 200° C. and dissolvable in the thermosetting resin by heating, said microcapsule-type curing agent being an emulsion-type microcapsule curing agent formed from an emulsion containing said water insoluble curing agent and said water insoluble thermoplastic resin as a particle material in which component (A) is coated with a layer whose main constituent is component (B) and having a mean particle diameter in the range of 0.1 to 20 μm.

5,726,223

PROCESS FOR PRODUCTION OF POLYMER PARTICLES

Masaya Okamoto; Noriyuki Kunishi, and Yoshinari Koyama, all of Ichihara, Japan, assignors to Idemitsu Petrochemical Co., Ltd., Tokyo, Japan

Division of Ser. No. 391,264, Feb. 21, 1995, Pat. No. 5,583,166, which is a continuation of Ser. No. 166,805, Dec. 13, 1993, abandoned, which is a continuation of Ser. No. 927,658, Jan. 23, 1992, abandoned. This application Aug. 14, 1996, Ser. No. 696,392

Claims priority, application Japan, Feb. 20, 1991, 3-045554; Oct. 24, 1991, 3-277621

Int. Cl.[6] C08J *3/12;3/14;* **C08G** *63/62*

U.S. Cl. 523—340 **15 Claims**

1. A process for producing polymer particles from an organic solvent solution of a polymer, which comprises:

(a) initially introducing polymer particles into a particle producing zone,

(b) introducing an organic solvent solution containing an organic solvent and having a polymer concentration of 3 to 70% by weight, onto said polymer particles which are maintained in said particle producing zone, said particle producing zone not substantially containing steam, said organic solvent solution being added in an amount of not more than 100% by weight per hour based on the amount of the polymer particles which are initially held in said particle producing zone, and stirring said polymer particles under conditions in which said organic solvent would be vaporized,

(c) separately introducing a poor solvent for said polymer into said particle producing zone, said poor solvent being selected from the group consisting of benzene, toluene, xylene, pentane, hexane, octane, acetone and methyl ethyl ketone, said poor solvent being in an amount of 5 to 200% by weight based on the weight of said organic solvent in said organic solvent solution, and

(d) evaporating said organic solvent and said poor solvent, while maintaining said organic solvent solution of said polymer in contact with said polymer particles which are maintained in said particle producing zone, to produce said polymer particles.

5,726,224

COMPOSITION OF A REDISPERSIBLE SPRAY DRIED UNSATURATED SULFONIC ACID POLYMER POWDER AND A MINERAL BINDER

Erich Penzel, Ludwigshafen; Gernot Franzmann, Bobenheim; Maximilian Angel, Schifferstadt; Joachim Pakusch, Ludwigshafen, and Bernhard Schuler, Mannheim, all of Germany, assignors to BASF Aktiengesellschaft, Ludwigshafen, Germany

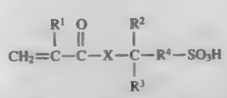
Division of Ser. No. 450,717, May 25, 1995, Pat. No. 5,604,272, which is a continuation of Ser. No. 254,767, Jun. 6, 1994, Pat. No. 5,462,978. This application Sep. 11, 1996, Ser. No. 712,366

Claims priority, application Germany, Jun. 18, 1993, 43 20 220.9

Int. Cl.[6] C04B *24/16;26/04*

U.S. Cl. 524—3 **12 Claims**

1. A composition comprising a redispersible spray dried resin powder and a mineral binder, said redispersible resin powder containing at least one polymer I and one polymer II, which differs from said polymer I, said polymer I being comprised of (i) from 15–80% by weight of at least one monomer (a) of formula I or salts thereof:



(I)

wherein R^1, R^2 and R^3 independently of one another are each hydrogen or C_{1-3} alkyl, R^4 is C_{1-5} alkylene and X is O or NH, and (ii) from 20–85% by weight of at least one monomer (b) capable of undergoing free radical copolymerization, with the proviso that the average molar solubility of the components of the mixture of all the monomers (b) polymerized at 25° C. in water is lower than the correspondingly defined average molar solubility of the components of the mixture of all the monomers (a) polymerized.

5,726,225

CORROSION INHIBITORS IN POWDER COATINGS

Adalbert Braig, Binzen, Germany, and Hugh Stephen Laver, Reinach, Switzerland, assignors to Ciba Specialty Chemicals Corporation, Tarrytown, N.Y.

Filed Jun. 10, 1996, Ser. No. 662,736

Claims priority, application Switzerland, Jun. 14, 1995, 1765/95

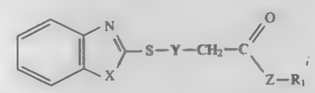
Int. Cl.[6] C08K *5/46;5/35*

U.S. Cl. 524—83 **15 Claims**

1. A powder coating composition comprising

a) an organic film-forming binder, and

b) as corrosion inhibitor i) at least one compound of the formula I



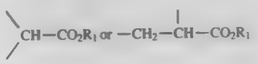
(I)

in which

R_1 is hydrogen, C_1–C_{12}alkyl or C_5–C_{12}cycloalkyl,

X is oxygen, sulfur or —NH—,

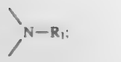
Y is a direct bond, methylene,



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and

Z is oxygen or



and ii) at least one calcium-modified silicate pigment.

5,726,226

PEPERIDINE COMPOUNDS CONTAINING SILANE GROUPS AS STABILIZERS FOR ORGANIC MATERIALS

Valerio Borzatta, Bologna, and Primo Carrozza, Verona, both of Italy, assignors to Ciba Specialty Chemcials Corporation, Tarrytown, N.Y.

PCT No. PCT/EP95/04546, § 371 Date May 22, 1997, § 102(e) Date May 22, 1997, PCT Pub. No. WO96/17002, PCT Pub. Date Jun. 6, 1996

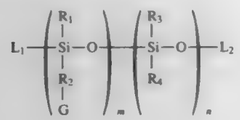
PCT Filed Nov. 18, 1995, Ser. No. 836,949

Claims priority, application Italy, Nov. 30, 1994, MI94A2428

Int. Cl.[6] C07F *7/18;* **C08G** *77/26*

U.S. Cl. 524—102 **11 Claims**

1. A compound of formula (I)



(I)

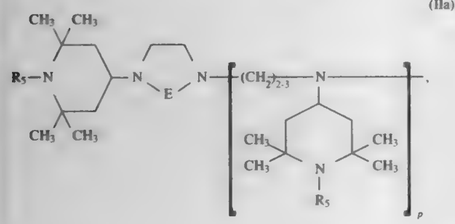
in which

m+n is a number from 1 to 100 and n varies from zero to 90% of the sum of m+n;

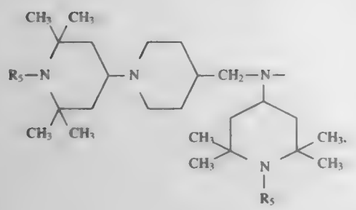
R_1 and R_3, which may be identical or different, are C_1–C_{18}alkyl, phenyl, C_1–C_8alkoxy, OH, ONa or OK;

R_2 is C_2–C_{12}alkylene;

G is one of the groups of formula (IIa)–(IId)

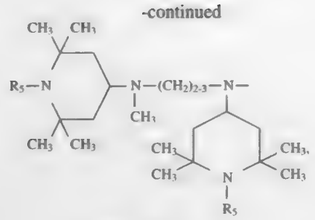


(IIa)

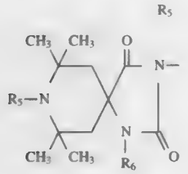


(IIb)

-continued



(IIc)



(IId)

in which

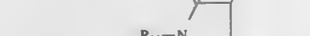
R_5 is hydrogen, C_1–C_8alkyl, O^-, OH, NO, CH_2CN, C_1–C_{18}alkoxy, C_5–C_{12}cycloalkoxy, C_7–C_9phenylalkyl either unsubstituted or substituted on the phenyl with 1, 2 or 3 C_1–C_4alkyls; or C_1–C_8acyl;

E is —CO—, —CH_2CH_2—, —CH_2CO, —COCO— or —$COCH_2CO$—;

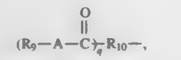
p is zero or 1 and, when p is zero, E is a —CH_2—CH_2— group;

R_6 is hydrogen, methyl or benzyl;

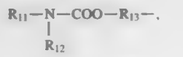
R_4 as hydrogen, C_1–C_{18}alkyl; C_5–C_{12}cycloalkyl, phenyl, C_7–C_9phenylalkyl either unsubstituted or substituted on the phenyl with 1, 2 or 3 C_1–C_4alkyls; C_7–C_9bicycloalkyl or one of the groups of formula (IIIa)–(IIIg)



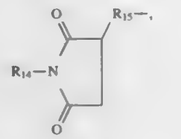
(IIIa)



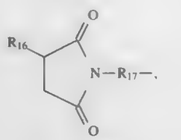
(IIIb)



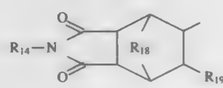
(IIIc)



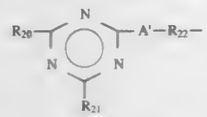
(IIId)



(IIIe)



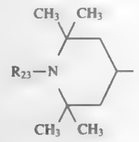
(IIIf)



(IIIg)

in which

R_7 is C_1–C_{18}alkyl, C_5–C_{12}cycloalkyl either unsubstituted or substituted with 1, 2 or 3 C_1–C_4alkyls; phenyl either unsubstituted or substituted with 1, 2 or 3 C_1–C_4alkyls or with C_1–C_4alkoxy; C_7–C_9phenylalkyl either unsubstituted or substituted on the phenyl with 1, 2 or 3 C_1–C_4alkyls; or a group of formula (IV)



(IV)

where

R_{23} has any one of the meanings given for R_5;

R_8 is C_2–C_{12}alkylene;

R_9 is C_1–C_{18}alkyl, C_5–C_{12}cycloalkyl either unsubstituted or substituted with 1, 2 or 3 C_1–C_4alkyls; phenyl either unsubstituted or substituted with 1, 2 or 3 C_1–C_4alkyls or with 1, 2 or 3 C_1–C_4alkoxy; C_7–C_9phenylalkyl either unsubstituted or substituted on the phenyl with 1, 2 or 3 C_1–C_4alkyls; tetrahydrofurfuryl or a group of formula (IV);

A is —O— or —NR_{24}— where R_{24} is hydrogen, C_1–C_{18}alkyl, phenyl, benzyl or a group of formula (IV);

q is 1, 2 or 3; when q is 1, R_{10} is C_2–C_{18}alkylene; when q is 2, R_{10} is C_2–C_{20}alkanetriyl, C_5–C_7cycloalkanetriyl or C_7–C_9bicycloalkanetriyl; and, when q is 3, R_{10} is C_3–C_6alkanetetrayl;

R_{11} and R_{12}, which may be identical or different, are as defined above for R_9 or



represents a heterocycle with 5–7 members;

R_{13} is C_2–C_{12}alkylene;

R_{14} is as defined for R_9;

R_{15} is a direct linkage or C_1–C_{18}alkylene;

R_{16} is hydrogen or C_1–C_{18}alkyl;

R_{17} is C_2–C_{18}alkylene;

R_{18} is without meaning or is —CH_2— or —CH_2CH_2—;

R_{19} is hydrogen or methyl;

R_{20} and R_{21}, which may be identical or different, are one of the groups of formula (IIa)–(IIc) or a group



or R_{27}—O— where R_{25}, R_{26} and R_{27}, which may be identical or different, are as defined above for R_9 or



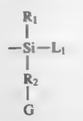
is a heterocycle with 5–7 members;

A' has one of the definitions of A;

R_{22} is C_2–C_{12}alkylene;

L_1 has any one of the meanings given to R_1 or is a group $(R_{28})_3SiO$— where R_{28} is C_1–C_{18}alkyl;

L_2 is hydrogen, Na, K, C_1–C_8alkyl, a group $(R_{28})_3Si$— with R_{28} as defined above, or, when is zero and R_1 and L_1 are C_1–C_{18}alkyl or phenyl, L_2 is also a group of formula (V)



(V)

and, when m+n is a number from 3 to 10, L_1 and L_2 together can also represent a direct linkage.

5,726,227

POLYMER MOULDING COMPOSITIONS STABILISED WITH PHOSPHOROUS ACID ESTERS

Herbert Magerstedt, Moers, and Ernst Grigat, Leverkusen, both of Germany, assignors to Bayer AG, Leverkusen, Germany

Filed Nov. 20, 1996, Ser. No. 754,233

Claims priority, application Germany, Nov. 30, 1995, 195 44 675.5

Int. Cl.[6] C08K *5/15*

U.S. Cl. 524—107 **19 Claims**

1. Thermoplastic moulding compositions containing

A) polymers selected from the group consisting essentially of polyolefines, styrene polymers, polyamides, polyalkyl methacrylates, polyphenylene sulphides, ABS graft polymers, and thermoplastic polyurethanes, and

B) esters of phosphorous acid which contain at least one oxetane group and at least one radical of a dihydric or polyhydric phenol per molecule, and

optionally, at least one of the following components,

C) fillers and reinforcing materials,

D) flame retardant additives, and

E) elastomeric modifiers.

5,726,228

USE OF CARBONATES AS DEMOULDING AGENTS FOR THERMOPLASTIC POLYCARBONATES

Ralf Kaufmann, Duisburg; Wolfgang Ebert, Krefeld; Hartmut Löwer, Krefeld; Jürgen Kadelka, Krefeld; Claus Wulff, Krefeld, and Gottfried Zaby, Leverkusen, all of Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Germany

Filed Dec. 3, 1996, Ser. No. 759,951

Claims priority, application Germany, Dec. 5, 1995, 195 45 330.1

Int. Cl.[6] C08K *5/15;5/10*

U.S. Cl. 524—108 **8 Claims**

1. Thermoplastic polycarbonate which contains, as demoulding agent, 0.01 to 10% by weight, based on weight of thermoplastic polycarbonate and demoulding agent, of cyclic carbonates of aliphatic polyalcohols in which the remaining OH groups are completely or partially esterified with aliphatic C_1– C_{32} carboxylic acids or with benzoic acid.

5,726,229

VINYLIDENE CHLORIDE COMPOSITION AND FILM WITH CONTROLLED GAS PERMEABILITY

Solomon Bekele, Taylors, S.C., assignor to W. R. Grace & Co.-Conn., Duncan, S.C.

Division of Ser. No. 341,819, Nov. 18, 1994, Pat. No. 5,538,770. This application Apr. 7, 1995, Ser. No. 418,743

Int. Cl.[6] C08K *5/15;5/11;* **C08L** *67/02;27/08*

U.S. Cl. 524—114 **22 Claims**

1. An extrudable vinylidene chloride composition comprising:

a) 100 parts by weight of at least one vinylidene chloride copolymer;

b) between 6 and 15 parts by weight of a plasticizer; and

c) between 6 and 15 parts by weight of a polymeric additive selected from the group consisting of methyl methacrylate/butyl acrylate/styrene terpolymer, methyl methacrylate/butyl acrylate/butyl methacrylate terpolymer, poly(α-methyl styrene), and blends thereof.

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5,726,230

AQUEOUS COATING COMPOSITION

Masahiro Murata, Atsugi; Toshio Kurihara, Hiratsuka; Akira Suehiro, Tokyo-to, and Syuichi Ikenoue, Amagasaki, all of Japan, assignors to Kansai Paint Company, Limited, Amagasaki, Japan

Filed Oct. 20, 1995, Ser. No. 546,563
Int. Cl.[6] C08K *5/10*
U.S. Cl. 524—308 **8 Claims**

1. An aqueous coating composition comprising a water-dispersible resin and a fatty acid ester of a polyglycerin ether, wherein the water-dispersible resin is a graft reaction product of an epoxy resin with an acrylic resin prepared from an α,β-ethylenically unsaturated carboxylic acid and optionally another polymerizable unsaturated monomer which is copolymerizable with the α,β-ethylenically unsaturated carboxylic acid, the fatty acid is a saturated or unsaturated fatty acid having 8 to 18 carbon atoms, and the polyglycerin ether has at least two hydroxyl groups.

5,726,231

FLAME RETARDANT POLYOLEFIN COMPOUND HAVING LOW SMOKING AND TOXICITY

Yukihiko Namiki, Kawasaki; Yasushi Kato, Nara; Misao Hanai, Yokohama; Yasunori Kitano, and Hirofumi Kurisu, both of Ako, all of Japan, assignors to Tateho Chemical Industries Co., Ltd., Ako, Japan

Filed Jun. 7, 1996, Ser. No. 660,446
Int. Cl.[6] C08K *3/22*
U.S. Cl. 524—413 **6 Claims**

1. A flame retardant polyolefin compound having low smoking and toxicity, comprising 100 parts by weight of a halogen-free polyolefin resin, 80 to 150 parts by weight of a flame retardant hydroxide of one or more metals, and 2 to 10 parts by weight of zinc stannate as a flame retardant auxilliary agent.

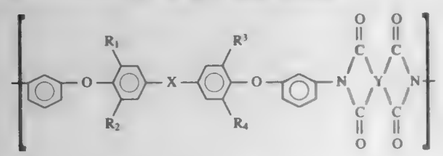
5,726,232

HEAT RESISTANT LUBRICATIVE RESIN COMPOSITION

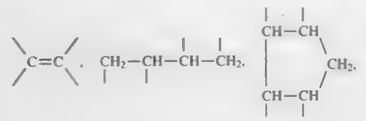
Masaki Egami, Yokkaichi, Japan, and Hideyuki Tsutsui, Kuwana, Japan, assignors to NTN Corporation, Osaka, Japan

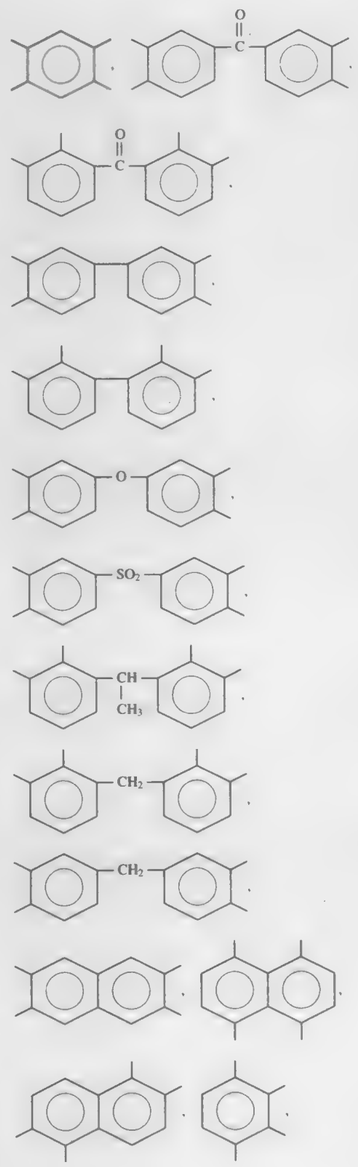
Filed Aug. 28, 1996, Ser. No. 704,828
Claims priority, application Japan, Dec. 21, 1995, 7-333469
Int. Cl.[6] C08K *3/32*
U.S. Cl. 524—414 **5 Claims**

1. A heat-resistant, lubricative resin composition comprising 35–74% by weight of at least one heat-resistant thermoplastic resin selected from the group consisting of polyphenylene sulfide resins, thermoplastic polyimide resins having repeating units expressed by the Formula below, polyether ketone resins, polycyanoarylether resins, polyamide-imide resins, polyether imide resins and polyether sulfonic resins, 10–45% by weight of a tetrafluoroethylene resin, and 16–30% by weight of lithium phosphate,

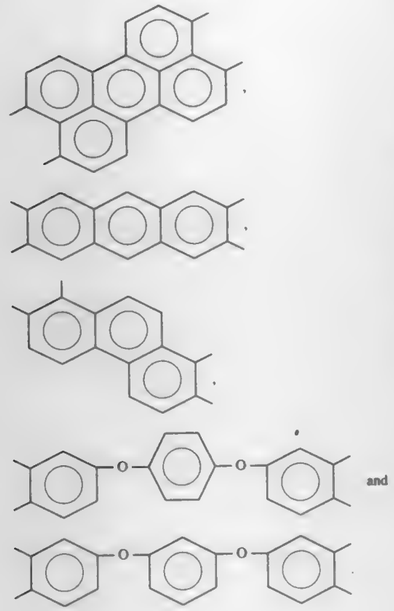


wherein X is a direct bond or a group selected from the group consisting of a hydrocarbon group having 1–10 carbon atoms, a hexafluorinated isoproylidene group, a carbonyl group, a thio group and a sulfonic group; R_1–R_4 are each independently selected from the group consisting of hydrogen, lower alkyl groups with 1–5 carbon atoms, lower alkoxy groups with 1–5 carbon atoms, chlorine and bromine; and Y is at least one tetravalent group selected from the group shown by the following formulas





-continued



and

5,726,233

METHOD FOR MANUFACTURING A COATING ADDITIVE, AN ADDITIVE, AND A PAINT FORMULATION

George M. Mitchell, Peoria, Ill., and John M. Spangler, Peoria, Ill., assignors to Caterpillar Inc., Peoria, Ill.

Filed Aug. 31, 1995, Ser. No. 521,692
Int. Cl.[6] C08K *3/26*
U.S. Cl. 524—425 **25 Claims**

1. A process for making a resin additive for a liquid paint, comprising the steps of:
selecting a thermosettable organic resin,
curing said resin and forming a cured thermoset resin, and
particulizing said cured resin to a size no greater than about 20 μm.

5,726,234

STABILIZED PVDC-CONTAINING PVC

Heinz Herbst, Lautertal; Kurt Hoffmann, Wachenheim, and Rudolf Pfaendner, Lautertal, all of Germany, assignors to Ciba Specialty Chemicals Corporation, Tarrytown, N.Y.

PCT No. PCT/EP95/03110, § 371 Date Feb. 12, 1997, § 102(e) Date Feb. 12, 1997, PCT Pub. No. WO96/05247, PCT Pub. Date Feb. 22, 1996
PCT Filed Aug. 4, 1995, Ser. No. 776,911
Claims priority, application Switzerland, Aug. 15, 1994, 2512/94
Int. Cl.[6] C08K *3/18;5/04;5/09*
U.S. Cl. 524—430 **12 Claims**

1. Stabilised PVDC-containing PVC, comprising as polymer at least 50% by weight of polyvinyl chloride (PVC) and 0.05–50% by weight of PVDC and additionally comprising at least one inorganic compound, wherein the inorganic compound is a metal oxide, metal hydroxide or racial carbonate of one of the elements of the 2nd and 4th main groups and of the 4th and 7th auxiliary groups of the Periodic System.

5,726,235

AQUEOUS COATING COMPOSITION AND ITS PREPARATION

Motoyuki Takagi, Toyonaka, Japan, and Takeshi Baba, Mino, Japan, assignors to National Starch and Chemical Investment Holding Corporation, Wilmington, Del.

Filed Apr. 14, 1995, Ser. No. 422,406
Claims priority, application Japan, May 12, 1994, 6-098842
Int. Cl.[6] C08F *2/16*
U.S. Cl. 524—458 **6 Claims**

1. An aqueous coating composition wherein coated fine gains are contained in aqueous medium, each of said fine grains having a structure such that a mixture of below defined components (A) and (B), are covered with a below-defined component (C), characterized in that a ratio by weight for components (A) to (C) is set at (A): (B): (C)=(45 to 85): (5 to 25): (10 to 30) wherein
(A) is an aqueous resin prepared from ethylenically unsaturated monomers selected from the group consisting of vinyl acetate, alkyl ester of acrylic acid, alkyl ester of methacrylic acid, styrene, acrylonitrile, methacrylonitrile, acrylic acid, methacrylic acid, amides of acrylic acid, amides of methacrylic acid, methylol amides, alkoxylmethyl amides, 2-hydroxyethyl acrylate, glycidyl methacrylate and divinylbenzene;
(B) is an aqueous colloidal silica;
(C) is a water soluble resin comprising a copolymer having a structural unit derived from below-defined components (a) to (c) as a molecular structure:
(a) an alkoxysilane monomer capable of radical polymerization;
(b) a hydrophilic monomer having unsaturated double bond; and
(c) another ethylenically unsaturated monomer.

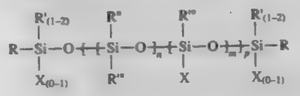
5,726,236

IMPACT MODIFIED THERMOPLASTIC MOLDING COMPOSITION

James P. Mason, McKees Rocks, Pa., and Roger J. White, Washington, Pa., assignors to Bayer Corporation, Pittsburgh, Pa.

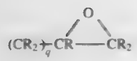
Filed Jul. 6, 1995, Ser. No. 498,828
Int. Cl.[6] C08K *3/36*
U.S. Cl. 524—492 **11 Claims**

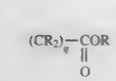
1. A thermoplastic molding composition comprising (a) about 60 to 96% polycarbonate resin, (b) about 1 to 35% copolymer of at least two ethylenically unsaturated monomers and having weight average molecular weight (determined by light scattering or by sedimentation) of about 15,000 to 200,000, and (c) about 3 to 25% silicone rubber powder, said percent being relative to the weight of the composition, said silicone rubber powder having an average particle size of about 1 to 1000 microns and containing
(i) 100 pbw of a polydiorganosiloxane having a viscosity at 25° C. is about 10^6 to 10^9 centipoise and siloxane structural units represented by the general formula



wherein R', R" and R'" independently denote a member selected from the group consisting of hydrogen atom, C_{1-10}-alkyl, alkenyl, cycloalkyl radicals and aryl groups, and where p is about 1000 to 8000 and where the relative weight proportions of n and m is 98.5 to 100:0 to 1.5, and where X denotes a member selected from the group consisting of

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where R denotes a member selected from the group consisting of hydrogen, C_{1-10}-alkyl, alkenyl, cycloalkyl radicals or aryl groups and where q is 1 to 10, and

(ii) about 10 to 80 pbw of a finely divided silica selected from a group consisting of fumed silica, precipitated silica and silica gel having a surface area of at least 50 m^2/g,

said composition characterized in that it has a notched Izod impact strength value which is greater than that of the composition in the absence of said silicon rubber powder.

5,726,237

RUBBER COMPOSITIONS AND PNEUMATIC TIRES USING THE SAME

Hidenori Satoh, Tokyo, Japan; Shunji Araki, Tokyo, Japan, and Franco Cataldo, Rome, Italy, assignors to Bridgestone Corporation, Tokyo, Japan

Filed Aug. 29, 1996, Ser. No. 705,176

Claims priority, application Japan, Aug. 31, 1995, 7-224019; Aug. 31, 1995, 7-224020

Int. Cl.[6] C08K *3/00*

U.S. Cl. 524—495 **28 Claims**

1. A rubber composition comprising:

a rubber component consisting of at least one rubber selected from the group consisting of conjugated diene-base synthetic rubbers and natural rubber; and

a carbon black in an amount of 30 to 120 parts by weight per 100 parts by weight of the rubber component,

wherein the carbon black has both of the characteristics represented by following equation (I) and equation (II):

Equation (I)

$$(\text{concentration of } >C{=}O \text{ functional groups})/N_2SA \geq 4.0\times10^{-4}$$

Equation (II)

$$(\text{concentration of } >C{=}O \text{ functional groups}) \geq (\text{concentration of } {-}OH \text{ functional groups})^2 - 0.1\times(\text{concentration of } {-}OH \text{ functional groups}) + 0.03$$

wherein (concentration of >C=O functional groups) expresses the concentration (meq/g) off functional groups which react with hydroxylamine and produce oxime; N_2SA expresses the nitrogen absorption specific surface area (m^2/g); and (concentration of —OH functional groups) expresses the concentration (meq/g) of functional groups which participate in an acetylating reaction with acetic anhydride.

5,726,238

MATERIAL COMPOSED OF CARBON COMPOUNDS

Klaus-Dietrich Nickel, Frankfurt am Main, Germany, assignor to Citadel Investments Limited, St. Heller, United Kingdom

Continuation of Ser. No. 380,224, Jan. 27, 1995, abandoned, which is a continuation-in-part of Ser. No. 94,195, Aug. 2, 1993, abandoned. This application Mar. 26, 1996, Ser. No. 622,049

Claims priority, application Germany, Dec. 4, 1991, 41 40 025.9

Int. Cl.[6] C08K *3/04*

U.S. Cl. 524—496 **11 Claims**

1. A thermoplastic carbon-containing recyclable material without devaluating losses in quality and having a calorific value of more than 37,700 kJ/Kg which is processable with all plastic processing machines into molded articles, plates, panels, pipes, sheets and film, said material is produced by high-speed impact comminution in a closed and inert system of low-polluting and low-ash bituminous coal, bituminous coal coke or oil coke by means of a turbulent-flow disintegrator with little metal abrasion, and further mixing the carbon powder thus obtained, without any by further additives, with thermoplastic polymers of hydrocarbons to chemically bond carbon powder particles with the thermoplastic polymers by using energy which is released during the high-speed impact comminution.

5,726,239

MONOVINYL AROMATIC BLOCK COPOLYMER CONTAINING COMPOSITIONS AND MICROGRANULES AND POWDERS DERIVED THEREFROM TO BE USED IN ROTATIONAL MOLDING AND SIMILAR PROCESSES

Caroline Rita Nicole Maes, and Peter Migchels, both of Louvain-la-Neuve, Belgium, assignors to Shell Oil Company, Houston, Tex.

Filed Mar. 22, 1996, Ser. No. 620,778

Int. Cl.[6] C08L *53/02*

U.S. Cl. 524—505 **13 Claims**

1. Block copolymer containing compositions, for use in rotational molding which have a low shear melt viscosity less than 2000 Pa.s at 190° C. and are in the form of powder with a particle size of less than 400 μm or microgranules with a particle size of 200 to 1100 μm, comprising at least:

100 parts by weight of a main block copolymer containing at least two predominantly poly(monovinyl aromatic) blocks and at least one predominantly poly(conjugated diene) block, the poly(conjugated diene) block of which optionally being selectively hydrogenated;

from 10 to 80 parts by weight of a linear low density poly(ethylene) or copolymers of predominantly ethylene and minor amounts of other α-olefin comonomers; and

from 20 to 100 parts by weight of a plasticizer.

5,726,240

REACTIVITY STABILIZATION OF POLYMETHYLENE POLY(PHENYLISOCYANATES)

James W. Rosthauser, Glendale; Robert L. Cline, Paden City, and Richard S. Pantone, New Martinsville, all of W. Va., assignors to Bayer Corporation, Pittsburgh, Pa.

Filed Nov. 25, 1996, Ser. No. 755,925

Int. Cl.[6] C08J *3/00;3/20;* **C08L** *75/00;* **C07C** *249/00*

U.S. Cl. 524—590 **9 Claims**

1. A mixture comprising

a) from 90 to 99% by weight, based on the combined weight of components a) and b), of a polymethylene poly(phenylisocyanate) blend having a functionality of about 2.1 to about 3.5, an NCO group content of from about 30% to about 33%, and a monomer content of from about 30% to about 90% by weight, wherein the content of the monomer comprises from up to about 5% by weight of the 2,2'-isomer, from about 1% to about 20% by weight of the 2,4'-isomer, and from about 25% to about 65% by weight of the 4,4'-isomer, based on the entire weight of the isocyanate blend;

and

b) from 1.0 to 10% by weight, based on the combined weight of components a) and b), of an epoxide having an epoxide equivalent weight of from about 44 to about 400, said epoxide being selected from the group consisting of

(i) epoxidized fatty acid monoglycerides,

(ii) epoxidized fatty acid diglycerides,

(iii) epoxidized fatty acid triglycerides,

(iv) epoxidized dimer fatty acids,

(v) epoxidized trimer fatty acids, and

(vi) mixtures thereof.

5,726,241

FINISHING OIL FOR PRECURSOR FOR HIGH PERFORMANCE CARBON FIBERS AND PRECURSOR

Kunio Maruyama, Okayama, Japan, and Ryuichi Koide, Nara-Ken, Japan, assignors to Hexcel Corporation, Pleasanton, Calif.

Continuation of Ser. No. 477,627, Jun. 7, 1995, abandoned, which is a continuation of Ser. No. 182,825, Jan. 19, 1994, abandoned. This application Sep. 17, 1996, Ser. No. 715,098

Int. Cl.[6] C08L *83/00*

U.S. Cl. 524—837 **7 Claims**

1. A finish composition for a precursor for high-performance carbon fibers, said composition comprising (1) 0.2–10 parts by weight of a viscosity lowering agent consisting essentially of an aminocarboxylic material selected from the group consisting of carboxylic acid salts of alkylamines, carboxylic acid salts of arylamines, carboxylic acid salts of alkylarylamines, amino acids and betaine compounds, and (2) 100 parts by weight of a mixture of (a) 80–20 parts by weight of a finish prepared by adding, to (i) a silicone finish containing 50 wt % or more of an amino-modified polysiloxane having a nitrogen content in amino groups in the range of 0.05–2.0 wt % and a viscosity at 25° C. of 500 centistokes or more, (ii) 0.3–5.0 molar equivalents of a lower aliphatic monocarboxylic acid of 6 carbon atoms or less with respect to 1 mole of the amino group, and (b) 20–80 parts by weight of a nonionic emulsifier consisting mainly of a polyoxyethylene alkyl ether, a polyoxyethylene alkylaryl ether or a polyoxyethylene fatty acid ester.

5,726,242

TWO-PACK AQUEOUS ADHESIVE

Hiroyuki Kusuoka, Daito, Japan, and Hideaki Kawami, Takatsuki, Japan, assignors to Sunstar Giken Kabushiki Kaisha, Takatsuki, Japan

Filed Jul. 28, 1995, Ser. No. 508,530

Claims priority, application Japan, Sep. 14, 1994, 6-219837

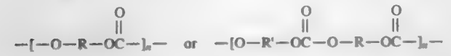
Int. Cl.[6] C08K *3/20;* **C08L** *75/06*

U.S. Cl. 524—839 **6 Claims**

1. A two-pack aqueous adhesive, which comprises

(A) a main component comprising

(a) an aqueous dispersion of a polycarbonate-urethane having a pH 5.0–8.5, which is prepared by self-emulsifying a carboxyl group-containing, hydroxy-terminated polyurethane polymer obtained from (i) a polycarbonate diol having the formula



which have diol groups at both ends, wherein R and R' are the same as or different and are each a straight chain or branched chain alkyl group having 1 to 7 carbon atoms, a phenyl group, a phenylalkyl group having 1 to 4 carbon atoms in the alkyl moiety, a biphenyl group, or a cycloalkyl group having 5 to 6 carbon atoms, and n is 2 to 50, (ii) a carboxyl group-containing chain extender and (iii) a polyisocyanate compound in water in the presence of a tertiary amine, said carboxyl group-containing chain extender being used in an amount of 0.5 to 2.5 moles to 1 mole of the polycarbonate diol, and said polyisocyanate compound being used in an amount of 0.5 mole to less than 1 mole to 1 mole of the total amount of the polycarbonate diol and the carboxyl group-containing chain extender, and

(b) a conventional aqueous emulsion of a thermoplastic resin or a synthetic rubber, and

(B) a curing component comprising a polyisocyanate compound.

5,726,243

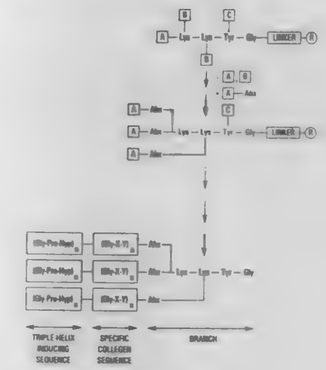
MILD SOLID-PHASE SYNTHESIS OF ALIGNED, BRANCHED TRIPLE-HELICAL PEPTIDES

Gregg B. Fields, Brooklyn Park, Minn., assignor to Regents of the University of Minnesota, Minneapolis, Minn.

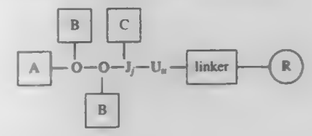
Division of Ser. No. 534,342, Sep. 27, 1995, Pat. No. 5,576,419, which is a continuation of Ser. No. 85,633, Jun. 30, 1993, abandoned. This application Jul. 3, 1996, Ser. No. 675,140

Int. Cl.[6] C07K *1/04;1/06;14/78;* **C08G** *69/10*

U.S. Cl. 525—54.11 **11 Claims**



1. A supported polypeptide of the formula:



wherein:

(a) A is an N^{α}-amino protecting group capable of being removed under non-acidic conditions;

(b) B is a side-chain amino protecting group capable of being removed under non-strong acidic conditions;

(c) O is an amino acid having a single side-chain amino group;

(d) J is an amino acid capable of acting as a chromophore;

(e) C is a protecting group capable of withstanding the conditions in which A and B are removed;

(f) U is an amino acid;

(g) u=0 or 1;

(h) j≧1;

(i) the linker is capable of being labilized using a non-strong acid mechanism; and

(j) R is a support material.

5,726,244

AQUEOUS COATING COMPOSITIONS FOR ENVIRONMENTAL ETCH RESISTANT COATINGS

John D. McGee, Highland, Mich.; Donald H. Campbell, Wixom, Mich., and John W. Rehfuss, West Bloomfield, Mich., assignors to BASF Corporation, Southfield, Mich.

Filed Aug. 10, 1995, Ser. No. 513,587

Int. Cl.[6] C08L *33/08*

U.S. Cl. 525—78 **21 Claims**

1. An aqueous, curable coating composition comprising:

(a) a carbamate-functional grafted acrylic polymer that comprises the reaction product of:

i) a first acrylic polymer having thereon a functionality (I);

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(ii) a second acrylic polymer having thereon a functionality (II) that is reactive toward the functionality (I) of the first acrylic polymer, wherein:

at least one of the first and second acrylic polymers has thereon groups that impart water dispersibility to the grafted acrylic polymer, and

at least one of the first and second acrylic polymers has thereon carbamate functionality; and

(b) a compound having a plurality of functional groups that are reactive with the carbamate functionality.

5,726,245

COLOR-STABLE, WEATHER-, AND IMPACT-RESISTANT MOLDING COMPOSITIONS BASED ON POLYMETHYLMETHACRYLATE, AND PROCESS FOR PRODUCTION THEREOF

Uwe Numrich, Weiterstadt, Germany; Michael Wicker, Seeheim-Jugenheim, Germany; Thomas Rhein, Stadecken-Elsheim, Germany, and Thomas Suefke, Erzhausen, Germany, assignors to Roehm GmbH Chemische Fabrik, Darmstadt, Germany

Filed Nov. 27, 1996, Ser. No. 753,682

Claims priority, application Germany, Nov. 30, 1995, 195 44 563.1

Int. Cl.[6] C08F *6/14;* **C08L** *55/02;33/04;51/04*

U.S. Cl. 525—85 **20 Claims**

1. A method for the production of a highly transparent, impact resistant molding composition based on polymethyl methacrylate containing a disperse elastomeric phase, comprising a sequence of the following steps:

a) producing a latex emulsion DS in water with a core/shell structure by multi-step polymerization, wherein the core/shell structure comprises a hard, nonelastomeric polymer core with T_g>70° C., an intermediate elastomeric layer with T_g<25° C. comprising an acrylate polymer or copolymer, and at least one additional polymer layer with T_g>70° C. comprising a methacrylate polymer or copolymer;

b) coagulating the emulsion DS in a first extruder by heating, shearing, and adding 5–90 parts by weight of a matrix M_1 in the form of a melt, based on the solids content of the emulsion DS, to form a first melt mixture (DS+M_1) wherein M_1 is a fraction of a matrix M, and a matrix M comprises polymethyl methacrylate,

wherein contained water is drawn off to leave a maximum of 10 wt % water in the first melt mixture, based on total solids;

c) compounding the first melt mixture (DS+M_1) in a second extruder by heating and shearing with the remaining quantity of the matrix M_2, such that M_2=M–M_1, wherein the quantity of matrix M_2 is more than 90 parts by weight, based on the solids content of the emulsion DS, and wherein contained water is substantially completely drawn off, to form a second melt mixture (DS+M_1+M_2);

d) extruding cooling, and isolating the second melt mixture (DS+M_1+M_2) as a clear, impact-resistant, modified molding composition having low yellowing tendency,

wherein only during step c) or thereafter, one or more reducing inorganic phosphorous compounds are added to the melt mixture, wherein the reducing inorganic phosphorus compounds are selected from the group consisting of phosphinic acid, phosphonic acid, and the alkali metal, alkaline-earth metal, aluminum, and ammonium salts of phosphinic acid and phosphonic acid, wherein the ammonium ion of the ammonium salts can be substituted with up to four C_1–C_4-alkyl and/or C_5–C_8 cycloalkyl groups.

5,726,246

METHOD FOR IMPROVING ETCH RESISTANCE IN A COATING UTILIZING CARBAMATE-FUNCTIONAL POLYMER COMPOSITION

John W. Rehfuss, West Bloomfield, and Donald L. St. Aubin, Commerce Township, both of Mich., assignors to BASF Corporation, Southfield, Mich.

Continuation-in-part of Ser. No. 333,916, Nov. 3, 1994, Pat. No. 5,605,965, which is a continuation-in-part of Ser. No. 241,925, May 11, 1994, Pat. No. 5,474,811, which is a continuation of Ser. No. 965,577, Oct. 23, 1992, Pat. No. 5,356,669. This application Feb. 20, 1997, Ser. No. 804,239

Int. Cl.[6] C08F *8/00*

U.S. Cl. 525—100 **27 Claims**

1. A method for reducing environmental etch in a cured coating comprising

I. applying to a substrate a curable coating composition comprising:

(a) a first component comprising a polymer backbone having appended thereto at least one carbamate functional group, and

(b) a second component comprising a compound having a plurality of functional groups that are reactive with said carbamate group, and

II. curing the coating composition to form a cured coating, wherein the cured coating has a 20° gloss, as defined by ASTM D523-89, of at least 80 or a DOI, as defined by ASTM E430-91, of at least 80, or both, derived from a curable coating composition.

5,726,247

FLUOROPOLYMER NANOCOMPOSITES

Michael Joseph Michalczyk, Wilmington, Del.; Kenneth George Sharp, Landenburg, Pa., and Charles Winfield Stewart, Newark, Del., assignors to E. I. du Pont de Nemours and Company, Wilmington, Del.

Filed Jun. 14, 1996, Ser. No. 663,821

Int. Cl.[6] C08K *5/51;* **C08L** *27/12*

U.S. Cl. 525—102 **40 Claims**

1. A fluoropolymer nanocomposite, comprising:

(a) a fluoropolymer phase comprising at least one fluoropolymer; and

(b) at least one partially or fully cross-linked inorganic oxide phase prepared from at least one inorganic oxide precursor, said inorganic oxide phase being dispersed within said fluoropolymer phase and said inorganic oxide phase either exhibiting no particles or substantially all particles present in the inorganic oxide phase having a particle size of less than about 75 nm; and the fluoropolymer and the inorganic oxide precursor being soluble in a fluorinated solvent.

5,726,248

POLYMERIC N-ARYL SUBSTITUTED AND N-ALKARYL SUBSTITUTED DIPHENYLDIAMINES

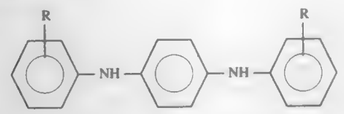
Lawson Gibson Wideman; Paul Harry Sandstrom, both of Tallmadge, and Denise Jeannette Keith, Akron, all of Ohio, assignors to The Goodyear Tire & Rubber Company, Akron, Ohio

Continuation of Ser. No. 697,122, Aug. 20, 1996, abandoned, which is a continuation of Ser. No. 303,920, Sep. 9, 1994, abandoned. This application Jan. 22, 1997, Ser. No. 787,368

Int. Cl.[6] L08L *61/20*

U.S. Cl. 525—164 **11 Claims**

1. A polymeric composition useful as an antioxidant which comprises a polymer having a molecular weight ranging from about 300 to about 3,000 and consists of the polymeric reaction product of (a) an N-aryl or N-alkaryl substituted diphenyldiamine of the formula:



wherein each R may be the same or different and is a radical selected from the group consisting of hydrogen and alkyls having from 1 to 8 carbon atoms; and (b) at least one diene selected from the group consisting (1) conjugated dienes consisting of 1,3-butadiene, isoprene, chloroprene, 2-ethyl-1,3-butadiene, 2,3-dimethyl-1,3-butadiene and piperylene; and (2) nonconjugated dienes consisting of 1,4-pentadiene, 1,4-hexadiene, ethylidene norbornene, 1,4-diisopropenylbenzene, 1,3-diisopropenylbenzene, 1,4-di-α-ethylvinylbenzene, 1,3 -di-α-ethylvinylbenzene, 1-isopropenyl-4-α-ethylvinylbenzene, 1-isopropenyl-3-α-ethylvinylbenzene, 1-α-ethylvinyl-4-α'-isopropylvinylbenzene, 1-α-ethylvinyl-3-α'-isopropylvinylbenzene, 1,4-di-αisopropylvinylbenzene, 1,3-di-α-isopropylvinylbenzene limonene vinylcyclohexene, cyclooctadiene, dicyclopentadiene 1,5,9-cyclododecatriene and mixtures thereof; and wherein the molar ratio of polymer units derived from diphenyldiamine to diene ranges from about 2:1 to 1:2.

5,726,249

COATING COMPOSITIONS WITH BRANCHED POLYMER

Robert John Barsotti, Franklinville, N.J., and Christopher Scopazzi, Wilmington, Del., assignors to E. I. du Pont de Nemours and Company, Wilmington, Del.

PCT No. PCT/US95/07122, § 371 Date Jan. 3, 1997, § 102(e) Date Jan. 3, 1997, PCT Pub. No. WO96/01852, PCT Pub. Date Jan. 25, 1996

PCT Filed Jun. 16, 1995, Ser. No. 765,374

Int. Cl.[6] C08F *2/38;290/04*

U.S. Cl. 525—286 **10 Claims**

1. A sprayable, curable, coating composition comprising organic solvent and binder, the binder comprising:

(a) anhydride resin having a molecular weight of less than about 3,000 that contains (1) a central moiety, and (2) on average, more than one pendant, non-cyclic, asymmetrical anhydride moiety bonded to each central moiety;

(b) coreactant branched copolymer resin having a molecular weight of about from 1500 to 50,000 comprising:

(i) a polymeric backbone comprising about from 5 to 75%, based on the weight of the backbone, of polymerized ethylenically unsaturated monomers containing epoxy functionality; and

(ii) about from 1 to 80%, by weight of the branched copolymer, of macromonomers containing epoxy functionality attached to the polymeric backbone at a single terminal point

of the macromonomer;

wherein the branched copolymer resin contains at least about 10% by weight of ethylenically unsaturated polymers containing epoxy functionality; and

(c) a functional amount of at least one catalyst; wherein the ratio of equivalents of epoxy to anhydride is about from 0.5 to 1.8.

5,726,250

COVALENTLY CROSSLINKED WATER-ABSORBENT GRAFT COPOLYMER

Michael J. Zajaczkowski, Yoe, Pa., assignor to Adhesives Research, Inc., Glen Rock, Pa.

Continuation-in-part of Ser. No. 399,876, Mar. 7, 1995, Pat. No. 5,508,367, which is a continuation-in-part of Ser. No. 272,827, Jul. 11, 1994, Pat. No. 5,395,907. This application Mar. 7, 1996, Ser. No. 612,260

Int. Cl.[6] C08F *220/26*

U.S. Cl. 525—296 **26 Claims**

1. An covalently crosslinked water-absorbent graft copolymer comprising the copolymerization reaction product of one or more water soluble base monomers A and water soluble or water dispersible macromer C, and optionally one or more B monomers copolymerized with said A monomer, wherein said base monomer A consists of a vinyl monomer capable of forming a hydrophilic polymer and having a Tg<20° C., said optional monomer B being different from monomer A and capable of forming a hydrophilic or hydrophobic polymer, and said C macromer forming polymeric sidechains on said graft copolymer and defined by the formula $X—(Y)_p—Z—R$, wherein X is a moiety copolymerizable with monomers A and B or capable of attachment to copolymerized monomers A and B, Y is a divalent linking group, Z is a water-soluble or water-dispersible homo- or copolymeric moiety, R is a terminal group, and p is 0 or 1, with the provisos that when said C macromer is present in an amount of at least 45 percent by weight, then at least 5 percent by weight of a B monomer having a Tg of >20° C. is present, and when said C macromer is present in an amount of 35 percent by weight or less, then at least 5 percent by weight of a B monomer having a Tg of <0° C. is present, and wherein any B monomer present, if hydrophobic, is present in an amount up to 25 percent by weight, each said amounts being based on the total weight of the components A, B and C.

5,726,251

POWDER COATINGS OF AMINE-REACTIVE RESINS AND AMINE CARBAMATE SALTS

Steven Paul Wilkinson, Coopersburg, and Jeffrey Thomas DePinto, Emmaus, both of Pa., assignors to Air Products and Chemicals, Inc., Allentown, Pa.

Filed Oct. 11, 1996, Ser. No. 730,535

Int. Cl.[6] C08L *33/14;63/02;67/06;75/04*

U.S. Cl. 525—327.3 **5 Claims**

1. A powder coating composition comprising an amine carbamate salt formed by reacting a liquid diamine or hydroxyl-functional amine with CO_2 which is crystalline at ambient temperature and a solid resin containing epoxy functionality which will react with the resultant amine upon decomposition of the carbamate.

5,726,252

BROMINATED POLYSTYRENE HAVING IMPROVED THERMAL STABILITY AND COLOR AND PROCESS FOR THE PREPARATION THEREOF

James C. Gill, Macedonia, and James L. Dever, Medina, both of Ohio, assignors to Ferro Corporation, Cleveland, Ohio

Division of Ser. No. 661,350, Jun. 14, 1996, Pat. No. 5,637,650. This application Feb. 7, 1997, Ser. No. 796,277

Int. Cl.[6] C08F *8/22*

U.S. Cl. 525—333.3 **8 Claims**

1. A brominated polystyrene product made by the process comprising:

pretreating a solution of a polystyrene reactant comprising from about five to about 20 percent by weight of said polystyrene reactant, in a halogenated hydrocarbon solvent with at least about 0.1 percent by weight of an additive to suppress halogenation of the polystyrene backbone, prior to brominating the polystyrene in the presence of a catalyst;

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subsequently adding a metal halide bromination catalyst to said solution, capable of effecting bromination of the ring without causing crosslinking of the polystyrene;

adding to said solution from about 1 to about 3.4 moles of a brominating agent, per mole of polystyrene repeating units;

reacting said polystyrene with said brominating agent at a temperature of from about −20° C. to about 50° C., and

isolating the brominated polystyrene.

5,726,253

PROCESS FOR THE PREPARATION OF RESINS WITH A PRIMARY AMINE OR GUANIDINE FUNCTION, AND RESINS THUS OBTAINED

Pierre Le Perchec, Lyons, France; Marie Abiuso, L'Arbresle, France, and Emmanuel Arretz, Pau, France, assignors to Elf Aquitaine Production, Courbevoie, France

Filed Dec. 11, 1996, Ser. No. 764,017

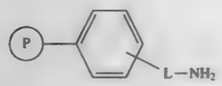
Int. Cl.[6] C08F *8/30*

U.S. Cl. 525—359.1 **5 Claims**

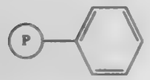
1. A process for the preparation of resins based on polystyrene-divinylbenzene (PS-DVB) functionalized with guanidine groups, comprising the following steps:

(1) providing a PS-DVB resin functionalized with a primary amine group of general formula (I):

(I)



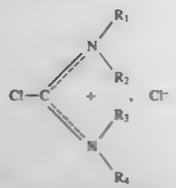
wherein:



is the PS-DVB resin support, L is a linear organic radical formed of atoms at least as long as methylene (—CH_2—) ,

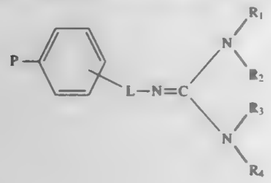
(2) reacting a chloroformamidinium chloride (Vilsmeier salt) with the resin (I) in the presence of a base, said chloride being of general formula (II):

(II)



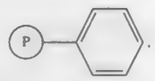
wherein R_1, R_2, R_3 and R_4 are, independently of each other, selected from the group consisting of methyl, ethyl, propyl, butyl, cyclohexyl and phenyl groups, in order to obtain a PS-DVB resin functionalized with a guanidine group and of general formula (III)

(III)



-continued

wherein:



L and R_1 to R_4 have the same meanings as above.

5,726,254

AMINORESIN BASED COATINGS CONTAINING 1,3,5-TRIAZINE TRIS-CARBAMATE CO-CROSSLINKERS

Kuang-Jong Wu, Shelton, Conn., and Doris C. O'Toole, Carmel, N.Y., assignors to Cytec Technology Corp., Wilmington, Del.

Continuation of Ser. No. 437,192, May 8, 1995, Pat. No. 5,593,735, which is a division of Ser. No. 998,313, Dec. 29, 1992, Pat. No. 5,574,103. This application Jan. 8, 1997, Ser. No. 779,535

Int. Cl.[6] C08F *8/32*

U.S. Cl. 525—375 **16 Claims**

1. A curable composition, comprising:

(a) a polyfunctional hydroxy group containing material;

(b) a 1,3,5-triazine-2,4,6-tris-carbamate crosslinker of the formula $C_3N_3(NHCOOR)_3$ or an oligomer thereof; and

(c) an acid cure catalyst.

5,726,255

EPOXY(METH)ACRYLATES, A PROCESS FOR THEIR PRODUCTION AND THEIR USE AS BINDERS

Jürgen Meixner, Krefeld, Germany, and Wolfgang Fischer, Meerbusch, Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Germany

Filed Mar. 15, 1996, Ser. No. 616,870

Claims priority, application Germany, Mar. 24, 1995, 195 10 766.7

Int. Cl.[6] C08F *20/00;283/00*

U.S. Cl. 525—438 **9 Claims**

1. An epoxy(meth)acrylate which is substantially free from epoxide groups and is the reaction product of an organic compound containing epoxide groups and having a number average molecular weight (M_n) of 130 to 1000 with

I) a compound containing carboxyl and ester groups at an equivalent ratio of carboxyl groups to epoxide groups of 0.7:1.0 to 1.0:1.0, wherein compound I) is the reaction product of

A) an organic dicarboxylic acid or dicarboxylic acid anhydride having a molecular weight of 98 to 164 with

B) a reaction product containing alcoholic hydroxyl groups and prepared at a COOH/OH equivalent ratio of 0.6 to 0.95 from a)(meth)acrylic acid and

b) a tri- or tetrahydric ether alcohol having a molecular weight of 180 to 1000, which contains at least two ethylene oxide units —CH_2—CH_2—O— as part of one or more ether structures and which contains up to 20 mole %, based on the total moles of alkylene oxide units, of propylene oxide units, —CH_2—$CH(CH_3)$—O—, and

II) a basic nitrogen compound selected from ammonia and (cyclo)aliphatic primary and secondary amines at an NH/epoxide equivalent ratio of 0:1.0 to 0.3:1.0.

5,726,256

METHOD OF MAKING SILICONE PRESSURE SENSITIVE ADHESIVES

Edward Joseph Benson, Midland, Mich.; Joseph Thomas Braun, Midland, Mich.; Joseph Norbert Clark, Freeland, Mich., and Peter Lamont, Midland, Mich., assignors to Dow Corning Corporation, Midland, Mich.

Filed Oct. 22, 1996, Ser. No. 734,944

Int. Cl.[6] C08F *283/00*

U.S. Cl. 525—477 **11 Claims**

1. A method of producing silicone pressure sensitive adhesives wherein the method comprises

(I) combining together

(A) a benzene soluble, hydroxyl containing organopolysiloxane resin consisting essentially of $R_3SiO_{1/2}$ siloxane units and $SiO_{4/2}$ siloxane units, wherein R is a monovalent radical selected from the group consisting of hydrocarbon and halogenated hydrocarbon radicals having from 1 to 10 carbon atoms; there being from 0.5 to 1.5 $R_3SiO_{1/2}$ units for every $SiO_{4/2}$ units and there being 1.0 to 5 wt % hydroxyl functionality based on Si^{29} NMR and

(B) a hydroxyl containing polydiorganosiloxane having a viscosity of ≧100 mPa's and thereafter; and

(C) a catalyst selected from the group consisting of carboxylic acids and metal Salts of carboxylic acids wherein the metal is selected from the group consisting of Li, Na, K, Ce and Ca; and

(II) heating the mixture of (A), (B) and (C) for a time sufficient to produce the silicone pressure sensitive adhesive.

5,726,257

ESTERIFIED RESORCINOL-CARBONYL COMPOUND CONDENSATES AND EPOXY RESINS THEREWITH

Youichi Ueda, Tatatsuki; Yasuhiro Endo, Tsukuba; Mitsuhiro Shibata, Ibaraki-ken, and Kaori Yamasaki, Osaka, all of Japan, assignors to Sumitomo Chemical Company, Ltd., Osaka, Japan

Filed Aug. 28, 1995, Ser. No. 520,110

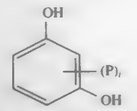
Claims priority, application Japan, Aug. 30, 1994, 6-205175; Sep. 27, 1994, 6-231182; Jan. 30, 1995, 7-012437; Feb. 2, 1995, 7-016183

Int. Cl.[6] C08G *8/02;8/04;8/22*

U.S. Cl. 525—508 **14 Claims**

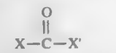
1. An aryl ester compound composed of a polyhydric phenol in which at least one OH group has been esterified with an organic acid or its derivatives having 1 to 20 carbon atoms, wherein the esterification percentage is at least 30 equivalent % relative to the total OH groups, said polyhydric phenol being the condensation product of a substituted or unsubstituted resorcinol represented by the formula (1):

(1)



wherein each P represents independently a hydrogen atom, a halogen atom, an alkyl group having 1 to 10 carbon atoms, a cycloalkyl group having 5 to 10 carbon atoms, an aryl group having 6 to 20 carbon atoms or an aralkyl group having 7 to 20 carbon atoms and i represents an integer of 0 to 2, with a carbonyl compound represented by the general formula (2):

(2)



wherein each of X and X' represents independently a hydrogen atom, an alkyl group having 1 to 10 carbon atoms, a cycloalkyl group having 5 to 10 carbon atoms, an aryl group having 6 to 20 carbon atoms or an aralkyl group having 7 to 20 carbon atoms, provided that X and X' may form a ring together with the carbon atom to which X and X' are attached.

5,726,258

CONTINUOUS PREPARATION OF POLYMERS

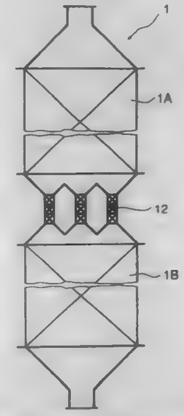
Wolfgang Fischer, Ludwigshafen, and Michael Baumgärtel, Frankenthal, both of Germany, assignors to BASF Aktiengesellschaft, Ludwigshafen, Germany

Filed Jul. 1, 1996, Ser. No. 671,308

Claims priority, application Germany, Jul. 3, 1995, 195 24 182.7

Int. Cl.[6] C08F *2/02*

U.S. Cl. 526—64 **13 Claims**



1. A process for the continuous preparation of polymers from reaction components by bulk or solution polymerization, where the reaction components are passed through the tubes of a recycle reactor,

wherein

the recycle reactor has at least one tube bundle reactor with straight tubes around which a liquid heat-transfer medium flows, and wherein each tube bundle reactor consists of at least two shell and tube heat exchangers which are connected together by at least one intermediate mixing section.

5,726,259

BIMODAL LATEX BINDER

Peter C. Hayes, and Nick Triantafillopoulos, both of Stow, Ohio, assignors to GenCorp Inc., Fairlawn, Ohio

Division of Ser. No. 498,105, Jul. 5, 1995. This application Jul. 12, 1996, Ser. No. 679,544

Int. Cl.[6] C08F *2/24*

U.S. Cl. 526—80 **17 Claims**

1. A multi-stage emulsion polymerization process for preparing a high strength bimodal latex, the process comprising the steps of:

a) forming a first polymeric seed in-situ by charging into a reaction zone of a reactor an aqueous emulsion polymerizable mixture including at least one emulsion polymerizable monomer, surfactant, chelating agent and free radical initiator;

b) subsequently charging to the reaction zone of the reactor over a plurality of sequential stages an aqueous emulsion polymerizable mixture including at least one polymerizable monomer, about 1.0 to 2.0 wt % chain transfer agent and about 0 to 5 wt % surfactant at a charge rate faster than the polymerization rate of the at least one polymerizable monomer;

c) reacting the emulsion polymerizable mixture of step b) to about 70 to 80 percent conversion;

d) forming a second polymeric seed in-situ in the presence of unreacted monomer from step b) by charging into the reaction zone of the reactor an aqueous emulsion polymerizable mixture including at least one emulsion polymerizable monomer, surfactant and free radical initiator;

e) subsequently charging to the reaction zone of the reactor over a plurality of sequential stages an aqueous emulsion polymer-

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izable mixture including at least one polymerizable monomer, about 0.5 to 2.0 wt % chain transfer agent and about 0 to 5 wt % surfactant at a charge rate faster than the polymerization rate of the at least one polymerizable monomer; and

f) reacting the emulsion polymerizable mixture of step e) to a conversion of about 98 percent to form the bimodal latex.

5,726,260

PROCESS FOR THE PRODUCTION OF A MICROSPHEROIDAL POWDER OF LOW DISPERSITY, MICROSPHEROIDAL POWDER OF LOW DISPERSITY THUS OBTAINED, CATALYSTS FOR THE POLYMERIZATION OF ALPHA-OLEFINS AND PROCESS FOR THE POLYMERIZATION OF ALPHA-OLEFINS

Helmut Derleth, Nienburg, Germany, and Abel Grosjean, Brussels, Belgium, assignors to Solvay (Société Anonyme), Brussels, Belgium

Division of Ser. No. 27,521, Mar. 8, 1993. This application Jun. 7, 1995, Ser. No. 478,367

Claims priority, application Belgium, Mar. 10, 1992, 09200248

Int. Cl.[6] C08F *4/24*

U.S. Cl. 526—106 **4 Claims**

1. In a process for the polymerisation of alpha-olefins, the improvement comprising a catalyst containing chromium on a microspheroidal powder consisting essentially of silicon oxide and titanium oxide, the titanium content ranging from 0.1 to 10% by weight with respect to the total weight of the catalyst, said microspheroidal powder of low dispersity having a mean diameter of between 20 and 250 μm and a standard deviation of less than 70 μm.

5,726,261

COMPONENTS AND CATALYSTS FOR THE POLYMERIZATION OF OLEFINS

Mario Sacchetti, Ferrara; Gianni Pennini, Porotto, and Illaro Cuffiani, Ferrara, all of Italy, assignors to Montell Technology Company bv., Hoofddorp, Netherlands

Division of Ser. No. 500,032, Jul. 10, 1995, Pat. No. 5,585,317, which is a continuation of Ser. No. 11,179, Jan. 29, 1993, abandoned. This application Sep. 11, 1996, Ser. No. 712,425

Claims priority, application Italy, Jan. 31, 1992, MI92A0194

Int. Cl.[6] C08F *4/654;10/02*

U.S. Cl. 526—124.2 **3 Claims**

1. A process for the polymerisation of ethylene and mixtures thereof with one or more olefins having the formula CH_2=CHR, wherein R is an alkyl, cycloalkyl or aryl group having 1–12 carbon atoms, said process comprising carrying out the polymerization in the presence of a catalyst, said catalyst comprising the product of reacting an aluminum alkyl compound with a spherical component, said spherical component comprising: a titanium compound having at least one Ti-halogen bond and one OR^1 group, wherein R^1 is an alkyl, cycloalkyl or aryl radical having 1–18 carbon atoms or a COR^1 group, said OR^1 group being bonded to Ti in such an amount as to yield a molar ratio of OR^1/Ti greater than 0.5, said titanium compound being supported on a magnesium dihalide in active form, said magnesium dihalide in active form being characterized by X-ray spectra wherein the most intense diffraction line appearing in the spectrum of the non-active halide shows a decreased intensity, and in said spectrum a halo appears, the maximum intensity of which is shifted towards lower angles with respect to the angles of the most intense line, said component having a porosity of from 0.35 to 0.7 cm^3/g, and a surface area comprised between 5 and 30 m^2/g, and wherein at least 50% of the porosity is due to pores having a radius greater than 800 Å.

5,726,262

SOLID TITANIUM CATALYST COMPONENT FOR OLEFIN POLYMERIZATION, OLEFIN POLYMERIZATION CATALYST, PREPOLYMERIZED POLYOLEFIN-CONTAINING CATALYST AND METHOD OF OLEFIN POLYMERIZATION

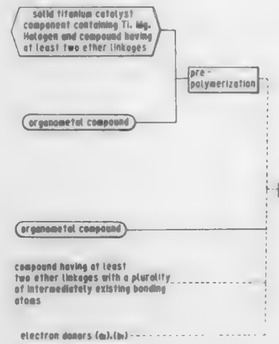
Mamoru Kioka, and Tetsunori Shinozaki, both of Kuga-gun, Japan, assignors to Mitsui Petrochemical Industries, Ltd., Tokyo, Japan

Continuation of Ser. No. 369,288, Jan. 6, 1995, abandoned, which is a continuation of Ser. No. 104,494, Aug. 10, 1993, abandoned, which is a continuation-in-part of Ser. No. 684,256, Apr. 12, 1991, abandoned. This application Dec. 24, 1996, Ser. No. 772,885

Claims priority, application Japan, Apr. 30, 1990, 2-97902; Apr. 30, 1990, 2-97906; Apr. 30, 1990, 2-97910; Apr. 30, 1990, 2-97911

Int. Cl.[6] C08F *4/64*

U.S. Cl. 526—124.8 **2 Claims**



1. A method of olefin polymerization comprising:

main polymerizing an α-olefin in the presence of an olefin polymerization catalyst which comprises

(Ia–IIa) a prepolymerized olefin-containing catalyst,

(IIa) an organoaluminum compound catalyst component, and

(III) a compound represented by the following formula (A)



wherein n is an integer and $2 \leqq n \leqq 10$, R^1–R^{26} are each a substituent having at least one element selected from the group consisting of carbon, hydrogen, oxygen, halogen, nitrogen, sulfur, phosphorus, boron and silicon, any two members of R^1–R^{26} may together form a ring other than a benzene ring and the main chain of the compound may contain an atom other than carbon;

wherein said prepolymerized olefin-containing catalyst (Ia–IIa) comprises

(Ia) a solid titanium catalyst component containing titanium, magnesium, halogen and an electron donor which is a compound having at least two ether linkages represented by said formula (A),

(IIa) an organoaluminum compound catalyst component, optionally (III) an electron donor, and polyolefin prepared by preliminary polymerizing α-olefin of 2–20 carbon atoms;

wherein said prepolymerized olefin-containing catalyst (Ia–IIa) is prepared in a hydrocarbon solvent and then separated therefrom prior to utilization in said main polymerization.

5,726,263

MOLECULAR WEIGHT TRUNCATION AND COLOR CONTROL IN MACROMONOMERS

Alexei Alexeyevich Gridnev, Greenville, Del., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del.

Filed Jan. 30, 1997, Ser. No. 791,372

Int. Cl.[6] C08F *2/38*

U.S. Cl. 526—147 **11 Claims**

1. In a process for polymerizing an acrylic monomer by chain transfer catalysis, in the presence of a cobalt catalyst, to a mixture of a polymer and a mixture of oligomers of the acrylic monomer, and recovering higher oligomers,

the improvement of:

(a) determining the polarity of the monomer;

(b) classifying cobalt catalysts as either polar or nonpolar;

(c) carrying out the polymerization of the monomer in the presence of a cobalt catalyst selected so that a polar cobalt catalyst is used with a nonpolar monomer, and a nonpolar catalyst is used with a polar monomer;

(d) if the higher polymer formed in the reaction is insoluble in the polymerization solvent, removing the polymer by filtration prior to removing any colored cobalt compound present in the solution;

(e) if the higher polymer formed in the reaction is soluble in the polymerization solvent or has been removed in step (d) above, separating oligomers from any colored materials and from the higher polymer, if present.

5,726,264

PROCESSES TO PRODUCE METALLOCENE COMPOUNDS AND POLYMERIZATION PROCESSES THEREWITH

Michael Jung; Helmut G. Alt, both of Bayreuth, Germany, and M. Bruce Welch, Bartlesville, Okla., assignors to Phillips Petroleum Company, Bartlesville, Okla.

Filed Jun. 14, 1996, Ser. No. 663,885

Int. Cl.[6] C08F *4/68;4/64;4/69*

U.S. Cl. 526—170 **10 Claims**

1. A process to produce an ethylene-bridged-metallocene-transition-metal compound that has an omega-alkenyl substitution on said ethylene bridge, said process comprising:

(a) contacting a diolefin compound with a peracid compound to form an omega-alkenyl oxirane compound;

(b) contacting said omega-alkenyl oxirane compound with an organometal compound to form an organo-omega-alkenyl-alcohol compound;

(c) contacting said organo-omega-alkenyl-alcohol compound with an organosulfur compound to form an organo-omega-alkenyl organosulfur ester compound;

(d) contacting said organo-omega-alkenyl-organosulfur ester compound with an organometal compound to form an organo-omega-alkenyl-organo compound; and

(e) contacting said organo-omega-alkenyl-organo compound with a transition metal compound to form an ethylene-bridged-metallocene-transition-metal compound that has an omega-alkenyl substitution on said ethylene bridge.

8. A process to polymerize olefins using an ethylene-bridged-metallocene-transition-metal compound that has an omega-alkenyl substitution on said ethylene bridge, said process comprising contacting said ethylene-bridged-metallocene-transition-metal compound that has an omega-alkenyl substitution on said ethylene bridge, with olefins under polymerization conditions, where said ethylene-bridged-metallocene-transition-metal compound that has an omega-alkenyl substitution on said ethylene bridge has been prepared by the reaction process of claim 1.

5,726,265

THERMOPLASTICS HAVING A HIGH HEAT DEFLECTION TEMPERATURE AND IMPROVED HEAT STABILITY

Karl-Erwin Piejko, Gladbach; Herbert Eichenauer, Dormagen; Torsten Groth, Köln; Josef Käsbauer, Wermelskirchen, and Bernd-Michael König, Gladbach, all of Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Germany

Filed Jan. 18, 1996, Ser. No. 588,480

Claims priority, application Germany, Jan. 25, 1995, 195 02 200.9

Int. Cl.[6] C08F *222/40;220/44;212/10*

U.S. Cl. 526—262 **2 Claims**

1. A thermoplastic built up from

a) 5 to 50 parts by weight of N-(2-ethyl-6-methyl)phenylmaleimide,

b) 20 to 90 parts by weight of styrene and

c) 5 to 40 parts by weight of acrylonitrile.

5,726,266

COPOLYMERS BASED ON DIKETENES, ETHYLENICALLY UNSATURATED DICARBOXYLIC ACIDS OR DICARBOXYLIC ACID DERIVATIVES AND ETHYLENICALLY UNSATURATED HYDROCARBONS

Dieter Faul, Niederkirchen; Joachim Roser, Mannheim; Heinrich Hartmann, Limburgerhof; Gabriele Dralle-Voss, Darmstadt; Knut Oppenländer, Ludwigshafen, and Bernd Wenderoth, Birkenau, all of Germany, assignors to BASF Aktiengesellschaft, Ludwigshafen, Germany

PCT No. PCT/EP95/00904, § 371 Date Sep. 24, 1996, § 102(e) Date Sep. 24, 1996, PCT Pub. No. WO95/25755, PCT Pub. Date Sep. 28, 1995

PCT Filed Mar. 11, 1995, Ser. No. 704,751

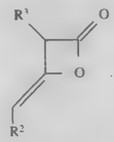
Claims priority, application Germany, Mar. 24, 1994, 44 10 198.8

Int. Cl.[6] C08F *224/00;222/02;222/10;210/00*

U.S. Cl. 526—266 **9 Claims**

1. A copolymer comprised of

a) from 1 to 65 mol % of at least one diketene of formula I



where R^1 and R^2, independently of one another, are each hydrogen or C_1–C_{30}-alkyl,

b) from 30 to 70 mol % of at least one ethylenically unsaturated dicarboxylic acid or one dicarboxylic acid derivative,

c) from 0.5 to 60 mol % of at least one ethylenically unsaturated hydrocarbon and

d) up to 20 mol % of at least one further ethylenically unsaturated monomer, wherein said ethylenically unsaturated hydrocarbon is selected from the group consisting of α-olefin and poly(α-olefin)derivatives having a terminal C-C double bond.

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5,726,267

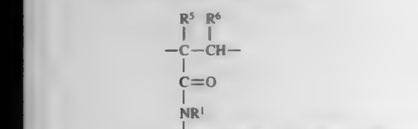
PREPARATION AND UTILITY OF WATER-SOLUBLE POLYMERS HAVING PENDANT DERIVATIZED AMIDE, ESTER OR ETHER FUNCTIONALITIES AS CERAMICS DISPERSANTS AND BINDERS

Christopher P. Howland, St. Charles; Kevin J. Moeggenborg; John D. Morris, both of Naperville; Peter E. Reed, Plainfield; Jiansheng Tang, Naperville, all of Ill., and Jin-shan Wang, Rochester, N.Y., assignors to Nalco Chemical Company, Naperville, Ill.

Filed Jan. 31, 1997, Ser. No. 792,610
Int. Cl.[6] C08F *20/58*
U.S. Cl. 526—304 **7 Claims**

1. A binder for ceramic materials that comprises a water soluble polymer having:

A) a mer unit of the formula



wherein R^1 is selected from the group consisting of hydrogen, and C_1–C_3 alkyl; p and q are integers from 1–10; R^2 and R^3 are selected from the group consisting of hydrogen and C_1–C_3 alkyl; Het^1 and Het^2 are oxygen; R^4 is selected from the group consisting of hydrogen, phosphate, sulfate and C_1–C_{20} alkyl; R^5 and R^6 are selected from the group consisting of hydrogen, carboxylate, C_1–C_3 alkyl, and a cycloalkyl group of 1 to 6 carbon atoms formed by the linkage of R^5 and R^6 as a ring; and

B) a mer unit selected from the group consisting of acrylic acid, methacrylic acid, acrylamide, maleic anhydride, itaconic acid, vinyl sulfonic acid, styrene sulfonate, N-tertbutylacrylamide, butoxymethylacrylamide, N,N-dimethylacrylamide, sodium acrylamidomethyl propane sulfonic acid, vinyl alcohol, vinyl acetate, N-vinyl pyrrolidone, maleic acid, and combinations thereof.

5,726,268

METHYL METHACRYLATE POLYMER

Takashi Sakamoto, Niihama, Japan, assignor to Sumitomo Chemical Company, Limited, Osaka, Japan

Filed Oct. 27, 1995, Ser. No. 549,524
Claims priority, application Japan, Oct. 28, 1994, 6-265224
Int. Cl.[6] C08F *120/18;220/02;216/12;220/44*
U.S. Cl. 526—329.7 **20 Claims**

1. A methyl methacrylate polymer comprising methyl methacrylate unit as a primary component, wherein the weight-average molecular weight of the polymer is in the range from 80,000 to 400,000, and the molecular weight between branch point calculated from the z-average molecular weight of the polymer is in the range from 30,000 to 1,000,000 and a branch point is formed by 0.02 to 0.3% by weight of a polyfunctional structural unit.

5,726,269

POLYPROPYLENE FILM

Seiichiro Ima; Eisuke Shiratani, and Shigeki Kishiro, all of Ichihara-shi, Japan, assignors to Sumitomo Chemical Company, Ltd., Osaka, Japan

Filed Jan. 26, 1996, Ser. No. 592,705
Claims priority, application Japan, Jan. 26, 1995, 7-010797
Int. Cl.[6] C08F *110/06*
U.S. Cl. 526—351 **19 Claims**

1. A polypropylene film produced by film-forming a polypropylene, wherein said polypropylene is prepared from a propylene polymer having:

(a) a stereoirregularity index mmrr/mmmm of a part insoluble in xylene at 20° C. within the range of 0.0095 to 0.0200;

(b) a melting temperature within the range of 145° to 160° C.;

(c) a part soluble in xylene at 20° C. of 3.5% by weight or less, and wherein said polypropylene has:

(a) a melt-flow rate at 230° C. under a load of 2.16 kgf within the range of 5 to 15 g/10 min.; and

(b) a swelling ratio within the range of 1.20 to 1.35.

5,726,270

PROCESS FOR THE SYNTHESIS OF MONO-MODAL AQUEOUS DISPERSIONS OF POLYSILOXANES

Daniel Horace Craig, Schenectady, N.Y., assignor to General Electric Company, Schenectady, N.Y.

Filed Dec. 26, 1996, Ser. No. 774,979
Int. Cl.[6] C08G *77/08*
U.S. Cl. 528—23 **13 Claims**

1. A process to make polysiloxane emulsions, comprising the steps of:

(a) preheating a aqueous reaction medium (A), optionally containing one or more surfactants, to a temperature of about 30° C. to about 110° C.; and

(b) semi-continuously adding to the aqueous reaction medium (A), an aqueous reaction mixture (B) comprising a siloxane precursor, and an acid catalyst-surfactant to form a polysiloxane emulsion comprising essentially mono-modal particles having a particle size in the range of about 50 nm to about 2 microns.

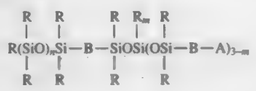
5,726,271

HYDROXYPHENYL-CONTAINING POLYORGANOSILOXANES

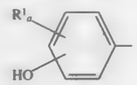
Haruhiko Furukawa; Yoshitsugu Morita; Tadashi Okawa, and Hiroshi Ueki, all of Chiba Prefecture, Japan, assignors to Dow Corning Toray Silicone, Ltd., Tokyo, Japan

Filed Nov. 25, 1996, Ser. No. 755,921
Claims priority, application Japan, Nov. 29, 1995, 7-334005; Jun. 25, 1996, 8-183986
Int. Cl.[6] C08G *77/26*
U.S. Cl. 528—29 **13 Claims**

1. A hydroxyphenyl-functional polyorganosiloxane compound having the formula



wherein R is independently a monovalent hydrocarbon group free of aliphatic unsaturation, A is a group having the formula:



wherein R^1 is selected from the group consisting of an alkyl group having from 1 to 4 carbon atoms and an alkoxy group having from 1 to 4 carbon atoms, and a is an integer having a value of 0 to 4, B is selected from the group consisting of alkyleneoxyalkylene groups having at least two carbon atoms and alkylene groups having at least 2 carbon atoms, m is zero or 1, and n is an integer from 0 to 400.

5,726,272

POLYUREA COATING COMPOSITIONS HAVING FASTER DRY TIMES

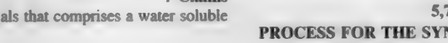
Kenneth P. Yonek, McMurray, Pa., assignor to Bayer Corporation, Pittsburgh, Pa.

Filed Feb. 8, 1996, Ser. No. 597,419
Int. Cl.[6] C09D *175/02;* **C08G** *18/30;18/32;18/76*
U.S. Cl. 528—64 **12 Claims**

1. A coating composition for the preparation of a polyurea coating which contains

a) an NCO prepolymer containing aromatically bound isocyanate groups and

b) an aldimine corresponding to the formula



wherein

X_1 represents an organic group which has a valency of n and is obtained by removing the amino groups from a cyclic organic polyamine having (cyclo)aliphatically-bound amino groups,

R_1 and R_2 are identical or different and represent organic groups which are inert towards isocyanate groups at a temperature of 100° C. or less, or R_1 and R_2 together with the β-carbon atom form a cycloaliphatic or heterocyclic ring, and

n represents an integer having a value of at least 2,

in which components a) and b) are present in amounts sufficient to provide an equivalent ratio of isocyanate groups to aldimine groups of about 1.0:0.7 to 1.0:0.1.

5,726,273

HEAT-CURABLE COMPOSITIONS BASED ON CYCLIC ISOCYANATE ADDITION REPRODUCTS

Douglas A. Wicks, Lebanon, Pa.; Robert J. Kumpf, Pittsburgh, Pa.; Sze-Ming Lee, Pittsburgh, Pa.; Duane B. Priddy, Jr., Pittsburgh, Pa., and Philip E. Yeske, Pittsburgh, Pa., assignors to Bayer Corporation, Pittsburgh, Pa.

Filed Jun. 5, 1996, Ser. No. 658,786
Int. Cl.[6] C08G *18/74*
U.S. Cl. 528—73 **20 Claims**

1. A heat-curable, cyclic isocyanate addition product

i) which is the reaction product of a polyisocyanate having two or more isocyanate groups with a compound containing two or more isocyanate-reactive groups, provided that a portion of said polyisocyanate has at least three isocyanate groups and/or a portion of said compound contain least three isocyanate-reactive groups, and

ii) in which at least 10% by weight of the reaction products are in the form of cyclic groups containing urea and/or urethane groups.

5,726,274

POLYURETHANE POLYMER OR OLIGOMER HAVING CARBAMATE GROUPS, METHOD FOR ITS PREPARATION, AND COATING COMPOSITION

Gregory L. Menovcik, Farmington Hills, and Walter H. Ohrbom, Commerce, both of Mich., assignors to BASF Corporation, Southfield, Mich.

Division of Ser. No. 361,344, Dec. 21, 1994, abandoned. This application Oct. 24, 1995, Ser. No. 547,513
Int. Cl.[6] C08G *18/30*
U.S. Cl. 528—85 **8 Claims**

1. A method of preparing a polyurethane having pendant carbamate groups, comprising the steps of:

(a) reacting a hydroxyalkyl cyclic carbonate with ammonia, ammonium hydroxide, or a primary amine to form a polyol having a carbamate group appended thereto, and

(b) reacting a mixture comprising a polyol component and a polyisocyanate, said polyol component comprising said polyol having a carbamate group appended thereto to form a polyurethane comprising at least one pendant carbamate group, wherein said mixture either comprises an excess of said polyol component or an active hydrogen capping agent so that a polyurethane without residual isocyanate groups is produced.

5,726,275

PROCESS FOR THE BATCHWISE PREPARATION OF POLY-P-PHENYLENE TEREPHTHALAMIDE

Angelica Elizabeth-Maria Bannenberg-Wiggers, Loenen; Johannes A. van Omme, Elst, and Joannes Marinus Surquin, Arnhem, all of Netherlands, assignors to Akzo Nobel N.V., Netherlands

PCT No. PCT/EP95/00487, § 371 Date Jul. 31, 1996, § 102(e) Date Jul. 31, 1996, PCT Pub. No. WO95/21883, PCT Pub. Date Aug. 17, 1995
PCT Filed Feb. 9, 1995, Ser. No. 682,795
Claims priority, application Netherlands, Feb. 11, 1994, 9400223
Int. Cl.[6] C08G *63/06*
U.S. Cl. 528—208 **11 Claims**

1. A process for the batchwise preparation of poly-p-phenylene terephthalamide polymer by reacting about equimolar amounts of p-phenylene diamine and terephthaloyl dichloride in a solution containing N-methyl-2-pyrrolidone and calcium chloride, characterized in that

the reaction is carried out in a cylindrical reaction vessel having a measure of capacity of at least 160 liters which is equipped with a single mixing gear used as stirrer and granulator,

the contents of the reaction vessel are whirlingly mixed, as terephthaloyl dichloride is added,

the formed polymer is crumbled, and

the reaction and the crumbling take place in one and the same reaction vessel.

5,726,276

PROCESS FOR PREPARING POLYACETAL COPOLYMER

Akira Nakai; Eiji Masuda, and Kaoru Yamamoto, all of Shizuoka, Japan, assignors to Polyplastics Co., Ltd., Japan

Filed Oct. 1, 1996, Ser. No. 725,650
Claims priority, application Japan, Oct. 2, 1995, 7-255078
Int. Cl.[6] C08G *4/00*
U.S. Cl. 528—234 **7 Claims**

1. A process for preparing a polyacetal copolymer comprising the steps of:

(a) subjecting a reaction mixture comprised of trioxane as a principal monomer and a cyclic ether or cyclic formal having at least one carbon-carbon bond as a comonomer to copolymerization reaction conditions using an isopolyacid or an acidic salt thereof as a polymerization catalyst;

(b) continuing the copolymerization according to step (a) until the remaining unreacted monomers account for at most 10% of all the monomers fed into the reaction mixture to thereby obtain a product mixture comprised of crude copolymer product, unreacted monomers and the polymerization catalyst, and then subsequently

(c) treating the product mixture with a solution containing a deactivator for said polymerization catalyst in an amount of 0.01 to 10% by weight based on the resulting crude copolymer product to deactivate the catalyst therein; and then subsequently without washing the treated product mixture

(d) forming a melt of the crude copolymer product.

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5,726,277

ADHESIVE COMPOSITIONS FROM PHTHALATE POLYMERS AND THE PREPARATION THEREOF

Robert Keith Salsman, Hoschton, Ga., assignor to Seydel Companies, Inc., Georgia, S.C.

Filed Feb. 2, 1994, Ser. No. 191,319
Int. Cl.[6] C08G *63/02*
U.S. Cl. 528—272 6 Claims

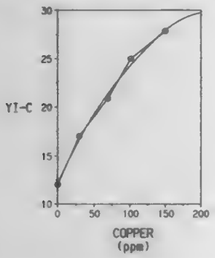
1. An adhesive or coating water dispersible composition comprising a reaction product of at least 50% by weight of a waste terephthalate polymer and a mixture of glycols including an oxyalkylated polyol in the presence of a glycolysis catalyst wherein the reaction product is further reacted with a difunctional, organic acid and wherein the weight ratio of acid to glycols is in the rarige of 6:1 to 1:2.

5,726,278

PROCESS FOR THE MANUFACTURE OF POLYAMIDE RESIN COMPOSITION

Tsunao Kenmochi, Ustunomiyá, Japan, assignor to E. I. du Pont de Nemours and Company, Wilmington, Del.

PCT No. PCT/US93/10454, § 371 Date Apr. 24, 1996, § 102(e) Date Apr. 24, 1996, PCT Pub. No. WO95/11788, PCT Pub. Date May 4, 1995
PCT Filed Oct. 29, 1993, Ser. No. 632,493
Int. Cl.[6] C08L *77/00;* C08G *73/00*
U.S. Cl. 528—310 3 Claims



1. A two step process for the manufacture of a molded polyamide product, comprising the steps of

preparing master pellets containing a heat stabilizer by making a polyamide resin masterbatch by compounding a polyamide resin with a heat stabilizer, and then melt-mixing, extruding, and pelletizing the masterbatch with heating into master pellets, and diluting the concentration of the heat stabilizer in the master pellets by mixing the master pellets with a sufficient amount of a dilution polyamide resin to make a mixture having a heat stabilizer content within the range of that which is needed for heat stabilization of the mixture and melt molding the mixture under required heating to form a molded polyamide product.

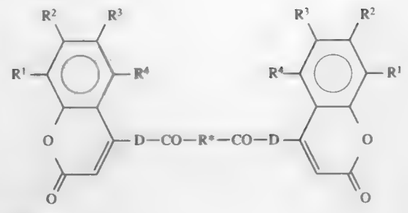
5,726,279

PREPARATION OF POLY-O-HYDROXYAMIDES AND POLY O-MERCAPTOAMIDES

Recai Sezi, and Hellmut Ahne, both of Roettenbach, Germany, assignors to Siemens Aktiengesellschaft, München, Germany

Filed Aug. 29, 1996, Ser. No. 705,576
Claims priority, application Germany, Aug. 31, 1995, 195 32 140.5
Int. Cl.[6] C08G *69/08;73/10*
U.S. Cl. 528—310 4 Claims

1. A process for the preparation of poly-o-hydroxyamides and poly-o-mercaptoamides, comprising the step of reacting a bis-o-aminophenol or a bis-o-amino-thiophenol with a dicarboxylic acid derivative having the following structure:



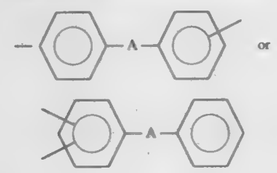
in which

D=O, S, or NH;

R^1, R^2, R^3, and R^4 are, independently of each other, H, F, CH_3, or CF_3, where no more than two of the groups R^1 through R^4 are CH_3 or CF_3;

R* has the following meaning:

$(CR_2)_m$, with R=H, F, CH_3, or CF_3 and m=1 to 10;

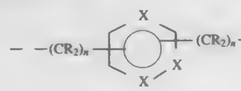


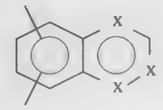
where

A=$(CH_2)_n$, $(CF_2)_p$, $C(CH_3)_2$, $C(CF_3)_2$,$C(CH_3)$ (C_6H_5), $C(CF_3)$ (C_6H_5), $C(CF_3)$ (C_6F_5), $C(C_6H_5)_2$, CF_2—$CF(CF_3)$, CH═CH, CF═CF, C≡C, O—C_6H_4—O, O, S, CO, or SO_2,

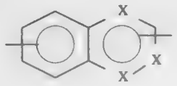
where

n=0 to 10 and p=1 to 10;





or

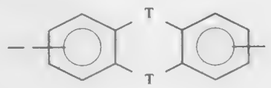


where

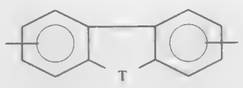
X=CH or N,

R=H, F, CH_3, or CF_3, and

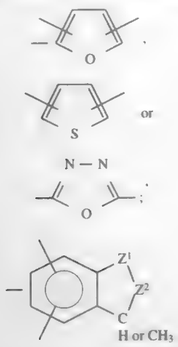
n=0 to 10;



or



where T=CH_2, CF_2, CO, O, S, NH, or $N(CH_3)$;



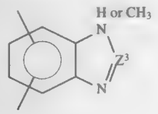
where

Z^1=CH_2 or $CH(CH_3)$ and Z^2=CH or $C(CH_3)$

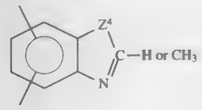
Z^1=CH_2 or $CH(CH_3)$ and Z^2=N

Z^1=NH or $N(CH_3)$ and Z^2=CH or $C(CH_3)$

Z^1=NH or $N(CH_3)$ and Z^2= N



where Z^3=CH, $C(CH_3)$, or N



where Z^4=O or S;

where, in each case, all hydrogen atoms (H) in all aromatic partial structures can be replaced by fluorine (F).

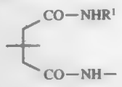
5,726,280

SULFONIC ACID GROUP-CONTAINING POLYASPARTIC ACID DERIVATIVES, USE THEREOF AND PREPARTION THEREOF

Hermann Uhr; Lutz Heuer, both of Krefeld; Torsten Groth, Odenthal; Winfried Joentgen, Cologne, and Roland Kleinstück, Bergisch Gladbach, all of Germany, assignors to Bayer AG, Leverkusen, Germany

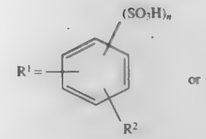
Continuation-in-part of Ser. No. 336,489, Nov. 9, 1994, Pat. No. 5,506,335. This application Apr. 8, 1996, Ser. No. 628,929
Claims priority, application Germany, Aug. 24, 1994, 4429976.1
Int. Cl.[6] C08G *69/00;* C11D *3/08*
U.S. Cl. 528—328 15 Claims

1. A composition which is useful for water treatment or as a detergent additive and contains a polymer containing repeating aspartyl units of the structure



(I)

where



or —Y—SO_3H

n=1 or 2

Y represents a straight-chain or branched alkyl group having 1 to 10 carbon atoms, or a straight-chain or branched alkenyl or alkinyl group having 2 to 10 carbon atoms,

R^2 represents H, an alkyl group having 1 to 6 carbon atoms which is unsubstituted or substituted by 1 to 5 halogen atoms, an alkoxy group which comprises 1 to 6 carbon atoms in the alkyl moiety and which is unsubstituted or substituted with 1 to 5 halogen atoms, or a halogen, or a salt thereof.

5,726,281

EPOXY-TERMINATED POLYAMIDE, ADHESIVE MADE THEREFROM AND METHODS FOR PRODUCING THEM

Hitoshi Nojiri, Ohtsu, Japan, and Katsunori Yabuta, Ohtsu, Japan, assignors to Kanegafuchi Kagaku Kogyo Kabushiki Kaisha, Osaka, Japan

Division of Ser. No. 21,225, Feb. 23, 1993, Pat. No. 5,371,175. This application Sep. 29, 1994, Ser. No. 315,250
Int. Cl.[6] C08L *77/00;* G08G *69/46*
U.S. Cl. 528—335 9 Claims

1. A method for producing an adhesive characterized by providing an epoxy-terminated polyamide resin formed from a dimer acid as a starting material, which epoxy-terminated polyamide resin is obtained by reacting an epoxy resin with a carboxylic acid-terminated polyamide formed from said dimer acid as a starting material in an amount equivalent to that of a carboxylic acid of the polyamide, subsequently mixing with an epoxy resin having a structure identical to or different from that of the epoxy resin used for the reaction which produced the epoxy-terminated polyamide, and a curing agent for the epoxy resin.

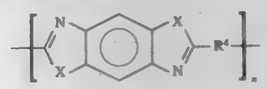
5,726,282

LIGHT EMITTING DIODE

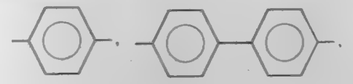
Samson A. Jenekhe, Fairport, and John A. Osaheni, Rochester, both of N.Y., assignors to Research Corporation Technologies, Inc., Tucson, Ariz.

Division of Ser. No. 146,266, Nov. 1, 1993, Pat. No. 5,567,799. This application Jun. 19, 1996, Ser. No. 666,039
Int. Cl.[6] C08G *69/42;* H01L *29/861;29/88*
U.S. Cl. 528—337 31 Claims

1. A light emitting diode comprising a film, the polymer of which includes at least one repeating structural unit selected from the group consisting of

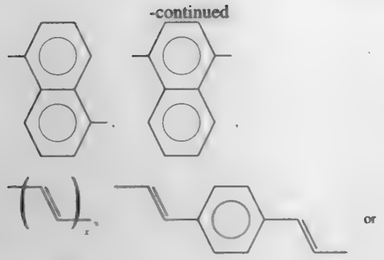


where X is sulfur, —NR^1 or oxygen; R^1 is hydrogen or hydrocarbyl; R^4 is nil,

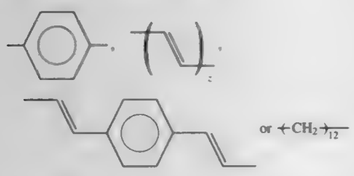


VOL 1208 ISS 2 MR 10 1998 UMI

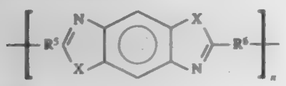
-continued



when X is sulfur or oxygen; R^4 is nil;



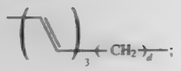
when X is —NR^1, x is 1 or 2; y is an integer of 8 to 11; z is 1 or 2; and n is 2 to 2,000,



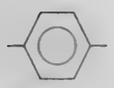
where R^5 is



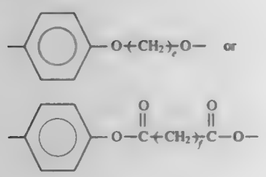
when R^6 is



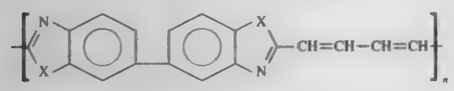
R^5 is



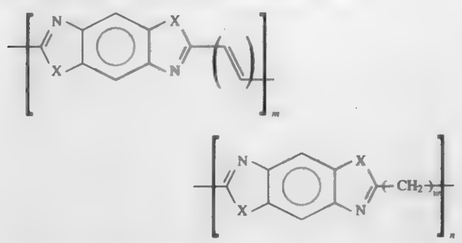
when R^6 is



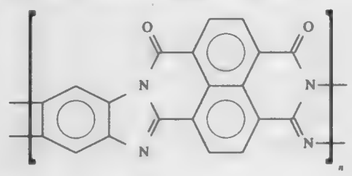
d is an integer of 1 to 5; e is an integer of 1 to 18; f is an integer of 1 to 18; and X, R^1 and n have the meanings given above;



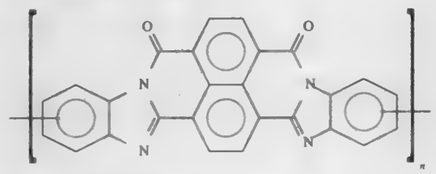
where X, R^1 and n have the meanings given above,



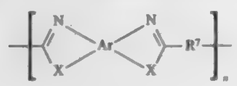
where m is an integer of 2 to 2,000; w is 0 or an integer of 1 to 18; and X, R^1 and n have the meanings given above,



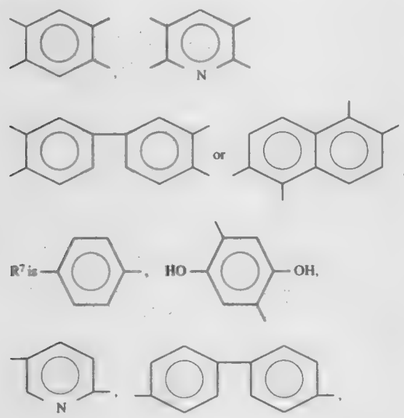
where n has the meaning given above



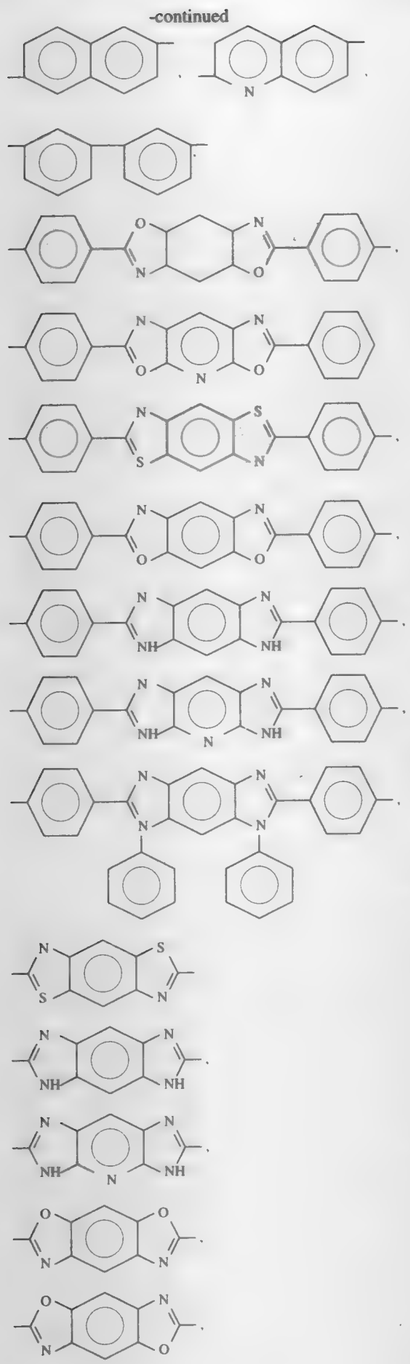
where n has the meaning given above



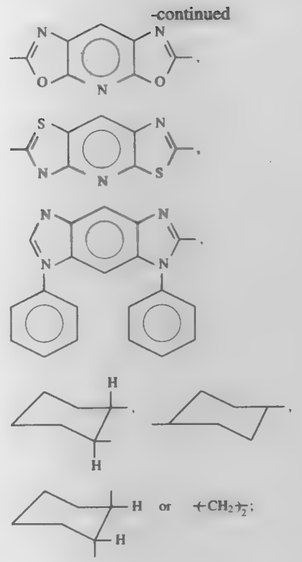
where Ar is



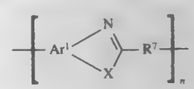
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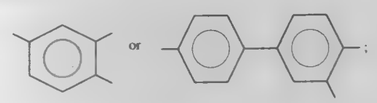
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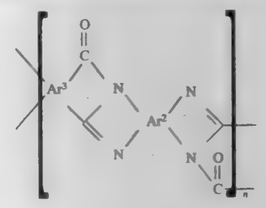
and n is an integer of 2 to 2000,



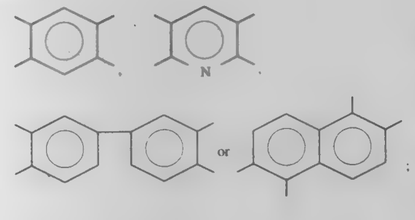
where Ar^1 is



and X, R^1 and n have the meanings given above,

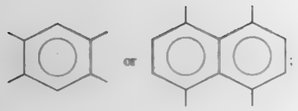


where Ar^2 is

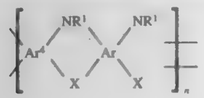


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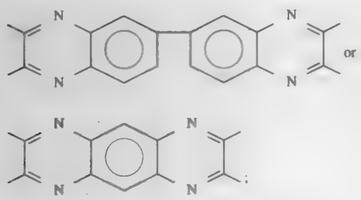
Ar^3 is



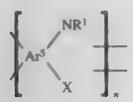
and n has the meaning given above,



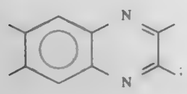
where Ar^4 is



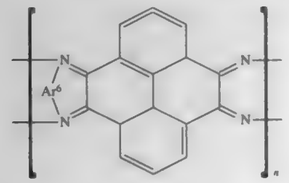
and Ar, X, R^1 and n have the meanings given above,



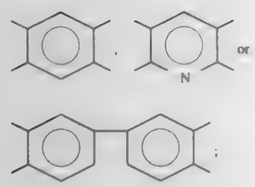
where Ar^5 is



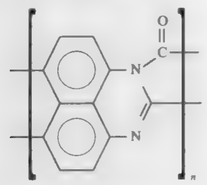
and X, R^1 and n have the meanings given above,



Ar^6 is



and n has the meaning given above and



where n has the meaning given above.

5,726,283

CONDUCTIVE POLYESTER SHEET

Tsan Hung Tsai, Hsin-Chu, Taiwan; Rong Shiun Pan, Hsin-Chu, Taiwan; Cheng Chung Wu, Hsin-Chu, Taiwan; Yuan Hwey Hsu, Hsin-Chu Hsien, Taiwan; Jen Hao Wei, Hsin-Chu Hsien, Taiwan, and Shung Mine Hong, Chang-Hwa, Taiwan, assignors to Far Eastern Textile, LTD., Taipei, Taiwan

Filed Jan. 3, 1997, Ser. No. 778,575

Int. Cl.[6] B32B *5/16;7/12;* **C08G** *63/02*

U.S. Cl. 528—354 **7 Claims**

1. A conductive polyester sheet having three layers, comprising one substrate layer and two surface layers laminated together by co-extrusion, all the three layers being made from polyester and/or copolyester, the surface layers further containing carbon black and acting as conductive layers, said conductive layers each containing:

(a) 25–97 wt % of a polyester or copolyester resin,

(b) 0.1–40 wt % of a copolyester as a disperser and/or 0.1–10 wt % of an ethylene-vinyl acetate copolymer as a dispersing assistant agent; and

(c) 3–25 wt % of carbon black, said sheet having a surface resistance of not more than 10 ohms and a thickness ranging from 0.1 to 1.0 mm, the conductive layers having a total thickness of 2–80% of total of the sheet and each having a flow index of not lower than 60 g/min (loading, 2160 g; temperature, 275° C.) during the extrusion step.

5,726,284

CROSSLINKED POLYMRIC AMMONIUM SALTS

Garret Daniel Figuly, Wilmington, and Jose Ricardo Matos, New Castle, both of Del., assignors to The DuPont Merck Pharmaceutical Company, and E. I. du Pont de Nemour and Company, both of Wilmington, Del.

Division of Ser. No. 202,395, Feb. 24, 1994, Pat. No. 5,556,619, which is a continuation-in-part of Ser. No. 182,954, Jan. 18, 1994, which is a continuation-in-part of Ser. No. 932,449, Aug. 20, 1992, abandoned. This application May 22, 1996, Ser. No. 604,212

Int. Cl.[6] A61K *31/785;* **C08G** *73/02*

U.S. Cl. 528—397 **8 Claims**

1. A process for preparing a crosslinked polymeric ammonium salt comprising ammonium nitrogen atoms linked by segments to other ammonium nitrogen atoms, wherein:

about 25% or more of the segments which link ammonium nitrogen atoms are group Y wherein each Y is independently

$$-(CR^1R^2)_b-$$

wherein b is an integer of 7 to about 20, and each R^1 and R^2 is independently alkyl or hydrogen;

the remainder of the nitrogen atoms are linked by segments Z wherein each Z is independently a hydrocarbylene radical containing 2 to 50 carbon atoms, said hydrocarbylene radical optionally containing one or more hydroxyl, ether, amino, thioether, keto, or silyl groups or heterocyclic rings;

wherein about 25% or more of the ammonium nitrogen atoms are secondary ammonium nitrogen atoms;

wherein said crosslinked polymeric ammonium salt is insoluble in water; and with the proviso that at least some of said ammonium nitrogen atoms are part of a crosslinked network, said process comprising:

reacting in a suitable solvent a bifunctional organic compound of the formula X—Y—X or X—Z—X, where X is a leaving group suitable for amine alkylations, and a diamine, of the formula $H_2N—Y—NH_2$ or $H_2N—Z—NH_2$, to form a gel,

wherein the gel is formed in the presence of a template selected from the group consisting of cholesterol esters, cholesteryl chloride, sodium cholate, and methyl cholate.

5,726,285

CONDENSATION AND ADDITION POLYMERS HAVING N,N'-BRIDGED BISTETRAMETHYLPIPERIDYLOXY GROUPS

Alexander Aumüller, Neustadt, and Hubert Trauth, Dudenhofen, both of Germany, assignors to BASF Aktiengesellschaft, Ludwigshafen, Germany

PCT No. PCT/EP95/00204, § 371 Date Aug. 2, 1996, § 102(e) Date Aug. 2, 1996, PCT Pub. No. WO95/21211, PCT Pub. Date Aug. 10, 1995

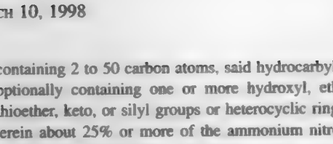
PCT Filed Jan. 20, 1995, Ser. No. 682,631

Claims priority, application Germany, Feb. 2, 1994, 44 03 084.3

Int. Cl.[6] C08G *73/00*

U.S. Cl. 528—422 **20 Claims**

1. A condensation or addition polymer which contains as structural repeating unit an N,N'-bridged bistetramethylpiperidyloxy group of the formula I



I

in which m is 2 or 3.

5,726,286

ISOLATED EPSTEIN-BARR VIRUS BZLF2 PROTEINS THAT BIND MHC CLASS II BETA CHAINS

Mark Alderson; Richard J. Armitage, both of Bainbridge Island, Wash.; Jeffrey I. Cohen, Silver Spring, Md.; Michael R. Comeau; Theresa M. Farrah, both of Seattle, Wash.; Lindsey M. Hutt-Fletcher, Kansas City, Mo., and Melanie K. Spriggs, Seattle, Wash., assignors to Immunex Corporation, Seattle, Wash.

Continuation-in-part of Ser. No. 235,397, Apr. 28, 1994, abandoned. This application Apr. 28, 1995, Ser. No. 430,633

Int. Cl.[6] C07K *2/00;1/00;* **A61K** *38/00;* **C12P** *21/06*

U.S. Cl. 530—300 **2 Claims**

1. An isolated viral protein capable of binding a β chain of a Major Histocompatibility Complex (MHC) Class II antigen, selected from the group consisting of a protein consisting of amino acids 34 through 223 of SEQ ID NO:1, a protein consisting of amino acids 60 through 223 of SEQ ID NO:1, a protein consisting of amino acids 91 through 223 of SEQ ID NO:1, a protein consisting of amino acids 123 through 223 of SEQ ID NO:1, and fragments thereof that bind MHC Class II β chain.

5,726,287

SYNTHESIS OF CYCLIC PEPTIDES

Lars Henrik Harald Andersson, Lund, Sweden, and Jan-Ake Skoldback, Malmo, Sweden, assignors to Ferring AB, Malmo, Sweden

Division of Ser. No. 423,415, Apr. 18, 1995, Pat. No. 5,596,078, which is a continuation of Ser. No. 84,849, Jun. 29, 1993, abandoned. This application Jun. 20, 1996, Ser. No. 670,182

Int. Cl.[6] C07K *1/02;1/18;7/16*

U.S. Cl. 530—315 **9 Claims**

1. A method for preparing and purifying cyclic peptide compounds containing a disulfide moiety, comprising:

a) forming a first solution by adding to a protic solvent at neutral or acidic pH, a non-cyclic peptide containing at least two reactive, protected or non-protected sulfhydry' groups;

b) forming a second solution of iodine dissolved in a protic solvent;

c) introducing said second solution containing iodine to said first solution containing said non-cyclic peptide such that the amount of iodine present in the resulting mixture is at least about stoichiometric with respect to the sulfhydryl groups;

d) allowing the mixture resulting from step (c) sufficient time for disulfide moiety formation and conversion of said non-cyclic peptide to said cyclic peptide compound;

e) adding the mixture from step (d) containing said cyclic peptide compound directly to a separation column containing cation exchange resin;

f) eluting said cyclic peptide compound; and

g) isolating said cyclic peptide compound.

5,726,288

LOCALIZATION AND CHARACTERIZATION OF THE WILMS' TUMOR GENE

Katherine M. Call, Malden; Thomas M. Glaser, Belmont, both of Mass.; Caryn Y. Ito, Chapel Hill, N.C.; Alan J. Buckler, Cambridge, Mass.; Jerry Pelletier, Montreal, Canada; Daniel A. Haber, Cambridge, Mass.; Elise A. Rose, Oakland, Calif.; David E. Housman, Newton, Mass.; Wendy Bruening, Montreal, and Andre Darveau, St. Foy, both of Canada, assignors to Massachusetts Institute of Technology, Cambridge, Mass.

Continuation-in-part of Ser. No. 614,161, Nov. 13, 1990, abandoned, which is a continuation-in-part of Ser. No. 435,780, Nov. 13, 1989, abandoned. This application Aug. 2, 1993, Ser. No. 102,942

Int. Cl.[6] C07K *14/435*

U.S. Cl. 530—350 **5 Claims**

1. An isolated polypeptide encoded by Wilms' tumor DNA, said DNA comprising the nucleic acid sequence SEQ ID NO: 1.

5,726,289

Patent Not Issued For This Number

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5,726,290

SOLUBLE ANALOGUES OF INTEGRINS

Sarah C. Bodary; Cornelia M. Gorman; John W. McLean, all of San Francisco, and Mary A. Napier, Hillsborough, all of Calif., assignors to Genentech, Inc., South San Francisco, Calif.

Division of Ser. No. 380,227, Jan. 30, 1995, abandoned, which is a continuation of Ser. No. 218,878, Mar. 28, 1994, abandoned, which is a continuation of Ser. No. 821,337, Jan. 13, 1992, abandoned, which is a continuation of Ser. No. 444,490, Dec. 1, 1989, abandoned, which is a continuation-in-part of Ser. No. 290,224, Dec. 22, 1988, abandoned. This application May 19, 1995, Ser. No. 445,042

Int. Cl.[6] C07K *14/705;19/00*

U.S. Cl. 530—350 14 Claims

1. A soluble analogue of a multiple subunit polypeptide (MSP), wherein the MSP is an integrin comprising an α and a β subunit, said integrin selected from the group consisting of GPIIb-IIIa; p-150,95; Mac-1; LFA-1; a leukocyte adhesion receptor; a member of the VLA family; and a heterodimeric receptor that participates directly in intercellular adhesion or adhesion of cells to extracellular matrix proteins;

wherein the soluble analogue comprises two subunit variants and does not comprise an immunoglobulin constant domain,

wherein the two subunit variants are variants of a native MSP subunit, associate naturally with each other, are encoded by discrete nucleic acids, and lack a functional membrane anchor domain.

5,726,291

AMYLASE INHIBITORS

Toshiyuki Miyazaki, Ohimachi, Japan; Toshihisa Morimoto, Ohimachi, Japan, and Ryuji Murayama, Hyogo-ken, Japan, assignors to Nisshin Flour Milling Co., Ltd., Tokyo, Japan, and Nagata Sangyo Co., Ltd., Hyogo-ken, Japan

Filed Jan. 14, 1997, Ser. No. 782,176

Claims priority, application Japan, Jan. 18, 1996, 8-023446

Int. Cl.[6] C07K *3/02;3/24;15/10;* A61K *38/16*

U.S. Cl. 530—375 17 Claims

1. A protein composed of two subunits, each identified as SEQ ID NO:1.

5,726,292

IMMUNO-POTENTIATING SYSTEMS FOR PREPARATION OF IMMUNOGENIC MATERIALS

George H. Lowell, 6303 Westlin Run Dr., Baltimore, Md. 21215

Continuation-in-part of Ser. No. 29,666, Mar. 11, 1993, abandoned, which is a continuation-in-part of Ser. No. 336,952, Apr. 12, 1989, abandoned, and a continuation-in-part of Ser. No. 642,093, Jan. 16, 1991, abandoned, which is a continuation of Ser. No. 65,440, Jun. 23, 1987, abandoned. This application Oct. 29, 1993, Ser. No. 143,365

Int. Cl.[6] C07K *1/107;* C12P *21/02*

U.S. Cl. 530—403 15 Claims

1. A construct comprising:

(1) a protein, protein fragment, polypeptide or peptide,

(2) a hydrophobic anchor, and

(3) a proteosome.

5,726,293

AFFINITY PURIFICATION METHODS INVOLVING IMIDAZOLE ELUTION

Brian Seed, Boston, Mass., assignor to The General Hospital Corporation, Boston, Mass.

Continuation of Ser. No. 956,902, Oct. 2, 1992, abandoned. This application May 27, 1994, Ser. No. 250,317

Int. Cl.[6] C07K *13/22;16/00;16/46;* C07D *233/54*

U.S. Cl. 530—413 8 Claims

1. A method of isolating an antibody or an antibody fusion protein from a sample, said antibody or said antibody fusion protein comprising a protein A-binding domain, said method comprising:

(a) contacting said sample with protein A under conditions which allow affinity complex formation between said antibody or said antibody fusion protein and protein A;

(b) separating the complex formed in step (a) from said sample;

(c) treating said complex with imidazole in an amount sufficient to release said antibody or said antibody fusion protein from said complex; and

(d) recovering said antibody or said antibody fusion protein.

5,726,294

METALORGANIC CHEMICAL VAPOR DEPOSITION METHOD FOR DEPOSITING F-SERIES METAL OR NITROGEN AND METAL AMIDES FOR USE IN MOCVD

William S. Rees, Jr., Atlanta, Ga., assignor to Florida State University, Tallahassee, Fla.

Division of Ser. No. 151,500, Nov. 12, 1993, Pat. No. 5,583,205. This application Dec. 29, 1995, Ser. No. 580,766

Int. Cl.[6] C07F *5/00;* B05D *5/12;* C23C *16/00*

U.S. Cl. 534—15 20 Claims

1. A metalorganic chemical vapor deposition process for the deposition of an F-series metal onto a substrate comprising:

introducing a reactant gas into the reactor chamber of a reactor system, said reactant gas comprising an F-series metal amide having a vapor pressure of at least 1×10^{-5} torr at 100° C., the F-series metal of the amide being ligated to at least one amide ligand having the formula



wherein

R_1 and R_2 are independently alkyl, alkenyl, aryl or di- or trialkyl-substituted silyl, or together with the nitrogen atom to which they are attached comprise a heterocyclic ring; and

decomposing the F-series metal amide to deposit the F-series metal onto the substrate.

5,726,295

PHOTOACTIVE COUMARIN DERIVATIVES

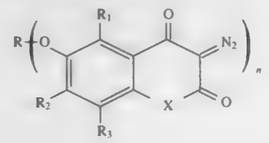
Mohammad Aslam; Michael T. Sheehan, and Debasish Kuila, all of Corpus Christi, Tex., assignors to Hoechst Celanese Corp., Somerville, N.J.

Filed Mar. 7, 1997, Ser. No. 813,097

Int. Cl.[6] C07D *311/20;335/06*

U.S. Cl. 534—556 23 Claims

1. A compound of the formula:



wherein:

(a) X is either oxygen or sulfur;

(b) R is selected from the group consisting of:

aralkyl of valence n having 7 to 24 carbon atoms,

aryl of valence n having 6 to 24 carbon atoms,

acyl group having the formula, R'—$(CO)_n$—, where R' is an aliphatic or aromatic group of valence n having 1 to 24 carbon atoms,

alkoxy or aryloxy carbonyl having the formula, R'—(O—$CO)_n$—, where R' is an aliphatic or aromatic group of valence n having 1 to 24 carbon atoms, and

sulfonylalkyl or sulfonylaryl having the formula, R'—$(SO_2)_n$—, where R' is an aliphatic or aromatic group of valence n having 1 to 24 carbon atoms;

(c) R_1, R_2, and R_3 are the same or different and are independently selected from the group consisting of:

hydrogen,

fluorine, chlorine, bromine, or iodine,

linear or branched alkyl and fluoroalkyl groups having the formula $C_qH_xF_y$, where q is an integer from 1 to 8, x and y are integers from 0 to 2q+1, and the sum of x and y is 2q+1;,

aryl having 6 to 10 carbon atoms,

aralkyl having 7 to 10 carbon atoms,

alkoxy having 1 to 8 carbon atoms,

aryloxy having 6 to 10 carbon atoms, and

aralkyloxy having 7 to 10 carbon atoms; and

(d) n is an integer having a value of 1 to 10.

5,726,296

PROCESS FOR PREPARING PHOTOACTIVE COUMARIN DERIVATIVES

Mohammad Aslam; Michael T. Sheehan, and Debasish Kuila, all of Corpus Christi, Tex., assignors to Hoechst Celanese Corp., Somerville, N.J.

Filed Mar. 7, 1997, Ser. No. 813,098

Int. Cl.[6] C07D *311/20;335/06*

U.S. Cl. 534—556 21 Claims

1. A process for preparing ethers, carboxylic acid and sulfonic acid esters, and carbonates of 3-diazo-2,4-dioxo-benzo-heterocyclic compounds comprising the steps of:

(a) subjecting a substituted hydroxy acetophenone to a substitution reaction in the presence of a suitable protecting group for a sufficient period of time and under suitable conditions of temperature and pressure to form the corresponding hydroxy-protected-acetophenone;

(b) subjecting said hydroxy-protected-acetophenone to suitable addition-cyclization conditions in the presence of a dialkyl carbonate and a catalyst for a sufficient period of time and under suitable conditions of temperature and pressure to form the corresponding benzo-heterocyclic compound containing a β-keto-enol group;

(c) subjecting said heterocyclic compound to suitable deprotection conditions for a sufficient period of time and under suitable conditions of temperature and pressure to form the corresponding hydroxy-benzo-heterocyclic compound containing a β-keto-enol group;

(d) subjecting said hydroxy-benzo-heterocyclic compound to suitable substitution conditions in the presence of a compound having the formula:

R—Z_m,

where

(i) Z is chlorine, or bromine;

(ii) n is an integer having a value of 1 to 10; and

(iii) R is selected from the group consisting of:

alkyl of valence n having 1 to 12 carbon atoms,

aralkyl of valence n having 7 to 14 carbon atoms,

aryl of valence n having 6 to 14 carbon atoms,

acyl group having the formula, R'—$(CO)_n$—, where R' is an aliphatic or aromatic group of valence n having 1 to 14 carbon atoms,

alkoxy or aryloxy carbonyl having the formula, R'—(O—$CO)_n$—, where R' is an aliphatic or aromatic group of valence n having 1 to 14 carbon atoms, and

sulfonylalkyl or sulfonylaryl having the formula, R'—$(SO_2)_n$—, where R' is an aliphatic or aromatic group of valence n having 1 to 14 carbon atoms;

for a sufficient period of time and under suitable conditions of temperature and pressure to form the corresponding ether, carboxylic acid or sulfonic acid ester, or carbonate of benzo-heterocyclic compound containing a β-keto-enol group; and

(e) subjecting said β-keto-enol compound from step (d) to suitable diazo transfer conditions in the presence of a diazo transfer agent for a sufficient period of time and under suitable conditions of temperature and pressure to form the corresponding ether, carboxylic acid or sulfonic acid ester, or carbonate of 3 -diazo-2,4-dioxo-benzo-heterocyclic compound.

5,726,297

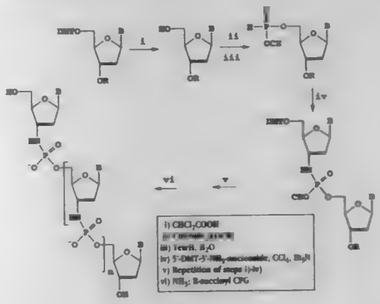
OLIGODEOXYRIBONUCLEOTIDE N3' P5' PHOSPHORAMIDATES

Sergei M. Gryaznov, San Mateo; Ronald G. Schultz, Hayward, and Jer-Kang Chen, Palo Alto, all of Calif., assignors to Lynx Therapeutics, Inc., Hayward, Calif.

Division of Ser. No. 210,505, Mar. 18, 1994, abandoned. This application Jun. 5, 1995, Ser. No. 465,368

Int. Cl.[6] C07H *21/02;21/04;* C12Q *1/68*

U.S. Cl. 536—22.1 29 Claims



1. An oligodeoxyribonucleotide comprising a non-homopolymeric defined sequence of nucleoside subunits joined by intersubunit linkages wherein at least fifty percent of such intersubunit linkages are N3'→P5' phosphoramidate linkages and wherein at least two of said N3'→P5' phosphoramidate linkages are contiguous.

5,726,298

EPIMORPHIN AND ITS ENCODING NUCLEIC ACIDS

Yohei Hirai, Chigasaki; Makoto Takashina, and Kyoko Takebe, both of Yokohama, all of Japan, assignors to Biomedical Research Institute Co., Ltd., Kanagawa, Japan

Continuation of Ser. No. 78,309, Aug. 16, 1993, abandoned. This application Aug. 16, 1996, Ser. No. 690,457

Claims priority, application Japan, Oct. 16, 1991, 3-294856; Oct. 16, 1991, 3-294857; Apr. 17, 1992, 4-122906; Apr. 30, 1992, 4-135692

Int. Cl.[6] C12N *15/12;* C07K *14/435*

U.S. Cl. 536—23.5 14 Claims

1. An isolated human mesenchyme polypeptide capable of effecting eipthelial morphogenesis in mammals, comprising the N-terminal sequence shown in SEQ ID NO: 2 and having a molecular weight of about 70 KD as determined by SDS-PAGE gel.

2. An isolated murine mesenchyme polypeptide capable of effecting epithelial morphogenesis in mammals, comprising the

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N-terminal sequence shown in SEQ ID NO: 2 and having a molecular weight of about 150 KD as determined by SDS-PAGE gel.

5,726,299

PROMOTER DNA FRAGMENT FROM CORYNEFORM BACTERIA

Thomas J. Zupancic, Worthington, Ohio, and Hideaki Yukawa, Inashiki-gun, Japan, assignors to Mitsubishi Chemical Corporation, Tokyo, Japan

Continuation-in-part of Ser. No. 76,091, Jun. 15, 1993, which is a continuation-in-part of Ser. No. 709,151, Jun. 3, 1991, abandoned. This application Aug. 1, 1994, Ser. No. 285,641

Int. Cl.[6] C07H *21/04;* **C12N** *15/63*

U.S. Cl. 536—24.1 **13 Claims**

1. An isolated DNA fragment which is obtained from coryneform bacterial chromosomal DNA and which is functional as a promoter in coryneform bacteria cells, wherein the promoter function of said DNA fragment is controllable by: deleting at least one substance from a first culture medium for host coryneform bacteria cells to yield a second culture medium, adding at least one substance to a first culture medium for host coryneform bacteria cells which is assimilable by the host coryneform bacteria cell to yield a second culture medium or replacing at least one substance of a first culture medium for host coryneform bacteria cells with at least one replacement substance which is assimilable by the host coryneform bacteria cells to yield a second culture medium.

5,726,300

PROCESS FOR THE SYNTHESIS OF OLIGONUCLEOTIDES AND ANALOGS WITH LOW WATER OXIDATION STEP

Robert E. Klem, San Luis Obispo; William B. Marvin, Los Osos, and Timothy A. Riley, Grover City, all of Calif., assignors to Genta Incorporated, San Diego, Calif.

Continuation of Ser. No. 37,718, Mar. 24, 1993, abandoned, which is a continuation of Ser. No. 605,790, Oct. 26, 1990, abandoned. This application Jun. 15, 1994, Ser. No. 260,392

Int. Cl.[6] C07H *21/00;21/04*

U.S. Cl. 536—25.34 **28 Claims**

1. A process of forming an internucleoside linkage having a pentavalent phosphorus between a 5'-oxygen of a first nucleoside and a 3'-oxygen of a second nucleoside wherein said first nucleoside has a blocking group attached to the 5'-oxygen and is linked by the 3'-oxygen to a support, another nucleoside by a 5'-phosphorus group or an oligomer; and said second nucleoside has a blocking group attached to the 5'-oxygen and a coupling group attached to the 3'-oxygen wherein said coupling group is:



wherein X_1 is halogen or substituted amino and R_1 is alkyl, aryl, optionally substituted alkoxy or optionally substituted aryloxy; which comprises:

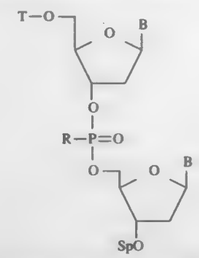
(a) treating said first nucleoside under deblocking conditions to remove the 5'-blocking group and generate a free 5'-hydroxyl group,

(b) contacting under activating and coupling conditions said first nucleoside and second nucleoside in the presence of an activator, so that the first nucleoside and second nucleoside are coupled by an internucleoside linkage having trivalent phosphorus group,

(c) oxidizing said trivalent phosphorus to a pentavalent phosphorus under oxidizing conditions which include a low water oxidizer reagent comprising iodine as an oxidizing agent and less than about 2% water but at least about 1 to about 5 equivalents of water per equivalent of first nucleoside.

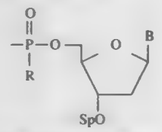
14. In a process of forming an internucleoside linkage having a pentavalent phosphorus between a 5'-oxygen of a first nucleoside and a 3'-oxygen of a second nucleoside wherein said first nucleoside has a 5'-hydroxyl group and is attached by a 3'-oxygen to a solid support or another nucleoside and said second nucleoside has a blocking group attached to a 5'-oxygen and a coupling group attached to a 3'-oxygen, wherein said first nucleoside and second nucleoside are contacted under coupling and activating conditions in the presence of activator and couple to form an internucleoside linkage having a trivalent phosphorus group, the improvement which comprises adding an oxidizing amount of a low water oxidizer reagent which comprises iodine as an oxidizing agent and less than about 2% water but at least about 1 to about 5 equivalents of water per equivalent of first nucleoside, under oxidizing conditions sufficient to oxidize said trivalent phosphorus group to a pentavalent phosphorus group.

19. A process for the preparation of deoxyribonucleoside phosphate or phosphonate esters of the formula:



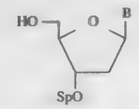
(I)

wherein T is a blocking group for a primary hydroxyl group; B is a base; R is a hydroxy, alkyl, aryl, optionally substituted alkoxy or optionally substituted aryloxy, and Sp is a support or a nucleoside 5'-phosphorus ester of the formula



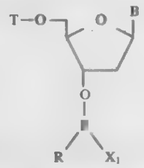
(II)

wherein a first nucleoside of the formula:



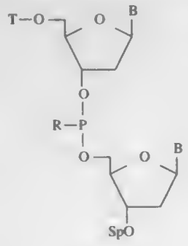
(III)

is reacted with a second nucleoside of the formula



(IV)

wherein X_1 is halogen or substituted amino, in the presence of an activator to give a resulting compound of the formula:



(V)

which is oxidatively converted to a compound of formula I in the presence of a low water oxidizer reagent which comprises iodine as oxidizing agent and less than about 2% water but at least from about 1 to about 5 equivalents water per equivalent of compound V.

5,726,301

CAC H-PHOSPHONATE AND ITS USE IN THE SYNTHESIS OF OLIGONUCLEOTIDES

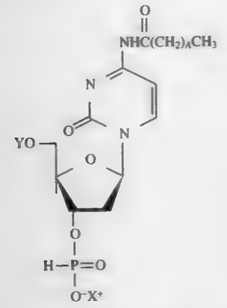
M. Parameswara Reddy, Brea; Naeem B. Hanna, Fullerton, and Firdous Farooqui, Brea, all of Calif., assignors to Beckman Instruments, Inc., Fullerton, Calif.

Continuation-in-part of Ser. No. 873,330, Apr. 24, 1992, Pat. No. 5,428,148. This application Mar. 31, 1995, Ser. No. 415,112

Int. Cl.[6] C07H *21/04;19/10*

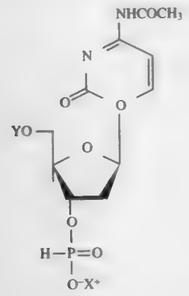
U.S. Cl. 536—25.34 **9 Claims**

1. A compound having the following structure:



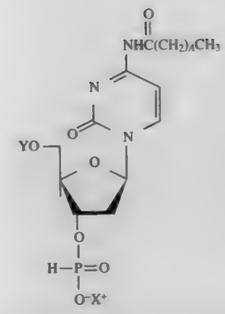
wherein A is an integer having a value of from 0–9, X is a counterion, and Y is selected from the group consisting of hydrogen, a trityl protecting group, and a pixyl protecting group.

4. A compound having the following structure:



wherein X is a counterion, and Y is selected from the group consisting of hydrogen, a trityl protecting group, and a pixyl protecting group.

6. An improved process for preparing oligonucleotides and modified oligonucleotides including the addition of deoxycytidine derivatives to form deoxycytidine containing oligonucleotides; the improvement which comprises utilizing a protected deoxycytidine derivative having the formula:



wherein A is an integer having a value of from 0–9, X is a counterion, and Y is selected from the group consisting of hydrogen, a trityl protecting group, and a pixyl protecting group.

5,726,302

WATER SOLUBLE ADENOSINE KINASE INHIBITORS

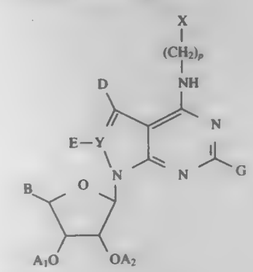
Bheemarao G. Ugarkar, Escondido; Mark D. Erion, Del Mar, and Jorge E. Gomez Galeno, La Jolla, all of Calif., assignors to Gensia Inc., San Diego, Calif.

Continuation-in-part of Ser. No. 812,916, Dec. 23, 1991, abandoned, which is a continuation-in-part of Ser. No. 647,117, Jan. 23, 1991, abandoned, which is a continuation-in-part of Ser. No. 466,979, Jan. 18, 1990, abandoned, which is a continuation-in-part of Ser. No. 408,707, Sep. 18, 1989, abandoned. This application Jun. 7, 1995, Ser. No. 473,492

Int. Cl.[6] C07H *19/16*

U.S. Cl. 536—27.13 **43 Claims**

1. A compound of the Formula



wherein:

A_1 and A_2 are each hydrogen or acyl, or together form a cyclic carbonate;

B is alkenyl, or $(CH_2)_n$—B', where n is from 1 to 4 and B' is hydrogen, hydroxy, alkyl, alkoxy, amino, azido, halogen, or alkenyl;

D is halogen, alkynyl, haloalkyl, cyano, carboxamido, or $(CH_2)_qX$, where q is 0—3;

each X is independently a carbocyclic or heterocyclic aryl, said aryl optionally substituted at any position by halogen, alkyl, alkoxy, substituted per halo lower alkyl, sulfonamide, cyano, CONRR' where R and R' are independently hydrogen or lower alkyl, or a water solubilizing group $(CH_2)_rT$, where r is from 0 to 3 and T is

an alkyl chain of 1 to 16 carbons containing one or more nitrogen atoms and optionally containing one or more oxygen atoms,

N-sulfonylated amino, amidoximo, N-aminoguanidino, amidino, guanidino, a cyclic amidine, a cyclic guanidine, acylated sulfonamide,

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a 5 or 6 membered alicyclic ring containing nitrogen and optionally containing oxygen,

or the group $CONR^1R^2$, where R^1 and R^2 are independently an alkyl chain containing one or more basic nitrogen atoms, and optionally containing oxygen, or R^1 and R^2 together form a 5 or 6-membered ring containing at least one basic nitrogen;

Y is carbon or nitrogen;

E is nothing when Y is nitrogen, and is hydrogen or halogen when Y is carbon;

G is hydrogen or halogen;

p is from 0 to 3;

and pharmaceutically acceptable salts thereof;

provided at least one X includes a water solubilizing group as defined above.

5,726,303

METHOD OF PREPARING LACTITOL MONOHYDRATE AND DIHYDRATE

Christiaan F. Wijnman, Woudrichem; John A. van Velthuijsen, Gorinchem, and Hendrik van den Berg, Vuren, all of Netherlands, assignors to C.V. Chemie Combinatie Amsterdam C.C.A., Gorinchem, Netherlands

Continuation of Ser. No. 496,133, Mar. 19, 1990, abandoned, which is a continuation of Ser. No. 597,816, Apr. 9, 1984, abandoned, which is a division of Ser. No. 321,726, Nov. 16, 1981, abandoned. This application Oct. 4, 1991, Ser. No. 770,777

Int. Cl.° C07H *1/00*

U.S. Cl. 536—120 **8 Claims**

1. A method for the production of crystalline lactitol monohydrate having a melting point of 110°–125° C. determined with a melting point microscope and having lattice cell constants a=7.808(2) Å, b=12.685(2) Å and c=15.931(3) Å with a structure as represented in FIG. 2, said method consisting essentially of the steps of seeding a solution of from 70 to 85 percent by weight of lactitol in water as the sole solvent with a hydrate of lactitol selected from the group consisting of lactitol monohydrate and lactitol dihydrate at from 45° C. to 55° C. and causing the lactitol monohydrate to crystallize at 45° C.

5,726,304

PORPHOCYANINE AND CNC-EXPANDED PORPHYRINS

Hang Tang, Vancouver; Lily Y. Xie, Lethbridge, both of Canada; Tilak Wijesekera, Glen Mills, Pa.; David Dolphin, and Ross W. Boyle, both of Vancouver, Canada, assignors to The University of British Columbia, Vancouver, Canada

Continuation-in-part of Ser. No. 77,789, Jun. 15, 1993, Pat. No. 5,512,675, which is a continuation-in-part of Ser. No. 968,966, Oct. 30, 1992, Pat. No. 5,405,957. This application Apr. 26, 1994, Ser. No. 233,632

Int. Cl.° C07D *487/22*

U.S. Cl. 540—145 **29 Claims**

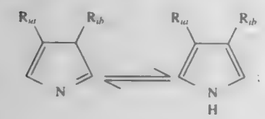
1. A compound of the formula:



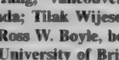
(I)

and the metalated forms and salts thereof; wherein n is an integer of 1–4: and

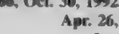
wherein each P_i is independently a pyrrole residue of the formula



wherein each Z_i is independently a covalent bond; or is a meso bridging group of the formula

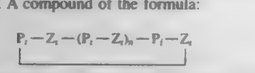


an N-meso bridging group of the formula

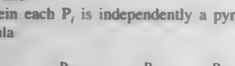


; or is

a CC linkage of the formula



or is a CNCCNC linkage of the formula



and

wherein each R_{ia}, R_{ib}, R_{ic}, R_{id}, R_{ie}, R_{if} and R_{ig} is independently selected from the group consisting of: H, halo, nitro, cyano, $-NR'_2$, —SR', —OR', —SOR', $—SO_2R'$, —COOR', $—CONR'_2$, optionally substituted alkyl (1–6C), optionally substituted alkenyl (1–6C), optionally substituted alkynyl (1–6C), optionally substituted aryl (4–12C), or optionally substituted arylalkyl (5–18C),

wherein R' is H or alkyl (1–6C), R"CO— where R" is alkyl (1-6C) where R_{ia} or R_{ib} is —SR', —OR'; and

said optional substituent is selected from the group consisting of halo, nitro, cyano, $—NR'_2$, —SR', —OR', —SOR', $—SO_2R'$, —COOR', $—CONR'_2$ and,

when said optional substituent is aryl or arylalkyl, said optional substituent may also be alkyl (1–6C), alkenyl (1–6C) or alkynyl (1–6C); or,

if R_{ic}, R_{id}, R_{ie}, R_{if} and R_{ig}, may also be a CNC linkage of the formula



wherein at least one Z_i is said CNC linkage.

5,726,305

SUBSTITUTED QUINOLINE-2-CARBOXAMIDES, THEIR PREPARATION AND THEIR USE AS PHARMACEUTICALS, AND INTERMEDIATES

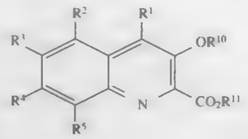
Klaus Weidmann, Kronberg; Karl-Heinz Baringhaus, Wölfersheim; Georg Tschank, Klein-Winterheim, and Martin Bickel, Bad Homburg, all of Germany, assignors to Hoechst Aktiengesellschaft, Frankfurt am Main, Germany

Filed Jul. 3, 1996, Ser. No. 675,155

Int. Cl.° C07D *215/14;215/20*

U.S. Cl. 546—156 **1 Claim**

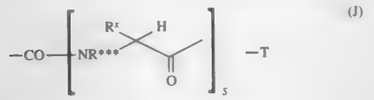
1. A compound of the formula II



(II)

in which

R^1, R^2, R^3, $R^4$and R^5 are identical or different and are hydrogen, hydroxyl, halogen, cyano, trifluoromethyl, nitro, carboxyl, $(C_1–C_{20})$-alkyl, $(C_3–C_8)$-cycloalkyl, $(C_3–C_8)$-cycloalkyl-$(C_1–C_{12})$-alkyl, $(C_3–C_8)$-cycloalkoxy, $(C_3–C_8)$-cycloalkyl-$(C_1–C_{12})$-alkoxy, $(C_5–C_8)$-cycloalkyloxy-$(C_1–C_{12})$-alkyl, $(C_3–C_8)$-cycloalkyloxy-$(C_1–C_{12})$-alkoxy, $(C_3–C_8)$-cycloalkyl-$(C_1–C_{12})$-alkyl-$(C_1–C_6)$-alkoxy, $(C_3–C_8)$-cycloalkyl-$(C_1–C_{12})$-alkoxy-$(C_3–C_8)$-alkyl, $(C_3–C_8)$-cycloalkyloxy-$(C_1–C_8)$-alkoxy-$(C_1–C_6)$-alkyl, $(C_3–C_8)$-cycloalkoxy-$(C_1–C_8)$-alkoxy-$(C_1–C_8)$-alkoxy, $(C_6–C_{12})$-aryl, $(C_7–C_{16})$-aralkyl, $(C_7–C_{16})$-aralkenyl, $(C_7–C_{16})$-aralkynyl, $(C_2–C_{20})$-alkenyl, $(C_2–C_{20})$-alkynyl, $(C_1–C_{20})$-alkoxy, $(C_2–C_{20})$-alkenyloxy, $(C_2–C_{20})$-alkynyloxy, retinyloxy, $(C_1–C_{20})$-alkoxy-$(C_1–C_{12})$-alkyl, $(C_1–C_{12})$-alkoxy-$(C_1–C_{12})$-alkoxy, $(C_1–C_{12})$-alkoxy-$(C_1–C_{12})$-alkoxy-$(C_1–C_8)$-alkyl, $(C_6–C_{12})$-aryloxy, $(C_7–C_{16})$-aralkyloxy, $(C_6–C_{12})$-aryloxy-$(C_1–C_6)$-alkoxy, $(C_7–C_{16})$-araloxy-$(C_1–C_6$-alkoxy, $(C_1–C_{16})$-hydroxyalkyl, $(C_6–C_{16})$-aryloxy-$(C_1–C_8)$-alkyl, $(C_7–C_{16})$-aralkoxy-$(C_1–C_8)$-alkyl, $(C_6–C_{12})$-aryloxy-$(C_1–C_8)$-alkoxy-$(C_1–C_6)$-alkyl, $(C_7–C_{12})$-aralkyloxy-$(C_1–C_8)$-alkoxy-$(C_1–C_6)$-alkyl, $(C_2–C_{20})$-alkenyloxy-$(C_1–C_8)$-alkyl, $(C_2–C_{20})$-alkynyloxy-$(C_1–C_8)$-alkyl, retinyloxy-$(C_1–C_6)$-alkyl, $—O—[CH_2]_k-C_jH_{(2j+1-g)}Hal_g$, $(C_1–C_6)$-chlorofluoroalkoxy, $(C_1–C_{20})$-alkylcarbonyl, $(C_3–C_8)$-cycloalkylcarbonyl, $(C_6–C_{12})$-arylcarbonyl, $(C_7–C_{16})$-aralkylcarbonyl, cinnamoyl, $(C_2–C_{20})$-alkenylcarbonyl, $(C_2–C_{20})$-alkynylcarbonyl, $(C_1–C_{20})$-alkoxycarbonyl, $(C_1–C_{12})$-alkoxy-$(C_1–C_{12})$-alkoxycarbonyl, $(C_6–C_{12})$-aryloxycarbonyl, $(C_7–C_{16})$-aralkoxycarbonyl, $(C_3–C_8)$-cycloalkoxycarbonyl, $(C_2–C_{20})$-alkenyloxycarbonyl, retinyloxycarbonyl, $(C_2–C_{20})$-alkynyloxycarbonyl, $(C_6–C_{12})$-aryloxy-$(C_1–C_6)$-alkoxycarbonyl, $(C_7–C_{16})$-aralkoxy-$(C_1–C_6)$-alkoxycarbonyl, $(C_3–C_8)$-cycloalkyl-$(C_1–C_6$-alkoxycarbonyl, $(C_3–C_8$-cycloalkoxy-$(C_1–C_6)$-alkoxycarbonyl, $(C_1–C_{12})$-alkylcarbonyloxy, $(C_3–C_8)$-cycloalkylcarbonyloxy, $(C_6–C_{12})$-arylcarbonyloxy, $(C_7–C_{16})$-aralkylcarbonyloxy, cinnamoyloxy, $(C_2–C_{12})$-alkenylcarbonyloxy, $(C_2–C_{12})$-alkynylcarbonyloxy, $(C_1–C_{12})$-alkoxycarbonyloxy, $(C_1–C_{12})$-alkoxy-$(C_1–C_{12})$-alkoxycarbonyloxy, $(C_6–C_{12})$-aryloxycarbonyloxy, $(C_7–C_{16})$-aralkyloxycarbonyloxy, $(C_3–C_8)$-cycloalkoxycarbonyloxy, $(C_2–C_{12})$-alkenyloxycarbonyloxy, $(C_2–C_{12})$-alkynyloxycarbonyloxy, carbamoyl, N-$(C_1–C_{12})$-alkylcarbamoyl, N,N-di-$(C_1–C_{12})$-alkylcarbamoyl, N-$(C_3–C_8)$-cycloalkylcarbamoyl, N,N-dicyclo-$(C_3–C_8)$-alkylcarbamoyl, N-$(C_1–C_{10})$-alkyl-N-$(C_3–C_8)$-cycloalkylcarbamoyl, N-$((C_3–C_8)$-cycloalkyl-$(C_1–C_6)$-alkyl)carbamoyl, N-$(C_1–C_6)$-alkyl-N-$((C_3–C_8)$-cycloalkyl-$(C_1–C_6)$-alkyl)carbamoyl, N-(+)-dehydroabietylcarbamoyl, N-$(C_1–C_6)$-alkyl-N-(+)-dehydroabietylcarbamoyl, N-$(C_6–C_{12})$-arylcarbamoyl, N-$(C_7–C_{16})$-aralkylcarbamoyl, N-$(C_1–C_{10})$-alkyl-N-$(C_6–C_{16})$-arylcarbamoyl, N-$(C_1–C_{10})$-alkyl-N-$(C_7–C_{16})$-aralkylcarbamoyl, N-$((C_1–C_{12})$-alkoxy-$(C_1–C_{10})$-alkyl)carbamoyl, N-$((C_6–C_{16})$-aryloxy-$(C_1–C_{10})$-alkyl)carbamoyl, N-$((C_7–C_{16})$-aralkyloxy-$(C_1–C_{10})$-alkyl)carbamoyl, N-$(C_1–C_{10})$-alkyl-N-$((C_1–C_{10})$-alkoxy-$(C_1–C_{10})$-alkyl)carbamoyl, N-$(C_1–C_{10})$-alkyl-N-$((C_6–C_{12})$-aryloxy-$(C_1–C_{10})$-alkyl)carbamoyl, N-$(C_1–C_{10})$-alkyl-N-$((C_7–C_{16})$-aralkyloxy-$(C_1–C_{10})$-alkyl)carbamoyl, $CON(CH_2)_h$, in which a CH_2 group can be replaced by O, S, N-$(C_1–C_{12})$-alkylimino, N-$(C_3–C_8)$-cycloalkylimino, N-$(C_3–C_8)$-cycloalkyl-$(C_1–C_{12})$-alkylimino, N-$(C_6–C_{12})$-arylimino, N-$(C_7–C_{16})$-aralkylimino or N-$(C_1–C_{12})$-alkoxy-$(C_1–C_6)$-alkylimino, or a carbamoyl radical of the formula J



(J)

in which

R^z is the substituent of an L- or D-α-amino acid,

S is 1, 2, 3, 4 or 5 and

T is OH, OR or NR*R**, in which

R*, R** and R*** are identical or different and are hydrogen, $(C_6–C_{12})$-aryl, $(C_7–C_{11})$-aralkyl, $(C_1–C_8)$-alkyl, $(C_3–C_8)$-cycloalkyl, (+)-dehydroabietyl, $(C_1–C_8)$-alkoxy-$(C_1–C_8)$-alkyl, $(C_7–C_{12})$-aralkoxy-$(C_1–C_8)$-alkyl, $(C_6–C_{12})$-aryloxy-$(C_1–C_8)$-alkyl, $(C_1–C_{10})$-alkylcarbonyl, optionally substituted $(C_7–C_{16})$-aralkylcarbonyl or optionally substituted $(C_6–C_{12})$-arylcarbonyl, or

R* and R** together are $—[CH_2]_h—$, in which one CH_2 group can be replaced by O, S, SO, SO_2, N-acylamino, N-$(C_1–C_{10})$-alkoxycarbonylimino, N-$(C_1–C_8)$-alkylimino, N-$(C_3–C_8)$-cyclo-alkylimino, N-$(C_3–C_8)$-cycloalkyl-$(C_1–C_4)$-alkylimino, N-$(C_6–C_{12})$-arylimino, N-$(C_7–C_{16})$-aralkylimino or N-$(C_1–C_4)$-alkoxy-$(C_1–C_6)$-alkylimino,

or further wherein R^1, R^2, R^3, R^4 and R^5 are identical or different and are:

carbamoyloxy, N-$(C_1–C_{12})$-alkylcarbamoyloxy, N,N-di-$(C_1–C_{12})$-alkylcarbamoyloxy, N-$(C_3–C_8)$-cycloalkylcarbamoyloxy, N-$(C_6–C_{12})$-arylcarbamoyloxy, N-$(C_7–C_{16})$-aralkylcarbamoyloxy, N-$(C_1–C_{10})$-alkyl-N-$(C_6–C_{12})$-arylcarbamoyloxy, N-$(C_1–C_{10})$-alkyl-N-$(C_7–C_{16})$-aralkylcarbamoyloxy, N-$((C_1–C_{10})$-alkyl)carbamoyloxy, N-$((C_6–C_{12})$-aryloxy-$(C_1–C_{10})$-alkyl)carbamoyloxy, N-$((C_7–C_{16})$-aralkyloxy-$(C_1–C_{10})$-alkyl)carbamoyloxy, N-$(C_1–C_{10})$-alkyl-N-$((C_1–C_{10})$-alkoxy-$(C_1–C_{10})$-alkyl)carbamoyloxy, N-$(C_1–C_{10})$-alkyl-N-$((C_6–C_{12})$-aryloxy)-$(C_1–C_{10})$-alkyl)carbamoyloxy, N-$(C_1–C_{10})$-alkyl-N-$((C_7–C_{16})$-aralkyloxy-$(C_1–C_{10})$-alkyl)carbamoyloxy,

NR^yR^z, wherein R^y and R^z are independently selected from $(C_1–C_{12})$-alkyl, $(C_3–C_{12})$-alkenyl, $(C_3–C_{12})$-alkynyl,$(C_6–C_{12})$-aryl, $(C_7–C_{11})$-aralkyl, $(C_1–C_{12})$-alkoxy, $(C_7–C_{12})$-aralkoxy,

$(C_1–C_{12})$-alkylcarbonyl, $(C_3–C_8)$-cycloalkylcarbonyl, $(C_6–C_{12})$-arylcarbonyl, $(C_7–C_{16})$-aralkylcarbonyl, and further wherein R^y and R^z together are $—[CH_2]_h—$, wherein one CH group can be replaced by O,S, N-$(C_1–C_4)$-alkylcarbonylimino or N-$(C_1–C_4)$-alkoxycarbonylimino,

$(C_1–C_{12})$-alkylcarbonylamino-$(C_1–C_8)$-alkyl, $(C_3–C_8)$-cycloalkylcarbonylamino-$(C_1–C_8)$-alkyl, $(C_6–C_{12})$-arylcarbonylamino-$(C_1–C_8)$-alkyl, $(C_7–C_{16})$-aralkylcarbonylamino-$(C_1–C_8)$-alkyl, amino-$(C_1–C_{10})$-alkyl, N-$(C_1–C_{10})$-alkylamino-$(C_1–C_{10})$-alkyl, N,N-di-$(C_1–C_{10})$-alkyl-amino-$(C_1–C_{10})$-alkyl, $(C_3–C_8)$-cycloalkylamino-$(C_1–C_{10})$-alkyl, $(C_1–C_{20})$-alkylmercapto, $(C_1–C_{20})$-alkylsulfinyl, $(C_1–C_{20})$-alkylsulfonyl, $(C_6–C_{12})$-arylmercapto, $(C_6–C_{12})$-arylsulfinyl, $(C_6–C_{12})$-arylsulfonyl, $(C_7–C_{16})$-aralkylmercapto, $(C_7–C_{16})$-aralkylsulfinyl, $(C_7–C_{16})$-aralkylsulfonyl, $(C_1–C_{12})$-alkylmercapto-$(C_1–C_6)$-alkyl, $(C_1–C_{12})$-alkylsulfinyl-$(C_1–C_6)$-alkyl, $(C_1–C_{12})$-alkylsulfonyl-$(C_1–C_6)$-alkyl, $(C_6–C_{12})$-arylmercapto-$(C_1–C_6)$-alkyl, $(C_6–C_{12})$-arylsulfinyl-$(C_1–C_6)$-alkyl, $(C_6–C_{12})$-arylsulfonyl-$(C_1–C_6)$-alkyl, $(C_7–C_{16})$-aralkylmercapto-$(C_1–C_6)$-alkyl, $(C_7–C_{16})$-aralkylsulfinyl-$(C_1–C_6)$-alkyl, $(C_7–C_{16})$-aralkylsulfonyl-$(C_1–C_6)$-alkyl,

sulfamoyl, N-$(C_1–C_{10})$-alkylsulfamoyl, N,N-di-$(C_1–C_{10})$-alkylsulfamoyl, $(C_3–C_8)$-cycloalkylsulfamoyl, N-$(C_6–C_{12})$-arylsulfamoyl, N-$(C_7–C_{16})$-aralkylsulfamoyl, N-$(C_1–C_{10})$-alkyl-N-$(C_6–C_{12})$-arylsulfamoyl, N-$(C_1–C_{10})$-alkyl-N-$(C_7–C_{16})$-aralkylsulfamoyl, $(C_1–C_{10})$-alkyl-sulfonamido, N-$((C_1–C_{10})$-alkyl)-$(C_1–C_{10})$-alkylsulfonamido, $(C_7–C_{16})$-aralkylsulfonamido, or N-$(C_1–C_{10})$-alkyl-$(C_7–C_{16})$-alkylsulfonamido,

where the radicals which contain an aryl radical can in turn be substituted on the aryl by 1 to 5 identical or different radicals from the series comprising:

hydroxyl, halogen, cyano, trifluoromethyl, nitro, carboxyl, $(C_1–C_{16})$-alkyl, $(C_3–C_8)$-cycloalkyl, $(C_3–C_8)$-cycloalkyl-$(C_1–C_{12})$-alkyl, $(C_3–C_8)$-cycloalkoxy, $(C_3–C_8)$-cycloalkyl-$(C_1–C_{12})$-alkoxy, $(C_3–C_8)$-cycloalkyloxy-$(C_1–C_{12})$-alkyl, $(C_3–C_8)$-cycloalkyloxy-$(C_1–C_{12})$-alkoxy, $(C_3–C_8)$-cycloalkyl-$(C_1–C_8)$-alkyl-$(C_1–C_6)$-alkoxy, $(C_3–C_8)$-cycloalkyl-$(C_1–C_8)$-alkoxy-$(C_1–C_8)$-alkyl, $(C_3–C_8)$-cycloalkyloxy-$(C_1–C_8)$-alkoxy-$(C_1–C_6)$-alkyl, $(C_3–C_8)$-cycloalkoxy-$(C_1–C_8)$-alkoxy-$(C_1–C_8)$-alkoxy, $(C_6–C_{12})$-aryl, $(C_7–C_{16})$-aralkyl, $(C_2–C_{16})$-alkenyl, $(C_2–C_{12})$-alkynyl, $(C_1–C_{16})$-alkoxy, $(C_1–C_{16})$-alkenyloxy, $(C_1–C_{12})$-alkoxy-$(C_1–C_{12})$-alkyl, $(C_1–C_{12})$-alkoxy-$(C_1–C_{12})$-alkoxy, $(C_1–C_{12})$-alkoxy-$(C_1–C_8)$-alkoxy-$(C_1–C_8)$-alkyl, $(C_6–C_{12})$-aryloxy, $(C_7–C_{16})$-aralkyloxy, $(C_6–C_{12})$-aryloxy-$(C_1–C_6)$-alkoxy, $(C_7–C_{16})$-aralkoxy-$(C_1–C$

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6)-alkoxy, (C_1–C_8)-hydroxyalkyl, (C_6–C_{16})-aryloxy-(C_1–C_8)-alkyl, (C_7–C_{16})-aralkoxy-(C_1–C_8)-alkyl, (C_6–C_{12})-aryloxy-(C_1–C_8)-alkoxy-(C_1–C_6)-alkyl, (C_7–C_{12})-aralkyloxy-(C_1–C_8)-alkoxy-(C_1–C_6)-alkyl, —O—$[CH_2]_g$—$C_fH_{(2f+1-g)}F_g$, —OCF_2Cl, —OCF_2—CHFCl,

(C_1–C_{12})-alkylcarbonyl, (C_3–C_8)-cycloalkylcarbonyl, (C_6–C_{12})-arylcarbonyl, (C_7–C_{16})-aralkylcarbonyl, (C_1–C_{12})-alkoxycarbonyl, (C_1–C_{12})-alkoxy-(C_1–C_{12})-alkoxycarbonyl, (C_6–C_{12})-aryloxycarbonyl, (C_7–C_{16})-aralkoxycarbonyl, (C_3–C_8)-cycloalkoxycarbonyl, (C_2–C_{12})-alkenyloxycarbonyl, (C_2–C_{12})-alkynyloxycarbonyl, (C_6–C_{12}) aryloxy-(C_1–C_6)-alkoxycarbonyl, (C_7–C_{16})-aralkoxy-(C_1–C_6)-alkoxycarbonyl, (C_3–C_8)-cycloalkyl-(C_1–C_6)-alkoxycarbonyl, (C_3–C_8)-cycloalkoxy-(C_1–C_6)-alkoxycarbonyl,

(C_1–C_{12})-alkylcarbonyloxy, (C_3–C_8)-cycloalkylcarbonyloxy, (C_6–C_{12})-arylcarbonyloxy, (C_7–C_{16})-aralkylcarbonyloxy, cinnamoyloxy, (C_2–C_{12})-alkenylcarbonyloxy, (C_2–C_{12})-alkynylcarbonyloxy,

(C_1–C_{12})-alkoxycarbonyloxy, (C_1–C_{12})-alkoxy-(C_1–C_{12})-alkoxycarbonyloxy, (C_6–C_{12})-aryloxycarbonyloxy, (C_7–C_{16})-aralkyloxycarbonyloxy, (C_3–C_8)-cycloalkoxycarbonyloxy, (C_2–C_{12})-alkenyloxycarbonyloxy, (C_2–C_{12})-alkynyloxycarbonyloxy,

carbamoyl, N-(C_1–C_{12})-alkylcarbamoyl, N,N-di-(C_1–C_{12})-alkylcarbamoyl, N-(C_3–C_8)-cycloalkylcarbamoyl, N,N-dicyclo-(C_3–C_8)-alkylcarbamoyl, N-(C_1–C_{10})-alkyl-N-(C_3–C_8)-cycloalkylcarbamoyl, N-((C_3–C_8)-cycloalkyl-(C_1–C_6)-alkyl)carbamoyl, N-(C_1–C_6)-alkyl-N-((C_3–C_8)-cycloalkyl-(C_1–C_8)-alkyl)carbamoyl, N-(+)-dehydroabietylcarbamoyl, N-(C_1–C_8)-alkyl-N-(+)-dehydroabietylcarbamoyl, N-(C_6–C_{12})-arylcarbamoyl, N-(C_7–C_{16})-aralkyl-carbamoyl, N-(C_1–C_{10})-alkyl-N-(C_6–C_{16})-arylcarbamoyl, N-(C_1–C_{10})-alkyl-N-(C_7–C_{16})-aralkylcarbamoyl, N-((C_1–C_{16})-alkoxy-(C_1–C_{10})-alkyl)carbamoyl, N-((C_6–C_{16})-aryloxy-(C_1–C_{10})-alkyl)carbamoyl, N-((C_7–C_{16})-aralkyloxy-(C_1–C_{10})-alkyl)carbamoyl, N-(C_1–C_{10})-alkyl-N-((C_1–C_{10})-alkoxy-(C_1–C_{10})-alkyl)carbamoyl, N-(C_1–C_{10})-alkyl-N-((C_6–C_{12})-aryloxy-(C_1–C_{10})-alkyl)carbamoyl, N-(C_1–C_{10})-alkyl-N-((C_7–C_{16})-aralkyloxy-(C_1–C_{10})-alkyl)carbamoyl, $CON(CH_2)_h$, in which one CH_2 group can be replaced by O, S, N-(C_1–C_8)-alkylimino, N-(C_3–C_8)-cycloalkylimino, N-(C_3–C_8)-cycloalkyl-(C_1–C_4)-alkylimino, N-(C_6–C_{12})-arylimino, N-(C_7–C_{16})-aralkylimino or N-(C_1–C_4)-alkoxy-(C_1–C_6)-alkylimino,

carbamoyloxy, N-(C_1–C_{12})-alkylcarbamoyloxy, N,N-di-(C_1–C_{12})-alkylcarbamoyloxy, N-(C_3–C_8)-cycloalkyl-carbamoyloxy, N-(C_6–C_{16})-arylcarbamoyloxy, N-(C_7–C_{16})-aralkylcarbamoyloxy, N-(C_1–C_{10})-alkyl-N-(C_6–C_{12})-arylcarbamoyloxy, N-(C_1–C_{10})-alkyl-N-(C_7–C_{16})-aralkylcarbamoyloxy, N-((C_1–C_{10})-alkyl)carbamoyloxy, N-((C_6–C_{12})-aryloxy-(C_1–C_{10})-alkyl)carbamoyloxy, N-((C_7–C_{16})-aralkyloxy-(C_1–C_{10})-alkyl)carbamoyloxy, N-(C_1–C_{10})-alkyl-N-((C_6–C_{12})-aryloxy-(C_1–C_{10})-alkyl)carbamoyloxy, N-(C_1–C_{10})-alkyl-N-((C_7–C_{16})-aralkyloxy-(C_1–C_{10})-alkyl)carbamoyloxy,

amino, (C_1–C_{12})-alkylamino, di-(C_1–C_{12})-alkylamino, (C_3–C_8)-cycloalkylamino, (C_3–C_{12})-alkenylamino, (C_3–C_{12})-alkynylamino, N-(C_6–C_{12})-arylamino, N-(C_7–C_{11})-aralkylamino, N-alkyl-aralkylamino, N-alkyl-arylamino, (C_1–C_{12})-alkoxyamino, (C_1–C_{12})-alkoxy-N-(C_1–C_{10})-alkylamino,

(C_1–C_{12})-alkylcarbonylamino, (C_3–C_8)- cycloalkylcarbonylamino, (C_6–C_{12})-arylcarbonylamino, (C_7–C_{16})-aralkylcarbonylamino, (C_1–C_{12})-alkylcarbonyl-N-(C_1–C_{10})-alkylamino, (C_3–C_8)-cycloalkylcarbonyl-N-(C_1–C_{10})-alkylamino, (C_6–C_{12})-arylcarbonyl-N-(C_1–C_{10})-alkylamino, (C_7–C_{11})-aralkylcarbonyl-N-(C_1–C_{10})-alkylamino,

(C_1–C_{12})-alkylcarbonylamino-(C_1–C_8)-alkyl, (C_3–C_8)-cycloalkylcarbonylamino-(C_1–C_8)-alkyl, (C_6–C_{12})-arylcarbonylamino-(C_1–C_8)-alkyl, (C_7–C_{16})-aralkylcarbonylamino-(C_1–C_8)-alkyl, amino-(C_1–C_{10})-alkyl, N-(C_1–C_{10})-alkylamino-(C_1–C_{10})-alkyl, N,N-di-(C_1–C_{10})-alkylamino-(C_1–C_{10})-alkyl, (C_3–C_8)-cycloalkylamino-(C_1–C_{10})-alkyl,

(C_1–C_{12})-alkylmercapto, (C_1–C_{12})-alkylsulfinyl, (C_1–C_{12})-alkylsulfonyl, (C_6–C_{16})-arylmercapto, (C_6–C_{16})-arylsulfinyl, (C_6–C_{16})-arylsulfonyl, (C_7–C_{16})-aralkylmercapto, (C_7–C_{16})-aralkylsulfinyl and (C_7–C_{16})-aralkylsulfonyl, sulfamoyl, N-(C_1–C_4)-sulfamoyl, N,N-di-(C_1–C_4)-sulfamoyl, or

optionally carries up to 3 of said radical substituents for said aryl and further wherein two adjacent carbon atoms of an arylalkoxy radical recited in the definition of R^1–R^5 together carry a chain —$[CH_2]$— and/or —CH=CH—CH=CH—, where one CH_2 group of the chain is optionally replaced by O, S, SO, SO_2, or NR'; or

R^1 and R^2, R^2 and R^3, R^3 and R^4, or R^4 and R^5 form a chain $[CH_2]_{e'}$ in which one or two CH_2 groups of the chain, which is saturated or unsaturated with a C=C double bond, are optionally replaced by O, S, SO, SO_2 or NR', in which O is 3, 4 or 5, and

R' is hydrogen, (C_6–C_{12})-aryl, (C_1–C_8)-alkyl, (C_1–C_8)-alkoxy-(C_1– C_8)-alkyl, (C_7–C_{12})-aralkoxy-(C_1–C_8)-alkyl, (C_6–C_{12})-aryloxy-(C_1–C_8)-alkyl, (C_1 –C_{10})-alkanoyl, optionally substituted (C_7–C_{16})-aralkanoyl or optionally substituted (C_6–C_{12})-aroyl, and

f is 1 to 8,

g is 0 or 1 to (2f+1),

x is 0 to 3 and

h is 3 to 6

R^{10} is hydrogen or an HO-protecting group and

R^{11} is hydrogen, (C_1–C_8)-alkyl or benzyl, with the exception of compounds of the formula II in which R^{10} is benzyl or methyl if R^1 to R^5 are hydrogen and R^{11} is hydrogen; those compounds of the formula II in which R^{10} is methyl if R^1 to R^5 are hydrogen and R^{11} is methyl; those compounds of the formula II in which R^{10} is hydrogen, benzyl or p-toluenesulfonyl if R^1 to R^5 are hydrogen and R^{11} is ethyl; those compounds of formula II in which R^3 is hydrogen or methoxy if R^1, R^2, R^4, R^5, R^{10} and R^{11} are hydrogen, and those compounds of formula II in which R^1 is hydroxy or methyl and R^2 to R^5, R^{10} and R^{11} are hydrogen

or a physiologically active salt thereof.

5,726,306

4,1-BENZOXAZEPIN DERIVATIVES AND THEIR USE

Hidefumi Yukimasa, Nara, Japan; Ryuichi Tozawa, Osaka, Japan; Masakuni Kori, Hyogo, Japan; Kazuaki Kitano, Osaka, Japan, and Yasuo Sugiyama, Hyogo, Japan, assignors to Takeda Chemical Industries, Ltd., Osaka, Japan

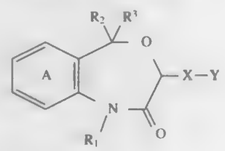
Continuation-in-part of Ser. No. 195,131, Feb. 9, 1994, abandoned, which is a continuation of Ser. No. 49,455, Apr. 20, 1993, abandoned. This application Nov. 9, 1994, Ser. No. 338,163

Claims priority, application Japan, Apr. 20, 1992, 4-099541; Dec. 21, 1992, 4-339947; Oct. 7, 1994, 6-244136

Int. Cl.[6] **C07D** *267/14*

U.S. Cl. 540—490 **17 Claims**

1. A compound of the formula:



wherein R_1 is

(i) hydrogen,

(ii) a C_{1-7} alkyl group, a C_{2-6} alkenyl group, a C_{2-6} alkynyl group,

(iii) a C_{3-9} cycloalkyl group, a cycloalkenyl group selected from among 2-cyclopenten-1-yl, 3-cyclopenten-1-yl, 2-cyclohexen-1-yl, 3-cyclohexen-1-yl, 1-cyclobuten-1-yl and 1-cyclopenten-1-yl, a cycloalkadienyl group selected from among 2,4-cyclopentadien-1-yl, 2,4 cyclohexadien-1-yl, and 2,5-cyclohexadien-1-yl, or

(iv) an aryl group selected from among phenyl, naphthyl, anthryl, phenanthryl and acenaphythylenyl in which each of the group of (ii), (iii) and (iv) is unsubstituted or substituted with 1 to 5 substituent(s) selected from the group consisting of

(1) phenyl, naphthyl, anthyl, phenanthryl, acenaphthylenyl, C_{3-7} cycloalkyl groups and C_{3-6} cycloalkenyl groups each of which is unsubstituted or substituted with 1 to 2 substituent(s) selected from among C_{1-3} alkoxy groups and C_{1-3} alkyl groups,

(2) furyl, thienyl, pyrrolyl, oxazolyl, isoxazolyl, thiazolyl, isothiazolyl, imidazolyl, pyrazolyl, 1,2,3-oxadiazolyl, 1,2,4-oxadiazolyl, 1,3,4-oxadiazolyl, furazanyl, 1,2,3-thiadiazolyl, 1,2,4-thiadiazolyl, 1,3,4-thiadiazolyl, 1,2,3-triazolyl, 1,2,4-triazolyl, tetrazolyl, pyridyl, pyridazinyl, pyrimidinyl, pyrazinyl, triazinyl, benzofuranyl, isobenzofuranyl, benzo[b]thienyl, indolyl, isoindolyl, 1H-indazolyl, benzimidazolyl, benzoxazolyl, 1,2-benzoisoxazolyl, benzothiazolyl, 1,2-benzoisothiazolyl, 1H-benzotriazolyl, quinolyl, isoquinolyl, isoindolyl, an amino group unsubstituted or substituted with C_{1-3} alkyl group(s), a hydroxyl group unsubstituted or substituted with a C_{1-3} alkyl group, a thiol group unsubstituted or substituted with a C_{1-3} alkyl group, a thiol group unsubstituted or substituted with a C_{1-3} alkyl group, carboxyl group, methoxycarbonyl, ethoxycarbonyl, propoxycarbonyl, phenoxycarbonyl, 1-naphtoxycarbonyl or 2-naphtoxycarbonyl or a halogen atom; (iii) benzyl napthylmethyl, phenylethyl, phenylpropyl or phenylbutyl unsubstituted or substituted with substituent(s) selected from halogens, C_{1-3} alkoxy groups, hydroxyl group, amino group, carboxyl group and sulfhydryl or (iv) a phenyl group unsubstituted or substituted with substituent(s) selected from halogen atoms and C_{1-3} alkyl groups; R_5 stands for hydrogen atom, a C_{1-4} alkyl, a C_{7-15} aralkyl, a lower alkanoyl group, a lower alkenoyl group, a lower alkanesulfonyl group, benzoyl, p-toluoyl, 1-naphthoyl and 2-naphthoyl, phenylacetyl, phenylpropionyl, hydroatropoyl, phenylbuty cinnamoyl, atropoly, benzenesulfonyl or p-toluenesulfonyl;

Y is

(i) (a) carboxyl group, (b) a lower alkoxy (thio) carbonyl group having optionally one or more substituent(s) selected from among

(1) hydroxyl groups unsubstituted or substituted with a lower alkanoyl group, methoxycarbonyl, ethoxycarbonyl, propoxycarbonyl, isopropoxycarbonyl or cyclohexyloxycarbonyl,

(2) C_{1-4} alkoxy carbonyl groups,

(3) carbamoyl groups unsubstituted or substituted with substituent(s) selected from among C_{1-3} alkyl groups, C_{3-6} cycloalkyl groups, phenyl group, benzyl group, carboxyl group, methoxycarbonyl, ethoxycarbonyl, and propoxycarbonyl,

(4) phenyl and C_{3-6} cycloalkyl groups, each of which is unsubstituted or substituted with substituent(s) selected from among C_{1-3} alkyl groups and C_{1-3} alkoxy groups,

(5) C_{1-3} alkenyl groups,

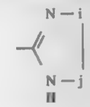
(6) 5-membered heterocyclic groups having one to three oxygen atoms, which may have one or more substituent(s) selected from the group consisting of C_{1-3} alkyl and oxo, or a fused ring formed by cooperating said 5-membered heterocyclic group with a benzene ring, or (c) phenoxy(thio-)carbonyl, 1-naphtoxy(thio)carbonyl or benzyloxy(thio) carbonyl;

(ii) a hydroxyl group unsubstituted or substituted with (1) a C_{1-4} alkyl group, (2) a C_{3-6} cycloalkyl group, (3) a phenyl, 1-naphthyl, 2-naphthyl benzyl or phenethyl group each of which is unsubstituted or substituted with halogen atom(s) or carboxyl group(s) optionally esterified with C_{1-4} alkyl;

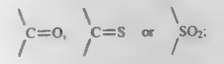
(iii) an amino group, unsubstituted or substituted with (1) C_{1-4} alkyl group(s), (2) C_{3-6} cycloalkyl(s) or (3) phenyl, 1-naphthyl, 2-naphthyl, benzyl and phenethyl group(s) each of which is unsubstituted or substituted with substituent(s) selected from among halogen atoms and carboxyl groups optionally esterified with C_{1-4} alkyl group in which the two substituents on the nitrogen atom may form, taken together with the nitrogen atom, a cyclic amino group;

(iv) a phenyl group unsubstituted or substituted with substituents selected from among (1) C_{1-4} alkyl groups unsubstituted or substituted with substituent(s) selected from among halogen atoms and carboxyl groups optionally esterified with C_{1-4} alkyl groups, in which the two substituents on the nitrogen atom may form a cyclic amino group taken together with the nitrogen atom; or

(vi) tetrazol-5-yl or a group represented by the formula



wherein i stands for —O— or —S—; j stands for



provided that, when X is methylene and R_1 is not an alkyl group having more than 4 carbon atoms, Y is neither carboxyl group nor alkoxycarbonyl group; cinnolinyl, quinazolinyl, quinoxalinyl, phthalazinyl, naphthylidinyl, purinyl, pteridinyl, carbazolyl, α-carbolinyl, β-carbolinyl, γ-carbolinyl, acrydinyl, phenoxazinyl, phenothiazinyl, phenazinyl, phenoxthinyl, thianthrenyl, phenanthridinyl, phenanthrolinyl, indolidinyl, pyrrolo[1,2-b]pyridazinyl, pyrazolo[1,5-a]pyridyl, imidazo[1,2-a]pyridyl, imidazo[1,5-a]pyridyl, imidazo[1,2-b]pyridazinyl, imidazo[1,2-a]pyrimidinyl, 1,2,4-triazolo[4,3-a]pyridyl, 1,2,4-triazolo[4,3-b]pyridazinyl, oxiranyl, azetidinyl, oxetanyl, thiethanyl, pyrrolidinyl, tetrahydrofuryl, thioranyl, piperidyl, tetrahydropyranyl, morpholinyl, thiomorpholinyl or piperazinyl,

each of said groups being unsubstituted or substituted with C_{1-3} alkyl,

(3) amino groups, hydroxyl groups and thiol groups each of which is unsubstituted or substituted with C_{1-3} alkyl groups and

(4) halogen atoms;

and having each of the groups of (iii) and (iv) may further have a C_{1-3} alkyl group, and

(5) C_{1-6} acyl groups; each of R_2 and R_3 is independently (i) hydrogen; (ii) a C_{1-6} alkyl group unsubstituted or substituted with substituent(s) selected from among halogens and C_{1-4} alkoxy groups; (iii) a phenyl group unsubstituted or substituted by 1 to 3 substituent(s) selected from among

(1) halogen atoms, (2) C_{1-4} alkyl groups unsubstituted or substituted with 1 to 3 halogen atoms, (3) C_{1-4} alkoxy groups unsubstituted or substituted with 1 to 3 halogen atoms, (4) hydroxyl groups unsubstituted or substituted with a C_{1-4} alkyl group, a C_{3-6} cycloalkyl group, phenyl, 1-naphthyl, 2-naphthyl, benzyl or phenethyl, (5) nitro group and (6) cyano group in which the two adjoining substituents on the phenyl group may cooperate therewith to form a ring which is unsubstituted or substituted with a C_{1-3} alkyl or (iv) furyl, thienyl, pyrrolyl, oxazolyl,

VOL 1208 ISS 2 MR 10 1998 UMI

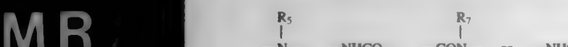
isoxazolyl, thiazolyl, isothiazolyl, imidazolyl, pyrazolyl, 1,2,3-oxadiazolyl, 1,2,4-oxadiazolyl, 1,3,4-oxadiazolyl, furazanyl, 1,2,3-thiadiazolyl, 1,2,4-thiadiazolyl, 1,3,4-thiadiazolyl, 1,2,3-triazolyl, 1,2,4-triazolyl, tetrazolyl, pyridyl, pyridazinyl, pyrimidinyl, pyrazinyl, triazinyl, benzofuranyl, isobenzofuranyl, benzo[b]thienyl, indolyl, isoindolyl, 1H-indazolyl, benzimidazolyl, benzoxazolyl, 1,2-benzoisoxaolyl, benzothiazolyl, 1,2-benzoisothiazolyl, 1H-benzotriazolyl, guinolyl, isoquinolyl, cinnolinyl, quinazolinyl, quinoxalinyl, phthalazinyl, naphthylidinyl, purinyl, pteridinyl, carbazolyl, α-carbolinyl, β-carbolinyl, τ-carbolinyl, acrydinyl, phenoxazinyl, phenothiazinyl, phenazinyl, phenoxthinyl, thianthrenyl, phenanthridinyl, phenanthrolinyl, indolidinyl, pyrrolo[1,2-b]pyridazinyl, pyrazolo[1,5-a]pyridyl, imidazo[1,2-a]pyridyl, imidazo[1,5-a]pyridyl, imidazo[1,2-b]pyridazinyl, imidazo[1,2-a]pyrimidinyl, 1,2,4-triazolo[4,3-a]pyridyl or 1,2,4-triazolo[4,3-b]pyridazinyl,

each of said groups being unsubstituted or substituted with C_{1-3} alkyl;

X is a bond or a divalent chain represented by the formula



wherein m and n denote independently 0, 1, 2 or 3; E stands for a bond or oxygen atom, sulfur atom, sulfoxide, sulfone,



wherein R_6 and R_7 independently stand for (i) hydrogen atom; (ii) a C_{1-6} alkyl group unsubstituted or substituted with furyl, thienyl, pyridyl, pyrimidinyl, pyrazinyl, indolyl, imidazolyl,

the ring A being optionally substituted by C_{1-4} alkoxy or a halogen atom, or a pharmaceutically acceptable salt thereof.

5,726,307

BENZO-FUSED LACTAMS PROMOTE RELEASE OF GROWTH HORMONE

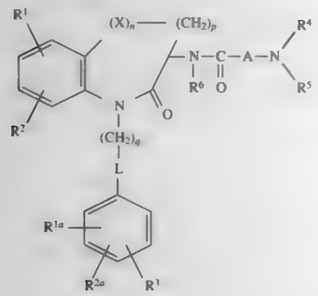
William R. Schoen, Edison, N.J., and Matthew J. Wyvratt, Mountainside, N.J., assignors to Merck & Co., Inc., Rahway, N.J.

Division of Ser. No. 961,008, Oct. 14, 1992, Pat. No. 5,374,721. This application Dec. 15, 1994, Ser. No. 356,935

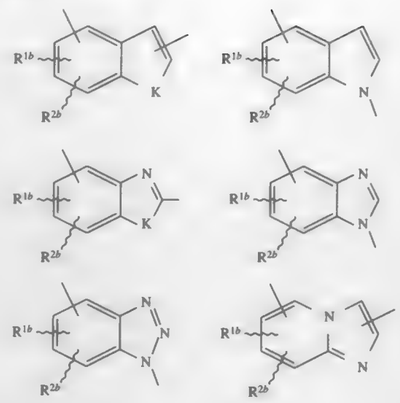
Int. Cl.[6] C07D *285/36;267/14*

U.S. Cl. 540—491 **6 Claims**

1. A compound having the formula:



where L is



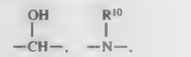
where K is O, S or N—R^{13}; and R^{1b} and R^{2b} may be attached to either ring of the benzo-fused heterocycle;

n is 0 or 1;

p is 0 to 3;

q is 0 to 4;

X is O or $S(O)_m$,



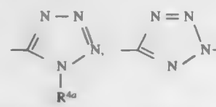
—CH═CH—;

m is 0 to 2;

R^1, R^2, R^{1a}, R^{2a}, R^{1b}, and R^{2b} are independently hydrogen, halogen, C_1–C_7 alkyl, C_1–C_3 perfluoroalkyl, C_1–C_3 perfluoroalkoxy, —$S(O)_mR^{7a}$, cyano, nitro, $R^{7b}O(CH_2)_v$—, $R^{7b}COO(CH_2)_v$—, $R^{7b}OCO(CH_2)_v$—, $R^4R^5N(CH_2)_v$—, $R^{7b}CON(R^4)(CH_2)_v$—, $R^4R^5NCO(CH_2)_v$—, phenyl or substituted phenyl where the substituents are from 1 to 3 of halogen, C_1–C_6 alkyl, C_1–C_6 alkoxy, or hydroxy; R^{7a} and R^{7b} are independently hydrogen, C_1–C_3 perfluoroalkyl, C_1–C_6 alkyl, substituted C_1–C_6 alkyl, where the substituents are phenyl or substituted phenyl; phenyl or substituted phenyl where the phenyl substituents are from 1 to 3 of halogen, C_1–C_6 alkyl, C_1–C_6 alkoxy, or hydroxy and v is 0 to 3;

R^3 is hydrogen, R^9, C_1–C_6 alkyl substituted with R^9, phenyl substituted with R^9, or phenoxy substituted with R^9;

R^9 is



$R^{7b}O(CH_2)_v$—, $R^{7b}COO(CH_2)_v$—, $R^{7b}OCO(CH_2)_v$—, $R^{7b}CO(CH_2)_v$—, $R^{7b}(CH_2)_vCO$—, $R^4R^5N(CH_2)_v$—, $R^{7b}CON(R^4)(CH_2)_v$—, $R^4R^5NCO(CH_2)_v$—, $R^4R^5NCS(CH_2)_v$—, $R^4R^5NN(R^5)CO(CH_2)_v$—, $R^4R^5NN(R^5)CS(CH_2)_v$—, $R^{7b}CON(R^4)N(R^5)CO(CH_2)_v$—, $R^{7b}CON(R^4)N(R^5)CS(CH_2)_v$—, $R^4N(OR^{7b})CO(CH_2)_v$—, $R^{7a}CON(OR^{7b})CO(CH_2)_v$—, $R^{4b}R^{12a}NCON(R^{12b})(CH_2)_v$—, $R^{4b}R^{12a}NCSN(R^{12b})(CH_2)_v$—, $R^{4b}R^{12a}NN(R^{12b})CSN(R^{12c})(CH_2)_v$—, $R^{4b}R^{12a}NN(R^{12b})CON(R^{12c})(CH_2)_v$—, $R^{4b}R^{12a}NN(R^{12b})COO(CH_2)_v$—, $R^{4b}R^{12a}NCOO(CH_2)_v$— or $R^{13}OCON(R^{12b})(CH_2)_v$—,

where v is 0 to 3;

R^{12a}, R^{12b} and R^{12c} are independently R^{5a}, OR^{5a}, or COR^{5a}; R^{12a} and R^{12b}, or R^{12b} and R^{12c}, or R^{13} and R^{12b}, or R^{12a} and

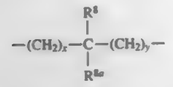
R^{4b} can be taken together to form —$(CH_2)_r$—B—$(CH_2)_s$— where B is CHR^1, O, $S(O)_m$ or NR^{10}, m is 0, 1 or 2, r and s are independently 0 to 3 and R^1 and R^{10} are as defined;

R^{13} is C_1–C_3 perfluoroalkyl, C_1–C_6 alkyl, substituted C_1–C_6 alkyl, where the substitutents are hydroxy, —$NR^{10}R^{11}$, carboxy, phenyl or substituted phenyl; phenyl or substituted phenyl where the substituents on the phenyl are from 1 to 3 of halogen, C_1–C_6 alkyl, C_1–C_6 alkoxy or hydroxy; where R^{10} and R^{11} are independently hydrogen, C_1–C_6 alkyl, phenyl, phenyl C_1–C_6 alkyl, C_1–C_5-alkoxycarbonyl, or C_1–C_5-alkanoyl-C_1–C_6 alkyl;

R^4, R^{4a}, R^{4b}, and R^5 are independently hydrogen, phenyl, substituted phenyl, C_1–C_{10} alkyl, substituted C_1–C_{10} alkyl, C_3–C_{10} alkenyl, substituted C_3–C_{10} alkenyl, C_3–C_{10} alkynyl, or substituted C_3–C_{10} alkynyl where the substituents on the phenyl, alkyl, alkenyl or alkynyl are from 1 to 5 of hydroxy, C_1–C_6 alkoxy, C_3–C_7 cycloalkyl, fluoro, R^1, R^2 independently disubstituted phenyl C_1–C_3 alkoxy, R^1, R^2 independently disubstituted phenyl, C_1–C_{20}-alkanoyloxy, C_1–C_5 alkoxycarbonyl, carboxy, formyl, or —$NR^{10}R^{11}$; or R^4 and R^5 can be taken together to form —$(CH_2)_vB(CH_2)_v$— where B, r, s, R^1, R^2, R^{10} and R^{11} are as defined above;

R^6 is hydrogen, C_1–C_{10} alkyl, phenyl or phenyl C_1–C_{10} alkyl;

A is



where x and y are independently 0–3;

R^8 and R^{8a} are independently hydrogen, C_1–C_{10} alkyl, trifluoromethyl, phenyl, substituted C_1–C_{10} alkyl where the substituents are from 1 to 3 of imidazolyl, indolyl, hydroxy, fluoro, $S(O)_mR^{7a}$, C_1–C_6 alkoxy, C_3–C_7 cycloalkyl, R^1, R^2 independently disubstituted phenyl C_1–C_3 alkoxy, R^1, R^2 independently disubstituted phenyl, C_1–C_5-alkanoyloxy, C_1–C_5 alkoxycarbonyl, carboxy, formyl, or —$NR^{10}R^{11}$ where R^1, R^2, R^{10} and R^{11} are as defined above; or R^8 and R^{8a} can be taken together to form —$(CH_2)_t$— where t is 2 to 6; and R^8 and R^{8a} can independently be joined to one or both of R^4 and R^5 to form alkylene bridges between the terminal nitrogen and the alkyl portion of the A group wherein the bridge contains from 1 to 5 carbon atoms;

and pharmaceutically acceptable salts thereof.

5,726,308

HIGH PURITY FORMULATIONS OF HIGHLY SUBSTITUTED LITHIUM AMIDE BASES

Randy W. Hall, Kings Mountain; Robert S. Wedinger, Gastonia; Terry L. Rathman, Gastonia, and James A. Schwindeman, Gastonia, all of N.C., assignors to FMC Corporation, Philadelphia, Pa.

Filed Mar. 22, 1996, Ser. No. 620,587

Int. Cl.[6] C07F *1/02*

U.S. Cl. 540—484 **15 Claims**

1. A process for preparing high purity solutions of highly substituted lithium amide bases, comprising directly reacting lithium metal with highly substituted amine bases alone or in an ether solvent, a hydrocarbon solvent or in a mixed ether/hydrocarbon solvent mixture, at a temperature less than the melting point of lithium optionally in the presence of a catalyst selected from the group consisting of tin salts and transition metal salts of Groups 4B, 5B, 6B, 7B, and 8 of the Periodic Table to produce a solution of highly substituted lithium amide bases devoid of gaseous alkane by-products, reduced electron carrier residue, and solvent decomposition products.

5,726,309

TRIS-ARYLS-TRIAZINES SUBSTITUTED WITH BIPHENYLYL GROUPS

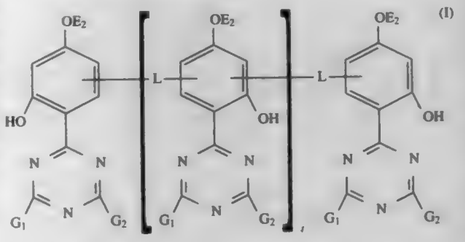
Tyler A. Stevenson, Teaneck, N.J.; Revathi Iyengar, Cortland Manor, and Ramanathan Ravichandran, Nanuet, both of N.Y., assignors to Ciba Specialty Chemicals Corporation, Tarrytown, N.Y.

Filed Aug. 27, 1996, Ser. No. 703,751

Int. Cl.[6] C07D *403/10;403/14*

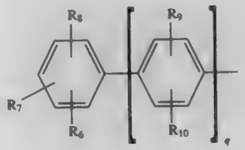
U.S. Cl. 544—216 **8 Claims**

1. A compound of formula I

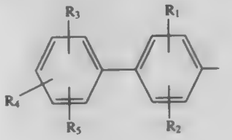


wherein

G_1 is a group of the formula



G_2 is a group of the formula

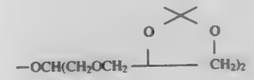


where

q is 0 or 1,

R_1, R_2, R_3, R_4, R_5, R_6, R_7, R_8, R_9 and R_{10} are independently of one another hydrogen, hydroxyl, cyano, alkyl of 1 to 20 carbon atoms, alkoxy of 1 to 20 carbon atoms, phenylalkyl of 7 to 15 carbon atoms, cycloalkyl of 4 to 12 carbon atoms, cycloalkoxy of 4 to 12 carbon atoms, halogen, haloalkyl of one to 5 carbon atoms, sulfonyl, carboxyl, acylamino of 2 to 12 carbon atoms, acyloxy of 2 to 12 carbon atoms, alkoxycarbonyl of 2 to 12 carbon atoms, aminocarbonyl,

E_2 is hydrogen, straight or branched chain alkyl of 1 to 24 carbon atoms or cycloalkyl of 5 to 12 carbon atoms; or said alkyl or cycloalkyl substituted by one to eight halogen, epoxy, glycidyloxy, furyloxy, —E_4, —OE_5, —$N(E_5)_2$, —$CON(E_5)_2$, —COE_5, —$COOE_5$, —$OCOE_5$, —$OCOC(E_5)$═$C(E_5)_2$, —$C(E_5)$═$CCOOE_5$, —CN, —NCO, or

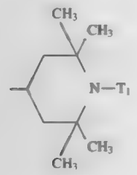


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or said alkyl or cycloalkyl interrupted by one to six epoxy, —O—, —NE$_5$—, —CONE$_5$—, —COO—, —OCO—, —CO—, —C(E$_5$)=C(E$_5$)COO—, —OCOC(E$_5$)=C(E$_5$)—, —(E$_5$)C=C(E$_5$)—, phenylene, or -phenylene-G$_3$-phenylene in which G$_3$ is —O—, —S—, —SO$_2$—, —CH$_2$—, or —C(CH$_3$)$_2$—, or said alkyl or cycloalkyl both substituted and interrupted by combinations of the groups mentioned above; or E$_2$ is —SO$_2$E$_3$, or —COE$_6$;

E$_4$ is aryl of 6 to 10 carbon atoms, or said aryl substituted by one to three halogen, alkyl of 1 to 8 carbon atoms or alkoxy of 1 to 8 carbon atoms; cycloalkyl of 5 to 12 carbon atoms; or phenylalkyl of 7 to 15 carbon atoms, or said phenylalkyl substituted on the phenyl ting by one to three halogen, alkyl of 1 to 8 carbon atoms or alkoxy of 1 to 8 carbon atoms or straight or branched chain alkenyl of 2 to 18 carbon atoms;

E$_5$ is defined as E$_4$, or E$_5$ is also hydrogen or straight or branched chain alkyl of 1 to 24 carbon atoms; or E$_5$ is a group of the formula



where T$_1$ is hydrogen, oxyl, hydroxyl, alkyl of 1 to 12 carbon atoms, said alkyl substituted by at least one hydroxyl or lower alkoxy, benzyl or alkanoyl of 2 to 18 carbon atoms;

E$_6$ is straight or branched chain alkyl of 1 to 18 carbon atoms, straight or branched chain alkenyl of 2 to 18 carbon atoms, phenyl, alkoxy of 1 to 12 carbon atoms, phenoxy, alkylamino of 1 to 12 carbon atoms, arylamino of 6 to 12 carbon atoms or a group —E$_7$COOH or —NH—E$_8$-NCO;

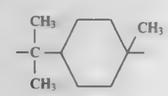
E$_7$ is alkylene of 2 to 14 carbon atoms or o-phenylene;

E$_8$ is alkylene of 2 to 10 carbon atoms, phenylene, tolylene, diphenylenemethane or a group



t is 0 to 9; and

L is straight or branched chain alkylene of 1 to 12 carbon atoms, cycloalkylene of 5 to 12 carbon atoms, alkylene substituted by or interrupted by cyclohexylene or phenylene; or L is benzylidene; or L is —S—, —S—S—, —S—L$_1$—S—, —SO—, —SO$_2$—, —SO—L$_1$—SO—, —SO$_2$—L$_1$—SO$_2$—, —CH$_2$—NH—L$_1$—CH$_2$—or



where L$_1$ is alkylene of 2 to 12 carbon atoms, cycloalkylene of 5 to 12 carbon atoms, or alkylene interrupted or terminated by cyclohexylene of 8 to 12 carbon atoms; with the proviso that at least one L linkage is attached to the phenyl ring in the 5-position.

5,726,310

PROCESS FOR THE PREPARATION OF 2-(2,4-DIHYDROXYLPHENYL)-4,6-BIS(2,4-DIMEHYLPHENYL)-S-TRIAZINE

Ivan Orban, Basel; Martin Holer, Magden, and André Kaufmann, Lampenberg, all of Switzerland, assignors to Ciba Specialty Chemicals Corporation, Tarrytown, N.Y.

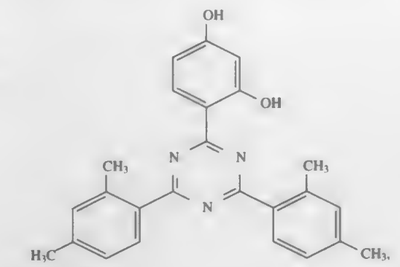
Filed Dec. 3, 1996, Ser. No. 758,316

Int. Cl.^{6} C07D *251/24*

U.S. Cl. 544—216 **13 Claims**

1. A process for the preparation of 2-(2,4-dihydroxyphenyl)-4,6-bis-(2,4-dimethylphenyl)-s-triazine of the formula I

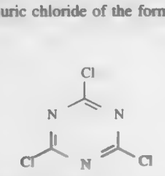
(I)



which comprises

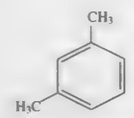
a) reacting cyanuric chloride of the formula II

(II)



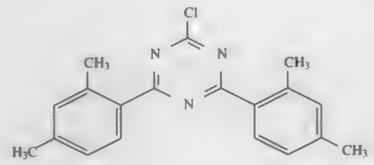
at a temperature of 0° to 110° C. in the presence of a Lewis acid in a ratio of 2.3 to 3.0 mol of Lewis acid per mole of cyanuric chloride employed in the presence of at least one inert chlorinated aromatic solvent, with 1,3-xylene of the formula III

(III)



in a ratio of 2.1 to 2.5 mol of compound of the formula III per mole of cyanuric chloride employed with addition of compound of the formula III in a period of from 5 to 30 hours to give the compound of the formula IV

(IV)



and then

b) without isolating the compound of the formula IV obtained reacting this with resorcinol in a ratio of 0.5 to 1.0 mol of resorcinol per mole of cyanuric chloride employed at a temperature from 0° to 100° C. to give the compound of the formula I.

5,726,311

7-DISUBSTITUTED-METHYL-4-OXO-3H,5H-PYRROLO[3,2-D]PYRIMIDINE AND PHARMACEUTICAL USES AND COMPOSITIONS CONTAINING THE SAME

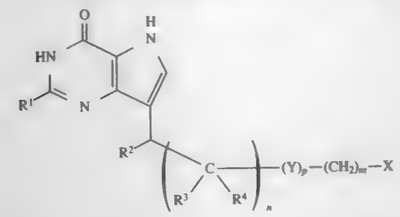
Shri Niwas; John A. Secrist, III; John A. Montgomery, all of Birmingham, Ala.; Mark David Erion, Del Mar, Calif.; Wayne C. Guida, Fanwood, N.J., and Steve E. Ealick, Birmingham, Ala., assignors to BioCryst Pharmaceuticals, Inc., Birmingham, Ala.

Continuation of Ser. No. 320,415, Oct. 3, 1994, abandoned, which is a continuation of Ser. No. 871,441, Apr. 21, 1992, abandoned, which is a continuation-in-part of Ser. No. 701,575, May 14, 1991, Pat. No. 5,189,039, which is a continuation of Ser. No. 442,798, Nov. 29, 1989, abandoned. This application Jun. 7, 1995, Ser. No. 475,098

Int. Cl.^{6} C07D *471/04;207/34;* **A61K** *31/505*

U.S. Cl. 544—232 **13 Claims**

1. A PNP inhibitor comprising a compound of the formula



wherein R^1 is H, NH$_2$ or OCH$_3$, R^2 is selected from the group consisting of 5–9-membered alicyclic group, 1-adamantyl, 2-adamantyl, 5–9 membered heteroaromatic group, a saturated heterocycle of 5–9 atoms in a single ring and containing one or two heteroatoms in the ring, said heteroatoms being selected from the group consisting of oxygen, nitrogen and sulfur, R^2 being optionally substituted with at least one of halogen, hydroxy, alkoxy, alkyl and trifluoromethyl, R^3 and R^4 are independently H or C$_{1-4}$ alkyl, m is 0–4, n is 0–6, p is 0–1, X is CN, CSNH$_2$, PO(OH)$_2$, COOH, SO$_2$NH$_2$, NH$_2$, OH, CNHNH$_2$, tetrazole, triazole, or COR^5 where R^5 is C$_{1-4}$ alkyl, CF$_3$, NH$_2$, or OC$_{1-4}$ alkyl, and Y is O or NH.

5,726,312

METHODS FOR PREPARING ANTIPROLIFERATIVE 5-SUBSTITUTED PYRIMIDONE COMPOUNDS

Michael D. Varney, Carlsbad, Calif.; William H. Romines, San Diego, Calif.; Cynthia L. Palmer, La Mesa, Calif., and Judith G. Deal, Temecula, Calif., assignors to Agouron Pharmaceuticals, Inc., LaJolla, Calif.

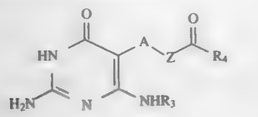
Continuation-in-part of Ser. No. 991,259, Dec. 16, 1992, abandoned. This application May 24, 1995, Ser. No. 449,602

Int. Cl.^{6} C07D *239/48*

U.S. Cl. 544—320 **9 Claims**

1. A compound having the formula V

V



wherein:

A represents sulfur or selenium;

Z represents a substituted or unsubstituted mono- or fused or nonfused poly-carbocyclic radical;

R$_3$ represents H or a straight, branched or cyclic (C$_1$ to C$_6$) alkyl group, optionally carrying one or more hydroxyl or amine groups; and

R$_4$ represents hydroxy, (C$_1$ to C$_6$) alkyloxy group optionally carrying one or more hydroxyl or amine groups, or a protected or unprotected amino acid linked to the acyl group of formula V by the amine portion of the amino acid;

or a pharmaceutically acceptable salt thereof.

5,726,313

SUBSTITUTED ARYLALIPHATIC COMPOUNDS, METHOD OF PREPARING THEM AND PHARMACEUTICAL COMPOSITIONS IN WHICH THEY ARE PRESENT

Jean-Philippe Ducoux, Montpellier, France; Patrick Gueule, Teyran, France, and Xavier Emonds-Alt, Combaillaux, France, assignors to Sanofi, Paris, France

PCT No. PCT/FR95/00391, § 371 Date Nov. 29, 1995, § 102(e) Date Nov. 29, 1995, PCT Pub. No. WO95/26338, PCT Pub. Date Oct. 5, 1995

PCT Filed Mar. 29, 1995, Ser. No. 549,664

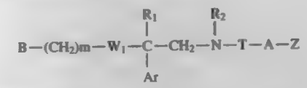
Claims priority, application France, Mar. 29, 1994, 94 03701

Int. Cl.^{6} C07D *453/02*

U.S. Cl. 546—133 **26 Claims**

1. A compound of the formula

(I)



in which:

W$_1$ is an oxygen atom or a group —NR—, in which R is a hydrogen, a (C$_1$–C$_7$)-alkyl or a benzyl;

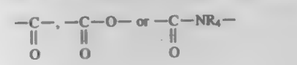
m is equal to 2 or 3;

R$_1$ is hydrogen or a (C$_1$–C$_4$)-alkyl group;

R$_2$ is a hydrogen, a (C$_1$–C$_7$)-alkyl, an ω-(C$_1$–C$_4$)-alkoxy-(C$_2$–C$_4$)-alkylene, an ω-(C$_1$–C$_4$)-alkylcarbonyloxy-(C$_2$–C$_4$)-alkylene, and ω-hydroxy-(C$_2$–C$_4$)-alkylene, an ω-(C$_1$–C$_4$)-alkylthio-(C$_2$–C$_4$)-alkylene, an ω-(C$_1$– C$_4$)-alkoxycarbonyl-(C$_2$–C$_4$)-alkylene, an ω-carboxy-(C$_2$–C$_4$)-alkylene, an ω-(C$_1$–C$_4$)-alkylcarbonyl-(C$_2$–C$_4$)-alkylene, an ω-benzoyloxy-(C$_2$–C$_4$)-alkylene, an ω -benzyloxy-(C$_2$–C$_4$)-alkylene, an ω-formyloxy-(C$_2$–C$_4$)-alkylene, an ω-R$_5$NHCOO—(C$_2$–C$_4$)-alkylene, an ω-R$_6$R$_7$ NCO—(C$_2$–C$_4$)-alkylene, an ω-R$_8$R$_9$N—(C$_2$–C$_4$)-alkylene, an ω-R$_{10}$CONR$_{11}$—(C$_2$–C$_4$)-alkylene, an ω-R$_{12}$OCONR$_{11}$—(C$_2$–C$_4$)-alkylene, an ω-R$_6$R$_7$NCONR$_{11}$—(C$_2$–C$_4$)-alkylene, an ω-R$_{13}$SO$_2$NR$_{11}$—(C$_2$–C$_4$)-alkylene or an ω-cyano-(C$_1$–C$_3$)-alkylene;

or alternatively R$_1$ and R$_2$ together form a group —(CH$_2$)$_n$—CQ—, where Q=H$_2$ or O and n is equal to 1, 2 or 3;

T is the group —CH$_2$— or one of the groups



in which R$_4$ is hydrogen or a (C$_1$–C$_4$)-alkyl group, with the proviso that T is —CH$_2$— if Q is oxygen and one of the following groups:

if Q is hydrogen;

A is a direct bond, a group —(CH$_2$)$_t$—, in which t is equal to 1, 2 or 3, or a group —CH=CH—;

Z is an optionally substituted, mono-, di- or tricyclic aromatic or heteroaromatic group;

Ar is a phenyl which is unsubstituted or monosubstituted or polysubstituted by a substituent selected from a halogen atom, a hydroxyl, a (C$_1$–C$_4$)-alkoxy, a (C$_1$–C$_4$)-alkyl, a trifluoromethyl and a methylenedioxy, said substituents being identical or different; a thienyl which is unsubstituted or substituted by a halogen atom; a benzothienyl which is unsubstituted or substituted by a halogen atom; a naphthyl which is unsubstituted or substituted by a halogen atom; an indolyl which is unsubstituted or N-substituted by a (C$_1$–C$_4$)-alkyl or a benzyl; an imidazolyl which is unsubstituted or substituted by a halogen atom; a pyridyl which is unsubstituted or substituted by a halogen atom; or a biphenyl;

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R_5 is a (C_1–C_7)-alkyl or a phenyl;

R_6 and R_7 are each independently a hydrogen or a (C_1– C_7)-alkyl; R_7 can also be a (C_3–C_7)-cycloalkyl, a (C_3–C_7)-cycloalkylmethyl, a phenyl or a benzyl; or alternatively R_6 and R_7, together with the nitrogen atom to which they are bonded, form a heterocycle selected from azetidine, pyrrolidine, piperidine, morpholine, thiomorpholine, perhydroazepine and piperazine which is unsubstituted or substituted in the 4-position by a (C_1–C_4)-alkyl;

R_8 and R_9 are each independently a hydrogen or a (C_1– C_7)-alkyl; R_9 can also be a (C_3–C_7)-cycloalkylmethyl or a benzyl;

R_{10} is a hydrogen, a (C_1–C_7)-alkyl, a vinyl, a phenyl, a benzyl, a pyridyl or a (C_3–C_7)-cycloalkyl which is unsubstituted or substituted by one or more methyls;

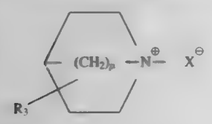
R_{11} is a hydrogen or a (C_1–C_7)-alkyl;

R_{12} is a (C_1–C_7)-alkyl or a phenyl;

R_{13} is a (C_1–C_7)-alkyl; an amino which is free or substituted by one or two (C_1–C_7)-alkyls; or a phenyl which is unsubstituted or monosubstituted or polysubstituted by a substituent selected from a halogen atom, a (C_1–C_7)-alkyl, a trifluoromethyl, a hydroxyl, a (C_1–C_7)-alkoxy, a carboxyl, a (C_1–C_7)-alkoxycarbonyl, a (C_1–C_7)-alkylcarbonyloxy, a cyano, a nitro and an amino which is free or substituted by one or two (C_1–C_7)-alkyls, said substituents being identical or different;

B is:

i—either a group B_1 of the formula



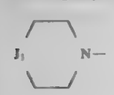
in which:

p is equal to one or two;

R_3 is a hydrogen, a (C_1–C_4)-alkyl, a phenyl or a benzyl; and

$X^{\ominus}$ is an anion;

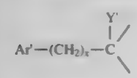
ii—or a group B_2 of the formula



in which

J_1 is:

ii_1—either a group



in which:

x is equal to zero or one;

Ar' is a phenyl which is unsubstituted or monosubstituted or polysubstituted by a substituent selected from a halogen atom, a nitro, a hydroxyl, a trifluoromethyl, a (C_1–C_4)-alkyl, a (C_1–C_4)-alkoxy and a methylenedioxy, said substituents being identical or different; a pyridyl; a thienyl; a pyrimidyl; or an imidazolyl which is unsubstituted or substituted by a (C_1–C_4)-alkyl; and

Y' is a hydrogen, a (C_1–C_7)-alkyl, a formyl, a (C_1– C_7)-alkylcarbonyl, a cyano, a group —$(CH_2)_q$—OH, a group (C_1–C_7)-alkyl-O—$(CH_2)_q$—, a group —$(CH_2)_q$—NR_4 COR_{14}, a group $R_{15}COO$—$(CH_2)_q$—, a group (C_1–C_7)-alkyl-NHCOO— $(CH_2)_q$—, a group —$NR_{16}R_{17}$, a group —CH_2—NR_{18} R_{19}, a group —CH_2—CH_2—$NR_{18}R_{19}$, a group —$(CH_2)_q$—NR_4 $COOR_{20}$, a group —$(CH_2)_q$—$NR_4SO_2R_{21}$, a group —$(CH_2)_q$— $NR_4CONR_{22}R_{23}$, a carboxyl, a (C_1–C_7)-alkoxycarbonyl, a group —$CONR_{22}R_{23}$, a carboxymethyl, a (C_1–C_7)-alkoxycarbonylmethyl, a group —CH_2—$CONR_{22}R_{23}$, a mercapto or a (C_1–C_4)-alkylthio;

or alternatively Y' forms an additional bond with the carbon atom to which it is bonded and with the adjacent carbon atom in the piperidine;

q is equal to zero, one or two;

R_4 is a hydrogen or a (C_1–C_4)-alkyl;

R_{14} is a hydrogen, a (C_1–C_7)-alkyl, a phenyl, a pyridyl, a vinyl, a benzyl or a (C_3–C_7)-cycloalkyl which is unsubstituted or substituted by one or more methyls;

or R_4 and R_{14} together are a group —$(CH_2)_u$—, in which u is equal to three or four;

R_{15} is a hydrogen; a (C_1–C_7)-alkyl; a (C_3–C_7)-cycloalkyl which is unsubstituted or substituted by one or more methyls; a phenyl; or a pyridyl;

R_{16} and R_{17} are each independently a hydrogen or a (C_1–C_7)-alkyl; R_{17} can also be a (C_3–C_7)-cycloalkylmethyl, a benzyl or a phenyl; or alternatively and R_{17}, together with the nitrogen atom to which they are bonded, form a heterocycle selected from azetidine, pyrrolidine, piperidine, morpholine, thiomorpholine, perhydroazepine and piperazine which is unsubstituted or substituted in the 4-position by a (C_1–C_4)-alkyl;

R_{18} and R_{19} are each independently a hydrogen or a (C_1–C_7)-alkyl; R_{19} can also be a (C_3–C_7)-cycloalkylmethyl or a benzyl;

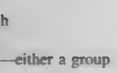
R_{20} is a (C_1–C_7)-alkyl or a phenyl;

R_{21} is a (C_1–C_7)-alkyl; an amino which is free or substituted by one or two (C_1–C_7)-alkyls; or a phenyl which is unsubstituted or monosubstituted or polysubstituted by a substituent selected from a halogen atom, a (C_1–C_7)-alkyl, a trifluoromethyl, a hydroxyl, a (C_1–C_7)-alkoxy, a carboxyl, a (C_1–C_7)-alkoxycarbonyl, a (C_1–C_7)-alkylcarbonyloxy, a cyano, a nitro and an amino which is free or substituted by one or two (C_1–C_7)-alkyls, said substituents being identical or different;

R_{22} and R_{23} are each independently a hydrogen or a (C_1–C_7)-alkyl; R_{23} can also be a (C_3–C_7)-cycloalkyl, a (C_3–C_7)-cycloalkylmethyl, a hydroxyl, a (C_1–C_4)-alkoxy, a benzyl or a phenyl;

or alternatively R_{22} and R_{23}, together with the nitrogen atom to which they are bonded, form a heterocycle selected from azetidine, pyrrolidine, piperidine, morpholine, thiomorpholine, perhydroazepine and piperazine which is unsubstituted or substituted in the 4-position by a (C_1–C_4)-alkyl;

ii_2—or a group



in which

Ar' is as defined above;

ii_3—or a group



in which

Ar' is as defined above;

ii_4—or a group



in which:

Ar+ is as defined above:

W_2 is an oxygen atom, a sulfur atom, a sulfinyl, a sulfonyl or a group —NR_{24}—;

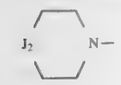
R_{24} is a hydrogen, a (C_1–C_4)-alkyl, a (C_1–C_4)-alkylcarbonyl or a group —$(CH_2)_v$—$NR_{25}R_{26}$;

v is equal to one, two or three; and

R_{25} and R_{26} are each independently a hydrogen or a (C_1–C_4)-alkyl; or alternatively R_{25} and R_{26}, together with the nitrogen

atom to which they are bonded, form a heterocycle selected from pyrrolidine, piperidine and morpholine;

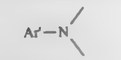
iii—or a group B_3 of the formula



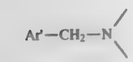
in which

J_2 is:

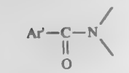
iii_1—either a group



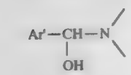
iii_2—or a group



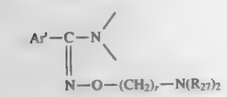
iii_3—or a group



iii_4—or a group



iii_5—or a group



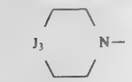
in which groups:

Ar' is as defined above;

r is two or three; and

R_{27} is a (C_1–C_4)-alkyl;

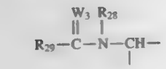
iv—or a group B_4 of the formula



in which

J_3 is:

a group



in which:

W_3 is an oxygen atom, a sulfur atom or a group NR_{30}, in which R_{30} is a hydrogen or a (C_1–C_3)-alkyl;

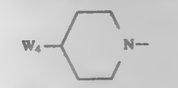
R_{28} is a hydrogen; a (C_1–C_6)-alkyl; a (C_3–C_6)-alkenyl in which a vinylic carbon atom is not bonded to the nitrogen atom; a 2-hydroxyethyl; a (C_3–C_7)-cycloalkyl; a phenyl which is unsubstituted or monosubstituted or polysubstituted by a substituent selected from a halogen atom, a trifluoromethyl, a (C_1–C_4)-alkyl, a (C_1–C_4)-alkoxy, a nitro, an amino and a hydroxyl, said substituents being identical or different; or a 6-membered heteroaryl containing one or two nitrogen atoms as heteroatoms, said heteroaryl being unsubstituted or monosubstituted or polysubstituted by a substituent selected from a halogen atom, a trifluoromethyl, a (C_1–C_4)-alkyl, a (C_1–C_4)-alkoxy, a nitro, an amino and a hydroxyl, said substituents being identical or different;

R_{29} is a hydrogen; a (C_1–C_4)-alkyl which is unsubstituted or substituted by a hydroxyl and/or by one, two or three fluorine atoms; a (C_3–C_6)-cycloalkyl; a (C_1– C_3)-alkoxy (only if W_3 is an oxygen atom); a (C_3–C_6)-cycloalkoxy (only if W_3 is an oxygen atom); a group —$NR_{31}R_{32}$ containing from zero to seven carbon atoms, R_{29} being other than an unsubstituted (C_1–C_4)-alkyl if W_3 is an oxygen atom and simultaneously R_{28} is a phenyl which is unsubstituted or substituted one or more times by a substituent selected from a halogen atom, a nitro, a hydroxyl, a trifluoromethyl, a (C_1–C_4)-alkyl and a (C_1–C_4)-alkoxy, said substituents being identical or different; a pyridyl; a pyrimidyl; or an imidazolyl which is unsubstituted or substituted by a (C_1–C_4)-alkyl;

or alternatively R_{28} and R_{29} together form a divalent hydrocarbon group L, in which the 1-position is bonded to the carbon atom carrying the substituent W_3, the divalent hydrocarbon group L being selected from a trimethylene, a cis-propenylene, a tetramethylene, a cis-butenylene, a cis-but-3-enylene, a cis,cis-butadienylene, a pentamethylene and a cis-pentenylene, said divalent hydrocarbon group L being unsubstituted or substituted by one or two methyls; and

R_{31} and R_{32} are each independently a hydrogen, a (C_1– C_5)-alkyl or a (C_3–C_6)-cycloalkyl; or alternatively R_{31} and R_{32}, together with the nitrogen atom to which they are bonded, form a heterocycle selected from pyrrolidine, piperidine, morpholine, thiomorpholine (or its S-oxide) and piperazine which is unsubstituted or substituted in the 4-position by a (C_1–C_4)-alkyl;

v—or a group B_5 of the formula



in which:

W_4 is a (C_1–C_8)-alkyl or a (C_3–C_8)-cycloalkyl, said alkyl and cycloalkyl groups being unsubstituted or substituted by one or more substituents selected from a halogen atom; a (C_3–C_6)-cycloalkyl; a cyano; a nitro; a hydroxyl; a (C_1–C_4)-alkoxy; a formyloxy; a (C_1–C_4)-alkylcarbonyloxy; an arylcarbonyl; a heteroarylcarbonyl; an oxo; an imino which is unsubstituted or substituted on the nitrogen atom by a (C_1–C_6)-alkyl, a (C_3–C_6)-cycloalkyl, a formyl, a (C_1–C_4)-alkylcarbonyl or an arylcarbonyl; a hydroxyimino which is unsubstituted or substituted on the oxygen atom by a (C_1–C_4)-alkyl or a phenyl; a group —$NR_{33}R_{34}$ containing from zero to seven carbon atoms; a group —$NR_{35}R_{36}$; a group —$C(=NR_{37})NR_{38}R_{39}$, in which the group —$NR_{38}R_{39}$ contains from zero to seven carbon atoms; or a group —$CON(OR_{40})R_{41}$, said substituents being identical or different;

R_{33} and R_{34} are each independently a hydrogen, a (C_1– C_5)-alkyl or a (C_3–C_6)-cycloalkyl; or alternatively R_{33} and R_{34}, together with the nitrogen atom to which they are bonded, form a heterocycle selected from pyrrolidine, piperidine, morpholine, thiomorpholine (or its S-oxide) and piperazine which is unsubstituted or substituted in the 4-position by a methyl or an ethyl;

R_{35} is a hydrogen or a (C_1–C_4)-alkyl;

R_{36} is a formyl; a (C_1–C_4)-alkylcarbonyl; an arylcarbonyl; a heteroarylcarbonyl; or a group —$C(=W_5)NR_{38}R_{39}$, in which the group —$NR_{38}R_{39}$ contains from zero to seven carbon atoms;

W_5 is an oxygen atom, a sulfur atom, a group —NR_{37} or a group —CHR_{42};

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R_{37} is a hydrogen or a $(C_1–C_4)$-alkyl; or alternatively R_{37} and R_{39} together form an ethylene group or a trimethylene group;

R_{38} and R_{39} are each independently a hydrogen, a $(C_1–C_5)$-alkyl or a $(C_3–C_6)$-cycloalkyl; or alternatively R_{38} and R_{39}, together with the nitrogen atom to which they are bonded, form a heterocycle selected from pyrrolidine, piperidine, morpholine, thiomorpholine (or its S-oxide) and piperazine which is unsubstituted or substituted in the 4-position by a $(C_1–C_4)$-alkyl; or alternatively R_{38} is a hydrogen or a $(C_1–C_4)$-alkyl and R_{39} and R_{37} together form an ethylene group or a trimethylene group;

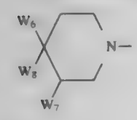
R_{40} and R_{41} are each independently a $(C_1–C_3)$-alkyl;

R_{42} is a cyano, a nitro or a group SO_2R_{43}; and

R_{43} is a $(C_1–C_4)$-alkyl or a phenyl;

and if W_4 is a cyclic group or if a substituent of W_4 is a cyclic group or contains a cyclic group, said cyclic groups can additionally be substituted on a carbon atom by one or more $(C_1–C_3)$-alkyls, and if a substituent of W_4 contains an aryl group or a heteroaryl group, said aryl or heteroaryl groups can additionally be monosubstituted or polysubstituted by a substituent selected from a halogen atom, a $(C_1–C_4)$-alkyl, a $(C_1–C_4)$-alkoxy, a cyano, a trifluoromethyl and a nitro, said substituents being identical or different;

vi—or a group B_6 of the formula



in which:

W_6 and W_7 are each a hydrogen, or alternatively W_6 is a hydrogen and W_7 is a hydroxyl;

W_8 is an aryl or a heteroaryl which is unsubstituted or substituted by an aryl, an arylcarbonyl, a heteroaryl or a heteroarylcarbonyl, said aryl or heteroaryl groups can additionally be monosubstituted or polysubstituted on the aromatic or heteroaromatic moiety and on a carbon atom by a substituent selected from a halogen atom; a cyano; a trifluoromethyl; a nitro; a hydroxyl; a $(C_1–C_5)$-alkoxy; a formyloxy; a $(C_1–C_4)$-alkylcarbonyloxy; a group $—NR_{33}R_{34}$ containing from zero to seven carbon atoms; a group $—NR_{35}R_{36}$; a group $—C(=NR_{37})NR_{38}R_{39}$, in which the group $—NR_{38}R_{39}$ contains from zero to seven carbon atoms; a group $—COOR_{44}$; a group $—CONR_{45}R_{46}$, in which the group $NR_{45}R_{46}$ contains from zero to seven carbon atoms; a mercapto; a group $—S(O)_sR_{47}$; a $(C_1–C_5)$-alkyl; a formyl; and a $(C_1–C_4)$-alkylcarbonyl, said substituents being identical or different; if W_6 and W_7 are each a hydrogen, W_8 is other than a phenyl which is unsubstituted or substituted one or more times by a substituent selected from a halogen atom, a nitro, a hydroxyl, a trifluoromethyl and a $(C_1–C_4)$-alkoxy, said substituents being identical or different; other than a pyridyl; other than a pyrimidyl; or other than an imidazolyl which is unsubstituted or substituted by a $(C_1–C_4)$-alkyl;

or alternatively W_7 is a hydrogen and W_6 and W_8, together with a diradical W_9 and the carbon atom of the piperidine to which they are bonded, form a spiro ring in which W_8 is a phenyl substituted in the ortho-position by a diradical W_9, which is itself joined to W_6, said phenyl being unsubstituted or substituted by a substituent selected from a halogen atom, a $(C_1–C_3)$-alkyl, a $(C_1–C_3)$-alkoxy, a hydroxyl, a $(C_1–C_3)$-alkylthio, a $(C_1–C_3)$-alkylsulfinyl and a $(C_1–C_3)$-alkylsulfonyl; the diradical W_9 is a methylene, a carbonyl or a sulfonyl; and W_6 is an oxygen atom or a group $—NR_{48}—$, in which R_{48} is a hydrogen or a $(C_1–C_3)$-alkyl;

R_{33}, R_{34}, R_{35}, R_{36}, R_{37}, R_{38} and R_{39} are as defined above for the group B_5;

R_{44} is a hydrogen, a $(C_1–C_5)$-alkyl, an aryl, a heteroaryl, an arylmethyl or a heteroarylmethyl;

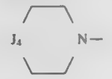
R_{45} and R_{46} are each independently a hydrogen, a $(C_1–C_5)$-alkyl or a $(C_3–C_6)$-cycloalkyl; or alternatively R_{45} and R_{46}, together with the nitrogen atom to which they are bonded, form a heterocycle selected from pyrrolidine, piperidine, morpholine, thiomorpholine (or its S-oxide) and piperazine which is unsubstituted or substituted in the 4-position by a $(C_1–C_4)$-alkyl;

s is zero, one or two; and

R_{47} is a $(C_1–C_6)$-alkyl, a $(C_3–C_6)$-cycloalkyl, an aryl or a heteroaryl;

and if W_8 or a substituent of W_8 contains a cyclic group, said cyclic group can additionally be substituted by one or more methyls, and if a heteroaryl group forming part of W_8 or of a substituent of W_8 contains a nitrogen atom as the heteroatom, said nitrogen atom can additionally be substituted by a $(C_1–C_5)$-alkyl, and if W_8 or a substituent of W_8 contains a $(C_1–C_5)$-alkyl, $(C_1–C_5)$-alkoxy, formyl or $(C_1–C_4)$-alkylcarbonyl group, said $(C_1–C_5)$-alkyl, $(C_1–C_5)$-alkoxy, formyl or $(C_1–C_4)$-alkylcarbonyl groups can additionally be substituted by a hydroxyl, a $(C_1–C_3)$-alkoxy or one or more halogen atoms, with the proviso that a carbon atom bonded to a nitrogen atom or to an oxygen atom is not substituted by a hydroxyl or an alkoxy group, and with the proviso that a carbon atom in the α-position of a $(C_1–C_4)$-alkylcarbonyl group is not substituted by a chlorine, bromine or iodine atom;

vii—or a group B_7 of the formula



in which

J_4 is:

vii_1—either a group



in which:

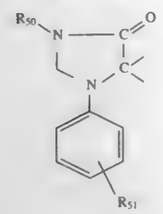
W_{10} is a phenyl which is unsubstituted or monosubstituted to trisubstituted by a substituent selected from a halogen atom, a $(C_1–C_6)$-alkoxy, a $(C_1–C_6)$-alkyl and a trifluoromethyl, said substituents being identical or different; a benzyl which is unsubstituted or monosubstituted to trisubstituted by a substituent selected from a halogen atom, a $(C_1–C_6)$-alkoxy, a $(C_1–C_6)$-alkyl and a trifluoromethyl, said substituents being identical or different; a naphthyl which is unsubstituted or monosubstituted to trisubstituted by a substituent selected from a halogen atom, a $(C_1–C_6)$-alkoxy, a $(C_1–C_6)$-alkyl and a trifluoromethyl, said substituents being identical or different; a pyridyl which is unsubstituted or monosubstituted or disubstituted by a substituent selected from a halogen atom, a $(C_1–C_6)$-alkyl and a $(C_1–C_6)$-alkoxy, said substituents being identical or different; or a thienyl;

$—W_{11}$ is a group $—CONHR_{49}$; and

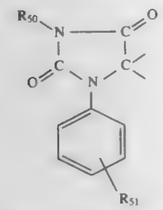
$—R_{49}$ is a group $CH_3—CHOH—CH(—COO—(C_1–C_6)\text{-alkyl})$, a group

$(C_1–C_6)\text{-alkyl-OCO—}CH_2—CH_2—CH(—COO—(C_1–C_6)\text{-alkyl})$ or a group $—CH_2CH_2N(CH_3)_2$;

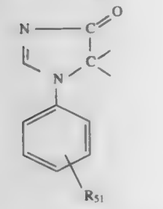
vii_2—or a group



vii_3—or a group



vii_4—or a group

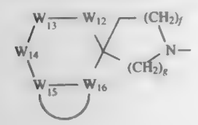


in which groups:

R_{50} is a hydrogen, a $(C_1–C_6)$-alkyl or a benzyl; and

R_{51} is from one to three substituents selected from a hydrogen, a halogen atom, a trifluoromethyl, a $(C_1–C_6)$-alkyl and a $(C_1–C_6)$-alkoxy, said substituents being identical or different;

viii—or a group B_8 of the formula



in which:

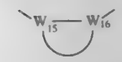
f and g are each independently zero, one, two, three, four or five, with the proviso that f+g is equal to one, two, three, four or five;

W_{12} is a direct bond; a $(C_1–C_3)$-alkylene which is unsubstituted or substituted by an oxo, a group OR_{52}, a halogen, a trifluoromethyl or a phenyl which is itself unsubstituted or mono-, di- or tri-substituted by a substituent selected independently from a hydroxyl, a cyano, a halogen and a trifluoromethyl; a group $—S(O)_k—$; a group $(C_1–C_3)\text{-alkylene-}S(O)_k—$; a group $—S(O)_k—(C_1–C_2)\text{-alkylene}$; a group $—S(O)_k—NH—$; a group $—S(O)_f—NR_{52}—$; a group $—S(O)_f—NR_{52}—(C_1–C_2)\text{-alkylene}$; a group $—CONR_{52}—$; a group $—CONR_{52}—(C_1–C_2)\text{-alkylene}$; a group $—COO—$; or a group $—COO—(C_1–C_2)\text{-alkylene}$;

W_{13} is a group $—NR_{53}—$, an oxygen atom, a sulfur atom, a sulfinyl or a sulfonyl, with the proviso that if W_{12} is a direct bond and if W_{14} is a $(C_1–C_3)$-alkylene, W_{13} is a group $—NR_{53}—$;

W_{14} is a direct bond; a $(C_1–C_3)$-alkylene which is unsubstituted or substituted by an oxo, a group OR_{52}, a halogen, a trifluoromethyl or a phenyl which is itself unsubstituted or mono-, di- or tri-substituted by a substituent selected independently from a group OR_{52}, a halogen and a trifluoromethyl; a group $—S(O)_k—$; a group $(C_1–C_3)\text{-alkylene-}S(O)_k—$; a group $—S(O)_k—(C_1–C_2)\text{-alkylene}$; a group $—NHS(O)_f—$; a group $—NH—(C_1–C_2)\text{-alkylene-}S(O)_f—$; a group $—S(O)_fNR_{52}—$; a group $—S(O)_f—NR_{52}—(C_1–C_2)\text{-alkylene}$; a group $—NHCO—(C_1–C_2)\text{-alkylene}$; a group $—NR_{52}—CO—$; a group $—NR_{52}—(C_1–C_2)\text{-alkylene-CO—}$; a group $—OCO—$; or a group $(C_1–C_2)\text{-alkylene-OCO—}$;

W_{15}–W_{16} together form two adjacent atoms of a cyclic radical of the formula



said cyclic radical being a phenyl, a naphthyl or a heteroaryl group selected from a benzimidazolyl, a benzofuranyl, a benzoxazolyl, a furanyl, an imidazolyl, an indolyl, an isoxazolyl, an isothiazolyl, an oxadiazolyl, an oxazolyl, a pyrazinyl, a pyrazolyl, a pyridyl, a pyrimidyl, a pyrrolyl, a quinolyl, a tetrazolyl, a thiadiazolyl, a thiazolyl, a thienyl and a triazolyl, and said phenyl, naphthyl or heteroaryl cyclic radical being unsubstituted or mono-, di- or tri-substituted by R_{54};

k is zero, one or two;

j is one or two;

R_{52} is a hydrogen; a $(C_1–C_6)$-alkyl which is unsubstituted or monosubstituted or disubstituted by a substituent selected independently from a hydroxyl, an oxo, a cyano, a halogen atom, a trifluoromethyl and a phenyl which is itself unsubstituted or substituted by a hydroxyl, a $(C_1–C_3)$-alkyl, a cyano, a halogen, a trifluoromethyl or a $(C_1–C_4)$-alkoxy; a phenyl, a pyridyl or a thiophene, said phenyl, pyridyl or thiophene being unsubstituted or mono-, di- or tri-substituted by a substituent selected independently from a hydroxyl, a $(C_1–C_4)$-alkyl, a cyano, a halogen atom and a trifluoromethyl; or a $(C_1–C_3)$-alkoxy;

R_{53} is a hydrogen; a $(C_1–C_8)$-alkyl which is unsubstituted or monosubstituted or polysubstituted by a substituent selected from a group $—OR_{52}$, an oxo, a group $—NHCOR_{52}$, a group $—NR_{55}R_{56}$, a cyano, a halogen atom, a trifluoromethyl and a phenyl which is itself unsubstituted or substituted by a hydroxyl, a cyano, a halogen atom or a trifluoromethyl; a group $—S(O)R_{57}$; a group $—CO_2R_{57}—$; a group $—SO_2R_{57}$; a group $—COR_{57}$; or a group $—CONR_{56}R_{57}$;

R_{54} is a hydrogen; a $(C_1–C_6)$-alkyl which is unsubstituted or monosubstituted or disubstituted by a hydrogen or a hydroxyl; an oxo; a group $—OR_{52}$; a halogen atom; a trifluoromethyl; a nitro; a cyano; a group $—NR_{55}R_{56}$; a group $—NR_{55}COR_{56}$; a group $—NR_{55}\ CO_2R_{56}$; a group $—NHS(O)_fR_{52}$; a group $—NR_{55}S(O)_fR_{56}$; a group $—CONR_{55}R_{56}$; a group $—COR_{52}$; a group $—CO_2R_{52}$; a group $—S(O)_fR_{52}$; or a heteroaryl group, said heteroaryl being selected from a benzimidazolyl, a benzofuranyl, a benzoxazolyl, a furanyl, an imidazolyl, an indolyl, an isoxazolyl, an isothiazolyl, an oxadiazolyl, an oxazolyl, a pyrazinyl, a pyrazolyl, a pyridyl, a pyrimidinyl, a pyrrolyl, a quinolyl, a tetrazolyl, a thiadiazolyl, a thiazolyl, a thienyl and a triazolyl, and said heteroaryl being unsubstituted or monosubstituted or disubstituted by R_{58};

R_{55} is R_{52};

R_{56} is R_{52};

or alternatively R_{55} and R_{56}, together with the atoms to which they are bonded, form a five-, six- or seven-membered saturated monocyclic heterocycle containing one or two heteroatoms, said heteroatoms being selected independently from a nitrogen atom, an oxygen atom and a sulfur atom, said heterocycle being unsubstituted or monosubstituted or disubstituted by a substituent selected independently from a hydroxyl, an oxo, a cyano, a halogen atom and a trifluoromethyl;

R_{57} is a $(C_1–C_6)$-alkyl which is unsubstituted or mono-e di- or tri-substituted by a substituent selected from a hydroxyl, an oxo, a cyano, a group $—OR_{52}$, a group $—NR_{55}R_{56}$, a group

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—$NR_{55}COR_{56}$, a halogen atom, a trifluoromethyl and a phenyl which is itself unsubstituted or mono-, di- or trisubstituted by a substituent selected independently from a hydroxyl, an oxo, a cyano, a group —NHR_{52}, a group —$NR_{55}R_{56}$, a group —$NR_{55}COR_{56}$, a halogen atom, a trifluoromethyl and a (C_1–C_3)-alkyl; and

R_{58} is a hydrogen; a (C_1–C_6)-alkyl which is unsubstituted or monosubstituted or disubstituted by a hydrogen or a hydroxyl; an oxo; a group —OR_{52}; a trifluoromethyl; a nitro; a cyano; a group —$NR_{55}R_{56}$; a group —$NR_{55}COR_{56}$; a group —$NR_{55}CO_2R_{56}$; a group —$NHS(O)_jR_{52}$; a group —$NR_{55}S(O)_jR_{56}$; a group —$CONR_{55}R_{56}$; a group —COR_{52}; a group —CO_2R_{52}; a group —$S(O)_jR_{52}$; or a phenyl;

and the group B_8 being other than the group B_6 if W_7 is a hydrogen and W_6 and W_8, together with a diradical W_9 and the carbon atom of the piperidine to which they are bonded, form a spiro ring;

or its salts, where appropriate, with mineral or organic acids.

5,726,314

PYRIDINIUM COMPOUNDS

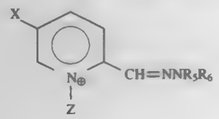
James C. Powers, Atlanta; Jerry J. Buccafusco, Evans, and Kenneth M. Starks, Atlanta, all of Ga., assignors to Georgia Tech Research Corp., Atlanta, Ga.

Division of Ser. No. 193,217, Feb. 8, 1994. This application Sep. 30, 1996, Ser. No. 723,293

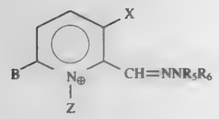
Int. Cl.[6] C07D *213/75;213/65;213/72*

U.S. Cl. 546—292 **1 Claim**

1. A compound of the group consisting of the formulas:



and



and any counterion to make pharmaceutically acceptable salts, wherein

R_5 is selected from the group consisting of pentafluorophenyl, phenyl monosubstituted with K, phenyl disubstituted with K, phenyl trisubstituted with K, and naphthyl,

wherein R_6 is selected from the group consisting of H, CH_{1-6} alkyl, phenyl, pentafluorophenyl, phenyl mono, di, or trisubstituted with K, CH_{1-6} alkyl with an attached phenyl group, and C_{1-6} alkyl with an attached phenyl group mono, di, or trisubstituted with K,

wherein K is selected from the group consisting of halogen, COOH, OH, CN, NO_2, NH_2, C_{1-6} alkyl, C_{1-6} fluorinated alkyl, C_{1-6} alkoxy, C_{1-6} alkyl—O—CO—, C_{1-6} alkyl—O—CO— NH—, C_{1-6} alkyl—NH—CO—NH—, C_{1-6} alkyl—NH—CO—O—, C_{1-6} alkyl—NH—CO—, and (C_{1-6} alkyl)$_2$N—CO—

wherein X is selected from the group consisting of OH, C_{1-6} alkyl—NH—CO—O—, (C_{1-6} alkyl)$_2$—N—CO—O—, C_{1-6} fluoroalkyl—NH—CO—O—, and (C_{1-6} fluoroalkyl)$_2$—NH—CO—O—,

wherein B is selected from the group consisting of H, and C_{1-6} alkyl.

5,726,315

CERTAIN 3-HYDROXY-6-HYDROXYMETHYL-PYRIDINE INTERMEDIATES

Peter William Sheldrake, Tunbridge Wells, England; Laurence Charles Powling, Maidstone, England, and Peter William Bickle, Auckland, New Zealand, assignors to SmithKline Beecham plc, England

PCT No. PCT/EP94/02028, § 371 Date May 23, 1996, § 102(e) Date May 23, 1996, PCT Pub. No. WO95/00487, PCT Pub. Date Jan. 5, 1995

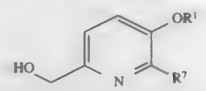
PCT Filed Jun. 20, 1994, Ser. No. 569,249

Claims priority, application United Kingdom, Jun. 25, 1993, 9313145

Int. Cl.[6] C07D *213/69;213/70;213/78*

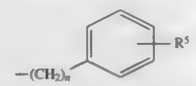
U.S. Cl. 546—294 **3 Claims**

1. A compound of formula (II):



(II)

R^1 is hydrogen or a group of formula (A):



(A)

where n is 1 to 20 and R^5 is hydrogen, C_{1-6}alkyl, C_{1-6}alkoxy or trifluoromethyl; and

R^7 is a leaving group selected from the group consisting of halogen, OTf or (Triflate, e.g. OSO_2CF_3), OSO_2C_1-C_6alkyl or OSO_2Ar where Ar is optionally substituted aryl.

5,726,316

PHARMACEUTICAL COMPOSITIONS FOR PREVENTION AND TREATMENT OF CENTRAL NERVOUS SYSTEM DISORDERS

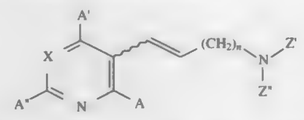
Peter Anthony Crooks, 3233 Raven Cir., Lexington, Ky. 40502; William Scott Caldwell, 1270 Yorkshire Rd., Winston-Salem, N.C. 27106; Gary Maurice Dull, 1175 Sequoia Dr., Lewisville, N.C. 27023; Balwinder Singh Bhatti, 605 Elk lake Dr., Lexington, Ky. 40517; Niranjan Madhukar Deo, 2150 Richmond Rd., Apt. #7, Lexington, Ky. 40502, and Alain Ravard, 700 Woodland Ave., #B 211, Lexington, Ky. 40508

Continuation of Ser. No. 364,976, Jan. 6, 1995, Pat. No. 5,616,707. This application Jan. 21, 1997, Ser. No. 784,615

Int. Cl.[6] C07D *213/02;* **A61K** *31/44*

U.S. Cl. 546—311 **3 Claims**

1. A compound having the formula



wherein X is C—Br or C—NH_2; n is 2; A" is methyl; the wavy line in the structure indicates a trans (E) form of the compound; A, A' and Z' each are hydrogen; and Z" is hydrogen or methyl.

5,726,317

CYCLOBUTENEDIONE COMPOUNDS

Yasunari Nishikata, Ashigarakami, Japan, and Lyong Sun Pu, Ashigarakami, Japan, assignors to Fuji Xerox Co., Ltd., Tokyo, Japan

Filed Sep. 3, 1996, Ser. No. 706,778

Claims priority, application Japan, Sep. 5, 1995, 7-228389; Sep. 13, 1995, 7-235571

Int. Cl.[6] C07D *213/02;* **C07C** *225/20*

U.S. Cl. 546—340 **10 Claims**

1. A cyclobutenedione compound comprising:

substituted or non-substituted aromatic group A; conjugated chain B; and

hydrogen bonding or ion bonding cyclobutenedionyl substituted group C having an aromatic group which is bonded to the conjugated chain B,

wherein A and B and C are bonded in the form of A—B—C.

5,726,318

PROCESS FOR THE PREPARATION OF TAXANE DERIVATIVES

Alain Commercon, Vitry-sur-Seine, France; Eric Didier, Paris, France, and Elie Fouque, Saint Maur Des Fosses, France, assignors to Rhone-Poulenc Rorer S.A., Antony, France

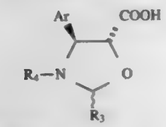
Division of Ser. No. 411,690, Apr. 5, 1995, Pat. No. 5,621,121. This application Jan. 3, 1997, Ser. No. 778,637

Claims priority, application France, Oct. 5, 1992, 92 11743

Int. Cl.[6] C07D *263/06;305/14*

U.S. Cl. 548—215 **6 Claims**

1. An acid of the formula (VII):



(VII)

in which:

Ar represents a phenyl or α- or β-naphthyl radical unsubstituted or substituted by at least one substituent selected from the group consisting of a halogen atom and an alkyl, alkenyl, alkynyl, aryl, arylalkyl, alkoxy, alkylthio, aryloxy, arylthio, hydroxyl, hydroxyalkyl, mercapto, formyl, acyl, acylamino, aroylamino, alkoxycarbonylamino, amino, alkylamino, dialkylamino, carboxyl, alkoxycarbonyl, carbamoyl, dialkylcarbamoyl, cyano, and a trifluoromethyl radical, wherein the alkyl radical and alkyl portions of the other radicals comprise 1 to 4 carbon atoms, the alkenyl and alkynyl radicals comprise 3 to 8 carbon atoms, and the aryl radicals are phenyl or α- or β-naphthyl radicals;

R_3 represents a trihalomethyl radical or a phenyl radical substituted by a trihalomethyl radical; and

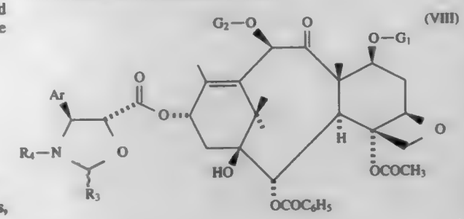
R_4 represents a hydrogen atom, a benzoyl radical, or a a radical R_2—O—CO— in which R_2 represents:

a straight or branched alkyl radical comprising 1 to 8 carbon atoms, an alkenyl radical comprising 2 to 8 carbon atoms, an alkynyl radical comprising 3 to 8 carbon atoms, a cycloalkyl radical comprising 3 to 6 carbon atoms, a cycloalkenyl radical comprising 4 to 6 carbon atoms, or a bicycloalkyl radical comprising 7 to 10 carbon atoms, these radicals being unsubstituted or substituted with at least one substituent selected from the group consisting of a halogen atom, a hydroxyl radical, an alkoxy radical comprising 1 to 4 carbon atoms, a dialkylamino radical in which each alkyl portion comprises 1 to 4 carbon atoms, a piperidino radical, a morpholino radical, a 1-piperazinyl radical (unsubstituted or substituted at position 4 by an alkyl radical comprising 1 to 4 carbon atoms or by a phenylalkyl radical in which the alkyl portion comprises 1 to 4 carbon atoms), a cycloalkyl radical comprising 3 to 6 carbon atoms, a cycloalkenyl radical comprising 4 to 6 carbon atoms, a phenyl radical, a cyano radical, a carboxyl radical, or an alkoxycarbonyl radical in which the alkyl portion comprises 1 to 4 carbon atoms, wherein the cycloalkyl, cycloalkenyl, or bicycloalkyl radicals may be substituted by at least one alkyl radical comprising 1 to 4 carbon atoms;

a phenyl radical unsubstituted or substituted by at least one substituent selected from the group consisting of an alkyl radical comprising 1 to 4 carbon atoms and an alkyloxy radical comprising 1 to 4 carbon atoms; or

a saturated or unsaturated nitrogen-containing heterocyclic radical comprising 5 or 6 members, unsubstituted or substituted by at least one alkyl radical comprising 1 to 4 carbon atoms.

3. A product of the formula (VIII):



(VIII)

in which:

Ar represents a phenyl or α- or β-naphthyl radical unsubstituted or substituted by at least one substituent selected from the group consisting of a halogen atom and an alkyl, alkenyl, alkynyl, aryl, arylalkyl, alkoxy, alkylthio, aryloxy, arylthio, hydroxyl, hydroxyalkyl, mercapto, formyl, acyl, acylamino, aroylamino, alkoxycarbonylamino, amino, alkylamino, dialkylamino, carboxyl, alkoxycarbonyl, carbamoyl, dialkylcarbamoyl, cyano, and a trifluoromethyl radical, wherein the alkyl radical and alkyl portions of the other radicals comprise 1 to 4 carbon atoms, the alkenyl and alkynyl radicals comprise 3 to 8 carbon atoms, and the aryl radicals are phenyl or α- or β-naphthyl radicals;

R_3 represents a trihalomethyl radical or a phenyl radical substituted by a trihalomethyl radical; and

R_4 represents a hydrogen atom, a benzoyl radical, or a a radical R_2—O—CO— in which R_2 represents:

a straight or branched alkyl radical comprising 1 to 8 carbon atoms, an alkenyl radical comprising 2 to 8 carbon atoms, an alkynyl radical comprising 3 to 8 carbon atoms, a cycloalkyl radical comprising 3 to 6 carbon atoms, a cycloalkenyl radical comprising 4 to 6 carbon atoms, or a bicycloalkyl radical comprising 7 to 10 carbon atoms, these radicals being unsubstituted or substituted with at least one substituent selected from the group consisting of a halogen atom, a hydroxyl radical, an alkoxy radical comprising 1 to 4 carbon atoms, a dialkylamino radical in which each alkyl portion comprises 1 to 4 carbon atoms, a piperidino radical, a morpholino radical, a 1-piperazinyl radical (unsubstituted or substituted at position 4 by an alkyl radical comprising 1 to 4 carbon atoms or by a phenylalkyl radical in which the alkyl portion comprises 1 to 4 carbon atoms), a cycloalkyl radical comprising 3 to 6 carbon atoms, a cycloalkenyl radical comprising 4 to 6 carbon atoms, a phenyl radical, a cyano radical, a carboxyl radical, or an alkoxycarbonyl radical in which the alkyl portion comprises 1 to 4 carbon atoms, wherein the cycloalkyl, cycloalkenyl, or bicycloalkyl radicals may be substituted by at least one alkyl radical comprising 1 to 4 carbon atoms;

a phenyl radical unsubstituted or substituted by at least one substituent selected from the group consisting of an alkyl radical comprising 1 to 4 carbon atoms and an alkyloxy radical comprising 1 to 4 carbon atoms; or

a saturated or unsaturated nitrogen-containing heterocyclic radical comprising 5 or 6 members, unsubstituted or substituted by at least one alkyl radical comprising 1 to 4 carbon atoms; and

G_1 and optionally G_2 represent a protecting group of the hydroxyl functional group.

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5,726,319

BIPHENYL SUBSTITUTED DIPEPTIDE ANALOGS PROMOTE RELEASE OF GROWTH HORMONE

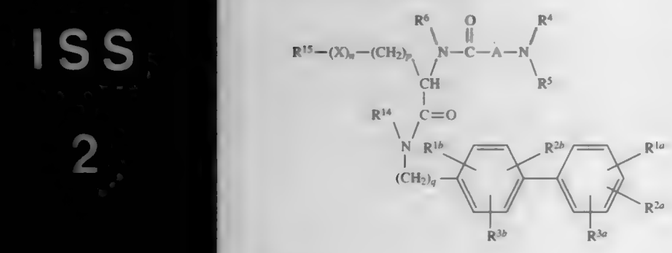
Peter Lin, Iselin; William R. Schoen, Edison; Judith M. Pisano, Cliffside Park, and Matthew J. Wyvratt, Mountainside, all of N.J., assignors to Merck & Co., Inc., Rahway, N.J.

Continuation of Ser. No. 175,809, Dec. 30, 1993, abandoned, which is a continuation-in-part of Ser. No. 973,142, Nov. 6, 1992, abandoned. This application Aug. 1, 1995, Ser. No. 510,026

Int. Cl.[6] **C07D** *257/00;* **A61K** *38/00*

U.S. Cl. 548—253 **7 Claims**

1. A compound of the formula:



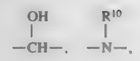
wherein:

n is 0 or 1;

p is 0, 1, 2, 3, 4, 5 or 6;

q is 0, 1, 2, 3, or 4;

X is C═O, O, S(O)$_m$,



or —CH═CH—;

m is 0, 1 or 2;

R^1, R^2, R^{1a}, R^{2a}, R^{1b}, and R^{2b} are independently selected from: hydrogen, halogen, C_1–C_7 alkyl, C_1–C_3 perfluoroalkyl, C_1–C_3 perfluoroalkoxy, —S(O)$_m$—R^{7a}, cyano, nitro, $R^{7b}O(CH_2)_v$—, $R^{7b}COO(CH_2)_v$—, $R^{7b}OCO(CH_2)_v$—, $R^4R^5N(CH_2)_v$—, $R^{7b}CON(R^4)(CH_2)_v$—, $R^4R^5NCO(CH_2)_v$—, R^4R^5—$NCOO(CH_2)_v$—, phenyl, and substituted phenyl where the substituents on phenyl are selected from 1 to 3 of halogen, C_1–C_6 alkyl, C_1–C_6 alkoxy, and hydroxy, with the proviso that if q is 0 then at least one of R^{1a}, R^{2a}, R^{1b}, R^{2b}, R^{3a} and R^{3b} is other than hydrogen;

v is 0, 1, 2 or 3;

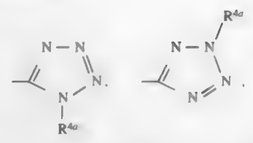
R^{3a} and R^{3b} are independently selected from: hydrogen, R^9, C_1–C_6 alkyl substituted with R^9, phenyl substituted with R^9, and phenoxy substituted with R^9;

R^4, R^{4a}, R^{4b}, R^5 and R^{5a} are independently selected from: hydrogen, C_1–C_{10} alkyl, and substituted C_1–C_{10} alkyl, where the substituents on the C_1–C_{10} alkyl are selected from: 1 to 3 of hydroxy, C_1–C_3 alkoxy, fluoro, phenyl independently substituted with R^1 and R^2, C_1–C_{20}-alkanoyloxy, C_1–C_5 alkoxycarbonyl, and carboxy, or R^4 and R^5 can be taken together to form —$(CH_2)_rB(CH_2)_s$—, where B is CHR^1, O, S(O)$_m$ or NR^{10}, m is 0, 1 or 2, and r and s are independently 0, 1, 2, or 3;

R^6 is hydrogen, C_1–C_{10} alkyl, phenyl or phenyl C_1–C_{10} alkyl;

R^{7a} and R^{7b} are independently selected from: hydrogen; C_1–C_3 perfluoroalkyl; C_1–C_6 alkyl; phenyl; substituted C_1–C_6 alkyl, where the substituents on the C_1–C_6 alkyl are phenyl or substituted phenyl; and substituted phenyl where the substituents on the phenyl are selected from 1 to 3 of halogen, C_1–C_6 alkyl, C_1–C_6 alkoxy, and hydroxy;

R^9 is selected from:



$R^{7b}O(CH_2)_v$—, $R^{7b}COO(CH_2)_v$—, $R^{7b}OCO(CH_2)_v$—, $R^{7b}CO(CH_2)_v$—, $R^{7b}O(CH_2)_vCO$—, $R^{4b}R^{12c}N(CH_2)_v$—, $R^{12a}R^{12b}NCO(CH_2)_v$—, $R^{12a}R^{12b}NCS(CH_2)_v$—, $R^{4b}R^{12a}N$—$N(R^{12b})CO(CH_2)_v$—, $R^{4b}R^{12a}N$—$N(R^{12b})CS(CH_2)_v$—, $R^{4b}R^{12a}NCON(R^{12c})(CH_2)_v$—, $R^{4b}R^{12a}NCSN(R^{12c})(CH_2)_v$—, $R^{4b}R^{12a}N$—$N(R^{12b})CON(R^{12c})(CH_2)_v$—, $R^{4b}R^{12a}N$—$N(R^{12b})CSN(R^{12c})(CH_2)_v$—, $R^{4b}R^{12a}N$—$N(R^{12b})$—$COO(CH_2)_v$—, $R^{4b}R^{12a}NCOO(CH_2)_v$—, and $R^{13}OCON(R^{12c})(CH_2)_v$—;

R^{10} and R^{11} are independently selected from: hydrogen, C_1–C_6 alkyl, phenyl C_1–C_6 alkyl, C_1–C_5-alkoxycarbonyl, and C_1–C_5-alkanoyl-C_1–C_6 alkyl;

R^{12a}, R^{12b} and R^{12c} are independently selected from: R^{5a}, OR^{5a}, and COR^{5a}; or

R^{12a} and R^{12b}, or R^{12b} and R^{12c}, or R^{12a} and R^{12c}, or R^{4b} and R^{12a}, or R^{4b} and R^{12a}, or R^{4b} and R^{12c}, or R^{13} and R^{12c}, may be taken together to form —$(CH_2)_r$—B—$(CH_2)_s$—;

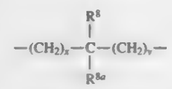
where B is CHR^1, O, S(O)$_m$ or NR^{10}; m is 0, 1 or 2; and r and s are independently 0, 1, 2, or 3;

R^{13} is selected from: C_1–C_3 perfluoroalkyl; C_1–C_6 alkyl; phenyl; substituted C_1–C_6 alkyl, where the substituents on C_1–C_6 alkyl are selected from: hydroxy, —$NR^{10}R^{11}$, carboxy, and phenyl; and substituted phenyl where the substituents on the phenyl are selected from 1 to 3 of halogen, C_1–C_6 alkyl, C_1–C_6 alkoxy, and hydroxy;

R^{14} is selected from: hydrogen, phenyl independently substituted with R^1 and R^2, C_1–C_{10} alkyl, and substituted C_1–C_{10} alkyl where the substituents on the C_1–C_{10} alkyl are selected from: 1 to 3 of imidazolyl, indolyl, hydroxy, fluoro, S(O)$_m$$R^{7a}$, C_1–C_6 alkoxy, C_3–C_7 cycloalkyl, phenyl C_1–C_3 alkoxy independently substituted with R^1 and R^2, phenyl independently substituted with R^1 and R^2, C_1–C_5 alkanoyloxy, C_1–C_5 alkoxycarbonyl, carboxy, formyl, and —$NR^{10}R^{11}$;

R^{15} is selected from: hydrogen, trifluoromethyl, phenyl independently substituted with R^1 and R^2, naphthyl independently substituted with R^1 and R^2, C_3–C_7 cycloalkyl, C_1–C_{10} alkyl, and substituted C_1–C_{10} alkyl where the substituents on the C_1–C_{10} alkyl are selected from: 1 to 3 of hydroxy, fluoro, S(O)$_m$$R^{7a}$, C_1–C_6 alkoxy, C_3–C_7 cycloalkyl, phenyl independently substituted with R^1 and R^2, phenyl C_1–C_3 alkoxy independently substituted with R^1 and R^2, naphthyl independently substituted with R^1 and R^2, naphthyl C_1–C_3 alkoxy independently substituted with R^1 and R^2, C_1–C_5 alkanoyloxy, C_1–C_5 alkoxycarbonyl, carboxy, formyl, —$NR^{10}R^{11}$, and heterocycle independently substituted with R^1 and R^2, wherein the heterocycle is selected from: imidazole, thiophene, furan, pyrrole, oxazole, thiazole, triazole, tetrazole, pyridine, benzofuran, benzothiophene, benzimidazole, indole, 7-azaindole, oxindole, and indazole;

A is:



where x and y are independently 0, 1, 2, or 3;

R^8 and R^{8a} are independently selected from: hydrogen, C_1–C_{10} alkyl, trifluoromethyl, phenyl, and substituted C_1–C_{10} alkyl where the substituents on the C_1–C_{10} alkyl are selected from: 1 to 3 of imidazolyl, indolyl, hydroxy, fluoro, S(O)$_m$$R^{7a}$, C_1–C_6 alkoxy, C_3–C_7 cycloalkyl, phenyl independently substituted with R^1 and R^2, C_1–C_5 alkoxycarbonyl, carboxy, formyl, and —$NR^{10}R^{11}$; or R^8 and R^{8a} may be taken together to form —$(CH_2)_t$— where t is 2, 3, 4, 5, or 6; or R^8 and R^{8a} may independently be joined to one or both of R^4 and R^5 to form an alkylene bridge between the terminal nitrogen and the alkyl portion of the A group wherein the bridge contains from 1 to 5 carbon atoms;

and pharmaceutically acceptable salts thereof.

5,726,320

PREPARATION OF BICYCLOHEXANE DERIVATIVE

Roger Lewis Robey, Greenwood, Ind., assignor to Eli Lilly and Company, Indianapolis, Ind.

Filed Jun. 26, 1996, Ser. No. 672,491

Int. Cl.[6] **C07D** *235/02;487/20;* **C07C** *61/12;61/28;* **A61K** *31/415*

U.S. Cl. 548—301.4 **10 Claims**

1. A process for the preparation of (+)-2-aminobicyclo[3.1.0]-hexane-2-6-dicarboxylic acid, or a pharmaceutically acceptable salt thereof, which comprises hydrolysing (−)-2-spiro-5'-hydantoinbicyclo[3.1.0]hexane-6-carboxylic acid or a salt thereof, or further forming a pharmaceutically acceptable salt.

7. (−)-2-spiro-5-hydantoinbicyclo[3.1.0]hexane-6-carboxylic acid, or a salt thereof.

9. 2-oxobicyclo[3.1.0]hexane-6-carboxylic acid, or a salt thereof.

5,726,321

PROCESS FOR CARRYING OUT GAS/LIQUID REACTIONS UNDER AVOIDANCE OF A CONTINUOUS GAS PHASE

Klaus Bittins, Frankenthal, Germany; Marc Heider, Neustadt, Germany; Martin Schmidt-Radde, Beindersheim, Germany; Jochen Kellenbenz, Bad Dürkheim, Germany; Kurt Josef Wagner, Römerberg, Germany; Peter Zehner, Ludwigshafen, Germany, and Stefan Berg, Frankenthal, Germany, assignors to BASF Aktiengesellschaft, Ludwigshafen, Germany

Filed Mar. 22, 1996, Ser. No. 620,940

Claims priority, application Germany, Mar. 24, 1995, 195 10 890.6; Nov. 23, 1995, 195 43 636.9

Int. Cl.[6] **C07D** *233/54;* **C07C** *41/00;43/00;35/08;35/18;31/18*

U.S. Cl. 548—335.1 **12 Claims**

1. In a batch process for carrying out a potentially explosive gas/liquid reaction in the absence of a continuous gas phase, the gaseous reactant being solubilized in a liquid phase containing the liquid reactant, the improvement which comprises:

introducing said gaseous reactant batchwise into a liquid phase solvent, which consists essentially of said liquid reactant, up to a degree of saturation of from 5 to 100% while carrying out the reaction at a temperature of from (−50°) up to 300° C. and a pressure of from 0.1 to 100 bar.

5,726,322

1-BENZENESULFONYL-1,3-DIHYDROINDOL-2-ONE DERIVATIVES, THEIR PREPARATION AND PHARMACEUTICAL COMPOSITIONS IN WHICH THEY ARE PRESENT

Alain Di Malta, Saint Clément de Rivière; Loïc Foulon, Pinsaguel; Georges Garcia, Saint Gély du Fesc; Dino Nisato, Saint Georges d'Orques; Richard Roux, Vailhaiques; Claudine Serradeil-Legal, Escalquens; Gérard Valette, Lacroix-Sasgarde, and Jean Wagnon, Montpellier, all of France, assignors to Sanofi, Paris, France

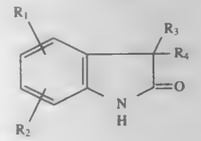
Division of Ser. No. 473,302, Jun. 7, 1995, which is a division of Ser. No. 323,921, Oct. 17, 1994, which is a continuation-in-part of Ser. No. 129,310, Sep. 30, 1993, abandoned. This application Mar. 26, 1997, Ser. No. 824,305

Claims priority, application France, Jan. 30, 1992, 92 01034; Jul. 30, 1993, 93 09404; European Pat. Off., Jul. 28, 1994, 94 401 737

Int. Cl.[6] **C07D** *491/10*

U.S. Cl. 548—410 **3 Claims**

1. A compound of the formula:



(II)'

in which

R_1 and R_2 are each independently a hydrogen, a hydroxy, a C_1–C_4-ω-halogenoalkoxy, a halogen, a C_1–C_4-alkyl, a trifluoromethyl, a C_1–C_7-alkoxy, a C_1–C_4-polyhalogenoalkoxy, a C_2–C_4-ω-hydroxyalkoxy, an ω-methoxyalkoxy in which the alkyl is C_2–C_4, a C_2–C_4-ω-aminoalkoxy which is free or substituted by one or two C_1–C_4-alkyls, a C_3–C_7-cycloalkoxy, a cycloalkylmethoxy in which the cycloalkyl is C_3–C_7, a phenoxy, a benzyloxy, a C_1–C_4-alkylthio, a phenylthio, a nitro, an amino which is free or substituted by one or two C_1–C_4-alkyls, a cyano, a C_1–C_4-acyl, a C_1–C_4-acyloxy, a C_1–C_4-alkylsulfonamido, a phenylsulfonamido, a C_1–C_4-alkylamido, a C_1–C_4-alkoxycarbonylamino or a ureido which is unsubstituted or substituted by a phenol or by one or two C_1–C_4-alkyls; and

R_3 and R_4 together form a group —$(CH_2)_pX(CH_2)_q$— in which p and q are integers whose sum can vary from 3 to 6 and X is oxygen or sulfur.

5,726,323

4- AND 6-CARBAMATES RELATED TO PHYSOSTIGMINE AND INTERMEDIATES FOR THE PREPARATION THEREOF

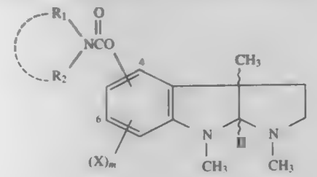
Edward J. Glamkowski, Warren, and Barbara E. Kurys, Elmwood Park, both of N.J., assignors to Hoechst Marion Roussel, Inc.

Division of Ser. No. 873,862, Apr. 27, 1992, Pat. No. 5,591,864, which is a continuation of Ser. No. 753,547, Sep. 3, 1991, Pat. No. 5,260,452, which is a continuation of Ser. No. 431,103, Nov. 3, 1989, Pat. No. 5,081,117. This application Sep. 5, 1996, Ser. No. 708,590

Int. Cl.[6] **C07D** *487/04*

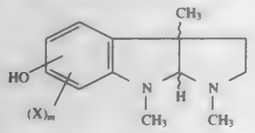
U.S. Cl. 548—429 **6 Claims**

1. A method of synthesizing a compound of the formula



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wherein R_1 is cycloalkyl, bicycloalkyl, aryl or arylloweralkyl, R_2 is hydrogen or alkyl or the group—NR_1R_2 taken together forms a monocyclic or bicyclic ring of 5 to 12 carbon atoms; m is 0, 1, or 2; each X is independently hydrogen, halogen, loweralkyl, nitro, or amino; or the optical isomers including the 3a-S-cis and 3a-R-cis optical isomers or the racemic mixture thereof or a formula



wherein X and m are as previously defined, with an isocyanate of the formula R_1—N=C=O, where R_1 is cycloalkyl, aryl or aryl-loweralkyl, in an inert solvent in the presence of a bicyclic amidine catalyst.

5,726,324

1-(NITROARYL)PYRROLE INTERMEDIATES TO PESTICIDAL 1-(HALOARYL)PYRROLES

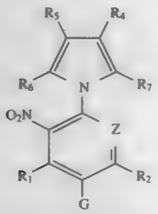
Jamin Huang, Chapel Hill; Scot Kevin Huber, Raleigh, both of N.C., and Alain Chene, Saint Didier Au Mont D'Or, France, assignors to Rhone-Poulenc Inc., Research Triangle Park, N.C.

Division of Ser. No. 671,691, Jun. 28, 1996, Pat. No. 5,631,381, which is a continuation-in-part of Ser. No. 426,656, Apr. 21, 1995, abandoned. This application Feb. 13, 1997, Ser. No. 799,455

Int. Cl.[6] C07D *207/333*

U.S. Cl. 548—541 **3 Claims**

1. A compound of the formula:



(II)

wherein:

G is haloalkyl, haloalkoxy, haloalkylsulfenyl, haloalkylsulfinyl, haloalkylsulfonyl, F, Cl, Br, I, SF_5 or NO_2;

Z is N, C—NO_2 or C—R_3 wherein R_3 is H, F, Cl, Br, I, CN, $C(O)NH_2$, $C(S)NH_2$, alkyl or haloalkyl;

R_1 and R_2 are each independently hydrogen, F, Cl, Br or I;

R_4 is H, alkyl, haloalkyl, formyl, alkylcarbonyl, halogen, CN, NO_2, cycloalkyl, $C(O)NH_2$, alkoxy or $C(S)NH_2$;

R_5 is $R_{33}S(O)_q$, CN, SCN, NO_2, haloalkyl, haloalkylcarbonyl, haloalkoxy or halogen;

R_6 is H, alkyl, haloalkyl, alkylcarbonyl, formyl, haloalkylcarbonyl, halogen, $NR_{34}R_{35}$, alkylsulfenyl, alkylsulfinyl, alkylsulfonyl, alkoxy, haloalkoxy, N=CH—O—alkyl, or N=CH—phenyl wherein phenyl is optionally substituted with OH, alkoxy, halogen, alkyl, haloalkyl, CN or NO_2;

R_7 is H, alkyl, haloalkyl, halogen, cyano, alkylsulfenyl, alkylsulfinyl, alkylsulfonyl, haloalkylsulfenyl, haloalkylsulfinyl or haloalkylsulfonyl;

R_{33} is C_1–C_6 alkyl, cycloalkyl, cycloalkylalkyl or haloalkyl;

R_{34} and R_{35} are each independently H, alkyl, alkylcarbonyl, formyl or alkoxycarbonyl, or R_{34} and R_{35} together with the nitrogen atom to which they are attached form a 5-membered pyrrole or pyrazole ring; and

q is 0, 1 or 2.

5,726,325

TRICYCLIC COMPOUNDS

Makoto Yoshida; Shin-ichi Sasaki, both of Shizuoka; Shigeru Aono, Numazu; Shigeki Fujiwara, Mishima; Haruki Takai, Shizuoka; Tsuyoshi Yamagata, Shizuoka; Ken Nagashima, Shizuoka, and Akira Karasawn, Shizuoka, all of Japan, assignors to Kyowa Hakko Kogyo Co., Ltd., Tokyo, Japan

PCT No. PCT/JP96/02997, § 371 Date Jun. 6, 1997, § 102(e) Date Jun. 6, 1997, PCT Pub. No. WO97/14672, PCT Pub. Date Apr. 24, 1997

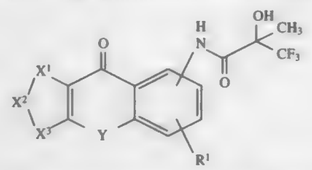
PCT Filed Oct. 16, 1996, Ser. No. 849,399

Claims priority, application Japan, Oct. 16, 1995, 7-267232; Dec. 13, 1995, 7-324298

Int. Cl.[6] C07D *313/02;333/80*

U.S. Cl. 549—48 **3 Claims**

1. A tricyclic compound represented by general formula



(I)

wherein R^1 represents hydrogen, lower alkyl, lower alkoxy, or halogen; —X^1—X^2—X^3— represents —CR^2=CR^3—S— (wherein R^2 and R^3 are independently hydrogen, lower alkyl, lower alkoxy or halogen), —CR^2=CR^3—O—, —S—CR^4=CR^5— (wherein R^4 and R^5 are independently hydrogen, lower alkyl, lower alkoxy or halogen), or —O—CR^4=CR^5—; and Y represents —CH_2O—.

5,726,326

THIOPHENE SYNTHESIS

Graham John Hutchings, Osmotherley, England; Richard William Joyner, Liverpool, England; Barry William Luke Southward, Widnes, England; Russel Andrew Stewart, Wolverhampton, England, and Lance Svend Fuller, Acton Trussell, England, assignors to Shell Research Limited, Waterloo, England

Filed Jun. 24, 1996, Ser. No. 669,015

Claims priority, application European Pat. Off., Jun. 28, 1995, 95304562

Int. Cl.[6] C07D *333/08;333/10*

U.S. Cl. 549—85 **14 Claims**

1. A method of preparing a thiophene, which comprises reacting an organic compound containing a chain of at least 4 C atoms linked by single or double bonds with a source of sulphur in the vapour phase, wherein said sulphur source is carbon disulphide, in the presence of a catalyst supported with magnesia, alumina or silica, the catalyst having the composition

$$(Fe_{o-1}M_{1-o})O_n$$

wherein M is a metal of Group VA, VIA or VIIA; and n is an appropriate value.

5,726,327

PROCESS FOR THE PRODUCTION OF PETROCHEMICALS

Divyanshu R. Acharya, Bridgewater, N.J.; Ravi Kumar, Allentown, Pa., and Ramakrishnan Ramachandran, Allendale, N.J., assignors to The BOC Group, Inc., New Providence, N.J.

Filed Sep. 27, 1996, Ser. No. 721,493

Int. Cl.[6] C07D *307/60*

U.S. Cl. 549—258 **26 Claims**

1. A method of producing a petrochemical comprising the steps:

(a) contacting in a reaction zone a hydrocarbon with air in the presence of an appropriate oxidation catalyst under conditions which produce a product gas containing said petrochemical, unreacted hydrocarbon and moisture;

(b) removing said petrochemical from said product gas in a petrochemical recovery zone, thereby producing a petrochemical-free gas stream containing unreacted hydrocarbon;

(c) subjecting at least part of said petrochemical-free gas stream to a temperature swing adsorption process comprising

(1) passing said at least part of said petrochemical-free gas stream through a hydrocarbon-selective adsorbent, thereby adsorbing unreacted hydrocarbon onto said adsorbent and producing a hydrocarbon-depleted waste gas;

(2) at least partially regenerating said hydrocarbon-selective adsorbent by passing therethrough air that has been compressed and thereby at least partially heated to the desired regeneration temperature, thereby producing a gaseous stream comprising desorbed hydrocarbon and purge air; and

(d) recycling at least part of said gaseous stream to said reaction zone, thereby providing at least part of the air used in step (a).

5,726,328

PREPARATION OF CIS-ISOAMBRETTOLIDES AND THEIR USE AS A FRAGRANCE

Maurice Mane, Magagnosc, and Jean-Louis Ponge, Rouquier, both of France, assignors to V. Mane Fils S.A., France

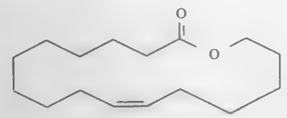
Filed Jul. 9, 1996, Ser. No. 679,389

Int. Cl.[6] C07D *315/00*

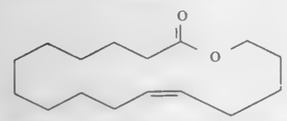
U.S. Cl. 549—266 **15 Claims**

1. A process for the preparation of an ω-haloalkyl carboxylic ester comprising the step of reacting an α-ω-alkanediol with an halohydric acid in the presence of an aliphatic carboxylic acid in an inert organic solvent which is capable of forming an azeotrope with water.

5. A process for the preparation of at least one product of the formulae I–II



(I)



(II)

which process comprises the step of condensing a phosphonium salt of an ω-haloalkyl carboxylic ester with a compound selected from the group consisting of aldehyde-alcohols and aldehyde-esters, using a solid-liquid phase transfer reaction.

5,726,329

MODIFIED PHOSPHOROUS INTERMEDIATES FOR PROVIDING FUNCTIONAL GROUPS ON THE 5' END OF OLIGONUCLEOTIDES

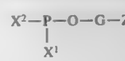
David S. Jones, San Diego, Calif.; John P. Hachmann, San Diego, Calif.; Michael J. Conrad, San Diego, Calif.; Stephen Coutts, Rancho Santa Fe, Calif., and Douglas Alan Livingston, San Diego, Calif., assignors to La Jolla Pharmaceutical Company, San Diego, Calif.

Division of Ser. No. 335,687, Nov. 8, 1994, which is a division of Ser. No. 915,589, Jul. 15, 1992, Pat. No. 5,391,785, which is a continuation-in-part of Ser. No. 731,055, Jul. 15, 1991, abandoned, which is a continuation-in-part of Ser. No. 494,118, Mar. 13, 1990, Pat. No. 5,162,515, which is a continuation-in-part of Ser. No. 466,138, Jan. 16, 1990, abandoned. This application May 8, 1995, Ser. No. 436,112

Int. Cl.[6] C07F *9/655;9/141;9/24;9/146;9/42*

U.S. Cl. 552—105 **11 Claims**

1. A compound of the formula



where

(a) X^1 is chlorine and X^2 is methyl or RO—, or

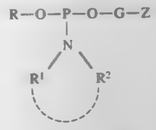
(b) X^2 is RO— and X^1 is NR^1R^2 where R^1 and R^2 are individually alkyl of 1 to 6 carbon atoms, cycloalkyl of 3 to 8 carbon atoms, or aryl of 6 to 20 carbon atoms or are joined together to form with the nitrogen atom a cyclic structure 4–7 carbon atom and 0 to 1 annular chalcogen atoms of atomic number 8 to 16 inclusive (O or S);

R is a protecting group;

G is a hydrocarbylene group of 2 to 20 carbon atoms; and

Z is a hydroxy protected vicinal diol group bound to G by one of the vicinal diol carbon atoms or a disulfide group bound to G by one of the sulfur at atoms of the disulfide group, with the proviso that G is of at least 4 carbon atoms when Z is said disulfide group.

2. A phosphoramidite of the formula



where R is a base-labile protecting group, R^1 and R^2 are individually alkyl of 1 to 6 carbon atoms, cycloalkyl of 3 to 8 carbon atoms, aryl of 6 to 20 carbon atoms or are joined together to form with the nitrogen atom a cyclic structure of 4–7 carbon atoms and 0 to 1 annular chalcogen atoms of atomic number 8 to 16, inclusive, G is a hydrocarbylene group of 2 to 20 carbon atoms and Z is a hydroxy-protected vicinal diol group bound to G by one of the vicinal diol carbon atoms or a disulfide group and bound to G by one of the sulfur atoms of the disulfide group, with the proviso that G is of at least 4 carbon atoms when Z is said disulfide group.

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5,726,330

HIGHLY CRYSTALLINE 22-OXAVITAMIN D DERIVATIVES

Tetsuhiro Mikami, Tokyo, Japan, assignor to Chugai Seiyaku Kabushiki Kaisha, Tokyo, Japan

PCT No. PCT/JP93/01490, § 371 Date Apr. 17, 1995, § 102(e) Date Apr. 17, 1995, PCT Pub. No. WO94/08958, PCT Pub. Date Apr. 28, 1994

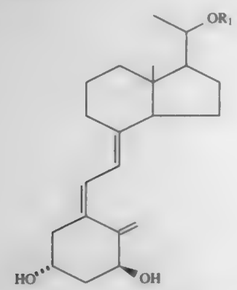
PCT Filed Oct. 18, 1993, Ser. No. 416,857

Claims priority, application Japan, Oct. 16, 1992, 4-321100

Int. Cl.[6] C07C *401/00*

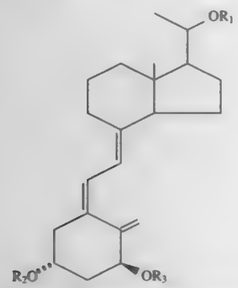
U.S. Cl. 552—653 **9 Claims**

1. A process for producing a 22-oxavitamin D_3 derivative of the general formula (II):



(II)

where R_1 is a straight or branched C_4–C_9 alkyl group optionally having a hydroxyl group by hydrolyzing a compound of the general formula (I):



(I)

where R_1 is a straight or branched C_4–C_9 alkyl group optionally having a hydroxyl group; R_2 and R_3 which may be the same or different are each an acyl group.

5,726,331

DIMETHYL N-LAUROYL-L-GLUTAMATE

Fritz Engelhardt, Chesapeake, Va.; Manfred Müller, Geinhausen, Germany, and Michael Wessling, Maintal-Bischofsheim, Germany, assignors to Hoechst Aktiengesellschaft, Frankfurt, Germany

Filed Nov. 21, 1996, Ser. No. 751,407

Claims priority, application Germany, Nov. 24, 1995, 195 43 792.6

Int. Cl.[6] C07C *231/00*

U.S. Cl. 554—36 **4 Claims**

1. A process for the preparation of dimethyl N-lauroyl-L-glutamate by reaction of N-lauroyl-L-glutamic acid with methanol, which comprises carrying out the reaction in the presence of trimethyl orthoformate with acid catalysis.

5,726,332

SYNTHESIS OF NOVEL ORGANOMETALLICS AND THEIR USE IN OLEFIN POLYMERIZATION

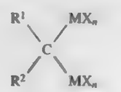
John J. Eisch, Binghamton, N.Y.; Wolfram Uzick, Bergkamen, Germany; Katrin MacKenzie, Binghamton, N.Y.; Stefan Gurtzgen, and Rainer Rieger, both of Bergkamen, Germany, assignors to Witco GmbH, Bergkamen, Germany, and The Research Foundation of the State University of New York, Albany, N.Y.

Filed May 1, 1996, Ser. No. 641,502

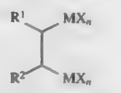
Int. Cl.[6] C07F *3/00;5/00;7/00*

U.S. Cl. 556—1 **7 Claims**

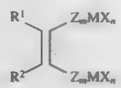
1. A method for synthesizing an organometallic compound having one of the following structural formulas:



(I)



(II)



(III)

wherein M is a divalent, trivalent or tetravalent metal from Groups 2, 13 or 14 of the Periodic Table of Elements; R^1 and R^2 are independently hydrogen or long-chained, branched or cyclic alkyl groups with or without further substitution, or a cyclic skeleton such that R_1 and R_2 form an optionally saturated, unsaturated, substituted or unsubstituted cyclic structure; X is halogen or a substituted or unsubstituted methyl, alkyl or a substituted or unsubstituted phenyl or benzyl group; n is 1 for divalent, 2 for trivalent and 3 for tetravalent metals; Z is a methylene group (—CH_2—); and m is independently 0, 1 or 2; said method comprising the steps of:

(a) reacting a saturated, unsaturated or aromatic hydrocarbon compound containing at least two halogen substituents attached to the same (geminal) or neighboring (vicinal) carbon atoms or attached to carbon atoms separated by one or more carbons with magnesium in an ether-type solvent or reacting said halogenated hydrocarbon with lithium metal or a lithium alkyl compound in an ether-type or hydrocarbon solvent, to provide a magnesium or lithium intermediate whereby said intermediate is transformed in-situ into a boron, tin or silicon derivative through metal-metal exchange reactions by means of appropriate boron, tin or silicon reactants;

(b) transforming said boron, tin or silicon derivative into said organometallic compound by appropriate substitution reaction; and

(c) isolating said organometallic compound by means of fractional distillation or recrystallization.

5,726,333

ORGANOMETALLIC COMPOUND

Hans-Friedrich Herrmann, Gross-Gerau; Frank Küber, Oberursel; Michael Aulbach, Hofheim; Wolfgang Anton Herrmann, Freising, and Marc Morawietz, München, all of Germany, assignors to Hoechst AG, Germany

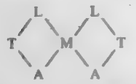
Filed Jul. 10, 1995, Ser. No. 499,854

Claims priority, application Germany, Jul. 9, 1994, 44 24 227.1

Int. Cl.[6] C07F *17/00;7/00*

U.S. Cl. 556—11 **21 Claims**

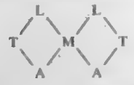
1. An organometallic compound of the formula I,



(I)

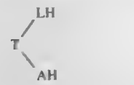
where M is a tetravalent metal, L are, independently of one another, identical or different and are each a substituted cyclopentadienyl group T are, independently of one another, identical or different and are each a bridge and A are independently of one another, identical or different and are each a π ligand or an electron donor.

8. A process for preparing a compound of the formula I,



(I)

where M is a tetravalent metal, L are, independently of one another, identical or different and are each a π ligand, T are, independently of one another, identical or different and are each a bridge and A are, independently of one another, identical or different and are each a π ligand or another electron donor, which comprises reacting a compound of the formula II,



where L is a π ligand, T is a bridge and A is a π ligand or another electron donor, in excess with a compound of the formula III.

$$M(NR^3{}_2)_4 \qquad \text{III}$$

where M is a tetravalent metal and R^3 is a C_1–C_{20}-alkyl radical.

(a) contacting a ruthenium compound of the formula $R^1{}_2RuX_2$, wherein R^1 is a mono- or poly-, cyclic- or acyclic alkene ligand, present as either two separate ligands or as a single polyalkene ligand and X is a halide or a pseudohalogen, and PR_3 with gaseous hydrogen in the presence of water, a strong base, an organic solvent, and a phase transfer catalyst to form a biphasic medium;

(b) agitating the medium; and

(c) separating the organic phase comprising the ruthenium complex from the aqueous phase, and optionally isolating the ruthenium complex from the organic solvent.

12. A process for the selective hydrogenation of a dinitrile, comprising the steps of:

(a) contacting said dinitrile with gaseous hydrogen in the presence of a ruthenium complex catalyst having the formula $RuH_2L^3{}_2(PR_3)_2$, wherein:

PR_3 is a phosphine ligand, wherein

each R is a substituent independently selected from the group consisting of: H, a hydrocarbyl group, and an assembly of at least two hydrocarbyl groups connected by ether or an amine linkages; and

each L^3 is a ligand independently selected from the group consisting of: H_2, N_2, R^2CN, and an additional equivalent of the PR_3 phosphine ligand, provided both L^3 are not PR_3;

R^2 is a hydrocarbyl group;

wherein each phosphine ligand is present as a separate ligand or cojoined with at least one other phosphine ligand; and

(b) subsequently agitating the dinitrile, hydrogen and catalyst for an amount of time selected to favor yield of an aminonitrile over yield of a diamine.

18. A process for the reductive hydrolysis of an organic nitrile, comprising the steps of:

(a) contacting said nitrile with gaseous hydrogen and water in the presence of a ruthenium complex catalyst having the formula $RuH_2L^3{}_2(PR_3)_2$, wherein:

PR_3 is a phosphine ligand, wherein

each R is a substituent independently selected from the group consisting of: H, a hydrocarbyl group, and an assembly of at least two hydrocarbyl groups connected by ether or an amine linkages; and

each L^3 is a ligand independently selected from the group consisting of: H_2, N_2, R^2CN, and an additional equivalent of the PR_3 phosphine ligand, provided both L^3 are not PR_3;

R^2 is a hydrocarbyl group;

wherein each phosphine ligand is present as a separate ligand or cojoined with at least one other phosphine ligand; and

(b) subsequently agitating the nitrile, water, hydrogen and catalyst to form an alcohol.

5,726,334

PROCESS FOR THE PREPARATION OF RUTHENIUM HYDROGENATION CATALYSTS AND PRODUCTS THEREOF

Richard Paul Beatty, Newark, Del., and Rocco Angelo Paciello, Bad Durkheim, Germany, assignors to E. I. du Pont de Nemours and Company, Wilmington, Del.

Division of Ser. No. 381,696, Jan. 31, 1995, Pat. No. 5,599,962. This application Sep. 19, 1996, Ser. No. 716,473

Int. Cl.[6] C07F *15/00;* **C07C** *209/00;249/00*

U.S. Cl. 556—21 **41 Claims**

1. A process for the preparation of a ruthenium complex of the formula $RuH_2L_2(PR_3)_2$, wherein:

PR_3 represents a phosphine ligand, wherein

each R is a substituent independently selected from the group consisting of H, a hydrocarbyl group, and an assembly of at least two hydrocarbyl groups connected by ether or amine linkages; and

each L is a ligand independently selected from H_2 or an additional equivalent of the phosphine ligand PR_3;

each phosphine ligand is present as a separate ligand or cojoined with at least one other phosphine ligand, comprising the steps of:

5,726,335

ZIRCONIUM COMPOUNDS, THEIR PREPARATION AND THEIR USE AS CATALYSTS

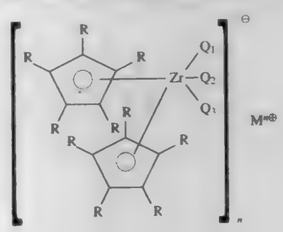
Douglas W. Stephan, La Salle, Canada, assignor to University of Windsor, Ontario, Canada

Filed Dec. 12, 1995, Ser. No. 571,294

Int. Cl.[6] C07F *17/00;* **B01J** *31/00*

U.S. Cl. 556—53 **14 Claims**

1. A mononuclear Zr^{IV} trihydride compound, monoalkyl dihydride compound or deuteride compound of the general formula I



I

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wherein:
each R is hydrogen or an electron-donating group, provided that at least two R groups attached to each cyclopentadienyl moiety are other than H;
M is a counter ion;
n is the valency of the counter ion;
Q_1 is selected from the group consisting of H, D, and CH_3; and
Q_2 and Q_3 are each selected from the group consisting of H and D, or a solvate thereof.

5,726,336

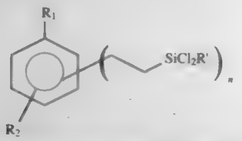
POLYALKYLATED BENZENES CONTAINING CHLOROSILYL GROUPS AND THEIR PREPARATION METHODS

Il Nam Jung; Joon Soo Han; Eun Jeong Cho, all of Seoul, and Bok Ryul Yoo, Kyung-Gi Do, all of Rep. of Korea, assignors to Korea Institute of Science and Technology, Seoul, Rep. of Korea

Filed Nov. 29, 1996, Ser. No. 753,749
Claims priority, application Rep. of Koren, Dec. 9, 1995, 48114/1995
Int. Cl.[6] C07F *7/08*
U.S. Cl. 556—431 **20 Claims**

1. A compound containing chlorosilyl groups represented by formula III

Formula III



wherein R_1 represents hydrogen or alkyl; R_2 represents hydrogen or alkyl; R' represents methyl or chloro; and n= 3–6.

5,726,337

FLUORINATED ALKYLTHIOCYANATE PROCESS

Stephen Ernest Jacobson, Princeton Junction, N.J., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del.

Filed Dec. 13, 1996, Ser. No. 766,717
Int. Cl.[6] C07C *331/04;331/02*
U.S. Cl. 558—15 **9 Claims**

1. A process for the preparation of a thiocyanate of Formula II

$$R_f—A_m—(CH_2)_n—SCN \qquad II$$

wherein
R_f is a C_2–C_{20} perfluoroalkyl radical, or a C_5–C_{38} perfluoroalkyl radical having at least one ether oxygen atom,
n is 1 to 3,
m is 0 or 1,
A is O, S, CO_2, $N(R_1)R_2$, $CON(R_1)R_2$, $SO_2N(R_1)R_2$ or $(OCH_2CHR_3)_aO$, wherein a is 3 to about 15, R_1 is H or alkyl radical of 1 to about 4 carbon atoms, R_2 is C_1–C_{12} alkylene, and R_3 is H or CH_2Cl,
said process comprising reacting a fluorinated iodide of Formula I

$$R_f—A_m—(CH_2)_n—I \qquad I$$

wherein R_f, A, m and n are as defined above, with a thiocyanate salt $M^+(SCN)^-$ wherein M is sodium or potassium,
in the presence of a catalyst comprising a quaternary ammonium salt of formula

$$(R_4)_3(R_5)N^+Y^-$$

wherein R_4 is butyl, R_5 is methyl or butyl, and Y is Cl, Br, I, or HSO_4, to yield the fluorinated thiocyanate of Formula II as defined above, and removing residual catalyst from a reaction mixture containing the fluorinated thiocyanate after completion of the reaction by phase separation and washing with water.

5,726,338

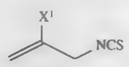
PROCESS FOR PRODUCING ISOTHIOCYANATE DERIVATIVES

Hideki Uneme, Tsukuba, Japan, and Yasuo Kamiya, Tsukuba, Japan, assignors to Takeda Chemical Industries, Ltd., Osaka, Japan

Filed Sep. 12, 1996, Ser. No. 712,838
Claims priority, application Japan, Sep. 12, 1995, 7-233769
Int. Cl.[6] C07C *331/22*
U.S. Cl. 558—17 **15 Claims**

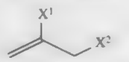
1. A process for producing a compound of the formula:

(I)



wherein X^1 is a halogen atom, which comprises reacting a compound of the formula:

(III)



wherein X^1 is as defined above and X^2 is a leaving group, with a thiocyanate of the formula:

$$M(SCN)n \qquad (IV)$$

wherein M is a metal or an ammonium group and n is the valence number of M in the presence of water at a temperature in a range from about 90° to about 150° C.

5,726,339

THIOCARBONYL ALLOPHANATE DERIVATIVES USED AS LUBRICANTS

Hugo Camenzind, Fribourg, and Peter Nesvadba, Marly, both of Switzerland, assignors to Ciba Specialty Chemicals Corporation, Tarrytown, N.Y.

Continuation of Ser. No. 179,790, Jan. 11, 1994, abandoned, which is a division of Ser. No. 24,926, Feb. 26, 1993, Pat. No. 5,300,243, which is a continuation of Ser. No. 781,790, Oct. 23, 1991, abandoned, which is a division of Ser. No. 454,323, Dec. 21, 1989, Pat. No. 5,084,195. This application Mar. 27, 1996, Ser. No. 622,950
Claims priority, application Sweden, Dec. 28, 1988, 4828/88
Int. Cl.[6] C07C *333/00*
U.S. Cl. 558—234 **5 Claims**

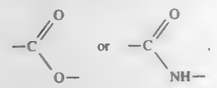
1. A compound of the formula II

(II)

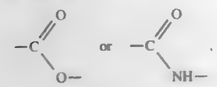


in which x=1 or 2,
R^2 is as defined for $—OR^6$ or $—SR^7$ and,
if x=1,
R is as defined for R^1 or R^3—O—,
and R^1 is alkyl having 1 to 25 C atoms, an unsubstituted or C_1–C_8alkyl-substituted cycloalkyl group having 5 to 12 ring C atoms, an unsubstituted or C_1–C_8alkyl-substituted C_5–C_{12}cycloalkyl-C_1–C_4alkyl group, alkenyl having 2 to 18 C atoms, phenyl, naphthyl, C_7–C_{18}aralkyl or C_7–C_{18}alkaryl, or
R^3 is alkyl having 9 to 25 C atoms, an unsubstituted or C_1–C_8alkyl-substituted cycloalkyl group having 5 to 12 ring C atoms, an unsubstituted or C_1–C_8alkyl-substituted C_5–C_{12}cycloalkyl-C_1–C_4alkyl group, alkenyl having 5 to 18 C atoms, C_7–C_{18}aralkyl or C_7–C_{18}alkaryl, or

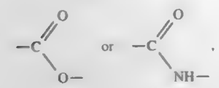
R^1 and R^3 are alkyl having 1 to 25 C atoms, an unsubstituted or C_1–C_8alkyl-substituted cycloalkyl group having 5 to 12 ting C atoms, an unsubstituted or C_1–C_8alkyl-substituted C_5–C_{12}cycloalkyl-C_1–C_4alkyl group, alkenyl having 2 to 18 C atoms, phenyl, naphthyl, C_7–C_{18}aralkyl or C_7–C_{18}alkaryl, each of which are monosubstituted or polysubstituted by groups from the series comprising halogen, cyano, nitro, $—OR^a$ or $—COOR^b$, or
R^1 and R^3 are alkyl having 2 to 25 C atoms, an unsubstituted or C_1–C_8alkyl-substituted cycloalkyl group having 3 to 10 ting C atoms, an unsubstituted or C_1–C_8alkyl-substituted C_3–C_{12}cycloalkyl-C_1–C_4alkyl group, alkenyl having 3 to 18 C atoms, C_7–C_{18}aralkyl or C_7–C_{18}alkaryl, each of which are interrupted by a group selected from —O—, —S—, —NH—,



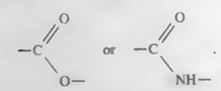
C_7–C_{18}aralkyl or C_7–C_{18}alkaryl being interrupted only in the alkyl radicals, or
R^1 and R^3 are alkyl having 2 to 25 C atoms, an unsubstituted or C_1–C_8alkyl-substituted cycloalkyl group having 3 to 10 C atoms, an unsubstituted or C_1–C_8alkyl-substituted C_3–C_{12}cycloalkyl-C_1–C_4alkyl group, alkenyl having 3 to 18 C atoms, C_7–C_{18}aralkyl or C_7–C_{18}alkaryl, each of which are monosubstituted or polysubstituted by groups from the series comprising halogen, cyano, nitro, $—OR^a$ or $—COOR^b$ and interrupted by a group selected from —O—, —S—, —NH—,



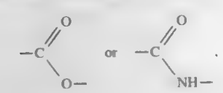
C_7–C_{18}aralkyl or C_7–C_{18}alkaryl being interrupted only in the alkyl radicals,
R^a being as defined for R^3 with the exception of $—OR^a$ and
R^b being alkyl having 1 to 18 C atoms or alkyl having 2 to 20 C atoms and interrupted by a group selected from —O—, —S—, —NH—,



or an unsubstituted or C_1–C_8alkyl-substituted cycloalkyl group having 5 to 12 ring C atoms or phenyl, naphthyl, C_7–C_{18}alkaryl or C_7–C_{18}aralkyl, and R^6 and R^7 are alkyl having 11 to 18 C atoms or alkyl having 2 to 20 C atoms and interrupted by one or more groups from the series comprising —O—, —S—, —NH—,



or an unsubstituted or C_1–C_8alkyl-substituted cycloalkyl group having 5 to 12 ring C atoms, an unsubstituted or C_1–C_8alkyl-substituted C_5–C_{12}cycloalkyl-C_1–C_4alkyl group, an unsubstituted or C_1–C_8alkyl-substituted C_3–C_{12}cycloalkyl-C_1–C_4alkyl group interrupted by a group selected from —O—, —S—, —NH—,



C_7–C_{18}aralkyl, wherein R^7 is also C_7–C_{18}alkaryl or,
if x=2,
R is as defined for R^8 and
R^8 is alkylene having 1 to 18 C atoms alkylene having 2 to 18 C atoms and interrupted by at least one —O— group, alkylidene having 2 to 20 C atoms or alkylidene having 3 to 20 C atoms and interrupted by at least one —O— group.

5,726,340

METHOD OF PRODUCING AROMATIC CARBONATE

Masatoshi Takagi; Katsufumi Kujira; Takahiro Yoneyama, and Yuji Ohgomori, all of Ibaraki, Japan, assignors to Mitsubishi Chemical Corporation, Tokyo, Japan

Filed Mar. 4, 1997, Ser. No. 796,673
Claims priority, application Japan, Apr. 5, 1996, 8-83767
Int. Cl.[6] C07C *68/00*
U.S. Cl. 558—274 **9 Claims**

1. A method of producing an aromatic carbonate by reacting an aromatic hydroxy compound, carbon monoxide and oxygen, wherein the reaction is carried out in the presence of a catalyst comprising;
(A) at least one selected from palladium and palladium compounds:
(B) at least one lead compound:
(C) at least one cobalt compound: and
(D) at least one halide.

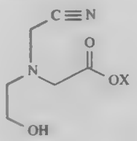
5,726,341

AMINE NITRILE INTERMEDIATE FOR THE PREPARATION OF 2-HYDROXYETHYL IMINODIACETIC ACID

Phillip S. Athey; Druce K. Crump, both of Lake Jackson, and David A. Wilson, Richwood, all of Tex., assignors to The Dow Chemical Company, Midland, Mich.

Filed Oct. 31, 1996, Ser. No. 741,592
Int. Cl.[6] C07C *255/18;* **C11D** *3/26*
U.S. Cl. 558—441 **2 Claims**

1. A compound represented by the following formula:



wherein X is hydrogen or an alkali or alkaline earth metal.

5,726,342

PROCESS FOR PRODUCING α-(TERT-ALKYL) CYANOACETIC ACID ESTER

Atsushi Kaetsu, and Yoshimi Yamada, both of Osaka, Japan, assignors to Sumitomo Chemical Limited, Company, Osaka, Japan

Filed Jan. 22, 1997, Ser. No. 787,350
Claims priority, application Japan, Jan. 23, 1996, 8-008944; Sep. 19, 1996, 8-248042
Int. Cl.[6] C07C *255/35*
U.S. Cl. 558—443 **9 Claims**

1. A process for producing an α-(tert-alkyl)cyanoacetic acid ester, which comprises the steps of:
(a) reacting a cyanoacetic acid ester with a di(lower alkyl)aluminum halide and then
(b) reacting the resulting reaction product with a tert-alkyl halide.

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5,726,343

PROCESS FOR THE PREPARATION OF ARYLACETIC ESTER DERIVATIVES VIA PALLADIUM-CATALYZED CROSS COUPLING REACTION

Hugo Ziegler, Witterswil, Switzerland; Denis Neff, Monthey, Switzerland, and Wolfgang Stutz, Münchwilen, Switzerland, assignors to Novartis Corporation, Summit, N.J.

PCT No. PCT/EP95/00146, § 371 Date Jul. 22, 1996, § 102(e) Date Jul. 22, 1996, PCT Pub. No. WO95/20569, PCT Pub. Date Aug. 3, 1995

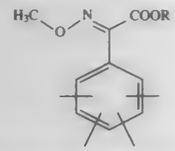
PCT Filed Jan. 16, 1995, Ser. No. 676,364

Claims priority, application Switzerland, Jan. 27, 1994, 249/94-7

Int. Cl.[6] **C07D** *213/53;* **C07C** *251/48*

U.S. Cl. 560—35 **18 Claims**

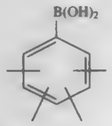
1. A process for the preparation of a compound of formula I



I

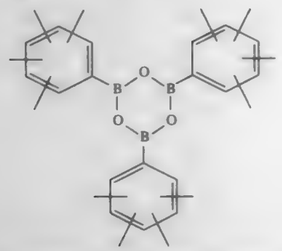
wherein one CH group of the aromatic ring may be replaced by N (forming pyridyl) and wherein two of the four substitutable valencies of the ring, may in adjacent position represent a fused-on, unsubstituted or substituted five- or six-membered ring which may contain one to three identical or different heteroatoms selected from N, S and O, and in which R is C_1–C_{12}alkyl, comprising reacting,

A) by reaction of boronic acid represented by structural formula II



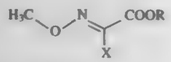
II

or of the trimeric form III



III

which is in equilibrium with II, in the presence of a palladium catalyst, with a methoxyiminoacetic ester represented by structural formula IV

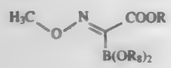


IV

wherein R is C_1–C_{12}alkyl, and

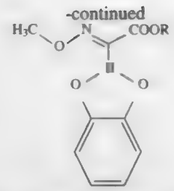
X is a leaving group, or

B) by reaction of a methoxyiminoacetic ester of the formula Xa or Xb



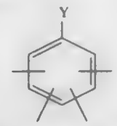
Xa

-continued



Xb

wherein R and R_8 are each C_1–C_{12}alkyl in the presence of a palladium catalyst, with a halophenyl compound represented by the structural formula XI



XI

which is substituted as desired and in which

Y is Br or I and wherein two of the four substitutable valencies of the ring, may in adjacent position represent a fused-on, unsubstituted or substituted five- or six-membered ring which may contain one to three identical or different heteroatoms selected from N, S and O.

5,726,344

ENANTIOMERIC ENRICHMENT OF BICYCLIC ALCOHOLS

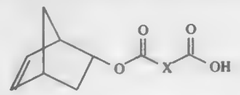
J. Blair West, Bend, Oreg., and Keith DeVries, Old Saybrook, Conn., assignors to Bend Research, Inc., Bend, Oreg.

Continuation of Ser. No. 275,132, Jul. 13, 1994, abandoned. This application Aug. 15, 1995, Ser. No. 515,153

Int. Cl.[6] **C07C** *69/34*

U.S. Cl. 560—194 **2 Claims**

1. The enantiomerically enriched mono-ester of (R)-endo-5-norbornen-2-ol and a diacid, the mono-ester having the structure



wherein X is selected from the group consisting of linear or branched or substituted alkylene containing no more than 6 carbon atoms; alkenylene; arylene; and aralkylene.

5,726,345

PROCESS FOR PERFUMING TEXTILES

Walter Paget, Versoix, Switzerland; Daniel Reichlin, Confignon, Switzerland; Roger Leslie Snowden, Viry, France; Eric C. Walborsky, Bridgewater, N.J., and Christian Vial, Geneva, Switzerland, assignors to Firmenich S.A., Geneva, Switzerland

Division of Ser. No. 403,808, Mar. 16, 1995, Pat. No. 5,649,979. This application Aug. 22, 1996, Ser. No. 704,488

Int. Cl.[6] **C07C** *67/08*

U.S. Cl. 560—238 **10 Claims**

1. A compound of formula



(I)

wherein

a. R represents a monovalent radical derived from a fragrant alcohol of formula ROH and Y represents a C_7 to C_{24} linear or branched, saturated or unsaturated hydrocarbon radical, or a —$(CH_2)_n$COOR group wherein R is defined as above and n is an integer from 0 to 6; or

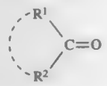
b. Y represents a C_7 to C_{24} linear or branched, saturated or unsaturated hydrocarbon radical and R represents a group of formula



wherein, either R' represents hydrogen and R^2 represents an alkylidene radical derived from a fragrant aldehyde of formula



or R^1 and R^2 are derived from a fragrant ketone of formula



and, taken separately, represent respectively an alkyl radical and an alkylidene radical, or, taken together with their terminal C atoms, represent a substituted or unsubstituted cyclic alkyl, alkenyl, aryl or alkylaryl moiety having 5 to 18 carbon atoms in the ring, such as indicated by the dotted line.

5,726,346

PROCESS FOR THE STEREOSELECTIVE PREPARATION OF A β-PHENYLISOSERINE DERIVATIVE AND ITS USE FOR THE PREPARATION OF TAXANE DERIVATIVES

Jean-Noel Denis; Andrew-Elliot Greene, both of Uriage, and Alice Kanazawa, Grenoble, all of France, assignors to Rhone-Poulenc Rorer S.A., Antony, France

PCT No. PCT/FR93/00966, § 371 Date Apr. 5, 1995, § 102(e) Date Apr. 5, 1995, PCT Pub. No. WO94/07847, PCT Pub. Date Apr. 14, 1994

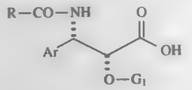
PCT Filed Oct. 4, 1993, Ser. No. 411,693

Claims priority, application France, Oct. 5, 1992, 92 11740

Int. Cl.[6] **C07C** *51/06;229/08*

U.S. Cl. 562—406 **17 Claims**

1. Process for the stereoselective preparation of a β-phenylisoserine derivative of formula:



where appropriate in the form of a salt or ester, in which

Ar represents an aryl radical,

R represents a phenyl or α- or β-naphthyl radical optionally substituted with at least one identical or different atom or radical selected from halogen atoms, alkyl radicals containing 1 to 4 carbon atoms and alkoxy radicals containing 1 to 4 carbon atoms, or a radical R_1—O in which R_1 represents:

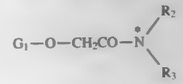
an unbranched or branched alkyl radical containing 1 to 8 carbon atoms, an alkenyl radical containing 2 to 8 carbon atoms, an alkynyl radical containing 3 to 8 carbon atoms, a cycloalkyl radical containing 3 to 6 carbon atoms, a cycloalkenyl radical containing 4 to 6 carbon atoms or a bicycloalkyl radical containing 7 to 11 carbon atoms, these radicals being optionally substituted with at least one substituent selected from halogen atoms and hydroxyl radicals, alkyloxy radicals containing 1 to 4 carbon atoms, dialkylamino radicals in which each alkyl portion contains 1 to 4 carbon atoms, piperidino or morpholino radicals, 1-piperazinyl radicals (optionally substituted at position 4 with an alkyl radical containing 1 to 4 carbon atoms or with a phenylalkyl radical in which the alkyl portion contains 1 to 4 carbon atoms), cycloalkyl radicals containing 3 to 6 carbon atoms, cycloalkenyl radicals containing 4 to 6 carbon atoms, phenyl, cyano or carboxyl radicals or alkyloxycarbonyl radicals in which the alkyl portion contains 1 to 4 carbon atoms,

or a phenyl radical optionally substituted with at least one atom or radical selected from halogen atoms and alkyl radicals containing 1 to 4 carbon atoms or alkyloxy radicals containing 1 to 4 carbon atoms,

or a saturated or unsaturated 4- or 6-membered nitrogenous heterocyclic radical optionally substituted with at least one alkyl radical containing 1 to 4 carbon atoms, on the understanding that the cycloalkyl, cycloalkenyl or bicycloalkyl radicals can be optionally substituted with at least one alkyl radical containing 1 to 4 carbon atoms, and G_1 represents a group protecting the hydroxyl function, selected from methoxymethyl, 1-ethoxyethyl, benzyloxymethyl, 2,2,2-trichloroethoxymethyl, tetrahydrofuryl, tetrahydropyranyl and β-(trimethylsilyl)ethoxymethyl radicals, trialkylsilyl radicals in which the alkyl radicals contain 1 to 4 carbon atoms, or —CH_2—Ph in which Ph represents a phenyl radical optionally substituted with at least one identical or different atom or radical selected from halogen atoms, alkyl radicals containing 1 to 4 carbon atoms and alkoxy radicals containing 1 to 4 carbon atoms, comprising an N-carbonylarylimine of formula:

Ar—CH=N—CO—R

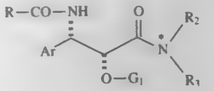
in which Ar and R are defined as above, is reacted with a previously anionized optically active amide of a protected hydroxyacetic acid, of formula:



in which G_1 is defined as above and



represents the residue of an optically active organic base, the product obtained, of formula:



in which R, Ar, G_1 and



are defined as above, is then hydrolysed, and the product obtained is isolated.

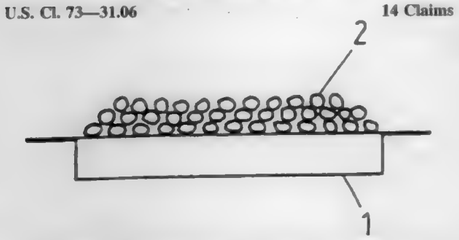
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5,726,347

METHOD FOR MANUFACTURING AN ELEMENT FORMED BY SEMICONDUCTOR(S) AND GAS DETECTOR PROVIDED WITH SUCH A SEMICONDUCTOR

André De Haan, Avenue du 23 Août, 8, Mons, Belgium

PCT No. PCT/EP94/02698, § 371 Date May 3, 1996, § 102(e) Date May 3, 1996, PCT Pub. No. WO95/05595, PCT Pub. Date Feb. 23, 1995
PCT Filed Aug. 11, 1994, Ser. No. 596,295
Int. Cl.[6] G01N *27/12*
U.S. Cl. 73—31.06 14 Claims



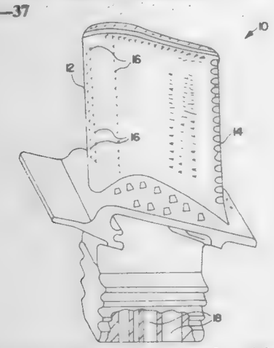
1. A method for manufacturing an element formed by semiconductor(s) for detecting a gas produced by combustion comprising:
(a) dispersing a first semiconductor metal oxide substance and a second semiconductor organic substance in a solvent to obtain a heterogeneous suspension where said first and second semiconductor substances are dispersed in a powder state insoluble in said solvent without being submitted to sintering;
(b) applying said heterogeneous suspension, wherein the granular state of said substances is maintained, on an insulating substrate having a specific resistivity value of at least 10^{12} Ω cm; and
(c) removing said solvent.

5,726,348

PROCESS FOR PRECISELY CLOSING OFF COOLING HOLES OF AN AIRFOIL

Peter J. Draghi, Simsbury, Conn.; Brian J. Shurman, Plantsville, Conn., and Michael V. Borruso, Coventry, Conn., assignors to United Technologies Corporation, Hartford, Conn.

Filed Jun. 25, 1996, Ser. No. 666,880
Int. Cl.[6] G01M *3/02*
U.S. Cl. 73—37 8 Claims



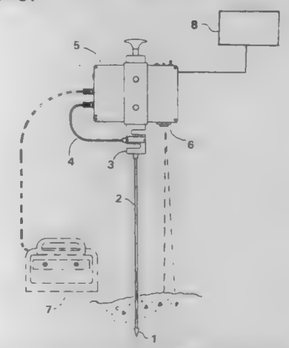
1. A process for closing cooling holes of an airfoil, comprising the steps of:
providing an airfoil having a plurality of cooling holes, said cooling holes being arrayed on said airfoil in rows;
selectively applying to desired rows of said arrayed cooling holes an ultraviolet curable material for closing said desired rows of said arrayed cooling holes without closing off other rows of said arrayed cooling holes; and
curing said ultraviolet curable material so as to close said desired holes.

5,726,349

AUTOMATED CONE PENETROMETER

Billy G. Palmertree, Vicksburg, Miss.; Lewis Bonny Naron, Tallulah, La., and James H. Robinson, Vicksburg, Miss., assignors to United States Army Corps of Engineers As Represented By the Secretary of the Army, Washington, D.C.

Filed May 18, 1995, Ser. No. 444,352
Int. Cl.[6] G01N *3/00*
U.S. Cl. 73—84 9 Claims



1. A cone penetrometer for determining the shear resistance of soil at different depths below the ground comprising:
(a) a penetrometer rod having a cone attached to its lower end;
(b) a load cell attached to the upper end of the penetrometer rod and providing an electrical signal output commensurate with the compressive force exerted upon the load cell;
(c) an ultrasonic emitter/receiver directing a high-frequency sound signal downwardly at the ground being penetrated and receiving a reflected sound signal therefrom, and providing an electrical signal output commensurate with the distance between the ultrasonic emitter/receiver and the ground;
(d) a data logger/processor having program and memory storage capacity in electrical communication with the load cell and the ultrasonic emitter/receiver and receiving from the load cell the electrical output commensurate with the distance between the ultrasonic emitter/receiver and the ground; storing these signals and retrieving the stored signals from the data logger/processor to a digital computer.

5,726,350

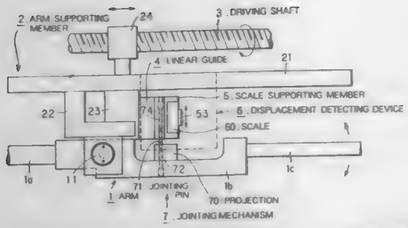
CONTOUR MEASURING APPARATUS WITH A STYLUS

Atsushi Tsuruta, Kure, Japan, assignor to Mitutoyo Corporation, Kanagawa, Japan

Filed Feb. 21, 1997, Ser. No. 802,943
Claims priority, application Japan, Feb. 22, 1996, 8-035215
Int. Cl.[6] G01B *7/28*
U.S. Cl. 73—105 11 Claims

1. A contour measuring apparatus, comprising:
an arm to which a stylus is attached for tracing a surface of a workpiece;
an arm supporting member for supporting the arm with an axis so as to allow the arm to fluctuate around the axis;
a driving mechanism for driving horizontally the arm supporting member; and
fluctuation detecting means for detecting fluctuation of the arm, wherein the fluctuation detecting means comprises:
a linear guide member installed to the arm supporting member;
a scale supporting member so installed to the linear guide member as to be linearly movable;

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a jointing mechanism for jointing the arm and the scale supporting member so as to convert circular arc movement caused by fluctuation of the arm to linear movement of the scale supporting member guided by the linear guide member, the jointing mechanism having a jointing pin inserted between the arm and the scale supporting member at a predetermined position distant from the axis, both ends of the jointing pin being so engaged with the arm and the scale supporting member respectively as to be inclinable; and

displacement detecting means for detecting the linear movement of the scale supporting member, the displacement detecting means being so composed as to have a scale installed to the scale supporting member.

5,726,351

SPARK PLUG COMPRISING A FORCE MEASURING ELEMENT

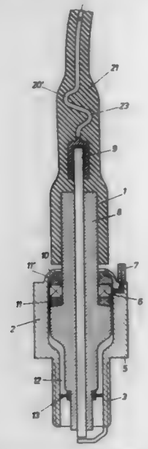
Josef Glaser, Graz, Austria, assignor to AVL Gesellschaft für Verbrennungskraftmaschinen und Messtechnik m.b.H. Prof.Dr.Dr.h.c. Hans List, Graz, Austria

Filed Dec. 18, 1995, Ser. No. 574,219

Claims priority, application Austria, Dec. 19, 1994, 2363/94

Int. Cl.[6] G01M *15/00;* **G01L** *9/08*

U.S. Cl. 73—115 **7 Claims**



1. A spark plug comprising an insulating body held in a casing and containing an inner electrode, a force-measuring element measuring pressure acting on the spark plug, said insulating body resting against said casing via said force-measuring element when pressure is applied in an axial direction, and an axially-elastic sealing element sealing a radial gap between said insulating body and said casing of the spark plug towards a combustion space, said sealing element additionally radially supporting said insulating body against said casing of the spark plug, wherein said insulating body comprises a first part which faces said combustion space and contains a first part of said inner electrode adjacent to said combustion space, and a second part which contains an ignition cable connection and a second part of said inner electrode, said first and second parts of said insulating body being decoupled mechanically, having an elastic insulating sleeve for bridging the area between said first and second parts of said insulating body and wherein said first part of said insulating body is supported at least axially via said force-measuring element on said casing of the spark plug, and radially via said axially-elastic sealing element, and wherein said second part of said insulating body is held firmly in said casing of the spark plug.

5,726,352

METHOD OF DETECTING MISFIRES IN A MULTICYLINDER INTERNAL COMBUSTION ENGINE

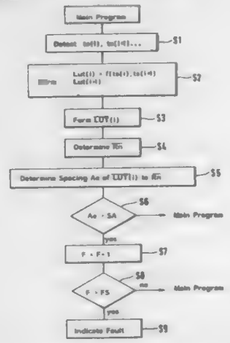
Manfred Mezger, Markgröningen, Germany; Asmus Volkart, Bietigheim-Bissingen, Germany; Klaus Ries-Müller, Bad Rappenau, Germany; Rainer Frank, Sachsenheim, Germany, and Sigrid Hafner, Stuttgart, Germany, assignors to Robert Bosch GmbH, Stuttgart, Germany

Filed May 17, 1996, Ser. No. 649,170

Claims priority, application Germany, May 19, 1995, 195 18 411.4

Int. Cl.[6] G01M *15/00*

U.S. Cl. 73—117.3 **11 Claims**



1. A method for detecting combustion misfires in a multicylinder internal combustion engine, the method comprising the steps of:

detecting a time span ts(i) in which the crankshaft of the engine passes through a pregiven angular range (ϕ) for each ignition of the engine;

computing a vector element Lut(i) for a rough running of the engine based on at least said one detected time span ts(i) for each ignition (i) of the engine;

forming a vector fheightLUT(i) from at least two vector elements Lut(i), Lut(j) with said two vector elements Lut(i), Lut(j) being for each ignition (i);

computing a spacing between said vector fheightLUT(i) and at least one predetermined reference vector fheightRn and fheightRa;

detecting a combustion misfire when said spacing satisfies a predetermined condition;

forming a corrective quantity (K) when computing an individual vector component Lut(i) to correct and compensate for an influence of mean rpm changes of the engine on said time span ts(i); and,

considering said corrective quantity (K) when computing an individual vector component.

5,726,353

SYSTEM FOR DETECTING TORQUE OF AUTOMATIC VEHICLE TRANSMISSION AND CONTROLLING THE SAME BASED ON DETECTED TORQUE

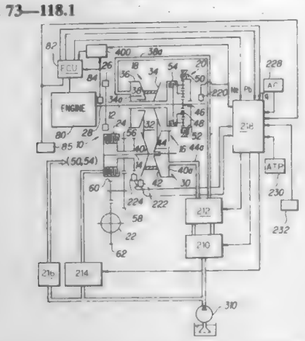
Takahiro Matsuda, and Takamichi Shimada, both of Wako, Japan, assignors to Honda Giken Kogyo Kabushiki Kaisha, Tokyo, Japan

Filed Nov. 20, 1996, Ser. No. 752,934

Claims priority, application Japan, Nov. 21, 1995, 7-326443

Int. Cl.[6] G01L *3/14*

U.S. Cl. 73—118.1 **22 Claims**



1. A system for detecting a torque in an automatic transmission mounted on a vehicle having an engine and wheels to be driven by power transmitted from the engine through the transmission;

wherein the improvement comprises:

a) an elastic coupling means connected to an output shaft of the engine;

b) detecting means for detecting a rotational speed input to the elastic coupling means;

c) detecting means for detecting a rotational speed output from the elastic coupling means;

d) a frictional engaging element provided for engaging/disengaging power transmitted from the engine to the wheels; and

e) torque calculating means for calculating a first torque based on a difference between the detected rotational speeds when the frictional engaging element is in an engaged state and a second torque based on the difference between the detected rotational speeds when the frictional engaging element is in a disengaged state, to calculate a torque estimated to be actually input to the frictional engaging element based on the first torque and the second torque.

wherein said frictional engaging element is controlled to be engaged based upon the calculated torque of the elastic coupling means.

5,726,354

TESTING METHOD FOR FUEL VAPOR TREATING APPARATUS

Tokuhisa Nomura, Toyota, and Hironori Miyakoshi, Seto, both of Japan, assignors to Toyota Jidosha Kabushiki Kaisha, Toyota, Japan

Filed Jul. 30, 1996, Ser. No. 688,471

Claims priority, application Japan, Jul. 31, 1995, 7-195165

Int. Cl.[6] F02M *25/08;* **F02D** *41/22*

U.S. Cl. 73—118.1 **17 Claims**

1. A testing method for a fuel vapor treating apparatus, the treating apparatus including a canister for collecting fuel vapor generated in a fuel tank through a vapor line, wherein the fuel in the tank is supplied to an engine, a purge line for purging the collected fuel in the canister into an air intake passage of the engine by a negative intake pressure generated in the intake passage during operation of the engine, a vapor control valve connected to the vapor line between the tank and the canister for adjusting a flow of the fuel vapor passing from the tank to the canister, wherein the vapor control valve opens in accordance with a difference between the pressure of the tank and the pressure of the canister, the method comprising:

selectively detecting the pressure at a tank side of the vapor control valve and the pressure at a canister side of the vapor control valve by using pressure detecting means;

judging whether a malfunction has occurred related to a sealing of the tank side or related to a sealing of the canister side based on the detected pressure of the tank side and the detected pressure of the canister side;

alternately detecting the pressure of the tank side and the pressure of the canister side during a predetermined time period subsequent to a starting of the engine; and

judging whether a malfunction of the pressure detecting means has occurred based on the detected pressures.

5,726,355

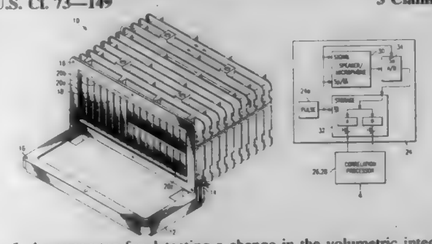
APPARATUS FOR DETECTING A CHANGE IN VOLUMETRIC INTEGRITY OF AN ENCLOSURE

Joseph Edward Sutherland, and Michael John Gingell, both of Raleigh, N.C., assignors to Alcatel Network Systems, Inc., Richardson, Tex.

Continuation of Ser. No. 682,408, Jul. 17, 1996, abandoned, which is a continuation of Ser. No. 402,819, Mar. 13, 1995, abandoned. This application Mar. 4, 1997, Ser. No. 811,277

Int. Cl.[6] G08B *13/22*

U.S. Cl. 73—149 **3 Claims**



1. An apparatus for detecting a change in the volumetric integrity of an enclosure having an interior, the apparatus comprising:

means for sequentially generating a first signal and a second signal;

a speaker device for outputting a reference sound in response to the first signal;

a microphone device for receiving an acoustical characteristic in response to the second signal, the acoustical characteristic resulting from the reference sound interacting with the interior of the enclosure;

circuitry for measuring the acoustical characteristic;

circuitry for averaging a plurality of measurements of the acoustical characteristic; and

detection circuitry for providing an indication of a change in the volumetric integrity of the enclosure if a subsequently measured acoustical characteristic is beyond a tolerance in comparison with an average of previously measured acoustical characteristics.

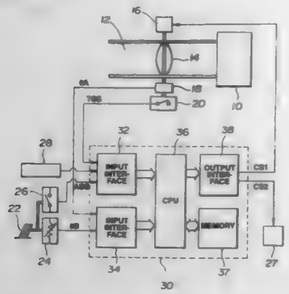
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5,726,356

TESTING APPARATUS FOR COMBUSTIBLE CHARGE INTAKE SYSTEM

Hiroshi Kukita, Yokohama, and Hirotada Muraki, Atsugi, both of Japan, assignors to Nissan Motor Co., Ltd., Kanagawa, Japan

Filed Jun. 28, 1996, Ser. No. 674,235
Claims priority, application Japan, Jun. 29, 1995, 7-163836
Int. Cl.[6] F02D 9/02
U.S. Cl. 73—118.2 14 Claims



1. In a testing apparatus for a combustible charge intake system of an internal combustion engine, including a power control element positionable in response to a control signal to establish various states of combustible charge to be combusted in the internal combustion engine, a position sensor operatively coupled with the power control element to provide an actual position signal indicative of a position which the power control element takes, a control unit for developing the control signal as a predetermined function of a position of an accelerator pedal, a first switch shiftable to a predetermined state in response to the accelerator pedal moving below a predetermined position, and a second switch shiftable to a predetermined state when a position which the power control element takes is less than a predetermined position, the control unit being operatively coupled with the first and second switches,

the improvement wherein the control unit is operative to determine whether or not the actual position signal is equal to or less than a predetermined value;

the control unit is operative to determine whether or not the second switch is in the predetermined state thereof after the control unit determining that the actual position signal has been equal to or less than said predetermined value;

the control unit is operative to determine whether or not the first switch fails to take the predetermined state thereof after the control unit determining that the second switch has been in the predetermined state thereof;

the control unit is operative to determine that the first switch fails to operate normally in response to the control unit determining that the first switch has failed to take the predetermined state thereof after the second switch has been in the predetermined state thereof;

the control unit is operative to determine whether or not the actual position signal continues to be equal to or less than said predetermined value for a first predetermined period of time; and

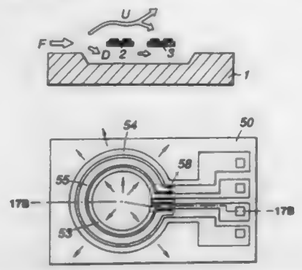
the control unit is operative to determine whether or not the second switch continues to take the predetermined state thereof for a second predetermined period of time after the control unit determining that the actual position signal has continued to be equal to or less than said predetermined value for said first predetermined period of time.

5,726,357

FLOW SENSOR

Junji Manaka, Tokyo, Japan, assignor to Ricoh Seiki Company, Ltd., Tokyo, Japan

Division of Ser. No. 72,779, Jun. 7, 1993, Pat. No. 5,392,647.
This application Nov. 21, 1994, Ser. No. 342,579
Int. Cl.[6] G01F 1/68
U.S. Cl. 73—204.26 8 Claims



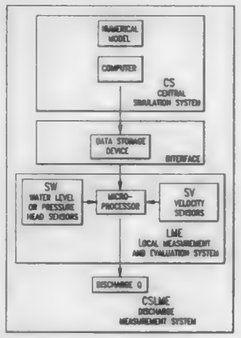
1. A flow sensor comprising a substrate having a through hole or a cavity therein, a heating layer disposed to form substantially a ring and a heat-sensing layer disposed around and coaxially with the heating ring layer at a certain even distance therefrom, characterized in that the heating layer and the heat sensing layer are partially projecting above the through hole or the cavity.

5,726,358

METHOD AND DEVICE FOR MEASURING THE DISCHARGE IN PARTLY FILLED OR COMPLETELY FILLED DUCTS AND IN OPEN CHANNELS

Christian Kölling, Karwendelstrasse 4, D-82538 Geretsried-Gelting, Germany

PCT No. PCT/EP94/00193, § 371 Date Jul. 23, 1995, § 102(e) Date Jul. 23, 1995, PCT Pub. No. WO94/17368, PCT Pub. Date Aug. 4, 1994
PCT Filed Jan. 25, 1994, Ser. No. 492,103
Claims priority, application Germany, Jan. 25, 1993, 43 01 905.6; Jun. 18, 1993, 43 20 295.0
Int. Cl.[6] G01F 1/20
U.S. Cl. 73—215 15 Claims



4. Device for determining a volume flow rate of a liquid flowing turbulently in a channel having a known cross-sectional profile, comprising:

a central simulation system in which a numerical model is programmed and which simulates a set of turbulent flow velocity distributions for said channel on the basis of data as to the cross-sectional size and shape of said known profile and the hydraulic configurations of said liquid and said channel and on the basis of a numerical mesh of said cross-sectional profile, said programmed central simulation system simulating turbulence driven secondary currents within said known cross-sectional profile;

a data storage device storing said set of simulated turbulent flow velocity distributions generated by said central simulation system;

a local measurement and evaluation system, comprising measuring sensor means having means for measuring liquid level and means for measuring axial flow velocity in the channel, said measured axial flow velocity supplied by said measuring sensor means and a selected one of said velocity distributions stored in said data storage device, said selected one of said velocity distributions stored in said data storage device providing an interface between said central simulation system and said local measurement and evaluation system; and

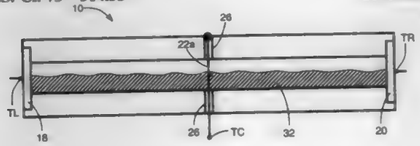
a microprocessor transforming signals from said axial flow velocity sensor and said liquid level sensor into a volume flow rate value, ultilizing data provide by said central simulation system.

5,726,359

ORIENTATION SENSOR ESPECIALLY SUITABLE FOR USE IN AN UNDERGROUND BORING DEVICE

Rudolf Zeller, Renton, Wash., and John E. Mercer, Kent, Wash., assignors to Digital Control, Inc., Renton, Wash.

Filed Nov. 29, 1995, Ser. No. 564,587
Int. Cl.[6] G01C 9/06
U.S. Cl. 73—514.33 18 Claims



1. A pitch sensor, comprising:

(a) a pitch sensor housing defining a closed internal chamber and defining therein an axis with first and second ends;

(b) first: and second electrically conductive members disposed in a predetermined configuration at first and second spaced apart locations, respectively, within said chamber in relation to the first and second ends of said axis;

(c) a first electrically conductive wire supported by said housing and including a first segment thereof disposed within said chamber at a location between said first and second electrically conductive members such that said first segment is substantially transverse to said axis; and

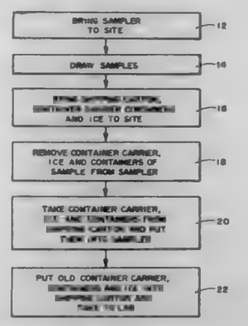
(d) a flowable material contained within said housing chamber and through which electrical connections between said electrically conductive members and said first electrically conductive wire segment are made by said flowable material contacting at least a portion of said first segment while contacting respective portions of each of said conductive members as determined by said predetermined configuration such that a ratio of an electrical property between the first member and the conductive wire segment to the corresponding electrical property between the second member and the conductive wire segment is indicative of displacement of said flowable material within said housing chamber, whereby the pitch sensor generates an output indicative of pitch orientation.

5,726,360

FLUID SAMPLING APPARATUS HAVING A UNIVERSAL BASE

Richard Eugene Keefer, Lincoln, Nebr., assignor to Isco, Inc., Lincoln, Nebr.

Division of Ser. No. 444,657, May 19, 1995, Pat. No. 5,546,818, which is a continuation of Ser. No. 89,087, Jul. 8, 1993, abandoned. This application Jun. 26, 1996, Ser. No. 671,171
Int. Cl.[6] G01N 1/14
U.S. Cl. 73—863 4 Claims



1. A method of drawing samples of fluid, comprising the steps of:

selecting one of a plurality of different sampler configurations, each having a universal base, a selected one of a composite container holder, a rain water runoff container holder and a sequential sample multiple container holder; a selected one of a plurality of locator sleeves, a control section and a cover;

bringing a sampler of the selected configuration to a selected site appropriate for the selected sampler configuration with at least one sample container and ice;

drawing samples at the site in a predetermined time sequence into the at least one sample container;

putting a new selected container holder into an insulated shipping carton with ice and at least one new container and bringing to the selected site;

removing the selected one of a composite container container holder, rain water runoff container holder and sequential sample multiple container holder and the at least one sample container after the at least one sample has been drawn and inserted into the at least one sample container from the installed sampler;

removing the new selected container holder and at least one new container from the insulated shipping carrier and inserting into a sampler at the selected site;

putting the new selected container holder just removed from the sampler into the insulated shipping carton and bringing the insulated shipping carton with ice, filled at least one container to the laboratory for testing of samples.

5,726,361

VIBRATIONAL PROCESSING APPARATUS AND METHOD

Mamoru Ogawa, Fukui-ken, Japan, assignor to Murata Manufacturing Co., Ltd., Kyoto-fu, Japan

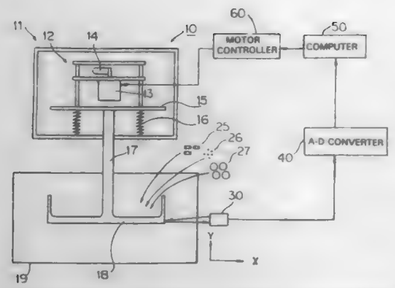
Filed Jul. 15, 1996, Ser. No. 687,074
Claims priority, application Japan, Jul. 14, 1995, 7-178839
Int. Cl.[6] F16H 37/06; C25D 17/00
U.S. Cl. 73—663 10 Claims

1. A vibrational processing apparatus comprising:

a vibration generating means for generating a preselected vibration;

a vibratable element connected to said vibration generating means for containing an object to be processed and for applying vibration to said object to be processed to effect a prese-

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lected process by vibrating in response to the vibration generated by said vibration generating means;

a displacement detecting means for detecting vibrational displacement of said vibratable element; and

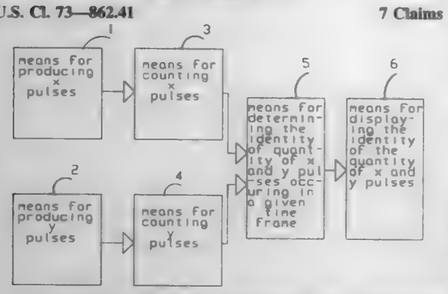
a control means for outputting a control signal to said vibration generating means to generate said preselected vibration, the control means outputting the control signal to said vibrating generating means prior to said preselected process to subject said vibratable element to vibration and to detect displacement of said vibratable element to obtain displacement characteristics of said vibratable element, the control means storing the displacement characteristics in a memory of the control means and the control means outputting the control signal to said vibration generating means during said preselected processing based upon said displacement characteristics stored in the memory for generating vibration to cause desired vibrational displacement of said vibratable element.

5,726,362

TENSION LOSS/FREQUENCY COMPARISON DEVICE

Willis Guild Boyden, Los Angeles, Calif., assignor to Will Boyden Inc., Las Vegas, Nev.

Filed Apr. 4, 1996, Ser. No. 629,994
Int. Cl.[6] G01L *5/10*
U.S. Cl. 73—862.41 **7 Claims**



1. A Tension Loss/Frequency Comparison Device whereby the tension, and loss of tension, of a tightly strung apparatus, such as a tennis racket, from a previously known tension, may be determined by comparing the fundamental frequency of said apparatus to an audible frequency generated by said tension loss/frequency comparison device, comprising:

a microphone,

said microphone being capable of transducing an audible tone to an electrical signal,

an amplifier wherein:

the input of said amplifier is connected to the output of said microphone,

means for generating a signal,

an A flip-flop wherein:

the clock input of said A flip-flop is connected to the output of said amplifier,

an A counter wherein:

the clock input of said A counter is connected to the output of said means for generating a signal,

an A gate wherein:

the first input of said A gate is connected to the Q_o output of said A counter,

the second input of said A gate is connected to the Q_x output of said A counter,

a B gate wherein:

the input of said B gate is connected to the output of said A gate,

the output of said B gate is connected to the reset of said A flip-flop,

a B counter wherein:

the clock of said B counter is connected to the output of said amplifier,

the reset of said B counter is connected to the reset of said A counter and the $\bar{Q}$ output of said A flip-flop,

a C gate wherein:

the first input of said C gate is connected to the Q_o output of said B counter,

the second input of said C gate is connected to the Q_x output of said B counter,

a D gate wherein:

the input of said D gate is connected to the output of said C gate and the enable of said B counter,

a B flip-flop wherein:

the clock of said B flip-flop is connected to the output of said D gate,

the D input of said B flip-flop is connected to the Q_x output of said A counter,

a resistor wherein:

one side of said resistor is connected to the Q output of said B flip-flop,

a power supply,

a capacitor wherein:

the first side of said capacitor is connected to the other side of said resistor and the reset of said B flip-flop,

the second side of said capacitor is connected to the return of said power supply,

a light wherein:

one side of said light is connected to the Q output of said B flip-flop,

the other side of said light is connected to the return of said power supply,

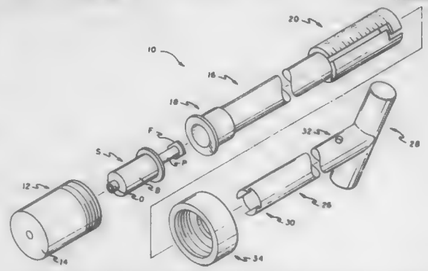
wherein said tension loss/frequency comparison device provides a convenient way of determining the identity of two independent frequencies.

5,726,363

LIQUID SAMPLER

Sanyasi R. Kalidindi, 15 Edinburg La., East Brunswick, N.J. 08816-5242

Filed Nov. 2, 1995, Ser. No. 552,052
Int. Cl.[6] G01N *1/14*; **B01C** *3/02*
U.S. Cl. 73—864.14 **5 Claims**



1. A liquid sampling device for obtaining samples of a liquid from user determined locations within a body of the liquid, said liquid sampling device allowing the use of a standard syringe in the sampling of the liquid, the standard syringe having a barrel, an inlet opening communicating with the syringe barrel and a plunger slidably supported within the barrel, the plunger having a finger pressure platform, said liquid sampling device comprising:

a receptacle having a top opening, an internal cavity, a cylindrical sidewall and a bottom, said bottom having a central opening, said internal cavity being dimensioned and configured to house the syringe barrel, said central opening allowing the inlet opening of the syringe barrel to communicate with space external to said receptacle;

an elongated hollow tube having a bore, a first end, and a second end, said second end of said tube having a flange dimensioned and configured to abuttingly contact said top opening of said receptacle;

an elongated rod having a first end and a second end, said first end of said elongated rod having a handle means, said second end of said elongated rod having an attaching means for releasably attaching the plunger of the syringe to said second end of said elongated rod, said elongated rod being dimensioned to move axially within said bore of said tube; and

a coupling nut having a central opening smaller in diameter than said flange of said tube and being threadably engageable with said receptacle, such that when said coupling nut is threadedly engaged with said receptacle said flange is firmly gripped between said coupling nut and said receptacle;

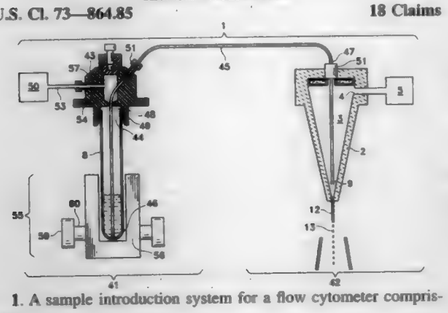
whereby with the receptacle positioned proximate a user-determined location within the body of the liquid, manipulating said elongated rod allows the moving of the plunger within the syringe barrel to thereby fill the syringe barrel with a sample of the liquid.

5,726,364

SAMPLE INTRODUCTION APPARATUS FOR A FLOW CYTOMETER

Ger Van den Engh, Seattle, Wash., assignor to The University of Washington, Seattle, Wash.

Division of Ser. No. 323,348, Oct. 14, 1994, Pat. No. 5,602,349. This application Feb. 10, 1997, Ser. No. 798,177
Int. Cl.[6] G01N *35/10*
U.S. Cl. 73—864.85 **18 Claims**



1. A sample introduction system for a flow cytometer comprising:

a. a nozzle container establishing a nozzle volume;

b. a sheath fluid port located within said nozzle volume;

c. a substance introduction port located within said nozzle volume;

d. a substance supply tube to which said substance introduction port is responsive;

e. a sample container cap attached to said substance supply tube and having an inner surface;

f. a sample container which serves as a reservoir for a substance having an outer surface;

g. an external seal responsive to the inner surface of said sample container cap and responsive to the outer surface of said sample container;

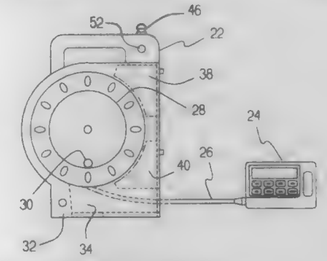
h. a pressure source to which said sample container cap is responsive.

5,726,365

HYDROSTATIC ALTIMETER

Dennis L. Vories, Valley Center, Calif., assignor to The Stanley Works, New Britain, Conn.

Continuation of Ser. No. 402,511, Mar. 10, 1995, abandoned, which is a continuation-in-part of Ser. No. 177,532, Jan. 5, 1994. This application Nov. 26, 1996, Ser. No. 757,008
Int. Cl.[6] G01C *5/04*
U.S. Cl. 73—865.2 **13 Claims**



1. A hydrostatic altimeter comprising:

(a) a base member including a contained fluid reservoir under a reference pressure;

(b) a measurement member including:

(1) differential pressure transducer means for producing a signal corresponding to hydrostatic pressure felt by the transducer means,

(2) means for converting the signal produced by the transducer means to a corresponding numerical value, and

(3) a display for indicating the numerical value;

(c) a flexible, elongated fluid link between the reservoir and the transducer means; and

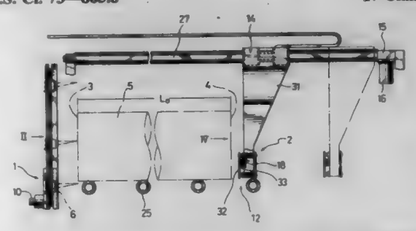
(d) means for selectively freezing a stable elevation display when the member is so disposed that the display is not viewable or legible by an operator to hold it constant for subsequent viewing by the operator.

5,726,366

DEVICE FOR MEASURING DIMENSIONS OF WORKPIECES

Isomi Washio, Meerbusch, and Werner Latten, Oerlinghausen, both of Germany, assignors to Advanced Technik GmbH, Haan, Germany, and Amada Company, Kanagawa, Japan

Filed Jun. 14, 1995, Ser. No. 490,452
Claims priority, application Germany, Jun. 15, 1994, 44 20 831.6; Aug. 10, 1994, 44 28 364.4; Dec. 15, 1994, 44 44 787.6
Int. Cl.[6] G01B *11/02*
U.S. Cl. 73—865.8 **17 Claims**



1. Device for measuring dimensions of a rod-shaped workpiece, comprising:

supporting means for supporting and substantially aligning the workpiece, said supporting means including a supporting surface and a bearing surface, and

sensor means for detecting dimensions of one of a front surface and a rear surface of the workpiece;

wherein said sensor means comprises:

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a guide swingable about an axis substantially parallel to an intersection axis of the supporting surface and the bearing surface,

a measuring carriage slidably supported on the guide,

a path measuring device for detecting a position of the measuring carriage on the guide, and

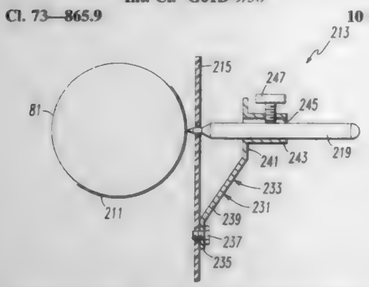
a measuring head supported on the measuring carriage for detecting a contour of said one of said front surface and said rear surface of the workpiece.

5,726,367

APPARATUS AND METHOD FOR TESTING SPRING POWERED SWITCHES

Nagar J. Patel, Pittsburgh, Pa.; James J. Benke, Pittsburgh, Pa.; Michael C. Valenta, McKeesport, Pa., and Norman Davies, Irwin, Pa., assignors to Eaton Corporation, Cleveland, Ohio

Filed Mar. 25, 1996, Ser. No. 618,058
Int. Cl.[6] G01D *9/38*
U.S. Cl. 73—865.9 **10 Claims**



1. A method of testing a spring powered switch having a support frame and operated by an operating mechanism having driven parts actuated by release of a charged spring, said method comprising the steps of:

applying a recording medium to a selected one of said driven parts;

mounting a fixture to said support frame adjacent said selected one of said driven parts;

using said fixture to support a marking instrument in contact with said recording medium at a fixed point relative to said frame;

releasing said charged spring to actuate said driven parts while maintaining said marking instrument in contact with said recording medium which moves with said selected one of said driven parts relative to said marking instrument, thereby producing a trace on said recording medium of said movement of said selected one of said driven parts relative to said fixed point; and

using said trace to determine operation of said operating mechanism.

5,726,368

SING-ALONG PIANO BAR

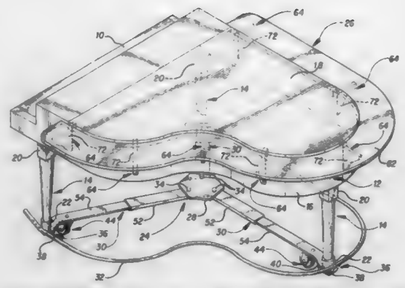
William Fred Shaw, 42242 Omar Pl., Palm Desert, Calif. 92211

Filed Dec. 20, 1995, Ser. No. 575,621
Int. Cl.[6] G10C *3/00*
U.S. Cl. 84—190 **15 Claims**

1. A dolly for supporting a piano having a sound box with a characteristic contour and having a plurality of legs, each of the plurality of legs having a bottom end, said dolly comprising:

a hub;

a plurality of arms corresponding in number to the plurality of legs, each of said plurality of arms having a first end and a second end, each of said plurality of arms being attached to said hub at said first end thereof;



a plurality of receiving means for receiving the bottom end of a respective one of the plurality of legs, said plurality of receiving means corresponding in number to said plurality of arms, each of said plurality of receiving means includes a bottom having a first end and a second end, a first sidewall connecting said second end of a respective one of said plurality of arms to said first end of said bottom, and a second sidewall attached to said second end of said bottom;

a plurality of casters each being attached to a respective one of said plurality of arms; and

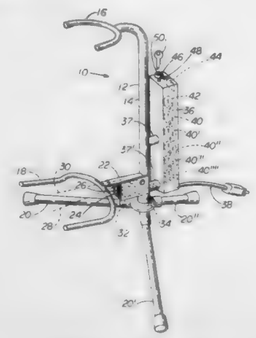
a footrest railing supported by said plurality of receiving means and attached to each said second sidewall.

5,726,369

MUSICAL INSTRUMENT AND A DEVICE FOR CONNECTING ACCESSORIES THERETO

Jeffery Gilday, 772 Watersedge Dr., Ann Arbor, Mich. 48105

Filed Mar. 20, 1996, Ser. No. 619,017
Int. Cl.[6] G10D *3/00*
U.S. Cl. 84—327 **14 Claims**



1. A device for automatically controlling at least one accessory in conjunction with an instrument, the device comprising

a unit for positioning the instrument, the unit having means for indicating the presence and the absence of the instrument, and

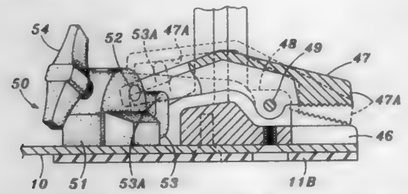
means for controlling an electric current to the at least one accessory based on the means for indicating the presence and absence of the instrument.

5,726,370

HOOP CLAMPING SYSTEM FOR A BASS DRUM PEDAL ASSEMBLY

Mitsuo Yanagisawa, Chiba, Japan, assignor to Pearl Musical Instrument Co., Chiba, Japan

Filed Dec. 29, 1995, Ser. No. 581,486
Int. Cl.[6] G10D *13/02*
U.S. Cl. 84—422.1 **13 Claims**



1. A drum foot pedal device for clamping a foot pedal assembly to a drum, the drum having a membrane and a shell with a drum hoop, and the foot pedal assembly having upstanding support members supporting a rotating beater member for beating said membrane of said drum, wherein the rotating beater is activated by a foot pedal pivotally mounted on a base plate by a heel member, said foot pedal device comprising:

a toe clamp pivotally mounted on a base portion of said foot pedal assembly, said base portion being integrally formed with said upstanding support members, and said toe clamp adapted to clamp said drum hoop to retain said foot pedal assembly relative to said drum;

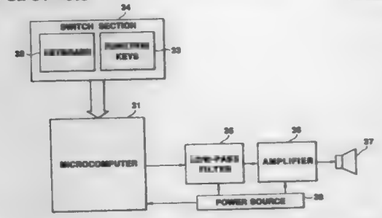
a clamp adjusting member removably affixed to a base plate and separate from said base portion, said base plate extending from said base portion to said heel member, said clamp adjusting member comprising a pivoting cam member and an adjustment means for acting on said pivoting cam member to adjust a clamping force of said toe clamp.

5,726,371

DATA PROCESSING APPARATUS OUTPUTTING WAVEFORM DATA FOR SOUND SIGNALS WITH PRECISE TIMINGS

Kosuke Shiba; Koichiro Daigo; Kazuo Ogura, all of Fussa; Ryuji Usami, Akigawa, and Jun Hosoda, Hanno, all of Japan, assignors to Casio Computer Co., Ltd., Tokyo, Japan

Division of Ser. No. 855,431, Mar. 23, 1992, Pat. No. 5,319,151, which is a continuation-in-part of Ser. No. 798,822, Nov. 21, 1991, abandoned, which is a continuation of Ser. No. 455,978, Dec. 22, 1989, abandoned, Ser. No. 707,323, May 29, 1991, abandoned, and Ser. No. 707,325, May 29, 1991, abandoned. This application Apr. 6, 1994, Ser. No. 223,589
Claims priority, application Japan, Dec. 29, 1988, 63-334158; Dec. 29, 1988, 63-334161; Dec. 29, 1988, 63-334162; Dec. 29, 1988, 63-334163; Dec. 29, 1988, 63-334166; Jun. 28, 1990, 2-171215; Jun. 28, 1990, 2-171216; Jun. 28, 1990, 2-171217; Jun. 29, 1990, 2-172200
Int. Cl.[6] G10H *1/06;7/00*
U.S. Cl. 84—603 **25 Claims**



25. A sound signal outputting method comprising the following steps which are implemented using a microcomputer:

outputting an accurate sampling time signal with a predetermined sampling period;

computing, in said microcomputer, a digital sound signal under a program control at timings which may vary with reference to said sampling time signal, to generate a digital sound signal;

a first latching step of latching the digital sound signal computed by said computing step at an ending timing of computation of the digital sound signal, which may vary with reference to said sampling time signal; and

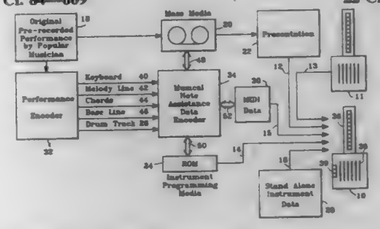
a second latching step of latching the digital sound signal latched by said first latching step at a timing of the sampling time signal, to thereby produce an accurately timed digital sound signal.

5,726,372

NOTE ASSISTED MUSICAL INSTRUMENT SYSTEM AND METHOD OF OPERATION

Franklin N. Eventoff, 7086 Atwood Rd., Ferndale, Wash. 98248, and Bernard Mohrbacher, Santa Barbara, Calif., assignors to Franklin N. Eventoff, Ferndale, Wash.

Continuation of Ser. No. 338,980, Nov. 14, 1994, abandoned, which is a continuation of Ser. No. 46,277, Apr. 9, 1993, abandoned. This application Dec. 8, 1995, Ser. No. 569,548
Int. Cl.[6] G09B *15/04;* **G10H** *1/26;1/38;1/46*
U.S. Cl. 84—609 **22 Claims**



1. An electronic musical instrument system, comprising:

musical performance means for reproducing at least a portion of a performance of a pre-recorded musical piece having a series of notes and/or chords;

pitch data means for providing a series of individual note and/or chord pitch data, each one of the series of individual pitch data being related in pitch and order of occurrence to a corresponding one of the series of notes and/or chords of the pre-recorded musical piece;

a plurality of electronic musical instrument input members operable by a player;

means for sequentially mapping the series of pitch data to each of the input members; and

means, responsive to actuation of the input members by the player, individually or in combination, in a sequence, of a duration, and at time intervals selected by the player, for producing a personalized series of individual notes and/or chords related to the performance of the pre-recorded musical piece at the time of actuation by generating an individual note and/or chord in response to actuation of one of the plurality of input members, the generated individual note and/or chord being related to the performance of the pre-recorded musical piece at the time of actuation of the one input member to produce a personalized version of the pre-recorded musical piece that is musically compatible with the pre-recorded musical piece at the time of actuation.

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VIDEO-SONG ACCOMPANIMENT APPARATUS USING A COMPACT DISC AS A RECORDING MEDIUM

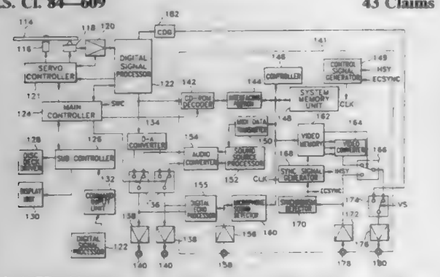
Hae-min Choi, and Kwang-sik Choi, both of Suwon, Rep. of Korea, assignors to Samsung Electronics Co., Ltd., Kyungki-do, Rep. of Korea

Filed Dec. 28, 1995, Ser. No. 580,344

Claims priority, application Rep. of Korea, Dec. 28, 1994, 94-38277

Int. Cl.[6] G10H *1/36*

U.S. Cl. 84—609 **43 Claims**



1. A CD video-song accompaniment apparatus which reproduces information from a compact disc and which comprises:

a CD reproducing portion which reads audio data from said compact disc and generates an audio signal if said compact disc is a first type of compact disc and which reads digital data from said compact disc if said compact disc is a second type of compact disc, wherein said digital data comprises background image data and music information data;

a CD-OK reproducing portion which inputs said digital data from said CD-reproducing portion and generates a first background image and a second background image based on said background image data and generates a CD-OK audio signal based on said music information data;

an audio selector which inputs said audio signal generated by said CD reproducing portion and said CD-OK audio signal generated by said CD-OK reproducing portion and which selectively outputs either said audio signal or said CD-OK audio signal; and

a main controlling means for determining whether said compact disc is said first type of compact disc or said second type of compact disc, wherein said main controlling means instructs said audio selector to output said audio signal if said compact disc is said first type of compact disc and instructs said audio selector to output said CD-OK audio signal if said compact disc is said second type of compact disc.

5,726,374

KEYBOARD ELECTRONIC MUSICAL INSTRUMENT WITH GUITAR EMULATION FUNCTION

Paul B. Vandervoort, 2875 Idlewild Dr., #19, Reno, Nev. 89509

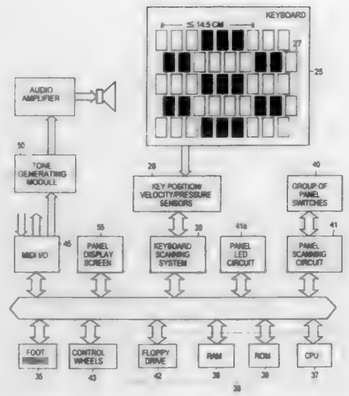
Continuation-in-part of Ser. No. 512,547, Aug. 8, 1995, Pat. No. 5,648,630, which is a continuation-in-part of Ser. No. 345,067, Nov. 22, 1994, Pat. No. 5,505,115. This application Nov. 21, 1995, Ser. No. 560,270

Int. Cl.[6] G10H *1/28;7/00*

U.S. Cl. 84—638 **95 Claims**

1. An emulator for producing a guitar style performance from a controller, said controller including a user-operated triggering device for triggering arpeggiated chords which a user may alternate between a first trigger state and a second trigger state, and at least twelve keyboard keys assigned to a note select function, each of which a user may alternate between a rest key state and a selected key state, comprising:

a digital data processing system which receives trigger state information from said triggering device and key state information from said note select keys, and which sends commands to a tone generating device wherein,



a first state change of said triggering device from said first trigger state to said second trigger state when at least two of said note select keys are in said selected key state causes said data processing system to command said tone generating device to initiate production of a plurality of tones corresponding to the selected note select keys in an ascending sequence; and,

a second state change of said triggering device from said second trigger state to said first trigger state following said first triggering device state change as said selected note select keys remain in said selected key state causes said data processing system to command said tone generating device to (a) terminate production of said plurality of tones and (b) re-initiate production of said plurality of tones in a descending sequence.

5,726,375

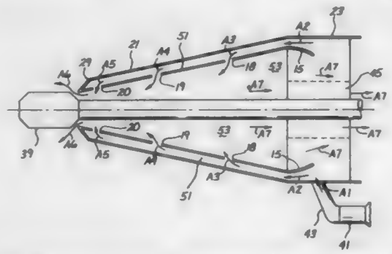
GUN BARREL SHROUDING SYSTEM

Nathan G. Adams, Tempe, and Kal V. Geiler, Chandler, both of Ariz., assignors to McDonnell Douglas Helicopter, Mesa, Ariz.

Filed Jun. 13, 1996, Ser. No. 662,603

Int. Cl.[6] F41A *13/00;21/00;29/00*

U.S. Cl. 89—14.1 **27 Claims**



1. A gun barrel shrouding system for shielding a hot gun barrel from detection by an infrared detector, the gun barrel shrouding system comprising:

a first shroud wall having a length and being adapted to fit around and form a first air chamber around a gun barrel;

a second shroud wall adapted to fit around the length of the first shroud wall, wherein a second air chamber is defined between the length of the first air chamber and the second air chamber to thereby cool the second shroud wall; and

a fan adapted for circulating air between the first air chamber and the second air chamber.

5,726,376

BREECHBLOCK SYSTEM FOR A GUN

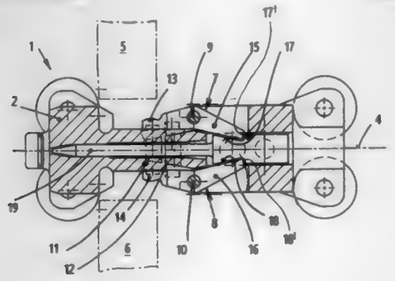
Horst Menges, Ratingen, Germany; Lothar Post, Fassberg, Germany; Erich Bender, Rottweil, Germany; Rainer Buhl, Dornhan, Germany, and Helmut Mäder, Schramberg, Germany, assignors to Rheinmetall Industrie AG, Ratingen, Germany

Filed Sep. 27, 1996, Ser. No. 721,097

Claims priority, application Germany, Sep. 30, 1995, 195 36 660.3

Int. Cl.[6] F41A *17/64*

U.S. Cl. 89—190 **5 Claims**



1. A breechblock system for a gun, comprising

(a) a breechblock;

(b) a firing pin slidably received in said breechblock; said firing pin having a locked position and a firing position; said firing pin further including means for defining two diametrically oppositely located catch recesses;

(c) two locking levers pivotally supported by said breechblock on opposite sides thereof; each locking lever having a locking position and an unlocking position; each locking lever further including first and second arms; in said locking position said first arm of the respective locking levers projecting into respective said catch recesses for preventing said firing pin from moving from said locked position into said firing position;

(d) force-exerting means for urging said locking levers into said locking position;

(e) two bolts movably supported on opposite sides of said breechblock and cooperating with said breechblock and said respective locking levers; said bolts having a withdrawn position and an advanced position; in said withdrawn position said bolts being out of depressing engagement with said respective locking levers, whereby said locking levers are maintained in said locking position by said force-exerting means; in said withdrawn position said bolts being out of bolting engagement with said breechblock; in said advanced position said bolts being in a depressing engagement with said respective locking levers while overcoming a force of said force-exerting means, whereby said locking levers are maintained in said unlocking position in which said second arms are out of engagement with said catch recesses; in said advanced position said bolts being in a bolting engagement with said breechblock; and

(f) a resetting pin movably received in said breechblock; said resetting pin having a first part connectable to an external drive and a second part cooperating with a part of said firing pin for displacing said firing pin from said firing position into said locked position.

5,726,377

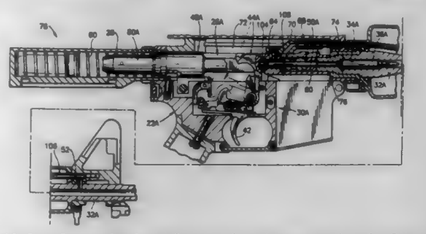
GAS OPERATED FIREARM

Michael R. Harris, Dover, Fla., and James F. Taylor, Wethersfield, Conn., assignors to Colt's Manufacturing Company, Inc., West Hartford, Conn.

Filed Jun. 19, 1996, Ser. No. 670,661

Int. Cl.[6] F41A *5/10;3/00*

U.S. Cl. 89—191.01 **12 Claims**



10. In a firearm having a frame, a barrel connected to the frame, and a firing mechanism connected to the frame, the firing mechanism having a firing pin and a hammer pivotably connected to the frame for striking the firing pin, wherein the improvement comprises:

the hammer having a hammer face with a first recess having a recessed base surface for directly contacting the firing pin when the hammer strikes the firing pin.

5,726,378

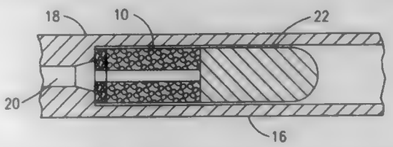
UNITARY PROPELLANT CHARGE FOR MUZZLE LOADING FIREARMS

G. Dean Barrett, Kansas City, Mo., assignor to Hodgdon Powder Company, Inc., Shawnee Mission, Kans.

Filed Apr. 1, 1996, Ser. No. 625,938

Int. Cl.[6] C06D *5/06;* **F42B** *5/18*

U.S. Cl. 102—288 **9 Claims**



1. A unitary, solid pre-formed propellant pellet for use in muzzle loading firearms having a flash channel, said pellet being substantially cylindrical in shape and having a maximum diameter such that the pellet will pass freely down the bore of the firearm for which it is intended and avoid pushing of combustion residue from a previous firing into the flash channel of the firearm.

5,726,379

PROPELLANT CHARGE COMBUSTIBLE CONTAINER FOR FIELD ARTILLERY AMMUNITION

Bernard Kotas, Bourges, and Laurent Deguen, Toulouse, both of France, assignors to Giat Industries, France

Filed Jun. 27, 1996, Ser. No. 670,557

Claims priority, application France, Jul. 7, 1995, 95 08245

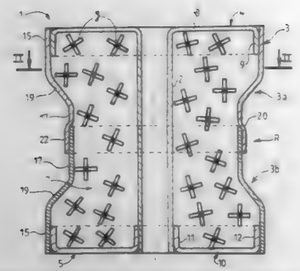
Int. Cl.[6] F42B *5/18*

U.S. Cl. 102—431 **11 Claims**

1. A combustible propellant-charge container for live powder short range fire field artillery ammunition, comprising:

a base, a lid, a side envelope extending between said base and lid, said base, lid, and a central drum coaxial with said side envelope and extending between said lid and said base, and side envelope defining an inner volume of said container;

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inner volume reducing means for reducing said inner volume including an annular constriction arranged substantially at a midpoint between said base and lid in said side envelope: and means providing visual and tactile identification means for identifying a live powder short range fire container.

5,726,380

THERMO-ELECTRIC POWER GENERATION USING POROUS METAL BLOCKS HAVING A PLURALITY OF THERMOCOUPLES CONNECTED IN SERIES

Michio Ozutsumi, Tokyo; Toshihiko Takemoto, Shin-Nanyo, and Shinsuke Ohara, Kyoto, all of Japan, assignors to Nisshin Steel Co., Ltd., Tokyo, Japan, and Ohara Metal Industries Co., Ltd., Kyoto-fu, Japan

Filed Mar. 7, 1996, Ser. No. 612,280

Claims priority, application Japan, Mar. 9, 1995, 7-078262; Mar. 15, 1995, 7-083260; Sep. 22, 1995, 7-268049

Int. Cl.[6] H01L *35/02;35/12;35/32*

U.S. Cl. 136—205 **11 Claims**



1. A thermo-electric power generating element comprising:

a thermocouple pile having a gas permeable structure formed by laminating two kinds of perforated metal sheets together such that cavities are formed between adjacent sheets, said sheets connected at one end and the other end alternatively so as to form a plurality of thermocouples connected in series in a zigzag-folded pattern, and said sheets insulated from each other,

and takeoff leads connected to both ends of said thermocouple pile.

5,726,381

AMORPHOUS THERMOELECTRIC ALLOYS AND THERMOELECTRIC COUPLE USING SAME

Yuma Horio, and Toshiharu Hoshi, both of Shizuoka, Japan, assignors to Yamaha Corporation, Shizuoka-ken, Japan

Filed Oct. 10, 1995, Ser. No. 541,785

Claims priority, application Japan, Oct. 11, 1994, 6-245640

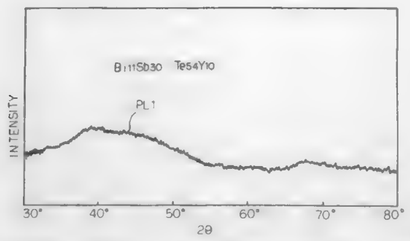
Int. Cl.[6] H01L *35/16;35/18;35/34*

U.S. Cl. 136—236.1 **16 Claims**

9. A thermoelectric material expressed by the general formula of $\{A_xB'_yC'_z\}_{100-a}D_a$, wherein

A is Bi.

B' is at least one element selected from the group consisting of S, Te and Se.



C' is at least one element selected from the group consisting of Ti, V, Cr, Mn, Fe, Co, Ni, Cu, Zn, Zr, Nb, Mo, Y, La, Ce, Nd, Sm and Mm,

D is at least one dopant metal or compound selected from the group consisting of Pb, Cd, Li, Ag, CuI, CuBr, AgI, SbI_3, $HgBr_2$ and $HgCl_2$,

x, y and z are atomic percent ranging as follows

$x+y+z=100$

$20<x<60$

$40<y<80$

$0.05<z<20$, and

a is weight percent ranging as follows $0<a<15$.

5,726,382

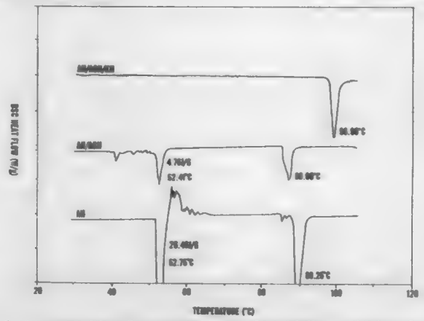
EUTECTIC MIXTURES OF AMMONIUM NITRATE AND AMINO GUANIDINE NITRATE

Robert S. Scheffee, and Brian K. Wheatley, both of Gainesville, Va., assignors to Atlantic Research Corporation, Vienna, Va.

Continuation-in-part of Ser. No. 414,470, Mar. 31, 1995, abandoned. This application Jul. 28, 1995, Ser. No. 508,350

Int. Cl.[6] C06B *45/10;31/32;31/12*

U.S. Cl. 149—19.91 **11 Claims**



1. A composition for generating a substantially particulate-free, non-toxic, odorless and colorless gas comprising:

a eutectic solution of ammonium nitrate and either aminoguanidine nitrate or guanidine nitrate, together with a minor amount of potassium nitrate, a polyvinyl alcohol binder and an optional amount of zinc oxide.

5,726,383

TELEPHONE RADIATION SHIELD

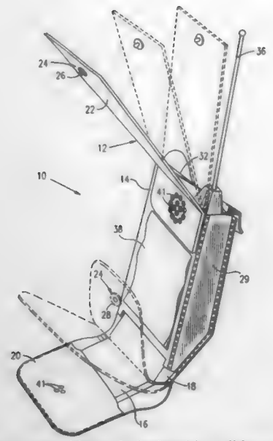
Uri Geller, Sonning Court, Thames Street, Sonning-on-Thames, Berkshire RG4 OUR, England, and Meir Gitlis, Bnei Atarot 60991, Israel

Filed Apr. 29, 1996, Ser. No. 638,682

Int. Cl.[6] H05K *9/00*

U.S. Cl. 174—35 R **8 Claims**

1. A radiation shield for use with a mobile hand-held communication device, the communication device including a listening



element and a stowable and deployable talking element, said radiation shield comprising:

a first shield portion which at least partially covers said talking element;

a second shield portion which at least partially covers said listening element;

a fastener which fastens said first and said second shield portions together, said first and said second shield portions and said talking element being in a stowed orientation when said first and said second shield portions are fastened together by said fastener; and

a tensioning device operatively attached to at least one of said first and said second shield portions, wherein said tensioning device, upon opening of said fastener, applies a force to at least one of said first and said second shield portions which moves said at least one of said first and said second shield portions into a deployed orientation.

5,726,384

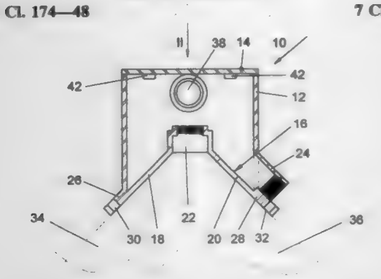
ELECTRICAL FITTING SUPPORT DEVICE

Christian Julian Veermeer, 18 Theresa Avenue, Camps Bay 8001, South Africa

Filed Mar. 1, 1996, Ser. No. 609,462

Int. Cl.[6] H02G *3/22*

U.S. Cl. 174—48 **7 Claims**



1. An electrical support device for fitting against a protruding corner edge of two adjoining building walls, which device includes:

(a) a housing having a round cylindrical tubular wall with a first open end and a base end opposite to the first end;

(b) a base at the base end of the housing, the base being constituted by two base walls extending at right angles to each other from a central longitudinal plane of the housing and being adapted to fit over a protruding corner edge of two adjoining building walls;

(c) an internally threaded inlet formation joined to the base and including a channel for receiving an electrical conductor;

(d) a lid removably attached to the housing for closing off the first open end;

(e) a number of protusions inwardly extending from the tubular wall of the housing at the first open end and having threaded holes for receiving screws for removably fitting the lid over the first open end; and

(f) at least two spaced apart lugs extending outwardly from the tubular wall of the housing and each of the lugs having an aperture for receiving a fastening element for attachment of housing to a protruding corner edge of two adjoining building walls.

5,726,385

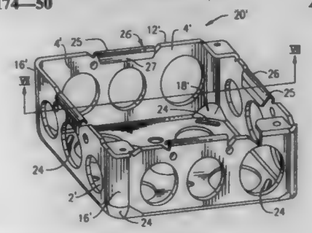
THIN WALL ELECTRICAL OUTLET BOX

Gary L. Lowery, Southhaven, Miss.; Jay C. Medeiros, Collierville, and Mark Bordwell, Memphis, both of Tenn., assignors to Thomas & Betts Corporation, Memphis, Tenn.

Filed Dec. 29, 1995, Ser. No. 581,278

Int. Cl.[6] H02G *3/08*

U.S. Cl. 174—50 **22 Claims**



1. A thin wall electrical outlet box comprising:

a bottom wall;

an upwardly extending perimeter wall bounding said bottom wall and defining a lip at an upper end thereof, said perimeter wall including a plurality of upwardly extending sidewalls, said sidewalls being joined together forming a plurality of corners,

said upper end defining a box interior; and

a means for providing localized reinforcement, including sidewall reinforcing means disposed on each of said sidewalls adjacent to said lip and corner reinforcing means including a plurality of ribs, one of said ribs being disposed adjacent to each of said corners, each rib having a bottom U-shaped portion and a top U-shaped portion extending from said bottom portion, said top portion having a width less than that of said bottom portion.

5,726,386

POTTED ELECTRICAL CIRCUITS

Prentiss Calhoun, Mendinhall, Miss., assignor to Calhoun Pitch Company, Inc., Puckett, Miss.

Division of Ser. No. 120,022, Sep. 10, 1993, Pat. No. 5,620,647. This application Oct. 23, 1995, Ser. No. 547,039

Int. Cl.[6] B29C *35/08;39/10;* **H01L** *23/28*

U.S. Cl. 174—52.2 **2 Claims**

1. A potted electrical circuit made by a process comprising the following steps:

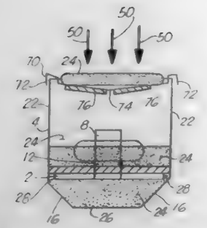
a) providing an underpour strip of precast, meltable potting compound;

b) proving an overpour strip of precast, meltable potting compound;

c) placing said underpour strip into a container;

d) placing an electrical circuit onto said underpour strip within said container;

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e) placing said overpour strip onto said electrical circuit in said container; and

f) applying direct radiant heat to a top of said overpour strip until said strip is melted upon said electrical circuit, and thereby forming said potted electrical circuit.

5,726,387

DISTRIBUTION TRUNKING JOINED BY FISHPLATE MEANS AND SEAL MEMBERS, THE SEAL MEMBERS HAVE GROOVES FOR DIRECTING WATER OFF THE TRUNKING

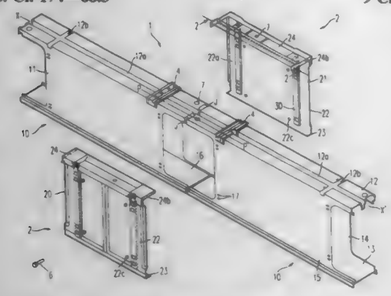
Jean-Yves Teinturier, Longvic; Jean-Pierre Thierry, Arc-sur-Tille, and Patrick Audiffret, Dijon, all of France, assignors to Schneider Electric SA, Boulogne-Billancourt, France

Filed May 26, 1995, Ser. No. 451,988

Claims priority, application France, Jun. 15, 1994, 94 07416

Int. Cl.[6] H02G *3/02;3/04*

U.S. Cl. 174—68.3 **9 Claims**



1. An electrical distribution trunking comprising:

a metal enclosure having a top wall, a bottom wall, and side walls and formed from a plurality of longitudinal sections for accommodating electrical conductors interconnected by electrical connection means;

a mechanical fishplate means for assembling said longitudinal sections together at a meeting plane;

a longitudinal channel formed in said top wall:

sealing members disposed at the ends of said longitudinal sections on said top wall and transversely to the longitudinal channel;

each of said sealing members having an abutment resting in the longitudinal channel and a conduit transverse to the longitudinal channel and connected thereto for removing water, said sealing members acting to make the connection between the longitudinal sections and the fishplate liquidtight, wherein the abutment has an opening leading into the longitudinal channel, said opening communicating with the transverse conduit by way of at least one longitudinal conduit.

5,726,388

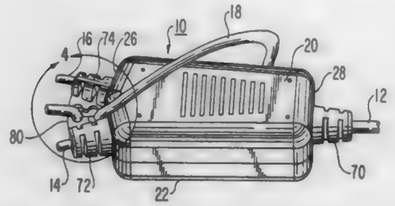
CABLE ASSEMBLY FOR CONNECTING PERIPHERAL DEVICES TO A TERMINAL

Albert J. Ferland, Penfield, N.Y., assignor to PSC Inc., Webster, N.Y.

Filed Oct. 31, 1994, Ser. No. 332,211

Int. Cl.[6] H02G *15/007*

U.S. Cl. 174—72 C **18 Claims**



1. A cable assembly for connecting electrical devices, said assembly comprising:

an electrical circuit module;

a housing having surfaces including first and second ends, sides, a top and a bottom, wherein said circuit module is disposed in said housing;

first and second flexible strain relief members extending outwardly from said first end of said housing;

a third flexible strain relief member extending outwardly from said second end of said housing;

first and second cables connected to said module extending outwardly from said first end of said housing to provide connections to first and second electrical devices, wherein said first strain relief member captures said first cable and said second strain relief member captures said second cable;

a third cable connected to said module and extending outwardly from said second end of said housing to provide a connection to a third electrical device, wherein said third strain relief member captures said third cable;

a fourth cable for providing connection to a fourth electrical device, said cable extending through one of said surfaces of said housing and connected to said module; and

a web of flexible material disposed adjacent at least one of said first and second strain relief members having an opening provided with a neck, said opening being generally wider than said fourth cable and said neck providing a passage that is generally narrower than said fourth cable, the opening being adapted to releasibly receive a loop of said fourth cable therein, thereby affording strain relief for said fourth cable.

5,726,389

CABLE SHIELD CLAMP

Robert-Jan Hogeveen, Eindhoven, and Jacobus Nicolaas Tuin, Best, both of Netherlands, assignors to The Whitaker Corporation, Wilmington, Del.

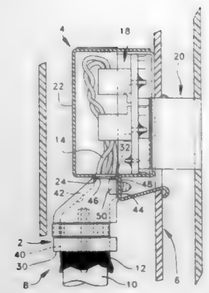
Filed Apr. 19, 1996, Ser. No. 635,044

Claims priority, application United Kingdom, Apr. 24, 1995, 9508286

Int. Cl.[6] H01R *4/66*

U.S. Cl. 174—78 **10 Claims**

1. A cable shield clamp for clamping a shielded cable to a shielded connector assembly and providing shielding continuity therebetween, the shield clamp comprising a conductive housing, a mounting section for mounting the clamp to the connector assembly, and a clamping section for securing the cable to the clamp, characterized in that the clamping section comprises a tightening mechanism, and a supple band attached at one end to the conductive housing and extending therefrom around a cable receiving cavity of the housing, the band having a free end portion that can be pulled by the tightening mechanism to clamp the cable therearound, further wherein the housing comprises a circumferential cut-out surrounding the cavity through add along which the band extends.



5,726,390

ELECTRIC BUSHING WITH VOLTAGE TAP

Friedrich Schweppe, Eppertshausen, Germany, and Helmut Spaeck, Aschaffenburg, Germany, assignors to Siemens Aktiengesellschaft, Munich, Germany

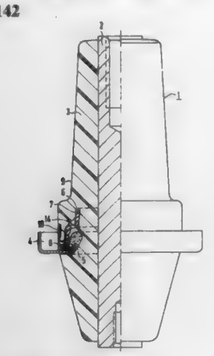
PCT No. PCT/DE94/00035, § 371 Date Jul. 21, 1995, § 102(e) Date Jul. 21, 1995, PCT Pub. No. WO94/17535, PCT Pub. Date Aug. 4, 1994

PCT Filed Jan. 14, 1994, Ser. No. 491,971

Claims priority, application Germany, Jan. 21, 1993, 9300777 U

Int. Cl.[6] H01B *17/00*

U.S. Cl. 174—142 **20 Claims**



1. An electric bushing comprising:

a) a bushing conductor;

b) an insulating body surrounding the bushing conductor, and having an inner periphery;

c) an attachment flange anchored in the insulating body;

d) a shielding body arranged on said inner periphery of the insulating body, wherein said shielding body controls an electric field;

e) a capacitive voltage tap provided for coupling to a display device, said voltage tap including:

(i) a tapping electrode concentrically surrounding the bushing conductor and being arranged inside the insulating body; and

(ii) a connector element being coupled to said tapping electrode and being accessible from outside the insulating body, wherein the tapping electrode is designed as an insulating annular member, the tapping electrode having an outer conductive layer and at least three supporting feet which engage on the shielding body, wherein one of said supporting feet bears the connector element coupled to the conductive layer.

5,726,391

THERMOSETTING ENCAPSULANTS FOR ELECTRONICS PACKAGING

Shridhar R. Iyer, Sugar Land, and Pui Kwan Wong, Houston, both of Tex., assignors to Shell Oil Company, Houston, Tex.

Filed Dec. 16, 1996, Ser. No. 768,056

Int. Cl.[6] H01L *23/28*

U.S. Cl. 174—52.2 **33 Claims**

1. An electronic package comprising:

a substrate having a metal circuit pattern disposed on a first surface thereof;

a semiconductor device having first and second surfaces wherein said first surface includes at least one electrical pad and wherein said second surface is attached to said first surface of said substrate by means of a die attach adhesive;

at least one electrically conductive connection between said at least one electrical pad on said semiconductor device and said metal circuit pattern of said substrate; and

a thermally reworkable encapsulant covering said semiconductor device and a portion of said first surface of said substrate;

said thermally reworkable encapsulant comprising

(a) a thermally reworkable crosslinked resin produced by reacting at least one dienophile having a functionality greater than one and at least one 2,5-dialkyl substituted furan-containing polymer, and

(b) at least one filler present in an amount from about 25 to about 75 percent by weight based on the total amount of components (a) and (b).

5,726,392

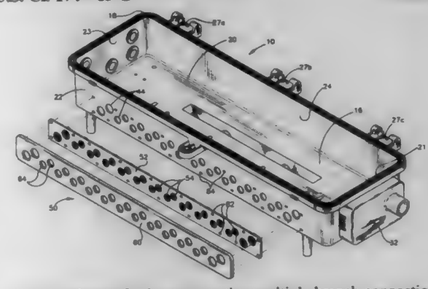
COMMUNICATIONS HOUSING HAVING GROMMET ASSEMBLY

Harbin C. Farr, Marietta, Ga., and Craig O. Belflower, Fayetteville, Ga., assignors to Communications Technology Corporation, Madison, Ala.

Filed Feb. 21, 1997, Ser. No. 804,321

Int. Cl.[6] H02G *3/18*

U.S. Cl. 174—65 G **6 Claims**



1. An enclosure for interconnecting multiple branch connections from a trunk communications carrier comprising:

a) a housing for supporting a terminal connector for multiple branch connections and including an opening for routing signal carrying cable into the housing from the trunk communications carrier; said housing further comprising multiple spaced apart access openings that extend through one wall of said housing to enable one or more branch cables to be routed away from the housing from the terminal connector;

b) a grommet strip defining multiple exit regions for alignment with the access openings in said one wall of the housing when secured to the housing; and

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c) a plate that overlies the grommet strip for securing the grommet strip in contact with the housing and that defines a series of spaced apart openings that align with the access openings in the one housing wall and that also align with the exit regions of the grommet strip for routing said one or more branch cables through the plate, grommet strip and housing wall for connection to the terminal connector;

d) wherein said grommet strip is made from an elastomeric material and the multiple exit regions of the grommet strip include crossed grooves that extend partially through the elastomeric material overlying corresponding ones of the access openings of the one wall of said housing.

5,726,393

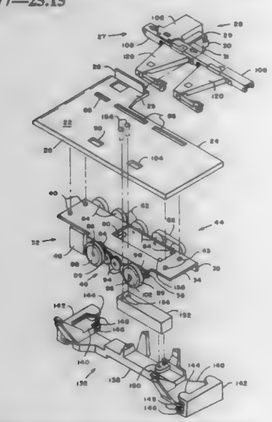
FIXED TRANSPORT ASSEMBLY FOR MAIL WEIGHING SCALE

Thomas M. Lyga, Torrington, Conn., assignor to Pitney Bowes Inc., Stamford, Conn.

Filed Jul. 8, 1994, Ser. No. 272,408

Int. Cl.[6] G01G *19/40;19/00*

U.S. Cl. 177—25.15 **4 Claims**



1. A mailing processing apparatus comprising:

an elongate feed path; and

a plurality of processing components disposed along the feed path for processing mail pieces moving seriatim along the feed path;

wherein at least one of said processing components is a weighing scale for weighing mail pieces, said weighing scale including a mounting base, a load cell fixedly connected to said mounting base, a scale platform mounted on said load cell and positioned such that an upper surface thereof is aligned with and forms a segment of the feed path, transport means for moving mail pieces across said scale platform along a direction of said feed path, and means for mounting said transport means on said scale platform whereby the tare weight of both said scale platform and said transport means is imposed on said load cell prior to said load cell being subjected to the weight of a mail piece;

wherein said transport means includes first and second transport units which are laterally spaced from each other in a direction transverse to said direction of said feed path, said first and second transport units respectively including first and second drive means which each have a portion thereof projecting above the upper surface of said scale platform which first and second drive means cooperate together to move mail pieces across said scale platform and to prevent mail pieces from skewing out of alignment during movement across said scale platform,

wherein said transport means further includes first and second resilient pressure means mounted on said scale platform in respective overlying relationship to said first and second drive means for maintaining mail pieces in firm driving engagement with said first and second drive means, said first and second resilient pressure means also forming part of the tare weight on said load cell.

5,726,394

APPARATUS FOR CHARGING A WEIGHING DEVICE ARRANGED UPSTREAM OF A PACKING DEVICE WITH FRAGILE FOODSTUFFS OF IRREGULAR SIZE AND SIMILAR PRODUCTS, IN PARTICULAR POTATO CHIPS

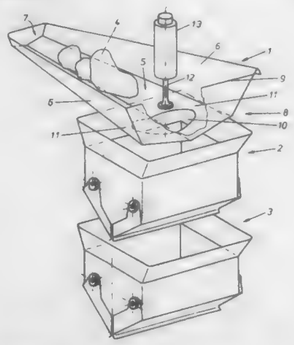
Wilhelm Ludwig Krämer sen.; Wilhelm Ludwig Krämer jun., both of Waldkraiburg, and Josef Schmidhuber, Kraiburg am Inn, all of Germany, assignors to Multipond GmbH, Waldkraiburg, Germany

Filed Sep. 21, 1994, Ser. No. 309,866

Claims priority, application Germany, Oct. 14, 1993, 43 35 074.7

Int. Cl.[6] G01G *13/00;* **B65B** *1/30;37/00*

U.S. Cl. 177—116 **11 Claims**



1. An apparatus for charging a weighing device arranged upstream of a packaging device with fragile foodstuffs, comprising:

a dosing trough for receiving said fragile foodstuffs having a free discharge side and a base;

a discharge opening passing through said base at said free discharge side;

a storage container for receiving the foodstuffs passing through said discharge opening;

a weighing container arranged downstream of the storage container;

said discharge opening sized for passage of maximum footstuffs desired;

at least one ram substantially aligned with said discharge opening, wherein said ram only moves in a plane substantially orthogonal to said discharge opening; and

means for moving said ram to break the foodstuffs.

5,726,395

ISOLATION/DAMPING MOUNTING SYSTEM FOR LOUDSPEAKER CROSSOVER NETWORK

Daniel P. Anagnos, Grandview, N.Y., assignor to Sony Corporation, Japan, and Sony Electronics Inc.

Filed Oct. 30, 1996, Ser. No. 741,013

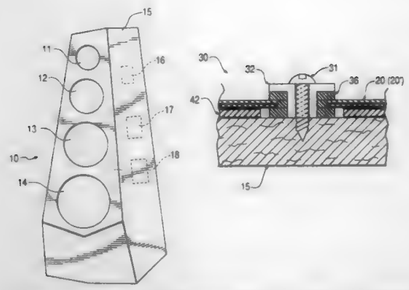
Int. Cl.[6] A47B *81/06;* **F16M** *13/00*

U.S. Cl. 181—141 **14 Claims**

1. A loudspeaker having an improved mounting system for isolating vibrational energy from a crossover network, comprising:

a speaker cabinet;

at least one crossover network: and



a mounting system for mounting said at least one crossover network to said speaker cabinet, said mounting system comprising:

a board on which the crossover network is supported, said board comprising a plurality of mounting slots spaced about a periphery thereof;

an extensional damping material disposed between the board and a surface of the speaker cabinet;

a grommet inserted into each of said mounting slots, said grommets each having surfaces which sandwich portions of said board adjacent said mounting slots;

a ferrule inserted into each of said grommets, said ferrules each having an enlarged head which engages a surface of a respective grommet and a shank which extends through the respective grommet and engages the surface of the speaker cabinet; and

a mounting screw inserted through each of said ferrules and anchored into the surface of the loudspeaker cabinet, said mounting screws each having a screw head in engagement with the enlarged head of a respective ferrule.

5,726,396

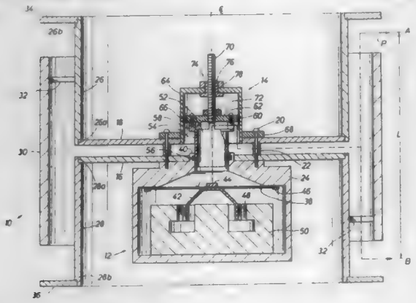
FOLDED ACOUSTICAL HORN

Louis W. Erath, 209 N. State St., Abbeville, La. 70510

Continuation of Ser. No. 348,726, Dec. 2, 1994, abandoned. This application Dec. 20, 1996, Ser. No. 771,433

Int. Cl.[6] H05K *5/00*

U.S. Cl. 181—152 **15 Claims**



1. A marine horn comprising:

a) a first elongated cup member having a base, an annulus and a flange surrounding said annulus;

b) a second elongated cup member located adjacent said first elongated cup member mirroring said first cup member and defining a space between said first and second cup base;

c) a sleeve member surrounding said first and second cup members, held in concentric alignment by pins attached to said first and second cup members thereby defining a space between said cup members, said sleeve members and each said flange;

d) an acoustical driver mounted inside second cup member, said driver having a throat in communication with said space between said first and second cups; and

e) a mechanical tuning means mounted inside said first cup member, a portion of which extends into said throat for varying the pitch of said acoustical driver.

5,726,397

VEHICLE EXHAUST DEVICE

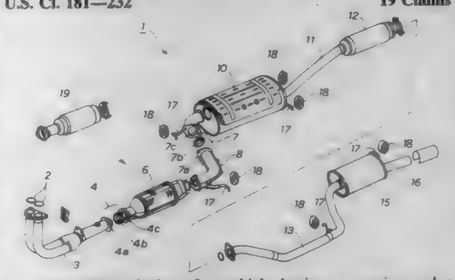
Teruaki Mukai, and Satoshi Watanabe, both of Saitama-ken, Japan, assignors to Honda Giken Kogyo Kabushiki Kaisha, Tokyo, Japan

Filed Oct. 17, 1995, Ser. No. 544,366

Claims priority, application Japan, Oct. 19, 1994, 6-253658

Int. Cl.[6] F01N *7/02*

U.S. Cl. 181—232 **19 Claims**



1. An exhaust device of a vehicle having an engine and a passenger compartment, comprising:

a) a rear silencer disposed at a rear portion of the vehicle;

b) a large-volume silencer having a volume larger than that of said rear silencer and located below the passenger compartment, said large-volume silencer being disposed adjacent to the engine;

c) an exhaust tube extending from the engine and interconnecting said rear silencer and said large-volume silencer; and

d) an intermediate silencer connected substantially at the middle of said exhaust tube so that length-dependent resonance of said exhaust tube is reduced.

5,726,398

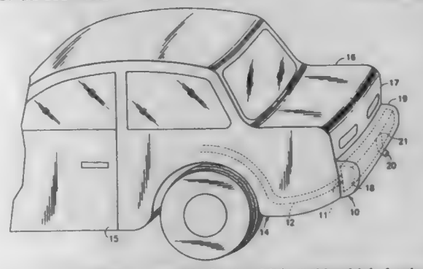
AUTOMOTIVE BUMPER AND MUFFLER COMBINATION

Wolfgang Zahn, Ludwigsburg, Germany, and Jon W. Harwood, Toledo, Ohio, assignors to AP Parts Manufacturing Company, Toledo, Ohio

Filed Feb. 26, 1997, Ser. No. 806,990

Int. Cl.[6] F01N *7/18*

U.S. Cl. 181—282 **14 Claims**



1. A bumper/muffler assembly for a vehicle, said vehicle having a rear end and opposed sides, said assembly comprising:

internal plates secured in nested relationship to one another and formed to define at least one inlet tube, at least one outlet

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tube, and opening means for permitting exhaust gas communication from said inlet tube to said outlet tube;

first and second external shells secured in surrounding relationship to said internal plates and being formed respectively to define first and second chambers surrounding and enclosing said opening means in said internal plates, said external shells being dimensioned and configured for mounting to said rear end of said vehicle and for extending substantially from one said side of said vehicle to the other; and

mounting means secured to at least one of said first and second external shells for secure mounting of said bumper/muffler assembly to said rear end of said vehicle.

5,726,399

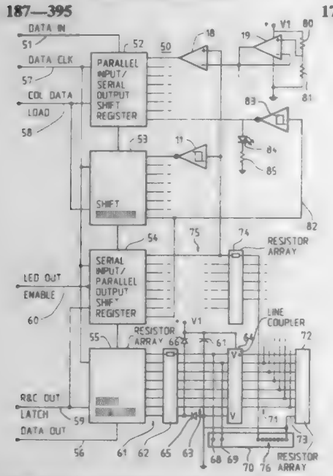
APPARATUS FOR SCANNING ELEVATOR CALL BUTTONS

James L. Murphy, Streamwood, Ill., assignor to Inventio AG, Hergiswil, Switzerland

Filed Feb. 6, 1996, Ser. No. 597,693

Int. Cl.[6] B66B *1/34*

U.S. Cl. 187—395 **17 Claims**



1. An apparatus for generating elevator call signals and indicating registered calls comprising:.

a manually actuated push button switch means for entering calls;

a means for lighting a push button of said switch means;

an input means for receiving a first predetermined duration illumination signal from a source of said illumination signal;

a resistor connected in series between said switch means and said input means whereby when a scan signal is applied to said input means and said switch means is actuated, a switch actuated signal is generated at said input means;

an access control switch means connected across said resistor whereby when said access control switch means is closed, said switch actuated signal has a first magnitude and when said access control switch means is open, said switch actuated signal has a second magnitude; and

a pulse stretcher means connected between said means for lighting and said input means and being responsive to said illumination signal for generating an output signal for a second predetermined time period significantly longer than said first predetermined time period, said means for lighting being responsive to said output signal for lighting said push button for approximately said second predetermined time period.

5,726,400

THIN SWITCH

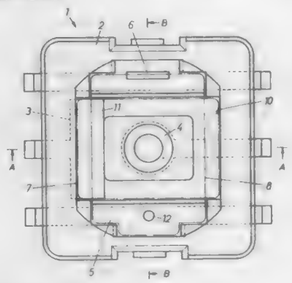
Masazi Masuda, Shizuoka, Japan, assignor to Fuji Electronics Industries, Ltd., Shizuoka, Japan

Filed Jul. 9, 1996, Ser. No. 677,090

Claims priority, application Japan, Jul. 12, 1995, 7-199149

Int. Cl.[6] H01H *13/00*

U.S. Cl. 200—16 D **10 Claims**



1. A thin switch comprising:

a base;

four stationary contacts arranged on the base and being isolated from each other:

a curved, self-resetting first movable contact plate formed of a conductive spring material, the first contact plate being mounted on the base and being curved in a first direction;

a curved, second movable contact plate formed of a conductive spring material, the second contact plate being placed on top of the first contact plate and being curved in the first direction;

the first contact plate having a first end in permanent contact with a first of the four stationary contacts

the second contact plate being in permanent contact with the first contact plate and having first and second ends, the first end of the second contact plate being in permanent contact with a second of the four stationary contacts, the second end of the second contact plate being in contact with a third of the four stationary contacts and being separable from the third stationary contact; and

the first contact plate and the second contact plate being adapted to yield and curve convexly in a second direction opposite to the first direction when an external pressure high enough to force the first contact plate and the second contact plate to yield and curve convexly in the second direction is applied to the second contact plate so that the first contact plate contacts a fourth of the four stationary contacts and the second end of the second contact plate separates from the third stationary contact.

5,726,401

CABLE/CROSSBAR INTERLOCK SYSTEM FOR CIRCUIT BREAKERS

Russell B. Green, Douglasville, and John R. Patrick, Tucker, both of Ga., assignors to Siemens Energy & Automation, Inc., Alpharetta, Ga.

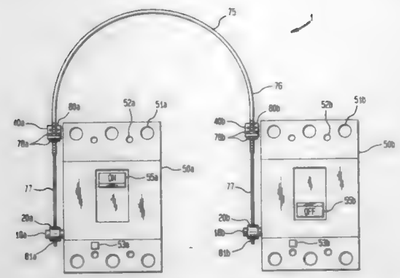
Filed Mar. 29, 1996, Ser. No. 625,482

Int. Cl.[6] H01H *9/26;* **H02B** *11/00*

U.S. Cl. 200—50.33 **12 Claims**

1. A cable interlock system for preventing at least two circuit breakers from both being closed, comprising:

a first circuit breaker assembly comprising a first main contact, a first cross bar, a first cross bar plunger, a first rotational transfer assembly and a first operating handle, wherein said first operating handle is adapted to close or open said first circuit breaker assembly, and wherein said first cross bar plunger is adapted to contact said first cross bar, and wherein said first rotational transfer assembly is adapted to move said first cross bar plunger;



a second circuit breaker assembly comprising a second main contact, a second cross bar, a second cross bar plunger, a second rotational transfer assembly and a second operating handle, wherein said second operating handle is adapted to close or open said second circuit breaker assembly, and wherein said second cross bar plunger is adapted to contact said second cross bar, and wherein said second rotational transfer assembly is adapted to move said second cross bar plunger;

a cable assembly having one end adapted for association with said first rotational transfer assembly and having another end adapted for association with said second rotational transfer assembly,

wherein said one end of said cable assembly and said first rotational transfer assembly cooperate with said first cross bar and said first cross bar plunger, and said another end of said cable assembly and said second rotational transfer assembly cooperate with said second cross bar and said second cross bar plunger so as to prevent said first main contact and said second main contact from both being closed.

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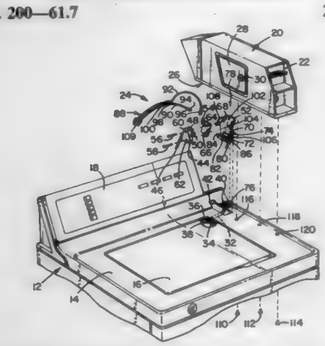
LID SWITCH ASSEMBLY FOR A COIN OPERATED APPLIANCE

Jonathan Marc Katz; Marcus Malik Hammonds, and Daniel Leon Pawlicki, all of Louisville, Ky., assignors to General Electric Company, Louisville, Ky.

Filed Oct. 7, 1996, Ser. No. 726,532

Int. Cl.[6] H01H *3/16;* **D06F** *39/00*

U.S. Cl. 200—61.7 **20 Claims**



1. A lid switch assembly for a coin operated washing machine, the washing machine including a lid rotatably mounted to a washer cover and a coin box mounted to the washer cover adjacent the lid, said lid switch assembly comprising:

a hinge rod secured to the lid and rotatable with the lid, said hinge rod comprising an actuating arm configured to be substantially located within the coin box; and

a switch configured to be mounted within the coin box, said switch comprising a switch actuator movable from and between a first position and a second position, said switch actuator biased to be in said second position, said switch being in a conducting state when said switch actuator is in said first position, and said switch being in a non-conducting state when said switch actuator is in said second position, said switch actuator positioned so that when the washing machine lid is closed, said hinge rod actuating arm acts against said switch actuator and holds said switch actuator in said first position.

5,726,403

SWITCH

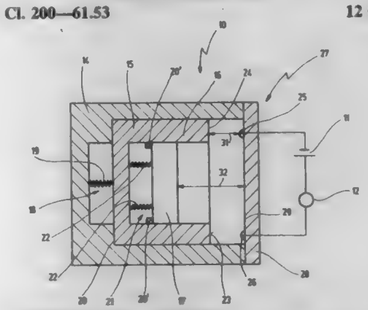
Manfred Sondergeld, Glasbachweg 18, and Dietmar Schwegler, Im Tal 27, both of D-78112 St. Georgen, Germany

Filed May 23, 1996, Ser. No. 652,262

Claims priority, application Germany, May 23, 1995, 195 18 824.1

Int. Cl.[6] H01H *35/14*

U.S. Cl. 200—61.53 **12 Claims**



1. A switching device, comprising

a material mass, said material mass movable along a path between a home position and an end position,

a first reset element, said reset element exerting a force preloading said material mass in its home position, and including an actuating part,

a switching contact activated by said actuating part when said material mass is moving from its home position towards its end position against said force of said first reset element, and

a further reset element linked to said first reset element and arranged such that it restoringly counteracts a further movement of said material mass towards said end position when said switching contact is activated by said actuating part.

5,726,404

VALVELESS LIQUID MICROSWITCH

James P. Brody, Seattle, Wash., assignor to University of Washington, Seattle, Wash.

Filed May 31, 1996, Ser. No. 656,155

Int. Cl.[6] G05D *7/01;* **B01D** *15/08;* **G01N** *33/543;33/558*

U.S. Cl. 200—81 R **39 Claims**

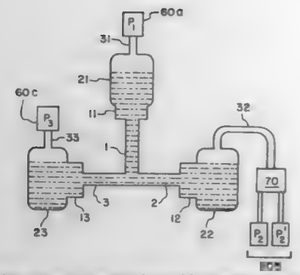
1. A liquid microswitch comprising:

a first, a second and a third microchannel, each having a junction end and a port end, said first, second and third microchannels joined at said junction ends to form a first junction;

a first, a second and a third liquid reservoir, attached to the port ends of said first, second and third microchannels, respectively;

a pressure control means for applying a first driving pressure, P_1, a second driving pressure, P_2, and a third driving pressure, P_3, to said first, second and third liquid reservoirs, respectively, wherein, in a first switching state, P_1 is greater than or less than P_2, and P_3 is approximately equal to P_1, the pressure at said first junction; and

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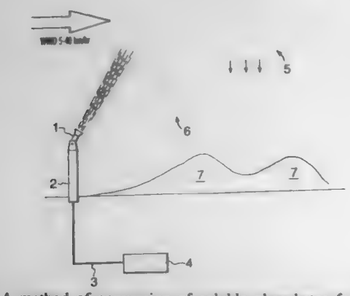
a switching means, connected to said pressure control means, for switching said first, second or third driving pressure to a second switching state, wherein P_1' is greater than or less than P_3', and P_2' is approximately equal to P_3'.

5,726,405

WASTE WATER TREATMENT METHOD AND APPARATUS

Jeffrey A. White, 25 Dossetter Way, Ottawa, Ontario, Canada, K1G 4S3

Filed Oct. 25, 1995, Ser. No. 547,817
Claims priority, application Canada, Oct. 11, 1995, 2160329
Int. Cl.[6] C02F *1/22*
U.S. Cl. 210—718 **8 Claims**



1. A method of conversion of soluble phosphates from waste water that includes phosphate ions solubilized as ammonium phosphate, ammonia, ammonium ions, carbonic acid, alkaline cations including calcium and magnesium cations, comprising atomizing said waste water into atmospheric conditions appropriate for the substantially complete phase change of said waste water to ice crystals or water vapour, thereby causing release of CO_2 and NH_3 from said waste water, and consequently causing an increased pH of said waste water, said increased pH driving conversion of the ammonium ions to ammonia gas, to achieve a lower concentration of the ammonium ions in said waste water, to cause said phosphate ions in said waste water to combine with the alkaline cations and precipitate as insoluble phosphate salts.

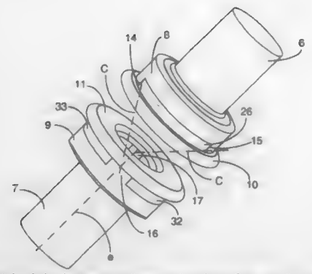
5,726,406

ELECTRICAL VACUUM SWITCH

Roger Bolongeat-Mobleu, Echirolles, and Hans Schellekens, Meylan, both of France, assignors to Schneider Electric SA, France

Filed May 24, 1996, Ser. No. 653,242
Int. Cl.[6] H01H *33/66*
U.S. Cl. 218—123 **11 Claims**

1. An electrical circuit breaker or switch comprising an elongated vacuum cartridge, said cartridge comprising:



a cylindrical isolating enclosure having first and second end-plates;

a stationary arcing contact fixed axially inside said cartridge and to said first end-plate;

a movable arcing contact, including a rod, axially and slidingly mounted with respect to said second end-plate such that said movable contact contacts and separates from said stationary arcing contact; and

means for producing an axial magnetic field in an arc formation zone between said stationary and movable arcing contacts, said means comprising means for imposing on an arcing current, generated when said movable and stationary arcing contacts are separated, an inclined trajectory with respect to a plane of contact surfaces of said movable and stationary arcing contacts,

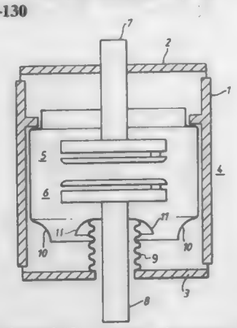
whereby a horizontal component of said inclined trajectory arcing current generates a localized axial magnetic field for diffusing an arc generated by said arcing current and whereby the arc is uniformly distributed by said axial magnetic field.

5,726,407

CONTACT ELECTRODE FOR VACUUM INTERRUPTER

Tsutomu Okutomi, Kanagawa-ken; Tsuneyo Seki, and Atsushi Yamamoto, both of Tokyo, all of Japan, assignors to Kabushiki Kaisha Toshiba, Kawasaki, Japan

Filed Mar. 7, 1996, Ser. No. 611,000
Claims priority, application Japan, Mar. 10, 1995, 7-051102
Int. Cl.[6] H01H *33/66;1/02*
U.S. Cl. 218—130 **12 Claims**



1. A contact electrode for a vacuum interrupter, comprising:

a conductive component comprising at least one selected from the group consisting of copper and silver; and

an arc-proof component with a melting temperature of more than 1500° C.;

a gradient A/X of a quantity of a composition component of said contact electrode on a surface of said contact electrode being 0.2–12 volume %/mm;

wherein,

X1 is one point on the line of any radius R1 on said surface of said contact electrode;

X2 is another point on the line of said radius R1 on said surface of said contact electrode;

X is a gap between said one point X1 and said another point X2 measured by mm, where X=X2−X1, and X2>X1≧0;

A1 is a quantity of said composition component measured by volume % in said contact electrode at said one point X1:

A2 is a quantity of said composition component measured by volume % in said contact electrode at said another point X2; and

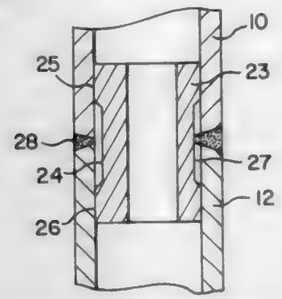
A is a difference between said quantities A1 and A2 of said composition component measured by volume %, where A=A2−A1.

5,726,408

WELD BACKING RING FOR NOZZLE REPAIRS

Arvid D. Easterday, Wadsworth, Ohio, assignor to The Babcock & Wilcox Company, New Orleans, La.

Filed Jun. 7, 1995, Ser. No. 485,560
Int. Cl.[6] B23K *9/035*
U.S. Cl. 219—61 **6 Claims**



1. A method of welding a tube in a weld area, comprising the steps of:

fitting a ring having an outside diameter which is approximately equal to an inside diameter of the tube, into the tube and over the area to be welded;

providing an annular groove on the outside diameter of the ring which extends under the area to be welded to form a purge space between the ring and the tube;

inserting the ring into the tube before the repair is made;

scribing an area on the ring which corresponds to the area to be welded;

removing the scribed ring from the tube;

welding a bead in the vicinity of the scribed area;

re-inserting the ring into the tube until the bead corresponds with the area to be welded;

welding the area to be welded in the presence of a purge gas;

removing the ring by boring a hole into the ring which has a diameter greater than the diameter of the groove and smaller than the outside diameter of the ring, to divide the ring into two parts; and

subsequently removing at least one of the two parts from the tube.

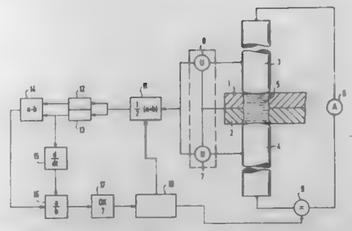
5,726,409

PROCESS AND DEVICE FOR DETERMINING A TEMPERATURE AT A SPOT WELD AND PROCESS FOR EVALUATING THE QUALITY OF THE SPOT WELD

Manfred Fortmann, Much, and Volkhard Künnemann, Engelskirchen, both of Germany, assignors to Siemens Aktiengesellschaft, Munich, Germany

Filed Feb. 26, 1996, Ser. No. 605,469
Claims priority, application Germany, Aug. 24, 1993, 43 28 337.3
Int. Cl.[6] B23K *11/25*
U.S. Cl. 219—109 **14 Claims**

1. A process for determining a temperature at a spot weld formed between two parts being made of at least one first metal by at least



one electrode being made of a second metal and being in contact with one of the parts, which comprises:

determining a first measurement value for a thermoelectric voltage between the at least one electrode and the parts prior to forming the spot weld;

determining a second measurement value for a thermoelectric voltage between the at least one electrode and the parts after forming the spot weld; and

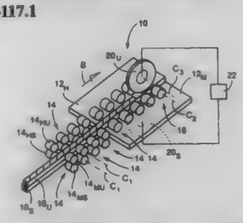
determining the temperature by taking both the first and the second measurement values into account.

5,726,410

SEAM WELDING PROCESS AND SEAM WELDING APPARATUS

Toshihiro Fukushima, Chiryu; Masaki Tanzawa; Nobuhide Kondou, both of Toyota; Fumiaki Natsumi, Okazaki, and Munetaka Toda, Kariya, all of Japan, assignors to Toyota Jidosha Kabushiki Kaisha, Japan

PCT No. PCT/JP96/00302, § 371 Date Jan. 27, 1997, § 102(e) Date Jan. 27, 1997, PCT Pub. No. WO96/26036, PCT Pub. Date Aug. 29, 1996
PCT Filed Feb. 13, 1996, Ser. No. 732,353
Claims priority, application Japan, Feb. 22, 1995, 7-059758
Int. Cl.[6] B23K *11/00*
U.S. Cl. 219—117.1 **18 Claims**



1. A seam welding process of continuously welding two plate-like workpieces at overlapping edge portions thereof while said overlapping edge portions are squeezed by a pair of roller electrodes disposed rotatably about respective two parallel axes thereof, said seam welding process comprising:

a feeding step of feeding said two plate-like workpieces in a feeding direction toward said roller electrodes by a plurality of sets of guide rollers such that said two plate-like workpieces are pinched by said guide rollers in a direction of thickness thereof while said guide rollers are rotated;

a guiding step of guiding said two plate-like workpieces being fed by said guide rollers, such that said edge portions overlap each other with a predetermined lap amount so that the overlapping edge portions are squeezed by said pair of roller electrodes; and

a welding step of continuously welding said edge portions of said two plate-like workpieces squeezed by said pair of roller electrodes, by applying a welding current between said pair of roller electrodes.

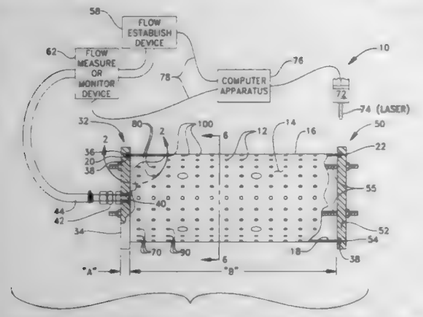
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5,726,411

METHOD AND APPARATUS FOR MAKING HOLES IN A WORKPIECE

Mario E. Abreu, Poway; Douglas C. Rawlins, Murrieta; Virendra M. Sood, Encinitas, and James B. Sperling, El Cajon, all of Calif., assignors to Solar Turbines Incorporated, San Diego, Calif.

Filed Oct. 25, 1995, Ser. No. 548,165
Int. Cl.[6] B23K *26/00*
U.S. Cl. 219—121.7 10 Claims



4. An unitary apparatus for making a workpiece having a plurality of holes defined therein and monitoring a flow through said plurality of holes, said plurality of holes defining a specific flow at a specific flow condition, said workpiece being defined by a first surface and a second surface, said second surface being spaced from said first surface, said plurality of holes extending between said first surface and said second surface, said apparatus for making the plurality of holes including:

a sealing device being operatively connected to the workpiece and forming a cavity between the sealing device and the workpiece;

a forming device for forming a first row of said plurality of holes, said first row of said plurality of holes having a first preestablished hole cross-sectional area being defined by a predetermined flow characteristic value of the first preestablished hole cross-sectional area at said specific flow condition;

a flow establishing device being positioned in communication with said cavity;

a flow monitoring device being operatively interposed the flow establishing device and the workpiece;

a computer apparatus being operatively connected to said flow establishing device, said flow monitoring device and said forming device, said computer apparatus actuating said flow establishing device and establishing a flow through said first row of said plurality of holes, said flow being directed from said one of said first surface and said second surface and said computer apparatus interpreting a signal from the flow monitoring device;

said computer apparatus interpreting said signals to compare said flow with the predetermined flow characteristic value and determine a flow requirement of a second row of said plurality of holes based on an accumulative predetermined flow characteristic value of said first and second rows of said plurality of holes and the measured flow of said first row of said plurality of holes:

said computer apparatus conforming said forming device to a second predetermined hole cross-sectional area, said second predetermined hole cross-sectional area being determined by said computer apparatus; and

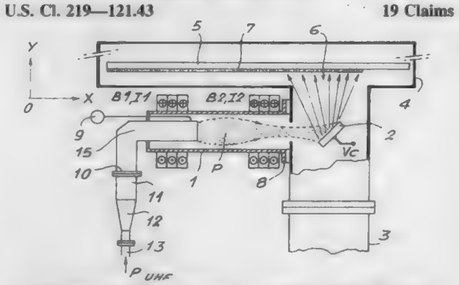
said forming device, after being conformed, forming the second row of said plurality of holes having said second predetermined hole cross-sectional area.

5,726,412

LINEAR MICROWAVE SOURCE FOR PLASMA SURFACE TREATMENT

Georges Briffod, Seyssins, and Nguyen Trong Khoi, Saint Egieve, both of France, assignors to Commissariat A L'Energie Atomique, Paris, France

PCT No. PCT/FR94/00179, § 371 Date Oct. 3, 1995, § 102(e) Date Oct. 3, 1995, PCT Pub. No. WO94/19921, PCT Pub. Date Sep. 1, 1994
PCT Filed Feb. 17, 1994, Ser. No. 507,249
Claims priority, application France, Feb. 18, 1993, 93 01847
Int. Cl.[6] B23K *10/00*
U.S. Cl. 219—121.43 19 Claims



1. Apparatus for the treatment of a surface with the aid of a particle flux, obtained from the bombardment of a target by a plasma jet, which has a linear microwave source, comprising:

an enclosure having a first plane of symmetry, extending along a length and a width thereof;

means (B_1, B_2; A_1, A_2) for producing a magnetic field in the enclosure and for generating a plasma layer (P) having a prescribed width and extending along a second plane of symmetry parallel to said first plane of symmetry;

coupling means between the microwave emission means and the plasma layer in the enclosure;

at least one target (2) comprising at least one element to be deposited, which is electrically insulated from the enclosure and raised to a bias voltage (V_c) relative to the plasma layer (P);

pumping means (3) for producing a vacuum in the enclosure (1);

gas injection means (9) for checking the ion species of the plasma layer (P), characterized in that:

the magnetic field has a plane of symmetry coinciding with that of the plasma layer (P) and that of the enclosure (1); and

the magnetic field is constant in the direction of the width of the plasma layer, thereby capable of establishing the resonance condition $2\pi f_o = eB_{RES}/m$ over the entire plasma layer width.

5,726,413

APPARATUS FOR GENERATING A PLASMA FOR PROCESSING SUBSTRATES

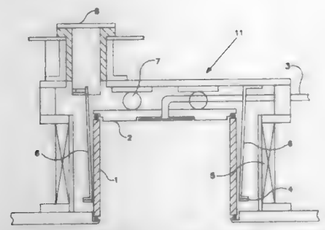
Ulrich Baenziger, Hamburg, Germany; Gerold Neumann, Berlin, Germany, and Hella-C. Scheer, Berlin, Germany, assignors to Fraunhofer-Gesellschaft für die angewandte . . ., Munich, Germany

PCT No. PCT/DE95/00131, § 371 Date Aug. 27, 1996, § 102(e) Date Aug. 27, 1996, PCT Pub. No. WO95/21516, PCT Pub. Date Aug. 10, 1995
PCT Filed Feb. 1, 1995, Ser. No. 687,365
Claims priority, application Germany, Feb. 2, 1994, 44 03 125.4
Int. Cl.[6] B23K *10/00*
U.S. Cl. 219—121.43 9 Claims

1. An apparatus for generating a plasma for the plasma-supported processing of substrates, comprising:

a plurality of substantially cylindrical plasma generating chamber means arranged in side by side relationship;

closed annular antenna means surrounding each of said plasma generating chambers in a plane disposed substantially normal



to the longitudinal axis of each of said plasma generating chambers for coupling high frequency energy thereinto;

means for establishing a longitudinal magnetic field in each of said plasma generating chambers;

means for exciting said antenna means with high frequency energy; and

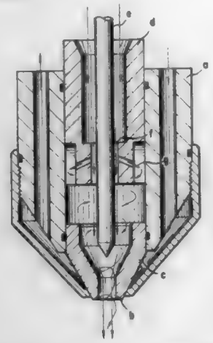
feed line means for connecting diagonal points of said annular antenna means with said means for exciting.

5,726,414

PLASMA TORCH WITH SWIRLING GAS FLOW IN A SHIELDING GAS PASSAGE

Masamitsu Kitahashi; Iwao Kurokawa; Mikio Tokunaga, and Hiroyuki Tokynaya, all of Kanagawa-ken, Japan, assignors to Komatsu Ltd., Japan

PCT No. PCT/JP94/01854, § 371 Date Apr. 12, 1996, § 102(e) Date Apr. 12, 1996, PCT Pub. No. WO95/12965, PCT Pub. Date May 11, 1995
PCT Filed Nov. 2, 1994, Ser. No. 628,666
Claims priority, application Japan, Nov. 2, 1993, 5-274310
Int. Cl.[6] B23K *10/00*
U.S. Cl. 219—121.48 18 Claims



1. A plasma torch of a plasma gas swirling flow type in which there are provided an electrode body having a forward end thereof and a nozzle that is arranged to enclose said forward end portion of the electrode and that is spaced therefrom across a plasma gas flow passage,

characterized in that

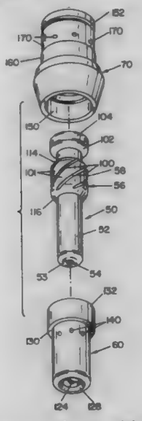
at least a portion of said electrode body at which a pilot arc can be ignited is composed of either of a material that is high in its melting point and a mixture of said high melting point material with either of a substance that is low in its work function and an oxide of said substance, and further characterized in that there is provided a shielding cap which is arranged to enclose said nozzle and is spaced therefrom across a shielding gas passage and that there is provided a ring which is configured to produce a swirling flow of a shielding gas in said shielding gas passage in a direction opposite to a direction in which said plasma gas swirls.

5,726,415

GAS COOLED PLASMA TORCH

Lifeng Luo, Solon, Ohio, and Joel D. Kneisley, Painesville, Ohio, assignors to The Lincoln Electric Company, Cleveland, Ohio

Filed Apr. 16, 1996, Ser. No. 633,126
Int. Cl.[6] B23K *10/00*
U.S. Cl. 219—121.48 42 Claims



1. A gas cooled plasma torch comprising an elongated electrically conductive nozzle with an internal generally cylindrical chamber with an opened first end and a closed second end, said second end having an exhaust port through which work gas is introduced from the nozzle chamber onto the workpiece as a plasma column; an electrically conductive electrode with an elongated, cylindrical nose extending into said cylindrical chamber of said nozzle to define a relatively thin, elongated annular gas passage between said nozzle and said electrode nose, said electrode nose having a lower end spaced from said exhaust port during operation of said plasma torch to define a lower gas chamber below said electrode nose and above said closed second end of said nozzle chamber; said electrode including a cylindrical portion above said nose, said cylindrical portion having an outer wall with axially extending swirl grooves; said electrode including a head portion spaced above said cylindrical portion; and, an insulator sleeve means having a lower portion engaging said nozzle, a central portion with an inner cylindrical wall engaging said head portion and said cylindrical wall of said cylindrical portion on said electrode for centering said electrode within said nose in said cylindrical chamber of said nozzle and an upper portion with a set of gas inlets whereby cooling gas enters said gas passage of said insulator through said gas inlets and then passes into said thin annular gas passage by way of said swirl grooves of said cylindrical portion and then out said exhaust port as a plasma column, said nozzle includes means for venting a portion of said cooling gas prior to said cooling gas passing through said exhaust port.

5,726,416

AIR PLASMA ARC CUTTER

Masuo Katooka, Kawanishi, Japan; Toshihide Tokuda, Takatsuki, Japan; Takashi Hashimoto, Kobe, Japan, and Kunio Karino, Suita, Japan, assignors to Sansha Electric Manufacturing Company, Limited, Osaka, Japan

Filed Oct. 24, 1996, Ser. No. 736,153
Int. Cl.[6] B23K *10/00*
U.S. Cl. 219—121.48 3 Claims

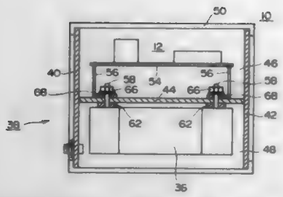
1. An air plasma arc cutter comprising:

a front panel;

a rear panel spaced from said front panel;

first and second U-shaped plastic members forming, together with said front and rear panels, a casing with a space therein;

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a partition wall having high strength, said partition wall having two opposed edges coupled to said front and rear panels and dividing said space into a first region above said partition wall and a second region below said partition wall;

an AC-to-DC voltage converter disposed in said first region, for converting an AC voltage to a DC voltage to be applied between a torch electrode of a torch of said cutter and a workpiece to be cut by said cutter; and

an air compressor disposed in said second region for supplying compressed air around said torch electrode;

said air compressor having a threaded bolt which extends through said partition wall from said second region into said first region;

wherein said cutter further comprises;

a nut screwed onto said bolt of said air compressor in said first region to thereby secure said air compressor to said partition wall;

a first shock absorber disposed between and in contact with said nut and said partition wall; and

a second shock absorber disposed between and in contact with said air compressor and said partition wall.

5,726,417

METHOD AND DEVICE FOR WELDING A WELD-ON PART AND A BASE PART

Carsten M. Claussen, Keithstrasse 12, D-10787 Berlin, Germany, and Hartmut Ilch, Garten Strasse 14, D-77694 Kehl, Germany

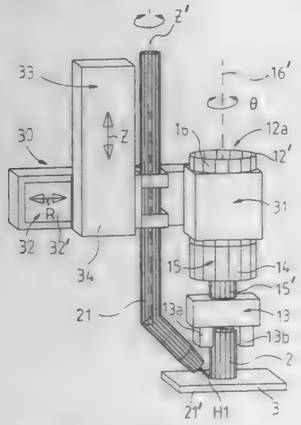
PCT No. PCT/EP94/01185, § 371 Date Nov. 30, 1995, § 102(e) Date Nov. 30, 1995, PCT Pub. No. WO94/23889, PCT Pub. Date Oct. 27, 1994

PCT Filed Apr. 16, 1994, Ser. No. 532,659

Claims priority, application Germany, Apr. 16, 1993, 43 12 439.9

Int. Cl.[6] B23K *9/12*

U.S. Cl. 219—125.11 **14 Claims**



1. A device for welding a weld-on part (2) to a base part (3) which device comprises a handling device (10) with a holding device (12) guided by a tool arm (11) of the handling device (10) for grasping and positioning the weld-on part (2) on a determinable weld-on position of the base part (3), which device (1) comprises a welding device (20) arranged on the tool arm (11) of the handling device (10), the welding element (21) of which welding device (20) can be adjusted by a positioning device (30; 31–33) in three directions relative to the holding device (12), characterized in that the welding element (21) of the welding device (20) can be moved by a first positioning unit (31) of the positioning device (30) in a first radial direction running essentially concentrically to the main axis (16') of the holding device (12), a second positioning unit (32) of the positioning device (30) in a second horizontal direction running essentially orthogonally to the main axis (16') and also running essentially radially to the main axis (16') of the holding device (12), and a third positioning unit (33) of the positioning device (30) in a third vertical direction running essentially parallel to the main axis (16'), wherein each of said first positioning unit (31), said second positioning unit (32) and said third positioning unit (33) can be moved independently from each other, furthermore, that the positioning device (30) comprises a carrier (32') extending in the second horizontal direction which can rotate by means of a first drive means about the main axis (16') of the holding device and on which a crosspiece (34) can shift in the second horizontal direction by means of a second drive means and that the welding element (21) is arranged on the crosspiece (34) which element can be shifted by a third drive means in the third vertical direction, furthermore that the welding element (21) can rotate about an axis (Z') parallel to the third vertical direction of movement.

5,726,418

METHOD AND INSTALLATION FOR LASER WELDING A SPACER GRID OF A FUEL ASSEMBLY FOR A NUCLEAR REACTOR, AND DEVICE FOR WELDING VIA THE INTERIOR OF A GRID

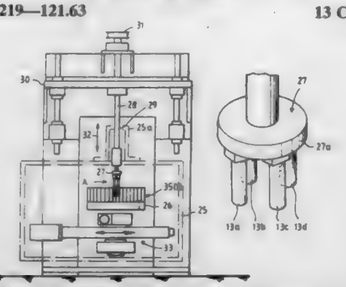
Dominique Duthoo, Romans, France, assignor to Franco-Belge de Fabrication de Combustible-FBFC, Corbevoie, France

Filed Jun. 28, 1996, Ser. No. 673,324

Claims priority, application France, Jun. 29, 1995, 95 07859

Int. Cl.[6] B23K *26/08*

U.S. Cl. 219—121.63 **13 Claims**



1. A method for welding interlaced straps of a spacer grid of a fuel assembly for a nuclear reactor, defining juxtaposed prismatic cells constituting a lattice in which a set of adjacent cells have a common edge along which at least two straps, constituting a cross-brace, are assembled and welded, said method comprising the steps of

(a) introducing a laser-beam welding device forming part of a set of at least four laser-beam welding devices into each cell of a set of at least four cells along an axis of the cell, such that the set of at least four welding devices aligns at least four welding laser beams with at least four edges of the grid;

(b) performing at least four laser-beam welds simultaneously along at least part of the length of the four edges; and

(c) carrying out relative movement between the grid and the set of laser-beam welding devices in order to introduce the at least four welding devices into at least four new cells of the grid.

9. An installation for welding interlaced straps of a spacer grid of a fuel assembly for a nuclear reactor, defining juxtaposed parallelepipedal cells of square cross-section, to constitute a lattice in which four adjacent cells have a common edge along which two straps constituting a cross-brace are assembled and welded, said installation comprising, in a leaktight enclosure,

(a) a horizontal support for receiving the grid in a horizontal arrangement in which axes and edges of the cells of the grid are vertical;

(b) a welding head on which are fixed four substantially cylindrical laser-beam devices arranged on the welding head such that their axes are parallel and arranged along the edges of a parallelepiped with square base;

(c) means for moving the welding head up and down in both directions; and

(d) means for relative movement of the support of the grid and of the welding head in two directions at 90° to each other in a horizontal plane.

5,726,419

PULSE WELDING APPARATUS

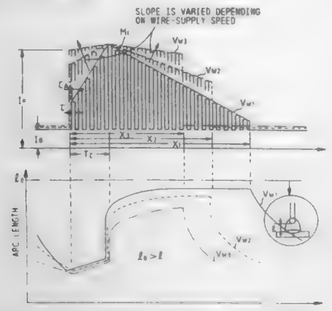
Yoichiro Tabata; Shigeo Ueguri; Yoshihiro Ueda, all of Hyogo; Masanori Mizuno, Aichi; Yoshiaki Kato, Aichi, and Osamu Nagano, Aichi, all of Japan, assignors to Mitsubishi Denki Kabushiki Kaisha, Tokyo, Japan

Division of Ser. No. 279,069, Jul. 22, 1994, Pat. No. 5,495,091, which is a continuation of Ser. No. 601,217, Nov. 19, 1990, abandoned. This application Dec. 12, 1995, Ser. No. 571,187

Claims priority, application Japan, Feb. 27, 1989, 1-45935; Mar. 9, 1989, 1-56960; Apr. 21, 1989, 1-102765; Apr. 21, 1989, 1-102766; Apr. 21, 1989, 1-102767; Apr. 21, 1989, 1-102768; Apr. 21, 1989, 1-102769; Jun. 20, 1989, 1-157414

Int. Cl.[6] B23K *9/09*

U.S. Cl. 219—130.51 **19 Claims**



1. A pulse welding apparatus having a consumable wire electrode, comprising:

a pulse current waveform control circuit for generating a pulse current, wherein, for each current pulse, said pulse current reaches a peak current value a predetermined time after a beginning of said pulse current, said peak value of said pulse current being greater than a value of the pulse current at the beginning of said current pulse; and

a discharge current circuit for generating a discharge current waveform which is formed by superimposing on a continuous base current a train of pulse currents obtained by repeating said pulse current, wherein said pulse current waveform control circuit variably controls a slope of an average current forming said peak value in accordance with a wire-supplying speed and an average voltage.

5,726,420

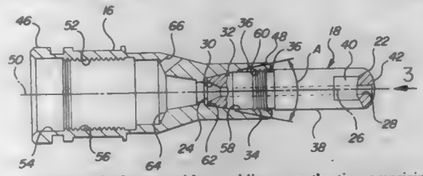
TAPER LOCK CONTACT TIP AND HEAD ASSEMBLY FOR WELDING DEVICE

Robert Michael Lajoie, Windsor, Canada, assignor to Tregaskiss Ltd., Oldcastle, Canada

Filed Sep. 18, 1996, Ser. No. 716,502

Int. Cl.[6] B23K *9/24*

U.S. Cl. 219—137.61 **6 Claims**



1. A contact tip for use with a welding gun, the tip comprising:

the tip being elongated in shape and including a first end and a second end having a wire feed axis extending therethrough, and including a wire feed aperture axially passing therethrough;

a tapered portion at the second end of the tip having a frustoconical shape;

a threaded portion of the tip adjacent the tapered portion;

an extension portion of the tip adjacent the threaded portion and extending to the first end; and

a gripping feature disposed on the extension portion;

wherein the tapered portion serves as a retaining feature and the threaded portion has an axial length of approximately 2½ times a pitch of the threads enabling the tip to be quickly unthreaded.

5,726,421

PROTECTIVE AND CIGARETTE EJECTION SYSTEM FOR AN ELECTRICAL SMOKING SYSTEM

Grier S. Fleischhauer, Midlothian; Patrick H. Hayes, Chester; Charles T. Higgins, Richmond; Richard E. Jones, Chesterfield; Robert L. Ripley, Midlothian, all of Va.; T. Paul Beane, Maplewood, N.J., and J. Robert Nelson, Jr., Easton, Conn., assignors to Philip Morris Incorporated, New York, N.Y.

Continuation-in-part of Ser. No. 380,718, Jan. 30, 1995, Pat. No. 5,666,978, which is a continuation-in-part of Ser. No. 118,665, Sep. 10, 1993, Pat. No. 5,388,594, and Ser. No. 943,504, Sep. 11, 1992, Pat. No. 5,505,214, which is a continuation-in-part of Ser. No. 012,799, Feb. 2, 1993, Pat. No. 5,249,586, which is a continuation of Ser. No. 666,926, Mar. 11, 1991, abandoned. This application Jun. 7, 1995, Ser. No. 483,363

Int. Cl.[6] A24F *13/00;* **B65D** *83/00*

U.S. Cl. 219—260 **23 Claims**

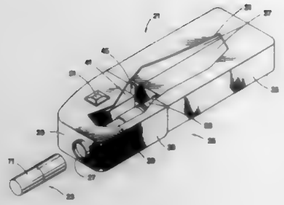
1. An ejector for ejecting a cigarette having a mouth end and a distal end from an electrical smoking system, said ejector comprising, in combination:

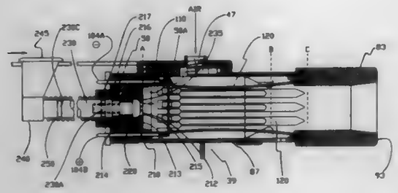
a housing for containing a cigarette, said housing having a cylindrical receptacle for receiving a cigarette inserted distal end first via an opening to be heated by the at least one heater such that an opposite cigarette mouth end protrudes from the lighter, and at least one heater contained in said housing, said heater being located in thermal proximity to an inserted cigarette, said heater being actuated responsive to draw on the protruding cigarette mouth end by a consumer to evolve tobacco flavor from said cigarette while inserted in said housing,

a movable contact surface, said contact surface having a size such that it may travel longitudinally through the cylindrical receptacle of the lighter and contact at least a central area of the inserted distal end of a cigarette, and

an actuator for moving said contact surface between a first position in the cylindrical receptacle to allow insertion of a cigarette and a second position in the cylindrical receptacle to move an inserted cigarette out of the cylindrical receptacle.

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5,726,422

APPARATUS WITH MOVING CLAMP FOR MAKING SURGICAL SUTURES, AND METHOD FOR USING SAME

Bernd Haase, Berkeley Heights, and Kenneth J. Smith, Somerville, both of N.J., assignors to Ethicon, Inc., Somerville, N.J.

Filed May 10, 1996, Ser. No. 644,879

Int. Cl.[6] **F27B** *9/24;9/06;* **B26D** *1/06;* **A61L** *17/00*

U.S. Cl. 219—388 **24 Claims**

1. An apparatus for making a surgical suture, comprising:

(A) a moving clamp for gripping surgical suture material, said moving clamp having a gripping state and a non-gripping state;

(B) a heating station for heating a length of surgical suture material;

(C) a first actuator, coupled to said moving clamp, for translating said moving clamp from a position on a first side of said heating station to a position on a second side of said heating station opposite said first side when said moving clamp is in said gripping state and for translating said moving clamp from said position on said second side of said heating station to said position on said first side of said heating station when said moving clamp is in said non-gripping state; and

(D) a stationary clamp, for gripping said surgical suture material after said first actuator has translated said moving clamp from said position on said first side of said heating station to said position on said second side of said heating station.

5,726,423

APPARATUS AND METHOD FOR REGULATING COOKING TIME IN A RADIANT ENERGY OVEN

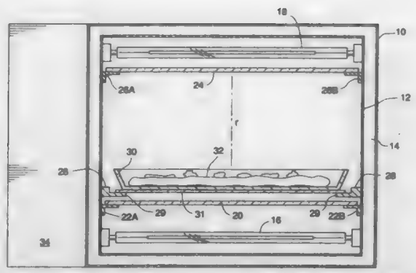
Eugene R. Westerberg, Palo Alto, and John W. O'Neal, Burlingame, both of Calif., assignors to Quadlux, Inc., Fremont, Calif.

Continuation of Ser. No. 391,621, Feb. 21, 1995, which is a continuation of Ser. No. 65,878, May 21, 1993, which is a continuation-in-part of Ser. No. 738,207, Jul. 30, 1991, which is a continuation-in-part of Ser. No. 350,024, May 12, 1989, Pat. No. 5,036,179, which is a continuation-in-part of Ser. No. 195,967, May 19, 1988, abandoned. This application Nov. 26, 1996, Ser. No. 756,458

Int. Cl.[6] **H05B** *3/68;* **A21B** *2/00*

U.S. Cl. 219—411 **8 Claims**

1. In an oven for cooking with radiant energy having a significant portion of the energy in the visible light range of the electromagnetic spectrum the method comprising the steps of:



a. determining a single hot spot on a heat absorbing surface of the oven where a residual elevated temperature exists and has a relation to the cooking time of food cooked in the oven,

b. determining an elevation temperature of the hot spot at the time of cooking, and

c. reducing the normal cooking time for a given recipe for cooking given food by an amount related to the determined elevation of the hot spot.

5,726,424

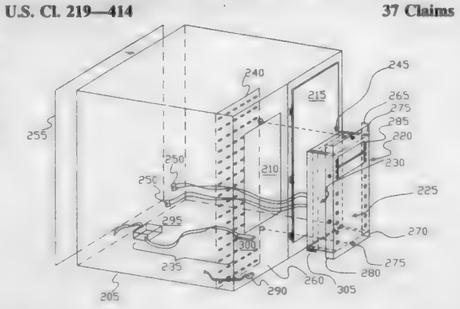
MODULAR CONTROL ENCLOSURE FOR A COOKING APPLIANCE

Bernard G. Koether, Tequesta, Fla., assignor to Technology Licensing Corporation, Tequesta, Fla.

Filed May 13, 1996, Ser. No. 645,473

Int. Cl.[6] **F27D** *19/00;21/00;* **F24C** *15/00*

U.S. Cl. 219—414 **37 Claims**



1. A modular control enclosure assembly for a cooking appliance comprising:

an enclosure having a front panel with a recessed cavity therebehind;

a control module housing electronics necessary for controlling the operations of the cooking appliance, said control module positioned in said recessed cavity and having input and output lines;

means for sensing the removal of said control module from said recessed cavity; and

safety interlock means responsive to said means for sensing for disabling power to said control module when said control module is removed from said recessed cavity.

5,726,425

TUBULAR HEATING ELEMENT WITH ELASTIC ELECTRODE

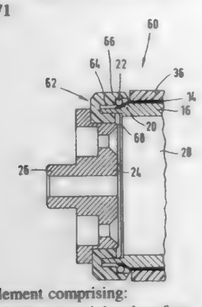
Heinz-Guenter Moebius, Duisburg, Germany, assignor to Minnesota Mining and Manufacturing Company, St. Paul, Minn.

Filed Apr. 24, 1995, Ser. No. 426,962

Claims priority, application Germany, Jun. 9, 1994, 44 20 094.3

Int. Cl.[6] **H05B** *3/26*

U.S. Cl. 219—471 **10 Claims**



1. A heating element comprising:

a support tube having a peripheral surface, wherein the support tube tapers conically toward an axial end;

an electrically resistive heating layer covering the peripheral surface of the support tube;

an elastic electrode having a contacting side comprising a plurality of projections for engaging the heating layer and uniformly applying a voltage to the heating layer;

a fixing ring coupled to the axial end of the support tube so as to form a groove for receiving the elastic electrode; and

at least one supply conductor for supplying electrical energy to the elastic electrode.

5,726,426

MICROWAVEABLE FOOD CONTAINER WITH PERFORATED LID

Jeffrey Martin Davis, Liss Forest, England; Peter Bowler, Oxfordshire, England, and Kenneth David Woods, West Yorkshire, England, assignors to Ranks Hovis McDougall Limited, Berkshire, England

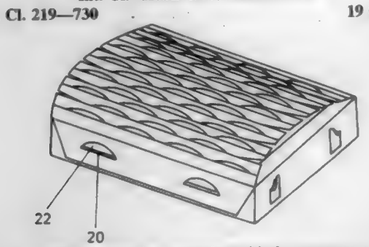
PCT No. PCT/GB93/01905, § 371 Date Jun. 26, 1995, § 102(e) Date Jun. 26, 1995, PCT Pub. No. WO94/05563, PCT Pub. Date Mar. 17, 1994

PCT Filed Sep. 8, 1993, Ser. No. 392,982

Claims priority, application United Kingdom, Sep. 9, 1992, 9219109

Int. Cl.[6] **H05B** *6/80;* **B65D** *81/34*

U.S. Cl. 219—730 **19 Claims**



1. A container for use in connection with the exposure of edible matter to microwave radiation, which comprises a base tray and lid, the lid comprising a sheet of a material which absorbs microwave radiation and is heated by it, the lid having a plurality of openings extending through it, and being so folded or constructed as to define a distance through the openings from one side to the other side of the lid, the said distance being greater than the thickness of the sheet of the material.

5,726,427

HINGE MOUNTING FOR A MICROWAVE OVEN DOOR

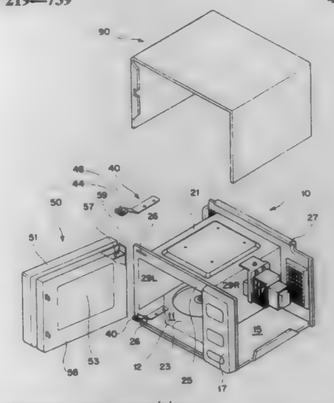
Yun Ic Hwang, Suwon, Rep. of Korea, assignor to Samsung Electronics Co., LTD., Suwon, Rep. of Korea

Filed Sep. 26, 1996, Ser. No. 722,846

Claims priority, application Rep. of Korea, Aug. 6, 1996, 96-32771

Int. Cl.[6] **H05B** *6/76*

U.S. Cl. 219—739 **4 Claims**



1. A microwave oven comprising:

a main body forming a cooking chamber with an access opening;

a door hinged to the main body for opening and closing the access opening, the door being hinged to the main body by upper and lower hinges; each of the hinges comprising a vertical pivot pin mounted on the door, and a hinge member mounted on the body; the hinge member including a body-connecting section, a door-connecting section, and an intermediate section interconnecting the body-connecting and door-connecting sections; the body-connecting, door-connecting, and intermediate sections being integrally formed as a one-piece element; the door-connecting section including a hole rotatably receiving the pivot pin; the body-connecting section being directly connected to the main body, and the door-connecting section disposed higher than the body-connecting section; the door-connecting section including a vertical edge; the door including at least one stop element arranged to abut the vertical edge of a respective door-connecting section; the door including upper and lower vertical flanges; the door connecting section including a slit projecting from the vertical edge for accommodating a respective flange when the door is an open state; the door-connecting section including an embossed elongated ridge spaced from the vertical edge for reinforcing the door-connecting section.

5,726,428

MICROWAVE OVEN SHELF HAVING MULTIPLE FOOD SUPPORTING SURFACE

Michael D. Christensen, 454 Waring Way, Gahanna, Ohio 43230

Filed Mar. 13, 1995, Ser. No. 403,211

Int. Cl.[6] **H05B** *6/80*

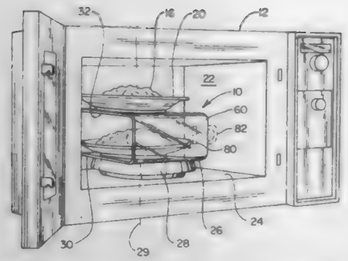
U.S. Cl. 219—754 **5 Claims**

1. A method for heating a first and second foodstuff in a microwave oven having an internal oven compartment provided with a support surface, said method comprising the steps of:

(a) disposing within the oven compartment a freestanding shelving unit comprising:

a generally planar, lower base member formed of material substantially transparent to microwave energy having a top surface, a bottom surface received on the support surface of

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the oven compartment, and an outer periphery defining a proximal edge of given lengthwise extent and a distal edge;

a generally planar, upper platform member formed of material substantially transparent to microwave energy having a top surface a bottom surface, and an outer periphery defining a proximal edge of said given lengthwise extent and a distal edge; and

a single, generally upstanding yoking portion formed of material substantially transparent to microwave energy, extending from a first end formed integrally with and supported at the proximal edge of said base member only along said given lengthwise extent to a second end formed integrally with and supporting said upper platform member at its proximal edge only along said given lengthwise extent a spaced-apart distance from said base member, said upper platform member extending freely outwardly from said yoking portion substantially coextensively over said base member, said upper platform member being supported in moment arm fashion only by said yoking portion to be stable while supporting said second foodstuff and to define a substantially unrestricted space between said lower base member and said upper platform member;

(b) supporting the first foodstuff on the top surface of the base member;

(c) supporting the second foodstuff on the top surface of the upper platform member; and

(d) introducing microwave energy into the oven compartment to heat the first and second foodstuffs.

5,726,429

PROTECTIVE COVER FOR A CONVECTION MICROWAVE OVEN

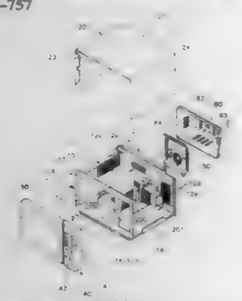
Gyu Sik Lim, Suwon, Rep. of Korea, assignor to Samsung Electronics Co., Ltd., Suwon, Rep. of Korea

Filed Sep. 26, 1996, Ser. No. 721,527

Claims priority, application Rep. of Korea, Sep. 10, 1995, 95-28176

Int. Cl.[6] **H05B** *6/64;6/80;* **A23L** *1/00*

U.S. Cl. 219—757 **8 Claims**



1. A microwave oven comprising:

a housing forming a cooking chamber;

a high frequency generator for supplying high frequency to the cooking chamber to perform microwave cooking;

a heater for supplying heat to the cooking chamber to perform convection cooking;

a cooling chamber disposed rearwardly of the cooking chamber and housing a motor and cooling fan, the cooling chamber including a protective cover defining a back wall of the cooking chamber;

the protective cover including a central surface, and a plurality of additional surfaces all extending obliquely forwardly from respective edges of the central surface; the additional surfaces including a top surface, a right side surface, a left side surface and a bottom surface;

the central surface including air intake holes formed therein, each of the top surface, the bottom surface, and only one of the right and left side surfaces including air exhaust holes formed therein.

5,726,430

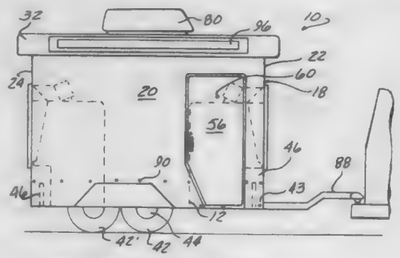
MOBILE BANKING DEVICES AND MATERIALS FOR CONSTRUCTION OF SAME

Alfred J. Ruggirello, Clarkston, Mich., assignor to Wilson ATM Services, Farmington Hills, Mich.

Filed Nov. 3, 1995, Ser. No. 552,728

Int. Cl.[6] **G06F** *15/30*

U.S. Cl. 235—379 **18 Claims**



1. A mobile banking device comprising:

a platform having an upper face and a lower face;

an outer housing mounted on and extending upward from the upper face of the platform, the outer housing having a pair of opposed side walls, a front wall positioned between and essentially perpendicular between the opposed side walls, a rear wall opposed to the front wall extending perpendicular between the side walls, the front, rear and side walls mounted to the platform and extending upward therefrom, the outer housing further including a roof extending between the front wall, side walls and rear wall opposed and essentially parallel to the upper face of the platform the outer housing defining an interior area of sufficient size to accommodate ingress and egress of service personnel;

at least one customer transaction interface unit mounted in one of the walls, the customer transaction interface unit including means accessible from outside the outer housing for maintaining interactive communication between a customer and a computational data storage and retrieval device located at a distance remote to said mobile banking device, and means for dispensing currency in specified quantities from a reserve supply of currency contained within the outer housing;

at least one set of wheels attached to the platform and extending downward therefrom; and

means for emitting discernable evidence of unauthorized breaches in security of the housing, the means contained in the housing and in contact with the outer housing, the platform and the customer transaction unit.

5,726,431

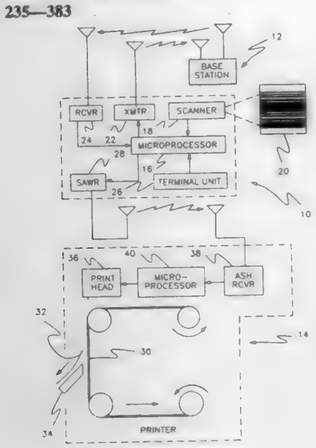
APPARATUS FOR PRINTING A SHELF TAG

Jon L. VanDonkelaar, Bellbrook, and David Wissel, Lebanon, both of Ohio, assignors to Bass, Inc., Dayton, Ohio

Filed Jun. 20, 1996, Ser. No. 667,070

Int. Cl.[6] **G06K** *15/00*

U.S. Cl. 235—383 **3 Claims**



1. A shelf tag printing system comprising:

(a) a hand-held terminal unit including:

(1) a scanner for scanning a product marked by a machine readable identifying code and generating a corresponding scanning signal,

(2) a microprocessor connected for receiving said scanning signal and generating a query related thereto, said microprocessor being further connected for processing a signal responsive to said query and generating a corresponding printing command,

(3) a radio transmitter connected for receiving said query from said microprocessor and transmitting a corresponding radio signal to a base station,

(4) a radio receiver for receiving a radio transmission from a base station and correspondingly generating said signal responsive to said query, and

(5) a surface acoustic wave resonator connected for receiving said printing command and transmitting a corresponding surface wave message; and

(b) a portable printing unit including:

(1) an amplifier sequenced hybrid receiver for receiving said surface wave message,

(2) data processing means for identifying erroneous ones of said surface wave acoustic messages and generating formatted print head control signals corresponding to one of said surface wave acoustic messages which is error-free,

(3) a print head responsive to said formatted print head control signals for printing a corresponding informational legend, and

(4) feed means for feeding a shelf tag into printing relation with said print head to receive said informational legend.

5,726,432

CONTACTING SYSTEM OR READER FOR CHIP CARDS

Manfred Reichardt, Weinsberg, Germany, assignor to Amphenol-Tuchel Electronics GmbH, Heilbronn, Germany

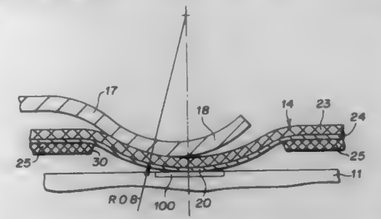
PCT No. PCT/EP94/01579, § 371 Date Nov. 14, 1995, § 102(e) Date Nov. 14, 1995, PCT Pub. No. WO94/27243, PCT Pub. Date Nov. 24, 1994

PCT Filed May 16, 1994, Ser. No. 537,745

Claims priority, application Germany, May 14, 1993, 43 16 304.1

Int. Cl.[6] **G06K** *7/06;7/00;19/06;* **H01R** *13/62*

U.S. Cl. 235—441 **16 Claims**



1. A universal chip card reader and a universal SIM card reader, respectively comprising electrical contact elements for engaging said chip card,

wherein said contact elements are arranged in contact fields on a flexible circuit board,

wherein the flexible circuit board is folded to permit said contact elements to engage both sides of a respective chip card or SIM card, and

wherein the chip card and SIM card are adapted to be inserted in any desirable direction into the respective card reader.

5,726,433

OPTICAL SCANNING APPARATUS FOR GENERATING A HELICAL SCANNING PATTERN ON AN EXTERNAL (CYLINDRICAL) SURFACE

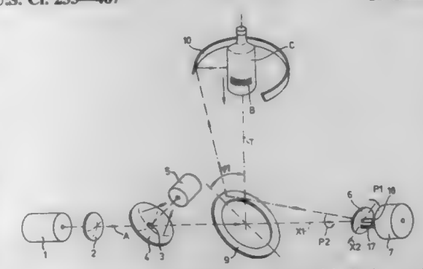
Ke-Ou Peng, Delft, Netherlands, assignor to Opticon Sensors Europe B.V., Hoofddorp, Netherlands

Filed May 30, 1996, Ser. No. 655,566

Claims priority, application European Pat. Off., May 30, 1995, 95201405

Int. Cl.[6] **G06K** *7/10*

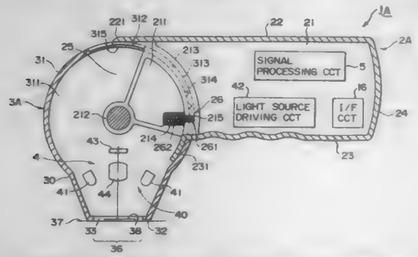
U.S. Cl. 235—467 **15 Claims**



1. An optical scanner comprising an internal helical scanning line generator (**1**, **6**, **7**) for generating a scanning beam defined by a beam focus which in use follows a helical pattern, characterized by beam shape conversion means (**9**; **11**; **12**; **15**, **15***a*; **16**) for receiving said scanning beam from said internal helical scanning line generator and converting its direction in order to make the scanning beam propagating substantially along a virtual conic or cylindrical surface around a scanning axis (T), and by deflection means (**10**; **14**; **15***b*) for receiving said scanning beam from said beam shape conversion means (**9**; **11**; **12**; **15**, **15***a*; **16**) and deflecting it substantially to said scanning axis (T).

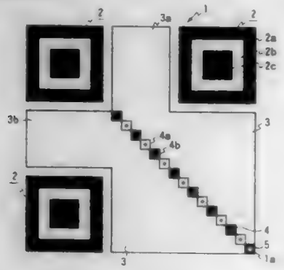
VOL 1208 ISS 2 MR 10 1998 UMI

5,726,434
ENCODED SYMBOL READER
Shuzo Seo, Tokyo, Japan, assignor to Asahi Kogaku Kogyo Kabushiki Kaisha, Tokyo, Japan
Continuation of Ser. No. 413,942, Mar. 30, 1995, abandoned. This application Feb. 24, 1997, Ser. No. 804,966
Claims priority, application Japan, Apr. 1, 1994, 6-087817
Int. Cl.[6] G06K *7/10*
U.S. Cl. 235—472 **25 Claims**



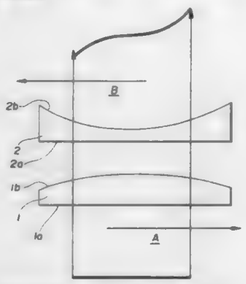
1. A symbol reader for reading symbols encoded in two dimensions, said symbol reader comprising:
means for reading said symbols, said reading means being capable of illuminating and interpreting said symbols;
a reading head, housing said reading means;
a main body, said main body having a handle portion that supports said reading head; and
means for adjusting a position of said reading head with respect to said main body, said adjusting means being enclosed within said reading head, said adjusting means having a groove formed at a base of said adjusting means, said adjusting means rotating about a shaft relative to said main body, said groove engaging an outer wall of said reading head.

5,726,435
OPTICALLY READABLE TWO-DIMENSIONAL CODE AND METHOD AND APPARATUS USING THE SAME
Masahiro Hara, Nagoya; Motoaki Watabe, Toyokawa; Tadao Nojiri, Oobu; Takayuki Nagaya, Nagoya, and Yuji Uchiyama, Aichi-ken, all of Japan, assignors to Nippondenso Co., Ltd., Kariya, and Kabushiki Kaisha Toyota Chuo Kenkyusho, Aichi-ken, both of Japan
Filed Mar. 14, 1995, Ser. No. 403,548
Int. Cl.[6] G06K *19/06;7/10*
U.S. Cl. 235—294 **61 Claims**



1. A two-dimensional code comprising:
a plurality of cells, each of said plurality of cells representing a binary-coded datum;
said plurality of cells forming a two-dimensional matrix pattern readable by a scanning operation along any arbitrary scanning lines; and
at least three positioning symbols disposed at predetermined positions in said two-dimensional matrix pattern, at least two of said at least three positioning symbols having a pattern capable of gaining an identical frequency component ratio irrespective of an orientation of said any arbitrary scanning lines whenever said arbitrary scanning lines pass through a center of each of said at least three positioning symbols.

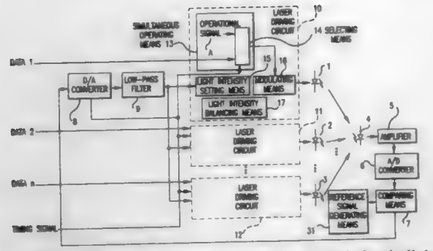
5,726,436
APPARATUS AND METHOD FOR COMPENSATING COMA ABERRATION
Michio Oka, Kanagawa; Naoya Eguchi, Tokyo, and Hiroshi Suganuma, Ibaraqi, all of Japan, assignors to Sony Corporation, Tokyo, Japan
Continuation of Ser. No. 340,959, Nov. 17, 1994, abandoned. This application Dec. 10, 1996, Ser. No. 762,508
Claims priority, application Japan, Nov. 18, 1996, 5-289609
Int. Cl.[6] G02B *3/02;* **G11B** *7/00*
U.S. Cl. 250—201.5 **14 Claims**



1. An optical pick-up apparatus comprising:
a light source;
an objective lens for converging a light beam emitted from said light source onto a spot on an optical disc;
a beam splitter for separating said light beam emitted from said light source from a returning light reflected back from said optical disc;
a detector for detecting said returning light separated from said light beam emitted from said light source;
an optical compensating device for compensating coma aberration, said optical compensating device comprising a first optical compensating device having a convex aspherical surface represented by $-\alpha R^4$ and a second optical compensating device having a concave aspherical surface represented by $+\alpha R^4$, wherein α is a fourth-order aspherical coefficient which represents a magnitude of the curve of said aspherical surfaces and R is a pupil radius of said aspherical surfaces, said optical compensating device being located on an optical path of said light beam emitted from said light source; and,
a driver for moving at least one of said first and second optical compensating devices in a direction perpendicular to an optical axis of said light beam emitted from said light source so as to offset said coma aberration.

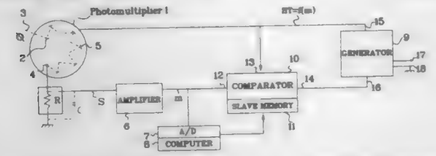
5,726,437
LIGHT INTENSITY CONTROL DEVICE
Hideaki Ashikaga, Ebina, Japan, and Masao Ito, Ebina, Japan, assignors to Fuji Xerox Co., Ltd., Tokyo, Japan
Continuation-in-part of Ser. No. 543,832, Oct. 16, 1995, abandoned. This application Apr. 26, 1996, Ser. No. 638,559
Claims priority, application Japan, Oct. 27, 1994, 6-263551; Oct. 26, 1995, 7-278675
Int. Cl.[6] G03G *15/043*
U.S. Cl. 250—205 **10 Claims**

1. A light intensity control device comprising:
total light quantity detecting means for detecting a total light quantity of a plurality of light beams simultaneously generated from a light source having a plurality of light emitting elements for generating said plurality of light beams;



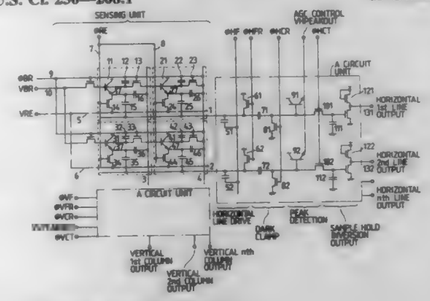
light intensity balancing means for adjusting a variation in light intensity between said light emitting elements of said light source; and
control means for simultaneously turning on said light emitting elements whose variation in light intensity has been adjusted by said light intensity balancing means, controlling said total light quantity detecting means to detect the total light quantity of said light beams from said light emitting elements turned on, and adjusting the total light quantity of said light beams from said light emitting elements according to a detection value output from said total light quantity detecting means.

5,726,438
LUMINOUS FLUX MEASURING DEVICE WITH A GAIN-CONTROLLING SLAVE CIRCUIT ENABLING THE DEVICE TO RAPIDLY ADAPT TO CHANGES IN FLUX
Alain Le Marchand, Le Mesnil, France, assignor to Instruments S.A., Paris, France
Continuation of Ser. No. 327,060, Oct. 21, 1994, abandoned. This application Jul. 15, 1996, Ser. No. 683,021
Claims priority, application France, Oct. 21, 1993, 93 12585
Int. Cl.[6] H01J *40/14;39/12*
U.S. Cl. 250—207 **15 Claims**



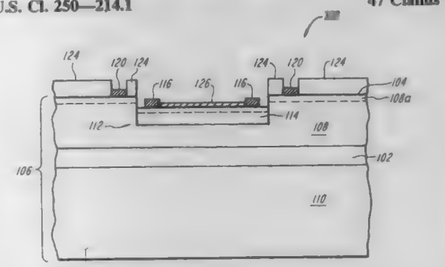
1. A luminous flux measuring device to provide a flux measurement, said device comprising:
a) a gain controllable photoreceiver to receive a luminous flux to be measured and to output an electrical flux measurement signal;
b) measurement means for recording and evaluating the electrical flux measurement signal supplied by the photoreceiver and for producing the measurement sought;
c) a gain control circuit providing a gain control signal for controlling the gain of the photoreceiver;
d) a gain slaving circuit to output a gain control slave signal to the gain control circuit, said gain slaving circuit including:
i) a slave memory containing characteristic values of a continuous gain control function f(m);
ii) a comparator connected to receive the electrical flux measurement signal from the photoreceiver, to receive the gain control signal from the gain control circuit and to receive the gain control function characteristic values from the slave memory, said comparator being operative to compare the received gain control signal with a computed gain control signal derived from said continuous function characteristic values and to generate the gain control slave signal;
wherein said gain control slave signal controls the gain control signal to have said continuous gain control function f(m) of the electrical flux measurement signal (m) produced by the photoreceiver, so that the gain of the photoreceiver is a continuous transfer function of the electrical flux measurement signal (m) produced by the photoreceiver, the transfer function being determined in accordance with said continuous gain control function.

5,726,439
IMAGE SENSOR COMPRISING A TWO-DIMENSIONAL ARRAY OF PHOTODETECTORS WITH BOTH COLUMN AND ROW OUTPUT CIRCUITS WHICH ARE IN PARALLEL
Mamoru Miyawaki, Isehara, and Isamu Ueno, Hadano, both of Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan
Continuation of Ser. No. 250,488, May 27, 1994, abandoned. This application Sep. 23, 1996, Ser. No. 717,680
Claims priority, application Japan, May 28, 1993, 5-127080
Int. Cl.[6] H01L *27/14;* **H01J** *40/14*
U.S. Cl. 250—208.1 **15 Claims**



1. An image sensor comprising:
(a) a plurality of photoelectric conversion elements arranged in a two-dimensional form;
(b) first output terminals for outputting from said image sensor signals of said plurality of photoelectric conversion elements in parallel in a row direction; and
(c) second output terminals for outputting from said image sensor signals of said plurality of photoelectric conversion elements in parallel in a column direction.

5,726,440
WAVELENGTH SELECTIVE PHOTODETECTOR
Nader M. Kalkhoran, Tewksbury, and Fereydoon Namavar, Westford, both of Mass., assignors to Spire Corporation, Bedford, Mass.
Filed Nov. 6, 1995, Ser. No. 553,875
Int. Cl.[6] H01L *31/0352*
U.S. Cl. 250—214.1 **47 Claims**



1. A wavelength selective photodetector comprising:
a substrate having a buried insulator layer for electrically isolating a lower section of said substrate located below said insulator layer from an upper section of said substrate located above said insulator layer; and

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photon detection means formed on said upper section of said substrate for detecting photons;

wherein said upper section has a selected thickness and said selected thickness at least in part determines a wavelength range of said photons detected by said photon detection means.

5,726,441

SOLAR SENSOR FOR A VEHICLE

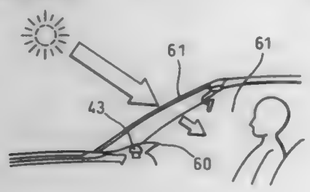
Katsuhiko Samukawa, Obu, Japan, and Yuji Honda, Okazaki, Japan, assignors to Nippondenso Co., Ltd., Kariya, Japan

Filed Jun. 18, 1996, Ser. No. 665,552

Claims priority, application Japan, Jun. 21, 1995, 7-154674

Int. Cl.[6] H01J *40/14*

U.S. Cl. 250—214.1 **36 Claims**



1. A solar sensor for a vehicle, for receiving incident solar radiation transmitted through a window glass of the vehicle, wherein

said solar sensor has a sensitivity in a wavelength band from a visible light region to a near infrared region, and

said solar sensor has a spectral sensitivity with a sensitivity ratio within a range from 0.8 to 5.0, the sensitivity ratio being expressed as:

(a sensitivity for a wavelength longer than 700 nm)/(a sensitivity for a wavelength shorter than 700 nm).

5,726,442

OPTO-ELECTRONIC SCALE READING APPARATUS HAVING LIGHT-TRANSMISSIVE PHASE-ENCODING ARRAY OF ELONGATE SPECTRAL ENCODING ELEMENTS

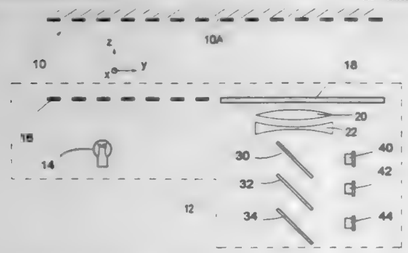
James R. Henshaw, Stroud, United Kingdom, assignor to Renishaw plc, Wotton-under-Edge, England

Filed Dec. 22, 1995, Ser. No. 577,539

Claims priority, application United Kingdom, Dec. 22, 1994, 9425907

Int. Cl.[6] G01J *3/50*

U.S. Cl. 250—226 **19 Claims**



1. Opto-electronic scale reading apparatus comprising:

a scale and a readhead which are relatively movable,

the readhead including means for projecting light onto the scale and generating a periodic light pattern in an analyzer plane so that relative movement of the scale and readhead results in a cyclically varying light intensity modulation at a point in the analyzer plane, the apparatus including:

a phase-encoding array of elongate spectral encoding elements through which the projected light passes, the elements being grouped into at least three sets, each set of elements having a different spectral encoding characteristic, elements in a given set having substantially the same spectral encoding characteristic, and the elements occurring in a repeating pattern on the array.

5,726,443

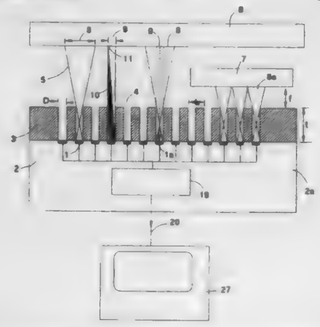
VISION SYSTEM AND PROXIMITY DETECTOR

Guy B. Immega, 4356 Jericho Circle, Vancouver, Canada, V6R 1E9, and Glenn H. Chapman, 637 Ebert Ave., Coquitlam, Canada, V3J 2L1

Filed Jan. 18, 1996, Ser. No. 588,319

Int. Cl.[6] G01J *1/06*

U.S. Cl. 250—227.2 **31 Claims**



1. An electromagnetic ray sensing system for viewing a viewed object that has its surface illuminated with electromagnetic radiation below the X-ray range of the spectrum down to and including the far infrared region comprising:

(a) an electromagnetic ray or light detector having a series of individual light sensor regions positioned across the surface of the detector for receiving and sensing illumination by electromagnetic radiation within the far infra-red to, but not including, the X-ray range, said sensor regions being connected through a sensor output to provide output signals corresponding to the intensity and location of the electromagnetic radiation received by each of the individual light sensor regions in the series of light sensor regions of the detector; and

(b) an occluding mask positioned to cover said light sensor regions, such mask having a specific depth and multiple light pathways extending through the depth of the mask, each pathway having entrance and exit openings and each pathway having an aspect ratio of at least 3 to 1, each of said light pathways being positioned to provide access for rays of electromagnetic illumination to arrive at and illuminate respectively associated light sensor regions on the detector surface

wherein each light pathway provides for the direct, straight line transmission of illumination through the depth of the mask, from said entrance to said exit openings, to provide each of such light sensor regions with a limited conical field of view that is bounded by the straight-line extensions of points on the edges of said entrance and exit openings, and wherein the mask is provided with non-reflecting, absorbing, radiation blocking surfaces for blocking received electromagnetic rays entering a specific light pathway from cross-illuminating other sensor regions on the detector surface than the specific light sensor region being illuminated through said specific associated light pathway.

5,726,444

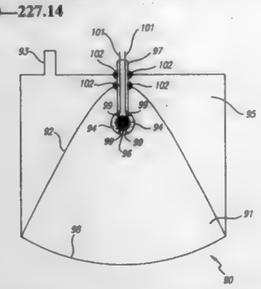
ULTRASONIC DIRECTIONAL FIBER-OPTIC HYDROPHONE

James E. Drummond, P.O. Box 107, Lincoln City, Oreg. 97367-0107, assignor to James E. Drummond, Otis, Oreg., and Joy T. Drummond, Otis, Oreg.

Filed Apr. 1, 1996, Ser. No. 626,117

Int. Cl.[6] H01J *5/16*

U.S. Cl. 250—227.14 **13 Claims**



1. A directional hydrophone comprising:

a reflector and

sensor means disposed within said reflector for detecting acoustic waves and providing an optical signal in response thereto, said sensor comprising a first optical fiber wound into a volume.

5,726,445

DEVICE FOR OBTAINING HARMONIC-FREE SIGNALS

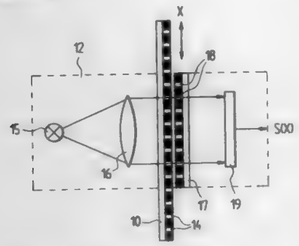
Josef Thaler, Traunreut, Germany, and Hermann Meyer, Weissbach, Germany, assignors to Dr. Johannes Heidenhain GmbH, Traunreut, Germany

Filed Jun. 21, 1996, Ser. No. 669,008

Claims priority, application European Pat. Off., Jun. 22, 1995, 95109701

Int. Cl.[6] H01J *3/14*

U.S. Cl. 250—237 G **30 Claims**



1. A device for obtaining substantially harmonic-free signals which are produced by scanning a periodic graduation with a scanning graduation, said device comprising:

said scanning graduation comprising a particular transmission function which generates a filtering function when scanning said periodic graduation, wherein said transmission function is determined by a quantity of harmonics to be suppressed in said signals;

said scanning graduation comprising at least one scanning element for scanning a graduation period of said periodic graduation; and

said at least one scanning elements have at least one track comprised of N sub-elements, which are offset from one another in a measurement direction within a graduation period of the scanning graduation and whose effective widths b_i (i=1 to N) within the graduation period are matched to their position within the graduation period so that the Fourier coefficients of the transmission function associated with the harmonics to be suppressed are minimized.

5,726,446

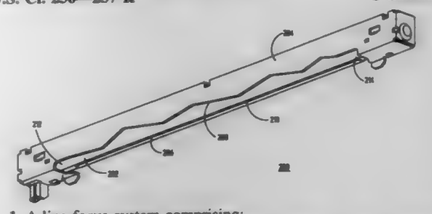
LINE-FOCUS SYSTEM WITH A SELF-ADHESIVE OCCLUDING APERTURE ATTACHED TO A LIGHT SOURCE

David D. Bohn, Ft. Collins, Colo., assignor to Hewlett Packard Company, Palo Alto, Calif.

Filed Oct. 31, 1995, Ser. No. 551,013

Int. Cl.[6] F21M *3/14*

U.S. Cl. 250—237 R **2 Claims**



1. A line-focus system comprising:

a light source, said light source being a cylinder with a center section and two opposing end sections;

an object, said light source directing light toward said object;

a photosensor array, wherein said light directed toward said object is reflected by said object and directed toward said photosensor array; and

at least one occluding aperture label adhesively attached to and curving with the surface of said light source, said at least one occluding aperture label covering substantially all of the surface of said light source, wherein the aperture of said occluding aperture label is narrower toward said center section of said light source than toward said two end sections of said light source, wherein the aperture of said occluding aperture label is shaped in such a manner that the light sensed by said photosensor array has a relatively uniform intensity across the photosensor array.

5,726,447

IONIZATION CHAMBER AND MASS SPECTROMETER HAVING A CORONA NEEDLE WHICH IS EXTERNALLY REMOVABLE FROM A CLOSED IONIZATION CHAMBER

Edward Aisawa, Sunnyvale; James L. Bertsch, Palo Alto; J. Michael Flanagan, Sunnyvale; Darrell L. Gourley, San Francisco; Val C. Robinson, Morgan Hill, and Joseph Vandenburg, Mountain View, all of Calif., assignors to Hewlett-Packard Company, Palo Alto, Calif.

Filed Jul. 12, 1996, Ser. No. 679,647

Int. Cl.[6] H01J *49/10*

U.S. Cl. 250—288 **36 Claims**

1. A mass spectrometer system having an ionization chamber comprising:

(a) a housing containing at least one ionization region;

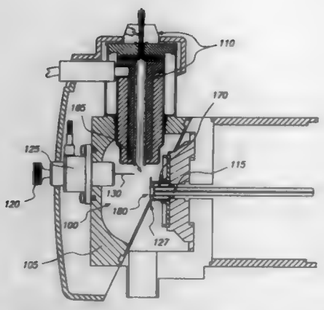
(b) a corona needle positioned such that the tip of the needle is within the ionization region wherein the corona needle is part of a needle assembly;

(c) a counter electrode positioned such that the electric potential between the needle and the counter electrode is sufficient to create a corona discharge or high electric field gradient in the vicinity of the needle tip for the purpose of ionizing molecules, and

d) means of forming a seal between the needle assembly and the needle receptacle;

wherein the needle assembly is mated with a needle receptacle, both of which are fabricated so as to automatically, accurately and precisely position the tip of the corona needle in a fixed

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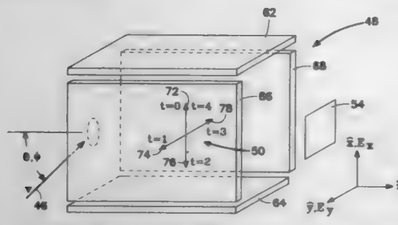
position relative to the counter electrode and wherein the needle assembly is slidably removable from the needle receptacle from outside of the closed ionization chamber.

5,726,448

ROTATING FIELD MASS AND VELOCITY ANALYZER

Steven Joel Smith, Alhambra, Calif., and Ara Chutjian, La Crescenta, Calif., assignors to California Institute of Technology, Pasadena, Calif.

Continuation of Ser. No. 694,850, Aug. 9, 1996, abandoned.
This application Feb. 21, 1997, Ser. No. 803,331
Int. Cl.[6] B01D *59/44*
U.S. Cl. 290—270 **24 Claims**



1. A mass analyzer for identifying mass and velocity distributions in an ion beam comprising:

a cell receiving said ion beam;

means for creating a rotating RF field imparting a non-magnetic field within said cell, wherein said cell is a magnetic field free cell; and

a detector located in close proximity to said cell for counting ions in said ion beam.

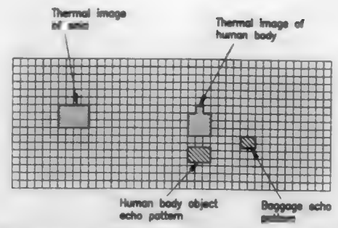
5,726,449

DETECTING APPARATUS AND MEASURING METHOD OF WARM OBJECT

Nobuyuki Yoshiike, Ikoma; Kazuhiko Hashimoto, Moriguchi, and Katsuya Morinaka, Hirakata, all of Japan, assignors to Matsushita Electric Industrial Co., Ltd, Osaka, Japan

Continuation of Ser. No. 433,056, May 3, 1995, abandoned.
This application Dec. 5, 1996, Ser. No. 760,865
Claims priority, application Japan, May 9, 1994, 6-095169; Jun. 8, 1994, 6-126464
Int. Cl.[6] G08B *13/194;13/191;13/16*
U.S. Cl. 250—338.3 **12 Claims**

10. A method of detecting a warm object with an infrared object detecting means including a pyroelectric type infrared ray sensor with a plurality of detecting units in an array, an infrared ray focusing lens for focusing the infrared rays entering the infrared ray array sensor, chopping means for intermittently shutting off the infrared rays, and infrared ray sensor rotary means for rotating a



confronting direction of the infrared array sensor, and ultrasonic object detecting means including an ultrasonic sensor for transmitting ultrasonic waves and receiving reflected waves, and ultrasonic sensor rotary means for rotating a confronting direction of the ultrasonic sensor, said method comprising the steps of:

obtaining thermal object information representative of a warm object in a space by using signals from the infrared object detecting means,

obtaining ultrasonic object information representative of an object in the space by using signals from the ultrasonic object detecting means,

determining a presence of a new object in the space by comparing ultrasonic object information obtained at a prior time with ultrasonic object information obtained at a later time,

providing information representative of a new object if a new object is determined to be present, and

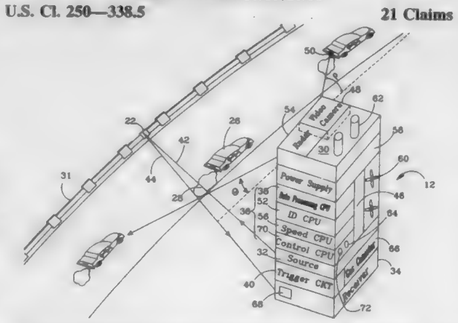
determining a presence of a new warm object in the space by comparing thermal object information obtained during the step of obtaining thermal object information with information representative of a new object provided during the step of providing information representative of a new object by overlapping the thermal object information with the information representative of a new object.

5,726,450

UNMANNED INTEGRATED OPTICAL REMOTE EMISSIONS SENSOR (RES) FOR MOTOR VEHICLES

Jay Peterson, Goleta; David R. Nelson; Troy P. Bahan, both of Santa Barbara; George C. Polchin, Santa Barbara, and Michael D. Jack, Goleta, all of Calif., assignors to Envirotest Systems Corp., Sunnyvale, Calif.

Filed Oct. 26, 1996, Ser. No. 739,487
Int. Cl.[6] G01N *21/25;21/35*
U.S. Cl. 250—338.5 **21 Claims**



1. An unmanned optical emissions sensor for sensing a gas mixture composition of an exhaust plume of a motor vehicle travelling along a road, comprising:

a source for radiating a beam of light along a path across a road such that the beam passes through the exhaust plume of a passing vehicle and otherwise passes through ambient air;

a receiver for sampling radiation levels at a plurality of predetermined wavelengths from the beam;

a canister for emitting a puff of calibration gas in the path of the beam between the source and the receiver, said calibration gas having a known reference composition at the predetermined wavelengths;

a data processing computer for computing a gas mixture composition from the sensed radiation levels in accordance with stored calibration curves;

a trigger device that produces a trigger signal when a vehicle passes through the beam causing the data processing computer to record the gas mixture composition of the vehicle's exhaust plume for a period of time;

an automated control computer that

a) calibrates the data processing computer by directing the canister to emit a puff of calibration gas, whereby the data processing computer recomputes the calibration curves in accordance with the known reference composition;

b) verifies the calibration by directing the canister to emit a puff of calibration gas, whereby the data processing computer computes a test composition from the radiation levels and accepts the calibration when the test composition is close enough to the known reference composition and otherwise rejects the calibration and initiates recalibration; and

c) monitors the gas mixture composition of the ambient air to control recalibration of the data processing computer; and

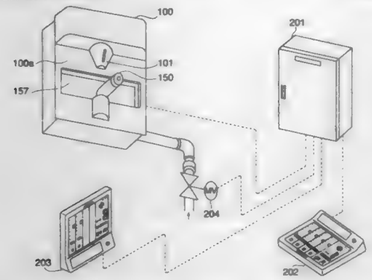
a vehicle identification device that responds to the trigger signal by recording a vehicle identification for the passing vehicle.

5,726,451

SCAN TYPE FIRE DETECTING APPARATUS

Hiroshi Ishida; Akira Asoma, and Yuzo Izaki, all of Tokyo, Japan, assignors to Hochiki Corporation, Tokyo, Japan

Filed Aug. 2, 1995, Ser. No. 510,569
Claims priority, application Japan, Aug. 2, 1994, 6-181134
Int. Cl.[6] G08B *17/12*
U.S. Cl. 250—339.15 **23 Claims**



1. A scan type fire detecting apparatus comprising:

scanning means for stepwise scanning monitoring area in a horizontal direction and vertically scanning at each step of the horizontal scan to output a detecting signal obtained during the vertical and horizontal scan; and

fire judging means for judging an occurrence of a fire based on the detecting signal from said scanning means;

said fire judging means including:

first fire judging means for judging as to whether or not the detecting signal outputted from said scanning means during the vertical and horizontal scanning is higher than a predetermined threshold value, and stopping the horizontal scan of said scanning means when the detecting signal is higher than the predetermined threshold value; and

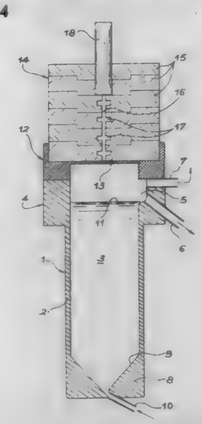
second fire judging means for vertically scanning said scanning means at the horizontal stop position determined by said first fire judging means, analyzing a frequency of the detecting signal detected through the vertical scan to judge as to whether or not the detecting signal is on the basis of a fluctuation of a flame, and judging an occurrence of a fire when it is judged that the detecting signal is on the basis of the fluctuation of the flame, wherein a first vertical scan speed of said scanning means scanned by said first fire judging means is different from a second vertical scan speed of said scanning means scanned by said second fire judging means.

5,726,452

CELL FOR THE ANALYSIS OF RADIOACTIVE LIQUIDS BY AN OVERHANGING DETECTOR

Claude Marteau, Avignon, and Marcel Durand, Bollene, both of France, assignors to Compagnie Generale des Matieres Nucleaires, Velizy-Villacoublay, France

Filed May 13, 1996, Ser. No. 644,943
Claims priority, application France, May 23, 1995, 95 06116
Int. Cl.[6] G01T *1/20;7/08*
U.S. Cl. 250—364 **15 Claims**



1. Cell for analyzing radioactive liquid comprising a side wall (**2**, **48**) and a top wall (**13**) serving as a sealing plug (**12**) and on which is placed a radioactivity detector (**18**), the liquid filling a cell volume (**3**) defined by the walls, characterized in that it is equipped with rinsing means (**28**, **40**, **41**, **42**, **46**), the rinsing means including a rinsing liquid supply pipe (**40**) passing through the cell and issuing into a rinsing cavity (**38**) made in the side wall just below the sealing plug (**12**) and widening towards the cell volume (**3**), the rinsing means intended to spray rinsing liquid over the entire sealing plug (**12**) and so that said rinsing liquid flows over the entire side wall (**2**, **48**), as well as blowing means (**36**, **37**, **38**) for blowing gas in front of the sealing plug (**12**).

5,726,453

RADIATION RESISTANT SOLID STATE NEUTRON DETECTOR

Randy G. Lott, Pittsburgh, Pa.; Frank H. Ruddy, Monroeville, Pa., and Abdul R. Dulloo, Pittsburgh, Pa., assignors to Westinghouse Electric Corporation, Pittsburgh, Pa.

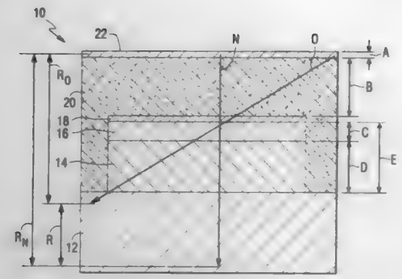
Filed Sep. 30, 1996, Ser. No. 722,388
Int. Cl.[6] G01T *3/08*
U.S. Cl. 250—390.01 **32 Claims**

1. A neutron detector comprising:

a neutron converter layer capable of generating charged particles having at least one range upon impingement of the neutron converter layer by neutrons; and

a semiconductor active region positioned to receive charged particles from the neutron converter layer and to generate an electronic pulse in response to ionization caused by the charged particles, the semiconductor active region having a

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thickness smaller than the largest range of the charged particles and positioned within the largest range of the charged particles.

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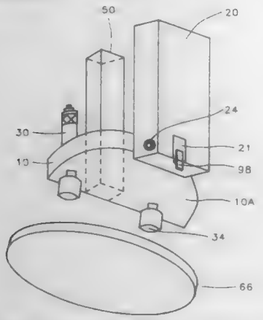
TRIPOD FOR POLISHING A SAMPLE AND FOR VIEWING THE SAMPLE UNDER A MICROSCOPE

Li Meng Chun, Taipei, Taiwan, assignor to Taiwan Semiconductor Manufacturing Company, Ltd., Hsinchu, Taiwan

Filed May 3, 1996, Ser. No. 642,362

Int. Cl.[6] H01J *37/20*

U.S. Cl. 250—442.11 **18 Claims**



1. A sample holder tripod for polishing a sample and viewing a sample with a microscope, comprising:

a) a tripod base, two adjustable legs, a support and a sample stage;

b) said tripod base having a front and back side, and a top and a flat bottom;

c) said support mounted on said back side of said tripod base; said two adjustable legs extending perpendicular from said back side;

d) said sample stage mounted on said top of said tripod base; said sample stage having a means of mounting a sample;

e) said two adjustable legs extending through the tripod stage from said front side to said back side; said adjustable legs having knobs extending through said front side of said tripod base.

5,726,455

DISK FILM OPTICAL MEASUREMENT SYSTEM

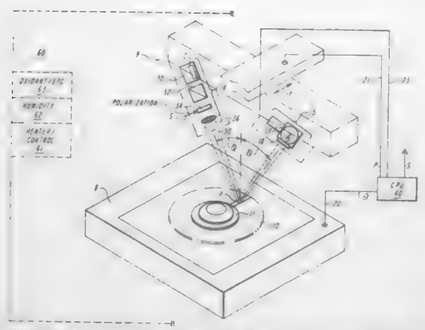
Gerard H. Vurens, Fremont, Calif., assignor to StorMedia, Inc., Santa Clara, Calif.

Filed May 1, 1996, Ser. No. 640,567

Int. Cl.[6] G01N *21/00*

U.S. Cl. 250—559.28 **20 Claims**

12. Apparatus for evaluating at least one of lubricant coating thickness and coating wear on a magnetic media disk subject to



variable environmental and test conditions, the magnetic media disk including i) a magnetic media layer, ii) a coating layer overlying said magnetic media layer, and iii) a lubricant layer overlying said coating layer, and such apparatus comprising:

means for supporting said magnetic media disk for rotation about a central axis extending normal to the substrate plane of said disk, and positioned for relative translation orthogonally of said axis with respect to a light source, said means for supporting being operable to selectively rotate said magnetic media disk about said axis as illumination is independently translated on said rotating disk orthogonally of said axis;

means for generating a collimated light beam with the light source displaced from said magnetic media disk;

means for polarizing said collimated light beam emanating from said light source to provide polarized light;

position indicating means for determining a particular location on said disk upon which said polarized light impinges;

an integrating sphere displaced from said disk upon which said polarized light impinges, said integrating sphere having

i) a light receiving aperture having an axis inclined relative to said plane of said disk and a width larger than width of said light beam so as to be operable to fully receive said beam from diverse, radially displaced light beam impingement locations on said disk, said aperture being generally axially intersected by the specular polarized light reflected from said disk, and

ii) light intensity measuring means defined by at least a portion of the interior of said integrating sphere;

means for determining a measurement with respect to said particular location on said disk by directing said polarized light against said disk at said particular location and, during said measurement,

i) reflecting said polarized light from said particular disk location, through said light receiving aperture of said integrating sphere, and into the interior of said integrating sphere, and

ii) measuring the amplitude of said polarized light impinging upon the interior of said integrating sphere during said measurement, said means for determining compiling a map of disk locations and detected amplitudes over said disk, said map determining at least one of wear of said coating layer and change in lubricant layer thickness at said particular disk location at least partially in response to said amplitude measurement.

5,726,456

ENCAPSULATED MATERIALS

E. C. Lupton; Xiaohong Yu, both of Boston; Lev Bromberg, Lynn, all of Mass., and Barry Joseph Hand, Monroe, N.Y., assignors to Gel Sciences, Inc., Bedford, Mass.

Division of Ser. No. 390,349, Feb. 17, 1995. This application Jun. 7, 1995, Ser. No. 487,857

Int. Cl.[6] B01J *13/16;* **C09K** *3/00*

U.S. Cl. 252—182.21 **21 Claims**

1. A composition of matter, comprising: a three-dimensional polymeric gel network wherein the gel network comprises a material selected from the group consisting of poly (N,N-disubstituted acrylamides), polyacrylate esters, polyalkyl substituted vinyl ethers, polyglycol ethers and mixtures thereof, the polymeric gel network having a first reactive material substantially free of water incorporated within the interstices of the gel network, wherein the first reactive material is characterized in that, when the first reactive material is exposed to predetermined conditions, the first reactive material enters into a spontaneous chemical reaction or catalyzes a spontaneous chemical reaction;

a hydrophobic polymeric encapsulation layer on an outer surface of the gel network; and

an aqueous medium having the encapsulated gel network immersed therein, wherein the encapsulation layer provides a barrier to efflux of the first reactive material from the gel network and a barrier to influx of the aqueous medium into the gel network under predetermined conditions.

$$-Ar_1-\underset{\displaystyle OR_3}{\underset{|}{CH}}-CH_2-. \qquad (5)$$

where Ar_1 is the same as defined above and R_3 represents a hydrocarbon group having 1 to 12 carbon atoms, at a temperature of 80° to 200° C.

5,726,457

ORGANIC ELECTROLUMINESCENCE DEVICE

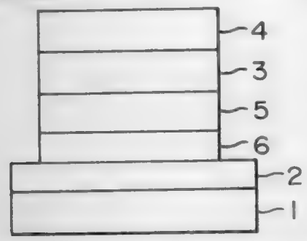
Tsuyoshi Nakano, Tsukuba, Japan; Shuji Doi, Tsukuba, Japan; Takanobu Noguchi, Tsukuba, Japan; Toshihiro Ohnishi, Tsukuba, Japan, and Yasushi Iyechika, Tsukuba, Japan, assignors to Sumitomo Chemical Company, Limited, Osaka, Japan

Continuation of Ser. No. 136,046, Oct. 14, 1993, abandoned, which is a continuation of Ser. No. 658,639, Feb. 22, 1991, abandoned. This application May 19, 1995, Ser. No. 444,917

Claims priority, application Japan, Feb. 23, 1990, 2-043930; Mar. 22, 1990, 2-075225; Oct. 4, 1990, 2-267870

Int. Cl.[6] H01L *35/24;51/00;33/00*

U.S. Cl. 257—40 **8 Claims**



1. An organic electroluminescence device having a light emitting layer or a light emitting layer and a charge transport layer disposed between a pair of electrodes one of which is electron injecting cathode and at least one of which is transparent or semi-transparent, said light emitting layer comprising a conjugated polymer having a degree of polymerization of 10 to 50,000 and a repeating unit represented by the formula (1):

$$-Ar_1-CH=CH- \qquad (1)$$

where Ar_1 represents an aromatic hydrocarbon group having 6 to 14 carbon atoms or a nuclear-substituted group in which the aromatic hydrocarbon group is substituted by one or two substituents selected from the group consisting of hydrocarbon groups having 1 to 22 carbon atoms and alkoxy groups having 1 to 22 carbon atoms, said conjugated polymer is obtained by heat treating a polymer intermediate having a repeating unit represented by the formula (4):

$$-Ar_1-\underset{\displaystyle S^+\ X^-}{\underset{|}{CH}}-CH_2 \qquad (4)$$

R_1 R_2

where Ar_1 is the same as defined above, R_1 and R_2 each represent an alkyl group having 1 to 8 carbon atoms and X^- represents a counteranion, or the formula (5):

5,726,458

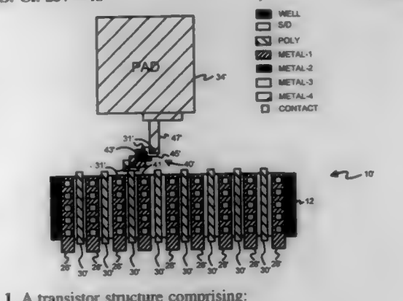
HOT CARRIER INJECTION TEST STRUCTURE AND TECHNIQUE FOR STATISTICAL EVALUATION

Nguyen Duc Bui, San Jose, Calif., assignor to Advanced Micro Devices, Inc., Sunnyvale, Calif.

Continuation of Ser. No. 613,782, Feb. 29, 1996, abandoned, which is a continuation of Ser. No. 340,138, Nov. 15, 1994, abandoned. This application Feb. 28, 1997, Ser. No. 807,931

Int. Cl.[6] H01L *27/10*

U.S. Cl. 257—48 **9 Claims**



1. A transistor structure comprising:

a substrate;

at least one source disposed on the substrate;

at least one drain disposed on the substrate; and

at least one gate disposed on the substrate between the source and the drain, the gate having a first layer of at least partially conductive material of area A_z connected to a pad of area A_p wherein the ratio R of A_p to A_z is equal to a predetermined number, the predetermined number having been chosen to be a minimum required to deter attraction of plasma current to the first layer of at least partially conductive material thereby deterring plasma current induced damage in the transistor structure.

5,726,459

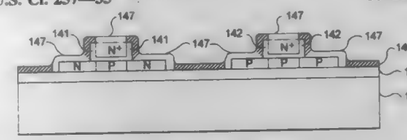
GE-SI SOI MOS TRANSISTOR AND METHOD OF FABRICATING SAME

Sheng Teng Hsu, Vancouver, Wash., and Tatsuo Nakato, Vancouver, Wash., assignors to Sharp Microelectronics Technology, Inc., Cupertino, Calif., and Sharp Kabushiki Kaisha, Osaka, Japan

Continuation of Ser. No. 49,735, Apr. 19, 1993, abandoned. This application Jun. 10, 1994, Ser. No. 258,518

Int. Cl.[6] H01L *29/04;31/036;31/0376;31/20*

U.S. Cl. 257—55 **33 Claims**



1. A Ge—Si MOS transistor comprising:

(a) an insulator layer;

(b) an active layer extending over said insulator layer, said active layer being composed of germanium doped silicon and

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having a single crystal structure, the active layer including source, channel and drain regions of said transistor, at least the channel region extending fully across said insulator layer, wherein said source, channel and drain regions have a same germanium concentration:

(c) a gate oxide layer extending over said active layer; and

(d) a gate electrode extending over said gate oxide layer, and further extending over said channel region of said active layer.

5,726,460

LIQUID CRYSTAL DEVICE

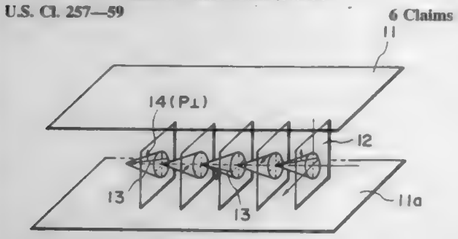
Kazuharu Katagiri, Tama; Kazuo Yoshinaga, Machida; Shinjiro Okada, Isehara, and Junichiro Kanbe, Yokohama, all of Japan, assignors to Canon Kabushiki Kaishn, Tokyo, Japan

Division of Ser. No. 191,929, Feb. 4, 1994, abandoned, which is a division of Ser. No. 34,827, Mar. 18, 1993, Pat. No. 5,311,343, which is a continuation-in-part of Ser. No. 863,781, Apr. 6, 1992, Pat. No. 5,301,049, which is a continuation-in-part of Ser. No. 251,028, Sep. 26, 1988, Pat. No. 5,120,466, which is a continuation of Ser. No. 750,295, Jul. 1, 1985, abandoned. This application Apr. 10, 1995, Ser. No. 420,312

Claims priority, application Japan, Jul. 13, 1984, 59-146211; Jul. 14, 1984, 59-146498; Sep. 12, 1984, 59-190789; Sep. 12, 1984, 59-190790; Sep. 14, 1984, 59-192920

Int. Cl.[6] H01L *29/04;31/036*

U.S. Cl. 257—59 **6 Claims**



1. A liquid crystal device, comprising:

a pair of substrates, at least one of said substrates having a uniaxial aligning treatment, and a chiral smectic liquid crystal composition disposed between the substrates in a layer thin enough to suppress its own helical structure; said chiral smectic liquid crystal composition comprising a mixture of at least one chiral compound not showing cholesteric phase and at least one different compound showing smectic phase and cholesteric phase, said chiral smectic liquid crystal composition being placed in chiral smectic C phase by temperature decrease from a higher temperature phase than the chiral smectic phase through smectic A phase and being aligned to form molecular axes aligned in a direction of said uniaxial aligning treatment in the smectic A phase.

5,726,461

ACTIVE MATRIX SUBSTRATE AND SWITCHING ELEMENT

Takayuki Shimada, Yamatokoriyama, Japan; Atsushi Ban, Soraku-gun, Japan, and Kazuko Hirakawa, Tenri, Japan, assignors to Sharp Kabushiki Kaisha, Osaka, Japan

Filed Jan. 2, 1996, Ser. No. 581,965

Claims priority, application Japan, Jan. 31, 1995, 7-014733

Int. Cl.[6] H01L *29/04;33/00*

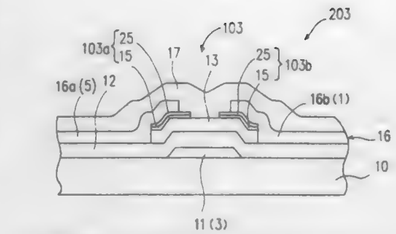
U.S. Cl. 257—59 **20 Claims**

1. An active matrix substrate comprising:

an insulation substrate;

a plurality of pixel electrodes arranged in a matrix form on the insulation substrate;

a switching element provided for each of the pixel electrodes;



gate signal lines for supplying to the switching elements a signal for controlling an electrically conducting state and a non-conducting state of the switching elements; and

source signal lines for supplying a data signal to the pixel electrodes via the corresponding switching elements;

wherein each switching element is a thin film transistor (TFT) including:

a gate electrode formed on the insulation substrate;

an insulating layer formed on the insulation substrate so as to cover the gate electrode;

a semiconductor layer formed on the insulating layer in a portion opposite to one of the gate electrodes, the semiconductor layer including a channel region;

a source electrode formed on one end of the semiconductor layer, one of the source signal lines overlapping the source electrode; and

a drain electrode formed on the other end of the semiconductor layer, one of the pixel electrodes overlapping the drain electrode,

and wherein the source and drain electrodes have a two-layer structure of an upper amorphous semiconductor layer and a lower micro-crystalline semiconductor layer.

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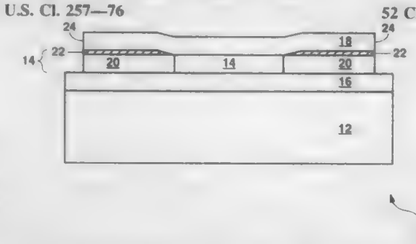
SEMICONDUCTOR STRUCTURES HAVING ELECTRICALLY INSULATING AND CONDUCTING PORTIONS FORMED FROM AN ALSB-ALLOY LAYER

Olga B. Spahn, and Kevin L. Lear, both of Albuquerque, N. Mex., assignors to Sandia Corporation, Albuquerque, N. Mex.

Filed Feb. 7, 1996, Ser. No. 597,730

Int. Cl.[6] H01L *31/0256*

U.S. Cl. 257—76 **52 Claims**



1. A semiconductor structure comprising a plurality of semiconductor layers formed on a substrate including at least one layer of a III–V compound-semiconductor alloy comprising aluminum (Al) and antimony (Sb) buried below a patterned overlayer, with at least a part of the AlSb-alloy layer being converted to form an electrically conducting portion comprising Sb overlying an electrically insulating portion comprising an oxide of aluminum.

5,726,463

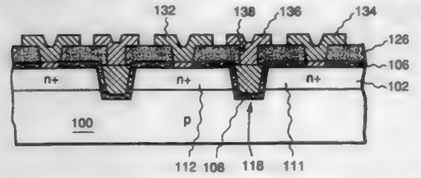
SILICON CARBIDE MOSFET HAVING SELF-ALIGNED GATE STRUCTURE

Dale Marius Brown; Richard Joseph Saia, both of Schenectady, N.Y.; John Adam Edmond, Apex, and John Williams Palmour, Cary, both of N.C., assignors to General Electric Company, Schenectady, N.Y.

Filed Aug. 7, 1992, Ser. No. 925,823

Int. Cl.[6] H01L *31/0256;31/0312;29/76*

U.S. Cl. 257—77 **5 Claims**



1. A metal oxide semiconductor device having a self-aligned gate structure comprising:

a first silicon carbide layer of a first conductivity type;

a second silicon carbide layer of a second conductivity type, opposite to said first conductivity type and epitaxially deposited upon said first silicon carbide layer;

a gate groove extending through said second layer and partially into said first layer;

a first insulating layer atop said second silicon carbide layer and lining the walls and bottom of said groove;

a filling of conductive material contained entirely in said groove so as to cover said first insulating layer in said groove;

a second insulating layer atop the portion of said first insulating layer not covered by said conductive material, said second insulating layer extending over said conductive material;

a plurality of windows in said first and second insulating layers including a first window extending through said second insulating layer to said filling of conductive material in said groove and second and third windows extending through said first and second insulating layers to said second silicon carbide layer on either side of said groove, respectively, the second silicon carbide layer constituting a source region on one side of said groove and constituting a drain region on the other side of said groove; and

conductive means extending through each of said windows to make contact with said filling of conductive material so as to form a gate electrode and to make contact with said second silicon carbide layer on either side of said groove so as to form a source electrode and a drain electrode, respectively.

5,726,464

LIGHT EMITTING DEVICE USING POROUS SEMICONDUCTOR MATERIAL

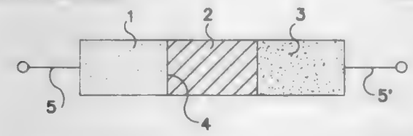
Hideya Kumomi, Yokohama, and Takao Yonehara, Atsugi, both of Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan

Continuation of Ser. No. 219,543, Mar. 29, 1994, abandoned. This application Jun. 27, 1996, Ser. No. 670,150

Claims priority, application Japan, Mar. 29, 1993, 5-069938; Mar. 18, 1994, 6-049022

Int. Cl.[6] H01L *33/00*

U.S. Cl. 257—103 **9 Claims**



1. A light emitting device comprising a porous crystalline semiconductor material region which acts as a luminous region and a non-porous region adjacent to the luminous region, wherein the porous region has plural porous layers which differ from each other, and wherein a conductive type between the regions is different at an interface between the luminous region and the non-porous region and the crystal structure between the regions is continuous.

5,726,465

LIGHT EMITTING DIODE

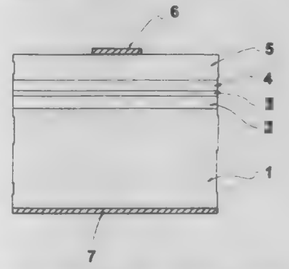
Jochen Gerner, Wiesloch; Klaus Gillessen, Heilbronn, and Albert Marshall, Flein, all of Germany, assignors to TEMIC TELEFUNKEN microelectronic GmbH, Heilbronn, Germany

Filed Aug. 7, 1996, Ser. No. 694,506

Claims priority, application Germany, Oct. 9, 1995, 195 37 543.2

Int. Cl.[6] H01C *33/00;* **H01L** *31/0328*

U.S. Cl. 257—103 **4 Claims**



1. Light emitting diode of indium gallium aluminum phosphide ((InGaAl)P) with a substrate, an electrical contact to the substrate, a dual hetero structure as an active zone comprising a first cladding layer, an active layer and a second cladding layer, a window layer applied to the second cladding layer, and an electrical contact applied to the window layer, and wherein the window layer is made of gallium aluminum phosphide ((GaAl)P).

5,726,466

PRESS PACK POWER SEMICONDUCTOR DEVICE INCORPORATING A PLURALITY OF SEMICONDUCTOR ELEMENTS

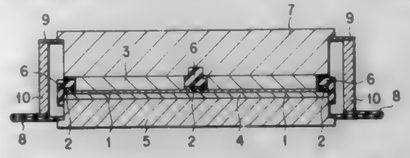
Kazunobu Nishitani, Yokohama, Japan, assignor to Kabushiki Kaisha Toshiba, Kawasaki, Japan

Filed Aug. 15, 1996, Ser. No. 698,348

Claims priority, application Japan, Sep. 11, 1995, 7-232736

Int. Cl.[6] H01L *23/48*

U.S. Cl. 257—181 **14 Claims**



1. A press pack power semiconductor device comprising:

a plurality of semiconductor elements arranged in one plane;

a first insulating frame surrounding each of the semiconductor elements and having a lattice for positioning the semiconductor elements;

first and second hard metal electrode plates provided on respective sides of each of the semiconductor elements;

a first electrode member which is in contact with the first hard metal electrode plate;

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a second insulating frame laid on the first insulating frame and having a lattice for positioning the second hard metal electrode plate; and

a second electrode member having a lattice-shaped groove in which a lattice-shaped frame portion of the second insulating frame is fitted for positioning.

5,726,467

MULTIPLE NARROW-LINE-CHANNEL FET HAVING IMPROVED NOISE CHARACTERISTICS

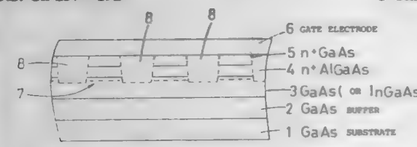
Yoshikazu Nakagawa, Kyoto, Japan, assignor to Rohm Co., Ltd., Kyoto, Japan

Filed Sep. 30, 1992, Ser. No. 954,908

Claims priority, application Japan, Oct. 21, 1991, 3-302281

Int. Cl.[6] H01L *31/0328;31/0336*

U.S. Cl. 257—192 **3 Claims**



1. A multiple narrow-line-channel FET, comprising:

a plurality of compound semiconductor layers of different compositions having a multilayer structure;

a plurality of first insulating layers formed in the compound semiconductor layers at predetermined intervals;

a plurality of channel layers formed between the first insulating layers;

a gate electrode formed on the first insulating layers and the compound semiconductor layers so as to traverse those layers; and

source and drain electrodes formed on both sides of the gate electrode.

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COMPOUND SEMICONDUCTOR BIPOLAR TRANSISTOR

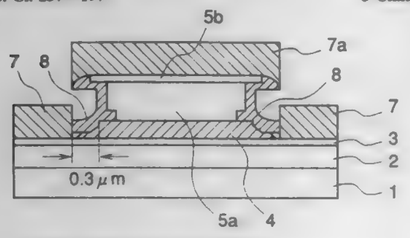
Tomoki Oku, Tokyo, Japan; Hirofumi Nakano, Tokyo, Japan; Shinichi Miyakuni, Tokyo, Japan; Teruyuki Shimura, Tokyo, Japan, and Ryo Hattori, Tokyo, Japan, assignors to Mitsubishi Denki Kabushiki Kaisha, Tokyo, Japan

Filed Mar. 13, 1996, Ser. No. 614,688

Claims priority, application Japan, Oct. 13, 1995, 7-265717

Int. Cl.[6] H01L *31/0328;31/0336*

U.S. Cl. 257—197 **5 Claims**



1. A semiconductor device comprising:

a compound semiconductor substrate;

a first compound semiconductor active layer disposed on the compound semiconductor substrate;

a second compound semiconductor active layer disposed on the first compound semiconductor active layer and having a configuration;

a first electrode comprising a lower stage disposed on the second compound semiconductor active layer and having a width that is narrower at a contact with the second compound semiconductor active layer than elsewhere and an upper stage disposed on the lower stage and having an overhanging portion protruding from and wider than the lower stage;

an insulating film continuously covering a surface of the second compound semiconductor active layer, a side surface of the lower stage of the first electrode, and a lower surface and a side surface of the overhanging portion of the upper stage; and

a second electrode disposed on the first compound semiconductor active layer at opposite sides of the second compound semiconductor active layer, self-aligned with the second compound semiconductor active layer.

5,726,469

SURFACE VOLTAGE SUSTAINING STRUCTURE FOR SEMICONDUCTOR DEVICES

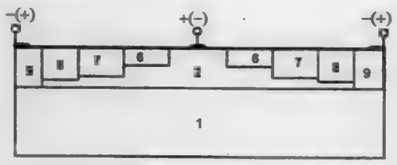
Xingbi Chen, Chengdu, China, assignor to University of Elec. Sci. & Tech. of China, Chengdu, China

Filed Jul. 19, 1995, Ser. No. 504,384

Claims priority, application China, Jul. 20, 1994, 94111842.8; Jul. 6, 1995, 95108317.1

Int. Cl.[6] H01L *29/80;31/112*

U.S. Cl. 257—285 **8 Claims**



1. A surface voltage sustaining structure for a semiconductor device comprising a first semiconductor region of a second conductivity type formed on a second semiconductor region of a first conductivity type, said first semiconductor region being doped at a higher density of impurities than said second semiconductor region, said surface voltage sustaining structure comprising a third semiconductor region formed around said first semiconductor region, said third semiconductor region having an average doping density of the second conductivity type that decreases from a value of about N_BW_{pp} gradually with increasing of a distance to said first semiconductor region, said third semiconductor region being depleted under a reverse voltage close to a breakdown voltage applied to a junction formed by said first and second semiconductor regions, where N_B is the doping density of said second semiconductor region, and where W_{pp} is the depletion width of an abrupt parallel plane junction made by said second semiconductor region, and where said average doping density of the second conductivity type of said third region refers to the average density of effectively ionized impurities of the second conductivity type in a surface area having a lateral dimension smaller than W_{pp}.

5,726,470

NONVOLATILE SEMICONDUCTOR MEMORY DEVICE AND METHOD OF FABRICATION OF THE SAME

Yasuo Sato, Tokyo, Japan, assignor to Nippon Steel Corporation, Tokyo, Japan

Filed Feb. 27, 1996, Ser. No. 607,864

Claims priority, application Japan, Feb. 28, 1995, 7-064958; Feb. 23, 1996, 8-061868

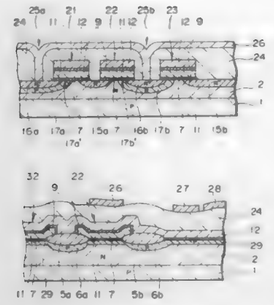
Int. Cl.[6] H01L *29/788*

U.S. Cl. 257—316 **15 Claims**

1. A nonvolatile semiconductor memory device comprising:

a semiconductor substrate;

a transistor formed on said semiconductor substrate, including a gate structure formed on a region of the surface of said



substrate, a pair of mutually-isolated impurities diffusion layers of first conduction type formed on the two sides of said gate structure on the surface of said semiconductor substrate, and a second impurities diffusion layer of second conduction type different from the first conduction type, formed in such a manner as to cover the substrate's side of at least one of said first impurities diffusion layers, said second impurities diffusion layer having a terminal section reaching a region of the surface of said semiconductor substrate, said second impurities diffusion layer forming the channel region of said transistor; and

a conduction layer electrically connected to said second impurities diffusion layer and formed accessibly externally.

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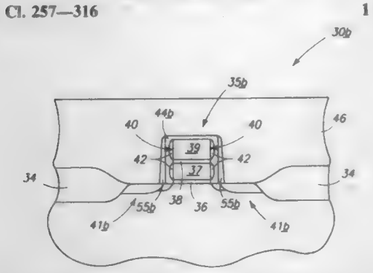
PROGRAMMABLE NON-VOLATILE MEMORY CELL AND METHOD OF FORMING A PROGRAMMABLE NON-VOLATILE MEMORY CELL

J. Dennis Keller, and Roger R. Lee, both of Boise, Id., assignors to Micron Technology, Inc., Boise, Id.

Division of Ser. No. 627,778, Apr. 1, 1996. This application Nov. 4, 1996, Ser. No. 743,503

Int. Cl.[6] H01L *29/792*

U.S. Cl. 257—316 **1 Claim**



1. Integrated circuitry including a field effect transistor, comprising:

a floating gate transistor having a gate construction which includes a first gate dielectric layer, an overlying floating gate layer which covers the first gate dielectric layer, a second gate dielectric layer covering the floating gate layer, an outwardly disposed contact gate which is disposed in covering relation over the entire second gate dielectric layer, and a pair of opposing source and drain regions, the gate construction having opposite sidewalls;

an oxide layer disposed in covering relation over each of the opposite sidewalls;

a sidewall spacer positioned on the oxide layer and in covering relation relative to each of the opposite sidewalls;

a shielding layer of aluminum having a thickness of about 50 to about 200 Angstroms and which is positioned in covering relation over the sidewall spacers;

an electrically conductive layer disposed in ohmic electrical contact with the source and drain regions, and separated from the aluminum shielding layer; and

a dielectric layer selected from the group consisting essentially of BPSG and silicon dioxide.

5,726,472

SEMICONDUCTOR DEVICE

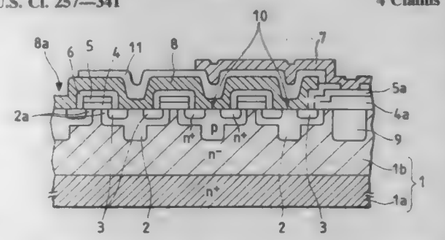
Syouji Higashida, Kyoto, Japan, assignor to Rohm Co., Ltd., Kyoto, Japan

Filed Mar. 26, 1996, Ser. No. 622,065

Claims priority, application Japan, Mar. 31, 1995, 7-075316

Int. Cl.[6] H01L *29/76*

U.S. Cl. 257—341 **4 Claims**



1. A semiconductor device having a power MOSFET comprising:

a semiconductor substrate;

a plurality of FET cells formed on said semiconductor substrate; and

a gate electrode pad, to which gate electrodes of said FET cells are connected, for connection to an external terminal, said gate electrode pad being formed on said semiconductor substrate through an insulating film so as to extend over said FET cells.

5,726,473

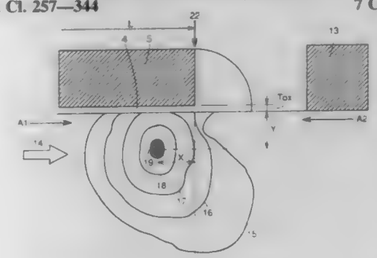
SEMICONDUCTOR DEVICE MINIMIZING HOT CARRIER GENERATION

Ritsuko Gotoda, Hyogo, Japan, assignor to Mitsubishi Denki Kabushiki Kaisha, Tokyo, Japan

Filed Jun. 17, 1996, Ser. No. 664,752

Int. Cl.[6] H01L *29/76;29/94;31/062;31/113*

U.S. Cl. 257—344 **7 Claims**



1. A semiconductor device comprising:

a semiconductor substrate having a main surface;

source and drain regions formed at the main surface of said semiconductor substrate, and spaced from each other to define a channel region therebetween; and

a gate electrode formed on said channel region with a gate insulating film therebetween, wherein

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under the conditions maximizing a substrate current, the following formula (1) is satisfied.

$$E2<E1/2 \quad (1)$$

where (E1) represents a peak value in an electric field intensity profile in a channel length direction at a depth from the main surface of said semiconductor substrate allowing passage of carriers from said source region, and (E2) represents an electric field intensity in said electric field intensity profile at said depth from said main surface of said semiconductor substrate at an end of said gate electrode near said drain region.

5,726,474

FIELD EFFECT CONTROLLED SEMICONDUCTOR COMPONENT WITH INTEGRATED RESISTANCE THEREIN

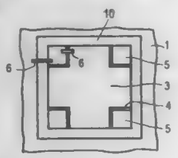
Gerhard Miller, Penzing; Thomas Laska, and Alfred Porst, both of Munich, all of Germany, assignors to Siemens Aktiengesellschaft, Munich, Germany

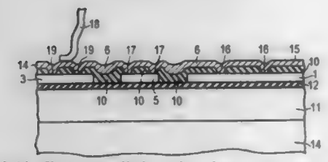
Filed Mar. 19, 1996, Ser. No. 617,566

Claims priority, application Germany, Apr. 5, 1995, 195 12 799.4

Int. Cl.[6] H01L *29/41*

U.S. Cl. 257—364 **7 Claims**





1. A field effect controlled semiconductor component comprising;

a semiconductor body; and

a doped polysilicon layer having a gate electrode and a rectangular contact surface for a gate lead disposed on and insulated from the semiconductor body, said contact surface having an ohmic resistor disposed substantially at each corner, the ohmic resistor connecting the gate electrode to the contact surface of the doped polysilicon layer.

5,726,475

SEMICONDUCTOR DEVICE HAVING DIFFERENT IMPURITY CONCENTRATION WELLS

Shizuo Sawada, Yokohama; Syuso Fujii, Kawasaki, and Masaki Ogihara, Yokohama, all of Japan, assignors to Kabushiki Kaisha Toshiba, Kawasaki, Japan

Continuation of Ser. No. 949,972, Sep. 24, 1992, Pat. No. 5,374,830, which is a division of Ser. No. 928,527, Aug. 12, 1992, Pat. No. 5,260,226, which is a continuation of Ser. No. 721,873, Aug. 8, 1991, abandoned, which is a division of Ser. No. 609,076, Nov. 7, 1990, Pat. No. 5,079,613, which is a continuation of Ser. No. 216,045, Jul. 7, 1988, abandoned. This application Sep. 16, 1994, Ser. No. 306,965

Claims priority, application Japan, Jul. 10, 1987, 62-172231

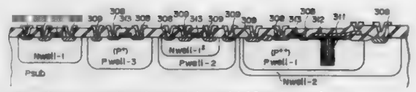
Int. Cl.[6] H01L *29/76;29/94;31/062;31/113*

U.S. Cl. 257—369 **10 Claims**

1. A semiconductor memory comprising:

a P-type substrate;

an N-type region formed in said substrate;



a first P-type region formed in said N-type region:

a memory cell structure formed in said first P-type region and including memory cell source and drain regions, a memory cell gate electrode, and a memory cell capacitor electrode;

a region containing a transistor structure formed in said substrate adjacent to said memory cell structure, said transistor structure including transistor source and drain regions, and a transistor gate electrode;

a second P-type region formed in said substrate, said second P-type region being located between said memory cell structure and said transistor structure, wherein a surface impurity concentration of said first P-type region is higher than surface impurity concentrations of said substrate and said second P-type region; and

means for supplying a predetermined potential to said N-type region.

5,726,476

SEMICONDUCTOR DEVICE HAVING A PARTICULAR CMOS STRUCTURE

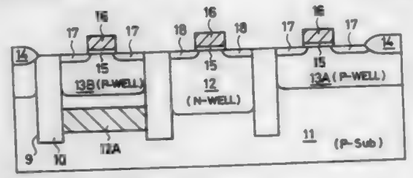
Jae Kap Kim, Kyoungki-do, Rep. of Korea, assignor to Hyundai Electronics Industries Co., Ltd., Kyoungki-do, Rep. of Korea

Division of Ser. No. 468,552, Jun. 6, 1995, Pat. No. 5,525,532. This application Feb. 8, 1996, Ser. No. 598,551

Claims priority, application Rep. of Korea, Jun. 8, 1994, 94-12821

Int. Cl.[6] H01L *29/76;29/94;31/062*

U.S. Cl. 257—369 **4 Claims**



1. A semiconductor device, comprising:

a semiconductor substrate of first conductive type;

a well region of second conductive type, formed in a predetermined area of said semiconductor substrate;

a first well region of first conductive type and a second well region of first conductive type, each being formed beside opposite sides of said well region of second conductive type in said semiconductor substrate;

trench element-isolating films which are formed at boundaries between said well region of second conductive type and said first well region of first conductive type, between said well region of second conductive type and said second well region of first conductive type and between said second well region of first conductive type and portions of said semiconductor substrate of first conductive type located beside said second well region of first conductive type;

a buried region of second conductive type formed below said second well region of first conductive type and for isolating said second well region from said semiconductor substrate of first conductive type, electrically;

a plurality of gate structures, each comprising a gate oxide film and a gate electrode and formed on said first well region of first conductive type, said second well region of first conductive type and said well region of second conductive type; and

MOSFET structures in which two source/drain regions of second conductive type formed in said first well region of first conductive type and said second well region of first conductive type, respectively, and a source/drain region of first conductive type is formed in said well region of second conductive type.

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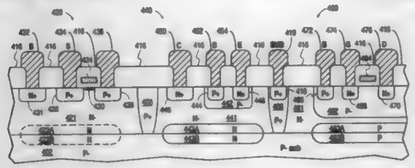
THRESHOLD ADJUSTMENT IN FIELD EFFECT SEMICONDUCTOR DEVICES

Richard K. Williams, Cupertino, and Michael E. Cornell, Campbell, both of Calif., assignors to Siliconix incorporated, Santa Clara, Calif.

Division of Ser. No. 281,314, Jul. 27, 1994, Pat. No. 5,648,288, which is a continuation of Ser. No. 855,373, Mar. 20, 1992, abandoned. This application Jun. 6, 1995, Ser. No. 482,341

Int. Cl.[6] H01L *29/76*

U.S. Cl. 257—402 **12 Claims**



1. A field effect device comprising:

a source region disposed in a semiconductor body;

a drain region disposed in the semiconductor body;

a gate disposed over a surface of the semiconductor body and insulated therefrom;

a body region disposed in the semiconductor body and generally underlying said gate, said body region comprising a threshold adjust region having an impurity dopant concentration different from an impurity dopant concentration in a region of said body region adjacent said threshold adjust region, said threshold adjust region being located sufficiently near the surface of said semiconductor body to lower the threshold voltage of said device and being sufficiently thin such that current leakage is avoided when said device is in an off condition; and

a diffusion disposed in said semiconductor body and bounded by a PN junction, said diffusion having been formed at least in part by a thermal process performed after the formation of said gate, a diffusion coefficient (D) of a portion of said semiconductor body in which said diffusion is formed and a duration (t) of said thermal process being such that a root Dt of said thermal process equals at least 0.3 microns.

5,726,478

INTEGRATED POWER SEMICONDUCTOR COMPONENT HAVING A SUBSTRATE WITH A PROTECTIVE STRUCTURE IN THE SUBSTRATE

Josef-Matthias Gantioler; Ludwig Leipold; Rainald Sander, all of München; Jens-Peer Stengl, Grafrath, and Jenoe Tihanyi, Kirchheim, all of Germany, assignors to Siemens Aktiengesellschaft, Munich, Germany

Continuation of Ser. No. 499,058, Jul. 6, 1995, abandoned. This application Dec. 19, 1996, Ser. No. 769,348

Claims priority, application Germany, Jul. 6, 1994, 44 23 733.2

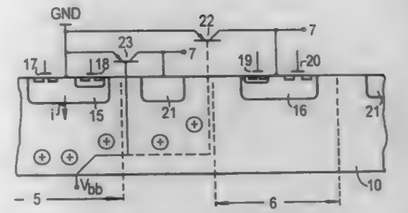
Int. Cl.[6] H01L *23/62*

U.S. Cl. 257—355 **5 Claims**

1. An integrated power semiconductor circuit comprising:

a substrate of a first conduction type; at least one first region of a second conduction type embedded in said substrate; and drive means for driving said power semiconductor component arranged in said first region;

at least one second region of the second conduction type embedded in said substrate; and control means for controlling said power semiconductor arranged in said second region;



contact-making components embedded in said first and second region including a substrate contact for supplying a supply voltage;

a power MOSFET having a drain, a source, and an inductive load connected to said source, and

a third region of the second conduction type disposed between said first and second region embedded in said substrate, said first and second regions being at different potentials, and wherein upon turnoff of said power MOSFET said third region attracts minority charge carriers in said substrate to maintain operability of said functional unit.

5,726,479

SEMICONDUCTOR DEVICE HAVING POLYSILICON ELECTRODE MINIMIZATION RESULTING IN A SMALL RESISTANCE VALUE

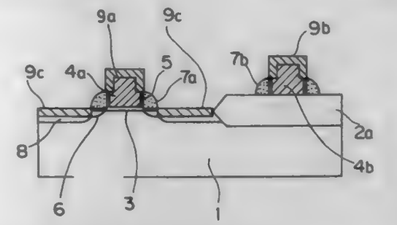
Michikazu Matsumoto, Osaka; Minoru Fujii, Hyogo, and Toshiki Yabu, Osaka, all of Japan, assignors to Matsushita Electric Industrial Co., Ltd., Osaka, Japan

Filed Jan. 11, 1996, Ser. No. 584,123

Claims priority, application Japan, Jan. 12, 1995, 7-003012; Jun. 30, 1995, 7-164976

Int. Cl.[6] H01L *29/76;29/94*

U.S. Cl. 257—412 **18 Claims**



1. A semiconductor device comprising:

an active area formed in part of a semiconductor substrate;

an isolation for surrounding the active area;

a line-like polysilicon film formed at least on the active area, said polysilicon film forming a gate electrode, said gate electrode having a mid-section and a first and second end section, said mid-section having a vertical size larger than the vertical size of the first and second end sections;

a pair of side walls comprising an insulating film formed on both side surfaces of the polysilicon film, said side walls being self-aligned with respect to the gate electrode, said side walls having a vertical size of ⅘ or less than the vertical size of the mid-section of the gate electrode;

a silicide layer formed in contact with a top surface and portions of the side surfaces of the polysilicon film projecting from the side walls, and serving as the gate electrode on the active area together with the polysilicon film; and

a source/drain region formed on the active area so as to be positioned on both sides of the polysilicon film.

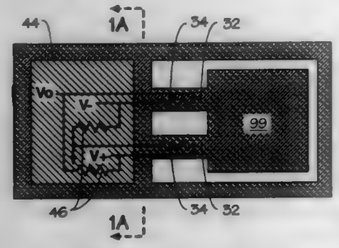
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5,726,480

ETCHANTS FOR USE IN MICROMACHINING OF CMOS MICROACCELEROMETERS AND MICROELECTROMECHANICAL DEVICES AND METHOD OF MAKING THE SAME

Kristofer S. J. Pister, Pacific Palisades, Calif., assignor to The Regents of the University of California, Oakland, Calif.

Filed Jan. 27, 1995, Ser. No. 379,751
Int. Cl.[6] H01L *29/72;29/76*
U.S. Cl. 257—415 49 Claims



1. In a method for fabricating a microelectromechanical (MEM) device, said MEM device being formed in or on at least one semiconductor substrate, including an integrated circuit formed therein by standard IC processing and including a microelectromechanical assembly, an improvement comprising:

providing a substantially completed MEM device through said standard IC processing, said MEM device being completely fabricated except for at least one etching step, said etching step defining a structural element within said microelectromechanical assembly from said at least one substrate to complete said device and to render said MEM device operable; and

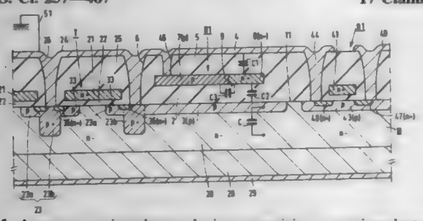
etching said MEM device with a noble gas fluoride to define said structural element with respect to said substrate.

5,726,481

POWER SEMICONDUCTOR DEVICE HAVING A TEMPERATURE SENSOR

Paul T. Moody, Oldham, United Kingdom, assignor to U.S. Philips Corporation, New York, N.Y.

Filed Jun. 27, 1996, Ser. No. 673,835
Claims priority, application United Kingdom, Jun. 30, 1995, 9513420
Int. Cl.[6] H01L *31/058*
U.S. Cl. 257—467 17 Claims



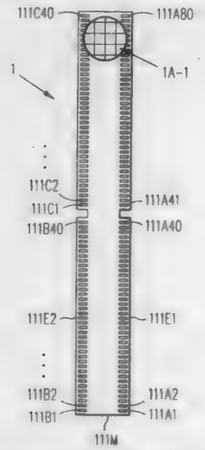
1. A power semiconductor device comprising a semiconductor body in which heat is generated during operation of the power semiconductor device, a first electrically insulating layer adjacent to one major surface of the body, which first insulating layer is present on an underlying semiconductive region of the body, and a temperature sensing means for the body comprising a thin-film sensing element which is present on the first insulating layer on the semiconductive region, characterised in that an electrically conductive layer is present on a second electrically insulating layer over the thin-film sensing element, and in that an electrical screen is present over and under the thin-film sensing element, the electrical screen being formed by the electrically conductive layer overlying the thin-film sensing element and by the semiconductive region underlying the thin-film sensing element, and by the electrically conductive layer being electrically connected to the semiconductive region.

5,726,482

DEVICE-UNDER-TEST CARD FOR A BURN-IN BOARD

Richard J. Nathan, Morgan Hill; James J. D. Lan, Fremont; Steve S. Chiang, Saratoga; Paul Y. F. Wu, San Jose, and Robert Osann, Jr., Los Altos, all of Calif., assignors to Prolinx Labs Corporation, San Jose, Calif.

Continuation-in-part of Ser. No. 194,110, Feb. 8, 1994, abandoned. This application Oct. 7, 1994, Ser. No. 319,906
Int. Cl.[6] H01L *29/00*
U.S. Cl. 257—529 2 Claims



1. A device-under-test card for a burn-in board, said device-under-test card having a signal interface edge, a first plurality of electrical contacts formed at the signal interface edge and a programming access edge opposite the signal interface edge, a second plurality of electrical contacts formed at the programming access edge, the device-under-test card comprising:

a matrix of fuses including a plurality of electric fuses, a plurality of row traces and a plurality of column traces, a first column trace being connected to a first electrical contact in the first plurality;

a ladder of resistors, each resistor being connected to a column trace and to a common second electrical contact in the second plurality, wherein a first fuse couples a first row trace to a first column trace and a second fuse couples a second row trace to the first column trace; and

a capacitor coupled between the first row trace and the second row trace, the first row trace being connected to a third electrical contact in the second plurality and the second row trace being connected to a fourth electrical contact in the second plurality.

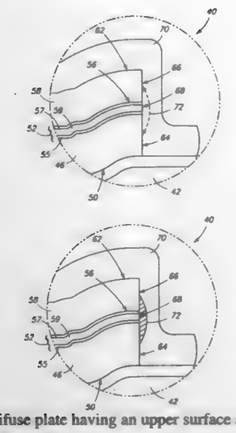
5,726,483

METHOD OF JOINTLY FORMING STACKED CAPACITORS AND ANTIFUSES, METHOD OF BLOWING ANTIFUSES, AND ANTIFUSES AND STACKED CAPACITORS CONSTITUTING A PART OF INTEGRATED CIRCUITRY

Charles H. Dennison, Boise, Id., assignor to Micron Technology, Inc., Boise, Id.

Filed Jul. 17, 1995, Ser. No. 503,022
Int. Cl.[6] H01L *29/00*
U.S. Cl. 257—530 19 Claims

1. An antifuse comprising:



an inner antifuse plate having an upper surface and a lateral edge joined therewith;

an outer antifuse plate having a lateral edge; and

an intervening antifuse dielectric element separating and electrically isolating the inner and outer antifuse plates from one another, the intervening antifuse dielectric element having first and second regions laterally spaced relative to one another, at least a portion of the intervening antifuse dielectric element being disposed over the entire inner antifuse plate upper surface, the first lateral region having a first breakdown voltage per unit length value for a given current per unit area, the second lateral region having a second breakdown voltage per unit length value for the same given current per same unit area which is lower than said first breakdown voltage per unit length value, the second lateral region defining a blowable path which upon application of an effective voltage will conductively short the inner and the outer antifuse plates together through the path but not through the first lateral region,

wherein the first lateral region comprises an oxide-nitride-oxide composite, the dielectric material of the second lateral region comprising SiO_2 deposited by decomposition of TEOS.

5,726,484

MULTILAYER AMORPHOUS SILICON ANTIFUSE

Michael J. Hart, Palo Alto; Kevin T. Look, Fremont, and Yakov Karpovich, Campbell, all of Calif., assignors to Xilinx, Inc., San Jose, Calif.

Filed Mar. 6, 1996, Ser. No. 611,897
Int. Cl.[6] H01L *29/04;27/10;29/00*
U.S. Cl. 257—530 30 Claims

1. An antifuse comprising:

first and second conductive layers; and

an antifuse layer, positioned between the first and second conductive layers, having a thickness of less than about 100 nm, the antifuse layer including first and second undoped amorphous silicon layers and an oxide layer positioned between the first and second undoped amorphous silicon layers, wherein the oxide layer has a thickness of less than about 10 nm.

Conductive Layer 101	105 Antifuse Layer
Amorphous Silicon Layer 203	
Oxide Layer 202	
Amorphous Silicon Layer 201	
Conductive Layer 102	
Substrate 103	

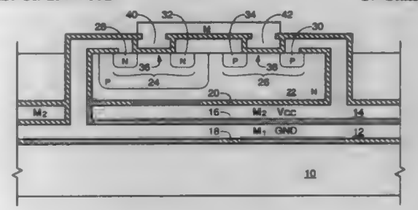
Conductive Layer 101	105 Antifuse Layer
Amorphous Silicon Layer 305	
Oxide Layer 304	
Amorphous Silicon Layer 303	
Oxide Layer 302	
Amorphous Silicon Layer 401	
Conductive Layer 102	
Substrate 103	

5,726,485

CAPACITOR FOR A SEMICONDUCTOR DEVICE

Anthony Grass, Boise, Id., assignor to Micron Technology, Inc., Boise, Id.

Filed Mar. 13, 1996, Ser. No. 614,713
Int. Cl.[6] H01L *23/14;27/02;29/76*
U.S. Cl. 257—532 17 Claims



1. A semiconductor device comprising:

a semiconductor wafer section comprising a semiconductor substrate and a first oxide layer overlying said substrate;

a first conductive layer overlying said first oxide layer and a second oxide layer overlying said first conductive layer;

a second conductive layer overlying said second oxide layer, wherein said first and second conductive layer have a capacitance therebetween;

a semiconductor layer overlying said second conductive layer having at least first and second doped regions therein, wherein said first doped region is electrically coupled with said first conductive layer and said second doped region is electrically coupled with said second conductive layer.

5,726,486

SEMICONDUCTOR DEVICE HAVING A BIPOLAR TRANSISTOR

Yukio Maki, Hyogo, Japan, assignor to Mitsubishi Denki Kabushiki Kaisha, Tokyo, Japan

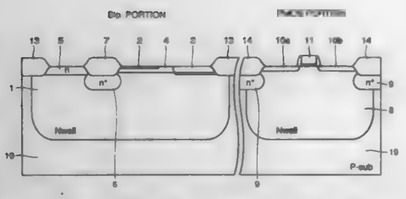
Continuation of Ser. No. 529,900, Sep. 18, 1995, abandoned. This application May 15, 1997, Ser. No. 856,747
Claims priority, application Japan, Oct. 4, 1994, 6-239876
Int. Cl.[6] H01L *27/082;29/76;29/94;31/062*
U.S. Cl. 257—593 9 Claims

1. A semiconductor device, comprising:

a first semiconductor region of a first conductivity type having a main surface;

a base layer of a second conductivity type formed at a prescribed region of the main surface of said first semiconductor region;

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an emitter layer of the first conductivity type formed at a prescribed region of a main surface of said base layer;

a collector extraction layer formed with a prescribed distance from said base layer at the main surface of said first semiconductor region;

a first element isolation insulating film formed between said base layer and said collector extraction layer on the main surface of said first semiconductor region;

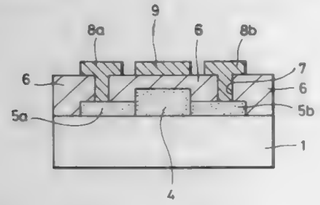
a first impurity layer of the first conductivity type having an upper surface and an impurity concentration higher than that of said first semiconductor region, and substantially all of said upper surface is in contact with a lower surface of said first element isolation insulating film.

5,726,487

SEMICONDUCTOR DEVICE HAVING AN IMPROVED THIN FILM TRANSISTOR

Toshiyuki Sameshima, Kanagawa, Japan; Masaki Hara, Kanagawa, Japan; Naoki Sano, Kanagawa, Japan; Dharam Pal Gosain, Kanagawa, Japan, and Setsuo Usui, Kanagawa, Japan, assignors to Sony Corporation, Tokyo, Japan

Continuation of Ser. No. 36,285, Mar. 24, 1993, abandoned.
This application Oct. 28, 1994, Ser. No. 331,273
Claims priority, application Japan, Mar. 30, 1992, 4-074577
Int. Cl.[6] H01L *29/76;29/22;31/117*
U.S. Cl. 257—616 **6 Claims**



1. A semiconductor device comprising:

an insulating substrate;

a thin film transistor formed on the insulating substrate, the thin film transistor having a channel region of a crystallized SiGe layer converted from an amorphous SiGe layer; and

a drain region formed of a crystallized Si or a crystallized SiC.

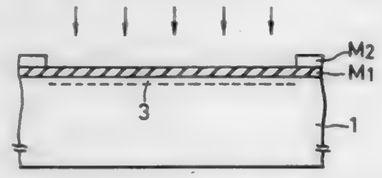
6. The semiconductor device according to claim **1** including a drain electrode.

5,726,488

SEMICONDUCTOR DEVICE HAVING SEMICONDUCTOR ELEMENTS FORMED IN A RETROGRADE WELL STRUCTURE

Atsuo Watanabe, Hitachiohta; Yoshiaki Yazawa, Hitachi; Atsushi Hiraishi, Hitachi; Masataka Minami, Hitachi; Takahiro Nagano, Hitachi; Takahide Ikeda, Tokorozawa, and Naohiro Momma, Hitachi, all of Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Continuation of Ser. No. 971,221, Nov. 4, 1992, abandoned, which is a division of Ser. No. 523,540, May 15, 1990, abandoned, which is a division of Ser. No. 323,212, Mar. 13, 1989, Pat. No. 4,963,973, which is a continuation of Ser. No. 936,610, Dec. 1, 1986, abandoned. This application May 16, 1994, Ser. No. 243,325
Claims priority, application Japan, Nov. 29, 1985, 60-267170
Int. Cl.[6] H01L *27/02*
U.S. Cl. 257—655 **11 Claims**



1. A semiconductor device comprising:

a semiconductor substrate having a plurality of well regions formed in a surface region of the semiconductor substrate, the surface region extending to a surface of said semiconductor substrate, the plurality of well regions extending to the surface of the semiconductor substrate, the plurality of well regions having an impurity concentration profile, in a direction of increasing distance from the surface of the semiconductor substrate, in a shape of a valley, a concentration at a minimum point of said profile being greater than $5\times10^{14}cm^{-3}$, a position of said minimum point being at least 0.5 μm from the surface of the semiconductor substrate, and a position of maximum point of the profile begin deeper than the position of said minimum point from the surface of the semiconductor substrate and within 1.6 μm of the surface of said semiconductor substrate,

a memory including at least one MOSFET formed in at least one of said plurality of well regions, leaving a remainder of the plurality of well regions; and

at least one bipolar transistor formed in at least one of the remainder of said plurality of well regions,

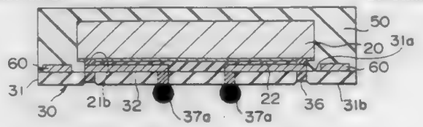
whereby alpha-ray soft errors in the memory are decreased.

5,726,489

FILM CARRIER SEMICONDUCTOR DEVICE

Shuichi Matsuda, and Keiichiro Kata, both of Tokyo, Japan, assignors to NEC Corporation, Tokyo, Japan

Filed Sep. 20, 1995, Ser. No. 531,271
Claims priority, application Japan, Sep. 30, 1994, 6-237854
Int. Cl.[6] H01L *23/48*
U.S. Cl. 257—659 **20 Claims**



1. A film carrier semiconductor device comprising:

a semiconductor bare chip having chip electrodes on one surface thereof;

a resin sealing said semiconductor bare chip;

a carrier film including a mounting region on a top surface, said semiconductor bare chip being adhered to said carrier film in said mounting region, said carrier film being provided with interconnections in said mounting region on said top surface connected to said chip electrodes; and

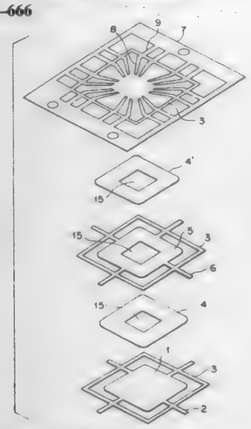
a noise blocking layer provided on said top surface along the periphery thereof outside the chip mounting region so as to surround the interconnections, said resin sealing said noise blocking layer.

5,726,490

SEMICONDUCTOR DEVICE

Sadayuki Moroi, Tokyo, Japan, assignor to NEC Corporation, Japan

Filed Sep. 20, 1995, Ser. No. 531,119
Claims priority, application Japan, Sep. 26, 1994, 6-254189
Int. Cl.[6] H01L *23/495*
U.S. Cl. 257—666 **11 Claims**



1. A semiconductor device, comprising:

a semiconductor chip having a ground electrode pad, power supply electrode pad and a plurality of signal electrode pads;

a conductive ground metal plane having a first lead serving as a ground terminal which extends outwardly, wherein said semiconductor chip is loaded on said ground metal plane and said ground electrode pad is connected to said ground metal plane via a first bonding member;

a first insulation member positioned on said ground metal plane;

a power supply metal plane having a second lead serving as a power supply terminal which extends outwardly, wherein said power supply electrode pad is connected to said power supply metal plane via a second bonding member;

a second insulation member positioned on said power supply metal plane; and

a leadframe having a plurality of third leads each of which comprises an internal lead and an external lead, wherein each of said signal electrode pads is connected to a respective internal lead of each of the third leads by a third bonding member;

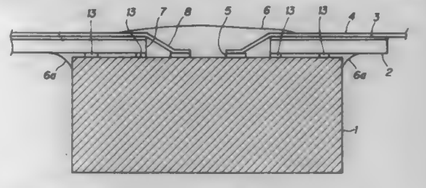
said first lead, said second lead and said third leads being arranged in such a manner that the first lead and the second lead are located in positions other than those corresponding to said third leads, and wherein said metal planes are unpenetrated by said first and second leads.

5,726,491

TAPE CARRIER PACKAGE

Naoyuki Tajima, Kitakatsurayi-gun, Japan; Yoshinori Ogawa, Yamatotakada, Japan, and Seijirou Gyouten, Tenri, Japan, assignors to Sharp Kabushiki Kaisha, Osaka, Japan

Filed Jun. 28, 1996, Ser. No. 672,587
Claims priority, application Japan, Jun. 29, 1995, 7-163730; Mar. 22, 1996, 8-065824
Int. Cl.[6] H01L *23/495*
U.S. Cl. 257—668 **7 Claims**



1. A tape carrier package comprising:

an insulating film having a device hole;

a conductor pattern formed on said insulating film; and

conductor leads electrically connected to said conductor pattern and projected inward beyond the edge of the device hole, said conductor leads being in direct contact with and electrically connected to electrode pads of a semiconductor chip, the semiconductor chip having an element forming region and element forming surface;

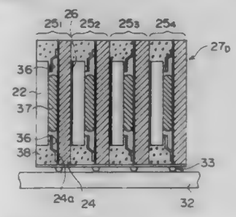
wherein the electrode pads of said semiconductor chip are arranged in at least two opposite rows which are parallel to two sides, the sides being opposite to each other, of said semiconductor chip; the two opposite rows of pads are disposed closer to the center of the two rows than to an edge of semiconductor chip; the device hole is positioned within the element-forming region of said semiconductor chip; and the element-forming surface of the semiconductor chip containing the region between said insulating film and said semiconductor chip, is sealed with a sealing resin.

5,726,492

SEMICONDUCTOR MODULE INCLUDING VERTICALLY MOUNTED SEMICONDUCTOR CHIPS

Masahiro Suzuki, and Haruhiko Yamamoto, both of Kawasaki, Japan, assignors to Fujitsu Limited, Kawasaki, Japan

Filed May 30, 1996, Ser. No. 655,446
Claims priority, application Japan, Oct. 27, 1995, 7-280389
Int. Cl.[6] H01L *23/02*
U.S. Cl. 257—685 **19 Claims**



1. A semiconductor module for mounting upon a main substrate having a conductor pattern, said semiconductor module comprising:

a plurality of semiconductor chips; and

a plurality of substrates each carrying thereon a wiring pattern and formed of a thermally conductive material having a high thermal conductivity,

each of said semiconductor chips being mounted upon a corresponding substrate in electrical connection to said wiring pattern on said corresponding substrate to form an elementary chip assembly, said elementary chip assembly having an edge.

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said semiconductor module including a plurality of said elementary chip assemblies stacked with each other in a state that said edges are aligned, said edges thereby defining a bottom surface of said semiconductor module,

said semiconductor module carrying, on said bottom surface, electrodes in electrical connection to said wiring patterns provided on said substrates, said electrodes thereby being adapted for contact with a conductor pattern provided on said main substrate,

said semiconductor module having an outermost substrate of said plurality of substrates, which is exposed to act as a heat sink.

5,726,493

SEMICONDUCTOR DEVICE AND SEMICONDUCTOR DEVICE UNIT HAVING BALL-GRID-ARRAY TYPE PACKAGE STRUCTURE

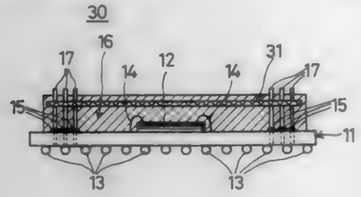
Taturou Yamashita, Kagoshima, Japan, and Masashi Takenaka, Kawasaki, Japan, assignors to Fujitsu Limited, Kawasaki, Japan

Continuation of Ser. No. 489,932, Jun. 13, 1995, abandoned. This application Feb. 24, 1997, Ser. No. 805,317

Claims priority, application Japan, Jun. 13, 1994, 6-130620

Int. Cl.[6] H01L *23/02;29/40;23/52*

U.S. Cl. 257—698 **9 Claims**



1. A semiconductor device, comprising:

a semiconductor element;

a base having a mounting surface and a connection surface opposite to each other, said semiconductor element being mounted on said mounting surface, a plurality of balls which function as external connection terminals being provided on said connection surface;

a sealing resin sealing said semiconductor element, said sealing resin being formed on said mounting surface of said base; and

an electrode member having a first end and a second end, said first end of said electrode member being electrically connected to said semiconductor element on said mounting surface of said base, said second end of said electrode member being electrically connected to an outer terminal, said first end of said electrode member being electrically connected to and structurally independent from at least one of said plurality of balls,

wherein said electrode member is an electrically conductive metal pin and said pin passes through said sealing resin formed on said mounting surface of said base, and

wherein said sealing resin formed on said mounting surface of said base has a hole formed therein and said second end of said electrode member is positioned in said hole.

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SEMICONDUCTOR DEVICE HAVING A PLATED HEAT SINK

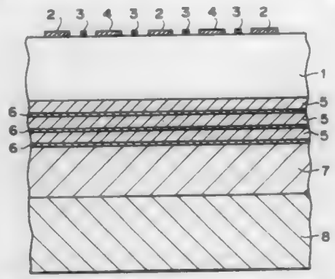
Yasunobu Nashimoto, and Hiroaki Tsutsui, both of Tokyo, Japan, assignors to NEC Corporation, Tokyo, Japan

Continuation of Ser. No. 591,977, Jan. 29, 1996. This application Feb. 27, 1997, Ser. No. 806,727

Claims priority, application Japan, Jan. 27, 1995, 7-031350

Int. Cl.[6] H01L *23/34;23/06;7/20*

U.S. Cl. 257—712 **18 Claims**



1. A semiconductor device having a plated heat sink structure for releasing heat evolved by the device, comprising:

a semiconductor substrate having an upper surface for forming circuit elements and a lower surface;

a first metal layer formed on said lower surface of said semiconductor substrate and made of a first kind of metal; and

a second metal layer formed on said first metal layer and made of a second kind of metal;

wherein said second metal layer has a thermal expansion coefficient less than ½ the thermal expansion coefficient of said first metal layer to reduce chip warping of said semiconductor substrate when said semiconductor device is solder mounted to a package.

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HEAT SINK HAVING GOOD HEAT DISSIPATING CHARACTERISTICS

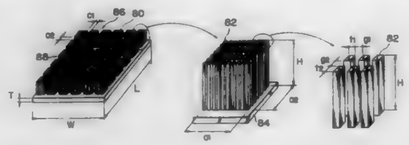
Toshio Aihara, Sendai; Masahito Tasaka, Amagasaki, and Chihiro Hayashi, Takarazuka, all of Japan, assignors to Sumitomo Metal Industries, Ltd., Osaka, Japan

Filed Mar. 9, 1993, Ser. No. 28,156

Claims priority, application Japan, Mar. 9, 1992, 4-050880; Mar. 30, 1992, 4-074652

Int. Cl.[6] H01L *23/34*

U.S. Cl. 257—722 **23 Claims**



1. A heat sink comprising a bottom plate and a plurality of fin groups on said bottom plate that are spaced from one another and aligned in a matrix or arranged in a staggered pattern, each of the fin groups being separated from an adjacent fin group by at least a first distance, each of said fin groups comprising a plurality of plane parallel plates or pins in the form of projecting sections or hollow projecting sections that are integral with said bottom plate, each of the plates or pins being separated from an adjacent plate or pin by at most a second distance, the first distance being greater than the second distance.

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Patent Not Issued For This Number

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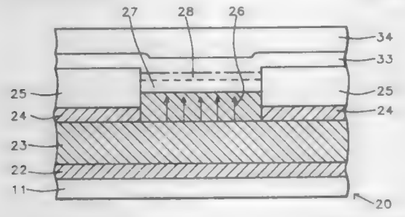
UPWARD PLUG FILLED VIA HOLE DEVICE

Ying-Chen Chao; Ting-Hwang Lin, and Jin-Yuan Lee, all of Hsin-Chu, Taiwan, assignors to Taiwan Semiconductor Manufacturing Company, Ltd., Hsin-Chu, Taiwan

Continuation of Ser. No. 371,388, Jan. 11, 1995, abandoned, which is a division of Ser. No. 270,668, Jul. 5, 1994, Pat. No. 5,385,868. This application Apr. 3, 1996, Ser. No. 627,842

Int. Cl.[6] H01L *23/52;29/12;* **B32B** *15/04;9/04*

U.S. Cl. 257—758 **17 Claims**



1. A semiconductor device on a silicon semiconductor substrate comprising:

a first high tensile stress layer on said semiconductor substrate,

a first interconnect metal structure formed over said first high tensile stress layer, said first interconnect metal structure including a blanket layer and including an erupted via plug extending upwardly from said blanket layer, said via plug having sidewalls and a top surface,

a second high tensile stress layer formed over said blanket layer of said first interconnect metal structure and around said via plug,

a dielectric layer over said second high tensile stress layer and around said sidewalls of said via plug, and

a second level interconnect metal formed over said dielectric layer and over the top surface of said via plug,

whereby said via plug which is composed of metal erupted from said blanket layer of said first interconnect metal structure extends up through said second high tensile stress layer and said dielectric layer into contact with said second level interconnect metal.

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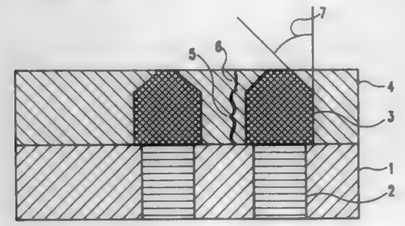
WIRE SHAPE CONFERRING REDUCED CROSSTALK AND FORMATION METHODS

Thomas John Licata, and Jack Allan Mandelman, both of Dutchess County, N.Y., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed May 26, 1995, Ser. No. 451,873

Int. Cl.[6] H01L *23/48;23/52;29/40*

U.S. Cl. 257—773 **6 Claims**



1. A multilevel integrated circuit, comprising:

dielectric insulating material on a plurality of levels of said multilevel integrated circuit;

a plurality of conducting wires on said plurality of levels of said multilevel integrated circuit, at least a first and second conducting wire of said plurality of conducting wires being positioned on a first level of said plurality of levels, and at least a third conducting wire of said plurality of conducting wires being positioned on a second level of said plurality of levels, said dielectric insulating material being positioned between said first, second and third conducting wires; and

means for reducing capacitive coupling between said first, second and third conducting wires without reducing the current carrying capacity of said first, second and third conducting wires comprising an identical, optimized cross-sectional shape for each of said first, second and third conducting wires which is non-rectangular and has tapered first and second side walls positioned between a top and a bottom, and wherein said tapered first and second side walls have a taper angle that is a function of a cross-sectional area for said identical, optimized cross-sectional shape where a total coupling capacitance between said first, second and third conducting wires is minimized compared to rectangular wires of the same cross-sectional area.

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SEMICONDUCTOR DEVICE HAVING A MINUTE CONTACT HOLE

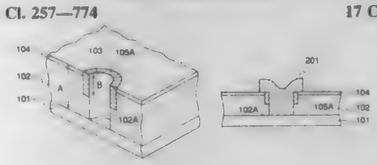
Mitsugu Irinoda, Kakogawa, Japan, assignor to Ricoh Company, Ltd., Tokyo, Japan

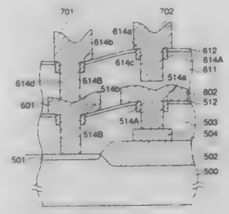
Filed Jul. 22, 1996, Ser. No. 681,221

Claims priority, application Japan, Jul. 22, 1995, 7-207736; Oct. 13, 1995, 7-291888

Int. Cl.[6] H01L *23/48*

U.S. Cl. 257—774 **17 Claims**





1. A contact structure, comprising:

a conductive first layer;

a second layer of an insulating material provided on said first layer;

a third layer provided on said second layer;

a depression provided on said second and third layers so as to extend from a top surface of said third layer toward a bottom surface of said second layer, said depression having a bottom surface above said bottom surface of said second layer and below a bottom surface of said third layer, said depression being defined by a first inner peripheral wall having a first inner diameter and extending from said top surface of said third layer to said bottom surface of said depression, said first inner peripheral wall surrounding said depression continuously;

a through hole provided on said bottom surface of said depression generally at a center thereof, such that said through hole extends from said bottom surface of said depression to said bottom surface of said second layer, said through hole thereby exposing a top surface of said first layer and being defined by

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a second inner periphery having a second inner diameter substantially smaller than said first inner diameter;

a ring-shaped wall member fitted in said depression so as to form an intimate contact with said first inner peripheral wall of said depression, said ring-shaped wall member being thereby defined by a third inner peripheral wall having a third inner diameter substantially identical to said second inner diameter of said through hole,

said third layer being formed of an inorganic insulating material that shows a resistance to a dry etching process with respect to said material forming said second layer,

said ring-shaped wall member being formed of an inorganic material that shows a selectivity to a dry etching process with respect to said material forming said second layer.

5,726,500

SEMICONDUCTOR HYBRID COMPONENT

Jean-Yves Duboz, Cachan; Emmanuel Rosencher, Bagneux, and Philippe Bois, Cesson, all of France, assignors to Thomson-CSF, Paris, France

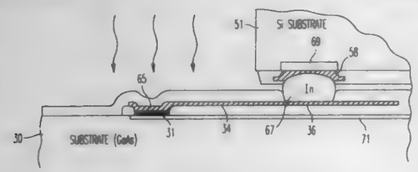
PCT No. PCT/FR95/00448, § 371 Date Dec. 7, 1995, § 102(e) Date Dec. 7, 1995, PCT Pub. No. WO95/28006, PCT Pub. Date Oct. 19, 1995

PCT Filed Apr. 7, 1995, Ser. No. 549,812

Claims priority, application France, Apr. 8, 1994, 94 04168; Jun. 21, 1994, 94 07573

Int. Cl.[6] H01L *27/146;23/50;23/48;29/44*

U.S. Cl. 257—777 **20 Claims**



1. A hybrid semiconductor component comprising:

a main substrate made of a material other than silicon and having an inside surface area including an integrated array of a plurality of radiation responsive elements and a separate portion having a plurality of substrate contact pads with conductive connections being provided between at least some of the said radiation responsive elements and at least some of the substrate contact pads; and

a plurality of silicon chips, each said silicon chip having an area smaller than that of the inside surface area of the main substrate and each said silicon chip containing at least one integrated circuit connected to chip contact pads, with at least some of the chip contact pads being bonded to facing ones of the substrate contact pads without any of said silicon chips overlying the integrated array of radiation responsive elements.

5,726,501

SEMICONDUCTOR DEVICE HAVING A SOLDER DRAWING LAYER

Hiroshi Matsubara, Nara, Japan, assignor to Sharp Kabushiki Kaisha, Osaka, Japan

Filed Jun. 5, 1995, Ser. No. 464,077

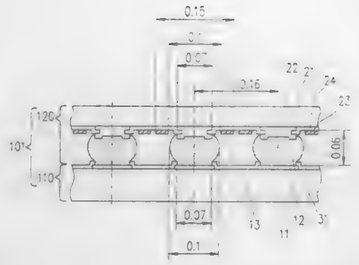
Claims priority, application Japan, Nov. 22, 1994, 6-288133

Int. Cl.[6] H01L *23/48;23/52;29/40*

U.S. Cl. 257—778 **18 Claims**

1. A semiconductor device to be mounted on a mounting substrate, the semiconductor device comprising:

a connection electrode formed on a surface of the semiconductor device;



a solder bump formed on the connection electrode, the solder bump electrically and mechanically connecting the connection electrode with a substrate electrode formed on the mounting substrate; and

a solder drawing layer provided on the surface of the semiconductor device in a periphery of the solder bump and having a surface portion composed of a solder-agreeable material, the solder drawing layer retracting melted solder of the solder bump onto a surface of the solder drawing layer by contact with the melted solder.

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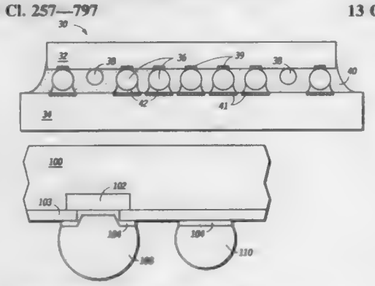
BUMPED SEMICONDUCTOR DEVICE WITH ALIGNMENT FEATURES AND METHOD FOR MAKING THE SAME

Stanley C. Beddingfield, Austin, Tex., assignor to Motorola, Inc., Schaumburg, Ill.

Filed Apr. 26, 1996, Ser. No. 638,095

Int. Cl.[6] H01L *23/544*

U.S. Cl. 257—797 **13 Claims**



1. A semiconductor device comprising:

a semiconductor die having a plurality of I/O bumps and a plurality of alignment features formed on an active surface of the semiconductor die, each of the plurality of I/O bumps having an I/O bump size and each of the plurality of alignment features having an alignment feature size, wherein the alignment feature size is smaller than the I/O bump size in at least one dimension, thereby defining a size differential; and

a mounting substrate, the semiconductor die being mounted to the mounting substrate such that the plurality of I/O bumps is in physical contact with a surface of the mounting substrate and the plurality of alignment features is physically isolated from the surface of the mounting substrate.

5,726,503

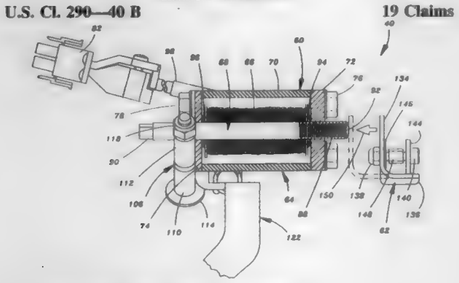
LOW SPEED IDLE ACTUATOR AND METHOD OF USE THEREOF

Daniel James Domanski, Muskego, and Richard Leo Paulus, Port Washington, both of Wis., assignors to Wacker Corporation, Menomonee Falls, Wis.

Filed Feb. 29, 1996, Ser. No. 608,851

Int. Cl.[6] H02P *9/04*

U.S. Cl. 290—40 B **19 Claims**



1. A low speed idle actuator comprising:

(A) an electromagnet including

(1) a housing,

(2) a magnetic coil disposed within said housing, and

(3) an adjustable core which is made of a magnetically conductive material, which is mounted in said housing, and which extends beyond said housing, said adjustable core being movable axially within said housing to reposition said adjustable core with respect to said housing; and

(B) an attractor plate which is made of a magnetically-conductive material, which is spaced from said adjustable core by a gap when said coil is deenergized, and which, upon energization of said coil, is drawn towards said adjustable core, wherein movement of said adjustable core with respect to said housing adjusts the thickness of said gap and thus the amount of attractor plate movement occurring upon coil energization.

5,726,504

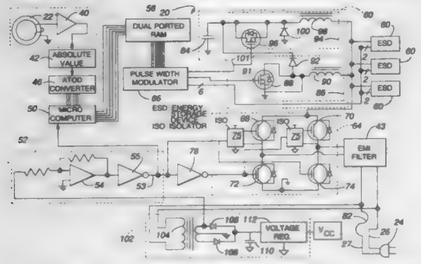
APPARATUS AND METHOD FOR ADAPTIVELY CANCELING HARMONIC CURRENTS IN A POWER LINE

Joseph P. Pecukonis, 8255 S. Poplar Way, #102, Englewood, Colo. 80112, and Ovel Emerson, 1500 W. Thornton Pkwy., #85, Thorton, Colo. 80221

Filed May 24, 1996, Ser. No. 653,290

Int. Cl.[6] H02J *3/01*

U.S. Cl. 307—105 **28 Claims**



1. An active power line conditioner for use with a power distribution system of the type in which positive and negative half-cycles of AC voltage and AC current are conducted in cycles in a single phase at a fundamental frequency on a power line, and an electrical load is connected to the power line and draws a harmonic frequency current at a harmonic frequency of the fundamental frequency, the active power line conditioner comprising:

a current sensor operative to sense the magnitude of current conducted on the power line and to supply a sensed current signal representative of the current sensed throughout each half-cycle of AC current conducted on the power line;

a template circuit supplying a current template which represents a pure sinusoidal current at the fundamental frequency;

a comparison circuit responsive to the current template and the sensed current signal to supply a comparison signal indicative of the relationship of sensed current signal relative to the current template at each of a plurality of intervals occurring during each half-cycle of AC current conducted on the power line;

a current absorption and supply circuit responsive to the comparison signal and operative during each of the intervals to absorb a predetermined amount of current from the power line in response to the comparison signal indicating that the sensed current is less than the current template and to supply a predetermined amount of current to the power line in response to the comparison signal indicating that the sensed current is greater than the current template, the predetermined amounts of current absorbed and supplied during each interval substantially canceling the harmonic frequency current component drawn by the load during each interval, and wherein the current absorption and supply circuit comprises an energy storage device which is charged with the current absorbed during each interval and which is discharged to supply the current supplied during each interval.

5,726,505

DEVICE TO PREVENT REVERSE CURRENT FLOW, RECTIFIER DEVICE AND SOLAR GENERATOR SYSTEM

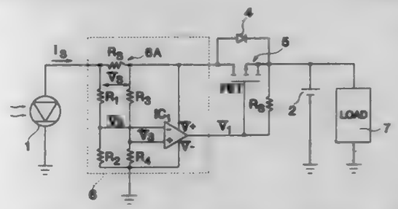
Takaaki Yamada, and Ikuo Nanno, both of Kyoto-fu, Japan, assignors to Omron Corporation, Kyoto, Japan

Filed Jan. 16, 1996, Ser. No. 587,905

Claims priority, application Japan, Jan. 13, 1995, 7-020996

Int. Cl.[6] H02H *3/18*

U.S. Cl. 307—127 **17 Claims**



1. A device to prevent reverse current flow in a circuit, comprising:

a diode connected between a power supply and a load in said circuit;

a switching device connected in parallel with the diode, said switching device having a power loss smaller than that of said diode;

a low-loss current detector connected in said circuit to turn the switching device on and off, said low-loss current detector comprising:

a DC current detector to detect a value of a DC current in said circuit; and

a comparator which compares the detected DC current value with a threshold value for an operating current and generates an output signal that determines when the switching device is turned on and off.

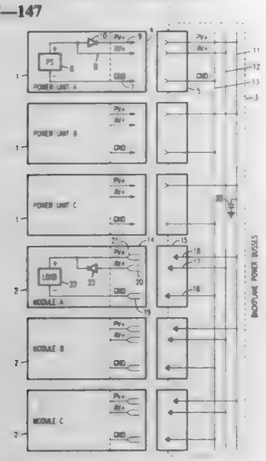
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5,726,506

HOT INSERTION POWER ARRANGEMENT

Samuel F. Wood, Los Altos Hills, Calif., assignor to Alantec Corporation, San Jose, Calif.

Filed Jun. 5, 1995, Ser. No. 465,164
Int. Cl.[6] H01B *7/30*
U.S. Cl. 307—147 **21 Claims**



1. A system comprising:

a first power bus for conducting a reference potential;

a second power bus for conducting a primary power supply voltage;

a third power bus for conducting an advance power supply voltage;

a first power source providing said reference potential and a first voltage, said reference potential being coupled to said first power bus, said first voltage being coupled directly to said third power bus, said first voltage being coupled to said second power bus through a first non-linear device,

said first non-linear device allowing current to flow between said first power source and said second power bus in only a first direction, said first non-linear device having a first voltage drop across said first non-linear device when a first current flows through said first non-linear device in said first direction;

a first plug-in module having a first module pin for connection to a first power bus pin connected to said first power bus, a second module pin for connection to a second power bus pin connected to said second power bus, and a third module pin for connection to a third power bus pin connected to said third power bus,

a load in said first plug-in module being coupled to said third module pin through a second non-linear device, said second non-linear device allowing current to flow between said third power bus and said load in only said first direction, said second non-linear device having a second voltage drop across said second non-linear device when said first current flows through said second non-linear device in said first direction, said second voltage drop being of greater magnitude than said first voltage drop, said load being connected directly to said second module pin,

said first module pin, said second module pin, said third module pin, said first power bus pin, said second power bus pin, and said third power bus pin being configured such that when said first plug-in module is inserted for electrical connection to said first power bus, said second power bus, and said third power bus, said third power bus pin makes electrical contact with said third module pin before said second power bus pin makes electrical contact with said second module pin, and said first power bus pin makes electrical contact with said first module pin before said second power bus pin makes electrical contact with said second module pin,

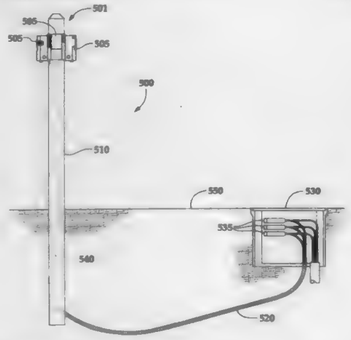
whereby an initial connection of said reference potential and said advance power supply voltage to said load in said first plug-in module, before a connection of said primary power supply voltage to said load, enables said load to be placed in a substantially quiescent state prior to connection to said primary power supply voltage.

5,726,507

TEMPORARY ELECTRICAL INTERFACES, INSTALLATIONS, PROCESSES, AND SYSTEMS FOR CONTRUCTION SITES

James D. Tipton, Mansfield, Tex., assignor to Basic Resources, Inc., Dallas, Tex.

Filed Jan. 19, 1996, Ser. No. 591,255
Int. Cl.[6] H02G *9/00*
U.S. Cl. 307—147 **41 Claims**



1. An electrical interface, comprising:

(a) a permanent electrical facility that provides electrical power to a residential neighborhood; and

(b) a temporary electrical facility electrically coupled to said permanent electrical facility, said temporary electrical facility provides electrical power to a construction site in said residential neighborhood, said temporary electrical facility further comprises

(b1) a non-conductive housing and a base, said non-conductive housing covers said base, said non-conductive housing and said base forming an interior space that is substantially enclosed by said non-conductive housing and said base, said non-conductive housing also having an exterior space that is exterior to said non-conductive housing and said base, said non-conductive housing having an exterior surface;

(b2) a connection switching element electrically coupled to an electrical connector to selectively activate said electrical connector, said connection switching element and said electrical connector positioned in said exterior space of said non-conductive housing proximate to said exterior surface of said non-conductive housing; and

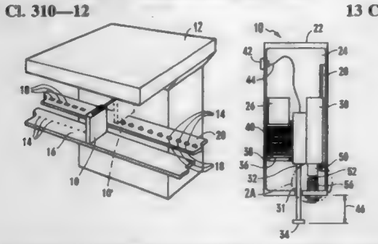
(b3) an electrical converter to convert first interface wiring to second interface wiring, said electrical convertor is positioned in said interior space, said first interface wiring electrically coupled between said electrical converter and said permanent electrical facility, said second interface wiring electrically coupled between said connection switching element and said electrical converter, so that said connection switching element selectively activates said electrical connector by selectively electrically coupling said second interface wiring to said electrical connector, wherein said base has a first hollow cavity that is buried substantially underground and said non-conductive housing has a second hollow cavity that is substantially above ground when said non-conductive housing is positioned over said base to cover said base to create said interior space, and further wherein said first interface wiring is substantially encased in conduit until said first interface wiring enters said interior space.

5,726,508

LINEAR VOICE COIL RETRACTOR

Edward A. Neff, Rancho Santa Fe, and Chia-Tung Chen, Fullerton, both of Calif., assignors to Systems, Machines, Automation Components Corporation, Carlsbad, Calif.

Filed Dec. 6, 1995, Ser. No. 567,915
Int. Cl.[6] H02K *41/00;* **B23P** *19/00*
U.S. Cl. 310—12 **13 Claims**



1. A device for moving and positioning an assembly component in an automated assembly operation which comprises:

a housing;

a magnet formed as a projection mounted on said housing for creating a magnetic field;

an electromagnetic coil slidably mounted on said housing for carrying a current, said coil being disposed for reciprocal translational movement within said magnetic field in response to current flow through said coil, and wherein said electromagnetic coil is formed with a passageway for slidingly receiving said projection of said magnet, for translational movement of said electromagnetic coil along said magnet, and wherein said electromagnetic coil further includes an electrically conductive wire wound around said electromagnetic coil;

a grip mounted on said coil for reciprocal translational movement between a retracted configuration and an extended configuration;

a retractor for causing said grip to move translationally to adopt a dwell configuration in the absence of current flow through said coil; and

means electrically connected with said coil for providing said electrical current to move said coil in translation.

5,726,509

DIELECTRIC MOTOR

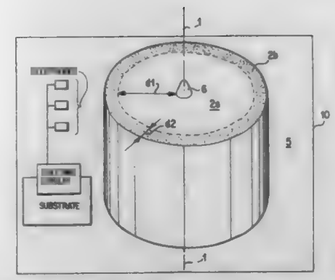
Wolfgang Benecke; Bernhard Wagner; Günter Fuhr; Rolf Hagedorn; Roland Glaser, and Jan Gimsa, all of Berlin, Germany, assignors to Fraunhofer Gesellschaft zur Foerderung der angewandten Forschung e.V., Munich, Germany

PCT No. PCT/DE90/00067, § 371 Date Oct. 21, 1991, § 102(e) Date Oct. 21, 1991, PCT Pub. No. WO90/09057, PCT Pub. Date Aug. 9, 1990
PCT Filed Feb. 2, 1990, Ser. No. 730,907
Claims priority, application Germany, Mar. 14, 1990, 325 466-5
Int. Cl.[6] H02N *1/00*
U.S. Cl. 310—40 MM **17 Claims**

1. A dielectric motor in an enveloping medium, comprising:

electrodes; and

a rotor having a plurality of dielectrics and in at least one direction continuous transitions between the dielectrics with one of electrically conductive zones and a vacuum between said dielectrics;



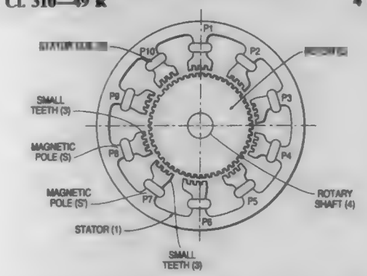
wherein the rotor is driven by one of circular polarized and discontinuously rotating electrical fields, and has a rotation spectrum with a plurality of differentiable states.

5,726,510

METHOD FOR DRIVING STEPPING MOTOR OF MULTIPHASE HYBRID TYPE

Noriyuki Yoshimura, and Kenji Yoshida, both of Kitasaku-gun, Japan, assignors to Minebea Co., Inc., Kitasaku-gun, Japan

Continuation of Ser. No. 313,130, Dec. 12, 1994, abandoned. This application Feb. 12, 1997, Ser. No. 798,788
Int. Cl.[6] H02K *37/18;37/04*
U.S. Cl. 310—49 R **4 Claims**



2. A multi-phase hybrid type stepping motor, comprising:

a rotor;

a pole cap mounted to each end of said rotor;

a plurality of asymmetrical stator segments disposed around the rotor;

wherein the rotor has teeth formed thereon,

wherein the stator also has teeth formed thereon; and

wherein the number of teeth on the rotor (NR) and the number of teeth on the stator (NS) are related by NS≧0.8NR, and a difference between NR and NS is calculated as follows:

$$NR-NS=K(S0-S1)+10(S1-1+B)$$

wherein K is an integer between 2 and 5, **S0** and **S1** are smallest possible integers or may be equal, and B is a fraction of 1 so that 10B is always an integer wherein the stator includes fixed magnetic poles each having small teeth thereon, with the number of small teeth alternating between **n0** and **n1** on adjacent fixed magnetic poles with **n0** not equaling **n1**.

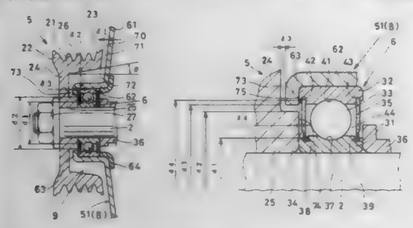
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ROTARY MACHINE HAVING WATER-RESISTANT STRUCTURE

Shin Kusase, and Kenzou Mitani, both of Obu, Japan, assignors to Nippondenso Co., Ltd., Kariya, Japan

Filed May 21, 1996, Ser. No. 651,930
Claims priority, application Japan, May 29, 1995, 7-130201
Int. Cl.[6] H02K *7/18;5/173;* F16C *19/08*
U.S. Cl. 310—90 10 Claims



1. A rotary machine comprising:
a housing having a front wall and a bearing box extending forward from said front wall;
a rotary shaft;
a bearing having an outer race fitted into said bearing box, an inner race receiving said rotary shaft and a sealing member on an end thereof; and
a bowl-shaped rotating member having a cylindrical base portion disposed around said bearing box, a boss portion fixed to a front end of said rotary shaft and an annular portion connecting said cylindrical base portion and said boss portion, wherein
said front wall of said housing is disposed to face a rear surface of said cylindrical base portion, said bearing box is disposed between said cylindrical base portion and said bearing to form an air gap between said rotating member and said housing; and
said air gap is formed to satisfy the following inequality: $\delta 1<\delta 2$, $\delta 2>\delta 3$, $\delta 3>\delta 4$ when a first air gap formed between said rear surface of said cylindrical base portion and said front wall is $\delta 1$, a second air gap formed between an inner periphery of said cylindrical base portion and said bearing box is $\delta 2$, a third air gap formed between a rear surface of said annular portion and a front surface of said bearing box is $\delta 3$ and a fourth air gap formed between a rear surface of said boss portion and a front surface of said sealing member is $\delta 4$; wherein
said bearing box comprises a retaining portion facing said sealing member for retaining said outer race of said bearing from one axial end, and
a radial size of said fourth air gap is larger than a radial size of a fifth air gap formed between a rear surface of said front end of said retaining portion and a front surface of said sealing member.

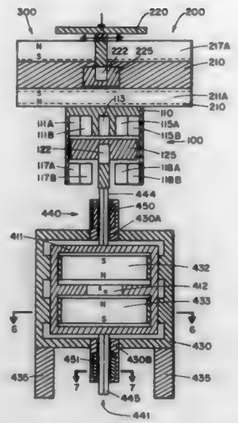
5,726,512

VIBRATION-FREE LEVITATED PLATFORM

Wei-Kan Chu, Pearland; Quark Yung-Sung Chen; Ki-Bui Ma, both of Houston, all of Tex.; Mark Alan Lamb, Tempe, Ariz.; Chase Kenyon McMichael, Houston, Tex., and Ignatius S. T. Tsong, Tempe, Ariz., assignors to The University of Houston System, Houston, Tex.

Filed Oct. 4, 1996, Ser. No. 726,147
Int. Cl.[6] B60L *13/04;* H02K *7/09*
U.S. Cl. 310—90.5 4 Claims

1. An isolation system for isolating a first object from vibrations from a second object, wherein the vibrations comprise three orthogonal components, a first orthogonal component oriented along a first line between the objects, and second and third orthogonal components oriented along second and third lines 90° apart in a plane normal to the first line; the system comprises:



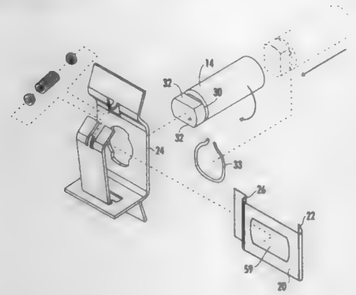
(a) a first stage comprising a first stage magnet member and a first stage superconductor member, wherein the first stage magnet member comprises a magnet, the first stage superconductor member comprises a magnet and superconductor, wherein the first stage magnet member and the first stage superconductor member are disjoined, magnetically interact, and are magnetically biased to move freely relative to each other only parallel to the line of the first orthogonal component;
(b) a second stage comprising a second stage magnet member and a second stage superconductor member, wherein the second stage magnet member comprises a magnet, the second stage superconductor member comprises a magnet and superconductor, wherein the second stage magnet member and the second stage superconductor member are disjoined, magnetically interact, and are magnetically biased to move freely relative to each other only parallel to the line of the second orthogonal component; and
(c) a third stage comprising a third stage magnet member and a third stage superconductor member, wherein the third stage magnet member comprises a magnet, the third stage superconductor member comprises a magnet and superconductor, wherein the third stage magnet member and the third stage superconductor member are disjoined, magnetically interact, and are magnetically biased to move freely relative to each other only parallel to the line of the third orthogonal component;
wherein one of the first stage, second stage or third stage is selected as the first object connector to be connected to the first object by the magnet member or superconductor member of the stage;
wherein one of the first stage, second stage or third stage, which one is not selected as the first object connector, is selected as the second object connector to be connected to the second object by the magnet member or superconductor member of the stage;
wherein one of the first stage, second stage or third stage, which one is not selected as the first object connector or the second object connector, is selected as the intermediate stage; wherein the magnet member or superconductor member of the intermediate stage is connected to the first object connector magnet member or the superconductor member not connected to the first object; and wherein the intermediate stage magnet member or superconductor member which is not connected to the first object connector is connected to the second object connector magnet member or the superconductor member which is not connected to the second object.

5,726,513

MOTOR GOVERNOR MOUNTING ASSEMBLY

David M. Lyle; Adam L. Boren, both of McMinnville, Tenn., and David W. Hale, Phoenix, Ariz., assignors to MagneTek, Inc., Nashville, Tenn.

Filed Jul. 12, 1996, Ser. No. 680,596
Int. Cl.[6] H01H *38/14*
U.S. Cl. 310—91 7 Claims



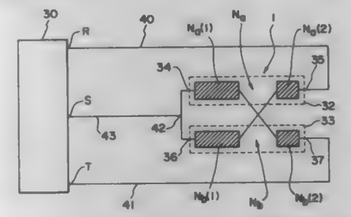
1. An improved mounting assembly for mounting a centrifugal governor to an electric motor, said electrical motor having a rotor shaft extending from the motor stator and terminating at a free end, said rotor shaft having an axis, and said centrifugal governor including a carrier plate and a lever with the lever hingedly connected to said carrier plate for toggle movement of said lever in response to centrifugal force created by rotation of said governor, the toggle movement of said lever operating a switch between an activated and an at rest position depending upon the speed of rotation of the centrifugal governor, the improved mounting assembly including:
a. a ring seat extending peripherally about said rotor shaft and spaced a predetermined distance from the free end of said rotor shaft, said ring seat having a first profile when viewed in a plane perpendicular to the axis of said rotor shaft;
b. the portion of said rotor shaft between said free end and said ring seat being shaped to have a second profile which is the same shape when viewed in cross section at any point perpendicular to the axis of said rotor shaft from said free end to said ring seat;
c. an opening in said carrier plate having a third profile substantially identical to the shape defined by the combination of said second profile overlying said first profile, said opening enabling said governor assembly to be mounted to said rotor shaft by inserting the free end of said rotor shaft in said opening and sliding said carrier plate along said shaft until said carrier plate overlies said ring seat, enabling said governor assembly to be affixed to said rotor shaft by then rotating said carrier plate relative to said rotor shaft; and
d. a clip fitted over said carrier plate and releasable engaged therewith, said clip having a hole through it, said hole having a shape substantially the same as said second profile, said hole positioned to receive the free end of said rotor shaft after said rotor shaft has been inserted through and rotated relative to said carrier plate to thereby prevent rotational movement of said governor assembly relative to said rotor shaft while said clip is connected to said carrier plate.

5,726,514

CIRCUIT ARRANGEMENT FOR ENERGIZING A TWO-PHASE ELECTRIC MACHINE

Johann Wurz, Deutsch Wagram, and Rudolf Fehringer, Vienna, both of Austria, assignors to Voith Turbo GmbH & Co. KG, Heidenheim, Germany

Filed Nov. 21, 1996, Ser. No. 754,625
Claims priority, application Germany, Nov. 28, 1995, 195 44 307.1; Nov. 28, 1995, 195 44 309.8
Int. Cl.[6] H02K *21/02;3/28*
U.S. Cl. 310—179 16 Claims



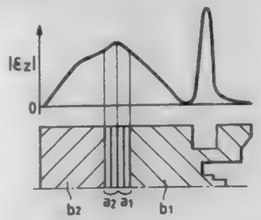
1. A transverse-flux machine including a stator having a winding with a first phase and a second phase, said machine comprising:
the winding of the first phase and the winding of the second phase are each subdivided into first and second component windings; and
said first component winding of the first phase is wired in series with said second component winding of the second phase while said second component winding of the first phase is wired in series with said first component winding of the second phase.

5,726,515

VIBRATION DRIVEN MOTOR

Takayuki Tsukimoto, Kawasaki, and Takashi Maeno, Yokohama, both of Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan

Continuation of Ser. No. 079,849, Jun. 22, 1993, abandoned, which is a continuation of Ser. No. 738,423, Jul. 31, 1991, abandoned. This application Mar. 14, 1995, Ser. No. 403,574
Claims priority, application Japan, Aug. 3, 1990, 2-206234; May 1, 1991, 3-100124
Int. Cl.[6] H02N *2/00*
U.S. Cl. 310—323 21 Claims



1. A vibration driven motor comprising:
a vibration member said vibration member being substantially bar-shaped with a central portion, and having an asymmetrical shape in an axial direction of said vibration member relative to the central portion;
a first electro-mechanical energy conversion member including a first section polarized in a predetermined direction and a second section polarized in a direction different from said predetermined direction, said first energy conversion member being functionally coupled to said vibration member; and
a second electro-mechanical energy conversion member including a first section polarized in a predetermined direction and a second section polarized in a direction different from said predetermined direction, said second energy conversion mem-

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ber being located with a spatial phase difference with respect to said first energy conversion member and being functionally coupled to said vibration member;

wherein said first energy conversion member is arranged to generate a first flexural vibration having a first direction in said vibration member in response to a first electrical signal and said second energy conversion member is arranged to generate a second flexural vibration having a second direction different from said first flexural vibration in response to a second electrical signal, thereby to generate a combined vibration of the first flexural vibration and the second flexural vibration in said vibration member, and wherein each of said first energy conversion member and said second energy conversion member is located at a predetermined position whereat, during operation, the sum totals of strains created in the respective conversion members are substantially equal to each other.

5,726,516

ROTOR FOR HIGH SPEED SWITCHED RELUCTANCE MACHINE

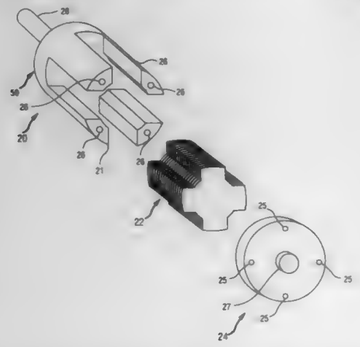
Steven P. Randall, Headingley, United Kingdom, assignor to Switched Reluctance Drives, Ltd., Harrogate, United Kingdom

Filed Jun. 7, 1995, Ser. No. 477,902

Claims priority, application United Kingdom, Apr. 7, 1995, 9507272

Int. Cl.[6] H02K *1/22;1/06;3/48*

U.S. Cl. 310—261 **34 Claims**



1. A rotor assembly for a reluctance machine comprising:

a stack of rotor laminations having a plurality of rotor poles, defining interpole regions between adjacent rotor poles, each interpole region having an axial length;

a plurality of support bars aligned between at least a plurality of said rotor poles extending along at least a portion of the axial length of a plurality of the interpole regions, each support bar including a notch defined in an outer surface of the support bar; and

at least one band circumferentially applied around the stack of rotor laminations and the support bars to provide support thereto, the band being at least partially contained within the notches.

5,726,517

MAGNETOELECTRIC CLAW ROTOR, AND A METHOD OF MANUFACTURING SUCH A ROTOR

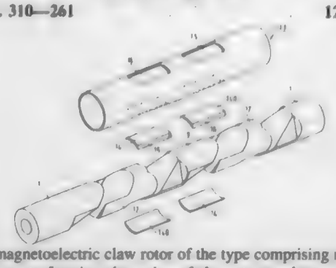
Alain Gueraud, Seichamps, and Jean-Charles Mercier, Ludres, both of France, assignors to GEC Alsthom Moteurs SA, Nancy, France

Filed Mar. 18, 1997, Ser. No. 819,818

Claims priority, application France, Mar. 22, 1996, 96 03605

Int. Cl.[6] H02K *1/24*

U.S. Cl. 310—261 **12 Claims**



1. A magnetoelectric claw rotor of the type comprising magnetic material parts forming the poles of the rotor, and non-magnetic material parts for separating poles of opposite polarity, all confined in a hollow cylindrical casing of non-magnetic material, the rotor comprising two single-pole end parts of magnetic material and of opposite polarity, and a part of non-magnetic material, each single-pole part having a circularly cylindrical hub of radius substantially equal to the inside radius of the cylindrical case, and having a free end and a chamfered pole, said chamfered pole having a longitudinal face of the same radius as the hub, a sloping transverse face forming the chamfer relative to said longitudinal face, and two plane lateral faces disposed symmetrically about the plane of symmetry of the chamfered pole, and converging towards each other going from the longitudinal face towards the sloping face, transverse shoulders being formed between the hub and said plane lateral faces, the two parts of magnetic material being disposed on the same axis, with their sloping faces facing each other, the non-magnetic part being disposed between the facing sloping faces, and being complementary in shape to the two magnetic material parts such that the set of magnetic material parts and the non-magnetic material part constitutes a solid circular cylinder of radius substantially equal to the inside radius of the non-magnetic cylindrical case, the cylindrical case having two through windows each facing a respective one of the longitudinal faces of the magnetic material parts, each window being occupied by a distal tube element of magnetic material having the same polarity as the magnetic material part with which it is associated.

5,726,518

SUPPORTING DEVICE OF RELATIVE MOVING ELEMENT OF VIBRATION ACTUATOR OR VIBRATION MOTOR

Tadao Takagi, Yokohama, Japan, assignor to Nikon Corporation, Tokyo, Japan

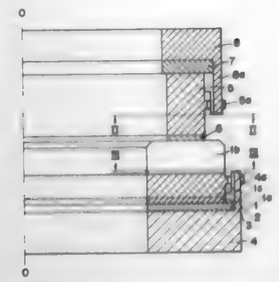
Continuation of Ser. No. 376,438, Jan. 23, 1995, abandoned, which is a continuation of Ser. No. 81,845, Jun. 24, 1993, abandoned. This application Sep. 3, 1996, Ser. No. 706,963

Claims priority, application Japan, Jul. 22, 1992, 4-195494; Jul. 22, 1992, 4-195497

Int. Cl.[6] H02N *2/00*

U.S. Cl. 310—323 **27 Claims**

1. A vibration motor comprising a relative moving element, a vibration element having an elastic body and an electro-mechanical transducer, said relative moving element being rotated by vibrations of said elastic body excited by said electro-mechanical transducer, and a driven body rotated by said relative moving element about a common rotational axis with said relative moving element, and further comprising means including surfaces on each of said relative moving element and said driven body that extend both radially and axially and that are mutually engaged for constraining



said driven body to rotate with said relative moving element about said rotational axis but for permitting relative axial movement of said driven body and said relative moving element.

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TRAVELING-WAVE PIEZOELECTRIC MOTOR

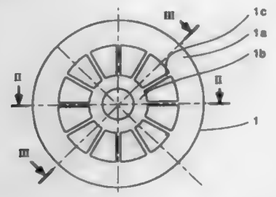
Paul Gonnard, Villeurbanne, and Lionel Petit, Lyon, both of France, assignors to Figest BV, Leiden, Netherlands

Filed Dec. 19, 1996, Ser. No. 770,134

Claims priority, application France, Jan. 4, 1996, 96 00061

Int. Cl.[6] H01L *41/08*

U.S. Cl. 310—323 **5 Claims**



1. A traveling-wave piezoelectric motor comprising at least one stator (**1**), two groups of piezoelectric elements consisting of ceramic rods (**5**) polarized independently of one another, arranged perpendicularly to the stator (**1**), that is to say parallel to the axis of the motor, distributed over the stator (**1**), in permanent contact with the stator (**1**) and excited by an alternating current with a phase shift of $\pi/2$ between the groups so as to generate a deformation in the form of a traveling wave on the surface of the stator (**1**), and at least one rotor (**2**, **3**) in the form of a disk retained elastically in contact with the stator (**1**) for the rotational driving thereof by the traveling wave generated on the stator, wherein the stator (**1**) is in the form of a wheel consisting of a peripheral annulus (**1***a*) over which the piezoelectric elements are distributed, of a central hub and of linking arms (**1***c*) distributed regularly between the peripheral annulus and the hub (**1***b*) and intended to transmit to the annulus (**1***a*) an axial pressure exerted on the hub (**1***b*) and thus to the piezoelectric elements (**5**), so as to limit the spread in the resonant frequency of the piezoelectric elements (**5**), these arms (**1***c*) furthermore allowing the circulation over the peripheral annulus (**1***a*) of a traveling wave, the axial pressure applied by means of pressure means (**7**) to the hub (**1***b*) in order to compress the piezoelectric elements being independent of the means (**9**, **10**, **11**, **12**) retaining the rotor (**2**, **3**) elastically in contact against the stator (**1**).

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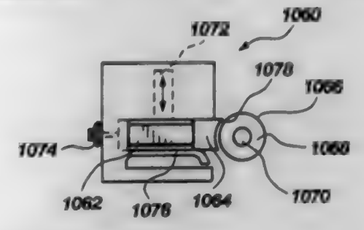
DIRECT DRIVE FIELD ACTUATOR MOTORS

Allen R. Grahn, Salt Lake City, Utah, assignor to Bonneville Scientific Incorporated, Salt Lake City, Utah

Continuation-in-part of Ser. No. 101,496, Aug. 2, 1993, Pat. No. 5,432,395. This application Jun. 7, 1995, Ser. No. 482,201

Int. Cl.[6] H01L *41/08*

U.S. Cl. 310—328 **9 Claims**



1. A motor, comprising:

a stator;

a T-shaped drive shoe having a head and a body, carried by said stator and including an arcuate exterior shaft contact surface on said head having a first radius of curvature;

two field actuators disposed between said stator and said drive shoe, flanking and substantially parallel to said drive shoe body and contacting said drive shoe head on each side of said body;

a first biasing element acting upon said drive shoe in opposition to said two field actuators;

at last a third field actuator oriented transversely to said two field actuators and disposed between said stator and said drive shoe;

a second biasing element acting upon said drive shoe in opposition to said at least a third field actuator; and

a cylindrical, rotatable shaft having a second radius of curvature less than said first radius of curvature, adjacent said shaft contact surface of said drive shoe.

5,726,521

ELECTROMECHANICAL ACTUATOR USED IN WIRE-DOT PRINTING HEAD

Shinji Kon; Syuichi Yamaki; Mitsuhiro Yoshida, all of Inagi; Daisuke Kimura, Kawasaki; Shigeo Miura, Kawasaki; Yuji Oshime, Kawasaki, and Mitsuhiro Mori, Inagi, all of Japan, assignors to Fujitsu Limited, Kawasaki, Japan

Continuation of Ser. No. 388,890, Feb. 14, 1995, abandoned, which is a division of Ser. No. 107,567, Aug. 18, 1993, abandoned. This application Dec. 16, 1996, Ser. No. 766,055

Claims priority, application Japan, Aug. 18, 1992, 4-219140; Sep. 10, 1992, 4-241893; Aug. 12, 1993, 5-200775

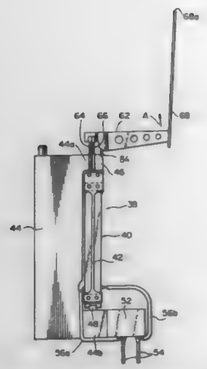
Int. Cl.[6] H01L *41/08*

U.S. Cl. 310—328 **21 Claims**

1. A printing head for a wire-dot printer, comprising:

a plurality of electromechanical actuators, each mounted on a corresponding support member and respectively associated with a corresponding one of a plurality of lever arms supporting and driving a plurality of respective printing wire elements, each electromechanical actuator being selectively operable in response to electrical energization to be driven from an initial position and to an actuated position and correspondingly driving said respectively associated lever arm in an advancing rotation direction and thereby driving the corresponding printing wire element in a substantially linear direction from an initial position to a printing position, the lever arm returning through a return rotation direction and the printing wire element returning from the printing position to the initial position upon deenergization of the electromechanical actuator; and

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a plurality of resilient regulators respectively associated with said plurality of electromechanical actuators, each resilient regulator individually and resiliently interconnecting said respective lever arm and said corresponding support member, and thereby resiliently and selectively regulating the return rotation of the respectively associated electromechanical actuator and the return of the corresponding printer wire element from the printing position and toward the initial position when said electromechanical actuator is deenergized, each resilient regulator comprising a wire link extending in substantially the same direction as the printing wire element and a leaf spring link affixed to the wire link at one end of the wire link and extending substantially transversely thereto, the resilient regulator have a first resilient span of movement when the lever arm moves in the advancing rotation direction and a second resilient span of movement when the lever arm moves in the return rotation direction, the first resilient span of movement being greater than the second resilient span of movement.

5,726,522

DEVICE FOR GENERATING HIGH VOLTAGE

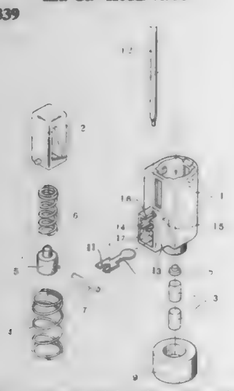
Takehiro Hashimoto, Hinode-machi, Japan, assignor to Japan Smoking Articles Corporate Association, Tokyo, Japan, and Ceratic Coporation, Tokyo, Japan

Filed Feb. 9, 1996, Ser. No. 599,180

Claims priority, application Japan, Feb. 27, 1995, 7-063310; Feb. 27, 1995, 7-063311

Int. Cl.[6] H01L *41/08*

U.S. Cl. 310—339 **13 Claims**



1. A device for generating high voltage comprising:

a fixed container and a movable container, said movable container moving in relation to the fixed container, both of said containers storing a piezoelectric element;

a hammer within said movable container;

an operating spring between said hammer and movable container;

a high voltage lead line connected to a high voltage terminal plate which is connected to high voltage electrode sides of the piezoelectric elements;

a setting plate formed in a connection portion of said fixed container, having a U-shaped ditch into which the lead line is inserted;

a pair of hands formed on ends of the setting plate ditch, wherein the hands are melted and softened so as to bend them for uniting together and for closing the ditch so that the lead line is held in the ditch; and

an adhesive agent filled into the connection portion for fixing a connection portion between the lead line and the terminal plate.

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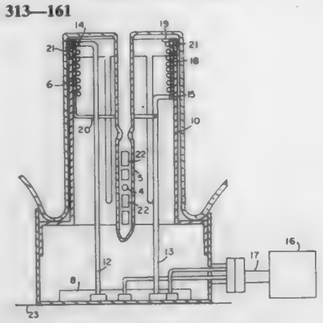
ELECTRODELESS FLUORESCENT LAMP WITH BIFILAR COIL AND FARADAY SHIELD

Oleg Popov, Needham, Mass.; Jakob Maya, Brookline, Mass., and Jagannathan Ravi, Bedford, Mass., assignors to Matsushita Electric Works Research & Development Labratory, Woburn, Mass.

Filed May 6, 1996, Ser. No. 643,629

Int. Cl.[6] H01J *61/00*

U.S. Cl. 313—161 **5 Claims**



1. An electrodeless RF fluorescent lamp system comprising:

a bulbous lamp envelope and a reentrant cavity disposed in said envelope, a rare gas and vaporizable metal fill in said envelope, a phosphor coating on the interior thereof for generation of visible light a reflective coating on the cavity inner walls and a protective coating on said inner walls of said envelope and said cavity,

a lamp base and a fixture disposed outside said envelope;

a bifilar coil disposed outside said envelope and disposed within said cavity, said bifilar coil having its windings oriented in opposite directions;

a metal cylinder having high thermal and electrical conductivity in said cavity to remove heat from said cavity and for the reduction of capacitive coupling between said coil and said plasma and reduce ion bombardment of said phosphor coating thereby to contribute to lamp life, said cylinder having an array of openings to reduce eddy current in said cylinder.

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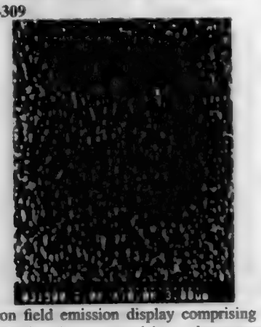
FIELD EMISSION DEVICE HAVING NANOSTRUCTURED EMITTERS

Mark K. Debe, Stillwater, Minn., assignor to Minnesota Mining and Manufacturing Company, St. Paul, Minn.

Filed May 31, 1996, Ser. No. 656,573

Int. Cl.[6] H01J *1/30;* **C23C** *16/00*

U.S. Cl. 313—309 **35 Claims**



1. An electron field emission display comprising an electrode including as cathode a layer comprising a dense array of discrete solid microstructures disposed on at least a portion of one or more surfaces of a substrate, said microstructures having an areal number density of greater than $10^7/cm^2$, at least a portion of said microstructures being conformally overcoated with one or more layers of an electron emitting material, said overcoated electron emitting material being disposed on at least a portion of each of said microstructures and having a surface morphology that is nanoscopically rough and that provides multiple potential field emission sites per microstructure.

5,726,525

ELECTRIC REFLECTOR LAMP

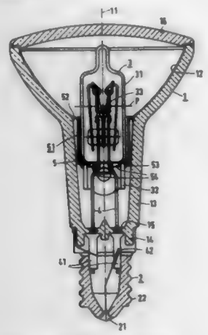
Winand H. A. M. Friederichs, Eindhoven, Netherlands, assignor to U.S. Philips Corporation, New York, N.Y.

Filed Mar. 13, 1996, Ser. No. 615,758

Claims priority, application European Pat. Off., Apr. 3, 1995, 95200942

Int. Cl.[6] H01J *5/12;* **H01K** *1/46*

U.S. Cl. 313—318.07 **2 Claims**



1. An electric reflector lamp comprising:

a concave reflector body with an optical axis, a concave reflecting surface, and a neck which has a free-end portion with a bottom wall;

a lamp cap provided with contacts and fastened to the neck;

a light source provided with a glass lamp vessel with a pinch seal arranged in the reflector body, with the pinch seal in the neck, current conductors extending through the pinch seal to an electric element accommodated in the lamp vessel;

a mounting plate with an opening through which the pinch seal of the lamp vessel is passed, which mounting plate is positioned in the neck and bears on the reflector body in the direction of the axis,

the current conductors extending tautly tensioned through the bottom wall of the reflector body and being connected to the contacts of the lamp cap,

characterized in that: the mounting plate is the bottom of a bush which extends axially along the lamp vessel to the reflecting surface and has a transversely projecting rim there which closes off the neck.

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DISPLAY DEVICE HAVING A SUPPORT STRUCTURE FOR A WIRE CATHODE

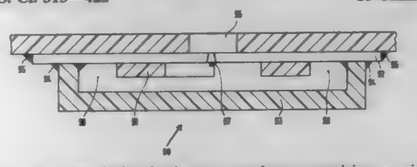
Peter Martens; Johannes C. Driessen; Antonius J. J. Rademakers; Petrus H. F. Trompenaars; Theunis S. Baller; Gerardus G. P. Van Gorkom; Nicolaas Lambert; Siebe T. De Zwart, and Edwin A. Montie, all of Eindhoven, Netherlands, assignors to U.S. Philips Corporation, New York, N.Y.

Filed Sep. 19, 1995, Ser. No. 530,501

Claims priority, application European Pat. Off., Sep. 21, 1994, 94202710

Int. Cl.[6] H01J *19/12*

U.S. Cl. 313—422 **18 Claims**



1. A display device having an envelope comprising a wire cathode for emitting electrons and an element having a planar surface with a row of apertures for allowing passage of electrons emitted by the wire cathode, characterized in that the display device comprises at least one wire-cathode support, in that the element and the wire-cathode support engage each other on corresponding contacting surfaces of which the normal extends transversely to the row of apertures, and in that said wire-cathode support has a number of wire-positioning grooves between which the wire cathode extends in a self-supporting manner and at a predetermined distance from the planar surface, said positioning grooves extending in a direction substantially parallel to the row, and means for longitudinally pretensioning the wire cathode without substantially forcing the wire cathode against the grooves, thereby permitting longitudinal movement within the grooves.

5,726,527

GRID ELECTRODE STRUCTURE FOR A CATHODE RAY TUBE

Gerhard Gassler, Ulm, Germany, and Gerhard Hörsch, Laichingen, Germany, assignors to AEG Elektronische Röhren GmbH, Ulm, Germany

Filed Sep. 12, 1996, Ser. No. 713,086

Claims priority, application Germany, Sep. 14, 1995, 195 34 124.4

Int. Cl.[6] H01J *29/48*

U.S. Cl. 313—447 **7 Claims**

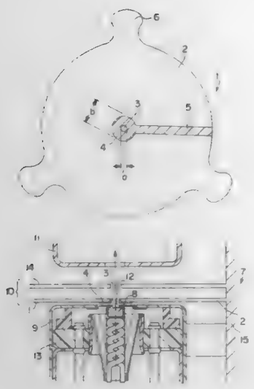
1. A grid electrode for a cathode ray tube comprising

(a) a ceramic carrier lamina having a thickness of up to about 0.5 mm and opposite lamina surfaces;

(b) a throughgoing aperture defined in said carrier lamina by a wall portion thereof extending between said lamina surfaces; and

(c) a metallized surface portion forming part of one of said lamina surfaces; said metallized surface portion being situated in a zone of said aperture.

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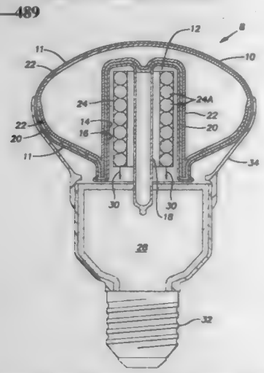


5,726,528

FLUORESCENT LAMP HAVING REFLECTIVE LAYER

Jon B. Jansma, Pepper Pike, and Thomas F. Soules, Richmond Heights, both of Ohio, assignors to General Electric Company, Schenectady, N.Y.

Filed Aug. 19, 1996, Ser. No. 699,284
Int. Cl.[6] H01J *1/62;65/00*
U.S. Cl. 313—489 11 Claims



1. A fluorescent lamp comprising a sealed light-transmissive envelope having an inner surface and containing mercury and an inert gas, means for providing a discharge, a reflective layer adjacent a portion of the inner surface of said envelope, and a phosphor layer adjacent said reflective layer, said reflective layer being between said envelope and said phosphor layer, said reflective layer having a coating weight of at least 5 mg/cm^2, said reflective layer comprising a blend of gamma alumina and alpha alumina, said alumina blend being 7–80 weight percent gamma alumina and 20–93 weight percent alpha alumina.

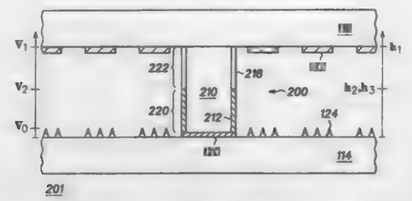
5,726,529

SPACER FOR A FIELD EMISSION DISPLAY

Kenneth Dean, Phoenix; Ralph Cisneros, and Kathleen Tobin, both of Tempe, all of Ariz., assignors to Motorola, Schaumburg, Ill.

Filed May 28, 1996, Ser. No. 656,993
Int. Cl.[6] H01J *1/62;63/04;1/00;19/00*
U.S. Cl. 313—495 37 Claims

1. A spacer for a field emission display, the spacer including:



a member having a first height within the range of 0.5–3 millimeters, the member being made from a dielectric material and having an upper edge, a lower edge, and lateral surfaces;

a resistive coating being formed on a portion of the lateral surfaces extending from the lower edge of the member to a second height being less than the first height of the member thereby defining a lower resistive region of the spacer, the resistive coating being made from a material having a secondary electron yield less than 2 over a range of operating voltages existing between the lower edge of the member and the second height

whereby the resistive coating provides a conduction path for bleeding of electrical charge when the spacer is disposed within an electric field of the field emission display and

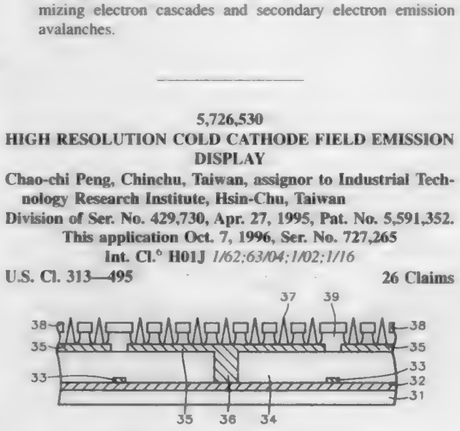
whereby the low secondary electron yield of the resistive coating suppresses surface flashover and surface leakage by minimizing electron cascades and secondary electron emission avalanches.

5,726,530

HIGH RESOLUTION COLD CATHODE FIELD EMISSION DISPLAY

Chao-chi Peng, Chinchu, Taiwan, assignor to Industrial Technology Research Institute, Hsin-Chu, Taiwan

Division of Ser. No. 429,730, Apr. 27, 1995, Pat. No. 5,591,352.
This application Oct. 7, 1996, Ser. No. 727,265
Int. Cl.[6] H01J *1/62;63/04;1/02;1/16*
U.S. Cl. 313—495 26 Claims



1. A cold cathode field emission display comprising:

an insulating substrate;

a resistive layer on said substrate;

a cathode distribution mesh on said resistive layer;

a first dielectric layer on said resistive layer and said cathode distribution mesh;

a conductive layer, patterned to form cathode columns on said first dielectric layer, underlapping said cathode distribution mesh along one dimension;

gate lines for said display, formed of parallel, spaced conductors, over, and at an angle to, said cathode columns;

via holes through said first dielectric layer, centrally located within the interstices of said cathode distribution mesh, through which conductive material from said cathode columns connects to said resistive layer;

a second dielectric layer between said cathode columns and said gate lines;

a plurality of openings, located at the intersections of said cathode columns and said gate lines, passing through said gate lines and said second dielectric layer; and

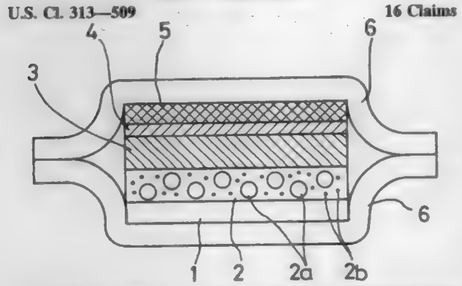
a plurality of cone shaped field emission microtips, each centrally located within one of the openings,the base of each of said microtips being in contact with said conductive layer and the apex of each microtip being in the same plane as that of said gate lines.

5,726,531

ELECTROLUMINESCENT ELEMENT

Koji Hirose, and Shigehiko Aoki, both of Tokyo, Japan, assignors to Seiko Precision Inc., Japan

Continuation of Ser. No. 216,808, Mar. 23, 1994, abandoned.
This application Aug. 19, 1996, Ser. No. 699,193
Claims priority, application Japan, Mar. 29, 1993, 5-070240; Apr. 27, 1993, 5-101184
Int. Cl.[6] H05B *33/02*
U.S. Cl. 313—509 16 Claims



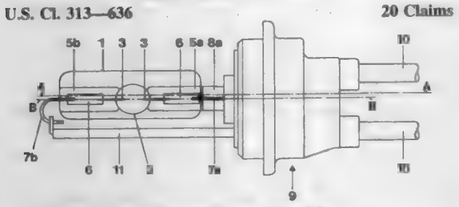
1. In an electroluminescent element having a luminescent layer and an insulating layer interposed between a transparent electrode and a rear electrode, said luminescent layer containing a luminescent material, the improvement wherein said luminescent layer contains said luminescent material in the proportion of 82.0 to 85.0% by weight, the average particle diameter of the luminescent material is not greater than 21 microns, and the luminescent layer further contains at most 1.9% by weight of at least one yellow fluorescent pigment, the fluorescent pigment being effective to emit a fluorescent light in response to light emitted by the luminescent material.

5,726,532

HIGH-PRESSURE DISCHARGE LAMP AND PROCESS FOR PRODUCING IT

Christian Wittig, Munich, and Dieter Lang, Holzkirchen, both of Germany, assignors to Patent-Treuhand-Gesellschaft F. Elektrische Gluehlampen mbH, Munich, Germany

PCT No. PCT/DE94/00600, § 371 Date Nov. 20, 1995, § 102(e) Date Nov. 20, 1995, PCT Pub. No. WO94/28576, PCT Pub. Date Dec. 8, 1994
PCT Filed May 25, 1994, Ser. No. 556,912
Claims priority, application Germany, May 25, 1993, 43 17 369.1
Int. Cl.[6] H01J *61/34;9/26*
U.S. Cl. 313—636 20 Claims



1. A high-pressure discharge lamp, comprising

a discharge vessel (2) of quartz glass, sealed on two ends, which is surrounded by an outer bulb (1),

two electrodes (3) having spaced ends, located inside the discharge vessel (2);

two pinch seals (5*a*, 5*b*), one at each end of the discharge vessel (2),

characterized in that

the outer bulb (1) comprises a glass that has a lower softening temperature than the quartz glass of the discharge vessel (2); and

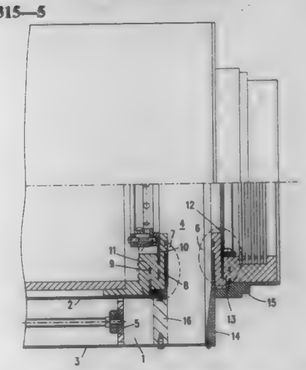
the outer bulb (1) is fused to the pinch seals (5*a*, 5*b*) of the discharge vessel.

5,726,533

CATHODE RAY TUBE HAVING AN INPUT RESONATOR CAVITY

Stefan Grote, Wedel, and Horst Seifert, Schneverdingen-Insel, both of Germany, assignors to U.S. Philips Corporation, New York, N.Y.

Continuation of Ser. No. 346,944, Nov. 29, 1994, abandoned.
This application Dec. 13, 1996, Ser. No. 764,164
Claims priority, application Germany, Nov. 29, 1993, 43 40 550.9
Int. Cl.[6] H01J *23/18*
U.S. Cl. 315—5 8 Claims



1. In a cathode ray tube, an input resonator cavity structure comprising:

(a) a first metal wall;

(b) a second metal wall spaced apart from said first metal wall;

(c) each of said first metal wall and said second metal wall having surface sections in a coupling area for conveying a low electric potential, the coupling areas of the first and second metal walls being axially spaced from one another;

(d) metal elements in said coupling areas for conveying a high electric potential;

(e) insulating dielectrics in each of the coupling areas filling the spaces between the surface sections and the metal elements; and

(f) a spacing dielectric extending between said coupling areas and separating said coupling areas, said spacing dielectric consisting of a different material than said insulating dielectrics, and said spacing dielectric having a lower value of the product of loss factor and dielectric constant (tgδ×ε) at high frequencies than said insulating dielectrics.

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5,726,534

PREHEAT CURRENT CONTROL CIRCUIT BASED UPON THE NUMBER OF LAMPS DETECTED

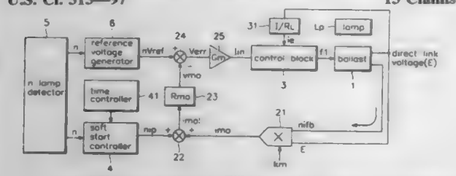
Maeng-ho Seo, Kyonggi-do, Rep. of Korea, assignor to Samsung Electronics Co., Ltd., Suwon, Rep. of Korea

Filed Apr. 24, 1996, Ser. No. 636,263

Claims priority, application Rep. of Korea, Jun. 5, 1995, 95-14844

Int. Cl.[6] H05B *37/02*

U.S. Cl. 315—97 13 Claims



1. A switching type ballast feedback control system, comprising:
a ballast which generates a feedback current;
a detector which detects a number of lamps connected to the ballast;
a reference voltage generator which generates a reference voltage corresponding to the number of lamps detected by the detector;
a soft start controller unit which produces a first output current corresponding to the number of lamps detected by the detector in an initial preheat period, an instantaneous discharge period and a continuous discharge period;
a first feedback unit which multiplies said feedback current of the ballast with a direct link current applied to the ballast to obtain a multiplied current that is added to the first output current of the soft start controller unit to form a second output current;
a second feedback unit which converts the second output current into a voltage, produces an error voltage as a difference between the converted voltage and the reference voltage generated by the reference voltage generator and converts the error voltage into a third output current;
a main control unit which adds the third output current of the second feedback unit to a feedforward current and determines a control frequency of a driving signal of the ballast from this added current.

5,726,535

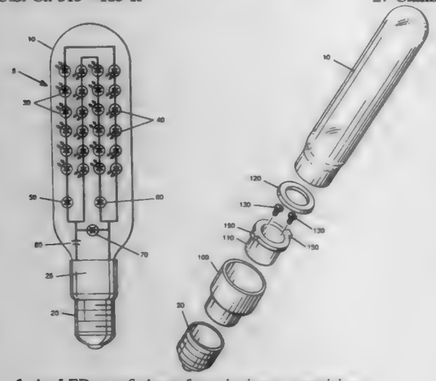
LED RETROLIFT LAMP FOR EXIT SIGNS

Ellis Yan, 29 Annandale Dr., South Russell, Ohio 44022

Filed Apr. 10, 1996, Ser. No. 630,166

Int. Cl.[6] H05B *37/00*

U.S. Cl. 315—185 R 27 Claims



1. An LED retrofit lamp for exit signs, comprising:
a cylindrical glass envelope associated with a screw base, the base adapted for insertion in a standard bulb socket;
an illumination means having circuitry for connection with an A/C source through a nondissipative voltage dropping element, the illumination means comprising a plurality of LEDs arranged in two serial LED strings, comprising first and second LED strings, each string connected in parallel with the other, enclosed in the glass envelope;
a rotatable assembly for rotating the illumination means against a frictional contact with the envelope, within a rotating range of less than 160 degrees with reference to the base; and,
a means for anchoring the illumination means in a desired optimal view, rotative position with reference to the base.

5,726,536

METHOD OF DRIVING A COLD CATHODE TUBE USING A CERAMIC TRANSFORMER

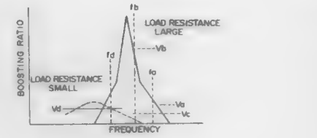
Nobumi Hagiwara, Yokosuka, Japan, assignor to Tamura Corporation, Tokyo, Japan

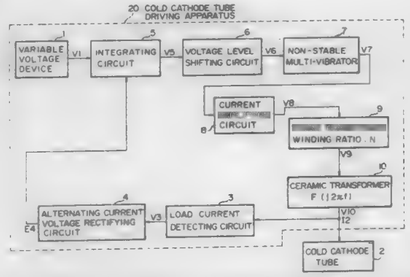
Continuation of Ser. No. 243,670, May 16, 1994, abandoned.

This application Dec. 21, 1995, Ser. No. 576,795

Int. Cl.[6] H01L *41/08*

U.S. Cl. 315—276 1 Claim





1. A method of driving a cold cathode tube using a ceramic transformer comprising the steps of:
applying an output frequency of an oscillator to the ceramic transformer;
sweeping the output frequency of the oscillator from a high frequency to a low frequency;
lighting a cold cathode tube on a negative slope of a frequency characteristic of a boosting ratio of the ceramic transformer, the negative slope of the frequency characteristic of the boosting ratio of the ceramic transformer increasing with a decrease in the output frequency of the oscillator;
maintaining a driving frequency at which the cold cathode tube is lighted on the negative slope of the frequency characteristic of the boosting ratio;
utilizing a frequency characteristic of a boosting ratio of the ceramic transformer corresponding to an impedance of the cold cathode tube having been greatly reduced by lighting the cold cathode tube to obtain an output voltage of the ceramic transformer; and
controlling a load current flowing through the cold cathode tube by the output voltage of the ceramic transformer for adjusting a luminance of the cold cathode tube.

5,726,537

CIRCUIT FOR PULSED OPERATION OF A DISCHARGE LAMP

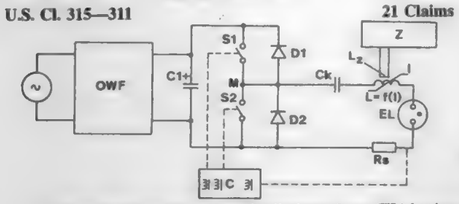
Andreas Huber, Maisach, and Guenther Hirschmann, Munich, both of Germany, assignors to Patent-Treuhand-Gesellschaft F. Elektrische Gluehlampen mbH, Munich, Germany

Filed Mar. 25, 1996, Ser. No. 622,568

Claims priority, application Germany, Apr. 27, 1995, 195 15 510.6

Int. Cl.[6] G05F *1/00*

U.S. Cl. 315—311 21 Claims



1. A circuit for pulsed operation of a discharge lamp (EL) having
a source (OWF) of direct current;
a d-c - a-c converter bridge circuit having two switching elements (S1, S2) coupled to receive the d-c energy from said source (OWF) and having its output coupled to the lamp (EL);
a reactive impedance (L; Ck; C2, C3) serially connected to the discharge lamp (EL) and the output of the bridge converter circuit;
and a firing or ignition circuit (Z; CR) coupled to the lamp and providing firing or ignition pulses thereto,
wherein, in accordance with the invention,
the reactive impedance (L; Ck; C2, C3) comprises a reactive impedance element which has a reactance value characteristic which is non-linear with respect to current flow therethrough.

5,726,538

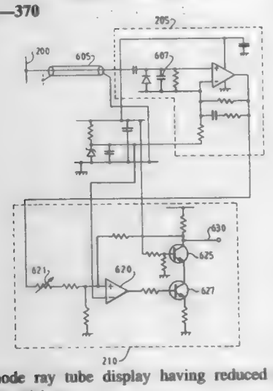
CATHODE RAY TUBE DISPLAY WITH CANCELLATION OF ELECTRIC FIELD EMISSIONS

Frederick S. Jackson, Glasgow, Scotland; David Leaver, Hassocks, United Kingdom; Andrew Ramsey Knox, Kilbirnie, Scotland, and John S. Beeteson, Skelmorlie, Scotland, assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Jun. 10, 1994, Ser. No. 257,850

Int. Cl.[6] H01Q *1/00*

U.S. Cl. 315—370 10 Claims



1. A cathode ray tube display having reduced electric field emissions comprising:
a cathode ray tube having a final anode voltage, a deflector and a device to drive the deflector;
an element for detecting modulations in the final anode voltage and for providing a signal representing the modulations, the signal not being directly dependent on the device to drive the deflector;
a matching network for providing phase and gain correction to the signal from the element said correction being dependent on a frequency of the signal;
an amplifier for receiving the signal from the matching network and for providing a second signal of opposite polarity to the first signal representing the modulations; and
an emission device for radiating a cancelling electric field dependent on the modulations detected by the detection element.

5,726,539

COLOR CATHODE RAY TUBE DISPLAY SYSTEM

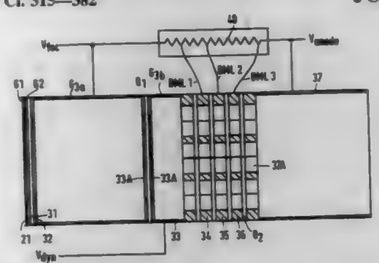
Tjerk G. Spanjer, Eindhoven, Netherlands, and Albertus A. S. Sluyterman, Eindhoven, Netherlands, assignors to U.S. Philips Corporation, New York, N.Y.

Filed Oct. 17, 1996, Ser. No. 733,305

Claims priority, application European Pat. Off., Oct. 18, 1995, 95202817

Int. Cl.[6] G09G *1/04*; H01J *29/46*

U.S. Cl. 315—382 6 Claims



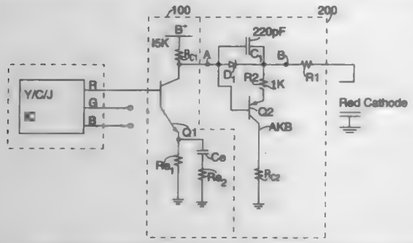
1. A display system having
a colour cathode ray tube with a display screen, with an in-line electron gun for generating three electron beams, and with a deflection unit for deflecting the electron beams over the display screen,
the electron gun having a set of main lens electrodes for focusing the electron beams on the display screen, and
the display system having means to supply, voltages to the set of main lens electrodes,
the set of main lens electrodes comprising
a first electrode (G_{3A}),
a second electrode (G_{3B}),
a final electrode (anode) and
between the second electrode and the final electrode
at least one intermediate electrode (DML_1–DML_n) adjacent to the second electrode,
wherein, in operation
static voltages (V_{foc}, V_{DML1}, V_{anode}) are applied to the first, the intermediate and the final electrodes said voltages ascending in order of positioning of the electrodes ($V_{foc}<V_{DML1}<V_{anode}$) and
a dynamic voltage V_{dyn} to the second electrode (G_3B)
the electrodes being so formed that in operation a quadrupole electric field (Q1) is generated between said first and second electrode and a quadrupole electric field (Q2) is formed between the final electrode (anode) and the intermediate electrode adjacent the final electrode (DML_n)
characterized in that
when the electron beams are undeflected, the respective voltages are arranged as follows
dynamic voltage (V_{dyn})<first static voltage (V_{foc})<intermediate static voltages (V_{DML1} to V_{DMLn})<final static voltage (V_{anode}), and the dynamic voltage increases as the angle of deflection of the electron beams increases.

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5,726,540
TRANSIENT ENHANCEMENT CIRCUIT FOR CRT AMPLIFIER

Kristopher Klink, San Diego, Calif., assignor to Sony Corporation, Tokyo, Japan, and Sony Electronics Inc., Park Ridge, N.J.

Filed Dec. 22, 1995, Ser. No. 577,356
Int. Cl.[6] H01J *29/52*
U.S. Cl. 315—383 **6 Claims**



1. A transient improvement circuit, for cathode ray tube (CRT) amplifiers with automatic kinescope bias feedback circuits, comprising:

an NPN transistor and a PNP transistor, each having a collector, an emitter and a base, wherein a video input signal is applied to the base of said NPN transistor;

a first collector resistor connected between the collector of said NPN transistor and a power supply voltage, the collector of said NPN transistor also being connected to the base of said PNP transistor;

a first emitter resistor connected between the emitter of said NPN transistor and ground, wherein said first emitter resistor has, connected in parallel with said first emitter resistor, a filter capacitor and a second emitter resistor connected in series with said filter capacitor;

a third emitter resistor, having a first end and a second end, wherein the first end is connected to the emitter of said PNP transistor and, wherein a forward-biased diode and a first capacitor are connected, in parallel, across the base of said PNP transistor and the second end of said third emitter resistor;

a second collector resistor connected between the collector of said PNP transistor and ground; and

an output resistor connected to the second end of said third emitter resistor, said output resistor providing an output to drive a cathode.

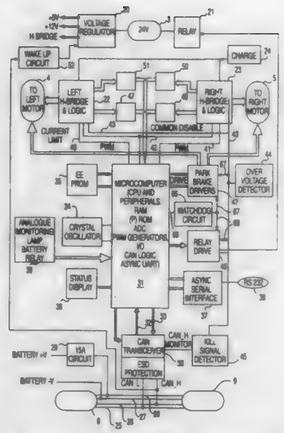
5,726,541
FAILURE DETECTION AND COMMUNICATION SYSTEM FOR ELECTRICALLY DRIVEN VEHICLES

Christopher John Glenn, and Henry Piers Seed, both of Christchurch, New Zealand, assignors to Dynamic Controls Limited, Christchurch, New Zealand

PCT No. PCT/NZ93/00029, § 371 Date Mar. 17, 1995, § 102(e) Date Mar. 17, 1995, PCT Pub. No. WO93/22151, PCT Pub. Date Nov. 11, 1993
PCT Filed Apr. 28, 1993, Ser. No. 325,392
Claims priority, application New Zealand, Apr. 28, 1992, 242525; Jan. 18, 1993, 245695
Int. Cl.[6] H02P *3/00*
U.S. Cl. 318—16 **20 Claims**

1. A control means for an electrically driven vehicle comprising:

two or more modules interconnected by a serial bus, said serial bus including one or more data lines, wherein one or more modules of said two or more modules includes means to shift a DC bias voltage on a data line of said serial bus, and one or more of said two or more modules includes means to alter the operating state of said two or more modules between an enabled and disabled condition while maintaining data communication between the two or more modules.

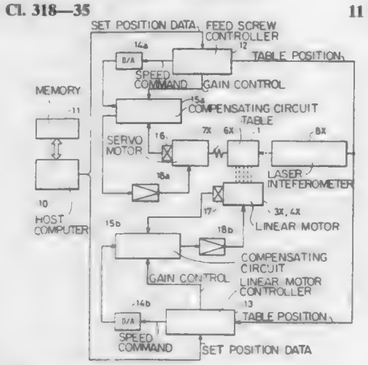


wherein the means for altering the operational state of said modules corresponds to a kill means which monitors the DC bias voltage on said data line of said serial bus and disables functions of that module when the detected DC bias voltage is outside a set voltage range and wherein a user control switch is provided on a remote control module which can clamp the bias voltage on the serial bus below the lowest value of the set voltage range.

5,726,542
STAGE APPARATUS

Akimitsu Ebihara, Kanagawa-ken, Japan, assignor to Nikon Corporation, Tokyo, Japan

Continuation of Ser. No. 282,223, Jul. 29, 1994, abandoned, which is a continuation of Ser. No. 150,275, Nov. 10, 1993, abandoned, which is a continuation of Ser. No. 55,956, Apr. 30, 1993, which is a continuation of Ser. No. 877,273, Apr. 29, 1992, abandoned, which is a continuation of Ser. No. 663,367, Mar. 1, 1991, abandoned. This application Apr. 3, 1995, Ser. No. 416,454
Claims priority, application Japan, Mar. 5, 1990, 2-051905; Nov. 20, 1990, 2-312812
Int. Cl.[6] H02K *33/00*
U.S. Cl. 318—35 **11 Claims**



1. A stage apparatus comprising:

a table;

a base and guide mechanism for supporting movement of said table in a first direction;

a first driving mechanism on said base for driving said table in said first direction; said first driving mechanism including a driving shaft aligned in said first direction and being affixed to said table;

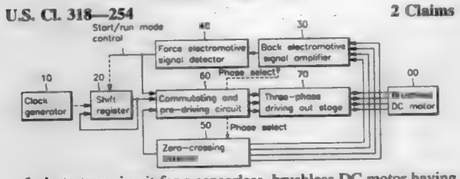
a second driving mechanism comprising a movable element fixed with respect to said table and having at least one stator mounted on said base so as to face said movable element in parallel alignment with said first direction wherein said second driving mechanism operates by the magnetic force developed from said stator on said movable element; and

a control device comprising at least a first operating mode for driving table under the control of said first driving mechanism and a second operating mode for stopping the movement of said table under the control of said first driving mechanism and said second driving mechanism.

5,726,543
SENSORLESS, BRUSHLESS DC MOTOR START-UP CIRCUIT USING INTERMITTENTLY-ACCELERATED-RATE CLOCK

Shi-Hong Park; Suk-Hoon Bahng, both of Seoul, and Nam-Jin Kang, Inchon-jikalshi, all of Rep. of Korea, assignors to Samsung Electronics Co., Ltd., Suwon, Rep. of Korea

Filed Feb. 28, 1996, Ser. No. 608,074
Claims priority, application Rep. of Korea, Aug. 23, 1995, 95-26160
Int. Cl.[6] H02P *1/00*
U.S. Cl. 318—254 **2 Claims**



1. A start-up circuit for a sensorless, brushless DC motor having a rotor and having a stator with three-phase field coils, said start-up circuit operating in a start-up mode or a running mode, operating in said start-up mode either in a normal submode or in an accelerating submode, and comprising:

an intermittently-accelerated-rate clock generator clock generator for generating a clock signal at a rate that is intermittently accelerated during start-up, said rate being a normal rate when operating in said normal submode of said start-up mode and being a relatively accelerated rate when operating in said accelerating submode of said start-up mode;

a shift register, connected as a ring counter for generating a selected one of a three-phase commutation signal and a six-phase commutation signal for said brushless DC motor, said shift register connected for having its shifts clocked by said intermittently-accelerated-rate clock signal;

a back-electromotive-force signal amplifier responsive to a non-excited-phase indication for selecting a back-electromotive-force signal generated in a currently non-excited one of said three-phase field coils of the motor and amplifying that selected back-electromotive-force signal to supply an amplified back-electromotive-force signal;

a back electromotive force detector for detecting when the absolute amplitude of the amplified back-electromotive-force signal generated during start-up exceeds a prescribed threshold, to switch operation of said start-up circuit from start-up mode to running mode;

a zero-crossing detector responsive to said non-excited-phase indication for selecting one of an induced current signal and a back-electromotive-force signal generated in the currently non-excited winding of the motor, and inferring a position of the motor rotor from the zero-crossing of that signal to generate rotor position information;

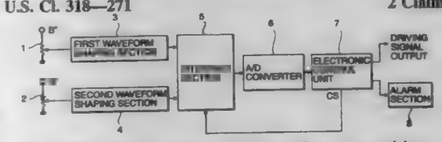
a commutating and pre-driving circuit for supplying response to the commutation logic signal supplied from the shift register according to said rotor position information supplied from said zero-crossing detector, for generating said non-excited-phase indications, and for providing a pre-driving function; and

a three-phase driving output stage for driving said three-phase stator field coils responsive to said response supplied from the commutating and pre-driving circuit.

5,726,544
SPEED CONTROL APPARATUS AND METHOD FOR ELECTRIC CAR

Sung Byum Lee, Kyungkido, Rep. of Korea, assignor to Hyundai Motor Company, Seoul, Rep. of Korea

Filed Oct. 1, 1996, Ser. No. 720,730
Int. Cl.[6] H02P *1/00*
U.S. Cl. 318—271 **2 Claims**



1. A speed control apparatus for an electric car, comprising:

at least two variable resistors for generating speed control signals, each resistance value of said variable resistors varying in accordance with stepping on the accelerator pedal;

waveform shaping means for waveform-shaping output signals of said variable resistors to remove noise components and amplifying the waveform-shaped output signals;

interface means for selectively providing said output signals of said waveform shaping means in accordance with a control signal;

analog-to-digital conversion means for converting output signal of said interface means into a digital signal;

electronic control means for providing said control signal to said interface means so as to selectively receive one of said speed control signals from said variable resistors to produce a driving signal, said electronic control means detecting a difference value between said speed control signals, controlling a driving speed of said electric car according to selected one of said speed control signals if said detected difference value is lower than a predetermined value, and producing an alarm control signal for cutting off said driving signal to stop said electric car, if said detected difference value is higher than a predetermined value; and

alarm means for producing an alarm signal according to said alarm control signal provided from said electronic control means.

5,726,545
CURRENT CONTROLLING METHOD FOR SERVO MOTOR

Yasusuke Iwashita, Yamanashi, Japan, and Hiroyuki Kawamura, Yamanashi, Japan, assignors to Fanuc Ltd., Yamanashi, Japan

Filed Jun. 28, 1996, Ser. No. 671,875
Claims priority, application Japan, Jun. 30, 1995, 7-186703
Int. Cl.[6] H02P *7/36*
U.S. Cl. 318—432 **4 Claims**

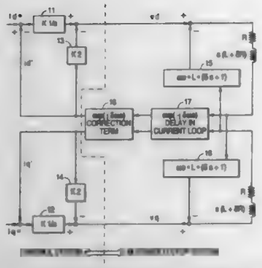
1. A method of controlling a current to be supplied to a servo motor having a rotor by performing a DQ conversion for converting a three-phase AC current into a two-phase DC current and a two-phase DC voltage command into a three-phase AC voltage command in a current loop, said method comprising the steps of:

(a) obtaining a phase angle of the rotor;

(b) obtaining a corrective electrical angle corresponding to a phase delay occurred in the current loop;

(c) correcting said phase angle obtained in said step (a) based on said corrective electrical angle obtained in said step (b);

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(d) obtaining a command voltage by performing the DQ conversion using said phase angle corrected in said step (c); and

(e) controlling the current to be supplied to the servo motor based on said command voltage obtained in said step (d).

5,726,546

AGITATION PERIOD CONTROL OF LAUNDRY MACHINE MOTOR

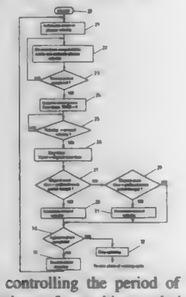
Jonathan David Harwood, Manurewa, New Zealand, assignor to Fisher & Paykel Limited, Auckland, New Zealand

Filed Jul. 11, 1996, Ser. No. 680,250

Claims priority, application New Zealand, Jul. 17, 1995, 272589

Int. Cl.[6] H02P *6/02*

U.S. Cl. 318—439 **13 Claims**



1. A method of controlling the period of an agitation stroke during an agitation phase of a washing cycle in a laundry washing machine having:

a rotatable spin tub for receiving a load of laundry to be washed, within a stationary water container;

an electronically commutated motor connected to a shaft extending through and sealed against said water container and having an agitator mounted thereon within said spin tub;

control means controlling said operation of said motor throughout a washing cycle, said control means controlling commutation of said motor, receiving velocity feedback from said motor and occasionally causing said laundry machine to enter an agitation phase of said washing cycle, said method comprising the steps of:

i) commencing an agitation stroke by providing a commutation sequence to said motor which accelerates said motor to a predetermined plateau speed;

ii) maintaining said plateau speed for a predetermined length of time,

iii) removing power from said motor and allowing said motor to commence coasting towards zero rotational velocity;

iv) starting a timer to determine the length of time said motor coasts before the rotational velocity drops to a predetermined reversal velocity at which time said commutation sequence is reversed and said timer is stopped providing a measured coast time;

v) comparing said measured coast time to a predetermined preferred coast period and incrementing said predetermined reversal velocity if said measured coast time is greater than said preferred coast period and;

vi) reversing the direction of said motor and repeating steps (i) to (vi) until said agitation phase is completed.

5,726,547

WINDSHIELD WIPER ARRANGEMENT INCLUDING WIPER CONTROL SYSTEM

Gerd Reime, Friedenstr. 88, D-75328 Schömberg, Germany

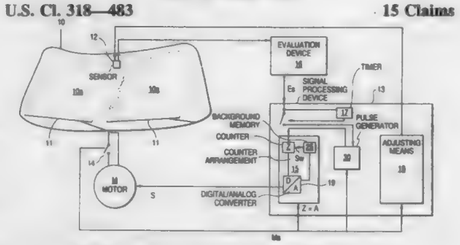
PCT No. PCT/DE94/00710, § 371 Date Jun. 17, 1996, § 102(e) Date Jun. 17, 1996, PCT Pub. No. WO95/01270, PCT Pub. Date Jan. 12, 1995

PCT Filed Jun. 18, 1994, Ser. No. 578,683

Claims priority, application Germany, Jul. 2, 1993, 9309837 U; Feb. 3, 1994, 44 03 221.8; Apr. 6, 1994, 44 11 772.8

Int. Cl.[6] B60S *1/08*

U.S. Cl. 318—483 **15 Claims**



1. A windshield wiper arrangement comprising:

a windshield having a wiping area and a sensor-active surface on its wiping area, the windshield further defining a reflective element corresponding to the sensor-active surface and a detection side disposed opposite the reflective element;

a wiper disposed adjacent the windshield for sweeping over the wiping area during a wiper operation; and

a wiper control system operatively coupled to the wiper and including:

a drive motor for driving the windshield wiper to sweep over the wiping area, the drive motor having a control input;

a sensor system including an optoelectric sensor disposed in the wiping area such that the wiper passes over the sensor n times during each wiper operation, n being equal to at least one, the sensor system being configured for generating sensor signals in response to an element coming into contact with the sensor-active surface in the wiping area, the sensor system and the windshield further being part of a means for indicating a change in the windshield, the means for indicating comprising:

at least two measured sections for generating, reflecting and receiving radiation for measurement, each measured section including:

a radiation source disposed adjacent the detection side of the windshield for generating radiation for transmission through the windshield thereby resulting in generated radiation;

a sensor-active surface on the reflective element for reflecting at least a portion of the generated radiation thereby resulting in reflected radiation emerging from the detection side of the windshield; and

a radiation receiver disposed adjacent the detection side of the windshield at a distance from the radiation source for receiving the reflected radiation, the radiation receiver having an output for producing a detection signal representing received radiation;

a clock generator operatively coupled to the at least two measured sections for periodically actuating respective ones of the measured sections;

an adjusting device operatively coupled to the at least two measured sections for adjusting the detection signal so that, in a rest state of the sensor-active surface of each measured section, a part of the detection signal corresponding to each measured section has an average amplitude value equal to an average amplitude value of parts of the detection signal corresponding to other ones of the measured sections;

a filter circuit connected to the radiation receiver of each measured section for producing a filtered detection signal; and

an evaluation device having an input for receiving the filtered detection signal and being operatively coupled to the signal processing device, the evaluation device producing the sensor signals in dependence of a difference between parts of the filtered detection signal corresponding to respective ones of the at least two measured sections;

a regulating device including:

a signal centering stage disposed at an output of the filter circuit for receiving the filtered detection signal therefrom, the signal centering stage having:

a synchronous demodulator for scanning an amplitude value of parts of the detection signal corresponding to each actuated one of the measured sections;

a demodulation value memory operatively connected to the demodulator for storing average amplitude values of the parts scanned by the demodulator; and

a comparing device operatively connected to the demodulation value memory for generating a difference value of the average amplitude values stored by the demodulation value memory; and

a regulation signal generator connected to an output of the signal centering stage and including:

a time constant member for generating a control time constant Tr; and

a regulation signal generator operatively connected to the time constant member for generating a regulation signal Sr during time Tr from the difference value of the average amplitude values stored by the demodulation value memory, whereby the adjusting device is connected to the regulation signal generator for receiving the regulation signal therefrom, the regulation signal being effective for guiding an adjustment effected by the adjusting device such that the difference value of the average amplitude values approaches zero; and

a signal processing device having an input coupled to the sensor signals and an output connected to the drive motor for producing control signals for the drive motor in dependence of the sensor signals, the signal processing device including a counter arrangement comprising:

a counter for counting the sensor signals thereby resulting in a counter state of the counter, the counter state of the counter further being equal to a predetermined starting value before each wiper operation;

threshold means coupled to the counter and responsive to the counter state exceeding a predetermined threshold value for producing control signals for the drive motor for tripping a further wiper operation, the threshold value being greater than n; and

reset means coupled to the counter for resetting the counter state to its predetermined starting value.

5,726,548

MOVING STAGE APPARATUS AND SYSTEM USING THE SAME

Shinichi Chiba, Tokyo, and Kotaro Akutsu, Machida, both of Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan

Continuation of Ser. No. 159,218, Nov. 30, 1993, abandoned. This application Jan. 29, 1996, Ser. No. 593,194

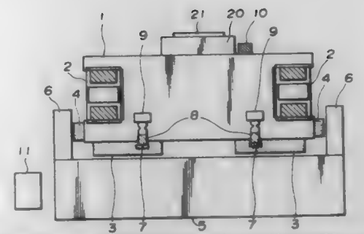
Claims priority, application Japan, Dec. 18, 1992, 4-338802

Int. Cl.[6] G05B *1/06*; **B65G** *49/00*

U.S. Cl. 318—625 **9 Claims**

1. A stage apparatus comprising:

a movable member capable of being moved along a reference surface;



first fluid bearing means, connected to said movable member, opposed to the reference surface for supporting said movable member on the reference surface;

second fluid bearing means, different from the first fluid bearing means, opposed to the reference surface and connected to said movable member;

a driving element, fixed to said second fluid bearing means, displacing the second fluid bearing means in a direction perpendicular to the reference surface; and

a controller for controlling the displacement of said driving element.

5,726,549

SENSOR-LESS CONTROL APPARATUS FOR PERMANENT MAGNET SYNCHRONOUS MOTOR

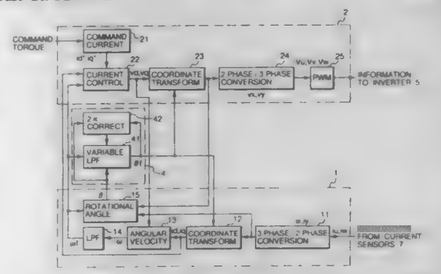
Tomoya Okuno; Hiroyuki Sakakibara, both of Nishio; Hiroya Tsuji, and Kazuyoshi Obayashi, both of Kariya, all of Japan, assignors to Nippondenso Co., Ltd., Kariya, and Nippon Soken, Inc., Nishio, both of Japan

Filed Feb. 9, 1996, Ser. No. 599,132

Claims priority, application Japan, Feb. 10, 1995, 7-046361; Nov. 24, 1995, 7-329732

Int. Cl.[6] H02P *1/46*

U.S. Cl. 318—721 **7 Claims**



1. A position sensor-less control apparatus for a permanent magnet synchronous motor having multiple-phase armature windings and a rotor, the apparatus comprising:

first means for calculating a present rotational angle and an angular velocity of the rotor from phase currents and phase voltages of the armature windings, and from a filtering-resultant rotational angle;

second means for correcting the present rotational angle calculated by the first means into said filtering-resultant rotational angle, and for feeding back said filtering-resultant rotational angle to the first means;

third means contained in the second means for low-pass-filtering the present rotational angle calculated by the first means and changing the present rotational angle into said filtering-resultant rotational angle in a manner dependent upon a previous rotational angle calculated by said first means prior to calculating said present rotational angle;

fourth means contained in the second means for, in cases where a previous filtering-resultant rotational angle outputted from the third means and the present rotational angle calculated by the first means are not in a same period, correcting the

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previous filtering-resultant rotational angle into a correction-resultant previous rotational angle and enabling the third means to use the correction-resultant previous rotational angle as the previous rotational angle; and

fifth means for controlling energization of the armature windings in response to at least the filtering-resultant rotational angle provided by the third means and the angular velocity calculated by the first means.

5,726,550

MOTOR CONTROL SYSTEM FOR CENTRIFUGE

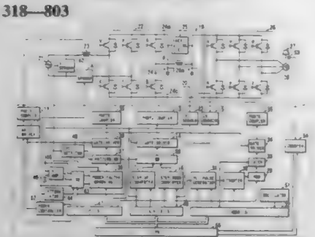
Masahiro Inaniwa, Hitachinaka, Japan; Shinji Watanabe, Hitachinaka, Japan; Noriyasu Matsufuji, Hitachinaka, Japan, and Katsunori Akatsu, Hitachi, Japan, assignors to Hitachi Koki Co., Ltd., Tokyo, Japan

Filed Jul. 30, 1996, Ser. No. 689,108

Claims priority, application Japan, Aug. 11, 1995, 7-205849

Int. Cl.[6] H02P *3/26*

U.S. Cl. 318—803 **4 Claims**



1. A power control apparatus for controlling power supplied to an electric motor employed in a centrifuge comprising:

a bi-directional supply power-converting circuit connected to an a.c. power supply, designed to convert a.c. current into d.c. current and vice versa and to reduce harmonic components contained in the current passing therethrough, said bi-directional supply power-converting circuit functioning as a step-up converter and a step-down converter, the step-up converter increasing a voltage level of the current flowing therethrough during conversion from the d.c. current into the a.c. current, the step-down converter decreasing a voltage level of the current flowing therethrough during conversion from the a.c. current into the d.c. current;

a bi-directional motor power-convening circuit connected to said bi-directional supply power-converting circuit for providing power to the electric motor in a power running mode of motor operation and also providing power produced by the electric motor in a regenerating mode of motor operation to said bi-directional supply power-converting circuit;

a d.c. power-converting circuit disposed between said bi-directional supply power-converting circuit and said bi-directional motor power-converting circuit, designed to work as a step-down converter which decreases a voltage level of an output from said bi-directional supply power-converting circuit to said bi-directional motor power-converting circuit and a step-up converter which increases a voltage level of an output from said bi-directional motor power-converting circuit to said bi-directional supply power-converting circuit;

a motor energizing circuit disposed in parallel to said d.c. power-converting circuit to provide a given level of electric power to the electric motor to activate the electric motor in the regenerating mode; and

a control circuit controlling operations of said bi-directional supply power-converting circuit, said bi-directional motor power-converting circuit, said d.c. power-converting circuit, and said motor energizing circuit to selectively activate the electric motor in the power running mode and the regenerating mode.

5,726,551

BATTERY CHARGING DEVICE HAVING TIME SHARED CHARGING CYCLE

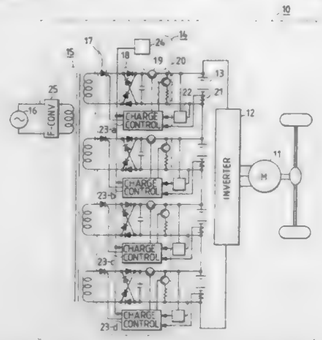
Taizou Miyazaki; Ryoso Masaki, both of Hitachi; Satoru Kaneko, Urizura, and Tatsuo Horiba, Hitachi, all of Japan, assignors to Hitachi, Ltd., Japan

Filed Oct. 21, 1996, Ser. No. 734,072

Claims priority, application Japan, Oct. 19, 1995, 7-270879

Int. Cl.[6] H01M *10/46*

U.S. Cl. 320—6 **18 Claims**



1. A battery charging device for a plurality of battery groups connected in series, the series connection of the plurality of battery groups being connected across an electric load, comprising:

a plurality of battery charging units, each being coupled to one of said plurality of battery groups for charging the same; and

a common battery charging control unit which controls said plurality of battery charging units to effect a charge cycle having a charging mode, short discharge mode and rest mode in a time sharing manner, wherein at least any one of said plurality of battery groups is placed in the rest mode in every moment of the charging operation for said plurality of battery groups.

5,726,552

METHOD AND APPARATUS FOR CONTROLLING CHARGING OF ELECTRICAL POWER STORAGE UNIT

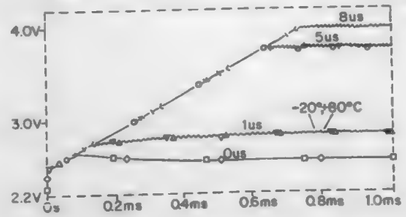
Michio Okamura, Yokohama, Japan, assignor to Jeol Ltd., Tokyo, Japan

Filed Feb. 26, 1996, Ser. No. 607,079

Claims priority, application Japan, Feb. 27, 1995, 7-037869

Int. Cl.[6] H01M *10/44;* **H02J** *7/04*

U.S. Cl. 320—7 **7 Claims**



2. A parallel charging control unit for use with a capacitor cell which is charged with a charging current so that electric energy is stored in said cell, said parallel charging control unit being responsive to a signal from a source of stop voltage-setting signals and adapted to bypass said charging current when said capacitor cell is charged to a stop voltage, said parallel charging control unit comprising:

charging current bypass means connected in parallel with said capacitor cell, for bypassing said charging current;

coupling means for connecting with a signal source which supplies a stop voltage setting signal; and

control means for establishing stop voltages according to output signals from said coupling means, said control means acting to compare said stop voltages with voltages corresponding to voltages developed across terminals of said capacitor cells and to control said charging current bypass means according to results of the comparisons, wherein each of said coupling means consists of a pulse transformer.

5,726,553

DUAL BATTERY SYSTEM CONTROL CIRCUIT

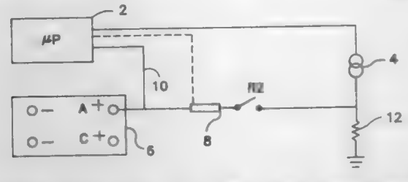
Iain Wallace Waugh, Hamilton, New Zealand, assignor to Glory Win International Group Limited, Kowloon, Hong Kong

Filed Aug. 10, 1995, Ser. No. 513,213

Claims priority, application New Zealand, Aug. 11, 1994, 264225

Int. Cl.[6] H01M *10/46*

U.S. Cl. 320—11 **19 Claims**



1. In a vehicle having a starter motor, a battery charging generator, and a 2, 3, or 4-pole battery with a CRA battery and an AUX battery, a normally open switch connecting the CRA and AUX batteries, the switch being in closed position during battery charging, the switch having a sensor which detects the state of charge of the AUX battery at least during charging to prevent overcharging one of the CRA and AUX batteries by actuating the switch to disconnect the AUX battery from the CRA battery, and to allow the AUX battery to discharge preferentially while preserving the state of charge of the CRA battery sufficiently to start the vehicle.

5,726,554

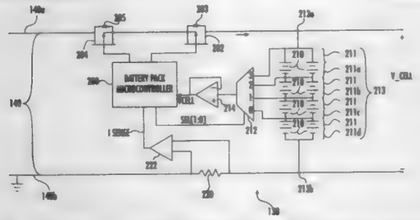
CHARGING A BATTERY HAVING A NOMINAL CRITICAL TERMINAL VOLTAGE

Joseph F. Freiman, Cypress; Steven Kent McConkey, Houston, and Nathan Austin Mitchell, The Woodlands, all of Tex., assignors to Compaq Computer Corporation, Houston, Tex.

Filed May 24, 1996, Ser. No. 653,193

Int. Cl.[6] H01M *10/44;10/46*

U.S. Cl. 320—21 **34 Claims**



17. A personal electronic device capable of receiving power from an external power source, the device comprising:

a microprocessor;

a memory;

a system bus; and

a rechargeable battery pack including

a battery having a nominal rated critical terminal voltage that may not be exceeded without hazardous failure of the battery; and

a controller for routing power from the power source to the battery to recharge the battery, the controller being configured

to apply a time profile of charging power to the terminals of the battery in the personal electronic device, the profile including time portions when the terminal voltage of the battery exceeds the nominal rated critical terminal voltage, and

to control the time profile to prevent hazardous failure of the battery in the personal electronic device.

5,726,555

BATTERY CHARGER CAPABLE OF DISPLAYING NECESSARY CHARGING TIME

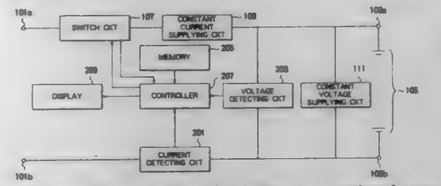
Kenji Takamoro, Tokyo, Japan, assignor to NEC Corporation, Japan

Filed Feb. 28, 1996, Ser. No. 608,126

Claims priority, application Japan, Feb. 28, 1995, 7-064966

Int. Cl.[6] H01M *10/46;10/48*

U.S. Cl. 320—43 **6 Claims**



1. A battery charger for use in charging a secondary battery which has two terminals, said battery charger having a current supplying circuit for supplying a predetermined current between said two terminals, a voltage supplying circuit for supplying a predetermined voltage between said two terminals, said battery charger comprising:

a memory for memorizing charging voltage and charging current characteristics of said secondary battery,

a voltage detecting circuit for detecting a charging voltage between said two terminals to produce a detected voltage signal which is representative of said charging voltage,

a current detecting circuit for detecting a charging current between said two terminals to produce a detected current signal which is representative of said charging current,

a control circuit connected to said memory, said voltage detecting circuit, and said current detecting circuit for deciding a necessary charging time on the basis of said charging voltage and charging current characteristics, said detected voltage signal, and said detected current signal, and

a display unit connected to said control circuit for displaying said necessary charging time.

5,726,556

CHARGING STATE DISPLAY APPARATUS

Akira Yoshihara; Takashi Kawabata, both of Yokohama, and Kiyokazu Churei, Funabashi, all of Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan

Filed Nov. 23, 1994, Ser. No. 346,936

Claims priority, application Japan, Nov. 25, 1993, 5-317535

Int. Cl.[6] H01M *10/48;* **G01N** *27/416;* **G03B** *7/26*

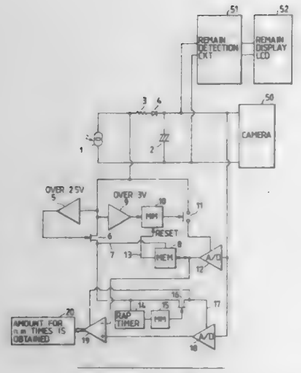
U.S. Cl. 320—48 **27 Claims**

1. A charging state indication apparatus comprising:

a first display for indicating a remaining charged amount of a battery; and

a second display for indicating an accumulated amount of charge from a restart of charging of the battery.

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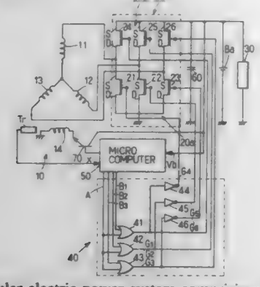


5,726,557

VEHICULAR ELECTRIC POWER SYSTEM

Atsushi Umeda, Anjo, Japan; Makoto Taniguchi, Obu, Japan, and Shin Kusase, Obu, Japan, assignors to Nippondenso Co., Ltd., Kariya, Japan

Filed Jun. 5, 1996, Ser. No. 658,740
Claims priority, application Japan, Jun. 6, 1995, 7-139703
Int. Cl.[6] H02P *9/34*
U.S. Cl. 322—21 **8 Claims**



1. A vehicular electric power system comprising:
a rotating AC machine having a rotor, and polyphase armature coils that generate polyphase voltages as said rotor rotates;
a rectifier connected across said armature coils and a battery unit for rectifying generated voltages, said rectifier composed of a plurality of bridge-connected-SiC-MOSFETs to give a rectified output to said battery unit; and
a control means connected to said SiC-MOSFETs for selectively turning on said SiC-MOSFETs to control said rectifier to rectify said generated voltages, wherein said control means comprises a control unit for controlling said SiC-MOSFETs to perform short-circuiting and open-circuiting of said armature coils, thereby generating additional rectified output provided to said battery unit.

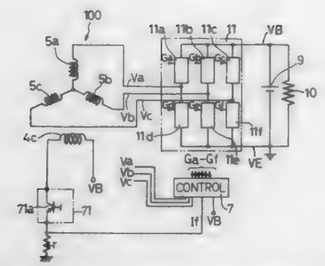
5,726,558

AC POWER GENERATING APPARATUS AND METHOD

Atsushi Umeda, Anjo, Japan; Shin Kusase, Obu, Japan; Makoto Taniguchi, Obu, Japan, and Hirohide Sato, Toyokawa, Japan, assignors to Nippondenso Co., Ltd., Kariya, Japan

Filed Apr. 4, 1996, Ser. No. 627,587
Claims priority, application Japan, Apr. 24, 1995, 7-098260
Int. Cl.[6] H02P *9/10*
U.S. Cl. 322—27 **11 Claims**

1. An AC power generating apparatus for charging a battery, comprising:



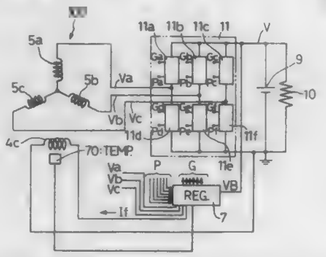
an AC power generator having multi-phase armature coils and a Lundell-type field pole;
AC-DC converting means having semiconductor switching elements respectively connected between the armature coils and the battery, the AC-DC converting means being constructed to enable current flow from the armature coils to the battery and current flow from the battery to the armature coils;
rotational speed detecting means for detecting a physical quantity related to rotational speed of the generator;
phase detecting means for detecting a physical quantity related to phase of an electromotive force generated from the armature coils; and
control means for generating control signals on the basis of the physical quantities related to the rotational speed and the phase that control an on-off switch operation of the semiconductor switching elements of the AC-DC converting means when the generator is in an electric power generating operation, the control means generating the control signals to rectify electric power generated from the generator for supplying a charge current to the battery and to supply a discharge current from the battery to the armature coils for suppressing a fluctuation of an electromagnetic force caused by the on-off switch operation of the semiconductor switching elements when the charge current to the battery is switched off.

5,726,559

SYNCHRONOUS ELECTRIC POWER GENERATING APPARATUS AND MAGNETIZATION CONTROL METHOD FOR THE SAME

Makoto Taniguchi, Obu; Atsushi Umeda, Anjo, and Hirohide Sato, Toyokawa, all of Japan, assignors to Nippondenso Co., Ltd., Kariya, Japan

Filed Apr. 4, 1996, Ser. No. 627,479
Claims priority, application Japan, Apr. 24, 1995, 7-098245; Dec. 6, 1995, 7-317994
Int. Cl.[6] H02P *9/00*
U.S. Cl. 322—34 **25 Claims**



1. A synchronous power generating apparatus that generates electric power for charging a battery, the apparatus comprising:
a synchronous power generator having a rotor around which a field winding is wound for forming field magnetic flux and a stator around which stator windings are wound for generating the electric power;

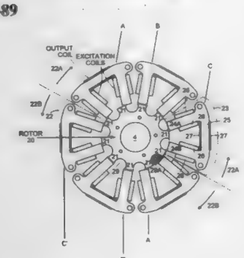
control means for controlling a field current to the field winding to thereby control a power generating state of the synchronous power generator; and
rotational speed detecting means for detecting a physical quantity related to rotational speed of the power generator,
wherein the control means receives the physical quantity detected by the rotational speed detecting means and includes advanced-phase current supplying means for supplying an advanced-phase current from the battery to the stator windings in a predetermined low rotational speed range when the rotational speed of the power generator is lower than a predetermined speed, the advanced-phase current being advanced in phase with respect to an output voltage of the stator windings and causing field magnetic flux to be formed by both the field winding and the stator windings, the advanced-phase current supplying means reducing the advanced-phase current in a predetermined high rotational speed range when the rotational speed of the power generator is higher than the predetermined speed so that the field magnetic flux is formed mainly by the field winding.

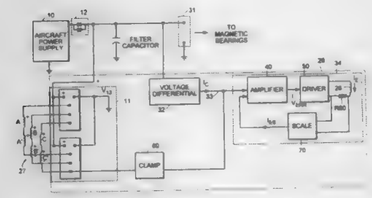
5,726,560

SWITCHED RELUCTANCE GENERATOR

Kenneth J. Eakman, Oregon, Ill.; Mike Andres, Rockford, Ill.; Lance Miller, Rockford, Ill., and Nicholas F. Campagna, Menomonee Falls, Wis., assignors to Barber-Colman Company, Loves Park, Ill.

Filed Sep. 1, 1995, Ser. No. 522,612
Int. Cl.[6] H02P *9/40*
U.S. Cl. 322—89 **17 Claims**





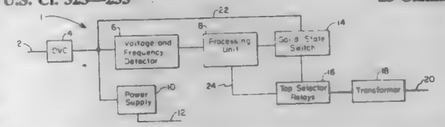
1. A magnetic bearing system and turbine with a dual power supply, comprising:
a shaft, rotatable about a central axis;
a turbine mounted on the shaft having an inlet means for receiving pressurized gas, said turbine and shaft being driven into rotation by the gas;
a magnetic bearing for supporting the shaft;
a source of electrical current connected to energize the bearing in normal operation; and
a generator for supplying electrical current to the magnetic bearing as an alternative power supply to the source of electrical current, the generator comprising a rotor disposed on the same shaft and a stator disposed circumferentially about the rotor.

5,726,561

VOLTAGE SELECTION APPARATUS AND METHODS

Ramit Ghosh, Rockville, and Mark E. Besmen, Wheaton, both of Md., assignors to Universal Power Systems, Inc., Fairfax, Va.

Filed Jun. 24, 1996, Ser. No. 669,593
Int. Cl.[6] G05F *1/16*
U.S. Cl. 323—255 **23 Claims**



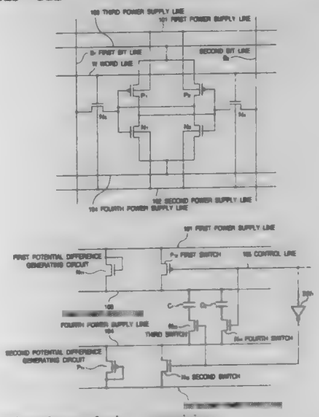
1. A voltage selection apparatus providing a nominal output voltage comprising,
an input for receiving alternating current from a power source,
a transformer to produce an output voltage coupled to said alternating current and having at least one winding and a predetermined plurality of winding taps;
a voltage detector coupled between said input and said transformer to selectively measure the input voltage of said alternating current and enable output of a selected nominal output voltage,
a control circuit coupled to said voltage detector, said control circuit monitoring said input voltage and producing control signals in response thereto,
a plurality of electronic switches, each being coupled in series with one of said winding taps, said electronic switches being controlled by said control circuit to select a predetermined winding tap to produce an output from said transformer within a desired nominal voltage range,
wherein said control circuit determines the proper interval in the power cycle of said input voltage to turn off said electronic switch for forced commutation of current through said electronic switch.

5,726,562

SEMICONDUCTOR DEVICE AND POWER SUPPLY CONTROLLER FOR SAME

Masayuki Mizuno, Tokyo, Japan, assignor to NEC Corporation, Tokyo, Japan

Filed Sep. 9, 1996, Ser. No. 711,110
Claims priority, application Japan, Sep. 7, 1995, 7-255546
Int. Cl.[6] G05F *3/04*
U.S. Cl. 323—312 **9 Claims**



1. A semiconductor device comprising:
a circuit composed of MOS transistors having a threshold voltage set to a low value, a source electrode of said MOS transistors being a power supply line which is made alterna-

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tively equal to a substrate bias potential of said MOS transistors in an operating condition of the semiconductor device or to a potential higher than said substrate bias potential in an absolute potential in a standby condition of the semiconductor device;

a first power supply line of a high potential;

a second power supply line of a low potential;

a third power supply line which is alternatively set to a potential equal to that of said first power supply line or to a potential lower than that of said first power supply line by some degree, and

a fourth power supply line which is alternatively set to a potential equal to that of said second power supply line or to a potential higher than that of said second power supply line by some degree;

wherein said circuit is a memory cell circuit which includes:

a first inverter having a first pMOS transistor and a first nMOS transistor connected in series,

a second inverter having a second pMOS transistor and a second nMOS transistor connected in series, said first inverter and said second inverter being connected in such a back-to-back manner that an output of each inverter is connected to an input of the other inverter,

a third nMOS transistor connected between a first bit and the input of said first inverter and having a gate connected to a word line, and

a fourth nMOS transistor connected between a second bit and the input of said second inverter and having a gate connected to said word line;

a substrate bias terminal of each of said first and second pMOS transistors being connected to said first power supply line, a source of each of said first and second pMOS transistors being connected to said third power supply line, a substrate bias terminal of each of said first to fourth nMOS transistors being connected to said second power supply line, a source of each of said first and second nMOS transistors being connected to said fourth power supply line; the semiconductor device further comprising a control circuit including:

said first power supply line supplied with a high potential,

said second power supply line supplied with a low potential,

said third power supply line connected through a first potential difference generating circuit to said first power supply line so that a potential lower than said high potential by a potential difference created by said first potential difference generating circuit is supplied to said third power supply line,

said fourth power supply line connected through a second potential difference generating circuit to said second power supply line so that a potential higher than said low potential by a potential difference created by said second potential difference generating circuit is supplied to said fourth power supply line,

a first switch means connected between said first and third power supply lines for short-circuiting between said first and third power supply lines when said first switch means is closed,

a second switch means connected between said second and fourth power supply lines for short-circuiting between said second and fourth power supply lines when said second switch means is closed, and

a control line connected to a control input of said first and second switch means to simultaneously on-off control said first and second switch means.

5,726,563

SUPPLY TRACKING TEMPERATURE INDEPENDENT REFERENCE VOLTAGE GENERATOR

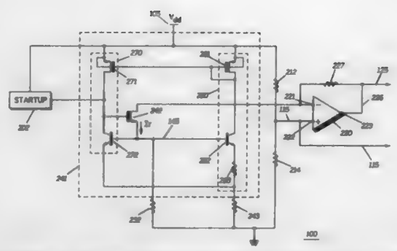
Jerry T. Bolton, Jr., Plantation, Fla., assignor to Motorola, Inc., Schaumburg, Ill.

Filed Nov. 12, 1996, Ser. No. 747,182

Int. Cl.[6] G05F *3/16;3/26*

U.S. Cl. 323—315 **22 Claims**

1. A reference generator for generating a constant offset reference voltage relative to a reference ground voltage that tracks a supply voltage, comprising:



a bandgap voltage generator having an output of a bandgap voltage;

a voltage source having an output of a reference ground voltage that is derived by scaling the supply voltage;

a scaler coupled to the output of the bandgap voltage generator and having an output of a scaled voltage based on the bandgap voltage; and

a summer coupled to the scaler and to the voltage source and having as output the constant offset reference voltage generated from a summation of the scaled voltage and the reference ground voltage.

5,726,564

TEMPERATURE-COMPENSATING METHOD FOR A RESISTANCE BRIDGE CIRCUIT, RESISTANCE BRIDGE CIRCUIT WITH TEMPERATURE-COMPENSATING CIRCUIT, AND ACCELERATION SENSOR USING THE SAME

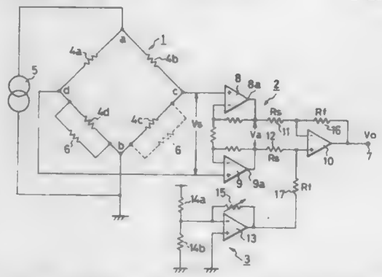
Yoshiaki Takashima, Higashi-Matsuyama, Japan, assignor to Zexel Corporation, Tokyo, Japan

Filed May 1, 1995, Ser. No. 431,958

Claims priority, application Japan, Oct. 27, 1994, 6-286176

Int. Cl.[6] H03H *1/00*

U.S. Cl. 323—367 **3 Claims**



1. A method of temperature compensation for a resistance bridge circuit which comprises a plurality of piezo-resistance devices and a resistor for temperature compensation connected in parallel with one of the plurality of resistance devices, and which has a temperature characteristic curve of an output signal issued from the resistance bridge circuit, the method comprising the steps of:

adjusting a temperature characteristic of the output signal issued from the resistance bridge circuit so as to adjust a direction and curvature of the temperature characteristic curve; and

applying an additional signal to the output signal of the resistance bridge circuit to offset a temperature variation of the output signal; wherein, the additional signal applied to the output signal of the resistance bridge circuit is a voltage signal derived from a temperature variation of a resistance value of an additional resistance device which has substantially the same characteristics as the piezo-resistance devices of said resistance bridge circuit and which is disposed sufficiently close to said resistance bridge circuit so as to detect an environmental temperature of said resistance bridge circuit.

5,726,565

COULOMETRIC ANALYSIS METHOD AND A DEVICE THEREFOR

Shunichi Uchiyama, Fukaya; Takeshi Sato, Toki; Hirofumi Akano, Handa; Yoshiya Kawamura, Konan; Masahiro Fukaya, Aichi-ken; Hiroaki Ebisuya, Tokai; Ko Furukawa, Nagoya; Kazuyo Kajino, Toyoake, and Sumio Akita, Nagoya, all of Japan, assignors to Nakano Vinegar Co., Ltd., Japan

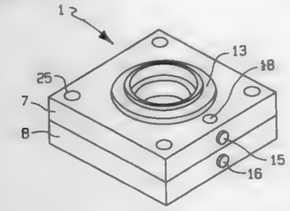
Continuation of Ser. No. 145,445, Oct. 28, 1993, abandoned.

This application Aug. 4, 1995, Ser. No. 511,476

Claims priority, application Japan, Oct. 28, 1992, 290156; Feb. 19, 1993, 30928; Jul. 1, 1993, 163606; Sep. 7, 1993, 222527

Int. Cl.[6] G01N *27/26*

U.S. Cl. 324—94 **18 Claims**



1. A method for coulometric analysis for quantitative determination of a sample substance, comprising the steps of:

providing a first electrode with a first substance having quinol formed from a reaction between the sample substance, which is a substrate of a quinone-dependent dehydrogenase, and quinone in the presence of quinone-dependent dehydrogenase, wherein the first substance is electroactive;

providing a second electrode with a second substance, wherein the second substance is electroactive;

providing an ion-permeable membrane between the first and second electrodes;

measuring an electrical property generated by a potential difference from at least one reaction between the first and second substances without application of an external power source; and

determining the quantity of said sample substance from the measure of the electrical property.

5,726,566

APPARATUS FOR MEASURING AN RF PARAMETER

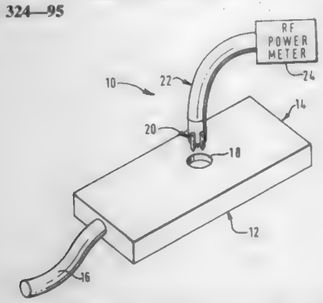
Leendert B. Quist, Greensboro, N.C., and Franciscus J. Frielink, Nieuwegein, Netherlands, assignors to Lucent Technologies Inc., Murray Hill, N.J.

Filed Jul. 31, 1995, Ser. No. 509,683

Claims priority, application United Kingdom, Oct. 29, 1994, 9421829

Int. Cl.[6] G01R *31/22*

U.S. Cl. 324—95 **8 Claims**



1. Apparatus for measuring an RF parameter relating to a first RF stage mounted on a circuit board and having an output for RF signals, said output being connected by connection means to a second RF stage, said connection means having impedance means with a first connection connected to said output of said first RF stage and a second connection connected to an input of said second RF stage, said apparatus comprising:

an RF parameter measuring means; and

a probe device connected to said RF parameter measuring means and adapted to connect with said connection means, wherein said probe device includes a first connector terminal adapted to connect said output of said first RF stage to said RF parameter measuring means and a second connector terminal adapted to connect said second connection of said impedance means to a reference potential such that RF signals on said output of said first RF stage are inhibited from passing to said second RF stage and enabled to pass via said probed device to said RF parameter measuring means when said probe device is connected with said connection means.

5,726,567

NETWORK-CONNECTABLE DISPLACEMENT SENSOR WITH STORED ID

Adrian Vivian Lewis, Chichester; Stephen Tony Kuc, Emsworth; Douglas Dennis Weller, Bognor Regis; Robert Stuart Burridge, Gosport, and Kevin Anthony Snoad, Chichester, all of England, assignors to Solartron Group Limited, England

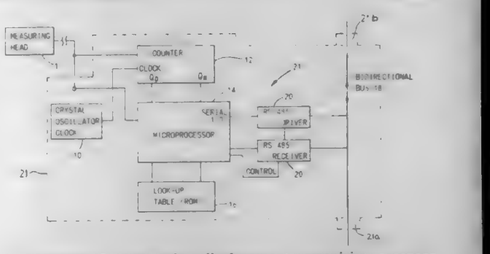
Continuation of Ser. No. 995,631, Dec. 17, 1992, abandoned.

This application Apr. 3, 1995, Ser. No. 415,571

Claims priority, application United Kingdom, Dec. 20, 1991, 9127112

Int. Cl.[6] G01B *7/14;* **G01R** *33/00*

U.S. Cl. 324—207.16 **8 Claims**



1. Apparatus for measuring displacement comprising a sensor head for varying the frequency of an oscillator in response to the displacement to be measured, means for measuring the frequency change, and a microprocessor for converting the measured frequency change to a digital output representing the displacement by reference to stored calibration coefficients specific to the sensor head, wherein the frequency measuring means and microprocessor are mounted in a connector remote from the sensor head, said connector being adapted to enable the connector to be plugged directly into similar connectors of other sensor heads, and the microprocessor contains a unique ID for that sensor head, allowing a host computer to identify each sensor head.

5,726,568

MAGNETO-REPULSION PUNCHING WITH DYNAMIC DAMPING

William Dale Carbaugh, Jr., Greencastle, Pa.; Mark Joseph LaPlante, Walden, N.Y.; David Clifford Long, Wappingers Falls, N.Y.; Karl Friedrich Stroms, Las Vegas, Nev., and Christopher David Setzer, Wappingers Falls, N.Y., assignors to International Business Machines Corporation, Armonk, N.Y.

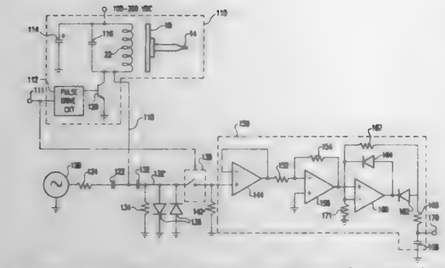
Filed Jun. 7, 1995, Ser. No. 482,395

Int. Cl.[6] G01B *7/00*

U.S. Cl. 324—207.16 **3 Claims**

1. An apparatus for monitoring relative motion between a primary stator coil and a secondary movable coil in a magneto-

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repulsion system having a pulsed current source for generating a magnetic field from the primary stator coil to thereby induce a current in the secondary movable coil to emanate an opposing magnetic field therefrom and thereby cause motion thereof, comprising:

means for forming a resonant circuit with the primary stator coil having a quality factor which varies non-linearly relative to a position of the secondary movable coil along a direction of the relative motion, said means comprising a resistor and a capacitor connected in series with the primary stator coil, and an output node connected to the primary stator coil;

means for applying an electrical signal having a predetermined radio frequency to said resonant circuit;

a switch having an input coupled to said output node, and having an output, and having a means for disconnecting said input from said output while the pulsed current source energizes the primary stator coil; and

means for detecting at said output of said switch an envelope of a peak-to-peak voltage of a signal at said predetermined radio frequency received by said switch from said output node of said resonant circuit and having means for outputting an envelope signal representative of said envelope voltage.

5,726,569

METHOD AND APPARATUS FOR ACQUIRING IMAGE DATA IN A NUCLEAR MAGNETIC RESONANCE TOMOGRAPHY SYSTEM

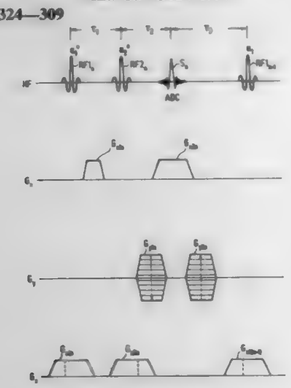
Robert Krieg, Nuremberg, and Harald Werthner, Fuerth, both of Germany, assignors to Siemens Aktiengesellschaft, Munich, Germany

Filed Mar. 26, 1996, Ser. No. 622,689

Claims priority, application Germany, Mar. 30, 1995, 195 11 794.8

Int. Cl.[6] G01V *3/14*

U.S. Cl. 324—309 **18 Claims**



1. A method for acquiring image data in a nuclear magnetic resonance tomography apparatus comprising a repetition N times of the following steps:

emitting a first radio-frequency pulse for exciting nuclear spins in an examination subject;

emitting a second radio-frequency pulse after a first time following said first radio-frequency pulse for rephasing said nuclear spins;

reading out nuclear magnetic resonance signals arising in said examination subject under a frequency-encoding gradient emitted after a second time span following said second radio-frequency pulse;

after a third time span, emitting a first radio-frequency pulse of a next repetition;

setting a repetition time between said first radio-frequency pulse of each nth repetition and a first radio-frequency pulse of an immediately following $n+1^{th}$ repetition to be shorter than the longitudinal and transverse relaxation time of said nuclear spins in said examination subject; and

conducting said repetitions for preventing superimposition of nuclear magnetic resonance signals originating from the second radio-frequency pulse in an $n-1^{th}$ repetition with nuclear magnetic resonance signals originating from said first radio-frequency pulse of a following n^{th} repetition.

5,726,570

NMR MEASURING CELL

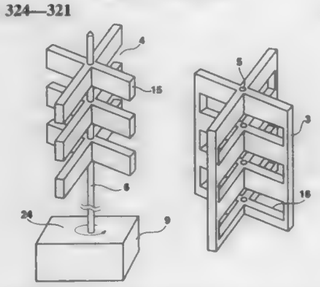
Manfred Spraul, Ettlingen; Martin Hofmann, Rheinstetten, and Harald Schwalbe, Steinbach/Taunus, all of Germany, assignors to Bruker Analytik GmbH, Rheinstetten, Germany

Filed Dec. 2, 1996, Ser. No. 758,881

Claims priority, application Germany, Dec. 28, 1995, 195 48 977.2

Int. Cl.[6] G01Y *3/00*

U.S. Cl. 324—321 **22 Claims**



1. A NMR measuring cell suitable for use in a flow-through probe head to facilitate reactions between a first and a second reaction liquid comprising:

a NMR cell housing having a first inlet opening for introducing the first reaction fluid into the NMR cell and a second inlet opening for introducing the second reaction fluid into the NMR cell;

wall means disposed within said housing for subdividing said housing into a first chamber communicating with said first inlet opening and a second chamber communicating with said second inlet opening, said first chamber for storing the first reaction liquid and said second chamber for storing the second reaction liquid, wherein said wall means is adapted to move for mixing together the first and the second reaction liquids.

5,726,571

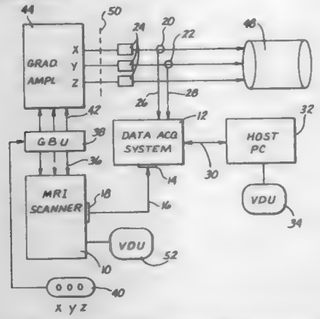
APPARATUS AND METHOD FOR REAL-TIME K-SPACE MAPPING OF THE SCANNING OPERATION OF A MAGNETIC RESONANCE IMAGING SYSTEM

C. Celil Gucu, Irvine, and Orhan Nalcioglu, Laguna Beach, both of Calif., assignors to The Regents of the University of California, Oakland, Calif.

Filed Apr. 24, 1996, Ser. No. 637,098

Int. Cl.[6] G01V *3/00*

U.S. Cl. 324—322 **22 Claims**



1. An improved magnetic resonance imaging system of the type having a gradient coil and gradient coil current supplied thereto, the improvement comprising:

at least one gradient coil current monitor to monitor the gradient coil current waveform;

an integrator for generating a spatial frequency variable k corresponding to said gradient current waveform, said integrator coupled to said noninvasive current monitor; and

a computer programmed to generate a map of a k-space trajectory corresponding to said gradient coil current, said computer being coupled to said integrator, whereby a real time k-space map of a scanning operation within said magnetic resonance imaging system is obtained.

5,726,572

Patent Not Issued For This Number

5,726,573

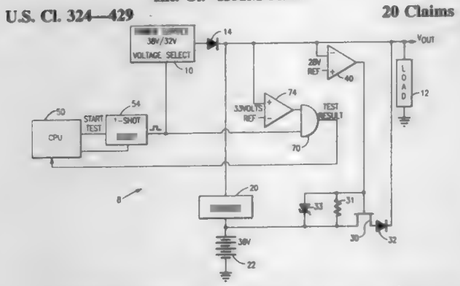
TEST CIRCUIT FOR BACK-UP BATTERY WITH PROTECTION DURING TEST MODE

Zhong Xi Chen, Shrewsbury, Mass., and Thomas Thai Do, San Jose, Calif., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Sep. 15, 1995, Ser. No. 529,122

Int. Cl.[6] H01M *10/44*

U.S. Cl. 324—429 **20 Claims**



9. A method for testing a battery which backs-up a main power source, said method comprising the steps of:

delivering power from the main power source to said load at a normal rated voltage during normal operation; and

during a test mode, lowering an output voltage of said main power source and attempting to supply said load from said battery, said main power source at said test mode voltage being coupled and sufficient to drive the load if said battery fails during said test mode.

5,726,574

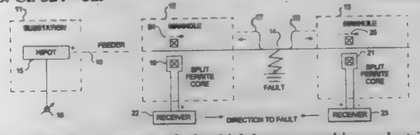
METHOD OF LOCATING A FAULT IN AN ELECTRIC POWER CABLE

Michael H. Silverberg, Livingston, and Jack F. Trezza, Hopatcong, both of N.J., assignors to Electric Power Research Institute, Inc, Palo Alto, Calif.

Filed Mar. 11, 1996, Ser. No. 613,932

Int. Cl.[6] G01R *31/08;19/14*

U.S. Cl. 324—529 **5 Claims**



1. A method of locating a fault which has occurred in an electric power cable in relationship to one or more known locations along the cable where the fault is caused by an insulation defect which may be broken down by a high voltage applied at one side of the fault to induce a transient fault pulse on the cable on both sides of the fault traveling away from the fault comprising the following steps:

after said fault has occurred applying a said high voltage of a predetermined polarity in the de-energized cable on one side of the fault having a sufficient magnitude to break down said insulation defect and induce said transient fault pulse;

at two known locations on either side of said fault sensing said transient fault pulse caused by said fault;

determining at each sensing location the pulse direction;

if the directions are opposite recognizing that the fault is between the two sensing locations.

5,726,575

PATH FOR ACQUIRING A VOLTAGE PULSE, AND A METHOD AND A SYSTEM FOR MEASURING PARTIAL DISCHARGES AND PROVIDED WITH SUCH A PATH

Jean Poittevin, Courbevoie, France; Mohamed Ryadi, Le Mans, France; Jean-Claude Bonnet, Gouaix, France, and Jacques Mazankine, Gouaix, France, assignors to GEC Alsthom T & D SA, Paris, France

Filed Sep. 1, 1995, Ser. No. 522,920

Claims priority, application France, Sep. 2, 1994, 94 10573

Int. Cl.[6] G01R *31/00*

U.S. Cl. 324—536 **13 Claims**

1. A path for acquiring a voltage pulse measured in an electrical apparatus, said path comprising:

a path input for a pulse signal detected at a measurement point of said electrical apparatus;

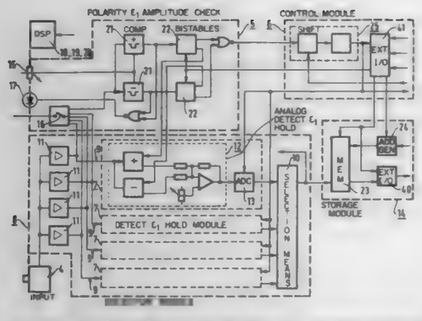
a module for determining polarity and for limiting acquisition to detect the polarity of the input signal and to limit pulse acquisition to input signals exceeding predetermined threshold values;

a control module for controlling acquisition and storage of the polarized peak value of the input signal if the input signal exceeds the predetermined threshold values;

a detect-and-hold module for detecting the polarized peak value of the signal being acquired and for holding it during a predetermined given length of time; and

a selection module for selecting a measurement range for measuring the signal being acquired, the selection module having a plurality of measurement ranges, all connected at their

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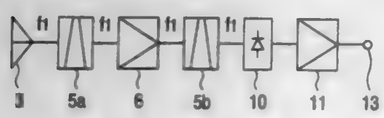
upstream ends to the input of the path, and all connected at their downstream ends to automatic selection means for automatically selecting the measurement range which is optimum for the signal in acquisition.

5,726,576

MICROWAVE SENSOR FOR DETECTING A DISCHARGE OCCURRING IN AN ELECTRICAL APPARATUS

Tomoyuki Miyata, Hyogo, Japan, and Hiroshi Otani, Hyogo, Japan, assignors to Mitsubishi Denki Kabushiki Kaisha, Tokyo, Japan

Filed Apr. 10, 1996, Ser. No. 630,817
Int. Cl.[6] G01R *31/08;31/12*
U.S. Cl. 324—536 **5 Claims**



1. A microwave sensor comprising: an antenna unit which is to be placed in the vicinity of an electric apparatus and which receives a microwave signal generated by a discharge occurring in the electric apparatus;
a first band-pass filter that allows a predetermined frequency of the microwave signal received by said antenna unit to pass through said filter;
amplifying means for amplifying the microwave signal output from said first band-pass filter;
a second band-pass filter that removes noise produced by said amplifying means;
converting means for converting the microwave signal output from said second band-pass filter into a video signal; and
video amplifying means for amplifying the video signal output from said converting means.

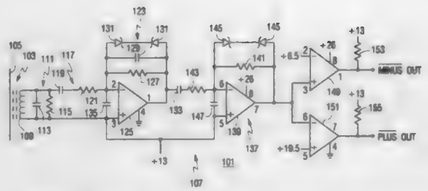
5,726,577

APPARATUS FOR DETECTING AND RESPONDING TO SERIES ARCS IN AC ELECTRICAL SYSTEMS

Joseph C. Engel, Monroeville, Pa., and Raymond W. Mackenzie, Baldwin Boro, Pa., assignors to Eaton Corporation, Cleveland, Ohio

Filed Apr. 17, 1996, Ser. No. 633,603
Int. Cl.[6] G01R *31/12*
U.S. Cl. 324—536 **19 Claims**

1. Apparatus for detecting a series arcing fault in an ac circuit, said apparatus comprising:
sensing means sensing a second derivative of ac current in said ac circuit to generate a second derivative signal containing pulses in response to discontinuities in said ac current such as said series arcing fault; and
signal generating means generating an output signal indicative of said series arcing fault in response to predetermined timing between said pulses in said second derivative signal.

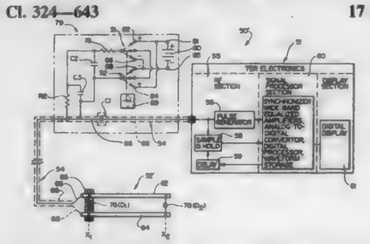


5,726,578

APPARATUS AND METHODS FOR GENERATING UNAMBIGUOUS LARGE AMPLITUDE TIMING MARKERS IN TIME DOMAIN REFLECTOMETRY SYSTEMS FOR MEASURING PROPAGATION VELOCITIES OF RF PULSES TO DETERMINE MATERIAL LIQUID CONTENTS, MOISTURE PROFILES IN SOIL AND SIMILAR TEST MATERI

William R. Hook, Shawnigan Lake, Canada, assignor to Precision Moisture Instruments, Inc., Shawnigan Lake, Canada

Division of Ser. No. 71,748, Jun. 9, 1993, Pat. No. 5,376,888. This application Nov. 17, 1994, Ser. No. 335,101
Int. Cl.[6] G01R *27/04*
U.S. Cl. 324—643 **17 Claims**



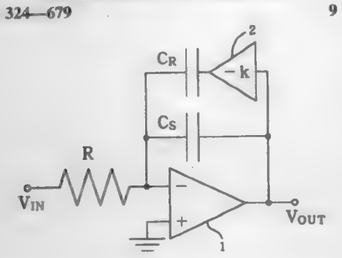
1. A probe for use with Time Domain Reflectometry apparatus of the type used to measure the moisture content of a material to be tested and employing an RF cable having first and second conductors for coupling said probe to the Time Domain Reflectometry apparatus, said probe comprising, in combination:
a) a non-conductive base portion;
b) first conductive means mounted in said base portion and extending laterally at right angles with respect thereto;
c) second conductive means mounted in said base portion and extending laterally at right angles with respect thereto, said second conductive means being spaced from said first conductive means and extending parallel thereto;
d) said first and second conductive means defining a multiconductor probe having an effective length L;
e) means for coupling said first conductive means to one of the first and second conductors of the RF cable;
f) means for coupling said second conductive means to the other of the first and second conductors of the RF cable;
g) means for selectively shorting said first conductive means to said second conductive means at at least one preselected point along the length L of said probe;
h) means for generating a first TDR reflection plot when said first and second conductive means are electrically isolated one from the other;
i) means for generating a second TDR reflection plot when said first and second conductive means are shorted one to the other; and,
j) means for comparing said first and second TDR reflection plots to establish at least one precise and unambiguous timing marker to be used in the measurement of the propagation velocity of a short pulse of energy as it travels along said first and second conductive means when said probe is inserted into the material to be tested.

5,726,579

DIFFERENTIAL CAPACITANCE DETECTOR

Takashi Masuda, Kanagawa-ken, Japan, assignor to Yamatake-Honeywell Co., Ltd., Tokyo, Japan

Filed Aug. 23, 1995, Ser. No. 518,176
Claims priority, application Japan, Aug. 25, 1994, 6-200335
Int. Cl.[6] G01R *27/26;* **G01N** *27/22*
U.S. Cl. 324—679 **9 Claims**



1. A differential capacitance inversion integrator comprising:
a first operational amplifier having an inversion input and an output;
a capacitance (C_S) connected between said inversion input of said first operational amplifier and said output of said first operational amplifier;
a reference capacitance (C_R) having one terminal connected to said inversion input of said first operational amplifier;
an inversion amplifier having an input connected to said output of said first operational amplifier and an output connected to another terminal of said reference capacitance (C_R); and
a first resistance (R) having one terminal connected to said inversion input of said first operational amplifier;
said differential capacitance inversion integrator having an input at another terminal of said first resistance (R) and an output at said output of said first operational amplifier, wherein said differential capacitance inversion integrator has an integral constant determined by a difference between said capacitance (C_S) and said reference capacitance (C_R) and by said first resistance (R).

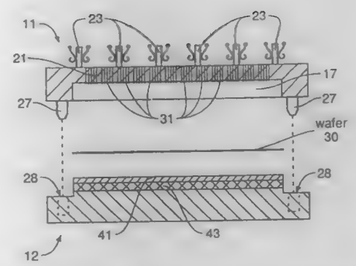
5,726,580

UNIVERSAL WAFER CARRIER FOR WAFER LEVEL DIE BURN-IN

Alan G. Wood; Tim J. Corbett, both of Boise, and Warren M. Farnworth, Nampa, all of Id., assignors to Micron Technology, Inc., Boise, Id.

Continuation of Ser. No. 981,956, Nov. 24, 1992, Pat. No. 5,539,324, which is a continuation-in-part of Ser. No. 575,470, Aug. 29, 1990, abandoned. This application May 24, 1996, Ser. No. 653,513
Int. Cl.[6] G01R *1/04*
U.S. Cl. 324—758 **26 Claims**

1. Wafer level testing apparatus for testing a plurality of semiconductor devices fabricated from a wafer and in die form while the dice remain on the wafer, said wafer level testing apparatus for use in performing electrical tests in a manner similar to that accomplished with discrete packaged semiconductor devices, said wafer level testing apparatus comprising:
a) a first plate having a wafer-receiving cavity therein, the wafer-receiving cavity being dimensioned to receive a semiconductor wafer therein;
b) a second plate mating with the first plate;
c) alignment means for aligning the first plate with the second plate;
d) a plurality of wafer contacting conductors extending from one of the first and second plates, the wafer contacting conductors extending to contacts to establish electrical communication with contact locations on the semiconductor wafer, said one of the first and the second plate having the plurality of wafer contacting conductors extending therefrom being fabricated on a substrate which is at least partially rigid, whereby the plurality of wafer contacting conductors being positioned so that, when the first plate and the second plate are aligned by the alignment means and the semiconductor wafer is positioned in the wafer-receiving cavity, the contacts are in alignment with contact locations on the semiconductor wafer;
e) connector terminals in electrical communication with the plurality of wafer contacting conductors, the connector terminals being mounted to said one of the first and second plates; and
f) means to bias the wafer in the wafer-receiving cavity into contact with at least one of the plurality or wafer contacting conductors after the first and second plates have been mated.

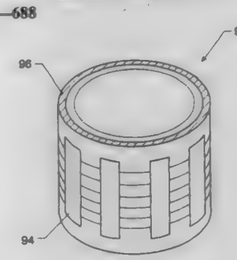


5,726,581

3-D CAPACIFLECTOR

John M. Vranish, Crofton, Md., assignor to The United States of America as represented by the Administrator of the National Aeronautics and Space Administration, Washington, D.C.

Filed Mar. 8, 1996, Ser. No. 613,802
Int. Cl.[6] G01R *27/26*
U.S. Cl. 324—688 **7 Claims**



1. An improved capacitive type proximity sensor capable of sensing in three dimensions comprising:
at least one outer electrical conductor spaced from an arbitrary, non-planar surface of a machine forming one electrode of a sensor capacitor, the other electrode comprising an object spaced from said machine, said outer electrical conductor including a first conducting layer which is shaped to conform to the arbitrary, non-planar surface of said machine;
at least one intermediate electrical conductor corresponding to each of said outer electrical conductors located between said outer electrical conductor and said machine being of a size substantially larger than said outer electrical conductor to act as a shield for reducing the parasitic capacitance between said outer electrical conductor and said machine, said intermediate

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electrical conductor including a layer of conductive material of the same arbitrary, non-planar shape as said surface of said machine and geometrically shielding said first conducting layer from said machine;

means for electrically insulating each of said outer electrical conductors from each of said intermediate electrical conductors;

means for electrically insulating each of said intermediate electrical conductors from said surface of said machine;

first circuit means for coupling in phase the instantaneous voltage at each of said outer electrical conductors to its corresponding said intermediate electrical conductor; and

second circuit means coupled to each of said outer electrical conductors and being responsive to the capacitance of each said sensor capacitor for generating a control signal to said machine.

5,726,582

CONTROL CIRCUIT FOR KEEPING CONSTANT THE IMPEDANCE OF A TERMINATION NETWORK

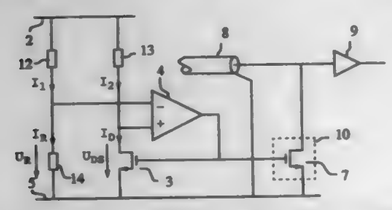
Mats Hedberg, Haninge, Sweden, assignor to Telefonaktiebolget LM Ericsson, Stockholm, Sweden

Filed Feb. 24, 1995, Ser. No. 393,898

Claims priority, application Sweden, Feb. 25, 1994, 9400657

Int. Cl.[6] H03K *17/14*

U.S. Cl. 326—30 **11 Claims**



1. A termination network and a control circuit for controlling the termination network, said termination network being integrated on an integrated circuit and comprising at least one matching transistor for electrical impedance matching at the receiving end of a transmission line, wherein said control circuit comprises a reference transistor which is integrated on the same integrated circuit as said at least one matching transistor of the termination network, said control circuit further comprises means for sensing and keeping substantially constant the impedance of said reference transistor.

5,726,583

PROGRAMMABLE DYNAMIC LINE-TERMINATION CIRCUIT

Cecil H. Kaplinsky, 140 Melville Ave., Palo Alto, Calif. 94301

Filed Jul. 19, 1996, Ser. No. 690,227

Int. Cl.[6] H03K *19/0175*

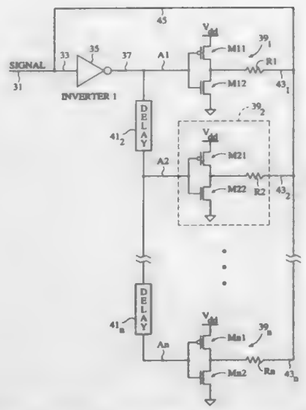
U.S. Cl. 326—30 **15 Claims**

1. A dynamic termination circuit, comprising

a termination circuit input connectable to an end of a transmission line to receive a signal therefrom,

a plurality of delay elements connected in series to said termination circuit input, with an output provided after each delay element in said series,

a plurality of termination elements with respective inputs connected to a different one of the termination circuit input and the outputs after the delay elements, respective outputs of the termination elements connected to a feedback line connected to the termination circuit input, each termination element including a first dynamic resistive path from a voltage supply line to said output of said termination element and a second dynamic resistive path from said output of said termination element to ground, each dynamic resistive path including a field-effect transistor responsive to a signal on said input of said termination element.



5,726,584

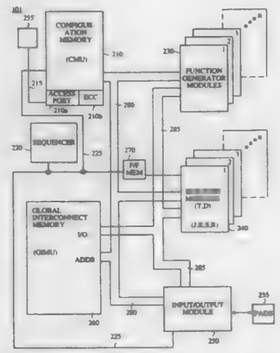
VIRTUAL HIGH DENSITY PROGRAMMABLE INTEGRATED CIRCUIT HAVING ADDRESSABLE SHARED MEMORY CELLS

Philip M. Freidin, Sunnyvale, Calif., assignor to Xilinx, Inc., San Jose, Calif.

Filed Mar. 18, 1996, Ser. No. 619,286

Int. Cl.[6] H03K *19/173;7/38*

U.S. Cl. 326—38 **22 Claims**



1. A programmable integrated circuit comprising:

a plurality of programmable logic modules coupled to a configuration bus to receive programming information wherein said programming information is for configuring each of said plurality of programmable logic modules to perform a specified function;

a first memory coupled to said configuration bus for containing a plurality of programming information used to program said plurality of programmable logic modules, wherein said first memory is for supplying said plurality of programming information over a plurality of time intervals to said plurality of programmable logic modules wherein, for each of said plurality of time intervals, each of said plurality of programmable logic modules can be programmed to perform a specified function based on a programming information; and

a second memory for storing results of said plurality of programmable logic modules generated at a completion of a time interval and for supplying input signals for said plurality of programmable logic modules at a start of a time interval, said second memory comprising individual memory cells that are shared for receiving results from different programmable logic modules over a plurality of time intervals.

5,726,585

SWITCHING CIRCUIT FOR USE IN A SEMICONDUCTOR MEMORY DEVICE

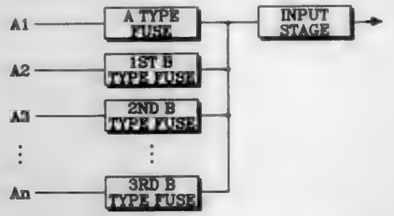
Kwang-Il Kim, Kyungki-do, Rep. of Korea, assignor to Samsung Electronics Co., Ltd., Suwon, Rep. of Korea

Filed May 24, 1996, Ser. No. 651,801

Claims priority, application Rep. of Korea, May 25, 1995, 13264/1995

Int. Cl.[6] H03K *19/177*

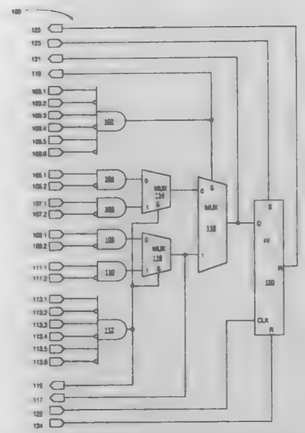
U.S. Cl. 376—38 **19 Claims**



1. A switching circuit of a semiconductor memory device comprising:

a plurality of first type and second type fuse circuits which respectively receive a plurality of input signals, said first type fuse circuit having a switching characteristic opposite to that of said second type fuse circuit; and

an input stage commonly connected to the outputs of said first type and second type fuse circuits, certain of said input signals being propagated through respective ones of said fuse circuits to said input stage according to a cut state of fuses within all of said fuse circuits.



a fourth gate having a first input lead, a second input lead, and an output lead;

a second multiplexer having a first data input lead coupled to the output lead of the third gate, a second data input lead coupled to the output lead of the fourth gate, a select input lead and an output lead;

a third multiplexer having a first data input lead, a second data input lead, a select input lead and an output lead, the first data input lead of the third multiplexer being coupled to the output lead of the first multiplexer, the second data input lead of the third multiplexer being coupled to the output lead of the second multiplexer;

a fifth gate having a first input lead, a second input lead, a third input lead, and an output lead, the output lead of the fifth gate being coupled to the select input lead of the third multiplexer; and

a sixth gate having an output lead coupled to the select input lead of the first multiplexer and to the select input lead of the second multiplexer.

5,726,586

PROGRAMMABLE APPLICATION SPECIFIC INTEGRATED CIRCUIT AND LOGIC CELL THEREFOR

Andrew K. Chan, Palo Alto; John M. Birkner, Portola Valley, and Hua-Thye Chua, Los Altos, all of Calif., assignors to QuickLogic Corporation, Sunnyvale, Calif.

Continuation of Ser. No. 493,981, Jun. 23, 1995, Pat. No. 5,594,364, which is a continuation of Ser. No. 245,309, May 17, 1994, Pat. No. 5,430,390, which is a continuation of Ser. No. 847,382, Mar. 6, 1992, abandoned, which is a continuation of Ser. No. 665,103, Mar. 6, 1991, Pat. No. 5,122,685.

This application Nov. 5, 1996, Ser. No. 744,225

Int. Cl.[6] H03K *19/177*

U.S. Cl. 326—40 **13 Claims**

1. A field programmable gate array comprising:

an interconnect structure comprising a plurality of conductors and a plurality of antifuses, the antifuses being programmable to connect selected ones of the plurality of conductors; and

a plurality of logic cells, each of the logic cells comprising:

a first gate having a first input lead, a second input lead, and an output lead;

a second gate having a first input lead, a second input lead, and an output lead;

a first multiplexer having a first data input lead coupled to the output lead of the first gate, a second data input lead coupled to the output lead of the second gate, a select input lead and an output lead;

a third gate having a first input lead, a second input lead, and an output lead;

5,726,587

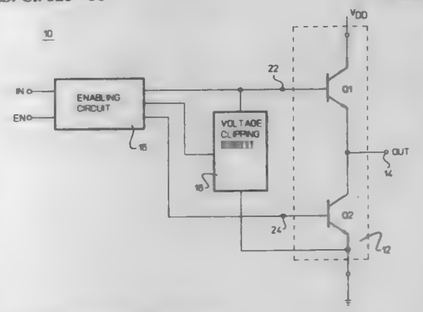
BICMOS TRI-STATE BUFFER WITH LOW LEAKAGE CURRENT

Steven J. Ratner, Santa Clara, Calif., assignor to Hewlett-Packard Company, Palo Alto, Calif.

Continuation of Ser. No. 512,959, Aug. 9, 1995, abandoned, which is a continuation of Ser. No. 259,753, Jun. 10, 1994, abandoned. This application Sep. 3, 1996, Ser. No. 711,315

Int. Cl.[6] H03K *19/01*

U.S. Cl. 326—56 **9 Claims**



1. A tri-stafe buffer comprising:

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an emitter-follower output stage, having an intrinsic load capacitance, that includes, a non-inverting amplifier having a collector connected to a first power terminal, an emitter connected to an output node, and a base;

a common-emitter amplifier having a collector connected to the output node, an emitter connected to a second power terminal, and a base;

an enabling circuit receiving an enabling signal, connected to the bases of the emitter-follower output stage, that controls an input signal according to the enabling signal such that the output node has a high impedance state when the enabling signal has an OFF value and the output node has a value corresponding to the input signal when the enabling signal has an ON value; and

a clipping limiting circuit, connected to the enabling circuit, the base of the non-inverting amplifier, and the second power terminal, operative when the tri-state buffer is in a high-impedance mode to limit a reverse-bias voltage between a base of the non-inverting amplifier and the emitter of the common-emitter amplifier.

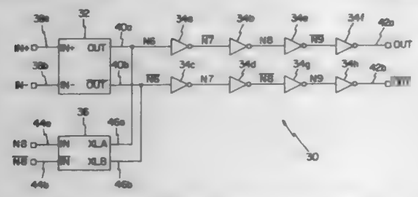
5,726,588

DIFFERENTIAL-TO-CMOS LEVEL CONVERTER HAVING CROSS-OVER VOLTAGE ADJUSTMENT

Alan Fiedler, Minneapolis, Minn., assignor to LSI Logic Corporation, Milpitas, Calif.

Continuation-in-part of Ser. No. 614,403, Mar. 12, 1996. This application Aug. 15, 1996, Ser. No. 698,306
Int. Cl.[6] H03K *17/13*

U.S. Cl. 326—63 **14 Claims**



1. A differential-to-CMOS level converter comprising:

a conversion circuit having first and second differential inputs and first and second complementary outputs; and

a cross-over adjustment circuit having first and second cross-over voltage measurement inputs coupled to the first and second complementary outputs and having first and second offset current outputs coupled to the first and second complementary outputs, respectively.

5,726,589

OFF-CHIP DRIVER CIRCUIT WITH REDUCED HOT-ELECTRON DEGRADATION

Joseph J. Cahill, Rochester, Minn., and Robert R. Williams, Rochester, Minn., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Nov. 1, 1995, Ser. No. 551,663
Int. Cl.[6] H03K *19/0185;19/0948*

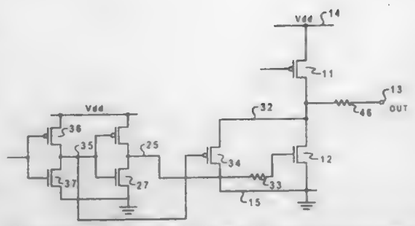
U.S. Cl. 326—81 **6 Claims**

1. An output driver circuit, comprising:

an output transistor having a source-to-drain path connected between an output node and a terminal of a power supply;

a parallel transistor circuit, including a P-channel transistor, for shunting said source-to-drain path of said output transistor and having an impedance greater than that of said source-to-drain path;

a predriver circuit having first and second outputs, the first output connected to a gate of said output transistor, and the second output connected to a gate of said P-channel transistor the first output being driven to a turn-on level after the second output.



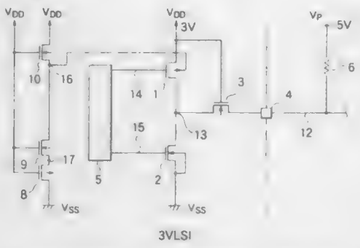
5,726,590

INTERFACE IN A SEMICONDUCTOR INTEGRATED CIRCUIT

Toshio Isono, Tokyo, Japan, assignor to NEC Corporation, Tokyo, Japan

Filed Jun. 3, 1996, Ser. No. 660,174
Claims priority, application Japan, Jun. 2, 1995, 7-136247
Int. Cl.[6] H03K *17/16*

U.S. Cl. 326—86 **9 Claims**



3VLSI

1. A semiconductor integrated circuit comprising: a first p-channel transistor having a drain, a back-gate and a source connected to a first source line fixed at a first potential; a first n-channel transistor having a source connected to a second source line fixed at a second potential, a drain connected to said drain of said first p-channel transistor at a first node, and a back-gate connected to said second source line; a second n-channel transistor having a gate connected to said first source line, and a source-drain path connected between said first node and a first terminal of said integrated circuit; and a circuit section having a first signal line connected to said back-gate of said first p-channel transistor, said first signal line being maintained at a third potential while preventing a leakage current from flowing from said first node, said third potential being in the vicinity of said first potential.

5,726,591

MESFET LOGIC DEVICE WITH CLAMPED OUTPUT DRIVE CAPACITY AND LOW POWER

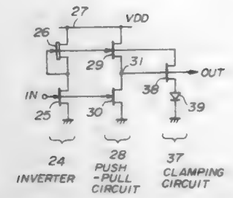
Takumi Miyashita, Kawasaki, Japan, assignor to Fujitsu Limited, Kanagawa, Japan

Continuation of Ser. No. 482,953, Jun. 15, 1995, abandoned, which is a continuation of Ser. No. 263,730, Jun. 22, 1994, abandoned. This application Feb. 22, 1996, Ser. No. 605,715
Claims priority, application Japan, Jun. 30, 1993, 5-160544
Int. Cl.[6] H03K *19/0952*

U.S. Cl. 326—117 **9 Claims**

1. A logic gate circuit comprising:

a logic gate stage to which one or a plurality of input signals are supplied, for outputting a signal depending on a state of the one or the plurality of input signals, said logic gate stage



including a first transistor and a second transistor which are serially connected to each other between a first line having a first voltage and a second line having a second voltage less then the first voltage, said first transistor being connected to the first line, said second transistor being connected to the second line and a gate electrode of said second transistor being provided with an input signal;

an output driver stage having a pull-up circuit formed of a pull-up enhancement-type transistor and a pull-down circuit, said pull-up enhancement-type transistor having a drain electrode connected to the first line, a gate electrode connected to a gate electrode of said first transistor and a source electrode connected to said pull-down circuit, said pull-down circuit being connected to the second line and controlled by the input signal supplied to said second transistor; and

a clamping circuit for clamping a gate voltage of said pull-up enhancement-type transistor of said output driver stage at a limited voltage so that a node, at which the source electrode of said pull-up enhancement-type transistor and said pull-down circuit are connected, has a high level, said node being an output terminal of said logic gate circuit, said clamping circuit including an enhancement-type transistor and a Schottky diode having an anode connected to a source electrode of said enhancement-type transistor and a cathode connected to said second line, said enhancement-type transistor having a drain electrode connected to a node at which the gate electrode of said first transistor and the gate electrode of said pull-up enhancement-type transistor for the pull-up of said output driver stage are connected and a gate electrode connected to a node at which the source electrode of said pull-up enhancement-type transistor for the pull-up of said output driver stage and said pull-down circuit are connected, a threshold voltage of said enhancement-type transistor of said clamping circuit being approximately 0 volts.

5,726,592

SELF BIASED LOW-VOLTAGE DIFFERENTIAL SIGNAL DETECTOR

Donald Joseph Schulte, Eagan, and James David Strom, Rochester, both of Minn., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Dec. 18, 1995, Ser. No. 572,886
Int. Cl.[6] H03K *5/22*

U.S. Cl. 327—65 **19 Claims**

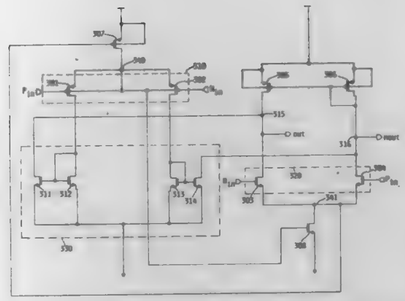
1. A differential signal detecting circuit operable over a large common-mode voltage range to detect low-voltage differential changes of an input signal carrying information in the form of the low-voltage differential changes, the differential signal detecting circuit comprising:

a first differential pair of field effect transistors (FETs) of a first conductivity type coupled to receive the input signal and having an output coupled to a common load; and

a second differential pair of FETs of a second conductivity type coupled to receive the input signal and having an output coupled to the common load,

wherein the first differential pair of FETs is operative to detect the low-voltage differential changes in the input signal when the common-mode voltage is at a first voltage level, the second differential pair of FETs is operative to detect the low-voltage differential changes in the input signal when the common-mode voltage is at a second voltage level and both the first and the second differential pairs of FETs are operative to detect the low-voltage differential changes in the input signal when the common-mode voltage is between the first and second voltage levels, and wherein the detected low-voltage differential changes are output to the common load as the information carried by the input signal; and

a self-biasing circuit to bias and cross-couple the first and second differential pair of field effect transistors in response to each other.



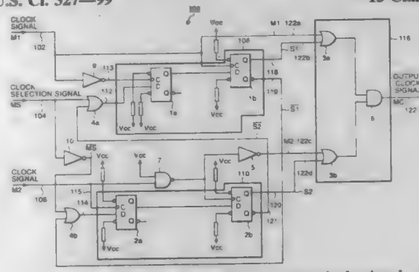
5,726,593

METHOD AND CIRCUIT FOR SWITCHING BETWEEN A PAIR OF ASYNCHRONOUS CLOCK SIGNALS

Markku Ruuskanen, Porvoo, Finland, assignor to Nokia Telecommunications Oy, Espoo, Finland

Continuation of Ser. No. 424,410, Apr. 26, 1995, abandoned. This application Nov. 22, 1996, Ser. No. 755,023
Claims priority, application Finland, Oct. 27, 1992, 924870
Int. Cl.[6] H03K *17/00*

U.S. Cl. 327—99 **13 Claims**



1. An apparatus for producing an output clock signal, said apparatus comprising:

a first clock signal input for receiving a first clock signal having a given pulse width;

a second clock signal input for receiving a second clock signal having said given pulse width;

a selection signal input for receiving a selection signal, said first and second clock signals and said selection signal being asynchronous in relation to each other;

a first sampling circuit for sampling a first input signal, said input signal comprising a first representative signal representative of said selection signal while in a default state and comprising an override signal while in an override state, the output of said first sampling circuit comprising a first selection signal;

a second sampling circuit for sampling a second input signal, said second input signal comprising a second representative signal representative of said selection signal while in a default state and comprising an override signal while in an override

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state, the output of said second sampling circuit comprising a second selection signal;

said first sampling circuit comprising circuitry for detecting at least two predetermined first edges of said first clock signal and for latching said first selection signal to said first input signal after said at least two predetermined first edges are detected;

said second sampling circuit comprising circuitry for detecting at least two predetermined second edges of said second clock signal and for latching said second selection signal to said second input signal after said at least two predetermined second edges are detected;

a first override circuit for switching said first sampling circuit from the respective said default state to an override state when said first selection signal has an ON signal level;

a second override circuit for switching said second sampling circuit from the respective said default state to an override state when said second selection signal has an ON signal level; and

an output clock signal circuit for outputting as said output clock signal one of said first and second clock signals when one of said first and second selection signals has an ON level and otherwise outputting as said output clock signal a signal level which is prolonged with respect to said given pulse width.

5,726,594

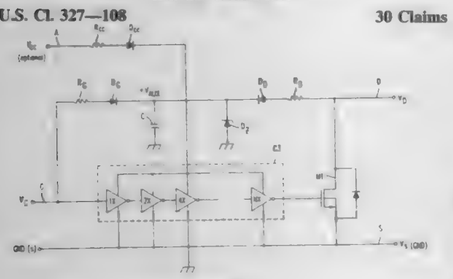
SWITCHING DEVICE INCLUDING POWER MOSFET WITH INTERNAL POWER SUPPLY CIRCUIT

Richard K. Williams, Cupertino, Calif., assignor to Siliconix incorporated, Santa Clara, Calif.

Filed Oct. 2, 1995, Ser. No. 538,105

Int. Cl.[6] H03K *1/00*

U.S. Cl. 327—108 **30 Claims**



1. A switching device comprising:

a power MOSFET, said MOSFET having a source, a drain and a gate, said drain being coupled to a first main terminal of said switching device, said source being coupled to a second main terminal of said switching device; and

power supply circuitry for driving said gate, said power supply circuitry comprising a storage capacitor, an output of said power supply circuitry being coupled to said gate, a control terminal of said switching device being coupled through a first diode to said storage capacitor, said drain being coupled through a second diode to said storage capacitor, said first diode being oriented so as to allow current to flow from said control terminal through said first diode to said storage capacitor, said second diode being oriented so as to allow current to flow from said drain through said second diode to said storage capacitor.

5,726,595

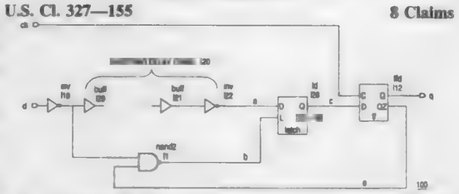
CIRCUIT FOR COUPLING AN EVENT INDICATION SIGNAL ACROSS ASYNCHRONOUS TIME DOMAINS

Allan Lin, San Jose, and L. Vincent Xie, Fremont, both of Calif., assignors to National Semiconductor Corporation, Santa Clara, Calif.

Filed Nov. 8, 1996, Ser. No. 745,270

Int. Cl.[6] H04L *7/02*

U.S. Cl. 327—155 **8 Claims**



1. A circuit for re-synchronizing an event indication signal received from a foreign domain, to generate a result indication signal that is re-synchronized to a host clock signal, the circuit comprising:

a first input terminal to receive the event indication signal from foreign domain;

a second input terminal to receive the host clock signal;

an output terminal;

edge-triggered flip flop circuitry, having a clock input, a data input, and a data output, the clock input coupled to the second input terminal the data input coupled to receive a latch output signal, that clocks the latch output signal to the data output of the flip flop circuitry, to generate a result event indication signal at the output terminal, in response to a transition the host clock signal;

delay circuitry coupled to the first input terminal to receive the event indication signal, that provides a delayed event indication signal having a phase that is delayed from the event indication signal;

transparent latch circuitry that latches the delayed event indication signal responsive to a latch control signal for providing said latch output signal; and

combination circuitry coupled to receive the event indication signal and the result event indication signal and that provides a combination thereof as the latch control signal.

5,726,596

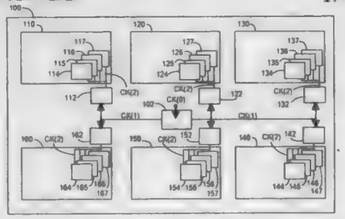
HIGH-PERFORMANCE, LOW-SKEW CLOCKING SCHEME FOR SINGLE-PHASE, HIGH-FREQUENCY GLOBAL VLSI PROCESSOR

Paul L. Perez, Fort Collins, Colo., assignor to Hewlett-Packard Company, Palo Alto, Calif.

Filed Mar. 1, 1996, Ser. No. 609,592

Int. Cl.[6] H03K *5/13*

U.S. Cl. 327—292 **17 Claims**



1. A single-phase clocking scheme for allowing high-performance low-skew global data transfers in a VLSI chip, comprising:

a first level clock buffer for receiving an external global clock and producing a first level global clock substantially in phase with said external global clock;

a plurality of second level clock buffers, each corresponding to a different one of a plurality of localized logic blocks, each for synchronously receiving the first level global clock and for producing a respective second level global clock substantially in phase with said external global clock;

wherein each of said plurality of localized logic blocks comprises one or more third level clock buffers, each third level buffer is load matched to its localized logic block and each for synchronously receiving the second level global clock corresponding to its respective localized logic block, and said one or more third level clock buffers within the same localized logic block producing third level local clock signals including a different one of an overlapping clock signal, a complementary overlapping clock signal, a non-overlapping clock signal, and a substantially complementary non-overlapping clock signal to drive logic components contained within its respective localized logic block, and wherein at least one clock signal produced by said one or more third level clock buffers in one localized logic block has falling edges coincident to falling edges of at least one other clock signal that is produced by said one or more third level clock buffers from a different localized logic block to allow global signal transfers between different localized logic blocks on the VLSI chip to be timed to said third level local clock signals.

5,726,597

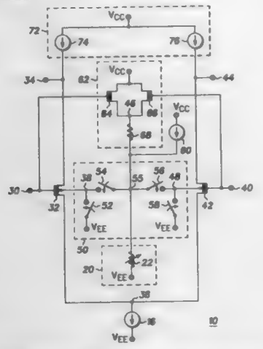
METHOD AND CIRCUIT FOR REDUCING OFFSET VOLTAGES FOR A DIFFERENTIAL INPUT STAGE

Thomas D. Petty, Tempe; Richard S. Griffith, Chandler; Robert L. Vyne, Tempe, and Robert N. Dotson, Chandler, all of Ariz., assignors to Motorola, Inc., Schaumburg, Ill.

Filed Aug. 30, 1996, Ser. No. 706,095

Int. Cl.[6] H03K *5/22*

U.S. Cl. 327—307 **16 Claims**



1. A differential input stage having a first and second input and a first and second output, comprising:

a first transistor having a first electrode coupled to the first output, a control electrode coupled to the first input, a second electrode, and a bulk terminal;

a second transistor having a first electrode coupled to the second output, a control electrode coupled to the second input, a second electrode coupled to the second electrode of the first transistor, and a bulk terminal;

a current source circuit having a first terminal coupled to the first electrode of the first transistor and a second terminal coupled to a first power supply terminal for receiving a first power supply voltage;

an offset compensation circuit to reduce offset voltage of the first and second transistors due to transistor mismatch:

a common mode compensation circuit coupled to said first input and said second input to minimize a change in offset voltage due to a common mode input voltage at the first and second inputs; and

a switch circuit responsive to the offset compensation circuit and the common mode compensation circuit for selectively providing a differential voltage across the bulk terminals of the first and second transistors.

5,726,598

SEMICONDUCTOR DEVICE HAVING VOLTAGE SENSING ELEMENT

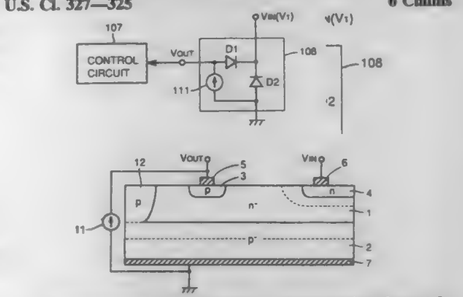
Tomohide Terashima, Hyogo, and Masanori Fukunaga, Fukuoka, both of Japan, assignors to Mitsubishi Denki Kabushiki Kaisha, Tokyo, Japan

Continuation of Ser. No. 424,939, Apr. 19, 1995, abandoned, which is a division of Ser. No. 343,945, Nov. 17, 1994, Pat. No. 5,500,541. This application Nov. 4, 1996, Ser. No. 743,567

Claims priority, application Japan, Apr. 27, 1994, 6-089462

Int. Cl.[6] H03K *5/153*

U.S. Cl. 327—325 **6 Claims**



1. A semiconductor device having a voltage sensing element for sensing an output voltage, said voltage sensing element comprising:

an input terminal supplied with said output voltage;

an output terminal for supplying voltage produced by said voltage sensing element to an external circuit;

a first rectifying element having a cathode connected to said input terminal and an anode connected to said output terminal;

a second rectifying element having a cathode connected to said input terminal and an anode connected to a ground terminal, the cathode of said first rectifying element and the cathode of said second rectifying element including a common semiconductor region provided to make said first and second rectifying elements reversely biased, in order to increase voltage at the anode of said first rectifying element with respect to voltage at the cathodes of said first and second rectifying elements, said common semiconductor region including a depletion layer formed when voltage being applied to the cathode of said second rectifying element, to provide a direct path for a current flow from the anode of said first rectifying element to the anode of said second rectifying element; and

a constant-current source connected between the anode of said first rectifying element and the anode of said second rectifying element.

5,726,599

DEVICE FOR MULTIPLYING A CAPACITANCE BY A VARIABLE COEFFICIENT TO ADJUST A FILTER CUT-OFF FREQUENCY

Pierre Genest, Butry Sur Oise, France, assignor to Alcatel N.V., Rijswijk, Netherlands

Filed Feb. 8, 1995, Ser. No. 385,476

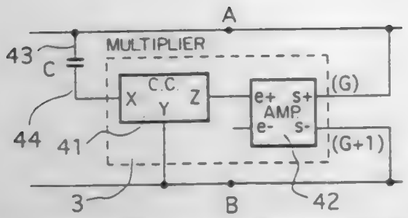
Claims priority, application France, Feb. 9, 1994, 95 01454

Int. Cl.[6] H03K *5/00;* **H03G** *3/02*

U.S. Cl. 327—553 **20 Claims**

1. A device for multiplying a capacitance by a variable coefficient to adjust a cut-off frequency of a filter including said capaci-

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tance, said cut-off frequency being determined by said capacitance, said device having at least one point connected to a reference, ground potential, said device including current amplifier means for amplifying a current flowing through said capacitance and thereby multiplying said capacitance, said capacitance being connected between first and second predetermined point, which are not connected to said ground potential, said current amplifier means including a differential current amplifier;

wherein said differential current amplifier has a first input receiving a current representative of the current flowing through said capacitance, a second input that is not connected, an inverting first output at which the gain is a first differential current gain G and which is connected to said first predetermined point, and a follower second output at which the gain is a second differential current gain G+1 and which is connected to said second predetermined point.

5,726,600

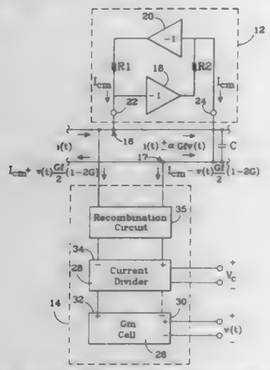
NPN BIPOLAR CIRCUIT TOPOLOGY FOR A TUNABLE TRANSCONDUCTANCE CELL AND POSITIVE CURRENT SOURCE

Gopal Raghavan, Canoga Park; Joseph F. Jensen, Malibu, and Albert E. Cosand, Agoura Hills, all of Calif., assignors to Hughes Aircraft Company, Los Angeles, Calif.

Filed Jan. 17, 1996, Ser. No. 588,665

Int. Cl.[6] H03F *3/45;* **H03K** *5/22*

U.S. Cl. 327—553 **14 Claims**



1. An active filter circuit component, comprising:

a pair of current summing nodes;

a positive current source (PCS) that supplies a pair of common mode currents at respective ones of said current summing nodes to produce a common mode voltage at said summing nodes;

at least one capacitor that is connected to the current summing nodes; and

a tunable transconductance (Gm) cell, comprising:

a fixed transconductance cell having a signal input for receiving a voltage signal (v(t)), said cell converting the voltage signal into a differential mode current that modulates the common mode currents;

a current divider coupled to said fixed transconductance cell that removes a portion of the modulated common mode currents to scale both the differential and common mode components of the modulated common mode currents by a scaling factor α, where $|\alpha| \leqq 1$, said scaled differential mode current charging said capacitor to provide an output voltage with a frequency response, said current divider having a control input for receiving a control signal that sets the value of the scaling factor α to tune the output voltage's frequency response; and

a recombination circuit coupled to said current divider and said nodes that draws a current from the current summing nodes that is approximately equal to the portion of the common mode current removed by the current divider so that the common mode current components of the modulated common mode currents are insensitive to the scaling factor α, thereby stabilizing the common mode voltages,

said PCS having a high differential mode impedance that limits the amount of the differential mode current that leaks through the PCS so that substantially all of the scaled differential mode current charges said capacitor, and having a low common mode impedance that further stabilizes the common mode voltages at the current summing nodes without using common mode feedback.

5,726,601

INTEGRATED CIRCUIT AND METHOD FOR PRODUCING THE SAME

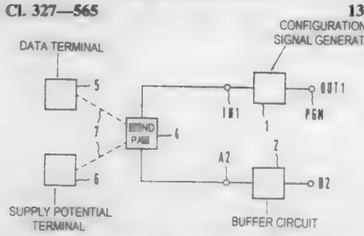
Bret A. Johnson, München, Germany, assignor to Siemens Aktiengesellschaft, Munich, Germany

Filed May 3, 1996, Ser. No. 647,464

Claims priority, application European Pat. Off., May 5, 1995, 95106850

Int. Cl.[6] H01L *23/48*

U.S. Cl. 327—565 **13 Claims**



1. An integrated circuit, comprising:

a data terminal and a supply potential terminal;

a configuration signal generator with an input;

a buffer circuit with a terminal; and

a bond pad connected to the input and the terminal;

said bond pad being connected to said data terminal for operating the integrated circuit using said buffer circuit; and

said bond pad being connected to said supply potential terminal for operating the integrated circuit using said configuration signal generator.

5,726,602

STABILIZED RAIL-TO-RAIL SPEAKER DRIVER CIRCUIT

David A. Brown, Indianapolis, Ind., assignor to Lucent Technologies Inc., Murray Hill, N.J.

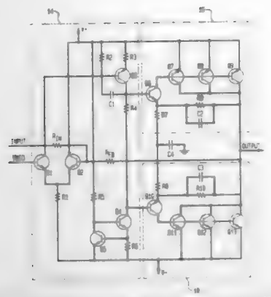
Filed Apr. 12, 1996, Ser. No. 631,396

Int. Cl.[6] H03F *3/30*

U.S. Cl. 330—255 **6 Claims**

1. An apparatus for amplifying an audio signal having an amplitude which varies at an audio frequency comprising:

an input preamplifying circuit for receiving the audio signal and for receiving electrical energy from a power supply having a



first rail at a positive potential and a second rail at a negative potential to produce a pre-amplified output signal;

a first output driver circuit comprising a voltage gain limited current amplifier coupled to the first rail and to a first output terminal of said input pre-amplifying circuit, the first output driver capable of producing a peak output voltage that is equal to the first rail minus one transistor saturation voltage; and

a second output driver circuit comprising a voltage gain limited current amplifier coupled to the second rail and to a second output terminal of said input pre-amplifying circuit, the second output driver capable of producing a peak output voltage that is equal to the second rail plus one transistor saturation voltage;

wherein said input preamplifying circuit is operable to supply said preamplified output signal to one of said output driver circuits when the input signal current exceeds a current threshold and to the other of said output driver circuits when the input signal current is below said current threshold.

5,726,603

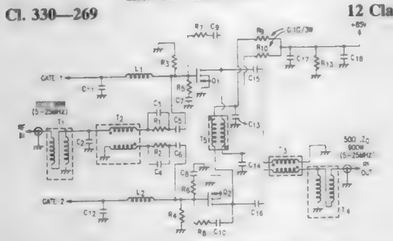
LINEAR RF POWER AMPLIFIER

Yogendra K. Chawla, Pittsford, and Leonid Reyzelman, Rochester, both of N.Y., assignors to ENI Technologies, Inc., Rochester, N.Y.

Continuation of Ser. No. 441,962, May 16, 1995, abandoned, which is a division of Ser. No. 275,124, Jul. 14, 1996, Pat. No. 5,477,188. This application Feb. 14, 1997, Ser. No. 800,336

Int. Cl.[6] H03F *3/26*

U.S. Cl. 330—269 **12 Claims**



1. A push-pull RF power amplifier that comprises first and second high voltage field effect transistors each of which has a drain, a source, and a gate, said transistors each having a predetermined drain-source breakdown voltage; a supply of drain voltage coupled to the drains of said transistors, said supply famishing said drain voltage at a level that is below said drain-source breakdown voltage to create a safety margin between said drain-source breakdown voltage and a peak drain-source voltage, as defined by said drain voltage level, that is greater than the magnitude of said drain voltage level; a signal input terminal to which an RF signal is applied; an input balun transformer having an unbalanced input coupled to the signal input terminal and first and second balanced outputs coupled to the gates of the respective first and second transistors; first and second bias circuits applying respective bias levels to the gates of said first and second transistors; an output balun transformer having balanced inputs coupled to the drains of said first and second transistors respectively, and an unbalanced output; and means coupling said unbalanced output to an RF output terminal.

5,726,604

DIFFERENTIAL TRANSCONDUCTOR STAGE DYNAMICALLY CONTROLLED BY THE INPUT SIGNAL'S AMPLITUDE

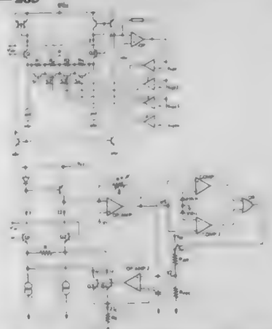
Andrea Mario Onetti, Pavia, and Domenico Rossi, Cilavegna, both of Italy, assignors to SGS-Thomson Microelectronics, S.r.l., Agrate Brianza (Milan), Italy

Filed Sep. 15, 1993, Ser. No. 121,800

Claims priority, application European Pat. Off., Sep. 16, 1992, 92830497.1

Int. Cl.[6] H03G *3/12*

U.S. Cl. 330—283 **28 Claims**



1. An integrated circuit transconductor stage, comprising:

a balanced pair of input transistors, connected to receive a differential input signal at respective control terminals thereof, and each comprising first and second current-carrying terminals;

a degeneration resistor connected between said respective first current-carrying terminals of said pair of input transistors;

a pair of current generators each connected, at said first current-carrying terminal of a respective one of said input transistors, to control a bias current therethrough;

said second current-carrying terminals of said pair of input transistors being operatively connected to provide a current output corresponding to the differential input signal and wherein said second current-carrying terminal of each of said input transistors is connected to provide current inputs to a respective pair of current mirror stages; and

dynamic biasing circuitry, connected to alter said bias current through both said input transistors, in dependence on an average magnitude of the input signal, such that said bias current is reduced when the magnitude of the input signal is small.

5,726,605

SILICON CARBIDE RF POWER MODULE

Alfred W. Morse, Ellicott City, Md.; Paul M. Esker, Millersville, Md., and Robin E. Hamilton, Millersville, Md., assignors to Northrop Grumman Corporation, Los Angeles, Calif.

Filed Apr. 14, 1996, Ser. No. 626,899

Int. Cl.[6] H03F *3/68;1/30*

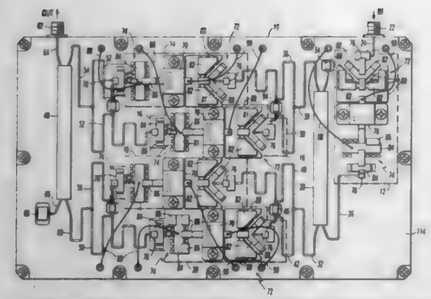
U.S. Cl. 330—295 **17 Claims**

1. An electrical power amplifier module for operating at RF frequencies, comprising:

means for receiving an input signal;

a plurality of relatively closely spaced parallely driven electrical signal power amplifier circuits coupled to said input signal and being located on a common support structure, each of

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said amplifier circuits including a relatively high power silicon carbide transistor assembly attached to said support structure for generating respective amplified output signals from said input signal;

means coupled to said plurality of amplifier circuits for combining said amplified output signals and outputting a composite output signal thereby achieving a relatively high power density;

wherein said silicon carbide transistor assembly includes at least one silicon carbide die consisting of a plurality of identical transistor cells fabricated in silicon carbide and having a relatively high supply voltage applied thereto so as to operate with relatively low currents and thereby reduce distribution losses, and,

wherein said silicon carbide transistor assembly is located within a respective metallized frame bonded to an elongated metal flange member attached to said support structure, said plurality of transistor cells also being supported by a ceramic substrate located within said metallized frame and being coupled in parallel by respective relatively thin wire leads located inside of said metallized frame to a pair of relatively thick input and output leads extending from said metallized frame.

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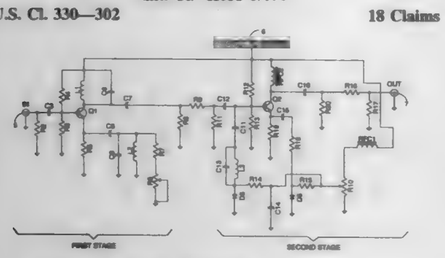
PRE-EMPHASIS NETWORK WITH VARIABLE TIME DELAY

Dale W. Marland, Erieville, N.Y., assignor to Eagle Comtronics, Inc., Clay, N.Y.

Filed Jul. 17, 1996, Ser. No. 682,375

Int. Cl.[6] H03F *3/191*

U.S. Cl. 330—302 **18 Claims**



1. An electronic circuit, comprising:

an input terminal;

a first amplifier, connected to said input terminal, for amplifying an input signal around a first center frequency, and for outputting a first amplified signal;

a notch filter, including a first variable attenuating means, for attenuating and imparting a time delay to said first amplified signal, having a first end coupled to an output of said first amplifier and a second end connected to ground, said notch filter having a second center frequency higher than said first center frequency of said first amplifier;

a second amplifier for amplifying the attenuated and time-delayed first amplified signal, said second amplifier having an input coupled to the output of said first amplifier means and the first end of said notch filter, and having a second variable attenuating means for attenuating the output of said second amplifier;

an output terminal coupled to an output of said second amplifier; and

control means for controlling said first and second attenuating means.

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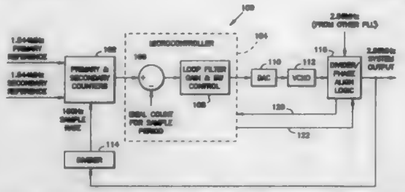
PHASE LOCKED LOOP USING A COUNTER AND A MICROCONTROLLER TO PRODUCE VCXO CONTROL SIGNALS

Jeffrey Brede; Adam Opoczynski, both of Eden Prairie, and James W. Ott, Albertville, all of Minn., assignors to ADC Telecommunications, Inc., Minneapolis, Minn.

Continuation-in-part of Ser. No. 898,791, Jun. 15, 1992, abandoned. This application Feb. 4, 1994, Ser. No. 192,071

Int. Cl.[6] H03L *7/07*

U.S. Cl. 331—2 **14 Claims**



8. An apparatus for frequency locking a derived clock signal to a reference clock signal, comprising:

a voltage controlled oscillator for generating the derived clock signal;

a counter, connected to receive the derived and reference clock signals, the counter adapted to count a number of pulses of the reference clock signal occurring over a predetermined number of dock periods of the derived clock signal; and

controller means, connected to the counter and to the oscillator such that the counter, the controller means and the oscillator are connected in a feedback arrangement, for comparing the counted number of pulses of the reference clock signal with an ideal count value, and for generating a control signal in proportion to a difference obtained therefrom, wherein the control signal is applied to the oscillator such that the frequency of the derived clock signal varies in a direction which more closely approximates the frequency of the reference clock signal;

the controller means further including means for capturing an initial measurement of the error between the reference clock signal and the derived clock signal and making an initial adjustment to the control signal and calibrating one or more loop gain coefficients to be used in subsequent updates of the control signal.

5,726,608

TRIMMABLE MULTI-TERMINAL CAPACITOR FOR A VOLTAGE CONTROLLED OSCILLATOR

Michael Årtin, Stockholm, Sweden, assignor to Telefonaktiebolaget LM Ericsson, Stockholm, Sweden

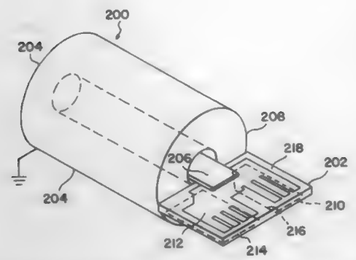
Filed Oct. 17, 1995, Ser. No. 544,203

Int. Cl.[6] H01G *4/255;* **H03H** *9/17*

U.S. Cl. 331—117 D **6 Claims**

1. A multi-terminal capacitor, comprising:

a dielectric layer having a first and a second surface, said surfaces being substantially parallel in relation to one another;



a common conductor on said first surface, said common conductor comprising a central terminal of said multi-terminal capacitor, and having a plurality of tabs being selectively removable to tune the capacitance value of said multi terminal capacitor; and

a plurality of separate conductors on said second surface, wherein said separate conductors and said common conductor are aligned to form a corresponding plurality of capacitors, and each of said separate conductors comprises an outside terminal of said multi-terminal capacitor, the selectively removable tabs removed to tune the capacitance values of the plurality of capacitors.

5,726,609

PULSE AMPLITUDE MODULATOR USING DIRECT DIGITAL SYNTHESIZER

Jari Lindholm, Helsinki, Finland, assignor to Nokia Telecommunications Oy, Espoo, Finland

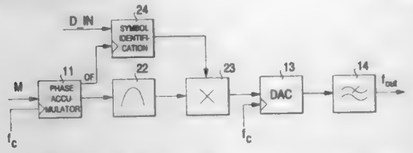
PCT No. PCT/FI95/00268, § 371 Date Nov. 20, 1996, § 102(e) Date Nov. 20, 1996, PCT Pub. No. WO95/32550, PCT Pub. Date Nov. 30, 1995

PCT Filed May 18, 1995, Ser. No. 737,823

Claims priority, application Finland, May 20, 1994, 942374

Int. Cl.[6] H03K *7/02;* **H04L** *27/04*

U.S. Cl. 332—115 **10 Claims**



1. A method for forming a pulse amplitude modulated signal in association with digital modulation, in accordance with which method symbols to be transmitted are formed from bits of an incoming bit stream (D_IN), characterized in that

sample values of a pre-low-pass-filtered waveform of a pulse to be transmitted, covering at least one symbol period, are stored in a memory (**22**),

sample values are read from the memory (**22**) at the rate of a constant-frequency clock signal (f_c, $4\times f_c$), and

a sample value read from the memory (**22**) is multiplied by a predetermined factor, the value of which is formed as a response to the symbol being transmitted.

5,726,610

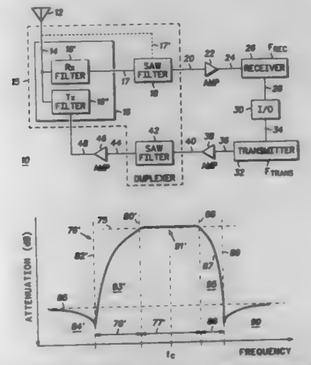
SAW FILTER DEVICE FOR RADIO TRANCEIVER UTILIZING DIFFERENT COUPLING COEFFICIENT RATIOS

Donald Eugene Allen, Gilbert, Ariz.; Philip Pak-Lin Kwan, Tempe, Ariz., and David Patrick Stumbo, Scottsdale, Ariz., assignors to Motorola Inc., Schaumburg, Ill.

Division of Ser. No. 491,824, Jun. 19, 1995, Pat. No. 5,632,909. This application Jan. 13, 1997, Ser. No. 719,351

Int. Cl.[6] H03H *9/72*

U.S. Cl. 333—133 **19 Claims**



1. A filter device utilizing surface acoustic wave (SAW) resonators comprising:

a first filter with first series coupled SAW resonators with a first SAW coupling coefficient and second parallel coupled SAW resonators with a second SAW coupling coefficient, and

a second filter with third series coupled SAW resonators with a third SAW coupling coefficient and fourth parallel coupled SAW resonators with a fourth SAW coupling coefficient, wherein a first ratio of said first SAW coupling coefficient divided by said second SAW coupling coefficient has a first value and a second ratio of said third SAW coupling coefficient divided by said fourth SAW coupling coefficient has a second value different than said first value.

5,726,611

EMC FILTER FOR A BALANCED MULTI-WIRED TELECOMMUNICATION LINE WITH BIFILAR WINDINGS

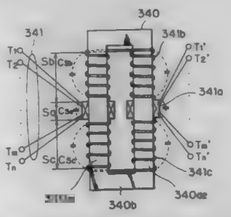
Kusuo Takagi, and Ryoichi Okayasu, both of Tokyo, Japan, assignors to Nippon Telegraph and Telephone Corporation, Tokyo, Japan

Continuation of Ser. No. 249,025, May 25, 1994, abandoned. This application Nov. 18, 1996, Ser. No. 749,623

Claims priority, application Japan, May 31, 1993, 5-149723; May 26, 1993, 5-145482; May 26, 1993, 5-145483

Int. Cl.[6] H03H *7/09*

U.S. Cl. 333—181 **12 Claims**



1. An EMC filter for a balanced multi-wired telecommunication line comprising:

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an oblong closed magnetic path core having input side and output side first core arms with a first length and two second core arms with a second length shorter than said first length, said input side and output side first core arms and said second core arms constituting a closed magnetic path; and

a plurality of coils, each of said coils being constituted by a pair of wires, said wires of each pair being closely positioned to each other and wound around said input side and output side first core arms so as to produce magnetic fluxes in these first core arms flowing toward the same direction when high frequency common-mode currents flows through the respective wires of each pair and to produce magnetic fluxes in these first core arms flowing toward the opposite directions when high frequency normal-mode currents flow through the respective wires of each pair, each of said coils having a signal input end and a signal output end, said wires running in a one-way direction from said signal Input ends to said signal output ends, respectively,

wherein said plurality of signal input ends are positioned along said input side first core arm and said plurality of signal output ends are positioned along said output side first core arm, each, pair of said wires being started from said signal input end, wound around said input side first core arm along its axis toward a first axial direction, in which each pair of said wound wires is distributed with a space between its neighbor windings, traversed to said output side first core arm, wound around said output side first core arm along its axis toward a second axial direction opposite to said first axial direction, in which each pair of said wound wires is distributed with a space between its neighbor windings, and terminated at said signal output end, and wherein each of said input side and output side first core arms consists of first sections and a second section, said second section being positioned near a center of said each of input side and output side first core arms and said first sections being positioned at both sides of said second section, and wherein each pair of said wound wires is distributed with a space between its neighbor windings in said first sections, and each pair of said wound wires is concentrated with no space between its neighbor windings in said second section.

5,726,612

CHIP-TYPE ELECTRONIC COMPONENT

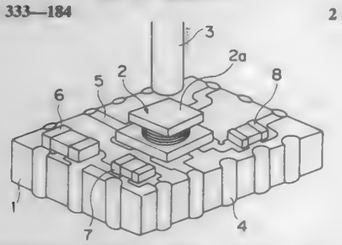
Harufumi Mandai, Nagaokakyo, Japan; Noboru Kato, Nagaokakyo, Japan; Koji Shiroki, Nagaokakyo, Japan, and Atsushi Tojyo, Nagaokakyo, Japan, assignors to Murata Manufacturing Co., Ltd., Japan

Continuation of Ser. No. 393,253, Feb. 23, 1995, abandoned, which is a continuation of Ser. No. 160,932, Dec. 1, 1993, abandoned. This application Aug. 1, 1996, Ser. No. 693,582

Claims priority, application Japan, Dec. 1, 1992, 4-321886; Dec. 8, 1992, 4-328208

Int. Cl.[6] H03H *7/01*

U.S. Cl. 333—184 **2 Claims**



1. A method for mounting a surface mounted chip-type LC filter on a circuit board, the method comprising the steps of:

providing a dielectric substrate;

forming an upper electrode on an upper surface of said dielectric substrate;

mounting a plurality of electronic component elements on said dielectric substrate and soldering said electronic component elements to said upper electrode, and providing at least one of said electronic component elements with a flat upper surface;

said at least one electronic component comprising a chip-type coil having upper and lower flange portions, said upper flange portion having said flat upper surface, said chip-type coil being mounted substantially at a central portion of said dielectric substrate and others of said plurality of electronic component elements being arranged around said chip-type coil;

said flat upper surface being adapted to be engaged by a suction nozzle thereby allowing holding of said chip-type electronic component for mounting on the circuit board;

preparing a capacitor part by forming a plurality of internal electrodes in said dielectric substrate which overlap with each other through a dielectric layer;

providing a side electrode on a side surface of said dielectric substrate and connected to said capacitor part and said upper electrode; and

lifting said entire chip-type LC filter, including said substrate, said upper electrode, and said plurality of electronic component elements soldered thereto, by engaging only said flat upper surface with a suction nozzle, and then placing said chip-type LC filter on a circuit board for being mounted thereon.

5,726,613

ACTIVE INDUCTOR

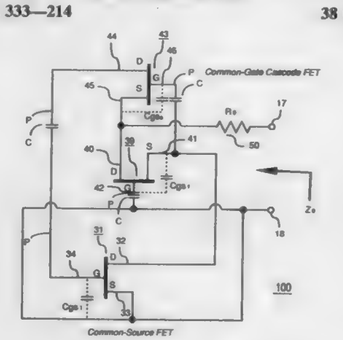
Hitoshi Hayashi; Masashi Nakatsugawa, both of Yokohama, and Masahiro Muraguchi, Yokosuka, all of Japan, assignors to Nippon Telegraph and Telephone Corporation, Tokyo, Japan

Filed Jan. 31, 1996, Ser. No. 594,591

Claims priority, application Japan, Feb. 1, 1995, 7-015435

Int. Cl.[6] H03H *11/48*

U.S. Cl. 333—214 **38 Claims**



1. An active inductor having a low resistance loss and broad frequency characteristics, said active inductor comprising;

a first transistor having a gate electrode, a source electrode, and a drain electrode;

a second transistor having a gate electrode, a source electrode, and a drain electrode;

a third transistor having a gate electrode, a source electrode, and a drain electrode; and

first and second terminals,

wherein said gate electrode of said second transistor is connected to said source electrode of said first transistor, said source electrode of said second transistor is connected to said drain electrode of said first transistor, said gate electrode of said third transistor is connected to said source electrode of said second transistor, said source electrode of said third transistor is connected to said drain electrode of second transistor, said drain electrode of said third transistor is connected to said gate electrode of said first transistor, said drain electrode of said second transistor and said source electrode of said third transistor are connected to said first terminal, said source electrode of said first transistor is connected to said second terminal.

5,726,614

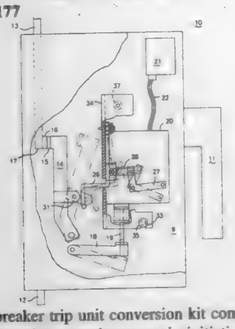
ELECTRONIC TRIP UNIT CONVERSION KIT FOR HIGH AMPERE-RATED CIRCUIT BREAKERS

Roger N. Castonguay, Terryville, and Jeffrey D. Lord, Unionville, both of Conn., assignors to General Electric Company, New York, N.Y.

Filed May 24, 1996, Ser. No. 653,595

Int. Cl.[6] H01H *9/00*

U.S. Cl. 335—177 **14 Claims**



1. A circuit breaker trip unit conversion kit comprising:

a trip actuator unit responsive to a trip initiating signal from a circuit breaker trip unit to articulate a circuit breaker operating mechanism and separate a pair of circuit breaker contacts, said trip actuator unit including a flux shift unit having a flux shift plunger;

a reset arm pivotally arranged on said trip actuator unit and connecting with said flux shift plunger; and

a connector link attached to a reset paddle by means of a connector link at one end and arranged for interacting with a circuit breaker cross bar at an opposite end, whereby said cross bar motivates said reset paddle and said reset arm for resetting said flux shift plunger upon separation of said circuit breaker contacts.

5,726,615

INTEGRATED-MAGNETIC APPARATUS

Gordon E. Bloom, 115 Duran Dr., San Rafael, Calif. 94903

Filed Mar. 24, 1994, Ser. No. 217,477

Int. Cl.[6] H01F *27/02;17/06;5/00;27/24*

U.S. Cl. 336—83 **30 Claims**

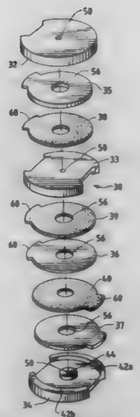
29. An integrated-magnetic apparatus, comprising:

generally flat electrical insulating means, having an aperture therein, for insulatingly carrying at least two generally flat, laterally offset and spaced apart electrical windings of a power converter around said aperture located within said flat electrical insulating means;

a core having an interior cavity, having at least one generally flat exterior surface and having an un-gapped core-column that is located within said cavity and that passes through said aperture of said insulating means, said at least two electrical windings being substantially located within said cavity and being adapted to be transformingly coupled together through said core;

flat-sided means, carried by said at least one generally flat exterior surface of said core, for forming an interior annulus that is located adjacent to said at least one flat exterior surface of said core and for forming a core-column that has a gap and that is located within said annulus; and

printed circuit board means, carried by said flat-sided means and around said gapped core-column, for carrying at least one electrical winding of said power converter, said at least one electrical winding being substantially located within said annulus, being adapted to be inductively coupled through said gapped core-column to said two generally flat and laterally offset electrical windings in response to current flowing therethrough and the magnetic flux thereformed.



5,726,616

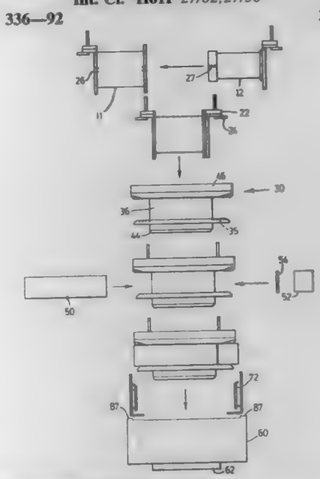
TRANSFORMER WITH PLURAL BOBBINS

Glen A. Bell, Waterloo, Canada, assignor to Electronic Craftsmen Limited, Waterloo, Canada

Continuation-in-part of Ser. No. 388,871, Feb. 15, 1995, abandoned. This application May 8, 1996, Ser. No. 646,579

Int. Cl.[6] H01F *27/02;27/30*

U.S. Cl. 336—92 **27 Claims**



1. A transformer assembly comprising:

a first bobbin having a first main bobbin body comprising a first main bobbin portion and first and second end flanges at either end of thereof, and a coil wound on the first main bobbin portion, the first main bobbin body defining a first bore for laminations;

a second bobbin having a second main bobbin body comprising a second main bobbin portion and first and second end flanges at either end thereof and having generally similar external dimensions, and a coil wound on the second main bobbin portion, the second main bobbin body defining a second bore,

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the second bobbin being larger than the first bobbin, the second end flange of the first bobbin being dimensioned to fit within the second bore, and the bobbins being telescoped within one another with the second bore being dimensioned to receive the first main bobbin body; and

an assembly cap comprising side and end walls defining a central portion and a substantially rectangular aperture extending through the central portion, in which the first and second bobbins are mounted, with at least one of said first and second bobbin end flanges abutting each of the respective end walls and the end walls including openings aligned with the first bore of the first bobbin for receiving laminations,

wherein the assembly cap includes top and bottom flanges provided above and below the openings in the central portion for locating laminations and for providing desired creepage characteristics, and wherein the end walls and the end flanges are all substantially perpendicular to axes of the first and second bores, to permit sliding engagement of the end flanges by the assembly cap and the end flanges abutting the end walls forming a seal sufficient to prevent passage of a liquid resin.

5,726,617

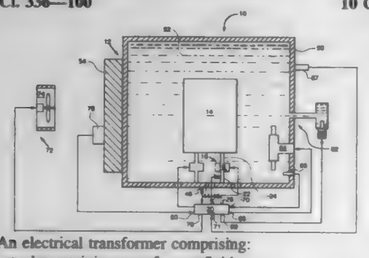
ELECTRICAL TRANSFORMER WITH REDUCED CORE NOISE

Frederic Ghislain Pia, Clifton Park, N.Y.; Imdad Imam, Schenectady, N.Y.; Frank Albert Pitman, Jr., Rome, Ga., and Stephen Linwood Smith, Garza Garcia, Mexico, assignors to General Electric Company, Schenectady, N.Y.

Filed Jul. 31, 1995, Ser. No. 507,131

Int. Cl.[6] H01F *15/00*

U.S. Cl. 336—100 **10 Claims**



1. An electrical transformer comprising:

a) a tank containing transformer fluid;

b) a transformer core and winding subassembly disposed in said transformer fluid within and spaced apart from said tank; and

c) means for varying the dynamic pressure of said transformer fluid within said tank to reduce noise-causing vibrations in said transformer fluid which are generated by vibrations of said transformer core and winding subassembly during electromagnetic operation of said transformer core and winding subassembly.

5,726,618

PLANAR TRANSDUCTOR

Friedhelm Römer, Delbrück, Germany, assignor to Siemens Nixdorf Informationssysteme Aktiengesellschaft, Paderborn, Germany

PCT No. PCT/DE94/00654, § 371 Date Jan. 24, 1996, § 102(e) Date Jan. 24, 1996, PCT Pub. No. WO95/03617, PCT Pub. Date Feb. 2, 1995

PCT Filed Jun. 10, 1994, Ser. No. 586,867

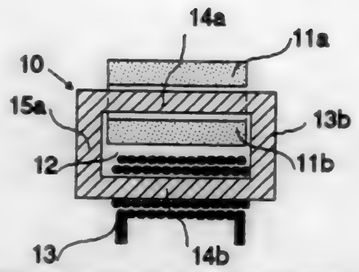
Claims priority, application Germany, Jul. 26, 1993, 4325056.4

Int. Cl.[6] H01F *2/30*

U.S. Cl. 336—175 **6 Claims**

4. A forward switched mode converter, comprising:

a primary side coupled to a secondary side;



a planar transductor in said secondary side for effecting output of at least one output voltage;

said planar transductor having a primary winding and secondary winding for controlling said primary winding, at least one one-piece core having a cuboidal configuration and having a passage with a rectangular cross section through which the primary and secondary winding are guided, the primary winding being a metallic section having a rectangular cross section, and the metallic section being substantially as wide as one edge length of the passage.

5,726,619

TRANSFORMER TERMINAL

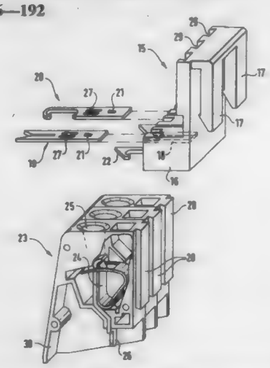
Wolfgang Hohorst, Minden, and Lothar Roland Hennemann, Enger, both of Germany, assignors to Wago Verwaltungsgesellschaft mbH, Minden, Germany

Filed Feb. 27, 1996, Ser. No. 607,475

Claims priority, application Germany, Mar. 2, 1995, 195 08 695.3

Int. Cl.[6] H01F *27/29;27/02*

U.S. Cl. 336—192 **6 Claims**



1. A transformer terminal having an insulation material housing, the transformer terminal being attached directly to an insulation material coil unit, the transformer terminal having at least one internal connection unit for the connection of a winding wire of the transformer as well as at least one external connection unit for the external wiring of the transformer, said transformer terminal comprising:

two parts detachable from each other, including an internal saddle contact part having the internal connection unit, the internal saddle contact part being attached to the coil unit; and

an external slide contact part having the external connection unit and being placed on the saddle contact part, whereby an electrical connection is made between the saddle contact part and the slide contact part,

said internal connection unit of the saddle contact part being open and accessible prior to the placement of the slide contact part and being covered in a contact secure manner by means of the insulation material housing of the slide contact part after the slide contact part is placed on the saddle contact part.

5,726,620

CHIP FUSE

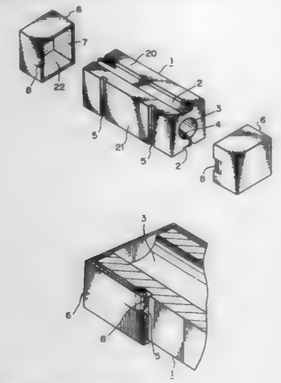
Hiroo Arikawa, Tokyo, Japan, assignor to SOC Corporation, Tokyo, Japan

Division of Ser. No. 251,318, May 31, 1994, Pat. No. 5,642,090. This application Jun. 2, 1995, Ser. No. 459,770

Claims priority, application Japan, Jun. 1, 1993, 5-167245

Int. Cl.[6] H01H *85/165*

U.S. Cl. 337—227 **4 Claims**



1. A chip fuse, comprising:

a body comprising a heat-resistant and insulating material, said body having a pair of spaced opposite quadrangular end surfaces, side surfaces extending from and between said pair of quadrangular end surfaces, a through-bore defined in and extending through said body between said pair of end surfaces, and at least two grooves, one of said at least two grooves being provided on one of said side surfaces adjacent to one of said end surfaces and extending in a direction substantially parallel to said end surfaces, and an other of said at least two grooves being provided on one of said side surfaces adjacent to the other of said end surfaces and extending in a direction substantially parallel to said end surfaces;

an elongated fusible element having a length greater than the length of said through-bore, said fusible element being disposed within and extending through said through-bore in said body, said fusible element having end portions that each extends along and in contact with one of said end surfaces and one of said side surfaces of said body; and

a pair of conductive terminal members fitted onto respective corresponding ones of said pair of end surfaces of said body so as to electrically connect to respective ones of said end portions of said fusible element, each one of said pair of terminal members comprising a quadrangular wall having an inner face that opposes the respective corresponding one of said pair of end surfaces of said body, side walls that extend at an angle from the periphery of said quadrangular wall of said terminal member and cover said side surfaces of said body adjacent to the corresponding one of said pair of end surfaces, and a projected member on only one of said side walls and fitted into a corresponding one of said at least two grooves of said body;

wherein said projected member comprises an extension of the only one of said side walls of each said conductive terminal member, said extension being bent inwardly into a U-shaped configuration.

5,726,621

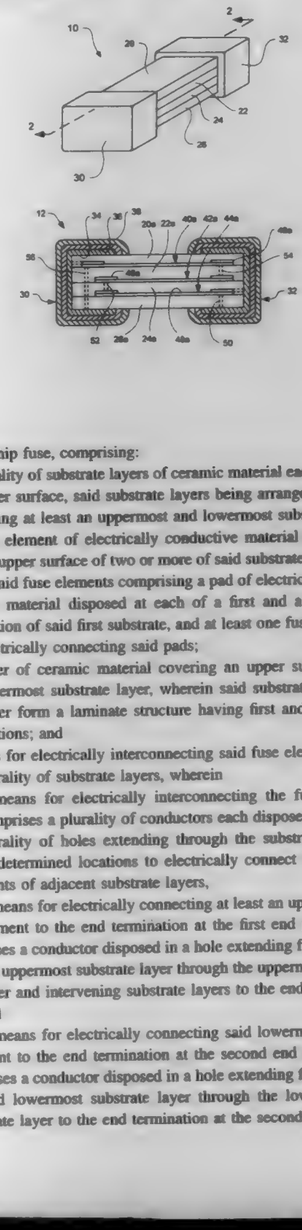
CERAMIC CHIP FUSES WITH MULTIPLE CURRENT CARRYING ELEMENTS AND A METHOD FOR MAKING THE SAME

Stephen Whitney, Manchester, Mo.; Keith Spalding, Fenton, Mo.; Joan Winnett, Chesterfield, Mo., and Varinder Kalra, Chesterfield, Mo., assignors to Cooper Industries, Inc., Houston, Tex.

Continuation-in-part of Ser. No. 302,999, Sep. 12, 1994, Pat. No. 5,440,802. This application Aug. 11, 1995, Ser. No. 514,068

Int. Cl.[6] H01H *85/04*

U.S. Cl. 337—297 **26 Claims**



1. A chip fuse, comprising:

a plurality of substrate layers of ceramic material each having an upper surface, said substrate layers being arranged in a stack having at least an uppermost and lowermost substrate layer;

a fuse element of electrically conductive material disposed on the upper surface of two or more of said substrate layers, each of said fuse elements comprising a pad of electrically conductive material disposed at each of a first and a second end portion of said first substrate, and at least one fusible element electrically connecting said pads;

a cover of ceramic material covering an upper surface of the uppermost substrate layer, wherein said substrate layers and cover form a laminate structure having first and second end portions; and

means for electrically interconnecting said fuse elements of the plurality of substrate layers, wherein

said means for electrically interconnecting the fuse elements comprises a plurality of conductors each disposed in one of a plurality of holes extending through the substrate layers in predetermined locations to electrically connect the fuse elements of adjacent substrate layers,

said means for electrically connecting at least an uppermost fuse element to the end termination at the first end portion comprises a conductor disposed in a hole extending from a pad on the uppermost substrate layer through the uppermost substrate layer and intervening substrate layers to the end termination; and

said means for electrically connecting said lowermost fuse element to the end termination at the second end portion comprises a conductor disposed in a hole extending from a pad on said lowermost substrate layer through the lowermost substrate layer to the end termination at the second portion.

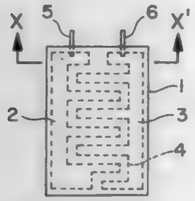
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5,726,622

DEW SENSOR HAVING A CONDUCTIVE POWER-CONTAINING MOISTURE SENSING MATERIAL DISPOSED BETWEEN OPPOSING ELECTRODES

Shizuo Furuyama, and Nobuharu Tsukiji, both of Osaka, Japan, assignors to Matsushita Electric Industrial Co., Ltd., Kadoma, Japan

Filed Jun. 21, 1996, Ser. No. 668,164
Claims priority, application Japan, Jun. 21, 1995, 7-154324
Int. Cl.[6] H01C 7/00
U.S. Cl. 338—35 15 Claims



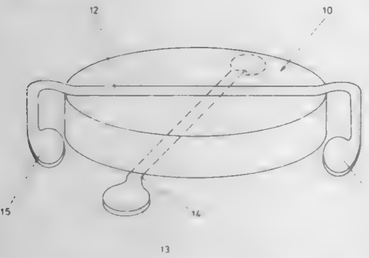
1. A dew sensor comprising:
a pair of opposing electrodes;
a moisture sensing material contacting and disposed between said pair of electrodes; and
a conductive powder dispersed in the moisture sensing material, wherein the moisture sensing material is composed of a cured resin produced by reaction between a moisture absorbing resin having a hydrophilic group and an epoxy group, and a hardener containing a hydrazine derivative having a hydantoin skeleton.

5,726,623

THERMISTOR MOUNTING ARRANGEMENT

Philip George Camp, Taunton, United Kingdom, assignor to Bowthorpe Components Limited, West Sussex, United Kingdom

PCT No. PCT/GB95/00427, § 371 Date Aug. 26, 1996, § 102(e) Date Aug. 26, 1996, PCT Pub. No. WO95/24045, PCT Pub. Date Sep. 8, 1995
PCT Filed Feb. 28, 1995, Ser. No. 704,496
Claims priority, application United Kingdom, Mar. 1, 1994, 9403913; Mar. 24, 1994, 9405863; Oct. 25, 1994, 9421454
Int. Cl.[6] H01C 7/10;7/13
U.S. Cl. 338—22 R 4 Claims



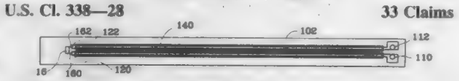
1. A temperature dependent resistive component comprising opposite contact faces and two supports attached to the respective contact faces, each support having at least one projecting leg which terminates in a contact pad, with respective contact pads of the two supports lying in a common plane spaced outwardly from said component, for mounting the component to a substrate, at least one support comprising a piece of sheet metal bent into a channel-section and having two edges of the channel-section bonded to the respective face of the component.

5,726,624

TEMPERATURE SENSOR WITH INTERNAL RIGID SUBSTRATE

Jay H. Caffee, Canyon Country; Steve R. Foote, Huntington Beach, both of Calif., and Ronald J. List, New Port Richey, Fla., assignors to Honeywell Inc., Minneapolis, Minn.

Filed Jul. 1, 1996, Ser. No. 673,854
Int. Cl.[6] H01C 3/04;7/02;7/04
U.S. Cl. 338—28 33 Claims



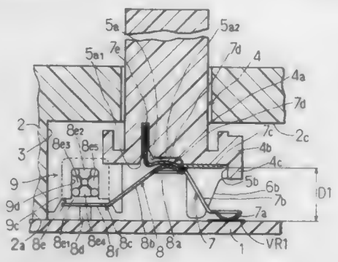
27. A temperature sensor, comprising:
a generally rigid substrate having a first end region and a second end region;
a first conductive strip deposited on said substrate and extending from said first end region to said second end region;
a second conductive strip deposited on said substrate and extending from said first end region to said second end region;
an insulative layer deposited over and between said first and second conductive strips, said first and second strips being disposed between said substrate and said insulative layer;
a temperature sensitive element disposed on said second end region of said substrate, said temperature sensitive element being connected electrically between said first and second conductive strips;
a tube, said substrate being disposed within said tube; and
a first gold pad and a second gold pad, said first and second gold pads being deposited on said substrate at said second end region, said first and second gold pads being connected electrically to said first and second conductive strips, respectively, said temperature sensitive element being connected electrically between said first and second gold pads, said first gold pad being connected to said temperature sensitive element with a first wirebond and said second gold pad is connected to said temperature sensitive element with a second wirebond.

5,726,625

HIGH-VOLTAGE VARIABLE RESISTOR

Hironobu Hasebe, Takaoka, and Kazufumi Daimon, Namerikawa, both of Japan, assignors to Hokuriku Electric Industry Co., Ltd., Kami-Niikawagun, Japan

Filed Dec. 27, 1995, Ser. No. 579,104
Claims priority, application Japan, Dec. 28, 1994, 6-327207
Int. Cl.[6] H01C 10/32
U.S. Cl. 338—162 6 Claims



1. A high-voltage variable resistor comprising:
a circuit board provided on a front surface thereof with a printed resistance element including at least one variable resistance pattern;
an insulating casing for receiving said circuit board therein;
a slide element including a slide contact slid on said variable resistance pattern;
an operation shaft member including a shaft portion rotatably inserted through said insulating casing and being arranged on a side of said front surface of said circuit board and on which said slide element is mounted; and

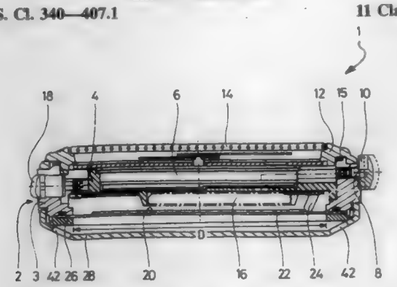
an electrical connection means contacted with a part of said slide element to establish electrical connection between said slide element and an output portion of said electrical connection means;
said slide element including an arm portion for supporting said slide contact and mount portions for mounting said arm portion on said operation shaft member;
said electrical connection means including a contact portion contacted with a part of said mount portions of said contact element at a position apart from said front surface of said circuit board;
a contact holding portion connected to said contact portion at one end thereof for holding said contact portion at a position apart from said front surface of said circuit board, and a positioning portion for positioning the other end of said contact holding portion with respect to said circuit board, at a position apart from a center of an arc of the variable resistance pattern and a region between the center and the variable resistance pattern;
said electrical connection means being arranged so as to render a maximum potential difference between said electrical connection means and said variable resistance pattern smaller than a discharge occurrence potential difference.

5,726,626

WATERPROOF ACOUSTIC ALARM SAFETY DEVICE EMBODIED IN A WRISTWATCH

Saji Jabbour, Rances, Switzerland; Jacques Müller, Reconvilier, Switzerland, and Laurent Pantet, Nods, Switzerland, assignors to SMH Management Services AG, Biel, Switzerland

Filed Apr. 30, 1996, Ser. No. 640,280
Claims priority, application Switzerland, May 3, 1995, 01 257/95
Int. Cl.[6] H04B 3/36
U.S. Cl. 340—407.1 11 Claims



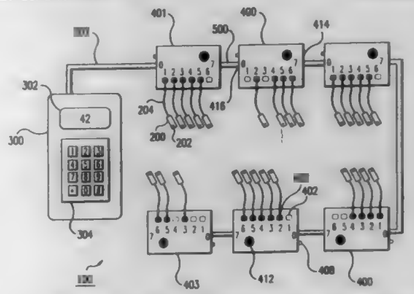
1. An acoustic alarm safety device comprising:
a substantially circular case wherein said case has a center,
a thin membrane,
a vibrating element associated to said membrane so as to make it vibrate,
electric means for providing a control signal to said vibrating element; and
means for actuating said electric means,
wherein said device further comprises
a substantially circular pierced backcover removably attached to an outer edge of said case and arranged so as to protect the case and so as to allow vibration of the vibrating element and membrane set, said backcover being rotatably attached to said case in a manually removable manner which does not require any tools, said case having, on an outer periphery thereof, two diametrically opposite, peripherally tapered grooves presenting a radius with respect to the center of the case, said back cover having, on an outer periphery thereof, two diametrically opposite bulges which extend radially inwardly with respect to the center of the case and which engage said grooves, respectively, to jam said backcover onto said case; and
a fitted ring to which said membrane is attached, said ring and said membrane being fixed to said case in such a manner that the ring-membrane set assures the waterproofness of said case.

5,726,627

SECURITY SYSTEM WITH INTERMITTENT ALARM LOCATION DETECTION

Roger A. Kane, 10335 Oxford Mill Cir., Alpharetta, Ga. 30202, and Glen D. Dell, Aurora, Colo., assignors to Roger A. Kane, Alpharetta, Ga.

Filed May 16, 1995, Ser. No. 441,925
Int. Cl.[6] G08B 1/00
U.S. Cl. 340—531 35 Claims



1. A method for operating a security system, wherein a plurality of sensors are mounted onto corresponding objects to be secured and connected to a control unit, the plurality of sensors generating alarm event, when at least one of the plurality of sensors is one of tampered and removed from the corresponding objects, the method comprising the steps of:
activating at least a main alarm when a portion of the plurality of sensors which are unmarked generate a set of alarm events, the portion of the plurality of sensors that activated the main alarm becoming marked sensors;
deactivating at least the main alarm, the main alarm being deactivated while the marked sensors continue to generate alarm events; and
reactivating at least the main alarm when another portion of the plurality of sensors which are unmarked generate another set of alarm events, the another portion of the plurality of sensors reactivating at least the main alarm becoming marked sensors.

5,726,628

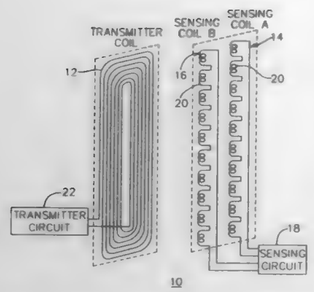
METAL DETECTOR SYSTEM

Steven Yoo, Lakewood, Calif., assignor to GD Electronics, Inc., Torrance, Calif.

Filed May 6, 1996, Ser. No. 643,326
Int. Cl.[6] G08B 13/24
U.S. Cl. 340—551 15 Claims

1. A metal detector system for detecting metal objects in a monitoring zone, the metal detector system comprising:
(a) a transmitter coil for generating a magnetic field in the zone to be monitored, the coil being disposed on a first side of the zone;
(b) a first sensing coil disposed on a second side of the zone opposed to the first side, the first sensing coil generating a first sensing signal in response to perturbations in the magnetic field caused by the presence of a metallic object in the zone;

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(c) a second sensing coil disposed on the second side of the zone, the second sensing coil being spaced apart from the first sensing coil, the second sensing coil generating a second sensing signal in response to perturbations in the magnetic field caused by the presence of a metallic object in the zone; and

(d) a sensing circuit for comparing the amplitudes of the first and second sensing signals to generate a difference signal and for generating a first trigger signal for a zero down-crossing of the difference signal and for generating a second trigger signal for a zero upcrossing of the difference signal, wherein the trigger signals indicate direction of travel of a metal object in the zone in relation to the first and second sensing coils.

5,726,629

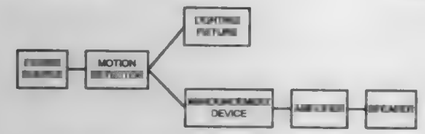
LIGHTING FIXTURE WITH MOTION DETECTOR AND ANNOUNCEMENT DEVICE

Raymond Y. Yu, 6600 Chatterton Road, Richmond, B.C., Canada, V7C 2Y7

Filed Feb. 7, 1997, Ser. No. 796,933

Int. Cl.[6] G08B *13/00*

U.S. Cl. 340—565 **8 Claims**



1. An apparatus comprising:

at least one lighting fixture includes an illumination device;

at least one motion detector to detect motion by a person or an object in an area monitored by said at least one motion detector;

an announcement device; and

means to turn on the said at least one lighting fixture and said announcement device to transmit a prerecorded announcement or message in response to motion detected by said at least one motion detector;

wherein said announcement device having means to record and playback said announcement or said message, and

said announcement can either be a prerecorded announcement by manufacturer, such as a warning to intruder, a welcome greeting to visitor or guest, or a short tune of music, or a personalized announcement recorded by a user.

5,726,630

DETECTION OF MULTIPLE ARTICLES

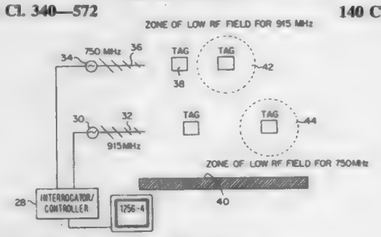
Michael John Camille Marsh; Andrzej Lenarcik, both of Johannesburg; Clinton Aiden Van Zyl, Pretoria; Andries Christoffel Van Schalkwyk, Pretoria, and Marthinus Jacobus Rudolph Oosthuizen, Pretoria, all of South Africa, assignors to British Technology Group Limited, London, England

Continuation of Ser. No. 154,329, Nov. 18, 1993, Pat. No. 5,519,381. This application Dec. 29, 1995, Ser. No. 580,913

Claims priority, application South Africa, Nov. 18, 1992, 92/8905

Int. Cl.[6] G08B *13/14*

U.S. Cl. 340—572 **140 Claims**



1. An identification system comprising:

an interrogator; and

a plurality of transponders;

the interrogator comprising:

transmitter means for transmitting an interrogation signal to a plurality of transponders,

receiver means for receiving a respective plurality of response signals from the plurality of transponders, and

means for identifying the plurality of transponders from the respective plurality of response signals,

the interrogator being capable of disabling any of the plurality of transponders;

each of the plurality of transponders comprising:

receiving means, and

transmitting means,

whereby, on receipt of the transmitted interrogation signal, the transponder transmits a response signal;

wherein the interrogator transmits at least two intermittent interrogation signals, with an interval between successive interrogation signals which is less than a minimum period within which transponders which have been disabled reset themselves automatically.

5,726,631

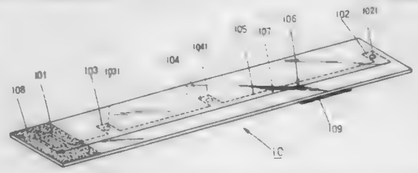
STRUCTURE KICK-ACTIVATED WEARABLE ALARM FOR INFANTS

Wen-Juei Lin, No. 347, Yuh-Her St., Shin-Diann City, Taipei, Taiwan

Filed Nov. 26, 1996, Ser. No. 753,489

Int. Cl.[6] G08B *23/00*

U.S. Cl. 340—573 **6 Claims**



1. A kick-activated wearable alarm for infants that is mainly comprised of:

a belt pack that can be worn lengthwise around an abdominal section of an infant, on one side of which and facing lengthwise in a direction of a seam is an oblong recess and on the other side positioned at suitable intervals apart are a total of three small pockets and, furthermore, in said pockets are respective through-holes, and in between said oblong recess and respective front edges of said three pockets, said seam has a sealed line installed with an invisible zipper, enabling a guide slot to be formed in between, and at a surface at an end of said oblong recess near a lower surface position of the other end and positioned in parallel are fastening strips;

three temperature sensors that are respectively positioned in suitable plastic film pieces, and said film pieces are directly contained in said pockets of the belt pack and, furthermore, allow said temperature sensors to be exposed at said through-holes of said pockets;

a main controller unit that consists of an elongated box that is internally comprised of a number of setting keys, an input circuit, a microprocessor (CPU), a wireless triggering circuit and a lithium battery, and a conductor that is connected to said three temperature sensors and, furthermore, is directly contained in said oblong recess of said belt-shaped pack; and,

a receiver that is independently located at a side of a person looking after the infant and which is internally equipped with an audio circuit and a receiver circuit, and is capable of receiving signals transmitted by said main controller unit and, furthermore, of emitting an audible alarm.

5,726,632

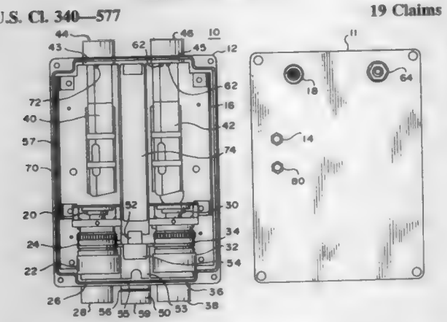
FLAME IMAGING SYSTEM

Heidi L. Barnes, Covington, La., and Harvey S. Smith, Bay St. Louis, Miss., assignors to The United States of America as represented by the Administrator of the National Aeronautics & Space Administration, Washington, D.C.

Filed Mar. 13, 1996, Ser. No. 622,178

Int. Cl.[6] G08B *17/12*

U.S. Cl. 340—577 **19 Claims**



1. An apparatus for imaging an invisible flame and hot embers with a background scene comprising:

a) a housing;

b) a first camera contained in said housing for generating a first signal of the flame, the hot embers and the background scene;

c) a first filter connected to the first camera having a bandwidth for imaging the invisible flames and hot embers, and the background scene;

d) a first means for imaging the first filtered signal from the first camera and converting the first signal into a visible image; and

e) a power supply connected to the camera and imaging means for supplying current thereto.

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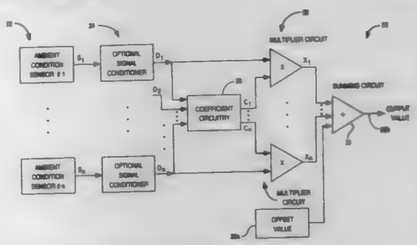
APPARATUS AND METHOD FOR DISCRIMINATION OF FIRE TYPES

James F. Wiemeyer, Homer Township, Ill., assignor to Pittway Corporation, Chicago, Ill.

Filed Sep. 29, 1995, Ser. No. 536,805

Int. Cl.[6] G08B *17/00;17/10*

U.S. Cl. 340—587 **29 Claims**



1. A variable sensitivity detector comprising:

at least first and second, different, ambient condition sensors for generating respective first and second outputs indicative of respective sensed ambient conditions;

coefficient circuitry, responsive to said outputs, for forming continuously variable first and second weighing coefficients for respective of said outputs;

circuitry for combining said weighing coefficients with respective of said outputs, thereby forming respective first and second weighted outputs; and

circuitry for summing said weighted outputs thereby forming a processed output value.

5,726,634

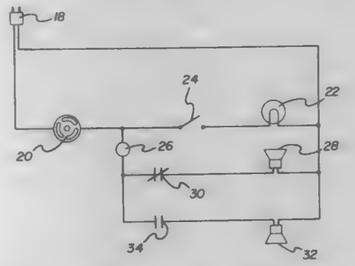
SMOKE ALARM WITH HIGH AND LOW PITCHED TONES

Oneida V. Hess, and James L. Hess, both of 5084 Chase Rd., Dearborn, Mich. 48126-3124

Filed Feb. 6, 1996, Ser. No. 597,211

Int. Cl.[6] G08B *17/10*

U.S. Cl. 340—628 **14 Claims**



1. A new and improved smoke alarm with high and low pitched tones, comprising, in combination:

an enclosure with a circular front face and a periphery formed therearound having a plurality of inhalation vents formed therein and an aperture formed on the front face, the enclosure adapted to be secured to a wall of a building;

a plug for connecting to a conventional alternating current receptacle;

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a conventional smoke detector connected to the plug with a first activated orientation for allowing the transfer of current upon the detection of smoke and a second deactivated orientation for precluding the transfer of current upon the lack of detection of smoke;

a strobe situated within the aperture of the enclosure and connected in series with the smoke detector and adapted to intermittently actuate upon the receipt of current;

a strobe switch connected in series with the smoke detector and the strobe for selectively disengaging the strobe;

a adjustable timer controlled relay coil connected in parallel with the strobe and strobe switch, the timer controlled relay coil adapted to intermittently shift between an excited state and a relaxed state at a predetermined rate upon the receipt of current;

a first adjustable high tone buzzer connected in series with the timer controlled relay coil, the high tone buzzer adapted to emit a plurality of high pitched tones upon receipt of current;

a high tone relay contact connected in series between the high tone buzzer and the relay coil, the high tone relay contact having a first closed orientation for allowing the transmission of current therethrough upon the relaxation of the relay coil and a second open orientation for preventing the transmission thereof upon the excitation of the relay coil;

a second adjustable low tone buzzer connected in parallel with the high tone buzzer and high tone relay contact, the adjustable low tone buzzer adapted to emit a plurality of low pitched tones upon the receipt of current; and

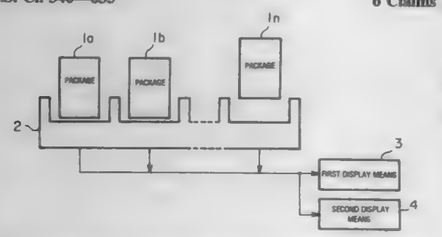
a low tone relay contact connected in series with the low tone buzzer and further connected in parallel with the high tone buzzer and high tone relay contact, the low tone relay contact having a first closed orientation for allowing the transmission of current therethrough upon the excitation of the relay coil and a second open orientation for preventing the transmission thereof upon the relaxation of the relay coil.

5,726,635

MOUNT-ASSISTING APPARATUS IN ELECTRONIC EQUIPMENT

Katsuyoshi Tsuhara, Hakata, and Toshie Ohmi, Kawasaki, both of Japan, assignors to Fujitsu Limited, Kawasaki, Japan

Filed Jun. 5, 1995, Ser. No. 463,051
Claims priority, application Japan, Sep. 6, 1994, 6-212283
Int. Cl.[6] G08B *21/00*
U.S. Cl. 340—635 **6 Claims**



1. An apparatus for assisting mounting of separately detachable packages to a shelf, comprising:

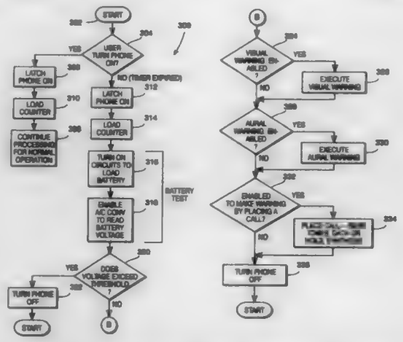
first display means for showing that at least one of a plurality of separately mountable packages which need each other to achieve a predetermined function is mounted to the shelf; and second display means for showing that all of said plurality of separately mountable packages are mounted to the shelf.

5,726,636

EMERGENCY TELEPHONE WITH AUTOMATIC LOW-BATTERY SIGNALING

John Joseph Hayes, Jr., Wake Forest, N.C., assignor to Ericsson Inc., Research Triangle Park, N.C.

Filed Dec. 5, 1996, Ser. No. 759,647
Int. Cl.[6] G08B *91/00*
U.S. Cl. 340—636 **13 Claims**



1. A wireless communication device operable in a plurality of states including a powered-off state and a battery test state, comprising:

a battery having a charge level for supplying electrical power to the device; a timer counter coupled to the battery and operable in the powered-off state for causing the device to enter the battery test state when a predetermined period of time has elapsed with the device in the powered-off state, and said counter controls a switch to apply power from the battery to a battery charge level monitoring circuit and to a processor during the battery test state;

the battery charge level monitoring circuit switchably coupled to the battery for generating a battery charge level signal proportional to the battery charge level during the battery test state;

the processor is switchably coupled to the battery charge level monitoring circuit for sensing the battery charge level signal during the battery test state, and generating an alarm signal if the battery charge level is below a predetermined level, and

wherein generation of the alarm signal includes powering a communication circuit in the device to establish an automatic wireless communication to a preselected telephone number to transmit a low battery charge warning.

5,726,637

ALARM AND SAFEGUARD SYSTEM

Keisuke Miyahara, Tokorozawa, and Yohichi Matsuda, Tokyo, both of Japan, assignors to Teac Corporation, Tokyo, Japan

Filed Jan. 16, 1996, Ser. No. 586,289
Claims priority, application Japan, Jan. 27, 1995, 7-11719; Nov. 24, 1995, 7-306290
Int. Cl.[6] G08B *17/06;21/00*
U.S. Cl. 340—690 **7 Claims**

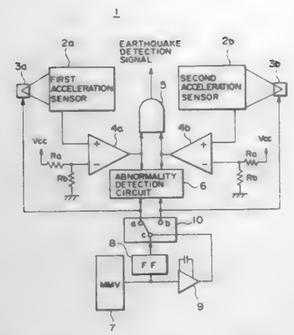
1. An emergency detection sensor system comprising:

at least a set of first and second detecting means which detects an emergency;

first and second pseudo-emergency generating means which generate a pseudo-emergency for said first and second detecting means;

driving means which alternately drives said first and second pseudo-emergency generating means;

abnormality detecting means which detects operation of said first and second detecting means detecting the pseudo-emergency from said first and second pseudo-emergency generating means, said abnormality detecting means performing a predetermined indication when thus-detected operation is abnormal; and



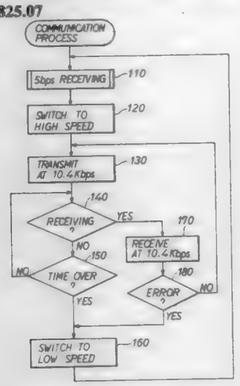
emergency detection outputting means which, in an emergency, outputs an emergency detection signal in response to reception of emergency detection signals from both said first and second detecting means.

5,726,638

METHOD AND DEVICE FOR SERIAL COMMUNICATION

Masayuki Kobayashi, Anjo, Japan, assignor to Nippondenso Co., Ltd., Kariya, Japan

Filed Nov. 6, 1995, Ser. No. 552,531
Claims priority, application Japan, Dec. 12, 1994, 6-307958
Int. Cl.[6] H04L *1/16;5/14;* **H04J** *3/06*
U.S. Cl. 340—825.07 **15 Claims**



1. A serial communication method for asynchronously communicating serial data transmitted at different speeds between a plurality of devices through a communication line, the method comprising steps of:

receiving at one device through the communication line a first data from another device by a first fixed sampling speed;

determining a communication error when a second data which is to be communicated by a second fixed sampling speed different from the first fixed sampling speed is received during the first data receiving step; and

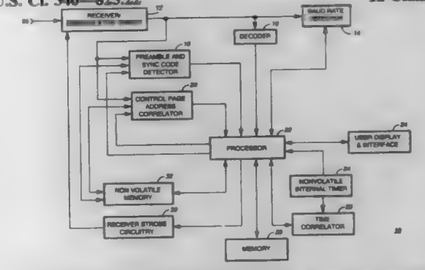
restarting the first data receiving step upon determination of the communication error thereby inhibiting switching of sampling speeds from the first fixed sampling speed to the second fixed sampling speed.

5,726,639

METHOD AND DEVICE FOR OFF HOUR OVER THE AIR SOFTWARE PROGRAMMING OF SELECTIVE CALL RECEIVERS

Osvaldo Romero, Miami, and Frank Fernandez, Boynton Beach, both of Fla., assignors to Motorola, Inc., Schaumburg, Ill.

Filed Aug. 30, 1995, Ser. No. 521,405
Int. Cl.[6] G08B *3/10;* **H04B** *7/00;* **H04L** *7/00*
U.S. Cl. 340—825.22 **12 Claims**



1. A method for performing over-the-air software programming of a selective call receiver which can be switched off at any time by a user, the over-the-air software programming being independent of and transparent to an action by the user, the selective call receiver comprising receiver circuitry for receiving and demodulating selective call signals, said method comprising the steps of:

(a) receiving a first selective call signal intended for the selective call receiver;

(b) detecting, within the first selective call signal, predetermined programming related information which includes an anticipated time of transmission of a second selective call signal;

(c) preparing the selective call receiver to receive the second selective call signal in response to the programming related information;

(d) receiving the second selective call signal in response to said step of preparing at the anticipated time of transmission of the second selective call signal; and

(e) switching the selective call receiver on at the anticipated time of transmission of the second selective call signal to receive the second selective call signal when the user has switched off the selective call receiver prior to the anticipated time.

5,726,640

SYSTEM AND METHOD FOR SCHEDULING THE TRANSMISSION OF PAGES HAVING DIFFERENT PROTOCOLS

Thomas Mark Jones, Keller, Tex., and W. Garland Phillips, Arlington, Tex., assignors to Motorola, Inc., Schaumburg, Ill.

Filed Oct. 4, 1995, Ser. No. 538,913
Int. Cl.[6] H04Q *1/00;7/00;7/18;* **G08B** *5/22*
U.S. Cl. 340—825.22 **18 Claims**

1. A method for scheduling a transmission of pages of a plurality of different types of paging protocols, said pages being transmitted in batches and each page including one or more code words, said method comprising:

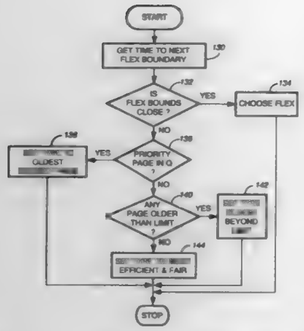
storing pages received for transmission in accordance with the protocol type of the page;

determining the efficiency of transmitting the stored pages for each protocol type based upon the number of code words of pages of the protocol type and any delay expected to be encountered in changing to the protocol type;

determining the fairness of transmitting the stored pages for each protocol type based upon the age of pages of the protocol type;

selecting the next protocol type of pages to be scheduled for transmission based upon the efficiency and fairness determined for each of said protocol types;

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scheduling up to a predetermined, limited number of batches of pages of said selected protocol type;

storing a maximum age limit;

determining, prior to the determination of efficiency and fairness, whether any of said stored pages has been stored for a length of time that exceeds said maximum age limit; and

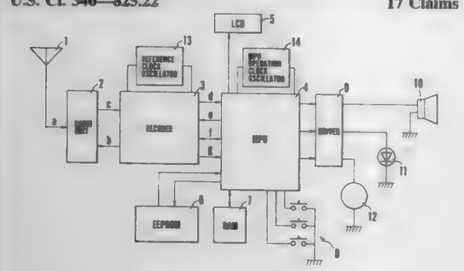
selecting as the next protocol type of pages to be scheduled for transmission, the type of protocol of a page stored for a length of time exceeding said maximum age limit if such a page is determined to be stored.

5,726,641

SELECTIVE CALLING RECEIVER

Motoki Ide, Tokyo, Japan, assignor to NEC Corporation, Japan

Continuation of Ser. No. 467,845, Jun. 6, 1995, abandoned.
This application May 2, 1997, Ser. No. 850,651
Claims priority, application Japan, Jun. 15, 1994, 6-133038
Int. Cl.[6] G06F *13/00;12/00;* **H04B** *7/00;* **G08B** *3/10*
U.S. Cl. 340—825.22 **17 Claims**



1. A selective calling receiver comprising:

a microprocessor for executing a prestored program;

a non-writable mask ROM containing the prestored program;

a patch register for storing a patch address;

a programmable patch memory for storing a patch program, the patch memory being directly addressable by the microprocessor; and

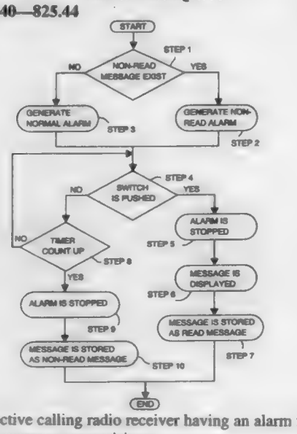
a patch controller for controlling the microprocessor such that when there is a coincidence between the patch address and an instruction fetch address output by the microprocessor, the patch program stored in the patch memory is executed by the microprocessor by directly addressing the patch memory.

5,726,642

SELECTIVE CALLING RADIO RECEIVER HAVING A NON-READ MESSAGE ALARM FUNCTION

Kazuhiro Kudoh; Makoto Shima, both of Tokyo, and Jun Uchida, Shizuoka, all of Japan, assignors to NEC Corporation, Japan

Filed Jul. 13, 1994, Ser. No. 274,227
Claims priority, application Japan, Jul. 14, 1993, 5-173527
Int. Cl.[6] H04Q *1/00*
U.S. Cl. 340—825.44 **16 Claims**



1. A selective calling radio receiver having an alarm function for a non-read message, comprising:

an antenna for receiving a radio signal and outputting a received signal;

a radio portion for demodulating said received signal and outputting a demodulated signal;

an identification memory for storing an identification number assigned to said selective calling radio receiver;

a decoder for decoding said demodulated signals to produce a decoded signal and for detecting a coincidence of a call signal contained in said demodulated signal and said identification number to produce an identification coincidence signal;

a message memory for storing messages contained in the decoded signal separately as non-read messages and read messages;

a control portion including non-read message detecting means and message producing means, said non-read message detecting means detecting said non-read message in response to said coincidence signal and generating a non-read alarm generating signal or a normal alarm generating signal, said message producing means producing a message contained in said demodulated signal;

display means for displaying the message under control of said message producing means; and

alarm means for producing a non-read alarm or a normal alarm under control of said non-read alarm generating signal or said normal alarm generating signal.

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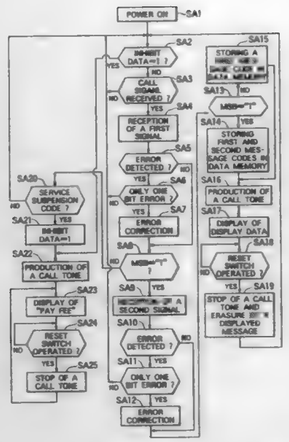
RADIO PAGING RECEIVER CAPABLE OF DISPLAYING A PREDETERMINED MESSAGE

Hiroaki Tani, Tokyo, Japan, assignor to NEC Corporation, Tokyo, Japan

Continuation of Ser. No. 866,468, Apr. 10, 1992, abandoned.
This application Jan. 3, 1995, Ser. No. 368,399
Claims priority, application Japan, Apr. 12, 1991, 3-106568
Int. Cl.[6] G08B *5/22*
U.S. Cl. 340—825.44 **3 Claims**

1. A radio paging receiver operated by supply of electric power, said radio paging receiver comprising:

a power switch for directing start and stop of supplying said electric power to said radio paging receiver,



a memory for memorizing a received message received by said radio paging receiver after said switch directs the start of supplying said electric power to said radio paging receiver,

setting means for setting an inhibit signal into said memory when said received message is representative of a suspension of receiving operation of said radio paging receiver,

judging means for judging whether said inhibit signal is set into said memory or not in response to the start of supplying said electric power to said radio paging receiver,

informing means for producing a call tone and for displaying a no payment message when said judging means judges that said inhibit signal is set into said memory, and

a reset switch for stopping only said call tone,

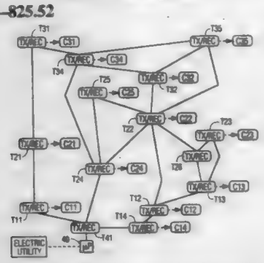
said informing means stopping displaying said no payment message only when said power switch directs the stop of supplying said electric power to said radio paging receiver.

5,726,644

LIGHTING CONTROL SYSTEM WITH PACKET HOPPING COMMUNICATION

Thomas E. Jednacz, Rancho Pallace Verdes, Calif.; Yongping Xia, Torrance, Calif., and Srinagesh Satyanarayana, Tarrytown, N.Y., assignors to Philips Electronics North America Corporation, New York, N.Y.

Filed Jun. 30, 1995, Ser. No. 498,715
Int. Cl.[6] H04Q *7/00*
U.S. Cl. 340—825.52 **24 Claims**



1. A method of controlling at least one parameter at a plurality of device control points within a building, comprising:

transmitting a first radio signal, having a first power level sufficient to be received reliably at at least one of the device control points, and insufficient to be received reliably at all device control points within the building, from a master control point, the first radio signal including a digital control signal relating to said parameter,

receiving the first radio signal at one of the device control points, and

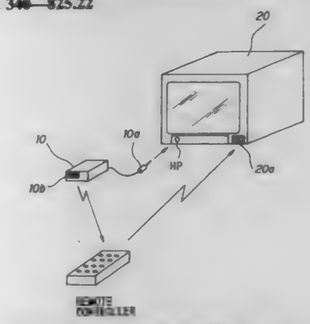
transmitting a second radio signal, having a second power level sufficient to be received reliably at at least another of the device control points, and insufficient to be received reliably at all device control points within the building, from said one of the device control points, the second radio signal including said digital control signal.

5,726,645

REMOTE CONTROLLER CAPABLE OF SELECTING AND SETTING PRESET DATA

Yoshiyuki Kamon, Kanagawa; Iwao Takiguchi, Chiba, and Toshiyuki Takahashi, Kanagawa, all of Japan, assignors to Sony Corporation, Japan

Continuation of Ser. No. 309,684, Sep. 21, 1994, abandoned.
This application Oct. 22, 1996, Ser. No. 735,419
Claims priority, application Japan, Sep. 28, 1993, 5-263099
Int. Cl.[6] H04B *1/20*
U.S. Cl. 340—825.22 **30 Claims**



10. A remote control system comprising:

an electronic apparatus controlled in accordance with command signals transmitted thereto;

an operation detecting portion for detecting a change in the operational state of said electronic apparatus;

a memory means in which a first group of command signals for instructing various operations associated with a plurality of manufacturers, a plurality of electronic apparatus and a plurality of format systems are stored in advance;

a plurality of control input means for inputting control; and

a remote controller including a control means for reading out a second group of command signals for instructing predetermined operations associated with a plurality of manufacturers, a plurality of electronic apparatuses and a plurality of format systems from the first group of command signals stored in said memory means in accordance with an operation on a predetermined control input means among the plurality of control input means, for performing control such that command signals for instructing a predetermined operation among the second group of command signals thus read out are sequentially transmitted at periodic intervals, for automatically identifying the manufacturer, electronic apparatus and format system based on a detection signal from said operation detecting portion, and for setting each of a plurality of command signals for instructing various operations associated with the identified manufacturer, electronic apparatus and format system in association with said plurality of control input means.

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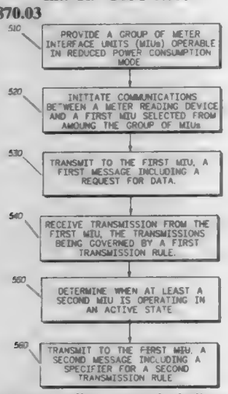
METHOD AND APPARATUS FOR ACTIVATING AND ACCESSING REMOTE METER INTERFACE DEVICES

Ronald L. Bane, Stone Mountain, Ga., and James M. Barlow, Lawrenceville, Ga., assignors to Motorola, Inc., Schaumburg, Ill.

Continuation-in-part of Ser. No. 223,417, Apr. 4, 1994, abandoned. This application Jan. 22, 1996, Ser. No. 589,718

Int. Cl.[6] G08C *17/00*

U.S. Cl. 340—870.03 **19 Claims**



1. In a remote meter reading system including a group of meter interface units wherein each meter interface unit is operable in either an active or an inactive state to reduce power consumption, wherein each meter interface unit is periodically activated to monitor a communication channel for channel activity, and is responsive to communication signals from a meter reading device, a method of activating and accessing a group of meters, comprising the steps of:

at the meter reading device:

initiating communication with a first meter interface unit selected from among the group of meter interface units;

transmitting on the communication channel a first message to the first meter interface unit;

receiving transmissions from the first meter interface unit, the transmissions being governed by a first transmission rule;

transmitting, to the first meter interface unit, a second message indicating a second transmission rule when at least a second meter interface unit is operating in an active state.

5,726,647

METHOD AND APPARATUS FOR AVOIDING A COLLISION OF A MOTOR VEHICLE

Andreas Waffler, Neubiberg, Germany; Walter Weishaupt, München, Germany; Winfried Siegl, Beilngries, Germany, and Kurt Schwaiger, Germering, Germany, assignors to Bayersche Motoren Werke Aktiengesellscaft, Germany

Filed Apr. 5, 1996, Ser. No. 628,249

Claims priority, application Germany, Apr. 5, 1995, 195 12 644.II

Int. Cl.[6] G08G *1/16*

U.S. Cl. 340—903 **4 Claims**

4.Apparatus for detecting an obstacle in a path of a motor vehicle comprising:

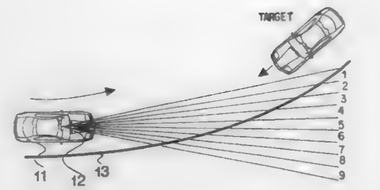
a transmitter for emitting a plurality of scanning beams in a fan shaped area toward a front of said vehicle;

a receiver for detecting radiation reflected from said scanning beams by an obstacle within said fan shaped area;

an analysis unit for analyzing an output from said receiver means;

means for detecting when said vehicle is turning along a curved path; and

means for controlling a repetition frequency for transmission of scanning beams emitted by said transmitter, including means



responsive to a detection that said vehicle is turning, for causing a repetition frequency for scanning beams directed toward an inside of said curved path to be higher than a repetition frequency for scanning beams directed toward an outside of said curved path.

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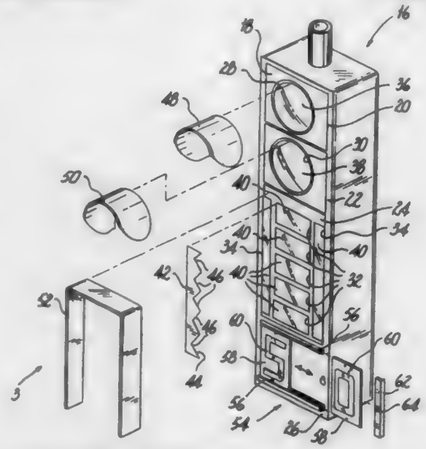
TIME INDICATING TRAFFIC LIGHT

Min Tet Soon, P.O. Box 10341,88803, Kota Kinabalu, Sabah, Malaysia

Filed Dec. 12, 1996, Ser. No. 766,186

Int. Cl.[6] G08G *1/096*

U.S. Cl. 340—929 **25 Claims**



1. A time indicating traffic light, comprising:

a) a vertically-oriented and rectangular-parallelepiped-shaped housing;

b) a circular-shaped "stop" indicator light disposed in said vertically-oriented and rectangular-parallelepiped-shaped housing;

c) a circular-shaped "caution" indicator light disposed in said vertically-oriented and rectangular-parallelepiped-shaped housing below said circular-shaped "stop" indicator light;

d) seven rectangular-shaped "go" indicator lights disposed in said vertically-oriented and rectangular-parallelepiped-shaped housing below said circular-shaped "caution" indicator light and having a time of illumination, a pair of parallel, elongated, spaced-apart, vertically-oriented, and rectangular-shaped "go" indicator lights, and five adjacent, slightly vertically spaced-apart, horizontally-oriented, and rectangular-shaped "go" lights disposed between said pair of parallel, elongated, spaced-apart, vertically-oriented, and rectangular-shaped "go" indicator lights of said seven rectangular-shaped "go" indicator lights; said five adjacent, slightly vertically spaced-apart, horizontally-oriented, and rectangular-shaped "go" lights of said seven rectangular-shaped "go" indicator lights extinguishing progressively upwardly towards said

circular-shaped "caution" indicator light at a predetermined rate determined by a timer while said pair of parallel, elongated, spaced-apart, vertically-oriented, and rectangular-shaped "go" indicator lights of said seven rectangular-shaped "go" indicator lights remaining illuminated when at least one light of said five adjacent, slightly vertically spaced-apart, horizontally-oriented, and rectangular-shaped "go" lights of said seven rectangular-shaped "go" indicator lights is illuminated; and

e) a time indicating display disposed on said vertically-oriented and rectangular-parallelepiped-shaped housing below said seven rectangular-shaped "go" indicator lights and providing a visible display of said time of illumination of said seven rectangular-shaped "go" indicator lights, so that an approaching vehicle can determine when said circular-shaped "caution" indicator light will be illuminated by dividing said time of illumination on said time indicating display by number of lights of said five adjacent, slightly vertically spaced-apart, horizontally-oriented, and rectangular-shaped "go" lights of said seven rectangular-shaped "go" indicator lights extinguished and thereby prevent sudden acceleration followed by a sudden stop while said pair of parallel, elongated, spaced-apart, vertically-oriented, and rectangular-shaped "go" indicator lights provide a means of determining when said circular-shaped "caution" indicator light will be illuminated when said time indicating display may not be easily seen such as when the approaching vehicle is at a far distance by providing a visual comparison of light emanating therefrom with light emanating from whatever lights of said five adjacent, slightly vertically spaced-apart, horizontally-oriented, and rectangular-shaped "go" lights of said seven rectangular-shaped "go" indicator lights are illuminated.

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CONTROL DEVICE SUITABLE FOR USE IN AN APPARATUS FOR REPRODUCING VIDEO, AUDIO AND ACCOMPANYING CHARACTERS

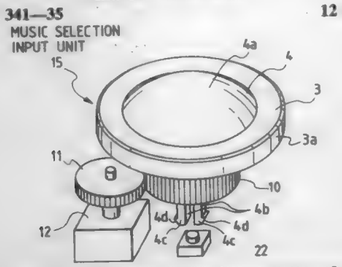
Takuya Tamaru, and Shigetomo Nakamura, both of Hamamatsu, Japan, assignors to Yamaha Corporation, Hamamatsu, Japan

Filed Aug. 29, 1995, Ser. No. 520,378

Claims priority, application Japan, Sep. 5, 1994, 6-211613

Int. Cl.[6] G11B *33/00*

U.S. Cl. 341—35 **12 Claims**



12. A control device suitable for use in an apparatus for reproducing pre-recorded performance and title information of a plurality of music pieces, the control device comprising:

a knob which is rotatable about an axis and slidably moveable in a direction of the axis of the knob;

a rotation encoder which is responsive to a rotation motion of the knob, wherein the rotation encoder produces a pulse signal corresponding to the rotation motion of the knob;

a transfer mechanism having a predetermined transfer ratio, wherein the transfer mechanism is coupled between the knob and the rotation encoder to transfer the rotation motion of the knob to the rotation encoder; and

a switch which is mounted substantially underneath the actuating member and is activated by depressing the knob in the direction of the axis of the knob.

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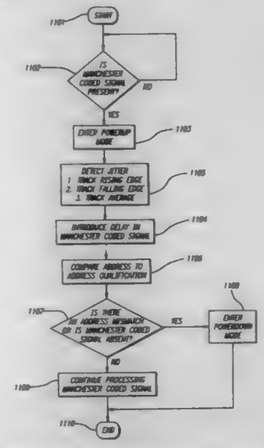
ADAPTIVE MANCHESTER DECODING WITH ADJUSTABLE DELAY AND POWER SAVING MODE

Charles W. K. Yeoh; Bambang Gunadi, and Hiok Nam Tay, all of Singapore, Singapore, assignors to Silicon Systems, Inc., Tustin, Calif.

Filed Jun. 7, 1995, Ser. No. 479,613

Int. Cl.[6] H03M *5/12*

U.S. Cl. 341—70 **20 Claims**



18. A method for decoding a Manchester coded signal comprising the steps of:

tracking jitter in said Manchester coded signal;

introducing a delay in said Manchester coded signal to synchronize said Manchester coded signal with a clock signal;

detecting a presence of said Manchester coded signal;

entering a powerup mode upon said presence;

detecting an absence of said Manchester coded signal;

entering a powerdown mode upon said absence.

5,726,651

DEVICE FOR SERIALIZING HIGH FLOW OF BINARY DATA

Didier Belot, Rives, France, assignor to SGS-Thomson Microelectronics S.A., Saint Genis, France

Filed Nov. 22, 1995, Ser. No. 561,517

Claims priority, application France, Nov. 30, 1994, 94 14605

Int. Cl.[6] H03M *9/00*

U.S. Cl. 341—101 **26 Claims**

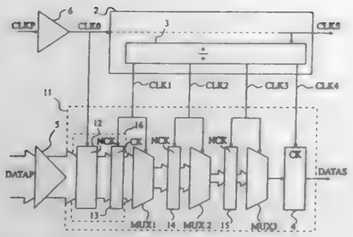
1. A serialization device for serializing binary data comprising:

a shift register which receives parallel data and outputs delayed parallel data;

a first multiplexer controlled by a first sampling signal provided by a divider of a phase-locked loop (PLL), the PLL outputting a transmission clock signal for serialized data in phase with a first clock signal for parallel data; and

means for receiving the delayed parallel data and outputting serialized binary data;

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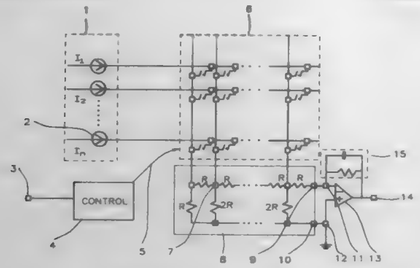
wherein a value of the delay conferred by the shift register is a function of a value of a phase-shift ϕ between the first clock signal and the first sampling signal.

5,726,652

DIGITAL TO ANALOG CONVERTER LINEARITY WITH MISMATCHED CURRENT SOURCES

Horia Giuroiu, Singapore, Singapore, assignor to Tritech Microelectronics, Inc.

Filed Jun. 17, 1996, Ser. No. 665,333
Int. Cl.[6] H03M *1/78*
U.S. Cl. 341—154 **11 Claims**



1. A digital to analog converter (DAC) comprising:

a) a digital controller and sequencer, a set of current generators, a set of switches, an R-2R ladder network and a low pass filter,

b) digital signal input connected to the digital controller and having a number "n" digital data bits representing the digital value of the amplitude of analog signal output,

c) said controller and sequencer connected to and controlling the switch state of said set of switches,

d) said set of switches connecting a number "n" current generators to a number "n" nodes of said R-2R ladder network in a fashion as to produce an analog output current proportional to the digital input signal,

e) the output of said R-2R ladder network being connected to an operational amplifier such that the input reference of the amplifier is the same as the reference leg of the R-2R ladder network.

f) said sequencer controlling the timed selection and activation of each switch.

g) said activation of each switch connecting the current of the current generators to the nodes of the R-2R ladder network.

h) said activation of each switch connecting the current of only one current generator to each node of the R-2R ladder network at a time.

i) each current source being connected in a sequential fashion to each of the nodes of the R-2R ladder network.

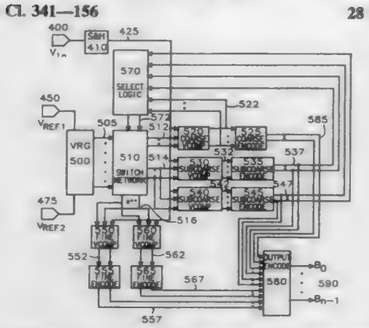
j) the sequential fashion of connecting currents to the R-2R ladder network repeated after the last current source connected to last node of said ladder network.

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TRI-STEP ANALOG-TO-DIGITAL CONVERTER

Po-Chin Hsu, Taipei, China, and Yung-Yu Lin, Tainan, Taiwan, assignors to Industrial Technology Research Institute, Hsin-chu, Taiwan

Filed Jan. 22, 1996, Ser. No. 589,277
Int. Cl.[6] H03M *1/12*
U.S. Cl. 341—156 **28 Claims**



1. A tri-step analog-to-digital converter for the conversion of an analog input voltage signal to an output digital code, comprising:

a) a sample and hold means to sample at periodic intervals the analog input voltage signal and hold the sampled analog input signal during the conversion;

b) a reference voltage generator coupled between a first reference voltage source and second reference voltage source to create a plurality of reference voltages from said first and second voltage sources;

c) a reference voltage selection switch network connected to the plurality of reference voltages;

d) a coarse resolution analog-to-digital converter coupled to the sampled analog input signal to convert said sampled analog input signal to a coarse digital code;

e) a sub-coarse resolution analog-to-digital converter coupled to the sampled analog input signal to convert said sampled analog input signal to a sub-coarse digital code;

f) a fine resolution analog-to-digital converter coupled to the sampled analog input signal to convert said sampled analog input signal to a fine digital code;

g) a reference voltage selection logic means coupled to the reference voltage selection switch network to select a coupling of the plurality of reference voltages to the sub-coarse and fine analog-to-digital converter's; and

h) an output encoding means to translate the coarse digital code, the sub-coarse digital code, and the fine digital code to an output digital code.

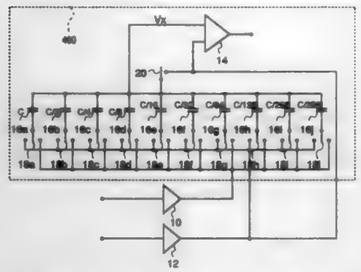
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ANALOG TO DIGITAL CONVERTER AND SIGNAL CONVERSION EQUIPMENT USING THE SAME

Hiroshi Hatae, Toda, Japan, and Hajime Akimoto, Ome, Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Filed Nov. 22, 1995, Ser. No. 562,186
Claims priority, application Japan, Nov. 25, 1994, 6-290937
Int. Cl.° H03M *1/38*
U.S. Cl. 341—161 **18 Claims**

1. An analog to digital converter having a first signal processing means for converting an input charge signal into a voltage and outputting an analog signal while providing gain to said input charge signal and an analog to digital conversion means for converting said analog signal into a digital signal using a second standard voltage signal, comprising a second signal processing means for converting a first standard charge signal as an input signal into a voltage while providing gain to said input signal and outputting said second standard signal as an output signal.



5,726,655

ANISOTROPIC MICROWAVE COMPOSITE

Olivier Acher, Antony; Jean-Luc Vermeulen, Rosny-Sous-Bois, and Jean-Marie Fontaine, Limours, all of France, assignors to Commissariat A L'Energe Atomique, Paris, France

Filed May 25, 1995, Ser. No. 492,207
Claims priority, application France, Nov. 25, 1992, 92 14182
Int. Cl.[6] H01Q *17/00*
U.S. Cl. 342—1 **14 Claims**

1. An anisotropic microwave composite comprising

a support, and

a stack of thin, continuous, ferromagnetic layers and thin, continuous, electrically insulating layers deposited on said support, said layers being substantially perpendicular to said support, said ferromagnetic layers having a magnetic permeability with a low real part and with a high imaginary part in a frequency range between about 100 Mhz and several dozen Ghz.

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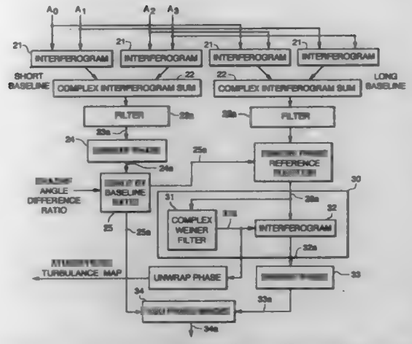
ATMOSPHERIC CORRECTION METHOD FOR INTERFEROMETRIC SYNTHETIC ARRAY RADAR SYSTEMS OPERATING AT LONG RANGE

Robert T. Frankot, Tucson, Ariz., assignor to Hughes Electronics, Los Angeles, Calif.

Filed Dec. 19, 1996, Ser. No. 769,568
Int. Cl.° G01S *13/90*
U.S. Cl. 342—25 **5 Claims**

1. A method for use with an interferometric synthetic aperture radar system having two antennas separated by a predetermined separation distance which generates data comprising complex image pairs representative of an image scene, and wherein the method computes and corrects phase errors due to atmospheric turbulence, said method comprising the steps of:

generating a first pair of images having a short baseline using the synthetic aperture radar system;



generating a second pair of images having a long baseline using the synthetic aperture radar system;

combining the respective first and second pairs of images to produce first and second summed complex interferograms;

processing the first complex interferogram sum to unwrap its phase, wherein the phase of each complex pixel is computed and the absolute phase is reconstructed, up to a single additive constant and to produce an unwrapped phase image;

processing the real-valued unwrapped phase image and a scalar value given by the ratio of the grazing angle differences between the long baseline images and that of the short baseline images to scale the unwrapped phase image by the baseline ratio;

processing the scaled reference phase image and the second complex interferogram sum to remove the phase reference from the second complex interferogram sum to produce a complex image whose phase is that of the second complex interferogram sum minus the reference phase image;

processing the complex image using a complex Wiener filter to produce a low-pass filtered complex interferogram;

processing the complex image and the low-pass filtered complex interferogram to remove the phase of the Wiener-filtered interferogram from the complex image and provide an atmospherically corrected complex image whose phase is the phase of the complex image minus the phase of the low-pass filtered complex image, which complex image;

processing the atmospherically corrected complex image to produce a real-valued atmospherically corrected image having unwrapped phase; and

adding the real-valued atmospherically corrected image and the real-valued reference phase image provided by the baseline ratio scaling function to produce an image that is proportional to terrain elevation.

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PHASE COHERENT RADAR SYSTEM USING FAST FREQUENCY AGILE WAVEFORM SYNTHESIS

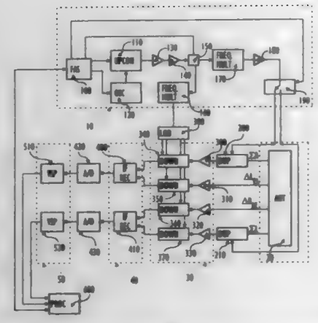
Albert N. Pergande, Orlando, Fla.; Daniel J. O'Donnell, Orlando, Fla., and Albert S. Sabin, Orlando, Fla., assignors to Lockheed Martin Corporation, Bethesda, Md.

Filed Mar. 22, 1996, Ser. No. 620,363
Int. Cl.° G01S *7/292;13/72*
U.S. Cl. 342—202 **27 Claims**

1. Apparatus comprising:

a waveform generator for generating an interleaved waveform and a second output coherent with said waveform, said waveform generator including a frequency agile synthesizer capable of changing its output frequency to produce said interleaved waveform using multiple frequencies, a frequency and phase of said waveform, and said second output, being based on said output of said frequency synthesizer;

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an antenna coupled to said waveform generator for transmitting said waveform, for receiving a return signal, and for generating at least one antenna output signal on the basis of said return signal;

a receiver coupled to said antenna and to said waveform generator to detect said return signal as a frequency interleaved signal, an interleaving of said frequency interleaved signal being selected to define an unambiguous range of said antenna, said receiver receiving said antenna output signal and said second output and converting said return signal on the basis of said second output signal to produce a converted signal; and

a processor for processing said converted signal to derive target data.

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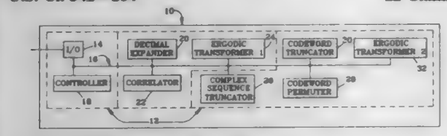
CDMA CODE GENERATOR EMPLOYING MIXING ERGODIC TRANSFORMATION

Louis Auslander, Pelham Manor; Paolo Barbano, New York, both of N.Y.; Urban Von der Embes, Westchester, Calif.; Xiang-Gen Xia, Westlake Village, Calif., and Roy M. Matic, Newberry Park, Calif., assignors to HE Holdings, Inc., Los Angeles, Calif.

Filed Jun. 3, 1996, Ser. No. 657,250

Int. Cl.[6] G01S *7/292*

U.S. Cl. 342—204 **22 Claims**



15. A RADAR system, comprising:

a pulse generator connected to produce RADAR pulses,

a code generator, comprising:

a first mixing ergodic transformer connected to receive a decimal expansion of an irrational number and to transform said decimal expansion, thereby creating a first complex number sequence,

a truncator connected to truncate said complex number sequence to a predetermined length thereby forming a first codeword, and

a permuter connected to permute said truncated complex number sequence and to return permuted complex number sequences to said truncator, where said permuted sequences are truncated to produce a family of codewords,

a multiplier connected to multiply said pulses by codewords produced by said code generator, and

a transmitter connected to transmit the resultant of said multiplication.

5,726,659

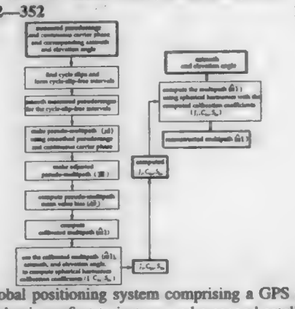
MULTIPATH CALIBRATION IN GPS PSEUDORANGE MEASUREMENTS

Changdon Kee, Mountain View, Calif., and Bradford W. Parkinson, Los Altos, Calif., assignors to Stanford University, Stanford, Calif.

Filed Sep. 21, 1995, Ser. No. 532,387

Int. Cl.[6] H04B *7/185*; **G01S** *5/02;3/16*

U.S. Cl. 342—352 **13 Claims**



1. In a global positioning system comprising a GPS receiver, a first satellite having a first trajectory, and a second satellite having a second trajectory that intersects the first trajectory in an azimuth vs. elevation plot at a cross-over point, a method for multipath calibration of pseudorange measurements comprising the steps of:

receiving a first signal at the receiver from the first satellite, where a portion of the first signal is received when the first satellite is at the cross-over point;

receiving a second signal at the receiver from the second satellite, where a portion of the second signal is received when the second satellite is at the cross-over point; and

determining a first calibrated pseudorange multipath signal and a second calibrated pseudorange multipath signal by correlating the portion of the first signal with the portion of the second signal, whereby the relative mean multipath bias between the first signal and the second signal is eliminated.

5,726,660

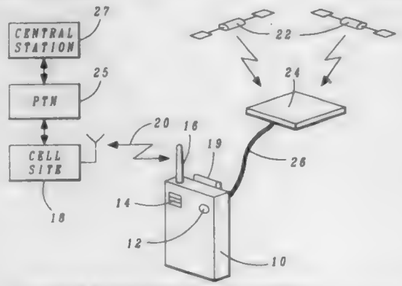
PERSONAL DATA COLLECTION AND REPORTING SYSTEM

Peter K. Purdy, 411 Sunset Blvd., Port Townsend, Wash. 98368; Eugene F. Fowler, Jr., 721 Northill Dr., Richardson, Tex. 75080, and Michael J. Cochran, 2505 Evans Dr., Plano, Tex. 75075

Filed Dec. 1, 1995, Ser. No. 566,299

Int. Cl.[6] G01S *5/02*

U.S. Cl. 342—357 **17 Claims**



1. A personal data collection unit, comprising:

a video camera for collecting pictures of a local scene proximate to said personal data collection unit, said video camera providing video data in a conventional format to a converter device, said converter device operable to process said video data as analog video data which can be transmitted over a telephone communication link;

a satellite positioning system receiver actuated by the user which receives first signals from a satellite system and processes said first signals into a form which can be transmitted over said telephone communication link;

a cellular telephone module for sending and receiving second signals over said telephone communication link, said cellular telephone module operable to receive said processed satellite signals and said video data and transmit them over said telephone communication link;

a processor for managing the operation of said cellular telephone module and said satellite positioning system receiver;

a memory for storing said video data derived from said video camera and said satellite system;

a housing for containing said video camera, said satellite positioning system receiver, said cellular telephone module, said processor and said memory, said housing being selectably attachable to a user with said video camera positioned to said viewing area;

a patch antenna for receiving said first signals from said satellite system;

a communication cable connecting between said patch antenna and said satellite positioning system receiver for carrying said first signals from said patch antenna to said satellite positioning system receiver; and

wherein said patch antenna is attachable to the user and positioned in such a manner that said patch antenna is upwardly oriented toward said satellite system to maximize reception therefrom, with said communication cable being flexible and of such a length to allow independent positioning of said housing for optimal viewing of said viewing area and said patch antenna for maximum reception of said first signals from said satellite system.

5,726,661

METHOD AND APPARATUS FOR INITIAL POINTING OF AN ANTENNA

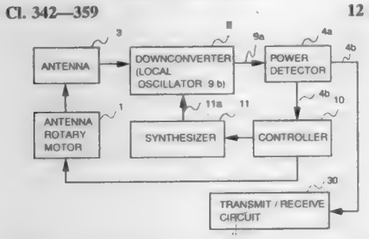
Tsuyoshi Fuji, Tokyo, Japan, assignor to Mitsubishi Denki Kabushiki Kaisha, Tokyo, Japan

Filed Aug. 13, 1996, Ser. No. 695,958

Claims priority, application Japan, Nov. 30, 1995, 7-312500

Int. Cl.[6] H01Q *3/00*

U.S. Cl. 342—359 **12 Claims**



12. An antenna initial pointing method having a power detector for detecting an optimal reception level of power in a predetermined bandwidth of an intermediate frequency (IF) signal downconverted from a receive signal at an antenna based on a local signal, and a controller for controlling antenna pointing to a plurality of predetermined angles and for controlling the frequency of the local signal in case of a failure to detect the optimal reception level, the method comprising the steps of:

detecting power of the intermediate frequency signal by changing the frequency of said local signal at each of said plurality of predetermined angle, until the power detector detects the optimal reception level of power.

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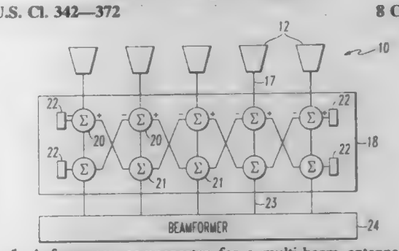
FREQUENCY COMPENSATED MULTI-BEAM ANTENNA AND METHOD THEREFOR

Francis W. Hopwood, Severna Park, Md., assignor to Northrop Grumman Corporation, Los Angeles, Calif.

Filed Nov. 29, 1995, Ser. No. 565,610

Int. Cl.[6] H01Q *3/22;3/24;3/26*

U.S. Cl. 342—372 **8 Claims**



1. A frequency compensator for a multi-beam antenna array arranged in sub-arrays and operational at multiple frequencies comprising:

a plurality of multi-frequency sub-arrays, each sub-array including a plurality of antenna elements;

input/output means for coupling signals to and from said sub-arrays;

an interpolator connected to said input/output means which positions the sub-array spacing of each said sub-array at a desired apparent location for a particular operating frequency during a receive mode; and

a phase weight adjuster coupled to said input/output means for moving apparent phase centers of a beamset for a particular operating frequency during a transmit mode, whereby beam spacing of all beamsets remain virtually constant for a plurality of operational frequencies during said transmit and receive modes.

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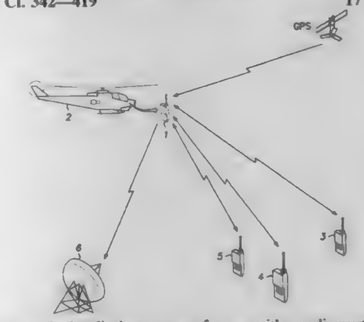
SURVIVAL RADIO INTERROGATOR

Christopher Kent Moyer, and David Moon Yee, both of Scottsdale, Ariz., assignors to Motorola, Inc., Schaumburg, Ill.

Filed Oct. 22, 1996, Ser. No. 734,989

Int. Cl.[6] G01S *5/02*

U.S. Cl. 342—419 **17 Claims**



1. A survival radio interrogator for use with a radio system of a search aircraft to locate a survival radio, said survival radio interrogator comprising:

a processor;

said processor generating a first message for transmission to said survival radio, a first message including an identification number of said survival radio and a request for position information of said survival radio;

said survival radio interrogator for finding a particular survival radio with said first message;

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a modem coupled to said processor, said modem for transmitting and receiving messages;

said modem further coupled to said radio system, said modem transmitting said messages through said radio system to said particular survival radio and said modem receiving a second messages through said radio system from said particular survival radio; and

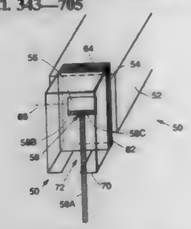
said processor for analyzing said second message received from said particular survival radio to determine an identification number of said particular survival radio, a global positioning system position of said particular survival radio relative to said search aircraft and status information of said particular survival radio.

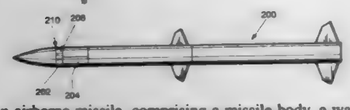
5,726,664

END LAUNCHED MICROSTRIP OR STRIPLINE TO WAVEGUIDE TRANSITION WITH CAVITY BACKED SLOT FED BY T-SHAPED MICROSTRIP LINE OR STRIPLINE USABLE IN A MISSILE

Pyong K. Park, Agoura Hills, Calif., and Eric L. Holzman, Medford, N.J., assignors to Hughes Electronics, Los Angeles, Calif.

Filed May 23, 1994, Ser. No. 247,732
Int. Cl.[6] H01Q *1/28*; H01P *5/107*
U.S. Cl. 343—705 14 Claims





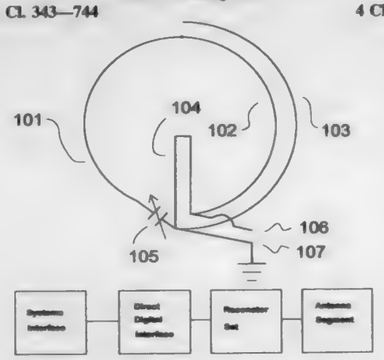
9. An airborne missile, comprising a missile body, a waveguide disposed in said body and having a first end and characterized by a waveguide characteristic impedance, an RF processor section disposed within said body, said processor section including a microstrip circuit, a port for coupling to said waveguide, and a microstrip transmission line to waveguide transition disposed at said port, said transition comprising terminating means for terminating said first end of said waveguide, said terminating means comprising a dielectric substrate having opposed first and second surfaces, wherein a layer of conductive material defines a groundplane on said first opposed surface thereof facing an interior region of said waveguide, said conductive layer having an open slot defined therein, and a microstrip conductor defined on said second opposed surface and transverse to a longitudinal extent of said slot, said longitudinal extent of said slot smaller than a corresponding longitudinal extent of said waveguide end, said conductor terminating in a T-shaped microstrip junction comprising first and second opposed arms, said arms extending from an end of said microstrip conductor and along said slot, said arms having an effective microstrip electrical length substantially one-quarter wavelength at a frequency of operation of said transition, said arms and microstrip conductor electrically insulated from said conductive layer on said first opposed surface, said microstrip conductor, dielectric substrate and said conductive layer define a microstrip transmission line characterized by a microstrip characteristic impedance, and wherein said length of said arms, placement of said slot and placement of said microstrip conductor are such that said transition is matched to said waveguide characteristic impedance and said microstrip line characteristic impedance, and means for defining a conductive cavity adjacent said second surface of said substrate and backing said slot to cover said second second surface and to prevent coupling to unwanted parallel-plate and dielectric surface wave modes, said defining means including an end conductive surface and cavity side enclosure surface means for defining conductive sidewalls enclosing sides of said cavity, said conductive cavity enclosing said microstrip conductor at a region adjacent said second surface, and wherein dimensions of said cavity are such that no cavity modes resonate in a frequency band of operation of said transition.

5,726,665

HIGH EFFICIENCY ANTENNA USING PARALLEL CONDUCTORS, SINGLE CONDUCTOR AND SUPPORTING MATERIALS

J. P. Wine, 98-281 Ualo St. #T1, Aiea, Hi. 96701

Filed Jan. 17, 1995, Ser. No. 372,944
Int. Cl.[6] H01Q *11/12*
U.S. Cl. 343—744 4 Claims



1. An antenna comprising:

a signal port having a first terminal and a second terminal;

a conductive loop element having a first end and a second end, the first end electrically connected to the first terminal and the second end electrically connected to the second terminal through a resonance producing circuit;

a conductive portion being substantially parallel to the conductive loop element and having a first end connected to the second terminal and a second end not directly connected to the conductive loop element, and

a shorted stub electrically connected between the first and second terminals.

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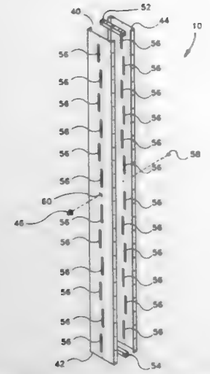
OMNIDIRECTIONAL ANTENNA WITH SINGLE FEEDPOINT

John C. Hoover, Roswell, Ga., and David J. Kiesling, Atlanta, Ga., assignors to EMS Technologies, Inc., Norcross, Ga.

Filed Apr. 2, 1996, Ser. No. 626,475
Int. Cl.[6] H01Q *13/10*
U.S. Cl. 343—770 21 Claims

1. An antenna, comprising:

an antenna assembly having a waveguide cavity formed by a plurality of intersecting wall segments, including a rear wall, a front wall, a pair of spaced-apart side walls, the rear wall and the front wall positioned in spaced-apart parallel planes and connected by the side walls, and end caps connected to each end of the waveguide cavity, at least one of the front and rear walls having a planar array of slots; and



a probe, mounted to the approximate midpoint of the antenna assembly, for distributing radio frequency (RF) energy, the probe comprising:

a post, inserted perpendicular to the rear wall and to the front wall, connected to at least one of the rear wall and the front wall, including (1) a post cavity located within and extending along at least a portion of the post, and (2) a post slot having an opening located along the post and traversing the post cavity, and

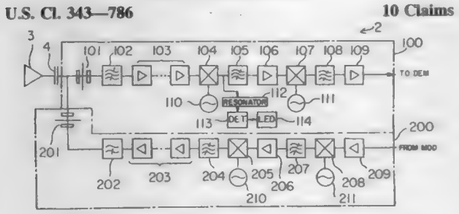
a probe pin, inserted within an end of the post cavity and connected to an opposite end of the post cavity, for coupling RF energy to the waveguide cavity via the post slot.

5,726,667

PORTABLE COMMUNICATION SYSTEM

Masahiro Tamura, Kawasaki, Japan, assignor to Fujitsu Limited, Kawasaki, Japan

Division of Ser. No. 278,818, Jul. 22, 1994, Pat. No. 5,563,618. This application Jul. 2, 1996, Ser. No. 677,456
Claims priority, application Japan, Jan. 31, 1994, 6-009293
Int. Cl.[6] H01Q *13/00*
U.S. Cl. 343—786 10 Claims



1. A portable communication device having a horn antenna and a transmitter-receiver which contains a signal transmitting circuit and a signal receiving circuit including a local oscillator, comprising:

a connecting portion provided between said horn antenna and said transmitter-receiver; and

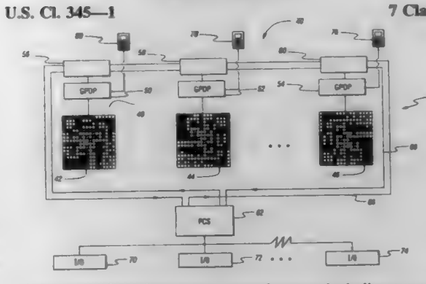
leak reflection signal detecting means provided in the signal receiving circuit, for detecting a leak reflection signal generated by a process in which a leak signal is generated from the local oscillator of said signal receiving circuit and transmitted toward said horn antenna, and then is reflected by said connecting portion when said horn antenna is not connected.

5,726,668

PROGRAMMABLE GRAPHICS PANEL

John L. Clement, Midland, Mich., assignor to The Dow Chemical Company, Midland, Mich.

Continuation of Ser. No. 985,796, Nov. 30, 1992, abandoned. This application Oct. 25, 1994, Ser. No. 328,600
Int. Cl.[6] G09G *5/00*
U.S. Cl. 345—1 7 Claims



1. In a manufacturing process control system including a process control computer, a programmable graphics display system for displaying information corresponding to selected process variables from the process control computer, the graphics display system comprising:

a plurality of graphics display panels, each panel including,

an array of lights,

a graphic panel data processor comprising at least two independent processors, each processor including,

a microprocessor,

first logic executable by the microprocessor for establishing a correspondence between selected process variables and at least one of the lights in the array,

second logic executable by the microprocessor for determining, for each light in the array, the current state of a corresponding process variable,

third logic executable by the microprocessor for generating a signal for transmission to the light to activate or deactivate the light as a function of the current state of the corresponding process variable,

interprocessor communication means interconnecting the independent processors, fourth logic executable by each microprocessor for determining which one of the processors is transmitting the signals to the panel to activate or deactivate each light as a function of the current state of the corresponding process variables, and fifth logic executable by each microprocessor for communicating on the interprocessor communication means a control signal between the microprocessors indicating which processor is currently transmitting the signals to the light panel;

storage memory operably connected to each of the independent processors; and

communication means interconnecting each of the graphic display panels and the process control computer, the communication means comprising,

a first communication ring establishing a primary communication path interconnecting one of the independent processors on each of the display panels with the process control computer, means for transmitting selected process control variable data from the process control computer in a first direction,

a second communication ring establishing a primary communication path interconnecting another one of the independent processors on each of the display panels with the process control computer, for transmitting selected process control variable data from the process control computer in a first direction independently of the first communication ring.

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MULTI-WINDOW COMMUNICATION SYSTEM

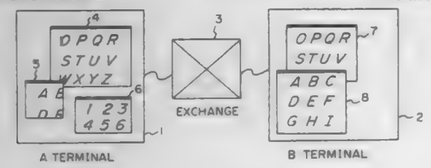
Akihiko Obata, Mitaka; Hajime Kamata, Kawasaki; Katsutoshi Yano, Tokyo, and Motomitsu Adachi, Chigasaki, all of Japan, assignors to Fujitsu Limited, Kawasaki, Japan

Continuation of Ser. No. 292,751, Aug. 18, 1994, abandoned, which is a continuation of Ser. No. 947,952, Sep. 21, 1992, abandoned, which is a continuation of Ser. No. 465,217, Feb. 14, 1990, abandoned. This application May 1, 1996, Ser. No. 640,678

Claims priority, application Japan, Jun. 20, 1988, 63-149975; Sep. 20, 1988, 63-233502

Int. Cl.[6] G09G *5/00*

U.S. Cl. 345—2 77 Claims



1. A multi-window communication terminal for performing communication with a remote terminal to indicate at least a part of same documents on both said multi-window communication and remote terminals, said multi-window communication and remote terminals having multi-window functions, said multi-window communication terminal comprising:

inputting means for inputting commands for a window frame change, screen scrolling and start and completion of telewriting;

command analysis means for analyzing and executing first command input data inputted by a first user at said multi-window communication terminal by said inputting means and second command input data transmitted from the remote terminal to said multi-window communication terminal upon input by a second user;

display means for displaying data under control of said command analysis means;

communication control means for transmitting and receiving signals to and from the remote terminal under control of said command analysis means; and

window control means for maintaining window management data and connection and disconnection controls for simultaneously displayed windows of said multi-window communication and remote terminals displaying the same documents on said multi-window communication and remote terminals, for changing a window frame of the window displayed on said multi-window communication terminal to establish a frame size independently from a frame size of the window displayed on said remote terminal and for controlling scrolling of each window such that each of said multi-window communication and remote terminals displays the same portion of the same documents at the top-left of each of the simultaneously displayed windows, under control of the first and second command input data inputted by the first and second users, by determining whether scrolling can be performed at said multi-window communication terminal, inquiring of the remote terminal whether scrolling can be performed at the remote terminal when a determination is made that scrolling can be performed at said multi-window communication terminal and performing scrolling of the simultaneously displayed windows of said multi-window communication and remote terminals when an answer is received that scrolling can be performed at the remote terminal.

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DISPLAY APPARATUS TO BE MOUNTED ON THE HEAD OR FACE OF AN INDIVIDUAL

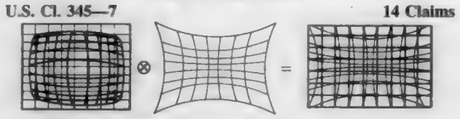
Seiichiro Tabata, Tokyo, Japan; Takayoshi Togino, Tokyo, Japan, and Yoichi Iba, Tokyo, Japan, assignors to Olympus Optical Co., Ltd., Tokyo, Japan

Continuation of Ser. No. 93,678, Jul. 20, 1993, abandoned. This application Oct. 5, 1995, Ser. No. 539,629

Claims priority, application Japan, Jul. 20, 1992, 4-191860

Int. Cl.[6] G09G *5/00*

U.S. Cl. 345—7 14 Claims



1. A display apparatus comprising:

image producing means for providing an image by at least one of generating and receiving said image;

electrical image processing means for electrically effectuating a first distortion of said image provided by said image producing means;

an image display element for forming on a screen said image with said first distortion effectuated by said electrical image processing means;

an ocular optical system including an optical element for effectuating a second distortion of said image to correct said electrically effectuated first distortion of said image, said ocular optical system having an optical path leading said image to said observer's eyeball; and

a support member for fitting at least said image display element and said ocular optical system to at least one of a head and a face of said observer,

wherein said first distortion is barrel distortion; and

said second distortion is pincushion distortion.

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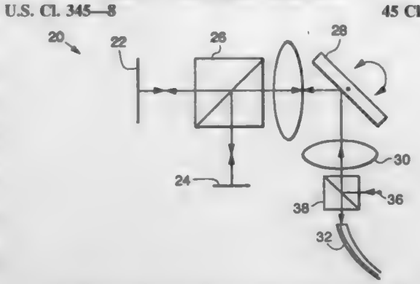
HELMET/HEAD MOUNTED PROJECTOR SYSTEM

David A. Ansley, Sterling, Va., and Chungte Bill Chen, Irvine, Calif., assignors to Hughes Electronics, Los Angeles, Calif.

Filed Oct. 7, 1996, Ser. No. 729,738

Int. Cl.[6] G09G *5/00*; G02B *6/06*

U.S. Cl. 345—8 45 Claims



1. A helmet/head mounted projector system, comprising:

a set of off-helmet mounted elements, including a background image generator, an area-of-interest (AOI) image generator, apparatus for combining the background image and the AOI image to form a combined image, said apparatus for combining said background image and said AOI image comprising a beam combiner, and apparatus for scanning the combined image into an input end of a fiber optic ribbon apparatus;

a set of on-helmet/head mounted elements, said set including a rotating polygon scanner and an optical apparatus for redirecting image light from an output end of said fiber optic ribbon apparatus onto said polygon scanner; and

a screen, said polygon scanner for redirecting said image light onto said screen for viewing by an observer.

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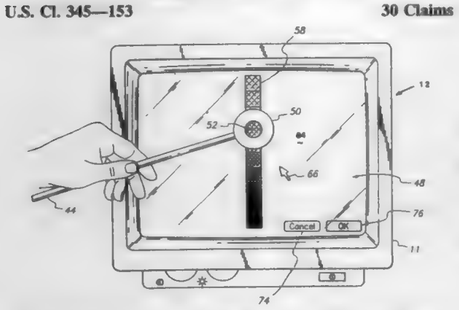
SYSTEM TO DETERMINE THE COLOR OF AMBIENT LIGHT FOR ADJUSTING THE ILLUMINATION CHARACTERISTICS OF A DISPLAY

Mathew W. Hernandez, Half Moon Bay, and Richard D. Cappels, San Jose, both of Calif., assignors to Apple Computer, Inc., Cupertino, Calif.

Continuation-in-part of Ser. No. 309,165, Sep. 20, 1994. This application Jul. 20, 1995, Ser. No. 504,450

Int. Cl.[6] G09G *1/28*

U.S. Cl. 345—153 30 Claims



1. A reflection device for adjusting display device output illumination characteristics relative to the color of ambient light, comprising: a target surface having achromatic and flat reflectivity to ambient light, and defining an aperture through which light output from the display device can be seen by a user and visually compared to the color of ambient light reflected from the target surface.

5,726,673

LIQUID CRYSTAL DISPLAY FOR LASER MARKER

Yukihiro Tsuda, Kanagawa, Japan; Yoshinori Saito, Kanagawa, Japan, and Akira Mori, Kanagawa, Japan, assignors to Kabushiki Kaisha Komatsu Seisakusho, Tokyo, Japan

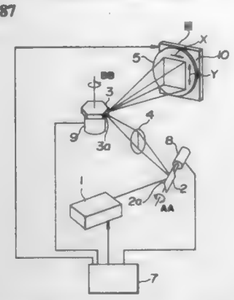
PCT No. PCT/JP93/01637, § 371 Date May 9, 1995, § 102(e) Date May 9, 1995, PCT Pub. No. WO94/11147, PCT Pub. Date May 26, 1994

PCT Filed Nov. 10, 1993, Ser. No. 432,186

Claims priority, application Japan, Nov. 11, 1992, 4-326073; Nov. 26, 1992, 4-317343

Int. Cl.[6] G09G *3/36*

U.S. Cl. 345—87 3 Claims



1. A liquid crystal display device for a laser marker in which, when changing display of a liquid crystal display screen provided with row and column electrodes for each of pixels, shifting is effected to a display period in which a predetermined effective voltage potential value is applied respectively to the row electrodes and the column electrodes after passage of a non-display period in which voltage potentials of the row and column electrodes are made identical, wherein the liquid crystal display device comprises:

a controller which outputs a voltage potential command value to the liquid crystal in such a manner that, an effective voltage potential value greater than the predetermined effective voltage potential value is applied to the row and column electrodes for a predetermined time of an initial stage of the display period in which a transparent rate of display pixels reaches a predetermined voltage potential value and a transparent rate of non-display pixels does not reach the predetermined voltage potential value, and the predetermined effective voltage potential value is applied to the row and column electrodes from a time point when the predetermined time elapsed until a time point when the display period ends.

5,726,674

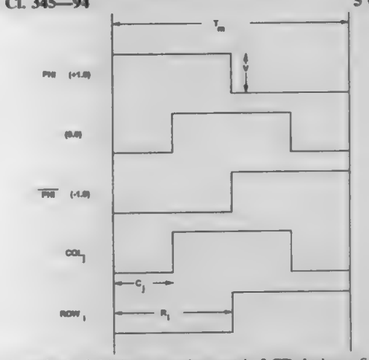
PHASE MODULATION TECHNIQUE FOR DRIVING RMS RESPONDING LIQUID CRYSTAL DISPLAYS

David A. Greve, Cedar Rapids, Iowa, assignor to Rockwell International Corporation, Costa Mesa, Calif.

Filed Aug. 23, 1995, Ser. No. 518,439

Int. Cl.[6] G09G *3/36*

U.S. Cl. 345—94 5 Claims



1. A method of driving a passive matrix LCD during a first time period, the passive matrix LCD having a plurality of row conductors, a plurality of column conductors, and a plurality of pixel elements, each of the plurality of pixel elements being coupled between one of the plurality of row conductors and one of the plurality of column conductors, the first time period being divided into a plurality of time sub-periods, each of the plurality of row conductors being driven with one of a plurality of first drive waveforms during the first time period such that each of the plurality of pixel elements has a row drive waveform associated therewith, each of the plurality of first drive waveforms having a phase delay during each of the time sub-periods of the first time period, the method comprising:

determining a desired RMS voltage, for each of the plurality of pixel elements, to be achieved during the first time period;

determining a modulation coefficient for each of the plurality of pixel elements as a function of the desired RMS voltage for the particular pixel element during the first time period;

determining phase delays for each of plurality of second drive waveforms for each time sub-period of the first time period, each of the plurality of second drive waveforms being associated with one of the plurality of column conductors, wherein each phase delay for each time sub-period for a particular one of the plurality of second drive waveforms is determined as function of the modulation coefficients of each pixel element coupled to the associated column conductor and as a function of the phase delays of each of the plurality of first drive waveforms during the particular time sub-period; and

driving each of the plurality of column conductors with the associated one of the plurality of second drive waveforms during the time sub-periods of the first time period to achieve the desired RMS voltages at each of the plurality of pixel elements;

wherein determining phase delays for each of the plurality of second drive waveforms for each time sub-period of the first time period further comprises determining phase delays for each of the plurality of second drive waveforms for each time sub-period of the first time period as a function of the sum of the product of each modulation coefficient of a pixel element coupled to the associated column conductor and the phase delay of the associated row drive waveform during the particular time sub-period.

5,726,675

IMAGE INFORMATION CONTROL APPARATUS AND DISPLAY SYSTEM

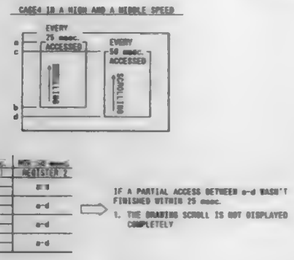
Hiroshi Inoue, Yokohama, Japan, assignor to Canon Kabushiki Kaisha, Tokyo, Japan

Division of Ser. No. 161,097, Dec. 3, 1993, Pat. No. 5,357,267, which is a continuation of Ser. No. 964,556, Oct. 21, 1992, abandoned, which is a continuation of Ser. No. 721,245, Jun. 26, 1991, abandoned. This application Jul. 20, 1994, Ser. No. 277,575

Claims priority, application Japan, Jun. 27, 1990, 2-171102

Int. Cl.[6] G09G *3/36*

U.S. Cl. 345—97 **2 Claims**



1. A display apparatus, comprising:

a display panel with a memory function having a driving control means; and

an image information control means for performing partial writing to a VRAM, wherein

rewrites in at least two windows are executed by non-interlace scannings for only scanning lines corresponding to the windows, rewrite datas in the two windows are independently sampled and stocked, and when the two samplings have different frequencies, the rewrite based on rewrite data of one window with a later sampling frequency is preferentially executed, while the rewrite based on rewrite data of the other window with a faster sampling frequency is skipped during the preferentially executed rewrite.

5,726,676

SIGNAL DRIVER CIRCUIT FOR LIQUID CRYSTAL DISPLAYS

Michael J. Callahan, Jr., and Christopher A. Ludden, both of Austin, Tex., assignors to Crystal Semiconductor, Austin, Tex.

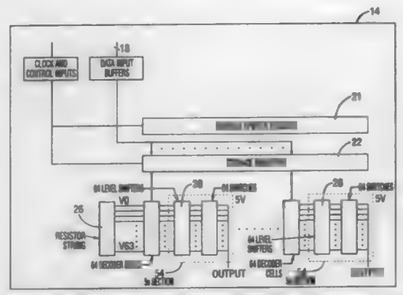
Division of Ser. No. 240,026, May 9, 1994, which is a continuation-in-part of Ser. No. 138,366, Oct. 18, 1993, Pat. No. 5,574,475. This application May 31, 1995, Ser. No. 459,034

Int. Cl.[6] G09G *3/36*

U.S. Cl. 345—98 **21 Claims**

1. A signal driver circuit for driving an LCD panel, comprising:

a plurality of data inputs connected to said signal driver circuit for receiving input data indicative of an image to be displayed on said LCD, said input data being at a first digital input voltage level;



a plurality of driver outputs for providing drive voltages, derived from said input data, to said LCD panel;

a plurality of decoder cells, each decoder cell being programmable to decode said input data to select respective output voltage levels for at least one of said driver outputs;

a switch connected to each of said decoder cells for switching said respective output voltage levels to said driver outputs; and

a voltage level shifter within said signal driver circuit for shifting digital voltage levels within said signal driver circuit to a second digital voltage level such that said drive voltages may have a magnitude greater than said first voltage level, said voltage level shifter comprising,

a respective level shifting circuit within each of said decoder cells, said level shifting circuit including transistors contained within said respective decoder cell;

wherein said level shifting circuit produces a decoder output at a higher voltage level than a decoder input voltage level, such that said switch may switch said output voltage level even when said output voltage level is higher than said first input voltage level.

5,726,677

MATRIX DISPLAY APPARATUS, MATRIX DISPLAY CONTROL APPARATUS, AND MATRIX DISPLAY DRIVE APPARATUS

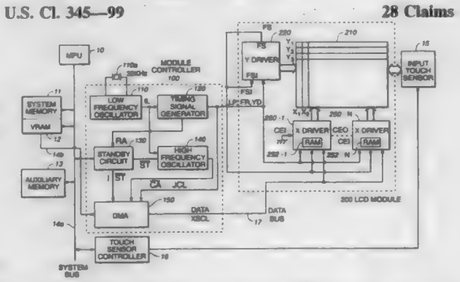
Yoichi Imamura, Suwa, Japan, assignor to Seiko Epson Corporation, Tokyo, Japan

Continuation of Ser. No. 88,142, Jul. 7, 1993, abandoned. This application Dec. 1, 1995, Ser. No. 566,314

Claims priority, application Japan, Jul. 7, 1992, 4-179997; Jun. 24, 1993, 5-152533

Int. Cl.[6] G09G *3/36*

U.S. Cl. 345—99 **28 Claims**



1. A display control apparatus for controlling to drive a matrix display device having a plurality of scanning electrodes and a plurality of signal electrodes arranged in a matrix, said display control apparatus comprising:

a first memory for storing display data to be displayed as an image on said matrix display device;

a processor for controlling and changing the display data stored in said first memory;

display drive means comprising a second memory for applying a drive voltage to said plurality of signal electrodes in accordance with the display data stored in said second memory to display the image on said matrix display device, wherein the display data is transferred to said second memory from said first memory;

an intermittent high frequency oscillator for generating a high frequency clock signal at an output terminal;

control means (1) for activating said intermittent high frequency oscillator for generating the high frequency clock signal when the image represented by the display data stored in said first memory is changed in accordance with said processor and (2) for deactivating said intermittent high frequency oscillator so as not to generate the high frequency clock signal at the output terminal when the image represented by the display data stored in said first memory is not changed in accordance with said processor; and

display data transfer means for transferring the display data from said first memory to said second memory in response to the high frequency clock signal when said intermittent high frequency oscillator generates the high frequency clock signal.

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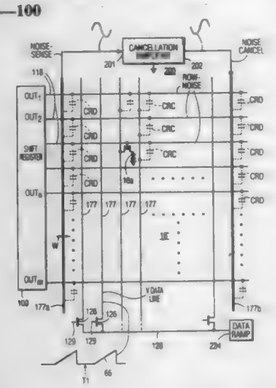
SIGNAL DISTURBANCE REDUCTION ARRANGEMENT FOR A LIQUID CRYSTAL DISPLAY

Andrew Gordon Francis Dingwall, Princeton, N.J., assignor to Thomson Consumer Electronics, S.A., Courbevoie, France

Filed Mar. 6, 1995, Ser. No. 399,010

Int. Cl.[6] G09G *3/36*

U.S. Cl. 345—100 **14 Claims**



1. A video display apparatus for applying a video signal to pixels arranged in a plurality of rows and in a plurality of columns of an array of a display device, comprising:

a plurality of row select line drivers for successively applying row select signals to a plurality of row select lines;

a plurality of data line drivers for applying said video signal to a plurality of data lines associated with said plurality of columns; and

an amplifier responsive to disturbance signals that are developed in corresponding lines of said array and coupled to an input of said amplifier via a first additional line for generating an amplified output signal, indicative of said disturbance signals, said output signal being coupled in a negative feedback manner via a second additional line of said arrays to said disturbance signal developing lines for substantially reducing said disturbance signals such that each of said additional lines is transverse to a given one of said disturbance signal developing lines.

5,726,679

DISPLAY SYSTEM FOR SELECTIVELY DESIGNATING SCANNING LINES HAVING MOVING DISPLAY DATA THEREON

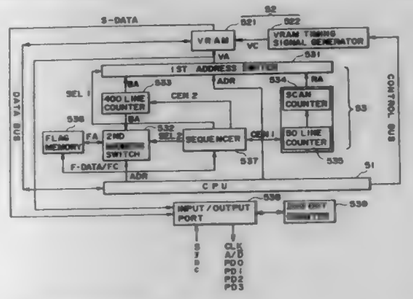
Hideo Kanno, Kawasaki; Hiroshi Inoue, Yokohama, and Atsushi Mizutome, Fujisawa, all of Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan

Continuation of Ser. No. 941,245, Sep. 4, 1992, abandoned, which is a division of Ser. No. 745,400, Aug. 15, 1991, Pat. No. 5,172,107, which is a division of Ser. No. 276,548, Nov. 28, 1988, Pat. No. 5,091,723. This application Oct. 3, 1994, Ser. No. 312,982

Claims priority, application Japan, Nov. 26, 1987, 62-299047; Nov. 11, 1988, 63-285141

Int. Cl.[6] G09G *3/36*

U.S. Cl. 345—100 **9 Claims**



1. A display apparatus, comprising:

(A) a display panel having a display area defined by a plurality of pixels arranged as an electrode matrix in a plurality of rows and a plurality of columns, each pixel comprising a pair of oppositely disposed electrodes and a liquid crystal disposed between the electrodes, a plurality of scanning lines each commonly connecting pixels arranged in a row, and a plurality of data lines each commonly connecting pixels arranged in a column;

(B) drive means for applying a scanning signal to the scanning lines, and for applying data signals to the date lines in synchronism with the scanning signal; and

(C) control means for, in a period of non-rewriting a display in the whole display area, refreshing the whole display area by scanning the scanning lines for the whole display area according to an interlaced scanning scheme, and, when a demand of displaying a motion picture in a window area occurs, intermitting the whole display area scanning, designating the window area by designating a limited number of scanning lines, repeatedly scanning the limited number of scanning lines according to a non-interlaced scanning mode, thereby to effect a motion picture display selectively in the window area, and interrupting the repeated scanning for the motion picture display when the number of scanning lines for the motion picture display reaches a prescribed number of scanning lines

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5,726,680

PROCESS FOR DISPLAYING TEXT IN THE CGA GRAPHIC MODE ON THE SCREEN OF A PERSONAL COMPUTER

Greg Paley, Mountain View, Calif., and Wulf Bauer, Cologne, Germany, assignors to Vobis Microcomputer AG, Mountain View, Calif.

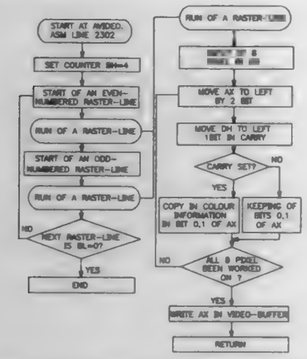
PCT No. PCT/DE95/00203, § 371 Date Jan. 18, 1996, § 102(e) Date Jan. 18, 1996, PCT Pub. No. WO95/22813, PCT Pub. Date Aug. 24, 1995

PCT Filed Feb. 17, 1995, Ser. No. 537,886

Claims priority, application Germany, Feb. 21, 1994, 44 05 329.0

Int. Cl.[6] G09G *5/22*

U.S. Cl. 345—132 **4 Claims**



1. A system for presenting a text in the CGA-graphic mode on a screen of a personal computer comprising a processor;

means for memory associated with said processor;

binary patterns of said text stored in said processor memory means;

pixels for presenting said text on said screen;

each pixel on said screen representing one bit of memory stored in said processor memory means;

a video-card which is at least a VGA-card;

an external bus which is at least 16 bits wide for connecting said video-card to said processor;

means for memory associated with said video-card;

said video-card memory means being presentable on said screen;

wherein a demand for a text character results in said binary pattern corresponding to said text character being recalled from said processor memory means and a character-color and a background-color being stored as a pixel-pattern in said video-card memory means and being displayed on said screen;

said pixel-pattern of said text character being produced in the immediate environment of said processor memory means;

wherein said external bus transfers said pixel-pattern of said text character to said video-card;

wherein text-output is accomplished by a bit sequence having two-bits being produced for each pixel;

said background-color being determined;

said stored bit pattern of said text being connected to said bit sequence;

so that if the bit **0** exists in said stored bit patterns for said respective pixel, no change is made, and if the bit **1** exists in said stored bit patterns for said respective pixel, a bit sequence containing two bits is produced and stored in said video-card memory means for determining the desired front color.

5,726,681

CURSOR WITH DISPLAYED SELECTION RETRIEVAL AREA

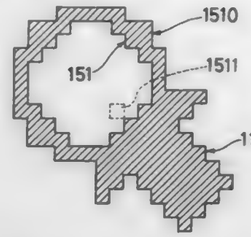
Hirokazu Kanamori, Kitakatsuragi-gun, Japan, assignor to Sharp Kabushiki Kaisha, Osaka, Japan

Filed Aug. 11, 1995, Ser. No. 514,220

Claims priority, application Japan, Sep. 7, 1994, 6-214049

Int. Cl.[6] G06F *3/00*

U.S. Cl. 345—145 **29 Claims**



1. An information processor in which a cursor is moved on an information display screen to select an object designated by the cursor, the processor comprising:

area setting means for setting a retrieval area on the information display screen by referencing a cursor position, the set retrieval area having a center offset from the referenced cursor position; and

selection means for retrieving an object present within the set retrieval area.

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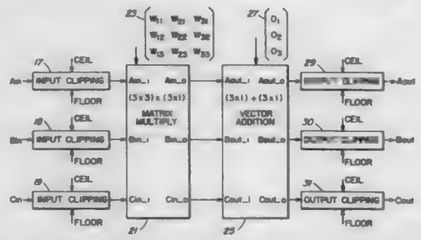
PROGRAMMABLE COLOR SPACE CONVERSION UNIT

Sanford S. Lum, Scarborough, and Keping Chen, Mississauga, both of Canada, assignors to ATI Technologies Inc., Thornhill, Canada

Continuation of Ser. No. 118,631, Sep. 10, 1993, abandoned. This application Mar. 7, 1996, Ser. No. 612,431

Int. Cl.[6] G09G *5/02*

U.S. Cl. 345—154 **9 Claims**



1. A method of converting signal components of one of a first input three component color model and a second input three component color model to either one of said first or second three component color model comprising:

(a) providing input signal components in one of the first or second color models to an electronic processing means,

(b) matrix transforming in said processing means said input signal components by multiplying said input signal components with signals representing an array of predetermined transformation parameters to form a transformed signal set,

(c) vector adding in a vector adding means the transformed signal set with signals representing a predetermined group of offset vectors to produce signal components of an output signal,

(d) clipping the input signal components to predetermined input amplitude ranges prior to the matrix transforming step,

(e) the clipping step including saturating any input signal component to an upward or downward amplitude input limit prior to the matrix transforming step in the event said input signal component exceeds positively or negatively either of the upward or downward input amplitude limit respectively,

(f) saturating any output signal component to an upward or downward output amplitude limit following the vector addition step in the event said output signal component exceeds positively or negatively either of the upward or downward output amplitude limit respectively,

(g) in which the input signal component are R, G and B and the output signal components are Y, C_r and C_b, and in which the matrix multiplying and adding steps convert the signal components according to the transformations:

$$Y=+0.2570.R+0.5045.G+0.0980.B+16$$

$$C_r=0.4373.R-0.3662.G-0.0711.B+128$$

$$C_b=0.1476.R-0.2897.G+0.4373.B+128$$

and wherein the matrixes are

$$\begin{array}{|c|ccc|c|c|} Y & 0.2570 & 0.5045 & 0.0980 & R & 16 \\ C_r = & 0.4373 & -0.3662 & 0.0711 & G+ & 128 \\ C_b & -0.1476 & -0.2897 & 0.4373 & B & 128 \end{array}.$$

5,726,683

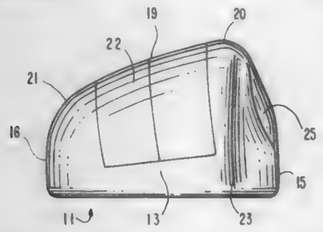
ERGONOMIC COMPUTER MOUSE

Mark Goldstein, and Elizabeth Cecelia Goldstein, both of Thredbo Village, Australia, assignors to Midas Mouse International Pty., Sydney, Australia

Filed Aug. 9, 1995, Ser. No. 513,105

Int. Cl.[6] G09G *5/08*

U.S. Cl. 345—168 **22 Claims**



1. An ergonomic computer mouse for inputting commands into a computer, comprising:

a housing comprising a bottom wall, a top surface, a front surface, a right side surface and a substantially vertically rising left side surface, said top surface having a negative slope from front to rear in a range of 15 degrees to 30 degrees and from left to right in a range of 20 degrees to 30 degrees and providing at the front of the top surface a phalanx support; and

a plurality of rectangular buttons for inputting commands into the computer, said plurality of buttons curving from the front of the top surface to the top of the front surface and rotated in a counterclockwise position when viewed from the front of the computer mouse along the longitudinal axis.

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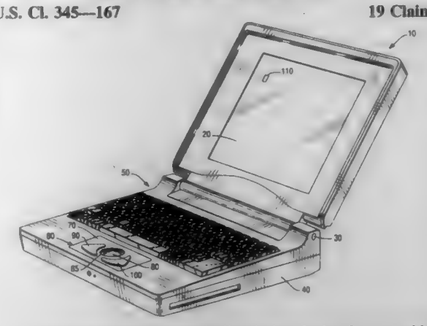
DETACHABLE CONVERTIBLE MOUSE-TRACKBALL POINTING DEVICE FOR USE WITH A COMPUTER

Joseph H. Blankenship, Liberty, and Ronald A. Rush, Jr., Columbin, both of S.C., assignors to NCR Corporation, Dayton, Ohio

Filed Jul. 26, 1996, Ser. No. 686,856

Int. Cl.[6] G09G *5/08;* **G06F** *3/033*

U.S. Cl. 345—167 **19 Claims**



1. A convertible mouse-trackball pointing device for use with a computer, comprising:

a device housing having at least spaced-apart first and second surfaces, said first surfacing defining a circular opening;

a ball, rotatably mounted within said housing such that a portion of said ball protrudes through said circular opening;

means, disposed within said device housing, for biasedly urging said ball toward said circular opening;

positioning sensing components, mounted within said housing as to be frictionally rotated by rotation of said ball about either of two orthogonal axes;

process circuitry, disposed within said device housing, coupled to said sensing components for outputting electrical signals, coupleable to a host computer, containing position coordinate information representing rotation of said ball;

at least a first user-operable switch, coupled to said process circuitry and operable from said first surface of said housing;

at least a second user-operable switch, coupled to said process circuitry and operable from said second surface of said housing;

sense switch means, coupled to said housing and to said at least first user-operable switch and to said at least second user-operable switch, for detecting which of said first and second surfaces is oriented uppermost and for decoupling a chosen one of said at least first user-operable switch and said at least second user-operable switch from said process circuitry as a function of orientation of said housing;

wherein when said first surface is oriented uppermost, said device is useable as a trackball, and said at least second user-operable switch is decoupled from said process circuitry; and

wherein when said second surface is oriented uppermost, said device is usable as a mouse, and said at least first user-operable switch is decoupled from said process circuitry.

5,726,685

INPUT UNIT FOR A COMPUTER

Rainer Kuth, Herzogenaurach, and Wolfgang Pritzel, Prutting, both of Germany, assignors to Siemens Aktiengesellschaft, Munich, Germany

Filed Jun. 30, 1995, Ser. No. 497,387

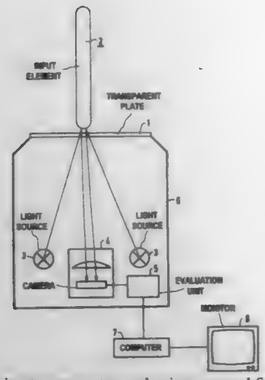
Claims priority, application Germany, Jun. 30, 1994, 44 23 005.5

Int. Cl.[6] G09G *5/00*

U.S. Cl. 345—173 **15 Claims**

1. An input arrangement for a computer, comprising:

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a non-imaging transparent pane having opposed first and second sides;

a stylus movable over said first side of said pane and having a position-indicating surface and at least one function-actuating surface optically distinguishable from said position-indicating surface, said position-indicating surface being mounted on said stylus so as to be visible through said pane when said stylus is on said first side and said function-actuating surface being mounted on said stylus so as to be selectively movable, upon movement of said stylus, to a position so as to be visible through said pane;

camera means disposed at said second side of said pane identifying a position of said position-indicating surface and for generating a position-indicating signal corresponding thereto and for identifying when said function-actuating surface is visible through said pane and for generating a function-actuating signal when said function-actuating surface is visible through said pane; and

evaluation means supplied with said position-indicating signal for generating a control signal for said computer dependent on said position-indicating signal and supplied with said function-actuating signal for generating a further control signal for actuating a selected function of said computer.

5,726,686

COORDINATES INPUT APPARATUS

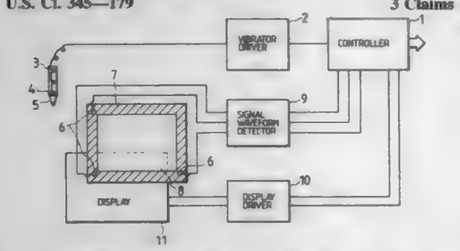
Shinnosuke Taniishi, Tokyo; Yuichiro Yoshimura; Kiyoshi Kaneko, both of Yokohama; Atsushi Tanaka, Kawasaki; Katsuyuki Kobayashi, Tokyo; Shigeki Mori, Tokyo, and Noriyuki Suzuki, Tokyo, all of Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan

Continuation of Ser. No. 817,963, Jan. 8, 1992, abandoned, which is a continuation of Ser. No. 259,801, Oct. 19, 1988, abandoned. This application Oct. 4, 1993, Ser. No. 131,914

Claims priority, application Japan, Oct. 28, 1987, 62-273963

Int. Cl.[6] G09G *5/00*

U.S. Cl. 345—179 **3 Claims**



1. A coordinates input apparatus for detecting coordinates, on a vibration propagating plate, of a vibration input pen having vibration generating means for generating a vibration of a Lamb wave by detecting the Lamb wave vibration input from the vibration input pen and transmitted by the vibration propagating plate by a plurality of sensors attached to the vibration propagating plate,

wherein the coordinates detection is executed on the basis of transmission delay times, from a position of said vibration input pen to the plurality of sensors, of a group speed and a phase speed of the Lamb wave transmitted by the vibration propagating plate,

wherein a tip of said vibration input pen has a shape of a horn selected so as to be placed in resonant condition with a frequency of an ultrasonic vibration generated by the vibration generating means, and

wherein said tip comprises a material which propagates an ultrasonic vibration and a resin of a polyamideimide system is used as the material to enhance vibration propagation to the vibration propagating plate and abrasion resistance against the vibration propagating plate.

5,726,687

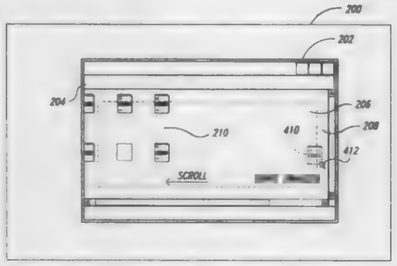
AUTO-SCROLLING WITH MOUSE SPEED COMPUTATION DURING DRAGGING

Joseph D. Belfiore, Redmond; Christopher J. Guzak, Kirkland; Christopher E. Graham; Stephen M. Madigan, both of Redmond; Tandy W. Trower, II, Woodinville; Randall L. Kerr, Redmond, and Adrian M. Wyard, Kirkland, all of Wash., assignors to Microsoft Corporation, Redmond, Wash.

Continuation of Ser. No. 394,544, Feb. 22, 1995, Pat. No. 5,611,060. This application Nov. 13, 1996, Ser. No. 747,848

Int. Cl.[6] G06F *3/00*

U.S. Cl. 345—341 **36 Claims**



1. In a computer system having a video display, a computer program displaying on the video display a window with contents and a scroll region, and an input device with an input device indicator reflecting movement of the input device on the video display, a method for displaying the contents of the window comprising the steps of:

under the control of the computer program,

determining a location of the input device indicator on the video display when the input device is performing a drag and drop operation;

determining a speed of the input device indicator when the location of the input device indicator is within the scroll region;

scrolling the contents of the window in response to the input device indicator being within the scroll region and the speed being below a predefined value; and

inhibiting the contents of the window from being scrolled when the speed is above the predefined value.

5,726,688

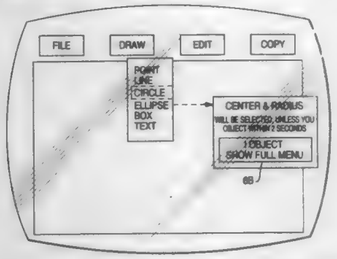
PREDICTIVE, ADAPTIVE COMPUTER INTERFACE

David M. Siefert, Englewood, and Tab A. McCollum, Camden, both of Ohio, assignors to NCR Corporation, Dayton, Ohio

Filed Sep. 29, 1995, Ser. No. 536,506

Int. Cl.[6] G06F *15/00*

U.S. Cl. 345—352 **5 Claims**



1. In a computer, the improvement comprising the following steps:

a) presenting a first interface to a user, which contains options which the user may select;

b) ascertaining when the user attains a predetermined amount of experience with the interface, and then presenting a second interface to the user, which contains additional options;

c) identifying the most-selected option in the first interface;

d) proposing the most-selected option to the user; and

e) providing means for the user to accept the proposed option for automatic execution.

5,726,689

MAPPING APPARATUS AND METHOD

Hiroyasu Negishi, Kanagawa, Japan, and Masatoshi Kameyama, Kanagawa, Japan, assignors to Mitsubishi Denki Kabushiki Kaisha, Tokyo, Japan

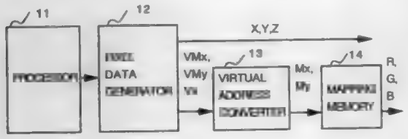
Filed Jul. 11, 1995, Ser. No. 500,167

Claims priority, application Japan, Oct. 28, 1994, 6-265276

Int. Cl.[6] G06F *17/00*

U.S. Cl. 345—430 **30 Claims**

A CONFIGURATION CHART OF A MAPPING APPARATUS



1. A mapping apparatus for generating pixel data and mapping data for a rendering polygon having edges and pixels, the apparatus comprising:

a processor programmed to divide the edges of the rendering polygon into left edges and right edges, to associate the left edges and the right edges to corresponding mapping edges in two-dimensional mapping data, to divide the mapping edges into mapping data left edges and mapping data right edges, each of the mapping data left edges and mapping data right edges having endpoints, and to calculate a virtual mapping address and a virtual mapping coefficient at each endpoint of the mapping data left edges and the mapping data right edges;

a pixel data generator, coupled to the processor and having an output that provides coordinate data, a virtual mapping address, and a virtual mapping coefficient for each pixel of the rendering polygon;

a virtual address converter having an input that receives the virtual mapping address and the virtual mapping coefficient from the pixel data generator, and an output that provides a mapping address corresponding to the mapping data; and

a mapping memory that stores the mapping data, the mapping memory having an input that receives the mapping address from the output of the virtual address converter, and an output that provides the mapping data that corresponds to the mapping address.

5,726,690

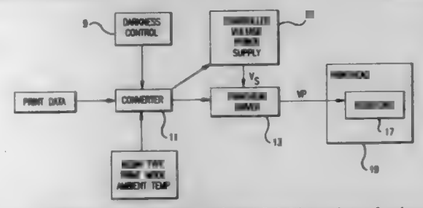
CONTROL OF INK DROP VOLUME IN THERMAL INKJET PRINTHEADS BY VARYING THE PULSE WIDTH OF THE FIRING PULSES

Jaime H. Bohorquez, Escondido, Calif.; Clayton Holstun, Escondido, Calif.; Brian P. Canfield, Barcelona, Spain; Susan Tousi, Barcelona, Spain; Kenneth J. Courian, San Diego, Calif., and Frank Drogo, San Marcos, Calif., assignors to Hewlett-Packard Company, Palo Alto, Calif.

Continuation of Ser. No. 056,960, May 3, 1993, abandoned, which is a continuation-in-part of Ser. No. 983,009, Nov. 30, 1992, abandoned, which is a continuation-in-part of Ser. No. 694,185, May 1, 1991, Pat. No. 5,168,284. This application Sep. 30, 1994, Ser. No. 316,009

Int. Cl.[6] B41J *2/205;29/393*

U.S. Cl. 347—15 **3 Claims**



1. A method of operating a thermal inkjet printer having a thermal inkjet printhead, comprising the steps of:

selecting a first ink drop volume;

selecting a first pulse width that will cause the thermal inkjet printhead to deposit an ink drop having the first drop volume;

operating the thermal inkjet printhead with the first pulse width and at an operating energy that is substantially equal to a sum of a turn-on energy of the printhead for the first pulse width and a constant over-energy;

selecting a second ink drop volume that is different from the first ink drop volume;

selecting a second pulse width that is different from the first pulse width and will cause the thermal inkjet printhead to deposit an ink drop having the second drop volume; and

operating the thermal inkjet printhead with the second pulse width and at an operating energy that is substantially equal to a sum of a turn-on energy of the printhead for the second pulse width and the constant over-energy.

5,726,691

RECORDING APPARATUS AND METHOD FOR RECORDING DROPLETS IN REGISTRY

Makoto Shioya, Tokyo, and Takeshi Okazaki, Yokohama, both of Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan

Continuation of Ser. No. 114,237, Sep. 1, 1993, abandoned, which is a continuation of Ser. No. 659,277, Feb. 22, 1991, abandoned. This application Feb. 19, 1997, Ser. No. 801,362

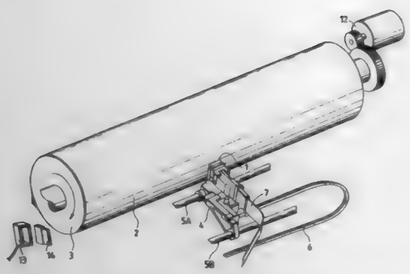
Claims priority, application Japan, Feb. 26, 1990, 2-042513; Nov. 30, 1990, 2-329742

Int. Cl.[6] B41J *2/205*

U.S. Cl. 347—15 **37 Claims**

1. A recording apparatus for recording an image having a density and which is formed from a plurality of dots of an ink of a particular color, each said dot being formed by at least one of a droplet deposited onto a same position of a recording medium,

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each dot having a size, the density of the image being a function of the size of each of the dots, comprising:

an ink jet recording head for discharging the droplets of the ink of the particular color from an array of a plurality of orifices, said orifices being disposed along an array direction, each of said ink droplets discharged by the orifices being of substantially equal quantity and colorant-concentrations;

drive means for driving said recording head in accordance with a recording signal to cause a first of said orifices to discharge at a first timing a first droplet of said ink onto a given location of said recording medium, and to cause a second of said orifices to discharge at a second timing a second droplet of said ink onto said given location of said recording medium, said first orifice and said second orifice being separated by a distance therebetween; and

moving means for effecting relative movement between said recording head and said recording medium along a direction substantially parallel to said array direction by a length corresponding to said distance during a time interval between said first and said second timings by said drive means;

wherein said time interval is such that said second timing takes place while the ink discharged at said first timing onto said given location is liquid so that the ink discharged at said second timing is deposited onto said given location, whereby said second ink droplet is deposited atop said first ink droplet, and said first and said second ink droplets combine while liquid to form a said single dot on said given location of said recording medium so that the dot size is consistent, and

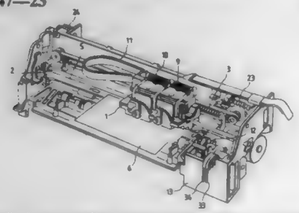
wherein thus executed record operations are optionally repeated so as to discharge onto said given location an accumulated number of said ink droplets corresponding to a density level of an image to be formed on said given location.

5,726,692

INK JET RECORDING APPARATUS WITH RECORDING HEADS ARRANGED ON BASIS OF INK DRYING INDEX

Shuichi Yamaguchi; Seiji Mochizuki, and Masahiro Nakamura, all of Nagano, Japan, assignors to Seiko Epson Corporation, Tokyo, Japan

Filed Mar. 30, 1995, Ser. No. 413,837
Claims priority, application Japan, Mar. 31, 1994, 6-85792
Int. Cl.[6] B41J *29/38;2/165*
U.S. Cl. 347—23 **14 Claims**



1. An ink jet recording apparatus having a carriage and a printing region, and comprising:

a plurality of ink jet recording heads for ejecting ink, arranged on said carriage, and spaced apart at fixed intervals in a moving direction of said carriage, said plurality of ink jet recording heads including a first head and a second head, each of said plurality of ink jet recording heads having respective ink with a respective drying index, said first head having first ink as said respective ink, said first ink having a first drying index as said respective drying index, said second head having second ink as said respective ink, said second ink having a second drying index as said respective drying index, said first drying index being higher than said second drying index; and

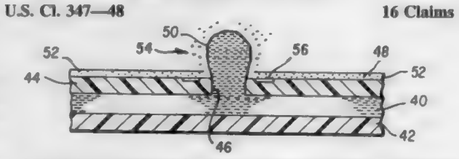
cap members, disposed outside said printing region, for sealing said plurality of ink jet recording heads, and including a first cap member and a second cap member, said first cap member being positioned further from said printing region than said second cap member, said plurality of ink jet recording heads being arranged on said carriage so as to correspond to said cap members on a basis of said respective drying index of said respective ink, said first head thereby corresponding to said first cap member and said second head thereby corresponding to said second cap member.

5,726,693

INK PRINTING APPARATUS USING INK SURFACTANTS

Ravi Sharma, Fairport; Gilbert Allan Hawkins, Mendon; Pranab Bagchi, Webster, and David Lee Clark, Pittsford, all of N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.

Filed Jul. 22, 1996, Ser. No. 681,233
Int. Cl.[6] G01D *15/18;15/16*
U.S. Cl. 347—48 **16 Claims**



1. An ink jet printhead for drop-on-demand printing, said printhead comprising:

(a) a substrate having a plurality of drop-emitter orifices;

(b) an ink channel coupled to each of said orifices for delivery of a body of ink to the orifices;

(c) pressure means for subjecting ink in said channels to a pressure above ambient pressure;

(d) a supply of surface tension reducing agent which is separate from the body of ink; and

(e) drop selection means for selectively delivering a surface tension reducing agent from said supply to ink which has been delivered to selectively addressed ones of the orifices, thereby causing a difference in meniscus position between ink in addressed and non-addressed orifices.

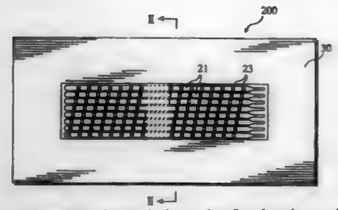
5,726,694

PRINT HEAD IN POWDER JET IMAGE FORMING APPARATUS

Takahiko Kimura; Osamu Takemura, and Atsushi Fujii, all of Osaka, Japan, assignors to Mita Industrial Co., Ltd., Osaka, Japan

Filed Aug. 28, 1995, Ser. No. 520,006
Claims priority, application Japan, Sep. 30, 1994, 6-236689
Int. Cl.[6] H04H *1/40*
U.S. Cl. 347—55 **16 Claims**

1. A print head in a powder jet image forming apparatus comprising a plurality of first electrodes formed on the surface of an insulating layer on the side of a developer supplying roller and a plurality of second electrodes formed on the surface of the insulating layer on the side of a paper conveying section, a developer through-hole being provided at each of intersections of the first electrodes and the second electrodes, wherein



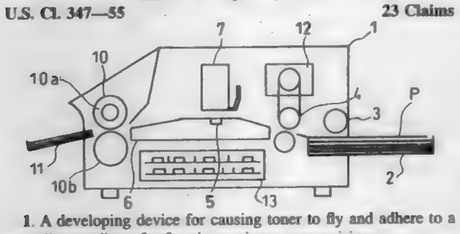
one or a plurality of guard electrodes for drawing a developer from the developer supplying roller and supplying the developer to the first electrodes are provided around the first electrodes on the surface of the insulating layer.

5,726,695

DEVELOPING DEVICE

Atsushi Ueda, Shiki-gun, Japan, assignor to Sharp Kabushiki Kaisha, Osaka, Japan

Filed Sep. 27, 1995, Ser. No. 534,280
Claims priority, application Japan, Oct. 31, 1994, 6-267263
Int. Cl.[6] B41J *2/06;2/165*
U.S. Cl. 347—55 **23 Claims**



1. A developing device for causing toner to fly and adhere to a recording medium, for forming an image, comprising:

a brush-like toner carrying roller for carrying charged toner, said toner carrying roller having an electric potential equal to a charging potential of said toner or being connected to an earth potential;

a toner supply roller, disposed in contact with said toner carrying roller, for charging said toner by friction;

a back electrode, disposed to face said toner carrying roller, for causing said toner carried on said toner carrying roller to fly by forming an electric field;

a grid electrode, disposed between said toner carrying roller and said back electrode, including a plurality of gates for allowing a passage of said flying toner, and controlling means for controlling an amount of said toner passing through said gates by applying a varying voltage to said gates according to image data to be formed; and

voltage applying means for applying a voltage having the same polarity as the charging polarity of said toner to said toner supply roller.

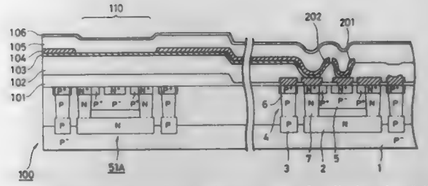
5,726,696

INK JET RECORDING HEAD HAVING RESERVE FUNCTIONAL DEVICES

Asao Saito, Yokohama; Hiroyuki Ishinaga, Tokyo; Teruo Ozaki, Kawasaki, and Ryoichi Koizumi, Yokohama, all of Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan

Continuation of Ser. No. 538,034, Oct. 2, 1995, abandoned, which is a continuation of Ser. No. 101,531, Dec. 23, 1992, abandoned, which is a continuation of Ser. No. 644,561, Jan. 23, 1991, abandoned. This application Mar. 18, 1997, Ser. No. 819,072
Claims priority, application Japan, Jan. 25, 1990, 2-013487; Jan. 25, 1990, 2-013488
U.S. Cl. 347—59 **10 Claims**

1. An ink jet recording head comprising:



an ink discharging portion having an outlet for discharging ink;

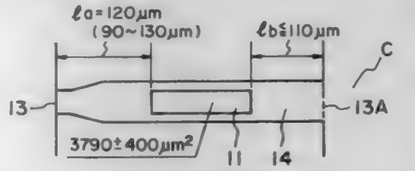
a substrate on which are provided at least one electrothermal transducer for generating thermal energy utilized for discharging ink supplied to said ink discharging portion, and a plurality of functional devices associated therewith, said functional devices being provided in a number greater than a number of said electrothermal transducers, so that a fraction of said functional devices are used, and a remaining fraction of said functional devices are reserve functional devices, wherein each said functional device has electrodes provided directly above said functional device, and wherein each of said functional devices which are used is electrically connected to an associated said electrothermal transducer and the electrodes of each said reserve functional device which is unused are disposed below an associated said electrothermal transducer.

5,726,697

INK JET RECORDING APPARATUS HAVING AN OPTIMALLY-DIMENSIONED INK JET HEAD STRUCTURE

Junji Shimoda, Chigasaki, Japan, assignor to Canon Kabushiki Kaisha, Tokyo, Japan

Continuation of Ser. No. 136,406, Oct. 15, 1993, abandoned, which is a continuation of Ser. No. 716,841, Jun. 17, 1991, abandoned. This application Nov. 8, 1995, Ser. No. 555,502
Claims priority, application Japan, Jun. 15, 1990, 2-157002
Int. Cl.[6] B41V *2/05*
U.S. Cl. 347—62 **11 Claims**



1. An ink jet recording apparatus, comprising:

at least 48 liquid passages, each said passage having an ejection outlet through which a droplet of the liquid is ejected, at an end of the liquid passage, and each of the passages being supplied with ink only from the other end through a supply port;

a common ink chamber for containing the ink, with which said liquid passages communicate at different said supply ports of said passages;

electrothermal transducer elements each having a planar heat generating element in each of said liquid passages, said electrothermal transducer element being supplied with an electric signal to produce a state change of the ink including formation of a bubble in the liquid passage due to thermal energy, wherein a minimum distance La between each of the heat generating elements and the corresponding ejection outlet is not less than 90 microns and not more than 130 microns, a minimum distance Lb between each of the heat generating elements and the corresponding said supply port is not more than 110 microns, and the distances La and Lb satisfy La>Lb;

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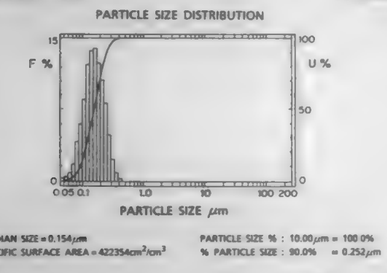
a driving circuit for energizing said heat generating elements, said driving circuit supplying the electric signals so that adjacent ones of said heat generating elements are driven with a time difference.

5,726,698

METHOD FOR THERMAL TRANSFER RECORDING OF MULTICOLOR IMAGE

Fumiaki Shinozaki; Hideyuki Nakamura, and Yonosuke Takahashi, all of Shizuoka, Japan, assignors to Fuji Photo Film Co., Ltd., Kanagawa, Japan

Filed Oct. 21, 1994, Ser. No. 327,409
Claims priority, application Japan, Oct. 21, 1993, 5-263695
Int. Cl.[6] B41J 2/525;2/325
U.S. Cl. 347—172 11 Claims



1. A method for thermal transfer recording of a multicolor image by area gradation which comprises the steps of:

superposing a first heat sensitive ink sheet on an image receiving sheet, said first heat sensitive ink sheet having a support sheet and an essentially transparent heat sensitive ink layer having a viscosity of higher than 10^4 cps at 150° C. and a thickness of 0.2 to 1.0 μm which is formed of a heat sensitive ink material comprising 30 to 70 weight parts of a colored particulate pigment at least 70 weight % of which has a particle size of not more than 1.0 μm and 25 to 60 weight parts of amorphous organic polymer having a softening point of 40° to 150° C.;

placing imagewise a thermal head on the support of the first heat sensitive ink sheet to imagewise peel the ink layer off and transfer the peeled ink layer onto the image receiving sheet;

separating the support of the ink sheet from the image receiving sheet so that the transferred ink layer is retained on the image receiving sheet;

superposing a second heat sensitive ink sheet on the image receiving sheet having the image thereon, said heat sensitive ink sheet having a support sheet and an essentially transparent heat sensitive ink layer having a viscosity of higher than 10^4 cps at 150° C. and a thickness of 0.2 to 1.0 μm which is formed of a heat sensitive ink material comprising 30 to 70 weight parts of a particulate pigment of a different color than said pigment in said first heat sensitive ink sheet, at least 70 weight % of which has a particle size of not more than 1.0 μm and 25 to 60 weight parts of amorphous organic polymer having a softening point of 40° to 150° C.;

placing imagewise a thermal head on the support of the second heat sensitive ink sheet to imagewise peel the ink layer off and transfer the peeled ink layer onto the image receiving sheet; and

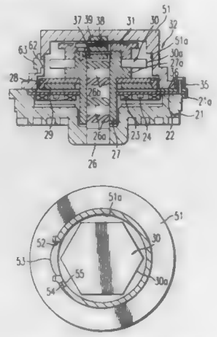
separating the support of the ink sheet from the image receiving sheet so that the transferred ink layer is retained on the image receiving sheet.

5,726,699

CLOSED TYPE POLYGON SCANNER

Yukio Itami, and Mitsuo Suzuki, both of Yokohama, Japan, assignors to Ricoh Company, Ltd., Tokyo, Japan

Filed May 12, 1995, Ser. No. 440,350
Claims priority, application Japan, May 13, 1994, 6-098983
Int. Cl.[6] B41J 2/47; G02B 26/00
U.S. Cl. 347—257 15 Claims



1. A closed type polygon scanner comprising:

a housing;

a rotor which is rotatively supported to a shaft fixed to the housing, and which includes a polygon mirror;

a motor which generates a magnetic force to rotate the rotor;

a cover which covers the rotor and is attached to the housing;

an opening which is formed at a predetermined portion in the cover facing a mirror surface of the polygon mirror, and at least translucent to a laser beam;

a window member fixed to the opening;

wherein an inner peripheral surface of the cover facing the mirror surface of the polygon mirror is formed cylindrically about a rotating axis of the rotor, and a width in the rotating axis direction of the opening is set to a predetermined width relative to a width in said rotating axis direction of the polygon mirror.

5,726,700

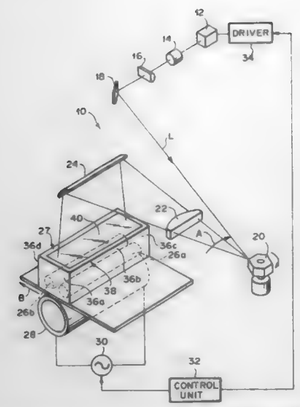
THERMAL RECORDING DEVICE

Shinji Imai, Kanagawa-ken, Japan, assignor to Fuji Photo Film Co., Ltd., Kanagawn, Japan

Filed Apr. 1, 1996, Ser. No. 625,343
Claims priority, application Japan, Mar. 31, 1995, 7-074984
Int. Cl.[6] B41J 2/435; G01D 15/24
U.S. Cl. 347—263 4 Claims

1. A thermal recording device which records information on a heat-sensitive recording material which develops color in a density according to heat energy supplied thereto by pre-heating the heat-sensitive recording material with heat energy less than energy necessary to develop color in the heat-sensitive recording material and scanning the recording material with a laser beam modulated according to the information to be recorded to supply predetermined heat energy to the heat-sensitive recording material, wherein the improvement comprises that

a region from the upper surface of the heat-sensitive recording material to a space above the upper surface of the heat-sensitive recording material through which the laser beam



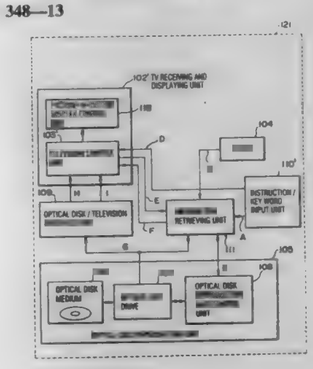
impinges upon the heat-sensitive recording material is isolated from the surrounding space at least at its sides and top by side isolating members and a top isolating member, and at least the top isolating member is transparent so that the laser beam impinges upon the heat-sensitive recording material through the top isolating member.

5,726,702

TELEVISION SIGNAL RECEIVING APPARATUS INCORPORATING AN INFORMATION RETRIEVING AND REPRODUCING APPARATUS

Masakazu Hamaguchi, Ebina; Hiroaki Takahashi, Yokohama; Takashi Takeuchi, Fujisawa; Toshiyuki Oda, Kawasaki; Tomochika Yamashita, Yokohama; Hitoshi Akiyama, Yokokama, and Isao Saito, Yokohama, all of Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Filed Feb. 23, 1995, Ser. No. 393,335
Claims priority, application Japan, Feb. 23, 1994, 6-025459; Feb. 28, 1994, 6-029994
Int. Cl.[6] H04N 5/445
U.S. Cl. 348—13 12 Claims

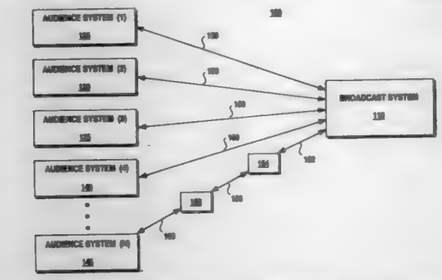


5,726,701

METHOD AND APPARATUS FOR STIMULATING THE RESPONSES OF A PHYSICALLY-DISTRIBUTED AUDIENCE

Bradford H. Needham, Hillsboro, Oreg., assignor to Intel Corporation, Santa Clara, Calif.

Continuation of Ser. No. 425,373, Apr. 20, 1995, abandoned.
This application Oct. 22, 1996, Ser. No. 735,047
Int. Cl.[6] H04N 7/00
U.S. Cl. 348—2 20 Claims



1. A method of simulating the responses of a physically-distributed audience, the method comprising the steps of:

a) repeatedly monitoring an input;

b) automatically recognizing an audience response at the input;

c) generating a response metric having a value based on the recognized audience response;

d) transferring the response metric to a broadcast system;

e) generating a combined response metric based on the response metric; and

f) repeatedly producing audio feedback by activating a response synthesizer based on the combined response metric.

1. A television signal receiving apparatus, comprising:

a signal receiving and displaying unit for receiving a television program and making a picture display,

a television unit control unit for controlling said signal receiving and displaying unit and outputting reception information relevant to a television program currently being received,

an information reproducing apparatus for reading desired program information from an information recording medium in which television program information has been recorded in advance in the format of multi-media data and multi-media software,

an interface apparatus for converting said read program information into an information signal that can be displayed on said signal receiving and displaying unit and supplying said information signal to said signal receiving and displaying unit,

a clock apparatus for outputting current time information which shows the current year, month, day of the month and time,

an input apparatus for receiving instructions and key words from a user and outputting a command, and

information retrieving means, connected to receive said time information and reception information, for controlling said information reproducing apparatus in response to said command from said input apparatus and retrieving said program information recorded in said information recording medium,

wherein said information retrieving means uses information including instructions and key words inputted to said input apparatus, reception information from said television control unit and time information from said clock apparatus, as information for retrieval, and controls said information reproducing apparatus to read desired program information from said information recording medium so that said signal receiving and displaying unit displays said desired program information that has been read.

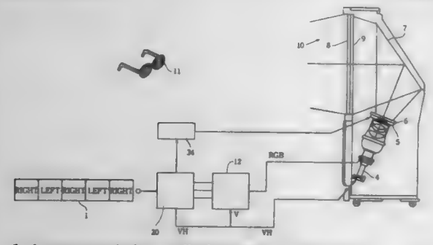
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5,726,703

STEREOSCOPIC IMAGE DISPLAY SYSTEM

Masataka Izawa; Kazuto Sato; Nozomu Kikuchi; Ryuji Miyazaki, and Hirokazu Izumi, all of Tokyo, Japan, assignors to Pioneer Electronic Corporation, Tokyo, Japan

Filed Jul. 12, 1996, Ser. No. 678,588
Claims priority, application Japan, Jul. 14, 1995, 7-201323; Jan. 22, 1996, 8-027288; Feb. 13, 1996, 8-049528
Int. Cl.[6] H04N *13/02;15/00*
U.S. Cl. 348—46 8 Claims



1. A stereoscopic image display system comprising:

left/right stereoscopic image signal generator means for alternately generating red, green, blue (RGB) signals of a left-eye image signal and a right-eye image signal having a parallax at every field;

a cathode ray tube (CRT) applied with the RGB signals;

a screen for projecting image light of the RGB signals;

shutter means having a liquid crystal shutter with a pair of polarizing plates disposed in inlet and outlet sides; and

driving means for driving the liquid crystal shutter and for rotating the polarizing plate, therein displaying stereoscopic images dependent on the left/right stereoscopic image signal, wherein

the CRT having a persistence characteristic represented by the following formulas, where s1 represents an amount of luminous intensity between a time t0 and a time t1 by a time interval Δt, s2 represents an amount of luminous intensity obtained by integrating luminous intensity between a time t2 and a time t3 by the time interval Δt, and f represents a function of time,

$$s1/s2 \leq 100 \text{ and } f(0)/10 > f(1.3)$$

where

$$s1 = \lim_{n1 \to \infty} \sum_{t=t0}^{n1} f(i) \cdot \Delta t$$

$$n1 = (t1 - t0)/\Delta t$$

$$s2 = \lim_{n2 \to \infty} \sum_{j=t2}^{n2} f(j) \cdot \Delta t$$

$$n2 = (t3 - t2)/\Delta t$$

t0 is a stopping time of application of the image signal to the CRT, t1 is a predetermined elapsed time after t0, t2 is a predetermined elapsed time after t1, t3 is a predetermined elapsed time after t2;

the liquid crystal shutter having a response speed of 1 ms or less, and a contrast between black and white of 100 to 1 or more at a central wavelength of an emission spectrum of the CRT in both parallel and crossing modes of the polarizing plates of the shutter, and a cell gap of 3 μm or less; and

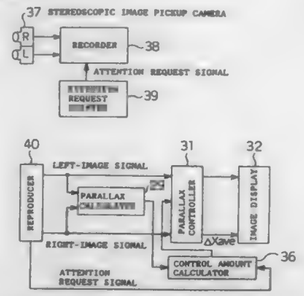
the screen including a Fresnel lens and a lenticular sheet, and the lenticular sheet being disposed in a direction so that a polarizing condition does not generate a phase difference based on the lenticular sheet.

5,726,704

STEREOSCOPIC IMAGE PICKUP AND DISPLAY APPARATUS

Kenya Uomori, Hirakata, Japan, assignor to Matsushita Electric Industrial Co., Ltd., Japan

Division of Ser. No. 297,307, Aug. 26, 1994. This application Jan. 22, 1996, Ser. No. 589,374
Claims priority, application Japan, Aug. 26, 1993, 5-211531; Oct. 21, 1993, 5-263753
Int. Cl.[6] H04N *13/00*
U.S. Cl. 348—47 2 Claims



1. A stereoscopic image display apparatus comprising:

a fixating request pointer for specifying a portion of a captured image on which an operator wishes a viewer to focus his fixating and producing a fixation request signal;

a signal recorder for recording the fixation request signal of said fixating request pointer and left and right images of an object captured from two different angles;

a reproducer for reproducing the recorded left and right images and the fixating request signal which is representative of the output of said fixating request pointer;

a parallax calculator for calculating and outputting a binocular parallax or three-dimensional position of the object directly from only the reproduced left and right images of the object captured from two different angles using block-matching between said left and right images; and

a parallax controller for moving the reproduced left and right images in opposite directions horizontally on the basis of an output of said parallax calculator as well as the reproduced fixating request signal so that an image portion indicated by the reproduced fixating request signal is reproduced near a boundary of a viewer's fusional range, and so that a moving distance of the reproduced left and right images become smallest,

thereby reducing the three-dimensional distortion of the displayed image.

5,726,705

SURFACE DEFECT INSPECTION APPARATUS

Masanori Imanishi, Tokyo; Kiyoshi Yoshida, Kanagawa; Teruo Aseda, Tokyo; Yutaka Suzuki; Shigeru Chida, both of Kanagawa, and Masami Watanabe, Yokohama, all of Japan, assignors to Nissan Motor Co., Ltd., Kanagawa, Japan

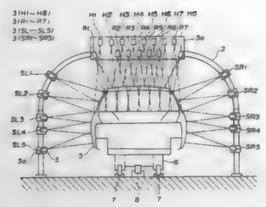
Filed Dec. 19, 1996, Ser. No. 770,571
Claims priority, application Japan, Dec. 28, 1995, 7-344054
Int. Cl.[6] H04N *7/18*
U.S. Cl. 348—92 34 Claims

1. An apparatus for inspecting a defect on a surface of an object under inspection, comprising:

means for moving the object along a path;

a lighting unit shaped in an arched form laid across the path of movement of the object for illuminating the surface of the object;

light pattern forming means located between the lighting unit and the path of movement of the object for forming a bright and dark light pattern on the surface of the object;



a plurality of light sensors arranged in an arched form laid across the path of movement of the object, each of the light sensors producing an electrical signal in response to light of reflection from the surface of the object;

a processing unit for processing the electrical signal fed thereto from each of the light sensors for producing an image including the bright and dark light pattern; and

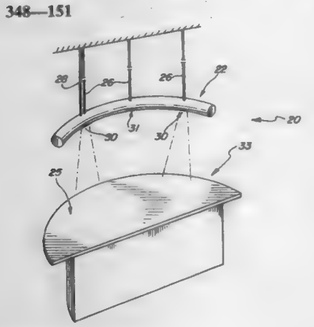
means for inspecting a defect on the surface of the object based on the images fed thereto from the processing unit.

5,726,706

TUBULAR LIGHTING SECURITY SYSTEM

Terrence C. Walsh, Coto de Caza, Calif., assignor to Tivoli Industries, Inc., Santa Ana, Calif.

Filed Jun. 19, 1995, Ser. No. 491,808
Int. Cl.[6] H04N *7/18*
U.S. Cl. 348—151 3 Claims



1. An apparatus comprising:

a fixture providing a surface to be observed;

a lamp fixture means suspended above said surface for providing illumination of said surface; and

a camera means concealed in said lamp fixture means for generating a video signal containing information indicative of activity on said surface, wherein said lamp fixture means comprises a tubular member including:

a tubular wall and at least one aperture in the tubular wall intermediate opposite ends thereof, and wherein said tubular wall mounts a plurality of rotatable assemblies which are passed laterally through an aperture in said tubular wall to be enclosed selectively within the tubular member;

mounting means within the interior of the tubular member, adjacent the aperture, for locating a lamp holder within the interior of the tubular member in juxtaposition with the aperture such that light from a lamp assembly will be directed in a lateral direction through the aperture, the mounting means including a carrier member placed within the interior of the tubular member adjacent the aperture in the wall of the tubular member; and

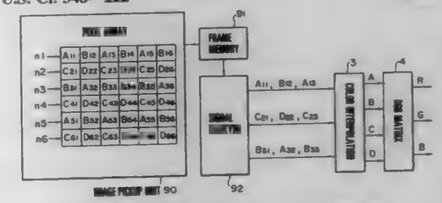
coupling means on the mounting means for selectively coupling the lamp holder with the mounting means in response to insertion of the lamp assembly laterally through the aperture into the interior of the tubular member and for selectively uncoupling the lamp holder from the mounting means in response to withdrawal of the lamp assembly laterally through the aperture out of the interior of the tubular member, the coupling means including a resilient member constructed of an elastomeric material and carried by the carrier member, the resilient member having a resiliently dilatable opening juxtaposed with the aperture in the wall of the tubular member for receiving the lamp holder to couple the lamp holder with the carrier member, the lamp holder including a housing having a diameter smaller than the aperture in the wall of the tubular member and greater than the resiliently dilatable opening in the resilient member such that the opening will dilate resiliently in response to insertion of the housing into the opening and retain the housing within the interior of the tubular member.

5,726,707

SIGNAL READING AND PROCESSING ARRANGEMENT OF STILL PICTURE RECORDING APPARATUS

Hiroshi Sakurai; Hiroyasu Ohtsubo; Kouji Asada, all of Yokohama; Masaru Noda, Kanagawa-ken; Noriyuki Iura, Yokohama; Takuya Imaide, Fujisawa; Junji Kamimura; Hiroyuki Komatsu, both of Yokohama, and Toshiro Kinugasa, Hiratsuka, all of Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Division of Ser. No. 164,798, Dec. 10, 1993, Pat. No. 5,512,945. This application Jun. 5, 1995, Ser. No. 461,519
Claims priority, application Japan, Dec. 11, 1992, 4-331393; Dec. 21, 1992, 4-339975
Int. Cl.[6] H04N *5/262;9/07*
U.S. Cl. 348—222 7 Claims



1. A still picture recording digital camera comprising:

an image pickup unit comprising a first group of parallel-spaced horizontal lines each including multiple opto-electric conversion elements each having color filters corresponding to a first and a second color, and a second group of horizontal lines each interleaved in two adjacent horizontal lines of said first group and having color filters corresponding to a third and a fourth color;

a frame memory for storing signals for one frame from said image pickup unit and outputting data therein;

sequentially selecting and outputting means for sequentially selecting and outputting signals from said frame memory as horizontal row signals corresponding to the opto-electric conversion elements adjoining in the vertical direction and of a plurality of horizontal lines of the image pickup unit;

color interpolating means for interpolating and outputting color signals corresponding to the first-fourth colors on the basis of

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the signals output from said sequentially selecting and outputting means, said color interpolating means having interpolation coefficients used for interpolating purposes and switched at intervals of one horizontal scanning period; and

signal processing means for producing a color signal or a luminance signal having a predetermined format on the basis of the color signals interpolated and produced by said color interpolating means.

5,726,708

ELECTRONIC STILL CAMERA DEVICE

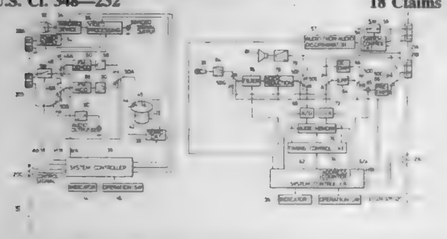
Nobuya Sakai, Kawagoe, and Harumi Aoki, Iruma, both of Japan, assignors to Asahi Kogaku Kogyo Kabushiki Kaisha, Tokyo, Japan

Division of Ser. No. 279,063, Jul. 22, 1994, Pat. No. 5,530,473, which is a continuation of Ser. No. 952,158, Sep. 28, 1992, abandoned, which is a continuation of Ser. No. 845,805, Mar. 9, 1992, abandoned, which is a continuation of Ser. No. 661,609, Feb. 28, 1991, abandoned, which is a continuation of Ser. No. 262,834, Oct. 26, 1988, Pat. No. 5,014,136. This application May 23, 1995, Ser. No. 447,444

Claims priority, application Japan, Oct. 29, 1987, 62-166088; Oct. 29, 1987, 62-274385; Oct. 30, 1987, 62-274824

Int. Cl.[6] H04N *5/225*

U.S. Cl. 348—232 18 Claims



1. An electronic still camera device having an audio adapter and an electronic still camera unit, said electronic still camera unit comprising:

means for transferring an audio signal, that has been recorded to a recording medium associated with said electronic still camera in a time-base-compressing manner, to said audio adapter; and

means for outputting said audio signal that has been recorded to said recording medium associated with said electronic still camera in said time-base-compressing manner, said audio signal being output after said audio signal is expanded, in said audio adapter, in a time-base-expanding manner; and

said audio adapter comprising:

means for collecting audio signals;

means for compressing said collected audio signals in said time-base-compressing manner for recording to said recording medium; and

means for expanding said audio signal, reproduced from said recording medium, in said time-base-expanding manner, said audio signal expanded in said time-base-expanding manner and said audio signal compressed in said time-base-compressing manner being transferred between said electronic still camera unit and said audio adapter;

said audio adapter being selectively mountable to and demountable from said electronic still camera unit.

5,726,709

IMAGING APPARATUS INCLUDING OFFSET PIXELS FOR GENERATING VERTICAL HIGH FREQUENCY COMPONENT

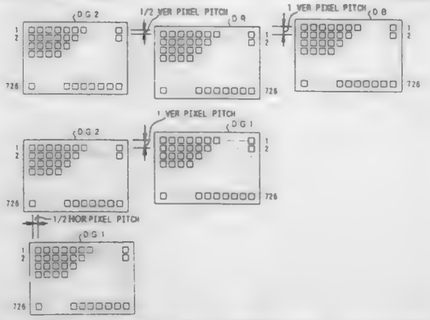
Kosuke Kinoshita, Yokohama, Japan; Takashi Shinozaki, Yokohama, Japan; Takuya Tsushima, Kamakura, Japan; Masaji Yoshida, Fujisawa, Japan; Hiroyuki Kitamura, Hiratsuka, Japan, and Tetsuya Suwa, Yokohama, Japan, assignors to Victor Company of Japan, Ltd., Japan

Division of Ser. No. 452,816, May 30, 1995, Pat. No. 5,640,206. This application Dec. 30, 1996, Ser. No. 773,930

Claims priority, application Japan, May 31, 1994, 6-141181; Sep. 27, 1994, 6-257583

Int. Cl.[6] H04N *9/09;9/097*

U.S. Cl. 348—264 8 Claims



1. An imaging apparatus for outputting blue, red, and green color signals in response to an image ray, comprising:

a color separation optical system for separating said image ray into blue, green, and red image rays;

a first image sensor, having first pixels vertically and horizontally arranged, for receiving said blue image ray and producing said blue color signal;

a second image sensor, having second pixels vertically and horizontally arranged, for receiving said red image ray and producing said red color signal;

a third image sensor, having third pixels vertically and horizontally arranged, for receiving said green image ray and producing said green color signal;

wherein at least one of said first and second pixels comprise offset pixels having vertical relative offsets against said third pixels to have a relative interlace relation with said third pixels to produce a screen to be produced from said blue, red, and green color signals, said screen having a higher resolution than said first to third image sensors;

a vertical component extracting circuit for extracting a vertical high frequency component from the blue color signal, if the first pixels comprise said offset pixels, and the red color signal, if the second pixels comprise said offset pixels, said vertical high frequency component corresponding to a green color luminance value at a corresponding position of the offset pixels;

an adding circuit for adding said vertical high frequency component to said green color signal to produce a second green color signal indicative of said green color luminance value;

a signal producing circuit for producing second blue and red color signals indicative of color luminance values at corresponding positions of said third pixels from said blue and red color signals;

first field generation means for outputting said blue and red color signals and said second green color signal to form a first field of said screen;

second field generation means for outputting said second blue and red color signals and said green color signal to form a second field of said screen; and

reading control means for controlling the production of said blue, red, green and second green color signals in an interlace reading manner respectively;

wherein said first and second pixels respectively have second vertical relative offsets with respect to each other such that fields produced as a result of said interlace reading manner are different from each other.

5,726,710

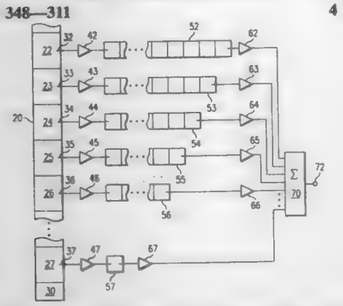
LOW NOISE HIGH PERFORMANCE CHARGE DETECTION SYSTEM

Jaroslav Hynecek, Richardson, Tex., assignor to Texas Instruments Incorporated, Dallas, Tex.

Continuation of Ser. No. 297,340, Aug. 29, 1994, abandoned. This application Oct. 3, 1995, Ser. No. 538,306

Int. Cl.[6] H04N *5/335;3/14*

U.S. Cl. 348—311 4 Claims



1. A charge coupled device (CCD) charge detection system comprising:

a first CCD register having N stages and N non-destructive charge readouts, each of the N non-destructive charge readouts is coupled to a readouts is coupled to a corresponding one of the N stages, the N stages are coupled in series for multiple sensing of charge, N is an integer greater than one; and

N second CCD registers coupled to the N non-destructive charge readouts, each of the N second CCD registers is coupled to a corresponding one of the N non-destructive charge readouts.

5,726,711

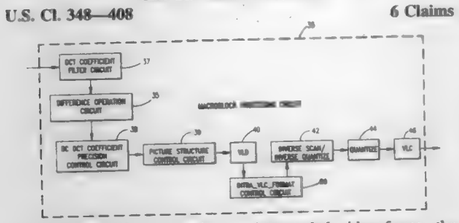
INTRA-CODED VIDEO FRAME DATA PROCESSING METHODS AND APPARATUS

Jill MacDonald Boyce, Manalapan, N.J., assignor to Hitachi America, Ltd., Tarrytown, N.Y.

Division of Ser. No. 298,015, Aug. 30, 1994, which is a continuation-in-part of Ser. No. 228,949, Apr. 18, 1994, which is a continuation of Ser. No. 4,158, Jan. 13, 1993, abandoned. This application Mar. 15, 1996, Ser. No. 616,303

Int. Cl.[6] H04N *7/32;7/30*

U.S. Cl. 348—408 6 Claims



3. A method for processing an intra-coded video frame, the digital data repressing the intra-coded frame including a plurality of macroblocks, each macroblock including DC DCT coefficients and AC DCT coefficients, the method comprising the steps of:

receiving the digital data representing the intra-coded frame including the plurality of macroblocks;

filtering the received digital data representing the intra-coded frame to remove the AC DCT coefficients from each one of the plurality of macroblocks, the filtered digital data representing the intra-coded frame with less data than the received video data; and

storing the filtered digital data representing the intra-coded frame using a non-volatile digital storage media.

5,726,712

REDUCED BIT NUMBER MOTION VECTOR DETECTION

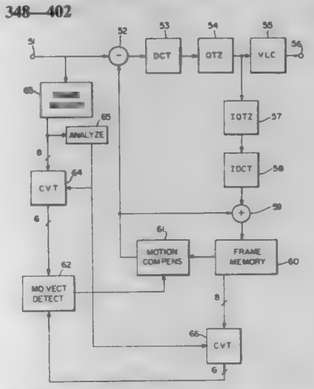
Eiji Ogura, Saitama, Japan, assignor to Sony Corporation, Tokyo, Japan

Filed Jan. 19, 1995, Ser. No. 374,816

Claims priority, application Japan, Jan. 21, 1994, 6-022223

Int. Cl.[6] H04N *7/32*

U.S. Cl. 348—402 23 Claims



1. An apparatus for motion vector detection, comprising:

first means for receiving and storing reference pixel data having a first number of bits;

second means for receiving and storing search pixel data;

means for subtracting pixel data derived from said search pixel data from said reference pixel data to produce difference data;

means for orthogonally transforming said difference data to produce coefficient data;

means for quantizing said coefficient data to produce quantized data;

means for inverse quantizing said quantized data to produce recovered coefficient data;

means for inverse orthogonally transforming said recovered coefficient data to produce recovered difference data;

means for modifying said recovered difference data to produce said search pixel data having said first number of bits for storing said search pixel data in said second storing means;

means for reducing said first number of bits of said search pixel data and of said reference pixel data to a second number of bits which is less than said first number of bits, said second number of bits excluding at least one least significant bit of said search pixel data and of said reference pixel data, respectively; and

means for detecting a motion vector between the bit number reduced search pixel data and the bit number reduced reference pixel data.

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5,726,713

METHOD OF COMPUTER ASSISTED MOTION ESTIMATION FOR PICTURE ELEMENTS OF CHRONOLOGICALLY SUCCESSIVE IMAGES OF A VIDEO SEQUENCE

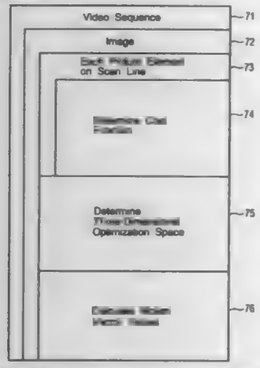
Stathis Panis, Munich, Germany, assignor to Siemens Aktiengesellschaft, Munich, Germany

Filed Dec. 20, 1996, Ser. No. 771,041

Claims priority, application Germany, Dec. 22, 1995, 195 48 451.7

Int. Cl.[6] H04N 7/34;7/36

U.S. Cl. 348—413 20 Claims



1. A method for computer-supported motion estimation for picture elements of chronologically successive images of a video sequence, comprising the steps of:

determining a luminance gradient for each picture element of an image to be encoded;

determining a cost function for each picture element of the image to be encoded, said cost function indicating coincidence of an area surrounding a respective picture element with an area of a same shape in a chronologically preceding image that is shifted compared to the area that surrounds the picture element of the image to be encoded;

the cost function having at least a first term by which a value of the cost function is incremented corresponding to differences of values of motion vectors of picture elements that are located next to one another on a scan line of the respective picture element;

the cost function having at least a second term by which the value of the cost function is deincremented given an increasing luminance gradient of the respective picture element;

implementing a dynamic programming for each picture element based on the cost function thereof; and

allocating a motion vector, determined by dynamic programming, to the respective picture element.

5,726,714

DETECTOR FOR DETECTING RECEPTION OF A COLOR TELEVISION SIGNAL CODED ACCORDING TO THE SECAM STANDARD

Pierre-Jean Maldonado, Seyssins, France, assignor to SGS-Thomson Microelectronics S.A., Saint Genis, France

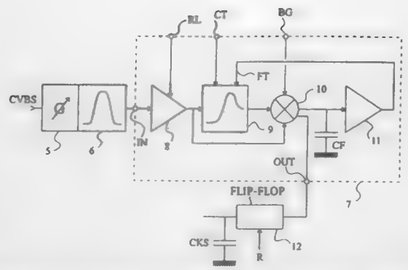
Filed Oct. 27, 1995, Ser. No. 549,600

Claims priority, application France, Oct. 31, 1994, 94 13405

Int. Cl.[6] H04N 9/64;5/46

U.S. Cl. 348—558 25 Claims

1. A detector for detecting reception of a color television signal coded according to the SECAM standard comprising a filter pretuned by a general control of filters of an integrated circuit for



identifying the standard according to which the television signal is coded, a phase comparator receiving the input and output signals of the filter, and means for tuning the frequency of said filter to the actual mean frequency of two consecutive lines of the signal.

5,726,715

METHOD AND APPARATUS FOR DISPLAYING TWO VIDEO PICTURES SIMULTANEOUSLY

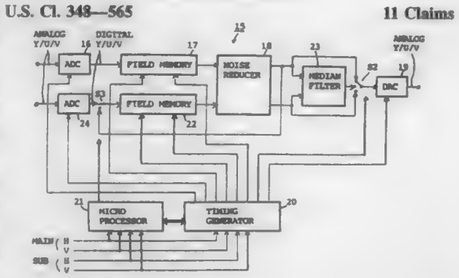
Wolfgang Endress, Winnenden, Germany, assignor to Sony-Wega Produktions GmbH, Fellbach, Germany

Filed Dec. 12, 1995, Ser. No. 571,206

Claims priority, application European Pat. Off., Dec. 12, 1994, 94119596

Int. Cl.[6] H04N 5/45

U.S. Cl. 348—565 11 Claims



1. A method for displaying video pictures of a first and a second received video signal comprising the steps of:

storing the first received video signal in a first memory at a first predetermined frequency in synchronism with a synchronizing signal of the first received video signal;

storing the second received video signal in a second memory at said first predetermined frequency in synchronism with a synchronizing signal of the second received video signal;

reading out the first and second received video signals alternately linewise from the first and second memories at a second predetermined frequency in synchronism with the synchronizing signal of either the first received video signal or the second received video signal; and

displaying the video pictures corresponding to the first and second received video signals on a video screen.

5,726,716

PERSPECTIVE REPRESENTATION SYSTEM FOR DISPLAYING PORTIONS OF AN ORIGINAL PICTURE IN A DISPLAYABLE PICTURE

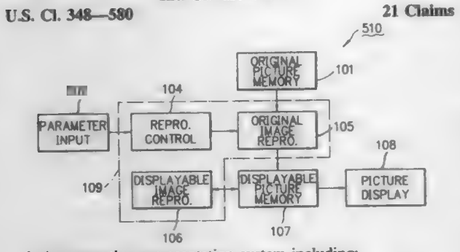
Toru Egashira, and Kazutoshi Oishi, both of Tokyo, Japan, assignors to NEC Corporation, Tokyo, Japan

Filed Mar. 7, 1996, Ser. No. 612,414

Claims priority, application Japan, Mar. 7, 1995, 7-047534; Jul. 19, 1995, 7-182306; Jul. 19, 1995, 7-182307; Aug. 15, 1995, 7-229670

Int. Cl.[6] H04N 9/74

U.S. Cl. 348—580 21 Claims



1. A perspective representation system including:

an original picture memory means for storing an original picture;

a displayable picture memory means for storing a displayable picture;

a picture reproduction means for reproducing the original picture in the displayable picture;

a parameter input means for receiving image reproduction parameters; and

a picture display means for visualizing the displayable picture,

wherein the picture reproduction means comprises:

an original picture reproduction means for reproducing a partial image of the original picture stored in the original picture memory means;

a displayable picture reproduction means for reproducing a partial image of the displayable picture stored in the displayable picture memory means; and

a reproduction control means, responsive to the image reproduction parameters, and comprising means for designating a rectangular partial region of the original picture to be reproduced, means for designating a rectangular partial region of the displayable picture at a reproduction end, and means for generating information corresponding to a relationship between the displayable picture and the original picture, including that an image of a certain region of the displayable picture and an image of a certain region of the original picture are equivalent to each other, and comprising means for instructing the displayable picture reproduction means to reuse part of the displayable picture, as part of the region at the reproduction end, and to reproduce from the original picture a region at the reproduction end in order to reproduce a portion of the original picture in the displayable picture.

5,726,717

METHOD AND USER INTERFACE FOR CREATING, SPECIFYING AND ADJUSTING MOTION PICTURE TRANSITIONS

Eric C. Peters, Carlisle, and Joseph H. Rice, Arlington, both of Mass., assignors to Avid Technology, Inc., Tewksbury, Mass.

Continuation of Ser. No. 49,028, Apr. 16, 1993, Pat. No. 5,440,348. This application Aug. 7, 1995, Ser. No. 511,756

Int. Cl.[6] H04N 5/262;5/272

U.S. Cl. 348—593 14 Claims

1. A method for editing a composition including a plurality of motion picture scenes, wherein a first individual one of the motion picture scenes and a second individual one of the motion picture scenes are separated by a plurality of frames, the method comprising:



simultaneously displaying four frames in separate display areas, the four frames including corresponding frames from two of the scenes at the end of the first scene and corresponding frames from two of the scenes at the beginning of the second scene,

responding to a move command, and

altering, in response to the move command, the position in their respective scenes from which two of the four frames are displayed in the step of simultaneously displaying to redefine the composition.

5,726,718

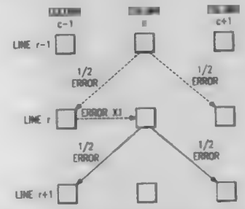
ERROR DIFFUSION FILTER FOR DMD DISPLAY

Donald B. Doherty, Richardson, Tex.; Vishal Markandey, Dallas, Tex., and Gregory Pettitt, Rowlett, Tex., assignors to Texas Instruments Incorporated, Dallas, Tex.

Filed Sep. 30, 1994, Ser. No. 315,457

Int. Cl.[6] H04N 5/74

U.S. Cl. 348—771 9 Claims



1. An error diffusion filter for enhancing the apparent intensity resolution in a DMD Display comprising:

means for determining an intensity error value between a desired high resolution intensity at a first pixel location and closest lower achievable intensity value of a corresponding micromirror at said first pixel location over the entire range of intensities; and

means for propagating a fraction of said error value to micromirrors at nearby pixel locations to said first pixel location to thereby enhance the apparent intensity resolution of said DMD display.

5,726,719

PROJECTION-TYPE COLOR DISPLAY DEVICE

Naoyuki Tanaka, Tenri; Hiroshi Hamada, Nara; Hiroshi Nakanishi, Sakurai, and Hideki Ohshima, Nasu-gun, all of Japan, assignors to Sharp Kabushiki Kaisha, Osaka, Japan

Filed Sep. 29, 1995, Ser. No. 536,815

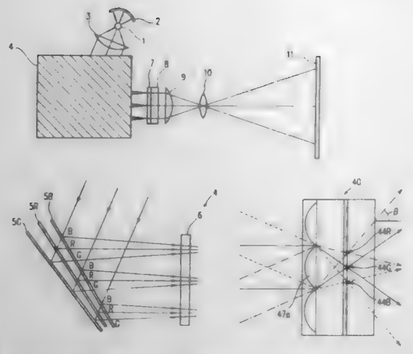
Claims priority, application Japan, Oct. 17, 1994, 6-250704

Int. Cl.[6] G02F 1/1335

U.S. Cl. 349—8 15 Claims

1. A projection-type color display device comprising: a white light source; a splitting means for splitting white light emitted from

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the white light source into a first, a second, and a third beam having respectively different wavelength regions; a modulation means for modulating the first, the second, and third beams; the splitting means containing an irradiation means for irradiating the first, the second and the third beams onto a principal surface of the modulation means at respectively different angles; and a projection means for projecting the first, the second and the third beams modulated by the modulation means,

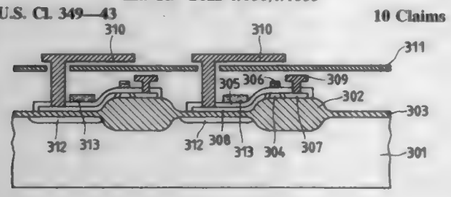
wherein the first beam includes a color beam having a weakest intensity among the beams in three primary colors contained in the white light; and a direction of the first beam incident onto the principal surface of the modulation means is closer to a normal of the principal surface of the modulation means as compared with the second and the third beams.

5,726,720

LIQUID CRYSTAL DISPLAY APPARATUS IN WHICH AN INSULATING LAYER BETWEEN THE SOURCE AND SUBSTRATE IS THICKER THAN THE INSULATING LAYER BETWEEN THE DRAIN AND SUBSTRATE

Takanori Watanabe, Atsugi, and Mamoru Miyawaki, Isehara, both of Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan

Filed Mar. 4, 1996, Ser. No. 610,355
Claims priority, application Japan, Mar. 6, 1995, 7-070449
Int. Cl.[6] G02F *1/136;1/1333*
U.S. Cl. 349—43 **10 Claims**



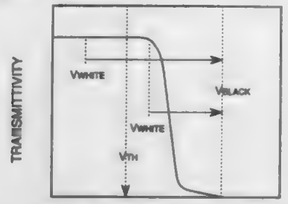
1. A liquid crystal display apparatus comprised of elements each comprising a transistor at a region corresponding to a crossing region of a data signal wiring and a scanning signal wiring; a matrix substrate having data signal wiring connected to a source of the transistor, the scanning signal wiring connected to a gate of the transistor, and a picture element electrode connected to a drain of the transistor; an opposing substrate having a counter-electrode opposing to the picture element electrode; and a liquid crystal layer interposed between the matrix substrate and the opposing electrode, wherein a semiconductor layer for forming the matrix substrate or an electroconductive layer is placed under the transistor with interposition of an insulating layer, and the insulating layer has a larger thickness between the source and the semiconductor layer or the electroconductive layer than that between the drain and the semiconductor layer or the electroconductive layer.

5,726,721

LIQUID CRYSTAL DISPLAY APPARATUS

Ken Sumiyoshi, and Yoriko Hatada, both of Tokyo, Japan, assignors to NEC Corporation, Tokyo, Japan

Filed Jun. 6, 1995, Ser. No. 469,921
Claims priority, application Japan, Jun. 6, 1994, 6-123420
Int. Cl.[6] G02F *1/1333;1/141;1/1343*
U.S. Cl. 349—54 **10 Claims**



7. A liquid crystal display apparatus comprising:

a twisted nematic liquid crystal sandwiched between a first substrate having a common electrode and a second substrate having a plurality of pixel electrodes, the twisted nematic liquid crystal having a splay distortion when no voltage is applied; and

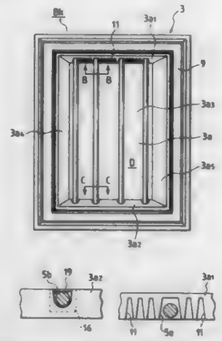
means for applying a voltage maintained during a display operation at level greater than or equal to a threshold voltage at which molecules of the liquid crystal begin to move under an influence of an applied electric field.

5,726,722

LIGHT SOURCE FOR DISPLAY DEVICE

Makoto Uehara, Zama; Shigeki Yabu, Machida, and Yoshihiro Onitsuka, Hiratsuka, all of Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan

Continuation of Ser. No. 183,308, Jan. 19, 1994, abandoned. This application Jul. 22, 1996, Ser. No. 684,727
Claims priority, application Japan, Jan. 19, 1993, 5-023608; Oct. 13, 1993, 5-280435
Int. Cl.[6] G02F *1/1335;* **F21S** *3/00;* **B60Q** *1/06*
U.S. Cl. 349—66 **52 Claims**



8. A light source device comprising:

a lamp chamber having a rear wall, a pair of side walls, an upper wall and a lower wall;

a light source arranged in said chamber;

a light transmitting cover provided at a front of said lamp chamber for closing said chamber; and

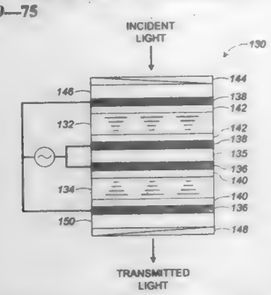
a plurality of ventilating holes formed at said upper wall, and through holes formed in said upper and lower walls so that said light source penetrates into the through hole.

5,726,723

SUB-TWISTED NEMATIC LIQUID CRYSTAL DISPLAY

Xin-Jiu Wang, and Qi-Feng Zhou, both of Beijing, China, assignors to Technology Research International Corporation, Alpharetta, Ga.

Filed Jan. 31, 1996, Ser. No. 594,905
Int. Cl.[6] G02F *1/133;1/1347;1/13*
U.S. Cl. 349—75 **22 Claims**



1. A sub-twisted nematic liquid crystal device, comprising:

a liquid crystal layer characterized as a polarization rotator below an optical threshold voltage, a λ/2 plate at approximately a saturation voltage, and a uniaxial transparent layer above said saturation voltage;

a first electrode layer and a second electrode layer, said electrode layers sandwiching said liquid crystal layer and configured to create an electric field across said liquid crystal layer, said first and second electrode layers substantially transparent to incident visible light;

orientation means for imparting a twist angle to said liquid crystal layer;

reflecting means positioned adjacent said first electrode layer for reflecting light that passes from said liquid crystal layer back through said liquid crystal layer; and

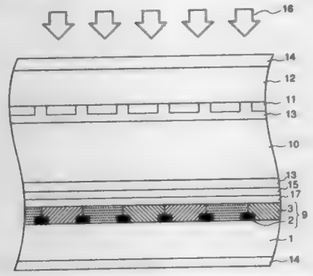
a polarizing film adjacent said second electrode layer for converting incident light into linearly polarized light.

5,726,724

METHOD FOR MANUFACTURING A COLOR FILTER USING AN INK JET SYSTEM TO COLOR PORTIONS WHICH HAVE AREAS FROM 1.2 TO 1.5 TIMES GREATER THAN THE LIGHT TRANSMITTABLE PORTIONS

Katsuhiro Shirota, Inagi; Hiroshi Sato; Hideto Yokoi, both of Yokohama; Takeshi Miyazaki, Ebina; Akio Kashiwazaki, Yokohama, and Shoji Shiba, Sagamihara, all of Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan

Filed Nov. 21, 1994, Ser. No. 345,703
Claims priority, application Japan, Nov. 24, 1993, 5-293396
Int. Cl.[6] G02F *1/1335;* **G02B** *5/22;* **G03F** *9/00*
U.S. Cl. 349—106 **8 Claims**



1. A method for manufacturing a color filter comprising the steps of:

providing a substrate having a plurality of light-transmittable portions and a shade portion;

forming an ink-receiving layer on the substrate surface; and

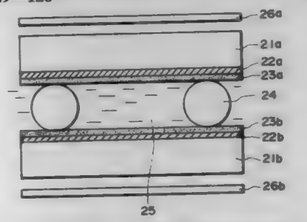
applying colored ink to the light-transmittable portions by an ink jet system to create colored portions, in which the volume of colored ink is sufficient to form colored portions which have areas from 1.2 to 1.5 times greater than the areas of their respective light-transmittable portions.

5,726,725

LIQUID CRYSTAL DEVICE AND PROCESS FOR PRODUCTION THEREOF WITH POLYIMIDE ALIGNMENT FILM RUBBED AND THEN BAKED

Masaaki Shibata, Yamanishi, Japan, and Katsutoshi Nakamura, Hiratsuka, Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan

Filed Mar. 31, 1995, Ser. No. 414,722
Claims priority, application Japan, Mar. 31, 1994, 6-083672
Int. Cl.[6] G02F *1/1337;1/141*
U.S. Cl. 349—126 **18 Claims**



7. A process for producing a liquid crystal device, comprising the steps of:

forming a film of a polyimide precursor on a substrate, subjecting a surface of the film to a uniaxial aligning treatment and then baking the film to form an alignment control film,

disposing a pair of substrates including the substrate having the alignment control film opposite to each other with a spacing therebetween to form a cell, and

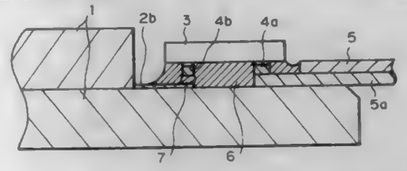
injecting a liquid crystal into the spacing between substrates of the cell.

5,726,726

LIQUID CRYSTAL DISPLAY AND METHOD OF PRODUCING THE SAME

Futoshi Nakanishi, Tokyo, Japan, assignor to NEC Corporation, Tokyo, Japan

Filed Nov. 29, 1996, Ser. No. 759,083
Claims priority, application Japan, Nov. 29, 1995, 7-311312
Int. Cl.[6] G20F *1/1345*
U.S. Cl. 349—149 **6 Claims**



1. A COG (Chip On Glass) type liquid crystal display (LCD) comprising:

a glass substrate constituting an LCD panel;

an output conductive pattern formed on said glass substrate;

output connection terminals provided on said glass substrate and connected to said output conductive pattern;

input connection terminals provided on said glass substrate; and

a flexible printed circuit (FPC) provided on said glass substrate via a metal wiring;

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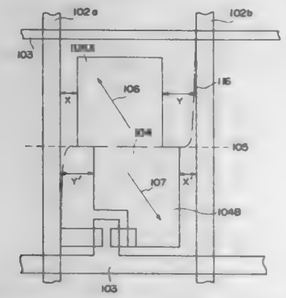
wherein said metal wiring is connected to said input connection terminals with an end thereof protruding from said FPC.

5,726,727

LIQUID CRYSTAL DISPLAY DEVICE CAPABLE OF PRODUCING A DISPLAY OF HIGH VIGNETTING FACTOR AND EXCELLENT CONTRAST

Hideo Shibahara; Susumu Ohi; Muneo Maruyama, and Michiaki Sakamoto, all of Tokyo, Japan, assignors to NEC Corporation, Tokyo, Japan

Filed Apr. 1, 1996, Ser. No. 625,189
Claims priority, application Japan, Mar. 30, 1995, 7-072811
Int. Cl.[6] G02F *1/1337;1/1343*
U.S. Cl. 349—144 **12 Claims**



1. A liquid crystal display device for use in an active matrix liquid crystal display panel, comprising:
first and second substrate members;
a layer of a liquid crystal material which is positioned between said first and said second substrate members;
an active switching element formed on said first substrate member;
a pixel electrode which is electrically connected to said active switching element, and which has first and second portions connected to each other;
a primary signal line electrically connected to said pixel electrode to supply said pixel electrode with a driving signal;
a secondary signal line adjacent to said primary signal line with said pixel electrode interposed therebetween;
a scanning line which is electrically connected to said pixel electrode and which is perpendicular to said primary and said secondary signal lines; and
said first portion of said pixel electrode being nearer to said primary signal line than to said secondary signal line while said second portion of said pixel electrode being nearer to said secondary signal line than to said primary signal line.

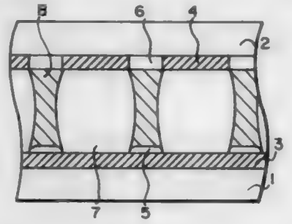
10. A liquid crystal display device comprising:
first and second substrate members;
a layer of a liquid crystal material which is positioned between said first and second substrate members and which is divided into first and second layer domains adjacent to each other;
said first layer domain having a first pre-tilt direction for a first liquid crystal orientation, said second layer domain having a second pre-tilt direction for a second liquid crystal orientation, said first pre-tilt direction being different from said second pre-tilt direction;
a thin film transistor which is formed on said first substrate member, and which has a drain electrode, a gate electrode and a source electrode;
a pixel electrode which is electrically connected to said source electrode and which has first and second portions with said first and said second portions corresponding to said first and said second layer domains, respectively;
a primary drain line electrically connected to said drain electrode to supply said pixel electrode with an image signal;
a secondary drain line adjacent to said primary drain line with said pixel electrode interposed therebetween;
a gate line which is electrically connected to said gate electrode and which is perpendicular to said primary and secondary drain lines;
said first portion of said pixel electrode being remote from said primary drain line by a first distance while being remote from said secondary drain line by a second distance larger than said first distance; and
said second portion of said pixel electrode being remote from said secondary drain line by a primary distance while being remote from said primary drain line by a secondary distance larger than said first distance, wherein said first distance is 6 microns while said second distance is 8 microns.

5,726,728

LIQUID CRYSTAL DISPLAY DEVICE AND A PRODUCTION METHOD UTILIZING SURFACE FREE ENERGIES FOR THE SAME

Masahiko Kondo, Kitakatsuragi-gun; Nobuaki Yamada, Higashiosaka; Wataru Horie, Hashimoto; Makoto Shiomi; Masayuki Okamoto, both of Tenri; Shuichi Kozaki; Tokihiko Shinomiya, both of Nara, and Kohichi Fujimori, Nabari, all of Japan, assignors to Sharp Kabushiki Kaisha, Osaka, Japan

Filed Sep. 27, 1994, Ser. No. 312,623
Claims priority, application Japan, Sep. 28, 1993, 5-241704; Jul. 28, 1994, 6-177075
Int. Cl.[6] G02F *1/1339*
U.S. Cl. 349—156 **42 Claims**



1. A liquid crystal display device comprising:
a pair of substrates, at least one of which bears plural areas formed by using a uniform pattern of arrangement of surface free energy;
a polymeric wall made of a polymeric material formed by polymerizing a polymerizable material, sandwiched between the substrates and formed in part of the plural areas having a first surface free energy; and
a plurality of liquid crystal regions made of a liquid crystal material substantially surrounded by the polymeric wall, sandwiched between the substrates, and formed in another part of the plural areas having a second surface free energy;
wherein positions of the areas having the first surface free energy, the areas having the second surface free energy, the polymeric wall and the liquid crystal region are determined so that the first surface free energy γ_P, the second surface free energy γ_E, surface free energy γ_{LC} of the liquid crystal material and surface free energy γ_M of the polymeric material satisfy the following relationship:

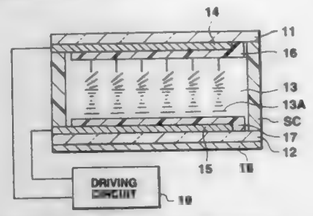
$$(\gamma_E-\gamma_P)\times(\gamma_{LC}-\gamma_M)>0.$$

5,726,729

LIQUID CRYSTAL DISPLAY DEVICE

Jiro Takei, Hachioji, Japan, assignor to Casio Computer Co., Ltd., Tokyo, Japan

Filed Jul. 22, 1996, Ser. No. 681,010
Claims priority, application Japan, Aug. 1, 1995, 7-213958
Int. Cl.[6] G02F *1/1337;1/13;19/60*
U.S. Cl. 349—180 **13 Claims**



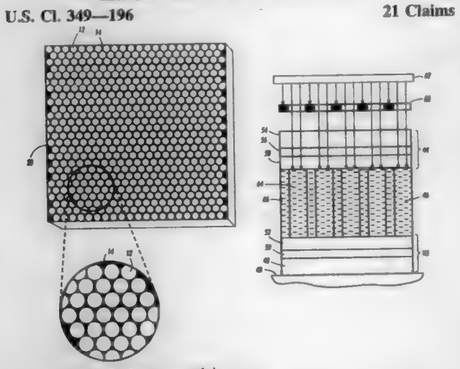
10. A liquid crystal display device comprising:
first and second substrates;
a liquid crystal sealed between said first and second substrates, aligned substantially homeotropicly in a vicinity of said first substrate, aligned substantially homogeneously in a vicinity of said second substrate, end twisted toward said first substrate from said second substrate within an angle of 0.5π radians or greater and smaller than $(5/3)\pi$ radians;
a dichroic dye added to said liquid crystal; and
drive means for applying a voltage to said liquid crystal to control an alignment state thereof.

5,726,730

OPTICAL EQUIVALENTS OF FIBER OPTIC FACE PLATES USING REACTIVE LIQUID CRYSTALS AND POLYMERS

Gregory P. Crawford, Providence, R.I.; Thomas G. Fiske, Campbell, Calif., and Louis D. Silverstein, Scottsdale, Ariz., assignors to Xerox Corporation, Stamford, Conn.

Filed Dec. 19, 1996, Ser. No. 769,388
Int. Cl.[6] G02F *1/13;* **G02B** *6/04;6/16*
U.S. Cl. 349—196 **21 Claims**



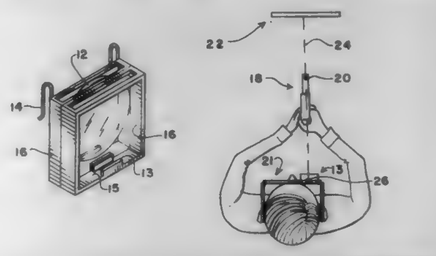
1. An optical plate comprising
a) a light entrance plane and a light exit plane,
b) at least one substantially columnar feature extending generally from the light entrance plane to the light exit plane wherein light generally enters the at least one columnar feature at the light entrance plane, propagates through the at least one columnar feature and generally exits through the light exit plane, and said at least one columnar feature having a core index of refraction,
b) at least one cladding feature generally surrounding said at least one columnar feature, said cladding feature have a cladding index of refraction that is less than the core index of refraction, and
c) said at least one substantially columnar feature and said at least one cladding feature comprising a polymer, the polymer having molecules with an alignment direction wherein the alignment direction of the molecules in the at least one substantially columnar feature are transverse to the alignment direction of the molecules in the at least one cladding feature.

5,726,731

SHOOTER'S EYEGLASSES AND METHOD THEREFOR

Alan G. Toler, 3026 West Cary St., Richmond, Va. 23221

Filed May 16, 1996, Ser. No. 648,732
Int. Cl.[6] G02C *7/00;9/00*
U.S. Cl. 351—53 **5 Claims**



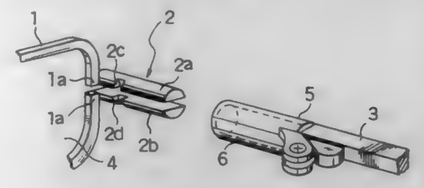
1. Shooter's eyeglasses for use by a shooter in a standardized shooting position, said eyeglasses comprising a frame, two normal lenses customarily employed for routine visual requirements, and a specialized lens powered to an eighth diopter with zero tolerance and having a tint that enhances contrast of visually perceived contiguous subject matter, said specialized lens being located within said frame in a manner such that the optical center of said specialized lens is centered on the shooter's eye when the shooter is in said shooting position.

5,726,732

STRUCTURE FOR COUPLING SOME SELECTED PARTS OF A PAIR OF EYEGLASSES

Mitsuo Kobayashi, 6-9 Ebata-cho, Fukui-shi, Fukui-ken, 918, Japan

Filed Dec. 24, 1996, Ser. No. 773,721
Claims priority, application Japan, Oct. 8, 1996, 8-267011
Int. Cl.[6] G02C *1/08*
U.S. Cl. 351—97 **5 Claims**



1. An eyeglasses parts coupling structure for fixing a lens to an associated rim and at the same time, the rim to the joint piece, to which one or the other temple is hinged, the rim having a loop hole at its outer side, thus dividing the rim circumference into upper and lower rim halves, and the rim having two broach sections fixed to the opposite ends of the upper and lower rim halves, and the joint piece having a hollow joint to permit the broach sections to be press-fitted therein, thereby holding the lens inside the rim.

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5,726,733

METHOD FOR INCREASING HYDROPHILICITY OF CONTACT LENSES

Yu-Chin Lai, and Paul L. Valint, Jr., both of Pittsford, N.Y., assignors to Bausch & Lomb Incorporated, Rochester, N.Y.

Continuation of Ser. No. 171,547, Dec. 21, 1993, abandoned.
This application Jun. 11, 1996, Ser. No. 661,803
Int. Cl.[6] G02C 7/04; B05D 3/02;3/06
U.S. Cl. 351—160 11 Claims

1. A method for increasing hydrophilicity of a contact lens consisting essentially of:

contacting a surface of the contact lens with an aqueous solution including a hydrophilic monomer and a thermal polymerization initiator; and

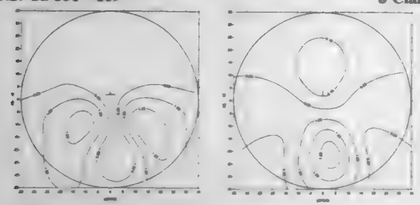
heating the solution while in contact with the surface of the contact lens to effect polymerization of said hydrophilic monomer.

5,726,734

HARD/SOFT SUPERPOSITION PROGRESSIVE LENS DESIGN

John T. Winthrop, Stevensville, Mont., assignor to American Optical Corporation, Southbridge, Mass.

Filed Jan. 19, 1996, Ser. No. 588,977
Int. Cl.[6] G02C 7/06
U.S. Cl. 351—169 6 Claims



1. A progressive ophthalmic lens having:

a distance portion, a reading portion and an intermediate portion;

the lens having a composite progressive power surface Z_C defined by the equation:

$$Z_C^{(A)}=Z_H^{(A-B)}+Z_X^{(B)}-Z_H^{(0)}$$

where:

Z_C=elevation of the progressive power surface above a reference plane;

Z_H=elevation of the progressive power surface above said reference plane for a first design component of the lens;

Z_X=elevation of the progressive power surface above said reference plane for a second design component of the lens;

A=the power addition of the composite lens; and

B=the power addition of said second design component.

5,726,735

MEASUREMENT DEVICE WITH POLARIZING FILTER FOR NOISE ELIMINATION

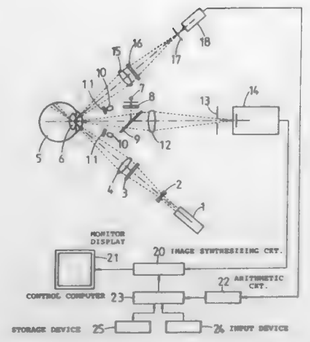
Masunori Kawamura, Nagoya-shi, and Setsuo Saitou, Aichi-gun, both of Japan, assignors to Nidek Co., Ltd., Japan

Filed Feb. 2, 1996, Ser. No. 595,826
Claims priority, application Japan, Feb. 2, 1995, 7-039282
Int. Cl.[6] A61B 3/10
U.S. Cl. 351—215 12 Claims

1. An ophthalmic measuring apparatus comprising:

a laser beam irradiating optical system for emitting and focusing a laser beam having a polarizing axis to an eye

a scattered light detecting optical system including a detector for detecting a light scattered by molecules in a crystalline lens of the eye by said laser beam;



measuring means for measuring a composition in the crystalline lens on the basis of the intensity of the light detected by said scattered light detecting optical system;

wherein a first polarizing filter is disposed in front of said detector in said scattered light detecting optical system that includes a polarizing axis that corresponds with the polarizing axis of the laser beam emitted from said laser beam irradiating optical system;

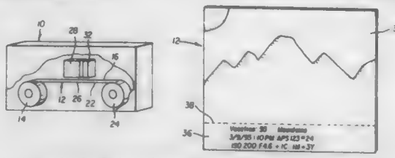
wherein the first polarizing filter passes the light scattered by the molecules in the crystalline lens by said laser beam to said detector and cuts noise light having a polarizing axis different than the polarizing axis of the first polarizing filter.

5,726,736

METHODS OF LABELING PHOTOGRAPHS

Curtis Edward DeWolff; Brian Keith Gallipeau, both of Fairport, and Thomas Eldred Lambdin, Lyons, all of N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.

Continuation of Ser. No. 473,177, Jun. 7, 1995, abandoned.
This application Apr. 26, 1996, Ser. No. 638,404
Int. Cl.[6] G03B 27/32;27/52
U.S. Cl. 355—39 10 Claims



1. A method of photofinishing processing characterized by:

making a sequential series of labeled photographic prints from a continuous web of photographic paper, each print having a print image portion and an adjacent label image portion;

generating a label image on each said label image portion by exposing labeling information thereon;

generating a print image on each said print image portion by exposing an image thereon;

forming a line of perforation between each said print image portion and the adjacent label image portion; and

separating said labeled prints by cutting the web between the prints;

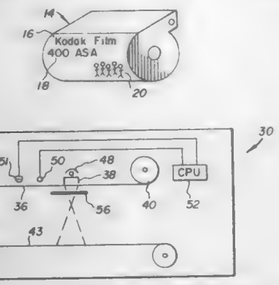
whereby a sequential series of cut edged prints is formed, each with a label attached along said line of perforation and capable of being read from the image side of the print, or being folded back along the line of perforation to be read from the non-image side of the print, or being detached for use or mounting in any other desired manner.

5,726,737

SYSTEM FOR CONTROLLING PHOTOFINISHING OF PHOTOSENSITIVE MATERIAL

John Randall Fredlund, Rochester, and Arthur Evan Smart, Pittsford, both of N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.

Filed Aug. 16, 1996, Ser. No. 698,709
Int. Cl.[6] G03B 27/52;7/00;17/24
U.S. Cl. 355—40 20 Claims



1. A system for controlling the photofinishing of a roll of photosensitive material in accordance with the customer usage of the photosensitive material, comprising:

a photosensitive material having a magnetic layer, said magnetic layer having a predetermined instructional code placed thereon by the manufacturer of the photosensitive material indicative of the preferential subject matter to be photographed; and

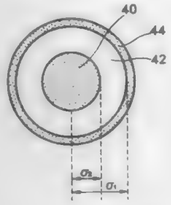
a camera for use in reading the predetermined code, and means for adjusting the camera settings in accordance with the predetermined instructional code.

5,726,738

APERTURE FOR OFF-AXIS ILLUMINATION AND PROJECTION EXPOSURE APPARATUS EMPLOYING THE SAME

Chang-jin Sohn, Songtan, Rep. of Korea; Cheol-hong Kim, Suwon, Rep. of Korea, and Woo-sung Han, Suwon, Rep. of Korea, assignors to Samsung Electronics Co., Ltd., Suwon, Rep. of Korea

Filed Aug. 6, 1996, Ser. No. 689,169
Claims priority, application Rep. of Korea, Aug. 7, 1995, 1995-24298
Int. Cl.[6] G03B 27/42;27/52;27/54
U.S. Cl. 355—53 9 Claims



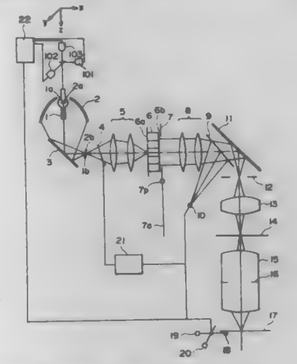
1. An aperture for an off-axis illumination (OAI) apparatus comprising a light-intercepting region and a light-transmitting region, wherein at least a part of said light-transmitting region is of a prismoidal shape which diffracts incident light toward the periphery of a condenser lens.

5,726,739

PROJECTION EXPOSURE APPARATUS AND DEVICE MANUFACTURING METHOD USING THE SAME

Shigeru Hayata, Utsunomiya, Japan, assignor to Canon Kabushiki Kaisha, Tokyo, Japan

Filed Oct. 25, 1994, Ser. No. 329,072
Claims priority, application Japan, Oct. 27, 1993, 5-291419; Sep. 13, 1994, 6-247213
Int. Cl.[6] H01L 21/27; G03B 27/32;27/54; G03F 7/20
U.S. Cl. 355—67 49 Claims



1. A projection exposure apparatus comprising:

secondary light source forming means having a light entrance surface and a light exit surface, for receiving light from a light source with the light entrance surface and for forming a secondary light source at the light exit surface side;

light projecting means for projecting light from said secondary light source to an object plane;

pattern projecting means for projecting, onto an image plane, a pattern on the object plane irradiated with the light;

secondary light source adjusting means for changing a light intensity distribution of said secondary light source; and

illuminance correcting means for changing an intensity distribution of light from the light source, upon the light entrance surface of said secondary light source forming means, to correct an illuminance distribution, to be formed on the image plane asymmetrically with respect to a center due to a variation in light intensity distribution of said secondary light source, into an illuminance distribution symmetric with respect to the center.

5,726,740

PROJECTION EXPOSURE APPARATUS HAVING ILLUMINATION DEVICE WITH RING-LIKE OR SPOT-LIKE LIGHT SOURCE

Takahisa Shiozawa, Kawasaki; Masato Muraki, Inagi; Hiroyuki Ishii, Yokohama, and Shigeru Hayata, Kodaira, all of Japan,. assignors to Canon Kabushiki Kaisha, Tokyo, Japan

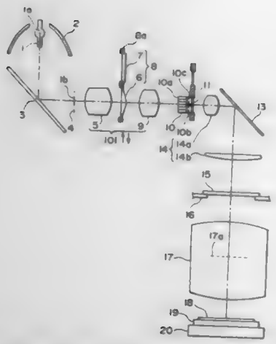
Continuation of Ser. No. 358,961, Dec. 19, 1994, abandoned, which is a continuation of Ser. No. 258,541, Jun. 10, 1994, abandoned, which is a continuation of Ser. No. 40,991, Mar. 31, 1993, Pat. No. 5,345,292. This application Jun. 5, 1995, Ser. No. 461,751
Claims priority, application Japan, Mar. 31, 1992, 4-108632
Int. Cl.[6] G03B 27/54;27/42
U.S. Cl. 355—67 24 Claims

1. A projection exposure apparatus, comprising:

a light source for producing light;

a concave mirror for reflecting light from said light source, said concave mirror having an opening from which the reflected light is emitted;

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an imaging optical system for receiving the reflected light from said concave mirror and for forming an image of the opening of said concave mirror with the reflected light;

an optical integrator for receiving the image of the opening and for forming a secondary light source;

an illumination optical system for illuminating a pattern of an original with light beams from the secondary light source; and

a projection optical system for projecting an image of the pattern of the original, as illuminated, onto a substrate to be exposed,

wherein said imaging optical system comprises a light deflecting member having a conical light deflecting surface and being provided in a vicinity of a position optically conjugate with said light source, said light deflecting member being arranged to deflect the reflected light from said concave mirror to emit ring-like light in a direction different from the direction in which the reflected light is projected on said light deflecting member, thereby to produce, as the secondary light source, a light source of a substantially ring-like shape.

blinds adjacent the radiation path wherein said grating mask is located between said blinds.

5,726,742

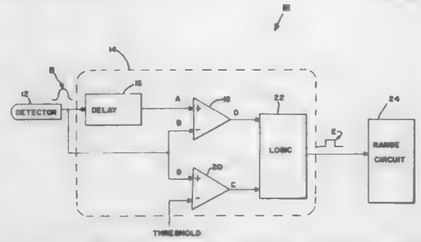
CIRCUIT AND METHOD FOR DETERMINING TIME OF ARRIVAL

Charles E. Nourrcier, Lakewood, Calif., assignor to Hughes Electronics, Los Angeles, Calif.

Filed Dec. 6, 1995, Ser. No. 568,326

Int. Cl.[6] G01C *3/08;* **G01S** *13/08*

U.S. Cl. 356—5.01 **31 Claims**



1. A circuit for determining the time of arrival of a signal, the circuit comprising:

a delay circuit receiving the signal from a signal detector and generating a delayed signal; and

a comparison circuit receiving the signal directly from said signal detector without said signal having passed through attenuation circuitry, said comparison circuit also receiving said delayed signal and generating an output pulse when said delayed signal exceeds said signal, said comparison circuit output pulse representing the time of arrival of said signal.

5,726,741

PHOTOLITHOGRAPHIC PROJECTION SYSTEMS INCLUDING GRATING MASKS AND RELATED METHODS

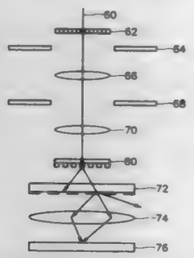
Jong-wook Kye, Seoul; Cheol-hong Kim, Kyungki-do, and Tae-gyun Kim, Seoul, all of Rep. of Korea, assignors to Samsung Electronics Co., Ltd., Suwon, Rep. of Korea

Filed Jun. 24, 1996, Ser. No. 668,904

Claims priority, application Rep. of Korea, Jun. 30, 1995, 95-19039

Int. Cl.[6] G02B *27/44;* **G03B** *27/42*

U.S. Cl. 355—67 **12 Claims**



1. A photolithographic projection system for transferring a predetermined pattern from a photomask to a wafer, said photolithographic system comprising:

a radiation source which projects radiation along a path through the photomask toward the wafer;

a grating mask positioned along the radiation path, said grating mask being separate from the photomask; and

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5,726,743

LASER OBSERVATION SPACE INSTRUMENT AND A SPACE VEHICLE INCLUDING IT

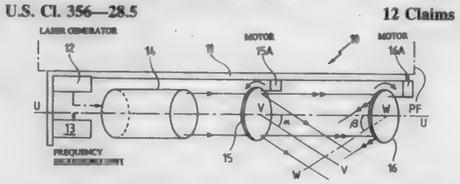
Rodolphe Krawczyk, Antibes, France, assignor to Societe Nationale Industielle et Aerospatiale, France

Filed May 8, 1995, Ser. No. 438,100

Claims priority, application France, May 27, 1994, 94 06478

Int. Cl.[6] G01P *3/36*

U.S. Cl. 356—28.5 **12 Claims**



1. A laser observation space instrument for the quantitative characterization by DOPPLER effect of movements within a fluid mass carried by a planet, said laser observation space instrument capable of being moved by a carrier vehicle along a trajectory above said fluid mass, said laser observation space instrument comprising:

a reference axis capable of being oriented locally parallel to said trajectory;

a panel for mounting said laser observation space instrument to said carrier vehicle;

a laser generator mounted on said panell

a frequency measuring unit mounted on said panel;

first and second sighting elementsl mounted on said panel and aligned on said reference axis, having first and second lines of sight of non-null inclinations with respect to said reference axis, said first and second lines of sight capable of being

oriented toward said planet for the emission and reception of laser beams and having projections of opposite directions on said reference axis;

means for rotating said first and second sighting elements about said reference axis, said rotating means mounted on said panel; and

a telescope device, with its having an axis collinear with said reference axis, for sending laser beams emitted by said laser generator to said first and second sighting elements and for applying laser beams received by said first and second sighting elements to said frequency measuring unit, said telescope device including a single telescope, said first sighting element of said first and second sighting elements disposed between said telescope device and said second sighting element of said first and second sighting elements, said first sighting element adapted to transmit, to said second sighting element, along said reference axis, at least a part of said laser beams sent by said telescope device at a predetermined frequency and to transmit, to said telescope device, along said reference axis, laser beams received by said second sighting element.

5,726,744

ROSETTE-TYPE OPTICAL MICROSYSTEM OF STRAIN GAUGES HAVING DIELECTRIC GUIDES FOR MEASURING A LONGITUDINAL STRAIN IN A PLANAR STRUCTURE

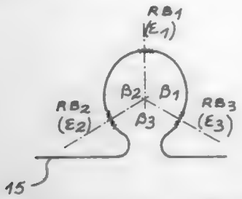
Pierre Ferdinand, Houilles; Sylvain Magne, Chatillon, and Stéphane Rougeault, Sceaux, all of France, assignors to Commissariat a l 'Energie Atomique, Paris, France

Filed Oct. 30, 1995, Ser. No. 550,029

Claims priority, application France, Nov. 18, 1994, 94 13845

Int. Cl.[6] G01B *11/16*

U.S. Cl. 356—32 **19 Claims**



1. Rosette-type, optical microsystem of strain gauges for measuring a strain applied to a part, said strain having a single component, said microsystem comprising: at least one rosette formed from at least two strain gauges positioned in series on a dielectric guide and a calculating circuit for determining said strain, independently of temperature, by resolution of a system of equations.

5,726,745

PROCESS AND APPARATUS FOR PREPARING A BLOOD SAMPLE FOR ANALYSIS OF WHITE BLOOD CELLS

Jean-Claude Chelveder, Vitteaux, France, assignor to Hycel Groupe Lisabio, Morangis, France

Filed Jul. 26, 1996, Ser. No. 686,760

Int. Cl.[6] G01N *33/48;21/00;21/55*

U.S. Cl. 356—39 **7 Claims**

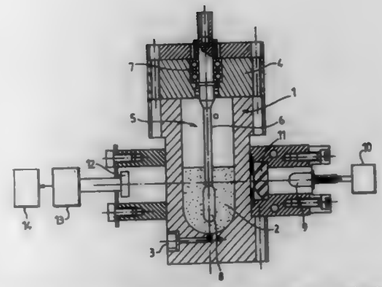
1. A process for preparing blood for analysis of white blood cells and comprising:

preparing a mixture made up of blood and a lysing agent,

emitting luminous radiation in the direction of the mixture,

receiving the light emitted through said mixture, characterized in that the process then consists of:

comparing the quantity of light received at a pre-determined threshold, erythrolysis being complete when the quantity of light corresponds to said threshold, and



neutralizing the action of the lysing agent, when erythrolysis is completed.

5,726,746

AUTOMATIC INSPECTION SYSTEM FOR CAMERA LENSES AND METHOD THEREOF USING A LINE CHARGE COUPLED DEVICE

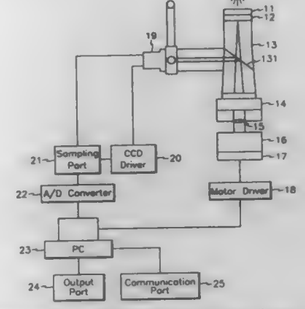
Heui-Jae Park; Seok-Won Lee, both of Seoul; Geon-Mo Kang, and Ho-Gyun Moon, both of Kyeongsangnam-do, all of Rep. of Korea, assignors to Samsung Aerospace Industries, Ltd., Kyeongsangnam-do, Rep. of Korea

Filed Nov. 15, 1996, Ser. No. 749,973

Claims priority, application Rep. of Korea, Apr. 12, 1996, 96-10953

Int. Cl.[6] G01M *11/00*

U.S. Cl. 356—124.5 **17 Claims**



1. An automatic inspection system for camera lenses using a line charge coupled device (CCD), comprising:

a light source for projecting a predetermined amount of light;

a chart for changing the intensity of the light projected from the light source and outputting the light;

a collimator for converting the light passing through the chart into a beam of light and outputting the light;

camera lenses for forming an image from the parallel light outputted from the collimator;

a mirror for reflecting the light from which an image is formed by the camera lenses;

image pickup means including a plurality of pixels for picking up the image from the light reflected by the mirror and outputting an electrical signal corresponding to the pickup image;

a signal converter for converting the electrical signal outputted from the image pickup means into a corresponding digital signal;

control means for calculating an average value of high points and low points of the signals according to the change of intensity of the light in response to the signal outputted from each pixel in the image pickup means, calculating a set value

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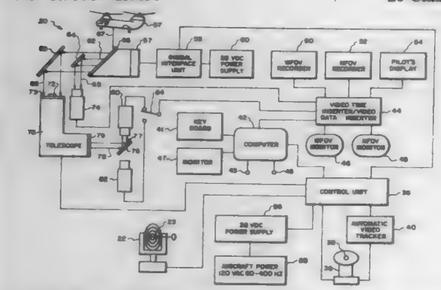
according to the average value of the high points and the low points of the intensity signals of the light, and determining whether the focus of the lenses is exactly made according to the calculated set value.

5,726,747

COMPUTER CONTROLLED OPTICAL TRACKING SYSTEM

Christian L. Houlberg, Ventura, and James Steven Hochstetler, Camarillo, both of Calif., assignors to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

Filed Apr. 22, 1996, Ser. No. 641,131
Int. Cl.[6] H04N 7/18; F41G 1/00
U.S. Cl. 356—139.04 **20 Claims**



1. An airborne video tracking system for establishing and maintaining a line of sight to a target, said airborne video tracking system being mounted within an aircraft, said airborne video tracking system comprising:

an acquisition sight positioned within said aircraft, said acquisition sight allowing a pilot of said aircraft to acquire and begin tracking said target, said acquisition sight having a newton ring, said target being acquired when said pilot observes said target within the newton ring of said acquisition sight, said acquisition sight providing first analog position signals indicative of azimuth and elevation sight angles for said acquisition sight when said acquisition sight is tracking said target;

a track handle positioned within said aircraft, said track handle having a trigger switch, said track handle allowing an observer within said aircraft to take control of tracking said target from said pilot when said observer activates said trigger switch, said track handle providing second analog position signals indicative of azimuth and elevation sight angles for said track handle when said track handle is tracking said target;

a computer connected to said acquisition sight to receive said first analog position signals from said acquisition sight and said track handle to receive said second analog position signals from said track handle, said computer processing said first analog position signals and said second analog position signals to generate gimbal orientation signals;

a gimballed mirror having a gimbal interface, said gimbal interface being connected to said computer to receive said gimbal orientation signals from said computer, said gimbal interface responsive to said gimbal orientation signals steering said gimballed mirror to said target to establish and then maintain said line of sight to said target;

said gimballed mirror receiving image forming light from said target and then redirecting said image forming light along a first light path;

a first turning mirror positioned on said first light path to receive a portion of said image forming light from said gimballed mirror and then direct the portion of said image forming light received thereby along a second light path;

a first video camera positioned on said second light path to receive said image forming light directed along said second light path by said first turning mirror, said first video camera responsive to said image forming light received from said first turning mirror generating a first video signal;

a first video monitor connected to said first video camera to receive said first video signal, said first video monitor responsive to said first video signal displaying a wide field of view scene including said target, said first video monitor being positioned within said aircraft to allow said observer to monitor said target when said observer is using said track handle to track said target;

a second turning mirror positioned on said first light path downstream from said first turning mirror, said second turning mirror receiving a remainder of said image forming light from said gimballed mirror and then directing the remainder of said image forming light received thereby along a third light path;

a zoom telescope positioned on said third light path to receive said image forming light directed along said third light path by said second turning mirror, said zoom telescope modifying said image forming light to define a narrow field of view scene;

a second video camera positioned downstream from said zoom telescope on said third light path to receive said image forming light from zoom telescope, said second video camera responsive to said image forming light received from said zoom telescope generating a second video signal; and

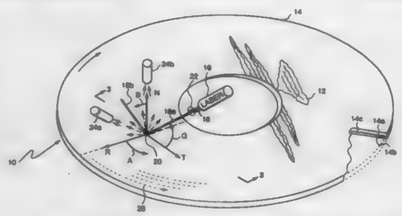
a second video monitor connected to said second video camera to receive said second video signal, said second video monitor responsive to said second video signal displaying said narrow field of view scene, said narrow field of view scene having said target displayed therein whenever said gimballed mirror is aligned with said line of sight to said target, said second video monitor being positioned within said aircraft to allow said observer to monitor said target when said observer is using said track handle to track said target.

5,726,748

OPTICAL DISC CLOUD ANALYZER

William Guy Morris, Rexford, N.Y., assignor to General Electric Company, Schenectady, N.Y.

Filed Jul. 24, 1996, Ser. No. 685,760
Int. Cl.[6] G01N 21/88
U.S. Cl. 356—237 **28 Claims**



1. A method of detecting a cloud in an optical disc having a transparent surface layer atop a substrate and data pits therebetween comprising:

projecting a light beam at an acute incidence angle atop said surface layer to define a light spot covering a plurality of said pits;

detecting intensity of light scattered from said pits below said spot obliquely to both said incident light beam and a specular reflection thereof, the detecting intensity further comprising detecting intensity of said scattered light from two different oblique directions from said spot to increase contrast of said cloud;

scanning said light spot over said surface layer at a plurality of discrete positions each covering a plurality of said pits to obtain a plurality of light intensities from said detecting step corresponding to said plurality of positions; and

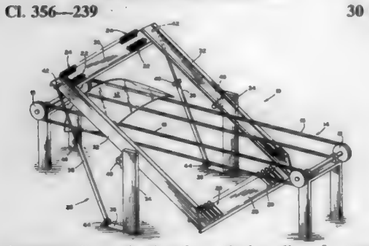
determining variation of individual ones of said plurality of said detected light intensities from a reference value of substantially all of said detected light intensities to detect said cloud.

5,726,749

METHOD AND APPARATUS FOR INSPECTION AND EVALUATION OF ANGULAR DEVIATION AND DISTORTION DEFECTS FOR TRANSPARENT SHEETS

Richard D. Schave, Perrysburg, Ohio, assignor to Libbey-Owens-Ford Co., Toledo, Ohio

Filed Sep. 20, 1996, Ser. No. 717,112
Int. Cl.[6] G01N 21/00; 21/84
U.S. Cl. 356—239 **30 Claims**



1. Apparatus for evaluating the optical quality of a transparent sheet comprising:

positioning means for positioning a transparent sheet;

a plurality of light sources mounted adjacent said positioning means in spaced apart relationship for directing a plurality of light beams toward the transparent sheet;

a corresponding plurality of lenses for focusing the light beams, said plurality of lenses mounted opposite the transparent sheet from said plurality of light sources;

a corresponding plurality of photosensitive position detectors positioned at a focal point of said plurality of lenses and aligned with said plurality of light sources for detecting the light beams and for generating signals indicative of the position of the light beams;

a computer system in electrical communication with said plurality of photosensitive position detectors for processing the signals received from said photosensitive position detectors as said positioning means positions the transparent sheet in the light beams, said computer system including a processing means for calculating and storing angular deviation values of the transparent sheet as a function of the signals and a processing means for calculating distortion values of the transparent sheet as a function of the angular deviation values; and

output means for selectively displaying the angular deviation values and the distortion values of the transparent sheet.

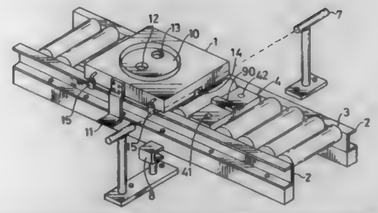
5,726,750

NON-DESTRUCTIVE TASTE CHARACTERISTICS MEASURING APPARATUS AND TRAY USED IN THE APPARATUS

Masahiro Ito; Junji Iida; Akira Terashima; Kazuo Maeda; Shuji Suzuki, all of Chiba; Takeo Ide, and Toshiki Kishimoto, both of Tokyo, all of Japan, assignors to Sumitomo Metal Mining Co., Ltd., Tokyo, Japan

Filed Jun. 25, 1996, Ser. No. 668,337
Claims priority, application Japan, Jun. 29, 1995, 7-188061; Jul. 29, 1995, 7-212404; Mar. 1, 1996, 8-044614; Mar. 1, 1996, 8-071085; Mar. 1, 1996, 8-071086; May 24, 1996, 8-153345; May 24, 1996, 8-153346
Int. Cl.[6] G01N 21/01
U.S. Cl. 356—244 **19 Claims**

1. A non-destructive taste characteristics measuring apparatus comprising a plurality of trays on which measurement objects vegetables and fruits are to be placed, a transport means for successively delivering the trays at appropriate intervals, and a measuring section provided in the course of a transport path and at which light is made incident on each vegetable or fruit so as to pass from the outside to the inside thereof and the intensity of light emergent from the vegetable or fruit is measured to determine the taste characteristics of the vegetables and fruits, wherein;



said trays are each provided in a vegetable or fruit holding part of the tray, with at least two tray-side light passages one opening ends of which are so made as to come in contact with the lower periphery of the vegetable or fruit and the other ends of which stand open outward at the bottom of the tray; said passages extending in the thickness direction of the tray at its part where the vegetable or fruit is held; and

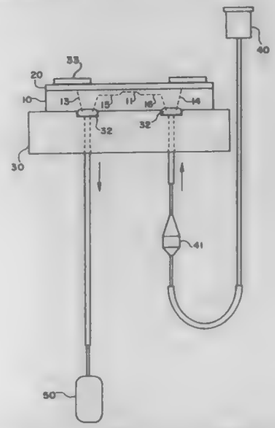
said measuring section has at least two measurement-side light passages one opening ends of which are positionally adjustable to the opening ends of said tray-side light passages within said transport path at its part facing the bottom of said tray, and is provided with i) a means for making light incident on the vegetable or fruit through one of the measurement-side light passages and one of the tray-side light passages which is positionally adjusted thereto and ii) a detector which the light emergent from the vegetable or fruit enters through the other tray-side light passage and the other measurement-side light passage positionally adjusted thereto, to measure the taste characteristics of the vegetable or fruit.

5,726,751

SILICON MICROCHANNEL OPTICAL FLOW CYTOMETER

Eric H. Altendorf, Seattle, Wash., and Paul Yager, Seattle, Wash., assignors to University of Washington, Seattle, Wash.

Filed Sep. 27, 1995, Ser. No. 534,515
Int. Cl.[6] G01N 1/10
U.S. Cl. 356—246 **62 Claims**



1. A disposable flow module for use with a flow cytometer optical head, comprising:

a silicon wafer having a surface, said wafer having formed therein:

(1) a V-groove flow channel having a top with width w in the plane of said surface (thereof) and having first and second walls formed in said wafer;

(2) a fluid inlet port coupled to a first end of said V-groove;

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(3) a fluid outlet port coupled to the second end of said V-groove; and

(4) a module alignment means for detachably coupling said flow module with said optical head with reproducible optical alignment of said V-groove with said optical head; and

a transparent cover plate sealed to said surface of said wafer and covering said V-groove, but not covering said alignment means.

5,726,752

SAMPLE CELL OF MULTIPLE REFLECTION TYPE

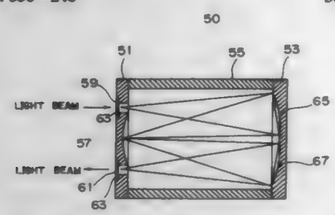
Masahiro Uno; Mutsumi Nagumo, and Hideyuki Tanaka, all of Tokyo, Japan, assignors to Fuji Electric Co., Ltd., Kawasaki, Japan

Filed Jul. 31, 1996, Ser. No. 688,731

Claims priority, application Japan, Aug. 7, 1995, 7-200149

Int. Cl.[6] G01N *21/01;21/00*

U.S. Cl. 356—246 **36 Claims**



1. A sample cell of the multiple reflection type in which incident light is reflected a plurality of times, for analyzing a sample in the sample cell, comprising:

a mirror plate including a light incident window for introducing the incident light into the sample cell, a first concave mirror, and a light exit window for outputting the incident light from the sample cell;

a side plate including a second concave mirror for reflecting the incident light to the first concave mirror, and a third concave mirror for reflecting the incident light reflected by the first and second concave mirrors to the light exit window; and

a frame for fixing the mirror plate and the side plate so that distances between the first concave mirror and the second and third concave mirrors are fixed.

5,726,753

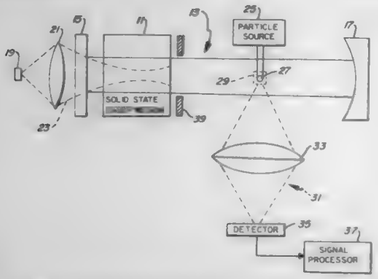
INTRACAVITY PARTICLE DETECTION USING OPTICALLY PUMPED LASER MEDIA

Jon C. Sandberg, Boulder, Colo., assignor to Research Electro-Optics, Inc., Boulder, Colo.

Filed Feb. 26, 1996, Ser. No. 607,289

Int. Cl.[6] G01N *21/00*

U.S. Cl. 356—338 **36 Claims**



25. A device for intracavity detection of particles, said device comprising:

a laser cavity having first and second ends and having a first mirror at said first end and a second mirror at said second end with both said mirrors being highly reflective at the wavelength of a predetermined transverse mode of said laser cavity and said first mirror being highly transmittive at a pumping wavelength different from that of said predetermined transverse mode wavelength;

a solid state laser medium within said laser cavity;

a semiconductor laser pump source providing laser light at said pumping wavelength;

a focusing unit for focusing said laser light from said pump source through said first mirror into said solid state laser medium to end-pump said laser medium and thereby excile said solid state laser medium to provide laser light within said laser cavity at said wavelength of said predetermined transverse mode of said laser cavity whereby intracavity power greater than 100 W is produced, said light focused into said solid state laser medium having a volume that lies within said predetermined transverse mode of said laser cavity to thereby achieve gain-aperturing of said laser cavity;

a fluid path having a detecting region within said laser cavity between said solid state laser medium and said second mirror, said fluid path being provided from a particle-containing fluid source whereby particle-containing fluid is movable through said detecting region at a predetermined flow rate, and said detecting region when exposed to said laser light in said laser cavity causes light to be scattered by particles in said particle-containing fluid moved through said detecting region; and

a collector for collecting said scattered light from said detecting region, said collected scattered light being indicative of particles causing said light to be scattered.

5,726,754

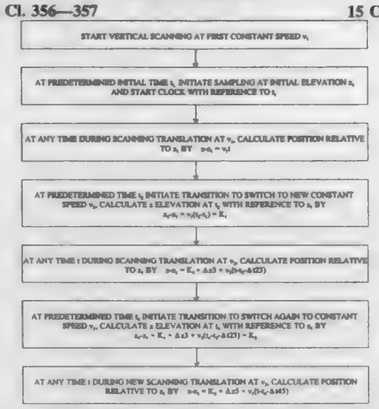
VARIABLE-SPEED SCANNING FOR INTERFEROMETRIC MEASUREMENTS

Michael P. Andrews, Tucson, Ariz., and Paul R. Unruh, Tucson, Ariz., assignors to Wyko Corporation, Tucson, Ariz.

Filed Aug. 30, 1996, Ser. No. 697,865

Int. Cl.[6] G01B *9/02*

U.S. Cl. 356—357 **15 Claims**



1. A method of performing white-light vertical-scanning interferometric measurements at multiple distances between a test sample and a reference arm aligned in an optical path between the sample and a light detector; wherein a scanning means is used to produce a relative translation between the sample and the reference arm to obtain said multiple distances; wherein said scanning means comprises actuating means adapted to cause said relative translation by operating on one of said sample and reference arm, such that it is translated with respect to the other of said sample and reference arm within said optical path; and wherein a surface of said test sample comprises first and second regions of interest separated by a region of step discontinuity within which useful interference fringes are outside the resolution capability of the scanning means, said method comprising the following steps:

(a) energizing said actuating means to cause said relative translation between the test sample and the reference arm at an initial constant speed;

(b) sampling an output of said detector at predetermined time intervals as needed to execute interferometric measurements of the first region of interest in the surface of said test sample;

(c) increasing the speed of said relative translation within said region of step discontinuity to an intermediate speed higher than said initial constant speed; and

(d) reducing the speed of said relative translation to a secondary constant speed lower than said intermediate speed and suitable for interferometric measurements, and sampling the output of said detector at predetermined time intervals as needed to execute interferometric measurements of the second region of interest in the surface of the test sample.

5,726,755

METHOD AND APPARATUS FOR VIEWING

Lawrence B. Wolff, 1 E. University Pkwy., Baltimore, Md. 21218

Continuation of Ser. No. 337,270, Nov. 10, 1994, abandoned. This application Aug. 9, 1996, Ser. No. 696,022

Int. Cl.[6] G01J *4/00;* **H04W** *7/18;9/47*

U.S. Cl. 356—364 **41 Claims**

15. An apparatus for viewing comprising:

a frame; and

a first electro-optically controlled optical filter mounted on the frame to cover one eye of a viewer when the viewer wears the frame, said first optical filter resolving electromagnetic radiation into a sequence of resolved polarization components so the viewer can view the sequence of resolved polarization components.

5,726,756

EXPOSURE APPARATUS WITH THICKNESS AND DEFECT DETECTION

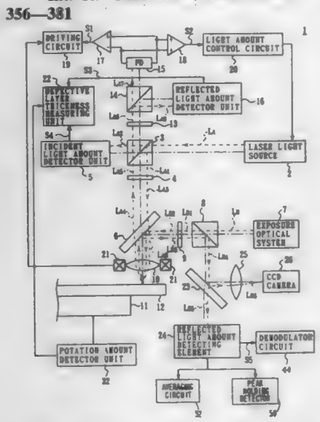
Yuichi Aki, Tokyo, Japan; Minoru Inagaki, Kanagawa, Japan, and Kanji Yokomizo, Kanagawa, Japan, assignors to Sony Corporation, Tokyo, Japan

Filed Oct. 30, 1996, Ser. No. 739,541

Claims priority, application Japan, Nov. 2, 1995, 7-309828

Int. Cl.[6] G01B *11/06;* **G01N** *21/00*

U.S. Cl. 356—381 **11 Claims**



1. An exposure apparatus for irradiating first laser light modulated in accordance with signals to be recorded on a resist layer formed by coating a photoresist on a predetermined surface of a predetermined member to form desired exposure patterns on said resist layer said apparatus comprising:

a light source for emitting second laser light having a wavelength that will not expose said resist layer;

an optical system for directing said second laser light emitted from said light source to said resist layer;

light converging means for converging said second laser light to a predetermined surface of said predetermined member;

a focusing detection system for detecting an error in relative distance between said predetermined member and said light converging means based on a reflected light produced by irradiating said second laser light on the predetermined surface of said predetermined member;

driving means for controlling movements of said light converging means based on an output of said focusing detection system to maintain a constant relative distance between said predetermined member and said light converging means;

a light amount control means for controlling an amount of said second laser light emitted from said light source to maintain a constant amount of said reflected light;

light amount detecting means for detecting the amount of said second laser light emitted from said light source; and

measuring means for measuring a thickness of said resist layer based on an output of said first light amount detecting means.

5,726,757

ALIGNMENT METHOD

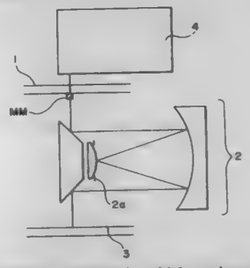
Masaki Kato, Yokohama, Japan; Kinya Kato, Yokohama, Japan, and Kei Nara, Yokohama, Japan, assignors to Nikon Corporation, Japan

Continuation-in-part of Ser. No. 566,420, Nov. 30, 1995, abandoned. This application Sep. 25, 1996, Ser. No. 719,315

Claims priority, application Japan, Dec. 1, 1994, 6-323925; Dec. 1, 1994, 6-323926

Int. Cl.[6] G01B *11/00*

U.S. Cl. 356—399 **18 Claims**



1. In an exposure apparatus in which an image of a pattern formed in a first substrate is projected on and transferred to a second substrate by way of a projection optical system, a method of alignment of said first and second substrates with each other comprising the steps of:

a first step for forming, based on a luminous flux supplied from a light source system, a scan beam in a visual field area of said first substrate with respect to a first optical system and optically scanning said scan beam in a predetermined direction, said scan beam scanning an area including a grating-like first mark formed on said first substrate;

a second step for detecting a diffracted and reflected light component from said first mark generated by said scan beam formed at said first step;

a third step for forming, by way of said first optical system, based on said scan beam formed at said first step, a scan beam which scans an area including a second mark formed on said second substrate and detecting a diffracted and reflected light component from said second mark, a numerical aperture of said first optical system being smaller than λ/p wherein λ

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indicates the wavelength of light supplied from said light source system and p indicates a mark pitch of said first mark; and

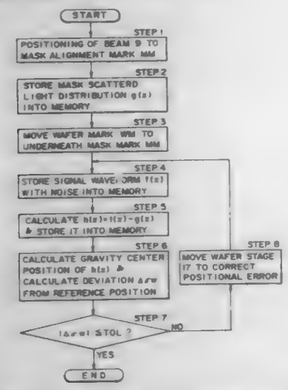
a fourth step for measuring, based on the signal detected at said second step and the signal detected at said third step, a positional deviation between said first and second substrates.

5,726,758

POSITION DETECTING SYSTEM

Masanobu Hasegawa, Fujisawa, and Hiroshi Osawa, Yokohama, both of Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan

Continuation of Ser. No. 338,132, Nov. 9, 1994, abandoned.
This application Sep. 3, 1996, Ser. No. 711,303
Claims priority, application Japan, Nov. 11, 1993, 5-305910
Int. Cl.[6] G01B *11/00*
U.S. Cl. 356—401 **8 Claims**



1. A position detecting system for detecting the relative positional relationship between first and second objects disposed opposed to each other, by using a first mark provided on the first object and a second mark provided on the second object and by using diffraction light diffracted by the first and second marks mixed with and spatially overlapping irregularly scattered or diffracted light representing noise, said system comprising:

moving means for relatively moving the first and second objects relative to each other, in a direction parallel to an opposing direction in which the first and second objects are opposed to each other;

irradiating means for providing light;

light detecting means for detecting light from at least one of the first and second objects;

control means for controlling said moving means to cause relative movement of the first and second objects so that one of the first and second marks is placed in an irradiation region of said irradiating means and that the other of the first and second marks is placed out of the irradiation region, such that first diffraction light diffracted by the one of the first and second marks is detected by said light detecting means, wherein the first diffraction light includes irregularly scattered or diffracted light representing noise, wherein a first signal corresponding to light intensity distribution of the first diffraction light is stored in first storing means, said control means further controlling said moving means to cause relative movement of the first and second objects so that both the first and second marks are irradiated with light from said irradiating means and placed in the irradiation region of said irradiating means such that second diffraction light, diffracted by both of the first and second marks, is detected by said light detecting means, the second diffraction light including light diffracted by the first and second marks mixed with and spatially overlapping the irregularly scattered or diffracted light representing noise, wherein a second signal corresponding to the light intensity distribution of the second diffraction light diffracted by the first and second marks and the noise is stored in second storing means; and

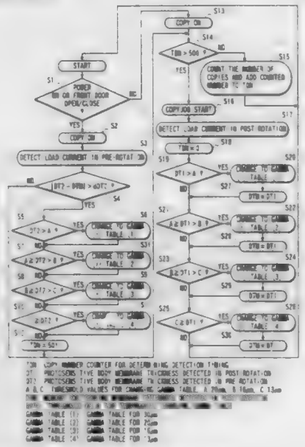
determining means for determining the relative positional relationship between the first and second objects on the basis of a third signal provided by subtracting the stored first signal from the stored second signal.

5,726,759

IMAGE FORMING APPARATUS

Yukio Watanabe, Machida, Japan; Tsuyoshi Kunishi, Moriyamachi, Japan; Mitsuka Abe, Yokohama, Japan, and Yuichiro Toyoharn, Fujisawa, Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan

Filed Oct. 24, 1996, Ser. No. 736,479
Claims priority, application Japan, Oct. 27, 1995, 7-280426
Int. Cl.[6] G03F *3/08*
U.S. Cl. 358—296 **20 Claims**



1. An image forming apparatus comprising:

an image support body for supporting an image which is to be formed on a medium;

signal generation means for generating an image signal representing the image;

detection means for detecting a value according to a membrane thickness of said image support body; and

conversion means for converting the image signal on the basis of the detected value according to the membrane thickness.

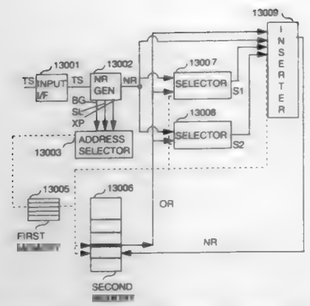
5,726,760

METHOD AND APPARATUS FOR CONVERTING IMAGE REPRESENTATION FORMATS AS WELL AS AN IMAGE PRODUCTION SYSTEM PROVIDED WITH SUCH AN APPARATUS

Maurice L. M. Luttmer, Venlo, Netherlands, assignor to Oce-Nederland, B.V., Ma Venlo, Netherlands

Filed Apr. 3, 1996, Ser. No. 627,110
Int. Cl.[6] H04N *1/40*
U.S. Cl. 358—298 **15 Claims**

1. Method for converting a series of drawing instructions, suitable for assigning pixel values corresponding to said drawing instructions to an image arranged in rows and columns of pixels, to a series of runlengths and corresponding pixel values so that a runlength represents the number of successive pixels with mutual identical pixel values and so that the series of runlengths and pixel values are arranged according to a first order as determined by successive pixel positions, the method comprising the steps of:



determining the runlengths of the pixel values as generated by the drawing instructions in a second order which is different from the first order;

determining the insert positions of said determined runlengths in the series of runlengths on the basis of pixel positions of said determined runlengths; and

inserting said determined runlengths in the series of runlengths so that runlengths of the series which have positions in common with the runlengths to be inserted are modified in dependance on the runlengths and pixel values to be inserted.

5,726,761

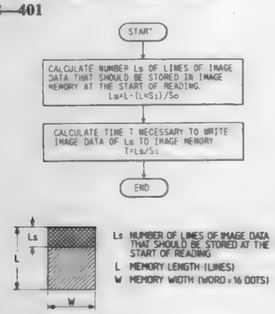
Patent Not Issued For This Number

5,726,762

COPYING MACHINE WITH MEMORY OUTPUT START TIME CONTROL

Yukihisa Akada, and Hitoshi Ejima, both of Saitama, Japan, assignors to Fuji Xerox Co., Ltd., Tokyo, Japan

Filed Apr. 5, 1995, Ser. No. 417,215
Claims priority, application Japan, Sep. 28, 1994, 6-233621
Int. Cl.[6] H04N *1/36*
U.S. Cl. 358—401 **3 Claims**



1. A copying machine comprising:

an original reading device for reading an image on an original in response to a read command, to produce image data;

an image memory for storing the image data;

an output device, responsive to an output command, for performing an output process of transferring an image corresponding to the image data stored in said image memory onto a sheet in an output time that is shorter than a read time necessary for said original reading device to read the original of one page, and outputting an image-transferred sheet; and

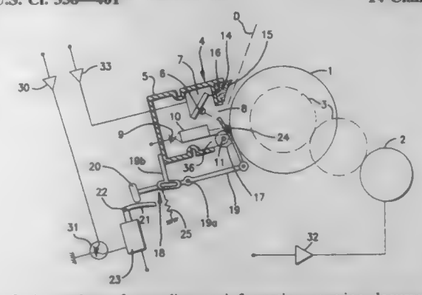
a control device for supplying the read command to said original reading device, and for supplying the output command to said output device so that the output process is started with a delay of a predetermined standby time from a time point when said original reading device starts reading the original, the standby time being set longer than a difference between the read time and the output time and shorter than the output time.

5,726,763

DEVICE FOR ANALYSING INFORMATION CARRIERS, ESPECIALLY GAMING TICKETS

Jean-Marie Gatto, Paris, France, and Dominique Bertrand, Paris, France, assignors to Internationale Des Jeux, Boulogne-Billancourt Cedex, France

PCT No. PCT/FR95/00141, § 371 Date Feb. 6, 1995, § 102(e) Date Feb. 6, 1995, PCT Pub. No. WO95/22120, PCT Pub. Date Aug. 17, 1995
PCT Filed Feb. 6, 1995, Ser. No. 535,272
Claims priority, application France, Feb. 8, 1994, 94 01415
Int. Cl.[6] H04N *1/00*
U.S. Cl. 358—401 **14 Claims**



1. An analyzer for reading an information carrying document, comprising:

a document drive roller for driving the document into a location to be read;

an image detector for reading the document driven into the location by said document drive roller, said image detector comprising a light source for illuminating the document and at least one photosensitive element for reading the illuminated light which has been reflected from the document; and

a case for said image detector, said case comprising an opening toward said document drive roller, means for applying the document against said document drive roller, and wherein said case is angularly movable relative to said document drive roller between a document reading position at which said means is applied against said document driver roller and a document inlet position at which said means is not applied against said document drive roller.

5,726,764

APPARATUS AND METHOD FOR PROVIDING DATA AND FACSIMILE SERVICES IN A RF COMMUNICATION SYSTEM

Rod Averbuch, Buffalo Grove, Ill., and Timothy J. Wilson, Schaumburg, Ill., assignors to Motorola, Inc., Schaumburg, Ill.

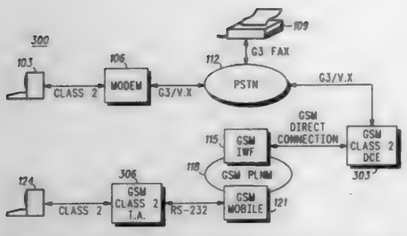
Continuation of Ser. No. 95,325, Jul. 21, 1993, abandoned.
This application Feb. 8, 1995, Ser. No. 385,237
Int. Cl.[6] H04N *1/00*; H04M *11/00*
U.S. Cl. 358—403 **21 Claims**

1. An apparatus for providing data and facsimile services in a digital cellular RF communication system, the digital cellular RF communication system providing data services via predetermined data service protocol layers, the apparatus comprising:

means for accepting data transmitted by equipment of a wireline network in a fixed format utilized by the wireline network;

means for converting the data from the fixed format to a standard format via in-band signaling that is transparent to the

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predetermined data service protocol layers of the digital cellular RF communication system to produce converted data; and

means for transmitting the converted data in the standard format such that transmission of the converted data is compatible with receivers of the digital cellular RF communication system.

5,726,765

DATA COMMUNICATION APPARATUS FOR SETTING THE BAUD RATE AND BIT RATE OF A MODEM AND PERFORMING DATA COMMUNICATION AT THE SET BAUD RATE AND BIT RATE

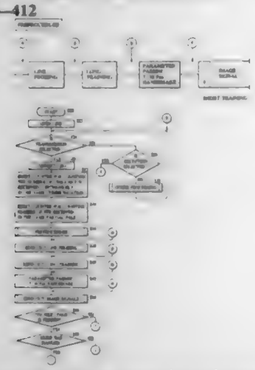
Takehiro Yoshida, Tokyo, Japan; Naoji Hayakawa, Machida, Japan; Toru Maeda, Mitaka, Japan; Toshio Kenmochi, Yokohama, Japan; Shigeki Ohno, Machida, Japan; Yoshio Yoshiura, Kanagawa-ken, Japan; Kazutaka Matsueda, Yokohama, Japan; Motoaki Yoshino, Fujisawa, Japan; Fumiyuki Takiguchi, Yokohama, Japan; Kazuto Yanagisawa, Toride, Japan, and Hideki Shimizu, Yokohama, Japan, assignors to Canon Kabushiki Kaisha, Japan

Filed Dec. 18, 1995, Ser. No. 573,999

Claims priority, application Japan, Dec. 22, 1994, 6-336086

Int. Cl.° H04N *1/36;1/00*

U.S. Cl. 358—412 **8 Claims**



1. A data communication apparatus for performing data communication via a modem having plural kinds of baud rates and plural kinds of bit rates, comprising:

baud rate setting means for setting a baud rate of said modem by performing a first protocol;

bit rate setting means for setting a bit rate of said modem by performing a second protocol;

control means for selectively controlling said baud rate setting means and said bit rate setting means in accordance with a condition of the data communication;

long training means for performing a long training sequence for training said modem at the baud rate set by said baud rate setting means; and

short training means for performing a short training sequence for training said modem at the bit rate set by said bit rate setting means just before sending a page of data,

wherein said control means has a first procedure which sequentially performs the baud rate setting process, the long training sequence, the bit rate setting process and the short training sequence, a second procedure which sequentially performs the long training sequence, the bit rate setting process and the short training sequence, a third procedure which sequentially performs the bit rate setting process and the short training sequence, and a fourth procedure which performs the short training sequence, and

wherein said control means selects one of the first, second, third and fourth procedures in accordance with the condition of data communication when a page of data is communicated.

5,726,766

INTERPOLATING OPERATION METHOD AND APPARATUS FOR IMAGE SIGNALS

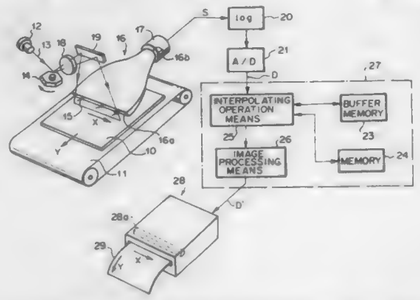
Shigeru Saotome, Kanagawa-ken, Japan, assignor to Fuji Photo Film Co., Ltd., Kanagawa, Japan

Filed Jul. 15, 1996, Ser. No. 678,612

Claims priority, application Japan, Jul. 13, 1995, 7-177014; Jul. 13, 1995, 7-177015

Int. Cl.° H04N *1/41;* **G06K** *9/32*

U.S. Cl. 358—428 **36 Claims**



1. An interpolating operation method for an image signal, comprising the steps of:

i) obtaining an original image signal, which represents an original image and is made up of a series of original image signal components representing picture element values of picture elements arrayed at predetermined intervals and in a lattice-like form,

ii) carrying out an interpolating operation process on the original image signal components and in accordance with an image size enlargement scale factor with respect to the original image, which is represented by the original image signal, an interpolation image signal being obtained from the interpolating operation process, the interpolation image signal being made up of a series of image signal components, which occur at intervals different from those of the original image signal components, and

iii) feeding the interpolation image signal into an image reproducing apparatus,

wherein different types of interpolating operation processes are carried out on the original image signal in accordance with respective different image size enlargement scale factors, such that the response of an interpolation image, which is reproduced from the interpolation image signal and displayed on the image reproducing apparatus, is thereby kept to be approximately equal to a predetermined level regardless of the image size enlargement scale factor.

5,726,767

AUTOMATIC FACSIMILE SIGNAL ANALYZING APPARATUS FOR A TELEPHONE EXCHANGE SYSTEM

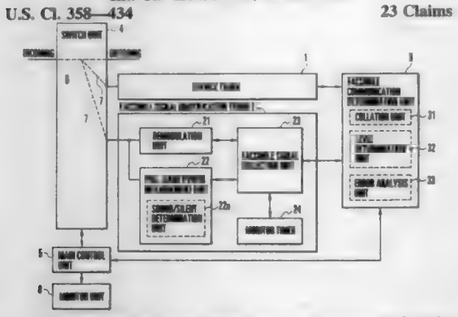
Hiroshi Kumakura, Tokyo, Japan; Takashi Itani, Tokyo, Japan; Ken-ichi Nishimura, Tokyo, Japan; Hideki Amano, Tokyo, Japan, and Masayoshi Sato, Tokyo, Japan, assignors to Nec Corporation, Tokyo, Japan, and Kokusai Denshin Denwa Co. Ltd., Tokyo, Japan

Filed Jun. 30, 1995, Ser. No. 497,077

Claims priority, application Japan, Jun. 30, 1994, 6-149849

Int. Cl.° H04M *1/00;* **H04N** *11/00*

U.S. Cl. 358—434 **23 Claims**



1. An automatic facsimile signal analyzing apparatus of a telephone exchange system comprising:

a switch unit for setting speech paths in accordance with a plurality of asynchronous incoming calls and simultaneously performing a plurality of switching connections;

a plurality of service trunks for classifying a voice-grade signal on said speech path for each type of signal including a voice signal, and outputting a classification result;

a plurality of signal identification trunks for restoring a facsimile control signal from a modulated and encoded facsimile signal on said speech path, and performing collection of communication state information and detection of a start of facsimile communication on the basis of the restored facsimile control signal;

a facsimile communication determination unit for permitting a continuing operation of said signal identification trunk when the classification result from said service trunk represents a type other than the voice signal and analyzing the communication state information collected by the signal identification trunk; and

a control unit for performing switching and connection control of said switch unit, connecting said service trunk and said signal identification trunk, both of which are in an idle state, to said speech path upon setting of said speech path, disconnecting said service trunk from said speech path when the classification result is output from said service trunk, and disconnecting said signal identification trunk from said speech path when the classification result from said service trunk represents the voice signal and when the incoming call corresponding to said speech path is ended.

5,726,768

IMAGE COMMUNICATION APPARATUS HAVING IMPROVED CONVERSION AND TRANSFER CONTROL OF IMAGE DATA

Yuji Ishikawa, Yokohama; Motoaki Yoshino, Kawasaki; Masao Kiguchi, Yokohama; Masaya Kondo, Kawasaki; Atsushi Ohtani, Tokyo, and Kazuomi Oishi, Yokohama, all of Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan

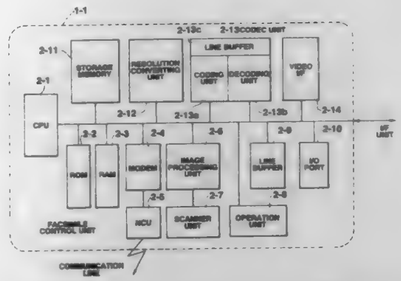
Filed Dec. 13, 1993, Ser. No. 165,502

Claims priority, application Japan, Dec. 16, 1992, 4-336176

Int. Cl.° H04N *1/21;1/32*

U.S. Cl. 358—442 **17 Claims**

1. An image communication apparatus capable of being connected to a data processing terminal, comprising:



data communication means for communicating data via a communication link;

memory means for storing data received by said data communication means;

data converting means for converting received data from said data communication means and data received from the data processing terminal into bit map image data, said data converting means including sending means for sending data stored by said memory means to the data processing terminal;

data reproducing means for reproducing the bit map image data, and

control means for controlling a receiving operation by said data communication means, a storage operation of the received data into said memory means and a sending operation of the stored data to the data processing terminal,

wherein, in a case where the data processing terminal is able to receive data from said sending means, said control means performs the receiving operation, the storage operation and the sending operation in an absence of a data transfer request from the data processing terminal, and, in a case where the data processing terminal is not able to receive data from said sending means, said control means controls the receiving operation and the storage operation, but not the sending operation.

5,726,769

IMAGE PROCESSING APPARATUS CAPABLE OF CONNECTING EXTERNAL INFORMATION PROCESSING TERMINAL, AND INCLUDING PRINTER UNIT AND DATA PROCESSING UNIT

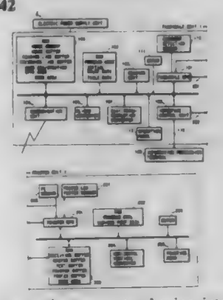
Takashi Imai, Yokohama; Yasuhide Ueno, Fuchu; Nobuyuki Hirai, Tokyo; Atsushi Ikeda, Tokorozawa, and Koji Okamura, Yokohama, all of Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan

Filed Nov. 14, 1995, Ser. No. 557,477

Claims priority, application Japan, Nov. 14, 1994, 6-279326; Nov. 14, 1994, 6-279499

Int. Cl.° H04N *1/32*

U.S. Cl. 358—442 **20 Claims**



1. An image processing apparatus having interface means for sending/receiving information to/from an information processing terminal, comprising:

line capture means for capturing a line;

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first instruction accept means for accepting a calling instruction from the information processing terminal to a specific destination; and

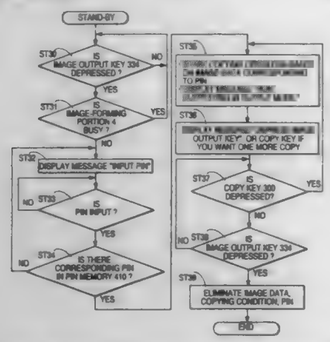
control means for, when said first instruction accept means accepts the calling instruction, controlling to inhibit a line from being captured for a calling operation for a destination other than the specific destination.

5,726,770

COPYING MACHINE RESPONSIVE TO PERSONAL IDENTIFICATION DATA

Kentaro Harada, Kanagawa-ken, Japan, assignor to Kabushiki Kaisha Toshiba, Kawasaki, Japan

Filed Sep. 16, 1994, Ser. No. 307,012
Claims priority, application Japan, Sep. 22, 1993, 5-259226
Int. Cl.[6] H04N *1/21*
U.S. Cl. 358—444 30 Claims



8. A copying machine for making copies by forming an image on an image-bearing member, comprising:

an image-reading unit, the image-reading unit having an electric component which converts an original image to image data;

a data memory in which the image data is stored;

an image-forming unit, the image-forming unit having an electric component which forms an image on the image-bearing member on the basis of the image data;

means for selecting at least one of a plurality of copying conditions;

a data input device, the data input device having an electric component which generates a personal identification data in accordance with an operation of an operator; and

means for controlling the data memory such that the data memory stores the selected copying condition and correlated image data, and controlling the image-forming unit so as to form an image on the basis of the image data and the selected copying condition corresponding to the identification data when the same identification data is provided again to said copying machine.

5,726,771

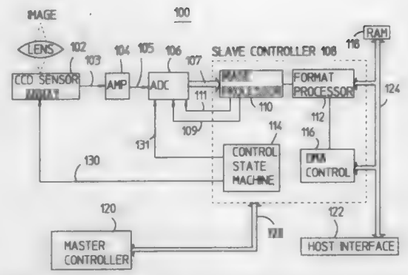
SYSTEM AND METHOD FOR OPTIMIZING TONAL RESOLUTION IN AN OPTICAL SCANNER

Robert G. Gann, Bellvue, and Robert E. Sobol, Ft. Collins, both of Colo., assignors to Hewlett-Packard Company, Palo Alto, Calif.

Filed Oct. 31, 1994, Ser. No. 332,210
Int. Cl.[6] H04N *1/40*
U.S. Cl. 358—445 15 Claims

1. A method for capturing an image with enhanced tonal resolution, comprising the steps of:

performing a preview scan of the entire image to be scanned with an image capture system;



determining a maximum pixel intensity of at least a portion of the preview-scanned image;

determining a minimum pixel intensity of at least a portion of the preview-scanned image;

adjusting a dynamic range of the image capture system based on said maximum pixel intensity and said minimum pixel intensity, wherein a gain of a digitizer is adjusted, based on said maximum pixel intensity, and an offset of said digitizer is adjusted based on said minimum pixel intensity, to modify a dynamic range of said digitizer and improve the tonal resolution of the object scanner; and

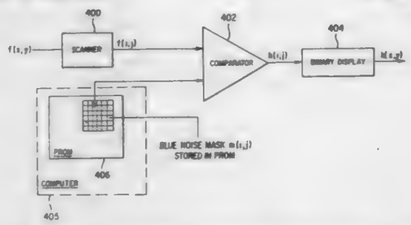
scanning the image with the adjusted image capture system, whereby the tonal resolution of the scanned image is increased.

5,726,772

METHOD AND APPARATUS FOR HALFTONE RENDERING OF A GRAY SCALE IMAGE USING A BLUE NOISE MASK

Kevin J. Parker, Rochester, N.Y., and Theophano Mitsa, Iowa City, Iowa, assignors to Research Corporation Technologies, Tucson, Ariz.

Continuation of Ser. No. 345,788, Nov. 22, 1994, Pat. No. 5,477,305, which is a continuation-in-part of Ser. No. 622,056, Dec. 4, 1990, Pat. No. 5,111,310. This application Oct. 6, 1995, Ser. No. 540,038
Int. Cl.[6] H04N *1/40*
U.S. Cl. 358—456 78 Claims



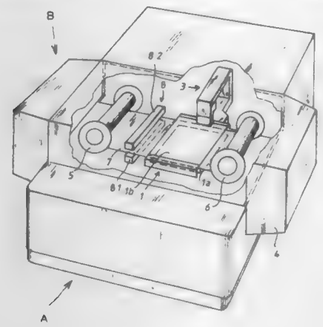
1. A machine comprising a computer readable storage device which stores a dither matrix for use in halftoning image information and a comparator responsive to said computer readable storage device, said dither matrix comprising at least one array, said at least one array, when thresholded at a number of levels produces a number of dot profiles, a plurality of said number of dot profiles each having a power spectrum substantially characteristic of a blue noise power spectrum for the level at which such dot profile is produced.

5,726,773

APPARATUS FOR SCANNING AND DIGITIZING PHOTOGRAPHIC IMAGE OBJECTS AND METHOD OF OPERATING SAID APPARATUS

Herwig Mehlo, Aalen; Karl-Heinz Prois, Heidenheim, and Michael Raasch, Aalen-Wasseralfingen, all of Germany, assignors to Carl-Zeiss-Stiftung, Heidenheim, Germany

Filed Nov. 28, 1995, Ser. No. 563,550
Claims priority, application Germany, Nov. 29, 1994, 44 42 445.0
Int. Cl.[6] H04N *1/04;9/47;* G03B *27/48;27/58*
U.S. Cl. 358—474 20 Claims



8. An apparatus for scanning and digitizing an image object including an individual image object and a roll film, the apparatus comprising:

a scanner including an electro-optical scanning unit for scanning said image object to provide an electrical signal containing image data of the individual image object;

a roll-film unit;

a circuit for selectively combining said scanner and said roll-film unit to process image data of the roll film;

said roll-film unit being adapted to utilize said electro-optical scanning unit for also processing said image data of said roll film;

said electro-optical scanning unit being a first electro-optical scanning unit;

said roll-film unit including a second electro-optical scanning unit which is mounted in a fixed position relative to the roll film for generating a signal containing data indicative of the images present on the roll film;

said circuit including a display and a computer for processing said signal to generate an overview image in real time on said display of the image on the roll film;

said first electro-optical scanning unit including: a first illuminating unit for illuminating the roll film at a first location thereon and a first detector for digitizing an image section of the roll film;

said second electro-optical scanning unit including: a second illuminating unit for illuminating the roll film; and, a second detector mounted opposite said second illuminating unit; and,

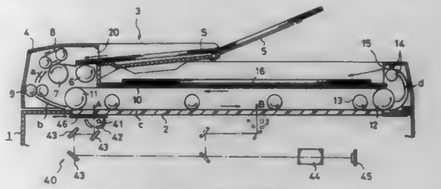
said roll-film unit including a transport device for transporting the roll film between said second illuminating unit and said second detector.

5,726,774

DOCUMENT READING DEVICE WITH LIGHT-SHIELDING MEMBER THAT PREVENTS A LOCAL TEMPERATURE INCREASE IN A DOCUMENT PLACING TABLE

Kazuo Shishido, and Hiroyoshi Maruyama, both of Yokohama, Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan

Filed Jun. 7, 1995, Ser. No. 478,678
Claims priority, application Japan, Jun. 17, 1994, 6-135789
Int. Cl.[6] H04N *1/04*
U.S. Cl. 358—475 9 Claims



1. A document reading device comprising:

a document placing table;

a light source for illuminating a document placed on said document placing table;

a light-screening member for screening light travelling to said document placing table from said light source, said light-screening member being arranged between said light source and said document placing table;

light-screening width control means for changing a width of said light-screening member in accordance with a document size; and

document feeding means for feeding the document,

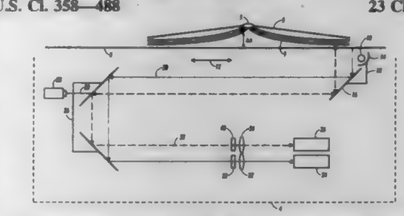
wherein said light source illuminates the document which is being fed, and wherein the width of said light-screening member along which the light is screened is changed in a direction perpendicular to the direction in which the document is normally fed.

5,726,775

METHOD AND APPARATUS FOR DETERMINING A PROFILE OF AN IMAGE DISPLACED A DISTANCE FROM A PLATEN

John F. Walsh, Rochester, N.Y., assignor to Xerox Corporation, Stamford, Conn.

Filed Jun. 26, 1996, Ser. No. 670,954
Int. Cl.[6] H04N *1/04*
U.S. Cl. 358—488 23 Claims



1. A method for determining a displacement of an original image from a reference image plane of a scanning system having a fast scan and a slow scan direction, comprising the steps of:

projecting a spot of light at an oblique angle onto a scan line of the original image, the scan line being aligned along the fast scan direction and having a location along the slow scan direction;

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recording optical information reflected from the scan line to provide profile data for the scan line;

evaluating the profile data to identify a first position where the spot of light is located on the original image along the fast scan direction in the reference image plane; identifying a second position representing where the spot of light intersects the reference image plane along the fast scan direction; and

calculating the difference between the first position and the second position to determine the displacement of the original image from the reference image plane of the scanning system at the location along the slow scan direction.

5,726,776

METHOD AND ARRANGEMENT FOR SYNCHRONIZING THE IMAGE RECORDINGS OF MONOCHROME AND COLOR RECORDINGS BY MEANS OF LIGHT-SENSITIVE SENSORS

Michael Auer; Hans-Peter Grossmann; Joachim Ihlefeld, all of Dresden; Michael Pester, Radeberg; Günther Uhlig, and Lutz Wenert, both of Dresden, all of Germany, assignors to F & O Electronic System GmbH, Neckarsteinach, Germany

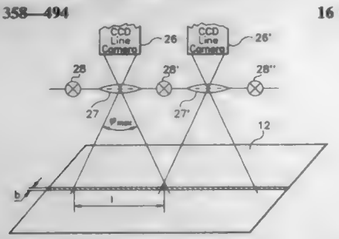
PCT No. PCT/DE94/00725, § 371 Date Feb. 22, 1996, § 102(e) Date Feb. 22, 1996, PCT Pub. No. WO95/01042, PCT Pub. Date Jan. 5, 1995

PCT Filed Jun. 27, 1994, Ser. No. 578,560

Claims priority, application Germany, Jun. 25, 1993, 43 21 180.1

Int. Cl.[6] H04N *1/04;1/23;1/36*

U.S. Cl. 358—494 **16 Claims**



1. Method for the line-by-line synchronization of the image recording of monochrome recordings and color recordings with light-sensitive sensors (**25**, **26'**), where an object (II) to be scanned moves relative to the light-sensitive sensors (**25**, **26'**), employing a timer, a computer, and an incremental transmitter, generating a pulse, wherein a line-scanning pattern is generated as a reference line-scanning pattern, characterized in that the line-scanning pattern is generated by a programmable counter arrangement, wherein the programmable counter arrangement includes a measurement line counter (CT2) and a further counter (CT1), preconnected relative to the measurement line counter (CT2), and wherein the computer and the programmable counter arrangement measure the phase position of the line-scanning pattern, generated by the counter arrangement, at the point in time of the arrival of a pulse of the incremental transmitter, wherein the computer and the programmable counter arrangement compare the phase position with a coordinated calculated or tabulated reference value of a reference value table, and wherein the computer and the programmable counter arrangement employ the thus obtained phase difference to influence the counter (CT1) in its count volume, wherein the counter (CT1) is preconnected to the measurement line counter (CT2) in order to generate therefrom the exact position of measurement lines.

5,726,777

IMAGE APPARATUS AND METHOD FOR SELECTIVE COLOR TRANSMISSION BASED ON STORED FUNCTION INFORMATION

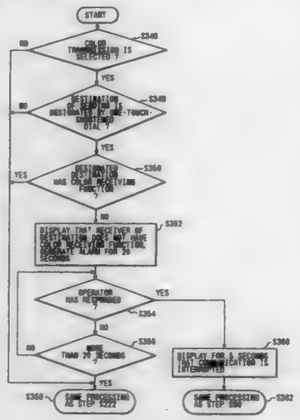
Takehiro Yoshida, Tokyo, Japan, and Toshifumi Nakajima, Tokyo, Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan

Division of Ser. No. 77,910, Jun. 17, 1993. This application Jul. 13, 1995, Ser. No. 509,141

Claims priority, application Japan, Jun. 18, 1992, 4-159448; Jun. 30, 1992, 4-173233

Int. Cl.[6] H04N *1/46;1/00*

U.S. Cl. 358—500 **16 Claims**



7. An image transmitting apparatus, comprising:

transmitting means capable of transmitting color image information;

storing means for storing addresses of a plurality of receiving sides together with respective information indicating, for each stored address, whether the corresponding receiving side has or does not have a color receiving function;

designating means for designating a destination for transmission from among the plurality of receiving sides whose addresses are stored in said storing means;

discriminating means for discriminating whether or not the destination designated by said designating means has the color receiving function in accordance with the information stored in said storing means; and

notifying means for notifying that the destination does not have the color receiving function, in response to an output of said discriminating means, the notification being executed ahead of an operation of said transmitting means to transmit image information to the destination.

5,726,778

IMAGE PROCESSING APPARATUS WITH COLOR-SPACE CONVERSION

Satoshi Tanio, Tokyo, Japan, assignor to Canon Kabushiki Kaisha, Tokyo, Japan

Filed Sep. 14, 1995, Ser. No. 528,536

Claims priority, application Japan, Sep. 16, 1994, 6-221755; Sep. 16, 1994, 6-221756

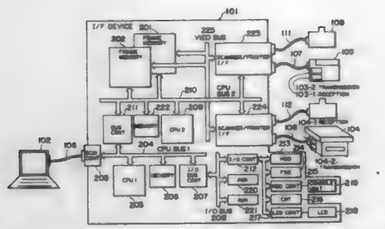
Int. Cl.[6] H04N *1/46;* **G03F** *3/08*

U.S. Cl. 358—501 **15 Claims**

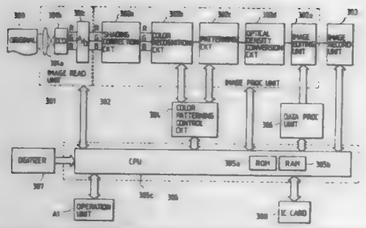
1. An image processing apparatus comprising:

input means for inputting a command concerning a color image outputting process;

first communication means for communicating with a first external device;



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output means for outputting the monochromatic pattern provided by said conversion means.

6. An image processing method comprising the steps of:

inputting color images;

manually designating a range of specific color, the range being specified by values of at least two colors, and the value of each color being independently settable;

converting a color image within the range of designated specific color from among the input color images into a specific monochromatic pattern; and

outputting the specific monochromatic pattern.

5,726,782

HOLOGRAM AND METHOD OF FABRICATING

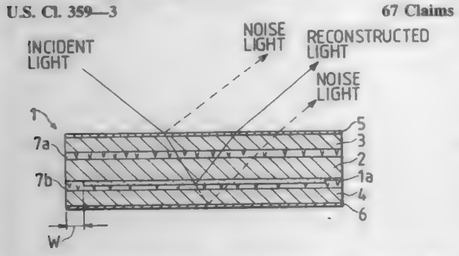
Tetsuya Kato, Okazaki; Toshiki Saburi, Inazawa; Naoyuki Kawazoe, Yokkaichi, and Yasuhiro Mizutani, Mie-ken, all of Japan, assignors to Nippondenso Co., Ltd., Kariya, Japan

Continuation of Ser. No. 305,511, Sep. 13, 1994, abandoned, which is a continuation-in-part of Ser. No. 196,381, Feb. 15, 1994, Pat. No. 5,604,611, which is a division of Ser. No. 958,262, Oct. 9, 1992, Pat. No. 5,313,317. This application Mar. 18, 1996, Ser. No. 620,743

Claims priority, application Japan, Oct. 9, 1991, 3-262008; Sep. 14, 1993, 5-252626

Int. Cl.[6] G03H *1/02;1/18;* **G02B** *27/01;27/00*

U.S. Cl. 359—3 **67 Claims**



1. A method of fabricating a hologram element, comprising the steps of:

preparing an optically transparent base plate having first and second opposite surfaces;

forming a film having a diffraction grating on the first surface of the base plate;

preparing a solution containing SiO_2 particles; and

dipping the second surface of the base plate in the solution to provide an antireflection film including SiO_2 particles on the second surface of the base plate after the film having the diffraction grating is formed.

5,726,783

OPTICAL FIBRE COMMUNICATION SYSTEM

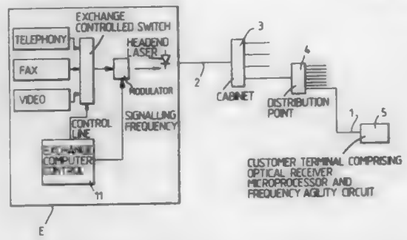
Anthony James Cooper; Simon Charles Fenning; Michael Harry Reeve; Lawrence Bickers, and Paul Adrian Rosher, all of Ipswich, England, assignors to British Telecommunications public limited company, London, England

Continuation of Ser. No. 890,586, Jul. 10, 1992, abandoned. This application Aug. 1, 1994, Ser. No. 284,045

Claims priority, application United Kingdom, Dec. 8, 1989, 8927783

Int. Cl.[6] H04J *14/02*

U.S. Cl. 359—125 **25 Claims**



1. An optical fibre communications system in which a plurality of optical fibre subscriber lines are connected to exchange apparatus for providing a range of services on different subcarrier frequencies, each of the optical fibre subscriber lines being provided with a respective terminal apparatus operable at a plurality of said different subcarrier frequencies, and the exchange apparatus being provided with downlink control means for selectively enabling individual terminal apparatus to access given subcarrier frequencies for selectively allocating services to the individual terminal apparatus, the down link control means transmitting control signals to each individual terminal apparatus on a common control channel that is separate from said subcarrier frequencies used for providing said services.

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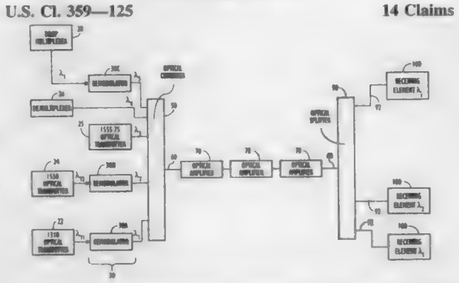
WDM OPTICAL COMMUNICATION SYSTEM WITH REMODULATORS AND DIVERSE OPTICAL TRANSMITTERS

Stephen B. Alexander, Millersville, Md.; Steve W. Chaddick, Annapolis, Md.; David R. Huber, Glenwood, Md., and Cecil D. Smith, Severna Park, Md., assignors to Ciena Corp., Linthicum, Md.

Continuation-in-part of Ser. No. 438,844, May 11, 1995, Pat. No. 5,504,609. This application Mar. 29, 1996, Ser. No. 624,269

Int. Cl.[6] H04J *14/02*

U.S. Cl. 359—125 **14 Claims**



1. An optical communication system for carrying N optical wavelengths over an optical waveguide, where N is a whole number greater than or equal to 2, the communication system comprising:

a first set of one or more optical transmitters; each optical transmitter in the first set emitting an information-bearing optical signal at one or more first transmission wavelengths λ_n;

at least M optical receiving systems, each receiving system configured to receive an information-bearing optical signal at a particular reception wavelength, λ_j, where M is a whole number greater than or equal to N and j ranges from 1 to M, each receiving system including a wavelength selector having an optical filtering member comprising at least one Bragg grating member for selecting the particular reception wavelength λ_j, the Bragg grating member having a reflection band which includes the particular reception wavelength;

a second set of one or more optical transmitters, each optical transmitter in the second set emitting an information bearing optical signal at a particular reception wavelength λ_j, wherein the number of optical transmitters in the first set and the number of optical transmitters in the second set is less than or equal to N;

a set of one or more optical remodulators optically communicating with the first set of optical transmitters, each optical remodulator of said set of one or more optical remodulators configured to receive an information-bearing optical signal at a transmission wavelength λ_n and output an information-bearing optical signal at a reception wavelength λ_j, said each optical remodulator comprising:

an optoelectronic element for receiving an information-bearing optical signal at a transmission wavelength λ_n and outputting a corresponding electrical signal which includes the information from the transmitted information-bearing optical signal λ_n;

an optical carrier emitting element comprising a light source for emitting a non-information-bearing carrier optical signal at a reception wavelength λ_j onto a light source output waveguide; and

an external modulator optically communicating with the light source output waveguide for imparting information from the electrical signal onto the non-information-bearing carrier optical signal situated in the light source output waveguide;

an optical waveguide optically communicating with the set of one or more optical remodulators and with the second set of optical transmitters through an optical combining element positioned between the set of one or more optical remodulators, the second set of optical transmitters, and the optical waveguide, the optical combining element combining plural optical wavelengths to form a multiplexed optical signal output to the optical waveguide, the optical waveguide further optically communicating with each of the M receiving systems through an optical splitting element positioned between the optical waveguide and the M receiving systems; and

at least one optical amplifier optically communicating with the optical waveguide, the optical amplifier being configured to amplify a plurality of optical signals simultaneously.

5,726,785

OPTICAL ADD-DROP MULTIPLEXER USING OPTICAL CIRCULATORS AND PHOTOINDUCED BRAGG GRATINGS

Mouhammad Jamil Chawki, Lannion, France; Eric Delevaque, Pourilliau, France, and Valérie Tholey, Lannion, France, assignors to France Telecom, Paris, France

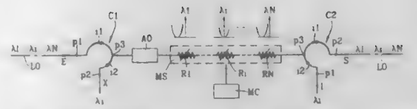
Filed Feb. 21, 1996, Ser. No. 604,417

Claims priority, application France, Feb. 28, 1995, 95 02303

Int. Cl.[6] H04J *14/02*

U.S. Cl. 359—130 **18 Claims**

1. Optical add-drop multiplexer, which serves to add to a group of optical signals, whose wavelengths belong to a group of N wavelengths ($\lambda 1 \ldots \lambda N$), where N>1, and drop from said group of signals at least one optical signal having a given wavelength, chosen from within the wavelength group, said multiplexer being characterized in that it comprises:



a first optical circulator (C1) having an input (p1) for receiving the group of signals and an output (p2),

a second optical circulator (C2) having an input (p1) for receiving the signal to be added to the group of signals and an output (p2),

an optical selection means (MS) coupled, on one side, to the first circulator and, on the other side, to the second circulator and which comprises at least one photoinduced Bragg grating (R1 . . . RN) which is associated with the given wavelength and can be in a first state, where it reflects the signal having said given wavelength and where it transmits the signals having a wavelength different from the latter, or optionally in a second state, where it transmits all the signals and

a means (MC) for controlling said selection means (MS) for placing the grating in the second state,

the selection means cooperating with each optical circulator for adding and dropping the optical signal or signals,

the output of the second circulator supplying the group of signals in which has been added or from which has been dropped the signal having the given wavelength and the output of the first circulator suplying the signal dropped from said group of signals when the grating is in the first state and conversely when the grating is in the second state.

5,726,786

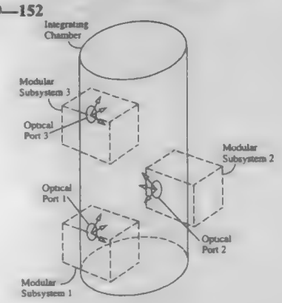
FREE-SPACE STAR-COUPLED OPTICAL DATA BUS

Donald G. Heflinger, Torrance, Calif., assignor to The Aerospace Corporation, El Segundo, Calif.

Filed Nov. 21, 1995, Ser. No. 561,343

Int. Cl.[6] H04B *10/00*

U.S. Cl. 359—152 **1 Claim**



Integrating Chamber Free-Space Star-Coupled Optical Data Bus

1. An optical data bus for free-space communication of data by optical transmission and reception of light, said bus comprising:

a volume of free-space for communication of said light therein,

a plurality of transceiver means disposed about said volume and having at least an associated transmitter means and receiver means for respectively transmitting and receiving said light, and

an optical distributing means for uniformly distributing said light from one of said transceiver means simultaneously through said free-space to the remaining ones of said transceiver means, said light is distributed by said optical distributing means as electromagnetic spectrum waves transmitted from said one of said transceiver means to said remaining ones of said transceivers means,

said optical distributing means comprises an integrating chamber for receiving said light transmitted by one of said plurality

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of transceiver means and for re-emitting said transmitted light to every other remaining one of said plurality of transceiver means.

5,726,787

APPARATUS AND METHOD FOR IMPROVING SIGNAL-TO-NOISE RATIO IN WAVELENGTH DIVISION MULTIPLEXING SOLITON TRANSMISSION SYSTEMS

Hermann A. Haus, Lexington, Mass.; Wayne H. Knox, Rumson, and David A. B. Miller, Fair Haven, both of N.J., assignors to Lucent Technologies Inc., Murray Hill, N.J.

Filed Dec. 28, 1995, Ser. No. 579,864

Int. Cl.[6] H04B *10/00*

U.S. Cl. 359—161 **15 Claims**



1. For use in a soliton optical pulse transmission system, an apparatus for increasing a signal-to-noise ratio of said system, comprising:

a first optical component for receiving a soliton and an accompanying background noise from said system and increasing a power density of said soliton and said accompanying background noise by spatially concentrating said soliton and said accompanying background noise;

a saturable absorber, having a predetermined recombination rate, for receiving and absorbing a portion of said soliton and said accompanying background noise, said predetermined recombination rate causing said saturable absorber to absorb a lesser portion of said soliton than of said accompanying background noise, said component having spatially concentrated said soliton and said accompanying background noise to increase a sensitivity of said saturable absorber, said apparatus thereby increasing said signal-to-noise ratio of said system; and

a second optical component for receiving and spatially restoring a remaining portion of said soliton and said accompanying background noise, said second optical component returning said spatially-restored soliton and said accompanying background noise to said system.

5,726,788

DYNAMICALLY RECONFIGURABLE OPTICAL INTERFACE DEVICE USING AN OPTICALLY SWITCHED BACKPLANE

John A. Fee, Plano; Shoa-Kai Liu, Richardson; Andrew Niall Robinson, and Reddy Urimindi, both of Plano, all of Tex., assignors to MCI Corporation, Washington, D.C.

Filed Sep. 30, 1996, Ser. No. 720,477

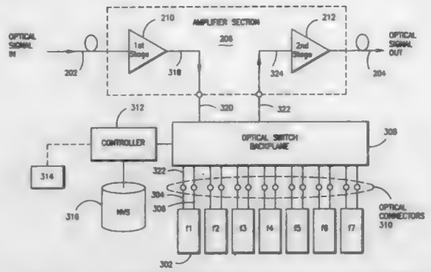
Int. Cl.[6] H04B *10/00;* **H04J** *14/08*

U.S. Cl. 359—163 **11 Claims**

1. An optical interface device for dynamically reconfiguring a telecommunications network, comprising:

an optical amplifier including two stages for amplifying an information carrying optical signal in a communications conduit within said telecommunications network;

an optical switch backplane communicatively coupled between said two stages and including a plurality of optical ports through which said signal is selectively passed;



at least one processing function connected via said plurality of ports to said optical switch backplane for receiving said signal and transmitting said signal to said optical switch backplane after a predetermined processing operation; and

a controller, including a microprocessor, electrically connected to said optical switch backplane for controlling via electrical signals said processing operation of said function.

5,726,789

METHOD AND DEVICE FOR MODULATING OPTICAL SHORT PULSES

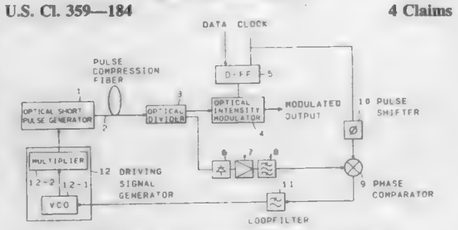
Yukio Horiuchi, Niza, and Masatoshi Suzuki, Hiki-gun, both of Japan, assignors to Kokusai Denshin Denwa Kabushiki Kaisha, Tokyo, Japan

Filed Mar. 19, 1996, Ser. No. 617,614

Claims priority, application Japan, Mar. 20, 1995, 7-085952

Int. Cl.[6] H04B *10/04*

U.S. Cl. 359—184 **4 Claims**



1. An optical short pulse modulating device comprising:

means for generating a drive signal,

an optical short pulse generating device responsive to said drive signal for generating optical short pulses having a period corresponding to the period of said drive signal;

pulse compression means for compressing the pulse width of the optical short pulses generated by said optical short pulse generating device;

an optical divider for dividing into two branches compressed optical short pulses that are output from said pulse compression means;

an optical intensity modulator, responsive to data synchronized with a reference clock, for intensity modulating one of said branches;

means for photodetecting the other of said branches to provide a signal representing the repetition frequency of the compressed optical short pulses that are output from said pulse compression means;

a phase comparator for comparing the phase of said repetition frequency signal with the phase of said reference clock, and outputting a phase error signal corresponding to any phase difference therebetween; and

means responsive to said phase error signal for controlling the period of said drive signal generated by said means for generating a drive signal in such manner that the phase error signal that is output from said phase comparator is zero.

5,726,790

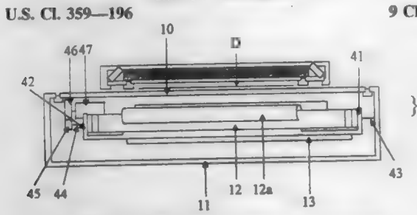
CONVERTER FOR CONVERTING A REFLECTION TYPE SCANNER TO A TRANSPARENCE TYPE SCANNER

Jenn-Tsair Tsai, Hsinchu, Taiwan, assignor to Mustek Systems, Inc., Hsinchu, Taiwan

Filed Jul. 19, 1996, Ser. No. 683,435

Int. Cl.[6] G02B *26/08*

U.S. Cl. 359—196 **9 Claims**



9. A reflection-transparence type scanner comprising:

a light source mechanism comprising a light source to emit light beams for reflection type and transparent type scanning;

a charge coupler device array to sense the brightness of incident light beams and to transform said brightness into an electronic format; and

a converter comprising:

a casing;

a window opened at said casing;

a light distribution plate to distribute incidence light to the whole area of said light distribution plate;

at least one light incidence window besides at least one side of said window at said casing; and

at least one reflecting mirror to reflect incidence light from said at least one light incidence window to said light distribution plate;

wherein said light source mechanism further comprises a mask capable to cover at least the central portion of said light source, a rotation means to rotate said mask and a control means to control the rotation of said mask.

5,726,791

LASER BEAM SCANNING APPARATUS

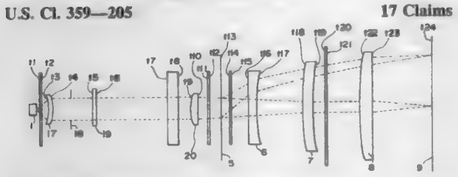
Toshio Naiki, Toyokawa, Japan, assignor to Minolta Co., Ltd., Osaka, Japan

Filed Sep. 7, 1995, Ser. No. 524,566

Claims priority, application Japan, Sep. 21, 1994, 6-226135

Int. Cl.[6] G02B *26/08*

U.S. Cl. 359—205 **17 Claims**



1. A laser beam scanning apparatus comprising:

a light source for emitting a laser beam;

a first optical system for forming the laser beam into a bundle of substantially parallel rays with respect to both a main scanning direction and a sub-scanning direction;

a second optical system for converging the laser beam emitted from the first optical system with respect to the sub-scanning direction;

a third optical system for converging the laser beam emitted from the second optical system with respect to the main scanning direction, said third optical system transmitting the laser beam with respect to the sub-scanning direction without performing an optical function;

a deflector for deflecting the converged laser beam emitted from the third optical system, said deflector having a reflecting surface on which the laser beam converged by said second optical system is focused with respect to the sub-scanning direction; and

a fourth optical system for imaging the deflected laser beam on a beam receiving surface.

5,726,792

SCANNING LENS

Takashi Iizuka, Tokyo, Japan, assignor to Asahi Kogaku Kogyo Kabushiki Kaisha, Tokyo, Japan

Filed Dec. 12, 1996, Ser. No. 764,540

Claims priority, application Japan, Dec. 15, 1995, 7-348045

Int. Cl.[6] G02B *26/08*

U.S. Cl. 359—205 **9 Claims**



1. A scanning lens that converges a light deflected by deflector onto a surface to be scanned, said scanning lens comprising:

a first lens having a negative power in both a main scanning direction and an auxiliary scanning direction;

a second lens having a positive power in both the main scanning direction and the auxiliary scanning direction;

a third lens having a positive power in both the main scanning direction and the auxiliary scanning direction; and

a fourth lens provided with a cylindrical surface having a negative power in the auxiliary scanning direction,

wherein said first, second, third and fourth lenses are arranged in this order from said deflector.

5,726,793

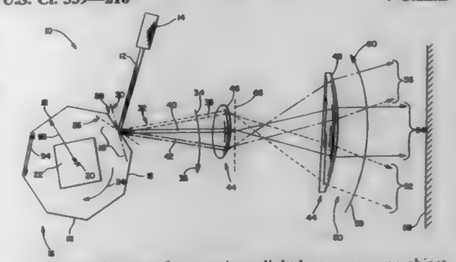
POLYGONAL MIRROR OPTICAL SCANNING SYSTEM

John D. Boardman, Garland; James R. Boyd, and Jeffrey P. Welch, both of Plano, all of Tex., assignors to E-Systems, Inc., Dallas, Tex.

Division of Ser. No. 330,834, Oct. 27, 1994, Pat. No. 5,585,955, which is a division of Ser. No. 963,549, Oct. 20, 1992, Pat. No. 5,392,149. This application Nov. 13, 1995, Ser. No. 555,861

Int. Cl.[6] G02B *26/08*

U.S. Cl. 359—216 **7 Claims**



1. An optical system for scanning a light beam across an object, comprising:

a multi-sided mirror disposed in the path of the light beam, the mirror having a plurality of reflective surfaces;

drive means for rotating the mirror in a predetermined direction such that the plurality of reflective surfaces sequentially reflect the light beam to generate a reflected light beam swept repetitively in a single direction through a predetermined arc; and

lens means for optically receiving the reflected light beam to project a scanning light beam repetitively across the surface of the object, the lens means having an entrance pupil optically positioned substantially coincident with the reflective surface, the entrance pupil subject to longitudinal shifting due to the rotation of the polygonal mirror, such longitudinal

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shifting inducing a field curvature in an image plane distorting the reflected light beam, said lens means comprising an eyepiece lens including a Petzval curvature for inducing a field curvature in the image plane to correct for the entrance pupil shifting in the longitudinal direction in relation to the path of the scanning light beam and focusing the light beam, said lens means further comprising an objective lens for magnifying and collimating the focused light beam, said objective lens being located next to the eyepiece lens.

5,726,794

DC BIAS CONTROLLER FOR OPTICAL MODULATOR

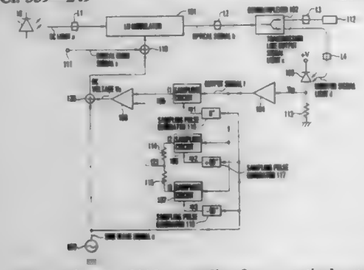
Tsutomu Tajima, Tokyo, Japan, assignor to NEC Corporation, Tokyo, Japan

Filed Dec. 27, 1995, Ser. No. 579,203

Claims priority, application Japan, Dec. 28, 1994, 6-327347

Int. Cl.^{6} H01S *3/00;* **H04L** *25/06;* **G02F** *1/03*

U.S. Cl. 359—249 **20 Claims**



1. A Direct Current (DC) controller for an optical modulator, comprising:

an optical modulator for intensity-modulating input DC light by a digital main signal superposed with a DC voltage to convert the DC light to an optical signal;

demultiplexer means for demultiplexing the optical signal from said optical modulator into output signal light and monitor signal light; and

control means for detecting a change in modulation characteristics of said optical modulator on the basis of the monitor signal light from said demultiplexer means to control a value of the DC voltage superposed on the digital main signal,

wherein said optical modulator operates at an optimum bias point in accordance with the DC voltage from said control means,

said control means comprising a plurality of sampling circuits for sampling and holding a voltage signal corresponding to an output of said demultiplexer means using respectively, as a trigger signal, sampling pulses each having a predetermined phase relationship with a sine wave signal input thereto,

wherein the DC voltage to be superposed on the digital main signal comprises a voltage such that a difference between an average value of the voltage signals from predetermined ones of said sampling circuits and the voltage signal from another predetermined sampling circuit different from said predetermined ones, is minimized.

5,726,795

COMPACT PHASE-CONJUGATE MIRROR UTILIZING FOUR-WAVE MIXING IN A LOOP CONFIGURATION

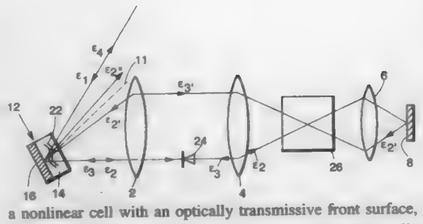
Alexander A. Betin, Calabasas; Metin S. Mangir, Santa Monica, both of Calif., and David A. Rockwell, Carmel, Ind., assignors to Hughes Electronics, Los Angeles, Calif.

Filed Oct. 30, 1996, Ser. No. 741,274

Int. Cl.^{6} G02B *26/08*

U.S. Cl. 359—300 **16 Claims**

1. A compact loop phase conjugator, comprising:



a nonlinear cell with an optically transmissive front surface, an optically reflective back surface, and an optically nonlinear medium between said front and back surfaces,

a signal beam ϵ_1 directed to the front surface of said nonlinear cell propagating through said cell, reflecting off said reflective back surface, propagating back through said cell and emerging from said cell as a loop beam ϵ_2,

relay optics that direct loop beam ϵ_2 back to said nonlinear cell so that it intersects and optically interferes with said signal beam ϵ_1 at said cell to form a refractive index grating in said cell, said relay optics and refractive index grating forming an optical loop,

an optical diode positioned in said optical loop, said optical diode producing a non-reciprocal optical loss in said optical loop that is greater for optical beams propagating along the propagation direction of loop beam ϵ_2 than for optical beams propagating in the opposite direction, and

an optical gain medium positioned in said optical loop, said gain medium and optical loop forming a ring laser resonator,

said optical diode and gain medium positioned in said optical loop so that an oscillation beam ϵ_3 builds up from optical noise in said resonator and oscillates in a direction counter to the propagation direction of loop beam ϵ_2, with a portion of oscillation beam ϵ_3 being transmitted by said refractive index grating, reflecting off the reflective back surface of said nonlinear cell, and exiting said cell as an output beam ϵ_4.

5,726,796

OPTICAL AMPLIFIER

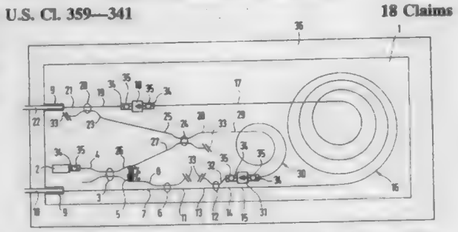
Rolf Regener, Oberriexingen, and Gottfried Schmitt, Nürnberg, both of Germany, assignors to Alcatel N.V., Rijswijk, Netherlands

Filed May 14, 1996, Ser. No. 645,775

Claims priority, application Germany, May 17, 1995, 195 18 021.6

Int. Cl.^{6} G02B *6/30;* **H01S** *3/19*

U.S. Cl. 359—341 **18 Claims**



1. A bidirectional optical amplifier for broadband systems, comprising two spatially separate, rare-earth-doped active waveguides (**16**, **30**) and a pump-light source (**2**) which feeds a first coupler (**3**), from which a first portion of the pump light proceeds to a second coupler (**6**), together with signal light arriving from a first amplifier connection (**9**, **10**), through a first active waveguide (**16**) to a second amplifier connection (**9**, **22**), and a second portion of pump light proceeds to a further coupler (**24**), together with signal light arriving at the second amplifier connection (**22**), and proceeds from a second active waveguide (**30**) to the first amplifier connection (**9**, **10**), characterized in that the active optical waveguides (**16**, **30**) are integrated on a substrate (**1**), that the active optical waveguides (**16**, **30**) have a spiral configuration, each with an output that crosses at least one winding from inside the spiral configuration, and that the first coupler (**3**), which is fed by the pump-light source (**2**), has an asymmetric power distribution.

5,726,797

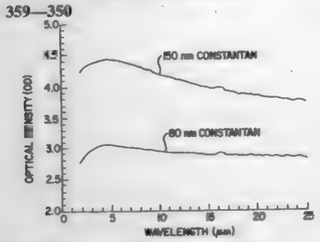
INFRARED NEUTRAL-DENSITY FILTER HAVING COPPER ALLOY FILM

Zhuomin M. Zhang, Gaithersburg; Raju U. Datla, Silver Spring, and Leonard M. Hanssen, Gaithersburg, all of Md., assignors to The United States of America as represented by the Secretary of Commerce, Washington, D.C.

Filed Jul. 25, 1995, Ser. No. 506,693

Int. Cl.^{6} G02B *3/00*

U.S. Cl. 359—350 **13 Claims**



1. A neutral-density optical filter comprising:

a dielectric substrate comprising single-crystal silicon; and

a film on the dielectric substrate, the film comprising copper and nickel.

5,726,798

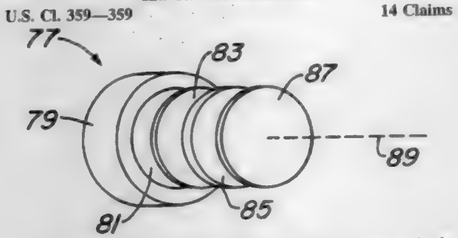
METHOD AND APPARATUS FOR FILTER INFRARED EMISSION

Boyd B. Bushman, Lewisville, Tex., assignor to Lockheed Corporation, Fort Worth, Tex.

Continuation-in-part of Ser. No. 293,472, Aug. 19, 1994, abandoned. This application Dec. 1, 1995, Ser. No. 566,189

Int. Cl.^{6} G02B *5/08;5/28*

U.S. Cl. 359—359 **14 Claims**



1. An apparatus for emitting light at a selected wavelength, the apparatus comprising:

an emitter member having a forward side, a rearward side, and a plurality of layers which have selected optical thicknesses and which are overlaid with one another on a substrate, wherein alternating ones of the layers are comprised of materials having different indexes of refraction to provide alternating layers having different indexes of refraction;

heat source means for heating the emitter member to a sufficient temperature for stimulating photon emissions within the emitter member, wherein energy levels for the photon emissions are determined by the composition of the emitter member;

the emitter member emits light at the selected wavelength in response to the photon emissions, and the selected wavelength at which the light is emitted is determined by the optical thicknesses of the layers;

a partially reflective surface on the forward side of the emitter member and facing rearward;

a reflective surface in substantially parallel alignment with the partially reflective surface and located on the rearward side of the emitter member and facing forward; and

wherein light created within the emitter reflects back and forth between the partially reflective surface and the reflective surface and creates a near monochromatic light emission through the partially reflective surface in a forward direction.

5,726,799

REAL IMAGE TYPE VIEWFINDER

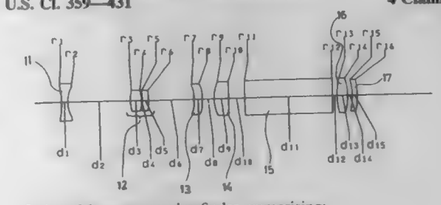
Tetsuya Abe, Hokkaido; Sachio Hasushita, and Takayuki Ito, both of Tokyo, all of Japan, assignors to Asahi Kogaku Kogyo Kabushiki Kaisha, Tokyo, Japan

Division of Ser. No. 273,873, Jul. 12, 1994, Pat. No. 5,550,674. This application Mar. 21, 1996, Ser. No. 590,559

Claims priority, application Japan, Jul. 12, 1993, 5-171608

Int. Cl.^{6} G02B *23/00;25/00*

U.S. Cl. 359—431 **4 Claims**



1. A real image type viewfinder, comprising:

an objective lens group,

an eyepiece lens group;

a condenser lens group for transmitting an image of an object formed by said objective lens group towards said eyepiece lens group;

an image erecting optical system for erecting an inverted image;

said objective lens group, said condenser lens group, said image erecting optical system and said eyepiece lens group being located in this order from an object side;

said objective lens group consisting of a first negative lens group and a second positive lens group located in this order from the object side, said first negative lens group and said second positive lens group forming a movable variable focal length lens group, said first negative lens group comprising a double-aspheric lens which satisfies the following relationships:

$$0.05<\Delta X_{1-1}/f_{ow}<0$$

$$-0.10<\Delta X_{1-2}/f_{ow}<0$$

wherein ΔX_{1-1} designates the aspheric value in the effective radius of a first surface facing an object of said double-aspheric lens;

ΔX_{1-2} designates the aspheric value in the effective radius of a second surface facing an eye of said double-aspheric lens; and,

f_{ow} designates the overall focal length of the lens groups from said objective lens group to said condenser lens group at a wide angle setting.

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5,726,800

AUTOSTEREOSCOPIC DIRECTIONAL DISPLAY APPARATUS

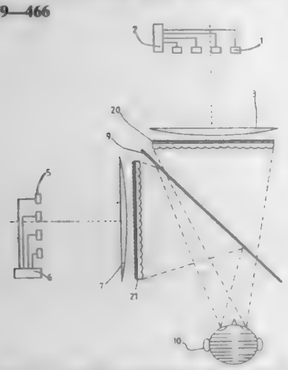
David Ezra, Oxon, United Kingdom; Graham J. Woodgate, Oxfordshire, United Kingdom, and Basil Arthur Omar, Oxfordshire, United Kingdom, assignors to Sharp Kabushiki Kaisha, Osaka, Japan

Filed Dec. 15, 1993, Ser. No. 167,497

Claims priority, application United Kingdom, Dec. 17, 1992, 9226272; Dec. 1, 1993, 9324703

Int. Cl.[6] G02B 27/22; H04N 13/04

U.S. Cl. 359—466 45 Claims



1. An autostereoscopic directional display apparatus comprising a plurality of displays and an optical combining system for combining outputs of the displays, wherein each of the displays comprises an autostereoscopic display device and co-operates with the optical combining system to provide a plurality of views which are visible in respective different directions.

5,726,801

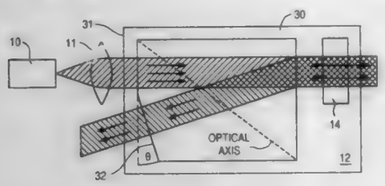
REDUCED OPTICAL ISOLATOR MODULE FOR A MINIATURIZED LASER DIODE ASSEMBLY

Jing-Jong Pan, Milpitas, Calif., assignor to E-Tek Dynamics, Inc., San Jose, Calif.

Filed Dec. 21, 1994, Ser. No. 361,604

Int. Cl.[6] G02B 5/30;27/28

U.S. Cl. 359—484 2 Claims



1. An assembly for a semiconductor laser comprising

a laser diode for generating light;

an aspheric lens collimating said light directly from said laser diode;

a quarter-wave plate; and

a birefringent crystal receiving light directly from said aspheric lens for transmitting a component of said light polarized in a plane toward said quarter-wave plate and for preventing light from said quarter-wave plate not polarized in said plane from reaching said aspheric lens and said laser diode, said birefringent crystal having a first end surface and a second end surface, said first end surface having a first facet parallel to said second end surface and a second facet at an angle to said first facet;

whereby light from said laser diode transmitted through said quarter-wave plate and reflected back is isolated from said laser diode.

5,726,802

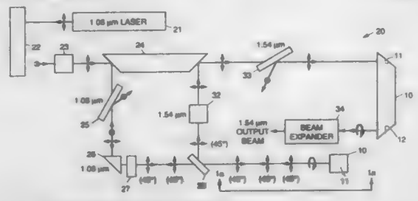
BROADBAND QUARTER-WAVE RETARDING 180° FOLD PRISM

Robert D. Stultz, Bellflower, Calif., assignor to Hughes Electronics, Los Angeles, Calif.

Filed Jan. 22, 1996, Ser. No. 589,721

Int. Cl.[6] G02B 5/30;27/28

U.S. Cl. 359—487 10 Claims



1. An optical device comprising:

a 180° folding glass prism having first and second total internal reflecting surfaces that provides a 90° phase shift of laser energy at a plurality of wavelengths that propagate therethrough and wherein its composition is selected so that its refractive index provides a 45° shift at each of the first and second total internal reflecting surfaces of the prism and wherein dispersion in the glass is small enough so that the phase shift of the laser energy is relatively insensitive to wavelength, whereby the prism also functions as a quarter-wave retarder for the plurality of wavelengths of laser energy.

5,726,803

LENS-TYPE RETROREFLECTIVE SHEETING

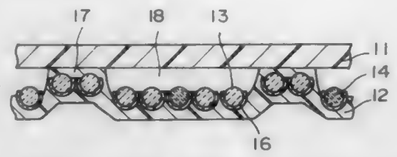
Katsura Ochi, Kashiwa; Osamu Tanaka, Hiratsuka, and Makoto Takeda, Takaoka, all of Japan, assignors to Nippon Carbide Kogyo Kabushiki Kaisha, Tokyo, Japan

Filed Sep. 25, 1995, Ser. No. 536,458

Claims priority, application Japan, Sep. 30, 1994, 6-259665

Int. Cl.[6] G02B 5/122;5/124;5/128

U.S. Cl. 359—529 13 Claims



1. A retroreflective sign for displaying information which comprises

lens-type retroreflective sheeting forming at least one first region corresponding to image and comprising at least one first retroreflective layer, and

lens-type retroreflective sheeting forming at least one second region corresponding to background for said image and comprising at least one second retroreflective layer;

wherein said at least one first retroreflective layer comprises a mixture of transparent microspherical lenses (A) having a refractive index of at least 1.8 and transparent microspherical fillers (B) having a refractive index which differs from the refractive index of lenses (A) by at least 5%; wherein the transparent lenses (A) and transparent filler (B) are contained in said at least one first retroreflective layer at a total packing ratio falling within the range of from about 60 to about 90%;

said at least one second retroreflective layer comprises transparent microspheres with substantially the same packing ratio as that of the transparent microspheres in said at least one first retroreflective layer; and

wherein the mixing ratio of lenses (A) to fillers (B) in said at least one first retroreflective layer is different than the mixing ratio of transparent microspheres in said at least one second retroreflective layer, such that, when the retroreflective sheeting is illuminated, the brightness of the image is different from the brightness of the background.

5,726,804

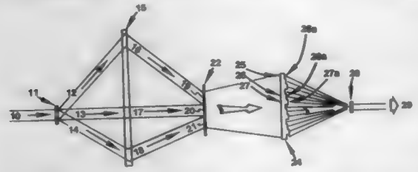
WAVETRAIN STABILIZATION AND SORTING

John N. Hait, Missoula, Mont., assignor to Rocky Mountain Research Center, Missoula, Mont.

Filed May 15, 1995, Ser. No. 442,329

Int. Cl.[6] G02B 27/10; H01S 3/10

U.S. Cl. 359—577 9 Claims



1. A method of phase-stabilizing wavetrains of electromagnetic energy comprising the following steps:

providing an input beam having a series of wavetrains of electromagnetic energy of at least one wavelength;

splitting said input beam into a plurality of intermediate beams;

directing each of said plurality of intermediate beams along a separate delay path to produce a separate delay for each of said plurality of intermediate beams which produces a plurality of delayed wavetrains that continuously overlap each other;

producing interference with said plurality of delayed wavetrains at a plurality of locations, and

separating, phase-adjusting and directing energy from each of said plurality of locations into at least one output, said phase-adjusting being such that energy from said plurality of locations arrives at said at least one output having a substantially constant phase,

thereby providing a wavetrain phase stabilizer having a substantially constant phase output by phase-matching overlapping wavetrains.

5,726,805

OPTICAL FILTER INCLUDING A SUB-WAVELENGTH PERIODIC STRUCTURE AND METHOD OF MAKING

Sumanth Kaushik, and Brian R. Stallard, both of Albuquerque, N. Mex., assignors to Sandia Corporation, Albuquerque, N. Mex.

Filed Jun. 25, 1996, Ser. No. 670,115

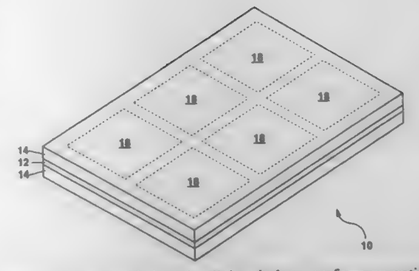
Int. Cl.[6] G02B 5/18;5/26;5/28;5/30

U.S. Cl. 359—589 23 Claims

1. An optical filter for filtering incident light, comprising:

at least one filter element, with each filter element further having

a dielectric layer with a sub-wavelength periodic structure formed therein to provide an effective index of refraction for the dielectric layer that is different from the index of refraction of a material forming the dielectric layer for defining, at least in part, a predetermined center wavelength for transmission of the incident light; and



mirrors above and below the dielectric layer to form an optical cavity thereabout.

5,726,806

APPARATUS FOR DISPLAYING A PLURALITY OF VIEWABLE IMAGES OF AN OBJECT

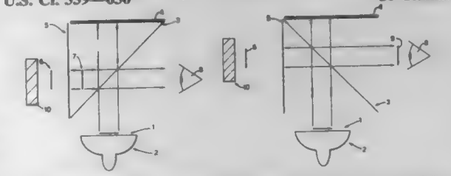
John Holden, Hertfordshire, England, and Christoph Dobrusskin, Eindhoven, Netherlands, assignors to Central Research Laboratories Limited, Hayes, England

Filed Jul. 25, 1995, Ser. No. 506,881

Claims priority, application United Kingdom, Aug. 5, 1994, 9415894

Int. Cl.[6] G02B 27/14

U.S. Cl. 359—630 16 Claims



1. An apparatus for displaying an image of an object, comprising a beam-splitter positioned in a path of light from the object, and a direction selective screen positioned in the path of light from the object after transmission by the beam-splitter, characterized in hat the apparatus further comprises a partially reflective light-transmissive sheet positioned in the path of light from the object after reflection by the beam-splitter such that a plurality of viewable images are formed of the object.

5,726,807

SMALL LIGHT WEIGHT HEAD-MOUNTED OR FACE-MOUNTED IMAGE DISPLAY APPARATUS

Masaya Nakaoka, Hachioji, Japan; Koichi Takahashi, Hachioji, Japan, and Takayoshi Togino, Koganei, Japan, assignors to Olympus Optical Co., Ltd., Tokyo, Japan

Filed Dec. 12, 1995, Ser. No. 570,861

Claims priority, application Japan, Dec. 13, 1994, 6-308980; Apr. 1, 1995, 7-000034

Int. Cl.[6] G02B 27/14

U.S. Cl. 359—631 35 Claims

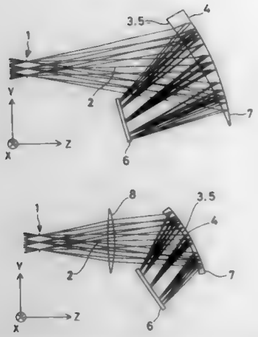
1. An image display apparatus, comprising:

an image display device for displaying an image; and

an optical system for projecting an image formed by said image display device without forming an intermediate image and for leading the projected image to an observer's eyeball,

said optical system including at least one concave mirror having a rotationally asymmetric reflecting surface which is concave toward the observer's eyeball and decentered with respect to an optical axis, and at least one optical element of positive refractive power which is disposed between said concave mirror and said image display device,

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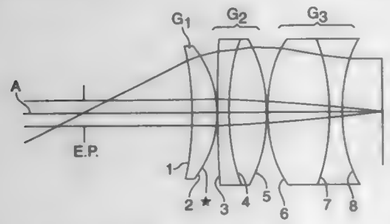


wherein a focal length of said optical system and a focal length of said optical element of positive refractive power satisfy the following condition:

$1<f_y/f_{yO}<5$ or $1<f_x/f_{xO}<5$

where f_y and f_x are focal lengths in Y- and X-axis directions, respectively, of said optical element of positive refractive power, and f_{yO} and f_{xO} are focal lengths in the Y- and X-axis directions, respectively, of the entire optical system, wherein a direction of an optical axis incident on an observer's pupil is defined as a Z-axis direction, a Y-axis is defined so that decentration of said concave mirror is made in a YZ-plane, and an X-axis is defined so as to intersect both the Y- and Z-axes at right angles.

5,726,808
EYEPIECE LENS WITH WIDE APPARENT FIELD OF VIEW
Masami Suzuki, Yokohama, Japan, assignor to Nikon Corporation, Tokyo, Japan
Filed Sep. 3, 1996, Ser. No. 707,335
Claims priority, application Japan, Sep. 4, 1995, 7-251946
Int. Cl.[6] G02B *25/00;3/02*
U.S. Cl. 359—645 **13 Claims**



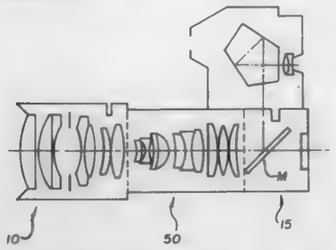
1. An eyepiece lens, comprising in order from the eye side on an optical axis:

(a) a first lens group G_1 comprising a positive lens element; a second lens group G_2 having a positive refractive power and comprising either a positive lens element cemented to a negative lens element, or a negative lens element cemented to a positive lens element; and a third lens group G_3 having either a positive refractive power or a negative refractive power, and comprising a positive lens element cemented to a negative lens element;

(b) at least one lens surface of the lens elements in the three lens groups being an aspherical surface; and

(c) the eyepiece lens exhibiting an apparent field of view of at least 40°.

5,726,809
CAMERA SYSTEM AND AN OPTICAL ADAPTER TO REDUCE IMAGE FORMAT SIZE
John D. Griffith, Rochester, N.Y., assignor to Eastman Kodak Company, Rochester, N.Y.
Division of Ser. No. 248,275, May 24, 1994, Pat. No. 5,499,069. This application Nov. 21, 1995, Ser. No. 560,228
Int. Cl.[6] G02B *15/02;9/64;9/00*
U.S. Cl. 359—675 **8 Claims**

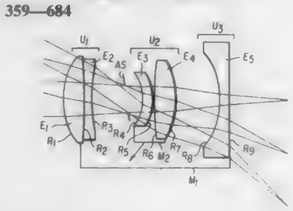


1. A lens system comprising in order from an object side:

a) a front-most lens unit having negative optical power, said front lens unit including a first lens element, said first lens element being a meniscus with a concave surface oriented towards the object side, a second lens element, said second lens element being negative power biconcave lens element, and at least one more additional positive lens element; and

b) a rear lens unit comprising a front positive power lens element, a middle negative power lens element, a middle positive power lens element and at least two more additional positive power lens elements.

5,726,810
COMPACT ZOOM LENS
Mark M. Meyers, Hamlin, N.Y., assignor to Eastman Kodak Company, Rochester, N.Y.
Filed Jun. 21, 1996, Ser. No. 673,713
Int. Cl.[6] G02B *15/14*
U.S. Cl. 359—684 **19 Claims**



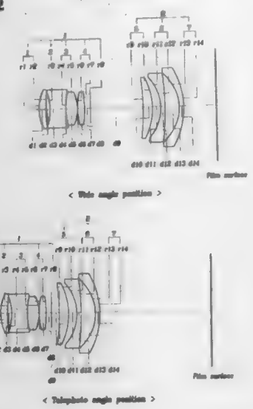
1. A zoom lens centered on an optical axis for imaging onto an image plane, said zoom lens comprising a plurality of lens elements arranged into:

a first, positive power lens unit including a frontmost positive lens element, and a negative lens element located behind said positive lens element, said first lens unit being movable toward and away from the image plane along the optical axis;

a second, negative power lens unit between the first lens unit and the image plane, said second lens unit being integral with the first lens unit so as to be movable therewith;

a third, positive power lens unit between the first and second lens units, said third lens unit being movable in the same direction as the first and second lens units at a slower speed than that at which the first and second lens units are moved, the plurality of lens elements have sufficient optical powers, spacings and radii of curvature to provide for a zoom range greater than 1.5 and to maintain an overall compactness so that $L_v/f_T<0.9$, where L_v is the distance from the front vertex of the lens system to the film plane in the telephoto position and f_T is the focal length of the lens system in the telephoto position.

5,726,811
COMPACT ZOOM LENS SYSTEM
Geon-Mo Kang, Kyeongsangnam-do, Rep. of Korea, and Hae-Jin Lee, Kyeongsangnam-do, Rep. of Korea, assignors to Samsung Aerospace Industries, Ltd., Kyeongsangnam-do, Rep. of Korea
Filed Dec. 12, 1996, Ser. No. 764,767
Claims priority, application Rep. of Korea, Dec. 14, 1995, 95-50067
Int. Cl.[6] G02B *15/14*
U.S. Cl. 359—692 **6 Claims**



1. A compact zoom lens system, from an object side to an image side, comprising:

a first lens group which has an overall positive refractive power, the first lens group comprising:

a first lens unit which is meniscus lens that is convex toward an object, and which has a positive refractive power;

a second lens unit which is biconcave lens having a negative refractive power;

a third lens unit which is a biconvex lens having a positive refractive power, and which is fixed to the second lens unit; and

a fourth lens unit which is a biconvex lens having a positive refractive power;

a second lens group which has an overall negative refractive power, the second lens group comprising:

a fifth lens unit which is a meniscus lens, that is convex toward the object, and which has a positive refractive power;

a sixth lens unit which is a concave lens having a negative refractive power; and

a seventh lens unit which has a negative refractive power; and

wherein the magnification of the system can be changed by varying a distance between the first lens group and the second lens group, and wherein the following conditions are satisfied:

$1.1<(f_{bT}-f_{bW})/(L_T-L_W)<1.24$

$L_W/f_W<1.25$,

$L_T/f_T<0.97$,

where:

L_W represents the length of the zoom lens system at a wide angle position;

L_T represents the length of the zoom lens system at a telephoto angle position;

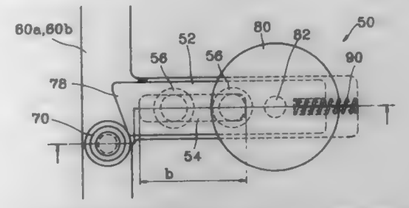
f_{bT} represents a back focal length at the telephoto angle position;

f_{bW} represents a back focal length at the wide angle position;

f_W represents a focal length of the zoom lens system at the wide angle position; and

f_T represents a focal length of the zoom lens system at the telephoto angle position.

5,726,812
LOCKING MECHANISM OF ZOOM LENS
Hsieh Min-Lang, Hsin Chu Hsien, and Chia-Jen Ting, Hsien, both of Taiwan, assignors to Industrial Technology Research Institute, Hsinchu, Taiwan
Filed Apr. 23, 1996, Ser. No. 636,415
Int. Cl.[6] G02B *15/22*
U.S. Cl. 359—702 **6 Claims**



1. A zoom lens locking mechanism for use in zoom lens structure with a short lens, comprising:

a linear-slot-sleeve, further comprising several extended type linear slots;

a curvilinear-slot-sleeve, further comprising a transverse slot and several curvilinear slots and for each curvilinear slot further containing a zooming operation zone and a non-zooming operation zone, and said linear-slot-sleeve is contained in said curvilinear-slot-sleeve and can perform relative motion with said curvilinear-slot-sleeve;

an outer sleeve, further containing a transverse slot, and said curvilinear-slot-sleeve is fixed inside said outer sleeve is fixed inside said outer sleeve and can have synchronized rotation with said outer sleeve; also said transverse slot on said curvilinear-slot-sleeve is correspondent to said transverse slot on said outer sleeve;

a plurality of lens set barrels, each of them further possessing a plurality of rollers which pass through said extended type linear slot of said extended type sleeve and insert into the curvilinear slots of said curvilinear-slot-sleeve;

a reverse rotation stopping block which is fixed in said linear-slot-sleeve as well as those of said outer sleeve;

a spring-loaded restoring slider, further comprising a cutting opening slot and a spring-contained flute, said spring-loaded restoring slider is installed on the surface of said curvilinear-slot-sleeve and its location is correspondent to the intersection area of the zooming operation zone and the zone-zooming operation zone of said curvilinear slot;

a stopping piece, further comprising an inclined plane end which is placed in the transverse slot of said outer sleeve and said stopping piece is connected to said slider which enable the compressive spring force to transmit to said stopping piece; and

a cap which is fixed on the outer surface of said stopping piece;

wherein the cutting opening slot has a preset length and contains at least an anti-slip pin, thereby, said spring-loaded restoring slider slides within the preset length, and said anti-slip pin limits the sliding distance of the spring-loaded restoring slider.

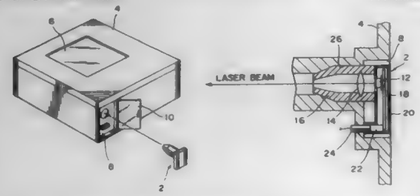
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5,726,813

OPTICAL APPARATUS WITH REPLACEMENT SEMICONDUCTOR LASER

Hiroaki Katoh, Kawasaki, Japan; Toshitaka Aoki, Kawasaki, Japan, and Kota Goto, Kawasaki, Japan, assignors to Fujitsu Limited, Kawasaki, Japan

Filed Feb. 22, 1995, Ser. No. 392,168
Claims priority, application Japan, Mar. 14, 1994, 6-042248
Int. Cl.[6] G02B *3/00*; H01S *3/00*
U.S. Cl. 359—809 11 Claims



1. An optical apparatus comprising:

a laser light source unit including a semiconductor laser, a barrel for converting a light emitted from said semiconductor laser into a light beam, and a unit side connector for electrically connecting said semiconductor laser to an external circuit; and

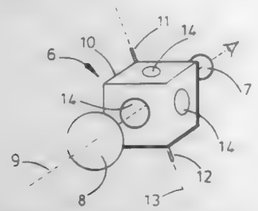
an apparatus main body on which said laser light source unit is removably mounted, said apparatus main body including an insertion hole into which said barrel is closely inserted, and a main body side connector to which said unit side connector is connected when said barrel is inserted in said insertion hole.

5,726,814

MULTIPLE FIELD OF VIEW CHANGING APPARATUS FOR AN OPTICAL SYSTEM

Michael Owen Lidwell, Glasgow, United Kingdom, assignor to Barr & Stroud Limited, Glasgow, United Kingdom

Filed Nov. 22, 1995, Ser. No. 563,280
Claims priority, application United Kingdom, Nov. 26, 1994, 9423933
Int. Cl.[6] G02B *7/02; 23/00*
U.S. Cl. 359—821 2 Claims



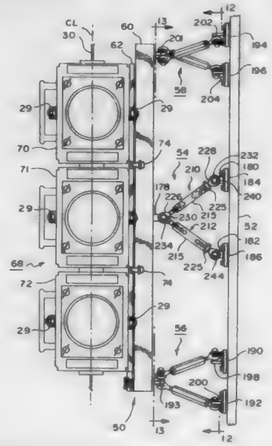
1. A triple field of view change apparatus for use in an optical system having a fixed optical axis, the apparatus comprising a carousel which is rotatable about a single rotation axis which is inclined to the optical axis by an angle other than 0 degrees or 90 degrees, wherein the carousel is generally in the form of a cube, the center of the cube lying on the optical axis and being located at the origin of three orthogonal carousel axes passing through respective opposed pairs of faces of the cube, and a plurality of optical components mounted on the faces of the cube and aligned with the carousel axes, and wherein said single rotation axis is collinear with a diagonal of the cube whereby successive rotations of the cube by about 120° substantially aligns any one of the carousel axes with said optical axis.

5,726,815

APPARATUS FOR ALIGNING THE OBJECT FOCUS IN FILAMENT IRRADIATING UNITS

John B. Gunter, Catonsville, Md.; Daniel V. Ensz, Lutherville, Md.; Thomas E. Plovock, Germantown, Md., and Derek S. Matheson, Washington, D.C., assignors to Fusion UV Systems, Inc., Gaithersburg, Md.

Filed Apr. 12, 1996, Ser. No. 631,004
Int. Cl.[6] G02B *7/182*; F16B *7/06*; F21V *21/26*
U.S. Cl. 359—872 20 Claims



1. An apparatus for aligning with a directional axis an elongated object focus of an elliptical reflector, said apparatus comprising:

support means for mounting said reflector in a precisely fixed position on a support assembly; and,

mounting means for mounting said support assembly on a stationary base for both lateral and tilting movements relative to said stationary base such that said object focus can be tilted and moved laterally into coincidence with said directional axis from multiple directions, and for fixing the position of the movable support assembly when said object focus coincides with said directional axis;

said mounting means comprising three mounting assemblies connected to said support assembly at three spaced apart locations, each of said locations corresponding to one of said mounting assemblies and being at the apex of an imaginary triangle,

each of said mounting assemblies comprising three mounting pins, a pair of which is fixed to one of said support assembly and said base and a sole one of which is fixed to the other of said support assembly and said base,

and each pin of said pair of mounting pins being connected to said sole mounting pin by a corresponding one of a pair of linkages each of adjustable length and having at opposite ends a pivot joint between said linkage end and a corresponding mounting pin, said pair of linkages forming two sides of a triangle with its apex at said sole mounting pin.

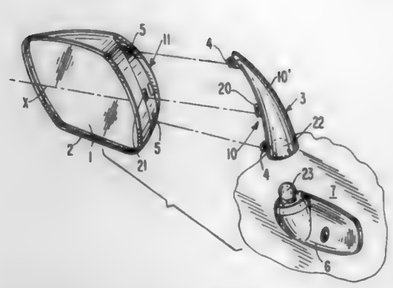
5,726,816

REVERSIBLE REARVIEW MIRROR

Paulo Alexandre Gordon, Sao Paulo, Brazil, assignor to Metagal Industria E Comercio Ltda.

Filed Jun. 24, 1996, Ser. No. 668,925
Claims priority, application Brazil, Oct. 27, 1995, 9504888
Int. Cl.[6] G02B *7/18*; B60R *1/06*
U.S. Cl. 359—872 2 Claims

1. A reversible rearview mirror, comprising a mirror plate (**1**); a housing (**2**) housing the mirror plate (**1**) and having a lateral portion (**11**), both the mirror plate (**1**) and the housing (**2**) being



symmetrical with respect to a horizontal axis (X); a resilient housing supporting member (**3**) having supporting member ends and a lateral portion (**10**) and being bendable when said supporting member ends are pressed toward each other in an axial direction, the lateral portion (**10**) of the supporting member being shaped to engage with the lateral portion (**11**) of the housing (**2**) when the supporting member (**3**) is assembled with the housing (**2**); a base (**6**) on which said supporting member (**3**) is pivotally mounted and which is fixed to a vehicle body; and attachment means (**4**,**5**) for assembling and attaching the supporting member (**3**) to the housing (**2**),

wherein said attachment means (**4**,**5**) is arranged between the housing (**2**) and the supporting member (**3**) and comprises at least two L-shaped clamps (**4**) and respective grooves (**5**) provided in the lateral portion (**11**) of the housing (**2**) in which said at least two L-shaped clamps (**4**) engage, each of said at least two L-shaped clamps (**4**) have free ends and extend perpendicularly from the lateral portion (**10**) of the supporting member (**3**), said at least two L-shaped clamps (**4**) are arranged in longitudinal alignment on said lateral portion (**10**) and with the free ends thereof facing in opposite directions with respect to each other and in substantially parallel directions and toward the respective closest supporting member ends of the supporting member (**3**); and the respective grooves (**5**) are provided in the lateral portion (**11**) of the housing (**2**) in a longitudinal alignment and positioned so as to receive said at least two L-shaped clamps (**4**), and each of said at least two L-shaped clamps has a longer leg (**12**) extending from the lateral portion (**10**) of the supporting member (**3**) and a shorter leg (**13**) connected to the longer leg (**12**), and said at least two L-shaped clamps (**4**) engage themselves on opposite ends of said grooves (**5**) closest to respective opposite ends of the lateral portion (**11**) of the housing (**2**) so that the longer legs (**12**) of said at least two L-shaped clamps (**4**) pass through the respective grooves (**5**) and press against transverse edges of said grooves and the shorter legs (**13**) of said L-shaped clamps (**4**) press against internal surface regions of the housing (**2**) adjacent to said ends of said grooves (**5**) so as to press the lateral portion (**11**) of the housing (**2**) against the lateral portion (**10**) of the supporting member (**3**).

5,726,817

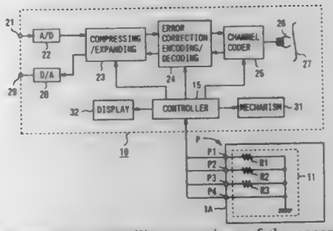
MAGNETIC RECORDING AND REPRODUCING APPARATUS AND CLEANING CASSETTE THEREFOR

Masaki Oguro, Tokyo, and Akira Takano, Kanagawa, both of Japan, assignors to Sony Corporation, Tokyo, Japan

Filed Dec. 22, 1995, Ser. No. 577,327
Claims priority, application Japan, Dec. 27, 1994, 6-337841
Int. Cl.[6] G11B *5/02*
U.S. Cl. 360—25 1 Claim

1. A magnetic recording and reproducing apparatus for selectively having a normal cassette containing a recording and reproducing tape or a cleaning cassette containing a cleaning tape loaded therein, said apparatus comprising:

discriminating means for determining whether a cassette loaded into the apparatus is a normal cassette or a cleaning cassette; and



control means for controlling operations of the apparatus in a manner such that, when said discriminating means determines that said cassette loaded into the apparatus is a cleaning cassette, a cleaning operation is performed for a predetermined time by the cleaning time in the loaded cleaning cassette;

wherein each of said normal and cleaning cassettes includes a respective storage means having information stored therein for indicating the respective cassette is said normal cassette or said cleaning cassette, and said discriminating means determines whether the cassette loaded into said recording and reproducing apparatus is a normal cassette or a cleaning cassette on the basis of said information stored in said storage means of the loaded cassette; said storage means of said cleaning cassette having further information stored therein for respectively indicating a predetermined time the respective cleaning cassette may be used during each use thereof, the number of times the respective cleaning cassette may be used during one cleaning operation, a total accumulated cleaning time during which said respective cleaning cassette has been used and a total possible cleaning time during which said respective cleaning cassette may be used; said control means responding to said further information in said storage means for aborting a cleaning operation by said respective cleaning cassette when the latter has been in use for said predetermined time, when said number of times the respective cleaning cassette may be used during said one cleaning operation is exceeded, or when said total accumulated cleaning time during which said respective cleaning cassette has been used exceeds said total possible cleaning time for said respective cleaning cassette.

5,726,818

MAGNETIC DISK SAMPLED AMPLITUDE READ CHANNEL EMPLOYING INTERPOLATED TIMING RECOVERY FOR SYNCHRONOUS DETECTION OF EMBEDDED SERVO DATA

David E. Reed, Westminster, and William G. Bliss, Thornton, both of Colo., assignors to Cirrus Logic, Inc., Fremont, Calif.

Filed Dec. 5, 1995, Ser. No. 567,681
Int. Cl.[6] G11B *5/09*
U.S. Cl. 360—51 8 Claims

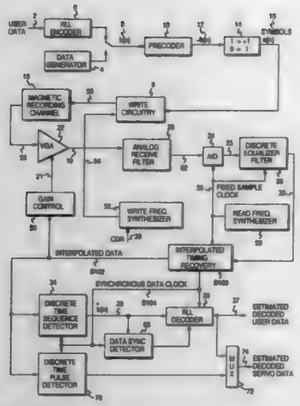
1. A sampled amplitude read channel for reading user data and embedded servo data stored on a magnetic disk by detecting digital data from a sequence of discrete time interpolated sample values, the interpolated sample values generated by interpolating a sequence of discrete time channel sample values generated by sampling pulses in an analog read signal from a magnetic read head positioned over the magnetic disk, the sampled amplitude read channel comprising:

(a) a sampling clock;

(b) a sampling device, responsive to the sampling clock, for asynchronously sampling the analog read signal to generate the channel sample values;

(c) interpolated timing recovery, responsive to the channel sample values, for generating the interpolated sample values, wherein the interpolated timing recovery is adjusted on-the-fly to an embedded servo data rate when reading the embedded servo data such that the interpolated sample values are partially synchronized to the embedded servo data rate; and

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(d) a discrete time pulse detector for detecting the embedded servo data from the interpolated sample values.

5,726,819

APPARATUS FOR ERASING A RECORDING MEDIUM

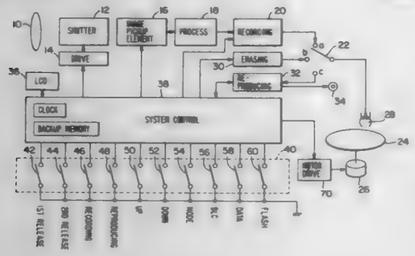
Ryoji Kubo, Tokyo, Japan, assignor to Canon Kabushiki Kaisha, Tokyo, Japan

Continuation of Ser. No. 766,266, Sep. 27, 1991, abandoned. This application Jul. 26, 1994, Ser. No. 279,869

Claims priority, application Japan, Oct. 2, 1990, 2-264438; Oct. 2, 1990, 2-264439; Oct. 2, 1990, 2-264441

Int. Cl.[6] G11B *5/02*

U.S. Cl. 360—57 **9 Claims**



1. An erasing apparatus comprising:

supplying means for supplying power to said apparatus;

erasing means for collectively erasing information recorded on a medium;

detecting means for detecting a completion of the collective erasing;

control means for controlling said supplying means to continue the supply of power during the erasing by said erasing means, wherein said control means controls the supply of power in response to a detection output of said detecting means;

first manipulating means; second manipulating means which is distinct from said first manipulating means; and

instructing means for providing an instruction to cause the performance of the collective erasing on the condition that said first and second manipulating means are both manipulated.

5,726,820

APPARATUS FOR RECORDING OR ERASING IMAGE SIGNALS IN SEQUENCE

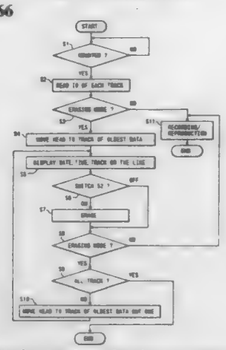
Nobuo Fukushima, Yokohama, Japan, assignor to Canon Kabushiki Kaisha, Tokyo, Japan

Continuation of Ser. No. 527,382, Sep. 13, 1995, abandoned, which is a continuation of Ser. No. 380,327, Jan. 30, 1995, abandoned, which is a continuation of Ser. No. 103,161, Aug. 9, 1993, abandoned, which is a continuation of Ser. No. 870,215, Apr. 17, 1992, abandoned, which is a continuation of Ser. No. 546,766, Jul. 2, 1990, abandoned. This application Nov. 12, 1996, Ser. No. 747,747

Claims priority, application Japan, Jul. 3, 1989, 1-171650; Jul. 3, 1989, 1-171653

Int. Cl.[6] G06F *11/00*

U.S. Cl. 360—66 **8 Claims**



1. An apparatus for causing a head to reproduce or erase image signals recorded on a recording medium, comprising:

reproducing means for reading from the recording medium (i) a plurality of image signals and (ii) an identification signal for each of the image signals recorded on the recording medium;

control means for causing said reproducing means to sequentially reproduce or erase the recorded image signals from the recording medium in the recording order beginning at the oldest recorded image signal without selecting all of the image signals to be reproduced or erased; and

erasing instruction means for providing an instruction for erasing the sequentially reproduced image signal.

5,726,821

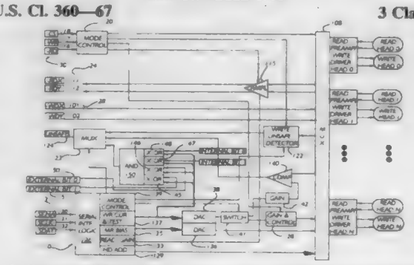
PROGRAMMABLE PREAMPLIFIER UNIT WITH SERIAL INTERFACE FOR DISK DATA STORAGE DEVICE USING MR HEADS

Robert L. Cloke, Santa Clara; David Price Turner, Los Gatos, both of Calif.; Robert Ellis Caddy, Jr., Oronoco, Minn., and Michael Rodger Spaur, Laguna Niguel, Calif., assignors to Western Digital Corporation, Irvine, Calif.

Filed Dec. 22, 1995, Ser. No. 577,606

Int. Cl.[6] G11B *5/03*

U.S. Cl. 360—67 **3 Claims**



1. A preamplifier having a test mode of operation for determining the resistance of an MR transducer in a disk drive, the preamplifier comprising:

a first register for storing a first digital character;

a second register for storing a second digital character;

first circuit means including a digital-to-analog conversion circuit for responding to the first digital character to produce a bias control signal;

second circuit means including a digital-to-analog conversion circuit for responding to the second digital character to produce an analog reference signal;

third circuit means responsive to the bias control signal to provide applied bias to the MR transducer;

fourth circuit means for providing an analog measurement signal having a magnitude that depends upon the applied bias and the resistance of the MR transducer; and

comparator circuit means responsive to the analog reference signal and the analog measurement signal for producing a binary-valued signal indicating the relative magnitudes of the analog reference signal and the analog measured signal.

5,726,822

MOTOR CONTROL CIRCUIT WHICH REDUCES THE SPEED CONTROL GAIN AND DISABLES AN OSCILLATION PREVENTING FILTER WHEN THE MOTOR SPEED IS NOT WITHIN A PREDETERMINED RANGE

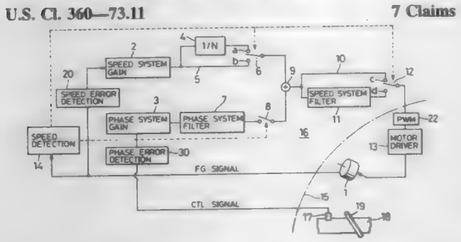
Yo Sawamura, and Yasuyuki Ohnishi, both of Kyoto, Japan, assignors to Rohm Co., Ltd., Kyoto, Japan

Filed Apr. 25, 1996, Ser. No. 638,933

Claims priority, application Japan, Apr. 27, 1995, 7-103624

Int. Cl.[6] G11B *15/52*

U.S. Cl. 360—73.11 **7 Claims**



1. A motor control circuit, comprising:

means for generating a signal representing a rotation frequency of a motor;

means for outputting a motor speed error signal based on the motor rotation frequency signal;

speed gain means for changing an error value of the speed error signal;

a filter through which an output from the speed gain means passes to prevent oscillation in a speed servo loop;

detecting means for detecting a motor speed based on the rotation frequency signal and for detecting whether or not the motor speed is within a predetermined range;

means for reducing a gain of the speed error signal when the motor speed is out of said predetermined range; and

means for disabling said filter when the motor speed is out of said predetermined range.

5,726,823

METHOD OF DETECTING POSITIONING OF A MAGNETIC HEAD, AND A MAGNETIC DISK DEVICE

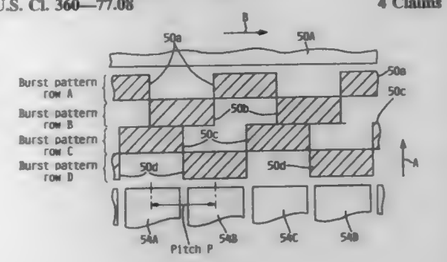
Masashi Kisaka, Yokohama, Japan, and Isao Yoneda, Sagamihara, Japan, assignors to International business Machines Corporation, Armonk, N.Y.

Continuation of Ser. No. 276,662, Jul. 18, 1994, abandoned. This application Apr. 22, 1996, Ser. No. 636,789

Claims priority, application Japan, Jul. 19, 1993, 5-178099

Int. Cl.[6] G11B *5/596*

U.S. Cl. 360—77.08 **4 Claims**



1. A method for detecting the position of a magnetic head, comprising the steps of:

moving a magnetic disk relative to said magnetic head, said magnetic head being capable of reading signals recorded on a plurality of data tracks of said magnetic disk, said plurality of data tracks being formed along a predetermined direction, said magnetic head also being capable of reading first and second burst patterns recorded on said magnetic disk, said first burst pattern having at least one first recording area arranged along said predetermined direction such that said first recording area has at least one boundary which substantially aligns with a central portion of every data track, said second burst pattern having at least one second recording area arranged along said predetermined direction such that said second recording area has boundaries which substantially align with the boundaries of every data track, said first recording area and said second recording area offset by respective predetermined amounts; and

detecting the position of the magnetic head by selecting among

a first portion, which varies linearly with respect to said relative movement, of a first signal being output from the magnetic head in response to said first burst pattern,

a second portion, which varies linearly with respect to said relative movement, of a signal obtained by adding said first signal to a second signal being output from the magnetic head in response to said second burst pattern,

a third portion, which varies linearly with respect to said relative movement, of a signal obtained by subtracting the second signal from the first signal;

detecting as an offset a minimum value of a level of at least one of said first and second signals which varies linearly with said relative movement between said magnetic disk and said magnetic head;

subtracting said offset from said signal obtained by adding the first signal to the second signal; and

adding said offset to said signal obtained by subtracting the second signal from the first signal.

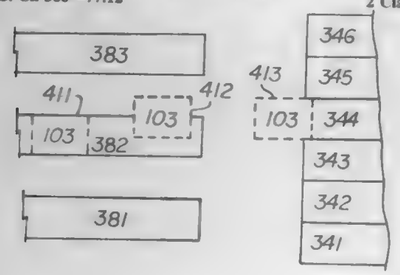
VOL 12 08 ISS 2 MR 10 1998 UMI

5,726,824

HEAD POSITIONING IN A MULTI-TRACK MAGNETIC TAPE RECORDER/PLAYER

Mark R. Ayres, Boulder, Colo., and Housan Dakroub, Oklahoma City, Okla., assignors to Exabyte Corporation, Boulder, Colo.

Continuation-in-part of Ser. No. 805,299, Dec. 10, 1991, abandoned. This application Jul. 6, 1994, Ser. No. 271,330
Int. Cl.[6] G11B *5/584*
U.S. Cl. 360—77.12 2 Claims



1. In a multi-track magnetic tape recorder/player having a read/write head displaceable laterally with respect to the longitudinal direction of tape travel, the method of recording at least two registration stripes and positioning the read/write head onto a desired track, comprising the steps of:

recording at least two registration stripes of equal width, the two stripes behind spaced apart at a distance bearing a predetermined, fixed relationship to the stripe width;

moving the read/write head laterally across the tape in the vicinity of the registration stripes;

using the read portion of the head sensing, three consecutive registration stripe edges;

choosing a read amplitude threshold value enabling the read head to sense and produce an output related to the point at which the read head begins to overlap with an edge of a registration stripe;

sensing lateral displacements associated with the three consecutive edges and storing information relating thereto to determine the lateral displacement of the head from the centerline of a data track;

positioning the read/write head on the tape at a lateral displacement according to the formula:

$$D=(A+2B+C)/4$$

wherein:

A is the displacement associated with the point at which the read amplitude crosses said threshold while overlapping the first consecutive edge, B is the displacement associated with the point at which the read amplitude crosses said threshold while overlapping the second consecutive edge, and C is the displacement associated with the point at which the read amplitude crosses said threshold while overlapping the third consescutive edge; and

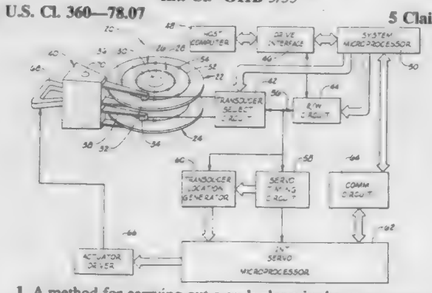
moving the read/write head longitudinally directly onto the desired track with no further lateral movement of the read/write head.

5,726,825

METHOD FOR CARRYING OUT SEEKS IN A HARD DISC DRIVE TO LIMIT THE GENERATION OF ACOUSTIC NOISE

Duc T. Phan, 19921 Buckhave Ln., Saratoga, Calif. 95070-5013, and Mark A. Pajdowski, 135 Riviera Dr., #435, Lost Gatos, Calif. 95030

Division of Ser. No. 218,607, Mar. 28, 1994. This application May 31, 1996, Ser. No. 656,580
Int. Cl.[6] G11B *5/55*
U.S. Cl. 360—78.07 5 Claims



1. A method for carrying out a seek phase in the movement of a disc drive transducer from an initial track on a rotating disc to a target track on the disc so as to reduce noise generated during the seek phase, wherein the transducer is supported adjacent the surface of the disc by a pivotable actuator for radial movement of the transducer via pivotation of the actuator, comprising the steps of:

repetitively estimating the distance between the transducer and the target track; and

for each estimated distance between the transducer and the target track, the steps of:

evaluating a preselected velocity profile relation at the estimated distance between the transducer and the target track;

estimating the radial velocity of the transducer across said disc;

generating a control signal comprising at least a component proportional to the difference between estimated radial velocity of the transducer and the profile velocity;

averaging the control signal with the control signal generated from the previous estimated distance between the transducer and the target track;

exerting a force on the actuator in proportion to said average control signal for a selected time period; and

subsequently exerting a force on the actuator in proportion to said

control signal.

5,726,826

CAPSTANLESS HELICAL DRIVE SYSTEM

Robert J. Miles, Niwot; James Zweighaft, and Steven P. Georgis, both of Boulder, all of Colo., assignors to Exabyte Corporation, Boulder, Colo.

Continuation of Ser. No. 150,730, Nov. 12, 1993, Pat. No. 5,602,694, and a continuation of Ser. No. 337,620, Nov. 10, 1994, which is a continuation-in-part of Ser. No. 150,726, Nov. 12, 1993, abandoned. This application Jun. 6, 1995, Ser. No. 469,865
Int. Cl.[6] G11B *15/52;5/027*
U.S. Cl. 360—84 15 Claims

1. A capstanless helical scan recording system which records information on a storage media, the system comprising:

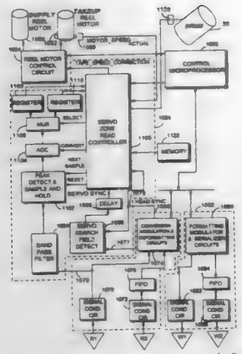
a supply reel;

a take-up reel;

a take-up reel motor;

a media transport path extending from the supply reel to the take-up reel;

a drum positioned along the media transport path and upon which a read head and a write head are mounted for recording



and reading information including servo information in helical stripes on the media; and,

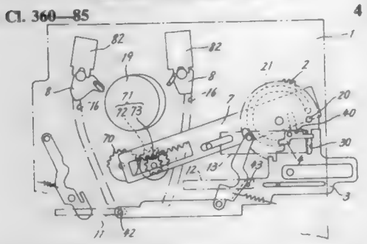
a controller which drives the take-up reel motor during a recording operation in which the write head records information on helical stripes on the media, wherein the controller uses servo information recorded on the media by the write head during the recording operation and read back from the media by the read head during the recording operation for determining how the take-up reel motor is to be driven during the recording operation for imparting a required linear velocity to media transported in the media transport path.

5,726,827

TAPE GUIDE DRIVE MECHANISM FOR MAGNETIC RECORDING-REPRODUCTION DEVICE IN WHICH THE TAPES ARE DRIVEN BY A SLIDE MEMBER DRIVEN DIRECTLY BY CAM

Masahiro Moriyama, Osaka, Japan, assignor to Sanyo Electric Co., Ltd., Moriguchi, Japan

Filed Jul. 23, 1996, Ser. No. 681,534
Claims priority, application Japan, Jul. 25, 1995, 7-189146
Int. Cl.[6] G11B *5/027;5/008*
U.S. Cl. 360—85 4 Claims



1. A tape guide drive mechanism for a magnetic recording-reproduction device wherein a chassis has mounted thereon a drive slide for moving tape guide members positioned within a cassette in a tape withdrawing direction and a cam gear for driving the drive slide, the tape guide drive mechanism comprising:

a linear motion connection means for connecting the drive slide with the cam gear by the rotation of the cam gear through a predetermined angle and for disconnecting the drive slide from the cam gear by the rotation of the cam gear through more than the predetermined angle, and

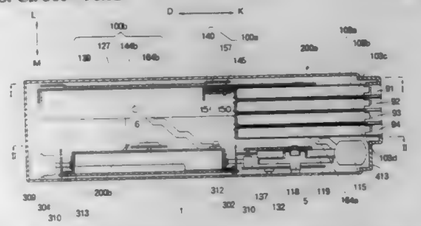
a lock means for connecting the drive slide with the chassis when the drive slide is out of connection with the cam gear and for disconnecting the drive slide from the chassis when the drive slide is connected with the cam gear.

5,726,828

AUTOMATIC DISC-CHANGING APPARATUS, DISC-CHUCKING APPARATUS, DISC APPARATUS AND POSITION-DETECTING APPARATUS

Yoshinori Kakuta; Akira Sakuta; Masami Tomita, and Kunihiko Nakagawa, all of Nagaokakyo, Japan, assignors to Mitsubishi Denki Kabushiki Kaisha, Tokyo, Japan

Continuation of Ser. No. 103,908, Aug. 10, 1993, abandoned. This application Sep. 5, 1995, Ser. No. 522,532
Claims priority, application Japan, Aug. 19, 1992, 4-220158; Nov. 13, 1992, 4-303648; Jan. 20, 1993, 5-007283; Jan. 27, 1993, 5-011573; Apr. 12, 1993, 5-084533; Jun. 1, 1993, 5-130616
Int. Cl.[6] G11B *17/08;33/02*
U.S. Cl. 360—98.01 56 Claims



1. An automatic disc changing apparatus, capable of selectively transporting a cartridge accommodating a disc-type information recording and reproducing medium from a standby position to selectively load a plurality of such cartridges to a recording and reproducing position above a disc player differing in vertical and horizontal position from said standby position, or selectively transporting the cartridge from said recording and reproducing position to said standby position, comprising:

a chassis;

a plurality of cartridge holders for holding each of said cartridges;

a standby-holding mechanism for holding said plurality of cartridge holders in said standby position so as to arrange said plurality of cartridge holders vertically, said standby-holding mechanism being immovably fixed to said chassis;

a transport-holding mechanism for selectively engaging with one of said cartridge holders;

a transfer mechanism for moving said transport-holding mechanism in a horizontal direction;

an elevator mechanism for moving said transport-holding mechanism in a vertical direction between a first position corresponding to the top cartridge holder of the vertically arranged cartridge holders and a second position corresponding to the bottom cartridge holder of the vertically arranged cartridge holders; and

a plurality of cartridge insertion ports corresponding respectively to said plurality of cartridge holders and being exposed to an outside of said apparatus, said cartridges being loaded into said plurality of cartridge holders by inserting said cartridges respectively into said plurality of cartridge insertion ports from the outside of said apparatus.

5,726,829

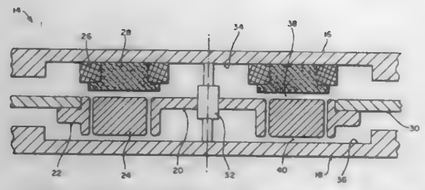
AXIAL SPINDLE MOTOR FOR HARD DISK DRIVE ASSEMBLY

James H. Bodmer, Longmont; Mark A. Diel, Boulder, and Forrest D. Titcomb, Colorado Springs, all of Colo., assignors to Maxtor Corporation, Longmont, Colo.

Continuation of Ser. No. 369,934, Jan. 9, 1995, abandoned, which is a continuation of Ser. No. 163,359, Dec. 3, 1993, abandoned. This application Nov. 15, 1996, Ser. No. 746,723
Int. Cl.[6] G11B *17/02*
U.S. Cl. 360—99.08 32 Claims

1. A spindle motor assembly of a disk drive comprising:

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a support structure including a first support plate, a second support plate substantially opposite said first support plate, and a spindle surface;

a rotor, located between said first and second support plates, and capable of rotating about a primary axis, said rotor including an inner hub and an outer hub, said outer hub radially spaced from said inner hub and operatively coupled to said inner hub to rotate therewith;

a bearing assembly, located between said spindle surface and said rotor, for facilitating rotational movement of said rotor about said primary axis;

magnet means having a first side and a second side opposite said first side, said magnet means being attached to said rotor and providing a magnetic field, said magnet means positioned radially between said inner hub and said outer hub;

a stator disposed between said first and second support plates and operatively attached to said first support plate, said stator capable of interacting electromagnetically with said magnet means to rotate said rotor relative to said stator, said stator including two or more coils, each of said coils wound about a second axis that is substantially parallel to said primary axis of said rotor, a first air gap being formed immediately adjacent the first side of the magnet between said magnet and said coils and a second air gap being formed immediately adjacent the second side of the magnet between said magnet and said second support plate;

wherein said bearing assembly has a first radius with respect to said primary axis;

wherein said magnet means is disposed over a second radius range extending from said primary axis that is different from said first radius range.

5,726,830

AIR-BEARING ELECTROMAGNETIC HEAD SLIDER HAVING NEGATIVE PRESSURE GENERATING MEANS

Ryosuke Koishi, Kawasaki, Japan; Seiji Yoneoka, Kawasaki, Japan, and Yoshifumi Mizoshita, Kawasaki, Japan, assignors to Fujitsu Limited, Kawasaki, Japan

Filed Nov. 16, 1995, Ser. No. 558,782

Claims priority, application Japan, Apr. 7, 1995, 7-082719

Int. Cl.[6] G11B *5/60*

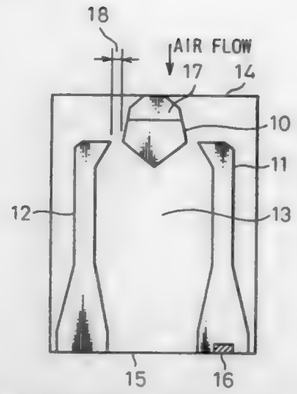
U.S. Cl. 360—103 **8 Claims**

1. An air-bearing electromagnetic head slider for supporting an electromagnetic transducer opposed to a rotating recording medium, said slider comprising:

a slider body having a bottom surface opposed to said rotating recording medium, said bottom surface having an air-entry end and an air-delivery end, as defined by an air flow generated between said slider body and said rotating recording medium, said bottom surface also having two outer side edges between said air-entry end and said air-delivery end;

a first rail provided on said bottom surface of the slider body at said air-entry end, said first rail being generally centered on said air-entry end and defining a pair of lateral edges which substantially extend from said air-entry end to a first termination point located before said air-delivery end;

two second rails provided on said surface of the slider body at the air-delivery end and positioned on opposite sides of said first rail between said lateral edges of said first rail and said outer side edges of said slider body, each of said second rails substantially extending from said air-delivery end to a second rail termination point located before said air-entry end



wherein each of said second rail termination points is located between said air-entry end and said first termination point;

an air passage, extending from said air-entry end to said air-delivery end, including air inlet gaps defined between said lateral edges of said first rail and said second rails, and a downstream area on said bottom surface located downstream of said air inlet gaps, so that a negative pressure is generated in said downstream area due to air flow passing through said air inlet gaps.

5,726,831

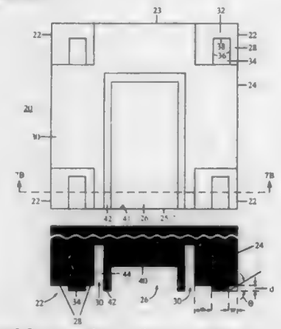
METHODS FOR OPERATING A GAS BEARING SLIDER

James W. White, 154 Milmar Way, Los Gatos, Calif. 95032

Continuation of Ser. No. 353,771, Dec. 9, 1994, which is a continuation-in-part of Ser. No. 987,508, Dec. 7, 1992, Pat. No. 5,404,256. This application Jun. 6, 1996, Ser. No. 660,790

Int. Cl.[6] G11B *5/60;17/32*

U.S. Cl. 360—103 **26 Claims**



1. A method for operating a slider assembly in an environment where altitude changes, wherein the slider assembly is used in connection with a rotating recording medium, the method comprising:

providing the slider assembly with a support structure having a leading edge, a trailing edge, a first side edge, a second side edge, a length and a width, four separate gas bearing pads disposed on said support structure, with at least one of said gas bearing pads being disposed near said leading edge, with at least one of said gas bearing pads being disposed near said trailing edge, with at least one of said gas bearing pads being disposed near the first side edge, and with at least one of said gas bearing pads being disposed near the second side edge, and with each of said gas bearing pads having a width which is less then half of the width of said support structure, a NP type pad defining a recess with an open outlet edge, and an

ambient pressure reservoir which separates at least one of said gas bearing pads from said NP type pad, wherein said support structure experiences a net bearing load defined by the difference between a net positive load and a net vacuum load on the support structure during movement of said recording medium;

operating said slider assembly above said rotating recording medium at a preferred operating distance while at a first altitude;

changing the altitude to a second altitude which is at least 1000 feet different than said first altitude, with the net positive load and the net vacuum load tracking each other with a near constant load difference as the altitude changes from the first altitude to the second altitude; and

operating said slider assembly above said rotating recording medium at said preferred operating distance while at said second altitude.

5,726,832

INFORMATION RECORDING/REPRODUCING DEVICE INCLUDING A HEAD LOADING/UNLOADING MECHANISM HAVING DECOUPLING MEANS

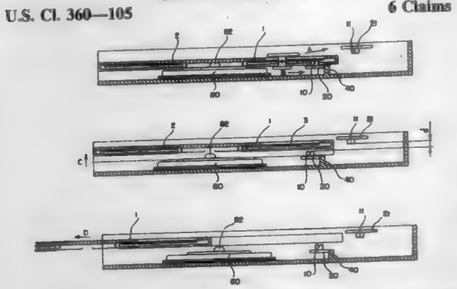
Tatsuhiko Inagaki, Takatsuki, Japan; Kiyoshi Masaki, Amagasaki, Japan; Yuji Yagi, Neyagawa, Japan, and Michiro Tanaka, Ikoma, Japan, assignors to Matsushita Electric Industrial Co., Ltd., Kadoma, Japan

Continuation of Ser. No. 180,037, Jan. 11, 1994, abandoned. This application Jan. 16, 1996, Ser. No. 586,419

Claims priority, application Japan, Jan. 13, 1993, 5-003777; Sep. 7, 1993, 5-221609; Nov. 18, 1993, 5-289011

Int. Cl.[6] G11B *21/02*

U.S. Cl. 360—105 **6 Claims**



1. An information recording/reproducing apparatus removably holding a disk cartridge including a case having a head window and a recording medium stored in the case, the head window facing at least one surface of the recording medium, for recording/reproducing information on/from the at least one surface of the recording medium by inserting a side **0** head and a side **1** head into the disk cartridge through the head window and retaining the side **0** head and the side **1** head inside the disk cartridge, the apparatus comprising:

a rotation mechanism for rotating the recording medium on the center axis thereof;

a cartridge loading mechanism for transporting the disk cartridge from a cartridge unloading position in which the disk cartridge is not engaged with the rotation mechanism to a cartridge recording/reproducing position in which the disk cartridge is engaged with the rotation mechanism, to place the disk cartridge at the cartridge recording/reproducing position when the disk cartridge is mounted, and for transporting the disk cartridge from the cartridge recording/reproducing position to the cartridge unloading position to place the disk cartridge at the cartridge unloading position when the disk cartridge is removed; and

a head loading mechanism operatively connected to the cartridge loading mechanism for transporting the side **0** head and the side **1** head from a head unloading position to a head recording/reproducing position to place the side **0** head and the side **1** head at the head recording/reproducing position immediately adjacent the recording medium via the head window after the disk cartridge has been placed at the cartridge recording/reproducing position when the disk cartridge is mounted, and for transporting the side **0** head and the side **1** head from the head recording/reproducing position to the head unloading position to place the side **0** head and the side **1** head at the head unloading position located away from the recording medium before the disk cartridge is transported from the cartridge recording/reproducing position to the cartridge unloading position when the disk cartridge is removed,

wherein the head unloading position for the side **1** head is set outside the peripheral edge of the disk cartridge placed at the cartridge recording/reproducing position in a direction transverse the center axis,

the head loading mechanism includes displacement means for allowing the side **1** head to override the rim of the head window when the head loading mechanism transports the side **1** head between the head recording/reproducing position and the head unloading position,

the side **0** head is facing one surface of the recording medium,

the side **1** head is facing another surface of the recording medium,

the side **0** head and the side **1** head are coupled with each other by coupling means, and

the head loading mechanism includes means for directly driving one of the side **0** head and the side **1** head and means for discontinuing the coupling between the side **0** head and the side **1** head by applying a force to the other of the side **0** head and the side **1** head at which point the other of the side **0** head and the side **1** head remains stationary as the one of the side **0** head and the side **1** head is driven to a location outside of the peripheral edge of the disk cartridge.

5,726,833

MAGNETIC TAPE RECORDING AND PLAYBACK DEVICE HAVING A RESILIENT BODY FOR REDUCED HEAD BASE DRIVE FORCE

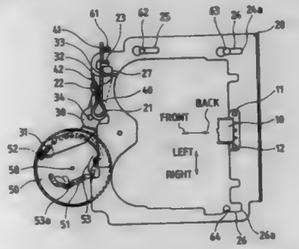
Takao Morimoto, Hyogo, Japan, assignor to Mitsubishi Denki Kabushiki Kaisha, Tokyo, Japan

Continuation of Ser. No. 229,771, Apr. 19, 1994, abandoned. This application Jun. 17, 1996, Ser. No. 670,235

Claims priority, application Japan, Apr. 20, 1993, 5-093134

Int. Cl.[6] G11B *5/008;5/54*

U.S. Cl. 360—105 **21 Claims**



1. A magnetic tape recording and playback device into which a magnetic tape cassette may be inserted, comprising:

a main base;

a head base to which a magnetic recording/playback head is attached, said head base being movable on said main base;

an actuating cam provided on said main base, for effecting movement of said head base and said magnetic head between an engaged position and a disengaged position, relative to said magnetic tape cassette;

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a lever having two ends, a first end of which is engaged with said cam and the second end of which is engageable with said head base and having a fulcrum provided on said main base; and

a resilient member, having two ends, provided on said head base and connected between said head base and said cam, through said lever, such that a resilient force is created in said resilient member by movement of said lever, said resilient member being temporarily deformed when said head base is in either of said engaged or disengaged positions and is relaxed when said head base position is intermediate said engaged and disengaged positions.

5,726,834

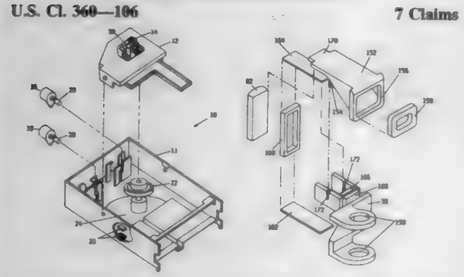
ACTUATOR FOR SERVO ACTUATED TAPE DRIVE

Eric Alan Eckberg, Rochester, Minn.; Gerald Daniel Malagrino, Jr., Rochester, Minn., and Brian Lee Rappel, Grand Meadow, Minn., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Jun. 7, 1995, Ser. No. 489,462

Int. Cl.[6] G11B *5/584;5/55;21/02*

U.S. Cl. 360—106 **7 Claims**



1. A high density data storage tape drive for use with a removable cartridge having a pair of spools and containing a length of storage tape comprising:

a frame;

a drive connection engageable with said cartridge to spool tape from one of said spools to another of said spools;

a read/write head disposed adjacent to said storage tape;

said read/write head supported on a carriage, said carriage displaceable relative to said storage tape in coarse increments, said head displaceable relative to said carriage and said storage tape in finer increments;

said head supported by at least a pair of cantilevered members at free ends of said members and one pivoted member, said pivoted member supported on and pivoted on said carriage;

said pivoted member controlled by a voice coil motor, said voice coil motor comprised of at least a coil of wire and a magnet, said carriage supporting in a fixed position, one of said magnet and said coil of wire and said pivoted member supporting the other of said coil of wire and said magnet;

said pivoted member engaging said head and pivotally responsive to movement of one element of said voice coil motor to displace said head against forces exerted by said cantilevered members;

whereby said carriage may be coarsely displaced to position said read/write head relative to said storage tape and said head may be further positioned in fine increments relative to said tape by said voice coil motor.

5,726,835

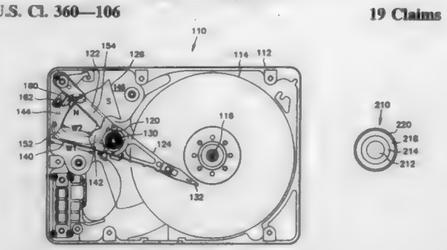
DISK DRIVE ACTUATOR COIL WITH REDUCED OUTGASSING CHARACTERISTICS

Susan G. Scanlon, Rochester, and Gordon A. Harwood, Byron, both of Minn., assignors to Western Digital Corporation, Irvine, Calif.

Filed Jul. 26, 1996, Ser. No. 687,663

Int. Cl.[6] G11B *5/55*

U.S. Cl. 360—106 **19 Claims**



19. A disk drive comprising:

a base;

a disk rotatably coupled to the base;

a suspension supporting a transducer for reading data written on the disk;

an actuator rotatably coupled to the enclosure for moving the suspension to precisely position the transducer radially along the disk for reading the data, the actuator comprising a set of coils of wire, said wire comprising:

a conductive core;

an insulator affixed to the core;

a bondcoat affixed to the insulator; and

a low molecular weight lubricant coating the bondcoat, wherein solvents in the insulation and bondcoat have been substantially removed along with most of the lubricant, having multiple legs coupled to the suspension, and:

a magnet supported adjacent the coils.

5,726,836

MAGNETIC RECORDING/REPRODUCING APPARATUS HAVING DOUBLE TILTING ARRANGEMENT FOR DYNAMIC TRACKING

Hisao Kinjo, and Hiromichi Hirayama, both of Yokohama, Japan, assignors to Victor Company of Japan, Ltd., Tokyo, Japan

Division of Ser. No. 126,221, Sep. 23, 1993, Pat. No. 5,504,642. This application Aug. 4, 1995, Ser. No. 511,552

Claims priority, application Japan, Sep. 24, 1992, 4-279577; Oct. 15, 1992, 4-302852; Nov. 25, 1992, 4-338154; Mar. 9, 1993, 5-075252

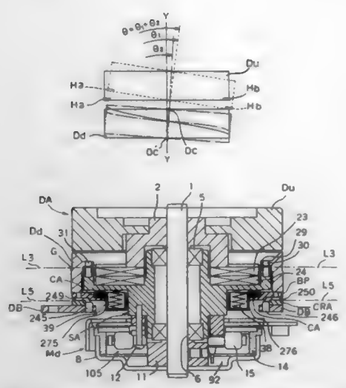
Int. Cl.[6] G11B *5/588;15/61*

U.S. Cl. 360—109 **4 Claims**

1. A magnetic recording/reproducing apparatus including drum means provided with rotary head means for recording and producing signals on and from slant tracks on a magnetic tape threaded around a periphery of said drum means, said drum means having a contact portion extending along said periphery in a predetermined angular range, said contact portion making a slide contact with the magnetic tape threaded around said drum means, said drum means having an upper drum and a lower drum, said upper drum carrying said rotary head means, said magnetic recording/reproducing apparatus comprising:

first pivot means for pivoting said lower drums, said first pivot means provided on a first straight line extending orthogonal to a center axis of said lower drum and approximately bisecting said predetermining angular range;

second pivot means for pivoting said rotary head means, said second pivot means provided separately from first pivot means on a second straight line parallel to said first straight line;



first tilting means for tilting said lower drum around said first straight line by a first predetermined angle; and

second tilting means for tilting a locus plane of said rotary head means around said second straight line by a second predetermined angle causing said locus plane being tilted with respect to said lower drum independently from a tilt of said lower drum caused by said first tilting means.

5,726,837

MULTILAYER MAGNETORESISTANCE EFFECT-TYPE MAGNETIC HEAD

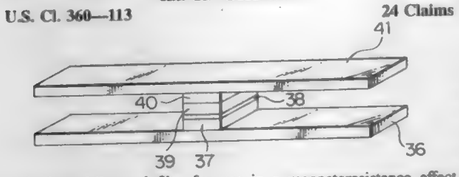
Ryoichi Nakatani, Akigawa; Masahiro Kitada, Tokyo; Naoki Koyama, Kokubunji; Isamu Yuito, Ome; Hisashi Takano; Eijin Moriwaki, both of Hachioji; Mikio Suzuki, Kokubunji; Masaaki Futamoto, Kanagawa-ken; Fumio Kugiya; Yoshibumi Matsuda, both of Hachioji; Kazuo Shiiki, Kanagawa-ken; Yoshinori Miyamura, Tokyo; Kyo Akagi, Fuchu; Takeshi Nakao, Sagamihara; Hirotsugu Fukuoka, Hitachiota; Takayuki Munemoto, Ibaraki-ken; Tokuho Takagaki, Yokohama; Toshio Kobayashi, Tokyo; Hideo Tanabe, Higashimurayama, and Noboru Shimizu, Tokorozawa, all of Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Continuation of Ser. No. 710,775, Jun. 5, 1991, Pat. No. 5,390,061. This application Oct. 24, 1994, Ser. No. 328,090

Claims priority, application Japan, Jun. 8, 1990, 2-148643; Aug. 22, 1990, 2-218894; Aug. 22, 1990, 2-218904; Sep. 14, 1990, 2-242341

Int. Cl.[6] G11B *5/33*

U.S. Cl. 360—113 **24 Claims**



1. A multilayered film for use in a magnetoresistance effect element, comprising:

first and second magnetic layers, wherein angles of magnetization directions of the first and second magnetic layers change in the presence of an externally-applied magnetic field;

a non-magnetic intermediate layer magnetically dividing the first and second magnetic layers;

an antiferromagnetic layer contacting at least the first magnetic layer, for applying a bias field to the first magnetic layer; and

means for changing the magnetization direction of the second magnetic layer such that the magnetization directions of the first and second magnetic layers are antiparallel to each other for each magnetic field value in a first range, and parallel outside said first range, as a result of the externally-applied magnetic field being applied from negative to positive, and for each magnetic field value in a second range, and parallel outside said second range, as a result of the externally-applied magnetic field being applied from positive to negative;

wherein the electrical resistance of the multilayered film changes with the change of angles of the magnetization directions of the first and second magnetic layers, and

wherein the first and second magnetic layers, the intermediate layer, and the antiferromagnetic layer constitute a multilayered structure; and

said multilayered film further comprises:

a first and a second electrode respectively disposed on one of the first and second magnetic layers and the antiferromagnetic layer, for detecting a variation of an external magnetic field by sensing change of a voltage between the first and second electrodes via the multilayered structure to detect an electrical resistance variation in the multilayered structure caused by electron spin-dependeat scattering at layer—layer interfaces in the multilayered structure due to the external magnetic field variation, the first and second electrodes and the multilayered structure being arranged so that all current flows across an interface between the first magnetic layer and the intermediate layer, and an interface between the second magnetic layer and the intermediate layer, and in said intermediate layer.

5,726,838

MAGNETIC DISC APPARATUS WITH HEAD HAVING MAGNETO-RESISTANCE EFFECT

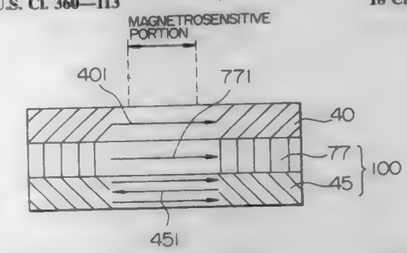
Susumu Soeya, Hitachiota; Shigeru Tadokoro, Hitachi; Takao Imagawa, Hitachi; Akira Kumagai, Hitachi; Moriaki Fuyama, Hitachi, and Shinji Narishige, Mito, all of Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Continuation of Ser. No. 947,261, Sep. 18, 1992, abandoned. This application Mar. 7, 1995, Ser. No. 400,457

Claims priority, application Japan, Sep. 18, 1991, 3-237842; Feb. 17, 1992, 4-059895

Int. Cl.[6] G11B *5/31*

U.S. Cl. 360—113 **18 Claims**



1. A magnetic disc apparatus comprising a magnetic head including a magneto-resistance effect film comprising a ferromagnetic thin film having an electrical resistance changing with a direction of magnetization for converting a magnetic signal into an electrical signal by use of a magneto-resistance effect and a pair of electrodes for supplying a signal detection current to said magneto-resistance effect film;

said apparatus further comprising a magnetic domain control layer arranged in contact with said magneto-resistance effect film in a region between said pair of electrodes, said magnetic domain control layer including a first magnetic film for applying a substantially longitudinal biasing magnetic field to at least a magnetosensitive portion of said magneto-resistance effect film located between said pair of electrodes to form a single domain therein, and a second magnetic film formed between said first magnetic film and said magneto-resistance effect film so as to regulate a magnitude of magnetic coupling between said magneto-resistance effect film and said first magnetic film to a predetermined level which effects single

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domain formation for Barkhausen noise reduction while allowing magnetic moment rotation of said magneto-resistance effect film for signal detection sensitivity, wherein a thickness of said second magnetic film is smaller than that of said magneto-resistance effect film;

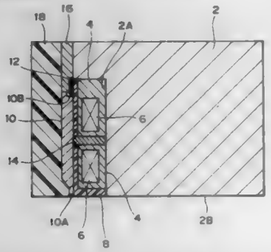
wherein said magneto-resistance effect film, said second magnetic film and said first magnetic film are formed to have progressively smaller magnitudes of spontaneous magnetization in the stated order, and wherein a first magnetic exchange coupling between said magneto-resistance effect film and said second magnetic film and a second magnetic exchange coupling between said second magnetic film and said first magnetic film are formed to control said single domain of said magneto-resistance effect film.

5,726,839

MAGNETIC HEAD HAVING BYPASS MAGNETIC PATH AND SET MAGNETIC RELUCTANCE RELATIONSHIP

Masayoshi Shinohara; Minoru Takahashi, and Hiroaki Wakamatsu, all of Kawasaki, Japan, assignors to Fujitsu Limited, Kawasaki, Japan

Continuation of Ser. No. 299,115, Sep. 2, 1994, abandoned. This application May 17, 1996, Ser. No. 649,336
Claims priority, application Japan, Dec. 8, 1993, 5-306935
Int. Cl.[6] G11B *5/39*
U.S. Cl. 360—113 **17 Claims**



12. A magnetic head for vertical magnetic recording comprising:

a return portion having an end face confronting a magnetic recording medium;

a main pole having a front end portion thereof confronting said magnetic recording medium, said front end portion having a sectional area smaller than an area of said end face of said return portion;

a magneto-resistive film provided in a middle of a magnetic circuit including said return portion, said main pole, and said magnetic recording medium, said magneto-resistive film having a first direction of magnetization thereof set in a direction virtually orthogonal to a direction of flux in said magnetic circuit; and

a first and a second terminal connected to both ends of said magneto-resistive film, wherein

the relationship given by the expression

$$Rb/Rmr=0.3\cdot Smr/Sg,$$

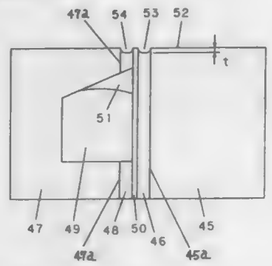
is satisfied, where Rb is the magnetic reluctance corresponding to leakage flux between said main pole and said return portion bypassing said magneto-resistive film, Rmr is the magnetic reluctance of said magneto-resistive film in said magnetic circuit, Smr is the sectional area of said magneto-resistive film, and Sg is the sectional area of the front end portion of said main pole, wherein when the front end portion of the main pole is magnetically saturated by the flux in the magnetic circuit, the magneto-resistive film will also be magnetically saturated thereby.

5,726,840

MAGNETIC HEAD APPARATUS HAVING MULTIPLE RECESSED MAGNETIC METAL FILMS

Seiko Uemura, Yamaga; Hiroshi Okayama, and Seishi Tomari, both of Kumamoto, all of Japan, assignors to Matsushita Electric Industrial Co., Ltd., Osaka, Japan

Division of Ser. No. 330,237, Oct. 27, 1994, which is a continuation of Ser. No. 983,027, Nov. 30, 1992, abandoned. This application Aug. 2, 1996, Ser. No. 691,658
Claims priority, application Japan, Dec. 2, 1991, 3-317697
Int. Cl.[6] G11B *5/187*
U.S. Cl. 360—122 **8 Claims**



1. A magnetic head apparatus comprising:

first and second cores made of a magnetic oxide material and constituting part of a magnetic head;

a winding groove provided on at least one of said first and second cores;

a magnetic gap provided between said first and second cores;

a first magnetic metal film interposed between said first core and said magnetic gap;

a second magnetic metal film interposed between said second core and said magnetic gap;

a medium confronting surface on one side of said magnetic head which is brought into slidable contact with a surface of a medium;

said first and second magnetic metal film having a surface confronting the surface of the medium; and

said surface of each said first and second magnetic films being recessed from said medium confronting surface, to form a recessed portion wherein a clearance between the surface of said medium at the center of said recessed portion is larger than a clearance at the edge of said recessed portion and wholly spaced from said medium confronting surface while said magnetic gap is brought into contact with said medium confronting surface.

5,726,841

THIN FILM MAGNETIC HEAD WITH TRIMMED POLE TIPS ETCHED BY FOCUSED ION BEAM FOR UNDERSHOOT REDUCTION

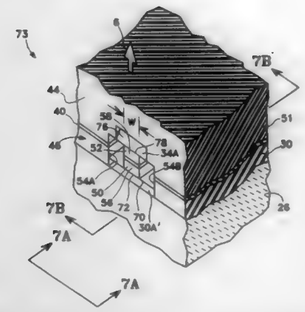
Hua-Ching Tong, San Jose, Calif.; Francis H. Liu, Fremont, Calif.; Samuel W. Yuan, San Francisco, Calif.; Vernon M. Riedlin, Jr., San Jose, Calif., and Pradeep K. Thayamballi, Fremont, Calif., assignors to Read-Rite Corporation, Milpitas, Calif.

Filed Jun. 11, 1996, Ser. No. 661,749
Int. Cl.[6] G11B *5/187*
U.S. Cl. 360—122 **15 Claims**

1. A magnetic head having an air bearing surface with a leading edge and trailing edge for interfacing with a record surface of a magnetic storage medium comprising:

a nonmagnetic substrate;

a first pole layer formed above said substrate and having a front section and a back section, said front section of said first pole layer including a first surface substantially coplanar with the air bearing surface of said magnetic head, said first pole layer being formed by a focused ion beam with a leading bevel



surface, said first surface and said leading bevel surface intersecting at said leading edge of said air bearing surface;

an insulating gap layer; and

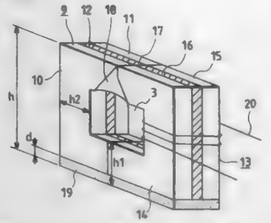
a second pole layer having a tip section and a body section, said tip section of said second pole layer being disposed adjacent to and spaced from said front section of said first pole layer by said insulating gap layer, said body section of said second pole layer being disposed in contact with said back section of said first pole layer.

5,726,842

THIN-FILM TYPE MAGNETIC HEAD HAVING AN AUXILIARY MAGNETIC FILM

Taiichi Mori, Yamaga, and Akira Gyoutoku, Kumamoto, both of Japan, assignors to Matsushita Electric Industrial Co., Ltd., Osaka, Japan

Filed May 19, 1993, Ser. No. 63,302
Claims priority, application Japan, May 25, 1992, 4-131290
Int. Cl.[6] G11B *5/127*
U.S. Cl. 360—126 **23 Claims**



13. A thin film type magnetic head comprising:

a magnetic head assembly including first and second C-shaped halves each including a magnetic core made of a metallic magnetic material and two non-magnetic bases having interposed therebetween the magnetic core, said first and second C-shaped halves being connected to each other to form an aperture with the magnetic cores being in alignment with each other to form a magnetic gap therebetween, said first and second C-shaped halves defining first and second surfaces of the magnetic head formed on said magnetic head assembly, the first surface, including the magnetic gap, being provided opposite the second surface on said magnetic head assembly to be in engagement with a recording medium; and

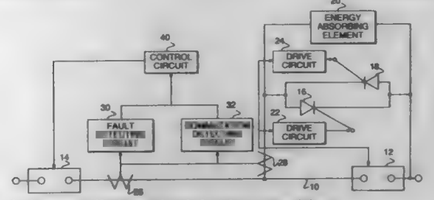
an auxiliary film made of a soft magnetic material, said auxiliary film being disposed on the second surface of said magnetic head assembly to establish magnetic connection with the magnetic cores of said first and second halves, said auxiliary film being arranged so as to provide the product of its relative magnetic permeability and its thickness to be above 3000.

5,726,843

CURRENT LIMITING CIRCUIT BREAKER

Hiroshi Arita, Mito, Japan, and Junzo Kida, Hitachi, Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Filed Nov. 21, 1995, Ser. No. 561,252
Claims priority, application Japan, Nov. 21, 1994, 6-286532
Int. Cl.[6] H02H *3/08*
U.S. Cl. 361—5 **15 Claims**



1. A current limiting circuit breaker comprising

a main circuit switch inserted in a line of power supply lines that constitute a main circuit;

a solid-state switch connected in parallel with said main circuit switch;

fault detecting means for detecting a fault in relation with a power supply of said main circuit;

fault time command means for commanding to open said main circuit switch and to close said solid-state switch responsive to a detected output of said fault detecting means;

commutation detecting means for detecting a current flowing in said solid-state switch; and

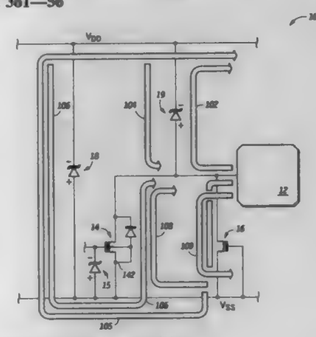
circuit breaking operation means for circuit breaking said solid-state switch when a detected current of said commutation detecting means during the opening process of said main circuit switch indicates a normal value.

5,726,844

PROTECTION CIRCUIT AND A CIRCUIT FOR A SEMICONDUCTOR-ON-INSULATOR DEVICE

Jeremy C. Smith, Austin, Tex., assignor to Motorola, Inc., Schaumburg, Ill.

Filed Apr. 1, 1996, Ser. No. 625,858
Int. Cl.[6] H02H *9/00*
U.S. Cl. 361—56 **29 Claims**



1. A protection circuit comprising:

a pad node;

a first supply node that is coupled to receive a first potential;

a first transistor having a first current electrode, a channel, and a second current electrode, wherein:

the first current electrode of the first transistor is electrically connected to both the first supply node and the channel;

the second current electrode of the first transistor is electrically connected to the pad node; and

a pn diode is formed at a junction between the channel and second current electrode of the first transistor;

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a second transistor having a first current electrode, a second current electrode, and a channel which electrically floats by remaining unconnected with either the first or second current electrodes thereof, wherein:

the first current electrode of the second transistor is electrically connected to the first supply node; and

the second current electrode of the second transistor is electrically connected to the pad node;

the second transistor functioning as a primary current path for current flow from the pad node to the first supply node;

a second supply node that is coupled to receive a second potential that is higher than the first potential; and

a rail clamp having a first terminal and a second terminal, wherein:

the first terminal of the rail clamp is electrically connected to the first supply node; and

the second terminal of the rail clamp is electrically connected to the second supply node.

5,726,845

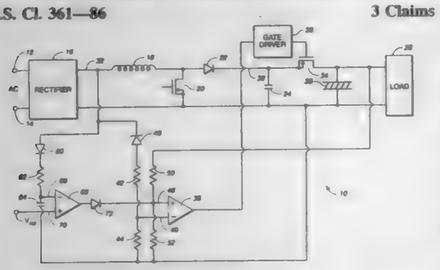
SHORT CIRCUIT PROTECTION FOR POWER FACTOR CORRECTION CIRCUIT

Simon Mo Chan Ho, Tai Po, Hong Kong, assignor to Astec International Limited, Wanchai, Hong Kong

Filed Feb. 28, 1996, Ser. No. 608,140

Int. Cl.[6] H02H *3/28;* **H02M** *7/00;* **G05F** *1/563*

U.S. Cl. 361—86 **3 Claims**



1. A power factor correction circuit including a short circuit protection system, said power factor correction circuit comprising:

a source of rectified AC voltage;

a boost converter circuit connected to said source;

an output of said power factor correction circuit;

a switch connected in series between said boost converter and said power factor correction circuit output;

a gate driver arranged to control the state of said switch; and

a comparator having an output connected to said gate driver, for causing said gate driver to change the state of said switch when the output of said comparator changes state, said comparator including a pair of inputs, one of said inputs being connected to said source of rectified AC voltage so as to produce at said input a voltage representative of said rectified AC voltage plus a predetermined offset voltage, and the other of said inputs being connected to said power factor correction circuit output; said inputs being connected so as to cause the output of said comparator to change state such that said switch is turned off whenever said voltage of said power factor correction circuit output is greater than said rectified AC voltage plus said offset voltage.

5,726,846

TRIP DEVICE COMPRISING AT LEAST ONE CURRENT TRANSFORMER

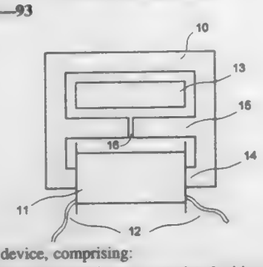
Pascal Houbre, St. Martin D'Heres, France, assignor to Schneider Electric SA, France

Filed Sep. 19, 1995, Ser. No. 529,975

Claims priority, application France, Sep. 29, 1994, 94 11814

Int. Cl.[6] H02H *3/00*

U.S. Cl. 361—93 **11 Claims**



11. A trip device, comprising:

at least one current transformer, associated with a single conductor of a circuit to be protected in which a primary current is flowing, comprising a main magnetic circuit surrounding the conductor of the circuit to be protected, and at least one secondary winding, a part of the main magnetic circuit forming the core of the secondary winding;

a processing unit connected to said secondary winding of said current transformer; and

means for reducing the power supplied to said secondary winding during periods of excess primary current flowing through said conductor.

5,726,847

METHOD OF GENERATING A PROTECTION-TRIGGERING SIGNAL

Thomas Dalstein, Berlin, Germany, assignor to Siemens Aktiengesellschaft, München, Germany

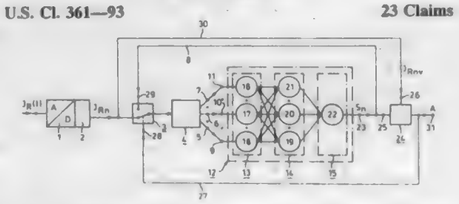
PCT No. PCT/DE94/01149, § 371 Date May 24, 1996, § 102(e) Date May 24, 1996, PCT Pub. No. WO95/09469, PCT Pub. Date Apr. 6, 1995

PCT Filed Sep. 20, 1994, Ser. No. 619,652

Claims priority, application Germany, Sep. 27, 1993, 43 33 260.9

Int. Cl.[6] H02H *3/00*

U.S. Cl. 361—93 **23 Claims**



10. A method for detecting an overcurrent in a phase conductor comprising the steps of:

successively sampling a current in the phase conductor to obtain a plurality of successive current values;

simultaneously applying each of the plurality of successive current values to respective inputs of a neural network having a plurality of inputs, the neural network providing an output value at an output in response thereto;

sampling the current in the phase conductor to obtain a comparison current value, the comparison current value sampled subsequently to obtaining the plurality of successive current values;

comparing the comparison current value to the output value at the neural network output; and

generating a protection-triggering signal if said comparison current value deviates from the output value in a predetermined manner.

5,726,848

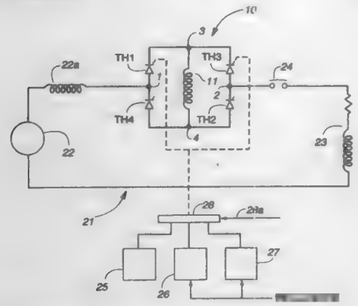
FAULT CURRENT LIMITER AND ALTERNATING CURRENT CIRCUIT BREAKER

Heinrich J. Boenig, Los Alamos, N. Mex., assignor to The Regents of the University of California, Oakland, Calif.

Filed May 8, 1996, Ser. No. 646,836

Int. Cl.[6] H02H *3/00*

U.S. Cl. 361—93 **4 Claims**



1. A solid-state circuit breaker and current limiter for a load served by an alternating current source having a source impedance, the solid-state circuit breaker and current limiter comprising:

a thyristor bridge interposed between said alternating current source and said load, said thyristor bridge having four thyristor legs and four nodes, with a first node connected to said alternating current source, and a second node connected to said load;

a coil connected from a third node to a fourth node, said coil having an impedance of a value calculated to limit current flowing therethrough to a predetermined value;

control means connected to said thyristor legs for limiting said alternating current flow to said load under fault conditions to a predetermined level, and

for gating said thyristor bridge under fault conditions to quickly reduce said alternating current flowing therethrough to zero and thereafter to maintain said thyristor bridge in an electrically open condition preventing said alternating current from flowing therethrough for a predetermined period of time.

5,726,849

INPUT OVERCURRENT SUPPRESSION CIRCUIT

Mitsuo Nakamura, Kawasaki, Japan, assignor to Fujitsu Limited, Kawasaki, Japan

Continuation of Ser. No. 578,786, Dec. 26, 1995, abandoned, which is a continuation of Ser. No. 202,559, Feb. 28, 1994, abandoned. This application Oct. 29, 1996, Ser. No. 739,216

Claims priority, application Japan, Apr. 19, 1993, 5-091233

Int. Cl.[6] G05F *1/573*

U.S. Cl. 361—93 **22 Claims**

1. A DC power supply circuit, comprising:

a plurality of DC-DC converters;

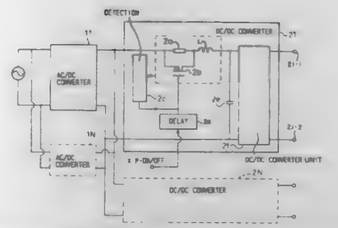
an AC-DC converter feeding corresponding input power currents to at least two of the plurality of DC-DC converters; and

each of the plurality of DC-DC converters comprising:

an input circuit of a fuse resistor and a switch connected in parallel, the switch normally being ON and shunting the resistor,

a surge current preventing circuit, responsive to a connection of the DC-DC converter to the AC-DC converter initiating the feeding of an input power current from the AC-DC converter to the DC-DC converter, turning the switch OFF for a predetermined period of time during which the input power current is conducted through the fuse resistor, and which thereby suppresses any surge current level of the input power current, and turning the switching element ON at the conclusion of the predetermined period of time for conducting the input power current therethrough and bypassing the fuse resistor, and

a detector detecting an over-current level of the input power current conducted through the ON switch of the input circuit and producing an over-current detection output turning the switch OFF, the fuse resistor conducting therethrough, and suppressing, the input power current of the over-current level and thereby preventing any supply thereof from the AC-DC converter to the DC-DC converter.



5,726,850

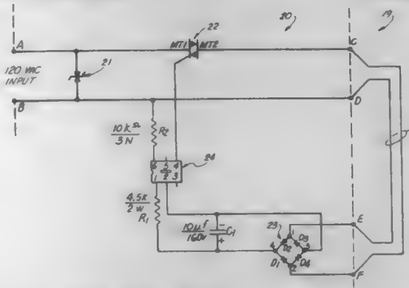
FAIL SAFE PROTECTION CIRCUIT FOR PTC COMFORT DEVICES

William M. Rowe, Jr., P.O. Box 682, DeKalb, Miss. 39328

Filed Jul. 24, 1996, Ser. No. 685,408

Int. Cl.[6] H02H *3/00*

U.S. Cl. 361—100 **20 Claims**



1. An electrical heating apparatus for use in personal comfort devices, said electrical heating apparatus comprising:

(a) controller means for supplying a source of electrical energy;

(b) resistance heating body having conductors; and,

(c) fail safe protection means coupled in series between said controller means and said resistance heating body for detecting a break or short circuit in any of said conductors of said resistance heating body, said fail safe protection means comprising:

i. a triac coupled to said controller means and having conductive and non-conductive states for controlling the supply of said source of electrical energy to said resistance heating body;

ii. rectifier means coupled to an output of said resistance heating body for receiving a current flowing therethrough; and,

iii. driver means coupled to outputs of said rectifier means and a gate of said triac for maintaining said triac in said conductive state when the resistance heating body is functioning properly and renders said triac in said non-conductive state when said break or said short circuit of said conductors of said resistance heating body is detected.

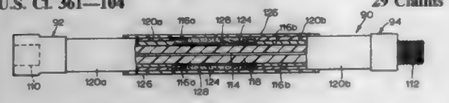
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5,726,851

COAXIAL CABLE FUSE APPARATUS

Walter Knapp, Santa Barbara, Calif., assignor to Joslyn Electronic Systems Corporation, Goleta, Calif.

Filed Apr. 10, 1996, Ser. No. 630,443
Int. Cl.[6] H02H 5/04
U.S. Cl. 361—104 29 Claims



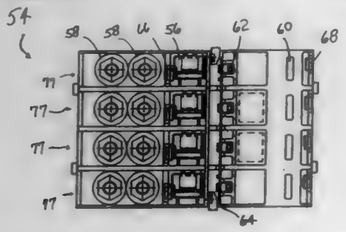
25. A coaxial cable fuse apparatus, comprising:
a central conductor;
a fusible outer conductor disposed coaxially with respect to said central conductor; and
an insulating medium disposed between said central conductor and said fusible outer conductor,
said fusible outer conductor comprising fusible conductive means for causing an open circuit to be formed in said outer fusible conductor in less than about 15 minutes when a current of 120 amperes is passed through said fusible outer conductor.

5,726,852

MODULAR DC DISTRIBUTION UNIT AND SYSTEM

Richard E. Trifiletti, Lorain, and John J. Drabczyk, Brooklyn, both of Ohio, assignors to Reltec Corporation, Lorain, Ohio

Filed Sep. 20, 1996, Ser. No. 717,482
Int. Cl.[6] H02B 1/04
U.S. Cl. 361—115 20 Claims



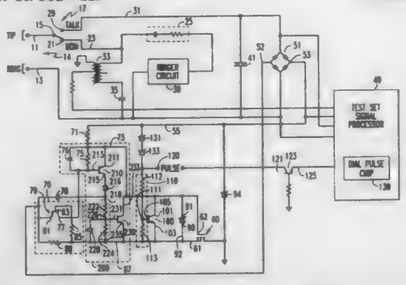
1. A modular DC distribution unit comprising:
a cabinet having an interior cavity;
a power input configured in the cabinet, to input power to the cabinet from an external power source;
power cables having first and second ends, the first end connected to the power input;
a power distribution connector having a receiving terminal and a transmitting terminal, the receiving terminal connected to the second end of the power cables;
a backing panel attached in a vertical plane on the interior of the cabinet, the backing panel having a plurality of spaced openings which are provided in pairs, one of each pair located near a top edge of the backing panel and one of each pair near a bottom edge of the backing panel;
a bus bar, connected to a surface of the backing panel, having a U receiving area, the bus bar powered through a connection to the transmitting terminal of the power distribution connector;
a block assembly having a plurality of spaced claws carried on resilient legs extending from a bottom surface of the block assembly, the claws sized to allow passage through the spaced openings of the backing panel upon insertion, and to provide resistance to removal from the spaced openings, allowing connection to the backing panel by tool-less insertion, the block assembly having block assembly load contacts, load connectors, block assembly apertures and pairs of claws carried on resiliently extending legs, all located on an upper surface of the block assembly, the apertures of the connected block assembly aligned over the bus bar;
a circuit breaker module having a load contact formed for insertion into the block assembly load contacts, and a line contact formed for insertion through the block assembly apertures and into contact with the bus bar; and
a fuse module having a load contact formed for insertion into the block assembly load contacts, and a line formed for insertion through the block assembly apertures, and into contact with the bus bar.

5,726,853

HIGH VOLTAGE PROTECTION CIRCUIT FOR TELEPHONE TEST SET

Theodore E. Chavannes, Thousand Oaks, Calif., assignor to Harris Corporation, Melbourne, Fla.

Filed Mar. 19, 1996, Ser. No. 618,323
Int. Cl.[6] H02H 1/00
U.S. Cl. 361—119 34 Claims



1. A protection circuit for protecting a craftsperson's test set from damage as a result of an electrical path being accidentally provided between test set leads and a high voltage, said test set including a controlled switching device, which has a controlled current path therethrough and is operative, in response to a dial pulse and/or dial tone signal, to controllably draw loop current therethroug hand thereby effect the application of dial pulses and/or dial tone signals to a telephone communication loop to which said test set leads are coupled, said protection circuit comprising:
a current limiting circuit, coupled to said controlled switching device, and being operative to limit the magnitude of current flowing through said controlled switching device; and
a current flow control circuit, coupled to said controlled switching device, and being operative to control current flow through said controlled switching device such that the average power dissipated in said controlled switching device does not exceed a predefined limit.

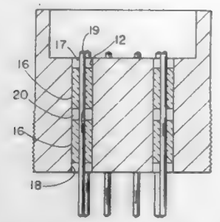
5,726,854

VOLTAGE ARRESTOR FOR USE WITH DELICATE ELECTRONIC COMPONENTS

Kenneth C. Maki, Coon Rapids; Steven W. Johnson, Minnetonka, and Douglas P. McCarron, Minneapolis, all of Minn., assignors to Tekna Seal, Inc., Minneapolis, Minn.

Continuation-in-part of Ser. No. 739,818, Oct. 30, 1996, abandoned. This application Jan. 15, 1997, Ser. No. 784,120
Int. Cl.[6] H02H 1/00
U.S. Cl. 361—120 2 Claims

1. A gas-filled electrical discharge tube comprising:
(a) a body member consisting of an electrically conductive cylindrical sleeve with inner and outer surfaces and a longitudinal axis;



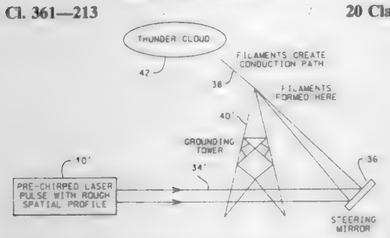
(b) an electrically insulative glass rod with the outer surface thereof being disposed in sealed relationship with the inner surface of said cylindrical sleeve and having a gas-filled sealed chamber therewithin and with a portion of said chamber extending generally transversely of said longitudinal axis to said rod outer surface generally midway along the length of said glass rod, and with the inner surface of said cylindrical sleeve being in communication with said sealed chamber;
(c) a plurality of conductive elongated cylindrical electrodes with parallelly disposed axes extending through said glass rod and arranged parallel to said longitudinal axis and with at least one such electrode extending through said gas-filled sealed chamber; and
(d) said gas fill consisting essentially of an ionizable gas at substantially atmospheric pressure.

5,726,855

APPARATUS AND METHOD FOR ENABLING THE CREATION OF MULTIPLE EXTENDED CONDUCTION PATHS IN THE ATMOSPHERE

Gerard Mourou, Ann Arbor Twp., Mich.; Alan Braun, Ann Arbor, Mich.; Jean-Claude Diels, Albuquerque, N. Mex.; Marcel Bouvier, Ann Arbor, Mich., and Xin Miao Zhao, Austin, Tex., assignors to The Regents of The University Of Michigan, Ann Arbor, Mich., and The University of New Mexico, Albuquerque, N. Mex.

Filed Aug. 15, 1995, Ser. No. 515,761
Int. Cl.[6] H01H 3/22
U.S. Cl. 361—213 20 Claims



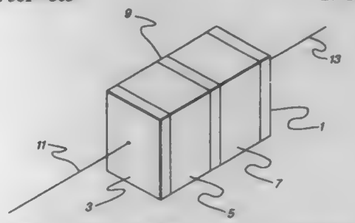
1. An apparatus for enabling the creation of multiple extended conduction paths in the atmosphere, the apparatus comprising:
a laser system including a high peak-power laser capable of transmitting through a path in the atmosphere at least one high-peak power laser pulse, said laser pulse having a rough spacial profile and being of energy sufficient to create multiple extended electrically conductive ionized channels in the atmosphere.

5,726,856

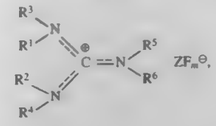
HEXASUBSTITUTED GUANIDINIUM SALTS AND ULTRACAPACITORS EMPLOYING THEM AS ELECTROLYTES

Joseph Anthony King, Jr., Schenectady, N.Y., and Peter David Phelps, Schenectady, N.Y., assignors to General Electric Company, Schenectady, N.Y.

Filed Feb. 28, 1996, Ser. No. 608,073
Int. Cl.[6] H01G 9/02
U.S. Cl. 361—505 27 Claims



1. An ultracapacitor comprising at least one cell, said cell comprising:
two solid, non-porous current collectors;
two porous electrodes separating said current collectors and in electrically conductive contact therewith;
a porous separator between said electrodes; and
an electrolyte occupying the pores in said electrodes and separator, said electrolyte comprising at least one hexasubstituted guanidinium salt having the formula



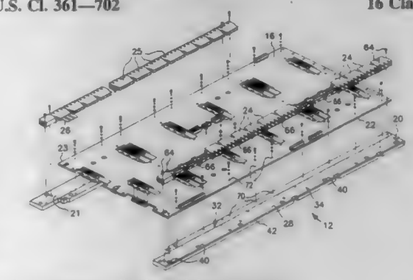
wherein:
each of R^{1-2} is independently a C_{1-6} alkyl radical, or R^1 and R^2 together form a C_{2-6} alkylene radical; each of R^{3-6} is independently a C_{1-6} alkyl radical, or at least one of the R^3–R^5 and R^4–R^6 combinations together form a C_{2-6} alkylene radical;
Z is an element capable of forming a perfluorinated anion; and
m-1 is the valence of Z.

5,726,857

APPARATUS AND METHOD FOR MOUNTING EDGE CONNECTORS WITHIN A CIRCUIT MODULE

Richard B. Salmonson, Chippewa Falls, Wis., and Stephen A. Bowen, Chippewa Falls, Wis., assignors to Cray Research, Inc., Eagan, Minn.

Filed Feb. 22, 1996, Ser. No. 605,356
Int. Cl.[6] H05K 7/20
U.S. Cl. 361—702 16 Claims

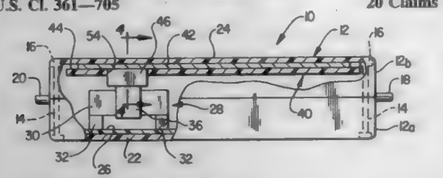


1. A computer circuit module comprising.
a cold plate,

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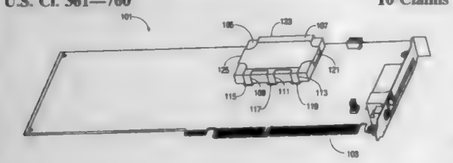
a first printed circuit board disposed adjacent said cold plate and having a bottom surface facing said cold plate,
a plurality of electronic elements carried on said bottom surface disposed between said cold plate and said bottom surface,
a plurality of edge connector housings, and
a first connector mounting rail attached to a first edge of said circuit board, wherein said first connector mounting rail comprises an elongate strip of a substantially rigid construction having an upper planar surface, said upper planar surface having an inner side attached to said bottom surface of said circuit board adjacent said edge and an outer side extending from beyond said first edge and carrying thereon said connector housings.

5,726,858
SHIELDED ELECTRICAL COMPONENT HEAT SINK APPARATUS
Darryl K. Smith, Spring, and Alfred Faust, Missouri City, both of Tex., assignors to Compaq Computer Corporation, Houston, Tex.
Filed May 23, 1996, Ser. No. 652,294
Int. Cl.[6] H05K *7/20*
U.S. Cl. 361—705 **20 Claims**



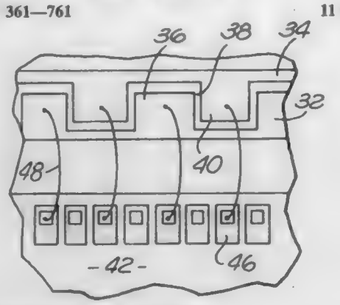
1. Electronic apparatus comprising:
a housing having an exterior wall with an interior side surface;
a heat generating electrical component disposed in said housing and having a side portion spaced inwardly apart from said interior side surface in a facing relationship therewith; and
heat sink means for facilitating the dissipation of heat generated by said electrical component, said heat sink means including:
a thermally conductive first member having a first side secured to said interior side surface in a heat transfer relationship therewith, and a second side facing and spaced apart from said side portion of said electrical component,
a dielectric, thermally conductive second member forming a heat conduction path between said side portion of said electrical component and a facing portion of said second side of said first member, and
a radiant heat absorptive third member secured to and covering said second side of said first member, said third member having formed therein an opening through which said second member extends.

5,726,859
CIRCUIT BOARD COMPONENT RETAINER AND EXTRACTOR
Gita Khadem, Austin, Tex., and George Thomas Holt, Austin, Tex., assignors to Dell USA, L.P., Round Rock, Tex.
Filed Jul. 26, 1995, Ser. No. 507,177
Int. Cl.[6] H01M *2/10*; **H01L** *23/32*
U.S. Cl. 361—760 **10 Claims**



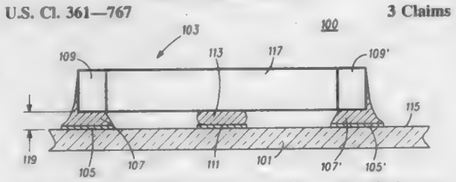
1. A circuit board arranged for having component packages detachably mounted thereon, said circuit board comprising:
a board mounting means arranged on said circuit board, said board mounting means being engagable with a component package to detachably mount the component package on said circuit board; and
a retaining means arranged to be coupled to said circuit board, said retaining means being configured to retain the component package in a predetermined position with respect to said retaining means, said retaining means being further removably engagable with said circuit board to retain the component package in place on said board mounting means, said retaining means further including a detaching device, said detaching device being operable to detach said component package from said board mounting means.

5,726,860
METHOD AND APPARATUS TO REDUCE CAVITY SIZE AND THE BONDWIRE LENGTH IN THREE TIER PGA PACKAGES BY INTERDIGITATING THE VCC/VSS
Thomas Mozdzen, Gilbert, Ariz., assignor to Intel Corporation, Santa Clara, Calif.
Filed Mar. 28, 1996, Ser. No. 623,503
Int. Cl.[6] H05K *1/14*
U.S. Cl. 361—761 **11 Claims**



1. An electronic package, comprising:
a package which has a bond shelf, a first conductive bus that is located on said bond shelf and which has a plurality of interconnected tab portions that are separated by a plurality of non-conductive slots, and a second conductive bus that is located on said bond shelf and which has a plurality of interconnected tab portions that are located within said non-conductive slots of said first conductive bus.

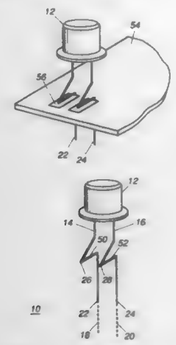
5,726,861
SURFACE MOUNT COMPONENT HEIGHT CONTROL
Fred E. Ostrem, 3463 R.F.D., Long Grove, Ill. 60047
Filed Jan. 3, 1995, Ser. No. 367,967
Int. Cl.[6] H05K *7/02*
U.S. Cl. 361—767 **3 Claims**



1. A circuit assembly comprising a surface mount device on a substrate, the assembly comprising:
a pair of electrical connection pads disposed onto a first surface of the substrate;

a solderable height control pad disposed onto the first surface of the substrate positioned between the two electrical connection pads;
solder fillets soldered onto each of the two electrical connection pads and the height control pad; and
a component having two opposing ends with an electrical termination portion located at each of the two ends, and a non-solderable body portion, wherein the two electrical termination portions extend from a surface on each of the two opposing ends to a surface on a bottom portion of the component, and wherein each of the surfaces of the two electrical termination portions are bonded to the solder fillet associated with a corresponding one of the pair of electrical connection pads, and the non-solderable body portion is resting on the solder fillet associated with the height control pad.

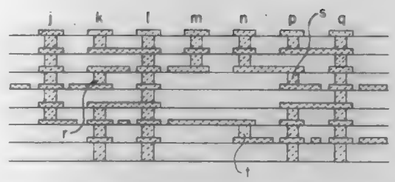
5,726,862
ELECTRICAL COMPONENT HAVING FORMED LEADS
Due Huynh, Lawrenceville; Thomas P. Kirby, Lithonia; Micheal M. Austin, Lilburn, and John E. Herrmann, Lawrenceville, all of Ga., assignors to Motorola, Inc., Schaumburg, Ill.
Filed Feb. 2, 1996, Ser. No. 596,530
Int. Cl.[6] H05K *7/02*
U.S. Cl. 361—773 **6 Claims**



4. An electronic device, comprising:
a printed circuit board having holes formed therethrough and conductive pads formed thereon; and
an electrical component, comprising:
a body; and
leads extending from said body along substantially parallel axes, said leads having end portions for extending through said holes of said printed circuit board and stopping deviations formed on said leads between said body and said end portions, wherein said stopping deviations each have a portion perpendicular to said substantially parallel axes to allow surface mounting of said electrical component on a conductive pad of the printed circuit board.

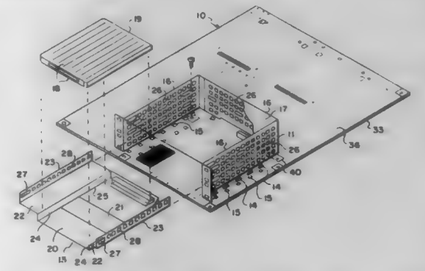
5,726,863
MULTILAYER PRINTED CIRCUIT BOARD
Kouji Nakayama, Minamiashigara, Japan, and Tsutomu Imai, Hadano, Japan, assignors to Hitachi, Ltd., Tokyo, Japan
Filed Jan. 25, 1996, Ser. No. 591,687
Claims priority, application Japan, Jan. 27, 1995, 7-011792
Int. Cl.[6] H05K *3/46*
U.S. Cl. 361—794 **15 Claims**

5. A multilayer printed circuit board having a plurality of wiring layers and power supply layers, the multilayer printed circuit board comprising:



a plurality of through holes extending through the printed circuit board, wherein at least one of the plurality of through holes is combined with another through hole of the plurality of through holes for a predetermined number of layers to form a combined through hole so as to leave an area below said one of the plurality of through holes for a via hole;
a via hole being provided in said area;
wherein said plurality of through holes are power supply through holes and said via hole is used to connect two of said plurality of wiring layers; and
wherein after said predetermined number of layers, said combined through hole is divided into two separate through holes in order to decrease crosstalk noise.

5,726,864
CAGE SYSTEM
Jeffrey P. Copeland, Jefferson, Mass., and Dennis Robinson, Marlboro, Mass., assignors to Digital Equipment Corporation, Maynard, Mass.
Filed Aug. 24, 1995, Ser. No. 518,936
Int. Cl.[6] H05K *7/14*
U.S. Cl. 361—800 **4 Claims**



1. Apparatus comprising:
a logic board including electrical grounding pads on the major surface thereof and an electrical grounding plane in electrical communication with such pads;
a cage of rigid material mounted on the logic board for holding an electrical device therein, the cage including spaced apart walls and a top connecting the walls, the walls and top having spaced apart apertures of a size and shape to promote thermal ventilation of an electrical device located in the cage and to shield EMI/RFI, the cage including spaced apart electrical grounding tabs at the lower edge region of the cage in electrical grounding contact with the electrical pads, the grounding tabs being spaced apart a distance effective to form an EMI/RFI shield to EMI/RFI originating both within the cage and outside the cage; and
a one piece option device bracket of rigid material sliceably mounted in the cage for holding the electrical device, such bracket including:
a base having a cabling hole of a size effective to connect the electronic device to connectors on the logic board;
a pair of opposing spaced apart walls for lateral support of the electrical device, each wall extending in perpendicular relationship relative to the base;
a pair of shelves in parallel relationship relative to the base and extending perpendicularly from the walls; and

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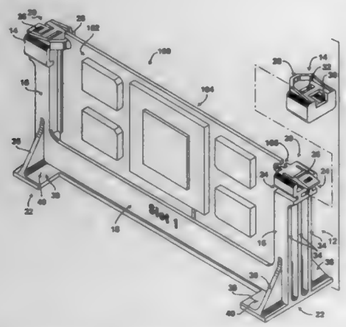
a pair of riding walls at opposing edges of the bracket and extending perpendicularly from the shelf, each of the riding walls having spaced apart apertures equal in size, shape, and positioning with respect to the apertures of the walls of the cage that the apertures of the cage and the bracket are aligned when the bracket is mounted within the cage, such alignment of the apertures promoting consistent ventilation and EMI/RFI shielding by the walls of the bracket and by the walls of the cage.

5,726,865

CIRCUIT BOARD RETENTION SYSTEM

Jim Webb, Portland, Oreg., and Steve Lofland, Portland, Oreg., assignors to Intel Corporation, Santa Clara, Calif.

Filed Jun. 18, 1996, Ser. No. 665,405
Int. Cl.[6] H01R *13/62*
U.S. Cl. 361—801 29 Claims



1. An apparatus for securely retaining a circuit board in a connected position, said apparatus comprising a first retention arm and a first clip that cooperate with each other and a first edge of the circuit board to secure said first edge of the circuit board,

said first retention arm having a first end, which is geometrically shaped to allow said first clip to slide onto said first end, and slide towards said first edge,

said first clip and said first edge having first complementary engagement features for said first clip to engage said first edge as said first clip slides up against said first edge,

said first end further having a first deflectable stop lever that can be depressed to allow said first clip to slide over said first deflectable stop lever as said first clip slides onto said first end and towards said first edge, and then be released to snugly engage a first notch of said first clip to prevent said first clip from sliding back off said first end after said first clip engages said first edge.

5,726,866

SLIDE OUT READILY ACCESSIBLE CHASSIS HAVING A TROUGH FOR PROTECTING CABLES AND A HINGE THAT INCLUDES A CONDUIT

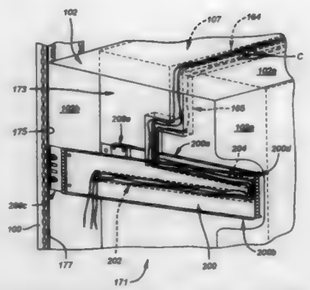
Joseph R. Allen, Tomball, Tex., assignor to Compaq Computer Corporation, Houston, Tex.

Filed Feb. 14, 1996, Ser. No. 601,193
Int. Cl.[6] H05K *9/00*
U.S. Cl. 361—816 9 Claims

1. An apparatus for reducing electromagnetic interference from a computer system, the apparatus comprising:

a mounting rack;

a multisided enclosure having a first access opening for forming a partial electromagnetic interference shield for the computer system contained therein;



a first electromagnetic gasketing formed around the perimeter of the first access opening of said enclosure;

a chassis slidably mounted to said enclosure for retracting within the interior of said enclosure and for extension beyond the first access opening of said enclosure, said chassis providing electrical connections for one or more interchangeable boards that are accessible through one or more board access openings of said chassis, said chassis having a front panel for providing a complete electromagnetic shield for the computer system when in contact with said first electromagnetic gasketing; and

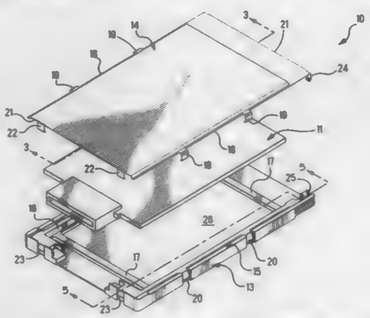
a hinge having a first end secured to said enclosure and a second end secured to said chassis for protecting cables during movement of said chassis, said hinge including a conduit for containing the cables.

5,726,867

CARD HOLDER FOR COMPUTERS AND RELATED EQUIPMENT

Mansour Zarreii, Mechanicsburg, Pa., assignor to The Whitaker Corporation, Wilmington, Del.

Filed Jan. 21, 1994, Ser. No. 184,523
Int. Cl.[6] H05K *9/00*
U.S. Cl. 361—818 8 Claims



1. A card holder for a card used in computers and related equipment comprising:

a single unitary bottom member fabricated from a metal having a high strength modulus and adapted to serve directly as a rigid frame for a card; and

a stamped top member adapted to be snapped over said bottom member after a card has been disposed in said bottom member to complete the assembly of the card holder,

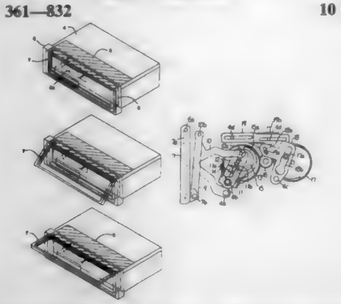
whereby upon disposing said card in said bottom member and assembling said card holder, said bottom member provides high mechanical strength and rigidity and said top member serves merely as a cover without being required to generate mechanical strength in the assembly.

5,726,868

ROBBERY-PROOF MECHANISM FOR VEHICLE MOUNTED ELECTRONIC APPARATUS

Kazuya Koyama, Houya; Masayoshi Aoki, Hachiouji; Jun Muramatsu, Kamiina gun; Tohru Masumoto, Hachiouji; Masami Matsumoto, Hino, and Kiyoshi Hosoi, Tokyo, all of Japan, assignors to Kabushiki Kaisha Kenwood, Tokyo, Japan

Filed Dec. 20, 1995, Ser. No. 575,752
Claims priority, application Japan, Dec. 29, 1994, 6-339875
Int. Cl.[6] H02B *1/01*
U.S. Cl. 361—832 10 Claims



1. A robbery-proof mechanism for a vehicle mounted electronic apparatus, comprising:

a frame mounted on the front of the vehicle mounted electronic apparatus, being rotative between a horizontal position and a vertical position;

a cover capable of being inserted into a groove formed in said frame;

a drive mechanism for driving said cover in the horizontal direction between a position in the groove of said frame and a position retracted from said frame; and

a drive mechanism for driving an operation panel in the horizontal direction,

wherein said frame is rotated to the horizontal position, said cover is then moved into the groove of said frame and the operation panel is moved backward, and said frame together with said cover is rotated to the vertical position to cover the operation panel with said cover.

5,726,869

SYNCHRONOUS RECTIFIER TYPE DC-TO-DC CONVERTER IN WHICH A SATURABLE INDUCTIVE DEVICE IS CONNECTED IN SERIES WITH A SECONDARY-SIDE SWITCHING DEVICE

Shigeharu Yamashita, Kawasaki, Japan; Kazutoshi Fuchigami, Kawasaki, Japan; Tetsuya Yamamoto, Kawasaki, Japan; Shinichi Otsu, Kawasaki, Japan; Hiroshi Shimamori, Kawasaki, Japan, and Sentarou Tokimi, Kawasaki, Japan, assignors to Fujitsu Limited, Kawasaki, Japan, and Fujtsu Denso Limited, Kawasaki, Japan

Filed Oct. 2, 1996, Ser. No. 724,955
Claims priority, application Japan, Oct. 5, 1995, 7-258503
Int. Cl.[6] H02M *3/335*
U.S. Cl. 363—21 13 Claims

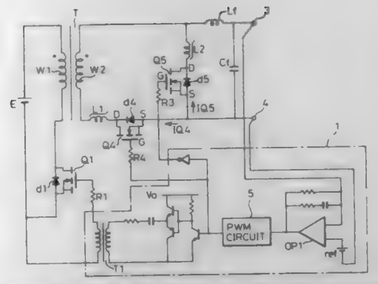
1. A DC-to-DC converter for converting a voltage of a DC power source into another voltage, comprising:

a transformer having a primary winding thereof connected to said DC power source;

a primary switching device connected in series with said primary winding;

a control circuit controlling turning on or off of said primary switching device;

a flywheel inductive device connected between a first end terminal of a secondary winding of said transformer and a first output terminal of said DC-to-DC converter;



a rectifier synchronous rectification switching device connected between a second end terminal of said secondary winding of said transformer and a second output terminal of said DC-to-DC converter;

a flywheel synchronous rectification switching device connected in parallel with said secondary winding of said transformer and positioned to form a conductive path leading from one to the other of said first and second output terminal by way of said flywheel inductive device and said flywheel synchronous rectification switching device;

a rectifier rise delay inductive device connected in series with said rectifier synchronous rectification switching device; and

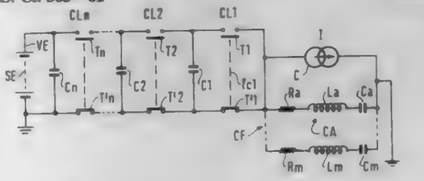
a flywheel rise delay inductive device connected in series with said flywheel synchronous rectification switching device.

5,726,870

ELECTRONIC CIRCUIT FOR CONVERTING ELECTRICAL ENERGY

Jean-Paul Lavieville, Gif Sur Yvette, France; Olivier Bethoux, St Germain Les Arpajon, France; Philippe Carrere, Toulouse, France, and Thierry Meynard, Toulouse, France, assignors to GEC Alsthom Transport SA, Paris, France

PCT No. PCT/FR95/01749, § 371 Date Aug. 8, 1996, § 102(e) Date Aug. 8, 1996, PCT Pub. No. WO96/21268, PCT Pub. Date Jul. 11, 1996
PCT Filed Dec. 28, 1995, Ser. No. 687,605
Claims priority, application France, Dec. 29, 1994, 95 15865
Int. Cl.[6] H02M *3/06*
U.S. Cl. 363—62 5 Claims



1. A multilevel converter comprising:

a voltage source (SE);

a current source (C);

a succession of n controllable switching cells (CL1, CL2, . . . , CLn) disposed between said voltage source and said current source, an upstream direction being defined in a direction from said voltage source to said current source and a downstream direction being defined in a direction from said current source to said voltage source, each of said controllable switching cells comprising two switches (T1, T'1; T2, T'2; . . . ; Tn, T'n), wherein each of said switches comprises two poles, an upstream pole disposed in an upstream direction of each of said controllable switching cells and a downstream pole disposed in a downstream direction of each of said controllable switching cells, such that each of said controllable switching cells, each having said two switches, includes a pair of upstream poles and a pair of downstream poles, said switches of said controllable switching cells being disposed so

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that said pair of downstream poles of a first controllable switching cell is connected to said pair of upstream poles of a second controllable switching cell disposed downstream of said first controllable switching cell, further wherein said upstream poles of a controllable switching cell CLn, where n=1, are connected to said current source and said downstream poles of a last controllable switching cell CLn is connected to said voltage source;

n capacitors, wherein each of said n controllable switching cells includes one of said n capacitors, said one of said capacitors being disposed between said pair of downstream poles in each of said n controllable switching cells, an nth capacitor being omitted when said voltage source performs the role of said nth capacitor, each of said n capacitors (C1, C2, . . . , Cn) having successively increasing nominal mean charge voltages, a mean charge voltage for said one of said n capacitors in each of said controllable switching cells being equal to a product of a voltage (VE) from said voltage source multiplied by a reciprocal of n and by a rank of a controllable switching cell including said one of said n capacitors;

control means for governing the nominal operation of said converter by controlling said switches of said controllable switching cells wherein said two switches of each of said controllable switching cells are always in opposite conduction states, said control means providing a cell control signal to each of said controllable switching cells (CT1, CT2, . . . , CTn) controlling one of said two switches of each of said controllable switching cells to be in a first conduction state and then in a second conduction state during a cyclically repeated period, said cell control signals being identical and offset in time by a fraction of said period, said two switches of each of said controllable switching cells operating in a same manner and offset in time by said fraction of said period; and

a filter circuit (CF) disposed in parallel with said current source for dissipating, at least in part, energy of any component having a frequency lying in a frequency band having a range between a fundamental frequency of a voltage applied to said current source to a frequency equal to n multiplied by a frequency of said converter, said frequency of said converter being a chopper frequency and n being the number of stages in said converter, said fundamental frequency and said frequency equal to n multiplied by said chopper frequency not lying within said frequency band.

5,726,871

POWER SUPPLY CIRCUIT WITH POWER SAVING MODE FOR VIDEO DISPLAY APPLIANCE

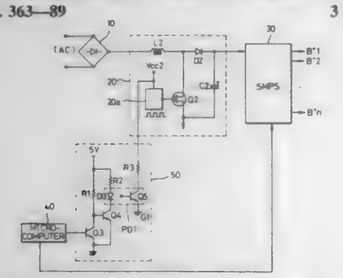
Jong Ryong Choi, Kyoungsangbuk-Do, Rep. of Korea, assignor to LG Electronics Inc., Seoul, Rep. of Korea

Filed Jan. 13, 1997, Ser. No. 782,770

Claims priority, application Rep. of Korea, Jan. 15, 1996, 96-656

Int. Cl.[6] G05F 1/70; G06F 1/00; H02M 5/42

U.S. Cl. 363—89 3 Claims



1. A power supply circuit for a video display appliance comprising:

rectifying means for rectifying an input AC power supply;

power factor correction means for correcting a current waveform of the rectified power supply provided from the rectifying means to provide another AC power supply having a current waveform of a sine wave, in accordance with a first DC power supply;

power supply means for converting the AC power supply provided from the power factor correction means into DC power supplies of various levels including the first DC power supply to be provided to the power factor correction means;

control means for determining whether to perform a display control for power saving of the video display appliance and providing a control signal; and

switching means for alternatively switching the first DC power supply to be provided to the power factor correction means according to the control signal provided from the control means.

5,726,872

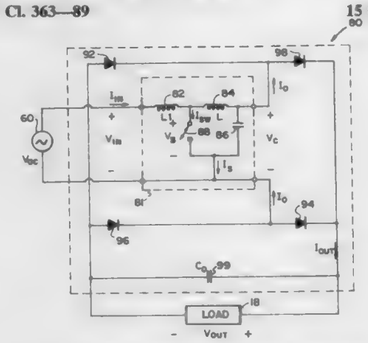
AC TO DC BOOST POWER CONVERTERS

Patrizio Vinciarelli, Boston, and Jay Prager, Tyngsboro, both of Mass., assignors to VLT Corporation, San Antonio, Tex.

Continuation of Ser. No. 460,073, Jun. 2, 1995, abandoned, which is a division of Ser. No. 274,991, Jul. 13, 1994, Pat. No. 5,572,417. This application Apr. 17, 1997, Ser. No. 837,760

Int. Cl.[6] H02M 7/04

U.S. Cl. 363—89 15 Claims



1. An array of power conversion modules for delivering power from an input voltage source of either polarity to a load at a unipolar load voltage,

each of said modules comprising,

conduction paths for delivering a unipolar output current, Io, to said load,

an input inductive element for receiving an input current, Iin, of either polarity, from said input source,

a bipolar switch, capable of blocking a voltage of either polarity when off and conducting a current of either polarity when on, said bipolar switch providing a shunt path for returning a shunt current of either polarity, Is, to said input source, there being two conductive paths between said input terminals and said output terminals when said bipolar switch is opened,

a controller for turning said switch on and off during each of a series of converter operating cycles, and

means for controlling each of said modules to deliver a predetermined fraction of the total power delivered to the load.

5,726,873

CONTROL CIRCUIT FOR CRYOGENICALLY-COOLED POWER ELECTRONICS EMPLOYED IN POWER CONVERSION SYSTEMS

Calman Gold, Londonderry, N.H.; Otward Mueller, Ballston Lake, N.Y., and Ellery F. Schempp, Medford, Mass., assignors to American Superconductor Corporation, Westborough, Mass.

Division of Ser. No. 288,086, Aug. 10, 1994, Pat. No. 5,625,548. This application Dec. 19, 1996, Ser. No. 770,648

Int. Cl.[6] H01F 36/00

U.S. Cl. 363—98 37 Claims



1. A control circuit for controlling a polyphase switching conversion circuit having a plurality of selectively controlled commutating switching devices, said plurality of said switching devices applying at least one input signal across an output load of said conversion circuit, said control circuit comprising a plurality of commutating switching elements, each corresponding to one and only one of said plurality of switching devices and each responsive to a timing signal for generating control signals, each control signal controlling a corresponding one of said switching devices and electrically isolated from said switching devices.

5,726,874

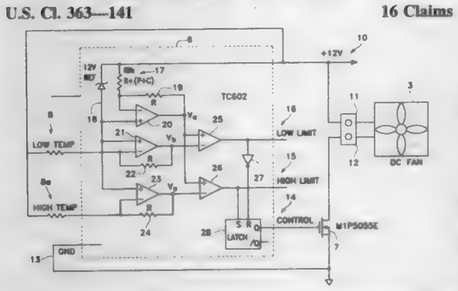
POWER SUPPLY HAVING A DUAL AIR FLOW CONTROL FOR REDUCING HEAT BUILDUP

Charles Liang, 3086 Balmoral Dr., San Jose, Calif. 95132

Filed Nov. 13, 1996, Ser. No. 746,550

Int. Cl.[6] H02M 5/42; H05K 7/20

U.S. Cl. 363—141 16 Claims



1. A power supply system for providing air flow control and heat reduction in an electronic device having a regular fan, said power supply system comprises an additional backup fan operating independently from said regular fan, comprising:

a thermal control circuit comprising

(a) a solid state temperature sensor for detecting ambient temperature changes inside said electronic device;

(b) a fan power drive electrically connected to said solid state temperature sensor and to said backup fan to turn on or off said backup fan in response to said ambient temperature changes;

(c) a pair of resistors connected respectively to said solid state temperature sensor to set a low and a high trigger temperatures based on which said backup fan makes a proper response in accordance with said ambient temperature changes wherein said high trigger temperature shall be higher than said low trigger temperature; and

an voltage source to provide voltage for said backup fan.

5,726,875

AC-DC ADAPTER

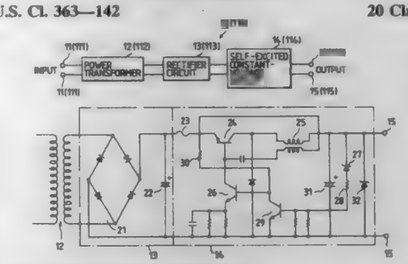
Masayuki Hirabayashi, and Hirotaka Yamamoto, both of Fukuoka, Japan, assignors to Mitsumi Electric Co. Ltd., Chofu, Japan

Continuation of Ser. No. 312,769, Sep. 27, 1994, abandoned. This application Dec. 6, 1996, Ser. No. 760,516

Claims priority, application Japan, Sep. 27, 1993, 5-056754 U; Sep. 27, 1993, 5-056755 U

Int. Cl.[6] H02M 1/10

U.S. Cl. 363—142 20 Claims



1. An AC-DC adapter comprising:

a power transformer to which an input AC voltage in a predetermined range is applied, said power transformer transforming said input AC voltage to a secondary AC voltage having a predetermined voltage less than a voltage within said predetermined range;

a rectifier circuit for rectifying and smoothing said secondary AC voltage developed across a secondary side of said power transformer; and

DC voltage stabilizing means for stabilizing a DC voltage outputted by said rectifier circuit such that said AC-DC adapter is usable with a power source within said predetermined range without any adjustment necessary to said AC-DC adapter.

5,726,876

INFORMATION COMMUNICATING SYSTEM AND METHOD

Masao Koike, Higashihiroshima, and Tatsuro Morimoto, Hiroshima, both of Japan, assignors to Mazda Motor Corporation, Hiroshima, Japan

Filed Jul. 20, 1995, Ser. No. 504,499

Claims priority, application Japan, Jul. 26, 1994, 6-174293; Jun. 30, 1995, 7-165707

Int. Cl.[6] G05B 15/00; 19/18

U.S. Cl. 364—131 25 Claims

1. An information communicating apparatus comprising:

communication packet of predetermined size; and

a first communication node,

wherein said communication packet consists of:

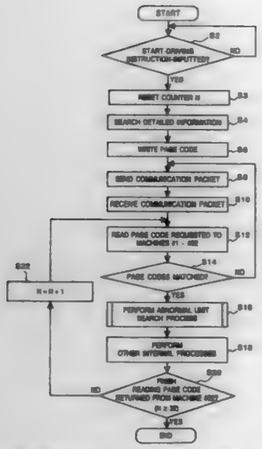
a first area for predetermined item information written by each of a plurality of communication nodes which include said first communication node; and

a second area for detailed information relating to the predetermined item information for each of said plurality of communication nodes, and wherein said first communication node which is included in said plurality of communication nodes consists of:

generating means for generating said communication packet for designating necessary predetermined item information and necessary detailed information to be written in said communication packet; and

sending means for sending the generated communication packet to a second communication node which is included in said plurality of communication nodes, further wherein said predetermined item information stored in each of said plurality of communication nodes is interchanged by using

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said communication packet via a common communication line to which said plurality of communication nodes are connected.

5,726,877

METHOD FOR THE ADAPTIVE ADJUSTMENT OF THE CONTROL PARAMETERS OF AN ELECTRO-HYDRAULIC AXIS OF MOTION

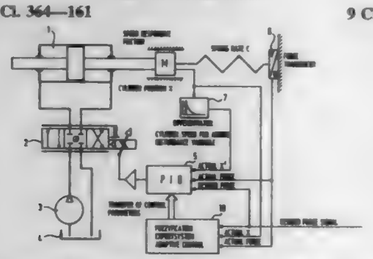
Peter Antoszkiewicz, Marktheidenfeld, Germany; Jürgen Schmitz, Marktheidenfeld, Germany, and Ulrike Zarneckow, Dietersheim, Germany, assignors to Mannesmann Rexroth GmbH, Lohr/Main, Germany

Filed Nov. 30, 1994, Ser. No. 346,889

Claims priority, application Germany, Dec. 9, 1993, 43 42 857.5

Int. Cl.[6] G05B *13/02*

U.S. Cl. 364—161 **9 Claims**



1. A method of adaptive adjustment of a controller for controlling the force applied to a load along an axis of motion by a moving member of an electro-hydraulic system which includes a controller having a proportional section and an integral section, by varying control parameters of the proportional and integral sections in response to adaptive adjustment using fuzzy-set-logic, said method comprising the steps of:

applying to the controller a desired value of force to be applied to the load;

measuring an actual value of force applied to the load resulting from application to the controller of the desired value of force;

detecting the step response of the actual value of force;

applying to the controller the step response;

evaluating, by use of fuzzy-set-logic, geometrical characteristics of the step response, including overshoot, monotony value and limit cycle;

compensating the overshoot characteristic by suitable variation of the integral section of the controller;

compensating the monotony value and the limit cycle characteristics by suitable variation of the proportional section of the controller;

the compensating steps being carried out by varying the control parameters in accordance with a setting sequence selected as follows:

(a) measuring the monotony value up to the instant of the maximum overshoot followed by setting the proportional amplification to bring the value measured toward zero to achieve rough optimizing;

(b) setting the integral section of the controller such that a maximum allowable overshoot is obtained at a high dynamic; and

(c) measuring the monotony value up to an initial control time and subsequently setting the proportional amplification to achieve fine optimizing; and

repeating the steps of evaluating and compensating in optimizing the step response.

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PREDICTION CONTROLLER

Hiroshi Nakamura, and Kazuhiro Tsuruta, both of Kitakyushu, Japan, assignors to Kabushiki Kaisha Yaskawa Denki, Fukuoka, Japan

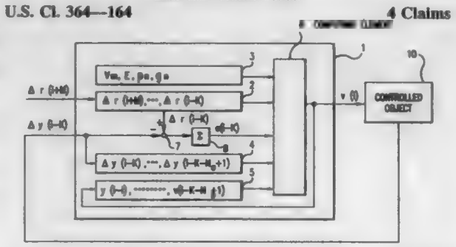
PCT No. PCT/JP94/01137, § 371 Date Dec. 26, 1995, § 102(e) Date Dec. 26, 1995, PCT Pub. No. WO95/02854, PCT Pub. Date Jan. 26, 1995

PCT Filed Jul. 12, 1994, Ser. No. 571,844

Claims priority, application Japan, Jul. 14, 1993, 5-197956

Int. Cl.[6] G05B *13/02*

U.S. Cl. 364—164 **4 Claims**



1. A predictive controller for controlling a controlled object wherein the controlled object has a transfer function model defined by

$$Gp(z)=(b_1z^{-1}+\ldots+b_{Nb}z^{-Nb})/\{(1-z^{-1})\,(1-a_1z^{-1}-\ldots-a_{Na}z^{-Na})\},$$

is responsive to control inputs and outputs measured displacement increments of said controlled object, the predictive controller comprising:

means for inputting target command increments including an increment Δr(i+M) as a target command at an M-th sampling in the future;

means for inputting said measured displacement increments of said controlled object which are output by said controlled object including an increment Δy(i−K) representing a measured physical displacement of the controlled object at a K-th sampling (K≧0) in the past;

means for outputting said control inputs to the controlled object wherein a control input v(i) is output to the controlled object at a current point in time i to instruct the controlled object to execute a physical displacement;

memory means for storing the target command increments, constants for prediction control, the measured displacement increments, and the control inputs which have been output to the controlled object;

a means for obtaining a deviation e(i−K) from the target command increments and the measured displacement increments of the controlled object;

means for determining the control input v(i) at the current point in time from:

$$v(i)=\sum_{m=-K+1}^{M} v_m\Delta r(i+m)-\sum_{n=0}^{N_a-1} p_n\Delta y(i-K-n)+$$

$$Ee(i-K)-\sum_{n=1}^{N_b+K-1} g_n v(i-n)$$

where v_m, p_n, E, and g_n are constants for prediction control.

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CONTROL APPARATUS, A STAGE APPARATUS AND A HARD DISK SERVO WRITER APPARATUS INCLUDING A ROBUST STABILIZING COMPENSATOR

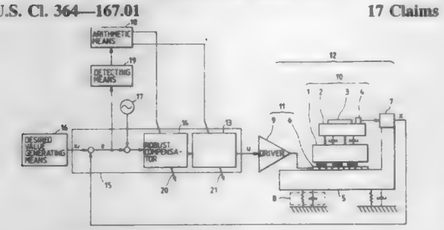
Mikio Sato, Utsunomiya, Japan, assignor to Canon Kabushiki Kaisha, Tokyo, Japan

Filed Mar. 10, 1995, Ser. No. 401,677

Claims priority, application Japan, Mar. 14, 1994, 6-042458

Int. Cl.[6] G05B *19/18;* **G11B** *21/02*

U.S. Cl. 364—167.01 **17 Claims**



1. A control apparatus comprising:

drive means for driving a body to be controlled;

state observing means for observing a moving state of the body to be controlled and producing a state observation signal;

desired value producing means for producing a state desired value for the body to be controlled;

robust stabilizing compensation means for producing a control signal for said drive means from the state observation signal produced by said state observing means and the state desired value produced by said desired value producing means;

test signal generating means for generating and adding a test signal to a control system of said body to be controlled by said robust stabilizing compensation means;

test output signal detecting means for detecting the test signal;

arithmetic means for calculating a parameter of said robust stabilizing compensation means using the test signal; and

parameter changing means for changing the parameter of said robust stabilizing compensation means, based on the calculation by said arithmetic means, wherein said robust stabilizing compensation means comprises a frequency shaping compensator and a robust compensator, wherein said arithmetic means calculates a model representing a dynamic behavior of a controlled object consisting of the body to be controlled, said driving means, and said state observing means, the controlled object comprising said frequency shaping compensator whereby the controlled object is a frequency-shaped controlled object; wherein said arithmetic means calculates a normalized coprime factorization for the frequency-shaped, controlled object; wherein said arithmetic means calculates an upper limit of an H_∞ norm of variations of a numerator rational function and a denominator rational function in the normalized coprime factorization; wherein said arithmetic means designates a variation value smaller than the upper limit of the H_∞ norm of said variations, based on the upper limit of the H_∞ norm of said variations; and wherein said arithmetic means calculates a robust compensator based on the calculated normalized coprime factorization.

5,726,880

METHOD OF AND APPARATUS FOR CONTROLLING A PROCESS

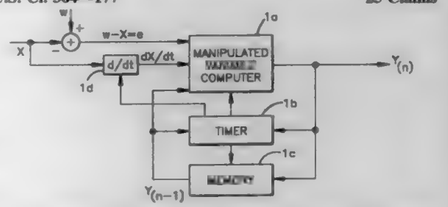
Graham Bailey, Neuhofen, and Helmut Heger, St. Leon-Rot, both of Germany, assignors to Ranco Incorporated of Delaware, Wilmington, Del.

Filed May 3, 1996, Ser. No. 642,403

Claims priority, application Germany, May 5, 1995, 195 16 627.2

Int. Cl.[6] G05B *13/02;* **F25B** *49/04;* **G05D** *23/19*

U.S. Cl. 364—177 **25 Claims**



1. A method for controlling an output variable of a process, comprising the steps of:

determining a sample value of the output variable (X);

comparing (S2) the sample value of the output variable (X) with a desired value (w) and determining a desired value deviation (e);

calculating (S3) a value of a manipulated variable (Y) dependent on the determined desired value deviation (e) in such a manner that the output variable (X) of the process is brought near to the desired value (w), and inputting the manipulated variable (Y) into the process; and

after lapse of a waiting time (S6) (T_w), newly determining (S3) a value of the manipulated variable (Y);

wherein the waiting time (T_w) is variable and calculated (S5) on the basis of the difference between the value of the manipulated variable (Y) and an earlier value of the manipulated variable (Y) which was calculated on the basis of an earlier sample value.

5,726,881

CENTRIFUGAL APPARATUS WITH OVERSPEED PROTECTION

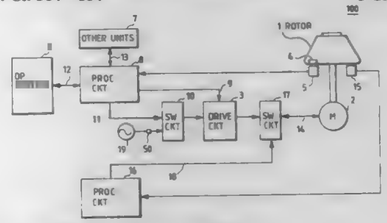
Masahiro Inaniwa; Shinji Watanabe; Nobuharu Kido; Noriyasu Matsufuji; Yoshitaka Niinai, and Osamu Kawanobe, all of Hitachinaka, Japan, assignors to Hitachi Koki Co,. Ltd., Japan

Filed Aug. 14, 1995, Ser. No. 514,814

Claims priority, application Japan, Aug. 17, 1994, 6-193019; Sep. 6, 1994, 6-212311

Int. Cl.[6] G05B *9/02*

U.S. Cl. 364—184 **8 Claims**



6. A centrifugal apparatus comprising:

rotor having marker means;

a motor operating responsive to a drive signal for rotating said rotor;

first detection means for detecting said marker means with rotation of said rotor and generating a first detection signal;

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second detection means for detecting said marker means with said rotation of said rotor and generating a second detection signal;

an input terminal for receiving a supply power;

a drive circuit responsive to a command for generating said drive signal from said supply power in accordance with said first detection signal;

first and second switch circuits for controlling of supplying said drive signal to said motor, said first and second switch circuits being provided in a route from said input terminal and said motor via said drive circuit;

first judging means for receiving said first detector signal and detecting whether said first detection signal is generated within a predetermined condition and for operating said first switch circuit to stop said drive signal from being supplied to said motor when said first detection signal is not generated within said predetermined condition; and

second judging means for receiving said second detection signal and detecting whether said second detection signal is generated within said predetermined condition and for operating said second switch circuit to stop said drive signal from being supplied to said motor when said second detection signal is not generated within said predetermined condition;

wherein said drive circuit comprises an inverter circuit for generating phase signals and a power bridge circuit for generating said drive signal from said phase signals and said first switch circuit is provided between said input terminal and said inverter circuit; and

wherein said second switch circuit comprises photocouplers transmitting said phase signals to said power bridge circuit, a switch, and a power source for supplying a power to said photocouplers through said switch and said second judging means controls said second switch circuit to stop said drive signal from being supplied to said motor by controlling said switch when said second detection signal is not generated within said predetermined condition.

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NON-VOLATILE SEMICONDUCTOR MEMORY DEVICE WITH VERIFY MODE FOR VERIFYING DATA WRITTEN TO MEMORY CELLS

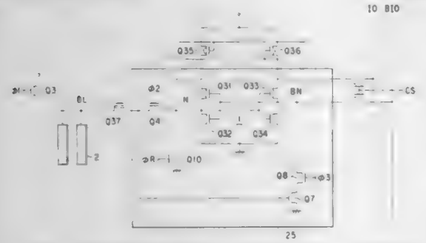
Junichi Miyamoto, Yokohama, Japan; Yasuo Itoh, Kawasaki, Japan, and Yoshihisa Iwata, Yokohama, Japan, assignors to Kabushiki Kaisha Toshiba, Kawasaki, Japan

Continuation of Ser. No. 427,265, Apr. 24, 1995, Pat. No. 5,557,568, which is a continuation of Ser. No. 210,434, Mar. 21, 1994, Pat. No. 5,452,249. This application Jun. 5, 1996, Ser. No. 659,229

Claims priority, application Japan, Mar. 31, 1993, 5-074797; Feb. 1, 1994, 6-10209

Int. Cl.[6] **G11C** *7/00*

U.S. Cl. 365—185.17 **30 Claims**



1. A non-volatile semiconductor memory device, comprising:

a non-volatile memory cell;

a bit line coupled to said non-volatile memory cell;

a flip-flop circuit which is set in a first state in accordance with write data supplied thereto;

a switching circuit responsive to a switching signal for electrically connecting said bit line and said flip-flop circuit during a write operation for writing the write dam to said non-volatile memory cell;

a data setting circuit responsive to a potential of said bit line for setting said flip-flop circuit in a second state in accordance with a verify operation for verifying the writing of data to said non-volatile memory cell; and

a MOS transistor having a current path coupled between said bit line and said switching circuit.

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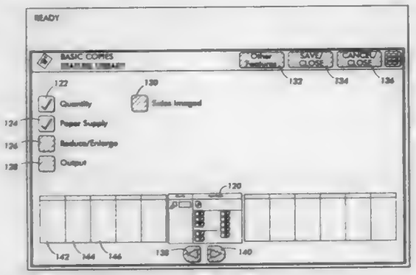
METHOD OF CUSTOMIZING CONTROL INTERFACES FOR DEVICES ON A NETWORK

Jonathan D. Levine, Rochester, and David M. Parsons, Victor, both of N.Y., assignors to Xerox Corporation, Stamford, Conn.

Filed Oct. 10, 1995, Ser. No. 540,435

Int. Cl.[6] **G06F** *3/00*

U.S. Cl. 364—188 **10 Claims**



1. A method of customizing control interfaces for devices on a network comprising the steps of:

displaying a standard control panel for a given device with features, said control panel including a first icon to enable a first feature and a second icon to enable a second feature, the first icon being a first printer icon and the second icon being a second printer icon,

combining the first icon and the second icon into a third icon, said third icon accessing both the first and second features, and

incorporating the third icon on the control panel to provide a modified control panel whereby the first and second features are concurrently enabled by the third icon.

5,726,884

INTEGRATED HAZARDOUS SUBSTANCE TRACKING AND COMPLIANCE

Douglas H. Sturgeon, San Mateo, and Anthony T. Sziklai, Half Moon Bay, both of Calif., assignors to Alternative Systems, Inc., Half Moon Bay, Calif.

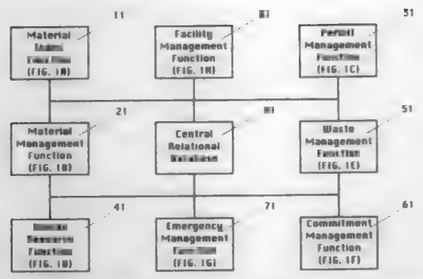
Continuation-in-part of Ser. No. 844,225, Mar. 2, 1992. This application May 2, 1994, Ser. No. 236,897

Int. Cl.[6] **G06F** *169/00*

U.S. Cl. 395—209 **31 Claims**

1. Apparatus for monitoring and tracking handling of hazardous substances at a regulated facility to promote compliance with applicable laws governing such substances, the apparatus comprising:

Hazardous Materials Index data means for constructing and recording a Chemical Profile for pure chemicals and mixtures thereof and a Material Safety Data Sheet containing information on physical and chemical properties, health and safety hazards, handling procedures, and emergency response procedures, for a hazardous substance used or produced at the



facility for which a Material Safety Data Sheet is required, and for maintaining a chemical location table containing an inventory of hazardous substances, including amounts and concentrations thereof and methods for handling such substances, that are present at a given time at each of a selected group of locations at a facility;

Hazardous Materials Management data means for receiving and recording information on arrival, storage and use of a hazardous substance at, and departure of a hazardous substance from, the facility, for determining whether a Material Safety Data Sheet exists for such substance and, if this Sheet is not yet available, for creating a commitment by the facility to acquire or prepare a Material Safety Data Sheet for such hazardous substance if such substance is received or produced at the facility, for tracking the movement and use of a hazardous substance at the facility, for maintaining and storing for at least one chemical process that occurs at the facility a process definition, including what mixtures, process by-products, waste by-products, chemical emissions and waste discharges are generated or consumed at at least one stage of such process, and for determining the amount of a hazardous substance stored at the facility at a given time;

Hazardous Permit Management data means for monitoring and recording applications, approvals, renewals and expirations of regulatory agency permits allowing the facility to store, use, emit or discharge specified hazardous substances, for tracking and recording facility chemical emissions and waste discharges and the results of detection and testing of specified hazardous substance emissions and discharges, for tracking and recording variations between actual emissions and discharges and permitted emissions and discharges, and for tracking and recording the results of source reduction measures, if any, implemented at the facility;

Human Resource Management data means for tracking and recording exposure of each worker at the facility to specified hazardous substances, for determining when, if at all, a worker has received a maximum permissible exposure to any of these specified hazardous substances at the facility, for tracking and recording any workplace control that is implemented to improve the health or safety of at least one employee at the facility, for tracking and recording reported work-related illnesses and injuries for at least one employee at the facility, and for tracking and recording work-related training received and to be received by each worker at the facility;

Hazardous Waste Management data means for tracking and recording selected waste management information concerning the facility, including production, accumulation, treatment and disposal of hazardous waste, for tracking and recording the changes, if any, in hazardous waste produced, based upon process modification, input material substitution, reformulation of an end product produced at the facility or modifications in inventory management implemented at the facility, for establishing and maintaining a Waste Profile on at least one hazardous substance that is produced as a by-product at the facility, for monitoring the length of time a hazardous waste has accumulated in a given waste container at the facility, for monitoring and recording the size, location, use, movement, treatment and disposal of a hazardous waste container at the facility, for creating a commitment, and recording completion of that commitment, to dispose of hazardous waste accumulated in a waste container when the length of time this waste has been accumulated in that container reaches a selected time interval, and for generating hazardous waste labels and Uniform Hazardous Waste Manifests to be used with a container containing hazardous waste that is to be disposed of away from the facility;

Hazardous Commitments Management data means for monitoring and recording hazardous substance compliance and reporting requirements, and the time requirements, if any, for such compliance, applicable to the facility, for advising the facility of safety inspections, examinations of safety equipment and equipment decontaminations to be performed periodically, and for monitoring creation of periodic hazardous substance reports for the facility;

Emergency Management data means (1) for identifying at least one person at a selected site with emergency responder training, and the level of emergency responder training of the person, required to respond to an unplanned release, or to a release of an amount above a permitted amount, of a hazardous substance, (2) for identifying equipment to be used to respond to an unplanned release, or release of an amount above a permitted amount, of a hazardous substance, (3) for identifying first response actions to be taken for at least one unplanned release, or to at least one release of an amount above a permitted amount, of a hazardous substance, (4) for tracking and reporting emergency response actions taken in response to any unplanned release, or release of an amount above a permitted amount, of a hazardous substance that actually occurs at the selected site, and for providing information on at least one of the following items: (5) problematical chemical or physical reactions that may occur in an unplanned release, or in a release above a permitted amount, of at least one hazardous substance, and actions taken to suppress at least one such problematical chemical or physical reaction; (6) emergency treatment to be given to a person exposed to a hazardous substance in an unplanned release, or in a release above a permitted amount, of at least one hazardous substance; (7) particular equipment that may be targeted in an unplanned release, or in a release above a permitted amount, of at least one hazardous substance; (8) notification and evacuation procedures that are to be followed for an unplanned release, or in a release above a permitted amount, of at least one hazardous substance at the selected site; (9) a mutual aid or coordinated response agreement, if any, and procedures for response at the selected site or at another site for an unplanned release, or in a release above a permitted amount, of at least one hazardous substance; (10) remedial, cleanup or decontamination procedures to be followed after an unplanned release, or in a release above a permitted amount, of at least one hazardous substance; and (11) procedures to be followed for notification of at least one regulatory agency after an unplanned release, or in a release above a permitted amount, of at least one hazardous substance; and

a database means, connected to each of the seven data means, for integrating these seven data means and for facilitating exchange of information between at least one of the following pairs of data means:

Hazardous Materials Index data means and Hazardous Materials Management data means;

Hazardous Materials Index data means and Hazardous Permit Management data means;

Hazardous Materials Index data means and Human Resource Management data means;

Hazardous Materials Index data means and Hazardous Waste Management data means;

Hazardous Materials Index data means and Hazardous Commitment Management data means;

Hazardous Materials Index data means and Emergency Management data means;

Hazardous Materials Management data means and Hazardous Permit Management data means;

Hazardous Materials Management data means and Human Resource Management data means;

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Hazardous Materials Management data means and Hazardous Waste Management data means;
Hazardous Materials Management data means and Hazardous Commitment Management data means;
Hazardous Materials Management data means and Emergency Management data means;
Hazardous Permit Management data means and Hazardous Waste Management data means;
Hazardous Permit Management data means and Hazardous Commitment Management data means;
Hazardous Permit Management data means and Emergency Management data means;
Human Resource Management data means and Hazardous Waste Management data means;
Human Resource Management data means and Hazardous Commitment Management data means;
Human Resource Management data means and Emergency Management data means;
Hazardous Waste Management data means and Hazardous Commitment Management data means;
Hazardous Waste Management data means and Emergency Management data means; and
Hazardous Commitment Management data means and Emergency Management data means.

5,726,885

HIRE VEHICLE TRANSPORTATION SYSTEM

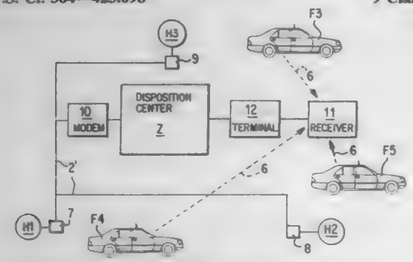
Konrad Klein, Ostfildern, and Günter Metsch, Möglingen, both of Germany, assignors to Daimler-Benz AG, Germany

Filed Aug. 23, 1995, Ser. No. 518,420

Claims priority, application Germany, Aug. 23, 1994, 44 29 852.8

Int. Cl.[6] **G06F** *19/00*

U.S. Cl. 364—423.098 **9 Claims**



1. A hire vehicle transportation system comprising:

a pool of vehicles which are available for hire;

at least one collection and return point at which the vehicles are issued and taken back;

an automatic collection and return device at each of said at least one collection and return point, for receiving and checking proof of user identity of a prospective user, issuing a driving authorization unit for a vehicle parked there in response to a positive authorization check, and receiving the driving authorization unit for vehicles returned there; and

a disposition center which has a communication link with each automatic collection and return device, for transmitting at least issuing and return times;

wherein said disposition center comprises a disposition computer which is programmed to test user authorization based on user identity data supplied to it by the automatic collection and return device, evaluate individual availability of vehicles at the at least one collection and return point taking into account vehicle-specified rental information supplied to it by the automatic collection and return device, and receive vehicle reservation requests;

wherein, to make a reservation, the disposition computer assigns a selected vehicle, which is available at a desired starting collection and return point, specifically to an authorizing identity of a reserving user until the time when the journey is to begin; and

wherein, after a successful user authorization check of an authorized user, the disposition computer outputs an instruction signal to a corresponding automatic collection and return device to issue a driving authorization unit for the vehicle reserved for the authorized user or, in the absence of a reservation, for a vehicle not yet reserved.

5,726,886

MOVING OBJECT CONTROLLER CONTAINING A DIFFERENTIAL OF ACCELERATION MEASURER

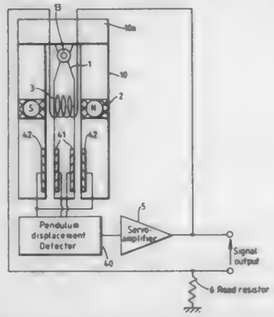
Makoto Yamakado, Ibaraki, and Yuzo Kadomukai, Ishioka, both of Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Filed Feb. 17, 1993, Ser. No. 18,507

Claims priority, application Japan, Feb. 17, 1992, 4-029158

Int. Cl.[6] **H01H** *35/14*

U.S. Cl. 364—424.1 **11 Claims**



1. An acceleration differential sensor for directly detecting differential of acceleration comprising:

electromagnetic force generating means having a coil and a magnet;

a movable member driven by said electromagnetic force generating means;

displacement detecting means for detecting the displacement of said movable member;

current supply means for supplying current to said coil of said electromagnetic force generating means on the basis of output of said displacement detection means so that said movable member is positioned at a reference position; and

voltage detecting means for detecting the voltage of said coil produced by said current to position the movable member at said reference position, wherein said voltage directly corresponds to the differential of acceleration.

5,726,887

TEST PROCEDURE FOR A SAFETY SYSTEM IN A MOTOR VEHICLE

Hans Spies, Pfaffenhofen, Germany, and Günter Fendt, Schrobenhausen, Germany, assignors to Temic Telefunken Microelectronic GmbH, Heilbronn, Germany

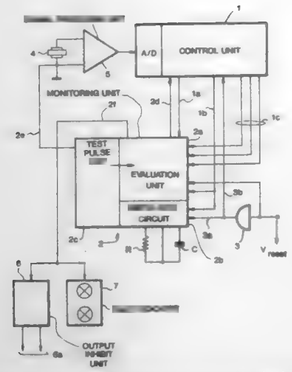
Filed Jul. 6, 1995, Ser. No. 498,833

Claims priority, application Germany, Jul. 8, 1994, 44 24 020.1

Int. Cl.[6] **B60R** *21/32*

U.S. Cl. 364—424.034 **11 Claims**

1. A test procedure for a motor vehicle safety system which includes a sensor, a signal processing unit connected to the sensor for conditioning a signal from the sensor, a restraint device, trigger means for triggering the restraint device, and control unit means for evaluating a signal from the signal processing unit to determine



whether trigger criteria for triggering the restraint device have been met, said test procedure comprising the steps of:

(a) switching the safety system on;

(b) emitting a sequence of test pulses from a monitoring unit after the safety system has been switched on, at least one test pulse of the sequence having a duration that is different from at least one other test pulse of the sequence;

(c) feeding the test pulses to the signal processing unit;

(d) using the control unit means to generate an evaluation result from the test pulses;

(e) feeding the evaluation result to the monitoring unit;

(f) checking the evaluation result for accuracy in the monitoring unit; and

(g) actuating or inhibiting the trigger means depending on the accuracy check conducted in step (f).

5,726,888

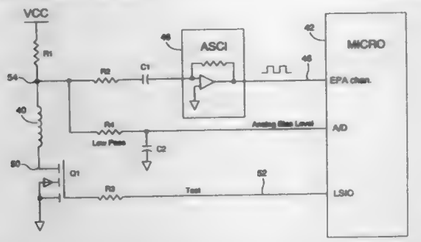
METHOD AND SYSTEM FOR TESTING A WHEEL SPEED SENSOR INPUT CIRCUIT IN AN ABS AND/OR TC SYSTEM

Edward R. Hornback, Dexter, Mich., assignor to Kelsey-Hayes Company, Livonia, Mich.

Division of Ser. No. 388,556, Feb. 14, 1995, Pat. No. 5,633,797. This application Dec. 20, 1996, Ser. No. 772,176

Int. Cl.[6] **G06F** *11/00*

U.S. Cl. 364—424.039 **4 Claims**



3. A system for testing a wheel speed sensor input circuit including a filter circuit having an output and a time constant in an ABS and/or TC system, the system comprising:

a) means for generating a test signal;

b) means for coupling the test signal to the input circuit to cause the output of the input circuit to change;

c) means for reading the output of the input circuit:

i) immediately before the test signal is coupled to the input circuit to obtain a first reference signal,

ii) after the test signal is coupled to the input circuit but before the output changes to obtain a second reference signal, and

iii) after a predetermined time after the test signal is coupled to the input circuit to obtain a third reference signal, the predetermined time being a function of the time constant; and

d) means for determining if the filter circuit is operating correctly based on the first, second and third reference signals.

5,726,889

AUTOMATIC TRANSMISSION WITH REDUCED TIME FOR HOOKED GEAR CHANGE

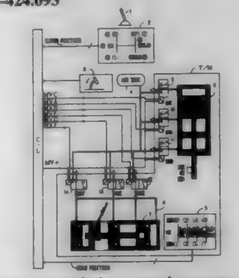
Takumi Shinojima; Yuki Sasa, and Shigemori Onuki, all of Kawasaki, Japan, assignors to Isuzu Motors Limited, Tokyo, Japan

Filed Apr. 26, 1995, Ser. No. 429,131

Claims priority, application Japan, May 11, 1994, 6-097145

Int. Cl.[6] **G06G** *7/70*; **B60K** *44/04*

U.S. Cl. 364—424.093 **6 Claims**



1. An automatic transmission control apparatus comprising:

gearshift means for making an up-shift or a down-shift of a single step by a single operation;

first detecting means for detecting a position of said gearshift means;

second detecting means for detecting a shifting position and a selecting position of a gear; and,

control means for performing a shifting control of said gear to a neutral position if a gear changing operation of said gearshift means is determined to be a hooked type on the basis of a present position of said gearshift means when operated and the last shifting and selecting positions of said gear, subsequently for performing a selection control without recognizing from an output of said second detecting means whether or not the shifting position of said gear is neutral, and subsequently for performing the next shifting control after recognizing from the output of said second detecting means that said selection control has been completed in the neutral position.

5,726,890

CONTROL APPARATUS FOR ELECTRIC VEHICLE

Yuusuke Takamoto, Hitachi, Japan; Ryoso Masaki, Hitachi, Japan; Sanshiro Obara, Tokai-mura, Japan, and Satoru Kaneko, Hitachi, Japan, assignors to Hitachi, Ltd., Japan

Continuation of Ser. No. 33,742, Mar. 19, 1993, Pat. No. 5,467,275. This application Sep. 6, 1995, Ser. No. 523,934

Claims priority, application Japan, Mar. 19, 1992, 4-63143

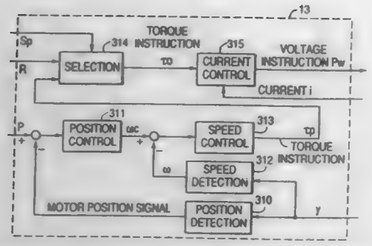
Int. Cl.[6] **B60L** *15/34*

U.S. Cl. 364—426.01 **11 Claims**

1. Method of controlling operation of a vehicle propelled by a motor, comprising the steps of:

sensing a stop position of said vehicle where said vehicle comes to a stop; and

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maintaining the vehicle in said stop position by controlling torque of said motor.

5,726,891

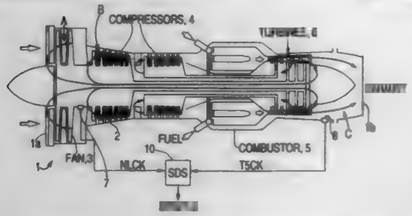
SURGE DETECTION SYSTEM USING ENGINE SIGNATURE

Patterson B. Sisson, 29 Edward St., West Haven, Conn. 06516, and James V. Petrizzi, 66 Hayes Rd., Tariffville, Conn. 06081

Filed Jan. 26, 1994, Ser. No. 187,661

Int. Cl.[6] G06G *7/70*

U.S. Cl. 364—431.02 **21 Claims**



1. A method of detecting an occurrence of a surge in a gas turbine engine, comprising the steps of:

during individual ones of a plurality of consecutively occurring time periods during an operation of a gas turbine engine,

operating a first transducer to generate a first electrical signal for representing a first engine operating characteristic; processing the first electrical signal to obtain a derivative of the first engine operating characteristic;

operating a second transducer to generate a second electrical signal for representing a second engine operating characteristic;

processing the second electrical signal to obtain a derivative of the second engine operating characteristic;

comparing the derivative of the first engine operating characteristic to a first threshold value;

comparing the derivative of the second engine operating characteristic to a second threshold value;

incrementing a counter by a predetermined value only if the derivative of the first engine operating characteristic exceeds the first threshold value and if the derivative of the second engine operating characteristic exceeds the second threshold value; else, if at least one of the first and second threshold values is not exceeded,

decrementing the counter by the predetermined value; and

generating an output electrical signal for indicating an occurrence of a surge condition only if a value of the counter is equal to a predetermined value.

5,726,892

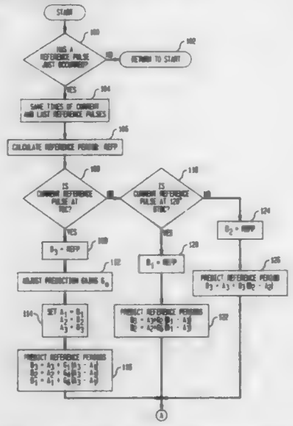
ENGINE SPEED PREDICTION METHOD FOR ENGINE CONTROL

Dah-Lain Tang, Canton, Mich., and Man-Feng Chang, Troy, Mich., assignors to General Motors Corporation, Detroit, Mich.

Filed Jul. 22, 1991, Ser. No. 733,565

Int. Cl.[6] F02P *5/15*

U.S. Cl. 364—431.07 **6 Claims**



1. A method of predicting engine speed of an internal combustion engine having a plurality of cylinders comprising the steps of:

generating a plurality of crankshaft position reference pulses for each cylinder event to thereby define a plurality of reference periods for each cylinder event;

measuring reference periods between adjacent ones of said reference pulses;

determining a trend of reference period change by comparing the most recent reference period with an earlier period;

projecting a future reference period at least one period beyond the current period by selecting a measured reference period from the most recently completed cylinder event as a base period, the base period having the same position in its cylinder event as the future reference period occupies in its respective cylinder event, determining a gain factor, and calculating the future reference period from the base period as adjusted by the product of the reference period change and the gain factor.

5,726,893

CELLULAR TELEPHONE WITH VOICE-IN-DATA MODEM

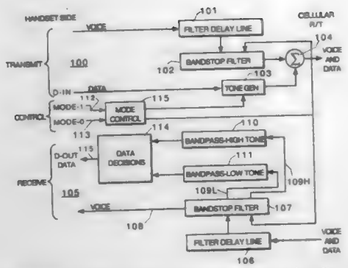
Leonard Schuchman, Potomac, Md.; Ronald Bruno, Arlington, Va., and Charles Moses, Catonsville, Md., assignors to Stanford Telecommunications, Inc., Reston, Va.

Continuation of Ser. No. 079,810, Jun. 22, 1993, abandoned, which is a continuation-in-part of Ser. No. 992,892, Dec. 17, 1992, Pat. No. 5,365,450. This application Nov. 23, 1994, Ser. No. 348,081

Int. Cl.[6] G06G *7/78;* **G01S** *3/02;* **H03C** *1/00*

U.S. Cl. 364—449.7 **6 Claims**

6. A modem for use in a subscriber telephone in a cellular telephone system having one or more cell sites servicing a plurality of subscriber telephones with data utilization devices, said modem comprising transmit and receive channels, said receive channel comprising a first filter delay line to receive voice and data signals, a first bandstop filter for transmitting a voice input to said subscriber telephones and data signals to said data utilization devices, respectively; said transmit channel having a second filter delay line connected to receive voice signals from said cellular telephone, a



second bandstop filter connected to said filter delay line for providing a frequency notch in said voice signals from said cellular phones; an interface for receiving; of binary data from a source of G.P.S. data; and means for converting to binary data from said source of binary data to tone signals and for transmitting said tone signals within said frequency notch and; control means for converting for selectively controlling said first and second bandstop filters to allow data to be transmitted and received in said transmit and receive channels, respectively.

5,726,894

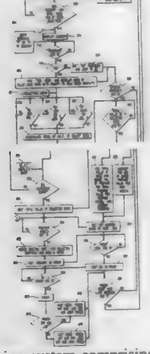
POSTAGE METERING SYSTEM INCLUDING MEANS FOR SELECTING POSTAL PROCESSING SERVICES FOR A SHEET AND DIGITALLY PRINTING THEREON POSTAL INFORMATION PERTAINING TO EACH SELECTED POSTAL PROCESSING SERVICE

Ronald P. Sansone, Weston, Conn., assignor to Pitney Bowes Inc., Stamford, Conn.

Filed Dec. 21, 1995, Ser. No. 576,660

Int. Cl.[6] G07B *17/00*

U.S. Cl. 364—464.18 **18 Claims**



1. A postage metering system comprising:

(a) means for storing first postal information including a fixed portion of a postage indicia, the postage indicia including a variable portion thereof;

(b) means for storing second postal information including a plurality of portions thereof respectively corresponding to a different one of a plurality of postal processing services for a sheet;

(c) means for selectively providing at least one of the plurality of postal processing services for the sheet; and

(d) means for digitally printing a graphical image on the sheet the first postal information and the variable portion of the postage indicia and each portion of the second postal information which corresponds to different selected postal processing service.

5,726,895

COMBINED TWO COMPUTER SYSTEM

Tatsuro Kumakura, Gotenba, and Hideyuki Hirohama, Oshino-mura, both of Japan, assignors to Fanuc Ltd., Yamanashi, Japan

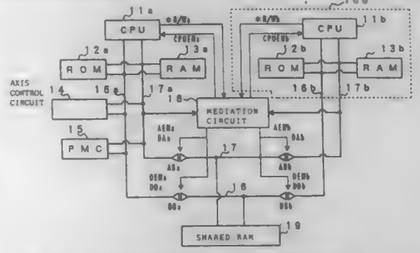
PCT No. PCT/JP94/00659, § 371 Date Dec. 15, 1994, § 102(e) Date Dec. 15, 1994, PCT Pub. No. WO94/25908, PCT Pub. Date Nov. 10, 1994

PCT Filed Apr. 21, 1994, Ser. No. 351,419

Claims priority, application Japan, Apr. 28, 1993, 5-123244

Int. Cl.[6] G06F *15/00*

U.S. Cl. 364—474.11 **7 Claims**



4. Combined two computer systems comprising:

a first computer system having a processor, a memory, a data bus and an address bus;

a second computer system having a processor, a memory, a data bus and an address bus;

first and second bidirectional address buffers to connect said address buses of said first and second computer systems;

first and second bidirectional data buffers to connect said data buses of said first and second computer systems;

a shared RAM connected to a third address bus and branching from said third address bus to connect said first and second bidirectional address buffers, and connected to a third data bus and branching from said third data bus to connect said first and second bidirectional data buffers;

first address buffer switching means for connecting said first bidirectional address buffer to either said second bidirectional address buffer or said shared RAM in response to a first input signal;

second address buffer switching means for connecting said second bidirectional address buffer to either said first bidirectional address buffer or said shared RAM in response to a second input signal;

first data buffer switching means for connecting said first bidirectional data buffer to either said second bidirectional data buffer or said shared RAM in response to a third input signal;

second data buffer switching means for connecting said second bidirectional data buffer to either said first bidirectional data buffer or said shared RAM in response to a fourth input signal;

first and second processor operation control means for setting the processors of said first and second computer systems operative or inoperative in response to a fifth input signal; and

a mediation circuit to monitor addresses outputted from the processors of said first and second computer system, to judge which of devices of said first and second computer systems or said shared RAM is accessed by the processor of said first or second computer system in response to a read/write signal supplied from either of the processors of said first and second computer systems, to output signals to said first or second processor operation control means, said first or second address buffer switching means and said first and second data buffer switching means on the basis of the judgement, and to give direction signals to said first and second bidirectional address buffers and said first and second bidirectional data buffers to set a flow direction of a signal from one to the other, thereby enabling said first computer system to write information into the devices of said second computer system or said shared RAM vin said first bidirectional data buffer or to read information stored in the devices of said second computer

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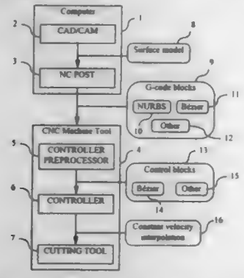
system or said shared RAM, or, alternatively, enabling said second computer system to write information into the devices of said first computer system or said shared RAM via said second bidirectional data buffer or to read information stored in the devices of said first computer system or said shared RAM.

5,726,896

METHOD AND SYSTEM FOR SPLINE INTERPOLATION, AND THEIR USE IN CNC

Ji Jia; Elaine Cohen; Samuel H. Drake, and Russell D. Fish, all of Salt Lake City, Utah, assignors to University of Utah Research Foundation, Salt Lake City, Utah

Filed Aug. 29, 1996, Ser. No. 705,194
Int. Cl.[6] G06F *19/00*; G06G *7/66*
U.S. Cl. 364—474.29 **18 Claims**



1. A method for controlling the movement of a cutting tool on a numerically-controlled device, running on a digital computer controlling said cutting tool, said method comprising:

inputting to said digital computer:

a plurality of codes defining a NURBS curve through which said cutter head will travel, said codes comprising:

codes to specify an initial position of said cutting tool,

codes to specify the order of said NURBS curve, codes to specify the number of control points in the control polygon of said NURBS curve,

codes to specify the knot vector of said NURBS curve,

and codes to define other positions defining said control polygon of said NURBS curve through which said cutting tool will travel;

and a code specifying a desired feed rate;

determining a curve length distance from said codes defining said NURBS curve through which said cutting tool will travel;

determining an initial curve length step size from said desired feed rate and a value which represents the amount of time required to compute one step;

determining a parametric step size with a node-based approximation of the derivative at said initial position on said NURBS curve through which said cutting tool will travel;

determining distance traveled in step to be the euclidean distance traveled during said parametric step size;

determining curve length difference to be the difference between said initial curve length step size and said distance traveled in step;

modifying said parametric step sized based on an error measure of said curve length difference;

computing a distance left for said cutting tool to travel for said cutting tool;

determining an output position by evaluation of the parametric equations defined by said order, knot vector, and control points for said NURBS curve where a next parameter t is the sum of the current value of t and said parametric step size;

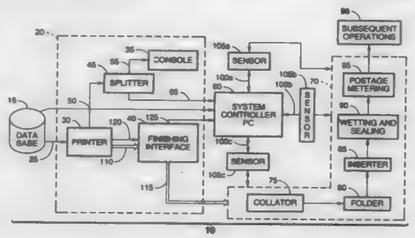
and moving said cutting tool in accordance with said output positions.

5,726,897

MAIL ASSEMBLY SYSTEM AND METHOD

Christian E. Tammi, El Dorado Hills, Calif.; Daniel M. Saldana, Rancho Cordova, Calif., and Marc J. Fagan, Davis, Calif., assignors to United States Computer Services, Sacramento, Calif.

Filed Jul. 17, 1996, Ser. No. 682,367
Int. Cl.[6] G06F *19/00*
U.S. Cl. 364—478.09 **41 Claims**



1. A mail assembly system, comprising:

a) means for storing data, said data storage means having stored data records for a plurality of mailing pieces, said data records including statement print data for a plurality of mail statements, said data records including non-printable post processing data for said each of said mailing pieces, said post processing data embedded within said statement print data;

(b) means for retrieving said embedded post processing data from said statement print data in said data records;

(c) means for matching a plurality of printed statements with said post processing data retrieved by said retrieving means; and

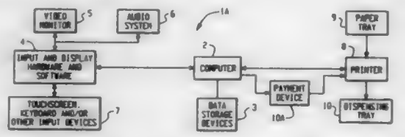
(d) computer means for system control, said computer means interfaced with said retrieving means, said computer means interfaced with said data storage means, said computer means interfaced with said matching means.

5,726,898

METHOD AND APPARATUS FOR STORING AND SELECTIVELY RETRIEVING AND DELIVERING PRODUCT DATA BASED ON EMBEDDED EXPERT JUDGEMENTS

Herbert H. Jacobs, LaJolla, Calif., assignor to American Greetings Corporation, Cleveland, Ohio

Filed Sep. 1, 1994, Ser. No. 299,499
Int. Cl.[6] G05B *19/18*
U.S. Cl. 364—479.01 **61 Claims**



1. A method of storing and selectively retrieving and delivering product data, comprising the steps of:

(a) storing product data files relating to a plurality of products in a data storage device;

(b) storing a plurality of customer data entry sets in a data storage device, each customer data entry set indicating an allowable combination of criteria for a product desired by a customer;

(c) storing a plurality of product lists in a data storage device and referencing on each product list the product data stored in step (a) above that relates to products having one or more common applications, wherein the storing and referencing steps include the steps of:

(c)(1) identifying each product on the product lists with a priority rating indicative of an expert judgment of the suitability of the product for the one or more common applications;

(c)(2) identifying at least one of the products on the product list with one or more suitability codes indicative of the desirability of retrieving and displaying data relating to the product in a particular circumstance;

(c)(3) converting by an algorithm the one or more suitability codes to a priority rating operator; and

(c)(4) applying the priority rating operator to the priority rating of each product to obtain a modified priority rating;

(d) connecting the product lists to the customer data entry sets, at least one product list being connected to a plurality of customer data entry sets and corresponding to the customer data entry sets with different degrees of specificity or applicability;

(e) requesting a customer to indicate criteria relating to a desired product;

(f) receiving the criteria indicated by the customer;

(g) selecting the customer data entry set or sets that best correspond to the criteria received in step (f);

(h) retrieving from the data storage device the product lists connected to the customer data entry set or sets selected in step (g);

(i) retrieving and displaying product data from the product data files relating to the groups of products referenced on the product lists retrieved in step (h), wherein the retrieving and displaying step includes searching through the customer data entry set and product list files, and retrieving the product data based on the product list file references, without having to search through the data files stored in the data storage device in order to determine which ones correspond to the criteria received in step (f);

(j) requesting the customer to select one of the products whose data is displayed in step (i);

(k) receiving the customer's selection of a product; and

(l) delivering the product or data relating to the product selected in step (k).

5,726,899

METHOD OF INDICATING FAT CONTENT OF A FOOD PRODUCT

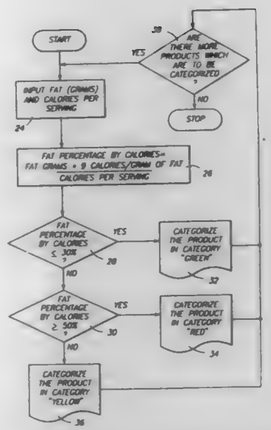
Karen Ferguson, 17012 Triple Butte Cir., Colbert, Wash. 99005, and David Rice, Spokane, Wash., assignors to Karen Ferguson, Colbert, Wash.

Filed Aug. 10, 1995, Ser. No. 513,444
Int. Cl.[6] G06F *17/60*
U.S. Cl. 364—479.01 **3 Claims**

1. A method of indicating fat content of a food product, the method comprising:

providing a corporate headquarters mainframe computer having a computer program that associates Universal Product Code information with the product, that receives as inputs fat grams and calories per serving for a product, that determines fat percentage by calories for the product, that categorizes the product in a first category if the determined fat percentage by calories is greater than or equal to 50 percent, a second category if the determined fat percentage by calories is between 31 and 49 percent, and a third category if the determined fat percentage by calories is less than or equal to 30 percent, and that associates the category for the product with the Universal Product Code for the product;

providing a plurality of store computers, and a plurality of store printers respectively connected to the store computers, in locations separate from the corporate headquarters computer, the store computers respectively having a label creating computer program for causing the printer to print Universal Product Code tags, and for causing the printer to print onto labels, the label creating computer program further being configured to perform a logical test to determine if a field has data not equal to a certain value;



customizing the respective label creating computer programs so that respective solid black squares are printed in first and second locations if the product belongs in the third category, respective solid black squares are printed in the first location and a third location if the product belongs in the second category, and respective solid black squares are printed in the second and third locations if the product belongs in the first category, the first, second, and third locations being spaced apart from one another and being located in a row;

inputting pricing and nutritional information into the corporate headquarters computer for a product, the nutritional information including separate entries including an entry for fat grams, and an entry for calories per serving;

determining, using the corporate headquarters computer, whether the product falls into the first, second, or third of the categories;

causing the corporate headquarters computer to initiate communications with respective store computers, remote from the corporate headquarters computer, using a dial-up modem connection;

transmitting from the corporate headquarters computer to the store computers Universal Product Code information for the product and the category for the product identified by the Universal Product Code;

providing respective tags having thereon red, yellow, and green indicia in a traffic light sequence; and

orienting the tags in respective store printers, and causing the store computers to execute the label program, wherein solid black squares are printed over the red indicia and the yellow indicia if the product belongs in the third category, wherein solid black squares are printed over the red indicia and the green indicia if the product belongs in the second category, and wherein solid black squares are printed over the yellow indicia and the green indicia if the product belongs in the third category.

5,726,900

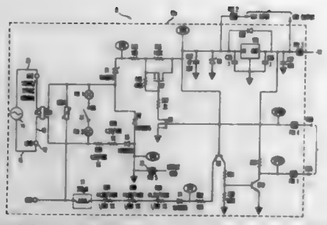
GROUND DETECTION CIRCUIT FOR A THREE WIRE POWER SUPPLY

Mark Richard Walter, Bridgeport, Conn.; David Philip Eckel, Wetherfield, Conn., and Thomas James Batko, Wallingford, Conn., assignors to Hubbell Incorporated, Orange, Conn.

Continuation-in-part of Ser. No. 412,502, Mar. 29, 1995, which is a continuation of Ser. No. 382,691, Feb. 2, 1995, abandoned. This application Nov. 8, 1995, Ser. No. 554,377
Int. Cl.[6] H02H *3/16*
U.S. Cl. 364—483 **18 Claims**

1. An apparatus for monitoring a ground connection in a three wire power supply circuit which selectively connects and discon-

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nects a load from an alternating current power source having line, neutral and ground conductors, said ground connection monitoring apparatus comprising:

generating means for generating an output signal;

control means connected between said line conductor and said ground conductor and connected to said generating means, said control means being configured to operate said generating means to generate said output signal when current flows between said line conductor and said ground conductor and to interrupt operation of said generating means when current does not flow between said line conductor and said ground conductor; and

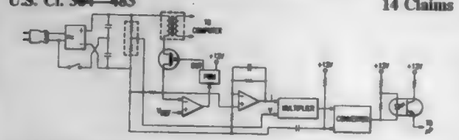
indicating means connected to at least one of said control means and said generating means and operable in response to said output signal to indicate at least one of the presence and the absence of current flow in said ground conductor.

5,726,901

SYSTEM FOR REPORTING COMPUTER ENERGY CONSUMPTION

Alan E. Brown, Georgetown, Tex., assignor to Dell USA, L.P., Austin, Tex.

Filed Jan. 25, 1996, Ser. No. 591,782
Int. Cl.[6] G01R *21/00*
U.S. Cl. 364—483 **14 Claims**



12. In a computer system connected for receiving power from a switching power supply controlled by a pulse width of pulses output at a substantially constant frequency by a pulse width modulator (PWM), wherein the power supply receives power through power supply lines, a circuit for determining and reporting a quantity of energy consumed by the computer system, the circuit comprising:

means for sensing a voltage across the power supply lines and generating a voltage signal indicative of the sensed voltage;

a frequency modulator operable for altering a frequency at which the PWM generates pulses;

means connected to the output of the PWM for sensing a width of pulses output therefrom and for generating a current signal from the sensed pulse widths indicative of an amount of current passing through the power supply lines;

a timer device having a capacitor that is charged at a rate proportional to the voltage level of the current and voltage signals until a first predetermined charge level is attained, at which point the capacitor is discharged to generate a series of primary signal pulses at a frequency proportional to the received voltage and current signals, wherein each primary signal pulse represents the consumption by the computer system of a predetermined quantity of energy; and

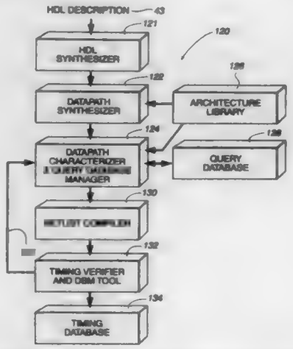
means responsive to generation of a primary signal pulse for generating to the microprocessor a secondary signal pulse indicating that the predetermined quantity of energy has been consumed, the means for generating a secondary signal pulse including a phase lock loop (PLL) circuit responsive to a change in the frequency of pulses generated by the PWM.

5,726,902

METHOD AND APPARATUS FOR CHARACTERIZING TIMING BEHAVIOR OF DATAPATHS FOR INTEGRATED CIRCUIT DESIGN AND FABRICATION

Mossaddeq Mahmood, San Jose; Mandalagiri Chandrasekhar, Cupertino, both of Calif.; Arnold Ginetti, Antibe, France, and Balmukund K. Sharma, Santa Clara, Calif., assignors to VLSI Technology, Inc., San Jose, Calif.

Filed Jun. 7, 1995, Ser. No. 482,267
Int. Cl.[6] G06F *17/50*
U.S. Cl. 364—489 **37 Claims**



1. A method for fabricating an integrated circuit, the method comprising the steps of:

developing a set of circuit specifications for an integrated circuit;

encoding said set of circuit specifications in a hardware description language description and inputting said hardware description language description into a digital computer;

providing a datapath library including datapath cells, each of said datapath cells comprising a plurality of primitive cells;

synthesizing from said hardware description language description and on said computer a netlist including said datapath cells of said datapath library;

resynthesizing and optimizing said netlist according to timing information describing timing characteristics of an alternative datapath cell that replaces one of said datapath cells in said netlist;

fabricating an integrated circuit as specified by said resynthesized netlist.

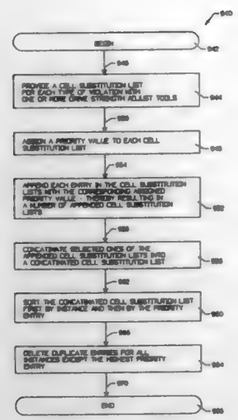
5,726,903

METHOD AND APPARATUS FOR RESOLVING CONFLICTS BETWEEN CELL SUBSTITUTION RECOMMENDATIONS PROVIDED BY A DRIVE STRENGTH ADJUST TOOL

Joseph P. Kerzman, New Brighton, and Douglas A. Fuller, Eagan, both of Minn., assignors to Unisys Corporation, Blue Bell, Pa.

Filed Feb. 7, 1996, Ser. No. 597,931
Int. Cl.[6] G06F *17/50*
U.S. Cl. 364—489 **57 Claims**

1. A data processing system for resolving conflicts between conflicting component substitution recommendations provided by a drive strength adjust tool, the drive strength adjust tool operating on a circuit design wherein the circuit design is represented in a circuit design database including a number of components selected from a component library, selected components of the component



library having at least one corresponding logically equivalent component with a different drive strength, the drive strength adjust tool providing a first recommendation to substitute a first component within the circuit design database with a corresponding logically equivalent component having a first drive strength, and also providing a second recommendation for substituting the first component with a corresponding logically equivalent component having a second drive strength thereby resulting in a conflict, the data processing system comprising:

a. resolving means for resolving the conflict; and

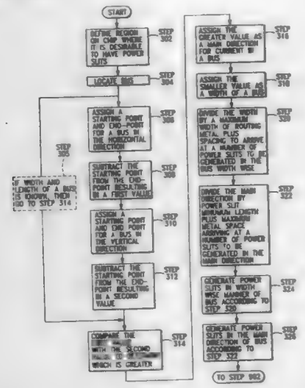
b. providing means coupled to said resolving means for providing a resolved component substitution recommendation.

5,726,904

POWER BUS HAVING POWER SLITS EMBODIED THEREIN AND METHOD FOR MAKING THE SAME

Chong Ming Lin, Sunnyvale, Calif.; Tatao Chuang, San Jose, Calif.; Tran Long, San Jose, Calif., and Hy Hoang, San Jose, Calif., assignors to Seiko Epson Corporation, Tokyo, Japan

Continuation of Ser. No. 455,133, May 31, 1995, Pat. No. 5,561,789, which is a continuation of Ser. No. 289,278, Aug. 11, 1994, Pat. No. 5,461,578, which is a continuation of Ser. No. 833,419, Feb. 10, 1992, Pat. No. 5,345,394. This application Jun. 19, 1996, Ser. No. 665,846
Int. Cl.[6] G06F *15/00*
U.S. Cl. 364—491 **16 Claims**



1. A method for generating power slits in a power bus located on a chip, comprising the steps of:

(a) receiving parameters indicating coordinate value locations for the chip;

(b) locating the power bus in a defined region of the chip;

(c) determining a width for the power bus;

(d) determining a length for the power bus;

(e) dividing said width of the power bus by a predetermined maximum width of the power slits plus a predetermined first spacing distance between the power slits to determine a first number of power slits to be generated in a horizontal direction of the power bus;

(f) dividing said length of the power bus by a predetermined minimum length of the power slits plus a predetermined second spacing distance between the power slits in the lengthwise direction to determine a second number of power slits to be generated in a vertical direction of the power bus; and

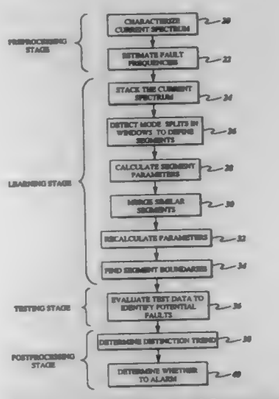
(g) pre-etching the power slits in said horizontal and vertical directions of the power bus according to said first and second numbers of power slits calculated in steps (e) and (f), respectively.

5,726,905

ADAPTIVE, ON LINE, STATISTICAL METHOD AND APPARATUS FOR MOTOR BEARING FAULT DETECTION BY PASSIVE MOTOR CURRENT MONITORING

Birsen Yazici, Clifton Park, N.Y., and Gerald Burt Kliman, Niskayuna, N.Y., assignors to General Electric Company, Schenectady, N.Y.

Filed Sep. 27, 1995, Ser. No. 534,530
Int. Cl.[6] G01R *23/00;* **G05B** *13/00*
U.S. Cl. 364—492 **16 Claims**



1. An adaptive, on line, statistical method for motor fault detection by passive motor current monitoring comprising the steps of:

sensing a motor current signal during a learning stage;

transforming the motor current signal into a time-frequency spectrum;

dividing the time-frequency spectrum into a plurality of statistically homogeneous segments representative of good operating modes to characterize time variations of the frequency components in the time-frequency spectrum;

estimating a representative statistical parameter of each segment;

determining a respective statistical boundary of each segment;

monitoring the motor current signal during a test stage to obtain test data, the test stage occurring after the learning stage;

comparing the test data with the representative statistical parameter and the respective statistical boundary of each respective segment to detect the presence of a fault in a motor.

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5,726,906

METHOD OF DETERMINING THE PORTION OF AN ELECTROCHEMICALLY CONVERTIBLE SUBSTANCE IN A GAS SAMPLE

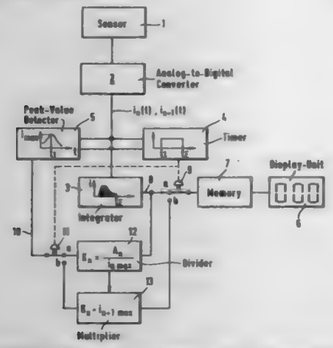
Hans Matthiessen, Bad Schwartau, Germany, and Gero Sagasser, Bad Schwartau, Germany, assignors to Drägerwerk Aktiengesellschaft, Lübeck, Germany

Filed Nov. 17, 1995, Ser. No. 560,486

Claims priority, application Germany, Nov. 19, 1994, 44 41 205.3

Int. Cl.[6] **G06G** *7/19*

U.S. Cl. 364—497 **2 Claims**



1. A method of determining the portion of an electrochemically detectable substance in a gas sample, the method comprising the steps of:

introducing the gas sample into an electrochemical measuring cell wherein the substance is electrochemically converted to make a (n)-th measurement;

generating a (n)-th measurement curve i(t) from the electrochemical conversion with said (n)-th measurement curve i(t) increasing from a reference line to a (n)-th maximum value $i_{n\ max}$ and then falling off to said reference line;

determining said (n)-th maximum value $i_{n\ max}$ and an area A_n below said (n)-th measurement curve i(t) which is proportional to the portion of said substance in said gas sample;

comparing said (n)-th maximum value $i_{n\ max}$ to said area A_n;

determining a proportionality factor K_n giving the ratio of said area A_n to said maximum value $i_{n\ max}$ as $K_n=A_n/i_{n\ max}$;

making a new n+1)-th measurement by generating a new (n+1)-th measurement curve and determining a new (n+1)-th maximum value $i_{n+1\ max}$; and,

computing said portion of said substance of said gas sample for said new measurement from said new (n+1)-th maximum value $i_{n+1\ max}$ and said proportionality factor K_n of said (n)-th measurement.

5,726,907

BIAXIAL NON-CONTACTING STRAIN MEASUREMENT USING MACHINE VISION

David L. Davidson, and Steven B. Seida, both of San Antonio, Tex., assignors to Southwest Research Institute, San Antonio, Tex.

Filed Jul. 31, 1995, Ser. No. 509,659

Int. Cl.[6] **G01B** *11/16*

U.S. Cl. 364—508 **20 Claims**

1. A real-time method of measuring strain in a material under test, as indicated by deformation of the surface of the material, comprising the steps of:

performing image acquisition by acquiring a digital reference image of said surface; storing said reference image in a computer; applying a load to said material, as determined by a load value, such that said load deforms said surface at said test area; acquiring a digital measurement image of said surface; storing said measurement image in said computer;

performing data processing by placing said reference image and said measurement image in a coordinate system having a reference point; designating a first test point having a surrounding test area on said reference image; locating said first test point on said measurement image by matching at least one feature in said test area with features on said measurement image, wherein said locating step is performed with a computer programmed to perform a cross-correlation process on data representing said reference image and said measurement image; measuring a displacement value by measuring the distance between said test point and said reference point on said reference image, measuring the distance between said test point and said reference point on said measurement image, and calculating the difference between said distances; repeating said designating, locating, and measuring steps for a number of test points, thereby obtaining a displacement value associated with each test point; using said displacement values to determine a strain value representing strain caused by said applying step; and

performing feedback control by repeating said applying step and all subsequent steps for a new load value, using said strain value to determine said new load value, and thereby acquiring a new measurement image and a new strain value;

wherein said image acquisition, processing, and control steps occur in real time.

5,726,908

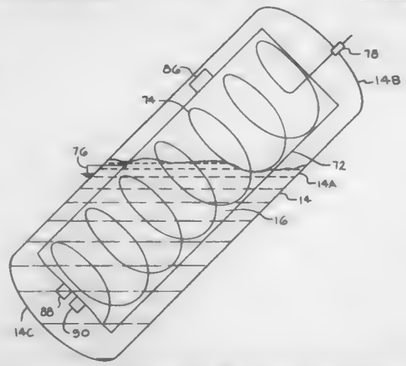
LIQUID QUANTITY SENSOR AND METHOD

Thomas Prince Hosmer, Concord; Izrail Tsals, Sudbury; Wendy Power, Westford, and Michael A. Reed, Chelmsford, all of Mass., assignors to Figgie International Inc., Willoughby, Ohio

Filed Mar. 20, 1995, Ser. No. 406,696

Int. Cl.[6] **G01F** *23/26*

U.S. Cl. 364—509 **24 Claims**



1. An apparatus for detecting a liquid quantity within a container means independent of the spatial orientation and physical motions acting on the container means, wherein the container means comprises an enclosed, surrounding side wall, which comprises:

a. a first conductor means provided by the surrounding side wall of the container means;

b. a second conductor means provided inside the container means in a proximately spaced and parallel relationship with respect to the surrounding side wall providing the first conductor means to provide a capacitor means, the liquid therein serving as a dielectric for the capacitor means independent of the spatial orientation of the container means;

c. a current generator means electrically connected to the capacitor means to cause equal and opposite electrical changes to form on the first and second conductor means with the liquid serving as a dielectric to thereby provide a first capacitance measurement directly related to the extent with which the first and second conductor means are at least partially immersed in the liquid;

d. inclinometer means for indicating an inclination of the container means; and

e. computer means for manipulating the first capacitance measurement and the inclination of the container means with respect to a set of reference capacitance values for various percent fill quantities of the liquid in the container means at various inclinations to indicate the quantity of liquid filled in the container means at the indicated inclination.

5,726,909

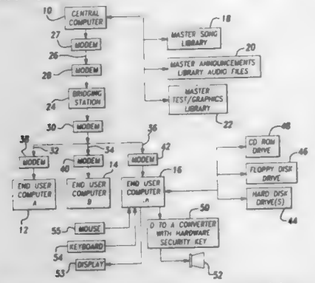
CONTINUOUS PLAY BACKGROUND MUSIC SYSTEM

Thomas M. Krikorian, 3750 Spanish Oaks Dr., West Bloomfield, Mich. 48323

Filed Dec. 8, 1995, Ser. No. 570,007

Int. Cl.[6] **G06F** *17/00*

U.S. Cl. 364—514 R **8 Claims**



1. A continuous play broadcast system, comprising:

a central computer having a drive containing a first quantity of digitized audio files which define a master library;

at least one end user computer in communication with said central computer and containing a second subset quantity of digitized audio files which define a remote library, said at least one end user computer having a display means, a digital to audio conversation means, and an audio output means; and

said at least one end user computer further comprising continuous program play customizing means for selecting and arranging any number of desired audio formats from said second subset quantity of digitized audio files within said remote library and in a continuous play fashion, said end user computer further comprising request means for soliciting additional quantities of files from said central computer, said central computer further comprising interface/update means for responding to said request means and for updating said remote library of end user computer files at preselected intervals.

5,726,910

COLOR CORRECTING DEVICE

Takashi Toma, Saitama, Japan, assignor to Fuji Photo Film Co., Ltd., Kanagawa, Japan

Filed Mar. 20, 1996, Ser. No. 618,765

Claims priority, application Japan, Mar. 20, 1995, 7-061317; Dec. 5, 1995, 7-316983

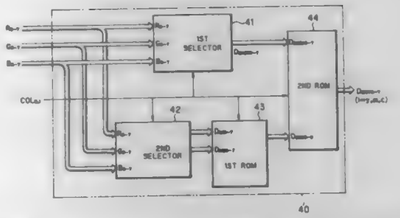
Int. Cl.[6] **H04N** *1/60; 1/46*

U.S. Cl. 364—526 **26 Claims**

7. An apparatus for converting original color values into an output color value comprising:

control means for selecting an output color and for designating one of the original color values to correspond to the selected output color;

auxiliary data storage means for storing auxiliary color correction data;



auxiliary color correction data retrieval means for retrieving auxiliary color correction data from said auxiliary data storage means based on a plurality of the original color values not designated by said control means;

output value storage means for storing output color values; and

output color retrieval means for retrieving from said output value storage means an output color value for the selected output color based on the retrieved auxiliary color correction data and the designated original color value.

5,726,911

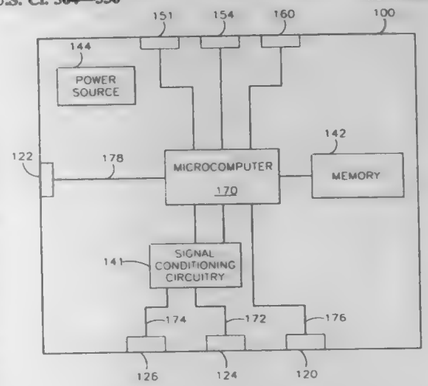
ELECTRIC MOTOR MONITOR

Ronald G. Canada, Knoxville; Eugene F. Pardue, Lenoir City, and James C. Robinson, Knoxville, all of Tenn., assignors to CSI Technology, Inc., Wilmington, Del.

Filed Aug. 22, 1996, Ser. No. 697,335

Int. Cl.[6] **G01K** *3/04;* **H02H** *7/085*

U.S. Cl. 364—550 **32 Claims**



1. A monitor that attaches to an ac electric motor, said monitor comprising:

a structural enclosure;

an engagement surface formed on said enclosure;

means for attaching said enclosure to the motor so that said engagement surface is adjacent the motor;

a power source disposed in said enclosure for supplying dc electrical power to the monitor;

sensors disposed in said enclosure for sensing a plurality of sensed parameters of the motor and producing a plurality of sensor signals corresponding to the sensed parameters;

a signal processor disposed in said enclosure for receiving and processing the sensor signals to produce operating parameters of the motor based on the sensed parameters;

means for storing the operating parameters, said stored operating parameters corresponding to the operation history of the motor; and

means for outputting at least the stored operation history of the motor.

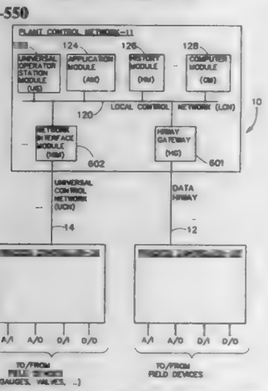
VOL 1208 ISS 2 MR 10 1998 UMI

5,726,912

CONTROL SYSTEM MONITOR

Rudy A. Krall, Jr., Glendale, Ariz.; Matthew A. Taylor, Phoenix, Ariz.; Shaun D. Burch, Chandler, Ariz., and Adam J. Puleo, Phoenix, Ariz., assignors to Honeywell IAC, Phoenix, Ariz.

Filed Sep. 6, 1996, Ser. No. 709,545
Int. Cl.[6] G08B 23/00
U.S. Cl. 364—550 14 Claims



1. In a process control system (PCS), having a control network and a plurality of nodes coupled to the control network, the PCS controlling a process, a monitoring system operatively connected to said PCS for obtaining predetermined data of the PCS to monitor the performance of the PCS, the monitoring system comprising:

a) a first computer system operatively connected to the control network located in physical proximity to the PCS, for obtaining the predetermined data of the PCS on a periodic basis in accordance with a predetermined protocol of the control network, the first computer system arranged to assess the predetermined data obtained from the PCS and to generate an alarm when an alarm condition of the PCS is indicated;

b) a second computer system, located remotely from the PCS, for receiving the predetermined data, the predetermined data of the PCS being transferred from the first computer system to the second computer system, the transfer being initiated by the first computer system when an alarm condition of the PCS is indicated by the predetermined data; and

c) a communication line, operatively connected to the first and second computer systems, for providing a communication link between said first and second computer systems.

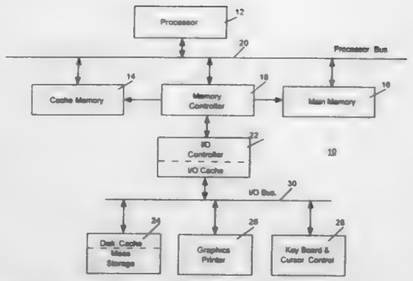
5,726,913

METHOD AND APPARATUS FOR ANALYZING INTERACTIONS BETWEEN WORKLOADS AND LOCALITY DEPENDENT SUBSYSTEMS

Knut Grimsrud, Aloha, Oreg., assignor to Intel Corporation, Santa Clara, Calif.

Filed Oct. 24, 1995, Ser. No. 547,603
Int. Cl.[6] G06F 9/455
U.S. Cl. 364—551.01 40 Claims

1. A computer system comprising operating logic that generates response characteristic data for a locality dependent subsystem from records of response times to stimuli applied to the locality dependent subsystem, the response time records include address information about target addresses against which the stimuli were applied and corresponding response times to the applied stimuli, and the generated response characteristic data include average



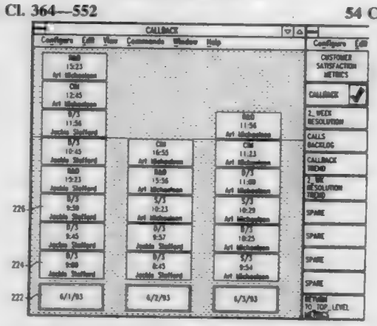
response times for various combinations of reference distance values (d) and stride size values (s).

5,726,914

COMPUTER IMPLEMENTED PROCESS AND COMPUTER ARCHITECTURE FOR PERFORMANCE ANALYSIS

Joseph Janovski, Cockeysville; Pamela Y. Offutt, Reisterstown, both of Md.; Bruce E. Manthey, Holliston, Mass.; Wayne L. Huff, Baldwin, and Philip A. Biggs, Towson, both of Md., assignors to GSE Systems, Inc., Columbia, Md.

Continuation-in-part of Ser. No. 124,173, Sep. 1, 1993. This application Jun. 7, 1995, Ser. No. 476,114
Int. Cl.[6] G06F 17/60
U.S. Cl. 364—552 54 Claims



1. A computer system for performance analysis, the computer system comprising:

a computer, inputting configuration data, including computer process identification data and performance indication data corresponding to the computer process identification data, identifying a computer process from a library in accordance with the computer process identification data, configuring the computer process with the performance indication data to obtain a set of instructions to be executed to collect customer data, collecting the customer data and generating performance data in accordance with the instructions; and

an output device responsively connected to said computer, and displaying the performance data for controlling a process responsive thereto with operator assistance,

wherein the performance data indicates time and attendance of personnel, and

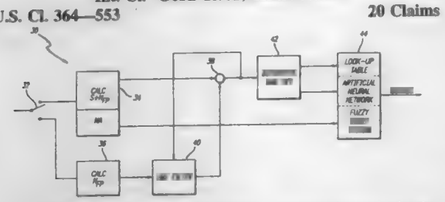
wherein said computer controls generation of an alarm indicating that the personnel are not performing according to predetermined time and attendance requirements responsive to the performance data.

5,726,915

AUTOMATED SYSTEM FOR TESTING AN IMAGING SENSOR

Kenneth E. Prager, Folsom, Calif., and Robby Mauri, Hawthorne, Calif., assignors to Hughes Aircraft Company, Los Angeles, Calif.

Filed Oct. 17, 1995, Ser. No. 543,954
Int. Cl.[6] G05B 23/02; H04N 17/00
U.S. Cl. 364—553 20 Claims



8. An automated system for testing a drivers thermal viewing sensor by evaluating the output thereof with respect to a known target, said system comprising:

means for acquiring an output signal from the sensor in response to a known target, said output including signal S, random noise N_R and fixed pattern noise N_{FP};

means for processing the sensor output signal to provide a first signal which includes essentially signal S and fixed pattern noise N_{FP}, a second signal which includes essentially random noise N_R and a third signal which includes essentially fixed pattern noise N_{FP}, further including:

means for setting the target to present a temperature differential to said sensor and calculating the second signal in response thereto and

means for setting the target to present a zero degree temperature differential and calculating said third signal in response thereto;

means for adaptively filtering said third signal to provide a filtered signal fixed pattern noise signal N'_{FP};

means for subtracting said filtered signal N'_{FP} from the first signal to extract a signature S;

means for processing said signature to acquire a modulation transfer function and a signal peak baseline therefrom; and

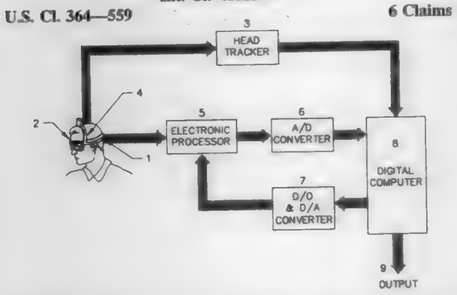
means for processing the modulation transfer function, signal peak baseline and random noise signals to acquire a minimum resolvable temperature of said sensor.

5,726,916

METHOD AND APPARATUS FOR DETERMINING OCULAR GAZE POINT OF REGARD AND FIXATION DURATION

Christopher C. Smyth, Fallston, Md., assignor to The United States of America as represented by the Secretary of the Army, Washington, D.C.

Filed Jun. 27, 1996, Ser. No. 675,330
Int. Cl.[6] A61B 3/14
U.S. Cl. 364—559 6 Claims



1. A method for determining ocular gaze point of regard and fixation duration of a person, comprising the steps of:

sensing the electrooculographic potentials of the eye with a periocularly placed unipolar skin-surface electrode configuration having a common reference;

amplifying, digitizing and adaptively filtering said electrooculographic potentials;

computing head related ocular angular offset in the direction connecting opposing periocularly placed electrodes, along with the corresponding retinal dipole moment, muscular artifact and electrode direct current bias voltage, from said electrooculographic potentials for said opposing periocularly placed electrodes;

computing gains and DC bias offset voltages from a running history of said retinal dippole moments, muscular artifacts and electrode direct current bias voltages, for amplifiers of said electrooculographic potentials;

applying said amplifier gains and DC bias offset voltages to said amplifiers of said electrooculographic potentials to maximize signal sensitivity while precluding saturation of the amplified signals;

determining the position and orientation of the person's head;

computing viewing direction with respect to the workspace from said ocular angular directions and said position and orientation of the person's head;

determining ocular fixations by utilizing automatic fixation and saccade classifications schemes and a velocity based prediction scheme; and

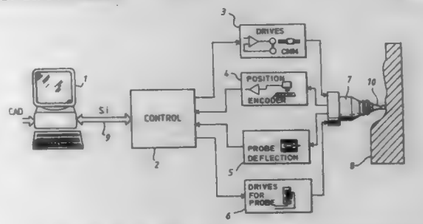
grouping said fixations into gaze points of regard.

5,726,917

METHOD FOR CONTROLLING A COORDINATE MEASURING APPARATUS

Ulrich Staaden, Aalen, Germany, assignor to Carl-Zeiss-Stiftung, Heidenheim, Germany

Filed Aug. 9, 1996, Ser. No. 693,632
Claims priority, application Germany, Aug. 11, 1995, 195 29 547.1
Int. Cl.[6] G05B 19/19; 19/4093
U.S. Cl. 364—560 16 Claims



1. A method for controlling a coordinate measuring apparatus for measuring a workpiece surface defined by geometric data (G1 to Gn), the apparatus including a probe head which is driven in a controlled manner in accordance with desired data, the method comprising the steps of:

(a) processing said geometric data (G1 to Gn) of said workpiece surface by generating control data (S1 to Sm) therefrom in the form of a sequence of points, the spacing between each two mutually adjacent ones of said points defining the desired course of the speed (v(t)) and the desired course of the acceleration (a(t)) and the spacing between each two mutually adjacent ones of said points always being less than a pregiven first value (vmax) and the first derivative of the point spacing at each position being less than a pregiven second value (amax) wherein said desired course of the speed (v(t)) defines a speed profile (v(t)) and said desired course of the acceleration (a(t)) defines an acceleration profile (a(t));

(b) selecting the spacings of the points (S1 to Sm) so that, when advancing at even time intervals from one point to the next, a jolt-free course of movement results without jumps in the speed profile (v(t) and without jumps in the acceleration profile (a(t) of said apparatus; and,

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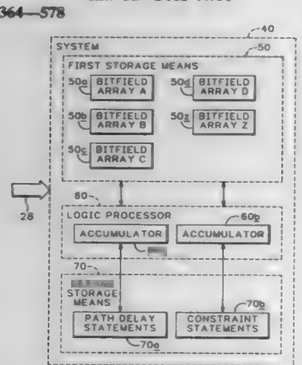
(c) driving said probe head with said control data determined in steps (a) and (b).

5,726,918

TOOL, SYSTEM AND METHOD FOR DYNAMIC TIMING ANALYSIS IN A PLURAL-INSTANCE DIGITAL SYSTEM SIMULATION

David J. Giramma; Thomas E. Roth, both of Portland, and Oliver W. Kozber, Beaverton, all of Oreg., assignors to Synopsys, Inc., Mountain View, Calif.

Filed Jun. 5, 1995, Ser. No. 463,881
Int. Cl.[6] G06F *17/50*
U.S. Cl. 364—578 **29 Claims**



1. For use with a logic simulator wherein one or more defined logic cell(s) contain(s) plural interconnected primitives, a method for performing timing analysis on pins at the boundary of the cell, said method comprising the steps of:

defining plural bitfields for each pin at the boundary of the cell, each of plural bits of which corresponds with a timing parameter of the cell, with a first bitfield representing the timing parameters associated with a former state of a given pin, with a second bitfield representing the timing parameters associated with a present state of the given pin that is different from the former state of the given pin, and with a third bitfield representing the timing parameters associated with a stable state of the given pin; and

producing a bitwise logic combination of such plural bitfields for a selected one or more of the pins; and

determining the timing of state changes of the pins based upon such logic combination.

5,726,919

METHOD AND APPARATUS FOR MEASURING ELECTRON BEAM EFFECTIVE FOCUS

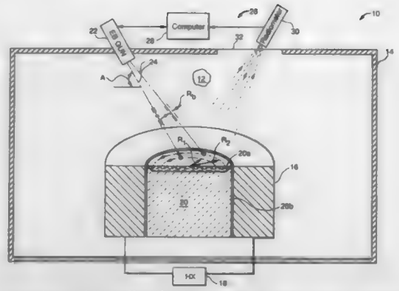
Farzin Homayoun Azad, Clifton Park; Robert David Lillquist, Niskayuna, and David William Skelly, Burnt Hills, all of N.Y., assignors to General Electric Company, Schenectady, N.Y.

Filed Nov. 30, 1995, Ser. No. 565,540
Int. Cl.[6] C23C *14/00;* **H01J** *43/14;* **G21K** *1/08*
U.S. Cl. 364—578 **15 Claims**

1. A method of measuring effective focus of an electron beam directed at a target from an electron beam gun having beam parameters including power, focus, scanning pattern, scanning frequency, and incidence angle, for imparting heat flux into said target to effect a target surface temperature profile, comprising:

providing a mathematical process model to predict an initial iteration of said temperature profile based on said beam parameters, and based on heat transfer behavioral relationships of said target;

optically measuring said temperature profile;



comparing said predicted and measured temperature profiles to obtain a residual error therebetween; and

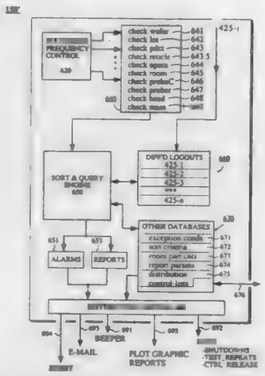
iterating said predicted temperature profile by varying said beam focus parameter and repeating said comparing step until said residual error is less than a predetermined value to determine said effective beam focus.

5,726,920

WATCHDOG SYSTEM HAVING DATA DIFFERENTIATING MEANS FOR USE IN MONITORING OF SEMICONDUCTOR WAFER TESTING LINE

Susan Hsuching Chen, Sunnyvale, Calif.; Ying Shiau, San Jose, Calif., and Chern-Jiann Lee, Los Altos, Calif., assignors to Advanced Micro Devices, Inc., Sunnyvale, Calif.

Filed Sep. 29, 1995, Ser. No. 537,116
Int. Cl.[6] H01L *21/66;21/304*
U.S. Cl. 364—579 **47 Claims**



1. A machine-implemented watchdog system for monitoring the operations of one or more units of final wafer sort (FWS) test equipment, where each unit of FWS test equipment participates as part of one or more FWS test stations in FWS testing of plural dice provided on each of a supplied plurality of wafers from a given production lot of wafers, said FWS testing being for verifying high-level functionality of the tested dice, wherein each FWS test station outputs for each wafer tested by said test station, a corresponding block of raw result data indicative of which dice tested as functional or not, said system comprising:

(a) receiving means for receiving respective blocks of raw result data from each respective test station, each received block of raw result data indicating FWS test results obtained by the respective test station for a respectively tested wafer;

(b) differentiating means for adding to each received block of raw result data, additional information signals, said additional information signals enabling the sorting of the blocks of raw result data according to one or more predefined sorting criteria, the combination of each block of raw result data and the correspondingly added additional information signals defining differentiable result data; and

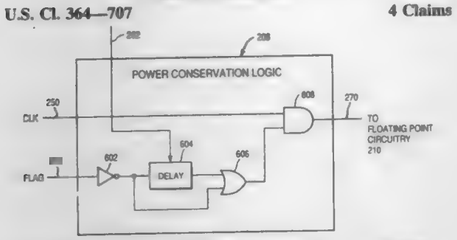
(c) storing means for storing the differentiable result data.

5,726,921

FLOATING POINT POWER CONSERVATION

Robert F. Krick, Beaverton, Oreg., assignor to Intel Corporation, Santa Clara, Calif.

Filed Dec. 22, 1995, Ser. No. 579,080
Int. Cl.[6] G06F *1/32*
U.S. Cl. 364—707 **4 Claims**



1. In a computer system including a floating point unit (FPU), an apparatus for reducing power consumption, comprising:

control and integer execution circuitry coupled to the FPU comprising a plurality of control registers that store a plurality of flag bits including an emulation bit, an active state of the emulation bit indicating that floating point operations must be emulated by the computer system; and

power conservation logic coupled to the control and integer execution circuitry and to the FPU that outputs a clock signal to the FPU when the clock signal is active and the emulation bit is inactive, the power conservation logic comprising:

a delay circuit that delays the emulation bit; and

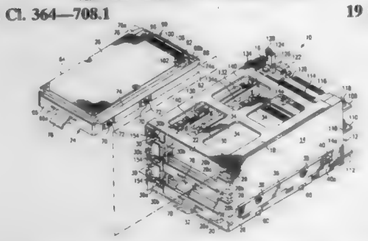
an AND gate with an input coupled to the clock signal, an input coupled to the output of the delay circuit, and an output coupled to a clock input of the FPU.

5,726,922

ASSEMBLY FOR REMOVABLY CONNECTING DATA STORAGE DEVICES

J. Scott Womble, West Palm Beach, Fla.; Francis A. Kuchar, Jr., Delray Beach, Fla.; John R. Dewitt, Boca Raton, Fla., and Jay H. Neer, Boca Raton, Fla., assignors to International Business Machines Corp., Armonk, N.Y.

Continuation of Ser. No. 177,117, Jan. 3, 1994, abandoned.
This application Jun. 7, 1996, Ser. No. 659,960
Int. Cl.[6] G06F *1/16;* **H01R** *13/64*
U.S. Cl. 364—708.1 **19 Claims**



1. A data storage device assembly connectable to a computer system, comprising:

a plurality of trays each having a small computer systems interface (SCSI) device and a first electrical connector mounted thereto, wherein said SCSI devices are connected together via a daisy chain connection, and one of said devices defines a last device in said daisy chain;

a plurality of adapter assemblies each corresponding to one of said trays for passing a plurality of signals between said device of said corresponding tray and said first electrical connector of said corresponding tray, said signals including power, SCSI data and control signals, and SCSI address selection signals;

a housing for removably receiving said trays;

means mounted to said housing for selecting a SCSI address for each of said devices;

means mounted to said housing for terminating said last device;

means for securing said trays within said housing;

a plurality of printed circuit boards mounted within said housing, one corresponding to each of said trays, each of said boards having a second electrical connector for connecting to one of said first electrical connectors and passing said signals between said first and second electrical connectors;

a switch electrically connected to said second electrical connector and electrically connectable to said computer system, said switch being operable, when connected to said computer system, in a first position for passing selected signals between said computer system and said second electrical connector, and in a second position for preventing passage of said selected signals between said computer system and said second electrical connector; and

a plurality of keylessly operated locking and actuating assemblies mounted within said housing for preventing the removal of said trays out of said housing while said switch is in said first position.

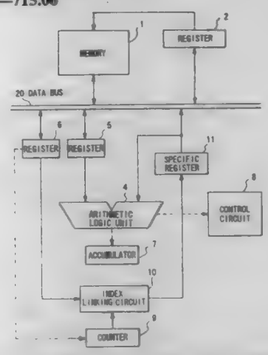
said data storage device is a small computer systems interface (SCSI) device, the assembly further comprising means mounted to said receiving means for selecting an SCSI address for said data storage device.

5,726,923

MINIMUM/MAXIMUM DATA DETECTOR

Yukihiko Okumura; Toshio Miki, both of Yokohama; Tomoyuki Ohya, Yokosuka, and Yoshinori Miki, Yokohama, all of Japan, assignors to NTT Mobile Communications Network Inc., Tokyo, Japan

PCT No. PCT/JP94/01478, § 371 Date Oct. 25, 1995, § 102(e) Date Oct. 25, 1995, PCT Pub. No. WO95/09391, PCT Pub. Date Apr. 6, 1995
PCT Filed Sep. 7, 1994, Ser. No. 356,276
Claims priority, application Japan, Sep. 27, 1993, 5-240148
Int. Cl.[6] G06F *7/00*
U.S. Cl. 364—715.06 **5 Claims**



1. A minimum/maximum data detector for detecting the minimum or the maximum data from a plurality of numeric data supplied thereto by comparing said numeric data repeatedly, said minimum/maximum data detector comprising:

a first register for storing said numeric data;

a second register for storing said numeric data transferred from said first register;

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a specific register for storing contents of said second register if a prespecified comparison result by a comparator is obtained;

said comparator comparing the contents of said specific register and said first register;

wherein transferring of next numeric data into said first register, and storing of current numeric data into said specific register are executed simultaneously, if said prespecified comparison result is obtained in said comparator.

5,726,924

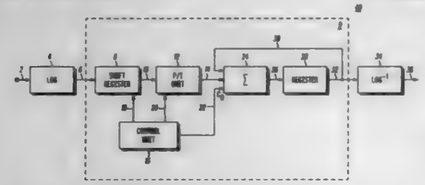
EXPONENTIATION CIRCUIT UTILIZING SHIFT MEANS AND METHOD OF USING SAME

John Michael Buss, Tempe; James Douglas Dworkin, Chandler, both of Ariz.; Scott Edward Lloyd, Hoffman Estates; ShaoWei Pan, Schaumburg, both of Ill.; Stephen L. Smith, Chandler, Ariz., and Shay-Ping Thomas Wang, Long Grove, Ill., assignors to Motorola Inc., Schaumburg, Ill.

Continuation of Ser. No. 401,515, Mar. 10, 1995, Pat. No. 5,553,012. This application Jul. 11, 1996, Ser. No. 680,282

Int. Cl.[6] G06F *1/02;7/00;15/00;7/50*

U.S. Cl. 364—722 16 Claims



3. An exponentiation circuit, comprising:

means for performing logarithmic conversion on an input signal to produce a binary log value having a plurality of bits;

shift means for shifting the binary log value a distance of n-bits to generate an intermediate value, wherein n is an integer;

means for adding a stored value to the intermediate value to produce a combined value; and

means for performing an inverse-logarithmic conversion on the combined value to produce the exponential signal.

5,726,925

HADAMARD TRANSFORMER USING MEMORY CELL

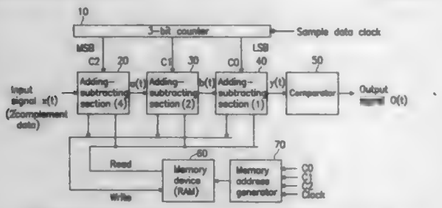
Jin-Il Hyun, Daejeon, Rep. of Korea; Jin-Jong Cha, Daejeon, Rep. of Korea, and In Kang, Daejeon, Rep. of Korea, assignors to Electronics and Telecommunications Research Institute, Daejeon, Rep. of Korea

Filed Nov. 14, 1995, Ser. No. 557,275

Claims priority, application Rep. of Korea, Nov. 23, 1994, 94-30596

Int. Cl.[6] G06F *7/36*

U.S. Cl. 364—727.01 17 Claims



1. A Hadamard transformer using memory and a digital signal processor for restoring to original signals at a receiving end from signals transformed to a Hadamard function sequence at a transmitting end,

the Hadamard transformer comprising:

a counting means for receiving sample data clocks to output counted signals to a memory address generating means and to a plurality of adding-subtracting means;

the plurality of said adding-subtracting means for adding and subtracting the input signals and the data read from a memory means in accordance with counted signals of said counting means so as to record the results into said memory means;

said memory address generating means for generating memory addresses in accordance with a sample data clock and in accordance with the counted signals of said counting means so as to record to and read from said memory means;

said memory means for storing the data inputted and outputted to and from the plurality of said adding-subtracting means in accordance with memory addresses generated by said memory address generating means; and

a comparing means for comparing a final output value of said adding-subtracting means at each period of the Hadamard function sequence so as to detect a maximum likelihood Hadamard function sequence.

5,726,926

SHIFTER FOR SHIFTING FLOATING POINT NUMBER UTILIZING ARITHMETIC OPERATION OF REDUNDANT BINARY NUMBER, AND ADDER CONTAINING THE SAME

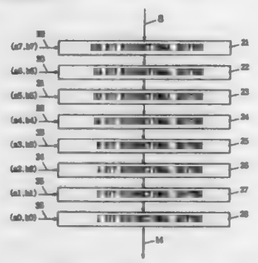
Hiroshi Makino, Hyogo, Japan, assignor to Mitsubishi Denki Kabushiki Kaisha, Tokyo, Japan

Filed Oct. 25, 1995, Ser. No. 548,117

Claims priority, application Japan, Dec. 5, 1994, 6-300728

Int. Cl.[6] G06F *7/00;7/38*

U.S. Cl. 364—748.11 10 Claims



1. For first to fourth numbers represented in binary notation, a shifter having a function of shifting either the third or fourth number in accordance with a difference obtained by subtracting the second number from the first number, comprising:

first to fourth storing means for storing said first to fourth numbers, respectively; and

a plurality of serially connected shifting means receiving either one of said third and fourth numbers as an input for successively shifting,

each of said shifting means including

a first input end to which a number to be shifted is input,

a second input end to which at least a pair of bit data of mutually corresponding digits of said first and second numbers are input,

a plurality of shift circuits, each having a fixed amount of shifting corresponding to a difference between bits of a group of bit data pairs input to said second input end with said difference between bits of each of said bit data pairs regarded as a redundant binary number, and

an output end for outputting a result of shifting of the input number from said first input end, by selected one of said shift means having fixed amount of bits for shifting.

5,726,927

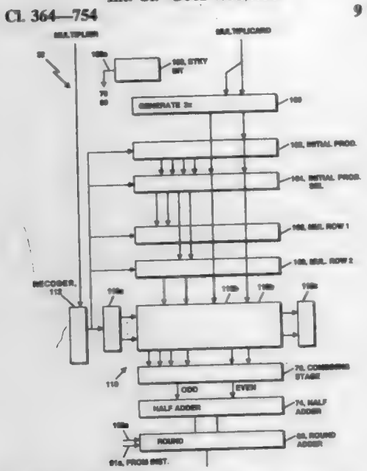
MULTIPLY PIPE ROUND ADDER

Gilbert M. Wolrich, Framingham, and John A. Kowaleski, Jr., Princeton, both of Mass., assignors to Digital Equipment Corporation, Maynard, Mass.

Filed Sep. 11, 1995, Ser. No. 526,256

Int. Cl.[6] G06F *7/52;7/38*

U.S. Cl. 364—754 9 Claims



1. A floating point multiplier comprising:

means for multiplying a pair of floating point numbers producing a sum vector and a carry vector representing a result of the multiplication operation; and

a rounding adder responsive to the sum vector and the carry vector for adding said sum and carry vectors and for rounding the sum of the vectors in accordance with a rounding mode said rounding adder comprising:

means for providing generate, propagate and kill signals which indicate whether on a bit by bit basis that mantissa portions of a pair of input operands will generate, propagate or kill a carry for the respective bit position of the mantissa portions;

means for providing group propagate and group propagate kill signals from the generate, propagate and kill signals;

a carry-select adder fed by the generate, propagate and kill signals comprising:

a first set of adder sections coupled to input operands to be added with each of said first adder sections having no initial carry input;

a second set of adder sections coupled to said pair of input operands to be added with each of said second set of adder sections having an initial carry input;

adder means for determining the values of carry signals corresponding to four possible cases a value assuming rounding when a normalization shift is necessary or is not necessary, and a value of a final carry is zero or is one; comprising

a pair of carry select adders fed by bits of the respective input operands, each carry select adder including an adder fed by a signal assuming no carry in, an adder fed by a signal assuming a carry in and a selector controled by the final carry from the adder, said selector providing the carry from the lower order bit position and values corresponding to the lower order bit positions;

control logic responsive to the carry out of the least significant bit adder section, the most significant bit (MSB) position of each last one of said first and second sets of adder sections, and a ALL PRQP signal for each section indicating that a carry due to rounding propagates through the respective section; and

means, responsive to said select signals from the control logic, for selectively providing at an output thereof, results from selected ones of said adder sections in said first and second adder sets.

5,726,928

ARITHMETIC LOGIC UNIT CIRCUIT WITH REDUCED PROPAGATION DELAYS

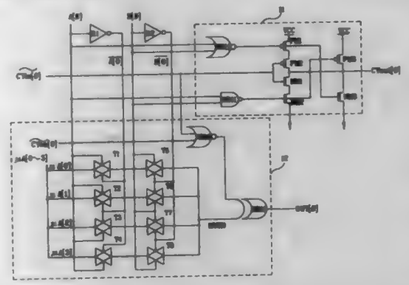
Dae Keun Han, Kyungsangbook-Do, Rep. of Korea, assignor to Goldstar Electron Co., Ltd., Cheongju, Rep. of Korea

Continuation of Ser. No. 379,335, Jan. 27, 1995, abandoned. This application Apr. 3, 1996, Ser. No. 624,205

Claims priority, application Rep. of Korea, Jan. 28, 1994, 1583/1994

Int. Cl.[6] G06F *7/50*

U.S. Cl. 364—786 24 Claims



14. A cell for performing an arithmetic operation based on first and second data, comprising:

means for generating a carry out signal based on at least one of a carry-in signal and said first and second data; and

a logic unit having

a group of transmission gates, responsive to said first and second data, for outputting one of a plurality of control signals as a first signal; and

logic means for performing a logical operation between said first signal and at least one of an enable signal and said carry-in signal to generate an output signal.

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SEMICONDUCTOR STORAGE DEVICE

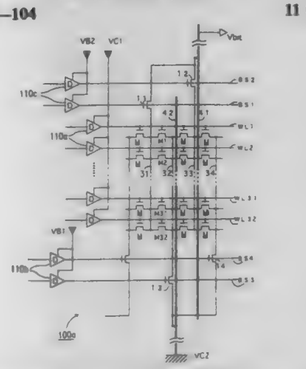
Yasuo Suminaga, Mie-ken, Japan, and Koji Komatsu, Nara, Japan, assignors to Sharp Kabushiki Kaisha, Osaka, Japan

Filed Jul. 2, 1996, Ser. No. 674,827

Claims priority, application Japan, Mar. 22, 1996, 8-066877

Int. Cl.[6] G11C *17/00*

U.S. Cl. 365—104 11 Claims



1. A semiconductor storage device comprising:

a memory cell array formed by arranging a plurality of memory cells in matrix, each of the plurality of memory cells being formed of a memory transistor;

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a first main bit line and a second main bit line for reading out information from a selected memory cell, a predetermined potential being applied to each of the first and second main bit lines;

a plurality of first sub-bit lines and a plurality of second sub-bit lines which are provided so as to correspond to respective columns of the memory cells, each of the first and second sub-bit lines functioning as either a common source or a common drain for the memory transistors forming the memory cells;

a plurality of word lines which are provided so as to correspond to respective rows of the memory cells, each of the word lines being connected to gates of the memory transistors forming the memory cells;

a first bank selection transistor being connected between one of the first sub-bit lines and the first main bit line for selecting one of the columns of the memory cells;

a second bank selection transistor being connected between one of the second sub-bit lines and the second main bit line for selecting one of the column of the memory cells; and

bank selection lines each of which is provided for one of the bank selection transistors and connected to a gate thereof,

wherein a certain potential corresponding to a position of a selected word line in the memory cell array is applied to at least a selected one of the bank selection lines as an ON potential for the associated bank selection transistor.

5,726,930

SEMICONDUCTOR MEMORY DEVICE

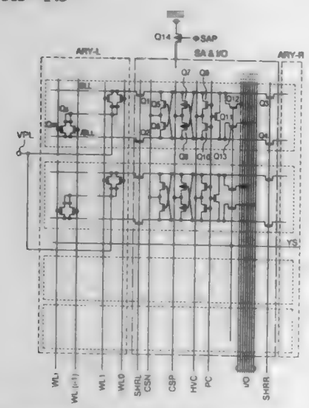
Masatoshi Hasegawa, Ome; Kazuhiko Kajigaya, Iruma; Kan Takeuchi; Katsumi Matsuno, both of Kokubunji, and Osamu Nagashima, Hamura, all of Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Filed May 24, 1996, Ser. No. 653,236

Claims priority, application Japan, Jun. 15, 1995, 7-174296

Int. Cl.[6] G11C *11/22*

U.S. Cl. 365—145 **14 Claims**



1. A semiconductor memory device comprising:

a plurality of memory mats;

a plurality of plate electrodes provided in one-to-one correspondence with the memory mats; and

a plurality of memory circuits provided in one-to-one correspondence with the memory mats;

wherein the memory mats each include a plurality of word lines, a plurality of bit lines, a plurality of memory cells provided at the intersections of the word lines and the bit lines, and a plurality of sense amplifiers connected to said bit lines;

wherein the memory cells each include an information storage capacitor having a ferroelectric film, and an address selection MOSFET;

wherein the information storage capacitor has a pair of electrodes, one of which is connected to the mat in which the information storage capacitor is included;

wherein a first voltage or a second voltage is selectively applied to each of the plate electrodes according to data held in the memory circuit corresponding to the plate electrode;

wherein, when the first voltage is applied to the plate electrode, the information storage capacitors connected to the plate electrode are made incapable of polarization reversal irrespective of a binary write signal given to the bit lines;

wherein, when the second voltage is applied to the plate electrode, the information storage capacitors connected to the plate electrode are made capable of polarization inversion in response to a binary write signal given to the bit lines,

whereby said semiconductor memory device can be divided to have a volatile portion and a non-volatile portion at the same time in response to the simultaneous application of the first and second voltages to different ones of the plate electrodes.

5,726,931

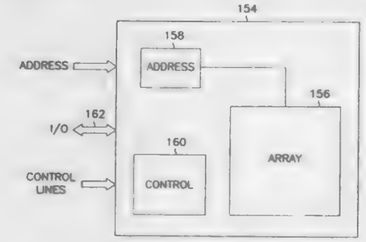
DRAM WITH OPEN DIGIT LINES AND ARRAY EDGE REFERENCE SENSING

Paul S. Zagar, and Mirmajid Seyyedy, both of Boise, Id., assignors to Micron Technology, Inc., Boise, Id.

Continuation of Ser. No. 577,767, Dec. 22, 1995, Pat. No. 5,608,668. This application Feb. 20, 1997, Ser. No. 804,182

Int. Cl.[6] G11C *11/24;7/00;7/02*

U.S. Cl. 365—149 **15 Claims**



1. An integrated memory device comprising:

an array of memory cells;

addressing circuitry for receiving an address of the memory cells; and

control circuitry for controlling read and write operations of the memory device;

the array of memory cells comprising:

memory cell capacitors having a first plate and a second plate, the first plate being coupled to a reference voltage and the second plate being coupled to a digit line through an n-channel access transistor, the access transistor being controlled by a word line voltage, and

a sense amplifier having a first input selectively coupled to the digit line and having a second input selectively coupled to a reference circuit for modeling electrical characteristics of the digit line, the reference circuit comprising:

a plurality of compensating capacitors having a first plate coupled to the sense amplifier and a second plate coupled to a capacitor reference voltage, and

an n-channel transistor having a gate coupled to receive an inactive word line voltage.

5,726,932

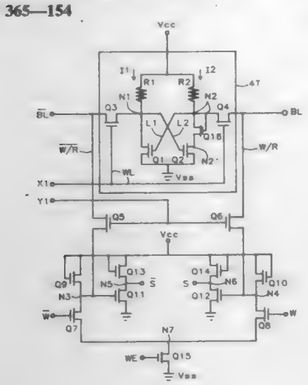
TRENCH FREE SRAM CELL STRUCTURE

Jin-Yuan Lee; Jenn-Ming Huang, and Ming-Chih Chung, all of Hsin-chu, Taiwan, assignors to Taiwan Semiconductor Manufacturing Company, Ltd., Hsin-chu, Taiwan

Filed Jun. 13, 1996, Ser. No. 663,577

Int. Cl.[6] G11C *11/00*

U.S. Cl. 365—154 **20 Claims**



1. An SRAM transistor cell on a doped semiconductor substrate comprising:

a first pass transistor and a second pass transistor, each having a source region, a drain region and a control gate electrode,

a first driver transistor and a second driver transistor each having a source region, a drain region and a control gate electrode,

a saturated mode transistor having a source region, a drain region and a control gate electrode,

a first load resistor having first and second ends and a second load resistor having third and fourth ends, said first end being connected to said third end,

a first node being connected to said second end of said first load resistor, a second node being connected to said fourth end of said second load resistor, and a third node,

a bit line and a bit line bar,

first and second interconnection lines,

said first driver transistor having the drain region thereof connected to said first node and the control gate electrode cross-connected via said first interconnection line to said second node,

said second driver transistor having the drain region thereof connected to said third node and the control gate electrode cross-connected via said second interconnection line to said first node,

said control gate electrodes of said pass transistors being connected to a single input line,

said drain region of said first pass transistor being connected to said first node,

said drain region of said second pass transistor being connected to said second node,

said source region of said first pass transistor being connected to said bit line bar,

said source region of said second pass transistor being connected to said bit line, and

the drain region and control gate electrode of said saturated mode transistor being connected to said second node and the source region of said saturated mode transistor being connected to said third node.

5,726,933

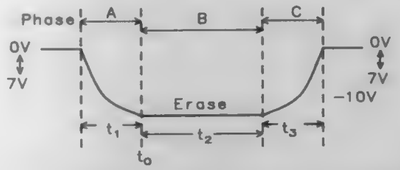
CLIPPED SINE SHAPED WAVEFORM TO REDUCE THE CYCLING-INDUCED ELECTRON TRAPPING IN THE TUNNELING OXIDE OF FLASH EEPROM

Jian-Hsing Lee, Hsin-Chu, Taiwan; Kuo-Reay Peng, FounSan, Taiwan; Juang-Ke Yeh, Hsin-Chu, Taiwan, and Ming-Chou Ho, Taichung, Taiwan, assignors to Taiwan Semiconductor Manufacturing Company, Ltd., Hsin-Chu, Taiwan

Filed May 15, 1997, Ser. No. 857,162

Int. Cl.[6] G11C *16/06*

U.S. Cl. 365—185.18 **10 Claims**



1. A method for eliminating of cycling-induced electron trapping in the tunneling oxide of flash EEPROM devices in an erase cycle, said flash EEPROM devices comprising a source region, a drain region, a tunnel oxide layer, a control gate, a floating gate, and a well region in a substrate said method comprising the steps of:

a) applying a voltage to a source region of said EEPROM device during an entire erase cycle;

b) grounding a well region of said EEPROM device during an entire erase cycle;

c) floating a drain region of said EEPROM device during an entire erase cycle;

d) simultaneously applying a clipped sine waveform voltage to a control gate of said EEPROM device during the entire erase cycle whereby the sine waveforms reduce the electric field in a tunnel oxide layer which reduces the electron trapping.

5,726,934

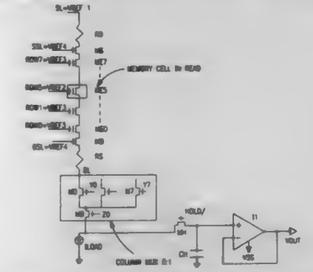
METHOD AND APPARATUS FOR ANALOG READING VALUES STORED IN FLOATING GATE STRUCTURES

Hieu Van Tran, San Jose, Calif.; James Brennan, Jr., Saratoga, Calif.; Trevor Blyth, Sandy, Utah, and Sukyoon Yoon, Saratoga, Calif., assignors to Information Storage Devices, Inc., San Jose, Calif.

Filed Apr. 9, 1996, Ser. No. 629,729

Int. Cl.[6] G11C *27/00;29/00*

U.S. Cl. 365—185.2 **18 Claims**



1. A method of reading an analog value stored in a storage cell having a source, a drain, a gate and a floating gate comprising the steps of:

(a) coupling a first reference voltage to the drain of the storage cell;

(b) coupling a second reference voltage to the gate of the storage cell;

(c) providing an initial load current through the drain and source of the storage cell;

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(d) reducing the load current through the drain and source of the storage cell to a value at least one order of magnitude less than the initial load current; and,

(e) providing a read output voltage responsive to the voltage on the source of the storage cell with the reduced load current there through.

5,726,935

FLASH MEMORY DEVICE

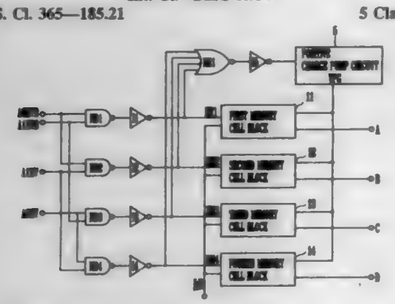
Dae Hyun Kim, Ichon-Shi, Rep. of Korea, assignor to Hyundai Electronics Industries Co., Ltd., Kyungki-Do, Rep. of Korea

Filed Jan. 27, 1997, Ser. No. 789,087

Claims priority, application Rep. of Korea, Jan. 26, 1996, 96-01664

Int. Cl.[6] G11C *11/34*

U.S. Cl. 365—185.21 **5 Claims**



1. A flash memory device comprising:

a ratio content block for outputting a first to fourth control signal having different current drive ratio according to a plurality of control signals and a select gate input signal inputted from external;

a main cell block in which said first and second control signals are input, and which outputs a fifth control signal according to said first and second control signals;

a reference cell block in which said third and fourth control signals are input, and which outputs a sixth control signal according to said third and fourth control signals; and

a sense amplifier block in which said fifth and sixth control signals inputted, and which outputs data.

5,726,936

CONTROLLING CAPACITIVE LOAD

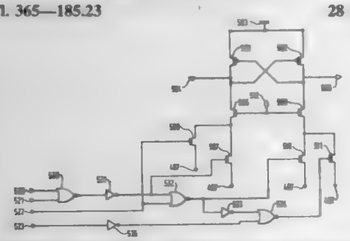
Colin Whitfield, Bristol, United Kingdom, assignor to SGS-Thomson Microelectronics Limited, Bristol, United Kingdom

Filed Aug. 25, 1995, Ser. No. 519,313

Claims priority, application United Kingdom, Aug. 26, 1994, 9417265.7

Int. Cl.[6] G11C *7/00*

U.S. Cl. 365—185.23 **28 Claims**



1. A memory array having a plurality of charge storing transistors each connected to a control line; the memory array comprising:

a first pull-up circuit for supplying a first pull-up current for the control line;

a second pull-up circuit for supplying a second pull-up current for the control line;

a third pull-down circuit for supplying a third pull-down current for the control line;

a fourth pull-down circuit for supplying a fourth pull-down current for the control line;

means of changing the voltage level of the control line between a lower voltage level and an upper voltage level while preventing high transient currents by disabling said third pull down circuit and said fourth pull-down circuit and, after said third and fourth pull-down circuits are disabled, enabling said first pull-up circuit thereby providing said first pull-up current while inhibiting said second pull-up circuit until the control line has reached a desired first voltage level after which said second pull-up circuit is enabled thereby providing said second pull-up current; and

means of changing the voltage level of the control line between an upper voltage level and a lower voltage level while preventing high transient currents by disabling said first pull-up circuit and said second pull-up circuit and, after said first and second pull-up circuits are disabled, enabling said third pull-down circuit thereby providing said third pull-down current, while inhibiting said fourth pull-up circuit until the control line has reached a desired second voltage level after which said fourth pull-up circuit is enabled thereby providing said fourth pull-down current.

5,726,937

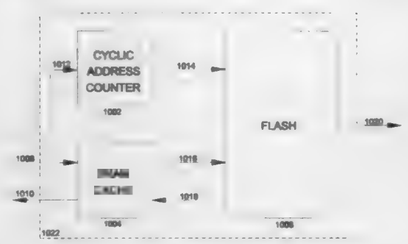
FLASH MEMORY SYSTEM HAVING MEMORY CACHE

Paul Beard, Milpitas, Calif., assignor to Norand Corporation, Cedar Rapids, Iowa

Continuation of Ser. No. 372,201, Jan. 12, 1995, abandoned, which is a continuation-in-part of Ser. No. 302,128, Sep. 7, 1994, abandoned, which is a continuation-in-part of Ser. No. 240,039, May 9, 1994, abandoned, which is a continuation-in-part of Ser. No. 189,696, Jan. 31, 1994, abandoned. This application May 21, 1996, Ser. No. 653,377

Int. Cl.[6] G11C *13/00*

U.S. Cl. 365—185.33 **18 Claims**



1. An electronic memory system comprising:

(a) a first memory device means having at least two memory sectors for non-volatile memory storage of data written to the electronic memory system from a microprocessor, said first memory storage device means retaining data without power being supplied thereto;

(b) a second memory device means for caching data transferred between said first memory device means and the microprocessor; and

(c) means for monitoring and controlling writes to said first memory storage device means wherein data written to said second memory device means is allocated and written to the memory sectors of said first memory storage device means at a substantially equal frequency for each memory sector thereof.

5,726,938

SEMICONDUCTOR DEVICE PROVIDED WITH A LEVEL CONVERSION MEANS FOR ENABLING A CONNECTION BETWEEN LOGIC CIRCUITS

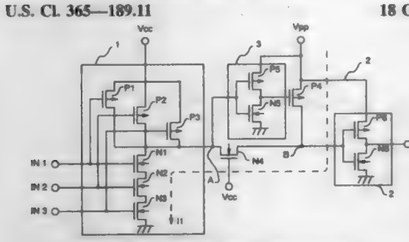
Toshiharu Okamoto, Tokyo, Japan, assignor to NEC Corporation, Japan

Filed Jun. 13, 1996, Ser. No. 662,710

Claims priority, application Japan, Jun. 22, 1995, 7-155822

Int. Cl.[6] G11C *7/00;8/00*

U.S. Cl. 365—189.11 **18 Claims**



1. A semiconductor memory device comprising:

a first stage logic circuit to be supplied with the first supply potential for processing a plurality of data;

a second stage logic circuit to be supplied with the second supply potential for processing an output data derived from said first stage logic circuit and for transferring a resultant processed data to a subsequent stage;

a transfer gate interposed between said first stage logic circuit and said second stage logic circuit, and adapted to be turned into a conductive state when said first supply potential is supplied to a gate electrode thereof for transmitting a low level of potential to said second stage logic circuit when an output data from said first stage logic circuit is a low level of a logic level, and transmitting the second high level of potential which is lower than the first high level of said logic level by a magnitude of threshold voltage to said second stage logic circuit when the output data from said first stage logic circuit is the first high level of said logic level; and

a level conversion means being performed by pulling up an input terminal of said second stage logic circuit from said second high level to aaid second supply potential in response to said second high level;

wherein said level conversion means is provided for pulling up said input terminal of said second stage logic circuit from said second high level to said second supply potential in response to said first high level of said output data of the first stage logic circuit in place of said second high level.

5,726,939

SEMICONDUCTOR MEMORY DEVICE HAVING FAST WRITING CIRCUIT FOR TEST THEREOF

Soo-In Cho, and Jung-Hwa Lee, both of Seoul, Rep. of Korea, assignors to Samsung Electronics Co., Ltd., Suwon, Rep. of Korea

Filed Jun. 24, 1996, Ser. No. 668,952

Claims priority, application Rep. of Korea, Jun. 23, 1995, 17107/1995

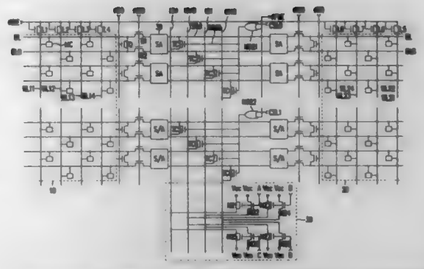
Int. Cl.[6] G11C *13/00*

U.S. Cl. 365—201 **11 Claims**

1. A semiconductor memory device having a plurality of word lines and bit line pairs and a plurality of memory cells, comprising:

a plurality of switching transistors, each of the switching transistors being connected to a respective one of said word lines and all of the switching transistors being connected to receive a single, common word line enable signal, so as to permit simultaneously enabling all of said word lines for a test operation by asserting the common word line enable signal;

an input/output line pair;



a plurality of transmission transistors arranged for controllably coupling each column of the array to the input/output line pair in response to a corresponding column select signal;

a logic gate for each column of the array, each logic gate having a first input connected to receive the corresponding column select signal and having a second input connected to receive a common test enable signal, the outputs of the logic gates being connected to the transmission transistor control gates so as to couple all of the columns of the array to the I/O line pair when the common test enable signal is asserted and selectively couple each individual column of the array to the I/O line pair responsive to the corresponding column select signal when the common test enable signal is not asserted; and

a fast write circuit connected to said input/output lines for transmitting selected test write data to the memory cells.

5,726,940

SEMICONDUCTOR MEMORY DEVICE OF WHICH PRESCRIBED STATE OF OPERATION IS TERMINATED UNDER A PRESCRIBED CONDITION AND METHOD OF OPERATING A SEMICONDUCTOR MEMORY DEVICE FOR TERMINATING PRESCRIBED STATE OF OPERATION

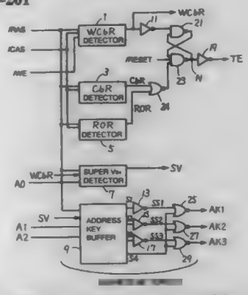
Mikio Asakura, Hyogo, Japan; Hideto Hidaka, Hyogo, Japan, and Kiyohiro Furutani, Hyogo, Japan, assignors to Mitsubishi Denki Kabushiki Kaisha, Tokyo, Japan

Continuation of Ser. No. 623,803, Mar. 29, 1996, abandoned. This application Apr. 14, 1997, Ser. No. 833,207

Claims priority, application Japan, Jul. 10, 1995, 7-173667

Int. Cl.[6] G11C *29/00*

U.S. Cl. 365—201 **18 Claims**



1. A semiconductor memory device, comprising:

a detecting means for receiving a plurality of first mode signals and a second mode signal, for outputting a detection signal when said second mode signal is at a prescribed potential higher than a power supply potential at a prescribed timing defined by a combination of the plurality of the first mode signals; and

a control signal generating means for receiving a third mode signal, for outputting a first control signal when said third mode signal attains to a first level and said detection signal is received, and for outputting a second control signal when said

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third mode signal attains to a second level and said detection signal is received; wherein

the semiconductor memory device enters a prescribed state of operation in response to said first control signal and goes out from said prescribed state of operation in response to said second control signal.

5,726,941

SEMICONDUCTOR INTEGRATED CIRCUIT

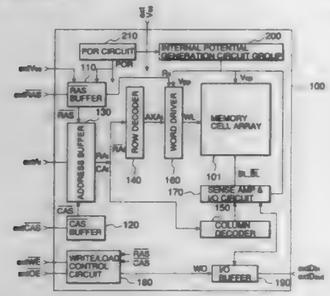
Youichi Tobita, Tokyo, Japan, assignor to Mitsubishi Denki Kabushiki Kaisha, Tokyo, Japan

Filed Dec. 10, 1996, Ser. No. 762,903

Claims priority, application Japan, Dec. 11, 1995, 7-321760

Int. Cl.[6] G11C *13/00*

U.S. Cl. 365—203 9 Claims



2. A semiconductor integrated circuit comprising:

a source potential responsive circuit including a pull-up circuit connected between a source potential node and a connecting node, and a capacitor connected between said connecting node and an earth potential node, said pull-up circuit conducting a charging current from the source potential node to the connecting node to charge the capacitor when a power source potential applied to the source potential node exceeds a potential of the connecting node by a predetermined threshold value,

a holding circuit responsive to the potential at the connecting node for outputting a power-on reset signal changing from a first level to a second level when the potential at the connecting node exceeds a first predetermined level, and for holding the potential of the power-on reset signal at the second level until the potential at the connecting node exceeds a second predetermined level higher than said first predetermined level; and

a diode-connected MOS transistor having a gate and a back gate thereof connected together and being disposed in a forward direction from the connecting node to the source potential node, for discharging the capacitor via the connecting node to the source potential node when the potential at the source potential node falls below the potential at the connecting node by an absolute value of the threshold potential of said diode-connected MOS transistor having the back gate and the gate thereof connected together.

5,726,942

HIERARCHICAL ENCODER INCLUDING TIMING AND DATA DETECTION DEVICES FOR A CONTENT ADDRESSABLE MEMORY

Masato Yoneda; Hiroshi Sasama, and Naoki Kanazawa, all of Chiyoda-ku, Japan, assignors to Kawasaki Steel Corporation, Hyogo, Japan

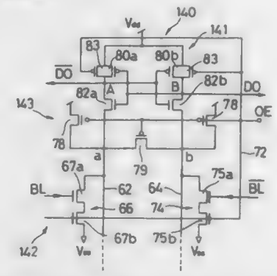
Division of Ser. No. 1,751, Jan. 7, 1993, Pat. No. 5,619,446.

This application Dec. 4, 1996, Ser. No. 760,292

Claims priority, application Japan, Jan. 10, 1992, 4-003405; Feb. 28, 1992, 4-043963; Jun. 26, 1992, 4-169258; Jul. 1, 1992, 4-174314; Jul. 8, 1992, 4-181194

Int. Cl.[6] G11C *7/06*

U.S. Cl. 365—208 13 Claims



1. A dynamic sense amplifier comprising a first and a second signal line each having at least one detection node, first and second current drive means connected to the respective detection nodes of the first and second signal lines and having respective first and second input nodes corresponding to these signal lines, a current drive type latch circuit, coupled to said first and second signal lines, for detecting the differential current between the first and second signal lines, the latch circuit having a first output node and a second output node, and means for controlling the timing detected by the current drive type latch circuit, said means for controlling being connected to the current drive type latch circuit and the detection nodes of the first and second signal lines.

5,726,943

FAST MEMORY DEVICE ALLOWING SUPPRESSION OF PEAK VALUE OF OPERATIONAL CURRENT

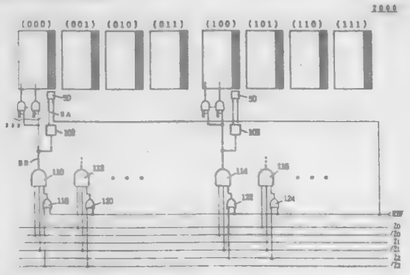
Tadato Yamagata, and Kazutami Arimoto, both of Hyogo, Japan, assignors to Mitsubishi Denki Kabushiki Kaisha, Tokyo, Japan

Filed Jan. 5, 1996, Ser. No. 583,810

Claims priority, application Japan, Jan. 6, 1995, 7-000779; Dec. 14, 1995, 7-325904

Int. Cl.[6] G11C *7/00;7/02;8/00*

U.S. Cl. 365—222 16 Claims



1. A dynamic semiconductor memory device, comprising:

a plurality of memory cells to which stored information is rewritten by refreshing operation;

a sense amplifier connected to said memory cell by a signal line for amplifying stored information in said memory cell;

first sense amplifier driving means controlled by a first signal, a second signal delayed by a prescribed time period from the first signal and a refresh operation control signal, for coupling/decoupling said sense amplifier to and from a first power supply potential,

said first sense amplifier driving means including

a first switch circuit opened/closed by said first signal, and

a second switch circuit opened/closed by said second signal, said second switch circuit having its on-resistance switched to either one of a first and a second value by the refresh operation control signal; and

second sense amplifier driving means controlled by the same signals as said first sense amplifier driving means for coupling/decoupling said sense amplifier to and from a second power supply potential,

said second sense amplifier driving means including

a third switch circuit opened/closed by said first signal, and

a fourth switch circuit opened/closed by said second signal, said fourth switch circuit having its on-resistance switched to either one of a third and a fourth value by the refresh operation control signal.

5,726,944

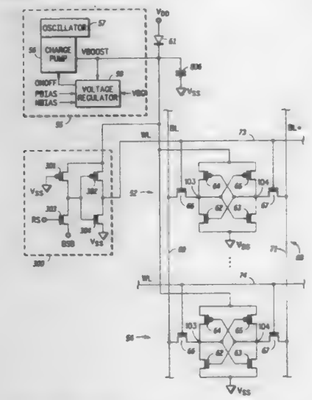
VOLTAGE REGULATOR FOR REGULATING AN OUTPUT VOLTAGE FROM A CHARGE PUMP AND METHOD THEREFOR

Perry H. Pelley, III, Austin, Tex., and Robert C. Taft, Salem, N.H., assignors to Motorola, Inc., Schaumburg, Ill.

Filed Feb. 5, 1996, Ser. No. 596,809

Int. Cl.[6] G11C *13/00*

U.S. Cl. 365—226 23 Claims



1. A voltage regulator for regulating an output of a boosted voltage from a charge pump to be supplied to a memory circuit, said regulator comprising:

circuitry for sensing said boosted voltage;

circuitry, coupled to said sensing circuitry, for setting said boosted voltage to one of a plurality of operating states; and

circuitry, coupled to said setting circuitry, for controlling an operation of said charge pump during said one of said plurality of operating states.

5,726,945

SEMICONDUCTOR DEVICE WITH REDUCED POWER CONSUMPTION AND THIN FILM TRANSISTOR USED IN SEMICONDUCTOR MEMORY DEVICE FOR ACHIEVING REDUCTION IN POWER CONSUMPTION

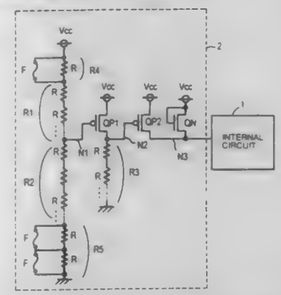
Motomu Ukita; Toshihiko Hirose, and Shigeto Maegawa, all of Hyogo, Japan, assignors to Mitsubishi Denki Kabushiki Kaisha, Tokyo, Japan

Filed Jul. 3, 1996, Ser. No. 676,596

Claims priority, application Japan, Oct. 24, 1995, 7-275918

Int. Cl.[6] G11C *5/14*

U.S. Cl. 365—226 16 Claims



1. A semiconductor memory device including an internal circuit having a plurality of memory cells for storing information, comprising:

first resistance means connected between a first line for applying a first power supply voltage and a first node;

second resistance means connected between said first node and a second line for applying a second power supply voltage;

a first transistor of a first conductivity type connected between said first line and a second node and having a control electrode connected to said first node;

third resistance means connected between said second node and said second line;

a second transistor of the first conductivity type connected between said first line and a third node and having a control electrode connected to said second node; and

a transistor of a second conductivity type connected between said first line and said third node and having a control electrode connected to said first line; wherein

said first resistance means includes one or a plurality of first resistance elements having substantially a same resistance value and a same structure;

said second resistance means includes one or a plurality of second resistance elements having substantially said same resistance value and said same structure;

said second transistor of the first conductivity type generates at said third node a first voltage to be applied to said internal circuit based on said first power supply voltage;

said transistor of the second conductivity type generates at said third node a second voltage to be applied to said internal circuit based on said first power supply voltage;

said second transistor of the first conductivity type is turned off when said first power supply voltage reaches a predetermined voltage and stops generation of said first voltage; and

a value of said predetermined voltage as a condition for turning off said second transistor of the first conductivity type is determined by a ratio of a resistance value of said first resistance means to a resistance value of said second resistance means (a resistance value of said first resistance means: a resistance value of said second resistance means).

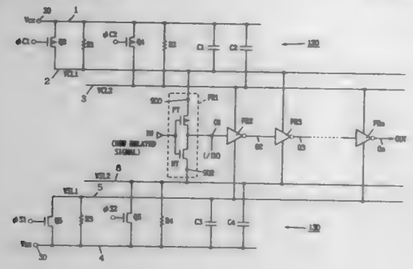
VOL 1208 ISS 2 MR 10 1998 UMI

5,726,946

SEMICONDUCTOR INTEGRATED CIRCUIT DEVICE HAVING HIERARCHICAL POWER SOURCE ARRANGEMENT

Tadato Yamagata; Kazutami Arimoto, and Masaki Tsukude, all of Hyogo, Japan, assignors to Mitsubishi Denki Kabushiki Kaisha, Tokyo, Japan

Continuation of Ser. No. 458,583, Jun. 2, 1995, abandoned.
This application Mar. 19, 1997, Ser. No. 820,545
Claims priority, application Japan, Jun. 2, 1994, 6-121299; Dec. 22, 1994, 6-320102; Feb. 13, 1995, 7-023590
Int. Cl.[6] G11C 7/00
U.S. Cl. 365—226 22 Claims



1. A semiconductor device receiving at an input node a signal which attains to a low level in a standby cycle and to a high level in an active cycle, said active cycle having a set period in which said signal changes from the low level to the high level, and a holding period in which said signal is maintained at the high level, said semiconductor device comprising:

a first power supply node receiving a voltage corresponding to said high level;

a first main power supply line coupled to said first power supply node for transmitting the voltage applied to said first power supply node;

a first subpower supply line;

first resistance component connected between said first main power supply line and said first subpower supply line;

first switching component connected between said first main power supply line and said first subpower supply line, which is rendered conductive in said stand-by cycle and said set period, and rendered non-conductive in said holding period;

a second power supply node receiving a voltage corresponding to said low level;

a second main power supply line transmitting the voltage applied to said second power supply node;

a second subpower supply line;

second resistance component connecting said second main power supply line and said second subpower supply line;

second switching component connected between said second main power supply line and said second subpower supply line, which is rendered non-conductive in said stand-by cycle and rendered conductive in said active cycle; and

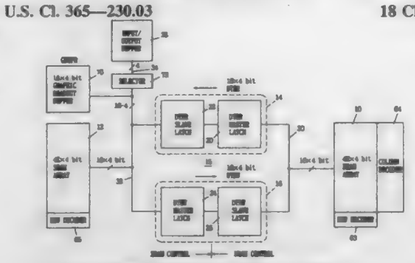
a logic gate operating using the voltage on said first subpower supply line and the voltage on said second subpower supply line as operating power supply voltages for performing a predetermined logical operation on the signal at said input node.

5,726,947

SYNCHRONOUS SEMICONDUCTOR MEMORY DEVICE SUITABLE FOR GRAPHIC DATA PROCESSING

Akira Yamazaki, and Katsumi Dosaka, both of Hyogo, Japan, assignors to Mitsubishi Denki Kabushiki Kaisha, Tokyo, Japan

Filed Apr. 25, 1996, Ser. No. 637,909
Claims priority, application Japan, Jul. 14, 1995, 7-178628
Int. Cl.[6] G11C 13/00
U.S. Cl. 365—230.03 18 Claims



1. A semiconductor memory device comprising:

a first memory array including a plurality of memory cells,

a second memory array including a plurality of memory cells,

data transfer means provided between said first and second memory arrays, for transferring data therebetween,

storage means for storing and transferring data used for a particular process with the first memory array, and

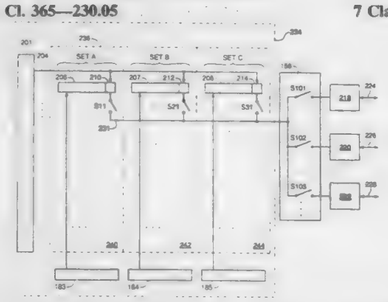
an input/output circuit selectively coupled to one of said data transfer means, said second memory array and said storage means, for transferring data between an outside of the semiconductor memory device and a selectively coupled one of said data transfer means, said second memory array and said storage means.

5,726,948

MULTI-PORT MEMORY DEVICE WITH MULTIPLE SETS OF COLUMNS

Glen E. Hush, Boise, Id., and Stephen L. Casper, Boise, Id., assignors to Micron Technology, Inc., Boise, Id.

Continuation of Ser. No. 479,533, Jun. 8, 1995, abandoned, which is a division of Ser. No. 323,179, Oct. 14, 1994, Pat. No. 5,490,112, which is a continuation-in-part of Ser. No. 013,897, Feb. 5, 1993, Pat. No. 5,450,355. This application Dec. 6, 1996, Ser. No. 761,233
Int. Cl.[6] G11C 8/00
U.S. Cl. 365—230.05 7 Claims



1. An integrated circuit formed on a substrate, the integrated circuit operable for storing data, the integrated circuit comprising:

a. a first serial access memory circuit having a first serial access memory cell, a second serial access memory circuit having a second serial access memory cell, and a third serial access memory circuit having a third serial access memory cell;

b. a bus;

c. a first set of memory array columns having a first sense amplifier, a second set of memory array columns having a second sense amplifier, and a third set of memory array columns having a third sense amplifier;

d. a switching circuit for:

(1) selectively coupling any combination from none to all of the first, the second, and the third serial access memory cell to the bus; and

(2) selectively coupling any combination from none to all of the first, the second, and the third sense amplifier to the bus; and

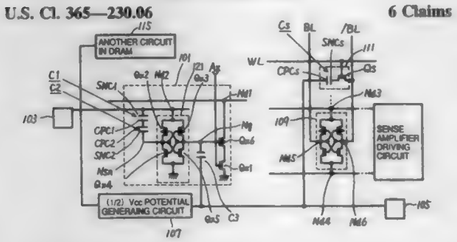
e. wherein the first, the second, and the third set of memory array columns are disposed within a first region and the first, the second, and the third serial access memory circuits are disposed outside the first region.

5,726,949

SEMICONDUCTOR MEMORY DEVICE HAVING A REDUNDANT CONFIGURATION

Tomoya Kawagoe, Hyogo, Japan, assignor to Mitsubishi Denki Kabushiki Kaisha, Tokyo, Japan

Filed Oct. 22, 1996, Ser. No. 735,141
Claims priority, application Japan, Jan. 24, 1996, 8-010001
Int. Cl.[6] G11C 7/00
U.S. Cl. 365—230.06 6 Claims



1. A semiconductor memory device, comprising:

a plurality of memory cells each including a first capacitor having a cell plate electrode, a storage node electrode, and a first dielectric layer formed between said cell plate electrode and said storage node electrode; and

a plurality of address detecting means capable of registering a defective address indicating a defective memory cell out of said plurality of memory cells for detecting whether an external address matches said defective address or not, and each corresponding to 1 bit of said external address or complementary 1 bit thereof, wherein

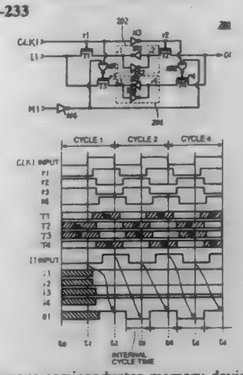
each of said plurality of address detecting means includes a second capacitor having a floating electrode formed in a same layer as said cell plate electrode, a fixed electrode formed in a same layer as said storage node electrode, and a second dielectric layer formed in a same layer as said first dielectric layer and formed between said floating electrode and said fixed electrode.

5,726,950

SYNCHRONOUS SEMICONDUCTOR MEMORY DEVICE PERFORMING INPUT/OUTPUT OF DATA IN A CYCLE SHORTER THAN AN EXTERNAL CLOCK SIGNAL CYCLE

Yasuyuki Okamoto, and Ryuichi Matsuo, both of Hyogo, Japan, assignors to Mitsubishi Denki Kabushiki Kaisha, Tokyo, Japan

Filed Jan. 7, 1997, Ser. No. 779,829
Claims priority, application Japan, Feb. 22, 1996, 8-035109
Int. Cl.[6] G11C 8/00
U.S. Cl. 365—233 13 Claims



1. A synchronous semiconductor memory device for accepting external signals including a control signal, an address signal and a data signal in synchronization with an external clock signal, comprising:

a memory cell array including a plurality of memory cells arranged in rows and columns;

a control circuit for accepting said control signal in response to rising of said external clock signal;

an address register for accepting said address signal in response to rising of said external clock signal;

memory cell select means being controlled by said control circuit to read and write data into and from said memory cell corresponding to said address signal;

data input means for receiving said externally applied data signal and applying the same to said memory cell select means; and

data output means for receiving the data from said memory cell select means and externally outputting the same, wherein

said data input means and said data output means are responsive to rising and falling of said external clock signal.

5,726,951

STANDOFF COMPENSATION FOR ACOUSTIC LOGGING WHILE DRILLING SYSTEMS

James Robert Birchak, Spring; Eugene Joseph Linyaev; John Wesley Minear, both of Houston; Carl Arthur Robbins, Tomball, and Bruce Mackie, Houston, all of Tex., assignors to Halliburton Energy Services, Inc., Houston, Tex.

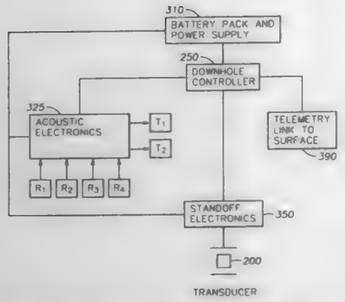
Filed Apr. 28, 1995, Ser. No. 430,822
Int. Cl.[6] G01V 1/40
U.S. Cl. 367—38 27 Claims

1. A method for aligning acoustical signals from a downhole sensor in a logging tool based upon standoff distance from a borehole wall, comprising the steps of:

(a) measuring standoff distance during a sampling interval;

(b) shifting the acoustical signals based upon the measured standoff distance; and

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(c) stacking each acoustical signal to produce a single stacked signal representative of all the acoustical signals obtained during the sampling interval.

5,726,952

SOUND OR ULTRASOUND SENSOR

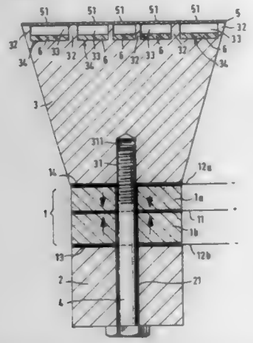
Manfred Eckert, Todtnau, and Karl Flögel, Schopfheim, both of Germany, assignors to Endress + Hauser GmbH + Co., Maulburg, Germany

Filed Apr. 28, 1997, Ser. No. 847,714

Claims priority, application Germany, May 18, 1996, 196 20 133.0

Int. Cl.[6] H04R *17/00*

U.S. Cl. 367—140 **6 Claims**



1. A sensor for transmitting and/or receiving sound or ultrasound having an emitting element (**3**) which has a flat front surface (**34**), and having a transducer element (**1**), the transducer element (**1**) causing the front surface (**34**) to oscillate on the basis of an excitation frequency, such that the entire front surface (**34**) carries out virtually in-phase deflections with virtually equal amplitude parallel to the normal to the front surface (**34**).

wherein

concentric webs (**32**) are arranged on the front surface (**34**), there is a concentric gap (**33**) in each case between two adjacent webs (**32**), and a disk (**5**), seals the sensor flush at the front,

which disk is firmly connected to the webs (**32**) and

has segments which are not connected to the webs (**32**) and are used as membranes (**51**).

5,726,953

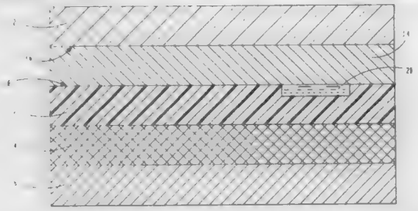
ELECTROLUMINESCENT LAMP WITH BURIED INDICIAE AND METHOD FOR MAKING SAME

Bradley J. LaPointe, Shorewood, Minn., and David G. Sime, Boulder, Colo., assignors to Metro-Mark, Incorporated, Minnetonka, Minn.

Continuation of Ser. No. 418,551, Apr. 7, 1995, abandoned. This application May 14, 1996, Ser. No. 645,917

Int. Cl.[6] G04B *19/30;* **G04C** *17/00;* **G09F** *13/22;* **H05B** *33/02*

U.S. Cl. 368—67 **7 Claims**



1. An electroluminescent lamp with buried indiciae, comprising:

a polymer substrate;

a front electrode comprising electrically-conductive material and having a first surface adhered to the polymer substrate;

electrically insulating EL phosphor indiciae material deposited in a predetermined pattern directly on a second surface of the front electrode, said indiciae material being capable of providing sufficient contrast when viewed with the electroluminescent lamp in an illuminated or non-illuminated state;

an electroluminescent layer deposited on the front electrode and the indiciae material;

an insulating layer comprising electrically-insulating material deposited on the electroluminescent layer; and

a back electrode comprising electrically-conductive material deposited on the electrically-insulating layer.

5,726,954

OPTICAL RECORDING METHOD AND APPARATUS

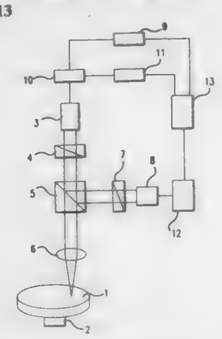
Hiroyuki Matsumoto, Tokyo; Shinichi Kurita; Koichiro Ishii, both of Kanagawa, and Masashi Horikawa, Tokyo, all of Japan, assignors to Nikon Corporation, Tokyo, Japan

Filed Apr. 8, 1996, Ser. No. 629,092

Claims priority, application Japan, Apr. 10, 1995, 7-083628; Apr. 10, 1995, 7-083629; Jun. 15, 1995, 7-149173; Jun. 15, 1995, 7-149174; Jul. 4, 1995, 7-168591; Jul. 4, 1995, 7-168592

Int. Cl.[6] G11B *11/00*

U.S. Cl. 369—13 **5 Claims**



1. An optical recording method comprising:

recording data on an overwritable optical recording medium by modulating a laser beam intensity;

conducting a test recording of data on the optical recording medium while maintaining a low level laser beam intensity at a predetermined value and changing a high level laser beam intensity;

reproducing the data, which was test recorded; and

determining an optimum recording laser beam intensity by comparing the reproduced data with the test recording.

5,726,955

MAGNETO OPTICAL RECORDING MEDIUM APPARATUS AND METHOD UTILIZING LIGHT PULSE MAGNETIC MODULATION RECORDING

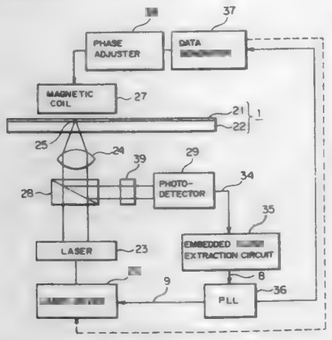
Seiji Yonezawa, Hachioji; Norio Ohta, Iruma; Toshio Niihara, Sayama; Keiji Kataoka, Kawagoe; Masahiko Takahashi, Hachioji; Harukazu Miyamoto, Kodaira; Hirofumi Sukeda, Kokubunji, and Toshiaki Tsuyoshi, Kawasaki, all of Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Continuation of Ser. No. 429,008, Apr. 26, 1995, Pat. No. 5,579,292, which is a continuation of Ser. No. 979,338, Nov. 20, 1992, Pat. No. 5,473,581, which is a continuation of Ser. No. 353,602, May 18, 1989, Pat. No. 5,170,383. This application Nov. 6, 1996, Ser. No. 744,760

Claims priority, application Japan, May 20, 1988, 63-121734

Int. Cl.[6] G11B *11/00*

U.S. Cl. 369—13 **9 Claims**



1. An information recording apparatus comprising:

a magneto-optic data recording medium having a plurality of segments along a track, each segment including a first area at least for control data and a second area for coded data to be recorded;

first means for applying a magnetic pulse having a polarity corresponding to data to be recorded to the recording medium;

signal generating means for generating a reproducing signal corresponding to the control data;

clock means for generating a clock signal having a frequency synchronized with a frequency signal obtained from the reproducing signal, the frequency of the clock signal being N times the frequency signal, N being a value greater than 1;

second means for continuously irradiating optical pulses in synchronism with the frequency of the clock signal; and

third means for generating the magnetic pulse by modulating the data synchronized with the frequency of the clock signal.

5,726,956

APPARATUS AND METHOD FOR CONTROLLING PLURAL DISC REPRODUCING APPARATUS FOR CONTINOUS REPRODUCTION

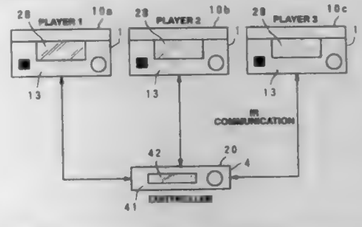
Hajime Kanno, Ibaraki, Japan, assignor to Sony Corporation, Tokyo, Japan

Filed Mar. 12, 1996, Ser. No. 614,400

Claims priority, application Japan, Mar. 15, 1995, 7-056112

Int. Cl.[6] G11B *17/22*

U.S. Cl. 369—30 **23 Claims**



1. A disc system having a plurality of disc reproducing apparatus each configured for housing at least one disc and for reproducing the discs, said disc system controlling the playback sequence of the disc reproducing apparatus, said system comprising:

time detection means for detecting the residual play time of a disc currently reproduced by one of a plural disc reproducing apparatus;

comparator means for comparing the residual play time detected by the time detection means to a pre-set time; and

control means for controlling, based upon the result of comparison by said comparator means, an optional optical disc of another one of the plural disc reproducing apparatus to a stand-by state for reproduction, said control means canceling the stand-by state of the optional disc of said another one of said disc reproducing apparatus on detection of termination of the reproduction of the disc by said one of the disc reproducing apparatus.

5,726,957

REPRODUCING APPARATUS FOR A RECORDING MEDIUM AND CONTROL APPARATUS THEREFOR, FOR STORING ADMINISTRATION INFORMATION IN A REPRODUCTION STAND-BY MODE

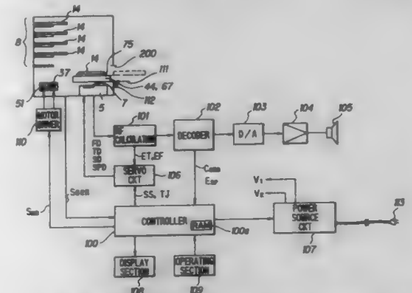
Nobuaki Hisamatsu, Tokyo, Japan, and Hiroyuki Kikkoji, Tokyo, Japan, assignors to Sony Corporation, Tokyo, Japan

Division of Ser. No. 448,809, May 24, 1995. This application Oct. 7, 1996, Ser. No. 727,795

Claims priority, application Japan, May 25, 1994, 6-133976; May 25, 1994, 6-133977

Int. Cl.[6] G11B *17/22;3/90*

U.S. Cl. 369—30 **10 Claims**



8. A reproducing apparatus for a recording medium in which administration information for the recording medium is recorded, the apparatus comprising:

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a stocking section for stocking a plurality of recording media including the recording medium;

reproducing means for reproducing information and administration information from the recording media;

transferring means for selectively picking up the recording medium from the stocking section and transferring the recording medium between the stocking section and the reproducing means, and transferring the recording medium to an eject position out of the reproducing apparatus;

storage means for storing the administration information of the recording media reproduced by the reproducing means; and

control means for controlling each operation of the transferring means, the reproducing means and the storage means;

wherein if any recording medium for which the administration information is not stored in the storage means is present in the plurality of recording media stocked in the stocking section when a reproducing operation of the recording medium by the reproducing means is undergoing a reproduction stand-by condition, the control means controls the transferring means to pick up from the stocking section the recording medium for which the administration information has not been stored into the storage means, reproduces the picked up recording medium, and stores the administration information of the picked up recording medium in the storage means;

wherein when the storage means is undergoing a storage operation of the recording medium for which the administration information is not stored in the storage means and simultaneously a reproduction start command of the recording medium by the reproducing means is issued, the control means interrupts the storage operation; and

wherein when the recording medium is transferred to the eject position, the control means deletes from the storage means the administration information of the recording medium which has been transferred to the eject position.

5,726,958

SPINDLE MOTOR GAIN CONTROL METHOD FOR CD-ROM DRIVES AND APPARATUS THEREFOR

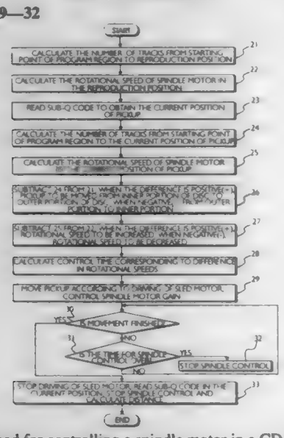
Kyoung-seo Min, Suwon, Rep. of Korea, assignor to SamSung Electronics Co., Ltd., Suwon, Rep. of Korea

Filed Apr. 5, 1996, Ser. No. 628,336

Claims priority, application Rep. of Korea, May 12, 1995, 95-11764

Int. Cl.[6] G11B *17/22*

U.S. Cl. 369—32 **19 Claims**



1. A method for controlling a spindle motor in a CD-ROM drive, comprising the steps of:

calculating a first number of tracks on a disc from a starting point of a program region to a reproduction position of data to be reproduced according to information received from a main controller;

calculating a first rotational speed of said spindle motor corresponding to said reproduction position;

reading a predetermined code to obtain information representative of a current position of a pickup;

calculating a second number of tracks on said disc from said starting point of said program region to said current position of said pickup;

calculating a second rotational speed of said spindle motor corresponding to said current position of said pickup; and

driving a sled motor to move said pickup to said reproduction position based on a first quantity defining a difference between said first number of tracks and said second number of tracks, and controlling said spindle motor for a predetermined control time corresponding to a second quantity defining a difference between said first rotational speed and said second rotational speed, said predetermined control time being obtained from a memory storing said predetermined control time and said second quantity.

5,726,959

METHOD FOR SEARCHING A TRACK OF A COMPACT DISK DRIVE

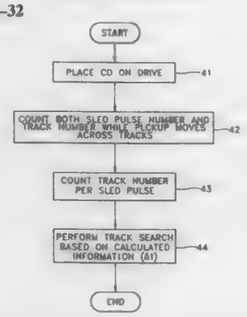
Won-jae Yu, Suwon, Rep. of Korea, assignor to Samsung Electronics Co., Ltd., Kyungki-Do, Rep. of Korea

Filed Nov. 19, 1996, Ser. No. 752,227

Claims priority, application Rep. of Korea, Jul. 23, 1996, 96-29883

Int. Cl.[6] G11B *7/00*

U.S. Cl. 369—32 **4 Claims**



1. A method for searching a track on a disc in a disc drive, comprising the steps of:

a) generating a reference signal having a predetermined period;

b) moving a pickup across tracks from a starting point of a disc region where information is recorded to an end point of the disc region where information is recorded;

c) counting a number of pulses of said reference signal which are generated during said moving step and a number of tracks across which said pickup moves during said moving step;

d) dividing the counted number of tracks by the counted number of pulses of said reference signal, thereby obtaining a number of tracks per reference signal pulse; and

e) searching a target track based on the number of tracks per reference signal pulse obtained in said step d).

5,726,960

DISC PLAYER HAVING DISC CHANGING FUNCTION

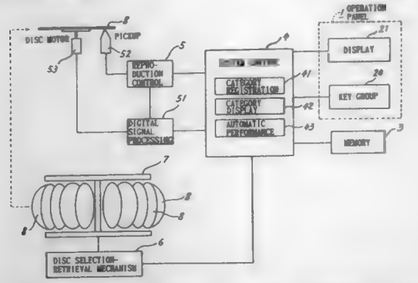
Masanao Yoshida, and Masao Horiuchi, both of Higashiosaka, Japan, assignors to Sanyo Electric Co., Ltd., Moriguchi, Japan

Continuation of Ser. No. 512,075, Aug. 7, 1995, abandoned, which is a continuation of Ser. No. 158,447, Nov. 29, 1993, abandoned. This application Nov. 8, 1996, Ser. No. 745,634

Claims priority, application Japan, Nov. 30, 1992, 4-320388

Int. Cl.[6] G11B *17/22;27/10*

U.S. Cl. 369—34 **6 Claims**



1. A disc player for selectively playing a plurality of discs accommodated in a plurality of disc storage portions, the disc player comprising:

A. memory means for storing a category name for each of the disc storage portions;

B. category specifying means to be manipulated for specifying the category name of the discs to be played,

the category specifying means providing an initiation step for providing a sequence of individual discs belonging to the specified category name of the discs; and

C. automatic reproduction means operably coupled to the category specifying means having:

a. a first retrieving means for retrieving from the memory means the category name specified by manipulating the category specifying means,

b. a second retrieving means for successively retrieving the plurality of discs from the disc storage portions directly based on the initiation step, and

c. a means for successively automatically playing the plurality of discs in the disc storage portions given the category name directly based on the initiation step without a need for any intervening acts to be performed by a user.

5,726,961

OPTICAL PICKUP CONTROL SYSTEM FOR OPTICAL DISCS HAVING DIFFERENT REFLECTIVITIES

Naoharu Yanagawa, Saitama-ken, Japan, assignor to Pioneer Electronic Corporation, Tokyo, Japan

Continuation of Ser. No. 513,295, Aug. 10, 1995, which is a continuation of Ser. No. 284,270, Aug. 2, 1994, which is a continuation of Ser. No. 955,374, Oct. 1, 1992. This application Mar. 17, 1997, Ser. No. 819,487

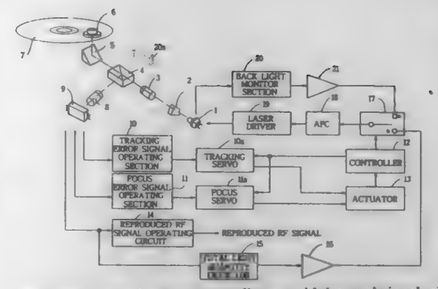
Claims priority, application Japan, Feb. 21, 1992, 4-072292

Int. Cl.[6] G11B *7/09*

U.S. Cl. 369—44.31 **2 Claims**

1. An optical pickup control system for various types of discs having different reflectivities of light, the optical pickup control system having a pickup having a semiconductor laser radiating a laser beam, a photodetector detecting reflected light from a disc for controlling tracking and focusing of the beam, and a tracking servo and a focus servo responsive to reflected light for performing a tracking operation and a focusing operation, the system comprising:

a light quantity detector for detecting quantity of light received by the photodetector and for producing a detected signal; and



laser power control means responding to said detected signal, a) for linearly maintaining a signal level detected by the photodetector to be in a zone where a carrier to noise ratio is constant irrespective of the type of disc by adjusting at least one of the power of the laser beam from the semiconductor laser and electrical gain, and b) for automatically controlling the tracking servo and the focus servo such that tracking and focus error signals are detected.

5,726,962

COMPACT OPTICAL PICKUP DEVICE WITH BEAM SPLITTER

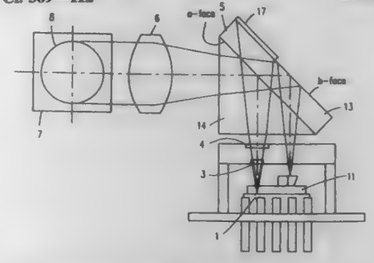
Kuniaki Okada, Tenri, Japan; Kohji Minami, Gose, Japan; Hiroyuki Yamamoto, Tenri, Japan; Yoshio Yoshida, Nara, Japan, and Yukio Kurata, Tenri, Japan, assignors to Sharp Kabushiki Kaisha, Osaka, Japan

Filed Jun. 6, 1995, Ser. No. 465,886

Claims priority, application Japan, Dec. 19, 1994, 6-315349

Int. Cl.[6] G11B *7/00*

U.S. Cl. 369—112 **28 Claims**



1. An optical pickup device comprising:

light emitting means for emitting a light beam;

a collimating lens for collimating the light beam;

an objective lens for focusing the collimated light beam from the collimating lens onto a recording medium;

beam splitting means for splitting the light beam returned from the recording medium into two light beams;

servo error signal detecting means for receiving one of the two light beams and detecting a servo error signal;

a diffracting element for diffracting the one of the two light beams from the beam splitting means to direct the one of the two light beams toward the servo error signal detecting means;

optical waveguide means for receiving the other one of the two light beams and detecting a magneto-optical signal, the other one of the two light beams from the beam splitting means being incident upon the optical waveguide means without passing through the diffracting element,

wherein the beam splitting means is disposed between the collimating lens and the diffracting element;

wherein after reflection from a respective surface of the beam splitter, one of the two light beams is guided toward the optical waveguide means and split into its polarized compo-

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nents in the optical waveguide means for detecting a magneto-optical signal;

wherein the beam splitting means includes a prism and a glass plate having two plane faces opposing to each other, a partial reflection mirror is formed on one of the two plane faces which is an interface between the prism and the glass plate, and a total reflection mirror is formed on the other one of the two plane faces; and

wherein the light beam emitted by the light emitting means is incident upon a first region of the total reflection mirror, the light beam returned from the recording medium is incident upon a second region of the total reflection mirror, the thickness of the glass plate is determined so that the first region does not overlap a second region, and an antireflection film is provided in the first region.

5,726,963

INFORMATION REPRODUCTION APPARATUS INCLUDING A PHASE COMPENSATION CIRCUIT FOR ELIMINATING THE INFLUENCE OF AC-COUPLING

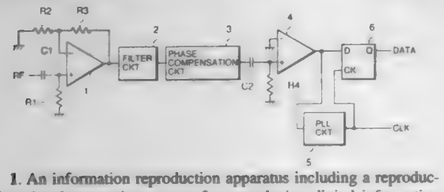
Shinichi Ohta, Tokyo, Japan, assignor to Canon Kabushiki Kaisha, Tokyo, Japan

Filed Apr. 16, 1996, Ser. No. 633,176

Claims priority, application Japan, Apr. 17, 1995, 7-090930

Int. Cl.[6] G11B *7/00*

U.S. Cl. 369—124 **11 Claims**



1. An information reproduction apparatus including a reproduction signal processing system for reproducing digital information recorded on an information track of a recording medium by a bit edge recording method and for reproducing the digital information by converting a reproduction signal read out from the recording medium into a binary signal after the reproduction signal is subjected to AC-coupling, said apparatus comprising:

a phase compensation circuit arranged in said reproduction signal processing system to compensate for a phase distortion of the reproduction signal under the influence of the AC-coupling.

5,726,964

SCANNING HEAD INCLUDING A MAGNETO-OPTICAL ELEMENT AND SCANNING DEVICE INCLUDING THE SCANNING HEAD

Hans W. Van Kesteren, Eindhoven, Netherlands, and Jacobus J. M. Ruigrok, Eindhoven, Netherlands, assignors to U.S. Philips Corporation, New York, N.Y.

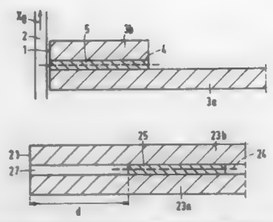
Filed Jul. 13, 1995, Ser. No. 501,833

Claims priority, application European Pat. Off., Sep. 23, 1994, 94202743

Int. Cl.[6] G11B *7/00;5/127*

U.S. Cl. 369—112 **10 Claims**

1. A scanning head having a head face for scanning an information medium for reading information recorded in the information medium, which scanning head comprises a magneto-optical sensor element, and at least two magnetic flux-guiding elements, for guiding magnetic flux from the information medium being scanned through the head face to the magneto-optical sensor element, the flux guiding elements having facing planar surfaces which are spaced apart from one another to form a gap plane which extends therebetween, and the magneto-optical sensor element disposed in the gap plane which extends between the flux-guiding elements,



characterized in that the two flux guiding elements border on the head face and the magneto-optical element is situated at a distance from the head face.

5,726,965

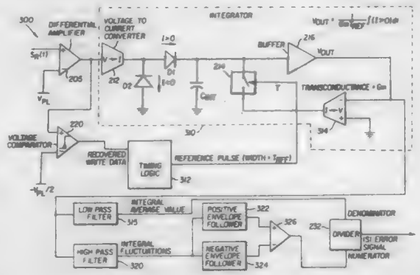
INTERSYMBOL INTERFERENCE DETECTION IN AN OPTICAL RECORDING SYSTEM USING A REFLECTED WRITE SIGNAL

Roger A. Hajjar, Fairport, N.Y.; Jeffrey Thomas Klaus, Rochester, N.Y., and Clarke K. Eastman, Rochester, N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.

Filed Feb. 29, 1996, Ser. No. 608,802

Int. Cl.[6] G11B *7/00;3/90*

U.S. Cl. 369—124 **16 Claims**



5. An apparatus for use in an optical recording system in which an incident beam records data as marks on a recording medium and an optical detector generates a reflected write signal from a return beam reflected from the medium, said apparatus comprising:

(a) an interference detector coupled to the optical detector and having an input connected to receive the reflected write signal and an output corresponding to a difference between first and second reflected write pulses of the reflected write signal;

(b) the interference detector further includes:

(i) an integrator having a first input connected to receive at least a portion of the reflected write signal;

(ii) a timing logic circuit having an output coupled to a second input of the integrator, the timing logic circuit output corresponding to a pulse signal supplied to the integrator for each of the first and second reflected write pulses; and

(iii) a signal difference circuit coupled to an output of the integrator and receiving therefrom an integrator output signal, the difference circuit having an output corresponding to an error signal indicative of the difference between the first and second reflected write pulses; and

(c) the first reflected write pulse corresponding to a first mark following a first land and the second reflected write pulse corresponding to a second mark following a second land longer than the first land.

5,726,966

OPTICAL RECORDING MEDIUM REPRODUCING APPARATUS USING EDGE DETECTING TECHNIQUE

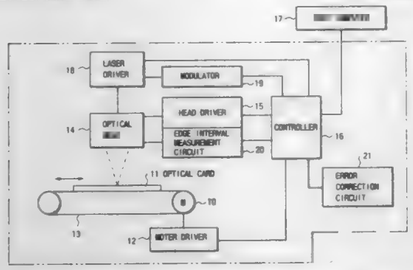
Takumi Sugaya, Kokubunji, Japan, assignor to Olympus Optical Co., Ltd., Tokyo, Japan

Filed Nov. 25, 1996, Ser. No. 755,977

Claims priority, application Japan, Nov. 28, 1995, 7-308870

Int. Cl.[6] G11B *7/00*

U.S. Cl. 369—124 **10 Claims**



1. A demodulation device for use with an optical recording medium comprising:

edge detecting means for detecting edges of a binary signal corresponding to marks written onto said optical recording medium as information;

edge interval measuring means for measuring a value for the interval between two successive edges detected by said edge detecting means;

storage means for storing a table that relates thresholds representing upper and lower limits on at least one of a length of the mark and an interval between the marks to demodulated bit strings; and

data conversion means for comparing an edge interval value obtained by said edge interval measuring means with said thresholds representing upper and lower limits to thereby determine one of a corresponding length of the mark and an interval between marks and obtain a demodulated bit string corresponding to said edge interval value measured from said table.

5,726,967

DISK PLAYBACK APPARATUS FOR A DISK PLAYER

Shinsaku Tanaka; Tadao Arata; Akira Iwakiri, and Makoto Saeki, all of Tokyo, Japan, assignors to Tanashin Denki Co., LTD., Tokyo, Japan

Continuation of Ser. No. 200,406, Feb. 23, 1994, abandoned. This application May 29, 1996, Ser. No. 654,721

Claims priority, application Japan, Jun. 30, 1993, 5-187345; Jul. 13, 1993, 5-195450; Oct. 29, 1993, 5-294559

Int. Cl.[6] G11B *17/10;17/04*

U.S. Cl. 369—192 **6 Claims**

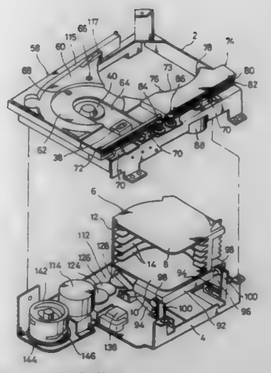
1. A disk changing apparatus for a disk player comprising:

a stocker for storing disks to be played, said stocker including a plurality of vertically spaced shelves on which the disks are received, and allowing the disks to be drawn out from the shelves, a gap being defined between the disks on adjacent shelves;

a pallet disposed adjacent to said stocker and operatively configured for receiving one of the disks from a selected one of the shelves of said stocker;

raising/lowering means for moving said stocker up and down so that the selected one of the shelves of said stocker is located immediately above said pallet;

loading means for delivering the one disk from the selected one of the shelves of said stocker onto said pallet along a transportation path for the one disk so that the one disk received on said pallet from the selected one shelf of said stocker partially overlaps an adjacent disk on a second shelf directly over the selected one shelf of said stocker with a vertical space which is defined between the one disk on said pallet and the adjacent disk on the second shelf and is wider than the gap,



said loading means including

level changing means for changing the vertical level of one side edge of the one disk while the one disk on the selected one shelf is delivered toward said pallet, the one side edge of the one disk being located at one side of the transportation path of the one disk, and

a slope provided on said pallet, for guiding the other side edge of the one disk while the one disk on the selected one shelf is delivered toward said pallet so that the vertical level of the other side edge is lowered in association with the level change of the one side edge of the one disk by the level changing means, the other side edge being separated from the one side edge in a diametrical direction of the selected one disk; and

clamp means for raising the selected one disk on said pallet to a playback position defined below the second shelf in said stocker and clamping the selected one disk for rotation in the playback position.

5,726,968

ELECTRO-OPTICAL SCANNING DEVICE, HINGE ELEMENT FOR USE IN THE SCANNING DEVICE, AND OPTICAL PLAYER COMPRISING THE SCANNING DEVICE

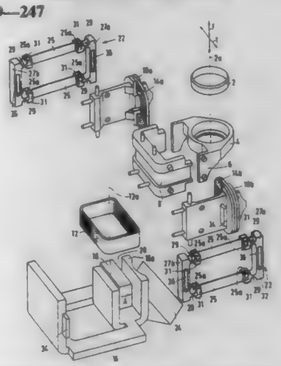
Petrus J. Blankers, and Gerardus L. C. Elders, both of Eindhoven, Netherlands, assignors to U.S. Philips Corporation, New York, N.Y.

Filed Nov. 9, 1992, Ser. No. 973,019

Claims priority, application European Pat. Off., Nov. 7, 1991, 91202893

Int. Cl.[6] G11B *21/20;7/09*

U.S. Cl. 369—247 **10 Claims**



1. An electro-optical scanning device comprising:

a stationary section,

a movable section,

a lens having an optical axis, carried on said movable section,

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an elastically deformable suspension for securing said movable section to said stationary section, permitting relative movement of said lens in a focusing direction to form at least one radiation spot on a surface to be scanned, and a tracking direction oriented transversely of said focusing direction, and

a first actuator carried on said stationary section, and a second actuator carried on said movable section, said actuators cooperating electromagnetically through an air gap to drive the lens,

characterized in that said suspension comprises a double parallelogram guide system formed by two hinge frames extending parallel to one another, transversely to a plane defined by the focusing direction and the tracking direction,

each hinge frame comprises two plastic fixing members and two elongate metal supporting members,

each fixing member having a fixing portion, two connecting portions, and two integral hinges each connecting a respective one of said connecting portions to the fixing portion, each hinge having a hinge axis extending in the tracking direction; and

said two supporting members being formed by two respective elongate metal blade springs extending between and embedded in two of said connecting portions respectively, said blade springs being flexible for movement in the tracking direction and rigid in the focusing direction.

5,726,969

OPTICAL RECORDING MEDIUM HAVING DUAL INFORMATION SURFACES

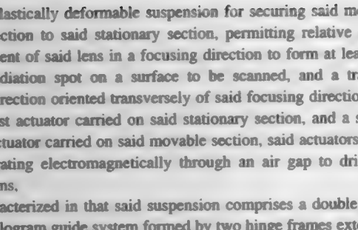
Mitsurou Moriya, Ikoma; Shin-ichi Tanaka, Kyoto; Yasuhiro Sugihara, Katano; Hiroshi Taniguchi, Hirakata, and Michiyoshi Nagashima, Ikoma, all of Japan, assignors to Matsushita Electric Industrial Co., Ltd., Osaka, Japan

Filed Dec. 22, 1995, Ser. No. 577,253

Claims priority, application Japan, Dec. 28, 1994, 6-327961; Nov. 30, 1995, 7-313377

Int. Cl.[6] G11B *7/24*

U.S. Cl. 369—275.1 **9 Claims**



1. An optical recording medium comprising:

a first substrate having a first information surface;

a semitransparent reflection film formed on the first information surface of the first substrate;

a second substrate having a second information surface;

a reflection film formed on the second information surface of the second substrate; and

an adhesive layer for adhering the first substrate and the second substrate so that the first information surface and the second information surface face each other,

wherein the thickness of the first substrate is at least 0.56 mm,

the thickness of the adhesive layer is at least 30 μm, and

the total thickness of the first substrate and the adhesive layer is in the range of 0.59 mm to 0.68 mm.

5,726,970

MULTI-LAYER OPTICAL RECORDING MEDIUM

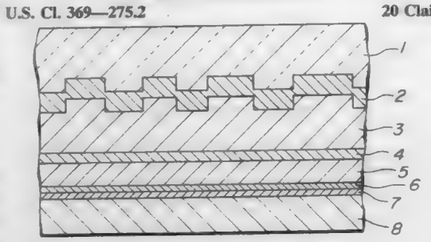
Masahiko Kaneko, Kanagawa; Ariyoshi Nakaoki, Tokyo, and Tetsuhiro Sakamoto, Chiba, all of Japan, assignors to Sony Corporation, Japan

Filed Mar. 14, 1995, Ser. No. 615,965

Claims priority, application Japan, Mar. 20, 1995, 7-060645

Int. Cl.[6] G11B *7/24;3/74*

U.S. Cl. 369—275.2 **20 Claims**



1. A multi-layer optical disc, comprising:

a substrate having a light-transmission property;

a read-only-memory type information storage portion formed on said substrate;

a semi-transmission layer disposed on said read-only-memory type information storage portion;

a spacer layer disposed on said semi-transmission layer and having a light-transmission property; and

a rewritable information storage layer disposed on said spacer layer;

wherein said spacer layer has a thickness of approximately 3 to 30 μm.

5,726,971

DATA STORAGE CARTRIDGE ASSEMBLY

Mark Elliot Wanger, Fort Collins; Robert Dale Proctor, Loveland, and Thomas Charles Oliver, Fort Collins, all of Colo., assignors to Hewlett-Packard Company, Palo Alto, Calif.

Continuation of Ser. No. 629,305, Dec. 18, 1990, Pat. No. 5,276,675. This application Mar. 29, 1993, Ser. No. 38,430

The portion of the term of this patent subsequent to Jan. 4, 2011, has been disclaimed.

Int. Cl.[6] G11B *23/03*

U.S. Cl. 369—291 **19 Claims**

6. An information storage assembly comprising:

a) a data storage cartridge assembly comprising:

i) a data storage medium for storing data thereon in machine readable form; and

ii) a casing for supporting said data storage medium therewithin and for shielding said data storage medium from physical contact with other objects;

b) a data storage medium reader for slideably receiving said data storage cartridge assembly therein and for reading data from said data storage medium;

c) a cartridge storage cell for storing said data storage cartridge assembly during periods when said cartridge assembly is not inserted in said reader;

d) mechanized cartridge handling assembly for engaging said cartridge assembly and for moving said cartridge assembly between said cartridge storage cell and said reader;

said casing having a wear factor associated with sliding contact with any engaged surface of said reader, said cartridge storage cell, and said mechanized cartridge handling assembly of less than 350×10^{-10} in^3-min/ft-lb-hr;

said casing being constructed from a thermoplastic material impregnated with a lubricating filler wherein said lubricating filler comprises at least 15% by weight of said casing.

5,726,972

LOCATION IDENTIFICATION IN A COMMUNICATIONS SIGNALLING NETWORK

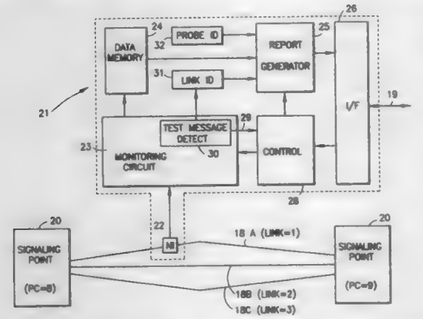
Toby Humfrey Ferguson, Bath, England, assignor to Hewlett-Packard Company, Palo Alto, Calif.

Continuation of Ser. No. 341,070, Nov. 17, 1994, Pat. No. 5,521,902. This application Jan. 17, 1996, Ser. No. 587,696

Claims priority, application European Pat. Off., Dec. 6, 1993, 93309780

Int. Cl.[6] H04B *17/00*

U.S. Cl. 370—13 **3 Claims**



1. Apparatus intended for connection to a telecommunications signalling network, said network having a plurality of signalling points interconnected by signalling links, the network carrying messages of several different types that are generated during a normal course of operation of said network and independent of said apparatus, with each message including both message type information as well as routing information, said routing information identifying for at least one message type, but not all said types, the signalling points directly connected by a signalling link carrying the message concerned and the identity of that link, said apparatus comprising:

interface means for interfacing the apparatus with said signalling link;

monitoring means connected to the interface means for monitoring messages on the link to which the apparatus is interfaced, said monitoring means including link-identity detector means responsive to a presence of a message of said at least one message type on said link, to read and store the routing information contained in the message of said at least one message type.

5,726,973

METHOD AND ARRANGEMENT FOR SYNCHRONIZATION IN OFDM MODULATION

Mikael Isaksson, Lulea, Sweden, assignor to Telia AB, Farsta, Sweden

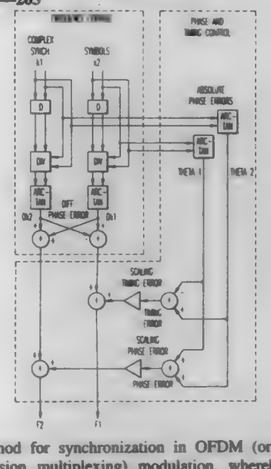
PCT No. PCT/SE94/01266, § 371 Date Aug. 22, 1996, § 102(e) Date Aug. 22, 1996, PCT Pub. No. WO95/19671, PCT Pub. Date Jul. 20, 1995

PCT Filed Dec. 30, 1994, Ser. No. 669,379

Claims priority, application Sweden, Jan. 18, 1994, 9400116

Int. Cl.[6] H04J *11/00*

U.S. Cl. 370—203 **19 Claims**



1. A method for synchronization in OFDM (orthogonal frequency division multiplexing) modulation, whereby frequency errors in an IF (intermediate frequency) clock and a sampling clock are controlled by estimating the deviation of the sampling clock and of the IF clock for two subcarriers with different frequencies (k1 and, respectively, k2), comprising:

choosing the different frequencies (k1, k2) symmetrically around zero;

detecting absolute phase errors (θ1, θ2) for both subcarriers;

forming a timing error and a phase error from the absolute phase errors (θ1, θ2);

forming a first control signal (F1) from the deviation of the sampling clock and the timing error for controlling the sampling clock; and

forming a second control signal (F2) from the deviation of the IF clock and the phase error for controlling the IF clock.

5,726,974

RECEIVING CIRCUIT HAVING A FREQUENCY COMPENSATED LOCAL OSCILLATION CIRCUIT

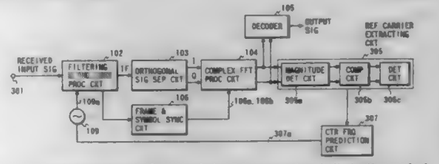
Yoshinori Kunieda, Kawasaki; Yuuri Yamamoto, Yokohama, and Kenichi Takahashi, Kawasaki, all of Japan, assignors to Matsushita Electric Industrial Co., Ltd., Osaka, Japan

Filed Jun. 19, 1996, Ser. No. 666,838

Claims priority, application Japan, Jun. 20, 1995, 7-152877

Int. Cl.[6] H04J *11/00;* **H04L** *27/144*

U.S. Cl. 370—206 **3 Claims**



1. A receiving circuit for receiving a transmitted digitally coded-orthogonal-frequency-division-multiplex-modulated signal and

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which includes multiplexed sub-carriers having a first distribution including a first marker portion at a predetermined frequency comprising one of said multiplexed frequency sub-carriers having a magnitude which is different in magnitude than the remaining sub-carriers, said receiving circuit comprising:

a local oscillator for generating a local oscillation signal having an oscillation frequency controlled in accordance with a frequency control signal;

frequency conversion means responsive to said local oscillation signal for frequency-converting said transmitted signal into an intermediate frequency signal;

orthogonal signal separation means for separating said intermediate frequency signal into in-phase and quadrature-phase components;

complex FFT conversion means for affecting a complex FFT conversion processing to said in-phase and quadrature-phase components and outputting conversion signals to be decoded, said conversion signals having a second distribution, corresponding to said first distribution, said second distribution having a second marker portion corresponding to said first marker portion;

marker detection means for detecting said second marker portion comprising:

(a) magnitude detection means for detecting magnitudes of said conversion signals;

(b) comparing means for comparing said detected magnitudes with each other; and

(c) means for detecting said second marker portion from the result of said comparing means;

frequency detection means for detecting a frequency of said second marker portion; and

prediction means for predicting a center frequency of said multiplexed sub-carriers from said second marker portion from said frequency detection means and generating said frequency control signal in accordance with said predicted center frequency.

5,726,975

SWITCHING SYSTEM CAPABLE OF PERFORMING ALTERNATIVE ROUTING IN ACCORDANCE WITH AN ALTERNATIVE ROUTING SCENARIO ASSEMBLED IN A MAINTENANCE TERMINAL

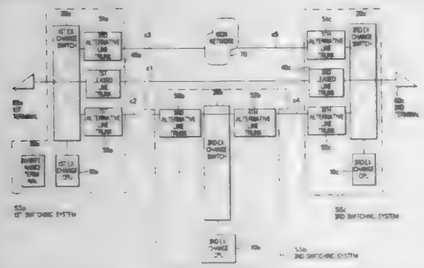
Kiyotsugu Ito, Tokyo, Japan, assignor to NEC Corporation, Tokyo, Japan

Filed May 16, 1995, Ser. No. 442,156

Claims priority, application Japan, May 17, 1994, 6-102986

Int. Cl.[6] H04J *3/14*

U.S. Cl. 370—228 **3 Claims**



1. A switching system including an alternative routing function, comprising:

a maintenance terminal supplied with an alternative routing function condition and an alternative routing pattern for generating an alternative routing scenario on the basis of the alternative routing function condition and the alternative routing pattern and for compiling the alternative routing scenario to produce a compiled executable code indicative of the alternative routing scenario;

an exchange switch for carrying out an exchange operation;

a leased line trunk connected between said exchange switch and a leased line;

an alternative line trunk connected between said exchange switch and an alternative line; and

an exchange central processing unit (CPU), connected to said maintenance terminal and said exchange switch, for carrying out control of alternative route connection in accordance with the compiled executable code to control said exchange switch when one of a fault and a congestion occurs in the leased line, wherein said exchange CPU comprises:

a maintenance terminal interface, connected to said maintenance terminal, for receiving the compiled executable code;

a basic connection control device for producing a notification signal related to the leased line and the alternative line and for carrying out a basic connection control; and

an alternative routing scenario executing device, connected to said maintenance terminal interface and said basic connection control device, for storing the compiled executable code therein and for executing alternative routing in accordance with the compiled executable code in response to the notification signal by supplying said basic connection control device with an instruction signal.

5,726,976

CONGESTION SENSE CONTROLLED ACCESS FOR A STAR CONFIGURED NETWORK

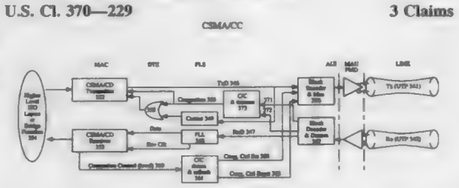
Geoffrey O. Thompson, Palo Alto; Peter Tarrant, Los Altos, and Som Sikdar, San Jose, all of Calif., assignors to Bay Networks Group, Inc., Santa Clara, Calif.

Continuation of Ser. No. 43,259, Apr. 6, 1993, abandoned.

This application Aug. 10, 1994, Ser. No. 288,963

Int. Cl.[6] H04L *12/413*

U.S. Cl. 370—229 **3 Claims**



1. A method of transmitting information on a carrier sense network comprising:

(a) transmitting block encoded idle signals from a first device to a second device over a first communication channel during a first period when said first device does not have other information for transmission to said second device;

(b) said first device preparing other information for transmittal on said network;

(c) said first device transmitting said other information on said network during a second period, said other information starting with a block encoded start of frame delimiter; and

(d) said first device receiving frames and idle signals during said first period and said second period on a second communication channel, said first device sensing a congestion condition as a result of receiving information on said second communication channel.

5,726,977

APPARATUS AND METHOD FOR DETERMINING A NETWORK NODE CONGESTION STATE IN ORDER TO CONTROL THE CONGESTION IN AN ATM NETWORK

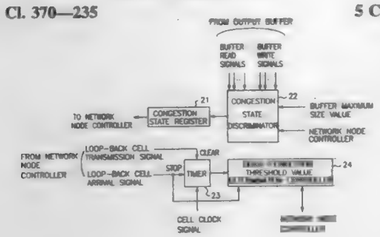
Soong Hee Lee, Yuseong-Ku, Rep. of Korea, assignor to Korea Telecommunication Authority, Daejeon, and Electronics and Telecommunications Research Institute, Seoul, both of Rep. of Korea

Filed Dec. 22, 1995, Ser. No. 577,392

Claims priority, application Rep. of Korea, Dec. 22, 1994, 1994-36105

Int. Cl.[6] H04L *12/26*

U.S. Cl. 370—235 **5 Claims**



1. An apparatus for determining congestion in an ATM (Asynchronous Transfer Mode) network node having a network control means and output buffers, comprising:

a network node control means including:

a) a network node maintenance/management routine for transmitting a loop-back cell transmission signal in order to measure a maximum delay value between a network node and user-network interface devices being connected with it, and for receiving said loop-back cell transmission signal which is turned back and transmitting a loop-back cell arrival signal;

b) a connection management routine for renewing allocation bandwidth values by output buffers using header information of received cells and renewing all said allocation bandwidth values; and

c) a quasi-congestion threshold value calculation routine for calculating, by output buffers, a quasi-congestion threshold value using allocation bandwidth values from said connection management routine, a maximum delay and a buffer maximum size value, according to an interrupt desire signal generated by said loop-back cell arrival signal;

a timing means for counting the time said loop-back cell transmission signal is turned back as said loop-back cell arrival signal;

a quasi-congestion threshold value determination control means for reading the counted value by said timing means, and outputting said maximum delay value and said interrupt desire signal to said a quasi-congestion threshold value calculation routine;

a congestion state discrimination means for receiving a quasi-congestion threshold value and said buffer maximum size value, which are calculated by said quasi-congestion threshold value calculation routine, buffer read signals and buffer write signals inputted from a output buffer of said network node, and for discriminating a congestion state in said network node; and

a memory means for storing a value of said congestion state outputted by said congestion state discrimination means.

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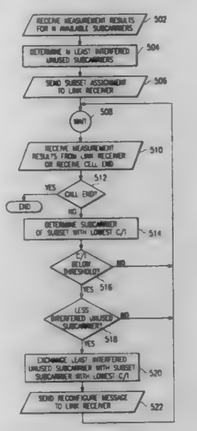
ADAPTIVE CHANNEL ALLOCATION IN A FREQUENCY DIVISION MULTIPLEXED SYSTEM

Carl Magnus Frodigh, and Perols Leif Mikael Gudmundson, both of Kista, Sweden, assignors to Telefonaktiebolaget L M Ericsson publ., Stockholm, Sweden

Filed Jun. 22, 1995, Ser. No. 493,489

Int. Cl.[6] H04J *11/16*

U.S. Cl. 370—252 **22 Claims**



1. In a telecommunications system in which communications from a link transmitter to a link receiver are transmitted over a subset of a set of a plurality of subcarriers available to a link, a method of allocating subcarriers for communications on a link, said method comprising the steps of:

allocating the plurality of subcarriers from said set to provide said subset;

measuring a received signal on each subcarrier of said set;

determining if at least one unused subcarrier exists in said set that is more preferred for use on said link than a subcarrier of said subset allocated to provide said subset; and

reconfiguring said subset in response to an affirmative determination during said step of determining if the at least one unused subcarrier exists that is more preferred.

5,726,979

NETWORK MANAGEMENT SYSTEM

Gregory Scott Henderson, Plano; Wayne B. Perry, Richardson; Thomas Dennie Franklin, Plano; Ed J. Sanders, Jr., Ft. Worth, and Von A. Cooley, Richardson, all of Tex., assignors to MCI Corporation, Washington, D.C.

Filed Feb. 22, 1996, Ser. No. 605,597

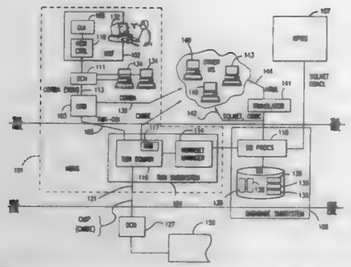
Int. Cl.[6] H04L *12/48*

U.S. Cl. 370—254 **16 Claims**

11. A method for managing a telecommunications network having a plurality of network elements comprising the steps of:

modeling the network in an object oriented-programming language using object models to create a run-time object model of the telecommunications network;

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storing the run-time object model in a telecommunications management network subsystem;

providing access to the model via a graphical user interface (GUI);

translating from the object model representation stored in the telecommunications management network subsystem to a representation useable by the GUI.

5,726,980

TIME DIVISION DUPLEX COMMUNICATIONS REPEATER

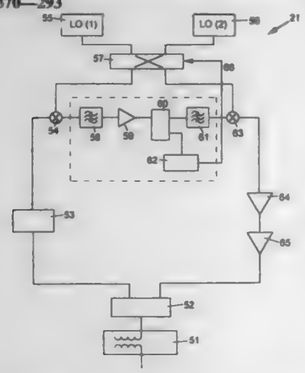
Robin Paul Rickard, Bishop's Stortford, United Kingdom, assignor to Northern Telecom Limited, Montreal, Canada

Filed Mar. 22, 1996, Ser. No. 620,413

Claims priority, application United Kingdom, Mar. 30, 1995, 9506507

Int. Cl.[6] H04B *3/58;* **H04L** *5/26;25/52*

U.S. Cl. 370—293 **12 Claims**



1. A method of amplifying signals passing along a transmission line at a carrier frequency comprising the steps of:

tapping the signals from the line;

converting the tapped signals to a different carrier frequency;

amplifying the converted signals;

coupling the amplified signals to the line for onward transmission at said different carrier frequency;

wherein the signals are time division duplex signals which flow upstream and downstream along the line in alternate time periods, and wherein in the alternate periods the tapped signals are converted from a first to a second carrier frequency and from the second to the first carrier frequency.

5,726,981

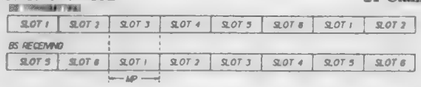
METHODS FOR MAKING ACTIVE CHANNEL MEASUREMENTS IN A PERSONAL BASE STATION ENVIRONMENT

Matti Kalle Aukusti Ylitervo, Oulu, Finland, and Mika J. Vayrynen, Oulu, Finland, assignors to Nokia Mobile Phones Limited, Salo, Finland

Filed Dec. 21, 1995, Ser. No. 576,788

Int. Cl.[6] H04B *7/212*

U.S. Cl. 370—332 **21 Claims**



1. A method of operating a wireless communications system having at least one base station and at least one mobile station capable of wireless communications with the at least one base station, comprising the steps of:

periodically deactivating, for a predetermined period of time following a transmission of a synchronizing data pattern, a base station transmitter from transmitting a RF signal to the at least one mobile station; and

during the predetermined period of time, operating a base station receiver to perform a received signal strength measurement.

5,726,982

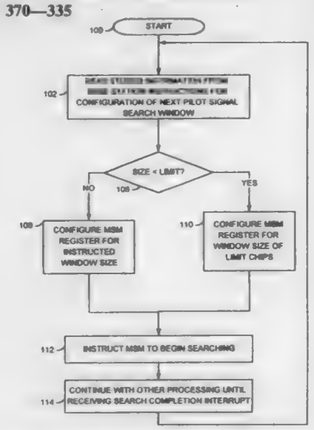
ARTIFICIAL WINDOW SIZE INTERRUPT REDUCTION SYSTEM FOR CDMA RECEIVER

Robert C. Witter, Lawrenceville, Ga., assignor to OKI Telecom, Suwanee, Ga.

Continuation of Ser. No. 416,053, Apr. 4, 1995, Pat. No. 5,627,835. This application Jun. 6, 1995, Ser. No. 466,074

Int. Cl.[6] H04B *7/216;7/76*

U.S. Cl. 370—335 **17 Claims**



10. A mobile station method of searching for a base station pilot signal, the method comprising steps of:

receiving from a base station an instructed pilot signal search window size;

comparing the instructed pilot signal search window size to a pilot signal search window size lower limit; and

searching for the pilot signal using a search window size equal to the pilot signal search window size lower limit responsive to determining the instructed pilot signal search window size to be below the pilot signal search window size lower limit.

5,726,983

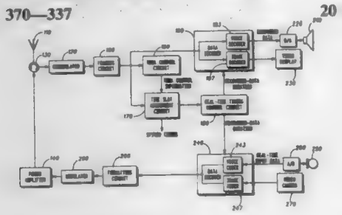
COMMUNICATION DEVICE WITH VARIABLE FRAME PROCESSING TIME

Bradley B. Bakke, Lake in the Hills, and Victoria Francesca Atienza Buenviaje, Deerfield, both of Ill., assignors to Motorola, Inc., Schaumburg, Ill.

Filed Aug. 9, 1996, Ser. No. 694,739

Int. Cl.[6] H04B *7/212;* **H04J** *3/22*

U.S. Cl. 370—337 **20 Claims**



1. A communication device for receiving a received time division signal of frames having time slots, the frames of a nominal duration, comprising:

a demodulator for demodulating the received time division signal to produce a demodulated signal;

a framing circuit operatively coupled to the demodulator to sequentially partition the demodulated signal into frames of the nominal duration;

a time division control circuit operatively coupled to the framing circuit to extract time division control information from within the frames which indicates a certain time slot for real-time processing by the communication device;

a time slot assignment circuit operatively coupled to the framing circuit and the time division control circuit to, based on a time slot indicated by the time division control information, dynamically assign a present time slot for real-time processing by the communication device and to, based on a different time slot indicated by the time division control information, dynamically re-assign a next time for real-time processing by the communication device;

a real-time timing control circuit operatively coupled to the time slot assignment circuit to determine a recovered-data duration for producing recovered data, wherein the recovered-data duration will vary from the nominal duration during a next time slot re-assigned by the time slot assignment circuit; and

a data decoder operatively coupled to the framing circuit and the real-time timing control circuit to decode the present time slot of a frame and produce recovered data real-time during the recovered-data duration and wherein, when the real-time timing control circuit varies the recovered-data duration from the nominal duration for a next time slot upon re-assignment, the decoder thereby performs time expansion or compression to produce recovered data.

5,726,984

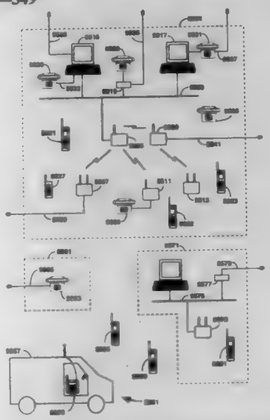
HIERARCHICAL DATA COLLECTION NETWORK SUPPORTING PACKETIZED VOICE COMMUNICATIONS AMONG WIRELESS TERMINALS AND TELEPHONES

Joseph J. Kubler, Boulder, Colo., and Michael D. Morris, Cedar Rapids, Iowa, assignors to Norand Corporation, Cedar Rapids, Iowa

Continuation-in-part of Ser. No. 487,609, Jun. 7, 1995, which is a continuation-in-part of Ser. No. 876,629, Apr. 30, 1992, abandoned, Ser. No. 267,758, Jul. 5, 1994, Pat. No. 5,568,645, and Ser. No. 279,148, Jul. 22, 1994, Pat. No. 5,657,317, which is a continuation-in-part of Ser. No. 205,639, Mar. 4, 1994, Pat. No. 5,555,276, and Ser. No. 275,821, Jun. 10, 1994, abandoned, said Ser. No. 205,639 is a continuation-in-part of Ser. No. 735,128, Jul. 22, 1991, Pat. No. 5,365,546, which is a continuation-in-part of Ser. No. 467,096, Jan. 18, 1990, Pat. No. 5,052,020, said Ser. No. 876,629 is a continuation-in-part of Ser. No. 854,115, Mar. 18, 1992, abandoned, which is a continuation-in-part of Ser. No. 558,895, Jul. 25, 1990, abandoned, which is a continuation-in-part of Ser. No. 529,353, May 25, 1990, abandoned, which is a continuation-in-part of Ser. No. 347,602, May 3, 1989, abandoned, which is a continuation of Ser. No. 345,771, May 2, 1989, Pat. No. 5,009,337, which is a continuation of Ser. No. 345,200, Apr. 28, 1989, abandoned, which is a continuation of Ser. No. 305,302, Jan. 31, 1989, said Ser. No. 267,758 is a continuation-in-part of Ser. No. 748,150, Aug. 21, 1991, Pat. No. 5,349,678. This application Oct. 5, 1995, Ser. No. 539,817

Int. Cl.[6] H04J *3/26;* **H04Q** *7/20*

U.S. Cl. 370—349 **21 Claims**



1. A communication network operating to support voice and data communication within a premises, said communication network comprising:

a plurality of mobile network devices having a buffer that stores incoming digital voice information for a queuing period of a duration which corresponds to propagation delay through the communication network before beginning voice reproduction from the stored digital voice information to attempt to prevent periods of blanking during voice reproduction;

a stationary network device;

a wireless network that is used by each of said plurality of mobile network devices to selectively exchange voice and data packets with others of the plurality of mobile network devices;

a hardwired network connected to both said stationary network device and said wireless network;

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said hardwired network being used to route voice and data packets between said stationary network device and said plurality of mobile network devices which participate via said wireless network;

said wireless and hardwired networks exchanging voice and data packets on a packet by packet basis without considering whether a given packet constitutes a voice or a data packet;

a telephone, connected to said stationary network device, that captures, delivers, receives and reproduces voice in an analog voice stream form;

said stationary network device having a buffer that stores digital voice information received from said wireless network for a queuing period of a duration which corresponds to propagation delay through the communication network before converting the stored digital voice information into an analog voice stream and delivering the analog voice stream to said telephone to attempt to prevent periods of blanking in the analog voice stream; and

said stationary network device converts analog voice streams received from said telephone into voice packets for delivery via said hardwired and wireless networks to a selected one of said plurality of mobile network devices.

5,726,985

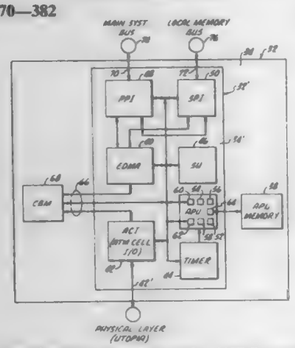
ATM COMMUNICATION SYSTEM INTERCONNECT/TERMINATION UNIT

Thomas Daniel, Los Altos Hills, Calif.; Dieter Nattkamper, San Jose, Calif., and Subir Varma, Sunnyvale, Calif., assignors to LSI Logic Corporation, Milpitas, Calif.

Filed Mar. 7, 1996, Ser. No. 612,373

Int. Cl.[6] H04L *12/56*

U.S. Cl. 370—382 **19 Claims**



1. An asynchronous transfer mode (ATM) communication device for use in an ATM communication system network, said device comprising:

a cell buffer memory unit, said cell buffer memory unit including a memory means for receiving, storing and recovering ATM communication system protocol data units (CS-PDU's); and

a cell buffer memory manager including arbitrator means for arbitrating requests for access to said memory means, and a memory write enabler granting immediate access to said memory means in response to a certain pre-identified request for access to said memory means;

input/output (I/O) port interface means for communicating said device with an ATM communication system network, said I/O port interface means issuing a respective request for access to said memory means;

a programmable processor exercising executive control over a pre-configured processor and said input/output port interface means, said programmable processor also issuing a respective request for access to said memory means; and

a permanently pre-configured processor configured to segment and reassemble ATM data cells respectively for storage in and stored in said memory means, and said pre-configured processor issuing a respective request for access to said memory means;

wherein said memory write enabler grants immediate access to said memory means in response to said memory access request from said I/O port interface means.

5,726,986

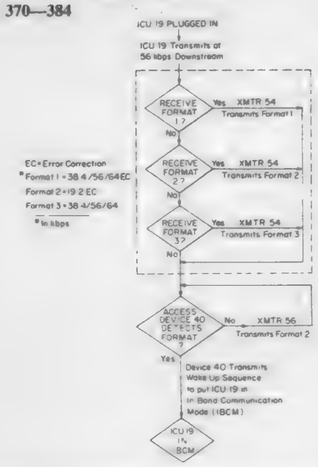
DIGITAL COMMUNICATION SYSTEM WITH INTELLIGENT CHANNEL UNITS

Earl A. Emerson, Somerset, N.J.; Mahesh P. Desai, Annandale, Va.; Henry J. Gonzalez, Piscataway, N.J.; Kyung-Yeop Hong, Belle Mead, N.J., and Martin L. Swim, Phillipsburg, N.J., assignors to Integrated Network Corporation, Bridgewater, N.J.

Division of Ser. No. 118,936, Sep. 9, 1993, Pat. No. 5,434,866, which is a continuation-in-part of Ser. No. 859,053, Mar. 27, 1992, Pat. No. 5,285,450. This application May 24, 1995, Ser. No. 448,700

Int. Cl.[6] H04J *3/12*

U.S. Cl. 370—384 **8 Claims**



5. A method for establishing in-band communication in a time division multiplexed communication system from a particular channel unit located in a digital terminal of a time division multiplexed communication system, said particular channel unit coupled to tandem channel units, the method comprising the steps of:

a) transmitting a service request control signal from said particular channel unit towards an access controller device external from the digital terminal at a predetermined data transfer rate, the service request control signal indicating to the access controller device that in-band communication is requested by the particular channel unit;

b) receiving signals transmitted from said access controller device through said tandem channel units;

c) monitoring said received signals;

d) determining data transfer rate and data format of received signals;

e) transmitting data signals to the access controller device at said received data transfer rate and in said received data format; and

f) entering said particular channel unit into an in-band command mode upon receipt of a wake-up command sequence from said access controller device.

5,726,987

CONGESTION-MONITOR CONTROL APPARATUS AND SWITCHING SYSTEM

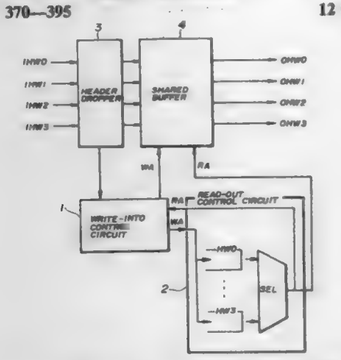
Shiro Uriu; Kenichi Okabe, and Satoshi Kakuma, all of Kawasaki, Japan, assignors to Fujitsu Limited, Kanagawa, Japan

Filed Mar. 22, 1996, Ser. No. 621,804

Claims priority, application Japan, Jul. 13, 1995, 7-177166

Int. Cl.[6] H04L *12/28*

U.S. Cl. 370—395 **12 Claims**



1. A congestion-monitor control apparatus for monitoring a congestion condition of each output highway in an asynchronous transfer mode switching system transferring cells to output highways by using a cell-storage buffer, said apparatus comprising:

a monitor circuit monitoring the number of cells stored in said cell-storage buffer for each output highway at a plurality of timings during a given monitor time interval; and

a first determination circuit comparing the number of times when the number of cells from said monitor circuit is equal to or more than a first threshold value during said given monitor time interval with a second threshold value and determining whether congestion has occurred in a corresponding output highway based on a comparison result.

5,726,988

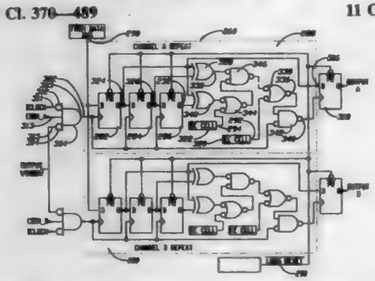
MODULE WITH DATA VERIFICATION FOR A SERIAL MULTIPLEX DATA SYSTEM

Robert E. Riley, Jackson, Miss., assignor to Square D Company, Palatine, Ill.

Division of Ser. No. 305,253, Sep. 13, 1994, Pat. No. 5,553,070. This application Nov. 30, 1995, Ser. No. 565,462

Int. Cl.[6] H04J *3/00*

U.S. Cl. 370—489 **11 Claims**



1. In a data link module for use in a control system having a master clock signal and in which a plurality of the data link modules are interconnected on a data bus to selectively convey control signals from input devices connected to some of the data link modules to output devices connected to others of the data link modules on a time division multiplexing basis in which successive frames of time are divided into a plurality of time slots, the improvement being a data verifier, comprising:

means responsive to the master clock signal for successively storing the data appearing on the bus during a selected time slot for each of a selected plural number of frames;

means responsive to the data storing means for verifying the repetitive occurrence of the same data during the selected time slot for each of the plurality of frames; and

means responsive to the verifying means for producing an output signal representative of the data only in response to the data being verified.

5,726,989

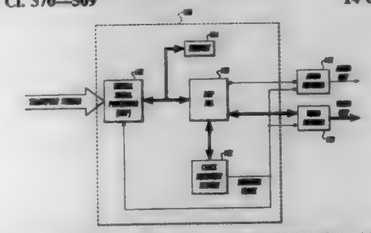
METHOD FOR ENSURING SYNCHRONIZATION OF MPEG-1 DATA CARRIED IN AN MPEG-2 TRANSPORT STREAM

Miroslav V. Dokic, Fort Wayne, Ind., assignor to Stellar One Corporation, Bellevue, Wash.

Filed Nov. 6, 1995, Ser. No. 554,146

Int. Cl.[6] G06F *17/00*

U.S. Cl. 370—509 **14 Claims**



1. A method of ensuring synchronization of MPEG-1 video and audio data carried in an MPEG-2 transport stream for decoding by an MPEG-1 video decoder and an MPEG-1 audio decoder, the transport stream including a plurality of packetized elementary stream (PES) packets containing video or audio data, each PES packet including a packet start code prefix identifying it as a PES packet and identifying the PES packet as either a video or an audio packet, with two or more of the PES packets including a video presentation time stamp (PTS) or an audio PTS that enables playback of data in the PES packet to be synchronized with a system time clock, the PES packets having video data and a video PTS including one or more picture start codes that indicate the beginning of a new frame of video data, the method comprising:

(a) searching the MPEG-2 transport stream for a packet start code prefix indicating the start of a PES packet;

(b) if the PES packet is a video PES packet, examining the video PES packet to determine if a video PTS is present;

(c) storing the data associated with the PES packet into a buffer;

(d) if the PES packet is a video PES packet that includes a video PTS in its header,

(i) examining the video data in the PES packet during storage to locate the first occurrence of a picture start code, and upon locating the first occurrence of a picture start code, setting a flag indicating the correspondence between the video PTS and the identified picture start code and storing the video data remaining in the video PES packet without further examination; and

(ii) transmitting blocks of the video data from the buffer to the video decoder in known lengths, each block including a flag indicative of whether the identified video PTS corresponds to a picture start code within that block, if a picture start code is present in that block; and

(e) if the PES packet is a video PES packet that does not include a video PTS in its header, transmitting blocks of the video data from the buffer to the video decoder in known lengths.

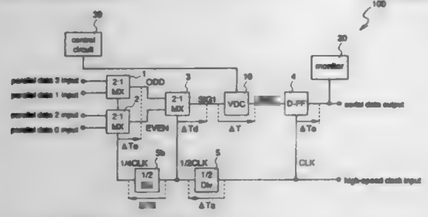
VOL 1208 ISS 2 MR 10 1998 UMI

5,726,990

MULTIPLEXER AND DEMULTIPLEXER

Masaaki Shimada, Tokyo, Japan, and Norio Higashisaka, Tokyo, Japan, assignors to Mitsubishi Denki Kabushiki Kaisha, Tokyo, Japan

Filed Apr. 8, 1996, Ser. No. 629,148
Claims priority, application Japan, Aug. 10, 1995, 7-204577
Int. Cl.[6] H03M 9/00
U.S. Cl. 370—536 **18 Claims**



1. A multiplexer comprising:
an n-th stage as a final output stage (n=integer, 2≦n);
j stages (j=integer, 1≦j≦n−1),
the n-th stage including a D flip-flop having a clock input terminal for receiving a first clock signal, a data input terminal for receiving serial data, and a data output terminal, the D flip-flop synchronizing the serial data with the first clock signal,
a j-th stage including m^{n-j+1} (m=integer, 2≦m) multiplexer blocks, each multiplexer block comprising a plurality of D flip-flops and having data input terminals for receiving m inputs of parallel data and a clock input terminal for receiving a second clock signal produced by frequency division of the first clock signal, each multiplexer block converting parallel data into serial data in response to the second clock signal, a multiplexer block in the j-th stage being connected to a multiplexer block in the (j+1)-th stage so that the serial data output from a multiplexer block in the j-th stage is applied as parallel data input to a multiplexer block in the (j+1)-th stage; and
a variable delay circuit connected to a data input terminal of each multiplexer block in one of the second to the n-th stages, the variable delay circuit delaying data input by a variable delay time.

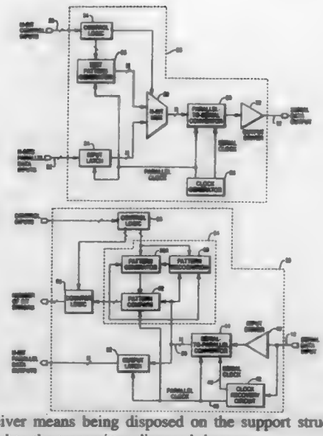
5,726,991

INTEGRAL BIT ERROR RATE TEST SYSTEM FOR SERIAL DATA COMMUNICATION LINKS

Dao-Long Chen; Robert D. Waldron, both of Fort Collins, Colo., and Khanh C. Nguyen, Whitehall, Pa., assignors to AT&T Global Information Solutions Company, Dayton, Ohio; Hyundai Electronics America, San Jose, Calif., and Symbios Logic Inc., Fort Collins, Colo.

Continuation of Ser. No. 434,882, May 3, 1995, which is a continuation of Ser. No. 72,823, Jun. 7, 1993. This application Oct. 20, 1995, Ser. No. 545,915
Int. Cl.[6] G06F 11/00
U.S. Cl. 371—5.1 **13 Claims**

1. A data communications apparatus, comprising:
a source of digital signals to be transmitted over a closed communication link;
a support structure;
a transmitter disposed on the support structure and the transmitter coupled between the source and the closed communication link for transmitting the digital signals onto the closed communication link;
an internal bit error rate test system for providing a determinable pattern of digital test signals into an input of the transmitter in place of the digital signals from the source;
receiver means coupled to the closed communication link for receiving a received pattern of digital test signals, with the



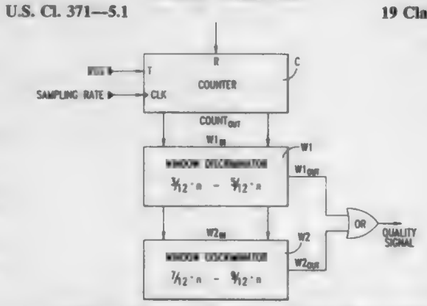
receiver means being disposed on the support structure that also has the transmitter disposed thereon;
said closed communication link including means for conducting the determinable pattern of digital test signals to the receiver means, said means for conducting being made of a solid material in defining a predetermined path for the determinable pattern of digital test signals, wherein, when no error occurs between the transmitter and the receiver means, the received pattern corresponds to the determinable pattern and said means for conducting conducts the determinable pattern from the transmitter to the receiver means during the entire transmission thereof; and
means coupled in circuit with the receiver means for comparing the received pattern of the digital test signals to the determinable pattern of digital test signals for measuring the bit error rate, wherein the determinable pattern of digital test signals provided to said input of the transmitter and the determinable pattern of digital test signals provided to said means for comparing by the receiver means is provided by the same generating means, the determinable pattern to said means for comparing being generated after said receiver means receives said received pattern.

5,726,992

CIRCUIT FOR AND METHOD OF ASSESSING AN RDS SIGNAL

Gerhard Roither, München, Germany, assignor to SGS-Thomson Microelectronics GmbH, Grasbrunn, Germany

Filed Dec. 8, 1995, Ser. No. 569,781
Claims priority, application Germany, Dec. 14, 1994, 44 44 602.0
Int. Cl.[6] H03M 13/00
U.S. Cl. 371—5.1 **19 Claims**



1. A method of assessing the quality of a data signal containing a plurality of bits, each bit of the data signal including two half bits

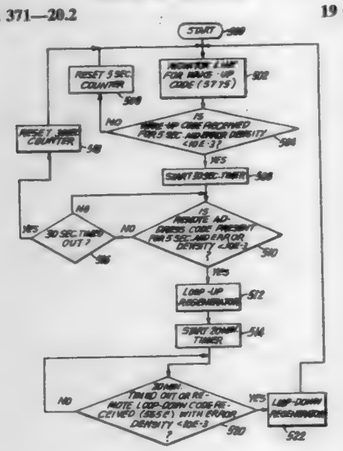
wherein a correct bit of the data signal contains one half bit having a first logic value and one half bit having a second logic value, the method comprising the steps of:
receiving the data signal;
generating a clock signal containing a plurality of bits, each bit of the clock signal including two half bits;
sensing a number of half bits of the data signal having the first logic value during an assessment period, the assessment period containing an odd number m of adjacent half bits of the clock signal wherein m is greater than 2; and
outputting a quality assessment signal indicating that the data signal is of good quality when the number of half bits of the data signal having the first logic value corresponds to a number within a predetermined range.

5,726,993

SIGNAL DETECTOR FOR TELEPHONE LINE REPEATER REMOTE LOOPBACK SYSTEM

Karl A. Kelsey, and Romuald Bailey, both of Albuquerque, N. Mex., assignors to Siemens Telecom Networks, Boca Raton, Fla.

Division of Ser. No. 548,160, Oct. 25, 1995, Pat. No. 5,600,656. This application Aug. 19, 1996, Ser. No. 699,377
Int. Cl.[6] G01R 31/28
U.S. Cl. 371—20.2 **19 Claims**



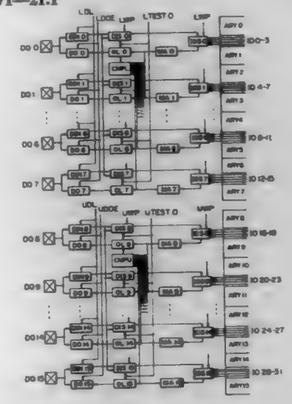
10. A method for initiating a loopback in a repeater in response to inchannel signals, where the repeater has a unique address designation, comprising the steps of:
detecting a first inchannel signal, the first inchannel signal being representative of an enabling command;
in response to the step of detecting a first inchannel signal, enabling the detection of a second inchannel signal, the second inchannel signal being representative of the unique address designation;
in response to the step of enabling, detecting the second inchannel signal; and
in response to the step of detecting the second inchannel, initiating a loopback.

5,726,994

ADDRESS MULTIPLEX SEMICONDUCTOR MEMORY DEVICE FOR ENABLING TESTING OF THE ENTIRE CIRCUIT OR FOR ONLY PARTIAL COMPONENTS THEREOF

Hiromi Matsuura, Tokorozawa; Masaya Muranaka, Akishima, and Yasunori Orito, Ushiku, all of Japan, assignors to Hitachi, Ltd., Tokyo, Japan, and Texas Instruments Incorporated, Dallas, Tex.

Division of Ser. No. 214,214, Mar. 17, 1994, abandoned. This application Feb. 29, 1996, Ser. No. 608,616
Claims priority, application Japan, Mar. 20, 1993, 5-085576
Int. Cl.[6] G11C 7/00;29/00
U.S. Cl. 371—21.1 **6 Claims**



1. An address multiplex semiconductor memory device comprising:
a first memory array having a plurality of first memory cells;
a second memory array having a plurality of second memory cells;
a first terminal;
a second terminal;
a third terminal for receiving an input row address strobe signal;
a fourth terminal for receiving an input first column address strobe signal;
a fifth terminal for receiving an input second column address strobe signal;
a plurality of address terminals to which any of a plurality of row address signals, a plurality of first column address signals and a plurality of second column address signals are supplied;
a first data compression circuit having an output terminal coupled to said first terminal; and
a second data compression circuit having an output terminal coupled to said second terminal,
wherein said plurality of row address signals are input to an internal circuit coupled to said first memory array and said second memory array in accordance with said row address strobe signal,
wherein said plurality of first column address signals are input to an internal circuit coupled to said first memory array in accordance with said first column address strobe signal, at least two of said plurality of first memory cells in said first memory array being selected in accordance with said row address signals and said plurality of first column address signals,
wherein said plurality of second column address signals are input to an internal circuit coupled to said second memory array in accordance with said second column address strobe signal, at least two of said plurality of second memory cells in

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said second memory array being selected in accordance with said row address signals and said plurality of second column address signals,

wherein said first data compression circuit receives a plurality of first read signals read out from said at least two of said plurality of first memory cells and outputs a first signal in accordance with said plurality of first read signals to said first terminal, and

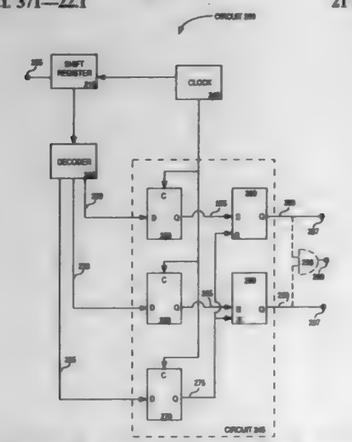
wherein said second data compression circuit receives a plurality of second read signals read out from said at least two of said plurality of second memory cells and outputs a second signal in accordance with said plurality of second read signals to said second terminal.

5,726,995

METHOD AND APPARATUS FOR SELECTING MODES OF AN INTERGRATED CIRCUIT

Keng L. Wong, Portland, Oreg., assignor to Intel Corporation, Santa Clara, Calif.

Filed Dec. 15, 1994, Ser. No. 356,157
Int. Cl.[6] G01R *31/28*
U.S. Cl. 371—22.1 **21 Claims**



1. A method for selecting a plurality of test modes in an integrated circuit comprising:

receiving at an input of said integrated circuit a bit stream, said bit stream containing a set of predetermined bit patterns each of n bits, each of said bit patterns corresponding to one of said test modes, said bit patterns being selected such that when transitioning from one of said bit patterns to another of said bit patterns in said bit stream none of said bit patterns is present in an n bit window during said transitioning;

identifying at least one of said bit patterns in said bit stream; and

selecting the one of said test modes corresponding to said identified bit pattern.

5,726,996

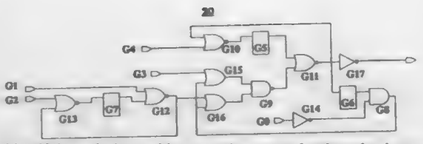
PROCESS FOR DYNAMIC COMPOSITION AND TEST CYCLES REDUCTION

Srimat T. Chakradhar, North Brunswick, and Anand Raghunathan, Edison, both of N.J., assignors to NEC USA, Inc., Princeton, N.J.

Filed Sep. 18, 1995, Ser. No. 529,940
Int. Cl.[6] G01R *31/28*
U.S. Cl. 371—22.1 **3 Claims**

1. A process for dynamic test set compaction and reduction in an integrated sequential circuit said process comprising the steps of:

generating at least one test sequence for the circuit;



identifying, during said generating step, bottlenecks in each generated test sequence that prevent vector compaction and further test cycle reduction;

eliminating any identified bottlenecks from each generated test sequence;

removing from the test set, all test sequences for which all bottlenecks have been eliminated; and

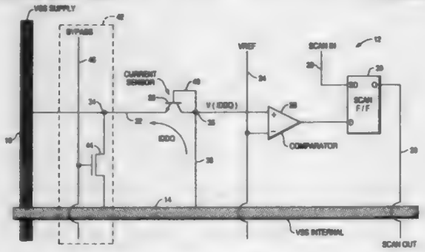
generating future test sequences that eliminate bottlenecks of the test set generated using a sliding anchor frame technique to specify unspecified bits in a partially specified test sequence.

5,726,997

APPARATUS AND METHOD FOR TESTING OF INTEGHATED CIRCUITS

Andres R. Teene, 813 E. Ridgecrest Rd., Fort Collins, Colo. 80524

Continuation of Ser. No. 134,788, Oct. 12, 1993, abandoned. This application May 22, 1995, Ser. No. 445,970
Int. Cl.[6] G01R *31/00;31/28*
U.S. Cl. 371—22.3 **33 Claims**



1. Apparatus for localized testing for faults in a plurality of logic cells within an integrated circuit, comprising:

current monitoring means connected to said plurality of logic cells for separately monitoring the current in each of said plurality of logic cells wherein fault detection that is localized to each of said plurality of logic cells is provided;

at least a first power supply bus in which said first power supply bus supplies power at least current monitoring means;

at least a first internal power bus electrically connected to said first power supply bus and in which said first power supply bus distributes power to said first internal power bus, with said first internal power bus providing power to at least a first of said plurality of logic cells wherein said power applied to said first of said plurality of logic cells by said first internal power bus is the same power applied to said current monitoring means by said first power supply bus; and

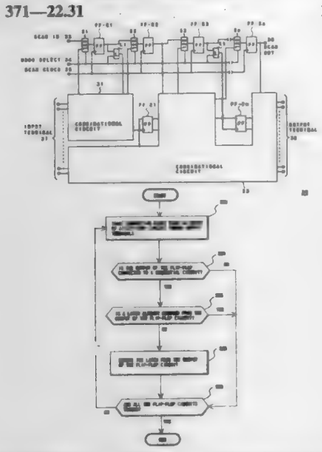
a fault monitoring circuit coupled to said current monitoring means for reporting detected faults in said plurality of logic cells.

5,726,998

PARTIAL SCAN PATH TEST OF A SEMICONDUCTOR LOGIC CIRCUIT

Hideharu Ozaki, Tokyo, Japan, assignor to NEC Corporation, Tokyo, Japan

Filed Dec. 27, 1994, Ser. No. 364,224
Claims priority, application Japan, Dec. 28, 1993, 5-336020
Int. Cl.[6] G01R *31/28*
U.S. Cl. 371—22.31 **13 Claims**



1. An apparatus for providing a semiconductor logic circuit including a shift register circuit for a partial scan path test, comprising:

storage means for storing connection information indicative of connections between parts in a semiconductor logic circuit to be provided, said semiconductor logic circuit including a shift register circuit and sequential circuits, said shift register circuit being composed of a plurality of flip-flop circuits connected in series, and each of said sequential circuits having a control input terminal;

connection determining means for determining based on said connection information whether an output terminal of each of said plurality of flip-flop circuits is directly or indirectly connected to said control terminal of either one of said sequential circuits; and

changing means for changing, when it is determined by said connection determining means that said output terminal of each of first specific ones of said plurality of flip-flop circuits is directly or indirectly connected to said control terminal of either one of said sequential circuits, said connection information so that a latch is added immediately after said output terminal of each of said first specific flip-flop circuits each having said output terminal directly or indirectly connected to said control terminal of either one of said sequential circuits.

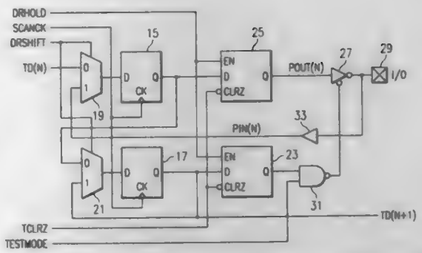
5,726,999

METHOD AND APPARATUS FOR UNIVERSAL PROGRAMMABLE BOUNDARY SCAN DRIVER/SENSOR CIRCUIT

William F. Bradford, Cedar Park, Tex., and Richard J. Glass, Austin, Tex., assignors to Texas Instruments Incorporated, Dallas, Tex.

Continuation of Ser. No. 177,784, Jan. 5, 1994, abandoned, which is a continuation of Ser. No. 711,490, Jun. 6, 1991, abandoned. This application Sep. 30, 1996, Ser. No. 725,839
Int. Cl.[6] G01R *31/3185*
U.S. Cl. 371—22.32 **22 Claims**

1. A boundary scan circuit cell suitable for use in a boundary scan test serial scan chain for boundary scan testing of an integrated circuit component having a bidirectional pin, said boundary scan circuit cell comprising:



a bidirectional input-output terminal;

a data scan-in line;

a data scan-out line;

a scan clock line;

a data register shift line;

first and second data registers serially connected between said scan-in and scan-out lines for shifting binary data from said scan-in to said scan-out lines sequentially through said first and second registers in response to clock pulses received from said scan clock line;

an output driver coupled to one of said first and second registers and to said input-output terminal for selectively driving said input-output terminal in accordance with binary data received from said one register in response to an enable signal;

a first multiplexer connected to said one register, said input-output terminal and said data scan-in line, for selectively transmitting either said serially shifted binary data from said scan-in line or a state of said input-output terminal to said one register in accordance with signals received on said data register shift line;

a control circuit coupled to the other of said first and second registers and to said output driver for selectively delivering said enable signal to said output driver in accordance with binary data received from said other register; and

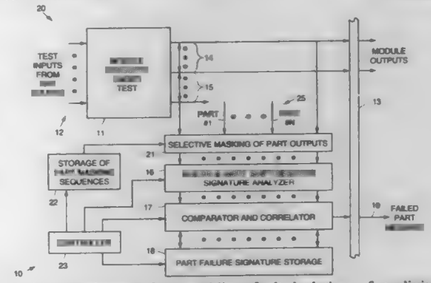
a second multiplexer connected to said other register and said one register, for selectively transmitting either serially shifted contents of said one register or contents of said other register to said other register in accordance with said signals received on said data register shift line.

5,727,000

SIGNATURE ANALYSIS USAGE FOR MULTIPLE FAULT ISOLATION

Stephen V. Pizzica, San Pedro, Calif., assignor to Hughes Aircraft Company, Los Angeles, Calif.

Filed Dec. 27, 1995, Ser. No. 579,278
Int. Cl.[6] H04R *17/00*
U.S. Cl. 371—26 **5 Claims**



1. Test equipment for providing fault isolation of a digital module under test, said digital module under test having a plurality

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of test input signals applied thereto, a plurality of parts that are to be tested, and a plurality of signal outputs, said test equipment comprising:

a mask memory for storing part masking sequences;

masking circuitry coupled to the mask memory for receiving outputs of the plurality of parts, and for selectively masking the outputs from all parts but one of the plurality of parts;

a multiple input shift register signature analyzer coupled to masking circuitry for receiving unmasked output signals from the unmasked part;

a memory lookup table for storing fault-free and faulty signatures of parts of the digital module under test; and

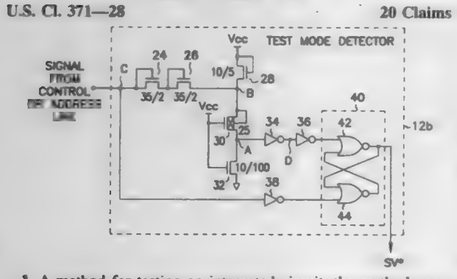
a comparator and correlator coupled between the multiple input shift register signature analyzer and the memory lookup table for comparing failed signatures the occur during testing of the module under test with the stored signatures and for correlating the failed signatures to the specific failed part to generate fault isolation output messages, and for outputting the messages.

5,727,001

CIRCUIT AND METHOD FOR TESTING AN INTEGRATED CIRCUIT

Daniel R. Loughmiller, Boise, Id., assignor to Micron Technology, Inc., Boise, Id.

Filed Aug. 14, 1996, Ser. No. 698,207
Int. Cl.[6] G06F *11/00*
U.S. Cl. 371—28 **20 Claims**



1. A method for testing an integrated circuit, the method comprising the steps of:

raising a control signal for the integrated circuit to a voltage that exceeds a threshold level;

entering test mode in response to the control signal;

reducing the control signal to a second level that is below the threshold level during the test mode;

testing the integrated circuit with test signals for a period of time that exceeds the time that the control signal exceeds the threshold level; and

reducing the control signal to a third, different voltage level so as to exit the test mode.

5,727,002

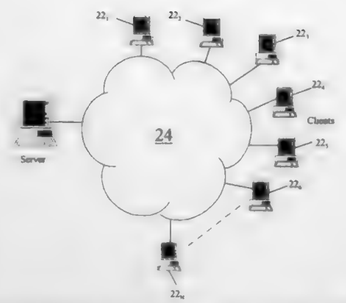
METHODS FOR TRANSMITTING DATA

C. Kenneth Miller, Concord; Kary Robertson, Newburyport, both of Mass.; Kenneth Cates, Salem, N.H., and Marc White, Wayland, Mass., assignors to Starburst Communications Corporation, Concord, Mass.

Continuation-in-part of Ser. No. 375,493, Jan. 19, 1995, Pat. No. 5,553,083. This application Jan. 16, 1996, Ser. No. 585,948
Int. Cl.[6] H04L *1/16;* **G06F** *13/00*
U.S. Cl. 371—32 **18 Claims**

1. A method for transmitting data over a communications link, comprising:

(A) setting a maximum data transmission rate to a value less than or equal to an available bandwidth of the communications link;



(B) partitioning the data into a plurality of blocks which each includes a plurality of frames;

(C) transmitting all of the frames to one or more recipients;

(D) during transmission, receiving acknowledgments from the recipients which include indications of frames requiting retransmission; and

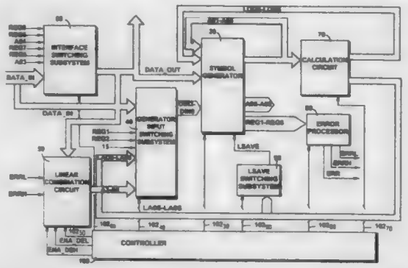
(E) repeating steps (C), (D), and (E) for only those times which the acknowledgments indicate require retransmission.

5,727,003

METHOD AND APPARATUS FOR FLASH BURST ERROR CORRECTION

Christopher P. Zook, Longmont, Colo., assignor to Cirrus Logic, Inc., Fremont, Calif.

Filed Jul. 3, 1995, Ser. No. 498,275
Int. Cl.[6] H03M *13/00*
U.S. Cl. 371—39.1 **74 Claims**



36. An error correction system which operates on clock cycles to decode a sequence of error correcting symbols received from a disk drive, the system comprising:

a generator which receives symbols of the sequence during a plurality of reception clock cycles and which, during the plurality of reception clock cycles, generates error pattern bits;

an error address determinator which determines, during a last of the reception clock cycles, a reference address of an error burst in a data symbol portion of the sequence; and

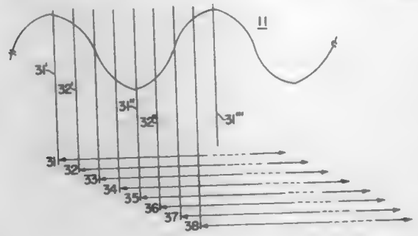
an error pattern generator which inserts the error pattern bits at the reference address in an output error pattern during a next clock cycle after the last of the plurality of reception clock cycles.

5,727,004

METHOD AND APPARATUS FOR DATA ENCODING AND COMMUNICATION OVER NOISY MEDIA

Michael B. Propp, Brookline, Mass., and David L. Propp, Ontario, Canada, assignors to Adaptive Networks, Inc., Brighton, Mass.

Filed Mar. 14, 1995, Ser. No. 404,627
Int. Cl.[6] H04L *7/00;* **H04N** *7/08*
U.S. Cl. 371—47.1 **26 Claims**



1. A method of detecting data signals containing a synchronization preamble to select proper bit timing, comprising the steps of:

generating a plurality of strings of said synchronization preamble, each string being sequentially offset in time by a fraction of a bit period of said synchronization preamble, said fraction being substantially proportional to said bit period divided by the number of said plurality;

correlating at least a first bit portion and a second bit portion of each bit period of the plurality of strings with a reference signal to produce at least a first correlation value and a second correlation value, each bit portion being less than said bit period;

for each first bit portion and second bit portion of each bit period, setting the value of each respective bit portion to one of a plurality of values based on the respective bit portion correlation value; and

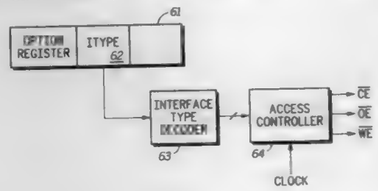
selecting a string from among the plurality of strings of said synchronization preamble as the proper bit timing based on at least one of the fewest number of a particular value and an amount of matching to a predetermined pattern.

5,727,005

INTEGRATED CIRCUIT MICROPROCESSOR WITH PROGRAMMABLE MEMORY ACCESS INTERFACE TYPES

Chinh H. Le, 2609 Greenland La., Austin, Tex. 78745, and Michael E. Gladden, 11409 Gun Fight La., Austin, Tex. 78748

Filed Aug. 31, 1994, Ser. No. 298,892
Int. Cl.[6] G06F *11/10*
U.S. Cl. 371—61 **15 Claims**



1. An integrated circuit microprocessor with programmable memory access interface types, comprising:

a central processing unit (CPU) for executing instructions and for accessing memory;

an option register coupled to said CPU and associated with a memory region, said option register storing an encoded value;

a decoder coupled to said option register, for decoding said encoded value to provide a decoded signal in response to said CPU accessing said memory region, said decoded signal assuming one of a plurality of states, including legal states and reserved states; and

an access controller coupled to said CPU and to said decoder, for either, activating a plurality of external control signals having timing characteristics defined by a programmable interface type corresponding to said decoded signal if said decoded signal is in a legal state, or keeping said plurality of external control signals inactive if said decoded signal is in a reserved state,

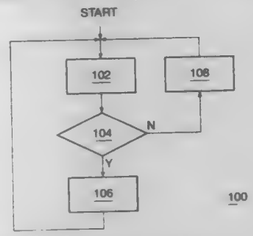
whereby the integrated circuit microprocessor prevents software errors from causing undefined memory accesses.

5,727,006

APPARATUS AND METHOD FOR DETECTING AND CORRECTING REVERSE POLARITY, IN A PACKET-BASED DATA COMMUNICATIONS SYSTEM

Stephen F. Dreyer, Los Altos; Robert X. Jin, and Eric T. West, both of San Jose, all of Calif., assignors to SEEQ Technology, Incorporated, Fremont, Calif.

Filed Aug. 15, 1996, Ser. No. 698,374
Int. Cl.[6] G06F *11/00*
U.S. Cl. 371—68.1 **56 Claims**



1. A method for detecting and correcting for reverse polarity in a packet-based data communications system comprising the steps of:

receiving inputs from at least one signal pair;

detecting the non-data components of received packets on each said signal pair;

comparing, on each of said signal pairs, the symbol pattern of said received non-data components with the expected symbol pattern;

selectively inverting said received packets on any particular signal pair in response to said comparison, on said particular signal pair, of received symbol patterns with said expected symbol patterns, said inversion accomplished by replacing each received symbol with the inverse of said received symbol.

5,727,007

PRASEODYMIUM DOPED WAVEGUIDE LASERS

Richard Gordon Smart, Naperville, Ill.; David Colin Hanna, Southampton, United Kingdom, and Anne Christine Tropper, Ropley, United Kingdom, assignors to Amoco Corporation, Chicago, Ill.

PCT No. PCT/GB92/00766, § 371 Date May 9, 1994, § 102(e) Date May 9, 1994, PCT Pub. No. WO92/20125, PCT Pub. Date Nov. 12, 1992
PCT Filed Apr. 24, 1992, Ser. No. 140,201
Int. Cl.[6] H01S *3/30*
U.S. Cl. 372—6 **6 Claims**

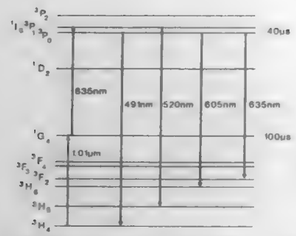
1. An optical fibre laser for upconversion of infrared energy, comprising:

first means for generating infrared radiation that has a first wavelength of approximately 1010 nanometers;

second means for generating infrared radiation that has a second wavelength of approximately 835 nanometers;

Pr^{3+}-doped optical fibre in which the concentration of Pr^{3+} is in the range of substantially 50 ppm to 10,000 ppm for absorb-

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ing said first and second wavelengths to generate visible radiation that has a wavelength in the range of approximately 491 to 635 nanometers; and

reflection means, coupled to said first and second means for generating infrared radiation and said Pr^{3+}-doped optical fibre, for generating optical feedback at said generated visible radiation wavelength to cause lasing of said generated visible radiation.

5,727,008

SEMICONDUCTOR LIGHT EMITTING DEVICE, SEMICONDUCTOR LASER DEVICE, AND METHOD OF FABRICATING SEMICONDUCTOR LIGHT EMITTING DEVICE

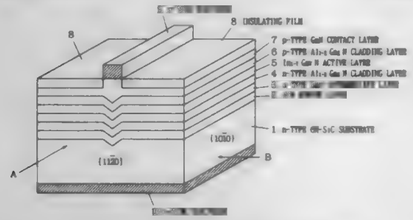
Kazuyuki Koga, Yawata, Japan, assignor to Sanyo Electric Co., Ltd., Moriguchi, Japan

Filed May 17, 1996, Ser. No. 649,287

Claims priority, application Japan, May 19, 1995, 7-121642; Apr. 30, 1996, 8-109077; May 13, 1996, 8-117965

Int. Cl.[6] H01S *3/02*

U.S. Cl. 372—43 **19 Claims**



1. A semiconductor light emitting device comprising:

a silicon carbide substrate; and

an epitaxial growth layer formed on said silicon carbide substrate and composed of a nitride system semiconductor including at least one of gallium, aluminum and indium;

said semiconductor light emitting device having a pair of facets or a pair of side surfaces which is formed of a (11$\bar{2}$0) plane or a plane equivalent to said (11$\bar{2}$0) plane of said silicon carbide substrate and said epitaxial growth layer.

5,727,009

SEMICONDUCTOR LASER APPARATUS AND OPTICAL PICKUP APPARATUS USING THE SAME

Atsushi Tajiri; Kazushi Mori; Keiichi Yodoshi; Takao Yamaguchi; Akira Ibaraki, and Tatsuhiko Niina, all of Osaka-fu, Japan, assignors to Sanyo Electric Co., Ltd., Osaka, Japan

Continuation of Ser. No. 508,368, Jul. 28, 1995, abandoned. This application Mar. 3, 1997, Ser. No. 811,457

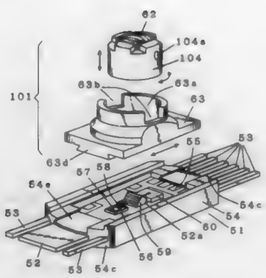
Claims priority, application Japan, Jul. 29, 1994, 6-179190; Oct. 24, 1994, 6-258420; Oct. 25, 1994, 6-260573

Int. Cl.[6] G11B *7/13*; H01S *3/19*

U.S. Cl. 372—43 **64 Claims**

1. A semiconductor laser apparatus, comprising:

a semiconductor laser device;



a light receiving device;

a mount member on which said semiconductor laser device and said light receiving device are arranged;

a transmission type holographic optical element for transmitting a laser beam emitted from said semiconductor laser device, diffracting a return beam originated from said laser beam and directing said return beam to said light receiving device; and

a supporting member on said mount for supporting said transmission type holographic optical element that is three-dimensionally movable with respect to said mount member, said supporting member having a surface for allowing said holographic optical element to be moved in a first direction, a surface for allowing said holographic optical element to be moved in a second direction and a surface for allowing said holographic optical element to be moved in a third direction, and

wherein said supporting member or/and said holographic optical element is/are fixed with said transmission type holographic optical element being positioned with respect to said mount member.

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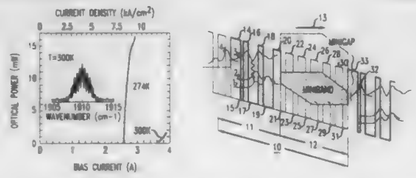
ARTICLE COMPRISING AN IMPROVED QUANTUM CASCADE LASER

Federico Capasso, Westfield, N.J.; Alfred Yi Cho, Summit, N.J.; Jerome Faist, Scotch Plains, N.J.; Albert Lee Hutchinson, Piscataway, N.J.; Carlo Sirtori, Summit, N.J., and Deborah Lee Sivco, Warren, N.J., assignors to Lucent Technologies Inc., Murray Hill, N.J.

Filed Mar. 20, 1996, Ser. No. 618,886

Int. Cl.[6] H01S *3/19*; *3/18*

U.S. Cl. 372—45 **8 Claims**



1. An article comprising a quantum cascade laser, said laser to be referred to as the "QC" laser, the QC laser comprising

a) a multiplicity of essentially identical multilayer active regions, a first of said active regions being separated from an adjacent second of said active regions by a multilayer injection/relaxation region, said injection/relaxation region to be referred to as the "I/R" region; and

b) means for applying a voltage across the first and second active regions with the I/R region therebetween, such that charge carriers of a given conductivity type flow from the first active region towards the second active region, said flow being in a downstream direction opposite to an upstream direction; wherein

c) said first active region comprises one or more quantum wells, a first of said quantum wells having at least a second and a third energy state for charge carriers of the given conductivity type, with said third energy state being higher than the second energy state; wherein

d) associated with said second and third energy states are, respectively, second and third wavefunctions for the charge carriers of the given conductivity type, with said second and third wavefunctions selected such that charge carriers of the given conductivity type undergo a radiative transition from the third to the second energy state during operation of the QC laser;

CHARACTERIZED IN THAT

e) at least said first active region comprises a wavefunction-increasing feature for increasing, compared to an otherwise identical comparison laser that does not comprise the wavefunction-increasing feature and has a maximum lasing temperature, an amplitude of said third wavefunction in a first barrier layer disposed between said first quantum well and an I/R region immediately upstream of the first active region; such that said QC laser has a maximum lasing temperature higher than the maximum lasing temperature of said comparison laser.

5,727,011

GAS LASER APPARATUS WITH GAS CIRCULATION ARRANGEMENT

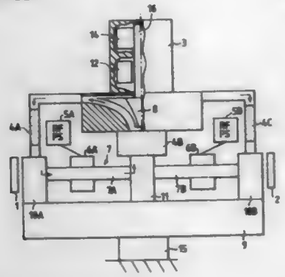
Doukei Choo, Amagasaki, Japan, and Shigeki Yamane, Kobe, Japan, assignors to Matsushita Electric Industrial Co., Ltd., Osaka, Japan

Filed Jun. 12, 1996, Ser. No. 661,966

Claims priority, application Japan, Jun. 14, 1995, 7-147192

Int. Cl.[6] H01S *3/22*

U.S. Cl. 372—58 **11 Claims**



1. A laser apparatus comprising:

an output mirror;

a total reflection mirror;

a discharge tube located between the output mirror and the total reflection mirror and containing laser medium gas;

a first block connected to a first end of the discharge tube and supporting the first end of the discharge tube and also the output mirror;

a second block connected to a second end of the discharge tube and supporting the second end of the discharge tube and also the total reflection mirror;

a third block connected to an intermediate portion of the discharge tube and supporting the intermediate portion of the discharge tube;

an optical bench supporting the first block, the second block, and the third block;

a turboblower connected to the third block and being supported by the third block;

a first passage connecting the turboblower and he first block; and

a second passage connecting the turboblower and the second block;

wherein the turboblower draws the laser medium gas from the discharge tube via the third block along a direction having an upward portion and returns the laser medium gas to the discharge tube via the first passage, the second passage, the first block, and the second block; and

wherein the turboblower includes an impeller, a rotatable shaft, a magnetic bearing, and a motor, the impeller having an axis extending in a vertical direction, the impeller being mounted on a lower end of the shaft, the shaft extending in the vertical direction, the motor being connected to the shaft for rotating the shaft, the motor extending above the impeller, the shaft being rotatably supported by the magnetic bearing on a non-contact basis.

5,727,012

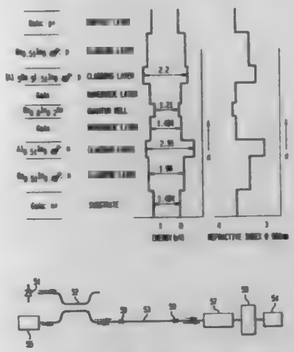
HETEROSTRUCTURE LASER

James Nelson Baillargeon, Springfield, N.J.; Keh-Yung Cheng, Champaign, Ill., and Alfred Yi Cho, Summit, N.J., assignors to Lucent Technologies Inc., Murray Hill, N.J.

Filed Mar. 7, 1996, Ser. No. 612,046

Int. Cl.[6] H01S *3/091*; *3/30*; *3/19*

U.S. Cl. 372—75 **2 Claims**



1. A heterostructure laser diode emitting at 0.98 microns comprising a layered structure characterized by the following layers in sequence:

(a) substrate comprising GaAs

(b) first cladding layer comprising $Ga_xIn_{1-x}P$ where x has a value in the range 0.48–0.54,

(c) second cladding layer comprising $Al_eIn_{1-e}P$, where a has a value in the range 0.48–0.60,

(d) first waveguide layer,

(e) active layer emitting at 0.98 microns,

(f) second waveguide layer,

(g) third cladding layer comprising $(Al_yGa_{1-y})_zIn_{1-z}P$, where y has a value in the range 0.48–0.54, and z has a value in the range 0.49–0.53,

(h) fourth cladding layer comprising $Ga_{x'}In_{1-x'}P$, where x' has a value in the range 0.48–0.54,

(i) contact layer,

said layered structure further characterized in that:

(1) the bandgap of layer (b) is essentially the same as the bandgap of layer (h),

(2) the bandgaps of layers (b) and (h) are less than the bandgap of layer (c), and

(3) the band gap of layer (c) is greater than the bandgap of layer (g).

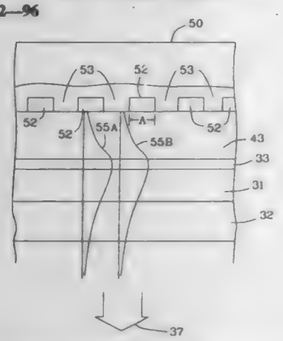
VOL 1208 ISS 2 MR 10 1998 UMI

5,727,013

SINGLE LOBE SURFACE EMITTING COMPLEX COUPLED DISTRIBUTED FEEDBACK SEMICONDUCTOR LASER

Dan Botez, and Masoud J. Kasraian, both of Madison, Wis., assignors to Wisconsin Alumni Research Foundation, Madison, Wis.

Filed Oct. 27, 1995, Ser. No. 549,404
Int. Cl.[6] H01S *3/08;3/19*
U.S. Cl. 372—96 **24 Claims**



1. A semiconductor laser comprising:

(a) a semiconductor structure including a substrate, a layer with an active region at which light emission occurs, cladding layers surrounding the active region, and outer faces, and electrodes by which voltage can be applied across the semiconductor structure;

(b) a distributed feedback diffraction grating comprising periodically alternating elements, the adjacent elements in the grating differing from one another both in index of refraction and in gain, thereby providing a variation in gain and index of refraction in the grating, each pair of adjacent elements having a width substantially equal to integer multiples of the effective wavelength in the semiconductor structure of the favored mode of light generation from the active region, the grating formed and positioned such that the modal-gain difference between symmetric and antisymmetric modes due to overlap with gain variation of the grating overcomes the modal gain difference based on radiation losses to act upon the light generated in the active region to produce lasing action in the symmetric mode and emission of light in a single lobe pattern from an outer face of the semiconductor structure that is formed such that emission of light occurs in a direction normal to the face and to the active region layer.

5,727,014

VERTICAL-CAVITY SURFACE-EMITTING LASER GENERATING LIGHT WITH A DEFINED DIRECTION OF POLARIZATION

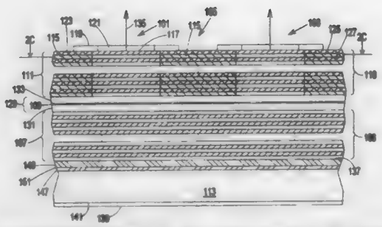
Shih-Yuan Wang, Palo Alto; Michael R. T. Tan, Menlo Park; William D. Holland, Mountain View; John P. Ertel, Portola Valley, and Scott W. Corzine, Sunnyvale, all of Calif., assignors to Hewlett-Packard Company, Palo Alto, Calif.

Filed Oct. 31, 1995, Ser. No. 551,302
Int. Cl.[6] H01S *3/19*
U.S. Cl. 372—96 **25 Claims**

1. A vertical-cavity surface-emitting laser generating light having a fixed direction of polarization, the laser comprising:

a plane light-generating region sandwiched between a first conductive mirror region and a second conductive mirror region, the first conductive mirror region having an opposite conductivity mode from the second conductive mirror region, the second conductive mirror region being doped with p-type impurities, the first conductive mirror region including:

a remote surface substantially parallel to the light-generating region,



an electrode formed on the remote surface, the electrode including a light emission port from which the light is emitted in a direction defining an axis, and

a reduced-conductivity region surrounding the axis and extending from the remote surface towards the light-emitting region to define a core region in the first conductive mirror region, the core region having a first dimension and a second dimension in orthogonal directions in a plane parallel to the light-generating region, the first dimension being greater than the second dimension to set the direction of polarization of the light to the direction of the first dimension; and

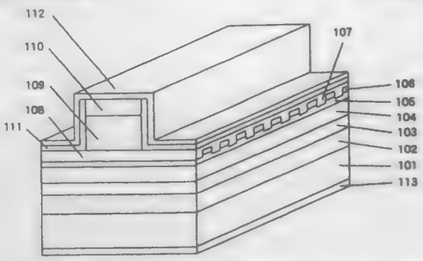
a substrate having a surface whereon the second conductive mirror region is formed, the substrate including n-type GaAs, a degenerately-doped p-type layer adjacent the surface, and a degenerately-doped n-type layer adjacent the p-type layer, the degenerately-doped layers constituting a tunnel junction.

5,727,015

DISTRIBUTED FEEDBACK SEMICONDUCTOR LASER

Koji Takahashi, Tenri, Japan; Fumihiro Kounushi, Nara, Japan, and Mototaka Taneya, Nara, Japan, assignors to Sharp Kabushiki Kaisha, Japan

Filed Mar. 6, 1996, Ser. No. 611,792
Claims priority, application Japan, Mar. 6, 1995, 7-045365
Int. Cl.[6] H01S *3/1055*
U.S. Cl. 372—96 **8 Claims**



1. A gain coupled distributed feedback semiconductor laser, comprising:

an active layer; and

a diffraction grating provided in the vicinity of said active layer and having a plurality of light absorption layers periodically arranged along a resonator length direction,

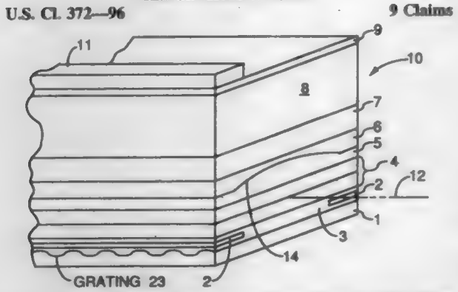
wherein the order of said diffraction grating is one, a duty of said diffraction grating is in the range of about 0.4 to about 0.8, and a thickness of said light absorption layer is in the range of about 6 nm to about 30 nm.

5,727,016

SPATIALLY COHERENT DIODE LASER WITH LENSLIKE MEDIA AND FEEDBACK FROM STRAIGHT-TOOTHED GRATINGS

Alan H. Paxton, Albuquerque, N. Mex., assignor to The United States of America as represented by the Secretary of the Air Force, Washington, D.C.

Filed Mar. 26, 1996, Ser. No. 628,563
Int. Cl.[6] H01S *3/10;3/19*
U.S. Cl. 372—96 **9 Claims**



1. A surface emitting semiconductor laser having a wide lasing region for producing a spatially coherent output beam comprising:

(a) light wave generating means for producing a laser mode of diverging counterpropagating traveling wave beams of light within the wide lasing region of said semiconductor laser;

(b) a straight toothed diffraction grating for resonantly coupling said diverging counterpropagating traveling wave beams that make up the laser mode together while diffracting light into an output beam transverse to said wide lasing region; and

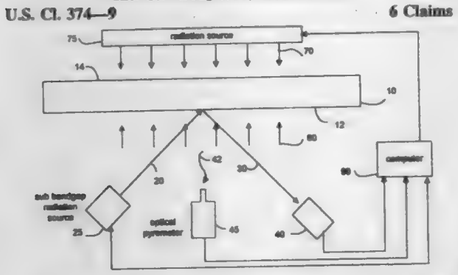
(c) a semiconductor layer coacting with said beams of light and having a variable effective index of refraction that varies quadratically in a direction transverse to said beams of light with the highest values thereof being at noncentralized portions of said laser and the lowest values at centralized portions of said laser.

5,727,017

METHOD AND APPARATUS FOR DETERMINING EMISSIVITY OF SEMICONDUCTOR MATERIAL

Michael Maurer, Ulm, Germany; Wilfried Lerch, Blaustein, Germany, and Alexander Gschwandtner, München, Germany, assignors to AST Electronik, GmbH, Kirchheim, Germany

Filed Apr. 10, 1996, Ser. No. 632,364
Claims priority, application Germany, Nov. 4, 1995, 195 13 749.3
Int. Cl.[6] G01J *5/10;* **G01N** *25/00*
U.S. Cl. 374—9 **6 Claims**



1. A method of measuring a property of a semiconductor material in a semiconductor material thermal processing system, comprising;

a) directing electromagnetic (EM) radiation having photon energy less than the bandgap energy of the semiconductor material on to a first surface of the semiconductor material;

b) directing EM radiation having photon energy greater than the bandgap energy of the semiconductor material on to a second surface of the semiconductor material, the EM radiation having photon energy greater than the bandgap energy of the semiconductor material having sufficient intensity to produce enough electrons to substantially reduce the transmission in the semiconductor material of the EM radiation having photon energy less than the bandgap energy;

c) measuring the reflection coefficient ρ of the first surface for the radiation having photon energy less than the bandgap energy of the semiconductor material; and

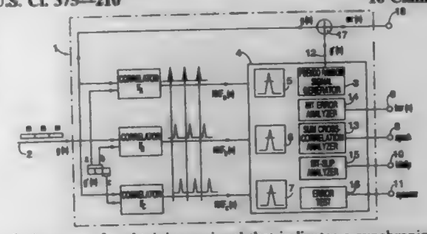
d) calculating the property of the semiconductor material from the measured reflection coefficient ρ.

5,727,018

PROCESS FOR OBTAINING A SIGNAL INDICATING A SYNCHRONIZATION ERROR BETWEEN A PSEUDO-RANDOM SIGNAL SEQUENCE FROM A TRANSMITTER AND A REFERENCE PSEUDO-RANDOM SIGNAL SEQUENCE FROM A RECEIVER

Andreas Wolf, and Hans-Werner Arweiler, both of Berlin, Germany, assignors to Siemens Aktiengesellschaft, Munich, Germany

PCT No. PCT/DE94/00553, § 371 Date Nov. 28, 1995, § 102(e) Date Nov. 28, 1995, PCT Pub. No. WO94/28652, PCT Pub. Date Dec. 8, 1994
PCT Filed May 6, 1994, Ser. No. 553,447
Claims priority, application Germany, May 28, 1993, 43 18 368.9
Int. Cl.[6] H04B *1/69;3/46*
U.S. Cl. 375—210 **16 Claims**



1. A process for obtaining a signal that indicates a synchronization error between a pseudo-random signal sequence from a transmitter and a reference pseudo-random signal sequence from a receiver by means of a measuring device on the receiving end, comprising steps of:

a) separately cross-correlating successive sections of a reference pseudo-random signal sequence in succession with a received pseudo-random signal sequence yielding partial cross-correlation functions;

b) adding the partial cross-correlation functions to yield a sum cross-correlation function;

c) detecting maximums of the sum cross-correlation function and monitoring a chronological occurrence of the detected maximums; and

d) if at least three detected maximums in the sum cross-correlation function do not appear at a predetermined time, generating a signal indicating a synchronization error.

5,727,019

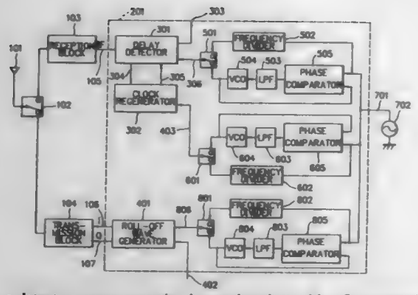
DIGITAL MODEM

Satoshi Tatsumi, Tokyo, Japan, assignor to NEC Corporation, Japan

Filed May 22, 1996, Ser. No. 651,523
Claims priority, application Japan, May 24, 1995, 7-124135
Int. Cl.[6] H04L *7/00*
U.S. Cl. 375—222 **5 Claims**

1. A digital modulator-demodulator comprising:

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a detector means operative in synchronism with a first operation clock for a digital detection of a received signal;

a modulator means operative in synchronism with a second operation clock for modulating a digital transmission data;

a first clock generating means for generating the first operation clock; and

a second clock generating means for generating the second operation clock, wherein at least one of the first and second clock generating means comprises:

a frequency divider means for frequency-dividing a reference clock to provide a third clock;

a phase synchronizing means for generating a fourth clock phase-synchronised with the reference clock; and

a switch means for alternatively selecting one of the third and fourth clocks to provide a corresponding one of the first and second operation clocks.

5,727,020

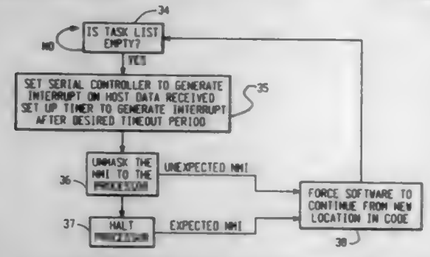
WIRELESS RADIO MODEM WITH MINIMAL INTERDEVICE RF INTERFERENCE

Bryan Taylor; Mihal Lazaridis, both of Waterloo; Peter Edmonson, Hamilton; Perry Jarmuszewski, Guelph; Lizhong Zhu, Waterloo; Steven Carkner, Waterloo, and Matthias Wandel, Waterloo, all of Canada, assignors to Research In Motion Limited, Waterloo, Canada

Division of Ser. No. 337,841, Nov. 14, 1994, Pat. No. 5,169,531. This application Nov. 13, 1996, Ser. No. 747,874

Int. Cl.[6] H04L *5/14;* **H04B** *1/16*

U.S. Cl. 375—222 **1 Claim**



1. A circuit for minimizing power consumption in a radio modem that includes a digital signal processor and a microprocessor for providing overall control of the radio modem, wherein the microprocessor includes a nonmaskable interrupt signal input and at least one standard interrupt signal input and wherein power consumption is minimized by placing the microprocessor in an fully inactive mode when it is not needed to process a data transmission from a host system associated with the radio modem or to process an external signal received by the radio modem, the circuit comprising:

(a) deactivating means for placing the microprocessor in the fully inactive mode;

(b) a serial communications controller, connected to the microprocessor, for detecting communications from a host system associated with the radio modem and for generating a first activating interrupt signal if the communications are received while the microprocessor is in the fully inactive mode and for generating a first nonactivating interrupt signal if the microprocessor is in an active mode;

(c) timing means associated with the serial communications controller for producing an output pulse to the microprocessor after a predetermined period of time has elapsed from a point in time that the means for deactivating placed the microprocessor in the fully inactive state, wherein the output pulse is transmitted as a second activating signal if the microprocessor is fully inactive and as a second nonactivating signal if the microprocessor is active; and

(d) means for masking from the nonmaskable interrupt input to the microprocessor a received one of the first nonactivating interrupt signal or the second nonactivating interrupt signal.

5,727,021

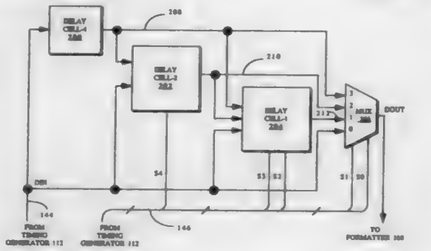
APPARATUS AND METHOD FOR PROVIDING A PROGRAMMABLE DELAY WITH LOW FIXED DELAY

Eric L. Truebenbach, Sudbury, Mass., assignor to Teradyne, Inc., Boston, Mass.

Filed Apr. 3, 1996, Ser. No. 627,858

Int. Cl.[6] H04B *17/00*

U.S. Cl. 375—226 **12 Claims**



1. A deskew circuit for providing a programmable delay, incorporated into each channel of a tester, and used to adjust the propagation delay of each channel, comprising:

(a) an input;

(b) an output;

(c) a plurality of delay cells connected to one another in a chain, said plurality of delay cells including a first delay cell and at least one subsequent delay cell, said first delay cell being the first delay cell in the chain,

each delay cell having an output, a first input connected to the input of the deskew circuit, and a means for delaying an input,

each at least one subsequent delay cell having at least one additional input connected to the outputs of preceding delay cells in the chain, and a means for selecting between said first input and said at least one additional input in response to a first set of timing control bits; and

(d) a means for selecting between the input of the deskew circuit and the outputs of the delay cells in response to a second set of timing control bits, said means connected to the output of the deskew circuit.

5,727,022

METHOD FOR IMPROVING THE SIGNAL-TO-NOISE RATIO IN A TRANSMISSION SYSTEM BY THE FORMATION OF AREA EQUIVALENTS

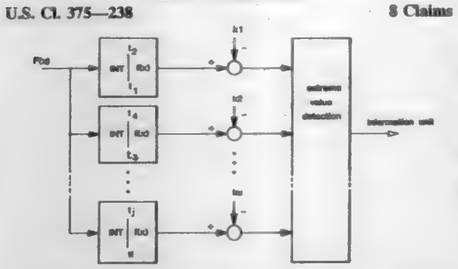
Gerhard Schäfer, Weinsberg, and Bernd Memmler, Rosengarten-Rieden, both of Germany, assignors to Temic Telefunken Microelectronic GmbH, Heilbronn, Germany

Filed Jul. 27, 1995, Ser. No. 508,185

Claims priority, application Germany, Aug. 8, 1994, 44 27 885.3

Int. Cl.[6] H03K *9/08*

U.S. Cl. 375—238 **8 Claims**



1. A method for associating an information unit from a limited set of various/different information units with a signal sector of given length of a data signal transmitted in a signal transmission system that is susceptible to superimposed disturbances, where the transmission of data takes place by a time-succession of the information units in the data signal and the various information units are coded in each case by a typical curve of the data signal in the corresponding signal sector, the method comprising the steps of:

on the receiver side of the signal transmission system, determining different partial areas for each signal sector under the curve of the received data signal;

on the receiver side of the signal transmission system, determining the beginning of the individual information units over several signal sectors;

assigning the various partial areas to rating numbers in accordance with their size; and

deciding, based on the rating numbers, which information unit has been transmitted in the relevant signal sector.

5,727,023

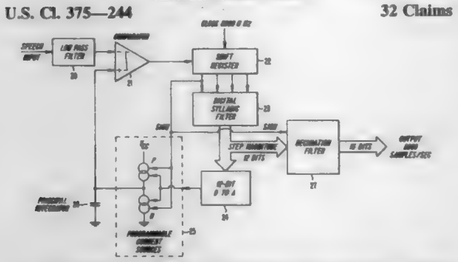
APPARATUS FOR AND METHOD OF SPEECH DIGITIZING

Paul W. Dent, Stehag, Sweden, assignor to Ericsson Inc., Research Triangle Park, N.C.

Continuation-in-part of Ser. No. 967,027, Oct. 27, 1992. This application Sep. 14, 1993, Ser. No. 120,426

Int. Cl.[6] H04B *14/06*

U.S. Cl. 375—244 **32 Claims**



1. A circuit for converting an analog waveform signal to a digital waveform signal, said circuit comprising:

first integrator means for generating an integrated signal;

means for comparing said analog waveform signal with said integrated signal and for registering a series of increment/decrement values, one value per predetermined interval;

means for setting a step sign of said integrated signal based on a most recent of said registered increment/decrement values;

syllabic filter means for accumulating a series of registered increment/decrement values in a second, leaky digital integrator in order to select a step magnitude; and

decimation filter means for processing said step sign and said step magnitude to generate a sequence of binary coded digital signals representative of said analog waveform signal.

5,727,024

CIRCUIT CONFIGURATION FOR CONVERSION OF A ONE-BIT DIGITAL SIGNAL INTO AN ANALOG SIGNAL

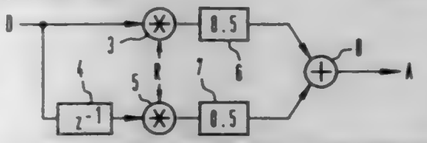
Joerg Hauptmann, Villach, Austria, assignor to Siemens Aktiengesellschaft, Munich, Germany

Filed Mar. 4, 1996, Ser. No. 606,475

Claims priority, application Germany, Mar. 2, 1995, 195 07 311.8

Int. Cl.[6] H04B *14/06*

U.S. Cl. 375—247 **6 Claims**



1. A circuit configuration for converting a one-bit digital signal at a given sampling frequency into an analog signal, comprising:

a multiplication device having one input receiving a digital signal, having another input receiving a reference signal and having an output;

a delay device receiving the digital signal, delaying the digital signal by one period of a sampling frequency and having an output;

a further multiplication device having one input connected to the output of said delay device, having another input receiving the reference signal and having an output; and

an adding device having inputs each being connected to the output of a respective one of said multiplication devices and having an output at which an analog signal is available.

5,727,025

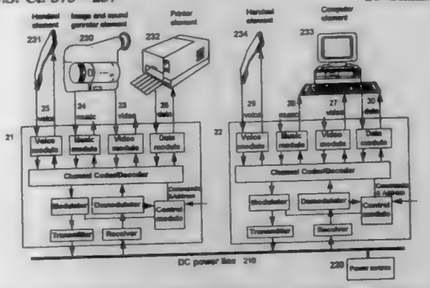
VOICE, MUSIC, VIDEO AND DATA TRANSMISSION OVER DIRECT CURRENT WIRES

Yair Maryanka, Tel Aviv, Israel, assignor to Yamar Ltd., Tel Aviv, Israel

Continuation-in-part of Ser. No. 185,711, Jan. 24, 1994, abandoned. This application Jun. 21, 1995, Ser. No. 493,033

Int. Cl.[6] H04L *25/00;27/00*

U.S. Cl. 375—257 **16 Claims**



1. An apparatus for the transmission of information along a noisy DC power line, the apparatus comprising:

(a) one or more interface modules, each of said interface modules providing at least one interface for receiving a high

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bit-rate digital information signal corresponding to a human voice, music, or a video;

(b) a channel coder connected to said one or more interface modules for processing said high bit-rate digital information signals to produce a verifiable digital signal which includes information for performance of an error correction to compensate for background noise;

(c) a modulator connected to said channel coder for converting said verifiable digital signal to an analog signal; and

(d) a transmitter connected to said modulator for transmitting said analog signal along the DC power line.

5,727,026

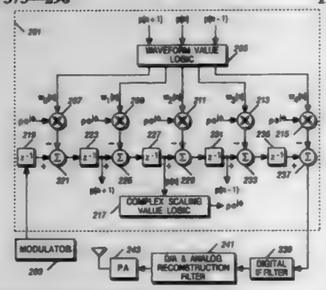
METHOD AND APPARATUS FOR PEAK SUPPRESSION USING COMPLEX SCALING VALUES

Troy Beukema, Grand Haven, Mich., assignor to Motorola, Inc., Schaumburg, Ill.

Filed Nov. 15, 1995, Ser. No. 559,407

Int. Cl.[6] H04L *25/03*

U.S. Cl. 375—296 **12 Claims**



11. An apparatus comprising:

a buffer, arranged and constructed to receive a plurality of modulated samples and a plurality of altered samples and to output a plurality of peak-suppressed samples and a plurality of non-peak-suppressed samples;

a first logic section, operably coupled to the buffer and arranged and constructed to receive the plurality of non-peak-suppressed samples and to output a plurality of waveform values;

a second logic section, operably coupled to the buffer and arranged and constructed to receive at least one of the plurality of non-peak-suppressed samples and to output a complex scaling value;

a plurality of multipliers, operably coupled to the first logic section and the second logic section, the plurality of multipliers arranged and constructed to receive the plurality of waveform values and the complex scaling value and to output a plurality of alteration values;

a plurality of adders, operably coupled to the plurality of multipliers and the buffer, the plurality of adders arranged and constructed to receive the plurality of alteration values and to output the plurality of altered samples.

5,727,027

PSK SIGNAL DEMODULATION METHOD AND APPARATUS

Hiroki Tsuda, Tokyo, Japan, assignor to NEC Corporation, Tokyo, Japan

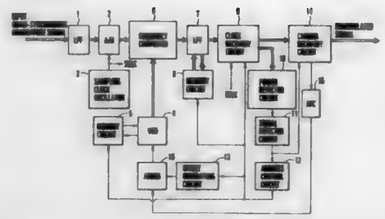
Continuation of Ser. No. 610,592, Mar. 7, 1996, abandoned. This application Dec. 17, 1996, Ser. No. 775,707

Claims priority, application Japan, Mar. 7, 1995, 7-047057

Int. Cl.[6] H03D *3/22;* **H04L** *27/22*

U.S. Cl. 375—329 **10 Claims**

1. A PSK signal demodulation method of demodulating a received signal by sample processing, comprising the steps of:



time-dividing one sampling interval;

detecting a received signal in different carrier frequency offset ranges in the respective time-division intervals; and

continuously performing reception processing in only a time-division interval in which the received signal is detected after the received signal is detected, thereby synchronizing carrier phase on the basis of clock synchronizing of the sampling interval.

5,727,028

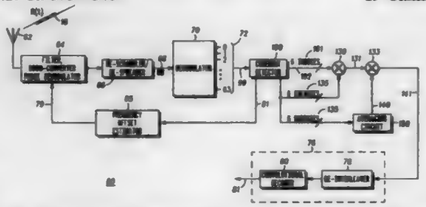
METHOD AND APPARATUS FOR RECEIVING A SIGNAL IN A DIGITAL RADIO FREQUENCY COMMUNICATION SYSTEM

Amitava Ghosh, Vernon Hills, Ill., and Kamyar Rohani, Grapevine, Tex., assignors to Motorola, Inc., Schaumburg, Ill.

Filed Jul. 31, 1996, Ser. No. 690,606

Int. Cl.[6] H04L *27/06;* **H03D** *1/00*

U.S. Cl. 375—340 **19 Claims**



18. An apparatus for receiving a signal in a digital radio frequency communication system, the signal comprising a plurality of received symbols associated with a plurality of transmitted symbols, the apparatus comprising:

means for demodulating a first received symbol and a second received symbol, the first received symbol associated with a first transmitted symbol, the second received symbol associated with a second transmitted symbol;

means for estimating the first transmitted symbol and the second transmitted symbol, responsive to the first received symbol and the second received symbol, producing a first energy value and an index associated with the first estimate and producing a second energy value associated with the second estimate;

means for averaging the first energy value and the second energy value to produce an average energy value;

first means for combining, responsive to the first energy value and the index, producing a weighted index;

second means for combining, responsive to the weighted index and the average energy value, producing a channel-coded index;

means for deinterleaving the channel-coded index, outputting a deinterleaved signal; and

means for decoding the deinterleaved signal.

5,727,029

BRANCH METRIC MODULE IN VITERBI DECODER

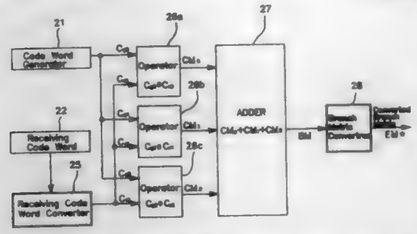
In-San Jeon; Ik-Su Eo; In-Ki Lim; Kwang-Il Yeon, and Jae-Seok Kim, all of Daejeon, Rep. of Korea, assignors to Electronics and Telecommunications Research Institute, Daejeon-shi, Rep. of Korea

Filed Dec. 19, 1995, Ser. No. 575,076

Claims priority, application Rep. of Korea, Dec. 23, 1994, 94-36349

Int. Cl.[6] H03D *1/00;* **H04L** *27/06*

U.S. Cl. 375—341 **10 Claims**



1. A branch metric module of a viterbi decoder that includes generator means for generating a branch metric value comprising:

a receiving code word converter means for converting the bit magnitude of a received code word by non-linearly converting said received code word in accordance with a first predetermined format to produce a converted received code word;

a calculator means for calculating the absolute value of a combination of three combined pairs of said convened received code word and the generated code word; and

a branch metric converter means for converting the output from said calculator means according to a second predetermined format to produce a converted branch metric data.

5,727,030

AUTOMATIC FREQUENCY CONTROL CIRCUIT APPLICABLE TO A MOBILE COMMUNICATION SYSTEM

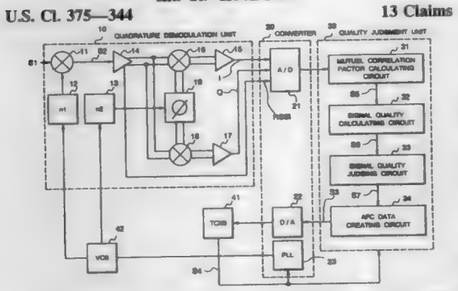
Toshikazu Miyashita, Tokyo, Japan, assignor to NEC Corporation, Japan

Filed Apr. 5, 1996, Ser. No. 630,951

Claims priority, application Japan, Apr. 11, 1995, 7-110040

Int. Cl.[6] H04L *27/06*

U.S. Cl. 375—344 **13 Claims**



1. An automatic frequency control circuit installed on a mobile communication system, comprising:

an quadrature demodulation means for creating an in-phase signal and an antiphase signal by quadrature-demodulating a Gaussian Minimum Shiftkeying signal being supplied, and supplying an electric field strength signal exhibiting an electric field strength of the Gaussian Minimum Shiftkeying signal as well as said created in-phase and antiphase signals,

a quality judging means for judging the quality of the Gaussian Minimum Shiftkeying signal on the basis of said in-phase signal, antiphase signal and electric field strength signal, and creating an automatic frequency-controlling data indicating a compensation amount in accordance with the obtained quality signal so as to supply the same,

a conversion means for converting said in-phase signal, antiphase signal and electric field strength signal supplied from said quadrature demodulation means into digital signals so as to transfer them to said quality judging means, and converting said automatic frequency-controlling data supplied from said quality judging means into an analog signal, and,

a compensating means for compensating the frequency of the Gaussian Minimum Shiftkeying signal on the basis of the compensation amount indicated by said automatic frequency-controlling data converted into an analog signal by said conversion means.

5,727,031

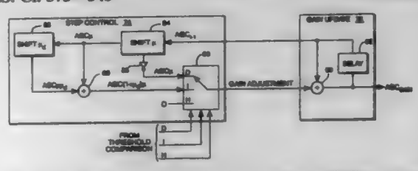
ADAPTIVE GAIN CONTROLLER

Torkel C.J. Solve, Bromma, and Antoni Fertner, Solna, both of Sweden, assignors to Telefonaktiebolaget LM Ericsson, Stockholm, Sweden

Filed Jun. 30, 1995, Ser. No. 497,228

Int. Cl.[6] H04L *27/08;1/38*

U.S. Cl. 375—345 **30 Claims**



18. In a digital data communications system including a transceiver that transceives symbols transmitted over a communications channel, a method comprising the steps of:

determining for a predetermined digital communications protocol where a first symbol or series of symbols is predictably received more frequently than a second symbol or series of symbols, an error in adjusting a gain value applied to received first and second symbols;

determining a variable adjustment factor that compensates for the error; and

adjusting a gain applied to received symbols using the variable adjustment factor.

5,727,032

METHOD AND DEVICE FOR ESTIMATING TRANSMITTED SIGNALS IN A RECEIVER IN DIGITAL SIGNAL TRANSMISSION OPERATIONS

Karim Jamal, Stockholm; Björn Gudmundson, Sollentuna, and Gustav Brismark, Stockholm, all of Sweden, assignors to Telefonaktiebolaget LM Ericsson, Stockholm, Sweden

Continuation of Ser. No. 438,842, May 11, 1995, abandoned, which is a division of Ser. No. 264,491, Jun. 23, 1994, Pat. No. 5,533,067. This application Oct. 6, 1995, Ser. No. 540,098

Claims priority, application Sweden, Jun. 24, 1993, 9302204

Int. Cl.[6] H04B *7/10;* **H04L** *1/02*

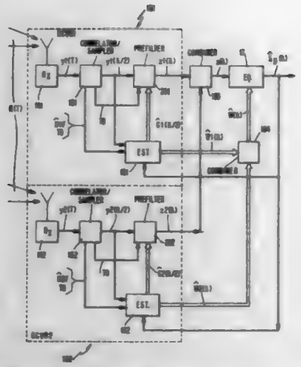
U.S. Cl. 375—347 **6 Claims**

1. In digital signal transmission over a channel (**13**), a method of estimating in a receiver (**101**,**102**,**103**,**104**,**17**) transmitted symbols from a transmitted signal (R(T)), wherein the symbol estimation is performed in a channel equalizer (**17**) according to a chosen viterbi algorithm, and the transmitted signal (R(T)) is received via at least two separate diversity branches, said method comprising the following method steps for the separate diversity branches:

receiving the transmitted signal (R(T)) and demodulating (**141**, **142**) to form received signals (y1(T), y2(T));

sampling (**151**, **152**) the received signals (y1(T), y2(T)) at at least two sampling time points per symbol to form an array of sampled signal values (y1(k/2), y2(k/2));

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determining a symbol sampling time point (TO) at one of the sampling time points;

selecting (**151**, **152**) at least two of the sampling time points per symbol, of which one corresponds to the symbol sampling time point (TO), and selecting the observed sampled signal values (y1(k/2), y2(k/2)) at these time points;

determining at least an initial value of the estimated impulse response ($\hat{H}1F$, $\hat{H}2F$) of the channel (**13**), a channel estimate, with the aid of the observed sampled signal values (y1(k/2), y2(k/2)) and with the aid of at least one symbol sequence (SY) which is known to the receiver;

generating weight factors ($\alpha(k/2)$) belonging to the respective selected sampling time points;

generating (**161**, **162**) filter coefficients ($\hat{G}1(k/2)$, $\hat{G}2(k/2)$) of a prefilter (**201**, **202**) with the aid of the channel estimate ($\hat{H}1F$, $\hat{H}2F$) and the weight factors ($\alpha(k/2)$);

filtering the observed sampled signal values (y1(k/2), y2(k/2)) in the prefilter (**201**, **202**) to form prefiltered, observed signal values (z1(k), z2(k)); and

generating an array of filter coefficients ($\hat{W}1(k)$, $\hat{W}2(k)$) for metric calculation with the aid of the channel estimate ($\hat{H}1F$, $\hat{H}2F$) and the coefficients (($\hat{G}1(k/2)$, $\hat{G}2(k/2)$) of the prefilter (**201**, **202**), wherein the method also comprises the following method steps:

combining the separate arrays of filter coefficients ($\hat{W}1(k)$, $\hat{W}2(k)$) for metric calculation belonging to the separate diversity branches to filter coefficients ($\hat{W}(k)$) in a metric calculation filter (**104**);

combining the prefiltered, observed signal values (z1(k), z2(k)) belonging to the separate diversity branches to form a common prefiltered signal (z(k)); and

generating at least preliminarily estimated symbols ($\hat{S}_p(k)$, $\hat{S}_p(k)$) according to the chosen viterbi algorithm (**17**) with the aid of the common, prefiltered signal (z(k)) and with the aid of the filter coefficients ($\hat{W}(k)$) of the metric calculation filter (**104**).

5,727,033

SYMBOL ERROR BASED POWER CONTROL FOR MOBILE TELECOMMUNICATION SYSTEM

Carl Francis Weaver, Hanover Township, Morris County, and Wei-Chung Peng, East Hanover, both of N.J., assignors to Lucent Technologies Inc., Murray Hill, N.J.

Filed Nov. 30, 1994, Ser. No. 346,800

Int. Cl.[6] **H04L** *7/00*

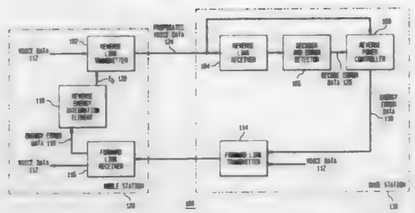
U.S. Cl. 375—358 **15 Claims**

1. A telecommunication system comprising:

a transmitter to transmit a data signal;

a receiver to receive said data signal; and

a control loop to control a power output level of said transmitter based on a detection of a symbol error rate of said data signal, wherein said control loop comprises



a symbol error rate detector for detecting a number of symbol errors of said data signal and for outputting a symbol error rate,

a summing node for determining a difference between said symbol error rate and a symbol error rate target to produce a symbol error rate error,

an integration element to integrate said symbol error rate error to produce a signal power to noise power ratio target, and

controlling means for controlling the power output level of the transmitter based on said signal power to noise power ratio target.

5,727,034

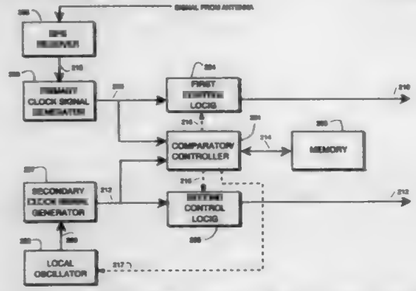
APPARATUS AND METHOD FOR SYNCHRONIZING BASE SITES INDIVIDUALLY IN A COMMUNICATION SYSTEM

Heikki Ojaniemi, San Diego, Calif., assignor to Nokia Telecommunications Oy, Espoo, Finland

Filed Jul. 26, 1995, Ser. No. 507,530

Int. Cl.[6] **H04L** *7/00*

U.S. Cl. 375—356 **12 Claims**



1. A method for generating a timing signal of a base site in a communication system including a plurality of base sites, each base site receiving an external high accuracy signal for using as a first reference signal for a primary clock signal generator, the method comprising the steps of:

comparing a primary clock signal from the primary clock signal generator with a secondary clock signal from a secondary clock signal generator;

producing an adjustment signal which is proportional to a difference between said clock signals;

adjusting, as a response to said adjustment signal, the phase and frequency of the secondary clock signal so that the secondary clock signal locks to the primary clock signal;

storing an adjustment signal information in a memory;

in the presence of the external high accuracy signal, selecting the primary clock signal as the timing signal; and

in the absence of the external high accuracy signal, selecting the secondary clock signal as the timing signal and generating new adjustment signals based on the adjustment signal information stored in the memory.

5,727,035

SYNCHRONIZATION DEVICE FOR DIGITAL COMMUNICATIONS

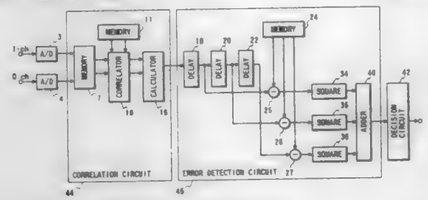
Katsuhiko Hiramatsu, Yokohama, Japan, assignor to Matsushita Electric Industrial Co., Ltd., Osaka, Japan

Filed Oct. 7, 1996, Ser. No. 729,757

Claims priority, application Japan, Dec. 30, 1995, 7-353781

Int. Cl.[6] **H04L** *7/00*

U.S. Cl. 375—368 **10 Claims**



1. A synchronization device comprising:

first means for generating a predetermined signal;

second means for detecting a correlation between a received signal and the predetermined signal generated by the first means;

third means for generating a predetermined correlation reference for a given number of successive samples, the given number being equal to at least three;

fourth means for calculating an error e(t) between the correlation detected by the second means and the predetermined correlation reference generated by the third means for the given number of successive samples as follows:

$$e(t) = \sum_{n=0}^{N-1} \{x(t+nT) - y(n)\}^2$$

where "n" denotes an integer corresponding to each of "N" successive samples; "t" denotes a time point; "N" denotes the given number; "T" denotes a 1-sample time interval; "x(t+nT)" denotes the correlation detected by the second means; and "Y(n)" denotes the predetermined correlation reference; and

fifth means for comparing the error calculated by the fourth means with a predetermined threshold value to detect a synchronization timing.

5,727,036

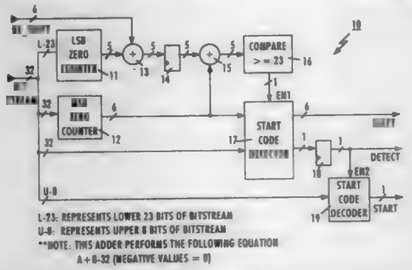
HIGH BIT RATE START CODE SEARCHING AND DETECTING CIRCUIT AND METHOD

James N. Maertens, Sunnyvale, Calif., assignor to Mitsubishi Semiconductor America, Inc., Durham, N.C.

Filed Nov. 22, 1995, Ser. No. 561,756

Int. Cl.[6] **H04L** *25/38*

U.S. Cl. 375—369 **22 Claims**



1. A circuit for searching a bitstream for a start code having a start code prefix and a start code value upon a clock cycle N (N being an integer), comprising:

first means for determining a first number indicative of consecutive zeros in predetermined least significant bits of a bitstream;

second means for determining a second number indicative of consecutive zeros in predetermined most significant bits of the bitstream; and

means for detecting the start code when the first and second numbers have a prescribed relationship.

5,727,037

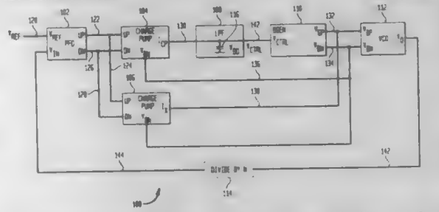
SYSTEM AND METHOD TO REDUCE PHASE OFFSET AND PHASE JITTER IN PHASE-LOCKED AND DELAY-LOCKED LOOPS USING SELF-BIASED CIRCUITS

John George Maneatis, Redwood City, Calif., assignor to Silicon Graphics, Inc., Mountain View, Calif.

Filed Jan. 26, 1996, Ser. No. 592,736

Int. Cl.[6] **H03D** *3/24*

U.S. Cl. 375—376 **22 Claims**



1. An apparatus for aligning a reference signal having a reference phase with a feedback signal having a feedback phase, comprising:

a phase-frequency detector for comparing the reference phase and the feedback phase and for generating a phase-frequency detector output signal that is proportional to a difference between the reference phase and the feedback phase;

a charge pump coupled to said phase-frequency detector for generating a charge pump output signal in response to the phase-frequency detector output signal;

a loop filter coupled to said charge pump for filtering the charge pump output signal, thereby producing a control voltage;

a bias generator coupled to said loop filter for generating a buffered version of the control voltage and for generating a bias signal that is fed back to said charge pump, the bias signal causing said charge pump to output substantially zero current when the reference phase substantially equals the feedback phase; and

a voltage-controlled element, controlled by the buffered version of the control voltage and by the bias signal, for generating the feedback signal having the feedback phase substantially aligned with the reference phase, wherein the bias signal generates a first bias current in said voltage-controlled element for biasing said voltage-controlled element, wherein the bias signal generates a second bias current in said charge pump for biasing said charge pump and for generating a second voltage in said charge pump that is substantially equivalent to the control voltage and wherein the first bias current is substantially related to the second bias current.

5,727,038

PHASE LOCKED LOOP USING DIGITAL LOOP FILTER AND DIGITALLY CONTROLLED OSCILLATOR

Michael R. May, Austin, Tex., and Michael D. Cave, Pflugerville, Tex., assignors to Motorola, Inc., Schaumburg, Ill.

Filed Sep. 6, 1996, Ser. No. 707,828

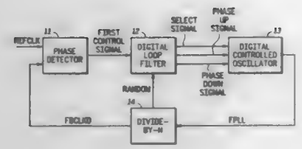
Int. Cl.[6] **H03D** *3/24*

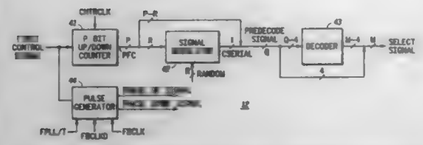
U.S. Cl. 375—376 **6 Claims**

1. A phase locked loop comprising:

a phase detector receiving a reference clock signal and a feedback delay clock signal, the phase detector generating a first

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control signal responsive to a phase relationship between the reference clock signal and the feedback delay clock signal;

a digital loop filter receiving the first control signal, the digital loop filter generating a second signal representative of a history of the first control signal, wherein the second signal is digital, wherein the digital loop filter further comprises a signal modulator that reduces oscillator quantization error in a phase region; and

a digital controlled oscillator receiving the second signal, the digital controlled oscillator generating a clock signal characterized by a frequency, the frequency responsive to the second signal.

5,727,039

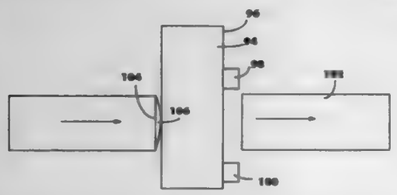
SPACER CAPTURE MECHANSIM FOR NON-ROUND WATER RODS

John L. Harmon; Richard G. Patterson; Robert B. Elkins; Russell P. Higgins, all of Wilmington, N.C.; Edward A. Croteau, Mukwonago, Wis.; Harold B. King, Wrightsville Beach, N.C.; Christian D. Frederickson, Wilmington, N.C.; Gerald M. Latter, Wilmington, N.C.; Anthony P. Reese, Wilmington, N.C., and David W. White, Wilmington, N.C., assignors to General Electric Company, Schenectady, N.Y.

Filed Mar. 19, 1996, Ser. No. 616,509

Int. Cl.[6] G21C *3/34*

U.S. Cl. 376—442 **2 Claims**



1. In a nuclear reactor fuel bundle assembly having a plurality of fuel rods and a non-round water rod extending between upper and lower tie plates, and having at least one fuel rod spacer located along the non-round water rod, said at least one spacer having a peripheral wall and one or more interior walls, the improvement comprising cooperating means on said fuel rod spacer and on said water rod for permitting axial movement of said spacer along said water rod to a desired axial location and for thereafter preventing further axial movement of said spacer in at least one of two opposite axial directions, said cooperating means including at least one spring on one of the walls of said spacer and at least one tab on said water rod, said at least one tab arranged to engage and thereby limit axial movement of the spacer along the water rod, said at least one tab located on a side of the water rod opposite that side which is engageable by said spring, thereby permitting said spacer to be biased in a lateral direction away from said at least one tab and perpendicular to a longitudinal axis of said water rod so that, during assembly, said spacer can be moved axially along the water rod past the at least one tab.

5,727,040

FUEL ASSEMBLY FOR A BOILING WATER REACTOR WITH ADJUSTABLE BY-PASS

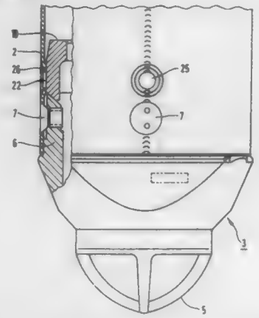
Hans-Joachim Lippert, Höchstadt, and Werner Meier, Kunreuth, both of Germany, assignors to Siemens Aktiengesellschaft, Munich, Germany

Filed Feb. 12, 1996, Ser. No. 599,780

Claims priority, application Germany, Aug. 11, 1993, 43 27 [illegible]

Int. Cl.[6] G21C *3/322*

U.S. Cl. 376—443 **13 Claims**



1. A fuel assembly for a boiling water reactor, comprising:

a) an encompassing casing having open upper and lower ends and having a rotationally symmetrical regular polygonal cross section with walls defining sides;

b) a transition member having a lower end tapering like a funnel to form an inlet, having an upper edge engaging said lower end of said casing from below and having an interior, said transition member being secured to said lower end of said casing on all of said sides;

c) an insert protruding into said casing from said upper end of said casing as far as said transition member, said insert having:

i) a coolant channel with upper and lower ends,

ii) a head piece with a handle to which said upper end of said coolant channel is secured and with a cover plate retained on at least one of said handle and said coolant channel,

iii) a perforated base plate being secured to said lower end of said coolant channel, being seated on said upper edge of said transition member and having an upper plane and lateral surfaces, and

iv) a bundle of fuel rods retained between said base plate and said cover plate; and

d) each of said sides of said casing having at least one lateral bypass aperture formed therein below said upper plane of said base plate, said bypass aperture in at least one of said sides communicating with said interior of said transition member through a flow channel formed by at least one of said transition member and said base plate and said bypass aperture in at least another of said sides being blocked by one of said lateral surfaces of said base plate.

5,727,041

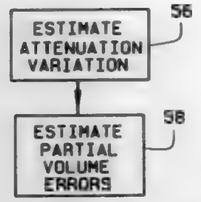
METHODS AND APPARATUS FOR REDUCING PARTIAL VOLUME IMAGE ARTIFACTS

Jiang Hsieh, Waukesha, Wis., assignor to General Electric Company, Milwaukee, Wis.

Filed Nov. 13, 1996, Ser. No. 747,639

Int. Cl.[6] A61B *6/03*

U.S. Cl. 378—4 **20 Claims**



1. A method for reducing partial volume artifacts in scan data of an object, the scan data collected in a tomographic scan, said method comprising the steps of:

estimating an attenuation variation of the object; and

estimating partial volume errors using the estimated attenuation variation.

5,727,042

METHOD AND DEVICE FOR THE CORRECT POSITIONING OF A TARGET FOR RADIATION TREATMENT

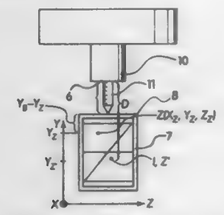
Werner Brenneisen, Raschplatz 5, 30161 Hannover, Germany

Filed Aug. 16, 1996, Ser. No. 689,991

Claims priority, application Germany, Aug. 16, 1995, 195 30 013.0

Int. Cl.[6] A61N *5/10*

U.S. Cl. 378—65 **21 Claims**



1. A method for positioning a target to be irradiated with a radiation treatment apparatus, said apparatus capable of generating a beam of radiation along an axis of radiation to a target range, said target range being the exact location where the radiation beam is directed, comprising:

determining the position of the target according to coordinates on a coordinate system, said target having fixed coordinates on said system;

selecting a reference point that has a measured distance to the target range of the radiation treatment apparatus;

selecting a reference surface that has a measured distance to the target;

measuring the spacing between the reference point and the reference surface to determine one of the coordinates of the target on the reference surface;

adjusting the spacing between the reference point and the reference surface so that the target range and the target are in a same plane; and

determining the other coordinates of the target on the reference surface so that the target range can be exactly aligned with the target.

5,727,043

X-RAY DIFFRACTOMETER

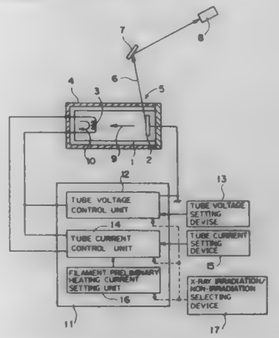
Kazuyuki Watanabe, Kanagawa, Japan, assignor to Shimadzu Corporation, Kyoto, Japan

Filed Jun. 25, 1996, Ser. No. 668,336

Claims priority, application Japan, Jun. 27, 1995, 7-160500

Int. Cl.[6] H05G *1/34*

U.S. Cl. 378—109 **3 Claims**



1. In an x-ray diffractometer having an x-ray tube bulb, an x-ray generating power source device for supplying a predetermined tube voltage and a predetermined tube current to the x-ray tube bulb, and x-ray irradiation/non-irradiation selecting means for selecting one of states of irradiation and non-irradiation of x-rays generated from the x-ray tube bulb to a sample,

said x-ray diffractometer characterized in that:

said x-ray irradiation/non-irradiation selecting means is arranged to switch states of supply and non-supply of said tube voltage to said x-ray tube bulb; and

said x-ray generating power source device comprises filament preliminary heating current supply means for letting flow a constant preset current in the filament of said x-ray tube bulb in said state of non-supply of said tube voltage.

5,727,044

MICROCHANNEL PLATES

George William Fraser, Leicester, Great Britain; Adam North Brunton, Leicester, Great Britain; Adam Medley, Suffolk, Great Britain, and Carl Jonathan Metcalf, Staffordshire, Great Britain, assignors to University of Leicester, Leicester, United Kingdom

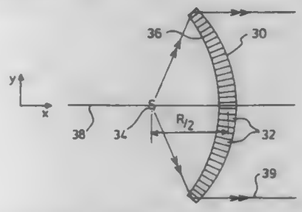
PCT No. PCT/GB95/01711, § 371 Date Apr. 17, 1997, § 102(e) Date Apr. 17, 1997, PCT Pub. No. WO96/02919, PCT Pub. Date Feb. 1, 1996

PCT Filed Jul. 19, 1994, Ser. No. 776,167

Claims priority, application United Kingdom, Jul. 19, 1994, 9414518

Int. Cl.[6] G21K *1/02*

U.S. Cl. 378—149 **4 Claims**



1. A concavo-convex spherically slumped microchannel plate, tapered so that the length of capillary channels at the edge of the plate is less than the length of capillary channels at the centre of the plate.

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5,727,045

SYSTEM AND METHOD FOR AVOIDING UNDESIRED INCOMING TELEPHONE CALLS

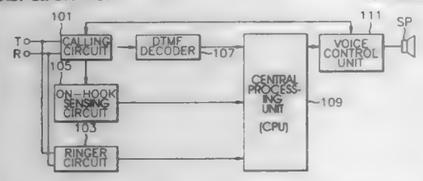
Hyon-Sok Kim, Gumi, Rep. of Korea, assignor to SamSung Electronics Co., Ltd., Suwon, Rep. of Korea

Filed Dec. 7, 1995, Ser. No. 568,768

Claims priority, application Rep. of Korea, Dec. 8, 1994, 33253/1994

Int. Cl.[6] H04M *1/56*

U.S. Cl. 379—67 **15 Claims**



1. A method for avoiding undesired incoming telephone calls, comprising the steps of:

enabling a called party's telephone to ring in response to input of a ring signal to said called party's telephone during a selective calling mode;

connecting a signal path between said called party's telephone and a calling party's telephone;

transmitting, during said step of enabling a called party's telephone to ring in response to input of a ring signal, a voice message to said calling party requesting that said calling party input a telephone number corresponding to said calling party and then input a predetermined key to indicate that said telephone number has been completely input;

determining whether a busy tone indicating that said calling party has performed an on-hook operation is detected;

stopping said called party's telephone from ringing and disconnecting said signal path between said called party's telephone and a calling party's telephone when said busy tone is detected;

waiting for inputs of a dual tone multi-frequency signal representative of said telephone number corresponding to said calling party during a predetermined time period when said busy tone is not detected;

storing said inputs of said dual tone multi-frequency signal received during said predetermined time period, and then reading said dual tone multi-frequency signal;

providing said called party with an aural message representative of said telephone number corresponding to said calling party;

determining whether said called party has performed an off-hook operation; and

stopping said called party's telephone from ringing and enabling execution of a conversation between said calling party and said called party when said called party has performed said off-hook operation.

5,727,046

PERSONAL ELECTRONIC TELEPHONE DIRECTORY APPARATUS WITH REMOTE ACCESSIBILITY

Waleed S. Almulla, 16948 NW. Countryridge Dr., Portland, Oreg. 97229

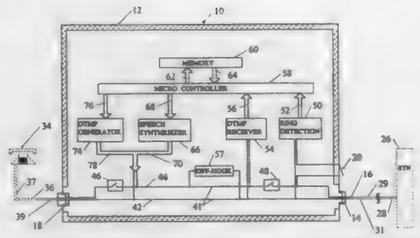
Filed Dec. 11, 1995, Ser. No. 570,320

Int. Cl.[6] H04M *1/50;1/64*

U.S. Cl. 379—88 **15 Claims**

11. A stand alone Personal Electronic Telephone Directory ("PETD") apparatus intended for use in combination with a telephonic device, the telephonic device being directly connected to a first outlet of a home telephone line, the telephonic device being capable of automatically taking the home telephone line to an off hook state, the stand alone PETD apparatus comprising:

a node pair comprising a signal node and a common node, the node pair being configured so that it is capable of establishing a caller connection of the node pair with a line cable, the line cable being capable of connection to a second outlet of the home telephone line;



an off hook circuit connected to the signal node and to the common node;

a DTMF receiver having an input port connected to the node pair and an output port, the DTMF receiver producing electronic signals at its output port in response to DTMF signals detected at its input port;

a memory containing at least one name that has been stored by the user in advance and telephone number data associated with each name;

a microcontroller connected to the off hook circuit, to the output port of the DTMF receiver, and to the memory, the microcontroller being capable of perceiving electronic signals at the output port of the DTMF receiver and interpreting the electronic signals as encoded data, the encoded data including a requested name, the microcontroller being further capable of comparing the requested name to stored names and retrieving from the memory telephone number data corresponding to a stored name similar to the requested name; and

a speech synthesizer having an output port connected to the node pair.

5,727,047

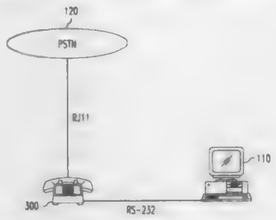
ARRANGEMENT FOR INTERFACING A TELEPHONE DEVICE WITH A PERSONAL COMPUTER

Jon Louis Bentley, New Providence, N.J.; Greg E. Blonder, Summit, N.J.; Paul W. Hutchison, Oakland, Calif.; Kevin M. Ow-Wing, Castro Valley, Calif.; Michael S. Raven, Berkeley, Calif.; Joseph E. Schlessinger, Berkeley, Calif.; Dennis W. Specht, Basking Ridge, N.J.; Eric E. Sumner, Jr., Bernardsville, N.J., and Ralph J. Weaver, III, Carmal, Ind., assignors to Lucent Technologies Inc., Murray Hill, N.J.

Filed Apr. 26, 1995, Ser. No. 368,678

Int. Cl.[6] H04M *11/00;1/64*

U.S. Cl. 379—93 **25 Claims**



1. An arrangement for interfacing a telephone device with a personal computer comprising:

means for attaching the telephone device to an analog line and to the personal computer;

sensing means for determining when said computer is in a powered-on state and in a powered-off state;

storage means in said telephone device for storing information received over said analog line and transmitted over said analog line while said computer is in the powered-off state;

means for transferring said information from said telephone device storage means to said computer while said computer is in the powered-on state;

storage means in the computer for storing said information transferred from said telephone device storage means to said computer while said computer is in the powered-on state; and

means for retrieving information from said computer storage means and providing said retrieved information to said storage means in the telephone device, said retrieving means being responsive to user input provided either at the computer or at the telephone device.

5,727,048

MULTIMEDIA COMMUNICATION SYSTEM WITH A MULTIMEDIA SERVER TO TERMINALS VIA A PUBLIC NETWORK

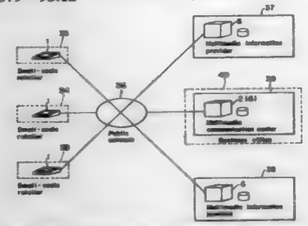
Shuuichi Hiroshima; Ayako Katsuyama; Kenichi Ohzasa; Hajime Kamata, and Masayuki Ozawa, all of Kawasaki, Japan, assignors to Fujitsu Limited, Kanagawa, Japan

Filed Nov. 28, 1995, Ser. No. 563,464

Claims priority, application Japan, Mar. 1, 1995, 7-041631

Int. Cl.[6] H04M *11/00*

U.S. Cl. 379—93.12 **7 Claims**



1. A multimedia communication system comprising:

terminals;

a multimedia server for sending to each of said terminals, when called up thereby, multimedia information including photographs, text, voice and images regarding merchandise; and

a public network for connecting said terminals to said multimedia server;

said multimedia server comprising:

information storage means for storing multimedia information on each of merchandise items;

communication control means for controlling the transmission of information between said multimedia server and said terminals via said public network;

bulletin board service means for transmitting said merchandise items from said information storage means to said communication control means upon request for a merchandise information look-up by one of said terminals, said bulletin board service means further transmitting multimedia information from said information storage means to said communication control means in response to a detailed merchandise information request entered by a user through one of said terminals;

ordering service means for receiving via said communication control means quantities and delivery times of merchandise ordered by a user through one of said terminals and for entering what is ordered into a received order master file while transcribing the received quantities and delivery times of merchandise from said received order master file onto a slip, said ordering service means further entering said slip into a received order file after adding to said slip an address, name and user code number of said user who placed the order; and

mail service means for transmitting slips held in said received order file to the terminal of a merchandise delivery center via said communication control means;

wherein:

a plurality of units of said multimedia server are installed at a plurality of information providers dispersed at remote locations;

the multimedia server of a principal information provider integrating the other information providers has means for transmitting to one of said terminals said merchandise items of multimedia information supplemented with the telephone number of one of the remotely located information providers and the information request number corresponding to each merchandise item, the remotely located information provider being a provider capable of offering the multimedia information corresponding to the merchandise information look-up request sent from the terminal in question; and

each of said terminals has means for automatically dialing the telephone number of the remotely located information provider corresponding to said information request number.

5,727,049

IMAGE PROCESSING SYSTEM HAVING AN IMAGE SIGNAL GENERATING DEVICE COUPLEABLE TO AN ADAPTOR

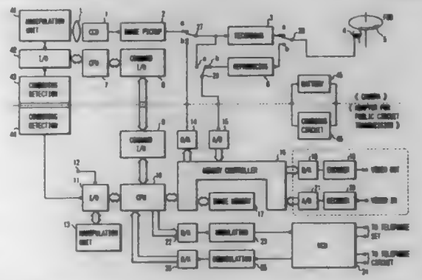
Eiichi Sato, Kawasaki, Japan, assignor to Canon Kabushiki Kaisha, Tokyo, Japan

Continuation of Ser. No. 301,034, Sep. 6, 1994, abandoned, which is a continuation of Ser. No. 795,336, Nov. 20, 1991, abandoned. This application Apr. 23, 1996, Ser. No. 636,630

Claims priority, application Japan, Nov. 21, 1990, 2-318975

Int. Cl.[6] H04M *11/00;* **H04N** *7/12*

U.S. Cl. 379—96 **37 Claims**



1. An image processing system having a capture terminal and a processing terminal, comprising:

A) said capture terminal for capturing an image includes:

an image pick-up circuit for generating an image signal according to a received image;

a first interface for transmitting to the processing terminal a signal according to the image signal provided from said image pick-up circuit; and

a capture terminal controller for controlling an operation of said capture terminal;

B) said processing terminal detachable from said capture terminal includes:

a controller;

a second interface receiving the signal transmitted through said first interface; and

a processing circuit for processing the received signal;

wherein, responsive to an attachment of said capture terminal to said processing terminal, the controlling of said capture terminal by said capture terminal controller is inhibited and the control of said capture terminal by said controller of said processing terminal begins.

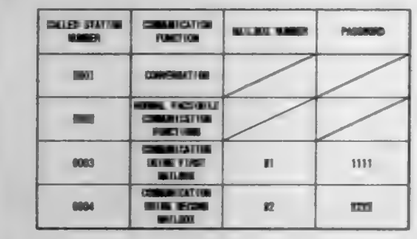
VOL 12 08 ISS 2 MR 10 1998 UMI

5,727,050

COMMUNICATION DEVICE HAVING A FACSIMILE MODULE FOR CARRYING OUT CONFIDENTIAL COMMUNICATION

Hideki Mori, Kyoto, and Makoto Yamamoto, Yasu-gun, both of Japan, assignors to Murata Kikai Kabushiki Kaisha, Kyoto, Japan

Filed Apr. 4, 1996, Ser. No. 627,273
Claims priority, application Japan, Apr. 12, 1995, 7-087132
Int. Cl.[6] H04M *11/00*
U.S. Cl. 379—100.09 **2 Claims**



1. A communication device for receiving data or voice from a caller via a telephone line, a single telephone number being assigned to the communication device and a plurality of facsimile numbers being assigned to the communication device, comprising:

a facsimile module;

a telephone set;

relay means for selectively connecting the telephone line to the facsimile module or telephone set;

means for detecting a telephone or facsimile number dialed by the caller;

a plurality of memory means for storing data respectively, each of the memory means corresponding to each of the facsimile numbers assigned to the communication device;

means for selecting one of the memory means based on the detected facsimile number;

means for causing the relay means to connect the telephone line to the telephone set if a telephone number is detected;

means for causing the relay means to connect the telephone line to the facsimile module if a facsimile number is detected: and

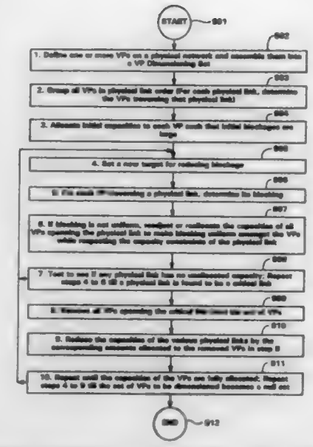
means for causing the facsimile module to transmit the data to the caller from the selected memory means.

5,727,051

SYSTEM AND METHOD FOR ADAPTIVE ROUTING ON A VIRTUAL PATH BROADBAND NETWORK

Wlodek Holender, Paragrafgränden, Sweden, assignor to Telefonaktiebolaget LM Ericsson (publ.), Stockholm, Sweden

Filed Aug. 11, 1995, Ser. No. 513,723
Int. Cl.[6] H04M *15/00*
U.S. Cl. 379—112 **40 Claims**



12. A method for adaptively dimensioning virtual paths defined on a telecommunications network having a plurality of physical links interconnecting a plurality of nodes, said method comprising the steps of:

mapping said plurality of physical links into one or more virtual paths, each of said virtual paths providing an individually switchable connection between a pair of nodes in the telecommunications network;

specifying the transmission capacity of each physical link;

assembling a selected plurality of said virtual paths into a dimensioning set;

allocating initial values of transmission capacity to each virtual path in said dimensioning set using the entropy rate function as a blocking measure, each of said initial values being equal and chosen so that the blocking is large;

recursively identifying as critical links those physical links whose capacities are fully allocated to the virtual paths traversing them, by the following sub-steps:

calculating the capacity to be allocated to each virtual path using the preceding estimate for the entropy rate function and the value of the shift parameter computed in the preceding iteration;

summing the capacities allocated to each of said virtual paths traversing a physical link to obtain the total allocated capacity on each of said physical links;

incrementing said entropy rate function estimate by a calculated amount;

recalculating said shift parameter value for each virtual path in said dimensioning set; and

comparing said total allocated capacity of each physical link to its specified capacity to determine if all the capacity of each of said physical links has been substantially allocated;

storing the currently allocated capacities on each of the virtual paths that traverses a physical link that has been identified as a critical physical link;

removing all virtual paths that traverse each critical physical link from said dimensioning set; and

recomputing the allocable physical capacities of said physical links to compensate for the capacities allocated to those virtual paths that have been removed from said dimensioning set.

5,727,052

SYSTEM AND APPARATUS FOR RECORDING AND DISPLAYING RECEIVED INFORMATION AT A REMOTE LOCATION USING PREMISES RECORDING UNIT

Theodore Sizer, II, Little Silver, and Gregory Alan Wright, Colts Neck, both of N.J., assignors to Lucent Tecnologies, Inc., Murray Hill, N.J.

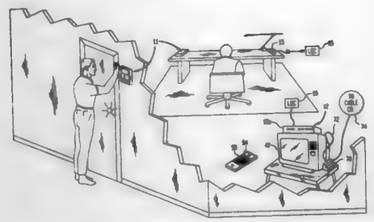
Continuation of Ser. No. 369,064, Jan. 5, 1995. This application Feb. 5, 1996, Ser. No. 596,814
Int. Cl.[6] H04M *15/00;15/06*
U.S. Cl. 379—142 **16 Claims**

1. An apparatus for recording and transmitting information received over a telephone network comprising

premises recording means located within the premises for storing telephone information and messages received from a telephone network,

means for connecting said premises recording means to the telephone network,

said premises recording means further including wireless transmission means for generating and transmitting a packet of at least a portion of the telephone information and messages



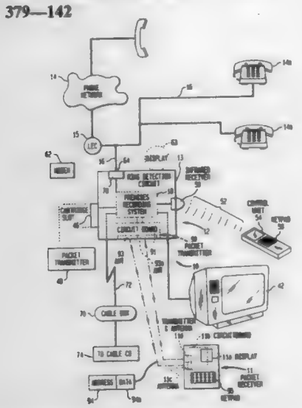
received from the telephone network to a separate packet receiver spaced distant from said premises recording means but within range of a packet of telephone information and messages generated from the premises recording means for receiving and storing said packet of telephone information and messages.

5,727,053

SYSTEM AND APPARATUS FOR RECORDING AND DISPLAYING RECEIVED INFORMATION AT A REMOTE LOCATION

Theodore Sizer II, Little Silver, N.J., and Gregory Alan Wright, Colts Neck, N.J., assignors to Lucent Technologies, Inc., Murray Hill, N.J.

Continuation of Ser. No. 369,201, Jan. 5, 1995. This application Feb. 5, 1996, Ser. No. 597,004
Int. Cl.[6] H04M *15/00;15/06*
U.S. Cl. 379—142 **14 Claims**



1. An apparatus for transmitting information received over a telephone network comprising

premises transmission means located within a premises for receiving telephone information from the telephone network,

means for connecting said premises transmission means to the telephone network, and

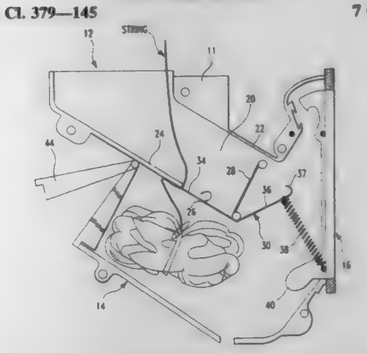
said premises transmission means further including means for extracting any caller ID from an incoming call, wireless transmission means for generating and transmitting a packet containing any caller ID and at least a portion of the telephone information received from the telephone network to a receiver spaced distant from said premises transmission means but within range of a packet transmission generated therefrom for receiving, storing and displaying at least of portion of said packet of information.

5,727,054

ANTI-STUFFING COIN RETURN ASSEMBLY

Salvatore Anello, Highland, N.Y., and Albert F. Diaz, Lynbrook, N.Y., assignors to Sandt Technology, Ltd., Mariboro, N.Y.

Filed Feb. 2, 1996, Ser. No. 595,619
Int. Cl.[6] H04M *17/00*
U.S. Cl. 379—145 **7 Claims**



1. For use in a coin-operated pay telephone, a coin return assembly embodying

a coin return chute possessing

a floor terminating before the lower end of the chute to form a floor opening for passing coins to be returned to unsuccessful callers and

a wall at the end of the chute for stopping coins coming down the chute,

an upwardly-open coin return bucket below the floor opening and having a front opening,

a door biased to a normal position closing-off said bucket front opening,

a movable structure in its normal position closing-off said chute floor opening, and

a mechanism interconnecting said movable structure and said door to move the structure from its normal position to one uncovering the floor opening to pass into the coin return bucket any coins stopped by the bucket wall, wherein the movable structure is a lever spanning the floor opening, wherein the lever is pivoted at the lower end of the chute end wall, wherein the mechanism includes a lever fixed to the pivoted lever, and a compression spring attached at one end to the fixed lever and at its other end to the lower end to the door closing off the front bucket opening and of such length as to hold the pivoted lever in its normal position closing-off the floor opening when the door is in its normal position closing-off the front bucket opening.

5,727,055

INFORMATION COMMUNICATION SYSTEMS

Lovell Brent Ivie, Sandy; Daniel Gilstrap, Salt Lake City; R. Brent Howard, Sandy; Grant Bowden, Syracuse, and David Johnson, Salt Lake City, all of Utah, assignors to IES Technologies, Inc., Sandy, Utah

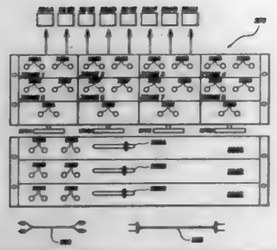
Filed May 17, 1995, Ser. No. 443,413
Int. Cl.[6] H04M *1/00;5/00;9/00*
U.S. Cl. 379—156 **4 Claims**

1. An apparatus for adapting a multi-line telephone signal distribution hub for use with one or more telephone lines, the multi-line telephone signal distribution hub comprising:

a plurality of twisted pair connectors each including at least two jack conductors;

a multi-line telephone connector having at least first set of plug conductors and a second set of plug conductors and having a connector receiver portion; and

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a plurality of interconnecting conductors coupling at least two of the jack conductors each to a respective one of the plug conductors so that individual telephone signals which are presented on the multi-line telephone connector are conveyed to one of the twisted pair connectors, the apparatus comprising:

first means for making physical and electrical contact with the first set of plug conductors of the multi-line telephone connector;

second means for making physical and electrical contact with the second set of plug conductors of the multi-line telephone connector;

first coupling means for electrically coupling a plurality of the first set of plug conductors so that the plurality of the first set of plug conductors of the multi-line telephone connector are electrically joined in parallel to each other;

second coupling means for electrically coupling a plurality of the second set of plug conductors so that the plurality of the second set of plug conductors of the multi-line telephone connector are electrically joined in parallel to each other;

means for holding the first means and the second means in physical and electrical contact, respectively, with the first set of plug conductors and the second set of plug conductors and for making physical connection with the connector receiver portion such that telephone signals cannot be directly presented to the multi-line telephone connector but any initial telephone signal which is presented on one of the twisted pair connectors appears on a plurality of the twisted pair connectors such that the initial telephone signal is also accessible from the plurality of twisted pair connectors.

5,727,056

PARALLEL-CONNECTED TELEPHONE USE DETERMINING CIRCUIT IN A CORDLESS TELEPHONE SYSTEM AND METHOD THEREOF

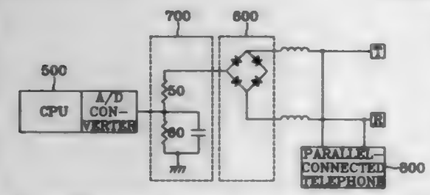
Byeong-Kuk Lee, Gumi, Rep. of Korea, assignor to SamSung Electronics Co., Ltd., Kyungki-do, Rep. of Korea

Filed Jul. 5, 1996, Ser. No. 675,877

Claims priority, application Rep. of Korea, Jul. 4, 1995, 19486/1995

Int. Cl.[6] H04M *3/58*

U.S. Cl. 379—399 **20 Claims**



1. A parallel-connected telephone use determining circuit, comprising: rectifying means connected to tip and ring wires of a telephone line, for rectifying a line voltage between the tip and ring wires of the telephone line;

voltage detecting means connected to said rectifying means, for detecting the variance of the line voltage rectified from said rectifying means;

converting means for converting the voltage variance output from said voltage detecting means into a digital signal; and

processing means for determining whether a telephone set connected in parallel to the telephone line is in use in response to said digital signal, said processing means determining whether the telephone set is in use by a program comprising the steps:

determining whether said digital signal represents the line voltage of a predetermined value;

when said digital signal represents the line voltage of not less than said predetermined value, providing a visual display of "non-use" indicating that the telephone set connected in parallel to the telephone line is not in use;

when said digital signal represents the line voltage of less than said predetermined value, determining whether said digital signal represents the line voltage maintained at less than said predetermined value for a predetermined time period;

when said digital signal represents the line voltage that fails to maintain at less than said predetermined value for said predetermined time period, terminating the program; and

when said digital signal represents the line voltage that maintains at less than said predetermined value for said predetermined time period, providing a visual display of "in-use" indicating that the telephone set connected in parallel to the telephone line is in use, and terminating the program.

5,727,057

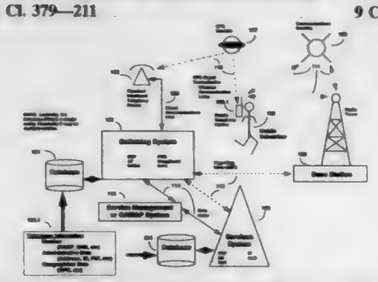
STORAGE, TRANSMISSION, COMMUNICATION AND ACCESS TO GEOGRAPHICAL POSITIONING DATA LINKED WITH STANDARD TELEPHONY NUMBERING AND ENCODED FOR USE IN TELECOMMUNICATIONS AND RELATED SERVICES

Mark Emery, and Zaman Gulzar, both of Phoenix, Ariz., assignors to AG Communication Systems Corporation, Phoenix, Ariz.

Filed Dec. 27, 1994, Ser. No. 363,847

Int. Cl.[6] H04M *3/42;3/22;7/00;3/00*

U.S. Cl. 379—211 **9 Claims**



1. A telecommunication system for use with a plurality of user devices operated to receive global positioning system (GPS) location identifier signals representative of the current location of the user device and operated to periodically transmit such GPS location identifier signals to said telecommunication system and operated to transmit a querried user device directory number to said telecommunication system when operating as a querrying user device, said telecommunication system also being for use with a plurality of user devices not operated to receive GPS location identifier signals, said telecommunication system comprising:

data storage means operated to store a plurality of predetermined directory numbers, each associated with a particular user device, and further operated to store a GPS location identifier associated with the directory number of the user device transmitting the corresponding GPS location identifier signal, and further operated to store a predetermined location identifier

associated the directory number of each of a plurality of user devices that do not transmit GPS location identifier signals;

data processing means connected between said data storage means and said user devices;

said data processing means being operated in response to said querried directory number to retrieve the location identifier of said querried directory number, from said storage means and transmit it to said querrying user device.

5,727,058

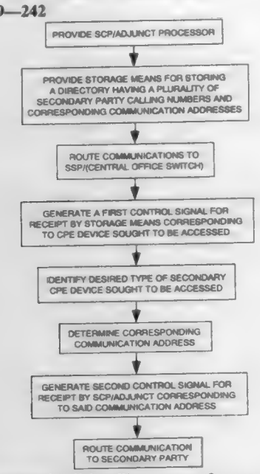
APPARATUS AND METHOD FOR ROUTING COMMUNICATIONS TO A VARIETY OF CPE DEVICES

Mark Sheldon Blumhardt, Niwot, and Gregory Wilfred Bruening, Boulder, both of Colo., assignors to U S West Advanced Technologies, Inc., Boulder, Colo.

Continuation of Ser. No. 40,546, Mar. 31, 1993, abandoned. This application Nov. 14, 1995, Ser. No. 557,927

Int. Cl.[6] H04M *11/00*

U.S. Cl. 379—242 **8 Claims**



1. An automated call handling system for use in an Advanced Intelligent Network (AIN), the system comprising:

a central office switch provided in electrical communication with (a) a calling party having at least one Customer Premise Equipment (CPE) device, and (b) a plurality of secondary parties, each of the plurality of secondary parties having a unique calling number for a plurality of assigned CPE devices at multiple locations, each of the CPE devices having a unique communication address;

first routing means in electrical communication with the at least one CPE device of the calling party for routing the call to the central office switch;

service identification means at the central office switch for determining the type of secondary party CPE device sought to be addressed;

storage means at a location different from the at least one calling party CPE device and the plurality of secondary party CPE devices and provided in electrical communication with the central office switch for storing a predetermined directory of the corresponding communication addresses for each assigned CPE device of each of the secondary parties;

an adjunct processor in electrical communication with the storage means and the at least one central office switch, the adjunct processor functioning to receiving and transmit control signals only and to coordinate the routing of the call; and

second routing means in electrical communication with the central office switch for routing the call to one of the plurality of assigned CPE devices.

5,727,059

Patent Not Issued For This Number

5,727,060

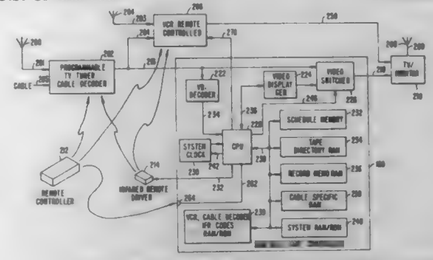
TELEVISION SCHEDULE SYSTEM

Patrick Young, San Mateo, Calif., assignor to Starsight Telecast, Inc., Fremont, Calif.

Continuation-in-part of Ser. No. 33,773, Mar. 19, 1993, Pat. No. 5,353,121, which is a continuation-in-part of Ser. No. 579,555, Sep. 10, 1990, abandoned, and Ser. No. 916,043, Jul. 17, 1992, abandoned, which is a continuation of Ser. No. 778,404, Oct. 17, 1991, Pat. No. 5,151,789, which is a continuation-in-part of Ser. No. 428,620, Oct. 30, 1989, abandoned. This application Jun. 16, 1993, Ser. No. 79,502

Int. Cl.[6] H04N *7/167;* **H04H** *1/02;* **H04B** *10/04;10/06*

U.S. Cl. 380—10 **13 Claims**



2. In a video recorder including a future schedule memory adapted to store the channel and time of occurrence of programs desired to be recorded, the video recorder being adapted to receive television input signals from a multi-channel tuner/descrambler having a first remote control receiver for channel selection, the improvement comprising:

a first remote control transmitter forming a part of the video recorder and operative under control of signals stored in said future schedule memory of the video recorder, said first remote control transmitter being adapted to provide signals to said remote control receiver of the tuner/descrambler for channel selection at the time of occurrence of a program to be recorded to cause said tuner/descrambler to provide the video recorder with the appropriate television signal to be recorded, said first remote control transmitter controlling the channel selection and the energization of the tuner/descrambler;

a second remote control receiver forming part of the video recorder;

a second remote control transmitter for provision of signals to said second remote control receiver in order to allow remote control of the video recorder and of the multi-channel tuner/descrambler through signals provided by the second remote control transmitter to the video recorder and from the first remote control transmitter of the video recorder to the first remote control receiver, whereby a single remote control unit may be used to control both the video recorder and the multi-channel tuner/descrambler;

wherein said first remote control transmitter is connected to the video recorder via a flexible cable, said first remote control transmitter being positioned properly with respect to said first remote control receiver of the multi-channel tuner/descrambler for receipt of said signals generated by said first remote control transmitter by said first remote control receiver; and

wherein the first remote control receiver and the first remote control transmitter communicate via infrared signals.

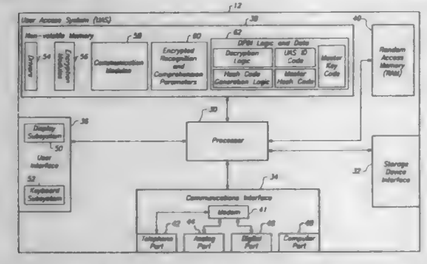
VOL 1208 ISS 2 MR 10 1998 UMI

5,727,061

PERSONAL ACCESS MANAGEMENT SYSTEMS

William Cedric Johnson, Los Angeles, Calif., and Donald L. Marx, Redondo Beach, Calif., assignors to ETA Technologies Corporation, Los Angeles, Calif.

Filed Feb. 13, 1995, Ser. No. 388,269
Int. Cl.[6] H04L 9/32
U.S. Cl. 380—25 46 Claims



1. A method for establishing a unique relationship between a processing device and a storage device to render the storage device inoperable with any other processing device, said method comprising the steps of:

accessing by the processing device a set of instructions stored on the storage device; and

executing by the processing device said set of instructions to carry out the steps of:

retrieving a file name from the processing device;

storing said file name onto the storage device;

retrieving identification information from the storage device; and

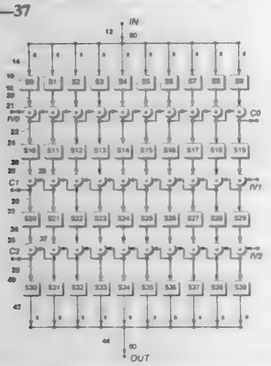
storing said identification information into the processing device in association with said file name.

5,727,062

VARIABLE SIZE BLOCK CIPHERS

Terry F. Ritter, 2609 Choctaw Trail, Austin, Tex. 78745

Filed Jul. 6, 1995, Ser. No. 499,024
Int. Cl.[6] H04L 9/18;9/00
U.S. Cl. 380—37 7 Claims



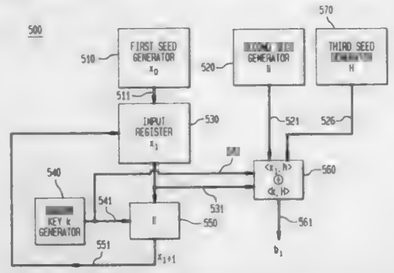
1. A cryptographic mechanism for block ciphering a data block of any size, said mechanism consisting of a fixed number of layers, including two one way diffusion layers.

5,727,063

PSEUDO-RANDOM GENERATOR

William Anthony Aiello, Madison, and Ramarathnam Venkatesan, Morristown, both of N.J., assignors to Bell Communications Research, Inc., Morristown, N.J.

Filed Nov. 27, 1995, Ser. No. 562,925
Int. Cl.[6] H04L 9/00
U.S. Cl. 380—46 8 Claims



1. A method for generating a stream of cryptographically strong pseudo random bits with a block cypher encoder having a fixed random encoder key, first and second seeds of the same length, and a third seed of the same length as the fixed random encoder key, the method comprising the steps of

(a) inputting the first seed as the first input to the block cypher encoder,

(b) generating an output bit in the stream in correspondence with a first inner product between the input of the block cypher encoder and the second seed, and a second inner product between the third seed and the fixed random encoder key; and

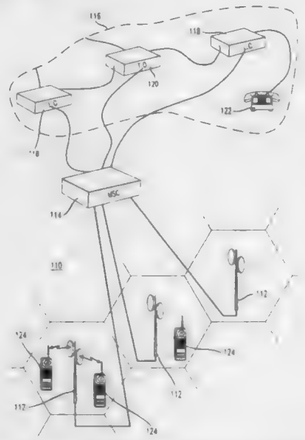
(c) feeding back the output of the block cypher encoder as the next input to the block cypher encoder, and returning to step (b).

5,727,064

CRYPTOGRAPHIC SYSTEM FOR WIRELESS COMMUNICATIONS

James Alexander Reeds, III, New Providence, N.J., assignor to Lucent Technologies Inc., Murray Hill, N.J.

Filed Jul. 3, 1995, Ser. No. 498,713
Int. Cl.[6] H04L 9/00; H04B 1/69
U.S. Cl. 380—49 55 Claims



43. A spread spectrum wireless infrastructure, comprising:

a mobile switching center coupled to receive input signals from at least one local office and at least one toll office;

a plurality of base stations coupled to said mobile switching center, each base station comprising:

an RF antenna;

a reverse channel that receives and processes a signal from a wireless terminal; and

a forward channel that transmits an input signal from one of said mobile switching centers to a wireless terminal, said forward channel circuit comprising:

a channel coder responsive to said mobile switching center that error correction codes said input signal,

a bit interleaver responsive to said channel coder that rearranges the order of the bits in the input signal so as to minimize the effect of error bursts,

an encryptor responsive to said channel coder that encrypts said input signal, said encryptor including a nonlinear scrambler for generating a key signal comprising a sequence of bits that have a nonlinear relationship to a private long code mask, and

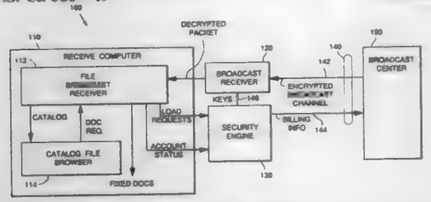
circuitry responsive to said channel coder and coupled to said antenna that modulates said input signal.

5,727,065

DEFERRED BILLING, BROADCAST, ELECTRONIC DOCUMENT DISTRIBUTION SYSTEM AND METHOD

Douglas M. Dillon, Gaithersburg, Md., assignor to Hughes Electronics, Los Angeles, Calif.

Continuation of Ser. No. 724,694, Oct. 1, 1996, abandoned, which is a continuation of Ser. No. 340,349, Nov. 14, 1994, abandoned. This application Jun. 3, 1997, Ser. No. 869,865
Int. Cl.[6] H04L 9/00; H04N 7/167
U.S. Cl. 380—49 30 Claims



1. A document delivery system, comprising:

a broadcast center that repeatedly sends a document as a plurality of encrypted packets;

a communication link connected to the broadcast center for carrying the packets;

a receiving computer, connected to the communication link, and including a memory and a broadcast receiver wherein the broadcast receiver decrypts each packet as it is received and stores only the decrypted packets that are not duplicates of previously received packets in the memory.

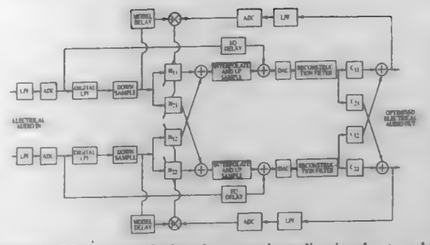
5,727,066

SOUND REPRODUCTION SYSTEMS

Stephen John Elliott, Winchester; Philip Arthur Nelson, Southampton, and Ian McGregor Stothers, Eastleigh, all of England, assignors to Adaptive Audio Limited, England

Filed Apr. 27, 1993, Ser. No. 655,409
Claims priority, application United Kingdom, Jul. 8, 1988, 88.16364.7; May 11, 1989, 89.10847.6
Int. Cl.[6] H04R 5/00
U.S. Cl. 381—1 23 Claims

1. A sound reproduction system comprising: a plurality of audio signal sources for supplying a plurality of electrical signals, each electrical signal representing an acoustic audio signal occurring at a corresponding one of a plurality of points in a first space; a plurality of speakers connected to form a plurality of speaker



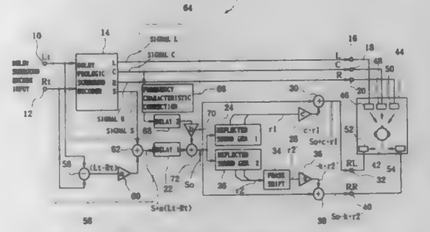
channels, M, for reproducing the acoustic audio signals at a plurality of points, L, in a second space, each of said speakers having an electrical signal input and being operative to generate an acoustic audio output signal in response to a signal supplied to the electrical signal input, wherein transmission paths exist between the electrical signal input of each speaker and the plurality of points, L, in the second space, which transmission paths are represented by transfer functions, wherein said sound reproduction system further comprises electrical filter means connected in signal paths between each audio signal source and said electrical signal input of each speaker for modifying the electrical signals supplied by said audio signal sources and delivering a modified signal to the said electrical signal input of each speaker, said filter means having filter characteristics determined by measuring the transfer functions of the transmission paths, and wherein M and L are each greater than unity.

5,727,067

SOUND FIELD CONTROL DEVICE

Masayuki Iwamatsu, Hamamatsu, Japan, assignor to Yamaha Corporation, Japan

Filed Aug. 9, 1996, Ser. No. 694,548
Claims priority, application Japan, Aug. 28, 1995, 7-242578
Int. Cl.[6] H04R 5/00
U.S. Cl. 381—18 3 Claims



1. A sound field control device comprising:

a surround decoder for decoding an input surround encode signal and thereby generating three channel signals of L, C and R which are assumed to be reproduced respectively in front left, front center and front right positions and one channel signal of S which is assumed to be reproduced in a rear position;

output terminals for outputting the three channel signals of L, C and R for reproduction in the front left, front center and front right positions;

first reflected sound generation means for generating a reflected sound of the signal S;

second reflected sound generation means for generating another reflected sound signal of the signal S;

first addition means for adding the reflected sound signal generated by the first reflected sound generation means and the signal S together;

phase shifting means for shifting phase of the reflected sound signal generated by the second reflected sound generation means in accordance with frequency of the reflected sound signal;

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second addition means for adding a reflected sound signal provided by the phase shifting means and the signal S together; and

output terminals for outputting signals of RL and RR channels for reproduction of these signals in rear left and rear right positions or reverse positions,

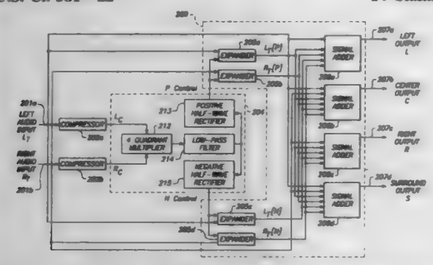
at least one of said first and second addition means adding the reflected sound signal and the signal S together at a rate at which a value obtained by dividing level of the reflected sound signal by level of the signal S will become 0.5 or over.

5,727,068

MATRIX DECODING METHOD AND APPARATUS

Michael A. Karagosian, Woodland Hills, Calif., and Robert R. Reams, Lynnwood, Wash., assignors to Cinema Group, Ltd., Calabasas, Calif.

Filed Mar. 1, 1996, Ser. No. 609,843
Int. Cl.[6] H04R *5/00*
U.S. Cl. 381—22 **14 Claims**



10. A method of generating a plurality of output signals from first and second input signals, comprising:

adjusting the amplitudes of the first and second input signals to generate normalized first and second input signals;

detecting a phase difference between the normalized first and second input signals; and

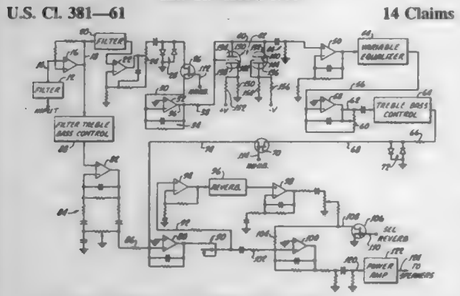
steering a variable matrix having a plurality of output signals each corresponding to a weighted summation of the first and second input signals, responsive to the detected phase difference.

5,727,069

SOLID STATE MUSICAL INSTRUMENT AMPLIFIER WITH VACUUM TUBE SIGNAL MAGNITUDE LIMITING

William E. Hughes, and Scott Clifford Hollestelle, both of Scottsdale, Ariz., assignors to Fender Musical Instruments Corporation, Scottsdale, Ariz.

Filed Jan. 14, 1994, Ser. No. 182,848
Int. Cl.[6] H03G *3/00*
U.S. Cl. 381—61 **14 Claims**



1. A musical instrument amplifier comprising:

a solid state amplifier having a plurality of solid state stages, and

a vacuum tube signal limiter connected to the output of a predetermined one of said solid state stages, said vacuum tube signal limiter comprising:

first and second oppositely poled vacuum tubes each having a plate electrode, a grid and a cathode electrode, and

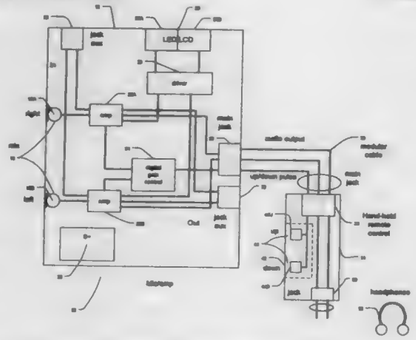
means to electrically connect said vacuum tubes to cause them to act as a signal magnitude limiter to the output of said predetermined one of said solid state stages, and to provide a type of distortion characteristic of vacuum-tube amplifiers when the musical instrument amplifier operates at a level above its linear range, to thereby provide a tube-type distortion sound when the amplifier operates at a level above its linear range.

5,727,070

HEARING-AID SYSTEM

Paul Coninx, 5721 Terrebonne Street, Montreal, Quebec H4A 1A9, Canada

Continuation of Ser. No. 240,911, May 10, 1994, abandoned.
This application Oct. 8, 1996, Ser. No. 727,325
Int. Cl.[6] H04R *25/00*
U.S. Cl. 381—68.4 **19 Claims**



1. A hearing-aid system consisting essentially of:

a. a sound input unit including a pair of stereophonic microphones for sensing sound in an ambient environment, each of said microphones being connected to respective controllable amplifier means for controllably amplifying said sound sensed by said microphones;

b. a first hand-held remote control unit connected to said input unit, said control unit having functional parameter adjustment means including a digital volume controller for discrete stepwise control of said amplifier means so as to provide a single amplified volume of sound to be supplied in said system, said digital controller having separate means for increasing and decreasing said volume, said separate means having two push-buttons, one push-button being for increasing said volume and the other being for decreasing said volume, respectively; and

c. a first pair of stereophonic headphones for being worn by a user, said headphones being connected to said system and receiving said single amplified volume of sound from said amplifier means;

wherein said sound input unit includes volume indicator means adapted to visibly display an indication of said single amplified volume of sound, said volume indicator means including display means connected to said amplifier means, said display means having a segmented, bar-type display for indicating the level of said single amplified volume of sound, said display including a plurality of individual bar segments and being adapted to display discrete stepwise changes in level of said

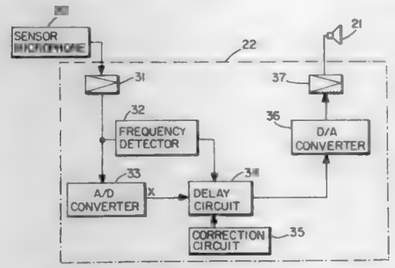
single amplified volume of sound generated by said amplifier means, and said system further comprises a provision for an additional pair of headphones connected in parallel with said first pair of headphones to said system and receiving the single amplified volume of sound received by said first pair of headphones, said volume indicator means and said additional pair of headphones thereby permitting a person other than said user to monitor the amplified volume of sound being received by said first pair of headphones, said system being constructed such that said system is able to supply to said pairs of headphones only said single amplified volume of sound.

5,727,071

NOISE SILENCING DEVICE

Mitsuharu Suzuki, Tokyo, Japan, assignor to NEC Corporation, Tokyo, Japan

Filed Jan. 29, 1996, Ser. No. 593,685
Claims priority, application Japan, Jan. 27, 1995, 7-011344
Int. Cl.[6] A61F *11/06*
U.S. Cl. 381—71.8 **2 Claims**



1. A noise silencer comprising:

noise information detection means for detecting information of noise emitted from a noise source;

additional sound generating means for generating additional sound for canceling noise emitted from said noise source; and

control means comprising A/D conversion means for converting noise signals detected by said noise information detection means into digital signals;

frequency detection means for detecting a frequency of noise detected by said noise information detection means;

delay means for calculating a delay time by a prescribed calculation formula from said noise frequency and from a distance between said noise information detection means and said additional sound generating means such that additional sound generated from said additional sound generating means is exactly reversed in phase with respect to noise reaching said additional sound generating means and delaying for said delay time output signals of said A/D conversion means; and

D/A conversion means for converting output signals of said delay means to analog signals and outputting the result to said additional sound generating means as drive signals;

wherein said delay time ΔD is found using calculation formula:

$$\Delta D = L/V + \frac{1}{2}f - L/C$$

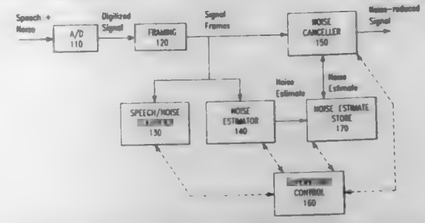
where L is the distance between said noise information detection device and said additional sound generating device, V is the speed of noise waves, f is the frequency of noise waves, and C is the speed of light.

5,727,072

USE OF NOISE SEGMENTATION FOR NOISE CANCELLATION

Vijay Rangan Raman, Greenwich, Conn., assignor to Nynex Science & Technology, White Plains, N.Y.

Filed Feb. 24, 1995, Ser. No. 393,800
Int. Cl.[6] H04B *15/00*
U.S. Cl. 381—94.2 **30 Claims**



1. In a noise reduction system, a method for estimating noise for cancellation purposes comprising the steps of

separating noise signal samples into frames,

aggregating the frames into segments when adjoining frames are similar,

ending a segment when a dissimilar frame is encountered, and

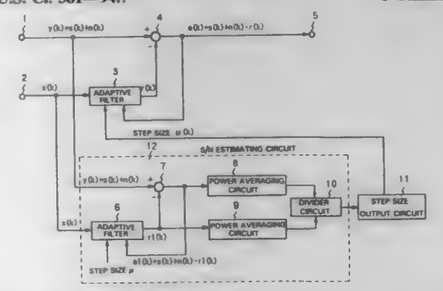
using only one segment at a time as representative of noise during speech.

5,727,073

NOISE CANCELLING METHOD AND NOISE CANCELLER WITH VARIABLE STEP SIZE BASED ON SNR

Shigeji Ikeda, Tokyo, Japan, assignor to NEC Corporation, Japan

Filed Jun. 28, 1996, Ser. No. 673,343
Claims priority, application Japan, Jun. 30, 1995, 7-165117
Int. Cl.[6] H04B *15/00*
U.S. Cl. 381—94.7 **5 Claims**



2. A noise canceller comprising:

a first adaptive filter which outputs a first pseudo noise signal through filtering in accordance with filter coefficients by receiving a reference noise signal input from a reference signal input terminal;

a first subtracter which subtracts said first pseudo noise signal from a receiving signal input from a receiving signal input terminal, supplies the difference signal obtained as a result of the subtraction to said first adaptive filter as a first error signal, and outputs said receiving signal with its noise cancelled to an output terminal;

a signal to noise ratio estimating circuit which receives the reference noise signal from said reference signal input terminal and the receiving signal from said receiving signal input terminal as input signals and obtains an estimated value of the signal to noise ratio of said receiving signal; and

a step size output circuit which outputs a step size that determines a update value of the filter coefficients of said first

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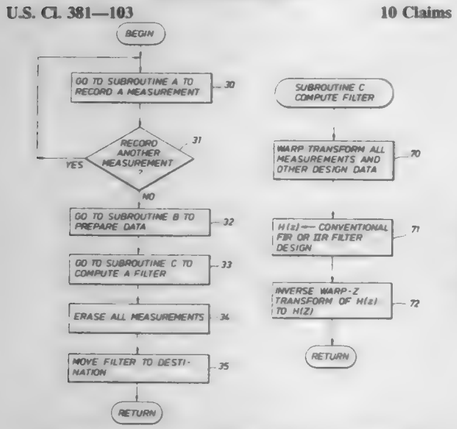
adaptive filter based on the output estimated value of the signal to noise ratio estimating circuit.

5,727,074

METHOD AND APPARATUS FOR DIGITAL FILTERING OF AUDIO SIGNALS

Harold A. Hildebrand, P.O. Box 698, Applegate, Calif. 95703, assignor to Harold A. Hildebrand, Applegate, Calif.

Filed Mar. 25, 1996, Ser. No. 621,534
Int. Cl.° H03G 5/00
U.S. Cl. 381—103 10 Claims



1. A method for generating a digital filter for an equalizer of an audio reproduction system comprising the steps of,

recording a measurement signal m(t) of the response of said audio reproduction system,

transforming said measurement signal into a frequency domain spectrum signal M(ω);

warping said frequency domain spectrum signal M(ω) such that amplitudes and phases of said frequency domain spectrum M(ω) are transformed into new frequencies such that the lower frequencies are stretched and the higher frequencies are condensed thereby producing a spectrum M'(ω),

generating a digital filter H(z) based upon said spectrum M'(ω) where said digital filter is characterized by coefficients and corresponding filter taps, and

inverse warping said digital filter H(z) to produce a filter H(Z) that has variations in amplitude characterized by high resolution at low frequencies and less resolution at higher frequencies,

wherein said warping and inverse warping steps are accomplished by means of a transform

$$z^{-1} = G(Z^{-1}) = \pm \prod_{k=1}^{L} \frac{Z^{-1} - \alpha_k}{1 - \alpha_k Z^{-1}}$$

and z and Z are related, by

$z = e^{j\theta}$, θ = frequency variable in z domain

$Z = e^{j\omega}$, ω = frequency variable in Z domain,

$$e^{-j\theta} = |G(e^{-j\omega})|e^{j\arg[G(e^{-j\omega})]}$$

$$|G(e^{-j\omega})| = 1$$

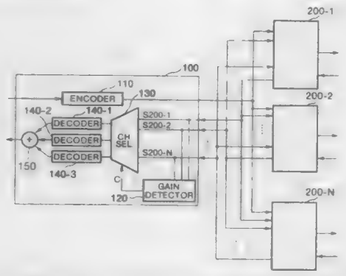
$$\theta = -\arg[G(e^{-j\omega})].$$

5,727,075

MULTIPOINT COMMUNICATION APPARATUS WITH REDUCED NUMBER OF AUDIO DECODERS

Yasuo Aoyagi, Tokyo, Japan, assignor to Oki Electric Industry Co., Ltd., Tokyo, Japan

Filed Mar. 5, 1996, Ser. No. 610,856
Claims priority, application Japan, Apr. 17, 1995, 7-091153
Int. Cl.° H03G 7/00
U.S. Cl. 381—106 10 Claims



1. A multipoint communication apparatus for receiving and decoding audio codewords transmitted from a plurality of other multipoint communication apparatuses via a corresponding plurality of channels, said audio codewords containing respective gain indices and shape indices, to create an audio output signal, comprising:

a gain detector for receiving said audio codewords, monitoring the gain indices contained therein, and dynamically selecting a set of M channels among said plurality of channels, responsive to said gain indices, where M is a fixed positive integer;

a channel selector coupled to said gain detector, for selecting the audio codewords received on the M channels selected by said gain detector;

a set of M decoders coupled to said channel selector, for decoding the audio codewords selected by said channel selector to produce respective outputs; and

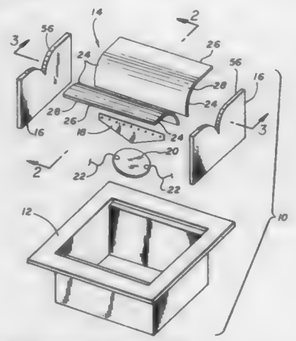
an adder coupled to said decoders, for adding the outputs of said M decoders to create said audio output signal.

5,727,076

AUDIO TRANSDUCER HAVING PIEZOELECTRIC DEVICE

Paul W. Paddock, McMinnville, Oreg., assignor to Aura Systems, Inc., El Segundo, Calif.

Filed May 2, 1994, Ser. No. 236,209
Int. Cl.° H04R 25/00
U.S. Cl. 381—190 26 Claims



1. An audio transducer, comprising:

(a) a nonmagnetic transducer that converts energy between electric energy and physical motion;

(b) a diaphragm having at least two flexible sheets arranged as a flat, curvilinear planes; and

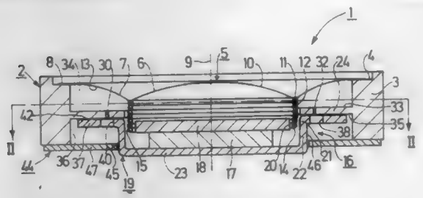
(c) a bridge having a first end and a second end wherein the first end has a first area of contact that is coupled to the nonmagnetic transducer and the second end has a second area of contact that is coupled to the diaphragm and the first area of contact is less than the second area of contact so as to convert a point source of excitation at the nonmagnetic transducer into a line source of excitation at the diaphragm.

5,727,077

ELECTROACOUSTIC TRANSDUCER COMPRISING A CLOSING MEMBER

Ewald Frasl, Biedermannsdorf, Austria, assignor to U. S. Philips Corporation, New York, N.Y.

Continuation of Ser. No. 378,905, Jan. 26, 1995, abandoned, which is a continuation of Ser. No. 67,203, May 25, 1993, abandoned. This application Dec. 20, 1996, Ser. No. 772,189
Claims priority, application Austria, Feb. 26, 1993, A368/93
Int. Cl.° H04R 25/00
U.S. Cl. 381—192 5 Claims



1. An electroacoustic transducer comprising:

a cylindrical mounting device having an outer wall, a lower wall and an inwardly disposed flange having a central opening;

a diaphragm capable of motion in a direction parallel to the transducer axis;

a voice coil coupled to said diaphragm and extending at least partially through the central opening in the inwardly disposed flange of the cylindrical mounting device;

a magnet mounting device having an annular flange extending transversely to said transducer axis, an outer circumferential surface extending along said transducer axis and a magnet mounting surface extending transversely to said outer circumferential surface, said annular flange being secured to the inwardly disposed flange of the mounting device;

magnet means mounted to said magnet mounting device so as to be proximate to said voice coil; and

a closure plate having an aperture sized to tightly receive said magnet mounting means, said closure plate being disposed such that it extends between said lower surface of said cylindrical mounting device and said magnet mounting device to provide an acoustic seal therebetween.

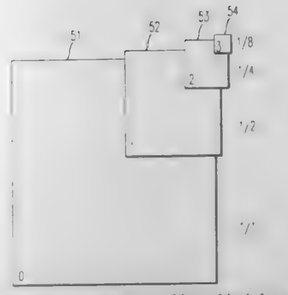
5,727,078

PROCESS FOR ESTIMATING DISPARITY BETWEEN THE MONOSCOPIC IMAGES MAKING UP A STERESCOPIC IMAGE

Bertrand Chupeau, Rennes, France, assignor to Thomson-CSF, Paris, France

PCT No. PCT/FR94/00057, § 371 Date Jul. 19, 1995, § 102(e) Date Jul. 19, 1995, PCT Pub. No. WO94/17485, PCT Pub. Date Aug. 4, 1994
PCT Filed Jan. 18, 1994, Ser. No. 481,394
Claims priority, application France, Jan. 19, 1993, 93 00477
Int. Cl.° G06K 9/00
U.S. Cl. 382—154 6 Claims

1. Process for estimating disparity between the monoscopic images making up a stereoscopic image, comprising the steps of:



first, carrying out one and the same hierarchical decomposition of each monoscopic image by levels of resolution, thereby building at least three pyramids of images of increasing resolutions, one low-frequency image pyramid and two high-frequency image pyramids in the horizontal and vertical directions of the images;

second, estimating a disparity at the coarsest level of resolution and in refining the estimate in each level as the resolution increases, the disparity being represented at each point of the image by a disparity vector whose origin is situated at the point of one of the monoscopic images and on the tip at the corresponding point of the other monoscopic image;

the estimating of disparity being realized with the aid of a hierarchical decomposition of the monoscopic images into sub-bands while preserving at each level of the decomposition the low frequency band and the high frequency bands respectively representing the vertical and the horizontal outlines of the images, for each estimate and at a given resolution level, three prediction vectors being used to calculate a disparity vector of the level higher than said given resolution level;

an additional temporal prediction being realized by projection of a disparity vector estimated, at the moment t−1, at a given point between the monoscopic images being, at this moment, in the same resolution level, said projection being realized in the direction of the vector defining the movement between moments t−1 and t, t being a moment t−1.

5,727,079

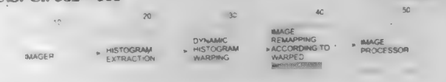
Patent Not Issued For This Number

5,727,080

DYNAMIC HISTOGRAM WARPING OF IMAGE HISTOGRAMS FOR CONSTANT IMAGE BRIGHTNESS, HISTOGRAM MATCHING AND HISTOGRAM SPECIFICATION

Ingemar J. Cox, Lawrenceville, N.J., and Sebastien Roy, Princeton, N.J., assignors to NEC Research Institute, Inc., Princeton, N.J.

Filed May 3, 1995, Ser. No. 434,085
Int. Cl.° G06K 9/46
U.S. Cl. 382—168 8 Claims



1. An apparatus for dynamic histogram warping of image pairs comprising:

an imager for providing an image pair of a scene;

computer coupled to said imager for receiving said image pair of a scene and extracting the histograms of the images, subjecting the histograms to dynamic histogram warping and then remapping the image according to the warped histogram, where said computer determines the minimum total cost of a

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matching according to:

$$D(0,0) = 0$$

$$D(i,j) = \infty\ (i \leqq 0, j \leqq 0, (i,j) \neq (0,0))$$

$$D(m,n) = \mathrm{Min}[D(m-k,n-l)+d_{k,l}(m,n)] \quad \begin{matrix} 1 \leqq k \leqq M \\ 1 \leqq l \leqq N \\ (k-1)(l-1) = 0 \end{matrix}$$

where D is the total cost, M and N are the maximum allowable compression of the histograms, m and n are the intensity values of the first image and the second image of the image pair of the scene, $d_{k,l}$ is the cost of a k-to-l mapping, for generating an image or image pair having specified histogram characteristics; and

image processor coupled to said computer for receiving said remapped image or image pair and processing said remapped image pair.

5,727,081

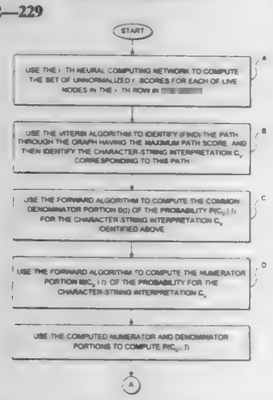
SYSTEM AND METHOD FOR AUTOMATED INTERPRETATION OF INPUT EXPRESSIONS USING NOVEL A POSTERIORI PROBABILITY MEASURES AND OPTIMALLY TRAINED INFORMATION PROCESSING NETWORKS

Christopher John Burges, Monmouth County, N.J., and John Stewart Denker, Monmouth County, N.J., assignors to Lucent Technologies Inc., Murray Hill, N.J.

Continuation-in-part of Ser. No. 816,415, Dec. 31, 1991, abandoned, and a continuation-in-part of Ser. No. 816,414, Dec. 31, 1991, abandoned. This application Aug. 4, 1994, Ser. No. 286,147

Int. Cl.[6] G06K *9/72*

U.S. Cl. 382—229 **37 Claims**



1. A system for analyzing an input expression and scoring possible interpretations of said input expression, said system comprising:

segment producing means for analyzing an input data set representative of said input expression and dividing said input data set into a plurality of segments, each said segment having specifiable boundaries and being classifiable as possibly representing any one of a plurality of symbols in a predetermined symbol set,

said input data set comprising a set of pixels associated with an acquired image of a graphically represented sequence of symbols, and said segment producing means analyzing said set of pixels and dividing said set of pixels into a plurality of image segments, such that each said image segment has specified boundaries and is classifiable as possibly representing any one or more of said plurality of symbols in a predetermined symbol set;

segment scoring means for analyzing each segment in said plurality of segments, and assigning a score to each possible classification of said segment associated with a particular symbol in said predetermined symbol set;

representation means for representing a plurality of possible interpretations for said input expression, and a plurality of image consegmentations, wherein each said possible interpretation consists of a different sequence of symbols selected from said plurality of symbols, and each said consegmentation consists of a different sequence of said plurality of segments;

consegmentation scoring means for assigning scores to said plurality of consegmentations based on the scores assigned to said segments;

candidate interpretation identifying means for identifying one or more candidate symbol interpretations from said plurality of possible interpretations based on the scores assigned to said plurality of segments;

symbol sequence scoring means for assigning scores to said one or more candidate interpretations based on the scores assigned to one or more of said plurality of segments;

first score evaluation means for evaluating the scores assigned to said one or more candidate interpretations;

second score evaluation means for evaluating the scores assigned to said plurality of possible interpretations; and

normalized score producing means for producing a normalized score for each candidate interpretation using the evaluated score for said plurality of possible interpretations.

5,727,082

IMAGE READING, COPYING, TRANSMISSION, ETC., WITH TRANSLATION FROM ONE LANGUAGE TO ANOTHER

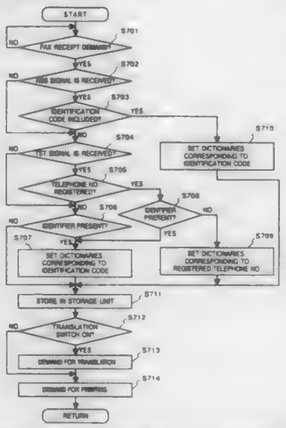
Kiyohisa Sugishima, Yokohama, Japan, assignor to Canon Kabushiki Kaisha, Tokyo, Japan

Filed Apr. 11, 1995, Ser. No. 420,083

Claims priority, application Japan, Apr. 20, 1994, 6-082001; Mar. 9, 1995, 7-049719

Int. Cl.[6] H04N *1/32*

U.S. Cl. 382—229 **52 Claims**



1. An image processing apparatus for outputting a document image received through a communication line, comprising:

receiving means for receiving information including document image data and a language indicating code that indicates a language of the document image;

first extraction means for extracting the received language indicating code;

second extraction means for extracting a partial image of a received document image positioned at a predetermined position in the document image;

third extraction means for extracting information of transmission-side line number which is supplied and received during a negotiation at the time of a call receipt;

appointing means arranged in such a manner that if any of extraction performed by said first to third extraction means has been performed normally, then said appointing means appoints dictionaries for character recognition on the basis of a result of the extraction;

recognition means for recognizing characters in the received document image by using the dictionaries for character recognition appointed by said appointing means;

translation means for translating to a predetermined language on the basis of a result of the recognition performed by said recognition means; and

image producing means for producing a document image on the basis of a result of the translation performed by said translation means.

5,727,084

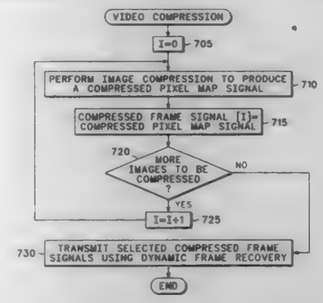
METHOD AND SYSTEM FOR COMPRESSING A PIXEL MAP SIGNAL USING BLOCK OVERLAP

Shao Wei Pan, Schaumburg; Shay-Ping T. Wang, Long Grove, and Nicholas M. Labun, Chicago, all of Ill., assignors to Motorola, Inc., Schaumburg, Ill.

Filed Jun. 27, 1995, Ser. No. 495,769

Int. Cl.[6] G06K *9/36*

U.S. Cl. 382—232 **26 Claims**



1. A method of compressing a pixel map signal comprising a pixel map of pixel data representing pixels in a computer implemented visual image, the method performed by a computer and comprising the steps of:

separating the pixel map signal into block signals representing pixel map blocks in the pixel map, each of the block signals including an overlap component representing pixels contained both by a corresponding pixel map block and at least one adjacent pixel map block in the pixel map;

compressing the block signals by converting the block signals into a coefficient signal of block coefficient signals, each of the block coefficient signals corresponding to one of the block signals and representing, for each of the pixel map blocks, one or more coefficients in a hybrid polynomial, the hybrid polynomial comprising discrete cosine terms, a constant term separated from the discrete cosine terms, and polynomial terms extracted from the discrete cosine terms, each of the block coefficient signals comprising a background component representing a coefficient of the constant term, a linear component representing coefficients of the polynomial terms and a nonlinear component representing coefficients of the discrete cosine terms;

decompressing the coefficient signal by converting the coefficient signal of block coefficient signals to decompressed block signals, each of the decompressed block signals corresponding to one of the block coefficient signals and including a decompressed overlap component representing pixels contained by a corresponding one of the pixel map blocks and at least one adjacent pixel map block in the pixel map;

averaging pixel values of each of the pixels in the decompressed overlap component in each pixel map block together with the pixel values of corresponding pixels in the decompressed overlap component of the adjacent pixel map block to produce an averaged pixel value for each of the pixels in the overlap component of each of the pixel map blocks and adjacent block, and replacing the pixel values of each of the pixels in the overlap component of each of the pixel map blocks and adjacent pixel map block with the averaged pixel value for each of the pixels; and

aggregating the decompressed block signals into a decompressed pixel map signal.

5,727,083

CORRECTION OF ERRORS IN FACSIMILE TRANSMISSIONS

Phillip L. Kelly, Sunnyvale, and Daryl A. Kaiser, Los Gatos, both of Calif., assignors to Applied Signal Technology, Inc., Sunnyvale, Calif.

Filed Feb. 23, 1995, Ser. No. 394,328

Int. Cl.[6] H04N *1/415;1/00*

U.S. Cl. 382—232 **5 Claims**



1. In an image communication system, wherein images are encoded prior to transmission using a source code, and transmitted in encoded form via a communication channel that includes a modulator operating according to a predetermined modulation format, a transmission medium, and a demodulator operating according to the predetermined modulation format, a method for correcting errors in a line of the received image comprising the steps of:

receiving the image line as a demodulated sequence of code words via the communications channel;

decoding the image line to remove the source code and establish a decoded representation of the image line;

determining, in accordance with a predetermined error criterion, if the decoded representation of the image line includes a transmission error;

upon an indication of a transmission error in said determining step, applying a plurality of correction patterns associated with the predetermined modulation format to the encoded form of the image line to obtain a corresponding plurality of corrected encoded image lines;

decoding the plurality of corrected encoded image lines to obtain a plurality of candidate decoded representations of the image line;

discarding candidate decoded representations of the plurality of candidate decoded representations that have errors as determined by said predetermined error criterion; and

when said discarding step leaves no candidate representation, correcting the image line by interpolating between surrounding lines.

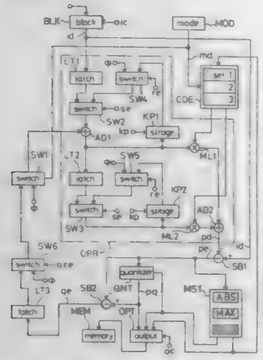
VOL 1208 ISS 2 MR 10 1998 UMI

5,727,085

WAVEFORM DATA COMPRESSION APPARATUS

Akira Toyama; Kazuhiko Hakuta, both of Tokyo; Masayoshi Nakamura, and Masataka Saito, both of Osaka, all of Japan, assignors to Nippon Precision Circuits Inc., Tokyo, and Matsushita Electric Industrial Co., Ltd., Osaka, both of Japan

Filed Sep. 14, 1995, Ser. No. 528,457
Claims priority, application Japan, Sep. 22, 1994, 6-227930
Int. Cl.[6] G06K 9/36
U.S. Cl. 382—232 7 Claims



1. A waveform data compression apparatus comprising:

a blocking section for blocking a fixed number of digitized continuous first waveform data into one block units;

an operating section for performing a block calculation process on said one block units, the block calculation process executing a prediction calculation process sequentially on the first waveform data to sequentially produce second waveform data which is prediction data of the first waveform data;

the operating section having a prediction coefficient memory section for storing a plurality of prediction coefficient sets each containing a plurality of prediction coefficients;

a mode specifying circuit for specifying a first mode and a second mode;

a prediction error production section for producing first prediction error data which is a difference between the first waveform data and the second waveform data;

an optimum data production section for producing, in the first mode, optimum prediction coefficient sets with respect to the first waveform data of said one block unit and an optimum quantization step for storing the first prediction error data of the one block unit, based on of the first prediction error data produced in the first mode;

a quantization section for producing, in the second mode, second prediction error data which is a quantization of the first prediction error data in the optimum quantization step;

a quantization error production section for producing, in the second mode, quantization error data which is the difference between the first prediction error data and the second prediction error data;

a first delay section for sequentially delaying the quantization error data;

a data output section for outputting in one block units the optimum prediction coefficient sets, the optimum quantization step and the second prediction error data;

the operating section having:

a plurality of second delay sections for sequentially delaying the first waveform data of the one block units from the blocking section;

a first adding section for adding, in the second mode, the first waveform data and the quantization error data delayed by the first delay section;

a plurality of multiplication sections for multiplying each delay data output from the second delay sections by each prediction coefficient of the prediction coefficient sets;

a second adding section for adding multiplication data output from the multiplication sections to produce the second waveform data;

first mode means for performing the block calculation process on each of said one block units a number of times corresponding to a number of the prediction coefficient sets to determine the optimum prediction coefficient set for said digitized continuous first waveform data in each of said one block units;

second mode means for performing the block calculation process using the optimum prediction coefficient sets on each of said digitized continuous first waveform data in each of said one block units;

a data storing section for storing data corresponding to at least a last one of said digitized continuous first waveform data used in a last one of the prediction calculation processes of the block calculation process in the second mode; and

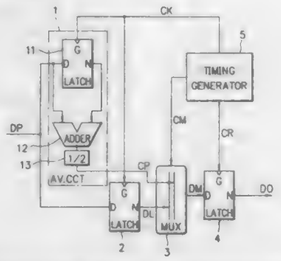
a first selection means for using data stored in the data storing section in place of data stored in the second delay section in a first one of each of the prediction calculation processes of each of the block calculation processes in the first mode and the second mode of a following one of said one block units.

5,727,086

DEVICE AND METHOD FOR PICTURE PROCESSING INCLUDING CONTRACTION OF TONED IMAGE

Masayasu Yoshida, Tokyo, Japan, assignor to NEC Corporation, Tokyo, Japan

Filed Nov. 29, 1995, Ser. No. 563,916
Claims priority, application Japan, Nov. 29, 1994, 6-294409
Int. Cl.[6] G06K 9/42; H04N 1/393;1/40;1/46
U.S. Cl. 382—232 6 Claims



1. A picture processing device for contracting an original picture in a pixel data thinning manner to provide a contracted picture by omitting, from a sequence of multi-toned pixel data representative of the original picture, a respective pixel data appearing therein at an interval of a predetermined number of pixel data, the picture processing device comprising:

a control signal generation means for generating a control signal in a predetermined timing associated with the respective omitted pixel data; and

a correction data generation means for generating a correction data for correcting a distortion of the contracted picture from a number of pixel data in a vicinity of omitted respective pixel data in said sequence of the pixel data, the correction data generation means including:

an averaging means for sequentially calculating an average between a first pixel data appearing at a first place in the sequence of pixel data and a second pixel data appearing at a second place neighboring the first place in the sequence of pixel data to provide an averaged data as a candidate data, and

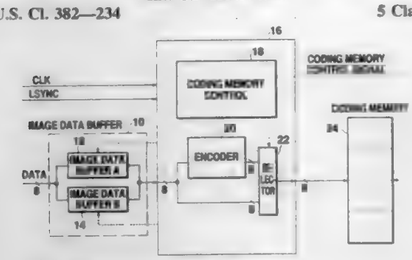
a data selection means for selecting one of the averaged data and a pixel data in the sequence of pixel data, in accordance with said control signal, and outputting a combination of the selected averaged data and pixel data as the correction data.

5,727,087

IMAGE PROCESSOR USING IMAGE DATA COMPRESSION CODING OF FIXED COMPRESSION RATE

Narihiro Matoba, Kamakura, Japan, and Masaru Onishi, Kamakura, Japan, assignors to Mitsubishi Denki Kabushiki Kaisha, Tokyo, Japan

Filed Mar. 21, 1995, Ser. No. 407,694
Claims priority, application Japan, Mar. 28, 1994, 6-057018
Int. Cl.[6] H04N 1/46
U.S. Cl. 382—234 5 Claims



1. An image processor comprising:

a buffer memory for storing original colored image data having a plurality of screens, wherein each screen comprises data for one color of the original colored image data, the buffer memory having an output;

an encoder for fixed-length block compression, the encoder compressing blocks of the original colored image data at a compression ratio of 2 to the power of N (N is a positive integer greater than or equal to 2), wherein each block comprises a plurality of pixels and wherein the compression ratio is defined by the number of uncompressed pixels divided by the number of compressed pixels, and wherein the encoder is connected to the output of the buffer memory and further, the encoder outputs coded data through an output;

a coding memory having a capacity defined by one screen of the original image data; and

a write selector connected to the output of the buffer memory and to the output of the encoder, for selecting between the original colored image data outputted from the buffer memory or the coded colored data outputted from the encoder and storing the selected data in the coding memory;

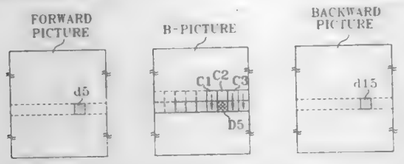
wherein the coding memory stores either the coded data of plural colors from among the coded data of one screen when the write selector selects the encoder, or the coding memory stores one screen of the original data when the write selector selects the buffer memory.

5,727,088

ERROR CONCEALMENT METHOD IN A B-PICTURE

Seong-bong Kim, Seoul, Rep. of Korea, assignor to Samsung Electronics Co., Ltd., Kyungki-Do, Rep. of Korea

Filed Jan. 19, 1996, Ser. No. 588,812
Claims priority, application Rep. of Korea, Jan. 23, 1995, 95-1093
Int. Cl.[6] G06K 9/36;9/46; H04N 11/02;7/12
U.S. Cl. 382—238 3 Claims



1. A method for concealing an error which is generated in a macroblock, wherein the error is generated in a Bidirectionally-predictive coded picture (a B-picture), and wherein a macroblock which is disposed in the row just above and in the same column as the error-generated macroblock is an intra macroblock having no concealment motion vector, the method comprising the steps of:

(a) obtaining a motion vector for the error-generated macroblock from macroblocks which are disposed in the row just above the error-generated macroblock;

(b) determining whether scene change is made on the basis of the B-picture containing the error-generated macroblock; and

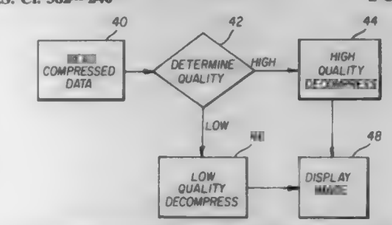
(c) performing motion compensation for the error-generated macroblock with reference to the picture which is subsequent in time when there is scene change based on the determination result of step (b), and performing motion compensation for the error-generated macro block with reference to the picture which is preceding in time when there is no scene change based on the determination result of step (b).

5,727,089

METHOD AND APPARATUS FOR MULTIPLE QUALITY TRANSACTION CARD IMAGES

Lawrence A. Ray, and Richard N. Ellson, both of Rochester, N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.

Filed Jan. 5, 1995, Ser. No. 369,015
Int. Cl.[6] G06K 9/36
U.S. Cl. 382—240 2 Claims



1. A method for decompressing an image on a transaction card to a first quality level and for augmenting the image at the first quality level to a second quality level with augmented data not stored on the transaction card, comprising the steps of:

a. providing at least one decompression codebook corresponding to the first and the second quality level of compressed image data and augmented data, respectively;

b. determining the first quality level of the compressed image stored on the transaction card;

c. decompressing the compressed image data to the first quality level; and

d. combining the augmented data with the decompressed image of the first quality level to form the decompressed image of the second quality level.

5,727,090

METHOD OF STORING RASTER IMAGE IN RUN LENGTHS HAVNG VARIABLE NUMBERS OF BYTES AND MEDIUM WITH RASTER IMAGE THUS STORED

Martin J. Yellin, Gaithersburg, Md., assignor to United States of America as represented by the Secretary of Commerce, Washington, D.C.

Filed Sep. 29, 1994, Ser. No. 314,619
Int. Cl.[6] G06K 9/36
U.S. Cl. 382—245 24 Claims

1. A method of writing a file representative of a raster image onto an information medium, the method comprising:

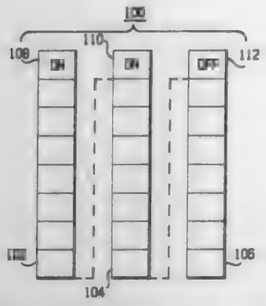
(a) determining a color field length necessary to enumerate all colors in the raster image;

(b) writing a file header indicating the color field length;

(c) dividing the raster image into pixel runs, each of the pixel runs having a color and a run length; and

(d) for each of the pixel runs:

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(i) writing a first block including a concatenation flag and indicating the color in a field of the color field length;

(ii) if the run length is such that first block is sufficient to express completely the color and the run length, writing the run length in the first block and setting the concatenation flag of the first block to indicate that no further blocks are used to express the pixel run;

(iii) if the run length is such that the first block is not sufficient to express completely the color and the run length:

(I) allocating at least one additional block, each of said at least one additional block having a concatenation flag;

(II) writing the run length in the first block and in the at least one additional block; and

(III) setting the concatenation flags of the first block and of the at least one additional block to indicate that the first block and the at least one additional block together express the pixel run.

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VIDEO DECODER SYSTEM

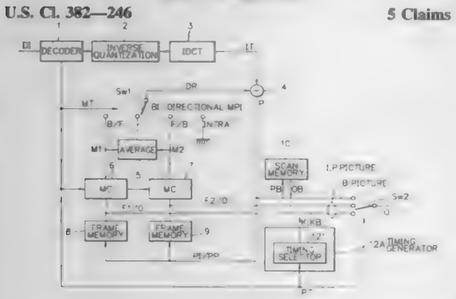
Shigenori Kinouchi, and Akira Sawada, both of Tokyo, Japan, assignors to NEC Corporation, Tokyo, Japan

Filed Mar. 13, 1996, Ser. No. 614,474

Claims priority, application Japan, Mar. 17, 1995, 7-057844

Int. Cl.[6] G06K *9/00*

U.S. Cl. 382—246 **5 Claims**



1. A video decoder system comprising:

decoder means for Huffman-decoding a set of Huffman-coded picture data and outputting Huffman-decoded data, a first selection signal and a second selection signal;

inverse quantization means, connected to said decoder means, for inverse-quantizing the Huffman-decoded data and outputting inverse-quantized data;

inverse discrete cosine transformation means, connected to said inverse quantization means, for inverse-discrete-cosine-transforming the inverse-quantized data and outputting a set of first data;

adder means connected to said decoder and said inverse discrete cosine transformation means;

means, connected to said adder means, for generating prediction data sets, said adder means being responsive to said first selection signal from the decoder means, for adding one of said prediction data sets to the set of first data and outputting first, second and third picture data sets representing first, second and third picture types, respectively;

first and second frame memories, connected to said adder means, for alternatively storing the first and second picture data sets in frames, said first and second picture data sets being stored in said first and second frame memories in a block scan order, said first and second picture data sets being read from said first and second frame memories in a raster scan order;

a third frame memory, connected to said adder means, for storing the third picture data set in frames in said block scan order, said third picture data set being read from said third frame memory in said raster scan order; and

timing signal generation means, connected to said decoder means, for generating timing signals for a timing control of the video decoder system,

wherein the timing signal generation means includes a timing signal select means responsive to said second selection signal, indicating one of the first, second and third picture types, for selectively generating one of a first timing signal of said timing signals for decoding the first and second picture data sets and a second timing signal of said timing signals for decoding the third picture data set within a predetermined period of time.

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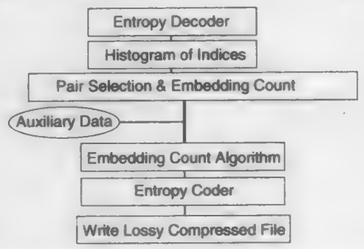
COMPRESSION EMBEDDING

Maxwell T. Sandford, II; Theodore G. Handel, and Jonathan N. Bradley, all of Los Alamos, N. Mex., assignors to The Regents of the University of California, Oakland, Calif.

Filed May 17, 1995, Ser. No. 442,592

Int. Cl.[6] G06K *9/00*

U.S. Cl. 382—251 **11 Claims**



1. A method of embedding auxiliary data into host data compressed by lossy compression methods that use series expansion and quantization techniques, comprising the steps of:

creating a digital compression representation of said host data in terms of intermediate integer indices representing coefficients, said digital compression representation having certain statistical properties;

creating a digital representation of said auxiliary data in the form of a sequence of individual bit values;

evaluating said digital compression representation to determine pairs of integer indices differing by a specified number of units and occurring with similar frequency in said digital compression representation;

replacing individual integer indices in said digital compression representation with values taken from a digital key comprising a schedule of said pairs of integer indices in order to embed individual bit values corresponding to said sequence of individual bit values of said auxiliary data; and

outputting said digital compression representation with said auxiliary data embedded into a file format specified for said compressed data.

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IMAGE PROCESSING METHOD AND APPARATUS THEREFOR

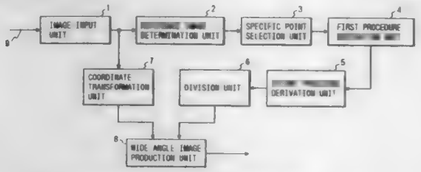
Shinji Uchiyama, Yokohama, Japan, and Hiroyuki Yamamoto, Chigasaki, Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan

Filed Feb. 6, 1996, Ser. No. 597,699

Claims priority, application Japan, Feb. 7, 1995, 7-019063; Sep. 1, 1995, 7-225182

Int. Cl.[6] G06K *9/32*

U.S. Cl. 382—294 **7 Claims**



1. An image processing method executing:

image input processing for inputting a still image train obtained by photographing an object while time-serially changing a visual point position and direction;

reference image determination processing for determining one image of the still image train input by the image input processing as a reference image;

specific point selection processing for selecting, as specific points, identical points photographed in two adjoining images of images constituting the still image train;

first procedure derivation processing for deriving a procedure for coordinate-transforming one of the adjoining images to the other image so that the specific points selected in the specific point selection processing match each other between the adjoining images;

second procedure derivation processing for deriving a procedure for coordinate-transforming the specific points transformed by the procedure derived by the first procedure derivation processing onto a two-dimensional coordinate system identical to a two-dimensional coordinate system of the reference image;

division processing for dividing a two-dimensional space to which the reference image belongs into a plurality of domains in correspondence with the specific points transformed by the procedure derived by the second procedure derivation processing;

coordinate transformation processing for coordinate-transforming the images of the still image train onto the two-dimensional space to which the reference image belongs; and

wide angle image production processing for producing a single image as a whole by inserting coordinate information of each of the images coordinate-transformed onto the two-dimensional space to which the reference image belongs into each of the divided domains divided in correspondence with the specific points of the images.

5,727,094

METHOD AND SYSTEM FOR PROCESSING IMAGES CAPABLE OF TRANSITION OF A PLURALITY OF STATES FOR DISPLAY

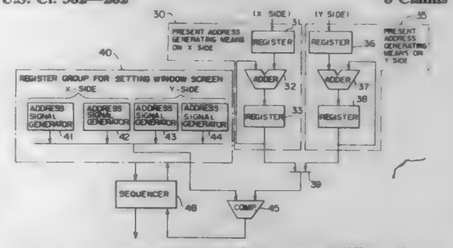
Kazukuni Kitagaki, Kawasaki, Japan, assignor to Kabushiki Kaisha Toshiba, Kawasaki, Japan

Filed Mar. 15, 1995, Ser. No. 404,568

Claims priority, application Japan, Mar. 15, 1994, 6-044189

Int. Cl.[6] G06K *9/20;9/36;* **G09G** *5/14;5/00*

U.S. Cl. 382—282 **8 Claims**



5. An image processing system for displaying different images on inside and outside of a window which is opened at an arbitrary portion on a screen, comprising:

first present address generating means on a main scanning side for generating a present position along a main scanning direction;

second present address generating means on a sub scanning side for generating a present position along a sub scanning direction;

connecting means for generating the present addresses on both sides of said main scanning side and said sub scanning side;

start and end addresses generating means for respectively generating start addresses and end addresses on both sides of the main scanning and sub scanning directions, respectively;

comparison means for comparing the present address on both sides of the main scanning and sub scanning directions with the start addresses and the end addresses on both sides of the main scanning and sub scanning directions; and

sequencer means for sequentially processing an image signal in the manner of forming a rectangular region on a screen;

wherein said comparison means generates the present addresses on both of the main and sub directions by comparing only one address of the main and sub directions with the start or end address at the same time.

5,727,095

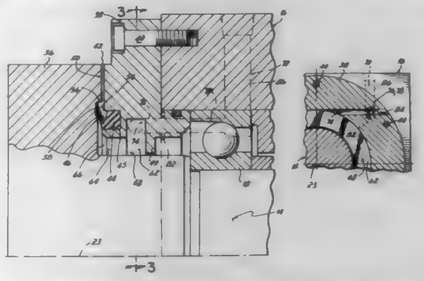
BEARING SEAL WITH UNIFORM FLUID PURGE

Stephen C. Hoeting, Cincinnati, Ohio, assignor to Setco Sales Co., Cincinnati, Ohio

Filed Feb. 21, 1997, Ser. No. 804,015

Int. Cl.[6] F16C *33/76;* **F16J** *15/40*

U.S. Cl. 384—478 **25 Claims**



1. A bearing seal for preventing contaminant ingress between a rotatable shaft and a bearing housing which supports the shaft for rotation about an axis, comprising:

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an annular cap located at a first end of the bearing housing where the shaft exits therefrom, the cap having an outer surface and a radial internal surface spaced from the shaft, with an annular volume residing therebetween, the cap having a passage formed therethrough which extends from the radial internal surface to the outer surface, an internal section of the passage being oriented substantially tangential to the annular volume, whereby upon supplying pressurized purge fluid into the annular volume via the passage, a circumferentially uniform fluid pressure is generated within the annular volume.

5,727,096

PROCESS FOR MAKING A MONOLITHIC INTEGRATED STRUCTURE INCORPORATING OPTO-ELECTRONIC COMPONENTS AND STRUCTURE MADE IN THIS WAY

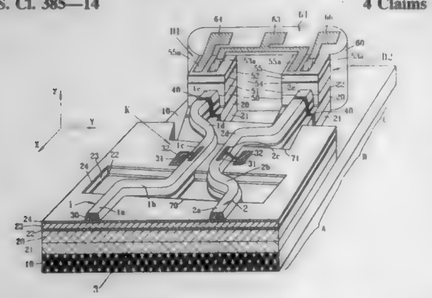
Frédéric Ghirardi, Paris, and Louis Giraudet, Asnieres, both of France, assignors to France Telecom, France

Filed Sep. 22, 1994, Ser. No. 310,639

Claims priority, application France, Sep. 24, 1993, 93 11404

Int. Cl.[6] G02B *6/12*

U.S. Cl. 385—14 **4 Claims**



1. A process for making a monolithic integrated structure comprising the steps of:

depositing on a semi-insulating substrate, two opto-electronic components in semi-conductor material and an optical guide in semi-conductor material optically connecting said opto-electronic components, said optical guide comprising at least one first and one second superposed layers of opposite conductivity types, further comprising the steps of:

making in said optical guide, by localized implantation of a first doping element of a conductivity type opposite to the conductivity type of the first superposed layer, from the surface of the structure, a first electrically insulating and an optically transparent barrier of a type of conductivity opposite to the conductivity of said first superposed layer, forming a first dual junction transversely in said optical guide, and

making in said optical guide, by localized implantation of a second doping element of a conductivity type opposite to said first doping element and opposite to the conductivity type of said second superposed layer, from the surface of the structure, a second electrically insulating and optically transparent barrier, longitudinally offset in regard of said first barrier, of a type of conductivity opposite to the conductivity of said second superposed layer, forming a second dual junction transversely in said optical guide.

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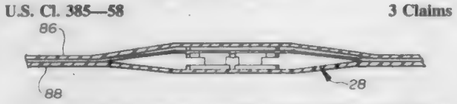
PULL-PROOF FIBER OPTIC ARRAY CONNECTOR

Nicholas A. Lee, Woodbury, Minn., and Gordon D. Henson, Lake Elmo, Minn., assignors to Minnesota Mining and Manufacturing Company, St. Paul, Minn.

Filed Jun. 7, 1996, Ser. No. 660,296

Int. Cl.[6] G02B *6/40*

U.S. Cl. 385—58 **3 Claims**



1. A method of manufacturing a fiber optic ribbon cable having a connector assembly formed therein comprising the steps of:

(a) providing a connector body having a front end and a back end, wherein the connector body comprises a front wall at the front end with an upper surface and a lower surface, a substantially flat transition platform adjacent the back end, a pair of side walls tapering from the front wall to the transition platform, and a floor joining the side walls and extending from the transition platform to the lower surface of the front wall, wherein a latching member and a mounting post project outwardly from the front wall;

(b) providing a fiber alignment block matable with the connector body, wherein the alignment block comprises an optical interface device surface, a fiber receiving surface with at least one alignment groove, and a connector body engagement surface comprising a retention structure for engaging the latching members of the connector body and a cavity to receive the mounting post on the connector body, wherein the cavity further comprises a spring member which biases the mounting post;

(c) positioning at least one optical fiber adjacent the fiber receiving surface and the plurality of grooves in the fiber engagement surface of the alignment block;

(d) retaining the at least one fiber in the receiving channel with a connector body cover;

(e) retaining the at least one fiber in the grooves formed in the alignment block; and

(f) sandwiching the at least one fiber and the connector assembly between first and second adhesive tape layers to form a ribbon cable.

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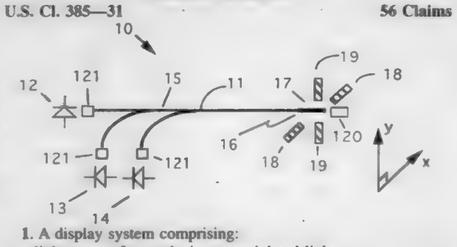
OSCILLATING FIBER OPTIC DISPLAY AND IMAGER

Joseph M. Jacobson, 1060 Fremont St., Menlo Park, Calif. 94025

Continuation-in-part of Ser. No. 301,384, Sep. 7, 1994, abandoned. This application Jan. 6, 1995, Ser. No. 369,695

Int. Cl.[6] G02B *6/26*

U.S. Cl. 385—31 **56 Claims**



1. A display system comprising:

a light source for producing a modulated light;

an optical fiber having a first end and a second end, the first end of the optical fiber being coupled to the light source; and

a deflection device coupled to the second end of the optical fiber, the deflection device deflecting the second end of the optical fiber in a two-dimensional scanning pattern for projecting an image onto a viewing surface from the second end of the optical fiber, the projected image being related to the modulated light.

5,727,099

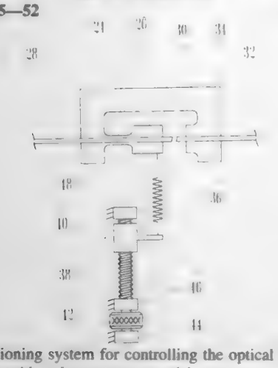
POSITIONING SYSTEM FOR CONTROLLING OPTICAL ALIGNMENT OF OPTICAL WAVEGUIDES

Murray R. Harman, 90 Ashpark Crescent, Ottawa, Ontario, Canada, K1T 3N7

Filed Jul. 19, 1996, Ser. No. 698,750

Int. Cl.[6] G02B *6/26*

U.S. Cl. 385—52 **13 Claims**



1. A positioning system for controlling the optical alignment of optical waveguides, the system comprising:

a first and second optical fiber termini, each of said termini including an optical waveguide, each of said waveguides having an end portion, said first and second termini adapted to be positioned in a confronting relationship such that opposite end portions of said optical waveguides associated with said first and second termini respectively are in axial alignment and are optically coupled so that an optical signal can be transmitted from one optical waveguide to the other, at least one of said termini being movable generally radially relative to said axial alignment,

first elastic means mounted to said one of said termini and operable to impart thereon a force acting to displace substantially laterally said one of said termini thereby changing the alignment of said opposite end portions of said optical waveguides,

operating means for controllably operating said first elastic means to impart said force on said one of said termini, and

second elastic means mounted to said one of said termini such as to counteract said force when imparted by said operating means through said first elastic means,

wherein said first elastic means has a lower stiffness than said second elastic means.

5,727,100

DEVICE FOR CONNECTING TWO ELECTRIC AERIAL CABLES

Franz Grajewski, Stadthagen, Germany; Werner Stieb, Stadthagen, Germany; Zbigniew Wielgolaski, Stadthagen, Germany; Ulrich Jansen, Wassenberg, Germany, and Rudolf Buchwadd, Rednitzhembach, Germany, assignors to Alcatel Kabel AG & Co, Germany

Filed Jul. 24, 1996, Ser. No. 685,876

Claims priority, application Germany, Jul. 29, 1995, 295 12 268.4

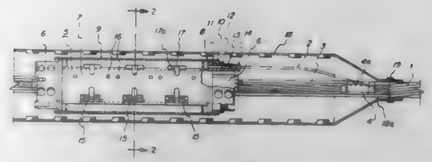
Int. Cl.[6] G02B *6/36*

U.S. Cl. 385—53 **11 Claims**

1. A device for connecting two aerial cables, each cable having at least one tube with optical fibers therein, the at least one tube being cabled together with electric conductors and a strength member, the device comprising:

(a) joining means for mechanically joining the strength members and electrically joining the electric conductors of the respective aerial cables,

(b) a first tube surrounding at least a portion of the joining means;



(c) a second tube concentric with the first tube and forming an annular gap therebetween; and

(d) seals at both ends of the first and second tubes sealing the annular gap, each of the seals having at least one aperture through which the optical fibers are inserted into the annular gap so at least a portion of the optical fibers and any spliced connections thereof are stored in the annular gap.

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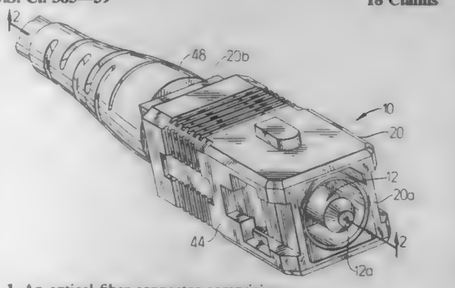
MONOLITHIC FERRULE FOR RECEIVING AND POSITIONING MULTIPLE OPTICAL FIBERS AND AN OPTICAL FIBER CONNECTOR INCORPORATING SAME

Markus A. Giebel, Conover, and James P. Luther, Hickory, both of N.C., assignors to Siecor Corporation, Hickory, N.C.

Filed Oct. 6, 1995, Ser. No. 540,288

Int. Cl.[6] G02B *6/38*

U.S. Cl. 385—59 **18 Claims**



1. An optical fiber connector comprising:

a connector housing having opposed first and second ends and defining an internal cavity opening through both the first and a monolith

a monolithic ferrule for maintaining a plurality of optical fibers in respective predetermined positions relative to said connector housing, said monolithic ferrule comprising a monolithic ferrule body extending longitudinally between opposed first and second ends and disposed within the internal cavity of said connector housing such that the first end of said monolithic ferrule body is exposed through the first end of said connector housing, said monolithic ferrule body also defining an internal cavity for receiving the plurality of optical fibers, wherein the internal cavity opens through the second end of said monolithic ferrule body and extends longitudinally through at least a portion of said monolithic ferrule body, said monolithic ferrule body also defining a plurality of longitudinal bores extending between the first end of said monolithic ferrule body and the internal cavity defined therein, wherein the longitudinal bores are adapted to receive respective ones of the plurality of optical fibers such that the optical fibers are maintained in respective predetermined positions relative to the monolithic ferrule body; and

an annular alignment key mounted to said monolithic ferrule and extending radially outward, wherein said alignment key includes a position indicator and is adapted to mate with said connector housing such that said monolithic ferrule is held in a predetermined position therein, and wherein the plurality of longitudinal bores are positioned in a predetermined angular relationship to the position indicator of said alignment key

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such that the optical fibers received by the longitudinal bores are maintained in respective predetermined positions to said connector housing.

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MULTIFIBER OPTICAL CONNECTOR FOR OPTICAL RIBBON CABLE

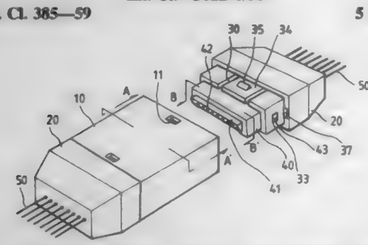
Myung-Yung Jeong, Daejeon, Rep. of Korea; Oh-Gone Chun, Daejeon, Rep. of Korea; Seung-Ho Ahn, Daejeon, Rep. of Korea, and Tae-Goo Choy, Daejeon, Rep. of Korea, assignors to Electronics and Telecommunications Research Institute, Daejeon, Rep. of Korea

Filed Dec. 14, 1995, Ser. No. 572,646

Claims priority, application Rep. of Korea, Nov. 9, 1995, 95-40554

Int. Cl.[6] G02B 6/38

U.S. Cl. 385—59 **5 Claims**



1. A multi fiber optical connector for connecting multifiber optical cables, said connector comprising:

a plug which includes:

a ferrule having an upper and a lower part and connected to the ends of the multifiber optical cable, said lower ferrule part having a lower side in which a dovetail groove is located, and having a front side which includes a guide means for guiding the ferrule in the assemblage of said connector,

an upper member and a lower member for surrounding the upper and the lower parts of said ferrule, respectively, and

an optical cable protecting member for enclosing at least part of the upper member and the lower member;

an adaptor having opposing ends and an opening in each end into each of which a corresponding plug can be inserted and mounted so as to provide the interconnection of the optical cables, said adaptor opening being defined by an upper and a lower surface of said adaptor, and an aligning block mounted on said lower surface, and said aligning block having an upper part with an external configuration so as to mate with said dovetail groove of said ferrule so as to position the ferrule and align the optical cables connected to the respective ends of said ferrule with each other.

5,727,103

OPTICAL LEAKAGE PREVENTING APPARATUS AND SELF-LIGHT-EMITTING INDICATING APPARATUS USING THE SAME

Yoshiharu Matsusaka, Osaka, and Kunio Okamoto, Hyogo, both of Japan, assignors to Sanyo Electric Co., Ltd., Moriguchi, Japan

Continuation of Ser. No. 336,211, Nov. 4, 1994, abandoned. This application Dec. 27, 1996, Ser. No. 773,590

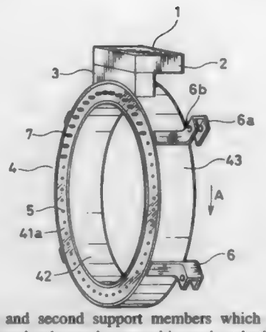
Claims priority, application Japan, Nov. 9, 1993, 5-279930; Jun. 17, 1994, 6-136186; Sep. 30, 1994, 6-261616; Oct. 17, 1994, 6-250811; Oct. 19, 1994, 6-253939

Int. Cl.° G02B 6/36

U.S. Cl. 385—89 **24 Claims**

1. A self-light-emitting indicating apparatus, comprising:

(a) an enclosure formed by combining a pair of semi-tubular bodies opposite each other, each said semi-tubular body having first and second support members which are arranged opposite each other and arranged inwards at both side ends of said semi-tubular bodies;



(b) a first panel fixed on said first support member of the enclosure having a sign indicating portion;

(c) a second panel fixed on said second support member of said enclosure;

(d) a container portion formed by said enclosure and said first and second panels;

(e) a plurality of optical fibers contained in said container portion, each having one end inserted and fixed in one of a plurality of through-holes provided in at least one of said first and second panels, the plurality of through-holes through which each of the optical fibers are inserted are arranged surrounding a group of characters displayed on the sign indicating portion;

(f) a light emitting diode contained in the container portion, arranged adjacent to another end of said plurality of optical fibers which are bundle and cut, and having optical leakage preventing means;

(g) a power source for the light emitting diode; and

(h) a fitting means attached to one of said enclosure and said second panel and fixed to said one of said enclosure and said second panel.

5,727,104

OPTICAL TRANSMISSION MODULE AND A METHOD OF PRODUCING THE SAME

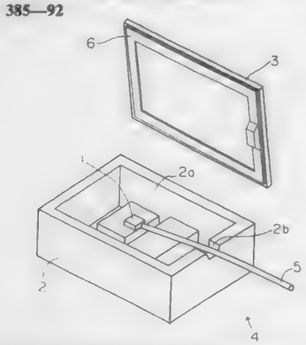
Seimi Sasaki, Kawasaki, Japan, and Kazuhiro Tanaka, Kawasaki, Japan, assignors to Fujitsu Limited, Kanagawa, Japan

Filed Sep. 30, 1996, Ser. No. 723,022

Claims priority, application Japan, May 24, 1996, 8-129974

Int. Cl.° G02B 6/42

U.S. Cl. 385—92 **11 Claims**



5. An optical transmission module comprising:

a conversion device;

an optical fiber optically coupled to said conversion device;

a body section and a cover section, at least one of said body section and said cover section having a recess for receiving said conversion device, at least one of said body section and said cover section having a stepped portion for guiding said optical fiber; and

a sealing material applied to one of said body section and said cover section in such a manner that the sealing material applied to a portion corresponding to the stepped portion matches a shape of the stepped portion, to thereby seal a gap between said body section and said cover section.

5,727,105

PACKAGE STRUCTURE FOR OPTICAL ELEMENT AND FIBERS AND COMPOSITE STRUCTURE THEREOF

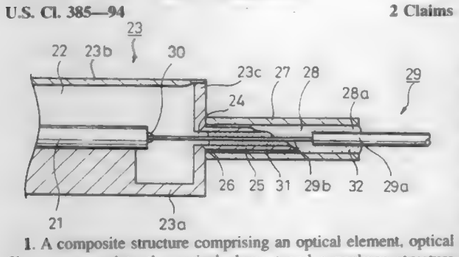
Hirotoshi Nagata, Funabashi, Japan; Masaru Shiroishi, Funabashi, Japan; Tsutomu Saito, Funabashi, Japan; Takashi Tateyama, Funabashi, Japan, and Mithuru Sakuma, Funabashi, Japan, assignors to Sumitomo Osaka Cement Co., Ltd., Tokyo, Japan

Division of Ser. No. 362,190, Dec. 22, 1994, Pat. No. 5,613,026. This application Jun. 11, 1996, Ser. No. 661,932

Claims priority, application Japan, Dec. 28, 1993, 5-335291; Dec. 28, 1993, 5-336102; Mar. 30, 1994, 6-060750; Apr. 14, 1994, 6-075798; Apr. 15, 1994, 6-076928; Apr. 28, 1994, 6-092147; May 18, 1994, 6-103959

Int. Cl.° G02B 6/36

U.S. Cl. 385—94 **2 Claims**



1. A composite structure comprising an optical element, optical fibers connected to the optical element and a package structure comprising (1) a container provided with a chamber housing the optical element therein and having a pair of side walls; and (2) a pair of sleeves extending from or across the side walls of the container and provided with a pair of hollow spaces through which a pair of optical fibers are introduced into the chamber of the container, wherein

a) each sleeve comprises an outer tube extending through and fixed to the side wall, an intermediate tube inserted into the outer tube and an inner tube inserted into the intermediate tube and having a hollow space allowing each optical fiber to be inserted thereinto and connected to the chamber of the container;

b) each hollow space of the sleeve has a center line intersecting an axial line of a corresponding terminal of the optical element placed in the chamber;

c) an end portion of each optical fiber which comprises a secondary coat section thereof composed of a core fiber and primary and secondary coatings, a primary coat section thereof continued from the secondary coat section and composed of a core fiber and a primary coating, a surface-metallized core fiber section thereof continued from the primary coat section and composed of a surfaced-metallized core fiber, and a naked core fiber section thereof continued from the surface-metallized core fiber section and composed of a naked core fiber, is introduced into the chamber through the hollow space of the inner tube of each sleeve;

d) a terminal face of the naked core fiber section is connected to a terminal face of the optical element;

e) a moiety of the surfaced-metallized core fiber section located in the hollow space of the inner tube of each sleeve is fixed to the sleeve through a moisture-nonpermeable bonding material layer formed in a gap between the surface-metallized core fiber moiety and the inside peripheral surface of the inner tube of each sleeve;

f) a moiety of the primary coat section and a moiety of the surface-metallized core fiber section continuing to the primary coat section moiety of each optical fiber are located in the inner tube hollow space and the surface-metallized core fiber section moiety is fixed to the inside peripheral surface of the inner tube through a resinous bonding material layer; and

g) an open end of each sleeve, through which another moiety of the surface-metallized core fiber section extends into the chamber, is sealed with a solder layer.

5,727,106

SUSPENDED LINE FOR AN OPTICAL FIBRE UNIT

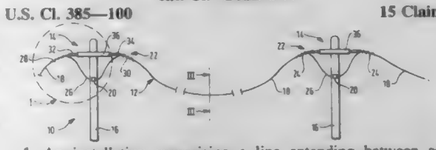
Ralph Sutehall, and Malcolm Owen Jones, both of Gwent, England, assignors to Pirelli General plc, Great Britain

Filed Dec. 10, 1996, Ser. No. 763,079

Claims priority, application United Kingdom, Dec. 22, 1995, 9526328

Int. Cl.° G02B 6/44

U.S. Cl. 385—100 **15 Claims**



1. An installation comprising a line extending between and suspended from a plurality of spaced apart aerial suspension locations and defining a passage for an optical fibre unit, said line comprising a plurality of elongate tensile resistant members connected end-to-end by respective connector means, said line being secured to each suspension location by respective securing means secured to said line at two spaced apart locations thereon such that the portion of said line between said locations thereon is untensioned and includes a said connector means, said securing means being adapted to allow tensioning of said portion of said line when the tensile load on the line adjacent thereto on either side of said suspension location reaches a first predetermined amount and the connector means being adapted to cause the end-to-end connection of the tensile resistant members connected thereby to break when the tensile load on said portion reaches a second predetermined amount, said first and second predetermined amounts being less than the tensile load for breaking the tensile resistant members and said second amount being no greater than said first amount.

5,727,107

LIGHT GUIDE PLATE, SURFACE LIGHT SOURCE DEVICE, POLARIZED LIGHT SOURCE DEVICE AND LIQUID CRYSTAL DISPLAY

Seiji Umemoto, Osaka, Japan; Kazutaka Hara, Osaka, Japan; Hiroyuki Yoshimi, Osaka, Japan; Tatsuya Osuka, Osaka, Japan, and Tadayuki Kameyama, Osaka, Japan, assignors to Nitto Denko Corporation, Osaka, Japan

Filed Aug. 2, 1996, Ser. No. 691,370

Claims priority, application Japan, Aug. 3, 1995, 7-218046; Nov. 14, 1995, 7-321036

Int. Cl.° G02B 6/06

U.S. Cl. 385—116 **29 Claims**

1. A light guide plate comprising:

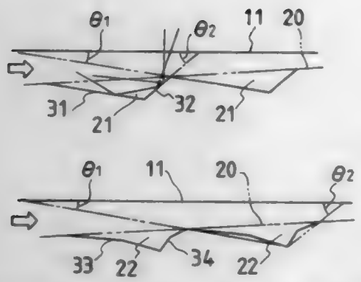
an outgoing radiation plane;

a bottom opposed to said outgoing radiation plane; and

an incidence plane disposed between said outgoing radiation plane and said bottom;

wherein said bottom comprises projections or recesses at a regular interval which are formed of slopes parallel to the longitudinal direction of said incidence plane, the projections or recesses have long-side and short-side faces, an projection

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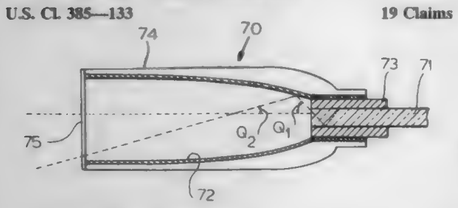
area of the long-side face on said outgoing radiation plane is three times or more that of said short-side face on said outgoing radiation plane, the long-side face is a projection, the long-side face is placed on the incidence plane side in the case of projections, the long-side face is placed on a side opposed to said incidence plane in the case of recesses.

5,727,108

HIGH EFFICIENCY COMPOUND PARABOLIC CONCENTRATORS AND OPTICAL FIBER POWERED SPOT LUMINAIRE

Aharon Zeev Hed, Nashua, N.H., assignor to Troy Investments, Inc., Nashua, N.H.

Filed Sep. 30, 1996, Ser. No. 724,069
Int. Cl.[6] G02B *6/10*
U.S. Cl. 385—133 **19 Claims**



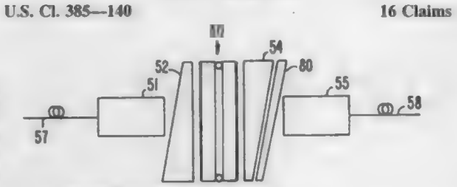
1. An optical device comprising:
a hollow body formed at one side with an input aperture of a first cross sectional area and connectable to a light source, and formed at an opposite side with an output aperture of a second cross sectional area different from said first area for delivery of light at said second cross sectional area; and
wall means connecting said input aperture with said output aperture and diverging from a smaller of said cross sectional areas to a larger of said cross sectional areas, said wall means consisting of contiguous elongated prisms facing the hollow of said body and of a transparent dielectric material extending between said apertures and defining internal reflection paths along a cross section of the material between said apertures and enabling single-reflection transmission of light from said inlet aperture to said outlet aperture within said wall means whereby the light flux is greater at said smaller of said cross sectional areas than at said larger of said cross sectional areas each of said prisms has a base flank defining a surface of said hollow body bounding an interior space thereof, and a pair of flanks including angles of 45° with said base flank and 90° with one another.

5,727,109

OPTICAL ATTENUATOR WITH LOW POLARIZATION MODE DISPERSION

Jing-Jong Pan, Milpitas, Calif., and Ming Shih, Milpitas, Calif., assignors to E-Tek Dynamics, Inc., San Jose, Calif.

Division of Ser. No. 548,820, Oct. 26, 1995, Pat. No. 5,557,692, which is a continuation of Ser. No. 250,323, May 27, 1994, abandoned, which is a continuation of Ser. No. 6,893, Jan. 21, 1993, abandoned. This application Jun. 19, 1996, Ser. No. 665,808
Int. Cl.[6] G02B *6/00*
U.S. Cl. 385—140 **16 Claims**



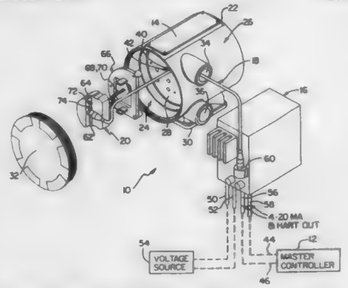
1. An optical attenuator comprising:
a first sleeve for holding a first optical fiber;
a first polarizer of birefringent material disposed in an optical path of an optical signal from the first optical fiber such that the first polarizer separates the optical signal into rays having differing optical paths;
a liquid crystal cell disposed in the paths of the rays from the first polarizer;
a second polarizer of birefringent material disposed in the paths of the rays from the liquid crystal cell;
a plate of birefringent material having selected indices of refraction and a thickness which compensates for the difference in optical distance traveled by the rays; and
a GRIN lens and a second sleeve for holding a second optical fiber, wherein the GRIN lens is disposed in the optical path of the rays from the plate to focus the rays on the end of the second optical fiber;
wherein the plate is disposed in the paths of the rays at an oblique angle relative to the rays so as to minimize walk-off.

5,727,110

ELECTRO-OPTIC INTERFACE FOR FIELD INSTRUMENT

Michael J. Smith, Eden Prairie, and George C. Hausler, Maple Grove, both of Minn., assignors to Rosemount Inc., Eden Prairie, Minn.

Filed Oct. 24, 1995, Ser. No. 547,536
Int. Cl.[6] G02B *6/36;6/42*
U.S. Cl. 385—147 **25 Claims**



1. A remotely powered field instrument comprising:
a housing with a terminal compartment, an electronics compartment, and a bulkhead separating the electronics compartment from the terminal compartment;
an industrial process control transmitter circuit positioned within the electronics compartment;

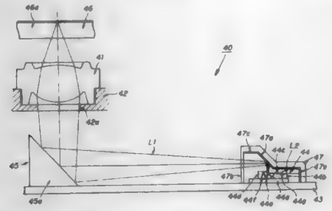
a process sensor electrically coupled to the industrial process control transmitter circuit;
a first electrical lead extending through the bulkhead and electrically coupled to the industrial process control transmitter circuit;
a mounting plate secured within the terminal compartment; and
an interface module secured within the terminal compartment to the mounting plate and comprising an optical connector, an optical-to-electrical converter coupled to the optical connector and a second electrical lead coupled between the optical-to-electrical converter and the first electrical lead.

5,727,111

OPTICAL PICK-UP AND LIGHT DETECTING COVER THEREFOR

Hidehiro Kume, Tokyo, Japan; Kimihiro Saito, Saitama, Japan; Shuzo Sato, Kanagawa, Japan, and Takeshi Kubo, Kanagawa, Japan, assignors to Sony Corporation, Japan

Filed Jun. 11, 1996, Ser. No. 661,460
Claims priority, application Japan, Jun. 19, 1995, 7-175407; Sep. 25, 1995, 7-270593
Int. Cl.[6] G02B *6/00;* **G11B** *7/00*
U.S. Cl. 385—147 **26 Claims**



1. An optical pick up apparatus comprising:
a semiconductor laser unit for generating a light beam,
detecting means for detecting said light beam;
a semiconductor substrate providing said semiconductor laser unit and said detecting means; and
a cover unit for covering said semiconductor substrate, wherein said cover unit is provided with a penetrating part for penetrating said light beam, a reflecting part for reflecting said light beam, and an absorbing part for absorbing said light beam.

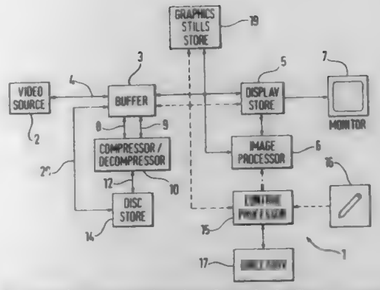
5,727,112

VIDEO PROCESSING APPARATUS AND METHOD

Paul Roderick Noel Kellar; Robin Alexander Cawley; Anthony David Searby, all of Newbury, and Neil Roy Hinson, Kingsclere, all of England, assignors to Quantel Limited, Newbury, England

Filed Jan. 6, 1995, Ser. No. 369,468
Claims priority, application United Kingdom, Jan. 7, 1994, 9400245; Mar. 4, 1994, 9404318
Int. Cl.[6] H04N *5/92;5/76;* **G11B** *27/02*
U.S. Cl. 386—52 **18 Claims**

1. A video processing apparatus comprising:
a source of uncompressed digital video data representing one or more initial video frames;
a buffer for receiving uncompressed video data from the source;
a frame random access store for storing digital video data, the store being connected to the buffer for receiving said uncompressed data therefrom and supplying said uncompressed data thereto;
a data compressor/decompressor for compressing said uncompressed video data frame by frame to produce compressed video data and for decompressing said compressed video data frame by frame to produce decompressed video data, the compressor/decompressor being connected to the buffer and the store for compressing data from the buffer for storage in the store and for decompressing said compressed data from the store for supply to the buffer;
a control processor for controlling the buffer to select said video data for transfer between the buffer and the store in uncompressed form and said video data for transfer between the buffer and the store via the compressor/decompressor; and
a video processor for receiving said uncompressed and said decompressed video data from the store under the control of the control processor, for producing processed data representing a processed video frame by combining said uncompressed data representing one video frame and said decompressed data representing another video frame, and for supplying the processed data to the buffer for storage as uncompressed data in the store.

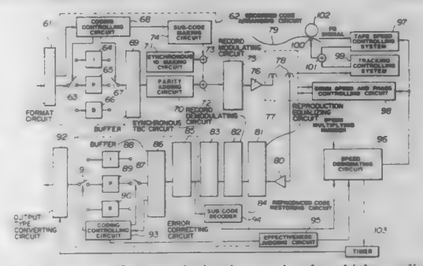


5,727,113

APPARATUS FOR RECORDING AND REPRODUCING DIGITAL SIGNALS STORED ON MAGNETIC TAPE

Kenji Shimoda, Kanagawa-ken, Japan, assignor to Kabushiki Kaisha Toshiba, Kawasaki, Japan

Continuation of Ser. No. 280,246, Jul. 25, 1994, Pat. No. 5,642,460, which is a continuation of Ser. No. 856,770, Mar. 24, 1992, abandoned. This application Nov. 19, 1996, Ser. No. 752,036
Claims priority, application Japan, Mar. 27, 1991, 3-63566
Int. Cl.[6] H04N *5/783;5/92*
U.S. Cl. 386—68 **5 Claims**



1. An apparatus for reproducing image signals, which are digitally stored on a magnetic tape, in an efficient manner, comprising:
code arranging means for adding a flag to a data signal so as to produce a coded data signal, wherein:
said data signal includes intra-frame coded data and inter-frame coded data that has been time divisionally multiplexed together,
said flag identifies at least one portion of said data signal that is comprised of intra-frame coded data, and
said intra-frame coded data and inter-frame coded data are based upon said image signals;
recording means for recording said coded data signal onto said magnetic tape;
reproducing means for reading said magnetic tape and reproducing said coded data signal, which is stored thereon, wherein:

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a speed at which said reproducing means operates can be varied from a normal operating speed to a higher operating speed,

said magnetic tape is moved more quickly with respect to a head of said reproducing means when said reproducing means operates at said higher operating speed as compared to when said reproducing means operates at said normal operating speed, thereby causing said head to traverse tracks on said magnetic tape more quickly when said reproducing means operates at said higher operating speed as compared to when said reproducing means operates at said normal operating speed, and

said higher operating speed is equivalent to said normal operating speed multiplied by a speed multiplying coefficient;

flag detecting means for detecting said flag within said coded data signal that has been reproduced by said reproducing means;

decoding means for decoding said coded data signal that has been reproduced by said reproducing means by intra-frame decoding processing or inter-frame decoding processing, thereby producing a reproduced data signal;

recording position presuming means for presuming, when said reproducing means operates at said higher operating speed and based on said detection made by said flag detecting means, a position where said intra-frame coded data is recorded on said magnetic tape, said presumed position indicating one of said tracks on said magnetic tape;

reproducing control means for controlling said speed at which said reproducing means operates, said reproducing control means operating based on said presumed intra-frame coded data position and said speed multiplying coefficient, said reproducing control means allowing for said intra-frame coded data to be decoded by reproducing said intra-frame data at a normal speed; and

means for outputting, at a cycle that is based on said speed multiplying coefficient, a decoded signal, which is based on said reproduced data signal.

5,727,114

IMAGE SIGNAL RECORDING AND REPRODUCING SYSTEM

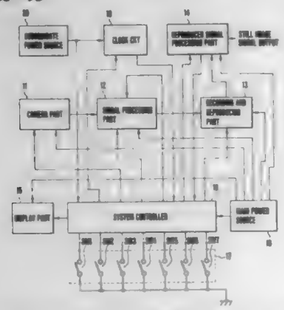
Masaki Okada, Kanagawa-ken, Japan, assignor to Canon Kabushiki Kaisha, Tokyo, Japan

Continuation of Ser. No. 823,889, Jan. 22, 1992, abandoned. This application Jul. 25, 1994, Ser. No. 279,699

Claims priority, application Japan, Feb. 6, 1991, 3-015345; Feb. 6, 1991, 3-015346

Int. Cl.[6] H04N *5/76*

U.S. Cl. 386—95 **51 Claims**



1. An image information recording system for recording on a recording medium image information together with other information corresponding to the image information, comprising:

a) data generating means for generating data corresponding to said other information;

b) first power supply means for independently supplying power to said data generating means;

c) second power supply means for supplying power to other parts of said image information recording system than said data generating means;

d) data generation control means for controlling said data generating means so as to generate, when the level of the power supplied to said data generating means by said first power supply means becomes lower than a predetermined value in the state that the power is normally being supplied from said second power supply means to said other parts of said image information recording system, predetermined data of the same kind as data generated by said data generating means, said predetermined data representing information different from that relative to the power supply of said first supply means; and

e) recording means arranged to receive the image information and record on the recording medium information conforming to the contents of the data generated by said data generating means together with said received image information.

5,727,115

ELECTRONIC APPARATUS HAVING IMAGE-SHAKE CORRECTING DEVICE

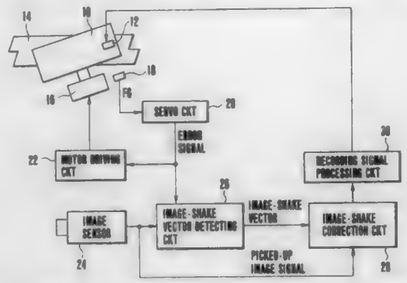
Hidetoshi Wada, Kanagawa-ken, Japan, assignor to Canon Kabushiki Kaisha, Tokyo, Japan

Continuation of Ser. No. 079,360, Jun. 18, 1993, abandoned. This application Jul. 23, 1996, Ser. No. 685,213

Claims priority, application Japan, Jun. 22, 1996, 4-162526

Int. Cl.[6] H04N *5/76;5/225*

U.S. Cl. 386—113 **19 Claims**



1. A camera-integrated type video recorder apparatus comprising:

a) driving control means for moving a recording medium and a head relative to each other;

b) detecting means for detecting a shake on the basis of a change of a driving condition of said driving control means; and

c) correcting means for correcting a movement of an image due to the shake on the basis of an output of said detecting means.

5,727,116

IMAGE SIGNAL RECORDING DEVICE WITH DIVIDED SIGNAL FRAME

Koichi Sato, Tokyo, Japan, and Yasuhiro Yamamoto, Tokyo, Japan, assignors to Asahi Kogaku Kogyo Kabushiki Kaisha, Tokyo, Japan

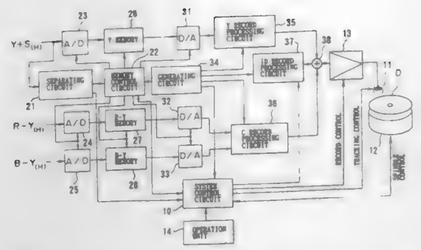
Filed Jun. 7, 1993, Ser. No. 72,436

Claims priority, application Japan, Jun. 9, 1992, 4-174716; Jun. 9, 1992, 4-174717

Int. Cl.[6] H04N *5/91*

U.S. Cl. 386—122 **31 Claims**

1. A device for storing an image signal, corresponding to a single image, to a storage medium, in which the single image is formed in a frame mode, comprising:



means for dividing said image signal formed in said frame mode into at least two sub-frames by a dividing line that runs parallel to a plurality of horizontal scan lines that form said image signal frame, each sub-frame having at least one field; and

a recorder that records said at least one field of each sub-frame to a specific location of a storage medium in such a manner that a first sub-frame of said at least two sub-frames contains a complete final horizontal scan line and a final sub-frame of said at least two sub-frames contains a complete initial horizontal scan line, so as to prevent the occurrence of a join indication in a reproduced image.

5,727,117

DEVICE FOR SAVING WATER AND ENERGY IN ELECTRIC WATER HEATERS

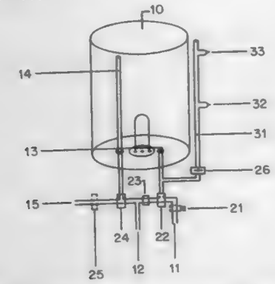
Giuseppe Moscato, via G. Carini, 25-00152 Rome, Italy

PCT No. PCT/IT93/00142, § 371 Date Jul. 21, 1995, § 102(e) Date Jul. 21, 1995, PCT Pub. No. WO95/18340, PCT Pub. Date Jul. 6, 1995

PCT Filed Dec. 29, 1993, Ser. No. 492,042

Int. Cl.[6] A47J *27/00*

U.S. Cl. 392—441 **7 Claims**



1. A device for saving water and energy that is connected to an electric water heater for production of differentiated quantities of constant temperature water, comprising:

a cold water duct,

a retaining valve in said cold water duct,

a first electric hydrodeviator connected to said cold water duct, said first electric hydrodeviator having a first position and a second position,

an outlet water duct connected to said first electric hydrodeviator through a pump, said outlet water duct providing water to users,

a warm water tubing connected to said first electric hydrodeviator and extending into said electric water heater,

an electric hydrovalve connected to said warm water tubing, said electric hydrovalve having an open position and a closed position,

a water level measurer connected to said electric hydrovalve, said water level measurer having a maximum level sensor and a minimum level sensor,

a second electric hydrodeviator connected to said outlet water duct, said second electric hydrodeviator having a first position and a second position.

a cold water tubing connected to said second electric hydrodeviator and extending into said electric water heater,

an air return duct connected to said second electric hydrodeviator, and

a small basin in said air return for the recollection of water.

5,727,118

ELECTRIC BOILER FOR HEAT-TRANSFER LIQUID CIRCULATING IN AN OPEN OR CLOSED CIRCUIT

Claude Roussel, Echirolles, France, and Fabrice Chopard, Saint Martin d'Heres, France, assignors to Vicarb, France

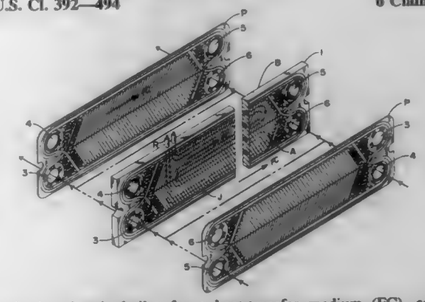
PCT No. PCT/FR94/01377, § 371 Date Jul. 17, 1995, § 102(e) Date Jul. 17, 1995, PCT Pub. No. WO95/14893, PCT Pub. Date Jun. 1, 1995

PCT Filed Nov. 25, 1994, Ser. No. 491,932

Claims priority, application France, Nov. 25, 1993, 93 14351

Int. Cl.[6] F24H *1/10*

U.S. Cl. 392—494 **6 Claims**



1. An electric boiler for a heat-transfer medium (FC), said medium characterized by one of a liquid and a fluid circulating in an open or closed circuit, said electric boiler being in the form of an assembly comprising plates (P) having, on both internal and external faces of said plates, corrugations, wherein said plates are clamped together between two end walls by ties, and which include, in corners of said plates, openings (**3**, **4**, **5**, **6**) which delimit, when said plates are stacked, inlet and outlet passages allowing circulation of said medium which flows against a face of said plates in a space lying between said plates, and in a channel formed by said corrugations;

said assembly consisting of at least one module including

two of said plates (P), the corrugations of which are in a congruent relationship on both their internal and external faces;

between said two plates (P) is inserted at least one heater block (I) which is in the form of a block inside which a heater resistance element (R) is embedded;

the outside dimensions and the structure of the external faces of said at least one heater block correspond to those of said plates (P);

said at least one heater block also including, in its corners, openings (**3**, **4**, **5**, **6**) corresponding to those of said plates (P);

the corrugations that the at least one heater block (I) has on both its faces (A and B) are oriented in a non-congruent relationship;

the heater resistance element (R) embedded in the central part of the at least one heater block (I) extends parallel to said external faces of said at least one heater block, and having at least one electrical connection arranged on a first side of a surface of said at least one heater block between said external faces of said at least one heater block.

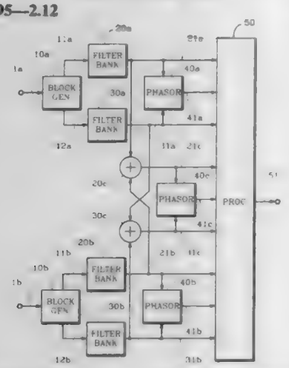
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5,727,119

METHOD AND APPARATUS FOR EFFICIENT IMPLEMENTATION OF SINGLE-SIDEBAND FILTER BANKS PROVIDING ACCURATE MEASURES OF SPECTRAL MAGNITUDE AND PHASE

Grant Allen Davidson, Oakland, and Stephen Decker Vernon, San Francisco, both of Calif., assignors to Dolby Laboratories Licensing Corporation, San Francisco, Calif.

Filed Mar. 27, 1995, Ser. No. 412,377
Int. Cl.[6] G10L *3/02*
U.S. Cl. 395—2.12 20 Claims



1. A device for processing an input signal comprising input signal samples representing audio information, said device comprising

buffer means for receiving a plurality of said input signal samples and forming a sequence of signal sample blocks,

spectral means for generating first spectral representations by applying a first single-sideband filter bank to said sequence of signal sample blocks, and generating second spectral representations by applying a second single-sideband filter bank to said sequence of signal sample blocks,

phasor means for deriving measures of magnitude and/or phase of spectral components in said audio information in response to said first and second spectral representations, and

processor means for processing said first spectral representations to generate an output signal suitable for transmission or storage, wherein said processing is adapted in response to said measures of magnitude and/or phase of spectral components.

5,727,120

APPARATUS FOR ELECTRONICALLY GENERATING A SPOKEN MESSAGE

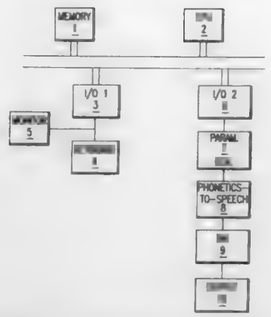
Bert Van Coile; Stefaan Willems, both of Sint-Andries, and Steven Leys, Drongen, all of Belgium, assignors to Lernout & Hauspie Speech Products N.V., Belgium

Division of Ser. No. 379,330, Jan. 26, 1995, Pat. No. 5,592,585. This application Oct. 4, 1996, Ser. No. 725,881
Int. Cl.[6] G10L *3/02;9/00;5/02*
U.S. Cl. 395—2.15 3 Claims

1. An improved apparatus for generating a spoken message of the type employing a recording of the message spoken by a human voice, the recording being parsed into at least one carrier, each carrier having at least one fixed part and at east one open slot, an argument being inserted into each open slot, wherein the improvement comprises:

a. a phonetico-prosodic parameter generator operating on the recording with prosody transplantation techniques for characterizing the message in terms of phonetico-prosodic parameters;

b. an electronic memory for storing phonetico-prosodic parameters corresponding to each carrier;



c. a controller for constructing sequences of phonetico-prosodic parameters corresponding to the argument of each open slot;

d. a phonetics-to-speech converter for generating a digital sound wave pattern from the sequences of phonetico-prosodic parameters;

e. a D/A converter for generating an analog sound wave pattern from the digital sound wave pattern; and

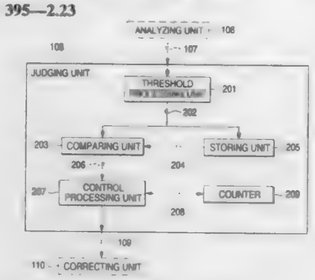
f. an output unit for providing audible sound waves corresponding to the analog sound wave pattern.

5,727,121

SOUND PROCESSING APPARATUS CAPABLE OF CORRECT AND EFFICIENT EXTRACTION OF SIGNIFICANT SECTION DATA

Takeshi Chiba, Kanagawa, Japan, and Koh Kamizawa, Kanagawa, Japan, assignors to Fuji Xerox Co., Ltd., Tokyo, Japan

Filed Feb. 2, 1995, Ser. No. 382,786
Claims priority, application Japan, Feb. 10, 1994, 6-036347
Int. Cl.[6] G10L *9/04*
U.S. Cl. 395—2.23 5 Claims



1. A sound processing apparatus comprising:

means for inputting a sound signal;

means for converting the input sound signal to digital sound

means for extracting characteristic parameter values from the digital sound data;

means for judging a significant section and an insignificant section of the input sound signal from the extracted characteristic parameter values, and producing a judgment result indicating whether a current section is the significant or insignificant section; and

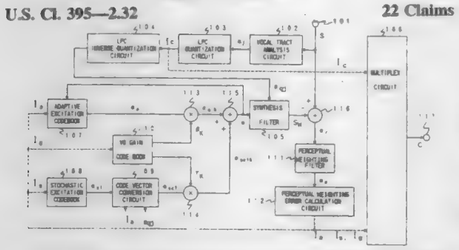
means for reversing the judgment result when a continuation length of the significant or insignificant section is less than a predetermined length.

5,727,122

CODE EXCITATION LINEAR PREDICTIVE (CELP) ENCODER AND DECODER AND CODE EXCITATION LINEAR PREDICTIVE CODING METHOD

Kenichiro Hosoda; Hiromi Aoyagi; Hiroshi Katsuragawa, and Yoshihiro Ariyama, all of Tokyo, Japan, assignors to Oki Electric Industry Co., Ltd., Tokyo, Japan

PCT No. PCT/JP93/00776, § 371 Date Feb. 9, 1995, § 102(e) Date Feb. 9, 1995, PCT Pub. No. WO94/29965, PCT Pub. Date Dec. 22, 1994
PCT Filed Jun. 10, 1993, Ser. No. 379,653
Int. Cl.[6] G10L *3/02*
U.S. Cl. 395—2.32 22 Claims



1. A code excitation linear predictive coding apparatus comprising:

excitation codebook means for selectively outputting an excitation code vector as an excitation source information of a speech signal; and

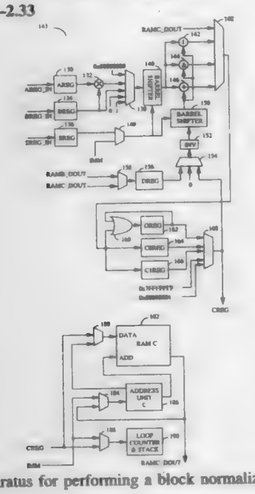
code vector conversion circuit means for converting the excitation code vector selectively output from the excitation codebook means into a frequency characteristic determined at the time of output of said excitation code vector.

5,727,123

BLOCK NORMALIZATION PROCESSOR

John G. McDonough; Chienchung Chang; Randeep Singh; Charles E. Sakamaki; Ming-Chang Tsai, and Prashant Kantak, all of San Diego, Calif., assignors to QUALCOMM Incorporated, San Diego, Calif.

Division of Ser. No. 197,417, Feb. 16, 1994. This application Dec. 20, 1995, Ser. No. 575,303
Int. Cl.[6] G10L *3/00*
U.S. Cl. 395—2.33 5 Claims



1. An apparatus for performing a block normalization comprising:

magnitude determination means for receiving a set of values and for determining a magnitude of a received value of said set of values and providing corresponding magnitude values;

OR-gate means for receiving said magnitude values, receiving a partial union value and providing a next partial union value; and

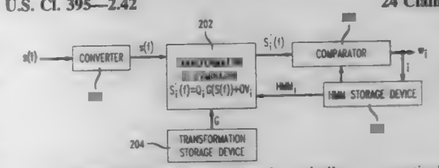
register means for receiving said next partial union value and for providing said partial union value and wherein the final value remaining in said register means is indicative of a normalization factor.

5,727,124

METHOD OF AND APPARATUS FOR SIGNAL RECOGNITION THAT COMPENSATES FOR MISMATCHING

Chin-Hui Lee, New Providence, N.J., and Ananth Sankar, Fremont, Calif., assignors to Lucent Technologies, Inc., Murray Hill, N.J.

Filed Jun. 21, 1994, Ser. No. 263,284
Int. Cl.[6] G10L *5/00*
U.S. Cl. 395—2.42 24 Claims



1. A method of identifying a signal as similar to a particular stored representation in a set of stored representations of signals, the method comprising:

(a) comparing the signal to the set of stored representations to generate a first set of similarity values;

(b) computing a function of the signal;

(c) determining a transformation based upon the signal, at least a portion of the function, and at least one stored representation associated with at least one similarity value in the first set of similarity values;

(d) transforming the signal with the transformation to generate a transformed signal;

(e) comparing the transformed signal to the set of stored representations to generate a second set of similarity values; and

(f) based upon the second set of similarity values, identifying the signal as similar to the particular stored representation.

5,727,125

METHOD AND APPARATUS FOR SYNTHESIS OF SPEECH EXCITATION WAVEFORMS

Chad Scott Bergstrom, Chandler; Bruce Alan Fette, Mesa; Cynthia Ann Jaskie, Scottsdale; Clifford Wood, Tempe, and Sean Sungsoo You, Chandler, all of Ariz., assignors to Motorola, Inc., Schaumburg, Ill.

Filed Dec. 5, 1994, Ser. No. 349,639
Int. Cl.[6] G10L *5/02*
U.S. Cl. 395—12.73 22 Claims

1. A method of synthesizing speech from encoded speech data comprising the steps of:

a) receiving the encoded speech data;

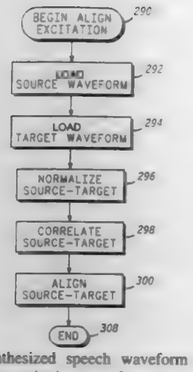
b) generating decoded speech data by decoding the encoded speech data;

c) reconstructing an excitation target from the decoded speech data;

d) creating aligned excitation segments by correlating and aligning a source segment and a target segment;

e) generating an excitation waveform by interpolating between the aligned excitation segments;

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f) creating a synthesized speech waveform by synthesizing speech using the excitation waveform; and

g) storing the synthesized speech waveform.

5,727,126

SELF-PROGRAMMING CIRCUIT

Herbert Eichfeld, and Reiner Lederle, both of Munich, Germany, assignors to Siemens Aktiengesellschaft, Munich, Germany

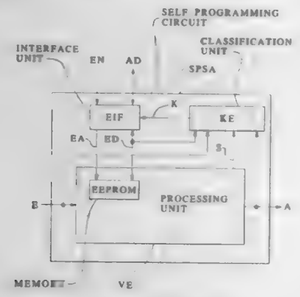
PCT No. PCT/DE95/00161, § 371 Date Aug. 27, 1996, § 102(e) Date Aug. 27, 1996, PCT Pub. No. WO95/23360, PCT Pub. Date Aug. 31, 1995

PCT Filed Feb. 8, 1995, Ser. No. 702,518

Claims priority, application Germany, Feb. 28, 1994, 44 06 498.5

Int. Cl.[6] G06G *7/00*

U.S. Cl. 395—3 **2 Claims**



1. A self-programming circuit, comprising:

a processing unit having an electrically erasable and electrically programmable read-only memory, the processing unit connected to a classification unit and an interface unit, the processing unit reading out processing information from the read-only memory;

the classification unit processing at least one of input values, internal values, and output values of the processing unit to produce classification results, the input values and/or the output values of the processing unit also representing corresponding values of the self-programming circuit;

an interface unit that effects generating from one of the classification results at least one EEPROM address and at least one EEPROM datum, the read-only memory being programmed therewith, if an external enabling signal is present; and

the classification unit forming the classification results from at least one of the input values, the internal values and the output values based on a linguistic protocol, which for fuzzy controller uses IF-THEN rules, the input values being assigned to linguistic values of the respective input variables, the linguistic values of the input variables being logically combined with linguistic values of the output variables, using the linguistic protocol, and linguistic values of an output variable being assigned to the classification results, the processing unit being a microprocessor having a program memory containing the read-only memory;

wherein when during processing there occurs a case distinction by ranges for the input values and the values within the ranges are processed by programming parts lasting various lengths of time, the classification unit determines a frequency of occurrence of the ranges of the input values and reprograms the read-only memory such that a sequence of case distinctions is carried out in accordance with the frequency of the occurrence of associated ranges, a case distinction belonging to a range having the greatest frequency taking place first.

5,727,127

METHOD FOR CONTROLLING A PRIMARY INDUSTRY PLANT OF THE PROCESSING INDUSTRY

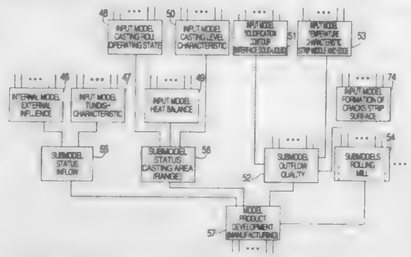
Hannes Schulze Horn, Gladbeck, and Juergen Adamy, Igensdorf, both of Germany, assignors to Siemens Atkiengesellschaft, Munich, Germany

Filed Jun. 5, 1995, Ser. No. 463,446

Claims priority, application Germany, Mar. 9, 1995, 195 08 476.4

Int. Cl.[6] G06F *15/18*

U.S. Cl. 395—10 **20 Claims**



1. A method for controlling a primary industry plant, like one of a steel plant or a steel mill producing strips of one of steel and non-ferrous metals, the control method being implemented on one of a computer and a system of distributed computers, the control method comprising the steps of:

adapting a model of operation of the primary industry plant;

carrying out an optimization process using advance knowledge of the primary industry plant and knowledge about the status of the primary industry plant obtained from the model; and

calculating, in terms of the optimization process, at least one of a setpoint value and a desired value respecting one of safety, reliability, and throughput of the primary industry plant and quality of a processed product, for use in one of driving at least one actuator of the primary industry plant and feeding to at least one controller controlling the at least one actuator.

5,727,128

SYSTEM AND METHOD FOR AUTOMATICALLY DETERMINING A SET OF VARIABLES FOR USE IN CREATING A PROCESS MODEL

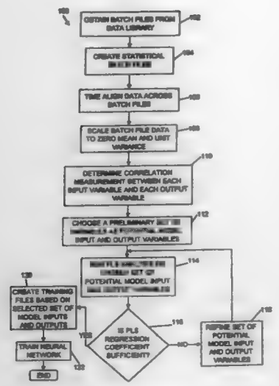
Steven Michael Morrison, Austin, Tex., assignor to Fisher-Rosemount Systems, Inc., Austin, Tex.

Filed May 8, 1996, Ser. No. 646,919

Int. Cl.[6] G06F *15/00*

U.S. Cl. 395—10 **27 Claims**

1. A computer program embodied on a computer readable medium for implementation on a computer that automatically develops a set of actual model input variables using values for a multiplicity of process input variables and at least one process output variable, comprising the steps of:



determining a correlation measurement between each of the multiplicity of process input variables and the at least one process output variable;

automatically selecting a set of potential model input variables from the multiplicity of process input variables based on the correlation measurements;

performing a regression analysis on the set of potential model input variables to produce a regression analysis result for the set of potential model input variables; and

choosing the set of potential model input variables as the set of actual model input variables based on the regression analysis result;

wherein the selected set of potential model input variables includes less than all of the multiplicity of process input variables.

5,727,129

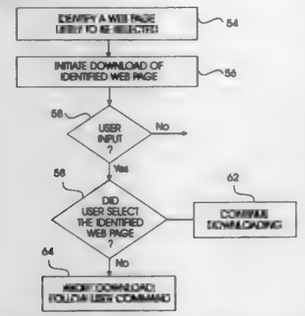
NETWORK SYSTEM FOR PROFILING AND ACTIVELY FACILITATING USER ACTIVITIES

Robert Carl Barrett; Daniel Clark Kellem, both of San Jose, and Paul Philip Maglio, Santa Cruz, all of Calif., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Jun. 4, 1996, Ser. No. 659,100

Int. Cl.[6] G06F *3/00*

U.S. Cl. 395—12 **22 Claims**



1. A communication system for facilitating communication between a user and a network of information resources at respective remote network nodes, the system comprising:

a local node having a user interface program thereon, for allowing a user to interface with the network and request a download of information items from the information resources;

a network interface coupled between the local node and the network;

a user interface including (i) means for receiving user commends representative of user actions and (ii) means for displaying received network responses of network information for viewing by a user;

means for recording a sequence of successive user actions and network responses;

means for developing a profile of user activities based on the user actions and network responses monitored in the step of monitoring; and

means for actively facilitating user activities based on the developed profile.

5,727,130

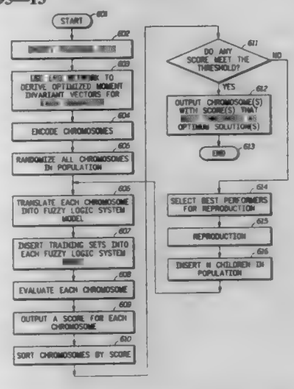
GENETIC ALGORITHM FOR CONSTRUCTING AND TUNING FUZZY LOGIC SYSTEM

Chuan-Chang Hung, Austin, Tex., assignor to Motorola, Inc., Schaumburg, Ill.

Filed Aug. 31, 1995, Ser. No. 522,027

Int. Cl.[6] G06F *15/18*

U.S. Cl. 395—13 **18 Claims**



1. A method for deriving parameters for a fuzzy logic system, wherein said fuzzy logic system is adapted for an optical character recognition ("OCR") system, and wherein said method comprises the steps of:

accessing a genetic algorithm to produce a plurality of chromosomes representing said parameters for said fuzzy logic system, said parameters including input membership functions and rules for said fuzzy logic system;

transforming each of said plurality of chromosomes into said parameters for said fuzzy logic system;

importing said parameters into said fuzzy logic system for said each of said plurality of chromosomes;

simulating said fuzzy logic system with respect to said each of said plurality of chromosomes, wherein said simulating step comprises the substeps of:

producing image data of characters to be recognized by said OCR system,

inputting said image data into a learning vector quantization network to produce optimized moment invariant vectors associated with each of said characters, and

inputting said optimized moment invariant vectors into said fuzzy logic system;

evaluating said simulations with respect to a threshold parameter; and

selecting one of said plurality of chromosomes resulting from said evaluating step if said one of said plurality of chromosomes satisfies said threshold parameter.

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5,727,131
NEURAL NETWORK LEARNING DEVICE

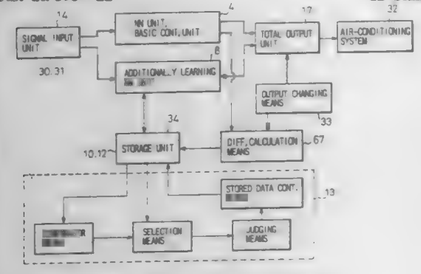
Joji Nakamura, Kariya, Japan; Hiroaki Tanaka, Okazaki, Japan; Tomohisa Yoshimi, Gamagori, Japan; Takayoshi Kawai, Hoi-gun, Japan; Yuji Ito, Ichinomiya, Japan, and Yuji Takeo, Toyoake, Japan, assignors to Nippondenso Co., Ltd., Kariya, Japan

Filed Oct. 22, 1993, Ser. No. 139,710

Claims priority, application Japan, Oct. 23, 1992, 4-286265; Nov. 24, 1992, 4-313602

Int. Cl.[6] G06F *15/18;* **G06E** *1/00:3/00*

U.S. Cl. 395—22 **12 Claims**



1. A neural network learning device comprising:

signal input means for providing input signals;

a basic control unit, connected to said signal input means, which has previously learned a basic control pattern and which generates basic output values based on the basic control pattern when said input signals are provided by said signal input means;

a learning neural network unit that receives said input signals from said signal input means, said learning neural network generating additional output values in response to said input signals based on an additional control pattern;

a total output unit for generating total output values based on a sum of said basic output values and said additional output values;

output changing means for changing at least one of said total output values;

difference calculation means for calculating a difference between said changed total output values and said basic output values;

a storage unit for storing additional learning data, said additional learning data including said differences calculated by said difference calculation means and said input signals, said learning neural network being trained on said additional learning data, and said additional control pattern being based on said additional learning data;

comparator means for comparing a capacity of a storage region of said storage unit with an amount of additional learning data when said total output values are changed by said output changing means;

selection means for selecting stored data from within said storage means when said comparator means determines that said amount of additional learning data exceeds said storage region capacity, said stored data being selected based on criteria including at least one of an amount of time stored and a deviation from said changed output values;

judging means for comparing said selected stored data with said additional learning data, and for determining whether said additional learning data will be stored based on said criteria; and

stored data control means for writing said additional learning data in said storage means when said judging means determines that said additional learning data will be stored.

5,727,132
ROBOT CONTROLLING METHOD FOR TRACKING A MOVING OBJECT USING A VISUAL SENSOR

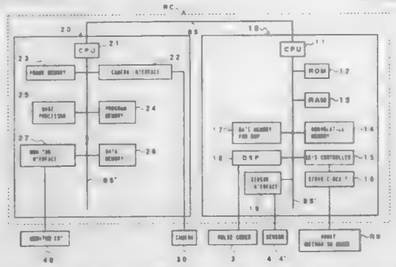
Taro Arimatsu, Oshino-mura, Japan; Takashi Jyumonji, Oshino-mura, Japan; Kazuhisa Otsuka, Oshino-mura, Japan, and Hiroaki Kubota, Oshino-mura, Japan, assignors to Faunc Ltd., Yamanashi, Japan

Filed Aug. 24, 1995, Ser. No. 518,713

Claims priority, application Japan, Aug. 25, 1994, 6-222693

Int. Cl.[6] G06F *15/46*

U.S. Cl. 395—94 **2 Claims**



1. A method of controlling a robot system for performing an operation on an object being conveyed along a conveying path by a conveyor, said robot system includes conveyance amount detecting means for detecting an amount of conveyance of the object by said conveyor and outputting a detection signal representing the conveyance amount, object detecting means disposed in a vicinity of the conveying path for detecting the object being conveyed by said conveyor, visual sensor means for visually detecting a position and posture of the object being conveyed by the conveyor and having a camera disposed in a vicinity of the conveying path downstream of said object detecting means, and a robot controller, said method comprising the steps of:

(a) setting a fixed base coordinate system to a robot;

(b) setting a tracking coordinate system to move in synchronism with the conveying path of said conveyor;

(c) placing a reference object on said conveyor and conveying the reference object by the conveyor;

(d) obtaining an image of said reference object by said camera at a position where the reference object is conveyed a first predetermined distance from a position where the reference object is detected by said object detecting means;

(e) analyzing said image obtained in said step (d) by said visual sensor means to detect a position and posture of the reference object;

(f) teaching the robot at least one point on the reference object at a position where the reference object is conveyed a second predetermined distance from the position where the reference object is detected by said object detection means;

(g) placing an object of operation having the same dimension as that of the reference object on said conveyor and conveying the object by said conveyor;

(h) obtaining an image of the object of operation by said camera at an instant when said visual sensor recognizes that the object of operation has been conveyed by said first predetermined distance based on the detection signal of said conveyance amount detecting means from an instant when said visual sensor recognizes that the object is detected by said object detecting means;

(i) analyzing said image obtained in said step (h) by the visual sensor means to detect a position and posture of said object;

(j) comparing the position/posture of said reference object detected in said step (e) and the position/posture of said object detected in said step (i) and obtaining a deviation therebetween;

(k) starting a tracking movement of the robot at an instant when said robot controller recognizes that the object has been conveyed by a third predetermined distance based on the detection signal from said conveyance amount detecting means from the instant when the robot controller recognizes that the object of operation is detected by said object detecting means;

(l) obtaining a position of a target point in the tracking coordinate system based on the position of the point taught in said step (f), an output signal of said object detecting means and the detection signal of said conveyance amount detecting means;

(m) converting the position of the target point in said tracking coordinate system into a position of the target point in said base coordinate system;

(n) correcting the position of the target point converted in said step (m) based on the deviation obtained in said step (j); and

(o) controlling the robot based on the position of the target point corrected in said step (n).

5,727,133
OUTPUT APPARATUS WITH SELECTION OF EXTERNALLY STORED CONTROL PROGRAMS FROM INPUT DATA

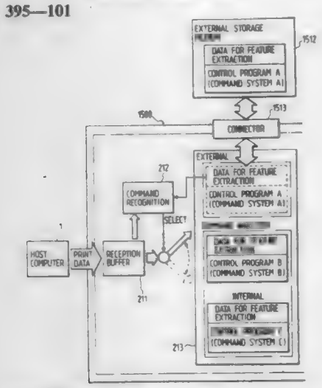
Shunya Mitsuhashi, Tokyo, Japan, assignor to Canon Kabushiki Kaisha, Tokyo, Japan

Filed Dec. 2, 1992, Ser. No. 984,686

Claims priority, application Japan, Dec. 2, 1991, 3-317744

Int. Cl.[6] G06K *15/00*

U.S. Cl. 395—101 **9 Claims**



1. An output apparatus having a main body comprising:

input means for inputting a plurality of commands;

connection means for connecting external storage means which stores a first control program and a first group of data referred to for selection of the first control program to the main body;

internal storage means for storing a second control program and a second group of data referred to for selection of the second control program;

comparison means for making a comparison between one of the plurality of commands input by said input means and the first group of data stored in the external storage means or the second group of data stored in said internal storage means; and

selection means for selecting one of the first control program stored in the external storage means and the second control program stored in said internal storage means in response to the comparison made by said comparison means showing that the one input command is included in the first group of data or in the second group of data.

5,727,134
OUTPUT APPARATUS AND METHOD FOR DISTINGUISHABLY OUTPUTTING INFORMATION FROM PLURAL INFORMATION PROCESSING APPARATUSES

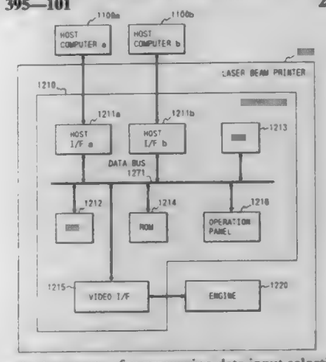
Yuichi Higuchi, Kawasaki, and Nobuhiko Sato, Yokohama, both of Japan, assignors to Canon Kabushiki Kaisha, Japan

Continuation of Ser. No. 14,685, Feb. 8, 1993, abandoned. This application Feb. 10, 1995, Ser. No. 386,341

Claims priority, application Japan, Feb. 10, 1992, 4-023464; Mar. 30, 1992, 4-074597

Int. Cl.[6] G06F *15/00;* **H04N** *1/40*

U.S. Cl. 395—101 **20 Claims**



1. An output apparatus for processing data input selectively from a plurality of host computers and for outputting a data processing state, said output apparatus comprising:

input means for inputting data selectively from the plurality of host computers;

discriminating means for, when input data is supplied from one of the plurality of host computers in the absence of a command from said output apparatus to the one host computer to initiate data input to said output apparatus, discriminating from which one of the plurality of host computers the input data is supplied; and

informing means for informing an operator of said output apparatus of a data processing state of said output apparatus in response to a discrimination by said discriminating means.

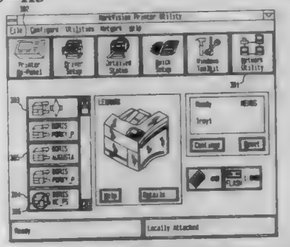
5,727,135
MULTIPLE PRINTER STATUS INFORMATION INDICATION

James Francis Webb; Jeffrey Keith Wedinger, and John Neil Wellman, all of Lexington, Ky., assignors to Lexmark International, Inc., Lexington, Ky.

Continuation of Ser. No. 409,563, Mar. 23, 1995, abandoned. This application Aug. 2, 1996, Ser. No. 691,631

Int. Cl.[6] G06K *15/00*

U.S. Cl. 395—113 **15 Claims**



1. A printing system including a computer having an associated monitor screen and a plurality of printers in bidirectional communication via a communications path with the computer, the com-

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puter including a programmed processor which controls an image appearing on the monitor screen, said image including printe. status and alert information for a selected printer of the plurality of printers, said processor also being configured to simultaneously control said image so as to display in substantially real time an indication of an error condition occurring at one or more other printers of the plurality of printers, said plurality of printers receiving print data from said computer in print data packets, said computer receiving printer status and alert information from said plurality of printers that are interspersed with said print data packets, said plurality of printers automatically generating, without waiting to be polled, said printer status and alert information, and wherein said indication of said error condition is derived from said alert information.

5,727,136

IMAGE COMMUNICATION UTILIZING MEMORY SHARED BY MULTIPLE UNITS

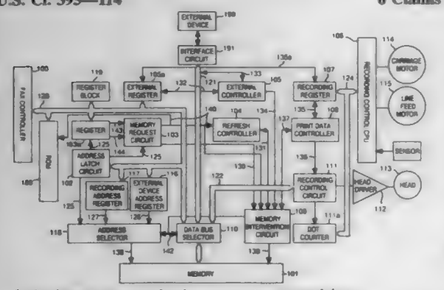
Toshiji Kubota, Tokyo, Japan, assignor to Canon Kabushiki Kaisha, Japan

Filed Feb. 23, 1994, Ser. No. 200,443

Claims priority, application Japan, Feb. 23, 1993, 5-033612; Feb. 10, 1994, 6-016251

Int. Cl.[6] H04N *1/21*; **G06K** *15/02*

U.S. Cl. 395—114 **6 Claims**



1. An image communication apparatus comprising:

communication means for accessing a memory means which stores data for transmission/reception via a first bus and performing transmission/reception with an external apparatus;

recording means for fetching the data stored in the memory means via a second bus and recording an image based on the data;

interface means for accessing the memory means via a third bus and performing at least either transmission or reception with other external apparatus; and

switching means for switching the connection by selecting a bus to be connected to the memory means from the first bus, the second bus and the third bus according to access to the memory means by said communication means, recording means and interface means.

5,727,137

PRINTER DRIVER ARCHITECTURE FOR REDUCING BAND MEMORY

Gregory A. LeClair, San Jose, Calif., and Kazuo Nakamura, Shiojiri, Japan, assignors to Seiko Epson Corporation, Tokyo, Japan

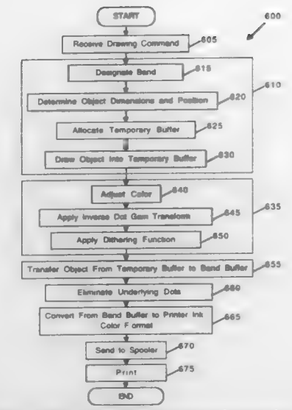
Filed Dec. 15, 1995, Ser. No. 573,021

Int. Cl.[6] G06A *15/00*

U.S. Cl. 375—116 **36 Claims**

1. A print image processing method, comprising the steps of:

receiving print image data corresponding to an image to be printed, the print image data including at least one print object;



extracting a band of the received print image data defining at least a portion of the print object;

storing the extracted band into a first memory, the extracted band having a first data size;

color processing the extracted band stored in the first memory;

dithering the color processed band;

storing the dithered band into a second memory, the dithered band having a second data size less than the first data size; and

rendering the dithered band stored in the second memory to generate a printable bitmap thereof.

5,727,138

METHOD OF AND APPARATUS FOR GENERATING THREE-DIMENSIONAL MODEL

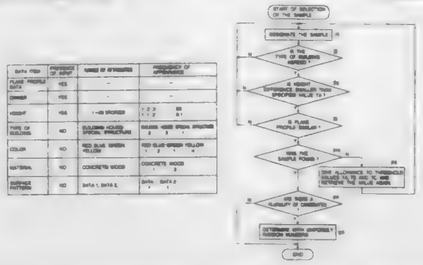
Hiroaki Harada, Kawasaki, Japan, assignor to Fujitsu Limited, Kawasaki, Japan

Filed May 26, 1995, Ser. No. 451,735

Claims priority, application Japan, Sep. 14, 1994, 6-220382

Int. Cl.[6] B06T *15/00*

U.S. Cl. 395—120 **7 Claims**



1. A three-dimensional model generating method for generating a three-dimensional model, corresponding to plane diagram comprising the steps of:

preparing in advance

a plane diagram data base which includes plane profile data corresponding to plane profiles of diagrams, and plane diagram data corresponding to sky views of the diagrams, wherein each plane diagram data includes an attribute which is defined with data or is undefined, for generating a corresponding three-dimensional models, and

a parameter data base to store expected frequencies of appearance of the attributes;

reading the plane diagram data from the plane diagram data base;

generating data to define each of the undefined attributes in accordance with the expected frequency of appearance stored in the parameter data base; and

adding the generated data to the plane diagram data read from the plane diagram data base.

5,727,139

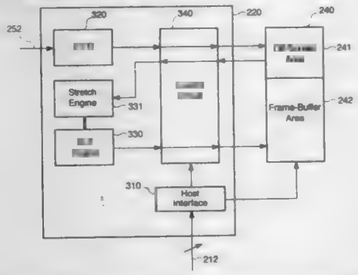
METHOD AND APPARATUS FOR MINIMIZING NUMBER OF PIXEL DATA FETCHES REQUIRED FOR A STRETCH OPERATION OF VIDEO IMAGES

Richard Charles Andrew Owen, Seattle, Wash.; Karl Scott Mills, Lynnwood, Wash.; Mark Emill Bonnelycke, Seattle, Wash.; Bradley Andrew May, San Jose, Calif., and Vernon Dennis Hasz, Bellevue, Wash., assignors to Cirrus Logic, Inc., Fremont, Calif.

Filed Sep. 29, 1995, Ser. No. 536,553

Int. Cl.[6] G06F *15/00*

U.S. Cl. 395—139 **24 Claims**



1. A method of displaying a stretched video image from a source video image, wherein the source video image comprises a plurality of scan lines with each scan line being represented by a set of pixel data, the method comprising the steps of:

receiving two pixel data of a first scan line and two pixel data of a second scan line of the source video image;

generating a first additional set of pixel data for a plurality of intermediary scan lines of the stretched video image between the first scan line and the second scan line;

receiving a next pixel datum of the first scan line and a next pixel datum of the second scan line;

generating a next additional set of pixel data for a plurality of intermediary scan lines of the stretched video image defined by the next pixel data and one of the two pixel data of the first scan line and one of the two pixel data of the second scan line;

storing pixel data in the next additional set and the first additional set in a display memory; and

displaying the stretched video image in a scan line order.

5,727,140

CHARACTER GENERATING METHOD AND APPARATUS

Mutsumi Ohtomo, Sapporo; Tomoko Motokado, and Shinichiro Motokado, both of Kawasaki, all of Japan, assignors to Fujitsu Limited, Kanagawa, Japan

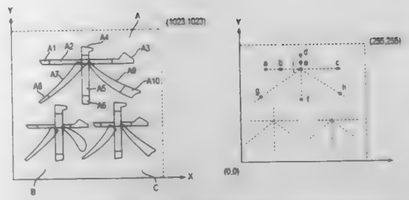
Filed Jan. 27, 1993, Ser. No. 9,896

Claims priority, application Japan, Jan. 27, 1992, 4-012006; Feb. 20, 1992, 4-033400

Int. Cl.[6] G06K *9/44*

U.S. Cl. 395—167 **18 Claims**

1. A character generating method for selecting individual partial patterns constituting a desired character having a desired font in accordance with a given character code and a given font name from stored partial patterns, and arranging said selected partial patterns at respective start points to generate a character pattern representing said desired character having said desired font, said method comprising the steps of:



storing common start point data of individual partial patterns of a character, relative position data representing relative positions of said individual partial patterns and shape data representing shapes of said individual partial patterns of said character in a storage means, said common start point data representing an absolute start point and being set in common to each font representing the same character and being set in a coordinate system of 1/n size of a set coordinate system of said character pattern, n being a sizing factor, said desired character having said desired font relative to said common start points;

reading said common start point data of individual partial patterns of a character corresponding to said character code, said relative position data and said shape data representing shapes of said individual partial patterns by positions of a plurality of contour points, respectively, of said character in accordance with said character code and said font name from said storage means;

computing coordinate values of said respective start points of said individual partial patterns of said character from said common start point data by multiplying said common start point data set in said 1/n size coordinate system by n, and said relative position data of said individual partial patterns; and

generating said character pattern having said desired font from computed coordinate values of said respective start points and said shape data.

5,727,141

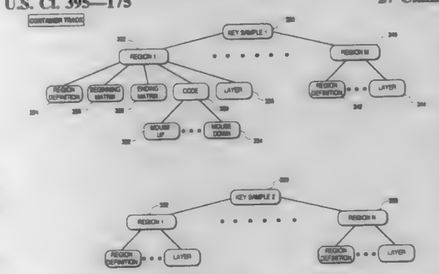
METHOD AND APPARATUS FOR IDENTIFYING USER-SELECTABLE REGIONS WITHIN MULTIPLE DISPLAY FRAMES

J. Peter Hoddie, Mountain View, Calif., and Sean D. Allen, Cupertino, Calif., assignors to Apple Computer, Inc., Cupertino, Calif.

Filed May 5, 1995, Ser. No. 437,089

Int. Cl.[6] G06T *1/00*

U.S. Cl. 395—175 **27 Claims**



1. An apparatus comprising:

a storage device including a video track comprising a plurality of frames, wherein a first frame of the video track corresponds to a user-selectable region; and

a processing unit coupled to the storage device which determines an area occupied by the user-selectable region at a first point in time based on interpolation between a first matrix of a key sample representing the user-selectable region at the

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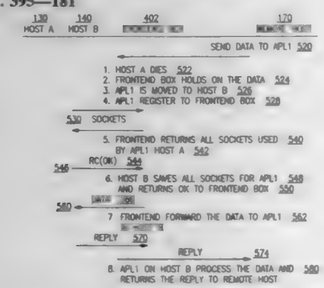
first point in time and a second matrix of an override sample representing the user-selectable region at a second point in time.

5,727,142

METHOD FOR A NON-DISRUPTIVE HOST CONNECTION SWITCH AFTER DETECTION OF AN ERROR CONDITION OR DURING A HOST OUTAGE OR FAILURE

Shawfu Chen, New Milford, Conn., assignor to International Business Machines Corporation, Armonk, N.Y.

Filed May 3, 1996, Ser. No. 642,543
Int. Cl.[6] G06F *11/08*
U.S. Cl. 395—181 **1 Claim**



1. In a loosely coupled environment using TCP/IP communication protocol and having a plurality of hosts connected to a plurality of remote hosts through a communication box, with at least one remote host being in processing communication with at least one host, a method of restoring said processing communication after a failure, without a need for re-initiating communication protocols for re-establishing processing communication and without losing any processing information, the steps comprising:

performing an initialization step to identify all hosts and all remote hosts present in said loosely coupled environment;

offloading all TCP/IP communication protocol information relating to said hosts and said remote hosts in an offload frontend box located in said communication box, so that after an error is detected, another host can replace said failing one;

said offload frontend box performing data flow control, error detection, recovery and routing of messages from one node to another node;

maintaining all processing information needed to restore an application running on any host or remote host in processing communication with one another, so that said application can be restored in same exact location on said replacing host as immediately before said failure occurred; and

performing a re-registration step during which a working host is located to replace said failing host after said new replacing host announces its availability for said replacement;

said processing information only being passed to said replacement host or replacement remote host after said re-registration step has been completed and in a manner so that said replacement is invisible to any user;

said replacing host signalling said communication box of its availability before said data is transferred from said communication box to said second host; and

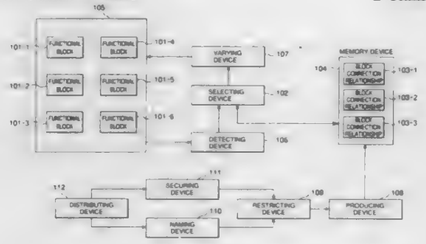
replacing said host signalling said communication box after said replacing host receives all processing information from said communication box.

5,727,143

FAULT-TOLERANT SYSTEM CAPABLE OF RAPIDLY RECOVERING A SYSTEM FUNCTION WHEN A FUNCTIONAL BLOCK BECOMES A FAULTY BLOCK

Satoshi Morinaga, Tokyo, Japan, assignor to NEC Corporation, Tokyo, Japan

Filed Apr. 24, 1996, Ser. No. 637,077
Claims priority, application Japan, Apr. 24, 1995, 7-098334
Int. Cl.[6] G06F *17/10;11/16;19/00*
U.S. Cl. 395—182.01 **2 Claims**



1. A fault-tolerant system having a predetermined system function and comprising a plurality of functional blocks for providing said predetermined system function and for recovering said predetermined system function when one of said selected functional blocks is determined to be faulty, said fault-tolerant system comprising:

a memory for storing a plurality of block connection relationships, each of which is representative of functional block connections for providing said predetermined system function;

first means for producing a plurality of ideal block connection relationships in accordance with first, second and third numbers, said first number being representative of the number of said functional blocks, said second number being representative of the number of functional blocks for providing said predetermined system function, said third number being representative of the number of said block connection relationships, said first means being further for separating said functional blocks into either one of first and second block sets in accordance with said ideal block connection relationships;

second means for allocating the functional blocks included in said first block set into a plurality of groups on the basis of said ideal block connection relationships to produce a plurality of block groups;

third means for naming the functional blocks included in said second block set to produce named functional blocks;

fourth means for producing a plurality of restricting conditions in accordance with said block groups and said named functional blocks, said restricting conditions being representative of restrictions on forming said ideal block connection relationships;

fifth means for producing said block connection relationships on the basis of said restricting conditions;

detecting means for detecting a faulty functional block and producing a fault signal;

accessing means responsive to said fault signal for accessing said memory to select one of said block connection relationships that does not include said faulty functional block; and

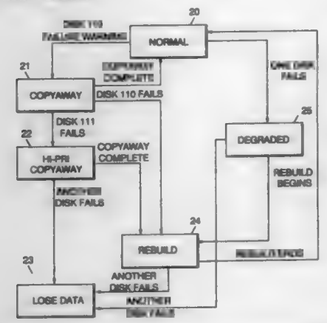
recovery means for recovering said predetermined system function in accordance with a selected block connection relationship.

5,727,144

FAILURE PREDICTION FOR DISK ARRAYS

James Thomas Brady, and Jaishankar Moothedath Menon, both of San Jose, Calif., assignors to International Business Machines Corporation, Armonk, N.Y.

Continuation of Ser. No. 356,807, Dec. 15, 1994, abandoned. This application Jul. 12, 1996, Ser. No. 679,166
Int. Cl.[6] G06F *11/00*
U.S. Cl. 395—182.04 **11 Claims**



1. In a data processing system comprising a processor coupled to an array of a plurality of storage devices, a method comprising the steps of:

receiving a warning of a possible failure in a first one of said plurality of storage devices;

copying, in response to receipt of said warning of a possible failure in said first one of said plurality of storage devices, contents of said first one of said plurality of storage devices to a second one of said plurality of storage devices; and

when a third of said plurality of said storage devices fails during said step of copying of said contents of said first one of said plurality of storage devices to a second one of said plurality of storage devices, transferring said step of copying of said contents of said first one of said plurality of storage devices to a second one of said plurality of storage devices to a higher priority copying step wherein said step of copying of said contents of said first one of said plurality of storage devices to a second one of said plurality of storage devices takes precedence over rebuilding contents of said third of said plurality of said devices and processing of user requests within said data processing system.

5,727,145

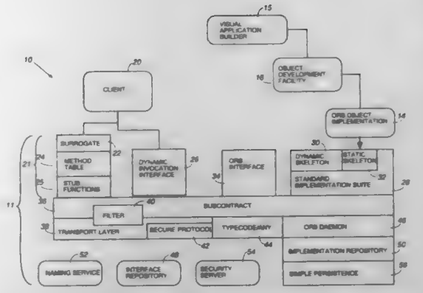
MECHANISM FOR LOCATING OBJECTS IN A SECURE FASHION

Dan M. Nessett, Fremont, Calif.; Christian J. Callsen, Menlo Park, Calif., and Ken M. Cavanaugh, III, Montara, Calif., assignors to Sun Microsystems, Inc., Palo Alto, Calif.

Filed Jun. 26, 1996, Ser. No. 670,957
Int. Cl.[6] G06F *15/00*
U.S. Cl. 395—186 **26 Claims**

1. In a distributed object computing system including clients and object servers, a host computer including an object request broker (ORB) daemon process arranged to assist in the location of object servers, and an object server arranged to provide a target object, a computer-implemented method of allowing a client to invoke upon a target object in a secure fashion, the method comprising the steps of:

receiving a call from the client by the ORB daemon process, the call to the ORB daemon process using a constructed object reference, the constructed object reference including an object server identifier, original security information and a security class identifier, the call to the ORB daemon process using a first security mechanism corresponding to the original security information contained in the constructed object reference;



determining that the client is authorized to communicate with the ORB daemon process;

retrieving security information specific to the object server that corresponds to the security class identifier contained in the constructed object reference;

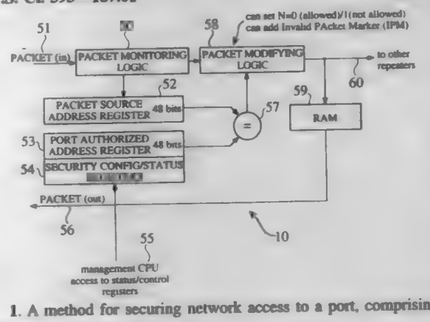
returning to the client the retrieved object server security information that corresponds to the security class identifier, such that the client is then able to modify the constructed object reference using the retrieved object server security information to provide a modified object reference and thereby be able to invoke on the target object using the modified object reference.

5,727,146

SOURCE ADDRESS SECURITY FOR BOTH TRAINING AND NON-TRAINING PACKETS

Mark Savoldi, Lincoln, Calif.; Alan R. Albrecht, Granite Bay, Calif., and Lisa S. Brown, Granite Bay, Calif., assignors to Hewlett-Packard Company, Palo Alto, Calif.

Filed Jun. 4, 1996, Ser. No. 658,191
Int. Cl.[6] G06F *11/00*
U.S. Cl. 395—187.01 **16 Claims**



1. A method for securing network access to a port, comprising the steps of:

monitoring a source address of packets that are sent by a device to a port over a network;

allowing access to said port if said source address matches an authorized source address assigned to said port to which said device is attached;

not allowing access to said port if said source address of said device does not match an authorized source address assigned to said port to which said device is attached, wherein all packets sent by a device having an unauthorized source address are treated as errored packets to prevent them from being accepted by any other device in said network;

detecting when a device tries to disguise itself by first training with an authorized source address and then sending a packet having an unauthorized source address;

marking said packet as invalid so that it does not get accepted by any other device in the network if said packet contains a

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source address other than a source address that said device is authorized to use; and

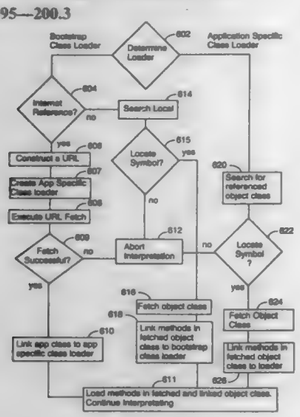
requiring said device to re-establish its connection to said network by retraining to assure that it is an authorized device.

5,727,147

SYSTEM AND METHOD FOR RESOLVING SYMBOLIC REFERENCES TO EXTERNALLY LOCATED PROGRAM FILES

Arthur A. van Hoff, Mountain View, Calif., assignor to Sun Microsystems, Inc., Mountain View, Calif.

Filed Dec. 8, 1995, Ser. No. 569,748
Int. Cl.[6] G06F *9/24;13/28*
U.S. Cl. 395—200.3 6 Claims



1. A program interpreting method performed by a first computer for resoling symbolic references comprising the steps of:

a) while executing a first method, upon encountering an unresolved symbolic reference to a second method, determining if said unresolved symbolic reference in said first method references said second method in an object class locally stored on said first computer;

b) if the determination in step (a) is positive, utilizing a bootstrap class loader to load said object class which contains the method referenced by said symbolic reference in said first method; and

c) if the determination is step (a) is negative,

c1) creating an application specific class loader;

c2) loading an object class from a remotely located computer that contains said second method referenced by said symbolic reference;

c3) modifying said loaded second method to reference said application specific class loader created in step (c1); and

c4) using said application specific class loader to load object classes that contain methods referenced by symbolic references in said loaded second method;

said step (c1) including embedding location information in said application specific class loader, said location information identifying said remotely located computer; and

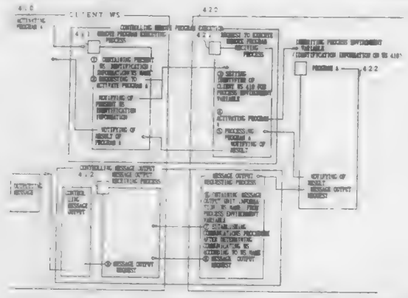
said step (c4) including searching said remotely located computer identified by said location information embedded in said application specific class loader to locate a respective object class associated with each of said symbolic references in said loaded second method.

5,727,148

MESSAGE CONTROL METHOD AND SYSTEM

Ikuo Takekawa, Kawasaki, Japan, assignor to Fujitsu Limited, Kawasaki, Japan

Continuation of Ser. No. 123,257, Sep. 20, 1993, abandoned.
This application Aug. 16, 1996, Ser. No. 698,762
Claims priority, application Japan, Nov. 25, 1992, 4-315392
Int. Cl.[6] G06F *13/42*
U.S. Cl. 395—200.04 15 Claims



1. A message control method for use in a system in which a plurality of information processing units are connected via communications lines so as to output messages from the information processing units to other information processing units, said method comprising the steps of:

(a) setting, by one of the information processing units, a message output unit identifier in an environment variable pertaining to a process which requests another one of the information processing units to output a message; and

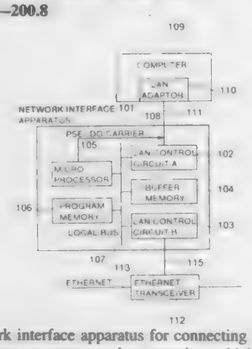
(b) requesting a message output unit of the information processing units to output the message after obtaining the message output unit identifier from the environment variable when outputting the message.

5,727,149

NETWORK INTERFACE APPARATUS AND DATA TRANSMISSION CONTROL METHOD THEREOF

Tetsuhiko Hirata, Yokohama, Japan; Minoru Koizumi, Yokohama, Japan; Emiko Yanagisawn, Kawasaki, Japan; Osamu Takada, Sagamihara, Japan, and Hiroshi Wataya, Hitachinaka, Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Filed Dec. 21, 1995, Ser. No. 576,336
Claims priority, application Japan, Dec. 22, 1994, 6-319776
Int. Cl.[6] G06F *13/372*
U.S. Cl. 395—200.8 26 Claims



1. A network interface apparatus for connecting a LAN adaptor which a computer possesses and a transceiver which is provided on an Ehternet transmission line, comprising:

first control means for making the transmission and reception of an Ethernet frame to and from said LAN adaptor;

second control means for making the transmission and reception of the Ethernet frame to and from said transceiver;

filtering means for discarding unnecessary data of receive data received from said transceiver by said second control means to selectively relay the receive data to said LAN adaptor through said first control means;

a buffer memory for temporarily storing transmit data; and

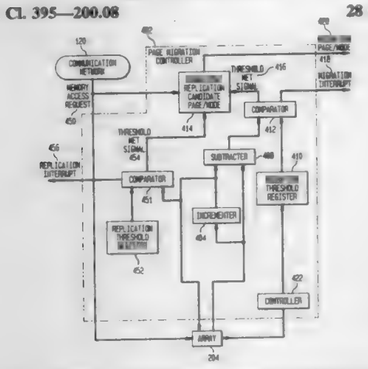
transmission control means for causing said buffer memory to temporarily store transmit data received from said LAN adaptor by said first control means and transmitting the transmit data to said transceiver through said second control means in a transmission time zone allotted beforehand.

5,727,150

APPARATUS AND METHOD FOR PAGE MIGRATION IN A NON-UNIFORM MEMORY ACCESS (NUMA) SYSTEM

James P. Laudon, Menlo Park, and Daniel E. Lenoski, San Jose, both of Calif., assignors to Silicon Graphics, Inc., Mountain View, Calif.

Continuation of Ser. No. 435,464, May 5, 1995, abandoned.
This application Dec. 17, 1996, Ser. No. 766,363
Int. Cl.[6] G06F *13/00*
U.S. Cl. 395—200.08 28 Claims



1. An apparatus in a local processing node, said local processing node comprising a local portion of main memory, said local processing node being in a computer system comprising one or more additional processing nodes, each additional processing node including a remote portion of main memory, said apparatus controlling migration of memory pages in said computer system, said apparatus comprising:

a storage mechanism storing, for each memory page in said local portion of main memory, a count for each region of said computer system, each region encompassing one or more processing nodes of said computer system;

a page migration controller to determine whether a memory page addressed by a memory access request should be migrated from said local portion of main memory to a requester processing node, said memory access request originating from said requester processing node, said page migration controller comprising:

means for accessing said storage mechanism to obtain a first count associated with said addressed memory page and said requester processing node, and a second count associated with said addressed memory page and said local processing node;

an incrementer to increment said first count;

means for storing said incremented first count in said storage mechanism; and

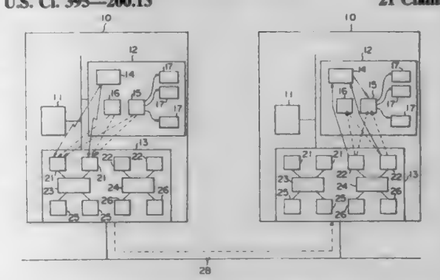
migration signal issuing means for issuing a migration signal if a difference between said second count and said incremented first count is greater than a migration threshold value.

5,727,151

MESSAGE CONTROL SYSTEM SPECIFYING MESSAGE STORAGE BUFFER FOR DATA COMMUNICATION SYSTEM WITH GENERAL PURPOSE AND ARBITRARY FORM BUFFERS

Hirohide Sugahara, Kawasaki, Japan; Hajime Takahashi, Kawasaki, Japan; Akira Kabemoto, Kawasaki, Japan, and Hideki Nakagawa, Kawasaki, Japan, assignors to Fujitsu Limited, Kawasaki, Japan

PCT No. PCT/JP91/01305, § 371 Date May 28, 1992, § 102(e) Date May 28, 1992, PCT Pub. No. WO92/06435, PCT Pub. Date Apr. 16, 1992
PCT Filed Sep. 27, 1991, Ser. No. 859,397
Claims priority, application Japan, Sep. 28, 1990, 2-259389; Sep. 28, 1990, 2-259390; Sep. 28, 1990, 2-259392
Int. Cl.[6] G06F *15/163;15/17*
U.S. Cl. 395—200.13 21 Claims



1. A message control system which employs a system structure in which a plurality of processing modules are connected to each other via a system bus, each processing module of said plurality of processing modules comprising:

a central processing unit;

a memory unit accessible by said central processing unit;

a connection unit forming an interface between said memory unit and said system bus;

said memory unit including:

a data processing part implemented as a software system running on said central processing unit, and

a buffer for storing a transmitting message;

said connection unit including:

a plurality of logical transmitting ports for successively reading out a message developed in said buffer and transmitting said message as a continuous message,

a plurality of logical receiving ports for successively storing said message which is transmitted to a destination processing module,

transmission system connecting means for simultaneously making a logical connection between said plurality of logical transmitting ports and a first processing module at a communicating destination,

reception system connecting means for simultaneously making a logical connection between said plurality of logical receiving ports and a second processing module at the communicating destination;

the buffer further comprising:

a general purpose buffer storing said transmitting message, and

an arbitrary form buffer which is captured at any time by the data processing part which runs on the central processing unit with a format in conformance with processing thereof depending on a capture indication from a transmitting side processing module; and

when transmitting said message which is received using the arbitrary form buffer, the data processing part notifies message quantity information to a receiving side processing module according to a message communication which specifies the general purpose buffer prior to the message transmission, and thereafter issues a request to add an identifier which specifies the use of the arbitrary form buffer and a message

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transmission request with respect to the logical transmitting port within its own processing module.

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INTERFACE ARRANGEMENT, AND TELECOMMUNICATION SYSTEM, AND METHOD

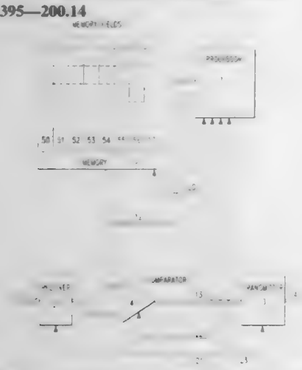
Karel Gerard Coolegem, Bonn, Germany, and Karin Helena Maria Anstötz, Cologne, Germany, assignors to Koninklijke PTT Nederland N.V., Groningen, Netherlands

Filed May 7, 1996, Ser. No. 643,857

Claims priority, application European Pat. Off., May 8, 1995, 95201183.1

Int. Cl.[6] G06F *13/00*; H04B *1/38*

U.S. Cl. 395—200.14 15 Claims



1. Interface arrangement for coupling a first arrangement based on a first protocol and a second arrangement based on a second protocol, which interface arrangement is provided with

a receiver for receiving a first information element based on the first protocol from the first arrangement,

a transmitter for transmitting a second information element based on the second protocol towards the second arrangement in response to the received first information element,

a control arrangement comprising a memory for storing information elements,

characterised in that the memory is provided with at least a first memory field for storing second information elements and a second memory field for storing third information elements, the control arrangement being provided with

a comparator for comparing the received first information element with a stored information element and for generating a first control signal in case of equality and for generating a second control signal in case of inequality,

a first supplier for supplying a stored second information element to the comparator for comparing the received first information element with the stored second information element and for, in response to the first control signal, supplying at least one of the received first information element and the stored second information element to the transmitter, and

a second supplier for, in response to the second control signal, supplying a stored third information element to the comparator for further comparing the received first information element with the stored third information element and for, in response to a further first control signal, selecting a stored second information element which corresponds to the stored third information element and supplying the selected stored second information element to the transmitter.

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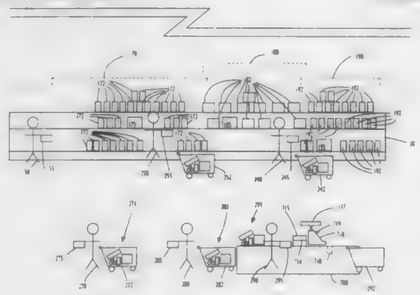
RETAIL STORE HAVING A SYSTEM OF RECEIVING ELECTRONIC COUPON INFORMATION FROM A PORTABLE CARD AND SENDING THE RECEIVED COUPON INFORMATION TO OTHER PORTABLE CARDS

Ken R. Powell, P.O. Box 6265, Athens, Ga. 30604

Filed Jun. 6, 1995, Ser. No. 468,820

Int. Cl.[6] H01J *13/00*

U.S. Cl. 395—214 20 Claims



1. A method of operating a store including a plurality of products, an electromagnetic detector, a card interface, and a plurality of portable cards, each card including a flat substrate, an array of interface contacts juxtaposed with the substrate, and a memory for storing a signal corresponding to pricing information for a product, the method of operating the store comprising the steps, performed in the store, of:

receiving, in the card interface, a first signal from the memory of a first card in the plurality of cards, the first signal corresponding to pricing information for a product in the store;

sending from the card interface, the received first signal to the memory of a second card in the plurality of cards;

receiving the first signal from the memory of the second card;

receiving a second signal from the electromagnetic detector, the second signal corresponding to a product; and

determining, in a computer, a price depending on whether the first signal, received from the second card, corresponds to the second signal.

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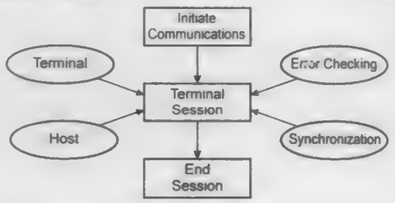
PROGRAM SYNCHRONIZATION ON FIRST AND SECOND COMPUTERS BY DETERMINING WHETHER INFORMATION TRANSMITTED BY FIRST COMPUTER IS AN ACCEPTABLE OR UNACCEPTABLE INPUT TO SECOND COMPUTER PROGRAM

Shawn C. Fry, 1902 Audobon Ct., Richmond, Tex. 77469; Gregory L. Mahan, 2501 Lazy Hollow, Apt. 228-B, Houston, Tex. 77063, and Christopher D. Christopher, 7030 Delbello Rd., Manvel, Tex. 77578

Filed Apr. 28, 1995, Ser. No. 430,457

Int. Cl.[6] H01J *13/00*

U.S. Cl. 395—200.19 14 Claims



1. A method for maintaining the synchronization of a first program executing on a first computer with a second program executing on a second computer which is connected by a transmission medium to the first computer, said method comprising the steps of:

(a) transmitting selected information in one or more packets from said first computer through said transmission medium to said second computer so that said packets are received by said second computer in an error-free condition and extracting said information from said packets, said first computer being further programmed to remain at the programming step of said first program at which said information was transmitted to said second computer;

(b) determining whether said information is an acceptable input or an unacceptable input to said second program executing on said second computer;

(c) if said information is determined to be an acceptable input to said second program, transmitting from said second computer to said first computer an acknowledgement that said information is an acceptable input, said second program then accepting said information, processing said information and advancing to the next program step in said second program;

(d) if said information is determined to be an unacceptable input to said second program, transmitting from said second computer to said first computer a signal that said information is an unacceptable input, said second program remaining at the current program step in said second program;

(e) said first program advancing to the next program step of said first program upon receipt of said acknowledgement;

(f) said first program remaining at the current program step of said first program upon receipt of said signal that said information is an unacceptable input.

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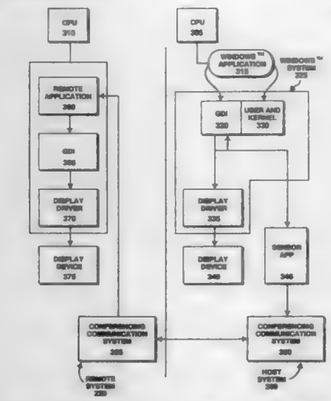
METHOD AND APPARATUS FOR DYNAMICALLY CONTROLLING A REMOTE SYSTEM'S ACCESS TO SHARED APPLICATIONS ON A HOST SYSTEM

Bryan J. Dawson, Aloha, Oreg., assignor to Intel Corporation, Santa Clara, Calif.

Continuation of Ser. No. 604,091, Feb. 20, 1996, abandoned, which is a continuation-in-part of Ser. No. 303,416, Sep. 9, 1994, abandoned. This application Jan. 29, 1997, Ser. No. 790,384

Int. Cl.[6] G06F *15/00*

U.S. Cl. 395—200.35 20 Claims



1. In a conferencing system including a host computer communicatively coupled to a remote computer, a method of controlling said remote computer's access to a plurality of applications, said plurality of applications being executed on said host computer and a visual display of said plurality of applications being transferred to said remote computer, said method comprising the steps of:

(a) said host computer setting an unlocked access level for said remote computer for select ones of the plurality of applications, wherein said unlocked access level indicates that information input at said remote computer is to be input to said select applications, and wherein said access level for each of the plurality of applications is alterable by said host computer while said host computer is executing said plurality of applications; and

(b) said host computer changing said unlocked access level to a locked access level for said remote computer for select ones of the plurality of applications, wherein said locked access level indicates that said information input at said remote computer is not to be input to said select applications.

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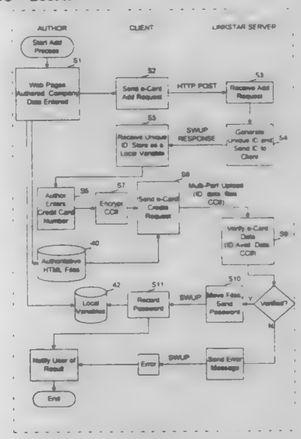
INTERNET-BASED AUTOMATIC PUBLISHING SYSTEM

Dirk Herr-Hoyman, Madison, Wis., and Louis Hubert, Kalamzoo, Mich., assignors to HotOffice Technologies, Inc., Boca Raton, Fla.

Filed Apr. 10, 1996, Ser. No. 630,287

Int. Cl.[6] G06F *13/00*; *15/16*; H04L *9/00*

U.S. Cl. 395—200.49 4 Claims



1. A method for posting hypertext documents to a hypertext server to form an accessible hypertext document comprising a plurality of hypertext pages secured against unauthorized modification, the method comprising the steps of:

authoring the hypertext pages on a client computer; sending an add request from the client computer to a server computer;

generating, at the server computer, a unique identifier for an author of the hypertext document;

sending an indication of the unique identifier to the client computer;

obtaining a charge authorization from the author;

sending a database entry request from the client computer to the server computer, wherein the database entry request comprises the unique identifier, the charge authorization and the hypertext files;

at the server, verifying a validity of the charge authorization; and

if the charge authorization is valid, storing the hypertext pages in association with the unique identifier and sending a password to the client associated with the unique identifier.

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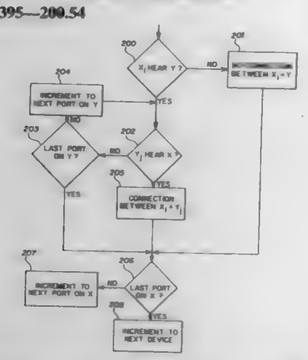
APPARATUS AND METHOD FOR DETERMINING A COMPUTER NETWORK TOPOLOGY

Timothy L. Orr, Gonic, and Eric W. Gray, Manchester, both of N.H., assignors to Cabletron Systems, Inc., Rochester, N.H.

Continuation of Ser. No. 115,232, Sep. 1, 1993, abandoned, which is a continuation-in-part of Ser. No. 583,509, Sep. 17, 1990, abandoned. This application Dec. 19, 1996, Ser. No. 770,696

Int. Cl.[6] G06F *11/30*

U.S. Cl. 395—200.54 29 Claims



1. A method of determining a topology of a computer network including node devices and data-relay devices coupled to one another by a multi-drop line, each data-relay device having at least one port, the method including the steps of:

acquiring a list of the data-relay devices in the computer network,

acquiring a source address table for each at least one port of each data-relay device in the list, the source address table being a compilation of source addresses of packets received from respective node devices and source addresses of management response packets received from other respective data-relay devices on the respective at least one port of the respective data-relay device,

selecting a unique ordered pair of different data-relay devices X and Y;

(a) selecting a pair of ports X_i and Y_j on the selected different data-relay devices X and Y, respectively, where i represents a specific port of device X and j represents a specific port of device Y;

(b) determining whether the source address table of port X_i includes an entry for device Y and whether the source address table of port Y_j includes an entry for device X, and when the answer to both is affirmative, establishing a connection between ports X_i and Y_j in the topology; and

(c) repeating the above selecting and determining steps (a) and (b) for each different pair of ports of the data-relay devices X and Y;

(d) for each pair of ports X_i and Y_j wherein the source address table of port Y_j does not include an entry for device X, determining whether there is some intersection of the entries of the source address tables for port Y_j and port X_q where r is not equal to j, and q is not equal to i, and when the answer is affirmative, establishing a connection between port X_i and port Y_j in the topology; and

(e) repeating the second determining step (d) for each pair of ports X_i and Y_j for which the source address table of port Y_j does not include an entry for device X;

(f) repeating the above selecting and determining steps (a)–(e) for each unique ordered pair of different data-relay devices X and Y in the network; and

(g) generating a display of the established connections between the data-relay devices to show the network topology.

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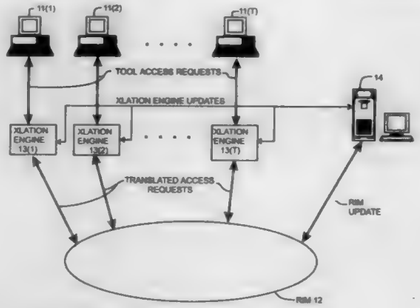
INFORMATION REPOSITORY FOR STORING INFORMATION FOR ENTERPRISE COMPUTING SYSTEM

M'hamed Bouziane; Robert C. Webber, III, both of Nashua, N.H.; Vincent A. Mastro, Needham, Mass.; Charles P. Rehberg, Nashua, N.H.; Barbara A. Nichols, Acton, and Roxanne N. Myers, Watertown, both of Mass., assignors to Integra Soft, Inc., Billerica, Mass.

Filed Sep. 22, 1995, Ser. No. 532,462

Int. Cl.[6] G06F *12/10*

U.S. Cl. 395—200.55 56 Claims



1. An information repository system comprising:

A. an atomic information repository for storing data items for accessing by a plurality of data processing tools, each tool having a respective data model, each data model defining at least one class each having at least one data item with an associated attribute, said attribute having at least one value, at least one class associated with the data model of at least one tool having a plurality of subclasses each comprising a said class associated with another of said tools, the data items being organized in said atomic information repository in an atomic data model corresponding to the combination of the data models associated with all of said data processing tools;

B. a plurality of generated translation engines each associated with a said tool, each translation engine (i) receiving an access request from its associated tool in the associated tool's data model, (ii) performing a translation operation to translate the request from the associated tool's data model to the repository's atomic data model, and (iii) initiating an access operation with the repository in connection with the translated access request.

5,727,159

SYSTEM IN WHICH A PROXY-SERVER TRANSLATES INFORMATION RECEIVED FROM THE INTERNET INTO A FORM/FORMAT READILY USABLE BY LOW POWER PORTABLE COMPUTERS

Dan Kikinis, 20264 Ljepava Dr., Saratoga, Calif. 95070

Filed Apr. 10, 1996, Ser. No. 629,475

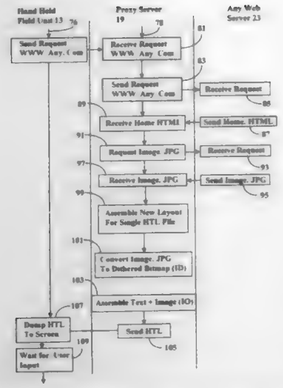
Int. Cl.[6] G06F *5/01*

U.S. Cl. 395—200.76 17 Claims

13. A method for adapting Internet files for a field computer, comprising steps of:

(a) downloading files from the Internet to a Proxy-Server;

(b) transposing the files by accomplishing information density reduction;



(c) transferring the transposed files to the field computer over a data link connecting the field computer to the Proxy-Server.

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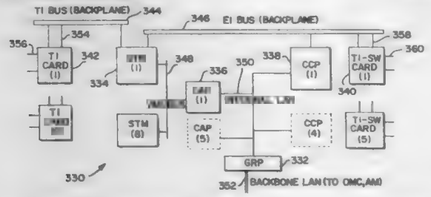
RADIO PORT CONTROLLER IN A WIRELESS PERSONAL COMMUNICATION SYSTEM

Kalyan Ganesan, Germantown, Md.; Ranjan Pant, Gaithersburg, Md.; Robert Fischler, Gaithersburg, Md.; Kim Goh, Germantown, Md.; Barrie Saunders, Frederick, Md., and Tayyab Khan, Germantown, Md., assignors to Hughes Electronics, Los Angeles, Calif.

Continuation-in-part of Ser. No. 344,272, Nov. 23, 1994. This application Jun. 7, 1995, Ser. No. 482,247

Int. Cl.[6] H03Q *7/24;* H04L *12/00*

U.S. Cl. 395—200.79 19 Claims



1. A radio port controller in a wireless personal communications system comprising:

a first interface module in communication with a radio port;

a second interface module in communication with a digital switch wherein said second interface module comprises a plurality of interface cards, each card having a first set of pins for producing a T1 signal and a second set of pins for producing an E1 signal;

at least one switching transcoder module (STM) in communication with said first and second interface modules; and

a communication backplane comprising:

a T1 databus in communication with said STM and said first interface module;

an E1 databus in communication with said STM and said second interface module;

a plurality of slots adapted to receive said interface card; and

a control switch for selectively connecting one of said sets of pins to said E1 databus.

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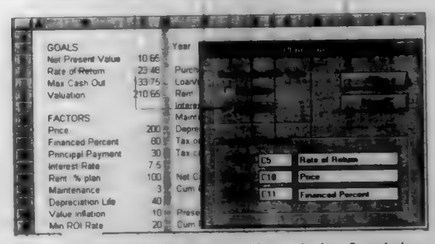
METHOD AND APPARATUS FOR GRAPHIC ANALYSIS OF VARIATION OF ECONOMIC PLANS

W. Richard Purcell, Jr., Boulder, Colo., assignor to PlanScan, LLC, Boulder, Colo.

Filed Sep. 16, 1994, Ser. No. 307,946

Int. Cl.[6] G06F *17/60;7/48*

U.S. Cl. 395—207 72 Claims



1. A method that relates to graphic analysis of variation of economic plans, comprising:

accessing a plan-model having variables including inputs defined to have externally entered input values and outputs defined to have output values determined through plan-model processes affected by one or more of said input values, said plan-model being changeable into any of a number of what-if states, each of said what-if states being a particular combination of particular values for said inputs and any change in any of said input values being a change of said plan-model from one what-if state to another what-if state;

choosing at least a first goal from said outputs and at least a first factor from said inputs, said first factor being chosen based on said first goal and being an economic parameter, that is useful to a user in planning and managing said first goal and based on desire for information associated with a functional relationship between said first goal and said first factor contained in said plan-model wherein a change in the value of said first factor causes a change in the value of said first goal;

obtaining input values for an initial what-if state of said plan-model, in which what-if state all input values and all output values of said plan-model including the values of said first factor and said first goal are plan values;

establishing at least a first magnitude of variation for the value of said first factor, said first magnitude of variation being established based on said first factor plan value, said variation being in an axis of value variation independent of the axes of value variation represented by the input and output values in said initial what-if state of said plan-model; and

providing a first graph having at least a first graph line in which each graph point reflects a different what-if state of said plan-model, said first graph line developed by determining representative graph points each representing a different first factor substitute value and a corresponding goal variant value for said first goal, wherein:

values of said representative graph points are determined and used to display said first graph and said first graph line in a computer process that includes generation of new values for said representative graph points using said plan-model and said plan values and display of said first graph with said first graph line using said representative graph points, which computer process is independent of user setup of additional modeling to create a table of such values external to said plan-model, said user setup of additional modeling including separate user steps to enter in spreadsheet cells external to said plan-model a plurality of first factor values and a formula reference for calculation of corresponding first goal values;

each of said first factor substitute values is determined based on said first factor plan value and said first magnitude of variation, each of said first factor substitute values is different from and a replacement for said first factor plan value, said first factor substitute values differ from any

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value of said first factor obtained from said initial what-if state of said plan-model and used in determination of said first factor substitute values, and said first factor substitute values differ from any value of said first factor obtained from the user and used in determination of said first factor substitute values; and

each of said corresponding first goal variant values is the value of said first goal using said plan-model processes with said first factor plan value replaced by the first factor substitute value to which said first goal variant value corresponds, and depending on said relationship between said first goal and said first factor contained in said plan-model said corresponding goal variant values for said first goal are different from the plan value of said first goal, differ from any value of said first goal obtained from said initial what-if state of said plan-model and used in determination of said first goal variant values, and differ from any value of said first goal obtained from the user and used in determination of said first goal variant values;

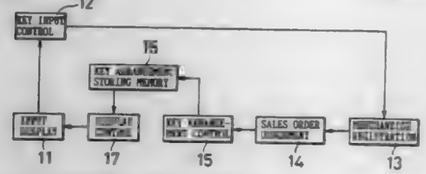
in which graph line information is provided for said relationship between said first goal and said first factor and the value of said first goal at each value of said first factor for at least ten values of said first factor differing from any value of said first factor obtained from said initial what-if state of said plan-model and differing from any value of said first factor obtained from the user.

5,727,162

TOUCH SCREEN CASH REGISTER THAT DISPLAYS MERCHANDISE KEYS BASED ON SALES INFORMATION

Yasuhide Nakamura, Yamatokoriyama, Japan, assignor to Sharp Kabushiki Kaisha, Osaka, Japan

Filed Jun. 2, 1995, Ser. No. 460,185
Claims priority, application Japan, Dec. 29, 1994, 6-340089
Int. Cl.[6] G06F *17/60*
U.S. Cl. 395—225 **10 Claims**



1. A merchandise register comprising:

input and display means for inputting and displaying information regarding a product item, a stock quantity, and/or operations necessary for a registration of said product item;

sales information storing means for storing sales information for a plurality of items including a sales quantity and a sales amount for each item; and

a processing means for cumulatively registering a sales quantity and/or a sales amount in the sales information storing means in response to information input via the input and display means,

wherein the input and display means includes a merchandise input and display means for registering item sales and for displaying merchandise keys corresponding to individual items, each merchandise key having item identification information displayed within its associated region, said merchandise input means comprising:

a merchandise key panel display having a plurality of displayed merchandise keys arranged in rows and columns on a touch sensitive display screen, and

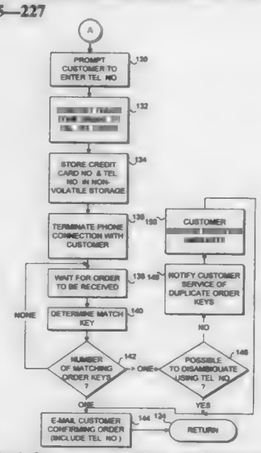
control means for controlling the display means so that item identification information representing a product item is displayed within a region on the display defining a displayed merchandise key, an item code corresponding to a product item identified on a displayed merchandise key is generated in response to a touch operation of said displayed merchandise keys, and an existing displayed arrangement of the merchandise keys is modified based on cumulative registered sales information by interchanging item identification information displayed within regions defining said displayed merchandise key.

5,727,163

SECURE METHOD FOR COMMUNICATING CREDIT CARD DATA WHEN PLACING AN ORDER ON A NON-SECURE NETWORK

Jeffrey P. Bezos, Bellevue, Wash., assignor to Amazon.Com, Inc., Seattle, Wash.

Filed Mar. 30, 1995, Ser. No. 413,242
Int. Cl.[6] G06F *17/60*; **G06G** *7/52*
U.S. Cl. 395—227 **31 Claims**



1. A method for communicating confidential data and non-confidential data to an intended recipient at a remote location, comprising the steps of:

(a) transmitting the non-confidential data and a portion of the confidential data to the intended recipient over a non-secure network, said portion of the confidential data comprising a message reference key;

(b) transmitting the confidential data in a complete form to the intended recipient over a secure network;

(c) comparing a portion of the confidential data in the complete form received at the remote location over the secure network to the message reference key received over the non-secure network to match the non-confidential data with the confidential data in the complete form; and

(d) combining the confidential data in the complete form that were received at the remote location with the non-confidential data matched therewith to form a complete message.

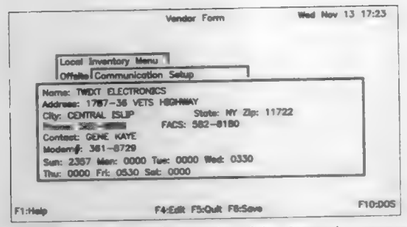
5,727,164

APPARATUS FOR AND METHOD OF MANAGING THE AVAILABILITY OF ITEMS

Eugene G. Kaye, St. James; Steve Song, East Setauket, and Joe Cabana, Centereach, all of N.Y., assignors to Max Software, Inc., Central Islip, N.Y.

Filed Dec. 13, 1991, Ser. No. 806,637
Int. Cl.[6] G06F *15/00*
U.S. Cl. 395—228 **18 Claims**

1. A method of exchanging information of electronic components among different vendors each having a vendor controlled data base through a communication network, said method comprising the steps of:



storing a universal set of categories of the electronic components at each of a plurality of vendor sites;

storing at each vendor site a local inventory of electronic components of at least one category of the universal set of categories in the vendor controlled data base and data identifying other vendor sites permitted to access the vendor controlled data base of the vendor site;

selecting, at each vendor site, at least one category of the inventory of electronic components independently controlled data base of other of the selected from the universal set of categories as available to other vendors

automatically interconnecting vendor site data bases identified as permitted to access each other's vendor controlled data base at scheduled times to exchange information on electronic components of the at least one selected category available to other vendors through the communication network;

transmitting information regarding the electronic components of the selected at least one category available to other vendors directly from the vendor controlled data base of each automatically interconnected vendor site to each other automatically interconnected vendor site through the communication network;

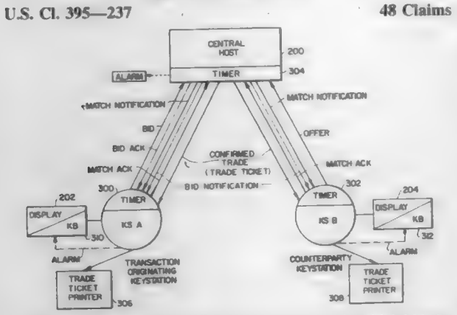
receiving information regarding electronic components of the selected at least one category available to other vendors at each automatically interconnected vendor site directly from each of the other automatically interconnected vendor controlled data bases in searchable offsite data bases assigned to the other automatically interconnected vendor sites through the communication network.

5,727,165

OFFER MATCHING SYSTEM HAVING TIMED MATCH ACKNOWLEDGMENT

Christopher J. Ordish, Virginia Water; John M. Richards, Didcot, both of England, and Clifford A. Mackenzie, Dix Hills, N.Y., assignors to Reuters Limited, England

Continuation of Ser. No. 788,575, Nov. 6, 1991, abandoned.
This application Dec. 27, 1994, Ser. No. 364,009
Claims priority, application United Kingdom, Dec. 17, 1990, 9027249; Feb. 27, 1991, 9104121; Jul. 5, 1991, 91306146
Int. Cl.[6] G06F *17/60*
U.S. Cl. 395—237 **48 Claims**



1. In a matching system for trading instruments in which bids for said trading instruments are automatically matched against offers for given trading instruments for automatically providing matching transactions in order to provide confirmed trades for said given trading instruments, said system comprising a host computer means for matching like bids and offers provided thereto in accordance with a predetermined matching criteria, a transaction originating keystation means for providing a bid on a given trading instrument to said system for providing a potential matching transaction, a counterparty keystation means for providing an offer on said given trading instrument involved in said potential matching transaction, and network means for interconnecting said host computer means, said transaction originating keystation means, and said counterparty keystation means in said system for enabling data communications therebetween;

said host computer means comprising match notification data message generation means for providing a match notification data message to said transaction originating keystation means and said counterparty keystation means via said network means in response to the occurrence of a matching transaction at said host computer means, said match notification data message comprising an unconfirmed matching transaction for said given trading instrument;

and match acknowledgement data message generation means disposed at each of said keystation means for respectively providing a match acknowledgement data message to said host computer means via said network means in response to receipt of said match notification data message by said transaction originating keystation means and said counterparty keystation means, respectively;

said host computer means further comprising confirmed trade data message generation means for providing a confirmed trade data message to said transaction originating keystation means and said counterparty keystation means via said network means in response to receipt of said match acknowledgement data messages from both said transaction originating keystation means and said counterparty keystation means;

said transaction originating keystation means and said counterparty keystation means each further comprising trade status timing means for timing a duration between transmission of said match acknowledgment data message and an expected receipt of said confirmed trade data message by said respective keystation means for providing a trade status display at said respective keystation means based on said timed receipt of said confirmed trade data message;

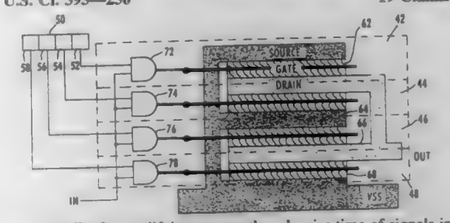
whereby the occurrence of automatically confirmed trades is dependent on match acknowledgement from all counterparties to the matching trade.

5,727,166

BUFFER WITH DRIVE CHARACTERISTICS CONTROLLABLE BY SOFTWARE

Jay Klinck, Durham, N.C., assignor to Mitsubishi Semiconductor America, Inc., Durham, N.C.

Continuation of Ser. No. 102,328, Aug. 5, 1993, abandoned.
This application Jun. 6, 1996, Ser. No. 659,599
Int. Cl.[6] G06F *13/10*
U.S. Cl. 395—250 **19 Claims**



1. A buffer for modifying a strength and a rise time of signals in integrated circuit devices comprising:

an input terminal for receiving an input signal,

an output terminal for producing an output signal,

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a plurality of transistor elements forming a parallel circuit between said input and output terminals, each of said transistor elements having a control terminal not connected with control terminals of other transistor elements in said plurality of transistor elements, and

programmable control means coupled to said transistor elements for supplying control signals to said control terminals to independently control said transistor elements so as to add or delete at least one of said transistor elements to or from said parallel circuit in accordance with a preset program to modify strength of said output signal with respect to strength of said input signal.

5,727,167

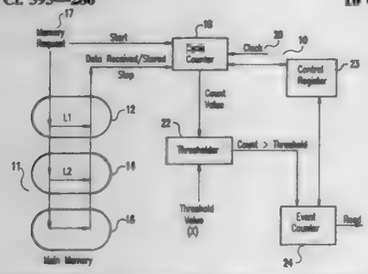
THRESHOLDING SUPPORT IN PERFORMANCE MONITORING

Harry Dwyer, III, Annandale, N.J.; Frank Eliot Levine; Edward Hugh Welbon, both of Austin, Tex., and Charles Gordon Wright, Round Rock, Tex., assignors to International Business Machines Corporation, Armonk, N.Y.

Continuation of Ser. No. 422,363, Apr. 14, 1995, abandoned. This application Jun. 11, 1996, Ser. No. 654,068

Int. Cl.[6] G06F *13/00*

U.S. Cl. 395—250 **10 Claims**



1. A thresholding mechanism for a performance monitor system in a data processing system comprising:

a memory hierarchy including at least one level of cache memory and a main memory for processing a memory request signal and outputting a data completion signal when a memory request signal has been processed;

a cycle counter activated by the memory request signal to said memory hierarchy and deactivated by the data completion signal from said memory hierarchy;

a clock coupled to the cycle counter, said clock incrementing the cycle counter with each clock cycle after the cycle counter is activated;

a monitor mode control register storing a threshold value, the threshold value being variable and software settable;

a thresholder connected to said cycle counter to receive an output count value when the cycle counter is deactivated by a data completion signal, said thresholder comparing the threshold value stored in said monitor mode control register with the output count value from the cycle counter, said thresholder generating an output when the count value exceeds the threshold value;

an event counter incremented by the output from said thresholder; and

output means connected to said event counter for generating an output for performance analysis, said output means accumulating counts of memory accesses for said at least one level of cache and said main memory that exceed decreasing threshold values set in said monitor mode control register and generating a histogram of access time distributions of memory requests for each of said one level of cache and said main memory.

5,727,168

I/O CARD, CABLE CONNECTED TO THE I/O CARD, AND METHOD FOR SAVING POWER OF I/O CARD

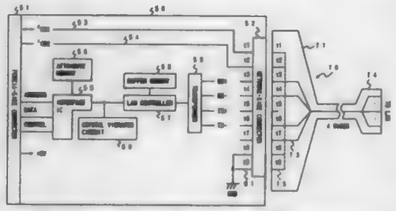
Akinobu Inoue; Atsuko Yamaguchi; Noriyuki Okajima, and Hiroshi Matsuda, all of Kawasaki, Japan, assignors to Fujitsu Limited, Kawasaki, Japan

Filed Jun. 6, 1995, Ser. No. 466,734

Claims priority, application Japan, Sep. 26, 1994, 6-229793

Int. Cl.[6] G06F *13/00;* **H05K** *7/10;* **H01R** *9/09*

U.S. Cl. 395—282 **8 Claims**



1. An I/O card insertable into an electronic device and supplied with electricity therefrom, said I/O card comprising:

a first connector for engaging a corresponding connector provided in the electronic device;

a second connector for engaging an external connector of an interconnection cable so as to connect the I/O card to an external device; and

a circuit which notifies the electronic device that the I/O card has been inserted therein when the external connector is connected to the second connector of the I/O card inserted into the electronic device,

the I/O card receiving a supply of electricity from the electronic device, said supply being started after the electronic device is notified by said circuit.

5,727,169

ELECTRONICALLY CONFIGURABLE CONNECTION DEVICE

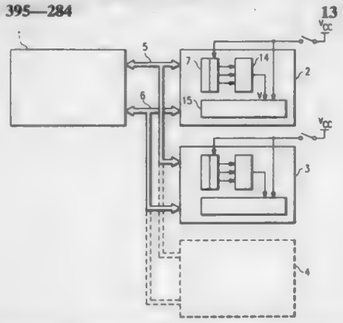
Philippe Calzi, Bouc Bel Air, France, assignor to SGS-Thomson Microelectronics, S.A., Gentilly Cedex, France

Continuation of Ser. No. 714,197, Jun. 12, 1991, Pat. No. 5,434,982. This application Dec. 27, 1993, Ser. No. 172,474

Claims priority, application France, Jun. 12, 1990, 90-07273

Int. Cl.[6] G06F *13/10*

U.S. Cl. 395—284 **13 Claims**



1. An electronic connection device to connect a peripheral unit, which includes a microprocessor, through a bus to a central processing unit, said device comprising

an EEPROM-type memory, incorporated in said peripheral unit, memorizing a logic state which defines an access address of said peripheral unit;

said EEPROM-type memory being connected to receive said logic state from the microprocessor of said peripheral unit,

wherein said EEPROM-type memory is connected to an automatic starting-up circuit which is configured to read the logic state of said EEPROM-type memory as soon as power is applied to said peripheral unit, and

wherein the device includes a writing selection circuit for the selection, in writing mode, of said EEPROM-type memory, said writing selection circuit being addressable by said central processing unit through said bus; said writing mode being controlled by said microprocessor of said peripheral unit.

5,727,170

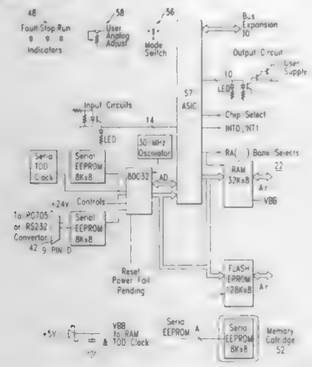
USER DEFINED PORT AND PROTOCOL SCHEME FOR A PROGRAMMABLE LOGIC CONTROLLER

Ronald Mitchell, Johnson City, and Temple L. Fulton, Elizabeth, both of Tenn., assignors to Siemens Energy & Automation, Inc., Alpharetta, Ga.

Filed Dec. 29, 1994, Ser. No. 365,646

Int. Cl.[6] H01J *13/00*

U.S. Cl. 395—285 **14 Claims**



8. A method for operating a communications port of a programmable logic controller utilizing a resident protocol for internal processing to communicate under one of a plurality of predefined communication protocols, different from the resident protocol, which predefined communications protocols are used by external hardware, said method comprising the steps of:

alerting said programmable logic controller to switch the communications port between a first mode of communications for communicating between the programmable logic controller and the external hardware using one of the plurality of predefined communications protocols and a second mode of communications for communicating between the programmable logic controller and a programming device using the resident communications protocol;

configuring an operating program stored in said programmable logic controller to use said one of a plurality of predefined communications protocols and the resident communications protocol;

uploading said operating program from said programmable logic controller to a removable memory cartridge in response to a first command from said programmable logic controller;

downloading said operating program from said removable memory cartridge to said programmable logic controller in response to a second command from said programmable logic controller; and,

executing communications by said operating program with said external hardware under said one of a plurality of predefined communications protocols while said programmable logic controller is still under the alert of said change in communications protocols.

5,727,171

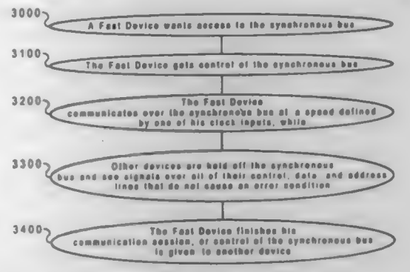
METHOD AND APPARATUS FOR ALLOWING MULTI-SPEED SYNCHRONOUS COMMUNICATIONS BETWEEN A PROCESSOR AND BOTH SLOW AND FAST COMPUTING DEVICES

Richard Nicholas Iachetta, Jr., Pflugerville, Tex., assignor to International Business Machines Corporation, Armonk, N.Y.

Filed Nov. 16, 1995, Ser. No. 558,511

Int. Cl.[6] G06F *13/00*

U.S. Cl. 395—287 **17 Claims**



1. An improved data processing system comprising:

a synchronous data bus for communicating data;

at least one central processing unit for executing program instructions, said at least one central processing unit being communicably connected to said synchronous data bus;

a memory means for storing at least one of programming instruction and digital data, said memory means being communicably connected to said at least one central processing unit;

at least two data processing devices being communicably connected to said synchronous data bus; said at least two data processing devices including:

a fast data processing device and slow data processing device, said fast data processing device being capable of synchronously communicating data at a faster rate than said slow data processing device;

said improved data processing system being operable in a plurality of modes of operation including a high-speed mode, wherein

said fast data processing device includes means for synchronously communicating data over said synchronous data bus at a relatively high rate of speed in said high speed mode; and

said slow data processing device includes means for preventing interference with said fast data processing device and for preventing said slow data processing device from transitioning into an incorrect logic state.

5,727,172

METHOD AND APPARATUS FOR PERFORMING ATOMIC ACCESSES IN A DATA PROCESSING SYSTEM

James B. Eifert, Austin, Tex.; Adi Sapir, Tel Aviv, Israel, and Wallace B. Harwood, III, Austin, Tex., assignors to Motorola, Inc., Schaumburg, Ill.

Filed May 1, 1995, Ser. No. 431,943

Int. Cl.[6] G06F *13/14*

U.S. Cl. 395—290 **31 Claims**

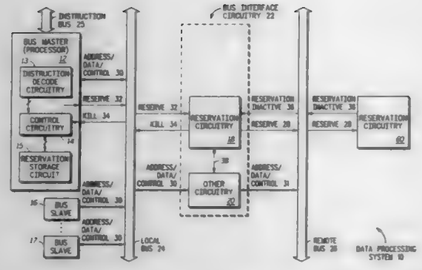
13. A data processor, comprising:

first bus;

a first bus master, coupled to said first bus, said first bus master providing a first reserve signal and a first address to said first bus when said first bus master executes a first instruction, said first bus master providing the first reserve signal and the first address to said first bus when said first bus master executes a second instruction;

a bus interface, coupled to said first bus, said bus interface driving a plurality of cycle type signals with a predetermined

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value during execution of the first and second instructions, said bus interface receiving a first cancel signal during execution of the second instruction if a reservation is not valid, in response to receiving the first cancel signal, said bus interface providing a kill reservation signal to said first bus master; and

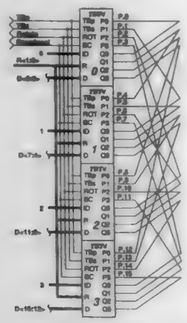
snoop circuitry, coupled to said first bus, said snoop circuitry storing the first address in response to receiving the first reserve signal from said first bus, said snoop circuitry providing a second cancel signal to said first bus master in response to receiving a second address from the first bus which matches the first address.

5,727,173

TOGGLE BUS CIRCUIT

Charlé R. Rupp, Bolton, Mass., assignor to National Semiconductor Corporation, Santa Clara, Calif.

Filed Dec. 5, 1995, Ser. No. 567,172
Int. Cl.° G06F *13/00*
U.S. Cl. 395—311 **12 Claims**



1. A bus transceiver system for transfer of data among a plurality (N) of system components (CC_i, for i=0 through N−1), each of said system components having a plurality (M) of bits ($S_{i,j}$, j=0 through M−1), said system comprising:

A) N toggle bus transceiver circuits (TBT_i, for i=0 through N−1), each of said N toggle bus transceiver circuits corresponding to a respective one of the system components and including

i) bi-directional driver circuitry having

a) M first terminals ($D_{i,j}$, for j=0 through M−1), each of said M first terminals coupled to a respective bit of the system component to which the toggle bus transceiver circuit corresponds;

b) M second terminals ($P_{i,j}$); and

c) driver switch circuitry that selectively connects each of said M first terminals to at least one of said M second terminals, wherein,

in a first mode and for each of said M first terminals, said bi-directional driver circuitry drives, to the at least one of said second terminals to which said first terminal is selected to be connected, a signal from the bit to which said first terminal is coupled, and

in a second mode and for each of said M first terminals, said bi-directional driver circuitry drives, from the at least one of said second terminals to which said first terminal is selected to be connected, a data signal provided at said at least one second terminal to the bit to which said first terminal is coupled, and

ii) repeater circuitry having

a) M third terminals ($Q_{i,j}$);

b) M latch circuits ($L_{i,j}$); and

c) repeater switch circuitry that selectively connects each of said M third terminals to at least one of said latch circuits, wherein said latch circuit is for

in the first mode, latching a data signal provided at said third terminal to which said latch circuit is connected, and

in the second mode, providing a data signal latched by said latch circuit to said third terminal to which said latch circuit is connected; and

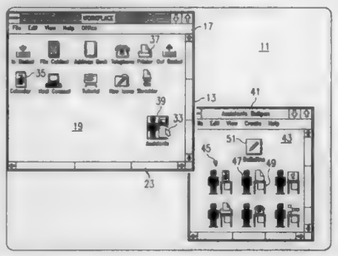
B) a permuted interconnect network that couples the second terminals of the toggle bus transceiver circuit bi-directional driver circuitry to the third terminals of the toggle bus transceiver circuit repeater circuitry for permuted signal transfer therebetween.

5,727,174

GRAPHICAL END-USER INTERFACE FOR INTELLIGENT ASSISTANTS

Manuel Aparicio, IV, Arlington, Tex., and Roger A. Chang, Irving, Tex., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Mar. 23, 1992, Ser. No. 855,817
Int. Cl.° G06F *3/100*
U.S. Cl. 395—348 **7 Claims**



1. A method for performing a selected action within a computer system having a display screen and a graphic pointing device wherein said computer system is capable of performing a plurality of diverse actions, said method comprising the computer implemented steps of:

associating an intelligent assistant with at least one object within said computer system, said intelligent assistant including a neural representation of learned experience with respect to actions within said computer system relating to said at least one object;

displaying an object window within said display screen of said computer system in response to selection of said at least one object by a user utilizing said graphic pointing device, said object window including an action bar;

displaying an assistant item within said action bar within said object window in response to said association of said intelligent assistant with said at least one object; and

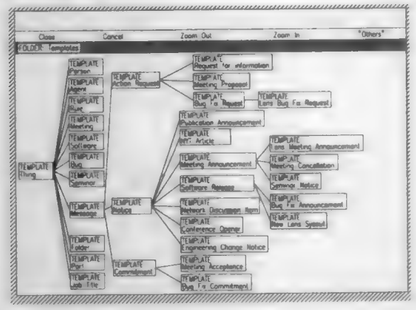
selectively displaying a pull-down menu containing a suggested action among said plurality of diverse actions in association with said assistant item, said suggested action determined utilizing said neural representation of learned experience with respect to actions within said computer system related to said at least one object.

5,727,175

OBJECT-ORIENTED COMPUTER USER INTERFACE

Thomas W. Malone, Cambridge, Mass.; Kum-Yew Lai, Bukit Merah View, Singapore; Keh-Chiang Yu, Boston, and Richard W. Berenson, Newton, both of Mass., assignors to Massachusetts Institute of Technology, Cambridge, Mass.

Division of Ser. No. 336,712, Nov. 9, 1994, which is a continuation of Ser. No. 888,249, May 22, 1992, abandoned, which is a continuation of Ser. No. 375,416, Jun. 30, 1989, abandoned. This application Jun. 7, 1995, Ser. No. 479,784
Int. Cl.° G06F *15/00*
U.S. Cl. 395—356 **16 Claims**



1. A computer user interface comprising:

means for graphically representing a set of objects as instances of types of semi-structured objects, wherein each object type has a set of actions that can be performed upon instances of such object type and wherein an object has a set of fields and one of the fields may contain information of any type, and wherein a first object may contain, as part of the value of one of the fields of the first object, a link to a second object, and wherein a graphical representation of the first object includes a display of an indication the link;

means for arranging the objects in a hierarchy of increasingly specialized types of a generic object type, and for causing each object type to inherit fields and actions from any parent thereof; and

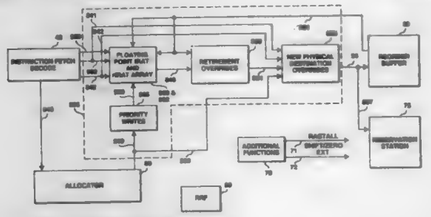
means for defining each type of object by means of a template.

5,727,176

DATA PROCESSOR WITH CIRCUITRY FOR HANDLING POINTERS ASSOCIATED WITH A REGISTER EXCHANGE OPERATION

David W. Clift, Hillsboro, Oreg.; James M. Arnold, Aloha, Oreg.; Robert P. Colwell, Portland, Oreg., and Andrew F. Glew, Hillsboro, Oreg., assignors to Intel Corporation, Santa Clara, Calif.

Continuation of Ser. No. 129,687, Sep. 30, 1993, Pat. No. 5,499,352. This application Mar. 6, 1996, Ser. No. 611,950
Int. Cl.° G06F *12/02*
U.S. Cl. 395—393 **8 Claims**



1. A data processor comprising:

a plurality of physical registers;

a decoder that decodes a stream of instructions into micro-operations (uops) which include speculative operations specifying associated logical registers;

at least one execution unit that executes the uops;

a register-alias table (RAT) having a plurality of addressable entries corresponding to the logical registers, each entry containing a register pointer to a corresponding physical register, the RAT being updated by circuitry included within the RAT that responds to a register exchange operation by swapping register pointers associated with first and second addressable entries of the plurality of addressable entries;

a retirement register file (RRF) that maintains register values of non-speculative operations;

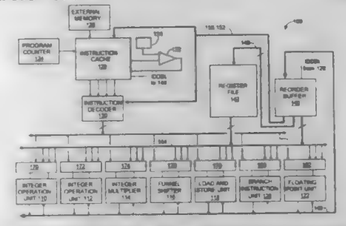
a retirement array that maintains a retirement ordering for the RRF, the retirement array including a plurality of entries that contain pointers to registers of the RRF, the retirement array being updated based on non-speculative retiring operations by circuitry included within the retirement array that swaps register pointers associated with first and second entries of the retirement array that are associated with logical registers specified by the register exchange operation upon retirement of the register exchange operation.

5,727,177

REORDER BUFFER CIRCUIT ACCOMMODATING SPECIAL INSTRUCTIONS OPERATING ON ODD-WIDTH RESULTS

Brian D. McMinn, Buda, and Robert D. Gowin, Jr., Austin, both of Tex., assignors to Advanced Micro Devices, Inc., Sunnyvale, Calif.

Filed Mar. 29, 1996, Ser. No. 623,756
Int. Cl.° G06F *9/30*
U.S. Cl. 395—394 **22 Claims**



1. A processor for executing instructions from an instruction set including a plurality of first instruction type instructions that generate a result having a standard bit-width size and a second instruction type instruction that generates a result having a large bit-width size, the large bit-width size being larger than the standard bit-width size, the processor comprising:

an instruction supply for supplying instructions of the first type and instructions of the second type;

a plurality of execution units coupled to the instruction supply for receiving the supplied instructions, executing the received instructions, and generating results of the executed instructions, the results being results of the standard bit-width size and results of the large bit-width size; and

a reorder buffer coupled to the instruction supply for allocating storage for the supplied instructions and coupled to the execution units to receive and store the results of the executed instructions, the reorder buffer including:

a plurality of storage elements in a FIFO reorder buffer queue for storing results of the standard bit-width size and for storing a subset of bits of the result of the large bit-width size; and

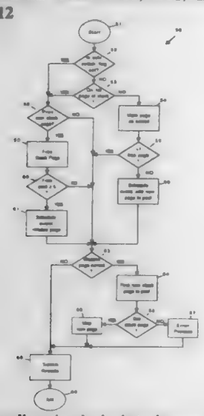
an extended buffer for storing a subset of bits of the result of the large bit-width size in excess of the standard bit-width size.

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SYSTEM AND METHOD FOR REDUCING STACK PHYSICAL MEMORY REQUIREMENTS IN A MULTITASKING OPERATING SYSTEM

Richard Allen Pletcher, Redmond, Wash., and Ralph Allen Lipe, Woodinville, Wash., assignors to Microsoft Corporation, Redmond, Wash.

Continuation of Ser. No. 518,426, Aug. 23, 1995, abandoned. This application Dec. 5, 1996, Ser. No. 759,450
Int. Cl.[6] G06F *12/00;12/02;12/14*
U.S. Cl. 395—412 **23 Claims**



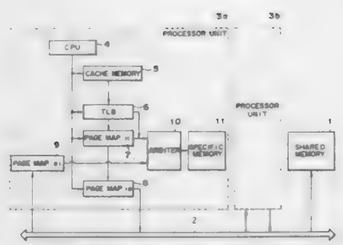
8. A method for allocating locked stack pages among a plurality of threads running in an operating system, comprising the steps of:
creating a first thread;
mapping a first permanent stack page to the first thread;
creating a second thread;
mapping a second permanent stack page to the second thread;
creating a plurality of assignable stack pages, including a first assignable stack page and a second assignable stack page;
mapping the first assignable stack page to the first and second threads;
executing the first thread;
receiving an indication to switch from the first thread to the second thread;
determining, in response to the indication, whether the first thread is using the first assignable stack page;
if the first thread is using the first assignable stack page, indicating that the first assignable stack page is owned by the first thread;
determining whether the first assignable stack page is available to the second thread;
if the first assignable stack page is not available to the second thread, mapping the second assignable stack page to the second thread; and
switching to the second thread.

5,727,179
MEMORY ACCESS METHOD USING INTERMEDIATE ADDRESSES

Katsuhito Dei, Yokohama, Japan, assignor to Canon Kabushiki Kaisha, Tokyo, Japan

Continuation of Ser. No. 799,164, Nov. 27, 1991, abandoned. This application Jun. 6, 1995, Ser. No. 466,760
Claims priority, application Japan, Nov. 30, 1993, 2-330893
Int. Cl.[6] G06F *13/18;12/10*
U.S. Cl. 395—416 **11 Claims**

1. A memory access method in a multi-processor system, comprising the steps of:
checking if an entry corresponding to a virtual address generated by a processor of a first processor unit is present in an internal memory of the first processor unit;



translating the virtual address into an intermediate address which is a unique address in an address space of the multi-processor system and outputting the intermediate address, said checking and translating steps being performed simultaneously;
stopping said translating step, translating the virtual address into an internal address and accessing the internal memory of the first processor unit by the internal address when it is determined that the entry corresponding to the virtual address is present in the internal memory of the first processor unit;
completing said translating step and outputting the intermediate address onto a system bus when it is determined that the entry corresponding to the virtual address is not present in the internal memory of the first processor unit;
fetching the output intermediate address in a second processor unit if the second processor unit has an entry corresponding to the intermediate address in an internal memory of the second processor unit;
translating the fetched intermediate address into a real address in the second processor unit; and
accessing the memory in the second processor unit by the translated real address.

5,727,180
MEMORY INCLUDING MASTER AND LOCAL WORD LINES COUPLED TO MEMORY CELLS STORING ACCESS INFORMATION

Andrew Davis, Essex Junction, and David Wills Milton, Underhill, both of Vt., assignors to International Business Machines Corporation, Armonk, N.Y.

Division of Ser. No. 60,776, May 11, 1993, abandoned. This application Jun. 7, 1995, Ser. No. 473,159
Int. Cl.[6] G06F *12/00;13/00;* **G11C** *7/00;8/00*
U.S. Cl. 395—427 **7 Claims**

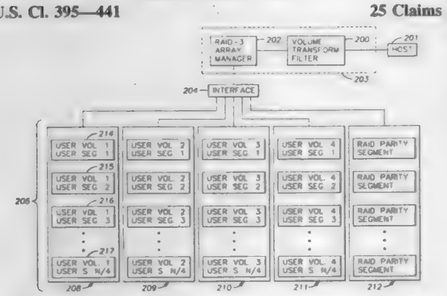


6. A cache formed on an integrated circuit chip for storing data fetched from a main storage means, the cache comprising:
a plurality of index lines, each of said index lines having a first plurality of memory cells in a first storage area for storing main memory data and a second plurality of memory cells in a second storage for storing access information corresponding to said main memory data, said first and second storage areas having approximately a same cycle time and said second storage area being accessed before said first storage area;
decoding means for electrically activating at least a subset of said first storage area for enabling access thereto in response to receiving access information sent to the cache;
a first controller receiving said access information corresponding to said main memory data for a selected one of said plurality of index lines for detecting whether any of said main memory data stored in said first storage area is to be accessed; and
an array controller for selectively deactivating, in response to said access information, at least a portion of said first storage area of said selected one of said plurality of index lines that were previously electrically activated for enabling access thereto before and access cycle thereto has been completed;
wherein said first and second plurality of memory cells for storing both data and access information for the data are coupled to the same index line.

5,727,181
ARRAY MANAGEMENT SYSTEM WITH VOLUME TRANSFORM FILTER

Thomas William Beglin; Kenneth Fairclough Day, III, and Douglas William Dewey, all of Tucson, Ariz., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Feb. 14, 1996, Ser. No. 602,566
Int. Cl.[6] G06F *12/02*
U.S. Cl. 395—441 **25 Claims**

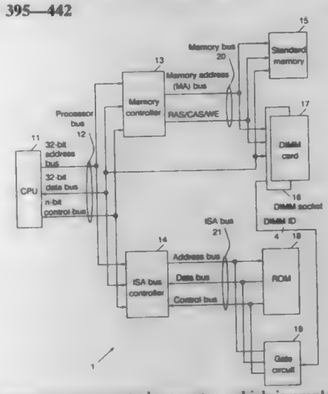


1. A data access method for use in a storage system that includes a controller coupled to multiple physical storage volumes each physical storage volume including multiple storage locations, said controller including a RAID array manager that accesses data stored by the physical storage volumes in response to data access commands received by the RAID array manager, each said data access command associating a data block with a physical storage volume and one or more storage locations therein, said RAID array manager storing each data block by striping each data block associated with a physical storage volume across multiple physical storage volumes irrespective of association of the data block with a particular physical storage volume pursuant to a data access command, said method comprising the steps of:
receiving an original data access command associating a data block with a physical storage volume specified by the original data access command;
modifying the original data access command to create a modified data access command that, when provided to the RAID array manager, causes the RAID array manager to perform the requested data access in the specified physical storage volume without striping the data block onto any other physical storage volumes;
providing the modified data access command to the RAID array manager; and
operating the RAID array manager to access the specified physical storage volume in accordance with the modified data access command.

5,727,182
METHOD AND APPARATUS FOR ADJUSTING OUTPUT CURRENT VALUES FOR EXPANSION MEMORIES

Toshiaki Fukushima; Shinji Ohishi, both of Yamato, and Masahiko Nomura, Sagamihara, all of Japan, assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Apr. 25, 1996, Ser. No. 637,996
Claims priority, application Japan, Apr. 25, 1995, 7-101059
Int. Cl.[6] G06F *12/00*
U.S. Cl. 395—442 **7 Claims**



1. A memory access control apparatus, which is employed for a computer system in which an expansion memory in addition to a standard memory can be installed and which uses one or more signal lines to control access to said memory, comprising:
identification means for reading identification data for said expansion memory that is installed;
determination means for employing said identification data to determine optimal output current values for said signal lines; and
means for employing results that are obtained with said determination means to adjust output current values of said signal lines.

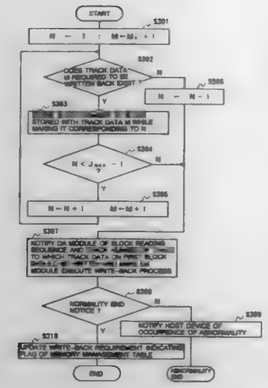
5,727,183
DATA TRANSFER BETWEEN DISK STORAGE AND HOST DEVICE UNDER THE CONTROL OF FILE CONTROL DEVICE EMPLOYING CACHE AND ASSOCIATED BATCH WRITE-BACK OPERATION

Naoko Takahashi, Kanagawa, Japan, assignor to Fujitsu Limited, Kawasaki, Japan

Filed Mar. 14, 1996, Ser. No. 615,434
Claims priority, application Japan, Mar. 15, 1995, 7-056241
Int. Cl.[6] G06F *12/08*
U.S. Cl. 395—470 **11 Claims**

1. A file control apparatus provided between a disk storage device and a host device for accessing data in said disk storage device, said apparatus comprising:
storing means having a predetermined number of blocks for storing track data consisting of plural pieces of sector data;
first read request responding means for supplying, when receiving a read request from said host device, and if said storing means is stored with the sector data about a read requested sector requested of reading with respect to the read request therefrom, said host device with the sector data within said storing means;
second read request responding means for, when receiving the read request from said host device, and if said storing means is not stored with the sector data about the read requested sector requested of reading with respect to the read request therefrom, reading the track data containing the sector data about the read requested sector from said disk device, storing an empty block within said storing means with the read track

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data and supplying said host device with the sector data about the read requested sector that is contained in the track data;

write-back request responding means for, when receiving a write request from said host device, and if said storing means is stored with the sector data about a write requested sector requested of writing with respect to the write request therefrom, rewriting the sector data with data requested of writing and storing the effect that the track data containing the sector data are the track data required to be written back; and

batch write-back means for, when making a response to the read request given by said second read request responding means in a state where said storing means has no empty block, selecting one block that is to be an empty block in accordance with a predetermined rule, writing, if the selected block is stored with the track data required to be written, a series of track data containing the above track data and to be written back to the consecutive tracks within said storing means back to said disk storage device and storing the effect that each piece of track data which has been written back is data requiring no write-back process.

5,727,184

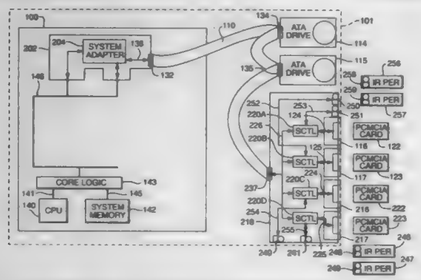
METHOD AND APPARATUS FOR INTERFACING BETWEEN PERIPHERALS OF MULTIPLE FORMATS AND A SINGLE SYSTEM BUS

Bryan M. Richter, Fremont, Calif.; Stephen A. Smith, Palo Alto, Calif.; Daniel G. Bezzant, Pleasanton, Calif.; Kasturiraman Gopalaswamy, Santa Clara, Calif.; Suhas Anand Shetty, Sunnyvale, Calif., and Arunachalam Vaidyanathan, Fremont, Calif., assignors to Cirrus Logic, Inc., Fremont, Calif.

Filed Jun. 27, 1994, Ser. No. 266,975

Int. Cl.[6] G06F *13/10;5/01*

U.S. Cl. 395—500 **26 Claims**



1. A multiple format interface apparatus coupled to a system bus for interfacing the system bus to a plurality of controllers, the interface apparatus comprising:

a. a plurality of controllers coupled in parallel for controlling a plurality of peripherals at least two of which use incompatible interface protocols;

b. a circuit coupled between the system bus and the plurality of controllers for selectively configuring the interface apparatus to communicate using a selected one of the incompatible interface protocols used by the at least two of the plurality of peripherals; and

c. a plurality of detection circuits, one coupled to each of the plurality of controllers for selectively allowing communication between the each of the plurality of controllers coupled thereto and the system bus through the interface apparatus, wherein each of the plurality of detection circuits monitor chip select signal line and data signal lines to determine when a specific one of the plurality of controllers is being accessed by the system bus.

5,727,185

MEMORY ALLOCATION METHOD FOR ALLOCATING TWO LOGICAL STORE AREAS TO A FREE STORE, THAT IS ONE COMMON PHYSICAL STORE AREA OF A COMPUTER

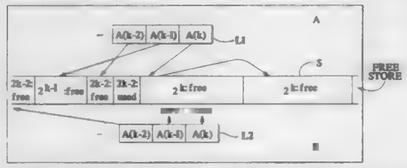
Thomas Mehner, Markt Schwaben, Germany, assignor to Siemens Aktiengesellschaft, Munich, Germany

Continuation of Ser. No. 374,665, Jan. 19, 1995, abandoned. This application Feb. 6, 1997, Ser. No. 795,963

Claims priority, application Germany, Jul. 21, 1992, 42 24 080.8

Int. Cl.[6] G06F *12/00;13/00*

U.S. Cl. 395—497.01 **7 Claims**



1. A method for dynamic management of a free store of a computer system, the free store being subdivided into at least two logical store areas with different access characteristics, comprising the steps of:

a) subdividing the free store into segments on the basis of a buddy algorithm;

b) separately managing each logical store area of the at least two logical stores;

c) assigning a segment size to a logical store area of the free store, said segment size corresponding to a maximum size described as a maximum in a buddy algorithm;

d) in the event of a store request regarding a first logical store area of the at least two logical store areas, assigning to the first logical store area a segment from the free store if there is no store segment of sufficient size available;

e) in the event of a store request regarding a second logical store area of the at least two logical store areas, assigning to the second logical store area a segment from the free store which has not been assigned to any other logical store area and which is adjacent to already assigned segments if no store segment of sufficient size is available;

f) if it is no longer possible to satisfy a store request from a logical store area of the at least two logical store areas, which requires an assignment from the free store, since the free store has already been completely assigned, evaluating, via a store management of this store area, store managements of the other store areas to ascertain whether there are other segments in the other store areas with maximum size and, if this condition is met, takes over such other segment from a respective other store area and assigning said other segment to this store area; wherein an admissible segment size in the buddy algorithm is 2^k with the following condition for $k: 5 \leqq k \leqq 16$.

5,727,186

SIMULATION APPARATUS AND GAS DISPENSING DEVICE USED IN CONJUNCTION THEREWITH

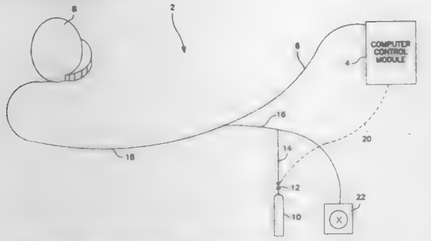
Evelyn Arthur Shervington, Nr Petersfield, England, and Raymond Cyril Burningham, Morden, England, assignors to The BOC Group plc, Surrey, England

Filed Jan. 27, 1995, Ser. No. 379,131

Claims priority, application United Kingdom, Feb. 1, 1994, 9401899; Sep. 17, 1994, 9418797

Int. Cl.[6] G06F *9/455;17/00*

U.S. Cl. 395—500 **7 Claims**



1. A simulation apparatus comprising:

(a) computer graphics signal receiving means for receiving a signal for displaying three-dimensional computer-generated graphics corresponding to said signal;

(b) a computer control module for generating said signal and for transmitting said signal to the receiving means;

(c) aroma generating means for providing an aroma generating material in the form of a gas at the receiving means, said aroma generating means comprising at least one source of compressed aroma generating material in the form of a liquid, valve means for releasing the aroma generating material under reduced pressure to form said gas and a conduit for transporting said gas to the computer graphics signal receiving means, said valve means being operable at varying intervals and durations in response to signals from the computer control module, and

(d) automatic control means operatively connected to said computer control module for automatically controlling said valve means.

5,727,187

METHOD OF USING LOGICAL NAMES IN POST-SYNTHESIS ELECTRONIC DESIGN AUTOMATION SYSTEMS

Carol L. Lemche, East Bethel, Minn., and Harold E. Reindel, Essex Junction, Vt., assignors to Unisys Corporation, Blue Bell, Pa.

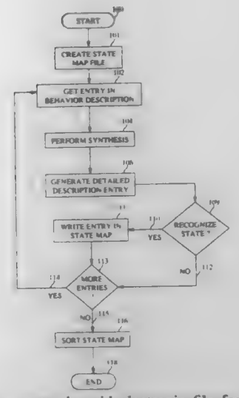
Filed Aug. 31, 1995, Ser. No. 521,697

Int. Cl.[6] G06F *17/16*

U.S. Cl. 395—500 **13 Claims**

1. In a system for designing a circuit, the system including a first level description of the circuit design, the first level description referencing logical state names for the circuit's components and nets, a synthesis program taking as input the first level description and generating a second level description of the circuit design, the second level description referencing gate level state names for the circuit's components and nets, and a post-synthesis program for analyzing the design of the circuit, the post-synthesis program for processing a control file which references logical state names and for further processing the second level description, a computer-implemented method of using logical state names in a post-synthesis program comprising the steps of:

(a) creating an electronic file for storing relationships between the logical state names specified in the first level description of the circuit design and the gate level state names specified in the second level description of the circuit design;



(b) creating an entry in said electronic file for a logical state name specified in the first level description of the circuit design;

(c) storing in said entry a gate level state name corresponding to said logical state name specified in the first level description;

(d) repeating steps (b) and (c) for all logical state names in the first level description;

(e) providing said electronic file to the post-synthesis program; and

(f) automatically translating the references to logical state names in the control file into corresponding gate level state names by searching said electronic file for each of said logical state names in the control file and returning a corresponding gate level state name to the post-synthesis program.

5,727,188

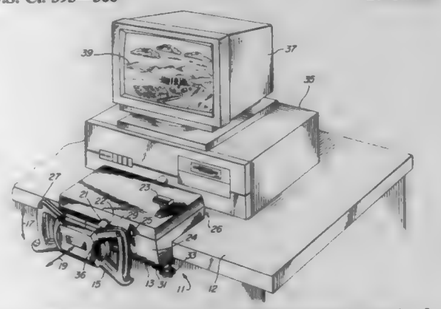
FLIGHT-CONTROL SIMULATOR FOR COMPUTER GAMES

Charles L. Hayes, 4421 Highland Ave., Carlsbad, Calif. 92008

Continuation of Ser. No. 59,893, May 10, 1993, abandoned. This application Jan. 19, 1996, Ser. No. 589,020

Int. Cl.[6] G09B *9/08*

U.S. Cl. 395—500 **20 Claims**



1. A computer input device for simulating manual controls of a vehicle, the device comprising:

(a) a housing;

(b) a control wheel column slidably mounted in the housing, the column being reciprocally slidable along its length within a range of movement;

(c) means for generating a first signal corresponding to the column's position within its range of movement;

(d) a control wheel rotatably mounted on an end of the control wheel column external to the housing; the wheel being reciprocally rotatable about the column within a range of movement;

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(e) means for generating a second signal corresponding to the wheel's position within its range of movement; and
(f) means for communicating the first and second signals to the computer.

5,727,189

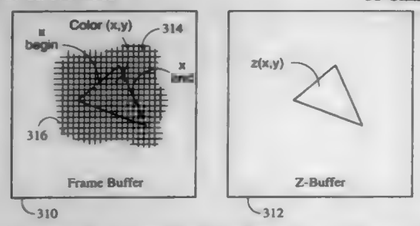
Patent Not Issued For This Number

5,727,190

METHOD AND SYSTEM FOR THE ACCELERATION OF GRAPHICS IMAGES IN A MULTIPROCESSOR OR PREEMPTIVE PROCESSING COMPUTER SYSTEM

Herbert G. Derby, Pittsburgh, Pa., and Thomas E. Dowdy, Sunnyvale, Calif., assignors to Apple Computer, Inc., Cupertino, Calif.

Filed Oct. 2, 1995, Ser. No. 537,386
Int. Cl.[6] G06F *15/16*
U.S. Cl. 395—503 **38 Claims**



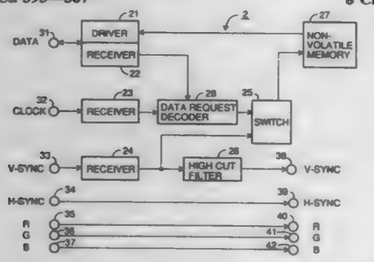
1. A method for accelerating graphics images, the graphics images including a plurality of scan lines in a computer system, the computer including a central processing unit (CPU) and a memory, the method comprising the steps of:
a) encoding a first value information of a scan line into an address signal from the CPU; and
b) encoding a second value information of the scan line into the data signal from the CPU.

5,727,191

MONITOR ADAPTER

Kazuhiro Konishi, Matto, Japan, and Masaki Ono, Matto, Japan, assignors to Nanao Corporation, Ishikawa, Japan

PCT No. PCT/JP94/00754, § 371 Date May 29, 1996, § 102(e) Date May 29, 1996, PCT Pub. No. WO95/30634, PCT Pub. Date Nov. 16, 1995
PCT Filed May 9, 1994, Ser. No. 649,664
Int. Cl.[6] G06T *1/60*
U.S. Cl. 395—507 **8 Claims**



1. A monitor adapter connected between a computer and a video monitor for causing an optimal video signal to be output from said computer according to a condition of said video monitor, comprising:
a data terminal for transmitting and receiving data to and from said computer bidirectionally;
a first terminal for receiving a data request signal sent so as to overlap a synchronization signal from said computer in a first mode;
a second terminal receiving, together with said data terminal, a data request signal sent from said computer in a second mode;
storage means for prescribing information on said video monitor; and
switching control means responsive to the data request signal sent to said first terminal for reading information from said storage means and outputting the read information to said data terminal in said first mode, and responsive to the data request signal sent to said data terminal and said second terminal for reading information from said storage means and outputting the read information to said data terminal in said second mode.

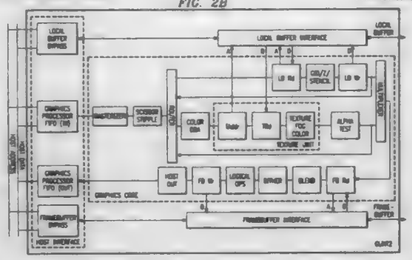
5,727,192

SERIAL RENDERING SYSTEM WITH AUTO-SYNCHRONIZATION ON FRAME BLANKING

David Robert Baldwin, Surrey, United Kingdom, assignor to 3DLabs Inc. Ltd., Reid Hall, Bermuda

Continuation-in-part of Ser. No. 410,345, Mar. 24, 1995. This application May 1, 1996, Ser. No. 641,472
Int. Cl.[6] G06T *1/00*
U.S. Cl. 395—522 **30 Claims**

FIG. 2B



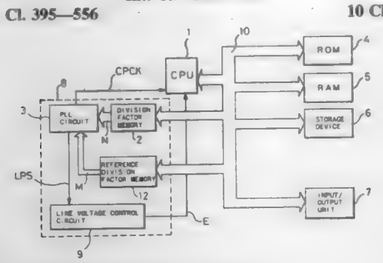
1. A method for controlling a framebuffer memory having a first buffer portion and a second buffer portion comprising the steps of:
receiving data into a framebuffer unit from a data bus, said data comprising instruction bits and data bits;
if the instruction bits correspond to a read command then reading from a location in said first buffer portion indicated by said data bits and placing the contents of said location on said data bus;
if the instruction bits correspond to a write command then writing a portion of said data bits to a location in said first buffer portion indicted by said data bits;
if the instruction bits correspond to a suspend-until-frame-blank command, then suspending all write operations on said first buffer portion until a frame-blank command is received;
when a frame-blank command is received, then displaying data from said first buffer portion and re-enabling all write operations on said first buffer portion.

5,727,193

CLOCK SIGNAL AND LINE VOLTAGE CONTROL FOR EFFICIENT POWER CONSUMPTION

Kesatoshi Takeuchi, Suwa, Japan, assignor to Seiko Epson Corporation, Tokyo, Japan

Filed May 18, 1995, Ser. No. 444,268
Claims priority, application Japan, May 26, 1994, 6-113040; Mar. 17, 1995, 7-086508
Int. Cl.[6] G06F *1/08*
U.S. Cl. 395—556 **10 Claims**



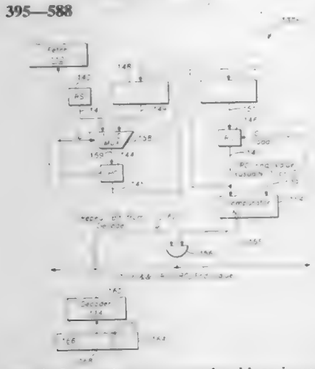
1. A data processing system comprising:
a microprocessor;
clock signal generating means for generating an operation clock signal of a variable frequency, and supplying said operation clock signal to said microprocessor; and
line voltage control means for controlling a variable line voltage as a function of the variable frequency of said operation clock signal irrespective of a temperature of said microprocessor, and supplying said variable line voltage to said microprocessor.

5,727,194

REPEAT-BIT BASED, COMPACT SYSTEM AND METHOD FOR IMPLEMENTING ZERO-OVERHEAD LOOPS

Avadhani Shridhar, Sunnyvale, Calif., and Kenichi Nitta, Kodaira, Japan, assignors to Hitachi America, Ltd., Tarrytown, N.Y.

Filed Jun. 7, 1995, Ser. No. 478,438
Int. Cl.[6] G06F *9/30*
U.S. Cl. 395—588 **16 Claims**



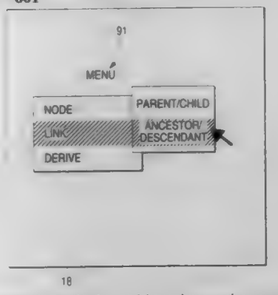
1. A method of executing a zero overhead loop in an information processing chip having a pipelined architecture and an instruction set with a plurality of instructions that are modifiable to indicate that said instructions are repeat end instructions, wherein said loop involves iterating N times one or more loop instructions from a code fragment, said method comprising:
when said code fragment includes only a single loop instruction followed by a NOP instruction, modifying said single loop instruction and said NOP instruction to indicate that said instructions are said repeat end instructions;
when said code fragment includes only a plurality of loop instructions, modifying only a predetermined loop instruction in said code fragment to indicate that said predetermined loop instruction is said repeat end instruction;
fetching, decoding and executing each of said loop instructions in a predetermined order;
detecting whether said loop instruction being decoded is said repeat end instruction;
determining whether said loop has been iterated N−1 times;
as long as said loop has not been iterated N−1 times, upon detecting that said decoded loop instruction is said repeat end instruction, fetching a first loop instruction so that said first loop instruction is executed after a last of said loop instructions is executed but not later than any other of said loop instructions is executed, such that:
when said code fragment includes only said plurality of loop instructions, said last loop instruction occurs later in said code fragment than said predetermined instruction; and
when said code fragment includes only said single loop and NOP instructions, for every loop iteration following a first iteration said first loop and last loop instructions are identical to said single loop instruction, said NOP instruction only being executed during said first iteration; and
terminating said loop when said code fragment has been iterated N times.

5,727,195

DOCUMENT RETRIEVING OBJECT INSTRUCTING APPARATUS

Hisashi Nakatsuyama, Kanagawa, Japan, assignor to Fuji Xerox Co., Ltd., Tokyo, Japan

Filed Apr. 14, 1995, Ser. No. 422,586
Claims priority, application Japan, May 24, 1994, 6-132505
Int. Cl.[6] G06F *15/40*
U.S. Cl. 395—601 **2 Claims**



1. A document retrieving object instructing apparatus that enables users to instruct a retrieval condition or conditions regarding an object to be retrieved, used in a document database managing system for managing a database of structured documents each constructed of document constructive elements, comprising:
instructing means for instructing a search condition using the document constructive elements in searching said structured documents;
connection condition instructing means for instructing a search condition using one of a parent-child relationship and an ancestor-descendant relationship that is not a parent-child relationship between said document constructive elements in searching said structured documents; and
retrieving means for producing said retrieval condition based upon the instructed search conditions issued from said instructing means and said connection condition instructing means and for retrieving document data stored in the database in accordance with said retrieval condition.

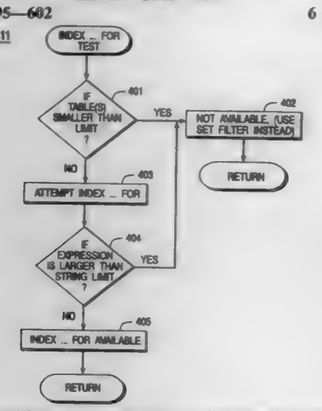
VOL 1208 ISS 2 MR 10 1998 UMI

5,727,196

OPTIMIZED QUERY INTERFACE FOR DATABASE MANAGEMENT SYSTEMS

Irvin Richard Strauss, Jr., La Honda, Calif., and Lam H. Thai, La Verne, Calif., assignors to Borland International, Inc., Scotts Valley, Calif.

Filed May 21, 1992, Ser. No. 888,991
Int. Cl.[6] G06F *17/30*
U.S. Cl. 395—602 6 Claims



1. A method for optimizing the access of information stored in a database file, the method comprising:
(a) entering a query condition; and
(b) accessing information satisfying said query condition by any one of:
(1) if a pre-existing index satisfies the query condition, accessing the information by using the preexisting index;
(2) if an index defining a range of records exists, accessing the information by using the index defining a range of records and the condition;
(3) if at least one pre-existing index is available and if the query condition specifies a range of information, accessing the information by using a second index based on said pre-existing index and said range;
(4) if the database file is below a pre-selected size, accessing the information by filtering records not meeting the condition as they are accessed;
(5) if an index satisfying the query condition can be created, accessing the information by creating and referencing the index;
(6) if the query condition specifies a range of information and if an index defining the range can be created, accessing the information by creating and referencing the index defining the range; and
(7) if (1)–(6) are not possible, accessing the information by filtering records not meeting the condition as they are accessed.

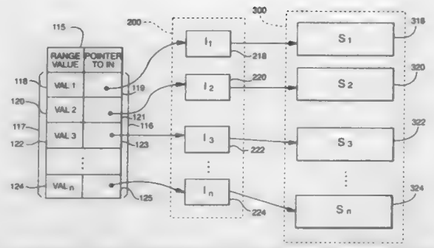
5,727,197

METHOD AND APPARATUS FOR SEGMENTING A DATABASE

John G. Burgess, Vienna, Va., and Randall E. Breeden, Gaithersburg, Md., assignors to FileTek, Inc., Rockville, Md.

Filed Nov. 1, 1995, Ser. No. 551,493
Int. Cl.[6] G06F *17/30*
U.S. Cl. 395—602 20 Claims

1. A method for storing at least a portion of a database in one or more memory devices, comprising the steps of:
dividing the portion of the database into a plurality of data segments each said data segment corresponding to a different range of values in a selected field of the database;
storing each of said data segments in said one or more memory devices;



storing for each of said stored data segments, a segment index identifying the corresponding data segment; and
storing a range index with entries corresponding to the ranges of the selected field, each of the entries of the range index identifying the one of the segment index for the data segments corresponding to that range.

5,727,198

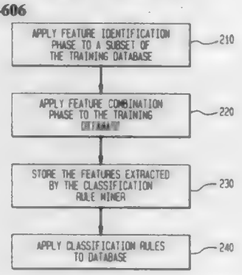
Patent Not Issued For This Number

5,727,199

DATABASE MINING USING MULTI-PREDICATE CLASSIFIERS

Ming-Syan Chen, Yorktown Heights, and Philip Shi-Ling Yu, Chappaqua, both of N.Y., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Nov. 13, 1995, Ser. No. 558,066
Int. Cl.[6] G06F *17/30*
U.S. Cl. 395—606 15 Claims



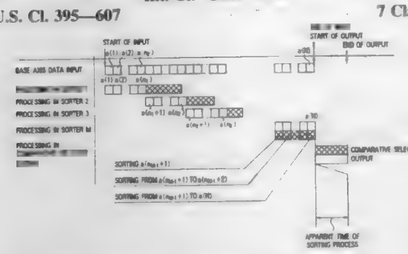
1. A computer-implemented method of mining classification rules from a computer database which includes a plurality of data tuples, each data tuple including a plurality of features, the database further including a training set including the data tuples, each data tuple in the training set including a group identifier, comprising the steps of:
(a) evaluating each feature in a subset of the training set as a function of its correlation with the group identifier, and identifying said features, responsive to said step of evaluating, having an ID score exceeding a predetermined ID threshold;
(b) combining identified features into feature pairs and evaluating each feature pair in the training set as a function of its correlation with said any one of the group identifiers, and identifying said feature pairs having a combination score which exceeds a predetermined feature combination threshold; and
(c) classifying the database as a function the identified features and the identified feature pair.

5,727,200

PARALLEL MERGE SORTING APPARATUS WITH AN ACCELERATED SECTION

Yoshinori Narita, and Takayuki Shibata, both of Tokyo, Japan, assignors to Nippon Steel Corporation, Tokyo, Japan

Filed Mar. 6, 1995, Ser. No. 398,777
Claims priority, application Japan, Mar. 7, 1994, 6-064653
Int. Cl.[6] G06F *17/30*
U.S. Cl. 395—607 7 Claims



1. A sorting apparatus comprising:
a data train divider section for receiving a number of data consecutively in the form of a data train, and dividing and placing the data of said data train into partial data trains while receiving said data train;
a plurality of sorter sections for sorting the partial data trains output from said data train divider section, each of said plurality of sorter sections receiving a partial data train and sorting said partial data train upon completion of said partial data train in said data train divider section, simultaneously with dividing and placing remaining data of said data train into other partial data trains in said data train divider; and
a comparative selector section for comparing, sorting and merging data in the partial data trains sorted by said plurality of sorter sections into a sorted data train,
wherein said plurality of sorter sections includes one sorter section having a faster processing time than the other sorter sections; and
wherein said data train divider section allocates the last of said partial data trains to said sorter section having a faster processing time.

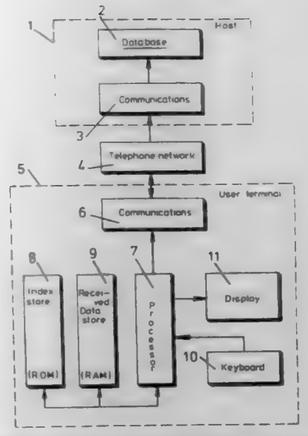
5,727,201

ONLINE DATA RETRIEVAL SYSTEM

Trevor John Burke, Birkenhead, United Kingdom, assignor to Phonelink PLC, Birkenhead, United Kingdom

PCT No. PCT/GB94/01221, § 371 Date Jan. 17, 1995, § 102(e) Date Jan. 17, 1995, PCT Pub. No. WO94/29808, PCT Pub. Date Dec. 22, 1994
PCT Filed Jun. 3, 1994, Ser. No. 374,517
Claims priority, application United Kingdom, Jun. 4, 1993, 9311580
Int. Cl.[6] G06F *17/30*
U.S. Cl. 395—610 4 Claims

1. A data retrieval system comprising a host computer in the memory of which data to be retrieved is stored, and a plurality of user terminals from which requests (for data are transmitted to the host and to which data retrieved in response to such requests is transmitted from the host, wherein data is stored in the host computer in the form of a series of search terms arranged in a predetermined logical order, each stored search term being stored with respective associated data to which users require access, and data retrieval requests are entered by users in the form of search terms corresponding in logical structure to the search terms stored in the host computer, characterised in that the host computer memory is partitioned into a series of blocks in each of which is stored search terms falling within a respective predetermined range of the logical order and the data associated with the search terms falling within the predetermined range, each user terminal comprises a memory in which is stored an index that cross references the memory address of each block in the host memory with the range of search terms stored within that block, each user terminal comprises means responsive to entry of a search term to identify from the index the memory address of the block storing the range of search terms including the entered search term, each user terminal comprises means for transmitting an identified memory address to the host, the host computer comprises means for transmitting the content of the block identified by a received memory address to the user terminal from which the received memory address was transmitted; wherein each said block of memory is allocated a range of searc terms selected such that a substantial portion of each said block will be unoccupied by data to provide for expansion of the volume of data to be stored; and wherein the portion of each said block which is occupied by useful data is flagged and the host computer transmitting means is arranged to transmit only that portion of a selected block which is occupied by said useful data, and each user terminal comprises means for displaying data transmitted to it from the host.

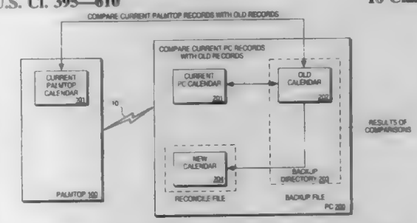


5,727,202

METHOD AND APPARATUS FOR SYNCHRONIZING INFORMATION ON TWO DIFFERENT COMPUTER SYSTEMS

Gregory R. Kucala, Santa Cruz, Calif., assignor to Palm Computing, Inc., Mountain View, Calif.

Filed Oct. 18, 1995, Ser. No. 544,927
Int. Cl.[6] G06F *17/30*
U.S. Cl. 395—610 18 Claims



1. A method for reconciling a first file and a second file, said second file corresponding to said first file, said first file and said second file each containing records, said method comprising:
comparing said first file and said corresponding second file with a backup file containing records from a previous reconciliation of said first file and said corresponding second file to identify new, updated or deleted records;
creating a reconcile file containing information pertaining to said new, updated or deleted records identified in said step of comparing; and

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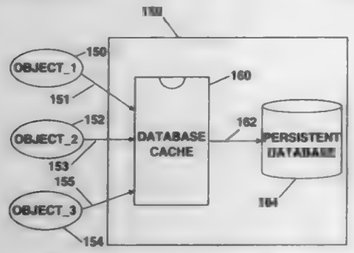
copying contents of said reconcile file to said first file, said corresponding second file and a new backup file.

5,727,203

METHODS AND APPARATUS FOR MANAGING A DATABASE IN A DISTRIBUTED OBJECT OPERATING ENVIRONMENT USING PERSISTENT AND TRANSIENT CACHE

Mark W. Hapner, San Jose, Calif., and Roderic G. Cattell, Los Altos, Calif., assignors to Sun Microsystems, Inc., Mountain View, Calif.

Filed Mar. 31, 1995, Ser. No. 414,119
Int. Cl.[6] G06F *17/30*
U.S. Cl. 395—614 **40 Claims**



1. A computer system for use in a distributed object operating environment, said computer system comprising:

a central processing unit;

transient memory including random access memory;

persistent memory including a mass storage device; and

a database including:

a transient database cache resident in said transient memory, said transient database cache being arranged to receive and store client data via data write operations performed by a plurality of database clients; and

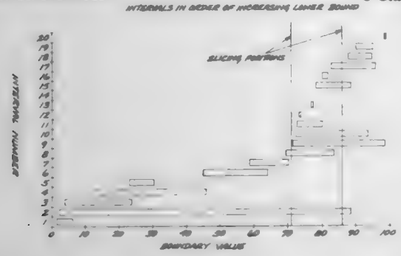
a persistent database portion resident in said persistent memory, said persistent database portion being arranged to receive and store cache data via data commit operations, said data commit operation being operable to commit said client data from said transient database cache.

5,727,204

DATABASE ORGANIZATION FOR RAPID MULTI-SET MEMBERSHIP DETERMINATION

Lynn McNulty Greene, VII, Brea, Calif., assignor to Hughes Electronics, Los Angeles, Calif.

Filed Jun. 7, 1995, Ser. No. 474,422
Int. Cl.[6] G06F *17/30*
U.S. Cl. 395—613 **6 Claims**



1. A method for rapid multi-set membership determination, comprising the following steps:

organizing data sets for a large number of objects, each data set representing an object identifier and a corresponding attribute characteristic having an upper parameter bound value and a lower parameter bound value as a plurality of interval sets, each including a lower interval parameter boundary value and an upper interval parameter boundary value, said interval sets sorted according to ascending lower interval parameter boundary value order;

storing data in a database representing a set of bins, wherein each bin represents a bin set of interval sets which share a bin parameter interval between upper and lower bin parameter bound values, and wherein the database is represented as digital data stored in a digital memory comprising a digital computer system, wherein data may be retrieved from said digital memory once per system clock cycle; and

given an input characteristic value, determining which interval sets include the input value by performing a binary search of the bins,

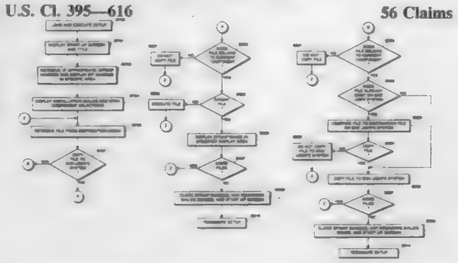
wherein the method performs said step of determining which interval sets include the input value in a minimum number of clock cycles.

5,727,205

FILE INSTALLATION SYSTEM FOR DISPLAYING BITMAPS DURING FILE INSTALLATION

David R. Bell, Rancho Santa Margarita, and Thomas R. Ramsdell, Lomita, both of Calif., assignors to Canon Information Systems, Inc., Irvine, Calif.

Filed Jun. 28, 1995, Ser. No. 496,157
Int. Cl.[6] G06F *17/30*
U.S. Cl. 395—616 **56 Claims**



1. A file installation method which retrieves setup files comprising computer files and bitmap images and displays the bitmap images on an end-user's system during installation of the computer files onto the end-user's system, the method comprising the steps of:

retrieving setup files from a computer-usable medium in the sequence that setup files are to be installed/displayed on the end-user's system, each retrieved setup file having a file destination code appended thereto; and

after each setup file is retrieved:

determining, based on an appended file destination code, whether a retrieved setup file should be installed to the end-user's system, displayed on the end-user's system, or not installed on the end-user's system;

installing, based on a determination result that the retrieved setup file is to be installed, the retrieved setup file on the end-user's system; and

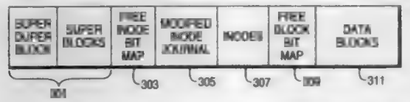
displaying, based on a determination result that the retrieved setup file is to be displayed, the retrieved setup file on the end-user's system.

5,727,206

ON-LINE FILE SYSTEM CORRECTION WITHIN A CLUSTERED PROCESSING SYSTEM

Robert W. Fish, W. Chicago, and Lawrence J. Schroeder, Wheaton, both of Ill., assignors to NCR Corporation, Dayton, Ohio

Filed Jul. 31, 1996, Ser. No. 690,704
Int. Cl.[6] G06F *17/00*
U.S. Cl. 395—618 **6 Claims**



1. A method for repairing file system damage following the failure of a processing node within a clustered file system, said clustered file system including a plurality of processing nodes, an interconnection network connecting said processing nodes, and a data storage device connected via a shared interconnect with each one of said plurality of processing nodes, said file system employing data structures known as inodes, each inode defining a space within said file system which is reserved for a file, access by said processing nodes to a file within said file system being controlled through acquisition of an exclusive rights to the inode associated with said file, said method comprising the steps of:

maintaining a journal for each processing node, each one of said journals containing a bit map wherein bits within said bit map represent inodes to which the processing node associated with said one of said journals has acquired and retains an exclusive right, said bit map being updated whenever its associated processing node acquires an exclusive right to an inode;

following a failure of one of said processing nodes, reading the bit map journal associated with the failed processing node and acquiring the exclusive right to every inode found within the bit map journal associated with the failed processing node, referred to herein as suspect inodes;

comparing each suspect inode to a global bit map which identifies each and every unit of space within the file system that is assignable, a suspect node being identified as having a transient state when the unit of space assigned to the suspect inode is found to be assignable; and

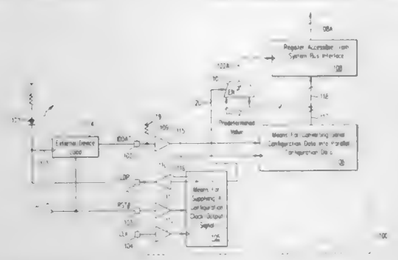
removing the assignment of a unit of space to any suspect inode identified as having a transient state.

5,727,207

METHOD AND APPARATUS FOR AUTOMATICALLY LOADING CONFIGURATION DATA ON RESET INTO A HOST ADAPTER INTEGRATED CIRCUIT

Stillman F. Gates, Los Gatos, and Paresh M. Borkar, Fremont, both of Calif., assignors to Adaptec, Inc., Milpitas, Calif.

Filed Sep. 7, 1994, Ser. No. 301,463
Int. Cl.[6] G06F *9/06*
U.S. Cl. 395—651 **32 Claims**



1. A method, comprising:

receiving a signal on a first input terminal of a host adapter integrated circuit, said host adapter integrated circuit being operatively coupled to a host; and

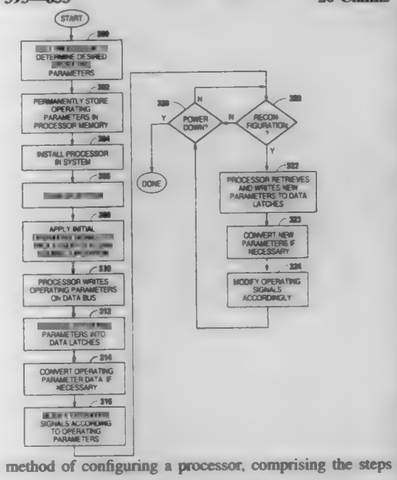
upon a deassertion of said signal, automatically loading configuration data in serial fashion from a second input terminal of said host adapter integrated circuit into said host adapter integrated circuit, said configuration data not being stored in said host, said signal remaining deasserted through said loading of configuration data.

5,727,208

METHOD AND APPARATUS FOR CONFIGURATION OF PROCESSOR OPERATING PARAMETERS

Alan E. Brown, Georgetown, Tex., assignor to Dell U.S.A. L.P., Austin, Tex.

Filed Jul. 3, 1995, Ser. No. 497,955
Int. Cl.[6] G06F *15/20*
U.S. Cl. 395—653 **20 Claims**



18. A method of configuring a processor, comprising the steps of:

determining optimal operating parameters of the processor;

permanently storing the optimal operating parameters in the processor;

providing the processor with operating signals enabling power-up and functional operation;

the processor providing the optimal operating parameters to an external bus during power-up; and

changing the value of the operating signals to correspond to the optimal operating parameters.

5,727,209

APPARATUS AND METHOD FOR ACHIEVING REDUCED OVERHEAD MUTUAL-EXCLUSION AND MAINTAINING COHERENCY IN A MULTIPROCESSOR SYSTEM UTILIZING EXECUTION HISTORY AND THREAD MONITORING

John D. Slingwine, and Paul E. McKenney, both of Beaverton, Oreg., assignors to Sequent Computer Systems, Inc., Beaverton, Oreg.

Division of Ser. No. 480,627, Jun. 7, 1995, Pat. No. 5,608,893, which is a division of Ser. No. 94,629, Jul. 19, 1993, Pat. No. 5,442,758. This application Nov. 1, 1996, Ser. No. 742,613
Int. Cl.[6] G06F *9/30;12/12*
U.S. Cl. 395—672 **11 Claims**

1. A method of using an updater thread to update an original element of a shared data structure in a computer system while maintaining access to the data structure for reader threads, the method comprising the following steps:

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with an updater thread, updating the original element by creating a new element;

with the updater thread, modifying links used by reader threads for referencing the original element to now reference the new element; and

using a summary of thread activity to determine when the original element may be erased.

5,727,210

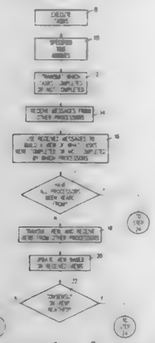
FAULT TOLERANT LOAD MANAGEMENT SYSTEM AND METHOD

Cynthia Dwork, Palo Alto; Joseph Y. Halpern, Cupertino, and Hovey R. Strong, Jr., San Jose, all of Calif., assignors to International Business Machines Corporation, Armonk, N.Y.

Continuation of Ser. No. 375,044, Jan. 17, 1995, abandoned, which is a continuation of Ser. No. 993,183, Dec. 18, 1992, Pat. No. 5,513,354. This application Jul. 26, 1995, Ser. No. 507,745

Int. Cl.[6] G06F *11/20*

U.S. Cl. 395—674 22 Claims



1. A computer program product, for use with a processor in a multiprocessing network including a plurality of processors, the computer program product comprising:

a recording medium;

means, recorded on the recording medium, for directing the processor to determine, along with other operational processors of the multiprocessing network, which tasks, previously allocated to various ones of the processors, have not been executed, the means for directing to determine including:

means, recorded on the recording medium, for directing the processor to exchange views between itself and the other operational processors to reach consensus among the operational processors as to the status of the previously allocated tasks, each view including at least one of: (a) information on what work has been done by the processor sending the view; and (b) information on what work, done by other processors, has been reported to the processor sending the view; and

means, recorded on the recording medium, for directing the processor to allocate pending tasks between the processor and the other operational processors.

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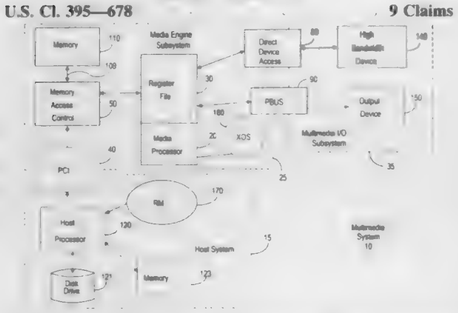
SYSTEM AND METHOD FOR FAST CONTEXT SWITCHING BETWEEN TASKS

Denis Gulsen, Mountain View, Calif., assignor to Chromatic Research, Inc., Mountain View, Calif.

Filed Nov. 9, 1995, Ser. No. 556,416

Int. Cl.[6] G06F *9/46*

U.S. Cl. 395—678 9 Claims



1. A method of fast context switching on a data processing system including a processor, backing store, temporary storage, and a shared system resource, the processor being coupled to the backing store, the temporary storage, and the shared system resource, the method comprising the steps of:

executing a current task on the processor;

utilizing a shared system resource for storing a designated component of information of the current task;

maintaining a map data structure accessible by the processor and containing utilization data of the shared system resource of the current task;

preparing to execute an incoming task on the processor;

loading into temporary storage the shared system resource utilization of the current task;

loading into temporary storage a projected shared system resource utilization of the incoming task;

accessing the map data structure to determine available portions of the shared system resource;

comparing the shared system resources of the current task and available portions of the shared system resource to projected utilization of the shared system resource of the incoming task; and

swapping to the backing store only those portions of the shared system resource utilized by the current task necessary to accommodate projected shared system resource utilization of the incoming task.

5,727,212

OBJECT ORIENTED DEVICE DRIVER SYSTEM FOR PROCEDURAL DEVICE DRIVERS

Chris A. Dinallo, Boca Raton, Fla., assignor to International Business Machines Corporation, Armonk, N.Y.

Filed Apr. 12, 1995, Ser. No. 420,919

Int. Cl.[6] G06F *13/10*

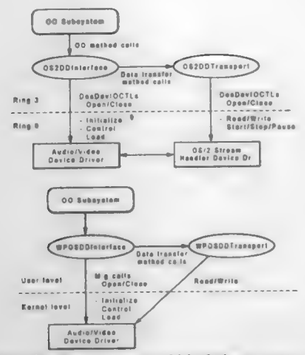
U.S. Cl. 395—681 10 Claims

1. An apparatus for bridging communications between an object oriented component and a procedural programmed device driver, which are both part of a data processing system, the apparatus comprising:

an object oriented interface device that couples said object oriented component to said device driver;

means, coupled to said object oriented interface device, for isolating said object oriented component from said device driver, said isolating means including procedural code to open, initialize, control, and close said device driver, and further including first means for providing data flow; and

means for encapsulating device specific information, coupled to said isolating means, said encapsulating means being independent from but responsive to said isolating means, to transport requests and commands to said device driver, and further including second means for providing data flow such that said encapsulating means may communicate with other device drivers besides said device driver.



5,727,213

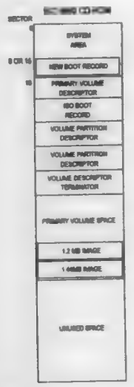
COMPUTER SYSTEM CAPABLE OF BOOTING FROM CD-ROM AND TAPE

Kerry B. Vander Kamp, Houston, Tex.; Roberta W. Hensley, Houston, Tex., and Curtis R. Jones, Cypress, Tex., assignors to Compaq Computer Corp., Houston, Tex.

Continuation of Ser. No. 119,984, Sep. 10, 1993, Pat. No. 5,418,918. This application May 3, 1995, Ser. No. 434,387

Int. Cl.[6] G06F *9/24;9/445*

U.S. Cl. 395—681 15 Claims



1. A method of booting a personal computer system having a CD-ROM drive and a floppy drive from an ISO 9660 compatible CD-ROM, comprising the steps of:

preparing an ISO 9660 compatible CD-ROM having a boot record and having a floppy disk image in the primary volume space, the boot record containing identification information and information for accessing said floppy disk image and said floppy disk image containing boot code and other code;

determining if the CD-ROM drive is the intended boot device;

determining if a boot record is present on the CD-ROM and loading said information from said boot record into memory;

determining the location on the CD-ROM of said floppy disk image using said boot record information loaded into memory;

obtaining said boot code from said floppy disk image; and

executing said floppy disk image boot code to load said other code located in said floppy disk image.

5,727,214

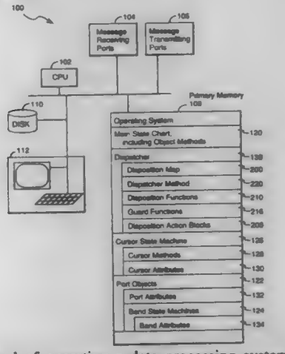
OBJECT ORIENTED EVENT MESSAGE DISPATCHING SUBSYSTEM AND METHOD UTILIZING A DISPOSITION MATRIX

Arthur D. Allen, Mountain View, Calif., assignor to Metasphere, Inc., Los Altos, Calif.

Continuation of Ser. No. 179,251, Jan. 10, 1994, Pat. No. 5,555,415. This application Aug. 26, 1996, Ser. No. 703,385

Int. Cl.[6] G06F *9/40;9/44*

U.S. Cl. 395—683 27 Claims



1. A method of operating a data processing system, said data processing system including a main system having a context consisting of a defined set of state variables each having a defined range of values, said method comprising the steps of:

establishing a plurality of ports for receiving said event messages, said plurality of ports including a plurality of distinct port types wherein said ports of each said port type receive event messages having event message types corresponding to said each port type;

establishing a plurality of disposition action procedures for disposing of specified event messages; wherein at least one of said disposition action procedures is for sending said specified event messages to said main system for further processing;

storing a disposition matrix comprising an array of cells, each cell storing a disposition indicia corresponding to one said event message type and one possible value of one of said state variables, said disposition matrix including cells for all possible combinations of said event message types and all possible values of each of said state variables; and

selecting one of said plurality of disposition action procedures to execute for a specified one of said received event messages, including (A) evaluating the disposition indicia for all cells in said disposition matrix corresponding to the event message type of said one event message and current values of said state variables so as to generate a disposition value for each evaluated cell, (B) selecting one of said disposition values in accordance with predefined selection criteria to generate a selected disposition value, and (C) selecting and initiating execution of one of said plurality of disposition action procedures in accordance with said selected disposition value so as to process said one event message.

5,727,215

METHOD FOR REPLACING SOFTWARE MODULES UTILIZING A REPLACEMENT ADDRESS TABLE

Richard F. Rynaski, Middlefield, Conn., and Brian F. Beloin, Avon, Conn., assignors to Otis Elevator Company, Farmington, Conn.

Filed Nov. 30, 1995, Ser. No. 565,510

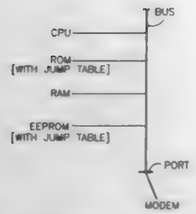
Int. Cl.[6] G06F *9/24*

U.S. Cl. 395—712 9 Claims

1. A method for downloading software, comprising:

providing a processor unit which includes a first non-volatile memory including a plurality of initial software modules

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which form a program, and which includes a second non-volatile memory, the second non-volatile memory being an erasable programmable non-volatile memory, the second memory including a code section and an address table, the processor unit further including a processor coupled to the first and second memories;

transmitting a message signal packet to the processor unit, the message signal packet including a replacement software module and a replacement address table;

storing the replacement software module into the code section;

replacing the address table with the replacement address table;

calling one of the initial software modules, and then

executing the replacement software module responsive to said calling step.

5,727,216

SIGNAL PROCESSOR

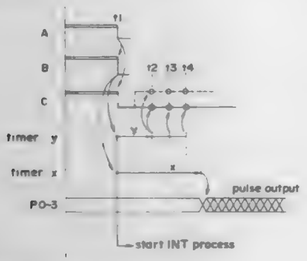
Akira Takasu, and Katsuhide Sakai, both of Toyokawa, Japan, assignors to Minolta Co., Ltd., Osaka, Japan

Filed Jul. 6, 1995, Ser. No. 498,798

Claims priority, application Japan, Jul. 8, 1994, 6-157660

Int. Cl.[6] G06F *9/46*

U.S. Cl. 395—733 **6 Claims**



1. A signal processor comprising:

an interrupt port which inputs external signals;

an input port which in parallel inputs said external signals input to said interrupt port;

a timer which starts to time a predetermined time interval by signal input to said interrupt port;

a storage device which stores signals input to said interrupt port;

a discrimination device which discriminates whether or not signals stored in said storage device are identical to signals input to said input port within said predetermined time interval; and

a control device which controls the execution of a predetermined process after the passage of said predetermined time interval so as to allow or prevent said process execution in accordance with the results of said discrimination by said discrimination device.

5,727,217

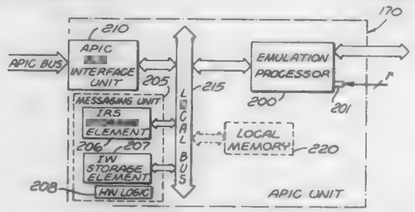
CIRCUIT AND METHOD FOR EMULATING THE FUNCTIONALITY OF AN ADVANCED PROGRAMMABLE INTERRUPT CONTROLLER

Bruce Young, Tigard, Oreg., assignor to Intel Corporation, Santa Clara, Calif.

Filed Dec. 20, 1995, Ser. No. 576,511

Int. Cl.[6] G06F *9/46;9/455*

U.S. Cl. 395—733 **39 Claims**



1. An advanced programmable interrupt controller (APIC) unit, capable of being coupled to a bus in order to handle interrupt servicing between at least one host processor and a plurality of peripheral devices, comprising:

a local bus;

an emulation processor coupled to said local bus, said emulation processor receives an interrupt request originating from a first peripheral device of the plurality of peripheral devices, and in response, generates an interrupt message;

an APIC bus interface unit coupled to said local bus, said APIC bus interface unit provides an interface between the local bus and the bus to allow the interrupt message produced by the emulation processor to be sent to the at least one host processor; and

a memory element coupled to said local bus, said memory element containing a table having an entry associated with each of the plurality of peripheral devices capable of generating an interrupt request.

5,727,218

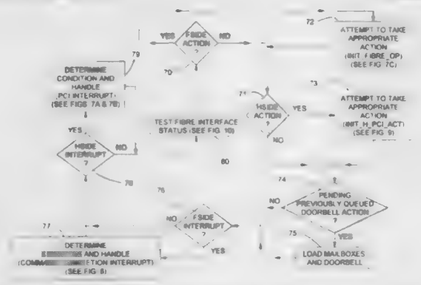
CONTROLLING AN APPARATUS DISPOSED FOR ADAPTING FIBER CHANNEL TRANSMISSIONS TO AN INDUSTRY STANDARD DATA BUS

Glenn Thomas Hotchkin, Mission Viejo, Calif., assignor to Unisys Corp., Blue Bell, Pa.

Filed Mar. 5, 1996, Ser. No. 611,141

Int. Cl.[6] G06F *13/00*

U.S. Cl. 395—733 **18 Claims**



1. In a file server having a peripheral storage subsystem coupled thereto by means of a fibre channel, said file server including a memory and an apparatus disposed between said file server and said storage subsystem for adapting fibre channel transmissions to and from an industry standard data bus of said file server, said apparatus including an interface logic having a doorbell register and mailbox registers, a buffer memory, a fibre channel controller and a microprocessor executing a method comprising the steps of:

a. sensing if an interrupt has occurred by said file server, and if so, determining condition of said interrupt by said file server and handling it, and if no interrupt has occurred;

b. testing an interface between said fibre channel and said apparatus to assure connectivity of said fibre channel;

c. sensing if an action is to be taken in response to said interrupt, and if so attempting to take appropriate action by:

i.) determining type of SCSI command;

ii.) setting up command structures;

iii.) starting transfer of command to one of said disk drives; and,

iv.) idling until a command completion interrupt is received;

d. sensing if an action is to be taken for communicating with said file server, and if so, attempting to take appropriate action, and if no action is to be taken;

e. sensing if a previously queued mailbox action is pending, and if so, checking to determine if said doorbell register is empty, and if so load said mailbox registers and said doorbell register, and if no action is pending;

f. sensing if an interrupt has occurred on said fibre channel, and if yes, determining condition of said interrupt by said fibre channel and handling it; and,

g. repeating steps a through f hereof.

5,727,219

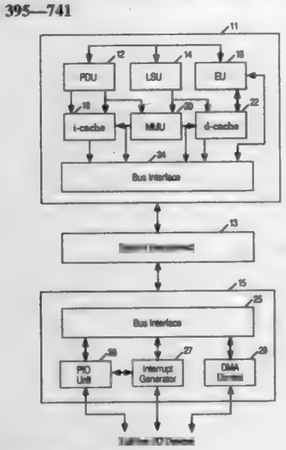
VIRTUAL INPUT/OUTPUT PROCESSOR UTILIZING AN INTERRUPT HANDLER

Thomas L. Lyon, Palo Alto; Sun-Den Chen, San Jose, both of Calif.; William Joy, Aspen, Colo.; Leslie D. Kohn, Fremont, Calif.; Charles E. Narad, Santa Clara, Calif., and Robert Yung, Fremont, Calif., assignors to Sun Microsystems, Inc., Mountain View, Calif.

Continuation of Ser. No. 402,873, Mar. 13, 1995, abandoned. This application May 9, 1997, Ser. No. 854,113

Int. Cl.[6] G06F *9/46;13/24*

U.S. Cl. 395—741 **20 Claims**



1. An apparatus comprising:

(a) a programmable input/output (I/O) unit for transferring data to and from an I/O device;

(b) an interrupt triggering mechanism for triggering an interrupt to interrupt execution of a processor, said interrupt being asserted by said programmable I/O unit at the end of a data transfer operation performed in association with an I/O device; and

(c) an interrupt handler, executed by said processor and responsive to the assertion of said interrupt, including a plurality of data structures, for performing control and data management functions for a sequence of programmed I/Os being performed by a program executed by the processor, by repetitively invoking said programmable I/O unit based on said data structures, said interrupt handler being given back control when said programmable I/O unit asserts an interrupt using said interrupt triggering mechanism at the end of each data transfer operation.

5,727,220

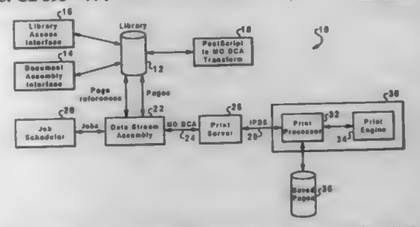
METHOD AND SYSTEM FOR CACHING AND REFERENCING CACHED DOCUMENT PAGES UTILIZING A PRESENTATION DATA STREAM

Reinhard H. Hohensee, Boulder, Colo.; David E. Stone, Longmont, Colo.; Ronald D. Parrish, Niwot, Colo.; Dwight R. Palmer, Longmont, Colo.; Steven M. Scott, Lafayette, Colo., and Brian G. Platte, Frisco, Colo., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Nov. 29, 1995, Ser. No. 564,756

Int. Cl.[6] G06F *9/00*

U.S. Cl. 395—774 **22 Claims**



12. A system for presenting a document at a presentation device utilizing a presentation data stream comprising a continuous ordered stream of uniquely identified data objects and associated elements which specify format and presentation parameters for each of those data objects, wherein said data stream contains a plurality of presentation documents which each comprise a collection of said uniquely identified data objects and associated elements, said presentation device having storage media, said system comprising:

means for defining a save object command structure within a first presentation document within said presentation data stream;

means for identifying a particular data object within said save object command structure;

means for storing said particular data object within said storage media in response to receipt of said save object command structure at said presentation device;

means for thereafter defining an include saved object command structure within a second diverse presentation document within a presentation data stream;

means for identifying said particular data object within said include saved object command structure; and

means for presenting said particular data object within said second document in response to receipt of said include saved object command structure at said presentation device, wherein a portion of said first document stored at said presentation device may be utilized within said second document such that presentation efficiency is enhanced.

5,727,221

COMPUTER SYSTEM POWER MANAGEMENT INTERCONNECTION CIRCUITRY AND SYSTEMS

James J. Walsh, Plano, and Weiyuen Kau, Dallas, both of Tex., assignors to Texas Instruments Incorporated, Dallas, Tex.

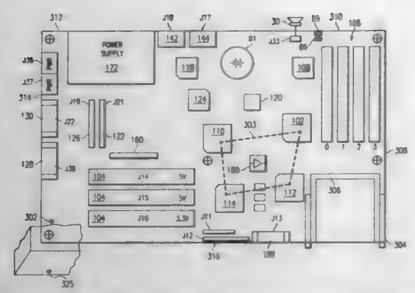
Division of Ser. No. 362,325, Dec. 22, 1994, abandoned, and a continuation of Ser. No. 749,388, Nov. 6, 1996. This application Jul. 9, 1996, Ser. No. 680,579

Int. Cl.[6] G06F *1/32;13/14*

U.S. Cl. 395—750 **3 Claims**

1. An electronic wiring board article of manufacture comprising:

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a printed wiring board having a substantially insulative planar board element and conductors in or on said board element;

a first integrated circuit attached to said printed wiring board and having a central processing unit (CPU) and a first power management circuit having a system management interrupt (SMI) input;

a second integrated circuit attached to said printed wiring board and having a second power management circuit responsive to one or more interrupt event inputs and concentrating these inputs to a single system management interrupt (SMI) output;

a third integrated circuit attached to said printed wiring board and having a third power management circuit including one or more system management interrupt (SMI) sources, said third power management circuit having an output connected to said SMI input of said first integrated circuit, and said third power management circuit responsive to said SMI output of said second integrated circuit as well as said one or more SMI sources; and

said conductors of said printed wiring board providing connection between said first integrated circuit, said second integrated circuit and said third integrated circuit.

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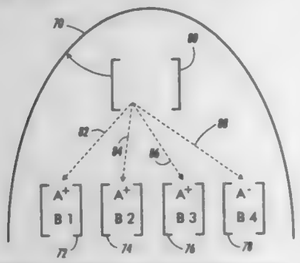
METHOD OF PARSING UNIFICATION BASED GRAMMARS USING DISJUNCTIVE LAZY COPY LINKS

John T. Maxwell, III, Cupertino, Calif., assignor to Xerox Corporation, Stamford, Conn.

Filed Dec. 14, 1995, Ser. No. 572,393

Int. Cl.[6] G06F *17/27*

U.S. Cl. 395—759 **3 Claims**



1. A method of parsing a language string using a unification based grammar that includes disjunctive lazy copy links, the method being executed by a processor coupled to a memory storing instructions for implementing the method, the method comprising the steps of:

a) unifying a first disjunctive feature structure associated with a first constituent and a second disjunctive feature structure associated with a second constituent to generate a third feature structure associated with a third constituent, the first disjunctive feature structure having a first attribute and two disjunctive lazy copy links, each disjunctive lazy copy link pointing to an alternative value of the first attribute, the third feature structure being underspecified and having a first lazy copy link to the first disjunctive feature structure;

b) if unification activates the first lazy copy link, expanding the specification of the first disjunctive feature structure to generate a first multiplicity of alternative feature structures, each of the first multiplicity of alternative feature structures being further specified than the first disjunctive feature structure and having at least one attribute, each attribute having a value;

c) if possible, reducing the first multiplicity of alternative feature structures to a first minimum of first disjunctive feature structures by merging together those of the first alternative feature structures having a first set of identical attributes to create a one of the first minimum disjunctive feature structures, the one of the first minimum disjunctive features having the first set of identical attributes and having at least a pair of disjunctive lazy copy links pointing to alternative values within the alternative feature structures merged together; and

d) unifying the first minimum of first feature structures with the second feature structure to increase the level of specification of the third feature structure, the third feature structure having at least one lazy copy link to the first feature structures.

5,727,223

DOCUMENT PROCESSING APPARATUS

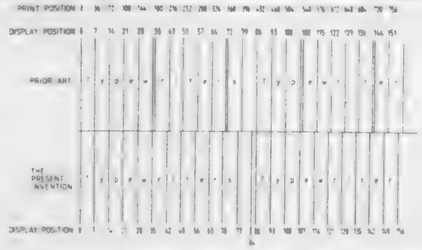
Kazuhiro Nakamura, Tanashi, Japan, assignor to Canon Kabushiki Kaisha, Tokyo, Japan

Continuation of Ser. No. 634,706, Dec. 27, 1990, abandoned. This application Mar. 28, 1994, Ser. No. 219,859

Claims priority, application Japan, Dec. 29, 1989, 1-344927

Int. Cl.[6] G06F *17/21*

U.S. Cl. 395—788 **20 Claims**



1. A document processing apparatus and a visualizing means, said visualizing means for generating image data using visualization position information, the visualization position information representing positions at which the data is to be generated by said visualizing means, said apparatus comprising:

display means for displaying a character train, said visualizing means having a resolution different from that of said display means, wherein the character train comprises a plurality of words;

generating means for generating display position information on said display means on the basis of the visualization position information and corresponding to a character pitch of the visualizing means;

detecting means for detecting a misalignment between the display information and the visualization position information due to the difference in resolution between said display means and said visualizing means, for each character forming each of the plurality of words; and

control means for, if the misalignment is detected for one of the plurality of words by said detecting means, controlling the arrangement of characters forming the one word subsequent to the misalignment such that the misalignment is eliminated.

5,727,224

DOCUMENT IMAGE PROCESSOR FOR INSERTING AND EDITING BRACKET SYMBOLS AND ASSOCIATED TEXT

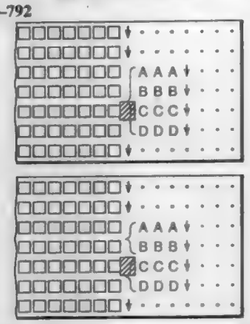
Masayuki Tsuji, Yamatokooriyama, Japan, assignor to Sharp Kabushiki Kaisha, Osaka, Japan

Filed Mar. 6, 1996, Ser. No. 611,708

Claims priority, application Japan, Apr. 7, 1995, 7-082425

Int. Cl.[6] G06F *17/00*

U.S. Cl. 395—792 **10 Claims**



1. A text document information processing device comprising:

an input means for inputting text and symbolic characters, where the symbolic characters include a bracket extending over a plurality of horizontal or vertical lines to designated lines of bracketed text presented on a display;

a storage means for storing the text and the symbolic characters, including the bracket and bracketed text;

an input position indicating means for indicating on the display an inputting position in relation to the bracket and the text and symbolic characters;

an editing means for editing the bracket by dividing the bracket into two bracket symbols at a position on the bracket displayed on the screen that is indicated by the input position indicating means; and

an output means, including the display, for storing the two bracket symbols, characters and the bracketed text means in the storage means and laying-out and outputting the two bracket symbols and bracketed text to the display,

where the two bracket symbols each extend over a plurality of horizontal or vertical lines of a sub-set the bracketed text.

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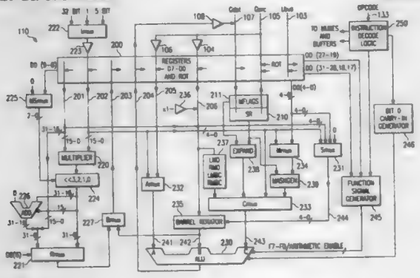
METHOD, APPARATUS AND SYSTEM FORMING THE SUM OF DATA IN PLURAL EQUAL SECTIONS OF A SINGLE DATA WORD

Karl M. Guttag, Missouri City, and Christopher J. Read, Houston, both of Tex., assignors to Texas Instruments Incorporated, Dallas, Tex.

Continuation of Ser. No. 160,119, Nov. 30, 1993. This application Jun. 7, 1995, Ser. No. 473,380

Int. Cl.[6] G06F *15/00*

U.S. Cl. 395—800 **44 Claims**



1. A method for forming a sum of data in 2^N equal sections of a single data word comprising the steps of for each M from 1 to N:

forming an Mth mask having bits of a first digital state filling M odd alternate sections and bits of a second digital state filling M even alternate sections, said second digital state being opposite to said first digital state;

masking a prior sum data word by a first mask thereby forming a prior sum masked data word, the prior sum data word for M=1 being the single data word;

rotating the prior sum data word by M sections;

masking the rotated prior sum data word by the Mth mask thereby forming a rotated prior sum masked data word;

summing the prior sum masked data word and the rotated prior sum masked data word thereby forming a sum data word, a last sum data word being the sum of data in 2N equal sections of the single data word; and

said steps of masking the prior sum data word, rotating the prior sum data word, masking the rotated prior sum data word and summing the prior sum masked data word and the rotated prior sum masked data word occur during a single data processor pipeline stage for each M in a three input arithmetic logic unit, said three input arithmetic logic unit having a first input receiving the prior sum data word, a second input receiving the rotated prior sum data word, a third input receiving the Mth mask and an output generating the summed prior sum masked data word and rotated prior sum masked data word.

5,727,226

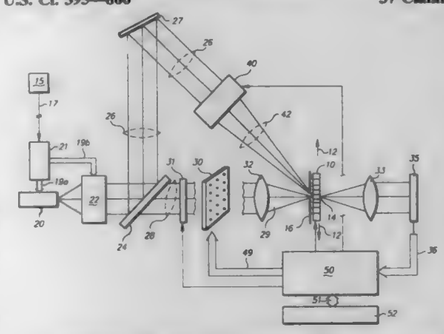
METHOD AND APPARATUS FOR MODULATION OF MULTI-DIMENSIONAL DATA IN HOLOGRAPHIC STORAGE

Miguel Mario Blaum; Paul Howard Siegel; Glenn Tavernia Sincerbox, and Alexander Vardy, all of San Jose, Calif., assignors to International Business Machines Corporation, Armonk, N.Y.

Division of Ser. No. 104,267, Aug. 9, 1993, Pat. No. 5,510,912. This application Jul. 18, 1995, Ser. No. 504,204

Int. Cl.[6] G06F *15/00*

U.S. Cl. 395—800 **37 Claims**



1. A modulator apparatus for modulating a multi-dimensional input data array to produce an output modulated data array, the apparatus comprising:

a) array generation means for generating fixed sets of binary arrays, each binary array comprising sets of binary control vectors;

b) array combination means for combining said fixed sets of binary arrays to produce a set of control arrays, said means for combining including means for performing a bit by bit modulo two summation;

c) array selection means for selecting at least one of the control arrays from said set of control arrays; and

d) array application means for applying said at least one selected control array to said input data array to produce said output

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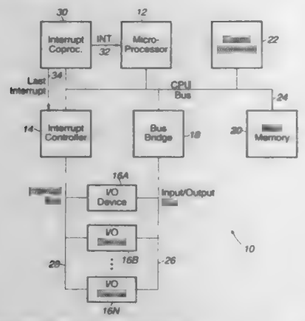
modulated data array, said array application means including means for performing a bit by bit modulo two summation.

5,727,227

INTERRUPT COPROCESSOR CONFIGURED TO PROCESS INTERRUPTS IN A COMPUTER SYSTEM

Rodney W. Schmidt, Austin, and Brian C. Barnes, Round Rock, both of Tex., assignors to Advanced Micro Devices, Sunnyvale, Calif.

Filed Nov. 20, 1995, Ser. No. 559,659
Int. Cl.[6] G06F *1/00*
U.S. Cl. 395—800 **27 Claims**



1. A computer system, comprising:

a microprocessor configured to execute a task comprising a plurality of instructions, and wherein said microprocessor includes an interrupt conductor, and wherein said microprocessor is configured to interrupt said task according to a signal upon said interrupt conductor;

an interrupt controller configured to receive a plurality of interrupt request signals and to convey an interrupt signal upon receipt of one of said plurality of interrupt request signals; and

a dedicated interrupt coprocessor coupled between said interrupt controller and said microprocessor, wherein said interrupt coprocessor is configured to execute interrupt service routines in response to said interrupt signal from said interrupt controller, and wherein said interrupt coprocessor comprises a microcontroller, and wherein said interrupt coprocessor is coupled to said interrupt conductor, and wherein said interrupt coprocessor is configured to convey said signal upon said interrupt conductor if said interrupt coprocessor determines that said microprocessor is configured to execute said interrupt service routine.

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Patent Not Issued For This Number

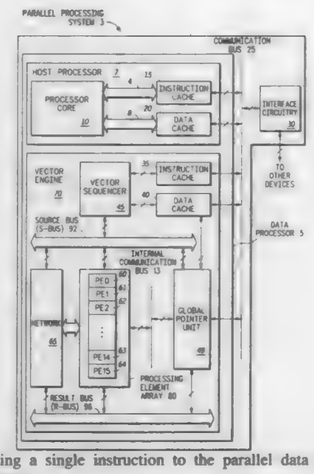
5,727,229

METHOD AND APPARATUS FOR MOVING DATA IN A PARALLEL PROCESSOR

Larry Yiucham Kan; William C. Anderson; Chuan-Chang Hung, and Meltin Bell, all of Austin, Tex., assignors to Motorola, Inc., Schaumburg, Ill.

Filed Feb. 5, 1996, Ser. No. 596,843
Int. Cl.[6] G06F *15/16*
U.S. Cl. 395—800.22 **42 Claims**

1. A method for moving data in a parallel data processing system from a processing element array x, to a vector array y, wherein the processing element array x includes of a plurality of elements wherein each element has at least one associated storage circuit, the method comprising the steps of:



providing a single instruction to the parallel data processing system;

in response to receipt of the single instruction, the data processing system performing the steps of:

reading an Nth bit from the at least one associated storage circuit associated with a first one of the plurality of elements, where N is a positive integer;

reading the Nth bit from the at least one associated storage circuit associated with an Mth one of the plurality of elements, where M is a positive integer; and

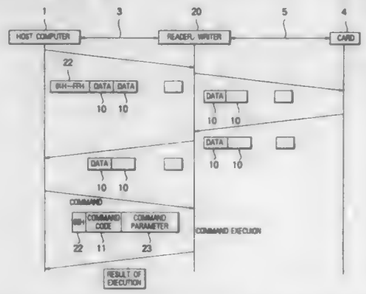
combining all read Nth bits into a single combined vector.

5,727,230

APPARATUS FOR ELECTROMAGNETIC COMMUNICATION BETWEEN A COMPUTER AND A NON-CONTACT IC CARD

Shuzo Fujioka, Itami, Japan, assignor to Mitsubishi Denki Kabushiki Kaisha, Tokyo, and Mitsubishi Electric Semiconductor Software Co., Ltd., Hyogo, both of Japan

Filed Apr. 24, 1995, Ser. No. 426,850
Claims priority, application Japan, Apr. 28, 1994, 6-092702
Int. Cl.[6] G06F *13/00;13/20*
U.S. Cl. 395—825 **11 Claims**



1. A reader/writer for communicating with and providing communication between an external host computer and a noncontact IC card comprising:

input/output means electrically connected to an external host computer for inputting and outputting bidirectional signals to and from the external host computer;

control means electrically connected to said input/output means for controlling transmission of signals between the external host computer and a noncontact. IC card;

electromagnetic wave transmitter/receiver means electrically connected to said control means for transmitting to and receiving from the noncontact IC card bidirectional electromagnetic-wave signals, said control means determining whether a signal has been received from the external host computer through said input/output means and, if a signal has been received from the external host computer, determining whether the signal is a command or data and, if the signal is a command, executing the command and, if the signal is data, transferring the data to the noncontact IC card through said electromagnetic wave transmitter/receiver means and, if no signal has been received from the host computer, determining whether a signal has been received from the noncontact IC card through said electromagnetic wave transmitter/receiver means and, if a signal has been received from the noncontact IC card, transmitting the signal to the external host computer through said input/output means: and

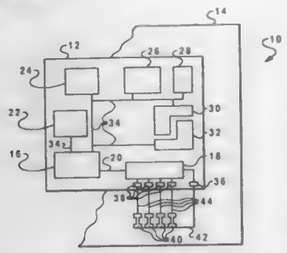
means for communicating with the noncontact IC card at a first baud rate and for communicating with the external host computer at a second baud rate, the second baud rate being different from the first baud rate.

5,727,231

METHOD FOR PERSONALIZING INTEGRATED CIRCUIT DEVICES

Gerald K. Bartley; Delbert R. Cecchi, both of Rochester, Minn.; Jeffrey A. Collett, Green Bay, Wis.; Linda S. Herman, Poughkeepsie, N.Y.; David O. Lewis, and Glenn W. Sellers, both of Rochester, Minn., assignors to International Business Machines Corporation, Armonk, N.Y.

Continuation of Ser. No. 276,018, Jul. 15, 1994, abandoned.
This application May 21, 1996, Ser. No. 651,019
Int. Cl.[6] G06F *13/374;13/10*
U.S. Cl. 395—858 **7 Claims**



1. A customizable integrated circuit device comprising:

an integrated circuit chip including a microcontroller unit formed therein;

M function units formed within said integrated circuit chip and coupled to said microcontroller unit;

a customization logic unit, coupled to said microcontroller unit, for generating a signal sent to said microcontroller unit for controlling which of said M function units are operational by means of microcodes stored within said microcontroller unit;

a mounting module, to which said integrated circuit chip is attached, for coupling said integrated circuit chip to an electronic system, and further comprising:

N signals selectors formed within said mounting module, coupled to said customization logic, for controlling said generated signal sent by said customization logic, wherein N is less than M.

5,727,232

DISK SYSTEM HAVING BUFFER WITH DESIGNATED AREA TO BE USED FOR REPEAT ACCESS DATA

Ikuko Iida, Tokyo, Japan, and Yasuhiko Ichikawa, Tokyo, Japan, assignors to Kabushiki Kaisha Toshiba, Kanagawa-ken, Japan

Filed Jun. 5, 1995, Ser. No. 463,126
Claims priority, application Japan, Jun. 6, 1994, 6-123919
Int. Cl.[6] G06F *12/12*
U.S. Cl. 395—876 **18 Claims**



5. A disk system comprising:

a disk for storing data;

a buffer for temporarily storing data read out from said disk;

a memory for storing a start address, an end address and a wrap address of said buffer, the wrap address being set between the start address and the end address inclusive;

a controller which comprises:

a first register in which an address is to be set,

a second register in which an address is to be set, and

a third register in which an address is to be set, which is to be accessed next when the address set in said second register is accessed; and

a processor having setting means, in response to a read command which is issued by a host system to which said disk system is connected, for setting the start address, the end address, and the wrap address of said buffer into the first register, the second register, and the third register respectively;

wherein said controller comprises:

reading means having a read ahead cache function, for reading out data from said disk according to the read command,

storage means for sequentially storing the data read out by said reading means into said buffer from the start address of the first register in a direction to the end address of the second register, and storing succeeding readout data from the wrap address of the third register in a direction to the end address of the second register,

transferring means for transferring the data stored in said buffer to the host system successively, and

means for, when an address is accessed by said storage means, if data at the accessed address has not been transferred by said transferring means, stopping data storing at the address accessed by said storage means until the data at the accessed address is transferred by said transferring means.

5,727,233

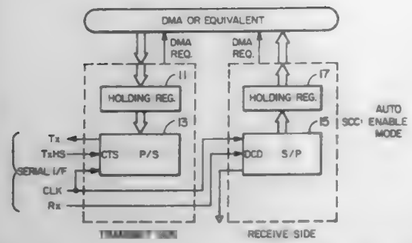
BYTE-MODE AND BURST-MODE DATA TRANSFER MECHANISM FOR A HIGH-SPEED SERIAL INTERFACE

John Lynch, Monte Sereno, and James B. Nichols, Los Altos, both of Calif., assignors to Apple Computer, Inc., Cupertino, Calif.

Filed Aug. 2, 1994, Ser. No. 285,542
Int. Cl.[6] G06F *13/00;13/28*
U.S. Cl. 395—885 **2 Claims**

1. In a computer system having a memory including a direct memory access buffer area, and having a direct memory access controller and a serial communications controller connected to a

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serial port, a method in which one of a first telecommunications device and a second telecommunications device produces a transmit handshake signal to control transfer of transmit data from the memory to said one of the first telecommunications device and the second telecommunications device across a serial link that carries the transmit handshake signal, the method comprising the steps of:

when the first telecommunication device is connected to the serial port:

a) the first telecommunications device asserting the transmit handshake signal;

b) the serial communications controller serially transmitting a unit of transmit data to the first telecommunications device across the serial link;

c) the serial communications controller requesting a data unit from the direct memory access controller;

d) the direct memory access controller transferring a data unit to the serial communications controller;

e) the first telecommunication device de-asserting the transmit handshake signal; and

f) repeating steps a) through e);

whereby transfer of data is controlled by the first telecommunications device on a data-unit-by-data-unit basis; and

when the second telecommunications device is connected to the serial port:

g) the second telecommunications device asserting the transmit handshake signal;

h) the serial communications controller serially transmitting a unit of transmit data to the second telecommunications device across the serial link;

i) the serial communications controller requesting a data unit from the direct memory access controller;

j) the direct memory access controller transferring a data unit to the serial communications controller; and

k) repeating steps h) through j) until the second telecommunications device de-asserts the transmit handshake signal;

whereby transfer of data is controlled by the second telecommunications device on a data burst basis.

5,727,234

CAMERA WITH SHAKE DETECTION AND DISPLAY

Yasushi Sakagami, Tokyo, and Yoshio Matsuzawa, Kanagawa-ken, both of Japan, assignors to Nikon Corporation, Tokyo, Japan

Filed Mar. 23, 1995, Ser. No. 409,065

Claims priority, application Japan, Apr. 4, 1994, 6-066138

Int. Cl.[6] G03B *13/00;13/18*

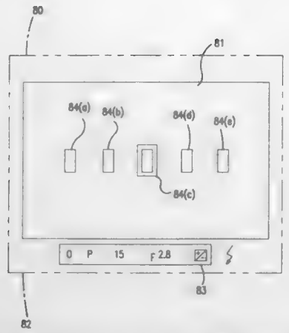
U.S. Cl. 396—52 **19 Claims**

1. A camera comprising:

a viewfinder having a viewfinder field and a region outside the viewfinder field in a field of vision, the viewfinder field including a range measurement frame;

a warning device detecting a change in a condition of the camera and outputting a warning signal based on the change, wherein the warning device comprises,

a detection device that detects an amount of camera shaking and outputs a shake signal representative of the amount of shaking, and



a determination device receiving the shake signal and outputting the warning signal when the shaking amount exceeds a threshold level;

a warning display device receiving the warning signal and changing a display of the range measurement frame in the viewfinder field based on the warning signal.

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ZOOM STROBE DEVICE

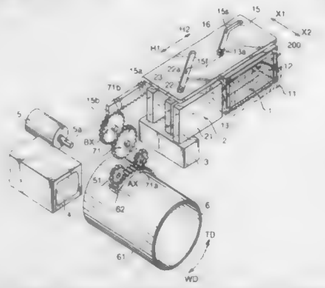
Tuyoshi Ishikawa, and Yuji Ogawa, both of Tokyo, Japan, assignors to Asahi Kogaku Kogyo Kabushiki Kaisha, Tokyo, Japan

Filed Jul. 25, 1996, Ser. No. 687,215

Claims priority, application Japan, Jul. 26, 1995, 7-210052; Apr. 10, 1996, 8-113145

Int. Cl.[6] G03B *15/03*

U.S. Cl. 396—62 **11 Claims**



1. A zoom strobe device employed in a zoom lens camera, said zoom strobe device being capable of changing illumination angle in accordance with change of focal length of a zoom lens of said camera, said zoom strobe device comprising:

a light source for emitting light;

a lens for refracting said light emitted by said light source;

a reflector provided on an opposite side of said lens with respect to said light source, said reflector reflecting light emitted by said light source to be directed to said lens; and

a drive mechanism for changing said illumination angle,

wherein said focal length of said zoom lens changes from a first focal length to a second focal length which is greater than said first focal length, and

wherein said drive mechanism changes said illumination angle when said focal length of said zoom lens changes between said first focal length and a third focal length which is greater than said first focal length and smaller than said second focal length, while said drive mechanism maintains said illumination angle when said focal length of said zoom lens changes between said third focal length and said second focal length.

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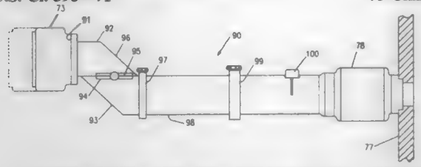
WIDE ANGLE, DEEP FIELD, CLOSE FOCUSING OPTICAL SYSTEM

James A. Frazier, 1/206 Pacific Highway, Lindfield, New South Wales, Australia, 2067

Filed Jun. 30, 1994, Ser. No. 268,420

Int. Cl.[6] G03B *17/00*

U.S. Cl. 396—71 **75 Claims**



1. An optical system comprising an objective lens, a field lens and relay lens aligned on an optical axis in that order, said objective lens accepting radiation from an object in space and forming a first image between said objective lens and said relay lens, said field lens collecting and transferring radiation from said first image to said relay lens to form a final image at an image detection means, wherein in said optical system the size of said first image is greater than the size of said final image and wherein said optical system includes focusing and aperture controls located within said relay lens.

5,727,237

DRIVING MECHANISM FOR A PHOTOGRAPHIC LENS IN A VARIABLE-FOCUS PHOTOGRAPHIC CAMERA

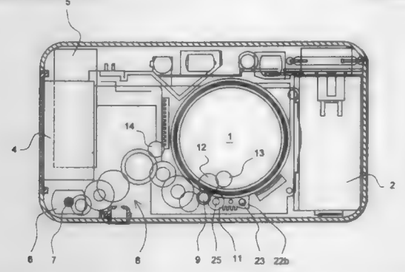
Akio Ohmiya, Ohmiya, Japan, assignor to Fuji Photo Optical Co., Ltd., Japan

Filed Jan. 15, 1997, Ser. No. 784,094

Claims priority, application Japan, Jan. 16, 1996, 8-023174

Int. Cl.[6] G03B *3/00;5/00*

U.S. Cl. 396—79 **22 Claims**



1. A driving mechanism for a photographic lens in a variable-focus photographic camera serving to drive a lens barrel assembly with which the photographic lens is operatively associated back and forth in the direction of an optical axis so that said photographic lens may operate either in a power varying mode or in a focusing mode, said driving mechanism comprising:

a first driving lens barrel received by a stationary lens barrel which is, in turn, stationary relative to a camera body, said first driving lens barrel being movable back and forth in the direction of the optical axis;

a second driving lens barrel received by said first driving lens barrel so as to be movable back and forth relative to said first driving lens barrel in the direction of the optical axis;

a movable lens barrel received by said second driving lens barrel so as to be movable back and forth by a predetermined distance relative to said second driving lens barrel in the direction of the optical axis; and

driving force transfer means operatively associated with a drive source to transfer a driving force transmitted from said drive source in at least two directions to provide two driving force transmission paths, one of said driving force transmission paths is operatively associated with a first driving means for said first driving lens barrel while the other driving force transmission path is operatively associated with a second driving means for said second driving lens barrel and thereby said first and second driving lens barrels are separately driven by the driving force transmitted along the respective paths from said drive source.

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AUTOMATIC FOCUS ADJUSTMENT DEVICE

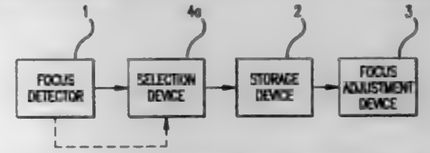
Shozo Yamano, Tokyo, Japan, assignor to Nikon Corporation, Tokyo, Japan

Filed Nov. 21, 1996, Ser. No. 754,813

Claims priority, application Japan, Dec. 7, 1995, 7-318819

Int. Cl.[6] G03B *13/36*

U.S. Cl. 396—104 **19 Claims**



1. An automatic focus adjustment device, comprising:

focus detection means for detecting focus data of a photographic lens;

selecting means for selecting whether to store the focus data based on at least one of a length of a focus data detection interval in said focus detection means, a size of change in focus data in said focus detection means, and reliability data detected by an identification means for detecting reliability data indicating a reliability of the focus detection;

storage means for storing selected focus data effective for automatic focus adjustment; and

focus adjustment means for performing focus adjustment of said photographic lens based on the focus data stored in said storage means.

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PHOTOGRAPHING OPTICAL APPARATUS

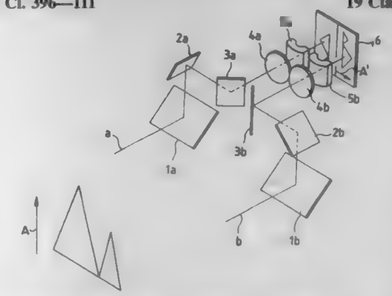
Masashi Hankawa, Koza-gun; Masaki Imaizumi, Urawa, and Yuji Ogasawara, Hachioji, all of Japan, assignors to Olympus Optical Co., Ltd., Tokyo, Japan

Filed Feb. 27, 1996, Ser. No. 607,774

Claims priority, application Japan, Feb. 28, 1995, 7-040409

Int. Cl.[6] G03B *41/00;35/00*

U.S. Cl. 396—111 **19 Claims**



15. A photographing optical apparatus comprising:

a plurality of optical paths having parallax;

a plurality of reflecting surfaces disposed along said optical paths which reflect a plurality of images transmitted along said optical paths;

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a plurality of image reducing optical elements disposed along said plurality of optical paths which reduce said plurality of images only in a vertical direction; and

an image sensor disposed substantially at an imaging plane of said plurality of images such that images reduced by said image reducing optical elements are formed thereon.

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DEVICE FOR JUDGING AN UNEXPOSED FRAME OF A FILM

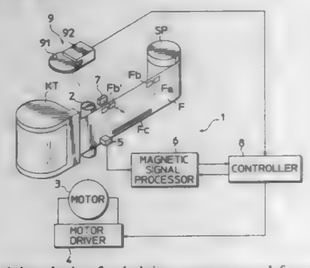
Kenji Mizumoto, Osaka, and Satoshi Hamada, Sakai, both of Japan, assignors to Minolta Co., Ltd., Osaka, Japan

Filed Jun. 6, 1996, Ser. No. 659,689

Claims priority, application Japan, Jun. 9, 1995, 7-143008

Int. Cl.[6] G03B *19/02;17/24*

U.S. Cl. 396—210 **15 Claims**



1. A judging device for judging an unexposed frame of a film having a magnetic recording portion recordable with a magnetic signal indicative of photographic information concerning an image for a frame, the judging device comprising:

a magnetic head which scans the magnetic recording portion to produce scanned data;

a divider which divides the magnetic recording portion into a plurality of blocks;

a first judger which is responsive to the divider and judges based on the scanned data whether each block bears the magnetic signal and which produces judgment results indicative thereof; and

a second judger which is responsive to the first judger and judges based on said respective judgment results for blocks of the first judger whether the frame corresponding to the magnetic recording portion has been exposed.

5,727,241

PHOTOGRAPHIC LENS, CAMERA BODY, AND CAMERA SYSTEM

Shozo Yamano, Shinagawa-ku, and Riichi Higaki, Kawasaki, both of Japan, assignors to Nikon Corporation, Tokyo, Japan

Filed Jan. 15, 1997, Ser. No. 782,320

Claims priority, application Japan, Jan. 24, 1996, 8-010037

Int. Cl.[6] G03B *7/26*

U.S. Cl. 396—279 **20 Claims**

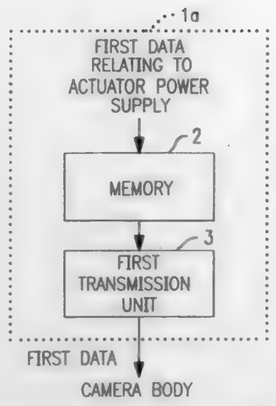
1. A camera system including a photographic lens mounted on a camera body having an electric power supply, comprising:

a first actuator disposed within the photographic lens which selectively receives electric power from the camera body;

a memory disposed within the photographic lens which stores first data relating to power supply characteristics for driving said first actuator;

a power supply measurement unit disposed within the camera body to calculate an equivalent output load resistance of the electric power supply by comparing non-load power supply voltage to load power supply voltage; and

a transmission unit disposed within the photographic lens which transmits the first data from said memory to the camera body,



wherein electric power is transmitted from the camera body to said first actuator based upon a comparison of the equivalent output load resistance and the first data.

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SINGLE-LENS MULTIPLE APERTURE CAMERA FOR 3D PHOTOGRAPHIC/VIDEO APPLICATIONS

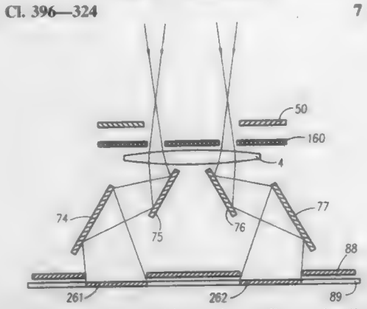
Allen Kwok Wah Lo, Dunwoody, Ga., and Kenneth Quochuy Lao, Altanta, Ga., assignors to Image Technology International, Inc., Norcross, Ga.

Continuation of Ser. No. 239,525, May 9, 1994, abandoned.

This application Jun. 20, 1996, Ser. No. 667,303

Int. Cl.[6] G03B *35/00*

U.S. Cl. 396—324 **7 Claims**



1. A 3D camera for acquiring and recording a plurality of 2D images of a single scene at different viewing angles without relocating said camera, said camera comprising:

a taking lens;

aperture controlling means for partitioning the aperture of said lens into a plurality of horizontally spaced sections for permitting light rays to transmit through each of said aperture sections to provide a 2D image at a different viewing angle;

a plurality of mirror sets mounted behind said taking lens in registry with a plurality of said aperture sections for directing light rays transmitted through respective aperture sections to provide a plurality of 2D images taking at different viewing angles;

image recording means for recording 2D images taken by said taking lens; and

a shutter for controlling transmission of light rays through said sections of said lens aperture.

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SINGLE LENS REFLEX CAMERA

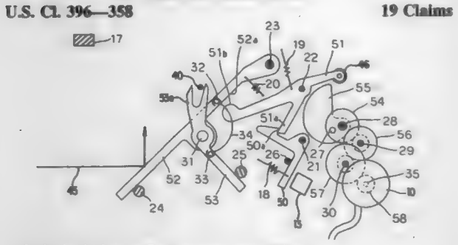
Yoshiaki Tanabe, Kanngawa-ken, Japan, assignor to Nikon Corporation, Tokyo, Japan

Filed Jun. 22, 1995, Ser. No. 494,557

Claims priority, application Japan, Jun. 23, 1994, 6-164528

Int. Cl.[6] G03B *15/00*

U.S. Cl. 396—358 **19 Claims**



1. A single lens reflex camera comprising:

a lens;

a mirror for reflecting light entering the lens, the mirror having a light reflecting position and a light non-reflecting position;

detecting means which detects the start of an exposure cycle and outputs a start signal;

a mirror drive mechanism for driving the mirror between the light reflecting position and the light non-reflecting position;

a shutter having an aperture, the shutter comprising a front blind and a rear blind, the front blind moving to open the aperture and begin an exposure and the rear blind moving to close the aperture and end the exposure;

a controller controlling the mirror drive mechanism, the front blind and the rear blind, the controller comprising calculating means responsive to the start signal for calculating the positions of the front blind, the rear blind and the mirror, the controller outputting a mirror down signal to the mirror drive mechanism to move the mirror from the light non-reflecting position to the light reflecting position;

wherein the controller outputs the mirror down signal to the mirror drive mechanism before the shutter aperture is fully closed by the rear blind.

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MOTOR-DRIVEN CAMERA

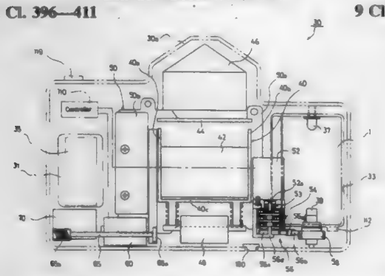
Toshiyuki Kitazawa, Tokyo, Japan, assignor to Asahi Kogaku Kogyo Kabushiki Kaisha, Tokyo, Japan

Filed Jul. 19, 1996, Ser. No. 684,036

Claims priority, application Japan, Jul. 20, 1995, 7-184125

Int. Cl.[6] G03B *1/18;19/10*

U.S. Cl. 396—411 **9 Claims**



1. A camera which uses a film cartridge, said film cartridge including:

a casing having a first spool therein;

a slot formed on said casing, a film being drawn from or returned into said casing through said slot;

a light-intercepting door provided along said slot for opening and closing said slot; and

a pivotal shaft for rotatably mounting said light-intercepting door on said casing,

said camera comprising:

a first motor which opens and closes said door by rotating said pivotal shaft, performs a film advancing operation, in which said first motor rotates said first spool in a direction to advance said film wound on said first spool from said film cartridge, and a performs film rewinding operation, in which said first motor rotates said first spool in another direction to rewind said film into said film cartridge;

a second motor which performs a film winding operation, in which said second motor rotates a second spool provided in said camera to wind said film around said second spool;

a reduction gear train provided between said first motor and said pivotal shaft to transmit rotation of a rotating shaft of said first motor to said pivotal shaft while reducing a rotational speed of said pivotal shaft with respect to said rotating shaft of said first motor; and

a planetary gear positioned between said reduction gear train and said pivotal shaft, said planetary gear including a sun gear and first and second planet gears each engaging with, and revolving around, said sun gear while maintaining a distance therebetween.

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CAMERA

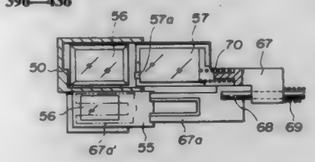
Yasuo Asakura; Setsuya Kataoka; Yoshihiro Maeda, and Keita Takahashi, all of Hachioji, Japan, assignors to Olympus Optical Co., Ltd., Tokyo, Japan

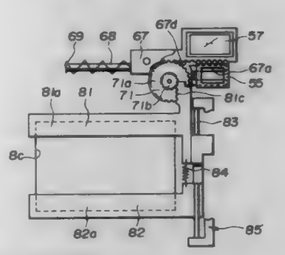
Filed Jul. 12, 1994, Ser. No. 273,702

Claims priority, application Japan, Jul. 13, 1993, 5-173463; Jul. 13, 1993, 5-173464; Jul. 13, 1993, 5-173465; Jul. 13, 1993, 5-173466; Jul. 13, 1993, 5-173467; Sep. 21, 1993, 5-235184

Int. Cl.[5] G03B *17/00;13/10*

U.S. Cl. 396—436 **23 Claims**





1. A camera, comprising:

a real-image viewfinder placed independently of a photographing lens array;

a variable-power lens selectively movable into the optical path of said viewfinder to change a power of said viewfinder;

a movable picture size changing means for changing picture size; that is, a size of a photographic range of film;

a first field mask lying in a vicinity of a primary image formation plane in said viewfinder to define a maximum size of a finder field to change an aspect ratio;

a second field mask selectively movable in a vicinity of said first field mask; and

an interlocking means for selectively inserting or withdrawing said variable-power lens and for selectively inserting or withdrawing said second filed mask responsive to a movement of said picture size changing means.

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SHUTTER DEVICE

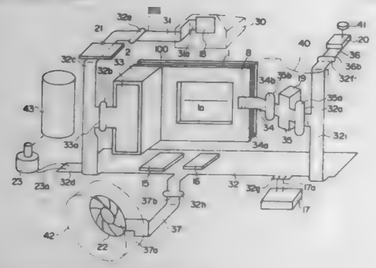
Masanori Hasuda, Yokohama, Japan; Akira Katayama, Koganei, Japan; Yukio Uemura, Musashino, Japan, and Tetsuro Goto, Funabashi, Japan, assignors to Nikon Corporation, Tokyo, Japan

Continuation of Ser. No. 294,989, Aug. 24, 1994, abandoned, which is a continuation-in-part of Ser. No. 191,108, Feb. 3, 1994, abandoned. This application Aug. 19, 1996, Ser. No. 699,185

Claims priority, application Japan, Feb. 3, 1993, 5-2456 U; Aug. 25, 1993, 5-046218

Int. Cl.[6] G03B *17/02*

U.S. Cl. 396—486 9 Claims



1. A shutter device comprising:

shutter blades;

a shutter base plate having an aperture;

a flexible printed circuit board electrically connectable to a camera main body, and bonded to said shutter base plate;

a shutter drive mechanism arranged in the vicinity of said aperture and bonded to said shutter base plate for driving said shutter blades; and

electrical parts arranged in the vicinity of said aperture and on said flexible printed circuit board at an area other than the area of arrangement of said shutter drive mechanism for detecting a state of said shutter blades;

said flexible printed circuit board being connected to said shutter drive mechanism and said electrical parts and continuously arranged along the periphery of said aperture.

5,727,247

CAMERA WITH FILM SENSOR AND DRIVER TO INITIATE CLOSING OF CASSETTE RESPONSIVE TO RETURN OF FILMSTRIP TO CASSETTE

David Clinton Smart, Rochester, N.Y., and Douglas Harold Pearson, Rochester, N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.

Filed Jan. 24, 1996, Ser. No. 590,968

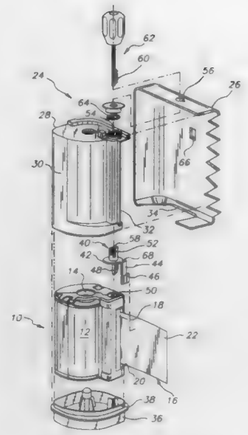
Int. Cl.[6] G03B *17/30*

U.S. Cl. 396—538 2 Claims

1. A camera for use with a film cassette having a movable light lock supported to be moved closed after a filmstrip is wound into the cassette, comprises an actuator for closing the light lock, and is characterized in that:

an ingress opening is provided for an insertion tool; and

said actuator includes a film sensor for sensing the presence of the filmstrip outside the cassette and for sensing the absence of the filmstrip outside the cassette once the filmstrip is wound into the cassette, a driver connected to said film sensor to move the light lock closed at least partway in response to the film sensor sensing the absence of the filmstrip outside the cassette, and an engageable portion that is accessible through said ingress opening when the driver moves the light lock closed at least partway to permit the tool to be inserted through the ingress opening to engage said engageable portion and that is not accessible through the ingress opening when the film sensor senses the presence of the filmstrip outside the cassette to prevent the tool from being inserted through the ingress opening to engage the engageable portion.



5,727,248

SYSTEM FOR REMOTE DIAGNOSIS OF IMAGE FORMING APPARATUSES, INCLUDING INTELLIGENT COMMUNICATIONS CONTROL FOR DATA THEREFROM

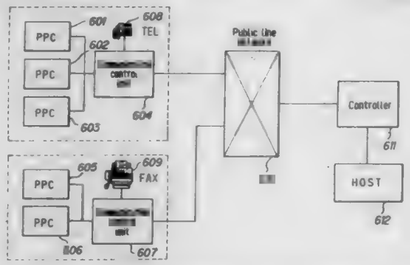
Masaaki Ogura, Kawasaki, Japan, assignor to Ricoh Co., Ltd., Tokyo, Japan

Continuation of Ser. No. 280,921, Jul. 25, 1994, Pat. No. 5,512,979. This application Apr. 16, 1996, Ser. No. 633,217

Claims priority, application Japan, Jul. 26, 1993, 5-203591

Int. Cl.[6] G03G *15/00*

U.S. Cl. 399—8 32 Claims



1. The remote diagnosis apparatus having centralized control, the apparatus comprising:

a communication line for carrying data;

at least one image forming apparatus;

at least one communication controller connected to said image forming apparatus for receiving and storing particular data sent from said image forming apparatus and executing communication control by accessing said communication line and completing a call to a data controller over said communication line for forwarding said particular data to said data controller; and

wherein said data controller is connected to the communication line and includes an access portion permitting said data controller to access said communication controller over said communication line, said communication controller receiving control data from said data controller and processing it into a form for local communication control or for sending to the image forming apparatus for image forming apparatus control, said communication controller providing said data controller with response data indicating the completion of control processing over said communication line.

5,727,249

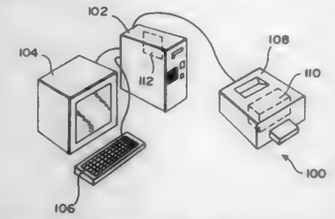
AUTOMATED PAYMENT SYSTEM AND METHOD

Robert E. Pollin, 19107 Grotto La., Germantown, Md. 20874

Division of Ser. No. 959,930, Oct. 15, 1992, Pat. No. 5,504,677. This application Apr. 1, 1996, Ser. No. 625,295

Int. Cl.[6] G06F *3/00*

U.S. Cl. 705—40 80 Claims



1. An automated computer-based apparatus for generating a plurality of authorized drafts on financial accounts belonging to a plurality of payers, the drafts payable to one of a fixed set of one or more payees, comprising:

input means for performing an electronic information input process wherein information is obtained specifying a new payer previously unknown to the apparatus and a draft to be generated on an account of that payer, said information including a financial institution identification number, payer account identifier, and an amount to be drafted from said payer's account;

processing means connected to said input means for receiving said input information and processing said information to format a draft on said financial account payable to said payee, said draft format including identification of said financial account, identification of said financial institution holding said financial account, and an instruction to pay said amount to said payee including particular identification of said payee, and further including a signatory block for an authorizing indicia other than said payer's signature; and

output means for transferring said draft formats to an external printing means connectable to said processing means for generating a copy of said drafts;

wherein said apparatus is implemented using software which incorporates security measures for preventing fraudulent draft production, said security measures comprising the hard coding of said payee identification information in said software so that payee information appearing on said drafts cannot be readily modified by a person gaining access to said input means.

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GRANTED March 10, 1998

ERRATA

For CLASS	See PATENT NO.
D09–344	D391,835
D21–037	391,994

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391,735

FILLED COOKIE

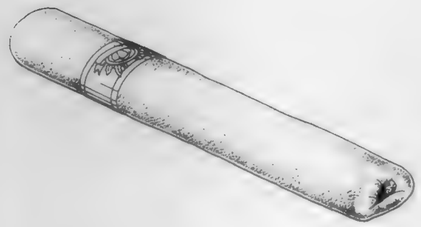
William E. Baker, 5252 E. Rosewood, Tucson, Ariz. 85726

Continuation-in-part of Ser. No. 40,980, Jun. 30, 1995, abandoned. This application Mar. 3, 1997, Ser. No. 67,467

Term of patent 14 years

LOC (6) Cl. 01 - *01*

U.S. Cl. D1—106



391,737

TWISTED MEAT FILLED DOUGH PRODUCT

Kay Wright, Bentonville, Ak., assignor to Food Talk, Inc., Bentonville, Ak.

Filed Mar. 1, 1996, Ser. No. 51,084

Term of patent 14 years

LOC (6) Cl. 01 - *01*

U.S. Cl. D1—125



391,736

SNACK FOOD PRODUCT

Duane D. Oelke, Plymouth, Minn., assignor to General Mills, Inc., Minneapolis, Minn.

Filed Mar. 8, 1993, Ser. No. 5,698

Term of patent 14 years

LOC (6) Cl. 01 - *01*

U.S. Cl. D1—125



391,738

COLLECTOR SHIRT

Ronald Paramore, P.O. Box 223381, Hollyworrd, Fla. 33027

Filed Jan. 7, 1997, Ser. No. 64,612

Term of patent 14 years

LOC (6) Cl. 02 - *01*

U.S. Cl. D2—717



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391,739
TROUSERS
Luigi Volpati, Piazza Padella 7, I-00062 Bracciano (Roma), Italy
Filed Sep. 17, 1996, Ser. No. 59,869
Claims priority, application Hague Agreement, Mar. 18, 1996, DM/035859
Term of patent 14 years
LOC (6) Cl. 02 - *02*
U.S. Cl. D2—742



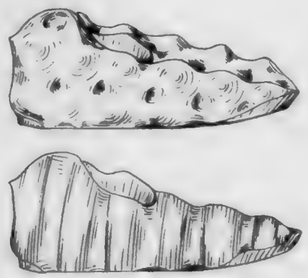
391,740
SUN PROTECTIVE APPAREL
Julie Estelle Barrington, 66 Tamar Street; Lisa Jane Wheatley, 14A Baal Street, both of Palmyra, Western Australia 6157, and Wayne M. Hinchsliff, 24 West Tanah Street, Mt. Coolum, Queensland 4573, all of Australia
Filed Jan. 28, 1997, Ser. No. 65,404
Term of patent 14 years
LOC (6) Cl. 02 - *02*
U.S. Cl. D2—841



391,741
VISORED CAP
Melvin L. Baker, 405 Blackjack, Dublin, Tex. 76446
Filed Jul. 23, 1996, Ser. No. 57,350
The portion of the term of this patent subsequent to Feb. 20, 2010, has been disclaimed.
Term of patent 14 years
LOC (6) Cl. 02 - *03*
U.S. Cl. D2—882



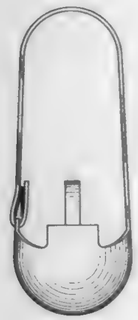
391,742
PROTECTIVE SHOE
John Bogdanski, Norwich, Conn., assignor to Bogs, Ltd., Taftville, Conn.
Filed Sep. 13, 1996, Ser. No. 59,743
Term of patent 14 years
LOC (6) Cl. 02 - *04*
U.S. Cl. D2—898



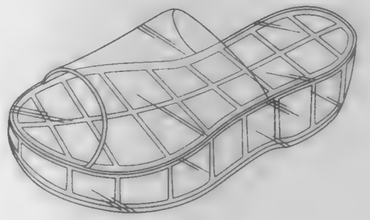
391,743
BOOT FOR AN INLINE SKATE
Alain Brouillard, and Daniel Thibault, both of Montreal, Canada, assignors to Sport Maska, Inc., Quebec, Canada
Filed Dec. 26, 1995, Ser. No. 48,341
Term of patent 14 years
LOC (6) Cl. 02 - *04*
U.S. Cl. D2—904



391,744
TOE PROTECTOR
Paul G. McMaster, 129 Juniper Ct., Collegeville, Pa. 19426
Filed Jul. 25, 1997, Ser. No. 74,511
Term of patent 14 years
LOC (6) Cl. 02 - *04*
U.S. Cl. D2—913



391,745
PLATFORM SHOE
Joe Shaheen, and Stefan Waltl, both of San Francisco, Calif., assignors to Esprit de Corp., San Francisco, Calif.
Filed Jul. 23, 1997, Ser. No. 74,038
Term of patent 14 years
LOC (6) Cl. 02 - *04*
U.S. Cl. D2—927



391,746
SHOE OUTSOLE
Matthew N. Rask, Boring, Oreg., assignor to Nike, Inc., Beaverton, Oreg.
Filed Jun. 6, 1996, Ser. No. 55,488
Term of patent 14 years
LOC (6) Cl. 02 - *04*
U.S. Cl. D2—951

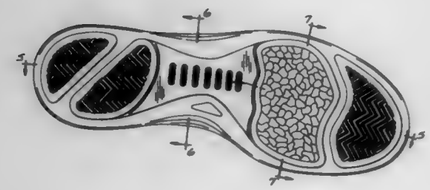


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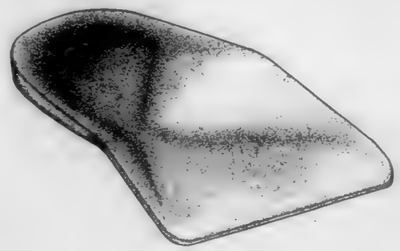
391,747
SHOE OUTSOLE
Eric P. Avar, Aloha, Oreg., assignor to Nike, Inc., Beaverton, Oreg.
Filed Nov. 4, 1996, Ser. No. 61,929
Term of patent 14 years
LOC (6) Cl. 02 - *04*
U.S. Cl. D2—961



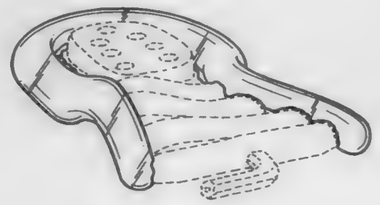
391,748
SPORT SHOE SOLE
Kanse H. Koh, Venice, Calif., assignor to Nine West Group, Inc., Stamford, Conn.
Filed Jan. 31, 1997, Ser. No. 65,651
Term of patent 14 years
LOC (6) Cl. 02 - *04*
U.S. Cl. D2—951



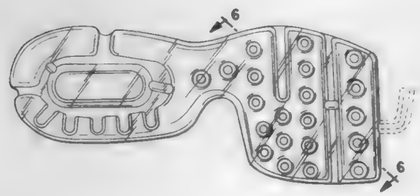
391,749
HEEL INSOLE
Randall K. Fisher, Germantown, and Donald B. Thompson, Memphis, both of Tenn., assignors to Schering-Plough HealthCare Products, Inc., Memphis, Tenn.
Filed Feb. 16, 1994, Ser. No. 18,808
The portion of the term of this patent subsequent to Feb. 20, 2010, has been disclaimed.
Term of patent 14 years
LOC (6) Cl. 02 - *04*
U.S. Cl. D2—961



391,750
PERIPHERAL PORTION OF A BLADDER FOR A SHOE SOLE
Craig E. Santos; Peter J. Belfanti, and Thomas C. Foxen, all of Portland, Oreg., assignors to Nike, Inc.
Filed May 16, 1997, Ser. No. 70,854
Term of patent 14 years
LOC (6) Cl. 02 - *04*
U.S. Cl. D2—961



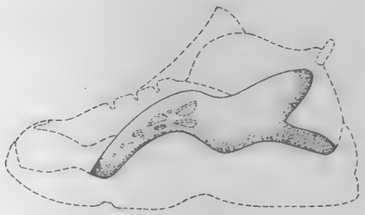
391,751
BLADDER FOR A SHOE SOLE
Craig E. Santos, and Peter J. Belfanti, both of Portland, Oreg., assignors to Nike, Inc., Beaverton, Oreg.
Filed May 16, 1997, Ser. No. 72,138
Term of patent 14 years
LOC (6) Cl. 02 - *04*
U.S. Cl. D2—961



391,752
SHOE UPPER
Peter von Conta, Putnam, Conn., assignor to The Rockport Company, Inc., Marlboro, Mass.
Filed Dec. 13, 1996, Ser. No. 63,715
Term of patent 14 years
LOC (6) Cl. 02 - *04*
U.S. Cl. D2—969



391,753
SIDE ELEMENT OF A SHOE UPPER
Aaron A. C. Cooper, Portland, Oreg., assignor to Nike, Inc., Beaverton, Oreg.
Filed Feb. 10, 1997, Ser. No. 67,555
Term of patent 14 years
LOC (6) Cl. 02 - *99*
U.S. Cl. D2—972



391,754
SIDE PORTION OF A SHOE UPPER
Sergio G. Lozano, Beaverton, Oreg., assignor to Nike, Inc., Beaverton, Oreg.
Filed May 23, 1997, Ser. No. 71,217
Term of patent 14 years
LOC (6) Cl. 02 - *99*
U.S. Cl. D2—972



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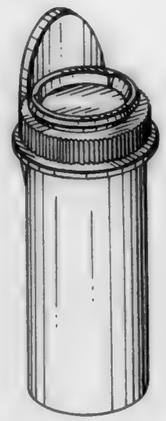
391,755
UMBRELLA CASE BACKPACK
Ulrich Grimm, and Ruth Willis, both of New York, N.Y., assignors to Anne Klein & Company, New York, N.Y.
Filed Jun. 18, 1996, Ser. No. 56,236
Term of patent 14 years
LOC (6) Cl. 03 - *01*
U.S. Cl. D3—11



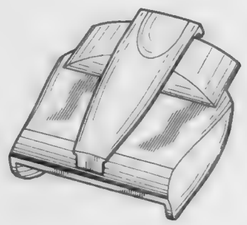
391,756
PIERCED EARRING HOLDER
Vera M. Horne, 1422 La Petite Ct., Naples, Fla. 34104-0202
Filed Mar. 14, 1997, Ser. No. 68,140
Term of patent 14 years
LOC (6) Cl. 03 - *01*
U.S. Cl. D3—201



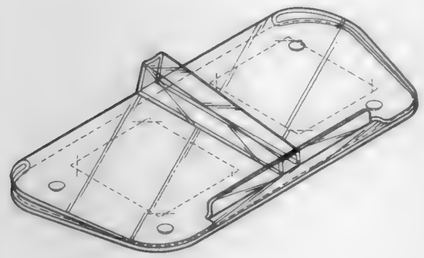
391,757
MEDICINAL CONTAINER
Gustav E. Johnson, Westfield, N.J., assignor to Lerner Packaging Corp., Garwood, N.J.
Filed Jun. 6, 1996, Ser. No. 55,529
Term of patent 14 years
LOC (6) Cl. 03 - *01*
U.S. Cl. D3—203



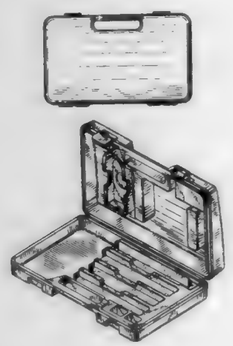
391,758
HOLSTER FOR A RADIO PAGER
Monika Romana Wolf, Parkland, Fla.; Jeffrey Paul Marchuk, Fort Lauderdale, Fla.; Jeanette Orlen, Boca Raton, Fla., and Leonid Soren, Lincolnwood, Ill., assignors to Motorola, Inc., Schaumburg, Ill.
Filed Oct. 11, 1996, Ser. No. 60,936
Term of patent 14 years
LOC (6) Cl. 03 - *01*
U.S. Cl. D3—218



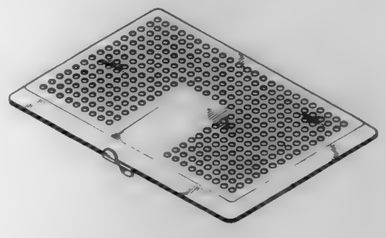
391,759
EYEGLASSES HOLDER
Andrew Zudall, 4140 Mount Olney La., Olney, Md. 20832
Filed Mar. 21, 1997, Ser. No. 68,480
Term of patent 14 years
LOC (6) Cl. 03 - *01*
U.S. Cl. D3—266



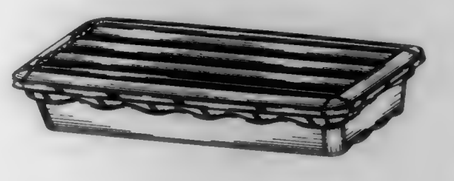
391,760
STORAGE BOX
Nicole A. Zeller, Harrison, N.Y., assignor to Zelco Industries, Inc., Mount Vernon, N.Y.
Filed Mar. 5, 1997, Ser. No. 67,155
Term of patent 14 years
LOC (6) Cl. 03 - *01*
U.S. Cl. D3—281



391,761
MULTI-PURPOSE HOLDER
Hsiu-Hui Lee, 3F., No. 81, Alley 220, Wu-Shing Street, Taipei, Taiwan
Filed Dec. 17, 1996, Ser. No. 63,832
Term of patent 14 years
LOC (6) Cl. 03 - *01*
U.S. Cl. D3—294



391,762
CONTAINER WITH LID
Richard B. Ahern, Jr., Akron, Ohio, assignor to Rubbermaid Incorporated, Wooster, Ohio
Filed Jul. 23, 1996, Ser. No. 57,347
Term of patent 14 years
LOC (6) Cl. 03 - *01*
U.S. Cl. D3—302



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391,763

LID FOR STORAGE CONTAINER

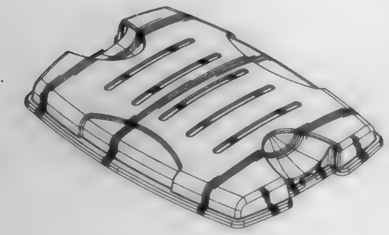
Stacy L. Wolff, Houston, Tex., assignor to Rubbermaid Incorporated, Wooster, Ohio

Filed Jul. 30, 1996, Ser. No. 57,724

Term of patent 14 years

LOC (6) Cl. 03 - *99*

U.S. Cl. D3—323



391,764

TOOTHBRUSH HEAD

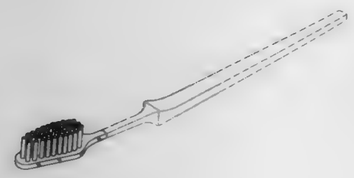
Alexander Petrocini Falleiros, Praca Romao Gomes, No. 8, apt° 33; Bernard Reinesch, Avenida Cidade, Jardim No. 3141, apt ° 119, and Paulo Rogerio Braga Lima, Rua Antares No. 175, apt ° 102C, all of San Jose dos Campos, Sao Paulo, Brazil

Continuation of Ser. No. 48,187, Dec. 21, 1995, abandoned, which is a continuation of Ser. No. 27,855, Jul. 19, 1994, abandoned. This application Aug. 28, 1996, Ser. No. 58,928

Term of patent 14 years

LOC (6) Cl. 04 - *02*

U.S. Cl. D4—104



391,765

TOOTHBRUSH HANDLE

Robert Moskovich, East Brunswick, N.J., assignor to Colgate-Palmolive Company, New York, N.Y.

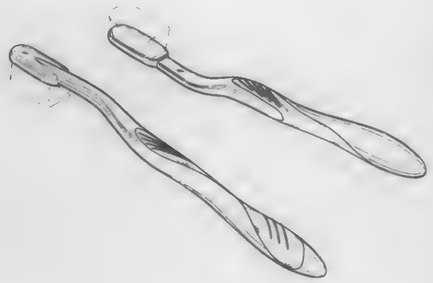
Filed Sep. 5, 1996, Ser. No. 59,724

The portion of the term of this patent subsequent to Nov. 18, 2011, has been disclaimed.

Term of patent 14 years

LOC (6) Cl. 04 - *02*

U.S. Cl. D4—104



391,766

TOOTHBRUSH

Robert Moskovich, East Brunswick, N.J., assignor to Colgate-Palmolive Company, New York, N.Y.

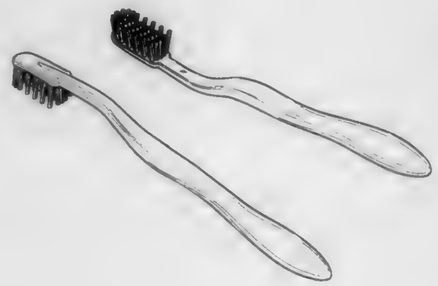
Filed Sep. 5, 1996, Ser. No. 59,725

The portion of the term of this patent subsequent to Nov. 18, 2011, has been disclaimed.

Term of patent 14 years

LOC (6) Cl. 04 - *02*

U.S. Cl. D4—104



391,767

TOOTHBRUSH HANDLE

Robert Moskovich, East Brunswick, N.J., assignor to Colgate-Palmolive Company, New York, N.Y.

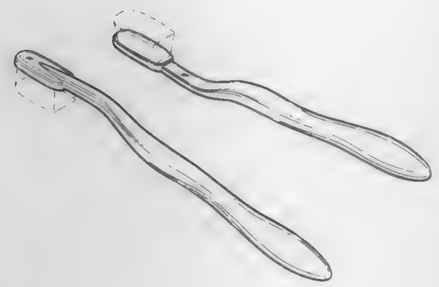
Filed Sep. 5, 1996, Ser. No. 59,723

The portion of the term of this patent subsequent to Nov. 18, 2011, has been disclaimed.

Term of patent 14 years

LOC (6) Cl. 04 - *02*

U.S. Cl. D4—104



391,768

TOOTHBRUSH

Robert Moskovich, East Brunswick, N.J., assignor to Colgate-Palmolive Company, New York, N.Y.

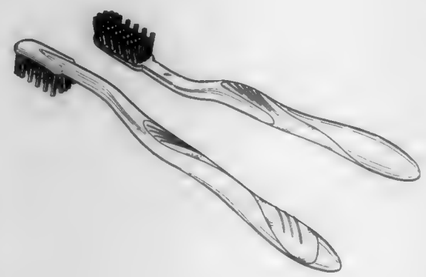
Filed Sep. 5, 1996, Ser. No. 59,729

The portion of the term of this patent subsequent to Nov. 18, 2011, has been disclaimed.

Term of patent 14 years

LOC (6) Cl. 04 - *02*

U.S. Cl. D4—104



391,769

TOOTHBRUSH HANDLE

Björn Kling, Frankfurt; Peter Schneider, Königstein, and Jürgen Greubel, Heidenrod, all of Germany, assignors to Gillette Canada Inc., Kirkland, Canada

Continuation of Ser. No. 36,776, Mar. 27, 1995, abandoned. This application Jul. 15, 1996, Ser. No. 64,254

Term of patent 14 years

LOC (6) Cl. 04 - *02*

U.S. Cl. D4—104



391,770

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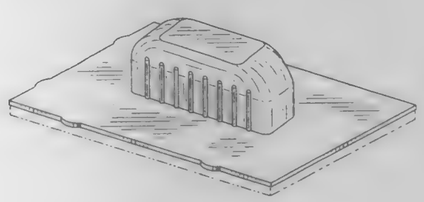
Robert D. Newman, Jr., P.O. Box 377, Greenwood, Mo. 64034, and Robert D. Newman, Sr., P.O. Box 377, Greenwood, Mo. 64034, assignors to Robert D. Newman, Sr., Greenwood, Mo., and Robert D. Newman, Jr., Greenwood, Mo.

Filed Oct. 15, 1996, Ser. No. 60,968

Term of patent 14 years

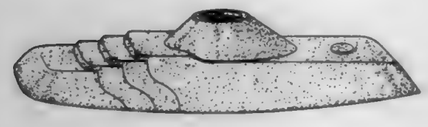
LOC (6) Cl. 04 - *04*

U.S. Cl. D4—138

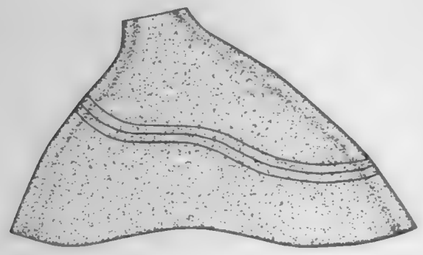


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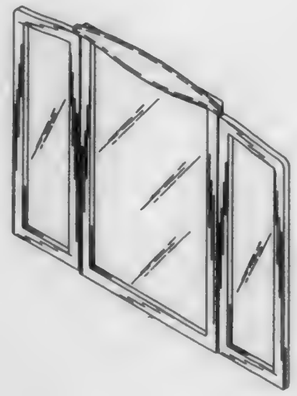
391,771
BROOM SHROUD
Telmo Vieira Dutra, Esterio, Brazil, assignor to Bettanin Industrial S.A., Estelo RS, Brazil
Filed Apr. 3, 1997, Ser. No. 68,766
Term of patent 14 years
LOC (6) Cl. 04 - *99*
U.S. Cl. D4—199



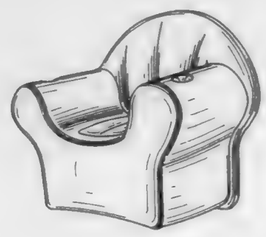
391,772
BROOM SHROUD
Telmo Vieira Dutra, Esteio, Brazil, assignor to Bettanin Industrial S.A., Esteio RS, Brazil
Filed Apr. 3, 1997, Ser. No. 68,767
Term of patent 14 years
LOC (6) Cl. 04 - *99*
U.S. Cl. D4—199



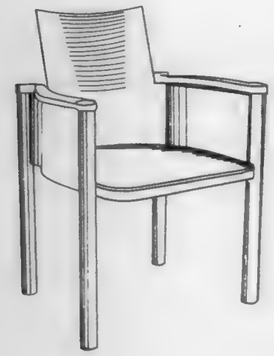
391,773
MIRROR
Paul Zaidman, and Weldon Neufeld, both of Winnipeg, Canada, assignors to Palliser Furniture Ltd., Winnipeg, Canada
Filed Aug. 21, 1996, Ser. No. 58,732
Term of patent 14 years
LOC (6) Cl. 06 - *07*
U.S. Cl. D6—312



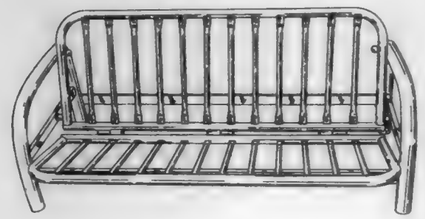
391,774
INFLATABLE CHAIR
Shan-Lin Yu, 6Fl., No. 104, Sec. 2, An-Ho Rd., Taipei, Taiwan
Filed Nov. 8, 1996, Ser. No. 62,190
Term of patent 14 years
LOC (6) Cl. 06 - *01*
U.S. Cl. D6—334



391,775
CHAIR
Just Bernhard Meijer, Rhenen, Netherlands, assignor to Indecom N.V., Amerongen, Netherlands
Filed Mar. 19, 1997, Ser. No. 68,038
Claims priority, application Hague Agreement, Sep. 20, 1996, DM/037606
Term of patent 14 years
LOC (6) Cl. 06 - *01*
U.S. Cl. D6—334



391,776
JUVENILE FUTON BED/COUCH FRAME
Richard D. Olender, 6416 Scheel Dr., Woodbury, Minn. 55125
Filed Dec. 2, 1996, Ser. No. 63,239
Term of patent 14 years
LOC (6) Cl. 06 - *01*
U.S. Cl. D6—335



391,777
SEAT
Darrell G. Lowman, and James B. Simpson, both of Hickory, N.C., assignors to Stanley Furniture Company, Inc., Lexington, N.C.
Filed Apr. 10, 1996, Ser. No. 52,849
Term of patent 14 years
LOC (6) Cl. 06 - *01*
U.S. Cl. D6—375

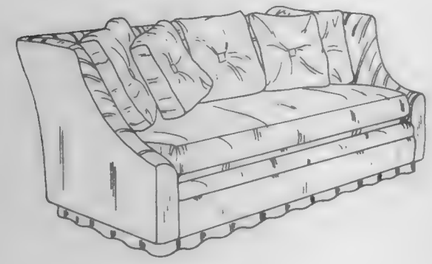


391,778
STACKING SEAT
Gary S. Cretcher, 11261 E. Stampede Pl., Tucson, Ariz. 85749
Filed Jan. 17, 1997, Ser. No. 65,060
Term of patent 14 years
LOC (6) Cl. 06 - *01*
U.S. Cl. D6—379



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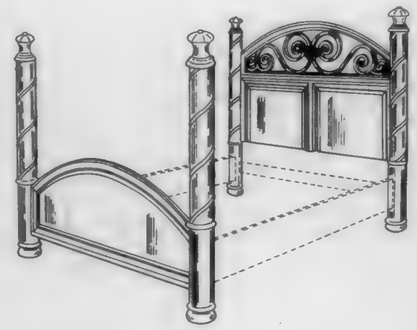
391,779
SEAT
Michael Gohman, Pasadena, Calif., assignor to Marge Carson, Inc., Rosemead, Calif.
Filed Oct. 17, 1996, Ser. No. 61,185
Term of patent 14 years
LOC (6) Cl. 06 - *01*
U.S. Cl. D6—381



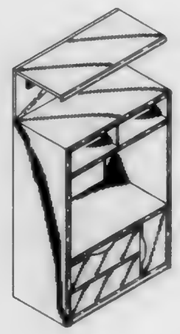
391,780
BABY BED
Ichiro Onishi, Osaka, Japan, assignor to Aprica Kassai Kabushikaisha, Osaka, Japan
Filed Dec. 23, 1996, Ser. No. 64,114
Claims priority, application Japan, Jun. 26, 1996, 8-19120; Oct. 14, 1996, 8-30764
Term of patent 14 years
LOC (6) Cl. 06 - *01*
U.S. Cl. D6—391



391,781
BEDSTEAD
Charles C. Cain, High Point, N.C., assignor to Thomasville Furniture Industries, Inc., Thomasville, N.C.
Filed Oct. 17, 1996, Ser. No. 61,163
Term of patent 14 years
LOC (6) Cl. 06 - *01*
U.S. Cl. D6—393



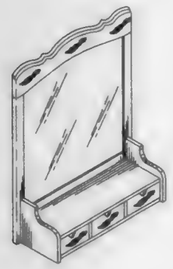
391,782
ENTERTAINMENT UNIT
Weldon Neufeld, Winnipeg, Canada, assignor to Palliser Furniture Ltd., Winnipeg, Canada
Filed May 10, 1996, Ser. No. 54,263
Term of patent 14 years
LOC (6) Cl. 06 - *04*
U.S. Cl. D6—436



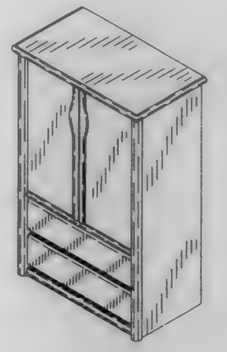
391,783
ENTERTAINMENT SIDE UNIT
Weldon Neufeld, Winnipeg, Canada, assignor to Palliser Furniture Ltd., Winnipeg, Canada
Filed May 10, 1996, Ser. No. 54,264
Term of patent 14 years
LOC (6) Cl. 06 - *04*
U.S. Cl. D6—437



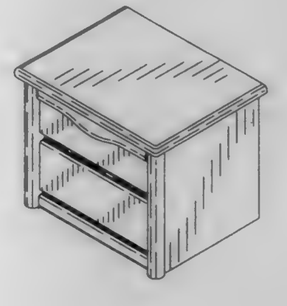
391,784
MIRROR
Paul Zaidman, Winnipeg, Canada, assignor to Palliser Furniture Ltd., Winnipeg, Canada
Filed Aug. 21, 1996, Ser. No. 58,717
Term of patent 14 years
LOC (6) Cl. 06 - *04*
U.S. Cl. D6—444



391,785
ARMOIRE
Paul Zaidman, and Weldon Neufeld, both of Winnipeg, Canada, assignors to Palliser Furniture Ltd., Winnipeg, Canada
Filed Aug. 21, 1996, Ser. No. 58,726
Term of patent 14 years
LOC (6) Cl. 06 - *04*
U.S. Cl. D6—445



391,786
NIGHT TABLE
Paul Zaidman, and Weldon Neufeld, both of Winnipeg, Canada, assignors to Palliser Furniture Ltd., Winnipeg, Canada
Filed Aug. 21, 1996, Ser. No. 58,733
Term of patent 14 years
LOC (6) Cl. 06 - *04*
U.S. Cl. D6—445

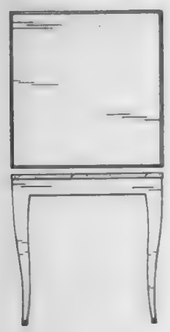


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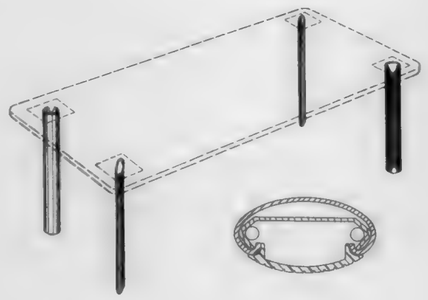
391,787
TABLE
Wayne Horvath, #9- 7165 Pandora Street, Burnaby, British Columbia, Canada, V5A 1B6
Filed Mar. 19, 1996, Ser. No. 51,926
Term of patent 14 years
LOC (6) Cl. 06 - *03*
U.S. Cl. D6—451



391,788
TABLE
John Hutton, New York, N.Y., assignor to Donghia Furniture Company, Ltd., New York, N.Y.
Filed May 17, 1996, Ser. No. 54,723
Term of patent 14 years
LOC (6) Cl. 06 - *03*
U.S. Cl. D6—484



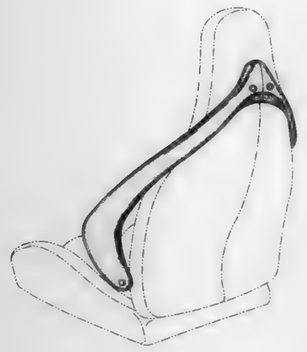
391,789
TABLE LEGS WITH INSERT
William F. Schacht, Grand Rapids, Mich., assignor to Haworth, Inc., Holland, Mich.
Division of Ser. No. 40,120, Jun. 9, 1995, Pat. No. Des. 379,127. This application Sep. 27, 1996, Ser. No. 60,392
Term of patent 14 years
LOC (6) Cl. 06 - *06*
U.S. Cl. D6—495



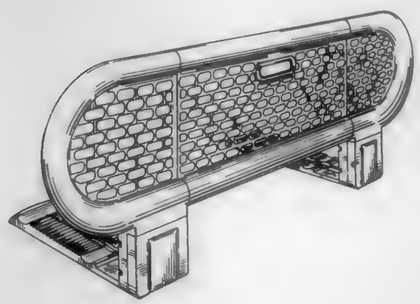
391,790
BACK SUPPORT CHAIR
William R. Breen, 111 Lakeshore Dr., Etobicoke, Ontario, Canada, M8V 2A1
Division of Ser. No. 33,723, Jan. 19, 1995, Pat. No. Des. 369,259. This application Jan. 2, 1996, Ser. No. 50,537
Claims priority, application Canada, Oct. 12, 1994, 1994-2026
Term of patent 14 years
LOC (6) Cl. 06 - *06*
U.S. Cl. D6—500



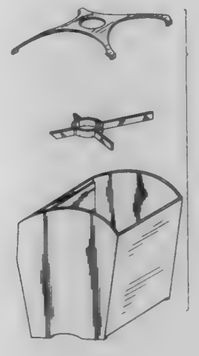
391,791
VEHICLES SEAT BOLSTER
Michael L. Smith, Troy, Mich., assignor to Lear Corporation, Southfield, Mich.
Filed Feb. 12, 1997, Ser. No. 66,513
Term of patent 14 years
LOC (6) Cl. 06 - *06*
U.S. Cl. D6—500



391,792
PORTABLE, FOLDABLE BED RAIL
Craig S. Scherer, Wilmette; Michael C. Thuma, Desplaines, and Ann-Marie Conrado, Chicago, all of Ill., assignors to BRK Brands, Inc., Aurora, Ill.
Filed May 20, 1996, Ser. No. 54,699
Term of patent 14 years
LOC (6) Cl. 06 - *94*
U.S. Cl. D6—503



391,793
BRUSH ORGANIZER
Robert Sussman, 10120 Vestal Ct., Coral Springs, Fla. 33071
Filed Apr. 7, 1997, Ser. No. 68,919
Term of patent 14 years
LOC (6) Cl. 07 - *99*
U.S. Cl. D6—512



391,794
BABY DIAPER CHANGING STATION
John A. Helmsderfer, 2151 Luray Ave., Cincinnati, Ohio 45206
Filed Oct. 22, 1996, Ser. No. 61,345
Term of patent 14 years
LOC (6) Cl. 06 - *04*
U.S. Cl. D6—555

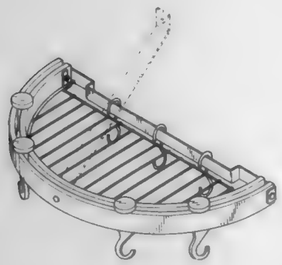


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391,795
DISPLAY SHELF FOR MODEL VEHICLES
Mark Pellerin, 206 Beaubassin Ave., Dieppe, New Brunswick E1A 1B4, Canada
Filed Apr. 9, 1997, Ser. No. 69,084
Term of patent 14 years
LOC (6) Cl. 06 - *04*
U.S. Cl. D6—574



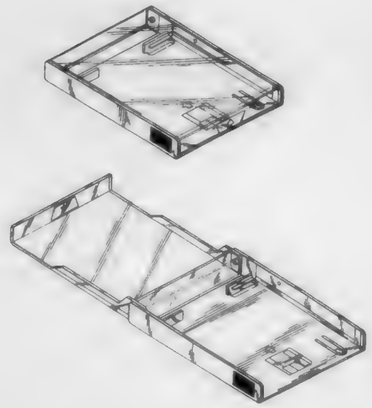
391,796
HALF-ROUND WALL RACK
Chih-Hong Chen, No. 120, Tai Kang Tsun, Liu Ying Hsiang, Tainan Hsien, Taiwan
Filed Jun. 26, 1997, Ser. No. 72,940
Term of patent 14 years
LOC (6) Cl. 06 - *04*
U.S. Cl. D6—574



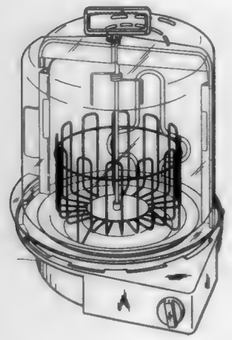
391,797
BEACH TOWEL
Scott Vuori, 29 Krystal La., Windsor, Conn. 06095
Filed Aug. 30, 1996, Ser. No. 59,051
Term of patent 14 years
LOC (6) Cl. 06 - *13*
U.S. Cl. D6—608



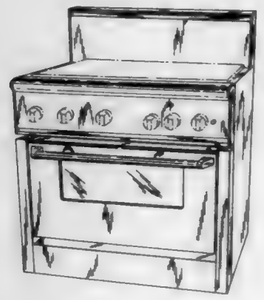
391,798
CASE FOR A DISC
Kazushi Kirihara, and Daiki Kobayashi, both of Tokyo, Japan, assignors to Sony Corporation, Tokyo, Japan
Filed Jun. 3, 1996, Ser. No. 55,340
Claims priority, application Japan, Dec. 5, 1995, 7-36595
Term of patent 14 years
LOC (6) Cl. 06 - *04*
U.S. Cl. D6—634



391,799
ROTISSERIE COOKER
Steven M. Haring, Hattiesburg, Miss.; George Schmidt, Douglaston, N.Y.; Glenn Doherty, Newbury, and Dov Z. Glucksman, Wenham, both of Mass., assignors to Sunbeam Products, Inc.
Filed Jan. 10, 1997, Ser. No. 64,761
Term of patent 14 years
LOC (6) Cl. 07 - *02*
U.S. Cl. D7—338



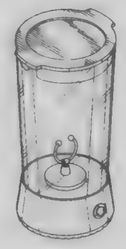
391,800
COMBINED RANGE AND BACKGUARD
Richard M. Holbrook, Jr., Pasadena, Calif., assignor to Thermador Corporation, Los Angeles, Calif.
Filed Jan. 24, 1995, Ser. No. 33,967
Term of patent 14 years
LOC (6) Cl. 07 - *02*
U.S. Cl. D7—340



391,801
ELECTRIC KITCHEN CENTRIFUGE
Philippe Saltet, Chateaufort, France, assignor to Moulinex S.A., Paris, France
Filed May 17, 1996, Ser. No. 54,644
Term of patent 14 years
LOC (6) Cl. 31 - *00*
U.S. Cl. D7—372

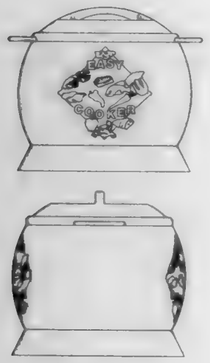


391,802
MILK SHAKE MAKER
Yan Kwong Wong, Unit 17, 10/F Metro Centre 11, 21 Lam Hing Street, Kowlon Bay, Kowloon, Hong Kong
Filed Oct. 21, 1996, Ser. No. 61,295
Term of patent 14 years
LOC (6) Cl. 31 - *00*
U.S. Cl. D7—378

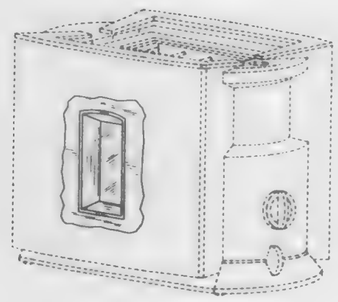


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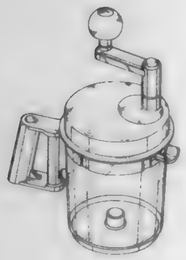
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BATTERY POWERED COOKING POT
Millicent A. Hicks, 219 N. Ashland Ave., Michigan City, Ind. 46360
Filed Feb. 14, 1997, Ser. No. 66,549
Term of patent 14 years
LOC (6) Cl. 07 - *02*
U.S. Cl. D7—354



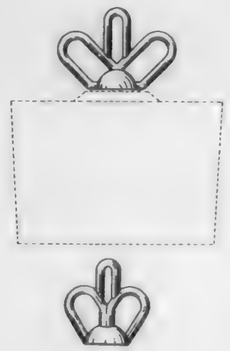
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TOASTER WINDOW
Matt Barthelemy, 2557 Park Blvd., Unit L102, Palo Alto, Calif. 94306, and Sonja Schiefer, 741 Homer Ave., Palo Alto, Calif. 94301
Filed Sep. 5, 1996, Ser. No. 59,209
Term of patent 14 years
LOC (6) Cl. 07 - *02*
U.S. Cl. D7—390



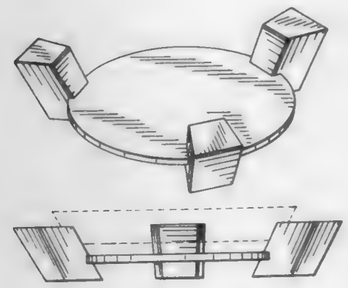
391,504
MIXER
Yan Kwong Wong, Unit 17, 10/F Metro Centre 11, 21 Lam Hing Street, Kowloon Bay, Kowloon, Hong Kong
Filed Oct. 4, 1996, Ser. No. 60,739
Term of patent 14 years
LOC (6) Cl. 31 - *00*
U.S. Cl. D7—380



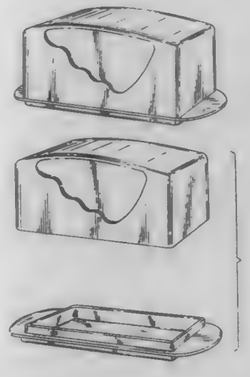
391,806
WHISK FOR A MIXER
Ashok Khubani, Fairfield, N.J., assignor to Ontel Products Corporation, Fairfield, N.J.
Filed May 21, 1996, Ser. No. 54,733
Term of patent 14 years
LOC (6) Cl. 31 - *00*
U.S. Cl. D7—412



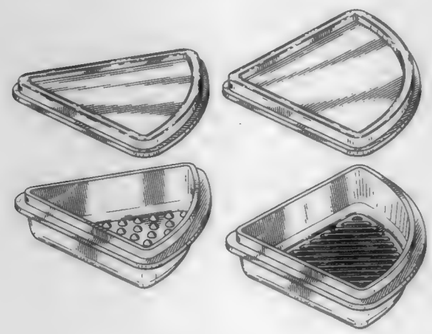
391,807
SUPPORT FOR PAELLA DISHES
Francesc Seuba Trulins, Igualada, Spain, assignor to Positron Investimentos E Servicos Lda., Funchal, Portugal
Filed Apr. 30, 1996, Ser. No. 55,728
Claims priority, application Spain, Nov. 2, 1995, 136171
Term of patent 14 years
LOC (6) Cl. 07 - *01*
U.S. Cl. D7—601



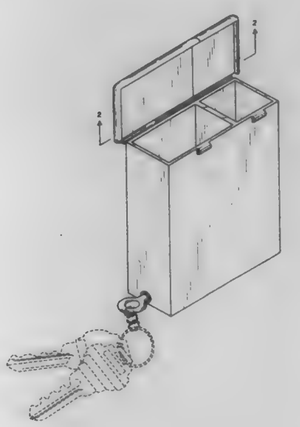
391,809
FOOD STORER AND SERVER
Hanne Dalsgaard Jeppesen, Holte; Jakob Heiberg, Charlottenlund, and Stig Lillelund, Gentofte, all of Denmark, assignors to Dart Industries Inc., Orlando, Fla.
Filed Dec. 20, 1996, Ser. No. 64,041
Term of patent 14 years
LOC (6) Cl. 07 - *01*
U.S. Cl. D7—629



391,808
PIZZA CONTAINER
Richard E. Voege, 2560 Jacob St., Hayward, Calif. 94541
Filed Feb. 27, 1996, Ser. No. 50,829
Term of patent 14 years
LOC (6) Cl. 07 - *01*
U.S. Cl. D7—629

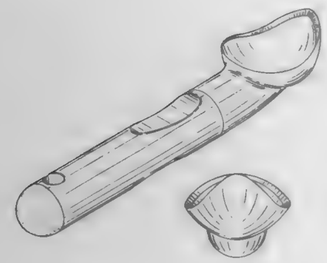


391,810
COMBINED GUM AND MINT CONTAINER
Susanna Cooper, 1034 Meadowlawn, Pontiac, Mich. 48340
Filed Jun. 13, 1997, Ser. No. 72,350
Term of patent 14 years
LOC (6) Cl. 07 - *01*
U.S. Cl. D7—629

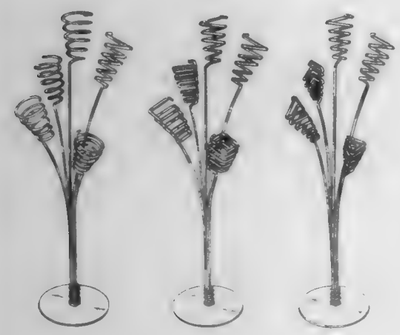


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391,811
ICE CREAM SCOOP
Nicholas J. Molo, Aldinga Beach, Australia, assignor to Dart Industries Inc., Orlando, Fla.
Filed Jan. 21, 1997, Ser. No. 65,137
Term of patent 14 years
LOC (6) Cl. 07 - *99*
U.S. Cl. D7—681



391,812
WINE BOTTLE DISPLAY RACK
Bahman Shafa, Denver, Colo., assignor to Focus Corporation, Denver, Colo.
Filed Mar. 4, 1997, Ser. No. 66,590
Term of patent 14 years
LOC (6) Cl. 07 - *06*
U.S. Cl. D7—704



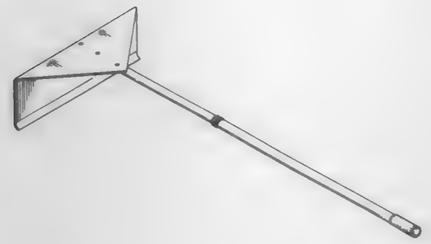
391,813
NO LIFT RAKE
Roy D. Johnson, 2425 Old Alturas Rd., Redding, Calif. 96003
Filed Mar. 22, 1996, Ser. No. 53,002
Term of patent 14 years
LOC (6) Cl. 08 - *01*
U.S. Cl. D8—13



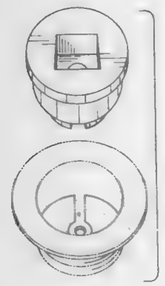
391,814
LEAF RAKE
Larry M. Lindsey, 6688 S. Aroma St., Littleton, Colo. 80120
Filed May 6, 1996, Ser. No. 54,163
Term of patent 14 years
LOC (6) Cl. 08 - *01*
U.S. Cl. D8—13



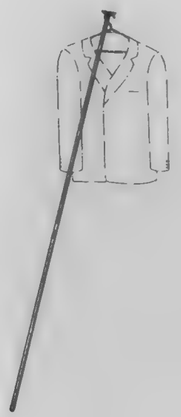
391,815
ROOF SNOW RAKE
William Venezio, 707 Kings Rd., Schenectady, N.Y. 12304
Filed Feb. 10, 1997, Ser. No. 66,298
Term of patent 14 years
LOC (6) Cl. 08 - *01*
U.S. Cl. D8—13



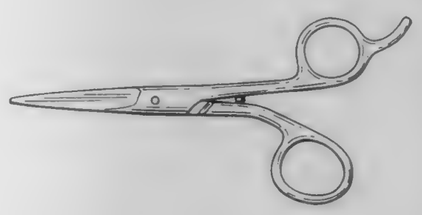
391,816
PLUMBING TOOL FOR DRAIN FIXTURE
Ernest J. Higgins, 412 Benedict Ave., Apartment GR5, Tarrytown, N.Y. 10591
Filed Nov. 20, 1996, Ser. No. 62,635
Term of patent 14 years
LOC (6) Cl. 08 - *05*
U.S. Cl. D8—14



391,817
CLOTHES HANGER HOOK
James E. Christian, Jr., 4470 Homestead Dr., Roanoke, Tex. 76262
Filed Mar. 24, 1997, Ser. No. 68,579
Term of patent 14 years
LOC (6) Cl. 08 - *05*
U.S. Cl. D8—14

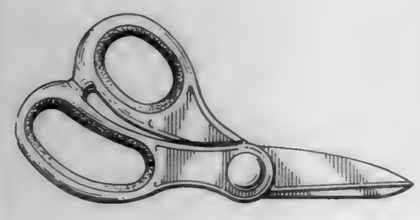


391,818
SHEARS
Jeffrey James Carlson, 3014 Pierce St., Minneapolis, Minn. 55418
Continuation of Ser. No. 45,353, Oct. 18, 1992, abandoned. This application May 2, 1996, Ser. No. 55,808
Term of patent 14 years
LOC (6) Cl. 08 - *03*
U.S. Cl. D8—57

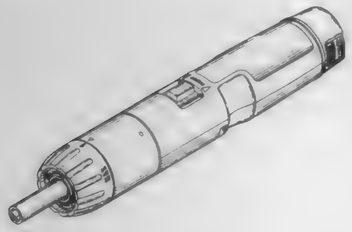


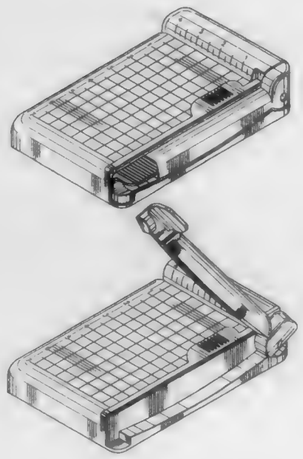
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391,819
SCISSORS WITH ANGLED HANDLES
Victor T. Robinson, Menlo Park; C. Martin Smith, Los Angeles; Michael Butt, Menlo Park, all of Calif., and Thomas M. Aslin, Hilliard, Ohio, assignors to Elmer's Products, Inc., Columbus, Ohio
Filed Sep. 27, 1996, Ser. No. 60,443
Term of patent 14 years
LOC (6) Cl. 08 - *03*
U.S. Cl. D8—57

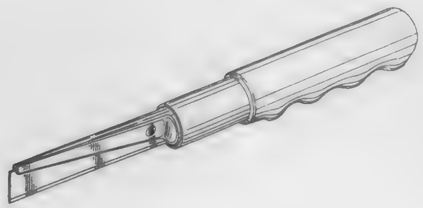


391,820
CORDLESS SCREWDRIVER
Roderick F. Bunyea, 316 Avalon La., Westminster, Md. 21158
Continuation of Ser. No. 40,552, Jun. 21, 1995, abandoned, which is a continuation of Ser. No. 26,997, Aug. 11, 1994, abandoned. This application Jun. 5, 1996, Ser. No. 55,388
Term of patent 14 years
LOC (6) Cl. 08 - *04*
U.S. Cl. D8—61





391,821
FIBERGLASS KNIFE
Vincent L. Schultz, 435 W. Seventh Ave., Shakopee, Minn. 55379
Continuation-in-part of Ser. No. 51,273, Mar. 8, 1996, Pat. No. Des. 379,293. This application Feb. 7, 1997, Ser. No. 67,242
Term of patent 14 years
LOC (6) Cl. 08 - *03*
U.S. Cl. D8—98

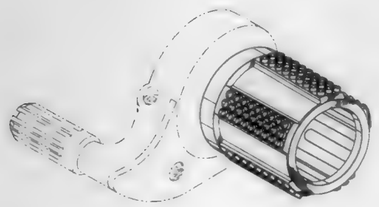


391,822
PHOTOGRAPH CUTTER
Richard M. Applebaum, 21 Maitland Grove Rd., Maitland, Fla. 32751
Filed Mar. 24, 1997, Ser. No. 68,268
Term of patent 14 years
LOC (6) Cl. 08 - *03*
U.S. Cl. D8—98

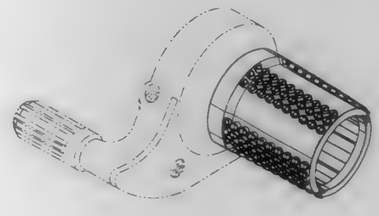
391,823
FURNITURE PULL
David Zeiss, Greensboro, N.C., assignor to Liberty Hardware Mfg. Co., Boca Raton, Fla.
Filed Dec. 11, 1996, Ser. No. 63,615
Term of patent 14 years
LOC (6) Cl. 08 - *06*
U.S. Cl. D8—301



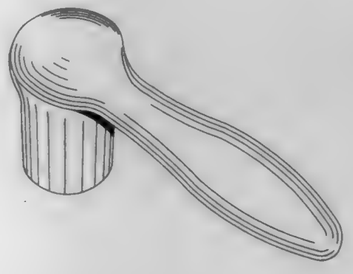
391,824
BICYCLE HANDLE SHIFTER GRIP
Michael W. Larson, Chicago, Ill., assignor to SRAM Corporation, Chicago, Ill.
Division of Ser. No. 30,496, Oct. 31, 1994. This application Nov. 1, 1996, Ser. No. 61,913
Term of patent 14 years
LOC (6) Cl. 08 - *06*
U.S. Cl. D8—303



391,825
BICYCLE HANDLE SHIFTER GRIP
Michael W. Larson, Chicago, Ill., assignor to SRAM Corporation, Chicago, Ill.
Division of Ser. No. 30,496, Oct. 31, 1994. This application Nov. 1, 1996, Ser. No. 64,093
Term of patent 14 years
LOC (6) Cl. 08 - *06*
U.S. Cl. D8—303



391,826
DOOR LEVER
Markus P. Diebel, San Francisco, Calif., assignor to Emhart Inc., Newark, Del.
Filed Jul. 28, 1997, Ser. No. 74,085
Term of patent 14 years
LOC (6) Cl. 08 - *06*
U.S. Cl. D8—308



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391,827
HANDLESET
Anthony J. Carsello, Chino, Calif., assignor to Emhart Inc., Newark, Del.
Filed Aug. 9, 1996, Ser. No. 58,208
Term of patent 14 years
LOC (6) Cl. 08 - *06*
U.S. Cl. D8—321



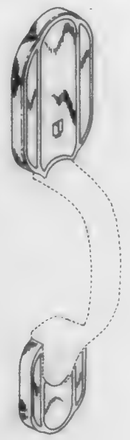
391,828
HANDLESET
Anthony J. Carsello, Chino, Calif., assignor to Emhart Inc., Newark, Del.
Filed Aug. 9, 1996, Ser. No. 58,219
Term of patent 14 years
LOC (6) Cl. 08 - *06*
U.S. Cl. D8—321



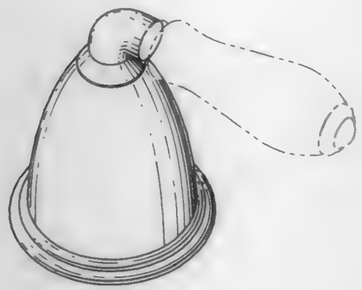
391,829
HANDLESET
Anthony J. Carsello, Chino, Calif., assignor to Emhart Inc., Newark, Del.
Filed Aug. 9, 1996, Ser. No. 58,228
Term of patent 14 years
LOC (6) Cl. 08 - *06*
U.S. Cl. D8—321



391,830
HANDLESET
Anthony J. Carsello, Chino, Calif., assignor to EMHART Inc., Newark, Del.
Filed Aug. 9, 1996, Ser. No. 58,262
Term of patent 14 years
LOC (6) Cl. 08 - *06*
U.S. Cl. D8—321



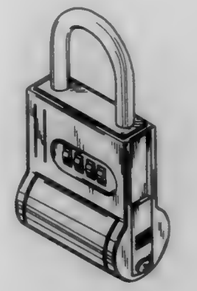
391,831
HANDLE HUB
Frederic C. Doughty, South Pasadena, and Darren M. Mark, Valencia, both of Calif., assignors to Emhart Inc., Newark, Del.
Filed Jun. 16, 1997, Ser. No. 72,404
Term of patent 14 years
LOC (6) Cl. 08 - *06*
U.S. Cl. D8—321



391,832
MOTORCYCLE DISK LOCK
Cornelius McDaid, Dorchester, Mass., assignor to Kryptonite Corporation, Canton, Mass.
Filed Jan. 27, 1997, Ser. No. 65,391
Term of patent 14 years
LOC (6) Cl. 08 - *07*
U.S. Cl. D8—333



391,833
LOCK BOX
John E. Wasson, and Ninnian M. Wasson, both of 3618 S. Olathe Way, Aurora, Colo. 80013
Filed May 6, 1997, Ser. No. 70,887
Term of patent 14 years
LOC (6) Cl. 08 - *07*
U.S. Cl. D8—333

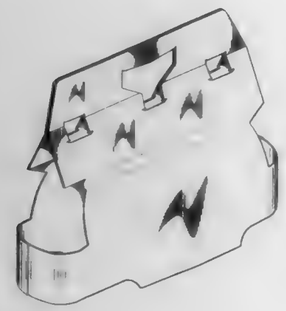


391,834
DIAL TYPE HANDLE FOR ELECTRONIC LOCK
Peter Phillips, Torrance, Calif., assignor to U-Code, Inc., Torrance, Calif.
Filed Jun. 27, 1996, Ser. No. 56,347
Term of patent 14 years
LOC (6) Cl. 08 - *07*
U.S. Cl. D8—343

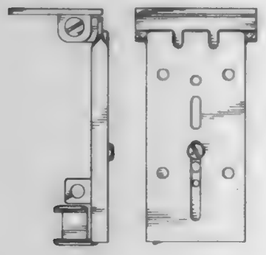


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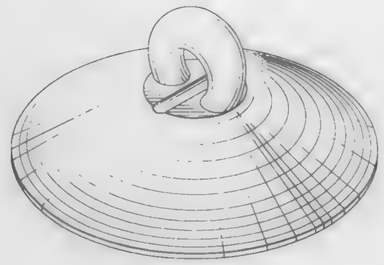
391,835
CARRIER FOR BOTTLES
Jean-Michel Auclair, Chateauroux, France, and Heiko K. Klauer, Mülheim an der Ruhr, Germany, assignors to The Coca-Cola Company, Atlanta, Ga.
Filed Nov. 18, 1996, Ser. No. 62,556
Term of patent 14 years
LOC (6) Cl. 09 - *03*
U.S. Cl. D9—344



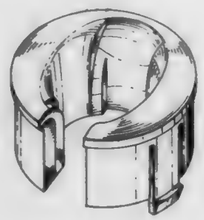
391,836
DRAPERY ROD BRACKET
T. L. Buchanan, Box 467, Manhattan, Mont. 59741
Filed Feb. 27, 1996, Ser. No. 50,831
Term of patent 14 years
LOC (6) Cl. 08 - *05*
U.S. Cl. D8—349



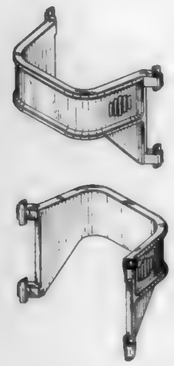
391,837
SUCTION CUP
William E. Adams, Portersville, Pa., assignor to Adams Mfg. Corp., Portersville, Pa.
Filed Dec. 2, 1996, Ser. No. 63,204
Term of patent 14 years
LOC (6) Cl. 08 - *05*
U.S. Cl. D8—354



391,838
FITTED ULTRASOUND TRANSDUCER PROBE HOLDER
Dean J. Bidwell; Stephen B. Hooper, both of Redmond; Andrew L. Walston, Seattle; Peter Wung, Redmond, and Matthew F. Willkens, Seattle, all of Wash., assignors to Siemens Medical Systems, Inc., Iselin, N.J.
Continuation of Ser. No. 44,761, Sep. 29, 1995, abandoned.
This application Jan. 2, 1997, Ser. No. 64,487
Term of patent 14 years
LOC (6) Cl. 08 - *05*
U.S. Cl. D8—356



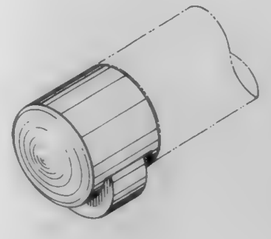
391,839
CABLE RETAINER
Mark Viklund, New Milford, and Jeff Edgerly, Bristol, both of Conn., assignors to The Siemon Company, Watertown, Conn.
Filed Feb. 12, 1997, Ser. No. 66,607
Term of patent 14 years
LOC (6) Cl. 08 - *05*
U.S. Cl. D8—356



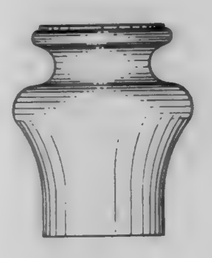
391,840
SNAP HOOK
Roman F. Striebel, Duxbury, Mass., assignor to Suncor Marine & Industrial, Inc., Pembroke, Mass.
Filed Apr. 24, 1997, Ser. No. 69,530
Term of patent 14 years
LOC (6) Cl. 08 - *05*
U.S. Cl. D8—367



391,841
FURNITURE ROLLER
William A. Loescher, Redding, Conn., assignor to Howe Furniture Corporation, Trumbull, Conn.
Filed Mar. 13, 1997, Ser. No. 68,632
Term of patent 14 years
LOC (6) Cl. 08 - *05*
U.S. Cl. D8—375

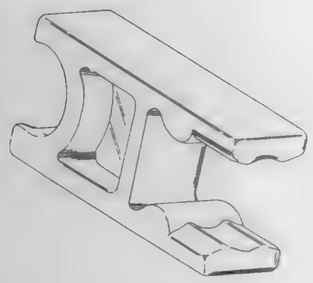


391,842
SHOWER BAR END CAP
Eugene R. Sartini, Fall River, Mass., and Therese L. Coughlin, Cumberland, R.I., assignors to Kenney Manufacturing Company, Warwick, R.I.
Filed Jan. 17, 1997, Ser. No. 64,892
Term of patent 14 years
LOC (6) Cl. 08 - *05*
U.S. Cl. D8—376



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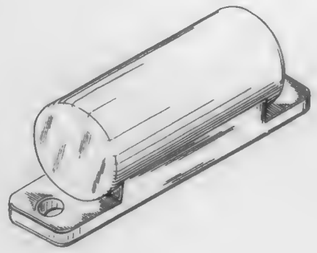
391,843
CONNECTOR WITH ROD SOCKET AND BALL SOCKET
Joel I. Glickman, Huntingdon Valley; Matthew Dickinson, Hatfield; Robert Gleim, Royersford, and John Zimmer, Lansdale, all of Pa., assignors to Connector Set Limited Partnership, Hatfield, Pa.
Filed Jan. 3, 1997, Ser. No. 64,508
Term of patent 14 years
LOC (6) Cl. 08 - *08*
U.S. Cl. D8—382



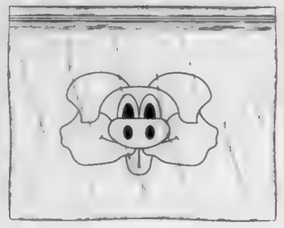
391,844
SPRING SCREW
Matti Ropponen, Espoo, and Heikki Meriläinen, Helsinki, both of Finland, assignors to Fibox Oy AB, Jorvas, Finland
Filed May 31, 1996, Ser. No. 55,168
Claims priority, application Rep. of Korea, Dec. 1, 1995, 95-23362
Term of patent 14 years
LOC (6) Cl. 08 - *08*
U.S. Cl. D8—382



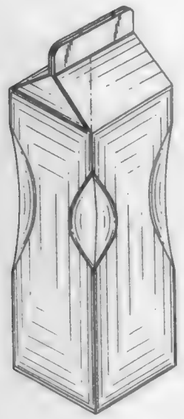
391,845
FURNITURE IMPACT CUSHION
James W. Freeman, 20253 Gifford St., Winnetka, Calif. 91306-3210
Filed Mar. 17, 1997, Ser. No. 68,189
Term of patent 14 years
LOC (6) Cl. 08 - *09*
U.S. Cl. D8—402



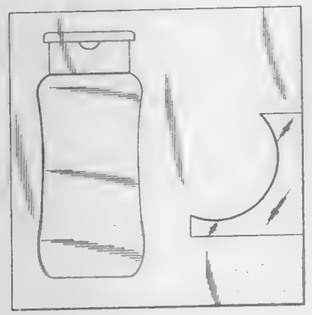
391,846
ADHESIVE-BACKED DIAPER PACKET
Nancy Lee Triggs, 3720 Patuxent Manor Rd., Davidsonville, Md. 21035
Filed Oct. 2, 1996, Ser. No. 60,615
Term of patent 14 years
LOC (6) Cl. 09 - *05*
U.S. Cl. D9—305



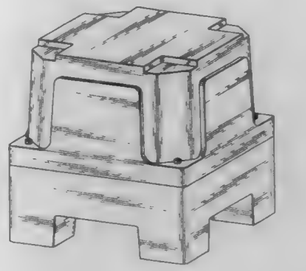
391,847
CARTON WITH HANDLE
Sang Yeul Seo, Hyosungtown 109-903, Bongduck-dong, Nam-ku, Daegu 705-020, and Han Boong Gwak, 1362-6, Beommul-dong, Soosung-ku, Daegu 706-010, both of Rep. of Korea
Filed Dec. 26, 1996, Ser. No. 64,284
Claims priority, application Rep. of Korea, Aug. 17, 1996, 1996-17411
Term of patent 14 years
LOC (6) Cl. 07 - *09*
U.S. Cl. D9—417



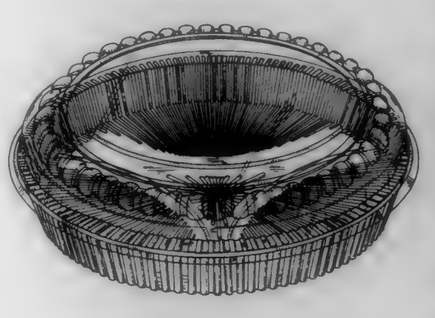
391,848
FRONT FACE OF A CARTON
Joseph M. Everard, Fairfield, Conn., and Sara Hendelman-Schorer, New York, N.Y., assignors to Bristol-Myers Squibb Co., New York, N.Y.
Filed Jul. 14, 1997, Ser. No. 73,533
Term of patent 14 years
LOC (6) Cl. 09 - *07*
U.S. Cl. D9—418



391,849
TWO PART VEHICLE TRANSMISSION SHIPPING CONTAINER
Richard L. Scribner, 2483-B Mercantile Dr., Rancho Cordova, Calif. 95742
Filed Jan. 2, 1997, Ser. No. 64,488
Term of patent 14 years
LOC (6) Cl. 09 - *07*
U.S. Cl. D9—426

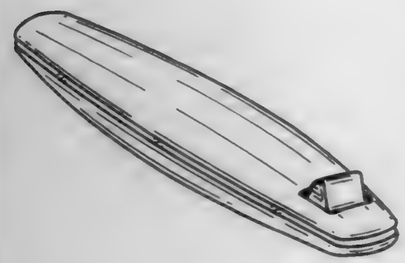


391,850
PIE CONTAINER
Calvin S. Krupa, Medina, and Robert Knoss, Anoka, both of Minn., assignors to Ultra Pac, Inc., Rogers, Minn.
Filed Jul. 17, 1997, Ser. No. 73,780
Term of patent 14 years
LOC (6) Cl. 09 - *07*
U.S. Cl. D9—429

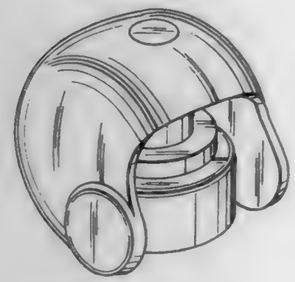


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391,851
BAG CLIP
Carsten Joergensen, Kriens, Switzerland, assignor to PI-Design AG, Triengen, Switzerland
Filed Nov. 6, 1995, Ser. No. 46,026
Claims priority, application Denmark, Sep. 22, 1995, MA 0901 1995
Term of patent 14 years
LOC (6) Cl. 09 - *07*
U.S. Cl. D9—434



391,852
SPORT INDICATIVE CLOSURE CAP
Terence Tucker, Monarch Beach, Calif., assignor to Calico Industries, Inc., San Clemente, Calif.
Division of Ser. No. 43,130, Aug. 21, 1995, Pat. No. Des. 383,979. This application Sep. 12, 1996, Ser. No. 59,521
Term of patent 14 years
LOC (6) Cl. 09 - *01*
U.S. Cl. D9—451



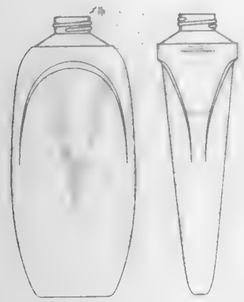
391,853
BOTTLE
James Thomas Green, Worcs, and Elizabeth Winsome Herrells, Surrey, both of Great Britain, assignors to Dairy Crest Limited of Dairy Crest House, Surbiton, England
Filed Sep. 6, 1994, Ser. No. 28,053
Claims priority, application United Kingdom, Mar. 3, 1994, 2037456
Term of patent 14 years
LOC (6) Cl. 09 - *01*
U.S. Cl. D9—500



391,854
BEVERAGE CONTAINER
Donald H. Ankney, Jackson, Mich.; James R. Conger, Brooklyn, Mich.; Wendell R. Deaton, Ann Arbor, Mich.; Scott C. Howland, Blissfield, Mich.; Mark W. Jenkins, Clinton, Mich.; Matthew J. Simpson, Clinton, Mich.; David J. Skala, Saline, Mich.; Alan W. Vanover, Adrian, Mich., and David R. Weinberg, Tecumseh, Mich., assignors to Hoover Universal, Inc., Plymouth, Mich.
Division of Ser. No. 16,077, Dec. 6, 1993, abandoned. This application Apr. 11, 1997, Ser. No. 69,197
Term of patent 14 years
LOC (6) Cl. 09 - *01*
U.S. Cl. D9—520



391,855
BOTTLE
Russell Rowan Fenton, and Elmer H. Goss, both of East Amherst, N.Y., assignors to FWJ Plastics, Inc., Tonawanda, N.Y.
Filed Jan. 23, 1997, Ser. No. 65,470
Term of patent 14 years
LOC (6) Cl. 09 - *01*
U.S. Cl. D9—521



391,856
BOTTLE
L. Grant Lynd, Canal Winchester, Ohio, assignor to National Packaging Corporation, Columbus, Ohio
Filed Dec. 20, 1996, Ser. No. 64,025
Term of patent 14 years
LOC (6) Cl. 09 - *01*
U.S. Cl. D9—531



391,857
COMBINED CONTAINER AND CAP
Trevor Fiore, Dana Point, Calif., assignor to Amway Corporation, Ada, Mich.
Filed Mar. 22, 1994, Ser. No. 20,214
Term of patent 14 years
LOC (6) Cl. 09 - *01*
U.S. Cl. D9—529



391,858
BEVERAGE BOTTLE WITH ROPE SURFACE ORNAMENTATION
Lee J. Dolan; James W. Youker, both of Littleton, Colo.; Daniel A. Matauch, and James E. Gorski, both of Palm Harbor, Fla., assignors to Coors Brewing Company, Golden, Colo.
Continuation of Ser. No. 68,943, Feb. 28, 1997, abandoned. This application Jun. 19, 1997, Ser. No. 72,502
Term of patent 14 years
LOC (6) Cl. 09 - *01*
U.S. Cl. D9—552

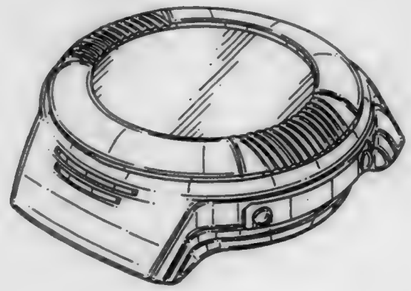


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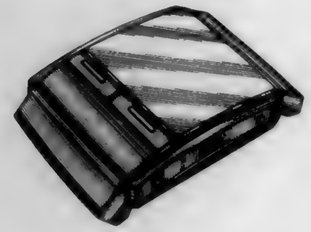
391,859
WATCHCASE
Hisao Sato, and Toshiyuki Dobashi, both of Chiba, Japan, assignors to Seiko Instruments Inc., Japan
Filed Dec. 19, 1996, Ser. No. 63,935
Term of patent 14 years
LOC (6) Cl. 10 - *02*
U.S. Cl. D10—30



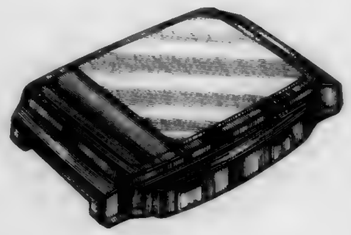
391,861
BEZEL AND CASING FOR A WATCH
John T. Houlihan, Southbury, Conn.; Emmanuel Lim Yap, Lapu-Lapu, Philippines, and Richard J. Toth, Boca Raton, Fla., assignors to Timex Corp., Middlebury, Conn.
Filed May 1, 1997, Ser. No. 70,158
Term of patent 14 years
LOC (6) Cl. 10 - *02*
U.S. Cl. D10—30



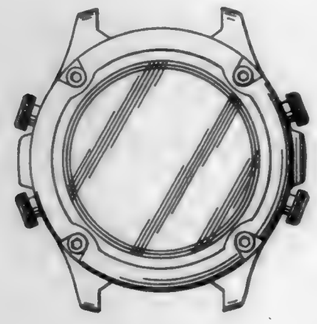
391,860
WATCH CASE
Tatsuya Kubo, Iruma, Japan, assignor to Casio Computer Co., Ltd., Tokyo, Japan
Filed Mar. 5, 1997, Ser. No. 67,559
Term of patent 14 years
LOC (6) Cl. 10 - *02*
U.S. Cl. D10—30



391,862
WATCH CASE
Akihiro Sugisawa, Fussa, and Takashi Nikaido, Ome, both of Japan, assignors to Casio Computer Co., Ltd., Tokyo, Japan
Filed May 19, 1997, Ser. No. 71,000
Term of patent 14 years
LOC (6) Cl. 10 - *02*
U.S. Cl. D10—30



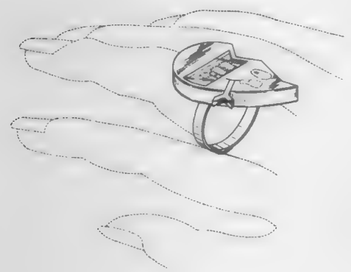
391,863
BEZEL AND CASING FOR A WATCH
John T. Houlihan, 334 Tepi Dr., Southbury, Conn. 06488
Filed Jul. 16, 1997, Ser. No. 74,568
Term of patent 14 years
LOC (6) Cl. 10 - *02*
U.S. Cl. D10—30



391,865
WATCH AND STRAP
Janet G. Brzezinski, Middlebury, Conn., assignor to Timex Corp., Middlebury, Conn.
Filed Jun. 5, 1997, Ser. No. 71,624
Term of patent 14 years
LOC (6) Cl. 10 - *02*
U.S. Cl. D10—32



391,864
FINGER WATCH
Greg Wright, and LaDeana Wright, both of 4777 Pony Express Trail, Camino, Calif. 95709
Filed Apr. 4, 1997, Ser. No. 71,817
Term of patent 14 years
LOC (6) Cl. 10 - *02*
U.S. Cl. D10—31



391,866
WATCH AND STRAP
Janet G. Brzezinski, Middlebury, Conn., assignor to Timex Corp., Middlebury, Conn.
Filed Jun. 5, 1997, Ser. No. 71,625
Term of patent 14 years
LOC (6) Cl. 10 - *02*
U.S. Cl. D10—37



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391,867
WATCH AND STRAP
Janet G. Brzezinski, Middlebury, Conn., assignor to Timex Corp., Middlebury, Conn.
Filed Jun. 5, 1997, Ser. No. 71,628
Term of patent 14 years
LOC (6) Cl. 10 - *02*
U.S. Cl. D10—32



391,868
WATCH AND BRACELET
Janet G. Brzezinski, Middlebury, Conn., assignor to Timex Corp., Middlebury, Conn.
Filed Jun. 5, 1997, Ser. No. 71,641
Term of patent 14 years
LOC (6) Cl. 10 - *02*
U.S. Cl. D10—32



391,869
WATCH AND STRAP
Janet G. Brzezinski, P.O. Box 434 Tranquillity Rd., Middlebury, Conn. 06762
Filed Jun. 5, 1997, Ser. No. 71,642
Term of patent 14 years
LOC (6) Cl. 10 - *02*
U.S. Cl. D10—32



391,870
WATCH AND STRAP
Janet G. Brzezinski, P.O. Box 434 Tranquility Rd., Middlebury, Conn. 06762
Filed Jun. 5, 1997, Ser. No. 71,643
Term of patent 14 years
LOC (6) Cl. 10 - *02*
U.S. Cl. D10—32



391,871
WATCH AND STRAP
Janet G. Brzezinski, P.O. Box 434 Tranquillity Rd., Middlebury, Conn. 06762
Filed Jun. 5, 1997, Ser. No. 71,656
Term of patent 14 years
LOC (6) Cl. 10 - *02*
U.S. Cl. D10—32



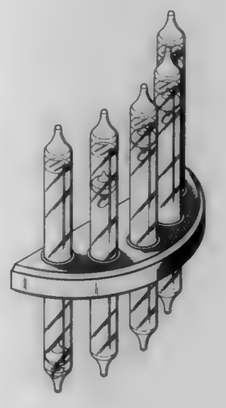
391,872
WATCH CASE
Louis Sugarman, Barrington, and Max B. Dressler, Warwick, both of R.I., assignors to Aicraft, Inc., Pawtucket, R.I.
Filed Apr. 25, 1997, Ser. No. 70,006
Term of patent 14 years
LOC (6) Cl. 10 - *02*
U.S. Cl. D10—33



391,873
WATCH
Alain-Dominique Perrin, Rueil Malmaison, and Jacques Diltoer, Villeneuve-la-Garenne, both of France, assignors to Cartier International B.V., Amsterdam, Netherlands
Filed May 29, 1997, Ser. No. 71,434
Claims priority, application France, Nov. 29, 1996, 966730
Term of patent 14 years
LOC (6) Cl. 10 - *02*
U.S. Cl. D10—39

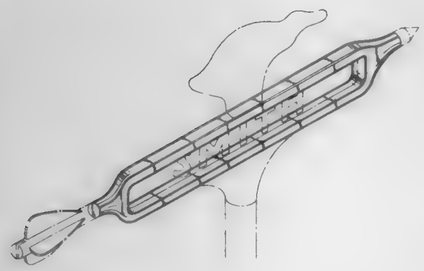


391,874
WALL THERMOMETER SHAPED AS AN ORGAN PIPE
Klaus Gering, Manebach, Germany, assignor to Dr. Friedrichs Gruppe Produktions-u. Vertriebs GmbH, Wertheim, Germany
Filed Nov. 8, 1996, Ser. No. 62,193
Term of patent 14 years
LOC (6) Cl. 10 - *04*
U.S. Cl. D10—57

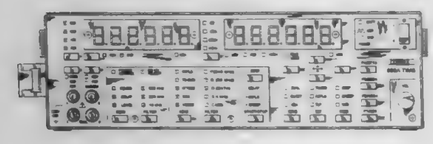


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391,875
WEATHERVANE SUPPORT
Walter James Frontz, II, 2552 Lackey Old State Rd., Delaware, Ohio 43015
Filed Nov. 13, 1996, Ser. No. 62,311
Term of patent 14 years
LOC (6) Cl. 10 - *04*
U.S. Cl. D10—59



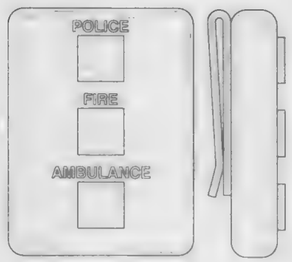
391,876
TRANSMISSION IMPAIRMENT MEASURING INSTRUMENT
James F. Turner, McLean, Va., assignor to Convex Corportion, Sterling, Va.
Filed Mar. 20, 1996, Ser. No. 51,948
Term of patent 14 years
LOC (6) Cl. 10 - *04*
U.S. Cl. D10—75



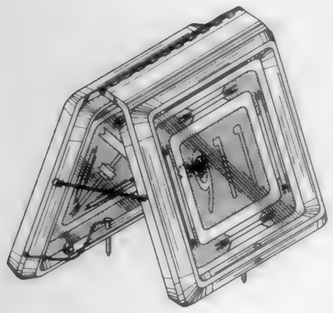
391,877
ELECTRICAL FIELD DETECTOR
John Cassidy, 101 Burton St., Johnstown, N.Y. 12095
Filed May 16, 1997, Ser. No. 70,820
Term of patent 14 years
LOC (6) Cl. 10 - *04*
U.S. Cl. D10—75



391,878
REMOTE TRANSMITTER FOR AN ALERT NOTIFICATION SYSTEM
Paulette Alleyne, 239 Hancock St. Apt #14, Brooklyn, N.Y. 11216
Filed May 8, 1997, Ser. No. 70,458
Term of patent 14 years
LOC (6) Cl. 10 - *05*
U.S. Cl. D10—104



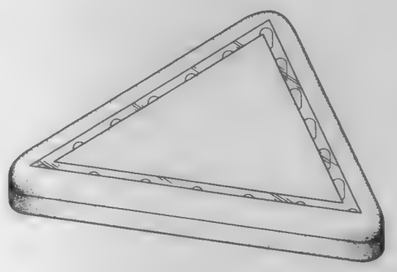
391,879
EMERGENCY HIGHWAY REFLECTOR
Cal Lawton, 381 E. 3600 St., Salt Lake City, Utah 84115
Filed May 12, 1997, Ser. No. 70,595
Term of patent 14 years
LOC (6) Cl. 10 - *05*
U.S. Cl. D10—109



391,880
PARKING SPACE IDENTIFIER
Annette Mintz, 713 Villa Capri, Olivette, Mo. 63132
Filed Jul. 25, 1997, Ser. No. 74,508
Term of patent 14 years
LOC (6) Cl. 10 - *05*
U.S. Cl. D10—109



391,881
ILLUMINABLE INDICATOR LIGHT
Paul Youseph, Veradale, Wash., assignor to Christian P. Youseph, and Kamiel P. Youseph, both of Veradale, Wash.
Filed Mar. 10, 1997, Ser. No. 67,526
Term of patent 14 years
LOC (6) Cl. 10 - *05*
U.S. Cl. D10—114

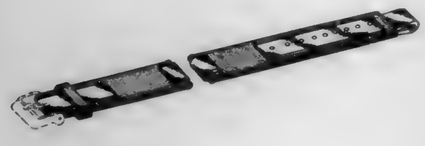


391,882
WATCH STRAP
Gabriel N. Roales, B9 IPI Housing Project, Talamban, Cebu City 6000, Philippines
Filed Jan. 17, 1997, Ser. No. 64,573
Term of patent 14 years
LOC (6) Cl. 11 - *01*
U.S. Cl. D11—3



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391,883
WATCH STRAP
Judy Ringel Close, 39 Grove Hill Park, Newton, Mass. 02160
Filed Mar. 7, 1997, Ser. No. 67,569
Term of patent 14 years
LOC (6) Cl. 11 - *01*
U.S. Cl. D11—3



391,885
WATCH BRACELET
Amelia Kennedy, 83 W. Side Rd., Woodbury, Conn. 06798
Filed Feb. 25, 1997, Ser. No. 66,974
Term of patent 14 years
LOC (6) Cl. 11 - *01*
U.S. Cl. D11—12



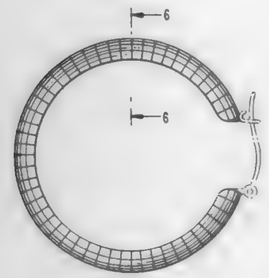
391,884
NECKLACE
Paolo Bulgari, Rome, Italy, assignor to Bulgari S.p.A., Rome, Italy
Filed Jul. 21, 1997, Ser. No. 73,851
Claims priority, application WIPO, Apr. 21, 1997, DM 839923
Term of patent 14 years
LOC (6) Cl. 11 - *01*
U.S. Cl. D11—6



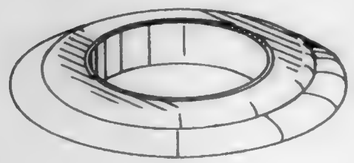
391,886
WAVE BRACELET
Yogesh Madhvani, Scarsdale, N.Y., assignor to Simplex Diam Inc., New York, N.Y.
Filed Jul. 24, 1997, Ser. No. 74,099
Term of patent 14 years
LOC (6) Cl. 11 - *01*
U.S. Cl. D11—18



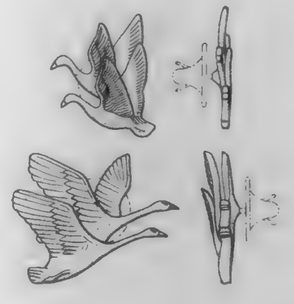
391,887
EARRING
Josef J. Barr, 6001 Georgia Ave., West Palm Beach, Fla. 33405
Filed Jun. 10, 1996, Ser. No. 55,652
Term of patent 14 years
LOC (6) Cl. 11 - *01*
U.S. Cl. D11—40



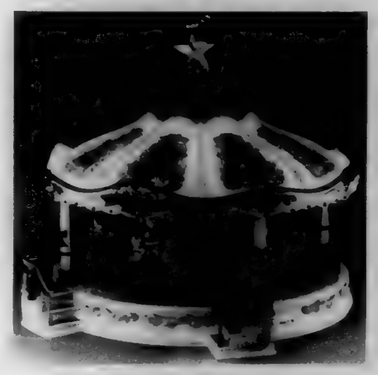
391,888
EARRING
Carole Darlene Fox, 61 Centre St., N. Brampton, Ontario, Canada, L6V 1T1
Filed Jun. 29, 1996, Ser. No. 56,307
Term of patent 14 years
LOC (6) Cl. 11 - *01*
U.S. Cl. D11—41



391,889
PIN
Raymond L. Ledoux, 122 Fay Rd., Framingham, Mass. 01702
Filed Jun. 25, 1997, Ser. No. 72,822
Term of patent 14 years
LOC (6) Cl. 11 - *01*
U.S. Cl. D11—49

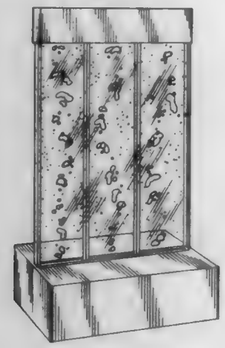


391,890
TOY CHRISTMAS CAROUSEL
Ken Park, Northville, Mich., assignor to New Bright Industrial Co., Ltd., Hong Kong, Hong Kong
Filed Apr. 28, 1997, Ser. No. 70,073
Term of patent 14 years
LOC (6) Cl. 11 - *02*
U.S. Cl. D11—125

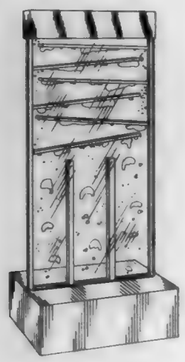


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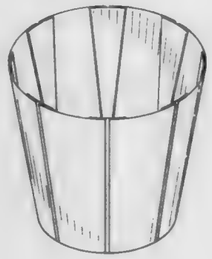
391,891
VISUAL DISPLAY
John C. Johnson, and George S. Johnson, both of 365 Bonair St. #14, La Jolla, Calif. 92037
Filed Apr. 29, 1997, Ser. No. 70,381
Term of patent 14 years
LOC (6) Cl. 11 - *02*
U.S. Cl. D11—131



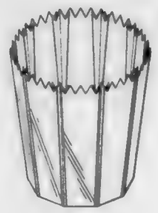
391,892
VISUAL DISPLAY
John C. Johnson, and George S. Johnson, both of 365 Bonair St., #14, La Jolla, Calif. 92037
Filed Apr. 29, 1997, Ser. No. 70,382
Term of patent 14 years
LOC (6) Cl. 11 - *02*
U.S. Cl. D11—131



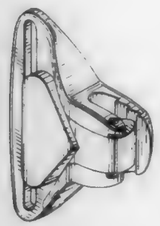
391,893
FLOWER POT COVER
Donald E. Weder, and Joseph G. Straeter, both of Highland, Ill., assignors to Southpac Trust International, Inc.
Division of Ser. No. 807,897, Dec. 16, 1991, Pat. No. No. Des. 364,582, which is a continuation-in-part of Ser. No. 710,272, Jun. 4, 1991, Pat. No. Des. 365,302, which is a continuation-in-part of Ser. No. 617,454, Nov. 21, 1990, abandoned, and a continuation-in-part of Ser. No. 411,249, Sep. 22, 1989, Pat. No. Des. 358,113, and a continuation-in-part of Ser. No. 411,247, Sep. 22, 1989, abandoned, and a continuation-in-part of Ser. No. 411,245, Sep. 22, 1989, abandoned. This application Jul. 10, 1995, Ser. No. 41,222
The portion of the term of this patent subsequent to Jul. 18, 2009, has been disclaimed.
Term of patent 14 years
LOC (6) Cl. 11 - *02*
U.S. Cl. D11—164



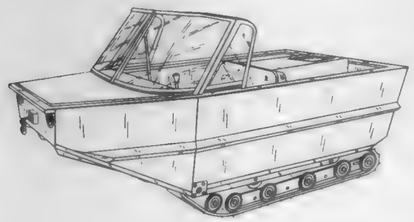
391,894
FLOWER POT COVER
Donald E. Weder, and Joseph G. Straeter, both of Highland, Ill., assignors to Southpac Trust International, Inc.
Continuation-in-part of Ser. No. 808,562, Dec. 16, 1991, Pat. No. Des. 361,297, which is a continuation-in-part of Ser. No. 710,272, Jun. 4, 1991, Pat. No. Des. 365,302, which is a continuation-in-part of Ser. No. 617,454, Nov. 21, 1990, abandoned, and a continuation-in-part of Ser. No. 411,249, Sep. 22, 1989, Pat. No. Des. 358,113, and a continuation-in-part of Ser. No. 411,247, Sep. 22, 1989, abandoned, and a continuation-in-part of Ser. No. 411,245, Sep. 22, 1989, abandoned. This application Jul. 12, 1995, Ser. No. 41,387
The portion of the term of this patent subsequent to Jul. 18, 2009, has been disclaimed.
Term of patent 14 years
LOC (6) Cl. 11 - *02*
U.S. Cl. D11—164



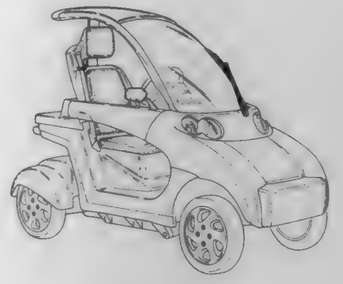
391,895
SUSPENDER BUCKLE
Joseph Anscher, Muttontown, N.Y., assignor to National Molding Corp., Farmingdale, N.Y.
Filed Mar. 28, 1997, Ser. No. 68,237
Term of patent 14 years
LOC (6) Cl. 02 - *07*
U.S. Cl. D11—215



391,896
TRACK VEHICLE
David V. Albertson, 3124 Brooks La., Minnetonka Beach, Minn. 55361
Filed Jun. 11, 1997, Ser. No. 72,105
Term of patent 14 years
LOC (6) Cl. 12 - *14*
U.S. Cl. D12—1

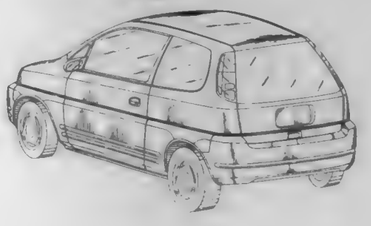


391,897
FOUR WHEELED VEHICLE
Yutaka Murata, Saitama, Japan, assignor to Honda Giken Kogyo Kabushiki Kaisha, Tokyo, Japan
Filed Oct. 18, 1996, Ser. No. 61,229
Claims priority, application Japan, Apr. 22, 1996, 8-11671
Term of patent 14 years
LOC (6) Cl. 12 - *08*
U.S. Cl. D12—86



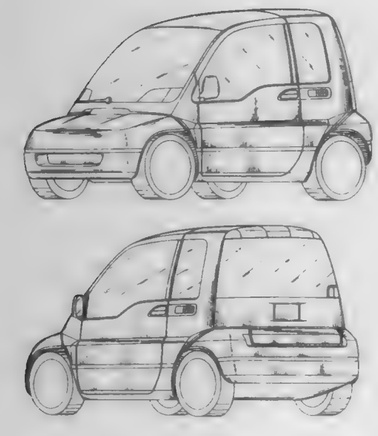
391,898
AUTOMOBILE
Fumiro Yoshikawa, and Yasuharu Ishino, both of Wako, Japan, assignors to Honda Giken Kogyo Kabushiki Kaisha, Tokyo, Japan
Filed Aug. 9, 1996, Ser. No. 58,193
Claims priority, application Japan, Feb. 13, 1996, 8-3452
Term of patent 14 years
LOC (6) Cl. 12 - *08*
U.S. Cl. D12—91



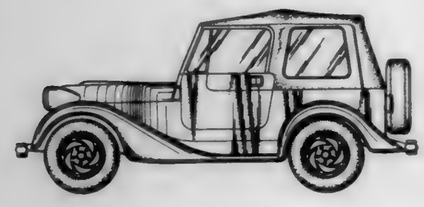


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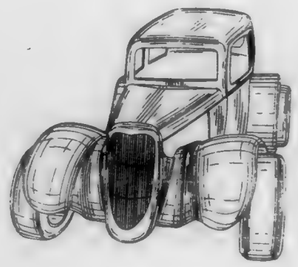
391,899
AUTOMOBILE
Shinri Chibuka; Yoji Hayashi; Toshihiro Ono; Junichi Yamaguchi, and Kenji Kawasaki, all of Wako, Japan, assignors to Honda Giken Kogyo Kabushiki Kaisha, Tokyo, Japan
Filed Sep. 27, 1996, Ser. No. 60,385
Claims priority, application Japan, Apr. 22, 1996, 8-11674
Term of patent 14 years
LOC (6) Cl. 12 - *08*
U.S. Cl. D12—91



391,900
VEHICLE
Ernest G. Skoog, 310 Caulder, Des Moines, Iowa 50315
Filed Jan. 7, 1997, Ser. No. 64,633
Term of patent 14 years
LOC (6) Cl. 12 - *08*
U.S. Cl. D12—91



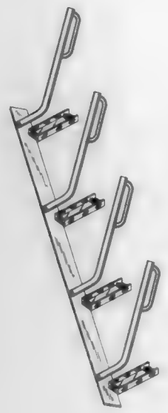
391,901
AUTOMOBILE
Elliott Forbes-Robinson, Sherrills Ford, N.C., assignor to 600 Racing, Inc., Concord, N.C.
Filed Feb. 11, 1997, Ser. No. 66,303
Term of patent 14 years
LOC (6) Cl. 12 - *08*
U.S. Cl. D12—92



391,902
BIKE RACK
Mark Pappas, Portland, Oreg., assignor to Creative Pipe, Inc., Hermosa Beach, Calif.
Filed Feb. 6, 1997, Ser. No. 66,320
Term of patent 14 years
LOC (6) Cl. 12 - *11*
U.S. Cl. D12—115



391,903
SPACE SAVING BIKE RACK
Mark Pappas, Portland, Oreg., assignor to Creative Pipe, Inc., Hermosa Beach, Calif.
Filed Feb. 6, 1997, Ser. No. 66,321
Term of patent 14 years
LOC (6) Cl. 12 - *11*
U.S. Cl. D12—115

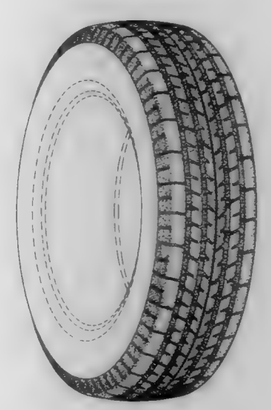


391,904
Patent Not Issued For This Number

391,905
TIRE TREAD
Michael Kousaie, Greer, S.C., assignor to Michelin Recherche et Technique S.A., Granges-Paccot, Switzerland
Filed Sep. 26, 1996, Ser. No. 60,338
Term of patent 14 years
LOC (6) Cl. 12 - *15*
U.S. Cl. D12—147



391,906
TIRE TREAD
Michael Kousaie, Greer, S.C., assignor to Michelin Recherche et Technique S.A., Granges-Paccot, Switzerland
Filed Sep. 26, 1996, Ser. No. 60,340
Term of patent 14 years
LOC (6) Cl. 12 - *15*
U.S. Cl. D12—147

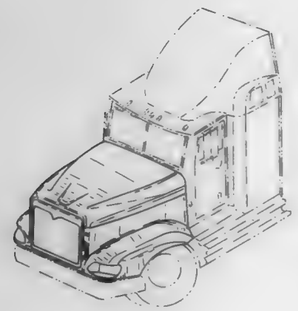


391,907
TREAD OF A TIRE
Gilbert Gauthier, Cournon-D'Auvergne, France, assignor to Michelin & Cie, Clermont-Ferrand, France
Division of Ser. No. 53,238, Apr. 18, 1996. This application Mar. 11, 1997, Ser. No. 67,541
Claims priority, application France, Oct. 20, 1995, 955741
Term of patent 14 years
LOC (6) Cl. 12 - *15*
U.S. Cl. D12—147

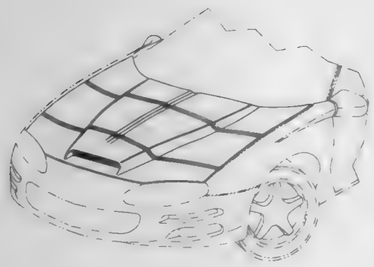


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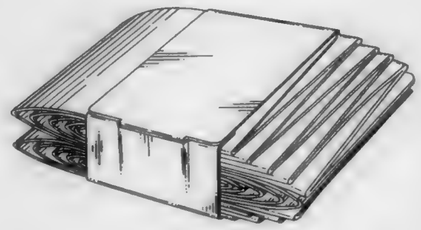
391,908
EXTERIOR SHELL OF A VEHICLE HOOD
L. David Allendorph; Richard B. Hatch, both of Fort Wayne; Robert M. Zimmerman, Kendallville, and Franz Mueller, Fort Wayne, all of Ind., assignors to Navistar International Transportation Corp., Chicago, Ill.
Filed Oct. 12, 1995, Ser. No. 47,793
Term of patent 14 years
LOC (6) Cl. 12 - *16*
U.S. Cl. D12—173



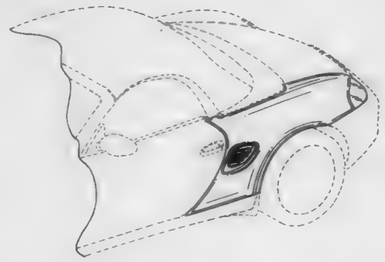
391,909
AUTOMOBILE HOOD
Randolph James Wittine, Sterling Heights, Mich., assignor to SLP Engineering, Inc., Troy, Mich.
Filed May 27, 1997, Ser. No. 71,288
Term of patent 14 years
LOC (6) Cl. 12 - *16*
U.S. Cl. D12—173



391,910
FOLDED SHADE WITH WRAPPER
Ezra David Eskandry, 1925 Brickell Ave., Apt. D901, Miami, Fla. 33129
Division of Ser. No. 33,944, Jan. 24, 1995, Pat. No. Des. 384,318. This application Apr. 17, 1997, Ser. No. 69,744
Term of patent 14 years
LOC (6) Cl. 12 - *16*
U.S. Cl. D12—191



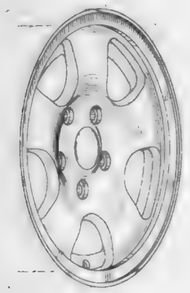
391,911
AUTOMOBILE REAR QUARTER PANEL EXTERIOR SURFACE
Harm Lagaay, Marbach, and Grant Larson, Stuttgart, both of Germany, assignors to Dr. Ing. h.c.F. Porsche AG, Weissach, Germany
Filed Jan. 24, 1996, Ser. No. 49,385
Claims priority, application Germany, Jul. 27, 1995, M 95 05 871.0
Term of patent 14 years
LOC (6) Cl. 12 - *16*
U.S. Cl. D12—196



391,912
MOTOR CAR WHEEL AXLE CAP
Kazantsev Evgeny Nikolaevich, 4-7-107 Prospect Aviaconstructorov, Saint Petersburg, 197373, Russian Federation
Filed Apr. 16, 1996, Ser. No. 53,084
Claims priority, application Russian Federation, Oct. 23, 1995, 95501030
Term of patent 14 years
LOC (6) Cl. 12 - *16*
U.S. Cl. D12—204



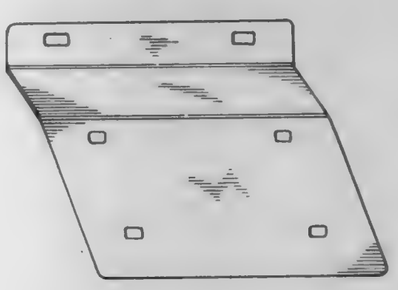
391,913
VEHICLE WHEEL FRONT FACE
Suny Chung, Placentia, Calif., assignor to American Racing Equipment, Inc., Rancho Dominguez, Calif.
Filed Oct. 25, 1996, Ser. No. 61,537
Term of patent 14 years
LOC (6) Cl. 12 - *16*
U.S. Cl. D12—209



391,914
WHEEL FOR A MOTORCYCLE
Taishi Inoue, Saitama, Japan, assignor to Honda Giken Kogyo Kabushiki Kaisha, Tokyo, Japan
Filed Oct. 30, 1996, Ser. No. 61,761
Claims priority, application Japan, May 15, 1996, 8-14055
Term of patent 14 years
LOC (6) Cl. 12 - *16*
U.S. Cl. D12—211



391,915
SADDLE BAG MOUNTING BRACKET FOR A MOTORCYCLE
Larry L. Miller, Rossburg, Ohio, assignor to M.L.W. Custom Cycle, Inc., Versailles, Ohio
Filed Nov. 4, 1996, Ser. No. 61,968
Term of patent 14 years
LOC (6) Cl. 12 - *06*
U.S. Cl. D12—223



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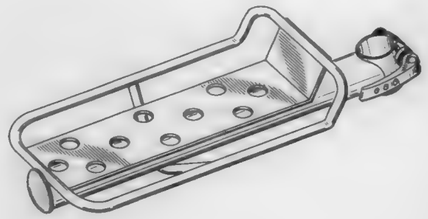
391,916
KAYAK
William E. Masters, Easley, S.C., assignor to Mainstream Products, Inc., Easley, S.C.
Filed May 27, 1997, Ser. No. 71,294
Term of patent 14 years
LOC (6) Cl. 12 - *06*
U.S. Cl. D12—302



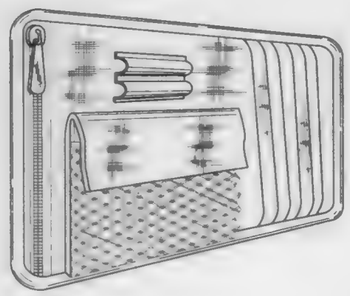
391,917
DECORATIVE NOVELTY DEVICE FOR AUTOMOBILES
Ernest W. Hicks, Jr., 977 E. Stanley Blvd. Suite 289, Livermore, Calif. 94550
Filed Aug. 2, 1996, Ser. No. 57,874
Term of patent 14 years
LOC (6) Cl. 12 - *16*
U.S. Cl. D12—400



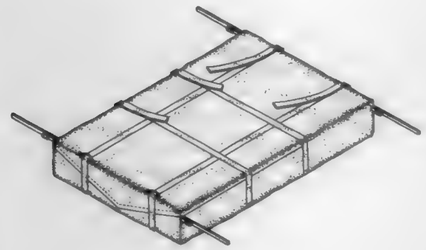
391,918
ADJUSTABLE BICYCLE STORAGE RACK
Christopher J. Dunn, 2929 N. 70th St., Apt. No. 2056, Scottsdale, Ariz. 85251
Filed Jan. 21, 1997, Ser. No. 65,339
Term of patent 14 years
LOC (6) Cl. 12 - *16*
U.S. Cl. D12—407



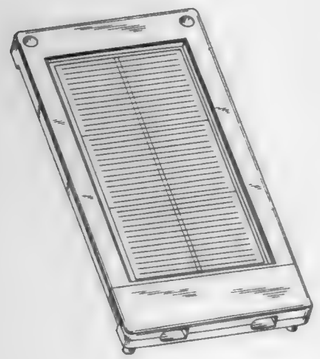
391,919
VISOR ATTACHED ARTICLE HOLDER
Paul Brassard, Arcadia, Calif., assignor to Arkon Resources Inc., Arcadia, Calif.
Filed Jan. 29, 1996, Ser. No. 49,695
Term of patent 14 years
LOC (6) Cl. 12 - *16*
U.S. Cl. D12—417



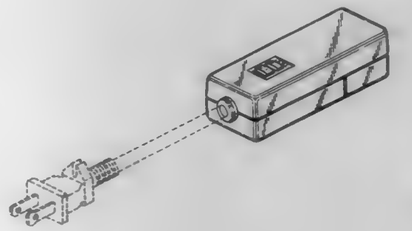
391,920
STORAGE BAG FOR BED OF A PICKUP TRUCK
H. Lee Dempsey, Jr., Stockton, Calif., assignor to The Buffalo Bag LLC, Manteca, Calif.
Filed Dec. 17, 1996, Ser. No. 63,846
Term of patent 14 years
LOC (6) Cl. 12 - *16*
U.S. Cl. D12—423



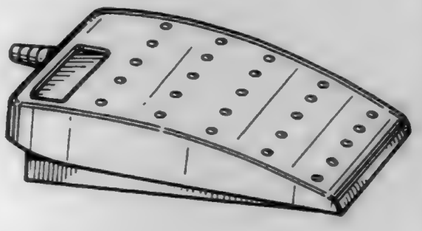
391,921
SOLAR PANEL
John Zimmer, Blue Bell, and Michael DiLabio, Limerick, both of Pa., assignors to Connector Set Limited Partnership, Hatfield, Pa.
Filed Feb. 5, 1997, Ser. No. 66,097
Term of patent 14 years
LOC (6) Cl. 13 - *02*
U.S. Cl. D13—102



391,922
IN LINE COMPACT APPLIANCE LEAKAGE CURRENT INTERRUPTER
Victor V. Aromin, Warwick, R.I., assignor to Tower Manufacturing Corporation, Providence, R.I.
Filed Oct. 4, 1996, Ser. No. 60,701
Term of patent 14 years
LOC (6) Cl. 13 - *03*
U.S. Cl. D13—160

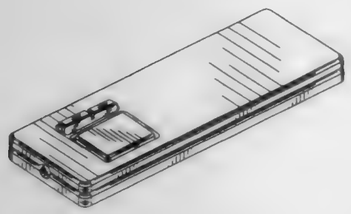


391,923
CONTROL DEVICE
Peter Martin Tracey, Bury St. Edmunds, United Kingdom, assignor to Bestquint Limited, Suffolk, United Kingdom
Filed Nov. 21, 1996, Ser. No. 62,660
Claims priority, application United Kingdom, May 21, 1996, 2056465
Term of patent 14 years
LOC (6) Cl. 13 - *03*
U.S. Cl. D13—167

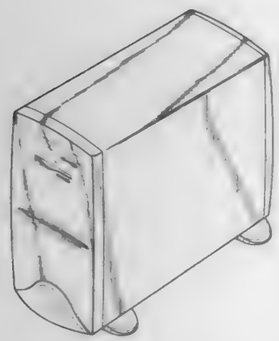


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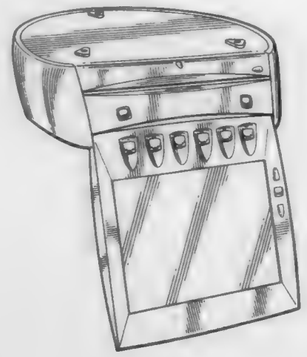
391,924
WIRELESS TRANSMITTER FOR SELECTABLE LIGHT LEVEL CONTROL
Noel Mayo, Philadelphia; Gary W. Bryde, Catasauqua; Elliot G. Jacoby, Jr., Glenside; Robert S. Hanna, Macungie; Donald E. Welling, Whitehall, and Joel S. Spira, Coopersburg, all of Pa., assignors to Lutron Electronics Co., Inc., Coopersburg, Pa.
Filed Mar. 13, 1996, Ser. No. 51,582
Term of patent 14 years
LOC (6) Cl. 13 - *03*
U.S. Cl. D13—168



391,925
TOWER FOR PERSONAL COMPUTERS
Gil Y. Wong; Jeffrey Salazer; Max Yoshimoto, all of Palo Alto; Yves Behar, San Francisco, and Peter Lee, San Jose, all of Calif., assignors to Hewlett-Packard Company, Palo Alto, Calif.
Filed Jun. 28, 1996, Ser. No. 56,443
Term of patent 14 years
LOC (6) Cl. 14 - *02*
U.S. Cl. D14—100



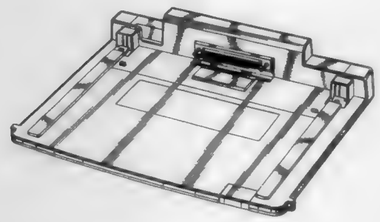
391,926
INFORMATION APPLIANCE UNIT WITH A FOLD OPEN INTEGRAL DISPLAY
Robert D. Brunner, Los Gatos, and James R. Toleman, San Francisco, both of Calif., assignors to Diba, Inc., Menlo Park, Calif.
Filed Dec. 12, 1996, Ser. No. 63,683
Term of patent 14 years
LOC (6) Cl. 14 - *02*
U.S. Cl. D14—100



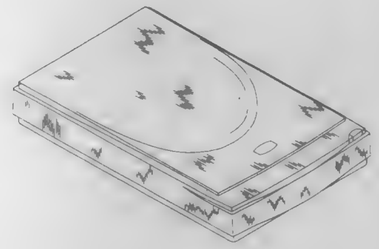
391,927
NOTEBOOK PERSONAL COMPUTER
Robert T. Faranda, Boxborough, and Bradford G. Chapin, Ayer, both of Mass., assignors to Digital Equipment Corporation, Maynard, Mass.
Filed May 13, 1997, Ser. No. 70,682
Term of patent 14 years
LOC (6) Cl. 14 - *02*
U.S. Cl. D14—106



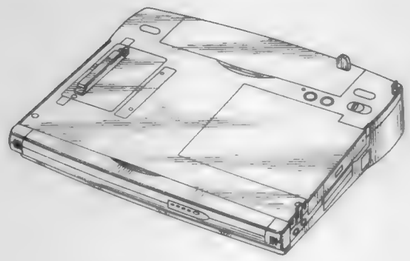
391,928
CONNECTING DEVICE FOR PERIPHERAL EQUIPMENT OF AN ELECTRONIC COMPUTER
Osamu Kondo, Tokyo, and Masaaki Iino, Saitama-ken, both of Japan, assignors to Kabushiki Kaisha Toshiba, Kawasaki, Japan
Filed Sep. 5, 1996, Ser. No. 59,220
Claims priority, application Japan, Apr. 25, 1996, 8-11899
Term of patent 14 years
LOC (6) Cl. 14 - *02*
U.S. Cl. D14—107



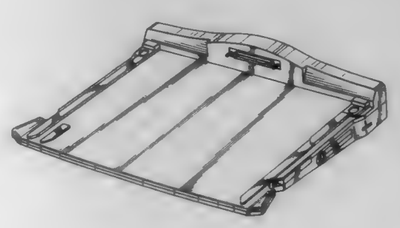
391,930
FLATBED SCANNER
Tung Cheng-Yung, Taipei, Taiwan, assignor to Primax Electronics Ltd., Taipei, Taiwan
Filed May 28, 1997, Ser. No. 71,372
Claims priority, application Taiwan, Mar. 13, 1997, 86302040
Term of patent 14 years
LOC (6) Cl. 14 - *02*
U.S. Cl. D14—107



391,929
COMBINED FUNCTION EXPANDER AND PRINTER FOR PERSONAL COMPUTER
Manabu Inoue, Yokohama, Japan, assignor to Canon Kabushiki Kaisha, Tokyo, Japan
Filed May 14, 1997, Ser. No. 70,730
Claims priority, application Japan, Nov. 18, 1996, 8-34921
Term of patent 14 years
LOC (6) Cl. 14 - *02*
U.S. Cl. D14—107

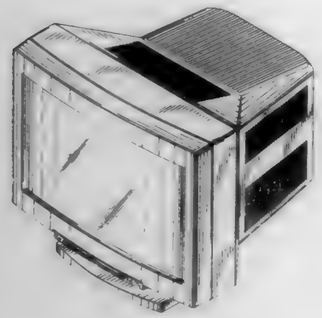


391,931
APPARATUS FOR EXTENSION OF FUNCTION OF ELECTRONIC COMPUTERS
Masaaki Iino, Saitama-ken, Japan, assignor to Kabushiki Kaisha Toshiba, Kawasaki, Japan
Filed Jun. 17, 1997, Ser. No. 72,434
Claims priority, application Japan, Jan. 24, 1997, 9-1399
Term of patent 14 years
LOC (6) Cl. 14 - *02*
U.S. Cl. D14—107

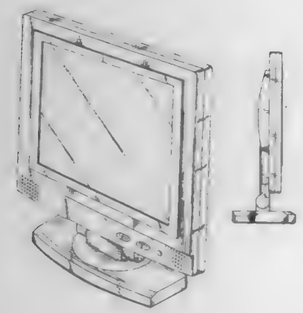


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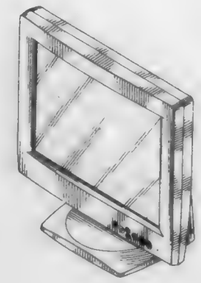
391,932
MONITOR
Mitsuhiro Uehara, Sony Corporation 7-35 Kitashinagawa 6-chome, Shinagawa-ku, Tokyo, Japan
Filed Aug. 12, 1996, Ser. No. 58,358
Term of patent 14 years
LOC (6) Cl. 14 - *02*
U.S. Cl. D14—113



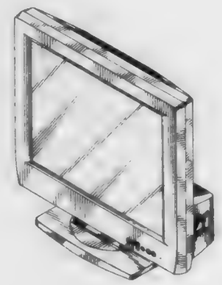
391,933
COMPUTER DISPLAY
Chih-Ching Chang, Taipei, Taiwan, assignor to Compal Electronics, Inc, Taipei, Taiwan
Filed Mar. 26, 1997, Ser. No. 68,282
Term of patent 14 years
LOC (6) Cl. 14 - *02*
U.S. Cl. D14—113



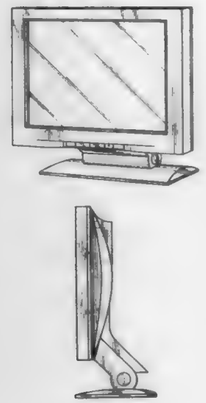
391,934
LIQUID CRYSTAL DISPLAY
Masami Uehara; Yasuki Sato, both of Osaka, and Tomoya Terasawa, Tokyo, all of Japan, assignors to NEC Corporation, Tokyo, Japan
Filed May 8, 1997, Ser. No. 70,481
Claims priority, application Japan, Nov. 8, 1996, 8-33964
Term of patent 14 years
LOC (6) Cl. 14 - *02*
U.S. Cl. D14—113



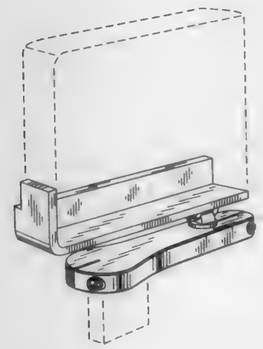
391,935
LIQUID CRYSTAL DISPLAY
Katsuya Sakaguchi; Yoshiki Miyazawa, both of Osaka, and Tomoya Terasawa, Tokyo, all of Japan, assignors to NEC Corporation, Tokyo, Japan
Filed May 8, 1997, Ser. No. 70,482
Claims priority, application Japan, Nov. 8, 1996, 8-33965
Term of patent 14 years
LOC (6) Cl. 14 - *02*
U.S. Cl. D14—113



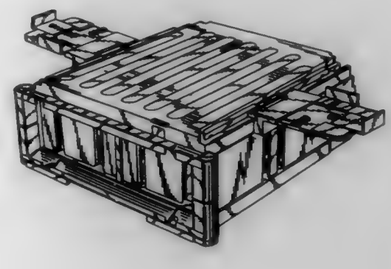
391,936
FLAT PANEL DISPLAY
Shigeo Usui, Kyoto, and Hirofumi Takemasa, Osaka, both of Japan, assignors to Matsushita Electric Industrial Co. Ltd., Osaka, Japan
Filed May 29, 1997, Ser. No. 71,406
Claims priority, application Japan, Nov. 29, 1996, 8-36223
Term of patent 14 years
LOC (6) Cl. 14 - *02*
U.S. Cl. D14—113



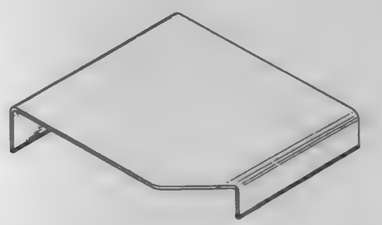
391,937
MONITOR SUPPORT
John B. Rosen, Eugene, Oreg., assignor to Advanced Multimedia Products Corporation, Eugene, Oreg.
Filed Apr. 19, 1996, Ser. No. 53,324
Term of patent 14 years
LOC (6) Cl. 14 - *02*
U.S. Cl. D14—114



391,938
COMPUTER-BASED ORGANIZER WITH LOUDSPEAKER SUPPORT BRACKETS
Amos D'Agaro, Udine; Adriano Marino, Novara, and Andrea Venturini, Udine, all of Italy, assignors to Exponent Italia S.r.l., Udine, Italy
Filed May 14, 1996, Ser. No. 54,433
Claims priority, application Italy, Nov. 23, 1995, PN9500020
Term of patent 14 years
LOC (6) Cl. 14 - *02*
U.S. Cl. D14—114

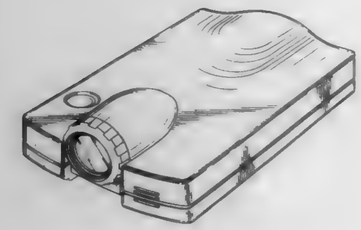


391,939
COMPUTER KEYBOARD MOUSE PAD BRIDGE
Peter A. Pappas, Campbell, Calif., assignor to Source 1 Ergonomics, Santa Clara, Calif.
Filed May 22, 1996, Ser. No. 54,806
Term of patent 14 years
LOC (6) Cl. 14 - *02*
U.S. Cl. D14—114

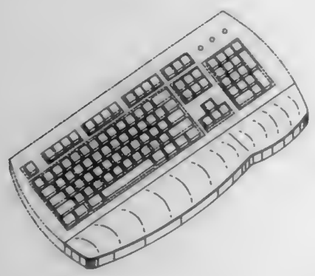


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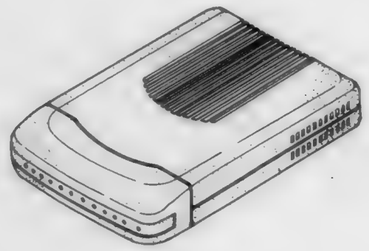
391,940
IMAGE INPUTTING DEVICE
Osamu Sakata, Tokyo, Japan, assignor to Canon Kabushiki Kaisha, Tokyo, Japan
Filed Jun. 25, 1996, Ser. No. 56,198
Claims priority, application Japan, Dec. 27, 1995, 7-39368
Term of patent 14 years
LOC (6) Cl. 14 - *02*
U.S. Cl. D14—114



391,941
WRIST REST FOR KEYBOARD
Robert Brunner, Los Gatos, Calif., assignor to Kabushiki Kaisha Toshiba, Kawasaki, Japan
Filed Aug. 27, 1996, Ser. No. 58,874
Term of patent 14 years
LOC (6) Cl. 14 - *02*
U.S. Cl. D14—114



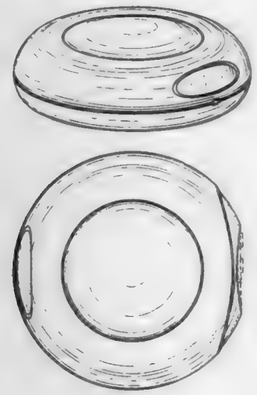
391,942
COMPUTER CASE
Chi Hsiu Lee, P.O. Box 82-144, Taipei, Taiwan
Filed Nov. 21, 1996, Ser. No. 61,304
Term of patent 14 years
LOC (6) Cl. 14 - *02*
U.S. Cl. D14—114



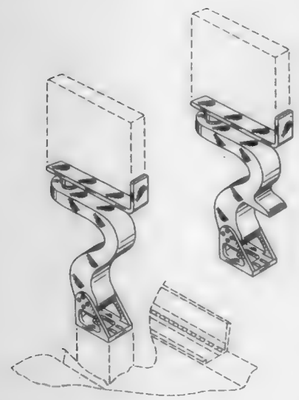
391,943
COMPUTER OUTPUT DEVICE
Allen M. Han, Redmond, Wash., assignor to Microsoft Corporation, Redmond, Wash.
Filed Jan. 22, 1997, Ser. No. 65,164
Term of patent 14 years
LOC (6) Cl. 14 - *02*
U.S. Cl. D14—114



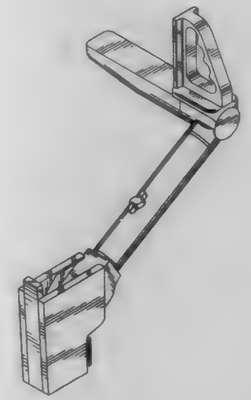
391,944
COMPUTER OUTPUT DEVICE
Allen M. Han, Redmond, Wash., assignor to Microsoft Corporation, Redmond, Wash.
Filed Jan. 22, 1997, Ser. No. 65,172
Term of patent 14 years
LOC (6) Cl. 14 - *02*
U.S. Cl. D14—114



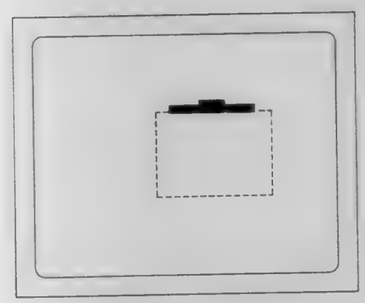
391,945
MONITOR SUPPORT
John B. Rosen, Eugene, Oreg., assignor to Advanced Multimedia Products Corporation, Eugene, Oreg.
Filed Feb. 6, 1997, Ser. No. 66,479
Term of patent 14 years
LOC (6) Cl. 14 - *02*
U.S. Cl. D14—114



391,946
GRIPPABLE MONITOR SUPPORT
John B. Rosen, Eugene, Oreg., assignor to Adanced Multimedia Products Corporation, Eugene, Oreg.
Filed Mar. 14, 1997, Ser. No. 67,810
Term of patent 14 years
LOC (6) Cl. 14 - *02*
U.S. Cl. D14—114

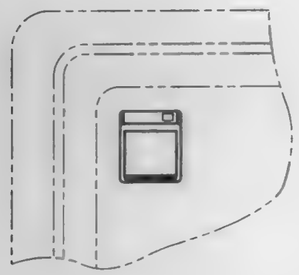


391,947
UTILITY WINDOW FOR A COMPUTER DISPLAY SCREEN
James P. Faris; Lauralee A. Alben, both of 317 Arroyo Secco, Santa Cruz, Calif. 95060, and Jeffrey E. Tycz, 310 Atlantic Ave., Santa Cruz, Calif. 95062
Filed May 5, 1995, Ser. No. 38,453
Term of patent 14 years
LOC (6) Cl. 14 - *02*
U.S. Cl. D14—114.2

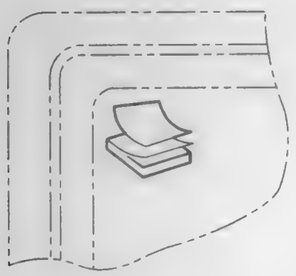


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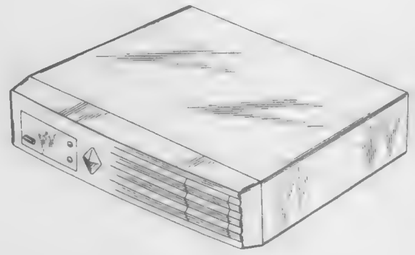
391,948
PORTION OF A COMPUTER SCREEN WITH A COMPUTER ICON IMAGE
Peter M. Eisenberg, Minneapolis, Minn., assignor to Minnesota Mining and Manufacturing Company, St. Paul, Minn.
Filed Feb. 14, 1996, Ser. No. 50,315
Term of patent 14 years
LOC (6) Cl. 14 - *02*
U.S. Cl. D14—114.5



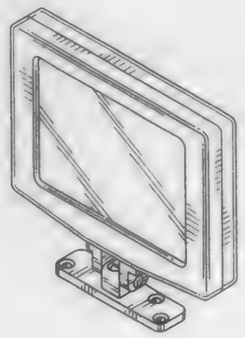
391,949
PORTION OF A COMPUTER SCREEN WITH A COMPUTER ICON IMAGE
Cindy L. Munson, Woodbury, Minn., assignor to Minnesota Mining and Manufacturing Company, St. Paul, Minn.
Filed Feb. 14, 1996, Ser. No. 50,331
Term of patent 14 years
LOC (6) Cl. 14 - *02*
U.S. Cl. D14—114.5



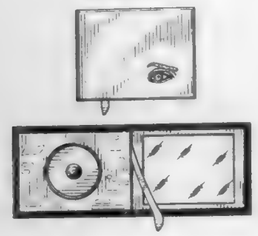
391,950
TUNER FOR RECEIVING SATELLITE BROADCASTING
Mitsuru Takami, Osaka; Emiko Maekawa, Kyoto, and Atsushi Sawada, Hyogo, all of Japan, assignors to Matsushita Electric Industrial Co., Ltd., Osaka, Japan
Filed Jun. 18, 1996, Ser. No. 56,270
Claims priority, application Japan, Dec. 20, 1995, 7-38494
Term of patent 14 years
LOC (6) Cl. 14 - *03*
U.S. Cl. D14—125



391,951
STOWABLE TABLE TOP MONITOR
John B. Rosen, Eugene, Oreg., assignor to Advanced Multimedia Products Corporation, Eugene, Oreg.
Filed Nov. 14, 1996, Ser. No. 62,394
Term of patent 14 years
LOC (6) Cl. 14 - *03*
U.S. Cl. D14—132



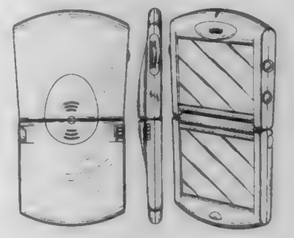
391,952
VIDEO LASER PLAYER
Philippe Starck, Issy-les-Moulineaux, France, assignor to Thomson Multimedia S.A., Courbevoie, France
Filed Feb. 20, 1996, Ser. No. 50,487
Claims priority, application France, Aug. 18, 1995, 95 4569
Term of patent 14 years
LOC (6) Cl. 14 - *03*
U.S. Cl. D14—136



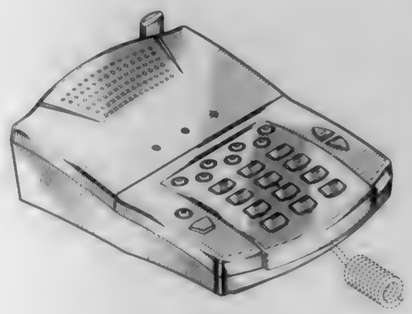
391,953
WIRELESS TELEPHONE HEADSET TRANSCEIVER
Dave Copeland, and Lars Runquist, both of Minneapolis, Minn., assignors to GN Netcom, Inc., Eden Prairie, Minn.
Filed May 10, 1996, Ser. No. 54,217
Term of patent 14 years
LOC (6) Cl. 14 - *03*
U.S. Cl. D14—137



391,954
CELLULAR PHONE WITH ELECTRIC CALCULATOR
Shosaku Kawashima, Yokohama, Japan, assignor to Canon Kabushiki Kaisha, Tokyo, Japan
Filed May 16, 1997, Ser. No. 70,801
Claims priority, application Japan, Nov. 22, 1996, 8-35427
Term of patent 14 years
LOC (6) Cl. 14 - *03*
U.S. Cl. D14—138

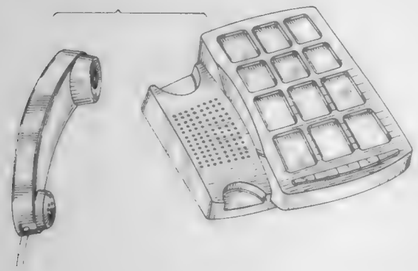


391,955
MODULAR BASE FOR A CORDLESS PORTABLE TELEPHONE
Albert L. Nagele, Wilmette; Leonid Soren, Lincolnwood; Sang Y. Oh, Schaumburg, and Michael J. Slipy, Waukegan, all of Ill., assignors to Motorola, Inc., Schaumburg, Ill.
Continuation-in-part of Ser. No. 44,928, Oct. 3, 1995, Pat. No. Des. 373,585. This application May 8, 1996, Ser. No. 54,177
The portion of the term of this patent subsequent to Sep. 10, 2010, has been disclaimed.
Term of patent 14 years
LOC (6) Cl. 14 - *03*
U.S. Cl. D14—150

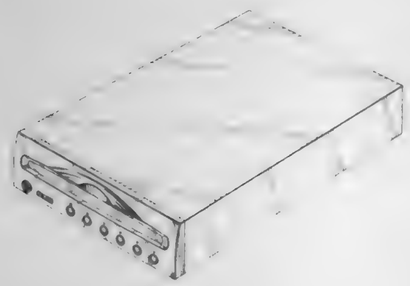


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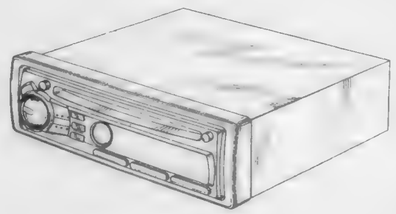
391,956
TELEPHONE
Hajo Jelmer Prins, Delft, and René Johan van Geer, Rijswijk, both of Netherlands, assignors to Ditte N.V., Netherlands Antilles
Filed Dec. 17, 1996, Ser. No. 63,858
Claims priority, application Netherlands, Jun. 19, 1996, 7201501
Term of patent 14 years
LOC (6) Cl. 14 - *03*
U.S. Cl. D14—151



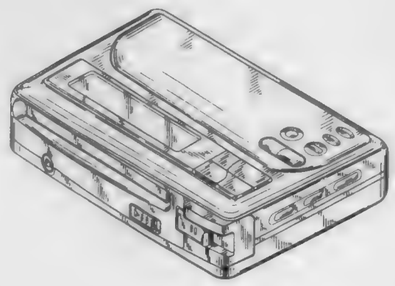
391,957
OPTICAL DISC PLAYER
Masafumi Ito; Haruki Takita; Katsuhiro Takashima, and Yasunobu Shimizu, all of Musashino, Japan, assignors to Teac Corporation, Japan
Filed Sep. 19, 1996, Ser. No. 59,981
Claims priority, application Japan, Mar. 28, 1996, 8-8708
Term of patent 14 years
LOC (6) Cl. 14 - *01*
U.S. Cl. D14—156



391,958
COMBINED DIGITAL AUDIO DISK PLAYER/RADIO TUNER FOR AUTOMOBILE
Takayuki Miyazawa, and Kazutoshi Masunari, both of Kanagawa, Japan, assignors to Matsushita Electric Industrial Co., Ltd., Osaka, Japan
Filed Apr. 14, 1997, Ser. No. 68,954
Claims priority, application Japan, Nov. 14, 1996, 8-34667
Term of patent 14 years
LOC (6) Cl. 14 - *01*
U.S. Cl. D14—157



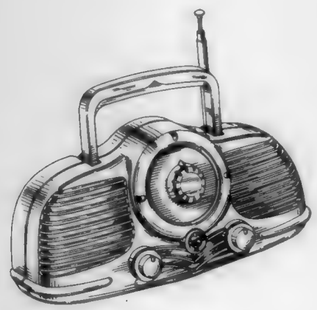
391,959
DIGITAL AUDIO DISK RECORDER
Hirokazu Shibata, Hiroshima-ken, Japan, assignor to Sharp Kabushiki Kaisha, Osaka, Japan
Filed Oct. 8, 1996, Ser. No. 60,807
Claims priority, application Japan, Apr. 8, 1996, 8-9996
Term of patent 14 years
LOC (6) Cl. 14 - *01*
U.S. Cl. D14—167



391,960
PAGER
Hiroki Nishii; Katsumi Nagano; Masao Tamura, and Toshiro Iizuka, all of Kanagawa, Japan, assignors to Matsushita Electric Industrial Co., Ltd., Japan
Filed Jan. 8, 1997, Ser. No. 64,674
Claims priority, application Japan, Nov. 7, 1996, 8-20921
Term of patent 14 years
LOC (6) Cl. 14 - *01*
U.S. Cl. D14—191



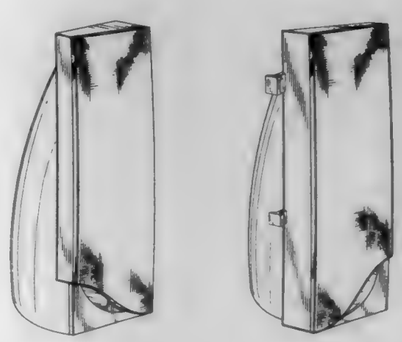
391,961
RADIO
James L. Hanig, Highland Park, Ill., assignor to Aspen Marketing, Inc., Evergreen, Colo.
Filed Aug. 13, 1997, Ser. No. 74,948
Term of patent 14 years
LOC (6) Cl. 14 - *03*
U.S. Cl. D14—194



391,962
LOUDSPEAKER
Martin Borys, Insjövägen 3, S-133 36 Saltsjöbaden, Sweden
Filed May 17, 1996, Ser. No. 54,643
Claims priority, application Sweden, Nov. 21, 1995, 95-2179
Term of patent 14 years
LOC (6) Cl. 14 - *01*
U.S. Cl. D14—214



391,963
PAIR OF SPEAKERS FOR PERSONAL COMPUTER MONITOR
Gil Y. Wong, Palo Alto, and Yves Behar, San Francisco, both of Calif., assignors to Hewlett-Packard Company, Palo Alto, Calif.
Filed Jun. 28, 1996, Ser. No. 56,411
Term of patent 14 years
LOC (6) Cl. 14 - *01*
U.S. Cl. D14—214

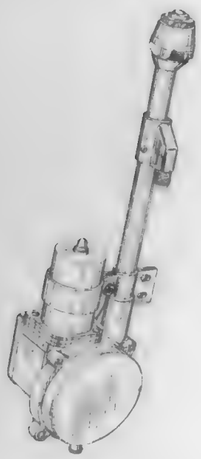


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391,964
HEADSET TRANSCEIVER UNIT
Alfiero Balzano, 11762 "Q" Western Ave., Stanton, Calif. 90680
Filed Mar. 12, 1997, Ser. No. 67,824
Term of patent 14 years
LOC (6) Cl. 14 - *01*
U.S. Cl. D14—223



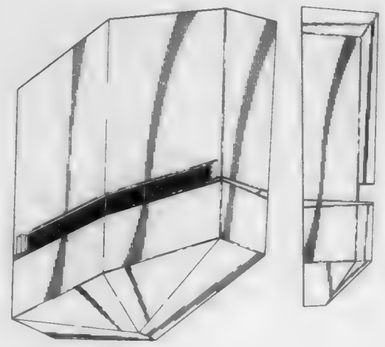
391,965
AUTOMOBILE ANTENNA
Misao Kimura, Kanagawa, Japan, assignor to Harada Kogyo Kabushiki Kaisha, Tokyo, Japan
Filed Sep. 23, 1988, Ser. No. 248,473
Term of patent 14 years
LOC (6) Cl. 14 - *03*
U.S. Cl. D14—230



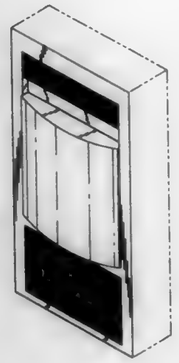
391,966
RETRACTABLE ANTENNA
Nicholas Mischenko, Mt. Prospect, and Steven C. Emmert, Crystal Lake, both of Ill., assignors to Motorola, Inc., Schaumburg, Ill.
Filed Dec. 31, 1996, Ser. No. 64,404
Term of patent 14 years
LOC (6) Cl. 14 - *03*
U.S. Cl. D14—230



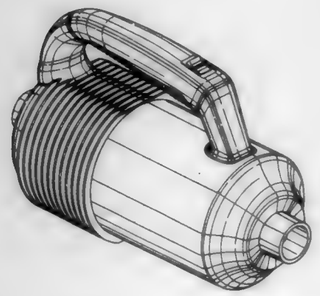
391,967
CELLULAR BASE STATION
Thomas A. Blais, Half Moon Bay; David A. Rea, Livermore, and Steve J. Shiozaki, Belmont, all of Calif., assignors to InterWAVE Communications International Ltd., Hamilton, Bermuda
Filed Nov. 22, 1996, Ser. No. 62,735
Term of patent 14 years
LOC (6) Cl. 14 - *03*
U.S. Cl. D14—240



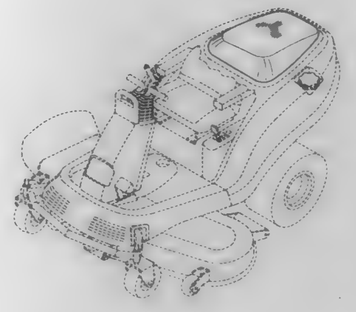
391,968
CELLULAR BASE STATION
Steve J. Shiozaki, Belmont, Calif., assignor to InterWAVE Communications International Ltd., Hamilton, Bermuda
Filed Mar. 17, 1997, Ser. No. 68,148
Term of patent 14 years
LOC (6) Cl. 14 - *03*
U.S. Cl. D14—240



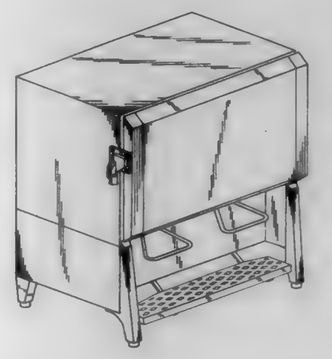
391,969
AIR PUMP
Tit-ying Poon, Shatin, Hong Kong, assignor to Flying Dragon Development Ltd., Hong Kong
Filed Feb. 19, 1997, Ser. No. 68,458
Term of patent 14 years
LOC (6) Cl. 15 - *02*
U.S. Cl. D15—7



391,970
RIDING MOWER BODY PANEL
Kenneth R. Smith, Medina, Ohio, assignor to MTD Products Inc., Cleveland, Ohio
Filed May 21, 1997, Ser. No. 71,117
Term of patent 14 years
LOC (6) Cl. 15 - *03*
U.S. Cl. D15—17

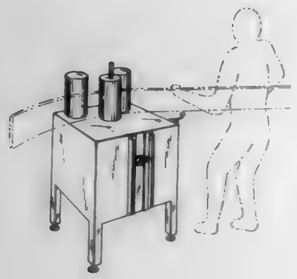


391,971
REFRIGERATED MILK DISPENSER
Steven T. Dorsey, Collegeville Township, Minn., assignor to Stevens-Lee Company, Plymouth, Minn.
Filed May 17, 1996, Ser. No. 54,553
Term of patent 14 years
LOC (6) Cl. 15 - *07*
U.S. Cl. D15—79

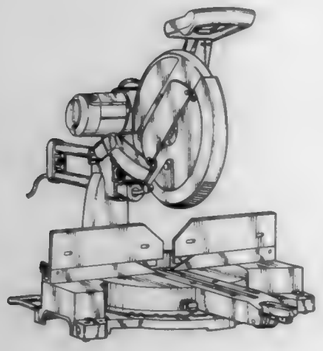


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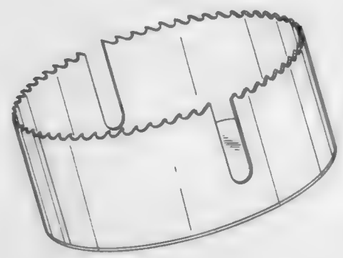
391,972
UTILITY ROLLING MACHINE
Joseph R. Kolar, 15722 Sunset Ridge 2W, Orland Park, Ill. 60462
Filed Jan. 2, 1997, Ser. No. 64,490
Term of patent 14 years
LOC (6) Cl. 15 - *09*
U.S. Cl. D15—122



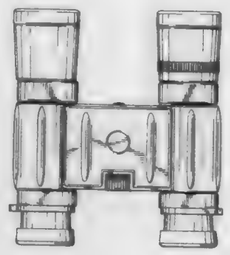
391,973
SLIDING COMPOUND MITER SAW
Scott Price, Singapore, Singapore; John W. Miller, Upperco, Md.; Daryl S. Meredith, Hampstead, Md.; Thomas Kaye, Bel Air, Md.; William R. Stumpf, Kingsville, Md.; Mark Brunson, Abingdon, Md., and Robert P. Welsh, Hunt Valley, Md., assignors to Black & Decker Inc., Newark, Del.
Continuation-in-part of Ser. No. 55,881, Jun. 14, 1996. This application Dec. 2, 1996, Ser. No. 63,037
Term of patent 14 years
LOC (6) Cl. 15 - *09*
U.S. Cl. D15—133



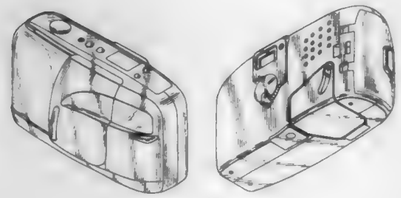
391,974
HOLE SAW
David T. Brutscher, Louisville, Ky., assignor to Credo Tool Company, Woodburn, Oreg.
Filed Aug. 9, 1996, Ser. No. 58,213
Term of patent 14 years
LOC (6) Cl. 15 - *09*
U.S. Cl. D15—139



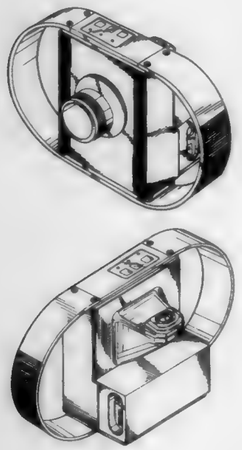
391,975
BINOCULARS
Manfred Meinzer, Hemer, Germany, assignor to Leica Camera AG, Solms, Germany
Filed Feb. 10, 1997, Ser. No. 66,440
Claims priority, application Germany, Aug. 21, 1996, 96 07 117.6
Term of patent 14 years
LOC (6) Cl. 16 - *06*
U.S. Cl. D16—133



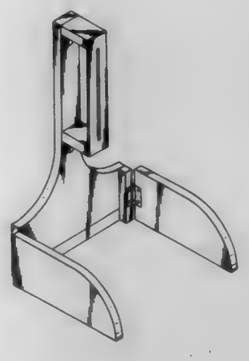
391,976
CAMERA
Hiroyuki Fukuda, Hino, Japan, assignor to Olympus Optical Co., Ltd., Tokyo, Japan
Filed Mar. 11, 1997, Ser. No. 67,579
Claims priority, application Japan, Sep. 13, 1996, 8-27597
Term of patent 14 years
LOC (6) Cl. 16 - *01*
U.S. Cl. D16—212



391,977
CAMERA HOUSING
Burkard Kiesel, Braunfels, Germany, assignor to Leica Camera AG, Solms, Germany
Filed Mar. 13, 1997, Ser. No. 68,169
Claims priority, application Germany, Sep. 13, 1996, M 96 07 920.7
Term of patent 14 years
LOC (6) Cl. 16 - *01*
U.S. Cl. D16—218



391,978
SUPPORT STAND FOR CAMERA OR CAMCORDER
Dennis Brock, 1430 Pelican Bay Trail, Winter Park, Fla. 32792
Filed Feb. 3, 1997, Ser. No. 66,088
Term of patent 14 years
LOC (6) Cl. 16 - *05*
U.S. Cl. D16—242

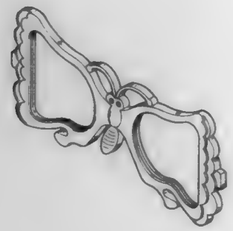


391,979
EYEGLASS FRAME FRONT
T. S. Chang, 1, Alley 99, Lane 274, Chung Cheng S. Road, Yung Kang, Tainan, Taiwan
Filed Jul. 9, 1997, Ser. No. 73,559
Term of patent 14 years
LOC (6) Cl. 16 - *06*
U.S. Cl. D16—307

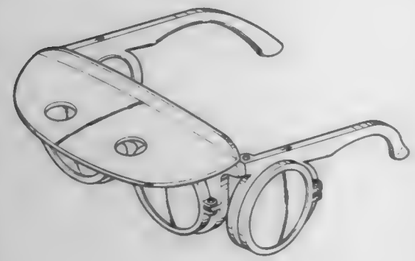


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391,980
EYEGLASS FRAME FRONT
T. S. Chang, 1, Alley 99, Lane 274, Chung Cheng S. Road, Yung Kang, Tainan, Taiwan
Filed Jul. 9, 1997, Ser. No. 73,560
Term of patent 14 years
LOC (6) Cl. 16 - *06*
U.S. Cl. D16—307



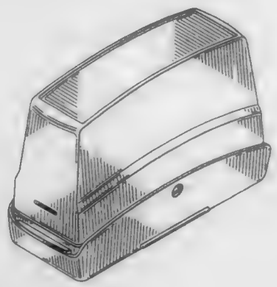
391,981
EYEGLASSES
T. S. Chang, 1, Alley 99, Lane 274 Chung Cheng S. Road, Yung Kang, Tainan, Taiwan
Filed Mar. 27, 1997, Ser. No. 68,687
Term of patent 14 years
LOC (6) Cl. 16 - *06*
U.S. Cl. D16—310



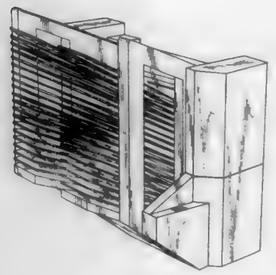
391,982
WORD PROCESSOR
Hyunsoo Hong, Memphis, Tenn., assignor to Brother International Corporation, Somerset, N.J.
Filed Nov. 7, 1996, Ser. No. 62,084
Term of patent 14 years
LOC (6) Cl. 18 - *01*
U.S. Cl. D18—1



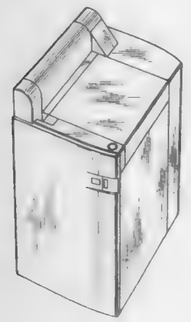
391,983
STAMP
Yasutake Yamaguchi, Chiryu, Japan, assignor to Brother Kogyo Kabushiki Kaisha, Nagoya, Japan
Filed Jan. 23, 1997, Ser. No. 65,175
Claims priority, application Japan, Aug. 8, 1996, 8-24189
Term of patent 14 years
LOC (6) Cl. 19 - *02*
U.S. Cl. D18—15



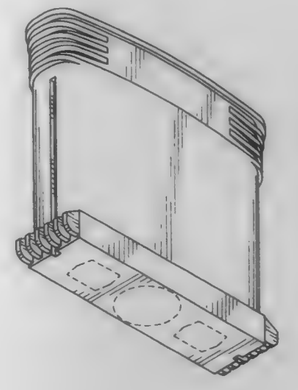
391,984
SORTER FOR PHOTOCOPIER
Motoaki Takeuchi, Tokyo, Japan, assignor to Canon Kabushiki Kaisha, Tokyo, Japan
Filed Dec. 24, 1996, Ser. No. 64,240
Claims priority, application Japan, Jul. 9, 1996, 8-20448
Term of patent 14 years
LOC (6) Cl. 18 - *99*
U.S. Cl. D18—48



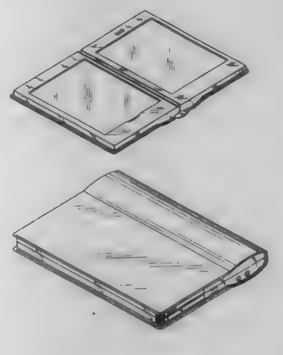
391,985
PAPER FEEDING DEVICE FOR PHOTOCOPIER
Hiroshi Komatsu, Yokohama, Japan, assignor to Canon Kabushiki Kaisha, Tokyo, Japan
Filed May 30, 1997, Ser. No. 71,509
Claims priority, application Japan, Mar. 28, 1997, 9-9062
Term of patent 14 years
LOC (6) Cl. 18 - *99*
U.S. Cl. D18—49



391,986
FLUID CONTAINER
Charles R. Steinmetz; Susan M. Hmelar, both of Corvallis, Oreg., and Donald R. McClelland, Brush Prairie, Wash., assignors to Hewlett-Packard Company, Palo Alto, Calif.
Continuation-in-part of Ser. No. 55,382, Jun. 5, 1996. This application Oct. 29, 1996, Ser. No. 61,735
Term of patent 14 years
LOC (6) Cl. 18 - *02*
U.S. Cl. D18—56

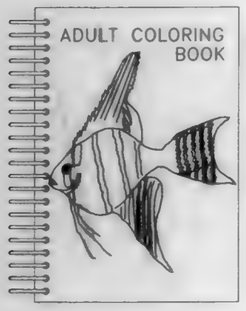


391,987
DIGITAL BOOK
Shrirang Nikanth Jambhekar, Schaumburg, and Daryl R. Harris, Evanston, both of Ill., assignors to Motorola, Inc., Schaumburg, Ill.
Filed Aug. 5, 1996, Ser. No. 57,978
Term of patent 14 years
LOC (6) Cl. 19 - *04*
U.S. Cl. D19—26

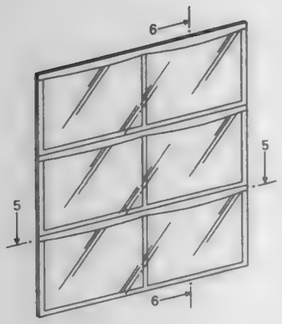


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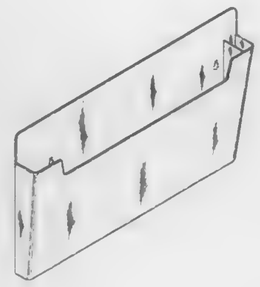
391,988
ADULT COLORING BOOK
Patricia A. Gayda, 55-12 Roosevelt Ave., Woodside, N.Y. 11377
Filed Mar. 13, 1997, Ser. No. 67,994
Term of patent 14 years
LOC (6) Cl. 19 - *04*
U.S. Cl. D19—29



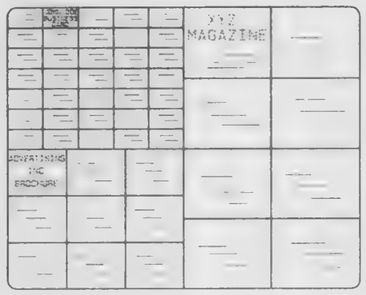
391,989
PHOTO ALBUM SHEET
Sheldon Plutsky, 9801 Deering Ave., Chatsworth, Calif. 91311-0760
Continuation of Ser. No. 630,364, Dec. 18, 1990, abandoned, which is a continuation of Ser. No. 912,630, Sep. 26, 1986, abandoned. This application Mar. 30, 1992, Ser. No. 861,342
Term of patent 14 years
LOC (6) Cl. 19 - *04*
U.S. Cl. D19—33



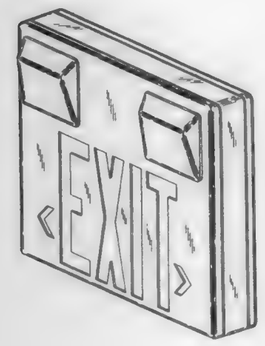
391,990
LARGE BROCHURE POCKET
Stephen H. Wolff, 35 W. 35th St., New York, N.Y. 10001
Continuation of Ser. No. 36,642, Mar. 23, 1995, abandoned.
This application Oct. 3, 1996, Ser. No. 60,656
Term of patent 14 years
LOC (6) Cl. 19 - *02*
U.S. Cl. D19—78



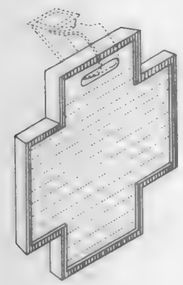
391,991
HANGING WALL ADVERTISEMENT DISPLAY
Rodney Conner, 200 Sapphire La., Apt. #16, Fairview Heights, Ill. 62208
Filed Sep. 10, 1996, Ser. No. 60,289
Term of patent 14 years
LOC (6) Cl. 20 - *03*
U.S. Cl. D20—10



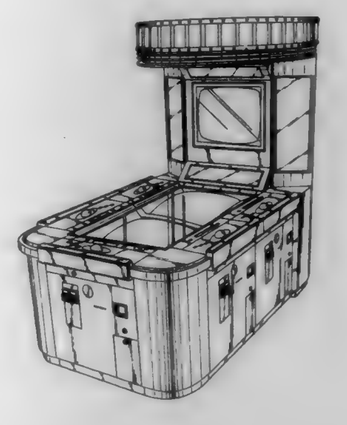
391,992
COMBINED EMERGENCY AND EXIT LIGHT
David A. Vosika, Cloverdale, and Steven W. Bodell, Troutville, both of Va., assignors to Hubbell Incorporated, Orange, Conn.
Filed Mar. 13, 1997, Ser. No. 68,170
Term of patent 14 years
LOC (6) Cl. 10 - *05*
U.S. Cl. D20—10



391,993
MEDICAL TAG
Gregory F. Raffa, New Hyde Park, N.Y., assignor to Life Tags, Inc., New Hyde Park, N.Y.
Filed May 2, 1997, Ser. No. 70,202
Term of patent 14 years
LOC (6) Cl. 19 - *08*
U.S. Cl. D20—23



391,994
VIDEO ROULETTE TABLE
Cory J. Hanscom, New Hope, and Barry W. Fentz, Plymouth, both of Minn., assignors to Innovative Gaming Corporation of America, Reno, Nev.
Continuation of Ser. No. 49,821, Jan. 31, 1996, abandoned.
This application Sep. 10, 1996, Ser. No. 59,403
Term of patent 14 years
LOC (6) Cl. 21 - *02*
U.S. Cl. D21—37

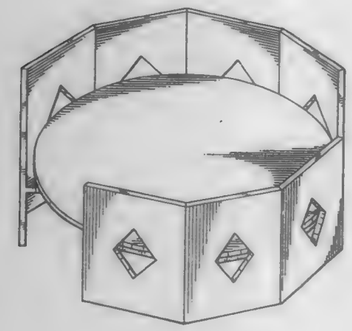


391,995
INDICATOR OF CONDITION OF DISHES
Peter Hackmeister, 4 Glendale Rd., Marblehead, Mass. 01945
Filed Feb. 25, 1997, Ser. No. 67,051
Term of patent 14 years
LOC (6) Cl. 20 - *02*
U.S. Cl. D20—40



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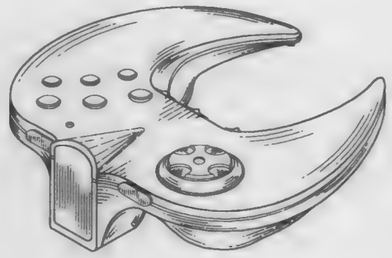
391,996
DECK CONSTRUCTION GAME
Willa McClellan, 345 Martha Ave., Buffalo, N.Y. 14215
Division of Ser. No. 39,023, May 19, 1995, Pat. No. Des. 375,325, which is a division of Ser. No. 8,563, May 20, 1993, Pat. No. Des. 358,849. This application Jun. 18, 1996, Ser. No. 56,280
Term of patent 14 years
LOC (6) Cl. 21 - *01*
U.S. Cl. D21—1



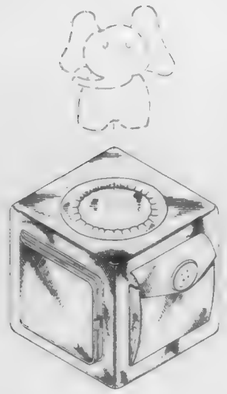
391,997
GAME CONTROLLER
Ricardo Salinas, Palo Alto, Calif., assignor to Logitech S.A., Romanel/Morges, Switzerland
Filed Sep. 27, 1995, Ser. No. 44,602
Term of patent 14 years
LOC (6) Cl. 21 - *01*
U.S. Cl. D21—48



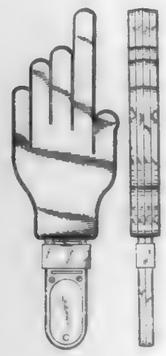
391,998
HAND OPERATED VIDEO GAME CONTROLLER
James Jwo, Taipei, Taiwan, assignor to Kye Systems Corp., Taipei, Taiwan
Filed May 30, 1997, Ser. No. 71,481
Term of patent 14 years
LOC (6) Cl. 21 - *01*
U.S. Cl. D21—48



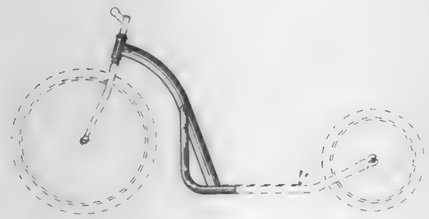
391,999
ACTIVITY BLOCK
Stephen Chininis, Norcross, Ga., assignor to Kids II, Inc., Alpharetta, Ga.
Filed Apr. 29, 1997, Ser. No. 70,376
Term of patent 14 years
LOC (6) Cl. 21 - *01*
U.S. Cl. D21—59



392,000
NOISE MAKER
Joseph Rapp, 835 Longview Ave., North Woodmere, N.Y. 11581
Filed Mar. 27, 1995, Ser. No. 36,728
Term of patent 14 years
LOC (6) Cl. 21 - *01*
U.S. Cl. D21—64



392,001
FRAME OF SCOOTER
Ting-Hsing Chen, Tainan Hsien, Taiwan, assignor to Far Great Plastics Industrial Co., Ltd., Tainan Hsien, Taiwan
Filed Dec. 23, 1996, Ser. No. 65,473
Term of patent 14 years
LOC (6) Cl. 21 - *01*
U.S. Cl. D21—81



392,002
JIGSAW PUZZLE HAVING A LENTICULAR LENS
Larry J. Harvey, 1464 Vallejo Ave., Corona, Calif. 91720
Filed Mar. 8, 1996, Ser. No. 53,855
Term of patent 14 years
LOC (6) Cl. 21 - *01*
U.S. Cl. D21—104

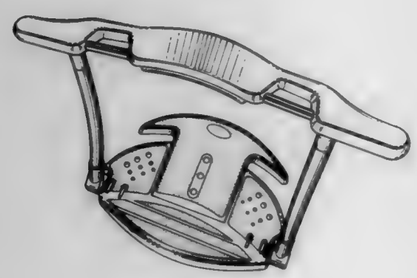


392,003
STUFFED DOG
Rouben T. Terzian, Chicago, Ill., assignor to Breslow, Morrison, Terzian & Associates, Inc., Chicago, Ill.
Filed Aug. 30, 1996, Ser. No. 59,033
Term of patent 14 years
LOC (6) Cl. 21 - *01*
U.S. Cl. D21—161

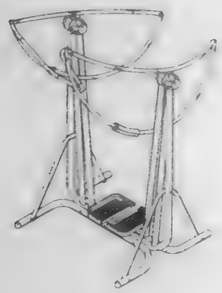


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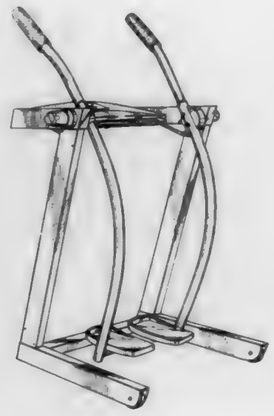
392,004
EXERCISE UNIT
Martin A. Van Der Hoeven, 4646 Rancho Reposo, Del Mar, Calif. 92014; Francois H. Van Der Hoeven, 1404 Eastview Ct., Oceanside, Calif. 92056; Jaeson D. Cayne, 2917 Manague Pl., Carlsbad, Calif. 92009; David J. Richmond, 10314 Rossbury Pl., Los Angeles, Calif. 90064; Jonathan Oswaks, Westlake Village, Calif.; Mingjen S. Huang, Arcadia, Calif.; Thomas S. Park, Pasadena, Calif., and Lawrence E. Goldenhersh, 5034 McGill Way, San Diego, Calif. 92130, assignors to Martin A. Van Der Hoeven, Del Mar; Jaeson D. Cayne, Carlsbad; David J. Richmond, Los Angeles; Lawrence E. Goldenbersh, San Diego, and Francois H. Van Der Hoeven, Oceanside, all of Calif.
Filed Dec. 4, 1996, Ser. No. 63,583
Term of patent 14 years
LOC (6) Cl. 21 - *02*
U.S. Cl. D21—191



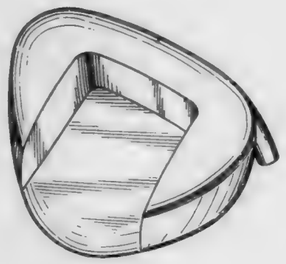
392,005
STRIDING EXERCISE DEVICE
Gary D. Piaget, 3390 American Saddler Dr., Park City, Utah 84060
Filed Feb. 13, 1997, Ser. No. 66,471
Term of patent 14 years
LOC (6) Cl. 21 - *02*
U.S. Cl. D21—191



392,006
STRIDING EXERCISER
William T. Dalebout, North Logan, and Mark LeBeau, Logan, both of Utah, assignors to Icon Health & Fitness, Inc., Logan, Utah
Filed May 6, 1996, Ser. No. 54,016
Term of patent 14 years
LOC (6) Cl. 21 - *02*
U.S. Cl. D21—192



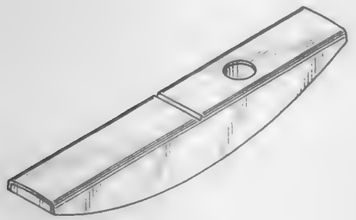
392,007
GOLF CLUB HEAD
Tweed Fox, 316 Salmon Rd., Ramona, Calif. 92065
Filed Aug. 27, 1996, Ser. No. 58,886
Term of patent 14 years
LOC (6) Cl. 21 - *02*
U.S. Cl. D21—211



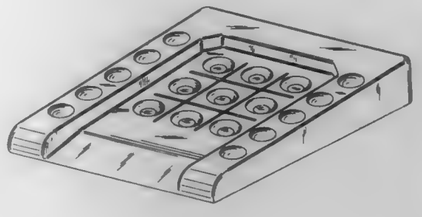
392,008
GOLF PUTTER
Lon Klein, Forest Hills, N.Y., assignor to New Vision Golf Corp., New City, N.Y.
Continuation-in-part of Ser. No. 356,841, Dec. 15, 1994, Pat. No. 5,569,098. This application Aug. 21, 1996, Ser. No. 58,695
Term of patent 14 years
LOC (6) Cl. 21 - *02*
U.S. Cl. D21—217



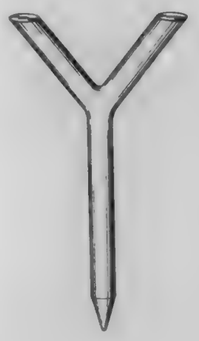
392,009
PUTTER HEAD
Ralph D. Maltby, Granville, Ohio, assignor to Ralph Maltby Enterprises, Inc., Newark, Ohio
Filed Nov. 12, 1996, Ser. No. 62,240
Term of patent 14 years
LOC (6) Cl. 21 - *02*
U.S. Cl. D21—219



392,010
ONE-PIECE PUTTING GAME DEVICE
William Ridge, Elizabethtown, Ky., assignor to Club Pro Products, Inc., Louisville, Ky.
Continuation-in-part of Ser. No. 44,565, Sep. 26, 1995. This application Dec. 6, 1995, Ser. No. 47,511
Term of patent 14 years
LOC (6) Cl. 21 - *02*
U.S. Cl. D21—234



392,011
SUPPORT FOR A GROUND-LAIN GOLF CLUB
Arthur D. Palmer, 1504 Tehama St., and Kenneth R. Sinker, 1165 4th Ave., both of Corning, Calif. 96021
Filed Apr. 10, 1996, Ser. No. 53,023
Term of patent 14 years
LOC (6) Cl. 21 - *02*
U.S. Cl. D21—234

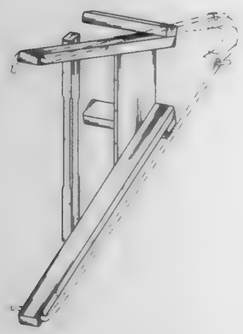


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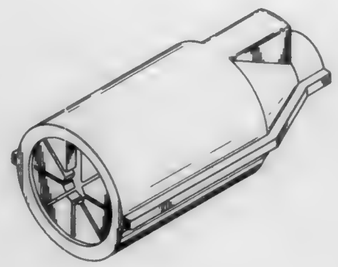
392,012
WHEEL
Philippe Loiselle, 6990, boul. des Mille Iles, Saint-François, Laval, Québec, Canada, H7A 4C6; Robert McNabb, 255, Île Bélair Est,, Rosemère, Québec, Canada, H3T 1N9, and André Côté , 3323, rue Jean-Brillant, Montréal, Québec, Canada, H3T 1N9
Filed Feb. 21, 1997, Ser. No. 67,058
Term of patent 14 years
LOC (6) Cl. 21 - *02*
U.S. Cl. D21—236



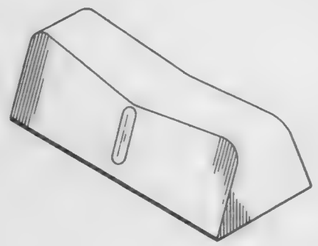
392,013
SLINGSHOT
Christopher S. Scarlett, P.O. Box 30126, Seattle, Wash. 98103
Filed Dec. 31, 1996, Ser. No. 64,446
Term of patent 14 years
LOC (6) Cl. 22 - *01*
U.S. Cl. D22—106



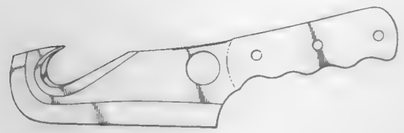
392,014
GUN CLEANING PATCH AND SOLVENT COLLECTOR
Robert D. Rambo, Sellersville, and Berwyn M. Crook, Yardley, both of Pa., assignors to Bore Tech, Inc., Colmar, Pa.
Filed Apr. 4, 1997, Ser. No. 67,956
Term of patent 14 years
LOC (6) Cl. 22 - *01*
U.S. Cl. D22—108



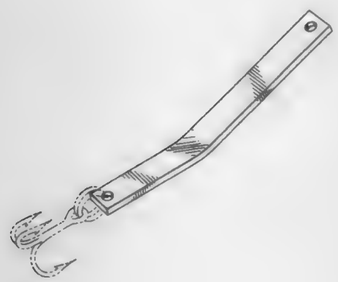
392,015
REAR SIGHT FOR A FIREARM
Ashley C. Emerson, Ft Worth, Tex., assignor to Ashley Outdoors, Inc., Ft Worth, Tex.
Filed Oct. 28, 1996, Ser. No. 61,680
Term of patent 14 years
LOC (6) Cl. 22 - *01*
U.S. Cl. D22—109



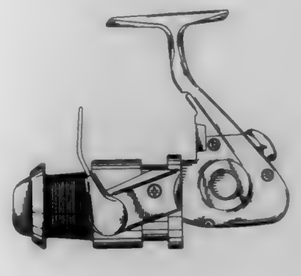
392,016
GAME BLADE
Shiraz Balolia, 1821 Valencia St., Bellingham, Wash. 98226
Filed Feb. 14, 1997, Ser. No. 66,661
Term of patent 14 years
LOC (6) Cl. 22 - *02*
U.S. Cl. D22—118



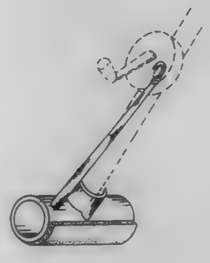
392,017
FISHING SPOON
Gerald N. Fish, 104 Surf Dr., Cocoa Beach, Fla. 32931, and Gustave Schaller, 242 Mariah Ct., Merritt Island, Fla. 32953
Filed Feb. 11, 1997, Ser. No. 66,383
Term of patent 14 years
LOC (6) Cl. 22 - *05*
U.S. Cl. D22—129



392,018
FISHING REEL
Richard J. Robbins, Derby, Kans., assignor to Brunswick Corporation, Lake Forest, Ill.
Filed Jan. 9, 1995, Ser. No. 33,283
Term of patent 14 years
LOC (6) Cl. 22 - *05*
U.S. Cl. D22—141

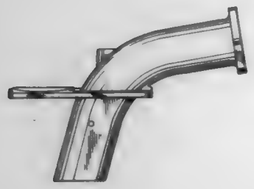


392,019
FISHING ROD HOLDER
Carl S. Riedell, 178 Scudder Rd., Osterville, Mass. 02655
Continuation-in-part of Ser. No. 405,597, Mar. 17, 1995, Pat. No. 5,564,217. This application Oct. 11, 1996, Ser. No. 60,949
Term of patent 14 years
LOC (6) Cl. 22 - *05*
U.S. Cl. D22—147

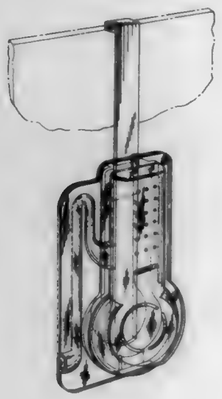


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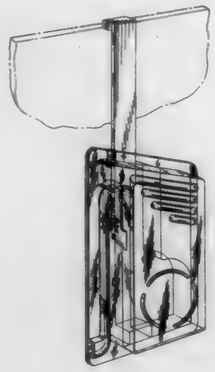
392,020
FILL NECK FOR A FUEL TANK
Gordon Elford Fairies, Ontario, Canada, assignor to Emco Wheaton Fleet Fueling, Corp., Oakville, Canada
Filed Mar. 3, 1997, Ser. No. 66,536
Term of patent 14 years
LOC (6) Cl. 23 - *01*
U.S. Cl. D23—206



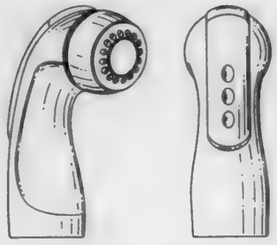
392,021
IN-TANK TOILET DISPENSER
Alan N. Bodker, Wayne, and David A. Chang, Waldwick, both of N.J., assignors to Reckitt & Colman Inc., Montvale, N.J.
Filed Jan. 27, 1997, Ser. No. 65,416
Term of patent 14 years
LOC (6) Cl. 23 - *01*
U.S. Cl. D23—208



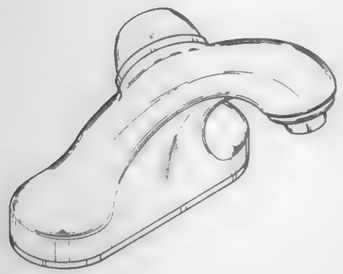
392,022
IN-TANK TOILET DISPENSER
Alan N. Bodker, Wayne, and David A. Chang, Waldwick, both of N.J., assignors to Reckitt & Colman Inc., Montvale, N.J.
Filed Jan. 27, 1997, Ser. No. 65,712
Term of patent 14 years
LOC (6) Cl. 23 - *01*
U.S. Cl. D23—208



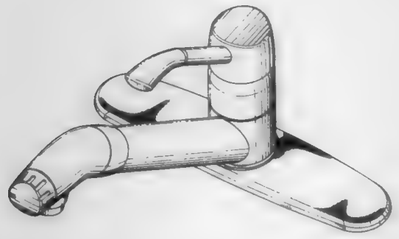
392,023
SINK DECK SIDE SPRAY
Eduardo E. Milrud, Chagrin Falls; Kevin W. Rosenbaum, Parma; Lonnie F. Cool, La Grange, and Witold Bauer, Westlake, all of Ohio, assignors to Moen Incorporated, North Olmsted, Ohio
Continuation-in-part of Ser. No. 46,296, Nov. 13, 1995, Pat. No. Des. 378,122. This application Oct. 29, 1996, Ser. No. 61,730
The portion of the term of this patent subsequent to Feb. 18, 2011, has been disclaimed.
Term of patent 14 years
LOC (6) Cl. 23 - *01*
U.S. Cl. D23—226



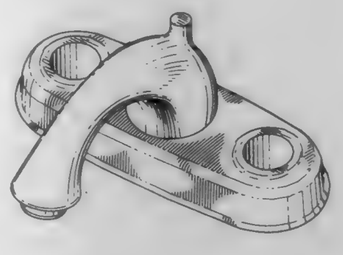
392,024
FAUCET BASE
Hsi-Chin Ko, Changhua Hsien, Taiwan, assignor to Chung Chen Faucet Co., Ltd., Changhua Hsien, Taiwan
Filed Apr. 23, 1997, Ser. No. 69,779
Term of patent 14 years
LOC (6) Cl. 23 - *01*
U.S. Cl. D23—238



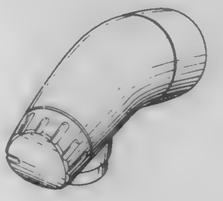
392,025
FAUCET
Frederic C. Doughty, South Pasadena; Darren M. Mark, Valencia, and Alvin Tolosa, Ventura City, all of Calif., assignors to Emhart Inc., Newark, Del.
Filed Aug. 8, 1997, Ser. No. 74,630
Term of patent 14 years
LOC (6) Cl. 23 - *01*
U.S. Cl. D23—238



392,026
FAUCET BODY
Frederic C. Doughty, South Pasadena, and Darren M. Mark, Valencia, both of Calif., assignors to Emhart Inc., Newark, Del.
Filed Jul. 29, 1997, Ser. No. 74,115
Term of patent 14 years
LOC (6) Cl. 23 - *01*
U.S. Cl. D23—241

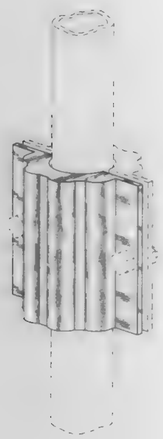


392,027
SPOUT
Frederic C. Doughty, South Pasadena; Darren M. Mark, Valencia, and Alvin Tolosa, Ventura City, all of Calif., assignors to Emhart Inc., Newark, Del.
Filed Aug. 8, 1997, Ser. No. 74,628
Term of patent 14 years
LOC (6) Cl. 23 - *01*
U.S. Cl. D23—255

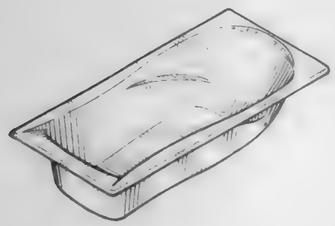


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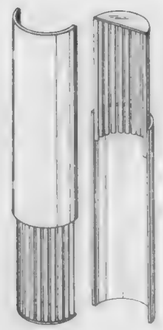
392,028
MAGNETIC WATER SOFTENING DEVICE
Donald Carpenter, P.O. Box 7647, Chico, Calif. 95927
Filed Feb. 16, 1996, Ser. No. 50,377
Term of patent 14 years
LOC (6) Cl. 08 - *05*
U.S. Cl. D23—266



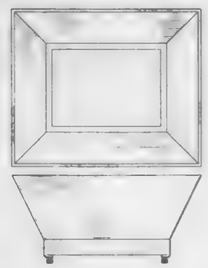
392,029
BATHTUB
Jaime Singla Palacin, Gava, Spain, assignor to Compania Roca Radiadores, S.A., Gava, Spain
Filed Nov. 22, 1996, Ser. No. 62,751
Claims priority, application Spain, May 23, 1996, 137556
Term of patent 14 years
LOC (6) Cl. 23 - *02*
U.S. Cl. D23—280.1



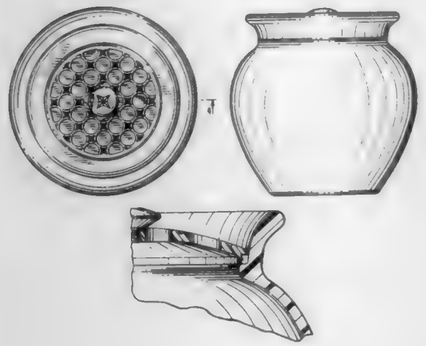
392,030
SUPPLY AIR DEVICE
Bernt Nystrom, Huddinge, Sweden, assignor to Air Innovation Sweden AB, Sweden
Filed Dec. 19, 1996, Ser. No. 63,945
Claims priority, application Sweden, Jun. 20, 1996, 961413
Term of patent 14 years
LOC (6) Cl. 23 - *04*
U.S. Cl. D23—355



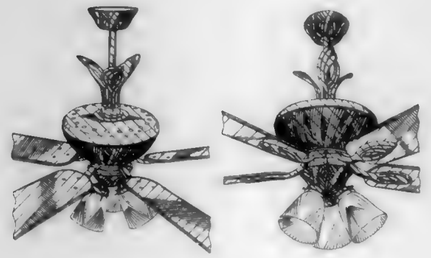
392,031
AIR DUCT FILTER APPARATUS
Wendy B. Miller, 2521 Chandabrook Cr., Pelham, Ala. 35124
Filed Jan. 17, 1997, Ser. No. 65,041
Term of patent 14 years
LOC (6) Cl. 23 - *04*
U.S. Cl. D23—365



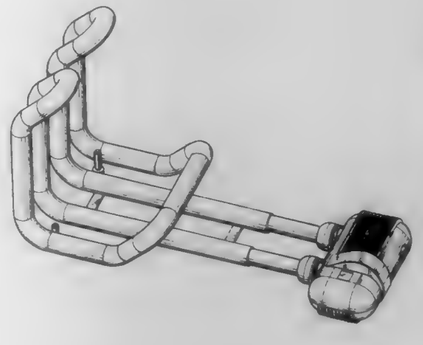
392,032
FRAGRANCE BOTTLE
Robert Zaragoza, Woodmere, and Andrew R. Strauss, New York, both of N.Y., assignors to Bath & Body Works, Inc., Columbus, Ohio
Filed Apr. 24, 1997, Ser. No. 69,910
Term of patent 14 years
LOC (6) Cl. 23 - *04*
U.S. Cl. D23—369



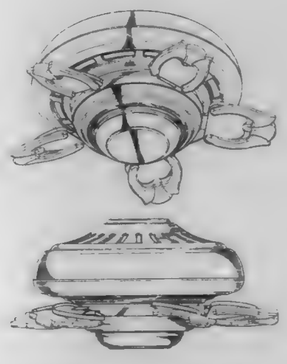
392,033
COMBINED CEILING FAN AND LIGHT FIXTURE ASSEMBLY
Jan Jaspers-Fayer, Idyllwild, Calif., assignor to Minka Lighting, Inc., Carona, Calif.
Filed Mar. 22, 1995, Ser. No. 36,510
Term of patent 14 years
LOC (6) Cl. 23 - *04*
U.S. Cl. D23—377



392,034
HEAT EXCHANGER FOR FIREPLACES
Attilio Pagani, and Livia Serafini Pagani, both of Via Verdi, 15-20067 Zoate (Prov. of Milan), Italy
Filed Sep. 11, 1996, Ser. No. 59,479
Claims priority, application Italy, Mar. 15, 1996, MI9600172
Term of patent 14 years
LOC (6) Cl. 23 - *03*
U.S. Cl. D23—399

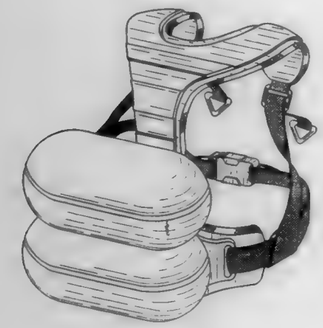


392,035
COMBINED CEILING FAN MOTOR HOUSING, SWITCH HOUSING, AND BLADE IRONS UNIT
Jack W. Gee, II, Memphis, and Masao Tsuji, Germantown, both of Tenn., assignors to Hunter Fan Company, Memphis, Tenn.
Filed Aug. 9, 1996, Ser. No. 58,246
Term of patent 14 years
LOC (6) Cl. 23 - *04*
U.S. Cl. D23—411

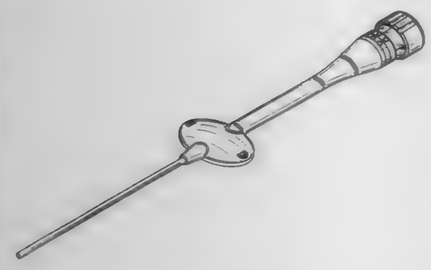


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392,036
COMBINED BREATHABLE GAS CONTAINER AND CARRYING HARNESS FOR A SELF-CONTAINED BREATHING APPARATUS
James McMillan, Sidcup, United Kingdom, assignor to Draeger Limited, United Kingdom
Filed Dec. 8, 1995, Ser. No. 47,653
Claims priority, application United Kingdom, Jun. 9, 1995, 2048067
The portion of the term of this patent subsequent to Feb. 24, 2012, has been disclaimed.
Term of patent 14 years
LOC (6) Cl. 29 - *02*
U.S. Cl. D24—110



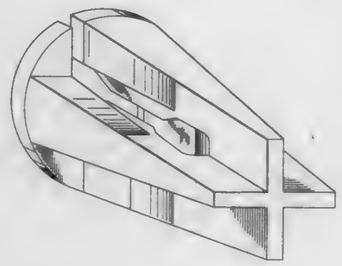
392,037
SINGLE LUMEN CATHETER WITH GUIDEWIRE RETAINER
Kenneth C. Musgrave; Glade H. Howell, both of Sandy; Christopher N. Cindrich, Provo, and Timothy J. Erskine, Sandy, all of Utah, assignors to Becton Dickinson and Company, Franklin Lakes, N.J.
Filed Feb. 29, 1996, Ser. No. 52,544
The portion of the term of this patent subsequent to Jul. 22, 2011, has been disclaimed.
Term of patent 14 years
LOC (6) Cl. 24 - *02*
U.S. Cl. D24—112



392,038
CONTAINER
Larry D. Annis, Elgin, Ill., assignor to Medela, Incorporated, McHenry, Ill.
Filed Dec. 15, 1995, Ser. No. 47,929
Term of patent 14 years
LOC (6) Cl. 07 - *07*
U.S. Cl. D24—121



392,039
FOUR-VANED CROWN FOR A SOLID-PHASE CHEMICAL REACTION SUPPORT
Andrew M. Bray, 48 Western Road, Boronia, Victoria 3155, Australia
Filed Oct. 16, 1996, Ser. No. 61,090
Term of patent 14 years
LOC (6) Cl. 24 - *02*
U.S. Cl. D24—130



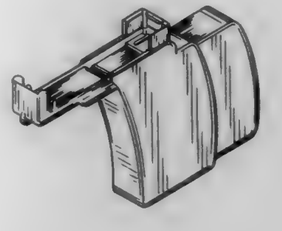
392,040
HAND PIECE FOR SURGICAL LASER FIBER OPTIC DELIVERY SYSTEM
Stuart D. Harman, San Jose, and Douglas R. Murphy-Chutorian, Sunnyvale, both of Calif., assignors to Eclipse Surgical Technologies, Inc., Sunnyvale, Calif.
Filed Jul. 12, 1996, Ser. No. 56,972
Term of patent 14 years
LOC (6) Cl. 24 - *02*
U.S. Cl. D24—133



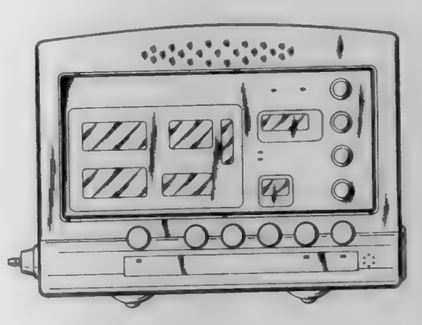
392,041
EARRING STUD GUN ADAPTER
Vladimir Reil, 32450 Nautilus Dr., Rancho Palos Verdes, Calif. 90274
Filed Jun. 21, 1996, Ser. No. 56,100
Term of patent 14 years
LOC (6) Cl. 24 - *02*
U.S. Cl. D24—146



392,042
EARRING STUD GUN
Vladimir Reil, 32450 Nautilus Dr., Rancho Palos Verdes, Calif. 90274
Filed Dec. 9, 1996, Ser. No. 63,462
Term of patent 14 years
LOC (6) Cl. 24 - *02*
U.S. Cl. D24—146



392,043
VITAL SIGNS MONITOR
Devin G. Cooper, Fairport, N.Y., and Alan S. Knieriem, Baldwinsville, N.Y., assignors to Welch Allyn, Inc., Skaneateles Falls, N.Y.
Filed Aug. 6, 1996, Ser. No. 57,988
Term of patent 14 years
LOC (6) Cl. 24 - *01*
U.S. Cl. D24—186



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392,044
MEDICAL ULTRASOUND TRANSDUCER
Robert Mesaros, San Jose; Richard W. Henderson, Fremont; William J. Park, San Jose; Kathleen A. Ruvolo, Mill Valley, and Janice L. Marshall, Sunnyvale, all of Calif., assignors to Acuson Corporation, Mountain View, Calif.
Filed Nov. 27, 1996, Ser. No. 63,128
Term of patent 14 years
LOC (6) Cl. 24 - *01*
U.S. Cl. D24—186



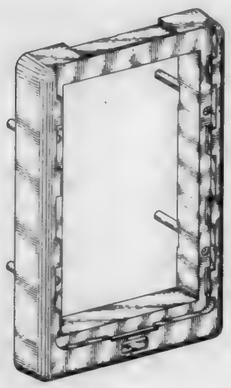
392,045
ADHESIVE BANDAGE
Margaret Palermo, 1307 N. 74th Ter., Hollywood, Fla. 33024
Division of Ser. No. 515, Oct. 16, 1992, Pat. No. Des. 368,526. This application Nov. 2, 1995, Ser. No. 46,747
Term of patent 14 years
LOC (6) Cl. 24 - *04*
U.S. Cl. D24—189



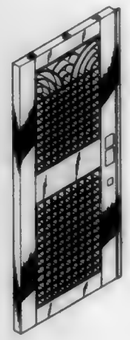
392,046
MEDICAMENT CONTAINER CLOSURE WITH INTEGRAL SPIKE ACCESS MEANS
John J. Niedospial, Jr., Burlington, N.J., assignor to Bracco Diagnostics, Inc., Princeton, N.J.
Filed Nov. 8, 1996, Ser. No. 62,164
Term of patent 14 years
LOC (6) Cl. 24 - *02*
U.S. Cl. D24—224



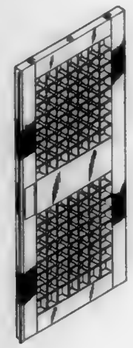
392,047
PET DOOR LOCKING FRAME
George N. Davlantes, 21457 Iglesia Dr., Woodlawn Hills, Calif. 91364
Continuation-in-part of Ser. No. 48,562, Jan. 4, 1996. This application Jul. 9, 1996, Ser. No. 56,764
Term of patent 14 years
LOC (6) Cl. 25 - *02*
U.S. Cl. D25—48



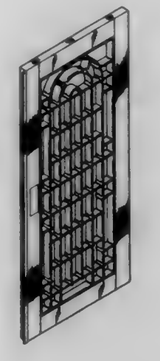
392,048
STAINLESS STEEL DOOR
Ming-Kun Lee, 2/F., No. 13, Hsing-Nan St., Nan-Kang Dist., Taipei City, Taiwan
Filed Jun. 23, 1997, Ser. No. 72,656
Term of patent 14 years
LOC (6) Cl. 25 - *02*
U.S. Cl. D25—53



392,049
STAINLESS STEEL DOOR
Ming-Kun Lee, 2/F., No. 13, Hsing-Nan St., Nan-Kang Dist., Taipei City, Taiwan
Filed Jun. 23, 1997, Ser. No. 72,657
Term of patent 14 years
LOC (6) Cl. 25 - *02*
U.S. Cl. D25—53



392,050
STAINLESS STEEL DOOR
Ming-Kun Lee, 2/F., No. 13, Hsing-Nan St., Nan-Kang Dist., Taipei City, Taiwan
Filed Jun. 23, 1997, Ser. No. 72,921
Term of patent 14 years
LOC (6) Cl. 25 - *02*
U.S. Cl. D25—53

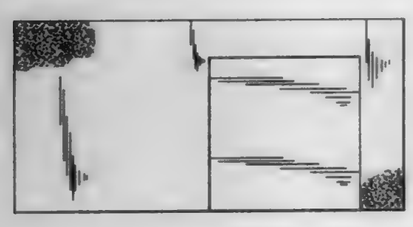


392,051
STAINLESS STEEL DOOR
Ming-Kun Lee, 2/F., No. 13, Hsing-Nan St., Nan-Kang Dist., Taipei City, Taiwan
Filed Jun. 23, 1997, Ser. No. 72,922
Term of patent 14 years
LOC (6) Cl. 25 - *02*
U.S. Cl. D25—53

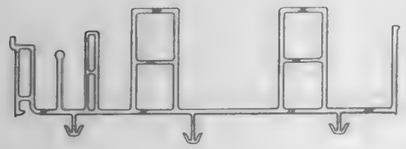


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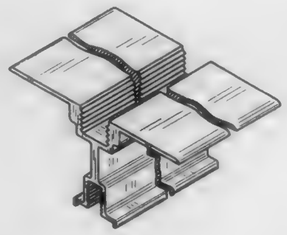
392,052
DECORATIVE BUILDING BLOCK III
Jirair Youssefian, Haddon Heights, N.J., assignor to E. P. Henry Corporation, Woodbury, N.J.
Filed Oct. 8, 1996, Ser. No. 60,837
Term of patent 14 years
LOC (6) Cl. 25 - *01*
U.S. Cl. D25—118



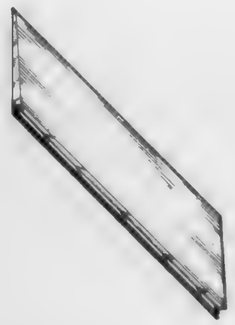
392,053
PATIO DOOR HEADER EXTRUSION
Raymond Dallaire, 4455 Rue St. George, Levis, Quebec, Canada, G6W 1E1, and Dominique Dallaire, 4605 Rue de L'anse, Levis, Quebec, Canada, G6W 6A3
Division of Ser. No. 52,037, Mar. 21, 1996. This application Sep. 13, 1996, Ser. No. 59,576
Claims priority, application Canada, Sep. 22, 1995, 1995-2146
Term of patent 14 years
LOC (6) Cl. 25 - *01*
U.S. Cl. D25—124



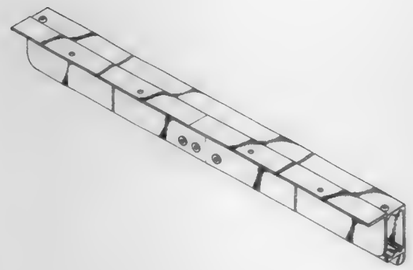
392,054
STUD FOR MODULAR BUILDING SYSTEM
Wayne R. McGee, Chesterfield; Scott Schormann, O'Fallon; Scott Kouri, St. Louis, and Trace Woodrum, Ballwin, all of Mo., assignors to Porta-Fab Corporation, Chesterfield, Mo.
Filed Oct. 25, 1996, Ser. No. 61,539
Term of patent 14 years
LOC (6) Cl. 25 - *01*
U.S. Cl. D25—125



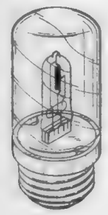
392,055
PREHUNG GAUGED COVE BASE
Lee J. Pelosi, 625 E. Chapel Ave., Cherry Hill, N.J. 08034, and Frank Pelosi, Jr., 625 E. Chapel Ave., Cherry Hill, N.J. 08034
Filed Mar. 24, 1993, Ser. No. 6,350
The portion of the term of this patent subsequent to Aug. 6, 2010, has been disclaimed.
Term of patent 14 years
LOC (6) Cl. 25 - *01*
U.S. Cl. D25—136



392,056
GUIDE RAIL DEVICE
Lung-Chou Wang, No. 29-1, Liu Chang Road, Shen Kang Hsiang, Taichung Hsien, Taiwan
Filed Apr. 30, 1997, Ser. No. 70,390
Term of patent 14 years
LOC (6) Cl. 25 - *02*
U.S. Cl. D25—164



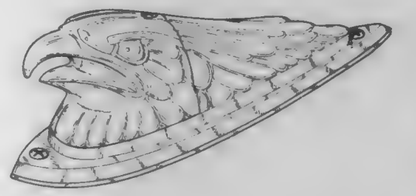
392,057
HALOGEN LAMP
Jason Chen, Hong Kong, Hong Kong, assignor to Angelo Brothers Company, Philadelphia, Pa.
Filed May 30, 1997, Ser. No. 71,583
Term of patent 14 years
LOC (6) Cl. 26 - *04*
U.S. Cl. D26—2



392,058
FEATHER SHAPED WAX CANDLE
Cassandra R. Villecco, 300 Helen St., P.O. Box 3247, Montrose, Mich. 48457
Filed Mar. 10, 1997, Ser. No. 68,707
Term of patent 14 years
LOC (6) Cl. 26 - *04*
U.S. Cl. D26—7

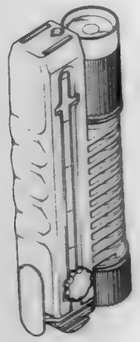


392,059
CAR LAMP
Jui-Chun Lee, P.O. Box 55-846, Taipei, Taiwan
Filed Jul. 18, 1997, Ser. No. 73,865
Term of patent 14 years
LOC (6) Cl. 26 - *06*
U.S. Cl. D26—32

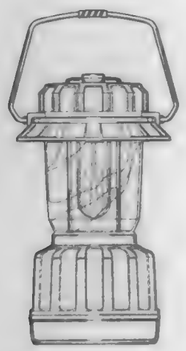


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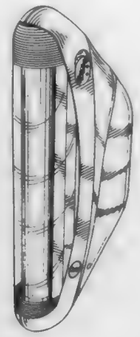
392,060
COMBINED COMPASS AND FLASHLIGHT
Wei Chen, No. 29-2, Lane 5, Yichung E. Road, Ti Hsin Tsun, Tai Ping Hsiang, Taichung Hsien, Taiwan
Filed Jul. 28, 1997, Ser. No. 74,076
Term of patent 14 years
LOC (6) Cl. 26 - *02*
U.S. Cl. D26—38



392,061
LANTERN
Ying-Hoi Lo, New Territories, Hong Kong, assignor to Lomak Industrial Co., Ltd., Hong Kong, Hong Kong
Filed Sep. 13, 1996, Ser. No. 59,560
Term of patent 14 years
LOC (6) Cl. 26 - *02*
U.S. Cl. D26—42

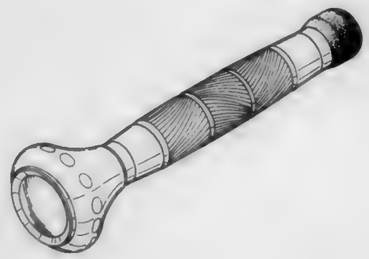


392,062
FLUORESCENT LAMP
Yiu Kwong Wan, New Territories, Hong Kong, assignor to Fee Tat Holdings (H.K.) Limited, Hong Kong
Filed May 12, 1997, Ser. No. 70,590
Claims priority, application United Kingdom, Nov. 11, 1996, 2060718
Term of patent 14 years
LOC (6) Cl. 26 - *02*
U.S. Cl. D26—42

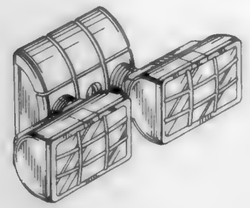


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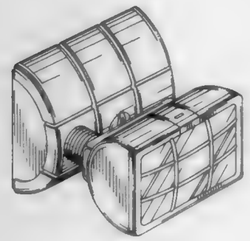
392,064
FLASHLIGHT
Chin Hsiang Chen, 40, Lane 398, Fu Chiang Road Sec. 2,, Yung, Kang, Tainan, Taiwan
Filed Jul. 9, 1997, Ser. No. 73,558
Term of patent 14 years
LOC (6) Cl. 26 - *02*
U.S. Cl. D26—49



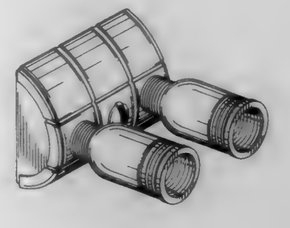
392,065
SECURITY LIGHTING FIXTURE
James Morrow, Oak Park; Brian Day, Des Plaines, both of Ill., and Gary Van Deursen, Evergreen, Colo., assignors to Coleman Safety and Security Products, Inc., Downers Grove, Ill.
Filed May 21, 1997, Ser. No. 71,124
Term of patent 14 years
LOC (6) Cl. 26 - *05*
U.S. Cl. D26—65



392,066
SECURITY LIGHTING FIXTURE
James Morrow, Oak Park; Brian Day, Des Plaines, both of Ill., and Gary Van Deursen, Evergreen, Colo., assignors to Coleman Safety and Security Products, Inc., Downers Grove, Ill.
Filed May 21, 1997, Ser. No. 71,125
Term of patent 14 years
LOC (6) Cl. 26 - *05*
U.S. Cl. D26—65



392,067
SECURITY LIGHTING FIXTURE
James Morrow, Oak Park; Brian Day, Des Plaines, both of Ill., and Gary Van Deursen, Evergreen, Colo., assignors to Coleman Safety and Security Products, Inc., Downers Grove, Ill.
Filed May 21, 1997, Ser. No. 71,126
Term of patent 14 years
LOC (6) Cl. 26 - *05*
U.S. Cl. D26—65

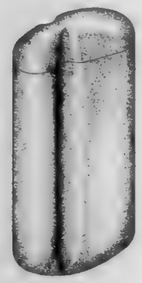


392,068
DESK LAMP
Thomas J. Newhouse, 0-10923 2nd Ave., Grand Rapids, Mich. 49544-6753
Filed Nov. 26, 1996, Ser. No. 63,078
Term of patent 14 years
LOC (6) Cl. 26 - *05*
U.S. Cl. D26—107

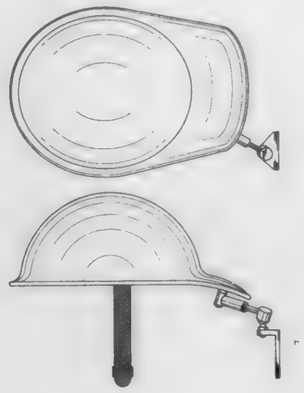


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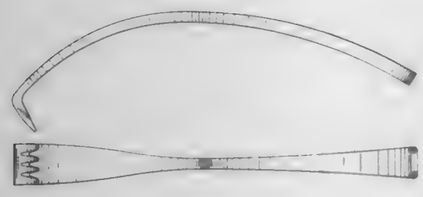
392,069
HOLDER FOR SMOKING ITEMS AND MATERIALS
Richard K. Rowland, Franklin, Tenn., assignor to Music City Marketing, Inc., Nashville, Tenn.
Filed Mar. 25, 1997, Ser. No. 68,274
Term of patent 14 years
LOC (6) Cl. 27 - *06*
U.S. Cl. D27—183



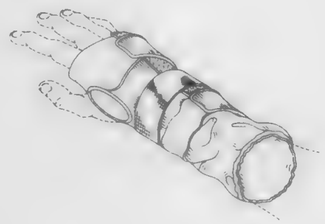
392,071
INDUSTRIAL HELMET WITH AN EXTENDED VISION OPTICAL ELEMENT
Joseph J. Berke, 2063 Long Lake Shore, West Bloomfield, Mich. 48323
Filed Aug. 6, 1996, Ser. No. 58,006
Term of patent 14 years
LOC (6) Cl. 09 - *03*
U.S. Cl. D29—103



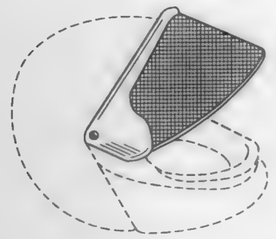
392,070
BACKSCRATCHER
Armando J. Pitaro, and Eric A. Pitaro, both of P.O. Box 208, Bondville, Vt. 05340
Filed Jul. 7, 1997, Ser. No. 73,371
Term of patent 14 years
LOC (6) Cl. 28 - *99*
U.S. Cl. D28—99



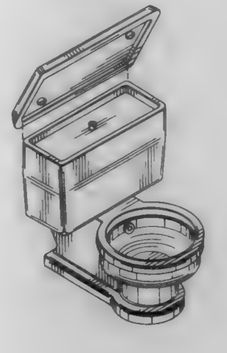
392,072
SNOWBOARD WRIST PROTECTOR
Gary J. Levine, 140 Boulder Way, East Greenwich, R.I. 02818
Filed Dec. 4, 1996, Ser. No. 63,300
Term of patent 14 years
LOC (6) Cl. 29 - *02*
U.S. Cl. D29—120



392,073
FACE SCREEN FOR A HELMET SAFETY DEVICE
Lyle Lashley, 6 Whipple St., Somerville, Mass. 02144
Filed Feb. 13, 1995, Ser. No. 34,793
Term of patent 14 years
LOC (6) Cl. 29 - *02*
U.S. Cl. D29—122



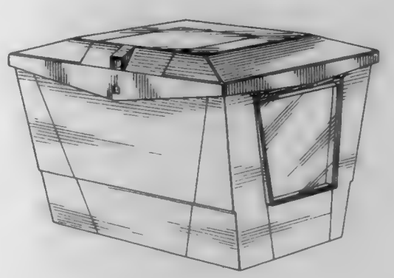
392,075
COMBINED PET DRINKING BOWL AND RESERVOIR
Thomas C. Holt, 23352 Hunterfield Rd., Maitland, Fla. 32751
Filed Nov. 14, 1996, Ser. No. 62,416
Term of patent 14 years
LOC (6) Cl. 30 - *03*
U.S. Cl. D30—129



392,074
DISPOSABLE LINER FOR AN ATHLETE'S SHIN GUARD
Kerry J. Witkin, P.O. Box 7103, Rancho Santa Fe, Calif. 92067-7103
Filed Feb. 26, 1996, Ser. No. 50,809
Term of patent 14 years
LOC (6) Cl. 29 - *02*
U.S. Cl. D29—122



392,076
CAT LITTER BOX
Pieter Goemans, Amstelveen, Netherlands, assignor to Unic Fleur B.V., Netherlands
Filed Jul. 23, 1996, Ser. No. 57,318
Claims priority, application Hague Agreement, Apr. 4, 1996, DM/036090; Apr. 25, 1996, DM/035305
Term of patent 14 years
LOC (6) Cl. 30 - *99*
U.S. Cl. D30—161



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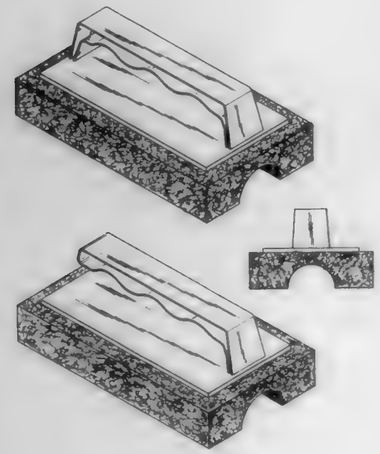
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Patent Not Issued For This Number

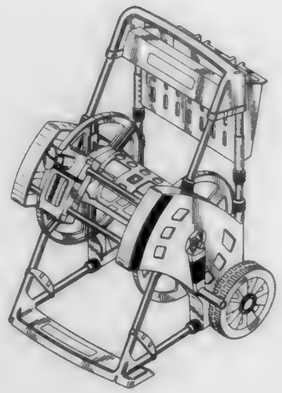
392,078
AUTOMOBILE WINDOW ICE AND SNOW REMOVER
Gailya Courts, 3196 Red Barn Rd., Flint, Mich. 48507
Filed Jun. 13, 1997, Ser. No. 72,262
Term of patent 14 years
LOC (6) Cl. 08 - *05*
U.S. Cl. D32—46



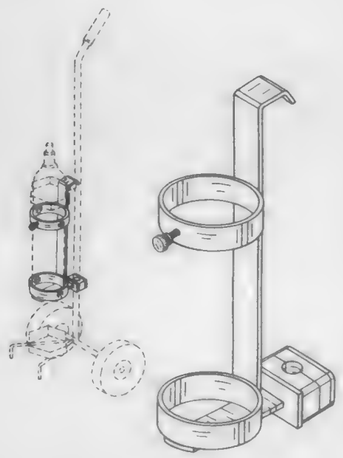
392,079
HAND HELD BUFFER FOR BUFFING ROUND ARTICLES
Daniel R. Omerza, 437 Midway Island, Clearwater, Fla. 34630
Filed Jul. 22, 1997, Ser. No. 73,742
Term of patent 14 years
LOC (6) Cl. 04 - *01*
U.S. Cl. D32—52



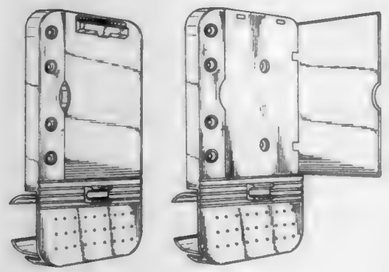
392,080
INDUSTRIAL HOSE CART
Thomas A. Tisbo, Barrington Hills; Stephen P. Whitehead, Elgin; Brian Moon, Sycamore; Mark P. Slaven, Chicago, and Michael G. Uffner, Naperville, all of Ill., assignors to Suncast Corporation, Batavia, Ill.
Filed Mar. 5, 1996, Ser. No. 51,213
Term of patent 14 years
LOC (6) Cl. 12 - *02*
U.S. Cl. D34—26



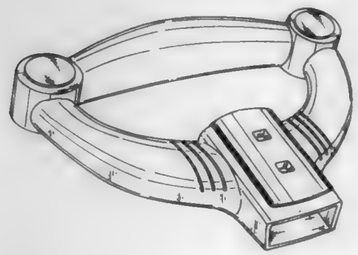
392,081
CART ADAPTER FOR SMALL CYLINDER
Frank S. Salvucci, Sr., 2300 Haggin Oaks Blvd., Bakersfield, Calif. 93311, assignor to Frank S. Salvucci, Sr., Delano, Calif.
Filed Oct. 15, 1996, Ser. No. 60,978
Term of patent 14 years
LOC (6) Cl. 12 - *02*
U.S. Cl. D34—27



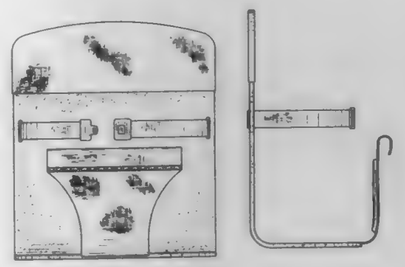
392,082
SCORE BOARD FOR GOLF CART
Ching-Chang Wu, No. 35-1, Jih Hsin Street, Tu Cheng Hsiang, Taipei Hsien, Taiwan
Filed Oct. 28, 1996, Ser. No. 61,637
Term of patent 14 years
LOC (6) Cl. 12 - *02*
U.S. Cl. D34—27



392,083
GOLF CART HANDLEBAR
Ching-Chang Wu, No. 35-1, Jih Hsin Street, Tu Cheng Hsiang, Taipei Hsien, Taiwan
Filed Oct. 28, 1996, Ser. No. 61,639
Term of patent 14 years
LOC (6) Cl. 12 - *02*
U.S. Cl. D34—27



392,084
CHILD'S SEAT FOR A SHOPPING CART
Linda A. Hanes, 4141 Rosecrans, #217, Hawthorne, Calif. 90250
Filed Dec. 16, 1996, Ser. No. 63,797
Term of patent 14 years
LOC (6) Cl. 12 - *02*
U.S. Cl. D34—27



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LIST OF PATENTEES

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NOTE— Arranged in accordance with the first significant character or word of the name (in accordance with city and telephone directory practice).

A. Fem Medical Corporation: *See*—
Buck, Robert L.; and Fleming, William H., 5,725,481, Cl. 600-572.000.

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A.W. Chesterton Company: *See*—
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Abbott Laboratories: *See*—
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Chu, Daniel T.; Li, Qun; Cooper, Curt S.; Fung, Anthony K. L.; Lee, Cheuk M.; Plattner, Jacob J.; Ma, Zhenkun; and Wang, Wei-Bo, 5,726,182, Cl. 514-291.000.
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Abe, Hideyuki: *See*—
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Abe, Makoto; Kohno, Yuichiro; Yasuhira, Nobuo; Ueda, Shuji; Aburaya, Kiyoji; Nakatani, Seiji; and Kawanishi, Makoto, to Sumitomo Electric Industries, Ltd.; and Matsushita Electric Industrial Co., Ltd. Spiral end mill and method of manufacturing the same. 5,725,333, Cl. 407-54.000.

Abe, Masanobu; Okubo, Takeshi; Walton, Carl David; Asaoka, Junichi; Shoji, Yasuhiko; Hata, Tetsuo; Hirayama, Masakazu; and Kyogane, Takeshi, to Matsushita Electric Industrial Co., LTD.; and Fuji Seal Inc. Heat sensitive jacket label for battery and battery with the same. 5,725,966, Cl. 429-167.000.

Abe, Mitsuka: *See*—
Watanabe, Yukio; Kunishi, Tsuyoshi; Abe, Mitsuka; and Toyohara, Yuichiro, 5,726,759, Cl. 358-296.000.

Abe, Shunichi: *See*—
Tomita, Yoshihiro; Ueda, Naoto; Nishinaka, Yoshirou; Abe, Shunichi; and Ichiyama, Hideyuki, 5,724,726, Cl. 29-827.000.

Abe, Tetsuya; Hasushita, Sachio; and Ito, Takayuki, to Asahi Kogaku Kogyo Kabushiki Kaisha. Real image type viewfinder. 5,726,799, Cl. 359-431.000.

Abe, Yoshiharu: *See*—
Ito, Hiroshi; Abe, Yoshiharu; Takizawa, Tsuyoshi; and Hara, Yoshihisa, 5,724,808, Cl. 60-276.000.

Abiuso, Marie: *See*—
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Abraham, William D.: *See*—
Roby, Stephen H.; Supp, James A.; Manka, John S.; and Abraham, William D., 5,726,132, Cl. 508-287.000.

Abreu, Mario E.; Rawlins, Douglas C.; Sood, Virendra M.; and Sperling, James B., to Solar Turbines Incorporated. Method and apparatus for making holes in a workpiece. 5,726,411, Cl. 219-121.700.

Abuaf, Nesim: *See*—
Ritter, Ann Melinda; Campbell, Robert Patrick; Jackson, Melvin Robert; McLean, Ross Anthony; Cohen, Mitchell Reuben; Abuaf, Nesim; Correa, Sanjay Marc; Peterson, Lance Gordon; Muth, Myron Clyde; Beltran, Adrian Maurice; Minas, Constantinos; Schumacher, David Robert; and Graves, Jeffrey Alan, 5,724,816, Cl. 60-752.000.

Aburaya, Kiyoji: *See*—
Abe, Makoto; Kohno, Yuichiro; Yasuhira, Nobuo; Ueda, Shuji; Aburaya, Kiyoji; Nakatani, Seiji; and Kawanishi, Makoto, 5,725,333, Cl. 407-54.000.

Academy of Sciences of the Czech Republic, Institute of Organic Chemistry and Biochemistry of the: *See*—
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ACD Tridon Inc.: *See*—
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Acharya, Divyanshu R.; Kumar, Ravi; and Ramachandran, Ramakrishnan, to BOC Group, Inc., The. Process for the production of petrochemicals. 5,726,327, Cl. 549-258.000.

Acher, Olivier; Vermeulen, Jean-Luc; and Fontaine, Jean-Marie, to Commissariat A L'Energe Atomique. Anisotropic microwave composite. 5,726,655, Cl. 342-1.000.

Achmüller, Klaus, to Atronic Casino Technology Distribution GmbH. Video slot machine. 5,725,428, Cl. 463-20.000.

Acushnet Company: *See*—
Reid, Walter L., Jr., 5,725,891, Cl. 425-407.000.

Acuson Corporation: *See*—
Goodsell, Leonard James, Jr.; Marshall, Janice L.; Guracar, Ismayil M.; Haller, Matthew I.; and Cole, Christopher R., 5,724,974, Cl. 128-661.090.
Petrofsky, Joseph G., 5,724,972, Cl. 128-661.010.

Adachi, Masakazu; Nakatani, Masahiro; and Honda, Seiichirou, to Japan Immuno Research Laboratories Co., Ltd.; and Sekisui Kagaku Kogyo Kabushiki Kaisha. Granulocyte removing apparatus. 5,725,768, Cl. 210-435.000.

Adachi, Michio: *See*—
Morii, Yasushi; Oonishi, Tomomasa; and Adachi, Michio, 5,724,928, Cl. 123-90.170.

Adachi, Motomitsu: *See*—
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Adachi, Shin: *See*—
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Adams, David Robert, to Exxon Chemical Patents Inc. Multigrade lubricating compositions. 5,726,134, Cl. 508-391.000.

Adams, Martin. Four horseshoe wire puzzle. 5,725,214, Cl. 273-158.000.

Adams Mfg. Corp.: *See*—;
Adams, William E., 5,725,193, Cl. 248-523.000.

Adams, Nathan G.; and Geiler, Kal V., to McDonnell Douglas Helicopter. Gun barrel shrouding system. 5,726,375, Cl. 89-14.100.

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Adamy, Juergen: *See*—
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Adhesives Research, Inc.: *See*—
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Adir et Compagnie: *See*—
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Advanced Cardiovascular Systems, Inc.: *See*—
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Ahn, Seong-Ick, to Daewoo Electronics Co., Ltd. VCR having a reel brake device. 5,725,171, Cl. 242-355.100.
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Bränemark, Per-Ingvar, to Medevelop AB. Anchoring element supporting prostheses or a joint mechanism for a reconstructed joint. 5,725,581, Cl. 623-16.000.

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Breen, Bernard P.; Bionda, John P.; Gabrielson, James E.; and Hallo, Anthony, to Duquesne Light Company; and Energy Systems Associates. Split flame burner for reducing NO_x formation. 5,724,897, Cl. 110-261.000.

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Bremer, Matthias; Reiffenrath, Volker; Pauluth, Detlef; and Tarumi, Kazuaki, to Merck Patent Gesellschaft mit beschrankter Haftung. 3,4,5-trifluoropheny 4-cyclohexylbenzoates. 5,725,799, Cl. 252-299.670.

Brendel, Jutta, heir: *See—*
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Brendel, Walter, deceased (by Jutta Brendel, heir): *See—*
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Britschgi, Theresa B.; and Cangelosi, Gerard A., to Becton Dickinson and Company. Rapid and sensitive detection of antibiotic-resistant mycobacteria using oligonucleotide probes specific for ribosomal RNA precursors. 5,726,021, Cl. 435-6.000.

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Keller, J. Dennis; and Lee, Roger R., to Micron Technology, Inc. Programmable non-volatile memory cell and method of forming a programmable non-volatile memory cell. 5,726,471, Cl. 257-316.000.

Keller, Jürgen; and Peters, Ralf, to Universitat Siegan. Agents for absorption machines. 5,725,793, Cl. 252-69.000.

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Kemira Chemicals Oy: *See*—
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Keys, James Frederick, to Standard Products Company, The. Sealing device. 5,725,924, Cl. 428-40.100.

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Khinkis, Mark J.; Abbasi, Hamid A.; and Grosman, Roman E., to Institute of Gas Technology. High-heat transfer, low-nox oxygen-fuel combustion system. 5,725,366, Cl. 431-10.000.

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Kim, Dae Hyun, to Hyundai Electronics Industries Co., Ltd. Flash memory device. 5,726,935, Cl. 365-185.210.

Kim, Dae Whang; Yun, Kyeong Yeol; Ryu, Jae Wook; Lee, Yeon Soo; Kang, Seung Kyu; and Hwang, In Taek, to Korea Research Institute of Chemical Technology. Thiophenesulfonylurea derivatives and herbicidal composition containing the same. 5,726,127, Cl. 504-239.000.

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Klee, Martin Howard; and Paciullo, Francis Patrick, to Colgate-Palmolive Company. Toothbrush construction. 5,724,697, Cl. 15-205.000.

Klein, Andreas: *See*—
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Klein, Konrad; and Metsch, Günter, to Daimler-Benz AG. Hire vehicle transportation system. 5,726,885, Cl. 364-423.098.

Kleinstück, Roland: *See*—
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Klem, Robert E.; Marvin, William B.; and Riley, Timothy A., to Genta Incorporated. Process for the synthesis of oligonucleotides and analogs with low water oxidation step. 5,726,300, Cl. 536-25.340.

Kliman, Gerald Burt: *See*—
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Klinck, Jay, to Mitsubishi Semiconductor America, Inc. Buffer with drive characteristics controllable by software. 5,727,166, Cl. 395-250.000.

Klinikum Der Albert-Ludwigs-Universität Freiburg: *See*—
Matern, Ulrich. 5,725,539, Cl. 606-151.000.

Klink, Kristopher, to Sony Corporation; and Sony Electronics Inc. Transient enhancement circuit for CRT amplifier. 5,726,540, Cl. 315-383.000.

Klotz, Antoine. Electronic device and method for adrenergically stimulating the sympathetic system with respect to the venous media. 5,725,563, Cl. 607-62.000.

Klotz, Arthur: *See*—
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Kluge, Kim C.; and Kluge, Douglas W., to Kluge Slide Duplication, Inc. Comb and dispenser unit. 5,725,130, Cl. 222-192.000.

Kluge, Richard G.; and Sterling, John R., to John Sterling Corporation. Space organizing system. 5,725,110, Cl. 211-87.010.

Kluge Slide Duplication, Inc.: *See*—
Kluge, Kim C.; and Kluge, Douglas W., 5,725,130, Cl. 222-192.000.

Knapp, Terry R.; and Belsey, Elizabeth Mary, to Lipomatrix Incoporated. Temporary implant with transponder and methods for locating and indentifying. 5,725,578, Cl. 623-11.000.

Knapp, Walter, to Joslyn Electronic Systems Corporation. Coaxial cable fuse apparatus. 5,726,851, Cl. 361-104.000.

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Kneisley, Joel D.: *See*—
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Knight, Gary W.; Taylor, Julia C.; Clem, Michael F.; Eaves, Felmont F., III; and Lumsden, Alan B., to Ethicon Endo-Surgery, Inc. Method and devices for endoscopic vessel harvesting. 5,725,479, Cl. 600-210.000.

Knoblock, Glenn A., to Steelcase Inc. Synchrotilt chair. 5,725,277, Cl. 297-300.400.

Knoebel, Norwood B. Vacuum toothbrush holder. 5,725,091, Cl. 206-209.100.

Knorovsky, Alexander. Corner shelf unit. 5,724,894, Cl. 108-42.000.

Knowles, Michael R.: *See*—
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Knox, Andrew Ramsey: *See*—
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Knox, Wayne H.: *See*—
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Koether, Bernard G., to Technology Licensing Corporation. Modular control enclosure for a cooking appliance. 5,726,424, Cl. 219-414.000.

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Komatsu Electronic Metals Co. Ltd.: *See*—
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Kondo, Ikuzo; Higuchi, Yoshiharu; and Ito, Kazuhisa, to Brother Kogyo Kabushiki Kaisha. Sewing machine control device with an inverter for controlling an induction motor. 5,724,904, Cl. 112-277.000.

Kondo, Masahiko; Yamada, Nobuaki; Horie, Wataru; Shiomi, Makoto; Okamoto, Masayuki; Kozaki, Shuichi; Shinomiya, Tokihiko; and Fujimori, Kohichi, to Sharp Kabushiki Kaisha. Liquid crystal display device and a production method utilizing surface free energies for the same. 5,726,728, Cl. 349-156.000.

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Konishi, Yuichiro; Hosaka, Tohru; Tada, Mitsushi; Natsuume, Tadao; Takahashi, Nobukazu; and Kohara, Teiji, to Nippon Zeon Co., Ltd. Molded articles having hard coat layer and method for producing same. 5,725,960, Cl. 428-451.000.

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Kotula, Frank; Amplatz, Kurt; and Amplatz, Curtis, to AGA Medical Corporation. Percutaneous catheter directed intravascular occlusion devices. 5,725,552, Cl. 606-213.000.

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Kovach, Dennis: *See*—
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Krämer, Michael; and Schmidt, Karlwalter, to Daimler Benz AG. Connecting rod. 5,724,863, Cl. 74-583.000.

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Krämer sen., Wilhelm Ludwig; Krämer jun., Wilhelm Ludwig; and Schmidhuber, Josef, to Multipond GmbH. Apparatus for charging a weighing device arranged upstream of a packing device with fragile foodstuffs of irregular size and similar products, in particular potato chips. 5,726,394, Cl. 177-116.000.

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Kraus, Michael, to Behring Diagnostics GmbH. Method for detecting disturbances of the protein c/protein s system. 5,726,028, Cl. 435-13.000.

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Krikorian, Thomas M. Continuous play background music system. 5,726,909, Cl. 364-514.00R.

Krings, Josef, to Richter, Wolfgang. Joining arrangement. 5,725,330, Cl. 405-282.000.

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Michelotti, Enrique Luis; Egan, Anne Ritchie; Ross, Ronald, Jr.; and Wilson, Willie Joe, to Rohm and Haas Company. Dihydropyridazinones, pyridazinones and related compounds as fungicides. 5,726,176, Cl. 514-252.000.

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Mueller, Richard L., to Eclipse Surgical Technologies, Inc. Depth stop apparatus and method for laser-assisted transmyocardial revascularization and other surgical applications. 5,725,521, Cl. 606-7.000.

Mueller, Richard L. Lateral-and posterior-aspect method and apparatus for laser-assisted transmyocardial revascularization and other surgical applications. 5,725,523, Cl. 606-15.000.

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Nira Automotive AB: *See—*
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Nisato, Dino: *See—*
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Nishibori, Sadao, to EIN Engineering Co., Ltd. Synthetic wood meal, method and apparatus for manufacturing the same; synthetic wood board including the synthetic wood meal, method and apparatus of extrusion molding therefor. 5,725,939, Cl. 428-292.400.

Nishida, Seiki; Nakashima, Junji; Serikawa, Osami; and Ochiai, Ikuo, to Nippon Steel Corporation. Steel wire of high strength excellent in fatigue characteristics. 5,725,689, Cl. 148-320.000.

Nishide, Satoru: *See—*
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Nishide, Seiji; and Tanaka, Hideki, to Kabushiki Kaisha Tokai-Rika-Denki-Seisakusho. Preloader apparatus. 5,725,249, Cl. 280-806.000.

Nishigaya, Takeshi: *See—*
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Nishii, Shigeki; Sakamoto, Satoshi; Kinoi, Shigeru; Kubozuka, Satoshi; Taruma, Tadahiro; and Miyazaki, Shigeto, to Daicel Chemical Industries, Ltd. Chemical oxygen generator. 5,725,834, Cl. 422-126.000.

Nishikata, Yasunari; and Pu, Lyong Sun, to Fuji Xerox Co., Ltd. Cyclobutenedione compounds. 5,726,317, Cl. 546-340.000.

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Nishishita, Kunihiko, to Zexel Corporation. Laminated heat exchanger. 5,724,817, Cl. 62-216.000.

Nishitani, Kazunobu, to Kabushiki Kaisha Toshiba. Press pack power semiconductor device incorporating a plurality of semiconductor elements. 5,726,466, Cl. 257-181.000.

Nishitani, Mikihiko; Negami, Takayuki; and Wada, Takahiro, to Matsushita Electric Industrial Co., Ltd. Apparatus for manufacturing chalcopyrite film. 5,725,671, Cl. 118-665.000.

Nishiyama, Hidetoshi. Working protection cover and parts thereof and method of manufacturing the working protection cover. 5,725,933, Cl. 428-192.000.

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Pall Corporation: *See*—
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Pallmann, Wilhelm, to Pallman Maschinenfabrik GmbH & Co.KG. Method and apparatus for the automatic replacement of rim shaped size reduction tools of size reduction machines, more specifically knife rims of wood flaking machines. 5,725,464, Cl. 483-1.000.

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Palmertree, Billy G.; Naron, Lewis Bonny; and Robinson, James H., to United States of America, Army. Automated cone penetrometer. 5,726,349, Cl. 73-84.000.

Palmgren, Gary M.: *See*—
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Pan, Jing-Jong, to E-Tek Dynamics, Inc. Reduced optical isolator module for a miniaturized laser diode assembly. 5,726,801, Cl. 359-484.000.

Pan, Jing-Jong; and Shih, Ming, to E-Tek Dynamics, Inc. Optical attenuator with low polarization mode dispersion. 5,727,109, Cl. 385-140.000.

Pan, Rong Shiun: *See*—
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Pan, Shao Wei; Wang, Shay-Ping T.; and Labun, Nicholas M., to Motorola, Inc. Method and system for compressing a pixel map signal using block overlap. 5,727,084, Cl. 382-232.000.

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Panduit GmbH: *See*—
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Pant, Ranjan: *See*—
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Paper Converting Machine Co.: *See*—
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Park, Chan Kwang; and Koh, Yo Hwan, to Hyundai Electronics Industries Co., Ltd. Semiconductor device and method for fabricating the same. 5,726,082, Cl. 438-165.000.

Park, Daniel Clark, to Bell & Howell Mail Processing Systems. Impact pulley. 5,725,449, Cl. 474-94.000.

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Park, Heui-Jae; Lee, Seok-Won; Kang, Geon-Mo; and Moon, Ho-Gyun, to Samsung Aerospace Industries, Ltd. Automatic inspection system for camera lenses and method thereof using a line charge coupled device. 5,726,746, Cl. 356-124.500.

Park, Hong Ku. Moisture feeding apparatus for plants. 5,725,156, Cl. 239-379.000.

Park, Pyong K.; and Holzman, Eric L., to Hughes Electronics. End launched microstrip or stripline to waveguide transition with cavity backed slot fed by T-shaped microstrip line or stripline usable in a missile. 5,726,664, Cl. 343-705.000.

Park, Shi-Hong; Bahng, Suk-Hoon; and Kang, Nam-Jin, to Samsung Electronics Co., Ltd. Sensorless, brushless DC motor start-up circuit using intermittently-accelerated-rate clock. 5,726,543, Cl. 318-254.000.

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Parker, Kevin J.; and Mitsa, Theophano, to Research Corporation Technologies. Method and apparatus for halftone rendering of a gray scale image using a blue noise mask. 5,726,772, Cl. 358-456.000.

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Parrette, William, to Solitec Wafer Processing, Inc. Apparatus for control of contamination in spin systems. 5,725,663, Cl. 118-52.000.

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Partee, Terrell L.; Varker, Charles; and Morse, Elaine T., to Dial Corp, The. Detergent having improved properties and method of preparing the detergeat. 5,726,142, Cl. 510-276.000.

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Patel, Amrit; and Robbins, Clarence R., to Colgate-Palmolive Company. Low silicone hair conditioning shampoo and non-silicone hair conditioning/style control shampoo. 5,726,137, Cl. 510-122.000.

Patel, Nagar J.; Benke, James J.; Valenta, Michael C.; and Davies, Norman, to Eaton Corporation. Apparatus and method for testing spring powered switches. 5,726,367, Cl. 73-865.900.

Patel, Rasik N.; Breckenridge, Guy Allen; and Barbat, Saeed David, to Ford Global Technologies, Inc. Energy absorbing automotive vehicle body structure. 5,725,271, Cl. 296-189.000.

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Paya, José Agustin, to Widia GmbH. Cutting insert. 5,725,334, Cl. 407-117.000.

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Sakurai, Hiroshi; Ohtsubo, Hiroyasu; Asada, Kouji; Noda, Masaru; Iura, Noriyuki; Imaide, Takuya; Kamimura, Junji; Komatsu, Hiroyuki; and Kinugasa, Toshiro, to Hitachi, Ltd. Signal reading and processing arrangement of still picture recording apparatus. 5,726,707, Cl. 348-222.000.

Sakurai, Kenichi; Niiyama, Tatsuo; and Uchida, Masahiro, to Yamaha Hatsudoki Kabushiki Kaisha. Timing case cover for engine. 5,724,930, Cl. 123-90.310.

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Saliba, Kenneth Norman; Kaminski, Joseph Leon, III; and Benner, Richard Eugene, to Whitaker Corporation, The. Apparatus for assembling an optical fiber connector. 5,724,723, Cl. 29-754.000.

Salive, Harold Terrence; Slade, Kevin George; and Salive, Rachel Keene, to Kiwisoft Programs Limited. Identification system. 5,725,253, Cl. 283-67.000.

Salive, Rachel Keene: *See*—
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Salmonson, Richard B.; and Bowen, Stephen A., to Cray Research, Inc. Apparatus and method for mounting edge connectors within a circuit module. 5,726,857, Cl. 361-702.000.

Salomon S.A.: *See*—
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Sameshima, Toshiyuki; Hara, Masaki; Sano, Naoki; Gosain, Dharam Pal; and Usui, Setsuo, to Sony Corporation. Semiconductor device having an improved thin film transistor. 5,726,487, Cl. 257-616.000.

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Sizer II, Theodore; and Wright, Gregory Alan, to Lucent Technologies, Inc. System and apparatus for recording and displaying received information at a remote location. 5,727,053, Cl. 379-142.000.

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Talalay, Paul: *See*—
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Tamaru, Takuya; and Nakamura, Shigetomo, to Yamaha Corporation. Control device suitable for use in an apparatus for reproducing video, audio and accompanying characters. 5,726,649, Cl. 341-35.000.

Tame, Chikashi: *See*—
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Tamura, Atsushi: *See*—
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Yamasaki, Takuya; and Ohta, Keizo, to Ohta Inc. (Ohta Kabushiki Kaisha). Walking assistance crutch. 5,725,005, Cl. 135-73.000.

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Yamashita, Shigeharu; Fuchigami, Kazutoshi; Yamamoto, Tetsuya; Otsu, Shinichi; Shimamori, Hiroshi; and Tokimi, Sentarou, to Fujitsu Limited; and Fujtsu Denso Limited. Synchronous rectifier type DC-to-DC converter in which a saturable inductive device is connected in series with a secondary-side switching device. 5,726,869, Cl. 363-21.000.

Yamashita, Taturou; and Takenaka, Masashi, to Fujitsu Limited. Semiconductor device and semiconductor device unit having ball-grid-array type package structure. 5,726,493, Cl. 257-698.000.

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Zary, Keith W., to Bear Creek Gardens, Inc. Hybrid tea rose plant named 'JAClion'. 10,273, Cl. Plt.-11.000.

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CLASS 122
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511 5,724,923

CLASS 123
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41.49 5,724,925
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72 5,724,955

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201.23 5,724,958
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205.24 5,724,961
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206.15 5,724,963
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207.13 5,724,965
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661.03 5,724,973
661.09 5,724,974
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696 5,724,983
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725 5,724,986

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CLASS 131
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372 5,724,998

CLASS 132
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38 5,725,680
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95.3 5,725,002
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CLASS 152
209 R 5,725,700
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CLASS 156
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150 5,725,706
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579 5,725,727
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170 R 5,725,040

CLASS 162
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5,725,732
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111 5,725,734
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164.4 5,725,736
263 5,725,737

CLASS 164
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119 5,725,043
131 5,725,044
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104.33 5,725,050
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65 G 5,726,392
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CLASS 175
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65.2 5,725,064
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6.26 5,725,071
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70.17 5,725,080

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CLASS 198
471.1 5,725,082
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61.7 5,726,402
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192.3 5,725,739
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284 5,725,745
298.21 5,725,746
415 5,725,747
524 Re.35,741
534 5,725,749

CLASS 205
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445 5,725,748
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746 5,725,753
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209.1 5,725,091
307.1 5,725,092
308.1 5,725,093
314 5,725,094
315.8 5,725,095
320 5,725,090
350 5,725,096
439 5,725,097
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170 5,725,760
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188 5,725,763
221.2 5,725,764
238 5,725,765
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435 5,725,768
500 39 5,725,769
603 5,725,770
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646 5,725,775
5,725,776
650 5,725,777
695 5,725,778
718 5,726,405
728 5,725,779
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757 5,725,781
767 5,725,782
770 5,725,783
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13.1 5,725,106
40 5,725,105
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70.7 5,725,108
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87.01 5,725,110
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CLASS 212
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204 5,725,114
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121.63 5,726,418
121.7 5,726,411
125.11 5,726,417
130.51 5,726,419
137.61 5,726,420
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388 5,726,422
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414 5,726,424
471 5,726,425
730 5,726,426
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B1 4,537,322
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375 5,725,121
521 5,725,122
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CLASS 222
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441 5,726,432
467 5,726,433
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CLASS 236
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CLASS 238
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CLASS 239
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45 5,725,152
102.1 5,725,153
135 5,725,154
343 5,725,155
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533.9 5,725,157
553.3 5,725,159
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259.1 5,725,166

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26.3 5,725,167
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348.1 5,725,170
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110 B 5,725,182
161 5,725,183
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178.1 5,725,187
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442.2 5,725,191
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523 5,725,193
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237 R 5,726,446
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559.28 5,726,455

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69 5,725,793
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314 5,725,804
315.2 5,725,805
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583 5,725,809

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398 5,725,200

CLASS 256
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712 5,726,494
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40.3 5,725,814
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630 5,725,829

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153 5,725,203
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CLASS 273
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455.1 5,725,231
477 5,725,232
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512 5,725,234
605 5,725,235
609 5,725,236
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731 5,725,241
735 5,725,242
737 5,725,243
739 5,725,244
740 5,725,245
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70 B1 5,456,498
72 5,725,254

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334.4 5,725,259

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CLASS 294
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CLASS 296
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378.1 5,725,279
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423.44 5,725,280

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CLASS 301
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116.4 5,725,287
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CLASS 307
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127 5,726,505
147 5,726,506
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49 R 5,726,510
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90.5 5,726,512
91 5,726,513
179 5,726,514
261 5,726,516
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323 5,726,515
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5,726,519
328 5,726,520
5,726,521
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CLASS 313
161 5,726,523
309 5,726,524
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422 5,726,526
447 5,726,527
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495 5,726,529
5,726,530
509 5,726,531
636 5,726,532

CLASS 315
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185 R 5,726,535
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311 5,726,537
370 5,726,538
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383 5,726,540

CLASS 318
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35 5,726,542
254 5,726,543
271 5,726,544
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439 5,726,546
483 5,726,547
625 5,726,548
721 5,726,549
803 5,726,550

CLASS 320
6 5,726,551
7 5,726,552
11 5,726,553
21 5,726,554
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48 5,726,556

CLASS 322
21 5,726,557
27 5,726,558
34 5,726,559
89 5,726,560

CLASS 323
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315 5,726,563
367 5,726,564

CLASS 324
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95 5,726,566
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758 5,726,580

CLASS 326
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40 5,726,586
56 5,726,587
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86 5,726,590
117 5,726,591

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565 5,726,601

CLASS 330
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283 5,726,604
295 5,726,605
302 5,726,606

CLASS 331
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117 D 5,726,608

CLASS 332
115 5,726,609

CLASS 333
133 5,726,610
181 5,726,611
184 5,726,612
214 5,726,613

CLASS 335
177 5,726,614

CLASS 336
83 5,726,615
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175 5,726,618
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CLASS 337
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297 5,726,621

CLASS 338
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825.22 5,726,639
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825.44 5,726,642
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70 5,726,650
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156 5,726,653
161 5,726,654

CLASS 342
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359 5,726,661
372 5,726,662
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CLASS 343
705 5,726,664
744 5,726,665
770 5,726,666
786 5,726,667

CLASS 345
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2 5,726,669
7 5,726,670
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87 5,726,673
94 5,726,674
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99 5,726,677
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352 5,726,688
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CLASS 347
15 5,726,690
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23 5,726,692
48 5,726,693
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62 5,726,697
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263 5,726,700

CLASS 348
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13 5,726,702
46 5,726,703
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43 5,726,720
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149 5,726,726
156 5,726,728
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196 5,726,730

CLASS 351
53 5,726,731
97 5,726,732
160 5,726,733
169 5,726,734
215 5,726,735

CLASS 355
39 5,726,736
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67 5,726,739
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	5,724,807	5,724,832	5,725,359	5,726,009	5,726,600	5,727,123
	5,725,156	5,724,852	5,725,373	5,726,011	5,726,615	5,727,129
	5,725,233	5,724,868	5,725,390	5,726,014	5,726,624	5,727,137
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	5,725,723	5,724,877	5,725,414	5,726,037	5,726,644	5,727,144
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04 :	5,724,760	5,724,909	5,725,458	5,726,146	5,726,672	5,727,147
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	5,724,935	5,724,943	5,725,463	5,726,149	5,726,690	5,727,159
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24 .	391,759	27 :	391,736		392,022		391,781		391,986		392,006
	391,820		391,776		392,046		391,823	42 :	391,744		392,037
	391,846		391,818		392,052		391,901		391,837	50	392,070
	391,973		391,821		392,055	39 :	391,762		391,843	51 :	391,876
25	391,832		391,850	36 :	391,755		391,794		391,921		391,992
	391,840		391,896		391,760		391,856		391,924	53 :	391,838
	391,842		391,948		391,788		391,875		392,014		391,881
	391,883		391,949		391,815		391,915	44 :	391,872		391,943
	391,889		391,953		391,816		391,970		391,922		391,944
	391,927		391,971		391,855		392,009		392,072		392,013
	391,995		391,994		391,877		392,023	45 :	391,905		392,016
	392,019	28 :	391,799		391,878	41 :	391,746		391,906		
	392,073	29 :	391,770		391,886		391,747		391,916		
26 .	391,789		391,880		391,895		391,750	47 :	391,749		
	391,791		392,054		391,988		391,751		391,982		
	391,810	30 :	391,836		391,990		391,753		392,035		

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Patent Cooperation Treaty (PCT) Information

For information concerning PCT member countries, see the notice appearing in the *Official Gazette* at 1205 O.G. 4, on December 2, 1997.

For use of the European Patent Office as an International Searching Authority for international applications filed in the United States Receiving Office, see the notice appearing in the *Official Gazette* at 1022 O.G. 52, on September 28, 1982.

For use of the European Patent Office as an International Preliminary Examining Authority for international applications filed in the United States Receiving Office, see the notices appearing in the *Official Gazette* at 1080 O.G. 2, on July 7, 1987, and at 1091 O.G. 2, on June 7, 1988. There is no longer a limit on the number of such international applications accepted for international preliminary examination by the European Patent Office; see the notice appearing at 1116 O.G. 32, on July 17, 1990.

The search fee of the European Patent Office was increased, effective January 1, 1998, and was announced in the *Official Gazette* at 1205 O.G. 3, on December 2, 1997.

International fees were changed, effective on May 1, 1997, due to a change in the exchange rate of the U.S. dollar with regard to the Swiss franc, and were announced in the *Official Gazette* at 1197 O.G. 69, on April 22, 1997. The basic fee and the designation fee were further changed effective January 1, 1998 and were announced in the *Official Gazette* at 1205 O.G. 3, on December 2, 1997.

Certain domestic PCT fees and charges for International Search and Preliminary Examination were changed, effective October 1, 1997, and were announced in the *Official Gazette* at 1201 O.G. 63, on August 19, 1997.

The schedule of PCT fees (in U.S. dollars), effective January 1, 1998, is as follows:

International Application (PCT Chapter I) fees:	
Transmittal fee	240.00
Search Fee	
U.S. Patent and Trademark Office (USPTO) as International Searching Authority (ISA)	
— No corresponding prior U.S. national application filed under 35 U.S.C. 111(a)	700.00
— Corresponding prior U.S. national application filed under 35 U.S.C. 111(a)	450.00
— Supplemental search fee, per additional invention (payable only upon invitation)	210.00
European Patent Office as ISA	1250.00
International fees	
Basic fee	455.00
Basic supplemental fee (for each page over 30)	10.00
Designation fee per country or region	
— For the first 11 national or regional offices designated	105.00
— For each designation in excess of 11 offices	No Charge
Precautionary designation fee and confirmation fee for each precautionary designation confirmed (PCT Rule 15.5)	
— Designation fee	105.00
— Confirmation fee	52.50
International Application (PCT Chapter II) fees associated with filing a Demand for Preliminary Examination:	
Handling fee	162.00
Preliminary examination fee	
USPTO as International Preliminary Examining Authority (IPEA)	
— USPTO was ISA in PCT Chapter I	490.00
— Additional examination fee, per additional invention (payable only upon invitation)	140.00
— USPTO was not ISA in PCT Chapter I	750.00
— Additional examination fee, per additional invention (payable only upon invitation)	270.00

U.S. National Stage Fees	Small Entity	Regular
Basic National fee		
USPTO was IPEA		
— All claims presented satisfied provisions of PCT Article 33(2) to (4)	49.00	98.00
— All claims presented did not satisfy provisions of PCT Article 33(2) to (4)	360.00	720.00
USPTO was ISA but not IPEA	395.00	790.00
USPTO was neither ISA nor IPEA		
— Search report has not been prepared by the European Patent Office or the Japanese Patent Office	535.00	1070.00
— Search report has been prepared by the European Patent Office or the Japanese Patent Office	465.00	930.00
Other National fees		
— For each independent claim in excess of 3	41.00	82.00
— For each claim in excess of 20	11.00	22.00
— For each application containing a multiple dependent claim	135.00	270.00
— Surcharge for filing oath or declaration after the time limit applicable under PCT Article 22 or 39(l)	65.00	130.00
— Processing fee for filing English translation after the time limit applicable under PCT Article 22 or 39(l)	130.00	130.00

Nov. 10, 1997

BRUCE A. LEHMAN
Assistant Secretary of Commerce and Commissioner of Patents and Trademarks

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Notice of Maintenance Fees Payable

Title 37 Code of Federal Regulations (CFR), Section 1.362(d) provides that maintenance fees may be paid without surcharge for the six-month period beginning 3, 7, and 11 years after the date of issue of patents based on applications filed on or after Dec. 12, 1980. An additional six-month grace period is provided by 35 U.S.C. 41(b) and 37 CFR 1.362(e) for payment of the maintenance fee with the surcharge set forth in 37 CFR 1.20(h), as amended effective Dec. 16, 1991. If the maintenance fee is not paid in the patent requiring such payment the patent will expire on the 4th, 8th, or 12th anniversary of the grant.

Attention is drawn to the patents which were issued on March 14, 1995 for which maintenance fees due at 3 years and six

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months may now be paid. The patents have patent numbers within the following ranges:

Utility Patents 5,396,661 through 5,398,338
Reissue Patents based on the above identified patents.

Attention is drawn to the patents which were issued on March 12, 1991 for which maintenance fees due at 7 years and six months may now be paid. The patents have patent numbers within the following ranges:

Utility Patents 4,998,296 through 4,999,844
Reissue Patents based on the above identified patents.

Attention is drawn to the patents which were issued on March 10, 1987 for which maintenance fees due at 11 years and six months may now be paid. The patents have patent numbers within the following ranges:

Utility Patents 4,648,136 through 4,649,570
Reissue Patents based on the above identified patents.

No maintenance fees are required for design or plant patents.

Payments of maintenance fees in patents should be directed to "Commissioner of Patents and Trademarks, Box M. Fee, Washington, D.C. 20231."

For patents based on applications filed on or after Dec. 12, 1980, but before Aug. 27, 1982, patent owners must establish small entity status according to 37 CFR 1.27 if they have not done so and if they wish to pay the small entity amount.

The current amounts of the maintenance fees due at 3 years and six months, 7 years and six months, and 11 years and six months are set forth in 37 CFR 1.20(e)-(g), as amended Oct. 1, 1997, which are reproduced below:

37 CFR § 1.20 Post-issuance fees

(e) For maintaining an original or reissue patent, except a design or plant patent, based on an application filed on or after Dec. 12, 1980, in force beyond 4 years; the fee is due by three years and six months after the original grant:

By a small entity (§ 1.9(f)) $525.00
By other than a small entity $1,050.00

(f) For maintaining an original or reissue patent, except a design or plant patent, based on an application filed on or after Dec. 12, 1980 in force beyond 8 years; the fee is due by seven years and six months after the original grant:

By a small entity (§ 1.9(f)) $1,050.00
By other than a small entity $2,100.00

(g) For maintaining an original or reissue patent, except a design or plant patent, based on applications filed on or after Dec. 12, 1980 in force beyond 12 years; the fee is due by eleven years and six months after the original grant:

By a small entity (§ 1.9(f)) $1,580.00
By other than a small entity $3,160.00

The amount of the surcharge for paying the maintenance fee during the grace period or after expiration of the patent are set forth in 37 CFR 1.20(h), and (i) which are reproduced below:

(h) Surcharge for paying a maintenance fee during the 6 month grace period following the expiration of three years and six months, seven years and six months, and eleven years and six months after the date of the original grant of a patent based on an application filed on or after Dec. 12, 1980:

By a small entity (§ 1.9(f)) $65.00
By other than a small entity $130.00

(i) Surcharge for accepting a maintenance fee after expiration of a patent for non-timely payment of a maintenance fee where the delay is shown to the satisfaction of the Commissioner to have been:

(1) unavoidable $700.00
(2) unintentional $1,640.00

Notice of Expiration of Patents Due to Failure to Pay Maintenance Fee

35 U.S.C. 41 and 37 CFR 1.362(g) provide that if the required maintenance fee and any applicable surcharge are not paid in a patent requiring such payment, the patent will expire at the end of the 4th, 8th or 12th anniversary of the grant of the patent depending on the first maintenance fee which was not paid.

According to the records of the Office, the patents listed below have expired due to failure to pay the required maintenance fee and any applicable surcharge.

PATENTS WHICH EXPIRED January 7, 1998
DUE TO FAILURE TO PAY MAINTENANCE FEES

Patent Number	Serial Number	Issue Date
Re. 33,068	07/141,193	09/26/89
(4,562,788)	(06/634,227)	(01/07/86)
Re. 34,561	07/816,028	03/15/94
(4,890,573)	(07/223,630)	(01/02/90)
4,562,602	06/644,637	01/07/86
4,562,622	06/505,964	01/07/86
4,562,623	06/504,381	01/07/86
4,562,624	06/442,462	01/07/86
4,562,625	06/564,239	01/07/86
4,562,626	06/534,903	01/07/86
4,562,627	06/575,801	01/07/86
4,562,639	06/649,629	01/07/86
4,562,646	06/664,166	01/07/86
4,562,649	06/706,781	01/07/86
4,562,655	06/737,796	01/07/86
4,562,662	06/661,706	01/07/86
4,562,669	06/513,253	01/07/86
4,562,671	06/583,579	01/07/86
4,562,672	06/511,875	01/07/86
4,562,674	06/435,063	01/07/86
4,562,678	06/573,969	01/07/86
4,562,682	06/532,530	01/07/86
4,562,684	06/520,245	01/07/86
4,562,693	06/525,554	01/07/86
4,562,694	06/511,703	01/07/86
4,562,698	06/542,336	01/07/86
4,562,702	06/668,872	01/07/86
4,562,710	06/545,389	01/07/86
4,562,714	06/550,991	01/07/86
4,562,719	06/705,357	01/07/86
4,562,723	06/635,324	01/07/86
4,562,726	06/626,631	01/07/86
4,562,727	06/673,645	01/07/86
4,562,728	06/677,764	01/07/86
4,562,734	06/511,384	01/07/86
4,562,735	06/538,103	01/07/86
4,562,740	06/602,251	01/07/86
4,562,750	06/322,341	01/07/86
4,562,754	06/470,384	01/07/86
4,562,758	06/586,367	01/07/86
4,562,759	06/576,276	01/07/86
4,562,764	06/618,468	01/07/86
4,562,769	06/565,494	01/07/86
4,562,776	06/643,240	01/07/86
4,562,790	06/638,629	01/07/86
4,562,794	06/575,002	01/07/86
4,562,795	06/632,445	01/07/86
4,562,800	06/623,557	01/07/86
4,562,803	06/556,941	01/07/86
4,562,804	06/542,584	01/07/86
4,562,805	06/556,910	01/07/86
4,562,811	06/540,343	01/07/86
4,562,815	06/577,501	01/07/86
4,562,819	06/479,133	01/07/86
4,562,822	06/451,288	01/07/86
4,562,827	06/674,106	01/07/86
4,562,862	06/562,202	01/07/86
4,562,863	06/574,395	01/07/86
4,562,864	06/547,923	01/07/86
4,562,871	06/590,337	01/07/86
4,562,873	06/584,095	01/07/86

Patent Number	Serial Number	Issue Date
4,562,877	06/684,834	01/07/86
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4,562,895	06/597,420	01/07/86
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4,562,924	06/663,952	01/07/86
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4,562,929	06/481,341	01/07/86
4,562,940	06/509,650	01/07/86
4,562,942	06/658,274	01/07/86
4,562,945	06/655,296	01/07/86
4,562,949	06/623,975	01/07/86
4,562,955	06/604,088	01/07/86
4,562,959	06/225,450	01/07/86
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4,562,986	06/601,852	01/07/86
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4,562,996	06/531,652	01/07/86
4,563,013	06/591,516	01/07/86
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4,563,025	06/509,873	01/07/86
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4,563,035	06/596,616	01/07/86
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4,563,040	06/434,640	01/07/86
4,563,041	06/551,914	01/07/86
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4,563,138	06/664,081	01/07/86
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4,563,225	06/573,408	01/07/86
4,563,226	06/442,084	01/07/86
4,563,232	06/664,182	01/07/86
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4,563,250	06/708,841	01/07/86
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4,563,261	06/648,014	01/07/86
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4,563,267	06/635,550	01/07/86
4,563,268	06/658,631	01/07/86
4,563,275	06/636,512	01/07/86
4,563,278	06/465,318	01/07/86
4,563,280	06/579,412	01/07/86
4,563,281	06/628,904	01/07/86
4,563,282	06/623,480	01/07/86
4,563,287	06/523,601	01/07/86
4,563,288	06/674,194	01/07/86
4,563,289	06/763,892	01/07/86
4,563,290	06/608,100	01/07/86
4,563,295	06/520,305	01/07/86
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4,563,315	06/536,320	01/07/86
4,563,317	06/686,654	01/07/86
4,563,318	06/641,933	01/07/86
4,563,325	06/489,628	01/07/86
4,563,326	06/498,879	01/07/86
4,563,328	06/545,064	01/07/86
4,563,331	06/553,656	01/07/86
4,563,340	06/544,625	01/07/86
4,563,343	06/490,791	01/07/86
4,563,345	06/572,988	01/07/86
4,563,348	06/462,491	01/07/86
4,563,349	06/656,418	01/07/86
4,563,350	06/664,158	01/07/86
4,563,369	06/732,763	01/07/86
4,563,373	06/465,812	01/07/86
4,563,390	06/731,324	01/07/86
4,563,391	06/552,267	01/07/86
4,563,397	06/649,299	01/07/86
4,563,425	06/596,101	01/07/86
4,563,428	06/502,020	01/07/86
4,563,430	06/555,483	01/07/86
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4,563,449	06/511,237	01/07/86
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5,274,926	07/984,847	01/04/94
5,274,927	08/057,443	01/04/94
5,274,929	07/963,988	01/04/94
5,274,934	07/723,473	01/04/94
5,274,935	07/994,785	01/04/94
5,274,937	07/802,544	01/04/94
5,274,938	07/849,619	01/04/94
5,274,944	07/980,123	01/04/94
5,274,945	07/890,557	01/04/94
5,274,953	07/917,183	01/04/94
5,274,954	07/956,424	01/04/94
5,274,958	07/687,564	01/04/94
5,274,967	07/768,246	01/04/94
5,274,973	07/798,733	01/04/94
5,274,977	07/937,557	01/04/94
5,274,982	07/896,431	01/04/94
5,274,986	07/797,135	01/04/94
5,274,998	07/911,184	01/04/94
5,275,017	07/918,461	01/04/94
5,275,018	07/881,090	01/04/94
5,275,019	07/899,263	01/04/94
5,275,021	07/993,413	01/04/94
5,275,030	07/924,956	01/04/94
5,275,038	07/702,827	01/04/94
5,275,044	07/876,575	01/04/94
5,275,045	07/665,951	01/04/94
5,275,057	07/932,477	01/04/94
5,275,063	07/921,032	01/04/94
5,275,064	07/897,882	01/04/94
5,275,067	07/979,380	01/04/94
5,275,068	07/909,306	01/04/94
5,275,070	08/046,816	01/04/94
5,275,072	07/979,294	01/04/94
5,275,073	07/978,273	01/04/94
5,275,079	07/767,130	01/04/94
5,275,086	07/936,676	01/04/94
5,275,093	08/063,566	01/04/94
5,275,098	08/006,711	01/04/94
5,275,099	07/979,295	01/04/94
5,275,100	07/907,398	01/04/94
5,275,108	07/912,073	01/04/94
5,275,110	07/845,932	01/04/94
5,275,115	08/030,820	01/04/94
5,275,118	07/897,725	01/04/94
5,275,119	07/996,586	01/04/94
5,275,120	07/948,562	01/04/94
5,275,121	07/703,907	01/04/94
5,275,125	07/734,969	01/04/94
5,275,126	07/889,102	01/04/94
5,275,128	08/019,446	01/04/94
5,275,131	07/820,349	01/04/94
5,275,143	07/768,982	01/04/94
5,275,144	07/747,238	01/04/94
5,275,147	08/036,357	01/04/94
5,275,148	07/973,268	01/04/94
5,275,149	07/980,618	01/04/94
5,275,153	07/675,288	01/04/94
5,275,156	07/912,449	01/04/94
5,275,170	08/033,539	01/04/94
5,275,175	07/931,364	01/04/94
5,275,176	07/816,324	01/04/94
5,275,179	07/677,157	01/04/94
5,275,183	08/012,417	01/04/94
5,275,192	07/885,220	01/04/94
5,275,194	07/983,136	01/04/94
5,275,196	08/047,396	01/04/94
5,275,199	08/060,744	01/04/94
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5,275,206	07/853,114	01/04/94
5,275,214	07/967,482	01/04/94
5,275,221	07/954,261	01/04/94
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5,275,236	08/014,616	01/04/94
5,275,246	07/900,735	01/04/94
5,275,256	07/889,185	01/04/94
5,275,259	07/691,450	01/04/94
5,275,264	07/951,574	01/04/94
5,275,265	07/934,055	01/04/94
5,275,277	07/967,421	01/04/94
5,275,280	07/880,242	01/04/94
5,275,282	07/933,398	01/04/94
5,275,284	08/063,695	01/04/94
5,275,286	07/984,615	01/04/94
5,275,290	07/847,734	01/04/94
5,275,291	08/030,705	01/04/94
5,275,292	07/884,925	01/04/94
5,275,296	07/990,881	01/04/94
5,275,300	07/973,028	01/04/94
5,275,304	07/982,905	01/04/94
5,275,314	07/935,595	01/04/94

Patent Number	Serial Number	Issue Date
5,275,315	08/011,533	01/04/94
5,275,316	07/940,837	01/04/94
5,275,319	07/776,807	01/04/94
5,275,329	07/970,756	01/04/94
5,275,332	07/973,408	01/04/94
5,275,342	07/753,089	01/04/94
5,275,347	07/818,823	01/04/94
5,275,350	07/882,931	01/04/94
5,275,365	07/825,193	01/04/94
5,275,366	07/977,920	01/04/94
5,275,368	07/873,245	01/04/94
5,275,378	07/790,226	01/04/94
5,275,381	07/765,967	01/04/94
5,275,384	07/960,509	01/04/94
5,275,398	07/987,444	01/04/94
5,275,403	07/896,594	01/04/94
5,275,407	07/906,466	01/04/94
5,275,413	07/991,955	01/04/94
5,275,414	08/035,305	01/04/94
5,275,416	08/027,768	01/04/94
5,275,417	07/899,381	01/04/94
5,275,418	08/015,841	01/04/94
5,275,419	07/972,600	01/04/94
5,275,422	07/833,639	01/04/94
5,275,424	07/964,504	01/04/94
5,275,427	07/914,264	01/04/94
5,275,433	07/915,110	01/04/94
5,275,434	07/788,231	01/04/94
5,275,436	07/848,025	01/04/94
5,275,442	07/777,534	01/04/94
5,275,444	07/947,392	01/04/94
5,275,445	07/902,136	01/04/94
5,275,450	07/992,153	01/04/94
5,275,463	07/884,767	01/04/94
5,275,464	08/050,984	01/04/94
5,275,474	07/770,835	01/04/94
5,275,477	08/026,159	01/04/94
5,275,478	07/910,073	01/04/94
5,275,480	07/863,417	01/04/94
5,275,482	07/622,625	01/04/94
5,275,490	07/878,183	01/04/94
5,275,507	07/806,248	01/04/94
5,275,517	07/935,554	01/04/94
5,275,533	07/750,272	01/04/94
5,275,539	07/896,143	01/04/94
5,275,542	07/868,858	01/04/94
5,275,547	07/816,899	01/04/94
5,275,549	07/874,471	01/04/94
5,275,553	07/881,181	01/04/94
5,275,566	07/985,601	01/04/94
5,275,569	07/828,777	01/04/94
5,275,570	08/021,584	01/04/94
5,275,574	07/991,417	01/04/94
5,275,581	07/962,857	01/04/94
5,275,595	07/908,416	01/04/94
5,275,610	08/018,333	01/04/94
5,275,613	07/850,674	01/04/94
5,275,614	07/898,101	01/04/94
5,275,615	07/943,782	01/04/94
5,275,648	08/002,079	01/04/94
5,275,655	07/977,577	01/04/94
5,275,656	07/699,379	01/04/94
5,275,662	07/783,188	01/04/94
5,275,664	07/691,953	01/04/94
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5,275,678	07/912,729	01/04/94
5,275,682	07/744,594	01/04/94
5,275,684	07/777,738	01/04/94
5,275,688	07/885,740	01/04/94
5,275,696	08/057,370	01/04/94
5,275,697	07/861,881	01/04/94
5,275,705	07/987,939	01/04/94
5,275,707	07/600,989	01/04/94
5,275,713	07/717,006	01/04/94
5,275,717	07/778,061	01/04/94
5,275,721	08/014,697	01/04/94
5,275,735	07/883,282	01/04/94
5,275,741	07/958,468	01/04/94
5,275,743	07/804,370	01/04/94
5,275,744	07/942,242	01/04/94
5,275,746	07/571,815	01/04/94
5,275,757	07/985,319	01/04/94
5,275,767	07/717,633	01/04/94
5,275,777	07/991,722	01/04/94
5,275,778	07/966,715	01/04/94
5,275,784	07/920,005	01/04/94
5,275,786	07/981,727	01/04/94
5,275,799	07/863,921	01/04/94
5,275,800	07/998,828	01/04/94
5,275,802	07/898,050	01/04/94
5,275,805	08/075,255	01/04/94
5,275,806	07/946,206	01/04/94
5,275,810	07/768,102	01/04/94
5,275,814	07/728,185	01/04/94
5,275,817	07/839,614	01/04/94
5,275,827	07/916,136	01/04/94
5,275,834	07/656,178	01/04/94
5,275,850	07/755,589	01/04/94
5,275,855	07/820,853	01/04/94
5,275,862	07/868,512	01/04/94
5,275,863	07/936,186	01/04/94
5,275,866	07/931,451	01/04/94
5,275,869	07/898,264	01/04/94
5,275,870	07/849,383	01/04/94
5,275,875	07/997,825	01/04/94
5,275,877	07/691,634	01/04/94
5,275,882	07/830,030	01/04/94
5,275,885	07/918,941	01/04/94
5,275,890	07/766,755	01/04/94
5,275,893	07/987,218	01/04/94
5,275,894	07/812,821	01/04/94
5,275,897	07/887,220	01/04/94
5,275,899	07/867,846	01/04/94
5,275,911	08/011,565	01/04/94
5,275,921	07/672,937	01/04/94
5,275,926	07/944,098	01/04/94
5,275,936	07/863,666	01/04/94
5,275,946	07/689,079	01/04/94
5,275,950	08/015,873	01/04/94
5,275,955	07/520,137	01/04/94
5,275,966	07/729,742	01/04/94
5,275,989	07/775,566	01/04/94
5,275,994	07/716,482	01/04/94
5,275,995	07/737,067	01/04/94
5,276,006	07/929,262	01/04/94
5,276,008	07/831,261	01/04/94
5,276,025	07/942,652	01/04/94
5,276,030	07/755,219	01/04/94
5,276,031	07/967,094	01/04/94
5,276,034	07/688,193	01/04/94
5,276,037	08/045,725	01/04/94
5,276,038	07/891,528	01/04/94
5,276,039	07/646,649	01/04/94
5,276,050	07/908,329	01/04/94
5,276,052	08/032,759	01/04/94
5,276,053	07/957,323	01/04/94
5,276,054	07/961,957	01/04/94
5,276,071	08/015,505	01/04/94
5,276,075	07/784,893	01/04/94
5,276,082	07/873,616	01/04/94
5,276,089	07/749,812	01/04/94
5,276,090	08/006,887	01/04/94
5,276,099	07/815,736	01/04/94
5,276,102	08/001,596	01/04/94
5,276,103	07/776,412	01/04/94
5,276,110	07/928,368	01/04/94
5,276,111	08/010,945	01/04/94
5,276,113	07/938,515	01/04/94
5,276,114	08/049,482	01/04/94
5,276,115	07/990,155	01/04/94
5,276,126	08/015,055	01/04/94
5,276,131	07/896,934	01/04/94
5,276,134	07/577,423	01/04/94
5,276,149	07/777,948	01/04/94
5,276,150	07/850,201	01/04/94
5,276,152	08/006,524	01/04/94

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Patent Number	Serial Number	Issue Date
5,276,154	07/748,076	01/04/94
5,276,168	07/901,443	01/04/94
5,276,169	07/959,838	01/04/94
5,276,174	07/491,362	01/04/94
5,276,176	08/002,235	01/04/94
5,276,177	07/899,730	01/04/94
5,276,181	07/911,146	01/04/94
5,276,185	07/997,111	01/04/94
5,276,187	07/749,099	01/04/94
5,276,192	07/689,388	01/04/94
5,276,202	08/023,425	01/04/94
5,276,205	07/350,197	01/04/94
5,276,207	08/025,413	01/04/94
5,276,211	08/029,580	01/04/94
5,276,222	07/713,917	01/04/94
5,276,226	07/956,706	01/04/94
5,276,228	08/007,926	01/04/94
5,276,234	07/757,224	01/04/94
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5,276,240	07/962,997	01/04/94
5,276,242	08/049,926	01/04/94
5,276,244	08/039,663	01/04/94
5,276,247	07/947,391	01/04/94
5,276,276	07/286,215	01/04/94
5,276,280	07/876,507	01/04/94
5,276,287	08/048,007	01/04/94
5,276,298	07/936,996	01/04/94
5,276,300	07/422,963	01/04/94
5,276,307	07/897,458	01/04/94
5,276,321	07/944,167	01/04/94
5,276,322	07/599,402	01/04/94
5,276,348	07/895,798	01/04/94
5,276,363	07/929,260	01/04/94
5,276,367	07/885,894	01/04/94
5,276,372	07/902,902	01/04/94
5,276,406	07/837,345	01/04/94
5,276,415	07/900,328	01/04/94
5,276,423	07/790,933	01/04/94
5,276,426	07/958,746	01/04/94
5,276,435	07/547,247	01/04/94
5,276,437	07/872,739	01/04/94
5,276,447	07/868,738	01/04/94
5,276,454	07/951,026	01/04/94
5,276,461	07/509,597	01/04/94
5,276,491	07/809,022	01/04/94
5,276,557	08/015,679	01/04/94
5,276,559	07/858,740	01/04/94
5,276,568	07/803,149	01/04/94
5,276,587	08/044,918	01/04/94
5,276,593	08/055,557	01/04/94
5,276,594	07/949,407	01/04/94
5,276,596	07/902,940	01/04/94
5,276,601	07/966,851	01/04/94
5,276,613	08/023,179	01/04/94
5,276,618	07/846,486	01/04/94
5,276,631	07/662,848	01/04/94
5,276,632	07/565,480	01/04/94
5,276,658	07/987,497	01/04/94
5,276,661	07/553,514	01/04/94
5,276,667	07/944,740	01/04/94
5,276,688	07/989,744	01/04/94
5,276,689	07/783,294	01/04/94
5,276,696	07/290,777	01/04/94
5,276,711	07/715,198	01/04/94
5,276,728	07/788,508	01/04/94
5,276,734	07/943,615	01/04/94
5,276,744	07/663,891	01/04/94
5,276,758	07/910,178	01/04/94
5,276,763	07/949,334	01/04/94
5,276,768	07/672,666	01/04/94
5,276,786	07/908,847	01/04/94
5,276,804	07/833,644	01/04/94
5,276,817	07/744,475	01/04/94
5,276,822	07/612,731	01/04/94
5,276,838	07/664,252	01/04/94
5,276,860	07/452,960	01/04/94
5,276,864	07/873,136	01/04/94
5,276,865	07/879,956	01/04/94
5,276,869	07/580,336	01/04/94
5,276,871	07/671,062	01/04/94
5,276,882	07/558,998	01/04/94
5,276,893	07/310,828	01/04/94
5,276,904	07/646,632	01/04/94
5,276,909	07/720,596	01/04/94
5,276,919	07/905,150	01/04/94

Reissue Applications Filed

Notice under 37 CFR 1.11(b). The reissue applications listed below are open to inspection by the general public in the indicated Examining Groups and copies may be obtained by paying the fee therefor (37 CFR 1.12(b)).

4,581,476, Re. S.N. 08/947,732, Oct. 8, 1997, Cl. 136/258, PHOTOELECTRIC CONVERSION DEVICE, Shunpei Yamazaki, Owner of Record: *Semiconductor Energy Laboratory Co. Ltd., Tokyo, Japan,* Attorney or Agent: Gerald J. Ferguson Jr., Ex. Gp.: 1109

4,773,850, Re. S.N. 08/927,635, Sept. 11, 1997, Cl. 432/5, LOW PROFILE KILN APPARATUS AND METHOD OF USING SAME, James Bushman, Owner of Record: *Swindell, Dressler International Corp., Pittsburgh, Pa.,* Attorney or Agent: Barry L. Grossman, Ex. Gp.: 3404

4,878,195, Re. S.N. 08/714,518, Sept. 16, 1996, Cl. 395/375, INTRODUCTION SEQUENCER FOR NETWORK STRUCTURE MICROPROCESSOR, Christina Bocquet, Owner of Record: *Thomson Semiconducteurs, Paris, France,* Attorney or Agent: Gregory M. Howison, Ex. Gp.: 2315

5,185,783, Re. S.N. 08/975,721, Nov. 21, 1997, Cl. 379, COMMUNICATION APPARATUS FOR DETECTING A CALLING SIGNAL FROM A LINE, FOR DETECTING A DATA COMMUNICATION SIGNAL FROM A CALLING STATION, AND FOR GENERATING A QUASI-CALLING TONE, Taketo Takahashi, et. al., Owner of Record: *Canon Kabushiki Kaisha, Tokyo, Japan,* Attorney or Agent: Gary M. Jacobs, Ex. Gp.: 2743

5,220,107, Re. S.N. 08/929,183, Sept. 8, 1997, Cl. 588/203, PROCESS FOR THE PREPARATION OF SOLID ROCKET PROPELLANT AND OTHER SOLID EXPLOSIVES FOR THERMAL DISPOSAL OR RECLAMATION, Robert W. Kubacki, et. al., Owner of Record: *United Technologies Corp., Hartford, Conn.,* Attorney or Agent: F. Tyler Morrison III, Ex. Gp.: 2204

5,276,208, Re. S.N. 08/895,909, Jul. 17, 1997, Cl. 556, METALLOCENES CONTAINING LIGANDS OF 2-SUBSTITUTED IDENYL DERIVATIVES, PROCESS FOR THEIR PREPARATION, AND THEIR USE AS CATALYSTS, Andreas Winter, et. al., Owner of Record: *Hoechst Aktiengesellschaft, Frankfurt AM Main, Federal Republic of Germany,* Attorney or Agent: Thomas M. Meshbesher, Ex. Gp.: 1621

5,379,677, Re. S.N. 08/780,837, Jan. 10, 1997, Cl. 89/130, FIRE RATE CONTROL SYSTEM FOR A SUBMACHINE GUN OR LIGHT MACHINE GUN, George D. Ealovega, et. al., Owner of Record: *DTL Trust, Portland, Maine,* Attorney or Agent: William A. Loginov, Ex. Gp.: 2201

5,416,520, Re. S.N. 08/881,965, May 16, 1997, Cl. 348/409, MULTIPLE ENCODER OUTPUT BUFFER APPARATUS FOR DIFFERENTIAL CODING OF VIDEO INFORMATION, Andrew J. Kuzma, Owner of Record: *Intel Corp., Santa Clara, Calif.,* Attorney or Agent: Michael Anthony DeSanctis, Ex. Gp.: 2615

5,430,352, Re. S.N. 08/887,928, Jul. 3, 1997, Cl. 313/440, ALTERNATING ELECTRIC FIELD DIMINISHING STRUCTURE FOR CATHODE RAY TUBE DEVICE, Tetsuya Yamaguchi, Owner of Record: *Mitsubishi Denki Kabushiki Kaisha, Tokyo, Japan,* Attorney or Agent: Michael K. Mutter, Ex. Gp.: 2215

5,433,065, Re. S.N. 08/897,028, Jul. 18, 1997, Cl. 56/13, COMBINE HARVESTER WITH SECONDARY CUTTER, Ewen Mosby, Owner of Record: *Inventor,* Attorney or Agent: Adman D. Battison, Ex. Gp.: 3506

5,476,414, Re. S.N. 08/993,893, Dec. 18, 1997, Cl. 451, POLISHING APPARATUS, Masayoshi Hirose, et. al., Owner of Record: *Ebara Corp., Tokyo, Japan,* Attorney or Agent: Richard V. Burgujian, Ex. Gp.: 3203

5,485,904, Re. S.N. 08/994,590, Dec. 19, 1997, Cl. 192, CLUTCH BALL RAMP ACTUATOR WITH DRIVE AND COAST APPLY, Gregory J. Organek, et. al., Owner of Record: *Eaton Corp., Cleveland, Ohio,* Attorney or Agent: Loren H. Uthoff Jr., Ex. Gp.: 3502

5,535,374, Re. S.N. 08/799,457, Feb. 13, 1997, Cl. 395/500, METHOD AND APPARATUS FOR GENERATING IMAGES SIMULATING NON-HOMOGENEOUS FOG EFFECTS, Graham John Olive, Owner of Record: *Rediffusion Simulation Limited, Sussex, United Kingdom,* Attorney or Agent: Larry S. Nixon, Ex. Gp.: 2307

5,580,098, Re. S.N. 08/990,706, Dec. 15, 1997, Cl. 281, CHILDREN'S BOOK WITH SLIDABLE PAGES, Charles E. Gates, Owner of Record: *Intervisual Books, Inc., Santa Monica, Calif.,* Attorney or Agent: Alan C. Rose, Ex. Gp.: 3206

Requests for Reexamination Filed

Notice under 37 CFR 1.11(c). The requests for reexamination listed below are open to inspection by the general public in the indicated Examining Groups. Copies of the requests and related papers may be obtained by paying the fee therefor established in the Rules (37 CFR 1.19(a)).

In the event correspondence to the patent owner is not received, this notice will be considered to be constructive notice to the patent owner and reexamination will proceed (37 CFR 1.248(a)(5) and 1.525(b)).

4,673,035, Reexam. No. 90/004,892, Jan. 14, 1998, Cl. 166/077.2, METHOD AND APPARATUS FOR INJECTION OF TUBING INTO WELLS, Thomas C. Gipson, Owner of Record: *Fleet Cementers, Inc.,* Attorney or Agent: None, Ex. Gp.: 3625, Requester: Vita International, Houston, Tex., c/o Wendy K. Buskop, Chamberlain, Hrdlicka, White, Williams and Martin, Houston, Tex.

4,925,527, Reexam. No. 90/004,891, Jan. 13, 1998, Cl. 162/015, METHOD FOR THE RECOVERY OF TURPENTINE AND HEAT IN A REFINER PULPING PROCESS, Rolf Ryham, Owner of Record: *Ahlstromforetagen Svenska AB, Norkoping, Sweden,* Attorney or Agent: Thomas C. Pontani, Cohen Pontani & Lieberman, New York, N.Y., Ex. Gp.: 1303, Requester: David T. Hunter, Lane Powell Spears and Lubersky, Seattle, Wash.

5,641,888, Reexam. No. 90/004,893, Jan. 14, 1998, Cl. 558/123, SYNTHESIS OF AN O,O'-DIESTERS OF THIOPHOSPHORIC ACID, AN O-ESTER OF THIOPHOSPHONIC ACID, OR A THIOPHOSPHINIC ACID, Christoph Holzner, et. al., Owner of Record: *Bayer Aktiengesellschaft, Leverkusen, Germany,* Attorney or Agent: Sprung Kramer Schaefer and Briscoe, Tarrytown, N.Y., Ex. Gp.: 1201, Requester: Owner

Notice of Expiration of Trademark Registrations Due To Failure to Renew

15 U.S.C. 1059 provides that each trademark registration may be renewed for periods of ten years from the end of the expiring period upon payment of the prescribed fee and the filing of an acceptable application for renewal. This may be done at any time within six months before the expiration of the period for which the registration was issued or renewed, or it may be done within three months after such expiration on payment of an additional fee.

According to the records of the Office, the trademark registrations listed below are expired due to failure to renew in accordance with 15 U.S.C. 1059.

TRADEMARK REGISTRATIONS WHICH EXPIRED JANUARY 6, 1998
DUE TO FAILURE TO RENEW

Reg. Number	Serial Number	Reg. Date
116,085	71/099,175	04/03/1917
344,512	71/372,658	03/30/1937
344,528	71/381,525	03/30/1937
344,546	71/383,528	03/30/1937
344,557	71/383,806	03/30/1937
344,565	71/384,090	03/30/1937
344,566	71/384,091	03/30/1937
344,569	71/384,294	03/30/1937
344,575	71/384,589	03/30/1937
344,580	71/384,703	03/30/1937
344,584	71/384,795	03/30/1937
344,612	71/385,153	03/30/1937
344,623	71/385,253	03/30/1937
344,632	71/385,426	03/30/1937
344,659	71/385,813	03/30/1937
344,671	71/385,978	03/30/1937
344,672	71/385,982	03/30/1937
344,673	71/385,983	03/30/1937
344,676	71/386,011	03/30/1937
344,679	71/386,106	03/30/1937
344,682	71/386,111	03/30/1937
344,683	71/386,112	03/30/1937
637,661	71/680,796	11/27/1956
643,419	72/008,981	04/02/1957
643,420	72/011,140	04/02/1957
643,425	72/007,183	04/02/1957
643,431	71/687,854	04/02/1957
643,432	71/689,168	04/02/1957
643,460	72/011,815	04/02/1957
643,463	72/013,459	04/02/1957
643,469	72/009,681	04/02/1957
643,470	72/013,395	04/02/1957
643,472	72/012,391	04/02/1957
643,473	72/013,246	04/02/1957
643,479	72/010,074	04/02/1957
643,480	72/016,001	04/02/1957
643,489	72/010,173	04/02/1957
643,491	71/694,586	04/02/1957
643,504	72/011,818	04/02/1957
643,526	72/013,123	04/02/1957
643,527	72/013,554	04/02/1957
643,529	71/673,086	04/02/1957
643,530	72/001,852	04/02/1957
643,531	72/002,394	04/02/1957
643,535	72/012,106	04/02/1957
643,546	72/007,885	04/02/1957
643,553	71/685,503	04/02/1957
643,554	71/689,413	04/02/1957
643,555	71/698,241	04/02/1957
643,556	71/698,242	04/02/1957
643,559	72/001,332	04/02/1957
643,561	72/007,740	04/02/1957
643,562	72/008,332	04/02/1957
643,563	72/008,478	04/02/1957
643,570	72/014,340	04/02/1957
643,582	72/010,928	04/02/1957
643,584	72/012,217	04/02/1957
643,586	72/008,349	04/02/1957
643,587	72/004,681	04/02/1957
643,590	72/002,680	04/02/1957
643,592	71/689,047	04/02/1957
643,594	72/000,795	04/02/1957
643,598	72/013,494	04/02/1957
643,600	72/014,167	04/02/1957
643,604	71/698,916	04/02/1957

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Reg. Number	Serial Number	Reg. Date
643,605	72/003,275	04/02/1957
643,608	72/011,923	04/02/1957
643,625	71/700,134	04/02/1957
643,627	72/002,830	04/02/1957
643,635	72/010,695	04/02/1957
643,637	72/011,333	04/02/1957
643,644	72/013,412	04/02/1957
643,646	72/013,547	04/02/1957
643,655	71/687,995	04/02/1957
643,663	72/012,967	04/02/1957
643,670	72/007,671	04/02/1957
643,673	71/671,804	04/02/1957
643,684	72/008,846	04/02/1957
643,694	71/700,548	04/02/1957
643,700	72/013,990	04/02/1957
643,701	72/015,001	04/02/1957
643,702	71/678,073	04/02/1957
643,705	72/010,100	04/02/1957
643,713	72/010,906	04/02/1957
643,715	72/007,179	04/02/1957
643,726	71/692,592	04/02/1957
643,729	71/699,152	04/02/1957
643,734	72/003,863	04/02/1957
643,742	71/693,034	04/02/1957
643,749	71/687,647	04/02/1957
643,761	71/697,692	04/02/1957
643,764	72/003,280	04/02/1957
643,768	71/672,131	04/02/1957
1,025,248	73/037,466	11/18/1975
1,061,920	73/035,051	03/29/1977
1,061,926	73/062,352	03/29/1977
1,061,930	73/071,071	03/29/1977
1,061,931	73/072,143	03/29/1977
1,061,932	73/074,238	03/29/1977
1,061,939	73/084,792	03/29/1977
1,061,941	73/086,004	03/29/1977
1,061,944	73/092,069	03/29/1977
1,061,947	73/092,778	03/29/1977
1,061,951	73/094,678	03/29/1977
1,061,953	73/096,453	03/29/1977
1,061,955	73/096,455	03/29/1977
1,061,956	73/096,787	03/29/1977
1,061,957	73/096,844	03/29/1977
1,061,960	73/097,920	03/29/1977
1,061,963	73/098,771	03/29/1977
1,061,967	73/053,362	03/29/1977
1,061,969	73/067,555	03/29/1977
1,061,973	73/088,269	03/29/1977
1,061,975	73/096,161	03/29/1977
1,061,977	73/054,248	03/29/1977
1,061,979	73/069,831	03/29/1977
1,061,982	73/074,828	03/29/1977
1,061,986	73/075,646	03/29/1977
1,061,992	73/081,986	03/29/1977
1,061,993	73/084,392	03/29/1977
1,061,994	73/087,534	03/29/1977
1,061,995	73/088,503	03/29/1977
1,061,996	73/088,986	03/29/1977
1,061,998	73/089,146	03/29/1977
1,062,002	73/092,426	03/29/1977
1,062,007	73/094,453	03/29/1977
1,062,008	73/095,316	03/29/1977
1,062,010	73/096,915	03/29/1977
1,062,011	73/096,916	03/29/1977
1,062,012	73/097,630	03/29/1977
1,062,013	73/097,632	03/29/1977
1,062,015	73/097,764	03/29/1977
1,062,018	73/098,280	03/29/1977
1,062,020	73/098,510	03/29/1977
1,062,024	73/099,172	03/29/1977
1,062,027	73/099,485	03/29/1977
1,062,028	73/099,486	03/29/1977
1,062,035	73/046,762	03/29/1977
1,062,036	73/057,878	03/29/1977
1,062,038	73/067,073	03/29/1977
1,062,046	73/081,710	03/29/1977
1,062,050	73/086,798	03/29/1977
1,062,051	73/088,629	03/29/1977
1,062,056	73/092,415	03/29/1977
1,062,060	73/096,197	03/29/1977
1,062,064	73/096,596	03/29/1977
1,062,065	73/096,744	03/29/1977
1,062,073	73/065,246	03/29/1977
1,062,077	73/072,693	03/29/1977
1,062,081	73/076,656	03/29/1977
1,062,082	73/078,670	03/29/1977
1,062,092	73/041,228	03/29/1977
1,062,093	73/043,265	03/29/1977
1,062,094	73/047,191	03/29/1977
1,062,095	73/058,826	03/29/1977
1,062,097	73/065,199	03/29/1977
1,062,100	73/085,432	03/29/1977
1,062,101	73/085,662	03/29/1977
1,062,105	73/098,520	03/29/1977
1,062,108	73/099,786	03/29/1977
1,062,109	73/073,099	03/29/1977
1,062,110	73/091,072	03/29/1977
1,062,111	73/091,073	03/29/1977
1,062,115	73/033,898	03/29/1977
1,062,118	73/063,040	03/29/1977
1,062,121	73/066,778	03/29/1977
1,062,122	73/067,160	03/29/1977
1,062,123	73/072,522	03/29/1977
1,062,124	73/073,196	03/29/1977
1,062,125	73/073,198	03/29/1977
1,062,126	73/073,199	03/29/1977
1,062,127	73/073,200	03/29/1977
1,062,135	73/091,284	03/29/1977
1,062,142	73/099,107	03/29/1977
1,062,143	73/099,254	03/29/1977
1,062,144	73/099,392	03/29/1977
1,062,148	73/099,781	03/29/1977
1,062,149	73/061,924	03/29/1977
1,062,150	73/068,589	03/29/1977
1,062,151	73/082,628	03/29/1977
1,062,152	73/090,608	03/29/1977
1,062,154	73/092,305	03/29/1977
1,062,156	73/092,674	03/29/1977
1,062,158	73/098,977	03/29/1977
1,062,160	73/099,252	03/29/1977
1,062,161	73/099,253	03/29/1977
1,062,163	73/055,903	03/29/1977
1,062,164	73/064,070	03/29/1977
1,062,168	73/079,510	03/29/1977
1,062,169	73/080,434	03/29/1977
1,062,175	73/092,734	03/29/1977
1,062,176	73/092,801	03/29/1977
1,062,177	73/034,160	03/29/1977
1,062,181	73/072,459	03/29/1977
1,062,182	73/084,813	03/29/1977
1,062,187	73/097,269	03/29/1977
1,062,190	73/064,306	03/29/1977
1,062,191	73/094,315	03/29/1977
1,062,193	73/094,319	03/29/1977
1,062,204	73/051,416	03/29/1977
1,062,212	73/065,080	03/29/1977
1,062,216	73/069,646	03/29/1977
1,062,217	73/069,647	03/29/1977
1,062,221	73/074,742	03/29/1977
1,062,223	73/075,016	03/29/1977
1,062,225	73/075,855	03/29/1977
1,062,226	73/075,856	03/29/1977
1,062,229	73/079,440	03/29/1977
1,062,231	73/080,522	03/29/1977
1,062,234	73/088,411	03/29/1977
1,062,239	73/094,677	03/29/1977
1,062,241	73/097,677	03/29/1977
1,062,242	73/034,665	03/29/1977
1,062,243	73/066,945	03/29/1977
1,062,245	73/068,974	03/29/1977
1,062,248	73/090,797	03/29/1977
1,062,252	73/051,944	03/29/1977
1,062,253	73/063,197	03/29/1977
1,062,254	73/063,198	03/29/1977
1,062,255	73/063,199	03/29/1977
1,062,257	73/089,006	03/29/1977

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1,062,258	73/090,305	03/29/1977
1,062,259	73/097,628	03/29/1977
1,062,260	73/047,611	03/29/1977
1,062,261	73/076,618	03/29/1977
1,062,273	73/075,276	03/29/1977
1,062,276	73/090,318	03/29/1977
1,062,277	73/027,929	03/29/1977
1,062,278	73/064,852	03/29/1977
1,062,279	73/079,676	03/29/1977
1,062,280	73/085,115	03/29/1977
1,062,281	73/091,793	03/29/1977
1,062,282	73/092,046	03/29/1977
1,062,283	73/092,145	03/29/1977
1,062,284	73/093,641	03/29/1977
1,062,285	73/045,224	03/29/1977
1,062,287	73/055,632	03/29/1977
1,062,288	73/055,633	03/29/1977
1,062,291	73/069,015	03/29/1977
1,062,300	73/056,785	03/29/1977
1,062,304	73/067,508	03/29/1977
1,062,305	73/070,096	03/29/1977
1,062,307	73/074,118	03/29/1977
1,062,314	73/084,946	03/29/1977
1,062,318	73/091,784	03/29/1977
1,062,333	73/084,395	03/29/1977
1,062,338	73/093,060	03/29/1977
1,062,339	73/093,480	03/29/1977
1,062,341	73/093,568	03/29/1977
1,062,342	73/093,940	03/29/1977
1,062,344	73/095,076	03/29/1977
1,062,355	73/083,493	03/29/1977
1,062,360	73/097,402	03/29/1977
1,062,362	73/097,844	03/29/1977
1,062,363	73/098,295	03/29/1977
1,062,366	73/064,607	03/29/1977
1,062,367	73/071,584	03/29/1977
1,062,370	73/074,554	03/29/1977
1,062,371	73/077,631	03/29/1977
1,062,374	73/078,273	03/29/1977
1,062,375	73/085,558	03/29/1977
1,062,379	73/090,276	03/29/1977
1,062,384	73/091,425	03/29/1977
1,062,385	73/097,281	03/29/1977
1,062,386	73/097,356	03/29/1977
1,062,387	73/097,405	03/29/1977
1,062,388	73/097,622	03/29/1977
1,062,389	73/097,663	03/29/1977
1,062,393	73/050,946	03/29/1977
1,062,399	73/098,857	03/29/1977
1,062,400	73/099,007	03/29/1977
1,062,404	73/089,028	03/29/1977
1,062,408	73/099,553	03/29/1977
1,062,410	73/031,182	03/29/1977
1,062,411	73/069,388	03/29/1977
1,062,415	73/084,712	03/29/1977
1,062,416	73/084,760	03/29/1977
1,062,417	73/093,097	03/29/1977
1,062,432	73/059,464	03/29/1977
1,062,433	73/059,465	03/29/1977
1,062,434	73/059,466	03/29/1977
1,062,437	73/061,021	03/29/1977
1,062,442	73/069,581	03/29/1977
1,062,444	73/077,623	03/29/1977
1,062,447	73/088,589	03/29/1977
1,062,454	73/070,960	03/29/1977
1,062,457	73/084,953	03/29/1977
1,062,461	73/059,969	03/29/1977
1,062,466	73/091,540	03/29/1977
1,062,471	73/095,446	03/29/1977
1,062,474	73/077,851	03/29/1977
1,062,475	73/077,961	03/29/1977
1,062,476	73/095,684	03/29/1977
1,062,478	73/050,601	03/29/1977
1,062,482	73/083,943	03/29/1977
1,062,489	73/030,061	03/29/1977
1,062,490	73/055,169	03/29/1977
1,062,491	73/059,130	03/29/1977
1,062,492	73/060,984	03/29/1977
1,062,496	73/069,136	03/29/1977
1,062,503	73/079,848	03/29/1977
1,062,506	73/083,062	03/29/1977
1,062,509	73/084,915	03/29/1977
1,062,510	73/085,804	03/29/1977
1,062,516	73/092,469	03/29/1977
1,062,518	73/095,182	03/29/1977
1,062,522	73/096,968	03/29/1977
1,062,529	73/085,374	03/29/1977
1,062,530	73/085,375	03/29/1977
1,062,531	73/085,376	03/29/1977
1,062,532	73/085,377	03/29/1977
1,062,533	73/085,378	03/29/1977
1,062,534	73/072,895	03/29/1977
1,062,538	73/076,207	03/29/1977

Service by Publication

A petition to cancel the registrations identified below having been filed, and the notice of such proceeding sent by certified mail to registrants at their last known address having been returned by the Postal Service as undeliverable, notice is hereby given that unless the registrants listed herein, their assigns or legal representatives, shall enter an appearance within thirty days of this publication, the cancellation will proceed as in the case of default.

The Entrepreneur's Resource Group, Inc., Minneapolis, Minn., Reg. No. 1,423,486, for the mark "THE ENTREPRENEUR'S NETWORK", Canc. No. 27,076.

Health O Meter, Inc., Bedford Heights, Ohio, Reg. No. 682,886, for the mark "Flame-Tamer", Canc. No. 27,077.

Notable Technologies, Inc., Oakland, Calif., Reg. No. 1,916,070, for the mark "AIRNOTE", Canc. No. 26,914.

Rembrant, Inc. dba Jack London's American Cafe, Mission, Kans., Reg. No. 1,261,316, for the mark "JACK LONDON'S", Canc. No. 26,424.

Fluid Polymers, Inc., Las Vegas, Nev., Reg. No. 1,331,520, for the mark "IMAX", Canc. No. 26,926.

Enigma Entertainment Corp., El Segundo, Calif., Reg. No. 1,273,404, for the mark "ENIGMA", Canc. No. 26,917.

JEAN BROWN
Technical Program Manager
Trademark Trial
and Appeal Board, for
ROBERT M. ANDERSON
Deputy Assistant Commissioner
for Trademarks

Status of Certification Services

On November 28, 1995, the Office published an Official Gazette Notice entitled "Temporary Suspension of At Cost Services for Orders for Certified Copies" (1180 OG 121) to advise practitioners and the public of delays in filling orders for certified copies of PTO documents. This is an update of actual days to mail for orders filled during the month of January 1998:

Certified Product	Goal	Actual Calendar Days to Mail
Patent Application-As-Filed, Expedited	7	7
Patent Application-As-Filed, Regular	17	23
Patent Related File Wrapper	25	40*
Patent Copy	10	9

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Certified Product	Goal	Actual Calendar Days to Mail
Patent Assignments	10	14
Trademark Application-As-Filed, Expedited	7	9
Trademark Application-As-Filed, Regular	17	20
Trademark Related File Wrapper	25	29*
Trademark Assignments	10	11
Trademark Registration, Expedited	5	7
Trademark Registration, Regular	14	13

* Includes turnaround times for files on official search and file reconstruction.

Due to varying availability of media, customers will not be advised when orders are not delivered within the published goal periods. However, customers will be advised if any unexpected delay in their order has been identified. Customers should use the above actual days to mail for each product as a guide as to when they can expect their orders. In determining expected delivery times, the day an order is received in the Office is calculated as "day zero." The next business day is "day one."

Delivery of any specific copy will vary based on the availability of scanned images, microfilm products, and/or file accessibility. On June 10, 1997, the Office published an Official Gazette Notice entitled "Changes in Practice in Supplying Certified Copies and Filing Receipts" (1199 OG 39) which advised customers who placed orders for certified copies of patent applications-as-filed not to request them until the official filing receipt is received; images and related bibliographic data are not available to Certification Division until the filing receipt is generated by the Office of Initial Patent Examination.

Customers are encouraged to fax orders for copies directly to Certification Division at (703) 308-9759 and to pay by PTO Deposit Account, MasterCard, or Visa. Information on the status of pending orders may be obtained by calling (703) 308-9726 or 1 (800) 972-6382 (outside the Washington, DC Metro area), or via E-mail: certdiv@uspto.gov.

February 12, 1998 WESLEY H. GEWEHR
Administrator for Information Dissemination

Registration to Practice

The following person successfully passed the registration examination that was held August 28, 1996, and has been given provisional recognition pursuant to 37 CFR 10.9(a) to prepare and prosecute patent applications before the Office until applicant's registration certificate is mailed to applicant. Final approval for registration is subject to establishing to the satisfaction of the Director of the Office of Enrollment and Discipline that the person seeking registration is of good moral character and repute. [37 CFR 10.7(a)]. Accordingly, any information tending to affect the eligibility of the following applicant on moral, ethical, or other grounds should be furnished to the Director, Office of Enrollment and Discipline on or before May 1, 1998.

Tao, Ellen S., 6001 F Rock Cliff Ln., Alexandria, Va. 22315

Feb. 17, 1998 KAREN L. BOVARD, *Director*
Office of Enrollment and Discipline

Registration to Practice

The following list contains the names of persons applying for registration to practice before the United States Patent and Trademark Office who have been given provisional recognition pursuant to 37 CFR 10.9(a) to prepare and prosecute patent applications before the Office until their registration certificates are mailed to them. Final approval for registration is subject to establishing to the satisfaction of the Director of the Office of Enrollment and Discipline that the person seeking registration is of good moral character and repute. [37 CFR 10.7(a)]. Accordingly, any information tending to affect the eligibility of any of the following applicants on moral, ethical, or other grounds should be furnished to the Director, Office of Enrollment and Discipline on or before May 1, 1998.

Annear, R. Spencer, 1118 N. Howard St., Alexandria, Va. 22304-1628

Heller, David J., 113 Humberside Ave., Toronto, Ont., M6P 1K1, Canada

Ivy, C. Warren, 7824 Accotink Pl., Alexandria, Va. 22308

Jacka, Shawn D., 33 Harbour Sq., Suite 1412, Toronto, Ont., M5J 2G2, Canada

Kim, Kevin Y., 2304 Malraux Dr., Vienna, Va. 22182

Lander, Ferris H., 3404 Periwinkle Ct., #101, Palm Beach Gardens, Fla. 33410

Park, Collin W., 6733 Hartwood Ln., Centreville, Va. 20121

Rimell, Samuel G., 4300 Demaisonneuve W., #414, Westmount, Que., H3Z 3C7, Canada

Rories, Charles C.P., 9520 Blackburn Dr., Burke, Va. 22015

Wiecking, David A., 5315 Waneta Rd., Bethesda, Md. 20816-2126

Feb. 17, 1998 KAREN L. BOVARD, *Director*
Office of Enrollment and Discipline

Reinstatement to Register

The following list of persons, whose names have been previously removed from the Register of Attorneys and Agents pursuant to the provisions of 37 CFR 10.11(b), have been reinstated in view of the required fee and information they furnished to the Office of Enrollment and Discipline.

Alexander, Jay I., Kirkland & Ellis, 655 Fifteenth St., N.W., Washington, D.C., 20005

Baan, Cynthia S., Hewlett-Packard Co., 3404 E. Harmony Rd., M.S. 79, Fort Collins, Colo. 80525

Baker, Harold C., Baker McLachlen, Suite 901, 350 Sparks St., Ottawa Ont., K1R 7S8, Canada

Hauger, Harold K., 10526 Old Trail Rd., North Huntingdon, Pa. 15642

Houser, Conrad B., Norwest Mine Services, Inc., 175 South Main St., Suite 1000, Salt Lake City, Utah 84111

Leibold, Gregory D., Dorsey & Whitney LLP, Republic Plaza Bldg., Ste. 4400, 370 7th St., Denver, Colo. 80202

Marcus, Brian I., Fliesler, Dubb, Meyer & Lovejoy, L.L.P., Four Embarcadero Ctr., Suite 400, San Francisco, Calif. 94111

Matthews, Guy E., Mathews, Joseph, Shaddox & Mason, LLP, 1800 Bering Dr., Ste. 900, Houston, Tex. 77057

McKenzie-Wardell, Dorothy B., Lockheed Martin Energy Research Corp., P.O. Box 2008, Oak Ridge, Tenn. 37831

Meyer, Lee G., Lowe, Meyer, L.L.C., 7901 E. Belleview Ave., Ste. 230, Englewood, Colo. 80111

Peer II, Peter M., 7675 N. Brooklyn, Gladstone, Mo. 64118

Persley, Sidney, Sun Chemical Corp., 222 Bridge Plaza South, Fort Lee, N.J. 07024

Rickards, Glenn P., Bogle & Gates, Two Union Square, 601 Union St., Seattle, Wash. 98101

Ritchey, James M., Gerber, Ritchey & O Banion, Wells, Fargo Ctr., 400 Capitol Mall, Ste. 1550, Sacramento, Calif. 95814

Santantonio, Anthony J., 5053 Northlawn Dr., Murrysville, Pa. 15668

Seligman, Robert J., 16 Jeanine Ct., Manalapan, N.J. 07726

Seth, Sandeep, Seth Intellectual Property Law Offices, 3773 Cherry Creek North Dr., Ste. 575, Denver, Colo. 80209

Shapiro, Allan M., 18401 Burbank Blvd., Ste. 202, Tarzana, Calif. 91356

Smith, Stephanie J., Miller Meester Advertising, 17 North Washington Ave., N., Minneapolis, Minn. 55401

Stoltz, Melvin I., 51 Cherry St., Milford, Conn. 06460

Strober, Stanley A., 11275 No. Flying Bird Dr., Ora Valley, Ariz. 85737

Sturm, Warren A., 2709 79th Ave., N., Brooklyn Park, Minn. 55444

Thampoe, Imac J., Schering-Plough Corp., 2000 Galloping Hill Rd., K-6-1 1990, Kenilworth, N.J. 07033

Yablon, Jay R., 910 Northumberland Dr., Schenectady, N.Y. 12309

Feb. 10, 1998 KAREN L. BOVARD, *Director*
Office of Enrollment and Discipline

Errata

"All reference to Patent No. 5,705,454 to Prithvi R. Bhalla, et al., of New Jersey, for TURFGRASS MANAGEMENT METHOD appearing in the Official Gazette of January 6, 1998, should be deleted since no patent was granted."

Certificates of Correction for the Week of March 17, 1998

D. 378,525	5,483,055	5,576,893	5,622,732
D. 380,041	5,483,173	5,581,612	5,624,013
D. 386,723	5,489,671	5,581,705	5,625,572
D. 386,979	5,496,671	5,583,798	5,627,007
D. 387,511	5,508,570	5,583,803	5,628,205
Re. 35,540	5,511,100	5,590,354	5,628,347
Re. 35,658	5,513,640	5,594,202	5,631,045
4,915,209	5,516,573	5,596,400	5,631,269
5,043,772	5,529,536	5,598,566	5,631,773
5,082,793	5,533,870	5,599,387	5,632,294
5,120,363	5,536,016	5,599,967	5,635,126
5,231,877	5,540,482	5,600,264	5,635,372
5,269,313	5,543,941	5,600,530	5,635,457
5,291,936	5,545,783	5,600,907	5,635,552
5,294,381	5,556,733	5,602,239	5,637,566
5,320,415	5,557,073	5,605,091	5,638,038
5,330,628	5,557,792	5,605,557	5,638,099
5,337,059	5,558,941	5,605,915	5,638,183
5,341,807	5,563,528	5,606,045	5,639,278
5,357,956	5,566,338	5,606,390	5,639,530
5,391,726	5,566,350	5,609,857	5,639,568
5,425,418	5,566,933	5,610,862	5,639,663
5,434,139	5,567,414	5,615,221	5,640,061
5,441,063	5,569,597	5,616,482	5,640,541
5,443,986	5,570,847	5,617,916	5,640,663
5,459,653	5,573,057	5,619,591	5,640,904
5,468,648	5,576,693	5,620,690	5,641,872
5,470,757	5,576,831	5,621,636	5,642,128
5,643,119	5,664,137	5,678,049	5,693,622
5,643,452	5,664,197	5,678,563	5,694,116
5,644,307	5,664,209	5,678,817	5,694,123
5,644,765	5,664,799	5,679,373	5,694,765
5,645,241	5,665,640	5,679,688	5,694,816
5,646,156	5,666,180	5,679,744	5,695,170
5,647,014	5,666,346	5,680,060	5,695,616
5,648,805	5,666,787	5,680,346	5,695,853
5,649,264	5,666,794	5,680,640	5,695,884
5,649,720	5,666,896	5,680,734	5,695,895
5,650,432	5,667,165	5,681,176	5,695,938
5,650,680	5,667,224	5,681,846	5,697,196
5,650,805	5,667,291	5,681,847	5,697,958
5,650,895	5,667,750	5,681,848	5,697,963
5,651,042	5,667,926	5,681,960	5,698,317
5,651,519	5,668,269	5,682,177	5,698,415
5,651,606	5,668,615	5,682,495	5,698,494
5,651,823	5,668,637	5,682,512	5,699,407
5,652,650	5,668,926	5,682,516	5,699,537
5,652,841	5,669,039	5,682,772	5,699,650
5,653,773	5,669,052	5,682,783	5,699,862
5,655,185	5,669,133	5,682,874	5,700,376
5,655,512	5,669,156	5,683,437	5,700,539
5,655,811	5,669,987	5,683,530	5,700,805
5,656,006	5,670,188	5,683,690	5,701,337
5,656,292	5,670,449	5,683,961	5,701,385
5,656,463	5,670,483	5,685,328	5,702,125
5,657,110	5,670,794	5,685,518	5,702,617
5,657,141	5,670,905	5,685,777	5,702,696
5,657,424	5,672,191	5,686,017	5,702,825
5,658,630	5,672,234	5,686,951	5,702,865
5,658,687	5,672,264	5,687,279	5,703,074
5,658,724	5,672,556	5,688,241	5,703,188
5,658,857	5,672,880	5,688,255	5,703,912
5,658,926	5,673,086	5,688,482	5,704,040
5,659,184	5,673,289	5,688,891	5,704,116
5,659,228	5,674,113	5,688,994	5,704,423
5,659,400	5,674,292	5,689,712	5,704,724
5,659,497	5,674,965	5,690,140	5,704,728
5,659,673	5,675,033	5,690,225	5,705,309
5,659,818	5,675,103	5,690,258	5,705,654
5,660,697	5,675,280	5,690,350	5,707,136
5,661,359	5,675,378	5,690,897	5,708,327
5,661,766	5,675,462	5,691,030	5,710,926
5,661,943	5,675,889	5,692,118	5,710,974
5,662,460	5,676,688	5,692,247	5,712,403
5,662,718	5,676,969	5,692,358	
5,663,844	5,678,025	5,692,876	
5,664,095	5,678,042	5,693,300	

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Summary of Final Decisions
Issued by the
Trademark Trial and Appeal Board
January 26-30, 1998

Date Issued	Type of Case[1]	Proceeding or App'n No.	Party/Parties	Issue	TTAB Decision	Opposer's/ Petitioner's Mark and Goods/Services	Applicant's/ Respondent's Mark and Goods/Services	Mark and Goods Cited by Examining Attorney	Citable as Precedent of TTAB
1-28	EX EX EX	74/605,313 74/633,387 74/610,287	Unisys Corp.	Re: 74/605,313: Section 6 disclaimer requirement; (in all three cases) Re: 74/610,287 and 74/633,387: 2(e)(1) refusal	Refusal Affirmed		"USOFT THE SERVER/CLIENT SOFTWARE COMPANY" [advertising, promoting and marketing of computer software of others, namely, a series of object-oriented software development tools used to build programs, run and manage networks by distributing advertising information via electronic, hard copy and trade show presentations; installation of computer software and computer software consultation and computer programming for others]; "THE SERVER/ CLIENT SOFTWARE COMPANY" [*all the services listed above*]; "THE SERVER/ CLIENT SOFTWARE COMPANY" [computer software, namely, a series of object-oriented software development programs used to build, run and manage applications; printed publications, namely, programmer, operator, installation and maintenance manuals for use with the above software]		No

(1)EX=EX PARTE APPEAL; OPP=OPPOSITION; CANC=CANCELLATION; CU=CONCURRENT USE; (SJ)=SUMMARY JUDGMENT; (R)=REQ. FOR RECONSIDERATION; (MD)=MOTION TO DISMISS; (MR)=MOTION TO REOPEN

Date Issued	Type of Case[1]	Proceeding or App'n No.	Party/Parties	Issue	TTAB Decision	Opposer's/ Petitioner's Mark and Goods/Services	Applicant's/ Respondent's Mark and Goods/Services	Mark and Goods Cited by Examining Attorney	Citable as Precedent of TTAB
1-28	EX	74/585,258	Wet Labs Inc.	2(e)(1)	Refusal Reversed		"SHOOTER" [automatic nozzles and nozzle controls, sold as a unit, for decorative water fountains; water display equipment, namely, decorative water fountains]		No
1-29	EX	74/077,096	Schering AG	whether the matter asserted for registration has been used as a trademark for the goods recited in the application [mutilation of mark shown on specimens]	Refusal Reversed		"PROGRESS" [herbicides for agriculture, domestic, and other related uses]		No
1-29	EX	74/579,163	Golf Pro. Inc.	2(e)(1)	Refusal Affirmed		"GOLF PRO" [hotel and condominium services featuring golf]		No
1-29	EX	74/515,132	Advocat Inc.	2(d)	Refusal Affirmed		"ADVOCAT ANCILLARY SERVICES" [health care services in support of nursing homes and retirement center services for inpatient care]	"ADVOCATE HOME CARE" [home and outpatient health care services]	No

(1)EX=EX PARTE APPEAL; OPP=OPPOSITION; CANC=CANCELLATION; CU=CONCURRENT USE; (SJ)=SUMMARY JUDGMENT; (R)=REQ. FOR RECONSIDERATION; (MD)=MOTION TO DISMISS; (MR)=MOTION TO REOPEN

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Date Issued	Type of Case[1]	Proceeding or App'n No.	Party/Parties	Issue	TTAB Decision	Opposer's/ Petitioner's Mark and Goods/Services	Applicant's/ Respondent's Mark and Goods/Services	Mark and Goods Cited by Examining Attorney	Citable as Precedent of TTAB
1-30	EX (R) EX (R)	74/380,556 74/380,932	Nutrition Headquarters, Inc.	whether the matter asserted for registration functions as trademarks for the services recited in applicant's applications	Request for Reconsideration Denied [Refusal Affirmed (in both cases)]		a design consisting of a vertical arrangement of rectangles (in which the names and prices of applicant's products are displayed); a design consisting of a vertical arrangement of rectangles (in which the names and prices of applicant's products are displayed), with the word "FREE" enclosed within another rectangle to the side [both designs used in connection with mail order services for vitamin and mineral supplements, cosmetics, jewelry, wallets, housewares, kitchen accessories, health aids, and clothing accessories]		No

(1)EX = EX PARTE APPEAL; OPP = OPPOSITION; CANC = CANCELLATION; CU = CONCURRENT USE; (SJ) = SUMMARY JUDGMENT; (R) = REQ. FOR RECONSIDERATION; (MD) = MOTION TO DISMISS; (MR) = MOTION TO REOPEN

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Box AF	Expedited procedure for processing amendments and other responses after final rejection.
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Box DAC	Petitions decided by the Office of Petitions including petitions to revive and petitions to accept late payment of issue fees or maintenance fees.
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Box Non-Fee Amendment	Non-fee amendments to patent applications. (Use Box AF for responses after final rejection).
Box PATENT APPLICATION	New patent applications and associated papers and fees.
Box Patent Ext.	Applications for patent term extension and any communications relating thereto.
Box PCT	Mail related to applications filed under the Patent Cooperation Treaty.
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Box TTAB FEE	Oppositions, cancellation petitions, and ex parte appeals.
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Box STATUS NO FEE	Written status inquiries.
Box POST REG FEE	Affidavits, renewals, corrections and amendments.
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Box 16	Deposit Account Replenishment Checks.
Box 17	Invoices directed to the Office of Finance.
Box 171	Vacancy Announcement Applications.
Box Assignment	All assignment documents except those filed with new applications.
Box EEO	Mail for the Office of Civil Rights.
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Box M Fee	Correspondence regarding patent maintenance fees and related matter.
Box OED	Mail for the Office of Enrollment and Discipline.

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	Sacramento: California State Library	(916) 654-0069
	San Diego Public Library	(619) 236-5813
	San Francisco Public Library	(415) 557-4500
	Sunnyvale Center for Innovation, Invention and Ideas	(408) 730-7290
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	St. Louis Public Library	(406) 496-4281
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Nebraska	Lincoln: Engineering Library, University of Nebraska-Lincoln	(702) 784-6500 Ext. 257
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	Buffalo and Erie County Public Library	(716) 858-7101
	New York Public Library (The Research Libraries)	(212) 592-7000
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	Cincinnati and Hamilton County, Public Library of	(513) 369-6971
	Cleveland Public Library	(216) 623-2870
	Columbus: Ohio State University Libraries	(614) 292-6175
	Toledo/Lucas County Public Library	(419) 259-5212
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	University Park: Pattee Library, Pennsylvania State University	(814) 865-4861
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Washington	Seattle: Engineering Library, University of Washington	(206) 543-0740
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Wisconsin	Madison: Kurt F. Wendt Library, University of Wisconsin Madison	(608) 262-6845
	Milwaukee Public Library	(414) 286-3051
Wyoming	Casper: Natrona County Public Library	(307) 237-4935

PATENT EXAMINING CORPS

BRUCE A. LEHMAN, Commissioner
LAWRENCE J. GOFFNEY Jr., Assistant Commissioner for Patents
NICHOLAS P. GODICI, (Acting) Deputy Assistant Commissioner for Patents
STEPHEN G. KUNIN, Deputy Assistant Commissioner for Patent Policy

PATENT EXAMINING GROUPS	Phone number Area Code 703	New Case Date*
CHEMICAL EXAMINING GROUPS		
GENERAL METALLURGICAL, INORGANIC, PETROLEUM AND ELECTRICAL CHEMISTRY, ENGINEERING AND DESIGNS, GROUP 1100—THEODORE MORRIS, Director	308-0661	01/03/96
ORGANIC CHEMISTRY, DRUG, BIO-AFFECTING AND BODY TREATING COMPOSITION, GROUP 1200/2900—JOHN E. KITTLE, Director	308-1235	05/14/96
SPECIALIZED CHEMICAL INDUSTRIES AND CHEMICAL ENGINEERING, GROUP 1300—RICHARD V. FISHER, Director	308-0651	05/06/96
HIGH POLYMER CHEMISTRY, PLASTICS, COATING, PHOTOGRAPHY STOCK MATERIALS AND COMPOSITIONS, GROUP 1500—MARY LEE, Acting Director	308-2351	04/14/96
BIOTECHNOLOGY, GROUP 1800—JOHN J. DOLL, Director	308-0196	08/31/95
ELECTRICAL EXAMINING GROUPS		
INDUSTRIAL ELECTRONICS, PHYSICS AND RELATED ELEMENTS, GROUP 2100—STEWART LEVY, Director	308-1782	10/09/95
SPECIAL LAWS AND ADMINISTRATION, GROUP 2200—ROBERT E. GARRETT, Director	308-0511	02/02/96
COMPUTER SYSTEMS AND COMPUTER APPLICATION, GROUP 2300—JOSEPH J. ROLLA, Director	305-3900	02/02/96
SPECIAL COMPUTER APPLICATIONS: COMPUTER GRAPHICS, BUSINESS PRACTICES, & DIAGNOSTIC TESTING, GROUP 2400—GERALD GOLDBERG, Director	305-3900	11/17/95
ELECTRONIC AND OPTICAL SYSTEMS AND DEVICES, GROUP 2500—JANICE A. HOWELL, Director	308-0956	05/27/96
TELECOMMUNICATIONS, GROUP 2600—JIN F. NG, Director	305-3900	06/06/95
DESIGN, GROUP 2900—JOHN E. KITTLE, Director	305-3293	02/23/96
MECHANICAL EXAMINING GROUPS		
HANDLING AND TRANSPORTATION MEDIA, GROUP 3100—JOHN F. TERAPANE, JR., Director	308-1113	11/10/95
MATERIAL SHAPING, ARTICLE MANUFACTURING AND TOOLS, GROUP 3200—ETHEL CROSS, Director	308-1148	08/13/96
MEDICAL INSTRUMENTS, DIAGNOSTIC EQUIPMENT AND TREATMENT DEVICES; SURGERY AND SURGICAL SUPPLIES; AMUSEMENT AND EXERCISING DEVICES; ANIMAL HUSBANDRY; SPORTING GOODS; TOBACCO PRODUCTS AND MANUFACTURING EQUIPMENT; AND PRINTING, GROUP 3300—J.J. LOVE, Director	308-0858	12/27/95
SOLAR, HEAT, POWER, AND FLUID ENGINEERING DEVICES, GROUP 3400—DONALD G. KELLY, Director	308-0861	01/02/96
GENERAL CONSTRUCTION, PETROLEUM AND MINING ENGINEERING, GROUP 3500—A.L. SMITH, Director	308-2168	10/01/96

*A communication from the examiner should have been received in most applications filed prior to this date.

Patents will Expire as Follows:
(1) The term of any utility or plant patent that is in force on or results from an application filed before June 8, 1995 is the greater of the 20 year term provided in 35 U.S.C. 154(a)(2) or 17 years from grant subject to any terminal disclaimers. 35 U.S.C. 154(c)(1).
(2) All utility and plant patents granted on applications having an actual United States filing date on or after June 8, 1995 are granted for a term which begins on the date on which the patent is granted and ends 20 years from the date on which the application was filed in the United States. If the application contains a specific reference to an earlier application under 35 U.S.C. 120, 121 or 365(c), the patent term ends twenty years from that date on which the earliest application was filed. 35 U.S.C. 154(a)(2).
(3) All design patents are granted for a term of 14 years from the date of the grant.
However, the term of any patent may have been curtailed by disclaimer under the provisions of 35 U.S.C. 153, have lapsed due to failure to pay maintenance fees, or have been extended under the provisions of 35 U.S.C. 154, 155, or 156. Thus, if more reliable information is needed with respect to a particular patent, then the specific patent file should be reviewed to determine the actual date of patent expiration.

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TRADEMARK OPERATION

Bruce A. Lehman, Commissioner
Philip G. Hampton, II, Assistant Commissioner
Robert M. Anderson, Deputy Assistant Commissioner
David E. Bucher, Director, Trademark Examining Office
Condition of Trademark Applications as of February 1, 1998

Law Office	Oldest Date New*	Oldest Date Amendment Filed
Law Office 101—Ron Williams, Managing Attorney, (703) 308–9101—4th Floor Foods, Beverages, Wines & Spirits—Int. Classes 29, 30, 31, 32, 33 Services—Int. Classes 35, 36, 37, 38, 39, 40, 41, 42	08/20/97	12/15/97
Law Office 102—Thomas Shaw, Acting Managing Attorney, (703) 308–9102—5th Floor Scientific Equipment & Furniture—Int. Classes 9, 20 Services—Int. Classes 35, 36, 37, 38, 39, 40, 41, 42	07/09/97	11/17/97
Law Office 103—Michael A. Szoke, Acting Managing Attorney, (703) 308–9103—5th Floor Scientific Equipment & Furniture—Int. Classes 9, 20 Services—Int. Classes 35, 36, 37, 38, 39, 40, 41, 42	07/02/97	01/20/98
Law Office 104—Sidney Moskowitz, Managing Attorney, (703) 308–9104—6th Floor Unwrought metals, Industrial Equipment, Tools, Installation, Vehicles, Firearms, Musical Instruments, Building Materials & Floor Coverings—Int. Classes 6, 7, 8, 11, 12, 13, 15, 19, 27 Services—Int. Classes 35, 36, 37, 38, 39, 40, 41, 42	05/16/97	11/12/97
Law Office 105—Thomas Howell, Managing Attorney, (703) 308–9105—6th Floor Chemicals, Paints, Lubricants, Pharmaceuticals, Medical Apparatus & Tobacco—Int. Classes 1, 2, 4, 5, 10, 34 Services—Int. Classes 35, 36, 37, 38, 39, 40, 41, 42	06/27/97	11/30/97
Law Office 106—Mary Sparrow, Managing Attorney, (703) 308–9106—7th Floor Cosmetics, Cleaning Preparations, Paper Products & Toys—Int. Classes 3, 16, 28 Services—Int. Classes 35, 36, 37, 38, 39, 40, 41, 42	06/19/97	11/05/97
Law Office 107—Thomas Lamone, Managing Attorney, (703) 308–9107—7th Floor Cosmetics, Cleaning Preparations, Paper Products & Toys—Int. Classes 3, 16, 28 Services—Int. Classes 35, 36, 37, 38, 39, 40, 41, 42	09/12/97	12/02/97
Law Office 108—David Shallant, Managing Attorney, (703) 308–9108—8th Floor Precious metals, Fibers, Leather goods, Housewares, Cordage, Yarns, Fabrics, Clothing & Notions— Int. Classes 14, 17, 18, 21, 22, 23, 24, 25, 26 Services–Int. Classes 35, 36, 37, 38, 39, 40, 41, 42	06/07/97	10/06/97
Law Office 109—Deborah Cohn, Managing Attorney, (703) 308–9109—8th Floor Precious metals, Fibers, Leather goods, Housewares, Cordage, Yarns, Fabrics, Clothing & Notions—Int. Classes 14, 17, 18, 21, 22, 23, 24, 25, 26 Services—Int. Classes 35, 36, 37, 38, 39, 40, 41, 42	10/09/97	12/07/97
**Collective Marks—Class 200 **Certification Marks—Classes A & B	-	
Office of Trademark Services—Terron Simms, Director, (703) 308-9100 Trademark Assistance Center—(703) 308-9000 Pre-Examination—Alan Lambert, Supervisor, (703) 308-9401 ext. 188 Intent-To-Use—(ITU)—(703) 308-9500 Post Registration Section—Mary Bowman, Supervisor, (703) 308-9500 ext. 126		
Affidavits Under Sections 8 & 15 (All Classes)	12/15/97	—0—
Renewals (All Classes)	12/15/97	—0—
Section 12(c) Publications (All Classes)	11/24/97	—0—

1. ** Assigned to all Law Office

2. Applicants with inquiries concerning the status of their applications and a touch telephone should call (703) 305–8747 from 6:30 a.m. to Midnight EST, Monday through Friday. This automated voice system will provide the current status of your application. Applicants are urged not to file unnecessary inquiries concerning the status of their applications. See SECTION 411 of the TRADEMARK MANUAL OF EXAMINING PROCEDURE.

3. * These dates identify the oldest unassigned new case in each Law Office. All cases with earlier dates have either been examined and made the subject of an action or are currently being worked on by the assigned examining attorney.

REEXAMINATIONS

MARCH 17, 1998

Matter enclosed in heavy brackets [ ] appears in the patent but forms no part of this reexamination specification; matter printed in italics indicates additions made by reexamination.

B1 4,690,862 (3464th)

INTEGRAL COMPOSITE PROFILE OF CELLULAR AND NON-CELLULAR RESINS AND A DUAL EXTENSION METHOD FOR ITS MANUFACTURE

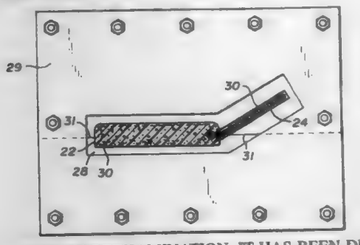
Daniel J. Hoffmann, Milwaukee, Wis., assignor to The Gossen Corporation, Milwaukee, Wis.

Reexamination Request Nos. 90/004,523, Jan. 21, 1997 and 90/004,549, Feb. 13, 1997.

Reexamination Certificate for Patent 4,690,862, issued Sep. 1, 1987, Ser. No. 687,058, Dec. 28, 1984.

Int. Cl.[6] **B32B** *5/18;5/14;* **B29C** *67/22;47/02*

U.S. Cl. 428—318.6



AS A RESULT OF REEXAMINATION, IT HAS BEEN DETERMINED THAT:

The patentability of claims **1–7** is confirmed.

New claim **8** is added and determined to be patentable.

1. An integral composite profile of a cellular thermoplastic resin and a non-cellular thermoplastic resin in which a first profile has a tongue and a second profile has a pair of fingers which encapsulate and are fused to the tongue of the first profile.

B1 4,871,189 (3465th)

TRUCK CAB SUSPENSION SYSTEM

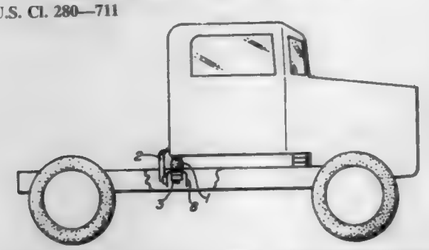
Charles A. Van Breemen, 825 Evergreen St., Burbank, Calif. 91505

Reexamination Request No. 90/004,398, Oct. 2, 1996.

Reexamination Certificate for Patent 4,871,189, issued Oct. 3, 1989, Ser. No. 90,571, Aug. 28, 1987.

Int. Cl.[6] **B60G** *17/04;13/10;* **B62D** *25/00*

U.S. Cl. 280—711



AS A RESULT OF REEXAMINATION, IT HAS BEEN DETERMINED THAT:

The patentability of claims **6**, **7**, **9**, **10** and **12** is confirmed.

Claims **1–5**, **8** and **11** are cancelled.

12. Apparatus comprising:

(a) at least one gas spring;

(b) said gas spring having a gas reservoir which forms one end of said gas spring, and having an orifice for restricting the free flow of gas, interposed between said gas spring and the reservoir, such that the effective spring rate of said gas spring is lowered by the additional volume of gas in said gas reservoir, and free vibrations applied to said spring are damped by nonlinear gas damping, and wherein the size of said orifice is independent of spring displacement.

B1 5,147,343 (3466th)

ABSORBENT PRODUCTS CONTAINING HYDROGELS WITH ABILITY TO SWELL AGAINST PRESSURE

Stanley R. Kellenberger, Appleton, Wis., assignor to Kimberly-Clark Corporation, Neenah, Wis.

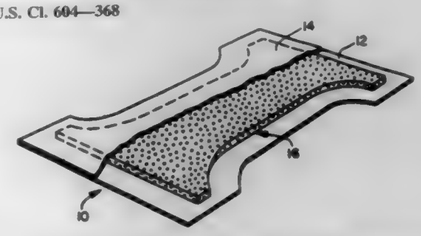
Reexamination Request No. 90/004,270, Jun. 7, 1996.

Reexamination Certificate for Patent 5,147,343, issued Sep. 15, 1992, Ser. No. 334,260, Apr. 10, 1989.

Continuation-in-part of Ser. No. 184,302, Apr. 21, 1988, abandoned.

Int. Cl.[6] **A61F** *13/15;13/20*

U.S. Cl. 604—368



AS A RESULT OF REEXAMINATION, IT HAS BEEN DETERMINED THAT:

Claims **1**, **14**, **20**, **25**, **30**, **31**, **32** and **33–39** are determined to be patentable as amended.

Claims **2–13**, **15–19**, **21–24**, **26–29** and **40**, dependent on an amended claim, are determined to be patentable.

New claims **41–48** are added and determined to be patentable.

1. An absorbent composite comprising a porous fiber matrix and an amount of superabsorbent material present in said porous fiber matrix, wherein said superabsorbent material can absorb at least 27 milliliters of an aqueous solution of sodium chloride containing 0.9 weight percent, sodium chloride, per gram of superabsorbent material while under a restraining pressure of [at least] 21,000 dynes per square centimeter, provided that, when said superabsorbent material is in the form of discrete particles, at least about 50%, by weight, of said superabsorbent material has a size greater than the median pore size of said porous fiber matrix when wet.

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B1 5,249,323 (3467th)

METHOD OF FABRIC-TO-FABRIC BONDING AND SEAMLESS QUILT FORMED THEREBY

Hiromichi Kikuchi; Yoshinori Hideshima, both of Yokohama, and Keisuke Tanji, Fukushima, all of Japan, assignors to Asami Corporation, Yokohama, Japan

Reexamination Request No. 90/004,619, Apr. 29, 1997.
Reexamination Certificate for Patent 5,249,323, issued Oct. 5, 1993, Ser. No. 913,145, Jul. 14, 1992.
Claims priority, application Japan, Aug. 9, 1991, 3-225169
Int. Cl.° A47G *9/00*; B32B *7/08*
U.S. Cl. 5—502



AS A RESULT OF REEXAMINATION, IT HAS BEEN DETERMINED THAT:

Claims **1** and **2** are cancelled.

1. A method of bonding fabric materials together into an integrated structure which comprises:

(a) preparing a first or base fabric and a second or mating fabric, the second fabric having along its longitudinal edge portion a binding end;

(b) mounting onto said binding end of the second fabric a reinforcing strip of a fabric material equal in length to but larger in width than said binding end, and uniting said binding end with said reinforcing strip by a stitching line running substantially centrally of said reinforcing strip, said reinforcing strip having been treated on its one side with an adhesive coating; and

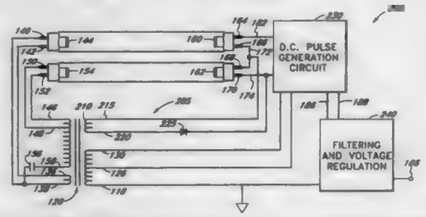
(c) bringing said reinforcing strip on the coated side into adhesive contact with the first fabric; and subjecting the same to press finishing with heat.

B1 5,568,018 (3468th)

FLUORESCENT LIGHT BALLAST CIRCUIT

Fred A. Muzic, 16411 Underhill La., Huntington Beach, Calif. 92647

Reexamination Request No. 90/004,613, Apr. 25, 1997.
Reexamination Certificate for Patent 5,568,018, issued Oct. 22, 1996, Ser. No. 407,393, Mar. 17, 1995.
Continuation of Ser. No. 115,476, Sep. 1, 1993, abandoned.
Int. Cl.° H05B *41/16*
U.S. Cl. 315—276



AS A RESULT OF REEXAMINATION, IT HAS BEEN DETERMINED THAT:

The patentability of claims **1–7** is confirmed.

1. A lighting apparatus having first and second fluorescent lamps, said first fluorescent lamp having a first filament at one end and a second filament at another end, each of said filaments of said first lamp being connected across first and second contacts, and said second fluorescent lamp having a first filament at one end and a second filament at another end, each of said filaments of said second lamp being connected across first and second contacts, said apparatus comprising:

a step-up voltage transformer having a low voltage input side and a high voltage output side;

a DC pulse generation circuit comprising a transistor, for periodically varying voltage at said low voltage input side of said transformer to induce a periodically varying voltage at said high voltage output side of said transformer;

said first contact of said first filament of said first lamp and said second contact of said first filament of said second lamp both being connected to said DC pulse generation circuit, and said second contact of said first filament of said first lamp being connected to said first contact of said first filament of said second lamp to provide a pair of series connected first filaments, said contacts of said second filaments of said first and second lamps each being connected to said high voltage output side of said step-up voltage transformer, whereby said DC pulse generating circuit produces a current flow through said pair of series connected first filaments which oscillates in accordance with said periodically varying voltage;

a current altering circuit which causes the current in one of the series connected first filaments to be unequal to the current in the other of the series connected first filaments each time the current flow through said series connected first filaments oscillates; whereby the circuit equalizes the voltage across the first and second lamps immediately prior to ignition of first and second lamps.

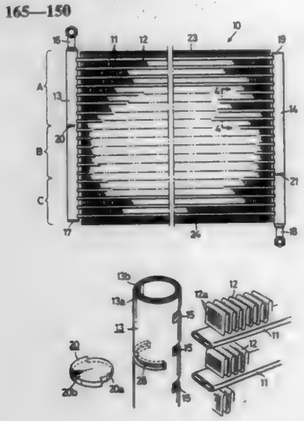
Matter enclosed in heavy brackets **[ ]** appears in the original patent but forms no part of this reissue specification; matter printed in italics indicates additions made by reissue.

Re. 35,742

CONDENSER FOR USE IN A CAR COOLING SYSTEM

Ryoichi Hoshino, Oyamashi; Hironaka Sasaki, Kozawa, and Takayuki Yastuake, Oyamashi, all of Japan, assignors to Showa Aluminum Corporation, Osaka, Japan

Original No. 5,025,855, dated Jun. 25, 1991, Ser. No. 509,901, Apr. 16, 1990. Division of Ser. No. 328,896, Mar. 27, 1989, Pat. No. 4,936,379, which is a division of Ser. No. 77,815, Jul. 27, 1987, Pat. No. 4,825,941. Application for reissue Nov. 18, 1996, Ser. No. 746,921
Claims priority, application Japan, Jul. 29, 1986, 61-179763; Sep. 19, 1986, 61-144775 U; Nov. 2, 1986, 61-263138
The portion of the term of this patent subsequent to May 2, 2006, has been disclaimed.
Int. Cl.° F28D *1/00*
U.S. Cl. 165—150 **1 Claim**



1. A condensing apparatus comprising:

a pair of headers provided in parallel with each other;

a plurality of tubular elements whose opposite ends are connected to the headers;

fins provided in air paths present between one tube and the next;

wherein each header is made of an aluminum pipe having a circular cross-section;

wherein each of the tubular elements is made of a flat hollow aluminum tube; and

wherein the opposite ends of the tubular elements are inserted in slits produced to the headers, and liquid-tightly secured therein;

wherein at least one of the headers is internally divided by a partition into at least two groups of coolant passageways, thereby enabling the flow of coolant to make at least one U-turn in the headers; and

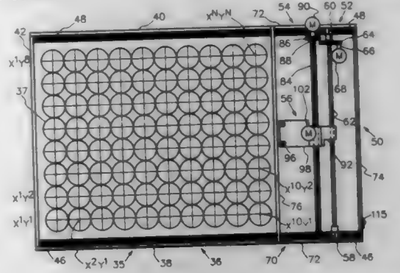
wherein the partition is inserted in the header through a slit produced in the header and secured therein, *the portion of the partition disposed in the header being without any perforations.*

Re. 35,743

PATIENT MEDICATION DISPENSING AND ASSOCIATED RECORD KEEPING SYSTEM

Walter G. Pearson, Pineville, La., assignor to Pearson Ventures, L.L.C., Alexandria, La.

Original No. 5,292,029, dated Mar. 8, 1994, Ser. No. 751,916, Aug. 29, 1991. Continuation-in-part of Ser. No. 433,256, Nov. 8, 1989, abandoned, which is a continuation-in-part of Ser. No. 242,585, Sep. 12, 1988, abandoned. Application for reissue Mar. 1, 1996, Ser. No. 609,730
Int. Cl.° G07F *11/00*
U.S. Cl. 221—2 **6 Claims**



6. An apparatus for dispensing appropriate medications in tablet or capsule form to a patient, comprising:

(a) a compartment adapted to house a plurality of containers for holding medications in tablet or capsule form, wherein each location of the compartment for housing a container is fixed relative to the apparatus, and wherein said compartment is not readily accessible to an unauthorized person;

(b) a computer adapted to be programmed to correlate a patient's identity with the medications that are appropriate for the patient at the time;

(c) a carrier responsive to said computer, wherein said carrier is adapted to move under the control of said computer to the location for each container that holds a medication appropriate for the patient, then to create a partial vacuum to retrieve the medication from each appropriate container, and then to release the partial vacuum and place the retrieved medication where it may readily be retrieved by a human to administer to the patient.

Re. 35,744

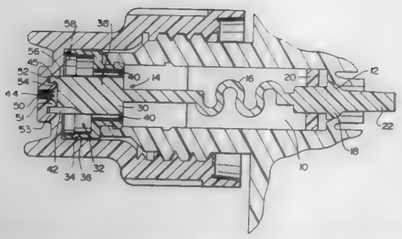
SPINNER ASSEMBLY FOR A SPRAYER

Donald D. Foster, St. Charles, and Philip L. Nelson, Ellisville, both of Mo., assignors to Contico International, Inc., St. Louis, Mo.

Original No. 5,234,166, dated Aug. 10, 1993, Ser. No. 603,281, Oct. 25, 1990. Application for reissue Aug. 9, 1995, Ser. No. 513,099
Int. Cl.[6] B05B *1/12*
U.S. Cl. 239—333 **60 Claims**

38. **[**The spinner assembly as defined by claim **36**, wherein said at least one aperture comprises**]** *A spinner comprising a swirl chamber, an annular sealing flange, and a post positioned within said annular sealing flange, said post and annular sealing flange defining an annular chamber therebetween, said annular chamber having a fluid input with* a plurality of apertures *therein adapted to communicate said annular chamber with the interior of a discharge nozzle*, said apertures being evenly spaced around and adjacent to the periphery of the base of said post, *and a fluid output*

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communicating said annular chamber with said swirl chamber, said spinner being of integral, one-*piece, molded plastic construction.*

Re. 35,745

DEVICE FOR GENERATING A REFERENCE VOLTAGE FOR A SWITCHING CIRCUIT INCLUDING A CAPACITIVE BOOTSTRAP CIRCUIT

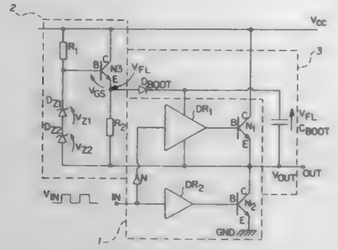
Andrea Barsanti, Pisa; Claudio Diazzi, and Fabio Vio, both of Milan, all of Italy, assignors to SGS-Thomson Microelectronics S.r.l., Agrate Brianza, Italy

Original No. 5,138,200, dated Aug. 11, 1992, Ser. No. 423,288, Oct. 18, 1989. Continuation of Ser. No. 289,489, Aug. 11, 1994, abandoned. Application for reissue Feb. 27, 1995, Ser. No. 395,135

Claims priority, application Italy, Oct. 28, 1988, 22466 A/88

Int. Cl.[6] H03K *17/10*

U.S. Cl. 326—88 **21 Claims**



12. In a circuit including a driving block having an input receiving an input switching signal and an output generating a switching output voltage signal which switches between a low level and a high level, and a capacitive bootstrap circuit having a first terminal connected to said output of said driving block and a second terminal, a device for generating a floating reference voltage is connected between said output of said driving block and said second terminal of said capacitive bootstrap circuit, said device generating said floating reference voltage so as to follow said switching output voltage signal and avoid damage to said bootstrap circuit, said floating reference voltage switching to a low state, higher than said low level of said switching output voltage signal for charging said capacitive bootstrap circuit when said switching output voltage signal switches to said low level, and said floating reference voltage switching to a high state when said switching output voltage signal switches to said high level.

Re. 35,746

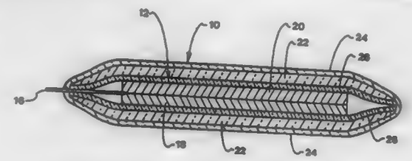
BATTERY PACKAGE AND METHOD USING FLEXIBLE POLYMER FILMS HAVING A DEPOSITED LAYER OF AN INORGANIC MATERIAL

Rickie C. Lake, Eagle, Id., assignor to Micron Technology, Inc., Boise, Id.

Original No. 5,326,652, dated Jul. 5, 1994, Ser. No. 8,529, Jan. 25, 1993. Application for reissue Jul. 3, 1996, Ser. No. 675,729

Int. Cl.[6] H01M *2/04;2/08*

U.S. Cl. 429—127 **40 Claims**



1. A battery package for a thin battery comprising:

a flexible polymer base film attached to and enclosing the battery; and

a flexible layer of an inorganic material deposited on the base film to encapsulate and seal the battery wherein the inorganic material is selected from the group consisting of silicon nitride, aluminum nitride and aluminum oxide.

21. A package for a battery comprising:

a flexible polymer base film attached to and enclosing the battery; and

a flexible layer of an inorganic material deposited on the base film to encapsulate and seal the battery wherein the inorganic material is selected from the group consisting of silicon nitride, aluminum nitride and aluminum oxide.

Re. 35,747

METHOD FOR DETERMINING TISSUE OF ORIGIN AND PRESENCE AND EXTENT OF CELLULAR ABNORMALITIES

Sheldon Penman, Brookline, and Edward G. Fey, Boston, both of Mass., assignors to Massachusetts Institute of Technology, Cambridge, Mass.

Original No. 4,885,236, dated Dec. 5, 1989, Ser. No. 946,770, Dec. 23, 1986. Continuation-in-part of Ser. No. 812,955, Dec. 24, 1985, Pat. No. 4,882,268. Application for reissue Nov. 19, 1991, Ser. No. 794,586

The portion of the term of this patent subsequent to Nov. 21, 2006, has been disclaimed.

Int. Cl.[6] C12Q *1/68;1/02;* **G01N** *33/53;* **C07G** *15/00*

U.S. Cl. 435—6 **23 Claims**

13. A method for detecting *cell type-specific* interior [and exterior] nuclear matrix proteins [and associated nucleic acids] in [samples] *a sample* of cellular material [and] *or* body [fluids] *fluid, said method* comprising:

(a) reacting *the sample to be analyzed with* labeled antibodies to isolated *cell type- specific* interior [and exterior] nuclear matrix proteins of known origin [with the samples to be analyzes]; and

(b) detecting the presence *in the sample* of proteins recognized by *said labeled* antibodies [to the interior and exterior nuclear matrix proteins from cells of known origin in the samples of cellular material or body fluid], *said isolated cell type- specific interior nuclear matrix proteins being characterized as non-cytoskeletal, non-lamin, non-chromatin protein isolated from mammalian nuclei, resistant to solubilization from said nuclei in 0.25M ammonium sulfate, remaining in solution following dialysis into physiological buffer from 8M urea, and segregating into a reproducible pattern unique to a given cell type on a two- dimensional electrophoresis gel.*

Re. 35,748

TREATMENTS EMPLOYING DRUG CONTAINING MATRICES FOR INTRODUCTION INTO CELLULAR LESION AREAS

Edward E. Luck, and Dennis M. Brown, both of Menlo Park, Calif., assignors to Matrix Pharmaceutical, Inc., Menlo Park, Calif.

Reissued No. 4,619,913, dated Oct. 28, 1986, Ser. No. 736,496, May 21, 1985. Continuation-in-part of Ser. No. 615,008, May 29, 1984, abandoned. Application for reissue Dec. 19, 1995, Ser. No. 574,498

Int. Cl.[6] A61K *9/00;9/22;9/26;31/28*

U.S. Cl. 514—2 **16 Claims**

1. A proteinaceous composition comprising from 30% to 95% of collagen and/or fibrinogen dispersed in an aqueous medium as an amorphous flowable mass at a concentration of from about 5 to 75 mg/ml and from about 0.1 to 50 weight percent based on said collagen and/or fibrinogen of a cytotoxic drug *or proliferation inhibitor*, wherein when said proteinaceous composition comprises collagen, said collagen is present as a uniform dispersion of collagen fibrils.

Re. 35,749

CONSTRUCTS OF GLYCERALDEHYDE-3-PHOSPHATE DEHYDROGENASE PROMOTER AND METHODS FOR EXPRESSING GENES USING SAID CONSTRUCTS

Steven Rosenberg, Oakland, and Patricia Tekamp-Olson, San Francisco, both of Calif., assignors to Chiron Corporation, Emeryville, Calif.

Original No. 5,349,059, dated Sep. 20, 1994, Ser. No. 42,134, Apr. 2, 1993. Continuation of Ser. No. 635,048, Dec. 28, 1990, abandoned, which is a continuation of Ser. No. 380,783, Jul. 18, 1989, Pat. No. 5,089,398, which is a continuation of Ser. No. 73,381, Jul. 13, 1987, abandoned, which is a continuation of Ser. No. 609,540, May 11, 1984, abandoned, which is a continuation-in-part of Ser. No. 468,589, Feb. 22, 1983, abandoned. Application for reissue Sep. 20, 1996, Ser. No. 710,744

Int. Cl.[6] C12P *19/34;* **C12N** *15/11*

U.S. Cl. 536—24.1 **9 Claims**

1. A DNA construct for expression of heterologous proteins, wherein said construct comprises:

a structural gene encoding said heterologous protein, wherein said structural gene is under the regulatory control of a first domain; and

[a] *said* first domain *being* proximal to said structural gene, said first domain comprising *at least* about 200 [–500] bp, and including the RNA polymerase binding site and transcription initiation site of the yeast Saccharomyces glyceraldehyde-3-phosphate dehydrogenase gene.

4. A method for expressing and producing a heterologous protein in yeast, which comprises:

expressing a structural gene encoding said heterologous protein in a yeast expression vector having an inserted DNA construct to produce said heterologous protein, said inserted DNA construct comprising:

said structural gene being under the regulatory control of a first domain; and

said first domain being proximal to said structural gene, said first domain comprising at least about 200 bp and including the RNA polymerase binding site and transcription initiation site of the yeast Saccharomyces glyceraldehyde-3- phosphate dehydrogenase gene.

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PLANT PATENTS

GRANTED MARCH 17, 1998

Illustrations for plant patents are usually in color and therefore it is not practicable to reproduce the drawing.

10,281

HYBRID TEA ROSE PLANT NAMED 'OLIJCREM'

Huibert W. Olij, De Kwakel, Netherlands, assignor to Olij Rosen B.V., De Kwakel, Netherlands

Filed Sep. 30, 1996, Ser. No. 723,309
Int. Cl.[6] A01H *5/00*
U.S. Cl. Plt.—15 1 Claim

1. A new and distinct variety of Hybrid Tea rose plant characterized by the following combination of characteristics:

(a) forms in great abundance attractive long-lasting blossoms that are orange-cream in coloration,
(b) exhibits an erect growth habit,
(c) forms attractive medium green and glossy foliage,
(d) exhibits good disease resistance, and
(e) is particularly well suited for cut flower production;

substantially as herein shown and described.

10,282

FLORIBUNDA ROSE PLANT NAMED 'JACMENT'

Keith W. Zary, Thouand Oaks, Calif., assignor to Bear Creek Gardens, Inc,, Medford, Oreg.

Filed Dec. 3, 1996, Ser. No. 764,733
Int. Cl.[6] A01H *5/00*
U.S. Cl. Plt.—22 1 Claim

1. A new and distinct variety of rose plant of the floribunda class, substantially as herein shown and described, characterized particularly as to novelty by the unique combination of its large flowers; its well branched, upright growth; its glossy, dark green, leathery foliage; its resistance to powdery mildew and rust; and its old-fashioned open flower.

10,283

FLORIBUNDA ROSE PLANT NAMED 'JACYELSH'

Keith W. Zary, Thousand Oaks, Calif., assignor to Bear Creek Gardens, Inc., Medford, Oreg.

Filed Dec. 3, 1996, Ser. No. 759,936
Int. Cl.[6] A01H *5/00*
U.S. Cl. Plt.—24 1 Claim

1. A new and distinct variety of rose plant of the floribunda class, substantially as herein shown and described, characterized particularly as to novelty by the unique combination of its vigorous, upright habit of growth; its resistance to powdery mildew and rust; its dark green, glossy, leathery foliage; its continuous blooming during the growing season; and its ease of propagation from softwood cuttings.

10,284

FLORIBUNDA ROSE PLANT NAMED 'JACEZZ'

Keith W. Zary, Thousand Oaks, Calif., assignor to Bear Creek Gardens, Inc., Medford, Oreg.

Filed Dec. 3, 1996, Ser. No. 764,732
Int. Cl.[6] A01H *5/00*
U.S. Cl. Plt.—28 1 Claim

1. A new and distinct variety of rose plant of the floribunda class, substantially as herein shown and described, characterized particularly as to novelty by the unique combination of its attractive, bright red flowers that hold their color very well; dark, glossy green, leathery foliage; resistance to powdery mildew and rust; and vigorous, upright, well branched habit of growth.

10,285

INTERSPECIFIC TREE "FLAVOROSA"

Chris Floyd Zaiger, 929 Grimes Ave.; Gary Neil Zaiger, 1907 Elm Ave.; Leith Marie Gardner, 1207 Grimes Ave., and Grant Gene Zaiger, 4005 California Ave., all of Modesto, Calif. 95358

Filed Jan. 13, 1997, Ser. No. 782,078
Int. Cl.[6] A01H *5/00*
U.S. Cl. Plt.—38.1 1 Claim

1. A new and distinct variety of interspecific (plum×plum cot) tree, substantially as illustrated and described, characterized by its large size, vigorous, upright growth and a productive and regular bearer of early maturing fruit with excellent flavor and eating quality; the fruit is further characterized by having firm, dark ruby red flesh with good handling and shipping quality and, in comparison to the interspecific variety Flavor Supreme (U.S. Plant Pat. No. 6,763), the new variety is flatter in shape and is approximately 19 days earlier in maturity.

10,286

PEACH TREE "BRITTNEY LANE"

Chris Floyd Zaiger, 929 Grimes Ave.; Gary Neil Zaiger, 1907 Elm Ave.; Leith Marie Gardner, 1207 Grimes Ave., and Grant Gene Zaiger, 4005 California Ave., all of Modesto, Calif. 95358

Filed Dec. 17, 1996, Ser. No. 767,672
Int. Cl.[6] A01H *5/00*
U.S. Cl. Plt.—43.1 1 Claim

1. A new and distinct variety of peach tree, substantially as illustrated and described, which is of large size, vigorous, upright growth and a productive and regular bearer of large, yellow flesh clingstone fruit with good flavor and eating quality; the tree is further characterized by producing fruit with firm flesh, good handling and shipping quality, having a low winter chilling requirement of approximately 350 hours and in comparison to the Desert Gold Peach (non-patented), the new variety has firmer flesh, greater handling and shipping quality, and a higher degree of attractive red skin color.

10,287

PETUNIA PLANT NAMED 'SUNBELKUPI'

Yasuyuki Murakami, Shiga, Japan, assignor to Suntory Limited, Osaka, Japan

Filed Nov. 20, 1996, Ser. No. 751,434
Int. Cl.[6] A01H *5/00*
U.S. Cl. Plt.—68.1 1 Claim

1. A new and distinct variety of petunia plant, substantially as herein illustrated and described, characterized particularly as to novelty by (A) being a decumbent habit plant having long stems, (B) an overabundant branching, Particularly secondary branching is strong, and great profusion blooms, the whole bush remaining in bloom for a considerable period of time, (C) flowers are single and very small, the petals having a vivid reddish purple color, and the bottom color of the corolla throat is bright greenish yellow and the outside color of corolla tube is pale yellow green and (D) a high resistance to rain, heat, drought and pest.

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GERANIUM PLANT NAMED 'MERIFESTIVAL'

Adrianus W. M. Enthoven, Wateringen, Netherlands, assignor to Enthoven Breeding B.V., Wateringen, Netherlands

Filed Dec. 13, 1996, Ser. No. 764,391

Int. Cl.[6] A01H *5/00*

U.S. Cl. Plt.—57.12 1 Claim

1. A new and distinct cultivar of Geranium plant named 'Merifestival', as illustrated and described.

10,289

'MS-EXPRESS' BERMUDAGRASS

Jeffrey V. Krans, and H. Wayne Philley, both of Mississippi State, Miss., assignors to Mississippi State University, Mississippi State, Miss.

Filed Jan. 4, 1996, Ser. No. 582,963

Int. Cl.[6] A01H *5/00*

U.S. Cl. Plt.—90 1 Claim

1. A Bermudagrass plant substantially as described and illustrated in the specification herein.

10,290

'MS-PRIDE' BERMUDAGRASS

Jeffrey V. Krans, and H. Wayne Philley, both of Mississippi State, Miss., assignors to Mississippi State University, Mississippi State, Miss.

Filed Jan. 4, 1996, Ser. No. 582,964

Int. Cl.[6] A01H *5/00*

U.S. Cl. Plt.—90 1 Claim

1. A Bermudagrass plant substantially as described and illustrated in the specification herein.

PATENTS

GRANTED March 17, 1998

ERRATA

For CLASS	See PATENT NO.
004–246	5,727,258
030–526	5,727,328
060–218	5,727,368
340–573	5,727,788
400–208	5,727,883
475–205	5,728,022
606–185	5,728,072
604–022	5,728,123
604–361	5,728,124
252–008	5,728,125
800–002	5,728,771
395–200	5,728,915
336–178	5,729,251
369–273	5,729,505
375–014	5,729,588

179–266 O.G.–98–2: QL3

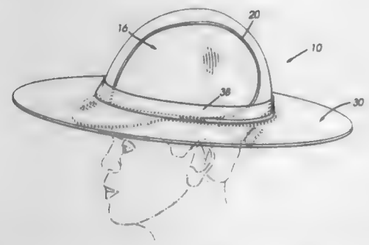
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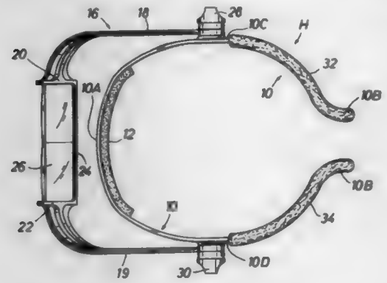
GENERAL AND MECHANICAL

5,727,250
SUNSHADE FOR HARD HAT
Randolph Black, 60 Highland Ave., Sumter, S.C. 29150
Filed Jan. 10, 1997, Ser. No. 781,684
Int. Cl.[6] A42B *3/04*
U.S. Cl. 2—10 20 Claims



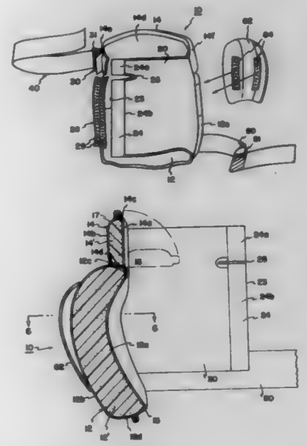
1. A sunshade for use with a hard hat, said hard hat having a brim and a crown, said sunshade comprising:
a disk having a hole formed therein dimensioned to receive the hard hat;
an elastic band secured to said disk and adapted to hold said disk to the hard hat when the crown of the hard hat is inserted into said hole; and
a covering over said disk and to which said elastic band is sewn.

5,727,251
HEADBAND MAGNIFIER
Mary Frances Sherlock, and Marnie C. Averitt, both of Kerrville, Tex., assignors to MFD Enterprises, Inc., Kerrville, Tex.
Continuation of Ser. No. 279,548, Jul. 25, 1994, Pat. No. 5,548,841, which is a continuation-in-part of Ser. No. 14,845, Oct. 29, 1993, Pat. No. Des. 359,060. This application Jul. 24, 1996, Ser. No. 685,473
Int. Cl.[6] A61F *9/00*
U.S. Cl. 2—15 10 Claims



1. Apparatus for magnifying an image, comprising,
a one-piece headband having a from portion, a back portion and two opposed sides, said headband being movable between an at rest position and a compression position wherein said headband provides a compressive force while said headband back portion is disengaged,
a U-shaped member having two arms and a holding member, one end of each of said arms being movably positioned on said opposed sides of said headband and the other end of each of said arms supporting said holding member, and
a magnifying lens positioned in said holding member, said U-shaped member being free of a light shield so as to allow light to enter said lens from between said two arms above said U-shaped member.

5,727,252
PADDED KNEE GUARD
Richard H. Oetting, St. Louis Park, and Corinne A. Cerull, Minneapolis, both of Minn., assignors to Rollerblade, Inc., Minneapolis, Minn.
Filed Oct. 31, 1996, Ser. No. 741,654
Int. Cl.[6] A41D *13/06*
U.S. Cl. 2—24 9 Claims



1. A knee pad comprising:
a first protective padding having first and second padding edges, said first padding sized to cover a knee of a user with said first padding positioned over a front of said knee and extending downwardly to cover an upper portion of a lower leg of said user;
a second padding having first and second padding edges, said second padding hinged to said first padding with said second padding positioned and sized to cover a lower portion of an upper leg of said user when said first padding is positioned over said front of said knee, wherein said first and second padding edges of said second padding are substantially aligned with said first and second padding edges, respectively, of said first padding;
a stretchable fabric having first and second fabric edges defining a width of said fabric therebetween, said first fabric edge secured to said first padding edges of both of said first and second paddings with said fabric sized to extend substantially continuously from said first padding edge of said first padding along said width of said fabric and around a back of said knee to said second fabric edge adjacent to said second padding edge of said first padding, said fabric further sized to cover said back of said knee and portions of back sides of said upper and lower legs;
said second fabric edge and said second padding edge including a first and second set of releasable fasteners for releasably securing said second fabric edge to said second padding edge.

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5,727,253

PROCESS FOR DESIGNING CAMOUFLAGE CLOTHING

William Robert Wilkinson, Durango, Colo., assignor to Bula, Inc., Durango, Colo.

Filed Mar. 26, 1996, Ser. No. 621,628
Int. Cl.° A41D 1/06
U.S. Cl. 2—69 4 Claims



1. A method of manufacturing a realistic appearing camouflage system, said method comprising the steps of:

(a) taking a photograph of a scene from the natural environment where the camouflage system is intended to be used;

(b) selecting a first area of said photograph and priming a first realistic image, created from said photograph, of said first area on a first article of clothing;

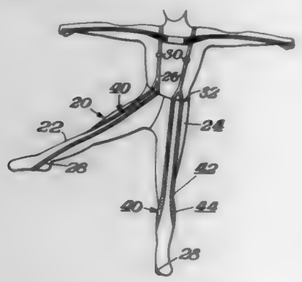
(c) selecting a second area of said photograph substantially continuous with said first area and printing a second realistic image, created from said photograph, of said second area on a second article of clothing so that when first article of clothing is worn with second article of clothing, said first realistic image is substantially continuous with said second realistic image.

5,727,254

RESISTIVE EXERCISE PANTS AND HAND STIRRUPS

Timothy P. Dicker, 11359 Dornfield, Lake View Terrace, Calif. 91342

Continuation-in-part of Ser. No. 554,733, Nov. 7, 1995, Pat. No. 5,570,472. This application Jun. 6, 1996, Ser. No. 660,098
Int. Cl.° A41B 1/12
U.S. Cl. 2—69 38 Claims



1. A pair of resistive exercise pants, comprising:

a pants portion having first and second pant legs and defining openings for a pair of feet and a hip or waist;

first and second suspenders coupled to said pants portion near said opening for said waist;

first resistive means for resisting motion and exercising muscles, said first resistive means incorporated into said pants portion and traversing the length of said first pant leg, said first resistive means aligned with long muscles of a first leg inserted into said first pant leg and elastically resisting motions made by said first leg so that said first resistive means exercises said first leg, said first pant leg otherwise free of other resistive means to optimize said first pant leg by reducing weight, enhancing breathability, and to focus resistance upon said long muscles of said first leg;

a first stirrup coupled to said first resistive means;

second resistive means for resisting motion and exercising muscles, said second resistive means incorporated into said pants portion and traversing the length of said second pant leg, said second resistive means aligned with long muscles of a second leg inserted into said second pant leg and elastically resisting motions made by said second leg so that said second resistive means exercises said second leg, said second pant leg otherwise free of other resistive means to optimize said second pant leg by reducing weight, enhancing breathability, and to focus resistance upon said long muscles of said second leg; and

a second stirrup coupled to said second resistive means; whereby

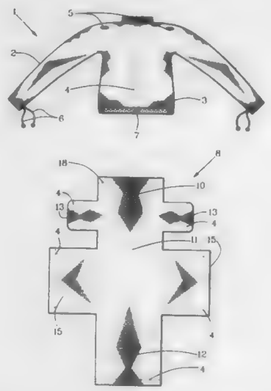
a person seeking exercise may don the resistive exercise pants and tension the resistive exercise pants between said suspenders and said first and second stirrups so as to resist movement of said person's legs, thereby augmenting muscular effort and exercise when said person moves said legs.

5,727,255

CLOTHING FOR PHYSICALLY IMPAIRED

Janice R. Minks, 9344 Sonia St., Orlando, Fla. 32825

Filed Nov. 4, 1996, Ser. No. 743,165
Int. Cl.° A41D 1/00
U.S. Cl. 2—69 29 Claims



1. Clothing for the physically impaired comprising:

a top garment section and a bottom garment section;

the top garment section having arm sleeves, a torso cover with a rear fastener, and an attachment-strap fastener having at least one attachment orifice that is sized and shaped to receive an attachment strap in fastener relationship between the top garment section and a wheelchair on which the physically impaired person is positioned;

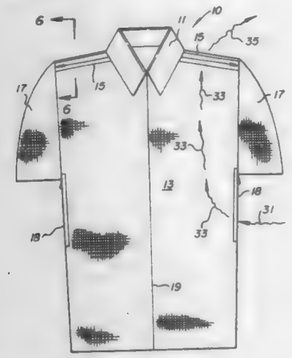
the bottom garment section having an abdomen cover, leg cover with a rear fastener and feet covering with a rear fastener said leg cover includes a thigh cover portion and said thigh cover portion has thigh wrap around extensions that are sized, shaped and structured to wrap around a portion of the physically impaired person's thighs; said leg cover portion includes a lower-leg-cover portion having lower leg wrap around extensions that are sized and shaped and structured to wrap around a portion of the physically impaired person's lower legs; and an attachment means joining the top garment section to the bottom garment section.

5,727,256

SUNLIGHT PROTECTING GARMENTS HAVING CONVECTIVE VENTILATION

Frank Rudman, N. Miami, Fla., assignor to Sportailor, Inc., Miami, Fla.

Filed Dec. 4, 1995, Ser. No. 567,042
Int. Cl.° A41B 1/00
U.S. Cl. 2—115 19 Claims



1. A ventilated garment system in a garment made of garment fabric and having a front, a back, a neck opening, sides, shoulders having ends, sleeves extending from said shoulders and forming armpits with said sides of said garment, a pair of openable side seams in said sides that extend downwardly from beneath said armpits to the waistline of a wearer, being selectively opened and closed with a zipper assembly attached to said fabric of said garment along welts, and a pair of shoulder seams at said shoulders that extend from said neck opening to said ends of said shoulders, said garment being made of said fabric that is woven sufficiently tightly to offer protection from sunlight, wherein each of said shoulder seams comprises:

(a) a zipper assembly that comprises a zipper tape and a zipper slide, said tape being attached along welts to said garment fabric to form each said seam; and

(b) a panel of stretchable mesh fabric, having sides and a pleat therein, that is disposed beneath said zipper assembly and is attached along said sides of said panel to said garment fabric, outside of said welts;

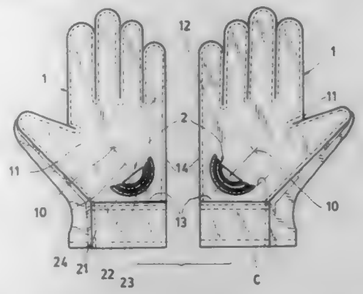
whereby movement of said zipper slides in said side seams and said shoulder seams causes said shoulder seams to open, exposing said panels of mesh fabric covering said shoulders of said wearer, and allows ambient air to enter said side seams into ventilation spaces between said garment and the skin of a wearer, to move convectively upwardly within said ventilation spaces toward said shoulder seams while receiving heat and moisture from said wearer's skin, and to pass through said shoulder seams, thereby exiting said garment system and carrying away said heat and said moisture.

5,727,257

GOALKEEPER'S GLOVE FOR TRAPPING FOOTBALL

Yi-Yi Chen, P.O. Box 55-846, Taipei, Taiwan

Filed May 5, 1997, Ser. No. 851,002
Int. Cl.° A41D 19/00
U.S. Cl. 2—161.1 4 Claims



1. A goalkeeper's glove comprising:

a glove formed by combining an inside cover and a back cover, having a palm center defined at a center of a palm portion of the inside cover; and

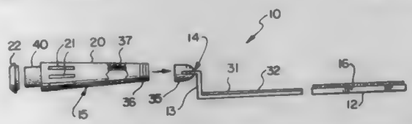
a trapping protrusion formed on the inside cover of the glove and located among the palm center, a little-finger sheath, a wrist protion and an ulnar-side edge portion of the glove; said trapping protrusion including: a base portion; a plurality of arcuate extensions gradationally and concentrically formed on the base portion which is secured on the inside cover of the glove, with said arcuate extensions gradationally declined towards the palm center and symetrically disposed about a radial center line radially intersecting a central portion of each said arcuate extension; each said arcuate extension defining a curvature having a curvature center located adjacent to the palm center of the glove; and each said arcuate extension concaved inwardly towards the palm center for helping catching and clutching a football when caught by the glove as worn on a goalkeeper's hand.

5,727,258

TOILET SEAT LIFTING HANDLE HAVING SCENTED ELEMENTS

Paul K. Derouin, 7862 Second St., #8, Stanton, Calif. 90680

Filed Jan. 31, 1996, Ser. No. 595,030
Int. Cl.° A47K 13/10
U.S. Cl. 4—246.1 10 Claims



1. For use in combination with a toilet seat pivotable between generally horizontal and vertical positions, a toilet seat lifting handle comprising:

a bracket having means for attachment to said toilet seat;

a socket;

a handle grip defining an interior cavity, a plurality of vent apertures, a first end removably attachable to said socket, and a second end;

pivotal attachment means for pivotally securing said socket to said bracket such that said handle grip and said socket are pivotable in a horizontal direction when said toilet seat is in its horizontal position; and

a quantity of scented material supported within said interior cavity of said handle grip for slowly traveling from said interior cavity through said vent apertures.

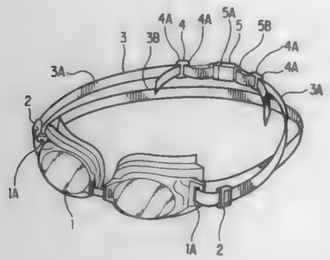
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5,727,259

ONE-TOUCH TENSION ADJUSTMENT DEVICE FOR GOGGLE

Kenji Kawamata, Matsudo, Japan, assignor to Kawamata Koki Mfg. Co., Ltd., Matsudo, Japan

Filed Mar. 11, 1997, Ser. No. 814,659
Claims priority, application Japan, Apr. 18, 1996, 8-132509; Aug. 13, 1996, 8-245394
Int. Cl.[6] A61F *9/02*
U.S. Cl. 2—452 **7 Claims**



1. One touch tension adjustment device for a goggle with attachment holes, comprising:
- an expandable strap adapted to be attached to the goggle and having a holding section first and second end portions, said first end portion having a sliding area,
- the first end portion having an area overlapping with the holding section,
- a connecting device attached to an end of the first end portion to fix the end of the first end portion to the strap to increase an overlapping area of the strap in a tension apply condition for the strap, and
- a tension adjustment stopper fixed to the strap at an end of the sliding area so that in the tension apply condition for the strap, when the connecting device is released, the overlapping area of the strap is reduced to reduce tension of the tension apply condition, and the tension adjustment stopper moves close to the goggle.

5,727,260

ROLLER BLADE SKATING GARMENT

Tia Torch, and Benjamin A. Torch, both of 39 Sagamore Rd., Bronxville, N.Y. 10708

Filed Jan. 27, 1997, Ser. No. 788,333
Int. Cl.[6] A41D *13/00*
U.S. Cl. 2—455 **1 Claim**

1. A protective garment for preventing injury to the coccyx and hip areas of a wearer without substantially affecting the maneuverability of said wearer; said garment comprising a generally triangular padded body, a first apex of said triangular body being proportioned to fit into the crotch area of a wearer, second and third apexes of said triangular body falling over the left and right hips of said wearer respectively at the waistline of said wearer, padded material held between front and rear surfaces of said triangular body, a center of said triangular area, sides and base of said triangular area, said padded material being thickest in said center and thinner toward said sides and base of said triangular body garment; fastening straps extending laterally from each side of said base apex, cooperating fastening straps having ends, said straps extending from each side of said first base apex of said crotch intermediate said first base apex and said waistline, means for adjustably fastening said ends of said straps together around upper thighs of the wearer, said upper right and left apexes extending outwardly from said padded body and forming waist straps which adjustably encircle the waist of said wearer to thereby provide padded protection for the hip(s) and coccyx areas of said wearer without interfering significantly with said wearer's movement.



5,727,261

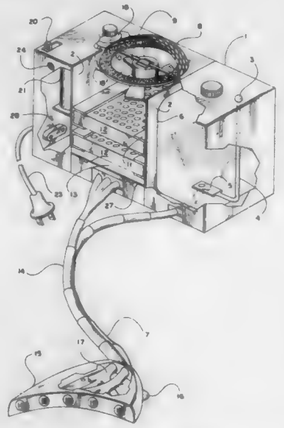
Patent Not Issued For This Number

5,727,262

BATHROOM VENTILATOR

George C. Littlejohn, 2329 Carrington Dr., Ellenwood, Ga. 30049

Filed Jul. 29, 1994, Ser. No. 283,219
Int. Cl.[6] E03D *9/052; 9/02*
U.S. Cl. 4—213 **7 Claims**



1. A ventilation and disinfection apparatus for use with a toilet having a tank and bowl, comprising:
- a housing defining an interior having three separated compartments;
- an electric power source disposed within a first of said compartments;
- an exhaust unit disposed within a second of said compartments, said exhaust unit including an intake port, at least one filter, an electric fan and an exhaust port;
- a liquid disinfectant unit disposed within the third compartment, said disinfectant unit including a disinfectant reservoir communicating with a manually controlled valve;
- a nozzle securable to communicate with an interior of said toilet bowl, said nozzle including at least two inlet ports and at least two outlet ports in respective flow communication;
- a first flexible hose connecting said exhaust unit inlet port and one of said nozzle outlet ports; and
- a second flexible hose connecting said reservoir valve and the other of said nozzle inlet ports,
- whereby, said toilet bowl may be ventilated by operation of said exhaust unit and disinfectant may be supplied to said bowl by operation of said disinfectant unit.

5,727,263

TOILET VENTILATION SYSTEM

Juan Jose Hugo Ceja Estrada, Aquiles Serdan 123 Sur, 80000, Culiacan Sinaloa, Mexico

Continuation of Ser. No. 386,550, Feb. 10, 1995, abandoned. This application Feb. 7, 1997, Ser. No. 796,208
Int. Cl.[6] E03D *9/04*
U.S. Cl. 4—216 **14 Claims**



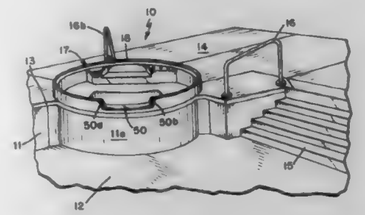
1. A ventilating toilet, comprising:
- a water reservoir tank;
- a toilet bowl, said bowl comprising a cavity, and an integrally formed rim disposed above and around the periphery of said bowl;
- said rim including a first integrally formed duct disposed therein and extending around said bowl, said duct being in fluid communication with said tank, said bowl comprising a plurality of first apertures extending through said rim and in communication with said first duct, said first duct and said plurality of first apertures communicating water from said tank to bowl during flushing of said toilet;
- said rim comprises a second duct integrally formed therein, said second duct extending around the periphery of one side of said bowl from the rear thereof to the front thereof, and a plurality of second apertures formed in said rim and in communication with said second duct to provide a ventilation path to exhaust air and odors from the area of said bowl;
- said rim comprises a third duct integrally formed therein, said third duct extending around the other side of said periphery of said bowl from the rear thereof to the front thereof, and a plurality of third apertures formed in said rim and in communication with said third duct to provide a second ventilation path to exhaust air and odors from the area of said bowl;
- said toilet comprises a rear portion integrally formed with said bowl to support said tank, said rear portion including a first integrally formed duct portion in communication with said second duct at an area of said second duct positioned intermediate the front and rear ends thereof, said first duct portion including at least a first higher duct portion positioned at a higher elevation than said second duct, whereby gravity prevents water from flowing up to said first higher duct portion; and
- said rear portion further comprises a second integrally formed duct portion in communication with said third duct at an area of said third duct intermediate the front and rear ends thereof, said second duct portion including at least a second higher duct portion positioned at a higher elevation than said third duct, whereby gravity prevents water from flowing up to said first higher duct portion.

5,727,264

SWIMMING POOL/SPA INTEGRATED STRUCTURE

Steven Alan Craig, and Donald H. Weir, both of York, Pa., assignors to Fox Pool Corporation, York, Pa.

Filed Oct. 1, 1996, Ser. No. 724,656
Int. Cl.[6] E04H *4/04*
U.S. Cl. 4—489 **18 Claims**



1. In an in-ground swimming pool of the type which is prefabricated as a package that is brought to a construction site, said swimming pool having a wall formed from a plurality of modular wall panels joined end-to-end to form the swimming pool enclosure, said wall panels having braces on the back side thereof that support the wall and support a peripheral deck contiguous with the top edge of the wall, said swimming pool being equipped with a water circulation pump, water heater and skimmer, the improvement in combination comprising:
- a substitute wall panel for the swimming pool that replaces a swimming pool modular wall panel and is connected at its side edges with adjacent modular wall panels, said substitute panel functioning in a dual capacity as a part of the supporting wall of the swimming pool and as a part of an outer enclosing support wall for a preformed plastic therapy spa unit that is positioned within said spa enclosing support wall,
- an integrally formed plastic spa body that is inserted in said spa outer enclosing support wall, said spa body having an occupant seating area, a central footwell area and an enclosing wall, said spa and part of said spa enclosing support wall being disposed outside the periphery of the swimming pool supporting wall, said part of said spa enclosing support wall being provided with braces on the back side thereof.

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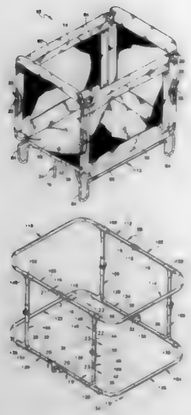
COLLAPSIBLE PLAYYARD

Scott Ziegler, 932 Vista Del Monte Way, El Cajon, Calif. 92020, and Kevin Maloney, 78 Wickham Rd., North Kingstown, R.I. 02852

Continuation-in-part of Ser. No. 437,631, May 9, 1995, Pat. No. 5,560,055. This application Feb. 29, 1996, Ser. No. 608,903
Int. Cl.[6] A47D *7/00*
U.S. Cl. 5—99.1 **9 Claims**

1. A collapsible frame assembly for a playyard for an infant comprising first and second frame subassemblies and collapsible connecting means for collapsibly connecting said first and second subassemblies in an erected position in which said first and second subassemblies are maintained in spaced substantially parallel relation, each of said frame subassemblies including connected correspondingly positioned first, second, third and fourth frame members which cooperate to define a generally rectangular collapsible frame structure having a fixed width as defined by the second and fourth frame members thereof, each of said first and third frame

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members being hingeably collapsible on itself for collapsing said playyard to a compact configuration, the width of said first frame subassembly being sufficiently smaller than the width of said second frame subassembly to permit said first frame subassembly to be at least partially nested within said second frame subassembly for collapsing said playyard into said compact configuration, said collapsible connecting means being collapsible in such a manner as to allow said first frame subassembly to be at least partially nested within said second frame subassembly when said playyard is collapsed into said compact configuration.

5,727,266

DISPOSABLE PILLOW OR CUSHION COVER

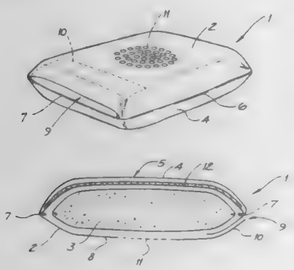
Hian Seng Pang, No. 7 Watten Drive, Singapore, Singapore, 287643

Filed Aug. 5, 1996, Ser. No. 692,256

Claims priority, application Singapore, Jan. 4, 1996, 9600028-6

Int. Cl.[6] A47G *9/02*

U.S. Cl. 5—490 **13 Claims**



1. A disposable pillow or cushion cover for use in covering a pillow or cushion to be used by an individual so as to protect the individual from receipt of contamination from a previous user, said disposable pillow or cushion cover comprising:

an envelope of air and moisture impermeable material encasing a pillow or cushion and providing an impermeable resting surface upon which a user may rest the head or other body part,

vent means in said envelope for permitting ingress and egress of air from said pillow or cushion, said vent means being located centrally in a side of said envelope opposite to said resting surface so as to direct egressing air away from said resting surface,

access means in said envelope to permit insertion and removal of the pillow or cushion, and

a facing layer of air permeable material extending substantially over said resting surface, and being secured to said envelope at spaced apart locations to allow air flow and a degree of relative movement between said facing layer and said envelope.

5,727,267

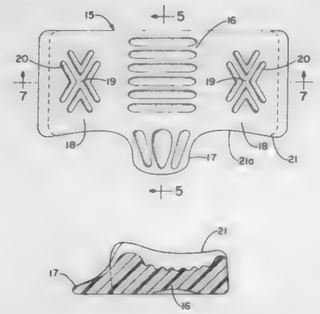
THERAPEUTIC SLEEPING PILLOW

Ed Keilhauer, 400 Finchdene Sq., Unit 11, Scarborough, Ontario, Canada, M1X 1E2

Filed Sep. 9, 1996, Ser. No. 711,216

Int. Cl.[6] A47G *9/00*

U.S. Cl. 5—636 **13 Claims**



1. An orthopedic pillow of generally rectangular configuration having two longer sides and two relatively shorter sides comprising:

a center portion having a centrally disposed relatively deep cavity on an upper surface adapted to receive and support the rear of a user's head;

a neck-supporting ridge formed on a front edge of said pillow, said ridge merging smoothly with said cavity and being concave along the length of the pillow and convex across the front edge of said pillow;

a wedge shaped extension merging smoothly with said front edge and projecting forwardly from the front edge of said pillow to support the upper back of said user;

at least one side extension disposed on at least one of the two sides of said center portion;

each said side extension having a generally centrally disposed relatively shallow cavity on an upper surface adapted to receive and support the user's head, and a front edge adapted to support the user's neck; and

the upper surface of each said side extension sloping generally downwardly from the front to the rear of the pillow.

5,727,268

SOFT EDGING FOR A WATER BED

Etienne Tilmans, Bosstraat 13, 3941 Eksel, Belgium

Filed Oct. 25, 1996, Ser. No. 740,293

Claims priority, application European Pat. Off., Oct. 27, 1995, 95870118

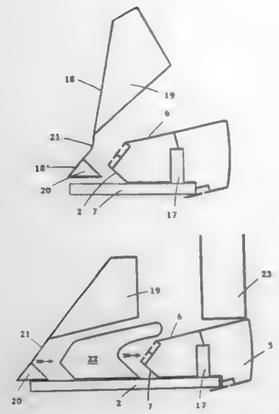
Int. Cl.[6] A47C *19/00;27/08*

U.S. Cl. 5—680 **15 Claims**

1. A soft edging for a water bed, the water bed generally including a base plate having a water mattress thereon, characterized by:

a hollow profile having at least first, second and third sides, the third side angled upwardly from said base plate;

a first side resting on said base plate,



the uppermost of the second and third sides defining a first support surface;

a continuous hollow space defined between the lowermost of the second and angled third sides and the base plate; and said second and third sides converge toward each other,

a foam rail supported on said first support surface;

a wedging member secured in said hollow space; and

said foam rail and said wedging member being hingedly interconnected.

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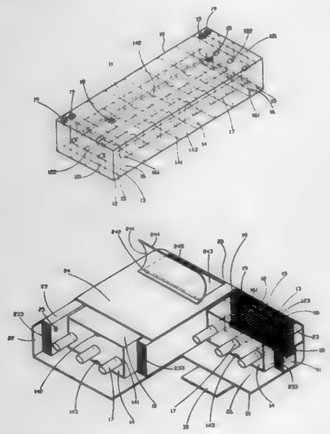
WATER BED WITH INTERNAL AIR BAG(S)

Ming-Chun Chung, 7F, No. 22, Alley 3, Lane 227, Nung An Street, Taipei, Taiwan

Filed Apr. 21, 1997, Ser. No. 845,083

Int. Cl.[6] A47C *27/10*

U.S. Cl. 5—680 **19 Claims**



1. A water bed, comprising

a water bed mattress defining an interior chamber, said water bed mattress comprising

a plurality of buffering partition boards dividing said interior chamber of said mattress into a plurality of transverse water chambers, each of said buffering partition boards having a plurality of locating holes defined therethrough,

a plurality of air bags, each received in one of said locating holes defined through said buffering partition boards,

a plurality of sealing partition boards disposed in said interior chamber of said mattress, one of said sealing partition boards and an end of said internal chamber of said mattress defining a border air chamber,

a plurality of inflatable partition boards disposed in said internal chamber of said mattress and each having a plurality of inflation holes defined therethrough, one of said inflatable partition boards and one of said sealing partition boards defining an inflation chamber, each of said air bags being in fluid communication with said inflation chamber via said inflation holes, and

a plurality of partition boards each having a ventilation hole defined therethrough being disposed in said border air chamber and defining said border air chamber into a plurality of independent border air chambers; and

a water bed base, comprising

a bottom external cover, a side cover, and a top external cover, said top external cover having a plurality of container holes defined therein,

three flexible positioning strips positioned to define sides, of two container chambers in said water bed base, each of said container chambers having an interior volume slightly larger than said mattress,

a plurality of positioning partition boards disposed in said flexible positioning strips and each having a ventilation hole defined therethrough, and

a plurality of releasably secured cover members positioned on an upper surface of said top external cover, one end of each of said cover members being fixed to said top external cover and another end of each of said cover members being releasably secured to said top external cover such that said cover member removably covers said container holes.

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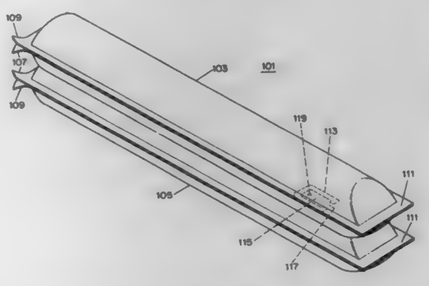
VALVELESS SELF SEALING FLUID OR GAS CONTAINER

Dennis Allen Cope, and John Edward McGrath, both of Castro Valley, Calif., assignors to AirCelTec Inc., Hayward, Calif.

Filed Jun. 7, 1995, Ser. No. 477,431

Int. Cl.[6] A47C *27/08*

U.S. Cl. 5—710 **36 Claims**



1. A fluid container comprising at least one self sealing inflatable element, each element comprising:

(a) first and second inflatable cells, each cell comprising an outer and inner layer of fluid impermeable material sealed together such that the seal between the outer and inner layers defines boundaries of each inflatable cell, the inner layer of the first and second cell being sealed together to form a pair of cells;

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(b) a fill channel between the pair of cells defined by the seal between the inner layers of the first and second cells, said channel having an opening such that fluid may be injected through the opening into the fill channel and said seal between the inner layers of the first and second cells defining the fill channel being separate from and inward of the seals defining the boundaries of each cell in each pair of cells; and

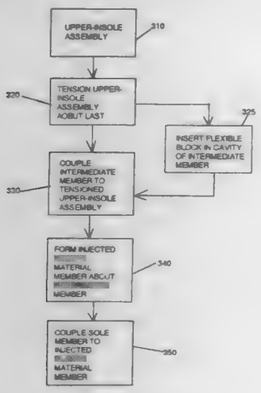
(c) a first and second aperture within the fill channel spaced from the opening, said first aperture being formed in the inner layer of the first cell, said second aperture being formed in the inner layer of the second cell, such that fluid injected through the opening into the fill channel may pass through the apertures to inflate the inflatable cells, the fill channel being forced to close as the cells are inflated, thereby effectuating a self sealing action by preventing fluid from exiting or entering the cells.

5,727,271

METHOD FOR OBTAINING A SHOE

Mariarosa Romanato, Stra; Franco Priarollo, Cornuda, and Riccardo Perotto, Volpago del Montello, all of Italy, assignors to Nordica S.p.A., Trevignano, Italy

Filed May 28, 1996, Ser. No. 654,496
Claims priority, application Italy, May 30, 1995, TV95A0062
Int. Cl.[6] A43D *9/00;* **A43B** *13/14*
U.S. Cl. 12—142 RS **20 Claims**



1. A method of manufacturing a shoe item, comprising the steps of:

arranging an upper-insole assembly about a last;

coupling an intermediate member comprising a toe portion and a heel portion to a lower region of said upper-insole assembly arranged about said last;

arranging said intermediate member in a mold and introducing plastic material into said mold so as to form an injected plastic material member which surrounds said intermediate member and which is integrally connected with both said intermediate member and said upper-insole assembly.

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COMPOSITE STRUCTURE, ESPECIALLY BRIDGE

Emil Peter, Dammweg 314, CH-8460 Marthalen, Switzerland

Filed Oct. 12, 1995, Ser. No. 543,852
Claims priority, application Switzerland, Oct. 12, 1994, 3065/94
Int. Cl.[6] E01D *6/00*
U.S. Cl. 14—6 **10 Claims**



1. An elongate composite structure of wood and reinforced concrete comprising an upper reinforced concrete plate and a supporting truss disposed below said plate, said supporting truss including:

upper and lower chords of wood extending longitudinally along said supporting truss, said lower chords being disposed below and at least partially relatively spaced from said upper chords,

upper and lower transverse girders of wood, said upper transverse girders transversely interconnecting said upper chords at upper intersection points and said lower transverse girders transversely interconnecting said lower chords at lower intersection points,

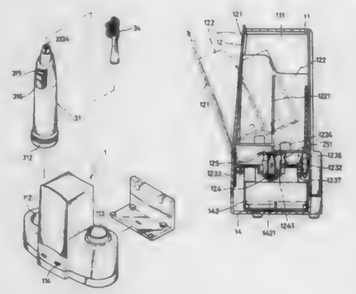
vertical posts of reinforced concrete connecting said plate and said intersection points, each vertical post extending continuously from a lower end located at one of said lower intersection points to and through an upper one of said upper intersection points, and concrete anchoring means between each post upper end and said concrete plate for rigidly anchoring said posts and plate together.

5,727,273

ELECTRIC TOOTHBRUSH ASSEMBLY WITH STERILIZING AND CHARGING DEVICES

Chung-Jeng Pai, No. 10, Lane 423, Ching Shin Street, Chung Ho, Taipei Hsien, Taiwan

Filed Jan. 23, 1997, Ser. No. 787,940
Int. Cl.[6] A46B *13/02;* **A61L** *2/16*
U.S. Cl. 15—22.1 **9 Claims**



1. An electric toothbrush assembly with sterilizing and charging devices, said assembly comprising:

a housing having a hollow ozone chamber in the center, a charging chamber at one side of said ozone chamber, said charging chamber extending downwardly and having two electrical connectors for charging purposes, and two charging grooves at corresponding positions;

an ozone unit comprising an ozone cylinder, an ozone partitioning element, a base plate, an ozone light, and an ozone lid, said ozone cylinder being provided with a slit at the center of an upper portion of an inner wall thereof for engaging and thereby positioning a tab of one of a plurality of partition plates of said ozone partitioning element; said ozone partitioning element comprising said partition plates alternately arranged, a bottom plate of said ozone partitioning element being provided with a bottom hole for passage of ozone thereinto; said base plate comprising a plate having extended walls at opposite sides, a plurality of mounting holes being provided on an outer side of said extended walls for locking said base plate to a bottom of said the housing below said ozone chamber, said base plate further having an ozone hole in the center with a plurality of hollow posts erected around it, a switch slot being provided at a rear end of said base plate for passage of a switch lever which is positioned to match a lower rim of the inner wall of said ozone cylinder, and two switch reeds being disposed at the bottom with an overlapping portion corresponding to said switch lever; said ozone light being connected to a power source by means of circuits and passing through said ozone hole; and said ozone lid having a plurality of mounting pins for insertion into said hollow posts around said ozone hole;

a charging unit, said charging unit being insertably positioned at said electrical connectors of said charging chamber by means of two charging reeds, and extending into said charging chamber via said charging grooves; and

a bottom casing comprising a bottom and a cover, said bottom being an open-top casing having a size matching the bottom portion of said housing; and said cover being an open-top box-like structure accommodating a circuit board and being connected to said charging unit and said ozone unit by circuits.

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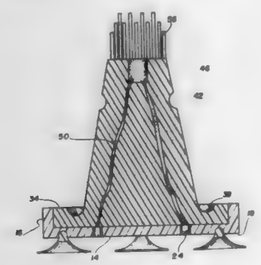
Patent Not Issued For This Number

5,727,275

MANUAL CUP CLEANING SYSTEM

Manuel Antonio Rocha, 90 Cottonwood Rd., Hartford, Conn. 06111

Filed Apr. 3, 1997, Ser. No. 825,753
Int. Cl.[6] A47L *15/00;* **B08B** *9/00*
U.S. Cl. 15—104.92 **4 Claims**



2. A manual cup cleaning system comprising:

a base member having a bare wall with a plurality of suction members coupled thereto for releasably mounting the base member onto a receiving surface, the base wall having at least two drain holes therethrough;

a conical member having a top surface, a support member, and an intermediate portion therebetween, the support member being sized for positioning within base member, said intermediate portion having a chamber carved therein and defining an opening along the top surface of the conical member, the chamber having at least two channels extending therefrom and into the intermediate portion, each channel passing through the intermediate portion and into the support member for allowing one of each channel to align with one of the drain holes of the base member; and

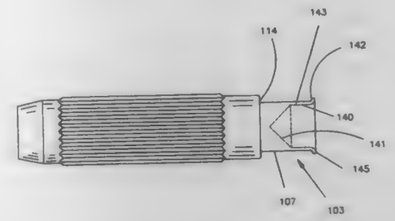
a plurality of bristles being attached to the conical member and projecting outwardly from the top surface, the bristles being capable of engaging an inside bottom of a cup being positioned over the conical member for cleaning.

5,727,276

VACUUM SWEEPER BRUSH AND CONCENTRIC ROLLER PIN

Rudolph F. Brundula, Gates Mills, and William P. Brundula, Kirtland, both of Ohio, assignors to Bruns Brush, Inc., Willoughby, Ohio

Continuation-in-part of Ser. No. 495,301, Jun. 28, 1995, Pat. No. 5,619,768. This application Jan. 13, 1997, Ser. No. 782,062
Int. Cl.[6] A46B *13/02*
U.S. Cl. 15—179 **1 Claim**



1. A vacuum sweeper brush comprising: a roller member; a roller pin; said roller member having a bore therein; said bore terminating in a perpendicular surface; said roller pin includes an inner end, an outer end, and an intermediate portion; said inner end of said roller pin includes a face and an inner center; said outer end of said roller pin includes an outer center, a bearing lip, a bearing surface, an axial bore, an outwardly extending shoulder, said intermediate portion of said roller pin includes a knurled outer surface; said inner and outer centers being concentric, plus or minus 0.002 inches; said roller pin residing substantially in said bore of said roller member; said knurled outer surface of said roller pin fixedly securing said roller pin with respect to said roller member; said face of said inner end of said roller pin abutting said perpendicular surface of said bore of said roller member; a bearing; said bearing includes an inner ring and an outer ring; said outwardly extending shoulder of said outer end of said roller pin securing said inner ring of said bearing to said bearing surface and against said bearing lip of said roller pin permitting said roller member and said roller pin to smoothly rotate with respect to said outer ring of said bearing.

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BODY WASHING APPARATUS WITH HANDLE

Kuo-Ching Chien, No. 7, Lane 74, Gong 5 Road, Lungtan Hsiang, Tao Yuan Hsien, Taiwan

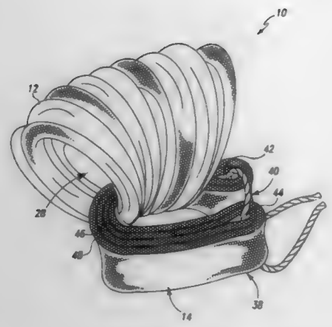
Filed Aug. 8, 1996, Ser. No. 693,472
Int. Cl.[6] A47L *13/07*
U.S. Cl. 15—209.1 **4 Claims**

1. A body washing apparatus, comprising:

a washing surface portion defined by a tubular member made of a first material, said member, containing a center passage therethrough;

a second material folded into layers to form an elongated band having opposite ends, such that one end of said band is pulled through said center passage of said tubular member to form a handle; and

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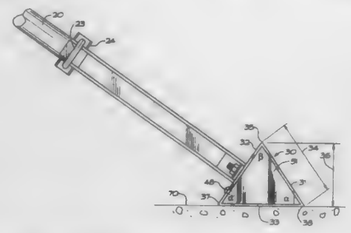
a string which is routed through the ends of said handle and tied together such that said washing surface portion and said handle are bound together.

5,727,278
CLEANSING DEVICE WITH HAND STRAP AND METHOD OF MAKING SAME
Myra S. Per-Lee, 16136 Avenida Venusto, No. 2, San Diego, Calif. 92128
Filed Apr. 19, 1996, Ser. No. 634,786
Int. Cl.[6] A47L *17/08;* **A47K** *7/02*
U.S. Cl. 15—229.11 **30 Claims**



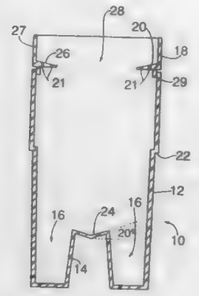
1. A cleansing device, comprising:
(a) a body of flexible abrasive material;
(b) an elongated flexible strap provided in the form of a loop; and
(c) means for securing an inner end of said strap to substantially a central portion of said body such that said strap extends from said body to an outer end thereof spaced from said body to provide a looped handle for a user to insert one hand through and thereby place said body in the palm of the one hand of the user for holding by the fingers and thumb of the user;
(d) said securing means being an elongated string inserted at least one time through said loop of said strap and wound about a circumferential portion of said body and drawn inwardly toward a center of said body to form a winding of said string having a substantially smaller circumference than that of said body which secures an inner end of said loop of said strap to said body at an interior of said body such that said inner end of said loop of said strap is substantially hidden from an exterior of said body and said loop of said strap extends from said body to an outer end spaced from said body to provide said looped handle for the user to insert one hand through and thereby place said body in the palm of the one hand of the user for holding by the fingers and thumb of the user.

5,727,279
APPARATUS FOR GRADING WET CONCRETE
Robert Lee Pike, Jr., 9013 Cinderella La., Louisville, Ky. 40229
Filed Aug. 22, 1996, Ser. No. 701,720
Int. Cl.[6] E01C *19/12;* **B05C** *17/10*
U.S. Cl. 15—235.4 **6 Claims**



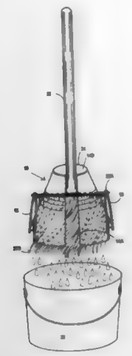
1. A concrete grading tool, comprising:
a longitudinally extending triangular grading head having a front surface, back surface and bottom surface; and,
a handle extending outward from said back surface;
wherein said grading head receives an attachment block centrally therein, said attachment block having a threaded aperture for threadably receiving said handle,
wherein said attachment block is made of polypropylene and has a front side and a rear side, said front side tapering in height to said rear side.

5,727,280
BRUSH HOLDER WITH INTEGRAL DRYING STRUCTURE
Richard Romano, 223 Southaven Ave., Medford, N.Y. 11763
Filed Sep. 20, 1996, Ser. No. 718,274
Int. Cl.[6] A46B *17/00*
U.S. Cl. 15—248.1 **17 Claims**

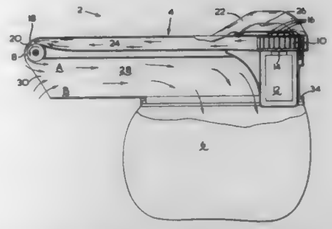


1. A brush holder comprising:
a substantially cylindrical container having a side wall, an upper open end and a lower closed end, an interior annular flange between the upper open end and the lower closed end, said lower closed end having a central raised floor portion and an annular lower liquid reservoir defined between said central raised floor portion, said side wall and said lower closed end of said container.

5,727,281
CONE SHAPED MOP WRINGER
Robert Harper, 10 Argyle Rd. #14C, Brooklyn, N.Y. 11218-2929
Filed Jul. 14, 1995, Ser. No. 502,868
Int. Cl.[6] A47L *13/58*
U.S. Cl. 15—260 **10 Claims**

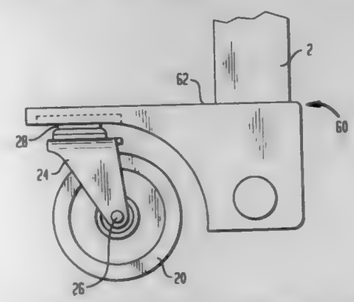


1. A cone shaped mop wringer for mechanically squeezing a plurality of mop fringes of a rectangular mop having a horizontal member and a handle, comprising:
a) a conically shaped hollow housing having an internal surface, an external surface, a narrow open top and a wide open bottom, said conically shaped housing containing a central longitudinally positioned groove spanning from said narrow open top to said wide open bottom and functioning to accept said handle therein, said conically shaped housing further containing two side grooves functioning to accept said horizontal member of said rectangular mop within said housing, said two side grooves positioned oppositely to one another, one of said two side grooves being positioned to the left of said central groove and the other of said two side grooves being positioned to the right of said central longitudinally positioned groove; and
b) elastic retaining means for receiving said horizontal member of said mop when said mop is received by said conically shaped hollow housing, said elastic retaining means being circumferentially positioned around said wide bottom of said housing spanning each of said side grooves and terminating at opposite distal ends within said central groove allowing said central groove to be open without said elastic retaining means spanning across said central groove.



d) a rotatable cylinder mounted at the air outlet and disposed between a first channel and a second channel; and
e) means for directing the discharged airstream substantially tangentially across a surface of the rotatable cylinder such that the rotatable cylinder rotates in the direction of airstream flow.

5,727,284
APPARATUS FOR MAKING AN OBJECT MOVABLE
Norman Deutsch, 3 Concord Dr., Monsey, N.Y. 10952
Continuation-in-part of Ser. No. 594,305, Jan. 30, 1996, abandoned. This application Nov. 8, 1996, Ser. No. 746,396
Int. Cl.[6] B60B *33/00*
U.S. Cl. 16—30 **19 Claims**



1. An adapter for making an object movable, said adapter comprising:
a top plate;
a boot defining an interior space for inserting a portion of the object, the boot being connected to one end of and extending downward from the top plate; and
a wheel mounted on the top plate of the boot for rotational movement with respect to the boot,
wherein the interior space is the weight receiving portion which is offset from the wheel so that the weight of the object is supported in a plane vertically displaced from the top plate.

5,727,282

Patent Not Issued For This Number

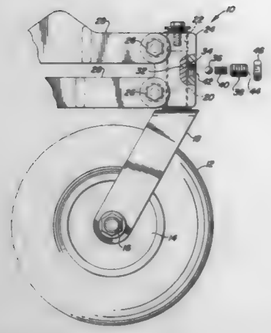
5,727,283
COLLECTION APPARATUS
Craig Duncan Webster, Newcastle-upon Tyne, United Kingdom, assignor to Black & Decker Inc., Newark, Del.
Filed May 23, 1995, Ser. No. 447,461
Claims priority, application United Kingdom, May 28, 1994, 9410772
Int. Cl.[6] A47L *5/18*
U.S. Cl. 15—409 **4 Claims**

1. Collection apparatus comprising
a) an air outlet;
b) a collection mouth;
c) means for creating an airstream for discharge at the air outlet;

5,727,285
CASTER WHEEL BIASING MECHANISM
Gerald Eugene Goman, Horicon, Wis., assignor to Deere & Company, Moline, Ill.
Filed May 13, 1996, Ser. No. 645,365
Int. Cl.[6] B60B *33/00*
U.S. Cl. 16—38 **20 Claims**

1. A caster wheel mounting mechanism, comprising:
a pivotable caster wheel,
a generally vertically extending pivot member coupled with the caster wheel,
a mounting member which supports the pivot member for pivotal motion about an axis,
a surface which includes a biasing surface portion defined therein,

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an abutment member biased into operative abutment with the surface and biasing surface portion defined therein, said abutment member and surface being pivotable with respect to each other as the caster wheel pivots, one of said surface and abutment member being operatively fixed for pivotal motion with the pivot member and the other being operatively fixed with the mounting member, and

said abutment member operatively applies a force to the biasing surface portion for urging said pivot member and caster wheel to pivot to a single predetermined alignment, said force establishing a moment arm which urges the pivot member and caster wheel to the predetermined alignment when the abutment member is in abutment with the biasing surface portion and the caster wheel is not in the predetermined alignment.

5,727,286

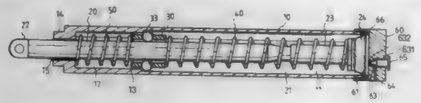
DOOR CLOSER WITH A PNEUMATIC DASHPOT

Chung-Shan Shen, Suite 2, 7F, No. 95-8 Chang Ping Road, Sec. 1, Taichung, Taiwan

Filed Mar. 11, 1996, Ser. No. 613,638

Int. Cl.[6] E05F *3/00*

U.S. Cl. 16—49 **2 Claims**



1. A door closer with a pneumatic dashpot for automatically closing a movable object comprising:

a tubular body including a neck at a first end and an opening at a second end abutting a thread on an outer periphery thereof, a large diameter first chamber adjacent said opening and abutting a small diameter second chamber which is adjacent said neck so as to define a shoulder thereinbetween;

a cylinder member axially disposed inside said tubular body with a free end thereof extended to outside of said neck, said cylinder member having a length longer than that of said tubular body, an annular groove including a tapered portion thereon formed in the proximity of an inward end, a retaining ring at an outside end and a flange at the inward end thereof;

a cock means axially fastened to the inward end of said cylinder member inside said tubular body, said cock means having a diameter equal to the inner diameter of said first chamber of said tubular body so as to be slidable thereinabout;

a sleeve member slidably sleeved on said cylinder member stopped against the shoulder of said tubular body and having a pair of radial apertures formed respectively in opposite peripheral walls;

a pair of balls movably disposed into the radial apertures of said sleeve member and stopped against an inner peripheral wall of said tubular body therein;

a pair of first and second biasing means respectively disposed inside the first and second chambers of said tubular body each having on one end stopped against an opposite end of said sleeve member;

an air valve fastened into the opening of said tubular body and sealed by a sealing ring thereinbetween, said air valve being in cap form including thread inner periphery made in registry with the thread on the outer periphery of the opening, a thickened bottom through which a threaded aperture is formed along the axis thereof and an air duct perpendicular to said aperture and terminated at a lateral periphery thereof, said threaded aperture having an introversive convergent portion at an inward end to form an adjustment ring hereto;

an air control thrustor fastened into said threaded aperture and including a threaded outer periphery made in registry with the thread of said threaded aperture, a slotted head at a first end and a taper end at a second end thereof;

whereby said cylinder member is extrated outward from said tubular body to contract said first biasing means for reserving energy to recoil said cylinder member back to normal position and to reduce the air pressure into said first chamber via said valve for a slow rehabilitation of said cylinder member.

5,727,287

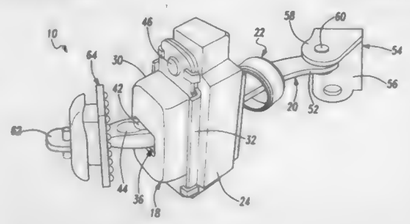
CHECK STRAP ASSEMBLY FOR A PASSENGER DOOR OF A MOTOR VEHICLE

Thomas E. Hosken, Ann Arbor; Anil K. Jain, Troy, and Thomas B. Tran, Lake Orion, all of Mich., assignors to Chrysler Corporation, Auburn Hills, Mich.

Filed Jan. 7, 1997, Ser. No. 779,583

Int. Cl.[6] E05F *5/02*

U.S. Cl. 16—82 **10 Claims**



1. A check strap assembly for a closure member and a frame, the closure member moveable in relation to the frame between an open position and a closed position, the check strap assembly comprising:

an arm passing through an aperture in the closure member, said arm having a first end interconnected to the frame and a second end retained within the closure member such that said closure member may be selectively moved relative to said arm; and

a seal member carried by said arm, said seal member operative to seal said aperture when the closure member is moved to the closed position.

5,727,288

APPARATUS FOR SEPARATING DOORS FRM A BODY OF A MOTOR VEHICLE

Sung-Kwang Byon, Seoul, Rep. of Korea, assignor to Daewoo Electronics Co., Ltd., Seoul, Rep. of Korea

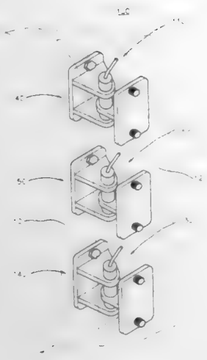
Filed Dec. 29, 1995, Ser. No. 578,182

Claims priority, application Rep. of Korea, Mar. 22, 1995, 95-6042

Int. Cl.[6] E05D *5/10;7/10*

U.S. Cl. 16—254 **8 Claims**

1. An apparatus for separating a door of a vehicle, said apparatus comprising:



a first hinge including a first fixing member secured to a body of the vehicle, a first pivoting member fixed at an upper side portion of the door, and a first sleeve combining said first fixing member with said first pivoting member;

a second hinge including a second fixing member secured to the body, a second pivoting member fixed at a lower side portion of the door, and a second sleeve combining said second fixing member with said second pivoting member;

a door check assembly including a door check bracket secured to the body, a door check link, a door check sleeve combining said door check bracket with said door check link, and a door checker secured to the door for restricting an opening angle of said door check link; and

a means for separating said first fixing member from said firsts pivoting member said second fixing member from said second pivoting member, said door check bracket from said door check link, said separating means being provided at said first hinge, said second hinge, and said door check assembly, said separating means having a first separating section installed in said first sleeve for separating said upper hinge, a second separating section installed in said second sleeve for separating said lower hinge, a third separating section installed in said door check sleeve for separating said door check assembly; a detonating switch; and, a power supply connected to said switch for supplying electric power to said first, second and third separating sections when the detonating switch is closed

whereby a passenger in the vehicle may separate the door from the vehicle by closing the detonating switch.

5,727,289

HINGE MOUNTED ADJUSTABLE DOOR STOP

Andrew Reder, 484 E. Los Angeles Ave., Ste. 108-316, Moorpark, Calif. 93021

Filed Jan. 17, 1996, Ser. No. 587,589

Int. Cl.[6] E05D *11/06*

U.S. Cl. 16—375 **7 Claims**

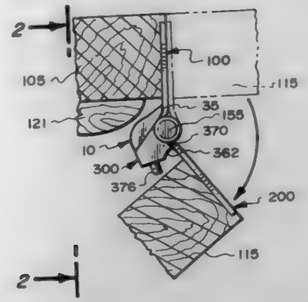
1. A hinge mounted door stop for mounting to a modified conventional pair of door hinge leafs, which comprises:

a first stop element having a top, a bottom, a front, a back, a left side portion, and a right side portion;

a pair of axially aligned spaced apart upper and lower knuckles having pin holes and positioned at said top and said bottom of said first stop element and which define the length of said first stop element;

said front of said first stop element having a generally transversely curved outer surface for avoiding contact with any molding adjacent a door jam where a stationary leaf hinge is mounted;

said back of said first stop element being recessed for allowing clearance with a barrel on a hinge leaf;



said left side portion having a vertical narrow flat face for abutting against one hinge leaf while still avoiding contact with any molding adjacent a door jamb where one hinge leaf is mounted; and

said right portion of said first stop element having a vertical beveled head projecting from said right side portion of said first stop element for abutting against the other hinge leaf.

5,727,290

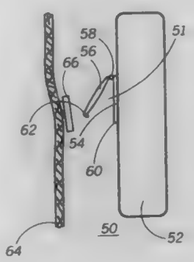
ERGONOMIC ATTACHMENT DEVICE FOR A PORTABLE ELECTRONIC APPARATUS

April R. Gilbert, Fort Worth; Jan M. McKinnis, North Richland Hills, and Bettina Meies, Southlake, all of Tex., assignors to Motorola, Inc., Schaumburg, Ill.

Filed Dec. 20, 1996, Ser. No. 769,479

Int. Cl.[6] A44B *21/00;* **A45F** *5/00*

U.S. Cl. 24—3.1 **10 Claims**



1. A portable electronic device that ergonomically attaches to an external article having a male portion, comprising:

a housing for containing the portable electronic device; and

a receiving portion integrally formed to a back portion of the housing, wherein the receiving portion permits the insertion of the male portion for retention of the portable electronic device to the external article, wherein the male portion is a button on the external article and the receiving portion is a pouch integrally formed to a back portion of the housing, wherein the pouch further includes a hole for permitting the mounting of the housing by insertion of the button on the external article.

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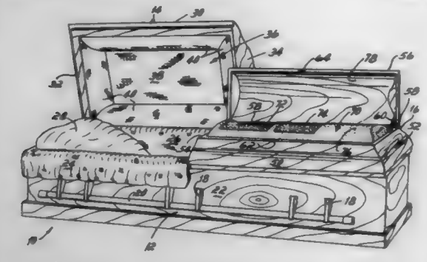
CASKET HAVING MEMORABILIA COMPARTMENT

John P. Biondo, Batesville, Ind.; Dennis C. Laphan; Donald R. Maier, both of Cincinnati, Ohio; William F. Neth, and Charles F. Winburn, both of Batesville, Ind., assignors to Batesville Casket Company, Inc., Batesville, Ind.

Continuation-in-part of Ser. No. 438,441, May 10, 1995, Pat. No. 5,611,124. This application Jul. 9, 1996, Ser. No. 669,022

Int. Cl.[6] A61G *17/00*

U.S. Cl. 27—2 21 Claims



1. A casket having a memorabilia compartment comprising:

a shell;

a cap closable upon said shell, said cap including a crown and a header panel at one end of said crown; and

a memorabilia drawer within said cap, said drawer being slidably mounted within a frame mounted to the underside of said crown, said drawer being movable to and between a display position and a storage position, the display position providing access to mourners paying respects to the deceased for placing personal effects and mementos in said drawer and providing display of the personal effects and mementos placed therein for viewing by the mourners, the storage position providing concealed storage of the personal effects and mementos placed therein.

5,727,292

INSTALLATION FOR THE PRODUCTION OF NONWOVEN WEBS, THE COHESION OF WHICH IS OBTAINED BY THE ACTION OF FLUID JETS

André Vuillaume, Bivier, France, assignor to ICBT Perfojet, France

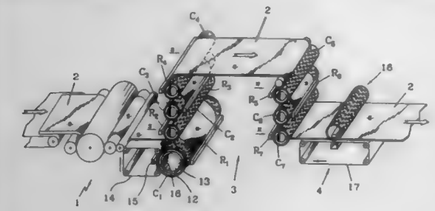
PCT No. PCT/FR96/00227, § 371 Date Mar. 5, 1997, § 102(e) Date Mar. 5, 1997, PCT Pub. No. WO96/27040, PCT Pub. Date Sep. 6, 1996

PCT Filed Feb. 13, 1996, Ser. No. 732,275

Claims priority, application France, Mar. 2, 1995, 95 02665

Int. Cl.[6] D04H *1/70*

U.S. Cl. 28—104 8 Claims



1. Apparatus for the production of a nonwoven web of material that includes,

means for drawing a web of nonwoven material along a given path of travel,

a set of perforated rolls mounted in parallel alignment within a plane for contacting said web as it moves along said path of travel, said web being trained over said rolls so that the web moves in contact with the opposite side of each adjacent roll within a contact zone,

an injection rail mounted adjacent the contact zone associated with each roll for directing a jet of pressurized water against the web as it passes through the contact zone,

drive means for increasing the peripheral speed of the rolls progressively in the direction of web travel to tension the web between rolls.

5,727,293

METHOD AND APPARATUS FOR CONTINUOUS CRIMPING OF THERMOPLASTIC THREADS

Eugen Weder, Fehrahorf, Switzerland, assignor to Maschinenfabrik Rieter AG, Winterthur, Switzerland

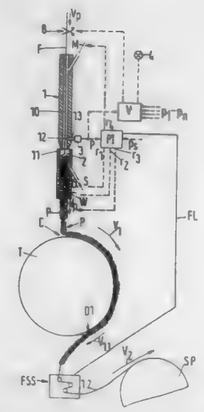
PCT No. PCT/CA96/00037, § 371 Date Oct. 2, 1996, § 102(e) Date Oct. 2, 1996, PCT Pub. No. WO96/23916, PCT Pub. Date Aug. 8, 1996

PCT Filed Jan. 30, 1996, Ser. No. 718,575

Claims priority, application Switzerland, Nov. 29, 1994, 3394/95; Feb. 2, 1995, 284/95

Int. Cl.[6] D02G *1/00*

U.S. Cl. 28—249 34 Claims



1. A method for continuous crimping of a thermoplastic material thread, comprising the steps of:

pressurizing a transporting medium;

heating the transporting medium;

transporting, with the transporting medium, a thread though a conveyor duct and out of an outlet opening of the conveyor duct at a transporting speed;

transporting the thread from the outlet opening of the conveyor duct to an inlet opening of a stuffer box;

compressing the thread into a plug in the stuffer box by decelerating the thread;

transporting the plug from an outlet opening of the stuffer box at a plug speed that is lower than the transporting speed such that the plug is cooled and opened to form a texturized and tensioned thread;

measuring at least one parameter of the plug;

comparing the at least one measured parameter with a target value of the at least one measured parameter;

sending at least one signal to at least one dependent control circuit when there is a difference between the at least one measured parameter and the target value of the at least one measured parameter;

controlling, with the at least one dependent control circuit, at least one of a pressure of the transporting medium, a temperature of the transporting medium, and deceleration of the thread in response to the at least one signal; and

controlling, with at least one independent control circuit, at least one of a pressure of the transporting medium, a temperature of the transporting medium, and deceleration of the thread that are not controlled by the dependent control circuit.

5,727,294

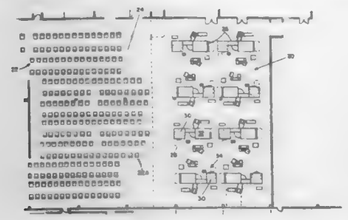
APPARATUS AND METHOD FOR CONTINUOULSY KNITTING, SHRINKING AND TRANSFERRING THE BLANKS TO A REMOTE LOCATION

William M. Lathery, Germanton, and Christopher R. Jones, Greensboro, both of N.C., assignors to Sara Lee Corporation, Winston-Salem, N.C.

Filed May 2, 1996, Ser. No. 640,537

Int. Cl.[6] D05B *21/00;1/00*

U.S. Cl. 28—153 12 Claims



1. A process for handling knitted fabric comprising the steps of:

knitting a plurality of cylindrical blanks sequentially;

automatically transferring the knitted blanks sequentially to a shrink apparatus;

continuously shrinking the transferred blanks for a predetermined period of time;

automatically transferring the shrunken blanks from the shrink apparatus to a remote location; and providing an indexer for carrying heating chambers and a programmable controller for selectively displacing the indexer and to coordinate the sequence of transferring the knitted blanks to the shrink apparatus, shrinking the transfer of blanks for a predetermined period of time, and automatically transferring the shrunken blanks to a remote location.

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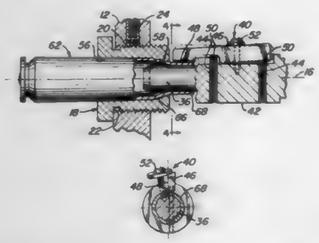
OUTSIDE NECK SHAVER

Doyle D. Gracey, P.O. Box 155, Tehachapi, Calif. 93581

Filed Dec. 18, 1995, Ser. No. 574,277

Int. Cl.[6] B21K *21/04;* B23P *15/22*

U.S. Cl. 29—1.32 6 Claims



1. An outside neck shaver for cartridge cases with a predetermined inside caseneck diameter comprising:

a base;

a bearing housing mounted to said base;

a shaft inserted into said bearing housing such that one end of said shaft extends from one side of said bearing housing and the other end of said shaft with an outside diameter no greater than the inside diameter of said predetermined inside caseneck diameter extends from the other side of said bearing housing;

a case holder housing mounted to said base with an opening axially aligned with said shaft and having said outside diameter shaft end which is no greater than said predetermined inside caseneck diameter inserted within said case holder housing along said axis;

a cartridge case holder mounted within said case holder housing and axially aligned around said inserted shaft and with an opening shaped to match said cartridge case's external dimensions and a shoulder stop for indexing on the shoulder of said cartridge case;

means for turning said shaft; and

a cutter assembly mounted on said shaft, said cutter assembly further comprising a cutter with a single cutting edge, said cutter mounted on said shaft such that said cutting edge is parallel to said shaft and spaced from the shaft a distance equal to the desired caseneck wall thickness, and said cutting edge is next to said shoulder of said cartridge case holder such that when a cartridge case is inserted into the cartridge case holder that any portion of the outside caseneck wall that does not fit between said shaft end and said cutter is shaved away.

5,727,296

MACHINE TOOL HAVING SWIVELABLE ROTARY HEAD

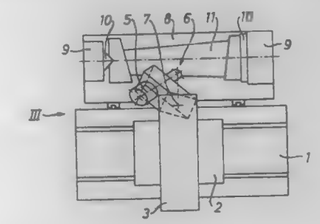
Paul Kobler, Goldach, Switzerland, assignor to Starrfrasmaschinen AG, Rorschacherberg, Switzerland

Continuation of Ser. No. 355,693, Dec. 14, 1994, abandoned. This application Feb. 19, 1997, Ser. No. 802,594

Claims priority, application European Pat. Off., Dec. 15, 1993, 93120198

Int. Cl.[6] B23P *23/00;* B23C *3/04*

U.S. Cl. 29—27 C 10 Claims



1. A machine tool, comprising:

a rotary station constructed and arranged to drivingly rotate a workpiece about a longitudinal axis;

a work-holding fixture for clamping each of two ends of said workpiece within said rotary station, said work-holding fixture being driven to rotate while clamping said two ends to enable said workpiece to rotate about said longitudinal axis;

a tool carrier mounted adjacent said rotary station and carrying a milling head which carries a cutting tool rotatable about a machining axis, said tool carrier being swivelable about a swivel axis which encloses a positive, acute angle of inclination relative to said machining axis and intersects substantially said machining axis of said cutting tool.

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5,727,297

TOOL TURRET WITH OFFSET CLUTCH DRIVE

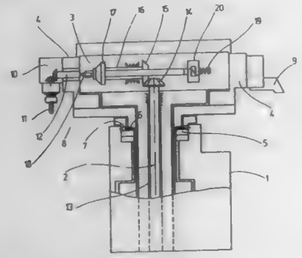
Detlef Dieter Sahm, Reichenbach, and Kurt Birk, Metzingen, both of Germany, assignors to Sauter Feinmechanik GmbH, Metzingen, Germany

Filed Apr. 24, 1996, Ser. No. 637,240

Claims priority, application Germany, May 9, 1995, 195 16 985.9

Int. Cl.[6] B23B *39/20;* **B23Q** *5/02*

U.S. Cl. 29—40 **12 Claims**



1. A tool turret, comprising:

a housing having a longitudinal axis;

a head nonrotatably connected to said housing;

a tool face concentrically encompassing said head and rotatably coupled to said housing and said head for rotation about said longitudinal axis;

locking means, coupled to said tool face and said housing, for securing said tool face in predetermined angular positions relative to said housing;

at least one holder means, in said tool face, for receiving and retaining a tool to be driven;

a head shaft rotatably mounted in said head and extending radially relative to said longitudinal axis, said head shaft extending along a head shaft axis and having drive means for coupling said head shaft to a drive motor, said drive means including miter-gearing and a transmission shaft extending along said longitudinal axis;

clutch means for releasably coupling a tool shaft to said head shaft, said clutch means being mounted for axial movement along said head shaft axis; and

a drive member coupled to said clutch means through a mechanical power transmission assembly, said clutch means and said drive member being spaced in a circumferential direction relative to said longitudinal axis, said mechanical power transmission assembly including at least a first inherently stable power transmission element crossing said longitudinal axis at a radial distance therefrom.

5,727,298

ROLLER SHAFT EXTRACTOR

David N. Strong, East Haddam, Conn., assignor to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

Filed Sep. 19, 1996, Ser. No. 716,700

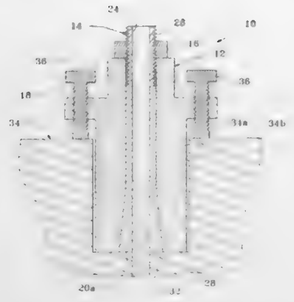
Int. Cl.[6] B23P *19/04*

U.S. Cl. 29—259 **5 Claims**

1. An extractor for removing a shaft from a housing, the extractor comprising:

a collet portion having a constant diameter bore therein in which the shaft is inserted;

a jacket portion having a tapered bore therein, the collet fitting within the tapered bore of the jacket portion,the collet portion having a tapered exterior surface interfitting with the tapered bore to prevent unrestricted movement of the collet portion in the jacket, the tapered bore and tapered exterior surface decreasing in diameter in a longitudinal direction away from the shaft;



a gripping action means for forcing the tapered exterior surface of the collet portion into the tapered bore of the jacket portion in a longitudinal direction of movement away from the shaft, the movement of the collet portion into the tapered bore of the jacket portion forcing the collet portion to constrict about the shaft, the constriction creating a gripping force between the collet portion and the shaft; and

a pulling action means for forcing the jacket portion, collet portion and shaft away from the housing.

5,727,299

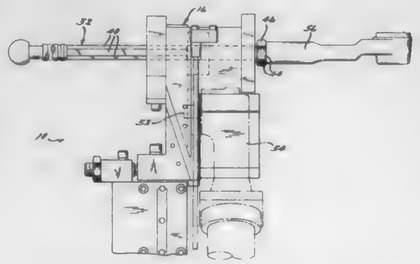
WHEEL ALIGNMENT MACHINE AND METHOD

Frank E. Lashier, Jr., Sterling Heights; John F. Kinnick, Troy; Harold Hernden, Capac, and Glen Harm, Fraser, all of Mich., assignors to Dominion Tool & Die Company, Inc., Roseville, Mich.

Filed Jun. 24, 1996, Ser. No. 668,863

Int. Cl.[6] B23P *19/06*

U.S. Cl. 29—407.2 **19 Claims**



15. A method for ensuring a predetermined torque is applied to a jam nut in an assembly in which a first member is threadedly connected to a second member, said jam nut being threaded on said first member and movable into engagement with said second member to secure said first and second member in a preselected relative position, said method comprising:

moving a nut runner assembly including a housing having a slotted opening and a nut runner rotatably supported in said housing, said nut runner having wrenching surfaces adapted to engage said jam nut and a segmented opening, into a position in which said first member is received within said segmented opening through said slotted opening;

positioning said first and second member in said preselected position;

moving said nut runner assembly axially along said first member to bring said wrenching surfaces into engagement with said jam nut;

rotatably driving said nut runner in a first direction to move said jam nut into engagement with said second member;

moving said nut runner assembly axially along said first member to move said wrenching surfaces out of engagement with said jam nut;

rotating said nut runner;

sensing when said nut runner is in a first predetermined position;

rotating said nut runner in a second direction a predetermined distance from said predetermined position;

moving said nut runner assembly axially along said first member to bring said wrenching surfaces into engagement with said jam nut;

rotating said nut runner in said first direction to thereby apply a predetermined torque to said jam nut whereby said first and second members are secured in said preselected position.

5,727,300

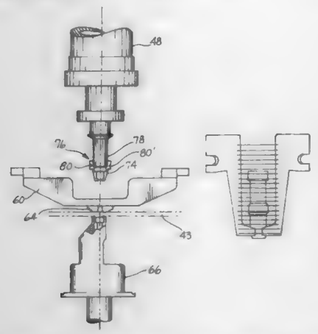
FASTENER VERIFICATION SYSTEM

Michael S. Ekdahl, Salem, Oreg.; John Thomas Hanks, Bellevue; Kirk Brenden Hiller, Renton, both of Wash.; Joseph G. LaChapelle, Corvallis, Oreg.; Kirk Vaughn Thomas, Kent, Wash., and Mark S. Turley, Albany, Oreg., assignors to The Boeing Company, Seattle, Wash.

Filed Feb. 7, 1995, Ser. No. 386,364

Int. Cl.[6] B23Q *17/00*

U.S. Cl. 29—407.04 **22 Claims**



1. A process for verifying proper fastener size and position in an automated fastener installation machine, comprising:

feeding a fastener from a fastener feed device to a fastener holder of a fastener insert device of an automated fastener installation machine;

holding said fastener in said fastener holder while creating an image of said fastener with a vision system;

comparing said fastener image with a set of stored data to confirm that the fastener fed to said fastener insert device is correctly positioned and is of the correct length and diameter; and

inserting said fastener into a hole and securing said fastener.

5,727,301

ASSEMBLY SYSTEM FOR ASSEMBLING PRODUCT COMPRISING A PLURALITY OF PARTS

Daisaku Kugo, Nagaokakyo, Japan, assignor to Murata Manufacturing Co., Ltd., Japan

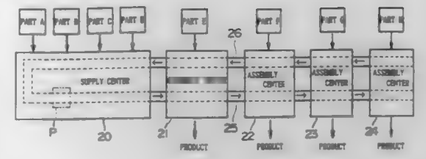
Division of Ser. No. 221,403, Mar. 31, 1994, abandoned. This application Apr. 30, 1996, Ser. No. 643,071

Claims priority, application Japan, Mar. 31, 1993, 5-98501

Int. Cl.[6] B23P *11/00*

U.S. Cl. 29—430 **20 Claims**

1. A method for assembling a plurality of different types of products, each of said type of products including at least one common part which is used in all of said types of products and one or more non-common parts which are unique to that type of product and is not used in the remaining said types of products, said common parts being different from said non-common parts, said method comprising the steps of:



inserting said common parts into holding portions of a supply jig;

moving said supply jig to a plurality of assembly centers, each of said assembly centers for assembling a respective one of said types of products such that each of said types of products is assembled at a different one of said assembly centers, each of said assembly centers having at least one supply member for supplying the non-common parts required for assembling, one of the types of products assembled by that assembly center such that each of said assembly centers supplies a unique set of non-common parts; and

when the supply jig is located at an assembly center, removing said common parts from said supply jig, removing said non-common parts from said at least one supply member associated with that assembly center and assembling said removed common parts and said removed non-common parts in a predetermined cooperating relationship into the type of product assembled by such assembly center.

5,727,302

DIE AND PUNCH FOR FORMING A JOINT AND METHOD OF MAKING THE DIE

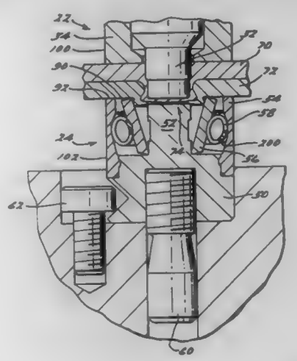
Edwin G. Sawdon, St. Clair, Mich., assignor to BTM Corporation, Marysville, Mich.

PCT No. PCT/US94/08569, § 371 Date Jul. 25, 1996, § 102(e) Date Jul. 25, 1996, PCT Pub. No. WO95/20461, PCT Pub. Date Aug. 3, 1995

Continuation-in-part of Ser. No. 189,580, Jan. 31, 1994, Pat. No. 5,479,687. This PCT application Jul. 29, 1994, Ser. No. 687,352

Int. Cl.[6] B23P *11/00;* **B23Q** *1/00;* **B21K** *5/20*

U.S. Cl. 29—436 **38 Claims**



1. A die for forming a joint between sheets of material, said die comprising:

an anvil;

a substantially rigid shield coaxially and laterally surrounding said anvil, an outside surface of said shield having at least one normally unobstructed aperture

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at least one die blade disposed between said anvil and said shield; and

means for biasing said at least one die blade toward said anvil.

5,727,303

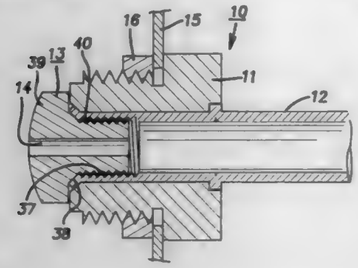
METHOD OF MAKING A TUBE AND FITTING ASSEMBLY

Ralph G. Ridenour, Mansfield, Ohio, assignor to Universal Tubular Systems, Inc., Mansfield, Ohio

Division of Ser. No. 426,496, Apr. 20, 1995, Pat. No. 5,607,194. This application Jul. 15, 1996, Ser. No. 679,828

Int. Cl.[6] B21D *39/04*

U.S. Cl. 29—523 9 Claims



1. A method of making a tube and fitting assembly, comprising the steps of:

providing a fitting having first and second ends;

establishing an internal bore extending through the fitting from end-to-end;

inserting a tube into said internal bore;

longitudinally compressing said tube thereby radially expanding it into engagement with the wall of said internal bore and flaring a terminal end of said tube radially outward of said internal bore;

threading one of said tube and fitting; and

said threads adapted to receive a second member until sealed against said flared terminal end of said tube.

5,727,304

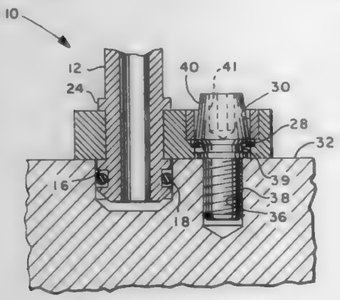
CONDUIT FAST CONNECTION

William N. Eybergen, Dutton, Canada, assignor to Eaton Corporation, Cleveland, Ohio

Filed Jun. 19, 1996, Ser. No. 668,590

Int. Cl.[6] B23P *11/02*

U.S. Cl. 29—525.04 13 Claims



1. A method of connecting a tubular conduit to a wall or block for flowing pressurized fluid therethrough comprising:

(a) forming a protrusion or enlargement on an end of a tubular conduit;

(b) providing an attachment plate and forming a cut-out therein and forming an aperture therein spaced from said cut-out;

(c) disposing said conduit in said cutout;

(d) forming a fluid pressure port in said wall and inserting said enlargement in said port and sealing therebetween;

(e) providing a stud and releasably securing said stud to said wall or block; and,

(f) disposing a resiliently deflectable member between said stud and aperture and inserting said stud in said aperture and deflecting said resilient member and retaining said plate on said block or wall and said conduit in said port.

5,727,305

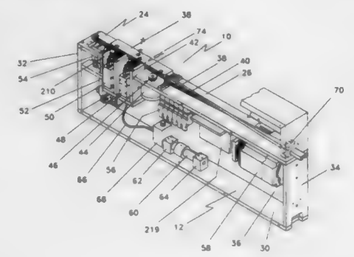
PROGRAMMABLE PIN FEEDER

Joseph Alvité, 353 Aspen Rd., Wyoming, Minn. 55092; Charles J. Schiprett, 1427 Woodhill Rd., Burnsville, Minn. 55337, and Glen R. Westphal, 2110 Ridge Dr. South, #22, St. Louis Park, Minn. 55416

Filed Jan. 25, 1996, Ser. No. 591,865

Int. Cl.[6] H01R *43/00*

U.S. Cl. 29—566.2 20 Claims



1. A feeder for providing connector sections of varying lengths, from a supply of connectors in a continuous carrier strip, for pick-up, the feeder including:

a supply input adapted for receiving a supply of connectors in a continuous carrier strip;

a pick-up station at which connector sections are provided for pick-up;

a guide for supporting and guiding the carrier strip between the supply input and the pick-up station;

a drive mechanism for advancing the carrier strip between the supply input and the pick-up station;

a cutter between the supply input and pick-up station, for cutting connector sections from the carrier strip; and

a control system coupled to the drive mechanism and the cutter, including:

section length input means for receiving section length data representative of desired lengths of connector sections;

drive control means for actuating the drive mechanism as a function of the section length data; and

cutter actuating means for actuating the cutter to cut connector sections of the desired lengths from the carrier strip.

5,727,306

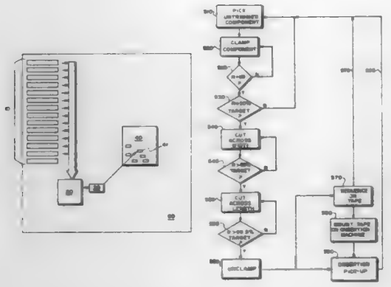
DYNAMIC COMPONENT TRIMMING METHOD AND APPARATUS

David S. Saari, 20 Mayo Rd., Hubbardston, Mass. 01452, and Kelli Kowaleski, 17 Norcross St., Apt. 2, Arlington, Mass. 02174

Continuation of Ser. No. 393,529, Feb. 23, 1995, abandoned, which is a continuation of Ser. No. 890,516, May 28, 1992, abandoned. This application Aug. 12, 1996, Ser. No. 698,250

Int. Cl.[6] B23P *19/00;23/00;* H05K *3/30*

U.S. Cl. 29—593 9 Claims



2. A method for operating an automated assembler of electronic components selected from components provided to it on a plurality of vehicles, said method comprising:

A) selecting a component of an approximate value of an electrical characteristic and suitable for trimming to a plurality of precise values of said electrical characteristic;

B) trimming said component to one of said plurality of precise values of said electrical characteristic;

C) temporarily fixing said component on a vehicle;

D) repeating steps (A) through (C) substantially immediately for other components and for other precise values over a plurality of cycles where the components are sequenced on said vehicle according to the sequence of trimming; and

E) providing said vehicle to said automated assembler for assembling the components thereon according to the ordinary operation of said automated assembler.

6. An apparatus for supplying electronic components to an automated assembler of electronic components selected from components placed at a plurality of pick up locations, said apparatus comprising:

A) at least one reservoir for glass encapsulated components of a preselected general value of an electrical characteristic and suitable for trimming to a selected one of a plurality of different precise values of said electrical characteristic, said selected one precise value being predetermined by a value required for a next electronic component placement location on a printed wiring board;

B) means for selecting a component held in said at least one reservoir;

C) laser means for trimming said component through the glass encapsulation to said selected one precise value of said electrical characteristic, said laser means further including:

(I) means for measuring the electrical characteristic of the component as it is being trimmed and providing a measurement output; and

(ii) means responsive to said measurement output for controlling the extent of trimming;

D) means for placing said component at one of said plurality of pick up locations; and

E) means for engaging the selecting, trimming and placing means in substantially immediate succession according to a required sequence of components of given precise values of said electrical characteristic.

5,727,307

METHOD FOR MANUFACTURING AN ARMATURE FOR AN ELECTRIC MOTOR

Eugen Gstöhl, Vaduz, Liechtenstein, and Hans-Gerd Hoeptner, Tübingen, Germany, assignors to Vacontec, Vaduz, Liechtenstein

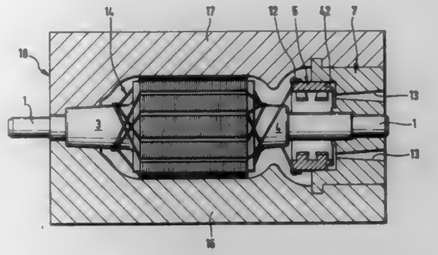
PCT No. PCT/EP94/03709, § 371 Date May 13, 1996, § 102(e) Date May 13, 1996, PCT Pub. No. WO95/14324, PCT Pub. Date May 26, 1995

PCT Filed Nov. 10, 1994, Ser. No. 646,235

Claims priority, application Germany, Nov. 15, 1993, 43 38 913.9

Int. Cl.[6] H02K *15/10*

U.S. Cl. 29—597 16 Claims



1. A method for manufacturing an armature for an electric motor comprising the steps of:

a) securing a commutator blank to an auxiliary assembly device and mounting the auxiliary assembly device onto a shaft;

b) winding wire conductors onto a stack of laminations positioned on the shaft and welding the wire conductors to the commutator blank;

c) enclosing the conductors, laminations, and commutator blank within a mold in which the auxiliary assembly device defines a section of the mold wall;

d) filling the mold with plastic to form a rigid assembly;

e) withdrawing the rigid assembly from the mold;

f) removing the auxiliary assembly device from the shaft; and

g) dividing the commutator blank into a plurality of commutator segments.

5,727,308

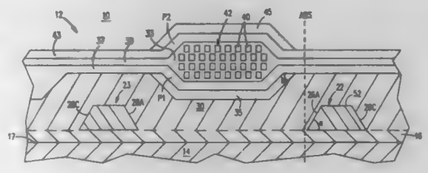
THIN FILM MAGNETIC HEAD AND METHOD OF FABRICATION

Chak M. Leung, Palo Alto; Charles R. Bond, Milpitas, and Daniel A. Nepela, San Jose, all of Calif., assignors to Read-Rite Corporation, Milpitas, Calif.

Filed Jul. 25, 1996, Ser. No. 684,876

Int. Cl.[6] G11B *5/127;5/39*

U.S. Cl. 29—603.14 15 Claims



1. A method of forming a magnetic head comprising the steps of:

providing a substrate with a generally flat upper surface;

depositing a pad pattern on said substrate upper surface, said pad pattern including spaced first and second inner slopes;

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defining an air bearing surface plane between said first and second inner slopes, which represents the location at which an air bearing surface is to be formed;

depositing an undercoat layer on said pad pattern, such that said undercoat layer follows the general contour of said first and second inner slopes to form a recessed region between said first and second inner slopes;

forming a first magnetic pole by depositing a first magnetic layer over said undercoat layer such that said first magnetic layer follows the general contour of said inner slopes;

forming a gap layer over said first magnetic layer such that said gap layer follows the general contour of said inner slopes;

depositing conductive coils at least in part within said recessed region;

forming a second magnetic pole by depositing a second magnetic layer over said gap layer; and

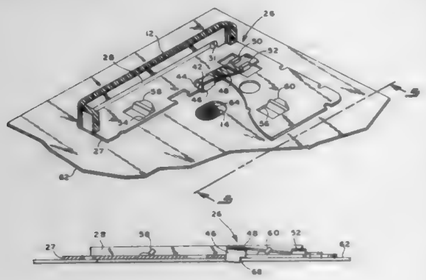
lapping the magnetic head at said air bearing surface plane to form the air bearing surface.

5,727,309

METHOD OF ATTACHING A CONTROLLER HOUSING TO A PANEL

Stephen Schamberger, Kendallville, Ind., assignor to Eaton Coporation, Clevelnnd, Ohio

Filed Nov. 22, 1996, Ser. No. 756,090
Int. Cl.[6] B23P *11/00*; H01H *11/00*
U.S. Cl. 29—622 **12 Claims**



8. A method of attaching an electrical control in a housing to a panel comprising:

(a) forming a housing shell and disposing said control thereon;

(b) forming a cover for said shell and forming a plurality of cut-outs in said cover;

(c) forming a blade spring having an integral projection extending therefrom;

(d) inserting said projection through a first of said cut-outs from the inside of said cover and attaching said spring to the inside of said cover;

(e) attaching said cover to said shell;

(f) forming a pair of tabs extending from said panel and forming a panel cut-out in said panel; and

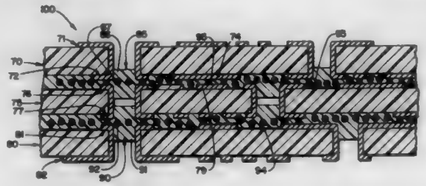
(g) disposing a second and third cut-out in said cover over said tabs and pivoting said housing about said tabs and locking the spring projection in said panel cut-out.

5,727,310

METHOD OF MANUFACTURING A MULTILAYER ELECTRONIC CIRCUIT

Keith L. Casson, Northfield; Carol Myers, Faribault, both of Minn.; Kenneth B. Gilleo, W. Kingston, R.I.; Deanna Suilmann, Bloomer, Wis.; Edward Mahagnoul, Faribault, and Marion Tibesar, Northfield, both of Minn., assignors to Sheldahl, Inc., Northfield, Minn.

Continuation of Ser. No. 2,177, Jan. 8, 1993, abandoned. This application Jun. 11, 1996, Ser. No. 661,809
The portion of the term of this patent subsequent to Apr. 2, 2013, has been disclaimed.
Int. Cl.[6] H05K *3/36*
U.S. Cl. 29—830 **28 Claims**



1. A method of making a multilayer circuit board suitable for use in a transportation environment comprising the steps of:

providing at least two conductive layers, each conductive layer having a conductive pattern and a plurality of contact pads defined thereon, at least one contact pad being designated an interconnecting pad, each interconnecting pad on a conductive layer having a corresponding interconnecting pad on another conductive layer, at least one conductive layer affixed to a heat resistant insulating substrate;

layering an electrically interconnecting adhesive over a portion of at least one of the conductive layers to form an interconnecting layer, the interconnecting adhesive comprising a non-conductive thermosetting adhesive having a plurality of deformable conductive metallic particles dispersed substantially uniformly throughout the non-conductive adhesive such that each particle is electrically insulated from substantially every other particle, the particles and the insulating substrate of the conductive layer having substantially similar coefficients of thermal expansion, the particles having a maximum diameter that is about 90–100% of a distance between the conductive layers;

aligning the conductive layers to form an uncured assembly, such that an interconnecting adhesive layer is interposed between two corresponding conductive layers with the interconnecting pads on each conductive layer aligned with their corresponding pads on the other conductive layer; and

subjecting the uncured assembly to an elevated temperature and a clamping pressure to form an interconnected assembly, such that the interconnecting layer becomes conductive across a thickness thereof and non-conductive throughout a coplanar direction thereof, and such that the two conductive layers are mechanically connected in a superposed relationship with a connected distance therebetween and corresponding interconnecting pads on the two conductive layers are electrically connected.

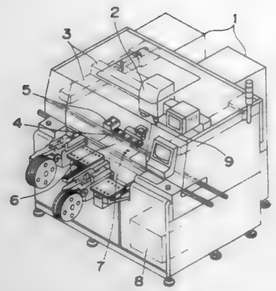
5,727,311

METHOD AND APPARATUS FOR MOUNTING COMPONENT

Akiko Ida, Neyagawa; Wataru Hirai, Osaka; Muneyoshi Fujiwara, Katano; Osamu Okuda, and Hirokazu Honkawa, both of Hirakata, all of Japan, assignors to Matsushita Electric Industrial Co., Ltd., Kadoma, Japan

Filed Jan. 17, 1996, Ser. No. 587,460
Claims priority, application Japan, Jan. 17, 1995, 7-004787
Int. Cl.[6] H05K *3/30*
U.S. Cl. 29—832 **16 Claims**

1. A method of mounting components, comprising:



picking up a component with a pickup nozzle from a first tray positioned in a component feed unit;

mounting the component on a specified position of a board; and

determining whether or not a further component is present on the first tray, and

if a further component is present on the first tray, then picking up the further component with the pickup nozzle and mounting the further component, or

if it is determined that a further component is not present on the first tray, then picking up, holding, and removing the tray with the pickup nozzle, and

returning to the component feed unit to pickup a component from a second tray with the pickup nozzle.

6. A component mounting apparatus for mounting components on a board, said apparatus comprising:

a component feed unit for feeding a plurality of stacked stages of trays on which components are accommodated to a component take out position;

a pickup head disposed adjacent said component feed unit and being movable between said component feed unit and the board;

a pickup nozzle connected to said pickup head for picking up a component from one of the trays; and

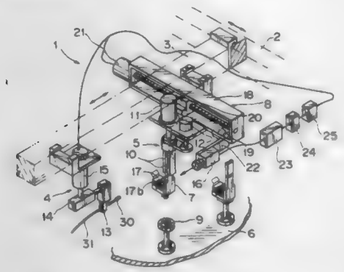
a control unit for determining whether or not a component is present on one of the trays, said control unit being operably connected to said component feed unit and said pickup head such that when said control unit identifies an empty tray, said control unit controls said pickup head so that said pickup head removes the empty tray with said pickup nozzle.

5,727,312

TERMINAL INSERTING METHOD

Takamichi Maejima, and Yutaka Miyamoto, both of Haibara-gun, Japan, assignors to Yazaki Corporation, Tokyo, Japan

Filed Nov. 7, 1996, Ser. No. 744,988
Claims priority, application Japan, Nov. 10, 1995, 7-292804
Int. Cl.[6] H01R *43/00*
U.S. Cl. 29—857 **4 Claims**



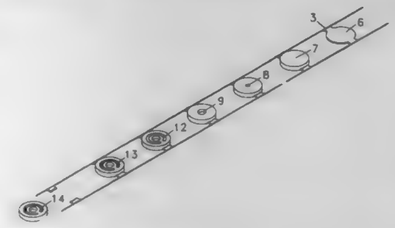
1. A method of inserting terminal comprising the steps of: correcting a relative position of a terminal insertion head against a connector housing while two positions on front end portion on an engagement side of said connector housing being image-processed by a television camera; and inserting a terminal with wire from a rear portion of the connector housing by using the terminal insertion head.

5,727,313

METHOD OF MANUFACTURING LID COVERS FOR CONTAINERS AND PRODUCT

F. Dieter Paterek, and Donald H. Hall, both of Hamilton County, Ohio, assignors to Emerson Electric Co., St. Louis, Mo.

Division of Ser. No. 970,273, Nov. 2, 1992, abandoned, which is a continuation-in-part of Ser. No. 881,068, May 11, 1992, Pat. No. 5,279,907. This application Oct. 21, 1996, Ser. No. 731,859
Int. Cl.[6] H01R *43/02*
U.S. Cl. 29—877 **9 Claims**



1. A method of manufacturing vessel lid covers including conductive pin assemblies for vessel container housings comprising:

uniformly pre-plating an elongated metallic strip of material of preselected width substantially in its entirety with a preselected plating material in a first zone prior to vessel lid cover formation to provide pre-plated strip stock of uniform plated thickness for said vessel lid covers formation;

feeding said pre-plated strip stock in a continuously moving strip in a second zone to stamp lid cover blanks in spaced relation on said pre-plated moving strip of preselected size and configuration;

shaping each of said stamped pre-plated lid blanks in a third zone to provide a uniform thickness vessel container lid cover to fit a vessel container;

piercing and shaping each of said pre-plated vessel container lid covers in a fourth zone to provide a shaped walled aperture therein for a conductive pin assembly with the pre-plating on the inner face of said walled aperture being substantially removed by said piercing and shaping step;

separating each shaped vessel lid cover in a fifth zone;

inserting a conductive pin assembly including a conductive pin and surrounding fusible insulating material in the shaped walled aperture of each shaped vessel lid cover; and,

fusing the assembled lid cover to fuse the fusible insulative material to the peripheral wall of the pin and the inner face of said walled aperture where the plating has been substantially removed to enhance the fusing step.

5,727,314

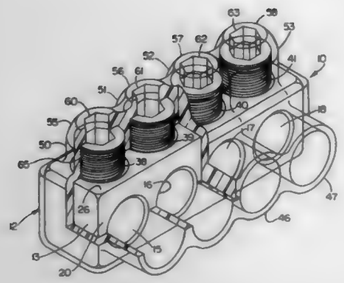
METHOD OF MAKING AN INSULATED SET SCREW ELECTRICAL CONNECTOR

Thomas K. Ashcraft, Fort Mitchell, Ky., assignor to Erico International Corporation, Solon, Ohio

Filed Feb. 15, 1996, Ser. No. 601,760
Int. Cl.[6] H01R *43/16*
U.S. Cl. 29—884 **7 Claims**

1. A process of making an insulated set screw electrical connector of the type having a conductive body with conductor receiving

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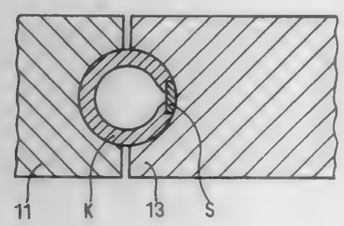
passages, transversely extending threaded holes intersecting each conductor receiving passage, and set screws in each threaded hole adapted to clamp a conductor inserted in the respective conductor receiving passage electrically to connect the conductor to the metal body, comprising the steps of extending each set screw by backing each set screw outwardly of its respective threaded hole to clear the respective conductor receiving passage exposing a substantial portion of the threads of each extended set screw, closing the conductor passages, dip coating the connector with insulation material forming a vestibule around each extended set screw, opening the conductor passages, and trimming the coating.

5,727,315

RODLESS CYLINDER AND METHOD OF MANUFACTURING CYLINDER TUBE OF THE SAME

Yasuo Higuchi, Nagoya, Japan, assignor to Pubot Giken Co., Ltd., Aichi-gun, Japan

Filed Mar. 19, 1996, Ser. No. 617,559
Claims priority, application Japan, Mar. 23, 1995, 7-104523
Int. Cl.[6] B21D *9/00*
U.S. Cl. 29—888.06 **2 Claims**



1. A method of manufacturing a cylinder tube of a rodless cylinder having a slit, comprising:

(a) forming a slit linearly in the longitudinal direction of an outer circumferential part of a linear tubular material by cutting; and

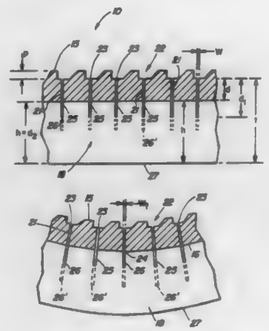
(b) setting said tubular material within a recess of a movable die and a fixed die of a bending machine, fitting a spacer into said slit, and bending said tubular material with said spacer in the slit while said movable die is moved along the curved outer circumferential part of said fixed die.

5,727,316

METHOD OF MANUFACTURING A SCREEN CYLINDER AND A SCREEN CYLINDER PRODUCED BY THE METHOD

Jacques Riendeau, Brompton, Canada, assignor to CAE Screenplates Inc., Quebec, Canada

PCT No. PCT/CA94/00677, § 371 Date Jun. 12, 1996, § 102(e) Date Jun. 12, 1996, PCT Pub. No. WO95/16819, PCT Pub. Date Jun. 22, 1995
PCT Filed Dec. 9, 1994, Ser. No. 656,323
Claims priority, application Canada, Dec. 13, 1993, 2111147
Int. Cl.[6] B01D *39/10*
U.S. Cl. 29—896.62 **17 Claims**



1. A method of manufacturing a screen cylinder having a given inside diameter within the range of about 10 in. (250 mm) to about 60 in. (1500 mm), comprising the steps of:

(a) providing a generally rectangular metallic plate (**10**) having a known thickness t, a first end (**13**), a second end (**14**) and two opposed sides (**11**, **12**), an inlet face (**15**) and an opposed, outlet face (**16**);

(b) providing in said outlet face (**16**) a plurality of generally straight, spaced apart channels (**17**) parallel with each other and being of a generally uniform depth (d_2), said channels (**17**) extending in the general direction from one said end (**13**) to the other (**14**), a rib (**18**) being disposed between each pair of adjacent channels (**17**), said ribs (**18**) having a predetermined height h measured in the direction perpendicular to the plate (**10**) and being generally equal to the depth d_2 of the channels;

(c) providing in said inlet face (**15**) a plurality of spaced apart, straight, continuous slots (**21**) having each a width w and extending full width of the plate (**10**), from the first side (**11**) of the plate to the second side (**12**), said slots (**21**) partially intersecting said ribs (**18**) to define therein blind groove sections (**25**) of the slots (**21**);

(d) rolling the plate (**10**) into a cylindric shape with said inlet face (**15**) inside and with said sides (**11**, **12**) of the plate forming axial ends of the cylindric shape, thus reducing said width w of said straight, whereby said width w of said straight, continuous slots (**21**) is reduced; and

(e) fixedly securing the ends (**13**, **14**) of the plate (**10**) to each other to enclose said cylindric shape,

characterized in that

a desired rate of reduction w_f of said width w is controlled by providing an appropriate height h of the ribs (**18**) from a formula:

$$h+\Delta h \propto \Delta w_f$$

wherein

Δh is an increase in the height h of the ribs; and

Δw_f is the desired reduction of the width w upon rolling the plate (**10**) into said cylindric shape, to reach w_f;

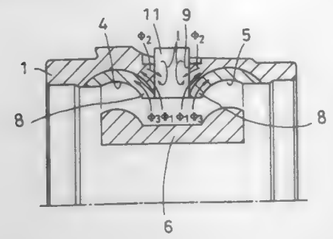
whereby the desired final width of the slots (**21**) in the cylindric shape can be modified by selecting said appropriate height h of the ribs, while working with the same original width of the slots (**21**) in the unrolled state.

5,727,317

METHOD OF FORMING AN OUTER RING OF AN AXLE BEARING

Itsuro Bekku, Okayama, and Eiji Tajima, Shizuoka, both of Japan, assignors to NTN Corporation, Osaka, Japan

Filed Mar. 20, 1996, Ser. No. 618,607
Claims priority, application Japan, Mar. 28, 1995, 7-069421
Int. Cl.[6] B23P *15/00*
U.S. Cl. 29—898.06 **8 Claims**



1. A method of treating an outer ring of an axle bearing comprising the steps of:

forming a through hole for mounting a sensor extending from an outer peripheral surface of the outer ring to an inner peripheral surface of the outer ring of the axle bearing between two raceways on the inner peripheral surface of the outer ring;

inserting a rod-shaped metal plug into the through hole so that heat can be dispersed during hardening;

hardening the raceways and the inner peripheral surface between the raceways by induction hardening only after inserting said rod-shaped metal plug; and

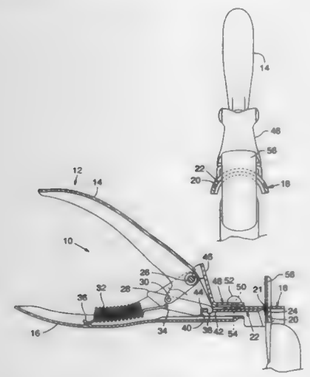
pulling the plug out of the through hole.

5,727,318

CLIPPERS FOR FINGERNAILS

Gary J. Reiswig, 17190 S.W. 131st, Tigard, Oreg. 97224

Filed Dec. 23, 1996, Ser. No. 780,048
Int. Cl.[6] A45D *29/02*
U.S. Cl. 30—29 **17 Claims**



1. A fingernail clipper for trimming a fingernail to an arcuate shape that curves downwardly toward each side of the fingernail, comprising:

a nail holder having an aperture defined therein for receiving the fingernail to be trimmed, with the nail holder and the aperture being curved downwardly to produce the arcuate shape;

a movable blade having a cutting edge disposed slidably against the nail holder, the cutting edge being movable across and past the aperture when relative movement is effected between the nail holder and the blade;

the nail holder further serving to guide the blade across and past the aperture;

the blade being curved downwardly to produce the arcuate shape;

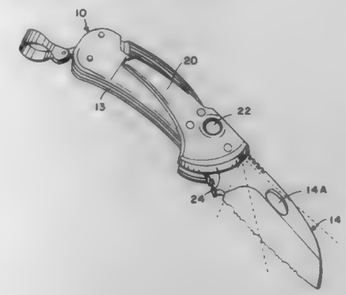
a handle having first and second components which are movable with respect to each other, the first component being mounted to the nail holder, and the second component being mounted to the blade so that when relative movement is effected between the first and second components, the blade slides with respect to the nail holder, thereby moving the cutting edge across and past the aperture while being guided by the nail holder to clip a fingernail disposed within the aperture.

5,727,319

KNIFE WITH ILLUMINATED BLADE

John Myerchin, and Angeline Myerchin, both of 850 W. Randall Ave., Rialto, Calif. 92376

Filed Jul. 9, 1996, Ser. No. 677,264
Int. Cl.[6] B26B *1/02*
U.S. Cl. 30—123 **12 Claims**



1. A pocketknife with integral light comprising:

a hollow handle member;

a knife blade movably connected to said hollow handle member, such that said knife blade is movable from a closed position substantially inside the handle member to a cutting position outside the handle member;

the handle member having an open compartment containing a power source;

the handle member further having an illumination pathway connected to said open compartment, said illumination pathway containing a light source electrically connected to said power source;

the illumination pathway configured such that light from said light source may illuminate a portion of the knife blade in the cutting position and illuminate an area adjacent said portion of the knife blade; a cover removably attached over the open compartment;

a latch member movably attached to the handle member, movable to fixedly engage the knife blade in the cutting position thereby locking the knife blade in place; and,

a lanyard attached to said latch member, for causing disengagement of said latch member from the knife blade.

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5,727,320

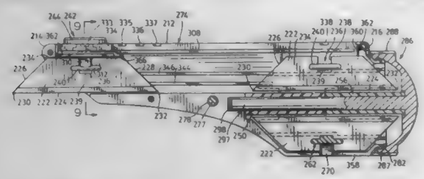
UTILITY KNIFE WITH BLADE MAGAZINE

Charles G. Shepherd, Oakville, and Edward A. Funger, Burlington, both of Canada, assignors to The Nack Company Limited, Burlington, Canada

Continuation-in-part of Ser. No. 548,941, Oct. 26, 1995, Pat. No. 5,604,984. This application Aug. 8, 1996, Ser. No. 694,126

Int. Cl.[6] B65B *1/10*

U.S. Cl. 30—125 17 Claims



1. A knife comprising:

a manually holdable housing having a front end and a rear end, a blade magazine removably mounted in the housing and rotatable about an axis parallel to a longitudinal axis of the housing extending from the front end to the rear end,

said blade magazine having a series of radially and longitudinally extending circumferentially spaced blade-receiving slots for separately receiving thin blades having a cutting edge at at least one end thereof, each slot having an open front end to enable a blade therein to be removed from the magazine by forward movement through the front end of the slot,

said housing also carrying a slidable transport mechanism having a manually engageable actuator projecting from the housing and slidable in a longitudinal direction between front and rear positions,

said transport mechanism also having a blade-engaging arm within the housing,

whereby positioning of the actuator at the forward position causes a blade carried by the arm to project from the front end of the housing in an operative position, and movement of the actuator from the forward position to the rear position causes the blade to be retracted from the operative position into the housing and into an empty slot in the magazine.

said magazine being rotatable to move said retracted blade from the arm of the transport mechanism and to position a new blade from another slot onto the arm for subsequent movement by the actuator to an operative position,

the blade magazine comprising a first part having a first tubular end portion with a series of radially and longitudinally extending circumferentially spaced first slot-forming finger members, said first finger members extending in a longitudinal direction from said first end portion to an opposite end of said first part, and

a second part having a second tubular end portion with a series of radially and longitudinally extending circumferentially spaced second slot-forming finger members, said second finger members extending in a longitudinal direction from said second end portion to an opposite end of said second part,

said first part having been assembled with said second part by longitudinal movement of the first finger members between the second finger members to provide a blade receiving slot between each adjacent pair of first and second finger members,

each slot being open at at least a front end thereof to enable blade in the slot to be removed therefrom by the transport mechanism by longitudinal sliding movement through said front end of the slot,

the first and second finger members of the blade magazine forming a groove therein extending in a circumferential direction, said magazine also having a blade retaining ring with a circumferential gap surrounding the magazine except for the gap and seated in the groove formed by the first and second fingers, said blade retaining ring being held in a non-rotatable manner in the housing with the circumferential gap aligned with the path of travel of the transport mechanism, whereby the arm of the transport mechanism can enter the circumferential gap for unloading of a used blade from the arm and the loading of a new blade on to the arm.

17. A blade for a knife having:

a thin trapezoidal body with a lower cutting edge, inclined end edges, said lower cutting edge meeting the inclined end edges to form sharp cutting points at each end, and an upper blade edge parallel to the lower cutting edge,

the blade body having a recess extending inwardly into the body from said upper edge, the recess having an initial portion with a relatively narrow width and a subsequent wider portion below said initial narrower portion,

whereby the blade can be moved laterally to position a blade carrier arm in the wider recess portion, the blade carrier arm being wider than the narrower initial recess portion to enable the blade carrier arm to move the blade forwardly and rearwardly with the blade suspended therefrom,

the wider recess portion extending both forwardly and rearwardly beyond the initial narrower recess portion and having upper and lower edges parallel to the upper and lower edges of the blade body, the recess also having a narrower width portion below the wider recess portion.

5,727,321

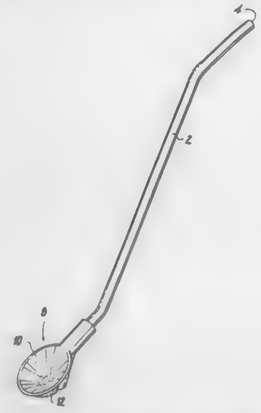
UTENSIL WITH BOTH SPOON AND STRAW FUNCTIONS

Stuart A. Lewis, Syosset, N.Y., assignor to High Point Accessories, Inc., New York, N.Y.

Filed Nov. 6, 1996, Ser. No. 744,613

Int. Cl.[6] A47J *43/28*

U.S. Cl. 30—141 6 Claims



1. A utensil for use in consuming a comestible comprising:

a rigid tubular member, the tubular member having a length and a first and second end associated therewith, the first and second ends terminating in first and second openings respectively, whereby fluids may pass through the tubular member from said first end to said second end in the presence of aspiration by a consumer;

a spoon cavity formed by a continuous concave wall having an exterior surface and an interior surface for spooning a comestible;

a second wall, said second wall extending from said exterior surface of said spoon cavity, said second wall and exterior surface forming a junction chamber having a first opening, for mating with said rigid tubular member and a second opening in fluid communication with said first opening whereby fluids may pass through said junction in the presence of said aspiration, said junction being extended such that said second opening mates with a bottom surface of a vessel whereby fluids may be drawn from the bottommost surface of said vessel in the presence of aspiration from a user.

5,727,322

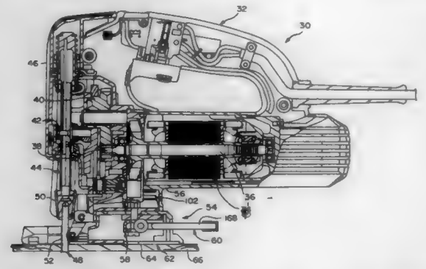
ADJUSTABLE SHOE FOR A JIG SAW

Massimo Alberto Giacometti, Valmadrener, Italy, assignor to Black & Decker Inc., Newark, Del.

Filed Dec. 31, 1996, Ser. No. 775,542

Int. Cl.[6] B23D *49/10;51/02*

U.S. Cl. 30—376 20 Claims



1. An adjustable shoe for a jig saw having a housing, which comprises:

a clamping enclosure;

a lever having a working section formed with locking structure thereon located within the enclosure;

an element of the shoe located between the clamping enclosure and a portion of the housing of the jig saw;

securing means for securing the clamping enclosure, the element of the shoe and the housing together;

the locking structure of the lever when positioned in a prescribed orientation within the clamping enclosure tightening together the secured clamping enclosure, shoe element and housing to lock firmly the shoe with the jig saw.

5,727,323

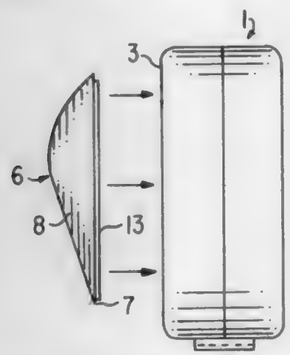
PENCIL SHARPENER ACCESSORY

Jamie M. Cerrato, 67 Reynolds Ave., Parsippany, N.J. 07054

Continuation-in-part of Ser. No. 398,173, Mar. 2, 1995, Pat. No. 5,513,436. This application Apr. 10, 1996, Ser. No. 630,605

Int. Cl.[6] B26B *11/00*

U.S. Cl. 30—459 14 Claims



1. A pencil sharpener, comprising:

a body member having a bottom surface with a first predetermined configuration, a top surface with a second predetermined configuration, the top surface and the bottom surface meeting at a periphery of the body member, and a recess in the top surface extending from the periphery of the body member across a portion of the body member and having a tapered end with an upper edge; a blade mounted adjacent the upper edge of the tapered end of the recess so as to enable sharpening of a pencil; and means connected to the bottom surface of the body member for selectively fastening the body member to another article.

5,727,324

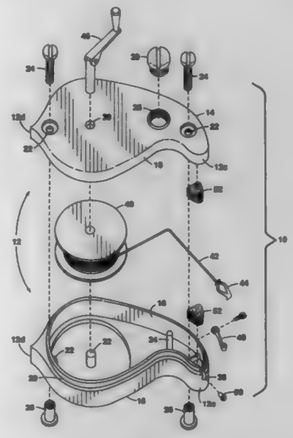
CHALK BOX WITH ARCHED NECK

Jeffery Moore, Rte. 1, Box 200, Fuquay-Varina, N.C. 27526

Filed May 3, 1993, Ser. No. 55,573

Int. Cl.[6] B44D *3/38*

U.S. Cl. 33—414 2 Claims



1. A chalk box comprising:

(a) a case having a hollow cavity, said case including a generally teardrop-shaped main body section having a longitudinal axis and an arched neck joining the main body section along its longitudinal axis, wherein the arched neck extends forwardly from said main body section and curves to one side thereof;

(b) a line aperture formed at a forward portion of the neck communicating with the interior of the case;

(c) a reel rotatably mounted within main body section of the case; and

(d) a line wound on the reel and extending through the aperture in the case, said line exiting the case at an angle relative to the longitudinal axis of the case.

5,727,325

MULTIPURPOSE SQUARE

Barry D. Mussell, 155 Charlotte Blvd., Stockbridge, Ga. 30281

Filed May 7, 1996, Ser. No. 646,081

Int. Cl.[6] B43L *7/027*

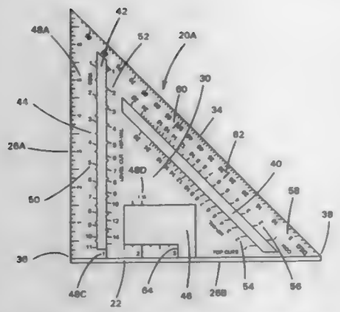
U.S. Cl. 33—429 20 Claims

1. A multipurpose square comprising:

an elongate substantially planar handle having a first end, a second end, an inside face, and an outside face;

a right triangular substantially planar body extending out from said inside face, said body having a first measurement edge, a hypotenuse edge, and an axis perpendicular to said inside

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face, the right angle of said right triangular body being adjacent to said first end;

an elongate plumb cut orifice in said body, said plumb cut orifice having opposite elongate edges generally parallel with said hypotenuse edge;

an elongate marking orifice in said body having opposite elongate edges generally parallel with said first measurement edge;

a first pivot point at the intersection of said first measurement edge and said inside face;

a second pivot point at the intersection of said hypotenuse edge and said inside face;

common rafter plumb cut indicia positioned along one edge of said plumb cut orifice;

hip and valley rafter plumb cut indicia positioned along the opposite edge of said plumb cut orifice;

common rafter level cut indicia positioned along one edge of said marking orifice;

hip and valley rafter level cut indicia positioned along the opposite edge of said marking orifice;

degree indicia positioned along said hypotenuse edge, whereby layout marks may be made in units of degrees.

5,727,326

PIVOTABLE TWO-COORDINATE SCANNING HEAD WITH HORIZONTAL MAIN AXIS

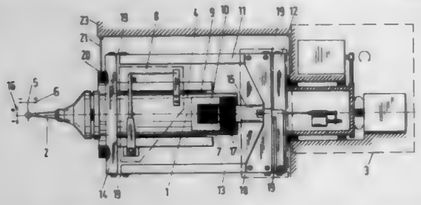
Georg Mies, Wipperfürth, and Günter Mikoleizig, Hückeswagen, both of Germany, assignors to Klingelnberg Sohne GmbH, Remscheid, Germany

Filed Jan. 17, 1996, Ser. No. 587,653

Claims priority, application Germany, Jan. 17, 1995, 195 01 178.3

Int. Cl.[6] G01B *5/016*

U.S. Cl. 33—501.9 **3 Claims**



1. A pivotable two-coordinate scanning head with a horizontal main axis for measuring gears and gearlike workpieces on numerically controlled measuring devices comprising first and second superimposed straight guides, with which a feeler can be deflected in both a first coordinate direction and in a second coordinate direction perpendicular to said first direction, with the first straight guide providing the deflection in the first coordinate direction which also coincides with the main axis, and further including a pivot mechanism which rotates the first and second straight guides into predeterminable angular positions around the main axis and a weight balance set-up for the first and second guides, characterized in that;

a) the first superimposed straight guide consists of a linear slide with roller bearing for providing the deflection in the first coordinate direction and the second superimposed straight guide consists of a parallelogram system including a first member, a base, a second member and a coupling member with leaf spring joints for providing the deflection in the second coordinate direction;

b) the linear slide including a two dimensional ruled grating scale mounted thereon for the two coordinate directions, said scale being read simultaneously by two read heads located on the base of the parallelogram system;

c) a first mechanical device is provided which holds the linear slide in a definite central position from which the feeler can be deflected with an equal measuring force in both positive and negative directions along the first coordinate direction;

d) a second mechanical device is provided which holds the parallelogram system in a central position defined by the main axis, from which the feeler can be deflected with an equal measuring force in both positive and negative directions along the second coordinate direction;

e) the weight balance set up including a roller bearing coaxial with respect to the main axis provided on the coupling member of the parallelogram system and suspended by two tension springs mounted diametrically on an outer ring of the roller bearing and extending from a fixed housing part.

5,727,327

CENTERING METHOD AND APPARATUS

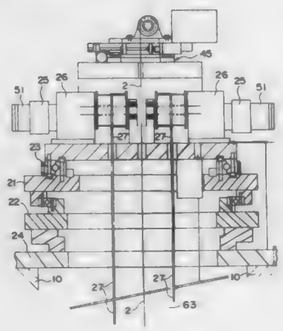
Ryosaku Wakabayashi; Yoshihiro Takase, both of Toyama; Kazuo Okazaki, Urawa, and Yoshifumi Fujii, Toyama, all of Japan, assignors to Kabushiki Kaisha Fujikoshi, Toyama, Japan

Filed Apr. 15, 1996, Ser. No. 631,983

Claims priority, application Japan, Apr. 13, 1995, 7-111111; Apr. 13, 1995, 7-111112

Int. Cl.[6] G01B *5/12*

U.S. Cl. 33—520 **24 Claims**



1. A centering apparatus comprising an inspection apparatus mounted on a rise and fall base supported on a head base assembly supported by a top portion of a large cylindrical bore, the inspection apparatus being horizontally supported in such a manner that it is allowed to vertically move in parallel to a fine wire and which can be positioned at an arbitrary height, and, the fine wire being hung perpendicularly from the center of a top portion of a large cylindrical bore; further, said inspection apparatus comprising

a non-contact type two-dimensional position sensor which surrounds said fine wire at the center thereof to detect the relative position of said fine wire to the center of said inspection apparatus installed on said rise and fall base.

a pair of extensible manipulator arms which can be positioned at an arbitrary extension or contraction point and which are almost symmetrically balanced in gravity in a lateral direction,

a pair of extensible slider units which are mounted on the tips of said manipulator arms and which can be positioned at an arbitrary extension or contraction point, and

a distance measuring device which is fixed on the tip of one of said slider units.

5,727,328

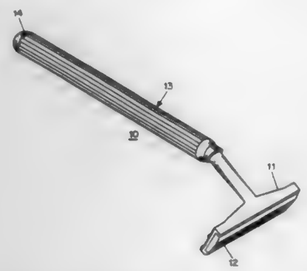
DISPOSABLE RAZOR

Jisu Kim, Yonkers, N.Y., assignor to Tritec International Corporation, New York, N.Y.

Continuation of Ser. No. 415,524, Apr. 3, 1995, Pat. No. 5,553,384, which is a continuation of Ser. No. 766,807, Sep. 26, 1991, Pat. No. 5,403,534. This application Aug. 2, 1996, Ser. No. 693,843

Int. Cl.[6] B26B *21/14;* **B32B** *31/30*

U.S. Cl. 30—526 **14 Claims**



1. A disposable razor comprising:

a shaving head holding at least one fixed or replaceable razor blade in appropriate shaving position, and

a rubberized handle attachable to said shaving head, said rubberized handle further comprising:

an extruded substantially rigid core of thermoplastic material and

a rubberized layer covering said inner core, said covering layer comprising a compatible thermoplastic rubber coextruded with said rigid inner core wherein the rubberized handle is a one-piece coextruded razor handle.

5,727,329

DEVICE FOR MEASURING A FIGURE

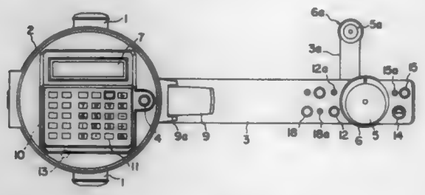
Akio Kubo, Tokyo, Japan, assignor to Ushikata Mfg. Co., Ltd., Tokyo, Japan

Filed Jun. 26, 1996, Ser. No. 671,257

Claims priority, application Japan, Jul. 3, 1995, 7-167606

Int. Cl.[6] G01B *5/26;7/32*

U.S. Cl. 33—773 **20 Claims**



1. A device for measuring a figure, comprising:

a device body;

a pair of rotatable wheels attached to said device body that enables said device to trace a path defining the figure;

a measuring lever, a near end of said measuring lever being pivotally connected to said device body;

a main tracer that is positioned proximate a far end of said measuring lever to obtain coordinate points of the figure;

an auxiliary arm that laterally extends from said measuring lever proximate said far end of said measuring lever; and

an auxiliary tracer that is associated with said auxiliary arm for obtaining coordinate points of the figure.

5,727,330

DEVICE FOR PRODUCING AND USING A HOT AIR JET OBTAINED WITHOUT ELECTRIC RESISTANCES

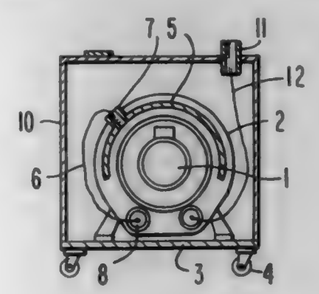
Massimo Cucchi, Via A.Grandi 1, Albinea (RE), Italy, 42020; Oscar Ripamonti, Via D.C.Cazzaniga 9, Merate (CO), Italy, 22055, and Ivo Zapparoli, Via F.Parri 2, Carpi, Italy, 41012

Filed Sep. 21, 1994, Ser. No. 309,694

Claims priority, application Italy, Sep. 27, 1993, M093A0122

Int. Cl.[6] F26B *13/00*

U.S. Cl. 34—86 **11 Claims**



1. A device for producing and using a hot air jet obtained without electric resistances, characterized in that it comprises:

a motor;

a centrifugal blower (2) for providing hot air and driven by said motor, said blower being of the type MohP for compressing one of gases and non explosive mixtures, said blower having a suction opening (8) and an outlet opening for outputting the hot air produced by the blower;

a cap (5) at least partially enclosing at least one of the motor and the blower (2), said cap provided with an intake opening (7);

a tubular duct (6) being connected between the suction opening (8) of the blower (2) and the intake opening (7) of the cap (5) in order to obtain and to control the flow of air which impinges on the external surface of at least one of the motor (1) and the blower (2);

a flexible tubular duct (12, 13) being connected to the outlet opening of the blower (2), said flexible tubular duct having an opening sleeve to discharge the hot air produced by the blower; and

at least two gate valves, said first valve positioned upstream of the suction opening (8) of the blower (2) and a second valve positioned upstream of the opening of the flexible tubular duct in order to allow a fine adjustment of the cross-sectional area defining the air passage to increase the temperature of the air.

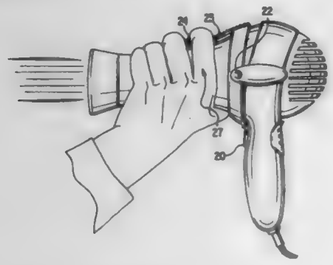
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5,727,331

DUAL SWITCH ELECTRIC HAIR DRYER

Arnold Thaler, Broward County, Fla., and Tung-hoi Ng, Kowloon, Hong Kong, assignors to Windmere Corporation, Miami Lakes, Fla.

Filed Jun. 27, 1996, Ser. No. 671,375
Int. Cl.[6] A45D *25/00*
U.S. Cl. 34—97 6 Claims



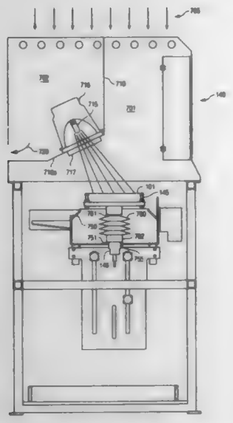
1. A hair dryer having a blower comprising: a plurality of switches for controlling the blower, wherein each of said plurality of switches is positioned to be accessed by a user and wherein said plurality of switches includes a first switch for controlling at least one function of said blower and includes a second switch for controlling at least one of said at least one function of said blower, said second switch being located on a different portion of the hair dryer from said first switch and wherein the hair dryer has a handle and a barrel and said first switch is located on the handle and said second switch is located on the barrel.

5,727,332

CONTAMINATION CONTROL IN SUBSTRATE PROCESSING SYSTEM

David L. Thrasher, Santa Clara; John S. Hearne, Los Altos, and Lynn S. Ryle, San Jose, all of Calif., assignors to Ontrak Systems, Inc., San Jose, Calif.

Continuation of Ser. No. 276,047, Jul. 15, 1994, abandoned. This application Jan. 13, 1997, Ser. No. 782,155
Int. Cl.[6] F26B *3/34*
U.S. Cl. 34—277 17 Claims



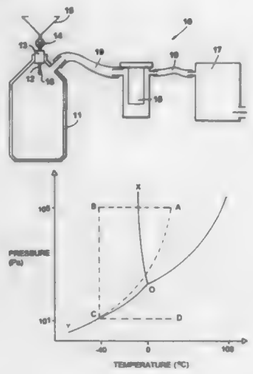
1. A spin drying station for drying a substrate comprising:
a substrate holder, said substrate holder receiving a substrate from a wet processing station, said substrate holder capable of spinning said substrate;
a heat lamp disposed to heat said substrate disposed in said substrate holder, wherein said substrate holder and said heat lamp operate to dry said substrate; and
a shield disposed between said substrate holder and said heat lamp in order to reduce contamination from said heat lamp;
wherein said heat lamp is disposed in a first compartment and said substrate holder is disposed in a second compartment, said station comprising a divider between said first and said second compartment.

5,727,333

PROCESS FOR DRYING A MATERIAL FROM SOLUTION

Michael Anthony Folan, Donegal Town, Ireland, assignor to Kinerton Limited, Dublin, Ireland

PCT No. PCT/IE95/00013, § 371 Date Nov. 4, 1996, § 102(e) Date Nov. 4, 1996, PCT Pub. No. WO95/22036, PCT Pub. Date Aug. 17, 1995
PCT Filed Jan. 31, 1995, Ser. No. 669,565
Claims priority, application Ireland, Feb. 9, 1994, 940116
Int. Cl.[6] F26B *5/06*
U.S. Cl. 34—285 20 Claims



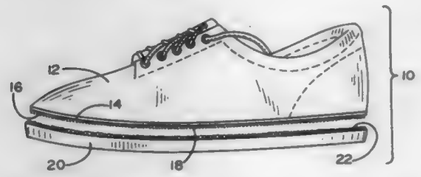
1. A process for obtaining a solid or semi-solid material by drying a solution thereof, comprising the steps of:
(a) subjecting the solution to vacuum-assisted freezing by introducing the solution into an evacuated chamber in the form of a uniform spray, the droplets of which are at a sufficiently low temperature to ensure that they freeze at the vacuum pressure inside the chamber; and
(b) collecting the frozen droplets of solution on a collecting surface which is positioned in the chamber such that it collects the frozen solution and which is adapted to retain the droplets until they have been dried by sublimation, and controlling the temperature of the collecting surface and the pressure within the chamber so that the frozen solvent sublimes from the collected and retained frozen droplets, the collecting surface having been prepared by being brought to an initial temperature which is not greater than the melting point of the frozen solution at the initial pressure, which is the pressure within the chamber when the spray is introduced thereto, the temperature of the collecting surface and the pressure within the chamber being maintained throughout the sublimation process so as to prevent partial remelting of the frozen droplets as sublimation occurs.

5,727,334

SAFETY SHOE WITH HIGH-TRACTION REPLACEABLE SOLE

Daniel Duane Cougar, 13611 Van Dorn Rd., Manassas, Va. 22111

Filed May 10, 1996, Ser. No. 644,200
Int. Cl.[6] A43C *13/00*
U.S. Cl. 36—15 18 Claims



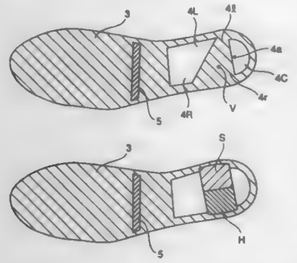
10. A safety sole pad for attachment to a bottom surface of footwear for providing improved traction on sloped surfaces, to aid in preventing the wearer from slipping on said sloping surface, comprising:
a flexible sole pad of a high-density, closed-cell foam material shaped such that, when attached to a footwear item, said sole pad will cover substantially an entire lower surface of said footwear item, said sole pad being of sufficient thickness to provide a predetermined acceptable wear life when exposed to abrasive surfaces;
said sole pad being constructed exclusively of a substantially uniform layer of foam having a flat lower surface, and a fastener element layer selected from the group consisting of the hook portion and the loop portion of a hook and loop type fastener, said fastener element being so constructed and arranged to be fastened to a complementary fastener element disposed on a lower flexible portion of a footwear item, and to be removable, under application of tensile forces not normally experienced in working on sloped surfaces, but not under application of lateral shearing forces, from said fastener element of said lower flexible portion substantially without damaging said fastener element of said lower flexible portion.

5,727,335

FOOTWEAR FOR PATIENTS OF OSTEOARTHRITIS OF THE KNEE

Sachiko Kousaka; Mitsuko Kousaka, both of Sakai, and Kumiko Isaka, Izumi, all of Japan, assignors to Limited Responsibility Company Frontier, Osaka, Japan

Division of Ser. No. 268,176, Jun. 29, 1994, Pat. No. 5,579,591. This application Sep. 9, 1996, Ser. No. 711,056
Claims priority, application Japan, Jun. 29, 1993, 5-185462; Jul. 18, 1993, 5-198974; Aug. 9, 1993, 5-217041; Sep. 14, 1993, 5-252260; Nov. 22, 1993, 5-316015; Apr. 21, 1994, 6-107764; May 26, 1994, 6-136338; Jun. 27, 1994, 6-145090
Int. Cl.[6] A43B *13/14;* A61F *5/14*
U.S. Cl. 36—31 12 Claims



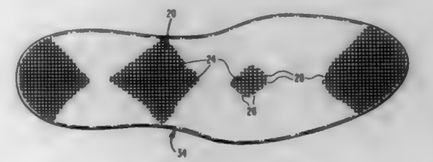
1. Footwear for persons suffering from osteoarthritis of the knee comprising:
a foot support surface including a first portion for supporting a heel and a second portion for supporting a metatarsal region of a foot of a wearer of the footwear;
a balance member for supporting a weight of the wearer disposed beneath the foot support surface and having a ridge disposed between the first and second portions of the foot support surface in a lengthwise direction of the footwear; and
a heel support disposed beneath the first portion of the foot support surface and being more readily compressed under a vertical load than the balance member,
the first portion of the foot support surface sloping downwards in a transverse direction of the footwear from a first side to a second side of the footwear when a lower surface of the heel support is horizontal,
the heel support being less compressible by a vertical load on the first side than on the second side of the footwear.

5,727,336

FOOTWEAR INSOLE WITH A MOISTURE ABSORBENT INNER LAYER

John M. Ogden, Cincinnati, Ohio, assignor to Ogden, Inc., Cincinnati, Ohio

Continuation of Ser. No. 350,199, Dec. 5, 1994, abandoned, which is a continuation-in-part of Ser. No. 828,426, Jan. 31, 1992, Pat. No. 5,388,349. This application May 28, 1996, Ser. No. 672,388
The portion of the term of this patent subsequent to Dec. 18, 2015, has been disclaimed.
Int. Cl.[6] A43B *13/38;* B32B *3/10*
U.S. Cl. 36—43 25 Claims



1. An insole for an article of footwear, comprising:
a first layer formed of a slip-resistant, non-absorbent and thermally non-conductive thermoplastic material, said first layer being formed with a plurality of apertures having wall sections therebetween, said wall sections of said first layer having an inner surface and an outer, exposed surface which contacts the foot of a wearer of the article of footwear;
a second layer affixed to said wall sections of said first layer said second layer being formed of a non-woven material consisting of a mixture of moisture-wicking fibers and moisture-absorbent fibers, said second layer having a basis weight in the range of about 2 ounces per square yard to about 5 ounces per square yard and a tear strength in the range of about 35 pounds to about 100 pounds in the machine direction and in the range of about 25 pounds to about 60 pounds in the cross direction, said non-woven material of said second layer being effective to substantially prevent movement of said wall sections of said first layer relative to one another under the application of a shear force to said first layer as a result of front-to-back, side-to-side and/or rotational movement of the foot of the wearer of the article of footwear which contacts said first layer.

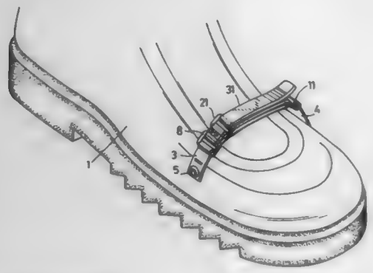
VOL 1208 ISS 3 MR 17 1998 UMI

5,727,337

SNOWBOARD BOOT

Shinpei Okajima, Izumi, Japan, assignor to Shimano, Inc., Sakai, Japan

Filed Mar. 12, 1996, Ser. No. 615,985
Claims priority, application Japan, Mar. 24, 1995, 7-89983
Int. Cl.[6] A43C *11/00*
U.S. Cl. 36—50.1 9 Claims



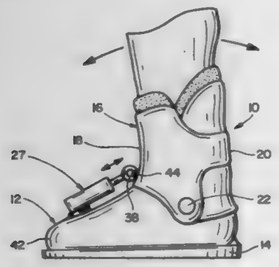
1. A boot comprising:
a boot body (1);
a first loop (21) disposed on a first side of the boot (1);
a second loop (11) disposed on a second side of the boot (1);
a strap (31) originating at the first loop (21), wherein the strap (31) extends from the first loop (21) toward the second loop (11) for forming a first strap segment, wherein the strap (31) then passes through the second loop (11) and extends back toward the first loop (21) for forming a second strap segment, and wherein the strap (31) then passes through the first loop (21) and extends back toward the second loop (11) for forming a third strap segment.

5,727,338

VACUUM FITTING SKI BOOT WITH AIR PUMP

Virginia C. George, 8164 Capitola Ave., Fair Oaks, Calif. 95628, and Frederick W. George, Fair Oaks, Calif., assignors to Virginia C. George, Fair Oaks, Calif.

Filed Dec. 23, 1996, Ser. No. 711,113
Int. Cl.[6] A43B *5/04;5/16*
U.S. Cl. 36—93 7 Claims



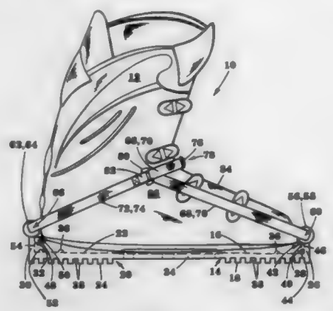
1. A vacuum fitted ski boot which automatically pumps air for holding a vacuum within the boot to maintain a close-fitting contact between the user's foot and the boot, the ski boot comprising the combination of a boot shell having toe and heel portions, said boot shell further having an interior cavity adapted for fitting about the user's foot; an ankle cuff adapted for fitting about the user's ankle and a portion of the user's lower leg; means for mounting the ankle cuff for relative angular movement with respect to the boot shell responsive to flexing motion between the user's lower leg and foot; a vacuum pump, said pump being operable for pumping air from the interior cavity; and operating means for operating the pump responsive to said angular movement of the ankle cuff.

5,727,339

SKI BOOT AUXILIARY SHIELD

David B. Owen, 11513 River Dr. E., Carmel, Ind. 46033

Filed Jan. 11, 1997, Ser. No. 782,906
Int. Cl.[6] A43B *5/18*
U.S. Cl. 36—132 10 Claims



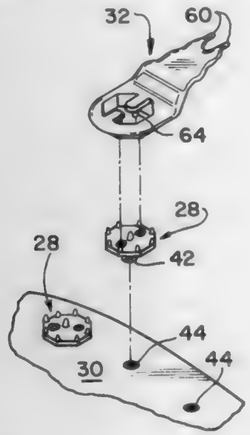
1. A ski boot boot auxiliary shield comprising a toe base member, a heel base member, and a base bridge webbing,
said toe base member including a toe base upward face which substantially abuts the conventional ski boot toe flange downward face, and a toe base downward face which substantially abuts a variety of walking terrains encountered by the skier walking in ski boots, said heel base member including a heel base upward face which substantially abuts the conventional ski boot heel flange downward face, and a heel base downward face which also substantially abuts a variety of walking terrains encountered by the skier thereof,
said toe base member provided with a toe retaining wall including a toe retaining wall interior face which substantially abuts the conventional ski boot toe flange exterior face, said heel base member provided with a heel retaining wall including a heel retaining wall interior face which substantially abuts the conventional ski boot heel flange exterior face,
said base bridge webbing comprised of a resiliently stretchable structure which is conjoined to said toe base member, and to said heel base member,
thus providing said toe retaining wall interior face and said heel retaining wall interior face resilient memory force respective of one another,
said toe base member upward face and said heel base upward face provided with a base upward traction contouring, and said toe base member downward face and said heel base member downward face provided with a base downward traction contouring,
said toe base member provided with a ski boot primary toe flange retaining means dependent on the said toe retaining wall interior face and the said heel retaining wall interior face having said resilient memory force respective of one another, said heel base member provided with a ski boot primary heel flange retaining means also dependent on the said toe retaining wall interior face and the said heel retaining wall interior face having said resilient memory force respective of one another,
said ski boot primary toe flange retaining means comprised of a toe bar and said primary heel flange retaining means comprised of a heel bar,
said toe bar comprised of a protuberance which is conjoined to the upward region of said toe retaining wall, said protuberance providing a flexible interference fit onto the conventional ski boot toe flange upward face, therewith providing a ski boot nesting capability in conjunction with said toe retaining wall interior face imparting an interference fit unto said ski boot toe flange exterior face,
said heel bar comprised of a protuberance which is conjoined to the upward region of said heel retaining wall, said protuberance providing a flexible interference fit onto the conventional ski boot heel flange upward face, therewith providing a ski boot nesting capability in conjunction with said heel retaining wall interior face imparting an interference fit unto said ski boot heel flange exterior face,
said toe base member provided with a ski boot secondary toe flange retaining means independent of said toe retaining wall interior face and said heel retaining wall interior face having said resilient memory force respective of one another, said heel base member provided with a ski boot secondary heel flange retaining means also independent of said toe retaining wall interior face and said heel retaining wall interior face having said resilient memory force respective of one another,
said ski boot secondary toe flange retaining means and said secondary heel flange retaining means comprised of a releasable latchstrap harness system means,
said harness system means comprised of at least one strips of strong material with one or more latches connected thereto, configured and interconnected in such a way to provide force-applying means communicative of said auxiliary shield and said ski boot, providing for an overall effect of a secure attachment of said auxiliary shield to said ski boot.

5,727,340

PLASTIC GOLF SHOE SPIKE

Young J. Suk, 270 Glen Cove Ave., Sea Cliff, N.Y. 11579

Filed Feb. 10, 1997, Ser. No. 798,355
Int. Cl.[6] A43C *15/16;15/02*
U.S. Cl. 36—134 1 Claim



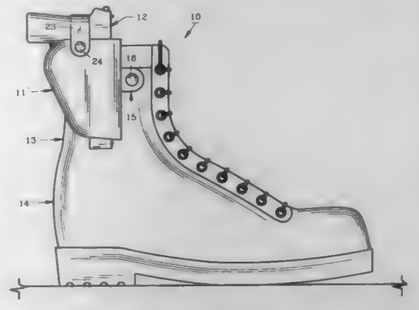
1. An improved golf shoe spike of a type having a ground-engaging body and a rearward threaded means for establishing tightening and untightening relation between said spike and said golf shoe, said golf spike comprising said body constituted of plastic construction material to contribute to imparting nominal impressions in a golf course putting green, a non-circular peripheral edge on said body consisting of end-to-end length portions forming at intersections of changes in direction circumferentially spaced-apart locations of nominal bearing surface for said tightening and untightening of said golf shoe spike body, and raised circular spike-like projections each located at said change-in-direction locations to supplement said bearing surface for establishing spike-turning contact sites, and a wrench for tightening and untightening said golf shoe spike, said wrench comprising wall means bounding a non-circular shaped opening serving as a spike-receiving compartment matching said non-circular shape of said spike body and oversized in relation thereto to establish a fitting clearance to facilitate placing said spike-receiving compartment in encircling relation about said spike body, said non-circular wrench wall means establishing wrench-turning contact sites at said change-in-direction of said compartment-bounding wall means, whereby said wrench in said encircling relation about said spike body in response to being urged in rotation initially takes up said fitting clearance and thereafter establishes engagement between cooperating wrench and spike-turning contact sites to cause either tightening or untightening rotation of said spike.

5,727,341

BOOT HOLSTER

Daniel A. Saylor, 111 Laurel Oak Dr., Longwood, Fla. 72779

Filed Nov. 20, 1996, Ser. No. 752,395
Int. Cl.[6] A43B *23/24*
U.S. Cl. 36—136 10 Claims



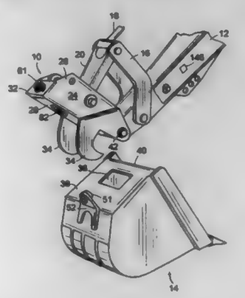
1. A gun holster and boot in combination, said boot comprising a holster strap, said holster strap having two ends, said holster strap separately releasably attached at each end to said boot, said holster comprising a loop whereby said holster strap engages said loop to hold said holster on said boot, whereby each of said holster strap ends can be released independently of the other end.

5,727,342

HYDRAULIC LATCH PIN ASSEMBLY FOR COUPLING A TOOL TO A CONSTRUCTION EQUIPMENT

Lee A. Horton, Jefferson, Mass., assignor to Wain-Roy, Inc., Hubbardstown, Mass.

Filed Apr. 18, 1996, Ser. No. 634,561
Int. Cl.[6] E02F *3/96*
U.S. Cl. 37—468 32 Claims



1. A coupling assembly for coupling a tool to an arm of an apparatus, wherein tilting of the coupling assembly from the arm is powered by a hydraulic system, the coupling assembly comprising:

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a coupler body, including a frame defining a central cavity, and link structure for pivotally coupling the arm to the tool; and

an actuator assembly attached to the frame, the actuator assembly including:

a latch pin movable between an extended position for engaging a receptacle defined by the tool, and a retracted position for disengaging from the receptacle;

a hydraulic latch cylinder having a fixed part and a movable part that can be extended relative to the fixed part; and

a latch pin coupling assembly coupling between the latch pin and the movable part such that extension of the movable part urges the latch pin to the retracted position.

5,727,343

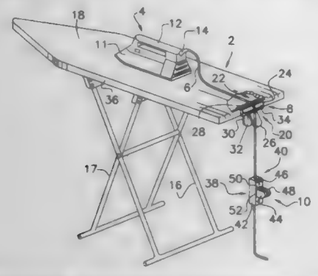
IRON CORD TENSION CONTROL METHOD AND APPARATUS

John C. Wehner, 2981 Frenchman's Passage, Palm Beach Gardens, Fla. 33410, and Esther Sandoval, 250 180th St., Apt. 204, North Miami Beach, Fla. 33160

Filed Jun. 18, 1996, Ser. No. 665,756

Int. Cl.[6] D06F *81/00;79/00;* **B65H** *57/04;* **F16L** *3/123*

U.S. Cl. 38—141 **22 Claims**



1. An apparatus for restricting electric iron power cord movement and controlling tension of the cord to reduce cord interference with the iron during ironing, wherein said apparatus is for use with an ironing board having a working surface and a peripheral edge, and an electric iron having a handle with a proximal end from which the power cord extends from the iron, said apparatus comprising:

a guide clip having first and second gripping members pivotably engaged with each other for resiliently engaging said peripheral edge, and a cord guide secured to an exterior surface of said first gripping member for receiving and limiting transverse movement of said power cord to a limited part of said exterior surface; and

a weight disposed on and suspended from said cord to apply a force pulling said cord proximally from said iron to maintain the cord taut as the iron moves along said working surface.

5,727,344

Patent Not Issued For This Number

5,727,345

SEMIAUTOMATIC FIREARM WITH GAS OPERATED ROTATING CYLINDER

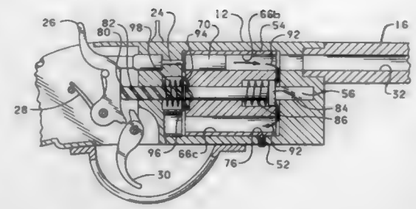
Robert Sullivan, Snyder, Okla., assignor to Hotshot, Inc., Northbrook, Ill.

Filed Jun. 17, 1996, Ser. No. 664,482

Int. Cl.[6] F41C *3/14;* **F41A** *15/02;9/61*

U.S. Cl. 42—59 **21 Claims**

10. A firearm, comprising:



a housing having a front surface, a rear surface, an upper surface, and a lower surface cooperating to define a cylinder receiving space, the housing having a first cylinder pin receiving bore formed through the front surface of the housing and a second cylinder pin receiving bore formed through the rear surface of the housing in alignment and open communication with the first cylinder pin receiving bore;

a barrel extending from the housing and having a bore in communication with the cylinder receiving space;

a cylinder rotatingly disposed in the cylinder receiving space of the housing, the cylinder having a front end, a rear end, an outer peripheral surface, and a plurality of chambers, each of the chambers adapted to receive a cartridge, spaced radially about a central axis of the cylinder, extended axially through the cylinder from the rear end to the front end, and positionable in one of a loading position, a firing position, and an ejecting position, the chamber in the firing position being aligned with the bore of the barrel and the chamber in the ejecting position being in fluid communication with the chamber in the firing position whereby a case of the cartridge is ejected from the chamber of the cylinder in the ejecting position by gas pressure generated by the firing of the cartridge disposed in the chamber of the cylinder positioned in the firing position acting on the case so as to expel the case disposed in the chamber in the ejecting position from such chamber; and

means for firing the cartridge disposed in the chamber in the firing position whereby the case of the cartridge disposed in the ejecting position is ejected from the chamber of the cylinder in the ejecting position by gas pressure generated by the firing of the cartridge disposed in the chamber of the cylinder positioned in the firing position acting on the case so as to expel the case disposed in the chamber in the ejecting position from such chamber.

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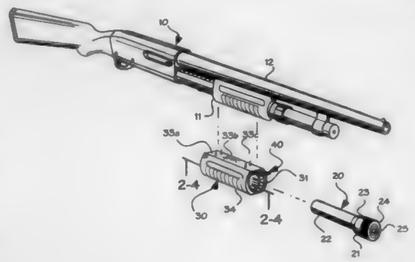
APPARATUS FOR QUICK-RELEASABLE ATTACHMENT OF A TARGET ILLUMINATING DEVICE TO A FIREARM

Donald Lawrence Lazzarini, 3566 Berry Way, Santa Clara, Calif. 95051, and Harry Dwyer, III, 1573 Ardenwood Dr., San Jose, Calif. 95120

Filed Jan. 15, 1997, Ser. No. 784,156

Int. Cl.[6] F41G *1/34*

U.S. Cl. 42—103 **12 Claims**



1. An apparatus for quick detachably securing a target illuminating device to a firearm, said device selected from the group consisting of flashlights and light emitting diodes and lasers, the improvement comprising in combination:

a longitudinally extending passage transversely large enough to accept said device and containing

a releasable retention system for said device comprising of a resilient means to press said target illuminating device along approximately the same axis as a firearm's barrel and in opposition to a springably positioned latching system engaging a terminus of said device as a means to prevent dislodgment of said device upon movement of said firearm during handling or discharge.

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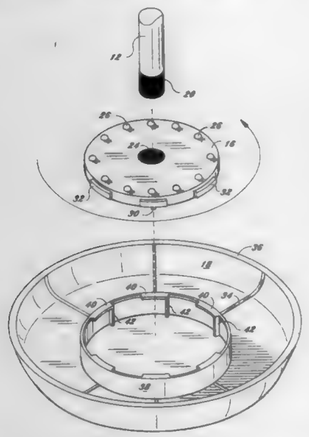
HANGING PLANT POT AND SAUCER SUPPORT APPARATUS

Kathleen R. Sellers, 228 Boca Raton Rd. East, Boca Raton, Fla. 33432

Filed Aug. 8, 1996, Ser. No. 693,971

Int. Cl.[6] A01G *9/02;* **A47G** *7/02*

U.S. Cl. 47—67 **4 Claims**



1. A plant pot hanging device comprising:

a rod having a first end and a second end, at least a portion of said rod being threaded at said first end; said rod including means for hanging at said second end;

an essentially planar support surface having a perimeter and a centrally located threaded aperture, said threaded aperture being removably threadably attached to said first end of said rod, said planar support surface having a plurality of raised tabular support members spaced around said perimeter, said raised tabular support members being essentially parallel to said planar support surface;

a moisture barrier having an essentially planar base and a retaining wall extending generally upwardly from a periphery of said base, said moisture barrier having a centrally located essentially cylindrical raised wall member, said raised wall member having a plurality of raised tabular portions spaced apart on an inside surface of said wall member, said raised tabular portions being essentially parallel to said planar base, each of said raised tabular portions having a raised tabular stop portion located at an end of each of said raised tabular portions, said raised tabular stop portions being essentially perpendicular to said planar base;

said inside surface of said cylindrical raised wall member being sized to removably fit over said perimeter of said essentially planar support surface, and wherein said raised tabular support members of said essentially planar support surface removably and rotatably engage said raised tabular portions of said inside surface of said centrally located essentially cylindrical raised wall member of said moisture barrier, and wherein said raised tabular support members are supportively engaged under said raised tabular portions and in contact with said raised tabular stop portions.

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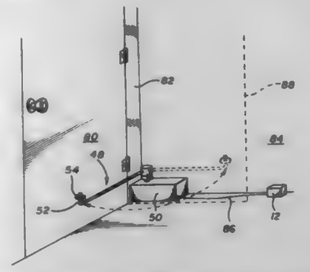
PORTABLE REMOTE CONTROLLED DOOR CLOSER

Louis G. Arnell, 3008 Caminito Niquel, San Diego, Calif. 92117; Leon Arnell, 1 Barbara La., Monsey, N.Y. 10952, and Thomas P. Sturges, 2505 Crest Dr., Manhattan Beach, Calif. 90266

Filed May 28, 1996, Ser. No. 654,042

Int. Cl.[6] E05F *15/20*

U.S. Cl. 49—25 **19 Claims**



1. A portable apparatus which closes a door, said apparatus comprising:

(a) force exerting means in an initial position freely spaced from the door which in a second position engages a surface of the door in a closing motion to move the door from an opened position to a closed position;

(b) control means responsive to a remote actuation signal for controlling the force exerting means engagement with the door in a closing motion;

(c) a portable housing which houses the control means and the force exerting means in a free standing position on a floor juxtaposed to a wall adjacent to the opened position of the door such that upon operation of the force exerting means to move the door to the closed position the housing is prevented from moving relative to said position.

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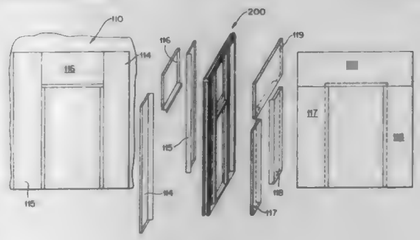
SHELL AND DOOR FRAME WITH DOOR PANEL ASSEMBLY FOR ENCLOSED INSULATIVE PANEL CONSTRUCTION

Randolph W. McLaughlin, Rte. 1, Box 14BB, Stringer, Miss. 39481

Filed Aug. 6, 1996, Ser. No. 692,975

Int. Cl.[6] E06B *3/00*

U.S. Cl. 49—501 **5 Claims**



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1. A shall and a door frame with a door panel assembly for enclosed insulative panel construction comprising:

a) a sheetmetal shell (**110**) composed of left and right external sheetmetal panel jambs (**114–115**) and opposed left and right internal sheetmetal panel jambs (**117–118**), opposed exterior and interior header panels (**116–119**) supported thereby;

b) a door frame assembly (**200**) bounded on three sides by hardtrack runners (**201–202**); a pair of vertically upstanding jamb frame runners (**204–205**) extending from the base of the hardtrack in spaced-apart relation to each other; spaced-apart header frames members (**206–207**), intermediate of vertical ends of the pairs of jamb frame members and a threshold (**211**) extending between each pair of vertical jamb frame runners (**204–205**), the threshold being welded to the pairs of jamb frames (**204–205**) at the base thereof, said jamb frames (**204–205**) on one side of the door frame bearing spaced-apart door hinge backup plates (**213**);

c) a door panel (**300**) including a pan configured inside panel (**320**), interfitting an outside panel (**321**) and an interposed precut retainer (**324**) wherein spaced-apart door hinge strap backup plates (**322**) are set upon the outside panel (**321**) as also are door closer backup plates (**323**);

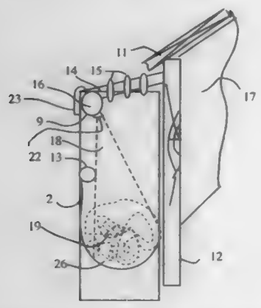
d) applied foamed insulation, whereby thermal gaps between metal skins of components of respective sheetmetal shell, door frame and door components are thermally protected.

5,727,350

SELF-CLEANING GUTTER

Frank V. Marcella, 13 Stanley St., Pleasantville, N.Y. 10570

Filed Feb. 16, 1994, Ser. No. 198,168
Int. Cl.[6] E04D *13/076*
U.S. Cl. 52—12 **8 Claims**



4. A self cleaning gutter system module, comprising:

a) an elongated open-top rectangular cross section support box (**1**) for mounting against a rafter end **8** fascia of a building, in a generally rain gutter mounting position, but substantially level;

b) a gutter member (**2**) mountable with a snug fit within said support box (**1**) with a slope appropriate for water disposal, said gutter member (**2**) having a rounded bottom cross section;

c) a louver rack (**14**) subsystem mountable atop and providing closure for said support box (**1**);

d) a gutter cleaning water channel subsystem means (**3**) comprising a cleaning water supply channel (**16**) integral with said louver rack, which serves also as a support member, extending substantially the length of said support box (**1**), having a water connection end and a distal end, and having a number of dislodging jet nozzles (**21**) along its length extending substantially the length of said support box (**1**), and a flow making jet nozzle (**22**) at its distal end, and being mountable in position to deliver water from said dislodging jet nozzles (**21**) to cause debris to be dislodged from side and bottom of said gutter member (**2**) and to deliver cleaning water from said flow making jet nozzle (**22**) to carry away debris' dislodged by said dislodging jets (**21**); and

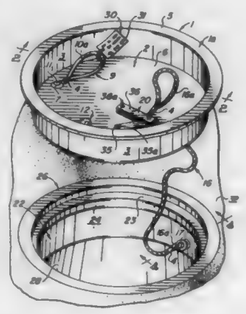
e) leader funnel means (**5**) having connection means for said gutter cleaning water channel subsystem means.

5,727,351

MANHOLE INSERT AND TETHER AND METHOD

David L. Neathery, 1830 Willow Point, Shreveport, La. 71119, and Timothy B. Ely, 660 Eleven O'Clock Rd., Fairfield, Conn. 06430

Continuation-in-part of Ser. No. 68,053, May 26, 1993, abandoned. This application Oct. 20, 1994, Ser. No. 329,064
Int. Cl.[6] E02D *29/14*
U.S. Cl. 52—20 **24 Claims**



1. A manhole insert and tether comprising a pan-shaped insert body for seating in the wall of a manhole and having a tether opening, a tether having one end slidably extending through said tether opening and the opposite end adapted for mounting in the wall of the manhole, and tether lock means slidably carried by said one end of said tether for selectively tightly engaging said tether at said insert body and locking said insert body in the manhole.

5,727,352

PREFABRICATED, TRANSPORTABLE, DRIVE-THRU CONVENIENCE STORE

Maurice Bared, Coconut Grove; Al Argenti, Boca Raton; Rebecca Bared, Miami, all of Fla.; Roy Van Doorn, Charlottesville, Va.; Barry Jennings, Largo, and Scott Francis, Clearwater, both of Fla., assignors to REWJB Dairy Plant Associates, Miami, Fla.

Filed Dec. 19, 1994, Ser. No. 358,873
Int. Cl.[6] E04H *1/00*
U.S. Cl. 52—79.1 **50 Claims**

1. A modular convenience store comprising:

a floor;

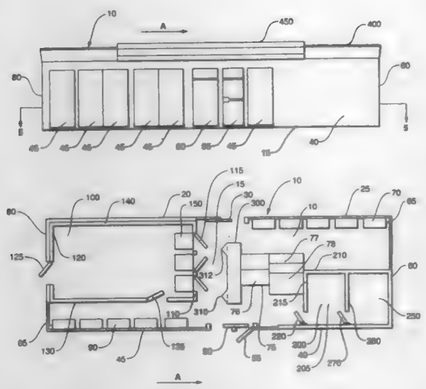
a plurality of walls extending substantially vertically from said floor and defining a non-circular perimeter of said store, said store having an interior and an exterior;

a roof covering said interior of said store;

a plurality of vehicle drive-thru lanes substantially adjacent to said store;

a plurality of access doors located within said walls for ingress to and egress from said interior of said store, wherein said access doors are substantially adjacent to said vehicle drive-thru lanes, whereby a driver of a vehicle in one of said vehicle drive-thru lanes and adjacent one of said access doors may communicate with an employee of said store without said driver exiting said vehicle and entering said store;

a walk-in cooler having an interior, said cooler being located within said interior of said store adjacent at least one of said walls;



an exterior cooler-service door for passage between said exterior of said store and said interior of said cooler whereby the cooler may be accessed throught the exterior cooler-service door by a person on the exterior of the store without entering the interior of the store or communicating with an employee of the store;

an interior cooler-service door for passage between said interior of said cooler and said interior of said store; and

at least one display window disposed within at least one of said walls;

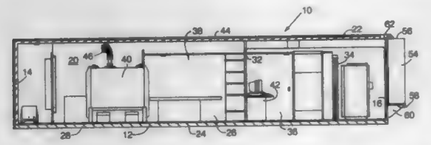
whereby said walls, roof, doors and coolers are modular, such that said store may be assembleable off-site and transportable as a single unit, and whereby said walls and said roof, once assembled, are stationary.

5,727,353

PORTABLE MEDICAL DIAGNOSTIC SUITE

John E. Getz, 209 Apples Way, Batavia, Ohio 45103; Roy W. Howard, 8284 Woodruff Rd., Cincinnati, Ohio 45255; Maria Janu, 17040 Oak Park Row, Brookfield, Wis. 53005, and Charles T. Bergman, Rte. 3, Box 347, Watertown, Wis. 53094

Filed Apr. 4, 1996, Ser. No. 627,428
Int. Cl.[6] E04H *3/08*
U.S. Cl. 52—79.1 **20 Claims**



14. A self-contained portable medical diagnostic suite comprising:

a shipping container transportable by a plurality of different transportation means, said shipping container being defined by two opposed end walls, two opposed lateral walls, a ceiling, and a floor defining an interior area and an exterior surface;

said shipping container including at least one door for providing access to said interior area;

at least one medical diagnostic device supported within said interior area of said shipping container;

at least one interior partition interposed between said lateral walls and in communication with said ceiling and said floor for dividing said interior area of said shipping container into at least one separate section;

said at least one medical diagnostic device being located in at least one of said separate sections;

at least one operator's station for operating said one or more medical diagnostic devices functionally located in another one of said separate sections of said shipping container and in operable communication with said one or more medical diagnostic devices;

at least one connector for connecting said at least one medical diagnostic device to a plurality of different utility services;

said exterior of said shipping container having at least one integral lifting hole, for coupling said shipping container to a load handling device, thereby enabling the transfer of said suite onto and off of said plurality of shipping and transportation means;

a modular climate control system for adjustably maintaining the climate of said interior area;

a mounting device for removably mounting said modular climate control system to the exterior surface of said enclosure; and

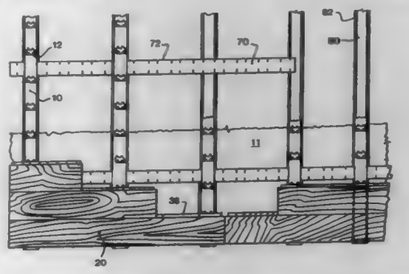
a securing device for removably securing said climate control system within said interior area during transit of said suite.

5,727,354

FASTENING SYSTEM FOR JUXTAPOSED AND PARALLEL LATHS

Michel Clément, Trois-Rivières Ouest, Canada, assignor to Triangle Pacific Corp., Dallas, Tex.

PCT No. PCT/CA92/00215, § 371 Date Feb. 21, 1995, § 102(e) Date Feb. 21, 1995, PCT Pub. No. WO93/23636, PCT Pub. Date Nov. 25, 1993
PCT Filed May 21, 1992, Ser. No. 347,396
Int. Cl.[6] E04F *13/08;15/22*
U.S. Cl. 52—387 **15 Claims**



1. A fastening system for assembling laths (**20**) on a lining surface (**11**) so that the laths (**20**) are juxtaposed and parallel, each of said laths (**20**) having a given width and being provided with an upper surface (**22**), a lower surface (**24**) and two lateral sides (**26**, **28**), one of said sides of each of the laths comprising a tenon (**36**), the other of said sides comprising a mortise (**38**), whereby the tenon (**36**) of each lath can be inserted into the mortise (**38**) of an adjacent lath (**20**), said fastening system comprising:

(a) a set of rigid tongues (**10**), for being placed parallel to one another on the lining surface (**11**) in order to receive the lower surfaces (**24**) of the laths (**20**), said tongue (**10**) projecting in a direction crosswise to the laths (**20**) said tongues resting against flexible supports (**80**) placed between the lining surface (**11**) and the tongues (**10**);

(b) securing means for securing said tongues (**10**) in place with respect to one another;

(c) a set of bearings (**12**) arranged on and projecting upwardly on said tongues (**10**), the bearings (**12**) having between them a distance substantially equal to the width of the laths (**20**), each of said bearings (**12**) being provided with an upper end substantially curved according to a 90° angle in order to form at least one tooth (**14**) essentially parallel to the tongues (**10**);

(d) each said tooth (**14**) being curved in the same direction, each of said bearings (**12**) being dimensioned so that the tenon (**36**) of one of the laths (**20**) can bear against its tooth (**14**) and the mortise (**38**) of another lath (**20**) can be inserted around the

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tenon (**36**) and the corresponding tooth (**14**) so as to prevent the laths (**20**) from raising and allowing them to be placed parallel to one another, and when said tongues (**10**) are placed parallel to one another on the surface to be lined, the bearings (**12**) of each of the tongues (**10**) being aligned crosswise with the bearings (**12**) of the other tongues (**10**);

(e) the tongues (**10**) having lateral walls (**90**) projecting downwardly and reaching out in the longitudinal direction of the tongues (**10**) so that each tongue (**10**) forms an individual vise around its corresponding flexible support (**80**);

(f) said securing means for securing in place said tongues (**10**) with respect to one another including a set of alignment laths (**70**) placed perpendicular to the tongues (**10**), with respect to lateral openings (**94**) made in the lateral walls (**90**) of the tongues (**10**); and

(g) said alignment laths (**70**) having lateral edges provided with pairs of symmetrical recesses (**72**) fitting together with the lateral walls (**90**) around lateral openings (**94**) and cross the tongues (**10**) by passing between them and their flexible support (**80**), said tongues (**10**) and said alignment laths (**70**) being arranged so that each of the tongues (**10**) fits together with the symmetrical recesses (**72**) when the alignment laths (**70**) cross it.

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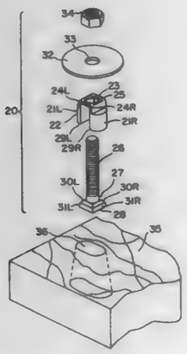
STONE FACING SECTION ANCHOR MOUNTING SYSTEM

Richard A. Mitchell, 1437 Greencove, Garland, Tex. 75040

Filed Jun. 12, 1995, Ser. No. 489,428

Int. Cl.[6] E04B *1/38;* **F16B** *13/00*

U.S. Cl. 52—698 **10 Claims**



1. An anchor assembly which is adapted to fit into a fan out opening routed in a facing material, said opening being wider at the innermost depth than at its opening entrance said anchor assembly comprising:

a. a bolt with a threaded section and a bolt head having slanted surface means on at least one side;

b. saddle means with a top having an opening passing said bolt threaded section;

c. one or more lobe means depending at approximately ninety degrees from the top of said saddle means;

d. a washer and a nut workable on the threaded section of said bolt, said bolt when tightened when said anchor assembly is placed within the opening entrance of the fan out opening routed in said facing material pushing said saddle means and lobe means down and with contact of said lobe means with the said bolt head slanted surface means, the lobe means bends in an outward direction such that it expands to seat within the wider opening at the innermost depth of the fan out opening in said facing material thereby attaching the anchor to the facing material.

5,727,356

COMPOSITE SECTION FOR FRAMES OF WINDOWS, DOORS, FACADE ELEMENTS AND THE LIKE

Wilfried Ensinger, and Dieter Eisenhardt, both of Nufringen, Germany, assignors to Ensinger GmbH & Co., Nufringen, Germany

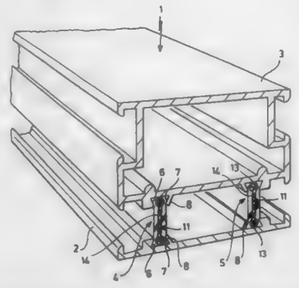
PCT No. PCT/EP95/02601, § 371 Date Mar. 18, 1997, § 102(e) Date Mar. 18, 1997, PCT Pub. No. WO96/04450, PCT Pub. Date Feb. 15, 1996

PCT Filed Jul. 5, 1995, Ser. No. 776,086

Claims priority, application Germany, Aug. 4, 1994, 44 27 582.6

Int. Cl.[6] E04B *1/94;* **E06B** *1/12;3/263*

U.S. Cl. 52—717.02 **12 Claims**



1. Composite section for frame of building components comprising two metal section parts and at least one insulating web comprising plastic material and joining said metal section parts, said insulating web having ends being held in corresponding grooves of said metal section parts, the plastic material forming said insulating web being combined with a composite fiber skeleton comprising heat-resistant fibers, and said composite fiber skeleton being anchored in at least one of a positively and frictionally connected manner in said grooves of said metal section parts so as to also ensure cohesion of said metal section parts when the plastic material of said insulating web degenerates, characterized in that said composite fiber skeleton is at least one band which comprises said heat-resistant fibers and forms thickened edge sections, said edge sections being anchored in a positively connected manner in said grooves of said metal section parts.

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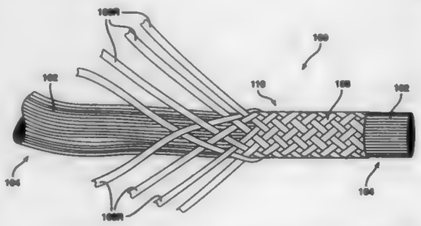
COMPOSITE REINFORCEMENT

Panchadsaram Arumugasaamy, and Mark E. Greenwood, both of Granville, Ohio, assignors to Owens-Corning Fiberglas Technology, Inc., Summit, Ill.

Filed May 22, 1996, Ser. No. 653,953

Int. Cl.[6] E04C *5/07*

U.S. Cl. 52—740.1 **21 Claims**



1. A composite reinforcement for use in construction comprising:

a first plurality of continuous fibers forming a core for said composite reinforcement;

a second plurality of continuous fibers associated with said first plurality of continuous fibers and forming a jacket which substantially covers said core; and

resin material impregnating said first and second pluralities of continuous fibers which are formed into an elongated rod and rigidified by said resin material.

5,727,358

METHOD OF CONSTRUCTING A BUILDING

Yuuichirou Hayashi, 7-44 Hamada 1-chome, Sakata-shi, Yamagata 998; Keiji Satou, 75-4, Aza-Sawada Ooaza-Amarume, and Manabu Watanabe, 19, Aza-Kazoeda Ooaza-Yoshikata, both of Amarume-machi, Higashitagawa-gun, Yamagata 999-77, all of Japan

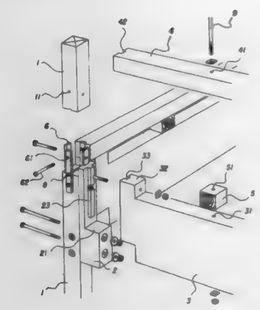
PCT No. PCT/JP94/01388, § 371 Date Feb. 26, 1996, § 102(e) Date Feb. 26, 1996, PCT Pub. No. WO95/06172, PCT Pub. Date Mar. 2, 1995

PCT Filed Aug. 23, 1994, Ser. No. 416,805

Claims priority, application Japan, Aug. 25, 1993, 5/235483

Int. Cl.[6] E04B *1/26;* **E04C** *3/30*

U.S. Cl. 52—745.2 **1 Claim**



1. A method of constructing a building comprising:

connecting rectangular members on top of a pillar having a length related to a height of a horizontal member for a roof structure or an upper floor structure, and projecting about half length of the rectangular members from a top surface of the pillar;

creating a joint part, formed by a dropped support having a length greater than the height of a horizontal member, to the pillar from an exterior surface of a rectangular member to be connected to the horizontal member, the horizontal member including a main-horizontal member and a sub-horizontal member, the support projecting from top surface of the pillar by a distance of the projected portion of the rectangular member minus the height of the sub-horizontal member;

connecting a pillar smeared with an airtight lubricant at a leg portion, for a roof structure or an upper floor structure, to the pillar vertically, keeping airtightness by dropping among the rectangular members and fixing by a fixing member;

connecting the main-horizontal member and the sub-horizontal member, smeared with the airtight lubricant at their end surfaces and at a planned bellow surface, between the adjacent joint part by dropping;

fixing to each other using both, the main-horizontal member and the pillar, and the main-horizontal member and the sub-horizontal member by using a operating space between the main-horizontal member and the sub-horizontal member.

5,727,359

WRAPPING TABLE AND REFUSE PACKAGING APPARATUS

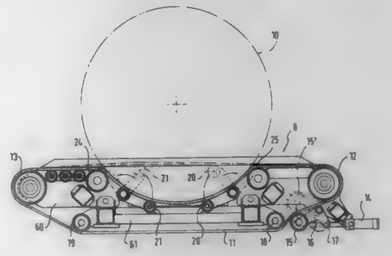
Erwin Rampp, Wolfertschwenden, Germany, assignor to Altvater RPP 1200 GmbH, Germany

Filed Mar. 6, 1996, Ser. No. 611,423

Claims priority, application Germany, Nov. 15, 1995, 195 42 645.2

Int. Cl.[6] B65B *11/04*

U.S. Cl. 53—211 **20 Claims**



2. A wrapping table for receiving and rotating a round bale to be wrapped with a foil, comprising

at least two spaced stationary deflection rolls,

a drivable endless member having a support surface for supporting the round bale and passing around the at least two stationary deflection rolls,

a plurality of mutually spaced rolls between the at least two stationary deflection rolls, at least some of the mutually spaced rolls being moveable, and

means for moving the moveable mutually spaced rolls to shape the support surface into one of a plane-like shape and a trough-like shape.

5,727,360

APPARATUS FOR PRODUCING CIGARETTE PACKS

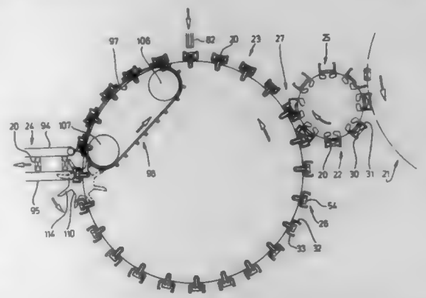
Heinz Focke, Verden, Germany, assignor to Focke & Co. (GmbH & Co.), Verden, Germany

Continuation of Ser. No. 179,565, Jan. 10, 1994, Pat. No. 5,544,467. This application Jun. 14, 1996, Ser. No. 665,098

Claims priority, application Germany, Jan. 8, 1993, 43 00 149.1

Int. Cl.[6] B65B *7/00;11/28*

U.S. Cl. 53—387.2 **17 Claims**



14. An apparatus for producing cuboidal cigarette packs (**20**) which, during production, are conveyed in pockets (**26**) of a rotating turret (**23**) rotating in a path around an axis, and which subsequently are transferred in a conveying direction to a removal conveyor (**24**), wherein:

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a) downstream of the turret (**23**) in the conveying direction, there is arranged a belt conveyor (**96**) to which the packs are transferred in the axial direction of the turret;

b) the belt conveyor (**96**) is offset relative to the turret (**23**) in said axial direction, and correspondingly extends in a plane parallel to a plane of said path of the turret (**23**), said path being an arc of a circle;

c) the belt conveyor (**96**) has a conveying strand (**97**) which extends along the path of the turret (**23**);

d) means are provided for transferring the packs (**20**) in said axial direction from said turret (**23**) to the conveying strand (**97**); and

e) an intermediate conveyor (**110**) is provided for lifting the packs (**20**) off the belt conveyor (**96**) and transferring them to the removal conveyor (**24**).

5,727,361

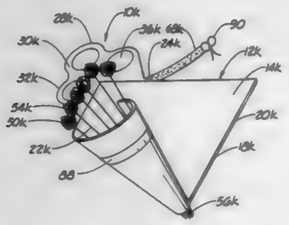
METHOD FOR WRAPPING A FLORAL GROUPING WITH A WRAPPER HAVING AN ADHESIVE TAB

Donald E. Weder, Highland, and Lisa A. Straeter, Breese, both of Ill., assignors to Southpac Trust International, Inc.

Continuation of Ser. No. 973,471, Nov. 9, 1992, Pat. No. 5,544,469, which is a continuation-in-part of Ser. No. 865,563, Apr. 9, 1992, Pat. No. 5,245,814, which is a continuation of Ser. No. 649,379, Jan. 31, 1991, Pat. No. 5,111,638, which is a continuation of Ser. No. 249,761, Sep. 26, 1988, abandoned, said Ser. No. 973,471 is a continuation-in-part of Ser. No. 893,586, Jun. 2, 1992, Pat. No. 5,181,364, which is a continuation of Ser. No. 707,417, May 28, 1991, abandoned, which is a continuation of Ser. No. 502,358, Mar. 29, 1990, abandoned, which is a continuation-in-part of Ser. No. 391,463, Aug. 9, 1989, abandoned, which is a continuation-in-part of Ser. No. 249,761, Sep. 26, 1988, abandoned. This application Jun. 7, 1995, Ser. No. 482,376

Int. Cl.[6] B65B *11/48;51/06;25/02*

U.S. Cl. 53—397 **19 Claims**



1. A method for wrapping a sheet of material about a floral arrangement, comprising the steps of:

providing

a sheet of material having an upper surface, a lower surface, an outer periphery and a tab extension extending outward a distance away from the outer periphery of the sheet of material, the tab extension having an adhesive bonding material disposed thereon;

providing a floral arrangement having an upper end and a lower end;

disposing the floral arrangement upon a portion of the sheet of material; placing a portion of the sheet of material about the floral arrangement by overlapping at least one portion of the sheet of material with at least one other portion of the sheet of material forming an overlapped portion, the sheet of material thereby surrounding a portion of the floral arrangement in a wrapped position about the floral arrangement; and

placing the tab extension over a portion of the overlapped portion and causing the adhesive bonding material on the tab extension to engage and bondingly connect to another portion of the sheet thereby holding the sheet of material in a wrapped position about the floral grouping.

5,727,362

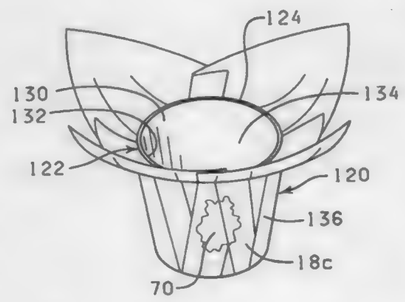
OPTICAL EFFECT MATERIAL AND METHODS

Donald E. Weder, Highland, Ill., assignor to Southpac Trust International, Inc.

Continuation-in-part of Ser. No. 454,474, May 30, 1995, which is a continuation of Ser. No. 179,057, Jan. 7, 1994, Pat. No. 5,576,089, which is a continuation-in-part of Ser. No. 968,798, Oct. 30, 1992, Pat. No. 5,369,934, which is a continuation of Ser. No. 865,563, Apr. 9, 1992, Pat. No. 5,245,814, which is a continuation of Ser. No. 649,379, Jan. 31, 1991, Pat. No. 5,111,638, which is a continuation of Ser. No. 249,761, Sep. 26, 1988, abandoned, which is a continuation-in-part of Ser. No. 219,083, Jul. 13, 1988, Pat. No. 4,897,031, which is a continuation of Ser. No. 4,275, Jan. 5, 1987, Pat. No. 4,773,182, which is a continuation of Ser. No. 613,080, May 22, 1984, abandoned, said Ser. No. 179,057 is a continuation-in-part of Ser. No. 965,585, Oct. 23, 1992, abandoned, which is a continuation of Ser. No. 893,586, Jun. 2, 1992, Pat. No. 5,181,364, which is a continuation of Ser. No. 707,417, May 28, 1991, abandoned, which is a continuation of Ser. No. 502,358, Mar. 29, 1990, abandoned, which is a continuation-in-part of Ser. No. 249,761, Sep. 26, 1988, abandoned, said Ser. No. 179,057 is a continuation-in-part of Ser. No. 24,573, Mar. 1, 1993, abandoned, which is a continuation of Ser. No. 464,694, Jan. 16, 1990, Pat. No. 5,208,027, which is a continuation of Ser. No. 219,083, said Ser. No. 179,057 is a continuation-in-part of Ser. No. 95,331, Jul. 21, 1993, Pat. No. 5,428,939, which is a continuation-in-part of Ser. No. 963,882, Oct. 20, 1992, Pat. No. 5,408,803, which is a continuation-in-part of Ser. No. 865,563, and Ser. No. 893,586, said Ser. No. 95,331 is a continuation-in-part of Ser. No. 923,117, Jul. 30, 1992, Pat. No. 5,307,605, which is a continuation-in-part of Ser. No. 803,318, Dec. 4, 1991, Pat. No. 5,344,016, which is a continuation-in-part of Ser. No. 707,417, said Ser. No. 95,331 is a continuation-in-part of Ser. No. 940,930, Sep. 4, 1992, Pat. No. 5,361,482, which is a continuation-in-part of Ser. No. 926,098, Aug. 5, 1992, which is a continuation-in-part of Ser. No. 803,318, said Ser. No. 940,930 is a continuation-in-part of Ser. No. 687,701, Apr. 18, 1991, abandoned, which is a continuation-in-part of Ser. No. 649,263, Jan. 30, 1991, abandoned, which is a continuation of Ser. No. 248,960, Sep. 26, 1988, abandoned, which is a continuation-in-part of Ser. No. 219,083, said Ser. No. 926,098 is a continuation-in-part of Ser. No. 687,701. This application Sep. 20, 1996, Ser. No. 717,467

Int. Cl.[6] B65B *11/02;25/02*

U.S. Cl. 53—397 **38 Claims**



1. A method for forming a decorative cover about a FLOWER POT, the method comprising:

providing an optical effect material comprising a sheet of material having an upper surface, a lower surface and a holographic design on at least a portion of the lower surface; and

wrapping the sheet of material about the outer peripheral surface of the flower pot while leaving the opening of the flower pot substantially uncovered to provide the decorative cover for the flower pot wherein the decorative cover is provided with a plurality of overlapping folds and wherein at least a portion of the holographic design of the optical effect material is visible and constitutes at least a portion of the decor of the decorative cover.

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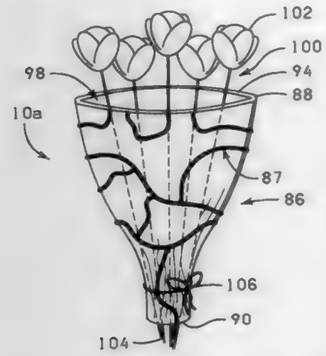
METHOD OF WRAPPING A FLORAL PRODUCT WITH A SHEET OF MATERIAL HAVING A THREE DIMENSIONAL PATTERN PRINTED THEREON

Donald E. Weder, Highland, Ill., assignor to Southpac Trust International, Inc.

Division of Ser. No. 477,003, Jun. 7, 1995, Pat. No. 5,661,951. This application Mar. 19, 1997, Ser. No. 822,541

Int. Cl.[6] B65B *11/00*

U.S. Cl. 53—397 **25 Claims**



1. A method for providing a decorative cover for a floral grouping, comprising:

providing a floral grouping having a bloom portion and a stem portion;

providing a sleeve having a three-dimensional printed pattern thereon wherein the three-dimensional pattern is produced by application of a foamable ink composition to the sleeve; and

disposing the floral grouping in the sleeve having the three-dimensional pattern printed thereon whereby the sleeve substantially surrounds and encompasses the floral grouping.

5,727,364

PERFECTED PACKAGING FOR THE WRAPPING OF MAINLY CYLINDRICAL AND LONG SHAPED BODIES, SUCH AS ARTIFICIAL TRIPE

Angel Iso Artieda, Pamplona, Spain, assignor to Viscofan, Industria Navarra de Envoltras Celulosicas S.A., Pamplona, Spain

Filed Aug. 30, 1996, Ser. No. 708,047

Claims priority, application Spain, Sep. 14, 1995, 9501791

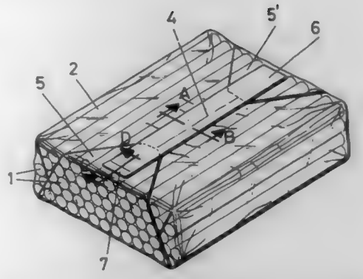
Int. Cl.[6] B65B *61/00*

U.S. Cl. 53—415 **14 Claims**

1. A packaging for wrapping cylindrical, elongated bodies of artificial tripe, the bodies having overlapping alignments, in a quincuncial orientation forming a substantially parallelepiped block having two opposed surfaces each having a surface area greater than the surface areas of the remaining sides, the packaging comprising:

a cover which is one of transparent, translucent and opaque, and the cover being laminar or not laminar and elastic or not elastic, said cover being wrapped lengthwise upon the parallelepiped block defining a sealing line which is parallel to the lengthwise axis of the bodies, the cover having end areas which are folded such that the folded end areas adapt themselves to the ends of the parallelepiped block and define a pair of end flaps, one flap at each end of the block which pair of flaps are folded down over the sealing line on the parallelepiped block; and

an adhesive tape strip, having one adhesive surface, for stabilizing the cover on the parallelepiped block placed over the sealing line and the adhesive tape strip having ends overlapping the end flaps of the cover.



5,727,365

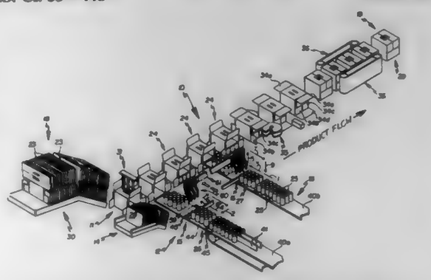
APPARATUS FOR PACKAGING ARTICLE GROUPS

Jeffrey A. Lashyro, and Kelly W. Ziegler, both of Crosby, Minn., assignors to Riverwood International Corporation, Atlanta, Ga.

Filed Jan. 16, 1996, Ser. No. 586,408

Int. Cl.[6] B65B *35/30;35/50*

U.S. Cl. 53—448 **12 Claims**



1. A method for packaging articles, comprising the steps of:

(a) supplying a stream of packaging units, each of the packaging units having a first lateral side and a second lateral side;

(b) supplying at least one input stream of articles substantially perpendicularly with respect to the stream of packaging units;

(c) forming a flat, single layer article group at a terminal end of the at least one input stream of articles by using a set of line stop pins, a set of pack pattern line stop pins, and one staging bar for each stream, the staging bar having a reciprocating motion limited to a predetermined horizontal plane, wherein the step of forming an article group further includes the steps of:

(1) horizontally extending the staging bar into a gap behind a preformed article group and in front of a set of line stop pins;

(2) retracting the set of line stop pins;

(3) advancing the staging bar forward a predetermined distance toward the packaging unit;

(4) upwardly extending the set of line stop pins;

(5) horizontally retracting the staging bar behind the extended set of pack pattern pins; and

(6) retracting the staging bar rearward for cyclical processing;

(d) inserting a reciprocating holdback mechanism into the second lateral side of a packaging unit to a predetermined position; and

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(e) substantially perpendjcularly loading the article group into the packaging unit in' the stream of packaging units using a loading arm to move the article group against the holdback mechanism, the loading arm having a reciprocating motion limited to a predetermined vertical plane, wherein the step of forming an article group further includes the steps of:

(1) downwardly extending the loading arm and engaging a preformed article group;

(2) retracting the set of pack pattern line stop pins;

(3) advancing the loading arm forward a predetermined distance toward the packaging unit;

(4) upwardly extending the set of pack pattern line stop pins;

(5) upwardly retracting the loader arm; and

(6) retracting the loading arm rearward for cyclical processing;

whereby the steps of forming the article group, inserting the holdback mechanism, and loading the article group are synchronized with each other during the operation of a continuous motion cartoner.

5,727,366

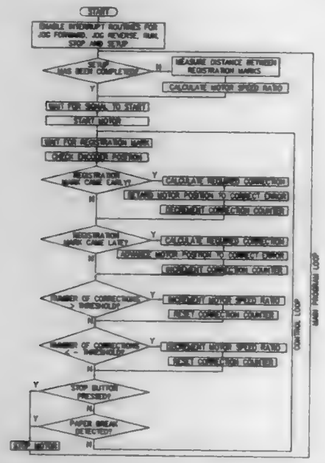
REGISTRATION CONTROL

John B. Manly, Jr., Moore, S.C., assignor to Milliken Research Corporation, Spartanburg, S.C.

Filed Apr. 10, 1997, Ser. No. 835,686

Int. Cl.[6] B65B *9/20;41/18*

U.S. Cl. 53—451 **5 Claims**



1. A method for controlling the registration of preprinted package stock in a form-fill-seal packaging machine in which individual packages are formed in substantially continuous fashion, said package stock being drawn through said machine by the advancing action of moving sets of opposed jaws, said method comprising the steps of: supplying a quantity of package stock having registration medium placed thereon, detecting the position of successive registration medium on said stock and supplying said detection to a controller, detecting the speed of said machine and supplying the detection to said controller to form a ratio of speed to distance between registration marks and continuing to detect the registration medium on the stock and adjusting the speed of the supply of paper to said machine by comparison of the position of the detected medium to the ratio to either speed up or slow down the supply of paper stock.

5,727,367

PACKING METHOD AND APPARATUS

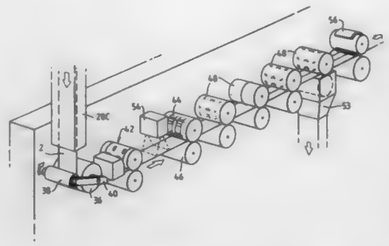
Michael John Cahill; Kevin Richard Fincham, both of Coventry, and Geoffrey William Vernon, Bucks, all of Great Britain, assignors to Molins PLC, Milton Keynes, England

Continuation of Ser. No. 322,552, Oct. 13, 1994, abandoned. This application Apr. 23, 1996, Ser. No. 636,395

Claims priority, application United Kingdom, Oct. 13, 1993, 9321148

Int. Cl.[6] B65B *19/20;19/22*

U.S. Cl. 53—462 **19 Claims**



1. A packing method including the steps of feeding a web of card-like packaging material suitable for forming blanks for hinged lid packets for cigarettes; performing at least one creasing or shaping operation on the web substantially at or adjacent to a packing location, including passing the web between at least one pair of creasing rolls to define at least one crease in each blank which is to be severed from the web, said crease extending along a line about which the blank is to be folded; severing individual packaging blanks from the web; and delivering the blanks individually from said severing operation for folding around a group of cigarettes to be packed at said packing location, including folding each blank about said line in the formation of a hinged lid packet from said blank and containing said group of cigarettes.

5,727,368

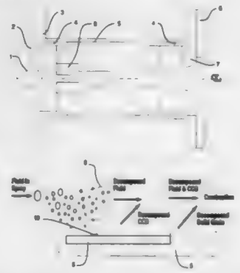
HYBRID MOTOR SYSTEM WITH A CONSUMABLE CATALYTIC BED A COMPOSITION OF THE CATALYTIC BED AND A METHOD OF USING

Eric J. Wernimont, 18250 Marsh La. Apt. 302, Dallas, Tex. 75287; Scott E. Meyer, 5170 Bradyville Pike, Murfreesburo, Tenn. 37130, and Mark C. Ventura, P.O. Box 40107, Downey, Calif. 90239

Filed Mar. 28, 1996, Ser. No. 623,937

Int. Cl.[6] C06D *5/04*

U.S. Cl. 60—218 **26 Claims**



1. A method of initiating a combustion reaction of an injected fluid with a solid grain which comprises the step of injecting the fluid onto a consumable catalytic bed comprised of a solid material that:

(a) decomposes the injected fluid upon contact of the injected fluid with the solid material through a reaction of the injected fluid with the solid material;

(b) releases energy and products from the injected fluid or the solid material sufficient to vaporize the solid material and initiate the combustion reaction of the injected fluid with the solid grain;

(c) has an integral self supporting structure with a surface area substantially exposed to the injected fluid;

(d) sustains the decomposition of the injected fluid until the combustion reaction continues without the aid of the consumable catalytic bed or until the injected fluid is no longer injected; and

(e) is substantially consumed during the initiation of the combustion reaction or during the injecting of the fluid.

5,727,369

METHODS FOR CONVEYING OBJECTS THROUGH APPARATUS, PACKING APPARATUS AND METHODS FOR PACKING MATERIALS IN CARTONS

Richard W. E. Mosse, London, United Kingdom, assignor to Tetra Laval Holdings and Finance SA., Pully, Switzerland

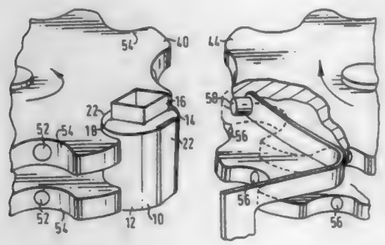
PCT No. PCT/GB94/01511, § 371 Date Apr. 25, 1996, § 102(e) Date Apr. 25, 1996, PCT Pub. No. WO95/02539, PCT Pub. Date Jan. 26, 1995

PCT Filed Jul. 13, 1994, Ser. No. 583,125

Claims priority, application United Kingdom, Jul. 15, 1993, 9314647

Int. Cl.[6] B65B *43/50;43/60;* **B65G** *47/52;47/92*

U.S. Cl. 53—467 **22 Claims**



1. A method of conveying objects comprising carrying said objects on a first conveyor and transferring said objects to a second conveyor in respective transfer operations, wherein said first conveyor and said second conveyor each have at least one location for carrying such objects, said locations being angularly fixed with respect to one another, each said location comprising a radially outward facing recess for receiving one side of a said object and having radially acting means comprising at least one magnet for holding a said object by its side in said location, and wherein each said object when held in a said location on said first conveyor follows a path which runs tangential to and in the same direction as a portion of a path followed by said second conveyor, such that during each said transfer operation the respective object is momentarily simultaneously disposed in the recess of a said location of said first conveyor and in the recess of a said location of said second conveyor to which the said object is being transferred.

5,727,370

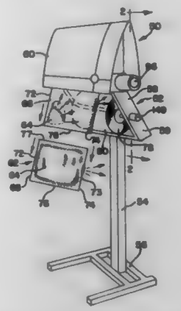
APPARATUS AND METHOD FOR PRODUCING FOAM CUSHIONS UTILIZING FLEXIBLE FOAM MIXING CHAMBER

Charles Richard Sperry, 516 N. Farms Rd., Northampton, Mass. 01060

Filed Jun. 21, 1996, Ser. No. 667,421

Int. Cl.[6] B65B *9/06;23/00;55/20*

U.S. Cl. 53—472 **52 Claims**



52. A method for forming protective foam cushions in which the foam cushions include a mass of expandable foam enclosed within an outer plastic film, the method comprising the steps of:

providing a supply of film in the form of a continuous web of film;

providing a foam component dispensing assembly interconnected to two sources of reactive foam components which, when mixed together, react to form an expanding foam;

advancing said web of film across the foam dispensing assembly in a manner such that: two opposing film panels are defined in face-to-face contact along the length of said web, and said foam dispensing assembly is interposed in an interior space between said web opposing film panels;

providing a pair of rotating brushes on opposite sides of said web opposing film panels and in proximity to said foam dispensing assembly to support said web opposing film panels, as they are advanced;

dispensing said two foam components from said foam component dispensing assembly into said web opposing film panel interior space;

whereby mixing of said two foam components occurs entirely within said web opposing film panel interior space and downstream of said foam component dispensing assembly.

5,727,371

AGRICULTURAL MACHINE USED FOR CUTTING VEGETABLES WITH AN IMPROVED PROTECTION DEVICE

Fernand Kieffer; Horst Neuerburg, both of Saverne, and Jean-Paul Haberkorn, Monswiller, all of France, assignors to Kuhn S.A., Saverne Cedex, France

Filed Oct. 27, 1995, Ser. No. 549,066

Claims priority, application France, Oct. 28, 1994, 94 13106

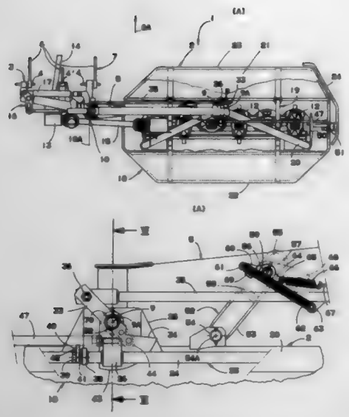
Int. Cl.[6] A01D *34/66;34/82*

U.S. Cl. 56—6 **30 Claims**

1. An agricultural machine used for cutting vegetables and including:

an attachment structure adapted to be connected to a power driven vehicle, a cutting mechanism connected to the attachment structure by a first articulation so that said cutting mechanism can be brought into a work position in which it will extent transversely to a direction of travel, or into another position, said cutting mechanism including cutting elements and a protection device enveloping the latter and of which one part can be moved into a non-operating position, and

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drive elements which are capable of driving said cutting elements when said cutting mechanism is located in its work position and which are incapable of providing drive power for said cutting elements when said cutting mechanism is in the other position, wherein said agricultural machine additionally includes a stop device which has a first position which prevents movement of said one part of said protection device into the non-operating position when said cutting mechanism is located in the work position, said stop device having a second position which permits said movement of said one part of said protection device into the non-operating position when said cutting mechanism is located in the other position, an activation element for actuating said stop device from said second position to said first position automatically when said cutting mechanism is brought from said other position into the work position.

5,727,372

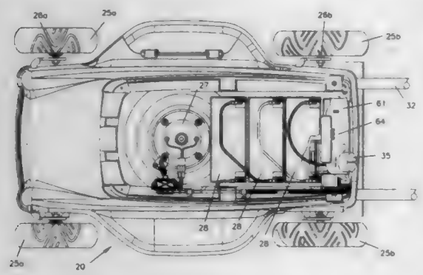
ON-BOARD CHARGING SYSTEM FOR ELECTRIC LAWN MOWER

Allan Dale Kanitz, Prior Lake, and Jay Jeffrey Kakuk, Plymouth, both of Minn., assignors to The Toro Company, Minneapolis, Minn.

Filed May 30, 1996, Ser. No. 655,732

Int. Cl.[6] A01B *34/82*

U.S. Cl. 56—11.9 **19 Claims**



1. A self-contained battery charger apparatus for charging a battery for an electrically powered turf mower, the battery having a voltage, comprising:

a) an AC to DC converter for accepting a source of AC power and providing a DC current source output;

b) a regulator device operatively connected between said converter for receiving said current source output and the battery, wherein said regulator device is responsive to control signals for selectively providing said current source output to the battery;

c) first sensor means for measuring the voltage of the battery and providing a first voltage signal;

d) second sensor means for measuring the current delivered to the battery and providing a second voltage signal; and

e) controller means, operatively connected to said first and second sensor means and said regulator device, for determining the voltage of the battery from said first voltage signal, for determining the current provided to the battery from said second voltage signal, and for providing a pulse width modulated control signal to said regulator device to provide a periodic constant current level to the battery based on said determined battery voltage and current.

5,727,373

APPARATUS AND METHOD FOR UNWRAPPING FIBRE OPTIC CABLE FROM AN OVERHEAD LINE

David Dale Appleford, Swindon, and James Charles Baker, Buford, both of Great Britain, assignors to Focas Limited, Wiltshire, United Kingdom

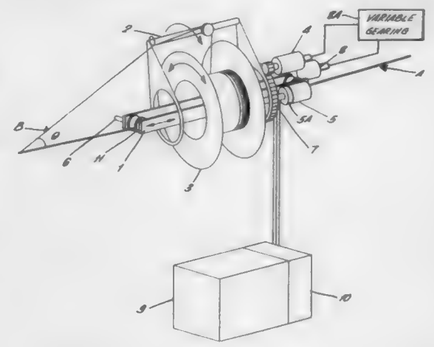
PCT No. PCT/GB94/02478, § 371 Date Jun. 28, 1996, § 102(e) Date Jun. 28, 1996, PCT Pub. No. WO94/13619, PCT Pub. Date May 18, 1995

PCT Filed Nov. 11, 1994, Ser. No. 640,867

Claims priority, application United Kingdom, Nov. 12, 1993, 9323384

Int. Cl.[6] A01D *75/30;45/02*

U.S. Cl. 57—1 UN **14 Claims**



1. An apparatus for unwrapping fibre optic cable from an overhead line comprising a carriage which sits on the overhead line and is moveable along the overhead line, a guide arm mounted for rotation about the carriage, the guide arm performing the unwrapping action of the fibre optic cable from the overhead line, a drum and drum drive means, the drum being driven by the drive means to gather the fibre optic cable which has been unwrapped by the guide arm from the overhead line wherein the apparatus further comprises means for varying the speed of rotation of the guide arm with respect to the forward speed of the carriage.

5,727,374

TWISTING SPINDLE, ESPECIALLY FOR A TWO-FOR-ONE TWISTING MACHINE HAVING A PLURALITY OF TWISTING SPINDLES

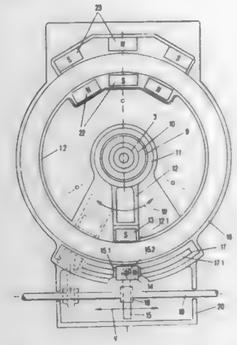
Heinz Fink, Krefeld, Germany, assignor to Palitex Project-Company GmbH, Krefeld, Germany

Filed Nov. 1, 1996, Ser. No. 743,129

Claims priority, application Germany, Nov. 2, 1995, 195 40 790.3

Int. Cl.[6] D01H *1/10;7/86*

U.S. Cl. 57—58.86 **17 Claims**



13. A two-for-one twisting machine comprising a plurality of twisting spindles, each one of said twisting spindles comprising:

a) a spindle rotor;

b) a spool carrier, having a hollow hub with a central axis, mounted on said spindle rotor for receiving a yarn spool, wherein during operation of said twisting spindle a yarn removed from the yarn spool is guided axially along said center axis through said hollow hub and radially through said spindle rotor and, after exiting from said spindle rotor and forming a yarn balloon surrounding said spool carrier, is guided axially to a centering point above said spindle carrier;

c) a yarn brake positioned within said hollow hub, said hollow hub forming a cylindrical housing for said yarn brake;

d) said yarn brake comprising a brake cartridge positioned vertically along said central axis within said cylindrical housing and further comprising a first and a second brake rings positioned at opposite ends of said brake cartridge for supporting said brake cartridge, said first brake ring positioned axially above said second brake ring;

e) one of said first and second brake rings being axially displaceable within said cylindrical housing to thereby adjust a braking force of said yarn brake;

f) said yarn brake further comprising an adjusting sleeve, having an upper end and a lower end, positioned in said cylindrical housing so as to be axially displaceable and rotationally fixed relative to said cylindrical housing and enclosing said second brake ring;

g) said first brake ring nonpositively coupled, at least in one axial direction, to said upper end of said adjusting sleeve;

h) said lower end of said adjusting sleeve comprising a threaded portion extending axially into an area beneath said spool carrier;

i) a transmission member, comprising an actuating arm extending radially relative to said central axis, threaded onto said threaded portion of said adjusting sleeve so as to be rotatable but axially fixed;

j) said actuating arm comprising a first permanent magnet located at a radially outer end of said actuating arm, wherein an outwardly facing face of said first permanent magnet is positioned within an area delimited by the yarn balloon closely adjacent to the rotating yarn forming the yarn balloon;

k) a second permanent magnet positioned external to said area delimited by said yarn balloon directly opposite said first permanent magnet, wherein said outwardly facing face of said first permanent magnet and an inwardly facing face of said second permanent magnet have opposite polarity;

l) said second permanent magnet being rotatable about said central axis along a circular arc;

m) a guide system for guiding said second permanent magnet along the circular arc;

further comprising a centrally controlled, mechanical actuator for displacing simultaneously said second permanent magnets of said twisting spindles along said circular arc for a predetermined angular distance.

5,727,375

METHOD AND APPARATUS FOR STRANDING ELONGATED ELEMENTS INTO REVERSELY TWISTED STRAND

Jerzy Jankowski, Warsaw, Poland, assignor to The Northampton Machinery Company Limited, Northampton, United Kingdom

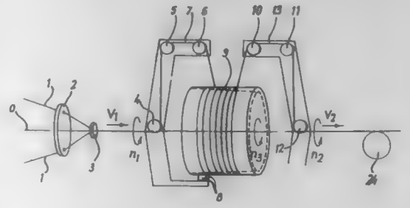
PCT No. PCT/GB94/02012, § 371 Date Jun. 17, 1996, § 102(e) Date Jun. 17, 1996, PCT Pub. No. WO95/08175, PCT Pub. Date Mar. 23, 1995

PCT Filed Sep. 15, 1994, Ser. No. 615,305

Claims priority, application Poland, Sep. 16, 1993, 300409

Int. Cl.[6] D01H *1/10;7/86*

U.S. Cl. 57—58.52 **13 Claims**



1. A method of stranding elongated elements into a strand of reverse twists comprising the steps of:

providing a stranding apparatus comprising a first winding flyer, a first drum, and a first unwinding flyer, said first winding flyer, said first drum and said first unwinding flyer having a common axis of rotation;

feeding a bundle of elongated elements through said apparatus, such that the elongated elements pass through said first winding flyer, around the first drum, and through the first unwinding flyer;

rotating the first winding flyer, the first drum and the first unwinding flyer simultaneously in the same direction in at least two alternating twisting phases wherein the rotational speeds of the first winding flyer and the first unwinding flyer in one phase are different from their respective rotational speeds in another phase, whereby the first winding flyer produces a first twist in the bundle while winding the bundle onto the first drum, and the first unwinding flyer produces a second twist in the bundle while unwinding the bundle from the first drum, the relationship between the rotational speeds of the first winding flyer, the first drum, and first unwinding flyer being such that reverse twisting is achieved in operation; and

pulling the reversely twisted bundle off the first unwinding flyer.

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5,727,376

METHOD AND A BLANK FOR THE PRODUCTION OF HORSESHOES

Clemens Bäckman, Gustafs, Sweden, assignor to MCL i Avesta AB, Sweden

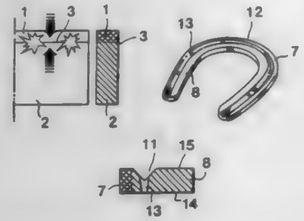
PCT No. PCT/SE95/00471, § 371 Date Nov. 1, 1996, § 102(e) Date Nov. 1, 1996, PCT Pub. No. WO95/30329, PCT Pub. Date Nov. 16, 1995

PCT Filed Apr. 28, 1995, Ser. No. 737,092

Claims priority, application Sweden, May 4, 1994, 9401534

Int. Cl.[6] A01L *1/00;* B21K *15/02*

U.S. Cl. 59—62 10 Claims



1. A method for the production of horseshoes from an initial blank, said initial blank being in the form of a planar plate having a length and width greater than a thickness dimension, comprising:

at least two partial plates of materials having a different hardness relative to each other, said materials being joined to each other by explosion welding, a harder material forming an external lamina and a softer material of said materials forming an internal lamina, wherein said initial blank, in a first step, is divided into a plurality of individual, elongate intermediate blanks, each intermediate blank of said intermediate blanks having a width corresponding to the thickness of said initial blank and a thickness less than the width of said initial blank, each said initial blank, in a second step, being cut into a length corresponding to a desired shoe size to thus form several final blanks, each final blank of said final blanks having opposed ends; and

bending, in a third step, each final blank of said final blanks into a U-shaped shoe.

5,727,377

METHOD OF OPERATING A GAS TURBINE POWER PLANT WITH STEAM INJECTION

Mircea Fetescu, Ennetbaden, and Henrik Nielsen, Wettingen, both of Switzerland, assignors to Asea Brown Boveri AG, Baden, Switzerland

Filed Sep. 4, 1996, Ser. No. 708,111

Claims priority, application Germany, Sep. 22, 1995, 195 35 229.9

Int. Cl.[6] F02C *3/30;6/18*

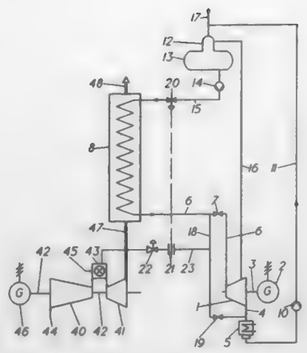
U.S. Cl. 60—39.05 3 Claims

1. A method of operating a power station plant including a gas-turbine group, a waste-heat steam generator and a downstream steam consumer, the method comprising the steps of:

directing exhaust gas of the gas-turbine group into the waste-heat steam generator in counterflow with feed water from a feed-water line to generate steam, wherein the feed water is directed through the waste-heat steam generator in a once-through arrangement, and wherein the exhaust gases of the gas-turbine group are directed through the waste-heat steam generator continually during operation of the installation,

feeding the steam generated in the waste-heat steam generator to the steam consumer via at least one steam line, and

when the steam consumer is shut off, directing the steam generated in the waste-heat steam generator into the gas-turbine group via an injection steam line, wherein a quantity of steam directed into the gas-turbine group is measured by a measuring orifice in the injection steam line and, responsive to the measured quantity, a flow-regulating valve in the feed-water line controlling an amount of feed water being directed into the waste-heat steam generator is adjusted to control an amount of steam generated.



5,727,378

GAS TURBINE ENGINE

Jeffrey L. Seymour, Menasha, Wis., assignor to Great Lakes Helicopters Inc., Neenah, Wis.

Filed Aug. 25, 1995, Ser. No. 519,672

Int. Cl.[6] F02C *3/06;7/08*

U.S. Cl. 60—39.36 39 Claims

1. A combustion assembly for a turbine engine, said combustion assembly including a combustor having a leading end and a trailing end, a longitudinal axis, an outer wall spaced from, and extending about and along the longitudinal axis, an inner wall extending about and along the longitudinal axis between the longitudinal axis and said outer wall, and a dome connecting said outer and inner walls at the leading end of said combustor at respective first outer and second inner annular lines of intersection therewith, thereby forming a combustion chamber between said inner and outer walls, an outer casing extending about said combustor to thereby define an annular liner passage between said outer wall and said outer casing, said outer wall comprising a tube have a base outer surface, and a plurality of axially spaced air inlet openings formed in, and as integral parts of, said tube, for directing air, from loci adjacent said base outer surface, generally circumferentially into said combustion chamber.

5,727,379

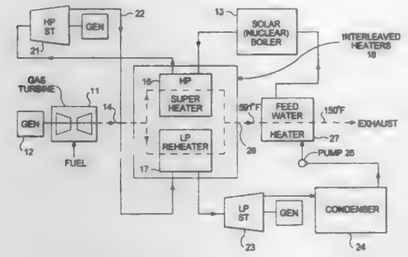
HYBID SOLAR AND FUEL FIRED ELECTRICAL GENERATING SYSTEM

Arthur Cohn, Palo Alto, Calif., assignor to Electric Power Research Institute, Palo Alto, Calif.

Filed May 31, 1996, Ser. No. 658,823

Int. Cl.[6] F02C *6/00*

U.S. Cl. 60—39.182 4 Claims



1. An electric power generation system having a substantially closed feed water/steam path to provide a common mass flow comprising:

a gas turbine generator having a hot exhaust gas stream;

a low temperature heat exchanger located in a downstream portion of said hot exhaust gas for heating said feed water to substantially its evaporation temperature;

a solar boiler connected to said low temperature heat exchanger for evaporating said feed water;

a high pressure steam turbine generator and a low pressure steam turbine generator;

first and second high temperature heat exchangers located in an upstream portion of said hot exhaust gas of said turbine, said first high temperature heat exchanger receiving evaporated feed water from said solar boiler and superheating it to a predetermined temperature for driving said high pressure steam turbine, such high pressure steam turbine having a low pressure exhaust at a temperature near said evaporation temperature, said second high temperature heat exchanger receiving such exhaust from said high pressure turbine, and reheating it to substantially said same predetermined temperature for driving said low pressure steam turbine, the exhaust of said low pressure steam turbine being connected to a condenser, where steam is changed to water, and then by a high pressure feedwater pump to said low temperature heat exchanger;

the absolute heat energy per degree of temperature rise supplied by said first and second high temperature heat exchangers and utilized by said high pressure and low pressure steam turbines being substantially equal to the heat energy provided by the feed water heat exchanger to heat said feed water to said evaporation temperature.

5,727,380

TURBOJET ENGINE THRUST REVERSER WITH ASYMMETRICAL DOORS

Pascal Lardy, and Guy Bernard Vauchel, both of Le Havre, France, assignors to Societe Hispano-Suiza, Colombes Cedex, France

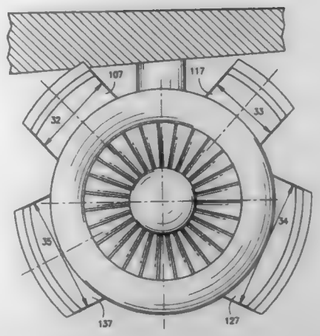
Filed Jul. 8, 1996, Ser. No. 677,721

Claims priority, application France, Jul. 12, 1995, 95 08410

Int. Cl.[6] F02K *1/00*

U.S. Cl. 60—230 6 Claims

1. A thrust reverser for a turbojet engine having a cowling bounding a gas flow duct comprising a plurality of thrust reverser doors, each pivotally attached to the cowling so as to be movable between a forward thrust position in which an outer surface of its thrust reverser door is substantially flush with an outer surface of the cowling, and a reverse thrust position in which a forward portion is displaced outwardly from the cowling so as to redirect at least a portion of gases passing through the gas flow duct outwardly from the cowling to produce a reverse thrust, wherein a width of at least one of the thrust reverser doors, measured in a generally circumferential direction around the cowling, is less than a width of at least one other thrust reverser door, wherein the cowling is attached to an aircraft wing and wherein the thrust reverser doors closest to the aircraft wing have a width less than the width of the remaining thrust reverser doors.



5,727,381

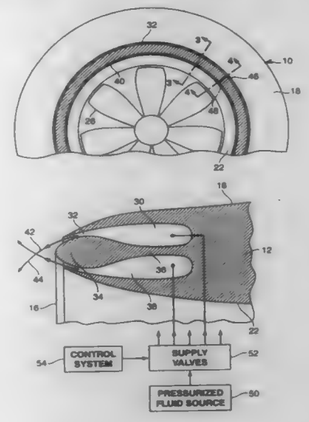
DUCT FLOW CONTROL SYSTEM

Ernest O. Rogers, Great Falls, Va., assignor to The United States of America as represented by Secretary of the Navy, Washington, D.C.

Filed Feb. 19, 1997, Ser. No. 802,701

Int. Cl.[6] B63H *25/46;* B64C *15/14*

U.S. Cl. 60—231 3 Claims



1. In combination with a vehicle propelled through a fluid medium by a propulsion system having a duct fixed to the vehicle through which flow of said fluid medium is conducted and means for modifying said flow of the fluid medium between forward and trailing edges of the duct, including: passage means fixedly mounted within said duct for ejection of pressurized fluid medium adjacent to and tangentially of said trailing edge of the duct from radially outer and inner flow channels formed within the duct; and control means for selective variation in angular extent of said ejection of the pressurized fluid medium; the improvement residing

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in: wall means formed internally within the duct for angularly separating the flow channels into angular segments to which the pressurized fluid medium is selectively supplied by the control means to effect said selective variation in angular extent of the ejection of the pressurized fluid medium; and Coanda formation means projecting from the trailing edge of the duct for separating spaced fluid ejection slots respectively extending from the inner and outer flow channels to establish outflow paths along which only said ejection of the pressurized fluid medium is directed.

5,727,382

AIRCRAFT RAM JET ENGINE FOR SUPERSONIC AND/OR HYPERSONIC FLIGHT

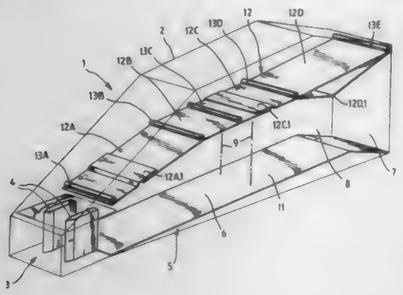
Alain Chevalier, Asnieres Les Bourges; Marc Bouchez, Bourges, both of France; Vadim Levine, Moscou, Russian Federation; Valery Avrachkov, Moscow, Russian Federation, and Dimitri Davidenko, Moscou, Russian Federation, assignors to Aerospatiale Societe Nationale Industrielle, Paris, France

Filed Jun. 27, 1996, Ser. No. 671,345

Claims priority, application France, Jul. 12, 1995, 95 08417

Int. Cl.[6] F02K *7/10;7/08*

U.S. Cl. 60—270.1 **10 Claims**



1. An aircraft ramjet engine for supersonic and/or hypersonic flight, for operating over a wide range of speed values corresponding to a range of Mach numbers from 1 to 20, comprising:

an oxidant inlet (**3**) for an inlet stream of oxidant gas;

at least one fuel injector (**4**) which is arranged in said oxidant inlet (**3**) and injects either a liquid fuel or a fuel gas into said inlet stream;

a variable geometry combustion chamber (**6**) having a variable cross section, which is arranged immediately downstream of said at least one fuel injector (**4**) and in which a mixture of oxidant and fuel is produced and burned;

a variable geometry divergent jet pipe (**7**), which is arranged immediately downstream of said combustion chamber (**6**) and which channels gases leaving said combustion chamber; and

a variable geometry throat (**8**) which is arranged between said combustion chamber (**6**) and said jet pipe (**7**),

wherein, as said Mach number increases, said variable geometry combustion chamber (**6**) and said variable geometry jet pipe (**7**) change geometry to progressively smooth out said throat (**8**) and reduce said variable cross section of the combustion chamber (**6**), so that, at Mach values greater than Mach 7, said throat (**8**) and said combustion chamber (**6**) have a uniform cross section, and said throat (**8**) has disappeared.

5,727,383

CATALYST DETERIORATION DETECTING APPARATUS AND EXHAUST EMISSION CONTROL DEVICE FAILURE DETECTING APPARATUS

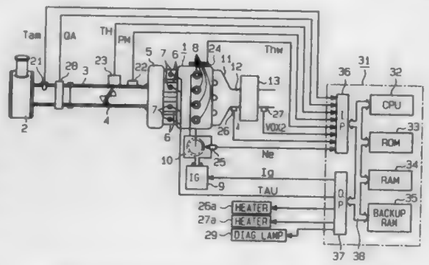
Yukihiro Yamashita; Hisashi Iida, both of Kariya, and Masaaki Nakayama, Toyoake, all of Japan, assignors to Nippondenso Co., Ltd., Kariya, Japan

Filed Feb. 2, 1996, Ser. No. 597,562

Claims priority, application Japan, Feb. 10, 1995, 7-023161; Apr. 20, 1995, 7-095587; Jun. 28, 1995, 7-162640

Int. Cl.[6] F01N *3/28*

U.S. Cl. 60—276 **25 Claims**



1. A catalyst deterioration detecting apparatus comprising:

a catalyst disposed in an exhaust system of an internal combustion engine;

catalyst activation determining means for determining whether the catalyst is activated; and

deterioration detecting means for detecting the deterioration of the catalyst when the catalyst is determined to be activated by the catalyst activation determining means, the deterioration being detected in accordance with the quantity of heat required from a start-up of the internal combustion engine until an activation of the catalyst.

5,727,384

ENGINE MANAGEMENT SYSTEM

Thomas T. Ma, South Woodham Ferrers, Great Britain, assignor to Ford Global Technologies, Inc., Dearborn, Mich.

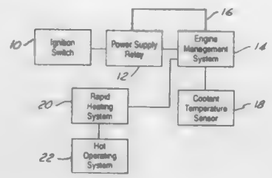
PCT No. PCT/GB94/01568, § 371 Date Feb. 28, 1996, § 102(e) Date Feb. 28, 1996, PCT Pub. No. WO95/06811, PCT Pub. Date Mar. 9, 1995

PCT Filed Jul. 20, 1994, Ser. No. 602,850

Claims priority, application United Kingdom, Aug. 28, 1993, 9317980

Int. Cl.[6] F01N *3/20;* **F02N** *17/02*

U.S. Cl. 60—284 **4 Claims**



1. A management system of an engine having a hot operating system and a rapid heating system for the hot operating system, the management system including a clock, and means to operate the clock after the engine has stopped, the clock operating to issue a signal indicating the time since the last engine switch off, means coupled to the clock for estimating the temperature of the hot operating system prior to restarting the engine on the basis of signals from the clock indicating the time since the last switch off, and means for controlling the rapid heating system in dependence upon the estimated temperature of the hot operating system prior to restarting of the engine.

5,727,385

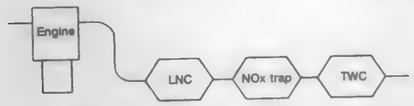
LEAN-BURN NOX CATALYST/NOX TRAP SYSTEM

Jeffrey Scott Hepburn, Dearborn, Mich., assignor to Ford Global Technologies, Inc., Dearborn, Mich.

Filed Dec. 8, 1995, Ser. No. 569,517

Int. Cl.[6] F01N *3/00*

U.S. Cl. 60—297 **10 Claims**



1. A catalyst system, located in the exhaust gas passage of a lean-burn internal combustion engine, useful for converting carbon monoxide, nitrogen oxides, and hydrocarbons present in the exhaust gas, said catalyst system comprising two-components:

(1) lean-burn nitrogen oxide catalyst being a transition metal selected from the group consisting of copper, chromium, iron, cobalt, nickel, iridium, cadmium, silver, gold, platinum, manganese, and mixtures thereof (i) loaded on a refractory oxide or (ii) exchanged into zeolite, wherein said transition metal is loaded on said refractory oxide in an amount of about 0.1 to 10 weight percent based on the weight of said refractory oxide; and

(2) a nitrogen oxide (NOx) trap material which absorbs NOx when the exhaust gas flowing into said trap material is lean and releases the absorbed NOx when the concentration of oxygen in the inflowing exhaust gas is lowered;

said nitrogen oxide trap material being located downstream of said lean-burn nitrogen oxide catalyst in said exhaust gas passage such that said exhaust gases are exposed to said lean-burn catalyst prior to being exposed to said nitrogen oxide tram material.

5,727,386

STRUCTURE OF AN EXHAUST MANIFOLD BRANCH COLLECTING PORTION

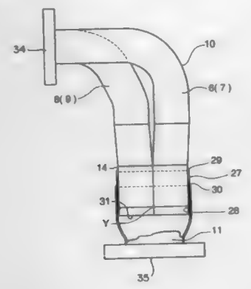
Yoshimasa Watanabe, Shizuoka-ken; Makoto Yokota, Anjyo; Shigeki Yasuhara, Toyota; Kazuhisa Mikame, Nagoya, and Satoru Takahashi, Toyota, all of Japan, assignors to Toyota Jidosha Kabushiki Kaisha, Toyoyta, Japan

Filed Apr. 2, 1996, Ser. No. 626,737

Claims priority, application Japan, Apr. 3, 1995, 7-077458; Oct. 30, 1995, 7-281229

Int. Cl.[6] F01N *7/10*

U.S. Cl. 60—323 **4 Claims**



1. An exhaust manifold branch collecting portion structure, said structure being connected to a cylinder head at one end of said structure, said structure comprising:

an exhaust manifold including a plurality of pipes having downstream ends, each of said downstream pipe ends having a pie-shaped cross-section having two straight sides and one arc-shaped side, said downstream pipe ends being assembled with the said straight sides of the pie-shaped cross-sections of adjacent downstream pipe ends contacting each other to form partitioning walls and being welded together at downstream ends of said partitioning walls to form a combined pipe portion having a circular cross-section;

a cylindrical intermediate member receiving therein at least a downstream end of said combined pipe portion and welded to said combined pipe portion; and

a collecting pipe having an upstream end receiving therein at least a downstream end of said intermediate member and welded to said intermediate member.

5,727,387

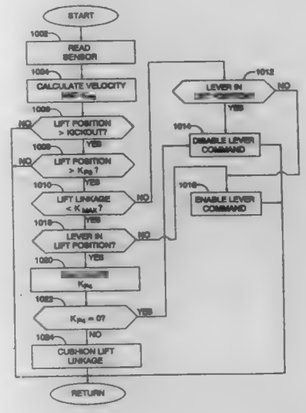
APPARATUS FOR CONTROLLING AN IMPLEMENT OF A WORK MACHINE

Javad Hosseini, Edelstein; Nathan T. Schenkel, Coal City, and James E. Schimpf, Plainfield, all of Ill., assignors to Caterpillar Inc., Peorin, Ill.

Continuation of Ser. No. 563,478, Nov. 28, 1995, Pat. No. 5,617,723, which is a continuation of Ser. No. 331,449, Oct. 31, 1994, Pat. No. 5,537,818. This application Jan. 10, 1997, Ser. No. 783,422

Int. Cl.[6] F16D *31/00;39/00*

U.S. Cl. 60—327 **2 Claims**



1. A method for controllably snubbing a linkage for an implement, the implement being connected to a work machine and being movable between maximum and minimum implement positions in response to actuation of a hydraulic actuator, including the steps of:

determining a position of said linkage and responsively determining a velocity of said linkage;

determining a position of a lever adapted to control said linkage;

determining a snub cushioning length as a function of said velocity of said linkage;

defining a position of said linkage as the difference between a maximum mechanical position of said linkage and said snub cushioning length;

calculating an error distance as the difference between said maximum mechanical position of said linkage and the current position of said linkage; and

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determining a new lift command as a function of a starting lift command, said current position of said linkage, said error distance, and said snub cushioning length.

5,727,388

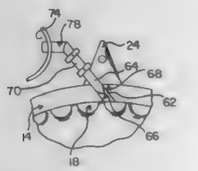
SOLAR ACTIVATED POSITIVE DISPLACEMENT PISTON PUMP-ROTOR DRUM TURBINE

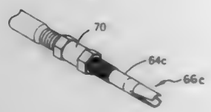
Alexander Adamides, 834 11th St. N., St. Petersburg, Fla. 33705

Continuation-in-part of Ser. No. 878,818, May 5, 1992, Pat. No. 5,271,225, which is a continuation-in-part of Ser. No. 519,768, May 7, 1990, abandoned. This application Dec. 21, 1993, Ser. No. 171,570

Int. Cl.[6] F16D *31/02*

U.S. Cl. 60—417 15 Claims





7. An apparatus for the generation of useful mechanical work in the form of rotary shaft power that can be utilized by any device requiring rotary power comprising:

a base for mounting components wherein the components include:

an independent electrical source to supply electric power to the electrical operating and control components of the apparatus;

an electromagnetically operated piston pump, deriving operating power from the electrical source and capable of pumping fluid under pressure, and having the ability to partially recover and return expended electrical power to the electrical source;

a plurality of storage tanks wherein the output of the pump is transferred and held under pressure, and wherein the stored pressurized contents of the storage tanks are transferred;

a turbine for receiving the contents of the storage tanks and having the pressurized contents inlet port terminating in a header with a plurality of interchangeable speed controlling discharge orifices through a plurality of shaft mounted balanced turbine impellers, causing the impellers to revolve and, in turn, causing the shaft to revolve and produce useful mechanical power, and having the contents exit the turbine, at a lower pressure, via the turbine discharge port and transfer back to said pump inlet port for recycling;

the shaft ends extend beyond the turbine housing a distance sufficiently long enough on one end to couple to auxiliary associated equipment and long enough on the other end to permit a flywheel to be mounted on the shaft between the turbine housing and the load.

5,727,389

ACTUATION SYSTEMS

David Anthony Harries, Welford on Avon, United Kingdom, assignor to Automotive Products, plc, Leamington Spa, England

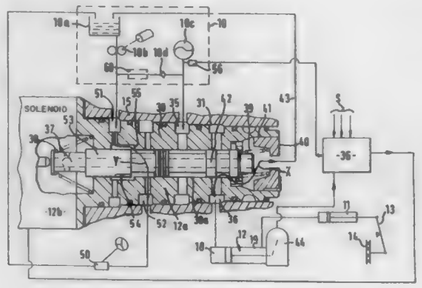
PCT No. PCT/GB95/02615, § 371 Date Jun. 24, 1996, § 102(e) Date Jun. 24, 1996, PCT Pub. No. WO96/15372, PCT Pub. Date May 23, 1996

PCT Filed Nov. 7, 1995, Ser. No. 666,503

Claims priority, application United Kingdom, Nov. 9, 1994, 22579; Nov. 9, 1994, 22580

Int. Cl.[6] F16D *31/02*

U.S. Cl. 60—418 16 Claims



1. An actuation system comprising:

at least one first consumer actuated from the pump;

at least one second consumer actuated via a valve means from an accumulator charged by the pump;

the valve means being operable to connect said at least one second consumer to the accumulator or to the reservoir thus actuating said at least one second consumer and also being operable in response to accumulator pressure levels below a predetermined charge level to restrict the flow of fluid to said at least one first consumer to a level sufficient to ensure effective operation of said at least one first consumer while generating a back pressure sufficient to ensure charging of the accumulator;

the valve means including a valve having a valve member which is displaceable both to connect said at least one second consumer to the accumulator or reservoir and also to restrict the flow of fluid to said at least one consumer.

5,727,390

RE-CIRCULATING HYDRAULIC SYSTEM

Kevin John Hartle, Halesowen, United Kingdom, assignor to Trinova Limited, Hampshire, United Kingdom

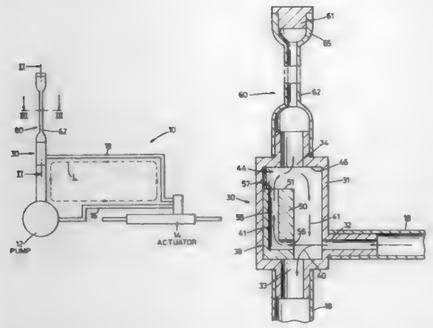
Filed Mar. 25, 1996, Ser. No. 620,905

Claims priority, application United Kingdom, Mar. 31, 1995, 9506654

Int. Cl.[6] B60T *13/20*

U.S. Cl. 60—453 15 Claims

1. A hydraulic system including a re-circulation flow loop including a hydraulic pump and an actuator in fluid communication via a high pressure feed line and a low pressure return line, the system further including an air separator in fluid communication with the low pressure line for removing air from hydraulic fluid flowing along said re-circulation loop, wherein the air separator includes a flow diverter that cooperates with fluid flowing through the separator for diverting a portion of such fluid and thereby (i) causing a negative pressure in a region of fluid flowing through the air separator; and (ii) causing the velocity of fluid in said region to reduce so as to promote separation of air from the fluid in said region.



5,727,391

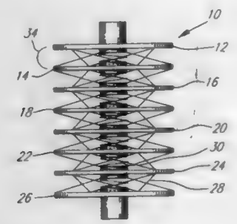
DEFORMABLE STRUCTURAL ARRANGEMENT

Vincent Hayward, and Danny Grant, both of Montreal, Canada, assignors to McGill University, Montreal, Canada

Filed Oct. 16, 1995, Ser. No. 541,195

Int. Cl.[6] F01B *29/10*

U.S. Cl. 60—528 26 Claims



1. An actuator comprising:

at least one fiber which shortens under activation, entrained between at least first and second support members,

said support members being in opposed, spaced apart relationship,

the entrained at least one fiber defining a cage of crossing lengths of fiber in symmetrical array,

said cage surrounding an inner zone between said support structure members.

5,727,392

CONVECTION-SHIELDED CRYOPUMP

Stephen R. Matté, Norfolk, Mass., assignor to Helix Technology Corporation, Mansfield, Mass.

Filed Dec. 19, 1996, Ser. No. 773,816

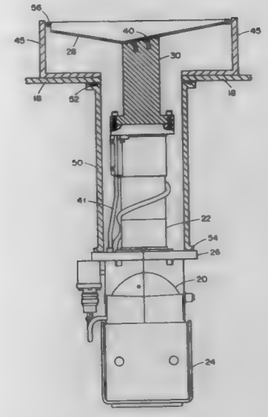
Int. Cl.[6] B01D *8/00*

U.S. Cl. 62—55.5 11 Claims

1. A cryopump apparatus comprising:

a chamber wall defining a boundary of a chamber;

a cryopump including a refrigerator, a heat station cooled by the refrigerator and at least partially within the chamber, and a cryopanel mounted onto the heat station within the chamber; and



a shield mounted on the chamber wall and surrounding the cryopanel, the shield minimizing convective flow of gas past the cryopanel.

5,727,393

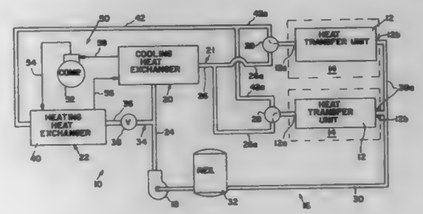
MULTI-STAGE COOLING SYSTEM FOR COMMERICAL REFRIGERATION

Mahmoud Mahmoudzadeh, Yorkville, Ill., assignor to Hussmann Corporation, Bridgeton, Mo.

Filed Apr. 12, 1996, Ser. No. 631,104

Int. Cl.[6] F25B *47/02*

U.S. Cl. 62—81 13 Claims



1. A non-compressible coolant fluid system for cooling product merchandisers having heat transfer means constructed and arranged for maintaining preselected product zone temperatures, comprising an integrated closed circuit system having positive displacement pumping means for circulating non-compressible coolant fluid, a first coolant fluid loop between the pumping means and the heat transfer means and including means for cooling coolant fluid in said first loop, a second coolant fluid loop between the pumping means and the heat transfer means in by-pass relation with the first loop and including means for heating coolant fluid in the second loop, and means for controlling coolant fluid circulation in said first and second loops through said heat transfer means, and wherein said second coolant fluid loop is constructed and arranged for continuous fluid communication with the first coolant fluid loop on the positive pressure side of said pumping means.

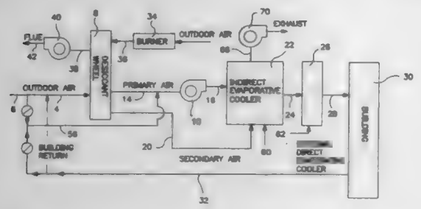
VOL 1208 ISS 3 MR 17 1998 UMI

5,727,394

AIR CONDITIONING SYSTEM HAVING IMPROVED INDIRECT EVAPORATIVE COOLER

William A. Belding, Danville, Calif.; William D. Holeman, Baton Rouge, La., and Chiang Lam, Milpitas, Calif., assignors to LaRoche Industries, Inc., Baton Rourge, La., and ACMA Limited, Singapore, Singapore

Filed Apr. 25, 1996, Ser. No. 638,883
Int. Cl.[6] F25D *17/06*
U.S. Cl. 62—94 **23 Claims**



12. A method of conditioning a process stream of air in an air conditioning system wherein a process stream of air is dehumidified and cooled to provide a conditioned stream of air for introducing to a conditioned space, the method comprising the steps of:

(a) providing an adsorption body having a multiplicity of passages through which process air can flow for adsorbing moisture therefrom, the body capable of adsorption of moisture from said process air and of regeneration;

(b) providing an indirect evaporative cooler having a dry side and a wet side separated by a wall wherein heat is extracted from said dry side through the wall to said wet side, cooling in said dry side achieved by evaporation of water into air passing through said wet side;

(c) passing the process air through said adsorption body to remove moisture therefrom to provide a moisture-depleted stream of process air exiting said adsorption body;

(d) regenerating said adsorption body by passing hot gases therethrough to remove moisture therefrom;

(e) dividing said moisture-depleted stream of process air exiting said adsorption body into a primary stream and a secondary stream, the secondary stream comprised of drier air than said primary stream and having an average temperature higher than the average temperature of said primary stream; and

(f) introducing said secondary stream of process air into said wet side of said indirect evaporative cooler and introducing said primary stream into said dry side, said secondary stream evaporating water thereinto thereby cooling said wall and removing heat from said primary stream to provide cooled air to be introduced to a conditioned space.

5,727,395

DEFROST CONTROL FOR HEAT PUMP

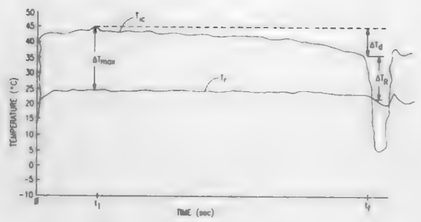
Zhichao Guo, Fayetteville; Robert P. Dolan, Syracuse; Kevin A. Kimberly, Marietta; Kevin F. Dudley, Cazenovia, and Thomas R. Phillips, Cicero, all of N.Y., assignors to Carrier Corporation, Syracuse, N.Y.

Filed Feb. 14, 1997, Ser. No. 800,480
Int. Cl.[6] F25D *47/02*
U.S. Cl. 62—156 **20 Claims**

1. A method for controlling the initiation of a defrost action in a heat pump system comprising the steps of:

noting the difference in temperature between the temperature of an indoor coil of the heat pump system and the room air temperature of the room being heated by the heat pump system;

computing any difference between the noted difference in temperature and a maximum temperature difference that has been noted as having occurred between the indoor coil temperature and the room air temperature following a previous defrost action of the outdoor coil;



computing a limit for the difference between the noted difference in temperature and the noted maximum temperature difference between the indoor coil temperature and the room air temperature that establishes a threshold for potentially initiating a defrost of the outdoor coil of the heat pump system wherein the limit that establishes a threshold for potentially initiating a defrost is computed as a function of the value of the noted maximum temperature difference; and

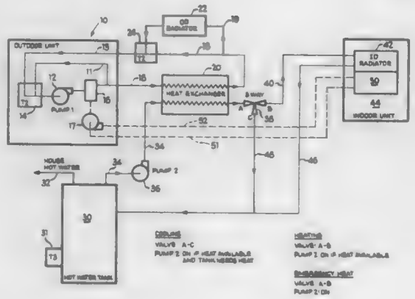
determining whether a defrost action of the outdoor coil of the heat pump system should be activated when the computed difference between the noted difference in temperature and the noted maximum temperature difference between the indoor coil temperature and the room air temperature exceeds the computed limit that establishes a threshold for potentially initiating a defrost.

5,727,396

METHOD AND APPARATUS FOR COOLING A PRIME MOVER FOR A GAS-ENGINE DRIVEN HEAT PUMP

Douglas E. Boyd, Dublin, and Jan B. Yates, Reynoldsburg, both of Ohio, assignors to Gas Research Institute, Chicago, Ill.

Filed Dec. 15, 1995, Ser. No. 573,154
Int. Cl.[6] F25B *27/00*; **G05D** *23/00*
U.S. Cl. 62—323.1 **14 Claims**



1. An apparatus for providing cooling for a prime mover for a gas powered heat pump system, for a structure, at least a portion of the interior space of which is to be thermally conditioned, the heat pump system including at least one in door heat delivery exchanger, configured for receiving therethrough a heat pump system working fluid, situated in the portion of the interior space to be thermally conditioned, the structure further having a domestic hot water circulating system, including a hot water storage tank, the apparatus for providing cooling for a prime mover for a gas powered heat pump system comprising:

a heat exchanger, disposed within the structure;

means for selectively delivering coolant from the prime mover to the heat exchanger;

means for delivering water directly from the hot water storage tank to the heat exchanger, for enabling the water to receive heat from the coolant, when the coolant is passed through the heat exchanger, and, in turn, enabling heat to be removed from the coolant of the prime mover;

an indoor radiator situated in the portion of the space to be thermally conditioned, the indoor radiator being disposed immediately downstream from the heat exchanger;

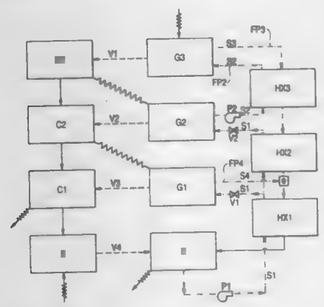
means for selectively directing the flow of water from the heat exchanger, being operably configured to direct the flow of water either directly to the indoor radiator to enable heating of the space to be thermally conditioned, or directly back to the hot water tank, to enable heating of the water in the domestic hot water system, without utilizing heat from the working fluid of the heat pump system.

5,727,397

TRIPLE EFFECT ABSORPTION REFRIGERATION SYSTEM

Xiaoyu He, York, Pa., assignor to York International Corporation, York, Pa.

Filed Nov. 4, 1996, Ser. No. 743,373
Int. Cl.[6] F25B *15/00*
U.S. Cl. 62—476 **17 Claims**



1. A triple-effect absorption refrigeration system comprising:

an evaporator;

an absorber operatively coupled to said evaporator;

first, second, and third generators, said first and second generators connected in parallel with said absorber to receive a solution in a parallel first flowpath from said absorber, and said third generator connected in series with said second generator to receive the solution in a second flowpath from said second generator;

a heat source for heating the solution in said third generator to a first temperature, thereby separating the solution in said third generator into a refrigerant vapor and an absorption liquid;

a third flowpath for returning the absorption liquid from said third generator to said absorber; and

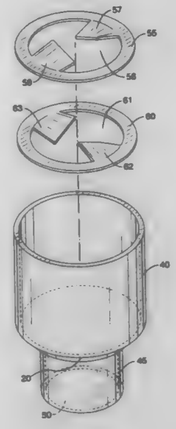
first, second, and third condensers operatively connected to receive and condense refrigerant vapor from said first, second and third generators, respectively, said third condenser operatively connected to exchange heat with said second generator, and said second condenser operatively connected to exchange heat with said first generator.

5,727,398

REFRIGERANT AGITATION APPARATUS

Gary E. Phillippe, 7263 Larchmont Dr., North Highlands, Calif. 95660

Filed Jul. 25, 1996, Ser. No. 686,016
Int. Cl.[6] F25B *43/00*; **B01F** *5/00*
U.S. Cl. 62—503 **17 Claims**



1. A turbulent flow generating apparatus for use with a refrigerant containing heat exchange system having a liquid refrigerant carrying line, comprising:

a) a housing fitted into the liquid refrigerant carrying line, wherein said housing comprises:

i) a first cylindrical member having a first region that expands into a larger diameter second region and

ii) a second cylindrical member having a first region that tapers into a narrower diameter second region, wherein said first cylindrical member second region fits within said second cylindrical member first region and

b) means within said housing for agitating the refrigerant to produce turbulent motion in the refrigerant, wherein said agitation means comprises blades secured within said housing, wherein said blades induce rotational motion in the refrigerant as the refrigerant travels past said blades.

5,727,399

RING INSERT ASSEMBLY

Norberto Bergagnini, Garden City, N.Y., assignor to Sandberg & Sikorski Diamond Corporati, New York, N.Y.

Filed Jan. 31, 1996, Ser. No. 594,732
Int. Cl.[6] A44C *9/00*
U.S. Cl. 63—15.4 **16 Claims**

1. A ring insert assembly comprising:

a first ring with a circumference and a second ring with a circumference such that the rings are spaced apart over a major portion of said circumferences, said rings defining planes substantially parallel to each other;

means for fixedly spacing said rings in order to selectively insert a third ring through a radially extending opening defined between the first and second rings such that said third ring can be disposed between and in substantial alignment with the first and second rings;

at least one arm member pivotally rotatable in a plane substantially parallel to said ring planes in order to rotatably move from an open condition away from said first and second rings

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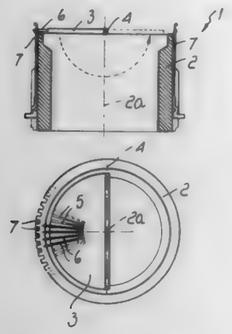
of said insert assembly to a closed condition for selectively closing off at least a portion of said radial opening.

5,727,400

METHOD FOR MANUFACTURING SOCKS HAVING A CLOSED TOE WITH A SINGLE-CYLINDER KNITTING MACHINE

Francesco Lonati; Ettore Lonati; Fausto Lonati, and Tiberio Lonati, all of Brescia, Italy, assignors to Matec S.r.l., Scandicci, Italy

Filed Jul. 8, 1996, Ser. No. 675,206
Claims priority, application Italy, Jul. 28, 1995, MI95A1674
Int. Cl.[6] D04B *9/56*
U.S. Cl. 66—148 **3 Claims**



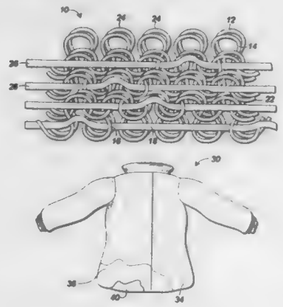
1. Method for producing hosiery having a closed toe on a single-cylinder circular knitting machine provided, at the upper end of a needle cylinder having a central axis, with a half-platen that faces one half of the needle cylinder and is provided with thread engagement elements having opposite ends for actuation in a radial direction with respect to the needle cylinder and for engagement with the thread or threads fed by the machine in the region between two contiguous needles, said half-platen being rotatable about a diametrical axis of the needle cylinder; the method comprising: a first step, actuating the needle cylinder with n oscillations about the cylinder axis with an oscillation angle of substantially 180° to move the half of the needle cylinder that faces said half-platen so that the half needle cylinder passes in front of a feed of the machine, extracting, during oscillation said thread engagement elements from said half-platen radially with one of the ends towards the needles of the machine, feeding at least one thread at said feed and lifting in each oscillation 1/n uniformly spaced needles of said half of the needle cylinder to a knitting position, varying the needles that are lifted into the knitting position in the subsequent oscillation or oscillations, and lowering the needles after engaging the thread or threads, which rests on said engagement elements; a second step, retracting the engagement elements towards said half-platen, retaining the thread or threads that rest thereon; a third step, knitting a heel with the needles of said half of the needle cylinder; a fourth step, rotating the half-platen about said diametrical axis so as to face the other half of the needle cylinder; a fifth step, passing the thread or threads retained by said engagement elements to the needles of the other half of the needle cylinder; and a sixth step, continuing knitting the hosiery product as a continuation of the processes performed previously.

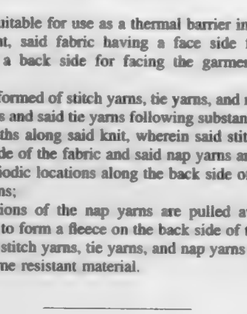
5,727,401

FIRE RESISTANT FLEECE FABRIC AND GARMENT

Denise N. Statham, Sharpsburg, Ga., assignor to Southern Mills, Inc., Union City, Ga.

Filed Aug. 9, 1996, Ser. No. 695,017
Int. Cl.[6] A41B *9/06;* **D04B** *7/12*
U.S. Cl. 66—176 **21 Claims**





1. A fabric suitable for use as a thermal barrier in a firefighter's turnout garment, said fabric having a face side for facing the firefighter and a back side for facing the garment, said fabric comprising:

a 3-end knit formed of stitch yarns, tie yarns, and nap yarns, said stitch yarns and said tie yarns following substantially identical parallel paths along said knit, wherein said stitch yarns form the face side of the fabric and said nap yarns are tied into the knit at periodic locations along the back side of the fabric by the tie yarns;

wherein portions of the nap yarns are pulled away from the 3-end knit to form a fleece on the back side of the fabric; and

wherein said stitch yarns, tie yarns, and nap yarns are made of a fibrous flame resistant material.

5,727,402

AUTOMATIC WASHING MACHINE WITH IMPROVED RINSING ARRANGEMENT

Masatsugu Wada, Seto, Japan, assignor to Kabushiki Kaishi Toshiba, Kanagawa-Ken, Japan

Filed Aug. 11, 1995, Ser. No. 514,416
Claims priority, application Japan, Aug. 31, 1994, 6-207427
Int. Cl.° D06F *39/08*
U.S. Cl. 68—23.5 **12 Claims**

1. An automatic washing machine comprising:

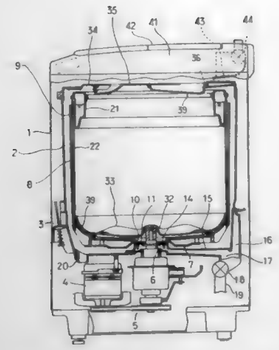
an outer tub having an upper opening;

a rotatable tub provided for rotation about a vertical axis in the outer tub and having a circumferential wall formed with a dehydrating hole only in an upper portion thereof so that the rotatable tub is substantially imperforate;

an agitator provided in the rotatable tub;

an inner lid provided so as to open and close the upper opening of the outer tub, the inner lid having a showering hole formed in a predetermined portion thereof;

water-supply means for supplying water to the inner lid so that the water is showered from the showering hole of the inner lid into the rotatable tub; and



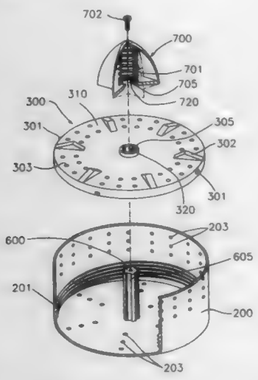
control means for sequentially executing a wash step by driving the agitator under the condition that the inner lid closes the upper opening of the outer tub, and a rinse-with-dehydration step including the supply of water to the inner lid by the water-supply means so that the water is showered into the rotatable tub, and rotation of the rotatable tub so that the water is centrifugally extracted from laundry.

5,727,403

WASHING MACHINE WITH A VARIABLE PULSATOR

Jae-Hyun Na, Kwang-Ju, Rep. of Korea, assignor to Daewoo Electronics Co., Ltd., Seoul, Rep. of Korea

Filed Feb. 2, 1996, Ser. No. 596,444
Claims priority, application Rep. of Korea, Jul. 21, 1995, 94-21599
Int. Cl.° D06F *17/08;17/10*
U.S. Cl. 68—133 **8 Claims**



1. A washing machine with a variable pulsator, comprising:

a stationary tub for receiving washing water during a washing operating;

a rotating shaft disposed on a central part of a bottom surface of the stationary tub, the rotating shaft being a double shaft composed of a pulsator-rotating shaft and a washing tub-rotating shaft;

a washing tub installed in the stationary tub under a rotatable condition with the washing tub-rotating shaft, the washing tub having a plurality of washing water communication holes, and the washing tub having a spiral guide groove formed on its lower inner surface;

a pulsator installed at a lower part of the pulsator-rotating shaft in the washing tub under a rotatable condition with the pulsator-rotating shaft, and a circular edge of the pulsator being guided along the spiral guide groove of the washing tub so that while the pulsator is rotated by the pulsator-rotating shaft, the pulsator is movable up or down along the pulsator-rotating shaft depending on the rotating direction;

a variable pulsator disposed at an upper part of the pulsator on the pulsator-rotating shaft under a rotatable condition with the pulsator-rotating shaft, a top of the variable pulsator being fixed on the rotating shaft, and a bottom part of the variable pulsator being in contact with the pulsator, so that when the pulsator is moved upwardly, the bottom part of the variable pulsator contacted on the pulsator is moved upwardly and thereby a width of the variable pulsator becomes wider and when the pulsator is moved downwardly, the bottom part of the variable pulsator contacted on the pulsator is moved downwardly and thereby the width of the variable pulsator becomes narrower; and

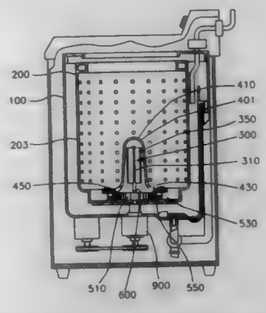
a driving part for rotating only the pulsator-rotating shaft or for rotating both the pulsator-rotating shaft and the washing tub-rotating shaft depending on a washing mode in order to operate the washing tub, the pulsator, and the variable pulsator.

5,727,404

WASHING MACHINE WITH A DOUBLE PULSATOR

In-Su Cho, Kwangju, Rep. of Korea, assignor to Daewoo Electronics Co., Ltd., Seoul, Rep. of Korea

Filed Dec. 13, 1996, Ser. No. 766,257
Claims priority, application Rep. of Korea, Dec. 15, 1995, 95-50630
Int. Cl.[6] D06F *17/08;17/10*
U.S. Cl. 68—133 **7 Claims**



1. A washing machine with a double pulsator comprising:

a stationary tub for holdinq a level of washing fluid;

a washing tub coaxially connected with the stationary tub inside the stationary tub, the washing tub being rotatable on a first rotational shaft and having a plurality of washing water communication holes;

an outer pulsator rotatably mounted on a bottom part of the washing tub for generating a first vortex current within the washing tub, the outer pulsator having a hollow protruding part protruded upwardly and a bottom plate radially extended from a lower part of the protruding part;

an inner pulsator rotatably installed inside of the protruding part of the outer pulsator for generating a second vortex current within the washing tub, the inner pulsator having a rotational shaft part which is formed on the first rotational shaft of the washing tub, and a plurality of revolvable wings radially arranged on an outer surface of the rotational shaft part for generating the second vortex current;

a gear part having an inner gear formed at a lower portion of the rotational shaft part of the inner pulsator, an outer gear formed at a lower portion of the outer pulsator, and an intermediate gear engaged between the inner gear and the outer gear and interlocking the inner gear with the outer gear; and

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driving means for rotating the first rotational shaft;

wherein, the inner gear connected with the first rotational shaft is rotatable in a same direction to the first rotational shaft by means of the driving means so the inner pulsator connected with the inner gear is rotatable in the same direction to the inner gear, while the outer gear is rotatable in an inverse direction to the inner gear due to the intermediate gear so the outer pulsator connected with the outer gear is rotatable in the inverse direction to the inner pulsator.

5,727,405

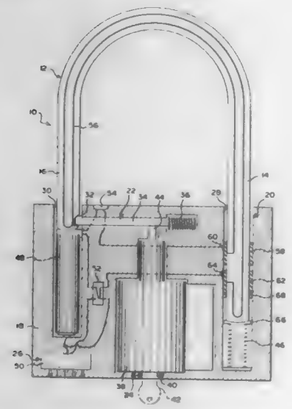
ALARM PADLOCK

Daryl Cromwell, 825 Willow Creek Way, Troy, Ohio 45373

Filed Feb. 3, 1997, Ser. No. 794,180

Int. Cl.[6] E05B *45/08*

U.S. Cl. 70—38 B **17 Claims**



1. An alarm padlock comprising:

a) a shackle having a long leg and a short leg;

b) a body;

c) means in said body for mounting said shackle in a reciprocal movement between a closed position and an extended open position, in which said short leg of said shackle is outside of said body and said long leg of said shackle can swivel within said body;

d) a latch mechanism in said body to engage with said short leg of said shackle, when said shackle is in it's closed position;

e) a lock mechanism in said body operable to disengage said latch mechanism from said short leg of said shackle;

f) an alarm circuit in said body actuates to emit a warning signal when an unauthorized person violates and tampers with said shackle and said body; said alarm circuit further includes an insulated loop trip wire within said shackle extending between said long leg and said short leg, so that if said insulated loop trip wire in said alarm circuit is broken, said audible alarm will emit the warning signal; a first insulated contact ring about said long leg of said shackle and electrically connected to a first end of said insulated loop trip wire; and a first contact member in a first channel of said body to electrically connect with said first insulated contact ring.

5,727,406

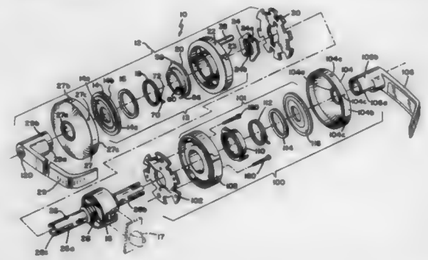
LEVER ASSEMBLY FOR HIGH TORQUE LOAD

David Banducci, Branford, Conn., assignor to Sargent Manufacturing Company, New Haven, Conn.

Filed Feb. 29, 1996, Ser. No. 608,824

Int. Cl.[6] B60R *25/02*

U.S. Cl. 70—224 **34 Claims**



1. An improved lever assembly including a lock cylinder having a pair of shank portions, each shank portion defining a slot therein and extending from a respective side of the cylinder, a pair of housings, each housing having a central opening and being mounted to a respective shank portion, each housing having a circular channel formed in one side thereof that is coaxial with the central opening, the channel defining a wall, each housing having a pair of travel stop tabs oppositely formed in and extending from the wall into the circular channel, a pair of annular rotatable members having peripheries, each rotatable member being rotatably disposed within a respective housing channel and defining a projection extending radially inward from the periphery of the rotatable member wherein the projection is engaged with the slot of a respective shank portion, a pair of springs, each spring being mounted on a respective rotatable member, a pair of levers, each of which having a hollow shaft defining a slot wherein the shaft is mounted to a respective shank portion such that the radially extending projection of a corresponding rotatable member is engaged with the slot of the shaft, wherein the improvement comprises:

a lip formed in the channel of each housing and circumferential of the housing

central opening, the lip having a substantially planar perimetrical edge; a pair of spring holder tabs oppositely formed in and extending from the channel wall into the channel one of the spring holder tabs extending farther into the channel than the other spring holder tab;

one protrusion formed on the periphery of each rotatable member that extends substantially parallel to the shank each spring having bent ends, the bent ends of each spring engaging simultaneously one spring holder tab of a respective housing member and the protrusion of a respective rotatable member; and

one segment extending radially from the periphery of each rotatable member for contacting one of the travel stops.

5,727,407

SECURITY DEVICE FOR EXIT DOORS

Nicholas Cowen, Potters Bar, United Kingdom, assignor to Castell Safety International Limited, London, United Kingdom

Filed Jul. 10, 1996, Ser. No. 677,769

Int. Cl.[6] E05B *11/00*

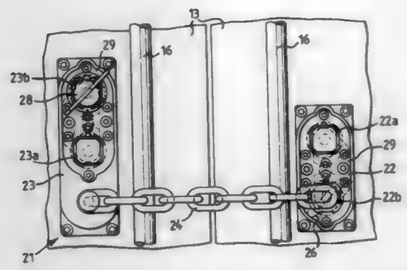
U.S. Cl. 70—389 **8 Claims**

1. A building including

means for selectively inhibiting and permitting use of an area inside the building, and

a plurality of exit doors allowing escape from the said area,

each exit door having a locking device which includes and is operated by two keys, one key being removable from the locking device only when the locking device is activated and the other key being removable from the locking device only when the locking device is deactivated,



each locking device being a member of a series of such locking devices in which the said other key of each locking device serves as the said one key of the next locking device in the series, all the keys being different, and

the said other key of the last locking device of the series being essential to operation of the said means to permit use of the said area,

wherein at least one pair of successive locking devices in the series forms part of a security device which includes a flexible member for connecting the two locking devices of the pair, one end of the flexible member being fixed to the said other key of one of the said two locking devices, which serves as the said one key of the other of the said two locking devices, the other end of the flexible member being fixed to the said other locking device.

5,727,408

SIGNAL PROCESSING DEVICE WITH MAGNETISM ANTENNA AND KEY DEVICE WITH THE SIGNAL PROCESSING DEVICE

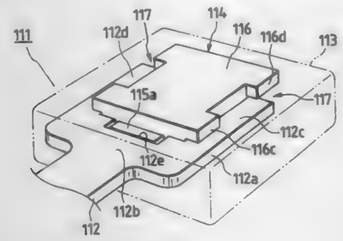
Takashi Mizuno; Sadao Kokubu; Hisashi Aoki; Shinichi Koga, and Yoshiyuki Mizuno, all of Aichi, Japan, assignors to Kabushiki Kaisha Tokai Rika Denki Seisakusho, Aichi, Japan

Filed Nov. 8, 1995, Ser. No. 555,226

Claims priority, application Japan, Nov. 14, 1994, 6-279045; Nov. 14, 1994, 6-279046; Nov. 18, 1994, 6-284741

Int. Cl.[6] E05B *19/26;* **H01Q** *7/08*

U.S. Cl. 70—413 **3 Claims**



3. A key device, comprising:

a signal processing device including:

a printed wiring board substantially completely formed of a magnetically active material,

a magnetism antenna for receiving and transmitting magnetism, wherein the antenna includes a coil wound around the printed wiring board,

a signal processing circuit disposed on the printed wiring board for processing a signal received by the magnetism antenna and a signal to be transmitted, and

a first molded body formed around the printed wiring board, the magnetism antenna, and the signal processing circuit, a portion of the printed wiring board protruding from the molded body; and

a key plate having a stem, wherein the stem includes a slit for receiving and holding the protruded portion; and

a second molded body enclosing the signal processing device and a portion of the key plate.

5,727,409

METHOD OF CONTROLLING A TERMINAL CRIMPING APPARATUS

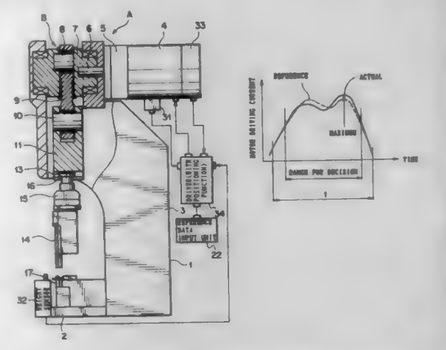
Toshihiro Inoue; Masao Igarashi, and Kazuhiko Takada, all of Shizuoka, Japan, assignors to Yazaki Corporation, Tokyo, Japan

Filed Dec. 21, 1995, Ser. No. 576,019

Claims priority, application Japan, Dec. 28, 1994, 6-328827

Int. Cl.[6] H01R *43/048*

U.S. Cl. 72—21.1 **10 Claims**



1. A method of controlling a terminal crimping apparatus that is equipped with a vertically reciprocating crimper for crimping a terminal to an exposed conductive portion of an electric wire and an anvil opposing to said crimper, wherein said crimper is activated in the vertical direction by an activation means having a servo-motor and a piston-crank mechanism, said method comprising the steps of:

monitoring load currents applied to said servo-motor when the terminal is crimped; and

comparing the monitored load currents with predetermined reference currents to obtain the difference therebetween; and

deciding whether the terminal is correctly crimped based upon the obtained difference between the monitored load current and the reference load current.

5,727,410

PRESS-MOLDING OIL AND METHOD OF MANUFACTURING PRESS-MOLDED PRODUCTS BY USING THE SAME

Masao Hayashi, Shiga; Go Minami, Osaka; Kuniaki Matsunaga, Tochigi; Tsuyoshi Fujii, Tokyo, and Takashi Hayashi, Chiba, all of Japan, assignors to Matsushita Electronics Corporation, Osaka, Japan

Division of Ser. No. 608,447, Feb. 28, 1996. This application Oct. 4, 1996, Ser. No. 725,767

Int. Cl.[6] B21B *45/02;45/00*

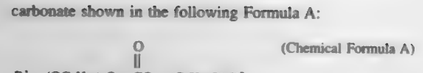
U.S. Cl. 72—42 **13 Claims**

1. A method of manufacturing a shadow mask for a cathode ray tube, comprising:

coating a surface of a press mold for a shadow mask for a cathode ray tube with a press-molding oil comprising an alkyl

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carbonate shown in the following Formula A:



(Chemical Formula A)

wherein a and b independently are an integer from 1 to 6; x and y independently are an integer from 0 to 30, and R^1 and R^2 independently are selected from the group consisting of alkyl, cycloalkyl, alkylphenyl, benzyl or alkylbenzyl having from one to thirty carbon atoms, with the alkyl chains being straight or branched;

pressing and molding a metallic material with said coated press-mold to form the metallic material into a shadow mask for a cathode-ray tube; and

removing the press-molding oil from the metallic material press-molded into the form of a shadow mask by (a) washing the press-molded shadow mask with warm water followed by drying the press-molded shadow mask, or (b) heating the press-molded shadow mask so as to evaporate or thermally decompose the press-molding oil.

5,727,411

METHOD OF FORMING GROOVES ON METAL PIPE AND GROOVE-FORMING APPARATUS

Tetsuya Sakakibara, Toyohashi, and Yoshitaka Kuroda, Anjo, both of Japan, assignors to Denso Corporation, Kariya, Japan

Filed Dec. 20, 1996, Ser. No. 772,153
Claims priority, application Japan, Dec. 26, 1995, 7-339539
Int. Cl.° B21D *15/06*
U.S. Cl. 72—110 **7 Claims**

1. A method of forming a plurality of annular grooves on a metal pipe comprising steps of:

providing a plurality of forming rollers each of which has an annular flange for forming a specific one of said grooves;

positioning each of said rollers at a portion different from each other on a circumference of said metal pipe; and

pressing each of said flanges against an outer periphery of said metal pipe at the same time to form said grooves at separate portions thereof.

5,727,412

METHOD AND APPARATUS FOR ROLLING STRIP OR PLATE

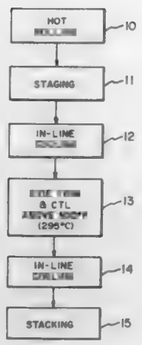
William H. Tippins; George W. Tippins, both of Pittsburgh, and Ronald D. Gretz, Brackenridge, all of Pa., assignors to Tippins Incorporated, Pittsburgh, Pa.

Filed Jan. 16, 1997, Ser. No. 784,970
Int. Cl.° B21B *27/06;1/00*
U.S. Cl. 72—201 **9 Claims**

1. A method of processing large slabs into memory free strip or plate comprising the steps of:

a) rolling the large slabs into strip or plate on a rolling mill with a finishing temperature above 1340° F.;

b) in-line cooling the strip or plate to a temperature in the range 900° F. to 650° F. with the strip or plate laid out on a flat cooling conveyor;



c) slowing the speed of the strip or plate to speeds typical of cut-to-length lines;

d) side trimming and/or cutting the strip or plate to lengths at temperatures above 500° F.;

e) cooling the strip or plate to a temperature below 300° F.; and

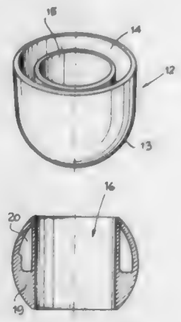
f) stacking the strip or plate.

5,727,413

PROCESS FOR HOT FORMING HOLLOW SPHERICAL BODIES

Giacomo Gioachino Mingotti, Sarezzo, Italy, assignor to Metalprint S.r.l., Ponte S. Marco-Calcinato, Italy

Filed Jan. 21, 1997, Ser. No. 786,799
Claims priority, application Italy, Jan. 22, 1996, BS96A0007
Int. Cl.° B21D *53/10*
U.S. Cl. 72—334 **4 Claims**



1. A process for hot forming a hollow spherical body, especially a said brass ball to be used as a plug in ball valves, comprising:

providing a starting billet;

forming, in a first phase of forming, the starting billet into a blank with a half having a spherical outer surface, a remaining part having an outer wall and an inner wall, said outer wall and said inner wall being formed as concentric walls with an open space between said concentric walls and with an axial hole that is closed by an intermediate plate;

forming, in a subsequent phase of forming, said outer wall of said remaining part of said blank into a spherical shape in continuation of the said spherical half obtained in said first phase of forming;

closing said open space and defining a closed cavity by making a free end of said outer wall rest closely on a free end of said inner wall; and

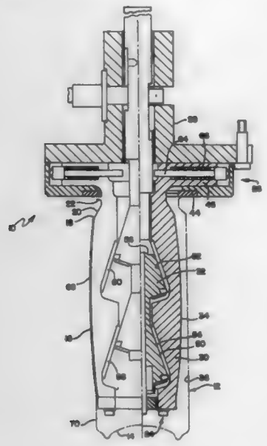
removing said intermediate plate for opening said axial hole to provide a continuous through hole.

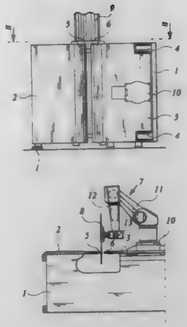
5,727,414

METHOD FOR RESHAPING A CONTAINER

Andy Halasz, Crystal Lake, Ill.; Rolf Wirz, Lutzelfluh, Switzerland; Rene Ménéghin, La Murette, and Louis Trepied, Voreppe, both of France, assignors to American National Can Company, Chicago, Ill.

Filed Jun. 7, 1995, Ser. No. 482,884
Int. Cl.° B21D *20/00;22/21;41/02*
U.S. Cl. 72—348 **4 Claims**





1. A method of reshaping a seamless container body having an integral bottom wall comprising the steps of:

providing a container body which has been drawn and ironed from a single metal disc, said container body having a side wall extending from a bottom wall at one end, and having an opening at an end opposing said bottom wall, said side wall having an initial cylindrical shape and having an initial mean average diameter;

mechanically applying a radially outward force at a plurality of circumferentially spaced locations about an inner surface of said side wall of said drawn and ironed container body to deform at least a first portion of said side wall radially outward from said initial cylindrical shape; and,

applying a force opposite the radially outward force about an exterior surface of said side wall at a plurality of circumferentially spaced locations which are spaced apart from said circumferentially spaced locations of said radially outward force to said first portion of said side wall to cause a plurality of segments that are deformed inwardly relative to said outer deformed portion.

5,727,415

FOLDING PRESS WITH HORIZONTAL WORKING STROKE AND ROTATABLE MANIPULATION ARM

Hannu Alitalo, Urjala, Finland, assignor to Aliko Automation Oy, Finland

PCT No. PCT/FI94/00410, § 371 Date Jun. 18, 1996, § 102(e) Date Jun. 18, 1996, PCT Pub. No. WO95/07779, PCT Pub. Date Mar. 23, 1995
PCT Filed Sep. 16, 1994, Ser. No. 617,756
Claims priority, application Finland, Sep. 16, 1993, 934069; Sep. 24, 1993, 934215
Int. Cl.° B21D *43/11;* **B21J** *13/08*
U.S. Cl. 72—389.3 **6 Claims**

1. A folding press comprising:

a frame adapted to be supported by a fixed base;

a fixed beam fixedly connected to said frame;

a ram beam carried on said frame and movable relative to said fixed beam;

a force member disposed between said ram beam and the frame for moving the ram beam relative to the fixed beam for producing a folding working stroke, said fixed beam and said ram beam are disposed side by side in a substantially horizontal direction relative to said fixed base, said ram beam is guided to move substantially in a horizontal direction relative to said fixed base and said force member produces a substantially horizontal working stroke of said ram beam;

a counterblade attached to said fixed beam;

a thrust blade attached to said ram beam in parallel to said counterblade, said counterblade and thrust blade forming a pair of folding blades for folding a sheet of material therebetween, said sheet of material being folded in a substantially vertical position relative to said fixed base between said counterblade and said thrust blade; and

manipulation means comprising a clamping member for grasping the sheet to be folded and introducing it between said pair of folding blades, and a multiple-articulated robot manipulation arm attached to said clamping member having a plurality of consecutive arm members rotatable in relation to each other so that said sheet of material can be maintained in a substantially vertical position while being introduced by said clamping member between said pair of folding blades; and

a stand relative to which said manipulation arm is carried to be rotatable, said stand being connected to the ram beam so that the stand and associated manipulation means moves with movement of the ram beam.

5,727,416

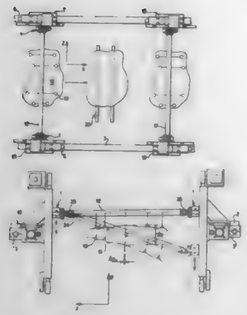
TRANSFER DEVICE IN A METAL-FORMING MACHINE, PARTICULARLY A TRANSFER PRESS

Gerhard Allgoewer, Goeppingen, Germany, assignor to Schuler Pressen GmbH & Co., Germany

PCT No. PCT/DE95/00712, § 371 Date May 13, 1996, § 102(e) Date May 13, 1996, PCT Pub. No. WO95/32822, PCT Pub. Date Dec. 7, 1995
PCT Filed May 26, 1995, Ser. No. 586,910
Claims priority, application Germany, May 26, 1994, 44 18 417.4
Int. Cl.° B21D *43/05*
U.S. Cl. 72—405.11 **11 Claims**

1. Transfer device for a metal forming machine, comprising a plurality of lifting and lowering devices operatively arranged to move up and down, transfer rails, opposed travelling carriages carrying respective ones of the lifting and lowering devices and arranged to move along the transfer rails, and at least one cross traverse operatively associated with the lifting and lowering devices on the opposed travelling carriages, wherein on each of the opposed travelling carriages, an adjusting member is operatively arranged to carry out a linear compensating movement parallel to a transport direction of sheet metal parts along the transfer device the

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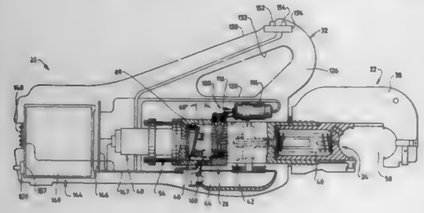
lifting and lowering devices have a separate drive, a slidable block arranged to be moved by the separate drive via a torque transmitting device, and the sliding block is disposed in the adjusting member.

5,727,417

PORTABLE BATTERY POWERED CRIMPER

W. Keith Moffatt, Freeport; Billy J. Bauscher, Loves Park, and Richard Alan Zwicky, Jr., Rockford, all of Ill., assignors to Greenlee Textron Inc., Rockford, Ill.

Filed Sep. 22, 1995, Ser. No. 532,332
Int. Cl.[6] B21D *9/18*
U.S. Cl. 72—453.03 **20 Claims**



1. A hydraulic crimping apparatus comprising:

a crimper head assembly having a moveable, single acting hydraulic ram;

a hydraulic drive assembly coupled to said crimper head assembly;

said hydraulic drive assembly including a hydraulic pump having at least one piston retained therein coupled to a drive motor;

said hydraulic pump being coupled to said crimper head assembly for providing hydraulic forces for moving said hydraulic ram of said crimper head assembly;

a retract device coupled to said hydraulic pump for controllably retracting said hydraulic ram, said retract device including a release valve coupled to said hydraulic pump for controllably draining hydraulic fluid from said hydraulic pump to retract said hydraulic ram; and

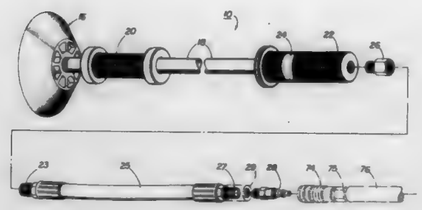
a control circuit and a retract switch coupled to said retract device, said retract switch having at least two operating modes, a first mode which signals said control circuit to momentarily operate said release valve to incrementally retract said hydraulic ram, and a second mode which signals said control circuit to operate said release valve to selectively retract said hydraulic ram.

5,727,418

DENT REMOVING TOOL

Robert E. Strozier, Woodstock, Ga., assignor to Body Buddy, Inc., Holly Springs, Ga.

Filed Dec. 6, 1996, Ser. No. 760,955
Int. Cl.[6] B21J *13/08*
U.S. Cl. 72—457 **20 Claims**



20. A sheet material working tool comprising:

a. a slide tube having a suction cup mounted on one end;

b. a combination vacuum ejector and stop that is mounted on the other end of the slide tube, which vacuum ejector/stop comprises:

i. a vacuum passage communicating with the slide tube thereby creating a partial vacuum in the suction cup during use,

ii. an exhaust port through which an exhaust stream exits to the atmosphere during use,

iii. a generally round cylindrical outer surface that is substantially symmetric about a longitudinal axis of the vacuum ejector/stop,

iv. a first end that is generally flat, circular, and symmetric about the longitudinal axis,

v. a second end that is generally flat, circular, and symmetric about the longitudinal axis,

vi. a slide tube opening in the first end of the vacuum ejector/stop that communicates with the vacuum passage and the slide tube,

vii. a pressure source opening in the second end of the vacuum ejector/stop,

viii. a venturi chamber connected to the pressure source opening and the vacuum passage, and

ix. an exhaust passage connected to the exhaust port and the venturi chamber,

wherein the slide tube opening is formed through the first end and the pressure source opening, the venturi chamber, and the exhaust passage are formed through the second end, and the exhaust port is formed through the outer surface; and

c. a slide hammer mounted to slide along the tube and impact the vacuum ejector/stop.

5,727,419

TUBE BENDER HANDLE

Dean R. Walsten, Slinger, Wis., assignor to Applied Power Inc., Butler, Wis.

Filed Sep. 26, 1996, Ser. No. 721,156
Int. Cl.[6] B21D *7/04*
U.S. Cl. 72—458 **2 Claims**

1. In a tube bender of the type having a tubular handle with a larger diameter portion at one end and a smaller diameter portion at the other end, said end of said smaller diameter portion being screwed into a body having an arcuate shoe for bending a tube, the improvement wherein said large diameter end extends for more than one half of the length of said handle a transition from said larger diameter portion to said smaller diameter portion being



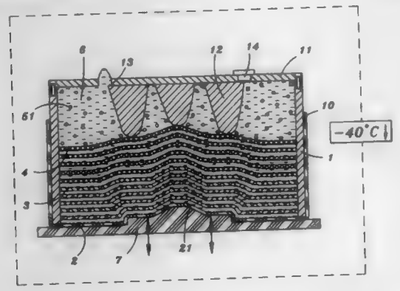
spaced from said body and positioned closer to said body than to the end of said handle opposite from said body.

5,727,420

RECOVERABLE AND REUSABLE COLD FORGING DIES

Shao-Chien Tseng, No. 130, Sec 2. Yang-Shin Rd., Yang-Mei Taoyuan 326, Taiwan

Filed Jan. 29, 1997, Ser. No. 792,687
Int. Cl.[6] B21J *13/02*
U.S. Cl. 72—462 **5 Claims**



1. A recoverable and reusable cold forging die, including:

a plastic film made of PET or PVC plastic material having a die cavity in pursuance of the shape of the work-piece to be forged;

several sheets of Kevlar fibers as an upper filler layer, and several sheets of stainless steel as a lower filler layer;

said plastic film being provided on the top of a die frame, said upper filler layer being lapped over in said die frame, so that it conforming with the bottom of said plastic film and being fully compacted thereto by pressing thereon, spreading with a coincedent contour to that of said die cavity;

said lower filler layer being lapped on the bottom of said upper filler layer in said die frame, so that said upper and lower filler layers being lapped over in sequence spreading and being compacted on the bottom of said plastic film on said die frame;

a bottom lid being provided on said die frame, a plurality of strut spacers being provided by welding on said bottom lid, said bottom lid being provided with more than one bolt holes, said strut spacers supporting the bottom of said lower filler layer, thus forming a basic structure of said cold forging die;

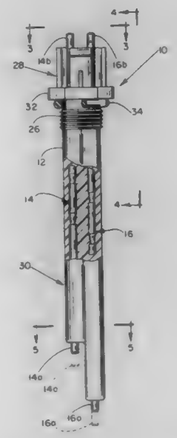
turning upside down said die, said plastic film being supported with its cavity on a male die conforming in shape with said cavity, steel beads or iron sand of suitable amount being poured into said bolt holes, and also mercury being poured into said bolt holes to render the space in the interior of said die fully filled, the surplus bolt holes being sealed with plugs, at least one bolt hole being left to allow said mercury to release pressure when in consolidation, said die with mercury therein being fast frozen then under a low temperature below –40° C., so that said mercury in said die together with said steel beads or iron sand being consolidated and expanded and hardened to fully fill the gaps therein, thus completing said cold forging die resistive to cold forging punching pressure.

5,727,421

APPARATUS AND METHOD FOR PROVIDING LEAK PROOF SEALING BETWEEN A METAL ROD AND A PLASTIC HOUSING MOLDED THERE AROUND

George W. Murphy, Elk River, Minn., assignor to IMI Cornelius Inc., Anoka, Minn.

Filed Feb. 10, 1995, Ser. No. 386,566
Int. Cl.[6] G01F *23/00;* **H01H** *29/00;* **H01R** *4/48;13/52*
U.S. Cl. 73—304 R **11 Claims**



8. A carbonated water level sensing probe for sealable engagement with a carbonator, comprising:

first and second rods each having one or more annular material displacing structures along a length thereof,

a housing body made of an electrically insulating plastic material molded around the rods,

one or more points of annular sealing engagement between the annular displacing structures and the plastic material of the housing resulting from linear translating of the first and second rods with respect to the housing resulting in a cold flow displacement of the plastic for forming the one or more points of annular sealing engagement, and where after the linear translating the first and second rods each have first probe ends extending from a housing first end and where the first and second rods each have a second end extending adjacent an exterior surface of the plastic housing for permitting connection thereto of an electrically operated conductivity sensor, and

the plastic housing having a sealing structure for providing liquid and gas tight sealing securing of the probe to the carbonator wherein the first housing end is retained within the carbonator.

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5,727,422

RACK DRIVE

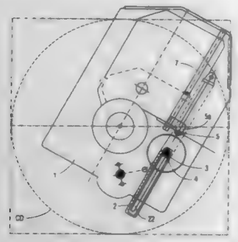
Manfred Kammerer, St. Georgen, Germany, assignor to Deutsche-Thomson Brandt GmbH, Villingen-Schwenningen, Germany

Filed Jun. 7, 1995, Ser. No. 485,690

Claims priority, application Germany, Jun. 21, 1994, 44 21 647.5

Int. Cl.[6] F16H *19/04*

U.S. Cl. 74—89.17 5 Claims



1. A rack drive having backlash compensation, wherein,

the rack drive contains a suspension tooth element which is formed by a rack which has a guide opening parallel to a row of teeth, the guide opening being guided by a bearing bolt of a drive pinion for said rack,

the suspension tooth element being of an integral design.

5,727,423

CONNECTION STRUCTURE OF A DISTRIBUTION CORD USED FOR A SHIFT LEVER

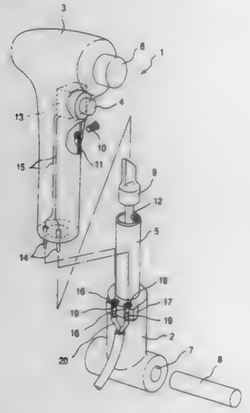
Yasuo Torii, and Masao Aoyagi, both of Tokyo, Japan, assignors to Niles Parts Co., Ltd., Tokyo, Japan

Filed Jul. 8, 1996, Ser. No. 676,721

Claims priority, application Japan, Aug. 7, 1995, 7-221077

Int. Cl.[6] F16H *59/04*

U.S. Cl. 74—473 R 11 Claims



1. A connection structure for providing conductive connection between an end of a distribution cord on a shift lever and an end of a distribution cord on a device main body, the connection structure comprising:

a control knob comprising a grip portion and a switch, said control knob being securely connected by an axial fitting of the control knob to an upper end of a driving base, said driving base having a lower end that is pivoted swingably;

a conducting flange molded integrally with the driving base near an upper end of the driving base;

connecting conductor male terminals that protrude from a lower end of the grip portion, said male terminals being electrically connected with said switch; and

connecting conductor female terminals fitted into the conducting flange at respective positions opposing to the connecting conductor male terminals, said female terminals being electrically connected with the distribution cord on the device main body;

wherein said conducting flange comprises a pair of terminal insertion holes extending from an upper end surface of the conducting flange to a lower end surface of the conducting flange, each insertion hole having a cord insertion slit extending from a wall of the conducting flange between the upper and lower end surfaces to a central portion of the insertion hole, and the female terminals are inserted and contained in said terminal insertion holes.

5,727,424

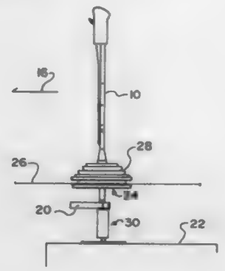
COUNTERWEIGHT FOR TRUCK TRANSMISSION SHIFT LEVER

Kenneth R. Brandewie, Ossian, and Floyd E. Fegley, Fort Wayne, both of Ind., assignors to Navistar International Transportation Corp., Chicago, Ill.

Filed Sep. 9, 1996, Ser. No. 707,841

Int. Cl.[6] F16H *59/04*

U.S. Cl. 74—473 R 11 Claims



1. A counterweight engaged to a rearwardly pivotable gear shift lever of a truck transmission for maintained equilibrium, regardless of pivoted lever position, the shift lever having a predetermined length, having a pivot point at a lower end thereof, and having a center of gravity along the length thereof which defines lever equilibrium when the lever is vertically oriented over the pivot point, the lever pivoting rearwardly of vertical producing a specific moment when gear engagement is desired, the counterweight comprising an elongate structure of predefined mass which engages the lever at a location above the pivot point and extends perpendicularly forward of and a predetermined distance outwardly from the lever compromising the rearward moment of the pivoted lever, shifting the lever center of gravity forwardly into vertical alignment over the pivot point.

5,727,425

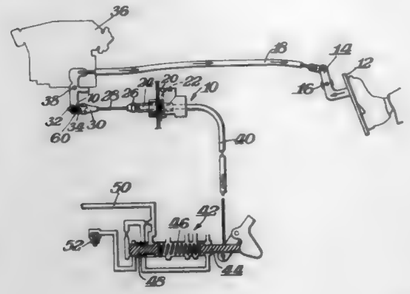
METHOD FOR ADJUSTING A THROTTLE VALVE CABLE IN AN AUTOMATIC TRANSMISSION

Edward Lee, Newark, Del., assignor to Deltrans Inc., Newark, Del.

Division of Ser. No. 523,411, Sep. 5, 1995, Pat. No. 5,638,721, which is a continuation-in-part of Ser. No. 511,409, Aug. 4, 1995, abandoned. This application Dec. 6, 1996, Ser. No. 761,652

Int. Cl.[6] F16C *1/10*

U.S. Cl. 74—500.5 8 Claims



1. A method for adjusting the shift performance of an automatic motor vehicle transmission that has a throttle valve cable with a proximal end and a distal end forming a mechanical link between a throttle pedal, a throttle valve linkage on a fuel delivery system, and a throttle valve, wherein the throttle valve cable has a cable end fitting attached to the throttle valve linkage at a distance from a pivot point on the throttle valve linkage and the throttle valve cable is held within a cable housing provided with a means for adjusting the throttle valve cable to a predetermined length, comprising:

mounting a sleeve onto the throttle valve cable adjacent to the distal end of the throttle valve cable, said sleeve having a length along its axis and defining an open axially aligned cavity; and

mounting a spring with two ends over the throttle valve cable so that one end of the spring is adjacent to the sleeve and the other end of the spring is adjacent to the cable end fitting provided on the throttle valve cable.

5,727,426

MECHANISM FOR SELECTING LIMITS OF TRAVEL OF A LEVER

Thomas G. Lykken, and William B. Rodriguez, both of Fargo, N. Dak., assignors to Case Corporation, Racine, Wis.

Filed Apr. 12, 1996, Ser. No. 631,417

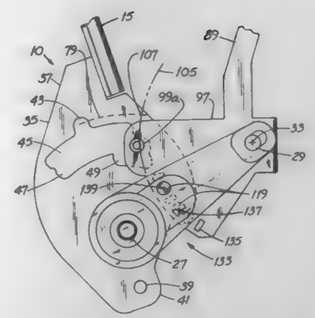
Int. Cl.[6] G05G *5/06*

U.S. Cl. 74—526 9 Claims

1. In a mechanism having a control lever and a plurality of slot portions for selecting limits of movement of the control lever, the improvement wherein:

the slot portions are in a plate fixed with respect to the control lever; and

the mechanism includes an auxiliary lever and a selection bracket mounted for movement by the auxiliary lever for selecting one of the slot portions;



the selection bracket includes a spaced pair of members straddling the plate; and

a selection device extends between the members.

5,727,427

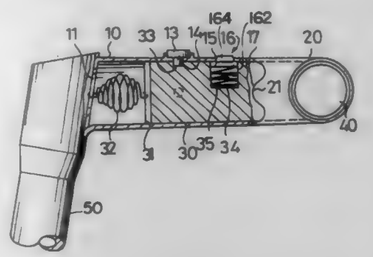
PIVOTABLE HANDLEBAR STEM

Chang-jen Nien, 2F-5, No. 229, Chinlung Rd., Neihu Dist., Taipei, Taiwan

Filed Jul. 22, 1996, Ser. No. 685,003

Int. Cl.[6] B62K *21/12;21/16*

U.S. Cl. 74—551.3 3 Claims



1. A pivotable bicycle handlebar stem comprising:

a column having an extension tube projecting therefrom, said extension tube having a rib formed longitudinally therein, said extension tube also having an apex and two sides each having an opening;

a clamp with a first end pivotally connected to a first end of said extension tube;

a piston slidably received within said extension tube, the piston having a first end which is securely connected to said clamp;

a positioning button securely received within one of said openings respectively defined in said apex and said two sides of said extension tube;

a first resilient element disposed between a bottom face of a recess in said piston and a lower face of said positioning button; and

a second resilient element fixedly provided between said rib of said extension tube and a second end of said piston.

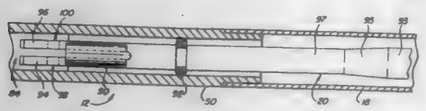
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5,727,428

ACTUATING FORCES TRANSMISSION LINK AND ASSEMBLY FOR USE IN SURGICAL INSTRUMENTS

Norman J. LeMaire, III, Taunton; Francis J. DiFrancesco, Foxboro; Paul DiCarlo, E. Falmouth; Peter D. Naugler, Manchester, and George J. Sikora, Brockton, all of Mass., assignors to Smith & Nephew, Inc., Andover, Mass.

Division of Ser. No. 326,989, Oct. 21, 1994, Pat. No. 5,590,570, which is a continuation of Ser. No. 779,431, Oct. 17, 1991, Pat. No. 5,366,477. This application Oct. 1, 1996, Ser. No. 722,739
Int. Cl.[6] G05G 1/00
U.S. Cl. 74—579 5 Claims



1. A spacer member comprising:

a spacer body having first and second lateral sides for engaging two distal fingers of an actuating member; and

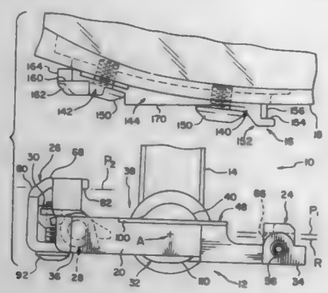
first and second bearing surfaces disposed on upper and lower sides of said spacer body, respectively, said upper and lower sides being substantially transverse to the first and second lateral sides, said bearing surfaces being shaped to slidably contact the outer conduit to assist positioning of the actuating member relative to the outer conduit.

5,727,429

LOW PROFILE BICYCLE PEDAL AND CLEAT ASSEMBLY

Yutaka Ueda, Tondabayashi, Japan, assignor to Shimano, Inc., Osaka, Japan

Filed Aug. 26, 1996, Ser. No. 704,015
Int. Cl.[6] G05G 1/14
U.S. Cl. 74—594.6 18 Claims



10. A bicycle pedal assembly for coupling a shoe thereto comprising

a pedal shaft having a first end for attachment to a bicycle crank, a second end for supporting a cyclist's foot, and a center longitudinal axis of rotation;

a pedal body rotatably coupled to said second end of said pedal shaft with a portion of said pedal body and said pedal shaft defining an effective outer diameter of rotation therebetween, said pedal body having a first end, a second end, a first side with a first cleat supporting surface facing in a first direction and a second side facing in a second direction, said first cleat supporting surface having cleat receiving recess located at least adjacent said second end of said pedal shaft and lying within said effective outer diameter of rotation between said portion of said pedal body and said pedal shaft;

a first clamping member coupled to said first end of said pedal body, and having a front cleat engaging portion with a first cleat engaging surface facing in a direction substantially opposed to said first direction of said first cleat supporting surface;

a second clamping member coupled to said second end of said pedal body, and having a rear cleat engaging portion with a second cleat engaging surface facing in a direction substantially opposed to said first direction of said first cleat supporting surface; and

a cleat adapted to be coupled to the shoe, and releasably coupled to said pedal body via said first and second clamping members, said cleat including

a front attachment portion adapted to be coupled to the shoe via a first fastener, said front attachment portion having a front coupling surface lying in a third plane and adapted to engage said first clamping member,

a rear attachment portion adapted to be coupled to the shoe via a second fastener, said rear attachment portion having a rear coupling surface lying in a fourth plane and adapted to ngage said second clamping member, and

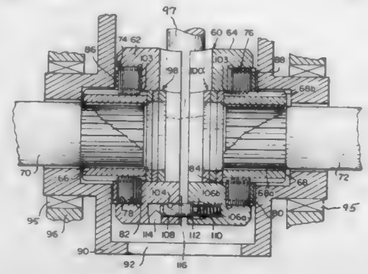
a connecting portion interconnecting said from and rear attachment portions together, said connecting portion being offset from a center vertical plane of said shoe cleat for forming a pedal shaft receiving notch between said front and rear attachment portions.

5,727,430

LOCKING DIFFERENTIAL INCLUDING FRICTION PACK CLUTCH MEANS

Paul J. Valente, Berkely, Mich., assignor to Dyneer Corporation, Warren, Mich.

Filed Oct. 24, 1996, Ser. No. 736,480
Int. Cl.[6] F16H 48/12
U.S. Cl. 74—650 18 Claims



1. A locking differential for driving a pair of collinearly-arranged axially-spaced output shafts the adjacent ends of which are splined and extend through aligned shaft openings contained in the opposed walls of a hollow differential casing, said casing containing an access opening affording access to the casing chamber, comprising:

(a) a pair of generally annular collinearly-arranged axially-spaced clutch members adapted for insertion within the casing chamber via the casing access opening to positions axially aligned with the axis of the casing shaft openings, the adjacent opposing faces of said clutch members containing at least one pair of diametrically arranged drive grooves;

(b) a pair of generally annular side gears collinearly arranged with, and on opposite sides of, said clutch members, said side gears being internally splined for connection with the output shafts, respectively, the remote ends of said clutch members containing counter bores having a greater diameter than the outer diameter of the side gears, the adjacent ends of said side gears extending inwardly within said counter bores, respectively, the side walls of said counter bores and the external surfaces of said side gears being splined;

(c) a pair of annular friction pack means mounted in said counter bores concentrically about said side gears, respectively, each of said friction pack means including a plurality of stacked

friction discs alternate ones of which are internally spline-connected with said side gears and are externally spline-connected with said clutch member counter bore walls, respectively;

(d) means limiting the extent of outward axial displacement of said side gears relative to said friction pack means, respectively;

(e) a diametrically extending drive rod arranged between said clutch members and extending within said drive grooves, respectively, the remote ends of said drive rod extending radially outwardly beyond said clutch members for fixed connection with said differential casing, the width of said grooves being greater than the diameter of said drive rod;

(f) spacer means limiting the axial inward extent of displacement of said side gears relative to said drive rod;

(g) locking means limiting the extent of angular rotational displacement of said clutch members relative to each other; and

(h) spring means biasing said clutch members outwardly apart toward the associated chamber opposed walls, respectively, thereby to compress said friction pack means to connect said clutch members with their associated side gears, respectively;

(I) said locking means including:

(1) a locking pin slidably mounted in a corresponding pin bore contained in one of said clutch member faces, said locking pin being axially slidably displaceable between extended operable and retracted inoperable positions relative to an associated oversized bore contained in the opposing face of the other of said clutch members, said spring means including a helical spring collinearly arranged in said oversized bore for cooperation with said locking pin to bias said pin toward its retracted position; and

(2) releasable means for maintaining said locking pin in said extended operable position;

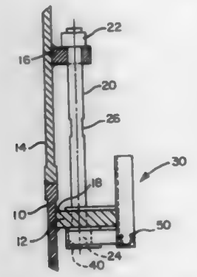
(j) the cross-sectional configuration of said drive grooves being such as to cause disengagement of the clutch means associated with an output shaft that overruns the other output shaft beyond a given amount, thereby to disengage the overrunning shaft and its side gear from the associated clutch member.

5,727,431

BLIND NUT TOOL

Adrian P. Wivagg, Tolland, Conn., assignor to Combustion Engineering, Inc., Windsor, Conn.

Filed Aug. 29, 1996, Ser. No. 705,925
Int. Cl.[6] B25B 17/02
U.S. Cl. 81—55 4 Claims



1. A tool for torquing a polygonally shaped nut relative to a threaded stud, said tool comprising:

a column member having first and second arms, each with opposing sides, extending transversely therefrom and spaced from each other;

a nut receiving hole of polygonal shape in said first arm similar to that of said nut;

a retainer on said tool adjacent said nut receiving hole on the side of said first arm opposite said second arm;

a spacer plate on said tool on the side of said first arm adjacent said second arm;

said second arm having a stud receiving opening;

said spacer plate having a cylindrical washer receiving cavity;

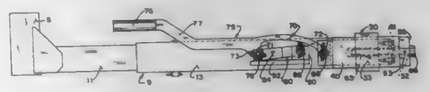
said retainer and said second arm each having a stud receiving opening.

5,727,432

MANUALLY OPERABLE ROD HOLDER

Raymond W. Burns, Bethalto, Ill., and Kyle Oberlander, Florissant, Mo., assignors to Central Mine Equipment Co., Earth City, Mo.

Filed Oct. 30, 1995, Ser. No. 550,019
Int. Cl.[6] B25B 13/50
U.S. Cl. 81—57.34 6 Claims



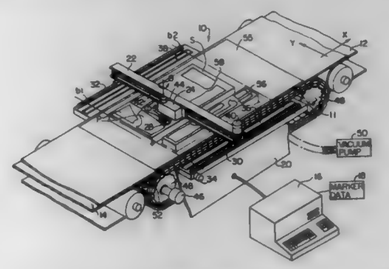
1. A manually operated mechanical rod holder comprising a support arm, said support arm being pivotally mounted at an inboard end on a drill rig chassis; said support arm having an outboard end; fixed jaw means mounted on said outboard end; movable jaw supporting means for slidably supporting movable jaw means outboard of said fixed jaw means for movement of said movable jaw means toward and away from said fixed jaw means, and operating means connected to said movable jaw supporting means to move said movable jaw supporting means, hence said movable jaw means, toward and away from said fixed jaw means, said operating means comprising a lever arm having a handle part at an inboard end of said lever arm and, integral with said lever arm, an arcuate spring section pivotally connected at an outboard end to said movable jaw supporting means and at an inboard end, to an outboard end of a link, said link being pivotally connected at an inboard end of said link to said support arm, said link moving in response to rotation of said operating lever arm between a position at which it is above a line through the pivot axes of the outboard end of said link and the outboard end of said spring section and a position at which it is below said line.

5,727,433

METHOD FOR CUTTING SHEET MATERIAL

Robert J. Pomerleau, Springfield, Mass.; Joseph R. Vivirito, South Windsor, and Ivan Markowitz, Glastonbury, both of Conn., assignors to Gerber Garment Technology, Inc., Tolland, Conn.

Filed Sep. 8, 1995, Ser. No. 525,412
Int. Cl.[6] B26D 5/00
U.S. Cl. 83—29 11 Claims



1. A method of cutting multiple layups of sheet material comprising:

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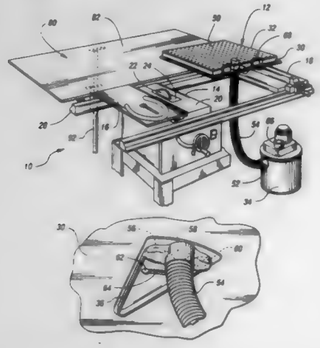
preparing a first layup of limp sheet material;
preparing a second layup of limp sheet material;
positioning the first layup and the second layup in generally side-by-side relationship on a support surface of a cutting table of a cutting machine having a cutting tool movable relative the support surface for cutting sheet material supported on the support surface;
establishing a first marker of pattern pieces to be cut from the first layup of sheet material, the first marker having an origin point from which a position of each pattern piece in the marker is referenced;
establishing a second marker of pattern pieces to be cut from the second layup of sheet material, the second marker having an origin point from which a position of each pattern piece in the second marker is referenced;
setting a location of the origin point of the first marker on the first layup positioned on the support surface of the cutting table;
setting a location of the origin point of the second marker on the second layup positioned on the support surface of the cutting table in side-by-side relationship with the first layup;
determining an offset of the locations of the origin points of the first and second markers of the layups on the support surface;
combining the first and second markers into a single marker for cutting both layups in accordance with the determined offset of the locations of the origin points; and
controlling the cutting tool of the cutting machine to cut pattern pieces of the first and second markers from the first and second layups respectively in accordance with the single marker.

5,727,434

CIRCULAR SAW AIR TABLE

Jeffrey M. Dils, Piedmont, S.C., and Marc Francis, New South Wales, Australia, assignors to Ryobi America Corporation, Anderson, S.C.

Filed Aug. 13, 1993, Ser. No. 106,352
Int. Cl.[6] B26D 7/01; B25B 11/00
U.S. Cl. 83—169 10 Claims



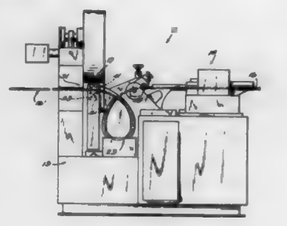
8. A table saw comprising:
a main saw unit including a generally planar support surface and a circular saw blade projecting at least partially through the support surface, the circular saw blade being positionable in a first plane substantially perpendicular to the planar support surface;
a pair of parallel spaced apart guide rails extending from the main saw unit in a direction generally transverse to the first plane of the saw blade;
an air table mounted on and extending between the pair of guide rails and movable in a generally transverse direction relative to the first plane of the circular saw blade, the air table including:
a body portion having a plurality of subsections and a plurality of ports formed therein, each port being in communication with a respective one of the subsections, and
a generally planar table top substantially coplanar with the main support surface, the table top having a plurality of holes therethrough and being attached to the body portion to cover the subsections;
an air source for producing a stream of pressurized air, and
a manifold connected to the air source and to at least one of the ports for selectively communicating the pressurized air produced by the air source to at least one of the subsections of the body portion to produce a cushion of air over a selected portion of the table top for facilitating movement of the workpiece over the table top.

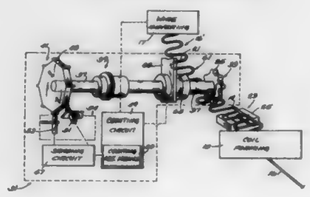
5,727,435

SEVERANCE CONTROL FOR SINUOUS WIRE FORMING MACHINE

Horst F. Wentzek, Kenosha, Wis., assignor to Frank L. Wells Company, Kenosha, Wis.

Continuation of Ser. No. 190,672, Jan. 31, 1994, abandoned.
This application Aug. 15, 1996, Ser. No. 698,481
Int. Cl.[6] B21F 11/00
U.S. Cl. 83—208 3 Claims





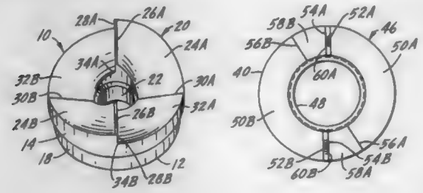
1. Apparatus for cutting, from a continuously extending sinuously formed wire, a variably selected predetermined length thereof having a plurality of sinuously formed generally identical coils, said apparatus comprising a frame, means on said frame operable through one cycle, incident to energization thereof, for severing the sinuously formed wire, means on said frame for guiding travel of the sinuously formed wire to said wire severing means, means for halting travel of the sinuously formed wire to said wire severing means and including a magnetic brake operable, incident to energization thereof, to prevent wire travel to said wire severing means and operable, incident to the absence of energization thereof, to permit wire travel to said wire severing means, and control means connected to said wire severing means and including means for generating countable electrical pulses in response to wire travel relative to said wire severing means, said pulse generating means including a sprocket which is rotatably supported by said frame and which is rotatable in accordance with wire travel relative to said wire severing means, said sprocket including a plurality of angularly spaced teeth, said control means also including a magnetic sensing mechanism supported by said frame adjacent said sprocket and operable, in response to passage therepast of said sprocket, to generate an electrical signal, said magnetic sensing mechanism including first and second magnetic sensors supported on said frame in angularly spaced relation to each other corresponding to the angular spacing of said sprocket teeth, said means for generating countable electrical pulses including a sensing circuit operable to generate a countable electrical pulse in response to receipt of signals from said first and second magnetic sensors, and said control means further including a counting circuit connected to said sensing circuit, to said wire severing means and to said magnetic brake and being operable to receive the countable electrical pulses and, in response to receipt of a predetermined number thereof, to generate actuating signals for energizing said magnetic brake to prevent rotation of said sprocket and for energizing said wire severing means through one cycle to sever the sinuously formed wire.

5,727,436

DRAW PUNCH HAVING RELIEVED HELICAL WORKING FACES

Benjamin D. Swedberg, and Edwin R. Burgess, III, both of Sycamore, Ill., assignors to Ideal Industries, Inc., Sycamore, Ill.

Filed Mar. 27, 1995, Ser. No. 411,414
Int. Cl.[6] B26F 1/14
U.S. Cl. 83—686 16 Claims



5. A draw punch for cutting holes in various materials, comprising a cylindrical body having a base end and a working end and a central bore extending axially through the body, the working end of the body having a circumferential cutting edge at the outside diameter of the body and a working face defined between the cutting edge and the bore, the working face extending circumferentially for substantially the entire circumference of the body and sloping downwardly toward the base end from the cutting edge to the central bore in all radial planes intersecting the axis of the bore and, wherein the working face includes at least first and second axial faces each extending radially across the working face from the cutting edge to the bore and axially from a root to a peak, the root being the portion of each axial face closest to the base end of the body while the peak is the portion of each axial face which is the greatest axial distance from the base end of the body, and wherein each portion of the working face extending from the peak of one axial face to the root of the other axial face comprises primary and secondary surfaces, the primary surface sweeping downwardly toward the end base from the peak to a valley intermediate the peak and root, the secondary surface sweeping upwardly from the valley to the root.

5,727,437

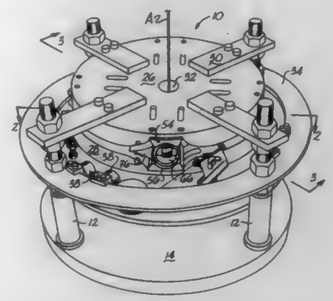
Patent Not Issued For This Number

5,727,438

SLIP YARN BRAIDING MACHINE

David G. Beale; Royall Broughton; Robert P. Walker, all of Auburn; John T. Klein, Mobile, all of Ala.; Qiang Zhang, Baltimore, Md., and Arnold Daniel Vickers, Bessemer, Ala., assignors to Auburn University, Auburn University, Ala.

Filed May 20, 1996, Ser. No. 650,845
Int. Cl.[6] D04C 3/32
U.S. Cl. 87—45 34 Claims



1. A fabric forming device comprising:
a frame supporting a stationary plate and a rotating plate;
said stationary plate including an upper member and a lower member mounted in vertically spaced relationship, said stationary plate having an opening formed through at least said upper member about its central axis;
a plurality of first yarn spools arranged radially outward from and circumferentially about said central axis with the yarns from said first spools passing through said opening, said first spools being carried by said stationary plate in an unfixed manner;
said rotating plate being mounted on said frame with its axis of rotation arranged along said central axis, a second plurality of yarn spools arranged circumferentially about said rotating plate and radially outward of said first spools so that the yarns of said second spools pass from outwardly of said first spools between said upper and lower members and through said opening;
a take-off arranged in spaced relation of said stationary plate receiving said yarns from said first and second spools, said take-off being operative to carry said yarns away from said plates;
a moveable yarn guide, arranged along the path of travel of each said yarn coming from said second spools, said movable yarn guides being and operative to selectively position the yarns of said second spools to pass over and under said yarns of said first spools;
a patterning mechanism, said patterning mechanism controlling the position of said yarn guides; whereby,
in operation, said rotating plate rotably carries said second spools about said axis while said patterning mechanism controls said yarn guides to position said second yarns to pass over and under each of said first yarns causing said first and second yarns to be interlaced as they pass through said opening and away from said frame.

5,727,439

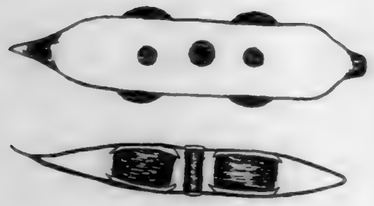
MULTIPLE BOBBIN TATTING SHUTTLE, METHOD OF TATTING AND TATTED ARTICLES

Lauren P. Pelc, 410 Chaucer Ct., Schaumburg, Ill. 60193-2720

Filed Sep. 11, 1995, Ser. No. 526,804
Int. Cl.[6] D04C 7/00
U.S. Cl. 87—58 4 Claims

1. A tatting shuttle comprising:

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a first generally elongated member having a first generally planar inner face, said inner face having a first plurality of bobbin holders thereon; and

a second generally elongated member attached to said first member and having a second generally planar inner face disposed generally in parallel to said first generally planar inner face, said second generally planar inner face having a second plurality of bobbin holders thereon disposed generally in aligned opposition to said first plurality of bobbin holders; such that respective ones of said first and second inner pluralities of bobbin holders are disposed in general opposition to each other to form respective opposed pairs of bobbin holders for holding each respective bobbin of a plurality of bobbins in position between a respective pair of opposed bobbin holders between said inner faces.

5,727,440

GAS CYLINDER ELEMENT

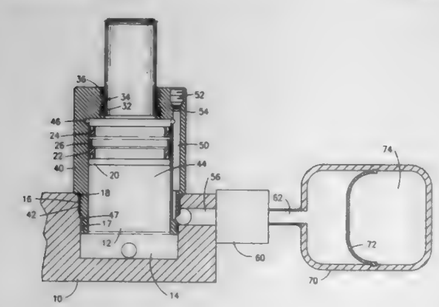
Wolfgang Katz, Dauchingen, and Franz Preuss, Villingen-Schwenningen, both of Germany, assignors to Danly Corporation, Miami, Fla.

Filed Sep. 3, 1996, Ser. No. 707,223

Claims priority, application Germany, May 15, 1996, 296 08 818.5

Int. Cl.[6] F15B *21/04*

U.S. Cl. 91—4 R **14 Claims**



1. A gas cylinder element comprising:

a tank platform;

at least one cylinder having a longitudinal axis, one end of which cylinder is seated on the tank platform sealed against high pressure, the other end of said cylinder having a cylinder head;

a piston provided to be axially displaceable between a rest position and an extended position and sealed against high pressure, said piston having a front face and a back face and dividing said cylinder into a hydraulic chamber and a pressure gas chamber, wherein said pressure gas chamber is filled with gas under pressure, and wherein said hydraulic chamber is between said back face of said piston and said cylinder head, wherein said hydraulic chamber and said pressure gas chamber vary inversely in size depending upon force applied to the piston, and wherein said gas in said pressure gas chamber exerts a spring effect to urge the piston toward said rest position;

a piston rod for transmitting force to said piston, said piston rod extending through said cylinder head;

a hydraulic fluid reservoir in fluid communication via a hydraulic conduit with said hydraulic chamber;

a valve for regulating flow in said conduit;

wherein said hydraulic reservoir (**70**), said hydraulic conduit (**50**, **56**, **62**) inclusive of valve (**60**) and the hydraulic chamber (**45**) form a self-contained, sealed fluid system completely filled with hydraulic fluid; and

wherein said valve (**60**) is so designed, that

(a) during extension of the piston (**20**) the valve is open, so that hydraulic fluid can flow out of the hydraulic fluid reservoir (**70**) into the hydraulic chamber (**45**),

(b) upon completion of a stroke of the piston (**20**) said valve is closed, so that a return flow of the oil out of the hydraulic chamber (**45**) into the hydraulic reservoir (**70**) is prevented and therewith the piston (**20**) is detained in the extended position, and

(c) said valve may be opened when desired so that oil can return flow out of the hydraulic chamber (**45**) back into the hydraulic reservoir (**70**), and the piston (**20**), as a result of the spring effect of the gas, can return to its rest position.

5,727,441

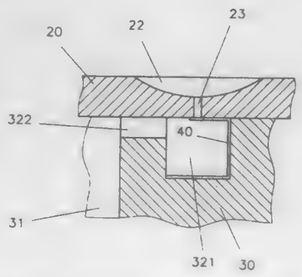
VALVE PLATE STRUCTURE OF AN AXIAL PLUNGER PUMP

Chiun Lern Fu, Hsinchu; Jiun-Jeng Chen, Miauli; Chaur-Chyn Luoh, Taipei, and Chen-Der Tsai, Hsinchu, all of Taiwan, assignors to Industrial Technology Research Institute, Hsinchu, Taiwan

Filed Jan. 20, 1995, Ser. No. 376,271

Int. Cl.[6] F04B *13/04*

U.S. Cl. 91—6.5 **6 Claims**



1. A valve plate structure for use in an axial plunger pump comprising:

a valve plate, which comprises a first suction port, a first displacement port, and a pressure build-up zone therebetween;

a cover, which is in close contact with a rear side of said valve plate, comprises a second suction port at a location corresponding to said first suction port of said valve plate and a second displacement port at a location corresponding to said first displacement port of said valve plate;

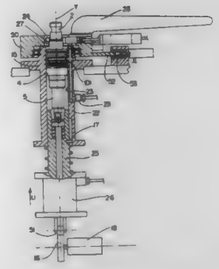
a flow-diverted channel formed in said pressure build up zone of said valve plate;

a through hole provided in a bottom of said flow-diverted channel penetrating through a bottom part of said valve plate;

a guided channel formed in said cover at an interface between said cover and said valve plate abutting said through hole of said flow-diverted channel, said guided channel comprises a receptacle, which can be connected to said flow-diverted channel via said through hole, and an oil guided ditch, which connects said receptacle with said second displacement port of said cover; and

a spring-resisted seal device provided in said receptacle of said guided channel, said spring-resisted seal device is structured such that, under normal conditions, its spring force will push against and close said through hole of said valve plate, thus preventing a flow of a fluid from said flow-diverted channel to said guided channel;

said spring-resisted seal device is further structured such that, when a pressure in said through hole dominates said spring force, said spring-resisted seal device will be pushed open, thus allowing fluid to flow from said flow-diverted channel to said guided channel, through said oil guided ditch and to said second displacement port of said cover, to thereby allowing said second displacement port to build up pressure in advance so as to reduce an overshoot and pressure pulses.



5,727,442

SAFETY DEVICE AT HYDRAULIC PISTON-CYLINDER UNITS

Alois Wimmer, Hof b. Salzburg, Austria, assignor to Wimmer Hartstahl Ges.mbH & Co. KG, Thalgau, Austria

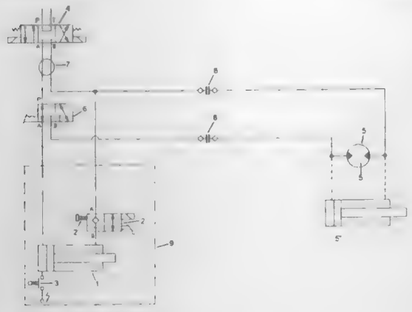
PCT No. PCT/AT95/00037, § 371 Date Nov. 2, 1995, § 102(e) Date Nov. 2, 1995, PCT Pub. No. WO95/23925, PCT Pub. Date Sep. 8, 1995

PCT Filed Feb. 21, 1995, Ser. No. 549,694

Claims priority, application Austria, Mar. 2, 1994, 448/94

Int. Cl.[6] F15B *15/26*

U.S. Cl. 91—42 **4 Claims**



1. A safety device for an hydraulic piston-cylinder unit, comprising:

a sensor disposed at an hydraulic piston-cylinder unit for monitoring a relative position of a piston thereof;

a monitoring circuit and an alarm system triggered by said monitoring circuit, said sensor being electrically connected to said monitoring circuit for reporting to said monitoring circuit if the piston is in an incorrect position; and an electrically actuatable locking valve for actuating the hydraulic piston-cylinder unit, said locking valve being coupled to said sensor and to said monitoring circuit.

5,727,443

METHOD OF BALANCING A HYDRAULIC VALVE FOR A POWER STEERING GEAR

John Baxter, Chatswood; Geoff Dyer, Casula, both of Australia, and Donald G. Murdock, Indianapolis, Ind., assignors to A.E. Bishop & Associates Pty Limited, North Ryde, Australia

Continuation-in-part of Ser. No. 348,215, Nov. 28, 1994, abandoned. This application Aug. 3, 1995, Ser. No. 511,024

Int. Cl.[6] F15B *9/10*

U.S. Cl. 91—375 A **40 Claims**

1. A method of balancing an hydraulic valve for a power steering gear in which the valve is subjected to a pressure medium, the valve comprising a sleeve journalled on an input-shaft, the sleeve having a torsion bar connected thereto via a driven member, the method comprising the steps of:

inserting the valve into a balance housing;

determining the neutral position of the input-shaft relative to the sleeve; and

fixing the neutral position by rotational connection of the input-shaft and torsion bar, characterised in that the pressure medium used to determine the neutral position is a gaseous medium and a temporary sealing means adapted to seal the gaseous medium is in contact with the outside surface of the sleeve during determination of the neutral position.

5,727,444

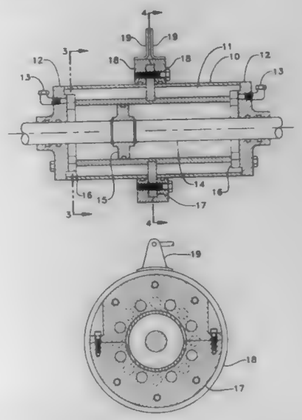
POWER STEERING CYLINDER ASSEMBLY

Otto E. Dietrich, 911 W. Jefferson P.O. Box 121, Morton, Ill. 61550-1535

Filed Feb. 20, 1996, Ser. No. 603,133

Int. Cl.[6] F15B *11/024*

U.S. Cl. 91—437 **9 Claims**



1. An actuator comprising:

(a) a housing having two end portions and an internal chamber;

(b) a piston slidable within said housing and dividing said chamber into operating chambers;

(c) a piston rod fastened to said piston and passing through each of said end portions;

(d) fluid openings in each of said end portions for allowing fluid to enter or exhaust from said operating chambers to move said piston;

(e) fluid passage means in said housing for allowing fluid to circulate through said housing, said fluid passage means comprising axial bores extending parallel to an axis of said piston rod and openings in said end portions connecting said bores with said operating chambers; and

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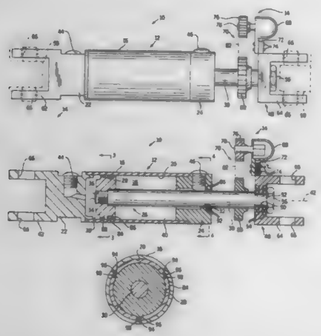
(f) rotatable valve means for preventing fluid to circulate through said fluid passage means, said rotatable valve means comprising a flat ring mounted to said rotatable with respect to said housing, said flat ring having bores which match said axial bores.

5,727,445

ACTUATOR CYLINDER WITH MECHANISM TO REDUCE STICTION

Paul C. Sheldon, Mequon, Wis., assignor to Sheldon/Van Someren, Inc., Wauwatosa, Wis.

Filed Nov. 6, 1996, Ser. No. 746,081
Int. Cl.[6] F01B 21/00
U.S. Cl. 92—2 20 Claims



1. An actuator cylinder designed to reduce stiction, comprising:
a cylinder assembly including:
a cylinder barrel having a hollow interior;
a first end and a second end connected to the cylinder barrel, the second end having an opening therethrough and being connected on an opposite side of the hollow interior from the first end;
a piston slidably mounted in the hollow interior; and
a rod extending from the piston and slidably received through the opening;
a rotator mechanism connected to the cylinder assembly, wherein the rotator mechanism is able to impart relative rotation between the piston and the cylinder barrel; and
an elastomeric seal disposed between the piston and an interior wall of the cylinder barrel, wherein the piston includes an annular groove configured to receive the elastomeric seal and an anti-rotation mechanism that cooperates with the seal to limit movement of the seal along the groove.

17. A method for reducing stiction in a linear actuator cylinder of the type having a cylinder barrel in which a piston and rod assembly is slidably mounted for reciprocating motion along a linear axis of the cylinder barrel, comprising the steps of:
connecting a rotation mechanism to at least one of the cylinder barrel or the piston and rod assembly;
imparting relative rotational movement between the cylinder barrel and the piston and rod assembly;
placing an elastomeric annular seal between the cylinder barrel and a piston of the piston and rod assembly; and
restricting the annular seal from rotation about the piston.

5,727,446

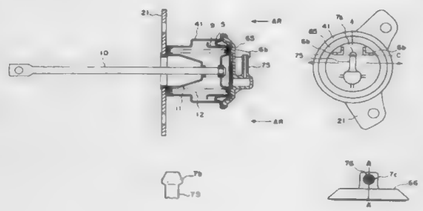
Patent Not Issued For This Number

5,727,447

SUPERCHARGE PRESSURE CONTROL APPARATUS

Kazunari Shiraishi, Hyogo; Hidetoshi Okada, and Sotsuo Miyoshi, both of Tokyo, all of Japan, assignors to Mitsubishi Denki Kabushiki Kaisha, Tokyo, Japan

Filed Dec. 29, 1995, Ser. No. 581,252
Claims priority, application Japan, Sep. 27, 1995, 7-249623
Int. Cl.[6] F01B 31/00
U.S. Cl. 92—164 19 Claims



1. A supercharge pressure control apparatus fixed in an internal combustion engine with a mounting member, comprising:
an enclosure secured to said mounting member;
a diaphragm disposed inside said enclosure for partitioning the interior of said enclosure into a first pressure room and a second pressure room;
a holder disposed adjacent to said diaphragm and inside said second pressure room;
a spring disposed inside said second pressure room for urging said diaphragm in the direction of said first pressure room or in the opposite direction through said holder;
a rod which is able to move backward and forward in accordance with the pressure of gas applied to said first pressure room for controlling the pressure of air to be supplied into said internal combustion engine, one end of said rod being secured to said holder and the other end of said rod projecting outward from said enclosure;
a molded case which at least partially forms said first pressure room in cooperation with said diaphragm;
a housing which at least partially forms said second pressure room;
a pressure applying port integrally formed on a surface of said case and extending substantially in parallel with the surface for applying the pressure of gas to said first pressure room; and
at least one projection disposed on at least one side of said pressure applying port for preventing said pressure applying port from becoming broken.

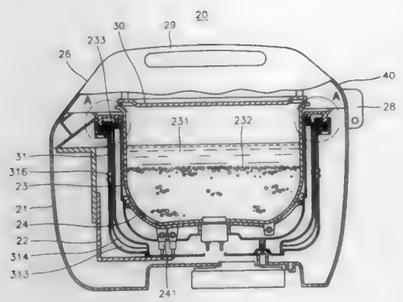
5,727,448

ELECTRIC RICE COOKER

Yong-Jae Sa, Seoul, Rep. of Korea, assignor to Daewoo Electronics Co., Ltd., Rep. of Korea

Filed Feb. 28, 1997, Ser. No. 807,916
Claims priority, application Rep. of Korea, Feb. 28, 1996, 96-3444
Int. Cl.[6] A47J 27/00; F27D 11/02
U.S. Cl. 99—331 14 Claims

1. An electric rice cooker, said electric rice cooker comprising:
an outer case having an inner case disposed therein;
a cooking kettle disposed inside the inner case for containing water and rice to be cooked;
a hot plate mounted adjacent to an outside surface of said cooking kettle for heating said cooking kettle;
a first lid for covering a top of said cooking kettle;
a second lid mounted on a lower portion of said first lid; and



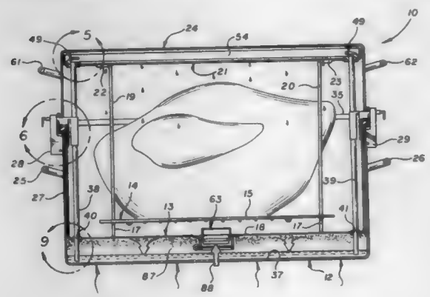
an adiabatic vacuum member fixed between the outer case and said cooking kettle and at said second lid for preventing a heat from being emitted from said cooking kettle to an outside.

5,727,449

AUTOMATIC BASTING ROASTER

Jack Healy, 11333 Moorpark St., #128, Toluca Lake, Calif. 91602, and Gregg A. Bond, 3223 Philo St., Los Angeles, Calif. 90064

Filed Feb. 13, 1997, Ser. No. 800,135
Int. Cl.[6] A47J 37/00
U.S. Cl. 99—346 13 Claims



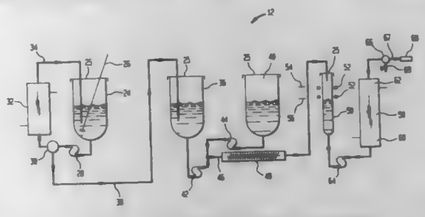
1. A self basting roaster comprising:
a roasting pan having a bottom wall and a peripheral side wall;
a basting pan having a bottom wall and a peripheral side wall disposed internally of said roasting pan and spaced from the bottom wall of said roasting pan forming a space therebetween;
a rack disposed in said basting pan having extension portions extending upwardly therefrom;
a drip pan having an upper surface and a lower surface and a plurality of perforations therethrough mounted on top of said extension portions; and
valving means between the bottom walls of said roasting pan and said basting pan communicating with the space between said basting pan and said roasting pan, said space being normally sealed off from the atmosphere except for liquid delivery means communicating at one end with the space between said roasting pan and said basting pan and at the other end with the upper surface of said drip pan for delivering liquid from said space over said drip pan and down through said perforations.

5,727,450

APPARATUS FOR MAKING ARTIFICIAL EGG YOLKS IN THE FORM OF A CYLINDER

Eustathios Vassiliou, 12 S. Townview La., Newark, Del. 19711

Division of Ser. No. 403,653, Mar. 14, 1995, Pat. No. 5,589,218. This application Sep. 23, 1996, Ser. No. 717,710
Int. Cl.[6] A23L 1/32
U.S. Cl. 99—353 15 Claims



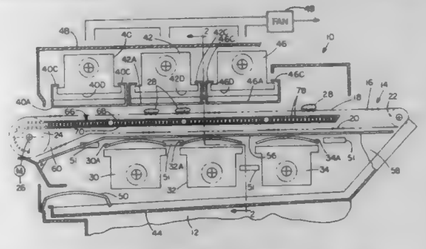
1. A device for making artificial egg-yolk comprising:
a first vessel for holding a first mixture of artificial egg-yolk materials at a first temperature higher than 140° F., the egg-yolk materials comprising a positive thermoreversible gel former, the positive thermoreversible gel former providing a gel temperature to the artificial egg-yolk;
a second vessel for holding a liquid comprising egg-white at a second temperature;
a first pump and a second pump, each pump having an inlet and an outlet, the inlet of the first pump connected to the first vessel and the inlet of the second pump connected to the second vessel,
the outlets of the first and second pumps being connected to each other for bringing together a first quantity of the first mixture with a second quantity of the liquid to form a second mixture having a third temperature, the quantities and temperatures of the first mixture and the liquid being such that the third temperature is higher than the gel temperature but lower than a temperature at which the egg-white coagulates.

5,727,451

BROILER APPARATUS

Jimmy A. DeMars, Hugo, Minn., assignor to The Pillsbury Company, Minneapolis, Minn.

Continuation of Ser. No. 614,189, Mar. 12, 1996, abandoned, which is a continuation of Ser. No. 530,713, Sep. 19, 1995, abandoned. This application Mar. 13, 1997, Ser. No. 816,901
Int. Cl.[6] A23L 1/01;3/32; A47J 37/00;37/04
U.S. Cl. 99—386 21 Claims



1. A broiler apparatus comprising a frame;
a conveyor mounted on the frame having an upper food conveying length;
at least one broiler heat source mounted on the frame adjacent to and extending laterally across the food conveying length and positioned below the food conveying length of the conveyor, and an open space metal grid positioned below a food support plane of the food conveying length and in registry therewith, said open space metal grid causing vaporization of fat from a

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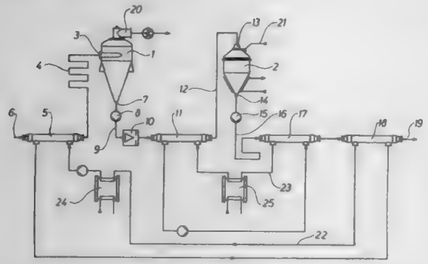
food product supported on the conveyor and causing mixing of the vapors with air above the open space metal grid as the heat source is used for broiling a food product.

5,727,452

PLANT FOR CONTINUOUSLY STERILISING FLUIDS, SUCH AS MILK AND CREAM

Jens Anders Jensen, Silkeborg, Denmark, assignor to APV Pasilac A/S, Silkeborg, Denmark

PCT No. PCT/DK95/00453, § 371 Date May 19, 1997, § 102(e) Date May 19, 1997, PCT Pub. No. WO96/15677, PCT Pub. Date May 30, 1996
PCT Filed Nov. 14, 1995, Ser. No. 836,643
Claims priority, application Denmark, Nov. 18, 1994, 1319/94
Int. Cl.[6] A23C *1/12*; A23L *3/34*
U.S. Cl. 99—454
7 Claims



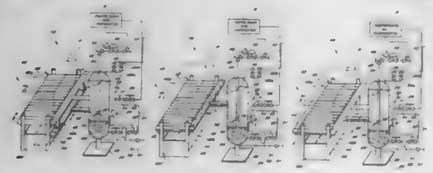
1. A plant for continuously sterilising fluids, such as milk and cream, said plant comprising a sterilising device, in which the fluid is sterilised while steam is fed thereto, and a vacuum chamber for removing the water from the fluid and from which the fluid is extracted by means of a pump, characterised in that the vacuum chamber (1) is accommodated before the sterilising device (2) when seen in the flow direction of the fluid, said vacuum chamber (1) being connected to said sterilising device (2) through a first heat exchanger (11) for heating the fluid before said fluid enters the sterilising device (2).

5,727,453

APPARATUS AND METHOD FOR THAWING FROZEN FOOD PRODUCT

Robert Tippmann, Palm Bay, Fla., assignor to HJC Beverages, Inc., Fort Lauderdale, Fla.

Filed Apr. 18, 1994, Ser. No. 228,656
Int. Cl.[6] F25B *29/00*; F28F *3/08*
U.S. Cl. 99—483
12 Claims



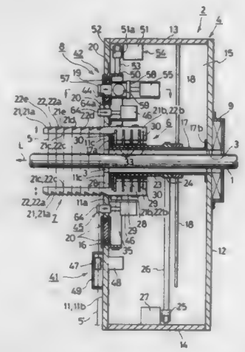
1. An apparatus for thawing frozen food product using the heat of condensing associated with a supply of saturated gas from a vapor compression refrigeration cycle, said apparatus comprising:
- a plurality of thawing tubes generally horizontally arranged for supporting and thawing a block of frozen food product;
- a supply of saturated gas thawing medium from said vapor compression refrigeration cycle fluidly communicating with interiors of said thawing tubes, said saturated gas thawing medium transferring heat through said thawing tubes to said food product and thereby condensing;
- means for draining condensed thawing medium from said thawing tubes;
- means for receiving thawed food product.

5,727,454

DEVICE FOR MARKING AN ELONGATE MATERIAL

Katsunobu Takikawa, Hachioji, Japan, assignor to Takikawa Engineering Co., Ltd., Japan

Filed Sep. 30, 1996, Ser. No. 723,265
Claims priority, application Japan, Nov. 1, 1995, 7-308247; Aug. 21, 1996, 8-219746
Int. Cl.[6] B65B *13/02*
U.S. Cl. 100—4
2 Claims



1. A device for marking an elongate material moving along a longitudinal path, comprising:
- a support with an opening for the elongate material to pass through;
- a holding/releasing mechanism mounted on said support to expand and release an elastic material ring to apply the ring around the elongate material, said holding/releasing mechanism comprising drive means for releasing the elastic material ring; and
- a defect detecting sensor disposed upstream of the holding/releasing mechanism and in the path of the elongate material the drive means of the holding/releasing mechanism being activated by the sensor to release the elastic material ring onto the elongate material when a defect in the elongate material is detected by the sensor.

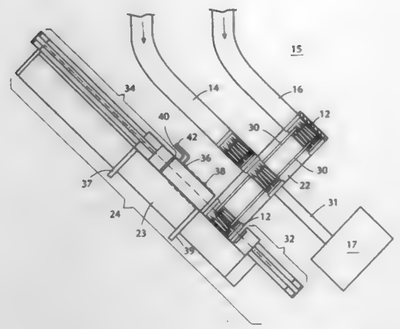
5,727,455

AUTOMATIC SYRINGE DESTRUCTION SYSTEM AND PROCESS

Arthur J. Yerman, 76 Grand Ave., Toms River, N.J. 08753

Filed Apr. 1, 1996, Ser. No. 631,655
Int. Cl.[6] B30B *15/34*; *1/32*
U.S. Cl. 100—38
11 Claims

9. A method for automatically destroying and sterilizing plastic syringes stored in a carrier, said method comprising the steps of:
- (i) placing a plurality of carriers storing plastic syringes on a transfer wheel;
- (ii) transferring one of said plurality of carriers placed on said transfer wheel into a first end of a compression chamber with a first piston means;
- (iii) heating said compression chamber to a predetermined temperature;
- (iv) applying a vacuum pressure to said compression chamber;



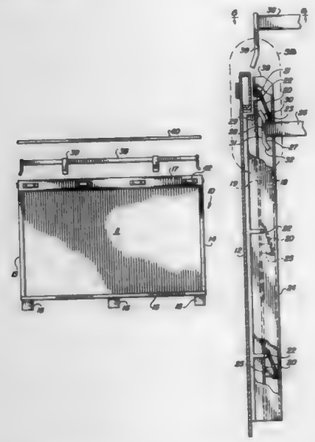
- (v) injecting water into said compression chamber;
- (vi) removing water from said compression chamber;
- (vii) inserting a second piston means into a second end of said compression chamber to contact said carrier and compact said carrier against said first piston means; and,
- (viii) removing said compacted carrier from said compression chamber.

5,727,456

WASTE CONTAINER TOP EDGE SQUARING FIXTURE

Joel Hughes, P.O. Box 3767, Wilmington, N.C. 28406

Filed Mar. 4, 1997, Ser. No. 810,860
Int. Cl.[6] B30B *9/30*
U.S. Cl. 100—219
5 Claims



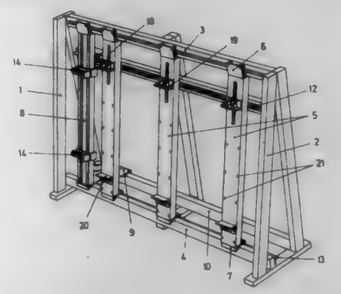
1. A compact waste container that includes a body having an open top, a bottom wall, and side and end walls providing confronting inner surfaces that has at least one waste compression frame extending between the confronting surfaces of the side and end walls and movable through a vertical component within the body against the waste compacted therein, the improvement comprising;
- a) side and end wall guides comprising a pair of channel members mated so as to form a tubular post attached to confronting surfaces of the side and end walls extending from the open top to the bottom wall, with a top edge of one wall of said tubular post notched to form a receiving socket facing inwardly of said body,
- b) a rack of cross arms of a length to fit between said side and end wall guides with the free ends of said cross arms projected through said notches formed in the top edge of one wall of said post attached to the confronting surfaces of said side and end walls,
- c) a fixed catch provided at each end of each of said cross arms adapted to fit behind said socket to hold and maintain said confronting side and end wall in squared relationships,
- d) a lid of a size to sit upon the exposed peripheral edges of said side and end walls, and
- e) means for locking said lid onto said waste container body.

5,727,457

HYDRAULIC PRESS FOR FORMING DOOR FRAMES AND PANELS OR THE LIKE

Juan Guarch Olive, Benicarlo (Castellon), Spain, assignor to Prensas Ramarch, S.L., Spain

Filed Feb. 16, 1996, Ser. No. 601,345
Claims priority, application Spain, Oct. 5, 1995, 9502549
Int. Cl.[6] B30B *7/04*
U.S. Cl. 100—232
7 Claims



1. Hydraulic press comprising
- a rigid frame defining a vertical direction and a horizontal direction when in use and having
  - crossbars; and
  - multibore plates which extend parallel to said crossbars;
- a series of movable columns,
- means for pressing in the vertical direction;
- a moveable end column mounted between said crossbars and having a front part and a rear part which on the rear part thereof are mounted opposing cylinders having means for selectively engaging said bores of said multibore plates, by means of which selective positional anchoring may be established, while on the frontal part of said end column (8) is incorporated small transverse cylinders, by means of which pressure may be exerted toward the opposite side of the frame.

5,727,458

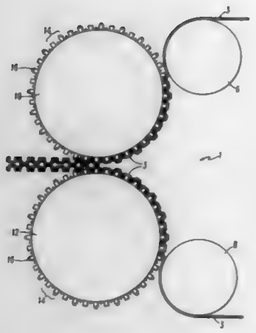
METHOD AND APPARATUS FOR CONTOUR MULTI-LEVEL EMBOSSING WITH PERFORATION BONDING IN SELECTED SPACED LOCATIONS

Galyn Schulz, Greenville, Wis., assignor to James River Corporation of Virginia, Richmond, Va.

Filed Mar. 20, 1996, Ser. No. 619,807
Int. Cl.[6] B31F *1/07*
U.S. Cl. 101—24
23 Claims

1. An apparatus for providing perforation bonding and embossing of multiple plies of web material, comprising:
- at least two backup rolls; and
- at least two embossing rolls, each of said embossing rolls positioned adjacent a respective one of said backup rolls so as to create an interference between said rolls during rotation to

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emboss said web material which is fed therethrough, each of said embossing rolls further positioned adjacent to one another so as to create an interference between said embossing rolls for perforation bonding said web material which is fed therethrough in a nip region, said embossing rolls including;

a plurality of embossing elements for forming an embossed pattern in the web material, said embossing elements having at least two different heights arranged in an embossing pattern for embossing said web material; and

a plurality of perforation elements, said perforation elements being the highest element on said embossing rolls for perforation bonding and embossing said web material;

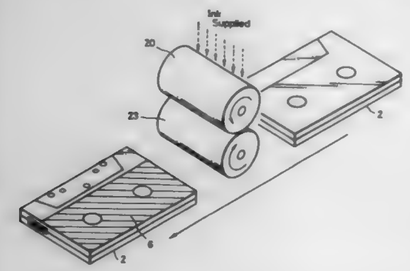
wherein said perforation elements of at least two of said embossing rolls interfere with one another in said nip region such that the plies of the web material are perforation bonded to one another.

5,727,459

METHOD OF AND APPARATUS FOR PRINTING A CASSETTE ACCOMMODATING A RECORDING MEDIUM OR A CASSETTE ACCOMMODATING CASE AND A CASSETTE ACCOMMODATING A RECORDING MEDIUM

Kenji Shimokuni, Miyagi, Japan, assignor to Sony Corporation, Tokyo, Japan

Continuation of Ser. No. 332,107, Oct. 31, 1994, abandoned.
This application Oct. 30, 1996, Ser. No. 741,296
Claims priority, application Japan, Oct. 29, 1993, 5-272786; Oct. 29, 1993, 5-272790
Int. Cl.[6] B41F *17/24*
U.S. Cl. 101—36 2 Claims



1. A printing method for printing on a plastic cassette accommodating a recording medium or on a cassette accommodating case, said method comprising steps of:

supplying ink to a first printing surface comprised of a first plurality of concave portions formed on a peripheral surface of a first rotatable cylindrical plate, wherein said first plurality of concave portions is arranged in a first halftone pattern oriented at first predetermined halftone angle ranging from 10° to 60° relative to an edge of said first cylindrical plate;

transferring said ink from said first printing surface to a first rotatable cylindrical pad brought in contact with said first rotatable cylindrical plate;

transferring said ink from said first rotatable cylindrical pad to a surface of one of said cassette accommodating a recording medium and said cassette accommodating case when said first rotatable cylindrical pad is brought in contact with a uniform pressure against said surface of said one of said cassette accommodating a recording medium and said cassette accommodating case being conveyed past said first rotatable cylindrical pad;

supplying ink to a second printing surface comprised of a second plurality of concave portions formed on a peripheral surface of a second rotatable cylindrical plate, wherein said second plurality of concave portions is arranged in a second halftone pattern oriented at a second predetermined halftone angle ranging from 10° to 60° relative to an edge of said second cylindrical plate, said second predetermined halftone angle being different from said first predetermined halftone angle;

transferring said ink from said second printing surface to a second rotatable cylindrical pad brought in contact with said second rotatable cylindrical plate; and

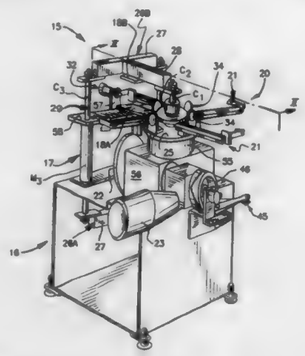
transferring said ink from said second rotatable cylindrical pad to said surface of said one of said cassette accommodating a recording medium and said cassette accommodating case when said second rotatable cylindrical pad is brought in contact with a uniform pressure against said surface of said one of said cassette accommodating a recording medium and said cassette accommodating case being conveyed past said second rotatable cylindrical pad.

5,727,460

PRINTING MACHINE WITH GOLD BLOCKING PRESS TYPE PRINTING STATION

Patrick Gaglione, Vaires Sur Marne, and Jean-Louis Dubuit, Paris, both of France, assignors to Societe D'Exploitation des Machines Dubuit, Noisy Le Grand, France

Filed May 24, 1996, Ser. No. 653,249
Claims priority, application France, May 24, 1995, 95 06212
Int. Cl.[6] B41F *17/00*
U.S. Cl. 101—44 12 Claims



1. Printing machine comprising a frame, a gilding press printing station including two shell members adapted together to enclose at least part of an object to be printed, a drive mechanism acting directly on one of the shell members and acting on the other of the shell members through at least two parallel movement reverser

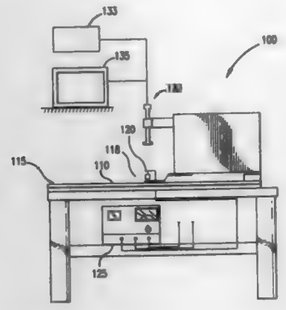
columns mounted for sliding movement along their axes, a conveyor carrying at least one object-carrier support, said conveyor being mobile relative to said frame for moving said at least one object-carrier support between said shell members, said conveyor including a turntable coaxial with one of said columns and extending radially outwardly thereof.

5,727,461

METHOD OF FORMING FIDUCIALS, AND STENCILS CONTAINING SUCH FIDUCIALS

Jamie S. Clayfield, Rochester, and Philip J. Entingh, Ontario, both of N.Y., assignors to AMTX, Inc., Canandaigua, N.Y.

Filed Feb. 6, 1997, Ser. No. 795,765
Int. Cl.[6] B05C *17/06*
U.S. Cl. 101—127 16 Claims



1. A method of forming a fiducial in a stencil, comprising:

forming a fiducial by electrochemically etching the fiducial concentrically about a target fiducial thru-hole, and

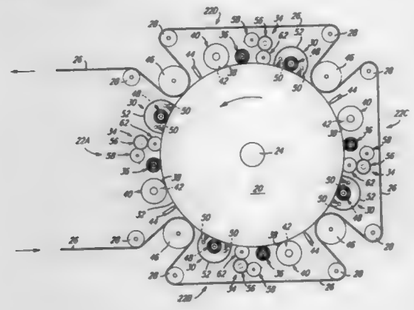
filling the target fiducial thru-hole with a filling material.

5,727,462

MULTICOLOR DYNAMIC PRINTING METHOD AND APPARATUS

Adrien Castegnier, Outremont, Canada, assignor to Elcorsy Inc., Quebec, Canada

Division of Ser. No. 527,866, Sep. 14, 1995, Pat. No. 5,538,601.
This application Jan. 2, 1996, Ser. No. 582,177
Int. Cl.[6] B41M *1/18;* B41F *5/16*
U.S. Cl. 101—211 11 Claims



1. A multicolor variable-data printing method for printing on a substrate a polychromic image composed of a plurality of superimposed images, comprising the steps of:

a) providing a single support member having a continuous surface moving at substantially constant speed along a predetermined path;

b) forming on said surface a colored image from variable printing data with a printing ink containing a coloring agent, without stopping movement of said surface each time said printing data are varied;

c) bringing the substrate into contact with the surface of said support member to cause transfer of the colored image from said surface onto said substrate and thereby imprint said substrate with said image; and

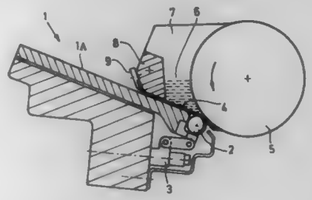
d) repeating steps (b) and (c) several times to define a corresponding number of printing stages arranged at predetermined different locations along said path and each using a coloring agent of different color so that the substrate is brought into contact with the surface of said support member a plurality of times at different locations on the surface of said support member and a single color image is transferred from said surface to said substrate each time said substrate is brought into contact with said surface, thereby producing several differently colored images which are transferred at respective transfer positions onto said substrate in superimposed relation to provide said polychromic image.

5,727,463

INK FOUNTAIN FOR OFFSET OR LETTERPRESS PRINTING PRESSES

Jürgen Deschner, St.-Leon-Rot., and Jürgen Fürbass, Nussloch, both of Germany, assignors to Heidelberger Druckmaschinen Aktiengesellschaft, Heidelberg, Germany

Filed Jul. 12, 1996, Ser. No. 680,570
Claims priority, application Germany, Jul. 15, 1995, 195 25 849.5
Int. Cl.[6] B41F *31/02*
U.S. Cl. 101—365 6 Claims



3. An ink fountain for a printing press, said ink fountain comprising:

ink dosing elements to zonally vary an ink gap thickness on an ink duct roller;

an inclined ink trough element;

said inclined ink trough element comprising an inclined ink trough surface having a width dimension extending substantially transverse to a rotational axis of the ink duct roller from said ink duct roller to said inclined trough element;

said inclined ink trough surface being disposed towards the ink duct roller; and

an ink chamber for holding ink;

said ink chamber comprising:

a first end and a second end;

a width dimension extending substantially transverse to the rotational axis of the ink duct roller;

a first side member for enclosing said first end of said ink chamber;

a second side member for enclosing said second end of said ink chamber;

an apparatus to minimize the volume of ink contained in said ink chamber, said apparatus including a cross arm connecting said first side member to said second side member;

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said cross arm being disposed to limit the width dimension of ink contained in said ink chamber to a dimension substantially smaller than the width dimension of said inclined ink trough surface; and

a fastening device carried by said cross arm being configured to fasten an elastic film to said cross arm.

5,727,464

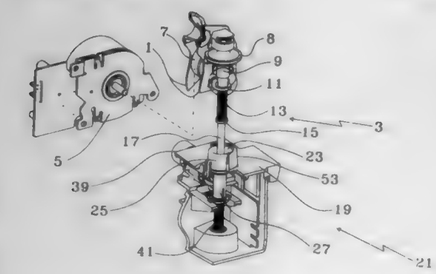
MODULES WITH LINKING DRIVE SHAFTS

Hassan Bahrami; Daniel George Mlejnek, both of Lexington; Harald Portig, Versailles, and Richard Andrew Seman, Jr., Lexington, all of Ky., assignors to Lexmark International, Inc., Lexington, Ky.

Filed Aug. 29, 1996, Ser. No. 705,362

Int. Cl.[6] B41F *5/00*

U.S. Cl. 101—216 **21 Claims**



1. Printing system apparatus of a form and weight to permit manual lifting and positioning of said apparatus, comprising for power transmission:

an elongated housing having a longitudinal axis, said housing having a cavity of noncircular cross section along said longitudinal axis,

a gear integral with said housing with axis concentric with said longitudinal axis of said housing,

a motor to drive said gear,

a shaft partially inserted in said cavity and having a cross section where said shaft is inserted in said cavity keying said shaft for rotation with said housing while said shaft being free to move limited amounts longitudinally within said cavity,

a resilient member mounted between said shaft and said elongated housing to push said shaft longitudinally away from said housing, and

an abutment surface generally parallel to said longitudinal axis on the end of said shaft away from said housing for abutment against an abutment surface of a second printing system apparatus to transmit power form said motor through said shaft to said second printing system apparatus.

5,727,465

SIDE WALL OF A PRINTING UNIT IN A SHEET-FED ROTARY PRINTING PRESS

Carsten Keim, Mannheim; Oliver Koch, Heidelberg; Norbert Thünker, Hirschberg, and Michael Voge, Malsch, all of Germany, assignors to Heidelberger Druckmaschinen AG, Heidelberg, Germany

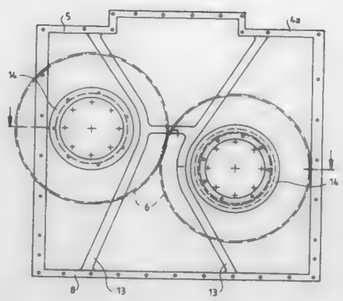
Filed Nov. 27, 1996, Ser. No. 758,377

Claims priority, application Germany, Nov. 29, 1995, 195 44 477.9

Int. Cl.[6] B41F *5/00*

U.S. Cl. 101—216 **9 Claims**

1. A side wall of a printing unit of a sheet-fed rotary printing press composed of a plurality of in-line printing units in accordance with unit construction principles, the side wall comprising:



a torsionally rigid side-wall body having an upper structural region, a lower structural region, a boxlike cross-sectional profile formed with an opening on one side thereof and a frame extending somewhat transversely to a plane wherein the side wall is disposed;

said frame being formed with at least one recess in said lower structural region through which gear wheels of a gear-wheel drive train are at least engageable and a kinked portion formed between said upper structural region and said lower structural region of said side wall body;

a removable lid ribbed on an inner side thereof and disposed on said frame in said lower structural region wherein bearings for printing cylinders are received and at said one side of said boxlike cross-sectional profile having said opening for stiffening said frame.

5,727,466

METHOD AND DEVICE FOR HOLDING SUBSTRATES ON A TRANSPORT BELT OF A PRINTING PRESS

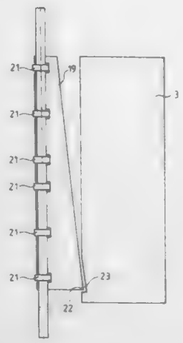
Martin Greive, Heidelberg, and Anton Rodi, Leimen, both of Germany, assignors to Heidelberger Druckmasinen AG, Heidelberg, Germany

Filed Dec. 19, 1996, Ser. No. 769,397

Claims priority, application Germany, Dec. 18, 1995, 195 47 087.7; Apr. 15, 1996, 196 14 717.4

Int. Cl.[6] B41F *13/24*

U.S. Cl. 101—232 **4 Claims**



1. A device for holding substrates on a printing-press transport belt for transporting successive substrates closely past an impression cylinder, comprising a stripping device disposed in an exit part of a nip between the impression cylinder and the transport belt, said stripping device extending substantially across the width of the impression cylinder and being of such form that a corner of a substrate adhering to the impression cylinder is initially strippable from the impression cylinder.

5,727,467

HAND STAMP

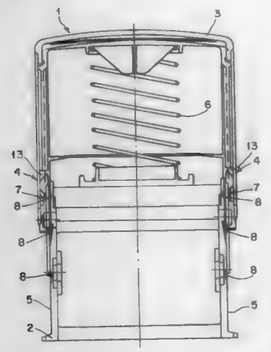
Karl Skopek, Thalheim bei Wels, Austria, assignor to Colop Stempelerzeugung Skopek GmbH & Co. KG, Wels, Austria

Filed Dec. 10, 1996, Ser. No. 763,191

Claims priority, application Austria, Jan. 4, 1996. GM 4/96

Int. Cl.[6] B41K *1/00; 1/36*

U.S. Cl. 101—334 **12 Claims**



1. A hand stamp comprising a housing having side walls, a printing-character actuating yoke including legs and extending over said housing and displaceable against a spring force, said legs of said actuating yoke being guided on said side walls of said housing, and at least one latching element horizontally displaceably arranged in one of said legs of said actuating yoke, at least one latching recess being provided in the adjacent side wall of said housing, said at least one latching element being engageable in said at least one latching recess so as to latch said actuating yoke in pre-determined positions of its displacement path along said housing, said at least one latching recess including an undercut portion at its upper rim and said at least one latching element being formed by a resilient tongue having a free end capable of being pressed into said at least one latching recess and being hooked behind said undercut portion of said at least one latching recess.

5,727,468

DUCTOR BLADE FOR AN OFFSET ROTARY PRINTING PRESS

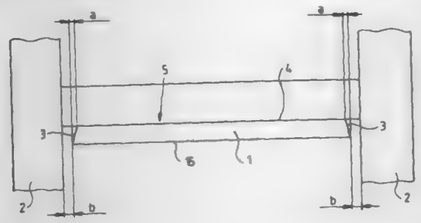
Joseph Gordon Blackwell, Brenouille, France, assignor to Heidelberger Druckmaschinen AG, Heidelberg, Germany, and Heidelberg Harris S.A., Montataire Cedex, France

Filed May 6, 1996, Ser. No. 643,602

Claims priority, application France, May 5, 1995, 95 05396

Int. Cl.[6] B41F *31/02*

U.S. Cl. 101—365 **12 Claims**



1. Ductor blade for an offset rotary printing press having an inking unit with an ink duct, comprising:

a ceramic coating disposed on an edge portion of the blade at a region thereof at which an ink duct roller is in contact therewith; and

the blade having a free end and being formed with lateral edges converging towards said free end of the blade.

5,727,469

ROTARY PRINTING PRESS CYLINDER MOUNTING

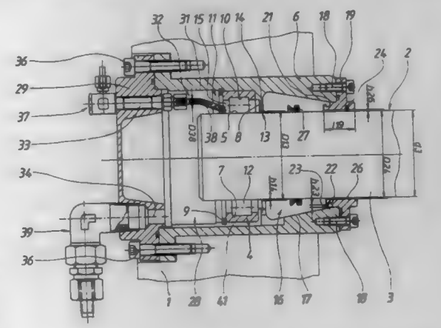
Hans Dierk Mohrmann, Höchberg, Germany, assignor to Koenig & Bauer-Albert Aktiengesellschaft, Wurzburg, Germany

Filed Oct. 24, 1996, Ser. No. 736,487

Claims priority, application Germany, Oct. 24, 1995, 195 39 502.6

Int. Cl.[6] B41F *13/10*

U.S. Cl. 101—375 **8 Claims**



1. A mounting for a cylinder of a rotary printing press comprising:

a cylinder journal;

a liquid lubricated bearing mounted on, and supporting said cylinder journal;

an annular bushing supporting said bearing;

a lubricant leak catching chamber disposed in said bushing on an inboard side of said bearing;

a separating wall on said bushing adjacent said inboard side of said bearing at an outboard end of said chamber; and

an inboard cover secured to said bushing at an inboard end of said chamber, said separating wall and said inboard cover forming first and second annular gaps with respect to said cylinder journal, said annular gaps each having a small height.

5,727,470

METHOD AND APPARATUS FOR CONTROLLING A WASHING OPERATION IN A PRINTING PRESS

Thomas Kurzer, Eppelheim; Johannes Springer, Heidelberg, and Dieter Baecker, Sandhausen, all of Germany, assignors to Heidelberger Druckmaschinen AG, Heidelberg, Germany

Filed Nov. 29, 1995, Ser. No. 564,415

Claims priority, application Germany, Nov. 29, 1994, 44 42 412.4

Int. Cl.[6] B41F *35/00*

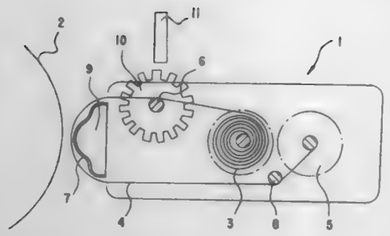
U.S. Cl. 101—425 **10 Claims**

1. A method for controlling a washing operation in a printing press, wherein a washcloth is selectively wound forward and backward between a rotatable supply drum and a rotatable takeup drum, the washcloth is cyclically pressed against a surface of a cylinder of the printing press in the washing operation and is transported onward onto the takeup drum, the method which comprises:

detecting, with a sensor device, a transport distance of the washcloth device and furnishing, with the sensor, a transport distance signal;

in an initialization before a beginning of the washing operation:

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winding the washcloth forward and back by a given distance, and selectively outputting a ready signal if transport distance signals have been received from the sensor device or outputting a not-ready signal if transport distance signals have not been received from the sensor device as a result of the winding step; and

in an ongoing washing operation:

continuously determining a transport speed of the washcloth from the transport distance signal;

continuously comparing the transport speed with a predetermined lower value and a predetermined upper value; and

outputting an end-of-washcloth signal if the transport speed reaches the lower value, and outputting an emergency stop signal if the transport speed exceeds the upper value.

5,727,471

OFFSET PRINTING MACHINE

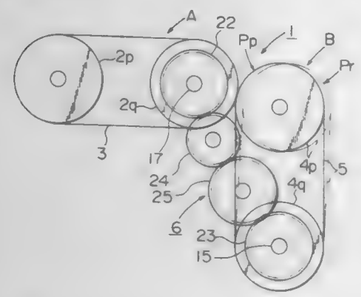
Tomoaki Iwafune, Nagano, and Koichi Kamoi, Tokyo, both of Japan, assignors to Nagano Japan Radio Co., Ltd., Nagano-ken, and Gradco (Japan) Ltd., Tokyo, both of Japan

Filed Dec. 5, 1995, Ser. No. 567,492

Claims priority, application Japan, Feb. 9, 1995, 7-046515

Int. Cl.[6] B41F *5/00*

U.S. Cl. 101—477 **6 Claims**



1. As offset printing machine comprising a plate carrier mechanism having an endless plate belt hung on between a first pair of pulleys spaced from each other, and a blanket carrier mechanism having an endless blanket belt hung on between a second pair of pulleys spaced from each other, said second pair of pulleys having a lower pulley in which the blanket carrier mechanism is displaceable between a pressure-contacting position and a separating position by a cam, characterized in that the speed of an outer surface of the plate belt is made greater than an outer surface of the blanket belt, and the plate carrier mechanism is driven by a driving portion and the blanket carrier mechanism is driven by said blanket carrier mechanism, and the plate carrier mechanism and the blanket carrier mechanism are connected to each other through a rotation transmitting gear mechanism having a predetermined play which can absorb a difference of the speed of the outer surface of the plate belt and the speed of the outer surface of the blanket belt.

5,727,472

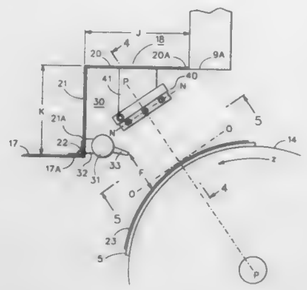
APPARATUS AND METHOD FOR DRYING SHEETS PRINTED ON A MULTI-STAND PRESS

Joseph Thomas Burgio, 669 Kelly Brewer Rd., Leasburg, N.C. 27291

Filed Jul. 25, 1995, Ser. No. 507,046

Int. Cl.[6] B41F *23/04*

U.S. Cl. 101—487 **26 Claims**



1. Apparatus for printing and drying multiple sheets fed along a feed path through a multi-stand printing press and deposited on a stacker at the apparatus end, the apparatus comprising:

(A) a printing portion in a plurality of the stands for applying a layer of conventional ink to a surface of each sheet,

(B) a drying assembly mounted in a plurality of said stands having a printing portion therein, said drying assembly comprising:

(i) emitter means for radiating energy toward the ink layer applied to a surface of each sheet as the sheet moves along the feed path, and

(ii) a pressurized, cool gas conduit for directing a flow of cool gas onto the ink layer applied to each sheet as the sheet moves along the feed path,

the energy from the emitter means and flow of cool gas from the gas conduit in each stand having a drying assembly serving to dry the ink layer applied to the sheet prior to the sheet being fed from the feed path to the stacker at the apparatus end.

5,727,473

ROTARY LOCK FOR A SPLIT RAMP RAILWAY CAR

Thomas H. Engle, Cape Vincent, N.Y., assignor to CSX Corporation, Richmond, Va.

Filed May 8, 1995, Ser. No. 436,503

Int. Cl.[6] B61G *5/00;* **B61D** *47/00*

U.S. Cl. 105—355 **20 Claims**



1. A railway ramp car, comprising:

a first wheel set and a second wheel set;

a first ramp mounted to the first wheel set and a second ramp mounted to the second wheel set, at least one of the first and second ramps having a raised travel position and a lowered loading position;

a pin carrier mounted on the first ramp, the pin carrier supporting a coupling pin having a horizontal axial direction; and

a rotor lock mounted on the second ramp, the rotor lock comprising first and second coupling disks having grooves for receiving the coupling pin.

5,727,474

FREIGHT CAR FOR STORAGE OF BULK MATERIAL

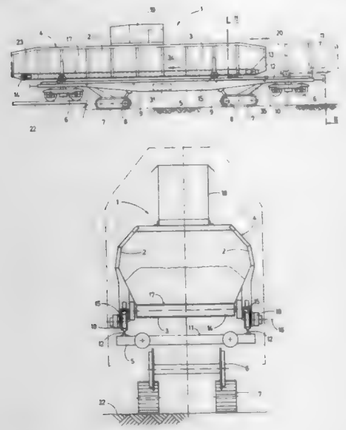
Josef Theurer, Vienna, and Manfred Brunninger, Altenberg, both of Austria, assignors to Franz Plasser Bahnbaumaschinen-Industriegesellschaft m.b.H., Vienna, Austria

Filed May 28, 1996, Ser. No. 655,155

Claims priority, application Austria, Jun. 30, 1995, 1117/95

Int. Cl.[6] B65G *67/00*

U.S. Cl. 105—355 **10 Claims**



1. A freight car; comprising:

a carrier frame extending in a longitudinal direction;

a first undercarriage assembly enabling a support of the carrier frame on a track;

a box formed by side walls and a bottom for storing bulk material;

a first conveyor belt forming the bottom of the box and extending in the longitudinal direction for conveying bulk material in a conveying direction;

first drive means for operating the conveyor belt,

a second undercarriage assembly including two, off-track undercarriages spaced from each other in the longitudinal direction; and

second drive means for vertically adjusting the two undercarriages independently from each other.

5,727,475

SIDE STAKE FOR ROTARY DUMP RAIL CAR

William E. Kurtz, Johnstown, Pa., assignor to Johnstown America Corporation, Johnstown, Pa.

Continuation of Ser. No. 413,914, Mar. 30, 1995, abandoned, which is a continuation of Ser. No. 267,577, Jun. 28, 1994, abandoned, which is a continuation of Ser. No. 160,825, Dec. 3, 1993, abandoned. This application Jun. 21, 1996, Ser. No. 667,368

Int. Cl.[6] B61D *17/00*

U.S. Cl. 105—406.1 **6 Claims**

1. A rail car capable of undergoing rotation by a dumper mechanism for unloading comprising

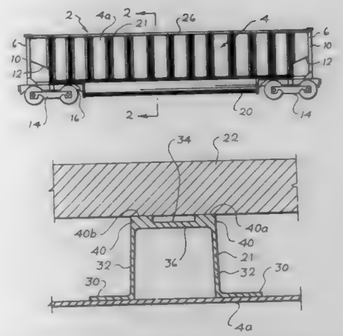
a car body being carried by a pair of truck assemblies, said car body having a pair of side walls, said side walls including a plurality of exterior vertical side stakes, said side stakes each having a pair of flanges affixed to one of said side walls, a pair of laterally extending walls projecting outward from said pair of flanges, an outer portion affixed to said laterally extending walls,

at least some of said outer portions of said side stakes terminate with an exterior face lying in spaced lateral relationship to said flanges for contacting the dumper mechanism during rotation for unloading,

means on said exterior face for minimizing wear during contact with the dumper mechanism during unloading,

said means on said exterior face for minimizing wear reduces the area of contact between said face and the dumper mechanism, and

said means on said exterior face includes rib means vertically extending along said face, said rib means providing raised surface areas for creating sole sliding moving contact between said side stakes and the dumper mechanism during unloading for reducing wear of said exterior faces of said side stakes.



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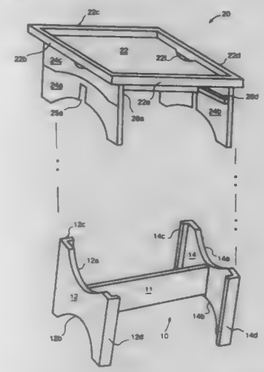
CONVERTIBLE OTTOMAN-TABLE

Ronald J. Priore, Sr., 32 Tamarack Rd., Westwood, Mass. 02090

Filed Nov. 4, 1996, Ser. No. 743,142

Int. Cl.[6] A47B *85/00*

U.S. Cl. 108—13 **9 Claims**



1. A convertible ottoman assembly, comprising:

A base unit configured to rest on an underlying surface and including at least two equally-dimensioned outer walls separated from each other by a distance and attached to each other by a frame; and

A top unit, including a tabletop configured to receive a cushion and having at least two equally-dimensioned inner walls separated from each other by a distance and rigidly affixed to said tabletop, the distance between said inner walls being less than the distance between said outer walls, and the length of said inner walls being less than the length of said outer walls, and

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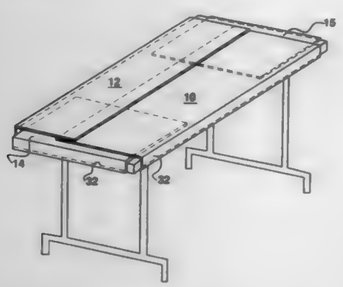
said top unit further having at least two equally-dimensioned support flaps, with a height less than the height of said inner walls, each of said support flaps hanging parallel to the outer surfaces of each of said inner walls, said support flaps being affixed to said tabletop by attachment means enabling said support flaps to be moved inward and outward such that when said inner walls are lowered inside said base unit, said support flaps are simultaneously lowered over the outside of said outer walls such that said tabletop rests on said base unit in a closed position, thereby creating an ottoman; and further when said inner walls are raised upwards, said support flaps are caused to rest securely on the top of said outer walls against said inner walls in an open position, thereby creating a table.

5,727,477

REMOVABLE & STAWABLE COVER FOR TABLES

Timothy L. Kirkendall, Dayton, Ohio, assignor to E-Z Topper, Inc., Dayton, Ohio

Filed Sep. 28, 1995, Ser. No. 535,572
Int. Cl.[6] A47B *13/08*
U.S. Cl. 108—90 **16 Claims**



1. A decorative cover device for banquet and like tables, comprising

a substantially rigid top section having front, rear, and side edges and having an upper and a lower surface, said top section being sized to fit totally over a standard table top in a horizontal orientation,

a substantially rigid separate front section including top, side and bottom edges, said top edge of said front section having a first hinged connection to said front edge of said top section to hang said front section from said top section deployed in a vertical position,

substantially rigid side sections including top, side, and bottom edges, said top edges of said side sections having additional hinged connections to said side edges of said top section to hang said side sections from said top section deployed in a vertical position,

said front section being movable to a stowed position against said upper surface of said top section when the cover device is removed from the table top,

said hinge connections being an integral elongated flexible hinge member attached to said front and side edges of said top section and to said top edges of said front section and said side sections,

said hinge connections being an integral elongated plastic strip having attachment edges along the longer sides of each said strip,

a) fastening channels at the attachment edges of said strips for attachment to said top section and to the top edges of said front section and said side sections, and

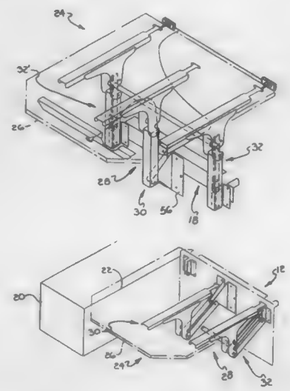
b) a flexible hinge strip formed in and extending along said plastic strip intermediate said attachment edges defining the hinge location between said top section and the other sections.

5,727,478

POP-UP TABLE ASSEMBLY

Brian Rahn, St. Clair Shores; George Corder, Romulus; Walter Kemmer; David Piontek, both of Canton, and Brett Schihl, Plymouth, all of Mich., assignors to ASC Incorporated, Southgate, Mich.

Filed Aug. 16, 1996, Ser. No. 689,965
Int. Cl.[6] A47B *3/00*
U.S. Cl. 108—134 **24 Claims**



1. A table assembly positionable between a first, elevated position and a second, lowered position, the table assembly comprising:

a table top; and

a table support linkage assembly located beneath and supporting said table top in a substantially horizontal position during manipulation of said table top between the first, elevated position and the second, lowered position, said table support linkage assembly including:

a center support linkage assembly including a center support bracket secured to a vertical wall, a center table bracket secured to said table top, and a first connection link having a first end pivotally connected to said center support bracket and a second end pivotally connected to said center table bracket; and

a first side support linkage assembly including a side support bracket secured to said vertical wall and which is spaced apart from and distinct from said center support bracket, a side table bracket secured to said table top, and which is spaced apart from and distinct from said center table bracket a second connection link having a first end pivotally connected to said side support bracket and a second end pivotally connected to said side table bracket, and a guide link having a first end pivotally connected to said side support bracket and a second end pivotally connected to said side table bracket.

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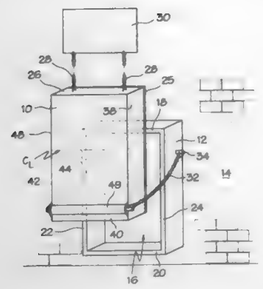
FURNACE DOOR CLOSURE SYSTEM

Joe R. McAfee, Pepper Pike, and Doug A. Kreuder, Medina, both of Ohio, assignors to ETS Schaefer Corporation, Streetsboro, Ohio

Filed Sep. 26, 1996, Ser. No. 721,280
Int. Cl.[6] F23M *7/00*
U.S. Cl. 110—176 **25 Claims**

1. For use with a furnace having a side wall including a vertically-oriented opening bordered by a frame having a lintel, a sill and left and right jambs, a door closure system comprising:

a furnace door shaped to cover said opening and engage said frame;



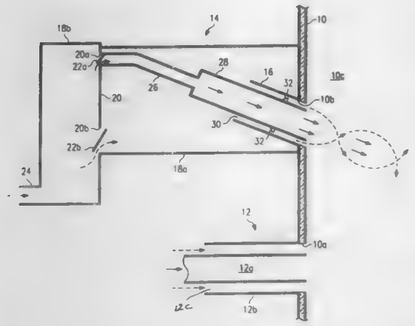
first and second support lines extending between said side wall and said door, said support lines being pivotally attached to said door at a point below a horizontal centerline of said door and extending upwardly rearwardly of said door and being of sufficient length to allow said door to be raised substantially vertically parallel to said wall to expose said opening, whereby a weight force of said door against said frame effects a seal of said door with said frame.

5,727,480

OVER-FIRE AIR CONTROL SYSTEM FOR A PULVERIZED SOLID FUEL FURNACE

Juan Antonio Garcia-Mallol, Morristown, N.J., assignor to Foster Wheeler International, Inc., Clinton, N.J.

Filed Apr. 17, 1996, Ser. No. 634,107
Int. Cl.[6] F23J *15/00*
U.S. Cl. 110—203 **15 Claims**



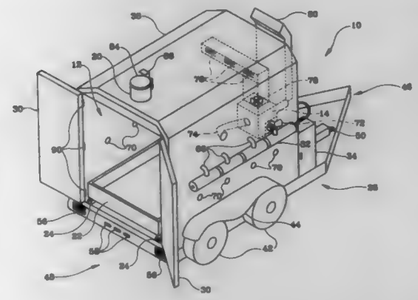
3. An air control system for introducing air into an opening in the wall of a furnace to support the combustion of fuel in the furnace, the system comprising a first plenum for receiving air from a source, an inner member, a duct connecting the first plenum to the inner member to supply air from the first plenum to the inner member, the inner member discharging the air through the opening and into the furnace, a second plenum for receiving air from the first plenum, and an outer member extending around the inner member to define a passage between the members for receiving air from the second plenum and discharging the air through the opening and into the furnace, the cross section of the inner member being different than that of the passage so that the air discharged from the inner member is at a different volume and velocity when compared to the air discharged from the passage.

5,727,481

PORTABLE ARMORED INCINERATOR FOR DANGEROUS SUBSTANCES

Randall Paul Voorhees, R.R. #1, Box 427, Falls, Pa. 18615, and Joseph Ernest Voorhees, P.O. Box 84, Lake Winola, Pa. 18625

Filed Jul. 20, 1995, Ser. No. 504,780
Int. Cl.[6] F23G *7/00*
U.S. Cl. 110—237 **9 Claims**



1. A mobile incinerator for burning explosive materials comprising:

a primary combustion chamber having armored walls constructed of steel plates and steel channel beams attached to said steel plates, said primary combustion chamber being lined with a refractory material;

a secondary combustion chamber communicating with said primary combustion chamber;

a loading cart mounted onto telescoping rails and removably positioned within said primary combustion chamber to allow loading of material to be incinerated;

a hatch communicating with each said chamber for releasing pressure; and

means for transporting said mobile incinerator.

5,727,482

SUSPENDED VORTEX-CYCLONE COMBUSTION ZONE FOR WASTE MATERIAL INCINERATION AND ENERGY PRODUCTION

Bob W. Young, 102 Windham La., Easley, S.C. 29642

Filed Jun. 19, 1996, Ser. No. 666,858
Int. Cl.[6] F23G *5/00*
U.S. Cl. 110—244 **40 Claims**

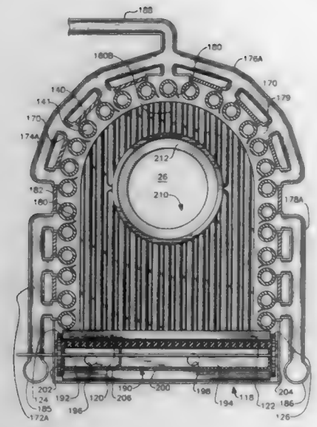
1. Combustion apparatus comprising:

walls defining a combustion chamber having a vortex-cyclone suspended combustion zone, whereby centrifugal force created by the cyclone effect moves non-combustible particulate matter to the outside of the combustion zone and vortex motion provides increased gas residence and particulate contact time;

at least a portion of each of said walls comprising a plurality of tubes which are adjacent and spaced from each other, said tubes having tube interiors and tube walls;

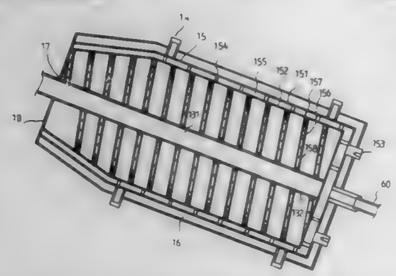
at least one tube heat exchange fluid supply pump connected to said tubes for circulating heat exchange fluid through said tubes; and

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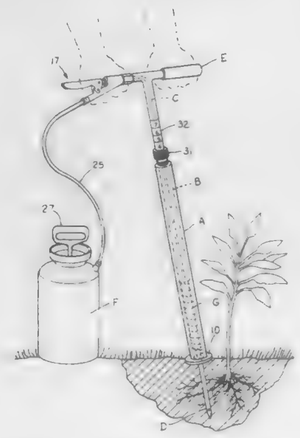
a system comprising a set of manifolds for directing combustion-supporting gas streams between at least some of said tubes into said combustion chamber.

5,727,483
ROTARY KILN INCINERATOR
Kang-Shin Chen, and Chung-Hsing Wu, both of P.O. Box 55-175, Taichung, Taiwan
Filed Feb. 25, 1997, Ser. No. 805,698
Int. Cl.[6] A47J *36/00*
U.S. Cl. 110—246 **3 Claims**



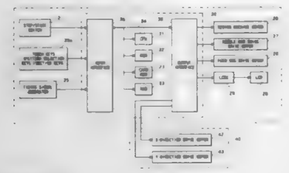
1. A device for incinerating industrial waste comprising:
an incinerator slopedly and rotatably disposed on a pair of cylinder racks which are rotatable and secured parallel to an upper surface of a sloped platform disposed on a support member, the incinerator including a hollow cylinder housing having a tapered upper end, an enclosed lower end, first and second central bores formed in the upper and lower ends, respectively, an exit radially formed in the upper end adjacent to the first central bore and a pair of annular ribs integrally formed and spaced apart around an outer periphery of the housing for rotatably engaging with a plurality of stepped wheels which are axially secured to two ends of the cylinder racks and a furnace concentrically disposed within the housing and connected to the housing by the pair of annular ribs so as to define a first annular space thereinbetween for heat insulation purposes, said furnace having a shape being configured with that of the housing and including first and second casings spacedly engaged by a plurality of cylinder ribs so as to define a second space between the first and second casing which communicates with an external ventilation system and the interior of said second casing for preheating the fresh air while passing therethrough, a plurality of tubular conveying ribs spirally and spacedly arranged on entire inner periphery of the second casing said ribs each having an air ingress and a plurality of spiracles spacedly formed in the periphery thereof supplying for the preheated fresh air from said second space into the furnace, a first funnel member stationarily secured to an upright member secured at an upper end of the sloped platform for feeding the industrial waste into the interior of the furnace, the funnel ending in an elongate pipe inserted into the furnace via the first central bore and pivotally engaged with an axis at the second central bore at the lower end thereof, including an egress adjacent the lower end for delivering the waste into the furnace;
said support member further including first and second stands of different height for slopedly supporting the platform, a second funnel member upwardly disposed on a central upper surface of the platform and under the exit of the tapered upper end of the housing and including a pipe extended to an under side of the platform for discharging slag and ash from the exit, a power source disposed on an upper surface of an extension laterally extended from the platform having a drive system including a first gear axially secured to an axis of a motor and connected via a chain means with a second gear which is axially secured to the axis of the housing for counterclockwise rotating of the housing;
a combustion system communicating with the interior of the furnace via a hollow cylinder perpendicular to the second central bore therethrough at the lower end of the housing including an external fuel source engaged therewith;
whereby said incinerator rotatably and slopedly incinerates the industrial waste therein and automatically discharges the slag and ash to the second funnel member via the exit in the upper end of the housing.

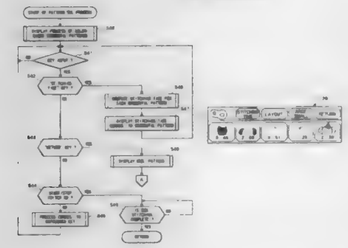
5,727,484
SOIL PENETRATING APPLICATOR AND METHOD
Robert C. Childs, P.O. Box 9, Marietta, S.C. 29661
Filed May 13, 1996, Ser. No. 645,112
Int. Cl.[6] A01C *23/02*
U.S. Cl. 111—7.4 **8 Claims**



1. An applicator for introducing a liquid chemical composition adjacent the roots of a plant comprising:
an elongated, exterior tubular guide;
a ground engaging member on a lower portion of the tubular guide;
an elongated, inner tubular support carried within and slidable with respect to said exterior guide;
a dispensing tube carried within said inner tubular support;
an elongated needle penetrating member carried by said inner tubular support communicating with said dispensing tube retractable within said exterior guide, and having an orifice therein to facilitate a flow of chemical;
a spring within said exterior tubular guide urging said inner support upwardly with respect to said exterior tubular guide;
a handle carried by a free upper end of said inner support; and
said ground engaging member permitting the needle penetrating member to move downwardly with respect thereto into the ground when forced therein by pushing downwardly on the handle;
whereby application of said chemical may be limited to the root area of a plant to avoid application to other adjacent plant material.

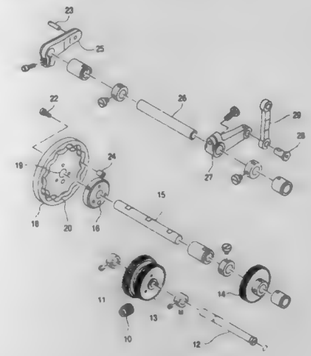
5,727,485
STITCHING DATA PROCESSING DEVICE CAPABLE OF DISPLAYING STITCHING PERIOD OF TIME FOR EACH SEGMENT OF EMBROIDERY
Nami Morita, Nagoya, Japan, assignor to Brother Kogyo Kabushiki Kaisha, Nagoya, Japan
Filed Oct. 21, 1996, Ser. No. 735,395
Claims priority, application Japan, Oct. 20, 1995, 7-297684
Int. Cl.[6] D05C *5/04;* **D05B** *21/00*
U.S. Cl. 112—102.5 **15 Claims**





1. A stitching data processing device comprising:
a display unit;
data storage means for storing a plurality of pieces of pattern data, each of said plurality of pieces of pattern data containing a plurality of pieces of embroidery data relating to a plurality of embroidery patterns, each of said plurality of embroidery patterns being stitched by at least one color thread;
pattern display control means for displaying a predetermined number of embroidery patterns in said display unit based on a selected one of said plurality of pieces of pattern data;
pattern selection means for selecting a desired embroidery pattern from said predetermined number of embroidery patterns displayed in said display unit;
time computing means for computing a stitching period of time for each of segmental embroidery patterns extracted from the desired embroidery pattern on a color thread basis, and for outputting time data representative of a computed stitching period of time; and
time display control means for displaying in said display unit the stitching period of time for each of segmental embroidery patterns based on the time data, said time display control means displaying the stitching period of time in association with a corresponding segmental embroidery pattern displayed in said display unit.

5,727,486
ZIG-ZAG SEWING MACHINE
Masahiko Satoh, and Seiji Goto, both of Tokyo, Japan, assignors to Juki Corporation, Tokyo, Japan
Filed Feb. 7, 1996, Ser. No. 598,182
Claims priority, application Japan, Feb. 8, 1995, 7-020793
Int. Cl.[6] D05B *3/02*
U.S. Cl. 112—459 **8 Claims**



1. A zig-zag sewing machine comprising:
a sewing machine head including a bed portion, an arm portion and a vertical barrel portion;
an arm shaft supported in the arm portion of the sewing machine head;
a lower shaft supported in the bed portion of the sewing machine head;
a cam shaft to which the rotational movement of the lower shaft is to be transmitted;
a needle swinging mechanism including a needle swinging cam fixed on one end of the cam shaft and having a cam portion for controlling a needle swinging motion, and an engaging portion engageable with the cam portion for transferring the needle swinging motion to a needle bar;
a cam receiving member fixed to the cam shaft, the cam receiving member having a side surface facing an inside surface of the needle swinging cam; and
positioning means for positioning the phase of the needle swinging cam with respect to the cam shaft, the positioning means including,
a positioning pin provided on and projecting from one of two opposed surfaces between the side surface of the cam receiving member and the inside surface of the needle swinging cam, and
a positioning hole formed in the other of two opposed surfaces into which the positioning pin is fitted,
wherein one end of the cam shaft is formed as a free end, the cam portion of the needle swinging cam includes a cam groove formed in the inside surface of the needle swinging cam, the engaging portion includes an engaging pin fittable into the cam groove from the cam receiving member side, and lengths of the engaging and positioning pins are set shorter than a length from the side surface of the cam receiving member to the free end of the cam shaft.

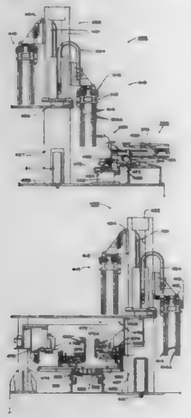
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5,727,487

COMBINING AND BINDING CONVEYOR SYSTEM

Wayne G. Foster, Winston-Salem; George D. Nakhle, Pilot Mountain, both of N.C.; Marvin Menzin, Lexington, Mass.; Donald E. Burt, Danvers, Mass., and Henry R. Cofek, Groton, Mass., assignors to Design Technology Corporation, Billerica, Mass.

Filed Oct. 2, 1995, Ser. No. 537,410
Int. Cl.[6] D05B *25/00;39/00*
U.S. Cl. 112—470.05 **93 Claims**



57. A combining and binding conveyor system for combining a first fabric piece and a second fabric piece to form a combined fabric piece and to apply a binding to an edge of the combined fabric piece, said system comprising:

(a) a combining fixture having means for holding said first fabric piece and said second fabric piece;

(b) an upstream conveyor for transporting said combining fixture;

(c) at least one work station having means for combining said first and second fabric pieces;

(d) a binding fixture for holding said combined fabric piece, said binding fixture including: (i) a base; (ii) a support attached to said base; and (iii) fabric engaging means mounted on said support for engaging, positioning and securing said combined fabric piece;

(e) a downstream conveyor for transporting said binding fixture;

(f) at least one work station located adjacent to said downstream conveyor for attaching said binding to said edge of said combined fabric piece while the same is being held by said binding fixture; and

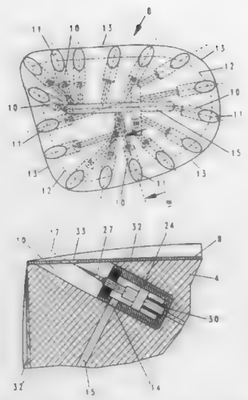
(g) a transfer station for removing said combining fixture from said upstream conveyor and for placing said combined fabric piece on said binding fixture.

5,727,488

DEVICE FOR HOLDING WORKPIECES FOR MACHINING OPERATIONS, ESPECIALLY FOR SEWING

Philip Moll, Aachen, Germany, assignor to Altin-Nähtechnik GmbH, Altenburg, Germany

PCT No. PCT/EP95/01927, § 371 Date Jul. 2, 1996, § 102(e) Date Jul. 2, 1996, PCT Pub. No. WO95/33879, PCT Pub. Date Dec. 14, 1995
PCT Filed May 22, 1995, Ser. No. 666,580
Claims priority, application Germany, Jun. 4, 1994, 44 19 700.4
Int. Cl.[6] D05B *39/00;* **B25B** *5/14*
U.S. Cl. 112—470.14 **16 Claims**



1. A device for combining a plurality of flat workpieces into a three dimensional final shape, the device comprising:

a carrier body with a plurality of contact surfaces forming a shape substantially similar to the three dimensional final shape of the workpieces, each of said contact surfaces defining a plurality of recesses;

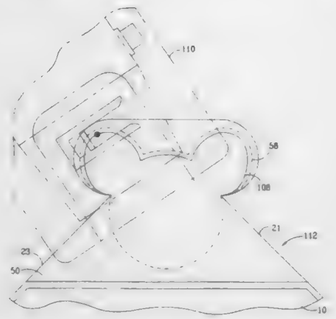
a plurality of holding means for holding each of the workpieces against one of said contact surfaces and in conformance with three dimensional final shape, each of said holding means being positioned in one of said recesses, said each holding means including a holding element movably positioned in a respective said recess, said holding element including a contact section for piercing the workpieces, said holding element being movable between a resting position where said holding element is positioned within said carrier body and a contact position where said contact section of said holding element is positioned outside said carrier body.

5,727,489

METHOD OF MAKING A CHILD'S ACCESSORY

Enrique Braverman, Parques de Marbella #28 Parques De La Herradura, Edo de Mexico, Mexico, 52760

Filed Jun. 25, 1996, Ser. No. 668,305
Int. Cl.[6] D05B *13/00*
U.S. Cl. 112—475.04 **20 Claims**



1. A method of making an accessory comprising the steps of:

cutting a first blank of fabric;

cutting a second blank of fabric, the second blank configured to overlay at least a selected portion of said first blank, the second blank having a first and second side;

imprinting a design on the first side of the second blank of fabric, the edges of the design defining a first perimeter;

inverting the second blank of fabric;

outlining a second perimeter inside of, and substantially parallel to, at least a portion of the first perimeter on the second side of the second blank of fabric, the outline comprising a seam line;

overlaying the second blank of fabric onto the first blank of fabric;

attaching the second blank of fabric to the first blank of fabric along the seam line to form an envelop-like structure;

removing excess fabric from the first and second blank;

inverting the envelop like structure;

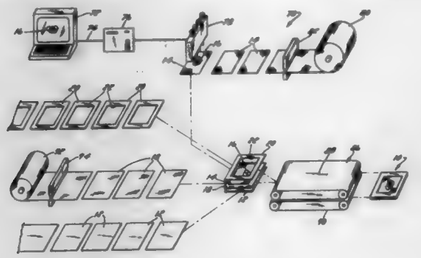
stitching across at least a portion of the inverted envelop-like structure to form a fanciful design.

5,727,490

METHOD AND SYSTEM FOR MANUFACTURING ART PIECES HAVING A STITCHED ORNAMENTAL DESIGN

Frederick McGaver, 405 Wilmont Dr., Waukesha, Wis. 53186

Filed Jan. 5, 1996, Ser. No. 583,404
Int. Cl.[6] D05C *5/02*
U.S. Cl. 112—475.19 **13 Claims**



1. A method of manufacturing a greeting card, the method comprising the steps of:

generating an ornamental design on a computer;

outputting a digital representation of said ornamental design;

computer stitching said ornamental design on a sheet of fabric, said computer stitching step including the step of utilizing said digital representation with a computer-operating stitching machine;

folding a first sheet of card stock into a tri-fold configuration having first, second and third equal portions, one of said first and second portions being a middle portion of said first sheet of card stock;

cutting a window into said first portion;

bonding said first portion, said second portion, and said sheet of fabric together so as to form said greeting card;

displaying said ornamental design through said window cut into said first portion;

printing a message on a paper insert; and

bonding said paper insert between said second and third portions.

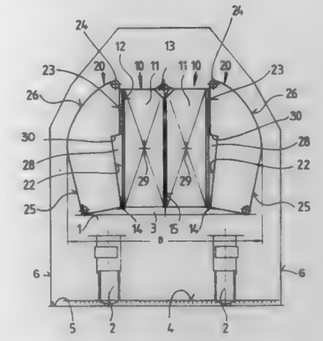
5,727,491

PONTOON FOR MILITARY COLLAPSIBLE FLOATING BRIDGES AND CROSSING FERRIES

Lothar Emrich, Rehweiler, and Gerhard Thieme, Kaiserslautern, both of Germany, assignors to Eisenwerke Kaiserslautern GmbH, Kaiserslautern/Pfalz, Germany

Continuation of Ser. No. 657,408, Jun. 3, 1996, abandoned. This application Dec. 10, 1996, Ser. No. 763,239
Claims priority, application Germany, Oct. 18, 1995, 295 16 480 U
Int. Cl.[6] B63B *1/00*
U.S. Cl. 114—61 **5 Claims**

1. A pontoon for a collapsible folding bridge and crossing ferry, comprising:



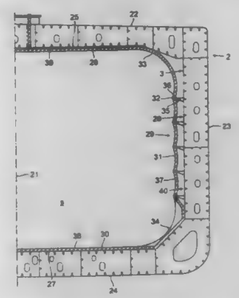
two inner floatation bodies each having a flat upper deck and a flat bottom; two outer floatation bodies each having a flat bottom aligned with the bottom of the inner floatation bodies, a first upwardly sloped flat deck section adjacent an inner floatation body, a second upwardly sloped flat deck section attached to the first deck section so as to form a step, and a lateral wall between the flat bottom and the second deck section so as to form a freeboard that acts as over-wash protection, the lateral wall being a circular cylindrical section that intersects the flat bottom so that a tangential line at the intersection encompasses an angle of 10–20 degrees with the flat bottom, the outer floatation bodies being wider than the inner floatation bodies; and hinge means for connecting the bodies to one another so that the floatation bodies can be folded into a W-shaped configuration in which the second deck sections of the outer floatation bodies lie flat on the upper decks of the adjacent inner floatation bodies and so that the outer bodies extend beyond the inner bodies.

5,727,492

LIQUEFIED NATURAL GAS TANK AND CONTAINMENT SYSTEM

Joseph J. Cuneo, Hastings on Hudson, N.Y.; Robert D. Goldbach, Milford, Pa.; Neil M. Miller, Ramsey, N.J., and Edmund G. Tornay, Folly Beach, S.C., assignors to Marinex International Inc., Hoboken, N.J.

Filed Sep. 16, 1996, Ser. No. 710,333
Int. Cl.[6] B63B *25/08*
U.S. Cl. 114—74 A **20 Claims**



1. A semi-membrane LNG containment and bracing system disposed in a hold of a double-hulled cargo ship having an inner hull and an outer hull, said hold being defined by the inner hull and transverse bulkheads, comprising

an insulated prismatic tank having a top side, a bottom side and four vertically extending semi-membrane side walls, each side wall comprising a series of long, parallel, horizontally extend-

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ing, outwardly curved sections, each extending across said side and having a chord length of from 1.2 to 4.5 m, said side wall further comprising junctions between said curved sections, and

a bracing system supporting said side walls from said hull and inner said transverse bulkheads, comprising horizontally extending girders supported by said hull and said bulkheads and supportingly connecting them to said sidewalls along said junctions through load-bearing insulation blocks abutting said junctions,

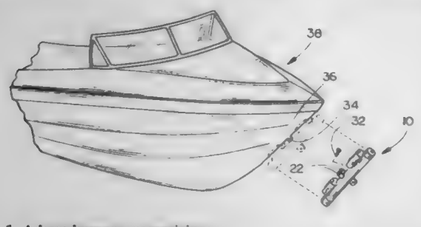
wherein said girders have sufficient width to provide a space between said side walls, on the one hand, and said inner hull and transverse bulkheads, on the other hand, for human access to said space.

5,727,493

BOAT BUMPER

Richard C. Pierce, HC1, Box 128, Stratton, Nebr. 69043

Filed Feb. 26, 1997, Ser. No. 805,976
Int. Cl.[6] B63B *59/02*
U.S. Cl. 114—219 20 Claims



1. A boat bumper, comprising:

an elongated body having first and second ends and forward and rearward sides; first and second pads mounted on the rearward side of the body and spaced apart from one another;

each said pad having a notch formed along a length thereof, diametric to the body on each pad, said pad notches being aligned with one another; and

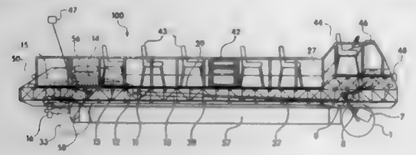
a bracket mounted to said body between said pads, said bracket having first means for connecting the bracket to an eye on a bow of a boat.

5,727,494

AMPHIBIOUS VEHICLE

Anthony L. Caserta, and Charles W. Caserta, both of 10 Van Wyck La., Huntington, N.Y. 11743

Filed Sep. 26, 1996, Ser. No. 721,134
Int. Cl.[6] B63B *35/00*
U.S. Cl. 114—270 42 Claims



1. An amphibious vehicle capable of operation both on land and in water, comprising:

a cockpit body having an inner cavity, side walls, a front end, a rear end and a bottom surface;

float means comprising a plurality of elongated pontoons disposed along the bottom surface of the cockpit body, said pontoons each having an elongated axis and a bottom surface for contacting the water, and wherein the elongated axis of the pontoons is arranged parallel to the direction of travel, and wherein said pontoons are capable of keeping the vehicle afloat while in the water and defining a water line for the vehicle;

a plurality of wheels mounted to the cockpit body for carrying the vehicle on land, wherein two wheels are mounted one on each side of the cockpit body near the front end of the cockpit body;

means for retracting and deploying the wheels such that in the retracted position, the wheels are raised above the water line of the vehicle so that the vehicle may be operated in the water without the wheels contacting the surface of the water, and in the deployed position, at least a portion of each wheel is disposed below the bottom surface of the pontoons, so that the wheels will contact land and prevent the bottom of the pontoons from contacting the land;

a plurality of locking elements capable of locking the wheels in both the retracted and deployed positions;

an engine having a first end and a second end, the first end coupled to a water drive for propelling the vehicle through the water;

steering means coupled to the front wheels and water drive for steering the vehicle both through water and on land;

transmission means coupled to the second end of the engine for coupling the engine to the front wheels, driving the vehicle while on land and moving the vehicle in a forward and reverse direction; and

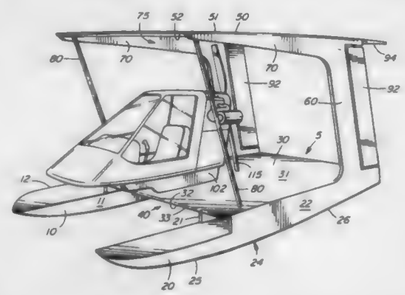
a braking mechanism coupled to the wheels for stopping the vehicle during land operation.

5,727,495

SURFACE EFFECT VEHICLE

James Patrick Reslein, 4919 Cordova Bay Rd., Victoria, British Columbia, Canada, V8Y 2K1

Filed May 6, 1996, Ser. No. 643,346
Int. Cl.[6] B63B *1/16*
U.S. Cl. 114—272 4 Claims



1. A surface effect vehicle, comprising:

(a) a vehicle body having opposed longitudinally extending sides and a longitudinally extending deck having upper and lower surfaces extending widthwise between said sides, said lower surface together with opposed inner surfaces of said sides forming a downwardly depending air entrapment chamber extending longitudinally beneath said lower surface, said air entrapment chamber being reactive to provide substantial surface effect ram air lifting force on said vehicle in response to forward motion of said vehicle;

(b) an airfoil spaced above and interconnected with said body, at longitudinally extending sides of said airfoil by vertical stabilizers mounted towards the rearward end of said body,

(i) said airfoil extending forward from said vertical stabilizers as a canopy over said body and being positioned to provide a center of lift substantially forward of a trailing end of said air entrapment chamber; and,

(ii) said airfoil being reactive to provide substantial out of surface effect lifting force on said vehicle in response to said forward motion of said vehicle;

(c) vertical stabilizing means for providing aerodynamic vertical stabilization for said vehicle; and,

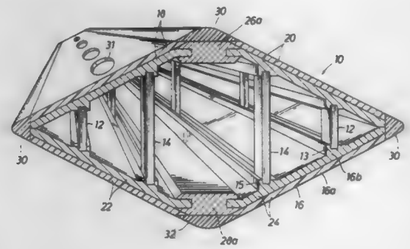
(d) propulsion means for providing said forward motion to said vehicle, said lifting forces of said air entrapment chamber and said airfoil being reactive in combination to enable flight of said vehicle in surface effect.

5,727,496

TRANSPORT VEHICLE HULL

Kenneth W. Welch, Jr., Houston, Tex., assignor to Global Oceanic Designs Ltd., Houston, Tex.

Filed May 3, 1996, Ser. No. 642,751
Int. Cl.[6] B63B *3/13*
U.S. Cl. 114—312 9 Claims



1. A transport vessel hull capable of withstanding great pressure differential between the environments inside and outside the hull, comprising:

an enclosed hexahedral housing having a substantially diamond-shaped cross section with a long diagonal oriented horizontally and a short diagonal oriented vertically; and

a symmetrical support structure within said housing for bearing the loads resulting from the pressure differential across the hull, said support structure including a plurality of transversely spaced vertical frame members each connected at the upper and lower ends thereof to said housing on either respective side of the short diagonal to form a plurality of high strength-to-weight ratio trusses, said housing and said support structure together forming at least one enclosed space for transporting cargo or passengers.

5,727,497

FLAG SYSTEM FOR DISPLAYING A FLAG FROM A HOOD OF AN AUTOMOBILE

John A. Nichols, Jr., 10556 Emerald Ridge, #8, St. Louis, Mo. 63114

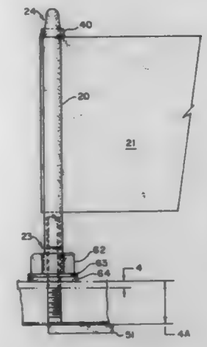
Filed Jun. 12, 1996, Ser. No. 661,902
Int. Cl.[6] G09F *17/00*
U.S. Cl. 116—173 7 Claims

1. A flag system for displaying a flag from a hood of an automobile comprising:

a) a means for attaching the flag to a mast, said means ensuring the flag remains vertically spread on the mast at all times, said mast having a base and a pinnacle;

b) a means for gripping an automobile's hood, said means located at the base; and

c) a tongue connected to the gripping means, said tongue passing between a crevice created between the hood and the automobile, said tongue having a male mounting threaded portion threadably connected to a female mounting portion in said base of said mast.

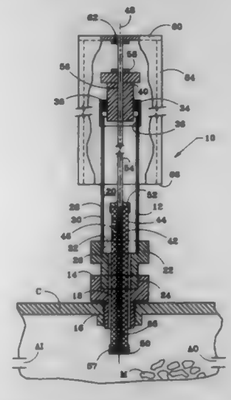


5,727,498

RETRACTABLE VISUAL INDICATOR ASSEMBLY

George R. Hackler; Ronald J. Gamboa, and Victor Dominquez, all of Las Cruces, N. Mex., assignors to The United States of America as represented by the Administrator of the National Aeronautics and Space Administration, Washington, D.C.

Filed Feb. 13, 1996, Ser. No. 613,737
Int. Cl.[6] G01N *31/22*
U.S. Cl. 116—206 20 Claims



7. An indicator assembly for mounting on a container having an air input port and an air discharge port for passing air through the interior of the container, the indicator assembly providing an indication of deleterious gases within the interior of the container, the indicator assembly comprising:

a threaded fitting having external threads for threaded engagement with a threaded aperture within a wall of the container, the threaded fitting having a passageway therethrough;

an elongate indicator housing having a lower end adapted to be sealingly engaged with the threaded fitting and an upper plugged end, the indicator assembly having a housing chamber within the indicator housing and having an opening communicating between the housing chamber and the passageway of the threaded fitting, the passageway providing fluid communication with the interior of the container, the indicator

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housing including a transparent wall portion for viewing at least a portion of the housing chamber;

a litmus indicator movable within the passageway between a retracted position within the container and an extended position within the housing chamber, the litmus indicator including a chemically responsive litmus material for changing color in response to the deleterious gases;

a retractable rod interconnected with the litmus indicator and extending through the upper plugged end of the indicator housing, the retractable rod comprising means for moving the litmus indicator between the retracted position and the extended position; and

a seal for providing sealing and sliding association between the retractable rod and the plugged end of the indicator housing.

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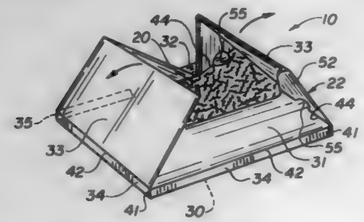
LIGHTWEIGHT DISPOSABLE KITTY LITTER BOX

Steven E. Armington, Gates Mills; Carl V. Santoiemmo, Highland Heights, and Dale Panasewicz, Strongsville, all of Ohio, assignors to Ranpak Corp., Concord Township, Ohio

Continuation-in-part of Ser. No. 125,310, Sep. 22, 1993, abandoned. This application Jun. 6, 1995, Ser. No. 466,253

Int. Cl.[6] A01K *29/00*

U.S. Cl. 119—168 **30 Claims**



1. A disposable kitty litter box comprising a container and fresh kitty litter enclosed within the container;

the container being convertible between a closed condition in which it encloses the kitty litter, and an open condition in which it forms an open receptacle for use of the kitty litter;

the fresh kitty litter comprising a plurality of paper strips treated with a neutralizing agent.

5,727,500

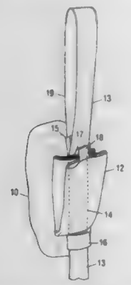
LEASH-MOUNTED STORAGE DEVICE

Meg Conboy, 4040 Panama Ct., Oakland, Calif. 94611

Filed Apr. 8, 1996, Ser. No. 629,369

Int. Cl.[6] A01K *23/00;27/00*

U.S. Cl. 119—174 **5 Claims**



1. A storage device for attaching to a pet leash with a hand loop, comprising:

a front pouch;

a rear pouch attached in abutting engagement to said front pouch so as to form a channel therebetween, said channel being adapted to be positioned around said leash so that said storage device can be supported on said leash; and

a strap attached to said front pouch adjacent one end of said channel, said strap being adapted to be wrapped through said hand loop for preventing said storage device from sliding along said leash.

5,727,501

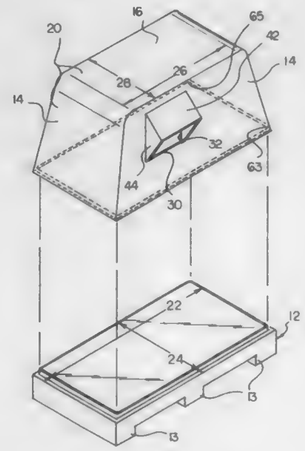
DOG HOUSE APPARATUS

Virginia York, P.O. Box 35, Amherst, Va. 24521

Filed Apr. 26, 1996, Ser. No. 638,034

Int. Cl.[6] A01K *1/00*

U.S. Cl. 119—482 **14 Claims**



1. An animal house apparatus, comprising:

a base unit, said base unit comprising a substantially flat planar member having a single, imperforate planar upper surface and an outer peripheral edge,

a plurality of walls removably coupled to said outer peripheral edge of said planar member of said base unit so as to be supported by said base unit,

a roof supported by said walls, and

an entrance opening located in one of said walls,

wherein said planar upper surface of said base unit extends into contiguous and unobstructed communication with said outer peripheral edge when said plurality of walls are de-coupled from said base unit,

wherein said entrance opening includes a bottommost aperture portion, a far lateral aperture portion, a topmost aperture portion, and a near lateral aperture portion,

wherein said wall which includes said entrance opening includes a near wall half, a far wall half, a bottommost wall edge, a far lateral wall edge, and a near lateral wall edge,

wherein said entrance opening is entirely included in said near wall half of said wall which includes said entrance opening, and

wherein said bottommost aperture portion is spaced above said base unit by a vertical offset distance.

5,727,502

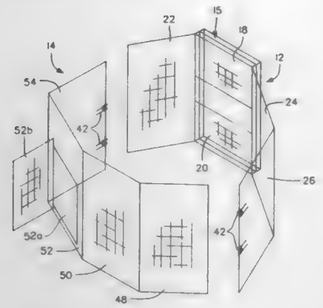
MODULAR COMBINATION DOG HOME AND EXERCISE PEN

William E. Askins, and Gary H. Roulston, both of Lititz, Pa., assignors to Woodstream Corporation, Lititz, Pa.

Filed Dec. 23, 1996, Ser. No. 779,952

Int. Cl.[6] A01K *1/03*

U.S. Cl. 119—499 **26 Claims**



1. A convertible structure which can be erected selectively as a pet home and an exercise pen for a pet comprising a home-forming module and a pen-forming module, the home-forming module comprising a base, first and second side walls, first and second end walls and a roof, a pet access door in one of the walls, hinge connections between the side walls and the base, a further hinge connection between the first side wall and the roof and releasable attachments between the side walls, end walls and roof for erecting the home-forming module as a pet home, said releasable attachments allowing the side walls to swing outwardly from the base about said hinge connections enabling the base, said side walls and the roof to form adjacent upstanding peripheral walls of an exercise pen when the base is set up on one end, with a gap between a free edge of the roof and a free edge of the second side wall, the pen-forming module including at least one additional wall for placing in said gap and further releasable attachments connecting the pen-forming module to the roof at one edge thereof and to the second side wall at an opposite edge thereof to form a peripherally enclosed exercise pen.

5,727,503

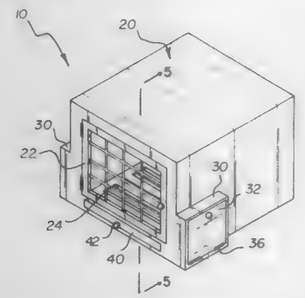
PORTABLE COOLING KENNEL SYSTEM

Michael A. Whittaker, 1171 State St., Hanford, Calif. 93230

Filed Jun. 28, 1996, Ser. No. 671,004

Int. Cl.[6] A01K *1/02;13/00*

U.S. Cl. 119—500 **9 Claims**



1. A Portable Cooling Kennel System comprising:

a kennel structure having an exterior side, a lower portion, an interior portion, an interior ceiling, an interior floor, and a cool air passage;

said cool air passage being projected within a side wall of said kennel structure;

said interior ceiling having at least one ceiling air outlet fluidly connecting said cool air passage and said interior portion of said kennel structure;

at least one ice cartridge storage body secured to the exterior side of the kennel structure, said ice cartridge storage body being in fluid communication with said cool air passage, said ice cartridge storage body being for receiving at least one ice cartridge;

a sliding ice tray having an interior portion and being slidably positioned within the lower portion of the kennel structure;

said interior floor of said kennel structure including a plurality of air return vents fluidly connecting said interior portion of said kennel structure and said sliding ice tray; and

at least one fan fluidly connecting the interior portion of said sliding ice tray and said cool air passage, said fan being for forcing air from said interior of said kennel structure through said air return vents into said interior portion of said sliding ice tray and though said cool air passage and expelling the air from said cool air passage into said interior of said kennel structure through said ceiling air outlet.

5,727,504

MILKING STAND

Ludger Köster, Naperville, Ill., assignor to Westfalia Separator Aktiengesellschaft, Oelde, Germany

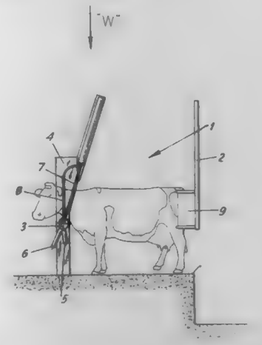
PCT No. PCT/EP94/04158, § 371 Date Feb. 7, 1996, § 102(e) Date Feb. 7, 1996, PCT Pub. No. WO95/22247, PCT Pub. Date Aug. 24, 1995

PCT Filed Dec. 15, 1994, Ser. No. 612,896

Claims priority, application Germany, Feb. 22, 1994, 44 05 512.0

Int. Cl.[6] A01K *1/12*

U.S. Cl. 119—520 **4 Claims**



1. A milking stand having a plurality of adjacent positions accommodating animals to be milked, comprising: a barrier at a rear end of the animals to be milked and a horizontal elongated locking component at a front end of the animals to be milked, wherein the locking component has a first wave tube connected thereto, wherein the locking component is mounted for vertical movement of the locking component and the first wave tube between a lower position wherein the locking component prevents the animals to be milked from exiting the milking stand and an upper position wherein the locking component does not prevent the animals to be milked from exiting the milking stand and wherein the locking component is mounted for pivoting movement of the locking component and the first wave tube about a longitudinal axis to move the first wave tube into a generally vertical position

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and into a generally horizontal position when the locking component is in the lower position.

5,727,505

APPARATUS FOR SEPARATING WATER AND STEAM

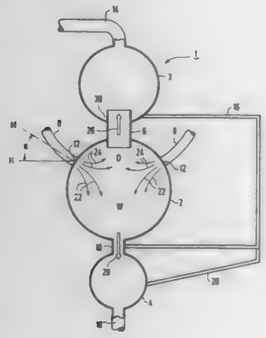
Wolfgang Herr, Hirschaid; Günther Pröbstle, Erlangen; Wolfgang Vollmer, Erlangen, and Eberhard Wittchow, Erlangen, all of Germany, assignors to Siemens Aktiengesellschaft, Munich, Germany

Filed Mar. 7, 1995, Ser. No. 399,891

Claims priority, application Germany, Sep. 7, 1992, 42 29 547.4

Int. Cl.[6] F22B *1/02*

U.S. Cl. 122—34 **7 Claims**



1. An apparatus for separating water and steam in a water-steam mixture, comprising:

a first collector having a number of inlet pipes for a water-steam mixture and a water outlet pipe for separated water;

a second collector disposed horizontally above said first collector and having a number of steam outlet pipes for separated steam;

a connecting pipe interconnecting said first and second collectors;

said first and second collectors having regions adjacent said connecting pipe;

a third collector disposed horizontally below said first collector, said water outlet pipe of said first collector opening into said third collector;

a pipe interconnecting said second collector and said third collector; and

said inlet pipes for the water-steam mixture and said steam outlet pipes being positioned for leaving said regions of said first and second collectors free of pipes.

5,727,506

TWO-STROKE INTERNAL COMBUSTION ENGINE

Katsuya Tajima, Hamura; Hiroaki Koga, Sayama, and Hiroji Kawasaki, Ohme, all of Japan, assignors to Kioritz Corporation, Tokyo, Japan

Filed Nov. 22, 1996, Ser. No. 755,032

Claims priority, application Japan, Nov. 30, 1995, 7-313371

Int. Cl.[6] F02B *33/04*

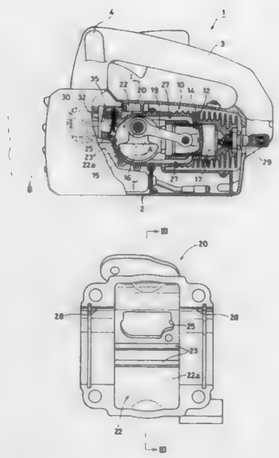
U.S. Cl. 123—73 A **3 Claims**

1. A two-stroke internal combustion engine comprising:

a crank case forming a crank chamber and having an intake port opening into the crank chamber;

a carburetor connected to said intake port via a lead valve;

a crank shaft rotatably disposed in the crank chamber; and



a flow control feature for retarding flow of non-atomized fuel, disposed at a circumferential inner surface of the crank chamber in the vicinity of the intake port opening and downstream from said lead valve.

5,727,507

VALVE ROTATION ARRANGEMENT

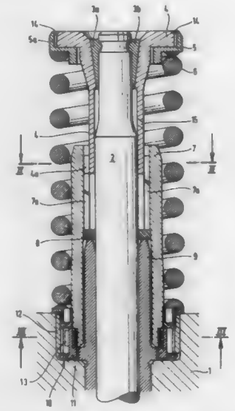
Peter Johansson, Trollhättan, Sweden, assignor to Wartsila Diesel International Ltd OY, Helsinki, Finland

Filed Oct. 8, 1996, Ser. No. 727,682

Claims priority, application Finland, Oct. 10, 1995, 954825

Int. Cl.[6] F01L *1/32*

U.S. Cl. 123—90.3 **21 Claims**



1. A valve arrangement in an internal combustion engine including a cylinder head, said valve arrangement comprising:

a valve member having a stem, the valve member being displaceable relative to the cylinder head between a closed position and an open position,

a valve actuator for displacing the valve member from its closed position toward its open position under positive guidance,

a spring for urging the valve member from its open position toward its closed position,

a rotation element attached to an upper part of the valve stem,

a bowl-shaped bearing housing element supported on the spring and including an annular rim surrounding the rotation element in spaced relationship therewith,

a slide bearing between the rotating element and the bearing housing element for turnably journalling an upper part of the valve stem to the spring, and

a rotation mechanism supported at the cylinder head for providing rotation of the valve relative to the cylinder head,

and wherein the valve actuator is coupled to the valve stem through a valve yoke which is formed with at least one oil duct for feeding oil to the bearing housing element so that an oil pocket is formed between the bearing housing element and the rotation element.

5,727,508

PRESSURE MEDIUM SEALING IN A CAMSHAFT ADJUSTING DEVICE

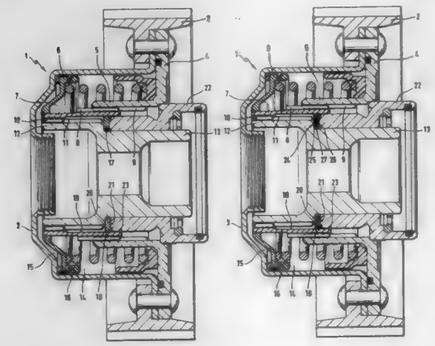
Dieter Goppelt, Aurachtal, Germany, assignor to Ina Walzlager Schaeffler KG, Germany

Filed Dec. 5, 1996, Ser. No. 760,842

Claims priority, application Germany, Dec. 15, 1995, 195 46 934.8

Int. Cl.[6] F01L *1/344*

U.S. Cl. 123—90.17 **14 Claims**



1. A device for the continuous variation of a relative angular position between a crankshaft and a camshaft arranged in a cylinder head, said device comprising:

A) a drive element (**2**) driven by the crankshaft through a traction means,

B) a hollow cylindrical sliding sleeve (**7**) positively locked by a first gearing (**8**, **9**) to the drive element (**2**) and by a second gearing (**10**, **11**) to the driven element (**13**),

C) a circular ring-shaped double-action hydraulic adjusting piston (**6**) which is fixed on the sliding sleeve (**7**) and guided in a housing (**3**) to axially delimit two pressure chambers (**14**, **15**) which can be connected alternately to a pressure medium supply and a pressure medium discharge,

D) a sealing of the pressure chambers (**14**, **15**) from each other by a sealing arrangement on the circular ring-shaped adjusting piston (**6**) and

E) a sealing between the sliding sleeve (7) and a component situated radially inwardly therefrom by a sealing element inserted between end faces (**20**, **21**) of components which are connected directly to the driven element (**13**) and the drive element (**2**) respectively,

wherein a radially inward sealing of the sliding sleeve (**7**) is achieved by a sealing disc (**17**) of continuous configuration comprising an outer peripheral surface (**18**) which bears sealingly against an inner wall (**19**) of the sliding sleeve (**7**), the sealing disc (**17**) being inserted axially between two components distinct from the sliding sleeve (**7**).

5,727,509

CAM FOLLOWER IN THE FORM OF A TAPPET OR A LEVER HAVING A HYDRAULIC VALVE CLEARANCE COMPENSATION ELEMENT

Walter Speil, Ingolstadt, Germany, assignor to Ina Walzlager Schaeffler KG, Germany

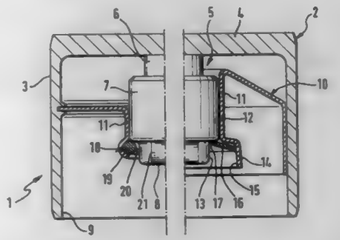
PCT No. PCT/EP95/03136, § 371 Date May 27, 1997, § 102(e) Date May 27, 1997, PCT Pub. No. WO96/18806, PCT Pub. Date Jun. 20, 1996

PCT Filed Aug. 8, 1995, Ser. No. 849,597

Claims priority, application Germany, Dec. 14, 1994, 44 44 481.8

Int. Cl.[6] F01L *1/24*

U.S. Cl. 123—90.55 **13 Claims**



1. A cam follower in the form of a tappet (**1**) for a valve drive of an internal combustion engine comprising a hollow cylindrical housing (**2**) with which the tappet (**1**) oscillates in a reception bore of a cylinder head, one end (**3**) of the tappet being closed by a disc-like bottom (**4**) while a hydraulic clearance compensation element (**5**) is arranged concentric to the housing (**2**) in the tappet (**1**), said clearance compensation element (**5**) comprising a cylindrical guide element (**6**) which bears against the bottom (**4**) and is arranged in a bore of an axially displaceable pressure piston (**7**) whose bottom (**8**) faces a gas exchange valve, an annular guide element (**10**) starting from an inner peripheral surface (**9**) of the housing (**2**) or from an inner surface of the bottom (**4**) merges radially inwardly into a hollow cylindrical axial extension (**11**) pointing in cam-remote direction and in whose bore (**12**) the pressure piston (**7**) extends, the bottom (**8**) of the pressure piston (**7**) having a reduced diameter (**13**) which cooperates with an annular retention element extending radially inwards from an end of the axial extension (**11**), the guide element (**10**) comprising a diameter enlargement (**14**) on one end in which the retention element having a substantially radially outwards acting retention force is fixed by at least one of force engagement and positive engagement, characterized in that the guide element (**10**) is thin-walled at least in the region of the axial extension (**11**), and the axial extension (**11**) has a smooth surface and a constant wall thickness over its entire length (FIG. **1**).

5,727,510

VISCOUS FLUID TYPE HEAT GENERATOR WITH MEANS FOR MAINTAINING OPTIMUM LUBRICATING CONDITION OF A BEARING

Takashi Ban; Hidefumi Mori, and Kiyoshi Yagi, all of Kariya, Japan, assignors to Kabushiki Kaisha Toyoda Jidoshokki Seisakusho, Kariya, Japan

Filed Aug. 30, 1996, Ser. No. 705,659

Claims priority, application Japan, Sep. 4, 1995, 7-226396

Int. Cl.[6] F22B *3/06*

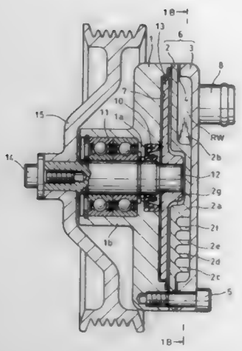
U.S. Cl. 123—142.5 **12 Claims**

1. A viscous fluid type heat generator comprising:

front and rear housings for defining therein, at least a heat generating chamber having inner walls;

a heat receiving chamber arranged in at least one of said front and rear housings separated from said heat generating chamber and defining therein a fluid flow passage extending in

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close relation with said heat generating chamber and permitting a heat exchanging liquid to circulate therethrough;

a drive shaft rotatably supported by said front housing via bearing means;

a rotor element mounted on the drive shaft so as to be rotated therewith within said heat generating chamber and having outer faces

viscous fluid supplied in a space extending between said inner walls of said heat generating chamber and said outer faces of said rotor element to generate heat in response to rotation of said rotor element; and

an intermediate isolation means disposed between said heat generating chamber and said bearing means for providing a thermal isolation therebetween wherein said intermediate isolation means comprises a shaft sealing means arranged in said front housing for fluidly sealing around said drive shaft.

5,727,511

CYLINDER LINER AND CYLINDER BLOCK AND METHOD FOR PRODUCING THE CYLINDER LINER AND THE CYLINDER BLOCK

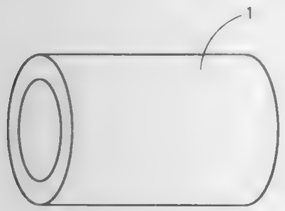
Hiroyuki Omura; Shin Nitta; Yosuke Takahashi; Hirotake Usui, all of Chiyoda-ku; Jun Isomoto; Haruhisa Mori, both of Minato-ku; Takashi Yamaguchi, and Hiroshi Miyazaki, both of Joetsu, all of Japan, assignors to Ryobi Ltd., Hiroshima-Ken, and Mitsubishi Jidosha Kogyo Kabushiki Kaisha, Tokyo, both of Japan

Filed Apr. 23, 1996, Ser. No. 636,221

Claims priority, application Japan, Apr. 26, 1995, 7-126008

Int. Cl.[6] B22D *19/08;19/14;* **C22C** *1/09*

U.S. Cl. 123—193.2 **19 Claims**



1. A cylinder block, comprising:

a block portion formed of a light metal and a bore portion formed in the block portion and in sliding relation with a piston ring and a piston,

the bore portion formed of a composite material comprised of a matrix of a light metal which is reinforced with alumina short fibers and hollow spherical silica particles.

5,727,512

INTERNAL COMBUSTION ENGINE

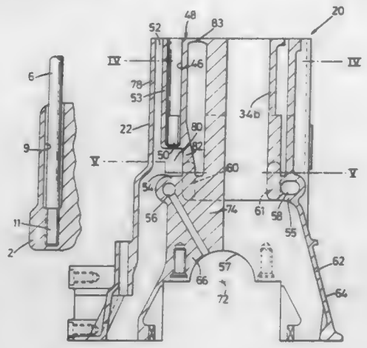
William Richard Hutchins, Kenilworth, England, assignor to Rover Group Limited, Warwick, England

Filed Dec. 18, 1995, Ser. No. 575,725

Claims priority, application United Kingdom, Dec. 20, 1994, 9425716

Int. Cl.[6] F02F *1/00*

U.S. Cl. 123—193.3 **16 Claims**



1. An internal combustion engine comprising a cylinder block made of a first material, a cylinder head made of a second material, and a plurality of fasteners which extend through the cylinder head and into the block, and secure the head to the block, wherein; the second material has a greater coefficient of thermal expansion than the first material; the fasteners engage with the block at a point substantially spaced from the interface between the block and the head; the portion of the fasteners between the point of engagement and the interface is free to expand; the engine has oil drainage passages and a water jacket defined therein; and the engine has fastener bores defined therein through which the fasteners extend and which are wider in diameter than the fasteners and have a remote end which is closed so that oil from the drainage passages can collect in the fastener bores around the fasteners thereby to bring the fasteners into close thermal contact with the water jacket.

5,727,513

HYPOCYCLOIDAL CRANK TRANSMISSION FOR PISTON ENGINES, PARTICULARLY INTERNAL-COMBUSTION ENGINES

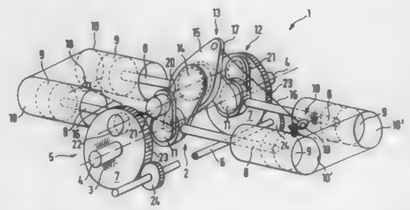
Gert Fischer, Feldafing, Germany, assignor to Bayerische Motoren Werke Atiengesellschaft, Munich, Germany

Filed Feb. 25, 1997, Ser. No. 805,743

Claims priority, application Germany, Mar. 1, 1996, 196 07 920.9

Int. Cl.[6] F16H *21/34*

U.S. Cl. 123—197.4 **18 Claims**



1. Hypocycloidal crank transmission for piston engines, particularly internal-combustion engines, comprising:

a crankshaft which is disposed by way of journals in an engine casing and which has crank webs which are synchronously rotatably connected by way of a transmission shaft, and

a combined lift/guide shaft eccentrically disposed in a rotatable manner in said crank webs, said combined lift/guide shaft being rotationally controlled by way of an element of a hypocycloidal straight-motion mechanism fixed to the lift/guide shaft that by means of a lift eccentric non-rotatably connected with the lift/guide shaft, a connecting rod driven in an oscillating manner rotatably drives the crankshaft,

wherein the element of the lift/guide shaft is a guide eccentric interacting with the hypocycloidal straight-motion mechanism.

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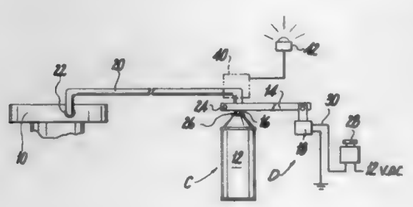
REMOTE CONTROLLED INTERMITTENT USER ACTIVATED ANTI-CORROSION FOGGING DEVICE FOR INFREQUENTLY USED INTERNAL COMBUSTION MARINE ENGINES

Carl Sunden, 894 Aberdeen Rd., West Bay Shore, N.Y. 11706

Filed Nov. 9, 1995, Ser. No. 554,905

Int. Cl.[6] F02M *1/16*

U.S. Cl. 123—198 A **17 Claims**



1. A system for selectively delivering anti-corrosive oil to the interior of an internal combustion engine at user selected occasions, comprising:

a reservoir of anti-corrosion oil, said reservoir having a remotely controlled outlet valve, said outlet valve being in fluid flow communication with a substantially permanently installed spray nozzle located adjacent to an intake of the internal combustion engine,

said outlet valve selectively openable to permit fluid flow of the anti-corrosion oil from said reservoir of anti-corrosion oil to said spray nozzle located adjacent to said intake of the internal combustion engine,

a means to open said outlet valve, said means comprising a user activated source of force applicable against said outlet valve to permit the anti-corrosive oil to flow therefrom,

wherein said reservoir is an aerosol spray can, wherein said means to open said outlet valve comprises a movable member, said movable member responsive to movement by a solenoid, said solenoid controlled by a user activated switch by means of a user activated member, said movable member engagable against said outlet valve upon the application of force there against, to release said anti-corrosive oil through said conduit to the engine intake.

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PROCESS AND DEVICE FOR CONTROLLING AN INTERNAL COMBUSTION ENGINE

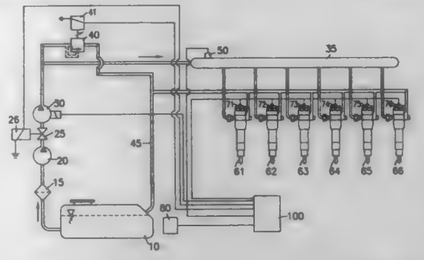
Juergen Biester, Boeblingen, Germany, assignor to Robert Bosch GmbH, Stuttgart, Germany

Filed Dec. 20, 1996, Ser. No. 772,202

Claims priority, application Germany, Dec. 22, 1995, 195 48 250.8

Int. Cl.[6] F02M *37/04;* **F02B** *77/00*

U.S. Cl. 123—198 D **12 Claims**



1. A method for controlling an internal combustion engine having a high-pressure injection, comprising the steps of:

delivering a fuel using at least one pump from a low-pressure area to a high-pressure area;

detecting a fuel pressure existing in the high-pressure area with a pressure sensor;

adjusting the fuel pressure with a pressure-regulation device; and

controlling a flow of the fuel in the low-pressure area for adjusting the fuel pressure when a defect is present in the pressure-regulation device in the high-pressure area.

5,727,516

METHOD OF CONTROLLING AN INTERNAL COMBUSTION ENGINE UPON DETECTION OF A FAULT INN A FUEL INJECTION SYSTEM

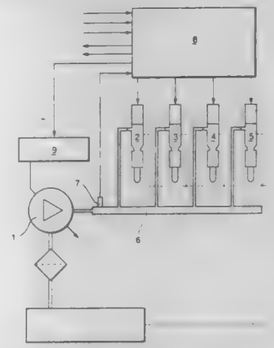
Ulrich Augustin, Kernen, and Volker Schwarz, Weinstadt, both of Germany, assignors to Mercedes - Benz AG, Stuttout, Germany

Filed Mar. 24, 1997, Ser. No. 823,381

Claims priority, application Germany, Apr. 2, 1996, 196 13 184.7

Int. Cl.[6] F02M *37/04*

U.S. Cl. 123—198 DB **2 Claims**



1. A method of controlling the operation of an internal combustion engine upon detection of a faulty operation of a fuel injection system which is associated with the engine and which is supplied

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with fuel by a high pressure pump feeding fuel into a common fuel supply line from where fuel is distributed to the engine cylinders under the control of fuel solenoid valve-actuated injection nozzles mounted on the cylinders of the internal combustion engine, said method comprising the steps of:

sensing the fuel pressure in said common fuel supply line at distinct, timely-spaced points in the normally constant pressure period between the end of an injection and the start of a fuel supply period in which the pressure in said common fuel supply line increases, interrupting the high pressure fuel supply to said common fuel supply line by deactivating said high pressure fuel pump if a pressure difference between said measurement points in excess of a predetermined limit value is sensed which is indicative of a fuel injection nozzle failure and continuing injection through the operative fuel injection nozzles so as to rapidly reduce the fuel pressure in said common fuel supply line.

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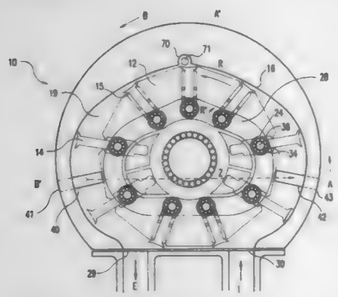
EQUIVALENCE-BOOSTED SLIDING VANE INTERNAL COMBUSTION ENGINE

Brian D. Mallen, 239 Colonnade Dr., #6, Charlottesville, Va. 22901

Continuation-in-part of Ser. No. 594,284, Jan. 30, 1996, abandoned. This application Apr. 22, 1996, Ser. No. 605,836

Int. Cl.[6] F02B *53/00*

U.S. Cl. 123—217 **10 Claims**



1. A sliding vane internal combustion engine, comprising:

a stator having a central cavity;

a rotor disposed in said central cavity, said rotor having a plurality of radial slots and said rotor and stator being in relative rotation;

a plurality of vanes, each of said plurality of vanes sliding within the respective radial slots of said rotor,

said plurality of vanes, said stator cavity, and said rotor defining a plurality of chamber cells, said chamber cells creating cascading regions of compression, combustion, expansion, exhaust and intake; and

one or more expansion gas ducts connecting said expansion region and said intake region to direct pressurized gases from said expansion region into said intake region so as to increase an intake charge density.

5,727,518

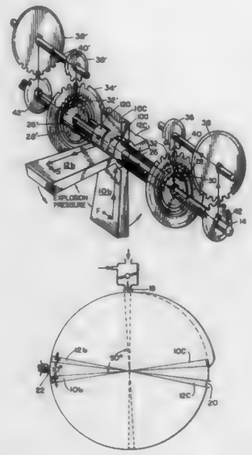
ALTERNATING PISTON ROTARY ENGINE WITH UNIDIRECTIONAL TRANSMISSION DEVICES

Alberto F. Blanco Palacios, and J. Fernando Blanco Palacios, both of Av. Bartolome de las Casas 482, Urb. Los Jazmines-Surco Lima 33, Peru

Continuation-in-part of Ser. No. 109,317, Aug. 19, 1993, Pat. No. 5,400,754. This application Feb. 15, 1996, Ser. No. 601,789

Int. Cl.[6] F02B *53/00*

U.S. Cl. 123—245 **47 Claims**



1. A rotary internal combustion engine, comprising:

engine block means for defining a cylindrical internal periphery of an internal-combustion-cycle chamber;

a rotatable drive shaft extending axially through the internal-combustion-cycle chamber;

first and second paddle, hub and side-disc means substantially sealingly in the internal-combustion-cycle chamber and freely rotatable on the drive shaft, each of the paddle, hub and side-disc means having first and second paddles that are fixed on a side disc diametrically opposite each other with a hub therebetween, the hubs cooperating with each other so that the first and second paddles, hub and side disc of the first paddle, hub and side-disc means can also rotate relative to the first and second paddles, hub and side disc of the second paddle, hub and side-disc means, the side discs of the first and second paddle, hub and side-disc means respectively extending radially from axially opposite end portions of the hubs;

first and second gear train means for rotation by the respective end portions of the hubs, each of the first and second gear train means comprising (A) a first unidirectional transmission device for rotationally connecting one of the hubs to the drive shaft in a first rotational direction and disconnecting the one of the hubs from the drive shaft in a second, opposite relative rotational direction and (B) a second unidirectional transmission device with gear reduction means for rotationally connecting the drive shaft to the one of the hubs in the first rotational direction with a reduced rotational speed relative to a rotational speed of the rotational connection of the first unidirectional transmission device and disconnecting the drive shaft from the one of the hubs in the second relative rotational direction, whereby the drive shaft and first and second paddle, hub and side-disc means all rotate in the first rotational direction;

inlet means in a first quadrant of the chamber for admitting air into the internal-combustion-cycle chamber;

fuel means for admitting fuel into a third quadrant of the internal-combustion-cycle chamber in the first rotational direction;

ignition means for defining an ignition point of an air/fuel mixture in the third quadrant of the internal-combustion-cycle chamber; and

outlet means in a fourth quadrant of the internal-combustion-cycle chamber in the first rotational direction for exhausting,

wherein axially opposite ends of the internal-combustion-cycle chamber respectively comprise the side discs and axial ends of the paddles are on the side discs at peripheries of the side discs for the paddles to project axially from the side discs.

5,727,519

LOW EVAPORATIVITY FUEL DIESEL ENGINE

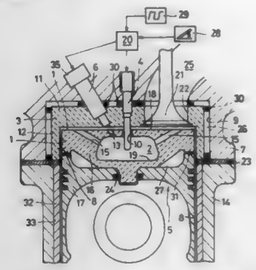
Hideo Kawamura, Samukawa-machi, Japan, assignor to Isuzu Ceramics Research Institute Co., Ltd., Kanagawa-ken, Japan

Filed Feb. 6, 1997, Ser. No. 796,367

Claims priority, application Japan, May 24, 1996, 8-151910; May 24, 1996, 8-151911

Int. Cl.[6] F02B *19/00*

U.S. Cl. 123—262 **9 Claims**



1. A diesel engine using a low evaporativity fuel, comprising a cylinder head fixed on a cylinder block constituting a cylinder, a combustion chamber structure forming a heat insulating primary chamber provided in a cavity formed in said cylinder head, valves adapted to open and close suction and exhaust ports formed in said cylinder head, a fuel injection nozzle adapted to inject a low evaporativity fuel into said cylinder provided in said cylinder head, a glow plug provided in said cylinder head, a piston adapted to be moved reciprocatingly in said cylinder, forming a heat insulating swirl chamber therein and provided with communication ports through which said primary chamber and said swirl chamber communicate with each other, and a plug insert bore through which said glow plug is thrusted into said swirl chamber when said piston is in the vicinity of a top dead center, and a controller adapted to control the injection of a fire resistant low evaporativity fuel from said fuel injection nozzle into said primary chamber in the first half of a compression stroke and the injection of a part of said fuel into said swirl chamber at an end of the compression stroke in which said glow plug is thrusted into said swirl chamber through said plug insert bore, whereby the fuel is ignited and burnt in said swirl chamber.

5,727,520

FOUR-STROKE INTERNAL COMBUSTION ENGINE WITH SPARK IGNITION

Martin Wirth, Mayersdorf; Walter Piock, Niederberg, and Frank Mundorff, Freiheitsplatz, all of Austria, assignors to AVL List GmbH, Graz, Austria

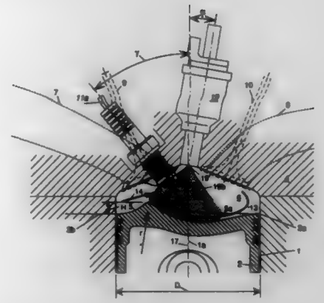
Filed Mar. 31, 1997, Ser. No. 829,342

Claims priority, application Austria, Apr. 1, 1996, GM181/96; Oct. 11, 1996, GM594/96

Int. Cl.[6] F02F *3/28;* **F02B** *31/04*

U.S. Cl. 123—305 **18 Claims**

1. A four-stroke internal combustion engine with spark ignition, comprising:



an injection device located in a cylinder head for direct injection of a fuel into a combustion chamber, with a reciprocating piston per cylinder, and a roof-shaped combustion chamber top with two or more intake valves as well as intake ports generating a tumble flow in the combustion chamber and arranged on one side of a longitudinal center plane defined by a crankshaft axis and a cylinder axis, as well as an ignition source located in an area of a cylinder center, wherein the piston is provided on its top face next to the combustion chamber with a flow guiding rib which is essentially U-shaped in plan view, said "U" opening towards an exhaust side of the combustion chamber, and a top face of the piston assuming a continuously curved, concave shape between the guiding rib and an outer edge of the piston, and fuel injection taking place into a concave area inside the "U", and a nozzle opening of the fuel injection device being positioned in an area of the longitudinal center plane of the engine.

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CYLINDER HEAD OF AN INTERNAL-COMBUSTION ENGINE

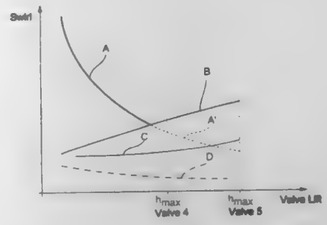
Ulrich Engel, Plochingen, Germany, assignor to Mercedes-Benz AG, Stuttgart, Germany

Filed Feb. 24, 1997, Ser. No. 805,360

Claims priority, application Germany, Mar. 22, 1996, 196 11 362.8

Int. Cl.[6] F02B *31/08*

U.S. Cl. 123—308 **2 Claims**



1. A cylinder head of an internal-combustion engine, especially of a diesel engine, with at least first and second inlet ports per cylinder which have different valve lift dependent swirl levels and which are controlled by first and second inlet valves, respectively, said first inlet valve being assigned to said first inlet port which provides for a high swirl level with a small valve lift having a smaller valve lift than said second inlet valve assigned to said second inlet port which provides for a high swirl level with a large valve lift.

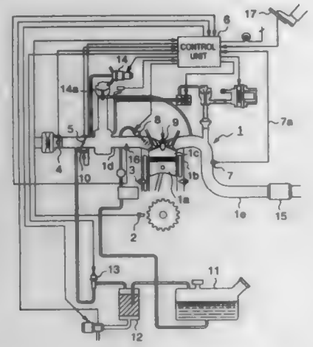
VOL 1208 ISS 3 MR 17 1998 UMI

5,727,522

METHOD AND SYSTEM FOR CONTROLLING IGNITION TIMING FOR INTERNAL COMBUSTION ENGINE

Asahiko Otani, Mito, and Masayoshi Hayasaka, Hitachinaka, both of Japan, assignors to Hitachi, Ltd. and Hitachi Car Engineering Co., Ltd., Japan

Filed Mar. 25, 1997, Ser. No. 824,554
Claims priority, application Japan, Mar. 25, 1996, 8-068375
Int. Cl.[6] F02M *3/00*
U.S. Cl. 123—339.11 36 Claims



1. An ignition timing control system for an internal combustion engine comprising:

basic ignition timing setting means for setting a basic ignition timing of the engine;

means for setting a target value of an engine speed while the engine is in idling condition;

correcting means for determining an ignition timing correction value depending upon a difference between said target value and a detected engine speed and correcting the basic ignition timing with said ignition timing correction value; and

control means for controlling said engine with the corrected ignition timing after the engine speed becomes higher than or equal to a predetermined value.

5,727,523

SUCTION AIR CONTROL APPARATUS OF INTERNAL COMBUSTION ENGINE

Norio Suzuki, and Hiroki Munakata, both of Wako, Japan, assignors to Honda Giken Kogyo Kabushiki Kaisha, Tokyo, Japan

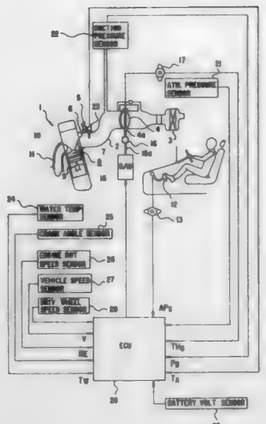
Filed Feb. 3, 1997, Ser. No. 795,311
Claims priority, application Japan, Feb. 5, 1996, 8-040300
Int. Cl.[6] F02D *7/00*
U.S. Cl. 123—399 4 Claims

1. A suction air control apparatus of an internal combustion engine which is subjected to an after-start lean-burn control to be operated at a lean mixture ratio rather than a theoretical mixture ratio in a duration immediately after starting, comprising:

throttle opening degree control means for driving a throttle valve of a suction system to control a throttle opening degree to a target throttle opening degree set in accordance with an operation state of the internal combustion engine for regulating amount of the suction air;

after-start lean-burn control cancel discrimination means for discriminating cancellation of the after-start lean-burn control of the internal combustion engine;

steep acceleration discrimination means for discriminating whether an acceleration of a vehicle is a steep acceleration higher than a predetermined acceleration or not; and



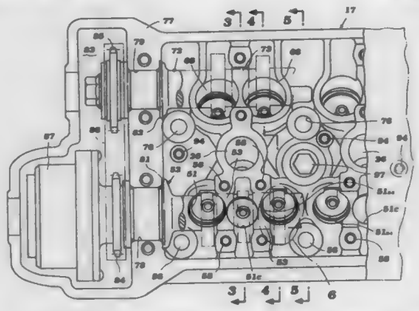
throttle opening degree correction means for correcting said target throttle opening degree to limit increase of the target throttle opening degree when said after-start lean-burn control cancel discrimination means discriminates cancellation of the after-start lean-burn control and said steep acceleration discrimination means discriminates the steep acceleration of the vehicle.

5,727,524

CYLINDER HEAD FOR MULTI-VALVE ENGINE

Tateo Aoyama, Iwata, Japan, assignor to Yamaha Hatsudoki Kabushiki Kaisha, Iwata, Japan

Filed Nov. 29, 1995, Ser. No. 564,775
Claims priority, application Japan, Nov. 30, 1994, 6-297197
Int. Cl.[6] F02B *1/00*
U.S. Cl. 123—432 25 Claims



1. An internal combustion engine comprised of a cylinder block forming at least one cylinder bore, a cylinder head defining a combustion chamber recess in facing relationship to and closing said cylinder bore to form a combustion chamber, a plurality of intake valves supported on one side of said cylinder head recess for reciprocation in said cylinder head for controlling the admission of a charge to said combustion chamber, a plurality of exhaust valves supported on the other side of said cylinder head recess for reciprocation in said cylinder head for controlling the discharge of a burnt charge from said combustion chamber, an intake cam shaft rotatably journaled by said cylinder head along a longitudinally extending axis and associated with said intake valves for operating said intake valves, an exhaust cam shaft rotatably supported by said cylinder head about an axis parallel to the axis of said intake cam shaft and associated with said exhaust valves for operating said exhaust valves, one of said cam shaft rotational axes being disposed substantially closer to a plane containing the axes of the cylinder bore than the other of said cam shafts, a first series of threaded fasteners for fixing said cylinder head to said cylinder block having their axes lying on a plane spaced outwardly of the axis of said one cam shaft and being accessible when said one cam shaft is in position in said cylinder head, and a second series of threaded fasteners fixing said cylinder head to said cylinder block having their axes lying on a plane spaced inwardly of the axis of the other of said cam shafts and being accessible when said other cam shaft is in position in said cylinder head.

5,727,525

ACCUMULATOR FUEL INJECTION SYSTEM

Yoshihiro Tsuzuki, Handa, Japan, assignor to Nippon Soken, Inc., Nishio, Japan

Filed Oct. 3, 1996, Ser. No. 724,832
Claims priority, application Japan, Oct. 3, 1995, 7-256181; Dec. 21, 1995, 7-333275
Int. Cl.[6] F02M *51/00*
U.S. Cl. 123—447 19 Claims

1. An accumulator fuel injection apparatus comprising:

a first accumulating chamber storing therein fuel under a first pressure;

a fuel injector communicating with the first accumulating chamber;

a control circuit providing a control signal to the fuel injector to inject part of the fuel stored within the first accumulating chamber into an engine;

a second accumulating chamber;

a drain passage communicating the first accumulating chamber with the second accumulating chamber for draining the fuel from the first accumulating chamber to the second accumulating chamber;

valve means for selectively establishing and blocking communication between the first accumulating chamber and the second accumulating chamber; and

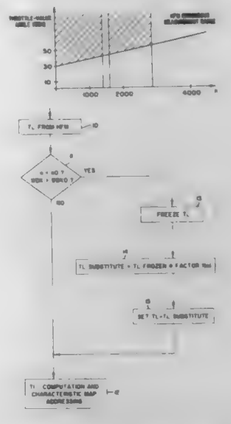
pressure regulating means for regulating a pressure of the fuel stored within the second accumulating chamber to a second pressure being smaller than the first pressure.

5,727,526

DEVICE AND METHOD FOR DETERMINING A LOAD SIGNAL IN AN INTERNAL COMBUSTION ENGINE

Alfred Kratt; Claus-Dieter Nusser, both of Schwieberdingen, and Markus Lischwe, Rieden, all of Germany, assignors to Robert Bosch GmbH, Stuttgart, Germany

Filed Apr. 4, 1996, Ser. No. 628,121
Claims priority, application Germany, Apr. 13, 1995, 195 13 975.5
Int. Cl.[6] F02M *51/00*
U.S. Cl. 123—480 12 Claims



1. A device for determining a load signal in an internal combustion engine having an intake pipe and a crankshaft, the load signal being used to determine a quantity of fuel to be injected into the internal combustion engine, the device comprising:

a sensor measuring an air mass flow, the sensor providing a signal at each of a plurality of predetermined periods, each signal indicating an instantaneous air flow rate in the intake pipe; and

a processor coupled to the sensor,

wherein the processor sums the signals at the predetermined periods over a predetermined angular range of the crankshaft to form the load signal when the internal combustion engine operates in a first predetermined range of speeds and in a first predetermined range of throttle-valve positions,

wherein the processor generates a substitute load signal to be used in place of the load signal when the internal combustion engine operates in a second predetermined range of speeds and in a second predetermined range of throttle-valve positions, the substitute load signal being generated as a function of a last value of the load signal and a speed-dependent correction value, and

wherein the processor controls the quantity of fuel injected into the internal combustion engine as a function of at least one of the load signal and the substitute load signal.

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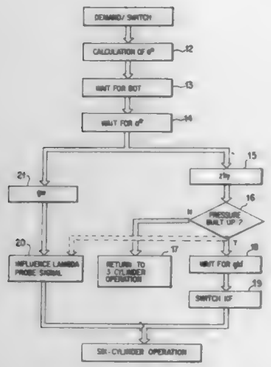
METHOD FOR CYLINDER CUT-IN IN AN INTERNAL COMBUSTION ENGINE PROCESS

Stephan Mueller, Leonberg, and Dietmar Schwarzenthal, Ditzingen, both of Germany, assignors to Ing. h.c.F. Porsche AG, Weissach, Germany

Filed Apr. 19, 1996, Ser. No. 635,139
Claims priority, application Germany, Apr. 19, 1995, 195 13 [illegible]
Int. Cl.[6] F02D *17/02*
U.S. Cl. 123—481 7 Claims

1. A method for cylinder cut-in in an internal combustion engine having a plurality of cylinders, at least one of the cylinders having

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switchable charge changing valves and a switchable fuel supply, the switchable charge changing valves and the switchable fuel supply being switchable between a cutout state and a cut-in state, the internal combustion engine being connected to a regulated catalytic converter and a lambda probe being used for control, said method comprising the steps of:

cutting in the charge changing valves,

determining whether the charge changing valves have been switched to the cut-in state, and

cutting in the fuel supply to the cylinders,

replacing a lambda probe signal by a replacement signal at least during the steps of cutting in the charge changing valves, determining whether the charge changing valves have been switched, and cutting in the fuel supply to the cylinders, and

selecting the replacement signal so that an air ratio between exhaust from the cylinders which are in the cut-in state and exhaust from the cylinders which are in the cut out state is essentially equal to 1.

5,727,528

CONTROL APPARATUS AND CONTROL METHOD OF INTERNAL COMBUSTION ENGINE

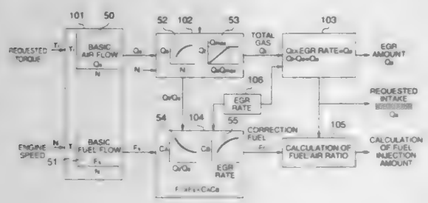
Toshio Hori, and Takeshi Atago, both of Hitachinaka, Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Filed Mar. 19, 1997, Ser. No. 820,547

Claims priority, application Japan, Mar. 19, 1996, 8-063005

Int. Cl.[6] F02M *51/00*

U.S. Cl. 123—486 **21 Claims**



1. A control apparatus of an internal combustion engine, comprising:

air flow amount determining means for determining a request intake air flow amount corresponding to a target output of an engine;

fuel flow amount determining means for determining a request fuel flow amount which is supplied to the engine;

intake air amount limiting means for outputting a predetermined limit value as an intake gas total amount value when said determined request intake air flow amount exceeds said predetermined limit value under a predetermined control condition; and

correcting means for correcting the value of said request fuel flow amount so that said engine generates said target output on the basis of said request intake air flow amount and said limit intake air flow amount when the intake air amount of said engine is limited.

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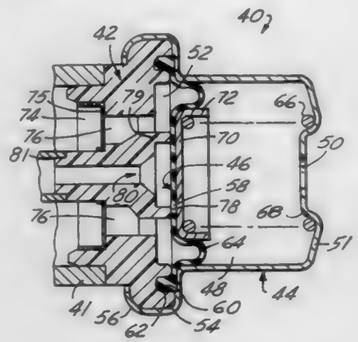
PRESSURE CONTROL VALVE FOR A FUEL SYSTEM

Charles H. Tuckey, Cass City, Mich., assignor to Walbro Corporation, Cass City, Mich.

Continuation-in-part of Ser. No. 398,215, Mar. 2, 1995, Pat. No. 5,579,739, which is a continuation-in-part of Ser. No. 181,848, Jan. 14, 1994, Pat. No. 5,458,108, which is a continuation-in-part of Ser. No. 262,847, Jun. 21, 1994, Pat. No. 5,398,655. This application May 9, 1995, Ser. No. 438,196

Int. Cl.[6] F02M *37/04*

U.S. Cl. 123—514 **27 Claims**



1. A method of delivering fuel to an internal combustion engine that includes:

a fuel supply with a fuel pump responsive to application of electrical power for supplying fuel under pressure,

fuel delivery means on the engine,

a fuel line having one end connected to an outlet of said pump and a second end connected to said fuel delivery means,

a check valve in said fuel line for preventing reverse flow of fuel from said delivery means to said pump,

fuel bypass means coupled to said fuel line between said second end of said fuel line and said check valve for providing a regulated fuel bypass flow path from said pump outlet parallel to said line, such that fuel continues to flow through said bypass means and said pump continues operation in the absence of fuel demand at said fuel delivery means, said method comprising the steps of:

(1.) providing a flexible diaphragm valve made from a planar sheet of flexible fuel impervious material of uniform thickness and an associated rigid annular valve seat,

(2.) arranging said diaphragm to be in continuous communication with the fuel delivery line,

(3.) arranging said valve seat relative to the diaphragm valve to form an annular valve seat barrier to control communication between the fuel line and the bypass flow path by flow of fuel radially inwardly of and across said annular valve seat and between said diaphragm valve and valve seat,

(4.) yieldably biasing said diaphragm to directly bear on said valve seat to sealably isolate the fuel line from the fuel bypass path,

(5.) causing said diaphragm valve and valve seat to operate conjointly such that when force of fuel pressure in the fuel

line overcomes the biasing force exerted on said diaphragm, said diaphragm is disengaged from said valve seat to open communication of the fuel line with the fuel bypass outlet path via said valve seat, and vice versa when the spring force overcomes such fluid pressure force.

5,727,530

EVAPORATIVE FUEL-PROCESSING SYSTEM FOR INTERNAL COMBUSTION ENGINES FOR VEHICLES

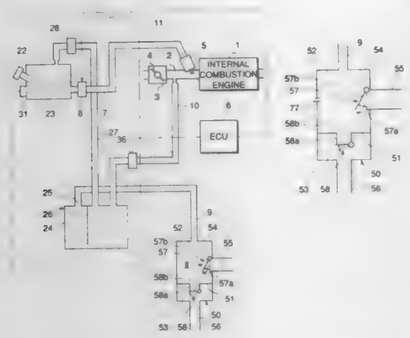
Takeshi Honda; Hideki Matsumoto, and Naritoshi Muramatsu, all of Wako, Japan, assignors to Honda Giken Kogyo Kabushiki Kaisha, Tokyo, Japan

Filed Aug. 5, 1996, Ser. No. 692,281

Claims priority, application Japan, Aug. 4, 1995, 7-218250

Int. Cl.[6] F02M *33/02*

U.S. Cl. 123—520 **10 Claims**



1. An evaporative fuel-processing system for an internal combustion engine for use in a vehicle, said engine having an intake passage, and a fuel tank, comprising:

a passage extending between said fuel tank and said intake passage, for guiding evaporative fuel generated in said fuel tank, for processing;

a canister arranged across said passage, said canister having an air communication port;

a drain passage connected to said air communication port;

a valve casing connected to said drain passage;

a first passage connected to said valve casing;

a first valve associated with said first passage and said valve casing, for allowing air to flow into said canister through said first passage, said valve casing and said air communication port and for inhibiting evaporative fuel from being discharged from said canister through said air communication port, said valve casing and said first passage;

a second passage connected to said valve casing;

a second valve associated with said second passage and said valve casing, for inhibiting air from flowing into said canister through said second passage, said valve casing and said air communication port and for allowing evaporative fuel to be discharged from said canister through said air communication port, said valve casing, and said second passage; and

bypass means for bypassing at least one of said first and second valves, said bypass means permanently communicating between said air communication port of said canister and the atmosphere.

5,727,531

APPARATUS FOR PROCESSING EVAPORATED FUEL

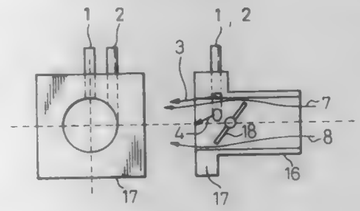
Akinori Osanai, Susono, Japan, assignor to Toyota Jidosha Kabushiki Kaisha, Toyoya, Japan

Filed Sep. 5, 1996, Ser. No. 708,711

Claims priority, application Japan, Sep. 8, 1995, 7-231315

Int. Cl.[6] F02M *25/07*

U.S. Cl. 123—520 **6 Claims**



1. An apparatus for processing evaporated fuel produced in a fuel tank for an internal combustion engine, having a canister for adsorbing the evaporated fuel and a purge passage for connecting the canister to an intake duct and purging the adsorbed fuel into the intake duct, said apparatus comprising:

an air intake portion of the intake duct;

a surge tank; and

a throttle valve located in the intake duct between the air intake portion and the surge tank;

wherein air flows through the intake duct from the air intake portion through the throttle valve into the surge tank when the throttle valve is open, the open throttle valve resulting in air flow having different velocities at different positions in the intake duct, and

the purge passage has purge ports that open into the intake duct at said different positions introducing the purged adsorbed fuel into said different velocities of intake air.

5,727,532

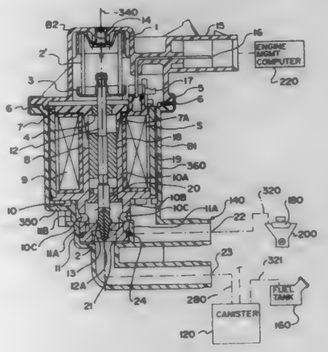
CANISTER PURGE SYSTEM HAVING IMPROVED PURGE VALVE CONTROL

Gary Everingham; John E. Cook; Paul D. Perry, and Murray F. Busato, all of Chatham, Canada, assignors to Siemens Electric Limited, Mississauga, Canada

Continuation of Ser. No. 447,167, May 19, 1995, abandoned. This application Nov. 7, 1996, Ser. No. 739,741

Int. Cl.[6] F02M *33/02*

U.S. Cl. 123—520 **8 Claims**



1. A vapor collection system for an internal combustion engine fuel system comprising:

an intake manifold of an engine;

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a fuel vapor collection canister;

a solenoid-operated canister purge valve in fluid communication with and disposed between said intake manifold and said fuel vapor collection canister, said purge valve including a valve element that is displaced relative to a valve seat by a

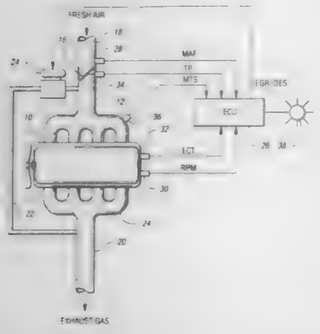
a control system coupled to said solenoid for sensing current flow therethrough and for controlling said current flow to cause movement of said valve element to provide a displacement thereof which is relative to said purge control signal.

5,727,533

METHOD AND APPARATUS FOR MONITORING EGR SYSTEM FLOW

David Karl Bidner, Livonia; Alexander Y. Gopp, Ann Arbor, and Shailesh Natwarlal Patel, Garden City, all of Mich., assignors to Ford Global Technologies, Inc., Dearborn, Mich.

Filed Oct. 18, 1996, Ser. No. 733,853
Int. Cl.[6] F02M *25/07;* **G01L** *3/26*
U.S. Cl. 123—571 **12 Claims**



2. Apparatus for monitoring an exhaust gas recirculation (EGR) system during normal vehicle operations comprising:

an EGR valve located in an EGR passage for controlling the flow of exhaust gas to an intake manifold;

a temperature sensor disposed in the air intake manifold downstream of a location where intake manifold air and recirculating exhaust gas flow together;

a controller for controlling said valve and for calculating a correlation function between a desired EGR flow and the temperature detected by said sensor, and for controlling an indicator if the value of the correlation function is below a reference level.

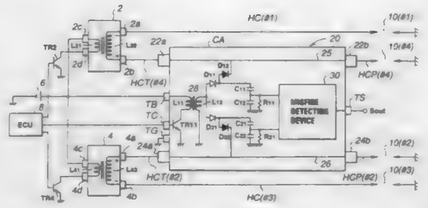
5,727,534

MISFIRE DETECTING DEVICE FOR MULTI-CYLINDER INTERNAL COMBUSTION ENGINE

Noriaki Kondo, Kasugai, and Hiroshi Inagaki, Komaki, both of Japan, assignors to NGK Spark Plug Co., Ltd., Nagoya, Japan

Filed Dec. 12, 1995, Ser. No. 570,972
Claims priority, application Japan, Dec. 12, 1994, 6-307671
Int. Cl.[6] F02P *17/12*
U.S. Cl. 123—635 **6 Claims**

1. A misfire detecting device for a multi-cylinder internal combustion engine having an ignition system for interrupting flow of primary current through a primary winding of an ignition coil and thereby inducing a high voltage for ignition in a secondary winding, and applying the high voltage for ignition to a spark plug provided to each cylinder of the multi-cylinder internal combustion engine, the misfire detecting device comprising:



high voltage pulse producing means for producing, after spark discharge of the spark plug, a high voltage pulse which is not so high as to cause the spark plug to discharge;

voltage applying means for applying said high voltage pulse to a conductive path connecting between the secondary winding of the ignition coil and the spark plug, by way of a reverse current preventing diode and a leakage preventing diode for preventing intrusion of the high voltage for ignition;

voltage dividing means for dividing a voltage at the junction between said reverse current preventing diode and said leakage preventing diode to obtain a divided voltage thereat; and

misfire detecting means for detecting a misfire on the basis of a decay characteristic of said divided voltage obtained after application of said high voltage pulse;

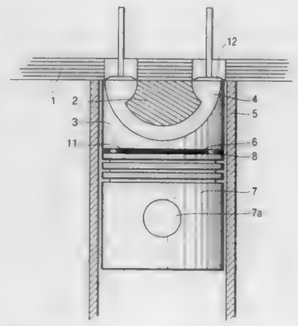
wherein said high voltage pulse producing means, said voltage applying means, said voltage dividing means and said misfire detecting means are housed within a case having a pair of terminals connectable directly and in series to said conductive path and having disposed therewithin a conductive line connecting between said terminals, and said voltage applying means applies said high voltage pulse to said conductive line.

5,727,535

HEMISPHERICAL PISTON COMBUSTION CHAMBER APPARATUS

William K. Wallace, 131042 Kahukai St. Leilani Estates, Pahoa, Hi. 96778

Filed Sep. 4, 1996, Ser. No. 707,390
Int. Cl.[6] F02B *59/00;75/02*
U.S. Cl. 123—664 **38 Claims**



1. An apparatus for use in an internal combustion engine, said apparatus comprising:

a cylinder having a circular cross-sectional shape;

a piston, having a circular cross-sectional shape, slidably mounted in said cylinder and having a first axial end and a second axial end;

a piston crown having a circular cross-sectional shape, a first axial end and a second axial end and being secured to said piston such that said first axial end of said piston crown confronts said second axial end of said piston, such that said piston crown and said piston are coaxially aligned with one another and such that said piston crown is axially slidably mounted in said cylinder;

a cylinder head fixed in covering relation to an end of said cylinder and confronting said second axial end of said piston crown;

wherein said second axial end of said piston crown has a hemispherical combustion chamber formed therein;

wherein a cylinder head extension member is secured to said cylinder head and extends therefrom toward said piston crown such that said cylinder head extension member projects into said hemispherical combustion chamber of said piston crown when said piston crown is positioned in said cylinder at the end thereof adjacent said cylinder head;

wherein valves are provided in said cylinder head and open into said cylinder; and

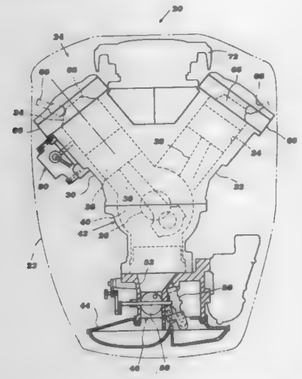
wherein, in cross section, said cylinder head extension member has a generally circular outer periphery and cut-out portions are formed in said outer periphery and are aligned with said valves, respectively, for allowing fluid flow to and from said valves.

5,727,536

ENGINE CONTROL SYSTEM AND METHOD

Masahiko Kato, Hamamatsu, Japan, assignor to Sanshin Kogyo Kabushiki Kaisha, Shizuoka-ken, Japan

Filed Sep. 23, 1996, Ser. No. 725,206
Claims priority, application Japan, Sep. 22, 1995, 7-244687
Int. Cl.[6] F02D *41/10*
U.S. Cl. 123—682 **16 Claims**



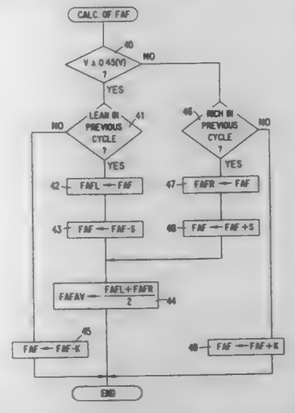
1. An internal combustion engine comprising a first combustion chamber and at least one additional combustion chamber, an air/fuel charging system for delivering an air and fuel charge to said combustion chambers for combustion therein, a combustion condition sensor for determining the air/fuel ratio solely corresponding to said first combustion chamber, feedback control means for adjusting the air/fuel ratio delivered to said combustion chambers in response to the output of said combustion condition sensor, said feedback control means having a first operational mode and a second operational mode for adjusting the air/fuel ratio, said feedback control means changing the air/fuel ratio in said first operational mode in all combustion chambers of said engine based upon feedback from said sensor.

5,727,537

FUEL SUPPLY CONTROL SYSTEM FOR AN ENGINE

Norihisa Nakagawa, Numazu; Hiroki Matsuoka, Susono, and Michihiro Ohashi, Misima, all of Japan, assignors to Toyota Jidosha Kabushiki Kaisha, Aichi, Japan

Filed Oct. 25, 1995, Ser. No. 548,115
Claims priority, application Japan, Oct. 25, 1994, 6-260314
Int. Cl.[6] F02D *41/00;* **F02M** *23/00;25/00*
U.S. Cl. 123—698 **16 Claims**



1. A fuel supply control system for an engine having an intake passage, a throttle valve arranged in the intake passage, and an exhaust passage, the system comprising:

a fuel injector for feeding fuel into the engine;

fuel amount calculating means for calculating an amount of fuel to be injected by the fuel injector;

an air-fuel ratio sensor arranged in the exhaust passage for sensing an air-fuel ratio of the engine;

a first correcting means for correcting the amount of fuel by a feedback correction coefficient in accordance with output signals of the air-fuel ratio sensor to make the air-fuel ratio equal to a target air-fuel ratio, the feedback correction coefficient having a reference value;

a canister for temporarily storing fuel vapor therein, the canister being connected to the intake passage downstream of the throttle valve via a purge passage;

purge means for purging a purge gas containing fuel vapor from the canister, via the purged passage, into the intake passage;

initial value calculating means for calculating an initial value of a fuel vapor concentration coefficient, which represents a concentration of fuel vapor in air fed into the engine, in accordance with a deviation of the feedback correction coefficient from the reference value, which deviation is caused when the purging operation starts;

decrement calculating means for periodically calculating a decrement of the fuel vapor concentration coefficient caused when the purging operation is carried out, the decrement being determined in accordance with the fuel vapor concentration coefficient;

first concentration coefficient calculating means for calculating the fuel vapor concentration coefficient by periodically reducing the fuel vapor calculated by initial value calculating means, by the decrement calculated by the decrement calculating means;

second correcting means for reducing the amount of fuel in accordance with the fuel vapor concentration coefficient, when the purge gas is purged into the intake passage; and

control means for controlling second correcting means to carry out the correcting operation of second correcting means when the feedback correction coefficient is within a predetermined range, and to stop the correcting operation of second correcting means when the feedback correction coefficient is out of the predetermined range.

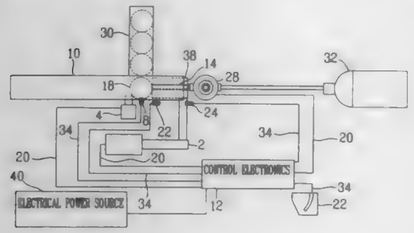
VOL 1208 ISS 3 MR 17 1998 UMI

5,727,538

ELECTRONICALLY ACTUATED MARKING PELLET PROJECTOR

Shawn Ellis, 1150 Hollowcreek La., Watkinsville, Ga. 30677, assignor to Shawn Ellis, Athens, Ga.

Filed Apr. 5, 1996, Ser. No. 628,850
Int. Cl.[6] F41A *19/00*; F41B *11/00*
U.S. Cl. 124—77 **7 Claims**



1. A gun for firing projectiles using fluid pressure, comprising;
a barrel;
a magazine for containing a plurality of projectiles and introducing said projectiles one at a time into said barrel into a firing position;
a bolt reciprocal in said barrel between a rearward position in which the bolt allows a said projectile to be deposited into said firing position, and a forward position in which said bolt blocks projectiles from entering said barrel from said magazine, said bolt including a through aperture to allow passage of compressed gas;
means for reciprocating said bolt;
a compressed gas source connectable to said barrel to fire a said projectile;
electronic control means for controlling said gun;
an electrically controlled valve means for controlling passage of gas from said source to said barrel;
electronic means to detect presence of a said projectile in said firing position and send a projectile presence signal to said electronic control means;
electronic means to detect whether said bolt is in said rearward or forward position and send a bolt position signal to said electronic control means;
a user actuatable trigger for sending an actuation signal to said electronic control means,
whereby, when said electronic control means detects that said projectile is in said firing position and said bolt is in said rearward position, and said electronic control means receives an actuation signal from said trigger, said electronic control means will send a signal to said bolt reciprocating means to move said bolt to said forward position,
and then when said electronic control means detects that said bolt is in said forward position, said electronic control means will send a signal to said valve to release gas into said barrel to fire a said projectile.

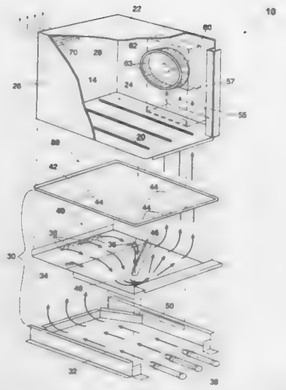
5,727,539

CONVECTION OVEN WITH MULTI-LEVEL HEATING CHAMBER

Robert C. Vroom, Fuquay-Varina, N.C., assignor to Middle by Marshall, Inc, Elgin, Ill.

Filed Nov. 25, 1996, Ser. No. 754,938
Int. Cl.[6] A21B *1/00*
U.S. Cl. 126—21 A **14 Claims**

1. A convection oven, comprising:
a) a cooking cavity having sidewalls, a ceiling and a floor;
b) a combustion chamber below said cooking cavity for heating said cooking cavity; said combustion chamber having a front portion, a middle portion, and a rear portion;



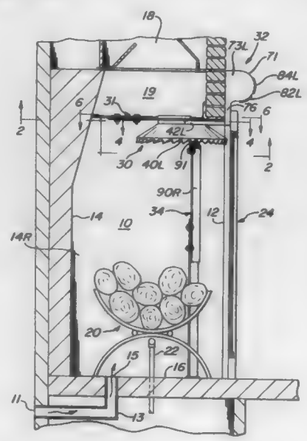
c) a blower fan for circulating air inside said cooking cavity;
d) a generally horizontal intermediate flow chamber having a rear portion, a middle portion, and a front portion; said intermediate flow chamber disposed between said cooking cavity and said combustion chamber; said intermediate flow chamber being in communication with both said combustion chamber and said blower fan so that said blower fan pulls heated air from said combustion chamber through said intermediate flow chamber and out into said cooking cavity; and
e) wherein the majority of said heated air flows substantially horizontally through said combustion chamber to the rear portion thereof, upwards into said intermediate flow chamber, substantially horizontally to the front portion of said intermediate flow chamber, and to said cooking cavity.

5,727,540

FIREPLACE HEAT EXCHANGER

H. Alfred Eberhardt, Shipps Landing, Unit 1023, 1100 S. Collier Blvd., Marco Island, Fla. 33937

Continuation-in-part of Ser. No. 384,832, Feb. 7, 1995, Pat. No. 5,572,986. This application Oct. 16, 1996, Ser. No. 734,367
Int. Cl.[6] F23L *1/00*
U.S. Cl. 126—515 **8 Claims**



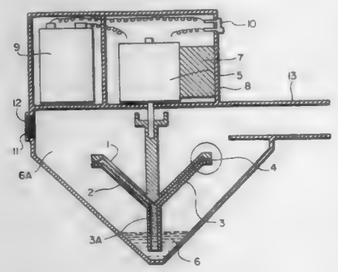
1. For use with a fireplace comprising a combustion chamber having a front opening and a back wall, a chimney flue connected to a top portion of the combustion chamber for discharging combustion gases therefrom, a hearth, heating means supported at the bottom of the combustion chamber for providing heating gases in response to combustion, and a fire screen assembly or the like for closing off the front opening of the fireplace, the combination comprising
a heat exchanger assembly including a heat exchanger,
means for mounting said heat exchanger at the top portion of the combustion chamber to extend horizontally across the location where the chimney flue connects with the top portion of the combustion chamber,
said heat exchanger comprising means defining a first heat exchange passage for the flow of room air across an upper portion of the combustion chamber, means defining a second heat exchange passage for the flow of combustion gases vertically up from said combustion chamber to the fireplace flue, said first and second heat exchange passages being in heat exchange relationship so that the hot combustion gases passing through said second heat exchange passage heat up the room air flowing through said first heat exchange passage, said second heat exchange passage being constructed and arranged to induce a vortex flow of the combustion gases about a vertical axis, and having a generally annular configuration encircling said first heat exchange chamber.

5,727,541

ATOMIZATION OF LIQUIDS

Stephen James Rowland, 52 Broadlands Avenue, Sheffield S19 6RL, England

Filed Jul. 24, 1996, Ser. No. 686,115
Int. Cl.[6] A61M *11/00*
U.S. Cl. 128—200.14 **11 Claims**



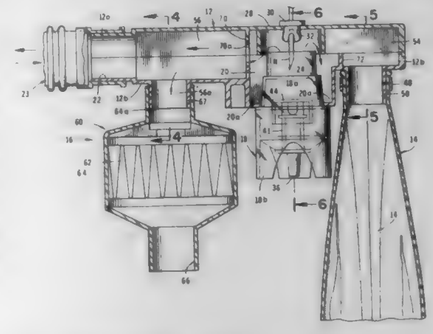
1. A medical nebuliser comprising a rotor formed by upper and lower plate members, a chamber for the rotor, a drive means for the rotor, and an air inlet extending to an air exit from the chamber, is characterised in that at least the upper plate member has a recess to cooperate with the inner face of the lower plate to form a chamber, the chamber communicating with the interior of a funnel extending from the lower plate to below the surface of liquid to be atomised, the upper and lower plates having rims and being secured together with their inner faces at their rims in tight abutting relationship, the upper plate having a boss with a bore for attachment to the drive means for the rotor, the bore having and air bleed passage, means including rotation of the rotor for drawing fluid up through the funnel into the chamber, the rotation causing the plates at the rims to be relaxed and to allow fluid to flow, between the plates to emerge at the periphery in droplets of a size determined by the rate of rotation of the rotor.

5,727,542

GENERAL PURPOSE AEROSOL INHALATION APPARATUS

Russell Wayne King, 4501 Littlejohn St., Baldwin Park, Calif. 91706

Continuation-in-part of Ser. No. 167,157, Dec. 16, 1993. This application Mar. 13, 1995, Ser. No. 402,847
Int. Cl.[6] A61M *16/10*
U.S. Cl. 128—200.18 **6 Claims**



1. An aerosol inhalation apparatus for delivering a medicament containing mist to a patient comprising:
(a) a housing having interconnected first, second and third chambers, said housing having a wall disposed intermediate said first and third chambers, said wall having an opening therein;
(b) nebulizing means connected to said housing for communication with said first chamber thereof for nebulizing a fluid medication containing the medicament to produce a particulate laden spray comprising larger particles of a size exceeding 5 microns and smaller particles of a size between 0.2 to 5 microns and for introducing said particulate laden spray into said first chamber;
(c) inhalation means connected to said housing for communication with said third chamber for permitting the patient to inhale particulate laden spray residing within said housing and to exhale particulate laden spray, into said third chamber;
(d) reservoir means connected to said housing in communication with said second chamber for receiving, as the patient exhales, said particulate-laden spray being generated by said nebulizing means, said reservoir means comprising a flexible, inflatable reservoir bag; and
(e) flow control means for controlling the extent of passage of particulate-laden spray between said first and third chambers during patient inhalation and exhalation, said flow control means comprising a valve member pivotally movable relative to said opening in said wall, said valve member having a first aperture therein to permit limited flow of said particulate-laden spray between said first and third chambers at all times.

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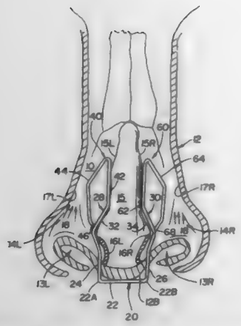
NASAL BREATHING DEVICE

Luigi Corsaro, 5 Webster Pl., Edison, N.J. 08817

Filed Feb. 7, 1997, Ser. No. 796,960
Int. Cl.[6] A61M *29/00*
U.S. Cl. 128—200.24 **6 Claims**

1. A nasal breathing device for insertion into the nasal passageways of humans for providing enhanced breathing of air through the user's nose, said nasal passageways each including a nasal septum wall, an inner wall, and an inner lower wall, said nasal passageways connected by a bridge, comprising:
a) a nasal device being formed and shaped from a single strand of wire into a bridge member and a pair of nasal engaging assemblies;

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b) said bridge member being U-shaped and having a horizontal member with first and second ends; first and second vertical arms being attached to said first and second ends of said horizontal member; and said bridge member used for engaging the bridge of the nose to prevent said nasal device from moving upwardly into the nasal passageways; and

c) said pair of nasal engaging assemblies each including a first wire member for engaging the nasal septum wall within each of the nasal passageways, a second wire member for engaging an inner wall of the nasal passageway, and a nasal stop member for engaging and resting on the nasal inner lower wall to prevent said nasal device from moving downwardly and out of the nasal passageway, said nasal engaging assemblies operating to maintain said nasal passageways in an open position for facilitating an increased amount of air flow through said nasal passageways.

straps for affixing said main body to a wearer's face

wherein said main body has at least one horizontal rib positioned substantially perpendicular to a vertical line through a center of said mask maintaining warmth in a wearer's nasal area, and

wherein a lower end portion of said main body is positioned between a wearer's upper lip and nostrils when the mask maintaining warmth in a wearer's nasal area is worn over a wearer's face with said horizontal ribs folded, and said lower end portion of said main body is positioned beneath a wearer's mouth when the mask maintaining warmth in a wearer's nasal area is worn over a wearer's face with said horizontal ribs spread.

5,727,545

GAS MIXING SYSTEM FOR AN ANAESTHETIC APPARATUS

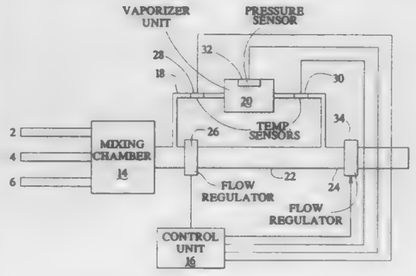
Georgios Psaros, Tullinge, Sweden, assignor to Siemens Elema AB, Solna, Sweden

Filed May 7, 1996, Ser. No. 643,890

Claims priority, application Sweden, Jun. 2, 1995, 9502033

Int. Cl.° A61M *16/00*

U.S. Cl. 128—203.12 **6 Claims**



1. A gas-mixing system for an anaesthetic apparatus for supplying a respiratory gas and an anaesthetic to a breathing system of a living subject comprising:

a vaporizer unit containing a liquid anaesthetic;

a source of respiratory gas;

a first gas line connected between said source of respiratory gas and said vaporizer unit for carrying a first flow of respiratory gas from the source of respiratory gas through the vaporizer unit, said vaporizer unit adding a specific amount of anaesthetic to said first flow of respiratory gas;

a connecting body disposed downstream of said vaporizer unit;

a second gas line connected between said source of respiratory gas and said connecting body for carrying a second flow of respiratory gas from said source of respiratory gas past said vaporizer unit, said first and second flows being combined in said connecting body to form a total flow of respiratory gas, with a sum of said first flow plus said second flow forming said total flow;

a first flow regulator means for regulating said total flow of respiratory gas;

a second flow regulator means connected for interacting with said second gas line to regulate said second flow of respiratory gas;

means for obtaining a reference value for said first flow of respiratory gas; and

control means for controlling said second flow regulator means for causing said second flow or respiratory gas to be substantially equal to a difference between said total flow of respiratory gas and said reference value.

5,727,544

MASK MAINTAINING WARMTH IN NASAL AREA

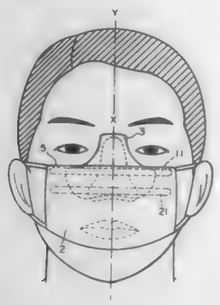
Masuo Miura, Hannoh, Japan, assignor to Cleantec Co., Ltd., Tokyo, Japan

Filed May 25, 1995, Ser. No. 450,627

Claims priority, application Japan, Jun. 3, 1994, 6-122888

Int. Cl.° A62B *18/08*

U.S. Cl. 128—201.13 **28 Claims**



1. A mask maintaining warmth in a wearer's nasal area, said mask comprising:

a main body in the form of a sheet;

a nasal area warmth-maintenance portion disposed at a central portion of said main body and covering at least a wearer's nasal area, said nasal area warmth-maintenance portion having a number end portion for covering at least an upper portion of a wearer's nasal area said upper end portion being provided so as to protrude from an upper end portion of said main body, said nasal area warmth-maintenance portion for increasing the temperature of at least a portion of a human head; and

5,727,546

POWDER INHALER WITH BREATH FLOW REGULATION VALVE

Alastair Robert Clarke, Shepshed; Clive Sleath, Mountsorrel, and Michael Trevor Shepherd, Quorn, all of United Kingdom, assignors to Fisons plc, Suffolk, United Kingdom

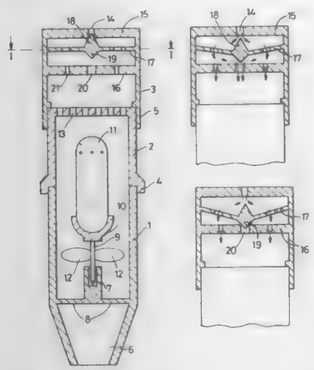
PCT No. PCT/GB94/01812, § 371 Date Jul. 17, 1996, § 102(e) Date Jul. 17, 1996, PCT Pub. No. WO95/05208, PCT Pub. Date Feb. 23, 1995

PCT Filed Aug. 18, 1994, Ser. No. 596,311

Claims priority, application United Kingdom, Aug. 18, 1993, 9317196; Aug. 18, 1993, 9317197; Aug. 18, 1993, 9317198

Int. Cl.° A61M *15/00;16/00;* **B05D** *7/14;* **B65D** *83/06*

U.S. Cl. 128—203.15 **25 Claims**



1. A device for the administration of an inhalation medicament, including a body defining a through-going air pathway having a longitudinal axis, an air inlet, an air outlet forming a mouthpiece, means for dispensing medicament into the pathway and air flow regulating means which includes a movable obstructing means adapted to reduce the cross-sectional area of the pathway at a location between the air inlet and the means for dispensing medicament, and biassing means, the obstructing means being biassed into a first resting position in which the cross-sectional area of the pathway is maximum and being adapted to move against the bias of the biassing means to a second position in which the cross-sectional area of the pathway is less than maximum in response to a pressure fall at the mouthpiece caused by inhalation, wherein the air flow regulating means further includes second movable obstructing means adapted to reduce the cross-sectional area of the pathway at a location between the air inlet and the means for dispensing medicament, and second biassing means, the second obstructing means being biassed into a first resting position in which the cross-sectional area of the pathway is minimum and being adapted to move against the bias of the biassing means to a second position in which the cross-sectional area of the pathway is more than minimum in response to a pressure fall at the mouthpiece caused by inhalation.

5,727,547

PRESENTING PART FETAL OXIMETER SENSOR WITH SECURING MECHANISM FOR PROVIDING TENSION TO SCALP ATTACHMENT

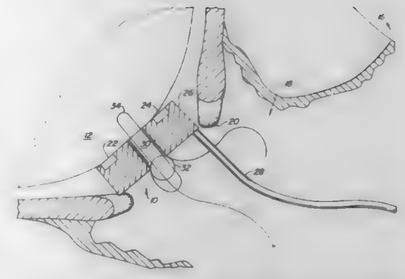
Mitchell Levinson, Pleasanton; Steven L. Nierlich, San Leandro, and Paul Mannheimer, Danville, all of Calif., assignors to Nellcor Puritan Bennett Incorporated, Pleasanton, Calif.

Filed Sep. 4, 1996, Ser. No. 706,482

Int. Cl.° A61B *5/00*

U.S. Cl. 128—633 **7 Claims**

1. A perinatal pulse oximeter sensor for application to a presenting part of a fetus and measurement of blood oxygen saturation, comprising:



a sensor head having a fetus engaging surface for engagement with the presenting part of said fetus;

light emitting means connected to said sensor head for emitting light of at least two wavelengths directed at said presenting part of said fetus;

light detecting means mounted in said sensor head for collecting light to be detected;

attachment means for passing through a tissue of the presenting part of said fetus; and

a securing and tensioning member, connected to said sensor head a distance away from said engaging surface, for securing and applying tension to said attachment means after it is passed through said tissue of said fetus.

5,727,548

STRIP ELECTRODE WITH SCREEN PRINTING

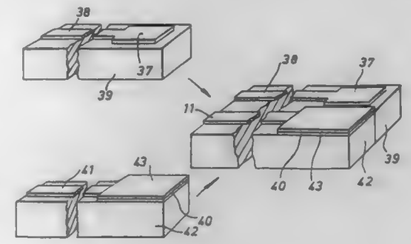
Hugh Allen Oliver Hill, Oxford; Irving John Higgins, Bedford; James Michael McCann, Oxford, all of Great Britain, and Graham Davis, Plainsborough, N.J., assignors to MediSense, Inc., Bedford, Mass.

Continuation of Ser. No. 281,237, Jul. 27, 1994, Pat. No. 5,509,410, which is a continuation of Ser. No. 905,504, Jun. 25, 1992, abandoned, which is a continuation of Ser. No. 762,657, Sep. 19, 1991, which is a continuation of Ser. No. 429,055, Oct. 30, 1989, which is a division of Ser. No. 2,120, Jan. 12, 1987, which is a continuation-in-part of Ser. No. 607,599, May 7, 1984, abandoned, which is a continuation-in-part of Ser. No. 590,864, Mar. 19, 1984. This application Jun. 6, 1995, Ser. No. 469,205

Claims priority, application United Kingdom, May 5, 1983, 8312261; May 5, 1983, 8312262; Jun. 6, 1983, 8323799; Dec. 16, 1983, 8333644; Jan. 11, 1984, 8400650; Feb. 29, 1984, 8405262; Feb. 29, 1984, 8405263

Int. Cl.° A61B *5/00*

U.S. Cl. 128—637 **8 Claims**



1. A method of making a single use disposable electrode strip for attachment to signal readout circuitry of a sensor system to detect a current representative of a compound in a liquid sample, the strip comprising:

a) an elongated support adapted for releasable attachment to said readout circuitry.

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b) a first conductor extending along said support and comprising a conductive element for connection to said readout circuitry; and

c) an active electrode on said support in contact with said first conductor, said active electrode comprising, in a single printed layer on said support, an admixture of an enzyme capable of catalyzing a reaction involving a substrate for said enzyme, a conductive material, and a mediator capable of transferring electrons transferred between said enzyme-catalyzed reaction and said first conductor to create a current representative of the activity of said enzyme and representative of said compound;

the method comprising:

a) supplying an ink comprising said admixture of said enzyme, said conductive material, and said mediator; and

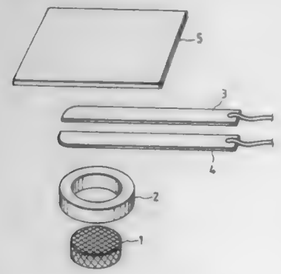
b) printing said active electrode by applying said ink to said support in a single layer in contact with said first conductor.

5,727,549

MULTI PURPOSE SENSOR

Shin Suda, and Toru Kurata, both of Tokyo, Japan, assignors to Nihon Kohden Corporation, Tokyo, Japan

Filed Sep. 20, 1995, Ser. No. 531,073
Claims priority, application Japan, Sep. 22, 1994, 6-227676
Int. Cl.° A61B 5/05
U.S. Cl. 128—640 7 Claims



1. A multi-purpose sensor comprising:

a fibrous conductive material having a first face operative to contact a surface of a living body, said first face being devoid of any electrodes, is adapted to face and a second face which away from the living body;

a pair of electrodes for detecting a movement in the living body as the change in an electric resistance of said fibrous conductive material, said pair of electrodes being attached to said second face of said fibrous conductive material; and

a fixing member attached to at least one of said second face of said fibrous conductive material and said pair of electrodes, said fixing member being operative to fix said fibrous conductive material on the surface of the living body.

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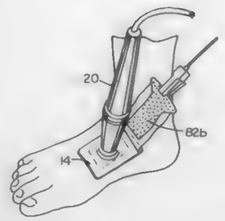
DUAL PURPOSE ULTRASONIC BIOMEDICAL COUPLANT PAD AND ELECTRODE

David A. Montecalvo, Plymouth, Minn., assignor to LecTec Corporation, Minnetonka, Minn.

Filed Apr. 9, 1996, Ser. No. 629,561
Int. Cl.° A61B 5/04;8/00
U.S. Cl. 128—640 10 Claims

1. A dual purpose biomedical device comprising,

a solid flexible ultrasonic couplant sheet formed from an electrically conductive hydrogel having an upper surface that is exposed during use for allowing direct contact between an ultrasonic generator and the hydrogel sheet,



the hydrogel sheet has a lower surface for being placed against the skin of a patient whereby the hydrogel sheet transmits ultrasonic waves to and from the body of the patient,

means operatively associated with the hydrogel sheet for adhering the hydrogel sheet to the skin of the patient, and

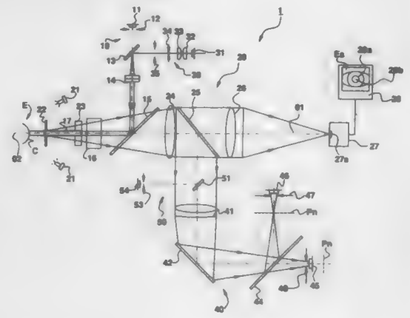
a removable and replaceable electrically conductive flexible sheet supported upon the upper surface of the hydrogel sheet for establishing electrical contact with the patient through the hydrogel sheet when lowered into contact with the hydrogel sheet and being removable therefrom for allowing the ultrasonic generator to contact the hydrogel sheet.

5,727,551

NON-CONTACT TONOMETER

Akinari Takagi, Tokyo, Japan, assignor to Topcon Corporation, Tokyo, Japan

Filed Jan. 30, 1996, Ser. No. 593,575
Claims priority, application Japan, Jan. 30, 1995, 7-012254
Int. Cl.° A61B 3/16
U.S. Cl. 128—648 20 Claims



1. An apparatus for measuring an intraocular pressure of a subject eye, comprising:

an injecting device configured to deform a cornea of said subject eye by injecting a substance at said cornea over a first predetermined time period in a range from a first injecting pressure to a second injecting pressure;

a projecting device configured to project light at said cornea;

a light receiving device configured to receive reflected light from said cornea and to output a light signal as a result thereof;

a memory configured to store a reference curve, said reference curve corresponding to ideal received light intensities obtainable within a second predetermined time period;

a correlation calculating device connected to said light receiving device and said memory, said correlation calculating device configured to calculate a correlation between said reference curve and a light changing curve which corresponds to a curve based on the light signal output by said light receiving device within the first predetermined time period; and

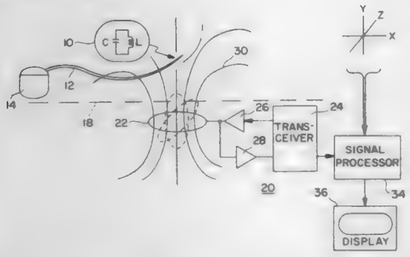
an intraocular pressure measuring device connected to said correlation calculating device and configured to measure said intraocular pressure of said subject eye on a basis of said correlation.

5,727,552

CATHETER AND ELECTRICAL LEAD LOCATION SYSTEM

Terence G. Ryan, Palm Coast, Fla., assignor to Medtronic, Inc., Minneapolis, Minn.

Filed Jan. 11, 1996, Ser. No. 584,872
Int. Cl.° A61B 5/00
U.S. Cl. 128—653.1 10 Claims



1. A method of locating a catheter in a patient's body comprising the steps of:

providing a passive resonant circuit having a resonant oscillating frequency in a catheter distal tip region;

generating a magnetic field outside the patient's body at the resonant oscillating frequency encompassing the patient's body and the implanted catheter for a predetermined time to induce a current in and cause the resonant circuit to store energy and oscillate;

terminating the generated field, whereby the resonant circuit continues to oscillate as the stored energy is dissipated;

detecting the continued oscillation of the resonant circuit; and

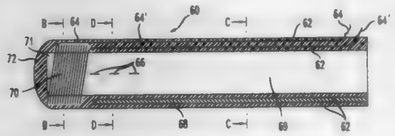
determining the location of the catheter distal tip as a function of the re-radiated magnetic field produced by the continued oscillation of the resonant circuit.

5,727,553

CATHETER WITH INTEGRAL ELECTROMAGNETIC LOCATION IDENTIFICATION DEVICE

Saad A. Saad, 3 Kimball Turn, Holmdel, N.J. 07733

Continuation-in-part of Ser. No. 621,568, Mar. 25, 1996, abandoned. This application Apr. 3, 1996, Ser. No. 626,993
Int. Cl.° A61B 6/12
U.S. Cl. 128—653.1 17 Claims



1. A closed end catheter device, comprising:

a tubular wall having a proximal end and a closed distal end;

a pair of conductive leads incorporated into the tubular wall, the pair of leads protruding near the proximal end and extending towards the distal end;

a coil of wire incorporated into the distal end of the tubular wall, the coil of wire being coupled to the pair of leads and comprising a plurality of circular conductive windings; and

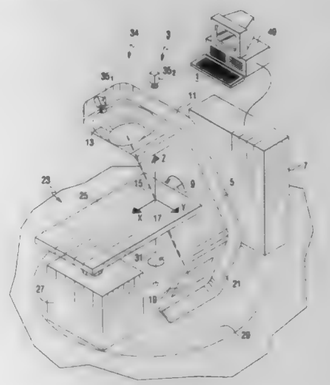
a solid core of magnetically permeable material located within the coil of wire.

5,727,554

APPARATUS RESPONSIVE TO MOVEMENT OF A PATIENT DURING TREATMENT/DIAGNOSIS

Andre M. Kalend, Monroeville; Joel Greenberger, Sewickley; Karun B. Shimoga, Pittsburgh; Charalambos N. Athanassiou, Pittsburgh, and Takeo Kanade, Pittsburgh, all of Pa., assignors to University of Pittsburgh of the Commonwealth System of Higher Education, Pittsburgh, Pa.

Filed Sep. 19, 1996, Ser. No. 715,834
Int. Cl.° A61B 6/00
U.S. Cl. 128—653.1 22 Claims



1. Apparatus responsive to movement of a patient positioned on a patient positioning assembly during treatment/diagnosis, said apparatus comprising:

camera means generating digital image signals representing an image of at least one passive fiducial having a lambertian surface on said patient; and

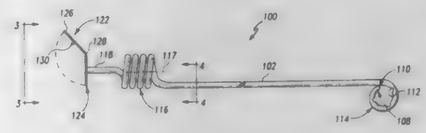
processing means comprising means responsive to actual shape, appearance and lighting conditions of said at least one passive fiducial having a lambertian surface in said image represented by said digital image signals to determine successive positions of said at least one passive fiducial having a lambertian surface, means repetitively determining movement of said at least one passive fiducial having a lambertian surface from said successive positions, and means generating an output in response to predetermined values of said movement.

5,727,555

INDWELLING CATHETER

Peter G. Chait, Thornhill, Canada, assignor to Cook Incorporated, Bloomington, Ind.

Filed Jun. 18, 1996, Ser. No. 665,395
Int. Cl.° A61B 6/00
U.S. Cl. 128—658 21 Claims



1. An indwelling catheter, comprising:

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an elongate body having a proximal end, a distal end and an interior lumen therethrough;

an external flange coupled to the proximal end; and

a plurality of helical coils formed in the body between the proximal and distal ends;

wherein the plurality of helical coils may be straightened out by placing a stiffener into the interior lumen in order to facilitate placement of the catheter between an external surface of a patient and an interior cavity thereof; and

wherein at least one of the plurality of helical coils automatically reforms when the stiffener is removed from the interior lumen after placement of the catheter, such that the flange is held against the external surface of the patient and the at least one of the plurality of helical coils is held against an interior surface of the cavity.

5,727,556

METHOD FOR PAIN THERAPY AND/OR FOR INFLUENCING THE VEGETATIVE NERVOUS SYSTEM

Gosbert Weth, Coburger Strasse 6, and Gunter Wilhelm, Flinzweg 10, both of D-91056 Erlangen, Germany

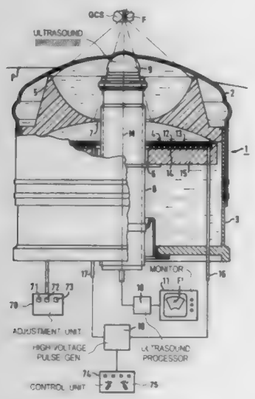
PCT No. PCT/DE94/00133, § 371 Date Aug. 8, 1995, § 102(e) Date Aug. 8, 1995, PCT Pub. No. WO94/17771, PCT Pub. Date Aug. 18, 1994

PCT Filed Feb. 9, 1994, Ser. No. 500,950

Claims priority, application Germany, Feb. 10, 1993, 43 03 830.1; Dec. 3, 1993, 43 41 323.4

Int. Cl.° A61N *7/00*

U.S. Cl. 128—660.03 **11 Claims**



1. A method for medical therapy comprising the steps of:

selecting a neurally sensitive body region of a subject, said neurally sensitive body region comprising a nerve center; and

non-destructively charging said neurally sensitive body region with at least one focused pulse-like wave for effecting a therapeutical effect of the group consisting of at least alleviating pain in a region within the body of said subject associated by transmission of stimuli with said neurally sensitive body region and influencing a part of the autonomic nervous system of said subject associated by transmission of stimuli with said neurally sensitive body region.

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Patent Not Issued For This Number

5,727,558

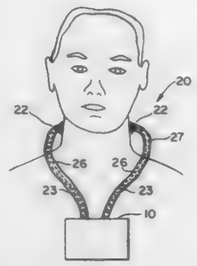
NONINVASIVE BLOOD PRESSURE MONITOR AND CONTROL DEVICE

A-Hamid Hakki; Said I. Hakky, both of 8547 Merrimoor Blvd., E., Largo, Fla. 34647-3145, and Perry B. Hudson, 2225 Park St., North, St. Petersburg, Fla. 33710

Filed Feb. 14, 1996, Ser. No. 601,259

Int. Cl.° A61B *5/02*

U.S. Cl. 128—672 **9 Claims**



9. A therapeutic method of noninvasively monitoring and controlling blood pressure in a patient which comprises the steps of:

monitoring said blood pressure;

detecting a rise in said blood pressure;

applying a programmed stimulus of ultrasonic waves to the baro-receptors in the arterial system of said patient in a manner to alleviate said raise in blood pressure in response to detection of such rise in said blood pressure.

5,727,559

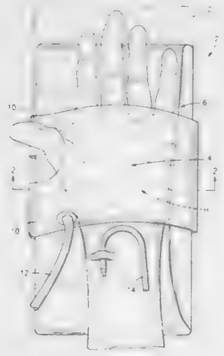
METHOD AND DEVICE FOR INCREASING HAND VASCULAR RESISTANCE DURING BLOOD PRESSURE MEASUREMENT

James M. Hynson, 1674 32nd Ave., San Francisco, Calif. 94122, and Jeffrey A. Katz, 1440 Madera Way, Millbrae, Calif. 94030

Continuation of Ser. No. 297,301, Aug. 29, 1994, abandoned. This application Sep. 9, 1996, Ser. No. 708,782

Int. Cl.° A61B *5/00*

U.S. Cl. 128—672 **2 Claims**



1. A device which is adapted to be fitted onto a patient's hand during periods of measurement of the patient's blood pressure, said device comprising:

a) a first part for covering the back of the patient's hand;

b) a second part adjacent to said first part for covering the palm of the patient's hand;

c) said first and second parts being connectable to each other by a releasable closure which can be opened and reclosed, whereby the device can encircle the patient's hand;

d) an inflatable chamber is said device, said chamber overlying the patient's hand when said device encircles the patient's hand;

e) said second part of said device being sized so as to have a first edge for overlying a part of the patient's hand which leaves the patient's wrist uncovered by the device when the device is fitted onto the patient's hand; and said second part also being sized so as to have a second edge for overlying a part of the patient's hand which leaves the patient's fingers uncovered by the device when the device is fitted onto the patient's hand;

f) means for allowing pressurization of the inflatable chamber so as to cause said first and second parts of said device to uniformly compress the patient's hand to a degree necessary to occlude blood flow in the patient's hand so as to shut off blood flow to the patient's fingers; and

g) an opening in said device positioned for receiving the patient's thumb when the device is fitted onto the patient's hand.

5,727,560

BLOOD PRESSURE MEASURING APPARATUS

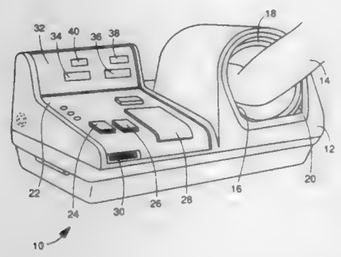
Toshihiko Ogura, Inuyama, Japan, assignor to Colin Corporation, Komaki, Japan

Filed Sep. 17, 1996, Ser. No. 714,850

Claims priority, application Japan, Sep. 20, 1995, 7-241093

Int. Cl.° A61B *5/06*

U.S. Cl. 128—681 **18 Claims**



1. An apparatus for measuring a blood pressure value of a living subject, comprising:

a blood pressure measuring device which measures, in each of a plurality of measuring operations, at least one actual blood pressure value of the subject including a systolic blood pressure value of the subject;

a first storing means for storing a set of provisional blood pressure data which represents at least one actual blood pressure value measured by said blood pressure measuring device in each of a plurality of measuring operations within a predetermined time duration, thereby storing a plurality of sets of provisional blood pressure data corresponding to said plurality of measuring operations within said time duration; and

a second storing means for selecting one of said sets of provisional blood pressure data such that the selected one set of provisional blood pressure data represents at least one actual blood pressure value including a lowest systolic blood pressure value of the respective systolic blood pressure values represented by the sets of provisional blood pressure data, and storing said selected one set of provisional blood pressure data as a set of proper blood pressure data representing at least one proper blood pressure value obtained within said time duration.

5,727,561

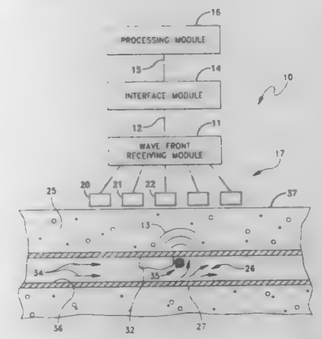
METHOD AND APPARATUS FOR NON-INVASIVE DETECTION AND ANALYSIS OF TURBULENT FLOW IN A PATIENT'S BLOOD VESSELS

Norman L. Owsley, Gales Ferry, Conn., assignor to The United States of America as represented by the Department of the Navy, Washington, D.C.

Filed Apr. 23, 1996, Ser. No. 641,049

Int. Cl.° A61B *5/026*

U.S. Cl. 128—691 **21 Claims**



1. Apparatus for the diagnosis of pathologic turbulent arterial blood flow in a patient comprising:

wave sensing means positioned at a plurality of spaced sites on the patient for generating a corresponding plurality of space time signals responsive to energy waves propagated from a site of arterial blood flow;

interfacing means responsive to each of the space time signals from said wave sensing means for generating a vectorized data structure corresponding to the energy waves, said interfacing means including a frequency domain transform means for transforming desired portions of said plurality of said space time signals into a continuous sequence of time sampled sensor data; and

processing means responsive to the vectorized data structures from said interfacing means for generating a report signal indicating the temporal waveform of the energy wave propagating from the site of turbulent arterial blood flow, the location and spatial configuration of that site.

5,727,562

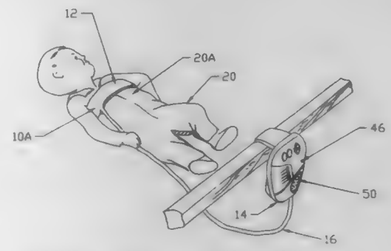
PNEUMATICALLY SENSED RESPIRATION MONITOR & METHOD

Gregory S. Beck, 8230 E. Alpine Ct., Anaheim, Calif. 92808

Filed Jul. 11, 1996, Ser. No. 679,260

Int. Cl.° A61B *5/08*

U.S. Cl. 128—721 **14 Claims**



1. A respiration monitor, including an alarm mechanism,

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a sensing element including a pressure chamber filled with gas, said sensing element being adapted to be placed in contact with a breathing subject, with the pressure in the chamber increasing as the subject inhales and decreasing as the subject exhales in accordance with a normal cycle of inhalation and exhalation,

a pressure switch in communication with the pressure chamber, said switch changing from a first state to a second state as the subject exhales and changing from the second state to the first state as the subject inhales, and

a timing circuit connected to the switch and including the alarm mechanism, said timing circuit activating the alarm mechanism when the switch fails to change from the second state to the first state within a predetermined threshold period,

said chamber having at least one gas port which places the chamber in communication with ambient air pressure, so that within a pressure equalization time interval the pressure within the chamber equalizes to that of ambient air pressure and the switch changes from the second state to the first state, said port being sized so that said pressure equalization time interval is longer than the normal cycle of inhalation and exhalation of the subject but shorter than said predetermined threshold period and being sufficiently restrictive so that changes in pressure within the gas chamber are detected to cause the switch to change states.

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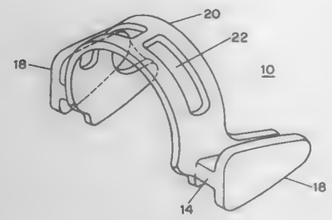
Patent Not Issued For This Number

5,727,564

SNORE REDUCING DEVICES WITH MOLAR WEDGES AND ROOF ARCH

Janine E. Yannalfo, 10 Jennifer Pl., Glen Rock, N.J. 07452

Filed Oct. 2, 1996, Ser. No. 725,132
Int. Cl.[6] A61F *5/37*
U.S. Cl. 128—846 **12 Claims**



1. A snore reducing device, removably positionable in the mouth of a user, comprising:

a left gripping portion of wedge shape with rear thickness less than front thickness and suitable for gripping between upper and lower molars on the left side of the user's mouth;

a right gripping portion of wedge shape with rear thickness less than front thickness and suitable for gripping between upper and lower molars on the right side of the user's mouth; and

an arch section extending upward from and between said left and right gripping portions and shaped to fit adjacent to upper elements of the user's mouth;

said left and right gripping portions each of unitary construction formed of one piece of deformable material suitable for compliant shaping to fit a user's molar surfaces to aid in position retention during use.

5,727,565

KISSING SHIELD

Deloris Gray Wood, R.R. 5, Box 134, Salem, Mo. 65560

Continuation of Ser. No. 980,354, Nov. 23, 1992, abandoned, which is a continuation-in-part of Ser. No. 776,196, Oct. 15, 1991, abandoned, which is a continuation-in-part of Ser. No. 589,371, Sep. 28, 1990, abandoned. This application May 26, 1995, Ser. No. 451,652
Int. Cl.[6] A61F *11/00*
U.S. Cl. 128—857 **21 Claims**



1. An apparatus for preventing the exchange of microorganisms between two persons engaged in the act of kissing, the apparatus comprising:

a frame so dimensioned as to outline the mouth of a person, wherein the frame is a loop formed into a heart shade such that each lobe of the heart shape outlines a corresponding cheek area of the two persons kissing, the noses of the two persons kissing are positioned between the lobes of the heart shape, and the point of the heart shape extends below the chins of the two persons kissing;

a thin, flexible membrane carried by the frame, the membrane being impervious to microorganisms; and

a handle extending from the frame and adapted for being gripped to support the frame and membrane between the mouth of the two persons;

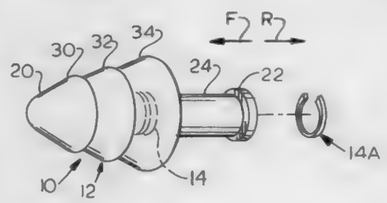
wherein the membrane prevents exchange of microorganisms between the two persons while the two persons are engaged in the act of kissing.

5,727,566

TRACKABLE EARPLUG

Howard S. Leight, San Diego, Calif., assignor to Howard S. Leight and Associates, Inc., San Diego, Calif.

Filed Dec. 20, 1996, Ser. No. 770,407
Int. Cl.[6] A61F *11/00*
U.S. Cl. 128—857 **10 Claims**



1. A detectable earplug, comprising:

an earplug body of a resilient polymer, with a front portion constructed to fit in a person's ear to block noise;

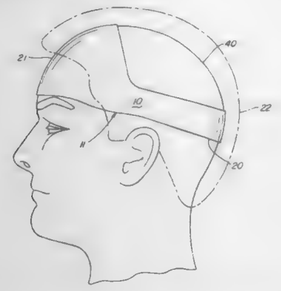
detectable band means for detection, which extends by more than 180° around said earplug body and which is held to a location on said earplug body, to thereby enable detection of the earplug.

5,727,567

ARTIFICIAL SKIN CONSTRUCTION

Ann J. Carnaby, 54 Tide Mill Rd., Hampton, N.H. 03842, and Melvin E. Prostkoff, 9 Garrison La., Madbury, N.H. 03820

Filed Dec. 27, 1995, Ser. No. 580,452
Int. Cl.[6] A61F *9/00*
U.S. Cl. 128—857 **10 Claims**



1. A cosmetic artificial skin construction for use in overlying a body restorative device applied to the body of an individual, said construction having a skin coloration,

said construction having an outer surface and an inner surface and comprising a base layer with at least a first and second layer overlying said base layer to form a composite sandwich,

said first and second layers each comprising a polymeric material which permits see-through visibility at least to said base layer,

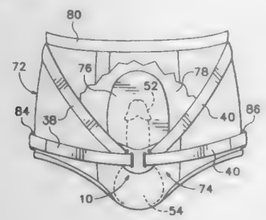
at least one of said first and second layers having a predetermined colorant designed to permit interaction of said first and second layers with each other to visually present an artificial skin appearance closely matched to the skin coloration of said individual which said construction is applied.

5,727,568

MALE INCONTINENCE TREATMENT DEVICE

G. Craig Kiser, 10771 NW. Bretano La., McMinnville, Oreg. 97128

Filed Nov. 1, 1996, Ser. No. 742,458
Int. Cl.[6] A61F *5/48*
U.S. Cl. 128—885 **16 Claims**



1. A male incontinence treatment device for preventing the flow of urine through the urethra of a wearer, comprising:

a flow-restricting device for pressing the penis against the pubic bone of a wearer, whereby the urethra is compressed to a closed condition; said flow-restricting device including a central body portion, a post extending rearwardly therefrom for constricting the wearer's urethra to its closed condition, wherein said post has a concave urethra-bearing surface thereon; and

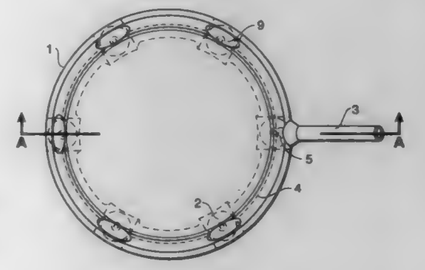
a fixing mechanism for holding said flow-restricting device in place against the base of the penis.

5,727,569

SURGICAL DEVICES FOR IMPOSING A NEGATIVE PRESSURE TO FIX THE POSITION OF CARDIAC TISSUE DURING SURGERY

Federico J. Benetti, Rosario-Santa Fe, Argentina; Robert G. Matheny, Carmel, Ind., and Charles S. Taylor, San Francisco, Calif., assignors to Cardiothoracic Systems, Inc., Portola Valley, Calif.

Filed Feb. 20, 1996, Ser. No. 603,328
Int. Cl.[6] A61B *19/00*
U.S. Cl. 128—898 **7 Claims**



1. A method to minimize the motion of an area of tissue at the outer surface of the beating heart proximate to a coronary artery comprising:

contacting the outer surface of the beating heart with an instrument, at said target area proximate to a coronary artery, wherein said instrument is comprised of an annular housing having a plurality of suction ports disposed therein and wherein said housing is further shaped to apply negative pressure at several points about the target area and means for introducing negative pressure to the suction ports,

manipulating the position of the instrument to rest each of said plurality of suction ports against the outer surface of the beating heart,

applying a negative pressure to the beating heart, wherein the means for introducing the negative pressure to the suction ports communicates the negative pressure to said plurality of suction ports connected at several points over the outer surface of the beating heart proximate to the portion of the heart containing said artery, and wherein the relative motion of an area of tissue of the beating heart is thereby minimized.

5,727,570

METHOD OF TREATING HYPERLIPIDEMIA IN HUMANS

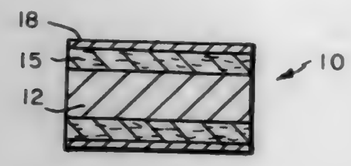
Anton H. Clemens, 5854 Schumann Dr., Madison, Wis. 53711

Filed Nov. 14, 1996, Ser. No. 749,333
Int. Cl.[6] A61B *19/00*
U.S. Cl. 128—898 **20 Claims**

1. A method of treatment of humans suffering from hyperlipidemia which comprises administering, by a pharmaceutically effective mode, a drug composition selected from the group consisting of opiate antagonists, and drugs which substantially equally reduce the amounts of catecholamines bound to all catecholamine binding sites.

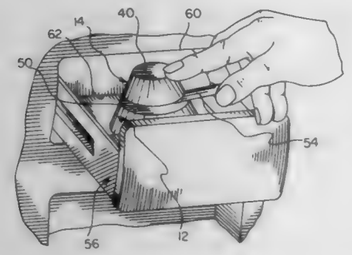
VOL 1208 ISS 3 MR 17 1998 UMI

5,727,571
COMPONENTS FOR SMOKING ARTICLES AND PROCESS FOR MAKING SAME
Robert Leonard Meiring, Winston-Salem; Vernon Brent Barnes, Clemmons; Max Warren Cole, Winston-Salem; Keith Stanley Moser, Mocksville, and Jeffrey Kane Rogers, Winston-Salem, all of N.C., assignors to R.J. Reynolds Tobacco Co., Winston-Salem, N.C.
Continuation of Ser. No. 856,239, Mar. 25, 1992, abandoned. This application Sep. 15, 1994, Ser. No. 306,929
Int. Cl.[6] A24C *5/18*
U.S. Cl. 131—194 **22 Claims**



1. A method for continuous formation of a fuel component for a smoking article, the method comprising:
continuously extruding a combustible composition to form extrudate having a preselected shape, continuously wrapping the extruded composition with a compressible, resilient retaining layer of fibrous web material to form a composite member, and bonding the retaining layer to the combustible composition.

5,727,572
CIGARETTE EXTINGUISHING DEVICE
Glenn Freeman Gillie, 5717 Hawthorne La., Portsmouth, Va. 23703
Filed Feb. 18, 1997, Ser. No. 802,786
Int. Cl.[6] A24F *19/14*
U.S. Cl. 131—235.1 **10 Claims**



1. A new and improved cigarette extinguishing device for crushing the lit end of a cigarette comprising in combination:
an extinguishing means having a snuff pad and an top for mechanically compressing a burning end of a cigarette therebetween to extinguish combustion therewithin, the snuff pad being generally conical in shape with an outer periphery, the snuff pad having a flat upper portion interconnected to the outer periphery, the flat upper portion having a post projecting upwardly therefrom and symmetrically spaced from the outer periphery, the snuff pad having a flat lower portion with an opening defining a cavity within the snuff pad;
a bore hole being passed through the post and exiting into the cavity of the snuff pad, the bore hole having an increasing diameter with the greatest portion of the diameter being near a free end of the post, the greatest portion of the diameter of the bore hole receiving a bias spring, the bias spring having a portion projecting a distance above the free end of the post;
the top of the extinguishing means being generally conical in shape, the top having a flat upper portion, a flat lower portion and an outer periphery, a post receiving opening being centrally positioned within the top, a threaded opening being within the top and adjacent the post receiving opening, the post receiving opening being in receipt of the post and spring of the snuff pad, the top when seated on the post being capable of downward movement toward the snuff pad when an individual applies pressure to the flat upper portion of the top, the top when seated on the post being capable of upward movement by uncoiling of the bias spring when the individual releases the pressure on the flat upper portion of the top, the flat lower portion of the top and the flat upper portion of the snuff pad being flush when the top being pressed downwardly by the individual; and
an ashtray means for receiving ashes from the burning end of the cigarette extinguished between the snuff pad and the top, the ashtray means having a base wall and a perimeter side wall projecting upwardly from an outer periphery of the base wall, the base wall of the ashtray means receiving the flat lower portion of the snuff pad to allow use of the extinguishing means within the ashtray means.

5,727,573
SMOKER'S ARTICLE
Walter M. Meier, Truttikon; Jost Wild, Porrentruy, and Francis P. Scanlan, Courgenay, all of Switzerland, assignors to F. J. Burrus SA, Boncourt, Switzerland
Filed Apr. 29, 1996, Ser. No. 639,444
Claims priority, application European Pat. Off., May 3, 1995, 95810294
Int. Cl.[6] A24D *3/06*
U.S. Cl. 131—341 **17 Claims**

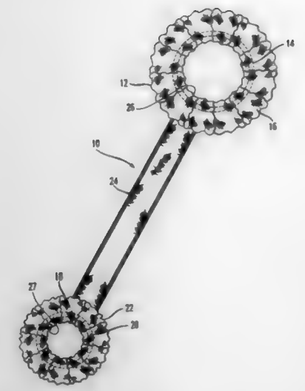
1. A smoker's article comprising a filter, a tobacco rod and a wrapper, the tobacco rod containing a catalyst free of catalytically active zinc, platinum, palladium, and silver and consisting of a hydrated zeolite or a zeolite-like molecular sieve or of mixtures of different members, wherein said zeolite-like material has a thermally stable structure and is defined by the following formula:

$$M_m M_n' M''_p [a' AlO_2 \cdot b' SiO_2 \cdot c' TO_2] q' Q$$

wherein M is a monovalent cation
M' is a divalent cation
M" is a trivalent cation
a', b', c', n', m', p and q' are numbers which reflect the stoichiometric proportions,
m', n', p or c' can also be zero,
Al and Si are tetrahedrally coordinated Al and Si atoms,
T is a tetrahedrally coordinated atom being able to replace Al or Si and
Q is a sorbate capable of passing the pore system of the zeolite.

5,727,574
METHOD AND APPARATUS OF BRAIDING HAIR
Carol E. Frye, 210 National Union Blvd., Little Egg Harbor, N.J. 08087
Filed Aug. 6, 1996, Ser. No. 692,775
Int. Cl.[6] A45D *7/00*
U.S. Cl. 132—210 **2 Claims**

1. A method for braiding hair comprising the steps of:
selecting a braiding aid having an elongate linear flexible cloth member having a first end and a second end, said first end of said elongate linear flexible body member having a first tie comprising an elastic flexible resilient member disposed within a tubular cloth sleeve member so as to form a loop, said elongate linear flexible member having a second tie secured to said second end of said elongate member, said second tie having an elastic, flexible, resilient member disposed within a tubular cloth sleeve member to form a loop;



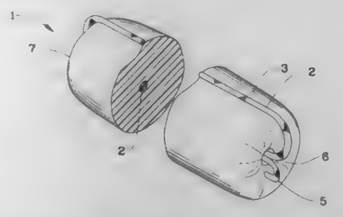
expanding said first tie member of said braiding aid;
passing all hair to be braided through said first tie;
separating hair to be braided into two strands;
interweaving said two strands of hair with said elongate linear flexible cloth member to form a braid;
securing the end of said braid with said second tie by passing the end of said braid through an aperture formed in said second tie and overlapping said second tie to form a closure.

5,727,575
HAIR SECURING DEVICE
Rik Rontal, 803 Pinta Rd., Arroyo Grande, Calif. 93420
Filed Jun. 13, 1996, Ser. No. 664,955
Int. Cl.[6] A45D *24/00*
U.S. Cl. 132—200 **15 Claims**



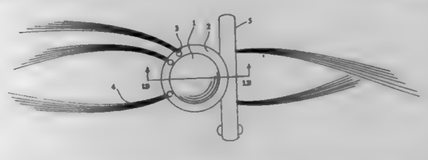
1. A human ponytail hair securing device comprising:
a fabric tube formed from a fabric panel having a width which wraps around said ponytail for receiving and enclosing a human ponytail having an interior cavity and a top edge; and
a comb for removably anchoring said fabric tube to said ponytail connected to the interior of said tube and affixed proximate to the top edge of said fabric tube, said comb having a width no more than ½ the width of the top edge of the fabric panel, whereby the panel forms multiple wraps around said ponytail.

5,727,576
MULTI-PURPOSE HAIRSTYLING DEVICE
Mahire Eren, 20 St. Andrews Rd., Severna Park, Md. 21146
Filed Jan. 29, 1996, Ser. No. 593,429
Int. Cl.[6] A45D *2/00;37/00*
U.S. Cl. 132—221 **20 Claims**



1. A hairstyling device including:
an elongated resilient material of essentially cylindrical shape with first and second ends having a first end surface and a second end surface and an outer surface;
a semi-rigid loop extending into said elongated resilient material for bending and shaping said elongated resilient material;
said semi-rigid loop being soft enough to be bent into different shapes but stiff enough to retain said different shapes;
said semi-rigid loop extending out from said elongated resilient material first end and extending adjacent and along and essentially in contact with said first end surface and along and essentially in contact with said outer surface and along and essentially in contact with said second end surface and into said elongated resilient material second end, said semi-rigid loop length outside said elongated resilient material being essentially the same as the shortest distance along said first end surface said outer surface and said second end surface so that by pressing said elongated resilient material, hair can be placed between and clamped between said elongated resilient material and said semi-rigid loop due to the return force exerted by said resilient material against said semi-rigid loop;
said elongated resilient material being a porous compressible foam material.

5,727,577
OPTICAL ORNAMENT
James M. Post, 303 NE. 8th Ave., Gainesville, Fla. 32601
Continuation-in-part of Ser. No. 507,891, Jul. 27, 1995, Pat. No. 5,573,017. This application Jun. 3, 1996, Ser. No. 657,085
Int. Cl.[6] A45D *8/12*
U.S. Cl. 132—275 **18 Claims**



1. An optical ornament requiring no added electrical energy for operation comprising:
a) means for fastening the ornament to a person's hair, clothing, shoes, body, to an object, or to an animal;
b) at least one light receiving means attached to said fastening means in such a way that light in the surroundings of the person, animal, or object to which said ornament is fastened will impinge on the proximal end(s) of at least one optical fiber;
c) said at least one optical fiber attached to said fastening means such that the proximal end(s) of said optical fiber(s) is/are situated such that light enters said proximal end(s) of the optical fiber(s) and is conducted from said proximal end(s)

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towards the distal end(s) of said optical fiber(s) such that the conducted light emanates from said distal end(s); and

d) a housing which acts as a support structure for maintaining said light receiving means and said optical fiber(s) in appropriate juxtaposition with respect to each other and the light in the surroundings of said person, animal, or object to which said ornament is attached so that the light emanating from the distal end(s) of said optical fiber(s) is displayed.

5,727,578

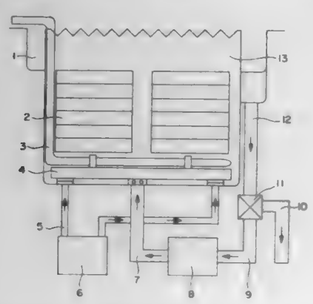
APPARATUS FOR THE TREATMENT AND DRYING OF SEMICONDUCTOR WAFERS IN A FLUID

Robert Roger Matthews, Richmond, Calif., assignor to Legacy Systems, Inc., Fremont, Calif.

Continuation of Ser. No. 507,735, Jul. 26, 1995, abandoned, which is a division of Ser. No. 124,251, Sep. 22, 1993, abandoned, which is a continuation of Ser. No. 92,523, Jul. 16, 1993, Pat. No. 5,464,480. This application Jul. 2, 1996, Ser. No. 674,712

Int. Cl.[6] B08B *3/12*

U.S. Cl. 134—61 **12 Claims**



1. An apparatus for treating and drying the surfaces of semiconductor wafers, comprising:

(a) a tank for supporting said wafers in contact with an aqueous rinsing fluid,

(b) means for introducing a liquid organic solvent layer into said tank such that it forms an upper liquid organic solvent layer, and;

(c) means for lifting said wafers up from said aqueous rinsing fluid through said upper liquid organic solvent layer whereby said aqueous rinsing fluid is driven off of the surface of the wafer.

5,727,579

AUTOMATIC HAND WASHING AND DRYING APPARATUS INCLUDING COMBINED BLOW DRYING MEANS AND TOWEL DISPENSING MEANS

William M. Chardack, 547 Golfview Dr., Gulfstream, Fla. 33483

Filed May 29, 1996, Ser. No. 654,693

Int. Cl.[6] B08B *3/02*

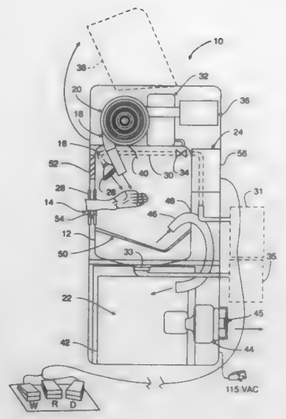
U.S. Cl. 134—95.2 **26 Claims**

25. A hand washing and drying apparatus comprising:

a washing and drying chamber including at least one access port providing access for inserting at least one hand to be washed;

a wash liquid dispenser arranged in fluid communication with the interior of said washing and drying chamber to dispense wash liquid within said washing and drying chamber;

a blow dryer arranged in fluid communication with the interior of the washing and drying chamber to provide a directed supply of drying air within said washing and drying chamber;



a towel dispenser arranged in communication with the interior of the washing and drying chamber to dispense a towel within said washing and drying chamber.

5,727,580

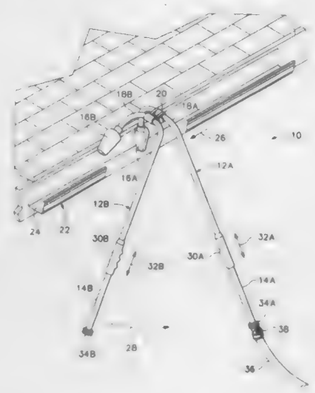
GUTTER CLEANER

John W. Patterson, 20819 229th Pl., SE., Maple Valley, Wash. 98038

Filed May 9, 1996, Ser. No. 650,130

Int. Cl.[6] B08B *9/02*

U.S. Cl. 134—115 R **26 Claims**



1. A gutter cleaner comprising:

a first member having a handle arm and a scoop that accumulates debris; and

a second member having a handle arm and a scoop;

the first and second members connected such that the scoops move toward each other to grasp debris as the handle arms are moved toward each other;

the first member shaped so as to depend downwardly below a gutter trough when the scoop of the first member is introduced into the gutter trough.

5,727,581

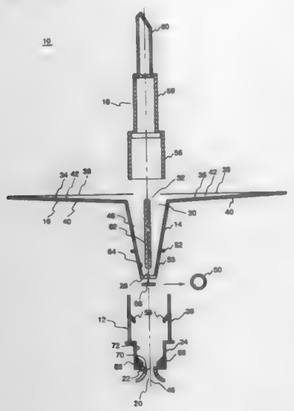
DISHWASHER SPRAY-ARM ASSEMBLY

Prabhat Kumar Tekriwal, Schenectady, N.Y.; Andrew Joseph Spanyer, Louisville; Joseph Duane Tobbe, Taylorsville, both of Ky., and Dennis Lee Heinz, Floyd Knobs, Ind., assignors to General Electric Company, Schenectady, N.Y.

Filed Oct. 2, 1996, Ser. No. 720,649

Int. Cl.[6] B08B *3/02*

U.S. Cl. 134—104.4 **14 Claims**



10. A dishwasher spray-arm assembly comprising:

a convergent base section having a bell mouth, a throat section, and a cylindrical housing extending axially along the periphery of said throat section;

a divergent diffuser section having an entry area and an exit area, said divergent diffuser section integral with said spray-arm and positioned such that said entry area is aligned with said throat section of said convergent base section;

a rotatable spray-arm having an open hub area and at least two hollow wing sections radially extending from said open hub area, said spray-arm integral with said divergent diffuser section such that said open hub area is aligned with said exit area of said diffuser section so as to define a conical chamber area;

a collapsible water tower adapted to be nestably positioned within said conical chamber area; and

a longitudinal drainage groove disposed within an inner wall of said divergent diffuser section wherein said drainage groove originates proximate said exit area and terminates proximate said entry area.

5,727,582

WORK CARRIER ASSEMBLY

Yoshinobu Terui, Ayase, Japan, assignor to Speedfam Clean System Co., Ltd., Ayase, Japan

Filed Jan. 3, 1997, Ser. No. 778,818

Claims priority, application Japan, May 9, 1996, 8-139646

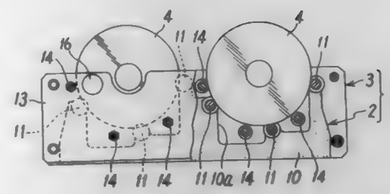
Int. Cl.[6] B08B *3/04*

U.S. Cl. 134—140 **5 Claims**

1. A work carrier assembly, comprising:

first and second work carrier members separably engaged with each other and each provided with a plural number of parallel work holder rods for supporting flat plate-like work pieces;

work holder rods of said two carrier members being located in vertically staggered positions and shifted relative to each other in a forward or rearward direction in terms of travel direction of said carriers and also in a the vertical direction in such a way that said work pieces are supported on said work holder rods of one of said carrier members when said two carrier members are engaged with each other and picked on said work holder rods of the other carrier member when said two carriers are disengaged from each other.



5,727,583

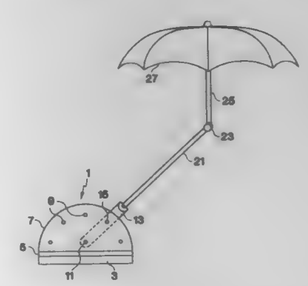
SERVICE UMBRELLA

Phillip Donald Kennedy, 15920 NE. 1st Cir., Vancouver, Wash. 98684

Filed Mar. 19, 1997, Ser. No. 820,580

Int. Cl.[6] A45B *11/00*

U.S. Cl. 135—20.1 **4 Claims**



1. A base used to support an overhead pole and protective canopy comprising:

a support base having a magnet near its lower surface and two spaced vertically disposed members, at least one of said members having a plurality of positioning holes through its surface defining different angular orientations;

a support arm pivotally mounted between said two spaced vertical members and connected to them, said support arm having a free end with means for receiving a positioning pin along its length and a pole and protective canopy near its free end; and

a positioning and retaining pin insertable into any of the positioning holes to engage said support arm and hold it and a mounted pole and protective canopy in a desired angular orientation.

5,727,584

CANE INCLUDING ATTACHMENT PLUG

George Stanec, 15 Secor Rd., Scarsdale, N.Y. 10583

Continuation-in-part of Ser. No. 396,602, Mar. 1, 1995, abandoned. This application Aug. 7, 1996, Ser. No. 695,232

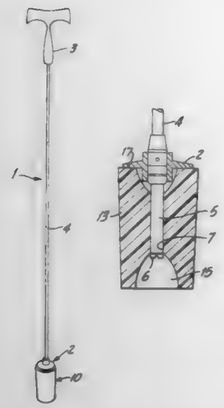
Int. Cl.[6] A45B *1/00*

U.S. Cl. 135—77 **11 Claims**

1. A cane comprising a shaft having a top and a bottom tip section, a basket portion, a handle secured at the top end of the shaft and an attachment plug,

(a) the shaft comprising a thin, elongated lightweight member having an outer diameter in the range of from 0.32 to 0.8 inches;

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(b) the attachment plug comprising a body member of lightweight elastomeric resilient foam material in the range of 15–40 lbs/cu.ft. density and weighing less than 5 ounces, the attachment plug having a longitudinal bore extending therethrough from an entrance end to a terminus end and the bore receiving therein the tip section of the shaft, the attachment plug body member having an upper face and a bottom face and including, at its bottom face, a rim to provide a steady base; and

(c) the basket connected to the shaft proximate the tip section and resting on the plug body member proximate its upper face.

5,727,585

DEVICE FOR OBTAINING ENERGY FROM SUNLIGHT WITH AT LEAST ONE SOLAR COLLECTOR

Jochen Daume, Argonner Weg 29, 42659, Solingen; Heinrich Bauer, Kohlkopfstr. 14, 67661, Kaiserslautern, and Arnold Grimm, Krautgarten 12, 36124, Eichenzell, all of Germany

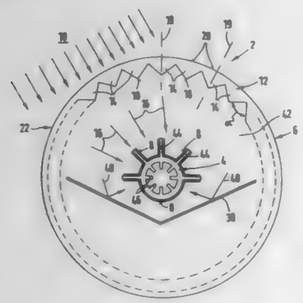
PCT No. PCT/EP95/02465, § 371 Date Mar. 17, 1997, § 102(e) Date Mar. 17, 1997, PCT Pub. No. WO96/00871, PCT Pub. Date Jan. 11, 1996

PCT Filed Jun. 24, 1995, Ser. No. 765,300

Claims priority, application Germany, Jun. 29, 1994, 44 22 755.8

Int. Cl.[6] F16K *3/36*

U.S. Cl. 136—246 **29 Claims**



1. Device for winning thermal and/or electric energy from sunlight with at least one solar collector (2) exhibiting an absorber (4) featuring along the absorber's (4) entire length and circumferentially enclosing—at least sectionally—an energy concentrator (6) that focuses the sunlight optically upon the absorber (4) characterized by the fact that the energy concentrator (6) features, at least in a circumferential area, a prism structure (12) consisting of a transparent material exposed to sunlight according to the daily course of the sun where these prisms (14) with a multiplicity of axially and parallel to the absorber (4) arranged prisms (14) are placed side by side on the periphery where all prisms (14) have an isosceles and identical cross-section with their tips (18) pointing to the absorber (4) where the prisms (14) with their tips or "diffracting edges" (18) are arranged to point to the absorber (4) where an axis (19) running through each tip (18) and dividing a prism angle (β) half run essentially radially to the central axis of the solar collector (2) and where the prisms (14) are formed with convex curved outer surfaces (20) on the sides exposed to the sunlight where the outer surfaces (20) of the prisms (14) are formed by a continuously convex and, in its cross-section, circular arc-shaped outer surface (22) of the energy concentrator (6) where because of the geometry of the prisms (14) surface focusing of the sunlight is achieved in such a manner that one focusing area lies during the course of the sun at least partially in an area that covers the range of the absorber (4).

5,727,586

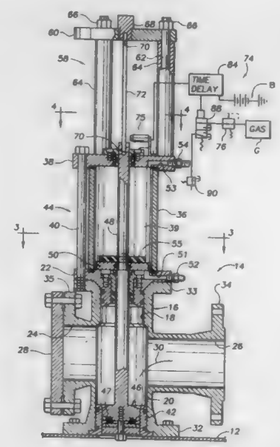
RECLOSING COLLAPSIBLE PIN PRESSURE RELIEF VALVE

Julian S. Taylor, 8300 SW. 8th, Oklahoma City, Okla. 73128

Filed Dec. 13, 1996, Ser. No. 766,706

Int. Cl.[6] F16K *17/14*

U.S. Cl. 137—68.11 **5 Claims**



1. In a fluid pressure relief valve including a valve body having and axial inlet port and a lateral outlet port, a valve head normally closing the inlet port, a valve stem axially projecting beyond the body, and pin cage means for axially surrounding the valve stem including an axial pressure responsive collapsible pin normally maintaining the relief valve closed, the improvement comprising:

a closed end cylinder interposed between said body and the pin cage means around said valve stem for forming a piston chamber;

piston means secured to and moveable with said valve stem within the piston chamber;

a source of gas under a predetermined pressure;

conduit means including a normally closed three-way solenoid valve connecting the source of gas with the piston chamber opposite the inlet port; and,

circuit means including a proximity switch and time delay unit connected with said three-way valve,

whereby said proximity switch sensing the presence of said valve stem by the opening of the relief valve energizes the time delay to open said three-way valve and force the piston means and valve head to a relief valve closed position.

5,727,587

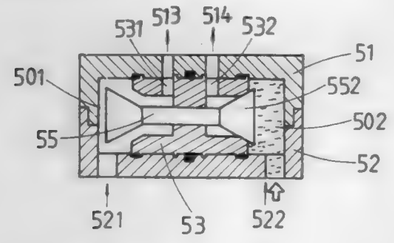
MIXER CONTROL VALVE

Tsai-Chen Yang, 58, Ma Yuan West St., Taichung, Taiwan

Filed Sep. 24, 1996, Ser. No. 718,800

Int. Cl.[6] G05D *11/00*

U.S. Cl. 137—100 **2 Claims**



1. A mixer control valve comprising:

a cover having a first outlet, a second outlet, and a plurality of positioning holes,

a control shaft having a main body, a first hollow cone receiving a left distal portion of said main body, a second hollow cone receiving a right distal portion of said main body, a first retaining ring enclosing a left end of said main body, and a second retaining ring enclosing a right end of said main body,

a base having a first inlet, a second inlet, a plurality of posts, and a plurality of slots,

a cylinder having a middle portion, a left flange, a right flange, a first spacing formed between said middle portion and said left flange, and a second spacing formed between said middle portion and said right flange,

a washer surrounding said middle portion of said cylinder,

said control shaft inserted in said cylinder,

said cover covering said base,

said washer and said cylinder disposed between said base and said cover,

wherein a hot water enters said mixer control valve via said first inlet and a cool water enters said mixer control valve via said second inlet, said control shaft is disposed in a center interior of said cylinder,

wherein said base, said cover and said cylinder defines a first chamber communicating with said first inlet and a second chamber communicating with said second inlet so that said hot water enters said first chamber and said cool water enters said second chamber,

said control shaft includes means such that as soon as said first chamber has a greater pressure than said second chamber the control shaft will move toward a right end of said cylinder so that said first hollow cone blocks said first outlet and as soon as said second chamber has a greater pressure than said first chamber the control shaft will move toward a left end of said cylinder so that said second hollow cone blocks said second outlet.

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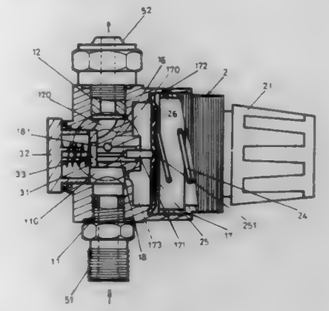
DEPRESSURIZING CONNECTOR

Arther Lin, No.1, Lane 148, Bi-Hwa Street, San-Chung City, Taipei Hsien, Taiwan

Filed Mar. 18, 1996, Ser. No. 617,377

Int. Cl.[6] F16K *37/00*

U.S. Cl. 137—116.5 **2 Claims**



1. A depressurizing connector comprising:

a) a body having an interior chamber formed therein;

b) an inlet in fluid communication with the interior chamber for connection to an external pressurized air source to supply pressurized air at a first pressure to the interior chamber;

c) a first outlet in fluid communication with the interior chamber for outputting the first pressure;

d) depressurizing means for lowering the first pressure to a second pressure;

e) a second outlet in fluid communication with the interior chamber for outputting the second pressure;

f) the depressurizing means including a recess provided in the connector body, a regulator having a manual knob adjustably received within the recess and movable relative to the connector body, a member fixed within the recess and defining an outer space and an inner space therein, an aperture formed in the membrane for providing fluid communication between the inner space and the outer space, a first spring disposed in the outer space between the membrane and the knob for applying spring force to the membrane when the knob is moved in a first direction toward the membrane for deflecting the membrane, a release hole provided in the regulator for permitting fluid communication between the outer space and an exterior atmosphere, a bore extending between the interior chamber and the inner space of the recess, the bore defining a first opening with the interior chamber and a second opening with the inner space, a plunger movably received within the bore and having a first end extending into the interior chamber through the first opening and a second end extending into the inner space through the second opening in contact engagement with the membrane to close the aperture formed therein, a lid fixed to the first end of the plunger and being movable with the plunger to close the first opening, and a second spring disposed in the interior chamber to bias the lid to close the first opening; and

g) wherein when the knob is moved in the first direction to deflect the membrane, the plunger is moved towards the interior chamber and the lid opens the first opening to permit pressurized air from the air source at the first pressure to flow from the interior chamber into the bore and the inner space, thereby deflecting the membrane in a direction against the first spring to open the aperture in the membrane and permit the air at the first pressure to be released through the aperture into the outer space and through the release hole to lower the first pressure to the second pressure.

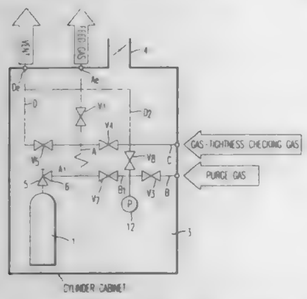
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5,727,589

GAS SUPPLY SYSTEM EQUIPPED WITH CYLINDERS

Kazuo Yokogi, Tokyo, Japan, assignor to Teisan K.K., Tokyo, Japan

Filed Nov. 28, 1994, Ser. No. 348,801
Claims priority, application Japan, Nov. 29, 1993, 5-298725
Int. Cl.° B08B 9/02;9/06
U.S. Cl. 137—240 16 Claims



1. A gas supply system equipped with cylinders, which comprises a gas supply line for leading a feed gas from a cylinder to gas consumption means, a line for leading an inert gas to said gas supply line, a negative pressure area defined between flow path blocking means provided therein, and pressure sensor means for detecting variation in gas pressure in said negative pressure area, at least one of an inflow of said feed gas to the inert gas line and an inflow of said inert gas to the feed gas supply line is detected by said pressure sensor means when pressure changes in said negative pressure area;

wherein said negative pressure area comprises selected first and second piping portions which are demarcatedly located in a purge gas introduction line by at least two valve means in series therein, and wherein a gas introduced in said first piping portion is in flow communication with a first vent line having first switching means for establishing a first and second flow path, a gas introduced in said portion is in flow communication with a second vent line having second switching means provided therein for establishing a second vent flow path, and further wherein said pressure sensor means is in gas flow communication with each of said selected first and second piping portions for detecting pressure changes in said selected negative pressure areas;

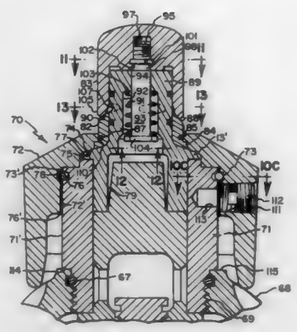
further wherein said first vent line is in fluid communication with said first switching means for venting said first negative pressure area when said first vent line is used, while said second switching means is closed, and when said second vent line is used, said first switching means is closed while establishing a gas flow communication between said second vent line and said first vent line.

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TAMPER RESISTANT CONSTRUCTION FOR HYDRANT ACTUATING NUT

Bradley J. Julicher, Williamsville, and Thomas R. Lanham, Boston, both of N.Y., assignors to McGard, Inc., Orchard Park, N.Y.

Continuation-in-part of Ser. No. 651,294, Jun. 7, 1996, Pat. No. 5,630,442. This application Mar. 20, 1997, Ser. No. 821,277
Int. Cl.° F16K 35/06; E03B 9/06
U.S. Cl. 137—296 33 Claims



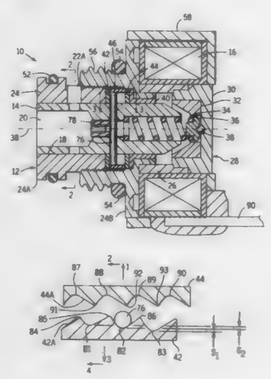
1. In a fire hydrant having a hydrant body and a hydrant cover mounted on said hydrant body and a hydrant shaft having an upper portion with a valve-actuating polygonal nut positioned at said upper portion of said hydrant shaft and extending outwardly from said hydrant cover, a construction for rendering said nut tamper resistant against unauthorized actuation comprising a packing nut mounted in said hydrant cover proximate to said upper portion of said hydrant shaft, a hydrant nut actuating body, a recess in said hydrant nut actuating body for receiving said polygonal nut in turning relationship, a shroud positioned in encircling relationship to said packing nut and having a lower portion positioned proximate said hydrant cover, a first rotatable connection between said shroud and said packing nut for permitting free rotation of said shroud on said packing nut, a cap mounted on said hydrant nut actuating body proximate said shroud, and a second rotatable connection between said cap and said hydrant nut actuating body.

5,727,591

ELECTROMAGNETIC ROTARY INDEXING VALVE

Robert A. Doll, Glendale, Wis., assignor to Applied Power Inc., Butler, Wis.

Filed Dec. 7, 1995, Ser. No. 569,040
Int. Cl.° F16K 37/00;31/06
U.S. Cl. 137—554 8 Claims



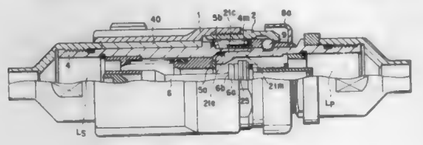
1. In a solenoid operated valve of the type having a housing with a first port, a second port and a main bore, a valve spool in said main bore, said spool being axially slidable and rotatable relative to said housing, an electromagnetic coil for shuttling said spool axially in said main bore relative to said housing, at least one orifice formed in said spool to be in registration with one of said ports in at least one angular position of said spool relative to said housing and converter members on said spool and on said housing for engaging one another and converting said axial motion of said spool imparted by said coil into rotary motion of said spool relative to said housing, the improvement wherein said orifice is rotatably indexed into or out of angular registration with said one port by pulsing said electromagnetic coil with an electrical signal.

5,727,592

PIPE CONNECTOR

Reichi Makishima, Tokyo, Japan, assignor to Nitto Kohki Co., Ltd., Japan

Filed Dec. 20, 1996, Ser. No. 771,063
Claims priority, application Japan, Apr. 17, 1996, 8-094960
Int. Cl.° F16L 37/28
U.S. Cl. 137—614.05 10 Claims



1. A pipe connector for making a plurality of first pipes communicate with a plurality of second pipes so that a fluid may flow through the first pipes and the second pipes, comprising:

a plurality of sockets each connected to an associated one of the first pipes;

a plurality of plugs each connected to an associated one of the second pipes, having an internal hole communicating with said associated one of the second pipes, and having a hollow plug body in which an associated one of the sockets is detachably engaged; and

a locking mechanism, provided on each of the sockets, for locking the plug body engaged in the associated socket and preventing the plug body from being disengaged in the axial direction thereof,

comprising each of said sockets comprising a first end portion connected to the associated first pipe, a second end portion in which the plug body of the associated plug is detachably attached, and a rear cylindrical member having an internal hole communicating with the associated first pipe,

each of said sockets further comprises an inner cylindrical member having a plurality of housing sections with substantially parallel axes for housing said rear cylindrical member, and a coupling portion for coupling said housing sections; and

a main cylindrical member, extending in the axial direction of said housing sections, for movably containing said housing sections,

said coupling portion and said main cylindrical member have a pair of holes formed to correspond to each other, one of said pair of holes having a tapered surface inclined with respect to said axial direction,

each of said sockets has a cam member contained in the other of said pair of holes, and

when the plug body is locked to the associated socket by means of said locking mechanism, said cam member is externally driven to cooperate with said tapered surface, thereby moving the main cylindrical member and the inner cylindrical member relative to each other in the axial direction of the housing sections and bringing said plug body and said rear cylindrical member into contact with each other in the axial direction thereof.

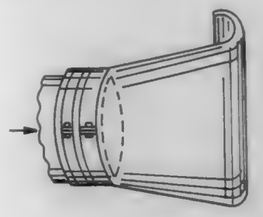
3. The pipe connector according to claim 1, wherein said sockets and plugs have valve mechanisms for sealing their inner holes from the outside, and the valve mechanisms are opened to communicate with each other when the cam member has brought the rear cylindrical member into contact with the plug body.

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TIDE GATE VALVE WITH CURVILINEAR BILL

Michael Duer, Pittsburgh, Pa., assignor to Red Valve Company, Inc., Carnegie, Pa.

Filed Jun. 26, 1996, Ser. No. 669,755
Int. Cl.° F16K 15/14
U.S. Cl. 137—846 25 Claims



1. An inversion-resistant tide gate valve, comprising:

a sleeve comprised of an elastomeric material and bounding a longitudinally extending, flow-through passage for fluids, said sleeve having an upstream fluid inlet end region mountable on a discharge end of a conduit, said sleeve elongated along a longitudinal first axis of symmetry;

said sleeve having a downstream fluid outlet end region having a backflow preventer comprising a first lip and a second lip opposed to each other, said lips pre-formed to define a curvilinear bill;

said lips being movable from a closed position in which the lips sealingly engage each other and define said curvilinear bill, to an open position in which the lips are located apart from each other in response to a pressure head within said passage and exerted in a direction downstream of said passage to discharge liquid in an outflow direction; and

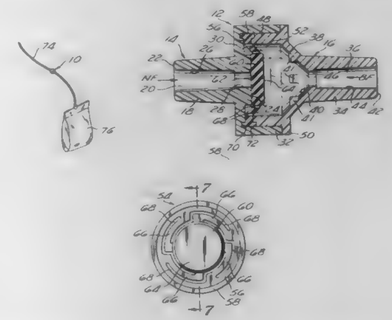
said sleeve having an intermediate region symmetrically arranged relative to said longitudinal axis, said intermediate region merging and being jointly movable with said first and second lips, said lips being thinner and more flexible than said intermediate region.

5,727,594

LOW ACTUATION PRESSURE UNIDIRECTIONAL FLOW VALVE

Pradip Choksi, 9614 Cozycroft, Suite F, Chatsworth, Calif. 91311

Filed Feb. 9, 1995, Ser. No. 385,810
Int. Cl.° F16K 15/14
U.S. Cl. 137—859 23 Claims



1. A low actuation pressure, unidirectional flow valve comprising:

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a housing including a fluid flow passage extending therethrough which defines first and second sections; and

a valve member disposed within said housing between said first and second sections of said flow passage, said valve member comprising:

an annular ring portion;

a disc portion disposed within said ring portion;

at least two connecting arm portions extending between said ring and disc portions in symmetrical relation to each other; and

at least two side openings defined by said ring, disc and connecting arm portions;

said valve member being movable between a closed position wherein said disc portion covers and seals the first section of the flow passage and an open position wherein said disc portion is separated from said first section and fluid flows from said first section to said second section via said side openings, the movement of the valve member between the closed and open positions being facilitated by the flexion of the connecting arm portions;

said valve member being configured such that when in the open position, the combined cross-sectional area of the side openings exceeds the minimum cross-sectional area of the first section of the flow passage.

5,727,595

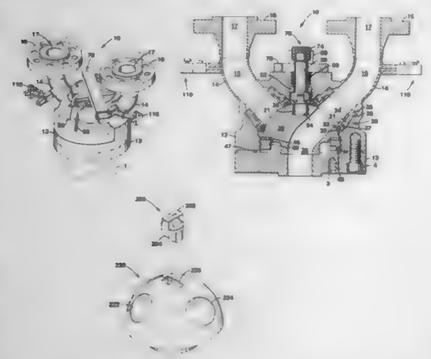
CHANGEOVER VALVE SYSTEM HAVING A CROSS DRIVE MEMBER

Harry E. Eminger, 35 Lime Rock Dr., E. Greenwich, R.I. 02818

Continuation-in-part of Ser. No. 370,797, Jan. 10, 1995, Pat. No. 5,549,138. This application Mar. 19, 1996, Ser. No. 618,372

Int. Cl.[6] F16K *11/02*

U.S. Cl. 137—876 **17 Claims**



1. A changeover valve system adapted to be secured at one end to a riser from a pressurized piping system and at its opposite end to at least two pressure relieving devices, said system including:

a body;

at least two outlets secured to said body, each of said outlets being attached to a pressure relieving device;

a partially spherical changeover member provided within said body, said changeover member having at least one inlet port adapted to communicate with said riser and at least one outlet port adapted to alternately communicate with each of said pressure relieving devices; and

means for rotating said changeover member within said body so as to cause said changeover member to move from a first position in which said at least one outlet port is in communication with one of said pressure relieving devices to a second position in which said at least one outlet port is in communication with said other pressure relieving device, wherein said mean for rotating includes a cross drive member for engaging said changeover member.

5,727,596

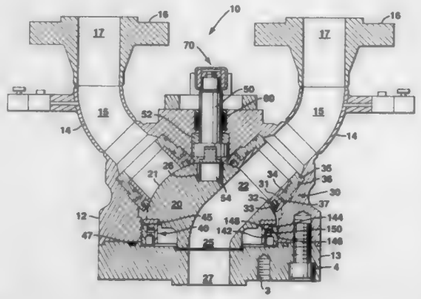
CHANGEOVER VALVE

Harry E. Eminger, E. Greenwich, R.I., assignor to FMC Corporation, Chicago, Ill.

Filed Feb. 25, 1997, Ser. No. 805,957

Int. Cl.[6] F16K *11/087*

U.S. Cl. 137—876 **3 Claims**



1. A crossover valve capable of operation over a wide range of temperatures comprising:

a body having sealing seat means;

a crossover member rotatable within said body and engageable with said seat means;

an outer ring member threadedly engaging said body and having a shoulder;

an inner ring member having a flange overlying said shoulder to define a spring pocket;

a thrust washer interposed between said flange and said crossover member for rotatably supporting said crossover member,

compression spring means in said pocket for urging said flange away from said shoulder, and hence said crossover member toward said seat means, with an initial predetermined force; and

said inner ring member is free to move axially relative to outer ring member in response to differences in thermal expansion between said body and said crossover member, whereby the load imposed on said seat means is relatively unaffected by changes in temperature throughout said range.

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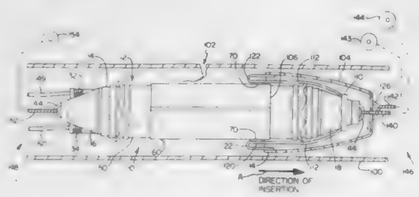
POINT REPAIR SYSTEM FOR CONDUITS

Benjamin T. Fisco, Harpswell, Me., assignor to American Pipeline Supply, Corp., South Harpswell, Me.

Division of Ser. No. 263,877, Jun. 22, 1994, Pat. No. 5,628,345. This application Jun. 18, 1996, Ser. No. 665,393

Int. Cl.[6] F16L *55/18*

U.S. Cl. 138—98 **7 Claims**



1. An apparatus for repairing a fault in a conduit, comprising:

an inflatable mandrel insertable into said conduit proximate said fault;

a repair sleeve wrapped about said mandrel and sufficiently large to cover said fault, said repair sleeve having a leading edge which is inserted first into said conduit; and

a protective skirt which covers at least said leading edge during the insertion of said mandrel into said conduit to a location adjacent said fault, said protective skirt comprising means operative for removing said protective skirt from said mandrel after insertion of the mandrel to the location adjacent said fault.

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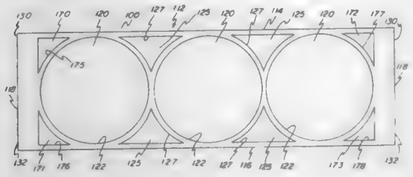
PIPE WALL SEGMENT AND PIPE HAVING SIDEWALL

Mark Stuhlreyer, Columbus, Ohio, assignor to Advanced Drainage Systems, Inc., Columbus, Ohio

Continuation of Ser. No. 54,290, Apr. 30, 1993, abandoned. This application Oct. 25, 1995, Ser. No. 547,960

Int. Cl.[6] F16L *11/24*

U.S. Cl. 138—129 **20 Claims**



1. A plastic pipe made of a helically wound plastic pipe wall segment, said pipe wall segment comprising a top surface, a bottom surface, a pair of side edge walls, a plurality of primary internal cells, a plurality of secondary internal cells with at least one secondary internal cell being adjacent two primary internal cells, and at least two end apertures, each of said end apertures directly adjacent one of said side edge walls, each of said primary internal cells being larger in size than each of said end apertures, said side edge walls being parallel to each other and extending in a plane from said top surface to said bottom surface, said pipe when formed having said top surface of said pipe wall segment become the inner sidewall of said pipe and said bottom surface of said pipe wall segment become the outer sidewall of said pipe.

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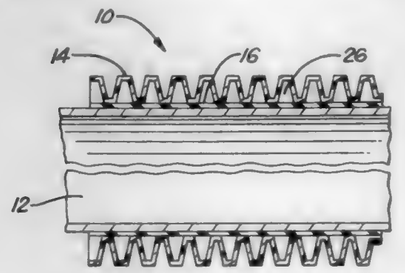
INSULATING SLEEVE FOR A FLUID PIPE

John H. Fisher, Novi, and Henry A. Beckwith, Ypsilanti, both of Mich., assignors to Ford Motor Company, Dearborn, Mich.

Filed Jan. 16, 1996, Ser. No. 585,985

Int. Cl.[6] F16L *11/00*

U.S. Cl. 138—156 **5 Claims**



1. An abrasions sound and heat resistant protective sleeve for covering fluid pipes in an automotive vehicle, comprising:

an elongated, generally cylindrical inner member having a pair of terminal edges extending the longitudinal length thereof, said pair of terminal edges defining a first gap of predetermined distance therebetween;

an elongated, generally cylindrical outer member circumferentially surrounding said inner member, said outer member having a pair of terminal edges extending along the longitudinal length thereof, said pair of outer member terminal edges defining a second gap of predetermined distance therebetween such that the distance of said second gap is smaller than the distance defined by said first gap; and

wherein said pair of inner member terminal edges are secured to said outer member such that when said sleeve is rolled into a generally cylindrical shape, an air space is formed between opposing surfaces of said inner and outer members.

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HEALD THREADING METHOD FOR GROUPING WARP YARNS IN A 1/F FLUCTUATION

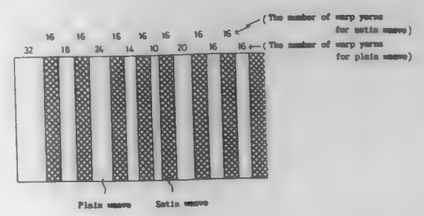
Toshimitsu Musha, 13-17, Minami-Tsukushino 2-chome, Machida-shi, Tokyo; Yuichi Yanai, Okazaki; Shoji Takagi, Okazaki, and Shu Ono, Okazaki, all of Japan, assignors to Nisshinbo Industries Inc., and Toshimitsu Musha, both of Tokyo, Japan

Filed May 8, 1996, Ser. No. 646,951

Claims priority, application Japan, May 10, 1995, 7-136188

Int. Cl.[6] D03D *13/00;23/00*

U.S. Cl. 139—55.1 **4 Claims**



1. A weaving method for weaving woven goods with a 1/f fluctuation from warp yarns and weft yarns comprising:

threading warp yarns through a multiple number of healds in patterns according to at least one sequence with a 1/f fluctuation;

separating the warp yarns into two sets to form a shed between the two sets by lifting and lowering of said healds;

passing a weft yarn through the shed in such a manner that the multiple texture patterns obtained therein vary so as to have a 1/f fluctuation.

5,727,601

METHOD FOR COOLING A LOOM GRIPPER DRIVE AND COOLING DEVICE FOR PERFORMING THE METHOD

Valentin Krumm, Hergensweiler, Germany, assignor to Lindauer Dornier Gesellschaft mbH, Lindau, Germany

Filed Sep. 30, 1996, Ser. No. 723,533

Claims priority, application Germany, Oct. 14, 1995, 195 38 287.0

Int. Cl.[6] D03J *1/00*

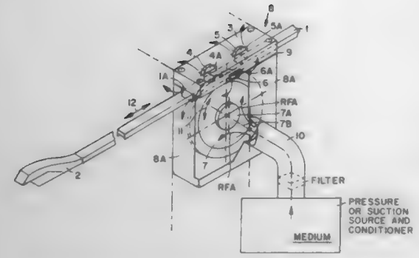
U.S. Cl. 139—449 **22 Claims**

1. A method for cooling a gripper drive pinion in a loom, said method comprising the following steps:

(a) constructing a cooling medium flow guide housing to fit around said gripper drive pinion,

(b) enclosing said gripper drive pinion with said cooling medium flow guide housing, and

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(c) feeding a cooling medium through said cooling medium flow guide housing so that said cooling medium must first flow into heat exchange contact with at least one surface of said gripper drive pinion in and through said cooling medium flow guide housing.

5,727,602

WIRE GUIDING UNIT AND WIRE CUTTING APPARATUS

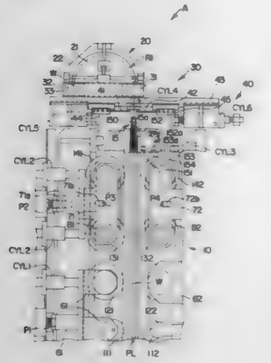
Hideyuki Ema, Yokkaichi, Japan, assignor to Sumitomo Wiring Systems, Ltd., Japan

Filed Jul. 8, 1996, Ser. No. 676,498

Claims priority, application Japan, Jul. 10, 1995, 7-173628

Int. Cl.[6] B21F *23/00*

U.S. Cl. 140—102 **5 Claims**



1. A wire guiding unit for guiding a wire (W) fed along a feed direction, comprising:

a first guide block (**21**) having a curved first wall face (**211***a*),

a second guide block (**22**) having a second wall face (**221***a*) which defines a substantially curved wire guide path (**R1**) in cooperation with the first wall face (**211***a*) while being at least partly engaged with the first wall face (**211***a*), said curved wire guide path (**R1**) defining a plane, and

displacement means (**CYL5**) for displacing the second guide block (**22**) between an engaging position where the second wall face (**221***a*) is at least partly engaged with the first wall face (**211***a*) to define the wire guide path (**R1**) and a retracted position which is away from the engaging position in a direction under an angle to the feed direction of the wire (W) and where the wire guide path (**R1**) is exposed, said displacement means (**CYL5**) comprising a rotation mechanism (**222**, **212***a*, **212**, **212***b*, CP, **223**) for rotating the second guide block (**22**) about a center of rotation that is parallel to and spaced from the plane of the curved wire guide path (**R1**).

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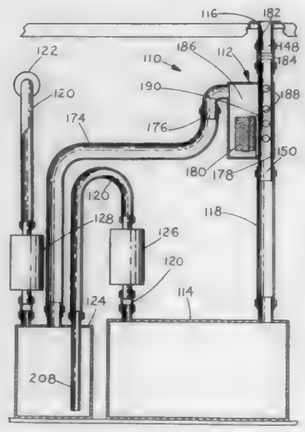
METHOD FOR PREVENTING FUEL SPILLAGE

Joseph R. Langlois, Coral Springs, Fla., assignor to L N G & K, Inc.

Division of Ser. No. 262,628, Jun. 20, 1994, Pat. No. 5,515,891, which is a continuation-in-part of Ser. No. 910,619, Jul. 8, 1992, Pat. No. 5,322,099. This application May 8, 1996, Ser. No. 646,944

Int. Cl.[6] B63B *17/00*

U.S. Cl. 141—1 **6 Claims**



1. A method for preventing fuel spillage during and after refueling on a marine vessel having a fuel inlet port for receiving a fuel nozzle for supplying fuel, a fuel tank including a fuel chamber coupled in fluid communication with the fuel inlet port, a fuel fill line coupled in fluid communication to the fuel inlet port and to the fuel tank, and a vent port coupled in fluid communication to the fuel tank, comprising the steps of:

supplying fuel through the fuel inlet port, and in turn through the fuel fill line and into the fuel chamber of the fuel tank;

preventing further fuel flow into the fuel chamber upon filling the fuel chamber with fuel and in turn causing the fuel to backup into the fuel fill line;

draining the fuel from the fuel fill line downwardly into an overfill chamber coupled in fluid communication with the fuel chamber;

preventing the passage of fuel from the overfill chamber and fuel chamber through the vent port;

and draining the fuel from the overfill chamber into the fuel chamber in response to removal of fuel from the fuel chamber.

5,727,604

APPARATUS FOR COATING PASTY MIXTURE AND METHOD FOR COATING THE PASTY MIXTURE

Yukio Koike; Chitoshi Hara; Masao Nakamura, all of Chigasaki; Mitsuyoshi Kio, Fujisawa, and Tetsushiro Torigoe, Wakayama, all of Japan, assignors to Matsushita Electric Industrial Co., Ltd., Osaka-Fu, Japan

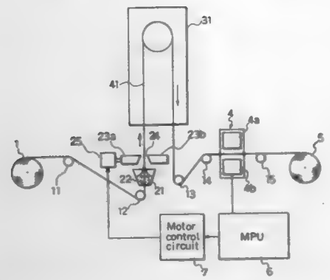
Filed Jul. 27, 1995, Ser. No. 508,571

Claims priority, application Japan, Jul. 28, 1994, 6-176854; Jul. 5, 1995, 7-169462

Int. Cl.[6] B65B *1/04*

U.S. Cl. 141—1.1 **18 Claims**

13. A method for continuously coating on a continuous belt-like metal core sheet a pasty mixture containing an electrode active material powder as its main ingredient comprising the steps of:



continuously coating on both faces of said metal core sheet said pasty mixture by allowing said metal core sheet to pass through a hopper which stores said pasty mixture therein;

adjusting the thickness of the coated pasty mixture by allowing said metal core sheet to pass through a slit for adjusting the coated pasty mixture, said thickness being defined by gap of said slit between a pair of blades and situated close to said hopper;

drying said metal core sheet which has been coated with the pasty mixture;

irradiating the coated and dried metal core sheet with a radiation emitted from a radiation source in a pasty mixture weight measuring unit, trapping dosage of the radiation transmitted through the coated and dried metal core sheet by an ionization chamber and then measuring the weight of the pasty mixture based on the dosage obtained by the trapping operation;

processing the measured value by comparing it with a previously determined reference value of the weight of the pasty mixture and outputting the result of the comparison as an electrical signal; and

adjusting a slit gap constant of slit by displacing at least one of said blades by at least one driving source which operates in compliance with said electrical signal, thereby to adjust the weight per unit area of the pasty mixture coated on said metal core sheet.

5,727,605

DEVICE FOR FILLING THE RESERVOIR OF A SPRAY FOR PLANT-PROTECTION PRODUCTS

Patrick Ballu, Reims, France, assignor to Exel Industries, Epernay, France

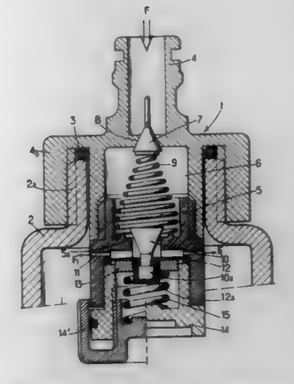
Filed Aug. 30, 1996, Ser. No. 705,612

Claims priority, application France, Sep. 1, 1995, 95 10309

Int. Cl.[6] B65B *1/04*

U.S. Cl. 141—20 **12 Claims**

1. A device for filling a reservoir of a sprayer for plant-protection products in aqueous solution, comprising means adapted for connecting the reservoir to a source of water under pressure and a nonreturn valve in fluid communication with said connecting means and mounted to define a passage from the source toward the reservoir, which device further comprises a calibrated valve means adapted to be mounted between the nonreturn valve and the reservoir in said passage, said calibrated valve means being sensitive to the pressure in the reservoir so as to cut off the water supply to the reservoir when this pressure reaches a predetermined value wherein said device is adapted to be attached to a reservoir of a sprayer.



5,727,606

CONTAINER FILLING MACHINE

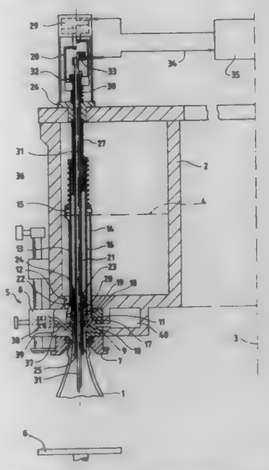
Wilhelm Weiss, Lappersdorf, Germany, assignor to Krones AG Hermann Kronseder Maschinenfabrik, Nuetraubling, Germany

Filed Jul. 31, 1996, Ser. No. 688,707

Claims priority, application Germany, Aug. 17, 1995, 295 13 031.8

Int. Cl.[6] B67C *3/28*

U.S. Cl. 141—40 **10 Claims**



1. Container Filling Machine comprising in combination: a storage tank for liquid that is to be used for filling and for tension gas, at least one filling device containing no filling pipe is attached in said storage tank, said at least one filling device having a discharge mouth for the liquid; a liquid valve serially-connected to said discharge mouth; a tension gas valve positioned into a spring-weighted, height-adjustable valve body; a gas-proof probe for determining fill-height is contained in said height-adjustable valve body and able to be inserted into a container; and a probe-controllable control unit for said valve body of said tension gas valve, whereby said probe takes part in the lifting motion of said valve body of said tension gas valve and protrudes downward

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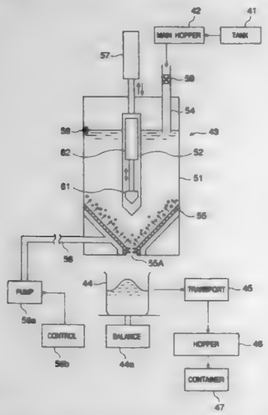
across said discharge mouth, and said gas-proof probe (**31**) is guided out of the bottom end of said valve body (**21**) of said tension gas valve (**22**).

5,727,607

POWDER FEEDING METHOD AND APPARATUS FOR FEEDING POWDERS WITH A FLUID WITH INCREASED PRECISION

Hideo Ichikawa; Sunao Ikeda, both of Numazu; Michiharu Narushima, Shimizu, and Nobuhiro Makita, Numazu, all of Japan, assignors to Ricoh Company, Ltd., Tokyo, Japan

Filed Jan. 25, 1996, Ser. No. 591,375
Claims priority, application Japan, Jan. 26, 1995, 7-010901
Int. Cl.[6] B65B *1/08;1/16;3/08;3/10*
U.S. Cl. 141—67 **23 Claims**



1. An apparatus for feeding a powder material into a container with a predetermined, controlled amount, comprising:

a hopper for holding a powder material therein, said hopper having a bottom part forming a funnel, said funnel including a porous wall for injecting a gaseous medium into said powder material therethrough, said funnel terminating in a downward directed outlet hole for ejecting said powder material to a container together with said gaseous medium;

a control rod provided in said hopper in alignment with said outlet hole in a manner movable in a vertical, axial direction thereof, said control rod controlling a flowrate of said powder material through said outlet hole; and

a supplying system for supplying said gaseous medium into said porous wall;

said supplying system including a controller for controlling a supply of said gaseous medium such that said gaseous medium is injected intermittently, while filling said container, with a pause intervening between a gaseous medium injection and a next gaseous medium injection.

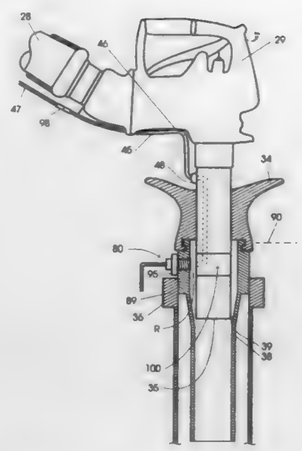
5,727,608

AUTOMATED FUEL MANAGEMENT SYSTEM, COMPONENTS THEREFOR, AND METHODS OF MAKING THE SAME

Joseph M. Nusbaumer, 1602 Oak Ridge Ct., Nixa, Mo. 65714, and Ronald Woods, 5186 N. Farm Rd. 159, Springfield, Mo. 65803

Filed Aug. 30, 1996, Ser. No. 697,818
Int. Cl.[6] B67D *5/01*
U.S. Cl. 141—94 **20 Claims**

1. In an automated fueling facility comprising a fuel receiving station, at least one fuel storage tank, at least one fuel dispensing



station all connected by associated transfer piping and a central data collection station, each of said components having means for communicating with said central data collection station, said central data collection station having means for receiving information which is transmitted from a continuously operating identity transmitter mounted on at least one vehicle desiring fueling, said identity transmitter powered by the vehicle power source and requiring no special activation by the user, comparing said information to selected stored information, authorizing properly coded vehicles access to fuel from said fuel dispensing station and ceasing fueling operations at said fuel dispensing station when said transmitted information is interrupted, the improvement wherein said fuel dispensing station has a fuel dispensing nozzle adapted for mating with and being secured to a fuel receiving tank at a common datum line, said nozzle having a receiving antenna which comprises a circumferential band completely encircling said nozzle is insulated therefrom and secured thereabout and said fuel receiving tank has a transmitting antenna associated therewith, said transmitted information being a radio frequency signal, said receiving antenna and said transmitting antenna being in such close proximity as to interrupt transmission of said information and to cause cessation of said fueling operation upon minimal withdrawal of said nozzle from said fuel tank when the line of sight between said receiving antenna and said transmitting antenna is lost.

5,727,609

TRANSPORT APPARATUS

Michael Terence Knight, Rise Park, and Steven Dennis Gallagher, Breedon on the Hill, both of United Kingdom, assignors to Gem Vending Limited, Derby, United Kingdom

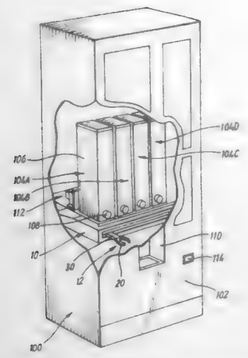
Filed Mar. 15, 1996, Ser. No. 616,183
Claims priority, application United Kingdom, Mar. 15, 1995, 9505190
Int. Cl.[6] B65B *1/04*
U.S. Cl. 141—129 **18 Claims**

1. Transport apparatus for use in a drinks vending machine, said apparatus comprising:

holding means for receiving and holding a cup;

first drive means connected to the holding means to effect a first linear movement of the holding means, said first linear movement being only in first and second opposite directions;

the holding means comprising an elongate movable arm having a holder for the cup at one end thereof, and a fixed arm fixedly mounted on the first drive means, the movable arm being substantially parallel to the fixed arm and being movably mounted thereon for second linear movement relative thereto from a first retracted position in which the movable arm



overlies the fixed arm to a second extended position in which the movable arm is extended from the fixed arm, said second linear movement being only in third and fourth opposite directions, wherein the third and fourth opposite directions are transverse to the first and second opposite directions; and

second drive means interposed between and operably connected to the fixed arm and to the movable arm to effect said second linear movement of the movable arm;

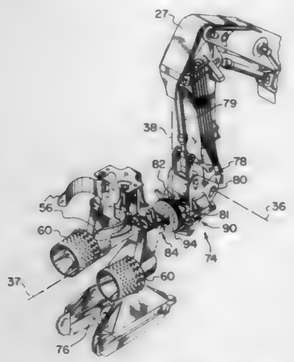
wherein the first and second drive means can move said holding means to a dispensing region of the vending machine, the dispensing region comprising a plurality of dispensers from a selected number of which ingredients can be dispensed to the cup, and thereafter the first and second drive means can move said holding means to a delivery position to deliver the cup to an operator.

5,727,610

COMBINED TREE FELLER AND PROCESSOR

Reggald Emory Isley, Grand Prairie, Canada, assignor to Risley Enterprises Ltd., Grand Prairie, Canada

Filed May 2, 1996, Ser. No. 643,051
Int. Cl.[6] A01G *23/08*
U.S. Cl. 144—4.1 **7 Claims**



1. A tree felling and processing machine comprising:

(a) a boom (**27**) having an end mounted to a vehicle and a free end;

(b) a first member (**78**) pivotally mounted to said free end of said boom for pivoting about a first generally horizontal axis (**36**);

(c) a hydraulic cylinder (**79**) linked between said boom (**27**) and said first member (**78**) for tilting said first member (**78**) about said first axis (**36**);

(d) a second member (**81**) pivotally mounted to said first member (**78**) for pivoting about a second axis (**38**) perpendicular to said first axis (**36**);

(e) a second actuator (**90**) linked between said first member (**78**) and said second member (**81**) for tilting said second member (**81**) about said second axis (**38**);

(f) a hydraulic control circuit for selectively causing said second actuator (**90**) to either float or to firmly hold said second member (**81**) at a selected degree of tilt relative to said first member (**78**);

(g) a processor head (**72**) mounted to said second member (**81**) by a rotary coupling (**84**), said rotary coupling (**84**) permitting said processor head (**72**) to pivot about a third axis (**37**) perpendicular to said first and second axes (**36**, **38**), said processor head (**72**) comprising:

(i) a tree-engaging grapple for engaging a tree while the tree is cut;

(ii) tree processing means; and

(iii) a tree feeder for moving a cut tree past said tree processing means; and,

(iv) a substantially continuously rotating circular saw for cutting said tree;

(h) a ring gear (**94**) on said second member (**81**); and

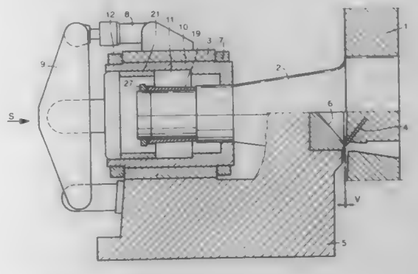
(i) a motor (**92**) on said processor head (**72**) driving a pinion gear (**93**) engaged with said ring gear (**94**) for rotating said processor head (**72**) about said third axis (**37**).

5,727,611

METHOD FOR ADJUSTING BLADE CLEARANCE IN A DISC CHIPPER AND AXIAL GUIDE BEARING SYSTEM OF A DISC CHIPPER

Alpo Kalliokoski, Pori, Finland, assignor to Sunds Defibrator Woodhandling Oy, Pori, Finland

Filed Dec. 18, 1996, Ser. No. 768,973
Claims priority, application Finland, Dec. 22, 1995, 956202
Int. Cl.[6] B27C *1/00*
U.S. Cl. 144—329 **13 Claims**



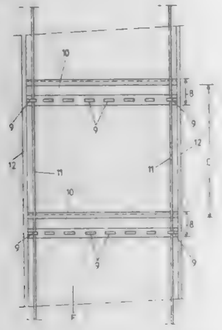
1. A method for adjusting blade clearance in a disc chipper that includes a blade disc mounted on a shaft, a bearing attached to the shaft, a bearing housing which houses the bearing, a first cap positioned on one side of the bearing and connected to the bearing housing by a first adjusting mechanism, a second cap positioned on an opposite side of the bearing and connected to the bearing housing by a second adjusting mechanism, and a guide projection extending between the first cap and the bearing, the method comprising the steps of:

loosening the second adjusting mechanism to axially move the second cap;

tightening the first adjusting mechanism to axially move the first cap so that the first cap pushes the bearing and the attached shaft in the axial direction by way of the first guide projection.

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5,727,612
FOLDING BLIND ROD
Udo Oksakowski, Zollgasse 15, A-6850 Dornbirn, Austria
Filed Jan. 2, 1997, Ser. No. 775,925
Claims priority, application Austria, Jan. 2, 1996, A 2196
Int. Cl.[6] E06B *9/06*
U.S. Cl. 160—84.01 **14 Claims**



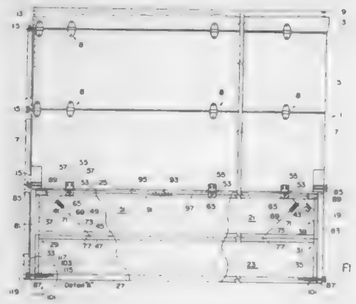
1. A folding blind rod adapted for arrangement in hose-like horizontally extending ribbons of a folding blind, the folding blind rod comprising a plurality of separating points provided along the folding blind rod, the folding blind rod having a first end and a second end, a tongue-like extension integrally formed at the first end of the folding blind rod, the tongue-like extension having a pin extending transversely of an axis of the folding blind rod, a bore each having an axis extending transversely of the axis of the folding blind rod being provided adjacent each separating point and adjacent the second end of the folding blind rod, wherein each bore and pin has a cross-section constructed so as to correspond to each other.

5,727,613
LADDER FOR VENETIAN TYPE BLINDS
Ren Judkins, 46 Newgate Rd., Pittsburgh, Pa. 15202
Filed Nov. 12, 1996, Ser. No. 745,692
Int. Cl.[6] E06B *9/38*
U.S. Cl. 160—178.3 R **17 Claims**



1. A ladder for venetian type blinds comprising:
a. a first rail and a second rail substantially parallel to the first rail each rail having an inward facing front, an outward facing back, a left side and a right side, the left side and right side being substantially parallel and running from the from to the back, the rails being positioned so that the face of the first rail is opposite from and facing the face of the second rail; and
b. a plurality of rungs attached to the rails each rung having:
i. at least one left thread attached to the back of and passing over the left side of the first rail and attached to the back of and running over the left side of the second rail; and
ii. at least one right thread attached to the back of and running over the right side of the first rail and attached to the back and running over the fight side of the second rail,
whereby the at least one left thread will be spaced apart from the at least one right thread.

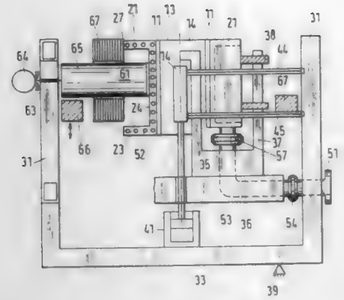
5,727,614
OVERHEAD DOOR WITH RELEASABLE BREAKAWAY PANEL
Dale M. Lichy, Gibsonia, Pn., assignor to Thruways Doorsystems Inc., Pittsburgh, Pa.
Filed Jun. 27, 1996, Ser. No. 671,236
Int. Cl.[6] E05D *15/16*
U.S. Cl. 160—201 **49 Claims**



1. A vertically-movable overhead door comprising a plurality of hingedly connected non-releasable rectangular panels having rollers extending from side edges of the panels and guided within channels having a vertical portion mounted adjacent side edges of a door opening, said overhead door further comprising a releasable panel pivotally connected to the bottommost non-releasable rectangular panel, said releasable panel having a rectangular frame defined by rigid top and bottom horizontal members and a pair of side structures, each side structure formed from at least one rigid side beam, said rigid top member pivotally connected with the bottommost non-releasable rectangular panel for enabling pivotal and freely swingable movement of said releasable panel with respect to said non-releasable panel in directions into and away from the plane of the door opening, roller means within said channels for guiding movement of said releasable panel, and a retainer member fixedly connected to said rectangular frame adjacent said rigid side beam, said retainer member retaining said releasable panel with respect to said channels during upward and downward movement of said releasable panel and for releasing said releasable panel to enable freely swingable movement of said releasable panel with respect to said vertical channels when a predetermined impact force is applied to said releasable panel.

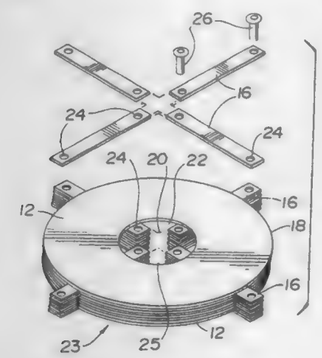
5,727,615
MOLD ARRAGEMENT
Helge Middeldorf, Duisburg; Alfons Krausa, Schermbeck; Jens Weber, Duisburg; Horst Von Wyl, Duisburg; Hans Günter Thurm, Duisburg; Otto Alexander Schmidt, Krefeld; Hans Siemer, Essen, and Dietmar Lohse, Wesel, all of Germany, assignors to Mannesmann Aktiengesellschaft, Duesseldorf, Germany
Filed Dec. 15, 1995, Ser. No. 573,441
Claims priority, application Germany, Mar. 29, 1995, 195 13 045.6
Int. Cl.[6] B22D *27/02*
U.S. Cl. 164—502 **12 Claims**

1. A mold arrangement for producing an endless metal casting, comprising:



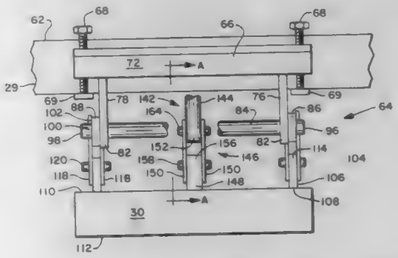
a mold having opposing wide sides made of copper plates and narrow sides arranged between the wide sides;
support plates, each of the wide sides being arranged to rest against a respective one of the support plates, the support plates being configured to have wall which define a trough-shape in a region of the wide sides of the mold;
means for oscillating the support plates;
coolant channels provided in the walls of the trough-shape support plates so as to facilitate passage of a coolant;
agitator coils, each of the coils having a core and a coil which loosely surrounds the core and is displaceable axially to the core:
a frame on which the agitator coils are mounted so as to be freely introducible into free spaces formed by the trough-shape support plates; and
drive means for moving the agitator coils at right angles to a direction of casting, the drive means being mounted on the mounting frames, the support plates each having an outer wall, the cores being arranged to be close to a base of the trough-shaped free space and the respective coil being positionable on the outer wall of the support plate.

5,727,616
ELASTOMERIC HEAT EXCHANGER BED
Allen W. Groenke, Bloomington, Minn., assignor to EdenTec, Eden Prairie, Minn.
Filed Oct. 27, 1995, Ser. No. 549,274
Int. Cl.[6] F28D *19/00*; **A62B** *7/00*
U.S. Cl. 165—4 **5 Claims**



1. A heat exchanger bed, comprising:
a plurality of elastomeric sheets, the sheets having a peripheral edge and a center, and the sheets having an opening therethrough proximate the center; and
a plurality of sheet spacers, wherein the sheets are stacked one next to another in a stack with at least one spacer disposed between adjacent sheets in the stack, and the center openings of adjacent sheets being aligned to define a passage through the stack, wherein the spacer is an elongate member extending between the opening and the peripheral edge.

5,727,617
PLATE STABILIZER ASSEMBLY FOR ROTARY REGENERATIVE AIR PREHEATERS
Kevin J. O'Boyle, Wellsville, N.Y., assignor to ABB Air Preheater, Inc., Wellsville, N.Y.
Filed Dec. 27, 1996, Ser. No. 777,292
Int. Cl.[6] F23L *15/02*
U.S. Cl. 165—9 **18 Claims**

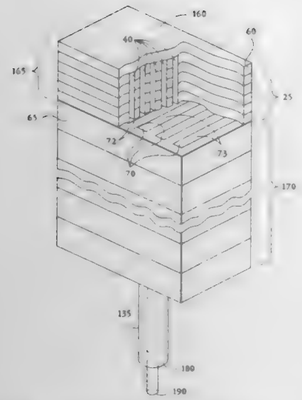


1. In a rotary regenerative air preheater including a rotor defining an axis, an external structure surrounding said rotor having a plurality of structure portions, and at least one plate mounted on one of said structure portions between said one structure portion and said rotor, means mounting said plate on said one structure portion comprising:
a stabilizer beam fixedly mountable to said one structure portion, said stabilizer beam having oppositely disposed first and second ends;
first and second stabilizer lugs having oppositely disposed first and second end portions, said first end portion of said first and second stabilizer lugs being mounted adjacent said first and second ends of said stabilizer beam, respectively;
first and second stabilizer arms having oppositely disposed first and second end portions, said first end portion of said first and second stabilizer arms being rotatably mounted to said second end portion of said first and second stabilizer lugs, respectively;
torsion bar means disposed intermediate said first and second stabilizer lugs and fixed thereto for transmitting force between said first and second stabilizer lugs;
first and second mounting lugs having oppositely disposed first and second end portions, said first end portion of each mounting lug being fixedly mountable to said plate; and
first and second linkage means for rotatably linking said second end portion of said first and second stabilizer arms in offset relationship to said second end portion of said first and second mounting lugs, respectively.

5,727,618
MODULAR MICROCHANNEL HEAT EXCHANGER
David C. Mundinger, 8362 Rhoda Ave., Dublin, Calif. 94568, and D. Philip Worland, 3157 Balmoral Dr., San Jose, Calif. 95132
Continuation of Ser. No. 110,874, Aug. 23, 1993, abandoned. This application Sep. 16, 1994, Ser. No. 307,398
Int. Cl.[6] F28F *7/00*
U.S. Cl. 165—80.4 **23 Claims**

1. An apparatus for cooling a heated region comprising:
a liquid coolant;
a thermally conductive substrate in heat exchange communication with said heated region;
a first body having a plurality of elongated passageways;

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a second body, disposed between said substrate and said first body, with said second body being in heat exchange communication with said substrate and including a plurality of microchannels, with said plurality of elongated passageways defining a plurality of inlet apertures and a plurality of outlet apertures, with said plurality of inlet and outlet apertures being interspaced and in flow communication with said plurality of microchannels;

means, in flow communication with said plurality of inlet apertures, for symmetrically dividing a stream of said liquid coolant moving toward said plurality of inlet apertures into a plurality of coolant flows, said symmetrically dividing means formed from a plurality of laminae arranged as a contiguous stack, each of said plurality of laminae having multiple throughaways disposed therein, with a subset of said multiple throughways of adjacent laminae being aligned, defining a flow path in fluid communication with said plurality of inlet apertures, a first of said plurality of laminae being disposed between a second and third of said plurality of laminae and having one said throughway including a central portion and a pair of tributary portions, each of which extends from said central portion in opposing directions, with said second of said plurality of laminae having one said throughway with a cross-sectional area coinciding with a region of said central portion and said third of said plurality of laminae having a barrier portion coinciding with said region and having a plurality of said throughways, so that a flow traveling along said flow path and through said central portion is evenly divided by passing through said pair of tributary portions and a subgroup of said plurality of throughways;

means, in fluid communication with said symmetrically dividing means, for supplying said coolant to said inlet apertures via said subset of said multiple throughways; and

means for receiving said coolant from said outlet apertures.

5,727,619

HONEYCOMB SANDWICH PANEL WITH BUILT IN HEAT PIPES

Akira Yao, and Hiromi Seko, both of Kamakura, Japan, assignors to Mitsubishi Denki Kabushiki Kaisha, Tokyo, Japan

Division of Ser. No. 462,474, Jun. 5, 1995. This application Jul. 10, 1996, Ser. No. 677,950

Claims priority, application Japan, Aug. 10, 1994, 6-188441

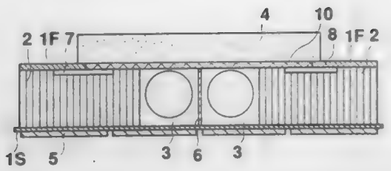
Int. Cl.[6] F28D *15/00*

U.S. Cl. 165—104.33 **5 Claims**

1. A honeycomb sandwich panel comprising:

a) a honeycomb core sandwiched between outer surfaces;

b) a heat pipe formed in an envelope embedded in the honeycomb core; and



c) a heat transmitting plate which is directly bonded, on its lower surface, to the envelope having the heat pipe therein and which is partially exposed at its upper surface, and is made from a material assuring good heat conducting performance and wherein the exposed portion of the heat transmitting plate is flush with the one of the outer surfaces.

5,727,620

RIM SEALED PLATE-TYPE HEAT EXCHANGER

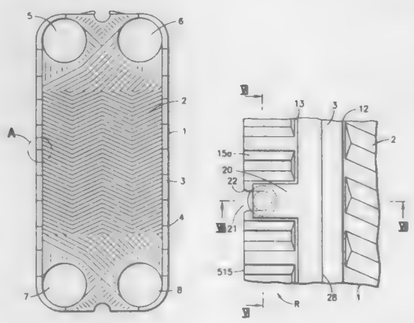
Günter Schäufele, Karlsruhe, and Zhangeng Guo, Stuttgart, both of Germany, assignors to Schmidt-Bretten GmbH, Bretten, Germany

Filed Nov. 8, 1995, Ser. No. 554,656

Claims priority, application Germany, Feb. 23, 1995, 195 06 281.7

Int. Cl.[6] F28F *3/00*

U.S. Cl. 165—166 **22 Claims**



1. Plate-type heat exchanger with a circumferential seal (**3**),

said heat exchanger having at least two essentially parallel plates (**1**) adapted to be secured together with space therebetween to permit a heat exchange fluid to pass between the plates, each plate defining a rim (R, R'),

wherein at least one (**1**) of said plates is formed with a circumferential groove (**10**) to receive the seal (**3**),

wherein said seal (**3**) is formed with a plurality of projections (**14**, **20**, **814**, **30**, **31**) located at longitudinally spaced positions, with attachment portions (**18**, **25**, **35**) at their respective ends extending essentially perpendicularly to the longitudinal direction of the projections of the seal,

said at least one plate is formed with recesses (**19**, **21**, **33**, **34**) located laterally of the groove (**10**) in a direction essentially perpendicular to the groove (**10**),

said recesses (**19**, **21**, **33**, **34**) receiving said attachment portions (**18**, **25**, **35**) and being in engagement with said attachment portions; and

in accordance with the invention, said heat exchanger comprising the improvement that the recesses (**19**, **21**, **33**, **34**) receiving said attachment portions (**18**, **25**, **35**) are open to a terminal edge (**15**) of the rim (R, R') of the plate,

whereby mounting of the seal (**3**) by insertion of said attachment portions from outside the heat exchanger is possible.

5,727,621

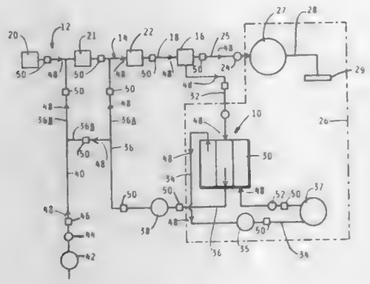
GEOTHERMAL ENERGY MEANS AND PROCEDURE

James R. Hardin, Indianapolis, Ind., assignor to Geotech, LLC (a non-incorporated company), Indianapolis, Ind.

Filed Dec. 26, 1995, Ser. No. 578,327

Int. Cl.[6] F24D *11/00;12/00;* **F24J** *3/08*

U.S. Cl. 165—45 **6 Claims**



1. A geothermal energy means, for association with a primary water-supply means including a primary water-conduit means by which potable water is supplied to a field of premises which are to be supplied as participants of the potable water from said water-supply means, the water for making up the potable water in the primary water-conduit means being supplied to the field of premises by a primary input line operatively leading from an associated ground water source to the premises of said field,

and there being a line from the potable water supply from said field to a user's premises,

there being water-treatment means operatively in said primary water-conduit means,

there being a meter means operatively in the line from the potable water supply from said field to a user's premises,

a user's field operatively including heat exchanger means,

the geothermal energy means associated therewith comprising the improvement of a secondary water-conduit means connected to the said field of potable water upstream of the meter means of the user's field, thereby providing that the user's meter means will show the amount of water used by the user's geothermal means;

and the secondary water-conduit means operatively passing through the heat exchanger means of the user and is operatively connected to the primary water-conduit means.

5,727,622

HEAT RADIATING ELEMENT

Alex Gurevich, Petah-Tikva; Ilya Khurin, Hadera, and Yuval Bromberg, Ramat-Hasharon, all of Israel, assignors to Elisra Gan Ltd., Tel Aviv, Israel

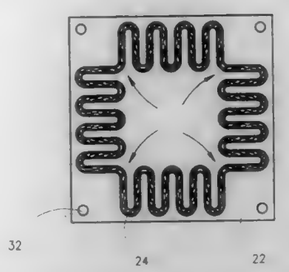
Continuation of Ser. No. 400,104, Mar. 6, 1995, abandoned. This application Oct. 15, 1996, Ser. No. 732,835

Claims priority, application Israel, Mar. 4, 1994, 108860

Int. Cl.[6] F28F *7/00*

U.S. Cl. 165—80.3 **12 Claims**

1. An assembly for dispating heat generated by one or more electric or electronic components, comprising a heat conducting plate in contact with said components; at least one heat dissipating element being in contact with said plate and arranged in a closed loop; and a device for driving coolant gas into said closed loop at a coolant gas velocity V; said element being made of heat conductive sintered metallic or ceramic fibers, powder and nets, or any combination of these, pressed and sintered so as to form a compact structure which is permeable to the cooling gas and having a porosity of about 40–80%; the element having the form of a strip with narrow sides and wide sides and being in contact with the plate through one of its narrow sides, the strip having a thickness T, measured in a direction parallel to the narrow sides, which is at



least about 3 times the characteristic diameter of the fibers or of the powder's particles and which obeys the following equation:

$$T \leq \frac{V^{1/2} \cdot D^{3/2} C_p \rho \nu^{1/2}}{(1-P)\lambda}$$

wherein

D is the characteristic diameter of the fibers or of the powder's particles,

V is the coolant gas velocity,

P is the porosity, and

C_p, ρ, υ and λ are the coolant gas's specific heat, density, dynamic viscosity and thermal conductivity, respectively,

whereby gas directed into the interior of said closed loop flows through said heat dissipating element.

5,727,623

DEHUMIDIFIER HAVING TWO HEAT EXCHANGERS

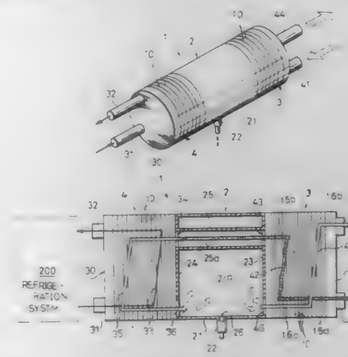
Masuo Yoshioka; Hiromoto Ohta, both of Nagano; Toshiaki Yamagishi, Suzaka, and Noritake Yoshioka, Nagano, all of Japan, assignors to Orion Machinery Co., Ltd., Nagano-ken, Japan

Filed Jan. 8, 1997, Ser. No. 778,238

Claims priority, application Japan, Jan. 16, 1996, 8-023278

Int. Cl.[6] F28B *1/00*

U.S. Cl. 165—113 **7 Claims**



1. A device for dehumidifying high-temperature, high-humidity air supplied under pressure, the dehumidifier comprising:

(A) an air-water separator comprising:

(a) a pressure-tight separator vessel defining a separator chamber in which water is to be separated from air, the separator vessel having a pair of opposite ends;

(b) drain means for withdrawing water from the separator chamber; and

(c) means pressure-tightly defining a through passageway extending through the separator vessel from one end to the other thereof;

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(B) a first heat exchanger disposed contiguous to one end of the separator vessel, the first heat exchanger comprising:
(a) a plurality of heat transfer walls interconnected so as to define alternately therebetween a first and a second set of flow paths for heat exchange therebetween, the first set of flow paths communicating with the through passageway in the separator vessel, the second set of flow paths communicating with the separator chamber;
(b) means for admitting high-temperature, high-humidity air under pressure into the first set of flow paths and thence into the through passageway in the separator vessel; and
(c) means for discharging low-humidity air from the second set of flow paths, the low-humidity air being directed from the separator chamber into the second set of flow paths in order to be afterheated by the high-temperature, high-humidity air in the first set of flow paths by heat exchange; and

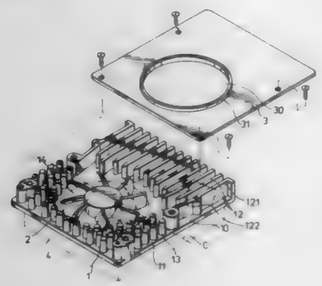
(C) a second heat exchanger disposed contiguous to the other end of the separator vessel, the second heat exchanger comprising:
(a) a plurality of heat transfer walls interconnected so as to define alternately therebetween a third and a fourth set of flow paths for heat exchange therebetween, the third set of flow paths communicating with the through passageway in the separator vessel for receiving therefrom the high-humidity air which has been precooled by afterheating the low humidity air in the first heat exchanger, and also with the separator chamber;
(b) means for admitting a coolant into the fourth set of flow paths for cooling the precooled high-humidity air in the third set of flow paths by heat exchange, the cooled high-humidity air being directed from the third set of flow paths into the separator chamber therein to be reduced in humidity; and
(c) means for discharging the coolant from the fourth set of flow paths.

5,727,624

CPU HEAT DISSIPATING DEVICE WITH AIRGUIDING UNITS

Chun-Chin Ko, and Chai-Fong Kao, both of Taipei, Taiwan, assignors to Liken Lin, Taipei Hsien, Taiwan

Filed Mar. 18, 1997, Ser. No. 820,777
Int. Cl.[6] H05K *7/20*
U.S. Cl. 165—121 **5 Claims**



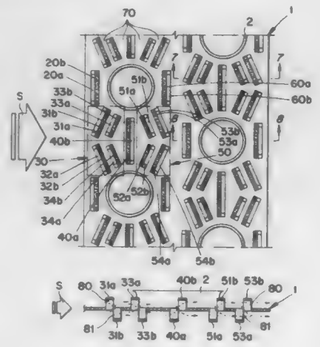
1. A CPU heat dissipating device comprising:
a heat-conducting base plate adapted to be mounted on a CPU and having a flat top surface;
an annular fin unit mounted on said top surface of said base plate and projecting integrally and upwardly from entire outer periphery of said base plate;
an air-drawing fan mounted on said top surface of said base plate and located inside said annular fin unit; and
a guide plate fixed on said base plate and located immediately over said annular fin unit, said guide plate having an opening which is formed therethrough and located immediately over said fan, and an annular flange which projects integrally and upwardly from said base plate and which is located around and adjacent to said opening so as to guide cooling air to flow onto said top surface of said base plate in a direction perpendicular to said top surface of said base plate, thereby reducing turbulence between said base plate and said guide plate.

5,727,625

HEAT EXCHANGER HAVING FINS WITH AIR CONDUCTING SLITS FORMED THEREIN

Back Youn, Suwon, and Young-Saeng Kim, Incheon, both of Rep. of Koren, assignors to Samsung Electronics Co., Ltd., Suwon, Rep. of Korea

Filed Dec. 5, 1996, Ser. No. 760,716
Claims priority, application Rep. of Korea, Dec. 5, 1995, 95-46869
Int. Cl.[6] F28D *1/04*; **F28F** *1/32*
U.S. Cl. 165—151 **6 Claims**



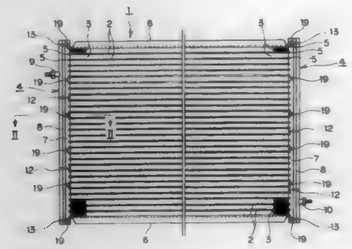
1. A heat exchanger for an air conditioner, comprising a plurality of flat fins disposed parallel to each other for conducting air currents in a direction of flow through spaces formed between adjacent ones of the fins, and a plurality of heat transfer pipes extending through the fins perpendicular to the fins in a zigzagged arrangement, each of the fins including:
a first plurality of slit-type grilles disposed in front of a respective pipe, the first plurality including a pair of slits opening on opposite sides of the fin,
a second plurality of slit-type grilles disposed at upper and lower front portions of each pipe, the second plurality including at least one pair of slits disposed at an upper front portion of the pipe and extending from opposite sides of the fin, and at least one pair of slits disposed at a lower front portion of the pipe and extending from opposite sides of the fin;
a third plurality of slit type grilles disposed at upper and lower central portions of a respective pipe, the third plurality comprising a pair of slits disposed at an upper central portion of the pipe and extending from opposite sides of the fin, and a pair of slits disposed at a lower central portion of the pipe and extending from opposite sides of the fin;
fourth plurality of slit type grilles disposed at upper and lower rear portions of a respective pipe, the fourth plurality including at least one pair of slits disposed at an upper rear portion of the pipe and extending from opposite sides of the fin, and at least one pair of slits disposed at a lower rear portion of the pipe and extending from opposite sides of the fin; and
a fifth plurality of slit-type grilles disposed behind a respective pipe, the fifth plurality including a pair of slits opening on opposite sides of the fin;
each pair of slits forming two air passages that are contiguous with one another.

5,727,626

HEADER TANK OF HEAT EXCHANGER

Soichi Kato, Konan-machi, Japan, assignor to Zexel Corporation, Tokyo, Japan

Continuation of Ser. No. 276,658, Jul. 19, 1994, abandoned. This application Jan. 30, 1996, Ser. No. 594,325
Claims priority, application Japan, Jul. 20, 1993, 5-179077
Int. Cl.[6] F28F *9/02*
U.S. Cl. 165—173 **4 Claims**



1. A heat exchanger comprising:
a plurality of tubes,
corrugated fins stacked alternately with said tubes,
a pair of parallel header tanks to which both ends of the tubes are connected, each header tank comprising:
partition plates provided in said each header tank,
an end plate,
a tank plate cooperating with said end plate to form a tank assembly, wherein
first pressing members are provided on one of the end plate and the tank plate for pressing one of the plates against the other plate for engagement therewith; said each header tank characterized in that
end partition plates are provided near ends of the header tank,
the first pressing members on one of the plates are located only at first positions corresponding to positions where the end partition plates are provided, and that
said first pressing members on said one of the plates are bent to be continuous contact with an external surface of said the other plate to exert pressures on said external surface against side faces of said end partition plates.

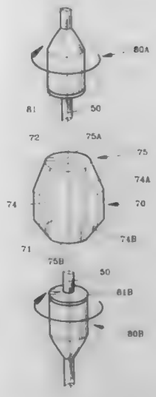
5,727,627

WELL ROD CENTRALIZER/CENTRALIZER STOP INTERFACE WITH WEAR REDUCING SURFACE

Andrew Squires, S.W. Calgary, Canada, assignor to FCE Control Flow Equipment Ltd., Edmonton, Canada

Filed Apr. 13, 1995, Ser. No. 421,243
Int. Cl.[6] E21B *17/10*
U.S. Cl. 166—241.3 **19 Claims**

1. Well apparatus comprising a rotary tool in a string of tubing extending into a well hole in the earth, a rod extending to the ground surface through said tubing and drivingly connected to said tool, said rod being rotated about its longitudinal axis while driving said tool, centralizers on said rod and a pair of centralizer stops mounted on said rod for each of the centralizers thereon, each pair of centralizer stops being located respectively on opposite sides of a centralizer associated therewith and closely adjacent thereto, said centralizers being located at positions spaced apart from one another longitudinally along the rod, said stops and centralizers associated therewith having wear interface surfaces, at least one of said centralizer stop and centralizer wear interface surfaces which abut one another being provided by a wafer made of a material having a hardness in the range of 7 to 10 in Mohs scale of hardness and thereby being greater than the hardness of abrasive materials likely, during use, to pass through said tubing, said wafer having an annular sleeve projecting therefrom and extending along a portion of said rod.

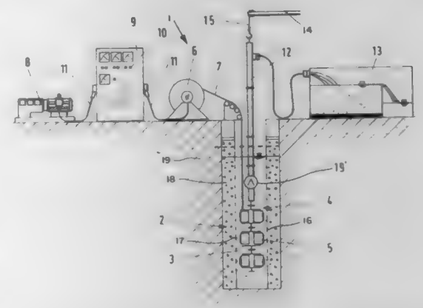


5,727,628

METHOD AND APPARATUS FOR CLEANING WELLS WITH ULTRASONICS

Norbert Patzner, Waldstrasse 14, 97980 Bad-Mergentheim, Germany

Filed Mar. 22, 1996, Ser. No. 621,815
Claims priority, application Germany, Mar. 24, 1995, 195 10 421.8; European Pat. Off., Feb. 1, 1996, 96101406
Int. Cl.[6] E21B *37/08*
U.S. Cl. 166—249 **25 Claims**



1. A method of cleaning a well by ultrasound using an apparatus comprising an ultrasonic generator unit including at least two magnetostrictive ultrasonic transducers on each of at least one radial plane of said ultrasonic generator unit, wherein each said magnetostrictive ultrasonic transducer has an ultrasonic emitting surface having an output power density in the range from 8 to 12 Watts/cm^2 of said emitting surface,
said method comprising positioning said ultrasonic generator unit in said well, and magnetostrictively generating at least one ultrasonic wave with said magnetostrictive ultrasonic transducers.

14. An apparatus for cleaning a well using ultrasound comprising an ultrasonic generator unit including at least two magnetostrictive ultrasonic transducers on each of at least one radial plane of said ultrasonic generator unit, wherein each said magnetostric-

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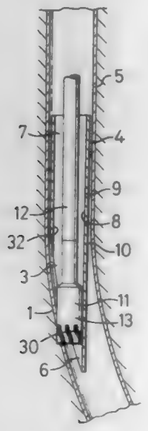
tive ultrasonic transducer has an ultrasonic emitting surface having an output power density in the range from 8 to 12 Watts/cm^2 of said emitting surface.

5,727,629

WELLBORE MILLING GUIDE AND METHOD

William A. Blizzard, Jr., Houston, Tex., and Dale E. Langford, Lafayette, La., assignors to Weatherford/Lamb, Inc., Houston, Tex.

Filed Jan. 24, 1996, Ser. No. 590,747
Int. Cl.^{6} E21B *29/06*
U.S. Cl. 166—298 **20 Claims**



1. A method for milling an opening in a tubular in a wellbore, the method comprising

installing a mill guide in the tubular at a desired milling location, the tubular having a whipstock installed therein, the whipstock having a concave member with a slanted portion for diverting a milling apparatus or drilling apparatus in a desired direction, the mill guide having a lower end shaped to correspond to the slanted shape of the concave member, the lower end of the mill guide movable to contact the concave member and protect it

inserting milling apparatus through the tubular and through the mill guide so that a milling portion of the milling apparatus contacts the tubular at the desired milling location while the milling apparatus contacts and is directed toward the tubular by the mill guide, and

milling an opening in the tubular.

5,727,630

TELESCOPIC JOINT CONTROL LINE SYSTEM

Ashley N. M. Brammer, Aberdeen, Scotland, assignor to ABB Vetco Gray Inc., Houston, Tex.

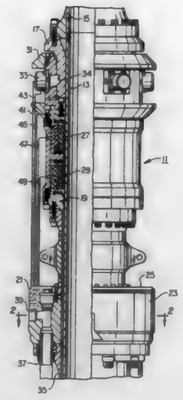
Filed Aug. 9, 1996, Ser. No. 694,551
Int. Cl.^{6} E21B *17/07*
U.S. Cl. 166—355 **15 Claims**

1. A telescopic joint assembly for use with a riser extending between a subsea wellhead and a vessel, comprising in combination:

an outer barrel:

an inner barrel carded within the outer barrel for vertical movement relative to the outer barrel due to wave movement:

a mandrel on a lower end of the outer barrel and adapted to secure to the upper end of a riser, the mandrel having a circumferential exterior wall;



a plurality of control fluid passages in the mandrel, each having an inlet at the exterior wall and an outlet located above the inlet;

a plurality of control fluid lines connected between the outlets of the control fluid passages and the outer barrel for supplying control fluids to the outer barrel; and

a support ring adapted to be suspended from the vessel and having a bore in which the mandrel lands to provide support for the upper end of the riser, the support ring having a plurality of control fluid passages which are adapted to be connected to a plurality of control fluid hoses extending from the vessel, the control fluid passages of the support ring each having an outlet in the bore which mates with one of the inlets in the mandrel to supply control fluid to the outer barrel.

11. A method for installing and operating a telescopic joint for a riser extending between a subsea wellhead and a vessel, the telescopic joint having an outer barrel, an inner barrel carried telescopingly within the outer barrel and connected to a conduit extending upward into engagement with the vessel,

a mandrel on a lower end of the outer barrel which secures to the upper end of the riser, the mandrel having a circumferential exterior wall and adapted to land in a support ring suspended from the vessel which has a bore for receiving the exterior wall of the mandrel to provide support for the upper end of the riser, the method comprising:

(a) providing a plurality of control fluid passages in the mandrel, each having an inlet at the exterior wall and an outer located above the inlet;

(b) connecting a plurality of control fluid lines between the outlets of the control fluid passages and the outer barrel;

(c) providing a plurality of control fluid passages in the support ring and connecting them to a plurality of control fluid hoses extending from the vessel, the control fluid passages of the support ring each having an outlet in the bore;

(d) connecting the mandrel to an upper end of the riser and lowering the mandrel into the support ring with the outlets of the control fluid passages in the support ting oriented with the inlets of the control fluid passages in the mandrel; then

(e) supplying control fluid through the control fluid hoses to control the telescopic joint.

5,727,631

COILED TUBING HANGER

Dwight Baker, and James C. Baker, both of Rush Springs, Okla., assignors to Total Tool, Inc., Rush Springs, Okla.

Filed Mar. 12, 1996, Ser. No. 614,433
Int. Cl.^{6} E21B *19/10;33/04*
U.S. Cl. 166—379 **31 Claims**

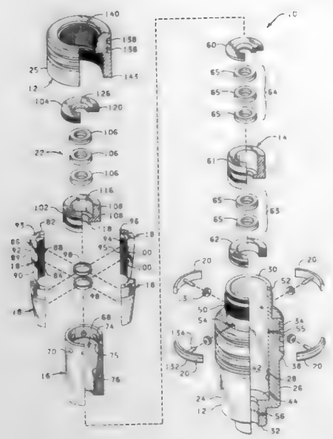
1. An apparatus for supporting a tubular member extending from a wellhead into a well bore, the apparatus comprising:

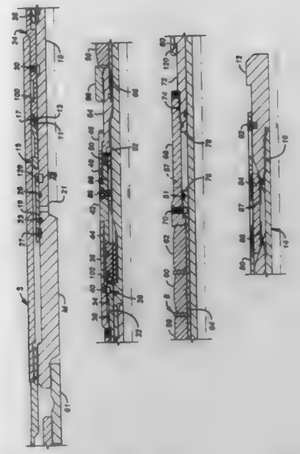
a hanger body adapted to be supported on the wellhead, the hanger body having a bore extending therethrough for receiving the tubular member and a slip bowl disposed therein having an internal support shoulder formed thereon, a straight portion extending substantially perpendicular from the support shoulder of the slip bowl a distance downward and a tapered portion extending from the straight portion to the lower end of the slip bowl;

a plurality of slip segments, each slip segment having a generally wedge-shaped configuration and characterized as having an upper end, a lower end, an outer side, and an inner side, the outer side having a protrusion extending therefrom and a tapered surface corresponding to the tapered portion of the slip bowl, the tapered surface of the slip segments extending from a distance below the protrusion to the lower end of the slip segment, the inner side of each of the slip segments having a curved configuration and having a plurality of serrations formed thereon adapted for gripping engagement with the tubular member, the slip segments movable between a retracted position wherein the tubular member is passable through the slip bowl and the protrusion of each slip segment is disposed on the internal support shoulder of the slip bowl so as to support the slip segments in the slip bowl and an extended position wherein slip segments are moved off of the internal shoulder of the slip bowl and into gripping engagement with the tubular member such that the slip segments are caused to slide downward along the tapered portion of the slip bowl so as to wedge the slip segments between the slip bowl and the tubular member to hold the tubular member when a downward force is applied to the tubular member;

slip segment retaining means for biasing the slip segments in the retracted position; and

a plurality of slip setting pins extending radially through the hanger body in a spaced apart relation so as to be selectively engagable against the outer side of the slip segments such that the slip segments are moved to the extended position when the pins are urged toward the slip segments and such that the slip segments are biased in the retracted position when the pins are urged away from the slip segments.





unloading said sealing element from a set to a relaxed position by permitting relative component movement initiated from above said sealing element without unlocking said locking mechanism; and

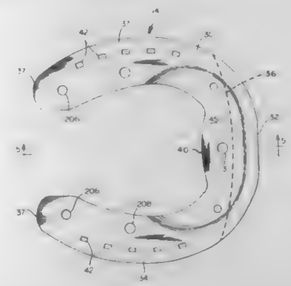
releasing said locking mechanism when there is little or no applied stress exerted on it from said sealing element.

5,727,633

HORSESHOE FOR TREATMENT OF LAME HORSES

Eugene D. Ovnicek, 525 Halfmoon Rd., Columbia Falls, Mont. 59912

Division of Ser. No. 138,952, Oct. 18, 1993, Pat. No. 5,439,062, and a continuation-in-part of Ser. No. 947,140, Sep. 18, 1992, Pat. No. 5,253,715. This application Jul. 24, 1995, Ser. No. 505,917
Int. Cl.^{6} A01L *1/04*
U.S. Cl. 168—24 **8 Claims**



1. A horseshoe comprising a body member having a closed end toe section means defined by a front toe edge and a rear toe edge and rearwardly extending branch member means with heel sections at the ends thereof, said body member having a planar upper mounting surface and a lower ground-engaging surface; said toe section means containing a recessed section on the upper surface over an area sufficient to avoid contacting the sole of a horse's foot shod with the shoe beneath the tip of the horse's coffin bone said area extending into said branch member means and extending across said toe section means so as to underlay a portion of the hoof wall of the horse's foot; and said toe section means lower surface being beveled downwardly and rearwardly from the front edge of said toe section so as to provide an arcuate breakover line

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5,727,632

TOP RELEASE RETRIEVABLE BRIDGE PLUG OR PACKER AND METHOD OF RELEASING AND RETRIEVING

William Mark Richards, Houston, Tex., assignor to Baker Hughes Incorporated, Houston, Tex.

Filed Mar. 25, 1996, Ser. No. 622,546
Int. Cl.^{6} E21B *23/06*
U.S. Cl. 166—387 **32 Claims**

18. A method of releasing a downhole tool having slips and a sealing element, comprising:

locating a locking mechanism above said sealing element;

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that extends into and between said branches and across said toe section means lower surface underneath said recessed section whereby a major portion of said breakover line extends beneath said recessed section.

5,727,634

FIRE DETECTING/EXTINGUISHING APPARATUS AND WATER DISCHARGING NOZZLE THEREFOR

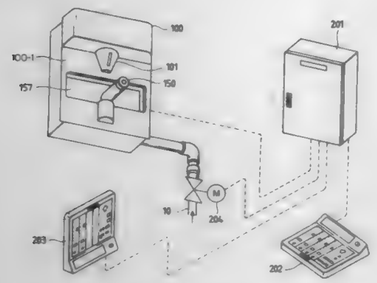
Hiroshi Ishida; Akira Asoma; Shuji Matsumoto; Teruo Iwata; Hiroyuki Shibuya; Suguru Shimokawa; Keiichi Kawaguchi, all of Tokyo; Masaru Fujita, and Toshiaki Matsumoto, both of Osaka, all of Japan, assignors to Hochiki Corporation, Tokyo, Japan

Filed Jul. 28, 1995, Ser. No. 506,981

Claims priority, application Japan, Jul. 29, 1994, 6-178244; Jul. 29, 1994, 6-178245; Jul. 29, 1994, 6-178246; Dec. 26, 1994, 6-321999; May 12, 1995, 7-114339

Int. Cl.[6] A62C *37/40*

U.S. Cl. 169—60 **36 Claims**



1. A fire detecting/extinguishing apparatus comprising:

fire detecting means for monitoring to detect an occurrence of a fire within a monitoring area;

discharging means having a discharging nozzle for discharging a fire extinguishing agent to the monitoring area, said discharging means being rotatable in a horizontal direction;

swinging means for swinging said discharging means in the horizontal direction;

a casing receiving said fire detecting means and said discharging means therein; and

a cover which is arranged to coincide with said casing to cover said discharging means when said discharging means is completely received in said casing, said cover being fixed to a side of said discharging means which is opposite to that for said discharging nozzle.

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VEHICULAR AND MARINE FIRE SUPPRESSION SYSTEM

Michael E. Doty, 8664 Eagle Pointe Dr., Knoxville, Tenn. 37931, and Samuel D. McLane, Jr., 130 Pembroke Rd., Oak Ridge, Tenn. 37830

Filed Dec. 13, 1995, Ser. No. 572,160

Int. Cl.[6] A62C *3/07*

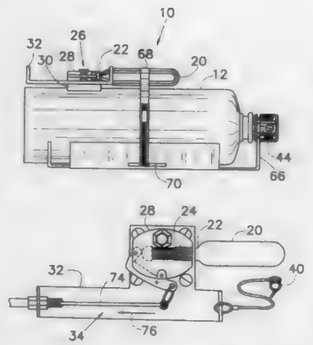
U.S. Cl. 169—62 **13 Claims**

1. A fire suppression system for extinguishing vehicular and marine fires, said fire suppression system for being removably disposed in a fixed location within a land or marine vehicle, said fire suppression system comprising:

a first canister containing a fire suppressing agent, said first canister having an inlet and an outlet defining a neck for receiving a discharge mechanism, said discharge mechanism including a manifold, a rupture disc, a nozzle and a liquid pick-up tube, said manifold having a first end and a second end dimensioned for being disposed within said outlet of said first cylinder, said first end of said manifold having at least one discharge opening, said second end of said manifold for receiving said rupture disc, said nozzle having a first end and a second end, said first end of said nozzle being fitted over said rupture disc within said second end of said manifold, said liquid pick-up tube being received on said second end of said nozzle;

a second canister containing an agitating and pressurizing agent, said second canister having an outlet and a seal disposed about said outlet; and

an actuating mechanism for establishing a fluid communication between said first and said second canisters, said actuating mechanism having an actuating valve stem received within said inlet of said first canister, said valve stem having at least one opening such that when fluid communication is established between said canisters, said opening on said valve stem draws said agitating and pressurizing agent through said valve stem and into said first canister to agitate and pressurize said fire suppressing agent such that essentially all of said fire suppressing agent is forced through said outlet of said first canister to quench a fire.



5,727,636

SHANK ASSEMBLY WITH A SHEAR RELEASE ASSEMBLY FOR A ROW CULTIVATOR

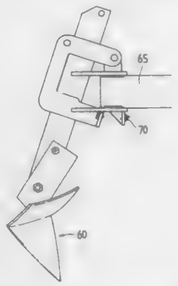
Peter Lloyd Mansur, "Florida North" Moree, New South Wales, 2400, Australia

Division of Ser. No. 361,053, Dec. 21, 1994, Pat. No. 5,603,380. This application Nov. 21, 1996, Ser. No. 754,656

Claims priority, application Australia, Dec. 22, 1993, PM3104

Int. Cl.[6] A01B *51/00*

U.S. Cl. 172—271 **2 Claims**



1. A shank assembly mountable on a tool bar of a row cultivator, the shank assembly comprising:

a shank having a lower end carrying a tool travelling in a forward direction, and an upper end;

a clamp for holding the upper end of said shank and for adjusting said shank, said clamp being pivotally connected to the tool bar by a pivot having a pivot axis disposed generally at right angles to the forward direction, said clamp having a forward portion rotating about the pivot and including spaced frame members coupled to the pivot, and

a shear release assembly for preventing said shank from pivoting about the pivot axis, the shear release assembly comprising a shear fastener urging said clamp against pivoting by applying a fastening force parallel to the forward direction and at right angles to the pivot axis, and coupling with the forward portion of said clamp so that when the shank encounters an underground obstacle, the fastening force is overcome to shear the shear fastener and to release the shank such that the forward portion of said clamp rotates about the pivot.

5,727,637

HITCH STRUCTURE FOR WORK MACHINE

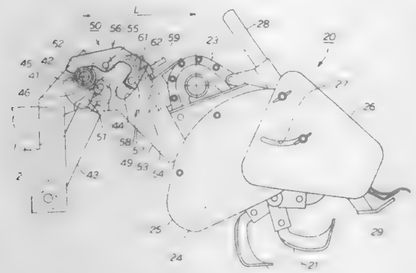
Masakatsu Kono; Yositaka Oota, and Masayuki Yamamoto, all of Wako, Japan, assignors to Honda Giken Kogyo Kabushiki Kaisha, Japan

Filed Sep. 20, 1996, Ser. No. 717,490

Claims priority, application Japan, Oct. 12, 1995, 7-263911; Jul. 2, 1996, 8-172175

Int. Cl.[6] A01B *51/00*

U.S. Cl. 172—272 **19 Claims**



1. A hitch structure comprising:

a support frame adapted to be mounted to an end of a work vehicle;

a tube supported crosswise on said support frame; and

a hitch for connecting an end of a work machine to said tube, said hitch comprising:

at least one upper jaw plate and at least one lower jaw plate each having a recess for receiving said tube, said upper and lower jaw plates being pivotally connected together by means of a pin, one of said upper jaw plate and said lower jaw plate having an arc-shaped groove extending arcuately about said pin, and a portion extending parallel to said pin, the other of said upper jaw plate and said lower jaw plate having a cross shaft received in and movable along said arc-shaped groove; and

a moving member for moving said upper and lower jaw plates pivotally and relatively toward and away from each other, said moving member including a bolt connected to said cross shaft and extending through said portion of said one jaw plate, and a nut threaded with said bolt and held in contact with said portion of said other jaw plate, wherein when said nut is turned in one direction, said bolt moves in one direction along an axis thereof to cause said other jaw plate to turn about said pin toward said one jaw plate to firmly grip said tube between said one and other jaw plates with said tube being received in said recesses, and when said nut is turned in the opposite direction, said bolt moves in the opposite direction along the axis thereof to cause said other jaw plate to move away from said one jaw plate to allow said tube to be released from said one and other jaw plates.

5,727,638

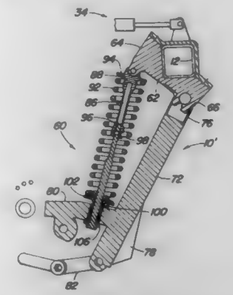
DOWN PRESSURE SYSTEM WITH FREE FLOAT EXTENSION

Timothy Dirk Wodrich, Rock Island, and Ralph Everette Stanfill, Genesee, both of Ill., assignors to Deere & Company, Moline, Ill.

Filed Aug. 1, 1996, Ser. No. 691,105

Int. Cl.[6] A01C *5/06*

U.S. Cl. 172—414 **20 Claims**



1. In an implement having a frame adapted for forward movement over the ground, an opener assembly having an opener arm rockably connected to the frame for vertical movement with respect to the frame and a rearward end connected to a furrow opener for providing a furrow in the ground, a down pressure system for adjustably biasing the opener arm, the down pressure system comprising:

a coil spring having first and second abutment portions;

a tension link extending through the coil spring and having first and second ends;

a pressure adjusting mechanism connected between the frame and the coil spring; and

a lost motion connection extending between the second end of the tension link and the opener arm, the lost motion connection providing a limited downward bias on the furrow opener independent of the coil spring over a first range of vertical movement of the furrow opener arm and a spring-dependent downward bias on the opener over a second range of vertical movement of the opener arm.

5,727,639

PILE DRIVING HAMMER IMPROVEMENT

John D. Jeter, St. Martinville, La., assignor to Lee Matherne, Houston, Tex.

Filed Mar. 11, 1996, Ser. No. 613,612

Int. Cl.[6] B25D *9/04*

U.S. Cl. 173—132 **14 Claims**

1. An improved pile driving drop hammer of the free piston internal combustion type, comprising:

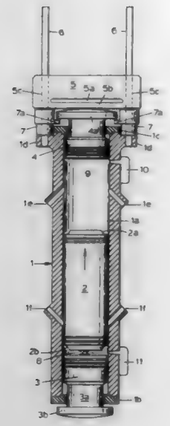
a) a body with a ram confining generally cylindrical vertical bore;

b) a generally cylindrical ram situated in said bore, for axial movement therein between upper and lower travel limits, with an integral piston situated on at least a lower end;

c) an anvil secured to said body to extend downwardly from said bore for limited vertical movement to deliver vertical blows to a driven piling when said piling is situated below said anvil;

d) a closed combustion chamber defined by said bore, said piston, and said anvil;

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e) injector means situated to inject fuel into said bore between said ram and said anvil;

f) ports opening from outside said body into said bore for movement of gases between said bore and the atmosphere around said body, said ports situated to be opened and closed by said piston when said piston moves between said travel limits;

the improvement comprising:

g) a mass situated on said body for axial movement, between an upper and a lower limit, with guidance thereon and situated to receive impact energy from said ram when said ram approaches said upper limit of said travel and to rise against gravity forces to expend energy received from said impact energy and to return under the influence of gravity.

5,727,640

DEEP WATER SLIM HOLE DRILLING SYSTEM

Svein Gleditsch, Lundenes, Norway, assignor to Mercur Subsea Products AS, Harstad, Norway

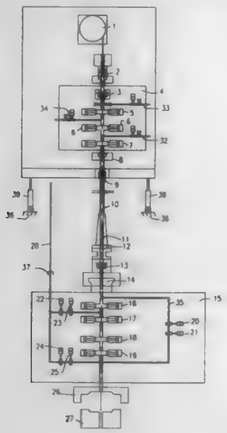
Filed Oct. 30, 1995, Ser. No. 550,495

Claims priority, application Norway, Oct. 31, 1994, 944136

Int. Cl.[6] E21B *7/128*

U.S. Cl. 175—7 **11 Claims**

1. Arrangement for use in drilling of deep water oil/gas wells, characterized in that the arrangement comprises a surface blowout preventer which is connected to a high pressure riser pipe which in turn is connected to a well blowout preventer, and a circulation/kill line communicating between said blowout preventers, said well blowout preventer comprising pipe rams for casing pipe and coiling pipe, respectively, with the possibility of two-ways sealing, said pipe rams being connected with said circulation/kill line and encompassed by a bypass line wherein said circulation/kill line in the well blowout preventer has a first branch connected to an outlet between two upper pipe rams and a second branch connected to an outlet below the lowermost pipe ram and having access to a drilling hole below said latter pipe ram and the top of the well.



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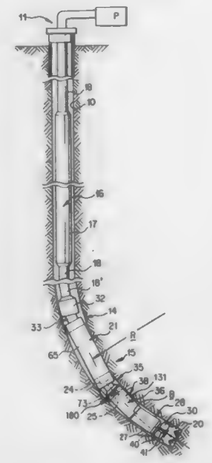
ARTICULATED DIRECTIONAL DRILLING MOTOR ASSEMBLY

Alan M. Eddison, Stonehaven, Scotland, and Warren E. Askew, Houston, Tex., assignors to Schlumberger Technology Corporation, Sugar Land, Tex.

Continuation-in-part of Ser. No. 376,497, Jan. 23, 1995, Pat. No. 5,542,482, which is a continuation-in-part of Ser. No. 332,682, Nov. 1, 1994, Pat. No. 5,520,256. This application Aug. 5, 1996, Ser. No. 692,251

Int. Cl.[6] E21B *7/08*

U.S. Cl. 175—76 **16 Claims**



1. A directional drilling assembly for causing a drill bit to drill a curved borehole having a high side and a low side, comprising: mud motor means for rotating a drive shaft that is coupled to said drill bit, said mud motor means having an upper housing, a lower housing, and articulative joint means connecting said housings to one another to allow relative pivotal movement therebetween during curved borehole drilling; means forming a bend angle in said lower housing; lower stabilizer means on said drive shaft and rotatable therewith; and upper stabilizer means on said lower housing above said bend angle forming means, said upper stabilizer means being eccentrically arranged to increase the effect of said bend angle on said curved borehole drilling.

5,727,642

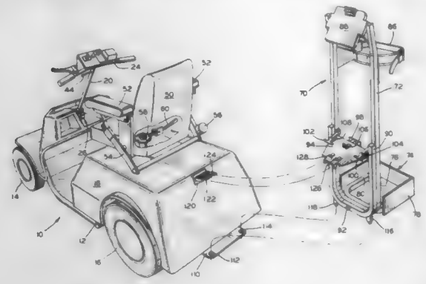
GOLF CART

Emerson L. Abbott, 10607 Heller Rd., Grand Rapids, Ohio 43522

Filed Jan. 23, 1996, Ser. No. 590,474

Int. Cl.[6] B60K *1/00;* **A61G** *5/04;* **B60R** *9/00*

U.S. Cl. 180—65.1 **3 Claims**



1. A golf cart comprising:

a) a main frame;

b) ground engaging wheels attached to said main frame;

c) motor means mounted on said main frame and drivingly interconnected to drive at least one of said ground engaging wheels;

d) steering means connected to at least one of said ground engaging wheels to effect steering movement thereof;

e) a seat for supporting an invalid golfer, said seat mounted for selective rotational movement about a vertical axis, said seat adapted to be selectively positionable in a driving position, a position ninety degrees displaced from the driving position either clockwise or counterclockwise;

f) a golf bag carrier including a frame member having golf bag retaining means affixed thereto;

g) means for pivotally mounting the frame member of said carrier to said main frame, said means including a pivotal connection permitting pivotal movement of said carrier from a first transporting position to a second position permitting the golf bag to be pivoted to a position to allow an invalid golfer to an unencumbered golf swing when said seat is in said displaced position; and

h) latch means selectively locking the frame member of said carrier in the first position and the second position.

5,727,643

SUSPENSION DEVICE FOR A SNOWMOBILE

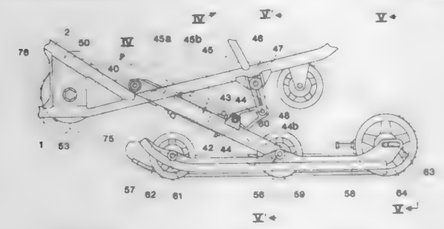
Shizuo Kawano, and Tadaaki Nagata, both of Saitama, Japan, assignors to Honda Giken Kogyo Kabushiki Kaisha, Tokyo, Japan

Filed Nov. 29, 1994, Ser. No. 350,005

Claims priority, application Japan, Nov. 29, 1993, 5-298406

Int. Cl.[6] B62D *55/112*

U.S. Cl. 180—193 **23 Claims**



1. A suspension device for a snowmobile for resiliently supporting a snowmobile body comprising:

a frame for supporting the snowmobile body;

a slide rail for pressing a crawler belt against a snow surface;

a swing arm having a front upper end pivotally supported on said frame and a rear lower end pivotally mounted on said slide rail; and

a rear cushion unit having a hydraulic buffer and a suspension spring, said rear cushion unit includes a front upper end pivotally supported adjacent to the front upper end of said swing arm, and a rear lower end of said rear cushion unit is connected to said frame through a progressive link pivotally supported on the swing arm, the progressive link being a plate including a first end connected to said frame, a second end connected to said rear lower end of said rear cushion unit and a central portion connected to said swing arm.

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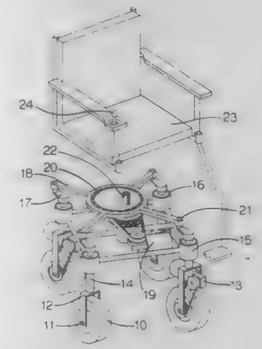
PARALLEL-ALIGNED ALL-WHEEL STEERED VEHICLE II

Brock F. Roberts, 8829 4th St. NW., Albuquerque, N. Mex. 87114, and Tor P. Roberts, 228 Rio Grande Blvd. SW., Albuquerque, N. Mex. 87104

Filed Jul. 17, 1995, Ser. No. 503,102

Int. Cl.[6] B62D *7/14*

U.S. Cl. 180—409 **2 Claims**



1. An all-wheel steered vehicle, comprising:

a) a chassis;

b) a plurality of wheel assemblies, each wheel assembly having a shaft mounted for rotation on the chassis, support means attached to the shaft for mounting an axle, a wheel mounted for rotation on the axle, and a lever arm attached to the shaft and extending to a free end spaced from said shaft;

c) a steering linkage having a ring and a plurality of arms each having one end fixedly attached to the ring and the other end extending from the ring to a point where it is pivotally connected to one of said lever arm free ends, the lever arms when so connected being disposed such that all of the axles are parallel to one another, the steering linkage ring defining a first axis;

d) steering means having a rotatable central shaft extending through the steering linkage ring to define a second axis offset from the first axis, a glide member attached to the central shaft mounted on the chassis so as to rotate therewith about said second axis, the glide member being slidingly engageable with the steering linkage ring and rotatable with respect thereto, such that activation of the steering means causes the linkage ring to rotate the lever arms simultaneously and equally with respect to the chassis.

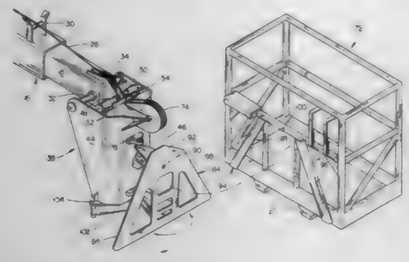
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5,727,645

AERIAL LIFT INCLUDING A DETACHABLE END-HUNG BASKET

Roger M. Woodling, Omaha, Nebr., assignor to Glazer Enterprises, Inc., Omaha, Nebr.

Filed May 3, 1996, Ser. No. 642,692
Int. Cl.° B66F 11/04
U.S. Cl. 182—2.1 8 Claims



1. In an aerial lift, comprising:
a self-propelled vehicle;
a rotatable pedestal on said vehicle;
an elongated, telescopic boom assembly having upper and lower ends and having its lower end pivotally secured, about a horizontal axis, to said pedestal;
means for pivotally moving said boom assembly with respect to said pedestal;
a first supporting structure having inner and outer ends and having its inner end pivotally secured, about a horizontal axis, to the upper end of said boom assembly;
means for pivotally moving said first supporting structure relative to said boom assembly;
a second supporting structure having inner and outer ends and having its inner end pivotally secured, about a vertical axis, to the outer end of said first supporting structure;
said second supporting structure having a first connector at its outer end;
a work station for supporting at least one person therein;
said work station having inner and outer ends;
said work station having a second connector provided thereon at its inner end which may be removably selectively connected to said first connector to mount said work station on said boom assembly in an end-hung fashion;
said first connector comprising a triangular-shaped plate means having upwardly converging first and second connector elements at the opposite sides thereof;
said second connector comprising a pair of spaced-apart, upwardly converging third and fourth connector elements which are adapted to removably receive said first and second connector elements, respectively.

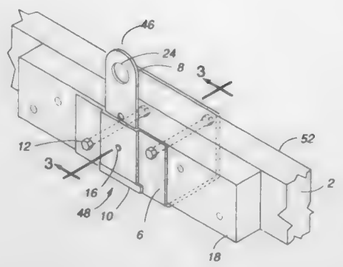
5,727,646

RETRACTABLE FALL RESTRAINT DEVICE

Geoffrey H. Gray, 8101 E. Dartmouth, No. 45, Denver, Colo. 80231

Filed Aug. 7, 1995, Ser. No. 512,150
Int. Cl.° E04G 1/36
U.S. Cl. 182—45 20 Claims

1. A retractable fall restraint device for use with a structure, comprising:
a restraint means for supporting a lifeline;
an anchoring means cooperating with said restraint means for securing said restraint means to said structure, said anchoring means having reciprocating means to allow said restraint means to slidably move between a first extended position a second retracted position; wherein and
said restraint means capable of being moved between said first extended position and the second retracted position, wherein



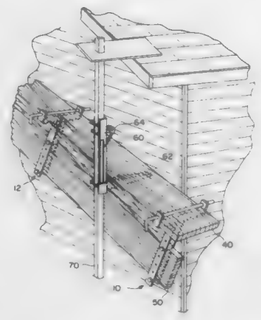
when said restraint means is in said first extended position an attachment means is adapted to be exposed above an upper edge of said structure, and when said attachment means is in said second retracted position said attachment means is adapted to be positioned below said upper edge of said structure.

5,727,647

APPRATUS AND METHOD FOR PROVIDING INCREASED DEFLECTION RESISTANCE TO A PLANK

Martin T. Brantley, Jr., 1802 Umstead Rd., Durham, N.C. 27712

Filed Jun. 6, 1996, Ser. No. 656,983
Int. Cl.° E04G 5/08
U.S. Cl. 182—82 18 Claims



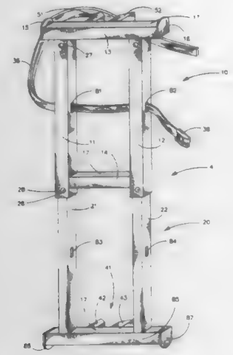
1. A brace for providing intermittently spaced deflection resistance to one or more primary planks, said braze comprising:
(A) a frame member having an upper portion and a lower portion;
(B) primary plank support means defined by said upper portion of said frame member for supporting and maintaining one or more primary planks in a substantially fixed position separate and apart from secondary planks; and
(C) secondary plank support means defined by said lower portion of said frame member for supporting and maintaining one or more secondary planks in a substantially fixed position such that the secondary planks and the primary planks extend in substantially identical directions with the secondary planks being spaced-apart from and substantially perpendicular to the primary planks whereby intermittently spaced deflection resistance is provided to the primary planks wherein said primary plank support means comprises one or more substantially horizontal surface with upward flanges extending from said horizontal support surfaces for supporting and separating said primary plank from secondary plank.

5,727,648

MODULAR LADDER SYSTEM

Joseph Robert Jenkins, Jr., 12203 Becontree Dr., Baton Rouge, La. 70810

Filed Jul. 17, 1995, Ser. No. 502,572
Int. Cl.° E06C 1/10
U.S. Cl. 182—93 10 Claims



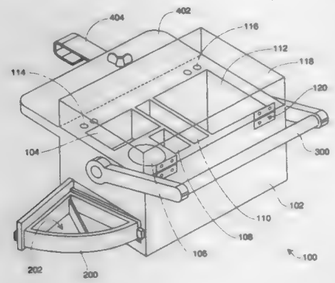
1. A portable ladder module for climbing a tree, comprising:
(a) an upper assembly and a lower assembly, wherein said lower assembly is telescopingly slidable relative to said upper assembly;
wherein said upper assembly includes a first pair of support members attached to one another by a top step, wherein said top step is positioned an upper terminal end of said first pair of support members, and the ends of said top step extending laterally beyond said first pair of support members, and wherein said lower assembly includes a second pair of support members attached to one another by a bottom step;
(b) locking means operatively disposed between said upper assembly and said lower assembly for selectively locking the position of said lower assembly relative to said upper assembly in an extended position and a retracted position;
(c) means on said upper assembly for attaching said ladder module to a tree; and
(d) means on said upper assembly and said lower assembly for stabilizing said ladder module against said tree.

5,727,649

LADDER SUPPORTABLE TOOL STORAGE CONTAINER

Kevin C. Buckley, 53 Revere Rd., Woburn, Mass. 01801

Filed Jun. 24, 1996, Ser. No. 669,045
Int. Cl.° E04G 1/00
U.S. Cl. 182—129 10 Claims



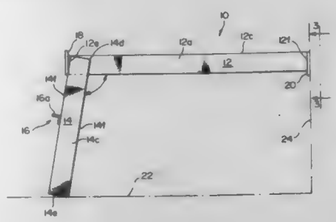
1. A tool storage container comprising:
a housing defining a plurality of storage compartments, said housing having a generally rectangular shape having four adjoining sidewalls;
a lid pivotally affixed to said housing via a hinge such that the lid may pivot about said hinge between an open and closed position;
said housing having a base:
structure forming a slot in a first one of said four sidewalls of the housing, said slot above the base when the housing is upright, said slot bounded on four sides thereof by the first sidewall;
a wedge shaped swing out parts tray for holding and accommodating small parts, said tray having an arcuate base and two sides with first and second ends, the first ends of both sides connected to each other and the second ends of both sides connected to the arcuate base, said tray incorporated into said first sidewall of said housing and pivotally affixed at an apex of said tray to said housing such as to close in a manner flush with said first sidewall of said housing, said tray pivotally movable through said slot from a first position within the housing above the base and beneath the storage compartments when the housing is upright, to a second position outwardly extended from the housing;
a pivoting handle attached about the housing in a generally conventional manner for supporting said storage container during transporting of said container; and
ladder platform attachment means affixed to said housing for removably attaching said storage container to the top platform of a conventional step ladder.

5,727,650

SUPPORT FRAMEWORK FOR A SCAFFOLD SYSTEM

Randy Thomas, P.O. Box 189, Darby, Mont. 59829

Filed Dec. 21, 1995, Ser. No. 576,373
Int. Cl.° E04G 1/32
U.S. Cl. 182—224 3 Claims



1. A scaffold support which comprises beam means comprising a first rectangular steel tube having width less than its height, a steel mounting plate welded to an inner end of said first steel tube so as to provide a bearing surface for said inner end, and a steel scaffolding retainer welded to an outer end of said first steel tube so as to cover said outer end and extend above a top edge of said first steel tube; leg means supporting said beam means at a working level of about waist height comprising hollow second and third rectangular steel tubes, the second and third steel tubes being welded to opposite sides of said first steel tube so as to diverge from one another at an acute angle of about 40° and so as to angle outward and downward from said first steel tube at an acute angle of about 20° from the vertical when said first steel tube is oriented horizontally, corresponding to an angle about 110° from said first steel tube, and an angle bar welded to said second and third steel tubes and extending between the second and third steel tubes to stabilize them and to provide a step; the second and third steel tubes of said leg means being so constructed and arranged that said beam means can be supported horizontally against an object contacting said bearing surface as a consequence of the second and third steel tubes of said leg means extending outward and downward beyond the outer end of said first steel tube.

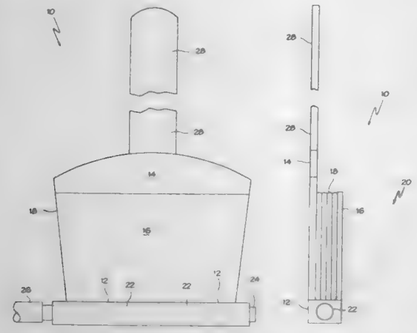
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5,727,651

OIL PAN FOR A BOAT

Doug M. Benedict, 1276 Westbrook Rd., Dayton, Ohio 45415

Filed Jul. 9, 1996, Ser. No. 677,385
Int. Cl.° F16C 3/14
U.S. Cl. 184—1.5 7 Claims



1. A method for draining and collecting oil from a boat's engine in an environmentally safe manner comprising:

providing a boat's engine having an oil pan with a drain plug;

providing an expandable pan configured to fit boat hulls of angular configuration for collecting oil from a boat's engine, said pan including a bottom, a back wall, a front wall, and collapsible pleated sidewalls, wherein all of the walls and sidewalls extend upwardly from said bottom such that a well for collecting oil is formed within said walls, wherein said sidewalls include accordion folds;

inserting said pan along side or under said boat's engine in the engine compartment such that said oil will flow into said well of said pan;

expanding said well by manually forcing said from wall away from said back wall, such that said well acquires a substantially "V"-shaped configuration;

removing said drain plug; and

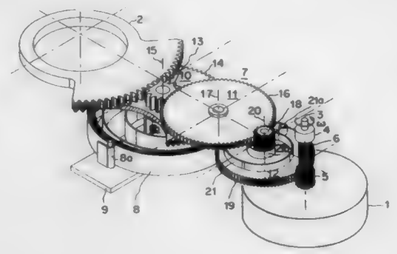
collecting said oil in said well as said oil flows into said well.

5,727,653

DRIVE DEVICE FOR AN ACTUATOR

Christian Grossenbacher, Waltenschwil, and Werner Studer, Oberageri, both of Switzerland, assignors to Landis & Gyr Technology Innovation AG, Switzerland

Filed Mar. 13, 1996, Ser. No. 614,504
Claims priority, application Switzerland, Apr. 11, 1995, 1050/95
Int. Cl.° F03G 1/08; F24F 13/08
U.S. Cl. 185—40 R 2 Claims



1. A drive device for controlling the position of an actuator comprising:

an electric motor for actuating the drive device,

said motor being adapted to control the position of the actuator by selective operation of the motor;

a gear mechanism having a first end operatively coupled to and adjacent said motor and a second end operatively coupled to and adjacent said actuator;

restoring spring means, operatively connected to said gear mechanism adjacent said second end, for storing energy from operation of said motor; and

auxiliary spring means, operatively connected to said gear mechanism adjacent said first end, for storing energy from operation of said motor;

whereby in response to loss of power applied to said motor, said gear mechanism being operable to use said stored energy of said restoring spring means to move said actuator to a preselected position, and to use said stored energy of said auxiliary spring means to counteract against the moment of said motor at rest.

5,727,652

DEVICE FOR DRAINING ENGINE OIL

Ying-Chen Ho, No. 30-2, Lane 294, Tzu Wen Rd.,, Tao-Yuan City, Taiwan

Filed Mar. 18, 1997, Ser. No. 819,737
Int. Cl.° F16C 3/14
U.S. Cl. 184—1.5 1 Claim



1. A device for draining engine oil, comprising:

an oil drain screw bolt having a cylindrical rod portion with a drain hole at the center, and a head portion, said head portion having an oil outlet formed at one side communicating with said drain hole to form a substantially L-shaped passage, an outer portion of said oil outlet forming a threaded section of a larger diameter, said head portion further having a through hole in a direction perpendicular to said oil outlet, a narrower portion being formed at a rear end of said through hole, and an oil seal being provided at an inner wall of said narrower portion;

a valve having a rod at a front end thereof, said rod being fitted with a spring, a front end of said rod being connected to a pull strap, said valve being locked inside said through hole of said oil drain screw bolt by means of a sunk-head screw fitting through a packing ring, a rear end of said through hole being locked by use of a small sunk-head screw and a packing ring, both of which have a small hole in the middle for passage of said pull strap;

an oil drain tube having a rotary connecting portion at a front end thereof for locking in said threaded portion of said oil outlet, a control valve being provided at a rear end of said oil drain tube, and said rotary connecting portion being fitted with a packing ring;

a spring element locked at an outer end of said through hole, said spring element having an end portion connected to said pull strap extending from said through hole; and

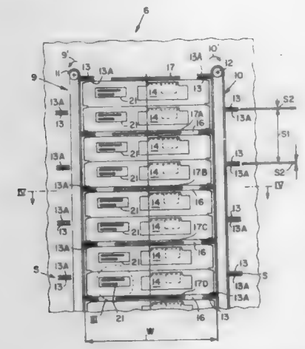
a control cable having a hook portion at a front end thereof for connecting said end portion of said spring element, said control cable further having a pull ring at a rear end thereof, said control cable being passed through a small duct secured at one side of said oil drain tube to be positioned thereby; whereby engine oil may be completely drained off without the need to remove said oil drain screw bolt from the bottom rim of the engine of a vehicle.

5,727,654

CONVEYOR WITH A HEATER FOR FOOD AND BEVERAGE ITEMS IN AN AIRCRAFT

Bernd Roessner, Rosengarten; Wilfried Sprenger, Harsefeld-Issendorf, and Hinnerk Kleinwort, Hamburg, all of Germany, assignors to Daimler-Benz Aerospace Airbus GmbH, Hamburg, Germany

Filed Jul. 12, 1996, Ser. No. 678,815
Claims priority, application Germany, Jul. 15, 1995, 195 25 678.9
Int. Cl.° B64D 11/04
U.S. Cl. 186—40 16 Claims



1. A conveyor for transporting food and beverage items in boxes (14) in an aircraft comprising at least one conveyor belt (6) for transporting said boxes (14) from a storage position in the aircraft to a use-position in the aircraft, said at least one conveyor belt comprising separators (S) thereon providing spacings (16) between neighboring boxes transported by said conveyor, at least one heater device positioned next to said conveyor (6), said heater device comprising at least one heater element (17, 17A . . .) fitting into said spacings (16), and a drive (20) connected to said heater element (17) for moving said heater element into an active heating position inside one of said spacings and into an inactive position outside said spacings.

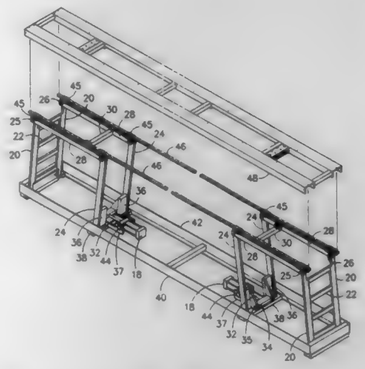
5,727,655

PLATFORM LIFTER

Frank Mark Pitman, Duncan, S.C., assignor to Milliken Research Corporation, Spartanburg, S.C.

Filed Jul. 12, 1996, Ser. No. 695,699
Int. Cl.° B66F 7/06
U.S. Cl. 187—211 1 Claim

1. An automatic raisable and lowerable platform comprising: a platform, a track mechanism mounted on the bottom of said platform, two pairs of four-bar linkages operably associated with said track mechanisms to raise and lower said platform when pivoted upwardly or downwardly, respectively, and means to pivot said linkage periodically when it is desired to raise and lower said platform, said pairs of four-bar linkages being interconnected by an endless cable so that said four-bar linkages are pivoted in unison, each of said four-bar linkages having an upper bar substantially parallel to said track mechanism, said upper bars having a plurality of bearings thereon into which said track mechanism rests so that said upper bars will slide relative to said platform when said four-bar linkages are pivoted.

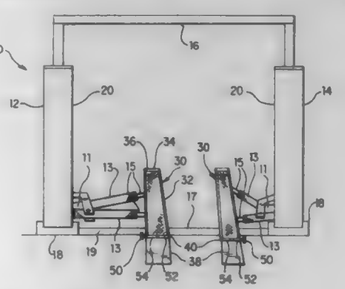


5,727,656

VEHICLE LIFT APPARATUS

Jennaro A. Gaudioso, 228 Hopewell-Princeton Rd., Hopewell, N.J. 08525, and Gene L. Michaels, 904 S. Belnord Ave., Baltimore, Md. 21224

Filed May 20, 1996, Ser. No. 650,801
Int. Cl.° B66F 7/28
U.S. Cl. 187—221 20 Claims



1. A vehicle lift apparatus, comprising:

a) a first lifting means having a vertical column from which a pair of horizontally disposed pivotal linear arms are vertically adjustable therefrom, each of the horizontally disposed pivotal linear arms has a horizontally extendable telescoping arm portion, with a pivotal connection means horizontally disposed upon the distal end of each of the horizontally extendable telescoping arm portions;

b) a second lifting means disposed in opposing, spaced relation from the first lifting means, the second lifting means having a vertical column from which a pair of horizontally disposed pivotal arms are vertically adjustable therefrom, each of the horizontally disposed pivotal arms has a horizontally extendable telescoping arm portion, with a pivotal connection means disposed upon the distal end of each of the horizontally extendable telescoping arm portions;

c) a first horizontally disposed trough secured near one end to the pivotal connection means disposed upon the distal end of one of the pair of horizontally extendable telescoping arm portions on the first lifting means, and the other end of the first horizontally disposed trough secured to the pivotal connection means disposed upon the distal end of another of the pair of horizontally extendable telescoping arm portions on

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the first lifting means; the first horizontally disposed trough having raised sides spaced to accommodate the width of a vehicle tire, a length sized to receive a vehicle thereon, with a raised stop positioned at one end of the through, and a removable ramp pivotally and releasably secured to the opposite end of the trough with a removable locking pin;

d) a second horizontally disposed trough secured near one end to the pivotal connection means disposed upon the distal end of one of the pair of horizontally extendable telescoping arm portions on the second lifting means; and the other end of the second horizontally disposed trough secured near the other end to the pivotal connection means disposed upon the distal end of another of the pair of horizontally extendable telescoping arm portions on the second lifting means, the second horizontally disposed trough having raised sides spaced to accommodate the width of a vehicle tire, a length sized to receive a vehicle thereon, with a raised stop positioned at one end of the trough, and a removable ramp releasably and pivotally secured to the opposite end of the trough with a removable locking pin; the spacing between the first horizontally disposed trough and the second horizontally disposed trough being adjustable in width to accommodate vehicles having different tire spacing and tread width; and

e) an operatively connected power means and controls for vertically, simultaniously raising and lowering the first lifting means in relation to the second lifting means.

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APPARATUS FOR BLOCKING ELEVATOR CAR TRAVEL

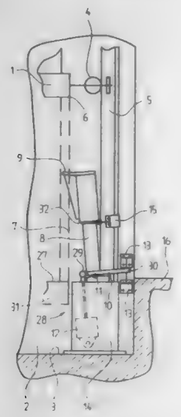
Heinrich Foelix, Schaffhausen, Switzerland, assignor to Inventio AG, Hergiswil NW, Switzerland

Filed Jan. 31, 1996, Ser. No. 595,033

Claims priority, application Switzerland, Jan. 31, 1995, [illegible]257/95

Int. Cl.[6] B66B *5/16*

U.S. Cl. 187—356 **20 Claims**



1. An apparatus for blocking travel of an elevator car in an elevator shaft comprising:

at least one travel blocking device adapted to be pivotally mounted in an elevator shaft adjacent a path of travel of an elevator car for pivoting between a non-active position permitting travel of the elevator car along the path of travel and an active position for contacting one of the elevator car and a counterweight connected to the elevator car and blocking further travel of the elevator car along the path of travel in a predetermined direction;

an actuator attached to said travel blocking device for moving between an extended position and a retracted position, said actuator being responsive to activation for moving to said extended position and pivoting said travel blocking device to said non-active position, said travel blocking device automatically pivoting into said active position moving said actuator into said retracted position when said actuator is not activated; and

an unlatching and release device connected to said actuator for preventing activation of said actuator in response to an associated shaft door being open and the elevator car not being adjacent the open associated shaft door.

5,727,658

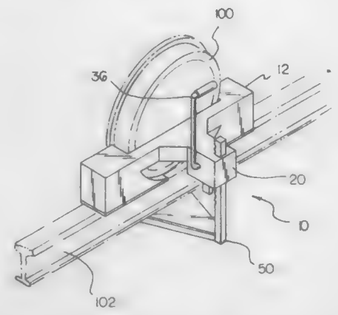
TRAIN WHEEL ROLL PRECLUDING DEVICE

Toby J. Petrzelka, P.O. Box 77404, Seattle, Wash. 98177

Filed Jun. 21, 1996, Ser. No. 670,264

Int. Cl.[6] B60F *25/00*

U.S. Cl. 188—36 **7 Claims**



1. A train brake device for preventing a wheel of a train thereby preventing the train from rolling comprising, in combination:

a chocking member comprised of a housing having an open semi-circular front face dimensioned for positioning around a train wheel, a lower face of the housing having an opening therethrough radially disposed within the open semi-circular front face;

a gear assembly comprised of a housing secured to a rear face of the housing of the chocking member, the housing having a circular chamber formed therein, a channel extends through the housing from an upper face through a lower face thereof tangential to the circular chamber, a lower chamber tangentially disposed below the circular chamber, an aperture extending through the lower face of the housing into the lower chamber, a handle having a lower end extending horizontally within the circular chamber, an upper end of the handle disposed above the gear assembly, an intermediate vertical member extending between the lower end and the upper end, a gear rotatably coupled to the lower end of the handle within the circular chamber, the gear having a plurality of teeth formed thereon;

a rail clamping assembly comprised of an L-shaped member, the L-shaped member having a vertical upper portion and a horizontal lower portion, the horizontal lower portion having a generally triangular configuration, the horizontal lower portion positioned beneath a rail of a train track, the horizontal lower portion having a rubber layer disposed on an upper surface thereof, the vertical upper portion extending upwardly through the channel of the housing of the gear assembly, the vertical upper portion having a plurality of teeth formed in an inner surface thereof for engagement with the plurality of teeth of the gear;

a pawl having an upper end and a lower end, the pawl pivotally secured within the lower chamber of the housing of the gear assembly, the lower end having a spring extending downwardly therefrom for securement to a lower surface of the lower chamber, the spring biasing the lower end of the pawl downwardly thereby biasing the upper end upwardly to engage the plurality of teeth of the gear of the gear assembly, the upper end having a locking tab extending downwardly therefrom outwardly of the aperture in the lower face of the housing of the gear assembly, the mounting tab aligning with a matching tab on the lower face of the housing of the gear assembly whereby apertures therethrough are aligned; and

a padlock extending through the aligned apertures of the mounting tab and the matching tab.

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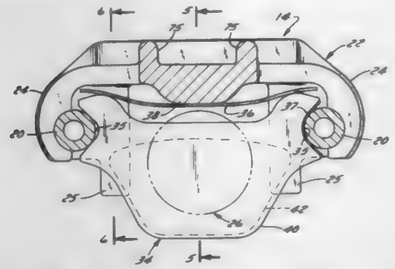
DIE CAST DISC BRAKE WITH A VIBRATION DAMPERING FLAT SPRING

Donald D. Brown, Thiensville; Curt H. Blaszczyk, Sturtevant; James A. Buckley, Whitefish Bay, and Eric R. Buckhouse, Oak Creek, all of Wis., assignors to Hayes Industrial Brake, Inc., Mequon, Wis.

Filed Oct. 3, 1996, Ser. No. 725,616

Int. Cl.[6] F16D *65/38*

U.S. Cl. 188—73.36 **6 Claims**



1. A caliper brake assembly adapted to be mounted on a frame in a position to engage a brake disc, said assembly comprising:

a pair of bushings mounted on the frame;

a die cast caliper having an arcuate wing formed on each end for supporting the caliper on said bushings,

a brake pad mounted on said bushings on each side of the disc,

a rotor mounted on one side of said caliper in a position to engage one of said brake pads,

a ball ramp assembly positioned between said caliper and said rotor for moving said brake pads into engagement with the brake disc, and

means for biasing said brake pads into engagement with said bushings wherein said biasing means comprises a flat spring mounted on said brake pads and a hump formed on a top center of said casting intermediate said bushings for forcing said flat spring into engagement with the brake pads.

5,727,660

INDENTED ROTOR AND WHEEL ASSEMBLY

Michael Bianchi, Shelby Township, Mich., assignor to Varga North America, Inc., Troy, Mich.

Filed Jan. 15, 1997, Ser. No. 784,082

Int. Cl.[6] F16D *65/10*

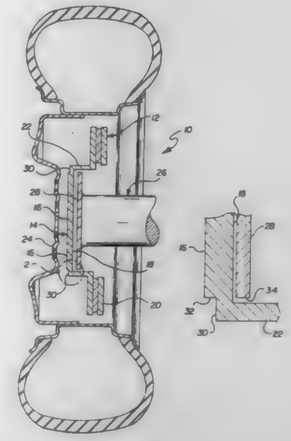
U.S. Cl. 188—218 XL **3 Claims**

1. A rotor assembly (**12**) comprising:

a central portion (**14**) having a periphery and a wheel mounting surface (**16**), a hub mounting surface (**18**) opposite said wheel mounting surface (**16**), and said surfaces being axially spaced and parallel to each other;

a disc portion (**20**) axially offset from said hub mounting surface (**18**) of said central portion (**14**) in the direction opposite to said wheel mounting surface (**16**); and

an axial flange portion (**22**) disposed about said periphery of said central portion (**14**) and extending axially from said hub mounting surface (**18**) to said disc portion (**20**);



said assembly (**12**) characterized by said central portion (**14**) of said rotor (**12**) having a recess (**30**) extending into said central portion (**14**) from said wheel mounting surface (**16**) about the periphery of said wheel mounting surface (**16**) of said central portion (**14**) for isolating claimping forces of a wheel (**24**) mounted on said wheel mounting surface (**16**) of said central portion (**14**) to an area radially inward of said recess (**30**) to prevent clamping forces from applying a moment to said axial flange portion (**22**), said recess (**30**) presenting an annular shoulder (**32**) spaced radially inwardly from said periphery of said central portion (**14**) and forming a cylinder perpendicular to said wheel mounting surface (**16**), said shoulder (**32**) being disposed radially inwardly of the radially inward extremity of said axial flange portion (**22**) of said rotor (**12**) whereby said recess (**30**) extends radially inwardly further than the radially inward extremity of said axial flange (**22**) of said rotor (**12**).

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Patent Not Issued For This Number

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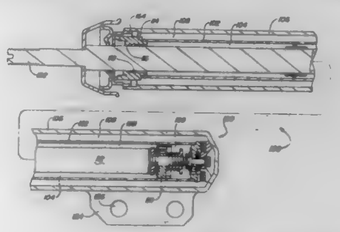
THERMAL EXPANSION COMPENSATION DEVICE FOR SHOCK ABSORBERS

Yoram Guy, Ann Arbor, and John S. Pipis, Jr., Monroe, both of Mich., assignors to Monroe Auto Equipment Company, Monroe, Mich.

Filed Feb. 5, 1996, Ser. No. 596,992

Int. Cl.[6] F16F *9/18;9/36;9/34*

U.S. Cl. 188—315 **19 Claims**

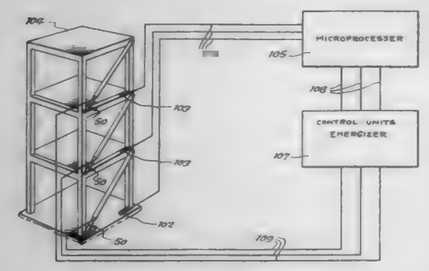


1. A shock absorber which compensates for thermal expansion, said shock absorber comprising:

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a pressure tube forming a compression chamber;
a piston slidably disposed within said compression chamber;
a piston rod connected to said piston;
a reserve tube disposed around said pressure tube, said reserve tube and said pressure tube defining a fluid reservoir;
a cylinder end assembly disposed between said compression chamber and said fluid reservoir for controlling the flow of fluid between said compression chamber and said fluid reservoir;
a stand-off defining an internal bore for receiving a connecting member to slidably connect said stand-off to said cylinder end assembly; and
a biasing member disposed between said reserve tube and said pressure tube for urging said pressure tube away from said reserve tube, thereby allowing axial thermal expansion between said pressure tube and said reserve tube.

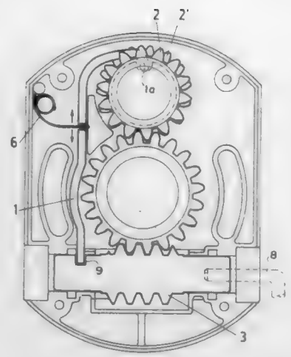
5,727,663
METHOD FOR STRENGTHENING STRUCTURES AGAINST DAMAGE FROM SEISMIC FORCES
Douglas P. Taylor, Tonawanda, N.Y., assignor to Tayco Developments, Inc., North Tonawanda, N.Y.
Continuation of Ser. No. 429,921, Apr. 27, 1995, abandoned, which is a division of Ser. No. 59,246, May 7, 1993, Pat. No. 5,462,141. This application Feb. 10, 1997, Ser. No. 799,648
Int. Cl.[6] F16F *7/10;* **E04B** *1/98*
U.S. Cl. 188—378 **9 Claims**



9. A method of protecting a structure against damage due to the amplitude and frequency of seismic forces which produce velocities and frequencies in said structure comprising the steps of learning the required dampening restraining forces and stiffening restraining forces of a structure by seismic analysis including determining the resonant frequencies of the structure, applying a combination of damping forces and velocity and frequency dependent stiffening forces with a spring component to said structure which are dependent on the velocities associated with the frequencies produced in said structure by said seismic forces, and applying increased stiffening forces with a spring component to said structure as said seismic forces cause said velocities associated with the frequencies in said structure to increase.

5,727,664
BRAKING DEVICE FOR ELEVATION GIMBALS
Francisco Guillen Chico, Sax, Spain, assignor to Forjas del Vinalopo. S.L., Spain
Filed Nov. 7, 1995, Ser. No. 554,495
Claims priority, application Spain, Nov. 8, 1994, 9402841
Int. Cl.[6] F16F *9/00;* **E06B** *9/56*
U.S. Cl. 188—382 **4 Claims**

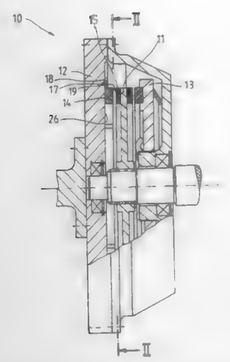
1. A locking device for a roller blind gimbal including a drive worm gear meshed with a crown gear to which a roller blind is coupled, comprising:
a pair of pinion gears meshed to the crown gear for co-rotation therewith, said pinion gears including respective hubs and



locking openings in said hubs, and said pinion gears having a different number of teeth meshing with said crown gear, said locking openings being disposed at a locking position when the pinion gears have co-rotated to a locking position upon rotation of said worm and crown gears a predetermined number of rotations in a blind raising direction;
said worm gear including a peripheral lock actuating slot;
a locking strip extending between the worm gear lock actuating slot and said locking openings of said pinion gears when the worm gear and pinion gears are in their respective locked positions;
a spring biasing device for urging the locking strip towards engagement with said lock actuating slot in the worm gear and the hubs of said pinion gears, said strip under the influence of the biasing device engaging the hub locking openings and locking the pinion gears together against co-rotation when the hub locking openings are in locking position and the locking strip is located at the lock actuating slot of the worm gear;
said worm gear lock actuating slot, upon displacement away from the locking strip position by rotation of the worm gear being arranged so as to move said locking strip into an unlocked position out of the slot and out of engagement with the pinion gear hub locking openings.

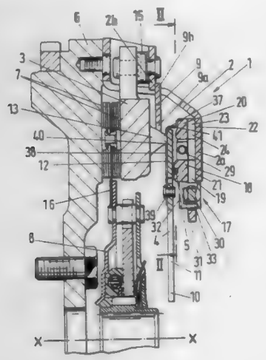
5,727,665
CLUTCH HAVING FRICTION ELEMENTS MADE FROM A SINTERED METAL MATERIAL
Detlef Gonia, Remscheid; Valentin Manolache, Radevormwald, and Norbert Schulz, Marienheide, all of Germany, assignors to Sinter-Metallwerk Krebsöge GmbH, Radevormwald, and Raybestos Industrie-Produkte GmbH, Morbach, both of Germany
PCT No. PCT/EP95/01198, § 371 Date Mar. 21, 1996, § 102(e) Date Mar. 21, 1996, PCT Pub. No. WO95/27153, PCT Pub. Date Oct. 12, 1995
PCT Filed Mar. 31, 1995, Ser. No. 556,935
Claims priority, application Germany, Apr. 2, 1994, 44 11 641.1
Int. Cl.[6] F16D *13/64;69/02*
U.S. Cl. 192—70.14 **21 Claims**

1. An engaging and disengaging clutch comprising:
a clutch disk including friction linings on each of two sides thereof, the friction linings being made from an organically bound friction material;
a counterrotating member and a pressure plate both disposed adjacent the clutch disk; and
at least one friction element disposed on at least one of the counterrotating member and the pressure plate and defining a friction surface being made from a sintered metal material, the sintered metal material further containing therein any heavy components adapted for use in the friction linings of the



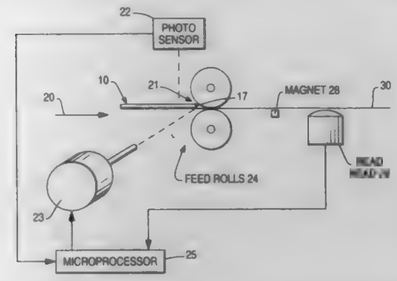
clutch disk and in the friction element for achieving an optimum friction pairing therebetween, the organically bound friction material thereby being free of the heavy components.

5,727,666
SELF-ADJUSTING FRICTION CLUTCH
Paul Maucher, Sasbach, Germany, assignor to LuK Lamellen und Kupplungsbau GmbH, Bühl, Germany
Continuation of Ser. No. 171,662, Dec. 21, 1993, abandoned. This application Apr. 10, 1996, Ser. No. 630,336
Claims priority, application Germany, Dec. 22, 1992, 42 43 567.6
Int. Cl.[6] F16D *13/75*
U.S. Cl. 192—70.25 **78 Claims**



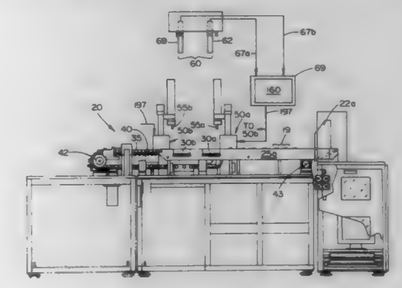
78. An engageable and disengageable friction clutch comprising a housing rotatable about a predetermined axis; a pressure plate rotatable with and movable within limits in the direction of said axis relative to said housing; energy storing means arranged to urge said pressure plate in the direction of said axis against friction linings on a clutch disc which is interposed between said pressure plate and a rotary counterpressure plate so that said friction linings are clamped between said plates in the engaged condition of the clutch, at least said friction linings being subject to wear in response to repeated engagement and disengagement of the clutch; means for engaging and disengaging the clutch; and means for automatically compensating for wear at least upon said friction linings, comprising two rings rotatable relative to and in a circumferential direction of said housing.

5,727,667
MACHINE FOR VALIDATING CHECKS AND AUTHENTICATING PAPER MONEY
Andrew B. Nye, Lansing, N.Y., assignor to NCR Corporation, Dayton, Ohio
Filed Nov. 6, 1995, Ser. No. 554,641
Int. Cl.[6] G07F *7/04*
U.S. Cl. 194—207 **10 Claims**



7. A machine for validating checks and authenticating currency bills comprising:
means for sequentially transporting along a feed path in forward and reverse directions a paper article configured as a check or currency bill having a magnetic imprint thereon;
means for magnetizing said imprint in said forward direction;
means for reading said magnetized imprint in said reverse direction having a common read head for reading both said check and said bill; and
a microprocessor operatively joined to said reading means to decode said magnetic imprint for validating said paper article as said check, and for authenticating said paper article as said bill.

5,727,668
NEEDLE SORTING DEVICE
David Demarest, Parsippany, and John F. Blanch, Tinton Falls, both of N.J., assignors to Ethicon, Inc., Somerville, N.J.
Continuation of Ser. No. 567,264, Dec. 5, 1995, abandoned, which is a continuation of Ser. No. 181,600, Jan. 13, 1994, Pat. No. 5,511,670. This application Sep. 19, 1996, Ser. No. 715,790
Int. Cl.[6] B65G *47/26*
U.S. Cl. 198—431 **24 Claims**



1. An automatic needle sorting and infeed apparatus comprising:
(a) means for depositing a random distribution of needles at a predetermined rate upon a first conveyor means;
(b) means for obtaining an image of said needles at one or more predetermined locations upon said first conveyor means, said means including digitizing means for converting said image into digital signals, said means for obtaining the image having

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a field of view that encompasses a predetermined number of said needles, said predetermined number being chosen to allow recognition of barrel portions and blade portions of said needles;

(c) computer control means for processing said digital signals to obtain positional and orientation data for one or more imaged needles upon said first conveyor means; and

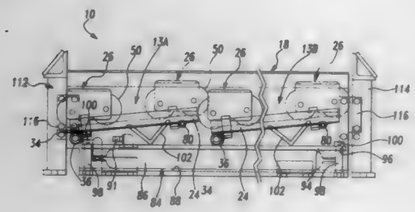
(d) robotic transfer means, which positions and reorients itself in accordance with said positional and orientation data to remove said needle from said first conveyor means in accordance with its respective positional and orientation data and position said needle upon a second conveyance means for conveyance to a processing location.

5,727,669

METHOD AND APPARATUS FOR TRANSFERRING PALLETIZED LOADS

Robert M. Rich, Jr., 457 Whippers In Court, Bloomfield Hills, Mich. 48304

Filed Dec. 15, 1995, Ser. No. 573,252
Int. Cl.[6] B65G *37/00*
U.S. Cl. 198—468.6 **16 Claims**



1. A conveyor system for transferring a load in a predetermined direction, the conveyor system comprising:

a support structure extending longitudinally parallel to the direction of load movement, said support structure extending generally horizontally from an input end to an output end, said support structure including upwardly facing support surface for supportively engaging the load;

a longitudinally extending ramp member having an upwardly facing portion, said ramp member being mounted to said support structure for pivotal movement between a first position and a second position such that said upwardly facing portion declines as it projects forwardly toward said output end when in said first position and said upwardly facing portion declines as it projects rearwardly toward said input end when in said second position, said upwardly facing portion having first and second sides angled from the horizontal;

a skate assembly movably supported between an advance position and a return position, said skate assembly having an upwardly facing surface adapted for supportive engagement with an underside of the load; and

a drive arrangement for cyclicly pivoting said ramp member between said first and second positions and resultantly cyclicly raising and lowering said skate assembly relative to said support structure to effect lifting of the load away from said support surface;

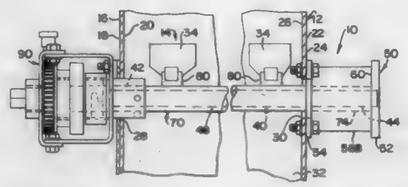
whereby said skate assembly engages the load when said ramp member is pivoted to said first position and displaces the load from said support surface when said ramp member is pivoted to said first position so that the load is translated in the predetermined direction by gravity due to said skate assembly moving forwardly and downwardly along said ramp member, and further whereby said skate assembly is moved to said return position under the force of gravity when said ramp member is pivoted to said second position.

5,727,670

SERVICING ARRANGEMENT FOR A CONVEYOR BELT CLEANER

Ronald Johnson, Elko, Nev., assignor to Martin Engineering Company, Neponset, Ill.

Filed Oct. 23, 1995, Ser. No. 547,066
Int. Cl.[6] B65G *45/16*
U.S. Cl. 198—497 **18 Claims**



1. A servicing arrangement for a conveyor belt cleaner including:

a belt cleaner support member adapted to receive and support one or more conveyor belt cleaner blades;

an elongate mandrel member having a first end and a second end, said mandrel member adapted to be supported adjacent to the belt to be cleaned and to guide and position said belt cleaner support member during installation and removal of said belt cleaner support member, said belt cleaner support member adapted to slide over said mandrel member during installation and removal, said belt cleaner support member being relatively rotatable with respect to said mandrel member;

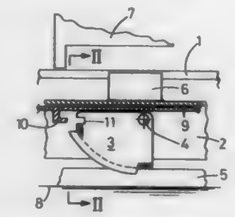
whereby when said belt cleaner support member is positioned over said mandrel member in operative position, and the cleaner blades are mounted on the belt cleaner support member, rotational movement of the belt cleaner support member positions the cleaner blades relative to the conveyor belt, and whereby an operator can easily remove said belt cleaner support member and attached conveyor belt cleaner blades from said mandrel member for service or replacement of the conveyor belt cleaner blades.

5,727,671

STEP CONVEYOR

Wilhelmus Benda, Molenweg 35, NL-3781 VA Voorthuizen, Netherlands

PCT No. PCT/EP94/02388, § 371 Date May 16, 1996, § 102(e) Date May 16, 1996, PCT Pub. No. WO95/03239, PCT Pub. Date Feb. 2, 1995
PCT Filed Jul. 18, 1994, Ser. No. 581,617
Claims priority, application Netherlands, Jul. 19, 1993, 9301266
Int. Cl.[6] B65G *25/02*
U.S. Cl. 198—740 **9 Claims**



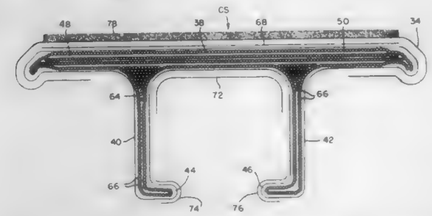
1. Step conveyor comprising a primary stationary beam (1) and a secondary beam (2) being movable upwards and downwards as well as to and fro relative thereto, said secondary beam (2) being supported by restrictedly pivotable bow-shaped eccentrically journalled segments (3) resting on a stationary guideway (5), wherein in a rest position the secondary beam (2) is positioned below the level of the primary beam (1), characterized in that in each position the secondary beam is positioned below the level of the primary beam (1) and carries at its top dogs (6) which in a rest position are positioned below the level of the primary beam (1) and which in an operational position extend beyond the level of the primary beam (1), whereas further the stationary guideway comprises a profile (5) extending upwardly from a basis (8), said profile (5) having at its highest point a contact surface for engagement with the circumference of the bow-shaped segments (3), wherein the bow-shaped segments (3) at their circumference have a substantially correspondingly shaped cross-section.

5,727,672

PULTRUDED CONVEYOR SLATS

Raymond Keith Foster, 401 NW. Adler, Madras, Oreg. 97741

Filed Apr. 2, 1997, Ser. No. 832,370
Int. Cl.[6] B65G *25/00*
U.S. Cl. 118—750.2 **25 Claims**



1. For use in a reciprocating slat conveyor having a plurality of adjacent conveyor slats that are mounted to be selectively reciprocated endwise, a pultruded conveyor slat comprising:

a resin matrix forming a slat body having a top portion and a pair of laterally spaced apart side portions depending from said top portion, said side portions having lower sections; and

reinforcement fibers in said top portion and at least the lower sections of said side portions extending longitudinally of said slat body, wherein in use the longitudinal fibers in the top portion resist any tendency of the conveyor slat to bend upwardly and the longitudinal fibers in the lower sections of the side portions resist any tendency of the conveyor slat to bend downwardly.

5,727,673

APPARATUS FOR TRANSPORTING MECHANICAL PIECES

Luca Gabbi, Imola, and Pier Paolo Nanni, Bologna, both of Italy, assignors to Marposs Societá Per Azioni, Bentivoglio, Italy

PCT No. PCT/EP94/03279, § 371 Date Mar. 12, 1996, § 102(e) Date Mar. 12, 1996, PCT Pub. No. WO95/10469, PCT Pub. Date Apr. 20, 1995
PCT Filed Oct. 4, 1994, Ser. No. 605,004
Claims priority, application Italy, Oct. 15, 1993, B093A0406
Int. Cl.[6] B65G *25/00*
U.S. Cl. 198—774.3 **9 Claims**

1. Apparatus for transporting elongated mechanical pieces having one larger end (T), in particular for transporting connecting rods (B) along at least a longitudinal feeding direction, comprising

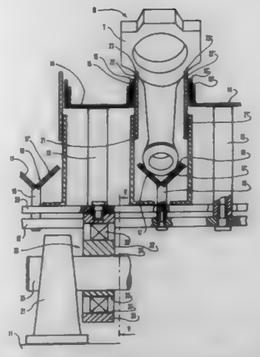
a support structure (**11**,**12**,**12'**),

a pair of upper supporting bars (**15**,**15'**) coupled to the support structure (**11**,**12**,**12'**), the supporting bars being mutually parallel and defining upper resting surfaces (**16**,**16'**), for supporting the larger ends (T) of the mechanical pieces (**B**).

lower longitudinal guiding elements (**17**,**17'**) coupled to the support structure (**11**,**12**,**12'**) and arranged between the upper bars (**15**,**15'**) and beneath them, for defining constraint surfaces (**19**) for cooperating along transversal directions with second end portions (P) of the mechanical pieces (B),

a pair of feeding bars (**22**,**22'**), parallel to the supporting bars (**15**,**15'**), for performing cyclic displacements with respect to the support structure (**11**,**12**,**12'**) and cooperating with the mechanical pieces (B), and

at least one motor (**24**) and mechanical transmission elements (**25**–**38**) coupled to the feeding bars (**22**,**22'**) for controlling said cyclic displacements, characterized in that said lower longitudinal guiding elements (**17**,**17'**) define a lower resting surface (**19**) with a substantially Vee cross-section, that defines the constraint surfaces (**19**) and said upper resting surfaces (**16**,**16'**) define mechanical references for determining the longitudinal position of the larger ends (T) of the pieces (B) on the upper supporting bars (**15**,**15'**).

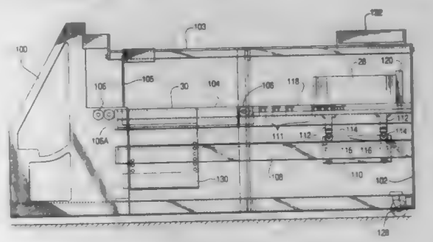


5,727,674

STACKER-BUNDLER TRANSFER APPARATUS WITH POWERED ROLLER TABLE

John St. John, Lake Arrowhead; Jerry L. Bates, Redlands, both of Calif., and Clark L. Smith, Belle Mead, N.J., assignors to Baldwin Technology Corporation, Rosemont, Ill.

Continuation-in-part of Ser. No. 326,129, Oct. 24, 1994, Pat. No. 5,540,422. This application Apr. 23, 1996, Ser. No. 636,601
Int. Cl.[6] B65G *17/30*
U.S. Cl. 198—809 **18 Claims**



18. An apparatus for transferring a bundle of sheet material in signature form comprising:

(a) a horizontal frame:

(b) a first conveyor mounted longitudinally in the frame at an upper portion of a rearward section thereof and extending a part of the distance along the length of the frame, the first conveyor comprising a first series of horizontally disposed conveyor belts which are spaced apart to form gaps therebetween and which receive the sheet material in the form of a bundle of signatures on top of the first series of conveyor belts; and

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(c) a second conveyor comprising a second series of conveyor belts mounted on the frame and extending about parallel in a coveying direction to the first series of conveyor belts at least a part of the distance from the rearward section of the frame to a forward section of the frame; said second series of conveyor belts being interdigitated and substantially aligned with the gaps between the first series of conveyor belts, the second conveyor comprising means for alternately raising and lowering the second series of conveyor belts above and below the first series of conveyor belts; the second conveyor being capable of lifting and holding the sheet material away from the first conveyor and depositing the sheet material onto a table; said table being located on the horizontal frame forward of the second conveyor; said table comprising a plurality of parallel, horizontally disposed driven rollers which are spaced apart to form gaps therebetween and which is capable of receiving the sheet material on top of the table, said rollers being aligned with the second series of conveyor belts and allow the passage of the second series of conveyor belts interdigitated in the gaps between the rollers.

5,727,675

LATCHING PUSHBUTTON SWITCH ASSEMBLY

Denis J. Leveque, and Michael R. Larsen, both of Milwaukee, Wis., assignors to Eaton Corporation, Cleveland, Ohio

Filed Sep. 6, 1996, Ser. No. 706,543
Int. Cl.° H01H *3/42*
U.S. Cl. 200—524 13 Claims



1. A pushbutton switch assembly for mounting on a panel comprising:

(a) a housing formed of dielectric material having a hollow therethrough and integrally formed resilient portions adapted for mounting and retaining on a panel structure;

(b) a switching member formed of dielectric material having a first portion having thereon at least one light source and a second portion distal said first portion defining a receptacle therein, said switching member including a plurality of electrically conductive wipers thereon, said switching member retained in one end of said hollow for sliding movement;

(c) a base member releasably attached to said housing formed of dielectric material two-shot molded to form strips and having conductive material plated on the surface of said strips with said strips disposed on a first portion thereof, said first portion extending into said receptacle of said switching member, said strips each extending integrally to a second portion thereof distal said first portion, said strips each defining in said second portion a terminal adapted for external electrical connection thereto; and,

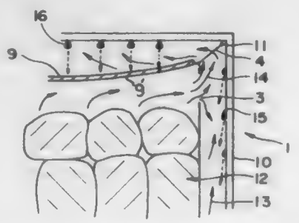
(d) user actuator member attached to said first portion of said switching member including means defining a lens covering said at least one source of light, said actuator means adapted to be contacted by the user for effecting said sliding movement of said switching member with respect to said base, wherein said wipers are operative upon said sliding movement to contact said conductive strips and effect an electrical switching function.

5,727,676

APPARATUS FOR PREVENTING WET DAMAGE CAUSED BY DEW DROPS INSIDE A CONTAINER

Hisataka Tatsu, Kagoshima, and Michiharu Suzuki, Funabashi, both of Japan, assignors to Kawasaki Kisen Kaisha, Ltd., Tokyo, Japan

Filed Nov. 8, 1996, Ser. No. 747,067
Claims priority, application Japan, Jul. 19, 1996, 8-007057 U
Int. Cl.° B65D *81/26*; B65B *61/22*
U.S. Cl. 206—204 5 Claims



1. An apparatus comprising waterproof sheets suspended so as to surround a ceiling and four sides of a container for preventing wet damage caused by dew drops inside said container:

wherein said waterproof sheets include a pair of side wall waterproof sheets for opposite side walls of said container, an entrance portion waterproof sheet for an entrance portion of said container a rear wall waterproof sheet for a rear wall of said container opposite to said entrance portion, a ceiling waterproof sheet for the ceiling of said container, and a water absorptive sheet on said ceiling waterproof sheet;

wherein said side wall, rear wall and entrance portion waterproof sheets each have a plurality of air holes provided near the upper edge thereof and the four sides of said container for discharging and circulating air inside the container and enclosed by said waterproof sheets; and

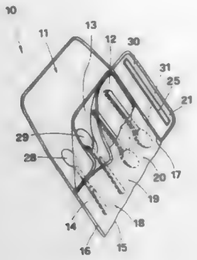
wherein said side wall, rear wall, entrance portion, and ceiling waterproof sheets are suspended on inner walls of said container by suspending means so that skirt portions of said side wall, rear wall and entrance portion waterproof sheets do not reach a bottom portion of said container to provide on opening between said skirt portions and said bottom portion of said container, whereby air currents of saturated damp air produced in said container circulate inside said container between the inside of said waterproof sheets and the inner walls of said container by a temperature difference between outside and inside of said container loaded with cargo, so that dew drops falling down from said ceiling of said container are absorbed into said water absorptive sheet when said air currents reach said ceiling to generate the dew drops.

5,727,677

CONTAINER FOR CUTLERY AND IMITATION JEWELRY GIVEN ANTI-BACTERIAL AND ANTI-MYCOTIC TREATMENT

Claudio Peviani, Via Luigi Salma, 20, 20094 Corsico (Milano), Italy

Continuation of Ser. No. 367,202, Jan. 13, 1995, abandoned. This application Jan. 30, 1997, Ser. No. 792,155
Claims priority, application Italy, Jul. 14, 1992, MI92A1695
Int. Cl.° B65D *81/24*
U.S. Cl. 206—205 10 Claims



1. A container for protection and display of objects of jewelry including cutlery of precious metals, the container comprising a basic structural piece having four angles and four sides; one upper, one lower, and two lateral side flaps on the four sides being as short as their respective sides and wide as substantially half a shorter side of the basic structural piece; at least one extra piece superimposed over and connected to said basic structural piece so as to form pockets for the objects, said basic structural piece, said flaps and said extra piece being composed of a flexible material selected from the group consisting of cloth, leather, plastic, non-woven fabric and woven fabric so that the objects of jewelry can be laid out for display on said basic structural piece lying parallel to shorter sides of said basic structural piece, the flaps can be folded over said basic structural piece to protect and cover the objects and the container can be closed by folding said upper and lower flaps onto the basic structural piece and onto each other and folding said container around geometrical axes parallel to the objects displayed and protected; first means that form compartments for the objects; second means applied to said basic structural piece, that form supports for the objects; and third means for keeping the container folded in its closed position, said first and second means being covered with pieces of material selected from the group consisting of clothes, plastic, non-woven fabric and woven fabric, the container, the basic structural piece, the extra pieces, the flaps, said pockets, said compartments and each said means being chemically treated to provide antibacterial, antimold, antiseptic action throughout the container to avoid infection that might be caused by repeated handling by different persons of the objects displayed in the container.

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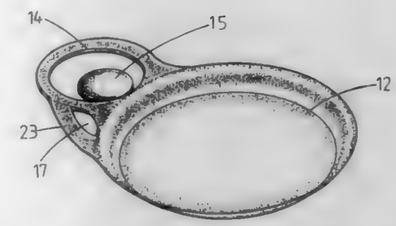
TWO-IN-ONE PAPER DISH AND CUP HOLDER

Chin Chen Chen, No. 7, Alley 5, Lane 3, Rhy Shin Rd., Dong Shan, Yi Lan County, Taiwan

Filed Jun. 12, 1996, Ser. No. 662,133
Int. Cl.° A47G *19/06*
U.S. Cl. 206—217 1 Claim

1. An integrally formed two-in-one dish and cup holder, comprising:

a dish for holding food or a snack thereon, a cup holder integrally formed to one side of said dish for holding a cup therein, a thermal insulating pad disposed in said cup holder adjacent to said dish, and a thumb hole formed at one side between said cup holder and said paper dish for a thumb to extend therethrough,



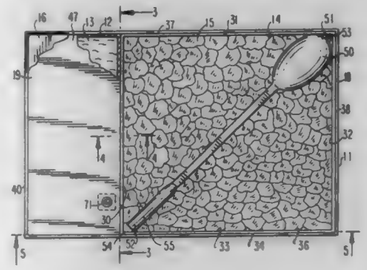
wherein said thermal insulating pad is downward bendably connected to said cup holder adjacent to said dish, whereby when a cup is positioned into said cup holder, said thermal insulating pad is bent downward by said cup to be located between the cup in said cup holder and a back of a hand supporting said dish.

5,727,679

SINGLE-USE DRY FOOD AND LIQUID CONTAINER

Emil M. Newarski, 180 Rte. 46 East, Lodi, N.J. 07644

Continuation-in-part of Ser. No. 341,747, Nov. 18, 1994, Pat. No. 5,496,575. This application Jan. 29, 1996, Ser. No. 593,406
Int. Cl.° B65D *23/04*
U.S. Cl. 206—222 19 Claims



1. A single use dry food and liquid container comprising:

a liquid container capable of aseptically storing liquid, said liquid container comprising rigid first and second side walls, a rigid top wall, and a rigid bottom wall;

a dry food container capable of storing dry food product, said dry food container having a side wall integral to said first side wall of said liquid container, thereby forming a substantially common wall between said dry food container and said liquid container, said dry food container further having a bottom wall displaced downward from said bottom wall of said liquid container, said dry food container further including a removable lid for hermetically sealing said dry food container;

an aperture, said aperture passing through said common wall adjacent the bottom wall of said liquid container; and

a destructible membrane aseptically sealing said aperture, said destructible membrane being sized and constructed to resist rupturing except by direct manipulation, and being accessible for rupturing by a user from within said dry food container;

whereby said removable lid of said dry food container may be removed to open said dry food container and to expose said destructible membrane for rupturing, whereupon said destructible membrane may be ruptured to allow gravity flow of liquid from said liquid container through said aperture into

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said dry food container, and whereby the rupturing of said destructible membrane renders the container unsuitable for reuse.

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IMPACT RESISTANT COMPACT DISC TRAY STRUCTURE

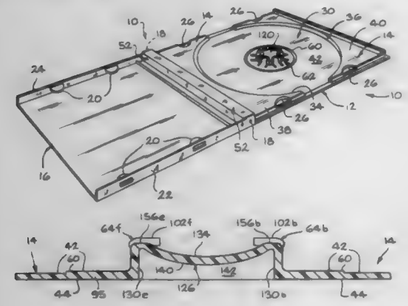
Tak Lun Liu, 6 Shouson Hill Road, Hong Kong, Hong Kong

Filed Dec. 19, 1995, Ser. No. 574,944

Claims priority, application United Kingdom, Sep. 11, 1995, 9518526

Int. Cl.[6] B65D *85/57*

U.S. Cl. 206—308.1 **17 Claims**



1. A tray for holding a circular recording media compact disc having a substantially circular central opening, said tray comprising:

a) a plate having a central region;

b) an annular array of fingers in said central region for receiving the disc central opening, said annular array of fingers including a plurality of shoulders arranged in an annular array having a diameter, each of said fingers including an extension disposed substantially parallel to said plate and bendable toward said plate and said extension having a surface portion extending substantially parallel to and facing away from said plate;

c) impact resisting shield means in said central region and in the region of said annular array of fingers for receiving impact forces directed toward said fingers and for distributing said forces to said plate so as to protect said fingers from breakage upon impact, said shield means being spaced from said finger extensions so that said finger extensions can be pushed in a direction toward said plate without interference by said shield means during removal of a compact disc from said tray, said shield means comprising a central body portion and a plurality of radially outwardly extending arm portions located between adjacent fingers and joining said central body portion to said plate, each of said arm portions having a shoulder thereby providing a plurality of shoulders arranged in an annular array having a diameter;

d) each of said radially extending arm portions of said shield means having a surface portion extending substantially parallel to said plate and said surface portions of said radially extending arm portions of said shield means being located a short distance closer to said tray than said surface portions of said finger extensions; and

e) the diameter of said annular array of shoulders of said fingers being greater than the diameter of said annular array of shoulders of said arm portions of said shield means so that the disc central opening is contacted by said annular array of shoulders of said fingers and not by the arm portions of said shield means during receiving and removal of a compact disc.

8. A tray for holding a circular recording media compact disc having a substantially circular central opening, said tray comprising:

a) a plate having a substantially planar surface and a central region therein;

b) an annular array of fingers in said central region for receiving the disc central opening, each of said fingers having a first portion extending from said surface of said plate and a second portion extending in a plane substantially parallel to said surface of said plate, said first portion having a surface extending substantially parallel to and facing away from said plate, each of said finger second portions extending radially inwardly and terminating in a finger tip, said first and second portions of each of said fingers defining a shoulder which contacts the disc central opening in a snug fitting relation when the disc is held on said tray, there being a plurality of shoulders of said fingers arranged in an annular array having a diameter, and said second portions of each of said fingers being movable toward said plate to facilitate removal of the disc from the tray; and

c) impact resisting shield means having a central body portion located in the region of said fingers and a plurality of radially outwardly extending arm portions located between adjacent fingers and joining said central body portion to said plate for receiving and distributing impact force in a manner protecting said fingers from breakage upon impact, each of said arm portions having a surface extending substantially parallel to said plate, said shield means being spaced from said finger second portions so that said finger second portions can be pushed in a direction toward said plate without interference by said shield means during removal of the compact disc from said tray;

d) said surface of each of said radially extending arm portions of said shield means being located a short distance closer to said tray surface than said surface portions of said fingers;

e) each of said radially outwardly extending arm portions of said shield means having a first branch extending outwardly from said central portion and a second branch extending upwardly from said plate, said first and second branches meeting in a shoulder thereby providing a plurality of shoulders arranged in an annular array having a diameter; and

f) the diameter of said annular array of shoulders of said fingers being greater than the diameter of said annular array of shoulders of said arm portions of said shield means so that the disc central opening is contacted by said shoulders of said fingers and not by the arm portions of said shield means during holding and removal of a compact disc.

17. A tray for holding a circular recording media compact disc having a substantially circular central opening, said tray comprising:

a) a plate having a central region;

b) an annular array of fingers in said central region for receiving the disc central opening, said annular array of fingers including a plurality of shoulders arranged in an annular array having a diameter, each of said fingers including an extension disposed substantially parallel to said plate and bendable toward said plate; and

c) impact resisting shield means in said central region and in the region of said annular array of fingers for receiving impact forces directed toward said fingers and for distributing said forces to said plate so as to protect said fingers from breakage upon impact, said shield means comprising a central body portion and a plurality of radially outwardly extending arm portions located between adjacent fingers and joining said central body portion to said plate, each of said arm portions having a shoulder thereby providing a plurality of shoulders arranged in an annular array of having a diameter; and

d) the diameter of said annular array of shoulders of said fingers being greater than the diameter of said arm portions of said shield means so that the disc central opening is contacted by said annular array of shoulders of said fingers and not by the arm portions of said shield means during receiving and removal of a compact disc.

5,727,681

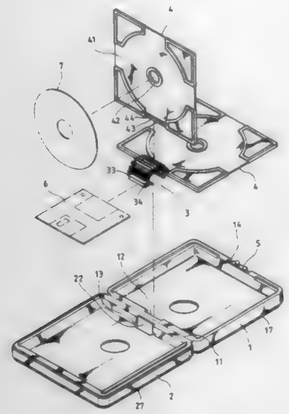
COMPACT DISK ARRANGEMENT CASE STRUCTURE

Ching-Hsiang Li, No. 45, Lane 431, Hua-Cheng Rd., Hsin-Chuang Shih, Taipei Hsien, Taiwan

Filed Feb. 27, 1997, Ser. No. 805,201

Int. Cl.[6] B65D *85/57*

U.S. Cl. 206—308.1 **6 Claims**



1. A compact disk arrangement case structure mainly comprising:

an upper case half having an internally concave portion, a side edge extending to form a thin flexible connecting portion by which said upper case half is integrally linked with a lower case half, a square groove formed on the case walls near said connecting portion, an opening provided on the exterior walls thereof as well as two stop walls individually disposed on two ends of said opening, and a top cover placed on the external surface thereof;

a lower case half having an internally concave portion, a side edge connected with said flexible connecting portion, a square groove formed on the case walls near said connecting portion, a lock hole formed at a position corresponding to said opening of said upper case half, and a bottom cover placed on the external surface thereof;

a holding element made of plastic materials and being a single piece of elastically deformable elongated block provided with two projecting fulcrum rod portions on two ends thereof, said holding element having a plurality of insertion slots each accompanied with a vertical gap formed between two adjacent insertion slots and a recessed notch provided on the bottom face of said holding element in a position corresponding to said vertical gaps; said insertion slots being configured to have a reduced neck portion at its entrance;

a plurality of disk trays each provided on each side face with a recessed portion and a central annular projecting locating portion and having at least one guide slot accompanied with an elongated raised block along one side edge thereof;

a resilient latch element being a block with a concave surface formed on its central portion, an extending column at two ends one of which is connected to a flexible finger, and a hook rod disposed on the bottom face thereof;

said holding element capable of grasping a disk tray in each of said insertion slots by means of engaging said raised block with said reduced neck portion of the insertion slot and being curled and striding on the case walls on two sides of said connecting portion with said fulcrum rod portions respectively extending into the grooves of the upper and the lower case halves so that as the case opens said insertion slots spread to display said disk trays in an equally angular spaced manner in a semi-circular zone.

5,727,682

LOW-COST SAFE BLADE PACKAGE FOR SURGICAL PURPOSES

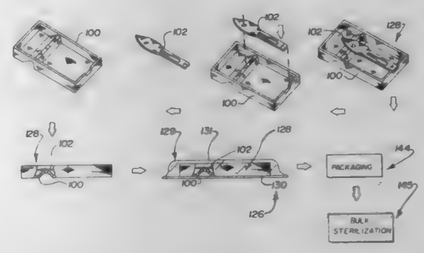
Michael R. Abidin, Birmingham, Ala., and Steven P. Lehmbeck, Baltimore, Md., assignors to Bloom & Kreten, Towson, Md., a part interest

Continuation-in-part of Ser. No. 547,685, Oct. 19, 1995, Pat. No. 5,662,221, which is a continuation-in-part of Ser. No. 435,668, May 5, 1995, Pat. No. 5,528,811, which is a division of Ser. No. 245,009, May 18, 1994, Pat. No. 5,433,321. This application Nov. 22, 1995, Ser. No. 561,980

The portion of the term of this patent subsequent to May 18, 2014, has been disclaimed.

Int. Cl.[6] B65D *83/10*

U.S. Cl. 206—354 **1 Claim**



1. A surgical blade package comprising:

a surgical blade,

a molded piece,

a base member, and

an upper portion,

wherein the surgical blade is mechanically restrained with respect to the molded piece forming thereby a subassembly,

wherein the upper portion is shaped to form a recess,

wherein said subassembly is received within said recess between the base member and the upper portion, which are sealed together,

wherein the blade is intended to be mounted on the cleat of a scalpel handle, and wherein the blade is provided with a slot having a forward portion and is further provided with a cutting edge, said molded piece further comprising:

a base,

means on the base for supporting the blade and assuring that the cutting edge on the blade will not become dulled by inadvertent contact with the base during shipment, storage or handling of the molded piece,

wherein the cleat on the scalpel handle may be inserted into the slot in the blade to mount the blade on the scalpel handle, and such that the blade mounted on the scalpel handle may be lifted out of the base of the molded piece,

wherein the means on the base for supporting the blade and assuring that the cutting edge on the blade will not become dulled by inadvertent contact with the base during shipment, storage or handling of the blade package, comprises an upstanding pin on the base,

the blade having a hole formed therein to receive the pin;

wherein the hole in the blade is disposed between the tip of the blade and the forward portion of the slot in the blade;

wherein the blade further has a tip and a rear portion, and wherein the base has a rear end wall having a notch formed thereon and receiving the rear portion of the blade; and

wherein said surgical blade package further includes an interference fit between the pin and the hole, and between the notch and the rear portion of the blade, respectively, such that the blade is received on the base with a "snap" fit.

VOL 1208 ISS 3 MR 17 1998 UMI

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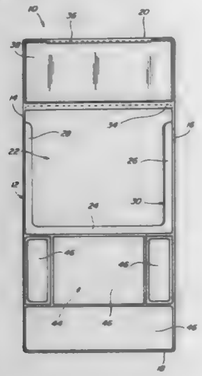
PRE-RECORDED MEDIA PACKAGE AND DISPLAY

Neal R. Zeid, 11869 Featherwood Dr., St. Louis, Mo. 63146

Continuation of Ser. No. 453,346, May 30, 1995, Pat. No. 5,593,034, which is a continuation of Ser. No. 159,767, Nov. 30, 1993, abandoned, which is a continuation of Ser. No. 941,156, Sep. 4, 1992, abandoned. This application Nov. 20, 1996, Ser. No. 752,836

Int. Cl.[6] B65D *85/672*

U.S. Cl. 206—387.11 17 Claims



1. A reusable package and display construction for storing a pre-recorded media and for displaying an advertisement, the construction comprising a plastic housing having a storage compartment and a display compartment, the housing having a pair of spaced apart side walls and a pair of end walls, the storage compartment defined by a bottom wall and a second pair of spaced apart side walls, the display compartment defined by a second bottom wall and a third pair of spaced apart side walls which are connected to the first pair of spaced apart side walls, the third pair of spaced apart side walls are connected to the second bottom wall with the third pair of spaced apart side walls and the second bottom wall forming a track into which an advertisement may be placed for display, each one of the third side walls extending from the second bottom wall up along its respective side wall to one of the end walls.

5,727,684

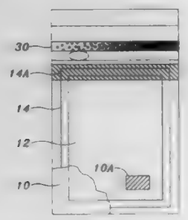
METHOD OF DETECTING HEAT SEAL BREAKS AND PACKAGE THEREOF

Nicholas J. Webb, Wrightwood, Calif., and Hiro Hayashi, White Plains, N.Y., assignors to Mitsui Plastics Company, White Plains, N.Y.

Filed Aug. 28, 1996, Ser. No. 704,243

Int. Cl.[6] B65D *85/00*; G01N *19/08*

U.S. Cl. 206—439 14 Claims



1. A sterilizable package comprising:

a substrate member defining a containing area for supporting a sterilized article;

a plastic member affixed directly to said substrate member and overlying and surrounding said containing area along a heat seal formed during a heat sealing process, said plastic member being sufficiently porous to permit gas or steam sterilization but impervious to bacteria, wherein said heat seal has a color determined by a temperature and pressure applied during said heat sealing process; and

a standardized verification means for verifying an integrity of said heat seal, said verification means being provided on at least one of said substrate and said plastic member adjacent and separate from said heat seal, wherein said standardized verification means displays a plurality of sealing characteristics indicative of correct and defective heat seals resulting from said heat sealing process in order that a user may compare said heat seal with the verification means to judge quality and integrity of said heat seal.

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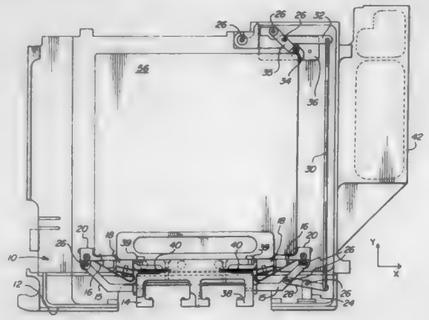
RETICLE CONTAINER WITH CORNER HOLDING

Joseph Laganza, East Norwalk, Conn.; Hoon-Yeng Yap, Tempe, Ariz.; Teodorico A. Cruz, Phoenix, Ariz.; Erik Magnussen, Tempe, Ariz., and Craig S. Dunning, Chandler, Ariz., assignors to SVG Lithography Systems, Inc., Wilton, Conn.

Continuation-in-part of Ser. No. 545,331, Oct. 19, 1995, abandoned. This application Jul. 24, 1996, Ser. No. 686,085

Int. Cl.[6] E65D *73/02*

U.S. Cl. 206—455 19 Claims



1. A reticle box comprising:

a body;

a clamp bar;

a plurality of corner supports attached to said clamp bar, said plurality of corner supports arranged to hold a planar substrate; and

a spring attached at one end to at least one of said plurality of corner supports and at another end to a support, whereby when said clamp bar is moved, said plurality of corner supports move.

5,727,686

TAMPER-EVIDENT SECURITY ENVELOPES

Boaz Kristal, Menachem Begin Street 8/27, Ramat Poleg, Natanya, Israel

Filed Jul. 31, 1995, Ser. No. 508,429

Int. Cl.[6] B65D *85/00*

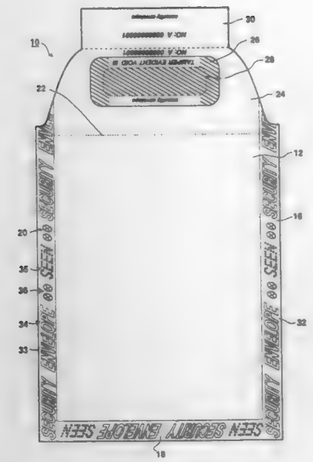
U.S. Cl. 206—459.1 22 Claims

13. A tamper-evident envelope comprising:

(a) a first layer of paper-containing material; and

(b) a second layer of paper-containing material attached to said first layer along at least one seam,

wherein said at least one seam includes a pattern along a major part of said at least one seam, said pattern including a plurality of dissimilar embossed elements embossed through both said first and second layers so as to render said pattern resistant to forgery.



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PACKAGE FOR GOODS IN PELLETS

Klaus Renner, Ettlingen, Germany, assignor to Klocke Verpackungs Service GmbH

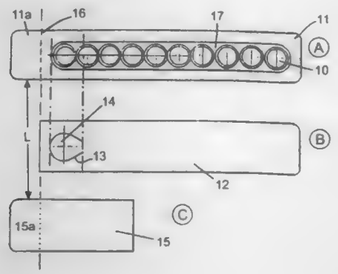
PCT No. PCT/DE94/00793, § 371 Date Jan. 18, 1996, § 102(e) Date Jan. 18, 1996, PCT Pub. No. WO95/03230, PCT Pub. Date Feb. 2, 1995

PCT Filed Jul. 8, 1994, Ser. No. 582,990

Claims priority, application Germany, Jul. 26, 1993, 93 11 121 U; Sep. 2, 1993, 93 13 193 U

Int. Cl.[6] B65B *83/04*

U.S. Cl. 206—532 7 Claims



1. Packaging for storing products in the form of pellets, said packaging comprising:

a deep-drawn element having a plurality of straight deep-drawn grooves, each groove having an open top and being dimensioned to hold a plurality of the products in a row; and

a cover element covering said deep-drawn element and the open tops of said grooves, said cover element having a plurality of closable removal openings each aligned with a portion of the open top of a respective one of said grooves, each said closable removal opening being openable for removal of successive ones of the products held in the respective one of the said grooves, wherein said cover element comprises: a cover foil provided with a plurality of flaps, each of said flaps delimiting a respective one of said removal openings, and each of said flaps being surrounded by a respective portion of said cover foil; and an adhesive foil, having a plurality of portions, each of said adhesive foil portions covering, and secured to, a respective one of said flaps and covering the respective portion of said cover foil which surrounds the respective one of said flaps, each of said adhesive foil portions being movable between a closing position for causing said adhesive foil portion and the respective one of said flaps to tightly seal the respective one of said removal openings and an opening position for opening the respective one of said removal openings.

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COMPONENT HOLDER BODY

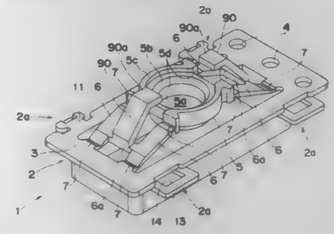
Yoshimichi Ishii, Neyagawa; Ryoichi Kamatani, Hirakata, and Hiroyuki Mochizuki, Osaka, all of Japan, assignors to Matsushita Electric Industrial Co., Ltd., Kadoma, Japan

Filed Nov. 8, 1996, Ser. No. 745,272

Claims priority, application Japan, Nov. 10, 1995, 7-292554

Int. Cl.[6] B65D *73/02*

U.S. Cl. 206—724 14 Claims



1. A component holder body comprising:

a peripheral frame having opposing first and second inner edge surfaces;

a component holding structure disposed within said peripheral frame and having opposite first and second sides attached to said opposing first and second inner edge surfaces of said peripheral frame, said component holding structure defining an installation space for a component;

a first link connecting said first side of said component holding structure to said first inner edge surface of said peripheral frame, wherein said first link connects said component holding structure and said peripheral frame via a first pair of integral hinges; and

a first holding part, extending integrally from said first link, for holding a component in said installation space,

wherein said component holding structure is movable relative to said peripheral frame between a holding position, at which said holding part assumes a component securing position, and a projecting position, at which said component holding structure is disposed upward relative to said peripheral frame and said holding part assumes a component removal/insertion position.

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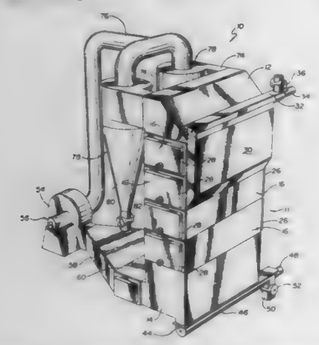
TREATMENT DEVICE FOR PARTICULATE MATERIALS

George E. Anderson, Champlin; William L. Kratochwill, Minneapolis; Darcy Moses, Rush City; William L. Stevenson, Roseville, and Joe C. Givens, Minneapolis, all of Minn., assignors to Crown Iron Works Company, Minneapolis, Minn.

Continuation of Ser. No. 382,148, Feb. 1, 1995, abandoned, which is a continuation of Ser. No. 245,418, May 18, 1994, abandoned, which is a continuation of Ser. No. 883,140, May 14, 1992, abandoned, which is a continuation of Ser. No. 755,318, Sep. 5, 1991, abandoned, which is a continuation of Ser. No. 621,805, Dec. 4, 1990, abandoned, which is a continuation of Ser. No. 185,139, Apr. 22, 1988, abandoned. This application Apr. 26, 1996, Ser. No. 638,340

Int. Cl.[6] B07B 7/00

U.S. Cl. 209—139.1 3 Claims



1. Apparatus for conditioning an oil seed having, in its natural state, a meat portion encased by a hull, comprising:

(a) a conditioning chamber having a discharge, proximate a lower end of said chamber, an inlet, spaced upwardly from said discharge, and means for redirecting gravity passage of the oil seed as it falls through said chamber from said inlet to said discharge;

(b) means for depositing unconditioned oil seed into said chamber through said inlet thereof;

(c) means for conveying conditioned oil seed away from said conditioning chamber discharge;

(d) means for generating a heated gas flow;

(e) means for channeling said gas flow into a lower portion of said chamber and upwardly therethrough counter-current to the gravity passage of the oil seed downwardly through said chamber, wherein the heated gas flow dries and rapidly heats the oil seed to facilitate removal of the hulls from the meat portions;

(f) means for regulating flow velocity of the gas upwardly through said chamber;

(g) means for returning said gas flow from an upper portion of said chamber to said flow generating means; and

(h) a cyclone separator in said returning means, for removing fines entrained in said gas flow departing from said chamber;

(i) whereby gas flow retards downward gravity passage of the oil seed through said chamber.

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METHOD AND APPARATUS FOR PROCESSING LEAFY VEGETABLES

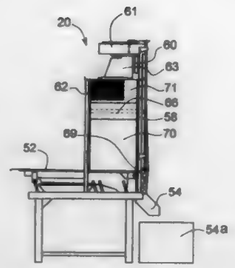
William M. Hofmeister, 11805 Cedardale Rd., Anchorage, Ky. 40223

Filed Oct. 5, 1995, Ser. No. 539,430

Int. Cl.[6] B07B 4/00

U.S. Cl. 209—139.1 3 Claims

1. An apparatus for separating high density vegetable pieces from low density vegetable pieces comprising:



a vertically extending housing having a lower portion and an upper portion with an expansion chamber disposed therebetween;

said lower portion including a product inlet and an undesirable product outlet, said product inlet including a vibrating feeder disposed at about a right angle to said vertical housing;

said expansion chamber having a desirable product outlet; and,

said upper portion including an air exhaust means and a variable speed blower disposed therein and positioned to pull air into said housing through said product inlet and to force air out through said air exhaust means.

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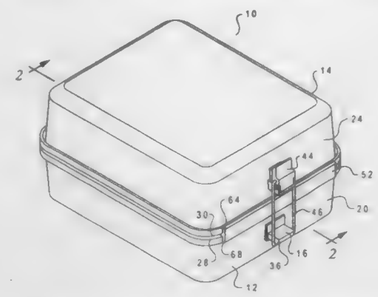
ANIMAL LITTER CONTAINMENT AND FILTERING APPARATUS

Thomas Niel Vittrup, 1506 Penn Springs Dr., Duncanville, Tex. 75137

Filed Dec. 29, 1995, Ser. No. 581,470

Int. Cl.[6] B07B 1/00; A01K 1/03; E05C 19/12

U.S. Cl. 209—235 10 Claims



1. An improved animal litter containment and filtering apparatus, comprising:

a first and a second container for holding particulate litter, said first container having a first perimeter and said second container having a second perimeter;

coupling means for temporarily securing said first container to said second container including a first part secured to said first container and a second part secured to said second container, wherein said coupling means is secured to and engages only said first and second container, and wherein said first part is removeably engaged with said second part to temporarily secure said second container to said first container when said second container is inverted; and

filtering means including a filter having two opposing ends, and edge engagement means attached to each of said opposing ends, said edge engagement means having a first and a second generally U-shaped trough for removeably engaging said first and second perimeters when said second container is inverted and temporarily secured to said first container.

5,727,692

APPARATUS AND METHOD FOR CHECKING AN ENVELOPE FOR CONTENTS

Timothy Andrew Large, Cambridge, and David Russell Anderson, Herts, both of United Kingdom, assignors to Stielow GmbH & Co., Norderstedt, Germany

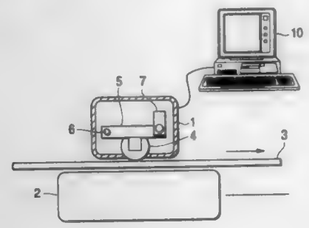
PCT No. PCT/GB93/01765, § 371 Date Jan. 24, 1995, § 102(e) Date Jan. 24, 1995, PCT Pub. No. WO94/04378, PCT Pub. Date Mar. 3, 1994

PCT Filed Aug. 19, 1993, Ser. No. 374,690

Claims priority, application United Kingdom, Aug. 19, 1992, 9217568

Int. Cl.[6] B07C 5/12

U.S. Cl. 209—603 29 Claims



1. A method of checking an envelope for contents, comprising the steps of:

measuring the thickness of the envelope at a plurality of points along the envelope;

determining a material thickness, or a multiple of the material thickness, for the material of the envelope from the measured thickness; and

comparing the thickness of the envelope measured at the plurality of points with the determined material thickness, or the multiple of the material thickness of that envelope, and determining on the basis of such comparison whether or not the envelope has contents therein.

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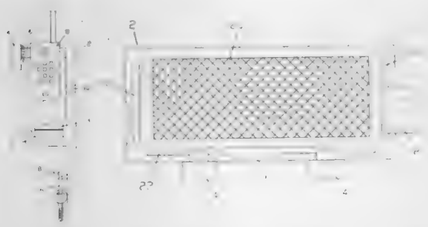
WALL-MOUNTED PAGER HOLDING DEVICE

Bennie D. Taylor, 8723 Del Rey Ct., Apt. 8C, Tampa, Fla. 33617-7080

Filed May 10, 1996, Ser. No. 644,713

Int. Cl.[6] A47F 7/00

U.S. Cl. 211—13.1 5 Claims



1. A holder for pagers, cellular phones, wallets, loose change, keys, and other objects to which small children are attracted, said holder comprising a rear support, at least one shelf forwardly depending from said rear support, said shelf having a front portion and two side portions, and said shelf defining enclosed slots for the support of said pagers and said cellular phones, said slots being positioned adjacent and parallel to said front and side portions of said shelf, a plurality of pegs forwardly and upwardly depending from said rear support, and mounting means so that said rear support can be mounted against a wall for support of said objects in an elevated position protected from access by said small children.

5,727,694

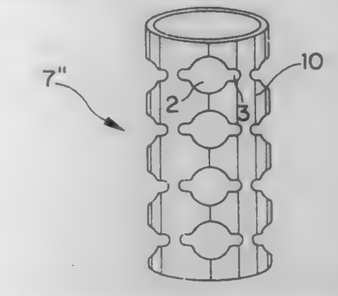
HAT HOLDER

James Duane Larson, P.O. Box 972, Vashon, Wash. 98070

Filed Dec. 11, 1996, Ser. No. 763,661

Int. Cl.[6] A47G 25/10

U.S. Cl. 211—33 9 Claims



1. A support for the removable storage of baseball-style caps, each of said caps having a generally half-spherical body adapted to fit onto a person's head and a bill portion extending from the half-spherical body, said support comprising:

a substantially rigid member having a length and a width, and a first surface and a second surface,

at least one circular aperture extending through said first and second surfaces,

each said circular aperture having a pair of slots extending substantially equally from said circular aperture in diametrically opposite directions,

said pair of slots communicating with said circular aperture, and

wherein said substantially rigid member is in a cylindrical shape,

whereby said bill portion of said cap may be inserted into said pair of slots in order to mount said cap in said support.

5,727,695

COMPACT DISC STORAGE RACK

James A. English, II, 11425 Sorrento Valley Rd., San Diego, Calif. 92121

Filed Nov. 14, 1994, Ser. No. 338,232

Int. Cl.[6] A47F 7/00

U.S. Cl. 211—40 4 Claims

1. A space-saving storage rack from compact discs in individual boxes comprising:

a) a first elongated side, said first elongated side comprising a first row of alternately positioned corner brackets and spacers,

b) a second elongated side, said second elongated side comprising a second row of alternately positioned corner brackets and spacers,

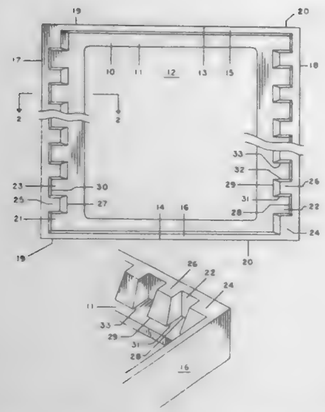
c) structural support means to maintain said second row at a predetermined position with respect to said first row, with said first and second rows lying substantially parallel to each other on a horizontal plane, and each corner bracket in said first row being positioned opposite to a spacer in the second row and vice versa, the distance from each corner bracket to its opposite spacer ranging from 125 mm to 150 mm,

d) the spacers in each row extending 10 mm to 25 mm beyond the adjacent corner brackets toward the opposite row,

e) said spacers and corner brackets each being 10 mm to 75 mm in height,

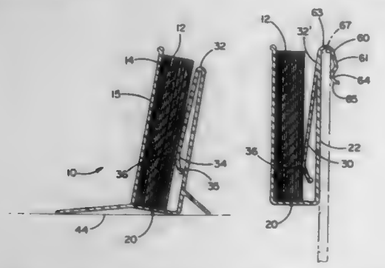
f) said spacers and said corner brackets each being 8 mm to 15 mm in width.

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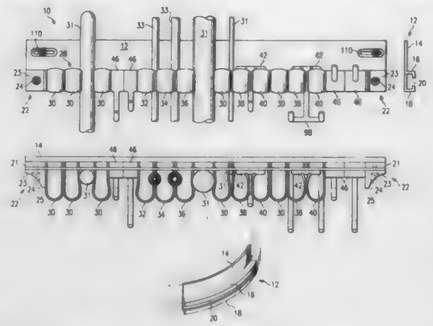
thereby enabling compact disc boxes to be stored in a substantially vertical fashion, in which each box is held by a corner bracket at one lower corner and a spacer at the other lower corner, the boxes arranged in staggered positions to facilitate easy removal of any individual box, the boxes being stacked against each other with no space between adjacent boxes.

5,727,696
BUSINESS CARD DISPLAY HOLDER
Stanley C. Valiulis, Rockford, Ill., assignor to Southern Imperial, Inc., Rockford, Ill.
Filed Aug. 27, 1996, Ser. No. 703,492
Int. Cl.[6] B42F 9/00
U.S. Cl. 211—51 12 Claims



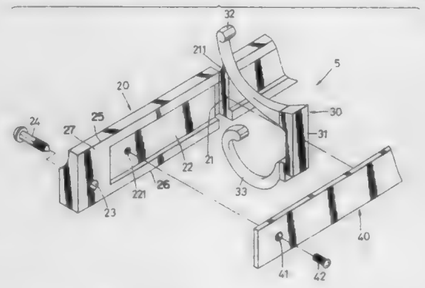
1. A display holder for presenting a supply of business cards for individual distribution comprising a unitary member of transparent semi-rigid thermoplastic material formed in business card-sized lengths, the member in cross-section defining a channel having an open top, a display face, a supporting bottom, and a back;
the lengths having open sides, the display face being rectangular and about the size of a business card;
the channel including a unitary elongate finger connected to the channel back near its top, having a free edge extending toward the channel bottom and resiliently sprung toward the display face;
the elongate finger being sufficiently flexible to be deflected toward the channel back to allow insertion of a stack of business cards into the channel for support on the channel bottom and protection by the display face while the finger biases the stack of business cards against the display face; and
the elongate finger having sufficient resilience to continue to bias the cards against the display face as cards are removed from the stack until the stack is depleted to as few as one card.

5,727,697
ORGANIZING DEVICE
Joseph J. Ricciardelli, and Charles A. Wick, III, both of Coppell, Tex., assignors to Universal Designs, Inc., Coppell, Tex.
Filed Jan. 18, 1996, Ser. No. 588,381
Int. Cl.[6] A47F 5/00
U.S. Cl. 211—89 21 Claims



1. An organizing device, comprising:
a platform having a first end, a second end, and a channel extending along at least a portion of the platform between the first and second ends; and
a plurality of securing members coupled to the platform using the channel, each securing member operable to exert a securing force upon one or more adjacent securing members, the device operable to secure an item placed between adjacent securing members using the securing force, wherein the plurality of securing members includes a hooking element having a hook and operable to support an item using the hook.

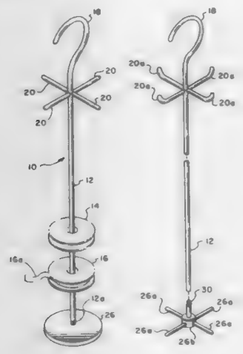
5,727,698
HOOK DEVICE
Yung-Tsai Lai, No. 42, Lane 408, Tung-Kuang Rd., Taichung City, Taiwan
Filed Sep. 18, 1996, Ser. No. 715,525
Int. Cl.[6] A47F 5/08
U.S. Cl. 211—87.01 3 Claims



1. A hook device comprising:
an elongated horizontal positioning plate having upper and lower longitudinal edges and a rear face formed with a plurality of insert grooves which extend between said upper and lower longitudinal edges;
a plurality of hook members, each of which has a straight portion with upper and lower ends, each of said upper and lower ends being formed with a forwardly extending hook projection, said straight portion of each of said hook members being received in one of said insert grooves of said positioning plate; and

an elongated horizontal retaining plate mounted on said rear face of said positioning plate, said rear face of said positioning plate being formed with a recess having a size substantially corresponding to that of said retaining plate, for fittingly retaining said retaining plate therein in such a manner that said straight portion of each of said hook members is sandwiched between said positioning plate and said retaining plate.

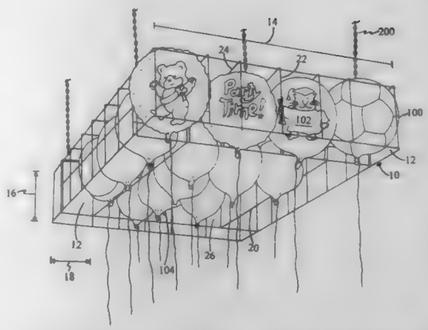
5,727,699
SPOOL HOLDER
Ann M. Gilcrease, 611 Hidden Oak Ct., Lewisville, Tex. 75067-8630
Filed Jul. 18, 1995, Ser. No. 503,842
Int. Cl.[6] A47F 7/00
U.S. Cl. 211—113 14 Claims



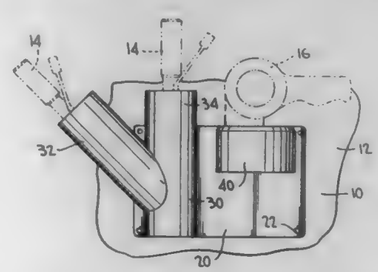
1. A spool holder comprising:
a vertical rod having an upper portion and a lower portion to receive and hold spools;
a cooperative fastening means incorporated in said vertical rod between said upper portion and said support pedestal for removably engaging said upper portion with said support pedestal;
a hook adjacent said upper portion of said vertical rod for suspending said spool holder; and
a support pedestal adjacent said lower portion of said vertical rod to support said spools.

5,727,700
OVERHEAD DISPLAY UNIT FOR INFLATED BALLOONS
John J. Digney, Cleveland, Ohio, assignor to American Greetings Corporation, Cleveland, Ohio
Filed Feb. 28, 1995, Ser. No. 395,787
Int. Cl.[6] A47F 5/08
U.S. Cl. 211—119 3 Claims

1. A device for displaying a plurality of lighter-than-air inflated balloons, each of said inflated balloons having a characteristic thickness, height and width, the characteristic thickness being less than either the characteristic width or height, and being essentially normal to a generally planar decorated surface of the balloon, said device comprising:
a rectangular perimeter formed from at least four lengths of a downwardly-open channel member such that the at least four lengths of downwardly open channel member provide a downwardly-open perimetric cavity for the display of inflated balloons, said perimetric cavity having a width slightly larger than the characteristic thickness of the inflated balloons so as to prevent rotation inside the perimetric cavity of any such balloon about an axis other than that corresponding to the characteristic thickness with the perimeter formed from said at least four lengths of downwardly-open channel member being affixed along its top edges to a top retaining member such that the top retaining member and the perimeter form a downwardly-open interior cavity to hold additional inflated balloons;
the perimeter being formed from a central unit and two end units, the central unit comprising at least one central unit member, each central unit member having a generally rectangular grid of wires constituting the top retaining member, with a first pair of opposing sides thereof each having a length of said downwardly-open channel member pending downwardly therefrom, and each end unit comprising a further length portion of said downwardly-open channel member, wherein one of the end units is attached to and pends downwardly from one of the remaining pair of opposing sides of the central unit member;
wherein the end units are attached to the central unit through a plurality of attaching units, each said attaching unit comprising a length of wire having a first end shaped into a finger-like projection and which fits over a wire on the top retaining member of the central unit and a second end which is shaped like a shepherd's crook and which is positioned so that when the first end is fitted over the wire, the second end engages a second wire on the central unit such that the second wire nestles into a hollow at the base of the crook, resulting in a friction fit.



5,727,701
VANITY ORGANIZER
Pamela S. Rhoades, Spanish Fort, Ala., assignor to LauraMI Industries, Inc., Spanish Fort, Ala.
Filed Apr. 12, 1996, Ser. No. 631,051
Int. Cl.[6] A47F 7/00
U.S. Cl. 211—70.6 5 Claims



1. A vanity organizer comprising a backing plate, a member having a y-shaped body having two openings and connected to said backing plate and constructed and arranged for receiving one or

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more curling irons, and a ring member connected to said backing plate and adjacent to said y-shaped member and constructed and arranged for receiving a hair dryer.

5,727,702

TRANSLOADING APPARATUS FOR TRANSCONTAINERS

Friedemann Kullmann, Hanover; Burkhard Mende, and Andreas Baumann, both of Essen, all of Germany, assignors to Krupp Fordertechnik GmbH, Duisburg, Germany

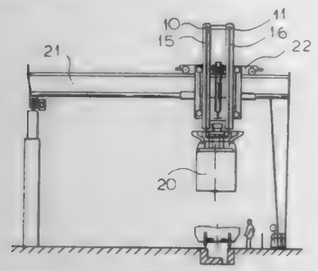
PCT No. PCT/EP94/02711, § 371 Date Apr. 21, 1995, § 102(e) Date Apr. 21, 1995, PCT Pub. No. WO95/06613, PCT Pub. Date Mar. 9, 1995

PCT Filed Aug. 13, 1994, Ser. No. 424,423

Claims priority, application Germany, Sep. 1, 1993, 43 29 470.7; Dec. 14, 1993, 43 42 522.4

Int. Cl.[6] B65C *19/00*

U.S. Cl. 212—273 **17 Claims**



1. A transloading apparatus for containers comprising:

a horizontally displaceable support spaced above a container to be transloaded and including at least one crane trolley;

two horizontally spaced vertically elongated rigid lifting structures on said support;

means on said support for vertically displacing said lifting structures on said support;

a respective pendulum structure on each of said rigid lifting structures and having lower ends swingable relative to said lifting structures, each of said pendulum structures including a pendulum rod and means for cardanically mounting the respective pendulum rod at an upper end of the respective lifting structure;

load receiving means connected cardanically to said lower ends of said pendulum structures and provided with formations for engagement with said container and affixing said container detachably to said apparatus; and

selectively operable arresting means for preventing swinging movement of said pendulum structures relative to said lifting structures.

5,727,703

CHILD RESISTANT PACKAGE UTILIZING ONE PIECE CLOSURE

Timothy J. Fuchs, Perrysburg, Ohio, assignor to Owens-Illinois Closure Inc., Toledo, Ohio

Filed May 1, 1996, Ser. No. 641,978

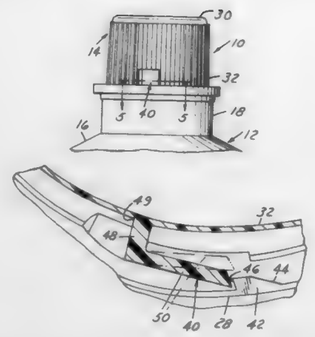
Int. Cl.[6] B65D *55/02*

U.S. Cl. 215—214 **9 Claims**

1. A child resistant package comprising

a plastic container having a body portion and a finish with internal threads,

said plastic container including a radial flange extending outwardly from said finish and an upwardly extending rigid axial wall extending axially upwardly from the periphery of said radial flange,



said axial wall having at least on lug extending radially inwardly from the axial wall,

a plastic closure comprising a base wall and a peripheral skirt having external threads engaging said internal threads on said container,

said closure having a radial flange engaging said radial flange on the finish when the closure is threaded on the finish,

said finger engaging pad being hinged at one end for movement about an axis extending generally vertically of the axis of said closure and extending circumferentially in a direction opposite to the direction of rotation of said closure for application of said closure and having a free edge which engages said lug on the container when the closure is fully threaded on the finish to prevent the closure from being removed, said tab upon radial inward deflection permitting the closure to be rotated past the lug in order to remove the closure from the container.

5,727,704

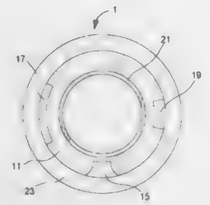
CHILD RESISTANT CAP AND SAFETY COLLAR RING HAVING UNIQUE BOSS ARRANGEMENTS

Kenneth P. Glynn, Raritan Township, Hunterdon County, N.J., assignor to Ideal Ideas, Inc., Flemington, N.J.

Filed Jul. 23, 1996, Ser. No. 685,095

Int. Cl.[6] B65D *50/10*

U.S. Cl. 215—223 **20 Claims**



1. A container and closure device thereof, which comprises:

(a) a container having a neck, an open top and a horizontal retainer track thereon, adapted to receive and rotatably affix a collar ring thereto;

(b) a collar ring having a circular inside wall with a horizontal track thereon for attachment to the track of said container so as to connect said collar ring to said container so as to be horizontally and freely rotatable thereabout, said collar ring also having a top with a ledge thereon for frictionally engaging and retaining a cap, said ledge having a plurality of cut outs on said ledge to permit a cap to be inserted and removed from said collar ring, said plurality of cut outs having different lengths and having different radial depths; and,

(c) a snap on cap having semi-flexible walls and having a plurality of bosses which have the same radial depths and the same lengths as said plurality of cut outs so as to freely move through said plurality of cut outs of said ledge of said collar ring and to be rotatable below said ledge of said collar ring when said frictional engagement is overcome and such that when said cap is inserted and rotated, said plurality of bosses also being of adequate size and geometry to cause frictional engagement and to cause simultaneous rotation of said cap and said collar ring and to prevent removal of said cap from said collar ring, except when said cap and said collar ring are held separately and are rotated relative to one another such that said plurality of bosses and said plurality of cut outs are in alignment for lift up removal of said cap from said collar ring.

5,727,705

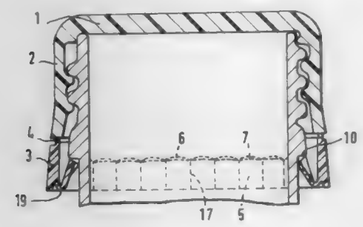
CLOSURE CAP FOR CLOSURE OF A CONTAINER MOUTH

Ronald L. Kelly, Chester, Va., assignor to Crown Cork & Seal Technologies Corporation, Alsip, Ill.

Filed Nov. 22, 1996, Ser. No. 754,985

Int. Cl.[6] B65D *41/34*

U.S. Cl. 215—252 **6 Claims**



1. Closure cap for closure of a container mouth, said closure cap comprising a cap base (**1**), an abutting cap wall (**2**) and a tamper-evidence band (**3**) being arranged on the lower edge of said cap wall,

and a plurality of retaining elements (**5**) each comprising a retaining surface (**6**), being arranged on the inside surface of the tamper-evidence band (**3**) to protrude radially inwards and upwards towards the cap base (**1**),

each retaining surface (**6**) terminating in a retaining edge (**7**) in order to engage beneath a substantially circular engagement surface (**10**) on the container mouth when the closure cap is in position on the container mouth,

characterized in that each retaining edge (**7**) is formed as a concave segment and all retaining edges (**7**) define substantially a circle which is coaxial with the circular engagement surface (**10**) and which has a diameter smaller than the outer diameter of the circular engagement surface (**10**) of the container mouth.

5,727,706

ELECTRICAL OUTLET BOX WITH RECESS FOR RECEIVING CORD GRIP

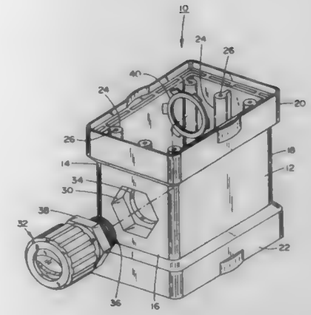
Kevin R. Richter, North Haven, Conn., assignor to Hubbell Incorporated, Orange, Conn.

Filed Feb. 21, 1996, Ser. No. 604,403

Int. Cl.[6] H02G *3/08*

U.S. Cl. 220—3.2 **10 Claims**

1. An electrical outlet box adapted to mount a cord grip having an externally threaded leading end insertable into said outlet box and an out-of-round structure of externally larger dimensions at the rear of said leading end, said outlet box including enclosing side



walls and end walls; a recess of predetermined out-of-round configuration being formed in the outer surface of at least one of said walls and extending through an outer portion of the thickness of said at least one wall so as to leave a remaining wall thickness at the bottom of said recess, said remaining wall thickness for mounting of said cord grip being drilled to form a through-hole within said recess of a diameter substantially commensurate with the diameter of the leading end of said cord grip enabling the insertion therethrough of the leading end of the cord grip into said outlet box and facilitating torquing a lock nut thereon so as to fasten said cord grip to said electrical outlet box.

5,727,707

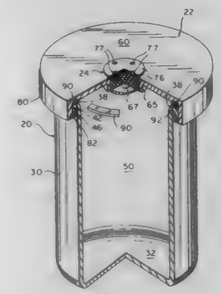
HEPA FILTERED STORAGE CANISTERS

Terry J. Wickland, Golden, and Carl Stephens, Arvada, both of Colo., assignors to Nuclear Filter Technology, Inc., Golden, Colo.

Filed Sep. 25, 1996, Ser. No. 707,493

Int. Cl.[6] B65D *51/20*

U.S. Cl. 220—288 **20 Claims**



1. A canister for containing hazardous material, the canister comprising:

a seamless canister body of a first thickness, the canister body having a mouth defined by a rolled edge with a depending annular lip;

a collar having second thickness greater than the first thickness and being welded to the annular lip, the collar having an external helical thread formed therein;

a lid having a plate portion and a depending rim portion, the depending rim portion having internal threads for threadably engaging the threads of the collar for retaining the lid on the canister body;

an annular gasket disposed on the lid for sealing with the rolled edge defining the mouth of the container; and

a filter assembly integral with the lid.

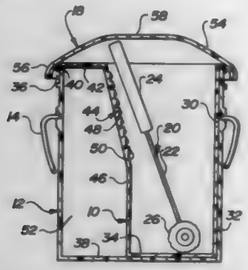
VOL 1208 ISS 3 MR 17 1998 UMI

5,727,708

FORM FIT THROW-AWAY LINER FOR A REUSABLE PAINT BUCKET INCLUDING ROLLER GRATE

Scott Walter Erickson, Bloomfield Hills, Mich., assignor to Erickson Tool Design, Inc., Bloomfield Hills, Mich.

Filed Nov. 13, 1996, Ser. No. 747,586
Int. Cl.° B65D 25/16
U.S. Cl. 220—410 19 Claims



1. A liner for lining a bucket, said liner comprising:

a container portion configured to be inserted into the bucket, said container portion including a cylindrically configured side wall, an angled roller landing, a planer side wall, and an end wall all defining an enclosure, said angled roller landing extending down into the enclosure from a top wall to the planer side wall, said roller landing including a plurality of integral ridges; and

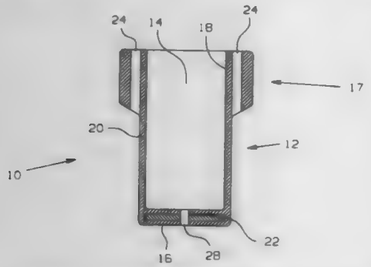
a curved rim portion extending around the container portion and including a rounded edge portion configured to engage an edge of the bucket, said liner being a single piece plastic liner.

5,727,709

THERMALLY INSULATED FLOATING BEVERAGE CONTAINER HOLDING DEVICE

John R. Nobile, 65 Forest Ave., Fairfield, Conn. 06430

Filed May 13, 1996, Ser. No. 645,093
Int. Cl.° B65D 43/24
U.S. Cl. 220—560 11 Claims



1. A thermally insulated floating beverage container holding device comprising:

A. an elongate body member having a peripheral side wall defining a chamber,

B. means adjacent one end of said side wall for supporting a beverage container within said chamber, the other end of said peripheral wall being open to receive said beverage container within said cheer,

C. means operatively associated with said peripheral side wall for providing said side wall with thermally insulating and buoyant characteristics,

D. floatation means surrounding an upper portion of said peripheral side wall for causing said body member to float in a substantially upright position, said floatation means extending axially for a distance less than one half of the length of said peripheral side wall and having a configuration which extends said floatation means radially beyond said side wall, and

E. ballast means disposed adjacent said beverage supporting means for assisting in maintaining said holding device in said upright position when said holding device is immersed in water, said floatation means and said ballast means being provided in a proportion of floatation characteristic to ballast that will maintain said holding device substantially in said upright position during depletion of the beverage in said beverage container from full to empty, whereby when said holding device is immersed in water with a beverage container therein, said holding device floats in an upright position with sufficient stability and buoyancy to prevent beverage from spilling from said beverage container and to prevent water from entering said beverage container and contaminating the beverage therein.

5,727,710

GAS-TIGHT CONTAINER

Harald Severus, Schaffhausen; Andreas Ziegler, Stetten, and Juris Walter, Schaffhausen, all of Switzerland, assignors to Alusuisse Technology & Management Ltd., Switzerland

Filed Nov. 20, 1996, Ser. No. 747,431
Claims priority, application Switzerland, Dec. 5, 1995, 03435/95
Int. Cl.° B65D 7/42
U.S. Cl. 220—609 13 Claims



1. Gas-tight container which comprises: an outer shell surface selected from the group consisting (1) of metal, (2) metal and plastic, and (3) metal and cellulose-containing material, and the outer shell surface having a base, lid and at least one side-wall and is such that it features at least one response area which is surrounded by an endless depression and, when the container is in the condition for use, is concave in shape; a base rim of said base which rests along a linear or ring-shaped line of contact; wherein the response area is situated at the base of the container and includes a bulge which is concave in the useable form of the container which does not project beyond the outer limits of the base rim and, under increased pressure from within the can under normal external conditions, projects beyond the base rim, and such that the linear or ring-shaped contact the container makes with the underlying surface is replaced by two-point contact, and the resultant instability of the container indicates that its contents have undergone a chemical or physical change.

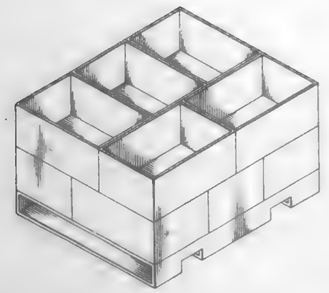
5,727,711

REUSABLE CONTAINERS FOR THE PRESERVATION OF FRESH FRUITS AND VEGETABLES

Jean-Pierre Émond, Lac Beauport, and Clément Vigneault, St./Luc, both of Canada, assignors to Her Majesty in right of Canada, as represented by the Minister of Agriculture and Agri-Food Canada, and Laval University, both of Canada

Filed Dec. 3, 1996, Ser. No. 760,105
Int. Cl.° B65D 6/08
U.S. Cl. 220—676 15 Claims

1. A produce container comprising a horizontal floor portion and four adjoining vertical wall portions, wherein the floor portion comprises a plurality of openings smaller than or equal to 3.175 mm in width and from 6.35 mm to 40 mm in length, said openings covering approximately 3.5% and 5.5% of the container floor, and wherein each of said wall portion comprises a plurality of openings from 3.175 mm to 12.7 mm in width and from 6.35 mm to 40 mm in length, said openings covering approximately 20% and 30% of said container wall portion.

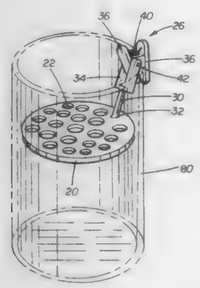


5,727,712

ICE RETAINER

James Joseph John Costello, 9820 Memorial Dr., Apt. 79, Houston, Tex. 77024

Filed Nov. 20, 1996, Ser. No. 754,241
Int. Cl.° B65D 23/00
U.S. Cl. 220—703 17 Claims



1. A combination beverage container and ice retainer, comprising:

a vessel for holding ice and a beverage;

a shield for retaining ice in said vessel, said shield being circular in shape and substantially the same size as an interior cross section of said vessel at a selected distance below a lip of said vessel;

a clip for engagement with said lip of said vessel; and

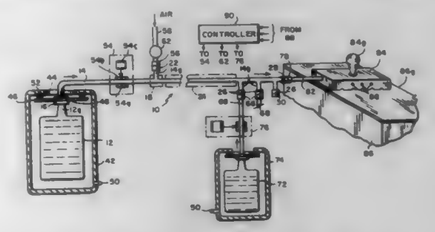
a stem having a first end affixed to said shield and a second end pivotally engaged through a yoke to said clip, said stem being of a length to position said shield at said selected distance below said lip of said vessel when said clip is engaged with said lip.

5,727,713

CLOSED DISPENSER PRODUCT SUPPLY UNIT

Paul Kateman, Cambridge; Matthew K. Haggerty, Milton; Jonathan B. Kateman, Newton; Clifford S. Lansil, Woburn, and Christopher T. Zirps, Milton, all of Mass., assignors to Kateman Family Limited Partnership, Cambridge, Mass.

Continuation-in-part of Ser. No. 308,665, Sep. 19, 1994, Pat. No. 5,603,257, which is a division of Ser. No. 154,747, Nov. 18, 1993, Pat. No. 5,433,967, which is a continuation-in-part of Ser. No. 740,725, Aug. 6, 1991, Pat. No. 5,292,030, which is a continuation-in-part of Ser. No. 564,219, Aug. 6, 1990, abandoned. This application Dec. 22, 1995, Ser. No. 577,836
Int. Cl.° B67D 5/60
U.S. Cl. 222—145.6 20 Claims



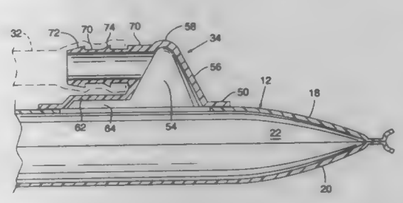
1. A sanitary dispenser unit for a food product, said unit comprising a product container for containing a food mix and having an outlet, an elongated flexible fluid conduit leading from said outlet and having a wall, said conduit including a mixing segment followed by an elongated turbulence segment having an exit end, and access means for introducing a gas into the mixing segment so that the food mix and gas undergo confined turbulent mixing in the turbulence segment, said container, conduit and access means constituting an integral unitary disposable structure.

5,727,714

PERSONAL HYDRATION DEVICE WITH IMPROVED EXIT VALVE

Roger R. Fawcett, Weatherford, Tex., assignor to FasTrak Systems, Inc., Weatherford, Tex.

Filed Aug. 27, 1996, Ser. No. 703,862
Int. Cl.° B67D 5/64
U.S. Cl. 222—175 9 Claims



1. A personal hydration device for use in providing fluid for delivery to an individual, said hydration device comprising:

a flexible bladder configured to hold fluid and including opposing side walls, at least one of the side walls having an opening through which the fluid may be passed;

an exit valve joined to the bladder adjacent the opening, the exit valve including a generally conically-shaped fluid accumulator region with a broad base disposed over at least part of the opening to receive fluid therefore, the accumulator region extending from the broad base to a narrower peak, where the exit valve also includes an output port and the output port connects to the accumulator region adjacent the peak;

a flexible hose with first and second ends, the first end being connected to the output port; and

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a mouthpiece connected to the second end of the hose and configured to be placed in the individual's mouth to provide fluid delivery thereto.

5,727,715

PUMP TYPE LIQUID DISPENSING APPARATUS WITH FILTER

Maurice McKenna, Bettystown; Aidan Clear, Dublin, and Angus McGlynn, Limerick, all of Ireland, assignors to TEE Enterprises Limited, Bettystown, Ireland

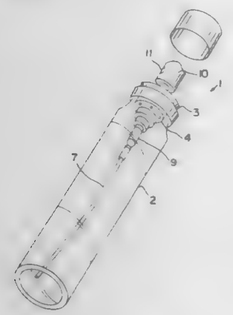
PCT No. PCT/IE93/00054, § 371 Date Jul. 7, 1995, § 102(e) Date Jul. 7, 1995, PCT Pub. No. WO94/11115, PCT Pub. Date May 26, 1994

PCT Filed Nov. 11, 1993, Ser. No. 433,463

Claims priority, application Ireland, Nov. 11, 1992, 92 2807

Int. Cl.[6] B67D *5/58*

U.S. Cl. 222—189.09 **12 Claims**



1. An atomiser, comprising a container for liquid, a pump mounted in an associated opening in the container, the pump having an inlet for communication with an interior of the container and an outlet for dispensing liquid from the container, the pump having means to dispense liquid from the container as an atomised spray, an air vent passage on the pump communicating between an interior and an exterior of the container, and filter means to purify air drawn into the container through the vent passage when liquid is discharged from the container, the filter means comprising a filter assembly which is sealingly engageable within the opening in the container, the filter assembly having at least one through hole for through passage of vent air with a filter mounted across the or each hole and the filter assembly having means for reception of the pump, a housing of the pump passing through an associated opening in the filter assembly with an airtight seal in the opening engaging between the filter assembly and the pump housing.

5,727,716

DEVICE FOR OPERATING PUMP SPRAYS

Andreas Hochstein, Bruchsal, and Reiner Reeg, Pforzheim, both of Germany, assignors to Goldwell GmbH, Germany

Filed Feb. 16, 1996, Ser. No. 602,974

Claims priority, application Germany, Mar. 30, 1995, 195 11 [illegible]

Int. Cl.[6] B65D *88/54*

U.S. Cl. 222—321.8 **9 Claims**

1. A device for operating a pump spray on a container having a spray actuator in a central position, in the form of a container cap, comprising:

a support, for detachably fixing the device on the pump spray container;

at least two vertical actuating levers disposed on opposite sides of the support and movable in a plane in a direction towards each other and about an axis of rotation, said actuating levers having upper ends connected by a flexible hinge member located above the axis of rotation,

a connecting piece linked to the upper ends of the actuating levers, the connecting piece comprising at least one flexible shank provided below the axis of rotation of the actuating levers, and a central projecting part for contacting the actuator,

wherein pressure exerted by a user of the spray container on the actuating levers in the plane of direction towards each other causes the connecting piece to deform whereby the central projecting part in contact with the actuator forces the actuator downward, thereby effectually operating the pump spray.

5,727,717

MAGNETICALLY COUPLED JOINTS FOR MANNEQUINS AND FORMS

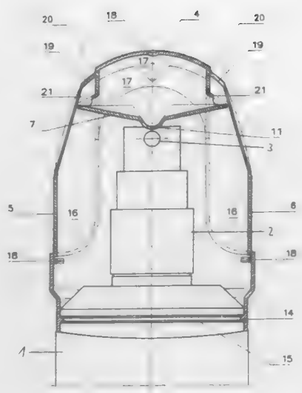
Patrick Vigne, 92 Fentiman Road, London, United Kingdom

Continuation of Ser. No. 182,142, Jan. 14, 1994, abandoned. This application Jul. 31, 1995, Ser. No. 507,031

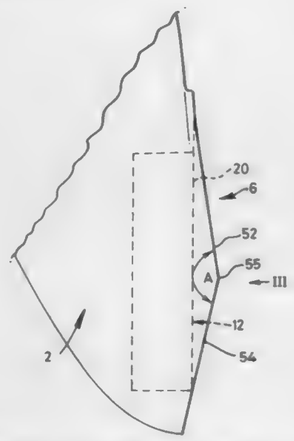
Claims priority, application United Kingdom, Jul. 16, 1991, 9115415; Apr. 21, 1992, 9208592

Int. Cl.[6] D06C *15/00*

U.S. Cl. 223—66 **19 Claims**



1. A mannequin form for displaying clothing accessories comprising a replica of a human being with a limb movable about a torso, the improvement comprising:



a joint for said movable limb comprising a magnetic material on two opposite joint surfaces for holding the joint together by means of magnetic attraction acting in a first direction,

and mating interfit joint surfaces having means other than friction for preventing movement of said limb relative to said torso in a direction perpendicular to said first direction for allowing said limb to be placed in different relative positions solely in reliance upon said magnetic attraction for holding the joint together in said first direction.

5,727,718

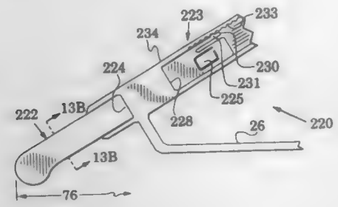
GARMENT HANGER ASSEMBLY KIT

Peter Ar-Fu Lam, 20104 Wayne Ave., Torrance, Calif. 90503

Division of Ser. No. 273,593, Jul. 11, 1994, Pat. No. 5,520,311. This application Apr. 30, 1996, Ser. No. 641,188

Int. Cl.[6] A47G *25/44;25/40;25/14*

U.S. Cl. 223—94 **3 Claims**



1. An adjustable width garment hanger comprising:

suspension means;

first and second proximal arms, each proximal arm having an inner end and an outer end;

means securing said proximal arm inner ends together proximate to a medial portion with said proximal arm outer ends extending in opposite directions from said medial portion;

first and second distal arms, each distal arm having an inner end and an outer end;

said first distal arm inner end being configured to engage said first proximal arm outer end for adjustable sliding movement with respect thereto; and

cooperating resilient stop means carried by said first proximal and distal arms enabling said distal arm, from a separated position to engage said proximal arm for sliding movement relative thereto in a first direction and for preventing said distal arm from sliding in a second direction to disengage said proximal arms.

5,727,719

BEVERAGE AND FOOD HOLDER

Jesse G. Veliz, 129 Marguarita Ave. #B, Alhambra, Calif. 91901, and William Edwards, Santa Monica, Calif., assignors to Jesse G. Veliz, Alhambra, Calif.

Continuation-in-part of Ser. No. 630,632, Apr. 10, 1996, and Ser. No. 720,677, Oct. 2, 1996. This application Jan. 21, 1997, Ser. No. 786,537

Int. Cl.[6] A45F *5/00*

U.S. Cl. 224—148.4 **18 Claims**

1. An improved food and beverage holder comprising, in combination:

a base member having a back wall adapted to rest in regions adjacent the chest of a user, said back wall having a bottom edge and a top edge space from said bottom edge, and a pair of spaced apart side walls having a back edge connected to said back wall and extending upwardly from regions adjacent said bottom edge of said back wall a first preselected distance toward said top edge of said back wall, and extending outwardly a second preselected distance from said back wall, and each of said side wails having a top edge and a bottom edge and a forward edge;

a drawer member slidingly mounted on said base member for reciprocal movement towards and away from said back wall;

mounting means for slidingly mounting said drawer member for said reciprocal movement towards and away from said back wall;

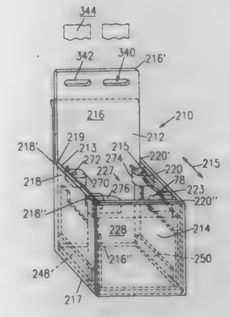
adjustable cup holder means having:

a first pair of cup engaging members coupled to said pair of side walls of said base member in regions adjacent said back wall;

a second pair of cup engaging members spaced outwardly from and substantially aligned with said first pair of cup engaging members and mounted for reciprocating movement towards and away from said first pair of cup engaging members and said back wall of said base member;

a cross brace member extending between said second pair of cup engaging members and coupled thereto for maintaining said second pair of cup engaging members in said spaced apart and aligned position; and

cup engaging member mounting means for engaging said first pair and said second pair of cup engaging members for providing said reciprocating movement of said second pair of cup engaging members.



5,727,720

MODULAR HIP-SUPPORTED PACK WITH BILATERAL ARTICULATION

Bryce Thatcher, Rexburg, Id., assignor to Ultimate Direction, Inc., Rexburg, Id.

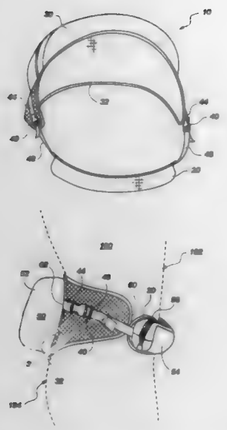
Filed Aug. 9, 1996, Ser. No. 695,303

Int. Cl.[6] A45F *3/14*

U.S. Cl. 224—664 **13 Claims**

1. A hip-supported pack comprising a front band of flexible material, a back band of flexible material with at least one compartment disposed thereon, first releasable fastener means to attach the front band to the back band at a lateral position, and second releasable fastener means to attach the front band to the back band

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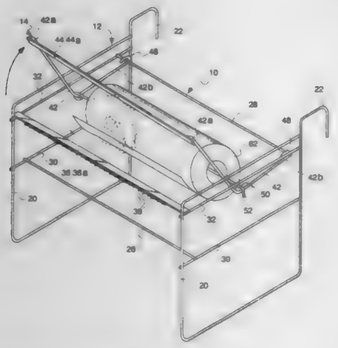
at a lateral position substantially opposite the first fastener means such that the front and back bands combine to form a torso circumscribing belt.

5,727,721

FLEXIBLE WEB DISPENSER

Joseph Jerome Guido, deceased, late of Hinsdale; by Marguerite McGrath Guido, trustee, 135 E. 5th St., and Robert Joseph Guido, 641 S. Bodin, both of Hinsdale, all of Ill. 60521

Filed Nov. 21, 1996, Ser. No. 754,626
Int. Cl.[6] B26F *3/02*
U.S. Cl. 225—106 **30 Claims**



1. A dispenser for flexible webbing having a free end and comprising a serial array of articles joined end to end along lines of weakness, the dispenser comprising:

a first frame means including a first jaw member;

a second frame means for supporting a supply of the webbing as the free end is withdrawn from the first frame means, said second frame means including a second jaw member;

pivotal mounting means for mounting the second frame means for pivotal movement with respect to the first frame means, between closed and open positions so as to move the first jaw member toward and away from the second jaw member;

the first and the second jaw members cooperating to form a dispensing nozzle for guiding the webbing with a frictional engagement as the webbing is passed between the first and the second jaw members and for supporting the webbing as articles are severed the webbing by tearing along lines of weakness; and

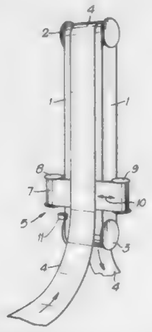
the pivotal mounting means arranged so that the weight of the webbing urges the first and the second jaw members together so as to form the dispensing nozzle and to frictionally engage the webbing.

5,727,722

CONVEYOR SYSTEM

Richard C. Rolt, Woolhope, United Kingdom, assignor to Rolt Designs Limited, Worcester, United Kingdom

Filed May 24, 1996, Ser. No. 653,421
Claims priority, application United Kingdom, May 25, 1996, 9510607
Int. Cl.[6] B23Q *15/00;* **B65H** *20/00*
U.S. Cl. 226—19 **7 Claims**



1. A conveyor belt system comprising a porous conveyor belt for receiving a web of material; means for maintaining a pressure differential across the surface of the conveyor belt to maintain the web of material in contact with the surface of the conveyor belt; and a position control member located in the zone where the web is fed onto the conveyor belt and positioned between the web and the conveyor belt to engage the face of the web which faces the conveyor belt and apply to that face lateral forces for adjusting the lateral position of the web relative to the longitudinal direction of the conveyor belt.

5,727,723

OSCILLATING HAULOFF

Robert E. Cree, Newark, N.Y., assignor to Addex Design, Inc., Newark, N.Y.

Filed Dec. 18, 1996, Ser. No. 769,106
Int. Cl.[6] B65H *20/24;23/32;* **A01J** *25/12*
U.S. Cl. 226—119 **25 Claims**

17. An apparatus for receiving film from an extruder, the apparatus comprises:

a stationary frame;

an oscillating portion including:

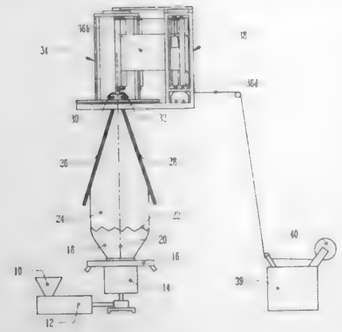
a frame,

a pair of rollers, mounted to the frame, for receiving the film from the extruder,

a turning bar coupled to the frame and positioned to receive film along a first axis to and to provide the film along a second axis perpendicular to the first axis,

at least two fixed rollers positioned so that at least one fixed roller is in contact with the film after the film is provided from the turning bar,

a motor for causing the frame to oscillate the pair of rollers, the at least two fixed rollers, and the turning bar about an axis parallel to the first axis, the oscillating motion being



relative to the stationary frame, the oscillating motion causing the film to contact different ones of the fixed rollers as the film oscillates, and causing a first path length that the film travels to change within the oscillating portion as the frame oscillates;

a stationary portion positioned to receive film after film is provided from one or more of the at least two fixed rollers and including:

a first roller that is stationary relative to the stationary frame, and

a second roller mounted for movement relative to the first roller and to the stationary frame, the film passing between the first roller and the second roller such that when the second roller moves, the distance the film travels from the first roller to the second roller varies; and

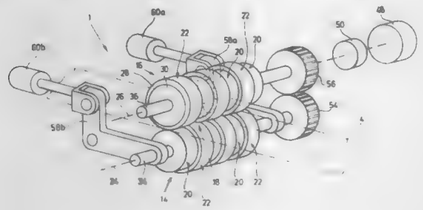
a control system, responsive to changes in the first path length, for moving the second roller such that the distance the film travels from the first roller to the second roller increases as the first path length decreases, and the distance the film travels from the first roller to the second roller decreases as the first path length increases.

5,727,724

METHOD AND APPARATUS FOR TRANSPORTING A WEB MATERIAL

John Joseph Dowling, Rollinsford, N.H., assignor to Heidelberg Harris Inc., Dover, N.H., and Heidelberger Druckmaschinen AG, Heidelberg, Germany

Filed Sep. 17, 1996, Ser. No. 710,301
Int. Cl.[6] B65H *20/00*
U.S. Cl. 226—181 **19 Claims**



1. Apparatus for transporting web material in a web-fed rotary printing press, comprising:

a first nip roller having a first set of driven and non-driven wheels arranged side by side along a rotational axis of the first nip roller; and

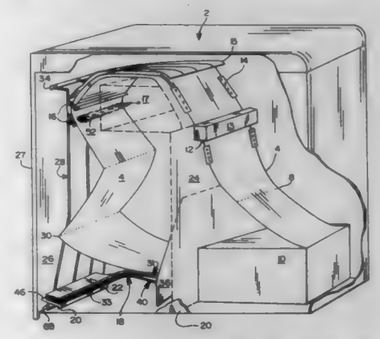
a second nip roller having a second set of driven and non-driven wheels arranged side by side along a rotational axis of the second nip roller, the wheels of the first and second nip rollers being arranged such that the driven wheels of said first roller face the non-driven wheels of the second roller to form a nip for receiving and conveying the web material.

5,727,725

FAN-FOLD PAPER STACKING RECEPTACLE WITH ANGLED BOTTOM AND CANTED BACK WALL

William J. Paskvich, Waynesboro, Va., assignor to Genicom Corporation, Waynesboro, Va.

Filed Oct. 22, 1996, Ser. No. 735,256
Int. Cl.[6] B41J *11/26;* **B41L** *1/32;* **B65H** *57/00*
U.S. Cl. 226—200 **8 Claims**



1. A continuous paper stacker and guide assembly for stacking a web of printed fan-fold paper, wherein the paper is segmented into sheets along fold lines, comprising:

a guide assembly having an upper vertical guide surface alignable with a paper output of a continuous feed printer, and a lower guide surface extending from the upper guide surface down towards a bottom surface of a container, wherein the lower guide surface slopes away from a vertical line extending through the paper output, and

the container having the bottom surface, at least two side walls, a front wall and a back wall, wherein the back wall is alignable with the lower guide surface, and wherein the bottom surface includes a center section having a width at least as wide as the web and length at least one-half a length of a sheet in the web, the center section having a slope slightly greater than an angle of friction between the sheets of the web, where the slope of the bottom surface extends downward towards the lower guide surface, and the bottom surface includes an upwardly sloped toe shelf between the center section and the lower guide surface, wherein a valley is formed between the toe shelf and center section and the valley is substantially parallel to the fold lines of the sheets.

5,727,726

CASSETTE ASSEMBLY FOR A STAPLING MECHANISM

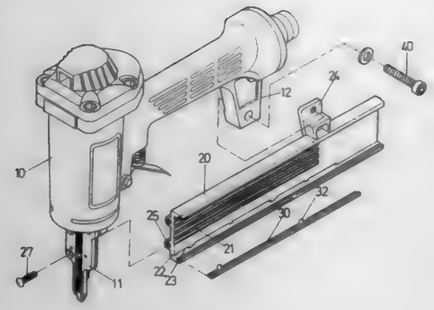
Arlene Lin, Taichung, Taiwan, assignor to Newco Pneumatic Corp., Taichung, Taiwan

Filed Jun. 14, 1996, Ser. No. 663,935
Int. Cl.[6] B25C *1/00*
U.S. Cl. 227—119 **1 Claim**

1. A cassette assembly for a stapling mechanism, the stapling mechanism including a body having a nose piece provided in a front and lower portion thereof and having a rear portion, said cassette assembly comprising:

a cassette including a first end for securing to the nose piece of the body and including a first side portion having a plurality of slots formed therein for retaining nails therein, said cassette including a bottom portion having a groove formed therein and having at least one notch formed therein and communicating with said groove, said cassette including a rear and

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upper portion, said cassette including a second side portion having a panel secured thereto,

a bar secured in said groove and including at least one projection extended therefrom for engaging with said at least one notch of said cassette so as to allow said bar to be stably secured in place and so as to prevent said bar from moving along said groove, said bar including a side edge having a longitudinal flange extended upward therefrom for engaging with and for stably retaining the nails in place,

a cap secured to said first side portion of said cassette, and

a bracket formed integral on said rear and upper portion of said cassette for securing to the rear portion of the body,

said upward extending longitudinal flange of said bar being provided for engaging with and for stably guiding the nails to move longitudinally along said slots so as to prevent said bar from being easily worn out and so as to increase a working life of said bar and said cassette.

5,727,727

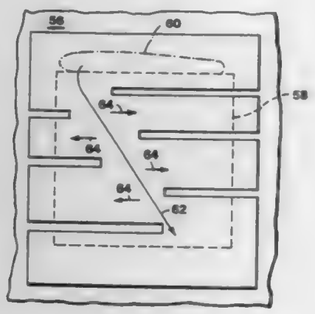
FLOWING SOLDER IN A GAP

George J. Ead, Methuen, Mass., assignor to VLT Corporation, San Antonio, Tex.

Continuation of Ser. No. 382,676, Feb. 2, 1995, abandoned. This application May 9, 1997, Ser. No. 853,983

Int. Cl.° B23K *1/20*

U.S. Cl. 228—123.1 **26 Claims**



1. A method for flowing solder in a gap between two surfaces, comprising

providing a supply of solder,

heating the solder to cause it to reflow and flow in the gap, and

directing the solder to flow as a main stream in the gap and to flow as peripheral streams from the main stream toward edges of the gap.

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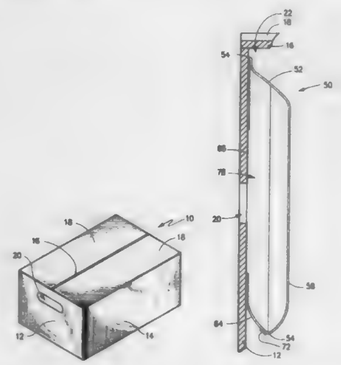
PROTECTIVE DEVICE FOR USE WITH CONTAINERS HAVING HANDHOLD OPENINGS

Raymond R. Sainz, 3224 Bryant St., Denver, Colo. 80211; Joseph S. Sainz, 5010 Umatilla St., Denver, Colo. 80221, and Lynn J. McCarthy, 7825 E. Pleasant Run, Scottsdale, Ariz. 85258

Filed Jun. 26, 1995, Ser. No. 494,930

Int. Cl.° B65D *5/468*

U.S. Cl. 229—117.16 **21 Claims**



1. A protective device adapted to be used with a container when packaging an object wherein the container has an interior and a wall that is provided with a handhold opening of a selected size and configuration, the protective device operative to inhibit ingress of unwanted materials into the interior through the handhold opening while permitting insertion of a hand for grasping the handhold opening, comprising:

(a) a panel piece having a surrounding peripheral edge and a surrounding peripheral margin portion adjacent to the peripheral edge, said panel piece sized and configured to have a panel size greater than the selected size and configuration of the handhold opening so that said margin portion is securable to said wall thereby to position and secure said panel piece in a secured state with said panel piece positioned over the handhold opening;

(b) a first adhesive material disposed on said peripheral margin portion and operative to secure said panel piece in the secured state and to seal said margin portion to said wall in an area surrounding the handhold opening and

(c) a second adhesive material disposed on said peripheral margin portion in a spaced-apart relation to said first adhesive material, said second adhesive material being less adhering than said first adhesive material and operative to releasably tack the panel piece to the wall of said container when the panel piece is in the secured state such that a portion of the panel piece will release from said wall upon insertion of the hand through the handhold opening.

5,727,729

COMBINED BYPASS AND THERMOSTAT ASSEMBLY

William Richard Hutchins, Kenilworth, England, assignor to Rover Group Limited, Warwick, England

Continuation of Ser. No. 458,511, Jun. 2, 1995, abandoned. This application Feb. 6, 1997, Ser. No. 796,698

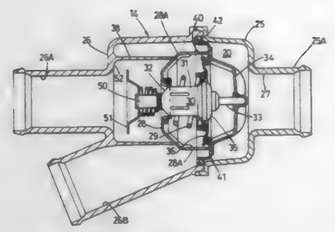
Claims priority, application United Kingdom, Jun. 9, 1994, 9411617

Int. Cl.° F01P *7/16*

U.S. Cl. 236—34.5 **14 Claims**

1. A combined bypass and thermostat assembly, for a cooling circuit of an internal combustion engine, comprising:

a housing defining a valve chamber;



a bypass and thermostat valve assembly being mounted in said valve chamber;

a first fluid inlet being provided in said housing for connecting said valve chamber to a source of cooled fluid;

a second fluid inlet being provided in said housing for connecting said valve chamber to a flow of bypass fluid from said engine;

a fluid outlet being provided in said housing for facilitating a return of said fluid to said engine;

said bypass and thermostat valve assembly having a temperature responsive valve actuating means being connected to a first valve member to regulate a flow of cooled fluid from said first fluid inlet to said fluid outlet in response to a sensed temperature of fluid in contact with a temperature sensitive portion of said temperature responsive valve actuating means and a second valve member for regulating the flow of said bypass fluid from said second fluid inlet to said fluid outlet, said first valve member extending radially outwardly from said temperature responsive valve actuating means and being arranged so as to deflect any fluid entering toward said thermostat assembly, through said first inlet passage, outwardly and away from said temperature sensitive portion of said temperature responsive valve actuating means;

wherein a tube is attached to part to a wall of said valve chamber to direct said bypass fluid entering said valve chamber, through said second fluid inlet, by said temperature sensitive portion of said temperature responsive valve actuating means and said tube is connected to said second fluid inlet to form an inner valve chamber encircling and at least partially housing said temperature sensitive portion of said temperature responsive valve actuating means, such that at least while the second valve member is open, said temperature sensitive portion primarily communicates with said bypass fluid from said second fluid inlet and is sufficiently shielded from any flow of cooled fluid entering said housing through said first fluid inlet, so that a position of said first valve member is determined primarily by a temperature of the fluid entering said valve chamber through said second fluid inlet at least while the second valve member is in an open position.

5,727,730

AIR HEATING DEVICE

Stephan Habijanec, Krailling; Christine Sallinger, Unterschleissheim, and Rüdiger Galtz, Gräfelfing, all of Germany, assignors to Webasto Thermosysteme GmbH, Stockdorf, Germany

PCT No. PCT/EP94/00943, § 371 Date Nov. 1, 1995, § 102(e) Date Nov. 1, 1995, PCT Pub. No. WO94/21972, PCT Pub. Date Sep. 29, 1994

PCT Filed Mar. 24, 1994, Ser. No. 525,510

Claims priority, application Germany, Mar. 25, 1993, 93 04 540 U

Int. Cl.° F24H *7/04*

U.S. Cl. 237—12.3 C **9 Claims**

1. Air heating device for a motor vehicle with a hot air fan located in a housing to deliver hot air from an air inlet opening which is located on an end of the housing via a heat exchanger to a hot air exit opening located on an opposite end of the housing; wherein the housing has, on its periphery near said air inlet opening, additional air inlet openings; and wherein the air inlet opening on the end of the housing and the additional air inlet openings on the periphery of the housing all communicate with a common inlet chamber on a suction side of the hot air fan.

5,727,731

HEATER UNIT OF AUTOMOTIVE AIR CONDITIONING DEVICE

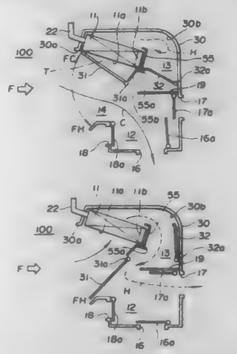
Hidenobu Arakawa; Yoshiaki Inaba, and Masaharu Onda, all of Tochigi, Japan, assignors to Calsonic Corporation, Tokyo, Japan

Filed Feb. 27, 1997, Ser. No. 808,505

Claims priority, application Japan, Feb. 28, 1996, 8-041035

Int. Cl.° B60H *1/12*

U.S. Cl. 237—12.3 B **16 Claims**



1. A heater unit of automotive air conditioning device, comprising:

a case having an air inlet opening and a plurality of air outlet openings;

means for defining in said case a cool air passage, a hot air passage and an air mix chamber, said cool air passage having an upstream end merged with said air inlet opening and a downstream end merged with said air mix chamber, said hot air passage having an upstream end merged with the upstream end of said cool air passage and a downstream largest area merged with said air mix chamber, said air mix chamber being directly communicated with said air outlet openings;

a heater core arranged in the upstream end of said hot air passage, said heater core being inclined with respect to a flowing direction of air which is directed toward said air inlet opening from the outside of said case;

an air mix door pivotally arranged in said case to vary the flow rate between the amount of air directed toward the hot air passage and the amount of air directed toward the cool air passage, said air mix door having a full cool position wherein said air mix door fully closes a front face of said heater core while fully opening the cool air passage and a full hot position

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wherein said air mix door fully opens the front face of said heater core while fully closing said cool air passage;

a shutter door pivotally arranged in said downstream largest area of said hot air passage, said shutter door being capable of fully closing the hot air passage and fully opening the same;

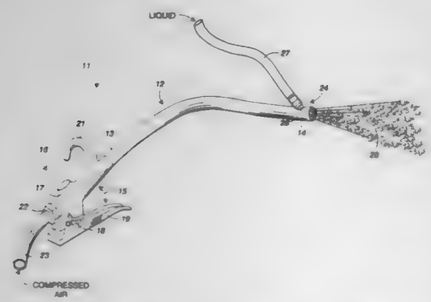
a link mechanism for achieving synchronized pivoting movements of said air mix door and said shutter door, said link mechanism inducing at least first and second conditions, said first condition being a condition wherein said air mix door assumes said full cool position and said shutter door fully closes said hot air passage, said second condition being a condition wherein said air mix door assumes a given position other than said full cool and full hot positions and said shutter door fully opens said hot air passage.

5,727,732

FLEXIBLE AEROSOL DELIVERY WAND WITH TIP MIXING CHAMBER

Myron Stein, 1776 Peachtree St., N.W., Suite 350-B, Atlanta, Ga. 30309

Filed Jul. 10, 1996, Ser. No. 677,740
Int. Cl.[6] B05B *7/04*
U.S. Cl. 239—1 **24 Claims**



1. A method of delivering a liquid from a liquid source to inaccessible remote surfaces within an automotive air conditioning system including surfaces of a heat exchanger and interior surfaces of automotive air conditioning system duct work to treat the surfaces for bacterial and fungal growth, said method comprising the steps of:

(a) passing a flexible elongated hollow tube having a first end and a spaced second end into the automotive air conditioning system;

(b) maneuvering said flexible tube through the duct work to position the second end of said flexible tube adjacent the remote location;

(c) delivering the liquid through an injector into said flexible tube adjacent the second end thereof;

(d) selectively directing an air flow through said flexible tube and across said injector to create a region of low pressure within said flexible tube downstream of said injector wherein the liquid from said injector is drawn;

(e) atomizing the liquid drawn through said injector with turbulent air flow created between said area of low pressure and the second end of said flexible tube;

(f) entraining said atomized liquid in said turbulent air flow; and

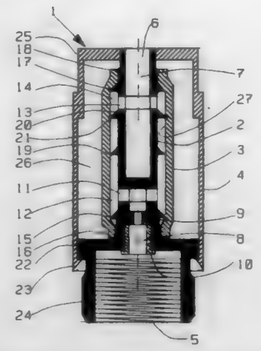
(g) dispersing said entrained liquid from the second end of said flexible tube as an aerosol spray to coat the remote surfaces adjacent the second end of said flexible tube.

5,727,733

PULSATING DEVICES

Gideon Ruttenberg, 81-465 Date Palm Ave., Indio, Calif. 92201, assignor to Gideon Ruttenberg, Indio, Calif.

Filed Jan. 19, 1996, Ser. No. 588,731
Int. Cl.[6] B05B *1/08*
U.S. Cl. 239—99 **5 Claims**



1. A pulsating device having an inlet and an outlet for converting a continuous, relatively low, controlled fluid flow rate entering said inlet of said pulsating device to an intermittent and pulsating high rate of fluid flow ejected from said outlet of said pulsating device, comprising:

(a) an insert having an inlet, an outlet and an outer surface;

(b) an elastic tube which:

(1) normally surrounds and directly contacts at least a major portion of said insert,

(2) can be expanded away from said insert to form an expandable chamber between said outer surface of said insert and an inner surface of said elastic tube,

(c) said expandable chamber having (a) an inlet portion and (b) an outlet portion intermittently in fluid communication with said inlet and with said outlet of said insert,

(d) said inlet of said insert communicating with said inlet portion of said expandable chamber so that fluid flowing into said inlet of said insert will reach said inlet portion of said expandable chamber,

(e) said elastic tube, when in said normal state in direct contact with said insert, being shaped so that it directly closes said outlet portion of said expandable chamber so as to (1) prevent fluid communication between said inlet portion of said expandable chamber and said outlet portion of said expandable chamber, and (2) prevent flow of fluid out from said expandable chamber,

(f) said elastic tube, when partially expanded in response to fluid pressure within said inlet portion of said expandable chamber exceeding a first predetermined level, being shaped to form a fluid path between said inlet portion of said expandable chamber and said outlet portion of said expandable chamber,

(g) said elastic tube, when partially expanded, surrounding and being in contact with said insert in said outlet portion of said expandable chamber and thereby resisting flow of fluid out from said outlet portion of said expandable chamber to said outlet of said insert and thereby causing an increased pressure in said inlet portion of said expandable chamber, resulting in an additional expansion of said elastic tube and opening said outlet portion of said expandable chamber widely and quickly into communication with said outlet of said insert,

(h) said pulsating device thus ejecting fluid from said expandable chamber through said outlet of said insert at a high rate of flow so as to cause the volume and pressure of fluid within said expandable chamber to decrease and said elastic tube to close said outlet portion of said expandable chamber in response to decreased pressure, thereby to complete a cycle of an intermittent pulsating flow of fluid through said outlet of said pulsating device,

(i) said pulsating device includes also a rigid casing that is without venting perforations at its outer periphery which surrounds said elastic tube and forming a space enclosed inside the inner surface of said rigid casing and the outer surface of said elastic tube and whereas said space which surrounds said elastic tube has a volume which is relatively larger than the volume of said additional expansion of said elastic tube.

5,727,734

AUTOMATIC POP-UP DRINKING STRAW ASSEMBLY

Jeng-wann Su, No. 60, Huaite St., Taipei, Taiwan

Filed Aug. 5, 1996, Ser. No. 692,521
Int. Cl.[6] A47G *21/18*
U.S. Cl. 239—33 **4 Claims**



1. An automatic pop-up drinking straw assembly comprising:

an outer tube having a first head with a diameter smaller than the remaining of said outer tube;

an inner tube having a first end;

a resilient tube having a second head whose outer diameter is equal to said inner diameter of said inner tube and a helical tube with a diameter bigger than the outer diameter of said second head of said resilient tube but smaller than the diameter of said outer tube;

a base provided with a hole mated respective with said resilient tube, said inner tube and said outer tube, and having a peripheral flange extending inward for providing support to said helical tube of said resilient tube.

5,727,735

ROTARY ATOMIZER FOR A COATING ARRANGEMENT

Michael Baumann, Heilbronn; Harry Krumma, Bonninghelm; Frank Rupertus, Bletigheim-Bissingen; Rolf Schneider, Burgstetten, and Kurt Vetter, Remseck, all of Germany, assignors to Behr Systems, Inc., Rochester Hills, Mich.

Filed Aug. 11, 1995, Ser. No. 514,115
Int. Cl.[6] B05B *15/02*
U.S. Cl. 239—112 **7 Claims**

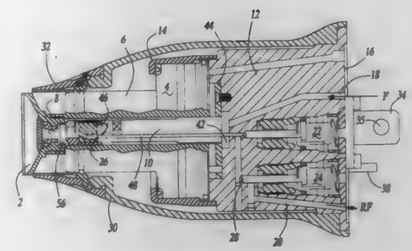
1. A rotary atomizer for a coating arrangement comprising a spray element mounted on a rotating shaft, a drive motor for said spray element, and a stationary channel body comprising a first and second channel extending along a rotational axis of said atomizer, said first channel providing fluid communication first between a line leading to a first external connection for a coating material to be atomized and a first outlet directed toward the spray element, said second channel providing fluid communication between a second line leading to a second external connection and said first channel in the channel body to provide a paint recycling connection, a control valve associated with each of said first and second channel and controllable valve movements provided for each of said control valves, characterized in that said stationary channel body further comprises a third axially extending channel, providing fluid communication between a third line leading to a third external connection of a cleaning fluid and a second outlet facing the spray element adjacent said first outlet, and a controllable third control valve for said third channel; and

said channel body has a cylinder situated coaxial to said rotational axis, through which three bores lead, extending parallel to the rotational axis in order to form said first, second and third channels, of which at least two of said three holes are situated non-coaxial to said rotational axis;

said three holes are spaced uniformly from one another eccentric to the rotational axis;

said channel body including an intermediate body adjacent said cylinder on a side facing said spray element, into which said first channel leads to a central opening connected to an outlet nozzle for the coating material, and in that at least two holes of the cylinder are connected to one another at a boundary between said cylinder and said intermediate body or in the intermediate body; and

a passage leading from said eccentric hole corresponding to said third channel through said intermediate body to an eccentric outlet of said intermediate body, and in that said channel body has a nozzle body on said intermediate body, on a side facing said spray element, said intermediate body forming an outlet nozzle for the coating material fed by said central outlet of said intermediate body, and in that said third channel leads from said eccentric outlet of said intermediate body to the outlet of said third channel located eccentric to said outlet nozzle in an end face of the nozzle body facing the spray element.

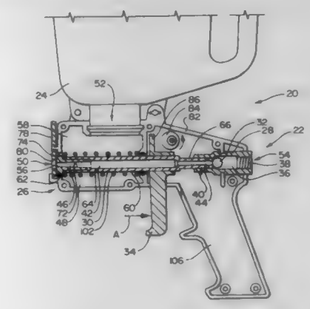


5,727,736

SPRAY APPLICATOR WITH AIR SHUT-OFF VALVE

James A. Tryon, Seattle, Wash., assignor to Homax Products, Inc., Bellingham, Wash.

Filed Aug. 9, 1995, Ser. No. 512,937
Int. Cl.[6] B05B *7/30*
U.S. Cl. 239—345 **41 Claims**



1. A fluid dispensing device for dispensing product comprising:

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a main housing assembly defining a main chamber and nozzle, product, and fluid openings that allow fluid communication between an exterior of the main housing assembly and the main chamber;

a valve housing defining a valve chamber having a valve inlet and a valve outlet, the valve housing being arranged adjacent to the fluid opening and having an intermediate surface defining a portion of the valve chamber;

a fluid passageway having an inlet portion and a nozzle portion, where the inlet portion is in fluid communication with the valve outlet and the nozzle portion is located adjacent to a mixing location that is adjacent to the nozzle opening, where the fluid flows along the fluid passageway from the valve outlet to the mixing location;

a substantially spherical valve member disposed within the valve chamber, where pressurized fluid entering the valve inlet forces the valve member against the intermediate surface of the valve housing in a closed position to prevent pressurized fluid within the valve chamber from flowing out of the valve outlet and into the inlet portion; and

actuator means operable between a closed configuration and an open configuration for allowing an operator to displace the valve member from the closed position into an open position to allow pressurized fluid in the valve chamber to flow out of the valve outlet, into the inlet portion, through the fluid passageway, out of the nozzle portion, and to the mixing location.

5,727,737

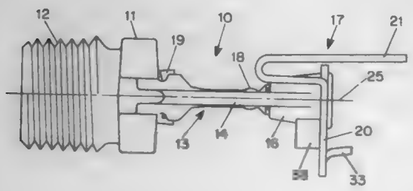
HORIZONTAL SIDEWALL SPRINKLER

Claude P. Bosio, New York; Thomas F. Wancho, and Salvatore S. Rachiele, both of Bronx, all of N.Y., assignors to The Reliable Automatic Sprinkler Co., Inc., Mount, Vernon, N.Y.

Filed Aug. 5, 1996, Ser. No. 689,254

Int. Cl.[6] B05B *1/26;* **A62C** *37/08*

U.S. Cl. 239—504 **19 Claims**



1. A horizontal sidewall sprinkler comprising a sprinkler body adapted to be connected to a source of fire extinguishing liquid and having a passage with an outlet of selected diameter to convey the liquid along a generally horizontal sprinkler axis, a pair of arms extending from the sprinkler body, and a deflector having a vertical portion extending substantially perpendicularly to the sprinkler axis and supported by the sprinkler arms in spaced relation to the sprinkler passage outlet and having a generally horizontal portion supported from the vertical portion at a location above the sprinkler axis, the generally horizontal portion of the deflector having a substantially planar lower surface facing the sprinkler axis and being inclined upwardly from the sprinkler axis at an angle of at least 0.5°, and the vertical deflector portion having a first opening above the sprinkler axis and beneath the horizontal deflector portion, a second opening below the sprinkler axis with a forwardly projecting tab projecting from a lower edge of the opening, and two further openings disposed below and on opposite sides of the sprinkler axis with rearwardly projecting tabs extending therefrom.

5,727,738

FUEL INJECTION VALVE FOR INTERNAL COMBUSTION ENGINES

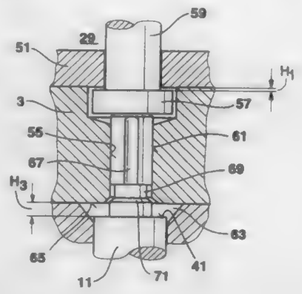
Karl Hofmann, Remseck, and Manfred Mack, Altheim, both of Germany, assignors to Robert Bosch GmbH, Stuttgart, Germany

Filed Nov. 9, 1995, Ser. No. 556,053

Claims priority, application Germany, Nov. 10, 1994, 44 40 182.5

Int. Cl.[6] F02M *45/02*

U.S. Cl. 239—533.4 **10 Claims**



1. A fuel injection valve for internal combustion engines having an axially displaceable valve element (**11**) which is guided in a guide hole (**9**) of a valve body (**1**), said valve body (**1**) is clamped via an intermediate disk (**3**) against a valve retention body (**7**) in which is provided a chamber (**29**) for accommodating first and second valve springs that act on the valve element (**11**) in the closing direction, said first valve spring (**33**) acts continually on the valve element (**11**) via a pressure pin (**39**), whereas said second valve spring (**49**) acts on the valve element (**11**) only after a certain opening stroke motion of the valve element (**11**), which motion traversed forms a preliminary stroke (**h1**), and, by this means, subdivides the opening stroke motion of the valve element (**11**) into a preliminary stroke against the force of the first valve spring (**33**) and a residual stroke against the force of the first and second valve springs (**33, 49**), wherein the valve element (**11**) bounds, at least indirectly, a fuel-filled damping space (**63**) which is shut off during the opening stroke motion of the valve element (**11**) in such a way that the pressure built up in the damping space acts against the opening stroke of the latter.

5,727,739

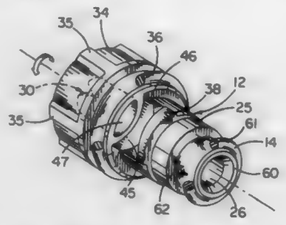
NOZZLE WITH QUICK DISCONNECT SPRAY TIP

Richard J. Hamilton, West Chicago, Ill., assignor to Spraying Systems Co., Wheaton, Ill.

Continuation-in-part of Ser. No. 397,914, Mar. 3, 1995, abandoned. This application Feb. 27, 1996, Ser. No. 607,376

Int. Cl.[6] B05B *1/00*

U.S. Cl. 239—600 **28 Claims**



1. A spray nozzle comprising a tubular body, a spray tip having a discharge orifice adapted to be secured releasably in said body,

an annular sealing member interposed between said tip and said body, said tip and said body having coacting cams for causing said tip and said body to be axially drawn together in response to rotation of said tip relative to said body, said sealing member being compressed between said tip and said body when said tip and said body are axially drawn together, detents on said tip and in said body and coacting to releasably hold said tip with said discharge orifice in a predetermined angular relation to said body after said tip has been rotated to said position, said detents of said body comprising interior recesses in said body, and said detents of said tip comprising external deformable ribs on said tip located to resiliently deform and then pop into and releasably seat in said recesses when said tip is turned to said predetermined position.

5,727,740

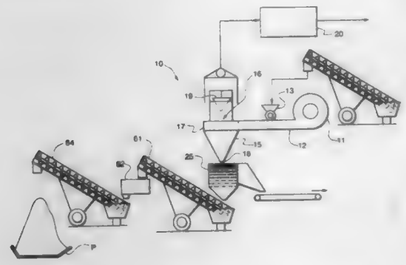
METHOD AND APPARATUS FOR RECOVERING FRACTIONAL COMPONENTS OF SOIL

Forrest L. Robinson, 12913 Woodson St., Overland Park, Kans. 66209, and Willis R. Campbell, 14129 Locust St., Olathe, Kans. 66062

Filed Jul. 3, 1996, Ser. No. 675,355

Int. Cl.[6] B02C *23/18;23/08*

U.S. Cl. 241—20 **20 Claims**



1. A method for recovering precious metals associated with iron ore and cobalt and forming a fractional component of low grade ore-bearing soil obtained from a source, comprising the steps of:

pulverizing the ore-bearing soil in a cyclonic comminuting/dehydrating mechanism to create a dehydrated pulverized soil material having fractional components, including a first fractional component containing iron ore and cobalt which has been released from the associated soil material binding said first fractional component into said ore-bearing soil;

passing the pulverized soil material beneath a magnetic device to extract said first fractional component therefrom onto said magnetic device and leaving an inert residue as a second fractional component;

transporting the extracted first fractional component from the magnetic device to a remote location;

processing said extracted first fractional component to recover precious metals therefrom; and disposing of the inert residue.

5,727,741

PULVERIZING ASSEMBLY

James L. Gibson, Fairhope, Ala., assignor to Custom Machinery LLC, Shreveport, La.

Filed Jul. 19, 1996, Ser. No. 684,250

Int. Cl.[6] B02C *13/16;13/28*

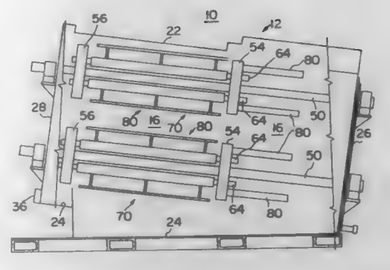
U.S. Cl. 241—157 **11 Claims**

1. A pulverizing assembly, which comprises:

a housing defining a chamber;

spaced-apart and vertically-disposed shafts rotatably disposed in said chamber;

spaced-apart flywheel members mounted on each of said shafts;



a plurality of parallelly-disposed rod members positioned between said flywheel members;

beater assembly including a tubular member disposed for rotation on said rod member, said beater assembly including a beater member spaced-apart from and parallelly-disposed to said tubular member;

inlet conduit means for introducing particular material for size reduction into said chamber;

outlet conduit means for removing sized reduced particulate material; and

means for rotating said shafts.

5,727,742

FOOD MIXER INCORPORATING AN ARCHIMEDEAN SCREW AND CUTTING BLADES

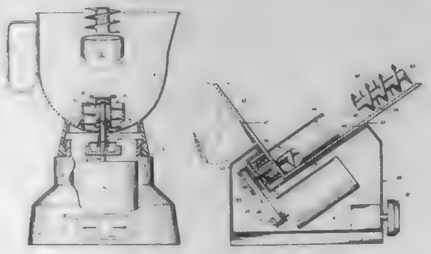
Anthony Charles Lawson, 11B Marlborough House, 154 Tai Hang Road, Hong Kong, Hong Kong

Continuation of Ser. No. 507,337, Aug. 28, 1995, abandoned. This application Jan. 28, 1997, Ser. No. 789,935

Claims priority, application Australia, Feb. 18, 1993, PL7336

Int. Cl.[6] A47J *43/046*

U.S. Cl. 241—199.12 **9 Claims**



1. A food mixer, comprising:

a base and a container, said container having an open upper surface through which food material can be placed into or removed from said container, said container being provided with a screw impeller having a continuous flight, said screw impeller being located within an open topped sleeve adjacent a lower surface of said container and further including enlongated cutting blades extending radially from said screw impeller between adjacent turns of said flight, the open topped sleeve having at least one opening in a lower end thereof so that food material can enter the open topped sleeve through the opening, said container being removably connected to said base, with said base including a motor capable of rotating said screw impeller via driving means passing through said container in a sealed relationship therewith, so that when said screw impeller is in motion, food material enters a lower portion of the open topped sleeve and exits its upper surface after mixing and circulates between sides of said container and outside of said sleeve, said open topped sleeve sufficiently

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encasing said screw impeller for permitting a safe insertion of a food implement into said container while said screw impeller is in motion.

5,727,743

DEVICE AND TREATMENT MACHINE FOR THE MECHANICAL TREATMENT OF HIGH-CONSISTENCY FIBROUS MATERIAL

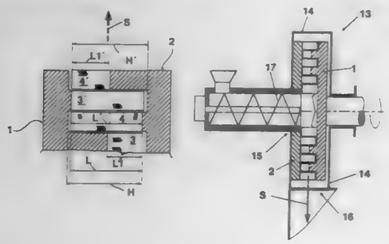
Josef Schneid, Vogt, and Hans Schnell, Mengen, both of Germany, assignors to Voith Sulzer Stoffaufbereitung, Ravensburg, Germany

Filed Nov. 12, 1996, Ser. No. 745,480

Claims priority, application Germany, Nov. 10, 1995, 195 41 992.1

Int. Cl.[6] **B02C** *7/12*

U.S. Cl. 241—261.3 **24 Claims**



1. A device for the mechanical treatment of high-consistency fibrous material including at least two treatment tools that can be moved in relation to each other, the at least two treatment tools each have a substantially rotationally symmetrical base body and are disposed coaxial to each other and comprise:

a plurality of teeth disposed in annular rows concentric to centers of each of the treatment tools;

the plurality of teeth including gaps disposed between adjacent teeth to form clear cross sections, the gaps enabling fibrous material to be treated to flow therethrough;

annular empty spaces positioned between the annular rows of teeth on each treatment tool;

the treatment tools engaging with one another such that at least one annular row of teeth of a first treatment tool is positioned within a corresponding annular empty space of a second treatment tool;

the gaps include different respective axial lengths between adjacent teeth.

5,727,744

METHOD AND APPARATUS TO CONTROL THE WINDING PATTERN ON A YARN PACKAGE

James O. Threlkeld, and James Preston, both of 4100 Barringer Dr., Charlotte, N.C. 28217

Filed Mar. 13, 1996, Ser. No. 614,695

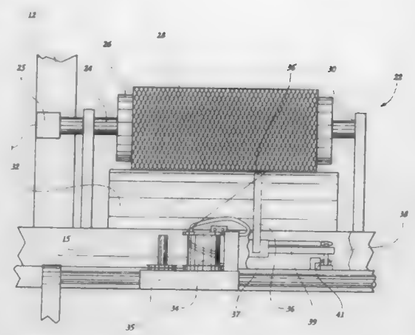
Int. Cl.[6] **B65H** *54/38*

U.S. Cl. 242—18.1 **4 Claims**

1. A method to control the winding pattern on a yarn package for a traverse winder used for winding elastomeric yarn to prevent repetitive patterns of yarn segments on the package, said method comprising the steps of the steps of:

providing means for monitoring the operation of a yarn package spindle includes providing means for counting the number of revolutions experienced by the yarn package spindle;

providing means for monitoring the operation of a traverse arm associated with the traverse winder including providing means for determining the occurrence of a complete traversing movement of the traverse arm associated with the traverse winder, defining a traverse cycle;



providing means for predicting the occurrence of repetitive patterns of yarn segments including providing means for determining a ratio, said ratio being the number of revolutions experienced by the yarn package spindle per traverse cycle to determine a wind ratio and doubling said wind ratio and multiplying the result by a predetermined factor, said factor being an integer, to determine a derived wind ratio and means for predicting when said derived wind ratio will be an integer;

providing means for adjusting the relative speed of traveling yarn being wound on the yarn package spindle and traverse arm includes providing means for changing the speed of the traverse arm;

monitoring the operation of the yarn package spindle including counting the number of revolutions experienced by the yarn package spindle using said means for counting the number of revolutions experienced by the yarn package spindle;

monitoring the operation of the traverse arm including determining the occurrence of traverse cycles using said means for determining the occurrence of a complete traversing movement of the traverse arm associated with the traverse winder;

determining said ratio using said means for determining a ratio, said ratio being the number of revolutions experienced by the yarn package spindle per traverse cycle to determine a wind ratio;

predicting the occurrence of repetitive patterns of yarn segments includes doubling said wind ratio and multiplying the result by a predetermined factor, said factor being an integer, to determine a derived wind ratio and predicting when said derived wind ratio will be an integer using said means for predicting when said wind ratio will be an integer; and

adjusting the relative speed of the traveling yarn being wound on yarn package spindle and the traverse arm includes changing the speed of the traverse arm responsive to a determination that the derived wind ratio is approaching an integer.

5,727,745

ENHANCED STORAGE SYSTEM FOR ELECTRICAL APPLIANCES, POWERCORDS AND ADAPTERS

James E. Vara, 8514 Londonderry Ave., Dallas, Tex. 75228

Continuation-in-part of Ser. No. 325,039, Oct. 18, 1994, Pat. No. 5,531,333. This application May 29, 1996, Ser. No. 654,922

Int. Cl.[6] **A47F** *5/00*

U.S. Cl. 242—400.1 **13 Claims**

1. Apparatus for storing electrical appliances, adapters and powercords inside an appliance storage container while interfacing and attaching one or more powercord storage tools onto the outside of said storage container, said apparatus comprising:

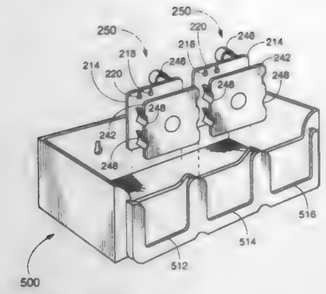
an appliance storage container; and

a powercord storage tool;

said powercord storage tool comprising:

a base; and

a retaining member attached to said base; said retaining member comprising:



powercord storage means on said retaining member for gripping, winding and storing an electrical powercord on said powercord storage tool;

said appliance storage container comprising:

a back, a left side, a right side, a front, and a bottom, cooperatively comprising means for receiving and holding one or more of said appliances, adapters and powercord storage tools inside said container;

means for interfacing and attaching said powercord storage tool onto the outside of said appliance storage container, comprising:

said storage container further comprising a rack affixed to said container, for removably attaching said powercord storage tool to the outside of said container; said rack shaped to interface with, receive and hold said retaining member of said powercord storage tool; and

said retaining member of said powercord storage tool further configured to interface with and attach to said rack as means for interfacing and attaching said powercord storage tool onto the outside of said appliance storage container.

5,727,746

THREAD FEEDER DEVICE W/CONTINUOUSLY ADJUSTABLE THREAD EXTRACTION TENSIONING

Heinrich Fabschitz, Naringerstrasse 18b, D-83620 Feldkirchen-Westerham, Germany

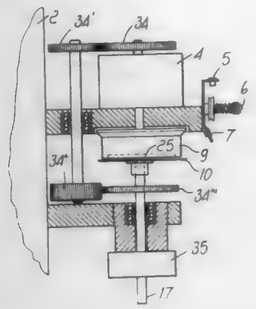
PCT No. PCT/DE94/01258, § 371 Date Aug. 12, 1996, § 102(e) Date Aug. 12, 1996, PCT Pub. No. WO95/12017, PCT Pub. Date May 4, 1995

PCT Filed Oct. 25, 1994, Ser. No. 637,766

Claims priority, application Germany, Oct. 29, 1993, 43 36 994.4

Int. Cl.[6] **B65H** *51/00;59/22;* **D03D** *47/36;* **D04B** *15/48*

U.S. Cl. 242—364 **21 Claims**



1. A thread feeder device for use with a textile machine, comprising:

a frame;

a storage body including a front face and being axially supported along a longitudinal axis thereof by said frame for carrying, substantially without slippage, a wound thread, said thread being tangentially windable on said storage body for forming a reserve winding and being axially extractable therefrom for being fed to a textile machine;

a braking surface being provided at said storage body front face;

a thin flexible disk having a diameter slightly larger than said storage body front face, said storage body and said flexible disk being supported by said frame so as to be rotatably movable in the same rotational direction and axially displaceable with respect to each other for providing a thrust pressure on said braking surface of said storage body, said flexible disk being elastically deformable whereby said thrust pressure is substantially uniform along every point of said braking surface; and

a substantially planar complementary braking surface which is provided at a side of said flexible disk which faces said braking surface, said braking surface and said complementary braking surface acting on a length of said thread extending radially therebetween for providing an adjustable thread extraction tension.

5,727,747

METHOD AND DEVICE FOR REMOVING A FOIL WRAPPING DRAWN OVER A STACK OF GOODS

Reiner Hannen, Goch-Pfalzdorf; Norbert Vermeulen, Kleve, and Frank Michels, Kleve-Materborn, all of Germany, assignors to MSK-Verpackungs-Systeme GmbH, Kleve, Germany

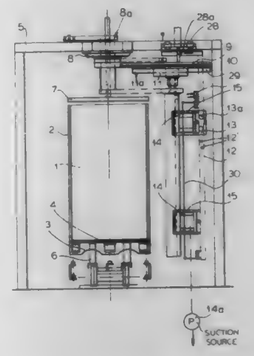
PCT No. PCT/EP94/03185, § 371 Date Mar. 18, 1996, § 102(e) Date Mar. 18, 1996, PCT Pub. No. WO95/08479, PCT Pub. Date Mar. 30, 1995

PCT Filed Sep. 23, 1994, Ser. No. 619,658

Claims priority, application Germany, Sep. 23, 1993, 9314339 U; Jan. 12, 1994, 44 00 661.6

Int. Cl.[6] **B65H** *18/10;* **B65B** *69/00*

U.S. Cl. 242—527 **17 Claims**



1. A method of removing a foil wrapping from a stock of goods comprising the steps of:

a) vertically cutting open the foil wrapping drawn over the stack of goods on one side of the stack of goods;

b) seizing a portion of the foil wrapping which is vertically cut open and fastening said portion to a winding spindle having a vertical longitudinal axis;

c) winding the foil wrapping onto the winding spindle by rotating the winding spindle about said longitudinal axis;

d) simultaneously guiding said winding spindle around the stack of goods as the foil is wound on said spindle, thereby removing the foil wrapping from said stack of goods.

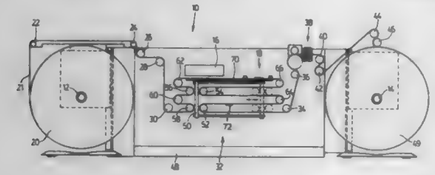
VOL 1208 ISS 3 MR 17 1998 UMI

5,727,748

WEB INSPECTION AND REPAIR MACHINE WITH WEB INDEXER DEVICE

Allan R. Prittie, Islington, Canada, assignor to ARPECO Engineering Ltd., Ontartio, Canada

Filed Sep. 4, 1996, Ser. No. 707,722
Int. Cl.[6] B65H *20/34*
U.S. Cl. 242—538.2 **6 Claims**



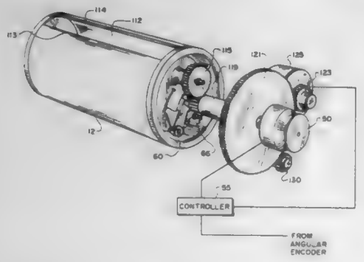
1. In a machine allowing inspection and repair of a roll of web material, the machine including:
a) an unwind mandrel,
b) a rewind mandrel,
c) an inspection area,
d) a splice area,
e) guide rolls for directing the web along a path from the unwind mandrel, past the inspection and splice areas in any sequence, to the rewind mandrel, and
f) first control means for causing the web to move past said inspection and splice areas, and to allow an operator to brake the web to a standstill upon the detection of a flaw in the web;
the improvement which comprises:
providing said machine with a web indexer device including:
g) an indexer shuttle mounted for back and forth movement with respect to the machine,
h) a first plurality of idler rolls mounted to said indexer shuttle,
i) a second plurality of idler rolls mounted to said machine, and so positioned with respect to the first plurality of idler rolls that web material can be strung therearound in substantially boustrophedonic configuration, and
j) second control means adapted, upon detection of a flaw at the inspection station, and upon braking of the web to a standstill, to move the indexer shuttle so as to return an identified portion of the web to the splicing station for repair, verification or any type of modification, without having to reverse the rotational direction of the unwind mandrel or the rewind mandrel.

5,727,749

AUTOMATIC PLATE-LOADING CYLINDER WITH CONSTANT CIRCUMFERENTIAL TENSION

Frank G. Pensavecchia, Hudson, and C. Roth Benson, Candia, both of N.H., assignors to Presstek, Inc, Hudson, N.H.

Filed Feb. 5, 1996, Ser. No. 597,040
Int. Cl.[6] B41F *27/00*
U.S. Cl. 242—538.3 **16 Claims**



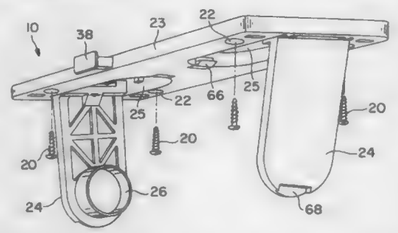
1. Apparatus for winding a recording material onto a cylinder adapted for rotation about a longitudinal axis, the apparatus comprising:
a. a cylinder;
b. first and second rotatable spools within the cylinder, the first spool being configured to dispense a rolled supply of recording material over a travel path extending around the cylinder to the second spool, the second spool being configured to permit winding of dispensed recording material therearound, each spool having a radius including the spool and material wound therearound;
c. means for winding material onto the second spool;
d. control means for causing a predetermined amount of material to be dispensed from the first spool and wound onto the second spool, the control means activating the winding means to begin dispensing material and, based on a determined radius of at least one of the spools and rotation thereof, deactivating the winding means after the predetermined mount of material has been dispensed.

5,727,750

DISPENSING DEVICE FOR ROLLED SHEET MATERIAL

Timothy A. Kelly, 801 Virginia Ave., Salem, Va. 24153

Filed Oct. 24, 1996, Ser. No. 740,132
Int. Cl.[6] B65H *16/06*
U.S. Cl. 242—596.3 **16 Claims**



1. A dispensing device for rolled sheet material, said device comprising:
a base member, and means for fixing said base member to a support surface;
oppositely facing arm members disposed generally at opposite ends of said base member, said arm members further comprising an engaging member configured for engaging and holding a roll of sheet material, said arm members hinged relative to said base member so as to be movable between an open position and a folded position;
a releasable latching mechanism to lock said arm members to said base member in said folded position; and
a dual acting biasing mechanism configured to bias said arm members away from said base member in said folded position of said arms and to bias said arm members toward said base member in said open position of said arms.

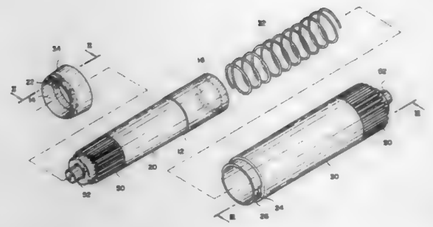
5,727,751

CENTRAL ROTATING SHAFT OF A RACK FOR TISSUE SCROLL

Jackie Liu, P.O. Box 87-432, Taipei, Taiwan

Filed May 9, 1997, Ser. No. 853,531
Int. Cl.[6] B65M *16/06*
U.S. Cl. 242—599.1 **5 Claims**

1. A central rotating shaft of a rack for tissue scroll, comprising:
a cover ring having a first annular groove provided on the inside periphery at one end thereof, said first annular groove having a plurality of projections;
a inner sleeve of which one end is provided with a projecting end and another end is an opening end having a second annular groove on its inside periphery, a protrusion rim being provided near said opening end whereby when said inner sleeve passes through said cover ring, said first annular groove is blocked by said protrusion rim such that said cover ring can be positioned in place against said protrusion rim;
a spring being placed at said opening end of said inner sleeve and against said second annular groove in order to be positioned in place; and
a outer sleeve of which one end is provided with a projecting end, and another end is an opening end for receiving said spring and said inner sleeve and has a flange which is provided with a plurality of corresponding recesses for being engaged with said projections of said cover ring such that said inner sleeve can be retractable between said outer sleeve and said cover ring by means of the force of said spring.

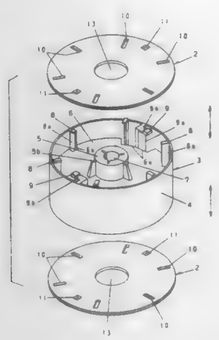


5,727,752

REEL FOR TRANSPORTING ELONGATE ARTICLES

Noriho Matsuzoe, Hyogo, Japan, assignor to Gold Industries Co., Ltd., Osaka, Japan

Filed Dec. 11, 1996, Ser. No. 764,412
Claims priority, application Japan, Dec. 18, 1995, 7-348601
Int. Cl.[6] B65H *75/22*
U.S. Cl. 242—608.6 **3 Claims**



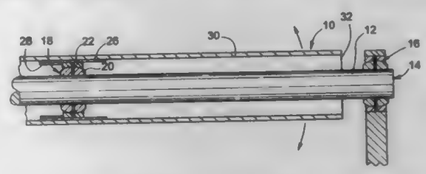
1. A reel for transporting elongate articles comprising:
a pair of substantially flat and round discs;
a hub of a cylindrical shape and interposed between the discs to connect them one to another;
hooks each having a hooking head and a body secured to an inner periphery of the hub;
at least one resilient pawl for each disc, the pawl having a locking end and a body secured to the inner periphery;
the hooking heads bent perpendicular to the respective bodies, facing in the same circular direction and protruding from open ends of the hub beyond an outer face of each disc;
the locking end of the pawl being elastically and temporarily displaceable in an axial direction of the hub;
slots formed in each disc so as to engage with the respective ends of the hooks; and
at least one aperture also formed in each disc and capable of engaging with the locking end of the resilient pawl.

5,727,753

WEB TENSION EQUALIZER ROLL

J. C. Harris, Dale, Ind., assignor to The Servants, Inc., Jasper, Ind.

Filed Dec. 5, 1995, Ser. No. 567,297
Int. Cl.[6] B65H *23/025*
U.S. Cl. 242—615.1 **40 Claims**



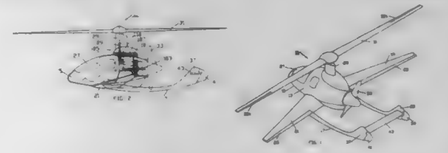
1. An equalizer roll for controlling and correcting web tension, comprising:
a longitudinal fixed shaft having distal ends supported by a pair of support members;
a cylindrical sleeve having an inner surface defining an internal diameter greater than the external diameter of said fixed shaft, said cylindrical sleeve being spaced apart from said fixed shaft, said cylindrical sleeve supporting a web of material being conveyed over an external surface of said cylindrical sleeve between a first distal end and a second distal end;
a self aligning pivotal rotatable center bearing assembly having a single inner convex ball portion having a bore therethrough fixedly connected to said fixed shaft extending therethrough and an outer concave socket portion having an external surface fixedly connected to said inner surface of said cylindrical sleeve being positioned and balanced at a weighted center of said cylindrical sleeve being coaxially mounted around and spaced apart from said fixed shaft, said cylindrical sleeve extending outwardly past said pivotal rotatable center bearing assembly; and
said cylindrical sleeve being deflectable by unequal tension of said web of material passing thereover and said fixed shaft limiting the deflection of said cylindrical sleeve and allowing for deflection and swiveling in an arc about said pivotal rotatable bearing assembly, whereby balancing of said cylindrical sleeve at the center thereof corrects deflections caused by the unequal tension in the conveyance of the web of material thereover.

5,727,754

GYROPLANE

Jay W. Carter, Jr., Burkburnett, Tex., assignor to CarterCopters, L.L.C., Wichita Falls, Tex.

Filed Aug. 31, 1995, Ser. No. 521,690
Int. Cl.[6] B64C *27/02*
U.S. Cl. 244—8 **24 Claims**



1. A method of flying a gyroplane having a two-bladed rotor, a forward thrust means, a wing, a horizontal stabilizer, and an engine to rotate the rotor blade, comprising the steps of:
providing the rotor with an edgewise stiffness of at least 80,000 pounds inch^2 per pound of aircraft gross weight and blade weights to enable rotation at a speed to store a minimum of 100 foot pounds per pound of gross weight;
rotating the rotor at said speed to describe a rotor disc, while the angle of attack of the rotor blades is set to a minimum lift condition;

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changing the angle of attack of the rotor blades to a lift condition for vertical climbing;

increasing forward thrust to achieve an increasing horizontal velocity necessary to maintain a selected altitude, first with the rotor providing most of the lift and until the wing provides most of the lift;

reducing the pitch of the rotor disc and the angle of attack of the rotor blades to essentially zero lift to decrease the rotor rotational speed to minimize drag during horizontal flight.

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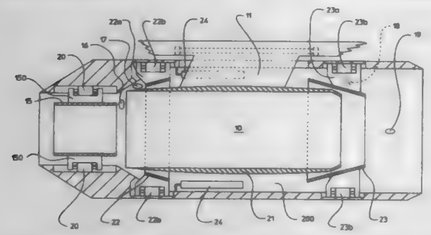
AIRCRAFT ENGINES WITH A CONTROLLABLE OUTER CASING

Alfred C. Craig, Little Foxes Briar Court, 45 Appledore Road, Tenterden, Kent, England

Continuation-in-part of Ser. No. 438,706, May 11, 1995, abandoned, which is a continuation-in-part of Ser. No. 184,396, Jan. 21, 1994, abandoned. This application Dec. 2, 1996, Ser. No. 759,305

Int. Cl.[6] B64D *29/00*

U.S. Cl. 244—53 R **11 Claims**



1. An aircraft comprising an airframe structure, at least one jet engine having a longitudinal axis, said jet engine having a surrounding engine casing defining at opposite ends of said casing an inlet opening and an exhaust outlet centered on said engine axis, at least one engine support member extending from said engine to said airframe structure to support the engine, a further hollow casing enclosing said engine casing coaxial with the engine and spaced from the engine casing to define therewith an annular-section duct, said further casing having an inlet opening centered on said axis and disposed upstream of said inlet opening of the engine casing, an outlet opening centered on said axis and disposed downstream of said exhaust outlet of said engine casing, said further hollow casing having a first internal diameter at a first position upstream of said engine casing, a second internal diameter at a position downstream of the inlet opening of said engine casing and a region between said first and second positions over which the internal diameter increases from said first position to the second position, an annular inlet opening to said annular-section duct, said annular inlet opening being defined by the leading end of said engine casing and said region of the outer casing between said first and second positions, means mounting said further casing for longitudinal movement relative to said jet engine and said engine casing and said engine support member, whereby said annular entrance opening to said annular-section duct can be varied in size whereby, in use, the quantity of air by-passing the jet engine via said annular-section duct can be varied.

5,727,756

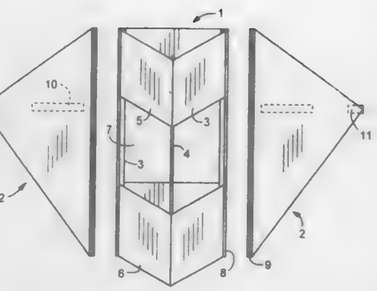
MODULAR KITE SYSTEM

David E. Rowe, 120 E. Ogden Ave., Hinsdale, Ill. 60521

Filed Dec. 6, 1995, Ser. No. 568,025

Int. Cl.[6] B64L *31/06*

U.S. Cl. 244—153 R **7 Claims**



1. A collapsible modular kite structure for readily permitting simplified reconfiguration of the overall shape of the kite, comprising

a modular body having one or more longitudinal members and pliable sheet material extending between the members,

a pair of wings selected from a group of pairs of variously sized and shaped wings which are formed of pliable non-rigid sheet material and are readily attachable and detachable to and from the body,

means for detachably attaching the wings to the body in a manner so as to prevent relative movement therebetween, and

a transversely disposed rigid cross spar for supporting the wings and means for adjustably attaching the cross spar to the kite.

5,727,757

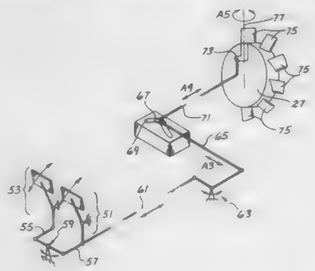
SLOTTED CAM CONTROL SYSTEM

Daniel A. Nyhus, Gilbert, Ariz., assignor to McDonnell Douglas Helicopter Co., Mesa, Ariz.

Filed Jan. 17, 1996, Ser. No. 587,666

Int. Cl.[6] B61L *5/00*

U.S. Cl. 244—221 **29 Claims**



1. A cam control system for controlling pitch angles of fan blades of a relatively low-pressure-ratio fan within a fuselage of a helicopter, the relatively low-pressure-ratio fan directing a stream of air rearwardly into a tailboom of the helicopter, the stream of air being used for both a circulation control tailboom and left and right nozzles of a direct jet thruster, the slotted cam control system comprising:

a left foot rudder pedal movable in a forward and backward direction, forward movement of the left foot rudder pedal opening the right nozzle of the direct jet thruster and backward movement of the left foot rudder pedal closing the right nozzle of the direct jet thruster;

a right foot rudder pedal movable in a forward and backward direction, forward movement of the right foot rudder pedal opening the left nozzle of the direct jet thruster and backward movement of the right foot rudder pedal closing the left nozzle of the direct jet thruster;

a force-receiving arm movable in left and right directions;

translating means connected to the force-receiving arm, for translating a combination of both forward movement of the left foot rudder pedal and backward movement of the right foot rudder pedal into left movement of the force-receiving arm, and for translating a combination of both backward movement of the left foot rudder pedal and forward movement of the right foot rudder pedal into right movement of the force-receiving arm;

a track for contacting a portion of the force-receiving arm and for guiding movement of the portion of the force-receiving arm in a V-shaped, non-sinusoidal manner;

a force-applying arm operatively connected to the fan blades, the force-applying arm movable in forward and backward directions, a portion of the force-applying arm contacting the track and being guided by the track when the force-applying arm is moved in the forward and backward directions, the left movements of the force-receiving arm moving the force-applying arm forward and then backward, and the right movements of the force-receiving arm moving the force-applying arm backward and then forward,

wherein forward movements of the force-applying arm change the pitch angles of the fan blades in a first direction, and backward movements of the force-applying arm change the pitch angles of the fan blades in a second direction.

5,727,758

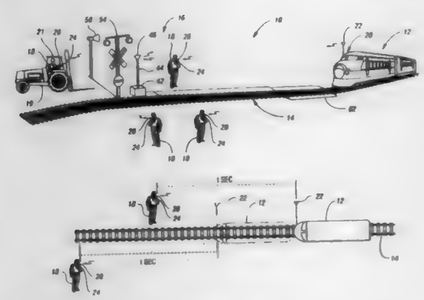
TACTILE AND AUDIBLE WARNING SYSTEM FOR RAILROAD WORKERS

George Gregory Penza, 42 Valentine Ave., Huntington, and George Robert Penza, 4 E. Gate La., Old Field, both of N.Y. 11743

Filed Mar. 26, 1997, Ser. No. 827,346

Int. Cl.[6] B61L *1/00*

U.S. Cl. 246—124 **20 Claims**



13. A personal train warning system for warning personnel in proximity to railroad tracks of an approaching train, the system comprising:

a Radio Frequency (RF) transmitter disposed on the train for continuously transmitting an RF warning signal having a variable power output along a wireless RF transmission path during operation of the train, wherein the power output of the RF warning signal varies as a function of the speed of the train so that the RF warning signal is received by an RF receiver a predetermined amount of time ahead of the arrival of the train; and

a portable RF receiver carried by at least one of the personnel in proximity to the railroad tracks for receiving the RF warning signal transmitted by the transmitter along the wireless RF transmission path, whereupon receiving the RF warning signal the portable RF receiver generates an alarm to notify the at least one of the personnel of the approaching incoming train.

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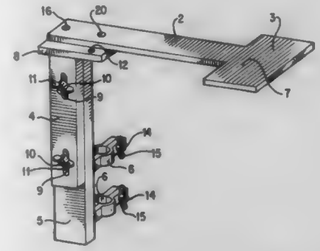
INTEGRATED MOUSE PAD AND WRIST AND ARM SUPPORT

Leslie Palmatier Christensen, 6864 B Brindle Heath Way, Alexandria, Va. 22315

Filed Aug. 31, 1995, Ser. No. 521,657

Int. Cl.[6] B43L *5/00*

U.S. Cl. 248—118 **1 Claim**



1. An integrated mouse pad and wrist and arm support with positioning and attaching assemblies, comprising;

a flat, one-piece, elongated metal member having first and second ends, the shape of said metal member being that of an elongated rectangle except at the first end, said first end being shaped to be larger in size than said second end, said first end being configured in the shape of a computer mouse pad and comprising a mouse pad portion of said flat, one-piece, elongated metal member, the remainder of said flat, one-piece, elongated metal member comprising a wrist and arm support portion;

a positioning assembly comprising a positioning platform, a positioning pin extending upward from said positioning platform, a positioning hole located in said wrist and arm support portion, a plurality of threaded positioning holes located in said positioning platform, a locking hole located in said wrist and arm support portion, and a threaded locking bolt, said positioning pin configured to mate with said positioning hole, said threaded locking bolt configured to mate with said threaded positioning holes and said locking hole, said positioning assembly thus permitting an angular positional adjustment of said wrist and arm support portion;

and an attaching assembly for attaching said integrated mouse pad and wrist and arm support to a chair, said attaching assembly comprising first and second vertical attaching members, said first attaching member having an upper end permanently attached to said positioning platform, and two clamping means permanently attached to said second attaching member, said clamping means being capable of a detachable attachment to a chair's support column, said first and second attaching members being slidably attached to each other.

5,727,760

BOW HANGER

Rogge L. Wytovak, and Shannon M. Wytovak, both of 3020 Hartmetz, Evansville, Ind. 47712, assignors to Rogge L. Wytovak, and Shannon M. Wytovak, both of Evansville, Ind.

Filed Mar. 22, 1996, Ser. No. 621,004

Int. Cl.[6] F16L *3/08*

U.S. Cl. 248—217.3 **2 Claims**

1. A device for hanging a bow from a tree, said device comprising:

a) a tension member which can be secured to the tree,

b) a brace which is held against the tree in compression by gravity acting on the device, said brace being forked at one end so as to diffuse the compression load from the weight of the device,

c) a hanger with a main hook for supporting said bow in such a manner that a minimum of movement is required by a bow

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hunter to remove said bow from said hanger with a main hook and use said bow for its intended purpose,

d) a bracket to which the tension member, the brace, and the hanger are attached in such a manner that each of the tension member, the brace, and the hanger can be pivoted around each of their respective connections to the bracket for the purposes of saving space during transport or shipping, wherein said bracket has clearances which permit adjustments to the height of one end of said hanger by pinning the hanger to whichever of the clearances within the bracket is desired for a given height, said adjustment of the hanger end height being possible without disturbing either the tension member which is secured to the tree or the compression member which is held in compression by gravity against the tree,

e) a means for securing the tension member to the tree, and

f) at least one utility hook for hanging items other than said bow.

5,727,761

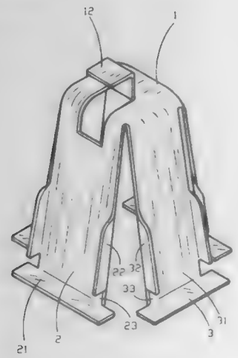
CIRCUIT BOARD LOCATING DEVICE

Hsin Chien Ho, 20F-1, 268, Sec.1, Wen-Hua Road, Pan Chiao City, Taipei, Taiwan

Filed Sep. 29, 1995, Ser. No. 606,025

Int. Cl.[6] F16B *4/00*

U.S. Cl. 248—222.12 **1 Claim**



1. A circuit board locating device for fastening a circuit board to a frame comprising:

two pairs of symmetrical legs that extend downward at an outward angle from a top surface of said locating device, and a hooked portion that is raised from said top surface, adapted to secure said circuit board; wherein

each said leg includes two side boards extending perpendicularly outward from outer edges of a main body of each said leg, each said leg further includes a bottom plate positioned to form a frame receiving space between said bottom plate and said side boards, such that said frame is adapted to be received in said frame receiving space of said locating device, thereby capable fixing a position of said circuit board relative to said frame.

5,727,762

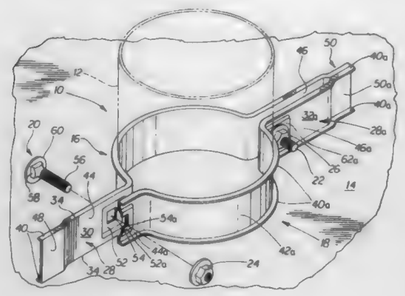
RISER CLAMP AND METHOD OF FABRICATING SAME

Christopher Cosentino, Bolton, Canada, assignor to Centro Manufacturing Inc., Etobicoke, Canada

Filed Nov. 25, 1996, Ser. No. 755,948

Int. Cl.[6] A47B *96/06*

U.S. Cl. 248—231.61 **10 Claims**



1. A riser clamp comprising a pair of clamp members adapted to be secured with a pair of fasteners about a riser, in which each of the clamp members comprises an elongate metal strip and in which:

the metal strip is bent lengthwise to define a pair of opposing peripheral flanges and an elongate base strip between the flanges;

the base strip is bent to define between the flanges a substantially semi-circular central arch, a pair of arms extending laterally in opposite directions from the central arch, and a pair of tabs each extending laterally away from a different one of the arms;

the arch rises in a predetermined general direction relative to the base strip, the flanges extend transversely relative to the base strip in the predetermined general direction, and each of the arms is offset in the predetermined general direction relative to the tab that extends from the arm; and,

each of the arms comprises a clearance hole for passing one of the fasteners.

5,727,763

DEVICE FOR BALANCING THE FORCES ACTING ON AN ARM PULLED BY A LOAD

Jean-Marc Loriot, 15, rue Lakanal, F 75015 Paris, France

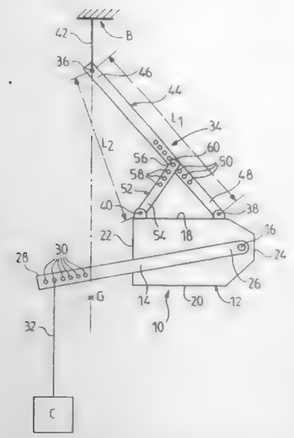
Filed Nov. 21, 1995, Ser. No. 561,006

Claims priority, application France, Nov. 25, 1994, 94 14178

Int. Cl.[6] A47H *1/10*

U.S. Cl. 248—325 **11 Claims**

1. A device for balancing forces acting on an arm pulled by a load, comprising a body on which said arm is pivoted for rotation about an axis, wherein said body has first and second fixing points spaced in a horizontal plane and in a direction perpendicular to said axis of said arm, said body being suspended from a point of support by an adjustable triangular support connected to said first and second fixing points, the distance between said point of support and each of said first and second fixing points being adjustable, the arrangement being such that the centre of gravity of said device, including said arm and said load is in substantial vertical



alignment with said point of support when said arm is in an intermediate substantially horizontal position.

5,727,764

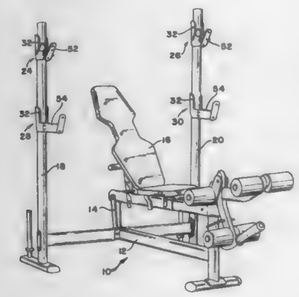
SELF-LOCKING QUICK RELEASE BRACKET

James P. Angeles, Boulder, Colo., assignor to LifeGear, Inc., Rockaway Township, N.J.

Filed Mar. 22, 1996, Ser. No. 621,292

Int. Cl.[6] A63B *21/078*

U.S. Cl. 248—295.11 **5 Claims**



1. A self-locking quick release bracket for use with a substantially vertical rod having at least one cavity extending into said rod from a substantially vertical outer surface of said rod, said at least one cavity being within a defined longitudinal region of said rod, said rod having a substantially uniform cross section within said defined longitudinal region, the bracket comprising:

a hollow tubular body adapted to move freely along said rod within said defined longitudinal region, said body having an upper portion adapted to encompass a first part of the outer circumference of said rod including said at least one cavity, said body having a lower portion adapted to encompass a second part of the outer circumference of said rod across said rod from said first part, and said body having a central portion connecting said upper and lower portions; and

an inwardly directed projection secured to the inner surface of the upper portion of said body, said projection being sized to fit within each of said at least one cavity;

wherein said bracket is adapted so that when said projection is within a selected one of said at least one cavity, said bracket is prevented from being moved along said rod; and

wherein said upper and lower portions of said body are spaced apart vertically a sufficient distance to allow said body to be tilted relative to said rod in a first angular direction so as to remove said projection from said at least one cavity so that said tilted body can be moved along said rod.

5,727,765

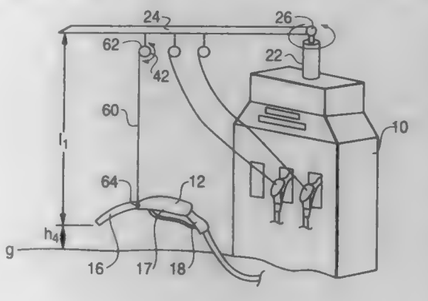
DEVICE FOR PREVENTING DAMAGE TO A GAS PUMP FILLER GUN

Stein Alvern, Oslo, Norway, assignor to Alvern-Norway A/S, Norway

Filed Jul. 16, 1996, Ser. No. 680,986

Int. Cl.[6] A62C *13/76*

U.S. Cl. 248—329 **9 Claims**



1. An apparatus for preventing damage to a gas pump filler gun associated with a gas pump, comprising:

a support positioned proximate the gas pump;

an arm pivotally linked to said support, to pivot at a selected height above the ground;

a rotatable reel positioned along the length of the arm; and

a wire having two opposite ends, the first end attached to said reel and the second end attachable to the gas pump filler gun, the second end of said wire being retractably extendable away from said reel upon movement of the gas pump filler gun, said wire having a length between the two ends when fully extended that is less than said selected height.

5,727,766

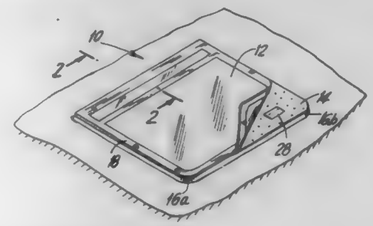
DESK PAD

Stephen I. Mayo, 721 E. 133rd St., Port Morris, N.Y. 10454-3405

Filed Nov. 28, 1995, Ser. No. 563,812

Int. Cl.[6] A47B *91/00*

U.S. Cl. 248—346.01 **7 Claims**



1. A desk pad comprising

a) a substantially transparent stiff bendable upper sheet having top and bottom faces and including a linear edge,

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b) a substantially opaque, porous flexible and slightly elastic lower sheet of substantially the same configuration as said upper sheet, said lower sheet having top and bottom faces and including a linear edge substantially underlying the linear edge of said upper sheet;

c) first and second double faced adhesive tapes of approximately the length of said straight edges, one face of the first tape being secured by its adhesive along the bottom face of said upper sheet parallel to and adjacent the sheet edge, one face of the second tape being secured by its adhesive along the bottom face of said lower sheet parallel to and adjacent its edge, and

d) a flexible inelastic thin band of approximately the length of said adhesive tapes, said band comprising three longitudinally connected zones, the first and third zones being approximately equal in width to the distance from the edges of the upper and lower sheets to the remote edges of their respective adhesive tapes;

the second longitudinal zone connecting the first and third zones and ranging in width from about 0.3 to 0.6 mm greater than the thickness of said lower sheet;

the top of said first zone being adhesively secured to the tape on the bottom face of said lower sheet, and

the bottom of said third zone being adhesively secured to the tape on the bottom face of said upper sheet,

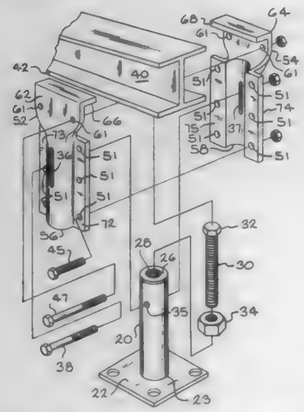
whereby the upper sheet in its entirety may be pivoted relative to the bottom sheet with the second zone as an axis.

5,727,767

MOBILE HOME SUPPORT STAND

Lester G. Jefrey, 2640 Humboldt Rd., Green Bay, Wis. 54311

Filed Apr. 8, 1996, Ser. No. 629,182
Int. Cl.[6] A47F *5/00*
U.S. Cl. 248—354.3 **7 Claims**



1. Apparatus for supporting a modular home comprising:

a) a foundation;

b) support means affixed to said foundation for supporting upon said support means said modular home;

c) means for securing said modular home to said support means, wherein said means for securing said modular home to said support means includes a pair of oppositely opposed clamping plates, one on either side of said support post, and means for securing said plates to said post, said plates being secured to said modular home;

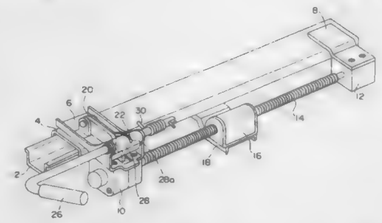
wherein said support post includes a cylindrical portion thereof and said clamping plates include an arcuately configured portion thereof that frictionally engages the outer peripheral surface of said support post cylindrical portion, said clamping plates further including means for squeezing said support post therebetween.

5,727,768

VEHICLE SEAT LOCK MECHANISM

Yutaka Sakamoto, Hiroshima-ken, Japan, assignor to Delta Kogyo Co., Ltd., Hiroshima-ken, Japan

Filed Jun. 16, 1995, Ser. No. 490,695
Claims priority, application Japan, Jun. 20, 1994, 6-136959; May 10, 1995, 7-111789
Int. Cl.[6] B60N *2/42*
U.S. Cl. 248—429 **10 Claims**



1. A lock mechanism for locking a seat slide unit including a first member to be secured to a vehicle body and a second member slidably mounted on the first member with a vehicle seat to be fixedly mounted on the second member, said lock mechanism comprising:

a screw rotatably mounted on said second member and extending in parallel therewith, said screw being axially movable relative to said second member when deceleration or acceleration of a value not smaller than a predetermined value is applied to the vehicle seat and to said second member;

a nut secured to said first member and being in mesh with said screw, each of said screw and said nut having a lead angle greater than an angle of friction thereof so that said screw rotates in response to a load applied to said second member, to thereby allow said second member to slide relative to said first member; and

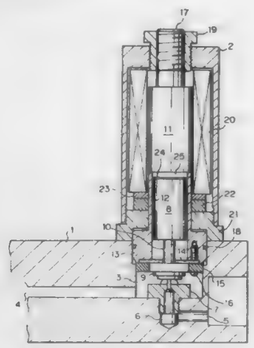
an emergency lock means for locking said screw in response to the deceleration or acceleration not smaller than said predetermined value.

5,727,769

SOLENOID VALVE FOR FLOW RATE CONTROL

Isao Suzuki, Tokyo, Japan, assignor to MKS Japan, Inc., Tokyo, Japan

Filed May 17, 1996, Ser. No. 650,139
Claims priority, application Japan, May 22, 1995, 7-122292
Int. Cl.[6] F16K *31/08*
U.S. Cl. 251—129.15 **8 Claims**



1. A solenoid valve comprising:

a solenoid for producing a magnetic field;

a yoke having a central axis and being at least partially surrounded by said solenoid;

a plunger positioned within said yoke so that magnetic flux of the magnetic field produced by said solenoid can be directed by said yoke to said plunger to move said plunger relative to said yoke;

a valve element connected to said plunger; and

a permanent magnet disposed outwardly of said yoke such that all of the magnetic flux of said permanent magnet traverses an outer longitudinal surface of said plunger at both magnetic poles of said permanent magnet, said permanent magnet providing a magnetic field and having a magnetization axis which is parallel relative to said central axis of said yoke,

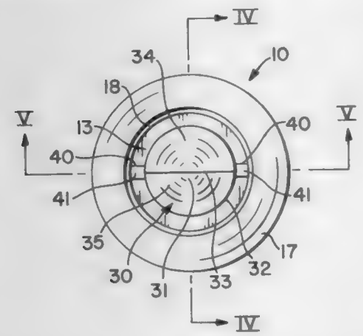
the magnetic flux of the magnetic field provided by said permanent magnet being routed through only a portion of said plunger.

5,727,770

DOUBLE VALVE CANNULA SEAL

William G. Dennis, Jacksonville, Fla., assignor to Core Dynamics, Inc., Jacksonville, Fla.

Filed Feb. 7, 1997, Ser. No. 796,193
Int. Cl.[6] F16L *37/28*
U.S. Cl. 251—149.1 **15 Claims**



1. A seal for an instrument receiving cannula, the seal having a longitudinal axis and comprising a diaphragm valve mounted in an end member, a generally conical split valve extending from said end member, and a pair of opposing biasing ribs mounted on said end member, said diaphragm valve having a circular aperture to sealingly receive an instrument inserted through said diaphragm valve and into said cannula, said conical split valve being divided by a linear slit into a first cone half and a second cone half, said linear slit passing through said longitudinal axis to define a plane, said biasing ribs being positioned on a line passing through said longitudinal axis and contained within said plane and adjacent said slit whereby said ribs abut said cannula and impart a compressive force to said first cone half and said second cone half to sealingly close said conical split valve when no instrument is inserted through said conical split valve.

5,727,771

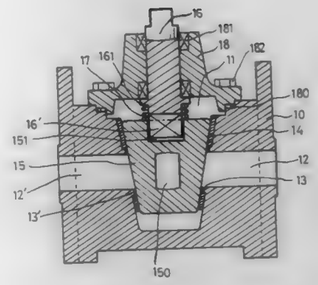
FLUID OPENING AND CLOSING VALVE

Ahn Chang-Hong, 301-7, Kaksan-Dong, Dong-Gu, Daegu, Rep. of Korea

Filed Jul. 29, 1996, Ser. No. 688,292
Int. Cl.[6] F16K *5/22*
U.S. Cl. 251—184 **6 Claims**

1. A valve comprising:

a frustro-conical valve plug having a through hole in a center portion of said plug, said plug having a first diameter end surface and a second diameter end surface, said first diameter end surface being larger than said second diameter surface;



a valve stem slidably connected to said large diameter end surface of said valve plug;

a spring device enclosing said valve stem;

a valve cover rotatably supporting a portion of said valve stem; and

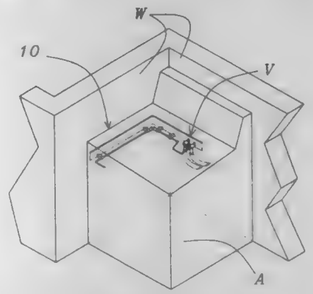
a conduit connector supporting said valve cover, said conduit connector including a frustro-conical valve chamber, said valve chamber intersecting a fluid pathway in said conduit connector, said valve chamber having a first diameter section with a first protrusion and a first valve sleeve, said first valve sleeve rotatably supporting said first diameter end surface of said valve plug, said valve chamber having a second diameter section with a second protrusion and second valve sleeve, said second valve sleeve rotatably supporting said second diameter end surface of said plug, whereby when said valve sleeves disintegrate during extreme temperature conditions, said spring device moves said valve plug in a direction towards said second diameter section wherein said first and second protrusions provide rotational support for said valve plug.

5,727,772

REMOTE VALVE CONTROL DEVICE

Frederick R. Rothammer, RR #1, Box 4665, Wolcott, Vt. 05680

Filed Aug. 15, 1995, Ser. No. 515,493
Int. Cl.[6] F16K *31/53*
U.S. Cl. 251—229 **18 Claims**



1. A remote valve control device, comprising:

a first shaft rotatable about a first axis of rotation, said first shaft having first and second ends;

a second shaft rotatable about a second axis of rotation which is generally perpendicular to said first axis of rotation, said second shaft having first and second ends;

a coupling device attached to said first and second shafts for converting rotational movement of said first shaft about said first axis to rotational movement of said second shaft about said second axis, said coupling device attached at a first end to

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said second end of said first shaft, and at a second end to said first end of said second shaft; and

a valve attachment connected to said second end of said second shaft for attachment to a valve to be controlled, said valve attachment having a section which is perpendicular to said second shaft whereby rotation of said second shaft about said second axis rotates said valve attachment about a third axis of rotation generally aligned with said second axis; whereby

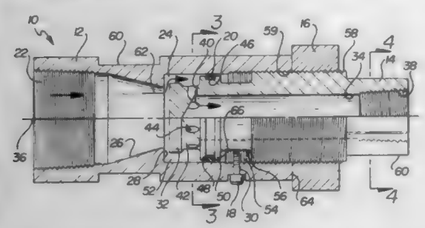
rotation of said first shaft about said first axis of rotation rotates said second shaft about said second axis which rotates said valve attachment about said third axis of rotation to open and close the valve.

5,727,773

ADJUSTABLE FLUID VALVE ASSEMBLY

Dennis C. Dunnigan, Orion Township, Mich., assignor to International Flow Technology, Inc., Warren, Mich.

Filed Nov. 8, 1996, Ser. No. 747,167
Int. Cl.[6] F16K *31/50*
U.S. Cl. 251—325 **20 Claims**



10. An adjustable fluid valve assembly for controlling the flow of fluid through a member comprising:

a valve body having a first chamber and a second chamber;

a cartridge positionable within the valve body, the cartridge having a longitudinally extending internal passage and an inlet port extending radially from the internal passage;

a flow path of high velocity fluid extending between the first chamber and the inlet port;

an elastomeric member substantially surrounding the cartridge and located downstream from the inlet port and out of the flow path of high velocity fluid;

a stop securable to the valve body for retaining the cartridge within the valve body; and

a nut threaded to the cartridge for maintaining the position of the cartridge relative to the valve body when the nut is tightened against the valve body once a position has been selected.

5,727,774

Patent Not Issued For This Number

5,727,775

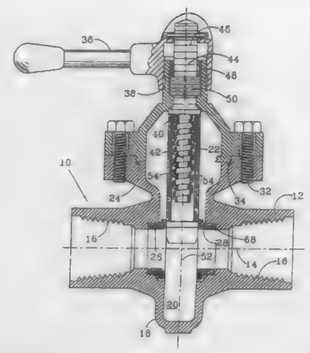
GATE VALVE WITH DUAL SEAL RINGS ON A UNITARY SEAT RING

John E. Rodger, San Antonio, and Randle E. Ford, New Braunfels, both of Tex., assignors to Baker Hughes Incorporated, Houston, Tex.

Filed Jan. 17, 1996, Ser. No. 587,590
Int. Cl.[6] F16K *3/00*
U.S. Cl. 251—328 **13 Claims**

1. A gate valve for controlling fluid flow, comprising

a valve body having a thru-bore for passing fluids through the gate valve;



a gate slidably movable within the valve body and having a planar face;

a valve operator for selectively moving the gate within the valve body to open and close the gate valve;

and an annular seal ring assembly for sealing with a planar surface of the gate when the gate valve is closed, the annular seal ring assembly including a unitary metal monolithic seat ring, a radially outer elastomeric material seal ring form fitted within a radially outer groove in the seat ring for sealing engagement with the planar face of the gate, and a radially inner elastomeric material seal ring form fitted within a radially inner groove in the seat ring for sealing engagement with the planar face of the gate, the inner groove and the outer groove being configured to be spaced apart and the radially inner seal ring being fabricated from a hard elastomeric material and the radially outer seal ring being fabricated from a soft elastomeric material, each of the radially outer groove and the radially inner groove having a radially extending side pocket in communication with a main pocket of each respective groove, the main pocket of each respective groove being substantially rectangular in cross-section and the corresponding seal ring being configured prior to being form fitted on the seat ring to include a main seal body that is substantially rectangular in cross-section for form fitting within the main pocket;

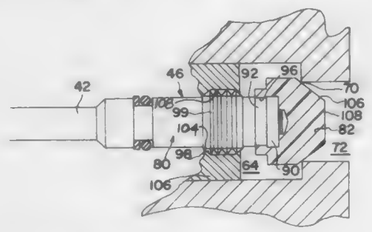
and a side extension for form fitting within the side pocket and positioned such that no planar contact is made with the gate, the side pocket being smaller in cross-sectional area than the main pocket.

5,727,776

FLUID CONTROL VALVE

Gerald Ross Gerstenberger, Bradenton Manatee, Fla., assignor to Dana Corporation, Toledo, Ohio

Filed Feb. 9, 1996, Ser. No. 596,862
Int. Cl.[6] F16K *25/00*
U.S. Cl. 251—368 **16 Claims**



1. A fluid flow regulating valve comprising:

a metal valve block having a metal valve seat having a first coefficient of expansion and having a wall defining a circular opening with a circular edge disposed about a central axis;

a valve stem of a material having a second coefficient of expansion with respect to the central axis, the valve stem having a first end and a second end;

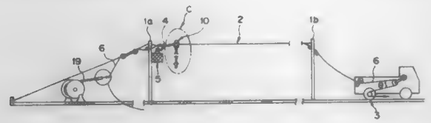
a valve tip of resilient acetal resin material fixed to the first end of the valve stem for seating against the circular edge to seal the circular opening, the resilient material being a material selected to yield with respect to the circumference of the circular edge as the circular edge expands and contracts whereby the valve tip does not become irremovably wedged when the valve seat, valve stem and valve tip are exposed to temperature and pressure changes.

5,727,777

SPIRAL HANGER FOR A CABLE AND METHOD OF INSTALLING A CABLE USING THE SAME

Kazuyoshi Chikiri, Fukuchiyama, and Yukihiro Higashi, Sakai, both of Japan, assignors to Hien Electric Industries, Ltd., Osaka, Japan

Filed Apr. 8, 1996, Ser. No. 629,385
Claims priority, application Japan, Aug. 30, 1995, 7-243934
Int. Cl.[6] E21C *29/16*
U.S. Cl. 254—134.3 R **4 Claims**



1. A method of hanging a cable by using a series of spiral hangers on a messenger wire installed between a pair of electric utility poles, said method comprising the steps of:

providing a leading pulley which comprises a roller which freely rolls along said messenger wire, a saddle for holding a leading end of a pull rope which is inserted into said saddle, a holder for holding a first end of a first spiral hanger of said series of spiral hangers, said first spiral hanger being inserted into said holder, and a weight hung down from a lower portion of said leading pulley;

connecting said first end of said first spiral hanger of said series of spiral hangers and said leading end of said pull rope to said leading pulley in a vicinity of a first electric utility pole of said pair of electric utility poles;

transporting said first spiral hanger having an inner diameter greater than a sum of an outer diameter of said messenger wire and an outer diameter of said cable toward a second electric utility pole of said pair of electric utility poles while surrounding said messenger wire and said pull rope;

joining a second end of said first spiral hanger of said series of spiral hangers to a first end of each of a predetermined number of succeeding spiral hanger of said series of spiral hangers by a joint sleeve until a last spiral hanger of said series of spiral hangers is joined;

fixing at least one spiral hanger of said series of spiral hangers to said messenger wire using fixing devices when said leading pulley arrives at said second electric utility pole of said pair of electric utility poles; and

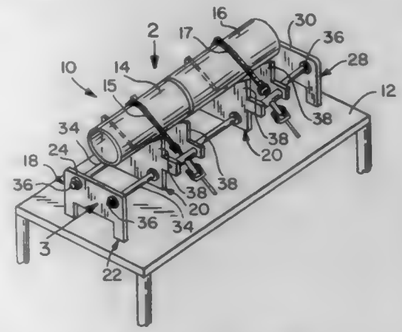
pulling said pull ropes so as to pull said cable connected to a tail end of said pull rope through said first through said last spiral hangers of said series of spiral hangers, whereby said cable is installed by work performed only in said vicinity of said pair of electric utility poles.

5,727,778

PORTABLE ADJUSTABLE CHAIN TYPE CLAMPING DEVICE

Felix Nodar, 430 Linden Ave., Westfield, N.J. 07090

Filed Feb. 12, 1996, Ser. No. 600,090
Int. Cl.[6] B25B *1/20*
U.S. Cl. 269—43 **15 Claims**



1. A portable chain type pipe vise, comprising:

a) a frame resting on a work surface in a stable manner when said portable chain type pipe vise is being utilized; said frame including an inverted substantially U-shaped first end plate having a top and a pair of apertures disposed in proximity to said top of said inverted substantially U-shaped first end plate of said frame; said frame further including an inverted substantially U-shaped second end plate displaced a distance from, and parallel to, said inverted substantially U-shaped first end plate of said frame; said inverted substantially U-shaped second end plate having a top and a pair of apertures disposed in proximity to said top of said inverted substantially U-shaped second end plate of said frame; said frame further including a pair of parallel rods; each of said pair of parallel rods of said frame having a pair of rod ends; one of said pair of rod ends of each of said pair of parallel rods of said frame being disposed in said pair of apertures of said top of said inverted substantially U-shaped first end plate of said frame; another one of said pair of rod ends of each of said pair of parallel rods of said frame being disposed in the pair of apertures of said top of said inverted substantially U-shaped second end plate of said frame;

b) at least two clamping main assemblies longitudinally movable on said frame so as to allow at least two pipes to be rested in longitudinal alignment with each other; each of said at least two clamping main assemblies including a pair of parallel substantially square-shaped plates; each of said pair of parallel substantially square-shaped plates of each of said at least two clamping main assemblies having a top with a V-shaped recess disposed thereon for receiving the at least two pipes, a bottom with a pair of apertures disposed therethrough, a front having an extension with an aperture disposed therethrough, and a back; and

c) a clamping sub-assembly disposed at each of said at least two clamping main assemblies so as to allow the at least two pipes to be retained in longitudinal alignment with each other.

5,727,779

CLAMPING STAND

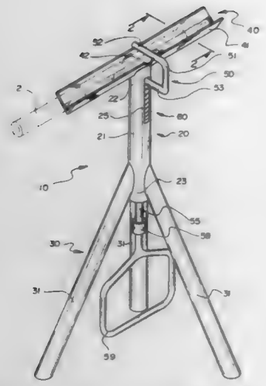
Robert J. Ramoski, 6449 Tillery Rd., Lakeland, Fln. 33813

Filed Dec. 31, 1996, Ser. No. 775,729
Int. Cl.[6] B25B *1//16*
U.S. Cl. 269—158 **21 Claims**

1. An apparatus for holding and clamping a workpiece, comprising:

a vertical support member having a vertical slot therein;

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a leg assembly extending downward from one end of said vertical support member;

a workpiece tray provided at an opposite end of said vertical support member for holding said workpiece;

a clamping member movable relative to said workpiece tray for clamping said workpiece in said workpiece tray, said clamping member including a clamping portion and a shaft portion, said clamping portion including an upper arm and a lower arm, said upper arm positioned above said workpiece tray and adapted to engage said workpiece, said lower arm slidably fitting within said vertical slot in said vertical support member, said shaft portion slidably mounted within said vertical support member; and

a stirrup adapted to receive a foot of a user of said apparatus, said stirrup extending downward from said clamping member whereby downward movement of said stirrup causes said clamping member to engage and clamp said workpiece in said workpiece tray.

5,727,780

Patent Not Issued For This Number

5,727,781

PROCESS AND APPARATUS FOR COMBINING PRINTED PRODUCTS

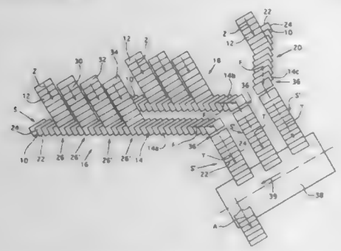
Erwin Müller, Dürnten, Switzerland, assignor to Ferag AG, Hinwil, Switzerland

Filed Nov. 19, 1996, Ser. No. 752,206

Claims priority, application Switzerland, Nov. 21, 1995, 03292/95

Int. Cl.[6] B65H *39/02;5/22*

U.S. Cl. 270—58.23 **12 Claims**



1. A process for combining printed products of at least first and second types to form sets having products of each type comprising the steps of:

arranging the first type of products one behind the other to form a first imbricated formation in a first conveying direction wherein the first type of products which follow one after the other overlap one another and edges of the first type of products are obliquely arranged with respect to the first conveying direction;

conveying the first type of products in the first imbricated formation along the first conveying direction; and

depositing the second type of products successively on each product of the first type and aligning the second type of products so as to correspond with the oblique arrangement of the first type of products; and

separating the formed sets of the first imbricated formation.

5,727,782

AUTOMATIC SHEET FEEDER

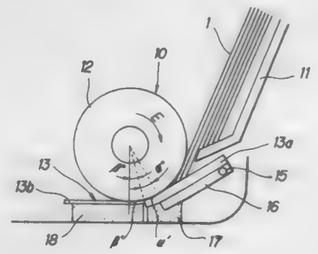
Tomohiko Okada, Nara, Japan, assignor to Sharp Kabushiki Kaisha, Osaka, Japan

Filed Aug. 26, 1996, Ser. No. 702,947

Claims priority, application Japan, Nov. 2, 1995, 7-286143

Int. Cl.[6] B65H *3/52*

U.S. Cl. 271—121 **8 Claims**



1. An automatic sheet feeder for feeding sheets, one by one, by separating sheets from a stack of sheets placed on a placement tray and passing the sheets between a feed roller and a separator which is in contact with a peripheral surface portion of the feed roller, comprising:

the separator including a first portion and a second portion;

the first portion defining a separating portion for separating the sheets and located adjacent to said placement tray;

the second portion defining a delivering portion for delivering the sheets after separating by said first portion; and

plural means for resiliently pressing the separator with a predetermined pressure against the peripheral surface portion of the feed roller.

5,727,783

APPARATUS FOR DELIVERY OF SHEETS OF PRINTED PRODUCTS

Peter Roy Tassinari, Kennebunkport, Me., assignor to Heidelberger Druckmaschinen AG, Heidelberg, Germany, and Heidelberg Harris, Inc., Dover, N.H.

Continuation of Ser. No. 504,867, Jul. 20, 1995, abandoned. This application Apr. 3, 1997, Ser. No. 827,876

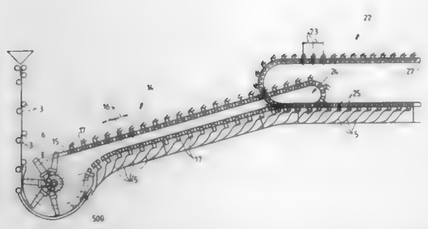
Int. Cl.[6] B65H *5/16*

U.S. Cl. 271—185 **20 Claims**

1. An apparatus for delivery of signatures including:

a deceleration unit for receiving signatures, the deceleration unit having a plurality of first grippers, each of the plurality of first grippers seizing a respective signature at a signature seizing area and releasing the respective signature at a first transfer area; and

a reorientation mechanism for receiving signatures from the deceleration unit, the reorientation mechanism having a plurality of second grippers, each of the plurality of second grippers seizing a respective signature from the deceleration unit before the respective signature is released by the deceleration unit, reorienting the respective signature to change a leading edge of the respective signature, and then releasing the respective signature at a second transfer area.



5,727,784

PAPER FEEDER

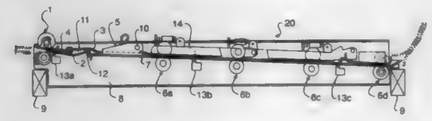
Takizo Sagawa, Kanagawa, Japan, assignor to Fuji Xerox Co., Ltd., Tokyo, Japan

Continuation of Ser. No. 418,413, Apr. 7, 1995, abandoned. This application Dec. 26, 1996, Ser. No. 773,999

Claims priority, application Japan, May 16, 1994, 6-124669

Int. Cl.[6] B65H *7/02*

U.S. Cl. 271—265.01 **5 Claims**



1. A paper feeder comprising:

a paper conveying unit for conveying paper in a paper conveying path and supported to be withdrawable from a part of said paper feeder at a right angle to the paper conveying path;

a transport means near an entrance of the paper conveying path in said paper conveying unit, said transport means feeding a sheet of paper into the paper conveying unit and allowing the sheet of paper to continue feeding until a rear end of the sheet of paper enters said paper conveying unit even if a paper jam is detected within said paper conveying unit;

a fixed guide member on a side of the paper conveying path extending downstream of said transport means;

a rotatable guide member opposed to said fixed guide member with the paper conveying path interposed therebetween and having a turnably-supported end thereof extending in a paper feeding direction;

a guiding portion on said fixed guide member for directing the sheet of paper into engagement with a portion of the rotatable guide member; and

means for urging said rotatable guide member toward said fixed guide member;

whereby, when the paper conveying path is jammed downstream of said transport means, said transport means continues feeding the sheet of paper, and said rotatable guide member rotates to make space accommodating the sheet of paper fed by said transport means, said rotatable guide member then rotating in an opposite direction to fold the sheet of paper.

5,727,785

APPARATUS FOR LOADING ENVELOPES ONTO SORTING MACHINES

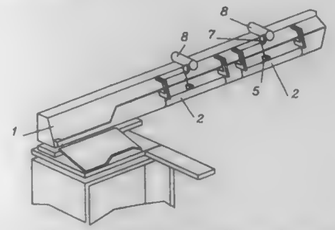
Nedo Gennari, and Andrea Faure, both of Genoa, Italy, assignors to Finmeccanica S.p.A., Rome, Italy

Filed May 24, 1996, Ser. No. 653,445

Claims priority, application Italy, Jul. 4, 1995, MI95A1428

Int. Cl.[6] B65H *5/16*

U.S. Cl. 271—271 **1 Claim**



1. An apparatus for loading envelopes onto sorting machines, comprising:

a sliding plane with a lower support rim on which said envelopes rest;

a plurality of pusher members arranged in succession, said pusher members being suited to successively engage said envelopes and cause each of them to advance towards the following pusher, said pusher members each comprising a pin having an end secured to a chain that is mounted on a pair of sprocket wheels, said pin being slidably mounted within a slider which slidably moves within a guide, the guide being parallel to the sliding plane and oriented according to the advancing direction of the envelopes;

means suited to remove said lower support rim when the envelope passes in correspondence with the area for the introduction into the machine so as to allow the envelope to fall onto the sorting machine.

5,727,786

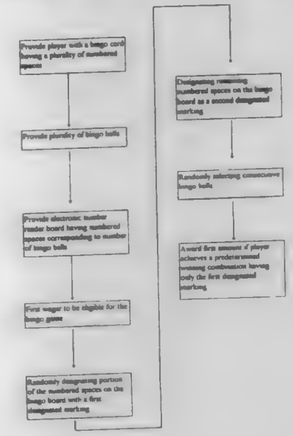
BINGO GAME METHOD

Gary Weingardt, 1707 Comstock Dr., Henderson, Nev. 89014

Continuation-in-part of Ser. No. 182,850, Jan. 18, 1994, Pat. No. 5,482,289, and Ser. No. 366,982, Dec. 29, 1994, abandoned. This application Dec. 8, 1995, Ser. No. 569,793

Int. Cl.[6] A63F *3/06*

U.S. Cl. 273—269 **41 Claims**



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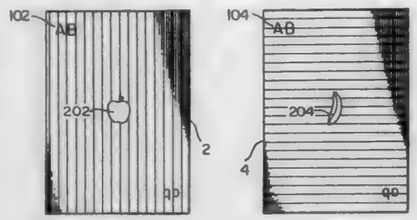
1. The method of playing a game of bingo comprising:
a) providing a player with a bingo card having a plurality of numbered spaces;
b) providing a plurality of bingo balls each having individual numbers corresponding to the numbered spaces on the bingo card;
c) providing an electronic number reader bingo board having a plurality of numbered spaces corresponding to the number of bingo balls used in the bingo game;
d) a player making a wager to be eligible for the bingo game;
e) randomly designating a portion of the numbered spaces on the bingo board with a first designated marking;
f) designating the remaining numbered spaces on the bingo board as a second designated marking;
g) randomly selecting consecutive bingo balls;
h) if the player achieves a predetermined winning combination on the bingo card of selected numbers having only the first designated marking, awarding the player a first preselected amount.

5,727,787
ADAPTIVE GAME BOARD PROVIDING MULTIPLE GAME PATHS
Sybil Salley, P.O. Box 452, Magnolia, Tex. 77362
Filed Jul. 26, 1996, Ser. No. 688,011
Int. Cl.° A63F *3/00*
U.S. Cl. 273—284 23 Claims



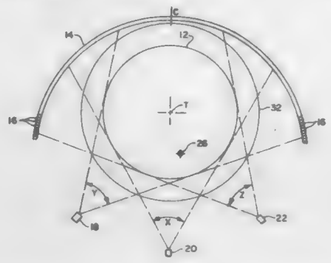
1. A board game comprising:
(a) a top face of transparent material of specified length and width and having an exposed play area;
(b) a storage compartment below said top face wherein said compartment is defined by a pair of parallel sides extending along said top face to a defined depth;
(c) side located insert storage shoulders internally along said sides having aligned positions forming shelves;
(d) at least a pair of inserts positioned in a stored position on said shoulders wherein one insert has a game image visible through said top face when positioned adjacent to said top face:
(e) wherein said shoulders position one insert visible through said top face and position a second insert parallel to and below said one insert;
(f) a door selectively opening and closing to enable access to said storage compartment wherein said door enables insert rein_oval and replacement therein;
(g) a spinner pivoted on a post aligned in a passage in said top face and wherein the insert visible through said top face has a set of spinner related marks on said insert directing game play, and said insert is positioned in operative position with respect to said spinner;
(h) a marker for game play having a base supporting said marker on said top face and said marker is positioned with respect to a game image visible through said top face from said insert.

5,727,788
DECK OF PLAYING CARDS
Frank R. Davis, 129 Seminole Ave., Norwood, Pa. 19074
Filed Dec. 6, 1996, Ser. No. 761,636
Int. Cl.° A63F *1/00*
U.S. Cl. 273—303 17 Claims



1. A deck of cards, comprising:
at least one set of twenty six cards:
each said card having two different letters of the alphabet displayed thereon to form thirteen object subsets of two cards having the same pair of letters thereon, each said object subset having a first card and a second card; and
each said card having a picture of an object displayed thereon, said object displayed on said first card having a name in which the first letter thereof is the same as one letter displayed thereon, and said other object displayed on said second card having a name in which the first letter thereof is the same as the other letter displayed thereon.

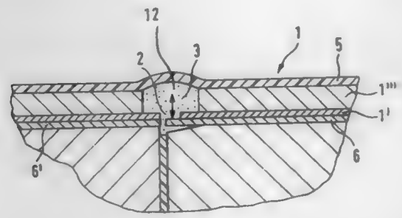
5,727,789
ARROW LOCATION APPARATUS
Russell T. Butts, Burlington, Conn., assignor to JDR, Inc., Burlington, Conn.
Filed Jun. 27, 1994, Ser. No. 267,065
Int. Cl.° G06F *15/44*
U.S. Cl. 273—371 13 Claims



1. An apparatus for precisely locating an associated arrow embedded in an associated unmodified standard board target having a first center which includes:
a plurality of light sources disposed in an arc having a second center;
a plurality of photo sensors arrayed opposite said light sources with the target intermediate said light sources and said photo sensors;
means for turning on and off said light sources sequentially to produce a scan of the target;
means for detecting when an arrow embedded in the target interrupts any light beam from any of said light sources to any of said photo sensors; and
means for determining the exact location of the arrow embedded in the target, said means for determining utilizing said means for detecting.

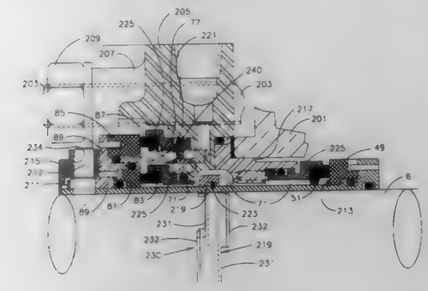
5,727,790
Patent Not Issued For This Number

5,727,791
CYLINDER HEAD GASKET FOR SEALING UNEVEN SURFACES HAVING RESERVOIR FILLED WITH PLASTIC PASTE-LIKE SEALANT AND METHOD OF FORMING THE SAME
Alfred Weiss, and Wilfried Erb, both of Neu-Ulm, Germany, assignors to REINZ-Dichtungs-GmbH, Neu-Ulm, Germany
Filed Sep. 17, 1996, Ser. No. 714,892
Claims priority, application Germany, Sep. 20, 1995, 195 34 967.8
Int. Cl.° F16J *15/14*
U.S. Cl. 277—1 22 Claims



12. A method of producing a cylinder head gasket comprising:
punching at least one reservoir and at least one opening in at least one metallic gasket layer;
inserting a plastic paste-like sealing mass into the at least one reservoir; and
applying a final cover layer to a side of the at least one metallic gasket layer which is opposite to the at least one opening.

5,727,792
TRIPLE CARTRIDGE SEAL HAVING ONE INBOARD AND TWO CONCENTRIC SEALS FOR CHEMICAL PROCESSING PUMP
Robert E. Rockwood, Windham, N.H., assignor to Environamics Corporation, Hudson, N.H.
Continuation-in-part of Ser. No. 426,783, Apr. 21, 1995, Pat. No. 5,553,867. This application Apr. 18, 1996, Ser. No. 634,166
Int. Cl.° F16J *15/34*
U.S. Cl. 277—9 5 Claims

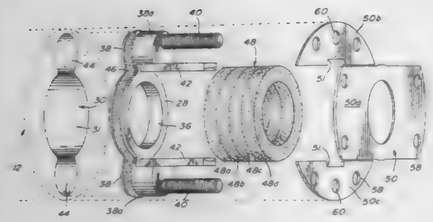


1. A rotating seal arrangement for use in a pump having a shaft, the seal arrangement comprising:
first, second, and third annular sealing assemblies, each including both a rotating and stationary annular sealing member for defining a fluid seal therebetween;
said second and third sealing assemblies being concentric with one another and said first sealing assembly being axially spaced from said second and third sealing assemblies along the shaft;
a first annular barrier chamber to be filled with a first barrier fluid disposed radially between and in communication with the second and third sealing assemblies;
a second annular barrier chamber to be filled with a second barrier fluid defined between and in communication with said first and second sealing assemblies; and
a gland radially extending around the shaft, said gland including first means for inputting the first barrier fluid into the first barrier chamber and second means for inputting the second barrier fluid into the second barrier chamber; and
said gland further including boss means for receiving a stud extending from a stuffing box and allowing a nut to be attached to the stud at an end thereof so that the side of the nut closest the shaft is nearer the shaft than the outer periphery of said third sealing assembly.

5,727,793
PACKING BOX FOR FLUID DISPLACEMENT DEVICE
Jean Gosselin, 4761 de la Sarcelle, St. Augustin de Desmaures, Quebec, Canada, G3A 2A5
PCT No. PCT/CA95/00263, § 371 Date Feb. 12, 1996, § 102(e) Date Feb. 12, 1996, PCT Pub. No. WO95/30850, PCT Pub. Date Nov. 16, 1995
PCT Filed May 3, 1995, Ser. No. 571,958
Claims priority, application Canada, May 4, 1994, 2148506
Int. Cl.° F16J *15/00*
U.S. Cl. 277—105 10 Claims

1. A packing box adapted to be mounted on a casing for a fluid displacement device and including a movable shaft projecting from the casing, the packing box comprising a housing, means for mounting the housing to the casing, said housing having a wall surface defining a cylindrical chamber with a central tubular portion adapted to receive the shaft extending therethrough, the housing wall surface being parallel to the shaft, an annular packing means surrounding the shaft, an annular follower ring slidable on

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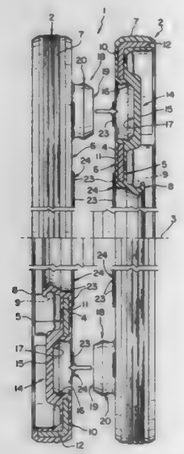
the shaft and having a periphery conforming to the cross-section of the wall surface forming the cylindrical chamber, a flexible seal member provided on the periphery of the follower ring in sealing contact with the wall surface, at least a pair of stems being fixedly connected to the follower ring in generally orthogonal relation puller means provided exterior of the housing for pulling the stems to move the follower ring away from the casing causing the packing closest to the casing to be compressed against the shaft creating a fluid seal with the shaft.

5,727,794

LIP SEAL ASSEMBLY

Claude Fauchon; Roberto Fabro, both of Turin, and Helmut Wittich, Kutzenhausen/Agawang, all of Italy, assignors to Forsheda AB, Sweden

Filed Jun. 7, 1996, Ser. No. 661,398
Claims priority, application Italy, Jun. 9, 1995, TO95A0479
Int. Cl.[6] F16J *15/32*
U.S. Cl. 277—152 **21 Claims**



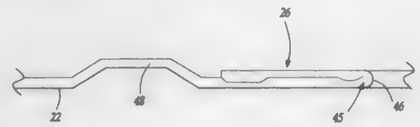
1. A lip seal assembly for interposing between two cavities containing different fluids, said lip seal assembly comprising two sealing rings having respective annular lips; mutual positioning means disposed on said sealing rings and coaxially positioning the sealing rings in fixed positions relative to each other; a plurality of connecting means for releasably connecting said sealing rings to each other, said plurality of connecting means being spaced about the circumference of said two sealing rings: said sealing rings each having a respective reinforcing structure disposed in a first portion of said sealing rings, said connecting means disposed in a second, unreinforced portion of said sealing rings; and a permanent connection means permanently securing said sealing rings together.

5,727,795

SINGLE LAYER OR MULTI-LAYER METAL CYLINDER HEAD GASKET AND METHOD OF MAKING THE SAME

Tom P. Plunkett, Lemont, Ill., assignor to Dana Corporation, Toledo, Ohio

Filed Nov. 20, 1996, Ser. No. 752,122
Int. Cl.[6] F16J *15/08*
U.S. Cl. 277—235 B **16 Claims**



1. In a gasket including a first metal plate having upper and lower surfaces and a first thickness therebetween, and being provided with at least one opening, the improvement comprising:

said first plate comprising a folding portion which extends from a fold line to an initial edge adjacent the perimeter of said at least one opening;

said folding portion having a channel and a reduced thickness portion relative to said first thickness and wherein said channel and said reduced portion are spaced away from both said initial edge and said fold line;

said fold line being located where said first plate has said first thickness;

said folding portion being folded at a fold region, including said fold line, back onto one of said surfaces of said first plate such that said reduced thickness portion and said channel entirely overlie and oppose said one of said surfaces to form a seal around said at least one opening;

said fold region defining a final edge of said at least one opening; and

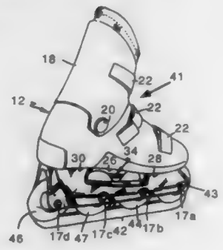
said seal having a thickness greater than said first thickness.

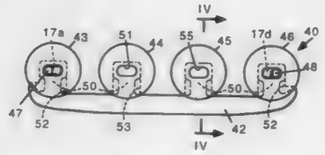
5,727,796

IN-LINE SKATE CONVERSION KIT

Ming Zhang, P.O. Box 184, Wadsworth, Ill. 60083

Filed Aug. 7, 1995, Ser. No. 512,206
Int. Cl.[6] A63C *17/18*
U.S. Cl. 280—7.13 **12 Claims**





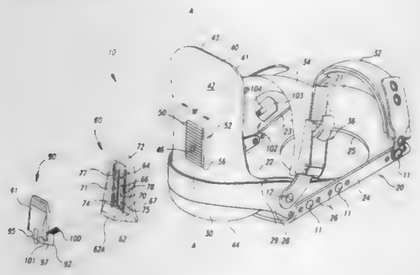
1. A kit for converting any in-line skate into an ice skate, said in-line skate having a boot with a frame structure on a sole of the boot, said structure receiving a plurality of axles spaced along a line for mounting a plurality of wheels for rotation, said kit comprising an ice skating blade with a blade edge; a mounting member for each wheel of the skate, each mounting member having an approximate width of the wheel and a shape similar to a wheel with an elongated slot at the center of the mounting member, said ice skating blade having a tab on an edge opposite the blade edge for each of the mounting members, each tab having an elongated slot, each of said mounting members having a cavity on a central plane of the member for receiving the tab with the slot of the tab aligned with the slot of the respective mounting member for receiving an axle extending through the slot of the mounting member and tab; and means for preventing movement of the ice skating blade along the line, said means being associated with at least one mounting member and engaging the axle extending through the slot of said at least one mounting member so that by removing the wheels from the frame structure and inserting the axles through the slots in the mounting members and tabs and then engage an axle with the means, the boot can be converted from an in-line skate to an ice skate.

5,727,797

SNOWBOARD BINDING ASSEMBLY WITH ADJUSTABLE FORWARD LEAN BACKPLATE

Craig M. Bowles, Bothell, Wash., assignor to Preston Binding Company, Preston, Wash.

Filed Feb. 6, 1996, Ser. No. 599,539
Int. Cl.[6] A63C *9/00*
U.S. Cl. 280—14.2 **18 Claims**



1. An adjustable snowboard binding for securing a boot to a snowboard, comprising:

a base member adapted to be mounted to the snowboard, the base member having a forward end and a rearward end;

a back support pivotally mounted to the base member to adjust an angle of forward inclination between the back support and the base member, the back support having a rearward facing rear face;

a moveable block attached to the rear face of the back support and adapted to be selectively positioned along a path of travel over the rear face of the back support to prevent the back support from pivoting rearwardly beyond a desired maximum angle of forward inclination, wherein the block is selectively mateable with the back support along the path of travel to releasably lock the block to the back support and prevent relative movement therebetween along the path of travel; and

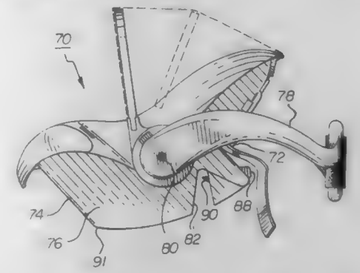
a quick-release lock mechanism attached to the back support for selectively and securely mating the block with the back support to prevent relative movement therebetween along the path of travel, the quick-release lock mechanism being selectively positionable in a release position to disengage the block from the back support and allow the block to move with respect to the back support along the path of travel, and the quick-release lock mechanism being selectively re-positionable in a lock position to mate the block with the back support and prevent movement therebetween along the path of travel, whereby the maximum angle of forward inclination of the back support is selectively adjusted by positioning the quick-release lock mechanism in the release position, moving the block along the path of travel to a desired location, and re-positioning the quick-release lock mechanism in the lock position.

5,727,798

CHILD STROLLER AND INFANT CARRIER SYSTEM

John Walters, Dayton; Thomas Welsh, Troy; David J. Stroud, Dayton, and Gary Christman, Troy, all of Ohio, assignors to Lisco, Inc., Tampa, Fla.

Filed Nov. 9, 1995, Ser. No. 556,034
Int. Cl.[6] B62B *7/12*
U.S. Cl. 280—30 **3 Claims**



1. A child stroller and infant carrier system with releasable components therebetween comprising, in combination:

a stroller having a frame, the frame being formed of two parallel main diagonal supports with each support being formed of an upper tube and a parallel lower tube, the upper and lower tubes being pivotally coupled together with hinges and releasable locks at the lower ends of the upper tubes and the upper ends of the lower tubes, each lower tube having at its lower end a wheel rotatable about vertical and horizontal axes, a pair of generally vertical tubes each coupled at its upper end to an intermediate point of an upper tube, each vertical tube having a rotatable wheel with a brake at its lower end, a pair of generally horizontal tubes each having a forward end and a rearward end with an intermediate point pivotally coupled to an intermediate point of the vertical tube with a forward point of the horizontal tube pivotally coupled to an intermediate point of the lower tube:

a generally horizontally disposed safety bar in a U-shaped configuration with free ends coupled to the lower tubes at their upper ends and with a recess in the center of the bar; and

an infant carrier with an upstanding front, back and sides fabricated of a rigid material with a pivotable handle in an inverted U-shaped configuration extending upwardly from intermediate points on the sides thereof, the carrier having an operator controlled latch in the front for selectively coupling of the carrier to the center of the U-shaped safety bar.

5,727,799

LADDER CADDY

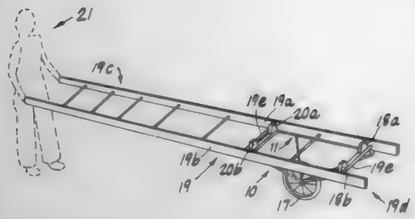
Peter DiSario, East Moriches, N.Y., assignor to Peter Disario-RPM Painting, East Moriches, N.Y.

Filed Oct. 13, 1995, Ser. No. 542,816
Int. Cl.[6] B62B *1/20*
U.S. Cl. 280—47.3 **6 Claims**

1. A caddy for transporting a ladder having a plurality of rungs extending transversely between a pair of spaced apart, longitudinally extending side rails, the caddy comprising:

a frame including a pair of longitudinal members of a length at least equal to the longitudinal spacing between two adjacent rungs and a pair of transverse members mounted on the longitudinal members and longitudinally spaced apart from one another and extending transversely with respect thereto

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for a distance at least corresponding to the spacing between the side rails of the ladder,

a pair of clips mounted on the upper surface of each transverse member, the clips in each pair being spaced apart at an interval less then the spacing between the side rails to enable each of the pairs of clips to be disposed therebetween when a ladder is placed on the frame,

a single wheel having a diameter which is comparatively large in terms of the length of a transverse member, and

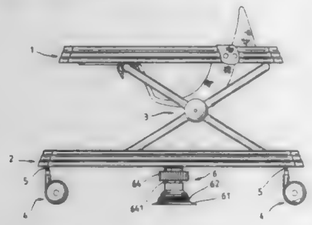
a pair of elongated forward support members attached to the pair of longitudinal members, each forward support member extending downwardly and rearwardly from a forward end of each longitudinal member, the pair of forward support members extending inwardly in a V-shape to form an apex at their lower ends, and a pair of elongated rearward support members attached to the pair of longitudinal members, each rearward support member extending downwardly and forwardly from a rearward end portion of each longitudinal member, the pair of rearward support members extending inwardly in a V-shape to form an apex at their lower ends, the lower ends of the forward and rearward support members being interconnected to form a transverse axle support for rotatably supporting the single wheel, wherein the caddy is adapted to be releasably attached to the ladder by connecting the pairs of clips which are mounted on the pair of transverse members to two adjacent rungs on the ladder.

5,727,800

BABY-WALKER WITH AN EXTENSION STAND

Yu-Mean Liu, 2F., No. 34, Lane 200, Tung Hwa Street,, Taipei, Taiwan

Filed Jun. 26, 1996, Ser. No. 670,654
Int. Cl.[6] B62B *9/08*
U.S. Cl. 280—87.051 **1 Claim**



1. A baby-walker comprising a top table, an annular base frame having a plurality of downwardly disposed bottom coupling holes around a border, a plurality of wheel assemblies and an extension stand respectively coupled to said downward coupling holes of said base frame by a respective anchoring socket and a respective bolt, and a linkage coupled between said top table and said base frame, said extension stand being moved between the operative position in which the baby-walker is supported on the ground by said extension stand and said wheel assemblies are suspending above the lowest end of said extension stand, and the non-operative position in which the baby-walker is supported on the ground by said wheel assemblies and said extension stand is suspending from said base frame above the elevation of said wheel assemblies, wherein said extension stand comprises:

a base member, said base member comprising a first chamber having an open bottom, a first downward annular flange surrounding said first chamber, a second downward annular flange surrounding said first downward annular flange, a bottom annular groove defined between said first downward annular flange and said second downward annular flange, a second chamber having an open top, a center stub tube at the center of said top open chamber, two open-ended, longitudinal guide grooves and two close-ended longitudinal locating grooves equally spaced within said second chamber, two transverse guide grooves disposed within said second chamber at two opposite sides and connected between said longitudinal guide grooves and said longitudinal locating grooves, and two locating blocks respectively disposed in said transverse guide grooves, each of said longitudinal locating grooves having a closed top end and a closed bottom end, each of said transverse guide grooves having one end connected to the closed bottom end of one longitudinal locating groove at right angles, and an opposite end perpendicularly connected to one longitudinal guide groove, each of said longitudinal guide grooves having two oposite open ends respectively extending to two opposite ends of said second chamber;

a compression spring mounted in the second top open chamber of said base member;

an annular vacuum mount coupled to said base member and adapted for securing to the ground to hold the baby-walker in place, said annular vacuum mount comprising a circular center opening, an upright annular flange raised from a top side thereof around said circular center opening and fitted into the bottom annular groove of said base member, a top annular groove surrounding said upright annular flange and coupled to the second downward annular flange of said base member;

a cap member fastened to said base member, said cap member comprising a center mounting hole fastened to one downward mounting hole of the base frame of the baby-walker by one bolt and one anchoring socket, a downward coupling barrel on the inside at the center adapted and coupled to the second chamber of said base member to hold said compression spring on the inside, an annular groove at a bottom side thereof around said downward coupling barrel, two coupling blocks bilaterally raised from the periphery of said downward coupling barrel and inserted through the longitudinal guide grooves of the second chamber of said base member and moved between the longitudinal locating grooves of the second chamber of said base member and the transverse guide grooves thereof, the coupling blocks of said downward coupling barrel being respectively engaged with the closed top ends of the longitudinal locating grooves of said base member when the extension stand is moved to said non-operative position by pushing said base member upwards relative to said cap member to compress said compression spring and then turning said base member in one direction relative to said cap member to align the longitudinal locating grooves of said base member with the coupling blocks of said downward coupling barrel, the coupling blocks of said downward coupling barrel being respectively engaged with the locating blocks of said base member when the extension stand is moved to said operative position by pushing said base member upwards relative to said cap member to compress said compression spring and then turning said base member in the reversed direction relative to said cap member to force the coupling blocks of said downward coupling barrel into the transverse guide grooves of said base member; and

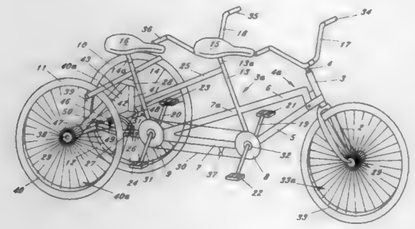
a locating member fastened to said base member to block up said longitudinal guide grooves, said locating member comprising a split coupling rod raised from the center and coupled to the center stub tube of the second chamber of said base member, and two upright tongues respectively inserted into the longitudinal guide grooves of the second chamber of said base member.

5,727,801

TANDEM TRICYCLE

Santiago H. Barney, and Gael A. Barney, both of 9905 W. Atlantic Blvd., Coral Springs, Fla. 33071

Filed Aug. 4, 1995, Ser. No. 511,707
Int. Cl.[6] B62K *5/04*
U.S. Cl. 280—231 **19 Claims**



1. A tandem tricycle allowing a front passenger and/or a back passenger to pedal to propel said tricycle, comprising:

a frame member having a front portion and a rear portion;

means for removably attaching said front portion to said rear portion;

a front wheel member operatively associated with the first end of said front portion;

a first handle member operatively associated with said front wheel member;

a fork housing pivoting mechanism operatively associated with said front wheel member and said first handle member;

a second handle member attached to said front portion intermediate said first end and said second end of said front portion;

a front seat member attached to said frame member;

a rear seat member attached to said frame member and disposed behind said front seat member, said rear seat member disposed vertically higher than said front seat member to provide visibility to the rear passenger over the front passenger;

first and second rear wheel members operatively associated with said frame member, said first and second rear wheel members each having a negatively cambered rear axle member;

a front wheel brake system disposed on said first handle member and operatively associated with said front wheel member;

a rear wheel brake system disposed on said second handle member and operatively associated with said rear wheel members;

a first pedals and crank system attached to said frame member adjacent said first seat member;

a second pedals and crank system attached to said frame member adjacent said second seat member; and

a gear and chain system attached to said frame member and operatively associated with said first pedals and crank system and said second pedals and crank system to allow either or both said front passenger or said back passenger to pedal to propel said tricycle;

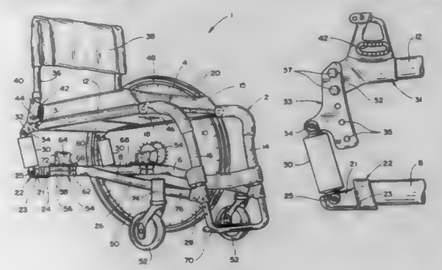
wherein said means for removably attaching said front portion to said rear portion is a first lower telescoping bottom tube member and an upper tube extension member attached to said front portion of said frame member and a second lower telescoping bottom tube member and a upper stub member attached to said rear portion of said frame member, wherein when said rear portion is removably attached to said front portion, at least a portion of said second lower telescoping member is inserted and secured within said first lower telescoping tube member and said upper stub member is inserted within said upper tube extension member.

5,727,802

SUSPENSION WHEELCHAIR AND WHEELCHAIR FRAME

Douglas M. Garven, Jr., and Kevan L. Chu, both of Santa Cruz, Calif., assignors to Everest & Jennings International Ltd., Earth City, Mo.

Continuation of Ser. No. 570,195, Dec. 11, 1995, abandoned, which is a continuation of Ser. No. 274,826, Jul. 14, 1994, abandoned. This application Sep. 3, 1996, Ser. No. 711,313
Int. Cl.[6] B62B *7/10*
U.S. Cl. 280—250.1 **20 Claims**



1. A wheelchair frame, comprising:

a pair of side frame assemblies, each having a lower frame member having forward and rear ends, an upper frame member having forward and rear ends, a pivotal connection coupling the forward end of the upper frame member to the lower frame member, a caster wheel connected to the lower frame member, and a drive wheel connected to the lower frame member;

a footrest mounted to the side frame assemblies at the forward end of each lower frame member below the pivotal connection;

connecting means for connecting the pair of side frame assemblies together;

suspension means connecting the upper frame members and the lower frame members so that the upper frame members rearward of the pivotal connections are supported by the suspension means and the upper frame members pivot about the pivotal connections without rotation of the footrest relative to the lower frame members, the suspension means comprising at least one suspension member having first and second ends, the first end being mounted in relation to the lower frame members for applying downward load to the lower frame members, and an adjustment bracket mounted between the second end of said at least one suspension member and the upper frame members for applying downward force from the upper frame members to said at least one suspension member, the adjustment bracket being adapted to enable the height of the upper frame members rearward of the pivotal connections to be upwardly and downwardly adjusted relative to the lower frame members while transferring vertical loads between the upper and lower frame members to said at least one suspension member.

5,727,803

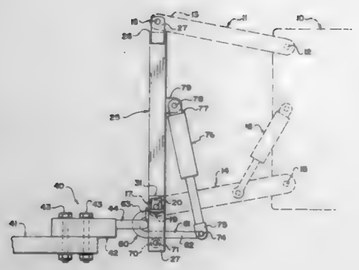
ADAPTOR FOR ATTACHMENT OF A TRAILER TO A THREE POINT HITCH

Alan Johnson, HCR 77 Box 17, Trail City, S. Dak. 57657

Filed Apr. 29, 1996, Ser. No. 641,055
Int. Cl.[6] B60D *1/26*
U.S. Cl. 280—416.2 **8 Claims**

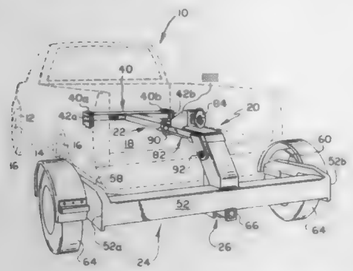
1. A hitch apparatus for attachment of a trailer to a three point hitch of a tractor, the three point hitch comprising a pivotal centre upper arm, a pair of lower arms arranged each on a respective side of the centre arm and lift means for raising and lowering the lower arm; the apparatus comprising:

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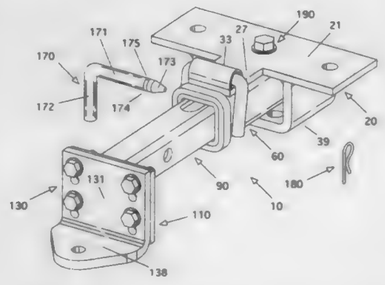
an upright post member;
first attachment means at an upper end of the post member for mounting on an outer end of the centre arm;
two side mount members each projecting out to a respective side of the post member and having second attachment means thereon for mounting on an outer end of a respective one of the lower arms;
a hitch coupling for mounting on a hitch bar of the trailer and including a loop member lying in a horizontal plane and forming a horizontal front bar portion transverse to the hitch bar;
a hitch engagement member mounted on a post member and comprising a J-shaped hook portion projecting rearwardly from a rear face of the post member including a longer leg and a shorter leg lying in a vertical plane so as to receive the bar portion within the hook portion between the legs in a hitching position;
the longer leg extending through the post member and being pivotally mounted thereon for pivotal movement of the hook portion about a horizontal axis at right angles to the plane of the hook portion;
and actuating means connected between a forward end of the longer leg and the post for actuating pivotal movement of the hook portion between the hitching position and a release position.

5,727,804
WHEELED LOAD CONNECTOR FOR PICKUP TRUCK
Robert C. Metzger, East Aurora, N.Y., assignor to Tammy Ann Metzger, Alden, and Lynette Metzger-Metro, East Aurora, both of N.Y.
Filed Jun. 7, 1996, Ser. No. 659,248
Int. Cl.[6] B60D *1/00*
U.S. Cl. 280—476.001 **16 Claims**



1. An apparatus for connecting a load to a tow vehicle having transversely extending front and rear axles for mounting a plurality of ground-engaging wheels, said apparatus comprising:
an elongated tongue having a front end adapted for removable connection to said vehicle at a location between said front and rear axles and a rear end extending behind said vehicle;
a frame fixed to said rear end of said tongue, said frame having a pair of spaced ground-engaging wheels mounted thereon for rotation about a transverse axis:
means for connecting said load to said tongue; and
a vertically extending channel connected to said frame and arranged to slidably receive a rearwardly extending guide bar of said vehicle when said apparatus is connected to said vehicle.

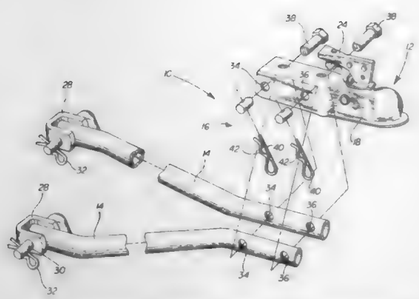
5,727,805
ADJUSTABLY EXTENSIBLE TRAILER HITCH ASSEMBLY
Stanley R. La Roque, Box 1968, Pahrump, Nev. 89041
Filed Jan. 31, 1996, Ser. No. 594,733
Int. Cl.[6] B60D *1/42*
U.S. Cl. 280—478.1 **8 Claims**



1. A trailer hitch assembly, comprising:
(a) a top plate assembly, adapted to be carried by a bumper of a tow vehicle, carrying a pivot bolt;
(b) a hitch receiver, pivotally mounted on the pivot bolt;
(c) a hitch extension arm, supporting a hitch ball, slidably carried within the hitch receiver and pivotally mounted on the pivot bolt;
(d) a U-lock pin, carried by the top plate assembly, pivotable between an upper position that does not interfere with the pivotal movement of the hitch receiver, and a lower position that prevents the pivotal movement of the hitch receiver; and
(e) locking means for preventing the axial extension of the hitch extension arm relative to the hitch receiver.

5,727,806
UTILITY TOW BAR
Richard McCoy, Granger, Ind.; David L. Kulp, Edwardsburg, Mich., and Lori A. Birky, Bristol, Ind., assignors to Reese Products, Inc., Elkhart, Ind.
Filed Nov. 22, 1995, Ser. No. 562,255
Int. Cl.[6] B60D *1/16*
U.S. Cl. 280—494 **6 Claims**

1. A utility tow bar for towing a trailing vehicle behind a towing vehicle, comprising:
a coupler assembly allowing connection to the towing vehicle;
a pair of tow arms, each tow arm having a proximal end releasably attached to said coupler assembly and a distal end including a connector for connecting to said trailing vehicle; and
fastening means for securing said proximal ends of said pair of tow arms to said coupler assembly, said fastening means including two sets of aligned mounting apertures in said coupler assembly and said pair of tow arms, a pair of pull pins, one pull pin being received in each of said two sets of aligned apertures, and a pair of pin clips attached to said pull pins to secure said pull pins in position, said fastening means



being manipulatable without tools to allow quick and convenient assembly/disassembly of said utility tow bar.

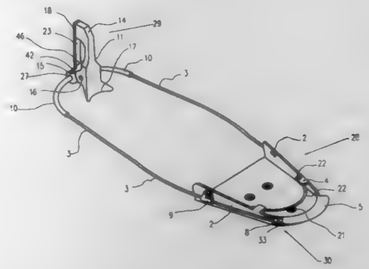
5,727,807
SKI STRUCTURED IN ACCORDANCE WITH CURVED GLIDING ZONES AND FLAT GLIDING ZONES ALONG THE SKI
Bertrand Krafft, Aix Les Bains; Gilles Silva, Le Montcel, and Jacques Le Masson, Cran Gevrier, all of France, assignors to Salomon S.A., Metz-Tessy, France
Filed Nov. 28, 1994, Ser. No. 348,240
Claims priority, application France, Dec. 9, 1993, 93 15020
Int. Cl.[6] A63C *5/04*
U.S. Cl. 280—609 **27 Claims**



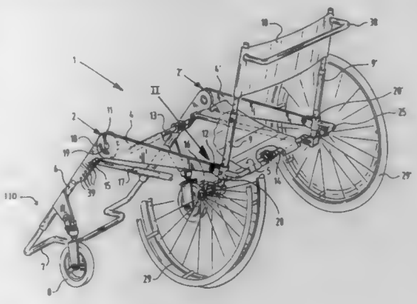
1. A ski comprising:
a lower surface having a variable width, said lower surface comprising a plastic material, said lower surface further having a front contact line, a rear contact line, and a boot center line, the ski being supported at said front contact line and said rear contact line when the ski is not loaded, said lower surface further comprising a central gliding zone between said front contact line and said rear contact line, said lower surface further comprising a laterally curved gliding zone bordering said central gliding zone on at least one lateral side of said central gliding zone, said laterally curved gliding zone having a width, between said front contact line and said rear contact line, greater than 0.03 of said width of said lower surface, said lower surface having a plurality of discontinuous serrations defined by roughness parameters Rtm and Rku, said roughness parameters Rtm and Rku measured at said central gliding zone, at least between said rear contact line and said boot center line, having values greater than said roughness parameters Rtm and Rku measured at said at least one laterally curved gliding zone;
said central gliding zone of said lower surface, between said serrations, being substantially flat; and
a pair of side running edges laterally bordering said lower surface.

5,727,808
FREE HEEL/ANTERIOR RELEASE SKI BINDING
Timothy Clark Broughton, South Jordan, Utah, assignor to Ichor Industries, Inc., Sandy, Utah
Continuation of Ser. No. 404,023, Mar. 14, 1995, Pat. No. 5,518,264. This application May 20, 1996, Ser. No. 650,427
Int. Cl.[6] A63C *9/08*
U.S. Cl. 280—615 **4 Claims**

1. A cable clamp for a cable ski binding on a ski comprising;
a heel lever including a clamping surface for removable attachment to a portion of an extension of a heel of a boot sole,
a rocker pivotally attached to the heel lever along a pivot axis substantially perpendicular to the longitudinal axis of the ski, the rocker having a first elongate member and second elongate member, the first member acting against a spring means to provide a torque around the pivot axis to resist movement of the second elongate member of the rocker toward the front end of the ski,
a cable attachment on the secondary elongate member disposed at a distance away from the pivotal axis and rotationally offset from the clamping surface of the heel lever, such that upon upward movement of the heel of the boot the rocker rotates about the axis counter to the torque from the spring means and moves the attachment of the cable means toward the boot toe said spring means being a cantilever leaf spring with an upper end fixedly attached to an upward extension of the heel lever and a lower free end extending down towards the upper surface of the ski with the free end acting against the said first elongate member to provide the torque around the pivot axis that resists movement of the second elongate member of the rocker toward the front end of the ski.



5,727,809
COLLAPSIBLE WHEELCHAIR
Hendrik Jan Ordelman, Bosstraat 13, NL-7161 XX Neede; Gerhard Temmink, Wiedenbrocksingel 32, NL-7481 BT Haaksbergen; Herman Willem Hendrik Stokkers, Vonkenkaamp 3, NL-7482 GB Haaksbergen, and Harm Hendrik Braam, Spoelsterstraat 6, NL-7481 KG Haaksbergen, all of Netherlands
Filed Nov. 13, 1995, Ser. No. 556,617
Claims priority, application Netherlands, Nov. 15, 1993, 9301970
Int. Cl.[6] A61G *5/08*
U.S. Cl. 280—650 **25 Claims**



1. A collapsible wheelchair comprising:
a frame comprising:
a first side frame;

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a second side frame substantially the same as the first side frame;

coupling means holding the two said side frames at a mutual distance in at least an operative situation;

wheels arranged on the frame;

a seat;

a seat back; and

wherein each side frame comprises:

a first middle sub-frame which in the operative situation extends substantially horizontally, at substantially a level of the seat;

a front sub-frame which in the operative situation extends from a front side of the first middle sub-frame inclining downwardly in a forward direction and bears a front wheel;

a rear sub-frame which in the operative situation extends from a rear side of the first middle sub-frame and bears a rear wheel, wherein the front and rear sub-frames are pivotable relative to the first middle sub-frame by respective hinge joints and the coupling means are configured as spacers holding corresponding sub-frames at a fixed distance;

a second middle sub-frame arranged between the front and rear sub-frames for pivoting relative to both these sub-frames by a hinge joint such that each side frame, and thus the whole frame, is foldable around pivot axes until the front, first middle and rear sub-frames lie substantially on top of each other; and

stop means located between the middle sub-frame and at least one of the other sub-frames.

5,727,810

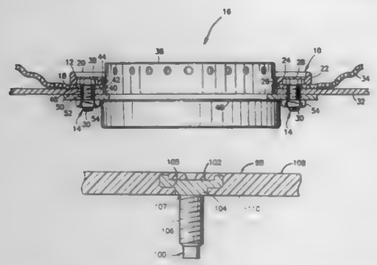
ONE-PIECE CONSTRUCTION PLASTIC AIRBAG CUSHION RETAINER WITH INTEGRAL FASTENERS

Wael S. Elqadah, North Ogden; John L. Sabin, Kaysville, both of Utah; Haig H. Kassouni, Grand Rapids, and Timothy Grabill, Howard City, both of Mich., assignors to Morton International, Inc., Chicago, Ill., and Agape Plastics, Inc., Grand Rapids, Mich.

Filed Oct. 17, 1995, Ser. No. 543,902

Int. Cl.° B60R *21/16*

U.S. Cl. 280—728.2 **23 Claims**



1. An airbag cushion retainer for use in an airbag module assembly including an airbag cushion having an open mouth formed by a collar, the module defining an annular mounting plate for receiving the collar of the airbag cushion, the collar of the airbag cushion and the mounting plate each having a plurality of corresponding fastener-receiving holes, the airbag cushion retainer comprising:

a reinforced plastic annular ring having a bottom surface sized and adapted to be positioned above the mounting plate superimposed over the collar of the airbag cushion; and

a plurality of fasteners having heads insert-molded or welded into the reinforced plastic annular ring and studs extending from the bottom surface of the reinforced plastic annular ring, the studs sized and positioned to pass through the corresponding fastener-receiving holes of the collar of the airbag cushion and the mounting plate to secure the airbag cushion to the airbag module assembly and wherein each of the plurality of fasteners further comprises a spacing collar provided intermediate the head and the stud wherein at least a portion of the spacing collar is insert-molded or welded into the annular ring.

5,727,811

STEERING WHEEL WITH AIR BAG DEVICE

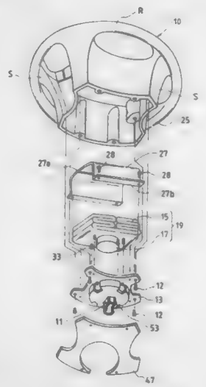
Atsushi Nagata, and Tooru Koyama, both of Aichi, Japan, assignors to Toyoda Gosei Co., Ltd., Aichi, Japan

Filed Mar. 15, 1996, Ser. No. 616,269

Claims priority, application Japan, Apr. 27, 1995, 7-104337; May 12, 1995, 7-114470

Int. Cl.° B60R *21/22*

U.S. Cl. 280—731 **14 Claims**



1. A steering wheel assembly comprising:

a steering wheel body including a core covering portion;

a boss plate disposed below said steering wheel body;

an air bag device including a folded air bag and an air bag inflator, said air bag device being fixedly secured to said boss plate;

a horn pad provided above said air bag device, said horn pad being substantially integral with said core covering portion of said steering wheel body;

a substantially rigid depressing plate provided immediately below said horn pad, said depressing plate including a breakable portion in a top wall thereof which is constructed and arranged to be broken by inflation of said air bag, wherein said depressing plate is arranged so as to straddle said folded air bag and is movable in accordance with depression of said horn pad; and

a horn switch mechanism actuable by depressing said horn pad, said horn switch mechanism including at least one resilient member which opposes depression of said depressing plate, and at least one pair of electrical contacts, said at least one resilient member and said at least one pair of electrical contacts being provided between said depressing plate and the boss plate.

5,727,812

AIRBAG CUSHION ASSEMBLY HAVING A HORN SWITCH SECURED WITH A CUSHION STRAP

John E. Dykstra, North Logan; David B. Johnson, Brigham City; Patricia A. Lund, Plain City, and Don L. Parker, Layton, all of Utah, assignors to Morton Internatinal, Inc., Chicago, Ill.

Filed Nov. 19, 1996, Ser. No. 752,356

Int. Cl.° B60R *21/16*

U.S. Cl. 280—731 **19 Claims**

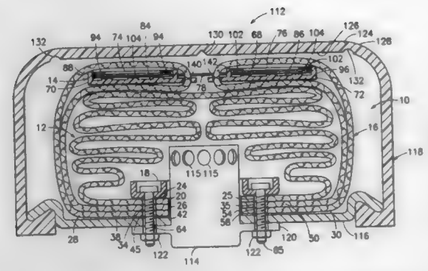
1. A horn switch unit for use as part of an airbag cushion assembly having an inflatable folded airbag cushion and a first elongated tether and a second elongated tether extending from the airbag cushion, the horn switch unit comprising:

at least one horn switch for closing a horn switch circuit to activate a remote vehicle horn upon being compressed;

at least one rigid support plate secured to the at least one horn switch;

the horn switch unit defining a first elongated slot for receiving the first elongated tether of the airbag cushion assembly, a second elongated slot for receiving the second elongated tether of the airbag cushion assembly, and a weakened portion of the horn switch unit rupturable by a force produced by an inflating airbag cushion to break the horn switch unit between the first elongated slot and the second elongated slot;

whereby the horn switch unit can cooperate with the first elongated tether and the second elongated tether to retain the airbag cushion in a folded condition prior to inflation of the airbag cushion.



5,727,813

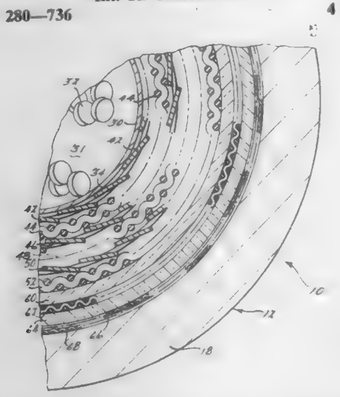
AIR BAG INFLATOR

Rickey Lee Stratton, Pontiac; Robert M. Krupp, Royal Oak; Chris A. Adamini, Sterling Heights, and Paresh S. Khandhadia, Troy, all of Mich., assignors to Automotive Systems Laboratory, Inc., Farmington Hills, Mich.

Filed Aug. 21, 1996, Ser. No. 700,819

Int. Cl.° B60R *21/26*

U.S. Cl. 280—736 **4 Claims**



1. In an air bag inflator comprising an elongated cylindrical housing, a propellant chamber disposed centrally of said housing; a propellant in said chamber; and means for igniting said propellant at one end of said chamber;

an elongated cylindrical filter disposed radially outwardly of said propellant chamber and radially inwardly of the wall of said housing, said filter comprising a radially inner layer of pierced sheet metal, a layer of wire cloth of a first mesh disposed about said sheet metal layer, a ceramic filter media disposed about said wire cloth, and; a layer of wire cloth of a second mesh greater than the mesh of said first layer of wire cloth disposed radially outwardly of said ceramic filter media.

5,727,814

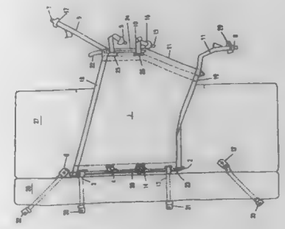
MOTOR VEHICLE SAFETY RESTRAINT BLANKET

Stephen E. White, 1 Hudson St., New York, N.Y. 10013

Continuation-in-part of Ser. No. 501,655, Jul. 12, 1995, abandoned. This application Feb. 8, 1996, Ser. No. 598,676

Int. Cl.° B60R *21/02*

U.S. Cl. 280—748 **2 Claims**



1. A motor vehicle safety restraint blanket for use by a reclining or sleeping passenger on a seat having a back comprising:

a. a blanket of a woven material that is reinforced at the upper and lower hem with seat belt webbing, having

b. a primary structural element within the rear hem of the restraint as a means of anchorage to the floor of the vehicle;

c. a secondary structural element within the leading hem of the restraint, which is the means of mounting

d. a slidably attached length of webbing, having a first end and a second end;

e. a fixedly attached second length of webbing, having a single third end;

f. a third length of webbing, having a fourth end, fastened to the lower hem of the restraint blanket;

g. four latch plates and means of attachment to each of the aforementioned webbing ends;

h. means of adjusting each of the three lengths of webbing at the leading hem;

i. two seat belt buckles anchored to the primary structural element within the rear hem to receive two correspinding latch plates mounted on the leading hem; and

j. two seat belt buckles, anchored independently of the rear hem, at a distance from each end of it, corresponding to the other two latch plates on the leading hem.

5,727,815

STIFFENING SYSTEM FOR STRUCTURAL MEMBER OF MOTOR VEHICLE FRAME

Bradley W. Smith, Ogden, Utah, assignor to Morton International, Inc., Chicago, Ill.

Filed Feb. 9, 1996, Ser. No. 598,910

Int. Cl.° B62D *21/15*

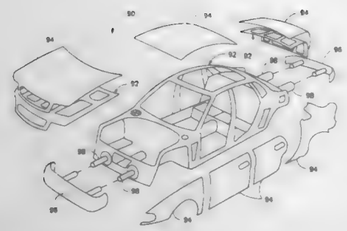
U.S. Cl. 280—784 **17 Claims**

1. A collision- or rapid deceleration-initiated system for increasing rigidity and axial buckle strength of an elongated structural frame member of a motor vehicle frame, the system comprising:

an elongated structural frame member of a motor vehicle, the structural frame member containing a hollow, substantially gas-tight interior; and

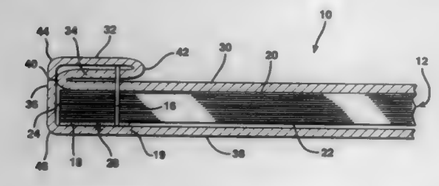
pressurizing means for introducing pressurized fluid into the gas-tight interior of the structural frame member to pressurize the gas-tight interior of the structural frame member to a predetermined level upon rapid deceleration or collision of the

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motor vehicle whereby rigidity and axial buckle strength of the elongated structural frame member is increased.

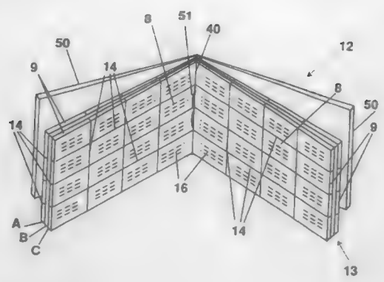
5,727,816
STAPLED REPORT COVER
Bon S. Ong, P.O. Box 4247, Torrance, Calif. 90510
Filed Jul. 15, 1996, Ser. No. 692,910
Int. Cl.° B42D *3/00*
U.S. Cl. 281—29 19 Claims



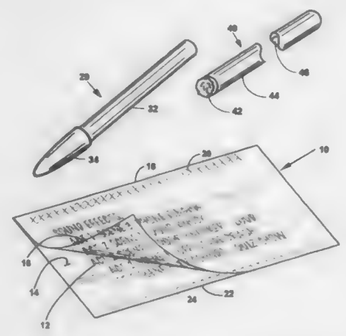
1. In combination,
a plurality of pages disposed one atop another to form a stack with top and bottom sheets and defining a binding edge of said stack, an opposite edge of said stack parallel to said binding edge, and a narrow binding margin on said stack adjacent to said binding edge,
a document cover formed of a plurality of panels including a broad top cover panel located atop said stack and extending across said stack from at least said binding margin and reaching said opposite edge, at least one concealment panel attached to said top cover panel atop said binding margin and extending across said narrow binding margin to said binding edge, and a broad back panel joined to said concealment panel by at least one spine fold adjacent said binding edge so as to extend beneath said stack and so as to reach said opposite edge,
at least one fastener passing through and emerging from said top and bottom sheets at said binding margin of said stack, and
at least one layer of adhesive interposed between said document cover and said narrow binding margin of said stack to thereby conceal said at least one fastener from view where it emerges from at least said top sheet.

5,727,817
DOUBLE-SIDED PEEL OFF COUPON BOOKLET AND METHOD OF MAKING DOUBLE-SIDED PEEL-OFF COUPON LAYERS
Spensar Kraige, 291 Montebello Ave., Ventura, Calif. 93004
Filed Mar. 13, 1995, Ser. No. 402,703
Int. Cl.° B42D *15/00*
U.S. Cl. 283—51 20 Claims

1. A coupon booklet comprising:
a cover having a fold line; and,
a double-sided, two page coupon insert attached to the cover, comprising:
a release liner having two opposing sides;
a fold line bisecting said release liner into two pages each having two opposing sides; and,
a coupon layer comprising an array of individual coupons releasably adhered to each of the opposing sides of said pages, wherein the cover and the coupon insert can be folded along their respective fold lines such that the cover will enclose and protect the coupon insert.

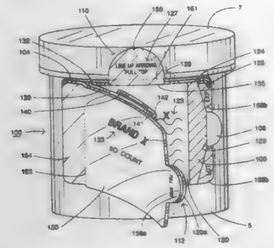


5,727,818
ERASABLE LABEL KIT
Peter Schmeida, P.O. Box 1796, Stow, Ohio 44224
Filed Mar. 28, 1996, Ser. No. 622,996
Int. Cl.° B42D *15/00*
U.S. Cl. 283—81 6 Claims



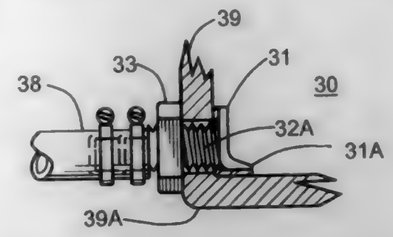
1. A label that comprises the following layers, listed from the uppermost layer down:
a. a transparent film overlaying and permanently affixed along one edge thereof and temporarily affixed along an opposite edge thereof to;
b. a non-porous writing surface for removably receiving indicia from a dry-erase marking pen, which writing surface is a clear, transparent coating applied to;
c. an opaque layer to provide contrast for the indicia from the marking pen; and
d. a substantially flat magnet permanently affixed to the underside of said opaque layer.

5,727,819
RESEALABLE LAMINATED PACKAGE LABEL HAVING TAMPER RESISTANT FEATURE
Glenn A. Grosskopf, Lake Zurich, Ill., and Carl W. Treleaven, Greensboro, N.C., assignors to Pharmagraphics L.L.C, Midwest, and Pharmagraphics L.L.C, Southeast, both of Greensboro, N.C.
Filed May 31, 1996, Ser. No. 657,682
Int. Cl.° B42D *15/00*
U.S. Cl. 283—81 29 Claims



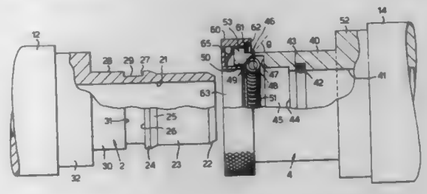
22. A label for displaying information regarding a package, the package of the type having a first component and a second component displaceable with respect to the first component, said label comprising:
a) a multipanel informational leaflet including:
i) at least a bottom panel and a top panel, said top panel connected to said bottom panel;
ii) said bottom panel having an upper surface and a lower surface and including a marginal portion extending beyond said top panel;
iii) a tear line between said top panel and said bottom panel whereby said top panel may be detached from said bottom panel;
b) a laminate cover overlying said top panel for temporarily holding said top panel in overlying relationship with said bottom panel, said laminate cover including a laminate margin releasably secured to said marginal portion;
c) a laminate tear line formed in said laminate cover whereby a portion of said laminate cover may be detached from said label;
d) a varnish coating disposed on one of an upper surface of said marginal portion and a lower surface of said laminate margin, and a second adhesive layer disposed on the other of said upper surface of said marginal portion and said lower surface of said laminate margin adjacent said varnish coating, whereby said respective surfaces are releasably and resealably adhered to one another;
e) said laminate cover having a leading edge, said leading edge forming an angle of greater than 90° with respect to a prescribed direction of pull, whereby a portion of a pull force directed along said prescribed direction of pull is redirected at an angle to said prescribed direction to facilitate separation of said laminate cover from said upper surface of said bottom panel;
f) a tamper tab extending outward beyond an edge of one of said panels and having a lower surface;
g) a tear line formed in said tamper tab; and
h) an adhesive layer disposed on said lower surface of said bottom panel and on said lower surface of said tamper tab, whereby said bottom panel may be secured to the first component of the package and said tamper tab may be secured to the second component such that relative displacement between the first and second components results in relative displacement of said bottom panel and said tamper tab.

5,727,820
SIDE-MOUNTED "L" SHAPED FLANGE
David M. Thompson, 802 Mantoloking Rd., Brick Town, N.J. 08723
Filed Aug. 7, 1996, Ser. No. 692,097
Int. Cl.° F16L *39/00;* B63B *13/00*
U.S. Cl. 285—139.2 4 Claims



1. A side-mounted drain for emptying a flat bottomed container comprising; an "L" shaped flange fitted to a lower side of a container; said flange having a substantially vertical upper portion for fitting along the the inside of the side of said container, and a substantially horizontal lower portion, forming an "L" shape with respect to said upper portion, fitted along the inside of the flat bottom of a container; a drain tube having an under side coupled to the outside of said flange at the level of said lower portion, whereby any liquids in said container can be drained to the lower level of said flange; means for securing said flange and said drain tube to said side of said container; and a gasket in the shape of said "L" shaped flange, fitted between said flange and said side wall and said flat bottom to prevent leakage.

5,727,821
FLUID COUPLINGS
Barry Charles Miller, Egham, England, assignor to Smiths Industries PLC, London, England
Filed Jul. 15, 1996, Ser. No. 680,408
Claims priority, application United Kingdom, Aug. 4, 1995, 9516064
Int. Cl.° F16L *37/22;37/084*
U.S. Cl. 285—318 8 Claims



1. A fluid coupling comprising: a female part, said female part having a bore, an annular sealing member located in the bore, a groove around the bore and an annular retaining ring located in said groove; and a male part, said male part having a nose portion at its forward end and an outwardly-projecting shoulder on said nose portion, and said shoulder having a forward surface and a rear surface, wherein said nose portion is insertable within said bore at a forward end of said female part so that an outer surface of said nose portion engages and seals with said sealing member, and said forward surface of said shoulder engages said retaining ring and displaces said ring outwardly into said groove, said ring engaging behind said shoulder to prevent withdrawal, and wherein said coupling has a release member, said release member including a resilient member that urges said release member forwardly, said release member being movable to engage said retaining ring and enable it to be displaced outwardly to clear said shoulder.

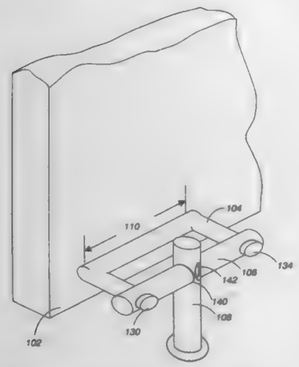
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5,727,822

ADVANCED DOOR SECURITY LOCK

David Truong, San Jose, Calif., assignor to International Business & Technology Corporation, San Jose, Calif.

Filed Feb. 28, 1996, Ser. No. 608,518
Int. Cl.[6] E05C 3/04
U.S. Cl. 292—202 24 Claims



1. An apparatus for holding a door, comprising:

a body member; and

a substantially planar blocking member rotatably coupled to said body member such that when said body member is positioned vertically in front of said door, said blocking member is disposed in one of a first blocking position and a second blocking position, wherein said blocking member, in said first blocking position, contacts said door to hold said door at a first predefined position, said door being closed when held at said first predefined position, said apparatus, when said blocking member is in said second blocking position, contacts said door to hold said door at a second predefined position, and wherein said door is opened further in said second predefined position than in said first predefined position, wherein said blocking member lies in a first plane and said apparatus is symmetric about a second plane containing said first plane of said blocking member and said body member, thereby allowing said apparatus to hold said door at said first predefined position and said second predefined position respectively, irrespective of an orientation of said apparatus when so positioned.

5,727,823

SEMITRACTOR DOOR BAR

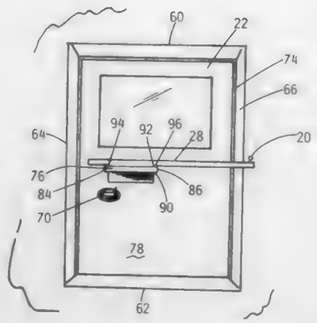
Vernetta F. Wiley, 717 Glenway St., Madison, Wis. 53711-1721

Filed Sep. 30, 1996, Ser. No. 720,535
Int. Cl.[6] E05C 19/18
U.S. Cl. 292—289 16 Claims

1. A door bar suitable for securing a door of a vehicle having at least one door for entering and exiting the vehicle, an inside door pull handle attached to the interior of the door for closing the door and a door jamb which frames the door opening, comprising a demountable, rigid elongate unitary structure configured and dimensioned to traverse the door and door jamb, including a bar and a single panel;

said bar having a bottom, sides and oppositely extending ends, and dimensioned to span a distance from the inside door pull handle to past the door jamb of the door, said bar bottom having a bar bottom width dimension defined perpendicular to said sides;

said panel having an edge integral with said bar, spaced apart from each of said ends of said bar and extending downwardly from said bottom of said bar, said panel having a panel width dimension, said panel width dimension being sized less than said bar bottom width dimension, said panel for being sandwiched between the inside door pull handle and the door.

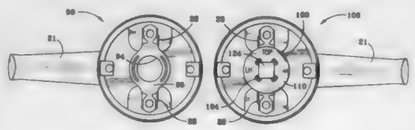


5,727,824

ISOLATIVE COUPLING FOR A THUMB-LEVER UNIT OF A DOOR LOCKSET

William D. Smith, Fair Oaks; Bella Rubin, San Francisco, and Beat Heri, Moraga, all of Calif., assignors to Schlage Lock Company, San Francisco, Calif.

Filed Aug. 8, 1996, Ser. No. 694,147
Int. Cl.[6] E05B 3/00
U.S. Cl. 292—336.3 4 Claims



1. A coupling, for use with a door lockset mounted on a door having an inside and outside face, said lockset having a latch bolt operated by a lever handle on the inside face and by a thumb lever of a grip handle on the outside face, said latch bolt being biased to an extended position except when retracted by operation of said handle and thumb lever, said inside lever handle being mounted in a parked position on a spindle engaged with said latch bolt, said latch bolt being operated between said extended position and said retracted position by said spindle, the coupling comprising:

means for operating said latch bolt by said thumb lever without moving said inside lever from said parked position, the means for operating said bolt by said thumb lever without moving said inside lever from said parked position comprising an isolative member for being drivably connected to said spindle operated by said thumb lever; and

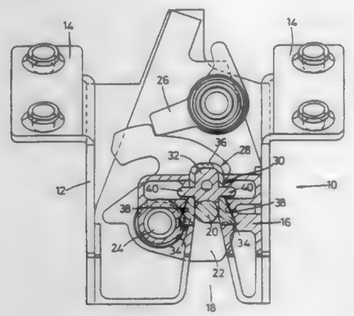
means for operating said latch bolt by rotating said inside lever handle, the means for operating said latch bolt by rotating said inside lever handle comprising a lever return mechanism for connection to said lever handle having a latch operator and a circular hole in said latch operator; said isolative member being rotatably mounted in said circular hole and having a first drive lug, to provide limited lost motion with said latch operator, for projecting axially outwardly toward said lever for drivable engagement with said latch operator; and having a centered drive socket means for drivable engagement with said latch operator spindle.

5,727,825

LATCH ASSEMBLY

Nigel Victor Spurr, Birmingham, United Kingdom, assignor to Rockwell Light Vehicle Systems (UK) Ltd., Birmingham, United Kingdom

PCT No. PCT/GB94/02208, § 371 Date Apr. 12, 1996, § 102(e) Date Apr. 12, 1996, PCT Pub. No. WO95/10679, PCT Pub. Date Apr. 20, 1995
PCT Filed Oct. 10, 1994, Ser. No. 628,661
Claims priority, application United Kingdom, Oct. 13, 1993, 9321156
Int. Cl.[6] E05B 15/02
U.S. Cl. 292—341.12 21 Claims



1. A latch assembly comprising:

a latch body mountable on one of two structures that are movable relative to one another between open and closed positions, said body having a longitudinal mouth open to receive therein a striker element mounted on the other of the two structures;

a releasable catch mechanism mounted on said body operative to engage and retain the striker element upon movement of the latter to an inward position within said mouth; and

a pair of jaws supported in laterally spaced relation along opposite sides of said mouth to accommodate the striker element therebetween, at least one of said jaws being longitudinally displaceable along said mouth from a longitudinally outward position to a longitudinally inward position in response to moving the striker element to its inward position within said mouth, and said at least one jaw being further resiliently displaceable laterally toward the other of said jaws in response to said movement of said at least one said jaw from said longitudinally outward position to said longitudinally inward position to engage and releasably grip the striker element between said jaws.

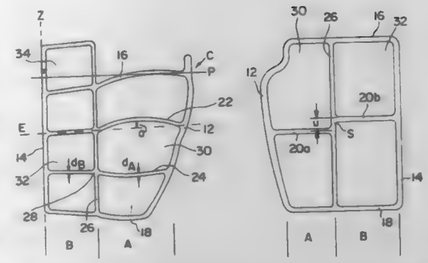
5,727,826

BUMPER FOR VEHICLES

Simon Frank, Watterdingen, and Werner Graf, Engen, both of Germany, assignors to Alusuisse Technology & Management Ltd., Switzerland

Continuation of Ser. No. 560,530, Nov. 17, 1995, abandoned.
This application Nov. 19, 1996, Ser. No. 752,652
Claims priority, application Switzerland, Dec. 23, 1994, 3927/94; Apr. 13, 1995, 1082/95
Int. Cl.[6] B60R 19/18
U.S. Cl. 293—102 8 Claims

1. A bumper for vehicles, which comprises: an extruded section of light metal alloy that can be attached to the vehicle and features section walls of a compression wall and a tension wall that are spaced a distance apart, and a pair of transverse walls that join the compression and tension walls to form a hollow section; at least one transverse strut provided between the transverse walls which joins the section walls to each other and divides the hollow section into chambers; a vertical strut provided between the section walls joining the transverse walls to each other and dividing the hollow section into a primary deformation part (A) including the chambers bordering onto the compression wall and a secondary deformation part (B) including the chambers bordering onto the tension wall; and wherein at least one of the transverse walls and the at least one transverse strut in the primary deformation part (A) is bulged out of the plane of a straight line between the compression and tension walls in the form of an arched curve from the vertical strut to the compression wall.



2. A bumper for vehicles, which comprises: an extruded section of light metal alloy that can be attached to the vehicle and features section walls of a compression wall and a tension wall that are spaced a distance apart, and a pair of transverse walls that join the compression and tension walls to form a hollow section; at least one transverse strut provided between the transverse walls which joins the section walls to each other and divides the hollow section into chambers; a vertical strut provided between the section walls joining the transverse walls to each other and dividing the hollow section into a primary deformation part (A) including the chambers bordering onto the compression wall and a secondary deformation part (B) including the chambers bordering onto the tension wall; and wherein an additional chamber enlarging the height of the secondary deformation part (B) is joined to the secondary deformation part (B), wherein the additional chamber has a width substantially the same as a width of the secondary deformation part (B).

6. A bumper for vehicles, which comprises: an extruded section of light metal alloy that can be attached to the vehicle and features section walls of a compression wall and a tension wall that are spaced a distance apart, and a pair of transverse walls that join the compression and tension walls to form a hollow section; at least one transverse strut provided between the transverse walls which joins the section walls to each other and divides the hollow section into chambers; a vertical strut provided between the section walls joining the transverse walls to each other and dividing the hollow section into a primary deformation part (A) including the chambers bordering onto the compression wall and a secondary deformation part (B) including the chambers bordering onto the tension wall; and wherein an intersection of said at least one transverse strut with the vertical strut in the primary deformation part is offset from an intersection with the vertical strut in the secondary deformation part, forming sub-struts thereby, in order to effect a rotary movement between the sub-struts upon collision.

5,727,827

VEHICULAR BUMPER MOUNTING STRUCTURE

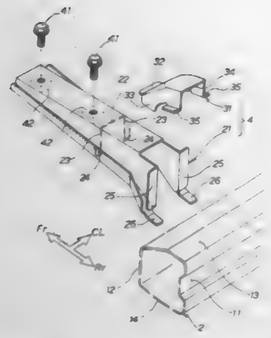
Akihiro Shibuya, and Yasuhisa Egawa, both of Wako, Japan, assignors to Honda Giken Kogyo Kabushiki Kaisha, Tokyo, Japan

Filed Jul. 12, 1996, Ser. No. 679,279
Claims priority, application Japan, Jul. 14, 1995, 7-178832
Int. Cl.[6] B60R 19/24
U.S. Cl. 293—155 8 Claims

1. A vehicular bumper mounting structure for mounting a bumper beam extending transversely of a vehicle to a side member of the vehicle by means of a support, comprising:

a bumper beam in the form of a closed hollow member of high tension steel;

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a support having a support body and an arm member mounted to a bumper-mounting portion of one of an upper wall and a side wall of said support body in an overlapping relation thereto, said support having a flange mounted to at least one side portion of said bumper beam; and

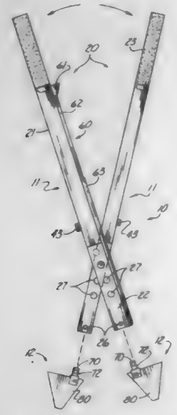
at least one of said support body and said arm member having at a side thereof proximate to said bumper beam a portion extending beyond a rear side portion of said bumper beam.

5,727,828

ADJUSTABLE GARDEN TOOL APPARATUS

Richard Jones, 2708 St. Anthony St., New Orleans, La. 70119

Filed Dec. 30, 1996, Ser. No. 774,481
Int. Cl.[6] A01B *1/18*
U.S. Cl. 294—50.8 **3 Claims**



1. An adjustable handle garden tool apparatus consisting of:

a pair of elongated telescoping handle members pivotally secured to one another;

wherein one of said telescoping handle members is provided with a fluid delivery system, each of said telescoping handle members comprises an upper female portion and a lower male portion wherein said female portion and said male portion have outboard ends and mating inboard ends, the inboard end of the female portion has a pair of transverse apertures, and the inboard end of the male portion has a plurality of pairs of transverse apertures, wherein said transverse apertures are dimensioned to selectively receive a pivot pin for pivotally connecting said handle members together at different points on said lower male portion, wherein the female portion has a plurality of spaced apertures and said male portion has a spring biased detent element that is dimensioned to be received in said spaced apertures for varying the effective length of each of said handle members, wherein the lower end of said male portion is provided with a discrete aperture for releasably engaging a portion of said at least one pair of tool head elements, wherein said fluid delivery system includes: a funnel element; a tubular female segment; and a tubular male segment slideably received in said tubular female segment wherein one of said tubular segments is operatively associated with said female portion and the other tubular segment is operatively associated with said male portion; and

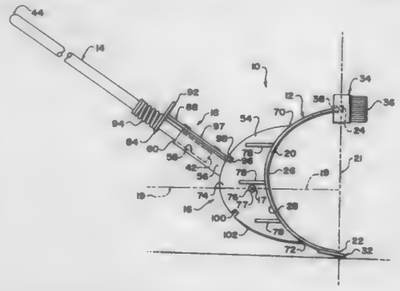
at least one pair of tool head elements is operably and releasably associated with the bottom of said telescoping handle members.

5,727,829

COMBINED SHOVEL AND BROOM

Deval Bellichak, 315H Bottomley Ave., S., Saskatoon, Saskatchewan, Canada, S7N 1K8

Filed Oct. 7, 1996, Ser. No. 726,936
Int. Cl.[6] A01B *1/20*; **E01H** *5/02*
U.S. Cl. 294—51 **14 Claims**



1. A combined shovel and broom comprising:

a shovel blade having a concave front face, a laterally extending shoveling edge and a laterally extending brush edge;

a brush head along the laterally extending brush edge of the shovel blade;

an elongate handle having a first end and a second end;

pivot connection means pivotally mounting the first end of the handle on the shovel blade for pivotal movement of the handle relative to the blade between a shoveling position with the handle sloping to a front of the blade towards the shoveling edge and a brushing position with the handle sloping to a front of the blade towards the brush edge, said pivot connection means comprising:

an elongate member having a first end, a second end, a receptacle at the second end for receiving the first end of the handle, and a hole arranged adjacent the first end of the elongate member and extending through opposing sides of the elongate member;

a pair of spaced apart flanges fixed to the back side of the shovel blade substantially perpendicular to the shoveling and brush edges for receiving the first end of the elongate member therebetween;

and a pin member extending through the hole in the elongate member and connected at each end to a respective one of the pair of the flanges thereby pivotally connecting the elongate member between the flanges;

and catch means mounted on the handle for selectively locking the handle in one of the shoveling position and the brushing position, said catch means comprising:

a plurality of notches in a top surface of at least one of the flanges;

a collar arranged around the handle for sliding therealong;

an elongate catch member fixed to the collar and extending along the handle towards the shovel blade;

a catch handle for actuating the catch member fixed to the collar and extending outwards therefrom;

and an engagement member fixed adjacent the end of the elongate member and arranged perpendicular thereto for selectively engaging within one of the plurality of notches;

and wherein releasing the catch handle engages the engagement member within a selected one of the plurality of notches;

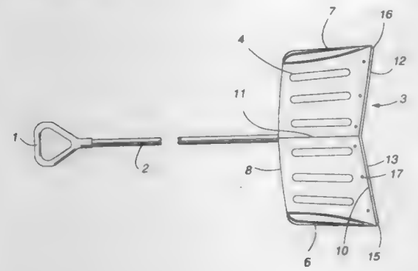
and wherein applying an upwards force to the catch handle draws the elongate catch member upwards disengaging the engagement member from said one of the plurality of notches.

5,727,830

SHOVEL FOR PACKED AND HEAVY SNOW

Randall S. Asher, 8756 S. Aberdeen Cir., Highlands Ranch, Colo. 80126

Filed Feb. 24, 1997, Ser. No. 803,810
Int. Cl.[6] E01H *5/02*
U.S. Cl. 294—54.5 **1 Claim**



1. A shovel device comprising:

a generally rectangular scoop element constructed of plastic having a top surface, a bottom surface, generally parallel lateral sides, a back side, a shaft coupling joint, and a front edge;

a shaft constructed from a single piece of plastic inserted into a said shaft coupling joint of said scoop element;

a handle element molded from plastic with and opening formed at one end for insertion of said shaft; and

a leading edge element comprising two connected sections which form an angle of less than 180 degrees therebetween such that when the leading edge element is attached to the front edge of said scoop element, a front portion of the lateral sides of said scoop element extent forwardly beyond the point where said two sections are connected.

5,727,831

CONCRETE SHOVEL AND MESH LIFTER HOOK COMBINATION

Ronald E. Dritlein, Jr., 3615 Franklin Ct., Crystal Lake, Ill. 60014

Filed Dec. 13, 1996, Ser. No. 763,367
Int. Cl.[6] A01B *1/20*
U.S. Cl. 294—59 **9 Claims**

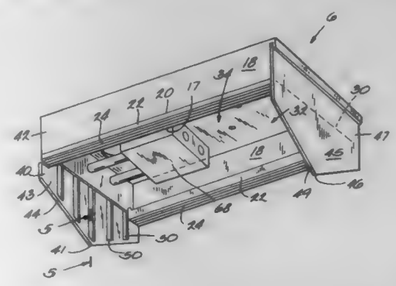
1. In combination, a cement shovel for shoveling sand and gravel having a metallic disk shaped shovel member with upturned side shovel edges, a blade edge of the shovel being joined at opposite ends with said upturned side shovel edges, a hook shaped member attached to said cement shovel and positioned so as to extend lengthwise along one of said upturned side shovel edges with a hooked end extending sideways angularly away from and laterally to one side of said blade edge leaving an outer end of said hook shaped member free of overlying the shovel to be clear for the end to engage concrete mesh to lift same from a bed of freshly laid concrete to lift concrete mesh to an interior level of the bed above a bottom of the bed with a minimum change of body and shovel motion during a cement shoveling procedure.

5,727,832

END EFFECTOR FOR TRANSFERRING ARTICLES

Carl F. Holter, Waukesha, Wis., assignor to ABB Flexible Automation, Inc., New Berlin, Wis.

Filed Dec. 12, 1995, Ser. No. 571,215
Int. Cl.[6] B25J *15/06*
U.S. Cl. 294—64.1 **28 Claims**



1. An end effector for use with a robot, the end effector comprising:

a body defining a vacuum chamber, the vacuum chamber having a port capable of being coupled to a vacuum source, the vacuum chamber further having;

an opening positioned in spaced relation relative to the port and having a peripheral edge;

a first strip of sealing material mounted along a portion of the peripheral edge of the opening; and

a first blade for being inserted into a container holding a plurality of flattened articles and having a grooved surface, the first blade mounted along the peripheral edge of the opening adjacent to the strip of sealing material and along a second portion of the peripheral edge of the opening;

wherein the end effector is capable of holding a plurality of stacked, substantially flat articles when the port is coupled to the vacuum source and a vacuum is being applied through the port.

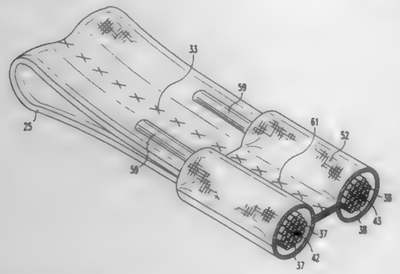
VOL 12 08 ISS 3 MR 17 1998 UMI

5,727,833

EYE-AND-EYE SLING

Kenneth A. Coe, Lebanon, Ind., assignor to American Steel Investment Corporation, Fort Wayne, Ind.

Filed Jun. 10, 1996, Ser. No. 660,919
Int. Cl.° B66C 1/12
U.S. Cl. 294—74 5 Claims



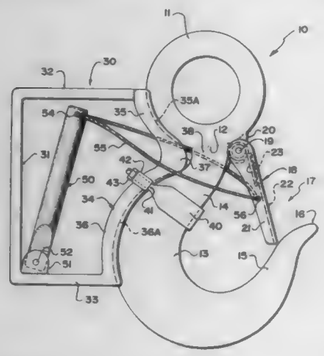
1. A sling comprising:
a flexible load bearing core in the form of an endless loop comprising a plurality of windings of a strand of material, said strand of material comprising a first end portion, a second end portion and a length segment between said first and second end portions, wherein said first end portion is fixedly attached to said length segment;
a flexible cover means for covering said load bearing core; and
telltale means for indicating overstretching of said load bearing core, said telltale means comprising a section of said strand of material between said second end portion and said length segment, wherein said section extends around at least the entire length of said loop, wherein an end of said second end portion extends from said cover means and is pulled into said cover means to be hidden from a user upon core overstretching.

5,727,834

SAFETY ATTACHMENT FOR A LIFTING HOOK

James Weselowski, 539 Archibald Street, Winnipeg, Manitoba, Canada, R2J 0X3

Filed Feb. 27, 1997, Ser. No. 810,335
Int. Cl.° B66C 1/36
U.S. Cl. 294—82.19 8 Claims



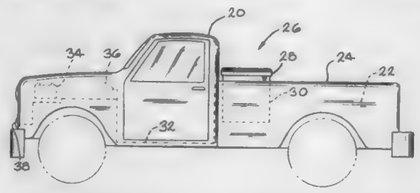
1. A combination of a lifting hook and a safety attachment therefor comprising:
a lifting hook having:
a top loop and a generally U-shaped hook member suspended from the loop and defining two legs of the hook member one of which is attached to the loop and the other of which is spaced from the loop to define an open mouth;
and a spring operated, pivoting latch having one end pivotally mounted on said one leg and extending across the open mouth to prevent exit of an element suspended on the hook member;
and a safety attachment having:
a bracket clamped onto the hook at said one leg defining a handle by which the lifting hook can be grasped;
a trigger pivotally mounted on the bracket and operable by a hand grasping the handle;
and means interconnecting the trigger and the latch such that the latch is pulled open by operating the trigger;
wherein the bracket comprises:
a handle bar generally parallel to said one leg of the hook member with the trigger being pivotally mounted adjacent one end of the bar and extending in front of the handle bar for grasping by the hand simultaneously with the bar;
a bottom rail and a top rail each extending from the handle bar to the hook member;
and a clamping bar generally parallel to the handle bar with the clamping bar being clamped to the hook member.

5,727,835

ALARMED TRUCK MOUNTED TOOL BOX

Paul R. Krush, New Berlin, Wis., and F. William Dyer, II, Johnson City, Tenn., assignors to Douglas Dynamics, L.L.C., Milwaukee, Wis.

Filed Apr. 23, 1996, Ser. No. 636,487
Int. Cl.° B60R 11/06;25/00
U.S. Cl. 296—37.6 19 Claims



1. A storage container for mounting within the bed of a vehicle having a battery and a horn, comprising:
the container defined by a pair of end walls, a pair of side walls positioned between the end walls, a lid and a bottom for enclosing the walls and including a security system mounted inside the container for providing a deterrent against unauthorized entry,
the security system including an alarm connectable to the battery.

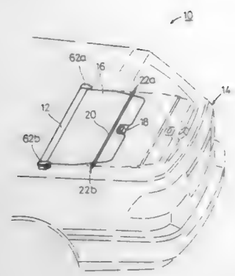
5,727,836

TONNEAU COVER DEVICE FOR MOTOR VEHICLES

Shizuo Hosoya, Wako, Japan, assignor to Honda Giken Kogyo Kabushiki Kaisha, Tokyo, Japan

Filed Sep. 30, 1996, Ser. No. 722,932
Claims priority, application Japan, Oct. 18, 1995, 7-270321
Int. Cl.° B60R 5/04
U.S. Cl. 296—37.16 10 Claims

1. A tonneau cover device for use in a motor vehicle having a tailgate, comprising:
a casing;
a cover normally stored in said casing and drawable from said casing toward the tailgate;
lock means for locking said cover selectively in a rear end position near the tailgate and an intermediate position between said casing and the tailgate, wherein said lock means comprises a pair of hook mechanisms mounted on said cover,



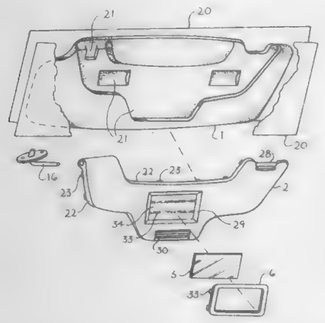
each of said hook mechanisms comprising a fixed hook member fixedly mounted on said cover, and a movable hook member movably mounted on said fixed hook member; and
a pair of retainer mechanisms, each of said retainer mechanisms comprising first engaging means for engaging and retaining said fixed hook member to secure said cover in one position, and second engaging means for engaging and retaining said movable hook member to secure said cover in another position.

5,727,837

MULTI-PART SUN VISOR BODY FOR USE IN A VEHICLE

Lorthar Viertel, Altforweiler, Germany, assignor to Becker Group Europe GmbH, Wuppertal, Germany

Filed Jul. 27, 1995, Ser. No. 507,825
Claims priority, application Germany, Aug. 2, 1994, 44 27 279.0
Int. Cl.° B60J 3/02
U.S. Cl. 296—97.1 27 Claims



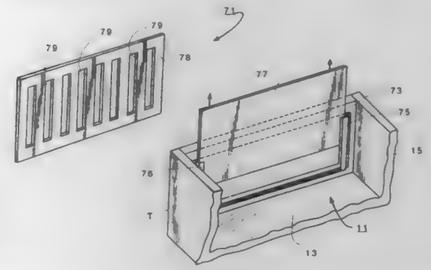
1. In a vehicle sun visor, the sun visor body includes a main foamed plastic body panel having a recess in one surface thereof and a separate injection molded plastic carrier plate fitted into the recess, the recess being shaped for receiving the carrier plate; the carrier plate being smaller in size than the main body panel; the carrier plate being generally U-shaped, including one arm on which the bearing region for the sun visor shaft is supported and on which a spring for the detenting of the sun visor shaft is supported; and including another arm with an end support pin for supporting the sun visor body in the vehicle.

5,727,838

WIND DEFLECTION APPARATUS FOR PICKUP TRUCKS

Ivan Vallerand, 46 Lakeview Ave., Waltham, Mass. 02154

Division of Ser. No. 329,208, Oct. 26, 1994, abandoned. This application Aug. 1, 1995, Ser. No. 510,001
Int. Cl.° B62D 35/00
U.S. Cl. 296—180.1 4 Claims



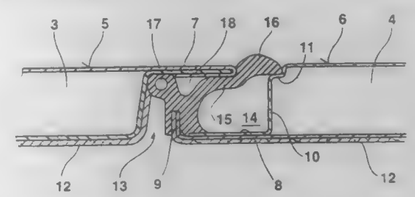
1. A tailgate assembly for an open top pickup, said open top pickup truck having a truck bed including a floor and a rear end, the tail gate assembly comprising:
a. a first sheet of material having a plurality of openings through which air can pass through,
b. means for mounting said first sheet on said truck bed at the rear end, and
c. a second sheet of material removably and slidably associated with said first sheet thereby selectively exposing or covering said plurality of openings.

5,727,839

ROOF ARRANGEMENT FOR CLOSING OFF A ROOF CUTOUT OF A MOTOR VEHICLE

Erich Rühringer, Magstadt; Wolfgang Adam, Nagold, and Volker Richters, Sindelfingen, all of Germany, assignors to Mercedes-Benz AG, Stuttgart, Germany

Continuation of Ser. No. 568,450, Dec. 7, 1995, abandoned. This application Aug. 5, 1997, Ser. No. 906,144
Claims priority, application Germany, Dec. 7, 1994, 44 43 525.8
Int. Cl.° B60J 7/047
U.S. Cl. 296—213 15 Claims



1. Vehicle roof arrangement for a vehicle comprising:
a roof cutout in an upwardly facing roof of a vehicle,
a forward roof part and a rearward roof part disposed in use to be movable longitudinally with respect to one another between a roof cutout closed position and a roof cutout open position,
a water discharge channel extending laterally of the roof cutout along a forward edge of the rearward roof part,
and an elastic seal extending along the forward edge of the rearward roof part in front of the water discharge channel, said elastic seal being movable between an unstressed position, with a portion protruding upwardly of the rearward roof part to form a splash guard in front of the water discharge channel while uncovering the water discharge channel in the

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upward direction, and a stressed position sealingly covering said water discharge channel,

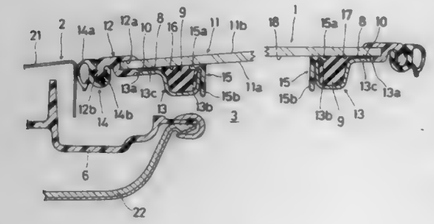
said elastic seal including a forwardly facing abutment edge engageable in use with a rearward edge of the forward roof part to be forcibly moved from the unstressed position to the stressed position in response to roof cutout closing movement of the forward roof part with respect to the rearward roof part such that, when said roof parts are in a roof cutout closed position, said elastic seal sealingly covers the water discharge channel and also seals said forward and rearward roof parts with respect to one another.

5,727,840

MOVABLE PANEL FOR VEHICLE

Hironori Ochiai, and Katsura Inoue, both of Chiryu, Japan, assignors to Aisin Seiki Kabushiki Kaisha, Japan

Continuation of Ser. No. 569,765, Dec. 8, 1995, abandoned.
This application Feb. 10, 1997, Ser. No. 796,447
Claims priority, application Japan, Dec. 28, 1994, 6-327106
Int. Cl.[6] B60J *7/00*
U.S. Cl. 296—216 **9 Claims**



1. A movable panel for a vehicle comprising:

a panel member having a periphery;

a frame member including a frame portion and at least one wall portion formed in one piece with the frame portion so as to form a slot elongated adjacent a front edge of the panel member between the frame portion and the wall portion, the frame member being fitted onto the periphery of the panel member; and

a separate reinforcement member disposed through the slot and fixed to the panel member, the reinforcement member being elongated adjacent the front edge of the panel member and having an end portion in contact with the wall portion, and the reinforcement member positioned with respect to the wall portion to eliminate any gap between the innermost extent of the end portion of the reinforcement member and the wall portion.

5,727,841

REMOVABLE ACCESSORY FOR LOUNGE CHAIR

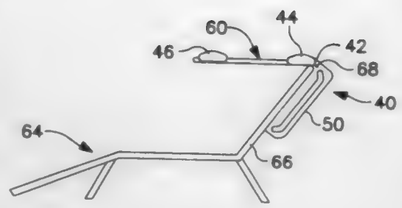
Brian D. Morley, 1955 Williamsbridge Rd., Bronx, N.Y. 10461

Filed Aug. 14, 1996, Ser. No. 696,646
Int. Cl.[6] A47C *7/62*
U.S. Cl. 297—188.06 **14 Claims**

1. An accessory for a chair, said accessory including;

a front and rear portion and means for removably mounting said front and rear portion to a chair such that a backrest portion of said chair is disposed between said front portion and said rear portion of said accessory;

means for selectively pivoting said front portion relative to said rear portion between a retracted position in which said front portion is substantially adjacent to said rear portion and an extended position in which said front portion is separated from said rear portion when said accessory is mounted to said chair;



said front portion providing a sun cover for an occupant of said chair when said front portion is pivoted into said extended position relative to said rear portion;

said rear portion being fixedly mounted relative to said chair when said front portion is pivoted between said retracted and extended positions;

said accessory being removably mountable to said backrest of said chair;

said front portion carrying support means for the occupant of said chair when said front portion is in said retracted position relative to said rear portion; and

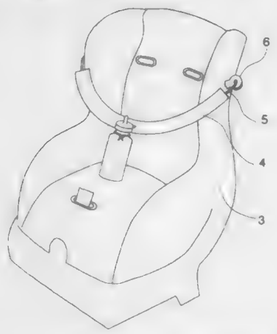
said rear portion defining, at least in part, a heat insulated storage compartment.

5,727,842

DEVICE FOR ATTACHING BABY BOTTLES TO CAR SEATS

James G. O'Neil, 107 New Castle La., Willingboro, N.J. 08046

Filed Sep. 27, 1996, Ser. No. 720,043
Int. Cl.[6] A47D *15/00*
U.S. Cl. 297—188.06 **4 Claims**



1. A device for holding a baby bottle having a neck, which device is for use with a baby car seat which does not have a crash bar, comprising:

(a) an elongated sling having a center and two ends;

(b) first and second connecting cords, each cord having first and second ends and an adjustable length, the first end of the first cord being attached to one end of the sling and the first end of the second cord being attached to the opposite end of the sling;

(c) two fasteners, the first fastener holding the second end of the first cord and the second fastener holding the second end of the second cord, each fastener being capable of attaching to a car seat or a seat of an automobile;

(d) a holding cord having a center and two ends, which cord is attached at or near its center to the sling at or near the center of the sling, and which cord is adapted to encircle the neck of the baby bottle; and

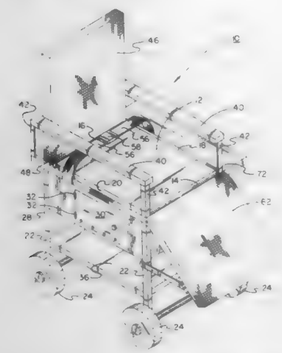
(e) a cord lock which is adapted to encompass the two ends of the holding cord, to fit between the two ends of the holding cord and the bottle, and to be tightened so as to hold the baby bottle securely to the sling.

5,727,843

COMFORT COMBINATION CHAIR

Barbara J. LaTrace, Rte. 2, Box. 169, Norfolk, N.Y. 13667, assignor to Barbara J. LaTrace, Norfolk, N.Y.

Continuation of Ser. No. 326,393, Sep. 20, 1994, abandoned.
This application Jun. 13, 1996, Ser. No. 662,634
Int. Cl.[6] A47C *15/00*
U.S. Cl. 297—188.13 **4 Claims**



1. A new and improved comfort combination chair comprising, in combination:

a seating portion positionable in an essentially horizontal plane and having a front edge, a rear edge, a left side edge and a right side edge, the seating portion having four corners formed by adjacent edges being connected by all edges being in an essentially rectangular configuration;

a plurality of legs extending downwardly from the four corners of the seating area and secured at their upper ends to the lower surface of the seating portion and having at their lower ends four wheels in a rectangular configuration with axles for the rotation of the wheels to facilitate movement of the chair;

a housing secured to the upper extents of the legs and secured immediately beneath the lower surface of the seating area, the housing area having a door with hinges rotatable about a vertical axis to allow the door to be opened and closed for the storage of components including a potty;

a supplemental horizontal plate positioned between the legs adjacent the lower extents thereof and above the wheels to provide additional stability to the legs;

a pair of arm rests located above the upper surface of the seating area adjacent to the side edges thereof, the arm rests having a horizontal surface with padding for the receipt of the arms of a user and having downwardly extending vertical supports at their front ends and rear ends;

a back support having a rectangular configuration having an upper, lower edge and side edges, the lower edge of the back support being rotatably coupled through pins to the rear edge of the seating area to vary the angle of recline of the back of a user during operation and use;

a seat belt formed of two components, the components having exterior edges secured to the side edges of the support adjacent to the rear edge, the components having interior edges with buckling components for releasable securement around the waist of a user;

a foot rest extending outwardly and downwardly at an angle, from the front edge of the seat support, the foot and leg rest having an outboard edge, an inboard edge and side edges with the inboard edge pivotally secured to the seating area adjacent to the forward edge thereof;

a supplemental tray secured to the left side edge of the seat support and extending outwardly therefrom in a horizontal orientation. the supplemental support tray having a forward edge, a rearward edge, an outward edge and an inward edge with the inward edge fixedly secured with respect to the left edge of the seat support but at a lower elevation with respect thereto;

a supplement seating area in a rectangular configuration having a forward edge, a rearward edge, a right edge and a left edge, the supplemental seating area being pivotally secured to the seating surface adjacent to its rearward edge and adapted when in the down position to conceal a toilet hole in the seating area, the supplemental seating area adapted to be pivoted to a raised position to allow exposure of the seating hole; and

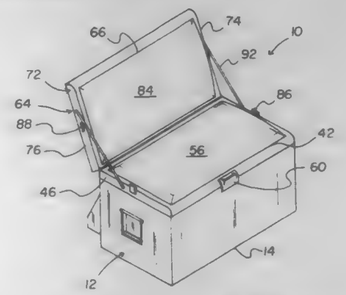
a tray in a rectangular configuration having a forward edge, a rearward edge and side edges with recesses formed beneath the lower surfaces of the side edges adapted to be received on the arm rests of the chair, the upper surface of the tray having a plurality of recesses for the receipt of cups, bowls, plates and the like as a function and desire of the user.

5,727,844

COOLER AND SEAT SYSTEM

Jeffrey Lee O'Quinn, and James Lee O'Quinn, both of 823 Cherry Hills La., Lebanon, Mo. 65536

Filed Feb. 20, 1997, Ser. No. 803,426
Int. Cl.[6] A47C *31/00;7/62*
U.S. Cl. 297—217.1 **1 Claim**



1. A new and improved cooler and seat system for use as a seat while keeping foods cool comprising in combination:

an insulated container having a rectangular bottom member with a rectangular rear wall, a rectangular front wall and a pair of side walls extending upwardly therefrom, the pair of side walls forming a first side wall and a second side wall integral with and perpendicular the rear and front walls, each side wall having a handle rotatable coupled thereto, the second side wall having a drain passing therethrough, the drain being a push and pull plug capable of opening and closing for the release of liquid within the container, the insulated container having an upper peripheral edge therearound and integrally with the walls thereof, the insulated container having interior walls being integral with the upper peripheral edge;

a first lid formed of insulated material having bottom portion and a top portion with a peripheral wall therebetween, the peripheral wall forming a pair of first side walls with a first rear wall and a first front wall therebetween, the first rear side wall being hingedly coupled to the rear wall of the insulated container for selective opening and closing of the insulated container, the top portion of the first lid having a cushion member fixedly attached thereto, the bottom portion of the first lid being flush with the upper peripheral edge of the insulated container when parallel with the insulated container for closure;

a clasp being attached to the rectangular front wall of the insulated container, the clasp releasably locking the first lid

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firmly to the insulated container when the first lid being flush with the upper peripheral edge of the container, the clasp snap coupling with the first front wall of the peripheral wall of the first lid;

a second lid formed of insulated material having a bottom portion and a top portion with a peripheral wall therebetween, the peripheral wall forming a pair of second side walls with a second rear wall and a second front wall therebetween, each of the pair of second side walls having a receiving slot, the second rear wall being hingedly coupled to the first rear wall of the first lid for selective rotation of the second lid thereabout, the bottom portion of the second lid having a cushion member fixedly attached thereto, the second lid being capable of coupling with the first lid when the first lid is rotated for opening the insulated container, the bottom portion of the second lid being flush with the top portion of the first lid when the first and second lid being in a juxtapose orientation, the first lid when coupled with the second lid being capable of forming a seat with the first lid functioning as a bottom for the seat and the second lid functioning as a back rest for the seat;

a pair of clamps with one clamp each being fixed attached to one of the first pair of side walls of the first lid, each of the pair of clamps releasably engages one of the receiving slots of the second lid when the first lid and second lid being in the juxtapose orientation;

a pair of anti-extension straps with each having a first end coupled to the first lid and a second end coupled to the second lid, the pair of anti-extension straps supporting the second lid in an upright position when the first lid being flush with the upper peripheral edge of the insulated container; and

a pair of supports with each having a back end edge and a front end edge with a top and bottom edge therebetween, the back end edge being hingedly coupled with the rear wall of the insulated container, each support having a concave handle adjacent the top edge, the pair of supports being rotatable from a closed position to an open position along the rear wall of the insulated container, the rear wall of the insulated container having a pair of recesses being sized for receiving an applicable support when the support being closed and a handle clearance being carved out within each recess, the pair of supports when in an open position being capable of balancing the insulated container when a person being seated on the first lid and resting against the second lid.

5,727,845

ARMREST ARRANGEMENTS IN CONVERTIBLE AIRCRAFT PASSENGER SEATING

Anthony Thomas Jackson-Wynch, Chesham, England, assignor to Flight Equipment and Engineering Limited, Leighton Buzzard, England

PCT No. PCT/GB94/01633, § 371 Date Apr. 25, 1995, § 102(e) Date Apr. 25, 1995, PCT Pub. No. WO95/03969, PCT Pub. Date Feb. 9, 1995

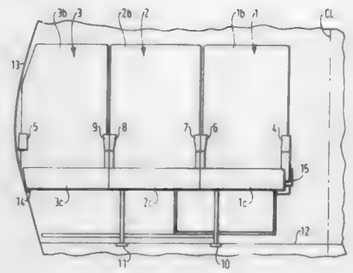
PCT Filed Jul. 28, 1994, Ser. No. 406,879

Claims priority, application United Kingdom, Jul. 29, 1993, 9315696

Int. Cl.[6] A47C *15/00*

U.S. Cl. 297—257 **10 Claims**

1. An aircraft passenger seating unit providing seats (1, 2, 3) for two or more passengers abreast which is convertible to provide different widths of seats by moving seat parts laterally with respect to one another between two configurations, in which the seats are defined by an end armrest (4, 5) at each end of the unit and intermediate armrests (6, 7, 8, 9) between the or each pair of adjacent seats, characterized in that there is a pair of intermediate armrests (6–7, 8–9) between the or each pair (1–2, 2–3) of adjacent seats and in that the end armrests (4, 5 and one of the or each pair of intermediate armrests (6–7, 8–9) are each connected to the adjacent seat part (19, 23, 24, 28) by a lost-motion device (35, 49, 39), the said lost-motion devices permitting, when the seating unit is being converted between the two configurations, limited relative lateral movement between each of the said armrests and the said



adjacent seat part and the intermediate armrests of the or each said pair are connected to each other by another lost-motion device (52) permitting limited relative lateral movement between them.

5,727,846

DOUBLE-SIDED RECLINING APPARATUS

Tomonori Yoshida, Yokohama, Japan, assignor to Ikeda Bussan Co., Ltd., Ayase, Japan

Filed Jul. 16, 1996, Ser. No. 680,846

Claims priority, application Japan, Jul. 19, 1995, 7-205348

Int. Cl.[6] B60N *2/02*

U.S. Cl. 297—373 **6 Claims**



3. A double-sided reclining apparatus for an automobile seat, comprising:

an inside reclining device adapted to face to a center line of an automotive vehicle and an outside reclining device equipped with a reclining-lever handle and adapted to face apart from said center line, each of said inside and outside reclining devices including:

a base adapted to be fixedly connected to a seat cushion,

an arm adapted to be fixedly connected to a seat back and rotatably supported on said base, said arm having a pair of diametrically opposed inner toothed portions,

a pair of toothed cam followers, each having first and second cam-follower portions, and a toothed portion meshable with and unmeshable from an associated one of said inner toothed portions,

a cam member being formed on an outer periphery thereof with at least first and second cam portions, said first cam portion being in cam-connection with said first cam-follower portion and said second cam portion being in cam-connection with said second cam-follower portion,

a pivot shaft firmly fitted to said cam member for causing meshed-engagement of said toothed portions with said inner toothed portions through a rotary motion of said pivot shaft in a first rotational direction to lock the reclining device, and for causing disengagement of said toothed portions from said inner toothed portions through a rotary motion of said pivot shaft in a second rotational direction opposing said first rotational direction to unlock the reclining device, and

means for biasing said pivot shaft in said first rotational direction; and

a connecting pipe through which said pivot shaft fitted to said cam member included in said outside reclining device is mechanically linked to said pivot shaft fitted to said cam member included in said inside reclining device;

wherein said first and second cam portions of said cam member included in said inside reclining device are formed with raised portions, said raised portions being enlarged greater than each cam profile of said first and second cam portions of said cam member included in said outside reclining device, for providing a mechanical phase-lead of said inside reclining device with respect to both locking and unlocking actions of said outside reclining device.

5,727,847

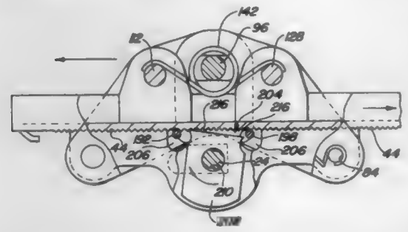
LINEAR ACTUATOR

Michael A. Martone, and Tyrone R. Secord, both of Troy, Mich., assignors to Maple Automotive Innovations, Inc., Troy, Mich.

Continuation-in-part of Ser. No. 609,342, Mar. 1, 1996, Pat. No. 5,618,083. This application Feb. 28, 1997, Ser. No. 807,711

Int. Cl.[6] B60N *2/20*

U.S. Cl. 297—375 **17 Claims**



9. A linear actuator for use in a position adjusting mechanism for adjusting the position of a movable element relative to a stationary member, comprising:

said movable member including a longitudinally extending actuator rod having a horizontal extending planar friction surface;

a stationary clamp member having a horizontal extending friction surface normally engaging the horizontal extending planar surface of said actuator rod to maintain said actuator rod stationary with respect to said clamp member;

means for moving the horizontally extending planar friction surface of said actuator rod vertically away from the horizontally extending planar surface of said clamp member to permit longitudinal adjustment of said actuator rod relative to said clamp member; and

an inertial locking element rotationally mounted relative to one of said actuator rod and clamping member so that when a sudden inertial force is applied to said actuator, said inertial locking element will be rotated to lock against the other of said actuator rod and clamping member to positively prevent any relative movement between said actuator rod and said clamping member.

5,727,848

COMPUTER WORK STATION CHAIR

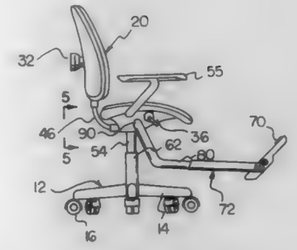
David Gazard, 4242 Henning Dr., Concord, Calif. 94521

Filed Oct. 21, 1996, Ser. No. 730,622

Int. Cl.[6] A47C *7/50*

U.S. Cl. 297—423.36 **1 Claim**

1. A new and improved computer workstation chair for relieving body stress and strain while sitting for long periods of time comprising in combination:



a base portion being supported by a plurality of dual-wheel caster wheels that support the base on a receiving surface;

a backrest having a proximal side, a distal side and a bottom side, the proximal side of the backrest having a cushion thereon, the distal side of the backrest having a lumbar adjustment knob extending therefrom, the lumbar adjustment knob rotating clockwise and counter clockwise for adjustment of the cushion behind a lumbar region of a person's back;

a generally rectangular seat support formed of a rigid plastic, the seat support having a top side, a bottom side and a right side therebetween, the seat support supporting the back rest by a J-shaped rigid frame portion, the top side of the seat support having a seat cushion thereon, the bottom side of the seat support having a support column extending therefrom, the right side of the seat support has a locking lever that extends from the seat support, the locking lever being positioned within the seat support and rotatable within the seat support;

a cylindrical swivel being positioned around the support column and extending upwardly from the base, the swivel allowing the support column to rotate 360 degrees within the swivel for rotation of the chair about the swivel;

a generally rectangular foot rest having a pair of side portions with a foot portion therebetween, one of the side portions coupled to an extension bar, one of the side portions having a pull out knob for making angular adjustments of the foot rest with respect to the extension bar;

the extension bar having a first extent and a second extent, the first extent having a first end coupled to the foot rest by a hexnut, the second extent having a second end coupled to the right side of the seat support, the second extent supporting the extension bar and pedestal above the base of the chair, the second extent being capable of slidable movement within the first extent of the extension bar for providing the extension bar with an increasing and decreasing length, wherein air pressure, created when the second extent is slid into the first extent, passes into the foot rest and is released by an air release button on said foot portion of said foot rest, and

the first extent having an oblong portion extending at sixty degree angle from the first end, the pull-out knob of the pedestal being positioned through the oblong portion of the first end of the first extent, the pull-out knob, when pulled out, allowing the pedestal to be positioned at a variety of angles with respect to the extension bar, the pull-out knob, when pushed in being positioned within a notch of the foot rest and held therein by a bias spring.

5,727,849

MODULAR CHAIR

Laurence A. Nelson, Knoxville, Tenn., assignor to P.I., Inc., Athens, Tenn.

Filed May 7, 1996, Ser. No. 646,025

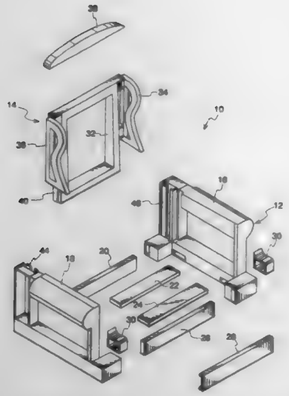
Int. Cl.[6] A47C *7/00*

U.S. Cl. 297—440.16 **13 Claims**

1. A modular chair, comprising

a. a seat portion and a back portion, the seat portion including opposite upstanding components,

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b. means for joining the back portion to the seat portion, comprising

i. a pair of double taper elements, each double taper element being located on an opposite side of said back portion and spaced laterally therefrom, and

ii. a pair of corresponding channel elements, each channel element being located in one of said upstanding components and being shaped to receive and engage tapered parts of a said double taper element, said tapered parts being oriented generally at right angles to one another, and

c. means for securing the back portion to the seat portion.

5,727,850

SAFETY AND CONTROL SYSTEM FOR THE LOCKING MECHANISM OF A WHEEL HUB, NOTABLY FOR WHEELCHAIRS

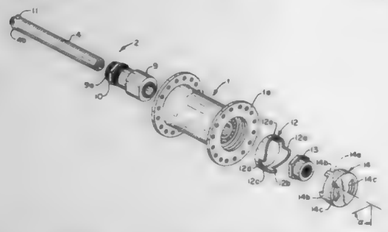
Claude Masclet, Le Chatelard, 42210 Marclopt, France

Filed May 17, 1996, Ser. No. 651,195

Claims priority, application France, May 19, 1995, 95 06343

Int. Cl.[6] B60B *27/06*

U.S. Cl. 301—111 **7 Claims**



1. Hub assembly for a wheelchair, said wheelchair having a frame member, comprising:

a hub body having a first end and a second end opposite the first end, having a central cavity extending axially from the first end to the second end;

a first bearing disposed in the central cavity at the first end of the hub body;

a second bearing disposed in the central cavity and recessed from the second end of the hub body;

an axle sleeve having a first end and a second end opposite the first end, and a bore extending axially through the entire axle sleeve;

at least two holes disposed at the first end of the axle sleeve extending radially from the bore;

at least two balls, each disposed in a corresponding one of the at least two holes;

a pushrod having a first end and a second end opposite the first end, and a nominal diameter;

a region of increased diameter, greater than the nominal diameter, at the first end of the pushrod;

means for moving the pushrod in an axial direction for alternately:

(a) causing the region of increased diameter to urge the at least two balls through the holes so as to extend partially therefrom; and

(b) allowing the balls to drop back into the holes towards a portion of the pushrod having the nominal diameter;

wherein the means for moving the pushrod comprises a pushcap disposed at the second end of the hub body and accessible to a user;

wherein: the pushcap is provided with tabs; and further comprising: a notch ring having notches corresponding to the tabs;

wherein: in a one rotational position of the pushcap, the notch ring permits the pushcap to exert an axial force on the pushrod; and

in another rotational position of the pushcap, the notch ring prohibits the pushcap from exerting an axial force on the pushrod.

5,727,851

HYDRAULIC BRAKE APPARATUS

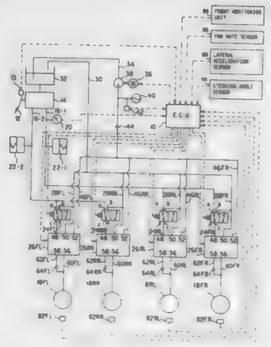
Masayasu Ohkubo, Okazaki; Fumiaki Kawahata, Toyota; Masashi Ito, Seto, and Kiyoharu Nakamura, Toyota, all of Japan, assignors to Toyota Jidosha Kabushiki Kaisha, Aichi-ken, Japan

Filed Oct. 17, 1996, Ser. No. 733,382

Claims priority, application Japan, Oct. 17, 1995, 7-268666

Int. Cl.[6] B60T *8/36*

U.S. Cl. 303—117.1 **11 Claims**



1. A hydraulic brake apparatus comprising:

control valve means having a spool which is bi-directionally movable between a first position and a second position, said spool, when located at the first position, allowing brake fluid from a low-pressure source to pass through the control valve means to a wheel cylinder, and said spool, when located at the second position, allowing brake fluid from a high-pressure source to pass through the control valve means to the wheel cylinder;

first means for introducing brake fluid from the wheel cylinder into the control valve means, said brake fluid having a wheel cylinder pressure exerted to move the spool in a first direction toward the first position;

second means for introducing brake fluid from a master cylinder into the control valve means, said brake fluid having a master cylinder pressure exerted to move the spool in a second, reverse direction toward the second position; and

third means for reducing the master cylinder pressure exerted on the spool.

5,727,852

METHOD AND DEVICE FOR CONTROLLING AN ABS ANTILOCK BRAKING / ASR TRACTION CONTROL SYSTEM

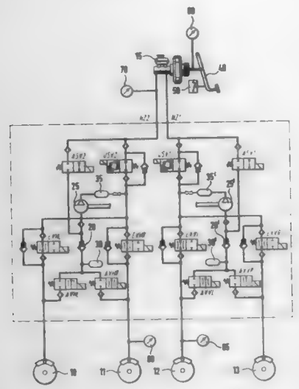
Helmut Pueschel, Marbach; Guenther Schmidt, Tamm, and Manfred Gerdes, Korntal-Muenchingen, all of Germany, assignors to Robert Bosch GmbH, Stuttgart, Germany

Filed Jan. 16, 1996, Ser. No. 586,137

Claims priority, application Germany, Jan. 21, 1995, 195 01 760.9

Int. Cl.[6] B60T *8/34*

U.S. Cl. 303—113.4 **9 Claims**



1. A method for controlling at least one of an ABS antilock braking system and an ASR traction control system including at least one return pump, at least one aspirator valve, and at least one switch-over valve, comprising the steps of:

generating a signal representing an actuation of a brake pedal;

specifying as a function of the signal at least one of a pressure build-up state in which pressure in a wheel brake cylinder is built up, a pressure-reduction state in which pressure in a wheel brake cylinder is reduced, and a sustain-pressure state in which pressure in a wheel brake cylinder is sustained, wherein the pressure build-up state is specified when at least one of a positive change in the signal exists and a special operating state is recognized, the special operating state being recognized when at least one further plausibility condition is fulfilled, and at least one of a value of the signal is greater than a first threshold value and a change in the value of the signal is greater than a second threshold value; and

triggering at least one of the return pump, the aspirator valve, and the switch-over valve as a function of the specified state.

5,727,853

STABILITY CONTROL DEVICE OF VEHICLE IMPROVED AGAINST HUNTING

Shirou Monzaki, Mishima, Japan, assignor to Toyota Jidosha Kabushiki Kaisha, Toyota, Japan

Filed Oct. 9, 1996, Ser. No. 727,901

Claims priority, application Japan, Oct. 25, 1995, 7-300688

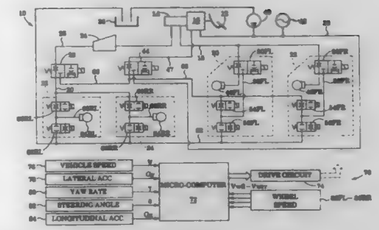
Int. Cl.[6] B60T *8/64*

U.S. Cl. 303—140 **2 Claims**

1. A stability control device of a vehicle having a vehicle body, and front left, front right, rear left and rear right wheels, comprising:

a means for estimating a liability of the vehicle body to a turn running instability for producing an instability quantity which generally increases along with increase of said liability;

a brake means for selectively applying a variable braking force to each of said wheels; and



a control means for controlling said brake means so as variably to apply a braking force to a selected one or ones of said wheels based upon said instability quantity for suppressing the vehicle body against said turn running instability;

wherein said control means withholds applying the braking force to the selected wheel or wheels when said instability quantity was discretely produced more than a threshold number of times in succession at a magnitude greater than a threshold value with an interval shorter than a threshold time duration.

5,727,854

PROCESS FOR INITIATING AUTOMATIC BRAKING BASED ON RATE OF CHANGE OF INPUT PRESSURE

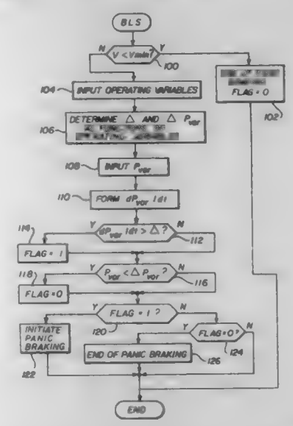
Helmut Pueschel, Marbach; Helmut Wiss, Moeglingen, and Manfred Gerdes, Korntal-Muenchingen, all of Germany, assignors to Robert Bosch GmbH, Stuttgart, Germany

Filed Jun. 25, 1996, Ser. No. 670,350

Claims priority, application Germany, Jul. 8, 1995, 195 24 939.9

Int. Cl.[6] B60T *8/32*

U.S. Cl. 303—155 **10 Claims**



1. Process for controlling the brake system of a vehicle,

measuring the input pressure of the brake system provided by a driver,

determining the rate of change of said input pressure,

determining at least one operating variable selected from the group consisting of vehicle velocity, vehicle yaw rate, transverse acceleration, longitudinal acceleration, steering angle, engine torque, and braking pressure demanded by a vehicle motion controller,

determining a threshold value as a function of at least one of the group consisting of said operating variables and said input pressure,

varying said threshold value in dependence upon at least one of said input pressure and said at least one operating variable,

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comparing said rate of change of input pressure to said threshold value, and

initiating automatic braking when said rate of change of input pressure exceeds said threshold value.

5,727,855

ANTI-LOCKING CONTROL SYSTEM

Heinz-Jürgen Koch-Dücker, Sersheim; Peter Dominke, Bietigheim-Bissingen; Martin Pfau, Weissach, all of Germany, and Frank Sager, Farmington Hills, Mich., assignors to Robert Bosch GmbH, Stuttgart, Germany

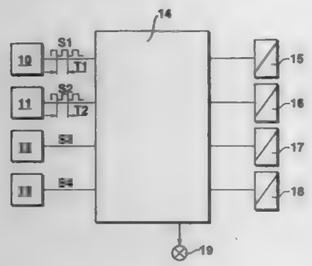
PCT No. PCT/DE96/00036, § 371 Date Sep. 20, 1996, § 102(e) Date Sep. 20, 1996, PCT Pub. No. WO96/23682, PCT Pub. Date Aug. 8, 1996

PCT Filed Jan. 12, 1996, Ser. No. 718,302

Claims priority, application Germany, Feb. 2, 1995, 195 03 271.3

Int. Cl.[6] B60T *8/32;* **G01P** *3/48*

U.S. Cl. 303—168 **4 Claims**



1. A method of an anti-locking control of a motor vehicle, comprising the steps of obtaining rpm sensor signals of rpm sensors at wheels of the motor vehicles; forming control signals by using the rpm sensor signals in an evaluation arrangement; ascertaining a reference vehicle speed on ongoing basis from at least one of the rpm sensor signals; predetermining a speed threshold value; comparing the ascertain vehicle speed with the threshold value; at the ascertained vehicle speeds that are greater than the threshold speed using the ascertained vehicle speeds directly as a reference vehicle speed; asking whether time intervals between edges of arriving signals at at least one wheel are approximately equivalent to mains frequency; and in this case using the ascertained vehicle speed as a new reference vehicle speed only if it is less than or equal to the previous reference vehicle speed.

5,727,856

SLIP CONTROLLER FOR A DRIVE SLIP CONTROL SYSTEM

Friedrich Kost, Kornwestheim; Guenter Barth, Korntal-Muenchingen, and Rolf Maier-Landgrebe, Kernen, all of Germany, assignors to Robert Bosch GmbH, Stuttgart, Germany

Filed Oct. 23, 1996, Ser. No. 735,711

Claims priority, application Germany, Nov. 14, 1995, 195 42 294.5

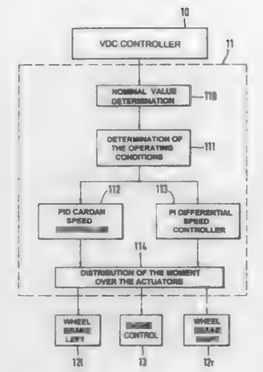
Int. Cl.[6] B60T *8/32;* **B60K** *28/16*

U.S. Cl. 303—195 **5 Claims**

1. Method for automatically controlling drive slip in a motor vehicle having an engine, driven wheels, and brakes at said driven wheels, said method comprising

determining rotational speeds (v_{radfl}, v_{radfr}) of the driven wheels of the vehicle,

determining at least one controlled variable (v_{kar}, v_{dif}) based on said rotational speeds,



determining at least one desired value (v_{solar}, v_{soldf}) for each said at least one controlled variable,

determining at least one of drive slip (λ_{Radfl}, λ_{Radfr}) of the driven wheels and longitudinal velocity (v_x) of the vehicle based on said rotational speeds,

determining that a first operating condition is present when said drive slip is below a first threshold value or when said longitudinal velocity is below a second threshold value,

low pass filtering said at least one controlled variable with a first time constant when said first operating condition is present and with a second time constant when said first operating condition is not present, said second time constant being greater than said first time constant, and

controlling at least one of said brakes at said driven wheels and said engine in dependence upon said at least one filtered controlled variable and said at least one desired value for said at least one controlled variable.

5,727,857

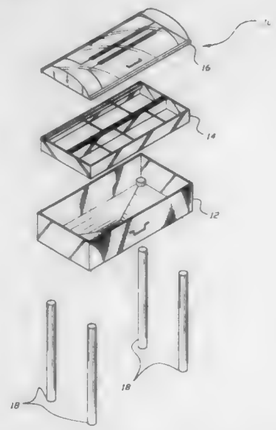
PORTABLE KNOCKDOWN FOOD DISPLAY APPARATUS

Lorena D. Smith, 2 Amherst St., Red Hook, N.Y. 12571

Filed Oct. 25, 1996, Ser. No. 736,204

Int. Cl.[6] A47B *77/16*

U.S. Cl. 312—114 **16 Claims**



1. A portable knockdown display apparatus for displaying food and keeping the food fresh on ice, the apparatus comprising:

a plurality of legs, each of said plurality of legs having opposed ends;

a container having a bottom and a plurality of sidewalls integral with said bottom, said bottom and said sidewalls defining a cavity adapted to retain ice during use of the apparatus, said container also having a plurality of attaching means for releasably attaching each of said plurality of legs to said container during use of the apparatus;

said plurality of legs supporting said container above a relatively horizontal surface during use of the apparatus;

a rack adapted to support a multiplicity of food receptacles, said rack being separable from said container and positioned within said cavity of said container during use of the apparatus;

a cover removably seated on said rack during use of the apparatus; and

securing means for removably securing said rack, said cover, and said plurality of legs within said cavity of said container during transportation and storage of the apparatus.

5,727,858

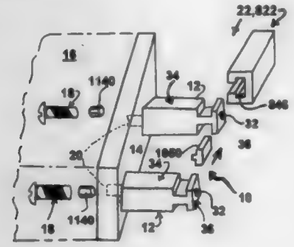
UNIVERSAL DRAWER HANDLE

Alan Shapiro, 186 E. Nassau St., Islip Terrace, N.Y. 11752-2908

Filed Mar. 27, 1996, Ser. No. 623,904

Int. Cl.[6] A47B *95/02*

U.S. Cl. 312—348.6 **27 Claims**



1. A universal drawer handle, comprising:

a) a pair of mounting screws;

b) a pair of post portions removably mounted to a conventional drawer front of a conventional drawer by said pair of mounting screws having free ends passing through a pair of conventional handle mounting holes in the conventional drawer front of the conventional drawer; and

c) a handle portion slidably mounted to any desired position on said pair of post portions, so that said handle portion is free to slide relative to said pair of post portions and adjust for different spacings between different pairs of conventional handle mounting holes of different conventional drawer fronts of different conventional drawers so as to allow said universal drawer handle to be used to replace different sized drawer handles; said pair of mounting screws being tightened until said free ends of said pair of mounting screws exert a force on said handle portion when said desired position of said handle portion has been achieved, so that the handle portion is secured to the pair of post portions and prevented from lateral movement relative thereto while the pair of post portions are secured between the conventional drawer front of the conventional drawer and the handle portion.

5,727,859

STRUCTURE FOR ASSEMBLING AND LOCKING EVAPORATOR COVER ASSEMBLY IN REFRIGERATORS

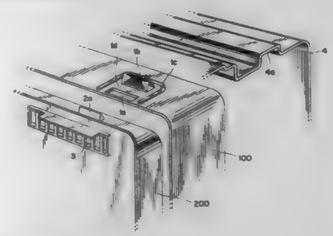
Bu Gil Jeong, and Ik Geun Kim, both of Suwon, Rep. of Korea, assignors to Samsung Electronics Co., Ltd., Suwon, Rep. of Korea

Filed Aug. 8, 1996, Ser. No. 694,295

Claims priority, application Rep. of Korea, Dec. 26, 1995, 95-56608

Int. Cl.[6] A47B *96/04*

U.S. Cl. 312—404 **5 Claims**



1. A refrigerator comprising:

a housing forming an internal compartment and including a channel; and

a cover assembly mounted in said compartment and adapted for enclosing an evaporator mechanism, said cover assembly comprising:

a front cover, and

a rear cover, connected to said front cover in telescoping fashion,

one of said front and rear covers including a protrusion, and the other of said front and rear covers including an opening for receiving said protrusion to lock said front and rear covers together,

said protrusion comprising a first protrusion, there being a second protrusion disposed on said tongue and received in said channel to lock said cover assembly to said housing,

one of said opening and protrusion being partially surrounded by a slot to form an elastic tongue on which said one of said opening and protrusion is disposed, said tongue being deformable elastically as said opening and protrusion approach one another during assemblage of said front and rear covers together prior to rebounding to insert said protrusion into said opening.

5,727,860

INTERLACED IMAGE PROJECTION APPARATUS

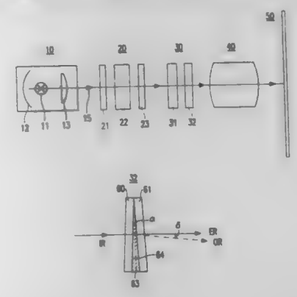
Dirk J. Broer, Eindhoven, Netherlands, and John A. Clarke, Carshalton, Great Britain, assignors to U.S. Philips Corporation, New York, N.Y.

Filed Apr. 4, 1996, Ser. No. 627,534

Int. Cl.[6] G03B *21/14*

U.S. Cl. 353—20 **20 Claims**

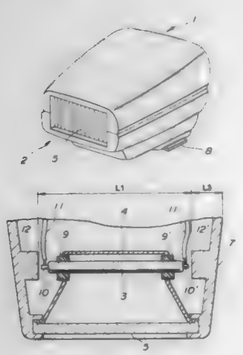
1. An image projection apparatus comprising an illumination



VOL 1208 ISS 3 MR 17 1998 UMI

unit, an image display unit having at least one display panel, a projection lens for projecting the image generated by the display unit onto a projection screen and an electro-optical deflection unit arranged between the display unit and the projection lens, being switchable between a first mode and a second mode and comprising a polarization switch and a birefringent element, whereby the light rays from the display unit passing through the deflection unit if the deflection unit is in the first mode are shifted relative to said light rays passing through the deflection unit if this unit is in the second mode, characterized, in that the birefringent element comprises at least one birefringent oriented polymer layer.

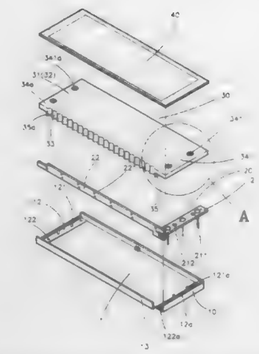
5,727,861
FLASH EMITTING APPARATUS
Katsumi Motohashi, Hoya, Japan, assignor to Olympus Optical Co., Ltd., Tokyo, Japan
Filed Oct. 26, 1995, Ser. No. 548,885
Claims priority, application Japan, Nov. 1, 1994, 6-269167
Int. Cl.[6] G03B *15/05*
U.S. Cl. 362—16 **21 Claims**



1. A flash emitting apparatus having a straight tube type flash discharge tube and a reflector accommodating the flash discharge tube and condensing and reflecting an emission of the flash discharge tube to direct light in a forward direction, the apparatus comprising:
electrodes disposed on opposing end portions of said flash discharge tube;
discharge tube supporting means for supporting said flash discharge tube on said reflector in such a manner as to allow movement thereof only in a direction of an axial length coaxial with a line connecting the two electrodes thereof;
a frame member having said flash discharge tube and said reflector disposed therein; and
restriction means extending inwardly from said frame member and positioned adjacent to and spaced from a free end of at least one of said electrodes for restricting movement of said flash discharge tube in a longitudinal direction coaxial with the two electrodes so as to prevent said flash discharge tube from moving beyond a certain range with respect to said reflector as determined by said restriction means.

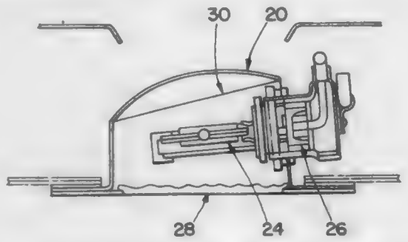
5,727,862
LED BACK LIGHT ASSEMBLY
Wen-Ching Wu, Taipei Hsien, Taiwan, assignor to Taiwan Liton Electronic Co., Ltd., Taipei, Taiwan
Filed Nov. 25, 1996, Ser. No. 755,608
Int. Cl.[6] F21V *8/00*
U.S. Cl. 362—27 **2 Claims**

1. A LED back light assembly comprising:



a base frame comprising a flat, rectangular receiving chamber, a plurality of first upright pins and first pin holes alternatively and transversely arranged at one end of said frame, and a plurality of second upright pins and second pin holes alternatively and transversely arranged at an opposite end of said frame;
a circuit board mounted within the receiving chamber of said base frame, said circuit board comprising a first circuit board section and a second circuit board section connected at right angles, said first circuit board section having a plurality of terminals respectively plugged into the first pin holes of said base frame, and a plurality of pin holes of said first circuit board section respectively coupled to the first upright pins of said base frame, said second circuit board section having a plurality of light emitting diodes mounted thereon and facing inwards toward the receiving chamber;
a light guide mounted within the receiving chamber of said base frame to guide light from said light emitting diodes; and
a diffuser plate covered on said base frame over said light guide;
wherein said light guide comprises a frosted top face, a frosted bottom face, a corrugated bright front face facing said light emitting diodes, two end flanges at two opposite ends, said end flanges of said light guide having respective pin holes respectively coupled to the first upright pins and second upright pins of said base frame, and two transverse bevel faces at two opposite ends of said light guide below said end flanges guiding back diffused light rays to the light guide, said corrugated bright front face defining a plurality of longitudinally arranged furrows, which receive said light emitting diodes respectively.

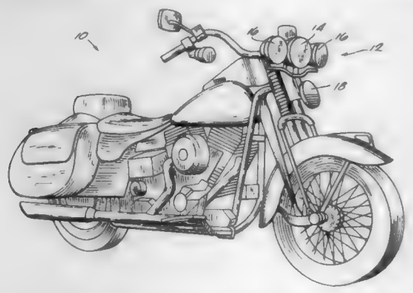
5,727,863
AIRCRAFT WING INSPECTION LIGHT SYSTEM
Henry Frazier Pruett, St. Paris, Ohio, assignor to Grimes Aerospace Company, Urbana, Ohio
Filed Jun. 15, 1995, Ser. No. 490,947
Int. Cl.[6] B64D *47/02*
U.S. Cl. 362—62 **11 Claims**



1. An apparatus for illuminating a wing of an aircraft, comprising:

a lampholder;
an arc lamp adapted to reside in said lampholder;
a housing adapted to house said lampholder and said arc lamp, said housing having a closed concave end and an open end;
a reflector adapted to reside in said closed concave end of said housing;
a lens adapted to cover said open end of said housing; and
a ballast separate from said housing and connected to said lampholder by a connector, wherein said apparatus is mounted on said aircraft so that said wing can be illuminated.

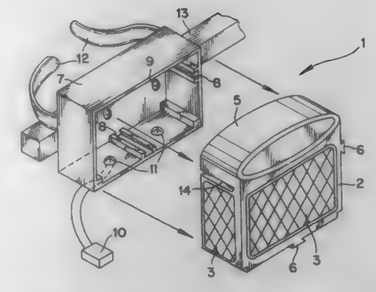
5,727,864
MOTORCYCLE LIGHT SUPPORT ASSEMBLY
John E. Stelling, Port Washington, and Brian M. Scherbarth, Menomonee Falls, both of Wis., assignors to Harley-Davidson Motor Company, Milwaukee, Wis.
Filed Jul. 8, 1996, Ser. No. 676,565
Int. Cl.[6] B62J *6/02;3/00*
U.S. Cl. 362—72 **21 Claims**



1. A motorcycle light support assembly for mounting two lights to a motorcycle, the assembly including:
a light support bar having two ends separated from each other in a first direction, wherein a second direction is substantially perpendicular to the first direction;
two light support members, one secured to each of said two ends of said light support bar, wherein each light support member includes an orifice extending through said support member in a third direction substantially perpendicular to said second direction, wherein said orifice is longer in the second direction than in the first direction; and
a light member mounted on each of said support members and including a mounting post extending through said orifice and being tiltable relative to said orifice about an axis that is substantially parallel to the first direction.

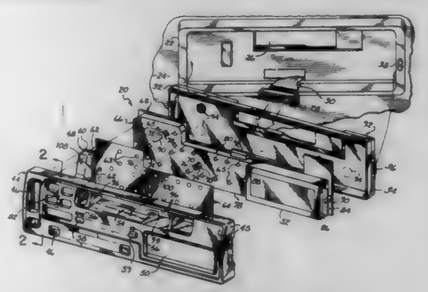
5,727,865
DETACHABLE TRAILER LIGHT
Bruce A. Caldwell, 16200 Old River Ro. Loop, Vancleave, Miss. 39565
Filed Aug. 1, 1996, Ser. No. 690,770
Int. Cl.[6] B60Q *1/26*
U.S. Cl. 362—80 **5 Claims**

2. An auxiliary light for trailers adapted to be connected to a vehicle comprising:
a housing having a back, a bottom, a top and sides,
means on said back for attaching said housing to a trailer,
a light assembly adapted to be inserted into said housing and having a top, a bottom and sides,
said light assembly having guide means positioned on said bottom and one side,
said housing having complimentary guide means which cooperates with said guide means on said light assembly to guide said light assembly into said housing,



said housing having electrical contact means mounted on said bottom of said housing,
said light assembly having complimentary electrical contact means mounted on said bottom of said light assembly adapted to engage said electrical contact means mounted on said bottom of said housing when said light assembly is inserted into said housing,
means for electrically connecting said electrical contact means on said housing to an electrical system on said vehicle, and
wherein said light assembly has a handle means mounted on top of said light assembly for facilitating mounting said light assembly in said housing.

5,727,866
CONTROL PANEL
Bradley A. Kraines, Los Angeles, and James R. Kingsbury, Lakewood, both of Calif., assignors to Kraco Enterprises, Inc., Compton, Calif.
Continuation of Ser. No. 381,756, Feb. 1, 1995, Pat. No. 5,537,300. This application Jul. 12, 1996, Ser. No. 678,816
Int. Cl.[6] F21V *8/00*
U.S. Cl. 362—86 **19 Claims**



1. A control panel for an audio device comprising:
a transparent front panel having a rear surface, a front surface and openings therethrough and adapted to be mounted to the audio device;
a light source;
a diffuser having a first opening sized to receive the light source and second openings matching the openings in the front panel, the diffuser means extending over a substantial area of the rear surface of the transparent front panel to provide a generally uniform source of light;
a plurality of switches extending through the openings in the transparent front panel and the second openings in the diffuser means; and
the front panel having an illuminated front surface being luminous over substantially the entirety of the front surface in response to the light source and the diffuser back lighting a portion of the rear surface of the front panel with the generally uniform source of light.

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5,727,867

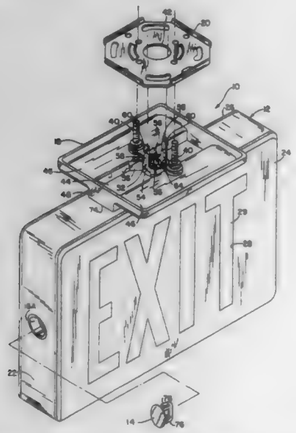
CANOPY MOUNTING DEVICE FOR EXIT SIGNS AND THE LIKE

Robert M. Johnstone, Fairfield, Conn., assignor to GSEG LLC, Farmington, Conn.

Continuation of Ser. No. 169,339, Dec. 17, 1993, Pat. No. 5,461,550, which is a continuation of Ser. No. 925,313, Jul. 27, 1992, Pat. No. 5,272,605, which is a continuation of Ser. No. 585,610, Sep. 20, 1990, abandoned. This application Sep. 8, 1995, Ser. No. 525,387

Int. Cl.[6] F24S *1/02*

U.S. Cl. 362—147 15 Claims



1. A mounting device to facilitate connection of an electrical fixture to an electrical box recessed in an opening in a wall or ceiling comprising:

(a) a canopy for the electrical fixture adapted to completely cover the opening for the electrical box;

(b) means providing connection of said canopy to the electrical box;

(c) a housing for the electrical fixture; and

(d) means interconnecting said canopy and said housing of the electrical fixture, said interconnecting means includes:

(i) a hub on one of said canopy and said housing,

(ii) the other of said canopy and said housing having an opening defined in an elongated wall, said hub dimensionally sized to interfit within said opening defined in said elongated wall, and

(iii) one of said hub and said elongated side wall having at least one aperture with a flexible barb member therein, said flexible barb member being dimensionally sized to deflect upon insertion of said hub into said opening defined in said elongated wall and to retain said canopy and said housing in assembly.

5,727,868

WALL MOUNTED BATTERY OPERATED, FLUORESCENT ILLUMINATING DEVICE

Murari Sharma, 15315 Chinaberry St., Gaithersburg, Md. 20878

Filed Oct. 31, 1995, Ser. No. 550,830

Int. Cl.[6] F21S *9/02;3/00;3/02*

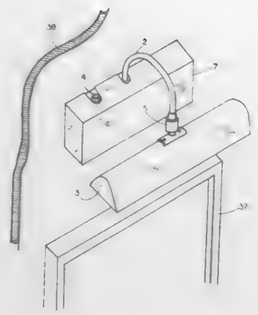
U.S. Cl. 362—147 15 Claims

1. A wall mounted, cordless illuminating device comprising:

a tubular stem having a first end and a second end;

an elongated reflector having a midsection adjustably mounted to said first end of said tubular stem;

said reflector having a semicircular cross- sectional shape which defines an open front end and a curved back end;



an elongated bracket mounted on an inside surface of said curved back end; said

elongated bracket having an electrical socket mounted on each end thereof for removably mounting at least one fluorescent light tube;

a generally box-shaped base secured to said second end of said tubular stem;

said box-shaped base having an uninterrupted, planar front face, and a planar back face for mounting flush against a vertical wall;

a means formed on said back face for mounting said box-shaped base to said vertical wall;

said generally box-shaped base further comprising;

an inside casing, said inside casing having a plurality of side walls, an open front end and a closed back end defining said back face;

said tubular stem being fixedly mounted to one of said side walls;

said one side wall of said inside casing further mounting a switch for controlling the electronic circuit;

a one-piece cover having a plurality of side walls, a back end defining an opening and a

closed front end defining said front face;

said opening being dimensionally slightly larger than the plurality of side walls of the inside casing so that said cover is slidably received over said inside casing;

one side wall of said cover being formed with a plurality of open ended notches along one edge thereof;

a first one of said notches being dimensioned to receive said switch and a second one of said notches being dimensioned to receive said tubular stem; and

means carried by said cover for securing said cover to said inside casing a source of direct current mounted within said box-shaped base;

an electronic circuit for converting direct current to alternating current mounted within said box-shaped base;

said electronic circuit includes conductors extending through said tubular stem and connected to said electrical sockets so as to energize the fluorescent light tube for illuminating said wall.

5,727,869

FLUORESCENT LIGHT FIXTURE WITH BREAKAWAY SOCKET

Doyle Crosby, Richmond, and Dale A. Petersen, Fremont, both of Calif., assignors to Boyd Lighting Company, San Francisco, Calif.

Filed Jun. 17, 1996, Ser. No. 663,000

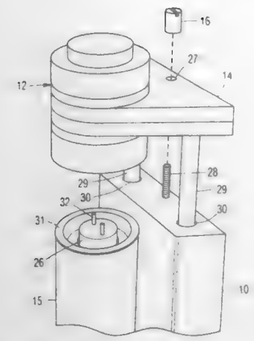
Int. Cl.[6] F21S *3/00*

U.S. Cl. 362—217 1 Claim

1. A fluorescent light fixture, comprising:

an elongated housing having first and second ends;

a fixed socket adapted to be connected to a first end of a fluorescent tube;



a breakaway socket adapted to be connected to a second end of said fluorescent tube;

a fixed connecting arm fixedly connecting said fixed socket to said first end of said housing;

a breakaway connecting arm fixedly attached to said breakaway socket, said breakaway connecting arm being orthogonal to said housing, said breakaway connecting arm having an inner side movably positioned against said second end of said housing;

electrical connecting means arranged in each of said sockets, said electrical connecting means being adapted to mate with a pair of electrical terminals on a corresponding end of said flourescent tube;

a guide tube attached orthogonally to said inner side of said breakaway connecting arm, said guide tube being slidably positioned within a channel on said second end of said housing, wherein said breakaway socket and said breakaway connecting arm are movable longitudinally relative to said housing and guided by said guide tube, said breakaway socket being adapted to be movable away from said fixed socket for releasing said fluorescent tube, so as to enable the removal and replacement of said fluorescent tube, said breakaway socket being adapted to be movable toward said fixed socket for securing said fluorescent tube therebetween; and

a threaded stud extending longitudinally from said second end of said housing, a hole arranged on said breakaway connecting arm in alignment with said stud, so that when said breakaway connecting arm is positioned against said second end of said housing, said stud is positioned through said hole, and a nut is threaded onto said stud to secure said breakaway connecting arm to said housing.

5,727,870

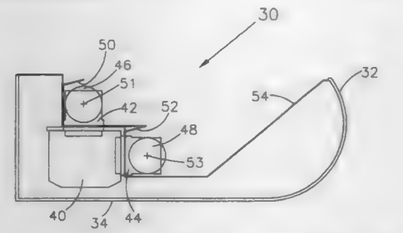
INDIRECT ASYMMETRIC LUMINAIRE ASSEMBLY

Dean Grierson, British Columbia, Canada, assignor to Ledalite Architectural Products, Inc., Langley, Canada

Filed May 1, 1996, Ser. No. 641,530

Int. Cl.[6] F21S *3/02*

U.S. Cl. 362—225 14 Claims



1. An indirect asymmetric luminaire assembly for maximizing utilization of light propagating therefrom, comprising:

an elongate outer housing;

multiple electrical sockets supported the outer housing to receive linear lamps having longitudinal axes and outer surfaces, each of the outer surfaces defined by a projection having an area, the electrical sockets being positioned to arrange the linear lamps so that the longitudinal axes overlap in a plane but are offset in first and second orthogonal directions so that the projection areas of the outer surfaces are at least partly non-overlapping;

multiple elongated side optical reflectors supported within the outer housing, each of the optical reflectors having a side surface intersecting in a transverse direction an inclined first surface and a second surface, the second surface oriented at an angle of lesser degree than that of the inclined first surface relative to a reference plane, and the side surface extending between the first and second surfaces of the optical reflectors, the optical reflectors being configured to direct light emitted by the linear lamps toward a target area and away from the linear lamps of the luminaire assembly; and

an optical reflector arm operatively associated with one of the multiple side optical reflectors to receive light from the linear lamps, the optical reflector arm extending outwardly at an angle from the lower surface of the one of the optical reflectors to direct the light outwardly from the linear lamps and toward the target area to provide a predetermined photometric distribution.

5,727,871

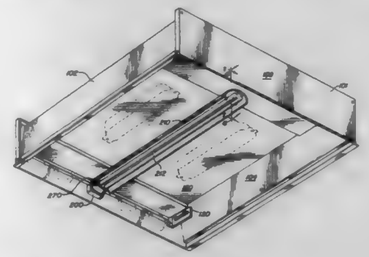
FLUORESCENT LIGHTING FIXTURE

Ronald F. Kotloff, 4223 N. St. Elias, Mesa, Ariz. 85215

Filed Jun. 3, 1996, Ser. No. 657,377

Int. Cl.[6] F21S *1/02;3/00;* F21V *17/00;21/00*

U.S. Cl. 362—225 9 Claims



1. A light fixture for lamps comprising:

(a) a housing having a side wall forming an enclosure, a top wall extending across said housing, said housing having an open bottom;

(b) said side wall defining slots at opposite locations defining a first hinge member, said slots each having a generally horizontal and a generally vertical section and including detent means;

(c) a panel having opposite sides, said panel having an upper and lower surface, socket means associated with said panel for mounting at least one lamp on the lower surface thereof and further including pin means on the opposite sides of said panel forming second hinge members cooperative with said first hinge members whereby said panel may be pivoted from a maintenance and installation position in which said panel is generally suspended in a vertical position from said housing to a use-position in which said use-position is maintained in a generally horizontal position within said housing.

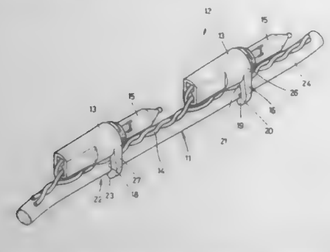
VOL 1208 ISS 3 MR 17 1998 UMI

5,727,872

DECORATIVE LAMP SOCKET TO BE CLIPPED ON A FIGURATIVE FIXTURE

Ching-Chong Liou, No. 4, alley 16, Kuang-Hua S. St., Hsin-Chu City, Taiwan

Filed Jan. 23, 1997, Ser. No. 788,049
Int. Cl.[6] F21P *1/02*
U.S. Cl. 362—252 1 Claim



1. A decorative lamp socket to be clipped on a figurative fixture comprising two symmetrical arm plates extended from both sides of said socket, each of said two arm plates extended from a curved surface of said socket; and end of each of said arm plates having a curved hook part, and an end of each of said hook parts having a curve-shaped surface, and an opening being formed with said two curve-shaped surfaces having a suitable distance therebetween; an outer surface of said arm plate being connected with said curved surface of said socket in tangential relation; said curved surface of said socket and inner surfaces of said two arm plates formed into two end angles respectively; said ends of said two arm plates bent inwardly toward each other to form said hook parts respectively; said inner surfaces of said arm plates having two curved surfaces respectively in close contact with a metal rod of said figurative fixture; said socket clipping on said metal rod by means of said opening formed between said two arm plates; two power-supply wires being laid and fastened in said end angles respectively formed between said inner surfaces of said arm plates and said curved surface of said socket, and said inner curved surfaces of said hook parts being in close contact with said metal rod and preventing said socket separated from said metal rod.

5,727,873

LIGHTING SYSTEM

Glenn M. Tyson, La Crescenta, Calif., assignor to GTY Industries, Sylmar, Calif.

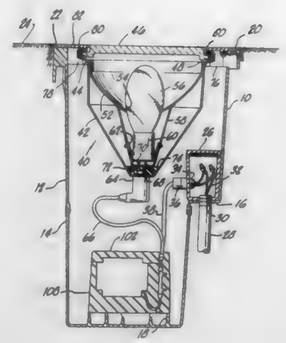
Continuation of Ser. No. 419,906, Apr. 11, 1995, Pat. No. 5,486,988, which is a continuation of Ser. No. 177,231, Jan. 4, 1994, Pat. No. 5,408,397, which is a division of Ser. No. 40,295, Mar. 30, 1993, Pat. No. 5,276,583, which is a division of Ser. No. 653,619, Feb. 11, 1991, Pat. No. 5,198,962, which is a division of Ser. No. 389,363, Aug. 3, 1989, Pat. No. 5,041,950. This application Jan. 23, 1996, Ser. No. 590,443
Int. Cl.[6] F21V *29/00*
U.S. Cl. 362—294 4 Claims

1. A lighting system comprising

a lamp assembly including a socket, a lens and a first electrical connector element;

an electrical circuit including a transformer, an electrical conductor in electrical communication with the transformer and a second electrical connector element in electrical communication with the electrical conductor and configured to mate with the first electrical connector element to form a submersible connector, the transformer being sealed against moisture from passing through the second electrical connector element to the transformer;

a potting body impervious to moisture, the transformer being encapsulated in the potting body and sealed against moisture from around the transformer by the potting body;



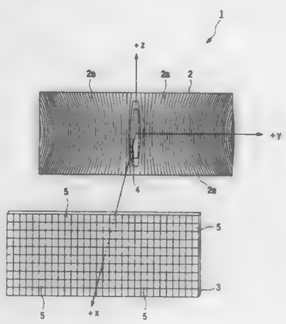
a housing containing the lamp assembly, the electrical circuit and the potting body.

5,727,874

VEHICLE LAMP

Norimasa Yamamoto, and Masahiro Maeda, both of Shizuoka, Japan, assignors to Koito Manufacturing Co., Ltd., Tokyo, Japan

Filed Jul. 26, 1996, Ser. No. 686,521
Claims priority, application Japan, Jul. 28, 1995, 7-212398
Int. Cl.[6] F21V *7/06*
U.S. Cl. 362—305 12 Claims



1. A vehicle lamp comprising:

a reflection mirror having a principal optical axis and a reflection surface comprising a plurality of reflection steps, said steps being defined by portions of respective paraboloids of revolution and disposed between adjacent ones of lines of intersection, each said lines of intersection being obtained where a respective one of a group of said paraboloids of revolution having different focal distances meets a basic reflection surface;

a front lens arranged in front of said reflection mirror; and

a light source arranged on said principal optical axis of said reflection mirror so that a central axis of said light source is arranged to be perpendicular to said principal optical axis of said reflection mirror;

wherein said reflection steps are formed into longitudinal stripe-shapes in the vertical direction, when viewed in the direction of said principal optical axis of said reflection mirror, and

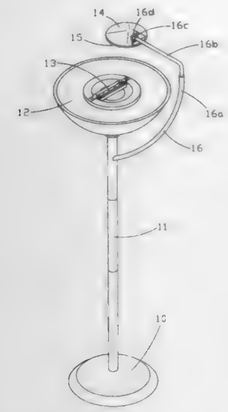
wherein said lens steps are also formed in square regions on said front lens.

5,727,875

DUAL-FUNCTIONAL LAMP

Ming-Kun Huang, 8F-6, No. 100, Sec. 2, Hoping E. Road, Taipei, Taiwan

Filed Dec. 5, 1996, Ser. No. 760,752
Int. Cl.[6] F21S *1/12*
U.S. Cl. 362—414 4 Claims



1. A dual functional lamp comprising a base, supporting bracket, light shade, and incandescent bulb, wherein said supporting bracket is disposed at said base at one end and the other end of said supporting bracket is disposed at said light shade which opens upward, an incandescent bulb being disposed within said shade:

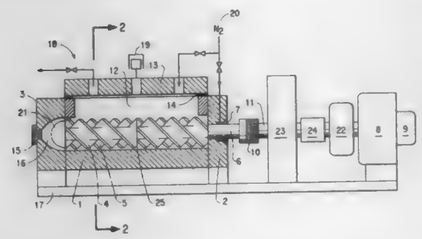
characterized in that a mirror base having a mirror thereof is disposed above the shade, said mirror base being connected to said supporting bracket with a linkage which includes a fixed linking rod and an adjusting linking rod, said fixed linking rod being attached to either said supporting bracket or said light shade at one end and said adjusting linking rod being pivotally attached to an opposite end of said fixed linking rod and to said mirror which can be pivotally adjusted with respect to the free end of said fixed linking rod.

5,727,876

POLYMER MIXING APPARATUS

Daniel Gregory Tynan, Wilmington, Del., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del.

Filed May 31, 1996, Ser. No. 657,743
Int. Cl.[6] B01F *7/08*
U.S. Cl. 366—85 6 Claims



1. A mixing apparatus suitable for use with both solid and molten polymeric resins, said apparatus comprising:

(a) an extruder barrel in the form of a hollow cylinder having an internal longitudinal bore and having two ends;

(b) at least one closeable port for charging materials to be processed into said extruder barrel;

(c) at least two meshed, co-rotatable, self-wiping extruder screws located within the bore of the barrel, each screw being two flighted and having a length to diameter ratio in the range of 4:1 to 80:1, the screw flights being longitudinally disposed thereon so as to create in at least one location along the screw length an offset discontinuity therein; the meshing portions of the neighboring screws being offset by 90° with respect to each other;

(d) a drive means for the screws capable of reversing the direction of rotation of the screws;

(e) a laterally flexible coupling connecting the drive means to the screws and capable of sustaining both thrust and tension; and

(f) a means for effecting the change of direction of rotation of the screws;

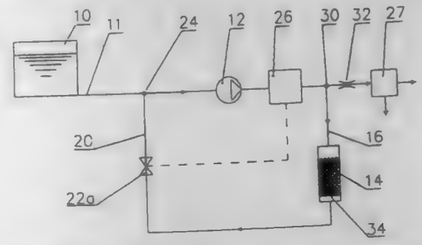
one end of the barrel proximate to the drive means and sealed closed, and the opposite end of the barrel being provided with a means for closing the barrel during mixing and opening it for discharging the material being processed therein.

5,727,877

METHOD FOR PREPARING SOLUTIONS FOR MEDICAL USE

Jacques Chevallet, Serezin Du Rhone; Jacques Burtin, Feyzin, and Jacques Gauckler, Lyons, all of France, assignors to Hospal Industrie, France

Division of Ser. No. 124,459, Sep. 22, 1993, Pat. No. 5,460,446, which is a continuation of Ser. No. 528,072, May 23, 1990, abandoned. This application Jun. 6, 1995, Ser. No. 467,455
Claims priority, application France, May 29, 1989, 89 07272; May 29, 1989, 89 07273; May 29, 1989, 89 07274
Int. Cl.[6] B01F *15/02;3/12*
U.S. Cl. 366—132 8 Claims



1. A method for preparing in-line a medical solution in a medical device having a main line with a first end connected to a source of liquid and a second end for delivering the medical solution, the device also including at least one secondary line having a first portion for connecting an inlet of a reservoir containing a soluble particulate product and a gas to the main line at a first connecting point, and having a second portion for connecting an outlet of the reservoir to the main line at a second connecting point, the second connecting point being located between the source and the first connecting point, the method comprising the steps of:

priming the reservoir by pumping liquid through the main line to the reservoir in order to pressurize the reservoir, thereby reducing space in the reservoir occupied by gas and filling the reservoir to at least a first level immersing the particulate product and forming a solution of the particulate product and the liquid;

pumping, after the step of priming, the liquid from the source into the main line;

constricting the main line at a location between the first connecting point and the second end so that liquid flow is restricted at the location when liquid is pumped through the main line; and

flowing a fraction of the liquid contained in the main line into the secondary line at the first connecting point to cause

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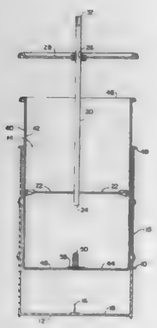
solution in the reservoir to flow out of the reservoir and mix with liquid from the source at the second connecting point.

5,727,878

LINER FOR A MIXING CONTAINER AND AN ASSEMBLY AND METHOD FOR MIXING FLUID COMPONENTS

Joseph J. Sullivan, Jr., Scituate, Mass., assignor to CDF Corporation, Plymouth, Mass.

Filed Oct. 17, 1996, Ser. No. 733,276
Int. Cl.[6] B01F *7/20;15/00*
U.S. Cl. 366—247 **6 Claims**



6. A method for mixing fluid components, the method comprising the steps of:

providing a mixing container having a closed bottom end and an open top end, and having a post fixed to and upstanding from the interior of the closed bottom end;

providing a cover member for the container, said cover member having a hole centrally thereof;

providing a mixing assembly including a rotatable shaft and mixing members fixed to the shaft;

providing a liner comprising a sleeve having a closed bottom end and an open top end, said sleeve having a configuration generally complementary to the interior configuration of the container, said liner including a fitment fixed to said bottom end of said sleeve, said fitment having a tubular portion that has an open bottom end and a closed top end, said fitment tubular portion being generally complementary to the configuration of the post, said bottom end of said sleeve also having a hole in alignment with said tubular portion of said fitment;

inserting said liner in the container so that said liner lies against the inner surfaces of the container, and said post is received by said tubular portion of said fitment;

admitting the fluid components to said liner;

positioning the mixing assembly shaft on said tubular portion of said fitment;

closing the open top end of the container with said cover member, with said shaft extending through the hole in said cover member, and

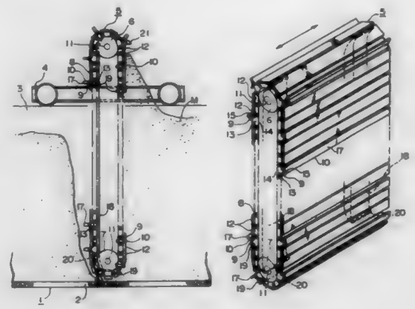
rotating the shaft so that said mixing members will move through and mix said fluid components.

5,727,879

WASTE DECOMPOSITION TREATMENT APPARATUS

Susumu Ueda, Kawaguchi, Japan, assignor to Daiwa Co., Ltd., Tokyo, Japan

Filed Sep. 20, 1996, Ser. No. 710,705
Claims priority, application Japan, Mar. 21, 1996, 8-065012
Int. Cl.[6] B01F *13/00*
U.S. Cl. 366—271 **5 Claims**



1. An organic waste decomposition treatment apparatus comprising:

a reservoir vat for storing organic waste; and

an agitator within said reservoir vat, the agitator for moving within said reservoir vat and churning organic waste which has been conveyed to said reservoir vat for fermentation; said agitator comprising pairs of mutually spaced sprockets, loop members wrapped around said sprockets, and flight members rotatably attached to said loop members at a plurality of locations along the rotational circumference of said loop members by shafts which are parallel to a rotational axis of said loop members; said flight members comprising agitation vanes for churning said organic waste by extending outwards from said loop members, and contact members affixed at an angle to said agitation vanes;

wherein, during rotation of said loop members, said contact members contact extension scrapers positioned inside a circuit path of said flight members at a front side with respect to a direction of advancement of said agitator so as to rotate and force said agitation vanes outward, and said agitation vanes contact a push-down scraper positioned outside a circuit path of said flight members at a location aside from a front side of a direction of advancement of said agitator so as to rotate and push down said agitation vanes inside said circuit path.

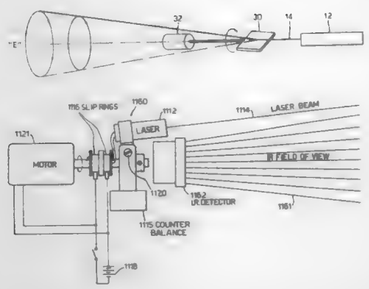
5,727,880

METHOD AND APPARATUS FOR MEASURING TEMPERATURE USING INFRARED TECHNIQUES

Milton B. Hollander, and W. Earl McKinley, both of Stamford, Conn., assignors to Omega Engineering, Inc., Stamford, Conn.

Continuation-in-part of Ser. No. 348,978, Nov. 28, 1994, Pat. No. 5,524,984, which is a continuation of Ser. No. 121,916, Sep. 17, 1993, Pat. No. 5,368,392. This application Mar. 18, 1996, Ser. No. 617,265
Int. Cl.[6] G01K *1/00;* **G01J** *5/02;* **G01B** *11/00;* **F21V** *21/30*
U.S. Cl. 374—121 **24 Claims**

1. A laser sighting device for outlining an energy zone to be measured by a radiometer when measuring the temperature of a surface, said device including:



means for projecting at least one laser beam toward said surface; and

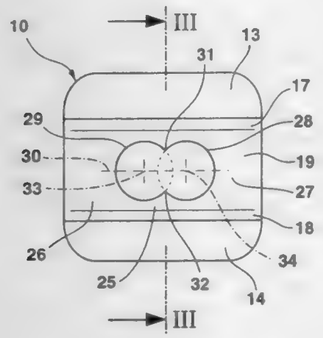
means for causing said at least one laser beam to strike the periphery of the energy zone for visibly outlining said entire energy zone.

5,727,881

OVERPRESSURE VALVE FOR A PACKAGING CONTAINER

Klaus Domke, Ditzingen, Germany, assignor to Robert Bosch, GmbH, Stuttgart, Germany

PCT No. PCT/DE96/00402, § 371 Date Nov. 24, 1996, § 102(e) Date Nov. 27, 1996, PCT Pub. No. WO96/30280, PCT Pub. Date Oct. 3, 1996
PCT Filed Mar. 7, 1996, Ser. No. 750,283
Claims priority, application Germany, Mar. 27, 1996, 195 10 489.7
Int. Cl.[6] B65D *33/01*
U.S. Cl. 383—103 **15 Claims**



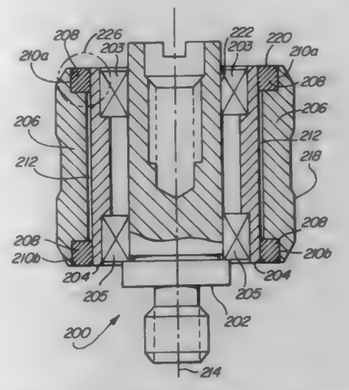
1. An overpressure valve (**10**) for a packaging container (**1**), which comprises a base plate (**11**) secured to an outer wall (**2**) of the packaging container (**1**), the base plate includes a central valve hole (**15**) which is larger than a through hole (**3**) in the wall (**2**) of the packaging container (**1**), a valve diaphragm (**12**) is secured to the base plate (**11**) by two parallel peripheral zones (**17**, **18**) that leaves a channel zone, the valve diaphragm covers the valve hole (**15**) and in a closing position rests tightly against the base plate (**11**), and the valve hole (**15**) is embodied by at least two intersecting, circular openings (**28**, **29**).

5,727,882

PIVOT BEARING ASSEMBLY PROVIDING DAMPING FOR UNIT-TO-UNIT CONSISTENCY

Walter Wayne Butler, Felton, and John Robert Edwards, Mountain View, both of Calif., assignors to Western Digital Corporation, Irvine, Calif.

Filed Mar. 27, 1997, Ser. No. 826,204
Int. Cl.[6] F16C *19/10*
U.S. Cl. 384—611 **20 Claims**



1. A pivot bearing assembly for mounting to an enclosure of a head disk assembly to support a head stack assembly of a disk drive, the pivot bearing assembly comprising:

a shaft for being affixed to the enclosure and defining a longitudinal axis;

a first set of bearings;

a second set of bearings longitudinally spaced from the first set of bearings;

each set of bearings surrounding a respective portion of the shaft;

sleeve means defining an inner sleeve means surface and an outer sleeve means surface;

the inner sleeve means surface having longitudinally spaced-apart cylindrical portions abutting the first and second sets of bearings;

the outer sleeve means surface being cylindrical to mate with a portion of the head stack assembly;

means defining a pair of generally ring-shaped, longitudinally spaced-apart channels; and

cured cast-in-place material occupying each of the channels to provide damping of any vibratory wave propagating between the outer sleeve means surface and the shaft.

5,727,883

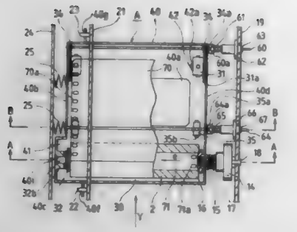
WINDING MEMBER FOR WINDING AN INK SHEET, HOUSING MEMBER FOR HOUSING SUCH A WINDING MEMBER, AND RECORDING APPARATUS FOR RECORDING ON A RECORDING MEDIUM BY USE OF SUCH A HOUSING MEMBER

Yutaka Kusano, Yokohama, and Tatsuya Fukushima, Kawasaki, both of Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan

Continuation of Ser. No. 111,960, Aug. 26, 1993, abandoned. This application Mar. 27, 1996, Ser. No. 622,155
Claims priority, application Japan, Aug. 31, 1992, 4-253646; Aug. 31, 1992, 4-253647; Aug. 31, 1992, 4-253648
Int. Cl.[6] B41J *35/28*
U.S. Cl. 400—208 **11 Claims**

1. A recording apparatus for forming an ink image on a recording sheet using ink contained in an ink sheet, said recording apparatus comprising:

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a platen for supporting and conveying a recording sheet at a recording area where recording is performed;

a recording section for pressing and heating the ink sheet onto the recording sheet at the recording area to form an ink image on the recording sheet;

an ink sheet cassette accommodating the ink sheet; and

an ink sheet cassette mounting section for mounting said ink sheet cassette having a first accommodating section for rotatably accommodating an ink sheet that is wound therein; a second accommodating section for winding and accommodating the ink sheet taken out from the first accommodating section, a first winding member provided adjacent one side of the second accommodating section in a widthwise direction of the ink sheet, the first winding member having a first peripheral surface that contacts the ink sheet only at a widthwise edge portion of the ink sheet; a second winding member provided adjacent another side of the second accommodating section opposite the one side in the widthwise direction of the ink sheet, the second winding member having a second peripheral surface that contacts the ink sheet only at a widthwise edge portion of the ink sheet opposite, in the widthwise direction of the ink sheet, the widthwise edge portion contacted by the first winding member, each of the first peripheral surface and the second peripheral surface of the first winding member and the second winding member being provided with a plurality of projections to be engaged with a plurality of holes disposed along the widthwise edge portions of the ink sheet.

5,727,884

LINEAR ROLLING BEARING

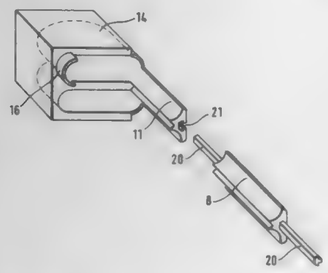
Heinz Greiner, Ebersbach; Thomas Winkler, Sulzbach; Annette Welsch, Bad Homburg; Horst Friedrich, Herschweiler-Pettersheim, and Frank Scheib, Neunkirchen, all of Germany, assignors to INA Walzlager Schaeffler KG, Germany

Filed Apr. 11, 1997, Ser. No. 840,308

Claims priority, application Germany, Apr. 20, 1996, 196 15 722.6; Oct. 23, 1996, 196 43 737.7

Int. Cl.[6] F16C *29/06*

U.S. Cl. 384—45 **9 Claims**



1. A linear rolling bearing comprising a solid guide rail and a U-shaped carrier body engaging therearound, the carrier body being slidably supported on the guide rail by rolling elements arranged in pairs of rows on the carrier body on both sides of the guide rail while being retained by retaining webs (**8**), said rolling elements being in rolling contact with raceways (**5**) on the guide rail and the carrier body and being deflected at ends of the carrier body oriented in moving direction and return through return bores of the carrier body, deflectors comprising integrally formed webs which extend into a region of the raceways being arranged at the ends of the carrier body, characterized in that each deflector (**7**) is comprised of a housing (**9**) and two deflecting shells (**10**, **14**, **15**) inserted therein with clearance, on which shells/webs extending into load-bearing regions for the rolling elements (**4**) are formed as centering webs (**11**), and each of the deflecting shells (**10**, **14**, **15**) additionally comprises a projecting, centering collar (**12**, **16**, **17**) which extends into a return bore (**6**) of the carrier body (**2**).

5,727,885

SLIDING BEARING HALF SHELL

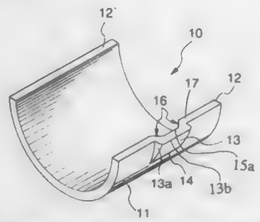
Akira Ono; Hiroshi Naitoh; Mitsuyoshi Ohara; Koji Baba; Yukou Sugawara; Yoshikazu Mizuno, and Seigo Hanji, all of Nagoya, Japan, assignors to Daido Metal Company Ltd., Nagoya, Japan

Filed Jan. 22, 1997, Ser. No. 787,225

Claims priority, application Japan, Jan. 31, 1996, 8-038733

Int. Cl.[6] F16C *33/04;9/02*

U.S. Cl. 384—294 **5 Claims**



1. A sliding bearing half shell (**10**) including a bearing body (**11**) having a cross-sectional half-circular shape, which is provided with a positioning lug (**13**); wherein:

the positioning lug is curvedly expanded outwardly along the circumference of the bearing body from an external surface thereof at one of the circumferential ends of the bearing body and includes a transition section (**17**; **27**; **37**) therebetween with no portions of the lug being separated from the bearing body;

the positioning lug including an inner edge line (**15***a*) and an outer edge line (**13***b*), both being generally linear and parallel to an axis of the bearing body;

the transition section (**17**; **27**; **37**) including an outer flat surface (**13***a*) of a side surface of the positioning lug (**13**) and being generally perpendicular to the bearing axis and to a primary outer surface of the positioning lug (**13**) adjacent the outer edge line; and wherein

an angle of respective outside corners, defined by the outer flat side surface (**13***a*) and the primary outer surface of the positioning lug (**13**), is close to 90°.

5,727,886

BEARING DEVICE FOR AXLE

Kazushige Hata, Yamatokoriyama, and Yoshiaki Nagasawa, Kashiwara, both of Japan, assignors to Koyo Seiko Co., Ltd., Japan

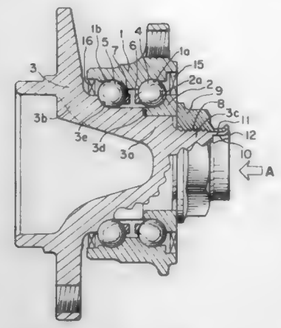
Filed Mar. 28, 1997, Ser. No. 825,354

Claims priority, application Japan, May 27, 1996, 8-154998

Int. Cl.[6] F16C *19/08*

U.S. Cl. 384—537 **13 Claims**

1. A bearing device for an axle, comprising:



an outer ring member; an inner ring member arranged coaxial with the outer ring member and relatively rotatable therewith through a roller; a rotational shaft member having a shaft end side portion, a shaft end portion, and a counter shaft end side portion for connection to an axle; a nut engaged with the shaft end portion of the rotational shaft member for connecting the inner ring member to at least the shaft end side portion of the rotational shaft member; a first thin-wall tubular element integral with the shaft end portion of the rotational shaft member and having a peripheral surface; a second thin-wall tubular element integral with the nut and having a peripheral surface, the second thin-wall tubular element being disposed on the peripheral surface of the first thin-wall tubular element; and locking means including at least one protrusion extending radially outward from the peripheral surface of each of the first and second thin-wall tubular elements for locking the nut to the shaft end portion of the rotational shaft member.

5,727,887

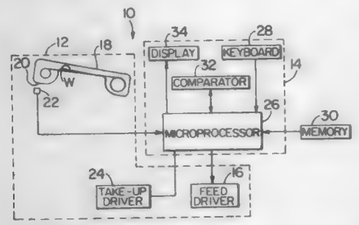
APPARATUS AND METHOD FOR PERFORMING A WORK OPERATION WITH A CONSUMABLE WEB

Ronald B. Webster, Ellington; Daniel J. Sullivan, Hartford; William J. Tortora, West Willington; Joseph W. Stempien, Newington; Dwight Curry, Vernon, and David P. Boisvert, Southington, all of Conn., assignors to Gerber Scientific Products, Inc., Manchester, Conn.

Filed Apr. 8, 1996, Ser. No. 629,362

Int. Cl.[6] B41J *35/28*

U.S. Cl. 400—208 **23 Claims**



1. A machine for performing a work operation with a length of consumable web comprising:

a cassette comprises a casing and a spool rotatably mounted in the casing and containing a consumable web used during the work operation, one end of the consumable web is wrapped on the spool;

means for indicating a length of unconsumed web remaining in the cassette, the means for indicating being associated with the spool of the cassette;

means for reading the means for indicating to identify the length of unconsumed web in the cassette;

means for comparing the identified length of unconsumed web in the cassette with a predetermined length of unconsumed web required to perform the work operation;

means for performing the work operation including means for advancing the consumable web during the work operation when the means for comparing determines that the identified length of unconsumed web in the cassette is at least equal to the predetermined length of unconsumed web; and

means for adjusting the means for indicating as the web is unwrapped from the spool, the means for adjusting being coupled to the means for indicating.

5,727,888

PRINTER AND A COMPOSITE CASSETTE INCLUDING A TAPE CASSETTE AND A RIBBON CASSETTE USED IN THE PRINTER

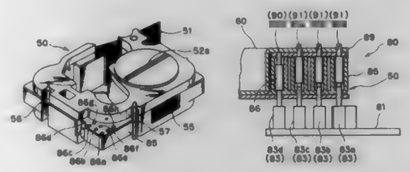
Kiyoshi Sugimoto, Kuwana; Koshiro Yamaguchi, Kasugai, and Yutaka Sugiyama, Nagoya, all of Japan, assignors to Brother Kogyo Kabushiki Kaisha, Aichi-ken, Japan

Filed Mar. 18, 1996, Ser. No. 617,066

Claims priority, application Japan, Mar. 29, 1995, 7-100064; Nov. 1, 1995, 7-310037

Int. Cl.[6] B41J *11/48*

U.S. Cl. 400—586 **20 Claims**



1. A label printer for printing tape-shaped labels, the label printer comprising:

a freely detachably mountable tape cassette housing a tape;

a printing device including a print head for printing symbols and alphanumeric characters on the tape;

a controller controlling printing operations;

a freely detachably mountable ribbon cassette independent from the tape cassette, the ribbon cassette housing an ink ribbon and including an upper wall and a perpendicular wall portion perpendicular to the upper wall at an outer periphery of the tape cassette;

the tape cassette including a housing portion into which the ribbon cassette is freely detachably mounted;

a detector detecting at least one of a type and an installation of the ribbon cassette; and

a ribbon identifying portion extending outwardly from the perpendicular wall portion of the ribbon cassette and cooperating with the detector to identify the at least one of the type and the installation of the ribbon cassette.

5,727,889

PRINTER HAVING A CUTTER WITH A COVER

Akira Koyabu, Nagano, Japan, assignor to Seiko Epson Corporation, Tokyo, Japan

Continuation of Ser. No. 452,102, May 26, 1995, abandoned. This application Jul. 26, 1996, Ser. No. 686,483

Claims priority, application Japan, May 27, 1994, 6-115572

Int. Cl.[6] B41J *11/70*

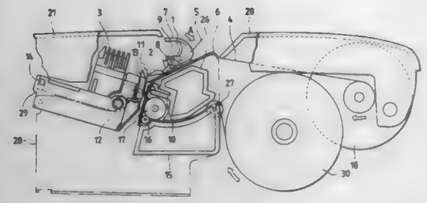
U.S. Cl. 400—621 **19 Claims**

1. A printer having a cutter for cutting continuous recording paper to length, the printer comprising:

a printing unit for printing;

a recording paper guide member for forming a recording paper passageway by regulating the back surface of the recording

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paper, wherein the recording guide member is placed on the downstream side of the printing unit;

a cutter which is placed opposite to the recording paper guide member so as to leave a clearance through which the recording paper is passed, the cutter including a blade for cutting the recording paper in a direction perpendicular to the direction in which the recording paper is conveyed;

a cutter cover pivotally rotatable in a plane substantially perpendicular to said recording paper, the cutter cover including a regulating end portion for regulating a distance between the recording paper on the downstream side of the cutter and the recording paper guide member; and

means for urging the cutter cover towards the recording paper guide member and regulating a space between the regulating end portion and the recording paper guide member according to the position of the recording paper.

5,727,890

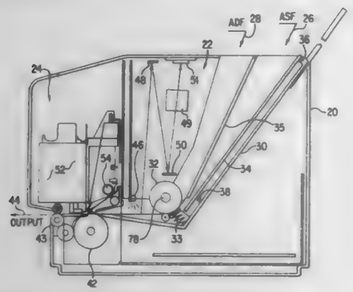
MULTIPLE-FUNCTION PRINTER WITH COMMON MOUNTING CHASSIS FEEDER/OUTPUT PATH MECHANISMS

Samuel A. Stodder, Encinitas, and Darren W. Wilcox, San Diego, both of Calif., assignors to Hewlett-Packard Company, Palo Alto, Calif.

Continuation-in-part of Ser. No. 585,058, Jan. 11, 1996, Pat. No. 5,651,623, which is a continuation-in-part of Ser. No. 145,355, Oct. 29, 1993, abandoned. This application Sep. 19, 1996, Ser. No. 724,296

Int. Cl.[6] B41J *13/10*

U.S. Cl. 400—624 **13 Claims**



1. A multiple-function printer comprising:

a document feeder for holding a stack of documents to be scanned at a scanning station during a scanning mode of operation;

a sheet feeder for holding a stack of sheets to be printed on at a printing station during a printing mode of operation;

common path means connected to both said document feeder and said sheet feeder for receiving individual document pages and individual sheet pages;

common mechanism means for operatively interacting with said common path means to move said individual document pages past said scanning station to an output and to move said individual sheet pages past said printing station to the output;

wherein said common mechanism means includes a first pick for picking a document page from said document feeder during said scanning mode of operation and a second pick for picking a sheet page from said sheet feeder during said printing mode of operation; and

a media chassis including a fixed platen, for transporting either a document page or a sheet page from the respective feeders, and an integral pair of spaced side walls extending from said platen and supporting the scanner station and connected to the printer station; said first pick and said second pick being rotatively mounted to at least one of said walls.

5,727,891

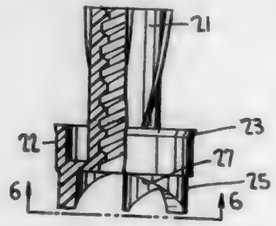
OINTMENT DISPENSER WITH KICK-START MECHANISM

Frank J. Lang, Warrenville, Ill., assignor to Federal Package Network, Inc., Chaska, Minn.

Filed Jun. 17, 1996, Ser. No. 675,209

Int. Cl.[6] A45D *40/06*

U.S. Cl. 401—87 **8 Claims**



1. In a container for dispensing semi-solid materials such as gel, cream or salve,

a tube having an axis and an inner wall,

a screw having external threads,

an elevator having a bottom and having internal threads mating with the threads on the screw,

said screw rotatable within said tube and said elevator mounted on said screw and axially movable within said tube when said screw is rotated,

an internal collar at one end of said tube interacting with an external circular groove at one end of said screw, whereby to permit relative rotation between said screw and said tube while preventing relative axial movement therebetween,

at least one inclined plane on said screw between said circular groove and said threads on said screw,

at least one inclined plane on the bottom of said elevator interacting with the inclined plane on said screw whereby to move said elevator within said tube when said knob is turned and whereby said inclined planes forcibly move the elevator axially within the tube upon initial rotation of the knob, and thereafter said screw moves the elevator along the axis of the tube when the inclined plane on the elevator moves out of contact with the inclined plane on the screw.

5,727,892

DEVICE FOR PACKAGING AND DISPENSING A LIQUID OR A PASTE, AND HAVING A DOME-SHAPED APPLICATOR

Gilles Baudin, Eragny, France, assignor to L'Oreal, Paris, France

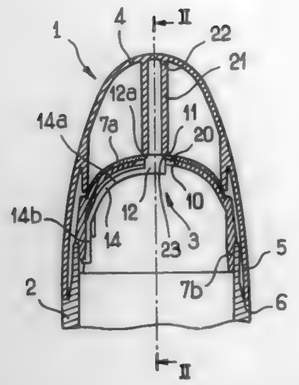
Filed Jul. 5, 1996, Ser. No. 675,870

Claims priority, application France, Jul. 12, 1995, 95 08433

Int. Cl.[6] A45D *40/00*

U.S. Cl. 401—263 **10 Claims**

1. A device for applying and packaging a substance in the form of a liquid or a paste, such as a cosmetic, the device comprising



both a reservoir suitable for containing said substance and suitable for being put under pressure so as to dispense said substance, and a dome-shaped applicator for applying the substance to a large surface such as the skin, the applicator communicating internally with said reservoir and being provided with outlet orifices for the substance to be dispensed, the substance being caused to flow through said orifices by being put under pressure upstream therefrom, wherein the dome-shaped applicator comprises an inner wall of rigid or semi-rigid plastic material, fixed to the reservoir, and pierced by feed orifices, an outer membrane supported by said inner wall and having dispensing orifices in alignment with said feed orifices, but of smaller flow section for the substance, and also internally-located closure studs for closing said dispensing orifices, the studs being placed to leave clearance inside the feed orifices and serving to close said dispensing orifices in the absence of said substance being put under pressure for dispensing purposes, the membrane being capable of moving resiliently away from said closure studs under the effect of dispensing pressure in said substance so as to allow said substance to be dispensed from the applicator.

5,727,893

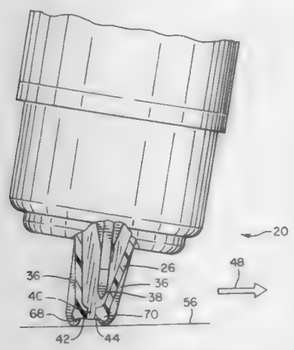
FLUID DISPENSING NIB, AND DELIVERY SYSTEM

Michael D. Handler, Danbury, Conn., assignor to Binney & Smith Inc., Easton, Pa.

Filed Apr. 21, 1995, Ser. No. 426,681

Int. Cl.[6] B43K *1/02; 1/04*

U.S. Cl. 401—264 **33 Claims**



1. A nib for dispensing a fluid said nib comprising:

an elastomeric valve, said valve comprising a first wall terminating at a sealing lip and a second wall terminating at a second sealing lip, wherein said first and second sealing lips define a fluid dispensing slit; and

an internal resistor disposed within said valve, wherein said internal resistor is relatively rigid with respect to said first and second walls, said internal resistor is spaced apart from said first and second walls and depends in a direction generally towards said fluid dispensing slit;

whereby, when said nib is drawn across a surface in a direction substantially transverse to said fluid dispensing slit such that said second sealing lip trails said first sealing lip, said first wall abuts said internal resistor to thereby separate said second sealing lip from said first sealing lip and to thereby open said fluid dispensing slit.

5,727,894

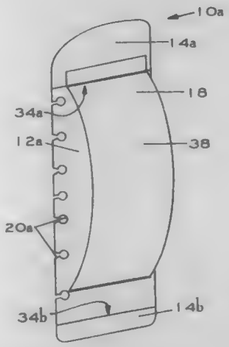
PAGE FINDER APPARATUS AND METHOD

Michael Sean M. Covey, Orem, Utah, assignor to Franklin Covey Co., Provo, Utah

Filed Jan. 29, 1996, Ser. No. 593,044

Int. Cl.[6] B42F *13/00*

U.S. Cl. 402—79 **11 Claims**



1. A page finder comprising a body, an attachment means, a top pocket and a bottom pocket, the top pocket having an opening for inserting part of a strip into the pocket and at least two edges attached to the front side of the body at or near a top portion of the body, the bottom pocket having an opening for inserting a portion of the strip into the pocket, and at least two edges attached to the front side of the body at or near the bottom portion of the body.

5,727,895

LINE HOLDER FASTENING ARRANGEMENT ON A BRAKED WHEEL CONTROL ELEMENT

Raimund Busse, Weissenhorn; Roland Kaempf; Harald Liegert, both of Stuttgart, and Hans Weisbarth, Renningen, all of Germany, assignors to Mercedes-Benz AG, Germany

Filed Sep. 5, 1995, Ser. No. 523,447

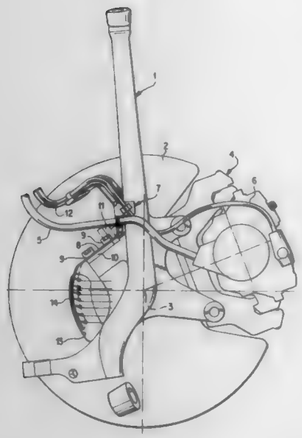
Claims priority, application Germany, Sep. 2, 1994, 44 31 247.4

Int. Cl.[6] F16D *65/78*

U.S. Cl. 403—24 **8 Claims**

1. An arrangement for a braked wheel, said arrangement comprising a releasable fastening apparatus including a line holder configured to hold brake lines, a transversely projecting baffle arrangement mountable on a wheel control element and configured to deflect a flow of cooling air toward a braking device, and a

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fastening limb for releasably fastening and simultaneously fixing said line holder and said baffle arrangement to the wheel control element of the braked wheel.

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FORM-FITTED CONNECTION BETWEEN TWO ELEMENTS

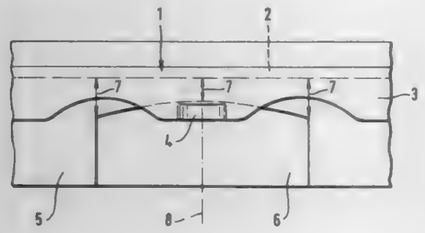
Gerald Buer, Muhlhausen, and Michael Beck, Rottenbach, both of Germany, assignors to Ina Walzlager Schaeffler KG, Germany

Filed Sep. 26, 1996, Ser. No. 721,499

Claims priority, application Germany, Nov. 15, 1995, 195 42 600.2

Int. Cl.[6] F16C *33/58;* **F16D** *1/00*

U.S. Cl. 403—24 **2 Claims**



1. A form-fitted connection between an angular disc (**1**) of an axial bearing and a connecting element (**5**), the angular disc (**1**) bearing against an end face of the connecting element (**5**), the angular disc (**1**) comprising at least one retaining lug (**4**) which engages into an associated recess (**6**) in an outer peripheral surface of the connecting element (**5**), characterized in that the recess (**6**) has a shape of a circular ring or of an ellipse or is roof-shaped and starts from a summit point to extend in peripheral direction so that an axial distance (**7**) between the recess (**6**) and the angular disc (**1**) increases in both peripheral directions.

5,727,897

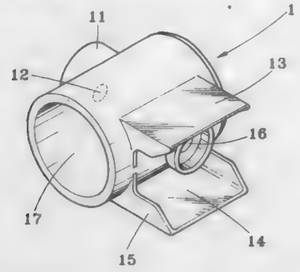
ROD MEMBER CONNECTOR FOR A FOLDING CHAIR

Lausan Chung Hsin Liu, No. 243, Chien-Kuo Rd., Hsin-Tien City, Taipei Hsien, Taiwan

Filed Dec. 4, 1996, Ser. No. 760,370

Int. Cl.[6] F16B *9/00;* **A47C** *4/00*

U.S. Cl. 403—205 **8 Claims**



1. A rod member connector comprising: a substantially cylindrical portion having opposite ends and a wall bounding a coupling hole configured to accept a first rod member therein; the cylindrical portion having a first and a second hole through the wall; a coupling tube extending outwardly from the wall between the opposite ends of the cylindrical portion at a substantially right angle to the coupling hole, the coupling tube configured to accept a second rod member therein; and a pair of flanges extending outwardly from the wall of the cylindrical portion at a location diametrically opposite to the coupling tube, the pair of flanges having a plurality of guiding faces forming a generally "U"-shaped opening therebetween to releasably grip a third rod member therebetween, each of the pair of flanges having a length in a direction parallel to the coupling hole greater than a diameter of the coupling tube.

5,727,898

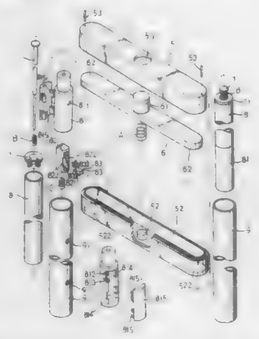
LOCATING STRUCTURE FOR LUGGAGE PULL ROD

Lien-Ching Lu, No.12, Tien-Hsin Li, Yuan Li Chen, Miao-Li Hsien, Taiwan

Filed Oct. 2, 1996, Ser. No. 725,092

Int. Cl.[6] B25G *1/04;* **A45C** *13/22*

U.S. Cl. 403—325 **1 Claim**



1. A locating structure for a luggage pull rod, comprising a handle, a transmission assembly, a linking lever, a hollow inner engaging tube, an inner tube and an outer tube, the inner engaging tube being secured at the bottom end of the inner tube, said luggage pull rod structure being characterized in that a lateral side of the inner engaging tube is formed with a through hole, the upper and lower edges of the through hole being respectively disposed with two restricting blocks, the other lateral side of the inner engaging tube being open and engaged with an engaging cover, a slide seat being fitted in the inner engaging tube and formed with an inner cavity, whereby the slide seat is up and down movably fitted with the restricting blocks, two inclined channels being formed near the belly of the cavity from lower side to upper side, whereby the guide posts of the locating block are inserted in the inclined channels of the slide seat, the locating block having a locating button in front of the guide posts, the locating button being passed and engaged in the through hole of the inner engaging tube, a rear end of the locating block being disposed with a fitting block fitted and restricted in the cavity of the slide seat, a spring being fitted in the interior of the slide seat and the inner engaging tube.

5,727,899

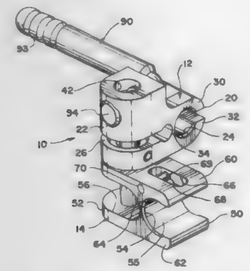
FULCRUM CLAMP

Walter J. Dobrovolny, St. Paul, Minn., assignor to Minnesota Scientific, Inc., Minneapolis, Minn.

Filed Sep. 13, 1996, Ser. No. 710,210

Int. Cl.[6] A61B *17/02*

U.S. Cl. 403—389 **19 Claims**



1. A clamping device comprising:

a first clamping member fabricated from a unitary structure, wherein the first clamping member has a first clamping end, a first attachment end, and a first fulcrum portion located between the first clamping end and the first attachment end; and

a second clamping member pivotally mounted with respect to the first clamping member so that the second clamping member engages the first clamping member proximate to the first attachment end, wherein the second clamping member is fabricated from a unitary structure, and wherein the second clamping member has a second clamping end, a second attachment end, and a second fulcrum portion located between the second clamping end and the second attachment end.

5,727,900

CONTROL OF A COMPACTING MACHINE WITH A MEASUREMENT OF THE CHARACTERISTICS OF THE GROUND MATERIAL

Ake Sandstrom, Sollentuna, Sweden, assignor to Geodynamik H. Thurner AB, Stockholm, Sweden

PCT No. PCT/SE94/00965, § 371 Date Jun. 12, 1996, § 102(e) Date Jun. 12, 1996, PCT Pub. No. WO95/10664, PCT Pub. Date Apr. 20, 1995

PCT Filed Oct. 14, 1994, Ser. No. 624,532

Claims priority, application Sweden, Oct. 14, 1993, 9303387

Int. Cl.[6] E01C *23/07;19/26;* **G01M** *7/00*

U.S. Cl. 404—84.1 **28 Claims**

1. A method for controlling a compacting apparatus moving along at an adjustable velocity compacting a ground, the compacting apparatus having a compacting body subjected to vibration by an eccentric system, the vibration having an adjustable frequency and an adjustable amplitude, the method comprising the steps of:

passing the compacting body over a segment of the ground at a first velocity;

compacting the ground using a first frequency and a first amplitude of vibration;

determining a shear modulus of the segment of the ground;

calculating a new value, based in part on the shear modulus of the segment of ground, for at least one of the first velocity, the first frequency, and the first amplitude; and

changing the at least one of the first velocity, the first frequency, and the first amplitude to its respective new value.

5,727,901

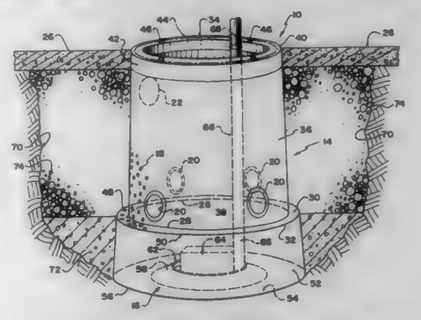
COLLECTION TANK

David G. Rennie, 23 Zacharins Pl., Winnipeg, Canada, R2G 3G8; James M. Adams, 102 Smugglers Cove, Winnipeg, Canada, R3X 1R7; William R. McDuffe, and A. Barbara Corrigal, both of 10 Beaudin Blvd., Elie, Canada, R0H 0H0

Filed Jan. 18, 1996, Ser. No. 588,569

Int. Cl.[6] E02D *31/02*

U.S. Cl. 405—45 **20 Claims**



1. A collection tank for mounting under a floor of a building for collecting ground water from an area under the floor comprising:

a tank body defining:

a lower reservoir portion having a closed bottom wall and an outer wall generally upstanding from the bottom wall, the outer wall and the bottom wall being closed and imperforate to define a container for collected water with an open top;

an upper tank portion having a bottom edge connected to the lower reservoir portion at the open top and having an outer wall generally upstanding from the open top, the outer wall of the upper tank portion being perforated with holes arranged in an array extending around a full periphery of the outer wall of the upper tank portion and extending from the bottom edge

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upwardly for passage of ground water through the array of holes into the tank body and the upper tank portion having an open bottom for communication of the ground water into the lower reservoir portion;

and a pump located in the lower reservoir portion so as to pump water from the lower reservoir portion at a position below the open top and below the holes in the upper tank portion;

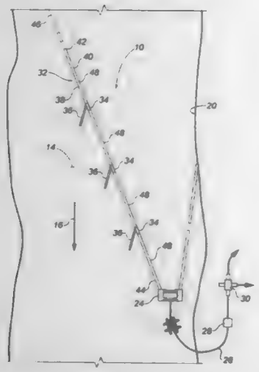
wherein a top edge of the outer wall of the lower reservoir portion is spaced outwardly from the bottom edge of the outer wall of the upper tank portion and wherein there is provided a generally horizontal annular connecting wall extending from the top edge of the outer wall of the lower reservoir portion inwardly to the bottom edge of the outer wall of the upper tank portion, the connecting wall being perforated with an array of holes to allow water running down an outer surface of the outer wall of the upper tank portion to enter through the holes in the connecting wall into the lower reservoir portion.

5,727,902

METHOD AND APPARATUS FOR MAINTAINING THE POSITION OF A CONTAINMENT BOOM IN A FAST FLOWING WATERWAY

Leonard G. Brown, Millet, Canada, assignor to Envirotech Nisku Inc., Nisku, Canada

Filed Sep. 30, 1996, Ser. No. 723,563
Int. Cl.[6] E02B *15/04*
U.S. Cl. 405—63 **4 Claims**



2. In combination:

an elongate containment boom having a first side, a second side, a first end, a second end and a longitudinal axis, the containment boom consisting of a plurality of smaller substantially coaxial boom sections; and

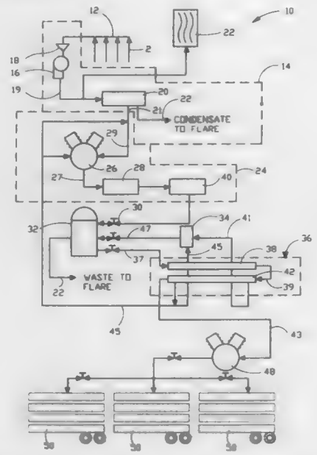
a plurality of floats having floating deflector appendages, positioned at spaced intervals along the containment boom between the boom sections, with the floating deflector appendage of each float oriented on the first side of the containment boom extending outwardly at an angle in relation to the longitudinal axis and pointing generally toward the second end said deflectors acting to hold the boom sections up so they float higher in the water.

5,727,903

PROCESS AND APPARATUS FOR PURIFICATION AND COMPRESSION OF RAW LANDFILL GAS FOR VEHICLE FUEL

Edward Borray, Los Angeles; Geoff Smith, Olivehain, both of Calif., and Gordon Deane, Cohaset, Mass., assignors to Genesis Energy Systems, Inc., Los Angeles, Calif., and Palmer Management Corporation, Cohasset, Mass., a part interest

Filed Mar. 28, 1996, Ser. No. 623,229
Int. Cl.[6] B01D *53/00*
U.S. Cl. 405—129 **13 Claims**



1. A process for purification and compression of raw landfill gas stream in a landfill to produce vehicle grade fuel for use in vehicles, the process comprising the steps of:

a. extracting said raw landfill gas stream from said landfill with a gas collection blower;

b. providing a knockout drum to remove solids and moisture from said landfill gas stream from said gas collection blower;

c. partially drying said raw landfill gas stream and removing particulates;

d. further drying said raw landfill gas stream with the particulates removed;

e. compressing said dried landfill gas stream to facilitate the separation of methane from the other gas constituents;

f. separating oil and moisture from said compressed landfill gas stream;

g. providing at least two activated carbon guard beds;

h. passing said compressed landfill gas stream through one of said at least two activated carbon guard beds to remove volatile organic compounds VOC's, the other one of said at least two activated carbon guard beds being regenerated which removes the accumulated VOC's and sends them to a flare for burning;

i. providing a multi-stage membrane system including a first stage and a second stage;

j. filtering said compressed landfill gas stream through said first stage of said multi-stage membrane system which produces a permeate gas containing a low quantity of methane, where the permeate gas is heated by an in-line heater and sent to the other one of said at least two activated carbon guard beds to drive off the accumulated VOC's and send them to said flare, and a residue gas which contains a much higher concentration of methane flows to said second stage of said multi-stage membrane system;

k. filtering said residue gas through said second stage of said multi-stage membrane system which produces approximately a 96% to 98% pure methane and a permeate gas from said second stage which has a relatively high methane content and used for fueling said compressing and said in-line heater, any

of the permeate gas from said second stage not utilized is returned to the inlet gas stream;

l. discharging said 96% to 98% pure methane from said second stage of said multi-stage membrane for vehicle fuel; and

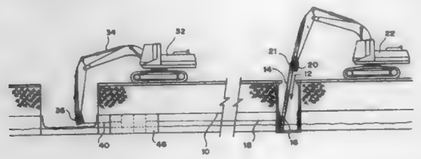
m. compressing said approximately 96% to 98% pure methane to pressures acceptable for introduction and storage in the vehicles converted to operate on compressed gas.

5,727,904

SYSTEM FOR TESTING A PIPE

Mark L. Boyer, Houston, Tex., assignor to Boyer, Inc., Houston, Tex.

Division of Ser. No. 547,472, Oct. 24, 1995, Pat. No. 5,626,442.
This application Jan. 8, 1997, Ser. No. 780,256
Int. Cl.[6] F16L *1/00*
U.S. Cl. 405—156 **11 Claims**



1. A method for using a system for testing pipe with a test mandrel prior to lining comprising the steps of

(a) selecting a length of host pipe for testing;

(b) accessing the host pipe for testing on both ends of a selected length of the host pipe;

(c) positioning a down hole boom vertically in a shaft that accesses one end of the host pipe to be tested which down hole boom has a first winch mounted thereto and a cable guide mounted on the down hole boom whereby the winch can drive a first cable which extends into the host pipe over the cable guide that positions the first cable into the host pipe;

(d) mounting a second winch with a second cable on a movable mount positioned at an access area at the end of the pipe opposite to the end where the down hole boom is placed which is capable of movement from above the access area on the surface to the mouth of the host pipe which second winch can drive the second cable into the host pipe;

(e) attaching the first cable to one end of a test mandrel which is sized to fit inside the host pipe;

(f) attaching the second cable to end of the test mandrel opposite to the first cable attachment;

(g) inserting the test mandrel into the host pipe; and

(h) pulling the test mandrel through the host pipe by spooling the winch at the opposite end of the host pipe where the test mandrel was inserted.

5,727,905

Patent Not Issued For This Number

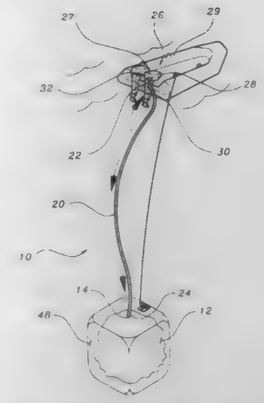
5,727,906

HEATED SHELTER FOR DIVER DECOMPRESSION

M. L. Nuckols, Annapolis, Md., and Billy Courson, Panama City Beach, Fla., assignors to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

Filed May 10, 1996, Ser. No. 649,863
Int. Cl.[6] B63C *11/02*
U.S. Cl. 405—186 **31 Claims**

1. A collapsible heated diver decompression shelter of flexible material, comprising:



the collapsible decompression shelter capable of sheltering at least one diver while the diver is wearing a diver's suit, the collapsible decompression shelter including an inlet for receiving water within the collapsible decompression shelter, an outlet for removing water from within the collapsible decompression shelter, and the collapsible decompression shelter defining a closable opening providing access into and out of the collapsible decompression shelter when open and impeding release of the water circulating within the collapsible decompression shelter when closed;

a heat source for heating water to be received and circulated within the collapsible decompression shelter through the inlet for receiving water and the outlet for removing water;

means for transferring heated water from the means for heating the water to the inlet for receiving water within the collapsible decompression shelter; and

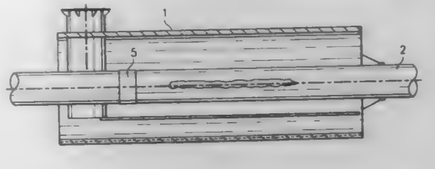
means for moving heated water from the heat source to the collapsible decompression shelter.

5,727,907

METHOD FOR THE REPARATION OF SUBMERGED PIPELINES

Jose de J. Silva; José A. Cajiga, and Vicente R. Pérez, all of Bosque de Ciruelos #160, Office 803, Bosques de las Lomas #11700 Mexico City, D.F., Mexico

Filed Nov. 8, 1995, Ser. No. 555,105
Int. Cl.[6] B63C *11/40*
U.S. Cl. 405—188 **2 Claims**



1. A method for the reparation of a submerged pipeline for faults, the pipeline comprising metal and having a coating, the method comprising the steps of:

locating a reparation zone on the submerged pipeline to be repaired;

measuring the reparation zone;

dredging and cleaning a working zone proximate to the reparation zone;

cutting and removing of the pipeline coating in the reparation zone;

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installing a habitat system proximate the reparation zone for storing equipment used in the reparation of the submerged pipeline;
cleaning the pipeline in the reparation zone down to the metal of the pipeline;
inspecting the pipeline in the reparation zone through non-destructive techniques;
calibrating the thickness of the pipeline in the reparation zone;
aligning a plurality of sets of half pipes with the reparation zone for installation surrounding the reparation zone of the submerged pipeline, each set of half pipes comprising a first half pipe and a second half pipe, the first half pipe and the second half pipe each having two longitudinal ends along the length of each half pipe, the step of aligning the plurality of sets of half pipes further comprising aligning the two longitudinal ends of the first half pipe of each set with the two longitudinal ends of the second half pipe of each set;
welding the two longitudinal ends of the first half pipe of each of the plurality of sets of half pipes to the two longitudinal ends of the second half pipe of each of the plurality of sets of half pipes to form a plurality of sleeves having a plurality of lengthwise welds;
inspecting the plurality of lengthwise welds through non-destructive techniques;
aligning longitudinally the plurality of sleeves;
circumferentially welding each of the plurality of sleeves to adjacent sleeves to form a plurality of circumferential welds and to form a reparation sleeve having two reparation sleeve ends;
inspecting the circumferential welds through non-destructive techniques;
aligning the two reparation sleeve ends with the pipeline;
welding the two reparation sleeve ends to the pipeline to join the reparation sleeve to the pipeline and to form an annular space between the pipeline and the reparation sleeve;
inspecting the welding of the reparation sleeve to the pipeline through non-destructive techniques;
pressure testing with nitrogen the annular space between the pipeline and the reparation sleeve;
injecting resin into the annular space;
applying an exterior coating to the pipeline;
recovering any equipment used in the reparation of the submerged pipeline; and
inspecting and cleaning the working zone.

5,727,908

AIR LIFT PUMP FOR WET PARTICULATES

Stephen Daniel Ward, Lewisburg, Pa., assignor to Andritz Sprout-Bauer, Inc., Muncy, Pa.

Division of Ser. No. 278,508, Jul. 21, 1994, Pat. No. 5,622,458, which is a continuation-in-part of Ser. No. 138,395, Oct. 18, 1993, abandoned, which is a continuation-in-part of Ser. No. 913,290, Jul. 14, 1992, Pat. No. 5,277,829. This application Oct. 2, 1996, Ser. No. 724,825

Int. Cl.[6] B65G *53/24*

U.S. Cl. 406—36 **11 Claims**

1. A transport apparatus for conveying particulate material from a lower elevation to a higher elevation, the transport apparatus comprising:

column means for defining an internal volume containing a volume of water, said column means having opposite first and second ends, said first end defining an opening, said first end being positioned adjacent the lower elevation, said column means extending upwardly from said first end to said second end, said second end being closed;

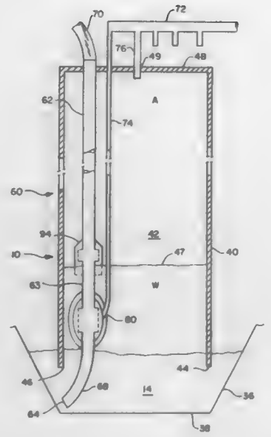
first and second air supply means for supplying a flow of compressed air;

tube means for defining a particulate transport path comprising a lower, intake end defining an opening, said intake end being situated at said lower elevation for drawing the particulate material through said opening of said tube means and transporting the drawn material through said tube means to a discharge end, said tube means having a substantially vertical section disposed in said column means, said vertical section comprising first and second air injection sections disposed intermediate said intake end and said discharge end, said first and second air injection sections being positioned at first and second heights respectively, said second height being located above said first height;

a first air injector comprising first air jet means for converting said flow of compressed air of said first air supply means into a jet of air, said first air jet means being mounted in said first air injection section; and

a second air injector comprising second air jet means for converting said flow of compressed air of said second air supply means into a jet of air, said second air jet means being mounted in said second air injection section;

wherein said first air jet means injects the air thereof into said tube means creating a suction at said intake end, whereby the particulate material is drawn into said intake end opening and said second air supply means injects a flow of the air thereof into said column means, said flow of the air of said second air supply means displacing said volume of water to said second air injector, wherein said second air jet means injects the air thereof into said tube means whereby the particulate material is transported to said discharge end.



5,727,909

CLOSED LOOP PNEUMATIC TRANSPORT SYSTEM

Joseph W. Laird, Lubbock, Tex., assignor to The United States of America as represented by the Secretary of Agriculture, Washington, D.C.

Filed Mar. 6, 1996, Ser. No. 611,701

Int. Cl.[6] B65G *53/28*

U.S. Cl. 406—106 **15 Claims**

1. A closed loop pneumatic transport system for transporting solids from a first location to a second location, said system comprising:

an air mover having an inlet and an outlet, said air mover being effective for generating a positive pressure stream of air;

a receiving unit for the solids having an inlet in communication with the outlet of said air mover to input said positive pressure stream of air, and an outlet, wherein said receiving unit is effective for mixing said stream of air and said solids and discharging a mixture of said air and said solids through said outlet of said receiving unit;

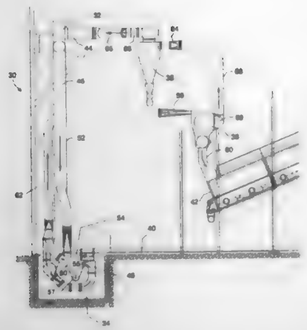
a first conduit connecting the outlet of said air mover and the inlet of said receiving unit;

a separator having an inlet in communication with the outlet of said receiving unit to receive said mixture, a first outlet in communication with the inlet of said air mover, and a second outlet, wherein said separator is effective for separating the solids from the air in said mixture, discharging the solids from said second outlet of said separator, and discharging the air having the solids removed therefrom through said first outlet of said separator;

a second conduit connecting the outlet of said receiving unit and the inlet of said separator; and

a third conduit connecting the first outlet of said separator and the inlet of said air mover;

wherein said first conduit is bifurcated and includes a first branch connecting the outlet of said air mover and the inlet of said receiving unit, and a second branch connecting the outlet of said air mover and said second conduit, and further wherein said first conduit additionally comprises a branched conduit branched from said first conduit and having a distal end connected to said second conduit.



5,727,910

MILLING AND DRILLING TOOL

Felix Leeb, zum Espat 3, D-94405 Landau/Isar, Germany

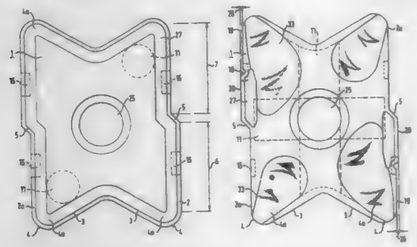
PCT No. PCT/EP94/04017, § 371 Date Jun. 10, 1996, § 102(e) Date Jun. 10, 1996, PCT Pub. No. WO95/16534, PCT Pub. Date Jun. 22, 1995

PCT Filed Dec. 1, 1994, Ser. No. 656,263

Claims priority, application Germany, Dec. 14, 1993, 43 42 557.7

Int. Cl.[6] B23P *15/28*

U.S. Cl. 407—34 **10 Claims**



10. A method of forming circular openings having any diameter within a predetermined range in solid materials, the method comprising the steps of:

providing a milling and drilling tool comprising:

a shank,

a reversible cutting insert attachable to the shank and having a plurality of face cutting edges for forming cored openings, a plurality of inner and outer flank cutting edges, transitional regions between respective inner and outer flank cutting edges, and aligning centering means provided on a contact surface of the insert associated with the shank for positioning of the insert with respect to the shank, and attachment means for attaching the insert to the shank,

wherein face cutting edges, which form an inwardly directed v-shaped cutting geometry, together with associated therewith respective inner and outer flank cutting edges and transitional regions thereof, are arranged in pairs and are mutually offset by 180°,

wherein outer flank cutting edges, which are provided on a same side of the insert, lie in different planes connected by a chisel edge inclined to both planes and dividing the insert side into an outer cutting edge portion and an outer non-cutting edge portion, and

wherein the cutting edge portion is divided by a further chisel edge into a roughing cutting portion and a finishing cutting portion, with the finishing cutting portion projecting slightly beyond the roughing cutting portion;

effecting a roughing operation by forming an opening having a predetermined diameter and depth by rotating the tool and simultaneously advancing the tool axially into the solid material up to a predetermined depth;

thereafter, effecting only rotation of the tool for forming a flat base surface of the opening; and

thereafter, effecting a finishing operation by rotating the tool and withdrawing it from the opening.

5,727,911

MILLING CUTTING INSERT

Amir Satran, Kfar Havradim, and Carol Smilovici, Acre, both of Israel, assignors to Iscar, Ltd., Migdal Tefen, Israel

PCT No. PCT/EP94/00474, § 371 Date Dec. 8, 1994, § 102(e) Date Dec. 8, 1994, PCT Pub. No. WO94/19133, PCT Pub. Date Sep. 1, 1994

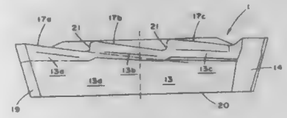
Continuation of Ser. No. 318,797, Dec. 8, 1994, abandoned.

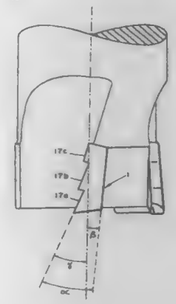
This PCT application Feb. 18, 1994, Ser. No. 698,186

Claims priority, application Israel, Feb. 19, 1993, 104800

Int. Cl.[6] B23C *5/02;5/20*

U.S. Cl. 407—42 **17 Claims**





1. A rotary milling cutter tool having a tool holder with a leading end and a cutting insert mounted in the tool holder, said insert having a cutting edge defined between a cutting rake surface and a relief flank, and having a base edge defined between said relief flank and a base surface, the cutting edge comprising a plurality of successive component cutting edges and intermediate cutting edges respectively located between successive component cutting edges; each component cutting edge having respective leading and trailing extremities defined with respect to said leading end and being

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directed from its leading extremity towards said base edge, each leading extremity other than that of a first leading component cutting edge merging with an immediately preceding trailing extremity via an intermediate edge which is directed from said trailing extremity away from said base edge.

5,727,912

CONTROLLER FOR CNC-OPERATED MACHINE TOOLS

Igor Rubashkin; Boris Fainstein; Igor Karasin; Eduard Tabachnik, and Joel P. Warshawski, all of Jerusalem, Israel, assignors to Omat Ltd., Jerusalem, Israel

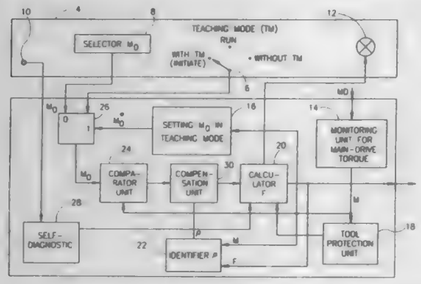
PCT No. PCT/US93/12344, § 371 Date Aug. 11, 1995, § 102(e) Date Aug. 11, 1995, PCT Pub. No. WO94/14569, PCT Pub. Date Jul. 7, 1994

PCT Filed Dec. 27, 1993, Ser. No. 464,633

Claims priority, application Israel, Dec. 28, 1992, 104250

Int. Cl.[6] B23C *9/00*

U.S. Cl. 409—132 **10 Claims**



6. A method for adaptively controlling a feed rate F of a milling cutter relative to a workpiece, the milling cutter constituting part of a machine tool having a main drive, the method comprising the steps of:

(a) monitoring an actual main drive cutting torque M;

(b) calculating ΔM where $\Delta M=M_0-M$ and where M_0 is a predetermined reference main drive cutting torque established for the milling cutter and the workpiece material; and

(c) determining the feed rate F as a function of ΔM;

wherein

step (c) includes calculating an instantaneous cross-sectional area ρ of a cut of the workpiece being worked on by the milling cutter and determining the feed rate F as a function of ρ to substantially stabilized M such that $\Delta M \rightarrow 0$.

5,727,913

DOUBLE EDGE TRIMMING TOOL

Moshe Naim, 15 Hashkedim Street, 15241 Kfar Tavor, Israel

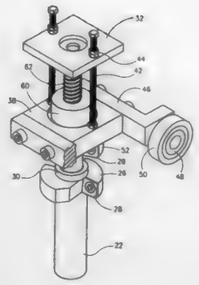
Filed May 24, 1996, Ser. No. 653,032

Int. Cl.[6] B23C *9/00*

U.S. Cl. 409—138 **6 Claims**

1. A tool for simultaneously machining two opposing edges of an end face of a plate, the two edges being associated with a top face and a bottom face of the plate, respectively, the tool comprising:

(a) two rotatable machining means, each of said machining means positioned to machine a respective one of opposing edges wherein the bottom face of the plate is held in close contact with a planar top surface of a table and said two machining means rotate about an axis substantially perpendicular to said top surface of said table and wherein a first one of said two machining means is at a fixed position, such that said first machining means machines the edge that corresponds to the bottom face of the plate, and the axial position of a second one of said machining means varies in conformance with the position of a portion of the top surface of the plate nearest said second machining means along a direction parallel to said axis;



(b) a riding subassembly, said riding subassembly including a bearing, for rotationally holding said second one of said machining means, one or more contacting means and means for pressing said riding subassembly toward the plate so that said contacting means continuously touches said top surface of the plate; and

(c) a rotating central member for imparting rotation to both of said machining means, a portion of said central member being formed into a shaft, the first one of said machining means being rigidly attached to said central member and the second one of said machining means being slidable along said shaft, said second one of said machining means and said shaft being provided with means for preventing mutual rotation therebetween.

5,727,914

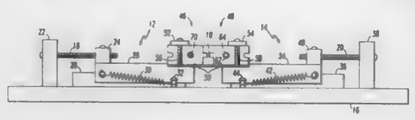
APPARATUS FOR SHAVING THE OUTSIDE DIAMETER OF A FIBER OPTIC MICROCABLE

Daniel F. Zivi, Severna Park, and Lawrence D. Piggot, Greensboro, both of Md., assignors to Northrop Grumman Corporation, Los Angeles, Calif.

Filed Feb. 13, 1996, Ser. No. 600,776

Int. Cl.[6] B23D *1/20*

U.S. Cl. 409—298 **17 Claims**



1. Apparatus for removing surface irregularities from the outside covering of an optical fiber cable, comprising:

a base plate;

at least one pair of mutually facing linear slide assemblies mounted on said base plate and including means for being independently moved toward and away from each other;

a first and second plurality of equally and alternately spaced flexible blade members of like construction respectively mounted in alignment side by side on said slide assemblies so as to oppose one another, each of said blade members having an edge facing a corresponding edge of an opposing blade member, said edge including a slot and a semi-circular groove formed in the slot so as to define a bore for the passage of said cable therethrough when pairs of said alternately spaced blade members are meshed together in overlapping relationship by movement of said slide assemblies, whereby surface irregularities are removed from the outside covering of the optical fiber cable due to a scraping and shaving action provided by said grooves in said first and second plurality of flexible blade members.

5,727,915

MASTER INPUT APPARATUS FOR MICROGRIPPER AND MICROGRIPPER SYSTEM PROVIDED WITH THE MASTER INPUT APPARATUS

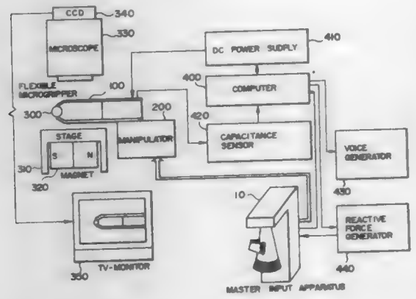
Yoshihiko Suzuki, Funabashi, Japan, assignor to Nikon Corporation, Tokyo, Japan

Filed Mar. 29, 1996, Ser. No. 622,870

Claims priority, application Japan, Mar. 29, 1995, 7-096145

Int. Cl.[6] B25J *13/02*

U.S. Cl. 414—1 **9 Claims**



1. A master input apparatus for controlling a microgripper mounted on a micromanipulator, comprising:

a joystick apparatus mounted on a support body at a predetermined position, said joystick apparatus having a movable joystick and generating a first control signal based on a movement of said joystick and outputting the first control signal to the micromanipulator for displacing said microgripper; and

a finger operating apparatus mounted on said joystick, said finger operating apparatus having an operation moving portion and a signal generating portion, wherein said operation moving portion comprises a movable protruding lever hinged on said joystick and adapted to be manually actuated, and said signal generating portion comprises a rotary potentiometer or a rotary encoder connected to said protruding lever for converting an amount of rotation of said protruding lever relative to said joystick and outputting a second control signal for controlling opening and closing of said microgripper.

5,727,916

METHOD FOR FEEDING AND ADVANCING OF A STRIP AND STRIP FEEDER FOR CARRYING OUT THE METHOD

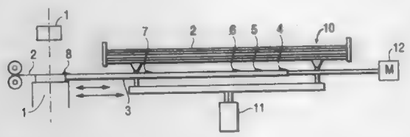
Roland Krebs, Fraubrunnen; Peter Lehmann, Kirchdorf, and Rudolf Lüthi, Niederwangen, all of Switzerland, assignors to Styner & Bienz AG, Niederwangen, Switzerland

Continuation of Ser. No. 263,069, Jun. 21, 1994, abandoned. This application Apr. 23, 1996, Ser. No. 636,823

Claims priority, application Switzerland, Jun. 21, 1993, 01863/93

Int. Cl.[6] B23Q *15/00*

U.S. Cl. 414—19 **9 Claims**



1. A method for feeding and advancing a strip into and through a reshaping tool, comprising the steps of:

successively driving a finger rod in forward and backward strokes distances of varying lengths in response to a programmable linear drive connected to said finger rod;

engaging a rear edge of said strip with one of a plurality of fingers arranged along the length of said finger rod each time said finger rod moves forward in the direction of advancing said strip; and

moving backward said finger rod a length equal to the distance between said finger which is engaged with said rear edge and a neighboring said finger which is situated beneath said strip, said length of said backward movement of said finger rod during some of said backward strokes for feeding said strip exceeding a length of said forward strokes.

5,727,917

MAGAZINE CONVEYING DEVICE

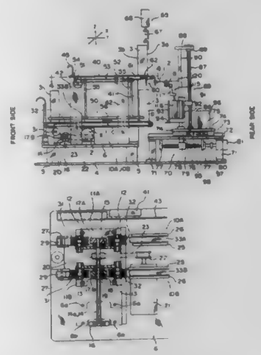
Shigeru Fuke, Musashino; Hideki Okajima, Mitaka; Kouhei Suzuki, Tachikawa, and Junichi Ide, Fuchu, all of Japan, assignors to Kabushiki Kaisha Shinkawa, Tokyo, Japan

Filed Jul. 12, 1996, Ser. No. 679,175

Claims priority, application Japan, Jul. 13, 1995, 7-199315

Int. Cl.[6] B65G *1/04*

U.S. Cl. 414—331 **6 Claims**



1. A magazine conveying device comprising:

a magazine loader section for supplying magazines and a magazine unloader section for receiving magazines which are provided in a vertical relationship, and

an elevator means which receives said magazines supplied from said magazine loader section and is moved vertically so that said magazines are positioned at a lead frame receiving or feed-out position, said elevator means being further moved vertically so that said magazines which have received or fed out said lead frames are received by said magazine unloader section from said elevator means, and

said magazine conveying device being characterized in that said conveying device further comprises a vertically movable shutter means for preventing said magazine which is transferred from elevator onto said magazine unloader section from falling over.

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LOADER FOR BULK SHIP

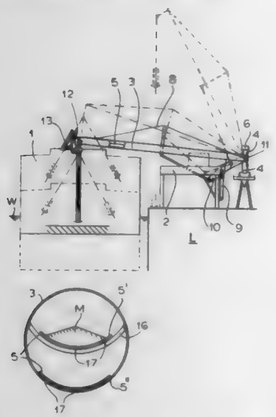
Jürgen Arend, Saarbrücken, and Horst Steckel, St. Ingbert, both of Germany, assignors to PWH Anlagen & Systeme GmbH, St. Ingbert, Germany

Filed Apr. 19, 1996, Ser. No. 634,910

Claims priority, application Germany, May 5, 1995, 195 16 471.7

Int. Cl.[6] B65G *67/60*

U.S. Cl. 414—140.4 **10 Claims**



1. An apparatus for loading bulk material into a ship, the apparatus comprising:

a carriage movable alongside the ship;

an elongated laterally closed outrigger tube having an inner end on the carriage and an outer end and provided internally with a longitudinally extending partition subdividing the tube into a laterally closed upper compartment and a laterally closed lower compartment;

an elongated tensioning element extending longitudinally above the outrigger tube, connected to the outer end thereof, and supporting the outrigger tube;

an endless outrigger conveyor belt having a U-section upper stretch riding in the upper compartment on the partition and a lower stretch riding on an inside wall of the outrigger tube in the lower compartment, the outrigger belt being driven to advance the upper stretch from the inner end to the outer end;

means including a looped endless supply belt for depositing bulk material onto the upper stretch of the outrigger belt at the inner end of the outrigger tube; and

a tubular outlet chute having an upper end pivoted on the outer end of the outrigger tube and a lower end positionable in the ship.

5,727,919

AUTOMATIC BEVERAGE TERMINAL

Cordula Heumann, and Friedrich Heumann, both of Paul-Schilder-Weg 19, D-90455 Nürnberg, Germany

PCT No. PCT/EP95/03449, § 371 Date May 7, 1996, § 102(e) Date May 7, 1996, PCT Pub. No. WO96/07993, PCT Pub. Date Mar. 14, 1996

PCT Filed Sep. 1, 1995, Ser. No. 640,770

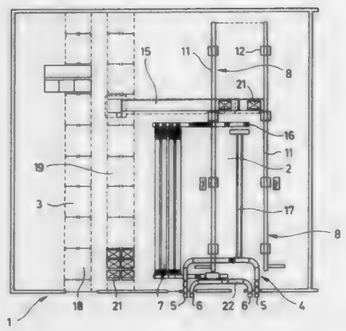
Claims priority, application Germany, Sep. 7, 1994, 44 31 870.7

Int. Cl.[6] B65G *1/00*

U.S. Cl. 414—268 **22 Claims**

15. A method of chaotic storage and retrieval in an automated retail beverage terminal enabling rapid response to customer orders, comprising the steps of:

receiving a pallet loaded with beverage crates from a terminal;



lifting a crate from said loaded pallet with a gripper mounted on a vehicle movable along a first conveyor disposed above said pallet and transporting said crate with said gripper to a temporary storage location on a floor of said terminal in a chaotic storage arrangement and storing information on the location of said crate in memory accessible by a computer;

selecting said crate stored at said temporary storage locations based on commands from a control panel mounted at a customer ordering location with the control panel being in communication with said computer; and

in response to a customer request for said crate, using said information to locate said crate and lifting said selected crate with said gripper and transporting it to said customer ordering location along a second conveyor.

5,727,920

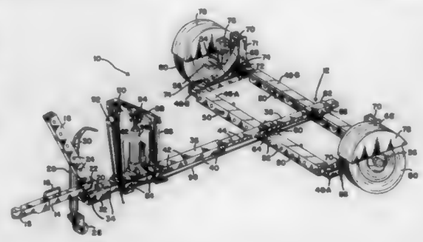
VERTICAL LIFT TOWING DOLLY INCLUDING VARIABLE, ATTACHABLE PLATFORMS

Harold Lawrence Hull, deceased, late of Sparks, Nev.; by Cathy D. Santa Cruz, Trustee, 401 Canyon Way, #43, Sparks, Nev. 89434; Jacques L. Cote, and Robert B. Shelley, both of P.O. Box 10049, Zephyr Cove, Nev. 89448

Filed Jul. 19, 1996, Ser. No. 684,574

Int. Cl.[6] B60P *3/00*

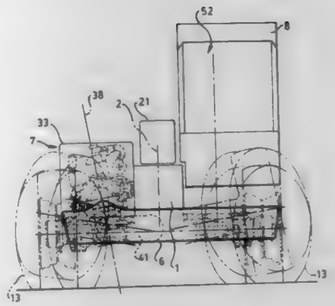
U.S. Cl. 414—476 **4 Claims**



1. A vertical lift towing dolly comprising: a base frame to which various carrier attachments may be removably affixed, a vehicle attachment tongue member having a first and a second end with a ball socket and a handle substantially on said first end, and a first upright member on a first end of a first tongue section of said base frame and adjacent said second end to adjustably support said second end of said vehicle attachment tongue member, a sliding member which is substantially a section of a square tubular structure to adjustably affix said tongue member to said first upright member, a support structure having a wheel and lifting means for lifting said tongue from a vehicle, said support structure having a U-shaped first member which is adjustably attached to said first end of a first tongue section of said base frame, said first tongue section having a second end adjustably attached to a first end of a second tongue section of said base frame, a pair of parallel cross sections each having substantially a central portion thereof which is attachable to said second tongue section by a pair of square tubular structures, said pair of cross sections each having ends which are adjustably attachable to first ends of a pair of elongated square shaped members, a pair of axles which are substantially L-shaped members each having a short leg anchored to wheel hubs and a long leg which is removably attachable to first ends of said pair of elongated square shaped members, a pair of upright leaf spring support structures fixedly attached to second ends of said elongated square shaped members, said support structures each having a pin for pivotably attaching each first end of a pair of leaf springs thereto, said leaf springs each having a second end fixedly attached to said long leg of said L-shaped members, a pair of upright members with each being fixedly attached to one of said short legs for attaching a wheel cover to each of said axles, an upside-down U-shaped structure which is removably attached to the first end of said first tongue section, respectively, and provides substantially a base for an upright support and a lifting device, a cross member having a first end which is pivotably connected to said upright support, said cross member having on its opposite end a pivotable support member which supports a first pair of pulleys, said cross member having substantially at its center section a support attachment member which supports and cooperates with said lifting device, and a cable system comprising: said first pair of pulleys, a second pair of pulleys attached and located substantially beneath said upside-down U-shaped member, a third pair of pulleys attached and located substantially upon one of said cross members, a fourth pair of pulleys attached and located substantially upon said ends of last said cross member, a first pair and a second pair of cables which cooperate with said pulleys, said first pair of cables each having a first end which terminates in a removably yet affixed manner within a cable support block mounted on said first tongue section substantially beneath said pivotal support member, said first pair of cables each having a second end which terminates in a removably yet adjustably affixed manner within a first end of a cable adjusting block, said second pair of cables each having a first end which terminates in a removably yet adjustably affixed manner within a second end of said cable adjusting block and said second pair of cables each having a second end which terminates in an affixed manner within said leaf spring support structures,

whereby;

said cable system and said towing dolly cooperate together to allow said dolly to be vertically and horizontally adjustably positioned and locked in place in substantially any position of choice.



position at a predetermined angle so that said power output is brought closer to a central plane of the machine;

final drive units provided on said front and rear axles respectively for driving said wheels;

a plurality of shafts kinematically connecting said power output of said transmission to said final drive units; and

material handling means pivotally mounted on said chassis substantially at said central plane between said operator's cab and said drive arrangement.

5,727,921

MATERIAL HANDLING MACHINE

David J. B. Brown, Thirsk, United Kingdom, assignor to Caterpillar Inc., Peoria, Ill.

Continuation of Ser. No. 537,070, Sep. 29, 1995, Pat. No. 5,618,156. This application Dec. 12, 1996, Ser. No. 766,202

Claims priority, application United Kingdom, Jun. 30, 1992, 9213894

Int. Cl.[6] E02F *3/28*

U.S. Cl. 414—694 **1 Claim**

1. A material handling machine, comprising:

a chassis having a rigid longitudinal frame;

an operator's cab mounted on said chassis at one side of the longitudinal frame;

a front axle and a rear axle mounted on said chassis;

wheels mounted on said front and rear axles;

a drive arrangement mounted at another side of said longitudinal frame opposite the operator's cab, the drive arrangement including an engine, a mechanically driven transmission kinematically connected to said engine and a power output positioned substantially mid-way along said drive arrangement and located substantially mid-way between said front and rear axles, said drive arrangement being tilted from a vertical

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5,727,922

ELECTRONIC COMPONENT TRANSFER APPARATUS AND METHOD

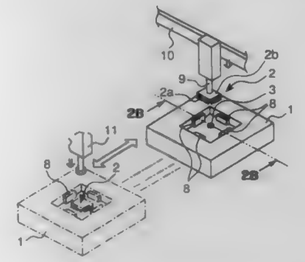
Keishi Ikeya, Kofu; Kanji Uchida, Yamanashi-ken; Makoto Sueki, and Hideki Uchida, both of Kofu, all of Japan, assignors to Matsushita Electric Industrial Co., Ltd., Osaka-fu, Japan

Filed Aug. 29, 1995, Ser. No. 521,050

Claims priority, application Japan, Aug. 30, 1994, 6-204074

Int. Cl.[6] B65G *69/00*

U.S. Cl. 414—752 **6 Claims**



1. An electronic component transfer apparatus comprising:

a suction nozzle, having a suctional top surface, for drawing an electronic component by suction to said suctional top surface;

a component fixing part having a hole provided at an inside center thereof within which said suction nozzle is movable in sliding contact with the component fixing part, such that the suction nozzle is movable up and down so that the suctional top surface of the suction nozzle is brought into a protruded posture at a top end position of a range of the sliding movement;

a transfer nozzle which is movable up and down and which serves to place the electronic component onto the suctional top surface of the suction nozzle in a state that the transfer nozzle has drawn the electronic component thereto by suction;

a biasing part which is interposed between the component fixing part and the suction nozzle and which biases the suction nozzle upward relative to the component fixing part;

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a suction nozzle fixing stopper for fixing the suction nozzle in its position relative to the component fixing part by operatively engaging the suction nozzle;

a holding means for holding the electronic component in its position relative to the component fixing part by being engaged with the electronic component placed on the component fixing part; and

a control means for controlling so as to press the electronic component placed on the component fixing part from above with the transfer nozzle so that the electronic component is sandwiched between the transfer nozzle and the suction nozzle, to fix the position of the suction nozzle by the suction nozzle fixing stopper, and, in this state, to hold the electronic component on the component fixing part by the holding means.

5,727,923

COLLECTING DEVICE FOR SHEETS

Bernd Michel, Gablingen, Germany, assignor to Böwe Systec AG, Augsburg, Germany

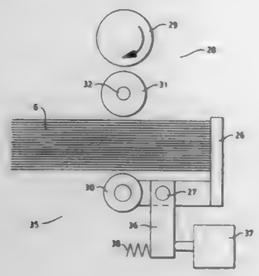
PCT No. PCT/EP94/00190, § 371 Date Jul. 19, 1995, § 102(e) Date Jul. 19, 1995, PCT Pub. No. WO94/16981, PCT Pub. Date Aug. 4, 1994

PCT Filed Jan. 25, 1994, Ser. No. 495,610

Claims priority, application Germany, Jan. 27, 1993, 9301071 U; Jan. 27, 1993, 9301072 U

Int. Cl.[6] B65H *31/40*

U.S. Cl. 414—789.9 **20 Claims**



1. A device for removing stacks of sheets collected from individual sheets, comprising:

a movable stop;

a driven roller arrangement including two rollers mounted to be engaged with the stack of sheets and a third, continuously driven drive roller, said stack of sheets being clamped between said two rollers of said driven roller arrangement and, said two rollers being mounted freely rotatably and transversely movably, with one of said two rollers on each side of said stack of sheets, said movable stop being disposed adjacent to said driven roller arrangement; and

an actuating device connected to said driven roller arrangement, at least one of said two rollers and said third, continuously driven drive roller of said roller arrangement, being brought intermittently into drive connection by said actuating device.

5,727,924

PALLET CONSTRUCTION FOR AUTOMATED STACK PROCESSING

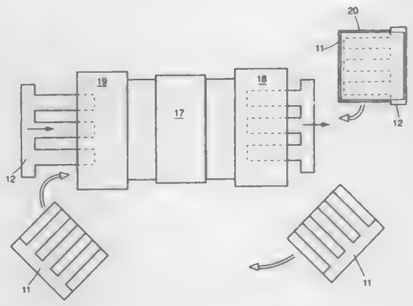
Peter Hummel, Offenbach am Main, and Robert Ortner, Alzenau, both of Germany, assignors to MAN Roland Druckmaschinen AG, Germany

Filed May 2, 1996, Ser. No. 643,000

Claims priority, application Germany, May 4, 1995, 195 16 039.8

Int. Cl.[6] B65H *31/30*

U.S. Cl. 414—790 **9 Claims**



1. A pallet construction for stacking printed sheet material in an automated sheet-processing system including auxiliary stack lifting apparatus with an auxiliary stack carrier, the pallet construction comprising:

a pallet body including a plurality of web-like protrusions having corresponding stack rest surfaces thereon, each of the protrusions separated by spaced, longitudinal grooves adapted to receive the auxiliary stack carrier when the grooves are exposed; and

a plurality of levelling elements adapted for reception within the grooves and being movable therein between first and second operative modes, each of the levelling elements including a top surface which, in the first operative mode, cooperates with the stack rest surfaces to present a substantially planar surface subtending the sheet material, and in the second operative mode, is moved downwardly from the rest surfaces of the web-like protrusions to expose a corresponding one of the grooves while still being disposed within the grooves to permit reception of the auxiliary stack carrier above the leveling elements.

5,727,925

APPARATUS FOR STACKING A PLURALITY OF CASES

Yuji Ozawa; Sadami Tabata, both of Sakado, and Masaru Chiwaki, Kawagoe, all of Japan, assignors to Toyo Suisan Kaisha, Ltd., Tokyo, Japan

Filed Nov. 16, 1995, Ser. No. 558,902

Claims priority, application Japan, Apr. 21, 1995, 7-096834; Apr. 21, 1995, 7-096835

Int. Cl.[6] B65G *57/30*

U.S. Cl. 414—795.3 **7 Claims**

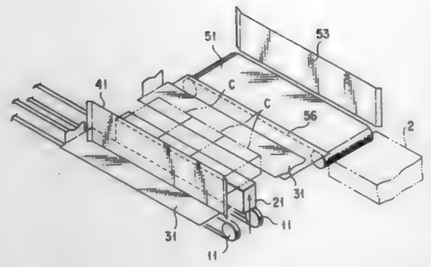
1. An apparatus for stacking in layers a plurality of cases transported one after another, comprising:

an introducing-aligning conveyor mechanism for introducing and aligning the cases;

a lift mechanism for pushing up the cases aligned on the introducing-aligning conveyor mechanism; and

a shutter mechanism including a pair of shutter plates arranged over the introducing-aligning conveyor mechanism and horizontally and synchronously movable in opposite directions, for open-close operation,

wherein the cases aligned on the introducing-aligning conveyor mechanism are pushed up above the shutter plates of the shutter mechanism by the lift mechanism, said shutter plates being free of contact with the top of said cases, the lifted cases are supported by the shutter plates, the shutter mechanism opens after cases of another are set aligned on the introducing-aligning conveyor mechanism, the cases of the first set having so far been supported by the shutter mechanism are stacked on the cases of the second set aligned on the introducing-aligning conveyor mechanism, and the stacked cases are pushed up by the lift mechanism and supported by the shutter mechanism, said processes of operation being repeated so that the cases are stacked in a plurality of layers on the shutter plates of the shutter mechanism.



5,727,926

PITCH LINK FOR ROTARY WING AIRCRAFT AND AUTOMATIC ADJUSTER THEREOF

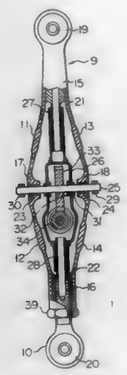
Hideaki Ide, Gifu; Shunichi Bandoh, and Hiroshi Yasuhara, both of Kakamigahara, all of Japan, assignors to Kawasaki Jukogyo Kabushiki Kaisha, Kobe, Japan

Division of Ser. No. 256,723, Jul. 22, 1994, Pat. No. 5,511,944. This application Jan. 18, 1996, Ser. No. 588,302

Claims priority, application Japan, Nov. 25, 1992, 4-315389

Int. Cl.[6] B64C *11/44;27/68*

U.S. Cl. 416—168 R **11 Claims**



1. A pitch link for a rotary wing aircraft comprising:

a diamond-shaped frame having first and second opposing acute vertex portions and first and second opposing obtuse vertex portions and comprising four flexible beams coupled to each other at end portions of the beams;

first and second spherical bearings mounted on the first and second acute vertex portions, respectively; and

a turnbuckle shaft having bilateral threads connected to the first and second obtuse vertex portions.

5,727,927

DEVICE FOR SECURING ROTOR BLADES TO A ROTOR, ESPECIALLY OF A GAS TURBINE PROPULSION PLANT

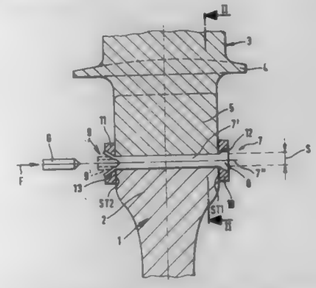
Gerd Luxenburger, Olching, Germany, assignor to MTU Motoren- und Turbinen-Union Muenchen GmbH, Munich, Germany

Filed May 3, 1996, Ser. No. 642,476

Claims priority, application Germany, May 6, 1995, 195 16 694.9

Int. Cl.[6] F01D *5/18*

U.S. Cl. 416—220 R **31 Claims**



1. A device for securing a rotor blade having a blade foot with axial blade foot end faces and with a blade foot sole (**5'**) in a blade mounting groove of a rotor disk having a rotor rim with axial rim side surfaces, said blade mounting groove having a groove bottom in said rotor rim and groove side surfaces intermeshing with blade foot side surfaces, comprising a gap (**S**) with open ends in said blade mounting groove (**6**) between said foot sole (**5'**) and said groove bottom (**6'**), a rivet (**7**) with a rivet shaft (**7'**) in said gap (**S**), said rivet shaft comprising a first rivet head (**8**) at one end of said shaft, a second rivet head (**9**) at the other end of said rivet shaft (**7'**), and a washer member (**10, 11, . . .**) between each rivet head and a respective axial rim side surface of said axial rim side surfaces, wherein two washer members forming a pair are so dimensioned that a rim facing washer surface bears partly against one of said axial rim side surfaces and partly against one of said axial end faces of a respective blade foot when a riveting operation is completed, wherein said first rivet head is a holding head (**8**) forming part of said rivet (**7**) prior to said riveting operation, wherein said second rivet head is a locking head (**9**) formed as part of said riveting operation, said rivet shaft (**7'**) comprising a hollow end section (**9'**) for forming said locking head (**9**) in said riveting operation, wherein at least one of said washer members comprises at least one integral element (**15, 16; 18, 19,** etc.) extending into said gap (**S**) for guiding, centering, and holding said rivet shaft (**7'**), and wherein said at least one washer member comprises two integral elements (**15**) extending into said gap (**S**) for guiding, centering, and holding said rivet shaft (**7'**) disposed between said two integral elements (**15**) which, prior to insertion into said gap (**S**), are angularly deformed so that after insertion into the gap (**S**) and completion of said riveting operation, said integral elements (**15**) exert a radially effective biasing force (**P**) on said blade foot (**5**) to minimize play in surface contacts between said blade foot and said mounting groove (**6**).

5,727,928

FAN SPEED MONITORING SYSTEM FOR DETERMINING THE SPEED OF A PWM FAN

Alan E. Brown, Georgetown, Tex., assignor to Dell USA L.P., Austin, Tex.

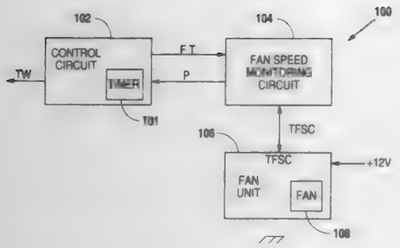
Filed Dec. 14, 1995, Ser. No. 572,435

Int. Cl.[6] F04B *49/06*

U.S. Cl. 417—44.11 **26 Claims**

1. A fan speed monitoring system for interfacing a fan unit, the fan unit including a fan speed control terminal for controlling a

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pulse width modulated (PWM) driven fan and the fan unit asserting fan pulses on the fan speed control terminal indicative of fan poles during the power portion of each PWM cycle, the fan speed monitoring system comprising:

a fan drive and sensing circuit for maintaining the voltage of the fan speed control terminal above a minimum level to maintain continuous power to the fan while also superimposing fan pulses asserted by the fan unit; and

a filter circuit coupled to said fan sensing circuit for amplifying and filtering said fan pulses and for providing corresponding filtered pulse signals.

5,727,929

EXHAUST APPARATUS AND VACUUM PUMPING UNIT INCLUDING THE EXHAUST APPARATUS

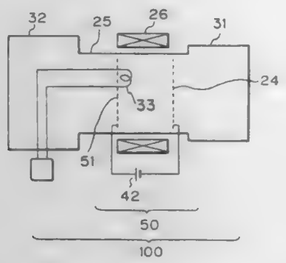
Kazutoshi Nagai, Tokyo; Tohru Satake; Hideaki Hayashi, both of Kanagawa-ken, and Takanari Yasui, Miyagi-ken, all of Japan, assignors to Ebara Corporation, Tokyo, Japan

Division of Ser. No. 217,699, Mar. 25, 1994, Pat. No. 5,480,286, which is a division of Ser. No. 11,783, Feb. 1, 1993, Pat. No. 5,326,277, which is a division of Ser. No. 833,853, Feb. 12, 1992, Pat. No. 5,240,381, which is a continuation-in-part of Ser. No. 739,361, Aug. 2, 1991, abandoned. This application Oct. 10, 1995, Ser. No. 541,715

Claims priority, application Japan, Aug. 3, 1990, 2-205224; Feb. 12, 1991, 3-38847; Feb. 12, 1991, 3-38848

Int. Cl.[6] F04B *37/02;* **F04F** *11/00*

U.S. Cl. 417—49 **12 Claims**



1. An exhaust apparatus comprising: an outer electrode having an axis; an ion accelerating grid electrode crossing said axis of the outer electrode and installed apart from the outer electrode; a vessel for accommodating said outer electrode and said ion accelerating grid electrode; a magnet provided outside of the vessel for generating a magnetic field almost parallel to said axis of said outer electrode; and a DC power supply connected between said outer electrode and said ion accelerating grid electrode so as to get said outer electrode positive, wherein a heat filament for emitting thermoelectrons is disposed between the ion accelerating grid electrode and the outer electrode.

5,727,930

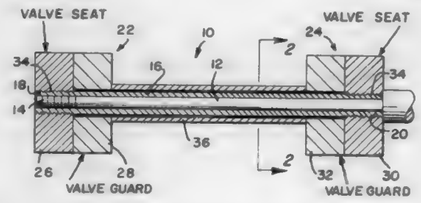
VALVES AND ROD ASSEMBLY

Robert A. Bennitt, Painted Post, and Daniel Valla, Corning, both of N.Y., assignors to Dresser-Rand Company, Corning, N.Y.

Filed Aug. 1, 1996, Ser. No. 691,066

Int. Cl.[6] F04B *21/04*

U.S. Cl. 417—525 **10 Claims**



1. A valves and rod assembly, comprising:

a hollow through-bolt;

said bolt being externally and internally threaded at one end;

an elongate rod, threaded at one end, and threadedly engaged with internal threads of said through-bolt;

valve guards mounted on said through-bolt in spaced apart disposition;

a first valve seat, having a central, tapped hole, threadedly engaged with external threads of said through-bolt; and

a second valve seat mounted on said through-bolt remote from said first valve seat; wherein

said through-bolt has means formed thereon for holding said second valve seat positioned thereon; and

means interposed between, and abuttingly engaging, said guards, for (a) maintaining said spaced apart disposition thereof, and (b) effecting stretch in said through-bolt.

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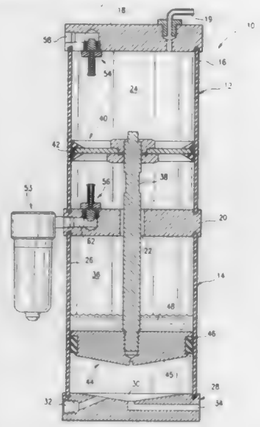
PUMP FOR ELECTRICALLY CONDUCTIVE COATING MATERIALS

Edward Lash, Spencer, and Ronald D. Konieczynski, North Royalton, both of Ohio, assignors to Nordson Corporation, Westlake, Ohio

Filed Apr. 19, 1996, Ser. No. 633,693

Int. Cl.[6] F04B *17/00*

U.S. Cl. 417—392 **26 Claims**



1. Apparatus for pumping electrically conductive coating material, comprising:

a housing having an outer wall, first and second ends and a hollow interior;

a first piston head and a second piston head mounted at opposite ends of a connector rod and movable along said outer wall within said hollow interior of said housing, said second piston head having a first surface facing in a direction toward said first piston head, and a second surface;

said first and second piston heads dividing said hollow interior into a first cavity located between said first piston head and said first end of said housing, and a second cavity located between said second surface of said second piston head and said second end of said housing;

said housing being formed with an air passage to permit the introduction of pressurized air into said first cavity, and an air vent to permit the egress of air from said first cavity;

said housing being formed with a fluid inlet passage to permit the introduction of coating material into said second cavity and a fluid outlet passage through which coating material is discharged from said second cavity;

said housing having an inlet for the introduction of lubricant into said hollow interior to form a pool of lubricant on said first surface of said second piston head located at least in the area adjacent to said outer wall of said housing.

5,727,932

ELECTROMAGNETIC RECIPROCATING COMPRESSOR

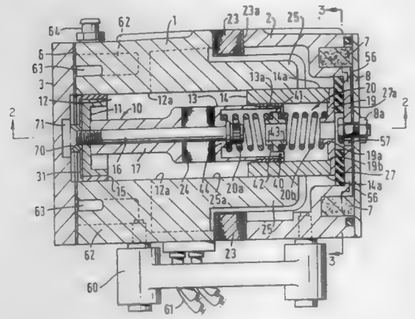
Michael Alan McGrath, Hayling Island, Great Britain, assignor to Pegasus Airwave Limited, Waterlooville, England

Division of Ser. No. 556,903, Nov. 29, 1995, Pat. No. 5,603,612. This application Jan. 29, 1997, Ser. No. 790,486

Claims priority, application United Kingdom, Jun. 2, 1993, 9311385

Int. Cl.[6] F04B *35/04*

U.S. Cl. 417—417 **4 Claims**



1. An electromagnetic linear compressor comprising:

a body having an end portion;

a cylinder provided inside said body;

at least one fluid inlet path to said cylinder including a fluid inlet valve in said inlet path;

at least one fluid outlet path from said cylinder including a fluid outlet valve in said outlet path;

a compression piston reciprocatable in said cylinder;

an electromagnetic drive means for reciprocating said compression piston in said cylinder to move a fluid from said inlet path to said outlet path, said electromagnetic drive means including a stator located between parts of said body;

a piston guide inserted in said body so as to be axially and radially located relative to said cylinder, and having a guide surface therein;

a resilient member; and

a guide piston member which is axially spaced from said compression piston, which reciprocates with said compression piston, which slidably engages said guide surface of said piston guide, and which is axially located by being resiliently clamped between said stator and said end portion with said resilient member interposed between said piston guide and said end portion.

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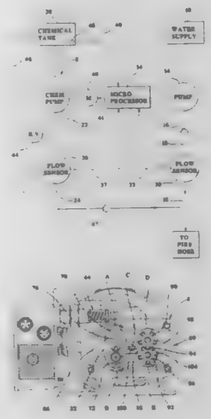
PUMP AND FLOW SENSOR COMBINATION

Michael A. Laskaris, Collegeville, and Glenn D. Quinty, Harleysville, both of Pa., assignors to Hale Fire Pump Company, Conshohocken, Pa.

Filed Dec. 20, 1995, Ser. No. 575,213

Int. Cl.[6] F01C *21/00*

U.S. Cl. 418—2 **25 Claims**



1. A pump and flow sensor combination comprising:

a pump casing having an inlet and an outlet and an inside surface;

a pump drive shaft connectable to a motor outside said pump casing and penetrating said pump casing;

a first gear and a second gear within said pump casing and enmeshed for opposite rotation, said first gear connected to said pump drive shaft for driven rotation therewith, said first and second gears being closely journaled partially by said inside surface of said pump casing and arranged to receive fluid flow from said inlet on a demeshing side of said first and second gears;

third and fourth circular gears arranged in said pump casing downstream of said first and second gears, said third and fourth gears enmeshed and closely journaled partially by said inside surface of said pump casing, a demeshing side of said third and fourth gears receiving flow from an enmeshing side of said first and second gears, and an enmeshing side of said third and fourth gears open to said outlet of said pump casing, said third and fourth gears and said first and second gears being coplanar; and

said third and fourth gears driven by fluid pumped by said first and second gears; and

a sensor means for sensing a rotational speed of one of said third and fourth gears for determining the flow rate of liquid pumped by said first and second gears.

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SCROLL TYPE FLUID MACHINE HAVING A THIN PLATE FOR EACH SCROLL

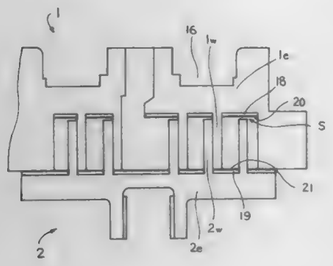
Masumi Sekita; Makoto Takeuchi; Yasuharu Maruiwa; Tetsuo Shigeoka, all of Nagoya; Tetsuzo Ukai, and Mikihiko Ishii, both of Nishi-Kasugai-gun, all of Japan, assignors to Mitsubishi Jukogyo Kabushiki Kaisha, Tokyo, Japan

Filed Oct. 1, 1996, Ser. No. 723,922

Claims priority, application Japan, Oct. 30, 1995, 7-281394; Dec. 13, 1995, 7-324357

Int. Cl.[6] F01C *1/04;19/00*

U.S. Cl. 418—55.2 12 Claims



1. A scroll fluid machine, comprising:

a stationary scroll comprising a first end plate and a first spiral wrap projecting from one side of said first end plate, said first spiral wrap having a first tip end;

a swivel scroll comprising a second end plate and a second spiral wrap projecting from one side of said second end plate, said second spiral wrap having a second tip end, and said first and second spiral wraps being engaged with each other to engage said stationary and swivel scrolls;

a first thin steel plate on the one side of said first end plate between said first end plate and said second tip end of said second spiral wrap, said first thin steel plate having a surface side facing said second tip end of said second spiral wrap; and

a second thin steel plate on the one side of said second end plate between said second end plate and said first tip end of said first spiral wrap, said second thin steel plate having a surface side facing said first tip end of said first spiral wrap;

wherein said first and second thin steel plates comprise conformable layers on said surface sides thereof.

5,727,935

SCROLL TYPE FLUID MACHINE HAVING A ROTATABLE CYLINDRICAL RING ON THE DRIVE BUSH

Tetsuo Shigeoka; Katsuhisa Tomatsu, and Kazuaki Takahashi, all of Nagoya, Japan, assignors to Mitsubishi Jukogyo Kabushiki Kaisha, Tokyo, Japan

Filed Jan. 19, 1996, Ser. No. 589,008

Claims priority, application Japan, Mar. 13, 1995, 7-52374

Int. Cl.[6] F01C *1/04;21/02;21/04*

U.S. Cl. 418—55.5 7 Claims

1. A scroll type fluid machine arrangement, comprising:

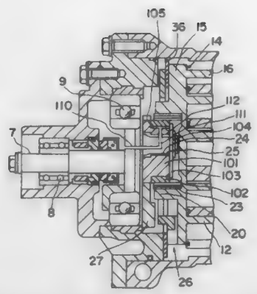
a non-swivel scroll and a swivel scroll engaged with said non-swivel scroll;

a boss portion on a back face of said swivel scroll;

a swivel bearing at said boss portion;

a drive bush having a slide hole therein, said drive bush being engaged with said swivel bearing, and said drive bush having an outer circumferential portion;

a drive shaft having an eccentric pin provided eccentrically thereon, said eccentric pin being fitted in said slide hole of said drive bush; and



a cylindrical ring provided on said outer circumferential portion of said drive bush so as to be rotatable relative to said drive bush and relative to said swivel bearing.

5,727,936

ROTARY DISPLACEMENT COMPRESSOR WITH LIQUID CIRCULATION SYSTEM

Leif Eriksson, Särholmen, and Karlis Timuska, Spånga, both of Sweden, assignors to Svenska Rotor Maskiner AB, Stockholm, Sweden

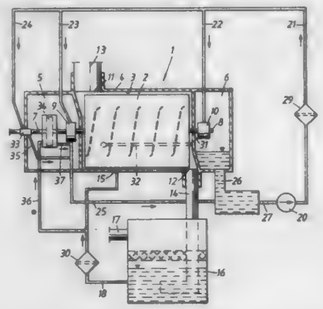
PCT No. PCT/SE95/00377, § 371 Date Dec. 10, 1996, § 102(e) Date Dec. 10, 1996, PCT Pub. No. WO95/35446, PCT Pub. Date Dec. 28, 1995

PCT Filed Apr. 7, 1995, Ser. No. 750,482

Claims priority, application Sweden, Jun. 21, 1994, 9402177

Int. Cl.[6] F04C *18/16;29/02*

U.S. Cl. 418—88 20 Claims



1. A rotary displacement compressor having an inlet channel for introducing low pressure gas, an outlet channel through which compressed gas escapes, and at least one rotor mounted in bearings and operating in a working space, said compressor comprising:

a liquid injection port for injecting liquid into said working space,

a liquid separator provided in said outlet channel for separating liquid from the compressed gas;

a pressure liquid conduit connecting said liquid separator and said liquid injection port; and

a bearing lubrication circuit including a tank, a pump, a supply conduit for supplying liquid from said pump to said bearings in which said rotor is mounted, a withdrawal conduit for withdrawing liquid from said bearings to said tank, and a pump inlet conduit for supplying liquid from said tank to said pump,

wherein said bearing lubrication circuit further includes a leakage path connecting said tank to a first cavity in said working space and a drainage connection connecting said tank to a second cavity in said working space, said first cavity having a higher pressure than said second cavity.

5,727,937

BURNER UNIT FOR THE SINGEING OF FLAT TEXTILE STRUCTURES

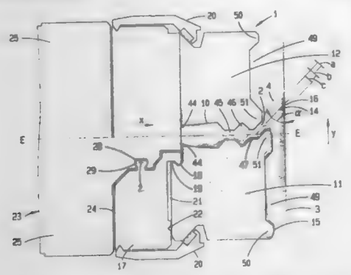
Walter Osthoff, Wuppertal, and Rainer Ebbinghaus, Mönchengladbach, both of Germany, assignors to Osthoff Senge GmbH & Co. KG, Wuppertal, Germany

Filed May 14, 1996, Ser. No. 649,120

Claims priority, application Germany, May 15, 1995, 195 17 718.5

Int. Cl.[6] D02J *3/14*

U.S. Cl. 431—158 14 Claims



1. A burner unit for the singeing of a flat textile structure and the like, in particular a burner unit for singeing machines having a combustion chamber and ramp stones forming at least one singe slit, the combustion chamber being fed from a gaseous mixture chamber via preferably at least two parallel burner slits, wherein one of said ramp stones is arranged adjustably movable for changing the singe slit and/or the combustion chamber.

5,727,938

PREMIX BURNER

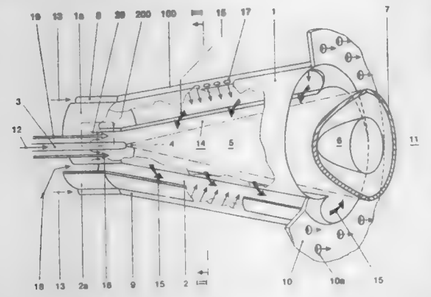
Hans Peter Knöpfel, Besenbüren, Switzerland, assignor to ABB Research Ltd., Zurich, Switzerland

Filed Nov. 12, 1996, Ser. No. 747,571

Claims priority, application Germany, Dec. 2, 1995, 195 45 036.1

Int. Cl.[6] F23Q *9/00*

U.S. Cl. 431—285 8 Claims



1. A premix burner comprising at least two hollow conical sectional bodies which are nested one inside the other in the direction of flow and form an interior space, the center axes of these sectional bodies running offset from one another in longitudinal direction in such a way that tangential air-inlet slots for the feeding of combustion air into the interior space result, the premix burner being operable with at least one fuel nozzle, and feed ducts extending at least upstream of the tangential air-inlet slots, which feed ducts have at least one injector system for the provision of the combustion air consisting of fresh air and flue gas, wherein perforated plates (**23**, **24**; **27**, **28**) belonging to the injector system run parallel to the inflow planes (**30**, **40**) extending across an entrance for combustion air (**15**) into the feed ducts (**25**, **26**), wherein the perforated plates are provided with injector nozzles (**23***a*, **24***a*; **27***a*, **28***a*) in a region of the entrance for combustion air into the fuel ducts, and wherein the inflow angle of the injector nozzles is progressively variable in a longitudinal direction of the premix burner (**100**) and relative to the burner axis.

5,727,939

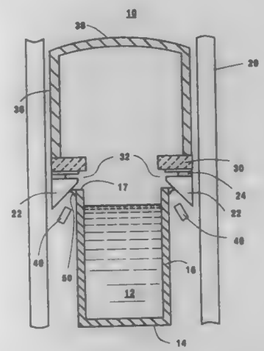
DEFLECTOR SYSTEM FOR REDUCING AIR INFILTRATION INTO A FURNACE

William Joseph Snyder, Ossining, N.Y., assignor to Praxair Technology, Inc., Danbury, Conn.

Filed Aug. 19, 1996, Ser. No. 699,379

Int. Cl.[6] F27B *5/04;* C03B *5/42*

U.S. Cl. 432—205 8 Claims



1. A furnace comprising: a tank having a sidewall; a structure above the upper end of said sidewall with a gap therebetween; and a deflector located proximate the gap to divert a flow of air impinging on the sidewall exterior away from said gap to create a differential between the pressure interior of the tank and exterior thereto and to reduce the infiltration of air through said gap into the interior of said tank; said furnace further comprising a source for directing cooling air onto the exterior of said sidewall and said deflector; wherein the surface of the deflector that receives the cooling air is shaped to direct at least a portion thereof outwardly of the tank sidewall.

5,727,940

DENTAL HEAD GEAR

Karl Wanzenböck, Leobersdorf, Austria, assignor to Fildan Accessories Corporation, Englewood, N.J.

Filed Oct. 8, 1996, Ser. No. 727,078

Int. Cl.[6] A61C *3/00*

U.S. Cl. 433—5 18 Claims

1. A dental headgear comprising:

a harness adapted to seat upon the head of a wearer;

a traction-generating device connected to said headpiece;

a tension strap connected to said device; and

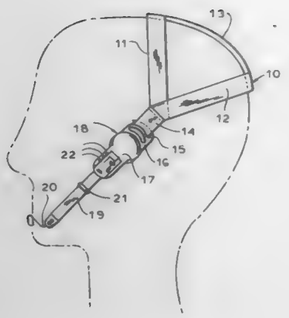
a dental regulator for applying pressure to the teeth of the wearer connected to said tension strap, said traction-generating device comprising:

a housing member,

a slide member in said housing member,

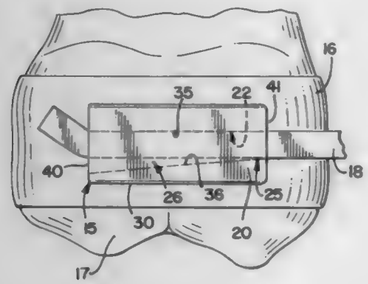
a pair of mutually parallel springs braced against said housing member and said slide member and resiliently resisting displacement of said slide member relative to said housing member, and

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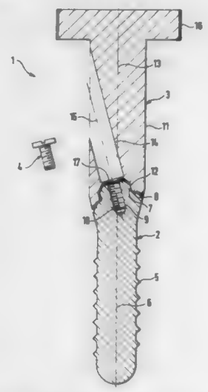
means for connecting one of said members to said tension strap and the other of said members to said harness for maintaining said tension strap under a tension established by said springs, said means for connecting including a roller around which said strap is looped and an eccentric locking member swingable between a position in which said strap is locked against said roller and a position in which said strap can advance around said roller.

5,727,941
ARCHWIRE BUCCAL TUBE
Peter C. Kesling, LaPorte, Ind., assignor to TP Orthodontics, Inc., Westville, Ind.
Filed Apr. 4, 1997, Ser. No. 835,122
Int. Cl.[6] A61C *3/00*
U.S. Cl. 433—17 **18 Claims**



1. A buccal tube adapted to be secured to a tooth comprising:
a lumen extending mesial-distally therethrough for receiving the distal end of an archwire,
said lumen having a mesial end and a distal end,
said lumen including a control portion at said mesial end for closely receiving the archwire to exert labiolingual and occlusogingival control over the archwire, and a substantially occlusal gingival relieved portion extending from the control portion to the distal end to reduce the force required for the mesial withdrawal of an archwire having a bend distal to the tube.

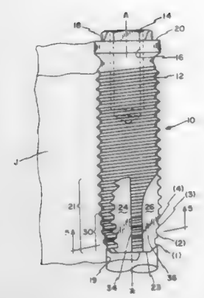
5,727,942
JAW IMPLANT ARRANGEMENT WITH AN IMPLANT SHAFT AND AN INSERTION TOOL
Alexander Hartmann, Wintererstr. 57, D 79104 Freiburg, and Wilfried Schilli, Horbener Str. 27, D-79100 Freiburg, both of Germany
PCT No. PCT/EP95/04942, § 371 Date Aug. 9, 1996, § 102(e) Date Aug. 9, 1996, PCT Pub. No. WO96/18355, PCT Pub. Date Jun. 20, 1996
PCT Filed Dec. 14, 1995, Ser. No. 687,568
Claims priority, application Germany, Dec. 14, 1994, 9420038 U
Int. Cl.[6] A61C *8/00*
U.S. Cl. 433—173 **10 Claims**



1. Implant arrangement for securing a denture to a jawbone, said implant arrangement comprising:
implant shaft means having a central axis, a first end for insertion into the jawbone and a second end,
securing means including a threaded bore formed at said second end for securing said denture thereto, said threaded bore being inclined with a predetermined angle relative to said central axis, and
insertion tool means for inserting said implant shaft means into the jawbone,
said insertion tool means having a central axis and a first end removably connected to said implant shaft for rotationally inserting said implant shaft into said jawbone,
connection means formed at said first end of said insertion tool means with an inclination relative to said central axis of said insertion tool means corresponding to said predetermined angle, said connecting means removably interfacing said insertion tool means and said implant shaft,
wherein said central axis of said insertion tool means is coaxial with said central axis of said implant shaft.

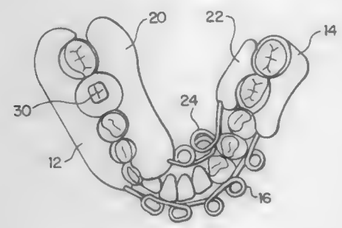
5,727,943
SELF-TAPPING, SCREW-TYPE DENTAL IMPLANT
Keith D. Beaty, Jupiter; Ralph Goodman; Thomas S. Heylmun, both of West Palm Beach, and James W. Reams, Stuart, all of Fla., assignors to Implant Innovations, Inc., Palm Beach Gardens, Fla.
Filed Jan. 24, 1996, Ser. No. 590,087
Int. Cl.[6] A61C *8/00*
U.S. Cl. 433—174 **72 Claims**

1. A self-tapping implant for installation in living bone and to which a prosthesis is to be coupled, comprising:
a generally cylindrical body having an apical end, a gingival end and a threaded outer surface between said ends for securing said implant to the walls of a preformed hole in said living bone, said threaded outer surface tapering inwardly toward a



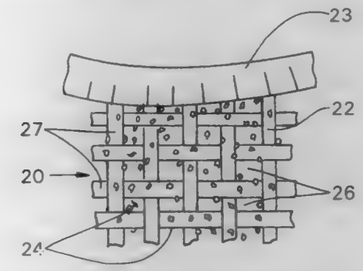
longitudinal axis of the cylindrical body at the apical end of the body, said gingival end of said body including means for coupling said body to said prosthesis,
said body having a plurality of longitudinal recesses formed in said threaded surface at said apical end and extending through a plurality of thread turns of progressively diminishing radii toward said apical end, said plurality of longitudinal recesses forming a sequence of self-tapping cutting edges one of which being located at each interruption of the thread by one of said recesses, the thread-peaks at said cutting edges moving progressively closer to said axis when proceeding along the thread toward said apical end, and
each modified thread segment that extends between adjacent ones of said plurality of recesses having a major and minor radii, said major and minor radii diminishing around said axis between the leading and trailing ends of said modified thread segment.

5,727,944
DENTAL IMPRESSION SHROUD
Dennis J. White, 51 Nostrano Rd., Cranbury, N.J. 08512
Filed Sep. 26, 1996, Ser. No. 722,854
Int. Cl.[6] A61C *9/00*
U.S. Cl. 433—214 **10 Claims**



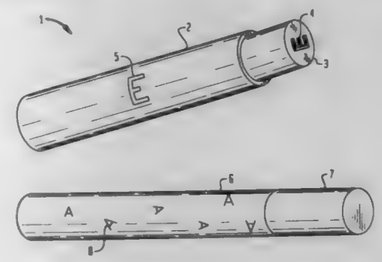
1. A dental impression shroud for masking the undercut areas of oral structures while an impression is being taken with a dental impression tray, said shroud is made of a rigid material and comprises an interior surface that is shaped to fit selected areas of oral structures and an opposite external surface which is substantially flat, wherein during use, when the interior surface is placed against the oral structures, said flat external surface forms an angle with respect to said impression tray that is slightly less than perpendicular, whereby said shroud masks the undercut surfaces and provides a flat external surface at an angle that allows the impression material within said dental impression tray to be removed without distorting to thereby provide a more accurate impression of the unmasked oral structures.

5,727,945
IMPREGNATED BARRIER AND METHOD OF ASSISTING BONE OR TISSUE REGENERATION
Richard M. Dannenbaum, 8 North Union Ave., Margate, N.J. 08402
Filed Aug. 26, 1996, Ser. No. 703,260
Int. Cl.[6] A61C *5/00*
U.S. Cl. 433—215 **11 Claims**



1. A bioresorbable barrier for use in regeneration of at least one of periodontal bone and tissue in a gingival pocket being one of adjacent to a patient's tooth and in an edentulous area, said barrier comprising:
a formable membrane constructed of a bioresorbable material and having a microstructure configured for aiding and guiding periodontal bone and periodontal tissue growth, wherein said membrane comprises a woven mesh including strands; and
an activatible bioresorbable hardening agent impregnated within said membrane, said hardening agent being activated to hold said membrane in a desired shape.

5,727,946
MULTICOLORED TUTORIAL STAMPERS
Lawrence I. Rosen, Mendham, N.J., assignor to Rose Art Industries, Livingston, N.J.
Filed Sep. 6, 1996, Ser. No. 706,672
Int. Cl.[6] G09B *19/00*; B41K *1/02*
U.S. Cl. 434—159 **1 Claim**



1. A plurality of stampers, each stamper comprising a barrel, a supply of marking fluid enclosed within the barrel, a character nib terminating the barrel, and a protective cap for encasing the nib wherein:
a. the character nib of a first stamper is adapted for imprinting a first character of a logically related character set;
b. the marking fluid enclosed within the first stamper is of a first color of a plurality of different colors, the number of different colors being coincident with the number of characters in the character set, each color of the plurality of different colors being associated with one character of the character set;
c. at least a portion of the outer surface of the stamper, including the cap, is of the first color; and

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d. the barrel bears an imprint of the first character in the first color

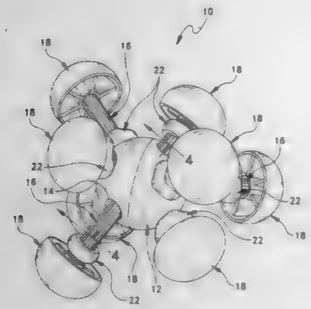
whereby the stamper is adapted for imprinting the first character in the first color on a substrate.

5,727,947

HAND TOY WITH MOVABLE RODS AND RING ELEMENTS

Richard B. Esterle, 605 E. 11th St., Apt. 1A, New York, N.Y. 10009

Filed Mar. 10, 1997, Ser. No. 815,976
Int. Cl.[6] A63H *33/00*; **G09B** *19/00*
U.S. Cl. 434—258 **19 Claims**



1. A hand toy comprising:

a central hub having a plurality of openings passing therethrough wherein said plurality of openings do not intersect one another; and

a plurality of elongate rods each respectively slidably received within a corresponding one of the openings in the central hub, said rods having opposing terminal ends which extend outwardly from said hub, each rod having a stopper element at the respective terminal ends thereof, said plurality of rods being slidably movable along their respective lengths thereof relative to the central hub, said stopper elements limiting sliding movement of the terminal ends of the rods relative to the hub to prevent said rods from becoming disassembled from the hub.

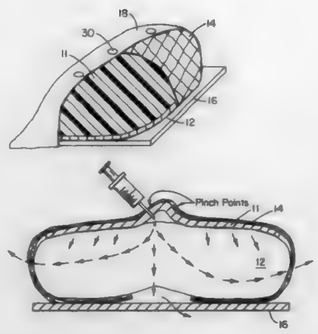
5,727,948

SYRINGE INJECTION PRACTICE DEVICE

Lynette S. Jordan, 3316 Victoria Ct., Johnson City, Tenn. 37605

Filed Sep. 5, 1996, Ser. No. 712,480
Int. Cl.[6] G09B *23/30*
U.S. Cl. 434—267 **9 Claims**

1. A syringe injection practice model comprising the components of a skin simulating layer of gelatinous material having a consistency similar to that of human skin and being punctureable by syringe needle means in a simulated manner to abdominal insulin injection, said layer being mounted onto an outer surface of a cushion base means of fibrous fill material having an open cell configuration for allowing air to circulate therethrough, said outer surface of said base means being of generally abdominal region configuration, said base means having an inner surface adapted to lie substantially flat on support means, said layer and base means forming first structure means, breathable cloth wrapping means substantially surrounding said first structure means and maintaining the relative positional integrity of said components thereof and



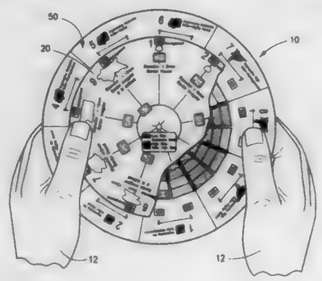
thereby forming second structure means, said second structure means being mounted on substantially flat support means to form third structure means.

5,727,949

REFERENCE DEVICE FOR PROGNOSING SKIN LESIONS

David Bar-Or, and Raphael Bar-Or, both of 900 E. Oxford La., Englewood, Colo. 80110

Filed Oct. 24, 1996, Ser. No. 738,986
Int. Cl.[6] G09B *23/28*;*25/00*; **G09F** *11/04*
U.S. Cl. 434—267 **30 Claims**



1. A reference device for indicating prognosis of a physical condition based upon selected diagnostic characteristics of the physical condition, comprising:

(a) a first panel member having a first panel member surface, said first panel member surface including a plurality of first selected diagnostic characteristics of the physical condition distributed thereon in a first array which is defined in that adjacent ones of said first selected diagnostic characteristics are spaced apart relative to one another from a first central reference point on said first panel member surface, said first panel member surface further including a viewing window associated with each of said plurality of first selected diagnostic characteristics; and

(b) a second panel member having a second panel member surface which includes a plurality of second selected diagnostic characteristics of the physical condition distributed thereon in a second array which is defined in that adjacent ones of said second selected diagnostic characteristics are spaced apart relative to a second central reference point on said second panel member surface, said second panel member further including a plurality of prognosis indicators associated with each of said second selected diagnostic characteristics, said second panel member mounted for relative movement with said first panel member whereby a selected one of said first selected diagnostic characteristics may be paired with a

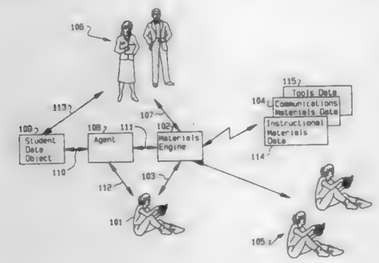
selected one of said second selected diagnostic characteristics to define a specific combination of diagnostic characteristics so that the viewing window associated with the selected one of said first selected diagnostic characteristics automatically registers with one of the plurality of prognosis indicators associated with the selected one of said second selected diagnostic characteristics, thereby to reveal a determinable prognosis indicator corresponding to the specific combination of diagnostic characteristics.

5,727,950

AGENT BASED INSTRUCTION SYSTEM AND METHOD

Donald A. Cook, deceased, late of Jamaica Plain, by Dawn Mather Cook, administratrix; George Lukas, Brighton, both of Mass.; Andrew V. Lukas, Boulder, Colo., and David J. Padwa, Santa Fe, N. Mex., assignors to Netsage Corporation, Golden, Colo.

Filed May 22, 1996, Ser. No. 651,422
Int. Cl.[6] G09B *5/00*
U.S. Cl. 434—350 **151 Claims**



1. A method of operating an agent based instruction system for interactive instruction of a student over a plurality of instructional sessions, said method comprising:

(a) presenting interactive instruction to said student by executing one or more materials on a computer accessed by said student for a current instructional session;

(b) monitoring said interactive instruction of said student during said current instructional session;

(c) storing information responsive to said monitoring of said student during said current instructional session for use during subsequent instructional sessions;

(d) outputting information on said computer to guide said student in said interactive instruction, said output information responsive to said monitoring of said student during said current instructional session and to said stored information responsive to said monitoring of said student during previous instructional sessions;

(e) controlling said one or more materials, said controlling responsive to said monitoring of said student during said current instructional session and to said stored information responsive to said monitoring of said student during previous instructional sessions, and wherein said one or more instructional materials are responsive to said controlling;

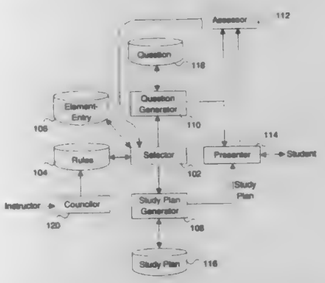
whereby said system acts as a virtual tutor adapted to said student, said virtual tutor guiding said interactive instruction of said student, and said interactive instruction presented by said system is individualized to said student.

5,727,951

RELATIONSHIP-BASED COMPUTER-AIDED-EDUCATIONAL SYSTEM

Chi Fai Ho, 4816 Cabello Ct., Union City, Calif. 94587, and Peter P. Tong, 1807 Limetree La., Mountain View, Calif. 94040

Filed May 28, 1996, Ser. No. 664,023
Int. Cl.[6] G09B *7/04*
U.S. Cl. 434—362 **20 Claims**



1. A computer-aided-educational method for furthering a student's understanding in a subject through relationship learning, with the subject being divided into line-items and relationship-items, with each relationship-item relating two or more items, and with the items being separated into learnt and un-learnt elements, the method comprising the steps of:

selecting an un-learnt element;

generating learning materials for the student to learn the selected un-learnt element;

assessing the student's learning progress in the selected element; and

if the assessment on the selected element is satisfactory, then classifying one or more relationship-items to be learnt as un-learnt elements, with each classified relationship-item relating the selected element with one or more learnt elements.

5,727,952

EDGE-ENCAPSULATED WRITING BOARD

Robert Schenck, Manitowoc; Jeff H. Hoffman, Two Rivers, and Michael N. Klein, Sheboygan, all of Wis., assignors to Classic Modular Systems, Inc., Two Rivers, Wis.

Filed Jul. 19, 1996, Ser. No. 684,225
Int. Cl.[6] B43L *1/06*
U.S. Cl. 434—408 **8 Claims**

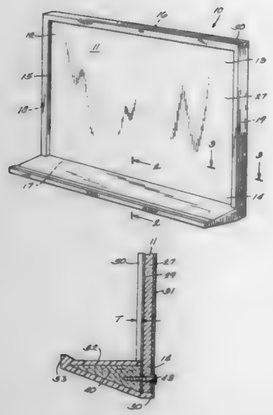
1. A writing board comprising:

a writing sheet having a peripheral edge, a top portion, and a bottom portion;

an edge molding of polymeric material molded on the peripheral edge of the writing sheet, encapsulating the peripheral edge of the writing sheet to form a single-piece frame around the writing sheet; and

a shelf core mounted on the bottom portion of the writing sheet, wherein the edge molding of polymeric material encapsulates the peripheral edge of the writing sheet and the shelf core to

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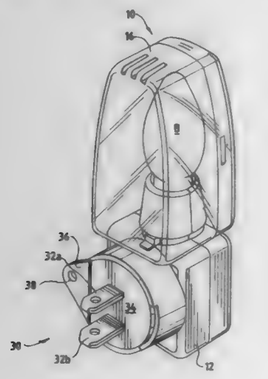
form said single-piece frame around the writing sheet and a shelf, which is integral with the frame, on the shelf core.

5,727,953

NITE LITE WITH ROTATABLE PRONGS

Daniel Pasholk, Montgomery, Ill., assignor to BRK Brands, Inc., Aurora, Ill.

Filed Jul. 31, 1996, Ser. No. 690,555
Int. Cl.[6] H01R *39/00*
U.S. Cl. 439—21 **16 Claims**



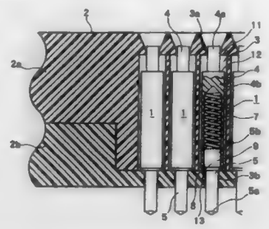
1. A rotatable night light comprising:
a body having a socket for receiving a light bulb;
first and second AC prongs, and a base, said prongs extending from said base, and wherein said base includes a protrusion which slidably engages the body and is rotatably retained thereby;
a retaining element having a tab extending from said base for fixedly attaching the tab to a structure of an adjacent source of electrical energy.

5,727,954

CONNECTOR HAVING RELATIVELY MOVABLE UPPER AND LOWER TERMINALS

Yuji Kato, Yokohama, and Nanahiro Hayakawa, Tokyo, both of Japan, assignors to Yamaichi Electronics Co., Ltd., Tokyo, Japan

Filed Feb. 8, 1996, Ser. No. 599,341
Claims priority, application Japan, Feb. 8, 1995, 7-044885
Int. Cl.[6] H01R *9/09*
U.S. Cl. 439—66 **12 Claims**



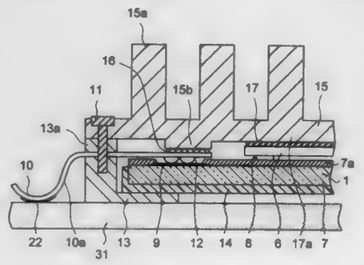
1. A connector for electrically connecting an upper connection object with a lower connection object, said connector comprising:
an insulative substrate having a hole formed therethrough;
a contact pin mounted in said hole of said insulative substrate, said contact pin comprising an upper terminal pin, a lower terminal pin axially movably secured to said upper terminal pin such that said lower terminal pin is axially movable relative to said upper terminal pin, and a spring interposed between said upper terminal pin and said lower terminal pin; and
wherein said contact pin is axially movably mounted in said hole of said insulative substrate such that said upper terminal pin, said lower terminal pin and said spring are axially movable together as a unit relative to said insulative substrate.

5,727,955

SOCKET FOR ELECTRONIC COMPONENTS AND ELECTRONIC COMPONENT WITH SOCKET FOR CONNECTION

Hidehiro Tsubakihara, Osaka, Japan, assignor to Sumitomo Metal Industries Limited, Osaka, Japan

Filed Sep. 24, 1996, Ser. No. 719,977
Claims priority, application Japan, Oct. 2, 1995, 7-255261
Int. Cl.[6] H01R *9/09*
U.S. Cl. 439—71 **12 Claims**



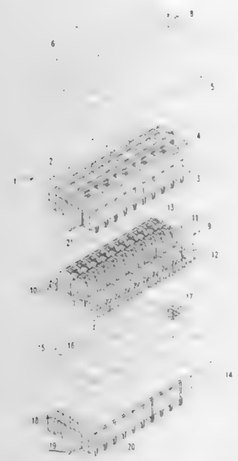
1. A socket for electrically connecting a terminal of an electronic component with a terminal of an electronic circuit substrate, comprising:
a frame for engaging the electronic component;
a film-shaped connector, retained by the frame, having a first terminal for connection with the terminal of the electronic component, a second terminal for connection with the terminal of the electronic circuit substrate, and a wiring for electrically connecting the first terminal with the second terminal;
a cover, mounted on the frame, for covering the electronic component, and for making the terminal of the electronic component come into contact with the first terminal;
the frame including:
a spring member provided on a first corner of the frame, for applying force against the electronic component; and
a plurality of adjusters provided on two sides of the frame, said two sides joining at a second corner which is opposite to said first corner, wherein each said adjuster has a screw which is adjustable from an upper face of the frame to advance the screw in a moving direction, and each said adjuster includes a plunger for converting the moving direction of the screw to another moving direction for adjusting the position of the electronic component and for pressing the electronic component against the spring member.

5,727,956

CONNECTOR ASSEMBLY INCLUDING METAL STRIPS AS CONTACT MEMBERS

Niranjan Mitra, Eindhoven; Ronald Bekker, Waalre, and Bernardus Paagman, Schijndel, all of Netherlands, assignors to Berg Technology, Inc., Reno, Nev.

Filed Jul. 17, 1995, Ser. No. 503,148
Int. Cl.[6] H01R *9/09*
U.S. Cl. 439—74 **9 Claims**



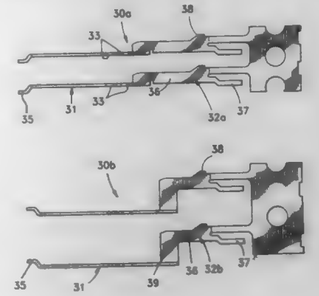
1. A connector assembly comprising a connector (**40**) comprising an insulating housing and a plurality of electrically conductive contact members characterized in that each of said contact members (**2**, **3**; **26**; **42**; **47**) is made of a metal layer arranged on a predetermined insulating part of said connector, and said connector (**40**) further comprises at least one cavity (**52**) provided at its inside with at least one contact strip (**42**) and said connector assembly further comprises a further mating connector (**44**) being provided with at least one plastic pin-like member (**46**) coated with a metal contact strip (**47**), wherein the connector (**40**) and the further mating connector (**44**) are designed to be inserted into each other in order to establish electrical contact between said at least one contact strip (**42**) and a corresponding metal contact strip (**47**) on said at least one pin-like member (**46**).

5,727,957

SURFACE MOUNT CONNECTOR

Shinichi Hashimoto, and Yoshitsugu Fujiura, both of Tokyo, Japan, assignors to The Whitaker Corporation, Wilmington, Del.

Continuation of Ser. No. 516,770, Aug. 17, 1995, abandoned.
This application Jan. 8, 1997, Ser. No. 780,766
Claims priority, application Japan, Oct. 20, 1994, 6-281344
Int. Cl.[6] H01R *9/09*
U.S. Cl. 439—79 **10 Claims**



1. An electrical connector comprising:
an insulating housing having cavities arranged in at least one row and grooves therein, each of said grooves being associated with a respective one of said cavities and arranged normal thereto;
electrical contacts having flat contact sections disposed along said cavities and flat termination sections perpendicular to said contact sections extending along said grooves; and
lugs on said termination sections engaging inner surfaces of said grooves thereby arraying said termination sections in a straight line so that soldering termination members of said termination sections are in alignment along a plane parallel to a plane contacting said contact sections, and
cutouts are located at a back end of said cavities in which rearward end sections of the contact sections are disposed thereby enabling said rearward end sections to be bent thereinto within the limits of the elastic deformation thereof.

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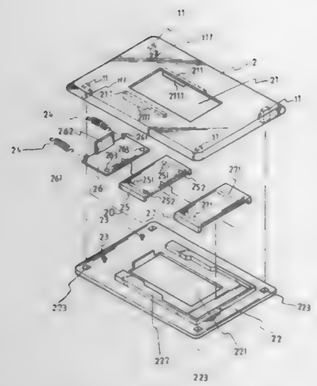
SLIDABLE SPRING ACTUATED GUARD LID FOR HOUSEHOLD SOCKET SET

Chien-Ming Chen, 4Fl. No. 6, Lane 6, Alley 75, Lian-Chen Road, Chung-Ho City, Taipei Hsien, Taiwan

Filed Aug. 12, 1996, Ser. No. 695,895
Int. Cl.[6] H01R *13/44*
U.S. Cl. 439—136 **4 Claims**

1. A guard lid for a common household wall-mounted socket set, comprising:
a top cover having a central opening, each corner of one side of said cover being provided with a locking hook having an extended hooking end;
said top cover having a pair of parallel retaining blocks each disposed adjacent one side of said central opening of said top cover;
a telescopic guard lid having a front door plate, a middle door plate, and a rear door plate telescopically interconnected;
a bottom board having a central opening corresponding to said central opening of said top cover;
said bottom board having a three-sided protruding wall disposed about said central opening;
two opposing sides of said three-sided protruding wall having a stepwise inner face so that said door plates of said telescopic guard lid being movable inside said wall;

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said front door plate having two spaced protruded dots disposed at two corners thereof, movement of said dots being limited by said retaining blocks, each said retaining block having a downward extension;

said front door plate having a vertical holding wall disposed at one side thereof for easy operation of said front door plate;

said middle door plate also having two spaced protruding dots, said middle door having a pair of parallel grooves disposed on an underside of said middle door plate so that said protruding dots of said front door plate are slidably engaged with said grooves of said middle door plate when said front door plate is disposed under said middle door plate;

said rear door plate having a pair of parallel grooves disposed on an underside of said rear door plate so that said protruding dots of said middle door plate are slidably engaged with said grooves of said rear door plate when said middle door plate is disposed under said rear door plate;

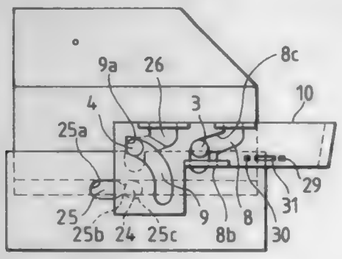
said bottom board is provided with retaining cavities at each corner of said bottom board so that said top cover can be locked to said bottom board with said telescopic guard lid confined therebetween.

5,727,959

LEVER FITTING-TYPE CONNECTOR

Sakai Yagi; Tamio Watanabe, and Toru Nagano, all of Shizuoka, Japan, assignors to Yazaki Corporation, Tokyo, Japan

Filed Nov. 28, 1995, Ser. No. 563,386
Claims priority, application Japan, Nov. 29, 1994, 6-294218
Int. Cl.° H01R *13/44*
U.S. Cl. 439—157 **8 Claims**



1. A lever fitting-type connector comprising:

a first connector on which a lever is pivotally mounted, the lever having a pivotal cam groove and a pivot pin;

a second connector having an engagement pin and an auxiliary engagement projection disposed proximate the engagement pin;

the first connector engaging the second connector in a connecting direction;

the lever having a lever groove including a sliding slanting portion extending generally transversely to the connecting direction for cooperating with the auxiliary engagement projection the lever groove having an inlet portion and an outlet portion wherein the auxiliary engagement projection enters the lever groove at the inlet portion and exits the lever groove at the outlet portion, the pivotal cam groove having a communication groove for receiving said engagement pin; and

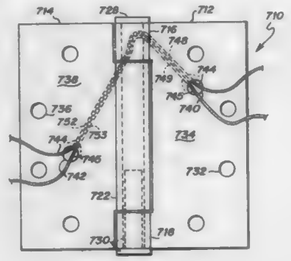
an elongate groove for receiving the lever pivot pin to allow the lever to move in a direction transverse to the connecting direction, the elongate groove being provided on the first connector.

5,727,960

HINGE FOR PASSING POWER

Raymond E. Zehrung, 3029 Cameron Way, Santa Clara, Calif. 95051

Continuation-in-part of Ser. No. 546,586, Oct. 23, 1995, Pat. No. 5,586,895. This application Mar. 28, 1996, Ser. No. 623,171
Int. Cl.° H01R *35/04*
U.S. Cl. 439—165 **20 Claims**



19. A power transfer hinge comprising:

a first hinge leaf having an outer knuckle;

a second hinge leaf having at least one knuckle axially aligned to a common bore with said outer knuckle;

at least one first passageway in the first hinge leaf having a first center line opening into said common bore; and

at least one second passageway having a second center line opening into said common bore, the second center line and the first center line having an intersection that is one of (i) within said common bore within said outer knuckle and (ii) axially aligned with said common bore outside of said outer knuckle.

5,727,961

TWO-WAY TRANSVERSELY MATABLE ELECTRICAL CONNECTOR

John Michael Landis, Camp Hill, and George Harold Douty, Mifflintown, both of Pa., assignors to The Whitaker Corporation, Wilmington, Del.

Filed Apr. 30, 1996, Ser. No. 641,246
Int. Cl.° H01R *13/28*
U.S. Cl. 439—287 **12 Claims**

1. An electrical connector comprising:

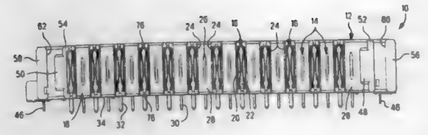
an insulative housing including a body portion and a mating face, said housing including at least one projection extending from said body portion at said mating face and having opposed first and second side surfaces and opposed third and fourth sides orthogonal thereto, each said at least one projection including a slot thereacross orthogonal to said first and second side surfaces and in communication therewith and defining blade-receiving entrances therealong;

at least one first contact disposed in said body section and including a blade portion extending therefrom at said mating face parallel to said third and fourth sides of said projection and spaced therefrom; and

at least one second contact disposed in said body section and including a receptacle portion extending therefrom at said mating face to be disposed within said slot of a respective said projection;

each said receptacle portion having a blade-receiving gap adjacent said blade-receiving gap of said slot and aligned therewith,

whereby said connector is adapted to be matable with another connector having contacts with like blade portions corresponding with said receptacle portions and further having contacts with like receptacle portions corresponding with said blade portions, with said connector and said another connector movable relatively transversely with respect to said mating face.

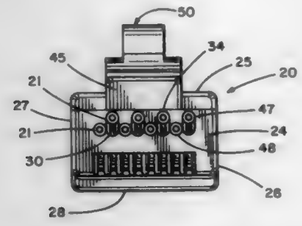


5,727,962

MODULAR PLUG CONNECTOR

Jack E. Caveney, 546 Dalewood La., Hinsdale, Ill. 60521; Royal O. Jenner, 7531 W. 175th St., Tinley Park, Ill. 60477, and Russell A. Vanderhoof, 17261 S. Drauden Rd., Plainville, Ill. 60544

Filed Sep. 29, 1995, Ser. No. 536,810
Int. Cl.° H01R *4/50*
U.S. Cl. 439—344 **15 Claims**



1. A connector for terminating a plurality of conductors of a plurality of conductor pairs, comprising:

first means for initially positioning the conductors in a substantially planar array, including a plurality of substantially planar conductor positioning channels; and

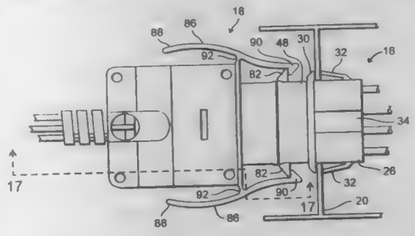
second means for positioning at least one of the conductors away from another one of the conductors such that cross talk between the conductor pairs is reduced, including at least one conductor termination slot disposed adjacent one of the conductor positioning channels, wherein the second means for positioning includes a translation contact mounted in the connector and aligned with a conductor positioning channel and an adjacent conductor termination slot such that a termination force applied to the contact moves the contact against a conductor initially positioned in the aligned conductor positioning channel and moves the conductor into the aligned conductor termination slot.

5,727,963

MODULAR POWER CONNECTOR ASSEMBLY

Dolan M. LeMaster, 3327 E. Desert Flower, Phoenix, Ariz. 85004

Filed May 1, 1996, Ser. No. 641,490
Int. Cl.° H01R *13/627*
U.S. Cl. 439—358 **6 Claims**



1. A modular power connector assembly comprising:

first and second housings configured to releasably couple together;

N first apertures formed within said first housing, N being a number greater than eight;

N conductive first housing contacts configured to fit within said first apertures;

N second apertures formed within said second housing; and

N conductive second housing contacts configured to fit within said second apertures;

wherein each of said first housing contacts engage with corresponding ones of said second housing contacts when said first and second housings are coupled together; and

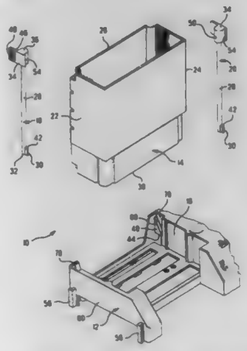
a predetermined one of said first housing contacts and a predetermined one of said second housing contacts are the first to establish contact when said first and second housings are being coupled together.

5,727,964

SYSTEM FOR REMOTE LATCHING AND DELATCHING

George Harold Douty, Mifflintown; John Michael Landis, Camp Hill; Hurley Chester Moll, Jr., and Michael David Long, both of Harrisburg, all of Pa., assignors to The Whitaker Corporation, Wilmington, Del.

Filed Apr. 30, 1996, Ser. No. 640,294
Int. Cl.° H01R *13/62*
U.S. Cl. 439—372 **17 Claims**



1. A system for latching and delatching a first article to a second article, comprising:

at least one latch member movably affixed to said first article and having an actuator section at a trailing end of an elon-

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gated shaft and further having a latch projection projecting laterally from a leading end of said shaft and defining a latch surface;

said first article including a passageway extending therethrough from a rearward end to a forward end and shaped and dimensioned to permit insertion of a respective each said at least one latch member therethrough and therealong such that said actuator is disposed at said rearward end and exposed for manipulation thereof, said leading end of said latch member shaft extends outwardly from a forward end of a respective said passageway, and said latch member is rotatably movable within said passageway; and

said second article includes a latch-receiving recess extending into a face thereof and associated with each said at least one latch member and including a cooperating latch along said latch-receiving recess defining a cooperating latch surface cooperable with said latch surface of said latch projection of said latch member,

whereby upon mounting of said first article to said second article, said leading end of each said at least one latch member extends along a corresponding said latch-receiving recess for said latch projection to become latchingly engaged with said cooperating latch upon manipulation of said actuator of said latch member at said rearward end of said first article.

5,727,965

BRANCH CONNECTOR APPARATUS

Kazuhiro Yagi, P.O. Box 33427, St. Paul, Minn. 55133-3427

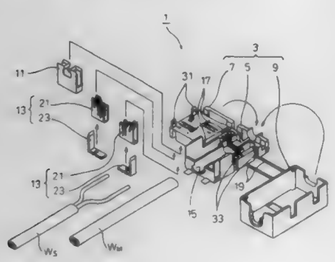
PCT No. PCT/US96/15370, § 371 Date Sep. 25, 1996, § 102(e) Date Sep. 25, 1996

PCT Filed Sep. 25, 1996, Ser. No. 722,058

Claims priority, application Japan, Oct. 31, 1995, 7-283972

Int. Cl.[6] H01R *4/26*

U.S. Cl. 439—402 **4 Claims**



1. A branch connector apparatus having two spaced conductive contacts and wedge-shaped portions;

a housing having a main conductor inserting portion in which a main conductor including an insulated multi-core flat sheath cable is inserted, a branch conductor inserting portion in which an insulated branch conductor made of an insulated electrical wire is inserted, and a connector inserting portion in which a connector is inserted,

wherein upon inserting the connector into the housing, one of said conductive contacts pierces an insulating portion of the main conductor to engage with a conductor portion of the main conductor, and the other conductive contact pierces an insulating portion of the branch conductor to engage with a corresponding conductor portion of the branch conductor, so that an electrical connection therebetween can be established, characterized in that;

provision is made of a sheath cutter which cuts only the sheath portion of the main conductor to expose the insulating portion of the main conductor,

the housing is provided with a sheath cutter inserting portion in which the sheath cutter is guided to cut and remove the sheath.

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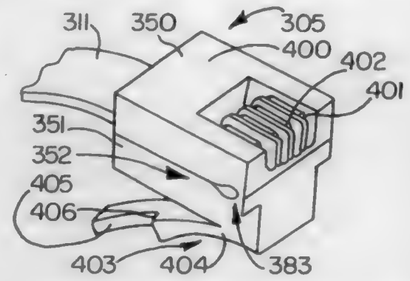
FOLDABLE CONNECTOR ASSEMBLY FOR MINIATURE CIRCUIT CARD

Martin Alpert, 180 Basswood La., Cleveland, Ohio 44022

Continuation-in-part of Ser. No. 237,203, Apr. 21, 1994. This application Mar. 29, 1995, Ser. No. 412,718

Int. Cl.[6] H01R *4/24*

U.S. Cl. 439—418 **9 Claims**



1. A foldable RJ-type male telephone plug connector, comprising

a connector body including a main body and a supplemental body,

an electrical terminal mounted to said main body for making an electrical connection, and

a locking member for holding the connector in an electrical device for making electrical connection,

said supplemental body being pivotable with respect to said main body between open and closed positions and cooperative with said main body when in closed position to complete the connector body.

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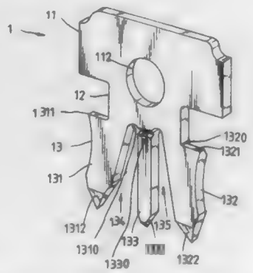
METAL CONTACT PLATE OF A MODULE PLUG

Hsin-Huei Chen, No. 48, Sec. 2, Chang An Rd., Lu Chu Hsiang, Tao Yuan Hsien, Taiwan

Filed Oct. 22, 1996, Ser. No. 734,916

Int. Cl.[6] H01R *4/24*

U.S. Cl. 439—418 **1 Claim**



1. A metal contact plate adapted for mounting in a channel in a module plug housing and connecting to an electrical wire in the channel, comprising a positioning section for positioning in the channel, a contact section for connecting to the electrical wire, and a neck connected between said positioning section and said contact section, said contact section comprising a first contact leg and a second contact leg bilaterally and downwardly extending from said neck, and a third contact leg downwardly extending from said neck and spaced between said first contact leg and said second contact leg by a respective gap, said first contact leg and said second contact leg having a respective bevel bottom edge disposed at a front side of the metal contact plate and adapted for cutting in the insulator of the electrical wire to make contact with a conductor thereof, said third contact leg having a bevel bottom edge disposed at a back side of the metal contact plate and adapted for cutting in the insulator of the electrical wire to make contact with the conductor of the electrical wire, wherein:

said first contact leg and said second contact leg have a respective transverse groove respectively disposed at the back side of the metal contact plate adjacent to said neck; said third contact leg has a transverse groove disposed at the front side of the metal contact plate adjacent to said neck; said gap has a width made gradually wider from said neck towards a bottom side of the metal contact plate.

5,727,968

CONNECTOR FOR FLAT CABLES

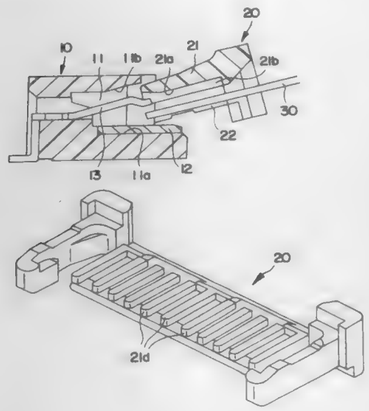
Tomonari Ito, Yokkaichi, Japan, assignor to Sumitomo Wiring Systems, Ltd., Japan

Filed Apr. 1, 1996, Ser. No. 625,921

Claims priority, application Japan, May 9, 1995, 7-136199

Int. Cl.[6] H01R *9/07*

U.S. Cl. 439—495 **11 Claims**



1. A connector for a flat cable comprising a plurality of electrically conductive wires extending longitudinally of, and in side-by-side relationship across, said cable,

said connector including a receiving chamber having a floor and a ceiling, at least two electrodes, in side- by-side relationship with a gap therebetween, for electrical connection to said cable, in said chamber between said floor and said ceiling, at least one contact for electrical connection to said cable on said floor, a first space between said electrode and said floor, a second space between said electrode and said ceiling, a leading end of said cable adapted to enter said first space,

a retainer, comprising a generally planar thin plate for entry into said second space, at least one rib upstanding from said plate toward said floor and adapted to enter said gap when said retainer is inserted into said second space, said rib adapted to contact said leading end as it is inserted into said receiving chamber and guide said leading end into said first space, whereby said plate bears against said electrode and urges it toward said contact.

5,727,969

LOW-INSERTION-FORCE CONNECTOR ASSEMBLY

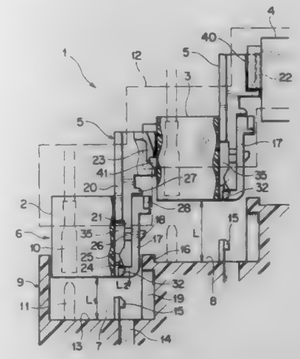
Makoto Yamanashi, Shizuoka, Japan, assignor to Yazaki Corporation, Tokyo, Japan

Filed May 17, 1996, Ser. No. 649,235

Claims priority, application Japan, May 19, 1995, 7-121347

Int. Cl.[6] H01R *13/40*

U.S. Cl. 439—594 **4 Claims**



1. A low-insertion-force connector assembly comprising:

a first connector having a plurality of adjacent connecting bodies slidable in a direction of connector engagement and a joinder member separate from and disposed between adjacent connecting bodies, each said joiner member, having oppositely spaced end portions and being operative for sequentially joining said adjacent connecting bodies,

a second connector receiving the first connector,

a guiding portion provided in one of said adjacent connecting bodies, said joinder member being slidable along said guiding portion in a connector-engagement direction,

a flexible extended arm provided in one end portion of said joinder member and having an abutting projection and a tapered portion thereon,

a joinder portion provided in the other end portion of said joinder member and joining the latter connecting body of said two adjacent ones of said connecting bodies,

a provisional locking portion provided on said flexible extended arm and provisionally locking said joinder member to said guiding portion,

an abutted projection provided on said former connecting body and abutting against said abutting projection,

a mating projection provided in said second connector and slidably mating with said tapered portion to deflect said flexible extended arm so that the engagement between said abutting projection and said abutted projection can be released,

a flexible lock arm in said one connecting body and locking said one connecting body to said second connector when said one connecting body is completely engaged with the second connector, said flexible lock arm having a retaining projection, and

a pushing projection provided in said extended arm and operative to abut against said retaining projection and deflect said lock arm only when said one connecting body has incompletely engaged with the second connector.

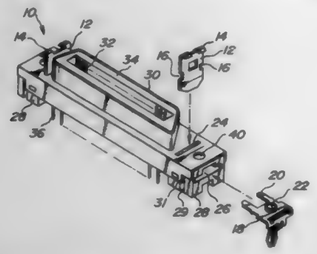
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5,727,970

INTERFACE CONNECTOR

Yasuyuki Koguchi, and Yukio Saito, both of Tokyo, Japan, assignors to DDK Ltd., Japan

Filed Aug. 30, 1996, Ser. No. 704,883
Claims priority, application Japan, Nov. 1, 1995, 7-309820
Int. Cl.° H01R 13/648
U.S. Cl. 439—607 7 Claims



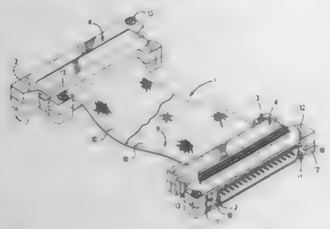
1. An interface connector including a plurality of contacts, said connector comprising, an insulator for holding and fixing the contacts therein, a shell for covering said insulator, and hooks for engaging a mating connector, said insulator having flanges when it is covered with said shell, each of said flanges being provided with an engaging aperture having a size allowing one hook to be inserted thereinto in a surface of the flange on a mating side with said mating connector and a further engaging aperture having a size allowing an earth plate to be inserted thereinto in an end surface of the flange, said two engaging apertures being connected to each other in said flange, said hook being provided with anchoring portions engaging said earth plate, said earth plate being provided on an inner end with engaging portions engaging said hook, thereby connecting said hook and said earth plate to each other in said two engaging apertures, each of said flanges of the insulator covered with said shell being provided in one side surface with a groove communicating with said further engaging aperture of the flange, said earth plate being provided with a notch on one side of said engaging portions engaging said hook, said shell being provided with lugs, each of said lugs being bent into said groove so that a tip end of the bent lug extends into said further engaging aperture of the flange to contact said notch of the earth plate.

5,727,971

SHIELDED CABLE ASSEMBLY

Michael Eugene Junkins, Dillsburg, and Lawrence Michael Hibbert, Middletown, both of Pa., assignors to The Whitaker Corporation, Wilmington, Del.

Filed May 21, 1996, Ser. No. 653,372
Int. Cl.° H01R 9/03
U.S. Cl. 439—610 8 Claims



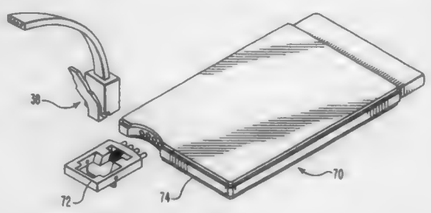
1. A cable assembly comprising:
an insulating termination cover assembled with an insulating housing to terminate multiple insulated conductors comprising an electrical cable, the insulated conductors projecting from between the assembled termination cover and the housing, a conducting wrapper encircling the insulated conductors where the insulated conductors project from between the assembled termination cover and housing, conducting shells secured to each other, the shells closing over the assembled termination cover and housing, the insulated conductors and the wrapper being routed between the termination cover and said at least one of the shells, the insulated conductors and the wrapper being clamped by the shells to establish an electrical connection between the wrapper and said shells wherein, the termination cover compresses the insulated conductors and the wrapper against at least one of the shells, and at least one conducting fastener mounted in the shells for coupling to, and for electrical connection with, a fastener coupling portion of a mating electrical connector.

5,727,972

MEDIA CONNECTOR INTERFACE FOR USE WITH A THIN-ARCHITECTURE COMMUNICATIONS CARD

Stephen C. Aldous, 4823 S. Wren Hollow Cir., Salt Lake City, Utah 84117, and Guy M. Dake, 3272 E. Germania Cir., Sandy, Utah 84093

Continuation of Ser. No. 291,277, Aug. 16, 1994, Pat. No. 5,547,401, which is a continuation-in-part of Ser. No. 40,656, Mar. 31, 1993, Pat. No. 5,338,210, which is a continuation-in-part of Ser. No. 974,253, Nov. 10, 1992, abandoned, which is a division of Ser. No. 866,670, Apr. 8, 1992, Pat. No. 5,183,404. This application Aug. 16, 1996, Ser. No. 689,715
Int. Cl.° H01R 17/18
U.S. Cl. 439—655 20 Claims



1. A communications card for use in connecting a downsized computer to a physical/electrical media connector of a communications system, the communications card comprising:
(a) an upper surface;
(b) a lower surface, the lower surface being separated from the upper surface by a distance smaller than the cross-section of the physical/electrical media connector, the electrical components of the communications card being positioned between the upper surface and the lower surface;
(c) an aperture formed in the communications card, the aperture extending from one of the surfaces into the communications card, the aperture being sized and configured so as to directly receive at least a portion of the physical/electrical media connector, to connect the physical/electrical media connector to the communications card.

5,727,973

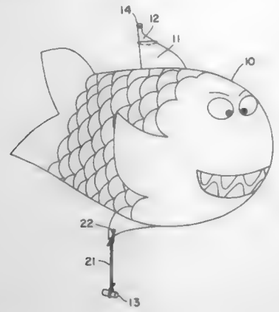
Patent Not Issued For This Number

5,727,974

LIQUID-FILLED UNDERWATER SCULPTURAL OBJECT

John J. Wiebenson, 1916 S St., NW., Washington, D.C. 20002

Filed Jun. 27, 1996, Ser. No. 693,590
Int. Cl.° B63B 22/18
U.S. Cl. 441—24 1 Claim



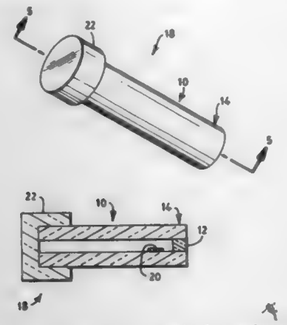
1. An article for use underwater comprised of a body consisting of a flexible envelope made of material that is impermeable to air and water, when in use having a highest point thereof and a lowest point thereof, the envelope having affixed thereto at its lowest point a weight connecting means, said weight connecting means being connected to a weight, said article when in use being partially filled with water and partially filled with air with the weight disposed on the weight connecting means so that when the article is immersed in a body of water the weight rests upon the bottom of the body of water and the article floats beneath the surface of the water, wherein the weight is a solid of specific gravity high compared to water and connected to the bottom of the envelope by a strap of flexible material, and wherein the strap is adjustable in length, and wherein the strap comprises two overlapping congruent pieces, one piece having a row of pegs along the longitudinal centerline thereof, and the other piece having a row of holes along the longitudinal center line thereof disposed to receive the pegs, said pegs being sized so as to force fit into said holes.

5,727,975

ARC TUBE FOR ELECTRODELESS LAMP

George C. Wei, Weston, Mass.; Jerry Kramer, Yorktown Heights, N.Y.; John Walsh, Milford, and Walter P. Lapatovich, Marlborough, both of Mass., assignors to Osram Sylvania Inc., Danvers, Mass.

Division of Ser. No. 509,851, Aug. 1, 1995, Pat. No. 5,621,275.
This application Oct. 7, 1996, Ser. No. 726,718
Int. Cl.° H01J 65/04;9/26
U.S. Cl. 445—22 1 Claim



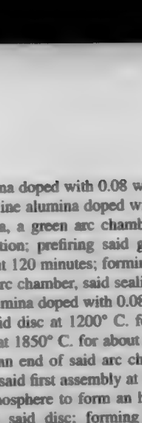
1. In the method of making an arc tube for an electrodeless lamp the steps comprising: forming from the group consisting esentially of polycrystalline alumina doped with 0.08 weight percent magnesium oxide, polycrystalline alumina doped with silicon dioxide, or monocrystalline alumina, a green arc chamber having a substantially tubular configuration; prefiring said green arc chamber at about 1350° C. for about 120 minutes; forming a sealing disc to fit inside one end of said arc chamber, said sealing disc being formed from polycrystalline alumina doped with 0.08 weight percent magnesium oxide; firing said disc at 1200° C. for about 120 minutes and sintering said disc at 1850° C. for about one minute; inserting said sintered disc into an end of said arc chamber to form a first assembly and sintering said first assembly at 1950° C. for about 30 minutes in an inert atmosphere to form an hermetic seal between said arc chamber and said disc; forming from polycrystalline alumina doped with 0.08 weight percent magnesium oxide an end cap for an open end of said arc chamber, said end being cup-shaped and having an inside diameter which is formed to fit over an outside diameter of said arc chamber; prefiring said end cap at 1200° C. for about 120 minutes; introducing an arc generating and sustaining fill into said arc chamber; fitting said end cap over said open end of said arc chamber to form a second assembly; and rapidly heating said second assembly to about 1800° C. to form an interference-fit, hermetic bond between said end cap and said arc chamber.

5,727,976

METHOD OF PRODUCING MICRO VACUUM TUBE HAVING COLD EMITTER

Masayuki Nakamoto, and Tomio Ono, both of Kanagawa-ken, Japan, assignors to Kabushiki Kaisha Toshiba, Kanagawa-ken, Japan

Filed Mar. 14, 1995, Ser. No. 404,277
Claims priority, application Japan, Mar. 15, 1994, 6-070153
Int. Cl.° H01J 9/02
U.S. Cl. 445—24 10 Claims



1. A method for producing a micro vacuum tube including an emitter layer having a protuberance, comprising the steps of:
forming a removable layer on a tip of the protuberance;
forming an anode electrode layer on the removable layer and an interposed insulator layer between the anode electrode layer and the emitter layer, with the interposed insulator layer and the removable layer comprising one layer; and
removing the removable layer so that a space is formed between the anode electrode layer and the tip of the protuberance.

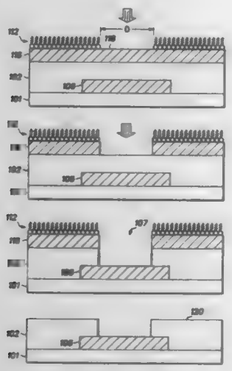
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5,727,977

PROCESS FOR MANUFACTURING A FIELD-EMISSION DEVICE

George N. Maracas, Phoenix; Lawrence N. Dworsky, Scottsdale; Herbert Goronkin, and Kathleen Tobin, both of Tempe, all of Ariz., assignors to Motorola, Inc., Schaumburg, Ill.

Filed Mar. 4, 1996, Ser. No. 608,023
Int. Cl.[6] H01J 9/02
U.S. Cl. 445—24 19 Claims



1. A process for manufacturing a field emission device comprising the steps of:

providing a substrate having a surface;

forming a conductive row on the surface of the substrate;

forming a dielectric layer on the surface of the substrate and on the conductive row, the dielectric layer having an outer surface;

forming a resist layer overlaying the outer surface of the dielectric layer, the resist layer having an outer surface;

forming a self-assembled monolayer of a self-assembled monolayer-forming molecular species on the outer surface of the resist layer, the self-assembled monolayer defining an emitter well pattern;

etching the resist layer with an etchant chemically inert with respect to the self-assembled monolayer so that the emitter well pattern is transferred to the resist layer;

etching the dielectric layer with an etchant that is chemically inert with respect to the conductive row thereby forming an emitter well;

forming an electron-emitter structure within the emitter well; and

forming a conductive column overlaying the dielectric layer.

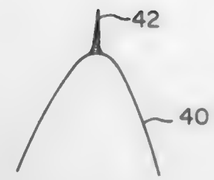
5,727,978

METHOD OF FORMING ELECTRON BEAM EMITTING TUNGSTEN FILAMENT

Roger L. Alvis, Cupertino; Janice Gray, Santa Clara, and Bryan Tracy, Oakland, all of Calif., assignors to Advanced Micro Devices, Inc., Sunnyvale, Calif.

Filed Dec. 19, 1995, Ser. No. 574,480
Int. Cl.[6] H01J 9/02
U.S. Cl. 445—50 8 Claims

1. A method of manufacturing an electron beam emitting filament having a tip, which method comprises: depositing platinum



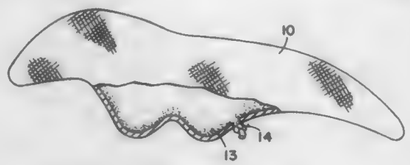
on an electron beam emitting filament; and sharpening the deposited platinum with a focused ion beam to produce the tip.

5,727,979

CRAFT KIT FOR PRODUCING TOY FIGURES

Donald Spector, 380 Mountain Rd., Union City, N.J. 07080

Filed Nov. 12, 1996, Ser. No. 746,469
Int. Cl.[6] A63H 33/14;3/06;3/36; B05D 1/28
U.S. Cl. 446—87 5 Claims



1. A method for producing a hollow toy figure, such as that of a miniature dinosaur comprising the steps of:

A. forming a collapsible cloth casing whose contours are such that when the casing is erected it has the shape of the toy figure;

B. inserting into the casing through an opening therein a collapsed balloon whose neck projects from the opening to permit mouth inflation;

C. inflating the balloon within the casing to cause the balloon to engage and confirm to the contours of the casing and thereby erect the casing; and

D. impregnating the cloth casing with a curable resin which when cured rigidifies the erect casing to create the toy figure.

5,727,980

DECORATIVE WIND DEVICE

Guido Stipa, 11 Utah Trail, Medford, N.J. 08055

Filed May 29, 1996, Ser. No. 655,039
Int. Cl.[6] A63H 33/40
U.S. Cl. 446—217 4 Claims



1. A wind operated device, comprising:

a plurality of flexible blade members for catching wind currents, each of said flexible blade members including a top end and a bottom end, each of said blade members having a junction

hole proximate to said top end and an inner ring hole and an outer ring hole proximate to the inner edge and outer edge, respectively, of said bottom end;

first connection means connecting said top ends of each of said flexible blade members to each other through said junction holes at a common point;

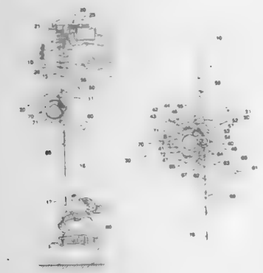
a pair of concentric circumferential connecting means connecting said bottom ends of each of said flexible blade members in a sequential, equally spaced relationship to each other, each of said concentric circumferential connecting means comprising a semi-rigid connecting ring and spacer divider sections equal in number to the number of flexible blade members, one of said concentric circumferential connecting means having a greater circumference than the other, the larger of said semi-rigid connecting rings passing sequentially through each of said outer holes in the bottom edge of said flexible blade members and the smaller of said semi-rigid connecting rings passing sequentially through each of said inner holes in the bottom edge of said flexible blade members, with a spacer divider section between each pair of flexible blade members on each semi-rigid connecting ring.

5,727,981

MECHANICAL CLIMBING TOY

Huang Meng-Suen, Kowloon, Hong Kong, assignor to Mr. Christmas, Inc., New York, N.Y.

Filed Sep. 25, 1996, Ser. No. 719,675
Int. Cl.[6] A63H 11/04
U.S. Cl. 446—315 21 Claims



1. A climbing toy comprising:

an upper line;

a lower line;

fixing means for holding a lower end of said lower line;

an action figure connected to a lower end of said upper line;

an upper reel mechanism for selectively winding and unwinding said upper line;

a lower reel mechanism disposed in said action figure for unwinding and winding said lower line, said lower reel mechanism being arranged to unwind said lower line when said upper reel mechanism winds said upper line, and to wind said lower line when said upper reel mechanism unwinds said upper line;

an appendage pivotably mounted about a pivot in said action figure; and

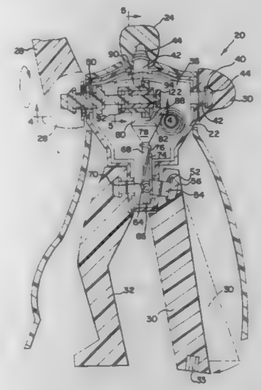
a reciprocating mechanism disposed within said action figure and operably engaged with said lower reel mechanism and said appendage, said reciprocating mechanism being arranged for translating rotation of said lower reel mechanism into reciprocation of said appendage only as said lower line is unwound from said lower reel mechanism.

5,727,982

ACTION FIGURE WITH ROTATING ARM MECHANISM

Steven K. Hurt, Amelia, Ohio, assignor to Hasbro, Inc., Pawtucket, R.I.

Filed Apr. 12, 1996, Ser. No. 631,546
Int. Cl.[6] A63H 3/20
U.S. Cl. 446—352 9 Claims



1. An action figure with a rotating arm, comprising:

a torso defining a hollow space;

a leg pivotally mounted on the torso;

a lever disposed in the hollow space of the torso, the lever having a first end and a second end, the first end including a pawl and a push arm spaced apart to define a yoke space, and the second end is joined to the leg for being moved in a first direction;

biasing means for biasing the lever in a second direction;

a follower having a cam and a disk fixed to the cam, the disk at least partially disposed in the yoke space of the lever, the disk having a first face defining a crown ratchet for being engaged by the pawl and a second face for being engaged by the push arm, and the follower defining a bore therethrough;

an arm shaft rotatably joined to the torso and disposed in the bore of the follower and having a helical rib for engagement with the follower cam to translate linear movement of the follower into rotational movement of the arm shaft; and

an arm fixed to the arm shaft for rotation therewith.

5,727,983

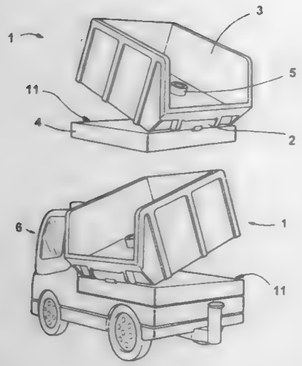
TOY BUILDING ELEMENT FOR USE AS A DUMP BODY AND A TOY TRUCK HAVING A DUMP BODY

Finn Koldste, Skovlunde, Denmark, assignor to INTERLEGO AG, Baar, Switzerland

Filed Sep. 17, 1996, Ser. No. 714,858
Int. Cl.[6] A63H 17/06
U.S. Cl. 446—428 9 Claims

1. A toy building element for use as a dump body (1) for a toy vehicle, said toy building element comprising an open container part (3) and a bottom (4), said container part (3) and bottom (4) being hingedly interconnected, said bottom (4) being moreover provided with coupling means for coupling with other toy building elements, wherein the toy building element as a whole has a

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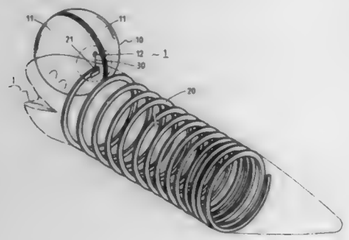
substantially square base face, and that it has at least two non-parallel sides, there being no parts which protrude beyond the substantially square base face.

5,727,984

ROLLING TOY

Kuo Jung Lin, No. 100, Lane 175, Cheng Kung Road, Tainan, Taiwan

Filed Dec. 30, 1996, Ser. No. 774,438
Claims priority, application Taiwan, Apr. 17, 1996, 85205518
Int. Cl.[6] A63B *39/00;43/00;67/10*
U.S. Cl. 446—431 1 Claim



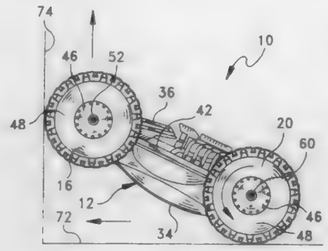
1. A rolling toy comprising:
a ball, an expandable coil, and a connecting device connected to the ball and the expandable coil,
the ball having a first semispherical shell and a second semispherical shell engaging with the first semispherical shell,
a hole formed in the ball,
an aperture formed in a front end of the expandable coil,
the connecting device having a rod, a plate and a block, and the connecting device being made of a flexible material,
the plate having a length that is larger than the diameter of the hole,
the block having a length that is larger than the diameter of the aperture,
the rod having a first end connected to the plate and a second end connected to the block,
the plate being foldable and inserted in the hole,
the block being foldable and inserted in the aperture.

5,727,985

STUNT PERFORMING TOY VEHICLE

Kevin M. George, Cincinnati, and Michele P. Trammell, Williamsburg, both of Ohio, assignors to Tonka Corporation, Pawtucket, R.I.

Continuation of Ser. No. 430,097, Apr. 26, 1995, abandoned, which is a continuation of Ser. No. 248,265, May 24, 1994, abandoned. This application Mar. 8, 1996, Ser. No. 610,569
Int. Cl.[6] A63H *30/04*
U.S. Cl. 446—437 2 Claims



1. A four-wheeled toy vehicle, comprising:
a chassis having a first vehicle upper body portion mounted on a first side of said chassis and a second vehicle upper body portion mounted on a second side of said chassis opposite said first side of said chassis, said chassis having a first end, a second end and a maximum height;
four rotatable axle portions mounted relative to said chassis, a first two of said axle portions being aligned with a first rotation axis and a second two of said axle portions being aligned with a second rotation axis,
said axle portions being substantially unsprung relative to said chassis so that physical shocks may be delivered between said axle portions and said chassis;
four wheels rotatably mounted relative to said chassis, each of said wheels being mounted on a respective one of said axle portions,
each of said wheels comprising a central hub and an elastomeric tire having an interior portion filled with air,
each of said tires being resilient so that said tires can be elastically compressed against an obstacle,
each of said tires being of substantially the same diameter, said diameter being greater than said maximum height of said chassis,
said four tires defining a maximum three-dimensional outer perimeter which is spaced outwardly from said chassis such that no portion of said chassis extends outside of said outer perimeter;
a battery power source mounted on said chassis between a first vertical plane encompassing said first rotation axis and a second vertical plane encompassing said second rotation axis;
a first motor mounted on said chassis between said first and second vertical planes, said first motor receiving power from said battery power source and being adapted to drive one of said wheels;
a second motor mounted on said chassis between said first and second vertical planes, said second motor receiving power from said battery power source and being adapted to drive another of said wheels,
said first and second motors being independently and reversibly controllable,
said battery power source and said motors being mounted to said chassis so that the weight of said battery power source and said motors is uniformly distributed on opposite sides of a central plane of said chassis defined by said first and second rotation axes,
said first and second motors having sufficient torque to pivot said first end of said chassis upwardly when two of said tires are in engagement with a vertical abutment surface and when said central plane of said chassis is at an upwardly inclined

angle of approximately twenty degrees relative to horizontal in a direction extending from said second end of said chassis toward said first end of said chassis so that said toy vehicle may be automatically changed from a first operating position in which said first vehicle upper body portion faces upward when said toy vehicle is being driven across a horizontal surface and a second operating position in which said second vehicle upper body portion chassis faces upward when said toy vehicle is being driven across said horizontal surface;
a remote control receiver mounted on said chassis for receiving remote radio control signals for controlling said first and second motors; and
an antenna operatively coupled to said remote control receiver, said antenna being located exclusively within said outer perimeter defined by said four tires.

5,727,986

RADIO-CONTROLLED TOY CAR WITH A ROLLING MECHANISM

Leonard Stubenfoll, Oak Brook, Ill., and Zenichi Ishimoto, Tokyo, Japan, assignors to Fertig Stubenfoll Design Group, Inc., Oak Brook, Ill.

Filed Aug. 8, 1996, Ser. No. 694,285
Claims priority, application Japan, Aug. 8, 1995, 7-202421
Int. Cl.[6] A63H *17/00;30/04*
U.S. Cl. 446—437 20 Claims

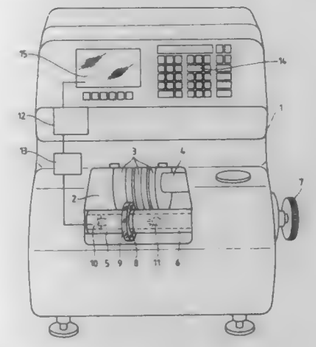
1. A mechanism for rolling a toy vehicle about the vehicle's longitudinal axis, the mechanism comprising:
a driving motor transmission for transmitting a motive force that propels the vehicle;
a rotation arm having a free end extending beyond a peripheral extent of the toy vehicle projected on a plane perpendicular to the vehicle's longitudinal axis, and a pivotable fixed end around which said rotation arm rotates;
a shaft connected to said fixed end for rotating said rotation arm;
a flat gear movable along said shaft and for rotating said shaft;
a worm gear connected to said driving motor transmission for selectively driving said flat gear;
a spring member for impelling said flat gear along said shaft away from said worm gear;
a pivotable rod for selectively impelling said flat gear along said shaft towards said worm gear; and
means for moving said pivotable rod against a force from said spring member to selectively engage said flat gear with said worm gear, whereby the motive force from said driving motor transmission drives said rotation arm to roll the toy vehicle about the vehicle's longitudinal axis.

5,727,987

APPARATUS FOR THE GRINDING OF AT LEAST THE PERIPHERAL EDGE OF EYEGLASS LENSES AND METHOD

Lutz Gottschlad, Meerbusch, Germany, assignor to Wernicke & Co. GmbH, Germany

Filed Jul. 25, 1996, Ser. No. 686,340
Claims priority, application Germany, Jul. 26, 1995, 195 27 222.6
Int. Cl.[6] B24B *1/00;49/00*
U.S. Cl. 451—5 20 Claims



1. A method for grinding at least the peripheral edge of a lens blank with grinding apparatus having a shaft with an axis of rotation and a holding head for holding the lens blank and a grinding wheel for grinding the peripheral edge, the method comprising the steps of:
(a) inputting into the apparatus predetermined optical parameters;
(b) placing the lens blank on the holding head so that the lens blank is held on the holding head;
(c) recording one or more observable optical characteristics of the lens blank as held on the holding head, including the position of an optical axis of the lens blank relative to the axis of the shaft; and
(d) grinding the lens blank in accordance with the parameters inputted in step (a) and the characteristics recorded in step (c).

5,727,988

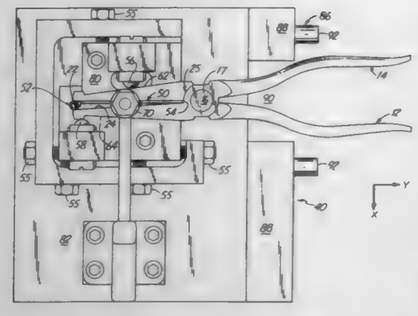
METHOD AND APPARATUS FOR LOCATING AND HOLDING A WORK PIECE

Arthur P. Luedeke, Marine on St. Croix; Bradley W. Keller, Forest Lake, and Andrew A. Larson, St. Paul, all of Minn., assignors to Minnesota Mining and Manufacturing Company, St. Paul, Minn.

Filed Dec. 6, 1995, Ser. No. 567,840
Int. Cl.[6] B24B *1/00*
U.S. Cl. 451—28 6 Claims

1. An apparatus for accurately grinding needle-nose pliers, the pliers of the type having a first pivoting portion and a second pivoting portion, the first and second pivoting portions each having a handle end and a gripping end, wherein the position of the handle end of each pivoting portion varies within a predetermined range relative to each respective gripping end, the first and second pivoting portions connected pivotally to each other by a rivet at a point between the handle end and the gripping end of each pivoting portion, the gripping end of each pivoting portion having a gripping surface, the gripping surface of the first portion and the gripping surface of the second portion opposingly positioned and machined parallel to create finished gripping surfaces, the apparatus comprising:
a first fixture adapted to locate the pliers from the gripping end of the pliers, the first fixture having a locating surface for

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contacting the gripping surface of the first pivoting portion, the first fixture further having a force mechanism to maintain the first gripping surface in contact with the locating surface;

a second fixture adapted to hold and rotate the pliers while a tapered surface on the gripping end is being ground, the second fixture having two self-centering jaws adapted to clamp on the rivet pivotally connecting the first portion and the second portion of the pliers, a first non-synchronous gripping device adapted to grip the handle end of the first pivoting portion, and a second non-synchronous device adapted to grip the handle end of the first and second pivoting portions, thereby preventing any motion of the pliers within the second fixture;

alignment means for aligning the first fixture with the second fixture, whereby the pliers may be transferred from the first fixture to the second fixture when the first and second fixtures are aligned; and

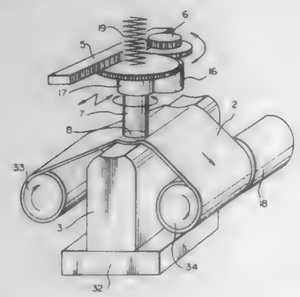
grinding means for forming a tapered surface on the gripping end of the pliers.

5,727,989

METHOD AND APPARATUS FOR PROVIDING A WORKPIECE WITH A CONVEX TIP

Kenichi Ohno; Torahiko Kanda, and Masashige Mitsuhashi, all of Tokyo, Japan, assignors to NEC Corporation, Tokyo, Japan

Filed Jul. 22, 1996, Ser. No. 684,615
Claims priority, application Japan, Jul. 21, 1995, 7-207646; Mar. 29, 1996, 8-075779; Apr. 10, 1996, 8-088026
Int. Cl.[6] B24B *1/00*
U.S. Cl. 451—41 **23 Claims**



1. A method of forming a convex tip on an end of a workpiece by using a film-like abrasive tool, comprising the steps of:

(a) positioning the abrasive tool on a stage;

(b) causing the end of the workpiece to contact one opposite major surfaces of the abrasive tool; and

(c) causing the workpiece to rotate about an axis thereof, while moving the abrasive tool across said stage and in contact therewith so that the contact area between the abrasive tool and the workpiece changes

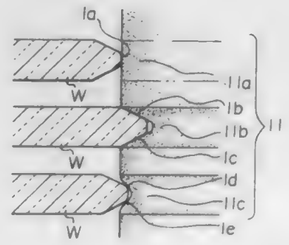
(d) causing the workpiece to reciprocate across said stage.

5,727,990

METHOD FOR MIRROR-POLISHING CHAMFERED PORTION OF WAFER AND MIRROR-POLISHING APPARATUS

Fumihiko Hasegawa; Tatsuo Ohtani; Yasuyoshi Kuroda, all of Nishi-shirakawa-gun; Koichiro Ichikawa, and Yasuo Inada, both of Nagano, all of Japan, assignors to Shin-Etsu Handotai Co., Ltd., Tokyo, and Fujikoshi Machinery Corp., Nagano, both of Japan

Continuation of Ser. No. 457,473, Jun. 1, 1995, abandoned. This application Jan. 6, 1997, Ser. No. 779,040
Claims priority, application Japan, Jun. 17, 1994, 6-159542
Int. Cl.[6] B24B *1/00;7/24;9/14*
U.S. Cl. 451—44 **8 Claims**



1. A method for mirror-polishing a peripheral chamfered portion of a semiconductor wafer which comprises a peripheral side surface, beveled surfaces formed on front and back surfaces along the periphery of the wafer, and rounded edges formed between the peripheral side surface and each of the beveled surfaces, comprising:

rotating the wafer around a central axis thereof, and

individually mirror-polishing the peripheral side surface, the beveled surfaces, and the rounded edges by a polishing device, wherein said mirror-polishing comprises simultaneously mirror-polishing the beveled surfaces formed on the front and back surfaces of the wafer and simultaneously mirror-polishing the rounded edges formed on the front and back surfaces of the wafer.

5,727,991

METHOD AND APPARATUS FOR IN SITU BLADE SHARPENING

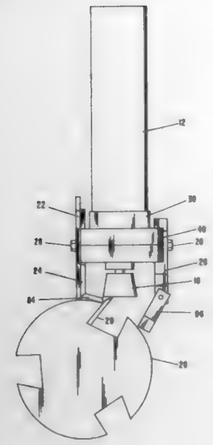
Richard E. Main, P. O. Box 638, Raton, N. Mex. 87740-0638

Filed Sep. 27, 1995, Ser. No. 534,506
Int. Cl.[6] B24B *1/00*
U.S. Cl. 451—48 **17 Claims**

1. An apparatus for supporting a sharpening device for sharpening machine tool blades mounted on a shaft comprising:

means for adjustably connecting the sharpening device to said apparatus;

means for adjustably and solely mounting said apparatus and said sharpening device on the blade shaft; and



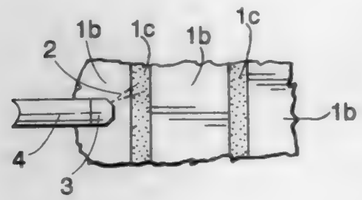
means for referencing the blade to be sharpened solely to said shaft while sharpening said blade.

5,727,992

METHOD AND APPARATUS FOR SHARPENING THE SURFACE OF A GRINDSTONE FOR A PULP GRINDER

Seppo Blomqvist, and Juhani Valli, both of Tampere, Finland, assignors to Valmet Paperikoneet Inc., Helsinki, Finland

Filed Sep. 8, 1995, Ser. No. 525,355
Claims priority, application Finland, Jul. 11, 1995, 953398
Int. Cl.[6] B24B *1/00*
U.S. Cl. 451—56 **11 Claims**



1. In a method for sharpening a grinding surface of a grindstone for pulp grinder, the grindstone comprising segments composed of abrasive grains contained in a relatively soft bonding material and joints between the segments consisting of relatively soft bonding medium, the grindstone having a grinding surface formed by said segments and said joints, the method comprising projecting at least one water jet onto a portion of the grinding surface of the grindstone at a pressure high enough for the water jet to detach bonding material between abrasive grains of the segments of the grinding surface and causing the water jet to travel across an entire width of the surface of the grindstone while simultaneously rotating the grindstone, whereby to sharpen the entire grinding surface, the improvement wherein:

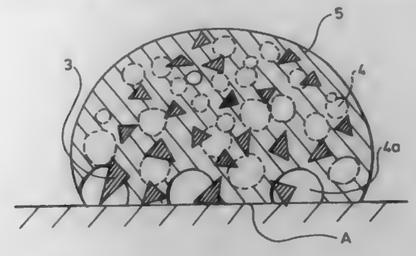
the projecting of the water jet is oblique to the surface of the grindstone and to said joints, whereby the water jet detaches from the surface of the grindstone bonding material between abrasive grains but only removes a minimum amount of said medium in the joints, said water jets being oblique to said joints in both a longitudinal and a circumferential direction of said joints.

5,727,993

PLASTIC FLEXIBLE GRINDING STONE

Tadao Kodate, Ohmiya, Japan, assignor to Joybond Co., Inc., Katsushika-ku, Japan

Continuation of Ser. No. 102,972, Jul. 28, 1993, Pat. No. 5,476,416. This application Nov. 9, 1995, Ser. No. 555,763
Claims priority, application Japan, Apr. 6, 1993, 5-160398
Int. Cl.[6] B24B *7/00*
U.S. Cl. 451—59 **86 Claims**



43. A method of polishing a protrusion or stain from a coated surface, comprising:

applying a plastic flexible tool to the coated surface, the plastic flexible tool comprising a plastic flexible material having mixed therewith an abrasive comprising grains from about 3 to 50 μm in diameter;

pressing the plastic flexible tool against the coated surface to form a substantially planer surface on the plastic flexible tool; and

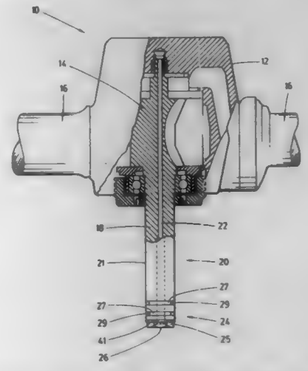
reciprocating the substantially planar surface of the plastic flexible tool with polishing force on the coated surface for less than about 30 seconds, thereby applying a polishing force per area to the coated surface and to the protrusion or stain on the coated surface, the polishing force per area applied to the coated surface being less than the polishing force per area applied to the protrusion or stain.

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GRINDING CUP AND HOLDER DEVICE

Kurt Robert Sjolander, 36 Cameo Street, Oakville, Ontario, Canada, L4J 5Y1, and Bo Thomas Sjolander, 120 Bath Street, Oakville, Ontario, Canada, L6K 1A8

Continuation-in-part of Ser. No. 383,222, Feb. 3, 1995, Pat. No. 5,639,273. This application Feb. 5, 1996, Ser. No. 596,556
Int. Cl.[6] B24B *3/33;23/02*
U.S. Cl. 451—359 **24 Claims**



1. A grinding cup for detachable connection to the output drive shaft of a grinding machine for grinding buttons on drill bits or

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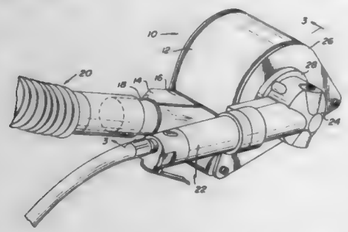
cutters, said grinding cup having top and bottom surfaces and consisting of a lower grinding section and an upper body section co-axial with said grinding section to form said grinding cup with a centrally disposed recess formed in the bottom surface of the grinding section having the desired profile for the button to be ground said grinding section formed from a material capable of grinding tungsten carbide button bits; said upper body section having a centrally disposed cavity formed in the top surface of the grinding cup, said cavity shaped and sized to permit the output drive shaft of said grinding machine to driveably engage within the cavity; wherein an end portion of the output drive shaft of the grinding machine has a hexagonal cross section and a twelve point circular well is centrally disposed in the bottom of the cavity in said body section, said well and said end portion of the output drive shaft sized to permit the drive shaft to fit within said well to driveably engage the grinding cup and retaining means for detachably connecting the grinding cup to the output drive shaft of the grinding machine.

5,727,995

ROTARY PEENING TOOL

Brian Godfrey Harkins, Collegeville; Robert Walter Hoeflein, Paoli, both of Pa.; Christopher Paul Dee, Leamington Spa, England, and Florence Beatrice Mallet, Wayne, Pa., assignors to Trelawny Pneumatic Tools Division of Fulton Group Ltd., Malvern, Pa.

Filed Oct. 24, 1994, Ser. No. 328,315
Int. Cl.[6] B23F *19/05*; B24D *9/00*
U.S. Cl. 451—463 **34 Claims**



1. A surface preparation tool for peening and removing a coating from a work surface, the tool including a rotating hub which retains a plurality of peening flaps of the type in which a flexible strap is attached to the hub at one of its ends and contains one or more peening particles at or near its other end, wherein the peening particles impact the work surface as the hub rotates and cause the coating to fragment and dislodge from the work surface, the tool comprising:

(a.) a shroud assembly supporting and enclosing the rotating hub, the shroud assembly having an enclosed top and an open bottom defined by

a front wall located in the direction of angular rotation of the hub,

a rear wall located behind the hub and opposite the front wall, and

two side walls, each side wall connected to the front and rear walls on opposite sides of the shroud assembly, one of the side walls supporting the hub;

(b.) a funnel having a funnel mouth on one end thereof attached to the rear wall of the shroud assembly, and having a neck on the other end thereof adapted for attachment to a vacuum source, the funnel tapering between the funnel mouth and the neck;

(c.) the open bottom of the shroud assembly being located below the hub at a distance sufficient to cause the peening particles to extend therethrough and impact the work surface during rotation of the hub;

(d.) at least two rollers rotatably attached to the shroud assembly for permitting translation of the tool along the work surface, and for supporting the open bottom above the work surface thereby creating a gap for accelerating ambient air flow from outside of the shroud assembly through the gap into the shroud assembly; and

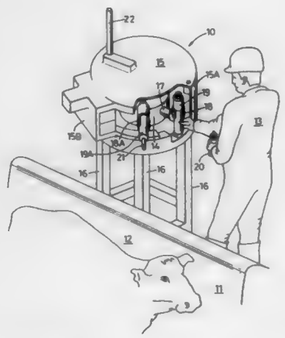
(e.) a sealing structure associated with the rear wall for substantially reducing air flow through the gap between the rear wall and the work surface; wherein the hub is mounted on the side wall at a height such that the peening particles strike the work surface at an angle which is substantially normal to the work surface.

5,727,996

APPARATUS FOR USE IN THE HUMANE SLAUGHTER OF ANIMALS

Reeve J. W. Newton, Birmingham, England, assignor to Accles & Shelvoke Limited, Birmingham, England

Filed Dec. 16, 1996, Ser. No. 767,380
Claims priority, application United Kingdom, Dec. 16, 1995, 9525772
Int. Cl.[6] A22B *3/02*
U.S. Cl. 452—57 **9 Claims**



1. An automatic reloading machine for stunguns, the machine comprising a carousel having a plurality of spaced holders each to carry a cartridge-operated gun and a pluarity of stations associated with the carousel so that the carousel in one complete revolution passes through said stations including a first station at which a sequentially loaded gun is presented for use and further stations at which a used gun has its bolt reset, the used cartridge is removed and a new cartridge is inserted.

5,727,997

AUTOMATIC DEVICE FOR CUTTING THE LEGS OF PORK CARCASSES

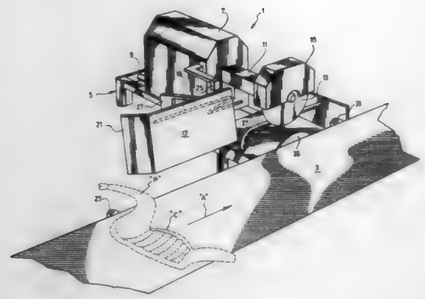
Yvon Dufour, St-Anselme; Michel Martin, St Etienne de Lauzon; Yvon St-Onge, Quebec; Jocelyn Genest, Lévis, and Jean-Guy Roy, St-Anselme, all of Canada, assignors to G. -E. LeBlanc Inc., St-Anselme, Canada

Filed Feb. 14, 1997, Ser. No. 800,516
Int. Cl.[6] A22B *5/20*
U.S. Cl. 452—170 **12 Claims**

1. An automatic device for cutting the legs of pork carcasses laying transversally on a conveyor moving in a given direction, said legs projecting away from said conveyor on one side thereof, said device comprising:

a frame extending close to the conveyor on the one side thereof where the legs projects away;

a support carrier mounted onto the frame in such a manner as to be movable toward or away from the conveyor in a direction transverse to said conveyor, said support carrier having a free end located close to the conveyor;



a circular saw mounted on the free end of the support carrier, said saw extending in a vertical plane substantially parallel to the moving direction of the conveyor and at a sufficient height to cut the legs projecting away from said conveyor;

a feeler vertically hung onto a horizontal pivot projecting from the support carrier at a predetermined distance from the free end of the same, said predetermined distance corresponding to the average length of the legs to be cut, said feeler extending upstream of the saw with respect to the moving direction of the conveyor and at sufficient height to be contacted by the legs to be cut when the conveyor moves the carcasses;

a presence sensor mounted in such a manner as to detect the legs of the carcasses laying onto the conveyor when these legs reach the feeler;

a motion detector for detecting any swing of the feeler about the horizontal pivot in one way or the other, such a swing occurring when the feeler in a vertical position is hurt by a leg or when the feeler in an inclined position under the pressure of a leg is released and swings back to the vertical position;

driving means for moving the support carrier together with the feeler and the saw mounted thereon toward or away from the conveyor; and

a control system operatively connected to the presence sensor, the motion detector and the driving means, said control system being actuated when the presence sensor detects a leg and operating the driving means either to move the feeler mounted onto the support carrier toward the conveyor in order to bring this feeler into contact with the detected leg if this one is not already in contact with the feeler, or to move the feeler in the opposite way in order to bring the feeler out of contact with the detected leg if this leg is already in contact with the feeler, such a generated contact or lack of contact with the leg being detected by the motion detector which gives a signal for stopping the motion of the support carrier and, accordingly, of the saw which is then automatically positioned to cut the detected leg.

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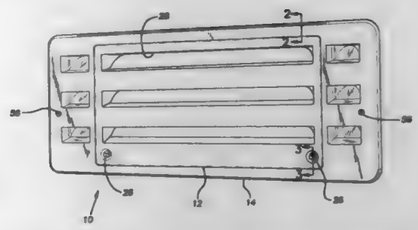
SIDE VENT FRAME FOR A RECREATIONAL VEHICLE

Gerald W. Krueger, Connersville, and Patrick N. McConnell, Goshen, both of Ind., assignors to White Consolidated Industries, Inc., Cleveland, Ohio

Filed Nov. 18, 1996, Ser. No. 746,853
Int. Cl.[6] B60H *1/26*
U.S. Cl. 454—143 **20 Claims**

1. A vent cover assembly for a vent opening comprising:

a frame adapted to be mounted at the vent opening and having a main wall, said frame main wall forming an opening and air inlets; and



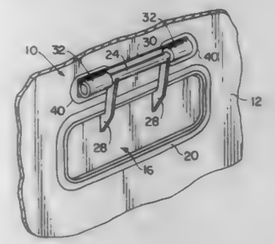
a vent cover removably retained within said opening of said frame main wall and having a main wall, said vent cover main wall forming a plurality of air inlets.

5,727,999

VEHICLE VENTILATION VALVE

Jeffrey C. Lewis, Rochester Hills, Mich., assignor to TRW Inc., Cleveland, Ohio

Filed Feb. 28, 1997, Ser. No. 807,722
Int. Cl.[6] B60H *1/24*
U.S. Cl. 454—162 **16 Claims**



12. A one-way flap-type vehicle ventilation valve comprising:

a fluid impervious, generally flat, molded plastic sealing flap for overlying a flow opening formed through a vehicle body panel;

support webs molded integrally with said flap and extending outwardly from said flap and terminating in spaced free end portions;

a shaft carried by said support webs and extending between said free end portions;

a plastic support bracket extending generally parallel to said shaft;

connecting means pivotally joining said support bracket to said shaft, said connecting means including sleeve-like members surrounding said shaft with said support webs engaged with at least one of said sleeve-like members to prevent movement of said sleeve-like members axially of said shaft.

5,728,000

EAVE VENT

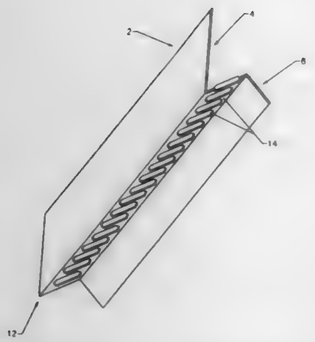
William Kevin Bateman, 1723 Wagon Gap Trail, Houston, Tex. 77090

Filed Apr. 17, 1996, Ser. No. 634,021
Int. Cl.[6] F24F *7/02*
U.S. Cl. 454—260 **15 Claims**

1. A one piece continuous roof drip edge vent for buildings having an inclined roof structure, vertical wall structures, and an opening beneath the roof structure and the vertical wall structure, the vent comprising:

a) an elongated one-piece planar panel including, an elongated upper panel section for disposition on the inclined roof structure, a planar lower section suited for abutable attachment to

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the vertical wall structure, a louvered middle panel section positioned between said upper and lower sections and further perpendicular to said lower section, a 90 degree bend connecting the lower panel section to the middle section, and an angled bend connecting the middle section to the upper section;

b) said louvered middle section including a plurality of juxtaposed slit openings extending perpendicularly between said bends forming louvers between the slits;

c) said louvers further being rotated uniformly along their longitudinal axis creating louver openings for passage of air flow;

d) and, further wherein said elongated upper panel section extends at least five inches from said angled bend connecting the middle and upper sections.

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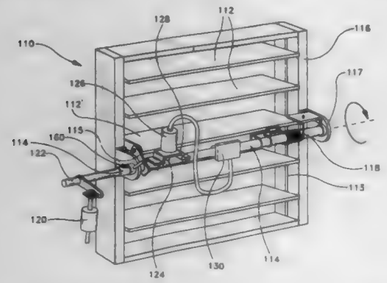
REMOTELY TRIPPABLE AND RESETTABLE DAMPER

Russell G. Attridge, Jr., Sunapee, N.H., assignor to Johnson Controls, Inc., Milwaukee, Wis.

Continuation-in-part of Ser. No. 174,976, Dec. 29, 1993, Pat. No. 5,533,929. This application Jul. 9, 1996, Ser. No. 677,126

Int. Cl.[6] F16K *17/40*

U.S. Cl. 454—369 **20 Claims**



1. A remotely trippable and resettable damper for installation in a system of ducts, comprising:

a damper blade assembly including at least one damper blade operable between an open position and a closed position and a rotatably supported shaft connected to said blade whereby rotation of said shaft moves said blade between said open and closed positions, said shaft being biased to drive said blade to said closed position;

remotely operable control means releasably connected to said damper blade assembly for moving said damper blade between said open and closed positions and for holding said damper blade in said open position during normal operating conditions;

a power-actuated unit for disengaging said damper blade assembly from said control means;

means for remotely re-engaging said damper blade assembly to said control means following a tripping of said damper; and

a remotely locatable sensor for sensing an environmental condition in said system, said sensor being centrally disposed in a duct of said system to ensure exposure to a representative sample of airflow, said sensor being operatively connected to said power-actuated unit to provide said power-actuated unit with a signal in response to said condition whereby said damper blade assembly is disengaged from said control means allowing said damper blade to be driven to said closed position.

5,728,002

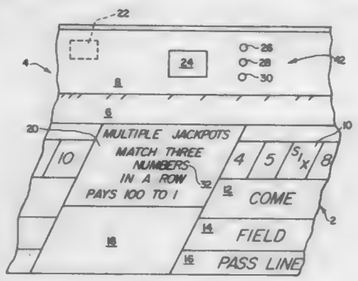
CRAPS GAME LAYOUT WITH A JACKPOT WAGERING AREA OFFERING MULTIPLE WAGERS

Marcus V. Hobert, 3318 Kenwood Ave., Davenport, Iowa 52807

Continuation-in-part of Ser. No. 305,178, Sep. 13, 1994, Pat. No. 5,487,547,. This application Nov. 13, 1995, Ser. No. 556,254

Int. Cl.[6] A63F *9/04*

U.S. Cl. 463—17 **33 Claims**



1. A craps game, comprising:

a) a craps game layout;

b) a pair of dice each having six faces bearing a visual representation of the numbers one through six, the dice being used to randomly generate a plurality of single roll dice outcomes calculated by adding a number from each die, the single roll dice outcomes including a plurality of point numbers and the number 7;

c) a pass line wagering area on the craps game layout for receiving a bet on a pass line wager, the pass line wager being won when one or more rolls of the dice yield an established point number prior to rolling the number 7;

d) a jackpot wagering area for receiving a bet on a plurality of jackpot area wagers, the jackpot area wagers including a first jackpot sequence wager that a first jackpot sequence of dice outcomes is rolled, the first jackpot sequence having a relatively remote probability of occurrence compared to a single roll dice outcome, the first jackpot sequence being won when a first jackpot sequence of dice is rolled.

5,728,003

PRESSURE POINT DEVICE

Gregory B. Hustad, 403 - 18th Ave., Kirkland, Wash. 98033

Filed Aug. 27, 1996, Ser. No. 703,656

Int. Cl.[6] F41B *15/02*

U.S. Cl. 463—47.2 **21 Claims**

1. A pressure point apparatus for applying force to a pressure point of an individual, comprising:

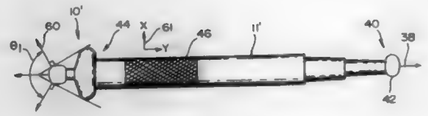
a baton having an elongated shaft extending in an axial direction, the baton having a first end and a second end, the shaft defining a first cross sectional length at the baton first end perpendicular to the axial direction; and

an end piece removably attached to the first end, the end piece comprising: (a) a bulbous end having a first contact surface for applying force to a pressure point, the bulbous end positioned distally away from the elongated shaft, and (b) a base having a shoulder portion, the shoulder portion having a second contact surface for applying force to a pressure point, and

wherein the first contact surface and second contact surface are separated by an intermediary surface of the end piece, and

wherein the base defines a second cross-sectional length greater than the first cross-sectional length so that the shoulder portion protrudes radially beyond the first end; and

wherein the baton second end has a blunt tip and wherein the second end differs in contour from the end piece.



5,728,004

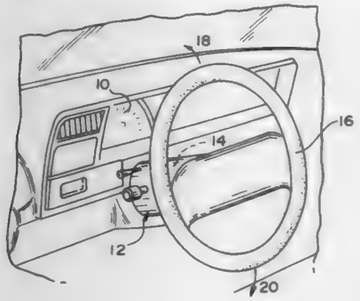
UNIVERSAL JOINT WITH LAYERED BUSHINGS

Thomas Dziegielewski, Rochester Hills, Mich., assignor to Chrysler Corporation, Auburn Hills, Mich.

Continuation of Ser. No. 271,316, Jul. 6, 1994, abandoned. This application Oct. 4, 1996, Ser. No. 726,875

Int. Cl.[6] F16D *3/20*

U.S. Cl. 464—70 **6 Claims**



1. A universal joint comprising:

a driven shaft including a hub at one end thereof, said hub having a transverse bore therethrough;

a first pin extending through the transverse bore in said hub, said first pin forming an interference fit between said first pin and said hub to thereby prevent said first pin from moving with respect to said hub;

an intermediate cup formed entirely of metal having first and second apertures therein, said intermediate cup defining a cavity, said hub being received in said cavity of said intermediate cup, said first pin extending into the first aperture in said intermediate cup;

a driving shaft including a bell yoke at one end thereof, said bell yoke defining a cavity, said intermediate cup being received in said cavity of said bell yoke;

a second pin extending from said bell yoke into the second aperture in said intermediate cup;

a first tubular bushing providing relative sliding rotation between said first pin and said intermediate cup;

a second tubular bushing providing relative sliding rotation between said second pin and said intermediate cup,

wherein said first bushing and said second bushing are resiliently radially compressed between said first pin and the first aperture in said intermediate cup, and said second pin and the second aperture in said intermediate cup, respectively, each of said first and second bushings having a radially-disposed inner layer and a radially-disposed outer layer with a mesh body therebetween, wherein each of the outer layers is a plastic gripping layer with respect to the intermediate cup and each of the inner layers is a polytetrafluoroethylene sliding layer with respect to its associated pin.

5,728,005

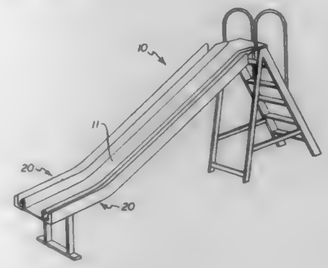
SLIDE WITH LATERAL SIDE CHANNELS

Robert K. Rothbard, P.O. Box 593, Galveston, Tex. 77553

Filed Mar. 28, 1996, Ser. No. 622,997

Int. Cl.[6] A63G *21/04*

U.S. Cl. 472—116 **19 Claims**



1. A slide device comprising:

an elongate bedway;

a handrail adjacent to each lateral side of said bedway;

means for securing said handrails adjacent to each side of said bedway; and

each said handrail having a longitudinally extending channel with an upwardly facing opening configured to receive and partially surround the hand or fingers of a person using the slide device to protect the hands and fingers of the user.

5,728,006

MAGNETIC GOLF CLUB SWING SENSOR AND GOLF SIMULATOR

Murray Teitell, Manhattan Beach, and David G. Pelka, Westchester, both of Calif., assignors to VR Sports, Inc., Manhattan Beach, Calif.

Filed Nov. 12, 1996, Ser. No. 745,740

Int. Cl.[6] A63B *69/36*

U.S. Cl. 473—151 **16 Claims**

1. A golf game system for sensing the swing of a golf club, and providing information about the swing of said golf club to a personal computer running a golf game software package, comprising:

said golf club having a flexible magnetic strip adhesively attached to an end surface of said golf club;

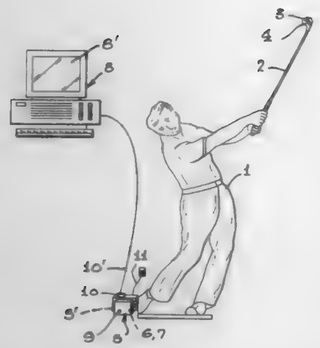
a pair of magnetic sensing means for detecting information about motion of said golf club by sensing velocity and path of said magnetic strip;

electronic circuit means for converting the information from said pair of magnetic sensing means into signals that are input into said personal computer;

a power supply means for supplying electrical energy to said electronic circuit means;

a software package means utilizing the signals that are input into said personal computer to produce visual display data;

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visual display means for displaying said visual display data produced by said software package means.

5,728,007

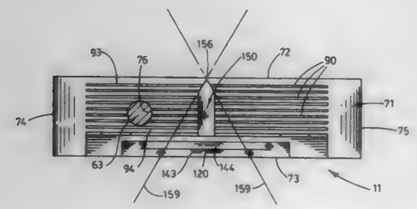
GUIDANCE APPARATUS

Doyle W. Eakin, 4974 N. Fresno St., #162, Fresno, Calif. 93726

Filed Apr. 18, 1996, Ser. No. 634,695

Int. Cl.[6] A63B *69/36*

U.S. Cl. 473—244 **9 Claims**



1. A playing club for impelling a projectile over a playing surface toward a target, the playing club comprising a shaft adapted to be gripped by a person using said playing club; a head mounted on the shaft having a lower surface adapted to be positioned in contact with the playing surface for movement thereover, an upper surface substantially parallel to the lower surface, a front surface defining a substantially flat plane and a back surface; an indicating assembly having edges convergent upon a point of reference; means substantially internally of said head for adjustably mounting said indicating assembly on the head in overlaying relation to the upper surface thereof with said point of reference adjacent to a plane defined by said front surface of the head, said indicating assembly being a plate having a substantially right-angularly related mounting portion and the mounting means including a track mounted internally of the head beneath the upper surface thereof and substantially parallel thereto and a fastener releasably interconnecting said mounting portion remote from said point of reference to mount the plate adjacent to the point of reference in overlaying relation to the upper surface of the head whereby the fastener can be released to move the plate to a selected position overlaying said upper surface and then be secured releasably to retain the indicating assembly in said selected position, whereby said axis of reference can be placed in substantial coincidence with the target to guide movement of the playing club to move the head into contact with the projectile to impel the projectile over the playing surface toward the target.

5,728,008

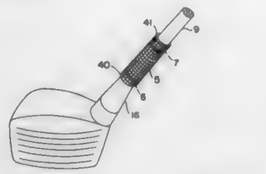
BALL STRIKING DEVICE WITH MEANS OF IMPARTING ENHANCED FORWARD MOMENTUM TO THE BALL

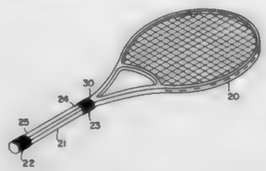
Herman S. Howard, Hallandale, Fla., assignor to Media Group, Stamford, Conn.

Filed Feb. 10, 1997, Ser. No. 798,487

Int. Cl.[6] A63B *53/02*

U.S. Cl. 473—308 **20 Claims**





1. An improved ball striking device, which comprises:
a shaft having a proximal end and a distal end;
a head having a ball striking surface for coupling to the proximal end of said shaft; and
an intermediate insert member positioned between and coupling said proximal end of said shaft and said head, said insert member having a first end and a second end, said second end being connected to said distal end of said shaft and said first end being connected to said head, said insert member being made of elastomeric material.

5,728,009

GOLF PUTTER

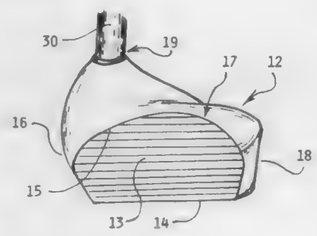
Peter Shanahan, 13 Alvie Road, Mt Waverley Vic, Australia, 3149

Filed Jan. 2, 1997, Ser. No. 775,622

Claims priority, application Australia, Aug. 28, 1996, PO1923

Int. Cl.[6] A63B *53/02;53/04*

U.S. Cl. 473—313 **9 Claims**



1. A golf putter comprising:
a head having an anterior putting face for striking a golf ball, and a connection point provided by the head, and
a shaft secured to the head at the connection point and extending upwardly for being gripped by a golfer,
wherein the head has a midline extending through the putting face forwardly in an anterior direction along which the golf ball is propelled after being struck and extending in a posterior direction through the head,
wherein the connection point where the shaft is secured to the head is located distal to the midline relative to the golfer so that the shaft as it extends upwardly is directed from the distal side of the midline towards the proximal side thereof, and
wherein the head has a center of gravity which is located substantially on the midline so that it is located forwardly in the anterior direction from the connection point and is located towards the proximal side of the head from the connection point.

5,728,010

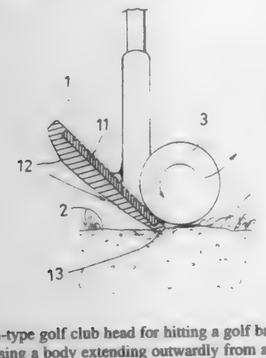
GOLF CLUB HEAD IMPROVED IN ITS CENTER OF GRAVITY

Tsai-Fu Hsu, No. 386, Liao Ning 1st Street, San Min District, Kaohsiung, Taiwan

Filed Feb. 19, 1997, Ser. No. 802,850

Int. Cl.[6] A63B *53/04*

U.S. Cl. 473—324 **1 Claim**



1. An iron-type golf club head for hitting a golf ball from a sand trap, comprising a body extending outwardly from a connection to a golf club shaft and an inclined ball striking face formed on a front side thereof for lofting a golf ball struck therewith, said body having an upper portion extending to a top edge thereof and a lower portion extending from a bottom edge of said body, said lower portion of said body having a thickness continuously increasing from a minimum at said bottom edge to a maximum at said upper portion for providing a center of gravity above an upper half of said ball striking face while minimizing contact with a surface portion of the sand trap, said maximum thickness being at a location between said top edge and a position intermediate said top and bottom edges.

5,728,011

THREAD WOUND GOLF BALL AND PROCESS FOR PRODUCING THE SAME

Kazushige Sugimoto, Shirakawa; Hiromasa Yamamoto, Takarazuka, and Tsutomu Nosaka, Hyogo-ken, all of Japan, assignors to Sumitomo Rubber Industries, Ltd., Hyogo-ken, Japan

Filed Mar. 27, 1996, Ser. No. 622,168

Claims priority, application Japan, Mar. 27, 1995, 7-068277

Int. Cl.[6] A63B *37/02*

U.S. Cl. 473—357 **12 Claims**

1. A thread wound golf ball comprising a center, a thread rubber layer formed by winding a thread rubber around the center and a cover formed on the thread rubber layer, wherein the thread rubber is obtained by cutting, into a suitable width, a rubber sheet for thread rubber which is obtained by vulcanizing a raw rubber sheet for thread rubber using a pressure rotary drum type continuous vulcanizing device,
wherein the vulcanization is conducted at a temperature of 120° to 180° C. for 1 to 10 minutes at a pressure of 1 to 10 Kg/cm^2, and
wherein the vulcanized rubber sheet for thread rubber has a thickness of 0.3 to 1.0 mm.

7. A process for producing a thread wound golf ball comprising forming a thread wound center obtained by winding a thread rubber around a center and covering the thread wound center with a cover, wherein the thread rubber is obtained by cutting, into a suitable width, a rubber sheet for thread rubber which is obtained by vulcanizing a raw rubber sheet for thread rubber using a pressure rotary drum type continuous vulcanizing device,
wherein the vulcanization is conducted at a temperature of 120° to 180° C. for 1 to 10 minutes at a pressure of 1 to 10 Kg/cm^2, and
wherein the vulcanized rubber sheet for thread rubber has a thickness of 0.3 to 1.0 mm.

5,728,012

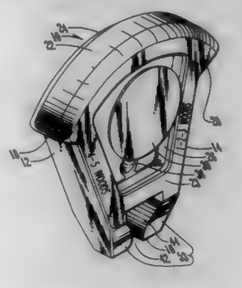
GOLF BALL TEE SETTING DEVICE AND METHOD OF USING SAME

James E. Boelling, Ankeny, Iowa, assignor to Wy-Tech, Inc., Des Moines, Iowa

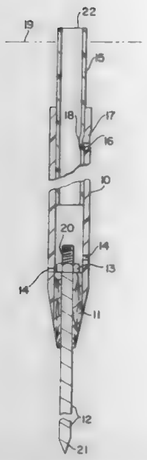
Filed Feb. 28, 1997, Ser. No. 810,627

Int. Cl.[6] A63B *57/00*

U.S. Cl. 473—386 **10 Claims**

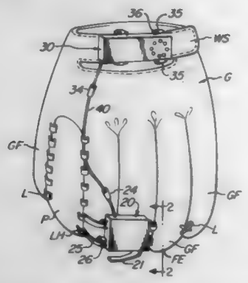


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surface of said spike, said spike being threaded at its upper end which extends upwardly above an upper surface of said plug and is fitted with a nut tightened against said plug, and a vertical elongated positioning rod having at its lower end a nut threadedly engageable with said threaded upper end of said spike.

5,728,014
BASEBALL FIELDER'S TRAINING DEVICE
Joseph Prunckle, 3720 Almeria St., San Pedro, Calif. 90731
Filed Mar. 5, 1996, Ser. No. 610,867
Int. Cl.[6] A63B *69/36*
U.S. Cl. 473—422 **7 Claims**



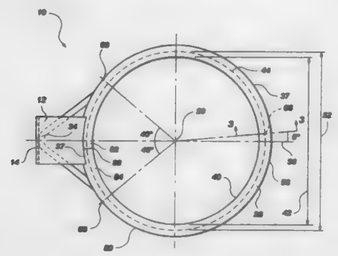
1. A training assembly useful in reinforcing the proper fielding motions of a baseball glove by a player towards the playing field ground surface, said glove being defined by a pocket portion, a plurality of finger projections extending from said pocket portion, a rear membrane attached to the edges of said pocket portion and said finger projections, and lacing adjustably connecting said finger projections to each other, comprising:

microswitch means attachable by lacing to said rear membrane of said glove and including a switch, a pivoted lever connected to said switch for closing said switch upon the articulation thereof by contact with said ground surface, said lever being deployed to project beyond the distal ends of said finger projections upon the attachment of said microswitch means for exposure to contact with said ground surface;

signaling means attachable to the body of said player and including a signaling device and a battery; and

harness means connected between said microswitch means and said signaling means for connecting said signaling device to said battery upon the closure of said switch.

5,728,015
BASKETBALL GOAL WITH EXPANDED RIM AND DRAIN HOLE
David L. Patton, 1943 W. 4550 South #D, Roy, Utah 84067, and Nathaniel T. Smith, 5810 Main Point Blvd. #1, Ogden, Utah 84405
Filed Jun. 12, 1996, Ser. No. 661,973
Int. Cl.[6] A63B *63/08*
U.S. Cl. 473—485 **17 Claims**



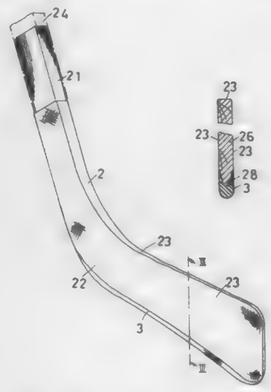
1. A basketball goal for use in playing the game of basketball, comprising:

a mounting bracket;

a metal, circular rim attached to the mounting bracket, the rim having an inner rim perimeter with a diameter of about 18 inches and a centerline rim perimeter with a diameter of between about 18.5 inches and about 20 inches, the rim having a hollow interior with at least one drain hole having a diameter of between about 0.10 and about 0.26 inches;

a pair of support braces, each support brace disposed between the mounting bracket and the rim; and means for attaching a net to the rim.

5,728,016
HOCKEY STICK WITH REINFORCED BLADE
Saul S. Hsu, Tainan Hsien, Taiwan, assignor to Advance Sporting Goods & Wood Mfg. Corp., Tainan Hsien, Taiwan
Continuation of Ser. No. 499,919, Jul. 10, 1995, abandoned. This application Mar. 17, 1997, Ser. No. 819,648
Int. Cl.[6] A63B *59/14*
U.S. Cl. 473—563 **1 Claim**



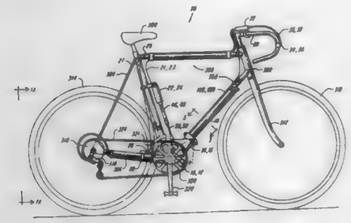
1. A hockey stick having a reinforced blade attached to a handle, the reinforced blade comprising:

a) a blade having a v-shaped bottom edge;

b) a plastic bumper adhesively bonded to the V-shaped bottom edge of the blade; and

c) glass fiber material coating the whole outer surface of the blade except the V-shaped bottom edge to which is attached the plastic bumper.

5,728,017
ELECTRONIC TRANSMISSION CONTROL SYSTEM FOR A BICYCLE OR THE LIKE
Stephen Bellio, West Roxbury, and Gerald P. Eidelman, Jamaica Plain, both of Mass., assignors to E.B.T., Inc., Brookline, Mass.
Division of Ser. No. 289,087, Aug. 11, 1994, Pat. No. 5,569,104, which is a division of Ser. No. 946,379, Nov. 6, 1992, Pat. No. 5,356,348, which is a continuation-in-part of Ser. No. 520,627, May 8, 1990, Pat. No. 5,059,158. This application Jun. 19, 1996, Ser. No. 666,855
Int. Cl.[6] F16H *59/00;9/06*
U.S. Cl. 474—70 **12 Claims**



1. A method in a computer-controlled device gear shifting system for shifting gears, the device having a front gear assembly and a rear gear assembly, the front gear assembly having a plurality of from gears with varying number of teeth, the rear gear assembly having a plurality of rear gears with varying number of teeth, the device having a front shift mechanism for shifting from one front gear to another and having a rear shift mechanism for shifting from one rear gear to another, the device having a plurality of device gears, each device gear associated with a front gear and a rear gear combination, the device gears being ordered by gear ratios, the gear ratios being the ratio of the number of teeth in the associated front gear to the number of teeth in the associated rear gear, the system having a computer operatively connected to the front and rear shift mechanisms for shifting from one device gear to another, the method comprising the steps of:

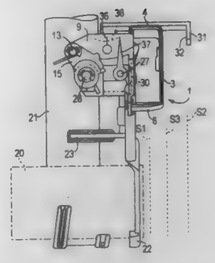
determining a current device gear, the current device gear being defined by the front gear and the rear gear currently selected;

determining a next device gear wherein when shifting from the current device gear to the next device gear, the device shifts into a gear that is within a range that is defined by and includes the current device gear and the next device gear; and

controlling the front and rear shift mechanisms to effect a shift from the current device gear to the next device gear.

5,728,018
METHOD AND APPARATUS FOR POSITIONING A BICYCLE DERAILLEUR CHAIN GUIDE
Masao Terada, and Toshio Mizuno, both of Sakai, Japan, assignors to Shimano, Inc., Osaka, Japan
Filed Nov. 17, 1995, Ser. No. 559,910
Claims priority, application Japan, Nov. 25, 1994, 6-314290
Int. Cl.[6] F16H *59/00*
U.S. Cl. 474—80 **13 Claims**

1. A front derailleur for a bicycle for guiding a chain relative to a first sprocket, a second sprocket and a third sprocket disposed between the first sprocket and the second sprocket comprising:



a mounting member (**22**) for fixedly mounting the derailleur to a bicycle frame (**21**);

a chain guide (**1**) for guiding the chain relative to the first sprocket, the second sprocket and the third sprocket;

a first link (**15**) pivotally coupled to the mounting member (**22**);

a second link (**9**) coupled to the first link (**15**) and to the chain guide (**1**) for moving the chain guide (**1**) in response to pivoting of the first link (**15**);

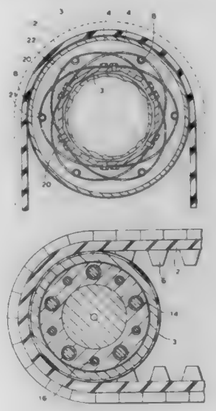
a fixed member (**24,26,27**) coupled to the mounting member (**22**) and fixed relative to the mounting member (**22**);

an indicating member (**37**) disposed on one of the second link (**9**) and the fixed member (**24,26,27**); and

indicium (**36,38**) disposed on the other one of the second link (**9**) and the fixed member (**24,26,27**);

wherein an aligned position between the indicating member (**37**) and the indicium (**36,38**) indicates an aligned position of the chain guide (**1**) relative to the third sprocket.

5,728,019
BELT DRIVE
Harald Becker, Oberhausen, Germany; Piotr Dudzinski, Wroclaw, Poland, and Michael Ketting, Enneppetal, Germany, assignors to Intertractor Aktiengesellschaft, Gevelsberg, Germany
Filed Feb. 27, 1996, Ser. No. 607,527
Claims priority, application Germany, Feb. 28, 1995, 195 06 939.0
Int. Cl.[6] F16D *3/02;* **F16H** *55/00;55/32*
U.S. Cl. 474—94 **9 Claims**



1. A belt drive comprising:

a belt having an inner surface and a row of inwardly projecting teeth extending along said surface;

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a drive drum around which said belt extends and having an outer periphery frictionally engaged by said surface for frictional drive of said belt by said drum;

a ring on said drum rotatable relative to said drum and formed with entrainers engageable by said teeth; and

means between said drum and said ring for impeding displacement of said ring relative to said drum upon slip of said surface of said belt on said drum to effect controlled engagement of said entrainers with said teeth and positive drive of said belt by said drum.

5,728,020

PULLEY AND BALL BEARING FOR PULLEYS

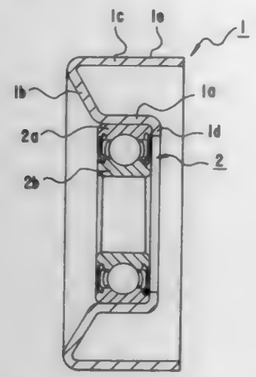
Masahiro Muranaka, Iwata, and Masao Fukuwaka, Shizuoka-ken, both of Japan, assignors to NTN Corporation, Osaka, Japan

Filed Sep. 4, 1996, Ser. No. 707,402

Claims priority, application Japan, Sep. 6, 1995, 7-229377

Int. Cl.[6] F16H *57/04;* **F10C** *33/66*

U.S. Cl. 474—199 **4 Claims**



1. A pulley having a ball bearing incorporated in a pulley body having a pulley circumferential face which is brought into contact with a belt driven by an engine of an automobile, being characterized in that the radial internal clearance in the running state of a ball bearing is set to substantially 5 to 30 μm, and grease to be sealed in said ball bearing is such that:

the base oil thereof comprises a mixture of α-olefin oligomer and ester,

the thickening agent thereof comprises a mixture of an alicyclic urea compound and an aliphatic urea compound,

the worked penetration thereof is roughly 240, and

the base oil viscosity thereof is made 40 to 43 cSt at a temperature of 40° C.

5,728,021

TRANSMISSION CHAIN FOR A CONE PULLEY TRANSMISSION

Jacobus H. M. van Rooij, Nuenen, and Theodorus P. M. Cadée, Asten, both of Netherlands, assignors to Gear Chain Industrial B.V., An Nuenen, Netherlands

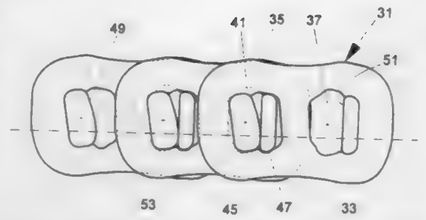
Filed May 3, 1996, Ser. No. 642,577

Claims priority, application Netherlands, May 3, 1995, 1000294

Int. Cl.[6] F16G *13/02*

U.S. Cl. 474—229 **6 Claims**

1. Transmission chain for a cone pulley transmission comprising a number of links mutually coupled by elongate pins which extend through the links and each of which has first axial end faces



engaging facing surfaces of a cone pulley, a plurality of elongate strip-shaped interpieces also extending through the links, said interpieces being shorter than said pins and having second axial end faces spaced from the facing surfaces of a cone pulley, said pins and interpieces having co-operating side surfaces engaging in a rolling motion with respect to each other, each link accommodates non-rotatably with respect thereto a said pin and in the longitudinal dimension of the link at a distance from said pin an interpiece, each pin having an active side surface directed to an active side surface of an opposite interpiece, there is in each link adjacent each active side surface of a pin and an interpiece respectively sufficient free space to accommodate an interpiece or pin respectively which is coupled to an adjacent link during the movement thereof, there being adjacent sets of links coupled mutually in the longitudinal direction of the transmission chain such that one pin in a first link co-operates with a rolling contact movement with an interpiece in an adjacent, staggered link.

5,728,022

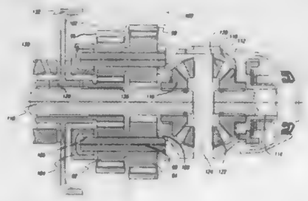
AUTOMOTIVE TRANSAXLE HAVING A TWO-SPEED FINAL DRIVE

Weston L. Schultz, 16223 Riverside Dr., Livonia, Mich. 48154

Filed Apr. 29, 1996, Ser. No. 639,739

Int. Cl.[6] F16H *37/08*

U.S. Cl. 475—205 **9 Claims**



1. A transaxle having multiple ratio gearing for an automotive vehicle driveline for delivering driving torque from an internal combustion engine to a driven shaft connected drivably to vehicle traction wheels, said driven shaft and said engine being disposed on spaced, parallel axes;

a hydrokinetic torque converter having a turbine and an impeller, said impeller being driven by said engine;

a torque transfer drive having a drive element connected drivably to said turbine, a driven element of said torque transfer drive being disposed on the axis of said driven shaft, said transaxle comprising:

a two-speed final drive defining torque flow paths of different speed ratios between said driven element of said torque transfer drive and said driven shaft;

said two-speed final drive comprising two reaction ring gears, a driven element connected to said driven shaft, and a driving gear element connected to said driven element of said torque transfer drive;

said transaxle including a differential gear unit with torque output side gears connected drivably to said traction wheels, said driven element of said two-speed final drive being connected to torque input gears of said differential gear unit;

said two-speed final drive comprising further epicyclic gearing having planet pinions with pinion portions of different pitch diameters;

a pinion carrier journalling said planet pinions, a separate ring gear meshing with each planet pinion portion;

a torque input sun gear engaging one planet pinion portion, said pinion carrier being connected to torque input portions of said differential gear unit; and

discrete brakes for selectively anchoring said ring gears to effect each of two final drive speed ratios thereby extending the overall speed ratio range beyond the range of speed ratios available in said multiple ratio gearing.

5,728,023

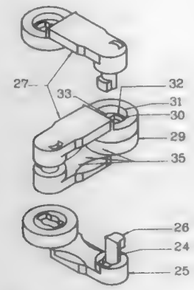
PLASTIC CHAIN, MODULE AND SPROCKET CLUSTER

Arthur G. Green, 15654 Ridge Estates Dr., and David B. Pailey, 103 Providence Mine Rd., Suite 204, both of Nevada City, Calif. 95959

Continuation-in-part of Ser. No. 281,775, Jul. 27, 1994, Pat. No. 5,520,585. This application May 28, 1996, Ser. No. 654,226

Int. Cl.[6] F16G *13/02*

U.S. Cl. 474—206 **20 Claims**



1. An endless chain, comprising a series of modules connected in end to end succeeding relationship, each individual module formed of one or more metal reinforcing members and a plastic casing molded around and generally in the shape of each such metal reinforcing member, which module, while assembled, is without moving parts, and each pair of adjacent modules having at least one transverse pin integrally formed with and extending from one module into at least one transverse pin-receiving socket of the other module so as to form a joint between the modules, each such joint being rotatable generally in a single plane perpendicular to said pin of the joint so formed.

5,728,024

DIFFERENTIAL APPARATUS

Makoto Ishizuka; Sakuo Kurihara; Yasuhiko Ishikawa, and Masahiko Asahi, all of Tochigi-ken, Japan, assignors to Tochigi Fuji Sangyo Kabushiki Kaisha, Japan

Filed Mar. 6, 1996, Ser. No. 610,543

Claims priority, application Japan, Mar. 16, 1995, 7-057293; May 8, 1995, 7-109562

Int. Cl.[6] F16H *01/45*

U.S. Cl. 475—252 **31 Claims**

1. A differential apparatus for a vehicle, comprising:

a differential casing rotated by a driving force of an engine of said vehicle;

a pair of side gears arranged in said differential casing, opposing to each other and rotatably supported coaxially with an axis of said differential casing;

at least one pair of pinion gears arranged radially outward of said side gears, said pinion gears having respective first gear portions meshing with said side gears, respectively, and second gear portions meshing with each other;

at least one pair of bores formed radically outward of said side gears in said differential casing to accommodate said pinion gears so as to rotate frictionally therein; and

maintaining means for maintaining a contact area of either one of said pinion gears with said bore containing said one of said pinion gears even if said pinion gear is slanted with respect to an axis of said bore by reactive forces exerted on said first and second gear portions from said bore, wherein on condition that helix angle of a tooth trace of said pinion gear is increased by the reactive forces while the vehicle's forward driving, said maintaining means comprises gear teeth formed on said pinion gear, tooth depths of said gear teeth are gradually increased from respective axial end portions of said pinion gear toward the axial intermediate portion.

5,728,025

DIFFERENTIAL APPARATUS

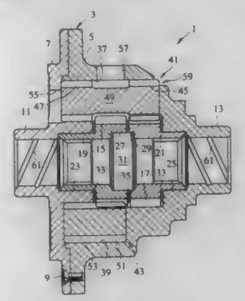
Yasuhiko Ishikawa; Sakuo Kurihara; Kazushige Nakane; Masao Teraoka, and Takao Tashiro, all of Tochigi-ken, Japan, assignors to Tochigi Fuji Sangyo Kabushiki Kaisha, Japan

Filed Apr. 5, 1996, Ser. No. 627,351

Claims priority, application Japan, Apr. 18, 1995, 7-092235; Apr. 21, 1995, 7-096552; Apr. 26, 1995, 7-102219

Int. Cl.[6] F16H *1/42;* **B60K** *17/20*

U.S. Cl. 475—252 **15 Claims**



1. A differential apparatus comprising:

a first side gear rotatable about an axis;

a second side gear rotatable about the axis, in opposition to the first gear;

a casing member rotatable about the axis, the casing member covering the first and second side gears;

a first bore formed in the casing member, the first bore extending in parallel to the axis;

a first pinion having a first gear portion and a second gear portion and fitted in the first bore, the first pinion being frictionally slidably rotatable relative to the side wall of the

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first bore in a first position thereof parallel to the axis and in a second position thereof tilted from the first position, the first gear portion of the first pinion meshing with the first side gear, and the first pinion having a first pinion tooth formed in one of the first and second gear portions thereof;

a second bore formed in the casing member, the second bore extending in parallel to the axis; and

a second pinion having a first gear portion and a second gear portion and frictionally slidably rotatable relative to the side wall of the second bore, the first gear portion of the second pinion meshing with the second side gear and the second gear portion of the second pinion meshing with the second gear portion of the first pinion, and at least one of the first side gear and the second gear portion of the second pinion having a mating tooth part formed therein to mesh with the first pinion tooth, wherein the first pinion tooth is capable of meshing with the mating tooth part over substantially the entire length of the first pinion tooth when the first pinion is in the second position.

5,728,026

CONTROL SYSTEM FOR AUTOMATIC TRANSMISSION

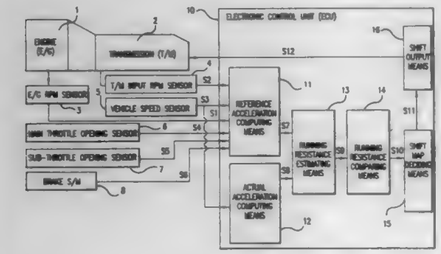
Yoshikazu Sakaguchi; Muneo Kusafuka, both of Anjo; Masao Saito; Masamichi Unoki, both of Nishio, and Junichi Nishimura, Anjo, all of Japan, assignors to Aisin AW Co., Ltd., Anjo, Japan

Filed Jun. 14, 1996, Ser. No. 663,980

Claims priority, application Japan, Jun. 16, 1995, 7-150374

Int. Cl.[6] F16H *61/16*

U.S. Cl. 479—110 **5 Claims**



1. A control system for an automatic transmission, comprising:

running status detecting means for detecting a running status of a vehicle, to include an input torque from an engine;

running resistance estimating means for estimating a running resistance on a basis of the running status of the vehicle, the running resistance including a road gradient;

shift characteristic changing means for changing shift characteristics in accordance with the running resistance of the vehicle;

engine output control means for reducing an output of the engine by controlling a sub-throttle valve which acts independently of a driver's operation at an overrun time of drive wheels; and

action status detecting means for detecting an action status of said sub-throttle valve, wherein said running resistance estimating means estimates the running resistance of the vehicle on a basis of said running status detecting means detection of the running status of the vehicle and said action status detecting means detection of the action status of said sub-throttle valve during operation of the engine output control means.

5,728,027

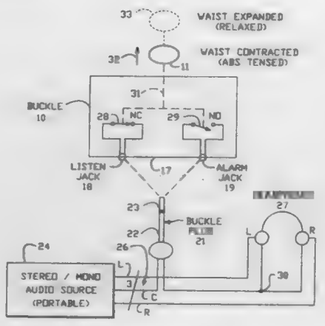
BIOFEEDBACK SYSTEM FOR TRAINING ABDOMINAL MUSCLES

Robert J. Sinaiko, 449 Alvarado St., San Francisco, Calif. 94114

Continuation of Ser. No. 652,838, May 23, 1996, abandoned. This application Jun. 3, 1997, Ser. No. 868,040

Int. Cl.[6] A61B *5/103*

U.S. Cl. 482—4 **3 Claims**



1. A biofeedback system for training a person's abdominal muscles by contraction and relaxation comprising:

a waistband for placement around said person's waist having expandable buckle means for fastening together the ends of said waistband and for sensing contraction or expansion of said waist caused by the tensing or relaxation of said abdominal muscles;

an audio source having a stereo audio output carryable by said person and a pair of headphones wearable by said person and connected to said audio source by left and right stereo channel wires and a common wire which is connected to both headphones by a common ground connection between headphones;

said buckle means including at least one switch means connected to said audio source in series with said common wire and activated between a closed and open condition by said contraction or expansion of said waist for modifying the audio output of said audio source as heard by said person in response to said activation of said switch means, said modification being a lower quality sound when said common wire is opened by said switch means when said waist is expanded, said lower quality sound being produced by partial cancellation of said left and right channels via said common ground connection whereby feedback as to the state of said abdominal muscles is given to said person only through said headphones.

5,728,028

MATERIAL AND METHOD TO ASSIST IN EXERCISING FACIAL MUSCLES

Perry R. Dusch, 7338 E. Sabino Terrace Pl., Tucson, Ariz. 85750

Filed Jul. 17, 1996, Ser. No. 683,616

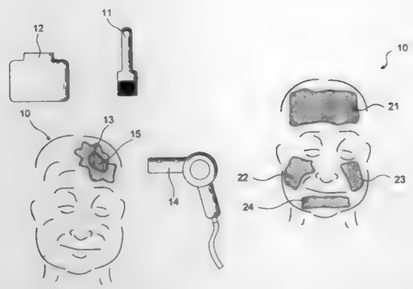
Int. Cl.[6] A63B *23/03;* **A61H** *1/00*

U.S. Cl. 482—11 **14 Claims**

1. An improved method for exercising facial muscles comprising the steps of:

a) applying a thin layer of liquid latex to a portion of a user's face;

b) allowing said liquid latex to dry on said face to a desired rubberized consistency, thereby providing a resilient film that provides resistance to the facial muscles underlying the dried layer of latex; and,



c) repetitively contorting facial muscles beneath said dried layer of latex.

5,728,029

BICYCLE EXERCISE DEVICE

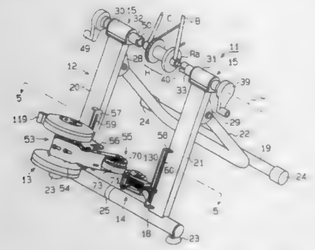
Kohji Minoura, Gifu-ken, Japan, assignor to Minoura Co., Ltd., Gifu-ken, Japan

Filed Dec. 19, 1996, Ser. No. 770,083

Claims priority, application Japan, Jul. 10, 1996, 8-180667

Int. Cl.[6] A63B *23/04*

U.S. Cl. 482—61 **14 Claims**



1. A bicycle exercise device for use with a bicycle having a rotatable rear wheel that includes a rim for supporting a tire, wherein the device comprises:

a framework for supporting the rear wheel in an elevated position;

a rotary drive member constructed and supported to be driven by the rear wheel;

a resistance applying unit for applying a resistance load to the rear wheel with the rotary drive member, wherein the rotary drive member is constructed and arranged to engage the rim;

a mechanism for supporting the rotary drive member, wherein the supporting mechanism is adjustable such that it can be moved between various positions in a radial direction with respect to the wheel to accommodate various wheel diameters; and

indicia for indicating the various wheel sizes that correspond to the various positions of the supporting mechanism.

5,728,030

INFANT TRAINING WALKER

Charles Ping-Chao Hsieh, 263 W. Las Flores Dr., Arcadia, Calif. 91006

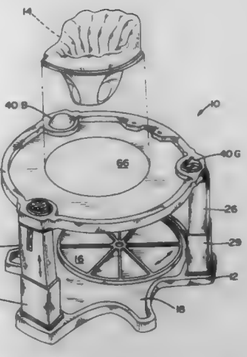
Filed Jul. 29, 1996, Ser. No. 681,853

Int. Cl.[6] A63B *22/00;* **A47D** *13/04*

U.S. Cl. 482—66 **23 Claims**

1. An infant training walker, comprising:

(a) a base having a horizontally disposed stage surface;



(b) a tread member movably supported relative to the base for rotation about a first axis normal to said stage surface, the tread member having a tread surface for engagement by an infant's foot, at least a portion of the tread surface being movable approximately coplanar with the stage surface; and

(c.) a restraint member rotatably supported relative to the base about a second axis parallel with said first axis and in elevated relation to the tread member, said restrain member including means for laterally restraining an infant occupant's torso portion, the restrain member being laterally displaced from said tread member axis of rotation and being effective for at least partially supporting the infant.

5,728,031

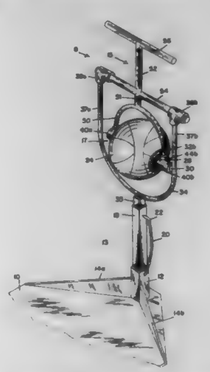
IMPACT EXERCISE APPARATUS

W. C. Honeycutt, Worcester, Mass., assignor to W. C. Honeycutt, Inc., Worcester, Mass.

Filed Jul. 2, 1996, Ser. No. 674,754

Int. Cl.[6] A63B *69/20;69/00*

U.S. Cl. 482—83 **4 Claims**



4. An exercise apparatus for use in developing abdominal muscles, said exercise apparatus comprising:

(a) a platform;

(b) a supporting structure having a lower end attached to the platform and an upper end vertically spaced from the platform;

(c) a lever structure mounted on the upper end of the supporting structure for pivoting about a horizontal axis, said lever structure having a first and portion which extends from said horizontal axis in a first direction and a second arm portion which extends from said horizontal axis in a second direction, said first arm portion having a pair of spaced outer end portions;

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(d) an impact member operatively connected to said outer end portions so that said impact member is spaced from said horizontal axis and located between said outer end portions, said impact member having a convex surface; and

(e) a grasping handle connected to said second arm portion so that said grasping handle is spaced from said horizontal axis, said grasping handle and said impact member being orientated so that said impact member swings toward a person's torso when said person pushes said grasping handle away from said person's torso.

5,728,032

WEIGHTED FOOTWEAR GARMENT FOR EXERCISE, TRAINING AND/OR THERAPY

Alvin Glass, 151 Tamalpais Ave., Mill Valley, Calif. 94941

Filed Aug. 21, 1996, Ser. No. 699,523

Int. Cl.[6] A63B *21/06;23/04*

U.S. Cl. 482—105 **4 Claims**



1. A removable stretch fabric footwear garment for use as a weighted shoe attachment for running, power walking, exercise, training or therapy comprising a loop of stretch fabric adapted to fit snugly over a shoe, the loop having an upper opening to accommodate at least the ankle of a user and a lower opening to accommodate at least the heel of a shoe, the loop having on one end a toe portion, medal and lateral side portions and at it's opposite end a heel portion, the toe portion having an upper section made of stretch fabric and a lower section each attached to the upper and lower edges respectively of the toe portion of said garment so as to fit tightly around the toe of a shoe, the lower portion comprising a sole, each of said upper section, said medial and lateral side portions and heel portion having pockets for carrying weights attached thereto and each of said pockets having a closure for holding weights securely therein.

5,728,033

SWIMMING SIMULATOR EXERCISE DEVICE

Thomas P. Rogers, Englewood, N.J., assignor to RTOM Corporation, Englewood, N.J.

Filed Apr. 14, 1993, Ser. No. 48,270

Int. Cl.[6] A63B *21/008*

U.S. Cl. 482—111 **10 Claims**

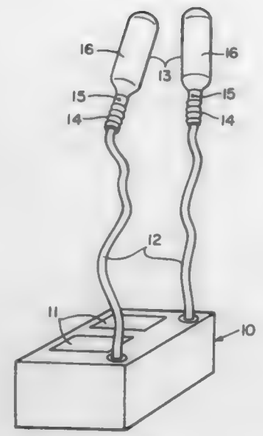
1. Exercising apparatus comprising:

a reservoir unit for receiving and dispensing fluid;

an arm exercising unit comprising at least two relatively movable paddles each having a compartment and movable relative to said reservoir unit,

each of said compartments being connected to and separated from said reservoir unit by a flexible feedline and flexible return line wherein said flexible feedline is seperate from said flexible return line;

a pump for pumping fluid from said reservoir unit to each of said compartments via said feedline; and



a return mechanism for allowing flow of said fluid from said compartments to said reservoir unit via said return line.

5,728,034

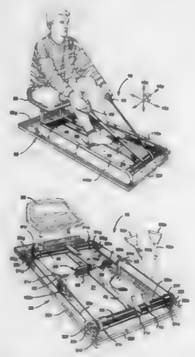
EXERCISE LEG AND ARM EXTENSION DEVICE

Ted A. Lamothe, 5512-45th Ave. South, Minneapolis, Minn. 55417

Filed Oct. 1, 1996, Ser. No. 724,356

Int. Cl.[6] A63B *21/00;71/00*

U.S. Cl. 482—131 **20 Claims**



1. An exercise machine comprising:

(a) a frame having first and second longitudinal ends;

(b) a seat connected to the frame proximate the first longitudinal end of the frame;

(c) a first roller rotatably connected to the frame proximate the first longitudinal end of the frame;

(d) a second roller rotatably connected to the frame proximate the second longitudinal end of the frame;

(e) a foot rest operably positioned between the first and second rollers for longitudinally reciprocating within an exercise area defined by the first and second rollers between a first longitudinal position proximate the first roller and a second longitudinal position proximate the second roller, and in communication with the frame for guiding longitudinal movement of the foot rest;

(f) a band connected at a first end to the foot rest and sequentially extending from the foot rest (i) around the first roller, (ii) underneath the foot rest, and (iii) around the second roller,

wherein a second end of the band is positioned and arranged for extension into the exercise area; and

(g) a pair of handles attached to the second end of the band.

5,728,035

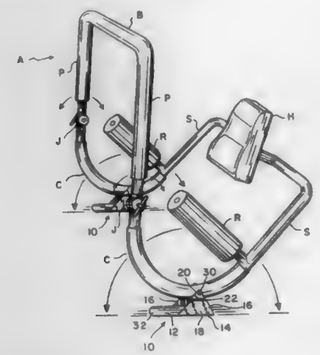
ANCHOR PLATE FOR ABDOMINAL EXERCISE DEVICE

Leonard I. Sands, Tarzana, Calif., assignor to Guthy-Renker Corp., Santa Monica, Calif.

Filed May 3, 1996, Ser. No. 642,467

Int. Cl.[6] A63B *23/02*

U.S. Cl. 482—140 **5 Claims**



5. An abdominal exercise device with an anchor plate, comprising: said abdominal exercise device including

a padded headrest;

a pair of oppositely opposed padded armrests, said padded headrest coupled to said pair of oppositely opposed padded armrests by first and second supporting sections flanking said padded headrest, said first supporting section generally oppositely opposed said second supporting section, said padded headrest generally central to but offset from between said padded armrests, said padded armrests extending generally perpendicular to said first and second supporting sections;

first and second curved portions, said first curved portion generally oppositely opposed and parallel to said second curved portion, said first and second curved portions respectively extending from said first and second supporting sections in a continuous manner;

first and second straight portions, said first straight portion generally oppositely opposed and parallel to said second straight portion, said first and second straight portions respectively extending from said first and second curved portions in a continuous manner;

a padded bar, said padded bar coupling said first straight portion to said second straight portion, said padded bar extending from said first and second straight portions so that said first and second supporting sections, said first and second curved portions, said first and second straight portions and said padded bar cooperate to provide a continuous path;

an adjustable swivel joint interposed between said first curved portion and said first straight portion, said adjustable swivel joint allowing said first straight portion and said bar to pivot with respect to said first curved portion; and said anchor plate including

a base pad;

a first brace support attached to said base pad on a first side and a second brace support attached to said base pad on a second side, said first and second brace supports forming a pair of brace supports wherein each said brace supports, comprises:

a wider lower portion attached to said base pad, said wider lower portion distributing forces from the abdominal exercise device to said base pad; and

a narrower upper portion coupled to said wider lower portion, said narrower upper portion defining an aperture through which a bolt may pass to pivotably connect the anchor plate to the abdominal exercise device, said aperture of said narrower upper portion rearwardly offset from a longitudinal center of said base pad;

a second brace support attached to said base pad on a second side, said first and second brace supports forming a pair of brace supports;

an inwardly-extending panel attached on an outer side to each said wider portion and on an inner side to each said narrower portion, said inwardly-extending panel performing as a shock-absorbing spring and elastically absorbing shocks and stresses transmitted by the abdominal exercise device to the anchor plate;

a non-skid surface, said non-skid surface attached to an underside of said base pad engaging a floor beneath said base pad, said non-skid surface allowing the anchor plate to resist slipping and sliding from shocks and stresses transmitted to the anchor plate from the abdominal exercise device;

a side reinforcing ridge, attached to each said wider lower portion of said brace supports and attached to said base pad, said side reinforcing ridges extending forwardly from said wider lower portion along said base pad;

said pair of brace supports flanking said base pad on opposing sides of said base pad and projecting upwardly therefrom, said pair of brace supports being sufficiently spaced apart to allow a portion of the abdominal exercise device to fit between said brace supports, said pair of brace supports supporting the abdominal exercise device above a floor, said brace supports pivotably connected to the abdominal exercise device; whereby

a precise pivot point about said pivotable connection between said brace supports and the abdominal exercise device may be provided to the abdominal exercise device by said anchor plate, an axis of rotation defined by said precise pivot point raised above a floor and closer to abdominal muscles of a person using the abdominal exercise device.

5,728,036

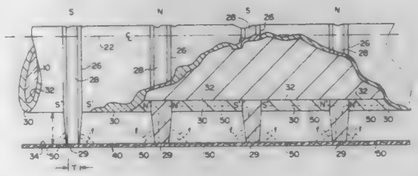
ELONGATED FINNED BACKUP ROLLERS HAVING MULTIPLE MAGNETIZED FINS FOR GUIDING AND STABILIZING AN ENDLESS, FLEXIBLE, HEAT-CONDUCTING CASTING BELT

Valery G. Kagan, and R. William Hazelett, both of Colchester, Vt., assignors to Hazelett Strip-Casting Corporation, Colchester, Vt.

Filed Jul. 10, 1996, Ser. No. 677,882

Int. Cl.[6] G03G *19/00;* **B22D** *11/06*

U.S. Cl. 492—8 **20 Claims**



1. An elongated finned backup roller for guiding an endless, flexible, heat-conducting casting belt containing magnetically soft ferromagnetic material, said elongated finned backup roller comprising:

a multiplicity of fins each having a circular circumference concentric with an axis of rotation of the roller;

said fins being formed of magnetically soft ferromagnetic material and being located at positions spaced axially along the roller;

a multiplicity of reach-out permanent magnets each having a residual induction equal to at least about 9,000 Gauss and

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each having a midpoint differential demagnetizing permeability equal to or less than about 4 ΔGauss/ΔOersted; and

said magnets being included in the roller magnetizing said fins with their circumferences having alternate North and South magnetic polarities along the roller.

5,728,037

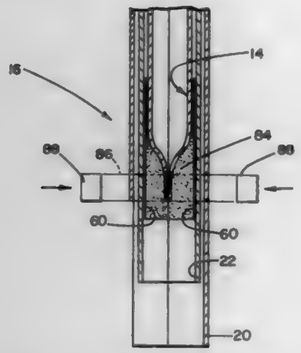
ENVIRONMENTALLY FRIENDLY PINCH BOTTOM BAG ASSEMBLY AND METHOD OF MAKING

Arthur M. Pryor; Lattie G. Futch, both of Tifton, and Robert W. Bolling, Jr., Savannah, all of Ga., assignors to Union Camp Corporation, Princeton, N.J.

Division of Ser. No. 146,961, Nov. 10, 1993, Pat. No. 5,529,396, which is a continuation-in-part of Ser. No. 977,324, Nov. 17, 1992, abandoned. This application Jun. 6, 1995, Ser. No. 468,444

Int. Cl.[6] B31B *39/00*

U.S. Cl. 493—217 **9 Claims**



1. A method of making a factory end for a bag assembly in which a removable plastic bag will be contained within a protective outer bag, comprising the steps of:

(a) providing a tube assembly having a plastic inner tube within an outer tube;

(b) sealing one end of the plastic inner tube so as to be closed at said one end; and

(c) closing the outer tube about said closed one end of said inner tube in such a manner that no plastic material from said inner tube is permanently affixed to the outer tube, whereby the outer tube may be efficiently recycled or incinerated after it is separated from the inner tube by a consumer.

5,728,038

CENTRIFUGE ROTOR HAVING STRUCTURAL STRESS RELIEF

Robert G. Coffey, Campbell; Dean A. Hanquist, Palo Alto; Patrick Q. Moore, Gilroy, and Terence T. Lung, Sunnyvale, all of Calif., assignors to Beckman Instruments, Inc., Fullerton, Calif.

Filed Apr. 25, 1997, Ser. No. 845,679

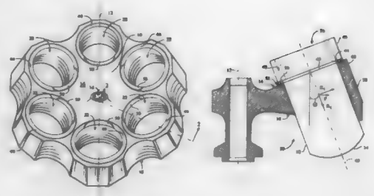
Int. Cl.[6] B04B *5/02*

U.S. Cl. 494—16 **20 Claims**

1. In combination a centrifuge rotor and a removable loosely fitting sample container for receiving and holding a sample to be centrifuged, said combination comprising:

a sample container open at the top, closed at the bottom and extending along a lengthwise axis, said container having a shoulder protruding therefrom near an open end; and

a rotor body having a spin axis and first and second opposed major surfaces, a plurality of radially spaced bores formed in said first major surface, symmetrically about said spin axis and extending toward said second major surface, for receiving said sample container, with said shoulder of said sample container seating against said first major surface of said rotor body adjacent to one of said plurality of bores to define a shoulder-rotor interface, said shoulder-rotor interface including a void defined in the region of said interface disposed between said container and said spin axis, whereby stresses exerted on said shoulder during centrifugation are reduced.



5,728,039

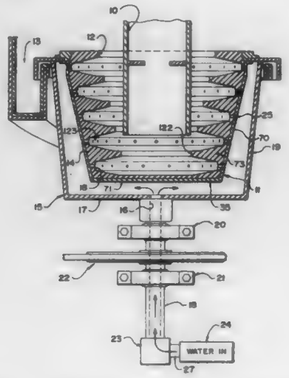
CENTRIFUGAL SEPARATOR WITH PULSED FLUID INJECTION

Benjamin Knelson, 20321-86th Ave., Vancouver, Canada, V3A 6Y3

Filed Jan. 28, 1997, Ser. No. 788,496

Int. Cl.[6] B04B *11/00*

U.S. Cl. 494—29 **9 Claims**



1. A method for separating intermixed particulate materials of different specific gravity comprising:

providing a centrifuge bowl having a base and a peripheral wall surrounding an axis passing through the base and generally upstanding from the base to an open mouth;

rotating the bowl about the axis;

feeding the intermixed particulate materials into the bowl so that during rotation of the bowl the intermixed particulate materials flow over the peripheral wall for discharge from the open mouth;

collecting the materials discharged from the open mouth;

providing at least one annular recess on the peripheral wall over which the materials pass so that heavier material particles tend to collect in the recess and lighter material particles tend to pass over the recess to the open mouth for discharge from the open mouth;

fluidizing said particles in said at least one annular recess by providing a plurality of openings through the peripheral wall at said at least one recess and injecting fluidizing liquid through the openings;

and collecting the heavier material particles from said at least one recess;

wherein the fluidizing liquid is pulsed such that a flow rate of the liquid through the openings is increased and decreased cyclically, the flow rate when decreased being arranged to maintain a positive flow of liquid into the recess through the openings which is at a rate sufficient to prevent outward flow of particles under centrifugal forces from the recess through the openings.

5,728,040

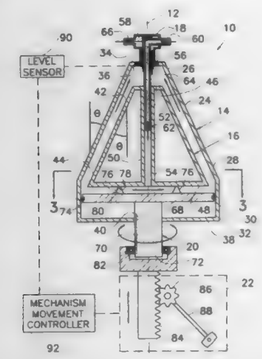
VARIABLE VOLUME CELL SAVER BOWL

David M. Schill, Knoxville, Tenn., and Joseph G. Schill, Lynchburg, Va., assignors to Schill Enterprises, Inc., Knoxville, Tenn.

Filed Sep. 9, 1996, Ser. No. 708,830

Int. Cl.[6] B04B *1/08*

U.S. Cl. 494—48 **6 Claims**



1. A variable volume cell saver bowl for use in centrifuging red blood cells from a collection of blood, said variable volume cell saver bowl being used in conjunction with a conventional inlet/outlet coupling and a conventional rotation imparting device, the inlet/outlet coupling having a housing through which passes a centrally disposed blood inlet and an annular waste fluid outlet disposed about the blood inlet, the blood inlet extending from the housing at a first end thereof, said variable volume cell saver bowl comprising:

an outer shell having a side wail, an upper end wail, and a lower end wall, said side wall having a cross-section defining a selected configuration and having an upper end and a lower end, said upper end wail being configured to substantially cover said upper end and said lower end wail being configured to substantially cover said lower end, said upper end wail defining a first opening for receiving the inlet/outlet coupling;

an inner shell disposed concentrically within said outer shell and defining a substantially similar configuration as at least a portion of said outer shell side wall, said inner shell being movable along a central axis defined by said outer shell in order to vary a volume defined between said outer shell and said inner shell; and

a linear displacement device for moving said inner shell within said outer shell along said outer shell central axis.

5,728,041

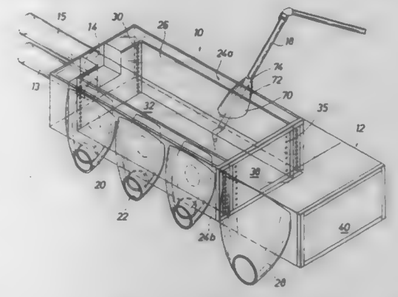
ISOLATOR FOR USE IN SURGERY OR AS A CLEAN ROOM AND METHOD OF USING THE SAME

James M. Fowler, Jr., Houston, Tex., assignor to Lone Star Medical Products, Inc., Houston, Tex.

Filed Apr. 10, 1996, Ser. No. 628,554

Int. Cl.[6] A61G *10/00;10/02*

U.S. Cl. 600—21 **20 Claims**



1. A surgical isolator for protecting the patient and medical personnel from airborne contaminants produced during laser surgery and other surgical procedures comprising an inner enclosure which is adapted to be positioned around the surgical field on the patient forming an inner chamber, an outer enclosure having an upper surface surrounding the inner chamber, a plurality of openings in each enclosure, the openings of the inner enclosure aligned with the openings in the outer enclosure, a plurality of open-ended sleeves attached to the outer enclosure through which medical personnel can extend their hands through the sleeves and the openings into the inner chamber, each sleeve having an elastic band adjacent the end open end of the sleeve adapted to grip the arm extending through the opening and restrict the flow of air from the inner, and outer chambers through the open end of the sleeve, an exhaust fan and exhaust line connected to the inner enclosure for drawing air and entrained contaminated particles produced by the surgery out of the inner chamber through the exhaust line, openings in a wall of the inner enclosure, and a supply blower for supplying the outer chamber with air at a pressure above the pressure in the inner chamber to insure that air flows from the outer chamber to the inner chamber so that entrained contaminated particles produced by the surgery are confined to the inner chamber and are carried out of the inner chamber by the exhaust fan.

5,728,042

MEDICAL APPLIANCE FOR IONIZING RADIATION TREATMENT HAVING RADIOPAQUE MARKERS

Michael Schwager, Winterthur, Switzerland, assignor to Schneider (Europe) A.G., Bulach, Switzerland

Filed Dec. 29, 1995, Ser. No. 581,098

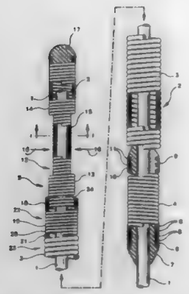
Claims priority, application European Pat. Off., Jun. 22, 1995, 95109741

Int. Cl.[6] A61N *5/00;5/10*

U.S. Cl. 600—3 **27 Claims**

1. A medical appliance for the treatment of a portion of a body vessel by ionizing radiation, comprising radioactive radiation means arranged in a distal region of a core wire and radiopaque means for positioning the radioactive radiation means on the distal region of the core wire, wherein the radiopaque means comprises a first proximal radiopaque element and a second distal radiopaque element mounted on the core wire, said first and second radiopaque

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elements maintaining the radioactive radiation means between them along the distal region of the core wire.

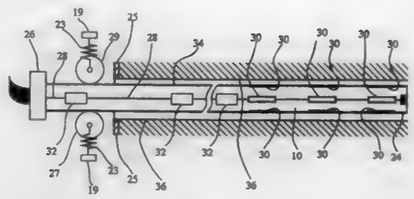
5,728,043
SIMPLIFIED ERECTION AID DEVICE
Joseph C. Yong, 3108 W. Hammer La., Stockton, Calif. 95209
Filed Oct. 19, 1995, Ser. No. 545,420
Int. Cl.[6] A61F *5/00*
U.S. Cl. 600—39 **3 Claims**



1. An erection aid device comprising:
(a) a belt adapted to be worn about the waist of a user,
(b) an annular disk having an inner circular ring that defines a circular opening adapted to receive a shaft of a penis, said annular disk adapted for applying pressure to the pelvic area of the user,
(c) two adjustable lines connected to a bottom portion of the annular disk below said circular opening and adjustably connected to said belt, said lines adapted to extend around the user's scrotum, between the user's legs, and over the buttocks of the user, said lines providing a pulling force to the bottom portion of the annular disk causing the pressure applied to the pelvic area,
(d) a rigid extension arm, having first and second ends, said first end connected to said annular disk, said second end including means for attaching the extension arm to said belt, in which the extension arm is shaped so that the disk is positioned vertically along a plane from 1 inch to 1.50 inches from a vertical line that intersects the belt at the point where the extension arm is attached to the belt.

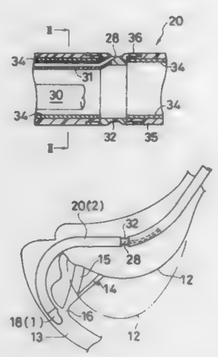
5,728,044
SENSOR DEVICE FOR SPACIAL IMAGING OF ENDOSCOPES
Yansong Shan, 42149 Hartford Dr., Canton, Mich. 48187
Filed Mar. 10, 1995, Ser. No. 401,855
Int. Cl.[6] A61B *1/012*
U.S. Cl. 600—145 **13 Claims**

1. In combination with an endoscope having a biopsy channel therethrough,



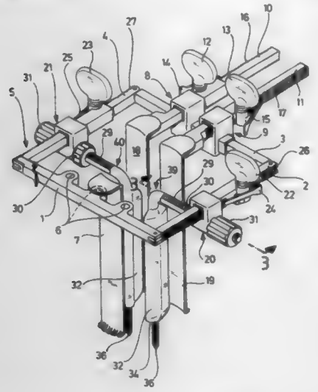
a sensor comprising a flexible rod, a plurality of strain gages securely attached to the rod, at least some of the strain gages mounted parallel to the axis of the rod to provide a change in electrical impedance in response to bending of the rod, inelastic means in the rod to substantially prevent elongation of the rod during bending and means to measure the insertion distance of the sensor in the biopsy channel.

5,728,045
ENDOSCOPE HAVING AUXILIARY HOLE
Shuji Komi, Omiya, Japan, assignor to Fuji Photo Optical Co., Ltd., Saitama, Japan
Filed Dec. 18, 1995, Ser. No. 572,882
Claims priority, application Japan, Dec. 26, 1994, 6-337237
Int. Cl.[6] A61B *1/12*
U.S. Cl. 600—156 **2 Claims**



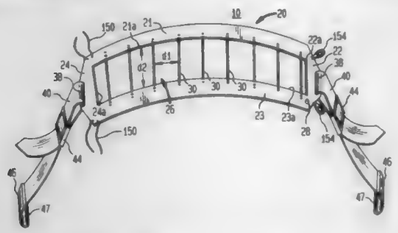
1. An endoscope having an auxiliary hole comprising:
a flexible portion connected at one end to an end portion and at another end to an operating portion;
said operating portion having a forceps insertion hole for leading a manipulating tool therethrough said forceps insertion hole also serving as a suction hole;
said flexible portion having an outer peripheral groove disposed in the middle thereof;
an auxiliary hole disposed in said outer peripheral groove separately from said forceps insertion hole at said operating portion, said auxiliary hole adapted to feed and suction a liquid or air therethrough.

5,728,046
SURGICAL RETRACTOR
Heinz Michael Mayer, Berlin; Stephan Eckhof, Tuttlingen; Nicola Giordano, Villingen-Schwenningen, and Dieter Weishaupt, Immendingen, all of Germany, assignors to AESCULAP AG, Tuttlingen, Germany
Filed Mar. 18, 1996, Ser. No. 617,339
Claims priority, application Germany, Jun. 23, 1995, 195 22 879.0
Int. Cl.[6] A61B *11/02;11/06*
U.S. Cl. 600—210 **20 Claims**



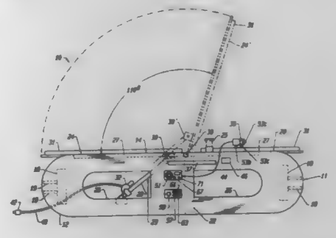
1. A surgical retractor apparatus, comprising:
a frame defining a central opening adapted to provide access to the site of operation during surgery;
first and second holders secured to said frame;
first and second support feet adapted to be secured to said first and second holders respectively and extending into said central opening and away from said frame;
first and second attachment means for attaching said first and second support feet to respective bone portions; and
opposing first and second retractor elements secured to said frame, wherein at least said first retractor element is adjustably secured to said frame so as to be displaceable relative to said frame and said second retractor element.

5,728,047
SURGICAL INSTRUMENT POSITIONING SYSTEM
John K. Edoga, Morristown, N.J., assignor to SMC Surg-Med Devices, Inc., Morristown, N.J.
Continuation-in-part of Ser. No. 519,130, Aug. 24, 1995, abandoned. This application Feb. 27, 1996, Ser. No. 606,744
Int. Cl.[6] A61B *11/02*
U.S. Cl. 600—227 **67 Claims**



1. A positioning system for use during laparoscopic surgical procedures in which a laparoscopic opening is formed in a patient comprising:
(a) a belt assembly positionable adjacent and across a bodily surface of a patient, said belt assembly comprising positioning means for providing a plurality of adjustment positions, and
(b) a laparoscopic surgical instrument having a distal end insertable into said opening to engage an internal organ and comprising attachment means for adjustable attachment to said adjustment positions provided by said positioning means of said belt assembly to allow said distal end of said instrument to be inserted into said opening and maintained in a desired position engaging an internal organ during a laparoscopic surgical procedure.

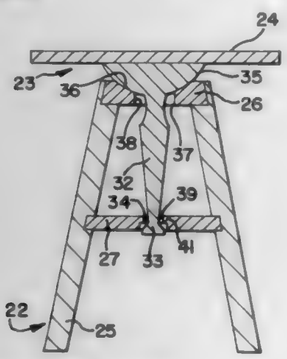
5,728,048
BACK CONDITIONING APPARATUS
Kurt Allen Hirschfeld, 35 West Shore Rd., Belvedere, Calif. 94920
Filed Feb. 26, 1996, Ser. No. 607,118
Int. Cl.[6] A61H *1/02*
U.S. Cl. 601—24 **9 Claims**



1. An exercising and strengthening apparatus for the lumbar region abdominal muscles and leg muscles of a human subject, the apparatus comprising:
a frame means for supporting loads applied to the apparatus by the subject and for transferring the loads to ground;
a stationary platform mounted on the frame means with a top surface means for receiving the head, upper-body, torso and lumbar portions of the subject while in a supine position, the stationary platform having a top edge configured to be located proximate the hip of the supine subject;
a pivotable platform mounted on the frame means with a top surface means for supporting the legs of the subject, the pivotable platform having a first end with pivot means located proximate the top edge of the stationary platform for pivoting the pivotal platform about a horizontal pivoting axis lying generally at the level of the top surface means of the stationary platform;
an actuating unit having an actuating means mounted to the frame means for pivoting the pivotable platform, the actuating means having an extension member pivotally attached to the pivotable platform, the actuating unit having further, drive means for extending and contracting the extension member to pivot the pivotable platform through a selected angle from the horizontal plane, allowing the subject to apply muscular resistance to oppose the motion of the pivotable platform wherein the top surface means of said pivotal platform includes a smooth slide surface area covering only a portion of said top surface means and configured to be positioned under, the lower legs and feet of a supine subject that allows for sliding adjustment of the legs of the subject on the pivotal platform as the platform is pivoted; and
a hand-held actuator control, connected to the drive means of the unit, the actuator control having control means for allowing the user to extend, contract, or halt motion of the extension member of the actuating means of the actuating unit, the motion corresponding to decreasing, increasing, or fixing stationary the angle from the horizontal plane of the pivotable platform.

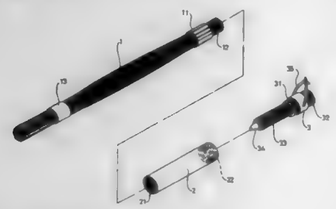
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5,728,049
THERAPEUTIC SEATING APPARATUS
Susan Alberts, 200 Dempster St., Evanston, Ill. 60202
Filed Jul. 10, 1996, Ser. No. 677,465
Int. Cl.° A61H *1/00*
U.S. Cl. 601—24 20 Claims



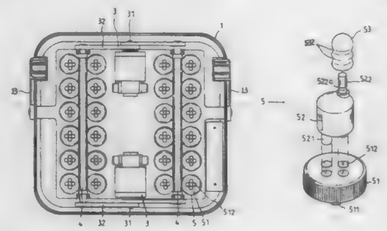
15. A therapeutic chair, comprising:
a seating assembly including a seating surface for supporting the weight of a user of the therapeutic chair, said seating surface having a plurality of positions including a generally horizontal position;
a ground-engaging support assembly which operatively supports said seating assembly;
said support assembly and said seating assembly include movement-directing components, one of said movement-directing components being a 3-dimensionally curved surface of said seating assembly, another of said movement directing components being a 3-dimensionally curved surface of said support assembly, and said respective 3-dimensionally curved surfaces are complementary with each other and are in sliding engagement with each other;
said movement-directing components provide for tilting of said seating surface through a full circle of tilting angles and orientations which include said generally horizontal position of the seating surface;
said seating assembly further having a swinging member which is downwardly disposed from the seating assembly, and said swinging member includes a protruding end projection adjacent to a necked-down portion of the swinging member; and
said movement-directing components further include a holding member which restricts movement of said swinging member of the seating assembly.

5,728,050
MASSAGE/SLAP DEVICE
Jui-Hsing Lin, 37, Lane 566, Min-Shen South Road, Chia-Yi City, Taiwan
Filed Mar. 27, 1997, Ser. No. 827,413
Int. Cl.° A61H *23/00*
U.S. Cl. 601—107 4 Claims



1. A massage/slap device, comprising:
a slapping means including a seat having a first end and a threaded second end, a plurality of flexible slapping bars arranged in a bundle, the bundle of slapping bars having a first end securely attached to the first end of the seat and a second end, and a clamping ring removably mounted around the second end of the bundle of slapping bars;
a sleeve including a first end having a first threaded inner surface for removably engaging with the threaded second end of the slapping means and a second end having a second threaded surface; and
a massage means including a first threaded end and a second threaded end each of which is removably engaged with the second threaded inner surface of the sleeve, and a massage member extending longitudinally, outwardly from the first threaded end.

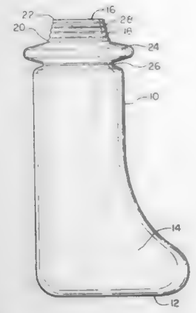
5,728,051
MASSAGER HAVING REMOVABLE MASSAGE ELEMENTS
Stephen Chi, No. 7, Lane 145, Te Hsing Road, Ta Chia, Taichung, Taiwan
Filed Feb. 27, 1996, Ser. No. 606,760
Int. Cl.° A61H *15/00*
U.S. Cl. 601—112 4 Claims



1. A massager comprising:
a) a base
b) a movable cover movably mounted on the base;
c) a plurality of screw pinions rotatably mounted on the base, each screw pinion having an upper surface with a plurality of insert slots formed therein;
d) at least one worm gear rotatably mounted on the base and engaging the plurality of screw pinions such that rotation of the at least one worm gear causes rotation of the plurality of screw pinions;
e) at least one drive motor on the base connected to the at least one worm gear so as to rotate the at least one worm gear;
f) a connecting head having an upper side with a rod extending therefrom adjacent to a periphery of the connecting head, and a lower side with at least two pins extending therefrom such that engagement of the at least two pins and the insert slots removably connect the connecting head to a screw pinion whereby the position of the connecting head relative to the screw pinion is adjustable to one of a plurality of positions; and,
g) a massaging head attached to the rod of the connecting head.

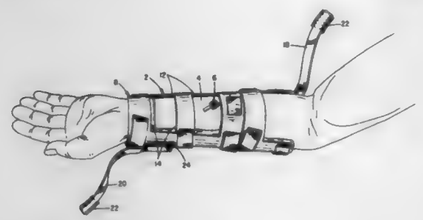
5,728,052
WATERPROOF ENCLOSURE
John J. Meehan, 16 Robin Rd., Rye, New Hampshire, N.H. 03870
Filed Sep. 20, 1996, Ser. No. 717,422
Int. Cl.° A61F *5/00;13/00*
U.S. Cl. 602—3 15 Claims

1. A waterproof enclosure comprising:
a pliable, waterproof, elongated sheath having an open first end, an interior surface, and an exterior surface;



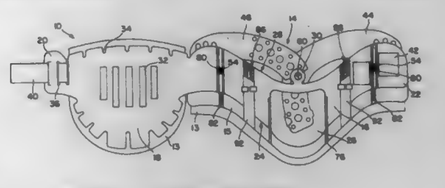
a resilient, waterproof, sealing element having a first end and a second end; and a first pliable, waterproof bellows having a first end and a second end, the bellows being interposed between the sheath and the sealing element, wherein the first end of the bellows is joined to the second end of the sealing element and the second end of the bellows is joined to the first end of the sheath;
wherein the sheath is continuous and the ends of the bellows are contiguous with the sealing elements and the sheath.

5,728,053
CATHETER CAST
Nathaniel Calvert, 3102 Crescent La. NW., Rochester, Minn. 55901
Filed Jul. 25, 1996, Ser. No. 685,891
Int. Cl.° A61F *5/00*
U.S. Cl. 602—5 18 Claims



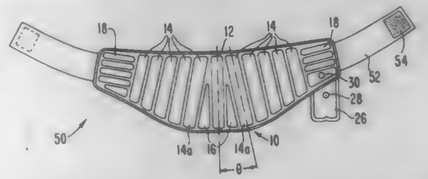
1. A treatment cast comprising:
a) first and second rigid frames, wherein a plurality of cross braces extend between longitudinal rails of each of said first and second frames, and wherein at least one treatment aperture is defined to expose a treatment site;
b) first and second pliable cushion means for cushioning said first and second frames from abrading contact with the treatment site, wherein said first and second cushion means are nonpermanently secured to said first and second frames with a plurality of sections of mating hook and loop fastener material which fastener sections are mounted to said first and second cushion means and to said first and second frames;
c) hinge means for retaining adjoining longitudinal rails of said first and second frames to one another; and
d) retention means for wrapping about said first and second frames to secure the frames to the body, whereby said first and second frames shroud and expose a treatment assembly at a treatment site.

5,728,054
ADJUSTABLE CERVICAL COLLAR
William Martin, Shepherdsville, Ky., assignor to Ambu International A/S, Glostrup, Denmark
Continuation of Ser. No. 199,366, Feb. 22, 1994, Pat. No. 5,520,619, which is a continuation-in-part of Ser. No. 64,221, May 20, 1993, Pat. No. 5,366,438. This application May 24, 1996, Ser. No. 652,936
Int. Cl.° A61F *5/04*
U.S. Cl. 602—18 18 Claims



1. An adjustable cervical collar comprising:
(a) an elongated neck encircling band;
(b) a conventional chin support brace secured to the elongated neck encircling band and formed entirely of stiff flexible plastic sheet material having a generally C-shaped including fastening means located on each end of said brace wherein said chin support fastening means engages a cooperative attachment means located at opposite sides of said neck encircling band, said fastening means align with a respective attachment means when said neck encircling band is formed into a collar;
(c) a sternum and shoulder brace, adjustably secured to the elongated neck encircling band, said elongated neck encircling band, said chin support brace, and said sternum and shoulder brace, when secured together, are capable of being bent from a flat condition to a condition encircling a neck of a wearer;
(d) an adjustment system means adjustably secured to the sternum and shoulder brace and to the elongated neck encircling band for adjusting the height of the sternum and shoulder brace in relation to the elongated neck band; and
(e) a positive alignment means secured to the sternum and shoulder brace for maintaining the sternum and shoulder brace in parallel alignment with the elongated neck encircling band as the height of the sternum and shoulder brace is adjusted in relation to the elongated neck encircling band, said parallel alignment being maintained between said secured together chin support brace and said elongated neck encircling band in both said flat condition and said condition encircling said neck of said wearer.

5,728,055
THERAPEUTIC LUMBOSACRAL APPLIANCE
Thomas Vincent Sebastian, Reading, Pa., assignor to Fisher Scientific Company, Pittsburgh, Pa.
Filed Jan. 30, 1996, Ser. No. 593,812
Int. Cl.° A61F *5/00*
U.S. Cl. 602—19 21 Claims



1. A therapeutic appliance for application to the sacrolumbar region of the human body to overlie the sacrum and sacroiliac joints, said appliance comprising:

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an air bladder elongated along a longitudinal direction and having first and second longitudinal ends and top and bottom edges extending between said first and second longitudinal ends, said air bladder having a length in said longitudinal direction sufficient to wrap at least partly around the human body while overlying the sacrum and sacroiliac joints, said air bladder comprising a plurality of air chambers located between said first and second longitudinal ends;

at least one air supply passage coupled with at least one of said air chambers and in fluid communication with said plurality of said air chambers;

wherein said air chambers include a plurality of first inclined air chambers disposed longitudinally between said first longitudinal end of said air bladder and a longitudinal midline of said air bladder, and a plurality of second inclined air chambers disposed longitudinally between said second longitudinal end of said air bladder and said longitudinal midline of said air bladder, said longitudinal midline extending in a first direction transverse to said longitudinal direction of said air bladder and being disposed between said first and second longitudinal ends of said air bladder;

wherein each of said first inclined air chambers is elongated in a second direction inclined relative to said first direction such that said longitudinal midline forms a downwardly opening acute angle with a central longitudinal line of each of said first inclined air chambers;

wherein each of said first inclined air chambers has a top end adjacent said top edge of said air bladder, and a bottom end adjacent said bottom edge of said air bladder;

wherein each of said first inclined air chambers is inclined in said second direction over an entire length thereof from said top end to said bottom end;

wherein each of said second inclined air chambers is elongated in a third direction inclined relative to said first direction such that said longitudinal midline forms a downwardly opening acute angle with a central longitudinal line of each of said second inclined air chambers;

wherein each of said second inclined air chambers has a top end adjacent said top edge of said air bladder, and a bottom end adjacent said bottom edge of said air bladder; and

wherein each of said second inclined air chambers is inclined in said third direction over an entire length thereof from said top end to said bottom end.

5,728,056

LUMBAGO CORRECTING BELT

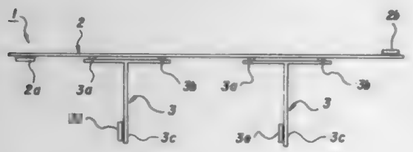
Fukumori Seriguchi, Nobeoka; Toshimichi Shirouzu, Akashi; Terusato Yamada, and Takefumi Nakashita, both of Kobe, all of Japan, assignors to Sumitomo Rubber Industries, Ltd., Hyogo-ken, Japan

Filed Aug. 21, 1996, Ser. No. 701,133

Claims priority, application Japan, Aug. 22, 1995, 7-213741; Nov. 7, 1995, 7-288766

Int. Cl.[6] A61F *5/00*

U.S. Cl. 602—19 **20 Claims**



1. A lumbago correcting belt, comprising:

a belt body adapted to be attached to a lumbar region of a human body to enclose and surround iliac bones; and

a pair of tightening members made of a flexible material, said tightening members being disposed and spaced from each other on an outer circumferential face of said belt body, each of said tightening members having two legs branched therefrom in opposite circumferential directions with reference to said outer circumferential face of said belt body, said two legs compressing iliac bones from appointed directions by a tightening force selectively given to only one of said two legs of each of said tightening members.

5,728,057

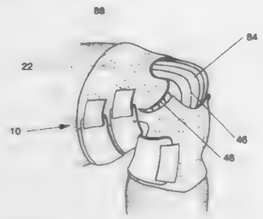
ELASTIC KNEE WRAP HAVING GLUE STAYS

William R. Ouellette, Cincinnati; Timothy A. Burkett, West Chester; Leane K. Davis, Milford; Elizabeth M. Harvey, West Chester; Kurt E. Holstein, Cincinnati, and Carl A. Noble, Maineville, all of Ohio, assignors to The Procter & Gamble Company, Cincinnati, Ohio

Continuation-in-part of Ser. No. 496,565, Jun. 29, 1995. This application Dec. 20, 1996, Ser. No. 772,079

Int. Cl.[6] A61F *5/00*

U.S. Cl. 602—62 **8 Claims**



1. An elastic knee wrap comprising:

a) a piece of flexible web having a first end and a second end and an elastic portion therebetween stretchable along a longitudinal axis of said piece of flexible web, said piece of flexible web having a length great enough to encircle a user's knee during use such that said first and second ends overlap, said first end having a reclosable fastening system for attaching said first end to said piece of flexible web near said second end in order to hold said piece of flexible web around the user's knee when said piece of web is stretched, said piece of flexible web also having an aperture therein, said aperture intended to be aligned with the user's patella to establish a convenient locating point for wrapping said knee wrap around the user's knee, said piece of flexible web further having a slit extending substantially longitudinally from said aperture for enabling said piece of flexible web to stretch transverse to said longitudinal axis at said aperture in order to accommodate bending of the user's knee;

b) a plurality of thermal elements embedded in said piece of flexible web, said plurality of thermal elements applying thermal energy to the user's knee; and

c) a plurality of glue stays bonded to said flexible web to resiliently stiffen said flexible web and thereby minimize bunching of said flexible web when the user, s knee is repeatedly bent.

5,728,058

ELASTIC KNEE WRAP

William R. Ouellette, Cincinnati; Timothy A. Burkett, West Chester; Leane K. Davis, Milford; Elizabeth M. Harvey, West Chester; Kurt E. Holstein, Cincinnati, and Carl A. Noble, Maineville, all of Ohio, assignors to The Procter & Gamble Company, Cincinnati, Ohio

Filed Jun. 29, 1995, Ser. No. 496,565

Int. Cl.[6] A61F *5/00*

U.S. Cl. 602—62 **19 Claims**

1. An elastic knee wrap comprising:

a) a piece of flexible web having a first end and a second end and an elastic portion therebetween stretchable along a longitudinal axis of said piece of flexible web, said piece of flexible web having a length great enough to encircle a user's knee during use such that said first and second ends overlap, said first end having a reclosable fastening system for attaching said first end to said piece of flexible web near said second end in order to hold said piece of flexible web around the user's knee when said piece of web is stretched, said piece of flexible web also having an aperture therein, said aperture intended to be aligned with the user's patella to establish a convenient locating point for wrapping said knee wrap around the user's knee, said piece of flexible web further having a slit extending substantially longitudinally from said aperture enabling the user to extend said piece of flexible web transverse to said longitudinal axis at said aperture in order to accomodate bending of the user's knee; and

b) a plurality of thermal elements embedded in said piece of flexible web, said plurality of thermal elements having a pattern which applies thermal energy to the user's knee.

5,728,059

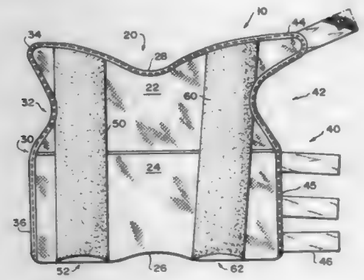
SLIT SLEEVE WRIST SUPPORT

Sidney Michael Wiesemann, Cincinnati, and Sherry Ann Hinds, Goshen, both of Ohio, assignors to Beiersdorf AG, Hamburg, Germany

Filed Nov. 22, 1995, Ser. No. 561,723

Int. Cl.[6] A61F *5/04;13/00*

U.S. Cl. 602—64 **10 Claims**



1. An ambidextrous slit sleeve wrist support comprising:

(A) a sheet of flexible, elastic material having a distal edge, a proximal edge, and opposite lateral edges, said lateral edges being shaped in a distal end portion with oppositely located arcuate portions defining concave gaps adapted to receive a thumb;

(B) a first elongated pocket adapted to receive a selectably positionable splint, said first elongated pocket being positioned on a first surface of the sheet extending substantially from the proximal edge to the distal edge adjacent to a first of said lateral edges, said first elongated pocket having an opening at the proximal edge for receiving said selectably positionable splint;

(C) a second elongated pocket also adapted to receive said selectably positionable splint, said second elongated pocket being positioned on the first surface of the sheet extending substantially from the proximal edge to the distal edge adjacent to a second of said lateral edges, said second elongated pocket having an opening at the proximal edge for receiving said selectably positionable splint;

(D) a plurality of fastening straps extending laterally from the second lateral edge, said fastening straps being fastenable to an outer surface of the first elongated pocket; and

(E) a splint selectably positionable in one of said elongated pockets; and

wherein said splint is positioned in said first elongated pocket, said sheet of flexible, elastic material is wrapped around the wrist of one hand of a user so that the splint becomes associated with the thumb of said hand of said user, and the plurality of fastening straps is fastened to said outer surface of said first elongated pocket to form a slit sleeve wrist support on said hand of said user; or

said splint is positioned in said second elongated pocket, said sheet of flexible elastic material is wrapped around the wrist of the opposite hand of said user so that the splint becomes associated with the thumb of said opposite hand of said user, and the plurality of fastening strips is fastened to said outer surface of said first elongated pocket to form a slit sleeve wrist support on said opposite hand of said user.

5,728,060

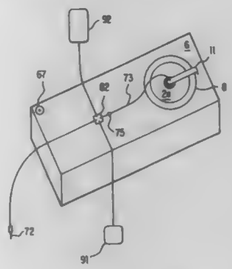
BLOOD COLLECTION AND SEPARATION SYSTEM

Gordon F. Kingsley; Thomas D. Headley, both of Wellesley, and Lise N. Halpern, Wayland, all of Mass., assignors to Transfusion Technologies Corporation, Natick, Mass.

Division of Ser. No. 482,617, Jun. 7, 1995, Pat. No. 5,651,766. This application Jun. 13, 1996, Ser. No. 662,617

Int. Cl.[6] A61M *37/00*

U.S. Cl. 604—4 **6 Claims**



1. A system for controlling a disposable set used in collecting and processing blood from a donor, the disposable set including venous-access means, a collection container, a variable-volume rotor, and tubing means connecting the venous-access means, the collection container and the rotor, wherein the tubing means may be actuated in order to direct flow through the tubing, the system comprising:

means for spinning the rotor so as to cause the blood to separate into components;

valve-actuation means for acting on the tubing means and permitting the flow of whole blood from the venous-access means to the rotor, and the flow of a component from the rotor to the collection container;

pumping means for urging flow out of the rotor; and

a controller for controlling the spinning means, the valve-actuation means and the pumping means, wherein the controller includes an interlock device that prevents activation of the pumping means until the venous-access means is inserted into the interlock device.

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5,728,061

DEVICE AND METHOD FOR TREATING HYDROCEPHALUS

Abdul Mateen Ahmed, 928 East Juanita Ave., La Verne, Calif. 91750

Continuation-in-part of Ser. No. 269,839, Jul. 1, 1994, which is a continuation-in-part of Ser. No. 786,734, Oct. 1, 1991, Pat. No. 5,411,473, which is a division of Ser. No. 478,655, Feb. 12, 1990, Pat. No. 5,071,408, which is a continuation-in-part of Ser. No. 255,070, Oct. 7, 1988, abandoned. This application Jan. 26, 1996, Ser. No. 592,016
Int. Cl.[6] A61M *5/00*
U.S. Cl. 604—9 25 Claims



1. A medical device for treating a patient suffering from hydrocephalus, including

a valve having a membrane folded to form a slit-like opening, a pair of plates which maintain the folded membrane in tension, and an aperture therein displace from the slit-like opening,

a flexible shell which encloses the valve, said shell having a reservoir and first and second ends, with said first and second ends having openings therein,

an inlet tube in communication with the valve through the aperture, said inlet tube having an end portion received by the opening at the first end of the shell, and a free end adapted to be inserted into the patient's head, and

an outlet tube in communication with the reservoir, said outlet tube having one end portion received by the opening at the second end of the shell, and a free end adapted to be insert into the patient's body.

5,728,062

APPARATUS AND METHODS FOR VIBRATORY INTRALUMINAL THERAPY EMPLOYING MAGNETOSTRICTIVE TRANSDUCERS

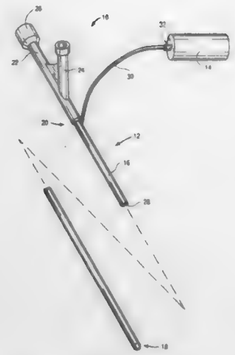
Axel F. Brisken, Fremont, Calif., assignor to Pharmasonics, Inc., Mountain View, Calif.

Filed Nov. 30, 1995, Ser. No. 566,740
Int. Cl.° A61B *17/20*
U.S. Cl. 604—22 44 Claims

1. An energy-transmitting catheter, said catheter comprising:

a flexible catheter body having a proximal end and a distal end;

a magnetostrictive driver disposed near and within the distal end of the catheter body; and



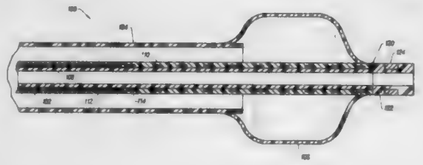
an interface surface mechanically coupled to the driver so that said surface can be oscillated relative to the catheter body.

5,728,063

HIGH TORQUE BALLOON CATHETER

Howard E. Preissman, Los Gatos; Richard S. Jaraczewski, Livermore, and Erin McGurk, Palo Alto, all of Calif., assignors to Micro International Systems, Inc., Sunnyvale, Calif.

Continuation-in-part of Ser. No. 344,183, Nov. 23, 1994, abandoned. This application Nov. 24, 1995, Ser. No. 562,565
Int. Cl.° A61M *29/00*
U.S. Cl. 604—96 27 Claims



1. A balloon catheter comprising:

an inner catheter, having proximal and distal ends, comprising:

an inner tubular member having a proximal end, a distal end, and a lumen extending from the proximal end to the distal end;

a braided reinforcement layer disposed over the inner tubular member and having a proximal end and a distal end, wherein the distal end of the braided reinforcement layer terminates at a distance in the range from 3 cm to 10 cm proximally from the distal end of the inner tubular member; and

a soft outer layer formed over the braided reinforcement layer and extending distally to the distal end of the inner tubular member;

an outer sheath extending coaxially over the inner catheter and having a distal end and a proximal end, wherein the distal end terminates distally of the distal end of the braided reinforcement layer;

an injection port at the proximal end of the outer sheath;

a balloon mounted to and generally circumscribing the distal ends of the inner catheter and the outer sheath; and

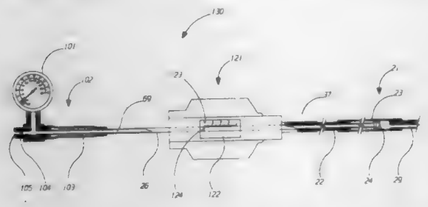
an inflation passageway defined between the outer sheath and the inner catheter and fluidly coupling the injection port and the balloon whereby the balloon can be inflated through the injection port.

5,728,064

BALLOON CATHETER WITH IMPROVED PRESSURE SOURCE

Matthew M. Burns, Orono, and Daniel M. Lafontaine, Plymouth, both of Minn., assignors to SCIMED Life Systems, Inc., Maple Grove, Minn.

Continuation of Ser. No. 308,025, Sep. 16, 1994, Pat. No. 5,545,133. This application May 21, 1996, Ser. No. 619,375
Int. Cl.[6] A61M *29/00*
U.S. Cl. 604—96 33 Claims



1. A balloon catheter insertable into a living body, comprising:

(a) an elongate shaft having a proximal end and a distal end;

(b) an inflatable balloon having a proximal end and a distal end, the proximal end of the balloon connected to the distal end of the shaft; and

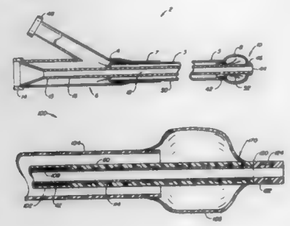
(c) a pressure source connected to the shaft, the pressure source including means for limiting balloon over-expansion when the balloon is inflated to dilate a restriction and the restriction yields at a relatively high inflation pressure.

5,728,065

SELF-VENTING ELASTOMERIC BALLOON CATHETER

Brett A. Follmer, Sunnyvale; William S. Tremulis, Redwood City, and Erin McGurk, Palo Alto, all of Calif., assignors to Medtronic, Inc., Minneapolis, Minn.

Filed Jun. 21, 1996, Ser. No. 667,536
Int. Cl.° A61M *25/00*
U.S. Cl. 604—96 30 Claims



1. A balloon catheter comprising a catheter body having a proximal end, a distal end, and at least one inflation lumen therethrough; and

an elastomeric balloon disposed over the distal end of the catheter body to receive inflation medium from the inflation lumen, said balloon comprising an elastomeric membrane having at least one vent hole therethrough.

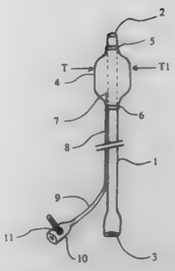
5,728,066

INJECTION SYSTEMS AND METHODS

Yousef Daneshvar, 21459 Woodfarm, Northville, Mich. 48167

Filed Dec. 10, 1996, Ser. No. 763,033
Int. Cl.° A61M *29/00*
U.S. Cl. 604—96 20 Claims

1. A device for injection of fluid into a vascular system of a living being comprising:



a first member having a distal end portion for placement in a vessel of a vascular system and a proximal end portion that remains outside of a vessel when the distal end portion is placed in a vessel;

a restrictor for restricting the flow of blood through a vessel when placed in a vessel;

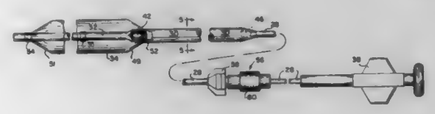
a second member comprising a fluid lumen having a distal end portion for placement in a vessel of a vascular system and a proximal end portion that remains outside of a vessel when the distal end portion is placed in a vessel, said lumen having an entrance at its proximal end portion through which fluid is injected into the lumen, and said lumen having an exit at its distal end portion for discharging injected fluid into a vessel at a location that is distal to the restrictor.

5,728,067

RAPIDLY EXCHANGEABLE CORONARY CATHETER

Christine D. Enger, Tenafly, N.J., assignor to C. R. Bard, Inc., Murray Hill, N.J.

Continuation of Ser. No. 477,617, Jun. 7, 1995, abandoned, which is a division of Ser. No. 95,036, Jul. 20, 1993, which is a continuation-in-part of Ser. No. 999,589, Dec. 30, 1992, abandoned, which is a continuation-in-part of Ser. No. 759,107, Sep. 6, 1991, abandoned, which is a continuation-in-part of Ser. No. 618,531, Nov. 26, 1990, abandoned, which is a continuation-in-part of Ser. No. 303,803, Jan. 30, 1989, abandoned. This application May 3, 1996, Ser. No. 642,334
Int. Cl.° A61M *29/00*
U.S. Cl. 604—102 22 Claims



1. A balloon dilatation catheter for percutaneous transluminal coronary angioplasty, the catheter having a proximal end and a distal end and comprising:

an elongate stiff proximal segment, formed of hypotubing, having an inflation lumen extending therethrough;

an intermediate elongate plastic catheter segment attached to the distal end of the proximal segment, the intermediate segment being more flexible than the proximal segment and having two lumens formed therethrough including a first lumen in fluid flow communication with the inflation lumen of the proximal segment to define a continuation of the inflation lumen, the inflation lumen in the intermediate segment terminating in an outlet port, the intermediate segment having a second, guidewire lumen extending parallel to the first lumen and being adapted to receive a guidewire, the guidewire lumen having a proximal opening in the region of the juncture of the intermediate and proximal segments;

the proximal segment being smaller in diameter than the intermediate segment and being substantially stiffer than the inter-

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mediate segment, the proximal segment having sufficient column strength to resist buckling when advanced through the patient's arteries;

a distal segment attached to the distal end of the intermediate segment and defining an elongate lumen in communication with and being a continuation of the distal end of the guidewire lumen of the intermediate segment, and terminating, at its distal tip, in a distal outlet;

the guidewire lumen through the intermediate and distal segments being open only at said proximal opening and said distal outlet, the intermediate and distal segments completely and continuously circumscribing the guidewire lumen to preclude a guidewire from exiting the guidewire lumen laterally between the proximal opening and the distal outlet;

a dilatation balloon having proximal and distal ends, the proximal end of the balloon being mounted on the intermediate segment, the interior of the balloon being in communication with the outlet port of the inflation lumen;

the distal end of the proximal segment being connected to the proximal end of the intermediate segment in overlapping relation with the proximal end of the guidewire lumen including the proximal with the guidwire lumen, whereby when a guidwire is received in the guidewire lumen the catheter will have continuous column support fully along its length from the proximal end of the proximal segment to the distal outlet of the distal segment.

5,728,068

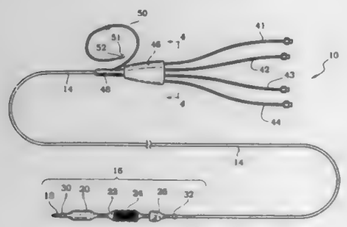
MULTI-PURPOSE BALLOON CATHETER

James Ernest Leone; Karl Phillip Weissinger, and Margaret Frances Yoklavich, all of Miami, Fla., assignors to Cordis Corporation, Miami Lakes, Fla.

Continuation-in-part of Ser. No. 259,534, Jun. 14, 1994, Pat. No. 5,505,700. This application Dec. 28, 1995, Ser. No. 580,161

Int. Cl.[6] A61M *29/00*

U.S. Cl. 604—101 **21 Claims**



1. A multi-purpose balloon catheter comprising a tubular body having a proximal end portion, a distal end portion, and at least two lumens within said tubular body, said distal end portion having three spaced apart balloons thereon, said balloons being positioned proximal, middle, and distal relative to each other, the distal balloon being an occlusive balloon, the middle balloon being a stent mounting balloon having a stent mounted thereon, and the proximal balloon being an occlusive balloon, one of said lumens communicating with said middle balloon, said tubular body defining at least one proximal perfusion port located proximally of said proximal balloon and at least one distal perfusion port located distally of said proximal perfusion port, the other of said lumens communicating between said proximal and distal perfusion ports.

5,728,069

DEVICE FOR THE PULSED PUMPING OF LIQUIDS, PARTICULARLY BLOOD

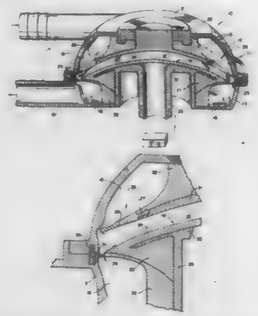
Franco Montevecchi, Felice-Segrate; Fabio Inzoli, Cesano Maderno, and Stefano Rinaldi, Parma, all of Italy, assignors to Dideco S.p.A., Mirandola, Italy

Filed Feb. 2, 1996, Ser. No. 597,492

Claims priority, application Italy, Feb. 6, 1995, MI95A0203

Int. Cl.[6] A61M *1/00*

U.S. Cl. 604—151 **59 Claims**



1. A device for the pulsed pumping of liquids, particularly blood, comprising;

a body portion;

a pumping chamber disposed within the body portion;

an inlet duct in fluid communication with the pumping chamber;

a delivery duct in fluid communication with the pumping chamber;

an inlet valve for controlling the flow of liquid from the inlet duct into the pumping chamber; and

a delivery valve for controlling the flow of liquid from the pumping chamber to the delivery duct, at least one of the inlet valve and delivery valve being an annular lip valve for sealing an annular opening, the valve being located within the body portion and being movable between an open position and a closed position in dependence of fluid dynamic forces acting on the at least one lip valve.

5,728,070

PORTABLE CHEMOTHERAPY TREATMENT DISPENSER SYSTEM

Herbert B. Walker, deceased, late of Greensboro, N.C., and by Margaret K. Walker, executrix, 4302 Stonehenge Rd., Greensboro, N.C. 27406

Filed Feb. 3, 1995, Ser. No. 382,865

Int. Cl.[6] A61M *5/32*

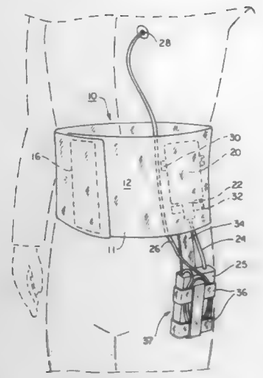
U.S. Cl. 604—179 **6 Claims**

1. A harness system for supporting a portable chemotherapy treatment dispenser on the wearer, the dispenser being of the type including a container of chemotherapy medication, a medication pump, first tubing interconnecting the container and the pump, and second tubing interconnecting the pump and a catheter, said harness system comprising:

a. a harness arranged and configured to removably surround a portion of the wearer, said harness comprising a belt arranged and configured to be worn approximately about the wearer's waist and a shoulder strap, said shoulder strap having at least two ends, each of said ends secured to said belt, and wherein said strap is arranged and configured to be worn over the wearer's shoulder;

b. container support means mounted on said harness at a first location and adapted to receive and hold the container of chemotherapy medication;

c. pump holding means mounted on said harness at a second location and adapted to receive and hold the pump; and



d. wherein said pump holding means depends from said belt and wherein said container support means is mounted on said strap.

5,728,071

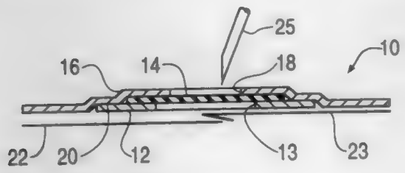
INJECTION PATCH

Robert L. Watson, 1704 Singletree Way, Bowling Green, Ky. 42103, and William R. Knepshield, 889 S. Matlack St., West Chester, Pa. 19382

Filed Sep. 9, 1996, Ser. No. 708,833

Int. Cl.[6] A61M *5/32*; **A61F** *13/00*

U.S. Cl. 604—180 **4 Claims**



1. An injection patch for facilitating injection into a patient and for confining blood from the injection wound comprising

a generally annular absorbent pad having a first surface to be placed against the skin of a patient around an intended injection site, a second surface opposite said first surface and a central opening;

an elastomeric, self-sealing membrane through which an injection needle can penetrate, said membrane lying against said second surface and closing said central opening, said membrane, in use, being spaced from the patient's skin and forming a cavity between said membrane and said skin surrounded by said absorbent pad;

a cover layer having a central opening substantially aligned with said central opening of said pad and exposing a central portion of said membrane to identify the injection site; and

means for adhesively holding said patch on the patient's skin, whereby an injection can be made with a needle passed through said membrane and the patient's skin, after which injection said membrane wipes said needle as said needle is withdrawn and said cavity between said pad and the patient's skin contains blood from the injection site until after hemostasis.

5,728,072

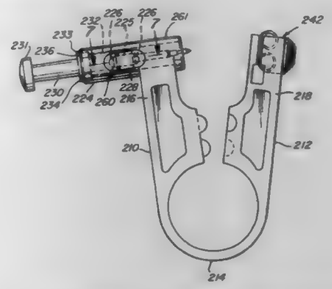
DISPOSABLE EARLOBE PIERCING DEVICE AND THE LIKE

John A. Hastings, 31 Old Main St., Bass River, Mass. 02664

Filed Jun. 7, 1995, Ser. No. 475,037

Int. Cl.[6] A61B *17/00*

U.S. Cl. 606—185 **3 Claims**



1. A means for releasable securing a cylindrical object in an elongated cylindrical barrel having a wall with ends and an outer surface and an inner surface with said object positioned within and frictionally engaged by the inner surface of said barrel intermediate its ends,

wherein said barrel is defined by a wall having a flexible spring-like portion with relatively rigid and non-yielding remaining portions of the wall,

said flexible spring-like portion integrally formed with and of the same material as said remaining portions of said barrel and comprising a concave section formed in the outer surface of said barrel, with the thickness of said barrel within said concave section being less than the thickness of the other portions of said barrel,

said flexible spring-like portion positioned intermediate the ends of the barrel and coincident with the location of said object wherein axial movement of said object under an axially applied force will be facilitated by flexing of said flexible spring-like portion, and means for imparting an axial force on said object.

5,728,073

SYRINGE

Maxwell Edmund Whisson, Perth, Australia, assignor to Eastland Technology Australia Pty Ltd., Wangara, Australia

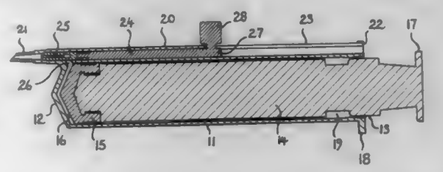
PCT No. PCT/AU95/00650, § 371 Date Mar. 26, 1997, § 102(e) Date Mar. 26, 1997, PCT Pub. No. WO96/10433, PCT Pub. Date Apr. 11, 1996

PCT Filed Oct. 4, 1995, Ser. No. 809,590

Claims priority, application Australia, Oct. 4, 1994, PM 8598

Int. Cl.[6] A61M *5/00*

U.S. Cl. 604—194 **13 Claims**



1. A syringe comprising a tubular body closed at one end and open at the other end, a plunger receivable in the body to define a chamber of variable volume, a needle support adapted to support and accommodate a hollow needle, said needle support being supported from, or in the wall of the body and being movable in a direction substantially parallel to the main axis of the body

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between a first position at which the needle extends from the one end of the body and the interior of the needle is in communication with the chamber and a second position at which the outer end of the needle is in a retracted position, said needle support having a protrusion which is selectively engagable with the wall of the body at the first and second positions to be able to be retained at said positions and receivable through the wall of the body at the second position to be engaged with the plunger to prevent axial movement of both the needle support and the plunger with respect to the body.

5,728,074

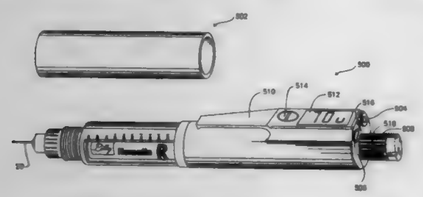
PEN-TYPE INJECTOR WITH A MICROPROCESSOR AND BLOOD CHARACTERISTIC MONITOR

Thomas P. Castellano, and Robert Schumacher, both of Beverly Hills, Calif., assignors to Visionary Medical Products, Inc., Carson City, Nev.

Continuation-in-part of Ser. No. 208,636, Mar. 9, 1994, Pat. No. 5,536,249. This application Dec. 5, 1994, Ser. No. 350,405

Int. Cl.[6] A61M *5/00*

U.S. Cl. 604—207 **13 Claims**



1. A medical injection device, comprising:

an external non-motorized pen-type injection mechanism including an actuator for setting the dosage and manually administering an injection of a medication contained within the injection device, the injection mechanism only contacting and penetrating a patient's body when a dosage of medication is administered by an injection;

a processor coupled to the actuator of the injection mechanism to determine a value equal to the dosage set by the actuator of the injection mechanism;

a memory system coupled to the processor programmed to operate the processor to store the value equal to the dosage determined by the processor when the dosage of medication is administered and to retain other separately and previously stored values corresponding to previously injected dosages for later recall of the stored value equal to the dosage and the other separately and previously stored values; and

a single hand-held pen-type housing holding the injection mechanism, the processor and the memory system.

5,728,075

INJECTION DEVICES

Gustav Levander, Bromma, Sweden, assignor to Pharmacia & Upjohn Aktiebolag, Stockholm, Sweden

PCT No. PCT/SE94/00950, § 371 Date Aug. 14, 1995, § 102(e) Date Aug. 14, 1995, PCT Pub. No. WO95/11711, PCT Pub. Date May 4, 1995

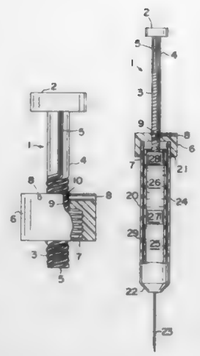
PCT Filed Oct. 10, 1994, Ser. No. 464,875

Claims priority, application Sweden, Oct. 29, 1993, 9303568

Int. Cl.[6] A61M *5/50*

U.S. Cl. 604—211 **6 Claims**

1. A device for use in an injection device for a dual-chamber or multi-chamber injection cartridge, wherein said device comprises a cartridge having a front chamber and a rear chamber separated by an intermediate movable wall, said front chamber being adapted for holding a solid component of an injection preparation and said rear chamber being adapted for holding a liquid component of said preparation; said cartridge further includes an interior wall and has



arranged in said interior wall a bypass connection for permitting the liquid to flow around and bypass said intermediate movable wall for mixing with the solid component; and wherein said device further comprises a piston rod having a single or multiple thread along a predetermined length thereof, and a nut element which cooperates with said thread and being adapted for applying pressure through the liquid in said rear chamber for also urging said intermediate movable wall forward to position it at said bypass connection thereby making it possible for the liquid component to bypass said intermediate movable wall and flow in said front chamber to be mixed with the solid component; and wherein further forward pressure on said piston rod moves it together with said intermediate movable wall for expelling the injectable preparation from said front chamber through an outlet conduit in the front chamber; wherein said thread on the piston rod is shaped as at least one helicoidal groove in the surface of said piston rod, each groove after the predetermined length turning into a longitudinal groove in said surface, such that a helicoidal movement of said piston rod for said predetermined length is changed into a linear movement in the longitudinal direction, and that the device in the nut element for cooperating with said thread consists of at least one inwardly directed radial projection for each thread, said projection or projections guiding said piston rod by the groove or grooves forming said thread.

5,728,076

AMPOULE HOLDER AND ACTUATOR

Hans Joachim Loos, Ginsheim-Gustavsburg, and Günter Ziegert, Frankfurt am Main, both of Germany, assignors to Hoechst Aktiengesellschaft, Frankfurt am Main, Germany

Continuation of Ser. No. 232,348, Apr. 22, 1994, abandoned, and a continuation of Ser. No. 743,788, Aug. 12, 1991, abandoned. This application Apr. 25, 1997, Ser. No. 847,603

Claims priority, application Germany, Aug. 14, 1990, 40 25 717.7

Int. Cl.[6] A61M *5/00*

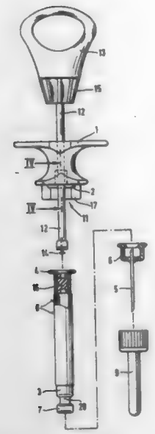
U.S. Cl. 604—232 **5 Claims**

1. A holder for an ampoule having an upper opening enclosed by a movable stopper and a lower opening through which fluid is injected, comprising:

a handle having a central bore extending therethrough;

a U-shaped collar attached to and extending from the handle for selectively supporting the ampoule, the collar defining a recess coaxial with the bore and a lateral opening through which an upper portion of the ampoule is inserted to be supported within the recess, the collar further including an internal groove;

an actuator including a displaceable piston rod extending through the bore for engaging the stopper of the ampoule to inject fluid through the lower opening; and



an adaptor for engaging the ampoule with the collar, the adaptor including a first end having a flange receivable in the groove and a second end having a cap portion for receiving the ampoule.

5,728,077

INTRAVENOUS DELIVERY SYSTEM

Robert Paul Williams, and Rodney John Taylor, both of New South Wales, Australia, assignors to Health Care Technology Australia PTY. Ltd., Seven Hills, New South Wales, Australia

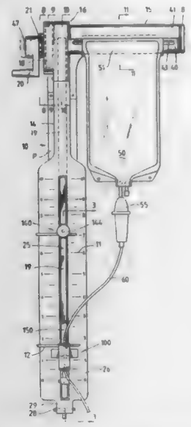
PCT No. PCT/AU93/00515, § 371 Date Mar. 26, 1996, § 102(e) Date Mar. 26, 1996, PCT Pub. No. WO94/08646, PCT Pub. Date Apr. 28, 1994

PCT Filed Oct. 8, 1993, Ser. No. 416,749

Claims priority, application Australia, Oct. 15, 1992, PL5294

Int. Cl.[6] A61M *5/00*

U.S. Cl. 604—246 **17 Claims**



1. An intravenous delivery system containing a solution delivery outlet for delivering a volume of solution to a patient intravenously from a solution container positioned above the patient and coupled to the patient via a length of narrow flexible tube, said system comprising frame means to support the solution container above the solution delivery outlet, means to raise the container as it empties to ensure a constant head of pressure, pointer displaceable about a calibrated scale on the frame means, the pointer being adapted to move with the container to provide visual indication of the volume of solution deliver to the patient, cut-off means to prevent flow of solution through the tube and means to trigger the cut-off means in response to a preselected position of the pointer.

5,728,078

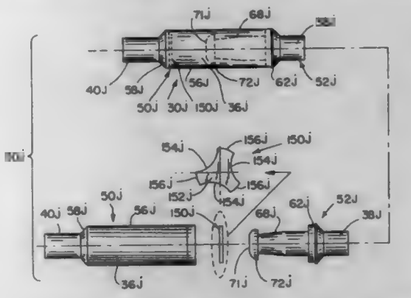
MEDICAL SUCTIONING BACTERIA VALVE AND RELATED METHOD

Carleton A. Powers, Jr., Caledonia, Mich., assignor to Powers Dental & Medical Technologies Inc., Grand Rapids, Mich.

Filed Mar. 19, 1996, Ser. No. 618,524

Int. Cl.[6] A61M *5/00*

U.S. Cl. 604—246 **12 Claims**



1. A medical suction line backflow valve for use in a medical suction line through which a gas is drawn to remove fluids from a body, said backflow valve comprising:

a housing defining a chamber and having a peripheral wall and two opposite ends, said housing including an outlet means through a one of said ends for attaching said housing to a suction source, said housing further including an inlet means through an other of said ends for attaching said housing to a suction line leading to a body, each of said outlet means and said inlet means having an internal diameter; and

diffuser means within said chamber proximate said one end for directing fluid backflowing through said outlet means toward said peripheral wall, said diffuser means spaced from both of said outlet means and said inlet means permitting the free flow of air between said diffuser means and both of said outlet means and said inlet means, said diffuser means physically blocking any straight line between the internal diameter of said outlet means and the internal diameter of said inlet means, whereby said diffuser means prevents liquid from backflowing directly from said outlet to said inlet, said diffuser means including an unapertured central portion having a diameter at least as large as the smaller of the internal diameters of said outlet means and said inlet means, said diffuser means further including an apertured peripheral portion surrounding said central portion.

5,728,079

CATHETER WHICH IS VISIBLE UNDER MRI

Jan Weber, Roden, and Wilhelmus Petrus Martinus Maria van Erp, Leek, both of Netherlands, assignors to Cordis Corporation, Miami Lakes, Fla.

Filed Sep. 19, 1995, Ser. No. 530,682

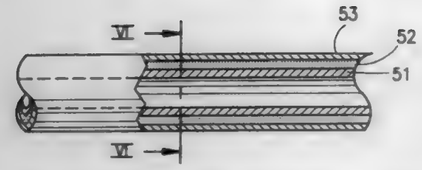
Claims priority, application Netherlands, Sep. 19, 1994, 94.01518; Sep. 19, 1994, 94.01517; Sep. 21, 1994, 94.01533

Int. Cl.[6] A61M *25/00*

U.S. Cl. 604—280 **6 Claims**

1. A catheter which is visible during magnetic resonance imaging of body tissue, said catheter comprising:

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a body having a proximal end, a distal end and at least one lumen extending therethrough, said body having a circumference and a longitudinal axis running between said distal and proximal ends, said body having a number of coaxial layers wherein at least one layer is formed of plastic and at least one layer comprises enough solid paramagnetic substance to render at least a predetermined portion of said catheter visible during magnetic resonance imaging of body tissue.

5,728,080

DEGASSING DEVICE FOR AN ARTIFICIAL ANAL BAG

Masuhiro Suyama, Nagano, Japan, assignor to Suyamasaburo-shoten Co., Ltd., Nagano, Japan

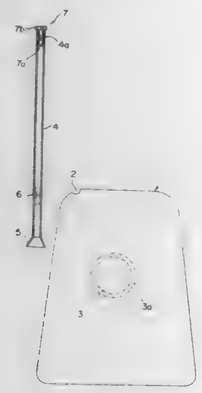
PCT No. PCT/JP94/01038, § 371 Date Jun. 17, 1996, § 102(e) Date Jun. 17, 1996, PCT Pub. No. WO95/01142, PCT Pub. Date Jan. 12, 1995

PCT Filed Jun. 28, 1994, Ser. No. 571,930

Claims priority, application Japan, Jun. 30, 1993, 5-188761; Mar. 8, 1994, 6-064641

Int. Cl.[6] A61F *5/44*

U.S. Cl. 604—333 **3 Claims**



1. An artificial anal bag and degassing device, comprising: a bag having an upper part and a joint opening at its upper part; an elongated tube having a head end and a tail end and a filter loaded therein; and an opening-and-closing plug attached to said head end, said elongated tube having a diverging joint formed at said tail end, said diverging joint being adapted to be attached to the circumference of said joint opening inside of said bag.

5,728,081

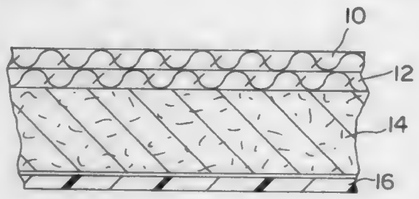
ABSORBENT COMPOSITE ARTICLE HAVING FLUID ACQUISITION SUB-LAYER

Samuel C. Baer, Woodbury; Richard S. Yeo, Medford, and Ann Marie Noftsier, Vincentown, all of N.J., assignors to FiberTech Group, Inc., Landisville, N.J.

Filed Jul. 16, 1996, Ser. No. 680,995

Int. Cl.[6] A61F *13/15;13/20*

U.S. Cl. 604—370 **14 Claims**



1. An absorbent article comprising a porous top sheet comprising a nonwoven polyolefin fabric, said top sheet having a basis weight of from about 10 to about 40 grams per square meter, an absorbent core, and a porous acquisition layer disposed between said top sheet and said core, said acquisition layer comprising a nonwoven fabric of polyolefin fibers an adhesive bonding said polyolefin fibers together, said acquisition layer having a basis weight of about 10 to about 100 grams per square meter, said acquisition layer having a pore size larger than the pore size of said top sheet and being treated with a surface active agent to render said acquisition layer hydrophilic, said top sheet and said acquisition layer being thermally bonded.

5,728,082

ABSORBENT BODY WITH TWO DIFFERENT SUPERABSORBENTS

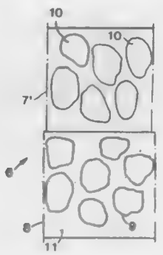
Lars Gustafsson, Göteborg; Stefan Areskoug, Mölnlycke, and Magnus Qvist, Floda, all of Sweden, assignors to Molnlycke AB, Goteberg, Sweden

Continuation of Ser. No. 261,302, Jun. 16, 1994, abandoned, which is a continuation of Ser. No. 916,842, Sep. 14, 1992, abandoned. This application Nov. 19, 1994, Ser. No. 345,423

Claims priority, application Sweden, Feb. 14, 1990, 90005349

Int. Cl.[6] A61F *13/15;* **D04H** *1/08;* **B32B** *5/16*

U.S. Cl. 604—368 **7 Claims**



1. An absorbent body for use in an absorbent article to be worn by a wearer, comprising:

an air containing voluminous first layer of fluff which lies nearest the wearer in use.

a first superabsorbent mixed in said first layer and which has a degree of cross-linking providing a gel strength high enough so as to swell under normal use pressure in said article without changing shape so that the fluff of the first layer, which collapses when absorbing liquid, will be loosened and therewith again form an air-containing, voluminous layer of fluff, and

a second layer containing a second superabsorbent wherein said second superabsorbent has a higher liquid absorbency, when in use by a wearer, than the first superabsorbent and thus absorbs more liquid than the first superabsorbent.

5,728,083

MULTILAYERED ABSORBENT STRUCTURES

Richmond A. Cohen, Warren, N.J.; James A. Minetola, Newtown, Pa., and John F. Poccia, Union Beach, N.J., assignors to McNeil-PPC, Inc., Skillman, N.J.

Division of Ser. No. 268,400, Jun. 30, 1994, Pat. No. 5,505,719. This application Apr. 25, 1995, Ser. No. 430,023

Int. Cl.[6] B65C *3/26;* **B29C** *33/00;* **D01G** *27/00*

U.S. Cl. 604—368 **5 Claims**

1. A method for manufacturing an absorbent structure which provides a substantially dry liquid-accepting surface after application of a quantity of liquid to the surface, comprising the steps of:

a) forming a first thermobonded web by:

i) depositing a first mass of fibers comprising a thermoplastic material on a moving web to form an upper layer having a first average pore size;

ii) depositing a second mass of fibers comprising a thermoplastic material on the upper layer to form a middle layer having a second average pore size, less than the first average pore size;

iii) depositing a third mass of fibers comprising a thermoplastic material on the middle layer to form a bottom layer having a third average pore size; and

iv) thermally bonding the layers to form the first thermobonded web;

b) forming a second thermobonded web by:

i) depositing fourth mass of fibers comprising a thermoplastic material on a moving web to form an upper layer having a fourth average pore size;

ii) depositing a fifth mass of fibers comprising a thermoplastic material on the upper layer to form a middle layer having a fifth average pore size, less than the fourth average pore size;

iii) depositing a sixth mass of fibers comprising a thermoplastic material on the middle layer to form a bottom layer having a sixth average pore size, greater than the fifth average pore size and greater than the second average pore size; and

iv) thermally bonding the layers to form the second thermobonded web; and

c) combining the first and second thermobonded webs to form the absorbent structure wherein the upper layer of the first web and the lower layer of the second web are in facing relation.

5,728,084

ABSORBENT ARTICLE WITH CONTROLLED DISTRIBUTION OF LIQUID

Gianfranco Palumbo, Pescara; Giovanni Carlucci, Chieti; Luigi Marinelli; Remo Di Girolamo, both of Pescara, and Michael Divo, Teatino, all of Italy, assignors to The Proctor & Gamble Company, Cincinnati, Ohio

PCT No. PCT/US93/08598, § 371 Date Jun. 2, 1995, § 102(e) Date Jun. 2, 1995, PCT Pub. No. WO94/06385, PCT Pub. Date Mar. 31, 1994

PCT Filed Sep. 13, 1996, Ser. No. 392,844

Claims priority, application Italy, Sep. 16, 1992, TO92A0761

Int. Cl.[6] A61F *13/17;13/20*

U.S. Cl. 604—378 **20 Claims**

1. A disposable absorbent article having a front region, a rear region, and a central region therebetween, the absorbent article comprising a hydrophilic, liquid pervious topsheet, said topsheet having a body facing surface consisting essentially of a hydrophilic material, a liquid impervious backsheet and an absorbent core



disposed between the topsheet and the backsheet, the core having two longitudinal side faces, a body facing surface and a garment facing surface, the body facing surface and the longitudinal side faces of the core being covered by an intermediate layer, wherein the intermediate layer comprises a substantially liquid impervious part overlying the side faces of the core at least in the central region of the absorbent article and a substantially liquid pervious part overlying at least a part of the body facing surface of the core.

5,728,085

METHOD FOR THE MANUFACTURING OF AN ABSORBENT STRUCTURE AND AN ABSORBENT ARTICLE COMPRISING AN ABSORBENT STRUCTURE MANUFACTURED ACCORDING TO THIS METHOD

Urban Widlund, Päronvägen; Eje Österdahl, Rödingsgatan; Roy Hansson, Ålegårdsgatan, and Milan Kolar, Saturnusvägen, all of Sweden, assignors to Mölnlycke AB, Göteborg, Sweden

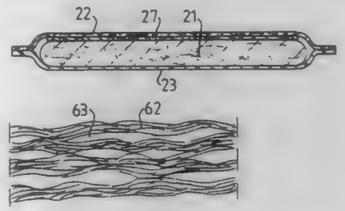
PCT No. PCT/SE93/00974, § 371 Date May 16, 1995, § 102(e) Date May 16, 1995, PCT Pub. No. WO94/10956, PCT Pub. Date May 26, 1994

PCT Filed Nov. 15, 1993, Ser. No. 436,276

Claims priority, application Sweden, Nov. 17, 1992, 9203445

Int. Cl.[6] A61F *13/15;* **D21F** *5/00;* **D04H** *1/58*

U.S. Cl. 604—378 **25 Claims**



1. A method for manufacturing an absorbent structure in an absorbent article, comprising:

flash-drying cellulose fibres;

dry-forming particulate material to a web with a weight per unit area of between 30–2000 g/m^2, 30–100% of the particulate material including the flash-dried cellulose fibres,

compressing said web to a web density of between 0.2–1.0 g/cm^3,

mechanically softening and delaminating the web, and

incorporating said softened and delaminated web as an absorbent structure in an absorbent article without subsequent defibration and fluffing.

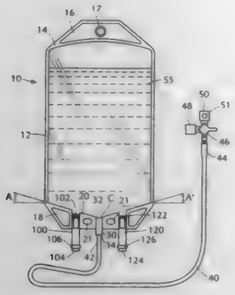
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5,728,086

UNIVERSAL FLEXIBLE PLASTIC CONTAINER WITH MULTIPLE ACCESS PORTS

John J. Niedospial, Jr., Burlington, N.J., assignor to Bracco Diagnostics, Inc., Princeton, N.J.

Filed Jul. 30, 1996, Ser. No. 688,401
Int. Cl.[6] A61B *19/00;* A61M *5/00*
U.S. Cl. 604—408 31 Claims



1. A universal, flexible container with multiple access ports made of a polymeric material for the containment and delivery of medical fluid comprising:

a) first and second polymeric sheets having a square, round, oval, hexagonal, octagonal or rectangular configuration superimposed and sealed together at their periphery defining an interior reservoir, said container having a top portion and a bottom portion; said bottom portion terminates in a first angle and a second angle of from about 5° to about 45° each from the center thereof and relative to a horizontal plane crossing the center of said bottom portion; wherein the first and second polymeric sheets are made of polyvinylidene chloride sandwiched between two layers of polyethylene or polyvinylacetate;

portions of said interior reservoir being mechanically or chemically embossed to maintain the polymeric sheets forming said interior reservoir spaced apart from each other thereby allowing relative movements of said polymeric sheets and preventing sticking therebetween;

b) a first access member integral with said container located at the center of said bottom portion allowing filling of the container with a medical fluid and access thereto for delivery to a patient, said access member comprising:

an access port located below the bottom portion of said container where said first angle and said second angle meet;

a flexible tubing having first end and second end, said first end is integral with said access port and said second end is removably covered with a cap, said flexible tubing equipped with a one-way luer slip stopcock assembly with a vent for controlling the delivery of the medical fluid from the container;

c) a second access member comprising a needle access port located on one side and adjacent to said first access member in the bottom portion of said container; and

d) a third access member comprising a spike access port located on the other side and adjacent to said first access member in the bottom portion of said container,

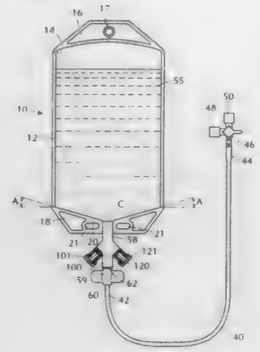
said needle and spike access ports being equipped with crimp seals to maintain the medical fluid in said interior reservoir.

5,728,087

UNIVERSAL FLEXIBLE PLASTIC CONTAINER WITH MULTIPLE ACCESS PORTS OF INVERTED Y SHAPE CONFIGURATION

John J. Niedospial, Jr., Burlington, N.J., assignor to Bracco Diagnostics, Inc., Princeton, N.J.

Filed Jul. 30, 1996, Ser. No. 688,655
Int. Cl.[6] A61M *5/00*
U.S. Cl. 604—408 35 Claims



1. A universal, flexible container made of a polymeric material for the containment and delivery of medical fluids comprising:

a) first and second polymeric sheets having a square, round, oval, hexagonal, octagonal or rectangular configuration superimposed and sealed together at their periphery to form a pouch defining an interior, said pouch having a top portion and a bottom portion;

said bottom portion terminates in a first angle and a second angle of from about 5° to about 45° each from the center thereof and relative to a horizontal plane crossing the center of said bottom portion;

portions of said interior reservoir being mechanically or chemically embossed;

b) a combination access member of inverted Y shape configuration having:

b1) a stem with a proximal end and a distal end,

said proximal end located at the bottom, center portion of the pouch sealed between said first and second polymeric sheets in the periphery thereof; and

b2) a pair of tines having proximal and distal ends, the proximal ends thereof being integral with the stem of the access member;

the combination access member comprising:

1) an IV access frangible twist-off port at the distal end of the stem of the access member; and IV line having proximal and distal ends which is attached to the IV access frangible twist-off port at its proximal end, while at its distal end the IV line is equipped with a one-way luer slip stopcock, vent and a removable cap;

2) a needle access port located in one of the tines of the combination access member; and

3) a spike access port located in the other of the tines of the combination access member;

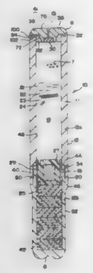
said needle and spike access ports being equipped with caps.

5,728,088

OSMOTIC SYSTEM FOR DELIVERY OF FLUID-SENSITIVE SOMATOTROPINS TO BOVINE ANIMALS

Judy A. Magruder, Mt. View; James B. Eckenhoff, Los Altos; Richard Cortese, Los Gatos; Jeremy C. Wright, Los Altos; John R. Peery, Stanford, all of Calif.; James B. Pike, St. Louis, Mo.; Urano A. Robinson, St. Louis, Mo.; Jonathan P. Smith, St. Louis, Mo., and Lyle E. Ziemann, St. Louis, Mo., assignors to ALZA Corporation, Palo Alto, Calif.

Continuation-in-part of Ser. No. 513,361, Apr. 20, 1990, abandoned, which is a division of Ser. No. 283,359, Dec. 13, 1988, Pat. No. 5,034,229. This application Jul. 1, 1994, Ser. No. 269,596
Int. Cl.[6] A61K *9/22*
U.S. Cl. 604—892.1 18 Claims



1. In a delivery device for storing and protecting a beneficial agent formulation and for dispensing the beneficial agent formulation to an animal, the delivery device having

a housing comprising a fluid impermeable portion and a fluid permeable portion forming an internal compartment;

a beneficial agent formulation in the internal compartment;

an expandable driver in the compartment for pushing the beneficial agent formulation from the delivery device;

a partition substantially impermeable to fluid, the partition disposed between the beneficial agent formulation and the expandable driver;

and exit passageway in the housing for delivering the beneficial agent formulation from the internal compartment to the animal over a prolonged period of time improvement comprising:

the partition including a body portion and a biased skirt for slidably engaging the housing portions, the biased skirt being biased radially outward from the body portion to slidably engage the housing, wherein the partition includes a conical skirt extending obliquely outward from the body portion to be biased radially outward from the body portion while slidably engaging with the housing.

5,728,089

MICROFABRICATED STRUCTURE TO BE USED IN SURGERY

Amit Lal, and Richard M. White, both of Berkeley, Calif., assignors to The Regents of the University of California, Oakland, Calif.

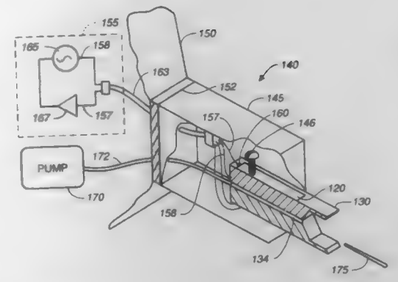
Continuation-in-part of Ser. No. 306,843, Sep. 14, 1994, Pat. No. 5,569,968, which is a continuation of Ser. No. 72,294, Jun. 4, 1993, abandoned. This application Oct. 31, 1994, Ser. No. 332,543
Int. Cl.[6] A61B *17/32*
U.S. Cl. 606—1 3 Claims

1. A surgical tool, comprising:

(a) a casing;

(b) a cutter formed of a first and a second microstructure bonded together, each of said microstructures having:

(i) a substrate of a first semiconducting material, said substrate having a body portion and a horn portion projecting forward from said body portion,



(ii) said horn portion having a blade portion which is free to vibrate, said blade portion having a forward edge which is significantly thinner than said body portion, and said body portion having a top surface and a bottom surface,

(iii) a piezoelectric actuator for imparting mechanical energy to said blade portion, said piezoelectric actuator mechanically coupled to the top surface of said body portion, and piezoelectric actuator including a first electrode layer, a second electrode layer, and a piezoelectric layer between said first and second electrode layers, and

(iv) the bottom surfaces of the body portions of said first and second microstructures bonded together to form said cutter;

(c) means for mounting said cutter in said casing;

(d) means for supplying power to said first and second electrode layers; and

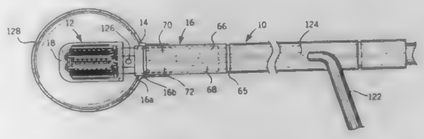
(e) means for controlling said power supply means.

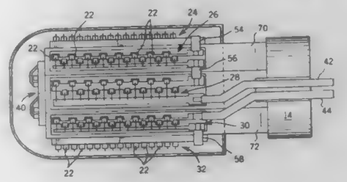
5,728,090

APPARATUS FOR IRRADIATING LIVING CELLS

Todd S. Martin, and Ronald W. Ignatius, both of Dodgeville, Wis., assignors to Quantum Devices, Inc., Barneveld, Wis.

Filed Feb. 9, 1995, Ser. No. 385,771
Int. Cl.[6] A61F *2/38;* A61B *17/36*
U.S. Cl. 606—3 18 Claims





1. Apparatus used in photodynamic therapy to provide radiant energy to living cells, comprising:

a thermally-conductive support member having a proximal end;

a radiation transmitting head interconnected with said proximal end, said head including:

at least three side faces arranged to encircle said proximal end;

a substantially non-electrically conductive layer disposed on each of said faces;

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a plurality of optoelectronic devices on each of said layers such that radiant energy may be provided by said devices in a 360 degree arc around said head;

means for limiting the surface temperature of said head, including

a first passageway in said support member that receives and carries a cooling fluid to said head; and

a second passageway in said support member that carries said cooling fluid away from said head.

5,728,091

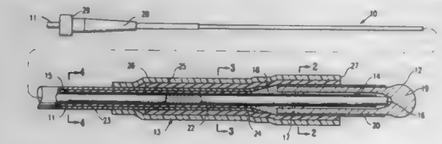
OPTICAL FIBER FOR MYOCARDIAL CHANNEL FORMATION

Sam G. Payne, Santa Clara; Randy J. Kesten, Mountain View, and Paul Kawula, Sunnyvale, all of Calif., assignors to CardioGenesis Corporation, Sunnyvale, Calif.

Filed Jun. 7, 1995, Ser. No. 482,125

Int. Cl.[6] A61N *5/06*

U.S. Cl. 606—15 **9 Claims**



1. An elongated laser device for forming a channel within a wall of a patient's heart comprising:

a) an elongated optical probe member having a closed distal end forming a lens, an open proximal end and an interior chamber in fluid communication with the open proximal end;

b) an elongated optical fiber having a proximal end configured for connection to a source of laser energy and a distal end which extends through the open proximal end of the probe member into the interior chamber thereof, and which is in optical transmitting relationship with the distal end of the optical probe member forming a lens;

c) a body of adhesive disposed about a portion of the optical fiber and at the proximal end of the optical probe member and securing the proximal end of the optical probe member to the optical fiber; and

d) a flexible tubular polymeric encapsulating support member which has an open ended proximal portion disposed about and secured to the optical fiber at a location proximal to the proximal end of the optical probe and an open ended distal portion having larger dimensions than the proximal portion disposed about and secured to a proximal portion of the optical probe.

5,728,092

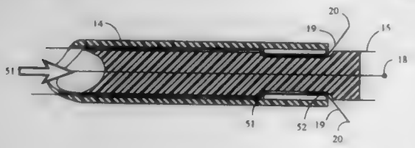
LIGHT DELIVERY CATHETER

Daniel R. Doiron, Santa Ynez, and David E. Mai, Santa Barbara, both of Calif., assignors to Miravant Systems, Inc., Santa Barbara, Calif.

Filed Mar. 7, 1996, Ser. No. 611,590

Int. Cl.[6] A61B *17/36*

U.S. Cl. 606—15 **2 Claims**



1. A catheter for delivering treatment light to a target tissue within the body of an animal, said catheter comprising an elongate flexible cylindrical member having a non-invasive proximal end and an invasive distal end, said catheter further comprising:

(a) an elongate inner tube having a cylindrical outer surface substantially coextensive with said catheter and comprising an optical waveguide having a proximal end adapted to receive treatment light from a source of treatment light, a distal end and a light diffuser element in optical communication with said distal end of said optical waveguide, said optical waveguide being operable for conducting said treatment light to said light diffuser element and said light diffuser element being operable for delivering said treatment light to said target tissue; and

(b) an elongate flexible outer tube coaxially mounted over said inner tube and having a proximal end, a distal end and an axial lumen therebetween, said axial lumen being dimensioned to slidingly accommodate said inner tube therewithin; and

(c) at least one fiber optic attached to said outer surface of said inner tube, said at least one fiber optic having a proximal end and a distal end, said distal end of said at least one fiber optic extending beyond said distal end of said inner tube and being adapted to receive light from said light diffuser element; and

(d) fiber optic bending means operable for bending said distal end of said at least one fiber optic in a radial direction when said distal end of said inner tube is slidingly advanced within said axial lumen and said distal end of said at least one fiber optic extends beyond said distal end of said outer tube.

5,728,093

Patent Not Issued For This Number

5,728,094

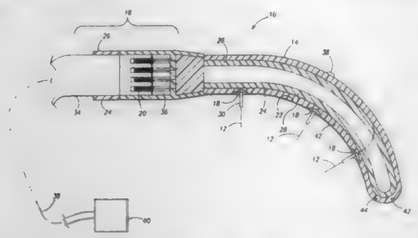
METHOD AND APPARATUS FOR TREATMENT OF AIR WAY OBSTRUCTIONS

Stuart D. Edwards, Los Altos, Calif., assignor to Somnus Medical Technologies, Inc., Sunnyvale, Calif.

Continuation-in-part of Ser. No. 606,195, Feb. 23, 1996. This application May 3, 1996, Ser. No. 642,053

Int. Cl.[6] A61B *17/36*

U.S. Cl. 606—41 **37 Claims**



1. An apparatus for ablating at least a portion of an interior of a tongue, comprising:

a catheter including a proximal end, a distal end and a catheter tissue interface surface;

an RF electrode at least partially positioned in an interior of the catheter and configured to be advanced and retracted in and out of the catheter to a tissue ablation site;

means for reducing an adenomas response to a surface of the tongue upon delivery of RF energy to an interior of the tongue by the electrode, wherein the means for reducing an adenomas response is configured to provide a cooling of tissue physically separated from the tissue ablation site; and

a cable coupled to the electrode.

5,728,095

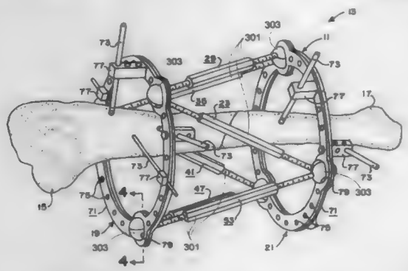
METHOD OF USING AN ORTHOPAEDIC FIXATION DEVICE

Harold S. Taylor, and John Charles Taylor, both of Memphis, Tenn., assignors to Smith & Nephew, Inc., Memphis, Tenn.

Continuation-in-part of Ser. No. 396,624, Mar. 1, 1995, abandoned. This application Oct. 7, 1996, Ser. No. 726,713

Int. Cl.[6] A61B *17/60*

U.S. Cl. 606—54 **49 Claims**



34. A method of using an external fixation device to reposition a first tissue segment to a predetermined position relative to a second tissue segment, whereby the external fixation device includes a first base member, a second base member, and at least six adjustable-length struts interconnecting said first and second base members, wherein the method comprises the steps of:

(A) attaching said first base member to said first tissue segment;

(B) attaching said second base member to said second tissue segment;

(C) calculating new effective lengths for each of said struts that are required to reposition said first tissue segment to said predetermined position, wherein said calculation is based on a mathematical correlation of the relative positions of said first tissue segment, said second tissue segment, and said device; and

(D) adjusting the effective lengths of said struts to said new effective lengths.

5,728,096

EXTERNAL TROCHANTER SPLINT

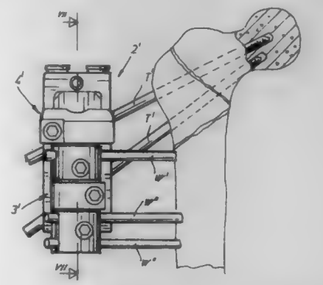
Giovanni Faccioli, Monzambano; Lodovico Renzi Brivio; Franco Lavini, both of Verona, and Daniele Venturini, Povegliano Veronese, all of Italy, assignors to Orthofix S.r.l., Bussolengo, Italy

Continuation of Ser. No. 517,847, Aug. 22, 1995, abandoned. This application Dec. 16, 1996, Ser. No. 766,086

Claims priority, application Italy, Aug. 23, 1994, VR94A0075

Int. Cl.[6] A61B *17/56*

U.S. Cl. 606—54 **31 Claims**



1. An external trochanter splint, particularly for the surgical stabilization of femoral pertrochanter and subtrochanter fractures, comprising a pair of clamps (**2**,**3**) having longitudinal axes (a, b) respectively, one of the said clamps (**2**) being a trochanter clamp adapted to releasably secure a first group of bone screws (T) inserted into the mass of the trochanter and at least partly into the neck of the femur, the other of said clamps (**3**) being a femur clamp adapted to releasably secure a second group of bone screws (W) inserted into the proximal diaphysis of the femur, the said pair of clamps being coupled together in side-by-side relation by means of an intermediate connecting member (**4**), said intermediate connecting member establishing (i) a first fixed rotary axis of trochanter-clamp connection perpendicular to the longitudinal axis of the trochanter clamp and (ii) a second fixed rotary axis of femur-clamp connection about the longitudinal axis of the femur clamp, and selectively operable locking means for securing an adjusted rotation about each of the respective rotary axes.

5,728,097

METHOD FOR SUBCUTANEOUS SUPRAFASCIAL INTERNAL FIXATION

Hallett H. Mathews, Richmond, Va., assignor to SDGI Holding, Inc., Memphis, Tenn.

Division of Ser. No. 437,523, May 9, 1995, Pat. No. 5,569,248, which is a continuation of Ser. No. 116,351, Sep. 2, 1993, abandoned, which is a continuation of Ser. No. 938,708, Sep. 1, 1992, abandoned, which is a division of Ser. No. 852,577, Mar. 17, 1992, Pat. No. 5,171,279. This application Jul. 9, 1996, Ser. No. 677,135

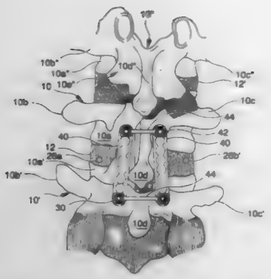
Int. Cl.[6] A61B *17/58*

U.S. Cl. 606—61 **6 Claims**

1. A method for internal fixation of the spine comprising the steps of:

a) making an incision in the skin at an entry site adjacent at least two vertebrae to be instrumented for internal fixation;

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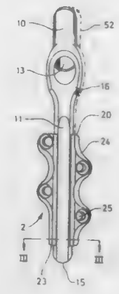
b) introducing a bone screw into each of the at least two vertebrae to position the proximal end of the bone screw within a subcutaneous suprafascial space;
c) inserting an elongated fixation member into the subcutaneous suprafascial space adjacent the proximal ends of the bone screws; and
d) engaging the fixation member to the proximal ends of the bone screws.

5,728,098
MULTI-ANGLE BONE SCREW ASSEMBLY USING SHAPE-MEMORY TECHNOLOGY
Michael C. Sherman, and Troy Drewry, both of Memphis, Tenn., assignors to SDGI Holdings, Inc., Memphis, Tenn.
Filed Nov. 7, 1996, Ser. No. 744,403
Int. Cl.[6] A61B *17/70*
U.S. Cl. 606—61 **83 Claims**



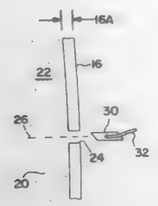
45. An assembly for engaging a bone engaging fastener having a head to an elongated member, said assembly comprising:
a receiver member having a top end and an opposite bottom end, said member defining a recess for receiving the head of the bone engaging fastener therein, said recess having a lower opening at said bottom end of said receiver member through which a lower portion of the fastener extends, said member also including a channel having an upper opening at said top end of said receiver member, said channel being configured to receive the elongated member therein, said receiver member including opposite first side walls and opposite second side walls intermediate said first side walls; and
a compression member disposed around a portion of said receiver member, said compression member being formed of a temperature responsive material and having a first configuration at a first temperature and a different second configuration at a different second temperature in which said compression member contracts about said portion of said receiver member to thereby compress said receiver member about the head of the bone engaging fastener within said recess,
wherein said first side walls are flat and said second side walls are curved at said portion of said receiver member, and
further wherein said compression member includes a ring having flat and curved portions corresponding to said portion of said receiver member.

5,728,099
IMPLANT
Lars G. Tellman, Falsterbo; Per J. A. Lagerman, Stockholm, and Henrik Hansson, Linköping, all of Sweden, assignors to Collux A.B., Malmo, Sweden
Continuation of Ser. No. 332,890, Nov. 1, 1994, abandoned. This application Apr. 8, 1997, Ser. No. 835,546
Claims priority, application Sweden, Feb. 21, 1994, 9400609; Mar. 29, 1994, 9401057
Int. Cl.[6] A61B *17/58*
U.S. Cl. 606—65 **24 Claims**



1. An implant for fixing femoral fractures comprising a first part, a second part and an anchorage device; said first part including a sleeve for receiving said anchorage device, said sleeve being adapted for insertion in a channel provided in the head of a femur, said first part further including a slide, said sleeve being permanently fixed at an angle to said slide and including a throughgoing central cavity with an opening facing towards said slide, said slide being intended to be disposed in a longitudinal direction along the shaft of the femur and forming a sliding portion; said second part including a sliding portion which is axially and slidably engaged with said sliding portion of said first part, said second part having apertures located laterally outside said sliding portion of the second part for receiving anchorage screws intended to be secured in the shaft of the femur; said anchorage device being adapted for being secured in the head of the femur and disposed to be received by said sleeve, said first and second parts being respectively securable to the femur by said anchorage device and by said anchorage screws such that said sliding portions of said first and second parts are free to undergo relative axial and sliding movement in response to load applied to the femur, wherein said sliding portions are engaged with transverse clearance to permit movement relative to one another transversely of the longitudinal direction of the shaft of the femur by a restricted amount to provide maximum transverse displacement of said opening of said central cavity of about 7 mm from a neutral position in which the sliding portions of said first and second parts are longitudinally aligned and centered.

5,728,100
MEDULLARY ANCHOR
Jeffry B. Skiba, Phoenix, Ariz., assignor to Orthopaedic Biosystems Limited, Inc., Scottsdale, Ariz.
Continuation of Ser. No. 200,162, Feb. 23, 1994, Pat. No. 5,464,425. This application Nov. 3, 1995, Ser. No. 552,986
Int. Cl.[6] A61B *17/56*
U.S. Cl. 606—79 **20 Claims**



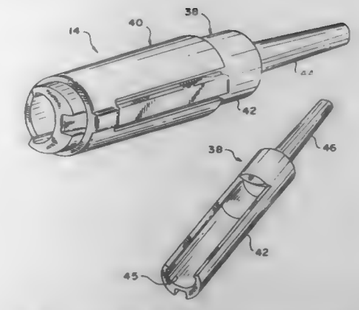
13. A medullary suture anchor comprising:
an elongated anchor comprising a biocompatible material and having a longitudinal axis associated therewith and first and second substantially flat end portions wherein at least one of said end portions is configured so that it can be punched through a hard cortical bone layer; and
a bore disposed between said first and second end portions and extending through said anchor, said bore having an axial center line disposed transversely with respect to, and substantially intersecting, said longitudinal axis wherein said bore is configured to receive a suture journalled therethrough.

5,728,101

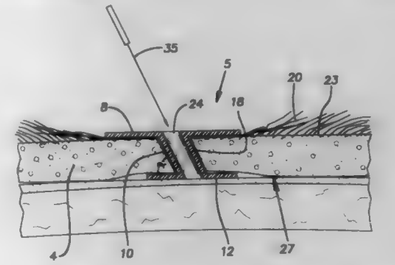
Patent Not Issued For This Number

5,728,102
DISPOSABLE INTRAOCULAR LENS INSERTION SYSTEM
Vladimir Feingold, Laguna Niguel, and Daniel C. Eagles, Capistrano Beach, both of Calif., assignors to Staar Surgical Company, Inc., Monrovia, Calif.
Continuation of Ser. No. 345,360, Nov. 18, 1994, abandoned, which is a continuation-in-part of Ser. No. 240,520, Jul. 19, 1994, which is a continuation-in-part of Ser. No. 221,013, Apr. 1, 1994, Pat. No. 5,494,484, which is a continuation-in-part of Ser. No. 220,999, Apr. 1, 1994, abandoned, which is a continuation-in-part of Ser. No. 197,604, Feb. 17, 1994, Pat. No. 5,499,987, which is a continuation-in-part of Ser. No. 196,855, Feb. 19, 1994, which is a continuation-in-part of Ser. No. 195,717, Feb. 14, 1994, which is a continuation-in-part of Ser. No. 953,251, Sep. 30, 1992, abandoned. This application Nov. 12, 1996, Ser. No. 747,308
Int. Cl.[6] A61F *9/00*
U.S. Cl. 606—107 **15 Claims**

1. A lens injecting apparatus for inserting a deformable intraocular lens into the eye, said lens injecting apparatus comprising:
a lens injecting device having a lens cartridge receiver and means for forcing the deformable intraocular lens through a lens delivery passageway in the lens injecting apparatus, and
a lens cartridge for accommodating the deformable intraocular lens, said lens cartridge including a lens holding portion and a sleeve portion slidably connected together for closing said lens cartridge after loading the deformable intraocular lens into said lens holding portion of said lens cartridge to form an assembled lens cartridge, said lens delivery passageway extending through said lens cartridge, said lens holding portion and said sleeve portion are configured for substantially enclosing the deformable intraocular lens in a portion of said lens delivery passageway through said lens cartridge when assembled together, said lens holding portion being connected to a nozzle portion.



5,728,103
IMPLANTABLE SUBCUTANEOUS ACCESS DEVICE AND METHOD OF USING SAME
George J. Picha, Independence, and Bahaman Guyuron, Hunting Valley, both of Ohio, assignors to Applied Medical Technology, Inc., Independence, Ohio
Filed Aug. 23, 1996, Ser. No. 702,219
Int. Cl.[6] A61F *11/00*; **A61M** *5/32*
U.S. Cl. 606—108 **20 Claims**

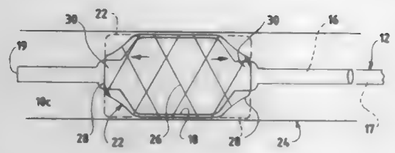


1. An implantable subcutaneous access device for device for performing an endoscopic operative procedure comprising:
a portal sleeve, said portal sleeve providing a port of entry through a cutaneous layer of a body;
a subcutaneous flange connected to said portal sleeve, said subcutaneous flange being adapted to be secured under said cutaneous layer; and
an access flange connected to said portal sleeve so as to be at a preformed oblique angle to the portal sleeve, said access flange being in a spaced apart relationship with said subcutaneous flange and being adapted to be located external to said body.

5,728,104
METHOD OF CATHETER BALLOON MANUFACTURE AND USE
Thomas N. Trotta, Miami, Fla., assignor to Cordis Corporation, Miami Lakes, Fla.
Division of Ser. No. 614,399, Mar. 12, 1996, Pat. No. 5,643,279. This application Feb. 10, 1997, Ser. No. 795,248
Int. Cl.[6] A61F *11/00*
U.S. Cl. 606—108 **8 Claims**

1. A catheter which comprises a tubular catheter body, an inflation lumen, and a tubular plastic distal portion having a bore

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communicating with said catheter inflation lumen, said tubular plastic distal portion being made of a plastic material which, when introduced into a patient and inflated, stretches longitudinally and radially to undergo molecular orientation on stretching; said plastic distal portion being surrounded by a radially expansible tubular stent and having an outer wall in its uninflated condition that is smooth and free of folds.

5,728,105

Patent Not Issued For This Number

5,728,106

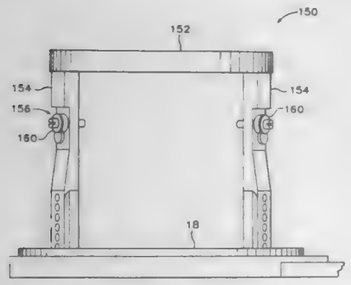
RADIO-TRANSPARENT SYSTEM FOR STEREOTACTIC RADIOSURGERY AND FRACTIONATED RADIATION THERAPY

John Misko, Portland; Robert J. Miller, Sherwood, and Stan Heard, Portand, all of Oreg., assignors to Oregon Neuro-Medical Technology, Inc., Tualatin, Oreg.

Continuation-in-part of Ser. No. 329,228, Oct. 26, 1994, Pat. No. 5,634,929, which is a division of Ser. No. 48,384, Apr. 16, 1993, Pat. No. 5,380,336. This application Mar. 3, 1995, Ser. No. 397,886

Int. Cl.[6] A61B *19/00*

U.S. Cl. 606—130 **16 Claims**



1. Apparatus for performing stereotactic radiosurgery upon a lesion within a skull, comprising:

a frame extending about a central axis for positioning around the skull, the frame defining a multi-dimensional coordinate system for localizing surgical procedures;

multiple vertically elongated arms each made from a plastic radio-transparent material and including a bottom end attached to the frame and a top end, each arm including an associated receptacle;

multiple assemblies insertable into the arm receptacles; and

a support frame made from a plastic radio-transparent material extending about the central axis and attached to the top end of each arm thereby holding each arm in a rigid lateral alignment.

5,728,107

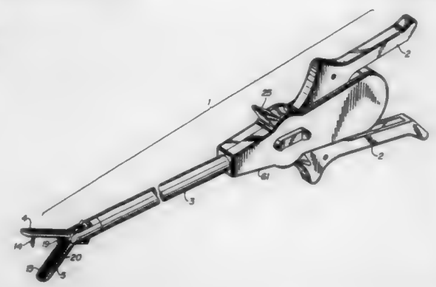
SURGICAL SUTURING APPARATUS WITH LOADING MECHANISM

Stephen W. Zlock, Hawthorne, N.Y.; David A. Nicholas, Trumbull, Conn.; Corbett W. Stone, Newtown, Conn., and Richard N. Granger, Huntington, Conn., assignors to United States Surgical Corporation, Norwalk, Conn.

Continuation of Ser. No. 503,059, Jul. 17, 1995, which is a division of Ser. No. 134,145, Oct. 8, 1993, abandoned. This application Mar. 6, 1997, Ser. No. 812,201

Int. Cl.[6] A61B *17/10*

U.S. Cl. 606—139 **5 Claims**



1. Loading mechanism for use with a surgical apparatus having jaws, comprising

a body portion having a top and bottom surface;

a member on said top surface of said body portion to attach a surgical incision member to said loading mechanism;

a first recess on said top surface of said body portion into which the jaws may be inserted and

a second recess from which the jaws may be removed.

5,728,108

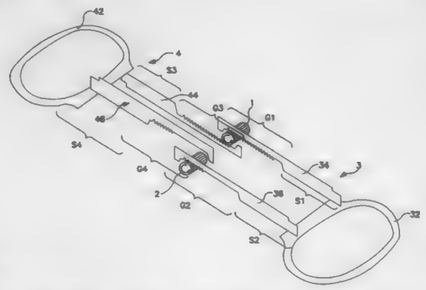
ROTARY DRIVE MECHANISM FOR INSTRUMENT HANDLE

Jerry R. Griffiths, Pembroke, and John Young, Jr., Truro, both of Mass., assignors to TNCO, Inc., Whitman, Mass.

Filed Mar. 20, 1997, Ser. No. 821,103

Int. Cl.[6] A61B *17/04*

U.S. Cl. 606—139 **13 Claims**



1. Apparatus to effect reciprocating rotation of a driveshaft comprising:

(a) a first set of two gear racks comprising

(i) a first gear rack including a toothed portion over a first length, and

(ii) a second gear rack fixed in a position parallel to said first gear rack, including a toothed portion over a second length,

(b) a first gear engaging said first gear rack of said first set of gear racks,

(c) a second gear attached to said driveshaft, said second gear engaging said second gear rack of said first set of gear racks,

(d) a second set of two gear racks movable reciprocally relative to said first set of gear racks and comprising

(i) a first gear rack including a toothed portion over a third length substantially identical to the toothed portion over said first length of said first gear rack of said first set of gear racks and engaging said first gear rack on a side of said first gear opposite the side on which said first gear rack of said first set of gear racks engages said first gear, and

(ii) a second gear rack fixed in a position parallel to said first gear rack of said second set of gear racks, having a toothed portion over a fourth length oriented to engage along said fourth length said second gear rack on the same side of said second gear as said second gear rack of said first set of gear racks engages along said second length said second gear such that when said first set of gear racks is moved in a single direction relative to said second set of gear racks, engagement of over said second length produces a first rotational motion of said second gear and engagement over said fourth length produces an opposite rotational motion of said second gear.

5,728,109

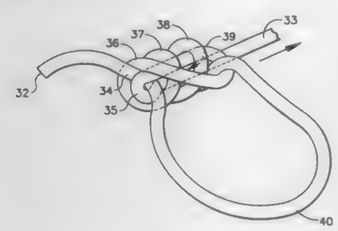
SURGICAL KNOT AND METHOD FOR ITS FORMATION

Dale R. Schulze, Lebanon, Ohio, and Troy A. McMillen, Champaign, Ill., assignors to Ethicon Endo-Surgery, Inc., Cincinnati, Ohio

Filed Apr. 8, 1997, Ser. No. 827,718

Int. Cl.[6] A61B *17/04*

U.S. Cl. 606—139 **12 Claims**



1. An improved method of forming a fully tied surgical knot for fastening bodily tissue wherein:

a) a partially tied knot is provided, said partially tied knot being formed from a suture filament having proximal and distal ends and proximal and distal lengths adjacent said proximal and distal ends, a first loop is formed between the proximal and distal lengths, and a plurality of knot loops is formed about said first loop so as to form a common loop core receiving said first loop;

b) the distal end and the distal length of said suture filament are passed through the bodily tissue to be fastened;

c) the distal end and the distal length of said suture filament are fed through said first loop so as to form a tissue-fastening loop; and

d) said partially tied knot is converted into said fully tied surgical knot;

wherein the step of converting comprises the step of:

applying axial tension on the proximal length of said suture filament while said knot loops are supported so as to pull said first loop and the distal length of said suture filament through said common loop core, thereby eliminating said first loop and forming a distal loop positioned adjacent said common loop core.

5,728,110

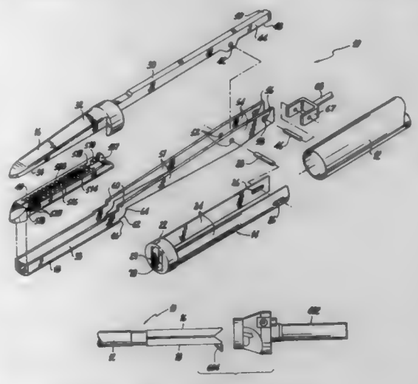
PROCEDURE FOR USE OF LAPAROSCOPIC SURGICAL INSTRUMENTS

Claude A. Vidal, Santa Barbara; Russell J. Redmond, Goleta, and Alan K. Plyley, Santa Barbara, all of Calif., assignors to United States Surgical Corporation, Norwalk, Conn.

Continuation of Ser. No. 458,170, Jun. 2, 1995, abandoned, which is a division of Ser. No. 55,817, Apr. 30, 1993, Pat. No. 5,447,265. This application Feb. 18, 1997, Ser. No. 802,886

Int. Cl.[6] A61B *17/00*

U.S. Cl. 606—143 **10 Claims**



1. A laparoscopic surgical procedure comprising the steps of:

providing a cannula,

inserting a portion of the cannula into the abdominal cavity of a patient,

providing a laparoscopic instrument having a distal portion including a first jaw and a second jaw with at least one mechanical tissue engagement device provided on at least one of the first and second jaws, an actuation means capable of engaging the mechanical tissue engagement device on tissue, and a blocking body movable between an insertion blocking position preventing insertion of the distal portion into the cannula and a non-blocking position allowing insertion of the distal portion into the cannula,

inserting the distal portion of the laparoscopic surgical instrument with the blocking body in the non-blocking position into the abdominal cavity of the patient through the cannula,

actuating the actuation means to release the at least one mechanical tissue engagement device from the first or second jaw until no mechanical tissue engagement device remains to be engaged on tissue,

moving the blocking body from the non-blocking position toward the insertion blocking position; and

removing the distal portion from the abdominal cavity through the cannula.

5,728,111

Patent Not Issued For This Number

5,728,112

COMBINED TISSUE CLAMPING AND SUTURING INSTRUMENT

InBae Yoon, 2101 Highland Ridge Dr., Phoenix, Md. 21131

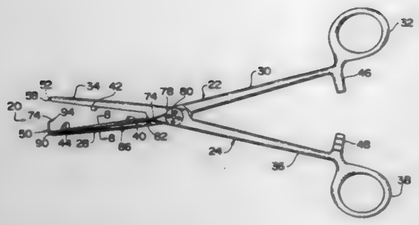
Filed Sep. 22, 1995, Ser. No. 532,455

Int. Cl.[6] A61B *7/04*

U.S. Cl. 606—144 **33 Claims**

30. A surgical instrument comprising

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a pair of pivotally connected arms, each arm defining a handle and a jaw;

a hollow suture needle mounted on a first of said jaws, said hollow needle having a first open end mounted on said first jaw and a second open end with a peripheral edge defining a tissue penetrating point, said first and second open ends being connected by a slot formed in said hollow needle; and

a length of suture material extending through said hollow needle, said length of suture material being of a size to be removable from said hollow suture needle in a direction transverse to a longitudinal axis of said needle using said slot.

5,728,113

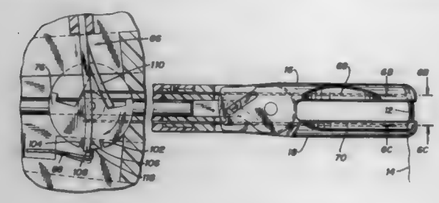
ENDOSCOPIC VASCULAR SUTURING APPARATUS

Charles R. Sherts, Southport, Conn., assignor to United States Surgical Corporation, Norwalk, Conn.

Continuation of Ser. No. 319,840, Oct. 7, 1994, abandoned. This application Jun. 12, 1996, Ser. No. 662,943

Int. Cl.[6] A61B *17/00*

U.S. Cl. 606—145 **30 Claims**



1. An endoscopic apparatus for suturing tissue comprising:

a) an elongated tubular housing;

b) a first jaw and a second jaw mounted for movement on a distal end of the tubular housing and remotely actuable for movement between an open position and a closed position wherein the first and second jaws are in close cooperative alignment;

c) a handle mechanism including a handle member, the handle mechanism associated with the proximal end of the tubular housing, the handle member being actuable to move the first and second jaws between the open and closed positions;

d) a reciprocating mechanism, mounted to the handle mechanism, remote from the first and second jaws and movable between a first position securing a surgical needle within one of the first and second jaws and a second position releasing the surgical needle from the same one of the first and second jaws; and

e) a cam actuating lever engagable with the reciprocating mechanism to cam the reciprocating mechanism between the first and second positions in response to a predetermined movement of the handle member.

5,728,114

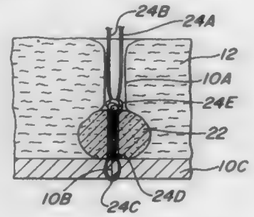
APPARATUS AND METHODS OF USE FOR PREVENTING BLOOD SEEPAGE AT A PERCUTANEOUS PUNCTURE SITE

Douglas Evans, Devon, and John E. Nash, Downington, both of Pa., assignors to Kensey Nash Corporation, Exton, Pa.

Continuation of Ser. No. 296,070, Aug. 24, 1994, Pat. No. 5,549,633. This application Mar. 7, 1996, Ser. No. 612,351

Int. Cl.[6] A61B *17/00*

U.S. Cl. 606—148 **13 Claims**



1. A system for sealing a percutaneous puncture in a blood vessel of a living being, the puncture having an opening in the wall of the blood vessel and a tract contiguous with the opening and extending to the surface of the skin of the being, the puncture tract having bounds, said system comprising a vascular puncture closure and blood seepage reduction means, said closure having a first portion adapted to seal the opening in the blood vessel and at least one filament section extending from said first portion of said closure into the puncture tract, said blood seepage reduction means being arranged to reduce bleeding from the puncture tract and comprising:

(a) a mass of absorbable, hemostatic material which inhibits the flow of blood therethrough;

(b) positioning means adapted for holding said mass of material and for disposing said mass of material at a position with respect to the puncture tract so that at least a portion of said mass of material is located within the bounds of the puncture tract;

(c) carrier means adapted for carrying a first portion of said filament section in the proximal direction to couple it to at least a portion of said mass of material while said positioning means holds said mass of material; and

(d) holding means arranged to be selectively positioned with respect to said filament section when said mass of material is in said first position for holding said mass of material with respect to said first portion of said filament section so that said mass of material closely engages tissue contiguous with the puncture tract to reduce the seepage of blood out of the puncture tract, said holding means comprising a knot formed in a second portion of the filament section, said second portion of said filament section being located proximally of said first portion of said filament section.

5,728,115

PERFUSION CLAMP

Roy A. Westcott, and Richard Putz, both of Indianapolis, Ind., assignors to Indiana University Foundation, Bloomington, Ind.

Filed Dec. 29, 1995, Ser. No. 581,190

Int. Cl.[6] A61B *17/00*

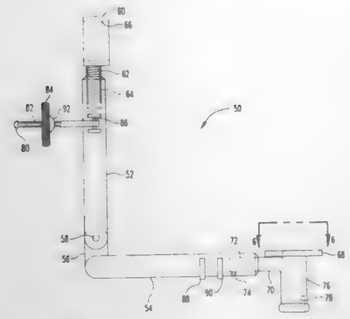
U.S. Cl. 606—151 **27 Claims**

1. A perfusion clamp, comprising

(a) a first longitudinal arm;

(b) a second longitudinal arm;

(c) A cross-member, wherein a first end of the cross-member is coupled to a proximal end of the first arm and a second end of the cross-member is coupled to a proximal end of the second arm, wherein at least one of the first and second ends pivots at its coupling;



(d) a first clamp head coupled to a distal end of the first arm;

(e) a second clamp head coupled to a distal end of the second arm, said second clamp head including an integral nipple and a perfusion lumen extending therethrough; and

(f) an adjustable clamping member coupled to one of the first and second arms and operative to releasably maintain the first and second clamp heads in clamping engagement with adjustable force.

5,728,116

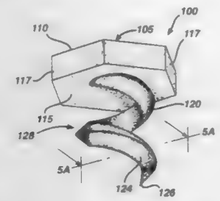
SPIRAL SURGICAL TACK

Daniel C. Rosenman, Hazlet, N.J., assignor to Ethicon, Inc., Somerville, N.J.

Division of Ser. No. 715,800, Mar. 19, 1996, which is a continuation of Ser. No. 390,327, Feb. 17, 1995, abandoned, which is a continuation of Ser. No. 180,722, Jan. 13, 1994, abandoned. This application Nov. 5, 1996, Ser. No. 746,023

Int. Cl.[6] A61B *17/08*

U.S. Cl. 606—151 **2 Claims**



1. A tack for use in a surgical procedure, the tack comprising:

a base member having a top surface and a bottom surface;

a spiral member extending from the bottom of the base member, said spiral member having at least one outer edge, the spiral member having a distal end, wherein the spiral member forms a spiral, said spiral comprising at least one coil, a longitudinal axis and an interior passage, wherein the spiral member has a substantially triangular cross-section with three outer edges; and,

piercing means extending from the distal end of the spiral member.

5,728,117

RETRACTABLE CAPSULORREHEXIS INSTUMENT

Roger S. Lash, 200 E. 87th St., Apt. 9J, New York, N.Y. 10128

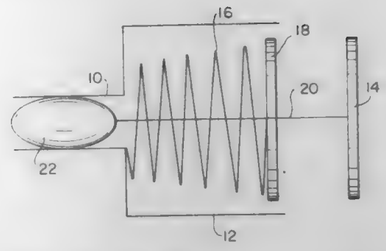
Filed Mar. 11, 1997, Ser. No. 814,416

Int. Cl.[6] A61F *9/00*

U.S. Cl. 606—166 **23 Claims**

1. A capsulorrhexis instrument, comprising

a plunger housing;



a plunger within said housing movable between fully retracted and fully extended positions, said plunger housing blocking further movement of said plunger beyond said fully extended position; and

a flexible band movable with said plunger so as to be within said plunger housing as said plunger reaches said retracted position and to be clear of said plunger housing as said plunger reaches said fully extended position, said flexible band compressing in response to entering into said plunger housing and expanding in response to emerging from said plunger housing, said plunger housing defining a chamber through which said flexible band moves while traveling between said fully retracted position and fully extended position, said chamber defining a gap with a cross-section smaller than a width to which the flexible band expands into upon clearing said plunger housing, said flexible band having a cutting edge that is sharp sufficient to cut lens capsular tissue in response to pressure being applied to force said cutting edge against the lens capsular tissue.

5,728,118

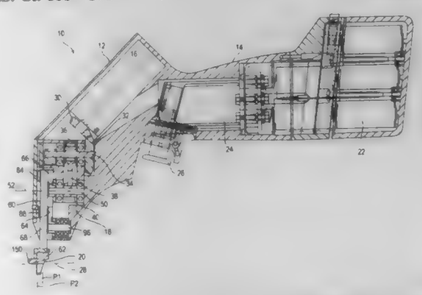
APPARATUS AND METHOD FOR HARVESTING A BONE-TENDON-BONE LIGAMENT GRAFT

Brian David Dross, Huger, S.C.; William Palleva, Cerritos, and Terry Van Blaricom, Sherman Oaks, both of Calif., assignors to Linvatec Corporation, Largo, Fla.

Filed Mar. 29, 1995, Ser. No. 412,680

Int. Cl.[6] A61B *17/32*

U.S. Cl. 606—171 **3 Claims**



1. A surgical system for harvesting a bone-tendon-bone graft comprising:

a ring blade comprising a substantially cylindrical ring having an axis, a predetermined arcuate gap in the periphery thereof and opposing axially aligned edges;

a cutting means on at least one of said axially aligned edges of said ring;

a handpiece for peripherally supporting and driving said ring blade, said handpiece comprising a power source, a fixed-center oscillating means and a drive transfer means for transferring the output of said power source to said fixed-center oscillating means; and

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a radially elongated depth penetration gauge having a proximal end and a distal end, said proximal end fixed relative to said handpiece and said distal end spaced a predetermined axial distance from said cutting means and extending toward the axis of said ring blade.

5,728,119

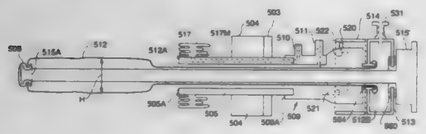
METHOD AND INFLATABLE CHAMBER APPARATUS FOR SEPARATING LAYERS OF TISSUE

Jeffrey A. Smith, Sunnyvale; Daniel T. Wallace; Edwin J. Hlavka, both of Palo Alto; Charles Gresl, San Francisco; John P. Lunsford, San Carlos, and Albert K. Chin, Palo Alto, all of Calif., assignors to Origin Medsystems, Inc., Menlo Park, Calif.

Continuation-in-part of Ser. No. 405,284, Mar. 16, 1995, Pat. No. 5,632,761, which is a continuation-in-part of Ser. No. 365,096, Dec. 28, 1994, abandoned, which is a continuation-in-part of Ser. No. 319,552, Oct. 7, 1994, which is a continuation-in-part of Ser. No. 282,287, Jul. 29, 1994, which is a continuation-in-part of Ser. No. 911,714, Jul. 10, 1992, which is a continuation-in-part of Ser. No. 794,590, Nov. 19, 1991, Pat. No. 5,309,896, which is a continuation-in-part of Ser. No. 706,781, May 29, 1991, abandoned. This application Oct. 13, 1995, Ser. No. 542,666

Int. Cl.[6] A61M *29/00;* **A61B** *17/00*

U.S. Cl. 606—190 **36 Claims**



20. A device for dissection of tissue layers and instrument anchoring, including:

an anchoring assembly including a cannula, and an anchoring balloon mounted to the cannula; and

a dissection balloon assembly including a housing attached to the anchoring assembly and a dissection balloon, wherein the dissection balloon has a mouth attached to the housing, and the dissection balloon has nonuniform elasticity selected to achieve desired inflated shape and pressure characteristics, wherein the dissection balloon comprises:

a first sheet;

a second sheet bonded to the first sheet; and

a third sheet bonded to a central portion of the second sheet, wherein the first sheet and the second sheet have substantially identical size, shape, and elasticity, and the third sheet has an elasticity substantially less than the elasticity of the second sheet.

5,728,120

WRIST CLAMP FOR ARTERIAL COMPRESSION

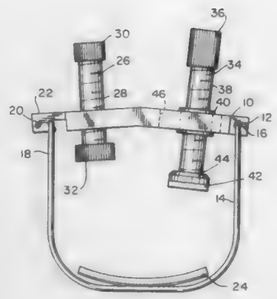
Jacob Shani, 466 Mayfair Dr. S., Brooklyn, N.Y. 11234, and Yonathon Hassin, 16A Kobabi Street, Ramat Denia, Jerusalem, Israel, 96757

Filed May 6, 1996, Ser. No. 643,580

Int. Cl.[6] A61B *17/00*

U.S. Cl. 606—201 **4 Claims**

1. A wrist clamp for arterial compression which fully encompasses the user's wrist which comprises a header assembly having an adjustable tension means wherein the mount of tension force applied is adjustable by the person applying the wrist clamp while on the patient's wrist in order to affix the clamp securely to a patient's wrist, an adjustable compression means which allows one to apply sufficient pressure to the arterial incision in order to affect adequate closure thereof while the patient's blood is coagulating, until hemostasis.



5,728,121

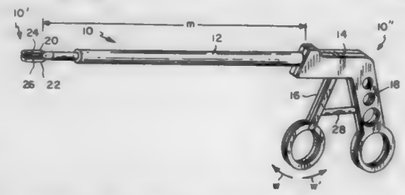
SURGICAL GRASPER DEVICES

Frank A. Bimbo, Peterborough, N.H.; Constantine Frantzides, Brookfield, Wis.; Theresa Richards, Fitchburg, and Paul D. O'Connor, East Bridgewater, both of Mass., assignors to Teleflex Medical, Inc., Plymouth Meeting, Pa.

Filed Apr. 17, 1996, Ser. No. 633,886

Int. Cl.[6] A61B *17/00*

U.S. Cl. 606—207 **32 Claims**



1. A surgical grasper device comprising:

an elongate housing member having a handle member at a proximal end and first and second grasping arms at a distal end;

first and second grasping elements attached to the first and second grasping arms respectively, and positioned on the arms in an opposed facing relationship to enable grasping of a targeted surface between the elements; and

a gripping material on one or both of the grasping elements, the material providing enhanced holding power to the targeted surface relative to the holding power provided by the elements in the absence of the gripping material.

5,728,122

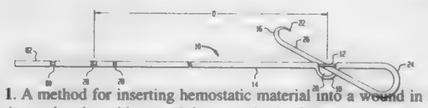
GUIDE WIRE WITH RELEASEABLE BARB ANCHOR

Boris Leschinsky, Waldwick; Jeffrey Urbanski, Sparta, and Mark Follman, Glen Rock, all of N.J., assignors to Datascope Investment Corp., Montvale, N.J.

Continuation-in-part of Ser. No. 182,501, Jan. 18, 1994, abandoned. This application Jun. 7, 1995, Ser. No. 484,911

Int. Cl.[6] A61B *17/08*

U.S. Cl. 606—213 **44 Claims**



1. A method for inserting hemostatic material into a wound in a patient wherein said wound is comprised of a puncture in the patient's skin, a puncture in one of the patient's arteries and a wound channel between said punctures, said method comprising the steps of

inserting into said wound a guide wire having a proximal end, a distal end, a medial portion and a longitudinal axis, said distal end having been formed into an anchor, said insertion continuing until said anchor has passed through said arterial puncture and said proximal end is outside the patient's body,

pulling back on said guide wire until said anchor catches on the inside of said artery,

inserting said hemostatic material over said guide wire and along said medial portion thereof until said hemostatic material is in said wound channel adjacent said arterial puncture, and

releasing said anchor and removing said guide wire from said wound.

5,728,123

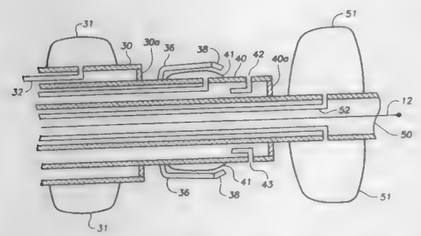
BALLOON ACTUATED CATHETER

Jerome H. Lemelson, Suite 286, Unit 802 930 Tahoe Blvd., Incline Village, Nev. 89451-9436, and J. Kevin Parker, 551 Green Bay Rd., Highland Park, Ill. 60035

Filed Apr. 26, 1995, Ser. No. 429,063

Int. Cl.[6] A61B *17/20*

U.S. Cl. 604—22 **13 Claims**



1. A catheter device for performing atherectomy procedures and the like within a blood vessel or other body duct comprising:

(a) a first elongated tubular structure having an operating end for insertion into a body duct;

(b) a first expandable balloon secured to the operating end of said first tubular structure;

(c) a cutting tool mounted at the operating end of said tubular structure and disposed so that said cutting tool is radially extended as said first balloon is expanded;

(d) second and third expandable balloons rotatably connected to said first elongate tubular structure located adjacent to and on each side of said cutting tool whereby expansion of said second and third balloons isolates the region therebetween containing said cutting tool; and

(e) wherein said cutting tool is rotatable with respect to said second and third balloons to cut tissue.

5,728,124

MEDICAL NEEDLE FOR USE IN ULTRASOUND IMAGING AND METHOD OF ENHANCING THE VISIBLITY OF SUCH A NEEDLE TO ULTRASOUND

John Francis Cockburn, 131 Bastings St., Northcote, Victoria 3070, Australia, and Donald Cockburn, 35 North Avenue, Mt. Merrion Co., Dublin, Ireland

Continuation of Ser. No. 401,625, Mar. 9, 1995, Pat. No. 5,549,112. This application Aug. 27, 1996, Ser. No. 706,986

Int. Cl.[6] A61M *37/00*

U.S. Cl. 604—22 **20 Claims**

1. A medical needle arrangement for insertion into body tissue, comprising:

a hollow stylet having a bore therein, a distal ends and an exposed aperture positioned about said distal end and communicating with said bore, said aperture being located and dimensioned to substantially prevent occlusion of said aperture by body tissue, said bore and said aperture being configured for emitting a sub-ultrasonic longitudinal oscillation therefrom; and

a cannula, said stylet being housed within and slidable relative to said cannula.

5,728,125

MENSTRUAL DETECTOR

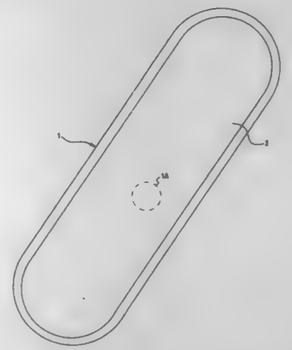
Maria Teresa Echeverria Salinas, José Aguilar, 8 Puerta, 10-4 46022 Valencia, Spain

Filed Sep. 21, 1995, Ser. No. 531,645

Claims priority, application Spain, Sep. 27, 1994, 9402454

Int. Cl.[6] A61F *13/16*

U.S. Cl. 604—361 **13 Claims**



1. A premenstrual early warning detector comprising a sanitary napkin of reduced dimensions, formed by a thin layer of an absorbent material without a liquid impermeable back sheet, said absorbent material having an interior, and within the interior of the absorbent material a temperature-sensitive reactive chemical product that can respond by turning cold when it comes into contact with and dissolves in a menstrual flow, said chemical product located sufficiently near a surface of the absorbent material where the menstrual flow first arrives such that the detector will alert a user the moment the menstrual flow begins.

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5,728,126

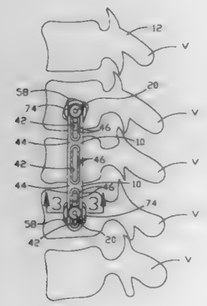
Patent Not Issued For This Number

5,728,127

APPARATUS FOR MAINTAINING VERTEBRAE OF A SPINAL COLUMN IN A DESIRED SPATIAL RELATIONSHIP

Marc A. Asher, Leawood, Kans.; Charles F. Heinig, Wareneck, Va., and Terrence M. Stahurski, Seven Hills, Ohio, assignors to Acro Med Corporation, Cleveland, Ohio

Filed Jun. 27, 1995, Ser. No. 495,850
Int. Cl.[6] A61B *17/70*
U.S. Cl. 606—61 **61 Claims**



1. An apparatus for maintaining vertebrae of a spinal column in a desired spatial relationship, said apparatus comprising:

a longitudinal member extendable along the spinal column;

a fastener for connecting said longitudinal member to a vertebra including a first end portion for engaging the vertebra and a second end portion;

a staple including a plurality of projections for engaging the vertebra and an opening through which said second end portion of said fastener is extendable;

a washer having a first side engageable with said staple and a second side opposite from said first side engageable with said longitudinal member, said washer including an opening extending through said first and second sides through which said second end portion of said fastener is extendable and means for preventing pivotal movement of said longitudinal member relative to said staple; and

means for connecting said longitudinal member, said fastener, said staple, and said washer together.

5,728,128

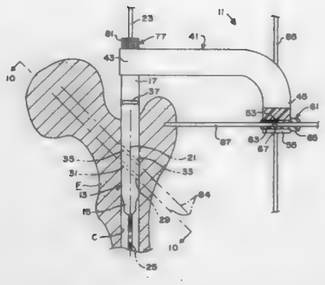
FEMORAL NECK ANTEVERSION GUIDE

Dallas P. Crickenberger; Alfred A. Durham, both of Roanoke, Va.; Robert L. Daily, Germantown, Tenn.; Gregory S. Fandrich, Collierville, Tenn., and Lauralan Terrill-Grisoni, Cordova, Tenn., assignors to Wright Medical Technology, Inc., Arlington, Tenn.

Filed Feb. 11, 1997, Ser. No. 795,486
Int. Cl.[6] A61B *17/56*
U.S. Cl. 606—97 **3 Claims**

1. A neck anteversion guide for use with a long bone having a prepared intramedullary canal, the guide comprising:

(a) a radiolucent stem having a distal end for inserting into the prepared intramedullary canal, and having a proximal end; and



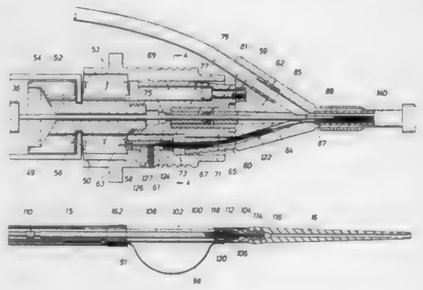
(b) radiopaque angle locator means embedded within the stem at a known angle for allowing the neck angle and neck anteversion to be determined.

5,728,129

DISTAL ATHERECTOMY CATHETER

David P. Summers, Montgomery, Tex., assignor to American Biomed, Inc., The Woodlands, Tex.

Continuation-in-part of Ser. No. 895,099, Jun. 8, 1992, Pat. No. 5,431,673, which is a continuation-in-part of Ser. No. 833,362, Feb. 10, 1992, Pat. No. 5,370,651, which is a continuation of Ser. No. 383,606, Jul. 24, 1989, Pat. No. 5,087,265, which is a continuation-in-part of Ser. No. 312,737, Feb. 17, 1989, Pat. No. 4,994,067. This application Jun. 7, 1995, Ser. No. 478,984
Int. Cl.[6] A61B *17/32*
U.S. Cl. 606—170 **17 Claims**



1. An atherectomy catheter for removal of occlusive material in a blood vessel, tract, or cavity comprising:

(a) a catheter tube;

(b) a cutter head assembly attached to the distal end of said catheter tube;

(c) a slidably adjustable sheath extending about and enclosing said catheter tube and said cutter head assembly;

(d) a flexible, hollow drive shaft extending through said catheter tube;

(e) a rotary cutter mounted within said cutter head assembly and connected to said flexible drive means;

(f) power means connected to the end of said catheter tube for rotating said cutter within said cutter head assembly for excising material blocking the blood vessel;

(g) an idler sleeve journaled about said drive shaft adjacent said rotary cutter; and

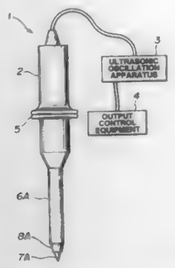
(h) means connected to said catheter tube for evacuating the excised material from the blood vessel through said cutter head assembly and said catheter tube.

5,728,130

ULTRASONIC TROCAR SYSTEM

Manabu Ishikawa, Hachioji; Masakazu Gotanda; Tomohisa Sakurai, both of Sagamihara, and Yoshitaka Honda, Tokorozawa, all of Japan, assignors to Olympus Optical Co., Ltd., Tokyo, Japan

Filed Jan. 21, 1997, Ser. No. 786,221
Claims priority, application Japan, Mar. 22, 1996, 8-066763; May 20, 1996, 8-124665; Jul. 29, 1996, 8-199178; Jul. 29, 1996, 8-199185
Int. Cl.[6] A61B *17/34;17/20;* **A61M** *5/00*
U.S. Cl. 606—185 **21 Claims**



18. An ultrasonic trocar system, comprising:

a cannula having a guide bore;

an obturator to be passed through said guide bore of said cannula so that the obturator can be removed;

a vibration generating means for generating ultrasonic vibrations to be propagated to said obturator, wherein said obturator is vibrated at an ultrasonic frequency to puncture a somatic layer and an intermediate member is interposed between said cannula and said obturator; and

a drive unit for driving an ultrasonic transducer serving as said vibration generating means, and a switch means, connected to said drive unit, for controlling the ON or OFF state of output of ultrasonic vibrations from said ultrasonic transducer, wherein said drive unit includes:

an ultrasound output setting means for use in setting an output value of ultrasound supplied from said ultrasonic transducer; and

a control means for providing control by changing the operative state of said system in such a way that when said drive unit is started by manipulating said switch means, ultrasound output from said ultrasonic transducer is set to a value larger than a given set output value to be set with said ultrasound output setting means, and that after said drive unit is started, when a predetermined given set time has elapsed, ultrasound output from said ultrasonic transducer is set to the set output value.

5,728,131

COUPLING DEVICE AND METHOD OF USE

John J. Frantzen, Copperopolis, and Geoffrey A. Orth, La Granada, both of Calif., assignors to Endotex Interventional Systems, Inc., Menlo Park, Calif.

Filed Jun. 12, 1995, Ser. No. 489,650
Int. Cl.[6] A61B *17/00*
U.S. Cl. 606—194 **18 Claims**

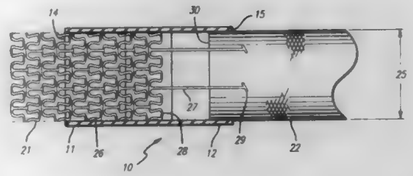
1. An assembly for connecting a stent and a vascular graft, comprising:

an intravascular stent that is expandable from a delivery diameter to an implanted diameter;

a vascular graft having a folded diameter approximating said delivery diameter of said stent, and having an unfolded diameter approximating said implanted diameter of said stent;

a flexible coupler having a first end attached to said stent and a second end attached to said graft, said stent, said graft and said coupler forming a stent-coupler graft assembly that remains connected during delivery through a body lumen,

wherein said stent-coupler-graft assembly has a substantially uniform reduced profile formed by contracting said stent and folding said graft, said stent-coupler-graft assembly remaining connected after deployment of said stent to said implanted diameter and said graft to said unfolded diameter, with no portion of said graft overlapping said stent.

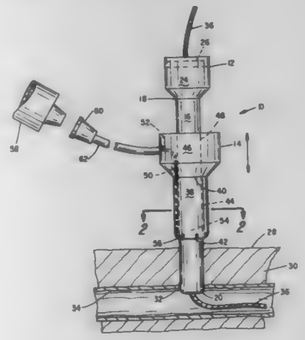


5,728,132

SELF-SEALING VASCULAR ACCESS DEVICE

Robert A. Van Tassel, Excelsior; David R. Holmes, and Robert S. Schwartz, both of Rochester, all of Minn., assignors to Tricardia, L.L.C., Excelsior, Minn.

Filed Apr. 8, 1996, Ser. No. 629,022
Int. Cl.[6] A61B *17/04*
U.S. Cl. 606—213 **19 Claims**



1. A device for sealing percutaneous punctures in a blood vessel, comprising:

(a) an elongated tubular member having a proximal end, an outwardly flared distal end portion and a working lumen extending therebetween, the elongated tubular member further including an injection lumen leading to at least one injection outlet port in the flared distal end portion; and

(b) a hub affixed to the proximal end of the elongated tubular member, the hub having an injection inlet port in fluid communication with the injection lumen adapted to transport a fluid hemostatic agent to said at least one injection outlet port and a bore aligned with the working lumen, with the bore and the working lumen dimensioned to receive a tubular vascular introducer sheath therethrough with the tubular introducer sheath being slidable relative to the elongated tubular member.

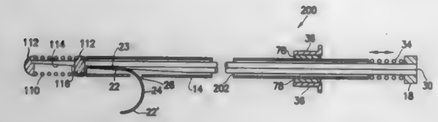
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5,728,133

ANCHORING DEVICE AND METHOD FOR SEALING PERCUTANEOUS PUNCTURES IN VESSELS

Stavros Kontos, Woodcliff Lake, N.J., assignor to Cardiologics, L.L.C., Totowa, N.J.

Filed Jul. 9, 1996, Ser. No. 677,288
Int. Cl.[6] A61B 17/00
U.S. Cl. 606—213 23 Claims



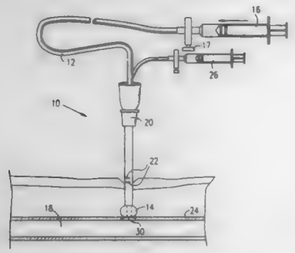
1. A device for sealing a puncture in a blood vessel wall within a living body, comprising:
- a flexible tube including an opening, wherein the flexible tube extends from a proximal end which, when the device is in an operative position, is located outside the living body, to a distal end which, in the operative position, is located within the living body on a distal side of the puncture;
- an inner member slidably received within the flexible tube so that the inner member may be moved proximally and distally with respect to the flexible tube; and
- a discrete flexible anchor member a first end of which is coupled to the inner member so that, when the inner member and the first end of the anchor member are moved with respect to the outer member, a second end of the anchor member moves between a first position in which it is received within the flexible tube and a second position in which it extends through the opening outside the flexible tube.

5,728,134

METHOD AND APPARATUS FOR HEMOSTASIS

Shlomo Barak, 27 Smilanski Street, Rishon le Zion 75258, Israel

Filed Sep. 17, 1996, Ser. No. 715,160
Int. Cl.[6] A61B 17/00
U.S. Cl. 606—214 8 Claims



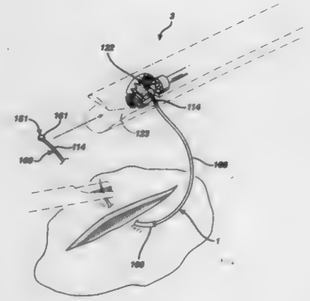
1. A method for hemostasis of an artery having a puncture after arterial catheterization, said catheterization using an introducer sheath, the method comprising the steps of:
- inserting a catheter with a first balloon against an outside surface of a wall of said artery at said puncture;
- inflating said first balloon against said outside surface of said artery at said puncture; and
- maintaining said first balloon against said puncture so that said first balloon substantially seals blood flow from said puncture so as to achieve hemostasis,
- wherein said step of positioning comprises the steps of:
  - inserting said catheter into said artery such that said first balloon is located inside said artery;
  - inflating said first balloon;
  - withdrawing said catheter until said first balloon is brought against an inner surface of said wall of said artery at said puncture;
  - deflating said first balloon;
  - withdrawing said catheter until said first balloon is located outside said artery at said puncture; and
  - positioning said first balloon against an outside surface of a wall of said artery at said puncture.

5,728,135

STIFFENED SUTURE FOR USE IN A SUTURING DEVICE

Michael Francis Bregen, Milford, N.J., and John Paul Measamer, Cincinnati, Ohio, assignors to Ethicon, Inc., Somerville, N.J.

Filed Feb. 9, 1996, Ser. No. 598,886
Int. Cl.[6] A61B 17/04
U.S. Cl. 606—228 15 Claims



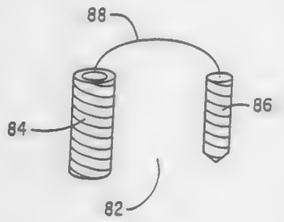
10. A kit comprising a an endoscopic knot tying device having a passage and a device composed of a suture having a first and second end, the first end being attached to a needle and the second end being attached to a retainer adapted to not pass through the passage, adjacent to the retainer is a stiffened segment of the suture suitable for use in the suturing device.

5,728,136

KNOTLESS SUTURE ANCHOR ASSEMBLY

Raymond Thal, 11321 Bright Pond La., Reston, Va. 22094

Division of Ser. No. 471,508, Jun. 6, 1995, Pat. No. 5,569,306.
This application Jul. 15, 1996, Ser. No. 680,042
Int. Cl.[6] A61B 17/04
U.S. Cl. 606—232 7 Claims



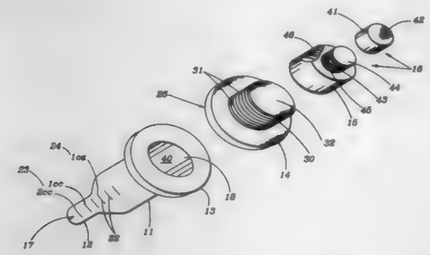
1. A knotless suture anchor assembly for the attachment of tissue to a bone mass, comprising:
- a) an anchor member having a first end and a second end, for insertion through said tissue;
- b) a hollow anchoring sleeve, having a first end and a second end, for installation and attachment to a bone mass for receiving said anchor member which has been inserted through said tissue; and
- c) a suture element having a first end, and a second end, wherein said first end of said suture element is attached to said second end of said anchor member and said second end of said suture element is attached to said second end of said hollow anchoring sleeve.

5,728,137

LIQUID DISPENSING SYSTEM

Karen Anderson-Fignon, 26 Pleasant St., Woodbury, Conn. 06798

Filed Jul. 18, 1996, Ser. No. 683,207
Int. Cl.[6] A61J 17/00
U.S. Cl. 606—234 14 Claims



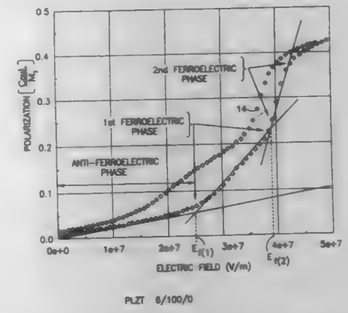
1. A liquid medication, nutrient and fluid measuring and dispensing system having particular utility for pediatric and infant care, in combination, comprising:
- a dispenser device (**10**) consisting of a fluid reservoir means defining a fluid reservoir (**40**) and having measurement indicia (**22,23**) for enabling formulation of at least one fluid to a selected quantity, and a nipple means (**12**) connected to and in communication with a lower end of said fluid reservoir means for receiving fluid therefrom, and having a fluid outlet port (**17**), and a dual function mouth guard and dispenser mounting disc (**14,73**) affixed in fluid-tight communication with said fluid reservoir means and having wall portions defining a fluid passage opening into said fluid reservoir (**40**), and having a male threaded neck member (**30**) with wall portions defining a fluid inlet port (**32**) communicating said fluid passageway opening for enabling the liquid medication, nutrient and fluids to be poured into said fluid reservoir means, and a cap means (**15**) having female threaded inner wall portions for being screwed onto said male threaded neck member;
- valve means (**16**) operatively connected to said neck member (**30**) for controlling the rate of fluid flow from said fluid outlet port (**17**);
- holder means (**50**) having a base member (**53**) for providing stable support and for engaging with a portion of said nipple chamber means for effecting a plug of said fluid outlet port (**17**) with said dispenser (**10**) being mounted within said holder means to thereby substantially stop any fluid leakage from said fluid outlet port, and having wall portions (**57**) for mounting supporting said dual function mouthguard and mounting disc (**14,73**).

5,728,138

CARDIAC DEFIBRILLATOR WITH MULTI-PHASE FERROELECTRIC/ANTIFERROELECTRIC CAPACITOR

Joseph P. Dougherty, State College, Pa.; Kamau Wa Gachigi, Narita, Japan; Thomas R. Shrout, Port Matilda, Pa.; Sei-Joo Jang; Clive A. Randall, both of State College, Pa., and Philip M. Pruna, Canandaigua, N.Y., assignors to The Penn State Research Foundation, University Park, Pa.

Filed Jul. 31, 1996, Ser. No. 688,883
Int. Cl.[6] A61N 1/39
U.S. Cl. 607—5 14 Claims



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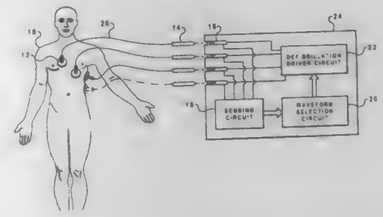
1. Apparatus for applying a high energy, short duration electrical pulse to an output, said apparatus comprising:
- capacitor means for energy storage, said capacitor means comprising plural dielectric layers, each layer composed of constituents which exhibit both an antiferroelectric phase and plural ferroelectric phases, in dependence upon an applied electric field;
- charging circuit means for applying to said capacitor means a voltage to cause energy storage therein, said voltage causing an electric field at least equal to E_f to appear across said dielectric layers, where E_f is a field value which causes said dielectric layers to transition from said antiferroelectric phase through said plural ferroelectric phases; and
- discharge means for applying energy stored in said capacitor means to said output.

5,728,139

AUTOMATIC WAVEFORM SELECTION FOR DEFIBRILLATION

William L. Post, McMinnville, Oreg., assignor to Hewlett-Packard Company, Palo Alto, Calif.

Filed Oct. 31, 1996, Ser. No. 741,891
Int. Cl.[6] A61N 1/39
U.S. Cl. 607—6 6 Claims



1. A method for efficient defibrillation, to be utilized in external defibrillators, capable of being utilized with 2, 3, or more defibrillation electrodes, said method comprising the steps of:
- sensing the number of defibrillation electrodes attached to an external defibrillator; and

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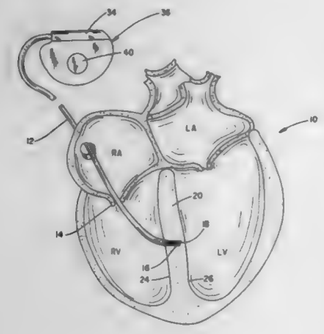
selecting a waveform from among a plurality of waveforms, in response to said number of electrodes sensed, such that said selected waveform is optimized for use with said sensed number of defibrillation electrodes.

5,728,140

METHOD FOR EVOKING CAPTURE OF LEFT VENTRICLE USING TRANSEPTAL PACING LEAD

Rodney W. Salo, Fridley, Minn., and Angelo Auriccho, Magdeburg, Germany, assignors to Cardiac Pacemakers, Inc., St. Paul, Minn.

Filed Jun. 17, 1996, Ser. No. 664,740
Int. Cl.[6] A61N *1/362*
U.S. Cl. 607—9 **5 Claims**



1. A method for electrically stimulating the left ventricle of the heart from a site within the right ventricle, comprising the steps of:

(a) providing a cardiac pacemaker having a pulse generator producing stimulating pulses;

(b) providing a unipolar pacing lead comprising an elongated, flexible, body-compatible, plastic sheath covering an elongated electrical conductor, the conductor including a terminal at a proximal end thereof for connection to the cardiac pacemaker and a positive-fixation, helically-wound electrode at a distal end thereof of a length that is only slightly less than the thickness of the heart's septum at a predetermined desired stimulation site within the right ventricle and with all but a predetermined number of distally located convolutions of the helically wound electrode being covered with an electrically insulating coating;

(c) surgically implanting at least a distal end portion of the pacing lead in the right ventricle of the heart with the helically wound electrode being screwed into the heart's septum at the predetermined desired stimulation site so that an uninsulated distal tip portion of the helically wound electrode resides in myocardial tissue of the left ventricle, but does not penetrate, the left ventricle septal wall;

(d) coupling the terminal of the conductor to the pacemaker pulse generator; and

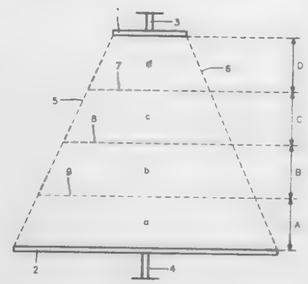
(e) applying stimulating pulses to the electrode via the pacing lead for evoking depolarization of the myocardial tissue of the left ventricle.

5,728,141

ELECTROTHERAPY APPARATUS

José Calbet Benach, and Epifanio Jodra Hernandez, both of Barcelona, Spain, assignors to Indiba, S.A., Barcelona, Spain

Continuation of Ser. No. 424,120, Apr. 19, 1995, abandoned. This application Aug. 20, 1996, Ser. No. 699,856
Claims priority, application Spain, May 4, 1994, 9400929
Int. Cl.[6] A61N *1/06*
U.S. Cl. 607—98 **4 Claims**



1. Electrotherapy apparatus for applying a relatively high frequency electric current to the human body, said apparatus comprising:

a power frequency amplifier; and

an active electrode and a return electrode for placement on opposite sides of a body part to be treated, said active electrode and said return electrode being connected at least indirectly to the power frequency amplifier, said active electrode and said return electrode being metal, substantially non-deformable when in use and having a generally planar configuration which facilitates non-invasive placement of the electrodes in contact with an outer layer of skin, said active electrode having smaller dimensions than the return electrode so as to provide, between the active electrode and the return electrode, higher impedance near the active electrode than there is near the return electrode, which, combined with the power frequency amplifier and a suitable output impedance of the power frequency amplifier, brings about a desired rise in temperature for treatment at a local level within the body part.

5,728,142

METHOD AND APPARATUS OF INCREASING VENOUS BLOOD FLOW TO THE HAND

John M. Prokopchak, Lake Hills; Mary K. Crowley, and Frank A. Quijano, both of San Antonio, all of Tex., assignors to Board of Regents, The University of Texas System, Austin, Tex.

Filed Mar. 25, 1996, Ser. No. 622,477
Int. Cl.[6] A61F *7/00*
U.S. Cl. 607—96 **17 Claims**

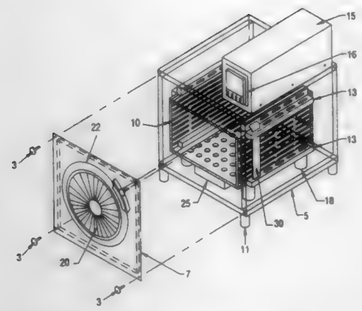
1. An apparatus for increasing venous blood flow of an extremity of a patient comprising:

a primary housing having an interior adapted to receive said extremity in which said increased venous blood flow is desired, an exterior, and a substantially transparent portion;

a heating element positioned in the interior of the primary housing;

a secondary housing disposed within said primary housing and adapted to receive said extremity, wherein at least a portion of said extremity is visible within said secondary housing when said portion is positioned in said secondary housing, said secondary housing being configured to prevent said extremity from contacting said heating element;

an opening in the primary housing which permits introduction of said extremity into the primary housing; and



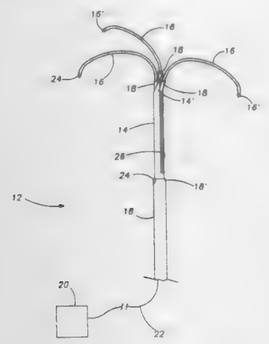
a programmable control for the heating element for setting an interior temperature of the primary housing at a level that is not harmful to the patient.

5,728,143

MULTIPLE ANTENNA ABLATION APPARATUS AND METHOD

Edward J. Gough, Menlo Park, and Alan A. Stein, Moss Beach, both of Calif., assignors to Rita Medical Systems, Inc., Mountain View, Calif.

Continuation-in-part of Ser. No. 515,379, Aug. 15, 1995. This application Feb. 14, 1996, Ser. No. 605,323
Int. Cl.[6] A61B *17/39*
U.S. Cl. 607—101 **38 Claims**



1. An ablation treatment apparatus, comprising:

a trocar including a distal end sharp enough to pierce tissue, and a hollow lumen extending along a longitudinal axis of the trocar;

a multiple antenna ablation device including three or more antennas, each antenna including a distal portion and each antenna being at least partially positioned in the trocar lumen as the trocar is introduced through tissue, at least a part of each distal portion of a deployed antenna being configured to be deployable from the trocar lumen at a selected tissue site with at least one radius of curvature and having a deployed antenna electromagnetic energy delivery surface, wherein a collective size of the deployed antennas' electromagnetic energy delivery surfaces is sufficient to create a volumetric ablation between the deployed antennas without impeding out a deployed antenna when 10 to 50 watts of electromagnetic energy is delivered from an electromagnetic energy source to the multiple antenna ablation device; and

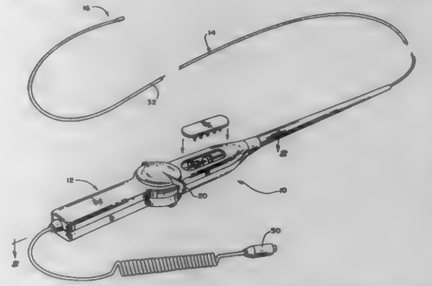
at least one cable coupling the multiple antenna ablation device to the electromagnetic energy source.

5,728,144

STEERABLE COAXIAL CABLE SYSTEMS FOR CARDIAC ABLATION

Stuart D. Edwards, Los Altos; Jerome Jackson, Sunnyvale; Thomas M. Morse, San Jose, and Patrick M. Owens, Cupertino, all of Calif., assignors to EP Technologies, Inc., San Jose, Calif.

Continuation of Ser. No. 332,950, Nov. 1, 1994, abandoned, which is a division of Ser. No. 163,371, Dec. 7, 1993, Pat. No. 5,370,678, which is a continuation of Ser. No. 868,112, Apr. 13, 1992, abandoned. This application Apr. 1, 1996, Ser. No. 625,925
Int. Cl.[6] A61B *1/00*
U.S. Cl. 607—101 **33 Claims**



1. A steerable coaxial antenna assembly for a catheter comprising

a coaxial cable having a proximal region for connection to a source of energy and a distal region connected to an antenna carried on said distal region for propagating energy, the coaxial cable having an intermediate region between the distal and proximal regions that has a greater degree of flexibility than the proximal region, and

a support wire connected directly to the intermediate region of the coaxial cable to bend the intermediate cable region in response to bending force applied to the support wire, a steering wire attached to the support wire and extending from there to a mechanism located at the proximal region of the coaxial cable, the mechanism being operative by the user to apply bending force to the support wire to bend the intermediate region and, with it, the distal region of the coaxial cable relative to its proximal region.

5,728,145

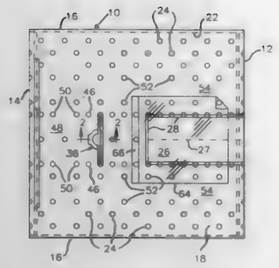
THERMAL BLANKET WITH CENTRAL AIR INLET

Thomas H. Philpot, Jackson; Raymond G. Ragan, Marshall, both of Mich.; Joseph A. Namenye, Elkhart, Ind., and James G. Stephenson, Marshall, Mich., assignors to Progressive Dynamics, Inc., Marshall, Mich.

Filed Jul. 22, 1996, Ser. No. 686,603
Int. Cl.[6] A61F *7/00*
U.S. Cl. 607—104 **12 Claims**

1. A thermal blanket having a periphery formed by upper and lower superimposed flexible sheets sealed together at the periphery defining an envelope and sealed together by a plurality of spaced tacks intermediate the blanket periphery to control expansion during inflation, a plurality of air flow exit orifices defined in the lower sheet and an inlet affixed to said sheets for receiving an air supply fitting for inflating the blanket, the improvement comprising the upper and lower sheets being slit at a location within the blanket periphery defining first and second upper and lower sheet regions adjacent said slit, the upper and lower sheets of said first sheet region being sealed together, the inlet comprising a foldable inlet port having an air supply fitting receiving opening defined therein having a first fold portion and a second fold portion, said fold portions being hinged together along a hinge line, said port being attached to the envelope at said second sheet region by said

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fold portions, said first fold portion being sealed to the envelope upper sheet and said second fold portion being sealed to the envelope lower sheet whereby said port seals said second sheet region.

5,728,146

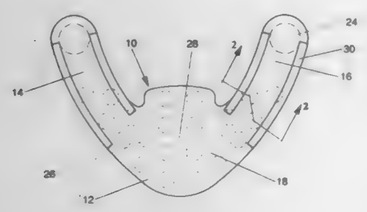
THERMAL NECK WRAP HAVING WING SHAPE AND MEANS FOR POSITION MAINTENANCE

Timothy A. Burkett, West Chester; Kurt E. Holstein, Cincinnati; Elizabeth M. Harvey, West Chester, and William R. Ouellette, Cincinnati, all of Ohio, assignors to The Procter & Gamble Company, Cincinnati, Ohio

Continuation of Ser. No. 496,716, Jun. 29, 1995, abandoned. This application Nov. 8, 1996, Ser. No. 746,359

Int. Cl.[6] A61F 7/00

U.S. Cl. 607—109 **11 Claims**



1. A thermal neck wrap comprising:

a) a substantially triangular piece of flexible material, said piece of flexible material having a first wing portion, a second wing portion, a central body portion therebetween, such that when said neck wrap is placed on a user, said central body portion is centered at a user's upper back and lower neck and said first and second wing portions lay across a user's shoulders;

b) a plurality of individual thermal elements embedded in and fixedly attached to said central body portion, said plurality of thermal elements having a pattern which approximates a shape and location of muscles in a user's upper back, lower neck, and shoulders, said plurality of thermal elements having an oxygen activated, heat generating chemistry; and

c) counterweights attached to said first and second wing portions laying across a user's shoulders in order to balance said thermal elements in said central portion at a user's lower neck and upper back so that said thermal neck wrap maintains positioning across a user's shoulders without requiring thermal wrap attachment, said counterweights providing no thermal function.

5,728,147

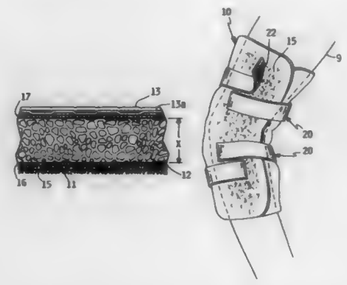
BODY PAD

James L. Thomas, 2007 Victoria Rd., Mendota Heights, Minn. 55118

Continuation of Ser. No. 702,502, May 20, 1991, abandoned. This application Jun. 30, 1992, Ser. No. 908,435

Int. Cl.[6] A61F 7/08

U.S. Cl. 607—112 **8 Claims**



1. A resilient body conformable unitary heat-retention apparatus for increasing the temperature of a selected portion of a body by retarding radiant heat loss and conduction heat loss from a selected portion of a body comprising:

a first sheet of flexible, inelastic, radiant heat-reflecting material, said sheet of flexible, inelastic, radiant heat-reflecting material having a radiant heat-reflective rating in excess of 85 percent;

a second sheet of flexible elastic material having a first side and a second side, said second sheet of flexible elastic material comprising a heat-conduction retardant material to retard the flow of heat from a selected portion of a body, said second sheet of flexible elastic material having the first side secured to said first sheet of flexible inelastic radiant, heat-reflecting material;

a stretchable-backing sheet, said stretchable-backing sheet having an exterior surface comprised of loop members to permit attachment of hooked members thereto, said stretchable-backing sheet having a second side, said second side of said stretchable-backing sheet secured to said second side of said flexible elastic material so that said second sheet of flexible elastic material and said stretchable-backing sheet have regions substantially coextensive with each other, to provide a unitary flexible heat-retention apparatus, said first sheet of flexible, inelastic, radiant heat-reflecting material, said second sheet of flexible elastic material and said flexible elastic material stretchable-backing sheet coacting with each other to provide a resiliency to said body pad to cause said body pad to return to its original shape when said body pad is deformed or bent; and

an elongated flexible strap having a first end, a second end and an intermediate region with hook members located on said first end of said strap and on said second end of said strap to permit temporary attachment of the first end of said strap to a first portion of said loop members so that a user can wrap the unitary heat-retention apparatus around a selected portion of a body and thereby secure the unitary heat-retention apparatus on a selected portion of a body by attaching the other end of said strap to a further portion of said loop members to thereby hold the heat-retention apparatus around a selected portion of a body in a condition that allows the unitary heat-retention apparatus to flex and move as the user moves about, so that body heat generated from a selected portion of a body covered by said unitary heat-retention apparatus is retarded from both radiant heat loss and conductive heat loss to thereby raise the temperature of a selected portion of a body located proximate to and covered by said first sheet of flexible inelastic, radiant heat-reflecting material.

5,728,148

STYLET UNIT FOR IMPLANTING A MEDICAL ELECTRODE CABLE

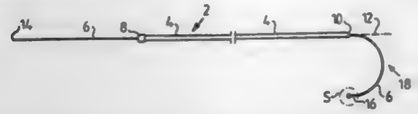
Mats Boström, Sundbyberg, and Johan Ryden, Solna, both of Sweden, assignors to Pacesetter AB, Solna, Sweden

Filed Nov. 8, 1996, Ser. No. 747,156

Claims priority, application Sweden, Nov. 8, 1995, 9503949; Apr. 23, 1996, 9601541

Int. Cl.[6] A61N 1/05

U.S. Cl. 607—116 **20 Claims**



1. A stylet unit for use with an elongate element having an internal longitudinal channel, said stylet unit being insertable into a channel of said elongate element to stiffen said elongate element and to bend a distal end section of said elongate element, said stylet unit comprising:

a flexible, tubular sleeve having a longitudinal channel therein;

a stylet insertable into said channel of said sleeve and having a distal stylet end section which is pre-bent in a direction in a plane;

said sleeve having at least one longitudinal sleeve section in which said channel has a non-circular cross-section, and having a distal sleeve end pre-bent in said plane in an opposite direction to said distal end stylet section; and

said stylet having at least one longitudinal stylet section with a non-circular cross-section, the non-circular cross-section of said stylet section being matched to the non-circular cross-section of said sleeve section for preventing rotation of said stylet in said channel of said sleeve while allowing longitudinal movement of said stylet within said channel of said sleeve.

5,728,149

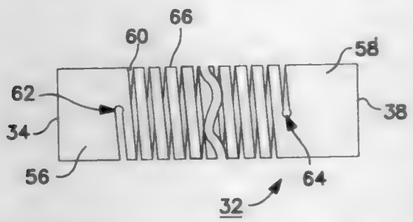
INTEGRAL SPIRAL BAND ELECTRODE FOR TRANSVENOUS DEFIBRILLATION LEADS

Timothy G. Laske, Shoreview; Matthew D. Bonner, Plymouth, and Jon M. Ocel, New Brighton, all of Minn., assignors to Medtronic, Inc., Minneapolis, Minn.

Filed Dec. 20, 1995, Ser. No. 580,006

Int. Cl.[6] A61B 5/04

U.S. Cl. 607—122 **28 Claims**



1. A defibrillation lead for location in a human heart of the type comprising:

an elongated lead body extending between a connector at a proximal end thereof and to a distal end thereof;

an elongated defibrillation conductor within said lead body extending from said connector to a conductor distal end at a pre-determined location along the length of said lead body;

a defibrillation electrode extending in spiral turns of at least one spiral band around the exterior of said lead body for a pre-determined defibrillation electrode length, said defibrillation electrode fabricated of a single tubular member of body compatible, electrically conductive material having first and second ends and first and second tubular end bands adjacent said first and second ends and a lumen with an inside diameter selected to fit over said lead body, said single tubular member further including at least one spiral slit formed therein extending from first and second slit end points, spaced from said first and second ends, respectively, thereby forming said at least one spiral band integrally attached to first and second end bands, respectively; and

means for attaching at least one of said first and second end bands of said defibrillation electrode to said defibrillation lead conductor.

5,728,150

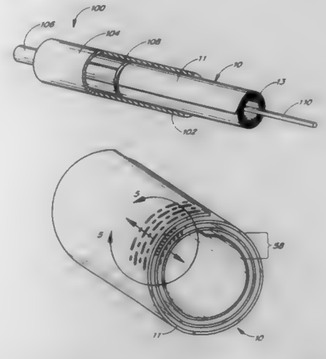
EXPANDABLE MICROPOROUS PROSTHESIS

Edward A. McDonald, Irvine; Robert Rosenbluth, Laguna Niguel, and Rodney Brennemann, San Juan Capistrano, all of Calif., assignors to Cardiovascular Dynamics, Inc., Irvine, Calif.

Continuation-in-part of Ser. No. 681,906, Jul. 29, 1996, Pat. No. 5,676,697. This application Nov. 21, 1996, Ser. No. 754,816

Int. Cl.[6] A61F 2/06

U.S. Cl. 623—1 **26 Claims**



1. A method of minimizing roll bias in a self-expandable tubular prosthesis, comprising the steps of:

providing a flexible sheet;

creating at least a first and a second group of apertures through the sheet; and

rolling the sheet about a longitudinal axis to form a self expandable tubular prosthesis;

wherein the first group of apertures induces a roll bias component in a first direction along the longitudinal axis, and the second group of apertures induces a roll bias component in a second, opposite direction along the longitudinal axis to minimize any net roll bias in the tubular prosthesis.

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5,728,151

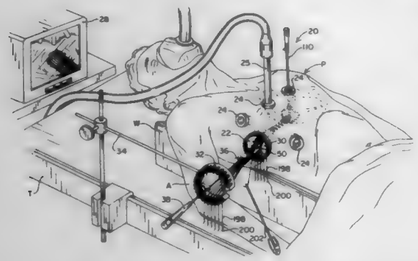
INTERCOSTAL ACCESS DEVICES FOR LESS-INVASIVE CARDIOVASCULAR SURGERY

Michi E. Garrison, Belmont, and John H. Stevens, Palo Alto, both of Calif., assignors to Heartport, Inc., Redwood City, Calif.

Division of Ser. No. 281,962, Jul. 28, 1994, abandoned, which is a continuation-in-part of Ser. No. 163,241, Dec. 6, 1993, Pat. No. 5,571,215, which is a continuation-in-part of Ser. No. 23,778, Feb. 22, 1993, Pat. No. 5,452,733. This application Jun. 5, 1995, Ser. No. 463,167

Int. Cl.[6] A61F 2/24

U.S. Cl. 623—2 12 Claims



1. A method of organizing sutures for securing a replacement cardiac valve in a heart within a patient's chest, the chest being defined by a plurality of ribs, each rib being separated from an adjacent rib by an intercostal space, the method comprising:

placing an access device in a percutaneous penetration within an intercostal space, the access device forming an opening into the patient's chest between the adjacent ribs;

passing a plurality of sutures through tissue of the patient's heart, the sutures extending through the opening in the patient's chest; and

organizing the sutures on a suture organizer mounted to the access device outside the chest, the suture organizer being positioned outside the patient's chest.

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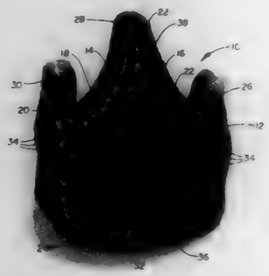
BIORESORBABLE HEART VALVE SUPPORT

M. William Mirsch, II, Roseville; Katherine S. Tweden, Mahtomedi; Todd D. Campbell, Bear Lake, and Bruce D. Ward, Woodbury, all of Minn., assignors to St. Jude Medical, Inc., St. Paul, Minn.

Filed Jun. 7, 1995, Ser. No. 484,189

Int. Cl.[6] A61F 2/24

U.S. Cl. 623—2 12 Claims



1. A bioprosthetic heart valve comprising a valvular tissue graft secured to a biocompatible, is contoured to said valvular tissue graft, said bioprosthetic heart valve being appropriate for joining with valve-receiving cardiac tissue, wherein said stent is operably resorbed following substantially complete healing of said heart valve with said valve-receiving cardiac tissue.

5,728,153

STENTLESS HEART VALVE SURGICAL SUPPORT DEVICE

Alan Menkis; Michael Scott, both of London, Canada, and Ivan Vesely, Cleveland, Ohio, assignors to London Health Sciences Centre, London, Canada

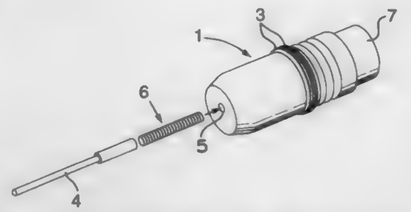
PCT No. PCT/CA94/00647, § 371 Date Aug. 22, 1996, § 102(e) Date Aug. 22, 1996, PCT Pub. No. WO95/14443, PCT Pub. Date Jun. 1, 1995

PCT Filed Nov. 23, 1994, Ser. No. 649,713

Claims priority, application United Kingdom, Nov. 24, 1993, 9324201

Int. Cl.[6] A61F 2/24

U.S. Cl. 623—2 21 Claims



1. A surgical device for holding a stentless valve for use with a disposable handle, said surgical device comprising:

a generally cylindrical body having a first end, a second end having a reduced diameter relative to said first end, a mounting member disposed adjacent the first end for detachably mounting the generally cylindrical body to the disposable handle.

5,728,154

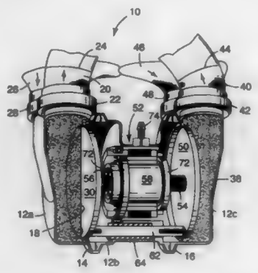
COMMUNICATION METHOD FOR IMPLANTABLE MEDICAL DEVICE

Stanley J. Crossett, Vadnais Heights; Richard A. Nazarian, Golden Valley, and Michael Hamerly, Vadnais Heights, all of Minn., assignors to Minnesota Mining and Manfacturing Company, St. Paul, Minn.

Filed Feb. 29, 1996, Ser. No. 610,167

Int. Cl.[6] A61F 2/22

U.S. Cl. 623—3 6 Claims



1. A method of communication between a first data communications interface implanted within a subject and a second data communications interface positioned at a remote location outside of said subject, said method comprising the steps of:

(a) transmitting from said second data communications interface an encoded data signal in a plurality of periodic signal bursts, said signal bursts being transmitted at a first frequency to represent a first data value and a second frequency to represent of second data value, said second frequency being different than said first frequency, each of said bursts comprising a plurality of signal transitions having a third frequency, said third frequency being greater than said first frequency and greater than said second frequency;

(b) receiving said encoded data signal from said second communications interface;

(c) generating an envelope signal from said encoded data signal; and

(d) decoding said envelope signal by detecting which portions of said envelope signal have a frequency substantially equal to said first frequency and which portions of said envelope signal have a frequency substantially equal to said second frequency.

5,728,155

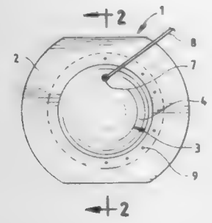
ADJUSTABLE INTRAOCULAR LENS

Robert Anello, Chicago, and Ali Amiry, Naperville, both of Ill., assignors to Quantum Solutions, Inc.

Filed Jan. 22, 1996, Ser. No. 592,845

Int. Cl.[6] A61F 2/16

U.S. Cl. 623—6 5 Claims



1. An intraocular lens assembly comprising:

a. a foldable haptic, said haptic having a substantially planar body and having a substantially circular central aperture;

b. a groove in said haptic around said central aperture in the plane of said haptic;

c. a foldable optic having a circular shape with an exterior periphery and a conformation suitable for correction of astigmatism, sized to fit within said central aperture;

d. a foldable flange surrounding said exterior periphery of said optic and extending outward therefrom to operatively engage said groove;

e. said optic manually rotatable within said haptic; and

f. an attachment member affixed to said flange, said attachment member facilitates said manual rotation of said optic within said haptic to accomplish adjustment of astigmatic correction.

5,728,156

PRISMATIC INTRAOCULAR LENSES AND RELATED METHODS OF IN SITU ALTERATION OF THEIR OPTICAL CHARACTERISTICS

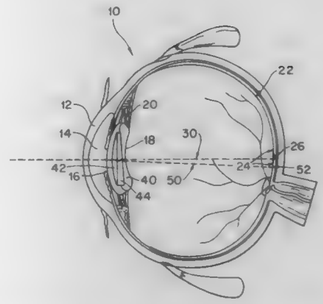
Amitava Gupta, Bethesda, Md., and Ronald D. Blum, Roanoke, Va., assignors to Prism Opthalmics, L.L.C., Roanoke, Va.

Filed Aug. 6, 1996, Ser. No. 693,340

Int. Cl.[6] A61F 2/16

U.S. Cl. 623—6 27 Claims

1. An intraocular lens for restoring visual function to an eye having macular degeneration, the lens comprising:



a convex lens optic for receiving and focusing light rays;

a prismatic wedge located posterior to the convex lens optic for receiving and directing light rays to a first portion of a retina of the eye; and

means for in situ alteration of the optical characteristics of the prismatic wedge to direct light rays to a second functional portion of the retina.

5,728,157

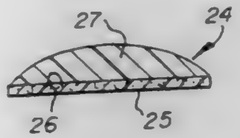
BIOCOMPATIBLE COMPOSITE PROSTHESES

Anthony D. Prescott, Arlington, Tenn., assignor to Xomed Surgical Products, Inc., Jacksonville, Fla.

Continuation of Ser. No. 222,313, Apr. 1, 1994, Pat. No. 5,522,896, which is a continuation of Ser. No. 9,339, Jan. 26, 1993, abandoned, which is a continuation of Ser. No. 662,361, Feb. 28, 1991, abandoned, which is a continuation of Ser. No. 310,646, Feb. 15, 1989, abandoned. This application Jun. 3, 1996, Ser. No. 657,426

Int. Cl.[6] A61F 2/02;2/28;2/18

U.S. Cl. 623—11 12 Claims



1. A non-resorbable flexible prosthesis, comprising:

a composite comprising a non-resorbable silicone matrix and a plurality of hydroxylapatite particles dispersed throughout said matrix with said hydroxylapatite particles forming about 50% by weight of said composite, wherein said composite is cured to form said flexible prosthesis such that an applied force can distort said flexible prosthesis from its original shape and said flexible prosthesis will substantially return to said original shape when said applied force is removed.

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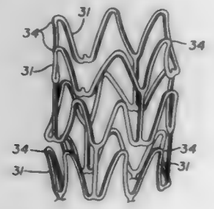
EXPANDABLE STENTS

Lilip Lau, Sunnyvale; William M. Hartigan, Fremont, and John J. Frantzen, Copperopolis, all of Calif., assignors to Advanced Cardiovascular Systems, Inc., Santa Clara, Calif.

Division of Ser. No. 556,516, Nov. 13, 1995, Pat. No. 5,603,721, which is a division of Ser. No. 281,790, Jul. 28, 1994, Pat. No. 5,514,154, which is a continuation-in-part of Ser. No. 164,986, Dec. 9, 1993, abandoned, which is a continuation of Ser. No. 783,558, Oct. 28, 1991, abandoned. This application Jan. 14, 1997, Ser. No. 783,033

Int. Cl.[6] A61F 2/04

U.S. Cl. 623—12 25 Claims



1. A longitudinally flexible stent for expanding and implanting in a body lumen, comprising:

a plurality of cylindrical elements which are expandable in the radial direction and which are interconnected so as to be generally aligned on a common longitudinal axis, each cylindrical element in the form of a generally serpentine pattern;

a plurality of connecting elements formed in a unitary structure with and interconnecting said cylindrical elements, said connecting elements configured to interconnect only said cylindrical elements that are adjacent to each other; and

the cylindrical elements comprising a smooth outer wall surface prior to expanding the stent and the cylindrical elements forming projecting edges as the stent is expanded from a delivery diameter to an implanted diameter.

5,728,159

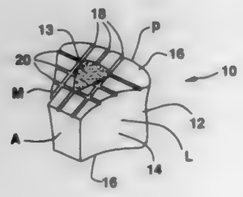
SERRATED BONE GRAFT

Bruce W. Stroever, Long Valley, and Thomas P. Rainey, Florham, both of N.J., assignors to Musculoskeletal Transplant Foundation, Holmdel, N.J.

Filed Jan. 2, 1997, Ser. No. 778,266

Int. Cl.[6] A61F 2/28

U.S. Cl. 623—16 14 Claims



1. A serrated bone graft section for graft in a patient, comprising a body portion cut from elongate cortical bone, the body portion having a sidewall portion, the body portion having substantially planar end faces at opposite ends of said body portion, each of the end faces having a plurality of grooves cut therein so as to form cross-cut serrations in each of the end faces, wherein a substantial portion of each end face planar surface area.

5,728,160

MEMBRANE SEAL FOR SEALING APERTURES IN BONES

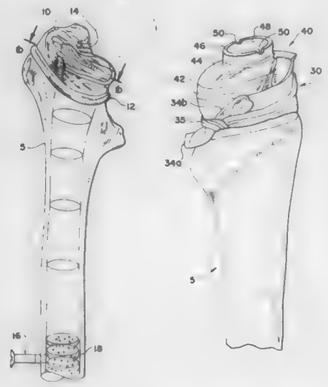
Klaus Draenert, Gabriel-Max-Str. 3, D-81545, Muchen, Germany

Continuation of Ser. No. 583,665, Jan. 5, 1996, abandoned, which is a continuation of Ser. No. 356,238, Dec. 14, 1994, abandoned. This application Feb. 28, 1997, Ser. No. 807,211

Claims priority, application Germany, Jun. 15, 1992, 42 19 564.0

Int. Cl.[6] A61F 2/28

U.S. Cl. 623—16 9 Claims



1. A device for sealing an opening in a bone having a surface adjacent the opening comprising:

an elastic membrane positioned over the opening and vacuum sealed against the surface, the elastic membrane having a free edge; and

a reinforcing layer on the free edge of the membrane to hold the free edge against the bone surface, the elastic membrane having a membrane opening therein aligned with the opening in the bone for introduction of material into the opening in the bone, the free edge of the membrane sealing against the bone when vacuum is applied on an opposite side of the opening in the bone from the membrane.

5,728,161

LARGE TAPER MODULAR SHOULDER PROSTHESIS

Thomas S. Camino; Duane G. Snyder, and David J. Urbahns, all of Warsaw, Ind., assignors to Depuy Orthopedics, Inc., Warsaw, Ind.

Filed Jun. 8, 1995, Ser. No. 488,585

Int. Cl.[6] A61F 2/40

U.S. Cl. 623—19 10 Claims

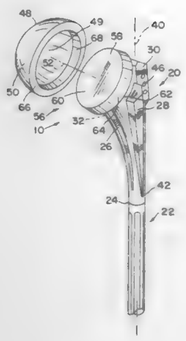
1. A kit for assembly of a modular joint prosthesis for replacement of a head, neck and adjacent portions of a bone of the joint, the kit comprising,

at least two stem body elements, with each element of said at least two stem body elements sized for insertion into the shank of the bone, and

at least two head members with each head member of said at least two head members sized to replace one of the bearing surfaces of the joint, each stem body element of said at least two stem body elements comprising an upper circular collar to be superimposed on a resected level of the bone, said collar providing a male taper at its outer diameter,

each head member of said at least two head members providing a corresponding female taper for receiving the male taper of each stem body element of said at least two stem body elements, the engagement of the female taper on the male taper providing a mechanical connection between each head member of said at least two head members and a stem body element of said at least two stem body elements,

and wherein said collar terminates above said male taper and in which each said head member is formed with a generally spherical concave inner surface providing, at its radially outer extent, said female taper to define above said collar a hollow space, said stem-body element and said head member cooperating to define a passageway for venting said hollow space.



5,728,162

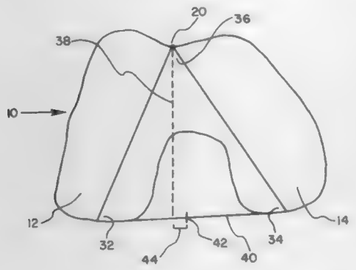
ASYMMETRIC CONDYLAR AND TROCHLEAR FEMORAL KNEE COMPONENT

Donald G. Eckhoff, Denver, Colo., assignor to Board of Regents of University of Colorado, Boulder, Colo.

Continuation of Ser. No. 11,489, Jan. 28, 1993, abandoned. This application Nov. 3, 1994, Ser. No. 334,385

Int. Cl.[6] A61F 2/38

U.S. Cl. 623—20 6 Claims



1. A prosthetic device for knee replacement comprising:

a lateral femoral condyle member having a curved lateral surface, having a lowermost point, and having a top;

a medial femoral condyle member having a lowermost point and having a top; said medial femoral condyle member being joined to said lateral femoral condyle member forming a junction between the tops of the two condycles such that an arched region having a top is formed between said members;

a trochlear groove at the top of said prosthetic device at the junction between said lateral femoral and medial femoral condyle members;

a sulcus, being the lowermost point in said trochlear groove;

wherein the intersection, of a line from said sulcus perpendicular to a baseline joining the lowermost points of said condyle members, with said baseline, is laterally displaced from a point at which the baseline is bisected, said lateral displacement being from about 1 mm to about 15 mm, and wherein said medial femoral condyle member has a width greater than said lateral femoral condyle member.

5,728,163

PHALANGEAL JOINT PROSTHESIS

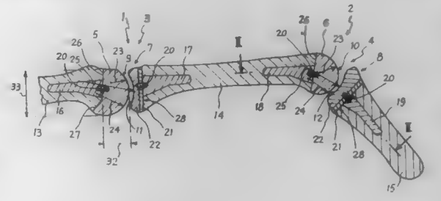
Philippe Maksene, Clinique du Coudon, Chemin de la Coupiane, 83160 La Valette, France

Filed Feb. 26, 1996, Ser. No. 607,309

Claims priority, application France, Jan. 23, 1996, 96 01016

Int. Cl.[6] A61F 2/42

U.S. Cl. 623—21 4 Claims



1. A metacarpo-phalangeal joint prosthesis or an inter phalangeal joint prosthesis comprising:

a proximal element comprising a head comprising a generally convex first sliding surface, and

a first tail secured to said head for anchoring said proximal element in a medullary canal of a bone; and

a distal element comprising: a base comprising a generally concave second sliding surface, a sole secured to said base, and a second tail secured to said sole for anchoring said distal element in a medullary canal of a bone, wherein curved radii of said head are smaller than corresponding curve radii of said base and wherein said base and said head are each devoid of stops to allow sliding of said first sliding surface with respect to said second sliding surface.

5,728,164

HIP JOINT FOR ORTHOPEDIC ORTHESIS

Adriano Ferrari, Reggio Emilia; Mauro Messori, Bologna; Marco Lusvardi, Capri; Gianpaolo Varroni, and Luca Piancastelli, both of Bologna, all of Italy, assignors to Officine Ortopediche Rizzoli S.p.A., Bologna, Italy

Filed Sep. 25, 1995, Ser. No. 533,414

Claims priority, application Italy, Sep. 29, 1994, B094A0427

Int. Cl.[6] A61F 5/00

U.S. Cl. 623—31 5 Claims

1. An orthopedic orthesis with left and right hip joints rigidly coupleable to thigh-leg-foot braces for containing and fixing the legs of a patient, the joint comprising:

a pelvic attachment being rigidly coupleable to the pelvic area of the patient;

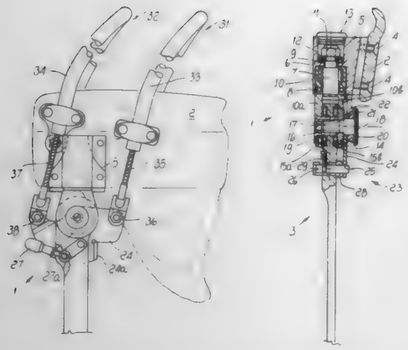
left and right lateral arms being symmetrically articulated to said pelvic attachment;

a hip locking device provided at each of said arms at a region below the articulation of each arm to the pelvic attachment, said hip locking device being manually disengageable to allow the patient sit;

a couple of bushings, each of said bushings being fixed laterally to a respective side of said pelvic attachment the axis of each bushing being vertical;

left and right shafts, each articulated to one of said bushings so as to be rotatable, said arms being each articulated about a horizontal axis to a respective one of said shafts in a downward region thereof, the axis of said shafts being the same as the axis of said bushings;

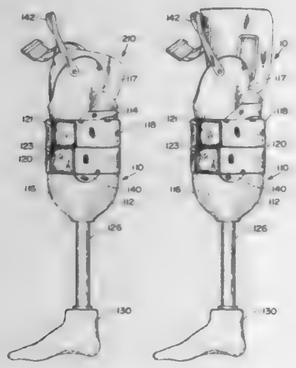
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kinematic means for kinematically connecting each of said arms to the respective bushing, said kinematic means each comprising a sprocket rigidly coupled to a respective one of said arms, and a fixed toothed profile rigidly coupled to an element fixed to said bushing in a downward region thereof, said sprocket meshing with said toothed profile, each torsion of each of said shafts with respect to the respective bushing being matched by a flexion movement, in a plane coincident with the axis of each shaft, of the respective arm with respect to the shaft so as to create a dependence between a flexion movement and a torsion movement of each arm and shaft with respect to the corresponding bushing; and

motion transmission elements for complementary coordinating movements from one of said arms to another, the extension movements of one side being matched by flexion movements of the other side with the respective opposite torsions.

5,728,165
ADJUSTABLE POST-OPERATIVE PREPARATORY PROSTHETIC SYSTEM
Robert N. Brown, Sr., Ithaca, N.Y., assignor to Flo-Tech Orthotic & Prosthetic Systems, Inc., Ithaca, N.Y.
Continuation-in-part of Ser. No. 379,217, Jan. 27, 1995, Pat. No. 5,571,209. This application Mar. 21, 1996, Ser. No. 620,139
Int. Cl.[6] A61F 2/78
U.S. Cl. 623—33 **19 Claims**



1. A modular prosthesis kit for use by a patient having undergone transtibial amputation and having a residual limb extending below the knee, patella and hamstrings, comprising:

a post-operative socket for a residual limb of a wearer after a transtibial amputation having a cup-shaped base, a semi-circular cross section rear shell and a semi-circular front cross section shell forming a sleeve for receiving the residual limb therein, said rear shell adapted to extend above the knee of the wearer to prevent flexion of the knee;

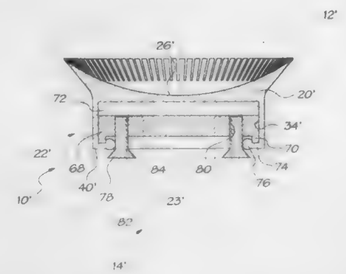
a supra patellar socket for the residual limb during training for a permanent prosthesis having a cup-shaped base, a semi-circular cross section rear shell and a semi-circular cross section front shell forming a sleeve for receiving the residual limb therein, said rear shell adapted to extend to a point below the knee of the wearer to allow flexion of the knee;

an outer socket having a cup shaped base, a semi-circular cross section rear shell and a semi-circular cross section front shell, said outer socket adapted to fit over and attach securely to both of said post-operative socket and said supra patellar socket such that the wearer of said post-operative socket and said supra patellar socket can attach said outer socket successively to said post-operative socket and said supra patellar socket;

a pylon connected to and extending downward from said outer socket; and

a prosthetic foot attached to said pylon.

5,728,166
REMOVABLE INTERFACE CUSHION FOR A PROSTHETIC LIMB
Tracy C. Slemker, Clayton, Ohio, assignor to Materials Engineering & Development Inc., Brookville, Ohio
Division of Ser. No. 504,320, Jul. 19, 1995. This application Feb. 20, 1996, Ser. No. 604,093
Int. Cl.[6] A61F 2/80
U.S. Cl. 623—36 **15 Claims**



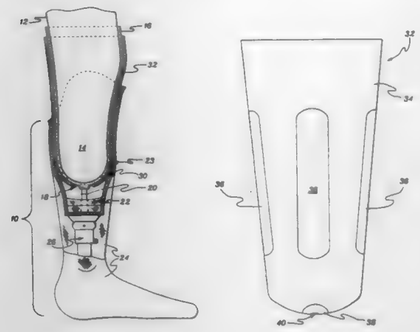
10. An interface cushion for a prosthetic limb having a prosthetic limb socket, a prosthetic limb upright assembly, and an interconnection component for connecting the upright assembly to a distal end of the socket, the socket including a socket chamber with a proximate opening for receiving and supporting a wearer's residual limb and an inner surface, the interface cushion comprising:

an elastomeric and substantially cylindrical cushion body having a proximate end adapted to abut and provide comfort to a wearer's residual limb, said cushion body also having a circumferential surface, a proximate surface and a distal end;

a cavity extending into said distal end of said cushion body for receiving the interconnection component, said cavity having a mouth; and

an annular o-ring projection extending from said cushion body sized and configured to abut the inner surface of the socket and to create an air-tight seal between the chamber and the interconnection component when said cushion body is inserted into the socket chamber against the inner surface of the socket and over the interconnection component.

5,728,167
PROSTHETIC SOCK FOR REDUCING MOVEMENT BETWEEN RESIDUAL LIMB AND PROSTHESIS
Klaus H. Lohmann, 345 Barton Hill Rd., Delanson, N.Y. 12053
Filed Jan. 11, 1995, Ser. No. 371,359
Int. Cl.[6] A61F 2/78
U.S. Cl. 623—36 **11 Claims**



1. Apparatus for reducing movement of a residual limb relative to a prosthetic socket of a prosthesis, comprising:

a prosthetic sock having an inner surface and an outer surface; and

a movement-opposing material disposed on said inner surface and said outer surface, said movement-opposing material disposed on said inner surface for opposing movement of said residual limb relative to said prosthetic sock and said movement-opposing material disposed on said outer surface for opposing movement of said prosthetic sock relative to said prosthetic socket, wherein said movement-opposing material comprises a first plurality of movement-opposing patch surfaces disposed on said inner surface and a second plurality of movement-opposing patch surfaces disposed on said outer surface opposite said first plurality of movement-opposing patch surfaces.

5,728,168
ELASTOMER REINFORCEMENT OF AN ELASTOMER INTERFACE MEMBR FOR RESIDUAL LIMB OF AN AMPUTEE
Aldo A. Laghi, Clearwater, and Donald R. Fox, St. Petersburg, both of Fla., assignors to Alps South Corporation, St. Petersburg, Fla.
Filed Oct. 29, 1996, Ser. No. 739,376
Int. Cl.[6] A61F 2/80
U.S. Cl. 623—36 **2 Claims**

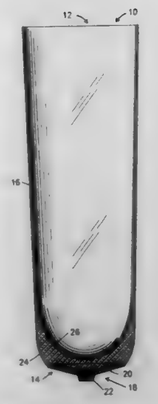
1. An apparatus worn on a residual limb to serve as an interface between the residual limb and a prosthesis, comprising:

a first section made of a preselected elastomer material having a first predetermined hardness accurately conforming to the shape of the residual limb;

the first predetermined hardness being a Shore A hardness substantially between five and twenty;

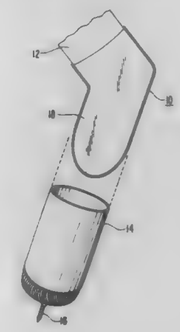
a second section overlaying a distal portion of the first section, the second section made of the preselected elastomer material having a second predetermined hardness different from the first predetermined hardness;

the second predetermined hardness being a Shore A hardness substantially between thirty and eighty; and



a nonelastomer connection member bonded to the apparatus by partial insertion in the second section, so that the apparatus can be connected to the prosthesis.

5,728,169
LINING MATERIAL FOR USE WITH PROSTHETICS AND SIMILAR DEVICES AND METHOD FOR MAKING AND USING SAME
Jean Norvell, Newark, Del., assignor to W.L. Gore & Associates, Inc., Newark, Del.
Continuation of Ser. No. 457,528, Jun. 1, 1995, abandoned, which is a division of Ser. No. 123,744, Aug. 25, 1993, Pat. No. 5,480,455. This application Feb. 20, 1997, Ser. No. 802,507
Int. Cl.[6] A61F 2/78
U.S. Cl. 623—36 **1 Claim**



1. A method for protecting the skin of the wearer of a prosthetic shell device from excessive moisture retention which comprises

(a) providing a liner which is intended to be worn between the skin of a wearer's body and a substantially non-breathable outer shell of the prosthetic shell device, which comprises:

a tubular shaped liner sealed so as to form a sleeve closed at one end;

said liner consisting essentially of a membrane of expanded polytetrafluoroethylene (PTFE) that is water repellent and moisture vapor permeable in which said membrane is joined at seams in a manner which forms said sleeve;

said membrane having a layer of oleophobic material on the interior surface of the membrane;

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said seams of said liner being flat seams which lie flush with the surrounding material of the liner; and

said liner being proportioned and conformable to provide a smooth fit in use;

(b) placing the liner against the wearer's skin and then;

(c) placing the shell over the liner so that the liner is smoothly positioned between the shell and the wearer's skin; thereby causing the liner to separate and maintain excess moisture apart from the wearer's skin.

5,728,170

BELOW-KNEE PROSTHESIS

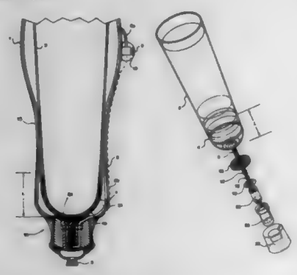
Karl Becker, and Manfred Krukenberg, both of Duderstadt, Germany, assignors to Otto Bock Orthopaedische Industrie Besitz- Und Verwaltungs-Kommanditgesellschaft, Duderstadt, Germany

Filed Sep. 6, 1996, Ser. No. 709,532

Claims priority, application European Pat. Off., Sep. 8, 1995, 95114084

Int. Cl.[6] A61F *2/80*

U.S. Cl. 623—37 **15 Claims**



1. A below-knee prosthesis comprising:

a rigid outer shaft having a closed distal end; and

a flexible inner shaft which is removably fitted in the outer shaft, the inner shaft having a closed distal end and an inflatable air chamber;

wherein the inner shaft can be rolled over a stump of a prosthesis user and which is configured to completely surround the stump and bear against it;

wherein the air chamber of the inner shaft is configured to completely surround the distal end of the stump and extends only over a small partial length of the inner shaft;

wherein a connector plug is secured on the distal end of the inner shaft and communicates with the air chamber via a through-bore to permit air exchange;

wherein the distal end of the outer shaft includes an insertion opening that receives the connector plug in a detachable manner for repeated removal and insertion of the inner shaft into the outer shaft; and

wherein a flexible tube communicates with the insertion opening and an end of the tube, guided to the outside of the outer shaft, is connected to an exhaust valve and a pump to deflate and inflate the air chamber.

5,728,171

COMPOSITE/METAL PYRAMID PROSTHETIC COMPONENTS

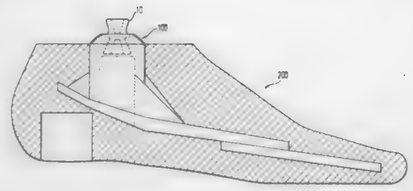
David A. Bryant, Jr., Mt. Sterling; Eric K. Bartkus, Grove City; Robert E. Arbogast, Mt. Sterling, and James M. Colvin, Hilliard, all of Ohio, assignors to Ohio Willow Wood Company, Mount Sterling, Ohio

Filed Jun. 7, 1995, Ser. No. 487,145

Int. Cl.[6] A61F *2/62;2/66*

U.S. Cl. 623—38 **4 Claims**

1. A composite and metal prosthetic component, comprising:



a metal pyramid insert comprising a stem part having a top part with a smaller cross section than the bottom part, at least one composite engaging part in said stem part, and a pyramid part mounted to said stem part and having sides tapering outwardly toward a top thereof; and

a composite keel of a prosthetic foot molded around said stem part with said pyramid part extending from said composite part and providing an annular, part spherical contact surface for parts mating with said pyramid part, wherein composite material of said composite keel engages said at least one composite engaging part.

5,728,172

HINGE JOINT IN ORTHOPAEDIC PROSTHESES AND ORTHESES

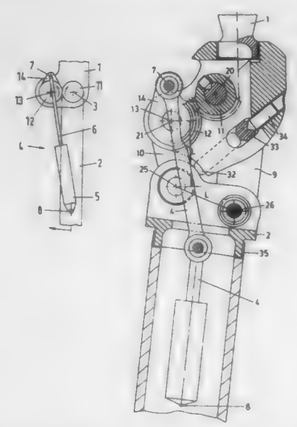
Wilfried Krieger, Göttingen, Germany, assignor to Otto Bock Orthopadische Industrie Besitz-und Verwaltungs KG, Germany

Continuation of Ser. No. 128,594, Sep. 28, 1993, abandoned. This application Jun. 29, 1995, Ser. No. 496,717

Claims priority, application Germany, Sep. 29, 1992, 42 32 602.8

Int. Cl.[6] A61F *2/64*

U.S. Cl. 623—44 **6 Claims**



1. A monocentric joint for orthopaedic prostheses and orthoses having an extension side and a flexion side, comprising:

an upper joint component and a lower joint component, said two components being pivotally connected by a hinge joint axis;

said upper joint component includes a first and a second spur gear meshing with each other, the first spur gear being coaxially firmly secured to said hinge joint axis, which axis is firmly secured to said lower joint component, whereas the second spur gear is rotatably mounted on a rotary pivot fixed to said upper joint component and is connected with a crank lever;

a control element having a first and a second end with a variable distance therebetween, the first end being hinged to said crank arm via a first control hinge point, the second being associated with the lower joint component spaced from said hinge joint axis; and

upon joint movement, said first control hinge point automatically changes its location relative to the upper joint component, wherein this change in location is performed as a constrained motion by means of a positive coupling with the lower joint component, which coupling is defined by said meshed spur gears.

5,728,173

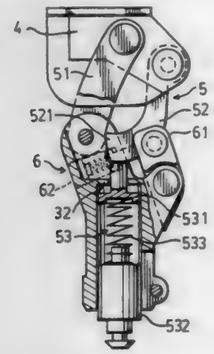
ARTIFICIAL KNEE JOINT

Sen-Jung Chen, No. 236, Sec. 3, Ho-Ping W. Rd., Taipei City, Taiwan

Filed Apr. 8, 1996, Ser. No. 637,196

Int. Cl.[6] A61F *2/64*

U.S. Cl. 623—44 **3 Claims**



1. An artificial knee joint, comprising:

a shank formed with a spaced pair of upwardly extending first lugs and a spaced pair of radially extending second lugs;

a thigh support formed with a spaced pair of downwardly extending third lugs;

a link assembly including: a pair of linking members, each of which has a first end portion connected pivotally to one of said third lugs and a second end portion connected pivotally to one of said first lugs; a connector having an inclined first portion with a lower section and an upper section that extends between and that is mounted pivotally to said third lugs, a second portion which extends horizontally from said lower section of said first portion and which extends between said first lugs, and a connecting portion formed at a junction of said first and second portions; and a biasing unit provided on said shank for biasing said second portion of said connector upwardly; and

a cushioning unit including: an actuating member having an upper end formed with a spaced pair of pivot blocks, said connecting portion of said connector extending between and being connected pivotally to said pivot blocks, said actuating member further having a lower end which extends between and which is connected pivotally to said second lugs; and a pair of damping units, each of which is provided on a respective one of said first lugs, each of said pivot blocks having a rear side which abuts against a respective one of said damping units.

5,728,174

SWING PHASE CONTROL FOR AN ARTIFICIAL KNEE JOINT

Gerhard Fitzlaff, VS-Schwenningen, Germany, assignor to Biedermann Motech GmbH, VS-Schwenningen, Germany

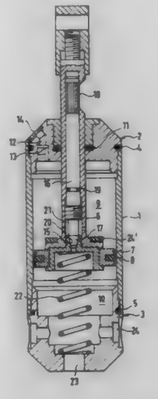
PCT No. PCT/EP95/01192, § 371 Date Oct. 3, 1995, § 102(e) Date Oct. 3, 1995, PCT Pub. No. WO95/27156, PCT Pub. Date Oct. 12, 1995

PCT Filed Mar. 30, 1995, Ser. No. 532,627

Claims priority, application Germany, Mar. 31, 1994, 9405545 U

Int. Cl.[6] A61F *2/64*

U.S. Cl. 623—46 **4 Claims**



1. A prosthesis swing phase control for a prosthesis having a thigh part and a lower leg part forming an artificial knee joint, the swing phase control comprising:

a cylinder having a first end and a second end,

a head member closing said first end and having a through bore therein,

a base member closing said second end,

a piston provided for reciprocal movement within said cylinder,

a head side first chamber defined between said piston and said head member,

a base side second chamber defined between said piston and said base member,

a piston rod connected to said piston and passing through said through bore for connection with said thigh part,

a channel provided in said head member for connecting said first chamber to the ambient,

a check valve in said channel blocking a communication from said first chamber to the ambient,

throttle passage means connecting said first chamber with said second chamber,

vent bore means provided in said base member for connecting said second chamber with the ambient, and

spring means for biasing said piston towards said head member,

wherein the swing phase control is configured to be connected with the prosthesis such that during a flexional movement of the prosthesis air can flow freely through said channel into said first chamber and said flexional movement is damped by said spring, and an extensional movement of the prosthesis is accelerated by said spring and said extensional movement is dampened by an air cushion developing within said first chamber.

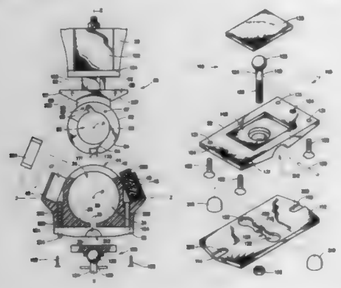
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5,728,175

ARTIFICIAL ANKLE JOINT WITH CUSHION STRUCTURES AND PROSTHETIC DEVICES FORMED THEREWITH

Richard G. Rincoe, 49 S. Holman Way, Golden, Colo. 80401

Filed Oct. 3, 1995, Ser. No. 538,750
Int. Cl.[6] A61F 2/66
U.S. Cl. 623—49 18 Claims



12. In a prosthetic leg device adapted to be worn by a human amputee wherein said leg device has a proximal end portion adapted to be secured to the amputee and a distal foot structure, the improvement comprising an ankle joint disposed between said proximal end portion and said foot structure, said ankle joint including a mounting plate assembly having a mounting plate secured to said foot structure and a socket secured to said mounting plate, said socket having a socket cavity, and including a head assembly including a head nestably received in the socket cavity, a shaft extending outwardly therefrom and secured to said proximal end portion of said leg device, and a shoulder plate disposed on said shaft for relative movement therewith, said socket, said head and said shaft defining a socket and head assembly with said head being relatively pivotable with respect to said socket about a pivot axis between first and second pivot positions corresponding to plantarflexion and dorsiflexion of said foot structure, respectively, and including a spring element associated with said socket and head assembly and operative to bias said head into the second pivot position, said socket and head assembly including a first cushion element independent of said spring element and operative to attenuate relative pivotal movement of said head at the first pivot position, said first cushion element being disposed on said socket and oriented so that said shoulder plate attacks said first cushion element when said head and said socket move into the first pivot position, and including a pair of bumper elements interposed between said mounting plate and said socket, there being one of said bumper elements on each lateral side of said foot structure.

5,728,176

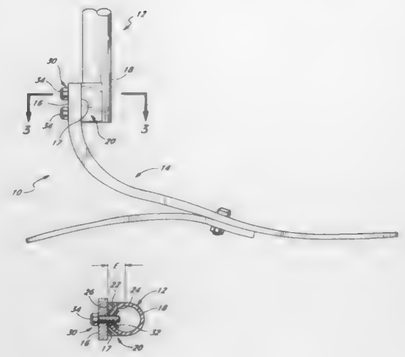
ATTACHMENT CONSTRUCTION FOR PROSTHESIS

Van L. Phillips, Rancho Sante Fe, Calif., assignor to Flex-Foot, Inc., Aliso Viejo, Calif.

Division of Ser. No. 208,793, Mar. 8, 1994, Pat. No. 5,514,186, which is a continuation of Ser. No. 856,666, Mar. 24, 1992, abandoned, which is a continuation-in-part of Ser. No. 337,374, Apr. 13, 1989, Pat. No. 5,181,932, which is a continuation-in-part of Ser. No. 662,783, Feb. 28, 1991, Pat. No. 5,290,319. This application Oct. 30, 1995, Ser. No. 550,242
Int. Cl.[6] A61F 2/66; 2/62
U.S. Cl. 623—52 17 Claims

1. A lower limb prosthesis, comprising:

an elongated pylon member having a proximal end and a distal end convexly curved on at least one side of its outer periphery; and



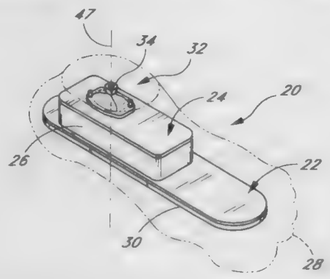
a flexible foot member mounted on said distal end of said pylon member, said foot member having an integral upper attachment section which is substantially parallel to the axis of said elongated pylon member, said upper attachment section having a substantially open curved concave attachment surface configured to abut against said distal end of said pylon member on one side thereof so as to mate with the convexly curved portion, said upper attachment section of said foot member engaging about one-half or less of the circumference of the convexly curved distal end of said pylon member.

5,728,177

PROSTHESIS WITH FOAM BLOCK ANKLE

Van L. Phillips, Rancho Santa Fe, Calif., assignor to Flex-Foot, Inc., Aliso Viejo, Calif.

Continuation of Ser. No. 290,339, Aug. 15, 1994, abandoned. This application Aug. 5, 1996, Ser. No. 692,340
Int. Cl.[6] A61F 2/66
U.S. Cl. 623—55 20 Claims



1. A prosthetic foot, comprising:

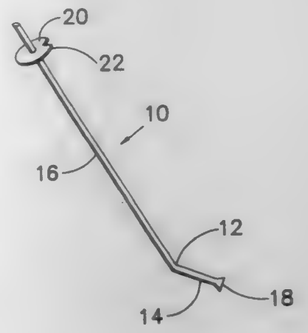
a monolithic foot plate having toe and heel portions and a length from toe to heel roughly equal to that of a natural human foot being replaced, said foot plate comprising a resilient multi-laminate material capable of flexing substantially along its length;

an ankle plate having a length substantially shorter than said foot plate, said ankle plate being disposed substantially above and roughly parallel to said foot plate so as to define a space therebetween;

an ankle block comprising a compressible foam material having a thickness of at least about one inch, said ankle block being positioned between said ankle plate and foot plate and occupying substantially all of said space formed between said foot plate and said ankle plate; and

an attachment member secured to said ankle plate adapted to attach said prosthetic foot to a pylon or socket, said attachment member defining an attachment axis located posteriorly along a longitudinal center line at a point approximately two-thirds of the distance rearward along the length of said ankle plate;

said foot plate, said ankle plate and said ankle block cooperating such that as said amputee walks on said foot, compression stress migrates substantially uniformly through said ankle block so as to provide substantially smooth rollover of said prosthetic foot.



5,728,178

GUIDE TUBE FOR GASTROSTOMY TUBE PLACEMENT

C. A. Tony Buffington, Worthington; John V. Mauterer, and Sarah K. Abood, both of Columbus, all of Ohio, assignors to The Ohio State University, Columbus, Ohio

Continuation of Ser. No. 37,034, Mar. 25, 1993, abandoned. This application Aug. 26, 1994, Ser. No. 296,856
Int. Cl.[6] A61F 2/54; A61M 5/00
U.S. Cl. 623—66 5 Claims

1. A guide tube for insertion in an animal having a mouth, an esophagus and a stomach connected in series communication, for extending from the animal's mouth, through the esophagus into the animal's stomach and for aiding in the insertion of a gastrostomy tube in the animal, the apparatus comprising: a hollow, rigid tube having an interior wall contoured for guiding an end of a fiber pushed through the tube, an insertion end of the tube having an interior wall and a longitudinal axis bent away from a longitudinal axis of an opposite, handle end of the tube, the tube being at least as long as the distance from the mouth to the stomach, the tube having an outer diameter no greater than the esophagus, and the interior wall of the insertion end of the tube contoured outwardly from the insertion end axis, forming an angle with the axis less than 90 degrees to form a flared end.

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5,728,179

COMPOSITIONS FOR REMOVING FINISHING AGENTS CONTAINING SILICONE OIL, AQUEOUS DISPERSIONS PREPARED THEREFROM AND THEIR USE

Matthias Gehling, Leichlingen; Josef Pfeiffer, Leverkusen; Rainer Tostmann, Burscheid, and Nicolai Wickert, Düsseldorf, all of Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Germany

Division of Ser. No. 273,677, Jul. 12, 1994, abandoned. This application Nov. 20, 1995, Ser. No. 560,567

Claims priority, application Germany, Jul. 19, 1993, 43 24 152.2

Int. Cl.[6] D06L *1/00;1/12*

U.S. Cl. 8—137 2 Claims

1. A process for removing finishing agents containing silicone oil from textile substrates by treatment of the textile substrates with a removing agent comprising relative to its total weight,

(1) 1–99% by weight of a surfactant of the formulae

(IIa)

(IIb)

where

R_1 denotes C_8–C_{30}-alkyl or C_8–C_{30} alkenyl,

R_2 and R_3 independently of one another, denotes R_1, H, C_1–C_4-alkyl, benzyl, $(C_2H_4O)_nH$, $(C_3H_6O—)_nH$, n being 1–20,

A denotes CONH—C_1–C_4-alkylene, x being 0 or 1,

B denotes NR_5—C_1–C_4-alkylene, O—C_1–C_4-alkylene, y being 0, 1, 2, 3, or 4,

R_5 denotes H, C_1–C_4-alkyl, benzyl, $(C_2H_4O—)_nH$, $(C_3H_6O—)_nH$, n being 1–5,

$X^{\ominus}$ denotes the anion of an inorganic or organic acid,

(2) 0–20% by weight of organic or inorganic acids,

(3) 0–60% by weight of non-ionic surfactants,

(4) 0–60% by weight of water-soluble non-ionic polymers, and

(5) 0–70% by weight of organic solvents with the exception of halogenated hydrocarbons,

one or more of components (2) to (5) being different from 0 and components (2) to (5) representing at least 1% by weight or an aqueous dispersion preparable therefrom.

5,728,180

ADSORBENT COMBINATIONS FOR ENHANCED REMOVAL OF SODIUM OXALATE FROM BAYER PROCESS SPENT LIQUOR

Fred S. Williams, Victoria, Tex., and Anthony J. Perrotta, Monroeville, Pa., assignors to Aluminum Company of America, Pittsburgh, Pa.

Filed Jun. 25, 1996, Ser. No. 670,360

Int. Cl.[6] C01F *7/36;7/08*

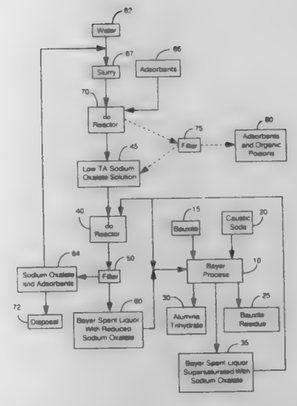
U.S. Cl. 23—305 A 9 Claims

1. A process for removing sodium oxalate from Bayer process spent liquor having a total alkali (TA) level of about 100 g/L or more, comprising:

(a) preparing a sodium oxalate solution by dissolving solid sodium oxalate contaminated with organic poisons in an aqueous solvent having a TA level of less than about 75 g/L, said organic poisons comprising at least one degradation product of at least one organic compound selected from the group consisting of humates, lignin, cellulose, organic flocculating agents and organic anti-foam agents, said organic poisons inhibiting precipitation of sodium oxalate from Bayer process spent liquor;

(b) contacting said sodium oxalate solution with at least two different adsorbents selected from the group consisting of activated carbon, dust collected by an electrostatic precipitator from exhaust gas of an alumina calciner (ESP dust), calcium oxide and magnesium oxide, thereby to adsorb said poisons from said solution; and

(c) mixing said sodium oxalate solution with Bayer process spent liquor supersaturated with dissolved sodium oxalate and having a total alkali level of about 100 g/L or more, thereby to precipitate sodium oxalate from said spent liquor.



5,728,181

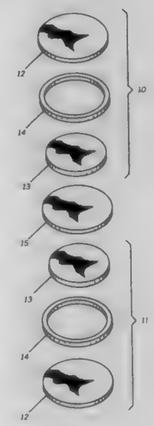
ELECTRODES FOR ELECTROCHEMICAL CELLS AND METHOD OF MAKING SAME

Richard H. Jung, Park Ridge; Ke Keryn Lian, Northbrook; Changming Li, Vernon Hills, and Han Wu, Barrington, all of Ill., assignors to Motorola, Inc., Schaumburg, Ill.

Filed Nov. 4, 1996, Ser. No. 743,610

Int. Cl.[6] H01M *10/38*

U.S. Cl. 29—623.5 20 Claims



11. A method of fabricating an electrode for an electrochemical cell, said method comprising the steps of:

providing a current collecting substrate;

depositing a layer of a conductive ink on said current collecting substrate, said conductive ink including a transference medium and a conducting medium; and

impregnating said layer of conductive ink with a powdered electrode active material.

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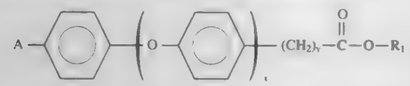
5,728,182

POLYALKYL ESTERS OF SUBSTITUTED POLYPHENYL ETHERS AND FUEL COMPOSITIONS CONTAINING THE SAME

Richard E. Cherpeck, Cotati, Calif., assignor to Chevron Chemical Company, San Ramon, Calif.

Filed Dec. 30, 1996, Ser. No. 778,200
Int. Cl.[6] C10L *1/22*
U.S. Cl. 44—384 **33 Claims**

11. A fuel composition comprising a major amount of hydrocarbons boiling in the gasoline or diesel range and an effective deposit-controlling amount of a compound of the formula:



wherein

A is amino, aminomethyl, cyano, nitro, N-alkylamino or N-alkylaminomethyl wherein the alkyl group contains about 1 to about 6 carbon atoms, or N,N-dialkylamino or N,N-dialkylaminomethyl wherein each alkyl group independently contains about 1 to about 6 carbon atoms;

R_1 is a polyalkyl group having an average molecular weight in the range of about 450 to about 5000;

x is an integer from about 1 to about 10 and y is an integer from 0 to about 10.

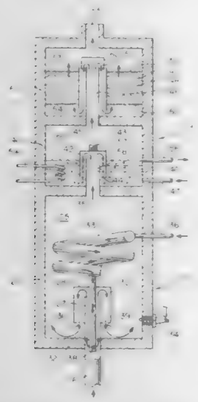
23. A method for reducing engine deposits in an internal combustion engine comprising operating an internal combustion engine with the fuel composition of claim **11**.

5,728,183

SHIFT REACTOR FOR USE WITH AN UNDEROXIDIZED BURNER

Leonard Greiner; David M. Moard, and Bharat Bhatt, all of Costa Mesa, Calif., assignors to Hydrogen Burner Tech., Inc., Long Beach, Calif.

Filed Jun. 6, 1995, Ser. No. 471,404
Int. Cl.[6] B01J *7/00*
U.S. Cl. 48—61 **13 Claims**



1. A combined underoxidized burner and shift reactor comprising:

a housing having a discharge nozzle;

an underoxidized burner disposed in said housing producing a gaseous exhaust;

a first shift reactor disposed in said housing and in communication with said burner operable to receive said gaseous exhaust;

a second shift reactor operable to receive gaseous exhaust from said first shift reactor and having an internal compartment partially occupied with a catalyst bed separating an upper and a lower collection chamber; and

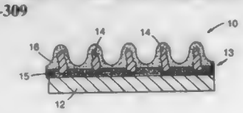
eductor means disposed in said second shift reactor for recirculating said gaseous exhaust between said upper and said lower collection chambers through said catalyst bed preparatory for exhausting through said discharge nozzle.

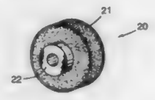
5,728,184

METHOD FOR MAKING CERAMIC MATERIALS FROM BOEHMITE

Larry D. Monroe, Eagan, Minn., assignor to Minnesota Mining and Manufacturing Company, St. Paul, Minn.

Filed Jun. 26, 1996, Ser. No. 670,460
Int. Cl.[6] C09C *1/68;* **B24D** *3/34*
U.S. Cl. 51—309 **36 Claims**







1. A method for making polycrystalline alpha alumina-based ceramic material, said method comprising the steps of:

(a) preparing a dispersion comprising a mixture comprising liquid medium, boehmite and a silica source;

(b) hydrothermally treating said dispersion;

(c) converting said dispersion to alpha alumina-based ceramic precursor material; and

(d) sintering said alpha alumina-based ceramic precursor material to provide polycrystalline alpha alumina-based ceramic material,

said method further comprising adding an iron oxide nucleating material to the dispersion prior to step (c), said alpha alumina-based ceramic material having an average alpha alumina crystallite size of less than 0.5 micrometer, and said alpha alumina-based ceramic material having a density of at least 90 percent of theoretical density, wherein said density is at least 1 percent greater than the percent of theoretical density for an alpha alumina-based ceramic material wherein the silica source is added to the dispersion between steps (b) and (c).

5,728,185

CLOSED SYSTEM FOR VOLATILE ORGANIC COMPOUND RECYCLING

Le Roy H. Buchholz, Jr., and Loretta P. Buchholz, both of 3941 NW. 67th Pl., Gainesville, Fla. 32653

Division of Ser. No. 412,478, Mar. 28, 1995, Pat. No. 5,618,333. This application Sep. 20, 1996, Ser. No. 718,256
Int. Cl.[6] B01D *47/05*
U.S. Cl. 55—222 **7 Claims**

1. A closed system spray-booth which provides a thermostatically and humidistatically controlled environment for painting a workpiece and which recovers volatile organic solvents released into the air within the spray-booth during spray-painting of a workpiece, comprising a chamber within which a workpiece is spray-painted and cured, and at least one housing containing air treatment components, such that air can be constantly recirculated between the chamber and the housing containing air treatment components which maintain the temperature and humidity of the air within the chamber within pre-set limits and which constantly removes volatile organic compounds released into the air during spray-painting and subsequent curing of the painted workpiece, wherein said chamber comprises:

(a) a sealable door through which a workpiece to be painted may be conveyed into and out of the chamber, a floor, a roof and walls;

(b) at least one sealable door through which a person who will spray-paint the workpiece may enter and leave the chamber;

(c) at least one source of supplied air for the person to use while present in the chamber;

(d) a means for circulating air within the closed system spray-booth such that the atmosphere within the booth is constantly recirculated between the chamber and the at least one housing containing air treatment components;

(e) a means for reducing or eliminating particulate matter from air as it passes from the chamber to the at least one housing containing air treatment components;

(f) a humidistat for measuring the level of humidity in the chamber at any given time, wherein the humidistat is operationally linked with a source of water vapor located in the at least one housing containing air treatment components such that when the humidity in the chamber falls below a pre-set limit, additional water vapor is added to the air entering the chamber; and

wherein said at least one housing containing air treatment components comprises:

(g) a solvent recovery unit which comprises a condenser and a means for directing condensate to a means for recovering the condensed solvent;

(h) a source of water vapor for maintaining the interior of the chamber in a humidified state;

(i) a thermostat regulated flame-free heat source to cure the painted workpiece; provided that only one housing containing all of the air treatment components (g), (h), and (i) need be provided while a second housing may provide all of these components or only component (i) to ensure even heating of the workpiece.

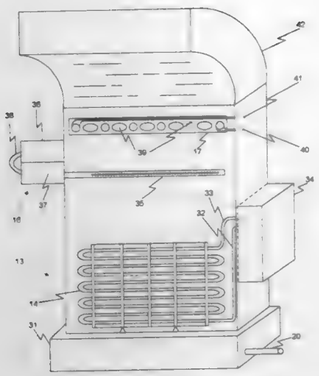
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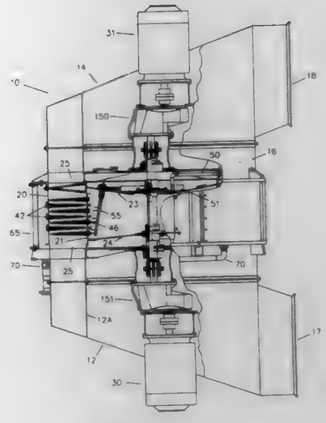
WASTE GAS TREATMENT APPARATUS

Kjartan A. Jonsson, Sage Rd., Ballston Lake, N.Y. 12019

Filed Oct. 11, 1996, Ser. No. 728,702
Int. Cl.[6] B01D *45/14;47/16*
U.S. Cl. 55—230 **9 Claims**

1. Gas cleaning apparatus for extracting and removing particulate material, moisture and oxides of sulfur and nitrogen from power generation combustion gasses and industrial gaseous efficient comprising a generally cylindrical housing at both ends, a separating device mounted in the housing comprising an outer drum and an inner drum of lesser diameter, the inner drum having a plurality of small openings, a water delivery wand in the inner drum having openings along its length to deliver water sprays to the small openings in the inner drum, a first set of spokes secured in pairs at their outer ends to the outer drum and extending radially with their free ends in proximity to the inner drum, a second set of spokes secured at their inner ends to the inner drum and extending radially with their free ends in proximity to the outer drum, and drive means for rotating the outer and inner drums including a first drive wheel connected to the outer drum for driving the outer drum in a first direction, and a second drive wheel connected to the inner drum to rotate the inner drum in direction counter to said first direction.



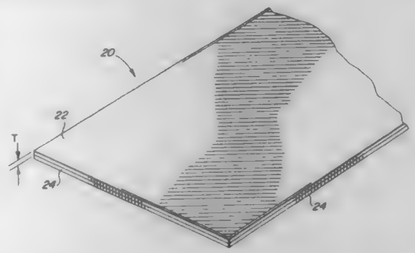


5,728,187

AIR FILTRATION MEDIA

Charles F. Kern, Marietta, Ohio; Michael John Cusick, Englewood, and Jack E. Wilhelm, Littleton, both of Colo., assignors to Schuller International, Inc., Denver, Colo.

Filed Feb. 16, 1996, Ser. No. 602,430
Int. Cl.[6] B01D *39/20*
U.S. Cl. 55—486 **23 Claims**



1. A fibrous air filtration media, comprising: a blanket of glass fibers bonded together at their points of intersection by a binder; said blanket having a weight between about 2.5 and about 4.0 grams per square foot and having a thickness between about 0.08 and 0.12 inches; said glass fibers having an average fiber diameter within a range from 3.0×10^{-5} to 4.1×10^{-5} inches; and said blanket having an average air filtration efficiency of at least 80% and an initial pressure drop across its thickness no greater than 0.30 inches of water.

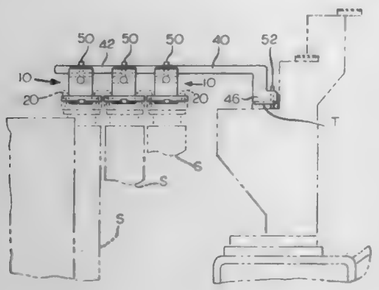
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5,728,188

GLASS GOB DISTRIBUTOR ZEROING FIXTURE AND METHOD OF ORIENTING A GLASS GOB DISTRIBUTOR

Ronald P. Warnecke, Grand Rapids, Ohio, assignor to Owens-Brockway Glass Container Inc., Toledo, Ohio

Filed Mar. 22, 1996, Ser. No. 620,229
Int. Cl.[6] C03B 7/14
U.S. Cl. 65—17.1 8 Claims



1. A method of accurately circumferentially positioning an output shaft of a drive unit of an oscillating, molten glass gob distributor device with respect to a support device to be used to support a plurality of fixed gob distributor troughs, said method comprising:

securing a fixture to the output shaft in a predetermined circumferential position relative to the output shaft, the fixture having an opening extending therethrough; and

circumferentially orienting the opening of the fixture in reference to the support device by positioning an elongate zeroing bar partly in the opening of the fixture and partly in an opening in the support device.

5. An oscillating molten glass gob distribution drive unit in combination with a fixture for precisely circumferentially orienting an output shaft of the oscillating molten glass gob distribution drive unit with respect to a support device used to support a plurality of gob troughs affixed to the support device, said fixture comprising;

a spindle, said spindle having an opening extending therethrough; and means for securing said spindle to the output shaft in a fixed circumferential position relative to the output shaft.

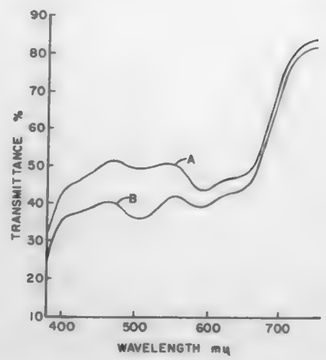
5,728,189

METHOD OF ALTERING THE VISIBLE ABSORPTION CHARACTERISTICS OF PERMANENTLY TINTED PHOTOCHROMIC GLASSES

David J. Kerko, and Brent M. Wedding, both of Corning, N.Y., assignors to Corning Incorporated, Corning, N.Y.

Division of Ser. No. 585,056, Jan. 9, 1996, Pat. No. 5,639,701.
This application Feb. 13, 1997, Ser. No. 799,336
Int. Cl.[6] C03C 15/00;21/00;23/00; C03B 37/00
U.S. Cl. 65—32.1 6 Claims

1. A method of altering the visible absorption characteristics imparted by metal oxide glass colorants in a permanently tinted photochromic glass article, the article comprising an R_2O—B_2O_3—Al_2O_3—SiO_2 base glass, silver halide crystals precipitated throughout the glass, and one or more metal oxide glass colorants selected from the group consisting of NiO, CoO, and Cr_2O_3 in the base glass composition, which comprises thermally treating the article in a dilute hydrogen-containing atmosphere for a sufficient time and at a sufficient temperature to move the chromaticity point



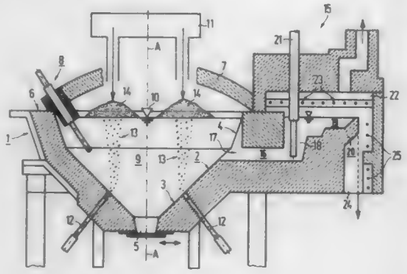
of the glass from the blue-green side toward the red side of the white point in the CIE chromaticity coordinate system.

5,728,190

MELTING FURNACE AND PROCESS FOR THE INERTIZATION OF HAZARDOUS SUBSTANCES BY VITRIFICATION

Helmut Pieper; Lothar Rott, and Matjaz Bucar, all of Lohr am Main, Germany, assignors to Beteiligungen Sorg GmbH & Co. AG, Lohr am Main, Germany

Filed Dec. 22, 1995, Ser. No. 577,489
Claims priority, application Germany, Dec. 25, 1994, 44 46 576.9
Int. Cl.[6] C03B 5/027
U.S. Cl. 65—134.4 13 Claims



1. A tank melting furnace for the inertization of non-flammable charging material containing hazardous substances with metallic constituents and less than 10% by weight of carbon, by vitrification with glass forming aggregates by producing a glassy melt, said furnace comprising:

a tank with a bottom, side walls and a top rim, adapted for retaining said glassy melt and for inertization of hazardous substances by vitrification,

a furnace crown positioned at said rim,

batch charging means for introducing non-flammable charging material containing hazardous substances with metallic constituents and less than 10% by weight of carbon into at at least one location in said tank,

electrodes extending downwardly into an interior of said tank from an upper part thereof for being immersed into and heating said melt,

means for supplying oxidizing gases into said melt in the form of nozzles provided at said bottom of said tank, and

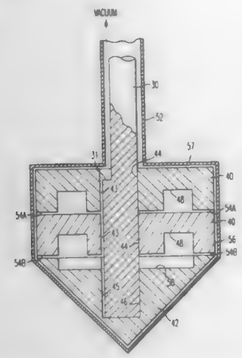
an outlet for said melt in the form of an overflow channel which extends radially from said tank and which can be heated.

5,728,191

PLUNGER FOR GOB FEEDER

Hiroki Yamazaki, Funabashi, Japan, assignor to Asahi Glass Company Ltd., Tokyo, Japan

Filed Jan. 21, 1997, Ser. No. 785,278
Claims priority, application Japan, Jan. 26, 1996, 8-011800
Int. Cl.[6] C03B 7/086
U.S. Cl. 65—330 5 Claims



1. A plunger for a gob feeder arranged at a forehearth of a glass melting tank furnace which comprises:

a plunger head arranged above an opening of the forehearth having a hollow space formed therein and;

a raising and lowering unit, said unit raising and lowering the plunger head so as to extrude molten glass in the forehearth from the opening when the plunger head is lowered;

wherein the plunger head comprises at least one metallic block coated with a noble metal and the hollow space is formed in said at least one metallic block;

wherein a gap is formed between said at least one metallic block and the noble metal coating and wherein the hollow space communicates with said gap; and

wherein the gap is kept under a vacuum and wherein the hollow space has a volume occupying 5–50% of volume of the plunger head including the hollow space.

5,728,192

METHOD OF PROCESSING WASTE MATERIALS TO PRODUCE A PRODUCT USABLE AS A HEAT SOURCE AND PLANT GROWTH MEDIUM

William S. Andrew, Jr., Durham, N.C., assignor to B & B Solid Waste Solutions, Inc., Durham, N.C.

Filed Jul. 11, 1995, Ser. No. 500,511
Int. Cl.[6] C05F 11/00; B01J 19/06
U.S. Cl. 71—26 22 Claims

1. A method for processing fibrous waste materials, comprising:

(a) providing waste materials comprising untreated wood waste selected from a group consisting of woody plant-tree waste, sawdust, bark fines, pressed board waste and cellulosic fibrous waste selected from a group consisting of wastes containing cotton, polyester, wastes containing cotton-polyester, and wastes containing a mixture of cotton and cotton-polyester; and

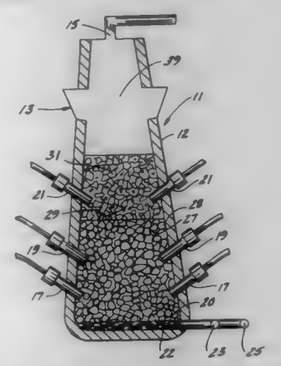
(b) grinding and mixing the said untreated wood waste and cellulosic fibrous waste materials simultaneously with mixing particles thereof thoroughly to form a waste mixture having the said untreated wood waste and said cellulosic fibrous waste in said waste mixture in a particulate ground and mixed form and in the form of a pile having about 40–75% by volume untreated wood waste particles and about 15–40% by volume cellulosic fibrous waste particles and further characterized by exhibiting after forming of the pile substantially immediate heat formation and a corresponding substantially immediate rise in internal temperature of the pile.

5,728,193

PROCESS FOR RECOVERING METALS FROM IRON OXIDE BEARING MASSES

Shyam V. Dighe, N. Huntingdon, Pa.; William A. Morgan, Hamilton, Canada, and Jerry L. Penland, Belleville, Ill., assignors to Philip Services Corp., Columbia, Mo.

Filed May 3, 1995, Ser. No. 434,372
Int. Cl.[6] C21B 11/10; C01G 9/03
U.S. Cl. 75—10.19 27 Claims



1. A process for recovering iron from an iron oxide bearing mass, the process comprising

forming a bed of lump coke in a vertical shaft furnace,

feeding the iron oxide bearing mass and scrap metal onto the bed of lump coke,

combusting the coke in the coke bed while injecting a plasma gas having a temperature greater than about 5,000° F., into the coke bed to form a reaction zone within the coke bed, the temperature in the reaction zone being in excess of 4,000° F.,

melting the iron oxide bearing mass and scrap metal fed onto the bed of lump coke to form a molten phase containing molten iron oxide and molten scrap metal, the molten phase flowing into the reaction zone and forming a film on the lump coke within the reaction zone, the iron oxide in the film being reduced by carbon from the coke to form molten iron in a solid/liquid reduction, and

discharging the molten iron from the furnace.

5,728,194

SILVER-IRON MATERIAL FOR ELECTRICAL SWITCHING CONTACTS (III)

Wolfgang Weise, Frankfurt; Willi Malikowski, Aschaffenburg; Roger Wolmer, Gelnhausen; Peter Braumann, Aizenau, and Andreas Koffler, Niederau, all of Germany, assignors to Degussa Aktiengesellschaft, Frankfurt, Germany

Filed Nov. 19, 1996, Ser. No. 751,934
Claims priority, application Germany, Nov. 20, 1995, 195 43 223.1
Int. Cl.[6] C22C 29/12
U.S. Cl. 75—235 11 Claims

1. Material for electrical switching contacts comprising

silver;

iron which is present in an amount of 0.5–20% by weight;

one or more of an element selected from the group consisting of rhenium, iridium, and ruthenium and is present in an amount of 0.05–5% by weight; and

one or more of an oxidic additive selected from the group consisting of magnesium oxide, calcium oxide, yttrium oxide,

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lanthanum oxide, titanium oxide, zirconium oxide, hafnium oxide, cerium oxide, niobium oxide, tantalum oxide, chromium oxide, manganese oxide, iron oxide, copper oxide, zinc oxide, aluminum oxide, indium oxide, silicon oxide, and tin oxide, which is present in an amount of 0.05–2% by weight.

5,728,195

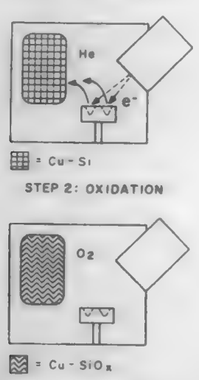
METHOD FOR PRODUCING NANOCRYSTALLINE MULTICOMPONENT AND MULTIPHASE MATERIALS

Jeffrey A. Eastman, Woodridge; Mindy N. Rittner, Des Plaines; Carl J. Youngdahl, Westmont, and Julia R. Weertman, Evanston, all of Ill., assignors to The United States of America as represented by the Department of Energy, Washington, D.C.

Continuation of Ser. No. 402,999, Mar. 10, 1995, abandoned. This application Feb. 18, 1997, Ser. No. 801,672

Int. Cl.[6] B22F *1/00;9/00*

U.S. Cl. 75—351 **12 Claims**



1. A method for producing a multicomponent nanocrystalline material comprising:

a). supplying a controlled atmosphere containing a reactive gas and an inert gas;

b). simultaneously vaporizing elements selected from the group consisting of titanium, iron, cobalt, nickel, copper, zirconium, palladium, silver, platinum, gold, zinc, tungsten, molybdenum, chromium, magnesium, manganese, iridium, niobium, aluminum, silicon, germanium and combinations thereof by electron beam heating in the controlled atmosphere to react selected elements with the reactive gas and thereby provide a reaction product;

(c). condensing the now mixed reaction product and elements to form a multicomponent, nanocrystalline powder;

(d). removing the powder from the controlled atmosphere; and

(e). compressing the powder thereby forming a dense solid of multicomponent, nanocrystalline material.

5,728,196

PROCESS FOR WASTE THERMOLYSIS

Gerard Martin, and Eric Marty, both of Rueil-Malmaison, France, assignors to Institut Francais du Petrole, Rueil-Malmaison, France

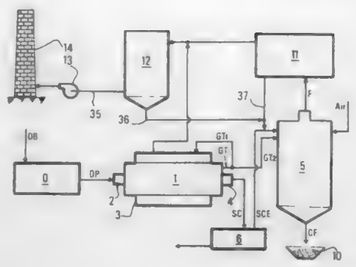
Filed Jul. 13, 1995, Ser. No. 502,314

Claims priority, application France, Jul. 13, 1994, 94 08767

Int. Cl.[6] C22B *7/00;21/00*

U.S. Cl. 75—403 **25 Claims**

1. A thermal waste treatment process comprising:



subjecting waste, which is decomposable into thermolysis gases and carbon containing solids, to thermolysis in a furnace to produce from the waste thermolysis gases and carbon containing solids;

processing the carbon containing solids into carbon containing solids which also contain pollutants to be removed;

using part of the thermolysis gases as fuel which is burned to heat the waste in the furnace;

burning in a cyclone furnace at least part of the processed carbon containing solids containing pollutants to be removed to produce hot gases and solids containing the pollutants; and

providing the hot gases to an energy recovery device and using the energy recovery device to recover energy from the hot gases.

5,728,197

RECLAMATION PROCESS FOR TUNGSTEN CARBIDE/COBALT USING ACID DIGESTION

Purnesh Seegopaul, Flemington, and Li Wu, Plainsborough, both of N.J., assignors to Nanodyne Incorporated, New Brunswick, N.J.

Filed Jul. 17, 1996, Ser. No. 690,148

Int. Cl.[6] B22F *9/00*

U.S. Cl. 75—710 **12 Claims**

1. A method of recycling a tungsten/cobalt composition comprising oxidizing said tungsten/cobalt composition at a temperature in excess of 850° C. to form an oxidized composition;

digesting a portion of said oxidized composition in an aqueous acidic solution to form a slurry of dissolved cobalt composition combined with solid tungsten species;

neutralizing said slurry to a pH effective to cause cobalt hydroxide or cobalt oxychloride to precipitate, and separating liquid components from solid components of said slurry.

5,728,198

PROCESS AND APPARATUS FOR GAS PURIFICATION

Divyanshu R. Acharya; Ravi Jain, both of Bridgewater, and James K. Tseng, Berkeley Heights, all of N.J., assignors to The BOC Group. Inc., New Providence, N.J.

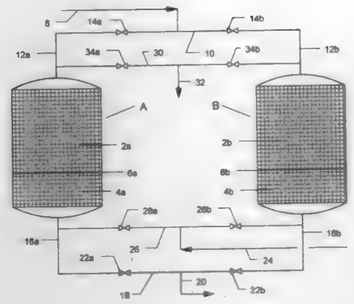
Filed Sep. 30, 1996, Ser. No. 722,687

Int. Cl.[6] B01D *53/04;53/26*

U.S. Cl. 95—114 **17 Claims**

1. A cyclical process for the separation of a first component of a gas mixture from a second component of the gas mixture comprising the steps:

(a) passing said gas mixture at superatmospheric pressure downwardly through an adsorption vessel having at least two layers of particulate adsorbent, including a first layer of first component-selective adsorbent and, positioned below said first layer, a second layer of first component-selective adsorbent, the average particle size of adsorbent in said first layer being greater than the average particle size of adsorbent in said second layer, and withdrawing first component-depleted gas from said vessel at or near its bottom; and



(b) passing a first component-lean purge gas upwardly through said vessel at a linear velocity between the minimum fluidization velocity of the adsorbent in the uppermost layer of adsorbent in said vessel and the minimum fluidization velocity of the adsorbent in said second layer; and withdrawing first component-enriched gas from said vessel at or near its top.

5,728,199

INSERT FOR AIR FLOW DUCTS

Andreas von Glehn, Vaxholm, Sweden, assignor to Freshman AB, Taby, Sweden

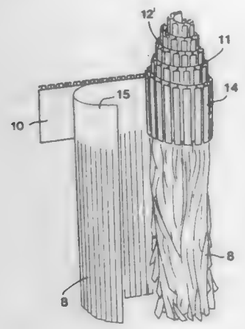
PCT No. PCT/SE95/00654, § 371 Date Dec. 6, 1996, § 102(e) Date Dec. 6, 1996, PCT Pub. No. WO95/33567, PCT Pub. Date Dec. 14, 1995

PCT Filed Jun. 6, 1996, Ser. No. 750,456

Claims priority, application Sweden, Jun. 7, 1994, 9401950

Int. Cl.[6] B03C *3/30*

U.S. Cl. 96—17 **7 Claims**



1. An insert suitable for use in gas ducts, comprising:

a band of resilient material having a plurality of spaced apart first flanges extending outwardly therefrom, each flange of said first flanges having a top edge and a bottom edge, said first flanges being connected at said bottom edge to said band;

said band includes strip elements adapted for motion when in contact with a gas, said motion producing an electrostatically charged field on each of said elements; and

a plurality of second flanges, each second flange of said second flanges being spaced apart from each other and connected to a respective first flange at said top edge thereof in spaced relation to said band, said each first flange of said first flanges, said each second flange of said band and said second flanges defining a cavity, each cavity being at least partially open whereby when said band is formed into an insert, a portion of said band is adjacent said second flanges and said cavities are evenly distributed.

5,728,200

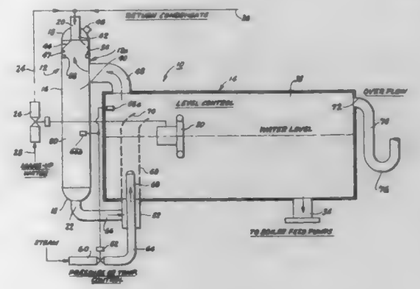
COMPACT DEAERATOR UNIT AND FEEDWATER SYSTEM

Martin Bekedam, 19059 N. 88th Ave., Westbrook Village, Peoria, Ariz. 85382

Filed Jul. 31, 1996, Ser. No. 690,480

Int. Cl.[6] B01D *19/00*

U.S. Cl. 96—158 **17 Claims**



17. A boiler feedwater system having a steam supply, a makeup water supply, and a return conduit supply comprising:

a feedwater receiver with an internal chamber for containing boiler feedwater at an operational level; and,

a compact deaerator unit, the compact deaerator unit having:

an elongated housing having an internal chamber means for containing supply water within the chamber means at a defined water level, the chamber means having a volume above the water level;

a top compartment in the housing with a vent means for venting incondensable gases from the chamber means, and a supply water spray means for spraying supply water from the makeup water supply and the return condensate supply in a spray pattern separating the top compartment from the internal chamber means;

a makeup water supply connection means for connecting the makeup water supply to the supply water spray means;

a return condensate supply connection means for connecting the return condensate supply to the supply water spray means;

a steam supply connection means for connecting the steam supply to the feedwater receiver and delivering a supply of steam to the internal chamber below the level of contained boiler feedwater;

first control means for controlling the makeup water supply to the supply water spray means in response to the water level in the feedwater receiver;

second control means for controlling the steam supply to the feedwater receiver;

a steam conduit means between the feedwater receiver and the deaerator unit for interconnecting the volume above the water level in the internal chamber of the feedwater receiver with the internal chamber means of the deaerator unit with a gas passageway;

a supply water conduit means between the deaerator unit and the feedwater receiver for interconnecting the internal chamber means of the deaerator unit with the internal chamber of the feedwater receiver below the level of feedwater in the chamber with a water passageway wherein the compact deaerator unit is positioned with at least the vent means and top compartment of the housing of the deaerator unit elevated above the internal chamber of the feedwater receiver.

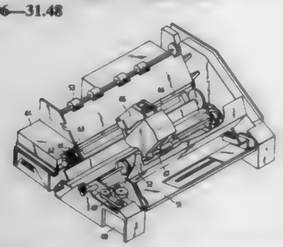
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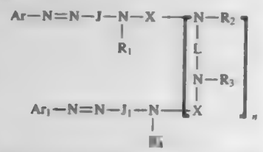
INK, AND INK-JET RECORDING METHOD AND INSTRUMENTS USING THE SAME

Eriko Saito, Fujisawa; Mayumi Yamamoto, and Ryuji Katsuragi, both of Tokyo, all of Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan

Filed Sep. 12, 1996, Ser. No. 713,227
Claims priority, application Japan, Sep. 14, 1995, 7-262186
Int. Cl.[6] C09D *11/02*
U.S. Cl. 106—31.48 **37 Claims**

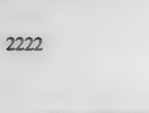


1. A yellow ink comprising at least two yellow dyes and a liquid medium dissolving or dispersing the dyes therein, wherein the ink comprises a dye represented by the following general formula (1) in the state of a free acid, and a yellow dye having a SO_3H group as a main solubilizing group in the state of a free acid and having its position in the L*a*b* chromaticity diagram at $b^* = xa^*$ $(3 \leqq x \leqq \infty)$:

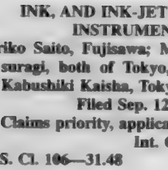


(1)

wherein Ar and Ar_1 are independently an aryl group or a substituted aryl group, at least one of which has at least one substituent group selected from the group consisting of COOH and COSH, J and J_1 are independently a group selected from the group consisting of groups represented by the general formulae

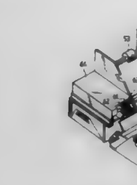


(2)



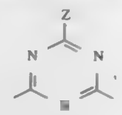
(3)

and

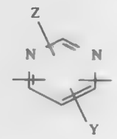


(4)

in which R_5 is a radical selected from the group consisting of H, alkyl groups, substituted alkyl groups, alkoxy groups, halogens, CN, a ureido group and $NHCOR_6$ (R_6 being a radical selected from the group consisting of H, alkyl groups, substituted alkyl groups, aryl groups, substituted aryl groups, aralkyl groups and substituted aralkyl groups), T is an alkyl group, W is a radical selected from the group consisting of H, CN, $CONR_{10}R_{11}$, pyridinium and COOH, (m) is an alkylene chain having 2 to 8 carbon atoms, and B is a radical selected from the group consisting of H, alkyl groups and COOH, R_1, R_2, R_3, R_4, R_{10} and R_{11} are independently a radical selected from the group consisting of H, alkyl groups and substituted alkyl groups, L is a divalent organic bonding group, n is 0 or 1, X is a carbonyl group or a group selected from the group consisting of groups represented by the general formulae

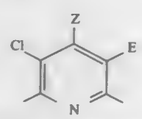


(5)



(6)

and



(7)

in which Z is a group selected from the group consisting of OR_7, SR_7 and NR_8R_9, Y is a radical selected from the group consisting of H, Cl, CN and Z, E is a radical selected from the group consisting of Cl and CN, and R_7, R_8 and R_9 are independently a radical selected from the group consisting of H, alkenyl groups, substituted alkenyl groups, alkyl groups, substituted alkyl groups, aryl groups, substituted aryl groups, aralkyl groups and substituted aralkyl groups, or R_8 and R_9 form a 5- or 6-membered ring together with the nitrogen atom to which they are bonded, with the proviso that (1) Ar and Ar_1 have at least two groups selected from COOH and COSH where they have no SO_3H group, or (2) Ar and Ar_1 have groups selected from COOH and COSH of at least the same number as the number of SO_3H groups where they have one or more SO_3H groups.

5,728,202

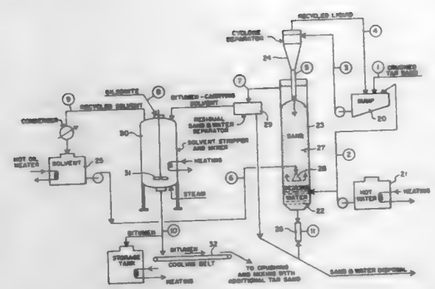
GILSONITE MODIFIED, NATURAL, HYDROCARBON-ENRICHED SAND COMPOSITION

Roy E. Nelson, Salt Lake City; Michael Nuzzolo, Bountiful, and Kenneth Clark Christensen, Centerville, all of Utah, assignors to American Gilsonite Company, Salt Lake City, Utah

Filed Sep. 11, 1996, Ser. No. 712,324
Int. Cl.[6] C08L *95/00;* **C09D** *195/00;* **C10G** *1/04*
U.S. Cl. 106—284.01 **17 Claims**

1. An additive asphaltic composition for modifying a paving asphalt to closely match or exceed performance of a paving asphalt modified by the addition of Trinidad Lake Asphalt, comprising natural tar sand and Gilsonite intimately mixed together in relative amounts by weight, with the Gilsonite being of character selected to effectively modify the characteristics of said tar sand, to thereby approximately simulate Trinidad Lake Asphalt, wherein the tar sand and the Gilsonite are present in relative amounts by weight of about 45% and about 55%, respectively.

9. An additive asphaltic composition for modifying a paving asphalt to closely match or exceed performance of a paving asphalt modified by the addition of Trinidad Lake Asphalt, comprising natural tar sand and Gilsonite intimately mixed together in relative amounts by weight, with the Gilsonite being of character selected to effectively modify the characteristics of said tar sand, to thereby



approximately simulate Trinidad Lake Asphalt, said composition containing additional tar-sand-extracted bitumen.

16. A method of extracting bitumen from a tar sand in a system comprising a solvent extraction column; continuously introducing a tar sand into the upper end portion of said solvent extraction column to provide a descending column of sand within said extraction column; maintaining a body of water in the lower end portion of said solvent extraction column; continuously injecting a bitumen solvent into the lower end portion of said descending column of sand above said body of water so as to establish an ascending column of said solvent flowing countercurrent to said descending column of sand; continuously withdrawing bitumen-carrying solvent from the upper end portion of said extraction column; continuously separating the solvent and the bitumen; continuously discharging and recovering the bitumen; and continuously discharging the sand and water from the lower end portion of said extraction column, wherein Gilsonite is introduced into the system to provide a Gilsonite-carrying bitumen for discharge from the system.

5,728,203

AQUEOUS PROTECTIVE AND ADHESION PROMOTING COMPOSITION

Dennis J. Vorse, Girard, Pa.; Victor E. Ferrell, Fuquay-Varina, N.C., and Joseph H. Gausman, Erie, Pa., assignors to Lord Corporation, Cary, N.C.

Filed Oct. 26, 1995, Ser. No. 548,854
Int. Cl.[6] C09D *5/08;183/06;183/08*
U.S. Cl. 106—287.11 **21 Claims**

1. An aqueous composition for applying to a metallic substrate comprising an aqueous solution of at least one hydrolyzed silane, at least about 20 weight percent phosphoric acid based on the total weight of the composition, and water, wherein the composition has a pH of less than or equal to 3, is substantially free of organic solvent except for alcohol and any chromium-containing compound and, if the composition includes only a single hydrolyzed silane, the single hydrolyzed silane is selected from the group consisting of hydrolyzed aminopropyltriethoxysilane, hydrolyzed tetraethoxysilane, hydrolyzed glycidoxypropyltrimethoxysilane, hydrolyzed N-β-(amino ethyl)-γ-aminopropyltriethoxysilane and hydrolyzed ethyltriethoxysilane.

5,728,204

PREPARATION OF PHTHALOCYANINE-CONTAINING WATERBORNE COATING SYSTEMS

Abdul Sattar, Mt. Pleasant; Michael J. Greene, Charleston, both of S.C., and Herman Gerson, New York, N.Y., assignors to Bayer Corporation, Pittsburgh, Pa.

Filed Jan. 31, 1996, Ser. No. 594,197
Int. Cl.[6] C09B *67/50*
U.S. Cl. 106—411 **11 Claims**

1. A water-dispersible phthalocyanine pigment formulation consisting essentially of a mixture of

(a) 60 to 99.5% by weight, based on the total amount of components (a) and (b), of a conditioned metal phthalocyanine pigment, and

(b) 0.5 to 40% by weight, based on the total amount of components (a) and (b), of a water-insoluble sulfonated phthalocyanine having the formula

$$Pc(SO_3R)_x$$

wherein

Pc represents a phthalocyanine moiety;

R is H or M, wherein M is a monovalent metal, divalent metal, trivalent metal, or ammonium cation, and

x is from about 0.2 to about 4,

wherein the metal phthalocyanine pigment (a) is conditioned before being mixed with the water-insoluble sulfonated phthalocyanine (b).

5,728,205

PROCESS FOR THE ADDITION OF BORON IN A TiO_2 MANUFACTURING PROCESS

Alvin Allen, Claymont, Del., and John Steven Gergely, Avondale, Pa., assignors to E. I. du Pont de Nemours and Company, Wilmington, Del.

Filed Dec. 11, 1996, Ser. No. 764,414
Int. Cl.[6] C09C *1/36*
U.S. Cl. 106—437 **23 Claims**

1. A process for producing titanium dioxide pigment comprising B_2O_3, comprising the steps of:

(a) reacting vaporous $TiCl_4$ with an aluminum compound and an oxygen-containing gas in a reactor at a temperature in the range of about 900° C. to about 1600° C. to provide a gaseous suspension comprising TiO_2 particles, and

(b) contacting the gaseous suspension comprising the TiO_2 particles with a boron compound to produce TiO_2 pigment comprising B_2O_3.

5,728,206

SURFACE-TREATED ORGANIC PIGMENTS

Ibraheem T. Badejo, N. Charleston, S.C., assignor to Bayer Corporation, Pittsburgh, Pa.

Filed Dec. 20, 1996, Ser. No. 769,477
Int. Cl.[6] C08K *5/00*
U.S. Cl. 106—493 **11 Claims**

1. A process for preparing a pigment composition comprising

(a) treating an organic pigment with

(1) about 0.1 to about 100% by weight, relative to the organic pigment, of a tertiary alkyl primary amine having the formula



wherein

R^1 is a C_5–C_{30} (cyclo)aliphatic group, and

R^2 and R^3 are independently C_1–C_6 alkyl,

(2) 0 to about 100% by weight, relative to the organic pigment, of a surfactant, and

(3) about 5 to about 15 parts by weight per part by weight of the organic pigment of a liquid in which the organic pigment is substantially insoluble,

thereby forming a suspension of the surface-treated pigment composition in the liquid; and

(b) collecting the pigment composition.

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5,728,207

CEMENT ADMIXTURE PRODUCT HAVING IMPROVED RHEOLOGICAL PROPERTIES AND PROCESS OF FORMING SAME

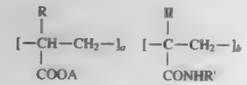
Ahmad Arfaei, Chelmsford, Mass.; David Charles Darwin, Columbia, Md.; Ellis Martin Gartner, Silver Spring, Md.; Byong-Wa Chun, Columbia, Md.; Hideo Koyata, Waltham, Mass., and Lawrence Lu Kuo, Columbia, Md., assignors to W.R. Grace & Co.-Conn., New York, N.Y.

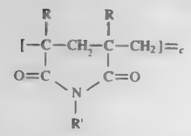
Continuation of Ser. No. 299,028, Sep. 6, 1994, abandoned, which is a continuation-in-part of Ser. No. 128,939, Sep. 29, 1993, Pat. No. 5,393,343. This application Jul. 3, 1996, Ser. No. 675,845

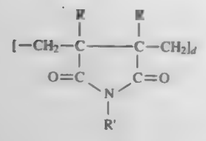
Int. Cl.[6] C04B *7/00;24/12*

U.S. Cl. 106—709 • **17 Claims**

1. An improved cement comprising a uniform mixture of a hydraulic cement and from 0.01 to 2 weight percent based on the weight of said hydraulic cement of an imidized acrylic polymer having a number average molecular weight of from about 1,000 to 100,000 and having units therein represented by the structures of:







wherein each R independently represents hydrogen atom or a methyl (CH_3—) group; R' represents a hydrogen atom or a C_2–C_{10} oxyalkylene group represented by $(BO)_nR^a$ in which O represents an oxygen atom, B represents C_2–C_{10} alkylene group or mixtures thereof, R^a represents a C_1–C_{10} alkyl and n represents an integer of from 1–200, A represents a C_1– C_{10} alkyl group, R', a residual group of $Z(BO)_nZ$ in which each Z represents a hydroxyl or amino group and B and O are each the same as defined above, an alkyl metal cation, an alkaline earth metal cation, an ammonium cation or a mixture thereof; and a, b, c, and d are numerical values representing molar percentage of the polymers structure such that a is a value of about 50 to 90; the sum of c+d is a value of from about 2 to 10, and b is a remainder value of {100–(a+c+d)}.

5,728,208

CONCRETE MIX, PROCESS FOR PREPARING SAME, AN ADDITIVE FOR CONCRETE MIX, AND PROCESS FOR PREPARING SAME

Alexander Rusinov, San Francisco, Calif., assignor to Nadia Rusinoff, and Helen Rusinoff, both of San Francisco, Calif.

Filed Jun. 1, 1995, Ser. No. 456,713

Int. Cl.[6] C04B *14/00;22/00*

U.S. Cl. 106—734 **9 Claims**

1. A concrete mix, said concrete mix comprising the following components, in % by weight:

sodium nitrate	0.51–0.70
sodium carbonate	0.56–0.80
sodium sulfate	0.66–0.90
calcium chloride	0.05–0.10
calcium carbide	0.17–0.40
lime	0.05–0.1
cement	25–30
coarse aggregate	29.25–12
sand	30–35
water	13.75–20.

5,728,209

UNITIZED CEMENT ADMIXTURE

Jeffrey Bury, Macedonia; David F. Factor, Hiram, and Zvi Grauer, Beachwood, all of Ohio, assignors to MBT Holding AG, Zurich, Switzerland

Continuation of Ser. No. 685,383, Jul. 23, 1996, abandoned, which is a continuation-in-part of Ser. No. 556,366, Nov. 13, 1995, abandoned. This application Aug. 15, 1997, Ser. No. 911,836

Int. Cl.[6] C04B *18/02*

U.S. Cl. 106—819 **35 Claims**

1. An additive for concrete, mortar, or grout comprising at least one admixture material wherein the additive comprises a compacted unit of an amount of said admixture material, said unit characterized by having strength sufficient to maintain structural integrity during handling and storage, but having at least one of sufficient solubility and sufficient friability upon mechanical agitation within a wet mixing environment of a cementitious composition mixture to at least one of dissolve and fragment for uniform dispersal throughout the cementitious composition mixture.

5,728,210

COMPOSITION AND METHOD TO CONTROL CEMENT SLURRY LOSS AND VISCOSITY

Larry K. Moran, Sealy, and Landreth L. Moran, Chico, both of Tex., assignors to Conoco Inc., Ponca City, Okla.

Continuation-in-part of Ser. No. 581,090, Dec. 29, 1995, abandoned. This application Apr. 26, 1996, Ser. No. 639,133

Int. Cl.[6] C04B *24/00*

U.S. Cl. 106—823 **14 Claims**

1. A liquid cement additive composition comprising by weight:

(a) 1000 parts of water,

(b) 20 to 200 parts of polyvinyl acetate polymer wherein said polyvinyl acetate polymer has had at least 70% of its acetate functional groups converted to alcohol,

(c) 0.1 to 100 parts surfactant,

(d) 1.0 to 50 parts of salts of sulfonated melamine polymer, salts of sulfonated vinyl polymer, salts of sulfonated styrene polymer, or combinations thereof.

5,728,211

SILICON SINGLE CRYSTAL WITH LOW DEFECT DENSITY AND METHOD OF PRODUCING SAME

Kiyotaka Takano; Kouji Kitagawa; Eiichi Iino; Masanori Kimura; Hirotoshi Yamagishi, all of Annaka, and Masahiro Sakurada, Kouriyama, all of Japan, assignors to Shin-Etsu Handotai Co., Ltd., Tokyo, Japan

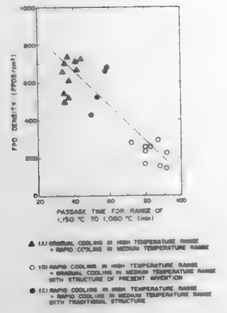
Filed Jun. 3, 1996, Ser. No. 660,198

Claims priority, application Japan, Jun. 9, 1995, 7-143391

Int. Cl.[6] C30B *15/20*

U.S. Cl. 117—14 **8 Claims**

1. A method of producing a silicon single crystal by means of a Czochralski technique comprising a step of adjusting a passage



time of a growing crystal for a temperature range of 1,150° C. to 1,080° C. so as to be 60 min. or longer during crystal growth.

5,728,212

METHOD OF PREPARING COMPOUND SEMICONDUCTOR CRYSTAL

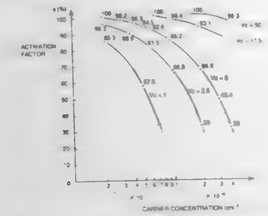
Tetsuya Inoue, and Yoshiaki Hagi, both of Hyogo, Japan, assignors to Sumitomo Electric Industries, Ltd., Osaka, Japan

Division of Ser. No. 509,384, Jul. 31, 1995, Pat. No. 5,612,014. This application Sep. 19, 1996, Ser. No. 710,580

Claims priority, application Japan, Aug. 10, 1994, 6-188524; Dec. 5, 1994, 6-300724

Int. Cl.[6] C30B *15/02*

U.S. Cl. 117—19 **9 Claims**



1. A method of preparing a compound semiconductor crystal containing an impurity being doped thereto, comprising the steps of:

melting a raw material for said compound semiconductor crystal in a crucible; and

making crystal growth by cooling a raw material melt being obtained by said melting,

a time required for cooling said raw material melt from a melting point T of said raw material to ⅔T being controlled in cooling step, thereby adjusting a prescribed carrier concentration.

5,728,213

METHOD OF GROWING A RARE EARTH SILICATE SINGLE CRYSTAL

Yasushi Kurata; Hiroyuki Ishibashi, and Kazuhisa Kurashige, all of Tsukuba, Japan, assignors to Hitachi Chemical Company Ltd., Japan

Continuation-in-part of Ser. No. 706,154, Aug. 30, 1996, abandoned. This application Apr. 24, 1997, Ser. No. 842,483

Claims priority, application Japan, Aug. 31, 1995, 7-233442; Aug. 31, 1995, 7-233443; Aug. 31, 1995, 7-233444

Int. Cl.[6] C30B *25/04*

U.S. Cl. 117—19 **13 Claims**

1. A method of growing a rare earth silicate single crystal from a melt of a starting material containing a rare earth oxide material and a silicon oxide material, wherein a density of Fe as an impurity of said starting material is not more than 0.1 ppm.

5,728,214

SURFACE TREATMENT OF AN OXIDE LNBA2CU307-X SINGLE CRYSTAL

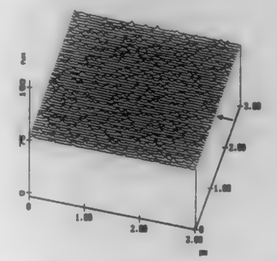
Masaya Konishi; Hiroyuki Fuke; Youichi Enomoto; Yuh Shiohara, and Shoji Tanaka, all of Tokyo, Japan, assignors to Sumitomo Electric Industries, Ltd., Osaka; Kabushiki Kaisha Toshiba, Kawasaki, and International Superconductivity Technology Center, Tokyo, all of Japan

Filed Sep. 6, 1995, Ser. No. 524,490

Claims priority, application Japan, Sep. 7, 1994, 6-240622

Int. Cl.[6] C30B *25/02*

U.S. Cl. 117—94 **12 Claims**



1. A process of surface treating an oxide $LnBa_2Cu_3O_{7-x}$ single crystal comprising heating the $LnBa_2Cu_3O_{7-x}$ single crystal at a temperature higher than 400° C. in an atmosphere including oxygen gas of a partial pressure between 50 mTorr and 200 mTorr, wherein Ln=Y, Pr or Sm, and wherein $0.3 \leq x \leq 1$.

5,728,215

METHOD FOR FORMING A FILM BY SELECTIVE AREA MOCVD GROWTH

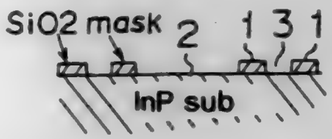
Takushi Itagaki; Masayoshi Takemi, and Norio Hayafuji, all of Tokyo, Japan, assignors to Mitsubishi Denki Kabushiki Kaisha, Tokyo, Japan

Filed Nov. 14, 1995, Ser. No. 555,707

Claims priority, application Japan, Mar. 27, 1995, 7-067311

Int. Cl.[6] C30B *25/04*

U.S. Cl. 117—104 **27 Claims**



1. A method for forming a film by selective metal organic chemical vapor deposition (MOCVD) comprising:

forming a mask on a surface of a semiconductor substrate having a (100) plane orientation, the mask having a mask opening for selectively growing a compound semiconductor layer and a slit narrower than the mask opening for controlling growth rate of the compound semiconductor layer in the mask opening; and

growing the compound semiconductor layer by MOCVD on the semiconductor substrate in the mask opening and in the slit whereby the compound semiconductor layer grows at a slower rate in the mask opening than when no slit is present in the mask.

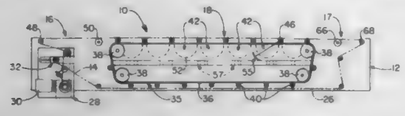
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5,728,216

CONTINUOUS TUMBLE COATING AND BREADING APPARATUS

Eugene J. London, Sandusky, Ohio, assignor to Stein, Inc., Sandusky, Ohio

Filed Mar. 20, 1996, Ser. No. 618,553
Int. Cl.[6] A23G *3/00*
U.S. Cl. 118—13 **14 Claims**



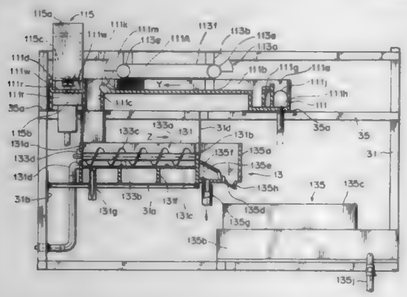
1. An apparatus for tumble coating of products comprising,
a housing defining a product conveyor path and having a product conveyor for conveying products along the conveyor path provided therein, said housing having an input end and a discharge end;
a carrier conveyor provided along said product conveyor path and a pocket forming mechanism which in conjunction with said carrier conveyor and said product conveyor forms at least one tumble chamber along said conveyor path in said product conveyor,
a coating supply to supply a charge of coating material at least to said at least one tumble chamber, wherein said at least one tumble chamber receives and carries said products positioned on said product conveyor in a processing zone as said product conveyor travels between said input and discharge ends wherein said coating material coats said products.

5,728,217

APPARATUS FOR HARDENING COVERED SEEDS

Yasushi Kohno; Yoichi Ido, and Kazushi Nakatsukasa, all of Susono, Japan, assignors to Yazaki Corporation, Tokyo, Japan

Filed Nov. 27, 1996, Ser. No. 757,507
Claims priority, application Japan, Nov. 29, 1995, 7-310700
Int. Cl.[6] A23G *3/00*
U.S. Cl. 118—13 **15 Claims**



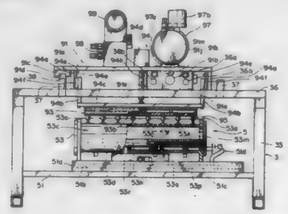
1. An apparatus for hardening covered seeds comprising:
a hardening tank containing a liquid hardener for hardening a polymeric gelling agent that covers seeds to be processed to form said covered seeds;
guide paddles having a width corresponding to a width dimension of said hardening tank, a width direction of said hardening tank crossing a direction in which said covered seeds are moved in said liquid hardener, said guide paddles extending, within said hardening tank, in a width direction parallel to said width direction of said hardening tank; and
a paddle drive mechanism, connected to said guide paddles, for moving said guide paddles in said liquid hardener in said hardening tank from a guide start point to a guide end point to move said covered seeds through said liquid hardener;
wherein said covered seeds covered with said polymeric gelling agent thereon are thrown into said liquid hardener in said hardening tank at said guide start point toward said guide end point to cause said polymeric gelling agent of said covered seeds to react with said liquid hardener and harden.

5,728,218

APPARATUS FOR COVERING SEEDS WITH GEL

Yasushi Kohno; Yoichi Ido, and Kazushi Nakatsukasa, all of Shizuoka, Japan, assignors to Yazaki Corporation, Tokyo, Japan

Filed Nov. 27, 1996, Ser. No. 757,927
Claims priority, application Japan, Nov. 29, 1995, 7-310701
Int. Cl.[6] B05C *3/00*
U.S. Cl. 118—13 **8 Claims**



1. An apparatus for covering seeds with gel, comprising:
a plurality processing nozzles each comprising:
a cylindrical plunger accommodated vertically movable in a vertical open passage, said plunger having a internal passage extended axially therethough;
a valve seat at a lower end of said vertical open passage, which is closed by lower end of said plunger; and
a closed space in said vertical open passage, defined between said valve seat and an upper part of said plunger; and
a single manifold connected to each of said closed spaces in said vertical open passages of said processing nozzles, including means for filling said gelling agent into said manifold, means for increasing a filling pressure of said gelling agent in said manifold to distribute said gelling agent from said manifold to said closed spaces of each of said processing nozzles, and means for increasing said filling pressure of said gelling agent in said closed spaces to move said plungers upwardly in said vertical open passages to open said valve seats, and means for throwing said seeds to be processed from above into said internal passages of said plungers such that said seeds discharged from lower ends of said internal passages of said plungers are enclosed with said gelling agent flown out through said valve seats.

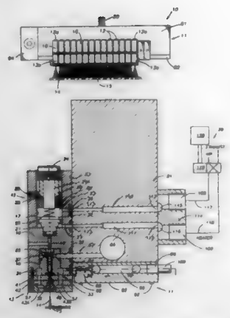
5,728,219

MODULAR DIE FOR APPLYING ADHESIVES

Martin A. Allen, and John T. Fetcko, both of Dawsonville, Ga., assignors to J&M Laboratories, Inc., Dawsonville, Ga.

Filed Sep. 22, 1995, Ser. No. 532,369
Int. Cl.[6] B05B *7/06;* **B28B** *5/00*
U.S. Cl. 118—315 **11 Claims**

1. A modular die assembly for depositing a hot melt adhesive onto a substrate which comprises:
(a) a manifold having adhesive and air passages formed therein;
(b) a plurality of substantially identical modular die bodies mounted in side-by-side relation on the manifold, each die body being detachably mounted on the manifold, and having an adhesive passage and an air passage in fluid communication with the adhesive passage and air passage of the manifold exiting through a downwardly facing mounting surface;
(c) an air-assisted die head mounted on the mounting surface of each die body, said die heads each having an adhesive flow passage and an air passage formed therein in fluid communication with the adhesive flow passage and air flow passage, respectively, of the die body, said air-assisted die heads being selected from
(i) meltblowing die heads wherein a plurality of filaments are discharged into converging sheets of air and deposited on the substrate as a generally uniform film, and
(ii) spiral nozzle head wherein a monofilament is discharged from the die head into air jets and a spiral mono-filament bead is deposited on the substrate, said die heads being interchangeable, said modular die assembly comprising at least one of each type of air-assisted die head so that the adhesive pattern on the substrate comprises at least one meltblown film strip beside a spray monofilament bead strip.

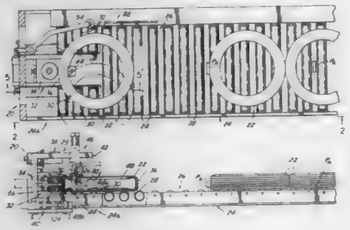


5,728,220

TIRE SOAPER APPARATUS

Thomas J. Curcuri, Grosse Pte. Woods; Jack T. Curcuri, Clinton Township, and Craig J. Hudock, Utica, all of Mich., assignors to Ultimation, Inc., Roseville, Mich.

Filed Mar. 8, 1996, Ser. No. 613,166
Int. Cl.[6] B05B *13/02*
U.S. Cl. 118—324 **15 Claims**



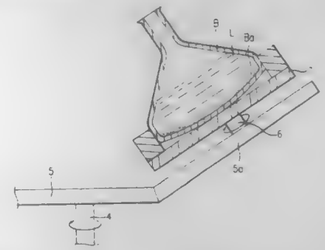
1. A tire soaping apparatus for applying soap to the beads of a tire prior to mounting the tire onto a wheel, said soaping apparatus comprising:
a base frame;
a soap applicator having an upper bead receptacle and a lower bead receptacle;
a rotator;
conveyor means connected with said base frame for selectively advancing tires thereupon toward said rotator;
rotation means, for rotating said rotator;
pivot means for pivoting said soap applicator from a retracted position above said conveyor means to a deployed position wherein said upper and lower bead receptacles face said rotator;
translation means for translationally moving said rotator toward and away from said deployed position of said soap applicator; and
dispensor means for selectively dispensing soap at said upper and lower bead receptacles;
whereby when a tire is situated on said conveyor adjacent said rotator, said soap applicator pivots to said deployed position, said rotator translates toward said soap applicator so as as to squeeze the tire therebetween, seat the beads of the tire respectively in said upper and lower bead receptacles, and cause rotator rotation to rotate the tire, and whereupon soap is dispensed from said upper and lower bead receptacles thereby soaping the beads of the tire.

5,728,221

APPARATUS FOR FORMING FLUORESCENT LAYER FOR BLACK-AND-WHITE CRT

Seoug Wan Kang, Kyungsangbuk-do, Rep. of Korea, assignor to LG Electronics Inc., Seoul, Rep. of Korea

Filed Jul. 20, 1995, Ser. No. 504,660
Claims priority, application Rep. of Korea, Jul. 21, 1994, 17693/1994
Int. Cl.[6] B05C *13/00*
U.S. Cl. 118—500 **4 Claims**



1. An apparatus for forming a fluorescent layer for a CRT comprising:
a first rotation shaft installed perpendicular to a horizontal plane;
a rotation table fixed to said first rotation shaft and integrally formed with a sloped portion, said table being rotated along with said first rotation shaft;
a second rotation shaft installed perpendicular to the sloped surface of said sloped portion; and
a deposition table for holding a bulb fixed to said second rotation shaft such that said deposition table revolves around said second shaft.

5,728,222

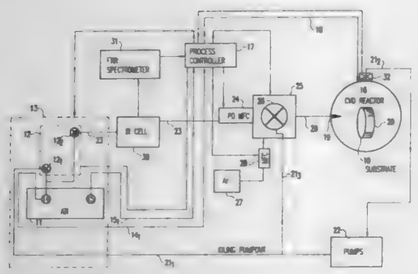
APPARATUS FOR CHEMICAL VAPOR DEPOSITION OF ALUMINUM OXIDE

Steven George Barbee, Dutchess County; Richard Anthony Conti, Westchester County; Alexander Kostenko; Narayana V. Sarma, both of Dutchess County; Donald Leslie Wilson, Orange County, all of N.Y.; Justin Wai-Chow Wong, Chittenden County, Vt., and Steven Paul Zuhoski, Dallas County, Tex., assignors to International Business Machines Corporation, Armonk, N.Y.

Division of Ser. No. 316,303, Sep. 19, 1994. This application Oct. 12, 1995, Ser. No. 541,278
Int. Cl.[6] B05C *11/00*
U.S. Cl. 118—715 **10 Claims**

1. An apparatus for depositing dense aluminum oxide on a substrate, said apparatus being divided into temperature controlled zones and comprising:
a) a pressure vessel containing aluminum tri-isopropoxide source material from which a source chemical vapor is produced;
b) a delivery manifold connected to said pressure vessel and having first and second outputs, said delivery manifold selectively delivering said source chemical vapor to one of the first output and the second output;

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c) an isothermal oven containing said pressure vessel and said delivery manifold for heating the same;

d) means for monitoring pressure and temperature within said pressure vessel;

e) a chemical vapor deposition (CVD) process chamber having at least one gas injector nozzle for injection of gas into the chamber, said CVD process chamber having a wafer chuck and a resistance thermal device (RTD) built into said wafer chuck for heating the wafer chuck and providing an output signal representative of wafer chuck temperature;

f) a temperature sensor positioned proximate the wafer chuck for providing an output signal representative of a temperature of a wafer positioned upon the wafer chuck;

g) an insulated and temperature controlled exhaust line connected to the first output of said delivery manifold and further being connected to said chemical vapor deposition chamber for providing a temperature controlled exhaust from said delivery manifold and the chemical vapor deposition chamber;

h) a temperature controlled delivery line having first and second ends thereof, said temperature controlled delivery line being connected at the first end thereof to the second output of said delivery manifold, said temperature controlled delivery line having a cross section sufficient to provide a required mass flow of said source chemical vapor for a deposition rate of aluminum oxide on a substrate;

i) a temperature controlled pressure differential mass flow controller connected to the second end of said temperature controlled delivery line for providing accurate flow of said source chemical vapor through said temperature controlled delivery line;

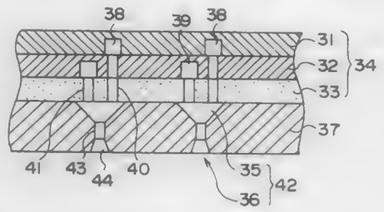
j) a premix chamber including a heated and insulated valve premix manifold assembly connected to said pressure differential mass flow controller, said premix manifold assembly having first and second outputs, the first output of said premix manifold assembly comprising a chamber for allowing said source chemical vapor to be mixed with a mass flow controlled, preheated inert gas, the first output of said premix manifold assembly further being connected to the gas injector of the chemical vapor deposition chamber for injection of the mixed source chemical vapor and inert gas therein, the second output of said premix manifold assembly being connected to the exhaust line; and

k) a process controller connected to said delivery manifold, said heating device, said process vessel monitoring means, said exhaust line, said temperature controlled delivery line, said pressure differential mass flow controller, said CVD process chamber walls and said premix manifold assembly for controlling the pressure and the temperature of source chemical vapor being delivered throughout the same to be within a temperature range and a pressure range thereby minimizing at least one of potential condensation and decomposition of the source chemical vapor during delivery.

5,728,223
REACTANT GAS EJECTOR HEAD AND THIN-FILM VAPOR DEPOSITION APPARATUS

Takeshi Murakami, Tokyo; Noriyuki Takeuchi, Hadano; Hiroyuki Shinozaki; Kiwamu Tsukamoto, both of Fujisawa; Yukio Fukunaga, and Akihisa Hongo, both of Yokohama, all of Japan, assignors to Ebara Corporation, Tokyo, Japan

Filed Jun. 10, 1996, Ser. No. 662,763
Claims priority, application Japan, Jun. 9, 1995, 7-168040
Int. Cl.[6] C23C *16/00*
U.S. Cl. 118—715 **28 Claims**



15. A thin-film vapor deposition apparatus comprising:

a reaction chamber;

a substrate holder for supporting a substrate in said reaction chamber; and

a reaction gas ejector head for providing a reactant gas flow toward the substrate supported by said substrate holder, said reaction gas ejector head comprising:

a plurality of gas mixing chambers distributed in a plane extending substantially parallel to a plane of the substrate when supported by said substrate holder for mixing reactant gases;

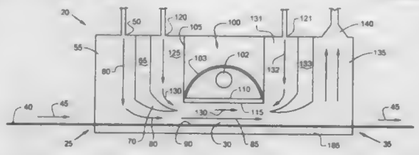
each said gas mixing chamber having connected thereto respective at least two reactant gas inlet passages capable of introducing different types of reactant gases to said each gas mixing chamber indivjdually; and

each said gas mixing chamber having connected thereto a respective ejection nozzle for ejecting reactant gases mixed in said each gas mixing chamber onto the substrate.

5,728,224
APPARATUS AND METHOD FOR MANUFACTURING A PACKAGING MATERIAL USING GASEOUS PHASE ATMOSPHERIC PHOTO CHEMICAL VAPOR DEPOSITION TO APPLY A BARRIER LAYER TO A MOVING WEB SUBSTRATE

Jacques A. Laurent, Libertyville, and Wolfgang Decker, Wheeling, both of Ill., assignors to Tetra Laval Holdings & Finance S.A., Pully, Switzerland

Filed Sep. 13, 1995, Ser. No. 527,414
Int. Cl.[6] C23C *16/00;16/48*
U.S. Cl. 118—718 **40 Claims**



1. An apparatus for forming a packaging material, the apparatus comprising:

a) a web dispenser supporting a continuous web of substrate material;

b) a deposition apparatus comprising

i. a reaction chamber,

ii. a web inlet portion for accepting the web of substrate material from the web dispenser into the reaction chamber,

iii. an ultraviolet radiation source disposed to radiate ultraviolet light energy into the reaction chamber,

iv. a gas inlet for conducting a flow of a precursor gas, an oxidizing gas, and a carrier gas into the reaction chamber, pressure within the reaction chamber being about one atmosphere, the precursor gas, oxidizing gas, and continuous web of substrate material being exposed to the ultraviolet light energy from the ultraviolet radiation source to thereby cause deposition of a barrier layer on the continuous web of substrate material,

v. a web outlet portion for allowing passage of the web of substrate material from the reaction chamber, and

vi. a gas outlet for allowing gases to exit the reaction chamber; and

c) driving means for driving the continuous web of substrate material through the reaction chamber.

5,728,225
VISCOUS LIQUID COMPOSITIONS OF XYLITOL AND A PROCESS FOR PREPARING THEM

Pierrick Duflot, Lestrem, and Jean-Jacques Caboche, Bethune, both of France, assignors to Roquette Freres, Lestrem, France

Continuation of Ser. No. 403,820, Mar. 14, 1995, abandoned. This application Dec. 18, 1996, Ser. No. 766,848
Claims priority, application France, Jul. 26, 1993, 93 09180
Int. Cl.[6] C08B *30/00;* **C13D** *1/08;* **C13K** *5/00;* **C12P** *7/18*
U.S. Cl. 127—29 **9 Claims**

1. Viscous liquid composition of xylitol, free of L-arabitol, and containing:

from 51% to 80% of xylitol;

from 0.1% to 44% of D-arabitol;

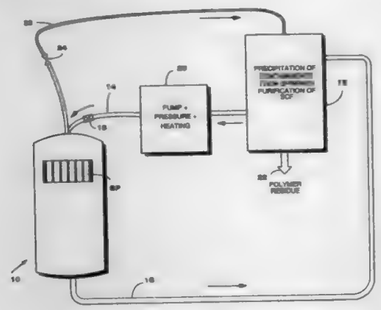
from 5% to 48.9% of non-reducing oligomers or polymers of glucose, these percentages being expressed on a dry weight basis of the composition,

said non-reducing oligomers or polymers of glucose having a degree of polymerization greater than or equal to 3.

5,728,226
PROCESS FOR CLEANING AN ASSEMBLED SPIN PACK OF A MELT SPINNING ASSEMBLY

Matthew Buckingham Hoyt, Arden, N.C., assignor to BASF Corporation, Mount Olive, N.J.

Filed Jul. 22, 1996, Ser. No. 685,986
Int. Cl.[6] B08B *3/04*
U.S. Cl. 134—1 **12 Claims**



1. A process for removing solidified polymer residue from an assembled synthetic fiber spin pack comprising bringing the assembled spin pack into contact with a supercritical fluid (SCF) for a time sufficient to remove solidified polymer residue therefrom.

5,728,227
METHOD FOR REMOVING A DIFFUSION COATING FROM A NICKEL BASE ALLOY

Jeffrey J. Reverman, Cincinnati, Ohio, assignor to General Electric Company, Cincinnati, Ohio

Filed Jun. 17, 1996, Ser. No. 664,762
Int. Cl.[6] C03C *23/00;* **B08B** *5/00;7/00;7/04*
U.S. Cl. 134—2 **4 Claims**

1. In a method for removing from a surface portion of an article, made from a Ni base alloy, a diffusion coating which includes the element Al, the coating including a diffused coating inner portion in which at least Al is diffused into the alloy surface and a coating outer portion bonded with the inner portion, the steps of:

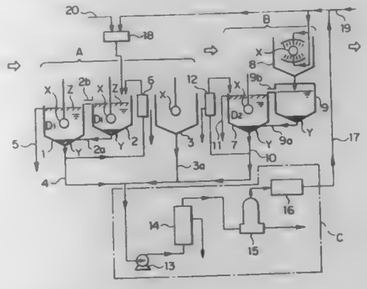
mechanically removing substantially the coating outer portion to expose the diffused coating inner portion; and then,

subjecting the exposed inner portion to a reducing gas comprising greater than 6 wt. % halogen gas at a temperature of at least 1600° F. for a time of at least 2 hours sufficient for the halogen gas to deplete Al from the coating inner portion substantially without dimensional change of the inner portion.

5,728,228
METHOD FOR REMOVING RESIDUAL LIQUID FROM PARTS USING A POLYORGANOSILOXANE

Minoru Inada, Yokohama; Kimiaki Kabuki, Tokyo; Yasutaka Imajo, Hachioji; Takayuki Oguni; Noriaki Yagi, both of Yokohama; Nobuhiro Saitoh, Ota; Akitsugu Kurita, Ota, and Yoshiaki Takezawa, Ota, all of Japan, assignors to Kabushiki Kaisha Toshiba, Kawasaki, Japan

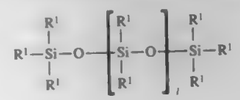
Division of Ser. No. 651,370, Feb. 28, 1991, Pat. No. 5,443,747. This application May 5, 1995, Ser. No. 435,159
Claims priority, application Japan, Oct. 26, 1989, 1-280860; Nov. 21, 1989, 1-302580; Mar. 16, 1990, 2-065841; Mar. 16, 1990, 2-065842
Int. Cl.[6] B08B *7/04;3/04*
U.S. Cl. 134—10 **18 Claims**



1. A method for removing residual liquid cleaning agent from metal parts, glass parts, ceramic parts, or plastic parts having a hard surface, comprising

removing liquid cleaning agent from a part which contains the cleaning agent on its surface, by treatment with a rinsing composition consisting essentially of

at least one polyorganosiloxane not-compatible with water selected from the group consisting of a straight chain polyorganosiloxane represented by the formula:



and

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a cyclic polyorganosiloxane represented by the formula:



wherein R^1 in each of the above formulas is independently selected from the group consisting of methyl, ethyl, propyl, butyl, phenyl, trifluoro-methyl, amino, amide, acrylic acid ester and mercaptan; l is an integer from 0 to 5; and m is an integer from 3 to 7, wherein the rinsing composition is substantially free of water, and

removing said rinsing composition from the part.

5,728,229

TEST PROBE CLEANER

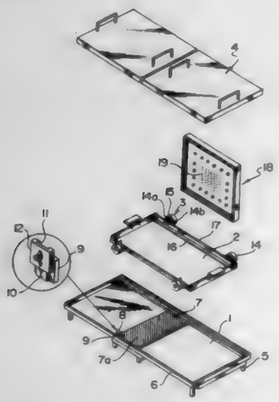
Alain Després, Gatineau, Canada, assignor to Newbridge Networks Corporation, Kanata, Canada

Filed May 6, 1996, Ser. No. 642,844

Claims priority, application United Kingdom, May 4, 1995, 9509055

Int. Cl.[6] B08B *1/00*

U.S. Cl. 134—32 **8 Claims**



7. A method of cleaning a test fixture having a multitude of protruding probes having a height, comprising the steps of:

providing a shallow pan containing a cleaning fluid;

providing upstanding brush means in said pan so as to be immersed in said cleaning fluid, said brush means extending across said pan;

providing a carriage having an open frame movable back and forth in said pan over said upstanding brush means;

measuring the height of said test probes;

adjusting the height of said carriage in said pan to match the height of said test probes relative to said pan;

placing a test fixture in said carriage such that said test probes protrude through said open frame toward said pan; and

moving said carriage back and forth over said upstanding brush means in said pan such that said test probes are brushed by said brush means while in said cleaning fluid and thereby cleaned.

5,728,230

SOLAR CELL AND METHOD FOR MANUFACTURING THE SAME

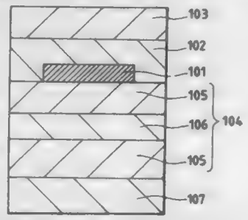
Ayako Komori, Nara; Takahiro Mori, Ikoma; Ichiro Kataoka, Kyoto; Satoru Yamada, Kyoto, and Hidenori Shiotsuka, Kyoto, all of Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan

Filed Aug. 13, 1996, Ser. No. 689,653

Claims priority, application Japan, Aug. 15, 1995, 7-208253

Int. Cl.[6] H01L *31/048;31/18*

U.S. Cl. 136—251 **30 Claims**



1. A solar cell comprising an adhesive layer between a photovoltaic element and a reinforcing plate, wherein said adhesive layer comprises a base resin mixed with an adhesion-imparting resin.

5,728,231

PRECURSOR FOR SEMICONDUCTOR THIN FILMS AND METHOD FOR PRODUCING SEMICONDUCTOR THIN FILMS

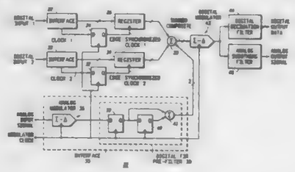
Takayuki Negami; Masaharu Terauchi, both of Osaka; Mikihiko Nishitani, Nara, and Takahiro Wada, Osaka, all of Japan, assignors to Matsushita Electric Industrial Co., Ltd., Osaka, Japan

Filed May 15, 1996, Ser. No. 648,497

Claims priority, application Japan, May 15, 1995, 7-116164; Jun. 8, 1995, 7-141999

Int. Cl.[6] H01L *31/18*

U.S. Cl. 148—33 **39 Claims**



1. A precursor for manufacturing a semiconductor thin film, comprising an oxide thin film comprising at least one element as a dopant selected from a group which consists of Groups IA, IIA, IIB, VA, and VB elements, and Groups IB and IIIA elements as main components of said semiconductor film, deposited on a substrate.

5,728,232

RAW MATERIAL FOR PERMANENT MAGNETS AND PRODUCTION METHOD OF THE SAME

Yasunori Takahashi, 5-20, Todoroki 2-Chome, Setagaya-Ku, Tokyo 158, Japan

Filed Jan. 29, 1996, Ser. No. 593,720

Int. Cl.[6] H01F *1/03*

U.S. Cl. 148—105 **6 Claims**

1. A method of producing raw material for samarium.iron.boron-permanent magnets, wherein said method comprises the steps of:

mixing acicular iron powder obtained by hydrogen reduction of acicular FeOOH (goethite) crystal with powder of a samarium.cobalt alloy having a melting point lower than 700° C. and powder of boron or powder of a ferro-boron alloy and optionally powder of cobalt or a cobalt-iron alloy;

heating the mixed powder under a hydrogen-nitrogen atmosphere at a temperature between the melting point of the samarium.cobalt alloy and 1200° C. to diffuse samarium and boron in a surface of the acicular iron powder; and

pulverizing the product thus obtained.

5,728,233

SURFACE TREATMENT COMPOSITION, SURFACE TREATMENT SOLUTION AND SURFACE TREATMENT METHOD FOR ALUMINUM AND ITS ALLOYS

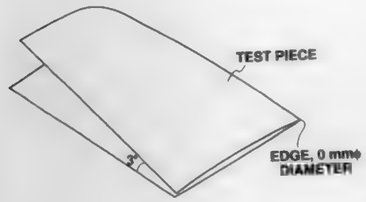
Satoshi Ikeda, Tokyo, and Masayuki Kamimura, Chiba, both of Japan, assignors to Nippon Paint Co., Ltd., Osaka, Japan

Filed Nov. 18, 1996, Ser. No. 751,726

Claims priority, application Japan, Nov. 20, 1995, 7-301309

Int. Cl.[6] C23C *22/00*

U.S. Cl. 148—247 **3 Claims**



1. A surface treatment composition for aluminum and its alloys comprising at least one member selected from the group of phosphoric acid, condensed phosphoric acid or salt of said acids, at a concentration in the range of 10–500 ppm as PO_4,

at least one member selected from the group of zirconium salt and titanium salt at a concentration in the range of 10–500 ppm as the metal, and

effective fluoride, at a concentration in the range of 1– 50 ppm as fluorine,

further comprising at least one member selected from the group of phosphorous acid, hypophosphorous acid or salts of said acids, at a concentration in the range of 10–5000 ppm as PO_3 or hypophosphorous acid.

5,728,234

COMPOSITION AND PROCESS FOR TREATING THE SURFACE OF ALUMINIFEROUS METALS

Tomoyuki Aoki, and Masayuki Yoshida, both of Kanagawa-Ken, Japan, assignors to Henkel Corporation, Plymouth Meeting, Pa.

PCT No. PCT/US95/03933, § 371 Date Oct. 15, 1996, § 102(e) Date Oct. 15, 1996, PCT Pub. No. WO95/28509, PCT Pub. Date Oct. 26, 1995

PCT Filed Apr. 7, 1995, Ser. No. 727,590

Claims priority, application Japan, Apr. 15, 1994, 6-077219

Int. Cl.[6] C23C *22/33*

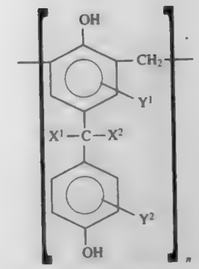
U.S. Cl. 148—251 **12 Claims**

1. An aqueous liquid composition for treating the surface of aluminiferous metals, either as such or after dilution with additional water, said composition comprising water and:

(A) from 1 to 30 pbw of phosphate ions;

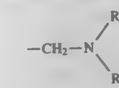
(B) from 0.1 to 10 pbw of condensed phosphate ions; and

(C) from 0.1 to 20 pbw of water-soluble polymer conforming with the following general formula (I)

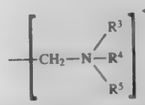


(I)

in which (i) each of X^1 and X^2, independently of each other and independently from one unit of the polymer, which is defined as a part of the polymer that conforms with formula (I) above except that the brackets and the subscript n are omitted, to another unit of the polymer, represents a hydrogen atom, a C_1 to C_5 alkyl group, or a C_1 to C_5 hydroxyalkyl group; (ii) each of Y^1 and Y^2, independently of one another and independently from one unit of the polymer to another, represents a hydrogen atom or a moiety "Z" that conforms to formula (II) or (III):



(II)



(III)

wherein each of R^1, R^2, R^3, R^4, and R^5, independently of each other and independently from one unit of the polymer to another, represents a C_1 to C_{10} alkyl group or a C_1 to C_{10} hydroxyalkyl group; (iii) the moiety Z bonded to any single phenyl ring in the polymer molecule may be identical to or may differ from the moiety Z bonded to any other phenyl ring in the polymer molecule; (iv) the average value for the number of Z moieties substituted on each phenyl ring in the polymer molecule is from 0.2 to 1.0; (v) n is an integer with a value from 2 to 50; and (vi) each polymer molecule contains at least one Z moiety.

5,728,235

MODERATE TEMPERATURE MANGANESE PHOSPHATE CONVERSION COATING COMPOSITION AND PROCESS

Mervet S. Boulos, Troy; David C. Montrose, St. Clair Shores, and Michael Petschel, Rochester Hills, all of Mich., assignors to Henkel Corporation, Plymouth Meeting, Pa.

Continuation-in-part of Ser. No. 601,481, Feb. 14, 1996, Pat. No. 5,595,611. This application Nov. 12, 1996, Ser. No. 747,136

Int. Cl.[6] C23C *22/18*

U.S. Cl. 148—257 **6 Claims**

1. A process for forming a conversion coating on a metal substrate surface, without the imposition of any external electromotive force on or electric current through the metal substrate, by contacting the metal substrate surface with an acidic aqueous liquid composition comprising water and:

(A) a concentration of from about 0.70 to about 3.0 ppt of dissolved divalent manganese cations;

(B) a concentration of dissolved phosphate anions, expressed in the same units as said concentration of divalent manganese cations, such that the concentration of divalent manganese cations has a ratio to the concentration of dissolved phosphate

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anions that is from about 1.0:30 to about 1.0:18.0, said concentration of dissolved phosphate anions being not greater than about 40 ppt; and

(C) a concentration of nitric acid,

said aqueous liquid composition having a temperature not more than 75° C. during its contact with the metal substrate, a Free Acid points value from about −1.5 to about 1.5, a Total Acid points value from about 4 to about 50, and a concentration of not more than 0.02 percent of each of the following constituents: zinc cations; nickel cations; calcium cations, magnesium cations, cobalt(II) cations; nitrite ions, all halate and perhalate ions; chloride ions; ferrocyanide ions, and ferricyanide ions; and said process resulting in formation of a coating with a mass of at least about 1.2 g/m^2 after a contact time not greater than about 5.0 minutes.

5,728,236

PROCESS FOR PRODUCING AN ORNAMENTAL RUST FINISH ON A FERROUS METAL SURFACE

Patrick A. Rundhaug, Tucson, Ariz., assignor to Chem-Pro, Tucson, Ariz.

Filed Oct. 24, 1995, Ser. No. 547,227

Int. Cl.° C23C *22/50*

U.S. Cl. 148—270 **5 Claims**

1. A process for producing an ornamental rust finish on a ferrous metal surface, comprising the steps of:

(a) applying to said ferrous metal surface an aqueous solution having ferric oxide-forming oxidizing reactivity with said ferrous metal surface, said aqueous solution comprising a copper salt and an acid in relative concentrations effective for imparting said oxidizing reactivity to said aqueous solution, said copper salt being selected from the group consisting of copper sulfate, copper nitrate and copper chloride said acid being selected from the group consisting of sulfamic acid and oxalic acid; and

(b) oxidizing said ferrous metal surface with said aqueous solution so as to form said rust finish as an oxidation reaction product composed primarily of ferric oxide.

5,728,237

MAGNETO-ELASTICALLY EXCITABLE TAG HAVING A RELIABLY DEACTIVATABLE AMORPHOUS ALLOY FOR USE IN A MECHANICAL RESONANCE MONITORING SYSTEM

Giselher Herzer, Bruchkoebel, Germany, assignor to Vacuumschmelze GmbH, Hanau, Germany

Filed Dec. 9, 1996, Ser. No. 762,044

Claims priority, application Germany, Dec. 7, 1995, 195 45 755.2

Int. Cl.° H01F *1/153*

U.S. Cl. 148—304 **15 Claims**

1. In a tag having magneto-elastically excitable strip for use with a source of a pre-magnetization field, for activating said tag, and an alternating magnetic field in a mechanical resonance monitoring system, the improvement of said strip comprising an amorphous, magnetostrictive alloy having constituents satisfying the formula

$$Fe_a CO_b Ni_c Si_x B_y M_z$$

wherein M denotes at least one element of groups IV through VII of the periodic table, including C, Ge and P, and the constituents in at % meet the following conditions:

a lies between 20 and 74,

b lies between 4 and 23,

c lies between 5 and 50,

b+c>14,

x lies between 0 and 10,

y lies between 10 and 20,

z±5, and

with x+y+z lies between 12 and 2; and

said amorphous, magnetostrictive alloy having a resonant frequency associated therewith and when passed through an alternating magnetic field having an alternation frequency coinciding with said resonant frequency, said strip producing a pulse having a signal amplitude, and said amorphous, magnetostrictive alloy exhibiting a change in resonant frequency and signal amplitude due to a change in orientation of the tag in the earth's magnetic field which is smaller than a change occurring upon removal of the pre-magnetization field to deactivate said tag.

5,728,238

IRON BASED POWDER, COMPONENT PRODUCED THEREFROM AND METHOD OF PRODUCING THE COMPONENT

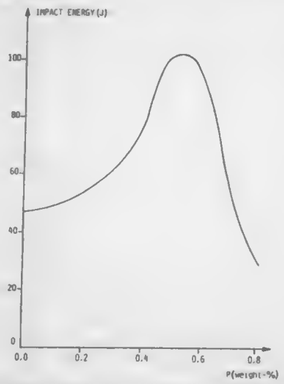
Per Engdahl, Nyhamnsläge, and Caroline Lindberg, Höganäs, both of Sweden, assignors to Höganäs AB, Höganäs, Sweden

Continuation of Ser. No. 949,640, Dec. 2, 1992, abandoned. This application Sep. 6, 1994, Ser. No. 302,088

Claims priority, application Sweden, Jun. 11, 1990, 9002070

Int. Cl.° C22C *33/02*; **B22F** *1/00*

U.S. Cl. 148—337 **13 Claims**



1. An iron-based powder for producing impact-resistant components by powder compacting and sintering, consisting essentially of iron, 0.43–0.6% by weight of P, 0.5%–2.5% by weight of Mo, and 2% by weight or less of other alloying elements commonly used in powder metallurgy and not affecting the impact energy adversely.

5,728,239

PROCESS FOR HARDENING ALUMINUM USING A MAGNESIUM ALLOY

William C. Setzer, Evansville, Ind.; Richard J. Malliris; David K. Young, both of Henderson, Ky., and Francis P. Koch, Tomales, Calif., assignors to KBAlloys, Inc., Robards, Ky.

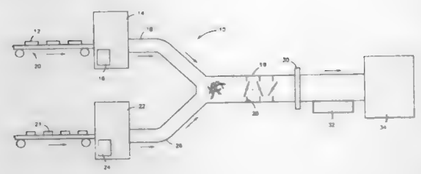
Continuation-in-part of Ser. No. 386,698, Feb. 10, 1995. This application Jun. 6, 1995, Ser. No. 470,760

Int. Cl.° C22F *1/04*

U.S. Cl. 148—549 **8 Claims**

1. A process for hardening aluminum comprising the steps of:

adding a magnesium alloy hardener to molten aluminum wherein said hardener is a magnesium base alloy consisting essentially of magnesium in the range of 68–72 wt % based on the weight of the magnesium alloy hardener, with a remaining portion of the magnesium alloy hardener consisting essentially of aluminum, wherein said magnesium alloy hardener includes MgAl intermetallic in the range of 64.9 to 84.5% by weight and has a solidification range spanning 12° to 50° C.;



preheating the magnesium alloy hardener prior to adding the magnesium alloy hardener to the molten aluminum, including the step of decreasing any temperature differential between said magnesium alloy hardener and the aluminum for stabilizing and preventing shattering of said magnesium alloy hardener, and wherein said magnesium alloy hardener is preheated to a temperature range of 300°–500° F.,

thereby hardening the aluminum and obtaining high magnesium recovery.

5,728,240

POSITIONALLY ADJUSTABLE MEMBER AND APPLICATIONS THEREFOR

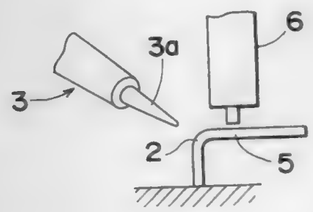
Tatsushi Yamamoto, Nara-ken; Tomoyuki Sagara, Yamatokoriyama; Tetsurou Muramatsu, Nara; Toshiyuki Tanaka, Moriguchi, and Renzaburou Miki, Tenri, all of Japan, assignors to Sharp Kabushiki Kaisha, Osaka, Japan

Filed Jun. 5, 1995, Ser. No. 463,775

Claims priority, application Japan, Dec. 16, 1994, 6-313179; Dec. 16, 1994, 6-313188; Dec. 27, 1994, 6-324537

Int. Cl.° C21D *11/00*

U.S. Cl. 148—563 **24 Claims**



1. A positionally adjustable member made from a shape memory effect material having a characteristic shape recovery temperature and including:

a positionally adjustable portion;

a secondary portion; and

a deformation portion between said positionally adjustable portion and said secondary portion;

wherein the member memorizes a first configuration by placing the member in said first configuration at temperature above said shape recovery temperature;

wherein the member adopts a second configuration by way of deforming said first configuration of the member at said deformation portion at a temperature below said shape recovery temperature;

wherein said positionally adjustable portion incrementally returns towards said first configuration from said second configuration by way of a local application of heat to said deformation portion, while the member is at a temperature below said shape recovery temperature.

5,728,241

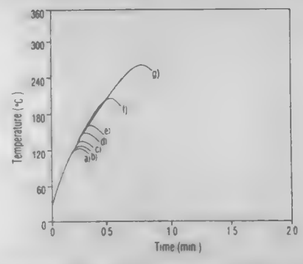
HEAT TREATMENT PROCESS FOR ALUMINUM ALLOY SHEET

Alok Kumar Gupta; Michael J. Wheeler, both of Kingston, Canada; Michael J. Bull, Brighton, Mich., and Pierre H. Marois, Kingston, Canada, assignors to Alcan International Limited, Montreal, Canada

Continuation of Ser. No. 683,041, Jul. 15, 1996, abandoned, which is a continuation of Ser. No. 301,172, Sep. 6, 1994, abandoned, which is a continuation-in-part of Ser. No. 97,840, Jul. 28, 1993, abandoned. This application Dec. 13, 1996, Ser. No. 764,983

Int. Cl.° C22F *1/04*

U.S. Cl. 148—694 **12 Claims**



1. A continuous process of producing solution heat treated painted aluminum alloy sheet, which comprises, on a continuous basis, subjecting hot- or cold-rolled aluminum alloy sheet made from an aluminum alloy selected from the group consisting of Al-Mg-Si and Al-Mg-Si-Cu to solution heat treatment followed by quenching and natural aging to cause age hardening and paint baking, wherein, before substantial age hardening has taken place after said quenching, the aluminum alloy sheet is subjected to at least one subsequent heat treatment involving heating the aluminum alloy sheet to a peak temperature in the range of 100° to 300° C., holding the aluminum alloy sheet at the peak temperature for a period of time of less than about 1 minute, and cooling the aluminum alloy sheet from the peak temperature to a temperature of 85° C. or less, and wherein, during said subsequent heat treatment, or during a last of said subsequent heat treatment when there is more than one, said cooling involves first cooling said aluminum alloy sheet to a temperature in the range of 55° C. to 85° C. at a rate greater than or equal to 4° C./sec. and then further cooling said aluminum alloy sheet to ambient temperature at a rate of less than or equal to 2° C./hour.

5,728,242

TIRE FOR MOTOR VEHICLE WHEELS HAVING A SURFACE-WORKED ANNULAR SURFACE AT THE SIDEWALLS THEREOF

Antonio Barrese, Milan, and Massimo Battaini, Tradate, both of Italy, assignors to Pirelli Coordinamento Pneumatici S.p.A., Milan, Italy

Continuation of Ser. No. 197,494, Feb. 16, 1994, abandoned. This application Jan. 16, 1996, Ser. No. 585,745

Claims priority, application Italy, Feb. 16, 1993, MI93A0280

Int. Cl.° B60C *13/02*

U.S. Cl. 152—523 **9 Claims**

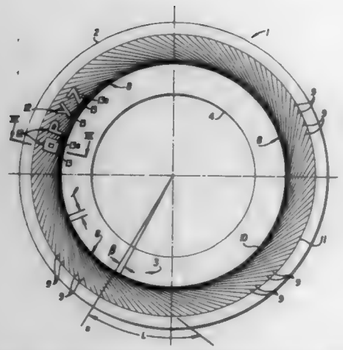
1. A tire for operating use on motor-vehicle wheels, comprising:

a pair of beads each of which is defined at an inner circumferential edge of the tire;

a pair of sidewalls, each of which is in the form of an annulus extending in radial direction away from one of said beads;

a tread band of substantially cylindrical conformation with opposite peripheral edges joined to the sidewalls at respective buttress areas, the outer surface of at least one of said sidewalls having an annular strip, formed on the sidewall in the form of a surface hollow of predetermined depth relative to an overall general contour of the sidewall, the radial extension of

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which is defined between an inner peripheral edge disposed in the area between an associated bead and a maximum axial width circumferential line of the tire and an outer peripheral edge substantially coincident with the peripheral edge of the tread band at a corresponding buttress area;

a single plurality of substantially rectilinear ribs being formed on said annular strip and disposed consecutively in side by side relation, said plurality of ribs being circumferentially distributed and each extending between said inner and outer peripheral edges and according to a given angle of inclination included between 60° and 90° with respect to a radial straight line extending from the inner peripheral edge at a crossing point with the rib itself, said fibs being non-parallel to each other with each of said ribs being spaced apart from an adjacent rib according to an arc that on said inner peripheral edge subtends a respective central angle having an opening between 0.0178° and 1.35°, with informative inscriptions being formed on said annular strip,

said inscriptions being formed as solid non-striped characters on the annular strip and defined by a plurality of projections having smooth surfaces, emerging from said annular strip with a height greater than the height of said ribs, said ribs having a height less than the depth of said surface hollow and said projections having a height greater than the depth of said surface hollow.

5,728,243

TIRE BALANCING

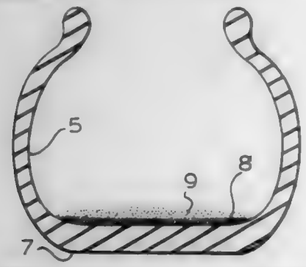
Michael Heffernan, R.R. #6, Simcoe, Ontario, Canada, N3Y 4K5, and Russel J. Freeman, 10 Oakes Boulevard, Vittoria, Ontario, Canada, N0E 1W0

Division of Ser. No. 251,507, May 31, 1994. This application May 31, 1996, Ser. No. 655,964

Claims priority, application WIPO, Jun. 17, 1994, PCT/CA94/00344

Int. Cl.° F16F *15/36;* **G01M** *1/30*

U.S. Cl. 156—75 **8 Claims**



1. A method for balancing a tire rim assembly comprising the steps of,

providing a tire rim assembly having a hollow tire casing surrounding a space about the rim, said space to be filled and pressurized with air;

pouring a mixture into the interior of the tire casing, said mixture comprising a first weight portion of first beads of atomized metallic micro-spheres having a first density and a first size and a second weight portion of second beads of glass having a second density and second size wherein said first weight portion is less than said second weight portion, said first density is greater than said second density and said first size is smaller than said second size; and

rotating the tire rim assembly to distribute the material within the tire casing to offset forces of imbalance.

5,728,244

PROCESS FOR PRODUCTION OF CERAMIC MEMBER HAVING FINE THROUGHHOLES

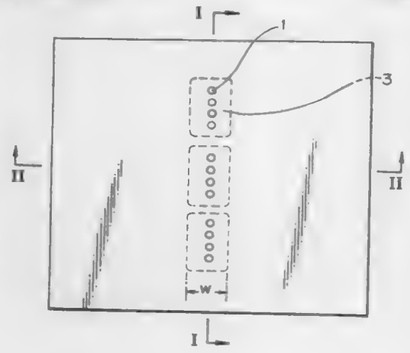
Tsutomu Nanataki, Toyoake, and Shigeki Nakao, Nagoya, both of Japan, assignors to NGK Insulators, Ltd., Japan

Filed May 17, 1996, Ser. No. 649,485

Claims priority, application Japan, May 26, 1995, 7-128134; Dec. 20, 1995, 7-331708; Dec. 20, 1995, 7-331709

Int. Cl.° B32B *31/26*

U.S. Cl. 156—89 **28 Claims**



1. A process for producing a ceramic member having fine throughholes, which comprises:

preparing a first green sheet for a thin ceramic plate,

forming, in the first green sheet, a plurality of fine throughholes so that the hole-to-hole distance after sintering becomes 70 μm or less,

preparing a second green sheet for a ceramic substrate,

forming at least one window in the second green sheet,

laminating the first green sheet having a plurality of fine throughholes, on the second green sheet having at least one window so that the plurality of fine throughholes correspond to the at least one window, to form a unitary laminate, and

sintering the laminate to produce a unitarily sintered material as a ceramic member having fine throughholes.

15. A process for producing a ceramic member having fine throughholes, which comprises:

preparing a first green sheet for a thin ceramic plate,

forming a plurality of fine throughholes corresponding to the window in the first green sheet,

preparing a second green sheet for a ceramic substrate,

forming at least one window in the second green sheet,

laminating the first green sheet having a plurality of fine throughholes, on the second green sheet having at least one window so that the plurality of fine throughholes correspond to the at least one window, to form a unitary laminate, and

sintering the laminate to produce a unitarily sintered material as a ceramic member having fine throughholes,

wherein the window and the fine throughholes are formed so that they satisfy the following relation:

$$W(\text{mm}) \geq 0.01/d(\text{mm})$$

wherein w is the width of the window after sintering and d is the hole-to-hole distance after sintering.

5,728,245

PROCESS OF BONDING AROMATIC POLYAMIDE FIBERS TO RUBBER COMPOUNDS

Akinori Fujiwara, and Katsuhiko Hata, both of Kobe, Japan, assignors to Bando Chemical Industries, Ltd., Kobe, Japan

Continuation of Ser. No. 161,486, Dec. 6, 1993, Pat. No. 5,484,497, which is a division of Ser. No. 911,377, Jul. 13, 1992, Pat. No. 5,306,369, which is a continuation of Ser. No. 456,636, Dec. 22, 1989, abandoned. This application Dec. 4, 1995, Ser. No. 566,510

Claims priority, application Japan, Dec. 23, 1988, 63-327234; Dec. 23, 1988, 63-327235

Int. Cl.° B29C *35/02;* **B32B** *33/00;* **C09J** *5/04*

U.S. Cl. 156—110.1 **10 Claims**

1. A process of bonding aromatic polyamide fibers to rubber compounds which comprises:

a first step of treating fibers with an aqueous mixture comprising a resorcinol/formalin resin and a latex of a polymer containing halogens in amounts of not less than 45% by weight based on the polymer;

a second step of treating the fibers with an adhesive composition comprising an activating agent selected from the group consisting of polyisocyanate compounds and polyepoxy compounds in amounts of 10–90 parts by weight and an adhesive rubber which is compatible with the rubber in the rubber compound in amounts of 90–10 parts by weight; and

a third step of placing the fibers in close contact with the rubber compound and vulcanizing the rubber together with the fibers.

5,728,246

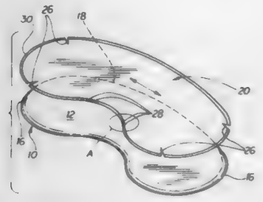
METHOD OF APPLYING VENEER TO A SUBSTRATE

William John Ewaschuk, Scarborough, Canada, assignor to Nienkamper Furniture & Accessories Inc., Scarborough, Canada

Filed May 1, 1996, Ser. No. 639,518

Int. Cl.° B32B *31/20*

U.S. Cl. 156—211 **20 Claims**



1. A method of applying a veneer having a grain to a substrate having a main surface and at least one curved edge having a compound curved surface, comprising the steps of

trimming the veneer to provide a peripheral margin which will extend beyond the curved edge of the substrate when the veneer is brought into contact with the substrate,

applying a stretchable releasable adhesive tape to a top surface of the margin of the veneer,

applying an adhesive to the main and edge surfaces of the substrate,

positioning the veneer over the main and edge surfaces of the substrate and securing the veneer in position with releasable securing means,

elevating the substrate to allow for the application of pressure over the entire curved edge,

subjecting the veneer to a substantially uniform pressure over the main and edge surfaces of the substrate until the adhesive has set, and

removing the releasable adhesive tape.

5,728,247

METHOD FOR MOUNTING A CIRCUIT

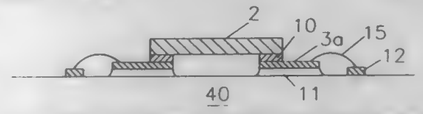
Günther Büstrich, Stockholm, and Lars Erik Pontus Lundström, Saltsjö-Boo, both of Sweden, assignors to Telefonaktiebolaget LM Ericsson, Stockholm, Sweden

Continuation of Ser. No. 132,872, Oct. 7, 1993, abandoned. This application Mar. 25, 1996, Ser. No. 620,950

Claims priority, application Sweden, Oct. 7, 1992, 9202943

Int. Cl.° B32B *31/04;* **H01L** *23/48*

U.S. Cl. 156—256 **8 Claims**



1. A method for mounting a circuit with a Tape Automated Bonding (TAB) structure onto a substrate, which circuit is delivered on a running carrier in the form of a supporting film layer or a film strip, the TAB structure terminal leads constituting an electrically conducting interconnection pattern being manufactured onto said film strip and being connected to a semiconductor chip of said TAB structure, the method comprising the steps of:

cutting each side of the TAB structure supporting film and the TAB structure's electrically conducting terminal lead pattern close to the chip side edges with a standard straight cutting tool to a predetermined length, so that terminal leads of a predetermined length are produced;

positioning the circuit having TAB structure on a final substrate in one of a face-up and face-down orientation,

attaching one of said semiconductor chip and said TAB structure terminal leads to the final substrate with a resilient glue, and

electrically interconnecting said TAB terminal leads by bonding wires between the terminal leads and corresponding electricaily conducting pads on said substrate.

5,728,248

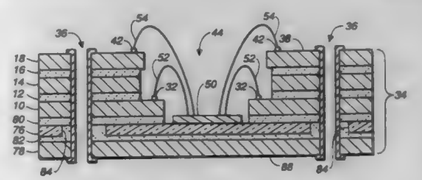
METHOD FOR MAKING A MULTI-TIER LAMINATE SUBSTRATE WITH INTERNAL HEAT SPREADER

Patrick O. Weber, San Jose, Calif., assignor to Hestia Technologies, Inc., Sunnyvale, Calif.

Division of Ser. No. 402,957, Mar. 13, 1995, Pat. No. 5,597,643. This application Oct. 17, 1996, Ser. No. 731,660

Int. Cl.° B32B *31/12;31/18*

U.S. Cl. 156—257 **20 Claims**



1. A method for making multi-tier laminate substrates for electronic device packaging comprising the steps of:

providing a first laminating layer having a trace on a first side and a second laminating layer having a trace on a first side;

making a first window in a spacer laminating layer;

making a second window corresponding to the first window in at least one layer of dielectric;

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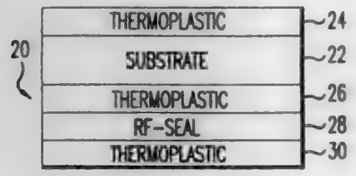
making a third window corresponding to the first window in at least one layer of dielectric;
making a fourth window in at least one layer of dielectric of sufficient size to locate an electronic device therein;
making clearance openings sufficiently large in a heat spreader to accommodate vias in the laminated substrate;
laminating together the second laminating layer and the heat spreader with a layer of standard flow prepreg interposed between the trace on the first side of the second laminating layer and a first side of the heat spreader such that the standard flow prepreg flows into the clearance openings;
providing a third laminating layer having a trace on a first side and a fifth window of sufficient size to locate an electronic device therein;
laminating the third laminating layer to the heat spreader, wherein one layer of dielectric having the fourth window therein is located between a second side of the heat spreader and a second side of the third laminating layer;
laminating the first laminating layer, the spacer laminating layer, and the layers of dielectric having the second window and third window to the third laminating layer, wherein one layer of the dielectric is located between the trace on the first side of the first laminating layer and a first side of the spacer laminating layer and one layer of the dielectric is located between a trace on the first side of the third laminating layer and a second side of the spacer laminating layer to form a laminated substrate;
making vias through the laminated substrate;
plating the vias;
producing traces on a second side of the first laminating layer and a second side of the second laminating layer;
making a first opening in the first laminating layer corresponding to the second window; and
treating exposed surfaces of the laminating layers.

5,728,249

METHOD OF RADIO FREQUENCY SEALING NON-FOIL PACKAGING STRUCTURES

Joe L. Kinsey, Jr., Irvington, Ala., and Mari Asanuma, Raleigh, N.C., assignors to International Paper Company, Purchase, N.Y.

Continuation of Ser. No. 98,919, Jul. 29, 1993, abandoned. This application Jul. 3, 1995, Ser. No. 498,268
Int. Cl.[6] B32B *31/24;31/28*
U.S. Cl. 156—275.1 **15 Claims**



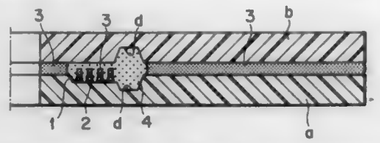
1. A process for forming a non-foil packaging structure, comprising the steps of:
a) forming a laminate comprising:
a paperboard substrate having a first surface and a second surface corresponding to two sides of said substrate;
a radio-frequency sealable polymer layer selected from a group consisting of ethylene methylacrylate copolymer, ethylene butylacrylate copolymer, and ethylene ethylacrylate copolymer located on said first surface of said substrate; and
at least one layer of thermoplastic material disposed on said radio-frequency sealable polymer layer;
b) sealing said laminate to itself using a radio-frequency in a range of 1 to 300 MHz.

5,728,250

METHOD AND APPARATUS FOR MANUFACTURING BONDED DISKS

Keiji Kakinuma, Shizuoka, Japan, assignor to Toshiba-EMI Limited, Tokyo, Japan

Filed Mar. 29, 1996, Ser. No. 623,520
Claims priority, application Japan, Mar. 31, 1995, 7-076080
Int. Cl.[6] B32B *31/00*
U.S. Cl. 156—275.7 **6 Claims**



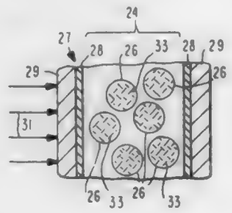
1. A method of making a bonded disk comprising the steps of:
preparing a one-sided disk which has a recess for title display and a stamper clamp groove which merges with the recess, as one disk of paired one-sided disks to be bonded together;
applying a thermoplastic bonding agent to a bonding surface of at least one disk of the paired one-sided disks to be bonded together after displaying a title having desired characters and pattern a in the recess of the one-sided disk;
applying a liquid type reaction setting bonding agent to the stamper clamp groove and the recess of the one-sided disk;
stacking the paired one-sided disks so that their bonding surfaces, which are applied with the thermoplastic bonding agent and the reaction setting bonding agent, are in contact with each other; and
pressing the paired one-sided disks together to form a bonded disk.

5,728,251

LIGHT MODULATING FILM OF IMPROVED UV STABILITY FOR A LIGHT VALVE

Joseph A. Check, III, 46 Bardolier La., West Bayshore, N.Y. 11706

Filed Sep. 27, 1995, Ser. No. 534,516
Int. Cl.[6] C09J *5/02*
U.S. Cl. 156—307.5 **20 Claims**



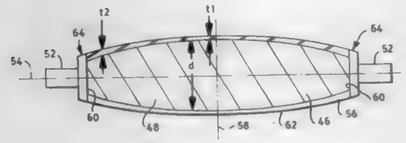
1. A method of preparing an SPD light valve having opposed cell walls and an SPD light film between said cell walls, the SPD light valve film comprising a cross-linked polymer matrix having droplets of a liquid light valve suspension distributed in the cross-linked polymer matrix, the method comprising:
(a) casting on a first substrate a layer of a film-forming liquid or semi-solid emulsion comprising a cross-linkable polymer, a cross-linking agent, a catalyst and a liquid light valve suspension, said liquid light valve suspension comprising particles suspended in a liquid suspending medium, said layer having a first surface in contact with said first substrate and an uncovered, opposed second surface;
(b) cross-linking and curing said cross-linkable polymer in said layer by reaction with said cross-linking agent in the presence of said catalyst while said second surface of said layer remains uncovered to form a cured SPD light valve film comprising a cross-linked polymer matrix having droplets of the liquid light valve suspension distributed therethrough, said cured SPD film having one surface in contact with said first substrate, and an uncovered, opposed second surface, said cured SPD film being unswollen by any swelling liquid;
(c) covering said uncovered surface of said cured and unswollen SPD light valve film with a second substrate;
(d) laminating said substrates to said SPD light valve film; and
(e) providing each of said substrates with an electrode before or after said lamination step.

5,728,252

METHOD AND APPARATUS FOR LAMINATING IMAGE-BEARING MEDIA

Alfredo G. Kniazzeh, West Newton, Mass., assignor to Polaroid Corporation, Cambridge, Mass.

Filed Sep. 19, 1995, Ser. No. 531,232
Int. Cl.[6] B32B *31/04*
U.S. Cl. 156—324 **26 Claims**



1. A method for use in a machine for laminating a layer to an image-bearing layer, the machine having a pair of laminating rolls for receiving the layers in a nip therebetween, and wherein one of the rolls has a core and an incompressible or nearly-incompressible compliant and resilient outer covering; the method of obtaining substantially uniform normal traction on the layers across the length of the rolls comprising the step of; using as said one roll a roll whose core and covering each have a positive crown in the central portions thereof and with the crown of the core being greater than the combination of the crown of the covering the core.

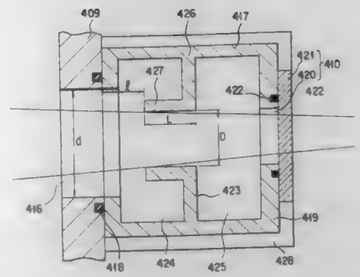
5,728,253

METHOD AND DEVICES FOR DETECTING THE END POINT OF PLASMA PROCESS

Susumu Saito, and Kazuo Eguchi, both of Yamanashi-ken, Japan, assignors to Tokyo Electron Limited, Tokyo, and Tokyo Electron Yamanashi Limited, Nirasaki, both of Japan

Continuation-in-part of Ser. No. 294,396, Aug. 23, 1994, Pat. No. 5,565,114, which is a continuation-in-part of Ser. No. 205,806, Mar. 4, 1994, abandoned. This application Sep. 30, 1994, Ser. No. 315,837
Claims priority, application Japan, Mar. 4, 1993, 5-69204; Mar. 4, 1993, 5-69205; Aug. 23, 1993, 5-229459; Aug. 31, 1993, 5-240663; Sep. 28, 1993, 5-265866; Sep. 28, 1993, 5-265867; Sep. 30, 1993, 5-268201; Dec. 4, 1993, 5-339479; Feb. 10, 1994, 6-037811; Feb. 25, 1994, 6-052991
Int. Cl.[6] H05H *1/00;* **G01N** *21/00*
U.S. Cl. 156—345 **10 Claims**

1. A plasma process apparatus comprising:
a process chamber having a monitor window;
a pair of electrodes located in said process chamber, one of which is provided for supporting an object and between which a high-frequency power is supplied to change a process gas into plasma;
light-collecting means for collecting light emanating from the plasma through said monitor window;
first optical detecting means for detecting an emission spectrum from the light collected by said light-collecting means; and
means for determining the end point of the plasma process from the emission intensity of the emission spectrum detected by said first optical detecting means;



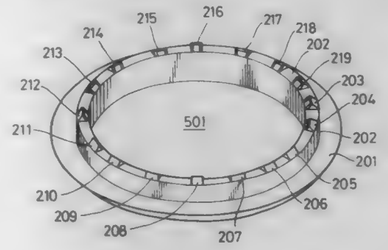
wherein said monitor window is secured to a distal end of a cylindrical member protruding from said process chamber, and said cylindrical member has an annular portion provided on an inner surface of said cylindrical member and a cylindrical portion provided on an end portion of said annular portion, said annular portion and said cylindrical portion constituting a narrow gas passage and defining a region for trapping a gas generated in the plasma process.

5,728,254

CERAMIC RING FOR GUIDING A WAFER DOWN TO THE LOWER ELECTRODE OF A DRY ETCHER

Andy Jeng, Tainan Hsien, Taiwan, assignor to United Microelectronics Corporation, Taiwan

Filed Jul. 26, 1996, Ser. No. 686,546
Claims priority, application Taiwan, Jun. 26, 1996, 85209634
Int. Cl.[6] H01L *21/00*
U.S. Cl. 156—345 **8 Claims**



1. A ceramic ring for guiding a semiconductor wafer down to a lower electrode of a dry etcher, comprising:
a base ring having a surface;
a wall ring rising from and substantially perpendicular to the surface of said base ring, and having a top edge surface; and
a plurality of projections located on the top edge surface of said wall ring, each one of said plurality of projections comprising:
a first end and a second end;
a first triangular surface at the first end of said one projection rising from said top edge surface of said wall ring;
a second triangular surface generally parallel to said first triangular surface at the second end of said one projection rising from said top edge surface of said wall ring;
an inner sloped surface rising from said top edge surface of said wall ring;
an outer sloped surface rising from said top edge surface of said wall ring and joined to said first triangular surface at the first end of the projection and to said second triangular surface at the second end of the projection;
a first oblique sloped surface rising from said top edge surface of said wall ring and connecting said first triangular surface to said inner sloped surface;

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a second oblique sloped surface rising from said top edge surface of said wall ring and connecting said second triangular surface to said inner sloped surface; and

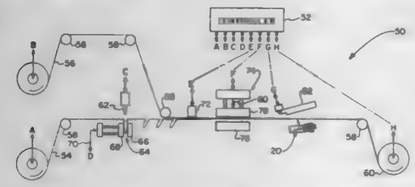
an apex surface having a first side joined to said inner sloped surface, a second side joined to said outer sloped surface, a third side joined to said first oblique sloped surface, and a fourth side joined to said second oblique sloped surface.

5,728,255

APPARATUS FOR MANUFACTURING A FULL-FASHIONED GLOVE

Eran J. P. Jurrius; Robert L. Karam, Jr., and James E. Jurrius, all of Akron, Ohio, assignors to Enclosure Technologies, Inc., Akron, Ohio

Filed Jun. 10, 1996, Ser. No. 659,703
Int. Cl.[6] B32B *31/18*
U.S. Cl. 156—367 **8 Claims**



1. An apparatus for manufacturing a full-fashioned glove, comprising:

a thumb mold having a pair of platens which are opposed for receiving a first web material folded into two layers, one of said thumb mold platens having a thumb cavity for receiving the first web material and the other of said thumb mold platens having a thumb rib receivable within said thumb cavity, said thumb rib and said thumb cavity forming a thumb and a portion of a cuff;

a hand mold having a pair of platens which are opposed for receiving the first web material, the thumb and the portion of the cuff and a second web material, one of said hand mold platens having a hand cavity for receiving the first and the second web materials, the thumb and the portion of the cuff and the other of said hand mold platens having a hand form receivable within said hand cavity, said hand cavity and said hand form forming a plurality of fingers and a remaining portion of the cuff, wherein said thumb cavity, said thumb rib, said hand cavity and said hand form are shaped to form the thumb, the cuff and the plurality of fingers of the full-fashioned glove to match the contour of a user's hand received therein:

means for removing the full-fashioned glove from remaining portions of the first and second web materials; and

means for controlling the operation of said thumb mold, said hand mold and said removing means.

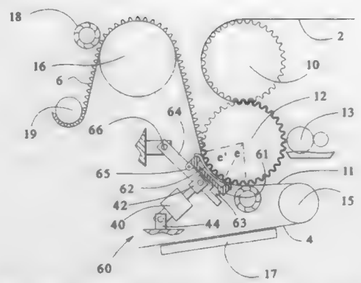
5,728,256

SMOOTH PRESS FOR A MACHINE FOR MANUFACTURING CORRUGATED CARDBOARD

Jens Schulz, Hamburg, and Nicolaus Goerrissen, Elmshorn, both of Germany, assignors to Peters Maschinenfabrik GmbH, Hamburg, Germany, and Bobst SA, Lausanne, Switzerland

Filed Apr. 15, 1996, Ser. No. 632,613
Claims priority, application Switzerland, Apr. 24, 1995, 01158/95
Int. Cl.[6] B31F *1/28*
U.S. Cl. 156—472 **17 Claims**

1. In a smooth press in a single-sided machine for manufacturing corrugated cardboard, said smooth press implementing the application of a cover paper against the corrugated paper passing around



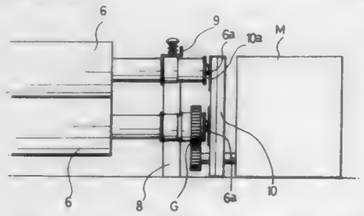
a ribbed cylinder, the improvements comprising the smooth press being formed by a series of identical support arrangements arranged side-by-side along an axis of the ribbed cylinder, each arrangement having a pad with a curved support surface, each pad having a belt and means for holding each end of the belt affixed to form said curved support surface, said support surface having an arc according to a radius approximately equal to that of the ribbed cylinder in order to cover a plurality of ribs of said cylinder, each arrangement having means for mounting the pad for movement between a position engaged with the cylinder and a position disengaged therefrom and each arrangement having means for moving the pad between said positions with a separately controllable active force.

5,728,257

POUCH LAMINATOR

Seung-Hun Lee, #2-303 Samik Villa, 19-3 Pulkwang-Idong, Eunpyoung-ku, Seoul, Rep. of Korea

Filed May 8, 1996, Ser. No. 646,989
Int. Cl.[6] B30B *15/34*
U.S. Cl. 156—555 **2 Claims**



1. A pouch laminator comprising upper and lower heating and molding rollers horizontally extending in a laminator body and connected to a reversible drive motor through a power transmission gear train, further comprising:

folding guide plates hinged to front and rear sides of said laminator body, respectively;

a bearing unit placed in each side of an interior of said laminator body and adapted for elastically bearing associated ends of the heating and molding rollers;

a tension member detachably mounted to a top of each bearing unit for elastically holding the heating and molding rollers; and

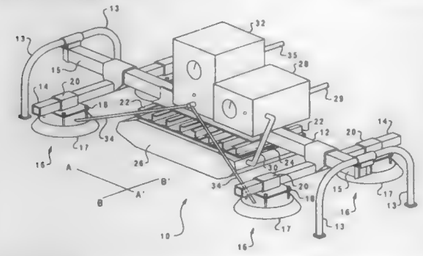
a power supply unit connected to an external power source, said power supply unit having an elastic piece that is placed on each side of the bearing unit, said elastic piece being brought into electrical contact with a terminal (*6a*) provided on an associated end of the heating roller to supply power to the heating roller and maintain electrical contact and an electrical connection between the heating roller and the power supply unit as the heating roller rotates whereby the elasticity of the elastic piece and the elastic holding by the bearing unit maintains an electrical path from the power supply to the heating roller as the heating roller rotates.

5,728,258

PORTABLE NON-GRAVITATIONAL POSITIVE PRESSURE GENERATOR AND METHOD OF USE

Jaycee H. Chung, Rockwall, Tex., assignor to E-Systems, Inc., Dallas, Tex.

Filed Dec. 15, 1995, Ser. No. 573,560
Int. Cl.[6] B29C *73/32;* **B30B** *5/02*
U.S. Cl. 156—580 **18 Claims**



1. An apparatus for applying non-gravitational pressure to a surface comprising:

a central frame structure having a longitudinal axis;

a plurality of connecting members adjustably mounted to the frame structure along the longitudinal axis, each connecting member having a longitudinal axis transverse to the longitudinal axis of the frame structure;

a plurality of vacuum fasteners for coupling the frame structure to a surface, the plurality of vacuum fasteners individually mounted to the connecting members, each of said vacuum fasteners adjustable along the longitudinal axis of the connecting member;

a vacuum pump connected to each of the vacuum fasteners for evacuating the vacuum fasteners;

a collapsible diaphragm for applying pressure to the surface when inflated; and

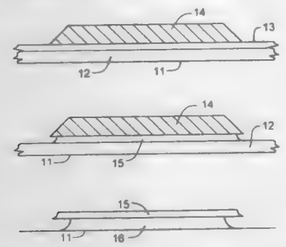
a positive pressure pump connected to said diaphragm for applying pressure thereto to inflate said diaphragm thereby applying a pressure to the surface.

5,728,259

PROCESS FOR FABRICATING THIN-FILM SEMICONDUCTOR DEVICE WITHOUT PLASMA INDUCED DAMAGE

Hideomi Suzawa, Kanagawa; Shunpei Yamazaki, Tokyo; Toshiji Hamatani, and Yasuhiko Takemura, both of Kanagawa, all of Japan, assignors to Semiconductor Energy Laboratory, Ltd., Japan

Filed Oct. 19, 1995, Ser. No. 545,122
Claims priority, application Japan, Oct. 26, 1994, 6-287383
Int. Cl.[6] H01L *21/306*
U.S. Cl. 156—646.1 **27 Claims**



1. A process for fabricating a thin-film semiconductor device comprising the steps of:

selectively forming a mask on a silicon film formed on an insulating surface, said silicon film having a thickness of approximately 100–1000 Å; and

etching the silicon film using the mask by the aid of a liquid or unionized gas capable of etching silicon to form an island-like thin-film silicon semiconductor region that has no plasma induced damage,

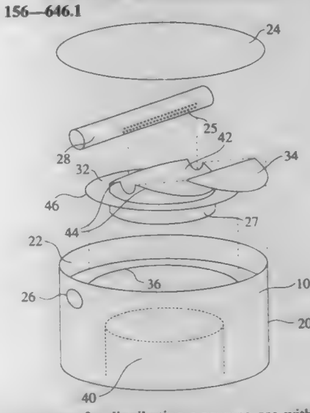
wherein said thin-film silicon semiconductor region includes at least source, drain and channel regions of said semiconductor device.

5,728,260

LOW VOLUME GAS DISTRIBUTION ASSEMBLY AND METHOD FOR A CHEMICAL DOWNSTREAM ETCH TOOL

William Brown, San Jose; Harald Herchen, Fremont; Ihi Nzeadibe, San Jose, and Walter Merry, Cupertino, all of Calif., assignors to Applied Materials, Inc., Santa Clara, Calif.

Filed May 29, 1996, Ser. No. 654,958
Int. Cl.[6] H01L *21/00;* **C23F** *1/00*
U.S. Cl. 156—646.1 **18 Claims**



14. An apparatus for distributing a process gas within a process chamber, comprising:

a delivery conduit having a pattern of apertures formed therethrough for delivering said process gas to said process chamber, wherein said apertures are patterned and dimensioned to provide substantially uniform distribution of said process gas over an upper of a workpiece within said process chamber;

a focusing collar having a central tube formed therethrough, said focusing collar adapted to engage with said delivery conduit, said focusing collar including a shroud adapted to confine said process gas to within a close proximity of said workpiece, said central tube further comprising slanted sides to minimize a volume through which said process gas is delivered, said slanted sides having formed therethrough a channel to receive and support said delivery conduit; and

at least one cover for sealing said central tube of said focusing collar wherein said process gas is directed from said delivery conduit to said workpiece.

5,728,261

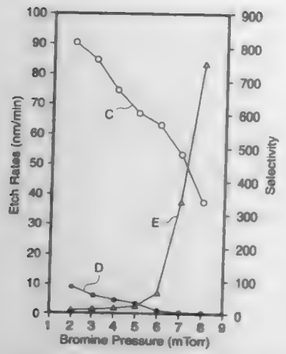
MAGNETICALLY ENHANCED RADIO FREQUENCY REACTIVE ION ETCHING METHOD AND APPARATUS

John C. Wolfe, Houston, Tex., and Sandeep V. Pendharkar, Tempe, Ariz., assignors to University of Houston, Houston, Tex.

Filed May 26, 1995, Ser. No. 451,320
Int. Cl.[6] H01L *21/302;21/30*
U.S. Cl. 156—662.1 **1 Claim**

1. A method for etching a pattern in a silicon layer, said silicon layer being coated on a selective surface thereof with a silicon dioxide mask, said mask having a plurality of apertures extending

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therethrough, the apertures corresponding to the pattern to be etched, the method comprising the steps of:

(a) providing an anode electrode and a cathode electrode, said electrodes facing each other, spaced apart and defining a gap therebetween;

(b) locating the mask-coated silicon layer to be etched in said gap, in thermal contact with said cathode electrode, and with the mask-coated surface of the silicon layer facing said anode electrode;

(c) providing a magnetic field in said gap, said magnetic field characterized by magnetic lines-of-force extending continuously through said gap from said anode electrode to the selected surface of layer of material at all points on said selected surface, and said magnetic lines of force incident on said selected surface at an angle of less than forty degrees, said incident angle measured in any orientation from a direction perpendicular to said selected surface;

(d) admitting bromine-gas into said gap at a pressure between about 2.0 and 15.0 milliTorr;

(e) applying RF electrical power to said anode and cathode electrodes, thereby generating a bromine-plasma in said gap;

(f) cooling said cathode electrode; and

(g) etching the silicon layer by means of bromine ions attracted from said bromine-plasma toward said cathode electrode.

5,728,262

METHOD AND APPARATUS FOR REMOVING NEUTRAL BUOYANCY CONTAMINANTS FROM ACELLULOSIC PULP

Charles S. Moss, Snellville, and Randolph S. Butler, Lawrenceville, both of Ga., assignors to Tetra Laval Holdings & Finance, S.A., Pully, Switzerland

Filed Jun. 21, 1996, Ser. No. 668,290
Int. Cl.[6] D21D *5/24;* **B04C** *3/04;5/28;5/04*
U.S. Cl. 162—4 **8 Claims**

1. A method for processing a paper cellulosic pulp to remove contaminants of substantially neutral buoyancy, said method comprises utilizing a hydrocyclone, wherein the hydrocyclone includes a substantially frusto-conically-shaped, separation chamber, an inlet through which a contaminated cellulosic pulp composition is introduced to the separation chamber, a reject tap disposed near the bottom of the separation chamber through which separated contaminants are expelled, an outlet through which the processed cellulosic pulp composition is expelled, and valves disposed in connection with the outlet and the reject tap, said method further comprises removing contaminant particles of substantially neutral buoyancy from the cellulosic pulp composition, wherein the removing of neutral buoyancy contaminants further comprises the steps of:

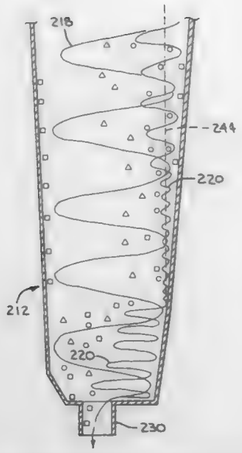
predisposing the separation chamber at an oblique angle to a vertical axis, wherein an air core that is vertically formed as a result of helical circulation of the pulp composition and is coincident with the geometric centerline at the top of the separation chamber, impinges a sidewall of the separation chamber at a point above and spaced apart from the reject tap;

constricting the inlet to decrease the internal flow rate;

increasing the pressure to the inlet to a value of over 35 pounds per square inch (PSI);

controlling the valves to increase back pressure to an amount of at least 15 PSI so as to constrict the diameter of the air core, increase its stability, and move particles of substantially neutral buoyancy toward the reject tap; and

maintaining a controlled relationship between the inlet and back pressures to redistribute a portion of heavy contaminants in the separation chamber to allow for rejection of neutral buoyancy particles through the reject tap.

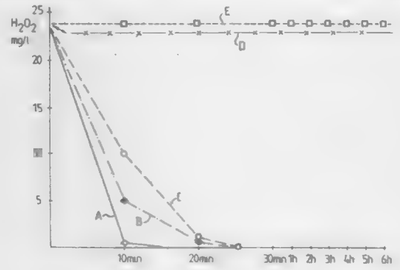


5,728,263

METHOD FOR INHIBITING ENZYMATIC DECOMPOSITION OF PEROXIDE IN THE TREATING OF FIBER PULP USING DIALDEHYDES AND ACETALS

Pertti Mattila, Kouvola, Finland, and Dieter Zeller, Wiesloch, Germany, assignors to Cellkem OY, Kouvola, Finland

PCT No. PCT/FI94/00256, § 371 Date Apr. 9, 1996, § 102(e) Date Apr. 9, 1996, PCT Pub. No. WO95/00439, PCT Pub. Date Jan. 5, 1995
PCT Filed Jun. 15, 1994, Ser. No. 564,176
Claims priority, application Finland, Jun. 17, 1919, 932814
Int. Cl.[6] D21C *5/02*
U.S. Cl. 162—5 **12 Claims**



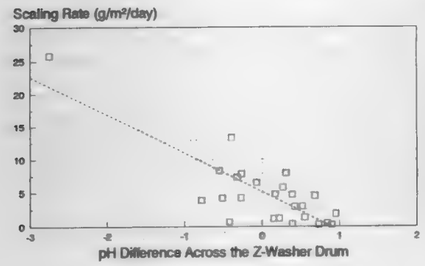
1. A method of inhibiting enzymatic decomposition of peroxide, comprising producing and treating recycled fiber pulp and other fiber pulp with peroxide, wherein dialdehydes and acetals thereof are included to inhibit enzymatic decomposition of the peroxide and the amount of the dialdehyde or acetal used for the production of recycled fiber pulp or other fiber pulp is 0.05 to 2 kg. per ton of produced fiber pulp, based on dry weight.

5,728,264

AVOIDANCE OF SALT SCALING BY ACIDIC PULP WASHING PROCESS

George Pangalos, Plainsboro, N.J., assignor to Union Camp Patent Holding, Inc., Wilmington, Del.

Filed Oct. 25, 1995, Ser. No. 547,820
Int. Cl.[6] D21C *9/02*
U.S. Cl. 162—48 **21 Claims**



1. A method for reducing or eliminating the formation of salt scale upon process equipment in a pulp bleaching process due to pH shock caused by the presence of sparingly soluble salts, which comprises:

subjecting the pulp to a bleaching sequence which includes a plurality of pulp treatment steps, wherein at least one pulp treatment step is conducted under acidic conditions to generate an acidic pulp stream;

adding caustic material to the acidic pulp stream prior to the washing step to generate an increased pH pulp stream having a pH of up to 11.5;

optionally adjusting the consistency of the increased pH pulp stream to facilitate transport to subsequent pulp treatment steps; and

washing the increased pH pulp stream in a washing stage with an aqueous wash solution having a pH which is lower than that of the increased pH pulp stream to avoid pH shock and to remove at least some of said salts therefrom to thereby reduce or eliminate the formation of salt scale upon process equipment used for conducting one or more subsequent pulp treatment steps.

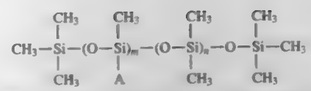
5,728,265

PROCESS FOR ENHANCING WHITE LIQUOR PENETRATION INTO WOOD CHIPS BY CONTACTING THE CHIPS WITH A MIXTURE OF THE WHITE LIQUOR AND A POLYMETHYLALKYL SILOXANE

Marie-Esther Saint Victor, Blue Bell; David I. Devore, Langhorne, both of Pa.; Barbara Balos Bowker, Jacksonville, Fla.; John J. Palmer, Stanfield, and Vincent T. Stine, Charlotte, both of N.C., assignors to Henkel Corporation, Plymouth Meeting, Pa.

Continuation-in-part of Ser. No. 574,053, Dec. 18, 1995, abandoned. This application Apr. 15, 1996, Ser. No. 632,191
Int. Cl.[6] D21C *3/02;3/20*
U.S. Cl. 162—72 **15 Claims**

1. A pulping process which comprises contacting wood chips and the like with a liquid mixture comprised of white liquor and a polymethylalkylsiloxane of the formula II



(II)

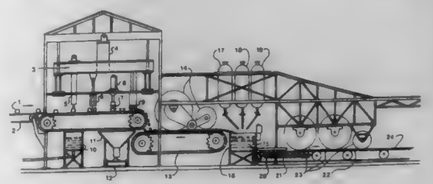
wherein $A=(CH_2)_x—O—(C_2H_4O)_y—(C_3H_6O)_z—R$; R is an organic moiety having from 1 to 8 carbon atoms, m is a number from 1 to 100, n is a number from 0 to 100, x is an integer from 1 to 3, y is a number from 1 to 100 and, z is a number from 0 to 100.

5,728,266

MACHINE AND PROCESS FOR THE MAKING OF PAPER AND CARDBOARD FROM COCONUT HUSKS

John M. Deslierres, and Maria Do Rosario Cabedo, both of 2337 E. Brookdale Pl., Fullerton, Calif. 92631

Filed Dec. 11, 1992, Ser. No. 989,527
Int. Cl.[6] D01C *5/00*
U.S. Cl. 162—99 **9 Claims**



1. A machine for processing coconuts into paper products, including:

cutter means which has ascendant and descendant movements to granulate husks of the coconuts;

crusher roller means to reduce the granulated husks to smaller particles;

a tank means to form a mixture of the smaller particles and water and removing impurities and undesirable constituents from the mixture, said tank means further comprises a metal base plate having fixed blades arranged thereon and a roller means having projecting blades, wherein the projecting blades pass among the fixed blades so as to reduce the smaller particles to a pulp;

a plurality of reservoirs suspended above said tank means, wherein said plurality of reservoirs includes first reservoir containing a binding agent, a second reservoir containing bleach and a third reservoir containing a coloring substance; and

sensor control means for detecting the consistency of the pulp and operative to produce a signal, means responsive to said signal for spreading the binding agent over the pulp in order to maintain its consistency within pre-established limits whereby the pulp is used in manufacturing the paper products.

5,728,267

CONCENTRATOR FOR SEPARATING SMALL SAMPLES IN A CENTRIFUGE

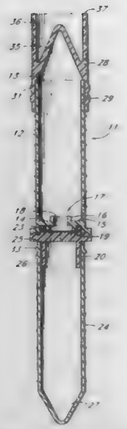
James E. Flaherty, 23152 Verdugo Dr., Laguna Hills, Calif. 92653

Filed Nov. 15, 1994, Ser. No. 340,059
Int. Cl.[6] B01D *63/00*
U.S. Cl. 210—321.67 **7 Claims**

1. A concentrator for concentrating a sample solution including molecules in solution which are larger than the molecular weight cutoff of a membrane in the concentrator, said concentrator comprising:

a sample reservoir having a cylindrical side wall, an open top and a bottom including a bottom floor having a lower surface and an upper surface terminating in a central wall surrounding a central opening, said central wall having an annular crest

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parallel to said bottom floor and the volume below said annular crest and above said bottom floor being a concentrated sample well;

a membrane support member held below said bottom of said sample reservoir, said membrane support including a membrane support web positioned below said central opening in the bottom of said sample reservoir;

a membrane held on said membrane support web, said membrane held in a leak proof manner by membrane scaling means so that any liquid on the top of said membrane cannot pass around said membrane;

a generally cylindrical filtrate vial having an open top, a closed bottom, said filtrate vial being held by said membrane support member and positioned below said membrane so that filtrate passing through said membrane will be collected in said filtrate vial; and

a retentate vial held over the open top of said sample reservoir whereby a sample to be connected may be placed in said sample reservoir and the filtrate vial may be removed and the rest of the assembly may be placed in a centrifuge and spun so that the molecules in the sample which are smaller than the cutoff of the membrane will pass through the membrane but a small volume of concentrated sample will be held in the concentrated sample well after which the assembly may be inverted and spun again forcing the concentrated sample into the retentate vial.

5,728,268

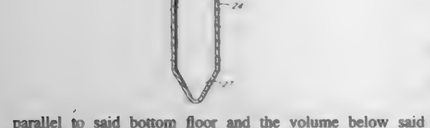
HIGH DENSITY TISSUE AND PROCESS OF MAKING

Paul Thomas Weisman, Cincinnati, and Scott Thomas Loughran, West Chester, both of Ohio, assignors to The Procter & Gamble Company, Cincinnati, Ohio

Continuation of Ser. No. 370,716, Jan. 10, 1995, abandoned. This application Jul. 15, 1996, Ser. No. 679,994

Int. Cl.[6] D21H *11/00*

U.S. Cl. 162—109 **13 Claims**



MACHINE DIRECTION

1. A sheet of tissue, wherein said tissue is a macroscopically monoplanar through air dried multidensity cellulosic fibrous structure having low density regions extending outwardly from the plane of said tissue, said tissue having two opposed faces, at least one of said faces having a smoothness less than or equal to about 600 microns and a micropeak frequency of at least about 30 micropeaks per inch.

5,728,269

BOARD PRODUCED FROM MALVACEOUS BAST PLANT AND PROCESS FOR PRODUCING THE SAME

Tsuyoshi Kohno, c/o Kohno Shinsozai Kaimatsus Co., Ltd., 333-189, Midoro-cho, Matsuyama Ehime, Japan, 791-02, and Hiroharu Yamaguchi, Fuwa-gun, Japan, assignors to Atsushi Onishi, Tokyo, and Tsuyoshi Kohno, Ehime, both of Japan

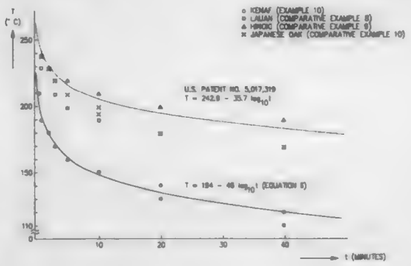
PCT No. PCT/JP95/02635, § 371 Date Oct. 18, 1996, § 102(e) Date Oct. 18, 1996, PCT Pub. No. WO96/19328, PCT Pub. Date Jun. 27, 1996

PCT Filed Dec. 22, 1995, Ser. No. 696,892

Claims priority, application Japan, Dec. 22, 1994, 6-336092; Mar. 22, 1995, 7-090332

Int. Cl.[6] D01C *1/02*; **D21H** *11/12*

U.S. Cl. 162—148 **16 Claims**



1. A board prepared by compressing a lignocellulosic substance under heat and pressure, wherein at least 30 weight % of said lignocellulosic substance is a *Malvaceous bast* plant material, said board being free of an adhesive component, and said board exhibiting a value derived from the following Equation I of at least 100,

$$\text{value}=0.48\times Y/X^2 \qquad \text{(Equation I)}$$

wherein, Y is bending strength (kgf/cm^2), and X is density (g/cm^3).

5,728,270

PROCESS FOR MAKING THE ABSORBENT GRANULAR MATERIAL

Edward G. Knapick, Ogdensburg; Brent Willemsen, Westfield, and Ernest P. Wolfer, Allendale, all of N.J., assignors to Marcal Paper Mills, Inc., Elmwood Park, N.J.

Continuation of Ser. No. 576,850, Dec. 22, 1995, abandoned, which is a continuation of Ser. No. 118,186, Sep. 9, 1993, abandoned. This application Nov. 18, 1996, Ser. No. 751,435

Int. Cl.[6] D21F *1/66*

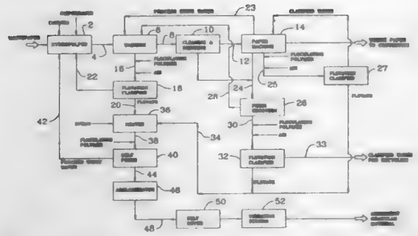
U.S. Cl. 162—189 **26 Claims**

1. A process for making a granular absorbent material from waste paper containing at least kaolin clay and papermaking fibers, comprising the steps of:

(a) forming pulp slurry from waste paper containing at least water, kaolin clay and papermaking fibers,

(b) screening the pulp slurry so as to produce a main stream containing papermaking fibers and to produce a main reject stream containing at least water and kaolin clay and containing less than ten percent (10%) papermaking fibers;

(c) clarifying the main reject stream by flotation to produce a main concentrated stream of solid components including kaolin clay;



(d) de-watering the concentrated stream to form a filter cake having a consistency of about 35 to about 40 percent;

(e) forming granules having a consistency of 35 to 45 percent and having less than ten percent (10%) papermaking fibers from the filter cake; and

(f) drying the granules until the granules have a solids content greater than 90%.

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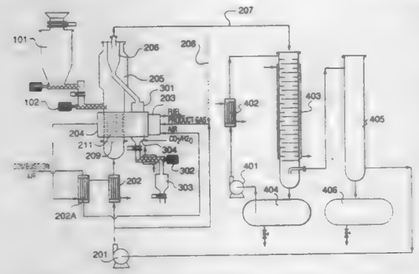
ENERGY EFFICIENT LIQUEFACTION OF BIOMATERIALS BY THERMOLYSIS

Jan Piskorz; Piotr Majerski, and Desmond Radlein, all of Waterloo, Canada, assignors to RTI Resource Transforms International Ltd., Waterloo, Canada

Filed May 20, 1996, Ser. No. 650,947

Int. Cl.[6] C10B *49/10*

U.S. Cl. 201—8 **24 Claims**



1. A process for the thermolysis of shredded biomass to produce liquid similar in composition to liquid produced from fast pyrolysis, comprising:

(a) introducing the biomass, shredded to a sufficiently small size so that its size does not limit significantly the production of liquid, into a thermolysis reactor having a bed of inert material with a height to width ratio greater than one;

(b) introducing substantially non-oxidizing gas upwardly through the bed at a linear velocity so as to cause automatic elutriation of product char and fluidizing of the bed of inert material to form a fluidized bed;

(c) heating indirectly the fluidized bed so that the substantially non-oxidizing gas and fluidized bed have a temperature in the range of 360° to 490° C. and the substantially non-oxidizing gas and fluidized bed cause the thermolysis of the biomass producing an effluent reactor stream comprising hot char particles and volatiles, namely, gas, aerosols, and vapours;

(d) removing the elutriated char particles from the effluent reactor stream; and

(e) quenching the gas, aerosols and vapours to partly liquify the vapours and aerosols so that the vapours and aerosols do not contact dry surfaces of the quencher whose temperatures are in the range of 100° C. to 360° C.

wherein the fluidized bed is sufficiently deep so that the residence time of the substantially non-oxidizing gas in the reactor is greater than 2 seconds.

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SEPARATION BY RECTIFICATION OF UNSATURATED CARBOXYLIC ACIDS FROM SOLVENTS

Ulrich Hammon, Mannheim; Volker Schliephake, Schifferstadt; Wolfgang Pies, Frankenthal, and Ulrich Rauh, Limburgerhof, all of Germany, assignors to BASF Aktiengesellschaft, Ludwigshafen, Germany

Filed Aug. 13, 1996, Ser. No. 696,193

Claims priority, application Germany, Sep. 28, 1995, 195 36 179.2

Int. Cl.[6] B01D *3/00*; *59/00*

U.S. Cl. 203—8 **17 Claims**

1. A process for the separation of an unsaturated carboxylic acid from a composition comprising said unsaturated carboxylic acid and a solvent, which comprises separating said unsaturated carboxylic acid from said composition by rectification in a column with intermittent interruption of the rectification and flushing of the rectification column with a basic solution to clean the column.

5,728,273

METHOD AND INSTALLATION FOR BRINGING A GAS AND A LIQUID INTO CONTACT WITH ONE ANOTHER

Leendert Aandewiel, Ebstroom 10, NL-2221 WC Katwijk, Netherlands

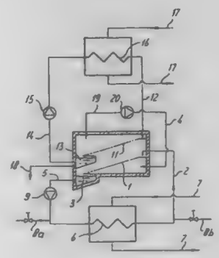
PCT No. PCT/NL94/00187, § 371 Date Jan. 19, 1996, § 102(e) Date Jan. 19, 1996, PCT Pub. No. WO95/04581, PCT Pub. Date Feb. 16, 1995

PCT Filed Aug. 9, 1994, Ser. No. 583,056

Claims priority, application Netherlands, Aug. 9, 1993, 9301382

Int. Cl.[6] B01D *3/34*

U.S. Cl. 203—49 **9 Claims**



1. Method for contacting a gas with a liquid, comprising:

heating a first liquid so as to obtain a heated liquid;

passing said heated liquid in the form of a film on a number of evaporator surfaces provided with small openings;

feeding a gas through the openings of said evaporator surfaces, said gas mixing with said heated liquid on said evaporator surfaces to absorb vapour from said heated liquid;

cooling a second liquid so as to obtain a cooled liquid;

passing said cooled second liquid in the form of a film over a number of condenser surfaces provided with small openings;

feeding the gas, which has absorbed vapour from the film of said heated liquid on the evaporator surfaces, through the openings in the condenser surfaces, whereby at least some of the absorbed vapour condenses and is carried along with the film of said second liquid on the condenser surfaces.

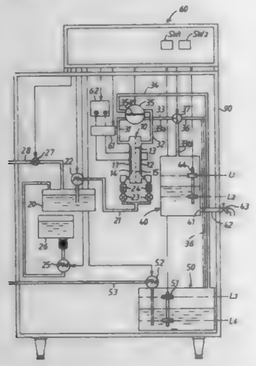
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5,728,274

PRODUCTION SYSTEM OF ELECTROLYZED WATER

Yoshinori Kamitani, Nagoyoa; Masahiro Fujita, and Takeaki Funabashi, both of Toyoake, all of Japan, assignors to Hoshizaki Denki Kabushiki Kaisha, Toyoake, Japan

Filed Aug. 13, 1996, Ser. No. 689,790
Int. Cl.[6] C25C 7/00
U.S. Cl. 204—228 3 Claims



1. A production system of electrolyzed ion water, comprising an electrolyzer the interior of which is subdivided into first and second electrode chambers by means of a cation permeable diaphragm, wherein said electrolyzer is provided with first and second electrodes respectively disposed in the first and second electrode chambers, a first discharge conduit connected to the first electrode chamber to discharge ion water produced by electrolysis of water in the first electrode chamber, a second discharge conduit connected to the second electrode chamber to discharge ion water produced by electrolysis of water in the second electrode chamber, and wherein the production system comprises:

first and second introduction conduits arranged to be selectively connected to the first and second discharge conduits;

an electrically operated first changeover valve disposed within a connection portion of the first and second discharge conduits, such that the first and second introduction conduits can be switched over between a first position in which the first and second discharge conduits are respectively connected to the first and second introduction conduits and a second position in which the first discharge conduit is connected to the second introduction conduit while the second discharge conduit is connected to the first introduction conduit;

polarity changeover means for switching over polarity of DC voltage applied to the electrodes of said electrolyzer; and

control means for maintaining said first changeover valve in the first position and said polarity changeover means in a deactivated condition at a production mode of ion water so that acid ion water is produced in the first electrode chamber and discharged into the first introduction conduit from the first discharge conduit while alkaline ion water is produced in the second electrode chamber and discharged into the second introduction conduit from the second discharge conduit, means for switching over said first changeover valve from the first position to the second position and activating said polarity changeover means upon each lapse of a time period during operation at the production mode of ion water so that alkaline ion water is produced in the first electrode chamber and discharged into the second introduction conduit from the first discharge conduit while acid ion water is produced in the second electrode chamber and discharged into the first introduction conduit from the second discharge conduit, and means for switching over said changeover valve from the first position to the second position or activating said polarity changeover means at a cleaning mode of the conduits so that acid ion water is discharged into the second introduction conduit while alkaline ion water is discharged into the first introduction conduit.

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SACRIFICIAL ANODE AND METHOD OF MAKING SAME

Richard Twigg, Muskogee, Okla., assignor to Alumax Extrusions, Inc., Cressona, Pa.

Filed Sep. 13, 1996, Ser. No. 713,564
Int. Cl.[6] C25B 11/00
U.S. Cl. 204—286 11 Claims



1. A sacrificial anode for preventing corrosion to a metal surface, comprising:

(a) an extruded rod having an anchoring end portion terminating in an end surface and comprising a galvanically active metal; and

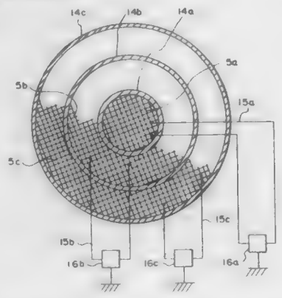
(b) an end cap integrally formed from the galvanically active metal of the anchoring end portion of the rod, the end cap comprising a generally cylindrical portion having a threaded exterior surface.

5,728,276

TREATMENT APPARATUS

Jiro Katsuki; Yuichi Wada, and Hiroshi Kobayashi, all of Yamanashi-Ken, Japan, assignors to Tel Varian Limited, Yamanashi-ken, Japan

Filed Aug. 21, 1995, Ser. No. 517,566
Claims priority, application Japan, Aug. 23, 1994, 6-222451
Int. Cl.[6] C23C 14/34
U.S. Cl. 204—298.11 18 Claims



1. A treatment apparatus for depositing sputtering particles on an object to be treated which is arranged in a treatment chamber, comprising:

a target support for supporting a target to be sputtered;

an object support for supporting an object to be treated by sputtering;

an anode and a cathode for together producing sputtering of particles from a target supported by the target support to an object supported by the object support;

a collimator interposed between the target support and the object support, for regulating the flying direction of sputtering particles from a target supported by the target support, the collimator including a plurality of blocks electrically insulated from each other;

insulating means for insulating the collimator from the anode and the cathode, such that the collimator is in an electrically floating state relative to the anode and the cathode; and

controlling means for applying a variable potential to the collimator.

5,728,277

HYDROGEN OCCLUSION ELECTRODE

Tetsuo Sakai; Hiroyuki Takeshita; Hideaki Tanaka; Nobuhiro Kuriyama, and Itsuki Uehara, all of Ikeda, Japan, assignors to Agency of Industrial Science & Technology, Tokyo, Japan

Filed Apr. 1, 1997, Ser. No. 831,747
Claims priority, application Japan, Apr. 5, 1996, 8-110453
Int. Cl.[6] C25B 11/04
U.S. Cl. 204—293 7 Claims

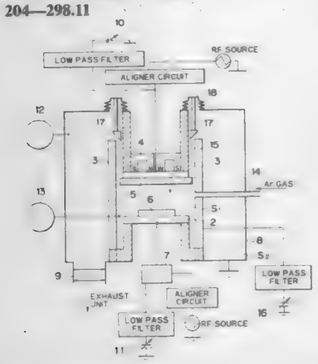
1. A hydrogen occlusion electrode comprising a compact of a mixture powder including a titanium-nickel alloy which contains oxygen.

5,728,278

PLASMA PROCESSING APPARATUS

Nobuyuki Okamura; Atsushi Yamagami, both of Kawasaki; Tadahiro Ohmi, Sendai; Haruhiro Harry Goto, Sendai, and Tadashi Shibata, Sendai, all of Japan, assignors to Canon Kabushiki Kaisha/Applied Materials Japan Inc., Tokyo, Japan

Continuation of Ser. No. 200,316, Feb. 23, 1994, abandoned, which is a continuation of Ser. No. 797,925, Nov. 26, 1991, abandoned. This application Nov. 14, 1994, Ser. No. 340,472
Claims priority, application Japan, Nov. 29, 1990, 2-326075
Int. Cl.[6] C23C 14/34
U.S. Cl. 204—298.11 29 Claims



1. A plasma processing apparatus having a vacuum container which comprises a cathode electrode and an anode electrode arranged in opposition to each other for causing a discharge for generating a plasma, and a shielding plate provided at outside of said electrodes for separating a plasma processing region including a space between said electrodes wherein said vacuum container has a first space defined by said shielding plate and said electrodes for forming said plasma processing region, and a second space defined by said shielding plate outside of the first space and an inner wall of said vacuum container, and said first and second spaces communicate with each other through a gap formed between said electrode and said shielding plate; and

wherein a pressure regulating mechanism for regulating a continuity of a section connecting said first and second spaces, and an exhaust unit connecting section for exhausting said first and second spaces through said second space are provided, in order to form a pressure difference between said first and second spaces, so that a ratio (P_{s1}/P_{S2}) of a pressure (P_{S1}) in said first space to a pressure (P_{S2}) in said second space falls within a range of 5 to 100.

5,728,279

COBALT BASE ALLOY TARGET FOR A MAGNETRON CATHODE SPUTTERING SYSTEM

Martin Schlott; Martin Weigert, both of Hanau, Germany; Kwei Teng, Saratoga, and Bruce Gehman, Morgan Hill, both of Calif., assignors to Leybold Materials GmbH, Hanau, Germany

Filed Dec. 15, 1994, Ser. No. 356,109
Claims priority, application Germany, Dec. 20, 1993, 43 43 440.1; Mar. 24, 1994, 44 10 114.7
Int. Cl.[6] C23C 14/34; C22C 19/07
U.S. Cl. 204—298.13 6 Claims



1. A cobalt base alloy target $Co_{1-x-y}M_xTa_y$, for magnetron cathode sputtering systems, where M stands for at least one of the elements Cr, Pt, Ni, and Pd, where $0 \leq x \leq 0.45$; where $0.015 \leq y \leq 0.20$; consisting of a structure of primarily hexagonal cobalt mixed crystals and intermetallic phases formed by Co, Ta, and optionally at least one element of M, where the target metal has at least one of the two following characteristics:

(a) the cobalt mixed crystal has at least one of grain boundaries, sub-grain boundaries, twin grain boundaries, and slip bands which are decorated with said intermetallic phases;

(b) x-ray diffraction diagrams produced from the target show reflections of said intermetallic phase which is mainly absent in the cast state of the metal and which does not form until a solid-state reaction occurs as a result of an annealing carried out in the temperature range below the solidus temperature of the alloy.

5,728,280

APPARATUS FOR COATING SUBSTRATES BY CATHODE SPUTTERING WITH A HOLLOW TARGET

Michael Scherer, Rodenbach, Germany, assignor to Balzers Prozess Systeme GmbH, Hanau, Germany

Filed Feb. 19, 1997, Ser. No. 802,226
Claims priority, application Germany, Feb. 23, 1996, 196 06 715.4; Mar. 9, 1996, 196 09 249.3
Int. Cl.[6] C23C 14/34
U.S. Cl. 204—298.18 5 Claims

1. Apparatus for coating substrates by cathode sputtering, said apparatus comprising

a vacuum chamber having a roof and a base,

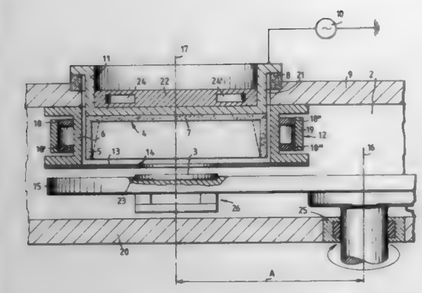
a cathode base body supported on said roof by an insulator,

a hollow target fixed to said cathode base body in said vacuum chamber, said hollow target having a lateral wall with a plane of symmetry and a downward facing opening,

a dark space shield surrounding said lateral wall of said cathode base body,

a plurality of magnets surrounding said dark space shield and arranged to form a magnetic field inside said target,

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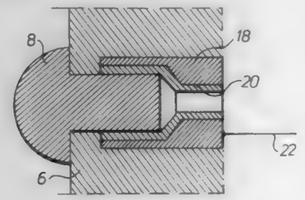
a turntable having an axis of rotation parallel to said plane of symmetry, said turntable carrying said substrates through a position beneath said opening.

5,728,281

IMPLANTABLE MEDICAL DEVICE INCLUDING AN ARRANGEMENT FOR MEASURING A BLOOD PROPERTY HAVING A CARBON REFERENCE ELECTRODE

Nils Holmström, Järfälla; Pia Hagel, Sollentuna, and Kenth Nilsson, Akersberga, all of Sweden, assignors to Pacesetter AB, Solna, Sweden

Filed Nov. 13, 1996, Ser. No. 748,543
Claims priority, application Sweden, Nov. 27, 1995, 9504233
Int. Cl.[6] G01N *27/26*
U.S. Cl. 204—403 **5 Claims**



1. An implantable medical device comprising:

means for making an electrochemical measurement of a blood property including

a reference electrode adapted for in vivo interaction with blood; and

said reference electrode consisting of activated pyrolytic carbon.

5,728,282

DENATURING SEPARATION MATRIX HAVING HYDROXYETHYL CELLULOSE FOR NUCLEIC ACID ELECTROPHORESIS

John S. Bashkin, Mountain View; David L. Barker, Foster City, and Richard F. Johnston, Murphys, all of Calif., assignors to Molecular Dynamics, Sunnyvale, Calif.

Division of Ser. No. 500,097, Jul. 10, 1995, Pat. No. 5,534,123. This application Apr. 12, 1996, Ser. No. 631,353
Int. Cl.[6] G01N *27/26;27/447*
U.S. Cl. 204—455 **9 Claims**

1. A method for rapid separation of a plurality of nucleic acid samples, comprising:

(a) providing a denaturing separation matrix having at least 1% w/v hydroxyethyl cellulose and at least 5M urea in an aqueous solution,

(b) providing an array of capillary tubes including covalently modifying the inside wall of each of the capillary tubes with polyacrylamide prior to filling the capillary tubes with the separation matrix,

(c) filling each capillary tube of the array with a portion of the separation matrix,

(d) introducing one of the nucleic acid samples to an entrance end of each of the capillary tubes of the array, and

(e) separating the samples which are at the entrance ends of the capillary tubes by electrophoresis.

5,728,283

ELECTROCOATING COMPOSITIONS AND A PROCESS FOR COATING ELECTRICALLY CONDUCTIVE SUBSTRATES

Hardy Reuter; Günther Ott, and Walter Jouck, all of Münster, Germany, assignors to BASF Lacke + Farben, AG, Muenster-Hiltrup, Germany

PCT No. PCT/EP94/03088, § 371 Date Aug. 26, 1996, § 102(e) Date Aug. 26, 1996, PCT Pub. No. WO95/08597, PCT Pub. Date Mar. 30, 1995
PCT Filed Sep. 15, 1994, Ser. No. 648,119
Claims priority, application Germany, Sep. 21, 1993, 43 32 014.7
Int. Cl.[6] C08F *2/58;* **C25D** *13/00;11/00;* **C08L** *63/00*
U.S. Cl. 204—499 **8 Claims**

1. An aqueous electrocoating composition comprising cathodically depositable synthetic resins and an additive comprising crosslinked polymer microparticles which have a particle size of 0.01 to 10 μm wherein the crosslinked polymer microparticles are prepared by reacting

(a) a polyisocyanate or a mixture of polyisocyanates with,

(b) an organic compound containing at least one ethylenically unsaturated double bond and at least one active hydrogen atom per molecule of the organic compound or a mixture thereof,

(c) an organic compound containing at least one active hydrogen atom and at least one group per molecule of organic compound selected from the group consisting of a tertiary amino group, a ketimine group, an aldimine group and mixtures thereof and, optionally,

(d) an organic compound other than (b) and (c) containing at least one active hydrogen atom per molecule of the organic compound or a mixture thereof; in a mass ratio so that 3 to 80 percent of the isocyanate (NCO) groups of component (a) are reacted with component (b), 3 to 80 percent of the NCO groups of component (a) are reacted with component (c) and 0 to 94 percent of the NCO groups of component (a) are reacted with component (d) and a reaction product thus obtained comprising primary amino groups, tertiary amino groups or mixtures thereof is dispersed in water and subjected to free radical polymerization, wherein prior to free radical polymerization, at least 5 percent of the amino groups are neutralized with a Brönsted acid before, during or after dispersion.

5,728,284

PROCESS FOR MANUFACTURING A POROUS ELECTROFORMED SHELL

Kanji Oyama, Mizunami, Japan, assignor to KTX Co., Ltd., Aichi-ken, Japan

Filed Sep. 13, 1996, Ser. No. 710,213
Claims priority, application Japan, Jan. 9, 1996, 8-019340; Jun. 11, 1996, 8-173040
Int. Cl.[6] C25D *1/10*
U.S. Cl. 205—70 **15 Claims**

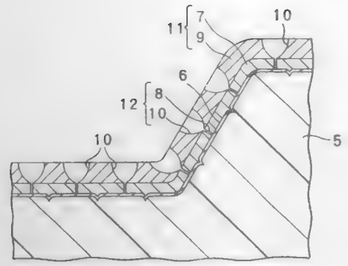
1. A process for manufacturing a porous electroformed shell which comprises the steps of:

preparing a mandrel having an electrically conductive surface;

forming a poreless first electroformed layer on said conductive surface in an electroforming solution containing a substantial amount of a first surface active agent sufficient to restrain formation of pinholes in said layer to form a front side of a shell,

removing said mandrel and said layer from said solution, and forming, through said layer, straight pores, each having an approximately equal diameter along a length thereof; and

forming a second electroformed layer on a back side of said first layer, in an electroforming solution containing less than said substantial amount of a second surface active agent to form a back side of the shell, such that said second electroformed layer forms with hollow portions therein which are aligned with said straight pores on the first layer, said hollow portions enlarging diametrically during the forming of said second layer to form diametrically enlarged pores through said second layer, said enlarged pores having a diameter which becomes larger toward a surface of said second layer opposite from first layer.

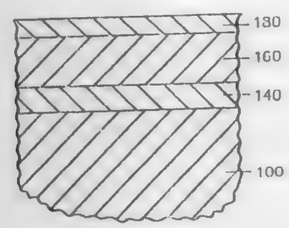


5,728,285

PROTECTIVE COATING COMBINATION FOR LEAD FRAMES

Ranjan J. Mathew, San Jose, Calif., assignor to National Semiconductor Corporation, Santa Clara, Calif.

Division of Ser. No. 513,690, Aug. 11, 1995, abandoned, which is a division of Ser. No. 429,670, Apr. 27, 1995, Pat. No. 5,650,661, which is a continuation-in-part of Ser. No. 174,890, Dec. 27, 1993, Pat. No. 5,436,082. This application Mar. 31, 1997, Ser. No. 829,253
Int. Cl.[6] C25D *5/10;* **H01L** *23/495*
U.S. Cl. 205—182 **1 Claim**



1. A method of fabricating a protective coating for a lead frame comprising the steps of:

supplying a lead frame base consisting essentially of iron or an iron alloy;

electroplating a copper-containing layer over the lead frame base;

electroplating a silver-containing layer over the copper-containing layer; and

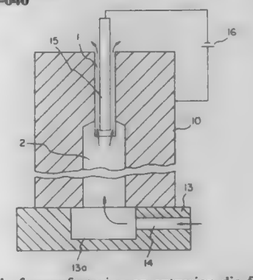
electroplating a palladium-containing layer over the silver-containing layer.

5,728,286

METHOD OF MANUFACTURING EXTRUSION DIE FOR EXTRUDING HONEYCOMB STRUCTURAL BODY

Kazuo Suzuki, Inazawa, and Shoji Futamura, Kawasaki, both of Japan, assignors to NGK Insulators, Ltd., and Institute of Technology Precision Electrical Discharge Works, both of Japan

Filed Aug. 8, 1996, Ser. No. 694,257
Claims priority, application Japan, Aug. 21, 1995, 7-211675
Int. Cl.[6] B23H *9/14;3/00*
U.S. Cl. 205—640 **5 Claims**



1. A method of manufacturing an extrusion die for extruding a honeycomb structural body, comprising the steps of:

forming a plurality of intersecting forming channels in a front surface of a metal blank, said forming channels defining a pattern in a transverse cross section corresponding to that of the honeycomb structural body;

forming a plurality of raw material feeding holes in a back surface of the metal blank, each of the holes having a cylindrical shape extending independently from the back surface toward the front surface to provide fluid communication with the forming channels;

inserting an electrode into intersecting portions of the forming channels, the electrode having a circular shape in a transverse cross section and a length corresponding to at least a depth of the forming channels;

performing electrolytic machining via the electrode to round a corner portion of a cell surrounded by the forming channels; and

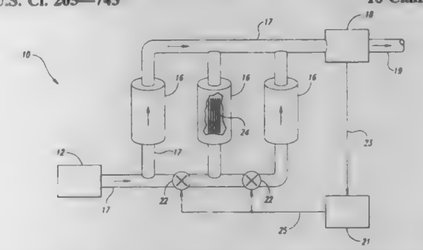
controlling the electrolytic machining conditions such that the corner portion of each cell is rounded to an arcuate shape.

5,728,287

METHOD AND APPARATUS FOR GENERATING OXYGENATED WATER

Gary S. Hough, and David V. Carlson, both of Woodinville, Wash., assignors to H_2O Technologies, Ltd., Seattle, Wash.

Filed Oct. 31, 1996, Ser. No. 744,708
Int. Cl.[6] C02F *1/461*
U.S. Cl. 205—743 **18 Claims**



1. An apparatus for generating a volume of oxygenated water, comprising:

a source of water under pressure;

an outlet through which the water is delivered to the user at a user selected flow rate;

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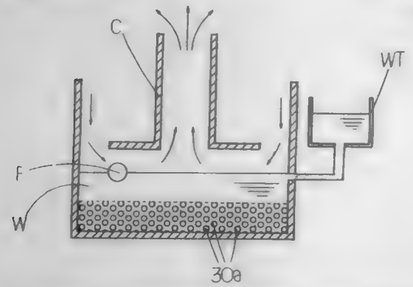
a plurality of electrolytic cells coupled between said source of water and said outlet, such that a volume of water drawn from the source of water through the outlet passes through at least one electrolytic cell at the user selected flow rate;
a flow meter coupled to measure the flow rate of the water;
control means for causing the water to pass through one or more additional electrolytic cells if the flow rate as measured by said flow meter exceeds a threshold flow rate; and
an electric power source for providing electric power to energize said electrolytic cells through which water is passing.

5,728,288

APPARATUS AND METHOD FOR PRODUCING AIR CONTAINING MINUS ALKALI ION

Tetsujiro Kubo, Tokyo, Japan, assignor to Yugenkaisha Kubo Technical Office, Tokyo, Japan

Filed Aug. 30, 1995, Ser. No. 520,789
Int. Cl.[6] C02F *1/461*
U.S. Cl. 205—763 **8 Claims**



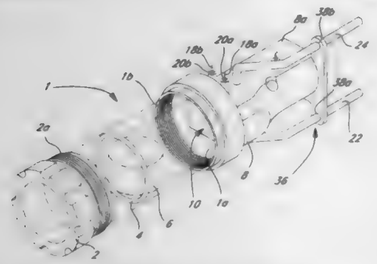
5. A method for producing air containing a minus alkali ion, comprising:
subjecting an electric stone carrier having an electric stone fine powder having a grain size of 0.3 micron to 3 micron on the average uniformly mixed therewith, said carrier having a volume intrinsic DC electric resistance of 10^7 to 10^{10} Ω.cm and having an area in contact with air, to direct forced ventilation by ventilation means to contact air, and
ionizing water in the air to produce a minus alkali ion.

5,728,289

SENSOR CELL HOLDER FOR GAS ANALYZER

Steve Kirchnavy, and Robert Thompson, both of 1582 Parkway Loop, Suite G, Tustin, Calif. 92680

Filed Oct. 11, 1996, Ser. No. 730,673
Int. Cl.[6] G01N *27/26*
U.S. Cl. 205—775 **19 Claims**



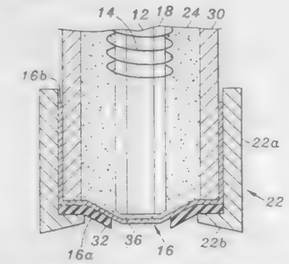
17. A method of analyzing a gas comprising
(a) providing a sensor cell block having a chamber for receiving a sensor cell.
(b) passing the gas over the sensor cell with the gas first entering the chamber at an inlet on one side of the sensor cell and then exiting the chamber at an outlet on an other side of the sensor cell, and
(c) maintaining the sensor cell within the chamber in condition that enables the gas to flow past essentially all sides of the sensor cell.

5,728,290

POLAROGRAPHIC SENSOR AND METHOD OF USING SAME

Yougin E. Xie, Diamond Bar; Dean Y. Lin, Chino Hills; Khan V. Nguyen, Westminster, and Frank R. Shu, La Habra Heights, all of Calif., assignors to Beckman Instruments, Inc., Fullerton, Calif.

Filed Jun. 3, 1996, Ser. No. 665,578
Int. Cl.[6] G01N *27/404*
U.S. Cl. 205—783 **34 Claims**



1. A polarographic sensor device for determining the partial pressure of a gas in a sample medium, the device comprising:
a) a substantially hydroscopic electrolyte composition having an electrolyte concentration of less than about 0.2M joining a pair of spaced apart electrodes, one of the pair of electrodes being a sensing electrode;
b) a membrane permeable to gas but impermeable to the electrolyte, the membrane having a front section for separating the electrodes and the electrolyte from the sample medium; and
c) a fastener comprising a sleeve that retains the membrane in a fixed position and in a spaced apart relationship from the sensing electrode, and that maintains a tension of the membrane, wherein the sleeve comprises a body portion and a lip, the body portion retaining a side section of the membrane in a fixed position against a side of a housing, and the lip retaining a portion of the front section of the membrane in a fixed position, maintaining tension over the front section of the membrane: and holding substantially the entire front section of the membrane in a spaced apart relationship from the sensing electrode.

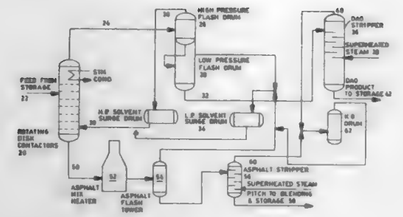
5,728,291

DEMETALLATION - HIGH CARBON CONVERSION PROCESS, APPARATUS AND ASPHALT PRODUCTS

Charles B. Miller, Ashland; Howard F. Moore, Catlettsburg; David P. Wesley; Robert H. Wombles, both of Ashland; Carlton H. Jewitt, Catlettsburg; Roger E. Hayner, Flatwoods, all of Ky.; Willian H. Gilkerson, Sr., Huntington, W. Va., and Charles R. Gannon, Ashland, Ky., assignors to Ashland Inc., Ashland, Ky.

Division of Ser. No. 286,714, Aug. 4, 1994, Pat. No. 5,601,697. This application Feb. 2, 1996, Ser. No. 594,627
Int. Cl.[6] C10C *3/08*
U.S. Cl. 208—45 **8 Claims**

1. An asphalt composition comprising a ternary mixture of solvent deasphalting (SDA) pitch, aromatic extract and asphalt made by vacuum distillation without solvent deasphalting from about 0.5 to about 50% of an aromatic of a heavy petroleum steam and about 0.5 to about 95% of an asphalt product boiling above about 950° F., and having a viscosity of about 200 to 5000 poise, and wherein said ternary mixture has superior in at least one of dynamic sheer, creep stiffness and tensile strength properties, as compared to a binary mixture.

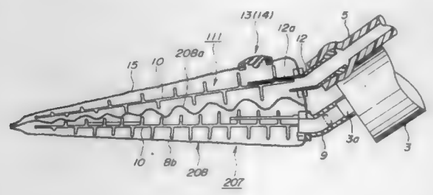


5,728,292

FILTER FOR IN-TANK FUEL PUMP

Takashi Hashimoto, Isehara, and Yuichi Fujinuma, Zama, both of Japan, assignors to Nissan Motor Co., Ltd., Yokohama, Japan

Division of Ser. No. 330,082, Oct. 26, 1994, Pat. No. 5,584,988. This application Aug. 28, 1996, Ser. No. 704,275
Claims priority, application Japan, Nov. 11, 1993, 5-282186; Mar. 4, 1994, 6-34389
Int. Cl.[6] B01D *35/02*
U.S. Cl. 210—136 **6 Claims**



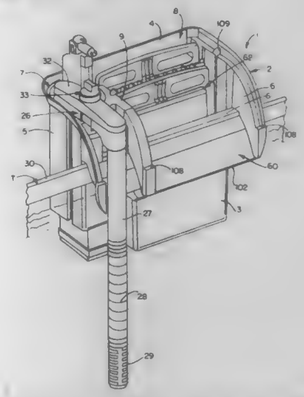
1. A filter for an in-tank fuel pump for an internal combustion engine, comprising:
a main filtration chamber adapted to be connected to an inlet of the fuel pump and having an upper peripheral wall formed from a meshed filter medium;
a return fuel chamber communicating with said main filtration chamber and having an upper peripheral wall formed of a mesh filter medium, wherein said upper peripheral wall of said main filtration chamber serves as a partition wall partitioning said main filtration chamber and said return fuel chamber;
a return pipe adapted to be connected to said return fuel chamber for introducing fuel returning from the engine to said return fuel chamber; and
a vapor discharging device provided at an upper portion of said upper peripheral wall of said return fuel chamber for discharging vapor from said return fuel chamber,
wherein the meshed filter medium forming said upper peripheral wall of said main filtration chamber has a wave configuration to increase a surface area in said partition wall to thereby increase flow to said main filtration chamber from said return fuel chamber, and
wherein said meshed filter medium forming said upper peripheral wall of said main filtration chamber is adapted to separate vapor from fuel flowing therethrough from said return fuel chamber into said main filtration chamber.

5,728,293

EXTERNAL FILTER ASSEMBLY FOR AQUARIUMS

Giacomo Guoli, Milan, Italy, and Edmund J. Mowka, Jr., Mentor, Ohio, assignors to Aquarium Systems, Inc., Mentor, Ohio

Filed Jun. 12, 1995, Ser. No. 489,406
Int. Cl.[6] A01K *63/04*
U.S. Cl. 210—151 **29 Claims**



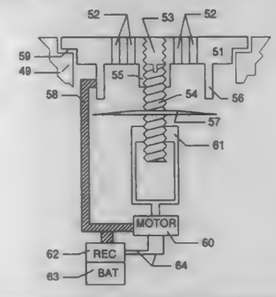
1. An external filter assembly for an aquarium comprising a filter housing containing a water inlet chamber for receiving water from the aquarium, and a filter chamber for receiving the water from said water inlet chamber and returning the water to the aquarium, said filter chamber containing a mechanical filter for removing waste particles from the water, and a functionally active biological filter upstream of said mechanical filter for actively filtering the water before the water is filtered by said mechanical filter, said functionally active biological filter having passages for flow of particulate material through said functionally active biological filter which is subsequently filtered out by said mechanical filter downstream of said functionally active biological filter.

5,728,294

DRAIN CLOSURE APPARATUS

John P. Deming, P. O. Box 612516, San Jose, Calif. 95161

Division of Ser. No. 386,822, Feb. 10, 1995, Pat. No. 5,582,720. This application Apr. 3, 1996, Ser. No. 627,953
Int. Cl.[6] E03F *5/06;* **E02D** *29/14*
U.S. Cl. 210—164 **5 Claims**



1. An apparatus for closing a drain in a fluid-tight manner so as to prevent a flow of hazardous materials into the drain comprising:
a first cover member having an outside diameter and a peripheral edge for enabling seating and supporting of the first cover member; a plurality of drain holes in the first cover member so as to permit a flow of fluid through the first cover member and into the drain;

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a sealing ring extending from a bottom of the first cover member and surrounding the plurality of drain holes in the first cover member;

a threaded shaft centered in the first cover member;

a threaded rod threaded into the threaded shaft of the first cover member;

a stopper attached to of the threaded rod for forming a liquid tight enclosure with the sealing ring to prevent liquid from flowing through the apparatus into the drain when the stopper is rotated firmly against a bottom of the sealing ring; and

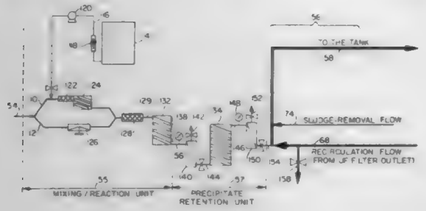
powered rotating means connected to the threaded rod for turning the threaded rod either clockwise or counter clockwise so as to open and close the apparatus.

5,728,295

APPARATUS FOR REMOVING METAL IONS AND/OR COMPLEXES CONTAINING METAL IONS FROM A SOLUTION

Hailing Duan, Allendale, N.J., assignor to Fuji Hunt Photographic Chemicals, Inc., Allendale, N.J.

Filed Apr. 19, 1996, Ser. No. 632,542
Int. Cl.[6] C02F *1/62*
U.S. Cl. 210—195.1 **7 Claims**



1. An apparatus for removing metal ions from a solution, comprising:

a first conduit for a first influent solution stream;

a first mixer downstream of the first conduit and in fluid communication with the first conduit for mixing the first influent solution stream and the precipitating agent for a predetermined interval to form a resulting stream containing chelated metal precipitant complex;

a second conduit for a second influent solution stream;

a second mixer downstream of the first mixer and in fluid communication with the second conduit for mixing the second influent solution stream with the resulting stream for a second predetermined time interval;

a coarse filtration device located downstream of the second mixer and in fluid communication with the second mixer to remove a significant portion of the precipitate;

a tank in fluid communication with the coarse filtration device for receiving the filtered solution containing the precipitate and for segregating the precipitate from the filtered solution, the tank having:

a first outlet for withdrawing a first filtered solution stream from a lower portion of the tank, the first filtered solution stream containing segregated precipitate; and,

a second outlet for withdrawing a second filtered solution stream from a upper portion of the tank, the second filtered solution containing unsettled precipitate;

a first separation device in fluid communication with the first outlet means of the tank for removing the precipitate from the first filtered solution stream, and means connected to the first separation device for recovering an effluent from the first separation device and adding the effluent from the first separation device to the influent solution stream of the tank; and

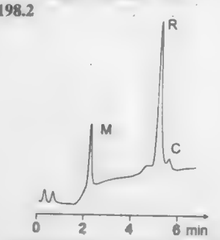
a second separation device in fluid communication with the second outlet of the tank for concentrating the unsettled precipitate in the second filtered solution stream to discharge a treated solution.

5,728,296

SELECTIVE RECOGNITION OF SOLUTES IN CHROMATOGRAPHIC MEDIA BY ARTIFICIALLY CREATED AFFINITY

Stellan Hjertén, and Jia-Li Liao, both of Uppsala, Sweden, assignors to Bio-Rad Laboratories, Inc., Hercules, Calif.

Filed Mar. 20, 1996, Ser. No. 618,879
Int. Cl.[6] B01D *15/08*
U.S. Cl. 210—198.2 **18 Claims**



1. An affinity chromatography medium with selective affinity for a preselected species, said medium formed by:

(a) forming an insoluble polymer matrix from a polymerizable substance in

the presence of said preselected species, said polymerizable substance being non-ionizable and one with respect to which said preselected species is inert; and

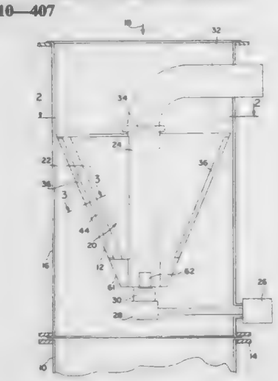
(b) extracting said preselected species from said insoluble polymer matrix.

5,728,297

APPARATUS FOR THE MECHANICAL CLEANING OF LIQUIDS

Josef Koller, Zeigeleiweg 26, D-40699 Erkrath, Germany

Filed Jan. 30, 1996, Ser. No. 594,004
Claims priority, application Germany, Jan. 30, 1995, 195 02 800.7
Int. Cl.[6] B01D *29/68;35/02*
U.S. Cl. 210—407 **8 Claims**



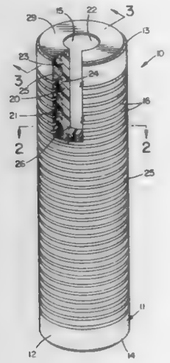
1. An apparatus for the mechanical cleaning of liquids in a cooling water feeding pipe, comprising a rotationally symmetric conical sieve body disposed in and extending over substantially the entire cross-section of a cooling water feeding pipe, said conical sieve having a concave side and a convex side, the concave side facing upstream, with respect to the direction of flow, and the convex side facing downstream with respect to the direction of flow, the apex of said conical sieve being truncated, whereby water flowing in said feeding pipe enters the concave side of said conical sieve and exits the convex side of said sieve, the surface of said concave side of said conical sieve being divided by substantially radial barriers projecting therefrom but spaced a predetermined distance apart from the surface of the truncated apex, so that the surface of said concave side of said sieve immediately adjacent the truncated apex is without said barriers, said barriers forming chambers with said surface of said concave side of said sieve, and subdividing said concave side into individual sectors, said apparatus further comprising a rotatable suction device coaxial with said conical sieve body, means for rotating said suction device for partially acting upon and completely successively sweeping said surface of said concave side of said sieve, said suction device having an intake nozzle which has substantially the same shape as the individual sectors of said surface of said concave side of said sieve, said nozzle being spaced apart from said radial barriers thereby forming a gap between said nozzle and said barriers, said suction nozzle being provided with flexible sealing lips which extend from the nozzle in the direction of said barriers a distance at least equal to the distance of said gap, said suction device being connected to a coupling tube coaxial to said conical sieve body, said coupling tube extending at one end to the truncated apex of said conical sieve and the opposite end of said coupling tube being rotatably connected to a suction pipe, which provides suction through said coupling tube to said suction nozzle, said coupling tube having an opening in the area of the truncated nozzle bounded by that portion of the surface area of the concave side of said conical sieve adjacent to said truncated apex and apart from said barriers.

5,728,298

FILTER ELEMENT AND METHOD FOR THE MANUFACTURE THEREOF

Thomas Hamlin, Vernon, Conn., assignor to Cuno, Incorporated, Meriden, Conn.

Filed Oct. 29, 1992, Ser. No. 968,281
Int. Cl.[6] B01D *39/16*
U.S. Cl. 210—491 **25 Claims**



1. A filter element for use in apparatus providing radially inward flow of a material that is to be filtered comprising:

a porous, thick-walled, integral, self-supporting, resin impregnated and bonded fibrous, tubular filter structure having

a hollow core;

an inner shell of a first large pore size porous media adjacent said hollow core; and

an outer shell of a second small pore size porous media, finer than said first porous media and adjacent said inner shell, said first and second porous media being resin impregnated and bonded, wherein the material to be filtered is directed first through said outer shell and secondly through said inner shell.

5,728,299

WOUND NON-WOVEN FABRIC FILTER HAVING HEAT FUSIBLE FIBERS

Shinichi Tokudome; Satoshi Ogata, both of Shigaken, and Katsuhiro Shishikura, Chibaken, all of Japan, assignors to Chisso Corporation, Osaka, Japan

Filed Oct. 4, 1996, Ser. No. 726,224
Claims priority, application Japan, Oct. 25, 1995, 7-300671
Int. Cl.[6] B01D *39/16*
U.S. Cl. 210—497.01 **6 Claims**

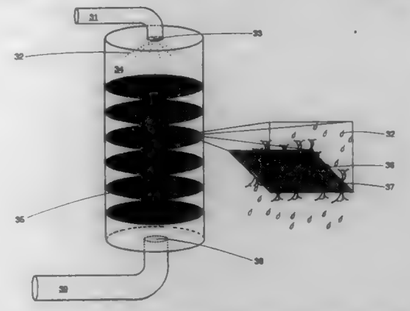
1. A filter having an outer and an inner layer comprising a wound and laminated composite non-woven fabric containing heat fusible fibers, wherein the delamination strength between layers of the laminated composite non-woven fabric of said filter increases continuously or discontinuously from the outer layer toward the inner layer, the delamination strength of the inner layer exceeds 1000 gf/5 cm, and the delamination strength of the outer layer is 5 to 1000 gf/5 cm.

5,728,300

PHYTORECOVERY OF METALS USING SEEDLINGS

Yoram Kapulnik, Highland Park, N.J.; Burt Ensley, Newtown, Pa., and Ilya Raskin, Manalapan, N.J., assignors to Phytotech, Inc., Monmouth Junction, N.J.

Filed Feb. 15, 1996, Ser. No. 602,078
Int. Cl.[6] C02F *3/32*
U.S. Cl. 210—602 **14 Claims**



1. A method to effect a depletion of metal in a metal-containing solution which comprises the following steps:

(1) forming a contained biomass of etiolated metal-accumulating plant seedlings for contact with said solution, said seedlings not requiring external nutrients or external energy in the form of light or heat in excess of requirements to achieve normal germination temperatures prior to or during contact with a metal-containing aqueous solution;

(2) contacting said contained biomass of plant seedlings with a metal-containing solution for a time period sufficient to permit accumulation of metals by said seedlings and corresponding depletion of metals from said solution; and

(3) separating plant seedlings having accumulated metal from said solution.

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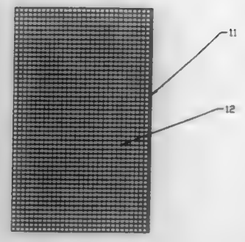
APPARATUS AND METHOD FOR THIN LAYER CHROMATOGRAPHY

William L. Truett, Stone Farm Unit 321, 42 Wolf Dr., Lebanon, N.H. 03766-1953

Continuation-in-part of Ser. No. 314,707, Sep. 29, 1994, abandoned. This application Apr. 26, 1996, Ser. No. 638,337
Int. Cl.[6] B01D *15/08*
U.S. Cl. 210—635 **2 Claims**

1. A method for analyzing a mixture of compounds that are soluble in a single solvent comprising:

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(a) forming a slurry by mixing at least one chromatographic material selected from the group consisting of alumina, silica, keisilguhr, attapulgite clay, cellulose and polyamide in a suitable, inert liquid;
(b) depositing a thin layer of said slurry on a support selected from the group consisting of a screen, scrim, membrane, grid and a mesh of metal or glass fiber that is unaffected by said inert liquid and that is substantially opaque to infrared radiation;
(c) drying said slurry on said support to form a support coated with a layer about 0.01 to about 1.6 millimeters thick of said slurry;
(d) dissolving a mixture of organic compounds in a solvent for said mixture to form a solution;
(e) placing said coated support vertically in said solution so that only the bottom edge of said coated support is within said solution;
(f) allowing sufficient time for said solution to rise by capillary action to a reasonable vertical distance of said coated support; and
(g) exposing the resulting coated support to infra-red energy along the height of said support to provide a plurality of infra-red spectra at various levels from the bottom to the top of said support, each spectrum representing each of the organic compounds dissolved in the solvent in step (d).

5,728,302

METHODS FOR THE REMOVAL OF CONTAMINANTS FROM SUBTERRANEAN FLUIDS

John A. Connor; Dennis A. Clifford, both of Houston, Tex., and Philip T. King, Anchorage, Ak., assignors to Groundwater Services, Inc., Houston, Tex.

Continuation of Ser. No. 257,110, Jun. 8, 1994, abandoned, which is a continuation-in-part of Ser. No. 28,951, Mar. 10, 1993, abandoned, which is a continuation-in-part of Ser. No. 866,341, Apr. 9, 1992, Pat. No. 5,196,124. This application May 20, 1996, Ser. No. 655,305
Int. Cl.[6] B01D *15/04;* **C02F** *1/42*
U.S. Cl. 210—679 **29 Claims**

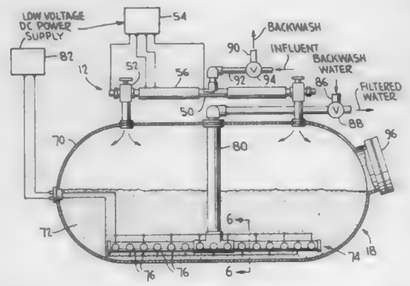
1. A method for reducing dissolved trace contaminant content of fluids withdrawn from subterranean reservoirs, said method comprising:
(a) injecting into a reservoir through a well extending into a subterranean reservoir a quantity of particulate sorbent solid material sufficient to surround the well, the material capable of removing trace contaminants selected from the group consisting of radionuclides, arsenates, fluorides, selenites and barium, from reservoir fluids;
(b) pressuring the injected sorbent solid material to distribute the material in subterranean fractures over a predetermined area surrounding the injection point;
(c) contacting the injected solid particulate material with fluids to be withdrawn from the reservoir zone containing dissolved trace contaminants to remove the dissolved trace contaminants from the fluids; and
(d) withdrawing fluids with substantially reduced trace contaminant content from the reservoir through the well.

5,728,303

ELECTRO-COALESCENCE/MAGNETIC SEPARATION (ECMS) SYSTEM AND COMPONENTS FOR REMOVAL OF CONTAMINANTS FROM WATER STREAMS, INCLUDING DESALINIZATION

Dennis E. J. Johnson, Aurora, Ill., assignor to Aqua-Ion Systems, Inc., Littleton, Colo.

Division of Ser. No. 377,620, Jan. 25, 1995, Pat. No. 5,597,479. This application Jan. 28, 1997, Ser. No. 789,780
Int. Cl.[6] C02F *1/463*
U.S. Cl. 210—695 **11 Claims**



1. A method for removing pollutants from a water stream by non-chemical coagulation and filtration of coagulated pollutants, comprising the steps of:
providing a stream of ionized pollutant-coagulating species;
mixing said stream of ionized pollutant-coagulating species with the water stream;
exposing said water stream having been mixed with said ionized pollutant-coagulating species to electric and magnetic fields; and
filtering coagulated pollutants from said water stream by performance of the following steps:
introducing said stream into a settling tank, said tank having at least one inlet port in communication with substantially an uppermost portion of an internal volume thereof, and at least one outlet port, and containing a quantity of a polarizable filtration medium, filling substantially a lower half of the internal volume of said tank;
applying an electric potential to spaced conductive members in contact with said media, polarizing said media; and
withdrawing said stream having had pollutants filtered therefrom by said media by means of an underdrain assembly extending over substantially the lowermost portion of the internal volume of said tank, said underdrain assembly defining a plurality of small-dimension openings in communication with conduit means, such that water filtered by said medium passes through said small-dimension openings into said conduit means, said medium being excluded by said small-dimension openings from said conduit means.

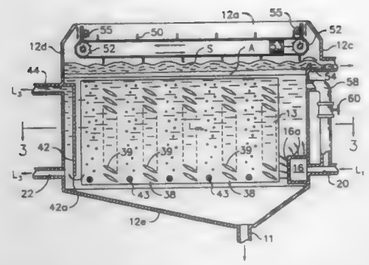
5,728,304

METHOD AND APPARATUS FOR DISSOLVED AIR FLOTATION AND RELATED WASTE TREATMENTS

George C. Yeh, 2 Smedley Dr., Newtown Square, Pa. 19073

Division of Ser. No. 399,057, Mar. 8, 1995, Pat. No. 5,538,631. This application Jul. 15, 1996, Ser. No. 679,809
Int. Cl.[6] C02F *1/24*
U.S. Cl. 210—703 **4 Claims**

1. A dissolved gas flotation method of treating a first liquid containing matter in suspension comprising the steps of:
introducing a continuous flow of the first liquid and a second liquid containing dissolved gas to an inlet port of a flotation tank;
introducing evenly across the flowpath of the first liquid a continuous flow of a supplement of the second liquid containing dissolved gas downstream of the inlet port;



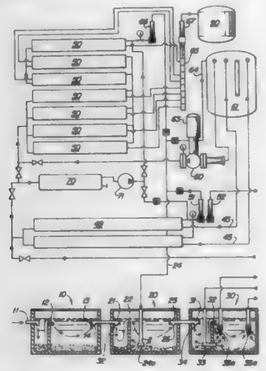
directing the first and second liquids in the tank toward the surface of the liquids under plug-like flow conditions without turbulence and back-mixing while microbubbles of gas released from the second liquid contact the matter, float to the surface, and separate from the matter;
supporting a bed of the separated matter above the surface on a blanket of gas accumulated from the separated microbubbles;
skimming off a top layer of the matter from the bed at a removal rate corresponding to a flotation rate of the separated matter for maintaining a bed thickness above the gas blanket; and
discharging a treated liquid at an outlet port of the flotation tank.

5,728,305

WASTE WATER PURIFICATION SYSTEM

Jay M. Hawkinson, Coal Valley, Ill., assignor to Water Recycling Systems, Inc., Coal Valley, Ill.

Division of Ser. No. 566,372, Dec. 1, 1995, Pat. No. 5,626,745, which is a continuation of Ser. No. 329,839, Oct. 27, 1994, abandoned. This application Dec. 19, 1996, Ser. No. 769,302
Int. Cl.[6] C02F *1/78;* **B01D** *36/04*
U.S. Cl. 210—760 **3 Claims**



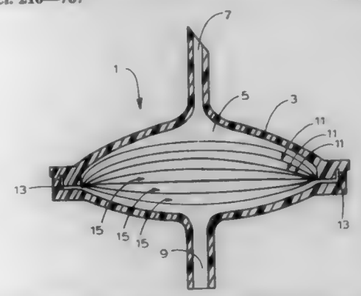
1. A multi-phase process for removal of solid chemical and bacterial waste from contaminated aqueous fluid comprising the steps of:
a) removing sediment and solid matters from said waste water in a plurality of settling tanks;
b) transferring waste water from one of said settling tanks to ozonation apparatus;
c) ozonating said waste water;
d) transferring ozonated water to a first holding tank through a first filtration system to partially filter the water;
e) accumulating ozonated and partially filtered water in said first holding tank;
f) transferring said partially filtered ozonated water through a second filtration system;
g) transferring the filtered water from said second filtration system through a third filtration system to produce a purified water;
h) and accumulating the purified water from said third filtration system in a second holding tank;
i) transferring unfiltered water from said second and said third filtration systems to the first holding tank and to a second one of said settling tank; and
j) transferring purified water from said third filtration system to a second holding tank for reuse.

5,728,306

LEUKODEPLETION FILTER AND METHOD FOR FILTERING LEUKOCYTES FROM FRESHLY DRAWN BLOOD

Julian P. Breillatt, Jr., Mundelein, and Sharon L. Pokropinski, Schaumburg, both of Ill., assignors to Baxter International Inc., Deerfield, Ill.

Filed Dec. 23, 1994, Ser. No. 370,772
Int. Cl.[6] B01D *37/00;39/00;39/02;36/02*
U.S. Cl. 210—767 **17 Claims**



4. A method for leukodepleting a body fluid, the method comprising the steps of:
a) filtering the body fluid through a filter comprising a filter housing having an open space within, a filter inlet for conducting the body fluid into the open space, and a filter outlet for conducting the body fluid out of the open space; a plurality of glass fiber filter pads, sealed within the open space near the filter inlet, wherein the glass fibers have a mean diameter of from about 0.1 to about 5.0 micrometers; and a plurality of non-woven polyester fiber filter pads, sealed within the open space, near the filter outlet, wherein the non-woven polyester fibers have a mean diameter of from about 0.1 to about 5.0 micrometers and further wherein the glass fiber filter pads and the polyester fiber filter pads are sealed within the open space of the filter housing such that the body fluid which is conducted into the open space first contacts and passes through the glass fiber filter pads before contacting and passing through the polyester fiber filter pads; and
b) collecting the filtered body fluid.

5,728,307

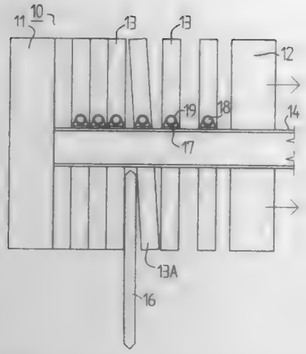
METHOD OF EMPTYING THE PRESS CHAMBERS OF A PRESS FILTER AND AN APPARATUS THEREFOR

Jörgen Goltermann, Vordingborg, Denmark, and Hans-Göran Hedlund, Sala, Sweden, assignors to Sala International AB, Sala, Sweden

Filed Sep. 22, 1995, Ser. No. 532,137
Claims priority, application Sweden, Sep. 22, 1994, 9403179
Int. Cl.[6] B01D *25/32*
U.S. Cl. 210—791 **17 Claims**

1. A method of emptying a press chamber of a press filter, which press filter comprises a plurality of press plates, which press plates each comprise lower ends, which press plates can be brought into

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mutual abutment to form at least one press chamber between at least one pair of press plates, said method comprising the steps of:

bringing the plurality of press plates into abutment to form the at least one press chamber between the at least one pair of press plates;

supplying the at least one press chamber with a fluid;

forming at least one filter cake within the at least one press chamber;

separating the press plates from one another by a distance to permit the release of the at least one filter cake from the press plates; and

pivoting each of the press plates freely about a substantially horizontal axis substantially solely as a result of a force exerted on at least one of the press plates by a weight of the filter cake.

5,728,308

METHOD OF POLISHING A SEMICONDUCTOR SUBSTRATE DURING PRODUCTION OF A SEMICONDUCTOR DEVICE

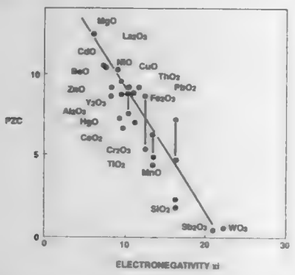
Masakazu Muroyama, Kanagawa, Japan, assignor to Sony Corporation, Japan

Filed May 20, 1996, Ser. No. 650,310

Claims priority, application Japan, May 26, 1995, 7-127802

Int. Cl.[6] C23F *3/00*

U.S. Cl. 216—88 **14 Claims**



1. A method of polishing using a chemical mechanical polishing slurry comprising:

polishing a substrate with said slurry;

providing in said slurry particulates of at least two different metal oxides dispersed in pure water, wherein said at least two different metal oxides have different points of zero charges; and

controlling an aggregate particle size of said particulates by controlling a ratio of said at least two different metal oxides in said slurry.

5,728,309

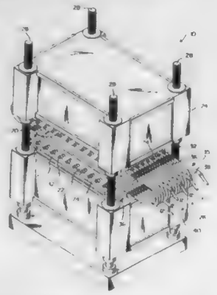
METHOD FOR ACHIEVING THERMAL UNIFORMITY IN INDUCTION PROCESSING OF ORGANIC MATRIX COMPOSITES OR METALS

Marc R. Matsen, Seattle; Edward J. Woods, Port Orchard; Karl A. Hansen, deceased, late of Seattle, and John J. DeJong, executor, Bellevue, all of Wash., assignors to The Boeing Company, Seattle, Wash.

Continuation-in-part of Ser. No. 341,779, Nov. 18, 1994, Pat. No. 5,599,472, which is a continuation-in-part of Ser. No. 169,655, Dec. 16, 1993, Pat. No. 5,530,227, which is a continuation-in-part of Ser. No. 777,739, Oct. 15, 1991, Pat. No. 5,410,132, said Ser. No. 341,779 is a continuation-in-part of Ser. No. 092,050, Jul. 15, 1993, Pat. No. 5,410,133, which is a division of Ser. No. 681,004, Apr. 5, 1991, Pat. No. 5,229,562, said Ser. No. 341,779 is a continuation-in-part of Ser. No. 151,433, Nov. 12, 1993, Pat. No. 5,420,400. This application Jun. 6, 1995, Ser. No. 469,604

Int. Cl.[6] H05B *6/10*

U.S. Cl. 219—633 **20 Claims**



1. A method for heating a workpiece in an induction heating operation to achieve substantially uniform heating in the workpiece by using susceptor sheets made from a material that has a Curie temperature, comprising the steps of:

(a) assembling a retort having at least two susceptor sheets sandwiching a workpiece;

(b) temporarily sealing the susceptor sheets to form a sealed retort containing the workpiece in a cavity;

(c) positioning the sealed retort in an induction heating workcell;

(d) substantially uniformly heating the workpiece to substantially the Curie temperature in the workcell by heating the susceptor sheets with induction; and

(e) performing a manufacturing operation on the workpiece substantially at the Curie temperature.

5,728,310

MICROWAVE WASTE STERILIZER AND METHOD OF USE

Charles L. Ice, Grapevine, Tex., and John V. McCullough, Santa Cruz, Calif., assignors to Forward Systems Automation, Grand Prairie, Tex.

Filed Aug. 2, 1995, Ser. No. 510,287

Int. Cl.[6] H05B *6/72*

U.S. Cl. 219—679 **30 Claims**

1. A microwave waste sterilizer comprising:

a upper outer shell;

a lower outer shell;

an upper means for guiding microwave energy connected to said upper outer shell;

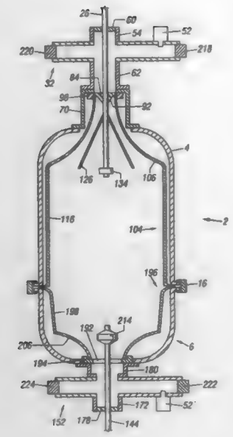
a lower means for guiding microwave energy connected to said lower outer shell;

an upper means for dispersing microwave energy connected to said upper means for guiding microwave energy;

a lower means for dispersing microwave energy connected to said lower means for guiding microwave energy; and

a clamp releasably holding said upper outer shell and said lower outer shell together

wherein the upper outer shell is generally bell shaped having an inside surface, an outside surface, a flanged bottom end, and a



longitudinal axis, said outer shell further defining a hole substantially at the apex of the bell shape, said hole coaxial with the longitudinal axis,

wherein the upper means for guiding microwave energy comprises:

a upper coaxial tube having an outside surface, a first end, a second end, an outside diameter, and a longitudinal axis;

a substantially rectangular box shaped upper waveguide having a top plate having an outside surface, a first end and a second end, and a bottom plate having an outside surface, said top plate further defining a first hole between the first end and a center of said top plate and a second hole near the second end having a diameter smaller than a diameter of the first hole, said bottom plate being substantially parallel to said top plate and defining a hole of a diameter substantially the same as the diameter of the first hole in said top plate, said hole in said bottom plate further oriented in axial alignment with the first hole in said top plate;

a magnetron connected to the top plate of the upper waveguide at the second hole so that waves produced by said magnetron are broadcast within said rectangular box shaped upper waveguide;

a tubular first upper coax having a first end, a second end, an inside surface defining a diameter substantially the same as the diameter of the first hole in the top plate of said upper waveguide, and a longitudinal axis, said first end connected to the outside surface of said top plate so that the longitudinal axis is coaxial with the first hole in said top plate and the first upper coax is in covering relationship to the first hole;

a tubular upper conductor plug having a first end, a second end, an outside diameter substantially the same as the inside diameter of said first upper coax, an inside surface defining a diameter substantially the same as the outside diameter of said upper coaxial tube, and a longitudinal axis, said upper conductor plug closely received by the second end of said first upper coax;

a tubular second upper coax having a first end, a flange end, an inside surface having a diameter substantially the same as the diameter of the hole in the bottom plate of said waveguide, and a longitudinal axis, said flange end being substantially ring shaped and having a generally cylindrical inside surface coincident with the inside surface of said second upper coax, said first end connected to the outside surface of said bottom plate so that the longitudinal axis is coaxial with the hole in said bottom plate and the second upper coax is in covering relationship to the hole in said bottom plate;

a substantially can shaped upper z-neck having a top end, a flange end, a longitudinal axis, and a generally tubular sidewall having an outside surface connecting the top end and the flanged end and an inside surface defining a diameter greater than the diameter of said second upper coax, said top end defining a hole coaxial with the longitudinal axis and having a diameter substantially the same as the diameter of the inside surface of said second upper coax, said flange end being substantially ring shaped and having a generally cylindrical inside surface coincident with the inside surface of said upper z-neck, said top end connected to the flange end of said second upper coax, said flange end connected to the outside surface of said upper outer shell in covering relationship to the hole in the apex of said upper outer shell;

a tubular upper dielectric disc having a first end, a second end, an outside diameter, a longitudinal axis, and an inside surface defining a diameter substantially the same as the outside diameter of said upper coaxial tube, said upper dielectric disc having the characteristic of being substantially transparent to microwaves; and

a funnel shaped conic support having an inside surface defining a diameter substantially the same as the outside diameter of said upper coaxial tube, a top surface having an outside diameter smaller than the outside diameter of said upper dielectric disc, a bottom surface having an outside diameter smaller than the outside diameter of said top surface, and a longitudinal axis, said top surface connected to the second end of said upper dielectric disc, said conic support having the characteristic of being substantially transparent to microwaves;

wherein the longitudinal axes of said upper shell, upper coaxial tube, first upper coax, upper conductor plug, second upper coax, upper z-neck, dielectric disc, and conic support are coaxial; and

wherein said upper coaxial tube extends through said upper conductor plug, first upper coax, upper waveguide, second upper coax, upper z-neck, upper dielectric disc and conic support.

5,728,311

TIRE CURE BLADDERS CONTAINING POLYTETRAFLUOROETHYLENE POWDER AND USE THEREOF

George Philemon Patitsas, Kent; Paul Harry Sandstrom, Tallmadge; Samson Samuel Apticar, Uniontown, and Bharat Kanchanlal Kansupada, Mogadore, all of Ohio, assignors to The Goodyear Tire & Rubber Company, Akron, Ohio

Continuation-in-part of Ser. No. 315,389, Sep. 30, 1994, abandoned, and a continuation-in-part of Ser. No. 313,953, Sep. 28, 1994, Pat. No. 5,538,218. This application Jan. 16, 1996, Ser. No. 586,569

Int. Cl.[6] B29C *35/00;* **C08F** *210/08*

U.S. Cl. 249—65 **24 Claims**

1. In a curing press for a hydrocarbon rubber composition which uses an expandable bladder molded from a formulated rubber bladder compound to assist in shaping and curing said rubber composition

the improvement wherein said bladder comprises from about 0.5 to about 10 parts by weight of at least one fluorinated ethylene polymer, optionally from about 0.1 to about 20 parts by weight of graphite, where said fluorinated ethylene polymer and said optional graphite when present are added in a particulate form to and dispersed within said formulated rubber bladder compound, said formulated rubber bladder compound comprising at least one rubbery polymer which comprises at least one isobutylene polymer;

wherein said parts by weight are based on 100 parts by weight of said at least one rubbery polymer, and wherein said formulated rubber compound after curing and aging for 24 hours at 177° C. has an elongation at break (ASTM D412) from about 300 to about 500%.

5,728,312

MOLD FOR FORMING PRECAST CONCTETE PANELS

David A. Van Doren, Hays, Kans., assignor to Waffle-Crete International, Inc., Hays, Kans.

Filed May 20, 1994, Ser. No. 247,060

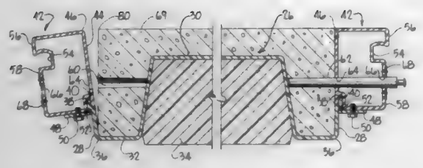
Int. Cl.[6] E04G *9/05*

U.S. Cl. 249—165 **9 Claims**

1. A mold for forming precast panels, said mold comprising:

a mold body configured to impart a desired shape to a molded product formed therein, said body having a panel-forming

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component provided with a plurality of integral, flexible, partial side elements presenting pliable flaps at the periphery of the body swingable on said component, each of said elements presenting a lower portion of an inwardly facing molding surface and terminating at a longitudinal edge,

a plurality of rigid side rails on respective elements longitudinally coextensive therewith, each of said side rails projecting from the longitudinal edge of the corresponding element and cooperating therewith to provide a sidewall of the mold body complementing said panel-forming component,

each of said side rails presenting an upper portion of the normally inwardly facing molding surface contiguous with said lower portion presented by the corresponding element so that the contiguous surfaces provide the complete, continuous molding surface for forming the molded product,

joint means presented by said longitudinal edges of said side elements mating with respective side rails for interconnecting the same and permitting the side rails and elements to separate from one another at said longitudinal edges by relative movement in transverse directions generally in the plane of the respective sidewall to facilitate replacement of said mold body,

releasable retaining means on said sidewalls for preventing said relative transverse movement of the side rails and elements until replacement of the mold body, said joint means permitting differential longitudinal movement of the associated side rail and element,

said pliable flaps presented by said elements providing hinge means for swinging movement of the sidewalls on said component outwardly from normal, molding positions and away from a molded product within the mold body to permit said product to be withdrawn therefrom,

adjacent pairs of said sidewalls having proximate end edges defining closed corners of the body when said sidewalls are in their normal positions and, upon said outward swinging movement of the sidewalls, said end edges separating to cause said corners to open, and

releasable means associated with said end edges for holding the corners closed to maintain the sidewalls in their normal positions during the molding process.

5,728,313

LEATHER OILING COMPOSITIONS AND THEIR USE

Wolfgang Ritter, Haan; Rudolf Zauns-Huber, Duesseldorf; Emil Ruscheinsky, deceased, late of Leverkusen, by Anita Ruscheinsky, executrix, and Stefanie Ortanderl, Juechen, all of Germany, assignors to Henkel Corporation, Plymouth Meeting, Pa.

PCT No. PCT/EP95/00463, § 371 Date Sep. 18, 1996, § 102(e) Date Sep. 18, 1996, PCT Pub. No. WO95/22628, PCT Pub. Date Aug. 24, 1995

PCT Filed Feb. 9, 1995, Ser. No. 693,072

Claims priority, application Germany, Feb. 18, 1994, 44 05 205.7

Int. Cl.[6] C14C *9/02;1/00;3/14*

U.S. Cl. 252—8.57 **22 Claims**

1. A method for oiling and optionally retanning a substrate comprising at least one member selected from the group consisting of leather and skins which comprises: impregnating the substrate with an aqueous dispersion or emulsion comprising a partial ester formed by reaction of at least one member selected from the group consisting of cyclic polycarboxylic acids and (partial) anhydrides of cyclic polycarboxylic acids with monohydric fatty alcohols.

5,728,314

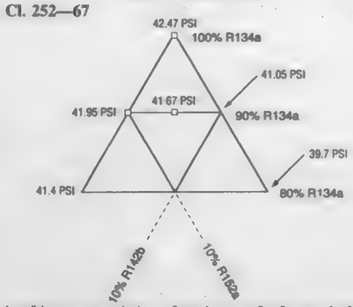
NEAR AZEOTROPIC MIXTURE SUBSTITUTE FOR DICHLORODIFLUOROMETHANE

Jack A. Jones, Los Angeles, Calif., assignor to California Inst. of Technology, Pasadena, Calif.

Continuation of Ser. No. 212,700, Mar. 11, 1994, Pat. No. 5,523,011, which is a continuation of Ser. No. 672,947, Mar. 21, 1991, abandoned, which is a continuation-in-part of Ser. No. 503,465, Mar. 23, 1990, abandoned. This application Feb. 23, 1996, Ser. No. 606,244

Int. Cl.[6] C09K *5/04*

U.S. Cl. 252—67 **2 Claims**



1. A refrigerant consisting of a mixture of a first mole fraction of about 0.5 to less than 1.0 of CH_2FCF_3 and a second mole fraction of from greater than zero to about 0.5 of a component selected from the group consisting of:

a mixture of $CHClFCF_3$ and CH_3CClF_2;

a mixture of CHF_2CH_3 and CH_3CClF_2; and

a mixture of $CHClFCF_3$, CH_3CClF_2 and CHF_2CH_3.

5,728,315

AZEOTROPE-LIKE COMPOSITIONS OF TRIFLUOROMETHANE, CARBON DIOXIDE, ETHANE AND HEXAFLUOROETHANE

Rajiv Ratna Singh, Getzville; Ian Robert Shankland, Williamsville; Roy Philip Robinson, Cheektowaga; Hang Thanh Pham, Amherst; Raymond Hilton Percival Thomas, Pendleton, and Peter Brian Logsdon, N. Tonawanda, all of N.Y., assignors to Alliedsignal Inc., Morristown, N.J.

Filed May 1, 1996, Ser. No. 641,584

Int. Cl.[6] C09K *5/04;* **C11D** *7/30;* **C08J** *9/14*

U.S. Cl. 252—67 **17 Claims**

1. An azeotrope-like composition consisting essentially of from about 15 to about 60 weight percent trifluoromethane, from about 5 to about 40 weight percent carbon dioxide, from about 15 to about 60 weight percent ethane, and from about 15 to about 60 weight percent hexafluoroethane which composition boils at about −99° C.±2° C. at 760 mm Hg.

5,728,316

SALT MIXTURES FOR STORING THERMAL ENERGY IN THE FORM OF THAT OF PHASE TRANSFORMATION

Rüdiger Kniep, Langenfeld; Hans Klein, Darmstadt, and Peter Kroeschell, Riedstadt, all of Germany, assignors to Merck Patent Gesellschaft mit beschrankter Haftung, Darmstadt, and Bayerische Motorenwerke AG, Munich, both of Germany

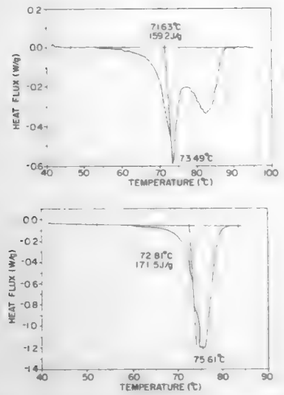
Continuation of Ser. No. 244,785, Sep. 22, 1994, Pat. No. 5,591,374. This application Sep. 25, 1996, Ser. No. 721,580

Claims priority, application Germany, Jan. 10, 1991, 42 03 835.9; Dec. 14, 1991, 41 41 306.7

Int. Cl.[6] C09K *5/06*

U.S. Cl. 252—70 **5 Claims**

1. A salt mixture of magnesium nitrate and lithium nitrate for storing and utilizing thermal energy in the form of heat of phase



transformation, comprising a mixture of $Mg(NO_3)_2.6H_2O$ and $LiNO_3$ in a mass ratio of 86–81:14–19.

5,728,317

POLYISOCYANATE COMPOSITIONS HAVING A LONG SHELF LIFE AND OBTAINABLE BY PHOSGENE-FREE METHODS, THEIR PREPARATION AND THEIR USE

Gerhard Laqua, Mannheim; Franz Merger, Frankenthal; Tom Witzel; Ursula Siebenhaar, both of Ludwigshafen, and David Agar, Mannheim, all of Germany, assignors to BASF Aktiengesellschaft, Ludwigshafen, Germany

Continuation of Ser. No. 287,564, Aug. 8, 1994, abandoned. This application May 13, 1996, Ser. No. 647,877

Claims priority, application Germany, Sep. 13, 1993, 43 31 083.4

Int. Cl.[6] C09K *3/00;* **C07C** *249/00;251/00;257/00*

U.S. Cl. 252—182.29 **24 Claims**

1. A stable cycloaliphatic or aliphatic polyisocyanate composition containing

1) a cycloaliphatic or aliphatic polyisocyanate prepared by a phosgene-free method and

2) a stabilizer selected from the group consisting of

2a) primary stabilizers selected from the group consisting of antioxidants, free radical acceptors, nitrogen-containing stabilizer compounds and mixtures thereof, or

2b) secondary stabilizers selected from the group consisting of peroxide cleaving agents, reducing agents and mixtures thereof, or

2c) acidic stabilizers selected from the group consisting of monocarboxylic acids, organic polycarboxylic acids, inorganic acids, diester of phosphoric acid, diester of phosphorous acid, acyl chlorides, inorganic acid chlorides and mixtures thereof,

3) wherein at least one primary stabilizer (2a) and at least one acidic stabilizer (2c) are employed.

5,728,318

LIQUID CRYSTAL COMPOSITION, LIQUID CRYSTAL DEVICE AND LIQUID CRYSTAL DISPLAY APPARATUS

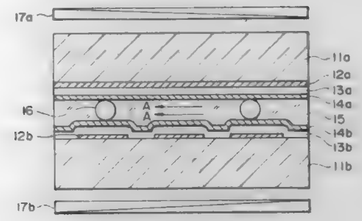
Masataka Yamashita, Chigasaki; Kazuharu Katagiri, Tama; Masahiro Terada, Hadano; Shosei Mori, Hiratsuka; Syuji Yamada, Atsugi, and Hiroshi Mizuno, Zama, all of Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan

Filed Nov. 8, 1995, Ser. No. 555,063

Int. Cl.[6] C09K *19/34;19/32;19/12;* **G02F** *1/133*

U.S. Cl. 252—299.62 **22 Claims**

1. A liquid crystal composition, comprising:

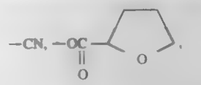


a mesomorphic compound represented by the following formula (1):

$$R_1—A_1—X_1—A_2—X_2—A_3—R_2 \quad (1),$$

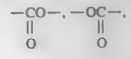
wherein

R_1 and R_2 independently denote hydrogen, halogen,



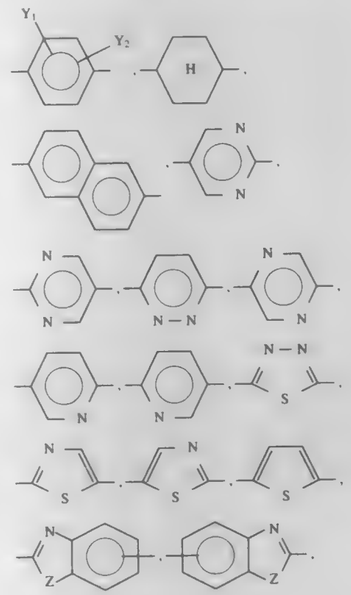
a cyclized alkyl group having 3–18 carbon atoms or a linear or branched alkyl group having 1–18 carbon atoms, said linear, branched or cyclized alkyl group capable of including at least one methylene group which can be replaced with —O—; —S—; —CO—; —CHW—, where W is halogen or CF_3; —CH═CH— or —C≡C— with the proviso that hetero atoms are not adjacent to each other;

X_1 and X_2 independently denote a single bond, —O—,



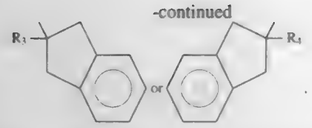
$—CH_2—$, $OCH_2—$, —CH═CH— or —C≡C—;

A_1, A_2 and A_3 independently denote a single bond,

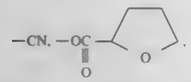


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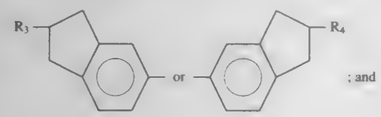
-continued



wherein R_3 and R_4 independently denote hydrogen, halogen,



or a linear or branched alkyl group having 1–18 carbon atoms capable of including at least one methylene group which can be replaced with —O—; —S—; —CO—; —CHW— where W is halogen or CF_3; —CH═CH— or —C≡C— with the proviso that heteroatoms are not adjacent to each other; Y_1 and Y_2 independently denote H, F, Cl, Br, $-CH_3$ or —CN; Z denotes O or S; and at least one of A_1, A_2 and A_3 is



; and

and

a mesomorphic compound represented by the following formula (2):

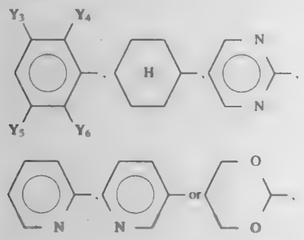
$$R_5—A_4—R_6 \quad (2),$$

wherein

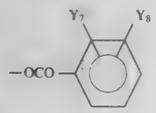
R_5 and R_6 independently denote

$$Q—X_3—(CH_2)_L—X_4—$$

or R_7, at least one of R_5 and R_6 being $Q—X_3—(CH_2)_L—X_4—$ wherein Q denotes

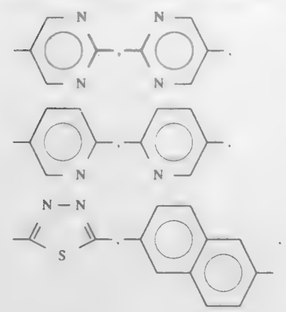


where Y_3, Y_4, Y_5 and Y_6 independently denote H, F, CH_3 or CF_3; X_3 denotes a single bond, $—OCH_2—$, —COO— or —OCO—; X_3 denotes a single bond, $—CH_2O—$, COO— or —OCO—; L is an integer of 3–16; and R_7 is

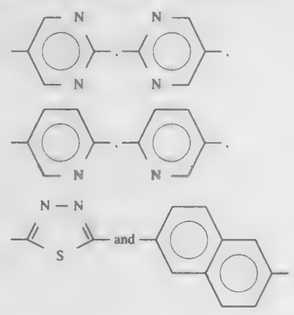


wherein Y_7 and Y_8 independently denote H, F, CH_3 or CF_3, a cyclized alkyl group having 3–18 carbon atoms or a linear or branched alkyl group having 1–18 carbon atoms, said linear, branched or cyclized alkyl group capable of including at least one methylene group which can be replaced with —O—, —S—, —CO—, —CH═CH—, —C≡C— or —CHW— where is halogen, CH or CF_3, provided that heteroatoms are not adjacent to each other; and

A_4 denotes $—A_5—X_5—A_6—$ or $—A_5—A_6—X_5—A_7—$ wherein A_5, A_6, and A_7 independently denote



wherein Y_9 and Y_9, independently denote H, F, CH_3 or CF_3, at least one of A_5, A_6 and A_7 being any one of



and X_5 denotes a single bond, —C≡C—, —CH═CH—, —COO—, —COS— or $—CH_2O—$.

5,728,319

LIQUID CRYSTAL COMPOSITION AND LIQUID CRYSTAL DISPLAY DEVICE

Shuichi Matsui; Kazutoshi Miyazawa, both of Chiba; Noriyuki Ohnishi, Kumamoto; Yasuhiro Haseba, Chiba; Yasuyuki Goto, Chiba; Etsuo Nakagawa, Chiba, and Shinichi Sawada, Chiba, all of Japan, assignors to Chisso Corporation, Osaka, Japan

PCT No. PCT/JP95/02100, § 371 Date Mar. 27, 1997, § 102(e) Date Mar. 27, 1997, PCT Pub. No. WO96/11994, PCT Pub. Date Apr. 25, 1996

PCT Filed Oct. 13, 1995, Ser. No. 776,175

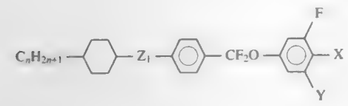
Claims priority, application Japan, Oct. 13, 1994, 7-205531; Oct. 13, 1994, 6-274511

Int. Cl.[6] C09K *19/30;19/12*

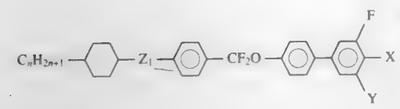
U.S. Cl. 252—299.63 **17 Claims**

1. A liquid crystal composition containing, as a first component, at least one compound expressed by general formula (I-1) or (I-2), and containing, as a second component, at least one compound

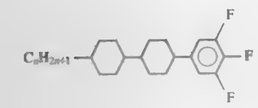
expressed by any one of general formulas (II-1) to (II-7)



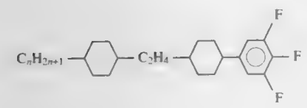
(I-1)



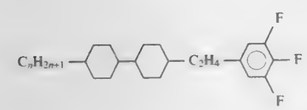
(I-2)



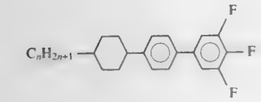
(II-1)



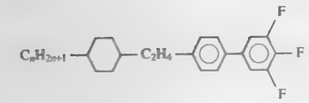
(II-2)



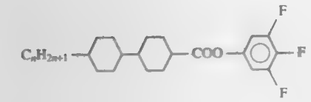
(II-3)



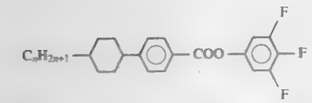
(II-4)



(II-5)



(II-6)



(II-7)

wherein n is an integer of 1 to 10, Z_1 represents $—CH_2CH_2—$ or single bond, X represents F, OCF_3, or CF_3, and Y represents H or F.

5,728,320

CHEMICAL DISPERSANT FOR OIL SPILLS

Robert J. Fiocco, Summit, N.J.; Kenneth W. Becker, Houston, Tex.; Gerard P. Canevari, Cranford, and Richard R. Lessard, Morristown, both of N.J., assignors to Exxon Research & Engineering Company, Florham Park, N.J.

Continuation-in-part of Ser. No. 263,974, Jun. 22, 1994, Pat. No. 5,618,468, which is a continuation-in-part of Ser. No. 990,963, Dec. 15, 1992, abandoned. This application Feb. 11, 1997, Ser. No. 798,253

Int. Cl.[6] B01F *17/10;* **E02B** *15/04*

U.S. Cl. 252—312 **9 Claims**

1. An improved dispersant formulation effective on highly viscous hydrocarbons which comprises:

(a) a sorbitan monoester of a C_{10}–C_{20} aliphatic monocarboxylic acid,

(b) a polyoxyethylene adduct of a sorbitan monoester of a C_{10}–C_{20} aliphatic monocarboxylic acid, said adduct having from 6 to 30 ethyleneoxide units per mole of ester,

(c) an alkali metal salt of a dialkyl sulfosuccinate wherein the alkyl group is a branched chain radical containing 4 to 13 carbon atoms,

(d) a polyoxyethylene adduct of a sorbitan triester of a C_{10}–C_{20} aliphatic monocarboxylic acid having from 6 to 30 ethyleneoxide units per mole of triester or a polyoxyethylene adduct of a sorbitol hexaester of C_{10}–C_{20} aliphatic monocarboxylic acid, said having from 6 to 30 ethyleneoxide units per mole of hexaester, and

(e) a propylene glycol ether solvent selected from the group consisting of propylene glycol n-butyl ether and tripropylene glycol n-butyl ether.

5,728,321

ORGANIC POLYMER, CONDUCTING ORGANIC POLYMER, PRODUCTION METHODS AND USES OF THE SAME

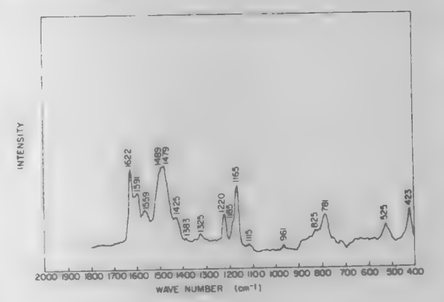
Masao Abe; Akira Ohtani; Hiroyuki Higuchi; Minoru Ezoe; Shinya Akizuki; Keiji Nakamoto; Keiko Mochizuki; Yasuhiro Umemoto, and Michio Umeda, all of Osaka, Japan, assignors to Nitto Denko Corporation, Osaka, Japan

Continuation of Ser. No. 87,907, Jul. 9, 1993, abandoned, which is a division of Ser. No. 413,502, Sep. 27, 1989, Pat. No. 5,264,552. This application Jun. 6, 1995, Ser. No. 471,256

Claims priority, application Japan, Sep. 30, 1988, 63-248533; Mar. 9, 1989, 1-57153; Aug. 7, 1989, 1-204181

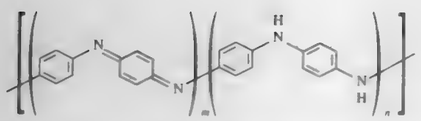
Int. Cl.[6] H01B *1/00;1/04*

U.S. Cl. 252—500 **4 Claims**



1. A method for producing a conducting organic polymer film, characterized by dissolving an organic polymer in an organic solvent, casting the solution obtained, evaporating off the organic solvent to obtain an organic polymer film, and doping with a protonic acid having a pKa value of less than 4.8; wherein the organic polymer has, as the main repeating unit, a compound represented by the general formula:

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wherein, m and n respectively show the molar fraction of the quinonediimine structural unit and the phenylenediamine structural unit in the repeating unit, and 0<m<1, 0<n<1, and m+n= 1; and said organic polymer has an intrinsic viscosity [η] of more than 0.48 dl/g measured in N-methyl-2-pyrrolidone at 30° C., and has, in the undoped state, a ratio Ia/Ib of the intensity of the Raman line Ia of the ring stretching vibration appearing at a wave number higher than 1600 cm^{-1} and the intensity of the Raman line Ib of the ring stretching vibration appearing at a wave number lower than 1600 cm^{-1} in the ring stretching vibration of para-substituted benzene in the laser Raman spectrum obtained by exciting with a light of wavelength of 457.9 nm more than 1.0; wherein the organic polymer is obtained by adding 2 to 2.5 equivalents amounts of an aqueous solution of an oxidizing agent per mole of aniline in the presence of a protonic acid.

5,728,322

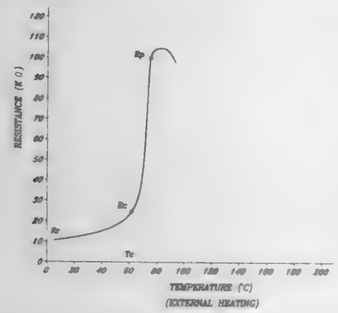
CONDUCTIVE POLYMERIC COATINGS WITH POSITIVE TEMPERATURE COEFFICIENTS OF RESISTIVITY

Yong Chul Kim, 1105 Dong 5, Daelim Apartment, Jamwon-Dong, Seocho-Ku, Seoul City, Rep. of Korea, and Hiroshi Nishino, 20-35 Yokodai 3-chome, Isogo-Ku, Yokohama City, Japan

Division of Ser. No. 532,536, Sep. 22, 1995, Pat. No. 5,556,576. This application Jun. 5, 1996, Ser. No. 658,601

Int. Cl.[6] H01B *1/20;1/24;* **C08L** *91/06*

U.S. Cl. 252—511 **18 Claims**



1. An electrically conductive polymeric coating paste, made by thoroughly mixing ingredients in a heated stirrer vessel, comprising:

an aromatic solvent;

a quantity "X" of free conductor powder;

a substrate-forming elastomer, which contains no diene monomer, equal to 0.25X to 0.40X, by weight; and

a paraffin equal to 0.25X–0.40X, by weight, of said conductor powder.

5,728,323

PROCESS FOR PREPARING DIALKYL TETRAHALOPHTHALATES

James F. Day, Greensboro, and James J. Good, Archdale, both of N.C., assignors to Unitex Chemical Corporation, Greensboro, N.C.

Filed Nov. 6, 1995, Ser. No. 554,262

Int. Cl.[6] C09K *21/00;* **C07C** *67/00;69/00*

U.S. Cl. 252—601 **20 Claims**

1. A process for the preparation of a dialkyl tetrahalophthalate, comprising;

a. dissolving a tetrahalophthalic anhydride containing up to about 0.30% residual sulfuric acid, in a C_1–C_{18} alkanol, to form a reaction mass;

b. removing residual sulfuric acid from the reaction mass using a treatment selected from the group consisting of serial water washes, and treatment with a first Group II alkali metal salt of a low number carbon chain organic acid;

c. removing water from said reaction mass;

d. esterifying with an alkyl titanate catalyst; and

e. treating with a second Group II alkali metal salt and water to decolorize and remove residual metal contamination and acidity.

5,728,324

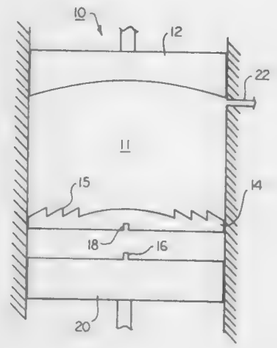
MOLDING DIFFRACTIVE OPTICAL ELEMENTS

William H. Welch; Robert D. Te Kolste, and Michael R. Feldman, all of Charlotte, N.C., assignors to Digital Optics Corporation, Charlotte, N.C.

Filed Jan. 31, 1995, Ser. No. 381,169

Int. Cl.[6] B29D *11/00*

U.S. Cl. 264—2.5 **25 Claims**



1. A method of fabricating a diffractive optical element comprising the steps of:

fabricating a negative of a desired diffraction pattern having multiple discrete levels on a molding surface of a master element using photolithography, including repeating said photolithography step in order to form said multiple discrete levels;

assembling the master element with the molding surface as a portion of a mold;

injecting a molding composition into the mold and against the molding surface of the master element to injection mold a diffractive optical element, whereby the optical element has the desired diffraction pattern on its surface; and

compensating for thermal mismatch between the master element and the mold.

5,728,325

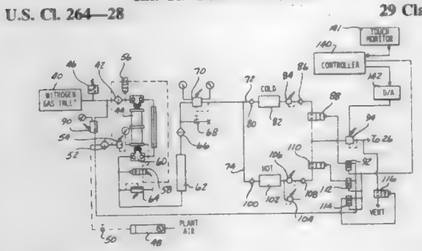
GAS ASSIST INJECTION MOLDING APPARATUS AND METHOD WITH MULTIPLE TEMPERATURE GAS SUPPLY

Karl Blankenburg, 32131 Claeys Dr., Warren, Mich. 48093

Continuation of Ser. No. 223,445, Apr. 5, 1994, abandoned. This application Feb. 12, 1996, Ser. No. 600,119

Int. Cl.[6] B29C *45/72;45/76*

U.S. Cl. 264—28 **29 Claims**



1. A gas assisted injection molding apparatus for use with an injection mold, the apparatus comprising:

means for injecting molten plastic into an injection mold;

a source of injection gas;

first means, disposed in fluid communication with the source of injection gas, for delivering a first quantity of injection gas at a first temperature to the injection mold;

second means, disposed in fluid communication with the source of injection gas, for delivering a second quantity of gas at a second temperature to the injection mold;

means, communicating with the first delivering means, for making the first temperature of the first quantity of gas higher relative to the second temperature of the second quantity of injection gas,

first valve means and second valve means, disposed in fluid communication with the first means for delivering the first quantity of injection gas and the second means for delivering the second quantity of injection gas, respectively, for causing flow of the first and second quantities of injection gas into the injection mold to force the molten plastic against the mold to form a hollow interior within the plastic as the molten plastic solidifies;

control means for controlling the first and second valve means to cause flow of the first and second quantities of injection gas into the injection mold in a preset sequence, the control means generating control signals representative of a separate, variably selected pressure for each of the first and second quantities of injection gas during each injection molding cycle; and

a single variable pressure regulator connected in fluid flow communication with the first and second valve means and responsive to control signals from the control means for selectively setting a separate pressure for the delivery of each of the first and second quantities of injection gas to the injection mold.

5,728,326

METHOD OF MAKING HARD-FACED CERAMIC FIBER MODULE

Paul V. Suey, 255 Green Parrot La., Natrona Heights, Pa. 15065

Filed Mar. 18, 1997, Ser. No. 819,971

Int. Cl.[6] C04B *41/87*

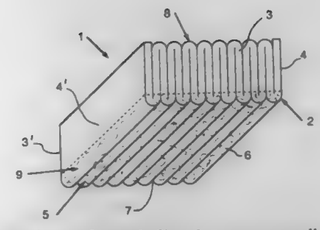
U.S. Cl. 264—28 **9 Claims**

1. A method of forming a hard-faced ceramic fiber module from a ceramic fiber sheet comprising:

providing a sheet of ceramic fibers, which sheet is folded upon itself so as to form a module having two ends, two side walls, a first surface having adjacent folds with intermediate valleys, and a second opposed surface;

soaking said first surface of said module in an aqueous colloidal silica suspension so as to saturate the first surface,

placing said module into a container with said first surface exposed,



adding a mixture of ceramic fibers in an aqueous colloidal silica suspension to said container so as to form a layer that covers said exposed first surface of said module,

compressing said layer,

freezing said module having said compressed layer over said first surface, and

heating the resultant frozen module at an elevated temperature until substantially all of the water is removed from said module.

5,728,327

METHOD, BARREL SUBUNITS AND UNITS, SERVICE INSTALLATIONS AND ASSEMBLY STRUCTURES FOR THE FABRICATION OF MOLDABLE PRODUCTS, PARTICULARLY BASED ON CONCRETE

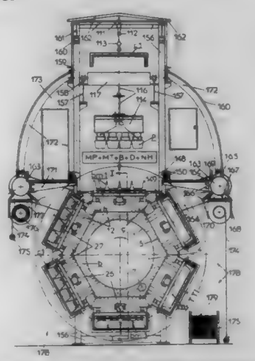
Mircéa Borcoman, 4, rue du Gl. H. Bertier, and M. Calin Borcoman, 11, rue du Gl. H. Bertier, both of 92200-Neuilly, France

Filed Jul. 8, 1994, Ser. No. 275,212

Claims priority, application France, Jan. 8, 1992, 92 00124

Int. Cl.[6] B28B *1/08;5/10;7/38*

U.S. Cl. 264—39 **29 Claims**



1. A method for manufacturing moldable products implementing optimized equipment and technological organization solutions comprising:

mounting a rotary body to a horizontal rotation axis for a rotation of more than 270°, wherein the rotary body is furnished on its periphery with a natural number of attachment means uniformly distributed around the periphery of the rotary body;

mounting molding means to each of the natural number of attachment means;

placing a first one of the molding means in a workstation position;

filling the first one of the molding means with material to be molded;

covering the first one of the molding means with a cover;

changing a position of the rotary body for a sequentially following one of the attachment means up to the natural number of the attachment means into the workstation position followed by the placing, the filling and the covering of additional molding means for each workstation position assumed;

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curing the material to be molded in each one of the molding means during the rotation of the rotary body through more than 270° caused by the position changing of the rotary body for each sequentially following one of the attachment means up to the natural number of the attachment means;

then placing the first one of the molding means in the workstation position;

removing the cover from the first one of the molding means and removing a resulting molded structure from the first one of the molding means;

changing the position of the rotary body for the next one of the attachment means up to the natural number of the attachment means into the workstation position followed by the removing steps for each additional molding means for each workstation position assumed such that the molding means is rotated through more than 270° caused by the position changing of the rotary body for each sequentially following one of the attachment means up to the natural number of the attachment means;

then placing the first one of the molding means in the workstation position;

cleaning and oiling the first one of the molding means; and changing the position of the rotary body for the next one of the attachment means up to the natural number of the attachment means into the workstation position followed by the cleaning and oiling step for each additional molding means for each workstation position assumed such that the molding means is rotated through more than 270° caused by the position changing of the rotary body for each sequentially following one of the attachment means up to the natural number of the attachment means.

3. A molding cylinder comprising:

a rotary body exhibiting an n-fold rotation axis running horizontally, wherein n is a natural number;

a bearing for engaging the rotary body and for supporting the rotary body to rotate around the n-fold rotation axis;

n attachment means attached to the rotary body and distributed uniformly around the rotary body such that the rotary body together with the n attachment means exhibits an n-fold symmetry axis;

n molding means, each attached to a corresponding one of the n attachment means;

n covers, wherein each of the n covers is attachable to a corresponding one of the molding means;

a workstation positioned at the rotary body such that the rotary body is rotatable by more than 270° and thereby each of the n attachment means is movable into a position to be sequentially engaged by the workstation; and

driving means attached to the rotary body for moving the rotary body into n different positions such that in each position one of the n attachment means is engageable by the workstation and each of the n molding means is rotatable through more than 270° caused by the position changing of the rotary body for each sequentially following one of the n attachment means to allow for sequential repositioning of each of the n molding means at the workstation position for additional processing.

5,728,328

METHOD OF MOLDING A PRODUCT HAVING LOW GLOSS SURFACE

Masanobu Senda, Inazawa, and Yasuhiko Ogisu, Nagoya, both of Japan, assignors to Toyoda Gosei Co., Ltd., Aichi-Ken, Japan

Filed Mar. 27, 1996, Ser. No. 622,160

Claims priority, application Japan, Mar. 27, 1995, 7-068316; Jun. 13, 1995, 7-146548; Dec. 13, 1995, 7-324616

Int. Cl.[6] B29C *33/56*

U.S. Cl. 264—39 **9 Claims**

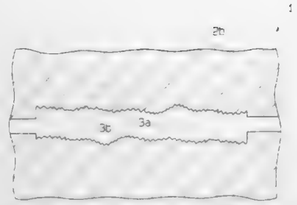
1. A method for manufacturing a product with a mold assembly having at least two molds opposed to each other, wherein each of said molds has a cavity surface defining a space between, said method comprising steps of:

performing an ionic nitriding treatment at a treatment temperature higher than 530° C. to at least a part of at least one of the cavity surfaces to form fine projections and recesses therein, and forming a nitride on at least said part of said at least one cavity surface;

filling the space with a molding material;

solidifying the molding material in the space to define the product; and

removing the product from the mold.



5,728,329

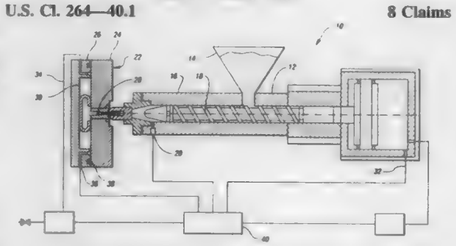
METHOD AND APPARATUS FOR INJECTING A MOLTEN MATERIAL INTO A MOLD CAVITY

Milko G. Guergov, 615 Washington #5, Monroe, Mich. 48161

Continuation of Ser. No. 515,522, Aug. 15, 1995, Pat. No. 5,662,841, which is a continuation of Ser. No. 236,471, May 2, 1994, Pat. No. 5,441,680. This application Nov. 21, 1995, Ser. No. 561,015

Int. Cl.[6] B29C *45/34*

U.S. Cl. 264—40.1 **8 Claims**



1. A method of injecting molten plastic into a mold cavity, comprising:

pressurizing a gas in the mold cavity prior to injection of molten plastic into the mold cavity and generating static pressure in the molten plastic;

commencing injection of the molten plastic into the mold cavity; and

sensing, mathematically deriving and monitoring the static pressure of the molten plastic and the pressure of the gas in the mold cavity as the molten plastic is injected into the mold cavity.

5,728,330

PROCESS FOR MANUFACTURING FOAM-FILLED EXTRUDED PRODUCTS

Ronald Dean Erwin, Peachtree City, and Marvin Ray Whitley, Norcross, both of Ga., assignors to Irwin Industries, Inc., Peachtree City, Ga.

Continuation of Ser. No. 427,892, Apr. 26, 1995. This application Aug. 30, 1996, Ser. No. 705,725

Int. Cl.[6] B29C *44/24*

U.S. Cl. 264—40.7 **17 Claims**

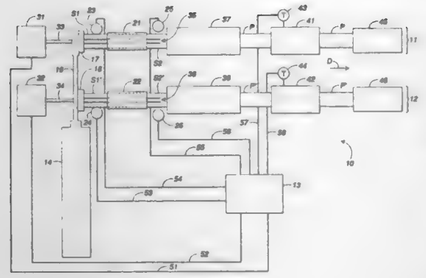
1. A continuous extrusion process for use with an extrusion line for fabricating an article having a rigid foam core and a resilient outer plastic shell, the process comprising the steps of:

(a) continuously extruding a heated thermoplastic material from a die to form a continuous extruded plastic shell, with the continuous extruded plastic shell moving in a substantially linear direction along a substantially linear path;

(b) partially hardening the extruded plastic shell in a first cooling element located at a first position along the linear path as the continuous extruded plastic shell moves in the linear direction;

(c) injecting a liquid foam material into the interior of the partially hardened plastic shell at a location between an exit of the first cooling element and an entrance of a second cooling element linearly-disposed from the first cooling element at a second position along the linear path; and

(d) subsequently cooling the plastic shell and the liquid foam material in the second cooling element to more fully harden the plastic shell and the foam.



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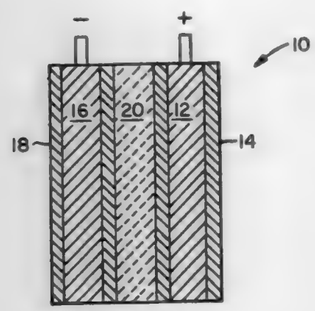
METHOD OF PREPARING A BATTERY SEPARATOR

John L. Stempin, Beaver Dams; Ronald L. Stewart, Big Flats, and Dale R. Wexell, Corning, all of N.Y., assignors to Corning Incorporated, Corning, N.Y.

Division of Ser. No. 491,766, Jun. 19, 1995, Pat. No. 5,514,494. This application Feb. 9, 1996, Ser. No. 598,935

Int. Cl.[6] C04B *35/185;35/10;38/06*

U.S. Cl. 264—44 **4 Claims**



1. A method of producing a porous, ceramic battery separator comprising the steps of mixing a batch having a composition capable of yielding a fired ceramic body composed of alumina, mullite, or a mixture of alumina and mullite, including graphite in the batch in an amount up to about 75% of the batch, extruding a sheet from the batch having a thickness in the range of 1–12 mm, firing the sheet to burn out the graphite and leave an enhanced pore volume in the body.

5,728,332

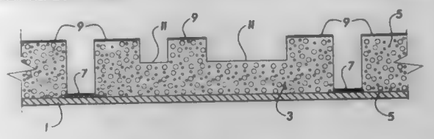
METHOD OF MAKING A MULTI-LEVEL, EXPANDED RESINOUS PRODUCT

Rudolf Frisch, and Marina Gillis, both of Yardley, Pa., assignors to Congoleum Corporation, Mercerville, N.J.

Continuation of Ser. No. 175,937, Dec. 20, 1993, abandoned. This application Nov. 20, 1995, Ser. No. 560,597

Int. Cl.[6] B29C *44/06*

U.S. Cl. 264—46.4 **20 Claims**



1. A process for preparing multi-level, selectively expanded, resinous sheeting comprising:

(A) providing a composite comprising a backing material and adhered thereto a layer of a foamable gelled plastisol which contains a blowing agent and an activator for said blowing agent;

(B) forming a partially printed composite by applying directly to a portion of the surface of the layer a water-based, liquid composition containing an accelerator which functions to lower the temperature at which the blowing agent decomposes and by applying directly to some, but not all, of the other portions of the surface of the layer a liquid, water-based composition containing an inhibitor which functions to decrease the activity of the blowing agent; and

(C) forming the multi-level, selectively expanded, resinous sheeting by raising the temperature of the printed composite to a level such that the blowing agent decomposes and the gelled plastiol fuses, the decomposition of the blowing agent evolving gas which causes expansion of the foamable gelled plastisol in the portion where the surface is not printed and expansion of the foamable gelled plastisol in the portion where the surface is printed with said water-based, liquid composition containing said accelerator, the latter portion being expanded to a greater extent than the former, and wherein the portion of the surface printed with said inhibitor-containing composition is unexpanded or expanded to a limited degree;

wherein the concentrations of the blowing agent, the inhibitor and accelerator are such that the decomposition temperature of the blowing agent which underlies the activator-containing composition is at least about 15° F. lower than the decomposition temperature of the blowing agent which underlies the unprinted portion of said surface, and wherein the decomposition temperature of the blowing agent which underlies the unprinted portion of said surface is at least about 10° F. lower than the decomposition temperature of the blowing agent which underlies the inhibitor-containing composition and wherein the ratio of the height of the expanded unprinted portion of the layer to the original thickness of the layer is about 1.8:1 to about 2.4:1 and the ratio of the height of the expanded accelerator-printed portion of the layer to the original thickness of the layer is about 2.5:1 to about 3.2:1.

5,728,333

METHOD FOR MAKING AND THEN REMOVING A MOLDED ARTICLE OF RIGID POLYURETHANE FOAM FROM A MOLD

Keiichiro Tabata, Chigasaki; Yoichi Nabeshima, Zama; Taikyu Fujita, Yokohama; Kazufumi Yokoyama, Yokosuka, and Torao Hashimoto, Yokohama, all of Japan, assignors to Bridgestone Corporation, Tokyo, Japan

Filed Jun. 26, 1996, Ser. No. 673,233

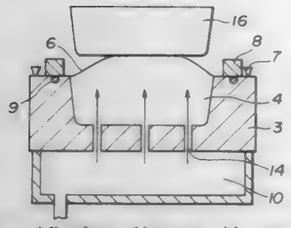
Claims priority, application Japan, Dec. 25, 1995, 7-350922

Int. Cl.[6] B29C *44/02;41/42*

U.S. Cl. 264—46.4 **12 Claims**

1. A method for manufacturing a molded article of rigid polyurethane having a thickness of 0.3 to 1.0 mm foam using a mold

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consisting essentially of separable upper and lower mold sections mated to define a cavity therebetween, comprising the steps of:

vacuum forming a film of polypropylene which is not bondable to the molded article into a shape conformal to the cavity shape of at least one of the lower and upper mold sections,

closely setting the previously vacuum formed film within said cavity and securing the film to a mold section outside the cavity,

introducing a rigid polyurethane foam-forming raw material mainly comprising a polyhydroxy compound and a polyisocyanate compound into said cavity and on the film,

causing the raw material to foam and expand in said cavity to mold an article of rigid polyurethane foam,

lifting the molded article together with the film from said mold section,

stripping the molded article from the film to eject only the molded article from the mold without taking the entire film out of the mold, and

returning the once lifted film to the original vacuum formed shape for replacing the film in said cavity.

5,728,334

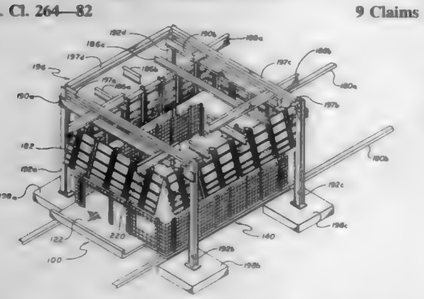
DWS SYSTEM METHOD FOR MANUFACTURING PRECAST CONCRETE MODULES

Ho Woo Lee, Seoul, Rep. of Korea, assignor to Daewoo Hawaii Corporation, Honolulu, Hi.

Division of Ser. No. 357,458, Dec. 16, 1994, Pat. No. 5,643,488. This application Feb. 6, 1996, Ser. No. 597,140

Int. Cl.[6] B28B *1/14;7/22*

U.S. Cl. 264—82 **9 Claims**



1. An efficient method of manufacturing precast concrete modules comprising entire offices or apartments, said method using a hydraulic system that is controlled from one or more control panels, and said method comprising the steps of:

laying a pattern of slab reinforcement bars and conduits;

pouring concrete over said pattern of slab reinforcement bars and conduits to form a reinforced concrete slab;

erecting a pattern of wall reinforcement bars and conduits on said reinforced concrete slab;

hydraulically lowering wall form pairs, each pair comprising an internal wall form and a corresponding external wall form, to encompass said pattern of wall reinforcement bars and conduits;

hydraulically closing each of said wall form pairs about said pattern of wall reinforcement bars and conduits to provide a mold cavity between said internal wall form and said corresponding external wall form of each wall form pair;

pouring concrete into said mold cavities of said closed wall form pairs;

steam curing said concrete that has been poured into said mold cavities of said closed form pairs to form vertical reinforced concrete walls joined to said reinforced concrete slab;

hydraulically opening said wall form pairs; and

hydraulically lifting said wall form pairs to a position above said vertical reinforced concrete walls of said precast concrete module.

5,728,335

PROCESS FOR EXTRUSION

Anthony Charles Neubauer, Piscataway, N.J., assignor to Union Carbide Chemicals & Plastics Technology Corporation, Danbury, Conn.

Filed Jun. 26, 1996, Ser. No. 671,166

Int. Cl.[6] B29B *9/06*

U.S. Cl. 264—83 **10 Claims**

1. A process for the extrusion of polyethylene having a broad molecular weight distribution wherein the polyethylene is prepared in pellet form, said extrusion taking place in a pelletizing extruder having one or more zones essentially filled with polyethylene and two or more zones partially filled with polyethylene comprising

(i) introducing the polyethylene into the extruder at a temperature sufficient to melt the polyethylene; (ii) introducing a mixture of an inert gas and oxygen into each partially filled zone wherein the mixture contains about 1 to about 21 percent by volume oxygen based on the volume of the gaseous mixture; (iii) passing the molten polyethylene through each zone at melt temperature; and (iv) extruding the polyethylene into pellets and cooling same.

5,728,336

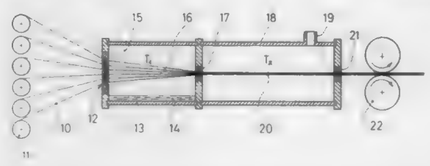
HIGH-STRENGTH, HIGH-MODULUS, COMPOUND-FILAMENT OR COMPOUND-FILM IMPLANT AND METHOD FOR PRODUCING IT

Sylwester Gogolewski, Alvaneu-Dorf, and Slobodan Tepic, Davos, both of Switzerland, assignors to Synthes (U.S.A.), Paoli, Pa.

Continuation of Ser. No. 658,552, Feb. 21, 1991, abandoned. This application Apr. 14, 1995, Ser. No. 426,684

Int. Cl.[6] B29C *65/70*

U.S. Cl. 264—101 **8 Claims**



1. A method for producing high-strength, high-modulus, polymeric compound filament implant materials from oriented polymeric fibers, comprising the steps of:

a) exposing the surface of a plurality of oriented polymeric monofilaments to a solvent able to swell said surface, and swelling said surface;

b) forming an aligned bundle of said monofilaments with said solvent-swollen surface;

c) pulling said bundle through an orifice, whereby the area of the orifice at the narrowest point is equal to or smaller than the total cross-sectional area of the monofilaments in the bundle; and

d) maintaining tension on the bundle past said orifice and removing said solvent.

5,728,337

TWIN SCREW EXTRUDER AND AN EXTRUDING METHOD USING THE SAME

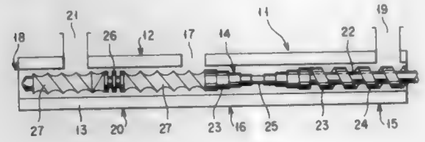
Tatsuya Yoshikawa, Numazu, and Akiyoshi Kobayashi, Fuji, both of Japan, assignors to Toshiba Machine Co., Ltd., Tokyo, Japan

Filed Jul. 18, 1996, Ser. No. 683,313

Claims priority, application Japan, Jul. 19, 1995, 7-182728

Int. Cl.[6] B29C *47/76;47/40*

U.S. Cl. 264—102 **4 Claims**



1. A twin screw extruder comprising:

a twin screw extruder body including two screw bodies arranged parallel to each other and kept in engagement with each other;

a barrel having a circular cross section and containing the screw bodies;

a feed section supplied with an extrusion material;

a kneading section on a downstream side of the feed section for kneading the extrusion material;

an air vent section on a downstream side of the kneading section through which air contained in the extrusion material kneaded in the kneading section is discharged, and an outlet section for the kneaded extrusion material, connected to the downstream side of the kneading section;

whereby the extrusion material fed from the feed section to the kneading section and kneaded therein is continuously extruded through the outlet section as the screw bodies rotate;

each said screw body including a feed screw at the feed section and a kneading screw at the kneading section;

the feed screw being formed of a wide-flight 1-lobe intermeshing screw having the ratio W_0/D of the flight width W_0 thereof to the screw diameter D ranges from 0.2 to 0.4;

the kneading screw including a plurality of double-tipped kneading discs and arranged in the axial direction of the screw bodies;

wherein the ratio W/D of the width W of the kneading discs in the axial direction of the screw bodies to the screw diameter D ranges from 0.3 to 1.0, and the kneading discs are displaced from one another in the circumferential direction of the kneading screw, the angle by which any two adjacent kneading discs being displaced being such that at least a backflow of the extrusion material can be prevented.

4. An extruding method using a twin screw extruder, which extruder comprises a twin screw extruder body including two screw bodies arranged parallel to each other and kept in engagement with each other, a barrel having a circular cross section and containing the screw bodies, a feed section supplied with the extrusion material, a kneading section on the downstream side of the feed section for kneading the extrusion material, an air vent section on a downstream side of the kneading section through which air contained in the extrusion material kneaded in the kneading section is discharged, and an outlet section for the kneaded extrusion material, connected to the downstream side of the kneading section, whereby the extrusion material fed from the feed section to the kneading section and kneaded therein is continuously extruded through the outlet section as the screw bodies rotate, wherein the twin screw extruder body formed of an intermeshing co-rotating twin screw extruder the extruding method comprising:

feeding the extrusion material to the feed section, said extrusion material being formed of a resin composition containing 10 to 90% by weight of a mineral filler;

transporting the extrusion material, fed to the feed section, to the kneading section as a feed screw rotates, the feed screw being formed of a wide-flight 1-lobe intermeshing screw having the ratio W_0/D of the flight width W_0 thereof to the screw diameter D rages from 0.2 to 0.4;

kneading the extrusion material fed from the feed section as a kneading screw rotates, the kneading screw including a plurality of double tipped kneading discs and arranged in the axial direction of the screw bodies, the kneading discs being such that the ratio W/D of the width W thereof in the axial direction of the screw bodies to the screw diameter D ranges from 0.3 to 1.0, and displaced from one another in the circumferential direction of the kneading screw, the angle by which any two adjacent kneading discs being displaced range such that at least a backflow of the extrusion material can be prevented;

discharging through the air vent section air contained in the extrusion material kneaded in the kneading process; and

continuously extruding the extrusion material kneaded in the kneading section through the outlet section while allowing the air contained in the extrusion material kneaded in the kneading process to be discharged through the air vent section.

5,728,338

COMPOSITES AND METHOD

Weldon C. Kiser, Abilene, Tex., assignor to Environmental L.L.C.

Division of Ser. No. 561,542, Nov. 22, 1995, Pat. No. 5,582,898, which is a continuation-in-part of Ser. No. 505,703, Jul. 21, 1995, Pat. No. 5,580,638, and a continuation of Ser. No. 474,944, Jun. 7, 1995, Pat. No. 5,525,399, which is a continuation-in-part of Ser. No. 187,082, Jan. 26, 1994, Pat. No. 5,453,313, said Ser. No. 505,703 is a continuation of Ser. No. 187,082. This application Jun. 17, 1996, Ser. No. 664,770

Int. Cl.[6] B29C *43/24;47/88*

U.S. Cl. 264—129 **20 Claims**

1. The method of making a fire retardant rubber mat comprising admixing rubber particles, a binder, and at least one fire retardant to form a substantially uniform mixture, forming said mixture into a mat of the thickness desired, and solidifying the mat, said binder consisting essentially of an elastomeric polysulfide and a polyolefin with said polysulfide comprising at least 5 wt. % of the total weight of the mat and said fire retardant being present in an amount sufficient to give the degree of fire retardancy desired.

5,728,339

IN-LINE SILICONE COATED POLYESTER FILM AND A PROCESS FOR COATING THE FILM

Grover L. Farrar, Greenville, S.C., assignor to Hoechst Celanese Corporation, Somerville, N.J.

Division of Ser. No. 773,323, Oct. 11, 1991, abandoned. This application Feb. 14, 1996, Ser. No. 601,587

Int. Cl.[6] B29C *55/04;55/14*

U.S. Cl. 264—134 **7 Claims**

1. A process for coating a film comprising the steps of:

a) forming a polyester film;

b) drawing said polyester film;

c) coating said film, in-line, with an effective amount of a coating sufficient to release an adhesive backed article from said coating, said coating comprising an aqueous based thermosetting silicone resin composition and at least 1.0% by weight of silicone solids of a glycidoxy silane;

d) drying said coating; and

e) heat-setting said coated film.

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5,728,340

PROCESS FOR POLYESTERURETHANEUREA THIN-WALLED ARTICLES

Richard Lewis Dreibelbis, Waynesboro; Nathan Eli Houser, Afton, both of Va., and Jacob Lahijani, Wilmington, Del., assignors to E. I. du Pont de Nemours and Company, Wilmington, Del.

Continuation-in-part of Ser. No. 384,894, Feb. 7, 1995, abandoned, which is a continuation-in-part of Ser. No. 965,600, Oct. 26, 1992, Pat. No. 5,391,343. This application Jul. 19, 1996, Ser. No. 684,067

Int. Cl.[6] B29D *7/00;* **B28B** *1/38;1/14;3/10*

U.S. Cl. 264—216 **5 Claims**

1. A process for making a thin-walled elastic article comprising, in sequence:

preparing a polyesterurethaneurea by

reacting methylene-bis-(4-phenyl-isocyanate) with a polyester diol to form an isocyanate-capped prepolymer having a %NCO in the range of 1.4 to 2.0 weight %, the polyester diol having been derived from the reaction of adipic acid with a mixture of ethylene glycol (2G) and 1,4-butanediol (4G) in the weight ratio of 2G/4G in the range of 20:80 to 80:20 and having a number average molecular weight in the range of 3,000 to 5,000, and

chain-extending the prepolymer with a diamine being selected from the group consisting of ethylene diamine, 1,3-diaminocyclohexane, 1,2-diamino-propane, 1,3-diaminopropane and metaxylylene diamine;

forming a solution of the polyesterurethaneurea in an organic solvent for the polyesterurethaneurea at a polyesterurethaneurea concentration of 12 to 20%, based on total solution weight, the solution having a viscosity, measured at 30° C., in the range of 25 to 125 poises;

optionally, degassing the thusly formed solution;

dipping a mandrel into the solution;

removing the mandrel from the solution, thereby forming a solution-coated mandrel;

drying the coated mandrel; and

removing the resultant dried thin-walled article of polyesterurethaneurea from the mandrel.

5,728,341

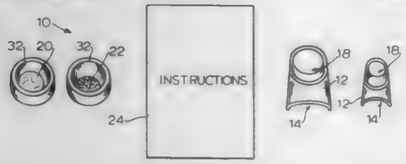
METHOD FOR OBTAINING FINGERPRINT IMPRESSION

Anthony Kim, II, 2717 Sparger Rd., Durham, N.C. 27705

Division of Ser. No. 623,697, Apr. 15, 1996, Pat. No. 5,662,942. This application May 5, 1997, Ser. No. 851,112

Int. Cl.[6] B29C *33/40*

U.S. Cl. 264—222 **6 Claims**



1. A method of obtaining an impression of a fingerprint of a person's finger comprising a unitary finger sleeve, a base material and a catalyst, comprising the steps of:

a. forming a unitary finger sleeve generally hollow and tubular in form, the sleeve having at a proximal end a first opening sized to receive substantially snugly a person's finger of comparable size and permitting a distal end of the finger to extend through the sleeve, a second opening being oval shaped and formed in a side portion of the sleeve and being sized and shaped to permit the fingerprint of the finger to be exposed through the second opening, and a third opening formed partially in a distal end and partially in a distal side portion of the sleeve on a side opposite of the second opening and being sized and shaped to permit an outermost extremity and fingernail portion of the finger to extend outwardly of the sleeve when the fingerprint is exposed in the second opening;

b. placing the finger sleeve on the person's finger from which the impression will be obtained so that the fingerprint is exposed through the second opening;

c. preparing an impression material by kneading together a predetermined amount of base material with a predetermined amount of catalyst;

d. placing the prepared impression material over the fingerprint exposed by the finger sleeve;

e. exerting pressure on the impression material which has been placed over the fingerprint beginning at the center of the fingerprint, toward the exterior of the fingerprint;

f. allowing the impression material to remain on the finger for a time sufficient to permit the impression material to set;

g. removing the impression material from the finger; and

h. removing the finger sleeve from the finger.

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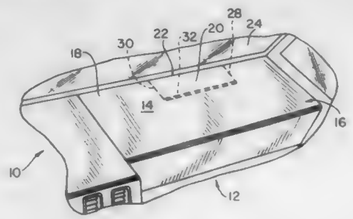
METHOD OF MAKING AN INVISIBLE INSTRUMENT PANEL OR DASHBOARD AIRBAG COVER DOOR

W. Gary Wirt, Clinton Township, and Patrick G. Jarboe, Shelby Township, both of Mich., assignors to Morton International, Inc., Chicago, Ill.

Continuation of Ser. No. 348,057, Dec. 1, 1994, abandoned. This application Feb. 27, 1996, Ser. No. 607,650

Int. Cl.[6] B29C *45/14*

U.S. Cl. 264—259 **4 Claims**



1. A process for producing an automotive trim panel having an airbag deployment cover door permitting egress of an airbag therethrough from an airbag module upon deployment of the airbag, wherein said trim panel comprises

(a) an injection molded thermoplastic resin substrate member;

(b) an outer trim layer overlaying said substrate member and forming a finish surface of said panel; and

(c) a foam layer intermediate said substrate member and said trim layer; said process comprising:

(1) placing and anchoring a laminate of said outer trim layer and said intermediate foam layer into a cavity side of a mold of a low pressure insert injection molding apparatus;

(2) closing and clamping shut said mold;

(3) injecting molten thermoplastic resin material into a core side of said mold under low pressure and thereafter permitting cooling of said injected thermoplastic resin material thereby forming said substrate member with a plurality of tear propagation lines and a hinge means forming an outline of the airbag deployment cover door in said substrate member and bonding said substrate member to said laminate; and

(4) opening the mold and removing therefrom an automotive trim panel in which the tear propagation lines and hinge means forming the outline of an airbag deployment cover door are not visible to an observer of the outer trim layer forming the finish surface of said panel and do not show to said observer as depressions on an outer surface of said outer trim panel;

wherein the molten thermoplastic resin is heated to a temperature of from about 365° F. to about 540° F. for injection into the mold and is injected within a period of from about 0.1 to about 0.5 seconds.

5,728,343

METHOD OF MOLDING A RESIN PULLEY

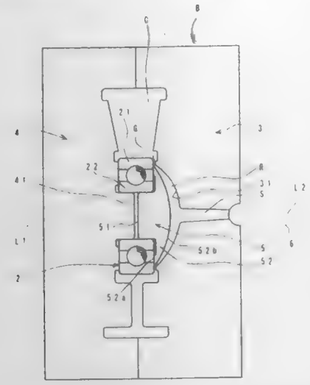
Hiroshi Ueno, Osaka, Japan, assignor to Koyo Seiko Co., Ltd., Osaka, Japan

Filed Nov. 17, 1995, Ser. No. 560,499

Claims priority, application Japan, Nov. 18, 1994, 6-309576

Int. Cl.[6] B29C *45/00*

U.S. Cl. 264—275 **5 Claims**



1. A method of molding a resin pulley, comprising the steps of:

(a) providing first and second cavity molds, each of the cavity molds having an inside and a center, the cavity molds forming a cavity in a closed position;

(b) providing a rolling bearing having an inner ring and an outer ring, the inner ring having an inner peripheral surface, and the outer ring having an end surface, an outer peripheral surface, and an outer diameter;

(c) providing a dummy boss shaft having a shaft portion and a flange formed adjacent the shaft portion, the shaft portion being dimensioned to be fitted to the inner peripheral surface of the inner ring, and the flange having a lateral side at a right angle to an axis of the shaft portion and an outer diameter smaller than the outer diameter of the outer ring;

(d) disposing the first and second cavity molds in an open position;

(e) disposing the rolling bearing at the inside and center of the first cavity mold;

(f) removably fitting the shaft portion of the dummy boss shaft into the inner ring of the rolling bearing with the lateral side of the flange contacting the end surface of the outer ring of the rolling bearing so as to leave an annular margin between the outer diameter of the flange and the outer diameter of the end surface of the outer ring;

(g) closing the first and second cavity molds following said steps (e) and (f), thereby forming a cavity extending around a portion of the outer ring adjacent the outer peripheral surface of the outer ring, the cavity having a portion of smallest diameter which is to be charged with molten resin, and also forming a film gate along the portion of the adjacent the outer peripheral surface of the outer ring at a position corresponding to the smallest inner diameter portion of the annular cavity;

(h) supplying molten resin into the cavity through the film gate to mold an annular resin body around the rolling bearing to form a resin pulley, with the annular resin body having a flange covering the portion of the outer ring adjacent the outer peripheral surface of the outer ring, so as to connect the outer ring of the rolling bearing integrally with the resin body, the flange of the annular resin body having a smallest inner diameter portion corresponding to the smallest inner diameter of the annular cavity, and wherein the molten resin injected through the film gate does not enter the space between the flange of the dummy boss shaft and the end surface of the outer ring of the rolling bearing due to the location of the film gate at a position which corresponds to the smallest inner diameter portion of the flange of the resin body;

(i) opening the cavity molds following said step (h);

(j) removing the resin pulley and the dummy boss shaft from the cavity molds following said step (I); and

(k) removing the dummy boss shaft from the resin pulley following said step (j).

5,728,344

METHOD OF MOLDING A STEERING WHEEL PAD

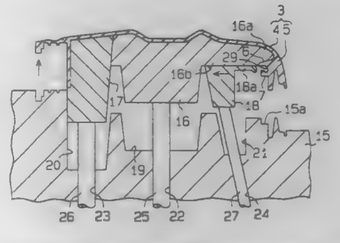
Kazunari Tajiri, and Soji Nimura, both of Aichi-ken, Japan, assignors to Toyoda Gosei Co., Ltd., Aichi-ken, Japan

Division of Ser. No. 405,022, Mar. 16, 1995, Pat. No. 5,603,968. This application Sep. 26, 1996, Ser. No. 721,627

Claims priority, application Japan, Apr. 28, 1994, 6-092520

Int. Cl.[6] B29C *45/44*

U.S. Cl. 264—318 **8 Claims**



1. A method for manufacturing a steering wheel pad by injection molding, wherein the steering wheel pad is provided with a cover and a pocket portion formed between a first projection and a second projection, said method comprising the steps of:

injecting a molten resin into a mold cavity defined by separable first and second mold portions and a plurality of extensible and retractable core members provided in one of the first and second mold portions, wherein the plurality of core members are in a retracted position during said step of injecting a molten resin,

wherein the first and second projections are formed according to the interfitting of the plurality of core members with one another and with the one of the mold portions in which the plurality of core members is provided;

curing the molten resin;

separating the first and second mold portions in a mold portion moving direction, such that the steering wheel pad is held on the one of the first and second mold portions provided with the plurality of core members; and

selectively extending and retracting the plurality of core members so as to automatically disengage the steering wheel pad form the one of the first and second mold portions provided with the plurality of core members

wherein the plurality of core members comprises a first core member, at least one second core member, and at least one third core member,

wherein said step of selectively extending and retracting the plurality of core member comprises:

collectively extending the first core member, the at lease one second core member, and the at least one third core member;

collectively retracting the first core member and the at least one third core member, thereby separating the first core member and the at least one third core member from the steering wheel pad; and

retracting the at least one second core member such that a portion of the steering wheel pad contacts a portion of the first core member, thereby causing a reaction force on the steering wheel pad for separating the steering pad from the at least one second core member.

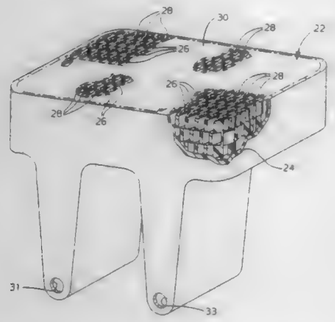
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5,728,345

METHOD FOR MAKING AN ELECTRODE FOR ELECTRICAL DISCHARGE MACHINING BY USE OF A STEREOLITHOGRAPHY MODEL

David Gerard Hlavaty, Northville, and Mansour Ashtiani-Zarandi, Birmingham, both of Mich., assignors to General Motors Corporation, Detroit, Mich.

Filed Mar. 3, 1995, Ser. No. 399,352
Int. Cl.[6] B29C *33/40;35/08;41/02*
U.S. Cl. 264—401 7 Claims



1. Method of making an electrode for electrical discharge machining comprising the steps of:
a. creating a cured resin model of the electrode having a network of interconnected supporting members defining the shape of the part and leaving voids between the supporting members to drain away uncured resin;
b. infiltrating a mixture of carbon and resin into the voids; and
c. curing the mixture of carbon and resin to provide an electrically conductive carbon electrode.

5,728,346

FABRICATION OF CHIRAL COMPOSITE MATERIAL

Sajad Haq, Bristol, Great Britain, assignor to British Aerospace Public Limited Company, Hampshire, Great Britain

Filed Aug. 15, 1996, Ser. No. 698,390
Claims priority, application United Kingdom, Aug. 16, 1995, 9516792
Int. Cl.[6] B29C *39/12*
U.S. Cl. 264—437 18 Claims



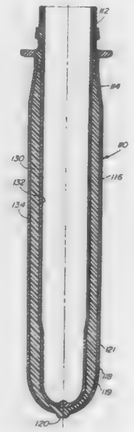
1. A method for the fabrication of chiral composite material, comprising:
preparing an apertured plate having apertures therethrough corresponding to desired locations of chiral elements in the composite material to be prepared;
locating the apertured plate to overlie a substrate;
placing each of the chiral elements in the apertures at a desired angle and orientation to the substrate and holding them at said desired angle and orientation to the substrate;
placing a first layer of liquid host material in the apertures in the apertured plate around the chiral elements and against the substrate and allowing the first layer to set;
removing the apertured plate and applying a second layer of liquid host material to the first layer and allowing the second layer to set to produce the desired composite material.

5,728,347

METHOD OF FORMING MULTI-LAYER PREFORM AND CONTAINER WITH LOW CRYSTALLIZING INTERIOR LAYER

Wayne N. Collette; Steven L. Schmidt, both of Merrimack, and Suppayan M. Krishnakumar, Nashua, all of N.H., assignors to Continental PET Technologies, Inc., Florence, Ky.

Continuation of Ser. No. 82,171, Jun. 30, 1993, abandoned, which is a continuation-in-part of Ser. No. 909,961, Jul. 7, 1992, abandoned. This application Mar. 31, 1995, Ser. No. 415,149
Int. Cl.[6] B29C *49/22*
U.S. Cl. 264—512 10 Claims



1. A method of forming a substantially transparent multilayer container, characterized by:
providing a first polyethylene terephthalate (PET) polymer having 4% to 6% copolymer by total weight, and a second PET polymer having 2% or less copolymer by total weight, the first PET polymer having a lower rate of crystallization than the second PET polymer;
molding at an elevated temperature a substantially amorphous and transparent multi-layer preform having an interior core layer of the first PET polymer between two exterior inner and outer layers of the second PET polymer, wherein the preform is cooled from the exterior and the first PET polymer of the interior layer resists thermal-induced crystallization;
expanding the preform at a temperature above the glass transition temperatures of the first and second PET polymers to form a biaxially-oriented substantially transparent multi-layer container having a sidewall with an enhanced level of strain-induced crystallinity in the inner and outer layers;
wherein the first PET polymer has a rate of crystallization at least about 20% lower than the second PET polymer; and
wherein the comonomer for the first and second polymers is selected from the group consisting of aliphatic, alicyclic and aromatic glycols and dicarboxylic acids.

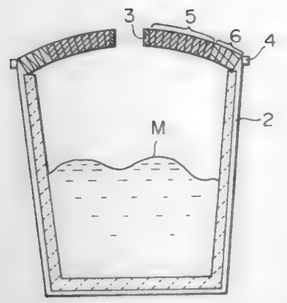
5,728,348

LADLE COVER FOR VACUUM REFINING PROCESS

Nozomu Tamura; Sumio Yamada; Masaru Washio, and Toshio Kanatani, all of Chiba, Japan, assignors to Kawasaki Steel Corporation, Kobe, Japan

Filed Jul. 19, 1996, Ser. No. 684,093
Claims priority, application Japan, Jul. 28, 1995, 7-193609
Int. Cl.[6] C21B *7/02*
U.S. Cl. 266—275 16 Claims

1. A ladle cover that is placed on a ladle comprising:
a refractory material defining a lance hole, the refractory material including a first refractory at a radial inner section of the ladle cover and spaced from the lance hole, and a second refractory at a radial outer section of the ladle cover, the first and second refractories having a different carbon content.



5,728,349

MATERIAL PRIMARILY FOR SPORT-SHOOTING AMMUNITION

Leif Persson, Häggbovägen 8, S-718 40 Dylta Bruk, Sweden

PCT No. PCT/SE94/00364, § 371 Date Oct. 20, 1995, § 102(e) Date Oct. 20, 1995, PCT Pub. No. WO94/25817, PCT Pub. Date Nov. 10, 1994
PCT Filed Apr. 25, 1994, Ser. No. 532,575
Claims priority, application Sweden, Apr. 26, 1993, 9301394-4
Int. Cl.[6] F42B *7/04*
U.S. Cl. 420—513 4 Claims

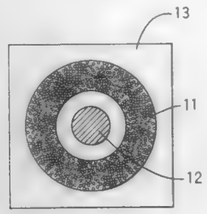
1. A ballistic projectile for sport-shooting in both pellet form and ball form, said projectile consisting essentially of zinc, bismuth, and tin, wherein the projectile is formed from a material that consists essentially of more than 55 percent by weight zinc, about 1 percent to 10 percent by weight tin and, the remainder bismuth.

5,728,350

CHEMICAL OR MICROBIOLOGICAL TEST KIT

Yuichi Kinoshita; Fumio Tanaka, both of Chuo-Ku; Chie Shibuya, Shinjuku-Ku; Chizuko Ohshina, Shinjuku-Ku, and Kiyoshi Oguchi, Shinjuku-Ku, all of Japan, assignors to Showa Yakuhin Kako Co., Ltd., Tokyo, Japan

Continuation of Ser. No. 387,893, Feb. 21, 1995, abandoned. This application Sep. 18, 1996, Ser. No. 715,492
Claims priority, application Japan, Aug. 21, 1992, 4-222776
Int. Cl.[6] G01N *21/01*
U.S. Cl. 422—61 13 Claims



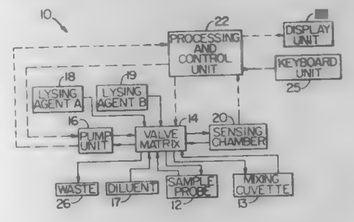
1. A test kit for a chemical test or microbiological test, comprises (a) a platelike support of hydrophobic material (b) one or more independent sample-receiving parts each comprising (I) a part comprising a first hydrophilic, water absorbing material for absorbing a sample and a reagent for the chemical test or microbiological test and (II) a surrounding part comprising a second hydrophilic, water-absorbing material, which may or may not be the same as the first material, comprising a gel, said gel having water-absorbing, hydrophilic and water-retaining properties, which surrounds the part (I), is separated from the part (I), and prevents escape of the sample.

5,728,351

APPARATUS FOR MAKING A PLURALITY OF REAGENT MIXTURES AND ANALYZING PARTICLE DISTRIBUTIONS OF THE REAGENT MIXTURES

Edward Lawrence Carver, Jr., Oxford, Conn., assignor to CDC Technologies, Inc., Oxford, Conn.

Division of Ser. No. 7,111, Jan. 21, 1993, Pat. No. 5,380,491. This application Jan. 9, 1995, Ser. No. 370,023
Int. Cl.[6] G01N *21/01*
U.S. Cl. 422—73 14 Claims



1. An apparatus for making a plurality of reagent mixtures for hematology testing and analyzing particle distributions within the reagent mixtures for blood cell analysis, comprising:
at least one pump;
a plurality of reagent chambers containing a plurality of reagent-mixture components, including at least a plurality of lysing agents, selectively connectable in fluid communication with the at least one pump;
a mixing chamber coupled in fluid communication with the at least one pump for receiving a plurality of reagent-mixture components and creating a reagent mixture therefrom;
a sensing unit defining a counting orifice for receiving the reagent mixture and analyzing a particle distribution of the reagent mixture; and
a control unit for adjusting the reagent mixture to correspond to each of a plurality of different operator inputs, the control unit being coupled to the at least one pump for controlling operation of the pump, and responsive to each respective operator input to:
(i) select one or more lysing agents from a database containing a plurality of lysing agents,
(ii) select a predetermined volume of the at least one selected lysing agent to correspond to said input,
(iii) pump the predetermined volume of the at least one selected lysing agent, and a predetermined volume of at least one other reagent-mixture component corresponding to said input into the mixing chamber to thereby create a reagent mixture corresponding to said input, and
(iv) introduce the reagent mixture from the mixing chamber through the counting orifice to analyze a particle distribution of the reagent mixture for blood cell analysis.

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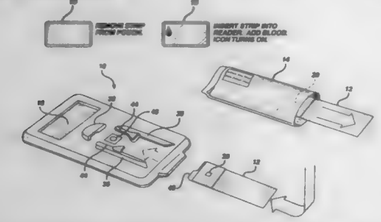
DISPOSABLE ELECTRONIC DIAGNOSTIC INSTRUMENT

Edward M. Poto, Somerville; Kenneth R. Strahs, Basking Ridge, both of N.J.; Timothy J. Conner; Francis T. Delahanty, both of Newton, Pa.; Michael Moorman, Princeton, and Henry Wieck, Plainsboro, both of N.J., assignors to Advanced Care Products, Raritan, and PA Consulting Group, Hightstown, both of N.J.

Division of Ser. No. 339,058, Nov. 14, 1994. This application May 12, 1995, Ser. No. 440,278

Int. Cl.[6] G01N *21/29;21/47*

U.S. Cl. 422—82.05 **7 Claims**



1. An electronic instrument for measuring reflectance of a test surface which comprises an instrument housing, said housing comprising a testing area wherein said testing area defines a planar surface; a test reading aperture; a light source positioned to emit radiation towards said test area, said light source having a longitudinal light emitting axis substantially perpendicular to said planar surface; and a photodetector positioned to detect radiation reflected by said test area, said photodetector having a longitudinal light detecting axis substantially perpendicular to said planar surface, and said instrument having a keying guide defining a location at which a chemical test strip is placed; a test strip; a sensor switch located adjacent said keying guide and contacted by said strip in response to said strip being inserted into said guide; and a control circuit, said switch connected to said control circuit for activation of said instrument by providing power to said instrument in order to operate said instrument, wherein said instrument measures the change in reflectance of said strip in response to a test solution being applied to said strip, and wherein said keying guides include at least one lateral edge guide for engaging a lateral edge of strip and an angled fore guide for engaging an angled fore edge of said strip.

5,728,353

PROCESS AND APPARATUS FOR THE GAS-PHASE POLYMERIZATION OF OLEFINS

Gabriele Govoni, Renazzo; Roberto Rinaldi, Mantova, and Massimo Covezzi, Ferrara, all of Italy, assignors to Montell North America Inc., Wilmington, Del.

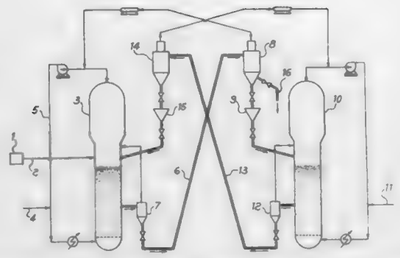
Division of Ser. No. 619,455, Mar. 20, 1996, abandoned, which is a division of Ser. No. 469,732, Apr. 6, 1995, abandoned, which is a division of Ser. No. 315,669, Sep. 30, 1994, abandoned, which is a continuation of Ser. No. 76,329, Jun. 14, 1993, abandoned. This application Sep. 9, 1996, Ser. No. 711,133

Claims priority, application Italy, Jun. 18, 1992, MI92A1496; Jun. 18, 1992, MI92A1499

Int. Cl.[6] F27B *15/08*

U.S. Cl. 422—145 **10 Claims**

1. An apparatus for the gas-phase polymerization of olefins CH_2=CHR, wherein R is hydrogen or an alkyl radical having 1–12 carbon atoms, comprising two fluidized bed gas-phase reactors (**101** and **102**) connected by means of transfer pipes (**116** and **126**) and provided with catalyst (**110**) and olefin (**114** and **124**) feeding systems and with gas recycle lines (**112** and **122**) comprising gas cooling (**113** and **123**) and compression (**111** and **121**) systems, wherein at least one (**101**) of the two reactors is provided with a discharge device comprising a standpipe (**115**) having a top end located inside the fluidized bed of the reactor (**101**), a bottom end connected to one (**116**) of the transfer pipes, and a descending section, said standpipe (**115**) being provided with a first valve (**135**) for regulating the circulation flow rate to which a gas stream is sent by means of a second valve (**132**), and with a third valve (**131**) for introducing the wash gas, and said transfer pipe (**116**) having an outlet into the reactor (**102**) and being provided with a fourth valve (**133**) for introducing a second gas stream located between said first valve (**135**) and the outlet of the transfer pipe (**116**) into the reactor (**102**).



5,728,354

PROCESS AND PLANT FOR GENERATING NITROGEN FOR HEAT TREATMENT

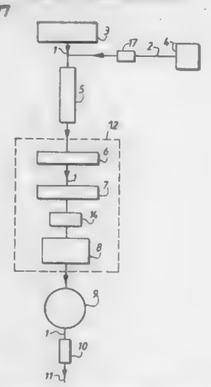
Didier Domergue, Bagneux, and Yannick Rancon, Velizy, both of France, assignors to L'Air Liquide Societe Anonyme pour l'Etude et l'Exploitation des Procedes Georges Claude, Paris, France

Division of Ser. No. 478,393, Jun. 7, 1995. This application Jun. 6, 1996, Ser. No. 659,688

Claims priority, application France, Mar. 16, 1995, 95 03050

Int. Cl.[6] B01D *50/00*

U.S. Cl. 422—177 **8 Claims**



1. A plant for generating a nitrogen-based gas, said plant comprising:

(a) a source of impure nitrogen under pressure containing a residual oxygen concentration;

(b) a main gas conduit connected at one end thereof to said source;

(c) a catalytic deoxygenation reactor connected to another end of said main gas conduit;

(d) a secondary gas line connected to a source of a secondary reducing gas at one end thereof and to said main gas conduit at a point situated upstream of the catalytic deoxygenation reactor at another end thereof; and

(e) a device for removing water vapor present in a gas, said device being in communication with said catalytic deoxygenation reactor and comprising at least one means for cooling the gas and at least one means for extracting a liquid water phase from the gas, and

wherein the main gas conduit between the source of impure nitrogen and the point where the secondary gas line is connected is devoid of any flow control device.

5,728,355

METHOD FOR RECOVERING REUSABLE RARE EARTH COMPOUNDS

Akira Asada, Hyogo-ken, Japan, assignor to Santoku Metal Industry Co., Ltd., Kobe, Japan

Filed Sep. 23, 1996, Ser. No. 710,843

Claims priority, application Japan, Sep. 27, 1995, 7-249141

Int. Cl.[6] C01F *17/00*

U.S. Cl. 423—21.1 **13 Claims**

1. A method for recovering a reusable rare earth compound comprising the steps of:

(a) pulverizing rare earth alloy scrap by a method comprising hydrogenation of said alloy scrap to obtain pulverized alloy scrap containing hydrogen,

(b) oxidizing said pulverized alloy scrap under heating to obtain an oxide,

(c) contacting said oxide with a controlled amount of an acid solution thereby leaching rare earth elements into the acid solution in the form of ions to form a resulting solution having pH of not less than 3, and filtering the resulting solution to obtain a filtrate, and

(d) forming a precipitate containing rare earth elements from said filtrate.

5,728,356

METHODS OF DENITRATING EXHAUST GASES

Kouzo Iida; Shigeru Nojima; Yoshiaki Obayashi, all of Hiroshima; Norihisa Kobayashi, Tokyo, and Satoru Serizawa, Nagasaki, all of Japan, assignors to Mitsubishi Jukogyo Kabushiki Kaisha, Tokyo, Japan

Filed Jul. 27, 1995, Ser. No. 508,174

Claims priority, application Japan, Jul. 28, 1994, 6-176494; Oct. 3, 1994, 6-238892

Int. Cl.[6] C01C *3/00*

U.S. Cl. 423—239.1 **5 Claims**

1. A method of denitrating an exhaust gas containing nitrogen oxides by means of catalytically removing said nitrogen oxides using ammonia as a reducing agent while introducing said exhaust gas into a reaction vessel packed with a catalyst, comprising:

passing said exhaust gas catalyst through a) a first denitration catalyst layer in the upstream of the gas flow under conditions effective to reduce said nitrogen oxides, then b) through an ammonia decomposition catalyst layer containing an ammonia decomposition catalyst under conditions effective to decompose ammonia into nitrogen and nitrogen oxides and then c) through a second denitration catalyst layer downstream from the second layer;

wherein ammonia is added in an amount not less than the stoichiometric equivalent of the nitrogen oxides in the exhaust gas at the inlet of the first denitration catalyst layer, and

wherein the ammonia decomposition catalyst is a catalyst comprising a crystalline silicate which is represented by the formula as dehydrated:

$$(1.0\pm0.8)R_2O\cdot[aM_2O_3\cdot bAl_2O_3]\cdot cMeO\cdot ySiO_2$$

wherein R denotes an alkali metal ion and/or hydrogen ion, M denotes at least one element selected from the group consisting of Group VIII elements, rare earth elements, titanium, vanadium, chromium, niobium, antimony and gallium, Me denotes an alkaline earth metal, a+b=1, a≧0, b≧0, c>0, y/c>12 and y>12.

5,728,357

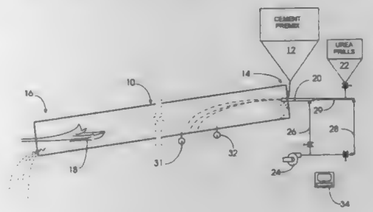
REDUCTION OF NO_x EMISSIONS FROM ROTARY CEMENT KILNS BY SELECTIVE NONCATALYTIC REDUCTION

Thure von Harpe, Meerbusch, Germany, assignor to Nalco Fuel Tech, Naperville, Ill.

Filed Apr. 10, 1996, Ser. No. 628,539

Int. Cl.[6] B01J *8/00*

U.S. Cl. 423—239.1 **4 Claims**



1. A process for reducing NO_x emissions present in a rotary cement kiln containing combustion gases by selective noncatalytic reduction, comprising

injecting prills of urea at a speed of at least 25 meters per second into an open end of a rotary cement kiln with sufficient momentum to carry said prills through said combustion gases to a zone within the kiln where the temperature is within the range of from 900° to 1100° C.; and

reducing nitrogen oxides present in said combustion gases.

5,728,358

SOX SORBENT REGENERATION

Amos A. Avidan, Yardley, Pa.; Nazeer A. Bhore, Wilmington, Del.; J. Scott Buchanan, Hamilton, N.J.; David L. Johnson, Glen Mills, Pa.; Khushrav E. Nariman, Lawrenceville, and David L. Stern, Princeton, both of N.J., assignors to Mobil Oil Corporation, Fairfax, Va.

Continuation of Ser. No. 278,526, Jul. 20, 1994, abandoned, which is a continuation-in-part of Ser. No. 63,473, May 19, 1993, abandoned, which is a continuation of Ser. No. 868,432, Apr. 15, 1992, Pat. No. 5,229,091. This application Sep. 30, 1996, Ser. No. 723,373

Int. Cl.[6] B01J *8/00;* **C01B** *7/00*

U.S. Cl. 423—244.01 **6 Claims**

1. A process where a solid oxide is used to remove sulfur oxides wherein said solid oxide is regenerated with a reducing gas and off gas is passed to a Claus sulfur recovery process comprising:

(a) introducing an oxygen containing gas and a tail-gas containing sulfur compounds therein into an incinerator under conditions sufficient to convert substantially all of the sulfur to sulfur oxides;

(b) directing the gas containing sulfur oxides produced in step (a) from the incinerator into an absorber containing a solid oxide comprising a magnesium aluminate spinel operated under conditions sufficient to remove substantially all of the sulfur oxides from the gas and to thereby produce a sulfated solid oxide and a substantially sulfur oxide free gas, which sulfur free gas is released from said absorber;

(c) ceasing contact between the sulfur oxide containing gas and the solid oxide after the solid oxide has become substantially loaded with said oxides;

(d) regenerating the solid oxide by contacting the solid oxide with a reducing gas stream consisting essentially of carbon monoxide at a temperature of about 1,050° to about 1,400° F., a pressure of about 0.1 to about 10 atmospheres, and a gas hourly space velocity of the reducing gas stream from about 500 to about 20,000 hr^{-1}, thereby forming (1) an off gas comprising at least one of sulfur dioxide, hydrogen sulfide and elemental sulfur, and (2) a regenerated solid oxide; and

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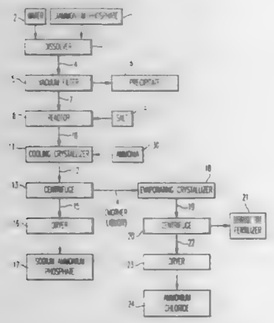
(e) directing the off gas into a sulfur recovery process for converting the sulfur compounds in the off gas substantially to elemental sulfur.

5,728,359

METHOD FOR THE PREPARATION OF SODIUM AMMONIUM PHOSPHATE

Raymond L. Nip, 259 Sebastian Dr., Millbrae, Calif. 94030

Filed Oct. 13, 1995, Ser. No. 542,487
Int. Cl.[6] C01B 25/45
U.S. Cl. 423—306 28 Claims



1. A method of producing sodium ammonium phosphate, comprising:
(i) dissolving fertilizer grade diammonium phosphate in a reaction medium;
(ii) reacting said fertilizer grade diammonium phosphate dissolved in said reaction medium with sodium chloride; and
(iii) isolating formed sodium ammonium phosphate.

5,728,360

VANADYL PYROPHOSPHATE PRECURSORS

Jay B. Benziger, Lawrenceville; V. Vance Guliants, Princeton, and Sankaran Sundaresan, Mercerville, all of N.J., assignors to The Trustees of Princeton University, Princeton, N.J.

Division of Ser. No. 338,237, Nov. 14, 1994, Pat. No. 5,532,385. This application Nov. 16, 1995, Ser. No. 559,002
Int. Cl.[6] C01B 25/16
U.S. Cl. 423—307 1 Claim

1. The composition of matter having the chemical formula $VOHPO_3 \bullet 1.5H_2O$.

5,728,361

METHOD FOR RECOVERING CARBON BLACK FROM COMPOSITES

Carl A. Holley, Riverview, Mich., assignor to Ferro-Tech Tire Reclamation, Inc., Wyandotte, Mich.

Filed Nov. 1, 1995, Ser. No. 551,329
Int. Cl.[6] C01D 3/00
U.S. Cl. 423—449.6 38 Claims

1. A method for continuously recovering carbon black from a plurality of solid composites, each one of the composites comprising the carbon black and polymers, said method comprising the steps of:
a. providing a reactor comprising a chamber having a first end and a second end spaced apart from said first end along a generally horizontally oriented longitudinal axis of said chamber extending between said ends, means for transporting composite solids material along a travel path running from said first to said second end, and first and second conduit means for removing vaporized constituents of the composite solids separately from the first and second zones of said chamber and being located above the solids travel path and respectively adjacent said first and second ends;
b. preparing a mixture of the composites;
c. fragmentizing the composites mixture to form pieces of the composites;
d. introducing the fragmentized mixture pieces to said reactor while minimizing air infiltration into the reactor;
e. heating the fragmentized mixture in said reactor by conveying said fragmentized mixture in a continuous solids stream through said chamber along the chamber travel path and sequentially heating said mixture stream to a first temperature sufficient in the first chamber zone to crack the solid polymers and thereby volatize a relatively more volatile first portion of volatizable constituents of the mixture and then further heating the mixture in the second chamber zone to a second temperature greater than the first temperature, said second temperature being sufficient to vaporize at least most of any remaining vaporizable constituents formed as a second portion of volatizable constituents from said cracked solids polymer, said temperatures being less than the oxidation temperature of said carbon black thereby providing a solid residue as the mixture reaches the downstream end of the chamber travel path;
f. continuously removing said vaporized constituents from said chamber by flowing from said first zone the first portion of said vaporized constituents in a direction toward the first end of the chamber and through a first outlet associated with the first zone of the chamber and communicating with said first conduit means, and flowing from said second zone the second portion of said vaporized constituents in a direction toward the second end of the chamber and through a second outlet associated with the second zone of the chamber and communicating with said second conduit means;
g. cooling the vaporized constituents and separating a condensate fraction of said vaporized constituents from a gaseous fraction of said vaporized constituents;
h. continuously conveying non-vaporizable residue from the second zone of the chamber;
i. continuously separating carbonaceous material from said residue;
j. continuously comminuting said carbonaceous material to form particles of carbon black having a size less than about 5 microns and then;
k. combining said communicated carbon particles with a binder dispersed with a liquid and forming pellets of said particles; and
l. drying said pellets to remove at least a portion said liquid, by flowing a heated gas stream upward and through the pellets wherein the heated gas is a mixture of the combustion products of said gaseous fraction and air for combustion supplied at a temperature in a range of about 90° C. to about 300° C.

5,728,362

METHOD OF PRODUCING A MIXED METAL OXIDE POWDER AND MIXED METAL OXIDE POWDER PRODUCED ACCORDING TO THE METHOD

Felix Greuter, Rütihof, and Daniel Werder, Oberrohrdorf, both of Switzerland, assignors to Asea Brown Boveri AG, Baden, Switzerland

Filed Aug. 3, 1995, Ser. No. 510,653
Claims priority, application European Pat. Off., Sep. 22, 1994, 94114917
Int. Cl.[6] C01G 29/00;51/00;37/00;45/00
U.S. Cl. 423—593 16 Claims

1. A method of producing a mixed metal oxide powder of nominal composition $M_xM'_{x'}\ldots,O_z$, wherein M, M', . . . are metal elements and each of x, x', . . . , z is greater than zero,
in which an aqueous solution is formed comprising metal salts such that the solution contains at least some of the metal elements of the mixed metal oxide essentially in the atomic ratio x:x': . . . , and the aqueous solution further comprising at least one oxidizing agent and at least one reducing agent, in which said oxidizing agent and said reducing agent, as well as the ratio of the former to the latter are chosen such that an exothermic reaction occurs,

in which said aqueous solution or a dispersion of an oxide of at least one of said metal elements in said aqueous solution is sprayed to form particles,
and in which said particles are heated to a reaction temperature in a temperature range of 220° to 260° C. such that said exothermic reaction occurs and said mixed metal oxide powder is formed from the particles,
the particles being generated in the form aerosol-droplets of essentially equal dimensions,
the droplets being sprayed into a heated gas jet, and
the temperature of the heated gas jet and the time of residence of the droplets in the heated gas jet being chosen such that said exothermic reaction occurs, the material of said mixed metal oxide powder being formed in an essentially amorphous phase.

5,728,363

TWO POWDER SYNTHESIS OF HYDROTALCITE AND HYDROTALCITE-LIKE COMPOUNDS

Edward S. Martin, New Kensington; John M. Stinson, Murrysville; William E. Horn, Jr., Gibsonia, and Vito Cedro, III, Export, all of Pa., assignors to Aluminum Company of America, Pittsburgh, Pa.

Continuation-in-part of Ser. No. 290,220, Aug. 15, 1994, abandoned, which is a continuation-in-part of Ser. No. 235,504, Apr. 29, 1994, Pat. No. 5,514,361. This application Mar. 28, 1996, Ser. No. 625,584
Int. Cl.[6] C07F 11/00;13/00
U.S. Cl. 423—593 28 Claims

1. A method for making a layered double hydroxide powder comprising:
(a) reacting at least one trivalent metal oxide powder and at least one divalent metal compound selected from the group consisting of a hydroxide, oxide, carbonate and mixtures thereof, in a carboxylic acid and carboxylate ion-free, aqueous suspension to form a double hydroxide intermediate;
(b) contacting the double hydroxide intermediate with an anion source to form a layered double hydroxide; and
(c) separating the layered double hydroxide from the suspension.

2. The method of claim 1 wherein the divalent metal compound is selected from the group consisting of: a magnesium oxide, hydroxide, carbonate and mixtures thereof, a zinc oxide-containing compound, a copper oxide-containing compound, a nickel oxide-containing compound, an iron oxide-containing compound, a calcium oxide-containing compound, a manganese oxide-containing compound and mixtures thereof.

3. The method of claim 1 wherein the divalent metal compound is selected from the group consisting of a magnesium oxide, a magnesium hydroxide, a magnesium carbonate and mixtures thereof.

5,728,364

TWO POWDER SYNTHESIS OF HYDROTALCITE AND HYDROTALCITE LIKE COMPOUNDS

Edward S. Martin, New Kensington; John M. Stinson, Murrysville; Vito Cedro, III, Export, and William E. Horn, Jr., Gibsonia, all of Pa., assignors to Aluminum Company of America, Pittsburgh, Pa.

Continuation-in-part of Ser. No. 472,205, Jun. 7, 1995, abandoned, which is a continuation-in-part of Ser. No. 290,220, Aug. 15, 1994, abandoned, which is a continuation-in-part of Ser. No. 235,504, Apr. 29, 1994, Pat. No. 5,514,361. This application Apr. 9, 1996, Ser. No. 629,717
Int. Cl.[6] C07F 11/00;13/00
U.S. Cl. 423—593 28 Claims

1. A method for making a layered double hydroxide having the formula: $A_{1-x}B_x(OH)_2C_{z/n}\cdot mH_2O$, where A represents a divalent metal cation, B represents a trivalent metal cation, C represents a mono- to polyvalent anion, and x, z and m satisfy the following conditions: $0.09<x<0.67$; $z=x/n$, where n=the charge on the anion; and $2>m>0.5$, said method comprising:
(a) reacting at least one divalent metal compound and at least one trivalent metal oxide powder in a carboxylic acid and carboxylate ion-free, aqueous suspension to form a double hydroxide intermediate containing said divalent metal and said trivalent metal;
(b) after the double hydroxide intermediate has formed, contacting said double hydroxide intermediate with an anion source to form a layered double hydroxide; and
(c) separating the layered double hydroxide from the suspension.

5,728,365

TWO POWDER SYNTHESIS OF HYDROTALCITE AND HYDROTALCITE-LIKE COMPOUNDS WITH DIVALENT INORGANIC ANIONS

Edward S. Martin, New Kensington; John M. Stinson, Murrysville; Vito Cedro, III, Export, and William E. Horn, Jr., Gibsonia, all of Pa., assignors to Aluminum Company of America, Pittsburgh, Pa.

Continuation-in-part of Ser. No. 476,521, Jun. 7, 1995, abandoned, which is a continuation-in-part of Ser. No. 290,220, Aug. 15, 1994, abandoned, which is a continuation-in-part of Ser. No. 235,504, Apr. 29, 1994, Pat. No. 5,514,361. This application May 14, 1996, Ser. No. 645,665
Int. Cl.[6] C07F 11/00;13/00
U.S. Cl. 423—593 36 Claims

1. A method for making a layered double hydroxide with at least one divalent inorganic anion intercalated therein, said layered double hydroxide having the formula: $A_{1-x}B_x(OH)_2C_{z/n}\cdot mH_2O$, where A represents a divalent metal cation, B represents a trivalent metal cation, C represents a mono- to polyvalent anion, and x, z and m satisfy the following conditions: $0.09<x<0.67$; $z=x/n$, where n=the charge on the anion; and $2>m>0.5$, said method comprising:
(a) reacting at least one divalent metal compound and at least one trivalent metal oxide powder in a carboxylic acid and carboxylate ion-free, aqueous suspension to form a double hydroxide intermediate containing said divalent metal and said trivalent metal;
(b) after the double hydroxide intermediate has formed, contacting said double hydroxide intermediate with an acid, acid salt or an ammonium salt of a divalent inorganic anion to form said intercalated layered double hydroxide; and
(c) separating said intercalated layered double hydroxide from the suspension.

29. A method for making a layered double hydroxide with at least one divalent inorganic anion intercalated therein, said method comprising:
(a) reacting a meixnerite manufactured in a carboxylic acid and carboxylate ion-free environment with an acid, an acid salt or an ammonium salt of a divalent inorganic anion to form an intercalated layered double hydroxide; and
(b) separating said intercalated layered double hydroxide from the suspension.

5,728,366

TWO POWDER SYNTHESIS OF HYDROTALCITE AND HYDROTALCITE-LIKE COMPOUNDS WITH MONOVALENT ORGANIC ANIONS

Edward S. Martin, New Kensington; John M. Stinson, Murrysville; Vito Cedro, III, Export, and William E. Horn, Jr., Gibsonia, all of Pa., assignors to Aluminum Company of America, Pittsburgh, Pa.

Continuation-in-part of Ser. No. 485,414, Jun. 7, 1995, abandoned, which is a continuation-in-part of Ser. No. 290,220, Aug. 15, 1994, abandoned, which is a continuation-in-part of Ser. No. 235,504, Apr. 29, 1994, Pat. No. 5,514,361. This application May 14, 1996, Ser. No. 645,666
Int. Cl.[6] C07F 11/00;13/00
U.S. Cl. 423—593 53 Claims

1. A method for making a layered double hydroxide with at least one monovalent organic anion intercalated therein, said layered double hydroxide having the formula: $A_{1-x}B_x(OH)_2C_{z/n}\cdot mH_2O$,

where A represents a divalent metal cation, B represents a trivalent metal cation, C represents a mono- to polyvalent anion, and x, z and m satisfy the following conditions: $0.09<x<0.67$; $z=x/n$, where n=the charge on the anion; and $2>m>0.5$, said method comprising:

(a) reacting at least one divalent metal compound and at least one trivalent metal oxide powder in a carboxylic acid and carboxylate ion-free, aqueous suspension to form a double hydroxide intermediate containing said divalent metal and said trivalent metal;

(b) after the double hydroxide intermediate has formed, contacting said double hydroxide intermediate with a monovalent organic anion to form said intercalated layered double hydroxide; and

(c) separating said intercalated layered double hydroxide from the suspension.

39. A method for making a layered double hydroxide with at least one monovalent organic anion intercalated therein, said method comprising:

(a) reacting a meixnerite manufactured in a carboxylic acid and carboxylate ion-free environment with a monovalent organic anion to form an intercalated layered double hydroxide; and

(b) separating said intercalated layered double hydroxide from the suspension.

5,728,367

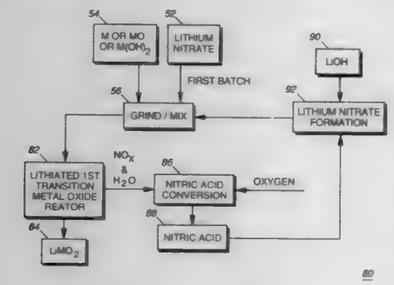
PROCESS FOR FABRICATING A LITHIATED TRANSITION METAL OXIDE

Zhenhua Mao, Duluth, China, assignor to Motorola, Inc., Schaumburg, Ill.

Continuation-in-part of Ser. No. 663,415, Jun. 17, 1996. This application Mar. 18, 1997, Ser. No. 816,812

Int. Cl.[6] C01D *9/04;* **C01G** *1/02;51/04;53/04*

U.S. Cl. 423—593 **8 Claims**



1. A process for fabricating a lithiated transition metal oxide from the heating and oxidation of a lithium nitrate and a transition metal oxide in which a by-product of the process is an NO_x gas, wherein the NO_x by-product is first treated to generate nitric acid (HNO_3), which nitric acid is then reacted with lithium hydroxide (LiOH) to form said lithium nitrate.

5. A process for fabricating a lithiated transition metal oxide from the heating and oxidation of a lithium nitrate and a transition metal hydroxide in which a by-product of the process is an NO_x gas, wherein the NO_x gas is first treated to form nitric acid (HNO_3), which nitric acid is then reacted with lithium hydroxide (LiOH) to form said lithium nitrate.

5,728,368

CHEMICAL HEAT PUMP REACTOR WITH IMPROVED POWER

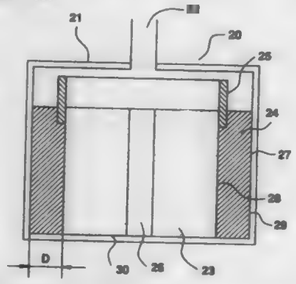
Pierre Bou, Soisy Sous Mongmorency; Michel Moreau, Clichy, and Philippe Prades, Perpignan, all of France, assignors to Le Carbone Lorraine, Courbevoie, France

Filed Aug. 1, 1995, Ser. No. 509,724

Claims priority, application France, Aug. 2, 1994, 94 09829

Int. Cl.[6] F28D *21/00*

U.S. Cl. 423—659 **13 Claims**



1. A reactor for a chemical heat pump comprising a sealed container including an inside wall defining a reaction chamber, a heat exchange means in communication with said inside wall, a solid reagent having an outer surface disposed in said reaction chamber and having dimensions so as to define a space between said outer surface and said inside wall, wherein any point on the surface of the solid reagent is separated from the inside wall, means for connecting said reaction chamber to a source of a reagent gas which is reversibly reactable with said solid reagent and which causes thereby a variation in volume of said solid reagent, and a heat conductive, fluid contact material disposed in at least a portion of the space defined between said outer surface and said inside wall, said fluid contact material being chemically inert relative to said solid reagent and being variable in shape in response to the variation in volume of said solid reagent.

11. In a process for generating heat with a chemical heat pump comprising disposing a solid reagent having an outer surface in a reaction chamber defined by an inside wall of a sealed container and having heat exchange means in communication with the inside wall, and reacting said solid reagent with a reagent gas in a reversible reaction causing a variation in volume of said solid reagent, the improvement comprising forming said reagent with dimensions such that a space is defined between the outer surface of the solid reagent and the inside wall, wherein any point on the surface of the solid reagent is separated from the inside wall, and disposing in at least part of the space a heat conductive fluid contact material which is chemically inert relative to the solid reagent and which is variable in shape in response to the variation in volume of said solid reagent.

5,728,369

RADIOACTIVE PHOSPHORUS LABELING OF PROTEINS FOR TARGETED RADIOTHERAPY

Gary L. Griffiths, Morristown; Hans J. Hansen, Mystic Island, and Habibe Karacay, Matawan, all of N.J., assignors to Immunomedics, Inc., Morris Plains, N.J.

Filed Oct. 5, 1994, Ser. No. 318,917

Int. Cl.[6] C07K *1/13;* **A61K** *39/44;51/10*

U.S. Cl. 424—149 **13 Claims**

1. A radiolabeled targeting protein comprising a complex of the formula Q—$(S)_m$—L—NR'—P(O)(OH)Y—R wherein

P is the ^{32}P or ^{33}P isotope,

Q is a protein capable of binding specifically to a complementary target molecular species by virtue of a complementarity-determining region thereof,

L is a linker moiety,

Y is oxygen or a single bond to R, or Y is NR",

R, R' and R" are the same or different, and each is an optionally substituted straight-chain or branched-chain alkyl, cycloalkyl, aryl, or heterocyclic group containing from 1 to 20 carbon atoms, or is hydrogen, and

m is 1 or 2,

or a physiologically acceptable salt thereof.

5,728,370

FREE RADICALS

Sven Andersson, Lomma; Finn Radner, Lund; Anna Rydbeck, Staffanstorp; Rolf Servin, Malmö, and Lars-Göran Wistrand, Lund, all of Sweden, assignors to Nycomed Imaging AS, Oslo, Norway

Continuation-in-part of Ser. No. 220,522, Mar. 19, 1994, Pat. No. 5,530,140. This application Jun. 6, 1995, Ser. No. 467,273

Claims priority, application United Kingdom, Apr. 2, 1993, 93-07027.4

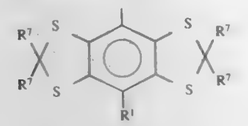
Int. Cl.[6] A61K *49/00;* **C07D** *339/06*

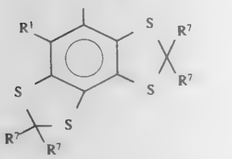
U.S. Cl. 424—9.3 **7 Claims**

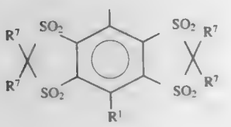
1. A persistent free radical compound of formula (I)

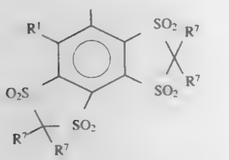
$$C(Ar^1)_3 \quad (I)$$

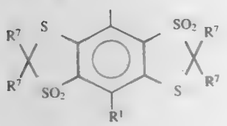
where each group Ar^1, which may be the same or different, is an optionally substituted aromatic group, and at least one of said Ar^1 groups is a group Ar^3 selected from the group consisting of:



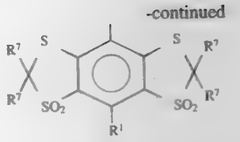


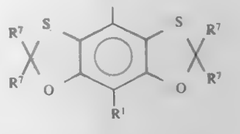


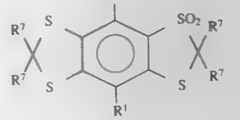


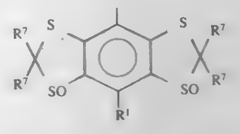


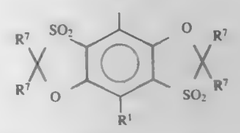
-continued











wherein R^7 is hydrogen or optionally hydroxylated alkyl and R^1 is a hydrogen atom or a group of formula —M, —XM, —X—Ar^2 or —Ar^2, where M is a water solubilizing group, X is an oxygen or sulphur atom or a group CO or $S(O)_n$, where n is 1 to 3, and Ar^2 is a 5 to 10 membered aromatic ring optionally substituted by a water solubilizing group M.

5,728,371

SKIN PROTECTION, FRAGRANCE ENHANCING AND VITAMIN DELIVERY COMPOSITION

Carlos Pinzon, Hackensack, and Paul Thau, Berkley Heights, both of N.J., assignors to L'Oreal, S.A., Paris, France

Continuation-in-part of Ser. No. 641,066, Apr. 29, 1996, abandoned. This application Apr. 30, 1996, Ser. No. 643,075

Int. Cl.[6] A61K *7/42;7/00*

U.S. Cl. 424—59 **22 Claims**

1. A composition for extending the longevity of fragrance on the skin comprising at least one fragrance composition and at least one polysaccharide alkylether comprising at least two different moieties and at least one hydroxyl group substituted with a saturated C_1–C_{24} alkyl chain.

5,728,372

SKIN PROTECTION, FRAGRANCE ENHANCING AND VITAMIN DELIVERY COMPOSITION

Carlos Pinzon, Hackensack, N.J., assignor to L'Oreal, S.A., Paris, France

Continuation-in-part of Ser. No. 641,067, Apr. 29, 1996, abandoned. This application Apr. 30, 1996, Ser. No. 643,110

Int. Cl.[6] A61K *7/42;7/00*

U.S. Cl. 424—59 **48 Claims**

1. A composition having enhanced skin protection against ultraviolet rays comprising at least one sunscreen composition and at

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least one polysaccharide alkylether comprising at least two different moieties and at least one hydroxyl group substituted with a saturated C_1–C_{24} alkyl chain.

5,728,373

COSMETIC AND DERMATOLOGICAL SUNSCREEN COMPOSITIONS CONTAINING THIOLS AND/OR THIOL DERIVATES

Dirk Alert, Hamburg; Heinrich Gers-Barlag, Kummerfeld, both of Germany; Leon T. Van Den Broeke, Leiden, and Gerard M. J. Beijersbergen van Henegouwen, Koudekerk, both of Netherlands, assignors to Beiersdorf AG, Hamburg, Germany, and Rijksuniversiteit Leiden, Leiden, Netherlands

PCT No. PCT/EP93/02188, § 371 Date Feb. 27, 1995, § 102(e) Date Feb. 27, 1995, PCT Pub. No. WO94/04129, PCT Pub. Date Mar. 3, 1994

Continuation of Ser. No. 381,847, Feb. 27, 1995, abandoned. This PCT application Aug. 17, 1993, Ser. No. 670,295

Claims priority, application Germany, Aug. 26, 1992, 42 28 455.4

Int. Cl.[6] A61K *7/42;7/00*

U.S. Cl. 424—59 **8 Claims**

1. Cosmetic or dermatological sunscreen formulations, comprising thiols and/or thiol derivatives selected from the group consisting of S-acetylcysteine, S-acetylcysteine alkyl esters, S, N-diacetylcysteine, S, N-diacetylcysteine alkyl esters and their cosmetically or pharmaceutically acceptable salts or acid or base adducts wherein the alkyl radicals of the thiols or thiol derivatives which are present as alkyl esters being alkyl radicals having 1 to 18 carbon atoms in combination with amounts of substances effective for protecting the skin from UV light selected from the group consisting of 1-(4'-tert-butylphenyl)-3-(4'-methoxyphenyl)propane-1,3-dione, 1-phenyl-3-(4'-isopropylphenyl)propane-1,3-dione and mixtures thereof.

5,728,374

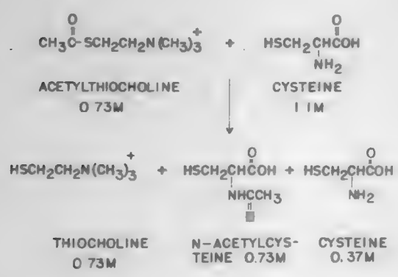
HAIR MANAGEABILITY AND STYLING COMPOSITION AND METHOD

Paul Neill, Hinsdale; Loralei Brandt, Cary; Priscilla Walling, Darien; Arun Nandagiri, Libertyville, and Norman Meltzer, Morton Grove, all of Ill., assignors to Helene Curtis, Inc., Chicage, Ill.

Continuation of Ser. No. 355,653, Dec. 14, 1994, Pat. No. 5,589,163, which is a continuation-in-part of Ser. No. 194,067, Feb. 9, 1994, Pat. No. 5,447,806. This application Apr. 18, 1996, Ser. No. 634,180

Int. Cl.[6] A61K *7/09;7/06*

U.S. Cl. 424—70.51 **32 Claims**



1. A composition capable of breaking sulfur to sulfur bonds in human hair when in contact with said human hair so that said hair can be reconfigured, comprising an aqueous solution containing an ionic complex formed from a cationic compound, in solution, and an anionic compound, in solution, at a molar ratio of cationic compound to anionic compound in the range of 1:1.2 to 1.2:1, said compounds being different, wherein the cation is in solution in a concentration of about 0.2 molar to about 4.0 molar and the anion is in solution in a concentration of about 0.2 molar about 4.0 molar, said aqueous solution having a pH of about 4.5 to about 8.5 and having no acid that inter- feres with ionic complexing of said cationic and anionic compounds at the pH of the composition, thereby reducing the waving efficiency;

wherein the cationic compound, in solution, forms a cation having a formula $HS—CH_2CH_2—NR_1R_2R_3$, wherein R_1, R_2 and R_3, which are the same or different, are H or an alkyl group having 1 to 5 carbon atoms; and

wherein the anionic compound, in solution, forms a thioglycolate anion or an anion of N-acetylcysteine.

5,728,375

METHOD FOR TREATING AMYLOIDOSIS

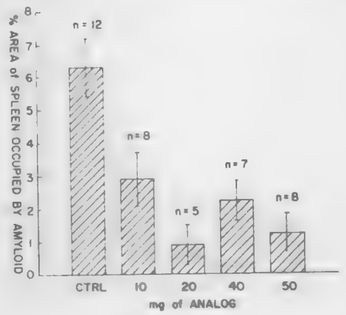
Robert Kisilevsky; Walter Szarek, and Donald Weaver, all of Kingston, Canada, assignors to Queen's University at Kingston, Kingston, Canada

Continuation of Ser. No. 463,548, Jun. 5, 1995, which is a continuation-in-part of Ser. No. 403,230, Mar. 15, 1995, Pat. No. 5,643,562, which is a continuation-in-part of Ser. No. 315,391, Sep. 29, 1994, abandoned, which is a continuation-in-part of Ser. No. 219,798, Mar. 29, 1994, abandoned, which is a continuation-in-part of Ser. No. 37,844, Mar. 29, 1993, abandoned. This application Jun. 6, 1995, Ser. No. 472,692

The portion of the term of this patent subsequent to Mar. 15, 2015, has been disclaimed.

Int. Cl.[6] A61K *31/74;31/785;31/795;47/32*

U.S. Cl. 424—78.31 **71 Claims**



1. A method for inhibiting amyloid deposition in a subject comprising administering to the subject an effective amount of a therapeutic compound, or a pharmaceutically acceptable salt thereof, such that amyloid deposition is inhibited, the therapeutic compound having the formula:

$$Q—[—Y^-X^+]_n$$

wherein Y^- is an anionic group at physiological pH; Q is a carrier molecule; X^+ is a cationic group; and n is an integer selected such that the biodistribution of the therapeutic compound for an intended target site is not prevented while maintaining activity of the therapeutic compound.

5,728,376

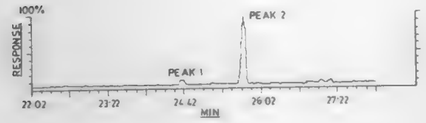
TETRADECATRIENYL AND TETRADECADIENYL ACETATES AND THEIR USE AS SEX ATTRACTANTS FOR TOMATO PESTS

Athula B. Attygalle, Ithaca, N.Y.; Gulab N. Jham, Viçosa, Brazil; AlešSvatoš, Prague, Czech Rep., and Rosa T.S. Frighetto, Campinas, Brazil, assignors to Cornell Research Foundation, Inc., Ithaca, N.Y.

Filed Apr. 25, 1995, Ser. No. 428,406

Int. Cl.[6] A01N *31/02;* **C07C** *33/02;33/048;21/02*

U.S. Cl. 424—84 **62 Claims**



1. An isolated 3,8,11-tetradecatrienyl acetate.

5,728,377

METHODS AND COMPOSITIONS INCORPORATING IP-10

Andreas H. Sarris, Houston, Tex.; Hal E. Broxmeyer, Indianapolis, Ind., and Jeff V. Ravetch, New York, N.Y., assignors to Board of Regents, The University of Texas System, Austin, Tex.; Indiana University Foundation, Bloomington, Ind., and Sloan-Kettering Institute for Cancer Research, New York, N.Y.

Filed Jul. 20, 1993, Ser. No. 94,851

Int. Cl.[6] A61K *45/05*

U.S. Cl. 424—85.1 **15 Claims**

9. A method for inhibiting the growth of hematopoietic progenitor cells in a patient comprising the steps of:

(a) preparing a recombinant host cell comprising a recombinant gene segment encoding IP-10;

(b) culturing said cell under conditions effective to allow expression of said gene to produce IP-10;

(c) collecting and purifying the recombinant IP-10 so produced;

(d) rendering said recombinant IP-10 pharmacologically acceptable; and

(e) administering said pharmacologically acceptable IP-10 to said patient in an amount effective to inhibit hematopoietic progenitor cells.

5,728,378

PREPARATION FOR ACTIVATION OF NATURAL KILLER CELLS (NK-CELLS), SAID PREPARATION CONTAINING INTERFERON-ALPHA AND HISTAMINE, SEROTONIN, AMINES OR SUBSTANCES WITH CORRESPONDING RECEPTOR ACTIVITY

Kristoffer Hellstrand, Göteborg, and Svante Hermodsson, Mölndal, both of Sweden, assignors to Maxim Pharmaceuticals, Inc., San Diego, Calif.

PCT No. PCT/SE93/00496, § 371 Date May 8, 1995, § 102(e) Date May 8, 1995, PCT Pub. No. WO93/24144, PCT Pub. Date Dec. 9, 1993

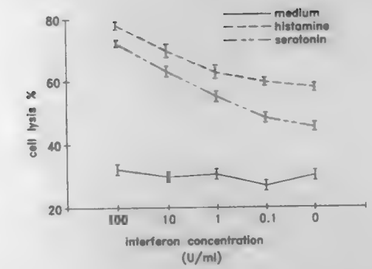
PCT Filed Jun. 3, 1993, Ser. No. 374,787

Claims priority, application Sweden, Jun. 3, 1992, 9201719

Int. Cl.[6] A61K *37/66*

U.S. Cl. 424—85.7 **15 Claims**

1. A composition for the synergistic activation of natural killer ceils (NK cells) in the presence of monocytes, comprising a first composition containing interferon-α and a second composition containing at least one compound having affinity and agonist activity for histamine H_2 or serotonin 5-HT_{1A} receptors.



5,728,379

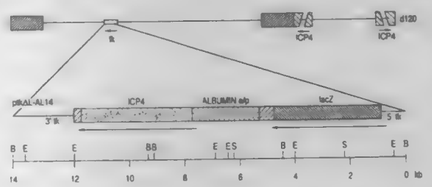
TUMOR- OR CELL-SPECIFIC HERPES SIMPLEX VIRUS REPLICATION

Robert L. Martuza, Chevy Chase; Samuel D. Rabkin, Bethesda, both of Md., and Shin-ichi Miyatake, Ohtsu, Japan, assignors to Georgetown University, Washington, D.C.

Continuation-in-part of Ser. No. 264,581, Jun. 23, 1994, Pat. No. 5,585,096. This application Jun. 7, 1995, Ser. No. 486,147

Int. Cl.[6] A01N *63/00;* **A61K** *48/00;* **C12N** *15/00*

U.S. Cl. 424—93.2 **13 Claims**



3. A method for killing tumor cells in a subject, comprising the step of administering to said tumor cells a pharmaceutical composition that is comprised of

(A) a herpes simplex virus that contains a tumor-specific promoter that is operatively linked to an essential herpes simplex virus gene; and

(B) a pharmaceutically acceptable vehicle for said virus, such that said tumor cells are infected in situ by said virus, whereby said tumor cells are killed.

5,728,380

PRIOBIOTIC CONTAINING ENTEROCOCCUS FAECIUM STRAIN NCIMB 40371

William Dennis Allen; Margaret Anneli Linggood, and Philip Porter, all of Bedford, Great Britain, assignors to Unilever Patent Holdings B.V., Vlaardingen, Netherlands

Division of Ser. No. 300,207, Sep. 2, 1994, Pat. No. 5,589,168, which is a continuation of Ser. No. 864,992, Apr. 8, 1992, abandoned. This application Sep. 3, 1996, Ser. No. 697,893

Claims priority, application United Kingdom, Jul. 8, 1991, 9107305

Int. Cl.[6] A01N *63/00;* **A61K** *47/00;* **C12N** *1/00;1/20*

U.S. Cl. 424—93.48 **19 Claims**

1. An edible composition for treating gastrointestinal disorders comprising an effective amount of viable organisms of *Enterococcus faecium* strain NCIMB 40371 in a pharmaceutically acceptable carrier material.

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5,728,381
GLYCOSYLATION VARIANTS OF IDURONATE 2-SULFATASE
Peter J. Wilson, 1/32 Margaret Street, North Adelaide South Australia 5006; Charles Phillip Morris, 9 James Street, Plympton, S. Australia 5038; Donald Stewart Anson, 12 Ross Street, Thebarton, S. Australia 5031; Teresa Occhiodoro, 27 Cochrane Terrace, Prospect, S. Australia 5082; Julie Bielicki, 3 Galaxy Court, Burnside, South Australia 5066; Peter Roy Clements, 3 Powell Court, West Lakes, South Australia 5021, and John Joseph Hopwood, 2 Monarto Court, Stonyfell, South Australia 5066, all of Australia
Division of Ser. No. 345,212, Nov. 28, 1994, which is a continuation of Ser. No. 991,973, Dec. 17, 1992, abandoned, which is a continuation-in-part of Ser. No. 790,362, Nov. 12, 1991, abandoned. This application Jun. 7, 1995, Ser. No. 484,493
Int. Cl.[6] A61K *38/46;38/47;* C12N *9/00*
U.S. Cl. 424—94.6 8 Claims

1. A method for treating a patient suffering from iduronate 2-sulfatase (IDS) deficiency, said method comprising administering to said patient an effective amount of a recombinant human IDS which is more highly glycosylated than the naturally occurring enzyme.

5,728,382
CHITINASE CDNA CLONE FROM A DISEASE RESISTANT AMERICAN ELM TREE
Masomeh B. Sticklen, Okemos, and Ravindra K. Hajela, Holt, both of Mich., assignors to Board of Trustees operating Michigan State University, East Lansing, Mich.
Division of Ser. No. 286,020, Aug. 4, 1994, Pat. No. 5,539,095. This application Feb. 22, 1996, Ser. No. 603,919
Int. Cl.[6] C12N *9/42;9/24;* A01N *63/00*
U.S. Cl. 424—94.61 4 Claims

1. A purified protein having a chitinase activity encoded from a gene as set forth in SEQ ID NO:1 which inhibits *Ophiostoma ulmi.*

5,728,383
TREATMENT OF TUMORS OF THE CENTRAL NERVOUS SYSTEM WITH IMMUNOTOXINS
Virginia Johnson, College Park, and Richard J. Youle, Chevy Chase, both of Md., assignors to The United States of America as represented by the Secretary of the Department of Health and Human Services, Washington, D.C.
Continuation of Ser. No. 925,417, Aug. 10, 1992, Pat. No. 5,352,447, which is a continuation of Ser. No. 401,412, Sep. 1, 1989, abandoned, which is a continuation-in-part of Ser. No. 301,376, Jan. 25, 1989, Pat. No. 5,208,021, which is a division of Ser. No. 236,225, Aug. 25, 1988, abandoned, which is a continuation-in-part of Ser. No. 105,172, Oct. 5, 1987, abandoned. This application Jun. 13, 1994, Ser. No. 258,712
Int. Cl.[6] A61K *39/395*
U.S. Cl. 424—183.1 12 Claims

1. A method for treating primary or metastatic tumors located in the central nervous system or in a body compartment containing cerebrospinal fluid, comprising administering to a patient in an amount of an immunotoxin effective to kill cells of said tumors, wherein said immunotoxin comprises:
(a) a binding moiety which specifically binds to a cell surface receptor of a cell of a neural tumor, of a metastic small cell lung carcinoma, or of a metastatic breast carcinoma tumor, wherein said binding moiety is covalently linked to
(b) a mutant diphtheria toxin, wherein said toxin consists of an A chain polypeptide and a B chain polypeptide, wherein said B chain polypeptide is inactivated as to membrane binding but retains full A chain translocating ability and contains at least one mutation selected from the group consisting of: a point mutation which changes serine residue 508 to another amino acid, a point mutation which changes serine residue 525 to another amino acid, and a point mutation which changes serine residue 508 to another amino acid together with a point mutation which changes proline residue 308 to another amino acid.

5,728,384
ANTIULCER AGENT
Takashi Tokuyama, Kagawa-ken, Japan, assignor to Soken Co., Ltd., Kagawa-ken, Japan
Continuation-in-part of Ser. No. 190,509, Feb. 2, 1994, abandoned. This application Dec. 14, 1995, Ser. No. 572,504
Int. Cl.[6] A61K *35/78*
U.S. Cl. 424—195.1 4 Claims

1. A pharmaceutical composition for the treatment of gastric ulcer, produced by the method of:
removing pericarp and seed coat of brown rice,
removing an outside part of the rice including the aleurone layer, embryo and a part of starch storing cells until the yielding percentage of rice after polishing reaches 92 to 50%,
collecting said removed outside part including the aleurone layer, embryo and the starch storing cells,
adding proteolytic enzyme, lipase, a fiber decomposition enzyme, an amylolytic enzyme, a pectin decomposition enzyme and water to said removed outside part including the aleurone layer, embryo and the starch storing cells,
maintaining the resultant mixture at 50° C. for 20 hours, and
squeezing the mixture by squeezer to provide a liquid product;
the pharmaceutical composition comprising said liquid product and a pharmaceutically acceptable carrier.

5,728,385
METHOD AND COMPOSITION FOR AN EARLY VACCINE TO PROTECT AGAINST BOTH COMMON INFECTIOUS DISEASES AND CHRONIC IMMUNE MEDIATED DISORDERS OR THEIR SEQUELAE
John Barthelow Classen, Baltimore, Md., assignor to Classen Immunotherapies, Inc., Baltimore, Md.
Filed Aug. 12, 1993, Ser. No. 104,529
Int. Cl.[6] A61K *39/02;39/12;39/116;39/295*
U.S. Cl. 424—201.1 42 Claims

1. A method of immunizing a mammal less than 96 months of age against at least one infectious disease, while decreasing the incidence of an autoimmune disease, comprising
administering to said mammal one or more pharmaceutically acceptable pharmaceutical preparations, comprising one or more immunogens, according to an immunization schedule according to which, at specific times after birth, the mammal receives one or more pharmaceutically acceptable doses of one or more immunogens;
said mammal thereby receiving, for each said infectious disease, a suitable immmogen in such amounts, given at such ages, as to be effective to substantially prevent or substantially reduce the severity of such infectious disease;
said administering further resulting in an immune response in said mammal sufficient to substantially reduce the incidence of an autoimmune disease in such mammals;
said mammals are selected from the group consisting of humans, and nonhuman mammals which are animal models of a human autoimmune disease,
the first dose of said immunization schedule being administered when the mammal is less than 42 days old, measured from birth,
where, if only one immunogen is administered according to said immunization schedule, that immunogen is one other than BCG,
where, when all of the immunogens administered are selected from the group consisting of BCG, diphtheria, tetanus, whole cell pertussis, polio, hepatitis B, hemophilus influenza, measles, mumps and rubella immunogens, at least one of the following conditions applies: (a) immunogens are administered on at least three different dates prior to 42 days after birth, or (b) immunogens are administered on at least three different dates, and the maximum interval between administrations is about two weeks, or less,
where said autoimmune disease is selected from the group consisting of diabetes mellitis and systemic lupus erythrematosis.

5,728,386
THERMOSTABLE VARICELLA ZOSTER VIRUS
Philip J. Provost, Lansdale, and Cathy Warren Wadsworth, North Wales, both of Pa., assignors to Merck & Co., Inc., Rahway, N.J.
PCT No. PCT/US94/14722, § 371 Date May 22, 1996, § 102(e) Date May 22, 1996, PCT Pub. No. WO95/17503, PCT Pub. Date Jun. 29, 1995
Continuation of Ser. No. 171,048, Dec. 21, 1993, abandoned. This PCT application Dec. 19, 1994, Ser. No. 652,483
Int. Cl.[6] A61K *39/25;* C12N *7/04;7/08;7/02*
U.S. Cl. 424—230.1 13 Claims

1. A process for preparing a live attenuated thermostable varicella zoster virus (tVZV) which comprises:
a) heating a lyophilized or liquid preparation of live attenuated VZV under highly inactivating conditions; and
b) selecting by culturing residual live attenuated VZV.

5,728,387
STRUCTURAL GENE OF PNEUMOCOCCAL PROTEIN
David E. Briles, and Janet L. Yother, both of Birmingham, Ala., assignors to University of Alabama at Birmingham Research Foundation, Birmingham, Ala.
Continuation of Ser. No. 656,773, Feb. 15, 1991, abandoned. This application Mar. 17, 1994, Ser. No. 214,164
Int. Cl.[6] A61K *39/02;39/09;* C07K *1/00;14/00*
U.S. Cl. 424—234.1 9 Claims

1. An isolated and purified immunoprotective truncated pneumococcal surface protein A (PspA) containing immunoprotective epitopes of the PspA protein and up to 90% of the whole PspA protein and from which the cell membrane anchor region of the whole PspA protein is absent.

5,728,388
METHOD OF CANCER TREATMENT
David S. Terman, P.O. Box 987, Pebble Beach, Calif. 93953
Continuation-in-part of Ser. No. 25,144, Mar. 2, 1993, abandoned, and Ser. No. 891,718, Jun. 1, 1992, abandoned, which is a continuation-in-part of Ser. No. 466,577, Jan. 17, 1990, abandoned, which is a continuation-in-part of Ser. No. 416,530, Oct. 3, 1989, abandoned. This application Jan. 31, 1994, Ser. No. 189,424
Int. Cl.[6] A61K *39/085;39/09*
U.S. Cl. 424—237.1 32 Claims

1. A method for inducing a tumoricidal reaction in vivo comprising:
a) obtaining a sample comprising tumor-sensitized lymphocytes, wherein bodily fluids are substantially absent from said sample;
b) contacting said sample with one or more superantigens ex vivo in a medium substantially free from tumor cells or other source of tumor antigen to produce stimulated cells; and
c) infusing said stimulated cells into a tumor-bearing host.

5,728,389
SOLID COMPOSITION FOR CLEANSING THE SKIN, CONTAINING A PARTICULATE STRUCTURING AGENT
Laurence Sebillotte-Arnaud, Creteil, France, assignor to L'Oreal, Paris, France
Filed Jul. 11, 1995, Ser. No. 500,828
Claims priority, application France, Jul. 11, 1994, 94 08565
Int. Cl.[6] A61K *9/00*
U.S. Cl. 424—400 22 Claims

1. A skin cleansing composition containing a cosmetically acceptable medium and a structuring agent insoluble in said medium and formed of particles, said particles imparting a deformable solid appearance to said composition, said agent being capable of being removed from the skin using a diluent, and wherein said particles are present at a concentration at least equal to the critical pigment charge volume.

5,728,390
COSMETIC COMPOSITION OF AN ALPHA OR BETA-HYDROXY ACID AND A POLYVINYLPYRROLIDONE COMPLEXING AGENT
John J. Merianos, Middletown, N.J., assignor to ISP Investments Inc., Wilmington, Del.
Filed Sep. 1, 1995, Ser. No. 522,781
Int. Cl.[6] A61K *7/02;9/08;9/10;9/14*
U.S. Cl. 424—401 3 Claims

1. A composition for treatment of skin problems with only minimal skin irritation for the user which consists essentially of about 1–10% by weight of an alpha- or beta-hydroxy acid, or mixtures thereof, and about 1–10% by weight of a polyvinylpyrrolidone-complexing agent, in the form of a powder, or as a solution, gel or emulsion with a solvent selected from the group consisting of water or an organic compound, or mixtures thereof.

5,728,391
HYALURONIC ACID AND ITS SALT FOR TREATING SKIN DISEASES
Hitoshi Ikeya, and Hironoshin Kitagawa, both of Machida, Japan, assignors to Denki Kagaku Kogyo Kabushiki Kaisha, Tokyo, Japan
Filed Dec. 5, 1995, Ser. No. 567,527
Claims priority, application Japan, Dec. 5, 1994, 6-300954; Apr. 25, 1995, 7-100904
Int. Cl.[6] A61K *7/48*
U.S. Cl. 424—401 5 Claims

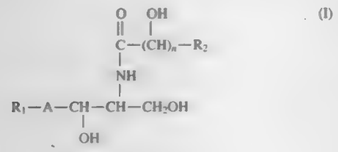
1. A process for treating a skin disease selected from the group consisting of xerosis senilis, asteatosis, keratodermia tylodes palmaris progressive, keratosis palmaris et plantaris, ichthyosis, lichen pilaris, pityriasis rosea Gilbert, and miliaria, which comprises applying to the skin a skin-treating effective amount of at least one of hyaluronic acid and its salt, having an average molecular weight of from 800,000 to 4,000,000.

5,728,392
COSMETIC AND/OR DERMATOLOGICAL COMPOSITION FOR THE TREATMENT OF AGING, CONTAINING CERAMIDES, AND THE USE THEREOF
Lucien Aubert, Cap d'Ail, and Francoise Gagnebien-Cabanne, Chatillon, both of France, assignors to L'Oreal, Paris, France
Continuation of Ser. No. 366,760, Dec. 30, 1994, Pat. No. 5,589,178. This application Jun. 5, 1996, Ser. No. 659,667
Claims priority, application France, Jan. 10, 1994, 94 00173
Int. Cl.[6] A61K *6/00;31/615;31/19;31/16;31/07*
U.S. Cl. 424—401 8 Claims

1. A method for mollifying the irritant effect of an anti-aging agent, comprising incorporating in a cosmetic or dermatological

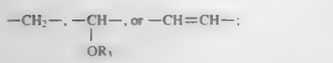
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composition, comprising at least one anti-aging active agent having an irritant effect and a cosmetically or dermatologically acceptable medium consisting of at least one of an oily or fatty solvent and an aqueous solvent, said oily or fatty solvent selected from the group consisting of oily or fatty alcohols, ethers, hydrocarbons and mixtures thereof, a mollifying agent which is a ceramide of formula (I):



(I)

wherein A is



R_1 is a saturated or unsaturated, linear or branched C_{10} to C_{26} alkyl group;

R_2 is a saturated or unsaturated, linear or branched C_{12} to C_{32} alkyl group;

R_3 is H or —CO—CHOH—R_2; and

n is 0 or 1.

5,728,393

PROCESS FOR COMBATING ADIPOSITY AND COMPOSITIONS WHICH MAY BE USED FOR THIS PURPOSE

Etienne Soudant, Fresnes, and Jean-Francois Nadaud, Clamart, both of France, assignors to L'Oreal, Paris, France

Continuation of Ser. No. 347,076, Nov. 23, 1994, abandoned. This application Jun. 11, 1996, Ser. No. 661,762

Claims priority, application France, Nov. 26, 1993, 93 14156

Int. Cl.[6] A61K *7/48*

U.S. Cl. 424—401 **4 Claims**

1. A process for combating adiposity by obtaining a localized effect of slimming, comprising topically administering to the site of the body in need thereof, an amount effective for the inhibition of glucose uptake of at least one glucose-uptake inhibitor which does not contain the element of sulfur and capable of limiting or inhibiting the uptake of glucose by adipocytes, selected from the group consisting of rutine, N-oleyldihydrosphingosine and mixture thereof; and

caffeine in an amount effective for stimulating lipolysis.

5,728,394

PESTICIDE COMPOSITION AND METHOD FOR CONTROLLING THE ORIENTAL FRUIT FLY

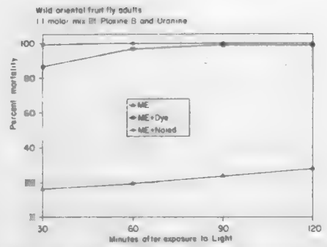
Nicanor J. Liquido; Roy T. Cunningham, both of Hilo, Hi.; James R. Heitz, Starkville, Miss., and John P. Spencer, Honolulu, Hi., assignors to Photodye International, Inc., Linthicum, Md.

Continuation-in-part of Ser. No. 353,726, Dec. 12, 1994, abandoned. This application Mar. 31, 1995, Ser. No. 414,402

Int. Cl.[6] A01N *25/00*

U.S. Cl. 424—405 **3 Claims**

1. An insecticidal composition comprising an effective amount of methyl eugenol as an attractant bait and an effective insecticidal amount of photoactive dye wherein said photoactive dye is



selected from the group consisting of halogenated xanthene and a mixture of halogenated xanthene and uranine.

5,728,395

HYDROXYLAPATITE BASE POROUS BEADS FILLER FOR ORGANISM AND METHOD OF PRODUCING THE SAME

Torao Ohtsuka, 5-4-9 Fujiyama-dai, Kasugai-city, Aichi-prefecture; Makoto Fukaya, 2-515 Omoteyama, Tenpaku-ku, Nagoya-city, Aichi-prefecture; Hideo Tagai, 2-24-31 Denenchofu, Ohta-ku, Tokyo; Takayuri Kato, 125 Nishijima, Obata, Moriyama-ku, Nagoya-city, Aichi-prefecture; Shinpei Hashimoto, 4-40-2 Akasaka-cho, Chikusa-ku, Nagoya-city, Aichi-prefecture; Kazuhiko Sawai, Izumi-Sun heights 603, 1-7-5 Izumi, Hagashi-ku, Nagoya-city, Aichi-prefecture; Tomokazu Hattori, No. 2-No. 302 Lionsmanshion Fujigaoka-garden 25 Aza, Higashi-harayama, Ohaza Nagakute, Nagakutecho, Aichi-gun, Aichi-prefecture, and Shigeo Niwa, 3-22 Kawasumi-cho, Mizuho-ku, Nagoya-city, Aichi-prefecture, all of Japan

Continuation of Ser. No. 6,136, Jan. 19, 1993, abandoned, which is a continuation of Ser. No. 696,568, May 8, 1991, abandoned. This application Sep. 28, 1995, Ser. No. 535,786

Claims priority, application Japan, May 10, 1990, 2-120554

Int. Cl.[6] A61K *9/16;* **A01N** *1/02;* **A61F** *2/28;* **B05D** *7/22*

U.S. Cl. 424—422 **7 Claims**



1. A material suitable as a bone replacement filler for implantation in an affected area of an organism, the material comprising:

hydroxylapatite base porous beads fired at a temperature ranging from 900° C. to 1180° C., each bead having a porosity ranging from 10% to 50%, a diameter ranging from 0.03 mm to 25 mm, and a plurality of elongated pores connected to one another to form a network, each of said pores having a diameter ranging from 1 μm to 100 μm and a length larger than said diameter, said pores in said beads being at least partially filled with a solution comprising water and a pharmaceutical, and wherein said pores are of a size suitable for gradually expelling said water and said pharmaceutical,

wherein said beads are produced from a mixture comprising:

a hydroxylapatite powder having particle sizes not larger than 125 μm, present in an amount ranging from 40% to 90% by weight,

a synthetic resin powder that is a thermosetting resin and having particle sizes not larger than 74 μm, the synthetic resin powder present in an amount ranging from 5% to 55% by weight, and

a resinous binder containing sodium, the resinous binder present in an amount ranging from 0.5% to 5% by weight.

5,728,396

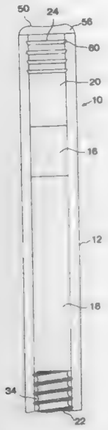
SUSTAINED DELIVERY OF LEUPROLIDE USING AN IMPLANTABLE SYSTEM

John R. Peery, Stanford; Keith E. Dionne, Menlo Park; James B. Eckenhoff, Los Altos, all of Calif.; Felix A. Landrau, Punta Gorda, Fla.; Scott D. Lautenbach, San Mateo, Calif.; Judy A. Magruder, Mountain View, Calif., and Jeremy C. Wright, Los Altos, Calif., assignors to Alza Corporation, Palo Alto, Calif.

Continuation-in-part of Ser. No. 595,761, Feb. 2, 1996, abandoned. This application Jan. 30, 1997, Ser. No. 791,699

Int. Cl.[6] A61F *13/00;2/00;9/22*

U.S. Cl. 424—422 **17 Claims**



1. An implantable leuprolide delivery system comprising:

(a) an impermeable reservoir;

(b) a piston that divides the reservoir into a first and a second chamber, the first and second chambers each having an open end;

(c) a water-swellable agent formulation in the first chamber;

(d) a leuprolide formulation in the second chamber;

(e) a semipermeable plug in the open end of the first chamber; and

(f) a back-diffusion regulating outlet in the open end of the second chamber;

wherein the system effectively seals the second chamber and isolates the leuprolide formulation from the environment of use.

5,728,397

POLYDEXTROSE PRODUCT AND PROCESS

Richard C. Fuisz, Great Falls, Va., assignor to Fuisz Technologies Ltd., Chantilly, Va.

Continuation of Ser. No. 19,097, Feb. 18, 1993, abandoned, which is a continuation-in-part of Ser. No. 881,612, May 12, 1992, abandoned. This application Feb. 4, 1997, Ser. No. 795,451

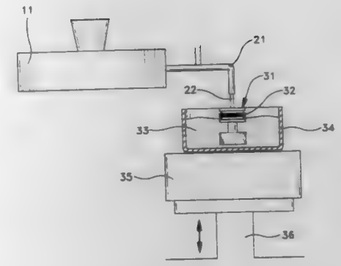
Int. Cl.[6] A61K *9/00;9/16*

U.S. Cl. 424—439 **7 Claims**

1. A process for polymerizing polydextrose comprising

polymerizing anhydrous glucose and maltose in the absence of added water to produce anhydrous flowable polydextrose melt,

maintaining said melt as a flowable melt, and



subjecting a stream of said anhydrous flowable polydextrose polymerizate melt resulting from said anhydrous melt polymerization to a shear force which separates said stream into multiple masses of polydextrose matrix under conditions which induce solidification under free flow condition immediately after shearing to provide separate masses of polydextrose polymerizate in the absence of milling.

5,728,398

FEED ADDITIVE FOR SOWS

Norimasa Onishi, Kawasaki; Yasuhiko Toride, Tokyo; Akinori Uehara, Kawasaki, and Ei-ichi Kokue, Kokubunji, all of Japan, assignors to Ajinomoto Co., Inc., Tokyo, Japan

Continuation of Ser. No. 317,360, Oct. 4, 1994, abandoned. This application Nov. 7, 1996, Ser. No. 745,190

Claims priority, application Japan, Oct. 5, 1993, 5-249405

Int. Cl.[6] A23K *1/165;1/17*

U.S. Cl. 424—442 **6 Claims**

1. A feed additive for sows comprising a sow feed ingredient and a reduced form of folic acid selected from the group consisting of 7,8-dihydrofolic acid, 5,6,7,8-tetrahydrofolic acid, 5-formyl-H_4-folic acid, 5,10-methylene-H_4-folic acid, 5-methenyl-H_4-folic acid, 10-formyl-H_4-folic acid and 5-formimino-H_4-folic acid.

5,728,399

USE OF A BACTERIAL COMPONENT TO ENHANCE TARGETED DELIVERY OF POLYNUCLEOTIDES TO CELLS

George Y. Wu; Catherine H. Wu, both of Avon; Ying Zhang, Farmington; George L. Spitalny, Cheshire, and Ellen Carmichael, West Hartford, all of Conn., assignors to University of Conn., Storrs, Conn., and TargeTech, Inc. a wholly owned subsidiary of The Immune Response Corporation, Carlsbad, Calif.

Continuation-in-part of Ser. No. 267,710, Jun. 29, 1994, abandoned. This application Jun. 7, 1995, Ser. No. 484,009

Int. Cl.[6] A61K *9/127*

U.S. Cl. 424—450 **16 Claims**

1. A soluble molecular complex for targeting a polynucleotide to a specific cell comprising:

a) a polynucleotide;

b) a carrier comprised of a polynucleotide binding agent and a cell-specific binding agent which binds to a surface molecule of the cell and is internalized into an endosome; and

c) a bacterial component which lyses the endosome resulting in release of the polynucleotide into the cytoplasm of the cell.

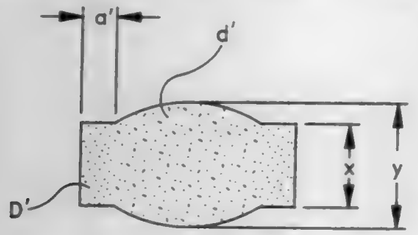
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5,728,400

APPARATUS AND PROCESS FOR STRENGTHENING LOW DENSITY COMPRESSION DOSAGE UNITS AND PRODUCT THEREFROM

Gerald E. Battist, Reston; B. Arlie Bogue, Broad Run, and Garry L. Myers, Reston, all of Va., assignors to Fuisz Technologies Ltd., Chantilly, Va.

Division of Ser. No. 276,244, Jul. 18, 1994, Pat. No. 5,616,344, which is a continuation-in-part of Ser. No. 259,496, Jun. 14, 1994, abandoned, and Ser. No. 259,258, Jun. 14, 1994. This application Nov. 5, 1996, Ser. No. 743,221
Int. Cl.[6] A61K *9/20;9/46*
U.S. Cl. 424—464 8 Claims



1. A low density compression dosage unit comprising:

a continuous body prepared from a predetermined fixed mass of tableting material and compacted under bi-level compacting pressure to form a first portion and a second portion, said first portion defining an edge volume of said tableting material and having a first density, and said second portion defining a non-edge volume of said tableting material and having a second density, wherein said first portion and said second portion are the same material, said first density being greater thin said second density, whereby the strength of said unit is increased and the friability of said unit is decreased as compared to a low density unit formed under a single low density compaction pressure.

5,728,401

EFFERVESCENT RANITIDINE FORMULATIONS

Farhan Ahmed; Chetan Rajsharad, both of New Delhi, and Himadri Sen, Haryana, all of India, assignors to Ranbaxy Laboratories, Ltd., New Delhi, India

Filed Apr. 16, 1997, Ser. No. 837,488
Int. Cl.[6] A61K *9/46*
U.S. Cl. 424—466 29 Claims

1. An effervescent pharmaceutical composition for oral use in the treatment of a condition mediated through histamine H_2 receptors, comprising a therapeutically effective mount of ranitidine or a physiologically acceptable salt thereof, about 25% to about 70% by weight of disodium citrate, about 2–10% by weight of an amino acid, and about 20% to about 50% by weight of sodium bicarbonate, and optionally also comprising about 0.5% to about 25% by weight of an edible organic acid.

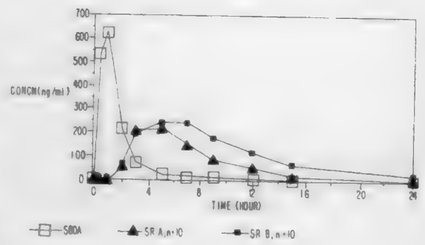
5,728,402

CONTROLLED RELEASE FORMULATION OF CAPTOPRIL OR A PRODRUG OF CAPTOPRIL

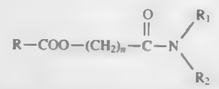
Chih-Ming Chen; Jane Chang Chen, both of Cooper City; Jainbo Xie, Davie, and Elliot Hahn, North Miami Beach, all of Fla., assignors to Andrx Pharmaceuticals Inc., Fort Lauderdale, Fla.

Filed Nov. 16, 1994, Ser. No. 340,290
Int. Cl.[6] A61K *9/22;9/28;9/52*
U.S. Cl. 424—481 11 Claims

1. A controlled release pharmaceutical unit dose composition which comprises:



(a) an internal phase which comprises a pharmaceutically acceptable diluent and a prodrug of captopril of Formula I



(I)

wherein R—COO— represents the acyloxy residue of captopril and R_1 and R_2 are the same or different and are selected from a group consisting of an alkyl group, an alkenyl group, an aryl group, an aralkyl group, a cycloalkyl group, in which the alkyl, alkenyl, aryl, aralkyl or cycloalkyl group is unsubstituted or substituted with one or more substituents selected from:

a halogen atom,

a hydroxy group,

a straight or branched-chain alkoxy group having the formula R_3—O—, wherein R_3 represents an alkyl group or any aryl group, which groups may be unsubstituted or substituted with one or more of a halogen atom or a hydroxy group,

a carbamoyl group having the formula



wherein R_4 and R_3 are the same or different and are hydrogen, an alkyl group or are selected from a group having the formula $—CH_2NR_7R_6$ wherein R_6 and R_7 are the same or different and are hydrogen, or an alkyl group; an amino group having the formula $—NR_8R_9$, wherein R_8 and R_9 are the same or different and are hydrogen, or an alkyl group; an acyloxy group having the formula $—COOR_{10}$, wherein R_{10} is an alkyl, aryl or aralkyl group; an oxyacyl group having the fotmula $R_{11}COO—$ wherein $R_{11}COO—$ wherein R_{11} is hydrogen, an alkyl group, an aryl group, an aralkyl group, a cycloalkyl group, in which the alkyl, aryl, aralkyl or cycloalkyl group is unsubstituted or substituted with one or more of a halogen atom, a hydroxy group, an alkoxy group of the formula R_3—O— as defined above, a carbamoyl group of the formula $—CONR_4R_5$ as defined above or an amino group having the formula $—NR_8R_9$ as defined above; and nontoxic pharmaceutically acceptable acid addition salts thereof; and

(b) an external phase which comprises a coating which resists dissolution in the stomach.

5,728,403

COATING TECHNOLOGY FOR TASTE MASKING ORALLY ADMINISTERED BITTER DRUGS

John W. Mauger, Salt Lake City, Utah, and Dennis H. Robinson, Omaha, Nebr., assignors to The Board of Regents of the University of Nebraska, Lincoln, Nebr.

Filed Oct. 5, 1994, Ser. No. 317,695
Int. Cl.[6] A61K *9/14*
U.S. Cl. 424—486 9 Claims

1. A coating for masking the disagreeable taste of drug particles comprising:

a triglyceride mixture which melts at body temperature; and

a polymer which dissolves at pH levels at or below 5.5 wherein said coating comprises approximately 33% by weight of said coated drug articles.

5,728,404

VIRUCIDAL DISINFECTANT

Friedrich von Rheinbaben, Duesseldorf; Klaus-Peter Bansemir, Langenfeld; Beate Mainz, Marburg, and Klaus Hachmann, Hilden, all of Germany, assignors to Henkel Kommanditgesellschaft auf Aktien, Duesseldorf, Germany

PCT No. PCT/EP93/00384, § 371 Date Oct. 31, 1994, § 102(e) Date Oct. 31, 1994, PCT Pub. No. WO93/16597, PCT Pub. Date Sep. 2, 1993
PCT Filed Feb. 17, 1993, Ser. No. 295,726
Claims priority, application Germany, Feb. 26, 1992, 42 05 828.7
Int. Cl.[6] A61K *31/045;31/28;31/315*
U.S. Cl. 424—642 7 Claims

1. In a method of virucidal disinfection wherein a virus is contacted with an aqueous composition to inactivate the virus, the improvement comprising: contacting the virus with an aqueous virucidal disinfectant solution comprising water; 50% to 90% by weight of at least one member selected from the group consisting of C_1 to C_4 aliphatic monohydric alcohols; from 0.1% to 1.0% by weight of at least one zinc salt selected from the group consisting of zinc chloride, zinc nitrate and zinc sulfate; and optionally substances for improving compatibility with skin, wetting agents and corrosion inhibitors; wherein the virucidal activity of said aqueous virucidal disinfectant solution is improved over the virucidal activity of said aqueous virucidal disinfectant solution without said at least one zinc salt.

5,728,405

METHOD FOR PREVENTING KERATOCYTE LOSS

Peter John McDonnell, La Canada-Flintridge, Calif., assignor to University of Southern California, Los Angeles, Calif.

Continuation of Ser. No. 191,830, Feb. 4, 1994, abandoned. This application Jun. 5, 1996, Ser. No. 658,777
Int. Cl.[6] A61K *31/74;9/00*
U.S. Cl. 424—682 14 Claims

1. A method for preventing keratocyte loss after injury or trauma to corneal epithelium, which method comprises applying to the cornea a keratocyte maintenance solution under conditions effective to enhance keratocyte viability by maintaining normal keratocyte metabolism over a period of time sufficient to permit corneal wound healing, said keratocyte maintenance solution having an osmolarity of at least about 250 mOsm and comprising at least one ion selected from magnesium or calcium, wherein said keratocyte maintenance solution is free of serum and glutathione.

5,728,406

APPARATUS FOR EXTRUDING A LOW DENSITY THERMOPLASTIC FOAM

Louis Halberstadt, Andover; Peter E. Mertinooke, Amesbury, both of Mass.; Joseph V. Perry, Chester, N.H., and Dan C. Muessel, Danvers, Mass., assignors to Amesbury Group, Inc., Amesbury, Mass.

Continuation of Ser. No. 394,597, Feb. 27, 1995, abandoned, which is a division of Ser. No. 255,324, Jun. 7, 1994, Pat. No. 5,393,796, which is a continuation of Ser. No. 924,405, Aug. 3, 1992, abandoned, which is a continuation of Ser. No. 378,003, Jul. 11, 1989, abandoned. This application Dec. 20, 1996, Ser. No. 771,432
Int. Cl.[6] B29C *47/60;44/50*
U.S. Cl. 425—4 C 28 Claims

1. Apparatus for extruding elastomeric thermoplastic foam comprising:





a barrel having a hollow opening defined therein;

a screw disposed within said barrel, said screw having a transition region for melting resin, a mixing region disposed downstream of said transition region for mixing a blowing agent with said resin, and a metering region for cooling said resin, said metering region having an L/D ratio of at least 32:1;

a heating element coupled with said screw in said transition region for heating said resin;

an injector coupled with said screw in said mixing region for injecting a blowing agent;

a cooling element coupled with said screw in said metering region for cooling said mixture of resin and blowing agent; and

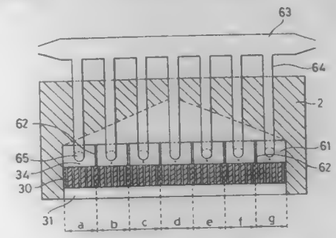
a die disposed at an end of said screw for extruding said resin into a foam.

5,728,407

DIE FOR MELT-BLOWING APPARATUS

Yasuhiro Matsui, Ibaraki, Japan, assignor to Japan Vilene Company, Ltd., Tokyo, Japan

Filed May 24, 1996, Ser. No. 653,482
Claims priority, application Japan, May 26, 1995, 7-152612
Int. Cl.[6] B29B *9/06;* B29C *47/78*
U.S. Cl. 425—7 6 Claims



1. A die for a melt-blowing apparatus, comprising a die body, a nozzle piece and a lip plate, wherein said die body includes a passage for distributing melted resin, said nozzle piece includes at least one row of nozzle orifices and is connected to said die body so that said nozzle orifices receive said melted resin from said die body, said lip plate includes a spinning opening aligned to receive the resin exiting said nozzle orifices such that gas flow paths are formed between said lip plate and said nozzle piece which extend to said spinning opening for blowing gas onto resin exiting said nozzle orifices, wherein said gas flow path further comprises a gas supplying tube located in said die body, a gas supplying path and a gas flow outlet, wherein said nozzle piece is divided into plural temperature-controlling zones in a direction crosswise to a spinning direction, wherein said gas supplying tube is further divided to a multiplicity of gas chambers with a multiplicity of separating walls corresponding to said temperature-controlling zones, wherein one or more heating means are disposed for each of said temperature-controlling zones in said gas flow path to heat the gas which is brought into contact with said nozzle piece when passing through said gas flow path, a means for measuring a temperature at a portion surrounding one of said nozzle orifices in said nozzle piece is disposed for each of said divided temperature-controlling zones, and heated gas is applied at said portion surrounding said

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one nozzle orifice whereby the temperature of the nozzle orifice surrounding portions in each of said temperature controlling zones is maintained uniformally at a predetermined temperature.

5,728,408

MOLDING APPARATUS WITH A TUFT FEEDER FOR MAKING A BRUSH

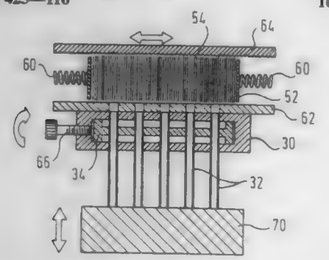
Bart Gerard Boucherie, Izegem, Belgium, assignor to G.B. Boucherie N.V., Izegem, Belgium

Filed Mar. 28, 1995, Ser. No. 411,932

Claims priority, application United Kingdom, Mar. 29, 1994, 9406226

Int. Cl.[6] B29C *45/14*

U.S. Cl. 425—116 **16 Claims**



1. A brush making machine comprising a mold for injection molding of brush bodies having tufts of bristles embedded in a molding material, said mold comprising at least two relatively movable mold parts defining a mold cavity, one of said mold parts having a cavity defining surface portion with tuft insertion holes therein arranged in a pattern corresponding to a desired tuft pattern of a brush to be produced, and a tuft feeder being provided for introducing tufts of bristles into said tuft insertion holes so that the bristles project into said cavity, said tuft feeder comprising a bristle container containing pre-finished bristles in a parallel packed relationship and a plurality of tuft picking and transfer tubes arranged in a pattern corresponding to at least part of said pattern of tuft insertion holes, said tuft picking and transfer tubes being movable to pick out tufts of bristles from said bristle container, each of said tuft picking and transfer tubes being associated with a plunger member for penetrating into a respective tuft picking and transfer tube to push out a tuft of bristles contained therein, and said bristles in said bristle container having their ends opposite said tubes frictionally engaged by a plate vibrating in a direction substantially orthogonal to the length of said bristles at least during an initial phase of tube penetration into said bristle container.

5,728,409

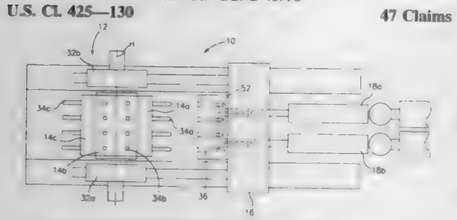
TURRET ARTICLE MOLDING MACHINE

Robert Schad, Toronto, and Robin Arnott, Alliston, both of Canada, assignors to Husky Injection Molding Systems Ltd., Canada

Filed Mar. 6, 1996, Ser. No. 611,362

Int. Cl.[6] B29C *45/16*

U.S. Cl. 425—130 **47 Claims**



1. An injection molding machine, comprising:

an injection molding machine having only two platens and including a first platen carrying a first mold half having a central axis and one of at least one mold cavity and at least one mold core;

a second platen in association with said first platen, said second platen comprising a rotatable turret means rotatable on a central axis of rotation for rotating a plurality of movable mold halves thereof into alignment with said first mold half, each of said movable mold halves including one of at least one mold cavity and at least one mold core matable with said first mold half for forming a mold for molding a molded article, said rotatable turret means operative for clamping said movable mold halves and said first mold half together;

means for moving said rotatable turret means relative said first mold half; and

a first injection means for injecting melt into said at least one mold cavity,

wherein the central axis of rotation of the turret is perpendicular to the central axis of the first mold half.

5,728,410

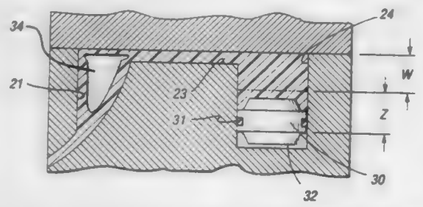
SYSTEM FOR INJECTION MOLDING OF PLASTIC ARTICLE UTILIZING A VARIABLE VOLUME SPILL CAVITY

James W. Hendry, Brooksville, Fla., assignor to Melea Limited, Gibraltar Heights, Gibraltar

Division of Ser. No. 492,589, Jun. 21, 1995, Pat. No. 5,607,640. This application Oct. 22, 1996, Ser. No. 736,017

Int. Cl.[6] B29C *45/00*

U.S. Cl. 425—130 **10 Claims**



1. A system for injection molding a hollow article, the system comprising:

means for injecting a quantity of fluid plastic into a mold cavity having a shape defining at least a portion of the article;

means for introducing a charge of pressurized gas into the mold cavity to displace a portion of the plastic from the mold cavity into a spill cavity having a volume flow coupled to the mold cavity; and

means for venting the gas from the mold cavity, the improvement comprising:

means for allowing the volume of the spill cavity to increase in a controlled fashion to a final volume based on the amount of plastic injected into the mold cavity, the volume of the spill cavity increasing during the displacement of the portion of the plastic from the mold cavity into the spill cavity to produce a substantially strain-free plastic part.

5,728,411

MIXING SYSTEM FOR DISPENSING MEASURED VOLUMES OF KNEADABLE MATERIAL

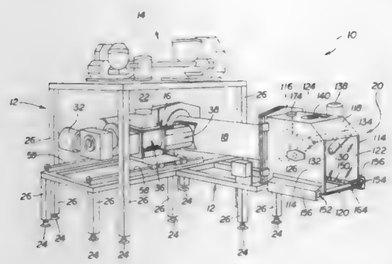
David Wayne Fowler, Atoka, Tenn., assignor to Exact Mixing Systems, Inc., Memphis, Tenn.

Filed Nov. 20, 1995, Ser. No. 560,169

Int. Cl.[6] B29C *47/92*

U.S. Cl. 425—142 **45 Claims**

1. A side feeder assembly for use in a mixing system having a frame and a kneader cylinder with an inlet, said side feeder



assembly adapted to be slidably movable on said frame between an operating position and a cleaning position, said said feeder assembly comprising:

(a) a preblender housing;

(b) means for slidably and rotatably mounting said preblender housing on said frame, said preblender housing being slidably movable between said operating and cleaning positions;

(c) an input housing, said input housing being detachably connected to said preblender housing when said input housing is in said operating position;

(d) means for slidably mounting said input housing on said frame, said input housing being slidably movable between said operating and cleaning positions, said input housing and said preblender housing being detached from one another when said input and preblender housings are in said cleaning position, said preblender housing being free to rotate relative to said input housing when said input and preblender housings are in said cleaning position;

(e) preblending means, operatively disposed within both said input and preblender housings when in said operating position, for preblending a supply of kneadable material and for conveying said material from said input housing through said preblender housing into said kneader cylinder, said preblending means being removable from said input and preblender housing when in said cleaning position; and

(f) driving means, operatively connected to said preblending means, for driving said preblending means.

5,728,412

ALCOHOL ACETYLTRANSFERASE GENES AND USE THEREOF

Toshio Fujii; Akihiro Iwamatsu; Hiroyuki Yoshimoto, all of Tokyo-To; Toshitaka Minetoki, Nishinomiya; Takayuki Bogaki, Nishinomiya, and Naoshi Nagasawa, Nishinomiya, all of Japan, assignors to Kirin Beer Kabushiki Kaisha, Tokyo-to, Japan

Division of Ser. No. 77,939, Jun. 18, 1993, Pat. No. 5,521,088. This application Jun. 5, 1995, Ser. No. 465,334

Claims priority, application Japan, Jun. 18, 1992, 6-184328; Feb. 26, 1993, 7-62997

Int. Cl.[6] C12C *11/00;* **C12N** *9/10;1/00;1/18;15/63;* **C07H** *21/04;* **A23L** *1/28;1/10*

U.S. Cl. 426—11 **18 Claims**

1. A method for producing an alcoholic beverage having an enriched ester flavor, comprising the step of fermenting saccharide by a yeast transformed with an alcohol acetyltransferase (AATase) gene or with a DNA fragment comprising an AATase gene, wherein said AATase encoded by said gene or said DNA fragment enriches the ester flavor of the alcoholic beverage.

5,728,413

PRODUCTION OF FERMENTED MALT BEVERAGES

Cameron R. Murray, and William John Van Der Meer, both of London, Canada, assignors to Labatt Brewing Company Limited

Continuation of Ser. No. 194,231, Feb. 7, 1994, Pat. No. 5,536,512, which is a continuation of Ser. No. 35,805, Mar. 23, 1993, Pat. No. 5,304,384. This application Jul. 15, 1996, Ser. No. 675,476

Int. Cl.[6] C12H *1/00*

U.S. Cl. 426—16 **9 Claims**

1. A process for preparing a fermented malt beverage wherein brewing materials are mashed with water, the resulting mash is heated and wort separated therefrom, said wort is boiled, cooled and fermented to produce a beer, comprising:

subjecting the beer to a cold stage comprising rapidly cooling said beer to a temperature of about its freezing point wherein ice crystals form, said ice crystals being an average size of 200 to 3000 microns and less than 5 percent by volume of said beer;

treating by mixing said cooled beer for a short period of time with a beer slurry containing ice crystals without any appreciable increase in the amount of ice crystals in the resulting mixture, and extracting so treated beer from said mixture.

5,728,414

FOOD PRODUCT PACKAGE

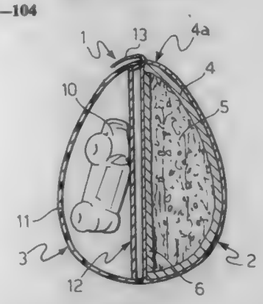
Giuseppe Terrasi, Benevello (Cuneo), Itnly, assignor to Soremartec s.a., Belgium

Filed Oct. 4, 1996, Ser. No. 725,918

Claims priority, application Switzerland, Oct. 16, 1995, 2924/95

Int. Cl.[6] A23G *1/00*

U.S. Cl. 426—104 **23 Claims**



1. A food package comprising:

two half shells with respective mouths coupled in face-to-face relation and with at least one receptacle for an accessory including a first half shell comprising an edible part of the package and a second half shell formed from a non-food material defining said receptacle for said accessory.

5,728,415

PRIZE-CONTAINING BEVERAGE CAN

Georg Troska, Herten, Germany, assignor to The Coca-Cola Company, Atlanta, Ga.

Filed Jul. 19, 1995, Ser. No. 504,753

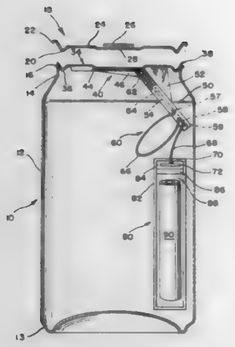
Int. Cl.[6] B65D *35/00*

U.S. Cl. 426—112 **51 Claims**

1. A container assembly for housing liquid products and a prize, comprising:

a can for containing the liquid product, said can having an open end, a closed end and sidewalls connecting the open and closed ends, said sidewalls having interior surfaces defining an interior chamber;

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closure means for closing the open end of the can, the closure means being movable from a closed position to an open position;

a tether having a proximal end adjacent the closure means and a distal end connected to a prize assembly for supporting the prize assembly within a storage position in the interior chamber; and

prize presentation means for exposing the proximal end of the tether in juxtaposed relationship with the open end of the can in response to opening of the closure means;

the proximal end of the tether being engageable by a consumer to manually withdraw the prize assembly from the can.

5,728,416

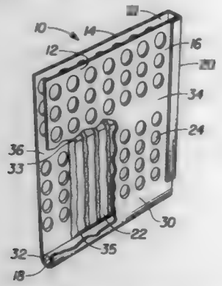
CONTAINER FOR HEATING FROZEN FRENCH FRIES IN A TOASTER

James L. Bono, Cincinnati; Lewis A. Tucker, Fairfield, and Deborah J. Yee, Cincinnati, all of Ohio, assignors to The Procter & Gamble Company, Cincinnati, Ohio

Filed Jun. 21, 1996, Ser. No. 668,487

Int. Cl.[6] B65D *81/34*

U.S. Cl. 426—113 **8 Claims**



1. A container for heating frozen French fries in a toaster, said container comprising an upright structure and frozen French fries therein, said upright structure adapted to removably fit into a vertical slot of a conventional toasters and be supported by said toaster during a toaster heating cycle, said upright structure having a front and back connected to a closed bottom, said front and back having side edges said front and back also having apertures therethrough for passing heat from said toaster to said frozen French fries located inside said upright structure and for passing steam from heated French fries to outside of said upright structure, said upright structure having an openable end to permit removal of said heated French fries, said frozen French fries being oriented upright and side-by-side in said upright structure said frozen French fries having uppermost and lowermost ends and said closed bottom forming a drip trough for collecting drippings from said lowermost ends of said heated French fries, said drip trough protecting said lowermost ends of said French fries from direct radiation from said toaster and said uppermost ends of said French fries being protected from direct radiation from said toaster by a solid band of material in said front and said back of said upright structure at a location covering substantially all of said uppermost ends of said French fries, said apertures being sized small enough that said frozen French fries and said heated French fries cannot escape from said upright structure through said apertures.

5,728,417

METHOD FOR CONTROLLING CRYOGENIC FLOW IN A FOOD MIXING MACHINE

Darrell Horn; John M. Lennox, III, and Greg Tapscott, all of Rohnert Park, Calif., assignors to Blentech Corporation, Rohnert Park, Calif.

Filed Jun. 17, 1996, Ser. No. 664,635

Int. Cl.[6] A23P *1/00;* **G05D** *23/00*

U.S. Cl. 426—231 **3 Claims**

1. A method for controlling cryogenic flow in a food mixing machine, said method comprising the steps of:

providing a first measured quantity of food product into said food mixing machine;

initiating mixing of said food product in said food mixing machine and delivery of liquid cryogenic onto said food product in said food mixing machine, and establishing a start time therefore;

measuring the temperature as said food product is chilled by said liquid cryogenic until an initial freezing point is determined, and establishing an elapsed time T_f from said start time therefore;

continuing mixing of said food product and delivery of said liquid cryogenic onto said food product until said food product has achieved forming point stiffness, and establishing an elapsed time T_f from said start time therefore;

subsequently operating said food mixing machine for a second measured quantity of food product generally equal to said first measured quantity;

measuring the temperature as said second measured quantity of food product is chilled by said liquid cryogenic until an initial freezing point is determined, and establishing an elapsed time T_{f2} therefore; and

continuing mixing and chilling of said second measured quantity of food product for a total elapsed time $T_{f2}= T_{f2}\times T_f/T_i$.

5,728,418

TWISTED QUICK COOKING PASTA

Thomas Wilhelm Hauser, Eboli, Italy, and Lorenzo Panattoni, Winterthur, Switzerland, assignors to Nestec S.A., Vevey, Switzerland

Filed Dec. 18, 1995, Ser. No. 574,010

Claims priority, application European Pat. Off., Dec. 22, 1994, 94120376

Int. Cl.[6] A23L *1/16*

U.S. Cl. 426—557 **13 Claims**



1. Twisted cooking pasta having, in transverse section, the shape of a helix comprising at least one blade attached to an axis, wherein the axis is hollow and of a sufficient diameter such that all starch in the pasta is fully cooked and the hollow axis closes upon cooking in boiling water for about 5 minutes, the thickness of the axis and the at least one blade each being between 0.3 and 1.1 mm, and the at least one blade is twisted to a degree such that the pasta has a density of between 0.2 and 0.7 g/cm^3, the volume being defined as the cylindrical space occupied by the pasta.

5,728,419

ICE CONFECTIONERY PRODUCT AND PREPARATION THEREOF

Pierrette Caron, Beauvais, and Sylvie Jousset, Mours, both of France, assignors to Nestec S.A., Vevey, Switzerland

Filed Mar. 6, 1995, Ser. No. 399,185

Claims priority, application European Pat. Off., Mar. 28, 1994, 94104854

Int. Cl.[6] A23G *9/00*

U.S. Cl. 426—565 **18 Claims**

1. A frozen ice confectionery product comprising a first ice layer which contains a first effervescence-producing agent and a second ice layer which contains a second effervescence-producing agent, wherein the first and second ice layers are juxtaposed and are not separated by a water-impermeable intermediary, and wherein, upon eating the frozen product, the first and second effervescence-producing agents react to produce carbon dioxide.

5,728,420

OXIDATIVE METHOD FOR ATTACHMENT OF GLYCOPROTEINS TO SURFACES OF MEDICAL DEVICES

James R. Keogh, Maplewood, Minn., assignor to Medtronic, Inc., Minneapolis, Minn.

Filed Aug. 9, 1996, Ser. No. 694,535

Int. Cl.[6] B05D *3/10;* **A61L** *33/00;27/00*

U.S. Cl. 427—2.12 **28 Claims**

1. A method of forming a coating on a surface of a medical device, the coating imparting biocompatibility characteristics to the surface, the method comprising the ordered steps of:

(a) combining a periodate with a glycoprotein, the glycoprotein comprising a 1,2 dihydroxy moiety, to oxidize the 1,2 dihydroxy moiety to form an aldehyde-functional material;

(b) providing the medical device, the device having a suitable biomaterial forming the surface, an amine moiety being disposed on the surface;

(c) combining the aldehyde-functional material with the amine moiety to bond the aldehyde-functional material to the amine moiety and thereby form an imine moiety; and

(d) reacting the imine moiety with a reducing agent to form an amine linkage, the amine linkage immobilizing the glycoprotein on the surface, the immobilized glycoprotein forming the coating.

5,728,421

ARTICLE COMPRISING SPINEL-STRUCTURE MATERIAL ON A SUBSTRATE, AND METHOD OF MAKING THE ARTICLE

Ernst Michael Gyorgy, Madison; Julia Mae Phillips, Mountainside; Yuri Suzuki, Bridgewater; Robert Bruce van Dover, Maplewood, and Suzanne Rachel Gyorgy, Chatham, all of N.J., executrix of said Ernst Michael Gyorgy, deceased, assignors to Lucent Technologies Inc., Murray Hill, N.J.

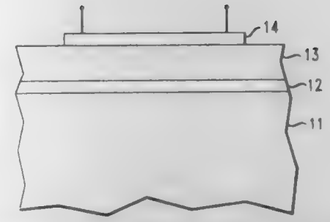
Continuation-in-part of Ser. No. 406,084, Mar. 17, 1995, abandoned. This application Aug. 23, 1996, Ser. No. 697,402

Int. Cl.[6] B05D *5/12;* **C23C** *16/40*

U.S. Cl. 427—126.3 **13 Claims**

1. Method of making an article that comprises a first spinel-structure metal oxide layer, the method comprising

a) providing a substrate body having a lattice constant a_s and a major surface;



b) forming by vapor deposition a template layer on the major surface, the template layer being a second spinel-structure metal oxide layer selected to have a lattice constant a_t in the range 0.79–0.89 nm, and heat treating the template layer at a temperature above 500° C. for a time sufficient for crystal quality improvement;

c) forming by vapor deposition the first spinel-structure metal oxide layer on the heat treated template layer at a forming temperature of at most 500° C., the first spinel-structure metal oxide layer comprising a spinel-structure metal oxide having a lattice constant a_f; and

d) completing the article without heating the first spinel-structure metal oxide layer above 500° C.

5,728,422

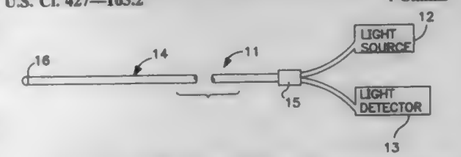
RATIOMETRIC FLUORESCENCE METHOD OF MAKING FOR MEASURING OXYGEN

James Kane, N. Brunswick, N.J.; Roy Martin, Maple Grove, Minn., and Anne Perkovich, Mahtomedi, Minn., assignors to Optical Sensors, Incorporated, Eden Prairie, Minn.

Division of Ser. No. 120,593, Sep. 13, 1993, Pat. No. 5,462,880. This application May 24, 1995, Ser. No. 449,846

Int. Cl.[6] B05D *5/06;* **C03C** *25/02;* **G01N** *21/64*

U.S. Cl. 427—163.2 **4 Claims**



1. A method for making an optical oxygen sensor for measuring oxygen in a fluid, comprising the steps of:

(a) providing an optical Waveguide having a distal end portion for monitoring an oxygen component within a fluid, and a proximal end portion for communication with means for receiving a signal from the distal end portion;

(b) coating the distal end portion with a solution containing a photocurable polymeric precursor, an oxygen-sensitive indicator component and a reference dye component, wherein the oxygen indicator provides for an oxygen-sensitive fluorescence emission signal, and wherein the reference dye provides for an oxygen-insensitive fluorescence emission signal; and

(c) effecting cross-linking of the precursor.

5,728,423

METHOD AND APPARATUS FOR INTERNALLY AND EXTERNALLY COATING ENCLOSED METALLIC STRUCTURES

L. Keith Rogerson, No. 9 Fourth Ave., Isle of Palms, S.C. 29451

Filed Mar. 27, 1995, Ser. No. 410,802

Int. Cl.[6] B05D *7/22*

U.S. Cl. 427—231 **22 Claims**

1. A process for forming a polymeric coating on the exterior and interior surfaces of an enclosed structure, such process comprising the steps of:

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providing an enclosed structure having an interior surface and an exterior surface;

heating said enclosed structure to a temperature sufficient to melt a first polymeric material;

distributing said first polymeric material over said interior surface of said structure while maintaining said temperature at a level sufficient to melt said first polymeric material for coating said interior surface; and

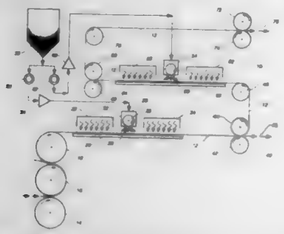
applying a second polymeric material to said exterior surface of said enclosed structure while the exterior surface of said structure is still at a temperature above the melting point of said second polymeric material thereby allowing said second polymeric material to coat said exterior surface of said structure.

5,728,424

METHOD FOR FORMING A TEXTURED SURFACE ON A GEOMEMBRANE

Walter W. Walling, Houston, Tex., assignor to GSE Lining Technology, Inc., Houston, Tex.

Filed Apr. 10, 1996, Ser. No. 631,848
Int. Cl.° B05D 1/12;1/38
U.S. Cl. 427—180 7 Claims



1. A method of forming a textured surface on a geomembrane comprising the steps of:

passing the geomembrane over a first support surface;

heating a surface of the geomembrane;

distributing granules onto the heated surface of the geomembrane as the geomembrane passes over said first support surface;

bonding said granules onto the heated surface of the geomembrane, said step of bonding comprising the steps of:

heating the surface of the geomembrane and said granules after said granules are distributed; and

passing the heated surface and granules between rollers, said rollers exerting a compressive force onto the surface of the geomembrane such that said granules adhere onto said surface of the geomembrane with a weld factor of less than one; and

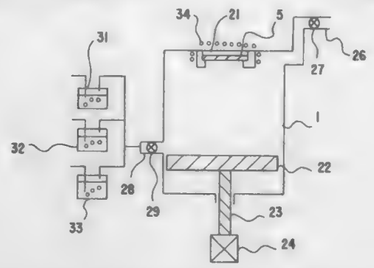
passing the geomembrane from the first support surface.

5,728,425

METHOD FOR CHEMICAL VAPOR DEPOSITION OF SEMICONDUCTOR FILMS BY SEPARATE FEEDING OF SOURCE GASES AND GROWING OF FILMS

Hiroji Ebe; Akira Sawada, and Hiroshi Takigawa, all of Kawasaki, Japan, assignors to Fujitsu Limited, Kawasaki, Japan

Filed Mar. 9, 1993, Ser. No. 28,143
Claims priority, application Japan, Mar. 18, 1992, 4-061956
Int. Cl.° C23C 16/44
U.S. Cl. 427—248.1 8 Claims



1. A method for vapor phase deposition in a reactor chamber comprising the following steps (a) through (d) in the order recited:

(a) supplying a source gas in a vapor phase to the reactor chamber having a substrate therein;

(b) maintaining the source gas in the vapor phase for a period of time, during which a gas-inlet and a gas-outlet for the source gas are closed and the reactor chamber is maintained at a constant volume, so that vapor pressure and density of the source gas are kept homogeneous throughout the reactor chamber;

(c) compressing a volume of the reactor chamber to make a partial pressure of the source gas so high that the vapor phase deposition on the substrate occurs, and

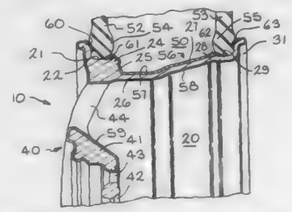
(d) maintaining the compressed volume of the reactor chamber constant until the source gas is completely consumed by vapor phase deposition.

5,728,426

METHOD OF MANUFACTURING A PLATED VEHICLE WHEEL HAVING NON-PLATED TIRE BEAD SEATS

Daniel C. Wei, Ann Arbor, Mich., assignor to Hayes Wheels International, Inc., Romulus, Mich.

Division of Ser. No. 423,179, Apr. 18, 1995, Pat. No. 5,632,529.
This application Feb. 20, 1997, Ser. No. 803,490
Int. Cl.° B05D 1/32;5/00
U.S. Cl. 427—282 17 Claims



1. A process for forming a layer of metal plating on the surface of a vehicle wheel, the process comprising:

(a) providing a vehicle wheel prior to mounting a tire thereon, the vehicle wheel including an annular wheel rim defining a wheel rim surface, the wheel rim having annular outboard and inboard tire bead seats formed therein for supporting outboard and inboard tire walls, respectively, the wheel rim having a circular wheel disc disposed thereacross and defining a wheel disc surface; and

(b) providing a layer of metal plating on a portion of at least one of said wheel rim surface and said wheel disc surface, said portion excluding a portion of at least one of said tire bead seats.

5,728,427

PROCESS FOR PRODUCING COLOR CARDS

Matthias Anthonie Johannes Akkerman, Driebergen, and Gerhardus Johannis Mulder, Odijk, both of Netherlands, assignors to Fina Research, S.A., Feluy, Belgium

PCT No. PCT/BE94/00089, § 371 Date Dec. 14, 1995, § 102(e) Date Dec. 14, 1995, PCT Pub. No. WO95/14577, PCT Pub. Date Jun. 1, 1995
PCT Filed Nov. 22, 1994, Ser. No. 454,359
Claims priority, application Netherlands, Nov. 22, 1993, 93870225
Int. Cl.° B29C 71/02; B05D 3/04;3/06;5/00
U.S. Cl. 427—288 8 Claims

1. Process for producing colour cards with lacquers comprising the steps of:

providing a cardboard or paper substrate;

applying simultaneously at least two different colours of a lacquer on one side of said substrate; and

drying said lacquer;

characterised in that

(i) said lacquer is a water-based emulsion paint;

(ii) said lacquer is applied in layers of at least 75 g/m^2; and

(iii) said drying step is substantially carried out using infrared dryers irradiating the uncoated side of said substrate.

5,728,428

COMPOSITION FOR PROTECTING A BODY OF CONCRETE, A PROCESS FOR PREPARING SAME, AND A METHOD FOR THE PROTECTION OF A BODY OF CONCRETE

Alexander Rusinoff, San Francisco, Calif., assignor to Nadia Rusinoff, and Helen Rusinoff, both of San Francisco, Calif.

Filed Jun. 1, 1995, Ser. No. 456,704
Int. Cl.° B05D 3/12;5/00; C04B 14/00;22/00
U.S. Cl. 427—292 14 Claims

6. A method for the protection of a body concrete having an outer surface, said method comprising:

treating said outer surface of said body of concrete by forming depressions in said outer surface to obtain a total exposed surface area that is 1.15 to 1.36 times as great as the surface area of said outer surface of said body of concrete before said treatment to form a prepared concrete surface;

applying to said prepared concrete surface a protective composition comprising the following components, in % by weight:

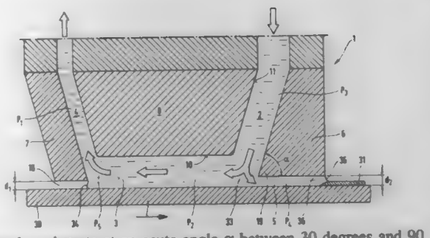
5,728,429

METHOD AND A DEVICE FOR PRODUCING THIN LAYERS FROM LIQUIDS TO FORM COATING OR FOILS

Thomas Berrenberg, Kerkrade, Netherlands, and Ingo Steinbach, Herzogenrath, Germany, assignors to Glyco-Metall-Werke Glyco B.V. & Co. KG, Wiesbaden, Germany

Continuation of Ser. No. 513,243, Aug. 10, 1995, abandoned.
This application Mar. 17, 1997, Ser. No. 819,343
Claims priority, application Germany, Aug. 13, 1994, 44 28 741.0
Int. Cl.° B05D 1/26
U.S. Cl. 427—345 8 Claims

1. A method for continuous production of thin layers from liquids to form coatings or foils, in which a substrate and a liquid application point are moved relative to each other, and in which, during the movement, the liquid is applied at the application point onto the substrate at an acute angle α between 30 degrees and 90 degrees, while forming a liquid strip, in an amount which is greater than is necessary for the formation of the liquid strip, the excess liquid is drawn off at a removal point, and the liquid strip formed on the substrate is directed through an outlet channel to an end exit and is allowed to solidify, and wherein the method comprises guiding the excess liquid from the application point to the removal point away from the outlet channel, maintaining the applied liquid adjacent the substrate between the application point and the removal point as a laminar flow and creating a film-forming meniscus with said liquid at said end exit of said outlet channel.

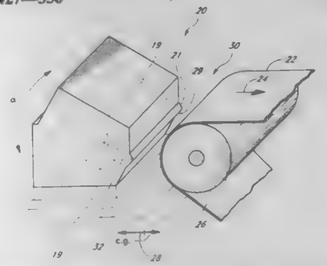


5,728,430

METHOD FOR MULTILAYER COATING USING PRESSURE GRADIENT REGULATION

Luigi Sartor, Pasadena; Stephen C. Huff, Chino Hills, and Craig N. Kishi, Pasadena, all of Calif., assignors to Avery Dennison Corporation, Pasadena, Calif.

Filed Jun. 7, 1995, Ser. No. 483,509
Int. Cl.° B05D 1/26
U.S. Cl. 427—356 35 Claims



1. A method of coating two or more liquid layers onto a moving substrate, said substrate having a substantially planar surface to be coated and an opposite surface, said method comprising the steps of:

providing a die for coating said liquid layers onto said substrate, said die having at least three lips formed thereon; said lips comprising, in the sense of direction of travel of said moving substrate, an upstream lip, a downstream lip, and a middle lip positioned between said upstream lip and said downstream lip; said die having an upstream feed gap separating said upstream lip and said middle lip and a downstream feed gap separating said middle lip and said downstream lip;

providing a support along one section of said moving substrate and positioning said support so as to be adjacent said opposite surface of said substrate;

positioning said die so as to be adjacent said moving substrate and opposite said support, said middle lip of said die being offset from said substrate to form a first coating gap, and said downstream lip of said die being offset from said substrate to form a second coating gap, each of said first and second coating gaps having a length as measured in the direction of travel of said moving substrate;

feeding a first flow of liquid through said upstream feed gap and said first coating gap and onto said substrate to form a first wet layer coating on said substrate, said first flow of liquid

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exhibiting a first pressure gradient proportional to said first coating gap and the thickness of said first wet layer;

feeding a second flow of liquid through said downstream feed gap and said second coating gap and onto said first flow of liquid to form a second wet layer coating on said substrate, said second flow of liquid exhibiting a second pressure gradient proportional to said second coating gap and the total thickness of said first and second wet layers;

adjusting said first coating gap such that, along said length of said first coating gap, the minimum coating gap is not less than approximately two times the thickness of said first wet layer, and the maximum coating gap is not more than approximately three times the thickness of said first wet layer; and

adjusting said second coating gap such that, along said length of said second coating gap, the minimum coating gap is not less than approximately the total thickness of said first and second wet layers and the maximum coating gap is not more than approximately two times the total thickness of said first and second wet layers, whereby said first and second pressure gradients are adjusted such that substantially no recirculations will occur in said first and second wet layers.

5,728,431

PROCESS FOR FORMING SELF-ASSEMBLED POLYMER LAYERS ON A METAL SURFACE

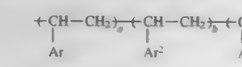
David E. Bergbreiter; Yuefen Zhou, both of College Station, Tex., and Vimala M. Mariagnanam, Duluth, Ga., assignors to Texas A&M University System, College Station, Tex.

Filed Sep. 20, 1996, Ser. No. 710,607
Int. Cl.[6] B05D 3/00;1/38;5/00;7/14
U.S. Cl. 427—388.1 36 Claims

1. A process for applying at least one layer of polymeric material to a metallic substrate, which comprises the steps of:

a) preparing said metallic substrate by cleaning such that a reactive zerovalent metal or metal oxide layer is exposed;

b) preparing a solution or a dispersion of said polymeric material by dissolving or dispersing said polymeric material in a solvent, wherein said polymer is of the formula:



wherein Ar^1, Ar^2, and Ar^3 are each independently selected from the group consisting of phenylene, pyridine, naphthylene, quinolyene, and mixtures thereof;

wherein at least one of the hydrogen atoms in Ar^2 is replaced with a substituent selected from the group consisting of —OH, —OCOR, —$OCOCF_3$, —SH, —SCOR, —CH_2SH, —CH_2SCN, —CH_2SCOCH_3, —COOH, and —COOR, and mixtures thereof, where R is an aliphatic, alicyclic, or an aromatic moiety containing 1 to about 20 carbon atoms;

wherein one of the hydrogen atoms in Ar^3 is replaced with a substituent selected from the group consisting of —$CH_2O(PEG)_dOCH_3$, —CH_2Cl, —$CH_2OCOCCl_3$, —$CH{=}CH_2$, and mixtures thereof, where PEG is a polyethylene glycol moiety, d represents molecular weight of said polyethylene glycol moiety, which ranges from about 200 to about 10,000,

wherein a, b, and c represent mole percents of Ar^1, Ar^2 and Ar^3, where a+b+c=100; and

wherein concentration of said polymer in said polymer solution or dispersion is in the range of from about 0.0001 weight percent to about 30 weight percent based on the total weight of said solution; and

c) contacting said metallic substrate with said solution or dispersion for a sufficient period of time and at suitable temperature and pressure conditions to form at least one layer of self assembled polymeric material on said metallic substrate.

5,728,432

TREATING REINFORCING FIBERS WITH CARBODIIMIDE AQUEOUS DISPERSION

Yasuo Imashiro; Ikuo Takahashi, and Naofumi Horie, all of Tokyo, Japan, assignors to Nisshinbo Industries, Inc., Tokyo, Japan

Division of Ser. No. 510,171, Aug. 2, 1995, abandoned. This application Jun. 21, 1996, Ser. No. 672,401
Claims priority, application Japan, Aug. 11, 1994, 6-210418
Int. Cl.[6] B05D 3/02; B32B 17/02;27/02
U.S. Cl. 427—389.8 3 Claims

1. A method of treatment of reinforcing materials, comprising contacting a reinforcing material selected from the group consisting of glass fiber, carbon fiber and aramid fiber with an aqueous dispersion of a carbodiimide compound, wherein said aqueous dispersion is produced by dispersing said carbodiimide compound in an aqueous solvent using a dispersing agent and wherein said carbodiimide compound is represented by the formula

$$R_2—NCN—(R1—NCN)_n—R_2$$

where

R_1 is a residue of a diisocyanate compound selected from the group consisting of
m- or p-tetramethylxylylene diisocyanate,
4,4'-dicyclohexylmethane diisocyanate, isophorone diisocyanate,
4,4'-diphenylmethane diisocyanate, and
2-4- or 2,6-tolylene diisocyanate;

R_2 is a residue of a monoisocyanate compound selected from the group consisting of
cyclohexyl isocyanate,
phenyl isocyanate, and
butyl isocyanate;

and n is an integer of 2 to 30.

5,728,433

METHOD FOR GOLD REPLENISHMENT OF ELECTROLESS GOLD BATH

Tien-Jen Cheng, Bedford, N.Y., and David B. Shields, San Diego, Calif., assignors to Engelhard Corporation, Iselin, N.J.

Filed Feb. 28, 1997, Ser. No. 808,694
Int. Cl.[6] B05D 1/18
U.S. Cl. 427—437 10 Claims

1. A method for replenishing an electroless gold plating bath comprising dissolving metallic gold into the bath.

5,728,434

METHOD OF APPLYING A WEAR-RESISTANT COATING ON A THIN, METALLIC STRIP-SHAPED CARRIER

Keith H. Hewitt, Sandy, Oreg., assignor to Pacific/Hoe Saw and Knife Company, Portland, Oreg.

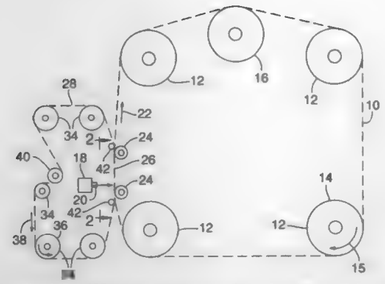
Filed Aug. 8, 1995, Ser. No. 512,938
Int. Cl.[6] B05D 1/02;1/32;1/36
U.S. Cl. 427—448 10 Claims

1. A method of applying a wear-resistant coating to one edge of a thin metallic strip-shaped carrier, comprising:

providing a coating apparatus including a spraying unit having a nozzle for emitting a spray of a molten coating agent in a coating zone, the coating agent, when hardened, forming a wear-resistant coating having greater wear-resistance than the thin metallic strip-shaped carrier itself;

forming a length of the thin metallic strip-shaped carrier into a closed endless loop to form a carrier strip loop and passing the carrier strip loop continuously in only one direction through the coating zone with the outside of the carrier strip loop facing the nozzle;

forming a length of a masking strip into a closed endless loop to form a masking strip loop and passing the masking strip loop



continuously in the one direction through the coating zone, the outside of the masking strip loop contacting the outside of the carrier strip loop in the coating zone, the masking strip loop passing between the nozzle and the carrier strip loop, the masking strip loop having a width less than the width of the carrier strip loop wherein the masking strip loop masks a transverse portion of the carrier strip loop within the coating zone to leave one edge of the outside of the carrier strip loop exposed to the nozzle of the spraying unit, wherein the nozzle of the spraying unit sprays the coating agent on the one exposed edge of the outside of the carrier strip loop, the masking strip loop protecting the masked portion of the outside of the carrier strip loop from spraying;

spraying molten coating agent continuously on the one exposed edge of the outside of the carrier strip loop as the carrier strip loop and the masking strip loop pass through the coating zone until a desired thickness of wear-resistant coating is applied to the one exposed edge of the outside of the carrier strip loop; and

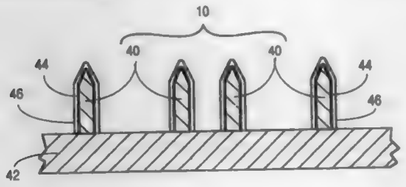
cutting the carrier strip loop into desired lengths of edge coated metallic strip-shaped carrier.

5,728,435

METHOD FOR ENHANCING ELECTRON EMISSION FROM CARBON-CONTAINING CATHODE

Michael W. Geis, Acton, Mass.; John M. Macaulay, Palo Alto, Calif., and Jonathan C. Twichell, Acton, Mass., assignors to Candescent Technologies Corporation, San Jose, Calif., and Massachusetts Institute of Technology, Cambridge, Mass.

Division of Ser. No. 90,228, Jul. 9, 1993, Pat. No. 5,463,271. This application May 22, 1995, Ser. No. 445,618
Int. Cl.[6] H05H 1/24; B05D 5/12
U.S. Cl. 427—535 55 Claims



1. A method comprising the steps of:

subjecting a carbon-containing electron-emissive cathode to a plasma that comprises electronegative atoms comprising at least one of oxygen and fluorine; and

subsequently subjecting the cathode to atoms of electropositive metal.

5,728,436

Patent Not Issued For This Number

5,728,437

ARTICLES EXHIBITING A BLOOD-COMPATIBLE SURFACE LAYER AND PROCESS FOR PROVIDING ARTICLES WITH SUCH A SURFACE LAYER

Håkan Bo Nygren, Billdal, and Emanuel Johan Stenberg, Göteborg, both of Sweden, assignors to Astra Meditec Aktiebolag, Molndal, Sweden

Continuation of Ser. No. 974,321, Nov. 10, 1992, abandoned, which is a continuation of Ser. No. 465,118, Feb. 13, 1990, abandoned. This application Nov. 29, 1994, Ser. No. 346,338
Claims priority, application Sweden, Aug. 26, 1987, 8703310
Int. Cl.[6] B29D 22/00
U.S. Cl. 428—35.7 8 Claims

1. Article exhibiting at least one hydrophobic surface of glass, metal or a hydrophobic polymer coated with a blood compatible surface layer, wherein the blood compatible surface layer consists of an adsorbed ethyl-hydroxyethyl-cellulose having a flocculation temperature of about 35°–40° C.

5,728,438

SHRINKABLE COVERING AND METHOD OF MANUFACTURE

Hans-Juergen Meltsch, Schwerte, and Ulrich Affolderbach, Wuppertal, both of Germany, assignors to Siemens Aktiengesellschaft, Munich, Germany

Filed Feb. 23, 1996, Ser. No. 605,861
Claims priority, application Germany, Feb. 23, 1995, 195 06 406.2
Int. Cl.[6] B29C 55/00
U.S. Cl. 428—36.1 26 Claims



1. In a shrinkable covering made of a plastic compound of a shrinkable material, said covering having an inlay of thermally recoverable threads and non-recoverable threads, the recoverable threads being arranged in the stretching and shrinking direction of the covering, the improvements comprising the thermally recoverable threads being arranged with an excess length in the stretching and shrinking direction of the shrinkable covering.

5,728,439

MULTILAYER PACKAGING MATERIAL FOR OXYGEN SENSITIVE FOOD AND BEVERAGE

Leland H. Carlblom, Richland Township, Allegheny County; Jerome A. Seiner, Pittsburgh, and Ken W. Niederst, Hampton Township, Allegheny County, all of Pa., assignors to PPG Industries, Inc., Pittsburgh, Pa.

Filed Dec. 4, 1996, Ser. No. 759,905
Int. Cl.[6] B29D 22/00; B32B 1/02;27/08; B65D 23/08
U.S. Cl. 428—36.91 24 Claims

1. A tinted multilayer packaging material which blocks at least 90% of light with wavelengths of electromagnetic radiation ranging from 300 nanometers to 500 nanometers comprising:

(a) at least one layer of a carbon dioxide-permeable packaging material, and

(b) at least one layer of a carbon dioxide-treated gas barrier coating having an OPC value not more than about 0.05 when measured at about 30° C. and about 50% relative humidity which is the reaction product of polyamine (A) and polyep-

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oxide (B), wherein polyamine (A) comprises at least one selected from the group consisting of:

(a) an initial polyamine containing at least 50 percent of the carbon atoms in one or more aromatic rings, and

(b) an ungelled amine-epoxide adduct having active amine hydrogens which is the reaction product of the initial polyamine and at least one selected from the group consisting of:

(i) epichlorohydrin, and

(ii) a polyepoxide having a plurality of glycidyl groups linked to an aromatic member.

5,728,440

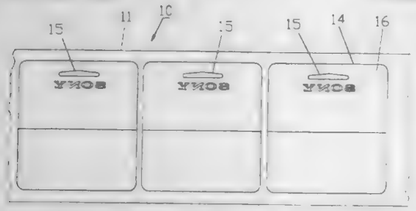
PRODUCT DISPLAY HANGER AND PROCESS

David M. Good, Peachtree City, Ga., assignor to Voxcom, Inc., Peachtree City, Ga.

Continuation-in-part of Ser. No. 318,255, Oct. 5, 1994, abandoned. This application May 20, 1996, Ser. No. 650,737

Int. Cl.[6] B65D *85/575*

U.S. Cl. 428—40.1 **5 Claims**



1. A hanging system for suspending a package of products from a single wire hanger and/or a double wire hanger and for automatic labeling of product packaging, said hanging system consisting of:

a hang tag formed of recyclable, transparent, sheet resin, material and having a front side and a back side, an upper portion and a lower portion,

a hanging region and a billboard region on said upper portion of said hang tag, said hanging region having one opening in the form of a squat, isosceles triangle for engaging a single or a double hanger wire,

a back side of said upper portion having said billboard region having an image containing graphics or advertising material printed on said upper portion of said back side, and covered with an ultraviolet cured, opaque ink coating for protecting said graphics or advertising material, and,

an adhering region on said lower portion front side, said adhering region having a 0.75 Mil coating of a clear, hot melt, pressure sensitive adhesive.

5,728,441

RECORDABLE/REPLAYABLE OPTICAL RECORDING MEDIUM AND OPTICAL RECORDING METHOD THEREFOR

Kyung Sun Min, Kyungki-do; Young Jae Huh, Seoul; Jong Sung Kim, Sungnam, all of Rep. of Korea; Gerrit Cornelis Dubbeldam, Zevenaar, Netherlands; Freddy Gerhard Hendrikus van Wijk, Arnhem, Netherlands, and Nico Maaskant, Huissen, Netherlands, assignors to Samsung Electronics Co., Ltd., Suwon, Rep. of Korea

Filed Dec. 15, 1995, Ser. No. 573,367

Claims priority, application European Pat. Off., Dec. 1, 1995, 95203301; Dec. 15, 1995, 95203502; Rep. of Korea, Dec. 15, 1995, 95-50705

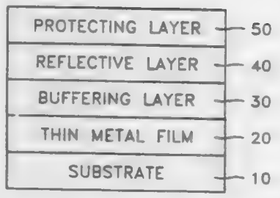
Int. Cl.[6] B32B *3/00*

U.S. Cl. 428—64.1 **31 Claims**

1. An optical recording medium comprising:

a substrate having a pregroove;

a thin metal recording film formed on said substrate;



a reflective layer disposed above said thin metal recording film; and

a deformable buffering layer interposed between said thin metal recording film and said reflective layer.

5,728,442

MAGNETIC RECORDING DISK

Hitoshi Noguchi; Nobuo Yamazaki, and Shinji Saito, all of Kanagawa, Japan, assignors to Fuji Photo Film Co., Ltd., Kanagawa, Japan

Filed Feb. 23, 1996, Ser. No. 605,860

Claims priority, application Japan, Feb. 27, 1995, 7-061522

Int. Cl.[6] G11B *5/82*

U.S. Cl. 428—65.3 **5 Claims**

1. A magnetic recording disk which comprises a nonmagnetic support having provided thereon a magnetic layer comprising a hexagonal ferrite magnetic material dispersed in a binder, wherein the magnetic layer has an orientation ratio of 0.9 or more, a vertical diamagnetic correction squareness ratio of from 0.3 to 0.55, an in-plane coercive force of from 1,400 to 3,000 Oe, a vertical-direction coercive force of from 1,400 to 3,000 Oe, and a dry thickness of 0.8 μm or less.

5,728,443

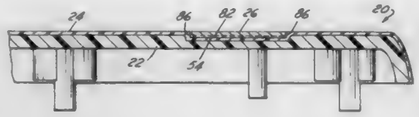
COMPOSITE ARTICLE OF AN AUTOMOTIVE VEHICLE AND METHOD OF MAKING THE SAME

Holton D. Bowers, Jr., Northville, and Stephen F. Lange, Farmington Hills, both of Mich., assignors to Chrysler Corporation, Auburn Hills, Mich.

Division of Ser. No. 540,697, Oct. 11, 1995, Pat. No. 5,626,704. This application Oct. 28, 1996, Ser. No. 739,479

Int. Cl.[6] B44C *1/26*

U.S. Cl. 428—67 **4 Claims**



1. A composite automotive trim strip, comprising:

an injection molded supporting member formed of a thermoplastic hot melt material;

a shell formed from a thermoplastic sheet, said sheet having an exposed front surface and a rear surface and wherein said rear surface is bonded directly to said supporting member during injection molding of said supporting member;

an icon embedded into said exposed front surface of said shell by heat and pressure applied by said hot melt material during said injection molding; and

an adhesive bond formed between said icon and said shell comprising a heat curable adhesive tacky at room temperature and cured during said injection molding.

5,728,444

CARPET AND TECHNIQUES FOR MAKING AND RECYCLING SAME

Wilbert E. Fink, 1704 Sherwood Cir., Villanova, Pa. 19085

Continuation of Ser. No. 179,321, Jan. 10, 1994, Pat. No. 5,578,357, which is a division of Ser. No. 64,380, May 21, 1993, Pat. No. 5,288,349, which is a division of Ser. No. 833,093, Feb. 10, 1992, Pat. No. 5,240,530. This application Aug. 14, 1996, Ser. No. 696,462

Int. Cl.[6] B32B *3/02*

U.S. Cl. 428—97 **20 Claims**



1. A carpet including at least a tufted primary backing, said tufted primary backing having a primary backing and tufts of carpet fibers penetrating a bottom surface of the primary backing and protruding from a top surface of the primary backing; a secondary backing; and an extruded sheet between a bottom surface of said tufted primary backing and an upper surface of said secondary backing, said extruded sheet being integrally fused to said tufted primary backing, and said primary backing, secondary backing and extruded sheet comprising an isotactic or crystalline polyolefin polymer, said carpet being able to be installed in a tightly sealed building without adversely affecting the air quality within said building.

5,728,445

FASTENING MEMBER

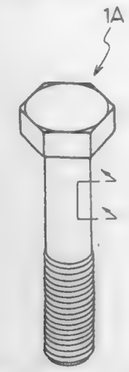
Yuichi Murakami; Toshiyuki Suzuki; Takuo Hasegawa; Mitsuhiko Sato, and Nobuyuki Suzumura, all of Tokyo, Japan, assignors to Research Institute of Advanced Material Gas-Generator, Ltd., Tokyo, Japan

Filed Dec. 29, 1995, Ser. No. 580,484

Claims priority, application Japan, Jan. 5, 1995, 7-000219

Int. Cl.[6] F16B *1/00*

U.S. Cl. 428—113 **7 Claims**



1. A fastening member comprising: a fiber-reinforced ceramic composite material, in which a ceramic material is reinforced with a plurality of inorganic long fibers, said ceramic material comprising glass-ceramics having a density ranging from 2.0 to 3.2 g/cm^3, and being selected from the group consisting of $Li_2O—Al_2—MgO—SiO_2—Nb_2O_5$, $MgO—Al_2—SiO_2$, $BaO—MgO—Al_2O_3—SiO_2$, and $CaO—Al_2O_2O_3—SiO_2$, said inorganic long fibers having a mean diameter ranging from 5 to 200 μm, a mean length of at least 500 μm, and a density ranging from 2.2 to 3.2 g/cm^3,

wherein said inorganic long fibers are located in said ceramic material such that first orientated layers, in which said inorganic long fibers are orientated in a predetermined direction, and second orientated layers, in which said inorganic long fibers are orientated in a direction different from the direction of orientation of said inorganic long fibers in said first orientated layers, are laminated alternately,

said fastening member having a length and a width, said length extending in a longitudinal direction and including an external thread,

the direction of orientation of said inorganic long fibers in said first orientated layers ranging between 0° and 90° with respect to the longitudinal direction of said external thread, and

the direction of orientation of said inorganic long fibers in said second orientated layers ranging between 0° and 90° with respect to the width of said fastening member.

5,728,446

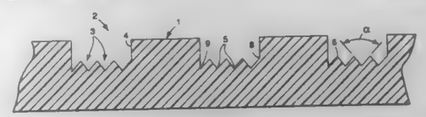
LIQUID MANAGEMENT FILM FOR ABSORBENT ARTICLES

Raymond P. Johnston; Robert T. Fehr, and James A. Servatius, all of P.O. Box 33427, St. Paul, Minn. 55133-3427

Continuation-in-part of Ser. No. 293,575, Aug. 22, 1993, Pat. No. 5,514,120. This application Oct. 23, 1995, Ser. No. 546,592

Int. Cl.[6] B32B *3/28;* **A61F** *13/15*

U.S. Cl. 428—167 **28 Claims**



1. A liquid management film for use in rapid transport of liquid comprising a thermoplastic film having at least one microstructured hydrophilic surface with a plurality of primary grooves to promote the undirectional spreading of liquids, a plurality of said primary grooves having at least two secondary grooves, each of said secondary grooves having at least two sidewalls the intersection of which forms at least one notch, which secondary groove notches are substantially parallel and separated by a secondary peak and which secondary groove notches or secondary grooves have an included angle of from about 10° to about 120°, the depth of one of said secondary grooves (the height of the secondary peak over the notch being at least 5 microns and said depth being from about 0.5 to about 80 percent of the depth of the primary groove, said notches having a radius of curvature of less than about 15 microns and the primary and/or secondary groove depth and width varies by less than 20 percent for each groove over a given length of the film.

5,728,447

PRESSED BODY PREPARED FROM PLANT MATERIAL BY PELLETIZATION AND DEVICE FOR PREPARING SAME

Franz Haimer, Weiherstrasse 21, 86568 Hollenbach, Germany

PCT No. PCT/EP94/02015, § 371 Date Jan. 19, 1996, § 102(e) Date Jan. 19, 1996, PCT Pub. No. WO95/03165, PCT Pub. Date Feb. 20, 1995

PCT Filed Jun. 21, 1994, Ser. No. 591,637

Claims priority, application Germany, Jul. 20, 1993, 93 10 760 U; Feb. 8, 1994, 94 02 091 U

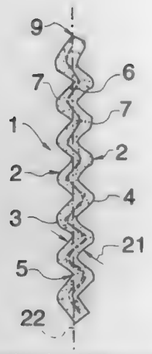
Int. Cl.[6] B32B *3/28;5/12*

U.S. Cl. 428—182 **20 Claims**

1. A pressed body of compressed plant material prepared by pelletization, the pressed body comprising:

plant material compressed into a corrugated sheet, said corrugated sheet having a longitudinal axis extending substantially

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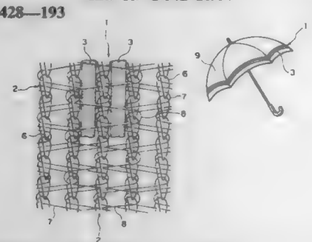
parallel to corrugations in said sheet, said sheet having broad lateral sides with a smooth texture formed by extrusion through correspondingly profiled walls, said sheet having longitudinal ends which are rough and fibrous, said longitudinal ends having fibers extending from said longitudinal ends, said rough and fibrous longitudinal ends being formed by breaking of said corrugated sheet.

5,728,448

REFLECTIVE WARP-KNIT TAPE

Sadaji Okeya, and Syuji Wakata, both of Toyama-ken, Japan, assignors to YKK Corporation, Tokyo, Japan

Filed Feb. 27, 1997, Ser. No. 807,588
Claims priority, application Japan, Feb. 29, 1996, 8-043409
Int. Cl.[6] D04B *21/14*
U.S. Cl. 428—193 **6 Claims**



1. A reflective warp-knit tape comprising:
(a) a narrow-width warp-knit tape having a plurality of longitudinal wales; and
(b) a reflective film knitted in said narrow-width warp-knit tape at a selected interwale space.

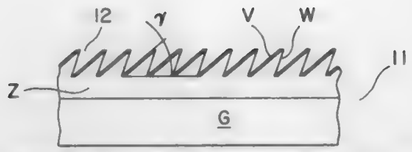
5,728,449

ANTI-COPY FILM LAYER FOR DOCUMENTS

Helmut Steininger, Worms; Peter Heilmann, Bad Duerkheim, both of Germany, and Peter Hewkin, Cambridge, Great Britain, assignors to EMTEC Magnetics GmbH, Ludwigshafen, Germany

PCT No. PCT/EP93/01891, § 371 Date Feb. 13, 1995, § 102(e) Date Feb. 13, 1995, PCT Pub. No. WO94/04367, PCT Pub. Date Mar. 3, 1994
PCT Filed Jul. 18, 1993, Ser. No. 381,917
Claims priority, application Germany, Aug. 14, 1992, 42 26 906.7
Int. Cl.[6] B32B *3/00*
U.S. Cl. 428—195 **27 Claims**

1. An anti-copy film or layer (S) for documents which prevents copying the documents in a copying apparatus with a given effective optical aperture angle, comprising:



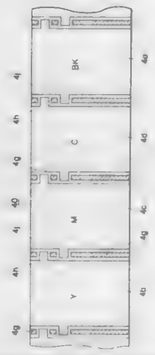
at least one film or at least one layer of transparent material having two surfaces and a multiplicity of at least partially opaque areas,
wherein the opaque areas are formed as opaque screens and arranged at distances from one another and in a position relative to the surfaces of the film(s) or layer(s) (S), so that the anti-copy film is essentially opaque at a viewing angle approximately perpendicular to the surfaces of the film(s) or layer(s) (S) and is essentially transparent at an oblique viewing angle to the two surfaces of the film(s) or layer(s) (S),
wherein each opaque area is formed from at least a first opaque screen (A1) on one of the surfaces of the film(s) or layer(s) (S) and at least a second opaque screen (A2) on at least one of the two surfaces of the film(s) or layer(s) (S),
wherein the at least first and second screens (A1 and A2) are arranged essentially horizontally,
wherein, for an overall thickness of the film(s) or layer(s) (S) of from 5 to 100 μm and an effective optical aperture angle of a copying apparatus of from 12° to 108°, the widths (dg) of the screens (A1, A2) are in the range from 1.75 to 180 μm, and the widths (do) of the gaps (L) between the screens (A1, A2) are in the range from 1.0 to 165 μm, and
wherein the at least first and second screens have approximately the same width (dg) and are arranged over the gaps (L) having a width (do) in an overlapping manner.

5,728,450

THERMALLY TRANSFERABLE INK SHEET AND A THERMAL PRINTING APPARATUS USING SAID SHEET

Fumio Kouzai; Kenichi Haramoto, and Kazuhiko Higashi, all of Hiroshima, Japan, assignors to Mitsubishi Denki Kabushiki Kaisha, Tokyo, Japan

Filed Jun. 19, 1996, Ser. No. 665,761
Claims priority, application Japan, Jun. 20, 1995, 7-153486
Int. Cl.[6] B32B *3/00*
U.S. Cl. 428—195 **13 Claims**



1. A thermally transferable ink sheet comprising:
a base film having periodically repeated sets of successive ink coated regions of various color inks;
index mark regions, each of said index mark regions interposed between a respective pair of first and second adjacent ink coated regions, each of said index mark regions comprising a plurality of sensor marks;
wherein each of said pairs of first and second adjacent ink coated regions is juxtaposed across a respective index mark region, and said first ink coated region has an extended portion extending toward said second ink coated region into said respective index mark region in a direction parallel to the direction of ink sheet feeding, and said second ink coated region has an extended portion extending toward said first ink coated region into said respective index mark region in a direction parallel to the direction of ink sheet feeding.

5,728,451

BREATHABLE NON-WOVEN COMPOSITE VIRAL PENETRATION BARRIER FABRIC AND FABRICATION PROCESS

John D. Langley, 1904 Forest Dr., and Barry Scott Hinkle, 400 Oak Pl., both of Guntersville, Ala. 35976

Continuation of Ser. No. 345,602, Nov. 28, 1994, abandoned. This application Mar. 26, 1997, Ser. No. 824,449
Int. Cl.[6] B32B *27/14*
U.S. Cl. 428—198 **24 Claims**

1. A non-woven composite fabric comprising:
a polypropylene microporous thermoplastic film having at least one film surface thermally bonded by ultrasonic point bonding to a layer of non-woven thermoplastic materials, said film and layers being thermally bonded at multiple spaced-apart locations;
the composite fabric meeting the requirements of ASTM ES21-92 by providing a barrier to passage of biological liquid when the composite fabric is subjected to contact with synthetic blood at zero psi for 5 minutes followed by synthetic blood contact at 2 psi (13.6 kpa) for one minute followed by synthetic blood contact at zero psi for fifty-four minutes, said composite fabric exhibiting no visible penetration of synthetic blood;
the composite fabric meeting the requirements of ASTM ES22-92 by providing a barrier to viral penetration when the composite fabric is subject to contact with ϕX174 bacteriophage suspension at a titer of 10^8 PFU/mL for 5 minnutes with no applied pressure, 1 minute at 13.8 kPa (2.0 PSIG), and 54 minutes with no applied pressure; and
said non-woven composite fabric having a moisture or vapor transmission rate of greater than about 450 grams per square meter for twenty-four hours at about 75 degrees F and about 65% relative humidity.

5,728,452

Patent Not Issued For This Number

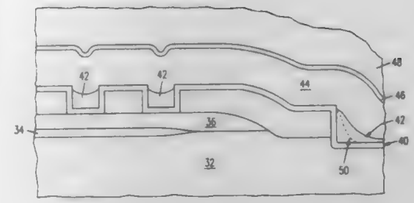
5,728,453

METHOD OF FABRICATING TOPSIDE STRUCTURE OF A SEMICONDUCTOR DEVICE

Hsingya Arthur Wang, Saratoga; Mohamed B. Bandali, Los Gatos, both of Calif.; Shyam Garg, Austin, and Bruce Pickelsimer, Pflugerville, both of Tex., assignors to Advanced Micro Devices, Inc., Sunnyvale, Calif.

Filed Dec. 28, 1995, Ser. No. 579,757
Int. Cl.[6] B32B *9/00*
U.S. Cl. 428—209 **11 Claims**

1. A semiconductor device comprising:
a base structure;
a patterned metal layer over the base structure;
a first oxynitride layer over the patterned metal layer, the first oxynitride layer defining a recess adjacent a side portion of the metal layer;
spin-on-glass (SOG) in the recess defined by the first oxynitride layer; and



a second oxynitride layer over the first oxynitride layer and SOG.

5,728,454

MAGNETIC RECORDING MEDIUM

Hiroo Inaba; Toshiharu Takeda, and Noburo Hibino, all of Kanagawa, Japan, assignors to Fuji Photo Film Co., Ltd., Kanagawa, Japan

Filed Apr. 7, 1995, Ser. No. 421,214
Claims priority, application Japan, Apr. 7, 1994, 6-069711
Int. Cl.[6] G11B *5/66*
U.S. Cl. 428—212 **19 Claims**

1. A magnetic recording medium, comprising a non-magnetic support having thereon, in this order, an adhesive layer comprising a polymer, an undercoating layer comprising an inorganic powder and a binder, and one or more magnetic layers each comprising a ferromagnetic powder and a binder,
the thickness of said upper magnetic layer being in the range of 0.05 to 1.0 μm, the thickness of said undercoating layer being in the range of 0.5 to 5.0 μm, the total thickness of said magnetic recording medium being in the range of 4 to 10 μm, the micro vickers hardness of said non-magnetic support being in the range of 75 to 100 kg/mm^2, and the micro vickers hardness of said undercoating layer being in the range of 25 to 50 kg/mm^2.

5,728,455

RANDOMLY PATTERNED COOKWARE

Kenneth Batzar, Cherry Hill, N.J., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del.

Continuation-in-part of Ser. No. 362,078, Dec. 22, 1994, abandoned. This application Jun. 7, 1995, Ser. No. 476,929
Int. Cl.[6] B32B *27/30;7/02*
U.S. Cl. 428—216 **11 Claims**

1. An article of cookware having a cooking surface which comprises a substrate and a multi-layer, non-stick fluorapolymer coating thereon which mimimizes sticking by food residues and which is heat resisting by being stable at temperatures above 300° C., wherein the multi-layer fluoropolymer coating comprises (1) a fluoropolymer primer coating adhered to the substrate, (2) a non-stick, heat-resisting, light-transmitting fluoropolymer topcoat coating, (3) at least one optional fluoropolymer intermediate coating, said primer coating or said at least one optional fluoropolymer intermediate coating when it is present, having a first color or darkness, and (4) a fluoropolymer discontinuous layer of raised globules present on and covering no more than 80% of an area of the primer coating or at least one optional fluoropolymer intermediate coating when it is present under said globule-containing discontinuous layer, said globules having at least one color or darkness, which is visibly different than said first color or darkness as seen through said topcoat, said globule-containing discontinuous layer creating a texture or roughness which telegraphs through said topcoat.

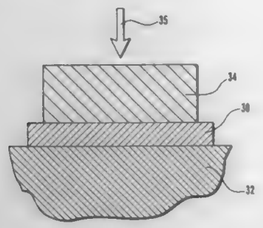
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5,728,456

METHODS AND APPARATUS FOR PROVIDING AN ABSORBING, BROAD BAND, LOW BRIGHTNESS, ANTIREFLECTION COATING

Robert W. Adair; Paul M. Le Febvre, both of Santa Rosa, and Eric W. Kurman, Healdsburg, all of Calif., assignors to Optical Coating Laboratory, Inc., Santa Rosa, Calif.

Filed Feb. 1, 1996, Ser. No. 595,350
Int. Cl.[6] G32B *9/04*
U.S. Cl. 428—216 19 Claims



1. An antireflective layer system for a substrate, consisting essentially of:

an absorbing layer arranged on the substrate on a surface of said substrate toward an observer, said absorbing layer comprising at least one transition metal reacted with nitrogen and oxygen such that a transition metal oxynitride is formed, said absorbing layer having a thickness in the range of about 9 to about 15 nm; and

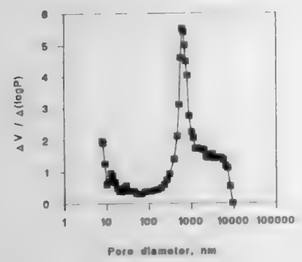
a transparent layer having a thickness in the range of about 80 to about 94 nm arranged on said absorbing layer.

5,728,457

POROUS POLYMERIC MATERIAL WITH GRADIENTS

Jean Frechet, and Frantisek Svec, both of Ithaca, N.Y., assignors to Cornell Research Foundation, Inc., Ithaca, N.Y.

Continuation of Ser. No. 316,523, Sep. 30, 1994, abandoned. This application Jun. 11, 1996, Ser. No. 661,838
Int. Cl.[6] B32B *5/14;* B01D *15/08*
U.S. Cl. 428—310.5 12 Claims



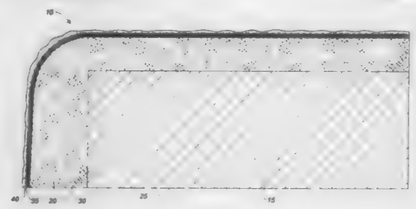
1. A macroporous material comprising a permanently porous polymeric matrix in the form of a non-gelled dried integral body having a thickness about 5 mm or more and having a first end and a second end disposed longitudinally from the first end, said macroporous material having an average pore size of from about 50 nm–15,000 nm, said permanently porous polymeric matrix having a property gradient extending from the first end of the integral body to the second end thereof, wherein the property gradient is selected from the group consisting of pore size distribution, chemical composition, and a combination thereof.

5,728,458

LIGHT-WEIGHT HIGH-STRENGTH COMPOSITE PAD

Jeff S. Sweeney, Atlanta, Ga., assignor to DiversiTech Corporation, Decatur, Ga.

Continuation of Ser. No. 416,198, Apr. 4, 1995, abandoned. This application Aug. 16, 1996, Ser. No. 697,013
Int. Cl.[6] B32B *5/22*
U.S. Cl. 428—312.4 20 Claims



1. A low-weight, high-strength composite material support pad, comprising:

a substantially rigid board;

at least one reinforcing coating covering one or more sides of said substantially rigid board;

said reinforcing coating comprising a substantially rigid foam with a fibrous fabric bonded to said substantially rigid foam; and

at least one layer of a slurry mixture covering said reinforcing coating.

5,728,459

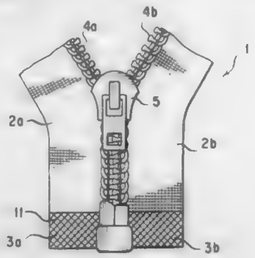
Patent Not Issued For This Number

5,728,460

REINFORCING TAPES FOR SLIDE FASTENER

Masanori Hirasawa, Kurobe; Osamu Fujii, Namerikawa; Shigeru Funakawa, Toyama-ken; Toyoo Morita, Uozu, and Kazuki Kuse, Toyama, all of Japan, assignors to YKK Corporation, Tokyo, Japan

Filed Apr. 26, 1996, Ser. No. 638,180
Claims priority, application Japan, Apr. 29, 1995, 7-141028
Int. Cl.[6] C09J *7/02;* A44B *19/24;19/42*
U.S. Cl. 428—349 5 Claims



1. A slide fastener comprising a pair of dyed fastener tapes each having a row of coupling elements attached to said fastener tape along a longitudinal edge thereof and at least a pair of reinforcing tapes attached to a terminal part of each of said fastener tapes, wherein the improvement comprises reinforcing tapes each comprising a transparent polyester elastomer film of a thickness in the range of 150 to 200 μm and an adhesive layer formed of a modified polyester film of a thickness in the range of 50 to 60 μm superposed on the reverse side of said film, each reinforcing tape being welded to a terminal part of said dyed fastener tape through the medium of said adhesive layer and having a knurled surface in said polyester elastomer film at the welded part.

5,728,461

FUNCTIONAL FIBER PRODUCTS AND PROCESS FOR PRODUCING THE SAME

Akihiro Nogata, Sabae; Hideyuki Yamada, Fukui, and Masakazu Nomura, Takefu, all of Japan, assignors to Seiren Co., Ltd., Fukui-ken, Japan

Filed Feb. 7, 1996, Ser. No. 597,836
Claims priority, application Japan, Jul. 21, 1995, 7-215101
Int. Cl.[6] D02G *3/00;* D02D *3/00;* B05D *3/04;3/02*
U.S. Cl. 428—372 10 Claims

1. A product comprising at least one fiber having a protein applied to a surface thereof, said protein containing 20% to 40% by weight of serine as an amino acid component.

5,728,462

CIGARETTE FILTER MATERIAL

Yuriko Arino, and Hiroki Taniguchi, both of Hyogo, Japan, assignors to Daicel Chemical Industries, Ltd., Osaka, Japan

Filed Dec. 16, 1994, Ser. No. 357,661
Claims priority, application Japan, Feb. 4, 1994, 6-012680
Int. Cl.[6] B32B *23/00;* A24B *15/28;* A24D *3/06*
U.S. Cl. 428—393 11 Claims

1. A fiber composite comprising cellulose diacetate fiber and 80 to 10,000 ppm, based on the weight of the fiber, of a polyvalent metal salt.

5,728,463

STATIONARY PHASE MATERIAL FOR CHROMATOGRAPHY

Senya Inoue, and Nobuyuki Otaki, both of Soka, Japan, assignors to Kanto Kagaku Kabushiki Kaisha, Tokyo, Japan

Continuation of Ser. No. 204,414, Mar. 15, 1994, abandoned. This application Apr. 1, 1996, Ser. No. 626,267
Claims priority, application Japan, Aug. 7, 1992, 4-251819
Int. Cl.[6] B32B *5/16*
U.S. Cl. 428—402 15 Claims

1. A chromatography device comprising:

a chromatography column; and

stationary phase material for chromatography comprising particles selected from the group consisting of: (1) particles formed of metal pyrophosphate, metal metaphosphate or a combination thereof; and (2) particles having a substrate and a coating on the surface of the substrate, wherein the substrate is a solid particulate material selected from the group consisting of glass, metal, resin, metal pyrophosphate and metal metaphosphate particles and wherein the coating comprises metal pyrophosphate, metal metaphosphate or a combination thereof.

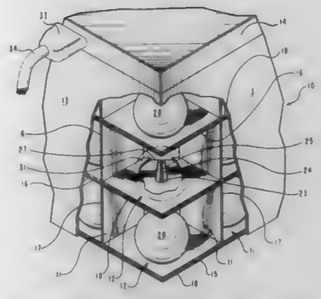
5,728,464

HYDROGEN GENERATION PELLETIZED FUEL

Jed H. Checketts, 137 W. Goltz Ave., Salt Lake City, Utah 84101

Filed Jan. 2, 1996, Ser. No. 582,103
Int. Cl.[6] B32B *5/16;* C06B *45/30;45/32*
U.S. Cl. 428—403 6 Claims

1. A pellet for use in a hydrogen generation system comprising, an alkali metal core selected from the group consisting of sodium and calcium or metal hydride core selected from the group consisting of NaH, CaH_2, $NaAlH_4$, and $LiAlH_4$; and a coating of water impervious material applied over the entire surface of said core, rendering the core impervious to water.

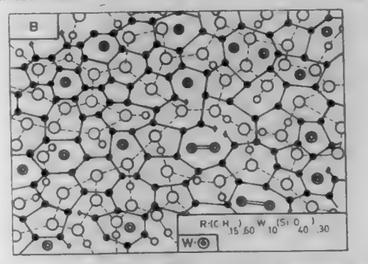


5,728,465

DIAMOND-LIKE NANOCOMPOSITE CORROSION RESISTANT COATINGS

Veniamin F. Dorfman, Stony Brook, and Arvind Goel, Buffalo, both of N.Y., assignors to Advanced Refractory Technologies, Inc., Buffalo, N.Y.

Continuation-in-part of Ser. No. 471,401, Jun. 6, 1995, which is a division of Ser. No. 249,167, May 25, 1994, Pat. No. 5,466,431, which is a division of Ser. No. 695,552, May 3, 1991, Pat. No. 5,352,493. This application Jun. 7, 1995, Ser. No. 472,552
Int. Cl.[6] B32B *9/04*
U.S. Cl. 428—408 9 Claims



1. A corrosion resistant material made from a substrate susceptible to corrosion and a corrosion resistant coating, said coating made from a class of diamond-like solid state materials formed from interpenetrating networks, said networks comprising a first network of diamond-like carbon stabilized by hydrogen, a second silicon network stabilized by oxygen and, optionally, at least one network of dopant elements, or dopant compounds containing elements from groups 1–7b and 8 of the periodic table.

5,728,466

HARD AND ABRASION RESISTANT SURFACES PROTECTING CATHODE BLOCKS OF ALUMINIUM ELECTROWINNING CELLS

Jainagesh A. Sekhar, Cincinatti, Ohio, and Vittorio de Nora, Nassau, Bahamas, assignors to Moltech Invent S.A., Luxembourg

Filed Aug. 7, 1995, Ser. No. 511,907
Int. Cl.[6] B32B *18/00*
U.S. Cl. 428—408 18 Claims

1. An improved carbon body to be used as cathode block in cells for the electrowinning of aluminium, to which a hard surface is provided by adding to the surface of the carbon body one or more layers containing particulate refractory hard metal boride and a carbon free bonding material which when the carbon body is

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heated reacts with the refractory hard metal boride and carbon from the surface of the carbon body or from a carbon-containing atmosphere.

5,728,467

MULTILAYERS LAMINATE SERVING AS A GOOD BARRIER AGAINST AN OXYGEN GAS OR THE LIKE AND HEAT-SEALABLE PACKING MATERIAL COMPRISING THE SAME

Marks S. Chambers, Watford; Stephen R. Fletcher, Hatfield Heath; Victor G. Matassa, Furneux Pelham, all of United Kingdom, and Mark G. Bock, Hatfield, Pa., assignors to Showa Denko K.K., Tokyo, and Showa Highpolymer Co., Ltd., Chiyoda-ku, both of Japan

Continuation of Ser. No. 235,918, May 2, 1994, abandoned. This application Feb. 20, 1996, Ser. No. 603,095

Int. Cl.[6] B32B *9/04*

U.S. Cl. 428—411.1 **18 Claims**

1. A multilayered laminate, which comprises a plastic substrate, a film of a metal or a metal oxide, formed on a surface of the substrate, and a layer formed on a surface of the film, the plastic substrate being selected from the group consisting of polypropylene, poly-4-methylpentene-1, complete saponification products of ethylene/vinyl acetate copolymer, polyacetal, polycarbonate, polyester, polyamide, polyphenylene oxide and polysulfone, the layer being selected from the group consisting of:

(a) a layer formed from a polyvinyl alcohol copolymer emulsion having an ethylene content of 1 to 50% by weight, obtained by aqueous emulsion polymerization of a vinyl acetate monomer, an ethylene monomer and a polyvinyl alcohol, the polyvinyl alcohol initially present in an amount of 15 to 60% by weight based on the total weight of the polyvinyl alcohol and the vinyl acetate monomer;

(b) a layer formed from a resin emulsion composition obtained by mixing (i) a polyvinyl alcohol copolymer emulsion having an ethylene content of 1 to 50% by weight, obtained by aqueous emulsion polymerization of a vinyl acetate monomer, an ethylene monomer and a polyvinyl alcohol, the polyvinyl alcohol initially present in an amount of 3 to less than 15% by weight based on the total weight of the polyvinyl alcohol and the vinyl acetate monomer with (ii) an aqueous solution of polyvinyl alcohol resin, wherein the weight ratio of the weight of the polyvinyl alcohol to the weight of the polyvinyl alcohol and the vinyl acetate monomer in the resin emulsion is 15% or more;

(c) a layer formed from a saponified resin solution of olefin-vinyl acetate copolymer;

(d) a layer formed from a polyamide resin solution; and

(e) a layer formed from a polyvinyl alcohol resin solution.

5,728,468

PHOSPHOROUS CONTAINING RESIN

Jan Andre Jozef Schutyser, Dieren; Antonius Johannes Wilhelmus Buser, Wehl, and Andre Steenbergen, Arnhem, all of Netherlands, assignors to Akzo Nobel N.V., Netherlands

PCT No. PCT/EP92/02705, § 371 Date Aug. 3, 1994, § 102(e) Date Aug. 3, 1994, PCT Pub. No. WO93/11176, PCT Pub. Date Jun. 10, 1993

PCT Filed Nov. 24, 1992, Ser. No. 256,078

Claims priority, application Netherlands, Nov. 27, 1991, 9101978

Int. Cl.[6] C08F *283/10*

U.S. Cl. 428—415 **8 Claims**

1. A resin comprising a chemically incorporated organic phosphorus compound, characterized in that it comprises an interpenetrating polymer network (IPN) produced by polymerizing monomers comprising an allyl group-containing monomer, an epoxy resin, and an epoxide crosslinking agent.

5,728,469

BLOCK COPOLYMER RELEASE SURFACE FOR PRESSURE SENSITIVE ADHESIVES

Roger H. Mann, Corona Del Mar; Edward I. Sun, Arcadia; Sebastian S. Plamthottam, Upland, all of Calif., and Charles W. Newing, Troy, Ohio, assignors to Avery Dennison Corporation, Pasadena, Calif.

Filed Jun. 6, 1995, Ser. No. 485,234

Int. Cl.[6] B32B *7/06*

U.S. Cl. 428—418 **39 Claims**

1. A release surface for a pressure sensitive adhesive construction, comprising:

a pressure-sensitive adhesive-releasable polymeric film comprising an extruded mixture of a first polymeric material and a block copolymer, wherein a first block of the copolymer is compatible with said first polymeric material, and a second block of the copolymer is a polysiloxane.

5,728,470

MULTI-LAYER WIRING SUBSTRATE, AND PROCESS FOR PRODUCING THE SAME

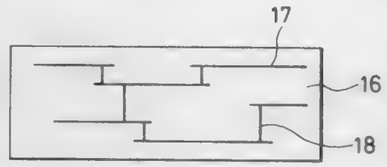
Ichiro Hazeyama; Kazuhiro Ikuina, and Mitsuru Kimura, all of Tokyo, Japan, assignors to NEC Corporation, Tokyo, Japan

Filed May 12, 1995, Ser. No. 439,798

Claims priority, application Japan, May 13, 1994, 6-099818; Oct. 13, 1994, 6-247929; Apr. 11, 1995, 7-085129

Int. Cl.[6] B32B *15/00*

U.S. Cl. 428—426 **6 Claims**



1. A multi-layer wiring substrate, comprising:

an insulating layer comprising a sintered product, said sintered product containing silica, wherein said silica is present in said sintered product in an amount of at least about 95 weight percent based upon the weight of said insulating layer; and

a conductor layer formed on an upper surface of said insulating layer from an electrically conductive material having a melting point falling in a range of about 800° to 1,200° C.

5,728,471

SODA-LIME GREY GLASS

Camille Dupont, Heppignies, and Daniel D'Hont, Maffle, both of Belgium, assignors to Glaverbel, Brussels, Belgium

Continuation of Ser. No. 434,921, May 4, 1995, abandoned. This application Sep. 13, 1996, Ser. No. 712,677

Claims priority, application Luxembourg, May 11, 1994, 88486

Int. Cl.[6] B32B *17/06*

U.S. Cl. 428—432 **24 Claims**

1. Grey soda-lime glass having a dark grey color, comprising:

soda-lime glass comprised of conventional glass-forming constituents; and

coloring agents comprised of iron, cobalt, selenium, and chromium in amounts, based on the weight of the glass, of:

from 0.5 to 0.9% of Fe_2O_3;

from 0.012 to 0.025% of Co;

from 0.0025 to 0.010% of Se; and

from 0.005 to 0.020% of Cr_2O_3,

wherein the glass has light transmitting properties including a light transmission factor (TL) of less than 30% for a glass thickness of 5 mm, and an excitation purity (P) of less than 12%.

5,728,472

CONTROL OF ADHESION OF POLYVINYL BUTYRAL SHEET TO GLASS

John J. D'Errico, Glastonbury, Conn., assignor to Monsanto Company, St. Louis, Mo.

Filed Nov. 14, 1996, Ser. No. 748,804

Int. Cl.[6] B32B *17/10;* **C08K** *5/09;5/10*

U.S. Cl. 428—437 **18 Claims**

10. A laminated safety-glass comprising two sheets of glass with a sheet disposed therebetween comprised of a polyvinyl butyral resin containing a multivalent metal-substituted aromatic chelate compound in an amount effective to control adhesion of the sheet to the glass.

5,728,473

ADHESIVE POLYIMIDE SILOXANE COMPOSITION EMPLOYABLE FOR COMBINING ELECTRONIC PARTS

Hiroshi Inoue; Seiichirou Takabayashi; Tadao Muramatu, and Kenji Sonoyama, all of Yamaguchi, Japan, assignors to Ube Industries, Ltd., Yamaguchi, Japan

Filed Nov. 20, 1995, Ser. No. 559,607

Claims priority, application Japan, Nov. 18, 1994, 6-285596; Aug. 25, 1995, 7-217760

Int. Cl.[6] B32B *15/08*

U.S. Cl. 428—448 **6 Claims**

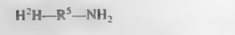
1. A composite comprising two substrates and a polyimide composition layer intervening between these substrates, in which one substrate is an aromatic polyimide film and another substrate is material selected front the group consisting of an aromatic polyimide film, a silicon plate, a copper film and a polyimide siloxane film, and the polyimide composition layer is made of an adhesive polyimide composition having a water absorption of not more than 1 wt. % and comprising:

100 weight parts of a polyimide siloxane having a glass transition temperature of not lower than 200° C., said polyimide siloxane being prepared from an aromatic tetracarboxylic acid dianhydride or its free acid or ester derivative and a diamine composition comprising 5 to 25 mol. % of a diaminosiloxane having the formula (I):



(I)

wherein R is a divalent hydrocarbon residue, each of R^1, R^2, R^3, R^4 independently is an alkyl group of 1 to 5 carbon atoms or phenyl, and k is an integer of 0 to 30, and 75 to 95 mol. % of an aromatic diamine having the formula (II)



(II)

wherein R^5 represents one of the formulas of Bz—O—Bz and Bz—O—X—O—Bz, wherein Bz means a benzene ring and X represents Bz or Bz—Y—Bz, wherein Y is SO_2, O, CH_2 or $C(CH_3)_2$; and

0.2 to 5 weight parts of a silane coupling agent having a glycidyl group.

5,728,474

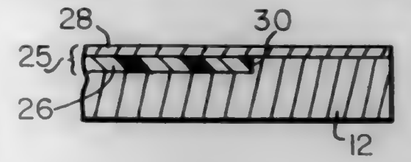
EDGE DESIGN FOR INSULATED MOLD

Matthew F. Niemeyer, North Chatham, N.Y.; John L. Currier, Adams, Mass.; James J. Carroll, Sr., Ballston Lake, and Charles E. Baumgartner, Niskayona, both of N.Y., assignors to General Electric Company, Pittsfield, Mass.

Division of Ser. No. 167,491, Dec. 14, 1993, abandoned. This application Sep. 3, 1996, Ser. No. 709,236

Int. Cl.[6] B29C *33/56;* **B28B** *7/36*

U.S. Cl. 428—458 **7 Claims**



1. A multilayer mold for molding thermoplastic into finished parts, comprising:

a metal core having a mold area and adjacent elevated land area;

an insulating layer of temperature-resistant polymer having low thermal conductivity deposited in the mold area; said temperature-resistant polymer being selected from filled or unfilled polyimides, polyamideimides, polyamides, polysulfones, polyether sulfones or polytetrafluoroethylenes, and at least one metal layer deposited on the insulating layer in the mold area, a juncture being formed by said one metal layer and said elevated land area, said metal layer being selected from nickel, carbon steel, stainless steel, aluminum, brass, copper, or ferronickel alloy, and another metal layer extending over said one metal layer, said juncture, and said land area to form a cohesive metal coating.

5,728,475

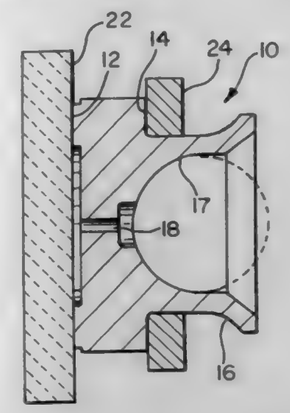
METHOD FOR MAKING PARTS USABLE IN A FUEL ENVIRONMENT

Richard George Rateick, Jr., South Bend, Ind., assignor to AlliedSignal Inc., Morristown, N.J.

Filed Aug. 23, 1996, Ser. No. 702,090

Int. Cl.[6] B32B *15/04;* **C23C** *8/04;8/68;8/80*

U.S. Cl. 428—469 **19 Claims**



1. A process for increasing the wear resistance of an area of a part by means of a coating and treating another area of the part for cold working to enhance wear resistance, comprising the steps of providing the part which is made of a cold workable cobalt based alloy material, effecting selectively a thermal diffusion boride

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treatment of at least a first area of the part, and heating selectively a second area of the part to effect a solution treatment of the second area while maintaining the first area at a lower temperature sufficient to maintain thereon the boride coating, whereby the second area is suitable for cold working in order to affect the hardness thereof.

5,728,476
FLOOR COVERINGS

Ivor Charles Harwood, Hinckley, and Gary John Wilson, Coventry, both of United Kingdom, assignors to The Amtico Company Limited, Coventry, United Kingdom

PCT No. PCT/GB94/02035, § 371 Date Mar. 20, 1996, § 102(e) Date Mar. 20, 1996, PCT Pub. No. WO95/08593, PCT Pub. Date Mar. 30, 1995
PCT Filed Sep. 19, 1994, Ser. No. 617,861
Claims priority, application United Kingdom, Sep. 20, 1993, 9319396; Oct. 17, 1993, 9320651
Int. Cl.[6] B32B *27/00;31/20*
U.S. Cl. 428—500 **21 Claims**

1. A resilient floor covering comprising a polymer composition wear layer laminated to at least one underlying layer, wherein said polymer composition wear layer comprises a polymerization product of

a) an ionomer resin which is the co-polymerization product of α,β-unsaturated carboxylic acid and an olefin, wherein the carboxylic acid groups of said acid are at least partially neutralized by salt formation with metal ions; and

b) a polyfunctional polymerizable olefinic compound.

5,728,477
LAMINATED BATHTUB WALL AND METHOD OF MANUFACTURING A LAMINATED BATHTUB WALL

Michael Leo Joseph Aubrey, 20 Spring Garden Avenue, Nepean, Ontario, Canada, K2G 3B3, and John Gerard Manzo, 1445 Fisher Avenue, Ottawa, Ontario, Canada, K2C 1X3

Filed May 19, 1995, Ser. No. 444,745
Int. Cl.[6] B32B *27/42*
U.S. Cl. 428—524 **16 Claims**

1. A unitary formable high pressure plastic laminate material for post-forming a bathtub wall comprising a core within front and back layers of finishing resin wherein the total thickness of the laminate material is in the range of 0.025 to 0.1 inches.

5,728,478
DISPLAY MATTRESSES AND BOX SPRINGS

Kevin W. Wilson, 72 Springer Ct., Hockessin, Del. 19707, and Julie M. Robino, 22 Carriage Path, Chadds Ford, Pa. 19317

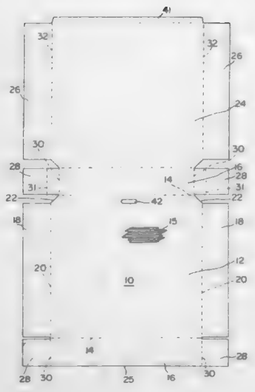
Filed Jan. 4, 1996, Ser. No. 582,642
Int. Cl.[6] B29B *7/00;* **A47C** *19/00;* **B31F** *1/00*
U.S. Cl. 428—542.8 **20 Claims**

1. A display bed unit comprising a board blank having corrugations and having at least one planar support panel having a first pair of fold lines and a pair of side panels

wherein said side panels are contiguous with said planar support panel and said first pair of fold lines define a junction between said planar support panel and said side panels wherein said corrugations in said board blank run parallel to said first pair of fold lines.

said planar support panel also including a pair of end flaps which are contiguous with said planar support panel and a second set of fold lines which define a junction between said planar support panel and said end flaps, said planar support panel having at least two adjacent mitered corners

said planar support member having a hand-hold disposed proximal to and equidistant from said adjacent mitered corners.



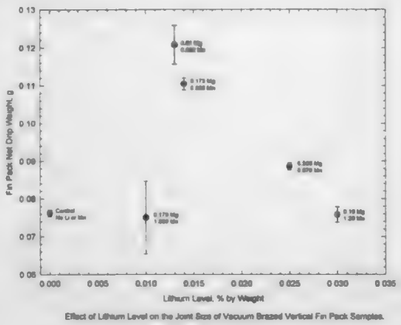
each of said side panels having one pair of end tabs which are contiguous with said side panels and a third pair of fold lines which define a junction between said end tabs and said side panels, said third pair of fold lines disposed substantially perpendicular to said first pair of fold lines,

said side panels having a pair of mitered corner fold lines disposed in a parallel relationship to said third pair of fold lines.

5,728,479
ALUMINUM-LITHIUM-MAGNESIUM FILLER ALLOY FOR BRAZING

David L. Childree, 533 Hazel St., and Edgar G. Eichhorn, 1525 De Sato Way, both of Livermore, Calif. 94550

Continuation of Ser. No. 552,387, Nov. 3, 1995, abandoned. This application Dec. 18, 1996, Ser. No. 768,799
Int. Cl.[6] B32B *15/20;* **C22C** *21/01*
U.S. Cl. 428—654 **11 Claims**



Effect of Lithium Level on the Joint Size of Vacuum Brazed Vertical Fin Pack Samples.

1. A brazing sheet composite, comprising:

(a) an aluminum core alloy material; and

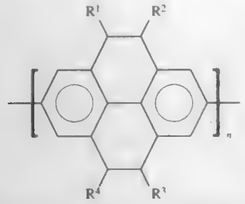
(b) a filler alloy cladding, applied to the core alloy material, consisting essentially of about 4 to 18 wt. % silicon; about 0.173 to 0.64 wt. % magnesium; about 0.01 to 0.3 wt. % lithium; not more than about 2 wt. % zinc; not more than about 1.25 wt. % manganese; not more than about 0.30 wt. % iron; not more than about 0.10 wt. % copper; not more than 0.15 wt. % impurities; balance aluminum.

5,728,480
POLY(4,5,9,10-TETRAHYDROPYRENE-2,7-DIYL) DERIVATIVES AND THEIR USE AS ELECTROLUMINESCENCE MATERIALS

Roland Stern, Wiesbaden; Donald Lupo, Frankfurt; Josef Salbeck, Kelkheim; Hermann Schenk, Hofheim; Thomas Stehlin, Kriftel; Klaus Müllen, Mainz; Martin Kreyenschmidt, Mainz, and Ullrich Scherf, Mainz, all of Germany, assignors to Hoechst Aktiengesellschaft, Frankfurt, Germany

Filed Aug. 30, 1995, Ser. No. 521,263
Claims priority, application Germany, Sep. 1, 1994, 44 31 039.0
Int. Cl.[6] H05B *33/12;* **C09K** *11/06*
U.S. Cl. 428—690 **8 Claims**

1. A poly (4,5,9,10-tetrahydropyrene-2,7 -diyl) derivative of formula (I)



(I)

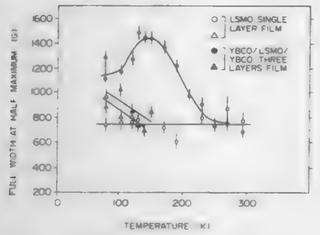
where the symbols R^1 to R^4 have the following meanings:

R^1, R^2, R^3, R^4 are identically or variously H, NO_2, Br, Cl, F, CN, a carboalkoxy containing 2 to 23 carbon atoms or a straight-chain or branched alkyl chain containing 1 to 22 carbon atoms, it being possible for one or more nonadjacent CH_2 groups also to be replaced by —O—, —COO—, —OOC— or phenylene, aryl or aryloxy groups, it being possible for said phenylene, aryl or aryloxy groups to be substituted by one or more of C_1–C_{22}-alkyl, C_1–C_{22}-alkoxy, Br, Cl, F, CN and NO_2; n is 10 to 150.

5,728,481
SPIN INTERACTION DEVICE

Masahiro Kasai, Mito; Yuzo Kozono, Hitachiota; Yoko Kanke, Katsuta; Toshiyuki Ohno, Hitachi, and Masanobu Hanazono, Mito, all of Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Division of Ser. No. 936,640, Aug. 28, 1992, abandoned. This application Jun. 6, 1995, Ser. No. 467,317
Claims priority, application Japan, Aug. 30, 1991, 3-219595
Int. Cl.[6] G11B *5/66*
U.S. Cl. 428—694 ML **13 Claims**



1. A magnetic detecting device comprising:

a substrate;

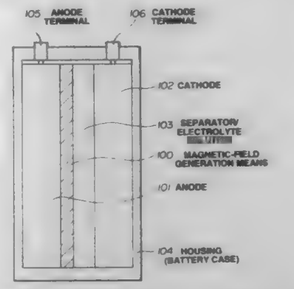
a laminated film formed on said substrate and comprising an oxide film of perovskite structure and magnetic films of perovskite structure sandwiching said oxide film;

wherein a value of a magnetic field applied to said laminated film is measured by detecting a change of a value of resistance of said laminated film to detect a value of magnetic field.

5,728,482
SECONDARY BATTERY AND METHOD FOR MANUFACTURING THE SAME

Soichiro Kawakami; Naoya Kobayashi, both of Nara, and Masaya Asao, Tsuzuki-gun, all of Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan

Filed Dec. 20, 1996, Ser. No. 770,802
Claims priority, application Japan, Dec. 22, 1995, 7-349549
Int. Cl.[6] H01M *4/62*
U.S. Cl. 429—10 **16 Claims**



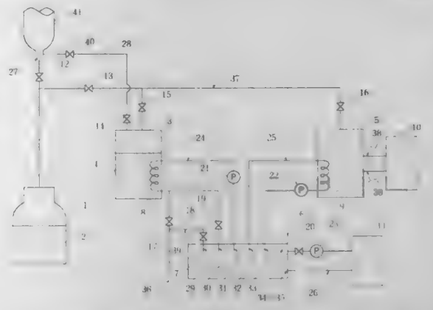
1. A secondary battery including at least an anode, a cathode, an electrolyte and a battery housing, said battery comprising:

magnetic-field generation means for generating magnetic lines of force, orthogonal to an electric field during charging, at least on the surface of the anode.

5,728,483
SYSTEM FOR STORING AND UTILIZING HYDROGEN

Shin Fujitani, Hirakata; Koichi Nishimura, Suita; Koichi Sato, Hirakata; Ikuo Yonezu, Hirakata, and Koji Nishio, Hirakata, all of Japan, assignors to Sanyo Electric Co., Ltd., Osaka, Japan

Filed Mar. 24, 1997, Ser. No. 822,065
Claims priority, application Japan, Mar. 26, 1996, 8-070611
Int. Cl.[6] H01M *8/04*
U.S. Cl. 429—12 **7 Claims**



1. A system for storing and utilizing hydrogen comprising a liquefied hydrogen storage container to be filled with liquefied hydrogen, a hydrogen utilizing device operable by a supply of hydrogen gas, hydrogen gas piping interconnecting the hydrogen storage container and the hydrogen utilizing device, a hydrogen absorbing alloy container connected to an intermediate portion of the hydrogen gas piping and having a hydrogen absorbing alloy accommodated therein, a heat accumulator having a heat storage medium accommodated therein, first medium circulating means for circulating the heat storage medium between the hydrogen utilizing device and the heat accumulator, and second medium circulating means for circulating the heat storage medium between the alloy container and the heat accumulator.

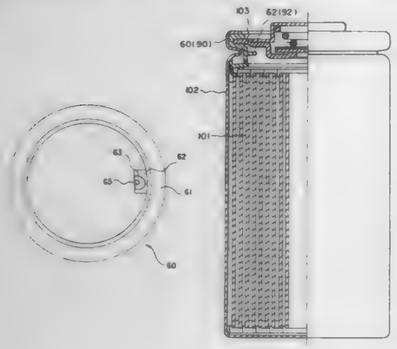
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5,728,484

SEALING GASKET FOR A BATTERY AND A METHOD FOR PRODUCING SUCH A GASKET

Masayoshi Yamaguchi, Sumoto; Yukio Fujimoto, and Hiroshi Oosaka, both of Tsuna-gun, all of Japan, assignors to Sanyo Electric Co., Ltd., Moriguchi, Japan

Filed Jul. 31, 1996, Ser. No. 688,052
Claims priority, application Japan, Aug. 4, 1995, 7-199975
Int. Cl.[6] H01M *2/08*
U.S. Cl. 429—35 8 Claims



1. A battery cell, comprising:
an electrode assembly including in concentrically disposed relation a positive electrode, a negative electrode, and an insulator separating said positive and negative electrodes,
a metal casing, open at one end, concentrically enclosing said electrode assembly,
an electrode cover plate disposed in said open end of said metal casing in axially spaced relation with respect to said electrode assembly to define a space therebetween,
a gasket disposed between said electrode cover plate and said electrode assembly for hermetically sealing said battery cell, said gasket being formed of moldable resin material and having a ring portion concentrically lining said metal casing in the space between said electrode assembly and said electrode cover plate, and a protrusion portion sized to contain the concentration of residual molding stresses and fit within said space, said protrusion extending radially inwardly from said ring portion and disposed in said space between said electrode assembly and said electrode cover plate.

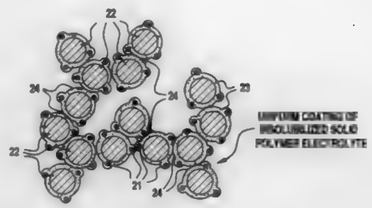
5,728,485

ELECTRODE FOR POLYMER ELECTROLYTE ELECTROCHEMICAL CELL AND PROCESS OF PREPARING SAME

Masahiro Watanabe, Yamanashi, and Koichi Sakairi, Kanagawa, both of Japan, assignors to Tanaka Kikinzoku Kogyo K.K., Japan; Masahiro Watanabe, Japan, and Stonehart Associates, Inc., Madison, Conn.

Continuation of Ser. No. 404,502, Mar. 15, 1995, abandoned. This application Jun. 12, 1997, Ser. No. 873,760
Int. Cl.[6] H01M *4/86*
U.S. Cl. 429—41 3 Claims

1. An electrode for a polymer electrolyte electrochemical cell which comprises:
(a) a support carrying catalyst particles;
(b) a first solid polymer electrolyte layer present on the particles, said first solid polymer electrolyte layer being insoluble in water and an organic solvent; and
(c) a second polymer electrolyte layer coated on only a part of a surface of the first solid polymer electrolyte layer, said second polymer electrolyte layer being insoluble or soluble in said organic solvent and further having the effect of elevating the bonding strength among flocs of said support.

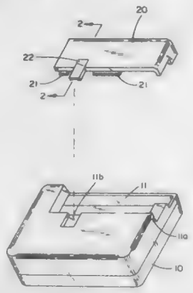


5,728,486

CELL COVER FOR AN ELECTRONIC APPARATUS

Toshiyuki Tamaru, Tokyo, Japan, assignor to NEC Corporation, Tokyo, Japan

Division of Ser. No. 661,984, Jun. 12, 1996, Pat. No. 5,639,570. This application Dec. 26, 1996, Ser. No. 772,562
Claims priority, application Japan, Jun. 16, 1995, 7-174516
Int. Cl.[6] H01M *2/06*
U.S. Cl. 429—97 4 Claims



1. A cell cover for fitting over a cell storing part of an electronic apparatus case, said cell cover including a locking plate which is a flexible plate-shaped member, wherein one end of the locking plate is fixed to said cell cover.
the other end of the locking plate is made free, and
said free end is engaged with an engaging hollow disposed on the case when said cell cover is fitted into said cell storing part.

5,728,487

PHOTOELECTROCHEMICAL CELL AND ELECTROLYTE FOR THIS CELL

Michael Grätzel, St-Sulpice; Yordan Athanassov, Prilly, and Pierre Bonhote, Neuchâtel, all of Switzerland, assignors to Ecole Polytechnique Federale de Lausanne, Lausanne, Switzerland

PCT No. PCT/IB94/00445, § 371 Date Jun. 28, 1996, § 102(e) Date Jun. 28, 1996, PCT Pub. No. WO95/18456, PCT Pub. Date Jul. 6, 1995
PCT Filed Dec. 28, 1994, Ser. No. 669,275
Claims priority, application Switzerland, Dec. 29, 1993, 3889/93
Int. Cl.[6] H01M *6/30;6/04*
U.S. Cl. 429—111 24 Claims

1. A regenerative photoelectrochemical cell comprising a photoanode consisting of at least one semiconductive metal oxide layer on a conductive substrate, a counter-electrode and a liquid electrolyte positioned between these electrodes, at least one of these electrodes being transparent or translucent, and the said electrolyte including an oxidation-reduction system consisting of a mixture of at least one electrochemically active salt and at least one molecule designed to form an oxidation-reduction system with the anion or

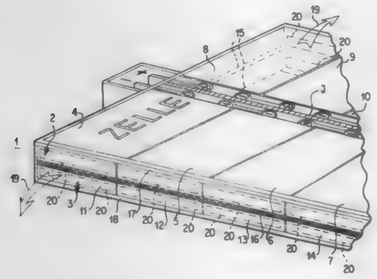
cation of the said salt, wherein said electrochemically active salt has a melting point below ambient temperature or forms in presence of said at least one molecule at least one phase with a melting point below ambient temperature.

5,728,488

HIGH-ENERGY BATTERY WITH A PLURALITY OF INDIVIDUAL CELLS

Herbert Kranz, Utting; Peter Catchpole, Ingolstadt, and Robert Hoeppler, Karlskron, all of Germany, assignors to Bayerische Motoren Werke Aktiengesellschaft, Munich, Germany

Filed Aug. 14, 1996, Ser. No. 696,730
Claims priority, application Germany, Aug. 14, 1995, 195 29 880.2
Int. Cl.[6] H01M *2/02*
U.S. Cl. 429—120 18 Claims



1. A high-energy battery, comprising:
a plurality of individual cells, each of the individual cells having a flat parallelepiped shape including two flat surfaces spaced apart to define a thickness of said shape and peripheral edges extending between peripheries of said two flat surfaces, said parallelepiped shapes being assembled with said peripheral edges flush against one another; and
a liquid heat exchange medium arranged to surround the two flat surfaces.

5,728,489

POLYMER ELECTROLYTES CONTAINING LITHIATED ZEOLITE

Feng Gao, Henderson; Porter H. Mitchell, Las Vegas; Jeremy Barker, and Jeffrey Swoyer, both of Henderson, all of Nev., assignors to Valence Technology, Inc., Henderson, Nev.

Filed Dec. 12, 1996, Ser. No. 764,824
Int. Cl.[6] H01M *6/18*
U.S. Cl. 429—192 13 Claims

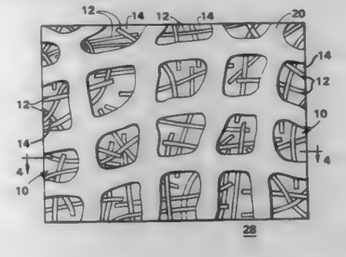
1. An electrochemical cell which comprises:
an anode; a cathode; and interposed therebetween a solvent-containing electrolyte which comprises:
a polymeric matrix;
a salt;
a solvent; and
a lithiated zeolite.

5,728,490

BATTERY ELECTRODE SUBSTRATES AND METHODS OF MAKING THE SAME

Robert J. Edgington, Granger; James A. Stepro; Harold J. Wissell, both of Mishawaka, all of Ind., and Scott A. Lundberg, Niles, Mich., assignors to National-Standard Company, Niles, Mich.

Division of Ser. No. 318,489, Oct. 5, 1994, Pat. No. 5,589,301, which is a continuation of Ser. No. 979,830, Nov. 20, 1992, abandoned. This application Jun. 27, 1996, Ser. No. 671,527
Int. Cl.[6] H01M *4/64*
U.S. Cl. 429—235 37 Claims



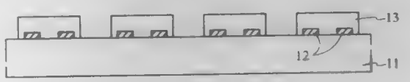
1. A three-dimensional electrode composite for use in constructing battery electrodes comprising:
a sintered matrix material selected from the group consisting of reticulated metal foams, conductive fibers and metal powder compacts,
a porous covering layer means bonded to at least one surface of said sintered matrix material, and
an active chemical material loaded through said porous covering layer means into said sintered matrix material, with said porous covering layer means sized with openings therein to permit loading of said active chemical material through said layer means into said sintered matrix material while retaining said chemically loaded matrix material within the planar surface of said at least one surface of said matrix material.

5,728,491

PHASE SHIFT MASK AND METHOD OF MANUFACTURE

Eun Seop Keum, Suwon, Rep. of Korea, assignor to Goldstar Electron Co., Ltd., Cheongju, Rep. of Korea

Continuation of Ser. No. 208,062, Mar. 8, 1994, abandoned, which is a continuation of Ser. No. 882,213, May 13, 1992, abandoned. This application Nov. 14, 1994, Ser. No. 338,982
Claims priority, application Rep. of Korea, May 13, 1991, 7710/1991
Int. Cl.[6] G03F *9/00*
U.S. Cl. 430—5 20 Claims



1. A phase shift mask, comprising:
a substrate;
a patterned light shielding layer formed on the substrate, wherein the patterned light shielding layer comprises a pair of substantially parallel elements, wherein the pair of substantially parallel elements has a first gap of a first spacing between the two elements thereof;
a patterned phase shift film formed on the substrate and patterned light shielding layer, wherein portions of the patterned phase shift film extend over the first gap and also extend over each of the two elements of the pair of substantially parallel elements.

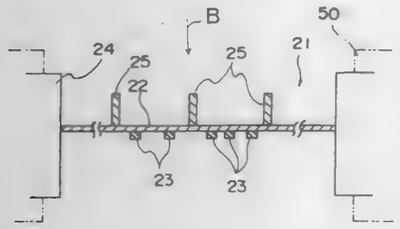
VOL 1208 ISS 3 MR 17 1998 UMI

5,728,492

MASK FOR PROJECTION SYSTEM USING CHARGED PARTICLE BEAM

Shintaro Kawata, Moriyamachi, Japan, assignor to Nikon Corporation, Tokyo, Japan

Filed May 17, 1996, Ser. No. 649,489
Claims priority, application Japan, May 17, 1995, 7-118378; Apr. 22, 1996, 8-100342
Int. Cl.[6] G03F 9/00
U.S. Cl. 430—5 18 Claims



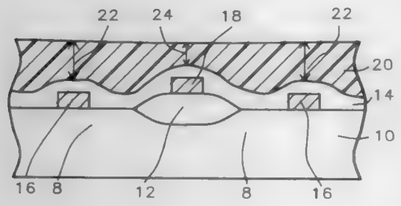
1. A mask for a charged particle projection system comprising:
a mask base plate which comprises a diamond layer; and
a scattering element, disposed upon said mask base plate defining a pattern, wherein a first characteristic scale for absorption or scattering of a beam of charged particles in said scattering element is larger than a second characteristic scale for absorption or scattering of said beam of charged particles in said mask base plate.

5,728,493

ANTIREFLECTION MASK FOR CONTACT HOLE OPENING

Chet Ping Lim, and Ron-Fu Chu, both of Singapore, Singapore, assignors to Chartered Semiconductor Manufacturing PTE LTD, Singapore, Singapore

Filed Oct. 4, 1996, Ser. No. 725,809
Int. Cl.[6] G03F 9/00
U.S. Cl. 430—5 18 Claims



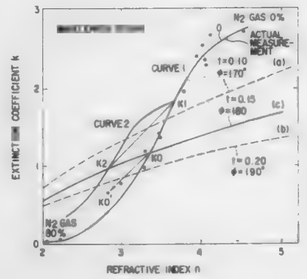
1. A mask for processing an integrated circuit wafer, comprising:
a transparent mask substrate having a first pattern region and a second pattern region;
a patterned layer of opaque material formed on said transparent mask substrate wherein said patterned layer of opaque material has a first pattern in said first pattern region of said transparent mask substrate and a second pattern in said second pattern region of said transparent mask substrate; and
a patterned layer of antireflection material formed over said second pattern formed in said patterned layer of opaque material wherein said antireflection material is a partially transmitting material, covers said second pattern region of said transparent mask substrate, and does not cover said first pattern region of said transparent mask substrate.

5,728,494

EXPOSURE MASK AND METHOD AND APPARATUS FOR MANUFACTURING THE SAME

Kenji Kawano, Tokyo; Shinichi Ito, Yokohama; Iwao Higashikawa, Tokyo; Masamitsu Itoh, Yokohama; Takashi Kamo, Tokyo; Hiroaki Hazama, Yokohama, and Takayuki Iwamatsu, Abiko, all of Japan, assignors to Kabushiki Kaisha Toshiba, Kawasaki, Japan

Continuation of Ser. No. 583,857, Jan. 11, 1996, Pat. No. 5,629,115, which is a continuation of Ser. No. 235,690, Apr. 29, 1994, abandoned. This application Oct. 11, 1996, Ser. No. 730,017
Claims priority, application Japan, Apr. 30, 1993, 5-103416; Aug. 13, 1993, 5-201558; Dec. 3, 1993, 5-304185; Dec. 3, 1993, 5-304186; Feb. 25, 1994, 6-28592
Int. Cl.[6] G03F 9/00
U.S. Cl. 430—5 4 Claims



1. An exposure mask comprising:
a translucent film formed on a light-transmitting substrate, having a specific transmittance, and producing a phase difference of $(2n+1)\pi$, in which n is an integer, against an exposure light through the light-transmitting substrate, and
a stabilized region formed on a boundary between said light-transmitting substrate and said translucent film or on at least a surface of said translucent film to prevent variations in physical properties of said translucent film,
wherein said stabilized region is formed by performing at least one treatment selected from the group consisting of nitriding, halogenation, hydrogenation and carbonization.

5,728,495

SCANNING EXPOSURE METHOD AND APPARATUS

Ken Ozawa, Tokyo, Japan, assignor to Nikon Corporation, Tokyo, Japan

Filed Dec. 1, 1995, Ser. No. 565,863
Claims priority, application Japan, Mar. 15, 1995, 7-055399
Int. Cl.[6] G03F 7/20
U.S. Cl. 430—30 28 Claims

1. A scanning exposure method comprising the steps of:
synchronously moving a mask and a substrate while illuminating the mask with pulsed light so that each of a plurality of points on said substrate is irradiated with N (N being an integer) light pulses;
obtaining an integrated light amount of successive N light pulses plural times during the synchronous movement of said mask and said substrate; and
performing an adjustment of an exposure operation which is to be subsequently effected, based on a plurality of obtained integrated light amounts.

5,728,496

ELECTROSTATOGRAPHIC APPARATUS AND METHOD FOR IMPROVED TRANSFER OF SMALL PARTICLES

Donald S. Rimai, Webster; Paul M. Borsenberger, Hilton; Salvatore Leone; Marie B. O'Regan, both of Rochester, and Thomas N. Tombs, Brockport, all of N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.

Filed May 24, 1996, Ser. No. 653,518
Int. Cl.[6] G03G 13/01;13/16
U.S. Cl. 430—47 26 Claims

1. A method of forming a toner image on a receiver sheet, which method comprises:
forming an electrostatic latent image on a primary image member, the primary image member having an outer layer of a thickness less than about 10 μm and the outer layer being characterized by a Young's modulus greater than about 10 Gpa;
toning said latent image with a dry toner to form a toner image on the outer layer, the toner being characterized by a mean volume weighted diameter that is between about 2 μm and less than about 8 μm;
transferring said toner image from said primary image member to an intermediate image member in the presence of an electric field urging toner particles from said primary image member to said intermediate image member wherein said intermediate image member has a relatively compliant base, and a thin, hard outer skin defining the outside surface of said intermediate image member the outer skin being characterized by a Young's modulus of greater than about 100 MPa; and
transferring said toner image from said intermediate image member to a receiver sheet in the presence of an electric field urging toner particles from said intermediate image member to said receiver sheet.

5,728,497

METHOD FOR PREPARATION OF WATERLESS LITHOGRAPHIC PRINTING PLATE BY ELECTROPHOTOGRAPHIC PROCESS

Eiichi Kato, and Akio Oda, both of Shizuoka, Japan, assignors to Fuji Photo Film Co., Ltd., Kanagawa, Japan

Filed Apr. 18, 1996, Ser. No. 634,289
Claims priority, application Japan, Apr. 21, 1995, 7-097093
Int. Cl.[6] G03G 13/28
U.S. Cl. 430—49 11 Claims

1. A method for preparation of a waterless lithographic printing plate by an electrophotographic process comprising forming a non-fixing toner image on a surface of an electrophotographic light-sensitive element comprising an electrically conductive support having provided thereon a photoconductive layer by an electrophotographic process, providing a non-tacky resin layer having adhesion to the surface of electrophotographic light-sensitive element larger than adhesion between the toner image and the surface of electrophotographic light-sensitive element on the whole surface of electrophotographic light-sensitive element bearing the toner image, and selectively removing the non-tacky resin layer provided on the toner image wherein the toner image is not fixed.

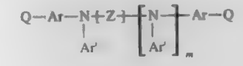
5,728,498

ELECTROPHOTOGRAPHIC IMAGING MEMBER HAVING AN IMPROVED CHARGE TRANSPORT LAYER

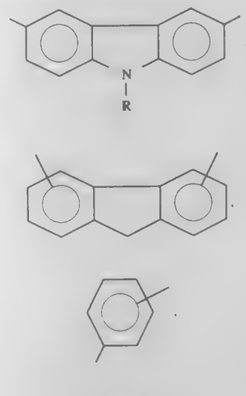
John F. Yanus, Webster; William W. Limburg, Penfield; Dale S. Renfer, Webster; Richard L. Schank, Pittsford; Merlin E. Scharfe, Penfield; Damodar M. Pai, Fairport, and Paul J. DeFeo, Sodus Point, all of N.Y., assignors to Xerox Corporation, Stamford, Conn.

Filed Sep. 27, 1996, Ser. No. 722,352
Int. Cl.[6] G03G 5/04
U.S. Cl. 430—59 11 Claims

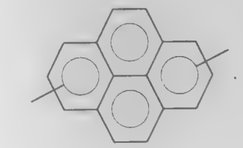
1. A flexible electrophotographic imaging member comprising a supporting substrate coated with at least one imaging layer comprising hole transporting material containing long chain alkyl carboxylate groups dissolved or molecularly dispersed in a film forming binder, wherein said supporting substrate is uncoated on one side and coated on the opposite side with said least one imaging layer and wherein said hole transporting material is represented by the formula:



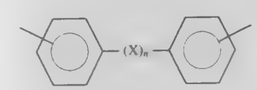
wherein:
m is 0 or 1,
Z is selected from the grodp consisting of:



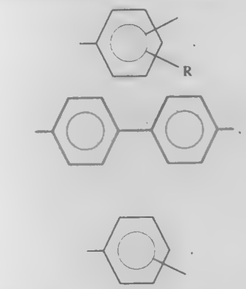
and



and



n is 0 or 1,
Ar is selected from the group consisting of:

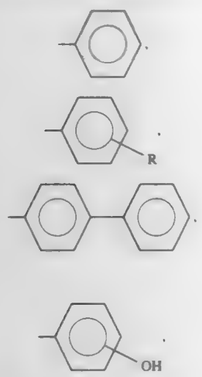


and

R is selected from the group consisting of —CH_3, —C_2H_5,—C_3H_7, and —C_4H_9,

VOL 1208 ISS 3 MR 17 1998 UMI

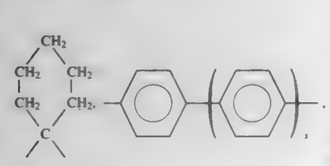
Ar' is selected from the group consisting of:

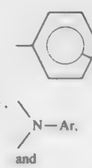


and

X is selected from the group consisting of:

$-CH_2-$, $-C(CH_3)_2-$, $-O-$, $-S-$,

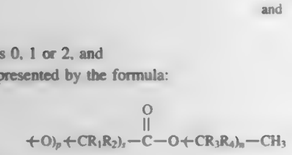




and

s is 0, 1 or 2, and

Q is represented by the formula:



wherein:

p is 1 or 0,

R_1, R_2, R_3, R_4 are independently selected from —H, $—CH_3$, $—(CH_2—)_vCH_3$, $—CH(CH_3)_2$, $—C(CH_3)_3$ wherein v is 1 to 10, and

s and n are independently selected from 0 to 10.

5,728,499

PROTECTIVE LAYER COMPOSITION OF ELECTROPHOTOGRAPHIC PHOTORECEPTOR

Tzea-Ching Hung, Chiang-Hwa Hsien; Chen-Jen Yang, Taipei Hsien, and Kuo-Chu Yeh, Miao-Li Hsien, all of Taiwan, assignors to Sinonar Corp., Hsinchu, Taiwan

Filed Jun. 13, 1997, Ser. No. 874,551

Int. Cl.[6] G03G *5/147*

U.S. Cl. 430—67 **16 Claims**

1. An organic electrophotographic photoreceptor containing a protective layer, wherein said protective layer comprises a cross-linked phenolic resin having methylene ether and methylene linkages that are provided such that said cross-linked phenolic resin has an oxygen element content no greater than 23.5 wt %.

5,728,500

ELECTROPHOTOGRAPHIC PHOTORECEPTOR WITH ACENAPHTHENE COMPOUND

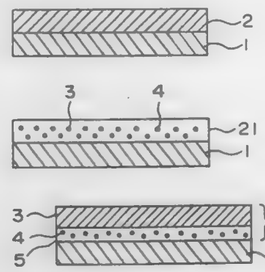
Atsushi Takesue; Mitsutoshi Anzai; Takanobu Watanabe, and Chieko Inayoshi, all of Tsukuba, Japan, assignors to Hodogaya Chemical Co., Ltd., Kawasaki, Japan

Filed Jul. 18, 1996, Ser. No. 683,380

Claims priority, application Japan, Jul. 21, 1995, 7-206761; Feb. 9, 1996, 8-046844

Int. Cl.[6] G03G *5/09;5/06*

U.S. Cl. 430—83 **14 Claims**



1. A electrophotographic photoreceptor, comprising a photosensitive layer which comprises a sensitizing dye, a binder resin and an acenaphthene derivative of formula (I):

(1)

wherein

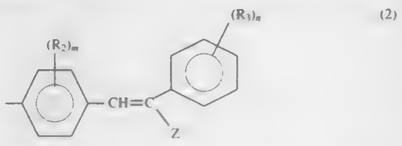
Ar_1 is an unsubstituted or substituted aryl group;

Ar_2 is an unsubstituted or substituted phenylene, naphthylene, biphenylene or anthrylene group;

R_1 is a hydrogen atom, a lower alkyl group or a lower alkoxy group;

X is a hydrogen atom, an unsubstituted or substituted alkyl group or an unsubstituted or substituted aryl group; and

Y is an unsubstituted or substituted aryl group or a group of the formula (2):



(2)

wherein

R_2 is a hydrogen atom, a lower alkyl group or a lower alkoxy group,

R_3 is a hydrogen atom, a halogen atom or a lower alkyl group,

Z is a hydrogen atom or an unsubstituted or substituted aryl group, and m and n are, independently, an integer of from 0 to 4.

5,728,501

CHARGE CONTROLLER, TONER BINDER COMPOSITION AND ELECTROPHOTOGRAPHIC TONER

Hideo Nakanishi; Tohru Ohama; Naoki Takase; Akira Kodani, and Munekazu Satake, all of Kyoto, Japan, assignors to Sanyo Chemical Industries, Ltd., Kyoto, Japan

Filed Mar. 22, 1996, Ser. No. 621,065

Claims priority, application Japan, Oct. 17, 1995, 7-294779; Oct. 27, 1995, 7-303527; Nov. 27, 1995, 7-332790

Int. Cl.[6] G03G *9/097*

U.S. Cl. 430—110 **22 Claims**

1. A charge controller for a toner, comprising a polymer of an ethylenically unsaturated monomer, said polymer having a dielectric loss tangent (tan δ) at 100kHz of 0.008 to 0.3 and a water absorbency of at most 10% by weight, and selected from the group consisting of:

(1) a polymer (A1) having units resulting from a monomer (1) having an aromatic ring substituted with at least one electron-attracting group (X) selected from the group consisting of halogen, a nitro group and a cyano group; and

(2) a copolymer (A2) of a monomer (2) having an organic acid group or salt thereof, with one or more copolymerizable monomers.

5,728,502

IMAGING MEDIUM, METHOD OF IMAGING SAID MEDIUM, AND IMAGE-BEARING MEDIUM

David T. Ou-Yang, Woodbury, and Robert C. Fitzer, North Oaks, both of Minn., assignors to Minnesota Mining and Manufacturing Company, St. Paul, Minn.

Filed Mar. 12, 1996, Ser. No. 615,010

Int. Cl.[6] G03G *13/16*

U.S. Cl. 430—126 **36 Claims**

1. A method of transferring an electrophotographically developed image from a photoconductor to an imaging medium, comprising the steps of:

a) selectively providing desired portions of a photoconductor with a developed image, the image comprising a plurality of thermoplastic toner particles in a liquid carrier at a first temperature, wherein the liquid carrier is not a solvent for the particles at the first temperature and wherein the thermoplastic particles and the liquid carrier form substantially a single phase at or above a second temperature;

b) heating the developed image to a temperature at least as high as the second temperature to thereby form a single phase of the thermoplastic particles and liquid carrier; and

c) thereafter transferring the developed image to the receptor layer of an imaging medium;

wherein the receptor layer comprises a polymer of ethylene vinyl acetate, having a melt point index of at least 2.5 grams/10 minutes and a vinyl acetate content of from 15 to 35% by weight.

5,728,503

LITHOGRAPHIC PRINTING PLATES HAVING SPECIFIC GRAINED AND ANODIZED ALUMINUM SUBSTRATE

Major S. Dhillon, Belle Mead; Gerhard Sprintschnik, Branchburg, and Jose G. Gonzales, Roebling, all of N.J., assignors to Bayer Corporation, Pittsburgh, Pa.

Filed Dec. 4, 1995, Ser. No. 566,759

Int. Cl.[6] G03F *7/09*

U.S. Cl. 430—158 **7 Claims**

1. A lithographic printing plate which comprises an aluminum substrate having a grained and anodized surface and having a substantially uniform surface topography comprising peaks and valleys and surface roughness parameters Rz, Rt, Rp, and Ra wherein Ra ranges from about 0.25 to about 0.35 microns, Rz ranges from about 2.50 to about 3.50 microns, Rt ranges from about 2.00 to about 4.00 microns and Rp ranges from about 1.50 to about 2.50 microns and surface tristimulus color coordinate values L, a, and b wherein L ranges from about 56.00 to about 62.00, a ranges from about −1.50 to about +1.50 and b ranges from about −1.50 to about 1.50, and a light sensitive composition layer on the surface.

5,728,504

POSITIVE PHOTORESIST COMPOSITIONS AND MULTILAYER RESIST MATERIALS USING THE SAME

Hiroshi Hosoda; Satoshi Niikura; Atsushi Sawano; Tatsuya Hashiguchi; Kazuyuki Nitta; Hidekatsu Kohara, and Toshimasa Nakayama, all of Kanagawa-ken, Japan, assignors to Tokyo Ohka Kogyo Co., Ltd., Kanagawa-ken, Japan

Filed May 23, 1996, Ser. No. 652,389

Claims priority, application Japan, May 25, 1995, 7-151021; Apr. 26, 1996, 8-130773

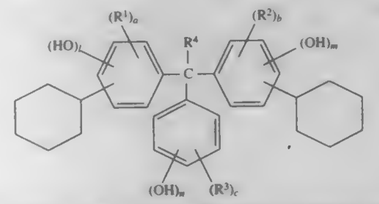
Int. Cl.[6] G03F *7/023*

U.S. Cl. 430—192 **12 Claims**

1. A positive photoresist composition comprising:

(A) an alkali-soluble resin; and

(B) a light-sensitive component comprising at least one phenolic compound represented by the following general formula (I):



(I)

where R^1, R^2 and R^3, are each independently a hydrogen atom, an alkyl group having 1–3 carbon atoms or an alkoxy group having 1–3 carbon atoms; R^4 is a hydrogen atom or an alkyl group having 1–3 carbon atoms; a, b and c are an integer of 1–3; l, m and n are an integer of 1–3, in which at least part of the hydroxyl groups present are esterified with a quinonediazidsulfonic acid and a sulfonic acid which has a group represented by the following formula (II):

$$—SO_2—R^5 \quad \text{(II)}$$

where R^5 is an alkyl group having 1–12 carbon atoms, a halogen-substituted alkyl group having 1 or 2 carbon atoms, an alkenyl group having 2 or 3 carbon atoms, an aryl group having 6–10 carbon atoms, or a methyl-, ethyl-, ethenyl- or methoxy-substituted aryl group having 7 or 8 carbon atoms, thereby forming a mixed ester.

5,728,505

FLEXIBLE, AQUEOUS PROCESSABLE, PHOTOIMAGEABLE PERMANENT COATINGS FOR PRINTED CIRCUITS

Thomas Eugene Dueber, and Frank Leonard Schadt, III, both of Wilmington, Del., assignors to E. I. du Pont de Nemours and Company, Wilmington, Del.

Continuation of Ser. No. 431,214, Apr. 28, 1995, abandoned. This application Feb. 20, 1997, Ser. No. 802,494

Int. Cl.[6] G03F *7/033;7/09*

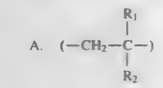
U.S. Cl. 430—271.1 **30 Claims**

1. Coating composition which photopolymerizable coating composition which maintains flexibility after curing and is processable in aqueous alkaline developer solution providing a protective coating for printed circuits, which comprises:

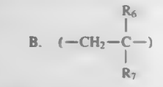
(a) a cobinder system comprising at least one low molecular weight copolymer binder component having a weight average

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molecular weight of from 3,000 to 15,000 and containing from 2 to 50% by weight of at least one carboxylic acid containing structural unit and from 50 to 98% by weight of at least one structural unit of the formula



wherein R_1 is H, alkyl or aryl; R_2 is H, CH_3, aryl, —$COOR_3$, —$CONR_4R_5$ or —CN; and R_3, R_4 and R_5 independently are H, alkyl, aryl, or aryl substituted with one or more hydroxy, ester, keto, ether or thioether groups; and at least one high molecular weight carboxylic acid containing copolymer binder component having a weight average molecular weight of from 40,000 to 500,000 and containing structural units of the formula



wherein R_6 is H, alkyl, —CN or aryl; R_7 is aryl, —$COOR_8$ or —$CONR_4R_5$; and R_8 is H or alkyl containing from 1 to 8 carbon atoms; wherein said low molecular weight and said high molecular weight binder components are present in admixture of differing constituents;

(b) an acrylated urethane monomeric component;

(c) a photoinitiator or a photoinitiator system; and

(d) a blocked polyisocyanate crosslinking agent.

27. A rigid printed circuit comprising:

(a) a rigid substrate;

(b) an electrically conductive circuit pattern on at least one side of the rigid substrate; and

(c) an outermost layer of the coating composition of claim **1** applied over the electrically conductive circuit pattern.

5,728,506

LITHOGRAPHIC PROCESSES EMPLOYING RADIATION SENSITIVE POLYMERS AND PHOTOSENSITIVE ACID GENERATORS

Janet Mihoko Kometani, Warren, N.J., assignor to Lucent Technologies Inc., Murray Hill, N.J.

Continuation of Ser. No. 187,373, Jan. 27, 1994, abandoned, which is a continuation of Ser. No. 806,971, Dec. 12, 1991, abandoned. This application Mar. 11, 1996, Ser. No. 614,926

Int. Cl.[6] G03C *5/16;1/492*

U.S. Cl. 430—311 **12 Claims**

1. A process for manufacturing a device comprising the steps of 1) forming a radiation sensitive composition on a substrate, 2) exposing said composition to radiation to form a latent image, 3) developing said image in said composition to form a developed image by subjecting said composition to a solvent, and 4) using said developed image in subsequent processing of said substrate characterized in that said radiation sensitive composition comprises a polymer and a photosensitive acid generator, said polymer comprising the reaction product of A) SO_2,B) a polar monomer having a polarity of at least 1.5 Debye and a solubility in water of pH 7 of at least 0.5 gms. per 100 gms. of water, and C) a monomer having a substituent that reacts with an acid generated by interaction of said photosensitive acid generator with said radiation to form a polymer reaction product having different solubility in said solvent than a region of said radiation sensitive composition lacking exposure to said radiation.

5,728,507

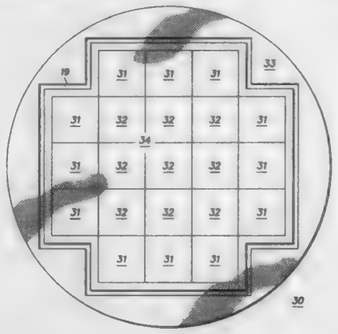
METHOD FOR PLANARIZING A SEMICONDUCTOR LAYER

Robert L. Rhoades; George R. Campbell; Steven D. Frezon, and Mark D. Hall, all of Austin, Tex., assignors to Motorola, Inc., Schaumburg, Ill.

Filed Feb. 20, 1996, Ser. No. 603,797

Int. Cl.[6] G03C *5/00*

U.S. Cl. 430—313 **8 Claims**



1. A method for forming semiconductor devices, the method comprising the steps of:

providing a semiconductor substrate having a first region and a second region, the first region comprising internal dice and edge dice and having a perimeter, the second region surrounding the perimeter of the first region;

disposing a first layer of material overlying the first region and the second region;

patterning the first layer of material to define a moat region overlying the second region and to leave a first portion of the first layer of material overlying the first region, and a second portion of the first layer of material overlying the second region, wherein the second portion lies between the moat region and the first portion;

disposing a second layer of material overlying the first portion, the second portion, and the moat region; and

polishing the second layer of material.

5,728,508

METHOD OF FORMING RESIST PATTERN UTILIZING FLUORINATED RESIN ANTIREFLECTIVE FILM LAYER

Katsuya Takemura; Toshinobu Ishihara; Satoshi Watanabe; Kazumasa Maruyama, all of Nakakubiki-gun; Hirofumi Kishita, and Kouichi Yamaguchi, both of Usui-gun, all of Japan, assignors to Shin-Etsu Chemical Co., Ltd., Tokyo, Japan

Continuation-in-part of Ser. No. 403,411, Mar. 13, 1995, abandoned. This application Jul. 1, 1996, Ser. No. 672,961

Claims priority, application Japan, Mar. 14, 1994, 6-069050

Int. Cl.[6] G03C *1/835*

U.S. Cl. 430—315 **9 Claims**

1. A method of forming a resist pattern comprising

forming a photoresist layer on a substrate,

forming a transparent anti-reflective film on said photoresist layer by applying an anti-reflective material onto said photoresist layer, said anti-reflective material comprising a fluorinated resin which is soluble in an organic hydrocarbon solvent or methyl chloride and has a refractive index of up to 1.45 at a wavelength of 633 nm,

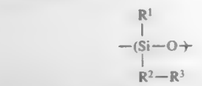
exposing said resist layer to light through said transparent anti-reflective film,

removing said anti-reflective film by dissolution in an organic hydrocarbon solvent or methyl chloride, and

developing said photoresist layer,

said fluorinated resin being at least one selected from the group consisting of

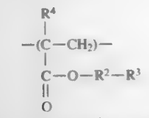
(i) a polysiloxane comprising 0.1 to 5 mol % of a side chain fluorine-modified siloxane unit of the following general formula (1):



(1)

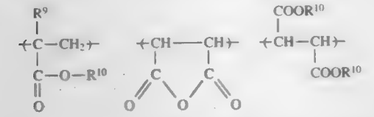
wherein R^1 is an aliphatic or aromatic, unsubstituted or halo-, amino-, nitro-, hydroxy- or cyano-substituted, monovalent hydrocarbon group, R^2 is a divalent organic group, and R^3 is a perfluoroalkyl or perfluoroalkyl ether group having 4 to 20 carbon atoms, and the remaining of one or more units selected from the group consisting of a R^8_2SiO unit, R^8HSiO unit, $R^8SiO_{3/2}$ unit, $SiO_{4/2}$ unit and $R^8_3SiO_{1/2}$ unit wherein R^8 is an unsubstituted or halo-, amino, nitro-, hydroxy- or cyano-substituted monovalent hydrocarbon group,

(ii) a copolymer comprising 10 to 90 mol % of a side chain fluorine-modified alkyl acryl unit of the following general formula (2):



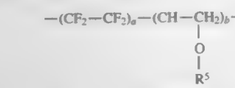
(2)

wherein R^2 is a divalent organic group, R^3 is a perfluoroalkyl or perfluoroalkyl ether group having 4 to 20 carbon atoms, and R^4 is a methyl group or hydrogen atom, and the remaining of a copolymerizable unit selected from the group consisting of the following units:



wherein R^9 is a methyl group or hydrogen atom and R^{10} is an unsubstituted or halo-, amino-, nitro-, hydroxy- or cyano-substituted monovalent hydrocarbon group, and

(iii) a perfluoroethylene-vinyl ether copolymer of the following general formula (3):



(3)

wherein R^5 is an unsubstituted or halo-, amino-, nitro-, hydroxy- or cyano-substituted aromatic group or an alkyl group having 1 to 20 carbon atoms, and letters a and b are numbers satisfying $0.1 \leqq a/(a+b) \leqq 0.9$.

5,728,509

METHOD OF MANUFACTURING AN OPTICAL DEVICE

Akira Eda, and Kiyofumi Muro, both of Sodegaura, Japan, assignors to Mitsui Petrochemical Industries, Ltd., Tokyo, Japan

Division of Ser. No. 901,028, Jun. 19, 1992. This application Jun. 6, 1995, Ser. No. 470,273

Claims priority, application Japan, Jun. 21, 1991, 3-150618; Sep. 30, 1991, 3-252630; Oct. 4, 1991, 3-258129

Int. Cl.[6] G03F *7/00*

U.S. Cl. 430—321 **15 Claims**

1. A method of manufacturing an optical device, said method comprising the steps of:

coating a photoresist on a face of a body of an optical device which includes a non-linear optical material, the face being substantially flat;

exposing the photoresist to a light of a circular or elliptic pattern, whose intensity varies gradually or stepwise from a center toward an outer periphery of the pattern;

developing the photoresist thereby forming a convex arcuate photoresist pattern on the face of the body in a direction perpendicular to the face of the body;

etching the face of the body and the photoresist pattern so that a convex arcuate portion is formed on the face of the body which follows a cross-section shape of the photoresist pattern, an etching ratio between the photoresist pattern and the face of the body being adjusted during etching by varying an ion accelerating voltage to obtain said convex arcuate portion having a desired radius of curvature.

5,728,510

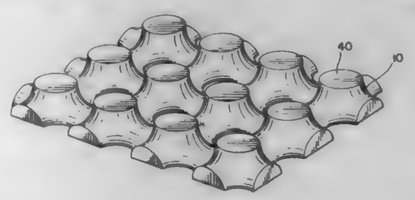
PROSTHETIC ARTICLES AND METHODS FOR PRODUCING SAME

Eugene W. White, Rossiter, Pa., assignor to Interpore International, Irvine, Calif.

Continuation of Ser. No. 308,762, Sep. 19, 1994, Pat. No. 5,487,933, which is a continuation-in-part of Ser. No. 134,260, Oct. 8, 1993, Pat. No. 4,455,100, which is a division of Ser. No. 647,999, Jan. 30, 1991, Pat. No. 5,348,788. This application Oct. 13, 1995, Ser. No. 542,846

Int. Cl.[6] G03C *5/00*

U.S. Cl. 430—323 **4 Claims**



1. A process for manufacturing a non-woven porous mesh comprising the steps of:

selecting a form having a flat shape and uniform thickness between a first and second side that is suitable for molding polymeric materials;

creating openings in and normal to said form extending therethrough wherein said openings have substantially similar effective diameters and are distributed across the sides of said form in a substantially uniform pattern;

creating plural troughs in the first side of said form whereby a trough, running parallel to the plane of the first side with a width corresponding to the effective diameter of said opening and depth approximately equal to one-half the effective diameter of said openings, is established between each pair of adjacent openings;

filling said form with a curable material in a fluid state;

curing said curable material;

deflashing said cured material; and

removing said cured material from said form.

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5,728,511

SILVER HALIDE PHOTOGRAPHIC MATERIAL AND IMAGE-FORMING PROCESS

Toshio Hirosawa; Kouji Katsube; Junichi Komiyama; Yoshiro Hayafuchi, and Toshiko Nakamura, all of Kanagawa, Japan, assignors to Oriental Photo Industrial Co., Ltd., Tokyo, Japan

Filed Mar. 5, 1997, Ser. No. 811,923

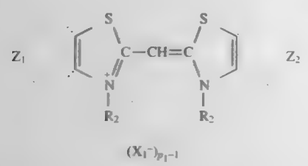
Claims priority, application Japan, Jun. 19, 1996, 8-178444; Jun. 26, 1996, 8-185603; Jun. 28, 1996, 8-188535; Jul. 3, 1996, 8-192965

Int. Cl.[6] G03C *7/20;7/32;7/30*

U.S. Cl. 430—356 **9 Claims**

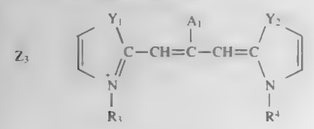
1. A silver halide photographic material for producing a black and white image, said photographic material comprising a substrate and at least one silver halide emulsion layer formed on the substrate, said emulsion layer comprising silver halide grains containing 95 mole % or above of silver chloride, a yellow coupler, a magenta coupler and a cyan coupler and being spectrally sensitized by at least one sensitizing dye selected from the group consisting of sensitizing dyes having the formulae (I), (II), (III) and (IV):

Formula (I)



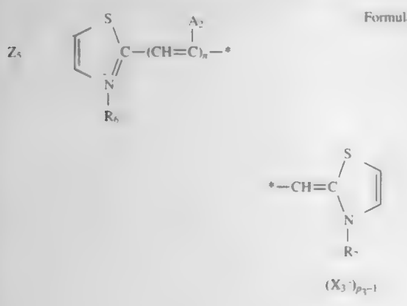
wherein R_1 and R_2 are each C_1–C_6 alkyl, C_1 –C_4 substituted alkyl or aralkyl; Z_1 and Z_2 each form a benzene or naphthalene ring; X_1 is an anionic group; and P_1 is 1 or 2, with the proviso that when p_1 is 1, an inner salt is formed;

Formula (II)



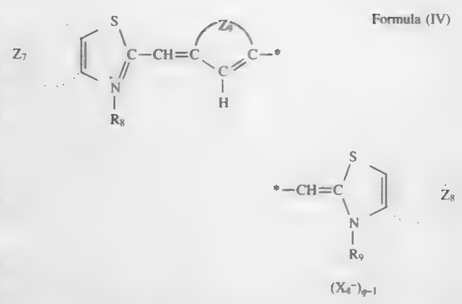
wherein R_3 and R_4 are each C_1–C_6 alkyl or sulfonated C_1–C_6alkyl; A_1 is hydrogen, C_1–C_3 alkyl, or aryl; Y_1 and Y_2 are each sulfur, oxygen, selenium or N—R_5 with R_5 being C_1–C_3 alkyl; Z_3 and Z_4 each form a benzene or naphthalene ring; X_2 is an anion; and P_2 is 1 or 2, with the proviso that when P_2 is 1, an inner salt is formed;

Formula (III)



wherein R_6, R_7, R_8 and R_9 are each C_1–C_6 alkyl, C_1–C_4 substituted alkyl or aralkyl; A_2 is hydrogen, C_1–C_3 alkyl or aryl; Z_5, Z_6, Z_7 and Z_8 each form a benzene or naphthalene ring; Z_9 forms a six-membered ring; X_3 and X_4 are each an anionic group; n is 2; and P_3 and q are each 1 or 2, with the proviso that when P3 or q is 1, an inner salt is formed.

Formula (IV)



5,728,512

METHOD FOR PROCESSING SILVER HALIDE PHOTOGRAPHIC MATERIAL WITH A SPECIFIC FIXING SOLUTION

Hirobumi Yamashita, Hino, Japan, assignor to Konica Corporation, Japan

Continuation of Ser. No. 552,288, Nov. 2, 1995, abandoned. This application Nov. 19, 1996, Ser. No. 752,197

Claims priority, application Japan, Nov. 7, 1994, 6-272500

Int. Cl.[6] G03C *5/38*

U.S. Cl. 430—455 **15 Claims**

1. A fixing solution, having a pH of 4.2 to 5.5, for a silver halide light-sensitive material comprising a compound selected from the group consisting of

1. HO—CH_2CH_2COOH
2. HO—CH_2—CH_2—CH_2COOH
3. HO—CH_2—CH_2—CH_2—CH_2COOH
4. CH_3—CH(OH)—CH_2COOH
5. CH_3—CH(OH)—CH_2—CH_2COOH
6. H_2N—CH_2—CH_2COOH
7. H_2N—CH_2—CH_2—CH_2COOH
8. H_2NCH_2—CH_2—CH_2—CH_2COOH
9. HO_3S—CH_2—CH_2COOH
10. HO_3S—CH_2—CH_2—CH_2COOH
11. HO_3S—CH_2—CH_2—CH_2—CH_2COOH
12. O_2N—CH_2—CH_2COOH
13. O_2N—CH_2—CH_2—CH_2COOH
14. O_2N—CH_2—CH_2—CH_2—CH_2COOH
15. Cl—CH_2—CH_2COOH
16. Cl—CH_2—CH_2—CH_2COOH
17. Cl—CH_2—CH_2—CH_2—CH_2COOH
18. Br—CH_2—CH_2COOH
19. Br—CH_2—CH_2—CH_2COOH
20. CH_3—CHBr—CH_2COOH
21. Br—CH_2—CH_2—CH_2—CH_2COOH
22. I—CH_2—CH_2COOH
23. H_2N—CH_2—CH(OH)—CH_2—CH_2COOH
24. HO—CH_2—$C(CH_3)_2$—CH(OH)—CO—NH—CH_2COOH
25. H_2N—CH(OH)—CH_2—CH_2—CH_2COOH.

5,728,513

SILVER HALIDE COLOR PHOTOGRAPHIC LIGHT SENSITIVE MATERIAL

Hiroshi Okusa, and Yasuhiko Kawashima, both of Hino, Japan, assignors to Konica Corporation, Tokyo, Japan

Filed Feb. 22, 1996, Ser. No. 604,917

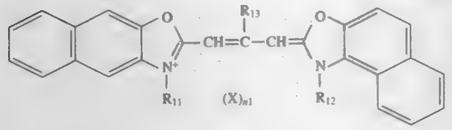
Claims priority, application Japan, Feb. 28, 1995, 7-064780; Feb. 28, 1995, 7-064781

Int. Cl.[6] G03C *1/12;1/34*

U.S. Cl. 430—505 **8 Claims**

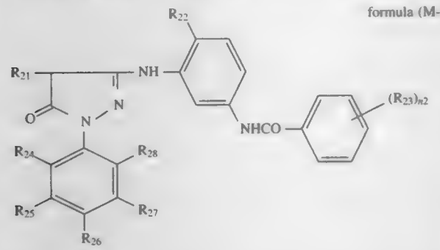
1. A silver halide color photographic light sensitive material comprising a support having thereon a silver halide emulsion layer, wherein said silver halide emulsion layer contains a sensitizing dye represented by formula (I) and a coupler represented by formula (M-I),

Formula (I)



wherein R_{11} and R_{12} independently represent an alkyl group, alkenyl group or alknyl group; R_{13} represents a hydrogen atom, an alkyl group or aryl group; X represents a counter ion, n_1 represents a number necessary for balancing an overall charge.

formula (M-I)

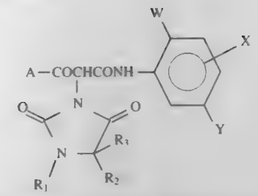


wherein R_{21} represents a hydrogen atom or a substituent; R_{22} represents a chlorine atom or an alkoxy group; R_{23} represents a substituent provided that at least one of R_{23} is located at an ortho-position to the substitution position of the NHCO group; n_2 is an integer of 1 to 5; R_{24}, R_{25}, R_{26}, R_{27} and R_{28} independently represent a hydrogen atom or halogen atom, and

said silver halide emulsion layer comprising silver iodobromide grains containing 2 to 25 mol % iodide.

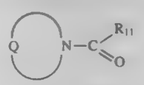
mula (A) or (B):

(Y)



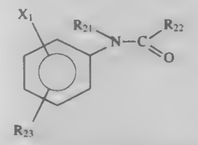
wherein A represents a tertiary alkyl group, an aryl group or an indolinyl group; W represents a halogen atom, an alkoxyl group, an aryloxy group or an alkyl group; X represents a hydrogen atom or a substituent; Y represents an acylamino group, an alkoxyl group, a sulfonamido group, a carbamoyl group, a sulfamoyl group, an alkoxycarbonyl group or a sulfonyl group; R_1 represents a hydrogen atom; R_2 and R_3 each independently represents a hydrogen atom, an alkyl group, an alkoxyl group or a sulfonyl group; and the total carbon atoms of R_1, R_2 and R_3 are 6 or less, provided that the compound represented by the following formula (I) is excluded from the compound represented by formula (A);

(A)



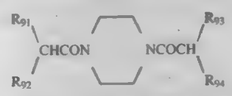
wherein Q represents a nonmetallic atomic group necessary for forming a 5- to 7-membered ring together with a nitrogen atom; and R_{11} represents an alkyl group, an aryl group or an alkoxyl group;

(B)



wherein R_{21} represents a hydrogen atom or an alkyl group; R_{22} represents an alkyl group, an aryl group or an alkoxyl group; R_{23} represents a hydrogen atom, a halogen atom, an alkyl group, an alkoxyl group, an acylamino group or a sulfonamido group; and X_1 represents a hydrogen atom or a substituent;

(I)



wherein R_{91}, R_{92}, R_{93} and R_{94} independently represents a branched and unsubstituted alkyl group having from 3 to 20 carbon atoms with the proviso that the total carbon number of and R_{94} is from 16 to 60.

5,728,514

SILVER HALIDE COLOR PHOTOGRAPHIC MATERIAL AND METHOD FOR FORMING COLOR IMAGE

Yasuhiro Yoshioka; Hiroo Takizawa, and Masakazu Morigaki, all of Kanagawa, Japan, assignors to Fuji Photo Film Co, Ltd., Ashigara, Japan

Continuation of Ser. No. 567,581, Dec. 5, 1995, abandoned. This application Jun. 17, 1997, Ser. No. 877,782

Claims priority, application Japan, Dec. 9, 1994, 6-331000

Int. Cl.[6] G03C *1/08;7/26;7/32*

U.S. Cl. 430—557 **18 Claims**

1. A silver halide color photographic material comprising a support having thereon at least one yellow coloring light-sensitive silver halide emulsion layer, at least one magenta coloring light-sensitive silver halide emulsion layer, and at least one cyan coloring light-sensitive silver halide emulsion layer, wherein at least one of said yellow coloring light-sensitive silver halide emulsion layer contains at least one dye-forming coupler represented by formula (Y) and at least one non-coloring compound represented by for-

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5,728,515

IODIDE CONTAINING HIGH BROMIDE TABULAR GRAIN EMULSIONS EXHIBITING IMPROVED PHOTOEFFICIENCY

Mark Edward Irving; JoAnn Demicco Hanna, both of Rochester, and Sharon Ruth Lunt, Webster, all of N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.

Filed Apr. 29, 1996, Ser. No. 639,449

Int. Cl.[6] G03C *1/035*

U.S. Cl. 430—567 **16 Claims**

1. A radiation-sensitive emulsion comprised of a dispersing medium and silver halide grains including tabular grains

accounting for greater than 50 percent of total grain projected area,

having {111} major faces, and

containing greater than 50 mole percent bromide and at least 0.5 mole percent iodide, based on total silver,

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wherein said tabular grains include tabular grains having a controlled, non-uniform iodide distribution providing, when the emulsion is exposed to 325 nm electromagnetic radiation at 6° K., a stimulated fluorescent emission at 575 nm that is at least 5 percent of the maximum intensity of concurrently stimulated fluorescent emission in the wavelength range of from 490 to 560 nm, said controlled, non-uniform iodide distribution tabular grains being comprised of

a central region accounting for from 5 to 85 percent of total silver and containing an iodide concentration of at least 0.5 mole percent, based on silver,

an annular spacer region extending laterally outward from the central region, accounting for at least 2 percent of total silver, and containing an iodide concentration that is less than half the iodide concentration of the central region, and

a peripheral region comprised of a zone extending outwardly from and having a higher iodide concentration than the annular spacer region, iodide within the zone providing the stimulated fluorescent emission at 575 nm.

5,728,516

PHOTOGRAPHIC PRINT ELEMENTS CONTAINING CUBICAL GRAIN SILVER IODOCHLORIDE EMULSIONS

James Lawrence Edwards, Rochester; Benjamin Teh-Kung Chen, Penfield, and Sanford Howard Ehrlich, Pittsford, all of N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.

Continuation-in-part of Ser. No. 362,109, Dec. 22, 1994, abandoned. This application May 17, 1996, Ser. No. 650,072

Int. Cl.° G03C *1/005;1/035;1/09*

U.S. Cl. 430—567 **17 Claims**

1. A photographic print element comprised of a reflective support and, coated on the support, at least one image recording emulsion layer unit,

WHEREIN the emulsion layer unit contains an emulsion which is a blend of

(a) radiation-sensitive silver iodochloride grains that

(1) are comprised of three pairs of equidistantly spaced parallel {100} crystal faces and

(2) contain from 0.05 to 3 mole percent iodide, based on total silver, in a controlled, non-uniform iodide distribution forming a core containing at least 50 percent of total silver, an iodide-free surface shell having a thickness of greater than 25 Å, and a sub-surface shell that contains a maximum iodide concentration and

(b) minimum density reducing silver halide grains that

(1) consist essentially of at least one of the halides chloride and bromide and

(2) are present in a molar concentration at least equal to that of the silver iodide in the silver iodochloride grains.

5,728,517

PHOTOGRAPHIC EMULSIONS OF ENHANCED SENSITIVITY

Roger Anthony Bryant, Rochester; Myra Toffolon Olm, Webster, and David Earl Fenton, Fairport, all of N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.

Filed May 31, 1996, Ser. No. 656,019

Int. Cl.° G03C *1/035;1/005;1/09*

U.S. Cl. 430—567 **10 Claims**

1. An emulsion of enhanced photographic sensitivity comprised of a dispersing medium and silver halide tabular grains having a face centered cubic crystal lattice of the rock salt structure and containing iodide, adjacent surfaces forming edges and corners of said tabular grains

WHEREIN the tabular grains contain

a maximum surface iodide concentration along their edges,

a lower surface iodide concentration within their corners than elsewhere along their edges, and

a dopant capable of providing shallow electron trapping sites present in an overall concentration of up to 500 molar parts per million, based on silver, and limited to a surface concentration of less than 100 molar parts per million, based on the last precipitated 5 percent of silver.

5,728,518

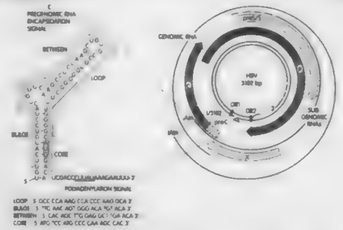
ANTIVIRAL POLY-AND OLIGONUCLEOTIDES

Ellen Carmichael, West Hartford, Conn., assignor to The Immune Response Corporation, Carlsbad, Calif.

Continuation-in-part of Ser. No. 181,557, Jan. 12, 1994, abandoned. This application Aug. 8, 1994, Ser. No. 287,337

Int. Cl.° C12Q *1/70;1/68;* **G01N** *33/53;* **C07H** *21/04*

U.S. Cl. 435—5 **20 Claims**



1. A soluble molecular complex comprising a poly- or oligonucleotide which hybridizes to an RNA primer-binding region of a hepatitis B viral nucleic acid or to a hepatitis B viral RNA primer, wherein the poly- or oligonucleotide is complexed with a carrier comprised of a cell-specific binding agent and a poly- or oligonucleotide-binding agent.

5,728,519

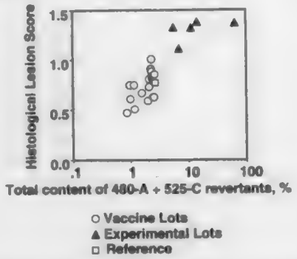
ASSAY FOR VIRULENT REVERTANTS OF ATTENUATED LIVE VACCINES AND KITS THEREFOR

Inessa S. Levenbook; Konstantin M. Chumakov, both of Bethesda; Laurie P. Norwood, Hyattsville, all of Md., and Igor Roninson, Chicago, Ill., assignors to The United States of America as represented by the Department of Health and Human Services, Washington, D.C.

Continuation-in-part of Ser. No. 246,373, May 18, 1994, which is a continuation of Ser. No. 607,742, Nov. 6, 1990, abandoned. This application Dec. 21, 1994, Ser. No. 361,337

Int. Cl.° C12Q *1/68*

U.S. Cl. 435—5 **17 Claims**



1. A method of classifying an unclassified live poliovirus type 2 vaccine which is attenuated by a G to A substitution at nucleotide position 481 as having an acceptable or unacceptable level of neurovirulence, comprising, prior to vaccine administration, the steps of:

a) selectively amplifying a region of an unclassified poliovirus type 2 vaccine genome containing nucleotide position 481 using selectively mismatched primers, whereby a restriction endonuclease site which includes nucleotide position 481 in the selectively amplified region is created by introducing a site-specific mutation into the amplified region;

b) digesting an amount of the amplified region with a restriction endonuclease that specifically cleaves the amplified sequences in revertant viruses which contain an A to G reversion at nucleotide position 481;

c) digesting an amount of the amplified region with a restriction endonuclease that specifically cleaves the amplified sequences in nonrevertant viruses which contain an A at nucleotide position 481;

d) quantifying the percentage of revertant viruses in the unclassified vaccine; and

e) comparing the percentage of revertant viruses in the unclassified vaccine to the percentage of revertant viruses in an accepted reference vaccine which can pass the monkey neurovirulence test utilized by the World Health Organization, an unclassified vaccine with a higher percentage of A to G revertant viruses than in the reference vaccine being classified as unacceptable and an unclassified vaccine with an equal or lower percentage of A to G revertant viruses than in the reference vaccine being classified as acceptable.

5,728,520

IMMUNOREACTIVE POLYPEPTIDE COMPOSITIONS

Amy J. Weiner, Benicia, and Michael Houghton, Danville, both of Calif., assignors to Chiron Corporation, Emeryville, Calif.

Continuation of Ser. No. 231,368, Apr. 19, 1994, which is a continuation of Ser. No. 759,575, Sep. 13, 1991. This application Jun. 6, 1995, Ser. No. 471,498

Int. Cl.° C12Q *1/70;* **C07K** *14/18*

U.S. Cl. 435—5 **1 Claim**

1. A polypeptide containing a hepatitis C virus (HCV) sequence having an epitope immunoreactive with an antibody which binds to an HCV virus polypeptide, said HCV sequence consisting of not more than 30 amino acids and including the epitope at about amino acids 396–408 (SEQ ID NO.36) of said HCV virus polypeptide.

5,728,521

TARGETED CLEAVAGE OF RNA USING EUKARYOTIC RIBONUCLEASE P AND EXTERNAL GUIDE SEQUENCE

Yan Yuan; Cecilia Guerrier-Takada, both of New Haven; Sidney Altman, Hamden, and Fenyong Liu, New Haven, all of Conn., assignors to Yale University, New Haven, Conn.

Continuation-in-part of Ser. No. 207,547, Mar. 7, 1994, Pat. No. 5,624,824, which is a continuation-in-part of Ser. No. 54,892, Apr. 28, 1993, abandoned, which is a continuation-in-part of Ser. No. 931,937, Aug. 18, 1992, abandoned, which is a continuation-in-part of Ser. No. 875,099, Apr. 28, 1992, abandoned, which is a continuation-in-part of Ser. No. 568,834, Aug. 17, 1990, Pat. No. 5,168,053, which is a continuation-in-part of Ser. No. 328,368, Mar. 24, 1989, abandoned. This application Mar. 18, 1994, Ser. No. 215,082

Int. Cl.° C12Q *1/68;* **C12P** *19/34*

U.S. Cl. 435—6 **7 Claims**

1. A method for selecting a population of external guide sequences for cleavage of a target RNA by RNAase P with increased efficiency over a starting external guide sequence comprising

randomizing a section of the starting external guide sequence;

selecting for a subpopulation of the randomized sequences for their ability to be cleaved efficiently by RNAase P;

amplifying those sequences cleaving more efficiently than the starting external guide sequence; and

repeating the selection and amplification steps.

5,728,522

OLIGONUCLEOTIDES AND NUCLEIC ACIDS FOR DETECTION OF UREAPLASMA UREALYTICUM

Vito G. Del Vecchio, Scranton, Pa.; Louis E. Blouse, Jr., and Ferne K. McCleskey, both of San Antonio, Tex., assignors to Research Corporation Technologies, Inc., Tucson, Ariz.

Continuation of Ser. No. 874,842, Apr. 27, 1992. This application Apr. 18, 1994, Ser. No. 228,913

Int. Cl.° C12Q *1/68;* **C12P** *19/34*

U.S. Cl. 435—6 **12 Claims**

1. A method of detecting *Ureaplasma urealyticum* involving in vitro nucleic acid amplification which comprises:

(a) amplifying a *U. urealyticum* target nucleic acid by contacting a sample to be tested for the presence of *U. urealyticum* with at least one oligonucleotide for a time and under conditions sufficient to produce RNA or DNA copies of said target nucleic acid, wherein said oligonucleotide is a fragment consisting of contiguous nucleotides of the *U. urealyticum* DNA inserted in pCU3900 having ATCC Accession Number 97424, or has a sequence having about 70% complementarity to and approximately the same length as said contiguous fragment, and wherein said oligonucleotide is sufficiently complementary to hybridize to said target nucleic acid to permit said amplification, and wherein said oligonucleotide does not hybridize to genomic DNA of *M. genitalium, M. hominis, M. hyorhinis, M. orale, M. pneumoniae* or *M. salivarium*; and

(b) detecting said RNA or DNA copies, thereby detecting *Ureaplasma urealyticum.*

5,728,523

POLYMERASE DELTA MUTATIONS IN COLORECTAL TUMORS WITH REPLICATION ERRORS

Bert Vogelstein, and Kenneth W. Kinzler, both of Baltimore, Md., assignors to The Johns Hopkins University, Baltimore, Md.

Filed Dec. 30, 1994, Ser. No. 366,577

Int. Cl.° C12Q *1/68;* **C12P** *19/34;* **C07H** *21/02;21/04*

U.S. Cl. 435—6 **4 Claims**

1. A method of determining a predisposition to colorectal cancer comprising:

testing a body sample of a human to ascertain the presence of a mutation in pol δ which affects DNA polymerase delta expression or DNA polymerase delta function, the presence of such a mutation indicating a predisposition to colorectal cancer.

5,728,524

PROCESS FOR CATEGORIZING NUCLEOTIDE SEQUENCE POPULATIONS

David Ross Sibson, Amersham, Bucks, United Kingdom, assignor to Medical Research Counsil, London, United Kingdom

PCT No. PCT/GB93/01452, § 371 Date Jan. 13, 1995, § 102(e) Date Jan. 13, 1995, PCT Pub. No. WO94/01582, PCT Pub. Date Jan. 20, 1994

PCT Filed Feb. 16, 1995, Ser. No. 367,266

Claims priority, application United Kingdom, Jul. 13, 1992, 9214873

Int. Cl.° C12Q *1/68;* **C12P** *19/34*

U.S. Cl. 435—6 **41 Claims**

1. A process for categorizing uncharacterized nucleic acid by sorting said nucleic acid into sequence-specific subsets comprising:

(a) optionally, cleaving said uncharacterized nucleic acid by the action of a reagent, which reagent cleaves said nucleic acid to produce smaller size cleavage products;

(b) reacting either the uncharacterized nucleic acid or said cleavage products from (a) with a first population of adaptor molecules to generate first adaptored products, each of which first adaptor molecules comprises a nucleic acid sequence end recognition means, wherein said population of first adaptor

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molecules comprises a range of such molecules having sequence end recognition means linking, when present, to a first predetermined subset of said uncharacterized nucleic acid sequences to form first adaptored products;

(c) selecting and separating said first adaptored products resulting from (b);

(d) cleaving adaptors from the selected and separated first adaptored products from (c) to form first selected nucleic acids;

(e) reacting said first selected nucleic acids resulting from (d) with a second population of adaptor molecules to generate second adaptored products, each of which second adaptor molecules comprises nucleic acid end recognition means, wherein said second population of adaptor molecules comprises sequence end recognition means linking to a second predetermined subset of nucleic acid sequences to form second adaptored products; and

(f) selecting and separating said second adaptored products resulting from (e).

5,728,525

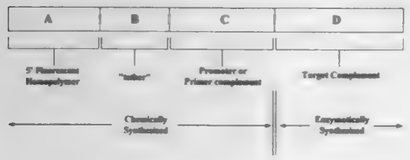
FLUORESCENT UNIVERSAL NUCLEIC ACID END LABEL

Michael J. Conrad, San Diego, Calif., assignor to Chromagen, Inc., San Diego, Calif.

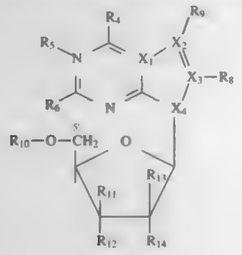
Division of Ser. No. 292,892, Aug. 18, 1994, which is a continuation of Ser. No. 108,457, Aug. 18, 1993, abandoned, which is a continuation of Ser. No. 21,539, Feb. 12, 1993, abandoned, which is a continuation of Ser. No. 834,456, Feb. 12, 1992, abandoned. This application Jun. 2, 1995, Ser. No. 459,890

Int. Cl.[6] C12Q *1/68;* **C07H** *21/04*

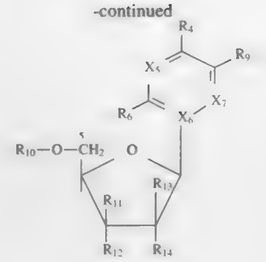
U.S. Cl. 435—6 **6 Claims**



1. A 5' universal end label for a nucleic acid sequence, wherein said label comprises a 5' homopolymer, said homopolymer comprising a fluorescent nucleoside analog not capable of forming hydrogen-bonded Watson-Crick base pairs, and a sequence complementary to a promoter region on a nucleic acid sequence, wherein said fluorescent nucleoside analog has the structure:



-continued



wherein

X_1=X_6=C or Si;

X_2, X_3, X_4, X_5=C, S, N or Si;

provided that at least one of X_1, X_2, X_3, X_4, X_5, or X_6=N;

X_7=—CH—;

R_4 is a reactive group derivatizable with a detectable label wherein said reactive group is selected from the group consisting of NH_2, SH, =O, and optionally, a linking moiety selected from the group consisting of an amide, a thioether, a disulfide, a combination of an amide a thioether or a disulfide, R_1—$(CH_2)_x$—R_2 and R_1—$R_2(CH_2)_x$—R_3, wherein x is an integer from 1 to 25 inclusive, and R_1, R_2, and R_3 are H, OH, alkyl, acyl, amide, thioether, or disulfide, and wherein said detectable label is selected from the group consisting of radioisotopes, fluorescent or chemiluminescent reporter molecules, antibodies, haptens, biotin, photobiotin, digoxigenin, fluorescent aliphatic amino groups, avidin, enzymes, and acridinium;

R_5 is absent, H, or is part of an etheno linkage with R_4;

R_6 is H, NH_2, SH, or =O;

R_8 and R_9 are independently absent, hydrogen, methyl, bromine, fluorine, or iodine; an alkyl or aromatic substituent, or an optional linking moiety selected from the group consisting of an amide, a thioether, a disulfide linkage, and a combination thereof;

R_{10} is hydrogen, an acid-sensitive/base-stable blocking group, or a phosphorus derivative;

R_{11}=R_{13}=H;

R_{12} is hydrogen, OH, 3' amino, 3'-azido, 3'-thiol, 3'-unsaturated or a 3'-phosphorus derivative; and

R_{14} is H, OH, or OR_3 where R_3 is a reactive group, protecting group, or additional fluorophore;

provided that, excluded from such compound is any purine-like compound in which:

(i) X1=X4=C; X2=X3=N; R4=NH2;R5=R8 which is absent; R6=H; R9is H or absent; R10 =H; and R12=R14=OH; or

(ii) X1=C; X2=X3=X4=N; R4=NH2or H; R5=R8 which is absent; R6=NH2; R9 is H or is absent; R10=H; and R12=R14=OH; or

(iii) R4 and R5 in combination form an etheno linkage; R6=R8=H; R9 is absent; X1=X3=C; and X2=X4=N; or

(iv) X1=X2=C; X3=X4=N; R4=halogen or —$S(CH_2)_nR$, with n being an integer between 1–6 and R is lower alkoxy, alkylthio, phenoxy, phenylthio, unsubstituted or substituted phenyl, —C=C—R', wherein R' is unsubstituted or on-, di- or trisubstituted phenyl; R9=R10=H; and R12=R14= acyloxy; or

(v) R4=NH2 or OH; R5 is absent; R9 is —COOH, —CONH2, —C(S)NH2, —C(NH)NH2, or —C(N— NH2)NH2; X1=X2=X3=C; and X4=N.

5,728,526

METHOD FOR ANALYZING A NUCLEOTIDE SEQUENCE

Albert L. George, Jr.; Satish K. Bhatnagar, and Irina Nazarenko, all of Gaithersburg, Md., assignors to Oncor, Inc., Gaithersburg, Md.

Filed Jun. 7, 1995, Ser. No. 472,239

Int. Cl.[6] C12Q *1/68;* **C12P** *19/34;* **C07H** *21/04*

U.S. Cl. 435—6 **38 Claims**

1. A method for analyzing a target nucleotide sequence having a first segment, a second segment and a third segment therebetween which third segment is formed of at least one nucleotide but which is formed of less than four different nucleotides wherein the third segment has a nucleotide or nucleotide sequence in a first state or a different second state, said method comprising:

a) providing a first polynucleotide which is immobilized on a solid support and which is at least partially complementary to the first segment of the target nucleotide sequence;

b) hybridizing the first polynucleotide to the first segment of the target nucleotide sequence under conditions suitable for hybridization;

c) providing a second polynucleotide which is at least partially complementary to the second segment of the target nucleotide sequence;

d) hybridizing the second polynucleotide to the second segment of the target nucleotide sequence under conditions suitable for hybridization wherein a gap of at least one nucleotide is present between one end of the first polynucleotide and one end of the second polynucleotide;

e) providing at least one nucleotide selected such that all the nucleotides which are complementary to the third segment are provided for only one of the first state or the second state and less than all the nucleotides complementary to the third segment are provided for the other state, the nucleotide or nucleotides being provided under conditions whereby the nucleotide or nucleotides form an extended portion of one of the first or second polynucleotide that is complementary to the nucleotides(s) of the third segment of the target nucleic acid sequence in one of the states;

f) linking the polynucleotide with the extended portion to the other polynucleotide under conditions whereby a fused product is formed comprised of the first polynucleotide, the second polynucleotide and the extended portion therebetween;

g) separating the fused product from the target nucleotide sequence and any non-linked second polynucleotide by treatment with exonuclease to digest target nucleotide sequence and non-linked second polynucleotide, and washing;

h) amplifying at least a portion of the fused product wherein the portion contains the extended portion under conditions suitable to form an amplified product containing the first polynucleotide and a detectable label, the amplifying being conducted to obtain a sufficient quantity of amplified product to detect the detectable label; and

i) detecting the presence of the label of the amplified product.

5,728,527

DETECTION OF HYBRIDIZED OLIGONOCLEOTIDE PROBES IN LIVING CELLS

Robert H. Singer, Shrewsbury; Joan C. Politz, Holden, and Krishan Taneja, Northboro, all of Mass., assignors to University of Massachusetts Medical Center, Worcester, Mass.

Continuation-in-part of Ser. No. 94,510, Jul. 20, 1993, abandoned. This application Jun. 7, 1995, Ser. No. 485,314

Int. Cl.[6] C12Q *1/68;1/70;* **A61K** *48/00;* **C07H** *21/04*

U.S. Cl. 435—6 **28 Claims**

1. A method for detecting target nucleic acids in a living cell or tissue, comprising the steps of:

a) incubating the living cell or tissue with a labelled single-stranded oligonucleotide probe under conditions suitable for uptake of said probe and its specific hybridization to complementary nucleic acids in the cell or tissue, said oligonucleotide having a nucleotide sequence complementary to the target nucleic acids;

b) washing the cell or tissue to allow unhybridized probe to exit from the cell or tissue; and

c) detecting presence of the labelled probe in the cell or tissue after step b) is performed, wherein detection of the labelled probe in the cell or tissue indicates the presence of the target nucleic acids in the cell or tissue.

5,728,528

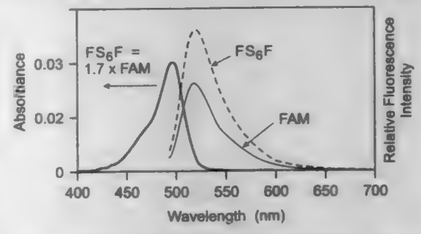
UNIVERSAL SPACER/ENERGY TRANSFER DYES

Richard A. Mathies; Alexander N. Glazer, and Jingyue Ju, all of Berkeley, Calif., assignors to The Regents of the University of California, Oakland, Calif.

Filed Sep. 20, 1995, Ser. No. 531,132

Int. Cl.[6] C12Q *1/68;* **C07H** *21/04;21/02;* **C12P** *19/34*

U.S. Cl. 435—6 **21 Claims**



1. In a method for identifying different nucleic acid sequences using a combination of fluorescent labels in an electrophoresis separation, said fluorescent labels fluorescing at different wavelengths and each different label joined to a different nucleic acid sequence, the improvement which comprises:

said labels comprising an energy donor component absorbing at a common wavelength, an acceptor component absorbing energy transferred by said energy donor component, where the acceptor for each label emits at a different wavelength, and said energy donor component and acceptor component linked by a backbone comprising sugar phosphate ester monomer linkages with the 1'-hydroxyl group being replaced with a hydrogen or etherified.

5,728,529

ALTERNATIVE DYE-LABELED RIBONUCLEOTIDES, DEOXYRIBONUCLEOTIDES, AND DIDEOXYRIBONUCLEOTIDES FOR AUTOMATED DNA ANALYSIS

Michael L. Metzker, and Richard A. Gibbs, both of Houston, Tex., assignors to Baylor College Of Medicine, Houston, Tex.

Continuation-in-part of Ser. No. 494,216, Jun. 23, 1995, Pat. No. 5,614,386. This application Nov. 6, 1995, Ser. No. 553,936

Int. Cl.[6] C12Q *1/68;1/70;* **C07H** *21/04;* **C12P** *19/34*

U.S. Cl. 435—6 **17 Claims**

1. A method for distinguishing polynucleotides having different 3'-terminal dideoxynucleotides in any method of chain termination DNA sequencing, said method comprising the steps of:

forming a mixture of a first, a second, a third, and a fourth class of polynucleotides, each polynucleotide in the first class having a 3'-terminal dideoxyadenosine triphosphate, said 3'-terminal dideoxyadenosine triphosphate being attached at the 7 position of the 7-deazapurine to a 3-amino-1-propynyl linker, said linker then attached to a BODIPY® dipyrromethene boron difluoride linker at a 3 position of a first BODIPY® fluorophore that contains at least one reactive functional group; each polynucleotide in the second class having a 3'-terminal dideoxycytidine triphosphate, said 3'-terminal dideoxycytidine triphosphate being attached at the

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5 position of the pyrimidine to a 3-amino-1-propynyl linker, said linker then attached to a BODIPY® linker at a 3 position of a second BODIPY® fluorophore that contains at least one reactive functional group; each polynucleotide in the third class having a 3'-terminal dideoxyguanosine triphosphate, said 3'-terminal dideoxyguanosine triphosphate being attached at the 7 position of the 7-deazapurine to a 3-amino-1-propynyl linker, said linker then attached to a BODIPY® linker at a 3 position of a third BODIPY® fluorophore that contains at least one reactive functional group; each polynucleotide in the fourth class having a 3'-terminal dideoxythymidine triphosphate, said 3'-terminal dideoxythymidine triphosphate being attached at the 5 position of the pyrimidine to a 3-amino-1-propynyl linker, said linker then attached to a BODIPY® linker at a 3 position of a fourth BODIPY® fluorophore that contains at least one reactive functional group; wherein if said first, second, third and fourth BODIPY® fluorophores are all different, said polynucleotides can be electrophoresed in a same or a different lane; or wherein if any of said first, second, third or fourth fluorophores are the same, said polynucleotides labeled with said same fluorophores are electrophoresed in separate lanes;

electrophoretically separating on a gel by size the polynucleotides so as to produce bands on the gel;

illuminating with an illumination beam the bands on the gel, the illumination beam being capable of causing the fluorophores to fluoresce; and

identifying the classes of polynucleotides in the bands by the fluorescence or absorption spectrum of the fluorophores.

5,728,530

METHOD OF DETECTING VARIANT NUCLEIC ACIDS USING EXTENSION OLIGONUCLEOTIDES WHICH DIFFER FROM EACH OTHER AT BOTH A POSITION CORRESPONDING TO THE VARIANT NUCLEIC ACIDS AND ONE OR MORE ADDITIONAL POSITIONS

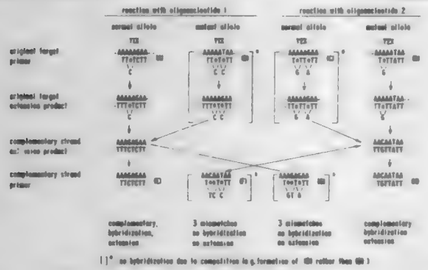
Stephan Rust; Harald Funke; Gerd Assmann, all of Munster; Christoph Kessler, Dorfen, and Rudiger Rueger, Seeshaupt, all of Germany, assignors to Boehringer Mannheim GmbH, Mannheim, Germany

Division of Ser. No. 205,777, Mar. 3, 1994, Pat. No. 5,605,794, which is a continuation of Ser. No. 939,479, Sep. 4, 1992, abandoned. This application Mar. 6, 1996, Ser. No. 611,872

Claims priority, application Germany, Sep. 6, 1991, 41 29 653.2

Int. Cl.[6] **C12Q** *1/68;* **C12P** *19/34*

U.S. Cl. 435—6 **3 Claims**



1. A method of detecting variant nucleic acids whose nucleotide sequences differ from one another in at least one position X, comprising the steps of:

a) in a single reaction vessel combining a set of oligonucleotides, whose nucleotide sequences differ from one another in a position which corresponds to position X and in at least one additional position Y, with the nucleic acids to be detected under hybridization conditions,

b) extending any oligonucleotides which hybridize to the nucleic acids to be detected to form extension products, wherein said nucleic acids are used as templates,

c) denaturing complexes of said variant nucleic acids and said extension products,

d) combining said extension products with a set of detection-oligonucleotides under hybridization conditions,

i) wherein a portion of each detection-oligonucleotide is complementary to a portion of an oligonucleotide from said set of oligonucleotides according to step a) and said complementary portion comprises the positions X and Y of said oligonucleotide of step a), and

ii) wherein a portion of each detection oligonucleotide is complementary to a part of a sequence which was added to said oligonucleotide from the set of oligonucleotides in extending step b), and

e) detecting said detection-oligonucleotides which hybridize to said extension products.

5,728,531

METHOD OF DETECTING NUCLEIC ACID

Yukio Yamada, Tsushima; Osamu Asami, Konan; Hiroko Uchiyama, Nagoya; Hidehiko Sugiyama, Aichi-gun; Satoshi Fujita, Nisshin; Takekazu Yamamoto, Tokyo; Naoto Kagiyama, Sapporo; Masayoshi Momiyama, Sapporo, and Yasumitsu Kondoh, Sapporo, all of Japan, assignors to Kabushiki Kaisha Toyota Chuo Kenkyusho, Aichi, and Aisin Seiki Kabushiki Kaisha, Kariya, both of Japan

Filed Mar. 29, 1996, Ser. No. 624,116

Int. Cl.[6] **C12Q** *1/68;* **C12N** *15/00;* **C07H** *21/04*

U.S. Cl. 435—6 **20 Claims**

1. A method of detecting a nucleic acid, comprising:

hybridizing a DNA probe to a nucleic acid to produce a probe-nucleic acid hybrid, wherein

the DNA probe is at least partially complementary to the nucleic acid, and is labeled with a gibberellin, and

the nucleic acid is immobilized on a solid support;

binding a labeled anti-gibberellin antibody to the gibberellin in the probe-nucleic acid hybrid; and

detecting the labeled antibody and thereby the nucleic acid.

5,728,532

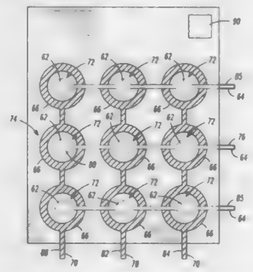
ELECTRODE CONFIGURATION FOR MATRIX ADDRESSING OF A MOLECULAR DETECTION DEVICE

Donald E. Ackley, 317 Goat Hill Rd., Lambertville, N.J. 08530

Filed May 31, 1996, Ser. No. 655,797

Int. Cl.[6] **C12Q** *1/68;* **C12P** *19/34;* **G01N** *33/53;15/06*

U.S. Cl. 435—6 **35 Claims**



1. An apparatus for selectively attracting and inhibiting attraction of at least one molecule to a site in a molecular detection device, the apparatus comprising:

a first electrode which selectively generates a first electric field in response to a first signal applied thereto, the first electric field providing an attractive force to attract the at least one molecule toward the site; and

a second electrode which selectively generates a second electric field in response to a second signal applied thereto, the second electric field selectively inhibiting attraction of the at least one molecule toward the site by providing a repulsive force which dominates the attractive force provided by the first electric field, wherein the repulsive force repels the at least one molecule away from the site, and wherein the second electrode defines an opening that surrounds at least a portion of an outer periphery of the first electrode.

5,728,533

HUMAN β_2 INTEGRIN αSUBUNIT

W. Michael Gallatin, Mercer Island, and Monica Van der Vieren, Seattle, both of Wash., assignors to ICOS Corporation, Bothell, Wash.

Continuation-in-part of Ser. No. 362,652, Dec. 21, 1994, which is a continuation-in-part of Ser. No. 286,889, Aug. 5, 1994, Pat. No. 5,470,953, which is a continuation-in-part of Ser. No. 173,497, Dec. 23, 1993, Pat. No. 5,437,958. This application Jun. 7, 1995, Ser. No. 485,618

Int. Cl.[6] **C12Q** *1/00;* **G01N** *33/53;* **C07K** *14/00;* **A61K** *35/14*

U.S. Cl. 435—7.1 **3 Claims**

1. A method for identifying a compound capable of reacting specifically with α_d and of modulating the interaction of α_d and a binding partner of α_d comprising the steps of:

a) immobilizing α_d or a fragment thereof, or a binding partner of α_d, on a solid support, said fragment selected from the group consisting of a fragment comprising the cytoplasmic domain of α_d, a fragment comprising the transmembrane domain of α_d, and a fragment comprising the extracellular domain of α_d;

b) labelling the non-immobilized binding partner with a detectable agent;

c) contacting said immobilized binding partner with said labelled binding partner in the presence and absence of a putative modulator compound capable of specifically reacting with α_d;

d) detecting binding between said immobilized binding partner and said labelled binding partner; and

e) identifying modulating compounds as those compounds that affect binding between said immobilized binding partner and said labelled binding partner.

5,728,534

METHODS FOR IDENTIFYING CARDIOVASCULAR THERAPEUTIC AGENTS

Michael E. Mendelsohn, Wellesley, and Richard H. Karas, Franklin, both of Mass., assignors to New England Medical Center Hospitals, Inc., Boston, Mass.

Filed Jul. 19, 1996, Ser. No. 684,704

Int. Cl.[6] **G01N** *33/53;33/566;* **C12N** *15/09*

U.S. Cl. 435—7.1 **10 Claims**

1. A method for evaluating whether an agent is a cardiovascular therapeutic agent, comprising:

(a) culturing vascular endothelial cells containing a non-endogenous reporter construct in the presence and absence of a predetermined amount of said agent, said non-endogenous reporter construct comprising an estrogen responsive element operatively linked to a reporter gene;

(b) culturing non-vascular cells containing said non-endogenous reporter construct in the presence and absence of said predetermined amount of said agent; and

(c) measuring the expression of said reporter gene in said vascular endothelial cells in the presence and absence of said predetermined amount of said agent and measuring the expression of said reporter gene in said non-vascular cells in the presence and absence of said predetermined amount of said agent;

whereby, said agent is identified as a cardiovascular therapeutic agent when the ratio of the expression of said reporter gene in said vascular endothelial cells in the presence of said predetermined amount of said agent to the expression of said reporter in vascular endothelial cells in the absence of said predetermined amount of said agent is greater than the ratio of the expression of said reporter gene in said non-vascular cells in the presence of said predetermined amount of said agent to the expression of said reporter gene in non-vascular cells in the absence of said predetermined amount of said agent.

5,728,535

METHOD FOR DETERMINING AGENTS THAT MODULATE AB INWARD RECTIFIER, G-PROTEIN ACTIVATED, MAMMALIAN, POTASSIUM KGA CHANNEL POLYPEPTIDE

Henry A. Lester; Nathan Dascal, both of South Pasadena; Nancy F. Lim, Pasadena; Wolfgang Schreibmayer, South Pasadena, and Norman Davidson, Sierra Madre, all of Calif., assignors to California Institute of Technology, Pasadena, Calif.

Continuation of Ser. No. 66,371, Mar. 21, 1993. This application Jun. 7, 1995, Ser. No. 486,342

Int. Cl.[6] **G01N** *33/50;* **C07K** *14/705*

U.S. Cl. 435—7.2 **20 Claims**

1. A method for determining whether an agent activates an inward rectifier, G-protein activated potassium (KGA) channel which comprises:

(a) providing a host vector system comprising an isolated nucleic acid encoding a KGA channel protein in a suitable host, wherein the nucleic acid is capable of hybridizing under low stringency conditions to a nucleic acid having the sequence set forth in Seq. ID No: 1;

(b) contacting the host vector system with the agent under conditions permitting KGA channel conductance to be affected by known ion channel agonists or intracellular second messenger agonists; and

(c) detecting any change in KGA channel conductance, an increase in KGA channel conductance indicating that the agent activates the KGA channel.

5,728,536

JAK KINASES AND REGULATION OF CYTOKINE SIGNAL TRANSDUCTION

James N. Ihle; Bruce A. Witthuhn, both of Memphis; Frederick W. Quelle, Cordova, all of Tenn., and Ollie Silvennoinen, New York, N.Y., assignors to St. Jude Children's Research Hospital, Memphis, Tenn.

Filed Jul. 29, 1994, Ser. No. 97,997

Int. Cl.[6] **G01N** *33/567;33/573;33/53;33/543*

U.S. Cl. 435—7.21 **4 Claims**

1. An assay for identifying a composition capable of regulating the biological response of a eukaryotic cell to a cytokine whose activity on said cell is mediated by tyrosine phosphorylation by at least one Jak kinase, wherein said Jak kinase is selected from the group consisting of Jak1, Jak2 and Tyk2, said assay comprising

(a) contacting said cytokine, other than erythropoietin (EPO) or interleukin-3 (IL-3), with a eukaryotic cell having said Jak kinase under conditions allowing said cell to undergo cytokine-induced activation;

(b) contacting said composition with said eukaryotic cell before or during cytokine induction;

(c) detecting changes, due to said composition, resulting from tyrosine phosphorylation by said Jak kinase that regulates said biological response in said cell, wherein said response is induced by binding of said cytokine to a cytokine receptor on said cell; and

(d) identifying whether said composition is an inhibitor which blocks or significantly reduces, or an enhancer which increases, the in vitro kinase activity detected in the Jak kinase when extracts are prepared from the cells following cytokine-induced activation.

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5,728,537

METHODS OF PRODUCING ANTIBODIES AGAINST CYTOKERATON FRAGMENTS AND TEST KITS CONTAINING SUCH FRAGMENTS

Åke Silén, Vällingby, and Bo Wiklund, Upplands Väsby, both of Sweden, assignors to AB IDL Immunodeveloplab, Sollentuna, Sweden

PCT No. PCT/SE91/00638, § 371 Date Mar. 23, 1993, § 102(e) Date Mar. 23, 1993, PCT Pub. No. WO92/05197, PCT Pub. Date Apr. 2, 1992
PCT Filed Sep. 24, 1991, Ser. No. 30,100
Claims priority, application Sweden, Sep. 24, 1990, 9003025
Int. Cl.[6] G01N *33/574;* C12P *21/08*
U.S. Cl. 435—7.23 11 Claims

1. An immunochemical testkit to detect cancer of epithelial origin in body fluids, comprising:

a mixture of cytokeratin fragments; and

monoclonal antibodies which bind to said cytokeratin fragments;

wherein said mixture of cytokeratin fragments is produced by the method of:

purifying cytokeratins from epithelial carcinoma cells by preparative SDS-PAGE;

eluting bands corresponding to cytokeratins **8**, **18**, and **19**;

digesting said cytokeratins **8**, **18**, and **19** to produce a mixture of fragments ranging in size from 10 to 50 kD, with the proviso that said mixture includes fragments other than fragments ranging in size from about 38 to 40 kD; and

wherein said monoclonal antibodies which bind to said cytokeratin fragments are produced by the method of:

immunizing a mouse with a solution comprising said mixture of cytokeratin fragments;

recovering lymphocytes from the spleen of said mouse;

fusing said lymphocytes with myeloma cells to produce hybridomas;

cloning and growing said hybridomas;

stabilizing and establishing single clones of said hybridomas; and

recovering a monoclonal antibodies which bind to said cytokeratin fragments from said single clones of said hybridomas.

5,728,538

Patent Not Issued For This Number

5,728,539

ENZYMATIC METHODS FOR MEASUREMENT OF MINUTE AMOUNTS OF COPPER

Masatsugu Nonobe, Hyogo-ken; Hozumi Hamasaki, and Tsuyoshi Fujita, both of Osaka-fu, all of Japan, assignors to Oriental Yeast Co., Ltd., Tokyo, Japan

Continuation of Ser. No. 177,987, Jan. 6, 1994, abandoned. This application Nov. 28, 1995, Ser. No. 563,257
Claims priority, application Japan, Jan. 13, 1993, 5-019397
Int. Cl.[6] C12Q *1/54;* G01N *33/20*
U.S. Cl. 435—14 8 Claims

1. An assay method for the measurement of copper, comprising the steps of:

preparing apogalactose oxidase at a high concentration;

reacting a sample containing copper in the concentration range between 0–50 μM with said apogalactose oxidase in a buffer, which does not interfere with the binding of copper to said apogalactose oxidase, to reactivate said apogalactose oxidase into hologalactose oxidase; and

determining the amount of copper in said sample by either absorbance or fluorescence measurement.

5,728,540

CYTOTOXIC FACTOR AS IS ASSOCIATED WITH MULTIPLE SCLEROSIS, ITS DETECTION AND ITS QUANTIFICATION

Hervé Perron, Grenoble; Tomas Dobransky, Marly-Le-Roy; François Rieger, Paris, and Bernard Mandrand, Villeurbanne, all of France, assignors to Bio Merieux, Marcy L'etoile, France

Division of Ser. No. 389,164, Feb. 15, 1995. This application Jun. 6, 1995, Ser. No. 468,670
Claims priority, application France, Feb. 15, 1994, 94 01946
Int. Cl.[6] C12Q *1/37;1/04;* G01N *33/567;* C12N *5/00*
U.S. Cl. 435—23 20 Claims



1. A method for analyzing an activity of a pathology associated with a gliotoxic factor having toxic activity with respect to macroglial cells, said method comprising:

obtaining a biological sample;

incubating said sample with said macroglial cells; and

assaying said gliotoxic factor in said biological sample by detecting apoptosis in said macroglial cells.

5,728,541

METHOD FOR PREPARING CELL CULTURES FROM BIOLOGIAL SPECIMENS FOR CHEMOTHERAPEUTIC AND OTHER ASSAYS

Paul L. Kornblith, Pittsburgh, Pa., assignor to Precision Therapeutics, Inc., Pittsburgh, Pa.

Filed Jul. 12, 1996, Ser. No. 679,056
Int. Cl.[6] C12Q *1/02;1/18*
U.S. Cl. 435—29 7 Claims

1. A method for preparing a biopsy sample of tissue containing malignant cells for chemosensitivity testing, comprising:

(a) obtaining a tumor specimen;

(b) mechanically separating said specimen into cohesive multicellular particulates having a size of about 1 mm^3;

(c) growing a tissue culture monolayer from said cohesive multicellular particulates;

(d) inoculating cells from said monolayer into a plurality of segregated sites;

(e) treating said plurality of sites with at least one agent;

(f) examining said plurality of sites; and

(g) assessing chemosensitivity of the cells in said plurality sites.

5,728,542

DISPOSABLE TEST KIT APPARATUS AND METHOD FOR BACTERIA

Stanley E. Charm, Boston; Max Gandman, Malden, and Eliezer Zomer, Newton, all of Mass., assignors to Charm Sciences, Inc., Malden, Mass.

Continuation-in-part of Ser. No. 446,039, May 19, 1995, Pat. No. 5,605,812. This application Mar. 8, 1996, Ser. No. 614,813
Int. Cl.[6] C12Q *1/06;1/10;* A61L *2/16*
U.S. Cl. 435—38 39 Claims

36. A disposable test kit for the detection of pathogens in a water test sample, which test kit comprises:

a) a transparent, flexible, generally rectangular, plastic bag having a one and other end;

b) a plurality of spaced-apart, generally parallel, heat-sealed, hand-rupturable dividing lines from the one to the other end, to form sequentially:

i) a first water test sample compartment of selected volume to receive a water test sample therein;

ii) a second media compartment, which includes powdered medium composition with a growth medium for the growth of the pathogens to be detected, a gelling agent which gels in the presence of the water test sample, and at least one agent which changes color in the presence of the pathogens to be detected; and

iii) a third sanitizing compartment, which includes therein a sanitizing composition, selected to sanitize the pathogens grown on incubation of the medium composition and test sample, and to permit safe disposal of the bag after test completion;

c) means to seal the one end of the bag after introduction of the water test sample into the first compartment; and

d) means on the surface of the bag to provide for the estimated determination of the amount of the pathogens to be detected;

whereby the water test sample is mixed with the media composition to provide a gelled growth composition, the gelled composition pressed generally flat in the bag, the bag with the flat gelled growth composition incubated, the presence of pathogens detected, and the bag sanitized by the introduction of the sanitizer composition into the bag.

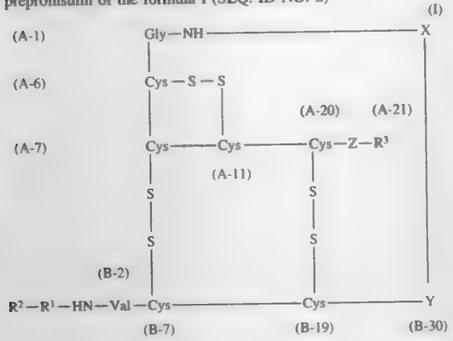
5,728,543

CLOSTRIPAIN CATALYZED HYDROLYSIS OF PREPROINSULIN ANALOGS INTO CORRESPONDING INSULINS

Michael Dörschug, Bochum; Klaus-Peter Koller, Bad Soden am Taunus; Rüdiger Marquardt, Frankfurt am Main, and Johannes Meiwes, Hofheim am Taunus, all of Germany, assignors to Hoechst Aktiengesellschaft, Frankfurt am Main, Germany

Continuation of Ser. No. 155,912, Nov. 23, 1993, abandoned, which is a continuation of Ser. No. 754,001, Sep. 3, 1991, abandoned. This application Aug. 8, 1994, Ser. No. 291,060
Claims priority, application Germany, Sep. 5, 1990, 40 28 118.3
Int. Cl.[6] C12P *21/06;* C12N *9/52;* A61K *38/28*
U.S. Cl. 435—68.1 14 Claims

1. A process for the hydrolysis of the amino-acid chain of preproinsulin of the formula I (SEQ. ID NO: 2)



in which

R^1 is n amino acids, where n is the integer 0 or 1,

R^2 is hydrogen, an amino acid which can be cleaved off chemically or enzymatically, or a peptide with 2 to 30 amino-acid residues,

R^3 is a hydroxyl group, an amino acid or a peptide with 2 to 10 amino acids,

X is L-arginine or a peptide with 2 to 45 amino acids and with a C-terminal and N-terminal L-arginine residue,

Y is a genetically encodable amino acid,

Z is a genetically encodable amino acid,

A1 to A20 or B2 to B29 is an amino-acid sequence, which is natural or has been modified by replacement of one or more amino-acid residues, of human or animal insulins, which comprises the preproinsulin being hydrolyzed by clostripain and, where appropriate, being converted with carboxypeptidase B into the corresponding insulin, and recovering said corresponding insulin.

5,728,544

PROTEASE II

Yoshikazu Tanaka; Toshio Miyake; Satoshi Hanzawa; Seigou Oe; Shunichi Kidokoro, all of Kanagawa; Yoichiro Miki, Niigata; Kimiko Endo, and Akiyoshi Wada, both of Tokyo, all of Japan, assignors to Sagami Chemical Research Center, Kanagawa, Japan, and Holland Sweetner Company V.o.F., Maastricht, Netherlands

PCT No. PCT/JP94/02050, § 371 Date Jun. 7, 1996, § 102(e) Date Jun. 7, 1996, PCT Pub. No. WO95/16029, PCT Pub. Date Jun. 15, 1995
PCT Filed Dec. 6, 1994, Ser. No. 656,349
Claims priority, application Japan, Dec. 7, 1993, 5-306508
Int. Cl.[6] C12P *21/06;7/62;* C12N *9/48;9/50, 9/52;9/54;* A61K *38/46*
U.S. Cl. 435—68.1 6 Claims

1. A modified protease of thermolysin-like neutral metalloprotease having the amino acid sequence of SEQ ID NO:1, wherein the 150th aspartic acid residue is replaced with tryptophan.

5,728,545

CLONING AND RECOMBINANT PRODUCTION OF CRF RECEPTOR (S)

Marilyn H. Perrin, La Jolla; Ruoping Chen; Kathy A. Lewis, both of San Diego; Wylie W. Vale, Jr., La Jolla, and Cynthia J. Donaldson, San Diego, all of Calif., assignors to The Salk Institute of Biological Studies, La Jolla, Calif.

Continuation-in-part of Ser. No. 79,320, Jun. 18, 1993, abandoned. This application Aug. 23, 1993, Ser. No. 110,286
Int. Cl.[6] C07H *21/04;* C12N *15/11;15/12*
U.S. Cl. 435—69.1 8 Claims

1. An isolated nucleic acid encoding a mammalian G protein-coupled corticotropin-releasing factor (CRF) receptor protein, wherein said nucleic acid is:

(a) DNA encoding the amino acid sequence set forth in SEQ ID NO:2, or

(b) DNA encoding the amino acid sequence obtained by inserting SEQ ID NO:4 between residues 145–146 of SEQ ID NO:2, or

(c) DNA encoding the amino acid sequence set forth in SEQ ID NO:6, or

(d) naturally occurring DNA that hybridizes to the DNA of (a), (b) or (c) under moderately stringent conditions, wherein said naturally occurring DNA has at least 70% identity to the DNA of (a), (b) or (c) above, wherein said naturally occurring DNA encodes CRF-R that binds CRF, or DNA degenerate to said naturally occurring DNA.

5,728,546

FIBROBLAST GROWTH FACTOR 13

John M. Greene; Joachim R. Gruber, both of Gaithersburg, and Craig A. Rosen, Laytonsville, all of Md., assignors to Human Genome Sciences, Inc., Rockville, Md.

Filed Jun. 5, 1995, Ser. No. 462,965
Int. Cl.[6] C12N *15/19;15/12*
U.S. Cl. 435—69.1 20 Claims

1. An isolated polynucleotide comprising a polynucleotide having at least a 95% identity to a member selected from the group consisting of:

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(a) a polynucleotide encoding a polypeptide comprising amino acid 1 to 191 of SEQ ID NO:2; and
(b) the complement of (a).

5,728,547

VECTORS FOR USE IN FILAMENTOUS FUNGI

David Ivor Gwynne, Brampton; Francis Paul Buxton, Toronto; Mark Hudson Pickett, Brampton; Roger Wayne Davies, Limebouse, all of Canada, and Claudio Scazzocchio, Bures sur Yvette, France, assignors to Royal Gist-Brocades N.V., Delft, Netherlands

Continuation of Ser. No. 237,405, May 2, 1994, Pat. No. 5,503,991, which is a continuation of Ser. No. 977,832, Nov. 17, 1992, abandoned, which is a continuation of Ser. No. 811,404, Dec. 20, 1985, Pat. No. 5,198,345. This application Jun. 7, 1995, Ser. No. 475,079

Claims priority, application Canada, Apr. 15, 1985, 479135

Int. Cl.[6] C12N *15/80;15/63;* **C07H** *21/04;* **C12P** *21/00*

U.S. Cl. 435—69.1 **35 Claims**

1. A DNA construct for use in transforming an Aspergillus host to obtain expression therein of a polypeptide, said DNA construct comprising inducible promoter DNA for promoting transcription in Aspergillus and operably linked to DNA coding for said polypeptide to enable expression thereof in said Aspergillus host, said DNA coding for said polypeptide being foreign to said promoter DNA.

5,728,548

RETINOID RECEPTOR-1 (RR1) AND DNA ENCODING RR1

Michael Bowman, Cambridge, Mass., assignor to Genetics Institute, Inc., Cambridge, Mass.

Filed Jun. 29, 1995, Ser. No. 496,631

Int. Cl.[6] C12P *21/00;* **C12N** *15/11:5/16*

U.S. Cl. 435—69.1 **20 Claims**

1. An isolated RR1 protein comprising an amino acid sequence selected from the group consisting of:
(a) the amino acid sequence of SEQ ID NO:2;
(b) the amino acid sequence of SEQ ID NO:2 from amino acids 1 to 126;
(c) the amino acid sequence of SEQ ID NO:2 from amino acids 127 to 192;
(d) the amino acid sequence of SEQ ID NO:2 from amino acids 193 to 256; and
(e) the amino acid sequence of SEQ ID NO:2 from amino acids 257 to 470.

5,728,549

PROCESS FOR THE MANUFACTURE OF THROMBIN INHIBITORS

Manfred Liersch; Hans Rink, both of Riehen; Walter Märki, Möhlin; Markus Gerhard Grütter, Hochwald, and Bernd Meyhack, Magden, all of Switzerland, assignors to Novartis Corporation, Tarrytown, N.Y.

Continuation of Ser. No. 121,974, Sep. 15, 1993, Pat. No. 5,422,249, which is a continuation of Ser. No. 700,997, May 10, 1991, abandoned, which is a continuation of Ser. No. 582,816, Sep. 13, 1990, abandoned, which is a continuation of Ser. No. 211,065, Jun. 20, 1988, abandoned, which is a continuation of Ser. No. 744,453, Jun. 13, 1985, abandoned. This application Mar. 3, 1995, Ser. No. 398,416

Claims priority, application Switzerland, Jun. 14, 1984, 2882/84

Int. Cl.[6] C12N *15/15;15/75;15/81*

U.S. Cl. 435—69.2 **9 Claims**

1. An expression vector comprising an expression control sequence directly linked to a DNA sequence coding for desulphatohirudin having the formula

ValValTyrThrAspCysThrGluSerG-
lyGlnAsnLeuCysLeuCysGluGlySerAsnValCys GlyGlnGl-
yAsnLysCysIleLeuGlySerAspGly-
GluLysAsnGlnCysValThrGlyGluGly
ThrProLysProGlnSerHisAsnAspGlyAspPheGluGluIlePro
GluGluTyrLeuGln

such that said desulphatohirudin is expressed in a microorganism host cell transformed with said expression vector wherein said DNA sequence begins with a methionine codon.

4. A microorganism host cell which has been transformed with an expression vector according to claim 1.

8. A process for the manufacture of biologically pure desulphatohirudin having the formula

ValValTyrThrAspCysThrGluSerGlyGlnAsnLeuCysLeuCysGluGlySerAsn
ValCysGlyGlnGlyAsnLysCysIleLeuGlySerAspGlyGluLysAsnGlnCysVal
ThrGlyGluGlyThrProLysProGlnSerHisAsnAspGlyAspPheGluGluIlePro
GluGluTyrLeuGln

consisting essentially of the steps of:
(a) cultivating transformed microorganism host cells according to claim 4 in a liquid nutrient medium that contains assimilable carbon and nitrogen sources, and
(b) isolating said desulfatohirudin in biologically active form.

5,728,550

PEROXIDASE PRODUCTION

Michael William Fowler, Nr. Matlock; Gagik Stephan-Sarkissian, Sheffield, and Debbie Grey, Chesterfield, all of Great Britain, assignors to Phytera, Inc., Worcester, Mass.

Continuation of Ser. No. 761,833, Nov. 13, 1991, abandoned. This application Aug. 23, 1994, Ser. No. 294,880

Claims priority, application United Kingdom, Jan. 15, 1990, 9000827

Int. Cl.[6] C12P *21/04;* **C12N** *9/00;9/08;1/00*

U.S. Cl. 435—70.1 **10 Claims**

1. A process for the production of an extracellular peroxidase comprising the steps of:
culturing a piece of plant tissue containing extracellular peroxidase-producing cells from a plant of the genus Acer on a solid culture medium until a callus forms;
dispersing plant cells in the callus into a liquid culture medium to form a suspension culture, wherein the suspension culture medium contains confectionery waste products which provide 1–15% by weight of sugars selected from the group consisting of fructose, glucose and sucrose;
continuing the culture of said plant cells in suspension in the liquid culture medium with the concomitant accumulation of the extracellular peroxidase in the liquid culture medium; and
separating the accumulated extracellular peroxidase from the liquid culture medium.

5,728,551

IN VITRO TRANSPOSITION OF ARTIFICIAL TRANSPOSONS FOR DNA SEQUENCING

Scott E. Devine, Ellicott City; Jef D. Boeke, and Lelita T. Braiterman, both of Baltimore, all of Md., assignors to The Johns Hopkins University, Baltimore, Md.

Continuation-in-part of Ser. No. 204,675, Mar. 2, 1994. This application Mar. 2, 1995, Ser. No. 397,679

Int. Cl.[6] C12N *9/00;15/66*

U.S. Cl. 435—91.41 **30 Claims**

12. A method for sequencing DNA, comprising the steps of:
incubating in vitro (1) a population of a target DNA, said target DNA comprising a region of DNA to be sequenced, (2) a retrovirus or retrotransposon integrase, and (3) an artificial transposon having two termini which are substrates for said integrase, to form a population of target DNAs with quasi-randomly integrated insertions of the artificial transposon;

transforming host cells with the population of target DNAs with quasi-randomly integrated insertions of the artificial transposon;
selecting those host cells which have been transformed with a target DNA with an insertion of the artificial transposon;
isolating target DNA with an insertion of the artificial transposon from those host cells which have been transformed with a target DNA with an insertion of the artificial transposon, said target DNA with an insertion of the artificial transposon being suitable for use as a DNA sequencing template;
hybridizing to said isolated target DNA with an insertion of the artificial transposon a primer which is complementary to a portion of the artificial transposon;
extending said primer to determine a nucleotide sequence of DNA flanking said artificial transposon in said isolated target DNA with an insertion of the artificial transposon.

5,728,552

DNA ENCODING A FUSION PROTEIN COMPRISING A VIRAL ANTIGEN AND LYMPHOKINE

Yukio Fujisawa, Kobe; Shuji Hinuma, Suita, and Aki Mayumi, Osaka-sayama, all of Japan, assignors to Takeda Chemical Industries, Ltd., Osaka, Japan

Division of Ser. No. 386,354, Feb. 8, 1995, Pat. No. 5,556,946, which is a continuation of Ser. No. 86,429, Jun. 30, 1993, abandoned, which is a continuation of Ser. No. 548,509, Jul. 2, 1990, abandoned. This application Feb. 13, 1996, Ser. No. 600,545

Claims priority, application Japan, Jul. 7, 1989, 1-176036; Mar. 6, 1990, 2-52816; Apr. 11, 1990, 2-93938; May 30, 1990, 2-138180

Int. Cl.[6] C12N *15/26;15/33;15/62;1/21*

U.S. Cl. 435—69.5 **22 Claims**

1. A recombinant DNA containing a nucleotide sequence coding for a fused protein comprising a viral antigen and interleukin-2.

5,728,553

HIGH PURITY ALBUMIN AND METHOD OF PRODUCING

Andrew R. Goodey, Mapperley Park; Darrell Sleep, West Bridgford; Hendrik van Urk, Radcliffe-on-Trent; Stephen Berezenko, Hucknall; John R. Woodrow; Richard A. Johnson, both of West Bridgford; Patricia C. Wood, Burton-on-Trent; Steven J. Burton, Orton Brimbles; Alan V. Quirk, Loughborough; David St. J. Coghlan, Beeston, and Mark J. Wilson, Cottenham, all of United Kingdom, assignors to Delta Biotechnology Limited, Nottingham, United Kingdom

Continuation-in-part of Ser. No. 265,972, Jun. 27, 1994, abandoned, which is a continuation of Ser. No. 949,601, Sep. 23, 1992, abandoned. This application May 25, 1995, Ser. No. 378,859

Int. Cl.[6] C12N *15/14;* **C07K** *14/765;* **B01J** *41/06;39/06*

U.S. Cl. 435—69.6 **12 Claims**

1. A process for preparing an albumin product at least 99.9% pure an albumin-containing solution, comprising the steps of:
(a) passing the albumin-containing solution through a cation exchange matrix under conditions such that the albumin will bind to the matrix;
(b) eluting from the matrix an albumin-containing cation exchange eluate;
(c) passing the cation exchange eluate through an anion exchange matrix under conditions such that the albumin will bind to the matrix;
(d) eluting from the anion exchange matrix an albumin-containing anion exchange eluate;
(e) passing the anion exchange eluate through an affinity matrix comprising an albumin-binding compound;
(f) eluting from the affinity matrix an albumin-containing affinity matrix eluate;
(g) passing the affinity matrix eluate through a gel permeation matrix to obtain a fraction enriched in albumin.

5,728,554

IMPROVED ENZYMATIC SYNTHESIS OF GLYCOSIDIC LINKAGES

Robert J. Bayer, San Diego; Shawn DeFrees, San Marcos, and Murray Ratcliffe, Carlsbad, all of Calif., assignors to Cytel Corporation, San Diego, Calif.

Filed Apr. 11, 1995, Ser. No. 419,669

Int. Cl.[6] C12P *19/18;19/12;19/04;19/00*

U.S. Cl. 435—97 **28 Claims**

1. A method for the formation of glycosidic linkages, comprising:
(a) providing a reaction medium comprising at least one glycosyl transferase, a donor substrate, an acceptor sugar and a divalent metal cation at a concentration of between about 2 mM and about 75 mM; and, after initiation of a glycosidic linkage-forming reaction, as a separate step
(b) adding sufficient divalent metal cation to said reaction medium to restore a portion of said divalent cation lost during the course of the reaction to thereby achieve or maintain a concentration of said divalent metal cation in said reaction medium between about 2 mM and about 75 mM, and wherein step (b) occurs without interruption of said glycosidic linkage-forming reaction.

5,728,555

PREPARATION OF D-AMINO ACIDS BY DIRECT FERMENTATIVE MEANS

Ian G. Fotheringham, Vernon Hills; Paul P. Taylor, Arlington Heights, and Jennifer L. Ton, Palatine, all of Ill., assignors to Monsanto Company, St. Louis, Mo.

Filed Sep. 30, 1996, Ser. No. 723,896

Int. Cl.[6] C12P *13/04;13/20;13/22;* **C12N** *1/20*

U.S. Cl. 435—106 **50 Claims**

1. A method for producing a D-amino acid in a cell, comprising:
(a) incorporating into the cell a D-aminotransferase gene and a L-aminodeaminase gene;
(b) culturing the cell in a cell culture medium;
(c) and isolating the D-amino acid from the cell culture medium.

5,728,556

PRODUCTION OF ω-CYANOCARBOXAMIDES FROM ALIPHATIC α,ω-DINITRILES USING PSEUDOMONAS PUTIDA-DERIVED BIOCATALYSTS

Robert DiCosimo, Wilmington, Del.; Barry Stieglitz, Wynnewood, Pa., and Robert D. Fallon, Elkton, Md., assignors to E. I. du Pont de Nemours and Company, Wilmington, Del.

Filed Mar. 14, 1996, Ser. No. 615,365

Int. Cl.[6] C12P *13/02*

U.S. Cl. 435—129 **9 Claims**

1. A method to produce aliphatic ω-cyanocarboxamides of Formula I

$$NC—CH(R_1)(CH)_nCH(R_2)C(O)NH_2$$

wherein
n= 1–8 and R_1 or R_2 are either H or CH_3, the method comprising
(a) contacting, in a medium, an aliphatic α,ω-dinitrile of Formula II

$$NC—CH(R_1)(CH)_nCH(R_2)CN$$

wherein
n= 1–8 and R_1 or R_2 are either H or CH_3,
with an effective amount of a *Pseudomonas putida*-derived biocatalyst having regioselective nitrile hydratase activity to produce the compound of Formula I; and
(b) recovering the compound of Formula I from the medium.

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METHOD OF MAKING HERPES SIMPLEX TYPE 1 MUTANTS AND MUTANTS SO PRODUCED

R. Bruce Register, Lansdale, and Jules A. Shafer, Gwynedd Valley, both of Pa., assignors to Merck & Co., Inc., Rahway, N.J.

Filed Jun. 1, 1995, Ser. No. 458,067
Int. Cl.[6] C12N *15/00*
U.S. Cl. 435—172.3 28 Claims

1. A method of making a mutated HSV-1 virus, wherein said virus comprises a mutation selected from the group consisting of point mutations in a gene, an insertion of DNA, a deletion of DNA, and combinations thereof comprising transforming a host cell with a set of vectors comprising:

a first vector which is a plasmid that is not a cosmid comprising a section of the HSV-1 genome comprising the mutation and overlapping DNA homologous with overlapping DNA of at least one additional vector; and

additional vectors, each additional vector comprising a fragment of the substantially complete HSV-1 genome and also comprising overlapping DNA which is homologous with a sequential genomic fragment contained in at least one additional vector, so that upon linearization, transfection of a host cell, replication of viral DNA and recombination of viral DNA, a mutated virus which is replicable in a wild type or host range cell line is formed.

5,728,558

MOLECULAR METHODS OF HYBRID SEED PRODUCTION

Steven F. Fabijanski, and Paul G. Arnison, both of Ontario, Canada, assignors to Pioneer Hi-Bred International, Inc., Des Moines, Iowa

Division of Ser. No. 276,510, Jul. 14, 1994, which is a continuation of Ser. No. 556,917, Jul. 20, 1990, abandoned, which is a continuation-in-part of Ser. No. 306,438, Feb. 3, 1989, abandoned, which is a continuation-in-part of Ser. No. 151,906, Feb. 3, 1988, abandoned. This application Jun. 7, 1995, Ser. No. 479,384
Int. Cl.[6] C12N *15/29;15/82;* A01H *1/02;1/04*
U.S. Cl. 435—172.3 10 Claims

1. A method of producing a male sterile plant comprising the steps of:

(a) identifying and isolating a sense gene, critical to pollen formation or function and its transcribed, but untranslated, sequence;

(b) transforming a plant cell of said plant by inserting into the nuclear genome of the plant cell a gene which confers on said plant resistance to an antibiotic or herbicide and linked to this a recombinant DNA molecule, said DNA molecule comprising:

(i) a DNA sequence that is complementary to said transcribed, but untranslated, sequence; and

(ii) a promoter which functions in said plant to cause transcription of said DNA sequence into RNA at or about the time of the transcription of the sense gene in developing pollen;

(c) regenerating from said plant cell a plant which is genetically transformed with said DNA sequences and is male sterile.

5,728,559

SEPARATION OF PROTEINS

Birgitte Mahler Nilsson, Farum; Mads Aage Laustsen, Lyngby, and Anders Rancke-Madsen, Charlottenlund, all of Denmark, assignors to Novo Nordisk A/S, Bagsvaerd, Denmark

PCT No. PCT/DK94/00256, § 371 Date Dec. 1, 1995, § 102(e) Date Dec. 1, 1995, PCT Pub. No. WO95/01989, PCT Pub. Date Jan. 19, 1995
PCT Filed Jun. 23, 1994, Ser. No. 557,056
Claims priority, application Denmark, Jul. 9, 1993, 0830/93
Int. Cl.[6] C12N *9/00;9/20*
U.S. Cl. 435—183 19 Claims

1. A method for obtaining a crystallized microbial protein from an aqueous mixture of proteins, said method comprising of the steps of:

(a) obtaining a microbial culture broth having a mixture of proteins, comprising a desired protein selected from the group consisting of an oxidoreductase, a protease, a lipase, a cellulase and an amylase;

(b) adjusting the salt concentration of said protein mixture at or below 1.5 Molar;

(c) adding a water soluble polymer to the protein mixture of step (b);

(d) stirring the polymer-containing protein mixture of step (c) for up to 48 hrs; and

(e) recovering the desired protein in crystalline form from the stirred mixture of step (d).

5,728,560

METHOD OF TREATING CD4+ T CELL LYMPHOPENIA IN IMMUNO-COMPROMISED PATIENTS

Robert G. L. Shorr, Edison, N.J.; Mike A. Clark, Big Pine Key, Fla., and David H. Goddard, Great Neck, N.Y., assignors to Enzon, Inc., Piscataway, N.J.

Filed Jun. 14, 1996, Ser. No. 663,685
Int. Cl.[6] A61K *38/43;* C12N *9/00;9/78*
U.S. Cl. 435—183 18 Claims

1. A method of treating CD4+ T cell lymphopenia in a human patient infected with a human immunodeficiency virus, comprising administering an effective amount of a suitable adenosine degrading agent.

5,728,561

GENES ENCODING BRANCHED-CHAIN ALPHA-KETOACID DEHYDROGENASE COMPLEX FROM *STREPTOMYCES AVERMITILIS*

Claudio D. Denoya, Groton, Conn., assignor to Pfizer Inc., New York, N.Y.

Division of Ser. No. 432,330, May 1, 1995, which is a continuation of Ser. No. 100,518, Jul. 30, 1993, abandoned. This application Jun. 7, 1995, Ser. No. 482,385
Int. Cl.[6] C12N *9/04*
U.S. Cl. 435—190 2 Claims

1. A polypeptide consisting of the amino acid sequence of SEQUENCE ID NO. 6, SEQUENCE ID NO. 7, SEQUENCE ID NO. 8 or SEQUENCE ID NO. 9.

5,728,562

ISOLATED RECOMBINANT URICASE

Tatsuro Shigyo; Kohji Sugihara; Yuji Takamoto; Masachika Takashio; Minoru Kamimura, all of Yaizu; Kazumi Yamamoto, Tsuruga; Yoshio Kojima, Tsuruga; Toshiro Kikuchi, Tsuruga, and Shigenori Emi, Tsuruga, all of Japan, assignors to Toyo Boseki Kabushiki Kaisha, Osaka, Japan

Division of Ser. No. 906,029, Jun. 26, 1992, which is a continuation-in-part of Ser. No. 386,566, Jul. 27, 1989, abandoned. This application Jun. 6, 1995, Ser. No. 469,649
Claims priority, application Japan, Aug. 17, 1988, 63-203239
Int. Cl.[6] C12N *9/06*
U.S. Cl. 435—191 7 Claims

1. An isolated uricase which is stable in an aqueous solution at a temperature up to 60° C. and at a pH of 8.0 for 10 minutes, said isolated uricase having the amino acid sequence of SEQ ID NO: 2.

5,728,563

CYCLIC NUCLEOTIDE PHOSPHODIESTERASE AND A METHOD FOR PRODUCTION THEREOF

Toshio Tanaka, Mie, Japan, assignor to Taisho Pharmaceutical Co., Ltd., Japan

PCT No. PCT/JP94/00121, § 371 Date Jan. 21, 1995, § 102(e) Date Jan. 21, 1995, PCT Pub. No. WO94/17181, PCT Pub. Date Aug. 4, 1994
PCT Filed Jan. 28, 1994, Ser. No. 481,442
Claims priority, application Japan, Jan. 29, 1993, 5-013150
Int. Cl.[6] C12N *9/14;9/16;* C12P *19/30;1/00*
U.S. Cl. 435—196 3 Claims

1. An isolated and purified cyclic nucleotide phosphodiesterase having the following physicochemical properties:

(a) activity:
the enzyme acts on 3',5'-cAMP and 3', 5'-cGMP to form 5'-AMP and 5'-GMP, respectively;

(b) substrate specificity:
the Km values for cAMP and cGMP show 0.11 μM and 1.78 μM, respectively;

(c) substrate pH:
the optimum pH for cAMP hydrolysis is 10 at 30° C.;

(d) thermal stability:
the initial velocities of the enzymatic activity at 37° C. are greater than those at 30° C.; the enzymatic activity is lost by heating at 60° C. for 10 minutes;

(e) effects of inhibitors:
IC_{50} is >300 μM with nicardipine, >300 μM with cilostazol and 5-(4-acetamidophenyl)pyrazin-1H-one (SK&F94120), and >300 μM with rolipram and 4-(3-buthoxy-4-methoxybenzyl)-2-imidazolidinone (Ro20-1724); the enzyme is calcium-calmodulin-insensitive and cGMP- insensitive;

(f) effect of metal ions:
magnesium is the most efficient metal cation for the enzyme of the present invention; and

(g) molecular weight:
298000±8000 (Superose 12HR 10/30, gel filtration).

5,728,564

U-PA MUTANTS RESISTANT TO INHIBITION BY THEIR COGNATE INHIBITORS

Joseph F. Sambrook; Edwin L. Madison; Elizabeth J. Goldsmith; Maryjane H. Gething, and Robert D. Gerard, all of Dallas, Tex., assignors to The Board of Regents of the University of Texas System, Austin, Tex.

Division of Ser. No. 434,748, Nov. 13, 1989, Pat. No. 5,550,042, which is a continuation-in-part of Ser. No. 319,212, Mar. 6, 1989, abandoned. This application May 21, 1996, Ser. No. 651,055
Int. Cl.[6] C12N *9/72;15/00;* C07H *21/04*
U.S. Cl. 435—215 8 Claims

1. A urokinase mutant which is resistant to inhibition by its cognate inhibitor, wherein said mutant has:

(a) an amino acid substitution at the amino acid which occupies the equivalent position to that of Y_{39} of trypsin, wherein said amino acid corresponds to threonine at position 186 of human urokinase, or

(b) a mutation at at least one of the amino acids corresponding to RHRGGS at positions 179–184 of human urokinase.

5,728,565

METHODS OF PREPARING TISSUE PLASMINOGEN ACTIVATOR DERIVATIVES

David V. Goeddel, Hillsborough; William J. Kohr, San Mateo; Diane Pennica, Foster City, and Gordon A. Vehar, San Carlos, all of Calif., assignors to Genentech, Inc., So. San Francisco, Calif.

Continuation of Ser. No. 109,698, Aug. 20, 1993, abandoned, which is a continuation of Ser. No. 911,021, Jul. 9, 1992, abandoned, which is a continuation of Ser. No. 489,855, Mar. 2, 1990, Pat. No. 5,185,259, which is a continuation of Ser. No. 12,694, Feb. 9, 1987, abandoned, which is a division of Ser. No. 483,052, Apr. 7, 1983, Pat. No. 4,766,075, which is a continuation-in-part of Ser. No. 398,003, Jul. 14, 1982, abandoned, and a continuation-in-part of Ser. No. 374,860, May 5, 1982, abandoned. This application Mar. 17, 1994, Ser. No. 210,179
Int. Cl.[6] C12N *1/21;5/10;9/64;15/55*
U.S. Cl. 435—226 8 Claims

1. A process which comprises the preparation of a protein which comprises an amino acid deletion derivative of the 527 amino acid sequence as set forth in combined FIGS. 5A, 5B and 5C hereof, and which has tissue plasminogen activator function, in particular, it is capable of catalyzing the conversion of plasminogen to plasmin, it binds to fibrin and is classified as a t-PA based on immunological properties, wherein the protein is prepared by expression in a recombinant host cell of tranforming DNA encoding the protein.

5,728,566

TISSUE PLASMINOGEN ACTIVATOR DERIVATIVES

David V. Goeddel, Hillsborough; William J. Kohr, San Mateo; Diane Pennica, Foster City, and Gordon A. Vehar, San Carlos, all of Calif., assignors to Genentech, Inc., So. San Francisco, Calif.

Continuation of Ser. No. 210,179, Mar. 17, 1994, which is a continuation of Ser. No. 109,698, Aug. 20, 1993, abandoned, which is a continuation of Ser. No. 911,021, Jul. 9, 1992, abandoned, which is a continuation of Ser. No. 489,855, Mar. 2, 1990, Pat. No. 5,185,259, which is a continuation of Ser. No. 12,694, Feb. 9, 1987, abandoned, said Ser. No. 12,694 and Ser. No. 184,477, Apr. 21, 1988, Pat. No. 4,853,330, each is a division of Ser. No. 483,052, Apr. 7, 1983, Pat. No. 4,766,075, which is a continuation-in-part of Ser. No. 398,003, Jul. 14, 1982, abandoned, and Ser. No. 374,860, May 5, 1982, abandoned. This application Jun. 6, 1995, Ser. No. 483,571
Int. Cl.[6] C12N *9/64;15/55;* A61K *38/49*
U.S. Cl. 435—226 4 Claims

1. A recombinant protein which comprises an amino acid deletion derivative of the 527 amino acid sequence as set forth in combined FIGS. 5A, 5B and 5C hereof, and which has tissue plasminogen activator function in particular it is capable of catalyzing the conversion of plasminogen to plasmin, it binds to fibrin and is classified as a t-PA based on immunological properties.

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5,728,567

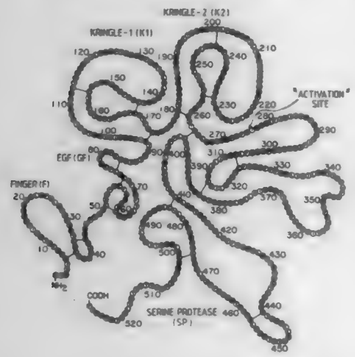
TISSUE PLASMINOGEN ACTIVATOR HAVING ZYMOGENIC OR FIBRIN SPECIFIC PROPERTIES

Stephen Anderson, Princeton, N.J.; William F. Bennett, San Mateo, Calif.; David Botstein, Belmont, Calif.; Deborah L. Higgins, San Mateo, Calif.; Nicholas F. Paoni, Moraga, Calif., and Mark J. Zoller, San Francisco, Calif., assignors to Genentech, Inc., South San Francisco, Calif.

Continuation of Ser. No. 422,736, Apr. 14, 1995, Pat. No. 5,616,486, which is a division of Ser. No. 179,059, Jan. 7, 1994, Pat. No. 5,411,871, which is a continuation of Ser. No. 88,451, Jul. 6, 1993, Pat. No. 5,520,913, which is a division of Ser. No. 770,510, Oct. 3, 1991, Pat. No. 5,262,170, which is a continuation of Ser. No. 384,608, Jul. 24, 1989, Pat. No. 5,108,901, which is a continuation-in-part of Ser. No. 240,856, Sep. 2, 1988, abandoned. This application Aug. 1, 1996, Ser. No. 662,891

Int. Cl.[6] C12N *9/64;15/58;15/70;15/86*

U.S. Cl. 435—226 10 Claims



1. An isolated DNA molecule encoding a human tissue plasminogen-activator (t-PA) variant having a substitution of a naturally-occurring amino acid at each of amino acid positions 296, 297, 298 and 299 and devoid of at least a portion of the amino acid sequence of the finger domain, the growth factor-like domain, the kringle 1 domain, or the kringle 2 domain of wild-type human t-PA.

5,728,568

HUMAN GDP-MANNOSE 4,6 DEHYDRATASE

Francis Sullivan, Belmont; Ronald Kriz, Hudson, and Ravindra Kumar, Belmont, all of Mass., assignors to Genetics Institute, Inc., Cambridge, Mass.

Filed Nov. 22, 1996, Ser. No. 753,233

Int. Cl.[6] C12N *1/21;9/88;15/60;15/63*

U.S. Cl. 435—232 7 Claims

1. An isolated polynucleotide comprising a nucleotide sequence selected from the group consisting of:

(a) the nucleotide sequence of SEQ ID NO:1;

(b) a nucleotide sequence encoding the amino acid sequence of SEQ ID NO:2;

(c) a nucleotide sequence encoding the amino acid sequence of SEQ ID NO:3;

(d) a nucleotide sequence encoding a fragment of the amino acid sequence of (b) or (c) having GDP-mannose, 4,6 dehydratase (GM 4,6D) activity;

(e) a nucleotide sequence which encodes a peptide having GM4.6D activity and which hybridizes with the sequence of (a) in either 4×SSC at 65° C. or 50% formamide and 4×SSC at 42° C., and

(f) allelic variants of the nucleotide sequence of SEQ ID NO:1.

5,728,569

CHICKEN ANAEMIA AGENT VACCINE

Carla Christina Schrier, Boxmeer, Netherlands, assignor to Akzo Nobel N.V., Arnhem, Netherlands

Continuation of Ser. No. 947,198, Sep. 18, 1992, abandoned. This application Sep. 2, 1994, Ser. No. 300,688

Claims priority, application European Pat. Off., Sep. 20, 1991, 91202452

The portion of the term of this patent subsequent to Nov. 11, 2011, has been disclaimed.

Int. Cl.[6] C12N *7/01;7/02;7/06;7/08;* A61K *39/12*

U.S. Cl. 435—235.1 20 Claims

1. An attenuated chicken anemia agent (CAA) virus that induces lesions in chicken embryos.

11. A method for the preparation of CAA virus product, comprising:

a) inoculating a susceptible substrate with the CAA virus according to claim 1,

b) propagating the CAA virus, and

c) harvesting CAA virus-containing material.

5,728,570

CAFFEOYL-COA 3-O-METHYLTRANSFERASE GENES

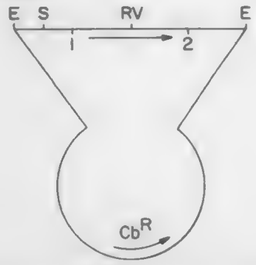
Ulrich Matern, Lahr; Rüdiger Hain, Langenfeld; Hans-Jörg Reif, Cologne; Klaus Stenzel, Duesseldorf, and Jürgen E. Thomzik, Langenfeld, all of Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Germany

Continuation of Ser. No. 874,466, Apr. 27, 1992, abandoned. This application Nov. 7, 1994, Ser. No. 335,518

Claims priority, application Germany, May 30, 1991, 41 17 747.9

Int. Cl.[6] C12N *15/54;15/70;15/82*

U.S. Cl. 435—252.3 23 Claims



1. An isolated and purified DNA sequence comprising a nucleotide sequence that encodes the caffeoyl-CoA3-O-methyltransferase encoded by the nucleotide sequence of SEQ ID NO: 1.

5,728,571

EXPRESSION AND SECRETION OF MATURE HUMAN BETA INTERLEUKIN-1 IN *BACILLUS SUBTILIS* AND MEANS AND METHODS FOR ITS ACHIEVEMENT

Ada Velati Bellini, Pavia; Giuliano Galli; Giuseppe Lucchese, both of Monterotondo, and Guido Grandi, Segrate, all of Italy, assignors to Enitricerche S.p.A., Milan, Italy

Division of Ser. No. 72,692, Jun. 7, 1993, Pat. No. 5,437,988, which is a continuation of Ser. No. 554,755, Jul. 19, 1990, abandoned. This application Mar. 17, 1995, Ser. No. 405,775

Claims priority, application Italy, Jul. 19, 1989, 21228/89

Int. Cl.[6] C12N *1/21;15/63;15/67;15/75*

U.S. Cl. 435—252.31 6 Claims

1. A *Bacillus subtilis* plasmid vector for expressing heterologous genes which code for proteins of interest comprising: (1) CAT, a gene which codes for resistance to chloramphenicol; (2) *Bacillus subtilis* neutral protease promoter (3) *Bacillus subtilis* neutral protease ribosome binding site; and immediately downstream from said ribosome binding site; (4a) an Eco RI restriction site; and 4(b) a pUC_{12} multiple cloning site.

5,728,572

GROWTH MEDIA FOR ENTOMOPHTHORALEAN HYPHAL BODIES

Richard A. Nolan, deceased, late of St. John's, Canada, and by Anna Nolan, executrix, 13 Wishingwell Road, St. John's, Newfoundland A1B 1G4, Canada

Continuation-in-part of Ser. No. 8,350, Jan. 22, 1993, abandoned. This application Oct. 26, 1994, Ser. No. 329,470

Int. Cl.[6] C12N *1/14;1/16*

U.S. Cl. 435—254.1 4 Claims

1. In a process for the mass fermentation production of hyphal bodies which form conidia of the species *Entomophaga aulicae* the improvement comprising fermenting the fungus in a medium including, in addition to a basal medium, an additive consisting essentially of both 0.8% by weight filter sterilized tryptic soy broth prepared by dissolving tryptic soy broth in distilled water, gravity filtering the solution through a paper filter and then vacuum filtering the produced filtrate through a sterile membrane filtration unit and 0.4 by weight calcium caseinate.

5,728,573

TERMITICIDE AND METHOD FOR TERMITE CONTROL USING THE SAME

Masaaki Sugiura, Hiroshima-ken; Takashi Sugiyama, Hatsukaichi, and Takeshi Saika, Ibaraki, all of Japan, assignors to Nitto Denko Corporation, Osaka, Japan

Filed Mar. 6, 1996, Ser. No. 611,575

Claims priority, application Japan, Mar. 7, 1995, 7-077406; Dec. 27, 1995, 7-353779

Int. Cl.[6] C12N *1/14;1/16;1/18;* A01N *63/00*

U.S. Cl. 435—254.1 14 Claims

1. A method for termite control comprising the step of contacting a termiticide comprising *Beauveria brongniartii* and/or culture thereof with a target termite which is susceptible to treatment by said *Beauveria brongniartii.*

5,728,574

VIABILITY OF BACTERIAL DRIED CELLS

Michael Jeremy Legg, Reading, England, assignor to Zeneca Limited, London, England

PCT No. PCT/GB94/01556, § 371 Date May 12, 1995, § 102(e) Date May 12, 1995, PCT Pub. No. WO95/03395, PCT Pub. Date Feb. 2, 1995

PCT Filed Jul. 19, 1994, Ser. No. 397,270

Claims priority, application United Kingdom, Jul. 19, 1993, 9314886

Int. Cl.[6] A01N *63/00;* C12N *1/00;1/04*

U.S. Cl. 435—260 13 Claims

1. A method for improving the viability of a dried bacterial cell mass consisting of *Pseudomonas fluorescens* bacteria, the method comprising the steps of:

a) culturing the *Pseudomonas fluorescens* bacteria in a nitrogen deficient medium having an osmotic potential whereby trehalose accumulates in the cells to protect the cells against desiccation and heat damage;

b) maintaining the bacteria in a stationary phase for at least six hours; and

c) drying the bacteria.

5,728,575

METHOD OF RESOLUTION OF 1,3-OXATHIOLANE NUCLEOSIDE ENANTIOMERS

Dennis C. Liotta, 793 Post Rd. Way, Stone Mountain, Ga. 30088, and Woo-Baeg Choi, 7 Regal Ct., North Brunswick, N.J. 08902

Continuation of Ser. No. 402,730, Mar. 13, 1995, which is a continuation of Ser. No. 92,248, Jul. 15, 1993, abandoned, which is a continuation of Ser. No. 736,089, Jul. 26, 1991, abandoned, which is a continuation-in-part of Ser. No. 659,760, Feb. 22, 1991, Pat. No. 5,210,085, which is a continuation-in-part of Ser. No. 473,318, Feb. 1, 1990, Pat. No. 5,204,466. This application Jun. 7, 1995, Ser. No. 485,318

Int. Cl.[6] C12P *41/00*

U.S. Cl. 435—280 10 Claims

1. A method for the resolution of a racemic mixture of β-2-hydroxymethal-5-(cytosin-1-yl)-1,3-oxathiolane, comprising the step of selectively hydrolzing a 5'-O-acyl derivative of the racemic mixture of the nucleoside with an enzyme selected from the group consisting of pig liver esterase, porcine pancreatic lipase, and subtilisin.

5,728,576

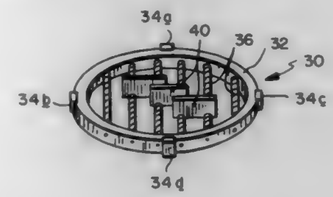
IN VITRO COVER SLIP SUSPENSION MODULE

Michael N. Dudley; Sean F. Donnelly, both of North Kingston, R.I., and Andrew Strayer, Olathe, Kans., assignors to The Board of Governors for Higher Education, State of Rhode Island, and Providence Plantations, both of Providence, R.I.

Division of Ser. No. 512,458, Aug. 8, 1995. This application Jul. 16, 1996, Ser. No. 680,860

Int. Cl.[6] C12M *3/00*

U.S. Cl. 435—283.1 9 Claims



1. An in vitro cover slip suspension module for the study of the pharmacokinetic intracellular killing of bacteria or viruses which comprises:

a perimeter support characterized by an outer surface adapted to engage the wall of the vessel in which the module is received; and

a plurality of longitudinal members secured to the perimeter support, the members having adjacent walls which define slots therebetween, the walls adapted to releasably secure a cover slip.

5,728,577

STIRRED TANK BIOREACTOR

Kiyoshi Kuriyama, c/o Kyoto Suiken Co., Ltd. 82-4, Kitazonocho, Shimogamo, Sakyo-ku, Kyoto-shi, Kyoto-fu, Japan

Filed Aug. 19, 1996, Ser. No. 699,357

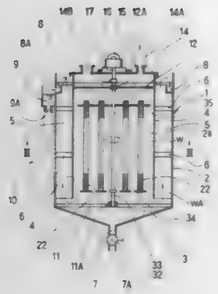
Claims priority, application Japan, Aug. 22, 1995, 7-213701

Int. Cl.[6] C12M *1/02*

U.S. Cl. 435—299.1 10 Claims

1. A bioreactor comprising a treatment tank for receiving liquid to be treated, at least one carrier member having a carrier body formed of a porous deformable material and having immobilized thereon nonagglutinative microorganisms for treating the liquid, and a drive unit for moving said at least one carrier member in said treatment tank,

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said drive unit comprising a power unit and a support member coupled thereto and comprising a stem connected to said power unit and a support disk mounted on said stem and retaining said at least one carrier member thereon and substantially perpendicular thereto, said stem and support disk being rotated when said power unit is energized, thereby moving said at least one carrier member along an orbital path about said stem,

said at least one carrier member having a tubular shape so as to pass liquid therethrough and comprising a reinforcing member to prevent deformation of said carrier body.

5,728,578

PEPTIDE OF THE STRUCTURAL PHOSPHOPROTEIN (PP 150) OF HUMAN CYTOMEGALOVIRUS, AND DNA ENCODING SAID PEPTIDE

Gerhard Jahn, Neunkirchen; Birgit-Christine Scholl, Uttenreuth; Michael Bröker, Marburg; Michael Mach, Erlangen; Bernhard Fleckenstein, Schlaifhausen, and Bernd Traupe, Hausen, all of Germany, assignors to Behring Diagnostics GmbH, Marburg, Germany

Continuation of Ser. No. 35,891, Mar. 23, 1993, abandoned, which is a continuation of Ser. No. 890,867, Jun. 1, 1992, abandoned, which is a division of Ser. No. 726,164, Jul. 2, 1991, abandoned, which is a continuation of Ser. No. 471,072, Jan. 29, 1990, abandoned, which is a continuation of Ser. No. 60,159, Jun. 10, 1987, abandoned. This application Dec. 1, 1993, Ser. No. 159,710

Claims priority, application Germany, Jun. 12, 1986, 36 19 718.1

Int. Cl.[6] C12N *15/70;15/38;* **C07K** *14/045*

U.S. Cl. 435—320.1 **3 Claims**

2. A DNA fragment having a nucleotide sequence which encodes the amino acid sequence of the immunogenic peptide of pp 150, wherein the immunogenic peptide of pp 150 is encoded by the DNA sequence:

GATCC GCGTTTCACC GACACGCTGG TGGACATCAC GGATACCGAG ACGAGCGCCA AACCGCCCGT CACCACCGCG TACAAGTTCG AGCAACCGAC GTTGACGTTC GGCGCCGGAG TTAACGTTCC TGCTGGCGCC GGCGCTGCCA TCCTCACGCC GACGCCTGTC AATCCTTCCA CGGCCCCCGC TCCGGCCCCG ACACCTACCT TCGCGGGTAC CCAAACCCCG GTCAACGGTA ACTCGCCCTG GGCTCCGACG GCGCCGTTGC CCGGGGATAT GAACCCCGCC AACTGGCCGC GCGAACGCGC GTGGGCCCTC AAGAATCCTC ACCTGGCTTA CAATCCCTTC AGGATGCCTA CGACTTCCAC GGCTTCTCAA AACACCGTGT CCACCACCCC TCGGAGGCCG TCGACTCCAC GCGCCGCGGT GACACAAACA GCGTCTCGGG ACGCCGCTGA TGAGGTTTGG GCTTTAAGGG ACCAAACTGC A.

3. An expression vector comprising the DNA fragment of claim **2**, wherein said expression vector is pBD 2.

5,728,579

DNA ENCODING MAT-8

Briggs W. Morrison, Westwood, and Philip Leder, Chestnut Hill, both of Mass., assignors to President and Fellows of Harvard College, Cambridge, and The General Hospital Corporation, Boston, both of Mass.

Filed Aug. 11, 1994, Ser. No. 289,247

Int. Cl.[6] C12N *15/11;15/63;1/21;1/19*

U.S. Cl. 435—325 **9 Claims**

1. An isolated DNA comprising a DNA sequence encoding a polypeptide consisting of a first amino acid sequence, said first amino acid sequence shown in FIG. **1** (SEQ ID NO:4) or a second amino acid sequence which differs from said first amino acid sequence by one or more conservative substitutions, said first or said second amino acid sequence being capable of conducting a chloride ion current.

5,728,580

METHODS AND CULTURE MEDIA FOR INDUCING SINGLE CELL SUSPENSION IN INSECT CELL LINES

Michael L. Shuler, and Kennie U. Dee, both of Ithaca, N.Y., assignors to Cornell Research Foundation, Inc., Ithaca, N.Y.

Filed Feb. 20, 1996, Ser. No. 603,722

Int. Cl.[6] C12N *1/00*

U.S. Cl. 435—348 **12 Claims**

1. A method of increasing single cell suspension in an insect cell line comprising the steps of:

a) providing a culture of insect cells in a culture medium;

b) adding an effective concentration of a non-carboxylated sulfated polyanion to said medium such that said cells are in suspension after the addition of said non-carboxylated sulfated polyanion; and

c) subculturing said insect cells which are in suspension in a fresh culture medium including an effective concentration of said non-carboxylated sulfated polyanion.

5,728,581

METHOD OF EXPANDING HEMATOPOIETIC STEM CELLS, REAGENTS AND BIOREACTORS FOR USE THEREIN

Richard Merrill Schwartz, San Mateo; Sean Newton Tucker, San Francisco; Srikanth Ranga Chary, Fremont, and Suzanne Chang Kuo, Cupertino, all of Calif., assignors to Systemix, Inc., Palo Alto, Calif.

Filed Jun. 7, 1995, Ser. No. 482,259

Int. Cl.[6] C12N *5/00;5/02;* **C12M** *1/22*

U.S. Cl. 435—385 **19 Claims**

1. A method for expanding hematopoietic stem cells in a population of cells substantially enriched in hematopoietic stems cells and substantially free of stromal cells, the method comprising the steps of:

a) inoculating the population of cells in an expansion container in a volume of a suitable medium such that the cell density is at least about 5,000 cells/mL and at an initial oxygen concentration of less than 8%;

b) adding an effective amount of at least one cytokine to cause stem cell expansion;

c) culturing the population of cells under suitable conditions for at least 6 days and such that the cells condition the medium;

d) increasing the oxygen concentration to about 20%;

e) exchanging the medium at a rate of about 1/10 to ½ volume exchanged per day and which allows expansion of the population of hematopoietic stem cells; and

f) culturing the cells under conditions such that the hematopoietic stem cells are expanded.

5,728,582

MONITORING METHOD OF STAIN SOLUTION FOR PARTICLE ANALYSIS AND CALIBRATION METHOD OF PARTICLE ANALYSIS

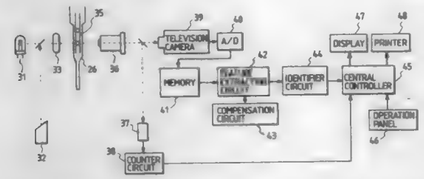
Miki Taki, and Yasuaki Kojima, both of Hitachinaka, Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Filed Apr. 17, 1995, Ser. No. 423,213

Claims priority, application Japan, Apr. 21, 1994, 6-082838

Int. Cl.[6] G01N *31/22*

U.S. Cl. 436—10 **14 Claims**



14. A method for identifying components of sample, comprising the following steps:

(1) supplying to a stain vessel a reference fluid in which reference particles are suspended, the reference particles being each composed of an artificial particle bound with a functional radical for attracting dyeing ions which are contained in a stain solution for staining test particles in a sample fluid;

(2) adding a stain solution to the stain vessel, the stain solution containing dyeing ions attracted to the functional radicals to stain the reference particles;

(3) creating still pictures of the stained reference particles with an electronic camera while the stained reference particles flow through a flow through cell;

(4) calculating an average of stain densities of the still pictures created in step (3);

(5) comparing the average calculated in step (4) with a preset level indicating quality of the stain solution;

(6) generating a stain solution effectiveness signal prompting a user to check the stain solution, when the result of step (5) meets a preset condition;

(7) calculating a stain calibration coefficient based on the difference between the average calculated in step (4) and a predetermined standard value; and

(8) applying an identification parameter modified by using the stain calibration coefficient calculated in step (7) to identify the stained test particles in the sample fluid.

5,728,583

DETERMINATION OF ABNORMAL PART OF BLOOD FUNCTIONS

Keiko Kawakami, Kawasaki; Yoshiyuki Harada, Futtsu; Tadashi Sakon; Yutaka Kishida, both of Kawasaki, and Yasuo Ikeda, Tokyo, all of Japan, assignors to Jeol, Ltd., Akishima, Japan

Continuation of Ser. No. 337,695, Nov. 10, 1994, abandoned. This application Dec. 4, 1996, Ser. No. 759,205

Claims priority, application Japan, Nov. 11, 1993, 5-282597; Sep. 9, 1994, 6-215883

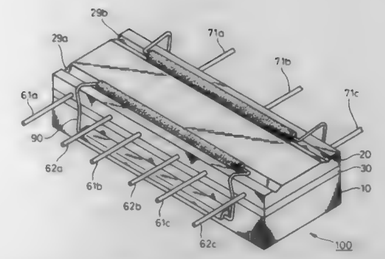
Int. Cl.[6] G01N *33/86*

U.S. Cl. 436—69 **11 Claims**

1. A method for analyzing a whole blood sample, for the presence or absence of a blood abnormality comprising the steps of:

cycling a whole blood sample from a test subject as a laminar flow having a flow rate approximating a human blood flow rate in a flow cell which comprises a measuring element comprising at least one quartz plate-shaped oscillator having a protein outer layer, said protein outer layer being operative to attach thereto a blood component specific for said protein;

measuring the amount of adhesion of blood components present in said blood sample on said protein layer based on the resonance frequency of said measuring element;



comparing the amount of adhesion to a standard value corresponding to the amount of adhesion of blood components occurring when blood from a healthy subject is cycled through said flow cell; and

correlating any difference in the amount of adhesion with the presence or absence of a blood abnormality in the test subject.

5,728,584

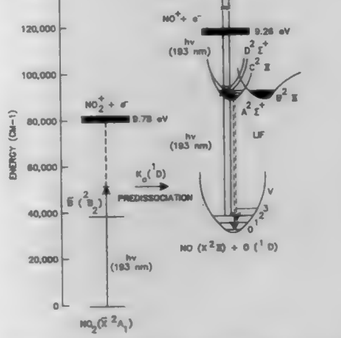
METHOD FOR DETECTING NITROCOMPOUNDS USING EXCIMER LASER RADIATION

Rosario C. Sausa, Bel Air, Md.; Josef B. Simeonsson, Iowa City, Iowa, and George W. Lemire, Draper, Utah, assignors to The United States of America as represented by the Secretary of the Army, Washington, D.C.

Continuation-in-part of Ser. No. 220,317, Mar. 30, 1994, which is a division of Ser. No. 028,088, Jun. 11, 1993, Pat. No. 5,364,795. This application Sep. 30, 1994, Ser. No. 313,620

Int. Cl.[6] G01N *33/22*

U.S. Cl. 436—106 **5 Claims**



1. A method for the detection of atmospheric and surface absorbed NO_x-containing compounds comprising the steps of:

(a) isolating said compounds from the atmosphere or surface to which said compounds are absorbed

(b) directing said isolated compounds into a sampling chamber;

(c) exposing said isolated compounds within said sampling chamber to a laser beam having a wavelength of about 193 nm to form a characteristic NO fragment and exciting said fragment by subjecting the fragment to the same laser beam at the same wavelength;

(d) detecting said NO fragment using at least one of an ion detector and a fluorescent detector

(e) exciting other characteristic fragments with said laser beam;

(f) detecting said other characteristic fragments with at least one of said ion detector and said fluorescent detector; and

(g) recording and monitoring the at least one detector on a data acquisition and processing system to detect said NO_x-containing compounds.

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5,728,585

CAPNOMETER

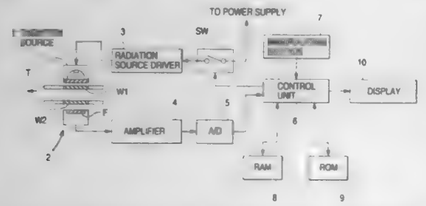
Shinji Yamamori; Hidehiro Hosaka; Kohei Ono; Masami Ito; Masayuki Inoue, and Masaki Sugiura, all of Tokyo, Japan, assignors to Nihon Kohden Corporation, Tokyo, Japan

Filed Feb. 26, 1996, Ser. No. 605,845

Claims priority, application Japan, Feb. 24, 1995, 7-037239; Feb. 24, 1995, 7-037361; Feb. 24, 1995, 7-037411

Int. Cl.[6] G01N *33/497*

U.S. Cl. 436—133 **12 Claims**



7. A method for measuring the concentration of carbon dioxide in respiratory gas, comprising the steps of:

irradiating an infrared radiation from a light source to said respiratory gas;

sensing the transmission of said infrared radiation;

turning said light source on and off at predetermined intervals;

detecting radiation transmitted through said respiratory gas with a thermal detector:

storing output from said thermal detector;

detecting a maximum value of a detection signal output from said thermal detector for the present inspiration phase;

storing said maximum value in a memory;

calculating the difference between a subsequently issued detection signal and said maximum value;

compensating a drift resulting due to the characteristics of said thermal detector to determine a density signal;

detecting a minimum output value, corresponding to an offset value, of said detection signal from said thermal detector when said light source is turned off momentarily;

calculating the difference between said minimum value and said maximum value for the present inspiration phase;

storing a value representing the difference in said memory as a reference value corresponding to carbon dioxide concentration of zero and with a maximum reception of infrared radiation at that time:

storing said reference value in said memory,

calculating the ratio of said density signal to said reference value; and

determining the concentration of carbon dioxide in said respiratory gas by correcting said density signal in accordance with said ratio.

5,728,586

PHOTOIONIZATION DETECTOR AND PROCESS

Bernhard Platzer, Cassano d'Adda, Italy, assignor to Fisons Instruments S.p.A., Milan, Italy

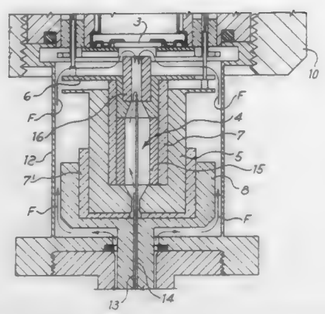
PCT No. PCT/IT94/00114, § 371 Date Mar. 14, 1996, § 102(e) Date Mar. 14, 1996, PCT Pub. No. WO96/02834, PCT Pub. Date Feb. 1, 1996

PCT Filed Jul. 15, 1994, Ser. No. 617,826

Int. Cl.[6] G01N *30/64;21/00*

U.S. Cl. 436—153 **24 Claims**

10. A process of detecting gaseous effluents from a gaschromatographic column by means of a detector apparatus, comprising a lamp (**2**) aligned with a window (**3**) for emitting radiation which passes through the window, and an ionization chamber (**4**) provided with a polarizing electrode (**5.5'**) and a collector electrode (**6.6'**); said ionization chamber (**4**) being mounted on and heated by a base portion of the detector; said lamp (**2**) is spaced from said chamber (**4**) and is mounted on said base portion by a support (**12**)



which thermally isolates the lamp (**2**) from the ionization chamber (**4**), the process comprising the following steps:

feeding the gaseous effluents exiting from said column to the ionization chamber (**4**);

heating said ionization chamber (**4**) to such a temperature that said effluents are maintained in a gaseous condition;

generating an ionizing radiation by the lamp (**2**) and sending said radiation to the ionization chamber (**4**) through the window (**3**);

providing a gas curtain of an inert gas that is substantially transparent to said lamp radiation at least between said ionization chamber (**4**) and said window to thermally and pneumatically insulate said lamp (**2**) and said window (**3**) from the heated ionization chamber (**4**); and

sealing the ionization chamber from the ambient air without using a gasket by flowing the gas through the ionization chamber.

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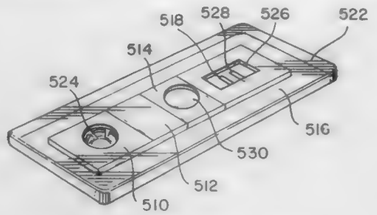
IMMUNOASSAY DEVICES AND MATERIALS

Jemo Kang, Princeton; Byungwoo Youn, Wyckoff, and Young Ho Oh, Edison, all of N.J., assignors to PMB-Selfcare, LLC, Waltham, Mass.

Continuation of Ser. No. 70,803, Jun. 3, 1993, Pat. No. 5,559,041, which is a division of Ser. No. 456,982, Dec. 18, 1989, Pat. No. 5,252,496. This application Jun. 7, 1996, Ser. No. 659,937

Int. Cl.[6] G01N *33/543;33/558*

U.S. Cl. 436—518 **2 Claims**



1. An immunochemical assay device comprising:

a base member;

an array disposed on said base member, said array comprising:

(i) a reservoir pad having sufficient porosity and volume to receive and contain a liquid sample on which the assay is to be performed;

(ii) a wicking membrane disposed distally to said reservoir pad, said wicking membrane having sufficient porosity and volume to absorb a substantial proportion of the sample received in said reservoir pad; and

(iii) at least one filter zone which is separate and distinct from said reservoir pad and wicking membrane, and interposed between and contiguous with said wicking membrane and said reservoir pad, said filter zone having impregnated therein a labelled immunochemical component capable of binding to an analyte of interest in said sample to form an immuno-complex, said filter zone being operable to permit passage of any specific immuno-complex to said wicking membrane while impeding passage of larger components then contained in said sample; and

at least one additional immobilized immunochemical component disposed in at least one assay indicia zone of said wicking membrane downstream of said reservoir pad and defining assay indicia.

5,728,588

COATING OF HYDROPHOBIC SURFACES TO RENDER THEM PROTEIN RESISTANT WHILE PERMITTING COVALENT ATTACHMENT OF SPECIFIC LIGANDS

Karin Maria Elisabet Caldwell, 3645 Golden Hills Ave., Salt Lake City, Utah 84121; Per Jan Erik Carlsson, Spetsvägen 52, 75757 Uppsala, Sweden, and Jenq-Thun Li, 49 S. 800 East #21, Salt Lake City, Utah 84102

Division of Ser. No. 110,169, Aug. 20, 1993, Pat. No. 5,516,703. This application Mar. 7, 1995, Ser. No. 399,913

Int. Cl.[6] G01N *33/547;* **C07K** *17/08;* **C12N** *11/08*

U.S. Cl. 436—532 **43 Claims**

20. A hydrophilic surface with a specific chemical reactivity comprising:

(a) a hydrophobic substrate having a surface water contact angle greater than about 60°,

(b) a modified polymeric surfactant having pendant hydrophilic blocks (PEO) with one end attached directly or by bridging structures to a hydrophobic block (PPO) and the other end attached to pendant reactive groups (—O—R), R being stable in water and providing the specific chemical reactivity to the surface, the hydrophobic blocks (PPO) being adsorbed upon the substrate with the hydrophilic blocks (PEO) extending away from the surface,

the relative ratios in the molecule of pendant hydrophilic blocks with attached reactive groups (R—O— PEO), to pendant hydrophilic blocks with attached —OH groups (HO—PEO), to the hydrophobic block (PPO) being represented by the ratios:

$$c(HO—PEO):d(R—O—PEO):b(PPO)$$

where b is an integer from 1 to 3, (c+d) is an integer between 1 and 6, c is an integer between 0 and 5, and d is at least 1,

where PEO is the hydrophilic block and is of the formula:

$$—(—C_2H_4—O—)_u—$$

where u is greater than 50,

where PPO is the hydrophobic block and is of the formula:

$$—(—C_3H_6—O—)_v—$$

where v is greater than 25, and

where R is not hydrogen and is stable in an aqueous environment.

5,728,589

IMMUNOASSAY METHOD

Yoshihiro Ushio, and Katsuji Aoki, both of Amagasaki, Japan, assignors to Wako Pure Chemical Industries, Ltd., Osaka, Japan

Filed Aug. 17, 1994, Ser. No. 291,895

Claims priority, application Japan, Aug. 24, 1993, 5-230866; Aug. 24, 1993, 5-230867

Int. Cl.[6] G01N *33/542*

U.S. Cl. 436—543 **10 Claims**

1. A method for immunoassay of a trace component in a body fluid, which comprises

reacting a body fluid sample containing the trace component which is an antibody with an antigen which binds to the trace component, said antigen being previously modified with a compound having a benzene ring or a compound having a heterocyclic ring,

measuring a change of turbidity or scattered light intensity caused by the reaction between the modified antigen and the trace component, and

determining the amount of trace component on the basis of the change of turbidity or scattered light.

5,728,590

SMALL ORGANOMETALLIC PROBES

Richard D. Powell, Stamford, Conn., assignor to Nanoprobes, Inc., Stony Brook, N.Y.

Continuation-in-part of Ser. No. 282,929, Jul. 29, 1994, Pat. No. 5,521,289. This application May 23, 1996, Ser. No. 652,007

Int. Cl.[6] G01N *33/53;* **C07K** *16/00;* **A61K** *39/395*

U.S. Cl. 436—547 **24 Claims**

1. A metal cluster compound comprising:

a core of metal atoms and an outer shell of organic moieties surrounding said core, said metal cluster compound having the formula:

$$M_n(OrF)_m(Or'T)_l(Or'')_p$$

wherein M_n represents a cluster of metal atoms of platinum, palladium or a combination thereof, and n=about 309 to about 2,057;

wherein Or, Or' and Or'' may be the same or different and represent organic moieties covalently attached to said metal atoms, with Or, Or' and Or'' being, 1,10-phenanthroline or a derivative thereof;

wherein F represents a fluorescent moiety attached to said organic moiety and m=0 to about 10;

wherein T represents a moiety which is attached to said Or' organic moiety and is capable of attaching to a targeted molecule and l=0 to about 28;

wherein p=about 4 to about 83; and

wherein the sum of m+l+p is about 36 to about 84.

5,728,591

PROCESS FOR MANUFACTURING LIGHT VALVE DEVICE USING SEMICONDUCTIVE COMPOSITE SUBSTRATE

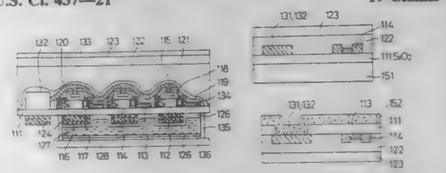
Kunihiro Takahashi; Yoshikazu Kojima; Hiroaki Takasu; Nobuyoshi Matsuyama; Hitoshi Niwa; Tomoyuki Yoshino, and Tsuneo Yamazaki, all of Tokyo, Japan, assignors to Seiko Instruments Inc., Japan

Division of Ser. No. 264,635, Jun. 23, 1994, Pat. No. 5,486,708, which is a continuation of Ser. No. 791,912, Nov. 13, 1991, Pat. No. 5,347,154. This application Jun. 2, 1995, Ser. No. 460,536

Claims priority, application Japan, Nov. 15, 1990, 2-309437; Jan. 23, 1991, 3-6561; Feb. 16, 1991, 3-22420; Apr. 11, 1991, 3-79330; Apr. 11, 1991, 3-79337

Int. Cl.[6] H01L *21/84*

U.S. Cl. 437—21 **19 Claims**



1. A process for manufacturing a light valve device, comprising:

forming a transparent insulating thin film layer on a surface of a

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semiconductor substrate; bonding a single crystal semiconductor substrate on the transparent insulating thin film layer; polishing the single crystal semiconductor substrate to form a single crystal semiconductor thin film; removing a portion of the single crystal semiconductor thin film; forming pixel electrodes on the transparent insulating thin film layer in a region where the single crystal semiconductor thin film has been removed; forming a driving unit, including pixel switching elements and driving circuits for energizing the pixel switching elements, in the single crystal semiconductor thin film; laminating a carrier substrate using an adhesive on the surface of the semiconductor substrate at a region corresponding to the pixel electrodes and the driving unit; removing the semiconductor substrate to expose a surface of the transparent insulating thin film layer; forming through-holes on the exposed surface of the transparent insulating thin film layer; forming a metal film on the exposed surface of the transparent insulating thin film layer; removing the metal film to form a light shielding layer for covering at least a portion of a region of the transparent insulating thin film layer occupied by the driving unit and to form an electrode pad for connection to the driving unit through the through-holes; arranging a substrate formed with a transparent electrode opposite to the transparent insulating thin film layer to define a gap therebetween; and disposing an electrooptical material in the gap.

5,728,592

METHOD FOR FABRICATING A THIN FILM TRANSISTOR MATRIX DEVICE

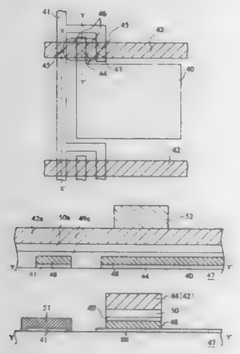
Ken-ichi Oki; Ken-ichi Yanai; Tamotsu Wada; Koji Ohgata; Yutaka Takizawa; Masahiro Okabe, and Tsutomu Tanaka, all of Kawasaki, Japan, assignors to Fujitsu Ltd., Kawasaki, Japan

Division of Ser. No. 134,824, Oct. 12, 1993, abandoned. This application Jul. 6, 1995, Ser. No. 499,000

Claims priority, application Japan, Oct. 9, 1992, 4-271630; Jul. 8, 1993, 5-168807; Sep. 7, 1993, 5-221645

Int. Cl.[6] H01L *21/84;21/288;21/31*

U.S. Cl. 437—21 **23 Claims**



1. A method for fabricating a thin film transistor matrix device comprising the steps of:

forming a transparent conductor film and a metal film on an insulating substrate in the stated order;

together patterning the metal film and the transparent conductor film into a configuration which contains at least the picture element electrodes, and drain bus lines or gate bus lines;

applying a current to the drain bus or the gate bus lines in an electrolyte solution to selectively form a protecting film on the drain bus lines or the gate bus lines and on patterns electrically connected to the drain bus lines or the gate bus lines; and

etching off the metal film on the picture element electrodes with the protecting film as a mask.

5,728,593

POWER INSULATED-GATE TRANSISTOR HAVING THREE TERMINALS AND A MANUFACTURING METHOD THEREOF

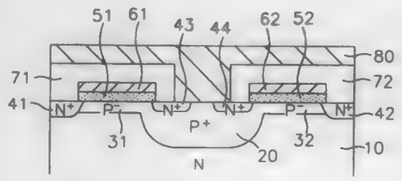
Chong-Man Yun; Min-Koo Han; Kwang-Hoon Oh, and Deok-Joong Kim, all of Seoul, Rep. of Korea, assignors to Samsung Electronics Co., Ltd., Suwon, Rep. of Korea

Filed Jun. 29, 1995, Ser. No. 496,696

Claims priority, application Rep. of Korea, Dec. 29, 1994, 94-38881

Int. Cl.[6] H01L *21/265*

U.S. Cl. 437—29 **9 Claims**



1. A method for manufacturing a power insulated-gate transistor having three terminals, and including a first conductive type semiconductor layer disposed on a second conductive type semiconductor substrate, said method comprising the steps of:

forming a first region by injecting in high density an impurity of said second conductive type into said semiconductor layer;

injecting in low density an impurity of said second conductive type into said semiconductor layer;

forming an insulating layer and a conductive layer on said semiconductor layer;

forming openings on opposite sides of said first region by etching the insulating layer and the conductive layer;

forming a plurality of second regions by injecting in high density an impurity of said first conductive type into said semiconductor layer through said openings; and

forming a plurality of third and fourth regions by diffusing the impurity of said second conductive type that was injected into said semiconductor layer and diffusing the impurity of said first conductive type that was injected into the semiconductor layer through said openings, wherein said fourth region is formed more deeply in said semiconductor layer than said third region.

5,728,594

METHOD OF MAKING A MULTIPLE TRANSISTOR INTEGRATED CIRCUIT WITH THICK COPPER INTERCONNECT

Taylor R. Efland, Richardson; David Cotton, and Dale J. Skelton, both of Plano, all of Tex., assignors to Texas Instruments Incorporated, Dallas, Tex.

Division of Ser. No. 333,174, Nov. 2, 1994, abandoned. This application Jun. 7, 1995, Ser. No. 474,621

Int. Cl.[6] H01L *21/265*

U.S. Cl. 437—40 **1 Claim**

1. A method of fabricating a multiple transistor integrated circuit with a thick metal interconnect structure, comprising the steps of:

providing a plurality of gate bond pads, each for receiving a gate input to a respective LDMOS transistor;

providing a plurality of source bond pads, each for receiving a source input to a respective LDMOS transistor, all coupled together and to a common source buss;

providing a plurality of columns of multiple rows of diffusion regions, said diffusion regions alternating and being of a first and a second conductivity type;

providing first level metal layers placed over and electrically contacting each of said diffusion regions, said first level metal layers forming source stripes and drain stripes;



providing a plurality of columnar second level metal source busses, each coupled to said common source bus and each partially overlying a respective one of said plurality of columns of multiple rows of diffusions, each columnar second level metal source bus being coupled to selected ones of said source stripes;

providing a plurality of columnar second level metal drain busses, each coupled to a respective one of said drain bond pads, each partially overlying a respective one of said plurality of columns of multiple rows of diffusions and each being spaced apart from said plurality of columnar second level source busses, said source and drain busses being alternating columnar busses;

providing a plurality of third level thick metal source shorting busses, each associated with and partially overlying a respective one of said source busses, said third level thick metal source shorting busses not overlying said source bond pads; and

providing a plurality of third level thick metal drain shorting busses, each associated with and partially overlying a respective one of said drain busses;

the third level thick metal source and drain shorting busses being in electrical contact with said source and drain busses and lowering the on resistance of the LDMOS transistors on the integrated circuit.

5,728,595

METHOD OF FABRICATING A SELF-ALIGNED CONTACT HOLE FOR A SEMICONDUCTOR DEVICE

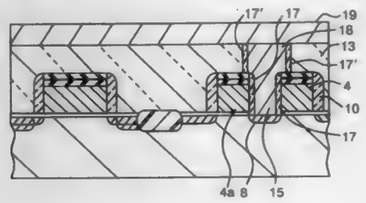
Tadashi Fukase, Tokyo, Japan, assignor to NEC Corporation, Japan

Filed Feb. 26, 1996, Ser. No. 605,496

Claims priority, application Japan, Feb. 22, 1995, 7-040221

Int. Cl.[6] H01L *21/265*

U.S. Cl. 437—44 **19 Claims**



1. A method of fabricating a semiconductor device comprising the steps of:

forming a plurality of wirings over a semiconductor substrate;

forming sidewall layers on side faces of said plurality of wirings;

forming an interlayer insulating film covering said plurality of wirings and said sidewall layers; and

etching a portion of said interlayer insulating film located between said plurality of wirings and a portion of said sidewall layers by making an etching rate of said sidewall layer substantially equivalent to or higher than the etching rate of said interlayer insulating film, thereby to form a contact hole in said interlayer insulating film.

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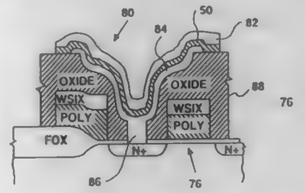
METHOD FOR FORMING A SEMICONDUCTOR BURIED CONTACT WITH A REMOVABLE SPACER

Kirk D. Prall, Boise, Id., assignor to Micron Technology, Inc., Boise, Id.

Continuation of Ser. No. 285,335, Aug. 2, 1994, Pat. No. 5,605,864. This application Oct. 18, 1996, Ser. No. 733,506

Int. Cl.[6] H01L *21/8242*

U.S. Cl. 437—52 **21 Claims**



1. A method of forming a sublithographic buried contact on a semiconductor device comprising:

forming a plurality of transistor gate structures and word lines adjacent a buried contact area on a substrate, the word lines defining a first gap between word lines peripheral to the buried contact and a second gap between word lines over the buried contact, which second gap is wider than the first gap;

depositing an insulator layer over and adjacent the gate structures, word lines, buried contact area, and substrate;

depositing a removable spacer layer over the insulator layer to substantially fill the first gap, to partially fill the second gap, and to define a sublithographic dimension between removable spacer walls over the buried contact area, the removable spacer walls being formed by the removable spacer layer adjacent the gate structures;

patterning the buried contact area in the removable spacer layer;

anisotropically removing portions of the removable spacer layer and the insulator layer to form the buried contact sublithographically in at least a dimension parallel to the word lines; and

further removing the remainder of the removable spacer layer.

5,728,597

METHOD FOR FORMING A CAPACITOR IN A SEMICONDUCTOR DEVICE

Suk Soo Kim, Kyoungkido, Rep. of Korea, assignor to Hyundai Electronics Industries Co., Ltd., Kyoungkido, Rep. of Korea

Filed Sep. 6, 1995, Ser. No. 523,864

Claims priority, application Rep. of Korea, Sep. 9, 1994, 1994-22783

Int. Cl.[6] H01L *21/8242*

U.S. Cl. 437—60 **4 Claims**

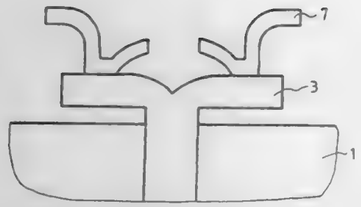
1. A method for forming a charge storage electrode in a semiconductor device, comprising the steps of:

a) providing a transistor having an active region on a substrate, and forming an oxide layer on the substrate including said transistor and said active region;

b) providing a patterned first conducting layer in contact with said active region of said transistor, wherein said first conducting layer has at least one recess on the surface thereof;

c) forming a buried oxide layer on said recess;

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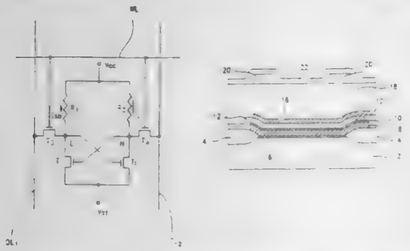
d) forming a first selectively grown oxide layer only on said oxide layer (formed in step e);
e) forming a second selectively grown oxide layer on said first selectively grown oxide layer and said buried oxide layer, exposing a portion of said first conducting layer;
f) forming a second conducting layer on the resulting structure (formed in step e);
g) patterning said second conducting layer and exposing a second selectively grown oxide layer; and
h) removing said second selectively grown oxide layer, said first selectively grown oxide layer, said buried oxide layer, and said oxide layer.

5,728,598

METHOD OF MANUFACTURING A SRAM CELL HAVING A LOW STAND-BY CURRENT

Hsiao-Chia Wu; Jung Kao, both of Hsinchu, and Thomas Chang, Taichung, all of Taiwan, assignors to Mosel Vitelic Inc., Hsinchu, Taiwan

Filed Jul. 24, 1996, Ser. No. 685,815
Int. Cl.[6] H01L *21/8244*
U.S. Cl. 437—60 **21 Claims**



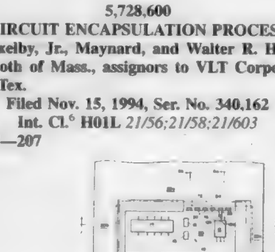
1. A method of fabricating a SRAM cell having a low stand-by current on a semiconductor substrate, said method comprising the steps of:
forming a silicon dioxide layer on said semiconductor substrate;
forming a first polysilicon layer on said silicon dioxide layer and on said substrate;
etching said silicon dioxide layer, said first polysilicon layer to form a gate structure;
forming a first dielectric layer on said gate structure and said substrate;
etching said first dielectric layer to form a contact window;
forming a second polysilicon layer on said first dielectric layer and along the surface of said contact window, said second polysilicon layer is exactly over said first polysilidon layer to reduce a stand-by current;
patterning a photoresist on said second polysilicon layer and etching said second polysilicon layer;
forming a second dielectric layer on said second polysilicon layer and over said substrate;
forming a metal layer on said second dielectric layer;
patterning a photoresist on said metal layer and etching said metal layer; and
forming a third dielectric layer on said metal layer.

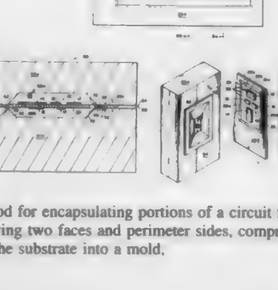
5,728,599

PRINTABLE SUPERCONDUCTIVE LEADFRAMES FOR SEMICONDUCTOR DEVICE ASSEMBLY

Michael D. Rostoker, Boulder Creek; Mark Schneider, San Jose, and Chok J. Chia, Campbell, all of Calif., assignors to LSI Logic Corporation, Milpitas, Calif.

Division of Ser. No. 143,843, Oct. 28, 1993, abandoned. This application Aug. 7, 1995, Ser. No. 432,539
Int. Cl.[6] H01L *21/283;21/48;21/58;21/60*
U.S. Cl. 437—182 **9 Claims**





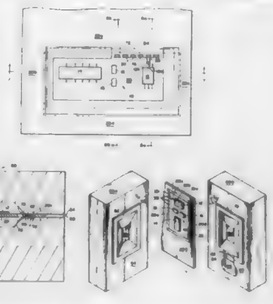
1. A method of making a semiconductor device assembly, comprising:
providing a backing substrate;
screen-printing a leadframe pattern on the backing substrate using a superconductive paste;
providing an opening in the backing substrate in a die mounting area of the leadframe pattern;
curing the printed superconductive leadframe pattern at a temperature of not more than 330 degrees Fahrenheit; and
mounting a semiconductor die to the printed superconductive leadframe pattern.

5,728,600

CIRCUIT ENCAPSULATION PROCESS

John R. Saxelby, Jr., Maynard, and Walter R. Hedlund, III, Lowell, both of Mass., assignors to VLT Corporation, San Antonio, Tex.

Filed Nov. 15, 1994, Ser. No. 340,162
Int. Cl.[6] H01L *21/56;21/58;21/603*
U.S. Cl. 437—207 **25 Claims**



1. A method for encapsulating portions of a circuit formed on a substrate having two faces and perimeter sides, comprising
inserting the substrate into a mold,

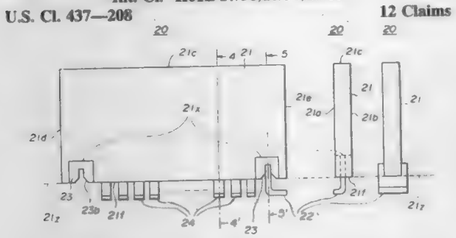
closing a top of the mold and a bottom of the mold against the substrate,
pushing molding compound from a conduit having a top defined by the substrate into a chamber in the mold, and
encapsulating, in the molding compound, a first portion of one of the faces of the substrate and a portion of the sides of the substrate, and, during encapsulation, leaving a second portion of the one face of the substrate unencapsulated, the second portion of the one face bearing conductive pads.

5,728,601

PROCESS FOR MANUFACTURING A SINGLE IN-LINE PACKAGE FOR SURFACE MOUNTING

Mitsutaka Sato, and Masanori Yoshimoto, both of Kawasaki, Japan, assignors to Fujitsu Limited, Kawasaki, Japan

Division of Ser. No. 26,809, Mar. 5, 1993, Pat. No. 5,446,317. This application May 15, 1995, Ser. No. 441,595
Claims priority, application Japan, Mar. 9, 1992, 4-050941
Int. Cl.[6] H01L *21/56;21/58;21/60*
U.S. Cl. 437—208 **12 Claims**



1. A method for mounting a semiconductor package on a substrate, said semiconductor package body having a flat shape defined by a pair of opposing major surfaces and which are interconnected by an elongated edge of said package body comprising the steps of:
providing a support member for engagement with a body of a semiconductor package and extending from the package body, said support member having a planar end surface and being adapted for holding said package body in a substantially upright orientation relatively to, and when the planar end surface of the support member is placed upon, a substantially horizontally oriented main surface of a substrate;
placing said package body, in said upright orientation, in engagement with the support member and supported by said support member on a substantially horizontally oriented main surface of a substrate, by inserting an upper portion of said support member into an engaging part formed in the elongated edge of said package body, said package body having interconnection leads extending therefrom and said substrate having a solder pattern thereon engaged by the interconnection leads of the package body when engaged with and supported by the support member on the main surface of the substrate; and
causing a reflow of the solder pattern provided on said substrate to establish a mechanical connection and an electrical contact between said solder pattern and the interconnection leads of said package body.

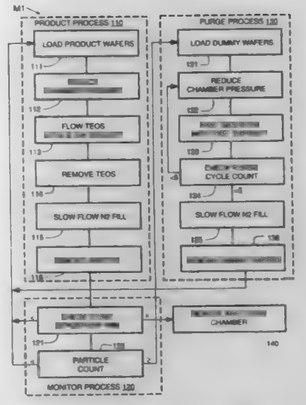
5,728,602

SEMICONDUCTOR WAFER MANUFACTURING PROCESS WITH HIGH-FLOW-RATE LOW-PRESSURE PURGE CYCLES

Craig A. Bellows, and Landon B. Vines, both of San Antonio, Tex., assignors to VLSI Technology, Inc., San Jose, Calif.

Filed Jun. 3, 1996, Ser. No. 657,148
Int. Cl.[6] H01L *21/302*
U.S. Cl. 437—225 **5 Claims**

1. A wafer processing method comprising:



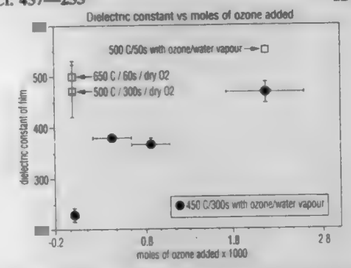
plural wafer product processes, each of said product processes including steps of loading product wafers into a chamber, reducing the pressure within said chamber, flowing reactant gas through said chamber, flowing nonreactant gas at a first average flow rate into said chamber so as to bring chamber pressure near ambient pressure, and removing said product wafers from said chamber; and
a purge process implemented between two successive wafer product processes, said purge process including at least plural purge cycles, each purge cycle including steps of reducing pressure in said chamber, flowing gas at a second average flow rate at least twice that of said first average flow rate through said chamber.

5,728,603

METHOD OF FORMING A CRYSTALLINE FERROELECTRIC DIELECTRIC MATERIAL FOR AN INTEGRATED CIRCUIT

Ismail T. Emesh, Cumberland; David R. McDonald, Ottawa, and Vsanta Chivukuin, Nepean, all of Canada, assignors to Northern Telecom Limited, Montreal, Canada

Continuation of Ser. No. 348,848, Nov. 28, 1994, abandoned. This application Dec. 9, 1996, Ser. No. 762,631
Int. Cl.[6] H01L *21/02*
U.S. Cl. 437—235 **12 Claims**



7. A method of forming an integrated circuit structure comprising a ferroelectric capacitor structure the method comprising:
providing a substrate and providing thereon a first capacitor electrode;
providing on the electrode a layer of crystalline perovskite ferroelectric capacitor dielectric material, by steps comprising:
depositing a layer of amorphous ferroelectric precursor material, and
annealing the layer of amorphous ferroelectric precursor material at a temperature between 450° C. and 500° C. so

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as to cause a phase transformation to a ferroelectric crystalline perovskite phase, the annealing step comprising heating in an oxygen and ozone containing atmosphere in the presence of water vapor, and providing a second capacitor electrode thereon.

5,728,604

METHOD FOR MAKING THIN FILM TRANSISTORS

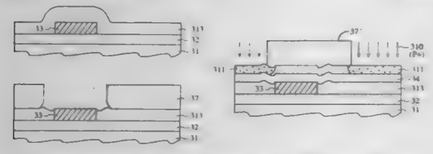
Sa Kyun Rha, Seoul, and Jae-sung Roh, Kyunggi-do, both of Rep. of Korea, assignors to Goldstar Electron Co., Ltd., Cheongju, Rep. of Korea

Continuation of Ser. No. 293,356, Aug. 19, 1994, abandoned. This application Sep. 13, 1996, Ser. No. 710,136

Claims priority, application Rep. of Korea, Aug. 19, 1993, 93-16093

Int. Cl.[6] H01L *21/86*

U.S. Cl. 438—41 TFI **7 Claims**



1. A method for making a planar thin film transistor comprising the steps of:

a) forming a first insulating layer on a substrate, depositing a conductive layer on the insulating layer, and patterning the conductive layer to form a gate electrode;

b) depositing a second insulating layer on the gate electrode and the first insulating layer, forming a mask layer on the second insulating layer and patterning the mask layer to form an opening over the gate electrode, wherein the opening has a width wider than the gate electrode, and etching a portion of the second insulating layer over the gate electrode through the opening in the mask layer to expose a top surface of the gate electrode, and removing the mask layer;

c) forming a gate insulator on the second insulating layer and the top surface of the gate electrode, and forming a semiconductor layer on the gate insulator; and

d) forming impurity regions at opposite sides of the gate electrode in the semiconductor layer.

5,728,605

METHOD FOR PRODUCING AN OPTICAL SEMICONDUCTOR DEVICE HAVING A CARRIER INJECTION PATH OR AN ELECTRIC-FIELD APPLYING PATH

Natsuhiko Mizutani, Yokohama, Japan, assignor to Canon Kabushiki Kaisha, Tokyo, Japan

Continuation of Ser. No. 579,917, Dec. 28, 1995, abandoned, which is a continuation of Ser. No. 368,592, Jan. 4, 1995, abandoned. This application Dec. 19, 1996, Ser. No. 772,061

Claims priority, application Japan, Jan. 18, 1994, 6-017814

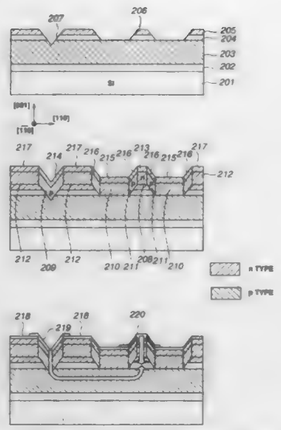
Int. Cl.[6] H01L *21/00*

U.S. Cl. 438—41 **34 Claims**

1. A method for producing an optical semiconductor device comprising the steps of:

forming a first type conductivity layer, a first main layer, which has any one of an undoped type, a first type conductivity and a second type conductivity, and a second type conductivity layer on a substrate in this order;

removing the layers down to at least the second type conductivity layer to form a ridge and forming at least one contact groove which reaches the first type conductivity layer, such that surfaces having different surface indices from a surface index of the substrate are exposed at the ridge and the contact groove;



performing a regrowth on the exposed surfaces using an amphiconductivity impurity as a dopant, such that a first portion having a first type conductivity is grown on the contact groove and a second portion having a second type conductivity is grown on the ridge, the first type conductivity layer and the first portion acting as one of a first injection path of one of electrons and holes and first means for applying an electric field to the first main layer, and the second type conductivity layer and the second portion acting as one of a second injection path of the other of electrons and holes and second means for applying an electric field to the first main layer which cooperates with the first means to apply the electric field across the first main layer; and

forming at least one transverse pn reverse junction portion for electrically separating one of the first injection path and the first means from one of the second injection path and the second means, during said regrowth performing step.

5,728,606

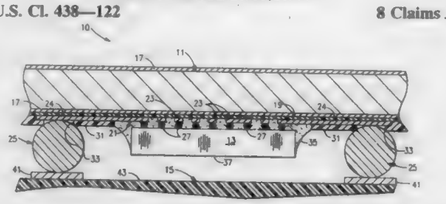
ELECTRONIC PACKAGE

Eric Herman Laine, Binghamton, and James Warren Wilson, Vestal, both of N.Y., assignors to International Business Machines Corporation, Armonk, N.Y.

Division of Ser. No. 378,347, Jan. 25, 1995. This application Mar. 5, 1996, Ser. No. 611,299

Int. Cl.[6] H01L *21/60;21/44*

U.S. Cl. 438—122 **8 Claims**



1. A method of making an electronic package adapted for being electrically coupled to an electronic structure, said method comprising:

providing a thermally conductive member;

providing a thin dielectric layer of organic material on said thermally conductive member;

thereafter providing a layer of electrical circuitry on said thin dielectric layer wherein said circuitry includes a first portion having a first circuit density and a second portion having a second circuitry density less than said first density;

positioning a semiconductor device on said first portion of said electrical circuitry and electrically coupling said semiconductor device to said first portion of said electrical circuitry such that said first portion of said electrical circuitry is located substantially between said thermally conductive member and said semiconductor device; and

electrically coupling a plurality of electrically conductive members to said second portion of said electrical circuitry.

5,728,607

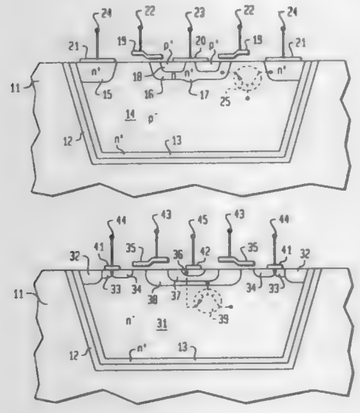
METHOD OF MAKING A P-CHANNEL BIPOLAR TRANSISTOR

Muhammed Ayman Shibib, Wyomissing, Pa., assignor to Lucent Technologies Inc., Murray Hill, N.J.

Filed Nov. 20, 1996, Ser. No. 754,607

Int. Cl.[6] H01L *21/265;21/70;21/00*

U.S. Cl. 438—135 **2 Claims**



1. A process for the simultaneous fabrication of complementary pairs of high voltage insulated gate bipolar transistors (IGBT) wherein the p-channel device of the complementary pair has an underlying vertical n-p-n transistor comprising the sequential steps of:

a. forming a plurality of dielectrically isolated n-type tubs, a first of said dielectrically isolated n-type tubs being designated for an n-channel IGBT (NC-IGBT) and designated the NC-IGBT tub and a second of said dielectrically isolated n-type tubs being designated for a p-channel IGBT (PC-IGBT) and designated the PC-IGBT tub,

b. implanting n-type impurities into a selected region of said PC-IGBT tub adjacent the edge thereof to form a first PC-IGBT n-type region as part of the source contact for the PC-IGBT,

c. implanting p-type impurities into a selected region in the center of said PC-IGBT tub, and spaced from said first PC-IGBT n-type region to form a first PC-IGBT p-type region as part of the PC-IGBT drain and as the base region for the underlying n-p-n transistor,

d. forming a ring-shaped polysilicon MOS gate electrode in the center portion of both the NC-IGBT tub and the PC-IGBT tub, said MOS gate electrode in the PC-IGBT tub overlying the edge of said first PC-IGBT p-type region,

e. implanting p-type impurities into both the PC-IGBT tub and the NC-IGBT tub to form simultaneously:

i. a first NC-IGBT p-type region in the NC-IGBT tub, said region being circulary shaped and located in the center of the NC-IGBT tub and being implanted using the ring shaped polysilicon MOS electrode in the NC-IGBT tub as a mask,

ii. a second NC-IGBT p-type region in the NC-IGBT tub, surrounding and spaced front said first NC-IGBT p-type region to form a portion of the NC-IGBT drain, and

iii. a second PC-IGBT p-type region in the PC-IGBT tub, substantially contained within said first PC-IGBT p-type region to form a portion of the PC-IGBT drain,

f. implanting p-type impurities into both the NC-IGBT tub and the PC-IGBT tub to form simultaneously:

i. a third NC-IGBT p-type region in the NC-IGBT tub substantially contained within said second NC-IGBT p-region to form a portion of the NC-IGBT drain,

ii. a fourth NC-IGBT p-type region in the NC-IGBT tub substantially contained within said first NC-IGBT p-type region to form a portion of the NC-IGBT source,

iii. a third PC-IGBT p-type region in the PC-IGBT tub in the space between said first PC-IGBT p-type region of the PC-IGBT and the first PC-IGBT n-type region of the PC-IGBT to form a portion of the PC-IGBT source, and to define the MOS channel region of the PC-IGBT between said first PC-IGBT p-type region and said third PC-IGBT p-type region, said third PC-IGBT p-type region being implanted using the PC-IGBT polysilicon gate MOS electrode as part of the mask,

g. implanting n-type impurities into both the NC-IGBT tub and the PC-IGBT tub to form simultaneously:

i. a first NC-IGBT n-type region substantially contained within said first NC-IGBT p-type region in the NC-IGBT tub and abutting said fourth NC-IGBT p-type region of the NC-IGBT tub, to form a portion of the NC-IGBT emitter,

ii. a second PC-IGBT n-type region in the PC-IGBT tub overlapping both said first PC-IGBT n-type region of the PC-IGBT tub and the third PC-IGBT p-type region of the PC-IGBT tub,

iii. a third PC-IGBT n-type region in the PC-IGBT tub substantially contained within said second PC-IGBT p-type region to form part of the PC-IGBT drain, and

h. depositing a conductive metal over the resulting structure and patterning the conductive metal to produce contacts for the source, said MOS gate and drain of both the said PC-IGBT and the said NC-IGBT.

5,728,608

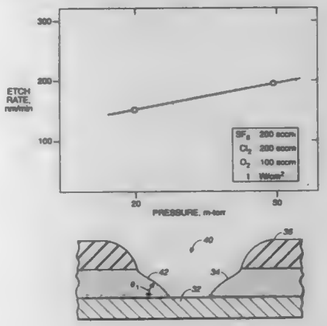
TAPERED DIELECTRIC ETCH IN SEMICONDUCTOR DEVICES

Yuh-Jia (Jim) Su, Cupertino; Yuen-Kui (Jerry) Wong, Fremont; Kam S. Law, Union City, and Haruhiro (Harry) Goto, Saratoga, all of Calif., assignors to Applied Komatsu Technology, Inc., Tokyo, Japan

Filed Oct. 11, 1995, Ser. No. 541,066

Int. Cl.[6] H01L *21/3065*

U.S. Cl. 438—149 **12 Claims**



1. A method for processing a semiconductor device comprising:

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providing a substrate of an insulative material, said substrate having a top surface,

depositing a layer of a dielectric material on the top surface of said substrate,

depositing and patterning a layer of a photoresist on top of said dielectric material, and

applying SF_6 gas and Cl_2 gas to said dielectric material layer and said patterned photoresist layer to remove at least a portion of said dielectric material layer and thereby form at least one opening in said dielectric material layer that extends to the top surface of said substrate, said opening having substantially sloped sidewalls extending between said dielectric material layer and the top surface of said substrate.

5,728,609

METHOD FOR PRODUCING CONTACT HOLES

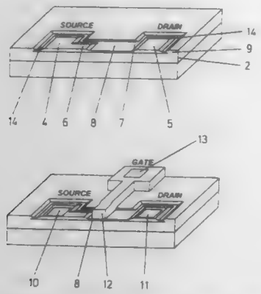
Martin Kerber, München, Germany, assignor to Siemens Aktiengesellschaft, Munich, Germany

Filed Sep. 3, 1996, Ser. No. 706,820

Claims priority, application Germany, Sep. 1, 1995, 195 32 380.7

Int. Cl.[6] H01L *21/00*

U.S. Cl. 438—149 **7 Claims**



1. A method for producing contact holes in MOS integrated circuits by the SOI technique, which comprises:

covering an oxide layer with a silicon layer having a thickness being greater than a thickness required for active regions of MOS circuits;

applying a first mask to contact hole regions, and thinning regions not covered by the first mask to a thickness suitable for the active regions;

covering the active regions, supply lead regions and the contact hole regions with a second mask, and insulating regions not covered by the second mask with a LOCOS insulation; and

then creating connections to the active region and an insulating layer, and effecting contact hole etching through the connections.

5,728,610

METHOD FOR PRODUCING A THIN FILM TRANSISTOR HAVING IMPROVED CARRIER MOBILITY CHARACTERISTICS AND LEAKAGE CURRENT CHARACTERISTICS

Dharam Pal Gosain; Jonathan Westwater, and Setsuo Usui, all of Kanagawa, Japan, assignors to Sony Corporation, Tokyo, Japan

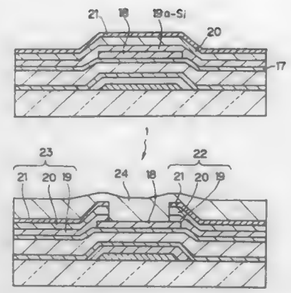
Continuation of Ser. No. 412,946, Mar. 29, 1995, Pat. No. 5,567,633. This application Jun. 28, 1996, Ser. No. 671,730

Claims priority, application Japan, Mar. 31, 1994, 6-087799

Int. Cl.[6] H01L *21/84*

U.S. Cl. 438—162 **5 Claims**

1. A method of producing a thin film transistor, comprising the steps of:



providing a substrate having insulating properties and providing a gate on a surface of the substrate;

forming an insulating film, including in sequence a silicon nitride film and a gate insulating film which is comprised of a silicon oxide film over the substrate and gate, and then forming a polycrystalline silicon film on an upper surface of said insulating film;

depositing a silicon oxide film on said polycrystalline silicon film, and then patterning said silicon oxide film to form a silicon oxide film pattern on said polycrystalline silicon film directly above said gate;

successively forming a hydrogen-containing amorphous silicon film, a conductive silicon film, and a metal film on said polycrystalline silicon film so as to cover said silicon oxide film pattern;

introducing hydrogen from said amorphous silicon film into said polycrystalline silicon film, and also activating conductive impurities in said conductive silicon film by heat treatment; and

patterning said metal film, said conductive silicon film, and said amorphous silicon film to form source/drain regions extending from over edges of said silicon oxide film pattern laterally outwardly from said silicon oxide film pattern.

5,728,611

METHOD OF FABRICATING SEMICONDUCTOR DEVICE

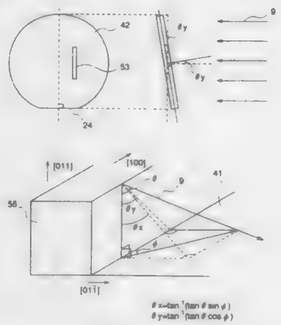
Takayuki Hisaka; Kenji Hosogi, and Naohito Yoshida, all of Tokyo, Japan, assignors to Mitsubishi Denki Kabushiki Kaisha, Tokyo, Japan

Filed Apr. 10, 1996, Ser. No. 630,471

Claims priority, application Japan, Sep. 12, 1995, 7-233623

Int. Cl.[6] H01L *21/338*

U.S. Cl. 438—168 **2 Claims**



1. A method of producing a semiconductor device comprising:

preparing a semiconductor ingot having a (100) axial orientation, a (100) surface and an orientation flat in a [01$\bar{1}$] direction;

cutting the semiconductor ingot in a plane obtained by tilting the (100) surface by an angle θ from an axis obtained by rotating the orientation flat by an angle φ about the center of the (100) surface to approximately midway between adjacent [110] and [100] axes, thereby producing a semiconductor wafer having a surface;

producing a channel region in the semiconductor wafer;

producing a refractory metal gate on the surface of the semiconductor wafer; and

using the refractory metal gate as a mask, implanting dopant impurity ions into the semiconductor wafer in a direction perpendicular to the surface of the semiconductor wafer, thereby producing impurity-implanted regions in the semiconductor wafer.

5,728,612

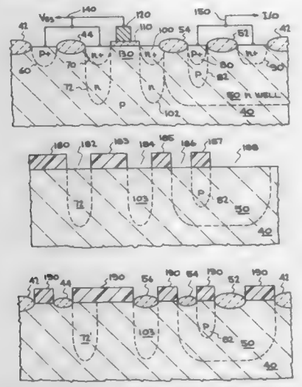
METHOD FOR FORMING MINIMUM AREA STRUCTURES FOR SUB-MICRON CMOS ESD PROTECTION IN INTEGRATED CIRCUIT STRUCTURES WITHOUT EXTRA IMPLANT AND MASK STEPS, AND ARTICLES FORMED THEREBY

Hua-Fang Wei, Sunnyvale, and Michael Colwell, Fremont, both of Calif., assignors to LSI Logic Corporation, Milpitas, Calif.

Filed Jul. 19, 1996, Ser. No. 684,022

Int. Cl.[6] H01L *21/8238*

U.S. Cl. 438—200 **4 Claims**



1. A process for forming an electrostatic discharge (ESD) protection structure capable of protecting portions of an integrated circuit structure from damage from ESD comprising the steps of:

a) providing a semiconductor substrate of a first conductivity type;

b) forming a first mask over said substrate having:

i) first and second spaced apart openings in said first mask for formation of single main well of a second conductivity type in said substrate, said first and second openings being spaced sufficiently apart to also form a well of said first conductivity type in said substrate at a depth shallower than the depth of said main well; and

ii) at least two further openings in said first mask spaced apart from one another and from said first and second openings for forming individual wells of said second conductivity type in said substrate;

c) forming said main well and said individual wells of said second conductivity type in said substrate beneath said openings in said first mask by implanting said semiconductor substrate through said openings in said first mask with dopant capable of forming said wells in said substrate of said second conductivity type beneath said openings, while simultaneously forming said shallower well of said first conductivity type beneath said first mask between said first and second openings in said first mask and surrounded beneath the surface of said substrate by said main well;

d) masking said substrate with a second mask to form field oxide portions in said substrate, with openings in said field oxide in registry with said individual wells and further openings in said field oxide for providing contact regions to said substrate and said main well;

e) forming a gate oxide over an exposed portion of said substrate not covered with said field oxide between said individual wells formed beneath said two further openings in said first mask;

f) forming an electrode over said gate oxide, comprising the gate electrode of an SCR;

g) masking said openings in said field oxide over said individual well of said first conductivity type and over said contact opening to said substrate with a third mask, and implanting an upper part of said main well and said individual wells of said second conductivity type with sufficient dopant of said second conductivity type to form:

i) a + doped region of said second conductivity type in said upper part of one of said individual wells comprising the source region of said SCR;

ii) a + doped region of said second conductivity type in said upper part one of said individual wells comprising a floating drain region of said SCR and the base of at least one bipolar transistor; and

iii) a + doped source region of said second conductivity type in said upper part of said main well comprising a contact to said main well, and serving as the collector of said at least one bipolar transistor;

h) masking said structure and implanting a portion of said substrate and an upper portion of said shallower well with sufficient dopant of said first conductivity type through a fourth mask to form:

i) a + doped region of said first conductivity type in said upper part of said shallower well comprising an emitter region of said at least one bipolar transistor; and

ii) a + doped region of said first conductivity type in said upper part of said substrate comprising a contact to said substrate;

to thereby provide an ESD protection structure comprising an SCR and at least one bipolar transistor capable of protecting portions of an integrated circuit structure from damage from ESD, with enhanced current carrying capability compared to a structure not having said individual wells beneath said + doped regions without, however, increasing the lateral dimensions of said ESD protection structure.

5,728,613

METHOD OF USING AN INSULATOR SPACER TO FORM A NARROW BASE WIDTH LATERAL BIPOLAR JUNCTION TRANSISTOR

Ching-Hsiang Hsu; Steve S. Chung, both of Hsin-chu; Shyh-Chyi Wong, Taichung, and Mong-Song Liang, Hsin-chu, all of Taiwan, assignors to Taiwan Semiconductor Manufacturing Company, Ltd., Hsin-chu, Taiwan

Filed Mar. 27, 1996, Ser. No. 622,791

Int. Cl.[6] H01L *21/8238;21/331;21/8222*

U.S. Cl. 438—204 **22 Claims**

1. A method for fabricating a first type silicon transistor, and a second type silicon transistor, in a layer of silicon on insulator, on a semiconductor substrate, comprising the steps of:

providing said semiconductor substrate;

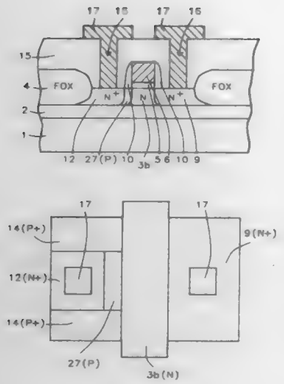
providing said silicon on insulator layer, on said semiconductor substrate;

growing field oxide regions on specific areas of said silicon on insulator layer;

growing a first insulator layer on the surface of said silicon on insulator layer, not covered by said field oxide regions;

depositing a polysilicon layer on said first insulator layer, and on said field oxide regions;

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ion implanting a first conductivity imparting dopant into said polysilicon layer;

patterning of said polysilicon layer to form first and second polysilicon gate structures;

ion implanting a second conductivity imparting dopant into a first region, and into a second region, of said silicon on insulator layer, not covered by said first polysilicon gate structure, and not covered by said field oxide region, to be used for a first type transistor structure;

ion implanting said second conductivity imparting dopant into a third region of said silicon on insulator layer, not covered by said second polysilicon gate structure, and not covered by said field oxide region, to be used for a second type transistor structure;

forming a first photoresist shape, exposing said first region, of said silicon on insulator layer;

ion implanting a third conductivity imparting dopant into exposed said first region, of said silicon on insulator layer, not covered by said first polysilicon gate structure, and not covered by said field oxide region, to be used for said first type transistor structure;

removal of said first photoresist shape;

deposition of a second insulator layer;

anisotropic etching of said second insulator layer to form insulator sidewall spacers on sides of said first and second polysilicon gate structures;

forming a second photoresist shape, exposing said first region, and said second region of said silicon on insulator layer, to be used for said first type transistor structure;

ion implanting a fourth conductivity imparting dopant into exposed said first region, of said silicon on insulator layer, not covered by said field oxide region, not covered by said first polysilicon gate structure, and not covered by insulator sidewall spacers region;

ion implanting said fourth conductivity imparting dopant into exposed said second region, of said silicon on insulator layer, not covered by said second polysilicon gate structure, not covered by said field oxide region, and not covered by said insulator sidewall spacers;

removal of said second photoresist shape;

forming a third photoresist shape, exposing said third region, of said silicon on insulator layer, to be used for said second type transistor structure, and exposing an area of said second region, of said silicon on insulator layer, not previously subjected to ion implantation of fourth conductivity imparting dopant, to be used for said first type transistor structure;

ion implanting a fifth conductivity imparting dopant into said third region, of said silicon on insulator layer, not covered by said field oxide regions, not covered by said second polysilicon gate structure, and not covered by said insulator sidewall spacers;

ion implanting said fifth conductivity imparting dopant into said area of said second region, of said silicon on insulator layer, not covered by said third photoresist shape;

removal of said third photoresist shape;

deposition of a third insulator layer;

opening contact holes in said third insulator layer, to said area of said second region, to said first region, and to said second region, of said silicon on insulator layer, to be used for said first type transistor structure, and to said third region of said silicon on insulator layer, to be used for said second type transistor structure;

deposition of a metal; and

forming metal contact structures to said area of said second region, to said first region, and to said second region, of said silicon on insulator layer, to be used for said first type transistor structure, and forming contacts to said first and second polysilicon gate structures, and to said third region, of silicon on insulator layer, to be used for said second type transistor structure.

5,728,614

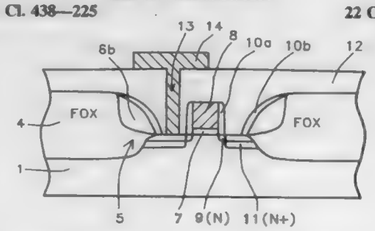
METHOD TO IMPROVE THE TOPOGRAPHY OF A FIELD OXIDE REGION

Horng-Huei Tseng, Hsinchu, Taiwan, assignor to Vanguard International Semiconductor Corporation, Hsin-chu, Taiwan

Filed Sep. 25, 1996, Ser. No. 719,345

Int. Cl.[6] H01L *21/8238*

U.S. Cl. 438—225 **22 Claims**



1. A method of fabricating a MOSFET device, on a semiconductor substrate, with insulator spacers on the sides of field oxide regions, comprising the steps of:

forming an oxidation resistant, composite mask, on regions of said semiconductor substrate;

forming field oxide regions in said semiconductor substrate, in areas not covered by said oxidation resistant, composite mask;

removal of said oxidation resistant, composite mask, exposing a region of said semiconductor substrate to be used for MOSFET active device region;

depositing a first insulator layer on said field oxide regions, and on said MOSFET active device region;

anisotropic, dry etching of said first insulator layer, to create first insulator spacers on the sides of said field oxide regions;

growing a gate insulator layer on said MOSFET active device region;

depositing a polysilicon layer on said gate insulator layer, on said field oxide regions, and on said first insulator spacers;

patterning of said polysilicon layer to create a polysilicon gate structure, on said gate insulator layer;

ion implanting a first conductivity imparting dopant into an area of said MOSFET active device region, not covered by said polysilicon gate structure, not covered by said field oxide regions, and not covered by said first insulator spacers, to form a lightly doped source and drain region;

depositing a second insulator layer on said lightly doped source and drain regions, on said polysilicon gate structure, on said field oxide regions, and on said first insulator spacers;

anisotropic, dry etching of said second insulator layer, to create a second insulator spacer on the sides of said polysilicon gate structure;

ion implanting a second conductivity imparting dopant into an area of said MOSFET active device region, not covered by said polysilicon gate structure, not covered by said second insulator spacers, not covered by said field oxide regions, and not covered by said first insulator spacers, to form a heavily doped source and drain region; and

forming metal contacts to said heavily doped source and drain regions, and to said polysilicon gate structure.

5,728,615

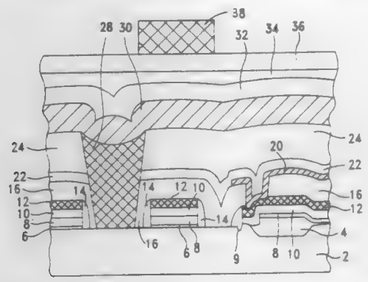
METHOD OF MANUFACTURING A POLYSILICON RESISTOR HAVING UNIFORM RESISTANCE

Shen-Wen Cheng, Tainan, and Chun-Lin Cheng, Taipei, both of Taiwan, assignors to Vanguard International Semiconductor Corporation, Hsinchu, Taiwan

Filed Jul. 18, 1996, Ser. No. 683,367

Int. Cl.[6] H01L *21/8234*

U.S. Cl. 438—238 **45 Claims**



5. A method of forming a polysilicon resistor in a SRAM memory cell, said method comprising:

forming a silicon dioxide layer on a semiconductor substrate having impurity regions formed therein;

forming a buried contact in said substrate;

forming a first polysilicon layer on said silicon dioxide layer and on said substrate;

forming a metal silicide layer on said first polysilicon layer;

etching said silicon dioxide layer, said first polysilicon layer and said metal silicide layer to form a gate structure aligned between two impurity regions in said semiconductor substrate;

forming a first dielectric layer over said gate structure, said substrate and said metal silicide layer;

anisotropically etching said first dielectric layer to form a side wall spacer adjacent to said gate structure;

forming a second dielectric layer on said gate structure, said substrate and said metal silicide layer;

forming a contact hole in said second dielectric layer, whereby a portion of said metal silicide layer is exposed;

forming a second polysilicon layer on said second dielectric layer and along the surface of said contact hole;

patterning a photoresist on said second polysilicon layer and etching said second polysilicon layer to form a polysilicon load resistor;

forming a third dielectric layer on said second dielectric layer, on said second polysilicon layer; and

forming a fourth dielectric layer on said third dielectric layer.

5,728,616

METHOD OF MAKING A SEMICONDUCTOR MEMORY DEVICE WITH IMPROVED CAPACITOR

Masato Sakao, Tokyo, Japan, assignor to NEC Corporation, Tokyo, Japan

Division of Ser. No. 530,994, Sep. 20, 1995, Pat. No. 5,652,446. This application Feb. 14, 1996, Ser. No. 601,502

Claims priority, application Japan, Sep. 20, 1994, 6-224395

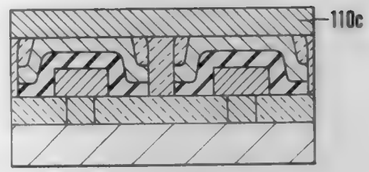
Int. Cl.[6] H01L *21/8242*

U.S. Cl. 438—240 **3 Claims**

1. A method of manufacturing a semiconductor device, comprising the steps of:

depositing first conductive members to be connected to a semiconductor substrate in a plurality of openings formed in a first insulating film formed on a major surface of said semiconductor substrate;

depositing a storage electrode film on said first insulating film;



etching said storage electrode film to form a plurality of storage electrodes having shapes at positions respectively corresponding to said first conductive members;

sequentially depositing a high-permittivity film and a first counter electrode on said plurality of storage electrodes having the shapes and said first insulating film;

processing said high-permittivity film and said first counter electrode to form a plurality of high-permittivity films having shapes and a plurality of first conductive electrodes having shapes on said plurality of storage electrodes;

burying a second insulating film between a plurality of convex multi-layered structures, said plurality of convex multi-layered structures being adjacent each other and consisting of said storage electrodes, said high-permittivity films, and said first counter electrodes, and said second insulating film having a permittivity much lower than a permittivity of each of said high-permittivity films; and

forming a second counter electrode on upper surfaces of said second insulating film and said plurality of first counter electrodes so as to connect upper surfaces of said first counter electrodes exposed on a surface of said second insulating film.

5,728,617

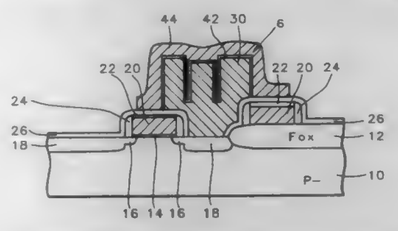
METHOD FOR FABRICATING VERTICAL WALLED STACKED CAPACITORS FOR DRAM CELLS

Horng-Huei Tseng, Hsinchu, Taiwan, assignor to Vanguard International Semiconductor Corporation, Hsin-Chu, Taiwan

Filed Nov. 12, 1996, Ser. No. 747,501

Int. Cl.[6] H01L *21/8242*

U.S. Cl. 438—253 **21 Claims**



1. A method for fabricating stacked storage capacitors on a semiconductor substrate, comprising the steps of:

providing a semiconductor substrate having device areas surrounded and electrically isolated from each other by field oxide areas, said device areas having semiconductor devices formed, in part, from a patterned polycide layer, and having device contact areas in said device areas, said substrate coated with a first insulating layer having contact openings to said device contact areas and further forming said stacked storage capacitors by;

depositing a first polysilicon layer on said substrate over said first insulating layer and electrically contacting said device contact areas;

planarizing said first polysilicon layer;

depositing a second insulating layer on said first polysilicon layer;

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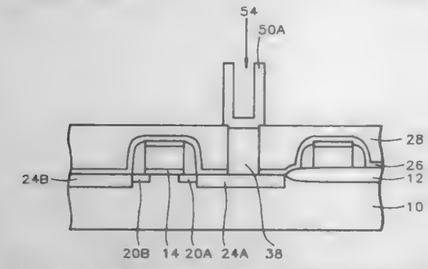
photoresist masking and anisotropically etching openings having essentially vertical sidewalls in said second insulating layer to said first polysilicon layer over said device contact areas where said stacked capacitors are to be formed;
depositing a conformal third insulating layer on said second insulating layer, said third insulating layer providing a barrier to thermal oxidation;
anisotropically etching back said third insulating layer, thereby forming sidewall spacers on said sidewalls of said openings in said second insulating layer and further exposing said first polysilicon layer in said openings;
forming polysilicon oxide in said openings on said exposed first polysilicon layer by thermal oxidation;
selectively removing said sidewall spacers, thereby exposing said first polysilicon layer thereunder;
forming recessed areas in said first polysilicon layer by anisotropic plasma etching while using said second insulating layer and said polysilicon oxide as an etching mask, thereby forming inner sidewalls for said stacked capacitors;
removing concurrently said second insulating layer and said polysilicon oxide by wet etching;
forming a patterned photoresist mask having portions over said recessed areas defining the outer perimeter of bottom electrodes for said array of stacked capacitors;
anisotropic plasma etching said first polysilicon layer to said first insulating layer and thereby forming an array of said bottom electrodes having vertical sidewalls;
forming an interelectrode dielectric layer on said bottom electrodes;
depositing a second polysilicon layer;
patterning said second polysilicon layer and thereby completing said stacked storage capacitors.

5,728,618

METHOD TO FABRICATE LARGE CAPACITANCE CAPACITOR IN A SEMICONDUCTOR CIRCUIT

Horng-Huei Tseng, Hsinchu, Taiwan, assignor to Vanguard International Semiconductor Corporation, Hsin-Chu, Taiwan

Filed Jun. 4, 1997, Ser. No. 868,603
Int. Cl.[6] H01L *21/8242*
U.S. Cl. 438—253 **14 Claims**



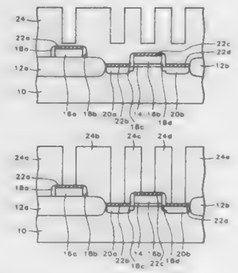
1. A method of fabricating a dynamic random access memory device having a high capacitance stacked capacitor comprising:
forming a planarizing layer over a substrate having a source region;
forming a first opening in said planarizing layer using a first photolithographic process; said first opening exposing said source region; said first opening formed using a first photolithographic process using a first optical mask having first optical openings;
forming a polysilicon stud in said first opening;
forming a dielectric layer over said planarizing layer;
forming a second opening in said dielectric layer using a second photolithographic process using said first optical mask;
forming a cylindrical electrode in said second opening; said polysilicon stud and said cylindrical electrodeforming a bottom electrode;
selectively removing said dielectric layer;
depositing a capacitor dielectric layer over said cylindrical electrode;
patterning said capacitor dielectric layer so that portions remain covering at least the cylindrical electrode; and
forming a top electrode over said capacitor dielectric layer.

5,728,619

SELECTIVE REACTIVE ION ETCH (RIE) METHOD FOR FORMING A NARROW LINE-WIDTH HIGH ASPECT RATIO VIA THROUGH AN INTEGRATED CIRCUIT LAYER

Chia Shiung Tsai, and Chen-Hua Douglas Yu, both of Hsin-Chu, Taiwan, assignors to Taiwan Semiconductor Manufacturing Company, Ltd., Hsin-Chu, Taiwan

Filed Mar. 20, 1996, Ser. No. 618,890
Int. Cl.[6] H01L *21/336*
U.S. Cl. 438—297 **17 Claims**



1. A method for forming within an integrated circuit a via through a silicon containing insulator layer to access a metal silicide layer comprising:
providing a semiconductor substrate;
forming over the semiconductor substrate a metal silicide layer;
forming upon the metal silicide layer a silicon containing insulator layer;
etching through a first Reactive Ion Etch (RIE) method a partial via within the silicon containing insulator layer without exposing the metal silicide layer, the first Reactive Ion Etch (RIE) method employing a tri-fluoro methane (CHF3)/carbon tetra-fluoride (CF4)/argon (Ar) reactant gas mixture; and
etching through a second Reactive Ion Etch (RIE) method the partial via to form a via completely through the silicon containing insulator layer, the via exposing the metal silicide layer, the second Reactive Ion Etch (RIE) method employing a tri-fluoro methane (CHF3)/nitrogen (N2)/helium (He) reactant gas mixture.

8. A method for forming within an integrated circuit a via through a silicon containing insulator layer to access a metal silicide layer formed upon an integrated circuit device electrode comprising:
providing a semiconductor substrate;
forming within and upon the semiconductor substrate an integrated circuit device, the integrated circuit device having an integrated circuit device electrode formed therein;
forming upon the integrated circuit device electrode a metal silicide layer;
forming upon the integrated circuit device and the metal silicide layer a silicon containing insulator layer;
etching through a first Reactive Ion Etch (RIE) method a partial via within the silicon containing insulator layer without exposing the metal silicide layer, the first Reactive Ion Etch (RIE) method employing a tri-fluoro methane (CHF3)/carbon tetra-fluoride (CF4)/argon (Ar) reactant gas mixture;
etching through a second Reactive Ion Etch (RIE) method the partial via to form a via completely through the silicon containing insulator layer, the via exposing the metal silicide

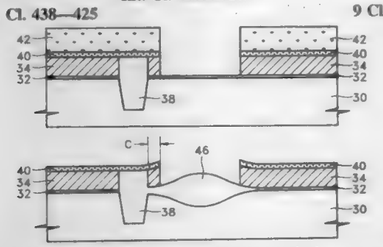
layer, the second Reactive Ion Etch (RIE) method employing a tri-fluoro methane (CHF3)/nitrogen (N2)/helium (He) reactant gas mixture.

5,728,620

ISOLATION METHOD OF SEMICONDUCTOR DEVICE

Moon-han Park, Seoul, Rep. of Korea, assignor to Samsung Electronics Co., Ltd., Kyungki-do, Rep. of Korea

Filed Jan. 25, 1996, Ser. No. 591,826
Claims priority, application Rep. of Korea, Apr. 21, 1995, 95-9455
Int. Cl.[6] H01L *21/76*
U.S. Cl. 438—425 **9 Claims**



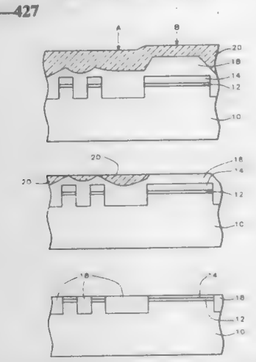
1. An isolation method of a semiconductor device, comprising the steps of:
forming a first device isolation layer in a first inactive region of a semiconductor substrate by a trench isolation method; and
forming a second device isolation layer in a second inactive region which is wider than the first inactive region by a local oxidation method;
wherein a distance between said first device isolation layer and said second device isolation layer is less than 2000 Å; and
wherein said first inactive region exists in a cell array portion and said second inactive region exists in a peripheral portion.

5,728,621

METHOD FOR SHALLOW TRENCH ISOLATION

Jia Zhen Zheng, Singapore, Singapore; Charlie Wee Song Tay, Johor, Malaysia; Wei Lu, Singapore, Singapore, and Lap Chan, San Francisco, Calif., assignors to Chartered Semiconductor Manufacturing PTE Ltd, Singapore, Singapore

Filed Apr. 28, 1997, Ser. No. 845,870
Int. Cl.[6] H01L *21/76*
U.S. Cl. 438—427 **21 Claims**



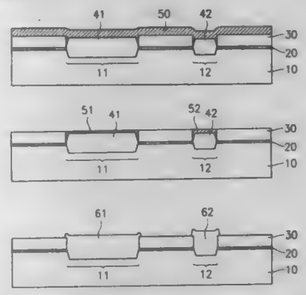
1. A method of manufacturing an integrated circuit device comprising:
providing a pad oxide layer over the surface of a semiconductor substrate;
depositing a nitride layer overlying said pad oxide layer;
etching a plurality of isolation trenches through said nitride and said pad oxide layers into said semiconductor substrate wherein there is at least one first wide nitride region between two of said isolation trenches and at least one second narrow nitride region between another two of said isolation trenches;
depositing a high density plasma oxide layer over said nitride layer and within said isolation trenches wherein said high density plasma oxide layer fills said isolation trenches and wherein said high density plasma oxide deposits more thickly in said first region over said wide nitride layer and deposits more thinly in said second region over said narrow nitride layer and wherein the difference in step heights of said high density plasma oxide between said first region and a third region overlying an isolation trench is a first height;
coating a layer of spin-on-glass over said high density plasma oxide layer wherein the difference in step heights of said spin-on-glass material between said first region and said third region is a second height smaller than said first height;
etching back said spin-on-glass layer and said portions of said high density plasma oxide layer in said first region;
polishing away said spin-on-glass layer and said high density plasma oxide layer remaining wherein said substrate is planarized; and
completing the fabrication of said integrated circuit device.

5,728,622

PROCESS FOR FORMING FIELD OXIDE LAYERS IN SEMICONDUCTOR DEVICES

Tzu-Chiang Yu, Yungkang, Taiwan, assignor to Winbond Electronics Corporation, Taiwan

Filed Mar. 18, 1996, Ser. No. 617,029
Int. Cl.[6] H01L *21/76*
U.S. Cl. 438—443 **14 Claims**



1. A process for forming at least a first field oxide layer and a second field oxide layer of different widths with approximately equal thickness, comprising:
(1) providing a silicon substrate on which a layer of pad oxide and a layer of nitride are successively formed and then forming through the nitride layer a wide area first opening of a first width and a narrow area second opening of a second width less than the first width, by a lithographic process and by etching, so as to define a wide area and a narrow area on the silicon substrate;
(2) performing a thermal oxidation process so as to grow a first field oxide layer on the wide area and a second field oxide layer on the narrow area;
(3) depositing a polysilicon layer on the nitride layer and the first field oxide layer and the second field oxide layer, such that the polysilicon layer extends above a plane coincident with a topmost surface of the nitride layer;
(4) performing a chemical-mechanical polish (CMP) process so as to rub away the part of the polysilicon layer that lies above the plane coincident with the topmost surface of the nitride layer, said topmost surface acting as a stopper to the CMP process, to leave a first polysilicon layer covering the entire first field oxide layer and a second polysilicon layer covering

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the entire second field oxide layer, the first polysilicon layer being thinner than the second polysilicon layer; and

(5) performing a thermal oxidation process so as to oxidize the first polysilicon layer and the second polysilicon layer to increase the thickness of the first field oxide layer and the second field oxide layer.

5,728,623

METHOD OF BONDING A III-V GROUP COMPOUND SEMICONDUCTOR LAYER ON A SILICON SUBSTRATE

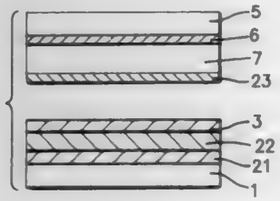
Kazuo Mori, Tokyo, Japan, assignor to NEC Corporation, Tokyo, Japan

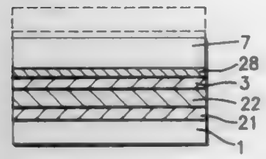
Filed Mar. 16, 1995, Ser. No. 405,104

Claims priority, application Japan, Mar. 16, 1994, 6-045828; Dec. 7, 1994, 6-303707

Int. Cl.[6] H01L *21/30*

U.S. Cl. 438—455 30 Claims





1. A method for bonding a III-V group compound semiconductor layer to a silicon layer, said III-V group compound semiconductor layer having a different thermal expansion coefficient from a thermal expansion coefficient of said silicon layer and having a different rigidity coefficient from a rigidity coefficient of said silicon layer, said method comprising the steps of:

preparing an intermediate layer sandwiched between said silicon layer and said III-V group compound semiconductor layer; and

subjecting said intermediate, silicon and III-V group compound semiconductor layers to a heat treatment at a temperature not less than 450° C.;

wherein said intermediate layer comprises a thermal stress relaxation layer having a thermal expansion coefficient equal or near to the thermal expansion coefficient of said III-V group compound semiconductor layer and having a rigidity coefficient substantially greater than a rigidity coefficient of said III-V group compound semiconductor layer, thereby to suppress generation of any crystal defects in said III-V group compound semiconductor layer due to a thermal stress generated in said heat treatment and subsequent cooling stage by the difference in the thermal expansion coefficient between said III-V group compound semiconductor layer and said silicon layer.

5,728,624

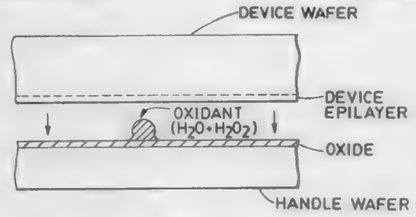
BONDED WAFER PROCESSING

Jack H. Linn, Melbourne; Robert K. Lowry, Melbourne Beach; Geroge V. Rouse, Indiatlantic, all of Fla.; James F. Buller, Austin, Tex., and William Herman Speece, Palm Bay, Fla., assignors to Harris Corporation, Melbourne, Fla.

Division of Ser. No. 287,773, Aug. 9, 1994, Pat. No. 5,517,047, which is a division of Ser. No. 921,197, Jul. 28, 1992, Pat. No. 5,362,667. This application Dec. 15, 1995, Ser. No. 573,551

Int. Cl.[6] H01L *21/76*

U.S. Cl. 438—459 11 Claims



1. A method of wafer bonding, comprising the steps of:

(a) providing a device wafer and a handle wafer;

(b) placing an oxidant for oxidizing the surface of at least one of the wafers between opposite surfaces of the device wafer and the handle wafer, said oxidant containing a doping compound of a conductive impurity;

(c) contacting the opposite surface of the wafers together with the oxidant therebetween;

(d) in a single step simultaneously

bonding the opposite surfaces of the handle wafer and the device wafer by creating a bonding layer between the device wafer to the handle wafer to bond the two wafers together,

doping the bonding layer to radiation harden the device wafer with dopants selected from a first group consisting of fluorine, sulfur, phosphorus, and combinations thereof, and

doping the device wafer to form a buried layer in the device wafer of the bonded wafer with dopants selected from the group consisting of boron, phosphorus, arsenic, antimony and combinations thereof, by heating the wafers in the range of about 800°–1000° C.

5,728,625

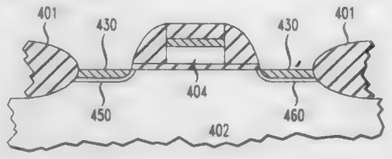
PROCESS FOR DEVICE FABRICATION IN WHICH A THIN LAYER OF COBALT SILICIDE IS FORMED

Raymond Tzutse Tung, Warren, Somerset County, N.J., assignor to Lucent Technologies Inc., Murray Hill, N.J.

Filed Apr. 4, 1996, Ser. No. 627,560

Int. Cl.[6] H01L *21/283;21/336*

U.S. Cl. 438—586 18 Claims



1. A process for device fabrication comprising:

forming a layer of oxide with a thickness of about 0.5 nm to about 1.5 nm on the surface of a silicon substrate;

placing the substrate in an essentially oxygen-free environment;

forming at least one layer of cobalt with a thickness of about 5 nm or less on the substrate while maintaining the substrate in an essentially oxygen free environment; and

heating the substrate under conditions sufficient to form an epitaxial layer of cobalt silicide on the silicon substrate.

5,728,626

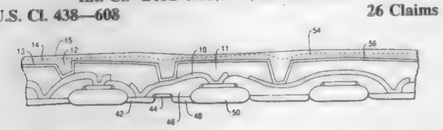
SPIN-ON CONDUCTOR PROCESS FOR INTEGRATED CIRCUITS

Derryl D. J. Allman, and Steven S. Lee, both of Colorado Springs, Colo., assignors to AT&T Global Information Solutions Company, Dayton, Ohio; Hyundai Electronics America, San Jose, Calif., and Symbios Logic Inc., Fort Collins, Colo.

Continuation of Ser. No. 96,810, Jul. 26, 1993. This application Oct. 23, 1995, Ser. No. 553,788

Int. Cl.[6] B05D *3/02;5/12;* H01L *21/445*

U.S. Cl. 438—608 26 Claims



9. A method of planarizing a nonplanar substrate comprising the steps of:

(a) depositing a first layer of a barrier metal on at least one surface of the substrate, the substrate having a different chemical composition than said first layer;

(b) hydrolyzing an organic precursor comprising a conducting material in a liquid to form a polymer containing the conducting material and organic material, the polymer being contained in the liquid;

(c) spreading the polymer suspended in the liquid on at least a portion of the first barrier metal layer, the first barrier metal layer inhibiting interaction of the polymer and liquid with the underlying substrate;

(d) removing at least a portion of the liquid, thereby depositing the conductive material in a first conductive layer on at least a portion of the first barrier metal layer, wherein the first conductive layer is more planar than said first layer to provide a substantially planar upper surface for the deposition of a second layer and the first conductive layer has a different composition than the barrier metal layer wherein the conducting material includes a metal selected from the group consisting of indium, tin, aluminum, palladium, osmium, nickel, niobium, copper, platinum, rubidium, tantalum, neodymium, molybdenum, lanthanum, iridium and gold; and

(e) depositing the second layer on the substantially planar upper surface of the first conductive layer.

5,728,627

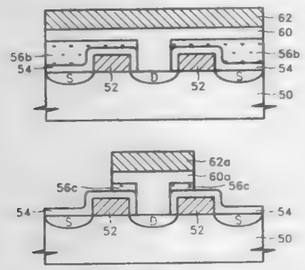
METHODS OF FORMING PLANARIZED CONDUCTIVE INTERCONNECTS FOR INTEGRATED CIRCUITS

In-ho Nam, Kyungki-do, and Won-seong Lee, Seoul, both of Rep. of Korea, assignors to Samsung Electronics Co., Ltd., Suwon, Rep. of Korea

Filed Nov. 14, 1996, Ser. No. 747,783

Int. Cl.[6] H01L *21/4763*

U.S. Cl. 438—618 20 Claims



1. A method of forming a conductive interconnect for an integrated circuit field effect transistor including spaced apart source and drain regions in an integrated circuit substrate and a gate on the integrated circuit substrate between the spaced apart source and drain regions, comprising the steps of:

forming a continuous insulating layer which extends continuously on the spaced apart source and drain regions and on the gate therebetween;

forming a continuous conductive layer on the continuous insulating layer;

planarizing the continuous conductive layer to form a planarized conductive layer;

forming a contact hole in the continuous insulating layer and in the planarized conductive layer to thereby expose the source or drain region; and

forming a conductive interconnect in the contact hole and on the gate.

5,728,628

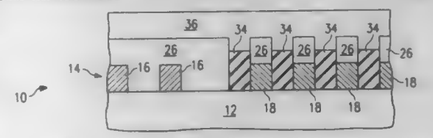
TWO-STEP METAL ETCH PROCESS FOR SELECTIVE GAP FILL OF SUBMICRON INTER-CONNECTS AND STRUCTURE FOR SAME

Robert H. Havemann, Garland, Tex., assignor to Texas Instruments Incorporated, Dallas, Tex.

Continuation of Ser. No. 250,142, May 27, 1994, abandoned. This application Feb. 26, 1996, Ser. No. 606,657

Int. Cl.[6] H01L *21/44*

U.S. Cl. 438—668 10 Claims



1. A method for patterning a metal layer on a semiconductor wafer having a substrate, comprising the steps of:

depositing a metal layer on said substrate, said metal layer having a first portion and a second portion;

then forming widely-spaced leads in said first portion of said metal layer, said widely-spaced leads having leads spaced apart by more than the thickness of said metal layer;

then depositing a first structural dielectric layer on at least said widely-spaced leads and forming at least portions of closely-spaced leads in said second portion of said metal layer, said closely-spaced leads having leads spaced apart less than or equal to the thickness of said metal layer;

then depositing a low-permittivity material between at least said closely-spaced leads, said low-permittivity material providing a dielectric constant of less than 3 in a region between at least two of said closely-spaced metal leads; and

then depositing a second structural dielectric layer over at least said low-permittivity material and said closely-spaced leads.

5,728,629

PROCESS FOR PREVENTING DEPOSITION ON INNER SURFACES OF CVD REACTOR

Shigeru Mizuno; Takanori Yoshimura; Yoshihiro Katsumata, and Nobuyoki Takahashi, all of Tokyo, Japan, assignors to Anelva Corporation, Fuchu, Japan

Filed Sep. 23, 1994, Ser. No. 311,681

Claims priority, application Japan, Nov. 29, 1993, 5-323196

Int. Cl.[6] H01L *21/285*

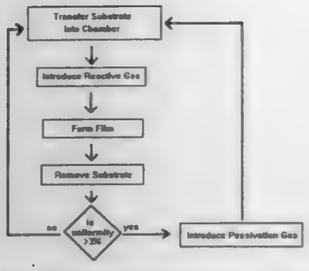
U.S. Cl. 438—680 10 Claims

1. A process for forming a thin metal film, comprising:

performing a substrate processing step which includes transferring a substrate into a reaction chamber, forming a thin metal film on the substrate by a chemical vapor deposition reaction, and then removing the processed substrate from the reaction chamber;

repeating the substrate processing step for a number of substrates;

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introducing an adsorbate passivation gas into the reaction chamber between substrate processing steps to passivate the surface of a thin film adhered to a peripheral member;

wherein the adsorbate passivation gas is a gas that is adsorbed by the surface of the thin film adhered to the peripheral member.

5,728,630

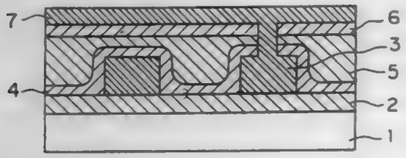
METHOD OF MAKING A SEMICONDUCTOR DEVICE

Hiroyuki Nishimura; Hiroshi Adachi; Etsushi Adachi; Shigeyuki Yamamoto; Shintaro Minami; Shigeru Harada; Toru Tajima, and Kimio Hagi, all of Hyogo, Japan, assignors to Mitsubishi Denki Kabushiki Kaisha, Tokyo, Japan

Division of Ser. No. 401,804, Mar. 10, 1995, Pat. No. 5,604,380. This application Nov. 5, 1996, Ser. No. 743,190

Int. Cl.° H01L *21/31*

U.S. Cl. 438—763 **9 Claims**



1. A method of fabrication of a semiconductor device, comprising the steps of:

forming a first wiring layer on which a given pattern is formed;

forming an interlayer insulating film including a flattening film made of a silicone ladder resin on the first wiring layer in order to absorb irregularity attributable to the first wiring layer;

providing a contact hole through the interlayer insulating layer over said first wiring layer at a selected position on the wiring layer, thereby providing access to said first wiring

forming a second wiring layer of a predetermined pattern on the interlayer insulating layer; and

connecting the first wiring layer to the second wiring layer through the contact hole provided through the interlayer insulating layer;

wherein said step of forming an interlayer insulating film including a flattening film comprises:

forming a resinous solution by adding a resin material to at least one organic solvent selected from the group consisting of an aromatic compound, an alcohol, an ester, an ether, and a ketone, thereby obtaining a resinous solution having a resin concentration of 5 to 30 wt % said resin material containing at least one silicone ladder polymer of the chemical formula:

$$(HO)_2(R_2Si_2O_3)_nH_2$$

wherein n is an integer which is sufficient for a ladder polymer having a weight average molecular weight within the range of 2,000 to 100,000; and R is any one of hydrogen, lower alkyl or phenyl;

applying said solution to said first wiring layer to form a coated film; and

forming said flattening film by thermosetting the coated film.

5,728,631

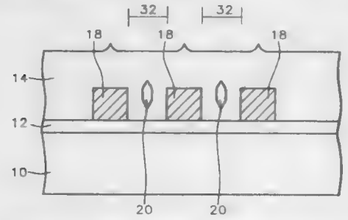
METHOD FOR FORMING A LOW CAPACITANCE DIELECTRIC LAYER

Chin-Kun Wang, Taipei, Taiwan, assignor to Taiwan Semiconductor Manufacturing Company, Ltd., Hsin-Chu, Taiwan

Filed Sep. 29, 1995, Ser. No. 537,106

Int. Cl.° H01L *21/31*

U.S. Cl. 438—787 **14 Claims**



1. A method of forming voids in a low capacitance dielectric layer between narrowly spaced metallurgy lines on a substrate using an ECR oxide deposition process comprising:

forming narrowly spaced conductive metallurgy lines having top surfaces on a substrate surface; said spaced metallurgy lines having a spacing between adjacent lines between about 0.25 and 0.35 μm;

forming a silicon oxide dielectric layer having a closed void between adjacent metallurgy lines using electro cyclotron resonance techniques; said ECR technique has an etch to deposit ratio in the range between about 35 to 40% and said ECR technique has an RF power in the range between about 1200 to 1600 watts and an Argon flow rate in the range between about 100 to 120 sccm, said closed void having width in the range between about 0.1 to 0.2 μm and a height between about 0.1 to 0.6 μm and a length between about 0.1 and 0.3 μm;

forming a SOG layer over said silicon oxide dielectric layer; and

etching back portions of said SOG layer.

5,728,632

LIGHT INTERCEPTING NET

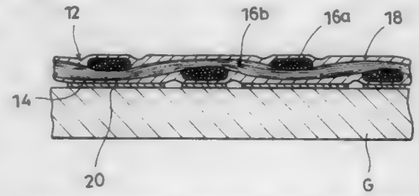
Ryoichi Sugie, 5-1, Uchihiranomachi 1-chome, Chuoku, Osaka, Japan

Continuation of Ser. No. 189,947, Jan. 31, 1994, abandoned, which is a continuation of Ser. No. 918,154, Jul. 21, 1992, abandoned, which is a continuation of Ser. No. 507,110, Apr. 9, 1990, abandoned, which is a continuation of Ser. No. 326,943, Mar. 22, 1989, abandoned. This application Feb. 7, 1995, Ser. No. 385,396

Claims priority, application Japan, Mar. 24, 1988, 63-71551

Int. Cl.° B32B *7/00*; **B60J** *3/00*

U.S. Cl. 442—43 **3 Claims**



1. A light intercepting net comprising woven fibers, said woven fibers being a fine mesh in the form of yarns that are flattened for providing a surface for linear contact, said woven fibers having a ratio in area of meshes on one side of said net to another side of said net for permitting said net to reduce incident light and allow light to be reflected on a first surface of said net and natural light to pass through the first surface of said net to a second surface of said net, said net being coated with a resin, and a tackiness agent on a surface of said net coated with the resin for attaching said net to a desired surface by means of linear contact, the tackiness agent comprising an acrylic polymer and an emulsion of a vinyl acetate copolymer.

5,728,633

INTERPENETRATING NETWORK COMPOSITIONS AND STRUCTURES

Richard L. Jacobs, 3831 San Felipe Ave., Newbury Park, Calif. 91230

Continuation of Ser. No. 64,523, May 19, 1993, abandoned, which is a division of Ser. No. 824,583, Jan. 23, 1992, abandoned. This application Sep. 12, 1994, Ser. No. 304,766

Int. Cl.° B32B *27/00*

U.S. Cl. 442—148 **13 Claims**

1. Structure bondably adhering to a substrate, said structure comprising a resin composition and a fiber reinforcement arranged in a predetermined configuration, said composition comprising an interpenetrating network of first and second resins, each present in amounts from 5 to 95 parts by weight per 100 parts by weight of said composition, said first resin comprising a light cure resin, said second resin comprising a thermosetting resin, said reinforcing fiber being present in an amount from 10 to 500 parts by weight per 100 parts by weight of said composition, said light cure resin being cured, said thermosetting resin being uncured, said cured resin being distributed through said uncured resin in a manner to block flow of said uncured resin from said structure, said thermosetting resin being curable freely of further cure of said light cure resin.

5,728,634

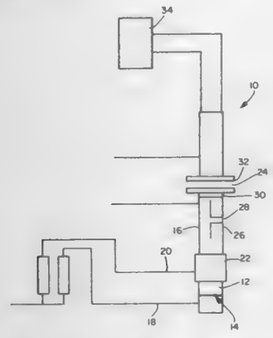
CAFFEINE ADSORBENT LIQUID FILTER

Dennis Stein Everhart, Alpharetta; Rosann Marie Kaylor, Cumming, and Kenneth Raymond Smith, Atlanta, all of Ga., assignors to Kimberly Clark Corporation, Neenah, Wis.

Continuation of Ser. No. 448,690, May 24, 1995, abandoned. This application Jan. 17, 1997, Ser. No. 784,504

Int. Cl.° B32B *19/00*

U.S. Cl. 442—237 **18 Claims**



1. A caffeine adsorbent liquid filter comprising:

a liquid permeable, electret-treated matrix of fibrous material having individual exposed surfaces; and

a relatively uniform distribution of adsorbent clay minerals attached to individual exposed surfaces of the fibrous material by substantially non-transient bonding, said clay minerals selected from smectite clay minerals,

wherein passage of a liquid having a caffeine concentration ranging from about 20 to about 100 mg per 100 mL of liquid through the matrix for a contact time of less than about 2 minutes results in at least a 40 percent reduction in the caffeine concentration of the liquid.

5,728,635

ALUMINUM NITRIDE SINTERED BODIES

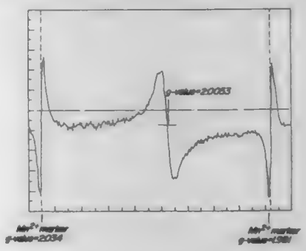
Hiromichi Kobayashi, Yokkaichi; Yuki Bessho, Nishikasugai-gun, and Yukimasa Mori, Nagoya, all of Japan, assignors to NGK Insulators, Ltd., Japan

Filed Aug. 1, 1996, Ser. No. 691,915

Claims priority, application Japan, Aug. 3, 1995, 7-218158; Aug. 4, 1995, 7-218256; Aug. 4, 1995, 7-218257; Jul. 19, 1996, 8-207556

Int. Cl.° C04B *35/581*

U.S. Cl. 501—98.4 **27 Claims**



1. An aluminum nitride sintered body, wherein a g-value of an unpaired electron of the aluminum nitride sintered body in a spectrum of an electron spin resonance is not less than 2.0010.

5,728,636

ZIRCONIA BASED CERAMIC MATERIAL

Masahiro Nawa, Katano; Shoichi Nakamoto, Neyagawa; Keiichi Yamasaki, Nara; Koichi Niihara, 18-1-608, 3-chome, Yamda-Higashi, Suita-shi, Osaka; Atsushi Nakahira, Suita, and Tohru Sekino, Toyonaka, all of Japan, assignors to Matsushita Elec. Works, Ltd., and Koichi Niihara, both of Osaka, Japan

Filed Oct. 17, 1995, Ser. No. 544,285

Claims priority, application Japan, Jan. 30, 1995, 7-034200; Sep. 21, 1995, 7-269334

Int. Cl.° C04B *35/119*

U.S. Cl. 501—105 **3 Claims**



1. A zirconia based ceramic material consisting essentially of 0.5 to 50 vol % of Al_2O_3 grains having an average grain size of 2 μm or less and the balance of grains of a partially stabilized zirconia having an average grain size of 5 μm or less, said partially stabilized zirconia consisting essentially of 8 to 12 mol % of CeO_2, 0.05 to 4 mol % of TiO_2 and the balance of ZrO_2, said Al_2O_3 grains having an average grain size of 1 μm or less being dispersed within the grains of said partially stabilized zirconia at a dispersion ratio of at least 2%, said dispersion ratio being defined as a ratio of the number of said Al_2O_3 grains dispersed within the grains of said partially stabilized zirconia relative to the number of the entire Al_2O_3 grains dispersed in said ceramic material.

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5,728,637

NANOCRYSTALLINE ALUMINA-DIAMOND COMPOSITES

Rajiv S. Mishra; Amiya K. Mukherjee, and Charles E. Lesher, all of Davis, Calif., assignors to The Regents of the University of California, Oakland, Calif.

Filed Feb. 1, 1996, Ser. No. 595,179

Int. Cl.[6] C04B *35/117*

U.S. Cl. 501—127 **10 Claims**

1. A densified ceramic-based composite comprising aluminum oxide and diamond in a substantially uniform distribution at an aluminum oxide:diamond volume ratio of from about 75:25 to about 95:5, at least about 50% of said aluminum oxide and at least about 50% of said diamond being formed by densification of grains of less than about 200 nm diameter.

5,728,638

METAL/CERAMIC COMPOSITES CONTAINING INERT METALS

Andrew C. Strange, and Michael C. Breslin, both of Columbus, Ohio, assignors to BFD, Inc., Columbus, Ohio

Filed Aug. 21, 1996, Ser. No. 703,427

Int. Cl.[6] C04B *35/10;35/46;35/50;35/58*

U.S. Cl. 501—127 **16 Claims**

1. A non-vapor method to produce microstructural grain size reduction in a metal/ceramic composite comprising the steps:

(a) mixing a reactive molten metal or molten metal mixture with at least one inert metal selected from the group consisting of copper, iron, cobalt, nickel, silver, gold, platinum, palladium, titanium, zinc, cadmium, tin, germanium, and lead to form a molten bath;

(b) contacting with the molten bath a sacrificial ceramic body, wherein the reactive molten metal or metal alloy is at a temperature above its melting point but below the softening point of the ceramic body, whereby a metal/ceramic composite article is formed in which the microstructural scale of the grain sizes is smaller than conventional composites not incorporating one or more inert metals.

5,728,639

RECOVERY OF SPENT CATALYST

Vinci Martinez Felix, Kennett Square, Pa., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del.

Continuation of Ser. No. 450,039, May 25, 1995, abandoned, which is a continuation of Ser. No. 166,480, Dec. 14, 1993, abandoned. This application Apr. 17, 1997, Ser. No. 839,842

Int. Cl.[6] B01J *38/52;38/60*

U.S. Cl. 502—33 **17 Claims**

1. A method for treating spent niobium or tantalum containing catalyst comprising:

dissolving the spent catalyst in water to form a first aqueous solution comprising $H2TaF_7$ or $H2NbF_7$, wherein the spent catalyst comprises a fluoride and organic impurities, and metallic impurities comprising at least one of Fe, Mo, Ni, and Cr,

separating said aqueous solution that contains niobium or tantalum compounds from any undissolved residue,

extracting the niobium or tantalum compounds from said aqueous solution with an extracting agent comprising MIBK thereby forming an extracting agent phase,

optionally scrubbing the extracting agent phase with sulfuric acid,

extracting the niobium or tantalum compound from said extracting agent phase into a second aqueous solution.

5,728,640

PREPARATION OF SUPPORTED METALLOCENE/ALUMINOXANE SOLID CATALYST

Bing Lu; Jinmei Wang; Xiaoyu Hong, and Zhenhua Jing, all of Beijing, China, assignors to China Petrochemical Corp. and Research Institute of Petroleum Processing Sinopec, Beijing, China

Filed Jul. 10, 1996, Ser. No. 677,952

Claims priority, application China, Jul. 14, 1995, CN95107481.4

Int. Cl.[6] A01J *31/00;37/00;* **C08F** *4/02;4/60*

U.S. Cl. 502—107 **16 Claims**

1. A process for preparing a supported metallocene/aluminoxane solid catalyst which comprises the steps of:

a) preparing a water-in-oil emulsion by combining a first inert solvent, water, and emulsifier,
wherein the volume ratio of said first inert solvent, water, and emulsifier is about 100:0.5 to 10:0.1 to 1;

b) dissolving an organoaluminum compound in a second inert solvent to make a solution having about 5 to about 30% by weight of the organoaluminum compound;

c) adding dropwise said emulsion to said solution of the organoaluminum compound in a molar ratio of the organoaluminum compound to water in emulsion of about 0.8 to 2:1 in an inert atmosphere at a temperature of about −10° to about 40° C. and a rate of about 0.2 to about 20 ml/min, followed by heating the resulting solution to a temperature of about 40° to about 80° C. and allowing the reaction to proceed for about 1 to about 4 hours to obtain a suspension of a particulate aluminoxane; and

d) adding a solution of a transition metal metallocene to said suspension of the particulate aluminoxane in a molar ratio of transition metal atom to aluminum atom of about 1:100 to 10,000 at about 0° to about 60° C. for about 1 to about 4 hours and removing the solvent to form said catalyst,
wherein said transition metal is selected from a metal in Group IV B of the Periodic Table.

5,728,641

CATALYST COMPONENT FOR THE POLYMERIZATION OF OLEFINS

Fuyuki Aida, Tokyo; Yoshio Tajima, and Kazuo Matsuura, both of Yokohama, all of Japan, assignors to Nippon Oil Company, Limited, Tokyo, Japan

PCT No. PCT/JP94/01813, § 371 Date Jun. 21, 1995, § 102(e) Date Jun. 21, 1995, PCT Pub. No. WO95/11928, PCT Pub. Date May 4, 1995

PCT Filed Oct. 27, 1994, Ser. No. 464,655

Claims priority, application Japan, Oct. 27, 1993, 5-302148; Jun. 14, 1994, 6-164448

Int. Cl.[6] C08F *4/649*

U.S. Cl. 502—114 **1 Claim**

1. A catalyst for the polymerization of olefins, said catalyst comprising a modified organoaluminum compound containing an Al—O—Al bond, and a catalyst component being prepared by contacting at least the following constituents (1), (2), (3) and (4) with one another:

(1) a compound represented by the general formula $Me^1R^1_p(OR^2)_qX_{4-p-q}$ wherein R^1 and R^2 are each independently a hydrocarbon group having 1 to 24 carbon atoms, X is a halogen atom, Me^1 is Zr, Ti or Hf, p and q are each an integer in the ranges of $0 \leqq p \leqq 4$ provided $0 \leqq p \leqq 4$, provided $0 \leqq p+q \leqq 4$;

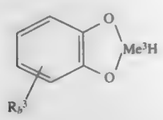
(2) at least one compound selected from the group consisting of compounds represented by the following general formulas 1 to 4:

General formula 1: $Me^2R^3_m(OR^4)_nX^2_{z-m-n}$

General formula 2: $Me^3H_aR^5_{3-a}$

General formula 3: $Me^4[Me^3H_aR^6_c(OR^7)_{4-b-c}]_s$

General formula 4:



where R^3, R^4, R^5, R^6, R^7 and R^8, which may be the same or different, and are each independently a hydrocarbon group having 1 to 24 carbon atoms, Me^2 is a Group 1, 2, 12 or 13 element in the Periodic Table of Elements, Me^3 is a Group 13 element in the same Table, Me^4 is a Group 1, 2, or 12 element in the same Table, X^2 is a halogen atom, z is the valence of Me^2, y is the valence of Me^4, and m, n, a, b, c and d are each an integer in the ranges of $0 \leqq m \leqq z$, $0 \leqq n \leqq z$, provided $0 \leqq m+n \leqq z$, $0 < a \leqq 3$, $1 \leqq b \leqq 4$, $1 \leqq c \leqq 3$, provided $1 \leqq b+c \leqq 4$; and $0 \leqq d \leqq 4$;

(3) an organocyclic compound having two or more conjugated double bonds; and

(4) a compound represented by the general formula $R^2(A\text{-}R^3)_q$ where q is a number falling under the range of $1 \leqq q \leqq 3$, A is a group selected from —O—, $—OSiR^4_2—$, $—C(OR^5)_2—$ and $—C(OR^5)_2O—$, R^2 is a fluorocarbon group having 1 to 30 carbon atoms, R^3 and R^4 are each a hydrogen atom, a halogen atom, or a hydrocarbon residue having 1 to 30 carbon atoms, and R^5 is a hydrocarbon residue having 1 to 30 carbon atoms, provided in the case where R^3, R^4 or R^5 is included in a plural number, the plural Rs may be the same or different, and R^2 and R^3 may conjointly form a ring.

5,728,642

EXHAUST GAS TREATING AGENT AND A METHOD OF TREATING EXHAUST GAS USING THE AGENT

Makoto Aritsuka; Sadaichi Komohara, and Isao Harada, all of Shimonoseki, Japan, assignors to Mitsui Toatsu Chemicals, Inc., Tokyo, Japan

Filed Feb. 3, 1995, Ser. No. 383,231

Claims priority, application Japan, Feb. 3, 1994, 6-011442; Jun. 24, 1994, 6-142807

Int. Cl.[6] B01J *27/06;27/122;27/128;20/34*

U.S. Cl. 502—224 **9 Claims**

1. An exhaust gas treating agent for treating an exhaust gas containing nitrogen trifluoride comprising as a main component particles consisting essentially of a metal having a fluorinated surface which decomposes said nitrogen trifluoride,
wherein the fluorinated surface is provided by fluorine incorporated into a surface of the metal at a rate of fluorination of 0.1% to 5% by weight, by a fluorination process carried out at about room temperature.

5,728,643

NO_x DECOMPOSITION CATALYST AND EXHAUST GAS PURIFIER USING SAID CATALYST

Isao Naitoh, Oiso-machi, and Kazuo Ohsumi, Fujisawa, both of Japan, assignors to Isuzu Ceramics Research Institute Co., Ltd., Kanagawa-ken, Japan

Filed Jan. 24, 1997, Ser. No. 788,779

Claims priority, application Japan, Feb. 9, 1996, 8-046955; Mar. 22, 1996, 8-093642; May 17, 1996, 8-146534

Int. Cl.[6] B01J *23/00;23/40;23/58*

U.S. Cl. 502—302 **9 Claims**

1. An NO_x decomposition catalyst comprising a catalyst component for NO_x decomposition in the form of a compound having a brownmillerite structure represented by the general formula: $A_{3-x}B_xC_{4-y}D_yO_z$, wherein the A site, the B site, the C site and the D site each comprise at least 1 element selected from each corresponding group consisting of the following elements, and X, Y and Z are in the following respective ranges:

A: Mg, Ca, Sr, and Ba;

B: Ti, V, Cr, Mn, Fe, Co, Ni, Cu, Nb, Zr, Mo, Sn, Hf, Al, Ga, Ge, Tc, Ag, In, Sb, and lanthanoids;

C: lanthanoids; and

D: Y and lanthanoids; and

$0 < X \leqq 1.5$, $0 < Y \leqq 2.0$, and $7 \leqq Z$.

5,728,644

DISPERSED METAL SULFIDE CATALYSTS FOR HYDROPROCESSING

Teh Chung Ho, Bridgewater; Stuart Leon Soled; Sabato Miseo, both of Pittstown; Gary Brice Mc Vicker, Califon, all of N.J.; Michel Daage, Baton Rouge, La., and Viktor Buchholz, Branchburg, N.J., assignors to Exxon Research and Engineering Company, Florham Park, N.J.

Continuation-in-part of Ser. No. 273,664, Jul. 12, 1994, abandoned. This application Sep. 5, 1995, Ser. No. 524,228

Int. Cl.[6] B01J *27/047;31/00;27/051;23/63*

U.S. Cl. 502—322 **10 Claims**

1. An improved aromatics hydrogenation catalyst composition comprising a catalyst prepared by a process comprising:

(a) impregnating an oxide precursor selected from the group consisting of rare earth oxide precursors, yttria precursors and mixtures thereof, onto an inorganic refractory oxide support;

(b) activating said support; and

(c) compositing or depositing on said support of step (b), a catalyst precursor salt represented by $(ML)(Mo_yW_{1-y}O_4)_a$ wherein M comprises Cr and/or one or more divalent promoter metals selected from the group consisting of Mn, Fe, Co, Ni, Cu, Zn and mixtures thereof, wherein y is any value ranging from 0 to 1, and wherein L is one or more neutral, nitrogen-containing ligands at least one of which is a chelating polydentate ligand; a=1 when chromium is not one of the promoter metals and $0.5 \leqq a \leqq 3$ when Cr is one of the promoter metals;

(d) sulfiding said deposited or composited supports of step (c) with an excess amount of sulfur in the form of one or more sulfur bearing compounds and at a temperature of at least about 250° C. to form catalysts.

5,728,645

HEAT TRANSFER COVER FILMS

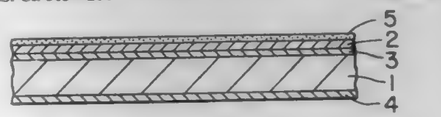
Katsuyuki Oshima; Jitsuhiko Ando, and Masanori Torii, all of Tokyo, Japan, assignors to Dai Nippon Insatsu K.K., Japan

Division of Ser. No. 396,791, Mar. 1, 1995, Pat. No. 5,527,759, which is a division of Ser. No. 22,865, Mar. 1, 1993, Pat. No. 5,427,997, which is a division of Ser. No. 663,952, Apr. 12, 1991, abandoned. This application Jan. 19, 1996, Ser. No. 588,705

Claims priority, application Japan, Jul. 14, 1989, 1-180471; Jul. 14, 1989, 1-180472; Jul. 14, 1989, 1-180473; Sep. 20, 1989, 1-241929; Dec. 18, 1989, 1-325870; May 31, 1990, 2-140011

Int. Cl.[6] B41M *5/035;5/38*

U.S. Cl. 503—204 **8 Claims**



1. A heat transfer sheet, comprising:

a polyester film substrate sheet;

an adhesive layer formed on one surface of said substrate sheet by applying the adhesive layer to the substrate sheet and biaxially stretching both the layer and the sheet simultaneously; and

at least two heat transfer layers formed on said adhesive layer, a first layer comprising a thermally migratable dye and an untransferable binder, and a second layer comprising a dyed or pigmented, heat-meltable binder.

VOL 1208 ISS 3 MR 17 1998 UMI

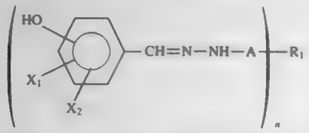
5,728,646

HEAT-SENSITIVE RECORDING MATERIAL

Nobuhide Tominaga, and Keiji Oya, both of Saitama-ken, Japan, assignors to Asahi Denka Kogyo Kabushiki Kaisha, Tokyo, Japan

Filed Nov. 5, 1996, Ser. No. 744,251
Int. Cl.[6] B41M *5/30*
U.S. Cl. 503—208 6 Claims

1. A heat-sensitive recording material, comprising a heat-sensitive recording layer containing at least one acid hydrazide compound represented by the following general formula (I):



(I)

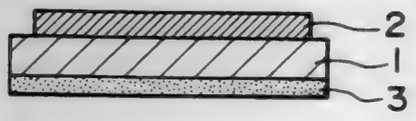
wherein X_1 and X_2 each independently represent a hydrogen atom, a hydroxyl group, a halogen atom, or an alkyl group or alkoxy group having 1 to 10 carbon atoms, A represents —CO— or —SO_2—, n is 1 or 2, when n is 1, R_1 represents an alkyl group, an aryl group, a hydroxyaryl group, an alkoxyaryl group, or an alkylaryl group having 1 to 22 carbon atoms, and when n is 2, R_1 represents an alkylene group or arylene group having 1 to 18 carbon atoms or a direct bond, said heat-sensitive recording layer further containing a phenol developer.

5,728,647

INKSHEET FOR THERMAL TRANSFER PRINTING

Hiroaki Ogasawara; Satoru Shinohara, and Kei Obata, all of Miyagi, Japan, assignors to Sony Corporation, Tokyo, Japan

Filed Aug. 2, 1996, Ser. No. 691,673
Claims priority, application Japan, Aug. 10, 1995, 7-225781
Int. Cl.[6] B41M *5/035;5/38*
U.S. Cl. 503—227 12 Claims



1. A thermal transfer inksheet containing:
a substrate,
a thermally transferable ink layer formed on one face of the substrate,
a thermally resistant lubricant layer formed on the other face of the substrate, containing a polyvinyl acetal resin and a tetraammonium salt wherein the vinyl alcohol unit concentration in the polyvinyl acetal resin is 12% by weight or less.

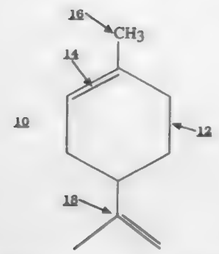
5,728,648

BIODEGRADABLE FERTILIZER AND PEST CONTROL COMPOSITION COMPRISING LIMONENE

Virgil A. Delorme, 23615 1/2 Hillview Rd., San Bernardino, Calif. 92404; Thomas Crisofulli, 13066 Balboa La., Moreno Valley, Calif. 92553, and Madelyn Joy Warner, 3908 Oakwood Pl., Riverside, Calif. 92506

Filed Sep. 19, 1996, Ser. No. 715,072
Int. Cl.[6] A01N *27/00*
U.S. Cl. 504—101 5 Claims

1. An improved fertilizing composition of the type containing nitrogen, phosphorous and potassium, wherein the improvement comprises the addition of 1-methyl-4-(methylethenyl)cyclohexene



in an amount which is active in said composition as both an insecticide and fungicide.

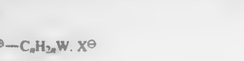
5,728,649

AGRICULTURAL CHEMICAL COMPOSITION

Keiko Hasebe; Yuichi Hioki; Osamu Tachizawa; Takeshi Tomifuji; Tohru Katoh; Uichiro Nishimoto; Yoshifumi Nishimoto, and Kohshiro Sotoya, all of Wakayama, Japan, assignors to Kao Corporation, Tokyo, Japan

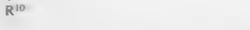
Division of Ser. No. 151,169, Nov. 12, 1993, abandoned. This application Jun. 6, 1995, Ser. No. 467,826
Claims priority, application Japan, Nov. 13, 1992, 4-303978; Nov. 13, 1992, 4-303979; Nov. 13, 1992, 4-303980
Int. Cl.[6] A01N *25/00;25/30*
U.S. Cl. 504—116 2 Claims

1. An agricultural chemical composition comprising an agricultural chemical and an effective amount for enhancing the effectiveness of the agricultural chemical of an enhancer compound represented by the following general formula (III):

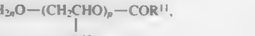


(III)

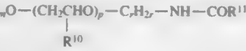
wherein
R^7 and R^8 are either the same or different from each other and each represents an alkyl group having 1 to 4 carbon atoms, an alkenyl group having 2 to 4 carbon atoms or



wherein q is 1 to 30 and R^{10} or each of the plural R^{10}'s is a hydrogen atom or a methyl group;
R_9 represents an alkyl group having 6 to 36 carbon atoms,



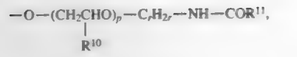
wherein n is 2 to 9, p is 0 to 30, R^{11} is an alkyl group having 5 to 35 carbon atoms and R^{10} is as described above, —C_mH_{2m}NH—COR^{11} wherein m is 2 to 9 and R^{11} is as described above or



wherein r is 2 to 6 and m, p, R^{10} and R^{11} are described above;
W represents



wherein p, R^{10} and R^{11} are described above, —NH—COR^{11}, wherein R^{11} is as described above or



wherein p, r, R^{10} and R^{11} are as described above;
n is 2 to 9; and
$X^{\ominus}$ is a counter ion.

5,728,650

HERBICIDAL AZA BISPHOSPHONIC ACIDS AND COMPOSITIONS CONTAINING THE SAME

Karl J. Fisher, Petaluma; Frank X. Woolard, Greenbrae; Michael R. Leadbetter, San Leandro, all of Calif., and John M. Gerdes, Pittsburgh, Pa., assignors to Zeneca Limited, London, England

Continuation-in-part of Ser. No. 133,722, Oct. 7, 1993, abandoned. This application Apr. 7, 1995, Ser. No. 418,970
Int. Cl.[6] A01N *57/04;57/08*
U.S. Cl. 504—195 18 Claims

1. An herbicidal composition comprising:
(A) an herbicidally effective amount of a compound of Formula (I)



(I)

wherein
n is 0, 1, 2, 3, 4, 5 or 6;
R^1 is hydrogen, hydroxy, C_1–C_4 alkoxy, halogen, C_1–C_4 alkyl, C_1–C_4 haloalkyl, hydroxy-C_1–C_4-alkyl, hydroxy-C_1–C_4-alkoxy or $N(R^8)(R^9)$ wherein R^8 and R^9 are each independently hydrogen or C_1–C_3 alkyl;
each R^2, R^3, R^4 and R^5 is independently hydrogen; hydrocarbyl; substituted hydrocarbyl; hydrocarbyloxy; substituted hydrocarbyloxy; hydrocarbyl-S(O)m—; or substituted hydrocarbyl-$S(O)_m$—;
R^6 and R^7 are each independently hydrogen; hydrocarbyl; substituted hydrocarbyl; hydrocarbyloxy; substituted hydrocarbyloxy; hydrocarbyl-$S(O)_m$—; substituted hydrocarbyl-$S(O)_m$—; pyridyl; substituted pyridyl; or are of the formula $N(R^{12})(R^{13})$ wherein R^{12} and R^{13} are independently hydrogen, hydrocarbyl or substituted hydrocarbyl; or
R^6 and R^7 together with the nitrogen to which they are bound form an aziridine; piperazine; morpholine; thiomorpholine; thiomorpholine sulfinyl; thiomorpholine sulfonyl; hexamethyleneimine; piperidine, tetrahydropyridine; pyrazole; imidazole; pyrrole; triazole; tetrahydropyrimidine; dihydroimidazole; pyrroline; azetidine; perhydroindole; perhydroquinoline; perhydroisoquinoline or pyrrolidine ring; any of which may be optionally substituted with C_1–C_{12} alkyl, halo, hydroxy, C_1–C_{10} hydroxyalkyl, C_1–C_5 haloalkyl, C_6–C_{10} aryl, C_6–C_{10} aryl substituted with halo or C_1–C_6 alkyl, C_7–C_{16} arylalkyl, C_7–C_{16} arylalkyl substituted with halo or C_1–C_6 alkyl, nitro, halo-C_1–C_{10} alkyl, C_1–C_{10} alkoxy, C_1–C_{10} alkylthio, C_1–C_{10} alkylsulfonyl, phenoxy, phenoxy substituted with halo or C_1–C_6 alkyl, C_2–C_{10} alkenyl or cyano; or
R^4 and R^6 or R^2 and R^6 together with the nitrogen and carbon atoms to which they are bound form an aziridine; piperazine; morpholine, thiomorpholine; thiomorpholine sulfinyl; thiomorpholine sulfonyl; hexamethyleneimine; piperidine, tetrahydropyridine; pyrazole; imidazole; pyrrole; triazole, tetrahydropyrimidine; dihydroimidazole; pyrroline; azetidine; perhydroindole; perhydroquinoline; perhydroisoquinoline; or pyrrolidine ring; any of which may be optionally substituted with C_1–C_{12} alkyl, hydroxy, C_1–C_{10} hydroxyalkyl, C_1–C_5 haloalkyl, halo, C_6–C_{10} aryl, C_6–C_{10} aryl substituted with halo or C_1–C_6 alkyl, C_7–C_{16} arylalkyl, C_7–C_{16} arylalkyl substituted with halo or C_1–C_6 alkyl, nitro, halo-C_1–C_{10}-alkyl, C_1–C_{10} alkoxy, C_1–C_{10} alkylthio, C_1–C_{10} alkylsulfonyl, phenoxy, phenoxy substituted with halo or C_1–C_6 alkyl, C_2–C_{10} alkenyl or cyano; or
R^2 and R^4 together with the carbon atoms to which they are bound form a C_5–C_6 cycloalkyl or cycloalkenyl ring; any of which may be optionally substituted with C_1–C_{12} alkyl, hydroxy, C_1–C_{10} hydroxyalkyl, C_1–C_5 haloalkyl, halo, C_6–C_{10} aryl, C_6–C_{10} aryl substituted with halo or C_1–C_6 alkyl, C_7–C_{16} arylalkyl, C_7–C_{16} arylalkyl substituted with halo or C_1–C_6 alkyl, nitro, halo-C_1–C_{10} alkyl, C_1–C_{10} alkoxy, C_1–C_{10} alkylthio, C_1–C_{10} alkylsulfonyl, phenoxy, phenoxy substituted with halo or C_1–C_6 alkyl, C_2–C_{10} alkenyl or cyano; or
R^4 and R^5 together form a 3–6 membered carbocyclic ring, optionally substituted with halogen, hydroxy, C_1–C_6 alkyl, C_1–C_6 alkoxy, C_1–C_6 alkylthio or $N(R^{10})(R^{11})$ wherein R^{10} and R^{11} are each independently hydrogen or C_1–C_{12} alkyl; and
m is 0, 1 or 2;
or an agrochemically acceptable salt or hydrolyzable ester thereof;
with the proviso that when n is 0, R^4 and R^5 are both hydrogen and R^6 and R^7 are both —C_2H_5, R^1 is not —NH_2; and
(B) an agrochemically acceptable carrier therefor.

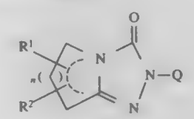
5,728,651

HERBICIDAL TRIAZOLINONES

Wonpyo Hong, Hockessin, Del.; Karlheinz Drauz, Freigericht; Matthias Schafer, Haibach, both of Germany, and William Thomas Zimmerman, Landenberg, Pa., assignors to E. I. du Pont de Nemours and Company, Wilmington, Del., and Degussa Aktiengeseilschaft, Frankfurt, Germany

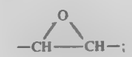
PCT No. PCT/US94/02498, § 371 Date Sep. 26, 1995, § 102(e) Date Sep. 26, 1995, PCT Pub. No. WO94/22860, PCT Pub. Date Oct. 13, 1994
Continuation-in-part of Ser. No. 38,730, Mar. 26, 1993, abandoned. This PCT application Mar. 8, 1994, Ser. No. 525,616
Int. Cl.[6] A01N *43/90;* C07D *471/04*
U.S. Cl. 504—246 10 Claims

1. A compound of Formula I:



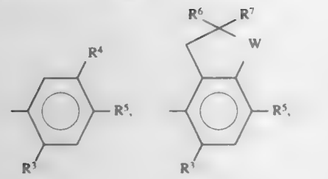
I

wherein
the left-hand ring contains only single bonds or one bond in the ring is a double bond;
n is 2;
R^1 is selected from the group H, halogen; hydroxy, C_1–C_3 alkoxy; C_1–C_3 haloalkoxy; C_2–C_5 alkylcarbonyloxy; or C_2–C_5 haloalkylcarbonyloxy;
R^2 is selected from the group H, hydroxy, and halogen; or
when R^1 and R^2 are bonded to the same carbon atom they can be taken together along with the carbon to which they are attached to form C═O; or
when R^1 and R^2 are bonded to adjacent carbon atoms they can be taken together along with the carbons to which they are attached to form



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Q is selected from the group



R^3 is selected from the group H and halogen;

R^4 is selected from the group H, C_1–C_8 alkyl, C_1–C_8 haloalkyl, halogen, OR^9, $S(O)_mR^9$, COR^9, CO_2R^9, $C(O)SR^9$, $C(O)NR^{11}R^{12}$, CHO, $CR^7{=}CR^7CO_2R^9$, $CO_2N{=}CR^{13}R^{14}$, NO_2, CN, $NHSO_2R^{15}$ and $NHSO_2NHR^{15}$;

m is 0, 1 or 2;

R^5 is selected from the group C_1–C_2 alkyl, C_1–C_2 haloalkyl, OCH_3, SCH_3, $OCHF_2$, halogen, CN and NO_2;

R^6 is selected from the group H, C_1–C_3 alkyl, C_2–C_3 alkynyl, C_2–C_3 haloalkynyl, $CO_2(C_1$–C_4 alkyl), and halogen;

R^7 is independently selected from the group H, C_1–C_3 alkyl and halogen; or

when Q is Q-2 or Q-6, R^6 and R^7 together with the carbon to which they are attached can be C=O;

R^9 is selected from the group C_1–C_8 alkyl; C_3–C_8 cycloalkyl; C_3–C_8 alkenyl; C_3–C_8 alkynyl; C_1–C_8 haloalkyl; C_2–C_8 alkoxyalkyl; C_2–C_8 alkylthioalkyl; C_2–C_8 alkylsulfinylalkyl; C_2–C_8 alkylsulfonylalkyl; C_1–C_8 alkylsulfonyl; phenylsulfonyl optionally substituted on the phenyl ring with halogen or C_1–C_4 alkyl; C_4–C_8 alkoxyalkoxyalkyl, C_4–C_8 cycloalkylalkyl; C_4–C_8 alkenoxyalkyl; C_4–C_8 alkynoxyalkyl; C_6–C_8 cycloalkoxyalkyl; C_4–C_8 alkenyloxyalkyl; C_4–C_8 alkynyloxyalkyl; C_3–C_8 haloalkoxyalkyl; C_4–C_8 haloalkenoxyalkyl; C_4–C_8 haloalkynoxyalkyl; C_6–C_8 cycloalkylthioalkyl; C_4–C_8 alkenylthioalkyl; C_4–C_8 alkynylthioalkyl; C_1–C_4 alkyl substituted a substituent selected from phenoxy and benzyloxy, each ring optionally substituted with a substituent selected from halogen, C_1–C_3 alkyl and C_1–C_3haloalkyl; C_4–C_8 trialkylsilylalkyl; C_3–C_8 cyanoalkyl; C_3–C_8 halocycloalkyl; C_3–C_8 haloalkenyl; C_5–C_8 alkoxyalkenyl; C_5–C_8 haloalkoxyalkenyl; C_5–C_8 alkylthioalkenyl; C_3–C_8 haloalkynyl; C_5–C_8 alkoxyalkynyl; C_5–C_8 haloalkoxyalkynyl; C_5–C_8 alkylthioalkynyl; C_2–C_8 alkyl carbonyl; benzyl optionally substituted with a substituent selected from the group halogen, C_1–C_3 alkyl and C_1–C_3 haloalkyl; $CHR^{16}COR^{10}$; $CHR^{16}CO_2R^{10}$; $CHR^{16}P(O)(OR^{10})_2$; $CHR^{16}P(S)(OR^{10})_2$; $CHR^{16}C(O)NR^{11}R^{12}$; and $CHR^{16}C(O)NH_2$;

R^{10} is selected from the group C_1–C_6 alkyl, C_1–C_6 alkenyl and C_1–C_6 alkynyl;

R^{11} and R^{13} are independently selected from the group H and C_1–C_4 alkyl;

R^{12} and R^{14} are independently selected from the group C_1–C_4 alkyl and phenyl optionally substituted with a substituent selected from the group halogen, C_1–C_3 alkyl and C_1–C_3 haloalkyl;

R^{13} and R^{14} may be taken together with the carbon to which they are attached to form C_3–C_8 cycloalkyl;

R^{15} is selected from the group C_1–C_4 alkyl and C_1–C_4 haloalkyl;

R^{16} is selected from the group H and C_1–C_3 alkyl; and

W is selected from the group O and S;

provided that R^1 is other than H when the left-hand ring contains only single bonds.

5,728,652

BRINE FLUIDS HAVING IMPROVED RHEOLOGICAL CHARACTERSITICS

James W. Dobson, Jr., Houston, and Ronald Lee Rock, Sugarland, both of Tex., assignors to Texas United Chemical Company, LLC., Houston, Tex.

Continuation-in-part of Ser. No. 386,443, Feb. 10, 1995, Pat. No. 5,616,541. This application Aug. 25, 1995, Ser. No. 512,675

Int. Cl.[6] C09K *7/00*

U.S. Cl. 507—145 **10 Claims**

1. In a brine based well drilling and servicing fluid which comprises a brine having dissolved therein a salt selected from the group consisting of calcium bromide, zinc bromide, calcium chloride, sodium formate, potassium formate, and mixtures thereof, and, optionally, one or more additional water soluble salts, the brine having a density from about 1200 kg/m^3 to about 2400 kg/m^3, a viscosifier, a fluid loss control additive, and a bridging agent selected from the group consisting of water soluble, particulate salts which are not appreciably soluble in the brine, acid soluble materials, and mixtures thereof, the improvement which comprises utilizing as the viscosifier (1) an amorphous silica having an ultimate particle size less than 100 millimicrons and (2) a biopolymer, wherein the weight ratio of silica to biopolymer is from 0.5 to 8.

5,728,653

METHOD FOR INHIBITING REACTIVE ARGILLACEOUS FORMATIONS AND USE THEREOF IN A DRILLING FLUID

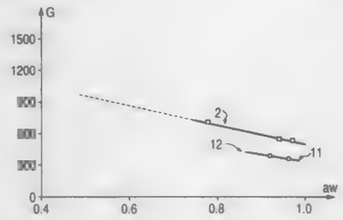
Annie Audibert, Le Vesinet; Jacqueline Lecourtier, Rueil Malmaison, both of France; Louise Bailey, and Geoffrey Maitland, both of Grande Bretagne, Great Britain, assignors to Institut Francais du Petrole, Rueil Malmaison, France, and Schlumberger Technology Corporation, Houston, Tex.

Division of Ser. No. 122,540, Oct. 14, 1993, abandoned. This application Jun. 5, 1995, Ser. No. 465,062

Claims priority, application France, Jan. 31, 1992, 92 01199

Int. Cl.[6] C09K *7/02*

U.S. Cl. 507—222 **10 Claims**



1. A method for stabilizing argillaceous rocks containing reactive clays in the presence of water, wherein said argillaceous rocks are placed in contact with an aqueous solution containing a polymer with hydrophilic groups (Hy) and hydrophobic groups (Hb) so that the polymer is adsorbed by said argillaceous rocks, said groups being able to inhibit swelling of said argillaceous rocks characterized in that:

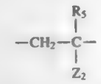
the hydrophobic groups contain C_4–C_{30} alkyl groups,

the molecular proportion of said hydrophobic groups is between 5 and 60%,

said polymer has the following structure:

a structure b1) of the —(Hb)—(Hy)— type with a statistical distribution, said structure b1) being a polyacrylamide derivative resulting from copolymerization of an acrylamide with a hydrophobic comonomer, and wherein the hydrophilic group is an acrylamide or derivative thereof having at least one of the following forms:

N-alkylacrylamide, alkyl acrylate, N-substituted acrylamide, or substituted acrylate, whose substituted part is a nonionic surfactant, said hydrophobic unit having the following general formula:



wherein R_5 is H or CH_3 and Z_2 is $COOR_7$, $COOR'_1$, $CONR_1R'_1$ or $CONR_1R_7$, R_7 being a nonionic surfactant composed of an alkyl polyoxyethylene chain R_1 being H, or a C_4–C_{30} alkyl, aryl or alkylaryl radical and R'_1 being a C_4–C_{30} alkyl, aryl, or alkylaryl radical.

5,728,654

STABILIZED FLUIDS CONTAINING SOLUBLE ZINC

James W. Dobson, Jr., Houston, and James P. Cashon, Missouri City, both of Tex., assignors to Texas United Chemical Company, LLC., Houston, Tex.

Continuation-in-part of Ser. No. 512,675, Aug. 25, 1995. This application Dec. 2, 1996, Ser. No. 758,496

Int. Cl.[6] C09K *7/02;7/00*

U.S. Cl. 507—272 **14 Claims**

1. A fluid useful in various downhole oil and gas well operations which comprises a brine having dissolved therein a zinc salt and, optionally, one or more additional water soluble salts, the brine having a density from about 1560 kg/m^3 to about 2400 kg/m^3, a silica viscosifier having an ultimate particle size less than about 100 millimicrons, a biopolymer viscosifier, a fluid loss control additive, and zinc carbonate, wherein the zinc carbonate is present in an mount sufficient to increase the low shear rate viscosity of the fluid.

5,728,655

REFRIGERATING MACHINE OIL COMPOSITION FOR USE WITH HCFC AND HFC REFRIGERANTS

Masayoshi Muraki; Yukiharu Beppu; Shozaburo Konishi, all of Kanagawa; Takayoshi Hamada, Aichi; Nobuo Murata, Aichi, and Norimasa Nishiura, Aichi, all of Japan, assignors to Mitsubishi Oil Company, Limited, and Mitsubishi Jukogyo Kabushiki Kaisha, both of Tokyo, Japan

Filed Jan. 19, 1996, Ser. No. 588,701

Claims priority, application Japan, Jan. 27, 1995, 7-031663

Int. Cl.[6] C10M *105/38;129/18*

U.S. Cl. 508—304 **5 Claims**

1. A refrigerating machine oil composition for use in a vapor compressor employing a hydrochlorofluorocarbon or a hydrofluorocarbon as a refrigerant

which comprises at least one polyol ester selected from the group consisting of a carboxylate of pentaerythritol and a carboxylate of dipentaerythritol as a base oil, said base oil containing

(a) at least one phosphate selected from the group consisting of trimethyl phosphate, triethyl phosphate, tributyl phosphate, trioctyl phosphate, tributoxyethyl phosphate, triphenyl phosphate, tricresyl phosphate, trixylenyl phosphate, cresyl diphenyl phosphate, diphenyl orthoxenyl phosphate, octyl diphenyl phosphate, phenyl isopropylphenyl phosphate, diphenyl isopropylphenyl phosphate, tris(isopropylphenyl) phosphate, tris(chloroethyl) phosphate and trisdichloropropyl phosphate in an amount of from 1.0 to less than 5.0% by weight,

(b) at least one compound selected from the group consisting of an alkyl phosphorothionate and an aryl phosphorothionate in an amount of from 0.1 to 2.0% by weight, and

(c) a vinylcyclohexene dioxide in an amount of from 0.05 to 2.0% by weight, wherein the amounts of ingredients (a), (b) and (c) each is based on the amount of said base oil.

5,728,656

LOWER-ASH LUBRICATING OIL HAVING ULTRA-NEUTRAL ZINC DIALKYLDITHIOPHOSPHATES

Elaine S. Yamaguchi, El Cerrito, and William R. Ruhe, Jr., Benecia, both of Calif., assignors to Chevron Chemical Company, San Ramon, Calif.

Filed Mar. 20, 1997, Ser. No. 822,251

Int. Cl.[6] C10M *137/10*

U.S. Cl. 508—371 **12 Claims**

1. A lubricating oil composition comprising:

(a) a base oil of lubricating viscosity; and

(b) a zinc dialkyldithiophosphate, wherein said zinc dialkyldithiophosphate has a zinc to phosphorus weight ratio in the range of from 0.95:1 to 1.04:1; and

wherein the ash content of said lubricating oil composition is less than 1.5 weight percent.

5,728,657

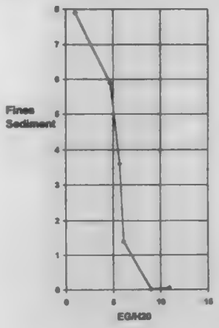
PRODUCTION OF LOW FINE SEDIMENT HIGH TBN PHENATE STEARATE

Curt B. Campbell, Hercules, Calif., and Christopher S. Fridia, New Orleans, La., assignors to Chevron Chemical Company, San Ramon, Calif.

Continuation of Ser. No. 699,746, Aug. 20, 1996, abandoned. This application Jun. 5, 1997, Ser. No. 869,514

Int. Cl.[6] C10M *159/22*

U.S. Cl. 508—460 **7 Claims**



1. A process for producing an overbased phenate stearate comprising:

(a) overbasing a mixture that comprises sulfurized phenate, metal stearate, at least one solvent, calcium hydroxide, and water, by contacting said mixture with carbon dioxide in the presence of an alkyl polyhydric alcohol, while maintaining the level of agitation sufficiently high so that all solids are suspended over the length of the overbasing step, wherein the alkyl group of the alcohol has from one to five carbon atoms; and wherein the polyhydric alcohol to water ratio is maintained sufficiently high so that the ratio is at least 4:1 at the end of the overbasing step; and

(b) stripping said overbased mixture to produce an overbased phenate stearate having less than 0.10 vol. % fine sediments.

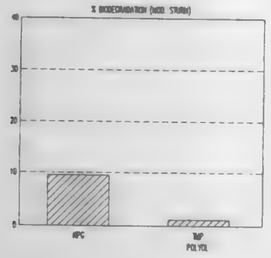
VOL 1208 ISS 3 MR 17 1998 UMI

5,728,658

BIODEGRADABLE SYNTHETIC ESTER BASE STOCKS FORMED FROM BRANCHED OXO ACIDS

Carolyn Boggus Duncan, Baton Rouge, La., assignor to Exxon Chemical Patents Inc, Houston, Tex.

Filed May 21, 1996, Ser. No. 652,012
Int. Cl.[6] C10M *105/38*
U.S. Cl. 508—485 **36 Claims**



1. A biodegradable synthetic ester base stock which comprises the reaction product of:

a branched or linear alcohol selected from the group consisting of: neopentyl glycol, trimethylol propane, ethylene or propylene glycol, butane diol, sorbitol, and 2-methylpropane diol; and

at least one branched oxo acid having a carbon number in the range between about C_5 to C_{10} and wherein the branching is on the beta-carbon or higher, provided that said branched oxo acid does not include 2-ethylhexanoic acid; wherein said ester base stock exhibits the following properties: at least 60% biodegradation in 28 days as measured by the Modified Sturm test; a pour point of less than −25° C.; and a viscosity of less than 7500 cps at −25° C.

5,728,659

GREASE COMPOSITIONS FOR ROLLING BEARING

Michiharu Naka, Odawara; Atsushi Yokouchi, Yokohama; Hideki Koizumi, Chigasaki; Kenichi Iso, Yamato; Hirotugu Kinoshita, Yokohama; Souichi Nomura, Tokyo, and Fumihiro Itano, Yokohama, all of Japan, assignors to NSK Ltd., and Nippon Oil Co., Ltd., both of Tokyo, Japan

PCT No. PCT/JP96/01709, § 371 Date Feb. 20, 1997, § 102(e) Date Feb. 20, 1997, PCT Pub. No. WO97/00927, PCT Pub. Date Jan. 9, 1997
PCT Filed Jun. 20, 1996, Ser. No. 793,852
Claims priority, application Japan, Jun. 22, 1995, 7-156293
Int. Cl.[6] C10M *115/08*
U.S. Cl. 508—552 **9 Claims**

1. A grease composition for a rolling bearing comprising 10 to 60 parts by weight of a mixture of diurea compounds as a thickener based on 100 parts by weight of a base oil, said mixture of diurea compounds having a composition of:

(a) 25 to 90 mol % of a diurea compound represented by the formula (1)



$$R^1—NHCNH—R^2—NHCNH—R^1. \quad (1)$$

(b) 9 to 50 mol % of a diurea compound represented by the formula (2)



$$R^1—NHCNH—R^2—NHCNH—R^3, \text{ and} \quad (2)$$

(c) 1 to 30 mol % of a diurea compound represented by the formula (3)

$$R^3—NHCNH—R^2—NHCNH—R^3. \quad (3)$$

wherein R^1 stands for aromatic-containing hydrocarbon group having 7 to 12 carbon atoms, R^2 stands for a divalent aromatic-containing hydrocarbon group having 6 to 15 carbon atoms, and R^3 stands for a cyclohexyl group or an alkylcyclohexyl group having 7 to 12 carbon atoms, a value of (number of R^1/(number of R^1+number of R^3)) in said mixture being 0.55 to 0.95.

5,728,660

EXTRACTION FLUIDS FOR REMOVAL OF CONTAMINANTS FROM SURFACES

Ronald E. Borah, Chesterton, Ind., assignor to EET, Inc., Bellaire, Tex.

Continuation of Ser. No. 222,469, Apr. 4, 1994, abandoned, which is a continuation-in-part of Ser. No. 43,435, Apr. 5, 1993, Pat. No. 5,421,906. This application Sep. 6, 1996, Ser. No. 711,397
Int. Cl.[6] C11D *3/30*
U.S. Cl. 510—110 **16 Claims**

1. An extraction fluid effective for the removal of contaminants from the surfaces and the underlying substrates of such surfaces, the surfaces including smooth surfaces, porous surfaces, surfaces of particulates, and surfaces with irregularities; the extraction fluid comprising:

from about 5 to about 8 wt. % of a non-ionic surfactant; from about 4 to about 8 wt. % of an emulsifier comprising quaternary ammonium; from about 10 to about 20 wt. % of a chelant; from about 5 to about 12 wt. % ethylene glycol monobutyl ether; from about 1 to about 5 wt. % triethylamine; and from about 6 to about 16 wt. % of a hydrotropic agent;

whereby said extraction fluid is able to penetrate into pores, microscopic voids and crevices of porous surfaces and into surface irregularities to remove contaminants.

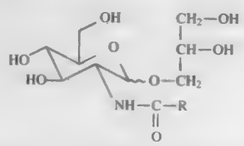
5,728,661

(2,3-DIHYDROXYPROPYL 2- (1-OXOALKYL) AMINO-2-DEOXYGLUCOPYRANOSIDES, A PROCESS FOR THEIR PREPARATION AND THEIR USES

Serge Petit, Cusy; Daniel Bernard, Courbevoie, and Henri-Jean Caupin, Versailles, all of France, assignors to Elf Atochem, S.A., and Ceca S.A., both of Puteaux, France

Filed Oct. 21, 1996, Ser. No. 731,926
Claims priority, application France, Oct. 18, 1995, 95 12215
Int. Cl.[6] A61K *7/045*
U.S. Cl. 510—126 **16 Claims**

1. A compound of formula:



(I)

wherein R is a saturated or unsaturated, linear or branched alkyl group containing from 5 to 21 carbon atoms.

5,728,662

GEL HAND CLEANER

Jack T. Vlasblom, Dunedin, Fla., assignor to Dotolo Research Corporation, Largo, Fla.

Filed Jul. 5, 1996, Ser. No. 676,067
Int. Cl.[6] A61K *7/50;7/48;* **C11D** *17/00;* **A41D** *19/00*
U.S. Cl. 510—130 **15 Claims**

1. A gel hand cleaner, consisting essentially of:

from about 2 to about 60 weight percent d-limonene;

from about 2 to about 60 weight percent solvent;

from about 0.5 to about 50 weight percent C-11 alcohol ethoxylate;

from about 0.25 to about 20 weight percent polyoxyethylene (20) sorbitan monooleate;

from about 0.25 to about 20 weight percent water-soluble acrylic polymer;

from about 0.1 to about 5 weight percent sodium hydroxide;

from about 0.001 to about 0.1 weight percent mixed isothiazolinones;

from about 0.02 to about 4 weight percent 2,6-di-tert-butyl-p-cresol; and

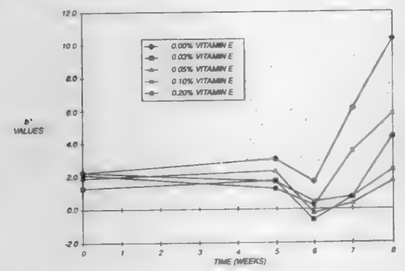
the balance water.

5,728,663

CLEAR, COLORLESS SOAP BAR WITH SUPERIOR MILDNESS, LATHERING AND DISCOLORIZATION RESISTENCE

Danilo L. Lambino, Quezon City, Philippines, assignor to Johnson & Johnson Consumer Products, Inc., Skillman, N.J.

Filed Jul. 2, 1996, Ser. No. 673,869
Int. Cl.[6] C11D *7/32;13/16;17/60*
U.S. Cl. 510—152 **5 Claims**



1. The soap bar consisting essentially of:

Component	Composition (percent by weight)
Sodium soap	27.4
triethanolamine soap	24.7
water	12.0
triethanolamine	32
sodium hydrosulfite	0.4
Butylated hydroxytoluene	0.01
Glycerine	1.0
mineral oil	0.5
coco diethanolamide	1.0
pentasodium-diethylenetriaminepent aacetate	0.5
Vitamin E	0.1

wherein the sodium soap and triethanolamine soap are sodium and triethanolamine salts of fatty carboxylic acids; at least 90 percent of the carboxylic acids from which the carboxylic acid salts are derived are C12 to C18 linear, straight chain, saturated carboxylic acids; from about 2 to about 10 percent by weight of the carboxylic acid salts are derived from branched acids selected from 2-ethyl hexanoic acid and isostearic acid;

and wherein the iodine number of the carboxylic acids from which the carboxylic acids salts in the soap bar are derived have an iodine number less than or equal to about 2.0.

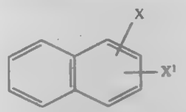
5,728,664

PHOTORESIST STRIPPING COMPOSITIONS

Francis W. Michelotti, Easton, Pa., assignor to Ashland, Inc.

Filed Apr. 15, 1996, Ser. No. 631,921
Int. Cl.[6] C11D *3/18;3/20;1/831;1/83*
U.S. Cl. 510—176 **5 Claims**

1. A non-aqueous naphthalene-free negative photoresist stripping composition consisting essentially of about 40 to 80% by weight of an aromatic hydrocarbon solvent of the formula:

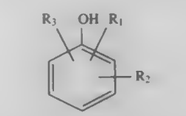


wherein X and X_1 are the same or different and each is a member selected from the group consisting of hydrogen and an alkyl group of 1 to 4 carbon atoms with at least one of X and X^1 being alkyl;

about 5 to 20% by weight of a surfactant consisting essentially of a linear monoalkylbenzene sulfonic acid;

about 1 to 10% by weight of a dialkylbenzenesulfonic acid wherein said alkyl groups contain 1 to 4 carbon atoms, and

about 5 to 20% by weight of an alkyl phenol of the general formula:



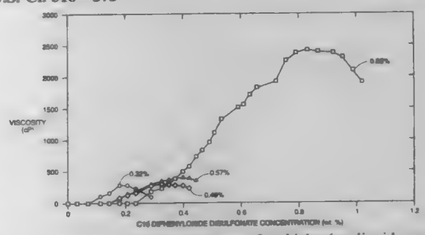
wherein R_1, R_2, and R_3 are each selected from the group consisting of hydrogen and an alkyl group of 1 to 9 carbon atoms wherein at least one of R_1, R_2 and R_3 is alkyl, and whereby said alkyl phenol provides a corrosion inhibitory effect.

5,728,665

COMPOSITION AND METHOD FOR DEVELOPING EXTENSIONAL VISCOSITY IN CLEANING COMPOSITIONS

Clement Kin-Man Choy, Alamo, and Brian Patrick Argo, Tracy, both of Calif., assignors to The Clorox Company, Oakland, Calif.

Filed Sep. 13, 1995, Ser. No. 527,817
Int. Cl.[6] C11D *1/22;1/28;1/75;3/395*
U.S. Cl. 510—373 **19 Claims**



1. A viscoelastic thickening system for thickening liquid aqueous cleaning compositions, the viscoelastic thickening system comprising:

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(a) an amine oxide according to the following representative structure:



wherein R^1 and R^3 are each C_{1-3}, R^2 is alkyl averaging C_{14}, and at least 60% of the total R^2 groups are present as C_{14}; and

(b) a hydrophobic C_{10-16} mono- or di-alkyl substituted organic counterion having an alkyl chain length distribution of at least 80% C_{16}, the counterion selected from among taurates, sarcosinates, salicylates, carboxylates, benzoic acids, diphenylether mono- or di-sulfonates, and mixtures of any of the foregoing;

wherein the ratio of amine oxide to counterion is from 10:1 to 1:10 and the viscoelastic thickening system is characterized as a micelle formation.

5,728,666

WATER-BASED ALCOHOL HYDROXYCARBOXYLIC PEROXIDE COMPOSITIONS AND THEIR PREPARATION

Sergio Vitomir, New Westminster, Canada, assignor to Napier International Technologies, Inc., Surrey, Canada

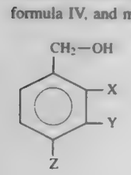
Filed Dec. 19, 1996, Ser. No. 770,093

Int. Cl.[6] C11D *3/395;3/20;3/39;* **B08B** *3/08*

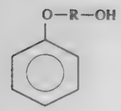
U.S. Cl. 510—203 **14 Claims**

1. An aqueous paint stripping formulation which comprises:

(a) from 5 to 50 parts by wt. of an aromatic alcohol having the formula II or III, optionally with an aromatic ether having the formula IV, and mixtures thereof



Formula II



Formula III



Formula IV

where X, Y, and Z are all hydrogen or two hydrogens and a methyl, R may be ethyl, propyl, or isopropyl, and R_1 and R_2 are hydrogen and benzyl or both benzyl;

(b) from 5 to 30 parts by wt. of hydrogen peroxide;

(c) from 3 to 20 parts by wt. of a hydroxycarboxylic acid having the formula I,



Formula I

where n and m are integers from the sum of n and m is equal to 1; and

(d) from 15 to 60 parts by wt. of deionized or distilled water.

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COMPOSITIONS CONTAINING ORGANIC COMPOUNDS

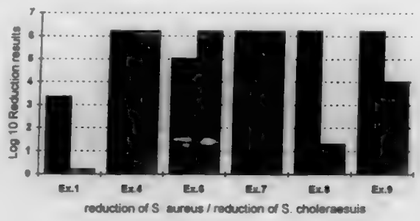
Alan F. Richter, Branchburg, N.J., assignor to Reckitt & Colman Inc., Montvale, N.J.

Continuation of Ser. No. 572,764, Dec. 14, 1995, abandoned. This application Mar. 19, 1997, Ser. No. 820,096

Claims priority, application United Kingdom, Oct. 25, 1995, 9521837

Int. Cl.[6] C11D *1/06;1/62*

U.S. Cl. 510—235 **19 Claims**



1. Germicidal light-duty dishwashing detergent composition in either a gel, or liquid, which consists essentially of:

A) 0.5–2.75 parts by weight of quaternary ammonium germicidal compound,

B) 0.5–40 parts by weight of an anionic surfactant portion, wherein said portion consists of an anionic alkyl ether carboxylate surfactant of formula:

where x is 4 to 11, R is a C_{9-18}alkyl, M is counterion;

C) 10–40 parts by weight of an nonionic surfactant,

D) 0.01–30 parts by weight of a suds stabilizing or suds boosting agent;

E) water;

F) 0–40 parts by weight of one or more additives, wherein the ratio of the quaternary ammonium germicidal agent to the anionic alkyl ether carboxylate surfactant is 1:1–4, and, the compositions exhibit a pH in the range of 5–10.

5,728,668

CLEANING COMPOSITION

Barbara Thomas, Princeton, N.J., and Guy Broze, Grace-Hollogne, Belgium, assignors to Colgate Palmolive Company, Piscataway, N.J.

Continuation-in-part of Ser. No. 517,273, Aug. 21, 1995, abandoned, which is a continuation-in-part of Ser. No. 355,470, Dec. 14, 1994, abandoned. This application Jun. 12, 1996, Ser. No. 667,290

Int. Cl.[6] C11D *1/02;1/62;3/28*

U.S. Cl. 510—237 **7 Claims**

1. A baked-on soil prespotting aqueous cleaning composition which consists of by weight percent:

(a) 5 to about 45 of an alkali metal silicate;

(b) 0.1 to about 10 of a cyclic nitrogen containing compound,

(c) 0.1 to about 0.6 of an alkanolamine;

(d) 0.1 to 10 of at least one anionic surfactant;

(e) 0.1 to about 15.0 of $(R_3)N^+R'(OH^-)$, wherein R is methyl or ethyl group and R' is an alkyl or ethoxylated alkyl group having about 10 to about 20 carbon atoms;

(f) 0.1 to 15 of an organic compound of the formula $C_nH_{2n+2-x}(OH)_x$ wherein x=1, 2 or 3 and n is 2 to 8; and

(g) the balance being water.

5,728,669

SHELF STABLE HYDROGEN PEROXIDE CONTAINING CARPET CLEANING AND TREATMENT COMPOSITIONS

Michael Richard Tyerech, Fort Lee, N.J., assignor to Reckitt & Colman Inc., Montvale, N.J.

Filed Apr. 25, 1997, Ser. No. 843,121

Claims priority, application United Kingdom, Jan. 16, 1997, 9700791

Int. Cl.[6] C11D *1/14;3/24;3/395;* **D06L** *3/02*

U.S. Cl. 510—280 **18 Claims**

1. Aqueous cleaning and surface treatment compositions for imparting oil repellency to carpets and carpet fibers which comprise:

a urethane perfluoroalkyl ester constituent;

an oxidizing agent constituent;

anionic surface active agent;

one or more organic solvents;

water.

5,728,670

ENZYMATICALLY STABLE ALKYL (ALKYL GLYCOSID) URONATES AS NONIONIC SURFACTANTS AND A PROCESS FOR THEIR MANUFACTURE

Bijan Harichian, South Orange; Robert Vermeer, Nutley, and Robert William Riley Humphreys, Annandale, all of N.J., assignors to Lever Brothers Company, Division of Conopco, Inc., New York, N.Y.

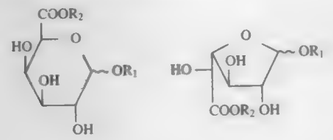
Filed Oct. 12, 1993, Ser. No. 135,240

Int. Cl.[6] C11D *3/22*

U.S. Cl. 510—392 **7 Claims**

1. A mixed chain alkyl(alkyl glycosid)uronate compound having the formula:

Mixed Chain alkyl(alkyl D-galactosid)uronate



wherein:

R_2 is a substituted or unsubstituted, saturated or unsaturated alkyl group having 6 to 24 carbons; and

R_1 is hydrogen, a straight or branched chain alkyl group having 1 to 6 carbons or an alkenyl group having 2 to 6 carbons.

5,728,671

SOIL RELEASE POLYMERS WITH FLUORESCENT WHITENING PROPERTIES

Robert Henry Rohrbaugh, Indian Springs, and Eugene Paul Gosselink, Cincinnati, both of Ohio, assignors to The Procter & Gamble Company, Cincinnati, Ohio

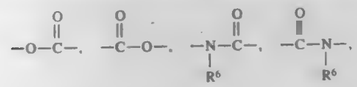
Filed Dec. 21, 1995, Ser. No. 576,243

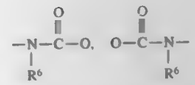
Int. Cl.[6] C11D *3/37*

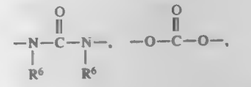
U.S. Cl. 510—394 **14 Claims**

1. An oligomeric or polymeric substituted or unsubstituted ethylene terephthalate ester comprising fluorescent whitening groups, said oligomer or polymer having the formula:

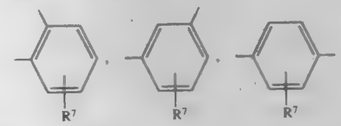
wherein the A moieties are selected from the group consisting of



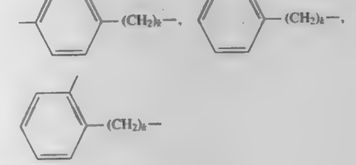




and combinations thereof, wherein R^6 is hydrogen, C_1–C_4 alkyl, and mixtures thereof; the R^1 moieties are 1,2-phenylene, 1,3-phenylene and 1,4-phenylene, substituted 1,2-phenylene, 1,3-phenylene, and 1,4-phenylene having the formula



wherein R^7 is —OH, —CO_2H, —$SO_3^-M^+$, branching units of the formula -(A-R^1-A-R ^{2})$_a$(Cap), -(A-R^1-A-R^2)$_a$A(Cap), -(A-R^1-A-R^3)$_x$(Cap), -(A-R^1-A-R^3)$_x$A(Cap), -(A-R ^{1}-A-R^5)$_w$(Cap), and -(A-R^1-A-R^3)$_x$A(Cap), crosslinking units of the formula -(A-R^1-A-R^2)$_w$-, -(A-R ^{1}-A-R^2)$_a$A-, -(A-R^1-A-R^3)$_x$-, -(A-R^1-A-R^3)$_x$A-, -(A-R^1-A-R^5)$_w$- and -(A-R^1-A-R^5)$_w$A- connecting said R^1 moiety to an R^1 or R^5 moiety of a second oligomer or polymer chain; substituted and unsubstituted naphathalene, arylalkylene units having the formula



alkylene units having the formula

—$(CH_2)_k$—

alkenylene units having the formula

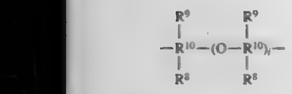
—(CH═CH)$_j$—$(CH_2)_k$—

and combinations thereof, wherein k is 1 to 12, j is 1 or 2, and M is a cationic moiety; the R^2 moieties comprise substituted or unsubstituted ethyleneoxy units having the formula

-(CH(Y)CH_2O)— or —(CH_2CH(Y)O)—

wherein (a) Y is a —H, C_1–C_4 alkyl, alkoxymethyl, and mixtures thereof; and (b) combinations of the foregoing R^2 moieties with up to 50% of other compatible R^2 moieties wherein Y is a branching unit of the formula —CH_2O—(CH_2CH_2O)$_p$—CH_2CH_2—OR, wherein R is C_1–C_4 alkyl or a crosslinking unit of the formula —CH_2O—(CH_2CH_2O)$_p$—CH_2— by which said R^2 moiety is crosslinked to an R^2 moiety of a second oligomer or polymer chain; p is 0 to 50; the R^3 ethyleneoxy units are selected from the moieties —(CH_2CH_2O)$_q$—CH_2CH_2— wherein q is from 1 to 99 wherein each R^3 unit may have the same or different values of q; the R^4 units are R^2, R^3 or R^5 units; the R^5 units having the formula

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wherein the index i has the value of 0 or 1, R^{10} is C_2–C_6 linear alkylene, C_3–C_6 branched alkylene, C_5–C_7 cyclic alkylene, C_5–C_7 substituted cyclic alkylene, C_5–C_7 heterocyclic alkylene, arylene, substituted arylene, and mixtures thereof; said R^{10} unit is substituted by one or more R^8, R^9 unit, and mixtures thereof, wherein each R^8 is independently selected from the group consisting of hydrogen, R^7, and mixtures thereof; R^9 moieties wherein each R^9 is independently hydrogen, —Z—$SO_3^-M^+$, —Z-(FWU), and mixtures thereof, wherein each Z is a connecting moiety independently selected from the group consisting of alkylene, alkenylene, alkoxyalkylene, alkoxy, arylene, alkylarylene, alkoxyarylene, polyalkoxyalkylene units, and mixtures thereof; -(FWU) is a fluorescent whitening unit, wherein R^8 and R^9 when taken together, at least one R^8 or R^9 moiety is not a hydrogen atom; M is a cationic moiety; the value of t is 0 or 1; the value of u is from about 0 to about 60; the value of v is from about 0 to about 35; the value of w is from 0 to 35; the value of u +v+w=at least 3; comprising end-capping groups (Cap) independently selected from the group consisting of:

(a) fluorescent whitening units; and

(b) non-(fluorescent whitening) units, said non-(fluorescent whitening) units are selected from the group consisting of

i) ethoxylated or propoxylated hydroxyethane and propanesulfonate units of the formula $(MO_3S)(CH_2)_m(R^{11}O)_nR^{11}$—, where M is a salt forming cation such as sodium or tetralkylammonium, R^{11} is ethylene or propylene or a mixture thereof, m is 0 or 1, and n is from 0 to 20;

ii) sulfoaroyl units of the formula —O(O)C(C_6H_4)($SO_3^-M^+$), wherein M is a salt forming cation;

iii) modified poly(oxyethylene)oxy monoalkyl ether units of the formula $R^{12}O(CH_2CH_2O)_kCH_2CH_2$—, wherein R^{12} contains from 1 to 4 carbon atoms and k is from about 3 to about 100; and

iv) ethoxylated or propoxylated phenolsulfonate end-capping units of the formula $MO_3S(C_6H_4)(OR^{13})_n$—, wherein n is from 1 to 20; M is a salt-forming cation; and R^{13} is ethylene, propylene and mixtures thereof;

provided at least one fluorescent whitening end-capping unit is present.

5,728,672

PINE OIL HARD SURFACE CLEANING COMPOSITIONS

Alan F. Richter, Branchburg, N.J., assignor to Reckitt & Colman Inc., Montvale, N.J.

Continuation-in-part of Ser. No. 523,413, Sep. 5, 1995, Pat. No. 5,591,708. This application Aug. 1, 1996, Ser. No. 690,106

Claims priority, application United Kingdom, Aug. 4, 1995, 9516072

Int. Cl.[6] C11D *1/835;3/26;7/50;3/48*

U.S. Cl. 510—463 **11 Claims**

1. A liquid pine oil hard surface cleaning composition comprising per 100% wt.:

A) 0.1–4% wt. of a pine oil preparation containing at least approximately 60% wt. alpha-terpineol;

B) 0.1–10% wt. of a nonionic surfactant a with a cloud point of 20° C. or less selected from: condensation products of one or more alkylene oxide groups with an organic hydrophobic aliphatic compound, or with an organic hydrophobic alkyl aromatic compound;

C) 0.1–15% wt. of a solubilizing agent selected from the group consisting of C_{1-8}alcohols, and alkylene glycols;

D) water.

5,728,673

PROCESS FOR MAKING A FLUID, STABLE LIQUID FABRIC SOFTENING COMPOSITION INCLUDING DISPERSIBLE POLYOLEFIN

Robert Mermelstein, and John Henry Shaw, Jr., both of Cincinnati, Ohio, assignors to The Procter & Gamble Company, Cincinnati, Ohio

Filed Jan. 31, 1996, Ser. No. 594,457

Int. Cl.[6] D06M *13/00*

U.S. Cl. 510—475 **21 Claims**

1. A process for making a liquid fabric softening composition including a dispersible polyolefin comprising the steps of:

(A) forming an aqueous phase comprising a dispersible polyolefin having a temperature of from about 50° C. to about 90° C.;

(B) forming a molten organic phase having a temperature of from about 50° C. to about 90° C., the molten organic phase comprising a molten fabric softening compound;

(C) injecting the molten organic phase into the aqueous phase;

(D) mixing during said injection to form a mixture;

(E) adding a solution of an electrolyte to said mixture;

(F) cooling the mixture to a temperature of from about 15° C. to about 30° C.; and

(G) adding an additional amount of said electrolyte to form a liquid fabric softening composition.

5,728,674

INHIBITION OF BLOOD COAGULATION BY HUMAN-KUNITZ-TYPE INHIBITORS

Cindy A. Sprecher, Seattle, Wash.; Walt Kisiel, Albuquerque, N. Mex., and Donald C. Foster, Seattle, Wash., assignors to ZymoGenetics, Inc., Seattle, Wash.

Division of Ser. No. 147,710, Nov. 5, 1993, Pat. No. 5,455,338. This application Jun. 1, 1995, Ser. No. 458,090

Int. Cl.[6] A61K *38/16;38/17;38/36*

U.S. Cl. 514—2 **3 Claims**

1. A method for inhibiting blood coagulation in a mammal comprising administering a human Kunitz-type inhibitor wherein said Kunitz-type inhibitor is an isolated human Kunitz-type inhibitor comprising the amino acid sequence of SEQ ID NO:15 wherein each Xaa is individually any amino acid except cysteine and said isolated human Kunitz-type inhibitor has both an amino-terminal end and a carboxy-terminal end, in an amount sufficient to inhibit blood coagulation.

5,728,675

ANTEMORTEM NUTRIENT SUPPLEMENT FOR LIVESTOCK

Allan L. Schaefer; Stephen D. Morgan Jones, both of Lacombe; Richard W. Stanley, Red Deer; Ian K. S. Turnbull, Lacombe, all of Canada, and John R. Johanns, Grand Island, Nebr., assignors to Her Majesty the Queen in Right of Canada as represented by the Department of Agriculture and Agri-Food Canada, Alberta, Canada

Continuation of Ser. No. 84,989, Jul. 2, 1993. This application Jun. 5, 1995, Ser. No. 465,324

Int. Cl.[6] A61K *38/00;31/70;31/355;31/34;31/195*

U.S. Cl. 514—2 **11 Claims**

1. An antemortem nutrient supplement for livestock comprising:

an energy source, but not including propylene glycol;

one or more sources of electrolytes providing each of sodium, potassium and magnesium; one or more sources of amino acids providing each of alanine, lysine, phenylalanine, methionine, threonine, leucine, isoleucine, valine, and glutamate, all in a bypass form; and

a source of tryptophan;

wherein each of the sources of amino acids is included in the supplement in an amount sufficient to provide, on a dose basis, a total of at least 15 g of leucine and 0.5 g of each remaining amino acid per 500 kg livestock per day.

5,728,676

USE OF INSULIN-LIKE GROWTH FACTORS I AND II FOR INHIBITION OF INFLAMMATORY RESPONSE

Philip F. Halloran, Edmonton, Canada, assignor to Ciba-Geigy Corporation, Ardsley, N.Y.

Division of Ser. No. 302,494, Sep. 8, 1994. This application May 19, 1995, Ser. No. 444,849

Int. Cl.[6] A61K *38/00;37/26;* **C07K** *5/00*

U.S. Cl. 514—12 **6 Claims**

1. A method for inhibition of organ rejection after transplantation in a mammal, wherein the transplanted organ is selected from the group consisting of heart, lung, liver and pancreas, said method comprising administering thereto a therapeutically effective amount of IGF.

5,728,677

METHODS OF INHIBITING T-CELL DEPENDENT PROLIFERATION OF PERIPHERAL BLOOD LYMPHOCYTES USING THE CD2-BINDING DOMAIN OF LYMPHOCYTE FUNCTION ASSOCIATED ANTIGEN 3

Barbara P. Wallner, Cambridge; Glenn T. Miller, Haverhill, and Margaret D. Rosa, Winchester, all of Mass., assignors to Biogen, Inc., Cambridge, Mass.

Division of Ser. No. 940,861, Oct. 21, 1992, Pat. No. 5,547,853, which is a continuation-in-part of Ser. No. 770,967, Oct. 7, 1991, abandoned, which is a continuation-in-part of Ser. No. 667,971, Mar. 12, 1991, abandoned. This application Jun. 2, 1995, Ser. No. 459,512

Int. Cl.[6] A61K *38/17;* **C07K** *14/705*

U.S. Cl. 514—12 **9 Claims**

1. A method for inhibiting T Cell-dependent proliferation of peripheral blood lymphocytes comprising the step of administering to a mammal a polypeptide having the amino acid sequence: X_1-X_2-(SEQ ID NO:1) Asn Arg Val Tyr Leu Asp Thr Val Ser Gly-Y, wherein:

X_1 if present, is hydrogen or methionyl;

X_2, if present, is a polypeptide having the following amino acid sequence or a portion thereof consisting of the carboxy-terminal 1 to 77 amino acids of the sequence (SEQ ID NO:5): Val Ala Gly Ser Asp Ala Gly Arg Ala Leu Gly Val Leu Ser Val Val Cys Leu Leu His Cys Phe Gly Phe Ile Ser Cys Phe Ser Gln Gln Ile Tyr Gly Val Val Tyr Gly Asn Val Thr Phe His Val Pro Ser Asn Val Pro Leu Lys Glu Val Leu Trp Lys Lys Gln Lys Asp Lys Val Ala Glu Leu Glu Asn Ser Glu Phe Arg Ala Phe Ser Ser Phe Lys;

Y is hydroxyl or a polypeptide of the following amino acid sequence or a portion thereof consisting of the amino terminal 1 to 32 amino acids of the sequence (SEQ ID NO:33): Ser Leu Thr Ile Tyr Asn Leu Thr Ser Ser Asp Glu Asp Glu Tyr Glu Met Glu Ser Pro Asn Ile Thr Asp Thr Met Lys Phe Phe Leu Tyr Val; said polypeptide being capable of binding to CD2.

5,728,678

METHOD AND COMPOSITION FOR PROVIDING NUTRITION TO A RENAL FAILURE PATIENT

Susan Trimbo, Evanston; Diana Twyman, Chicago; David Madsen, Libertyville; Shen-Youn Chang, Wadsworth, and Hugh N. Tucker, Barrington, all of Ill., assignors to Nestec Ltd., Vevey, Switzerland

Filed Jun. 6, 1995, Ser. No. 470,985

Int. Cl.[6] A61K *38/00;* **A23J** *1/00*

U.S. Cl. 514—12 **23 Claims**

1. An enteral composition for providing nutrition to a patient suffering from or at risk of renal failure comprising:

a therapeutically effective amount of a protein source including free amino acids and whey protein, the protein source having an essential amino acid to non-essential amino acid ratio of approximately 2:1 to 4:1 and an amino acid profile comprising L-valine, L-leucine, L-isoleucine, L-threonine, L-methionine, L-lysine, L-phenylalanine, L-tryptophan, L-histidine, L-arginine, L-proline, glycine, L-alanine, L-serine, L-tyrosine, L-cysteine, L-aspartic acid and L-glutamic acid, and the composition having a caloric density ranging from approximately 1.6 kcal/ml to 2.25 kcal/ml.

5,728,679

BMP-15 COMPOSITIONS

Anthony J. Celeste, Hudson; Jennifer L. Dube, Arlington, both of Mass.; Karen M. Lyons, Sherman Oaks, Calif., and Brigid Hogan, Brentwood, Tenn., assignors to Genetics Institute, Inc., Cambridge, Mass., and Vanderbilt University, Nashville, Tenn.

Division of Ser. No. 446,924, May 18, 1995, Pat. No. 5,635,372. This application Feb. 11, 1997, Ser. No. 798,665

Int. Cl.[6] A61K *38/00;9/14;* **C07K** *1/00;16/00*

U.S. Cl. 514—12 **12 Claims**

1. A purified BMP-15-related polypeptide comprising an amino acid sequence selected from the group consisting of amino acids encoded by the DNA sequence of SEQ ID NO: 1 and amino acids encoded by the DNA sequence of SEQ ID NO:3.

5,728,680

METHODS FOR NORMALIZING NUMBERS OF LYMPHOCYTES

Vyacheslav G. Morozov, and Vladimir Kh. Khavinson, both of St. Petersburg, Russian Federation, assignors to Cytoven J.V., Kirkland, Wash.

Continuation-in-part of Ser. No. 278,463, Jul. 21, 1994, abandoned, which is a continuation-in-part of Ser. No. 257,495, Jun. 7, 1994, abandoned, which is a continuation of Ser. No. 783,518, Oct. 28, 1991, abandoned, which is a continuation-in-part of Ser. No. 678,129, Apr. 1, 1991, abandoned, which is a continuation-in-part of Ser. No. 415,283, Aug. 30, 1989, abandoned. This application May 26, 1995, Ser. No. 452,411

Claims priority, application U.S.S.R., Dec. 30, 1987, 4352833

Int. Cl.[6] A61K *38/05*

U.S. Cl. 514—19 **12 Claims**

1. A method for normalizing the numbers of lymphocytes in an animal in need thereof comprising the step of administering an amount of L-Glu-L-Trp, or a salt thereof, effective to normalize the numbers of said lymphocytes.

5,728,681

INFUSION PREPARATION AND TWO COMPARTMENT CONTAINER CONTAINING THE PREPARATION

Takae Kido; Hideto Kodaira; Koji Munechika; Shigeo Ii; Shunichi Abe, and Kazumasa Yokoyama, all of Osaka, Japan, assignors to The Green Cross Corporation, Osaka, Japan

PCT No. PCT/JP95/00778, § 371 Date Dec. 20, 1995, § 102(e) Date Dec. 20, 1995, PCT Pub. No. WO95/28906, PCT Pub. Date Nov. 2, 1995

PCT Filed Apr. 20, 1995, Ser. No. 564,237

Claims priority, application Japan, Apr. 20, 1994, 6-106097

Int. Cl.[6] A61K *31/70;31/685;31/59;31/525;31/51;31/355;31/34, 31/205*

U.S. Cl. 514—23 **10 Claims**

1. A container, filled with infusion liquids, characterized in that it has two compartments which are separated from each other by a separation means and contains an infusion liquid consisting essentially of a fat emulsion, sugars, vitamin B_1, vitamin B_2, vitamin B_{12}, vitamin A, vitamin D, vitamin E and vitamin K in a first compartment and an infusion liquid consisting essentially of amino acids, electrolytes, vitamin C and folic acid in a second compartment.

5,728,682

Patent Not Issued For This Number

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5,728,683

EXTERNAL ESCINOL PREPARATION FOR SKIN

Kazuhisa Maeda; Rumiko Kaku; Yoshihiro Yokokawa, and Minoru Fukuda, all of Yokohama, Japan, assignors to Shiseido Co., Ltd., Tokyo, Japan

PCT No. PCT/JP95/01360, § 371 Date Apr. 19, 1996, § 102(e) Date Apr. 19, 1996, PCT Pub. No. WO96/01618, PCT Pub. Date Jan. 25, 1996

PCT Filed Jul. 7, 1995, Ser. No. 604,979

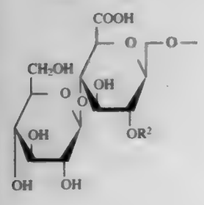
Claims priority, application Japan, Jul. 7, 1994, 6-179544; Feb. 21, 1995, 7-058149

Int. Cl.[6] A01N *43/04;* **A61K** *31/70*

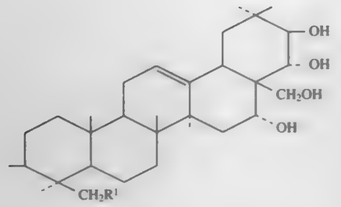
U.S. Cl. 514—33 **15 Claims**

1. An external preparation for skin comprising:

(a) at least one member selected from the group consisting of escinol and a cosmetically or pharmaceutically acceptable salt of escinol represented by the following constitutional formula:



(1)



wherein R^1 is hydrogen atom or hydroxyl group and R^2 is selected from the group consisting of β-D-glucopyranose, β-D-xylopyranose and β-D-galactopyranose, and

(b) a cosmetically or pharmaceutically acceptable carrier for application to the skin.

5,728,684

DETERMINATION OF PRODRUGS METABOLIZABLE BY THE LIVER AND THERAPEUTIC USE THEREOF

Yung-Chi Cheng, Woodbridge, and Chien-Neng Chang, New Haven, both of Conn., assignors to Yale University, New Haven, Conn.

PCT No. PCT/US92/04142, § 371 Date Apr. 19, 1994, § 102(e) Date Apr. 19, 1994

Continuation-in-part of Ser. No. 701,462, May 15, 1991, abandoned, and Ser. No. 829,474, Feb. 3, 1992, abandoned, which is a continuation-in-part of Ser. No. 701,462. This PCT application May 15, 1992, Ser. No. 146,164

Int. Cl.[6] A01N *43/04*

U.S. Cl. 514—50 **23 Claims**

1. In a method of treating a liver-associated disease in a patient, which method includes the step of delivering an effective amount of an active compound to the desired site in the patient, said active compound being a uridine or a uracil base analog, the improvement wherein said delivering step comprises administering to the patient a prodrug having a structure corresponding to that of said active compound except that a keto group on the uracil ring structure is reduced, said prodrug being oxidized to its active diketo-containing form by human hepatic aldehyde oxidase, wherein said active compound is formed in situ in the liver of the patient by oxidation of said prodrug by means of hepatic aldehyde oxidase, said prodrug being administered in an amount sufficient to form an effective amount of said active compound upon oxidation of said prodrug by hepatic aldehyde oxidase.

5,728,685

METHODS OF TREATING INFLAMMATION USING CELL ADHESION INHIBITORS

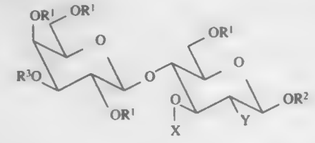
Saeed A. Abbas, Vallejo; Falguni Dasgupta, San Leandro, both of Calif.; Darwin Asa, Galesburg, Mich.; John H. Musser, San Carlos, and Mina A. Nashed, Alameda, both of Calif., assignors to Glycomed Incorporated, Alameda, Calif.

Division of Ser. No. 189,630, Feb. 1, 1994, Pat. No. 5,591,835, which is a continuation-in-part of Ser. No. 910,709, Jun. 29, 1992, abandoned. This application Jun. 6, 1995, Ser. No. 466,667

Int. Cl.[6] A61K *31/715*

U.S. Cl. 514—53 **20 Claims**

1. A method of treatment of a selectin-mediated disorder in a patient in need thereof comprising administering to the patient a therapeutically effective amount of a compound having the following structural formula



wherein each R^1 is independently H or lower alkyl (1–4C);

R^2 is H, a lower alkyl group (1–4C), a higher alkyl group (5–15C), alkylaryl or an additional saccharide residue;

R^3 is a negatively charged moiety selected from the group consisting of $—SO_4^{2-}$ and $—PO_4^{2-}$;

Y is H, OH or lower alkyl (1–4C); and

X is H or $—CHR^4(CHOR^1)_2CHR^5OR^1$ wherein R^4 and R^5 are each independently H, lower alkyl (1–4C), or taken together result in a five- or six-membered ring optionally containing a heteroatom selected from the group consisting of O, S, and NR^1;

said five- or six-membered ring optionally substituted with one substituent selected from the group consisting of R^1 CH_2OR^1,OR^1,$OOCR^1$, NR_2^1, $NHCOR^1$, and SR^1;

and salts thereof.

5,728,686

ALKYLXANTHINE PHOSPHONATES AND ALKYLXANTHINE PHOSPHINE OXIDES AND THEIR USE AS PHARMACEUTICALS

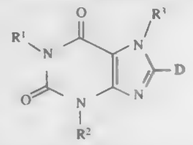
Günter Billen, Niedernhausen; Ismahan Okyayuz-Baklouti; Hiristo Anagnostopulos, both of Wiesbaden, and Stefan Müllner, Hochheim, all of Germany, assignors to Hoechst Aktiengesellschaft, Frankfurt am Main, Germany

Filed Oct. 31, 1996, Ser. No. 741,591

Int. Cl.[6] A61K *31/675;* **C07F** *9/6512*

U.S. Cl. 514—81 **17 Claims**

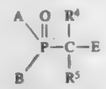
1. A compound of the formula



(I)

and/or a physiologically tolerable salt of the compound of the formula I and/or an optionally stereoisomeric form of the compound of the formula I, where R^1 and R^3 are identical or different and at least one of the radicals R^1 and R^3 is

a) a radical of the formula XI



(XI)

in which R^4 and R^5 are identical or different and independently of one another are

1.1 a hydrogen atom,

1.2 hydroxyl or

1.3 (C_1–C_6)-alkyl,

A and B are identical or different and independently of one another are

2.1 (C_1–C_4)-alkyl,

2.2 (C_1–C_6)-alkoxy,

2.3 hydroxyl or

2.4 benzyloxy,

E is a covalent bond or a straight-chain or branched alkyl having 1 to 5 carbon atoms, and

b) if only one of the radicals R^1 or R^3 have the meaning mentioned under a), the other radical R^1 or R^3 is

1) a hydrogen atom,

2) (C_1–C_6)-alkyl, straight-chain or branched,

3) (C_2–C_6)-alkyl, straight-chain or branched, where the carbon chain is interrupted by 1 or 2 oxygen atoms and 2 oxygen atoms bonded to one another are excluded,

4) (C_1–C_8)-alkyl, straight-chain or branched, substituted by

4.1 an oxo group or

4.2 one or two hydroxyl groups,

5) (C_2–C_6)-alkenyl, straight-chain or branched,

6) benzyl,

7) benzyl, mono-to pentasubstituted by

7.1 (C_1–C_4)-alkyl or

7.2 (C_1–C_4)-alkoxy,

8) (C_3–C_6)-cycloalkyl or

9) (C_1–C_4)-alkyl-(C_3–C_6)-cycloalkyl, and

R^2 is

1) a hydrogen atom,

2) (C_1–C_6)-alkyl, straight-chain or branched,

3) (C_2–C_6)-alkyl, straight-chain or branched, the carbon chain being interrupted by 1 or 2 oxygen atoms and 2 oxygen atoms bonded to one another being excluded,

4) benzyl,

5) benzyl, mono- to pentasubstituted by

5.1 (C_1–C_4)-alkyl or

5.2 (C_1–C_4)-alkoxy,

6) phenyl,

7) (C_3–C_6)-cycloalkyl or

8) (C_1–C_4)-alkyl-(C_3–C_6)-cycloalkyl, and

D is

1) a hydrogen atom or

2) a fluorine, chlorine, bromine or iodine atom,

the compounds diethyl [4-(1,3-dimethylxanthin-7-yl)butyl]-phosphonate, 5-(1,3-dimethoxyxanthin-7-yl)pentylphosphonic acid, 4-(1,3-dimethylxanthin-7-yl)butylphosphonic acid and 3-(1,3-dimethylxanthin-7-yl)propyl-phosphonic acid being excluded.

5,728,687

ANTITUMOUR COMPOSITIONS CONTAINING TAXANE DERIVATIVES

Marie-Christine Bissery, Vitry Sur Seine, France, assignor to Rhone-Poulenc Rorer, S.A., Antony, France

PCT No. PCT/FR93/01096, § 371 Date May 9, 1995, § 102(e) Date May 9, 1995, PCT Pub. No. WO94/10995, PCT Pub. Date May 26, 1994

PCT Filed Nov. 8, 1993, Ser. No. 424,470

Claims priority, application France, Nov. 10, 1992, 92 13525

Int. Cl.[6] A61K *31/335*

U.S. Cl. 514—90 **9 Claims**

1. A pharmaceutical composition having therapeutic synergy comprising at least one taxane selected from the group consisting of taxol, Taxotere and derivatives thereof in combination with an effective amount of at least one of an alkylating agent, epidophyllotoxin, antimetabolite, or vinca alkaloid.

5,728,688

THERAPEUTIC METHODS AND DELIVERY SYSTEMS UTILIZING SEX STEROID PRECURSORS

Fernand Labrie, Quebec, Canada, assignor to Endorecherche, Inc., Quebec, Canada

Division of Ser. No. 5,619, Jan. 19, 1993, abandoned. This application Jun. 7, 1995, Ser. No. 480,591

Int. Cl.[6] A61K *31/56*

U.S. Cl. 514—178 **3 Claims**

1. A method for inhibiting the development of, or treating, diminished libido comprising administering to a patient in need of such treatment an amount of at least one sex steroid precursor selected from the group consisting of dehydroepiandrosterone, dehydroepiandrosterone sulfate, and compounds converted in vivo to either of the foregoing, effective to maintain serum DHEA levels in said patient at between 4 and 13 micrograms per liter.

5,728,689

11β-ARYL-4-ESTRENES, PROCESS FOR THEIR PRODUCTION AS WELL AS THEIR USE AS PHARMACEUTICAL AGENTS

Arwed Cleve; Cornelius Scheidges; Günter Neef; Eckhard Ottow; Walter Elger, and Sybille Beier, all of Berlin, Germany, assignors to Schering Aktiengesellschaft, Berlin, Germany

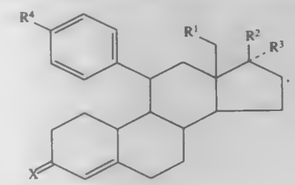
Division of Ser. No. 433,562, May 3, 1995, which is a continuation of Ser. No. 541,806, Jun. 21, 1990, abandoned. This application Jun. 6, 1995, Ser. No. 466,523

Claims priority, application Germany, Jun. 23, 1989, 39 21 059.6

Int. Cl.[6] A61K *31/56;31/58*

U.S. Cl. 514—179 **26 Claims**

1. A method of inducing an antigestagenic effect, comprising administering an antigestagenically effective amount of an 11β-aryl-4-estrene of formula I having progesterone antagonist activity



(I)

wherein

X is an oxygen atom, the hydroxyimino grouping >N—OH or two hydrogen atoms

R^1 is hydrogen or a methyl group,

R^2 is a hydroxy group, a C_1–C_{10} alkoxy or C_1–C_{10} alkanoyloxy group,

R^3 is hydrogen, 1-propinyl, 2-propenyl, the grouping $—(CH_2)_nCH_2Z$, wherein

n is 0, 1, 2, 3, 4 or 5,

Z is hydrogen, cyano or the radical $—OR^5$, wherein R^5 is H C_1–C_{10} alkyl or C_1–C_{10} alkanoyl,

the grouping $—(CH_2)_m—C{\equiv}C—Y$, wherein

m is 0, 1 or 2 and

Y is hydrogen, fluorine, chlorine, bromine or iodine atom; or a C_1–C_{10} hydroxyalkyl, C_1–C_{10} alkoxyalkyl, or C_1–C_{10} alkanoyloxyalkyl radical,

the grouping $—(CH_2)_p—CH{=}CH—(CH_2)_kCH_2R^6$, wherein

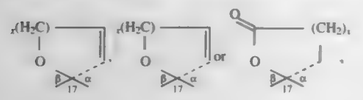
p is 0 or 1,

k is 0, 1 or 2, and

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R^6 means a hydrogen atom, a hydroxy group, a C_1–C_4 alkoxy or C_1–C_4 alkanoyloxy radical,

or else R^2 and R^3 together stand for a radical of the formula



wherein x=1 or 2,

R^4 is hydrogen; cyano; chlorine; fluorine; bromine; iodine; trialkylsilyl; trialkylstannyl; a straight-chain or branched, saturated or unsaturated C_{1-8} hydrocarbyl, C_{1-8} alkanoyl or C_{1-8} alkoxyalkyl radical; an amino group



in which R^7 and R^8, each independently of one another, is hydrogen or a C_1–C_4 alkyl group; a corresponding amine oxide

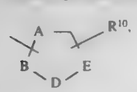


a grouping —OR^9 or —$S(O)_iR^9$, wherein

i is 0, 1 or 2,

R^9 means hydrogen, a methyl, ethyl, propyl, isopropyl, methoxyphenyl, allyl or a 2-dimethylaminoethyl group;

a heteroaryl radical for the formula Iα



wherein

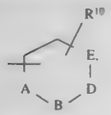
A is a nitrogen oxygen or sulfur atom, —B—D—E— is the element sequence —C—C—C—, —N—C—C— or —C—N—C—, and R^{10} is hydrogen; cyano; chlorine; fluorine; bromine; iodine; trialkylsilyl; trialkylstannyl; a straight-chain or branched, saturated or unsaturated C_{1-8} hydrocarbyl, C_{1-8} alkanoyl or C_{1-8} alkoxyalkyl radical; an amino group



or the radical —OR^9 or —$S(O)_iR^9$, wherein

R^7, R^8, R^9 and i each independently has one of the meanings already indicated;

a heteroaryl radical of formula Iβ

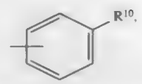


wherein

A is a nitrogen atom,

—B—D—E— is the element sequence —C—C—C—, —N—C—C—, —C—N—C— or —C—C—N—, and

R^{10} has the meaning already indicated; or a phenyl radical of formula Iτ



wherein R^{10} has the meaning already indicated,

or a pharmacologically compatible addition salt thereof.

5,728,690

CLEAR NON-ALCOHOLIC HYDROCORTISONE SOLUTIONS

Gloria Yoshiko Chen, Hammonton, N.J., assignor to American Home Products Corporation, Madison, N.J.

Continuation of Ser. No. 367,387, Dec. 30, 1994, abandoned. This application Mar. 18, 1996, Ser. No. 617,465

Int. Cl.[6] A61K *31/56;31/74*

U.S. Cl. 514—179 **11 Claims**

1. A clear, aqueous, alcohol-free composition comprising about 1% to about 2% hydrocortisone, about 15–30% polyethylene glycol 1300–1600 MWR, about 15–30% propylene glycol, about 5–20% glycerin, about 3–15% sodium dioctyl sulfosuccinate, buffers, preservatives, and water to make up to final volume.

5,728,691

QUINOLONYLCARBOXAMIDOCEPHALOSPORIN DERIVATIVES AND PHARMACEUTICAL COMPOSITIONS CONTAINING THEM

Miguel Angel Corpi Constantino, Queretaro Qro, Mexico, assignor to Laboratorios Aranda S.A. De C.V., Queretaro Qro, Mexico, and Judith Marcia Arrieta Munguia, Brussels, Belgium

PCT No. PCT/IB94/00304, § 371 Date Aug. 22, 1996, § 102(e) Date Aug. 22, 1996, PCT Pub. No. WO95/23153, PCT Pub. Date Aug. 31, 1995

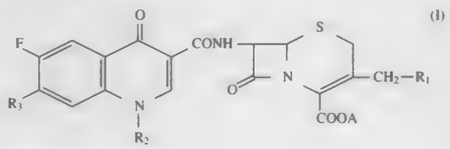
PCT Filed Oct. 7, 1994, Ser. No. 693,231

Claims priority, application Mexico, Feb. 25, 1994, 941427; May 6, 1994, 943331; May 9, 1994, 943394; Sep. 1, 1994, 946680; Sep. 1, 1994, 946681; Sep. 1, 1994, 946682; Sep. 5, 1994, 947838

Int. Cl.[6] C07D *501/36;* **A61K** *31/545*

U.S. Cl. 514—202 **22 Claims**

1. Quinolonylcarboxamidocephalosporin derivatives having the formula:



wherein

R_1 represents hydrogen, acetoxy, carbamyloxy, or an heterocyclic group selected from the group consisting of pyridin-1-yl, 1H-1,2,3-triazol-5-ylthio, 1-methyl-1H-tetrazol-5-ylthio, 5-methyl- 1,3,4-thiadiazol-2-ylthio, and 2,5-dihydro-6-hydroxy-2-methyl-5-oxo-1,2,4 -triazin-3-ylthio;

R_2 represents hydrogen, 1–4 C straight or branched alkyl radical, or 3–5 C cycloalkyl radical;

R_3 represents a halogen atom, an heterocyclic group selected from group consisting of piperazin-1-yl, 4-methylpiperazin-1-yl, and 4-ethylpiperazin- 1-yl; and

A represents hydrogen, an alkaline metal selected from sodium and potassium or an ammonium group.

5,728,692

METHOTREXATE DERIVATIVE

Nobuhiro Ohi, Shizuoka, and Hiroshi Suzuki, Tokyo, both of Japan, assignors to Chugai Seiyaku Kabushiki Kaisha, Tokyo, Japan

PCT No. PCT/JP93/01867, § 371 Date Jun. 15, 1995, § 102(e) Date Jun. 15, 1995, PCT Pub. No. WO94/14810, PCT Pub. Date Jul. 7, 1994

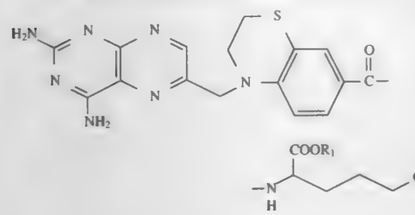
PCT Filed Dec. 24, 1995, Ser. No. 454,290

Claims priority, application Japan, Dec. 25, 1992, 4-362027

Int. Cl.[6] A61K *31/54;* **C07D** *279/16*

U.S. Cl. 514—224.2 **4 Claims**

1. A compound represented by the general formula (I):



wherein R_1 and R_2, which may be the same or different, each represents a hydrogen atom or a lower alkyl group having from 1 to 4 carbon atoms, or a salt thereof.

5,728,693

ARTHROPODICIDAL OXADIAZINE-THIADIAZINE-OR TRIAZINE-CARBOXANILIDES

Thomas Martin Stevenson, Newark, Del., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del.

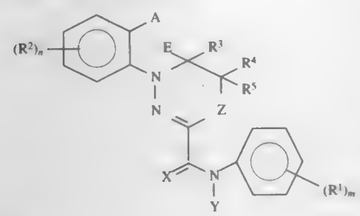
PCT No. PCT/US94/14241, § 371 Date Jun. 25, 1996, § 102(e) Date Jun. 25, 1996, PCT Pub. No. WO95/18116, PCT Pub. Date Jul. 6, 1995

Continuation-in-part of Ser. No. 175,843, Dec. 29, 1993, abandoned. This PCT application Dec. 21, 1994, Ser. No. 666,499

Int. Cl.[6] C07D *273/04;* **A01N** *43/88*

U.S. Cl. 514—229.2 **9 Claims**

1. A compound of the formula



wherein:

A is H;

E is selected from the group H and C_1–C_3 alkyl; or

A and E are taken together to form a member selected from the group CH_2, CH_2CH_2, O, $S(O)_r$, NR^6, OCH_2, $S(O)_rCH_2$, $N(R^6)CH_2$, substituted CH_2, and substituted CH_2CH_2, the substituents independently selected from 1–2 halogen and 1–2 methyl;

X and X^1 are independently selected from the group O and S;

Y is selected from the group H, C_1–C_6 alkyl, C_1–C_6 haloalkyl, C_2–C_6 alkenyl, C_2–C_6 haloalkenyl, C_2–C_6 alkynyl, C_2–C_6 haloalkynyl, C_3–C_6 cycloalkyl, C_1–C_6 halocycloalkyl, C_4–C_7 cycloalkylalkyl, CHO, $C(O)R^{14}$, $C(O)OR^{14}$, $C(S)R^{14}$, $C(S)SR^{14}$, $C(O)C(O)OR^{14}$, $C(O)CH_2C(O)OR^{14}$, $S(O)_rR^{14}$, $S(O)_2CH_2C(O)OR^{14}$, $P(X^1)(OR^{16})_2$, $S(O)_2N(R^{11})C(O)OR^{10}$, $S(O)_2N(R^{12})R^{13}$, $N{=}CR^8R^9$, OR^7, NR^7R^8; benzyl substituted with 1–3 substituents independently selected from W; and C_1–C_6 alkyl substituted with 1–3 substituents independently selected from the group C_1–C_3 alkoxy, C_1–C_3 haloalkoxy, CN, NO_2, $S(O)_rR^{14}$, $P(X^1)(OR^{16})_2$, $C(O)R^{14}$, $C(O)OR^{14}$ and phenyl substituted with 1–3 substituents independently selected from W;

Z is O;

R^1 and R^2 are independently selected from the group H, halogen, C_1–C_6 alkyl, C_1–C_6 haloalkyl, C_2–C_6 alkenyl, C_2–C_6 haloalkenyl, C_2–C_6 alkynyl, C_2–C_6 haloalkynyl, OR^7, C_2–C_6 alkoxyalkyl, C_2–C_6 alkylthioalkyl, C_1–C_6 nitroalkyl, C_2–C_6 cyanoalkyl, C_3–C_8 alkoxycarbonylalkyl, C_3–C_6 cycloalkyl, C_3–C_6 halocycloalkyl, CN, N_3, SCN, NO_2, SH, $S(O)_rR^{14}$, OCHO, CHO, $C(O)R^{14}$, $C(O)OR^{14}$, $C(O)NR^{14}R^{15}$, $S(O)_2NR^{14}R^{15}$, $NR^{14}R^{15}$, $NR^{15}C(O)R^{14}$, $OC(O)NHR^{14}$, $NR^{15}C(O)NHR^{14}$, $NR^{15}S(O)_2R^{14}$, SF_5, phenyl substituted with 1–3 substituents independently selected from W, and benzyl substituted with 1–3 substituents independently selected from W; or when m or n is 2 and the two R^1 groups or the two R^2 groups are adjacent, $(R^1)_2$ or $(R^2)_2$ are taken together as —OCH_2O—, —OCF_2O—, —OCH_2CH_2O—, —$CH_2C(CH_3)_2O$—, —CF_2CF_2O— or —OCF_2CF_2O— to form a cyclic bridge;

R^3 is selected from the group J, H, C_1–C_6 alkyl, C_1–C_6 haloalkyl, C_2–C_6 alkenyl, C_2–C_6 haloalkenyl, C_2–C_6 alkynyl, C_2–C_6 haloalkynyl, C_3–C_6 cycloalkyl, C_4–C_7 cycloalkylalkyl, OR^7, C_3–C_8 alkoxycarbonylalkyl, CHO, $C(O)R^{14}$, $C(O)OR^{14}$, $C(O)NR^{14}R^{15}$, $C(S)NR^{14}R^{15}$, $C(S)R^{14}$, $C(S)SR^{14}$, CN, $Si(R^{18})(R^{19})(R^{20})$, $S(O)_rR^{14}$, $P(X^1)(OR^{16})_2$, NR^7R^8, phenyl substituted with $(R^{21})_p$, and benzyl substituted with 1–3 substituents independently selected from W; or R^3 is C_2–C_6 epoxyalkyl optionally substituted with 1–2 substituents independently selected from the group C_1–C_3 alkyl, CN, $C(O)R^{14}$, $C(O)OR^{14}$ and phenyl substituted with 1–3 substituents independently selected from W; or R^3 is C_1–C_6 alkyl substituted with 1–3 substituents independently selected from the group OR^7, $C(O)NR^{14}R^{15}$, $C(O)R^{14}$, $S(O)_rR^{14}$, SCN, CN, C_1–C_2 haloalkoxy, $Si(R^{18})(R^{19})(R^{20})$ and NR^7R^8;

R^4 and R^5 are independently selected from the group H and C_1C_4 alkyl;

R^6 is selected from the group H, C_1–C_4 alkyl, C_1–C_4 haloalkyl, C_2–C_4 alkenyl, C_2–C_4 haloalkenyl, C_2–C_4 alkynyl, C_2–C_4 haloalkynyl, CHO, $C(O)R^{14}$, $C(O)OR^{14}$, $C(O)NR^{14}R^{15}$, $C(S)NR^{14}R^{15}$, $C(S)R^{14}$, $C(S)SR^{14}$, $S(O)_rR^{14}$, $P(X^1)(OR^{16})_2$, substituted phenyl, and substituted benzyl wherein the phenyl and benzyl substituents are 1–3 substituents independently selected from W;

R^7 is selected from the group H, C_1–C_4 alkyl, C_1–C_4 haloalkyl, C_2–C_4 alkenyl, C_2–C_4 haloalkenyl, C_2–C_4 alkynyl, C_2–C_4 haloalkynyl, $C(O)R^{14}$, $C(O)OR^{14}$, $C(O)NR^{14}R^{15}$, $S(O)_2NR^{14}R^{15}$, $S(O)_2R^{14}$, substituted phenyl, and substituted benzyl wherein the phenyl and benzyl substituents are 1–3 substituents independently selected from W;

R^8 is selected from the group H, C_1–C_4 alkyl, $C(O)R^{14}$ and $C(O)OR^{14}$;

R^9 is selected from the group H, C_1–C_4 alkyl, C_1–C_4 haloalkyl and phenyl substituted with 1–3 substituents independently selected from W; or

R^8 and R^9 are taken together as $(CH_2)_4$ or $(CH_2)_5$;

R^{10} is C_1–C_{18} alkyl;

R^{11} is C_1–C_4 alkyl;

R^{12} and R^{13} are independently C_1–C_4 alkyl; or

R^{12} and R^{13} are taken together as $(CH_2)_4$, $(CH_2)_5$ or $CH_2CH_2OCH_2CH_2$;

R^{14} is selected from the group C_1–C_6 alkyl, C_1–C_6 haloalkyl, C_2–C_6 alkenyl, C_2–C_6 haloalkenyl, C_2–C_6 alkynyl, C_2–C_6 haloalkynyl, C_2–C_6 alkoxyalkyl, C_2–C_6 alkylthioalkyl, C_1–C_6 nitroalkyl, C_2–C_6 cyanoalkyl, C_3–C_8 alkoxycarbonylalkyl, C_3–C_6 cycloalkyl, C_3–C_6 halocycloalkyl, C_4–C_7 cycloalkylalkyl, substituted phenyl and substituted benzyl wherein the phenyl and benzyl substituents are 1–3 substituents independently selected from W;

R^{15} is selected from the group H and C_1–C_4 alkyl; or

R^{14} and R^{15}, when attached to the same atom, are taken together as $(CH_2)_4$, $(CH_2)_5$ or $CH_2CH_2OCH_2CH_2$;

R^{16} is selected from the group C_1–C_3 alkyl and phenyl substituted with 1–3 substituents independently selected from W;

R^{18} and R^{19} are independently C_1–C_4 alkyl;

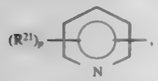
R^{20} is selected from the group C_1–C_4 alkyl and phenyl substituted with 1–2 substituents independently selected from W;

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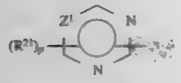
R^{21} is selected from the group C_1–C_6 alkyl, C_1–C_6 haloalkyl, C_2–C_6 alkenyl, C_2–C_6 haloalkenyl, C_2–C_6 alkynyl, C_2–C_6 haloalkynyl, OH, OR^{14}, C_2–C_6 alkoxyalkyl, C_2–C_6 alkylthioalkyl, C_1–C_6 nitroalkyl, C_2–C_6 cyanoalkyl, C_2–C_8 alkoxycarbonylalkyl, C_3–C_6 cycloalkyl, C_3–C_6 halocycloalkyl, halogen, CN, N_3, SCN, SF_5, NO_2, CHO, $C(O)R^{14}$, $C(O)OR^{14}$, $C(O)NR^{14}R^{15}$, $S(O)_rR^{14}$, $OC(O)R^{14}$, $OC(O)OR^{14}$, $OS(O)_rR^{14}$, $S(O)_2NR^{14}R^{15}$, $NR^{14}R^{15}$, $NR^{15}C(O)R^{14}$, $OC(O)NHR^{14}$, $NR^{15}C(O)NHR^{14}$, $NR^{15}S(O)_2R^{14}$, phenyl substituted with 1–3 substituents independently selected from W, and benzyl substituted with 1–3 substituents independently selected from W; or when p is 2 and the two R^{21} groups are adjacent, $(R^{21})_2$ are optionally taken together as —OCH_2O—, —OCF_2O—, —OCH_2CH_2O—, —$CH_2C(CH_3)_2O$—, —CF_2CF_2O— or —OCF_2CF_2O— to form a cyclic bridge;

J is selected from the group

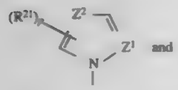
J-1



J-2

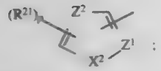


J-3



and

J-4



W is selected from the group H, halogen, CN, NO_2, C_1–C_2 alkyl, C_1–C_2 haloalkyl, C_1–C_2 alkoxy, C_1–C_2 haloalkoxy, C_1–C_2 alkylthio, C_1–C_2 haloalkylthio, C_1–C_2 alkylsulfonyl, and C_1–C_2 haloalkylsulfonyl;

X^2 is selected from the group O and S;

Z^1 and Z^2 are independently selected from the group CH and N;

m is 1 to 3;

n is 1 to 3;

p is 0 to 3; and

r is 0, 1 or 2.

5,728,694

DIHYDROPYRIDAZINONES, PYRIDAZINONES AND RELATED COMPOUNDS AS FUNGICIDES

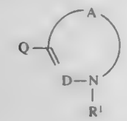
Enrique Luis Michelotti; Anne Ritchie Egan, both of Fort Washington; Ronald Ross, Jr., Jamison, and Willie Joe Wilson, Chalfont, all of Pa., assignors to Rohm and Haas Company, Philadelphia, Pa.

Division of Ser. No. 467,384, Jun. 6, 1995, Pat. No. 5,631,254, which is a division of Ser. No. 221,229, Mar. 31, 1994, Pat. No. 5,552,409, which is a continuation of Ser. No. 749,576, Aug. 28, 1991, abandoned, which is a continuation-in-part of Ser. No. 586,633, Sep. 21, 1990, abandoned. This application Oct. 30, 1996, Ser. No. 740,549

Int. Cl.[6] **C07D** *403/02;403/14;* **A61K** *31/535;31/54*

U.S. Cl. 514—229.2 **5 Claims**

1. A compound of the formula

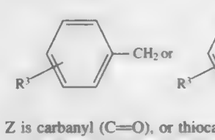


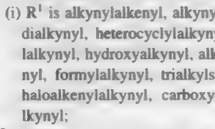
wherein

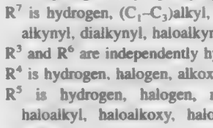
A is —$(CHR^2)_n$—O—Z—, or —O—CHR^7—Z—;

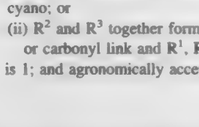
D is nitrogen;

Q is an aromatic group selected from











Z is carbanyl (C=O), or thiocarbonyl (C=S); wherein

(i) R^1 is alkynylalkenyl, alkynyl, haloalkynyl, phenylalkynyl, dialkynyl, heterocyclylalkynyl, cycloalkylalkynyl, alkenylalkynyl, hydroxyalkynyl, alkoxyalkynyl, alkanoyloxyalkynyl, formylalkynyl, trialkylsilylalkynyl, trialkyltinalkynyl, haloalkenylalkynyl, carboxyalkynyl, or alkoxycarbonylalkynyl;

R^2 is hydrogen, (C_1–C_3)alkyl, phenyl, or halogen;

R^7 is hydrogen, (C_1–C_3)alkyl, phenyl, halogen, alkynylakenyl, alkynyl, dialkynyl, haloalkynyl, or alkenylalkynyl;

R^3 and R^6 are independently hydrogen, alkoxy or halogen;

R^4 is hydrogen, halogen, alkoxy or nitro;

R^5 is hydrogen, halogen, nitro, alkyl, alkoxy, alkylthio, haloalkyl, haloalkoxy, haloalkylthio, phenyl, phenoxy or cyano; or

(ii) R^2 and R^3 together form a (C_1–C_3alkyl, (C_2–C_3)alkylene or carbonyl link and R^1, R^4, R^6, R^6 and R^7 are as above;

n is 1; and agronomically acceptable salts thereof.

5,728,695

SPIROKETAL DERIVATIVES, COMPOSITIONS CONTAINING THEM AND THEIR USE AS THERAPEUTIC AGENTS

Timothy Harrison, Great Dunmow; Simon Neil Owen, Leyton; Eileen Mary Seward, Bishop Stortford, and Christopher John Swain, Cambridge, all of United Kingdom, assignors to Merck Sharp & Dohme Limited, Hoddesdon, England

PCT No. PCT/GB95/02927, § 371 Date Jun. 20, 1997, § 102(e) Date Jun. 20, 1997, PCT Pub. No. WO96/20197, PCT Pub. Date Jul. 4, 1996

PCT Filed Dec. 15, 1995, Ser. No. 849,969

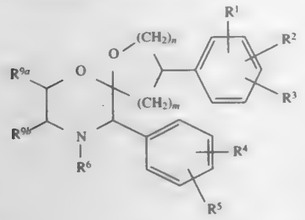
Claims priority, application United Kingdom, Dec. 23, 1994, 9426103

Int. Cl.[6] **A61K** *31/535;* **C07D** *498/10*

U.S. Cl. 514—230.8 **28 Claims**

1. A compound of the formula (I):

(I)



wherein

R^1 represents hydrogen, halogen, C_6alkyl, C_{2-6}alkenyl, C_{2-6}alkynyl, C_{3-7}cycloalkyl, C_{3-7}cycloalkylC_{1-4}alkyl, C_{1-6}alkoxy, fluoroC_{1-6}alkyl, fluoroC_{1-6}alkoxy, C_{1-4}alkyl substituted by a C_{1-4}alkoxy or hydroxy group, hydroxy, trimethylsilyl, nitro, CN, SR^a, SOR^a, SO_2R^a, COR^a, CO_2R^a, $CONR^aR^b$, NR^aR^b, $SO_2NR^aR^b$, or OC_{1-4}alkylNR^aR^b, where R^a and R^b are each independently hydrogen or C_{1-4}alkyl;

R^2 and R^3 each independently represent hydrogen, halogen, C_{1-6}alkyl, C_{1-4}alkoxy substituted by C_{1-4}alkoxy or trifluoromethyl;

or, where R^1 and $R^2$are attached to adjacent carbon atoms, they may be joined such that, together the carbon atoms to which they are attached, there is formed a 5- or 6-membered ring optionally containing 1 or 2 heteroatoms selected from oxygen, sulfur or nitrogen, or 1 or 2 groups selected from S(O), $S(O)_2$ and NR^a, which ring may also contain 1 or 2 double bonds, where $R^a$is as previously defined;

R^4 represents hydrogen, halogen, C_{1-6}alkyl, C_{2-6}alkenyl, C_{2-6}alkynyl, C_{3-7}cycloalkyl, C_{3-7}cycloyalkylC_{1-4}alkyl, C_{1-6}alkoxy, C_{1-4}alkyl substituted by a C_{1-4}alkoxy group, trifluoromethyl, nitro, CN, SR^a, SOR^a, SO_2R^a, COR^a, CO_2R^a, $CONR^aR^b$ where R^a and R^b are as previously defined;

R^5 represents hydrogen, halogen, C_{1-6}alkyl, C_{1-6}alkoxy substituted by C_{1-4}alkoxy or trifluoromethyl;

R^6 represents hydrogen, COR^a, CO_2R^a, $COCONR^aR^b$, $COCO_2R^a$, C_{1-6}alkyl optionally substituted by a group selected from (CO_2R^a, $CONR^aR^b$, hydroxy, CN, COR^a, NR^aR^b, $C(NOH)NR^aR^b$, CONHphenyl(C_{1-4}alkyl), $COCO_2R^a$, $CONHNR^aR^b$, $C(S)NR^aR^b$, $CONR^aC_{1-6}$alkylR^{12}, $CONR^{13}C_{2-6}$alkenyl, $CONR^{13}C_{2-6}$alkynyl, $COCONR^aR^b$, $CONR^aC(NR^b)NR^aR^b$, $CONR^a$heteroaryl, and phenyl optionally substituted by one, two or three substituents selected from C_{1-6}alkyl, C_{1-6}alkoxy, halogen and trifluoromethyl) or C_{1-6}alkyl, optionally substituted by oxo, substituted by a 5-membered or 6-membered heterocyclic ting containing 2 or 3 nitrogen atoms optionally substituted by =O or =S and optionally substituted by a group of the formula ZNR^7R^8 where

Z is C_{1-6}alkylene or C_{3-6}cycloalkyl;

R^7 is hydrogen or C_{1-4}alkyl, C_{3-7}-cycloalkyl, C_{3-7}cycloalkylC_{1-4}alkyl, or C_{2-4}alkyl substituted by C_{1-4}alkoxy or hydroxyl;

R^8 is hydrogen or C_{1-4}alkyl, C_{3-7}cycloalkyl, C_{3-7}cycloalkylC_{1-4}alkyl, or C_{2-4}alkyl substituted by C_{1-4}alkoxy, hydroxyl or a 4, 5 or 6 membered heteroaliphatic ting containing one or two heteroatoms selected from N, O and S;

or R^7, R^8 and the nitrogen atom to which they are attached form a heteroaliphatic ring of 4 to 7 ring atoms, optionally substituted by one or two groups selected from hydroxy or C_{1-4}alkoxy optionally substituted by a C_{1-4}alkoxy or hydroxyl group, and optionally containing a double bond, which ring may optionally contain an oxygen or sulphur ring atom, a group S(O) or $S(O)_2$ or a second nitrogen atom which will be part of a NH or NR^c moiety where R^c is C_{1-4}alkyl optionally substituted by hydroxy or C_{1-4}alkoxy;

or R^7, R^8 and the nitrogen atom to which they are attached form a non-aromatic azabicyclic ring system of 6 to 12 ring atoms;

or Z, R^7 and the nitrogen atom to which they are attached form a heteroaliphatic ring to 4 to 7 ring atoms which may optionally contain an oxygen ring atom;

R^{9a} and R^{9b} each independently represent hydrogen or C_{1-4}alkyl, or R^{9a} and R^{9b} are joined so, together with the carbon atoms to which they are attached, there is formed a C_{5-7} ring;

R^{12} represents OR^a, $CONR^aR^b$ or heteroaryl;

R^{13} represents H or C_{1-6}alkyl;

m is zero, 1, 2 or 3; and

n is zero, 1, 2 or 3; with the proviso that the sum total of m and n is 2 or 3;

or a pharmaceutically acceptable salt thereof.

5,728,696

ACARICIDAL, INSECTICIDAL AND NEMATICIDAL SUBSTITUTED (HETERO)ARYLALKYL KETONE OXIME O-ETHERS, PROCESSES FOR THEIR PREPARATION, AGENTS CONTAINING THEM, AND THEIR USE AS PESTICIDES

Birgit Kuhn, Hattersheim/Main; Gerhard Salbeck, deceased, late of Kriftel/Taunus, by Gisela Salbeck, heiress; Uwe Döller, Rodgau; Stefan Schnatterer, Hattersheim/Main, all of Germany; Hans-Herbert Schubert, Tokyo, Japan; Werner Knauf, Eppstein/Taunus, Germany; Anna Waltersdorfer, Frankfurt am Main, Germany, and Manfred Kern, Lörzweiler, Japan, assignors to Hoechst Aktiengesellschaft, Frankfurt, Germany

Division of Ser. No. 230,134, Apr. 20, 1994, Pat. No. 5,646,147, which is a continuation of Ser. No. 50,000, Apr. 20, 1993, abandoned. This application Jun. 5, 1995, Ser. No. 460,977

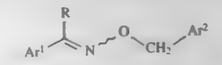
Claims priority, application Germany, Apr. 22, 1992, 42 13 149.9

Int. Cl.[6] **C07D** *401/00;401/02;403/00;403/02;* **A61K** *31/54;31/535*

U.S. Cl. 514—235.5 **13 Claims**

1. A compound of the formula I in the form of the syn or the anti compound or a mixture of these or a salt thereof,

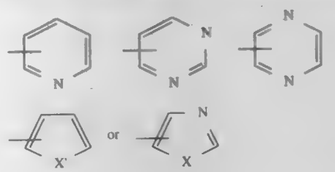
(I)



in which

R is CF_2H, isopropyl or cyclopropyl;

Ar^1 is phenyl, naphthyl, indanyl, benzofuryl, benzothienyl



and has 1 to 4 identical or different substituents R^1 selected from the group consisting of

1) (C_1–C_6)-alkyl,

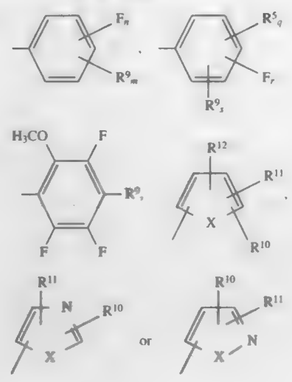
2) (C_2–C_6)-alkenyl,

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3) (C_2–C_6)-alkynyl
4) (C_3–C_8)-cycloalkyl which is optionally substituted by up to 6 identical or different radicals selected from the group consisting of halogen and (C_1–C_4)-alkyl,
5) halogen,
6) (C_1–C_6)-haloalkyl.
7) (C_2–C_6)-haloalkenyl.
8) (C_2–C_6)-haloalkynyl.
9) (C_1–C_6)-alkoxy-(C_1–C_6)-alkyl.
10) (C_6–C_{12})-aryl which is optionally up to trisubstituted by identical or different radicals selected from the group consisting of (C_1–C_6)-alkyl, (C_1–C_6)-alkoxy. (C_1–C_6)-haloalkyl and (C_1–C_6)-haloalkoxy,
11) heteroaryl which has up to 10 carbon atoms and which is optionally substituted as described under 10),
12) (C_6–C_{12})-aryl-(C_1–C_4)-alkyl which is optionally substituted in the aryl moiety as described under 10),
13) heteroaryl-(C_1–C_4)-alkyl which has up to 10 carbon atoms in the heteroaryl moiety and is optionally substituted in this moiety as described under 10).
14) (C_1–C_6)-alkoxy.
15) (C_2–C_6)-alkenyloxy,
16) (C_2–C_6)-alkynyloxy,
17) (C_3–C_8)-cycloalkyloxy which is optionally substituted as described under 4),
18) (C_1–C_6)-alkoxy, (C_1–C_4)-alkoxy,
19) (C_6–C_{12})-aryloxy which is optionally substituted as described under 10),
20) heteroaryloxy which has up to 10 carbon atoms and which is optionally substituted as described under 10),
21) (C_1–C_6)-haloalkoxy,
22) (C_2–C_6)-haloalkenyloxy,
23) (C_2–C_6)-haloalkynyloxy,
24) —O—N=CR'$_2$ in which R' radicals are identical or different radicals selected from the group consisting of hydrogen, (C_1–C_6)-alkyl, (C_3–C_8)-cycloalkyl and (C_6–C_{12})-aryl,
25) (C_1–C_6)-alkylamino,
26) di-(C_1–C_6)-alkylamino,
27) (C_3–C_8)-cycloalkylamino which is optionally substituted as described under 4),
28) (C_6–C_{12})-arylamino which is optionally substituted as described under 10),
29) heteroarylamino which has up to 10 carbon atoms and is optionally substituted as described under 10),
30) (C_1–C_6)-alkylmercapto,
31) (C_6–C_{12})-arylmercapto,
32) heteroarylmercapto having up to 10 carbon atoms,
33) (C_1–C_6)-alkylsulfinyl,
34) (C_6–C_{12})-arylsulfinyl,
35) heteroarylsulfinyl having up to 10 carbon atoms,
36) (C_1–C_6)-alkylsulfonyl,
37) (C_6–C_{12})-arylsulfonyl,
38) heteroarylsulfonyl having up to 10 carbon atoms,
39) nitro,
40) cyano,
41) cyano—(C_1–C_6)-alkyl,
42) (C_1–C_6)-alkoxycarbonyl,
43) (C_6–C_{12})-aryloxycarbonyl and
44) heteroaryloxycarbonyl having up to 10 carbon atoms in the heteroaryl moiety, or
45)
a) two of the substituents represent methylenedioxy,
b) the methylenedioxy group optionally being substituted by one or two identical or different radicals selected from the group consisting of halogen and (C_1–C_4)-alkyl;

X is O. S or NR^3;

R^3 is hydrogen, (C_1–C_6)-alkyl, (C_2–C_6)-alkenyl, (C_2–C_6)-alkynyl (C_3–C_8)-cycloalkyl which is optionally substituted by up to 6 identical or different radicals selected from the group consisting of halogen and (C_1–C_4)-alkyl, (C_1–C_6)-haloalkyl, (C_2–C_6)-haloalkenyl, (C_2–C_6)-haloalkynyl (C_1–C_6)-alkoxy-(C_1–C_6)-alkyl, (C_6–C_{12}-aryl-(C_1–C_4)-alkyl, heteroaryl-(C_1–C_4)-alkyl having up to 10 carbon atoms in the heteroaryl moiety, cyano-(C_1–C_6)-alkyl, (C_1–C_6)-alkoxycarbonyl, (C_6–C_{12})-aryloxycarbonyl or heteroaryloxycarbonyl having up to 10 carbon atoms; Ar^2 is



m+n=5;
m,n=1, 2, 3 or 4;
q+r+s=5;
q, r, s=1, 2 or 3;
X' is NR^3 and R^3 is as defined above;
R^5 is hydrogen, methyl or methoxy;
R^9 is (C_1–C_6)-alkyl, (C_1–C_6)-alkoxy, (C_1–C_6)-halogenalkyl or (C_1–C_{10})-halogenalkoxy; and
R^{10}, R^{11} and R^{12} are identical of different and are hydrogen or are one of the substituents defined above under 1)-45).

5,728,697

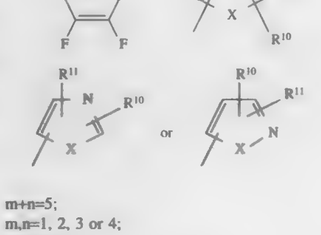
N,N-DI(ARYL) CYCLIC UREA DERIVATIVES AS ANTI-COAGULANTS

Raju Mohan, Moraga, and Michael M. Morrissey, Danville, both of Calif., assignors to Berlex Laboratories, Inc., Richmond, Calif.

Division of Ser. No. 458,598, Jun. 2, 1995, Pat. No. 5,612,363. This application Dec. 12, 1996, Ser. No. 766,373
Int. Cl.^{6} A61K *31/535;31/415;* **C07D** *413/10;403/10*
U.S. Cl. 514—235.8 **3 Claims**

1. A compound selected from the group consisting of the following formulae:

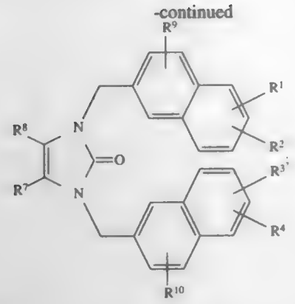
(III)



(IV)

-continued

(V)



wherein:

R^1 is —C(NH)NH$_2$, —C(NH)N(H)OR^{11}, —C(NH)N(H)C(O)R^9, or —C(NH)N(H)C(O)OR^{11};

R^2 and R^3 are the same or different and are selected from the group consisting of independently hydrogen, halo, lower alkyl, lower haloalkyl, phenyl, naphthyl, —OR^{11}, —C(O)OR^{11}, —C(O)N(R^{11})R^{12}, —N(R^{11})R^{12}, —N(H)C(O)R^{11}, and —N(H)S(O)$_2$R^{11};

R^4 is imidazolyl or —C(O)R^{13};

R^7 and R^8 are independently hydrogen, lower alkyl, lower haloalkyl, 4-pyridinyl, —C(O)OR^{11}, —C(O)N(R^{11})R^{12}, phenyl (optionally substituted by one or more substituents selected from the group consisting of halo, hydroxy, lower alkyl, lower haloalkyl, lower alkoxy and —N(R^{11})R^{12}), or naphthyl (optionally substituted by one or more substituents selected from the group consisting of halo, hydroxy, lower alkyl, lower haloalkyl, lower alkoxy and —N(R^{11})R^{12}), provided, however, that one R^7 and R^8 must be 4-pyridinyl;

R^{11} and R^{12} are independently hydrogen, lower alkyl, phenyl, naphthyl or lower aralkyl; and

R^{13} is pyrrolidinyl, 4-morpholinyl, piperazinyl, N-methylpiperazinyl, or piperidinyl; or a pharmaceutically acceptable salt thereof.

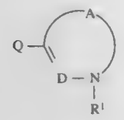
5,728,698

DIHYDROPYRIDAZINONES, PYRIDAZINONES AND RELATED COMPOUNDS AS FUNGICIDES

Enrique Luis Michelotti; Anne Ritchie Egan, both of Fort Washington; Ronald Ross, Jr., Jamison, and Willie Joe Wilson, Chalfont, all of Pa., assignors to Rohm and Haas Company, Philadelphia, Pa.

Division of Ser. No. 467,384, Jun. 6, 1995, Pat. No. 5,631,254, which is a division of Ser. No. 221,229, Mar. 31, 1994, Pat. No. 5,552,409, which is a continuation of Ser. No. 749,576, Aug. 28, 1991, abandoned, which is a continuation-in-part of Ser. No. 586,633, Sep. 21, 1990, abandoned. This application Oct. 30, 1996, Ser. No. 740,548
Int. Cl.^{6} A61K *31/53;31/695;* **C07D** *253/00*
U.S. Cl. 514—242 **3 Claims**

1. A method for controlling phytopathogenic fungus which comprises applying a fungicidally effective amount of a compound of the formula

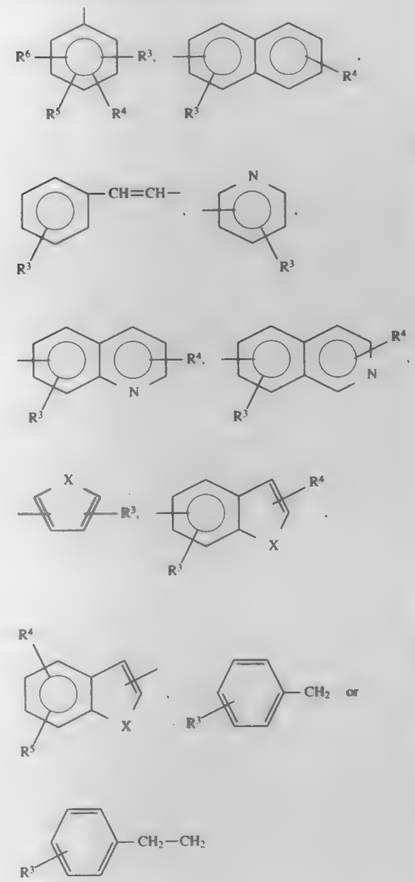


wherein the compound is a six member ring and

A is —CR^2=N—Z—;

D is nitrogen;

Q is an aromatic group selected from



X is oxygen (O) or sulfur (S);

Z is carbonyl (C=O), or thiocarbonyl (C=S); wherein

(i) R^1 is alkyl, hydroxyalkyl, cyanoalkyl, cycloalkylalkyl, heterocyclylalkyl, phenyl, phenylalkyl, phenylcarbonyl, alkenyl, haloalkenyl, phenylalkenyl, alkynylalkenyl, alkynyl, haloalkynyl, phenylalkynyl, heterocyclyl, dialkynyl, heterocyclylalkynyl, cycloalkylalkynyl, alkenylalkynyl, hydzoxyalkynyl. alkoxyalkynyl, alkanoyloxyalkynyl, formylalkynyl, trialkylsilylalkynyl, trialkyltinalkynyl, haloalkenylalkynyl, carboxyalkynyl, or alkoxycarbonylalkynyl;

R^2 is hydrogen or halogen;

R^3 and R^6 are independently hydrogen, alkoxy or halogen;

R^4 is hydrogen, halogen, alkoxy or nitro;

R^5 is hydrogen, halogen, nitro, alkyl, alkoxy, alkylthio, haloalkyl, haloalkoxy, haloalkylthio, phenyl, phenoxy or cyano; or

(ii) R^2 and R^3 together form a (C_1—C_3)alkyl, (C_2–C_3)alkylene or carbonyl link and R^1, R^4, R^5, and R^6 are as above;

and agronomically acceptable salts thereof.

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5,728,699

BENZYLSULFIDE DERIVATIVE, PROCESS FOR ITS PRODUCTION AND PESTICIDE

Keiji Toriyabe; Hideharu Sasaki; Naoshi Masuyama; Akihide Nagai; Hiroyuki Yano; Mieko Kawashima, all of Shizuoka; Yutaka Kurihara, Nagoya, and Tomonori Shimazu, Hamamatsu, all of Japan, assignors to Kumiai Chemical Industry Co., Ltd., and Ihara Chemical Industry Co., Ltd., both of Tokyo, Japan

PCT No. PCT/JP96/01055, § 371 Date Dec. 19, 1996, § 102(e) Date Dec. 19, 1996, PCT Pub. No. WO96/33168, PCT Pub. Date Oct. 24, 1996

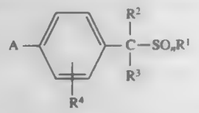
PCT Filed Apr. 18, 1996, Ser. No. 750,774

Claims priority, application Japan, Apr. 19, 1995, 7-117838

Int. Cl.[6] A01N *43/58;43/40;* **C07D** *237/02;* **C07C** *335/00*

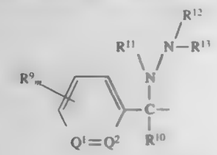
U.S. Cl. 514—247 **7 Claims**

1. A benzylsulfide derivative of the formula (I) or its salt:

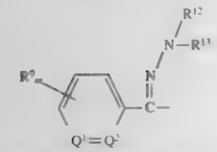


(I)

wherein R^1 is a C_{1-6} alkyl group, a C_{1-4} cyanoalkyl group, a C_{1-4} hydroxyalkyl group, a C_{3-6} cycloalkyl group, a C_{1-6} haloalkyl group, a C_{2-4} alkenyl group, a C_{2-4} alkynyl group, a phenyl group (which may be substituted by a halogen atom or a C_{1-4} alkyl group), a cyano group, a benzyl group (which may be substituted by a halogen atom), a thiazolyl group, a C_{1-4} alkylcarbamoyl group or a group of the formula —$N(R^5)R^6$; each of R^2 and R^3 which are independent of each other, is a hydrogen atom, a halogen atom, a cyano group, a C_{1-4} alkyl group, a C_{1-3} haloalkyl group, a C_{1-4} alkylthio group, a C_{1-4} alkylcarbonyl group, a carboxyl group, or a C_{1-4} alkoxycarbonyl group; or R^2 and R^3 may form a 3- to 6-membered ring together with the carbon atom to which they are bonded; or R^1 and R^2 may form a 3- to 8-membered ring having one or more hetero atoms, together with the sulfur and carbon atoms to which they are respectively bonded; R^4 is a hydrogen atom, a halogen atom, a C_{1-4} alkyl group, a C_{1-4} haloalkyl group, a C_{1-4} haloalkoxy group or a C_{1-4} haloalkoxy group; each of R^5 and R^6 which are independent of each other, is a hydrogen atom, a C_{1-6} alkyl group or a C_{1-4} haloalkyl group; or R^5 and R^6 may together form a group of the formula =CR^7R^8; or R^5 and R^6 may form a 4- to 8-membered ring having one or more hetero atoms, together with the nitrogen atom to which they are bonded; R^7 is a hydrogen atom, a C_{1-3} alkyl group or a C_{1-3} alkylthio group; R^8 is a C_{1-3} alkylthio group or a C_{1-3} alkylamino group; or R^7 and R^8 may form a saturated or unsaturated 4- to 8-membered ring together with the carbon atom to which they are bonded; A is a hydrazinoaralkyl or hydrazonoaralkyl group of the formula (A1) or (A2);



[A1]



[A2]

R^9 is a hydrogen atom, a halogen atom, a nitro group, a cyano group, a C_{1-4} alkyl group, a C_{1-4} haloalkyl group, a C_{1-4} alkoxy group, a C_{1-4} haloalkoxy group, a C_{1-4} alkylthio group, a C_{1-4} haloalkylthio group, a C_{1-4} alkylsulfonyl group, a C_{2-4} alkylsulfonylmethyl group, a C_{1-4} haloalkylsulfonyloxy group, a phenyl group (which may be substituted by a halogen atom) or a phenoxy group (which may be substituted by a halogen atom); or two R^9 may together form a 5- or 6-membered ring; R^{10} is a hydrogen atom or a C_{1-4} alkyl group; each of R^{11}, R^{12} and R^{13} which are independent of one another, is a hydrogen atom, a cyano group, a C_{1-6} alkyl group, a C_{1-4} haloalkyl group, a C_{2-10} alkoxyalkyl group, a C_{3-8} alkoxyalkoxyalkyl group, a C_{2-6} alkylthioalkyl group, a C_{2-6} alkenyl group, a C_{2-4} alkynyl group, a C_{1-4} cyanoalkyl group, a benzyl group (which may be substituted by a halogen atom, a C_{1-4} haloalkyl group or a C_{1-4} alkyl group), a group of the formula —COR^{14}, a group of the formula —CSR^{14}, a group of the formula —$COOR^{15}$, a group of the formula —$COSR^{15}$, a group of the formula —$CON(R^{16})R^{17}$, a group of the formula —$CSN(R^{16})R^{17}$, a group of the formula —$SN(R^{18})R^{19}$, a group of the formula —SO_2R^{20} or a group of the formula —$C(R^{21})$=CHR^{22}; or R^{12} and R^{13} may together form a group of the formula =$CR^{23}R^{24}$; or R^{12} and R^{13} may form a 4- to 8-membered ring having one or more hetero atoms, together with the nitrogen atom to which they are bonded; R^{14} is a hydrogen atom, a C_{1-20} alkyl group, a C_{1-8} haloalkyl group, a C_{2-12} alkoxyalkyl group, a C_{2-10} haloalkoxyalkyl group, a C_{3-16} alkoxyalkoxyalkyl group, a C_{4-22} alkoxyalkoxyalkoxyalkyl group, a C_{2-6} alkylthioalkyl group, a C_{3-6} cycloalkyl group, a C_{1-6} hydroxyalkyl group, a C_{1-6} aminoalkyl group, a C_{1-6} amidoalkyl group, a C_{1-8} cyanoalkyl group, a C_{3-12} alkoxycarbonylalkyl group, a C_{2-6} alkenyl group, a C_{2-4} alkynyl group, a phenyl group (which may be substituted by a halogen atom, a nitro group, a C_{1-4} alkyl group, a C_{1-4} haloalkyl group, a phenoxy group or a C_{1-4} alkoxy group), a naphthyl group (which may be substituted by a halogen atom or a C_{1-4} alkyl group) or a hetero aromatic ring group (which may be substituted by a halogen atom or a C_{1-4} alkyl group); R^{15} is a C_{1-20} alkyl group, a C_{2-8} haloalkyl group, a C_{2-12} alkoxyalkyl group, a C_{2-6} alkenyl group, a C_{2-4} alkynyl group, a benzyl group (which may be substituted by a halogen atom, a C_{1-4} alkoxy group or a C_{1-4} alkyl group) or a phenyl group (which may be substituted by a halogen atom); R^{16} is a hydrogen atom or a C_{1-4} alkyl group; R^{17} is a hydrogen atom, a C_{1-6} alkyl group or a phenyl group (which may be substituted by a halogen atom, a C_{1-4} haloalkoxy group or a C_{1-4} alkyl group); each of R^{18} and R^{19} which are independent of each other, is a C_{1-4} alkyl group (which may be substituted by a C_{1-4} alkoxycarbonyl group), or a C_{2-5} alkoxyalkyl group; or R^{18} and R^{19} may form a 5- or 6-membered ring together with the nitrogen atom to which they are bonded; R^{20} is a C_{1-4} alkyl group, a C_{1-4} haloalkyl group or a C_{2-4} dialkylamino group; R^{21} is a hydrogen atom or a C_{1-6} alkyl group; R^{22} is a C_{2-4} acyl group or a C_{2-6} alkoxycarbonyl group; each of R^{23} and R^{24} which are independent of each other, is a hydrogen atom, a halogen atom, a C_{1-6} alkyl group or a group of the formula —$N(R^{25})R^{26}$; each of R^{25} and R^{26} which are independent of each other, is a hydrogen atom, a C_{1-4} alkyl group, a C_{1-4} alkoxy group, a C_{2-12} alkoxyalkyl group or a group of the formula —SO_2R^{27}; or R^{25} and R^{26} may form a 5- or 6-membered ring together with the nitrogen atom to which they are bonded; R^{27} is a C_{1-8} alkyl group or a phenyl group (which may be substituted by a halogen atom or a C_{1-4} alkyl group); each of Q^1 and Q^2 is a nitrogen atom or a group of the formula —CR^9; m is an integer of from 1 to 3; and n is 0, 1 or 2.

5,728,700

SULFONAMIDE COMPOUNDS OF AZOLONES ANTI-HELICOBACTER AGENTS

Jan Heeres, Vosselaar; Raymond Antoine Stokbroekx, Beerse; Joseph Hector Mostmans, Antwerpen, and Louis Jozef Elisabeth Van der Veken, Vosselaar, all of Belgium, assignors to Janssen Pharmaceutica, N.V., Beerse, Belgium

PCT No. PCT/EP95/02619, § 371 Date Jan. 9, 1997, § 102(e) Date Jan. 9, 1997, PCT Pub. No. WO96/01818, PCT Pub. Date Jan. 25, 1996

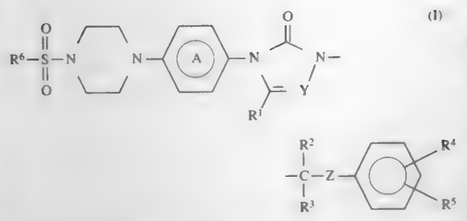
PCT Filed Jul. 5, 1995, Ser. No. 776,003

Claims priority, application European Pat. Off., Jul. 12, 1994, 94202015

Int. Cl.[6] C07D *401/04;* **A61K** *31/495;31/41;31/44*

U.S. Cl. 514—252 **4 Claims**

1. A therapeutic composition comprising (a) a pharmaceutically acceptable bismuth compound or a proton pump inhibitor or both, and (b) a compound of the formula:



(I)

a pharmaceutically acceptable acid addition salt or a stereochemically isomeric form thereof, wherein:

Y is CH or N;

R^1, R^2 and R^3 each independently are hydrogen or C_{1-4}alkyl;

R^4 and R^5 each independently are hydrogen, halo, C_{1-4}alkyl, C_{1-4}alkyloxy, hydroxy, trifluoromethyl, trifluoromethyloxy or difluoromethyloxy;

R^6 is C_{1-4}alkyl; or phenyl optionally substituted with halo, C_{1-4}alkylcarbonylamino, C_{1-4}alkyloxy, C_{1-4}alkyl or nitro;

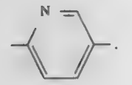
Z is C=O or CHOH; and



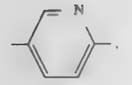
is a radical selected from the group consisting of radicals of the formula:



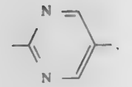
(a-1)



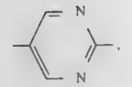
(a-2)



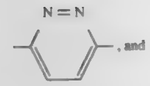
(a-3)



(a-4)

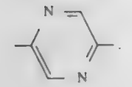


(a-5)



(a-6)

, and



(a-7)

5,728,701

HETEROCYCLIC DERIVATIVES

Michael Garth Wayne, Stoke on Trent; Michael James Smithers, Macclesfield; John Wall Rayner, Stockport; Alan Wellington Faull, Macclesfield; Robert James Pearce, Wilmslow; Andrew George Brewster, Bollington; Richard Eden Shute, Macclesfield; Stuart Dennett Mills, Macclesfield, and Peter William Rodney Caulkett, Macclesfield, all of United Kingdom, assignors to Zeneca Limited, London, United Kingdom

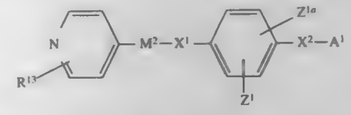
Continuation of Ser. No. 457,538, Jun. 1, 1995, Pat. No. 5,652,242, which is a continuation-in-part of Ser. No. 218,171, Mar. 28, 1994, Pat. No. 5,563,141. This application Mar. 18, 1997, Ser. No. 820,003

Claims priority, application United Kingdom, Mar. 29, 1993, 9306453; Dec. 15, 1993, 9325605

Int. Cl.[6] A61K *31/495;* **C07D** *401/04*

U.S. Cl. 514—252 **8 Claims**

1. A pharmaceutical composition comprising a compound of formula I:



I

wherein:

M^2 is —NR^4—D—TR^5— in which T is N; D is CH_2CO or CH_2CH_2; and R^4 and R^5 together represent CH_2CH_2;

X^1 is a bond;

Z^1 and Z^{1a} each independently represents hydrogen, hydroxy, halogeno, (1–4C)alkyl, (2–4C)alkenyl, (2–4C)alkynyl, (1–4C)alkoxy, (1–4C)alkylthio, (2–4C)alkenyloxy, nitro, amino, (1–4C) alkylamino, (2–4C) alkanoylamino, cyano, (1–4C) alkylsulphonylamino; phenyl (1–2C) alkylsulphonylamino, p-toluenesulphonylamino, or (1–4C)alkoxycarbonyl, or has one of the meanings given for X^2—A^1;

X^2 is an oxy(2–4C)alkylene or oxy(5–6C)alkylene group, which group optionally may be substituted on the alkylene by any of (2–4C) alkenyl, (2–4C) alkynyl, carboxy, (1–4C) alkoxycarbonyl, phenyl (1–4C) alkoxycarbonyl, phenyl (1–2C) alkylN-HCO, phenyl (1–2C) alkyl, pyridyl, phenyl, amino or a group of the formula $NR^{12}XR^6$ in which X is SO_2, CO or CO_2, R^{12} is hydrogen or (1–4C)alkyl and R^6 is (1–6C)alkyl, (6–10C)aryl or (6–10C)aryl(1–4C)alkyl;

A^1 is carboxy or a metabolically labile ester or amide thereof; and

R^{13} is hydrogen, (1–4C)alkyl, (1–4C)alkoxy or halogen; or a pharmaceutically acceptable salt thereof, together with a pharmaceutically acceptable diluent or carrier.

5,728,702

PYRIDAZINONE DERIVATIVES WITH PHARMACEUTICAL ACTIVITY

Keizo Tanikawa, Funabashi; Akira Saito, Onoda; Mitsuaki Hirotsuka, Funabashi, and Ken-ichi Shikada, Shiraoka-machi, all of Japan, assignors to Nissan Chemical Industries, Ltd., Tokyo, Japan

PCT No. PCT/JP94/01015, § 371 Date Mar. 22, 1996, § 102(e) Date Mar. 22, 1996, PCT Pub. No. WO95/01343, PCT Pub. Date Jan. 12, 1995

PCT Filed Jun. 24, 1994, Ser. No. 564,277

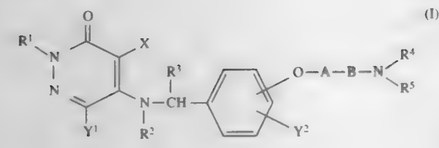
Claims priority, application Japan, Jun. 29, 1993, 5-159194; May 26, 1994, 6-112721

Int. Cl.[6] A61K *31/50;* **C07D** *237/22;401/12;703/12*

U.S. Cl. 514—253 **16 Claims**

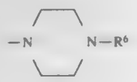
1. A 3(2H)-pyridazinone compound of the formula (I):

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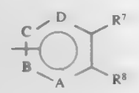


(I)

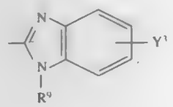
wherein each of R^1, R^2 and R^3 which are independent of one another, is a hydrogen atom or a C_{1-4} alkyl group, X is a chlorine atom or a bromine atom, Y^1 is a hydrogen atom, a halogen atom, a nitro group, an amino group or a C_{1-4} alkoxy group, Y^2 is a hydrogen atom, a halogen atom, a hydroxyl group, a C_{1-4} alkyl group or a C_{1-4} alkoxy group, A is a C_{1-5} alkylene chain which may be substituted by a hydroxyl group, B is a carbonyl group or a methylene chain which may be substituted by a hydroxyl group, B is a carbonyl group or a methylene chain which may be substituted by a C_{1-4} alkyl group, R^4 and R^5 form together with the adjacent nitrogen atom a 4-substituted piperazine ring of the formula:



{wherein R^6 is a C_{1-4} alkyl group (this alkyl group may be substituted by one or more substituents selected from a group of substituents consisting of (i) a C_{1-4} alkyl group, (ii) a phenyl group which may be substituted by Y^3 (wherein Y^3 is a hydrogen atom, a halogen atom, a C_{1-4} alkyl group, a C_{1-4} alkoxy group, an amino group, an N-formyl group or a C_{1-4} alkylcarbonylamino group), (iii)



(wherein each of R^7 and R^8 is a hydrogen atom, or R^7 and R^8 form together with the carbon atoms to which they are bonded, a benzene ring, and each of A, B, C and D which are independent of one another, is a nitrogen atom or a carbon atom) and (iv)



(wherein Y^3 is as defined above, and R^9 is a C_{1-4} alkyl group or a benzyl group which may be substituted by a C_{1-4} alkyl group, a C_{1-4} alkoxy group or a halogen atom)) or R^6 is —COR^{10} (wherein R^{10} is a hydrogen atom or a C_{1-4} alkyl group)}; or a pharmaceutically acceptable salt thereof.

5,728,703

TRICYCLIC CARBAMATE COMPOUNDS USEFUL FOR INHIBITION OF G-PROTEIN FUNCTION AND FOR TREATMENT OF PROLIFERATIVE DISEASES

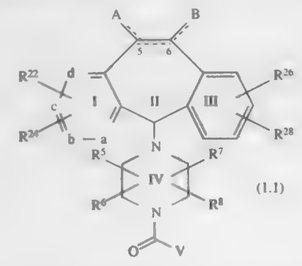
W. Robert Bishop, Pompton Plains; Ronald J. Doll, Maplewood; Alan K. Mallams, Long Valley; F. George Njoroge, Union; Joanne M. Petrin, Cedar Grove; John J. Piwinski, Clinton Township; Ronald L. Wolin, Westfield; Arthur G. Taveras, Rockaway, and Stacy W. Remiszewski, Township of Washington, all of N.J., assignors to Schering Corporation, Kenilworth, N.J.

Continuation of Ser. No. 410,479, Mar. 24, 1995, Pat. No. 5,691,342, which is a continuation-in-part of Ser. No. 312,030, Sep. 26, 1994, abandoned, which is a continuation-in-part of Ser. No. 137,435, Oct. 15, 1993, abandoned. This application May 31, 1995, Ser. No. 455,018

Int. Cl.[6] A61K *31/495;* **C07D** *401/04;401/14*

U.S. Cl. 514—254 **16 Claims**

8. A compound selected from a compound of the formula:



(1.1)

or a pharmaceutically acceptable salt or solvate thereof, wherein:

one of a, b, c and d represents N or NR^9 wherein R^9 is O^-, $—CH_3$ or $—(CH_2)_nCO_2H$ wherein n is 1 to 3, and the remaining a, b, c and groups represent CR^1 or CR^2;

R^{22} and R^{24} are the same or different and each is independently selected from H, halo, $—CF_3$, $—OR^{10}$, $—COR^{10}$, $—SR^{10}$, $—N(R^{10})_2$, $—NO_2$, $—OC(O)R^{10}$, $—CO_2R^{10}$, $—OCO_2R^{11}$, benzotriazol-1-yloxy, CN, alkynyl, alkenyl or alkyl, said alkyl or alkenyl group optionally being substituted with halo, $—OR^{10}$ or $—CO_2R^{10}$;

R^{26} and R^{28} are the same or different and each independently represents H, or any of the substituents of R^{22} and R^{24};

R^5, R^6, R^7 and R^8 each independently represents H, $—CF_3$, alkyl or aryl, said alkyl or aryl optionally being substituted with $—OR^{10}$, $—SR^{10}$, $—N(R^{10})_2$, $—NO_2$, $—COR^{10}$, $—OCOR^{10}$, $—OCO_2R^{11}$, $—CO_2R^{10}$, OPO_3R^{10} or one of R^5, R^6, R^7 and R^8 can be taken in combination with R as defined below to represent $—(CH_2)_r—$ wherein r is 1 to 4 which can be substituted with lower alkyl, lower alkoxy, $—CF_3$ or aryl;

R^{10} represents H, alkyl, aryl, or aralkyl;

R^{11}represents alkyl or aryl;

the dotted line between carbon atoms 5 ad 6 represents an optional double bond, such that when a double bond is present, A and B independently represent $—R^{10}$, halo $—OR^{11}$, $—OCO_2R^{11}$or $—OC(O)R^{10}$, and when no double bond is present between carbon atoms 5 and 6, A and B each independently represent H_2, $—(OR^{11})_2$; H and halo, dihalo, alkyl and H, $(alkyl)_2$, —H and $—OC(O)R^{10}$, H and $—OR^{10}$, =O, aryl and H, $=NOR^{10}$ or $—O—(CH_2)_p—O—$ wherein p is 2, 3 or 4;

V represents $—OR^{30}$; and

R^{30} represents 2-, 3- or 4-piperidyl or N-substituted piperidyl, wherein the substituent on said N-substituted piperidyl is C_1 to C_4 alkyl, alkylcarbonyl or $—C(O)NH(R^{10})$ wherein R^{10} is H or alkyl.

5,728,704

SUBSTITUTED PYRIDMIDINES FOR CONTROL OF DIABETIC COMPLICATIONS

Banavara L. Mylari, Waterford; Peter J. Oates, Gales Ferry; Todd W. Siegel, Clinton, and William J. Zembrowski, Oakdale, all of Conn., assignors to Pfizer Inc., New York, N.Y.

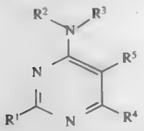
PCT No. PCT/US93/06446, § 371 Date Mar. 24, 1995, § 102(e) Date Mar. 24, 1995, PCT Pub. No. WO94/07867, PCT Pub. Date Apr. 14, 1994

Continuation-in-part of Ser. No. 952,222, Sep. 28, 1992, abandoned. This PCT application Jul. 12, 1993, Ser. No. 406,947

Int. Cl.[6] A71K *31/505;* **C07D** *401/04*

U.S. Cl. 514—256 **27 Claims**

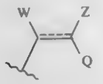
1. A compound of the formula



IA

wherein R^1 is $(C_1–C_6)$alkoxycarbonyl-$(C_1–C_6)$alkyl, $(C_1–C_6)$alkyl—S—$(C_1–C_6)$alkyl, $(C_1–C_6)$alkyl—SO—$(C_1–C_6)$alkyl, $(C_1–C_6)$alkyl—SO_2—$(C_1–C_6)$alkyl, heteroaryl, heteroaryl-$(C_1–C_6)$alkyl, aryl-$(C_1–C_6)$alkyl, $(C_1–C_6)$alkoxycarbonylaryl, aryl-$(C_1–C_6)$alkyloxy or heteroaryl-$(C_1–C_6)$alkyloxy, wherein said aryl and the aryl moieties of said aryl-$(C_1–C_6)$alkyl, $(C_1–C_6)$alkoxycarbonylaryl, and aryl-$(C_1–C_6)$alkyloxy are independently selected from phenyl and naphthyl, and wherein said heteroaryl and the heteroaryl moieties of said heteroaryl-$(C_1–C_6)$alkyl and heteroaryl-$(C_1–C_6)$alkyloxy are independently selected from pyridyl, furyl, tetrahydrofuryl, thienyl, imidazolyl, pyrazolyl, triazolyl, thiazolyl, oxazolyl and benzothiazolyl, and wherein said aryl and heteroaryl and the aryl and heteroaryl moieties of said heteroaryl-$(C_1–C_6)$alkyl, aryl-$(C_1–C_6)$alkyl, $(C_1–C_6)$alkoxycarbonylaryl, aryl-$(C_1–C_6)$alkyloxy and heteroaryl-$(C_1–C_6)$alkyloxy may optionally be substituted with one or more substituents independently selected from chloro, bromo, $(C_1–C_6)$alkyl, $(C_1–C_6)$alkoxy, —S—$(C_1–C_6)$alkyl, —SO—$(C_1–C_6)$alkyl, —SO_2—$(C_1–C_6)$alkyl, hydroxy-$(C_1–C_6)$alkyl and trifluoromethyl;

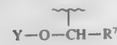
or R^1 is a group of the formula



wherein the dotted line represents an optional double bond, W, Q and Z are independently selected from hydrogen, $(C_1–C_6)$alkyl and trifluoromethyl, phenyl, furyl, triazolyl, thiazolyl and thienyl, wherein said phenyl, furyl, triazolyl, thiazolyl and thienyl may optionally be substituted with one or more substituents, preferably with from zero to two substituents, independently selected from $(C_1–C_6)$alkyl, $(C_1–C_6)$alkoxy, trifluoromethyl and hydroxy, with the proviso that only one of W, Z or Q can be hydrogen or alkyl;

or R^1 is a group of the formula —(C=O)R^6, wherein R^6 is hydrogen, $(C_1–C_6)$alkyl, aryl selected from phenyl and naphthyl, or heteroaryl selected from pyridyl, furyl, thienyl, imidazolyl, pyrazolyl, triazolyl, thiazolyl, oxazolyl, benzothiazolyl, benzofuranyl and benzothienyl, wherein said aryl and heteroaryl groups may optionally be substituted with one or more substituents, preferably with from zero to two substituents, independently selected from chloro, bromo, nitro, trifluoromethyl, $(C_1–C_6)$alkoxy, —S—$(C_1–C_6)$alkyl, —SO—$(C_1–C_6)$alkyl and —SO_2—$(C_1–C_6)$alkyl;

or R^1 is a group of the formula



wherein R^7 is aryl selected from phenyl and naphthyl, or heteroaryl selected from pyridyl, furyl, thienyl, imidazolyl, pyrazolyl, triazolyl, thiazolyl, oxazolyl, benzothiazolyl, benzofuranyl, benzothienyl and quinolyl, wherein said aryl and heteroaryl groups may optionally be substituted with one or more substituents, preferably with from zero to two substituents, independently selected from chloro, bromo, $(C_1–C_6)$alkyl, $(C_1–C_6)$alkoxy, —S—$(C_1–C_6)$alkyl, —SO—$(C_1–C_6)$alkyl, —SO_2—$(C_1–C_6)$alkyl and trifluoromethyl, and Y is hydrogen, benzyl, acetyl, benzoyl, aryl selected from phenyl and naphthyl, heteroaryl selected from furyl, thienyl, thiazolyl and oxazolyl, wherein said aryl and heteroaryl groups may optionally be substituted with one or more substituents, preferably with from zero to two substituents, independently selected from chloro, bromo, nitro, trifluoromethyl, $(C_1–C_6)$alkyl, $(C_1–C_6)$alkoxy, —S—$(C_1–C_6)$alkyl, —SO—$(C_1–C_6)$alkyl and —SO_2—$(C_1–C_6)$alkyl;

R^2 and R^3 are independently selected from hydrogen, $(C_1–C_6)$alkyl, phenyl and phenyl-$(C_1–C_4)$alkyl, wherein said phenyl and the phenyl moiety of said phenyl-$(C_1–C_6)$alkyl may optionally be substituted with one or more substituents independently selected from $(C_1–C_6)$alkyl, $(C_1–C_6)$alkoxy, chloro, bromo and trifluoromethyl;

or R^2 and R^3 form, together with the nitrogen to which they are attached, a cyclic group selected from azetidino, pyrrolidino, piperidino, piperazino and morpholino, wherein said cyclic group may optionally be substituted with from zero to two substituents, independently selected from $(C_1–C_6)$alkyl, $—CONH_2$, $—SO_2NH_2$, N-$(C_1–C_4)$alkylsulfamoyl, N,N-di-$(C_1–C_4)$alkylsulfamoyl, $(C_1–C_6)$alkoxycarbonyl, N,N-di-$(C_1–C_4)$alkylcarbamoyl, N-$(C_1–C_4)$-alkylcarbamoyl, N-phenylcarbamoyl, $(C_1–C_6)$alkylcarbonyl, phenylcarbonyl, $(C_1–C_6)$alkylsulfonyl, $(C_1–C_6)$alkylsulfinyl, phenylsulfonyl, heteroarylsulfonyl and heteroarylcarbonyl, wherein the heteroaryl moieties of said heteroarylcarbonyl and heteroarylsulfonyl are selected from furyl, thienyl, thiazolyl, and oxazolyl, and wherein the phenyl moieties of said phenylcarbonyl, N-phenylcarbamoyl, phenylcarbonyl and phenylsulfonyl may optionally be substituted with one or more substituents, independently selected from $(C_1–C_4)$alkyl, $(C_1–C_4)$alkoxy, chloro, bromo, nitro, amino, cyano and trifluoromethyl;

R^4 is hydrogen, chloro, bromo, cyano, nitro, trifluoromethyl, amino, $(C_1–C_6)$alkyl, $(C_1–C_6)$hydroxyalkyl, $(C_1–C_6)$alkoxy, phenyl, naphthyl or furyl, wherein said phenyl, naphthyl and furyl may optionally be substituted with one or more substituents, independently selected from chloro, bromo, trifluoromethyl, $(C_1–C_6)$alkyl, $(C_1–C_6)$alkoxy, —S—$(C_1–C_6)$alkyl, —SO—$(C_1–C_6)$alkyl, —SO_2—$(C_1–C_6)$alkyl and hydroxy; and

R^5 is hydrogen, $(C_1–C_6)$alkyl, $(C_1–C_6)$alkoxy, trifluoromethyl, $(C_1–C_6)$hydroxyalkyl, —S—$(C_1–C_6)$alkyl, —SO—$(C_1–C_6)$alkyl, —SO_2—$(C_1–C_6)$alkyl, phenyl or furyl, wherein said phenyl and furyl may optionally be substituted with one or more substituents, independently selected from chloro, bromo, trifluoromethyl, $(C_1–C_6)$alkyl, $(C_1–C_6)$alkoxy, —SO—$(C_1–C_6)$alkyl, —SO_2—$(C_1–C_4)$alkyl and hydroxy;

or a pharmaceutically acceptable salt of such compound.

5,728,705

METHOD OF INDUCING VASORELAXATION TO TREAT PULMONARY HYPERTENSION

Charles A. Lawson, Verona; David J. Pinsky, Riverdale; Arthur Smerling, New Rochelle, and David M. Stern, Great Neck, all of N.Y., assignors to The Trustees of Columbia University in the City of New York, New York, N.Y.

Filed Oct. 4, 1993, Ser. No. 131,984

Int. Cl.[6] A61K *61/70;31/33;* **C07H** *19/20;* **C07D** *473/00*

U.S. Cl. 514—261 **17 Claims**

1. A method for treating pulmonary hypertension in a subject comprising selectively decreasing pulmonary vascular resistance in the subject which comprises administering endotracheally or endobronchially an effective amount of a drug selected from the group consisting of cyclic nucleotides and phosphodiesterase inhibitors

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or administering an effective amount of a phosphodiesterase inhibitor by injecting a liquid containing the phosphodiesterase inhibitor via the trachea or a bronchus.

5,728,706

BENZENESULFONAMIDE DERIVATIVE AND PROCESS FOR PREPARING THEREOF

Koichiro Yamada, Shiraoka-machi; Kōsuke Yasuda, Fukiage-machi; Kohei Kikkawa, Kawaguchi, and Rikako Kohno, Omiya, all of Japan, assignors to Tanabe Seiyaku Co., Ltd., Osaka, Japan

Continuation of Ser. No. 356,958, Dec. 16, 1994, Pat. No. 5,589,478. This application Apr. 24, 1996, Ser. No. 636,981

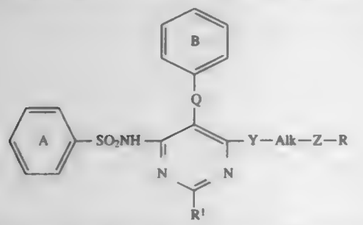
Claims priority, application Japan, Dec. 17, 1993, 5-318779; Jun. 23, 1994, 6-140628; Aug. 4, 1994, 6-183553

Int. Cl.[6] C07D *401/02;401/00;403/02;* **A61K** *31/505*

U.S. Cl. 514—269 **6 Claims**

1. A benzenesulfonamide derivative of the formula [I]:

[I]



wherein Ring A and Ring B are the same or different and each a substituted or unsubstituted benzene ring,

Q is a single bond or a group of the formula: —O—, —S—, —SO—, —SO_2— or —CH_2—,

Y is a group of the formula: —O—, —S— or —NH—,

Alk is a lower alkylene group or a lower alkenylene group,

Z is a single bond or a group of the formula: —O— or —NH—,

R is a substituted or unsubstituted aromatic heterocyclic or aryl group,

R^1 is hydrogen atom, trifluoromethyl group, a substituted or unsubstituted lower alkyl group, a substituted or unsubstituted lower alkenyl group, a mono- or di-lower alkylamino group, a substituted or unsubstituted lower alkylthio group, a substituted or unsubstituted lower alkoxy group, a substituted or unsubstituted lower alkynyl group, an aromatic heterocyclic group, a substituted or unsubstituted aliphatic heterocyclic group or an aryl group, provided that when Z is a single bond, R is a substituted or unsubstituted aromatic heterocyclic group,

or a pharmaceutically acceptable salt thereof.

5,728,707

TREATMENT AND PREVENTION OF PRIMARY AND METASTATIC NEOPLASMS WITH SALTS OF AMINOIMIDAZOLE CARBOXAMIDE

Felix Wehrmann, Wiener Neudorf, Austria, assignor to Constantia Gruppe, Austria

Filed Jul. 21, 1995, Ser. No. 505,439

Int. Cl.[6] A61K *31/415;31/505*

U.S. Cl. 514—274 **10 Claims**

1. A method of inhibiting the growth of a cancer in an individual comprising administering to an individual in need thereof a therapeutically effective amount of a composition comprising a salt of 5-aminoimidazole-4-carboxamide.

5,728,708

PHARMACOLOGICALLY ACTIVE PYRIDINE DERIVATIVES AND PROCESSES FOR THE PREPARATION THEREOF

Jürg Zimmermann, Wallbach, Switzerland, assignor to Novartis Corporation, Summit, N.J.

PCT No. PCT/EP94/03151, § 371 Date May 31, 1995, § 102(e) Date May 31, 1995, PCT Pub. No. WO95/09853, PCT Pub. Date Apr. 13, 1993

PCT Filed Sep. 21, 1994, Ser. No. 446,743

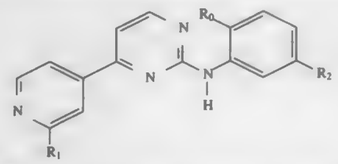
Claims priority, application Switzerland, Oct. 1, 1993, 2969/93; Jul. 18, 1994, 2281/94

Int. Cl.[6] C07D *401/04;401/14;* **A61K** *31/505*

U.S. Cl. 514—275 **23 Claims**

1. An N-phenyl-2-pyrimidineamine derivative of formula I

(I)



wherein

R_0 is hydrogen, halogen, lower alkoxy or lower alkyl,

R_1 is

a) N-(amino-lower alkyl)-carbamoyl,

b) N-(hydroxy-lower alkyl)-carbamoyl,

c) hydrazino,

d) cyclohexyl-amino that is unsubstituted or substituted by amino,

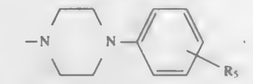
e) piperazinyl that is unsubstituted or substituted by amino-lower alkyl,

f) morpholinyl, or

g) lower alkylamino that is substituted by morpholinyl, hydroxy-lower alkylamino, cyano, imidazolyl, guanidyl, amino, lower alkanoylamino, lower alkylamino-carbonylamino, amidino, di-lower alkylamino-cyclohexyl, carboxy, lower alkoxycarbonyl, carbamoyl, N-hydroxy-carbamoyl, hydroxy, lower alkoxy, dihydroxyphosphoryloxy, piperazinyl, lower alkanoyl-piperazinyl, formylpiperazinyl, prolylamido or by a radical of the formula H_2N—CH(R)—C(=O)—NH— wherein R is hydrogen, C_1–C_4alkyl, benzyl, hydroxymethyl, 1-hydroxy-ethyl, mercaptomethyl, 2-methylthio-ethyl, indol-3-yl-methyl, phenyl-methyl, 4-hydroxy-phenyl-methyl, carbamoyl-methyl, 2-carbamoyl-ethyl, carboxy-methyl, 2-carboxy-ethyl, 4-amino-butyl, 3-guanidyl-propyl or R is 1H-imidazol-4-yl-methyl, and

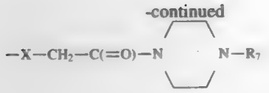
R_2 is C_1–C_6alkyl, C_1–C_3alkoxy, chlorine, bromine, iodine, trifluoromethyl, hydroxy, phenyl, amino, mono(C_1–C_3alkyl)amino, di(C_1–C_3alkyl)amino, C_2–C_4alkanoyl, propen-yloxy, carboxy, carboxy-methoxy, ethoxycarbonyl-methoxy, sulfanilamido, N,N-di-(C_1–C_3alkyl)sulfanilamido, N-methyl-piperazinyl, piperidinyl, 1H-imidazol-1-yl, 1H-triazol-1-yl, 1H-benzimidazol-2-yl, 1-naphthyl, cyclopentyl, 3,4-dimethyl-benzyl or a radical of one of the formulae:

—CO_2R_3, —NH—C(=O)—R_3, —N(R_3)—C(=O)—R_4, —O—$(CH_2)_n$—N(R_3)—R_4, —C(=O)—NH—$(CH_2)_n$—R_4[a], —C(=O)—NH—$(CH_2)_n$—N(R_3)—R_4, —$CH(CH_3)$—NH—CHO, —$C(CH_3)$=N—OH, —$C(CH_3)$=N—O—CH_3, —$CH(CH_3)$—NH_2, —NH—CH_2—C(=O)—N(R_3)—R_4,



—$(CH_2)_m$—R_6, —X—$(CH_2)_m$—R_6 and

-continued



wherein R_3 and R_4 are each independently of the other C_1–C_3alkyl, R_4[a] is hydroxy, amino or imidazolyl, X is oxygen or sulfur, m is 1, 2 or 3, n is 2 or 3, R_5 is hydrogen, C_1–C_3alkyl, C_1–C_3alkoxy, chlorine, bromine, iodine or trifluoromethyl, R_6 is 1H-imidazol-1-yl or morpholinyl and R_7 is C_1–C_3alkyl or is phenyl that is unsubstituted or mono-substituted by C_1–C_3alkyl, halogen or by trifluoromethyl, or a salt thereof.

5,728,709

ALKYL AND ARALKYL-SUBSTITUTED PYRROLOCARBAZOLE DERIVATIVES THAT STIMULATE PLATELET PRODUCTION

Yoji Ikuina; Chikara Murakata, both of Shizuoka; Yutaka Saitoh, Machida; Yukimasa Shiotsu, Shizuoka; Takako Iida, Machida; Tatsuya Tamaoki, Shizuoka; Kinya Yamashita, Mishima, and Shiro Akinaga, Shizuoka, all of Japan, assignors to Kyowa Hakko Kogyo Co., Ltd., Tokyo, Japan

PCT No. PCT/JP96/00557, § 371 Date Nov. 8, 1996, § 102(e) Date Nov. 8, 1996, PCT Pub. No. WO96/28447, PCT Pub. Date Sep. 19, 1996

PCT Filed Mar. 7, 1996, Ser. No. 737,194

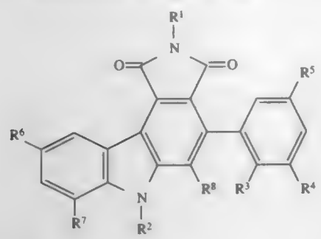
Claims priority, application Japan, Mar. 9, 1995, 7-049441

Int. Cl.[6] A61K *31/41;31/44;* **C07D** *487/04*

U.S. Cl. 514—279 **13 Claims**

1. A pyrrolocarbazole derivative having the following formula:

[(I)]



wherein

R^1 is lower alkyl or aralykyl;

R^2 is hydrogen, substituted or unsubstituted lower alkyl, lower alkenyl, or substituted or unsubstituted aralkyl;

R^3, R^4, R^5, R^6 and R^7 are independently hydrogen, halogen, nitro, substituted or unsubstituted lower alkanoyl, NR^9R^{10} (wherein R^9 and R^{10} are independently hydrogen, substituted or unsubstituted lower alkyl, substituted or unsubstituted lower alkanoyl, aroyl, lower alkoxycarbonyl, aralkyloxycarbonyl, or an amino acid residue in which a hydroxyl group in a carboxylic acid is removed and an amino group of the amino acid is optionally protected by a protective group, or OR^{11} (wherein R^{11} is hydrogen, substituted or unsubstituted lower alkyl, substituted or unsubstituted lower alkanoyl, aroyl, substituted or unsubstituted aralkyl, or heteroaralkyl);

R^8 is hydrogen or is combined with R^3 to form —$CONR^{12}$— (wherein R^{12} is hydrogen, or substituted or unsubstituted lower alkyl), with the proviso that when R^1 is benzyl, R^2, R^3, R^4, R^5, R^6, R^7 and R^8 are not simultaneously hydrogen;

and with the proviso that R^1 is not benzyl when two of R^3, R^4 and R^5 are chloro and the remainder is hydrogen

or a pharmaceutically acceptable salt thereof.

5,728,710

RAPAMYCIN DERIVATIVES

Juan Ignacio Luengo, Audubon, Pa., assignor to SmithKline Beecham Corporation, Philadelphia, Pa.

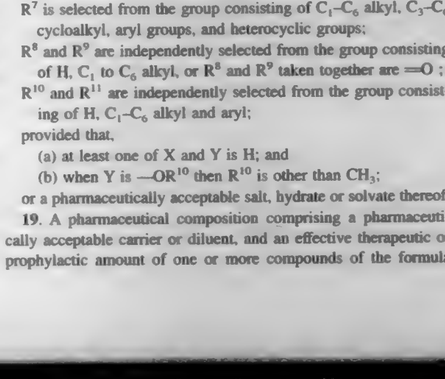
PCT No. PCT/US93/06678, § 371 Date Mar. 16, 1995, § 102(e) Date Mar. 16, 1995, PCT Pub. No. WO94/02136, PCT Pub. Date Feb. 3, 1994

PCT Filed Jul. 16, 1993, Ser. No. 373,183

Int. Cl.[6] A61K *31/395;* **C07D** *491/16*

U.S. Cl. 514—291 **27 Claims**

1. A compound of the formula



wherein:

X is selected from the group consisting of H, —OR^{10}, —S(O)$_n$$R^{10}$, —$NR^{10}R^{11}$, C_1–C_6 alkyl and aryl;

Y is selected from the group consisting of H, —OR^{10}, —S(O)$_n$$R^{10}$, —$NR^{10}R^{11}$, C_1–C_6 alkyl and aryl;

or X and Y taken together are =O ;

n is selected from the group consisting of 0, 1 and 2;

R^1 is selected from the group consisting of =O, (—OR^6,H) and (H,H);

R^2 is selected from the group consisting of =O, (H,H), and (H,OH); R^3 and R^6 are independently selected from the group consisting of —H, C_1–C_4 alkyl, C(=O)R^7, —C(=O)OR^7, —C(=O)NHR^7, and —C(=S)OR^7;

R^4 is selected from the group consisting of =O and (H,OR^6);

or R^3 and R^4 can be taken together to form a bridge of the formula A—C(R^8)(R^9)—O—B, where A is a bond to the oxygen bonded to the carbon at the 28-position and B is a bond to the carbon at the 30-position;

R^5 is selected from the group consisting of —H and C_1–C_4 alkyl;

R^7 is selected from the group consisting of C_1–C_6 alkyl, C_3–C_6 cycloalkyl, aryl groups, and heterocyclic groups;

R^8 and R^9 are independently selected from the group consisting of H, C_1 to C_6 alkyl, or R^8 and R^9 taken together are =O ;

R^{10} and R^{11} are independently selected from the group consisting of H, C_1–C_6 alkyl and aryl;

provided that,

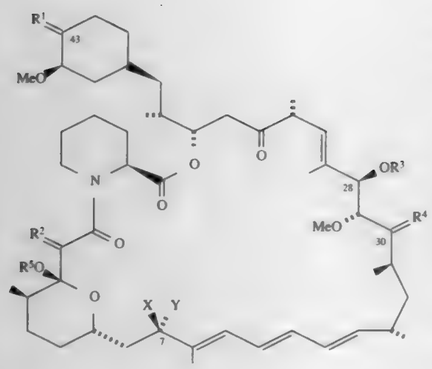
(a) at least one of X and Y is H; and

(b) when Y is —OR^{10} then R^{10} is other than CH_3;

or a pharmaceutically acceptable salt, hydrate or solvate thereof.

19. A pharmaceutical composition comprising a pharmaceutically acceptable carrier or diluent, and an effective therapeutic or prophylactic amount of one or more compounds of the formula

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wherein:

X is selected from the group consisting of H, —OR^{10}, —$S(O)_nR^{10}$, —$NR^{10}R^{11}$, C_1–C_6 alkyl and aryl;

Y is selected from the group consisting of H, —OR^{10}, —$S(O)_nR^{10}$, —$NR^{10}R^{11}$, C_1–C_6 alkyl and aryl;

or X and Y taken together are =O ;

n is selected from the group consisting of 0, 1 and 2;

R^1 is selected from the group consisting of =O, (—OR^6,H) and (H,H);

R^2 is selected from the group consisting of =O, (H,H), and (H,OH);

R^3 and R^6 are independently selected from the group consisting of —H, C_1–C_4 alkyl, —C(=O)R^7, —C(=O)OR^7, —C(=O)NHR^7, and —C(=S)OR^7;

R^4 is selected from the group consisting of =O and (H,OR^6);

or R^3 and R^4 can be taken together to form a bridge of the formula A—C(R^8)(R^9)—O—B, where A is a bond to the oxygen bonded to the carbon at the 28-position and B is a bond to the carbon at the 30-position;

R^5 is selected from the group consisting of —H and C_1–C_4 alkyl;

R^7 is selected from the group consisting of C_1–C_6 alkyl, C_3–C_6 cycloalkyl, aryl groups, and heterocyclic groups;

R^8 and R^9 are independently selected from the group consisting of H, C_1 to C_6 alkyl, or R^8 and R^9 taken together are =O;

R^{10}, and R^{11} are independently selected from the group consisting of H, C_1–C_6 alkyl and aryl;

provided that,

(a) at least one of X and Y is H; and

(b) when Y is —OR^{10}, then R^{10} is other than CH_3;

or a pharmaceutically acceptable salt, hydrate or solvate thereof.

21. A method of inhibiting the growth of pathogenic fungi in a human or other animal in need thereof which comprises administering to such human or other animal an effective, non-toxic amount of a composition of claim **19**.

22. A method of inducing immunosuppression in a human or other animal in need thereof which comprises administering to such human or other animal an effective, non-toxic amount of a composition of claim **19**.

5,728,711

TREATMENT OF *H. PYLORI* INFECTIONS

Arthur E. Girard, Jewett City, and Thomas D. Gootz, Deep River, both of Conn., assignors to Pfizer Inc., New York, N.Y.

Continuation of Ser. No. 409,786, Mar. 24, 1995, abandoned, which is a continuation of Ser. No. 224,362, Apr. 7, 1994, abandoned. This application Dec. 2, 1996, Ser. No. 764,655

Int. Cl.[6] A61K *31/435*

U.S. Cl. 514—300 **2 Claims**

1. A method for the treatment of a *Helicobacter pylori* infection which comprises orally administering to a subject in need of said treatment an effective amount of 7-([1α, 5α, 6α]-6-amino-3 azabicyclo[3.1.0]hex-3-yl)-1-(2,4-difluoro-phenyl)-6 -fluoro-1,4-dihydro-4-oxo-1,8-naphthyridine-3-carboxylicacid methanesulfonate at dosage levels of 1 to 5 mg/kg/day, in combination with an effective amount of metronidazole.

5,728,712

3,4-DISUBSTITUTED-PHENYLSULPHONAMIDES AND THEIR THERAPEUTIC USE

John Gary Montana; Hazel Joan Dyke; Robert James Maxey, and Christopher Lowe, all of Cambridge, United Kingdom, assignors to Chiroscience Limited, Cambridge, United Kingdom

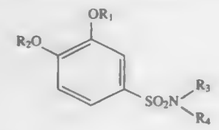
Filed May 20, 1996, Ser. No. 650,672

Claims priority, application United Kingdom, May 19, 1995, 9510184; Oct. 6, 1995, 9520419

Int. Cl.[6] C07D *217/08;217/24;* **A61K** *31/435*

U.S. Cl. 514—309 **16 Claims**

1. A compound of the general formula (i)



(i)

in which

R_1 represents C_{1-6} alkyl (optionally substituted with halogen, C_{1-6} alkoxy, aryloxy, arylalkyloxy, C_{1-6} alkylamino, arylalkylamino or arylamino), or cycloalkyl, optionally substituted with one or more substituents selected from the group consisting of halogen, C_{1-6} alkoxy, aryloxy, arylalkyloxy, C_{1-6} alkylamino, arylalkylamino and arylamino;

R_2 represents C1–3 alkyl optionally substituted with halogen;

R_3 and R_4, together with the nitrogen atom to which they are attached, form an isoquinolinyl, dehydrogenated isoquinolinyl, isocarbostyril or dehydrogenated isocarbostyril group in which either or both rings may optionally be substituted by one or more substituents selected from the group consisting of aryl, heterocyclo, heteroaryl, C_{1-6} alkyl, optionally substituted with aryl, heteroaryl, heterocyclo, carbonyl oxygen, hydroxy, NR_5R_6, C_{1-6} alkoxy, —CN, CO_2H, CO_2R_7, $SO_2NR_8R_9$ or $CONR_8R_9$, carbonyl oxygen, hydroxy, C_{1-6} alkoxy, —CN, CO_2H, CO_2R_7, $SO_2NR_8R_9$, $CONR_8R_9$, halogen, C_{1-6} alkoxy, hydroxy and —NR_5R_6;

R_5 and R_6, which may be the same or different, each represent H, aryl, heteroaryl, heterocyclo, C_{1-6} alkyl, arylalkyl, heteroarylalkyl, heterocycloalkyl, C_{1-6} alkylcarbonyl, C_{1-6} alkoxycarbonyl, arylsulphonyl, heteroarylsulphonyl, heterocyclosulphonyl, heteroarylcarbonyl, heterocyclocarbonyl, arylcarbonyl or C_{1-6} alkylsulphonyl, provided that when R5 is C_{1-6} alkylcarbonyl, C_{1-6} alkoxycarbonyl, arylsulphonyl, heteroarylsulphonyl, heterocyclosulphonyl, heteroarylcarbonyl, heterocyclocarbonyl, arylcarbonyl or C_{1-6} alkylsulphonyl, R6 is not C_{1-6} alkylcarbonyl, C_{1-6} alkoxycarbonyl, arylsulphonyl, heteroarylsulphonyl, heterocyclosulphonyl, heteroarylcarbonyl, heterocyclocarbonyl, arylcarbonyl or C_{1-6} alkylsulphonyl; or R_5, R_6 and the nitrogen to which they are attached form a 5 or 6 membered saturated or unsaturated heterocyclic ring;

R_7 represents aryl, heteroaryl, heterocyclo, C_{1-6} alkyl, arylalkyl, heteroarylalkyl or heterocycloalkyl; and

R_8 and R_9, which may be the same or different, each represent H, aryl, heteroaryl, heterocyclo, C_{1-6} alkyl, arylalkyl, heteroarylalkyl, heterocycloalkyl, or R_8, R_9 and the nitrogen to which they are attached form a 5 or 6 membered saturated or unsaturated heterocyclic ring, and pharmaceutically acceptable salts thereof.

5,728,713

NEW USE OF QUINOLINE-3-CARBOXAMIDE COMPOUNDS

Bo Nilsson, Helsingborg; Agneta Svedberg, and Per Gjörstrup, both of Lund, all of Sweden, assignors to Pharmacia & Upjohn, Stockholm, Sweden

PCT No. PCT/SE95/00244, § 371 Date Oct. 29, 1996, § 102(e) Date Oct. 29, 1996, PCT Pub. No. WO95/24195, PCT Pub. Date Sep. 14, 1995

PCT Filed Mar. 8, 1995, Ser. No. 704,588

Claims priority, application Sweden, Mar. 10, 1994, 9400809

Int. Cl.[6] A61K *31/47*

U.S. Cl. 514—312 **6 Claims**

1. A method for treating a patient suffering from, or at risk for acquiring, inflammatory bowel disease, comprising administering to the patient an effective therapeutic dose of N-phenyl-N-methyl-1,2-dihydro-4-hydroxy-1-methyl-2-oxo-quinoline-3-carboxamide or tautomers thereof, or a pharmaceutically acceptable salt thereof.

5,728,714

METHOD FOR TREATING HAIR LOSS USING TEMPO

Peter H. Proctor, 4126 SW. Freeway, Suite 1616, Houston, Tex. 77027

Continuation-in-part of Ser. No. 229,374, Apr. 18, 1994, Pat. No. 5,470,876, and a continuation-in-part of Ser. No. 193,228, Feb. 7, 1994, Pat. No. 5,472,687, which is a continuation-in-part of Ser. No. 21,970, Feb. 24, 1993, Pat. No. 5,352,442, which is a continuation-in-part of Ser. No. 149,720, Jan. 29, 1988, abandoned, which is a continuation-in-part of Ser. No. 8,186, Jan. 28, 1987, abandoned, which is a continuation-in-part of Ser. No. 858,050, Apr. 30, 1986, abandoned, which is a continuation-in-part of Ser. No. 757,131, Jul. 18, 1985, abandoned. This application Jun. 5, 1995, Ser. No. 465,416

Int. Cl.[6] A61K *31/445*

U.S. Cl. 514—315 **12 Claims**

1. A method for inhibiting the activity of hydroxyl and oxygen free radicals in tissue of an organism, comprising the step of:

administering substituted or unsubstituted 2,2,6,6-tetramethyl-1-piperidinyloxyl to the tissue in an effective amount to inhibit the free radicals.

7. A method for stimulating hair growth, comprising the step of:

administering an effective amount of substituted or unsubstituted 2,2,6,6-tetramethyl-1-piperdinyloxyl to the affected area.

12. A method for inhibiting the activity of hydroxyl and oxygen free radicals in tissue of an organism, comprising the step of:

administering a dispersion, suspension or emulsion of from about 0.01 to about 20 percent by weight of substituted or unsubstituted2,2,6,6-tetramethyl-1-piperidinyloxyltothetissue.

5,728,715

DIHYDROPYRIDAZINONES, PYRIDAZINONES AND RELATED COMPOUNDS AS FUNGICIDES

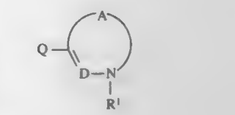
Enrique Luis Michelotti; Anne Ritchie Egan, both of Fort Washington; Ronald Ross, Jr., Jamison, and Willie Joe Wilson, Chalfont, all of Pa., assignors to Rohm and Haas Company, Philadelphia, Pa.

Division of Ser. No. 467,384, Jun. 6, 1995, Pat. No. 5,631,254, which is a division of Ser. No. 221,229, Mar. 31, 1994, Pat. No. 5,552,409, which is a continuation of Ser. No. 749,576, Aug. 28, 1991, abandoned, which is a continuation-in-part of Ser. No. 586,633, Sep. 21, 1990, abandoned. This application Oct. 30, 1996, Ser. No. 741,249

Int. Cl.[6] A61K *31/445;31/47;31/555;* **C07D** *217/00;217/22;215/00;215/16;211/00*

U.S. Cl. 514—315 **5 Claims**

1. A compound of the formula



wherein

A is

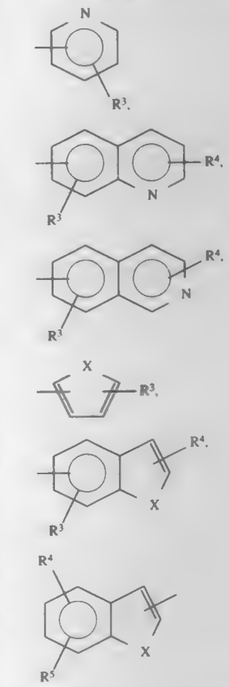
—$(CHR^2)_n$—CHR^7—Z—;

—CR^2=CR^7—Z; or

—CHR^2—CR^7=Y—;

D is CR_2;

Q is an aromatic group selected from



Z is carbonyl (C=O), or thiocarbonyl (C=S);

Y is carbon substituted by halo, alkoxy, alkynylthio or triazolyl;]

X is oxygen (O) or sulfur (S);

wherein

(i) R^1 is alkynylalkenyl, alkynyl, haloalkynyl, phenylalkynyl, dialkynyl, heterocyclylalkynyl, cycloalkylalkynyl, alkenylalkynyl, hydroxyalkynyl, alkoxyalkynyl, alkanoyloxyalkynyl, formylalkynyl, trialkylsilylalkynyl, trialkyltinalkynyl, haloalkenylalkynyl, carboxyalkynyl, or alkoxycarbonylalkynyl;

R^2 is hydrogen, (C_1–C_3)alkyl, phenyl, or halogen;

R^7 is hydrogen, (C_1–C_3)alkyl, phenyl, halogen, alkynylalkenyl, alkynyl, dialkynyl, haloalkynyl, or alkenylalkynyl;

R^3 and R^6 are independently hydrogen, alkoxy or halogen;

R^4 is hydrogen, halogen, alkoxy or nitro;

R^5 is hydrogen, halogen, nitro, alkyl, alkoxy, alkylthio, haloalkyl, haloalkoxy, haloalkylthio, phenyl, phenoxy or cyano; or

(ii) R^2 and R^3 together form a (C_1–C_3)alkyl, (C_2–C_3)alkylene or carbonyl link and R^1, R^4, R^5, R^6 and R^7 are as above;

n is 1; and agronomically acceptable salts thereof.

VOL 1208 ISS 3 MR 17 1998 UMI

5,728,716
ARALKYLAMINO SUBSTITUTED AZACYCLIC THERAPEUTIC AGENTS

Malcolm MacCoss, Freehold, N.J., and Christopher John Swain, Duxford, United Kingdom, assignors to Merck Sharp & Dohme Limited, Hoddesdon, England

PCT No. PCT/GB95/00153, § 371 Date Jul. 11, 1996, § 102(e) Date Jul. 11, 1996, PCT Pub. No. WO95/20575, PCT Pub. Date Aug. 3, 1995

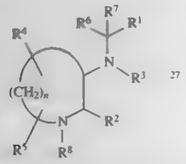
PCT Filed Jan. 26, 1995, Ser. No. 676,156

Claims priority, application United Kingdom, Jan. 28, 1994, 9401639; Jan. 28, 1994, 9401642

Int. Cl.[6] A01N *43/40*

U.S. Cl. 514—326 **13 Claims**

1. A compound of formula (I), or a pharmaceutically acceptable salt:



(I)

wherein

n is 1, 2 or 3 and where any carbon atom of $(CH_2)_n$ may be substituted by R^4 and/or R^5;

R^1 represents $(CH_2)_q$phenyl, wherein q is zero, 1, 2 or 3, which may be optionally substituted in the phenyl ring by 1, 2 or 3 groups selected from C_{1-6}alkyl, C_{2-6} alkenyl, C_{2-6}alkynyl, halo, cyano, nitro, trifluoromethyl, trimethylsilyl, —OR^a, —SR^a, —SOR^a, —SO_2R^a, —NR^aR^b, —NR^aCOR^b, —$NR^aCO_2R^b$, —COR^a, —CO_2R^a and —$CONR^aR^b$;

R^2 represents aryl selected from phenyl and naphthyl; heteroaryl selected from indazolyl, thienyl, furyl, pyridyl, thiazolyl, tetrazolyl and quinolyl; benzhydryl; or benzyl; wherein each aryl or heteroaryl moiety may be substituted by C_{1-6}alkyl, C_{1-6}alkoxy, halo or trifluoromethyl;

R^3 represents H or C_{1-6}alkyl;

R^4 and R^5 each independently represent H, halo, C_{1-6}alkyl, oxo, CO_2R^a or $CONR^aR^b$;

R^6 represents H or C_{1-6}alkyl;

R^7 represents H, C_{1-6}alkyl optionally substituted by a hydroxy group, or $(CH_2)_pNR^9R^{10}$, CO_2R^{16}, $CONR^9R^{10}$, $(CH_2)_pCO_2R^{16}$, $(CH_2)_pCONR^9R^{10}$, $(CH_2)_pNR^9COR^{16}$, $(CH_2)_pNHSO_2R^{11}$, $(CH_2)_pOR^{16}$, $(CH_2)_pOC(O)R^9$, $(CH_2)_pOC_{1-4}$alkylCOR^{17}, or phenyl optionally substituted by 1, 2 or 3 groups selected from C_{1-6}alkyl, C_{2-6}alkenyl, C_{2-6}alkynyl, halo, cyano, nitro, trifluoromethyl, trimethylsilyl, —OR^a, —SR^a, —SOR^a, —SO_2R^a, —NR^aR^b, —NR^aCOR^b, —$NR^aCO_2R^b$, —COR^a, —CO_2R^a and —$CONR^aR^b$;

R^8 represents C_{1-6}alkyl, optionally substituted by oxo, substituted by an optionally substituted aromatic heterocycle.

with the proviso that when R^6 and R^7 both represent H, R^8 represents C_{1-6}alkyl optionally substituted by oxo, substituted by an optionally substituted aromatic heterocycle selected from pyrrolyl, pyrazolyl, pyrazinyl, pyridazinyl, oxadiazolyl, thiadiazolyl, imidazolyl, benzimidazolyl, benzoxazolyl, benzthiophenyl, benzofuranyl and indolyl, or a substituted aromatic heterocycle selected from thienyl, furyl, pyridyl, triazolyl, tetrazolyl, thiazolyl, oxazolyl, quinolyl, isoxazolyl and isothiazolyl;

R^a and R^b each independently represent H, C_{1-6}alkyl, trifluoromethyl or phenyl optionally substituted by C_{1-6}alkyl, halo or trifluoromethyl;

R^9 and R^{10} each independently represent H or C_{1-6}alkyl;

R^{11} represents $NR^{14}R^{15}$ or an optionally substituted aromatic or non-aromatic azacyclic or azabicyclic group;

R^{12} represents OR^a, $CONR^aR^b$ or heteroaryl;

R^{13} represents H or C_{1-6}alkyl;

R^{14} and R^{15} each independently represent H, C_{1-6}alkyl, phenyl optionally substituted by one or more of C_{1-6}alkyl, C_{1-6}alkoxy, halo or trifluoromethyl, or phenylC_{1-4}alkyl optionally substituted in the phenyl ring by one or more of C_{1-6}alkyl, C_{1-6}alkoxy, halo or trifluoromethyl;

R^{16} represents C_{1-6}alkyl;

R^{17} represents C_{1-6}alkoxy, amino, C_{1-4}alkylamino or di(C_{1-4}alkyl)amino; and

p is 1 to 4.

5,728,717
PYRIDINIMINYL-1,2-BENZISOTHIAZOLES

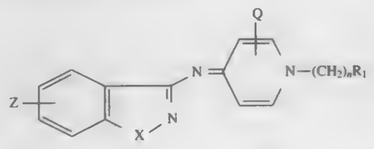
David M. Fink, Lebanon, N.J.; Barbara E. Kurys, Loveland, Ohio; Gregory M. Shutske, Pittstown, N.J., and John D. Tomer, IV, Perkasie, Pa., assignors to Hoechst Marion Roussel Inc., Cincinnati, Ohio

Division of Ser. No. 637,091, May 2, 1996, Pat. No. 5,668,154, which is a continuation-in-part of Ser. No. 466,021, Jun. 6, 1995, abandoned. This application Feb. 26, 1997, Ser. No. 806,981

Int. Cl.[6] A61K *31/44*; **C07D** *401/12*

U.S. Cl. 514—338 **3 Claims**

1. A compound of the formula:



wherein R_1 is hydrogen, loweralkyl, loweralkenyl, loweralkynyl, lowercycloalkyl, —C(=O)O-loweralkyl, 1,3-dioxolane, phenyl, cinnamyl, phenyl substituted by loweralkyl, loweralkoxy, halogen, hydroxyl, nitro or trifluoromethyl; Q is hydrogen, halogen, loweralkyl or nitro; X is sulfur; Z is hydrogen, loweralkyl, loweralkoxy, hydroxyl, halogen, nitro, or trifluoromethyl; n is 1 to 12; the geometric isomers, the optical isomers, or the pharmaceutically acceptable salts thereof.

5,728,718
2,5-DIAMINO-3,4-DISUBSTITUTED-1,6-DIPHENYLHEXANE ISOSTERES COMPRISING BENZAMIDE, SULFONAMIDE AND ANTHRANILAMIDE SUBUNITS AND METHODS OF USING SAME

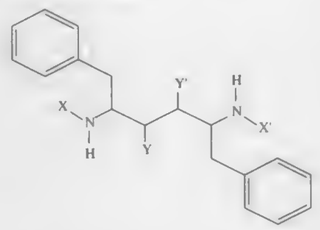
Ramnarayan S. Randad, and John W. Erickson, both of Frederick, Md., assignors to The United States of America as represented by the Department of Health and Human Services, Washington, D.C.

Filed Dec. 20, 1994, Ser. No. 359,612

Int. Cl.[6] C07D *401/02*; **A61K** *31/44*

U.S. Cl. 514—357 **27 Claims**

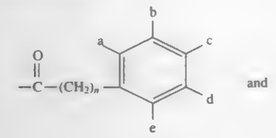
1. A compound of formula:



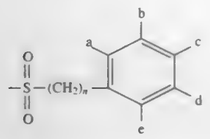
wherein the stereochemistry of each of the benzyl groups on the carbon atoms adjacent to the carbon atoms with the Y and Y' substituents is R or S.

Y and Y' are the same or different and are selected from the group consisting of R-hydroxyl, S-hydroxyl, R-amino, S-amino and hydrogen,

X and X' are the same or different and are selected from the group consisting of:



and



wherein n is 0 or 1, and a–e, which are the same or different, are selected from the group consisting of:

(i) hydrogen, with the proviso that at least one of a–e is other than hydrogen,

(ii) hydroxyl,

(iii) halogen,

(iv) sulfhydryl,

(v) carboxyl,

(vi) carboxamido,

(vii) a substituted or unsubstituted amino, wherein the substituent on said substituted amino is selected from the group consisting of $SO_2(CH_2)_pR^*$, $CO(CH_2)_pR^*$, $COO(CH_2)_pR^*$, and $CONR_1(CH_2)_pR^*$,

wherein p=0–20, R_1 is a C_{1-4} substituted or unsubstituted straight or branched chain alkyl, wherein the substituent on said substituted C_{1-4} alkyl is hydroxyl, amino, carboxyl or carboxamido, and R^* is selected from the group consisting of hydrogen, hydroxyl, halogen, amino, carboxyl, carboxamido, phenyl, pyridinyl, morpholinyl, piperazinyl, indolyl, quinolinyl, isoquinolinyl, thiazolyl, benzimidazolyl, aminothiazolyl, piperidinyl, cyclopentanyl, cyclohexanyl, oxazolyl, and a C_{1-20} substituted or unsubstituted straight or branched chain alkyl, wherein the substituent on said substituted C_{1-20} alkyl is selected from the group consisting of hydroxyl, amino, carboxyl, carboxamido, phenyl, pyridinyl, carboxamido and OR', wherein R' is selected from the group consisting of a C_{1-6} substituted or unsubstituted straight or branched chain alkyl, wherein the substituent on said substituted C_{1-6} alkyl is selected from the group consisting of hydroxyl, amino, carboxyl and carboxamido,

(viii) OR'", wherein R'" is selected from the group consisting of a C_{1-6} substituted or unsubstituted straight or branched chain alkyl wherein the substituent on said substituted C_{1-6} alkyl is selected from the group consisting of hydroxyl, amino, carboxyl and carboxamido, a $(CH_2)_qZ'$, an $O(CH_2)_qZ'$, and an $N(R)(CH_2)_qZ'$, wherein q is an integer of 0 to 4, and R is selected from the group consisting of hydrogen and a C_{1-4} substituted or unsubstituted straight or branched chain alkyl, wherein the substituent on said substituted C_{1-4} alkyl is selected from the group consisting of hydroxyl, amino, carboxyl and carboxamido, and Z' is selected from the group consisting of phenyl, pyridinyl, morpholinyl, piperazinyl, indolyl, quinolinyl, isoquinolinyl, thiazolyl, benzimidazolyl, aminothiazolyl, piperidinyl, cyclopentanyl, cyclohexanyl and oxazolyl,

(ix) a C_{1-6} substituted or unsubstituted straight or branched chain alkyl, wherein said substituent is selected from the group consisting of hydroxyl, amino, carboxyl, carboxamido, and OR"",

wherein R"" is selected from the group consisting of a C_{1-6} substituted or unsubstituted straight or branched chain alkyl, wherein the substituent on said C_{1-6} substituted alkyl is selected from the group consisting of hydroxyl, amino, carboxyl and carboxamido, and

(x) a $(CH_2)_mZ''$, an $O(CH_2)_mZ''$, and an $N(R)(CH_2)_mZ''$, in each of which m=0–4, R is selected from the group consisting of hydrogen and a C_{1-4} substituted or unsubstituted straight or branched chain alkyl, wherein the substituent on said substituted C_{1-4} alkyl is selected from the group consisting of hydroxyl, amino carboxyl and carboxamido, and Z'' is selected from the group consisting of phenyl, pyridinyl, morpholinyl, piperazinyl, indolyl, quinolinyl, isoquinolinyl, thiazolyl, benzimidazolyl, aminothiazolyl, piperidinyl, cyclopentanyl, cyclohexanyl and oxazolyl, with the proviso that the ring substituted with a–e can contain a nitrogen, and, when the ring contains a nitrogen, the substituent a, b, c, d or e at the position of the nitrogen does not exist.

5,728,719
SYSTEMIC CONTROL OF PARASITES

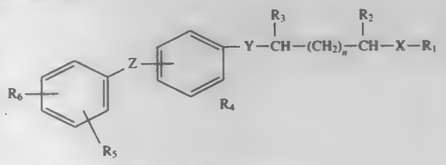
Thomas A. Miller, Carrollton, Tex., assignor to Virbac, Inc., Ft. Worth, Tex.

Division of Ser. No. 210,135, Mar. 17, 1994, Pat. No. 5,439,924, which is a continuation of Ser. No. 980,591, Nov. 23, 1992, abandoned, which is a continuation-in-part of Ser. No. 812,430, Dec. 23, 1991, abandoned. This application Mar. 14, 1995, Ser. No. 403,414

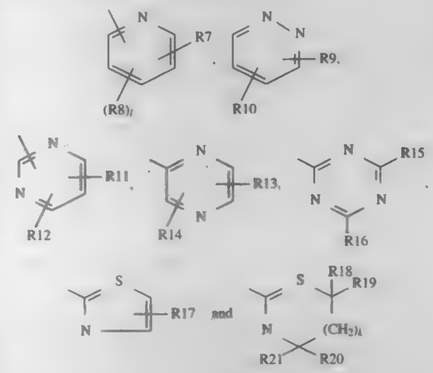
Int. Cl.[6] A01N *43/82*

U.S. Cl. 514—360 **35 Claims**

1. A composition comprising a pharmaceutically acceptable carrier for veterinary use, the composition being formulated to deliver an amount in the range of 0.001 mg to 1000 mg of compound per kilogram of animal body weight to produce when administered to a host animal an ovicidally effective amount of a compound having the formula:



Wherein R_1 is selected from the group consisting of



in which R_7, R_8, R_9, R_{10}, R_{11}, R_{12}, R_{13}, R_{14}, R_{15}, R_{16}, and R_{17}, are, the same or different, each a hydrogen atom, a halogen atom, a C_1–C_4 alkoxy group, a C_1–C_4 alkylthio group, trifluoro methyl group, or a nitro group; R_{18}, R_{19}, R_{20} and R_{21} are, the same or different, each a hydrogen atom, or a methyl group, k is an integer of 0 to 3; R_2 and R_3 are, the same or different, each a hydrogen atom, or a methyl group; R_4 is a halogen atom, or a methyl group, R_5 and R_6 are, the same or different, each a hydrogen atom, a halogen atom, a C_1–C_4 alkoxy group, or a C_1–C_4 haloalkyloxy group; X, Y and Z are, the same or different, each an oxygen atom, a sulfur atom or a methylene group, m is an integer of 0 to 4 and n is an integer of 0 to 2, in blood of the host animal.

VOL 1208 ISS 3 MR 17 1998 UMI

5,728,720

ISOXAZOLIDINEDIONE COMPOUNDS AND USE THEREOF

Hisashi Shinkai, Takatsuki, Japan, assignor to Japan Tabacco Inc., Tokyo, Japan

PCT No. PCT/JP94/02233, § 371 Date Aug. 25, 1995, § 102(e) Date Aug. 25, 1995, PCT Pub. No. WO95/18125, PCT Pub. Date Jul. 6, 1995

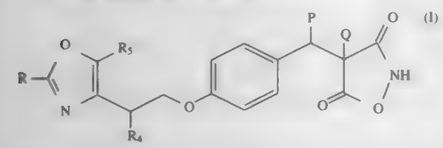
PCT Filed Dec. 26, 1994, Ser. No. 522,264

Claims priority, application Japan, Dec. 27, 1993, 5-354385

Int. Cl.[6] A61K *31/42;* C07D *413/02*

U.S. Cl. 514—374 10 Claims

1. An isoxazolidinedione compound of the formula I



(I)

wherein

R is a phenyl, biphenyl or naphthyl, which is optionally substituted by 1 to 3 substituents; an alicyclic hydrocarbon having 3 to 7 carbon atoms, which is optionally substituted by 1 to 3 substituents; an oxazolyl, isoxazolyl or 5-membered heterocyclic group having 1 to 3 nitrogen atoms or 1 oxygen atom or 1 sulfur atom, which is optionally substituted by 1 to 3 substituents; a 5-membered heterocyclic group having 1 to 3 nitrogen atoms or 1 oxygen atom or 1 sulfur atom which is condensed with a phenyl; or a group of the formula



wherein R_1 is phenyl, biphenyl or naphthyl, which is optionally substituted by 1 to 3 substituents, an alicyclic hydrocarbon having 3 to 7 carbon atoms, which is optionally substituted by 1 to 3 substituents, an oxazolyl, isoxazolyl or 5-membered heterocyclic group having 1 to 3 nitrogen atoms, which is optionally substituted by 1 to 3 substituents, or a heterocyclic group which is condensed with a phenyl; R_2 and R_3 are the same or different and each is a hydrogen atom or a lower alkyl having 1 to 4 carbon atoms, and X is an oxygen atom; a sulfur atom or a secondary amino;

R_4 is a hydrogen atom or a lower alkyl having 1 to 4 carbon atoms;

R_5 is a lower alkyl having 1 to 4 carbon atoms; and

P and Q are each a hydrogen atom or P and Q together form a bond, said substituents being a group selected from hydroxyl, a lower alkyl having 1 to 4 carbon atoms and a lower alkoxyl having 1 to 4 carbon atoms;

or a pharmaceutically acceptable salt thereof.

5,728,721

PHARMACEUTICALS FOR THE TREATMENT OF REJECTION REACTIONS IN ORGAN TRANSPLANTATIONS

Robert Ryder Bartlett, Darmstadt, Germany, assignor to Hoechst Aktiengesellschaft, Frankfurt am Main, Germany

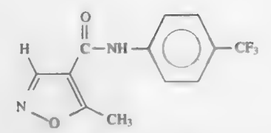
Filed Aug. 20, 1992, Ser. No. 932,577

Claims priority, application Germany, Aug. 22, 1991, 41 27 737.6

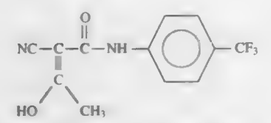
Int. Cl.[6] A61K *31/42;31/16*

U.S. Cl. 514—378 13 Claims

1. A method of treating hyperacute rejection reactions of an organ recipient to a transplanted organ, which comprises administering to said organ recipient an effective amount of a pharmaceutical composition containing as an active ingredient at least one compound having the formula I or II:



I



II

or the compound of formula II in the form a physiologically tolerable salt.

5,728,722

Patent Not Issued For This Number

5,728,723

1-BENZENESULFONYL-1,3-DIHYDRO-INDOL-2-ONE DERIVATIVES, THEIR PREPARATION AND PHARMACEUTICAL COMPOSITIONS IN WHICH THEY ARE PRESENT

Alain Di Malta, Saint Clément de Rivière; Loïc Foulon, Pinsaguel; Georges Garcia, Saint Gély du Fesc; Dino Nisato, Saint Georges d'Orques; Richard Roux, Vailhaiques; Claudine Serradeil-Legal, Escalquens; Gérard Valette, LaCroix-Sasgarde, and Jean Wagnon, Montpellier, all of France, assignors to Sanofi, Paris, France

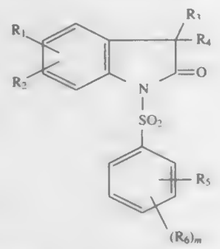
Division of Ser. No. 323,921, Oct. 17, 1994, which is a continuation-in-part of Ser. No. 129,130, Sep. 30, 1993, Pat. No. 5,470,972. This application Jun. 7, 1995, Ser. No. 478,738

Claims priority, application France, Jan. 30, 1992, 92 01034; Jul. 30, 1993, 93 09404

Int. Cl.[6] A61K *31/405;* C07D *209/04*

U.S. Cl. 514—418 29 Claims

1. A compound of the formula



(I)

in which

R_1 and R_2 are each independently a hydrogen, a hydroxy, a C_1–C_7-ω-halogenoalkoxy, a halogen, a C_1–C_7-alkyl, a trifluoromethyl, a C_1–C_7-alkoxy, a C_1–C_7-polyhalogenoalkoxy, a C_2–C_7-ω-hydroxyalkoxy, an ω-methoxyalkoxy in which the alkyl is C_2–C_7, a C_2–C_7-ω-aminoalkoxy which is free or substituted by one or two C_1–C_7-alkyls; a C_3–C_7-cycloalkoxy; a cycloalkyl methoxy in which the cycloalkyl is C_3–C_7; a phenoxy, a benzyloxy; a C_1–C_7-alkylthio; a phenylthio; a nitro; an amino which is free or substituted by one or two C_1–C_7-alkyls; a cyano; a C_1–C_7-alkylcarbonyl; a C_1–C_7-acyloxy; a C_1–C_7-alkylsulfonamido; a phenylsulfonamido; a benzylsulfonamido; a C_1–C_7-alkylamido; a C_1–C_7-alkoxycarbonylamino; a ureido which is unsubstituted or substituted by a phenyl, by a benzyl or by one or two C_1–C_7-alkyls; or a thioureido which is unsubstituted or substituted by a phenyl, by a benzyl or by one or two C_1–C_7-alkyls;

R_3 and R_4, together form a group $—(CH_2)_p X (CH_2)_q—$

R_5 and R_6 are each independently a hydrogen, a halogen, a C_1–C_7-alkyl, a trifluoromethyl, a cyano, a nitro, an amino which is free or substituted by one or two C_1–C_7-alkyls; a hydroxyamino; a hydroxy; a carboxy; a guanidino which is unsubstituted or monosubstituted or disubstituted by a C_1–C_7-alkyl, a phenyl or a benzyl; a group OR_7; a group SR_7; a C_1–C_7-acyl; a C_1–C_7-alkoxycarbonyl; a phenoxycarbonyl; a benzyloxycarbonyl; a carbamoyl substituted by groups R'_6 and R''_6; a thiocarbamoyl which is free or substituted by one or two C_1–C_7-alkyls; a sulfamoyl; an alkylsulfamoyl or dialkylsulfamoyl in which the alkyl is C_1–C_7; a group $SO_2R'_7$; an alkylsulfonamido in which the alkyl is C_1–C_7; a phenylsulfonamido; a benzylsulfonamido; a group COR'_7; a group NR_8R_9 or a group $CO—NH—CR_{10}R'_{10}—COR_{12}$; the phenyl group forming part of the substituent R_5 and/or R_6 can be unsubstituted or monosubstituted or polysubstituted by a C_1–C_7-alkyl, a trifluoromethyl, a C_1–C_7-alkoxy, a halogen, a sulfamoyl, an alkyl-sulfamoyl in which the alkyl is C_1–C_7, a carboxy, an alkoxycarbonyl in which the alkyl is C_1–C_7, a C_1–C_7-acyloxy or an imidazolyl;

R'_6 and R''_6 are each independently hydrogen, a C_1–C_7-alkyl which is unsubstituted or substituted by one or more halogens or by R'''_6; a phenyl, a pyridyl, a methylpyridyl, a piperidin-4-yl or a methylpiperidin-4-yl; or R'_6 and R''_6 form, with the nitrogen atom to which they are bonded, a pyrrolidino group which is unsubstituted or substituted by a hydroxymethyl or by a carbamoyl which is free or substituted by one or two C_1–C_7-alkyls;

R'''_6 is a hydroxy; a C_1–C_7-alkoxy; an amino which is free or substituted by one or two C_1–C_7-alkyls, a carbamoyl which is free or substituted by one or two C_1–C_7-alkyls or in which the two substituents, together with the nitrogen atom to which they are bonded, form a pyrrolidino, a piperidino or an azepino; a cyano; a carboxy which is free or esterified by a C_1–C_7-alkyl or by a benzyl; a phenyl; a C_3–C_7-cycloalkyl; an adamantyl or a heterocyclic radical selected from pyridyl, methylpyridyl, furanyl, tetrahydrofuranyl, thienyl, methylthienyl, pyrrolidino, piperidino and azepino groups;

R_7 is a C_1–C_7-alkyl, a phenyl, a benzyl, a C_3–C_7-cycloalkyl, a C_2–C_7-alkenyl, a C_1–C_7-ω-halogenoalkyl, a C_1–C_7-polyhalogenoalkyl, a C_1–C_7-acyl, a C_1–C_7-ω-carboxyalkyl which is free or esterified by a C_1–C_7-alkyl or by a benzyl; a C_2–C_7-ω-aminoalkyl in which the amino group is free, substituted by one or two C_1–C_7-alkyls or in the form of an ammonium ion; or a C_1–C_7-ω-carbamoylalkyl which is free or substituted by one or two C_1–C_7-alkyls;

R'_7 is a piperazin-1-yl group which is unsubstituted or substituted in the 4-position by a group R''_7; a piperidino group which is unsubstituted or substituted in the 4-position by a group R'''_7; an azetidin-1-yl group which is unsubstituted or substituted in the 3-position by a group R'''_7; a pyridyl group which is unsubstituted or substituted by a methyl; or a pyrrolidino group which is unsubstituted or substituted by a group R'''_7;

R''_7 is a C_1–C_7-alkyl, a phenyl, a benzyl or a C_1–C_7-acyl;

R'''_7 is R''_7 or an amino which is free or carries a protecting group;

R''''_7 is R'''_7 or a carboxy group which is free or esterified by a C_1–C_7-alkyl;

R_8 and R_9 are each independently a hydrogen, a C_1–C_7-alkyl or a benzyl; R_9 can also be a C_3–C_8-alkene in which the double bond is in the C_3–C_4-position; a C_1–C_7-acyl; a C_1–C_7-thioacyl; a cycloalkylcarbonyl in which the cycloalkyl is C_3–C_7; a cycloalkylthio-carbonyl in which the cycloalkyl is C_3–C_7; a C_1–C_7-ω-aminoacyl; a C_1–C_7-ω-hydroxyacyl; a C_1–C_7-ω-benzyloxyacyl; a phenoxycarbonyl; a thienocarbonyl; a pyridylcarbonyl; a methylpyridylcarbonyl; a C_1–C_7-alkoxycarbonyl; a benzoyl; a phenacetyl; a group $CO—CR_{10}R'_{10}—NR_{11}R'_{11}$; a group $CR_{10}R'_{10}COR_{12}$; a group $(CH_2)_tCOR_{12}$; a group $CO(CH_2)_{t'}COR_{12}$; a carbamoyl which is unsubstituted or substituted by R_{14} and R'_{14}; a thiocarbamoyl which is unsubstituted or substituted by R_{14} and R'_{14}, or a heterocyclic radical selected from pyrazolyl, imidazolyl, triazolyl, tetrazolyl, pyridazinyl, pyrimidinyl, pyridyl and thiazolyl groups;

R_8 and R_9, together with the nitrogen atom to which they are bonded, form hydantoin, N-methylhydantoin or a heterocycle selected from pyrrole, dihydropyrrole, pyrrolidine and isoindole, in which the benzene ring can be unsubstituted or substituted by a halogen, a C_1–C_7-alkyl, a trifluoromethyl or a methoxy;

R_{10} and R'_{10} are each independently hydrogen, a C_1–C_7-alkyl or a benzyl, or R_{10} and R'_{10}, together with the carbon atom to which they are bonded, form a C_3–C_7-cycloalkyl;

R_{11} and R'_{11} are each independently hydrogen or a C_1–C_7-alkyl;

R_{12} is a hydroxy, a C_1–C_7-alkoxy or an amino which is unsubstituted or substituted by one or two C_1–C_7-alkyls;

R_{13} is hydrogen ; a C_1–C_7 alkyl; a phenyl; a benzyl; a C_1–C_7 acyl; a C_1–C_7-alkylcarbonyl; or a carbamoyl which is unsubstituted or substituted by one or two C_1–C_7 alkyls;

R_{14} and R'_{14} are each independently a C_1–C_7-alkyl which is unsubstituted or substituted by R_{15}, a phenyl which is unsubstituted or substituted by R'_{15}, a C_3–C_7-cycloalkyl or an adamantyl;

R_{14} and R'_{14}, together with the nitrogen atom to which they are bonded, form a heterocycle selected from morpholine, thiomorpholine, piperazine, azetidine, pyrrolidine, piperidine and azepine, said heterocycle being unsubstituted or substituted by one or more methyl groups, by a phenyl or by an amino group which is free or carries a protecting group;

R_{15} is a phenyl, a pyridyl, a hydroxy, a C_1–C_7-alkoxy, an amino which is free or substituted by one or two C_1–C_7-alkyls, or a carboxy which is free or esterified by a C_1–C_7-alkyl;

R'_{15} is a hydroxy or an amino which is free or substituted by one or two C_1–C_7-alkyls;

m is 1 or, if R_6 is a halogen, a C_1–C_7-alkyl or a C_1–C_7-alkoxy, m can also be 2, 3 or 4, or else $(R_6)_m$ can be m substituents having different meanings selected from halogen, C_1–C_7-alkyl and C_1–C_7-alkoxy;

p and q are each an integer, it being possible for their sum to vary from 3 to 6;

t is an integer which can vary from 2 to 5;

t' is an integer which can vary from 1 to 5; and

X is a group NR_{13};

and its salts.

5,728,724

BENZOTHIOPHENE COMPOUNDS

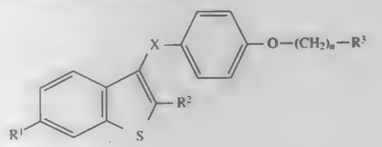
Henry Uhlman Bryant; Timothy Alan Grese, both of Indianapolis, Ind., and Stephen Sung Yong Cho, Palo Alto, Calif., assignors to Eli Lilly and Company, Indianapolis, Ind.

Filed Aug. 6, 1996, Ser. No. 692,666

Int. Cl.[6] A61K *31/38;* C07D *333/56;333/62;333/58*

U.S. Cl. 514—443 15 Claims

1. A compound of formula I



I

wherein

R^1 is —H, —OH, —O(C_1–C_4 alkyl), —$OCOC_6H_5$, —OCO(C_1–C_6 alkyl), or —OSO_2(C_4–C_6 alkyl);

R^2 is 1-naphthyl, 2-naphthyl, 2-thienyl, 3-thienyl, benzothienyl, or —$CH_2C_6H_5$; any of which may be optionally substituted with 1–3 substituents independently selected from the group halo, —OH, —O(C_1–C_4 alkyl), —$OCOC_6H_5$, —OCO(C_1–C_6 alkyl), or —OSO_2(C_4–C_6 alkyl);

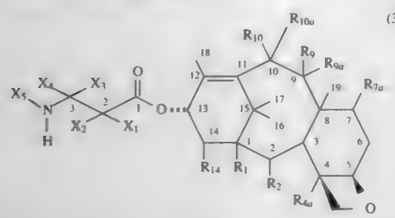
X is —CH_2—, —CO—, or —CH(OH)—;

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n is 2 or 3; and
R^3 is 1-piperidinyl, 1-pyrrolidinyl, methyl-1-pyrrolidinyl, dimethyl-1-pyrrolidinyl, 4-morpholino, dimethylamino, diethylamino, or 1-hexamethyleneimino; or a pharmaceutically acceptable salt thereof.

5,728,725
C2 TAXANE DERIVATIES AND PHARMACEUTICAL COMPOSITIONS CONTAINING THEM
Robert A. Holton, and Chunlin Tao, both of Tallahassee, Fla., assignors to Florida State University, Tallahasssee, Fla.
Continuation of Ser. No. 94,715, Jul. 20, 1993, abandoned, which is a continuation-in-part of Ser. No. 10,798, Jan. 29, 1993, Pat. No. 5,399,726, and Ser. No. 34,247, Mar. 22, 1993, Pat. No. 5,430,160, which is a continuation-in-part of Ser. No. 949,107, Sep. 22, 1992, abandoned, which is a continuation-in-part of Ser. No. 863,849, Apr. 6, 1992, abandoned, which is a continuation-in-part of Ser. No. 862,955, Apr. 3, 1992, abandoned, which is a continuation-in-part of Ser. No. 763,805, Sep. 23, 1991, abandoned. This application Jun. 5, 1995, Ser. No. 462,124
Int. Cl.[6] A61K *31/335;* **C07D** *305/14*
U.S. Cl. 514—449 **31 Claims**

1. A taxane having the formula

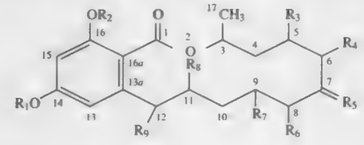


(3)

wherein
X_1 is $—OX_6$, $—SX_7$, or $—NX_8X_9$;
X_2 is hydrogen, or substituted or unsubstituted alkyl, alkenyl, alkynyl, aryl, or heteroaryl;
X_3 and X_4 are independently hydrogen, or substituted or unsubstituted alkyl, alkenyl, alkynyl, aryl, or heteroaryl;
X_5 is $—COX_{10}$, $—COOX_{10}$, $—COSX_{10}$, $—CONX_8X_{10}$, or $—SO_2X_{11}$;
X_6 is hydrogen, or substituted or unsubstituted alkyl, alkenyl, alkynyl, aryl, heteroaryl, or hydroxy protecting group;
X_7 is substituted or unsubstituted alkyl, alkenyl, alkynyl, aryl, heteroaryl, or sulfhydryl protecting group;
X_8 is hydrogen, or substituted or unsubstituted alkyl, alkenyl, alkynyl, aryl, or heteroaryl;
X_9 is an amino protecting group;
X_{10} is substituted or unsubstituted alkyl, alkenyl, alkynyl, aryl, or heteroaryl;
X_{11} is substituted or unsubstituted alkyl, alkenyl, alkynyl, aryl, heteroaryl, $—OX_{10}$, or $—NX_8X_{14}$;
X_{14} is hydrogen, or substituted or unsubstituted alkyl, alkenyl, alkynyl, aryl, or heteroaryl;
R_1 is hydroxy, protected hydroxy or together with R_{14} forms a carbonate;
R_2 is $—OCOR_{31}$;
R_{4a} is hydrogen, or substituted or unsubstituted alkyl, alkenyl, alkynyl, aryl, heteroaryl, cyano, hydroxy, or $—OCOR_{30}$;
R_{7a} is hydrogen, halogen, or $—OR_{28}$;
R_9 is hydrogen or together with R_{9a} forms an oxo;
R_{9a} is hydrogen, hydroxy, protected hydroxy, acyloxy, or together with R_9 forms an oxo;
R_{10} is hydrogen or together with R_{10a} forms an oxo;
R_{10a} is hydrogen, $—OCOR_{29}$, hydroxy, or protected hydroxy, or together with R_{10} forms an oxo;
R_{14} is hydrogen, hydroxy, protected hydroxy or together with R_1 forms a carbonate;
R_{28} is hydrogen, acyl, or hydroxy protecting group;
R_{29} and R_{30} are independently hydrogen, or substituted or unsubstituted alkyl, alkenyl, alkynyl, monocyclic aryl or monocyclic heteroaryl; and
R_{31} is substituted phenyl which is substituted with an alkyl, hydroxy, alkoxy, halogen, trifluoromethyl, protected hydroxy, aryl, alkenyl, acyl, acyloxy, nitro, amino, or amido substituent.

5,728,726
METHOD AND COMPOSITIONS FOR INHIBITING PROTEIN KINASES
Neill A. Giese, and Nathalie Lokker, both of San Francisco, Calif., assignors to Cor Therapeutics, Inc., S. San Francisco, Calif.
Continuation of Ser. No. 332,597, Oct. 28, 1994. This application Jun. 5, 1995, Ser. No. 462,475
Int. Cl.[6] A61K *31/365*
U.S. Cl. 514—449 **53 Claims**

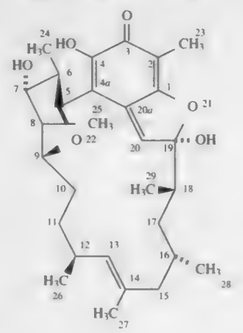
1. A method for inhibiting a protein kinase, which comprises:
contacting a composition containing a protein kinase with a molecule of the formula



wherein:
R_1 is H, lower alkyl, or lower alkanoyl;
R_2 is H, lower alkyl, or lower alkanoyl;
each of R_3 and R_4 independently represents H or OR;
R_5 is =O, =S, or —H, —OR;
R_6 and R_7 together represent a double bond or —O— or each of R_6 and R7 independently represents H or OR;
R_8 and R_9 together represent a double bond or —O— or each of R_8 and R_9 independently represents H or OR; and
each R independently represents H, lower alkyl, or lower alkanoyl.

5,728,727
ANTIOSTEOPOROTIC COMPOUND
Michael H. Su, Bellevue; Margaret I. Hosken, Bothell; Brian J. Hotovec, Woodinville, and Terra L. Johnston, Seattle, all of Wash., assignors to American Home Products Corporation, Madison, N.J.
Filed Oct. 3, 1996, Ser. No. 725,367
Int. Cl.[6] A61K *31/35;* **C07D** *313/00*
U.S. Cl. 514—450 **2 Claims**

1. A method of inhibiting bone resorption in a mammal which comprises administering to said mammal an effective amount of a compound of Formula I having the structure



I

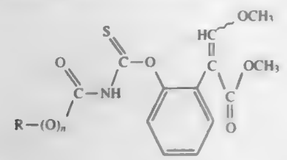
said mammal.

5,728,728
METHODS OF PROVIDING NEUROPROTECTION
Walter E. Kozachuk, 8484 16th St. #702, Silver Spring, Md. 20910
Filed Apr. 10, 1996, Ser. No. 632,338
Int. Cl.[6] A61K *31/27;* **C07C** *271/10*
U.S. Cl. 514—483 **6 Claims**

3. A method of treating sepsis and preventing neuronal degeneration and cell death in a human having sepsis, the method comprising the steps of:
administering to the human having sepsis a neuronal cell protecting antagonist of the glycine site of the NMDA receptor complex, wherein said antagonist is 2-phenyl-1,3-propandeiol dicarbamate at a serum level ranging from 25–300 μg/ml, in order to significantly attenuate neurological morbidity by preventing excessive stimulation of the NDMA receptor.

5,728,729
3-METHOXY-2-PHENYLACRYLIC ACID ESTERS USED AS PEST-CONTROL AGENTS, ESPECIALLY AS FUNGICIDES
Herbert Gayer, Monheim; Peter Gerdes, Aachen, and Heinz-Wilhelm Dehne, Bonn, all of Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Germany
PCT No. PCT/EP94/01417, § 371 Date Nov. 13, 1995, § 102(e) Date Nov. 13, 1995, PCT Pub. No. WO94/26705, PCT Pub. Date Nov. 24, 1994
PCT Filed May 4, 1994, Ser. No. 553,360
Claims priority, application Germany, May 17, 1993, 43 16 431.5
Int. Cl.[6] A01N *47/22;* **C07C** *333/10*
U.S. Cl. 514—487 **8 Claims**

1. A 3-methoxy-2-phenyl-acrylic ester of the formula



(I)

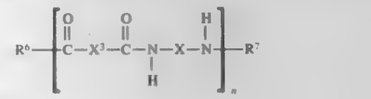
in which
R represents optionally substituted alkyl, optionally substituted cycloalkyl or substituted aryl, and
n is 0 or 1
with the exception of methyl 2-[N-(benzoyl)-thiocarbamoyloxy]-phenyl-3-methoxy-acrylate.

5,728,730
SYNERGISTIC ANTIMICROBIAL COMPOSITIONS CONTAINING METHYLENE-BIS(THIOCYANATE) AND AN ORGANIC ACID
David Oppong, and Vanja M. King, both of Memphis, Tenn., assignors to Buckman Laboratories International, Inc., Memphis, Tenn.
Division of Ser. No. 668,227, Jun. 21, 1996, Pat. No. 5,633,278, which is a division of Ser. No. 468,664, Jun. 6, 1995, Pat. No. 5,530,024, which is a division of Ser. No. 187,075, Jan. 27, 1994, Pat. No. 5,441,979. This application Mar. 3, 1997, Ser. No. 810,705
Int. Cl.[6] A01N *37/00;47/48*
U.S. Cl. 514—515 **37 Claims**

1. A composition to control the growth of at least one microorganism selected from the group consisting of bacteria, fungi, and mixtures thereof comprising a synergistic microbicidally effective mixture of (A) a methylene-bis(thiocyanate) and (B) at least one organic acid selected from the group consisting of undecylenic acid, lauric acid, oxalic acid, glycolic acid, citric acid, malic acid, their respective salts, and mixtures thereof.

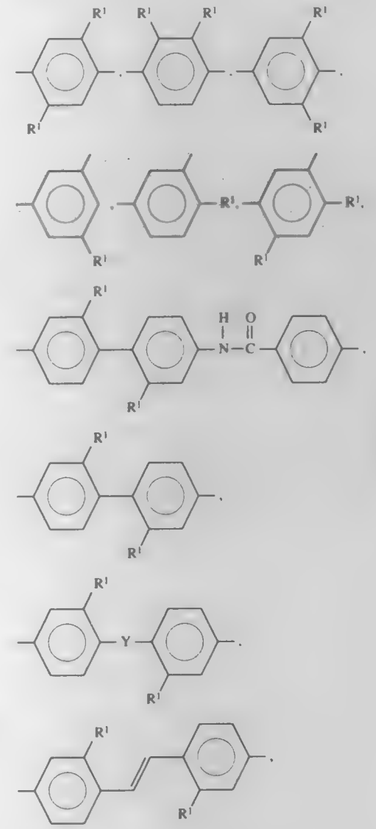
5,728,731
ANTI-HERPES VIRUS AND CYTOMEGALOVIRUS POLYAMIDE OLIGOMERS
Alan D. Cardin; Richard L. Jackson, both of Cincinnati, Ohio, and Michael J. Mullins, Midland, Mich., assignors to Merrell Pharmaceuticals Inc., Cincinnati, Ohio, and The Dow Chemical Co., Midland, Mich.
Division of Ser. No. 965,248, Jan. 7, 1993, which is a continuation-in-part of Ser. No. 710,370, Jun. 10, 1991, Pat. No. 5,276,182, which is a continuation-in-part of Ser. No. 549,782, Jul. 9, 1990, abandoned. This application Jun. 6, 1995, Ser. No. 469,386
Int. Cl.[6] A61K *31/255*
U.S. Cl. 514—517 **6 Claims**

1. A method of treating a Herpes viral infection in a patient in need thereof which comprises administering to the patient an anti-Herpes virally effective amount of an oligomer which is a polyamide of the formula:



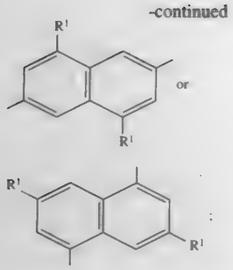
IV

wherein:
X represents

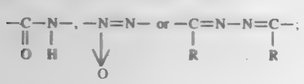


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-continued



Y represents —C≡C—, —N=N—,



n is 3 to 50;

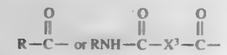
R represents hydrogen, C_{1-4} alkyl, phenyl, phenyl substituted with from 1 to 2 R^1 moieties and up to 3 substituents independently selected from chloro, bromo or C_{1-4} alkyl;

R^1 represents $—SO_3R^2$, $—CO_2R^2$, $—PO_3(R^2)_2$, or $—OPO_3R^2$;

R^2 represents hydrogen or a pharmaceutically-acceptable cation;

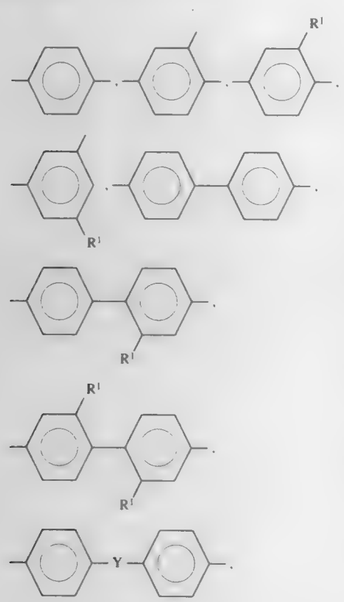
R^6 represents $H_2N—X—NH—$, RNH— or R—C(O)—NH—X—NH—, where R, R^2 and X are defined as above;

R^7 represents an hydrogen atom,

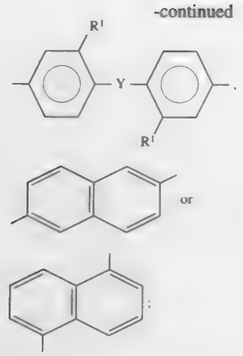


where R is defined above; and

X^3 represents



-continued



wherein R^1 and Y are defined as above.

5,728,732

SKIN TREATMENT WITH SALICYLIC ACID ESTERS AND RETINOIDS

Joseph Michael Corey, Waterbury, and Angel Augusto Guerrero, Huntington, both of Conn., assignors to Elizabeth Arden Company, Division of Conopco, Inc., New York, N.Y.

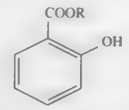
Filed Nov. 27, 1996, Ser. No. 757,784

Int. Cl.[6] A61K *7/42*

U.S. Cl. 514—544 **10 Claims**

1. A cosmetic composition comprising:

(i) a safe and effective amount of a salicylate ester having formula (I):



(I)

wherein R is a C_{11}–C_{30} alkyl or alkenyl radical;

(ii) a safe and effective amount of a retinol C_{18}–C_{30} fatty acid ester; and

(iii) a safe and effective amount of a pharmaceutically acceptable carrier.

5,728,733

N-ACYL-ETHYLENE TRIACETIC COMPOSITION FOR TREATING ABNORMAL KERATINIZATION

Dmitri Ptchelintsev, Mahwah, N.J., assignor to Avon Products, Inc., Suffern, N.Y.

Division of Ser. No. 549,419, Oct. 27, 1995, Pat. No. 5,621,008. This application Dec. 10, 1996, Ser. No. 762,716

Int. Cl.[6] A01N *37/02;* **A61K** *31/225*

U.S. Cl. 514—547 **8 Claims**

1. A topical formulation for prevention and treatment of skin disorders associated with abnormal keratinization comprising N-acyl-N,N',N'-(ethylenedioxy) diethylenedinitrilotriacetic acid or a physiologically acceptable salt thereof.

5,728,734

PESTICIDE PREPARATION OF AQUEOUS SUSPENSION TYPE

Yoshihiro Sato, Chiba, Japan, assignor to Dainippon Ink and Chemicals, Inc., Tokyo, Japan

Filed Feb. 20, 1996, Ser. No. 603,123

Claims priority, application Japan, Feb. 23, 1995, 7-35137

Int. Cl.[6] A01N *37/52;33/04*

U.S. Cl. 514—555 **7 Claims**

1. An aqueous suspension pesticide preparation which comprises:

(a) a 1,1'-iminiodi(octamethylene)diguanidinium tris(alkylbenzenesulfonate) as an active pesticide ingredient;

(b) at least one dispersion stabilizer selected from the group consisting of alcohols having a degree of ethoxylation of 0 to 4 and carrying an alkyl group or an alkenyl group having 8 to 18 carbon atoms and phospholipids;

(c) at least one surfactant selected from the group consisting of surfactants carrying an alkyl group or an alkenyl group having 6 to 20 carbon atoms; and

(d) water.

5,728,735

PHARMACEUTICAL COMPOSITION CONTAINING R-α-LIPOIC ACID OR S-α-LIPOIC ACID AS ACTIVE INGREDIENT

Heinz Ulrich, Niedernberg; Carl-Heinrich Weischer, Bonn; Jürgen Engel, Alzenau, and Helmut Hettche, Dietzenbach, all of Germany, assignors to Asta Pharma Aktiengesellschaft, Frankfurt, Germany

Division of Ser. No. 935,656, Aug. 26, 1992, abandoned, which is a continuation of Ser. No. 610,215, Nov. 8, 1990, abandoned. This application Feb. 3, 1997, Ser. No. 794,310

Claims priority, application Germany, Nov. 9, 1989, 39 37 323.1

Int. Cl.[6] A61K *31/20*

U.S. Cl. 514—560 **10 Claims**

1. A pharmaceutical composition consisting essentially of a pharmaceutically effective carrier and, as active ingredient, an effective amount of R-α-lipoic acid or a pharmaceutically acceptable salt thereof.

5,728,736

REDUCTION OF HAIR GROWTH

Douglas Shander, 16112 Howard Landing Dr., Gaithersburg, Md. 20878; Margaret Funkhouser, 10307 Hickory Creek Ct., Great Falls, Va. 22066; James Henry, 6776 Wood Duck Ct., Frederick, Md. 21701, and Gurpreet Ahluwalia, 8632 Stableview Ct., Gaithersburg, Md. 20852

Filed Nov. 29, 1995, Ser. No. 564,491

Int. Cl.[6] A61K *31/195*

U.S. Cl. 514—561 **17 Claims**

1. A method of reducing mammalian hair growth, comprising selecting an area of skin from which reduced hair growth is desired; and

applying to said area of skin a dermatologically acceptable composition comprising an inhibitor of arginase in an amount effective to reduce hair growth.

5,728,737

N-ALKOXY-AMIDINE DERIVATIVES

Ulrich Heinemann, Leichlingen; Bernd-Wieland Krüger, Bergisch Gladbach; Ralf Tiemann, Leverkusen; Stefan Dutzmann, Hilden, and Klaus Stenzel, Düsseldorf, all of Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Germany

PCT No. PCT/EP95/02797, § 371 Date Jan. 23, 1997, § 102(e) Date Jan. 23, 1997, PCT Pub. No. WO96/04239, PCT Pub. Date Feb. 15, 1996

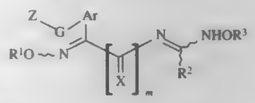
PCT Filed Jul. 17, 1995, Ser. No. 776,225

Claims priority, application Germany, Jul. 29, 1994, 44 26 940.4

Int. Cl.[6] A01N *37/18;43/54;43/82;37/52;* **C07C** *233/64;257/18;* **C07D** *239/02;285/08*

U.S. Cl. 514—619 **10 Claims**

1. N-Alkoxy-amidine derivatives of the general formula (I),



(I)

in which

Ar represents in each case optionally substituted arylene or heteroarylene;

G represents a single bond or oxygen, or represents alkanediyl, alkenediyl, oxaalkenediyl or alkinediyl which are in each case optionally substituted by halogen, hydroxyl, alkyl, halogenoalkyl or cycloalkyl, or represents one of the following groupings

—Q—CQ—, —CQ—Q—, —CH_2—Q—; —Q—CH_2—, —CQ—Q—CH_2—, —CH_2—Q—CQ—, —Q—CQ—CH_2—, —Q—CQ—Q—CH_2—, —N=N—, —S(O)$_m$—, —CH_2—S(O)$_m$—, —CQ—, —S(O)$_m$—CH_2—, —$C(R^4)$=N—O—, —$C(R^4)$=N—O—CH_2—, —$N(R^5)$—, —CQ—$N(R^5)$—, —$N(R^5)$—CQ—, —Q—CQ—$N(R^5)$—, —N=$C(R^4)$—Q—CH_2—, —CH_2—O—N=$C(R^4)$—, —$N(R^5)$—CQ—Q—, —CQ—$N(R^5)$—CQ—Q—, —$N(R^5)$—CQ—Q—CH_2—, —CQ—CH_2— or —N=N—$C(R^4)$=N—O—,

where

n represents the numbers 0, 1 or 2,

Q represents oxygen or sulphur,

R^1 represents hydrogen or alkyl;

R^2 represents hydrogen or alkyl;

R^3 represents hydrogen or alkyl;

R^4 represents hydrogen, cyano or in each case optionally substituted alkyl, alkoxy, alkylthio, alkylamino, dialkylamino or cycloalkyl, and

R^5 represents hydrogen, hydroxyl, cyano or in each case optionally substituted alkyl, alkoxy or cycloalkyl;

X represents oxygen or sulphur;

m represents the numbers 0 or 1, and

Z represents in each case optionally substituted alkyl, alkenyl, alkinyl, cycloalkyl, aryl or heterocyclyl.

5,728,738

INJECTABLE MESNA SOLUTIONS

Jürgen Engel, Alzenau; Elisabeth Wolf-Heuss, Mosbach; Wolfgang Deger; Giancarlo Camuglia, both of Frankfurt, and Dieter Sauerbier, Werther, all of Germany, assignors to ASTA Medica Aktiengeselischaft, Dresden, Germany

Division of Ser. No. 132,180, Oct. 6, 1993, abandoned. This application Jun. 7, 1995, Ser. No. 474,246

Claims priority, application Germany, Oct. 8, 1992, 42 33 842.5

Int. Cl.[6] A61K *31/095;31/10;49/00*

U.S. Cl. 514—706 **1 Claim**

1. A process for the preparation of an injectable HS—CH_2CH_2—SO_3Na (mesna) solution, which comprises the

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step of adjusting the pH value to a value of about 7.5 to 8.5 by addition of alkali substances.

5,728,739

STIMULATING THE DIFFERENTIATION OF PREADIPOCYTIC CELLS AND THERAPIES BASED THEREON

Gérard Ailhaud; Paul Grimaldi; Irina Safonova, all of Nice; Braham Shroot, Antibes, and Uwe Reichert, Pont Du Loup, all of France, assignors to Centre International De Recherches Dermatologiques Galderma, Valbonne, France

Filed Aug. 2, 1995, Ser. No. 510,312

Claims priority, application France, Aug. 2, 1994, 94 09584

Int. Cl.[6] A61K *31/07*

U.S. Cl. 514—725 **16 Claims**

1. A composition of matter suited for the differentiation of preadipocytic cells into adipocytic cells, comprising (a) at least one ligand displaying affinity for the nuclear receptors for retinoic acid and/or isomers thereof, and (b) at least one fatty acid.

5,728,740

METHOD AND COMPOSITION FOR TREATING BACTERIAL INFECTIONS IN PLANTS

Mark William Barrett, 13503 Douglas Dr., Yakima, Wash. 98908

Filed Dec. 5, 1996, Ser. No. 761,721

Int. Cl.[6] A01N *27/00;25/02;25/08;25/24*

U.S. Cl. 514—764 **2 Claims**

1. A method for treating a bacterial infection comprising the step of applying to a plant having a bacterial infection an a composition comprising a xylene source and a wood rosin source, wherein xylene and wood rosin from said xylene source and wood rosin source are present in amounts effective to treat bacterial infection in the plant.

5,728,741

PROCESS OF RECYCLING WASTE POLYMERIC MATERIAL AND AN ARTICLE UTILIZING THE SAME

Stephen A. Zegler, Cohutta, Ga., and Paul L. Weinle, Concord, N.C., assignors to Collins & Aikman Floorcoverings, Inc., Dalton, Ga.

Continuation of Ser. No. 517,571, Aug. 21, 1995, abandoned, which is a continuation of Ser. No. 193,801, Feb. 9, 1994, abandoned. This application Jun. 13, 1996, Ser. No. 664,954

Int. Cl.[6] B29B *17/00*

U.S. Cl. 521—40 **3 Claims**

1. A process for recycling waste polymeric material generated from the manufacture of disposal of floor coverings, said process comprising;

coarsely chopping a mixture of waste polymeric material with the proviso that the waste polymeric material has from about 15–50 percent aliphatic polyamide material;

granulating the chopped mixture into fragments at least an order of magnitude smaller than original the original size of the waste polymeric material prior to the step of coarsely chopping;

extruding the granulated mixture at a temperature of less than about 215° C. and calendaring the extruded granulated material to provide a secondary backing layer for a carpet;

positioning said waste material secondary backing layer to overlie and adhere to a backcoating of the carpet.

5,728,742

ABSORBENT POLYMERS HAVING A REDUCED CAKING TENDENCY

Thomas L. Staples; David E. Henton; Gene D. Rose, and Michael A. Fialkowski, all of Midland, Mich., assignors to The Dow Chemical Company, Midland, Mich.

Filed Apr. 4, 1996, Ser. No. 628,041

Int. Cl.[6] C08J *9/36;* **B05D** *7/00;3/00*

U.S. Cl. 521—57 **12 Claims**

1. A non-dusty, anti-caking composition comprising:

a) water-absorbent lightly crosslinked water-insoluble polymer particles;

b) an effective amount of a cationic surfactant anti-caking agent; and

c) from about 100 ppm to about 6000 ppm based on the weight of the polymer particles of a hydrophilic dedusting agent.

5,728,743

USE OF FOAM MATERIALS DERIVED FROM HIGH INTERNAL PHASE EMULSIONS FOR INSULATION

John Collins Dyer, and Thomas Allen DesMarais, both of Cincinnati, Ohio, assignors to The Procter & Gamble Company, Cincinnati, Ohio

Division of Ser. No. 472,447, Jun. 7, 1995. This application Aug. 21, 1996, Ser. No. 700,964

Int. Cl.[6] C08J *9/28*

U.S. Cl. 521—64 **9 Claims**

1. A method of insulating an object, comprising locating a polymeric foam material proximate to the object, wherein the polymeric material has:

A) a specific surface area per foam volume of at least about 0.01 m^2/cc;

B) a dry derairy of less than about 0.05 g/cc; and

C) a glass transition temperature (Tg) of between about −20° and 90° C.

5,728,744

OLEFIN THERMOPLASTIC ELASTOMER FOAMED PRODUCTS AND PROCESSES FOR PREPARING THE SAME

Keiji Okada; Masato Karaiwa, and Akira Uchiyama, all of Ichihara, Japan, assignors to Mitsui Petrochemical Industries, Ltd., Tokyo, Japan

Filed Nov. 21, 1996, Ser. No. 754,800

Claims priority, application Japan, Nov. 22, 1995, 7-304661

Int. Cl.[6] C08J *9/10*

U.S. Cl. 521—95 **28 Claims**

1. An olefin thermoplastic elastomer foamed product obtained by heating a foamable composition comprising:

[I] 100 parts by weight of a partially crosslinked thermoplastic elastomer composition (A) obtained by dynamically heat-treating a mixture in the presence of organic peroxide, said mixture comprising:

60 to 95 parts by weight of a peroxide-crosslinkable olefin copolymer rubber (a), which is an ethylene/α-olefin copolymer rubber of ethylene and an α-olefin of 3 to 20 carbon atoms or an ethylene/α-olefin/nonconjugated diene copolymer rubber of ethylene, an α-olefin of 3 to 20 carbon atoms and a nonconjugated diene, and

5 to 40 parts by weight of a peroxide-decomposable olefin plastic (b), which is a homopolymer or copolymer containing 50 to 100% by mol of an α-olefin of 3 to 20 carbon atoms and has a melt flow rate (ASTM D 1238-65T, 230 ° C., load of 2.16 kg) of 5 to 80 g/10 min,

the total amount of said components (a) and (b) being 100 parts by weight,

[II] 1 to 20 parts by weight of an olefin plastic (B), which is a homopolymer or copolymer containing 50 to 100% by mol of an α-olefin of 2 to 20 carbon atoms and has a melt flow rate (ASTM D 1238-65T, 230° C., load of 2.16 kg) of 0.01 to 2 g/10 min, and

[III] a foaming agent (C).

5,728,745

POLYURETHANE ELASTOMERS HAVING IMPROVED GREEN STRENGTH AND DEMOLD TIME, AND POLYOXYALKYLENE POLYOLS SUITABLE FOR THEIR PREPARATION

Gary L. Allen, Winfield; Nigel Barksby, Dunbar; Stephen D. Seneker, Sissonville, all of W. Va., and Usama E. Younes, West Chester, Pa., assignors to Arco Chemical Technology, L.P., Greenville, Del.

Division of Ser. No. 491,007, Jun. 15, 1995, Pat. No. 5,670,601. This application Dec. 19, 1996, Ser. No. 770,188

The portion of the term of this patent subsequent to Jun. 15, 2015, has been disclaimed.

Int. Cl.[6] C08J *9/08;* **C08G** *18/48;18/10;* **A43B** *13/04*

U.S. Cl. 521—159 **17 Claims**

1. A one-shot polyurethane microcellular elastomer prepared by the reaction of a di- or polyisocyanate in the presence of from about 0.1 to about 1.0 weight percent water with an isocyanate reactive component comprising a polyol component, wherein said polyol component comprises one or more polyoxypropylene polyols, said polyoxyalkylene polyols comprising in excess of 50 weight percent, based on the total weight of said one or more polyoxypropylene polyols, of one or more polyoxypropylene diols having an unsaturation of less than 0.010 meq/g, said polyol component having an average unsaturation of less than 0.010 meq/g, and optionally one or more polymer polyols.

5,728,746

PROCESS FOR THE PREPARATION OF MIXTURES OF OLIGOMERIC PHOSPHORIC ACID ESTERS AND THEIR USE AS FLAME-PROOFING AGENTS FOR POLYURETHANE FOAMS

Martin Sicken, Cologne, Germany, assignor to Hoechst Aktiengesellschaft, Frankfurt am Main, Germany

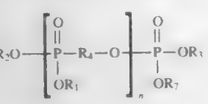
Filed Oct. 23, 1996, Ser. No. 736,360

Claims priority, application Germany, Nov. 3, 1995, 195 40 861.6

Int. Cl.[6] C08G *18/04;* **C07F** *9/02*

U.S. Cl. 521—169 **12 Claims**

1. A process for the preparation of a mixture of oligomeric phosphoric acid esters of the formula (I)

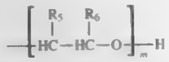


(I)

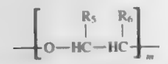
in which

n is a number from 0 to 8,

R_1, R_2, R_3 and R_7 are identical or different and are a halogen-free alkyl or aryl radical or a hydroxyl-containing radical of the formula II and R_4 is a radical of the formula III

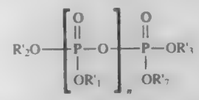


(II)



(III)

in which, in the formulae II and III, R_5 and R_6 are a hydrogen atom or an alkyl radical and m is a number from 1 to 4, which comprises reacting, in a first stage, aliphatic or araliphatic alcohols and/or phenols with phosphorus pentoxide (P_4O_{10}) in a molar ratio of (2.8 to 6.0):1.0 (alcohol/phenol:P_4O_{10}) at a temperature from 20° to 100° C. in the course of 0.5 to 72 hours, a polyphosphoric acid partial ester mixture of the formula V



(V)

in which R_1', R_2', R_3' and R_7' are an alkyl or aryl radical or H, being obtained, and, in a second stage, reacting this mixture with an epoxide of the formula (IV)



(IV)

at a temperature of 20°–180° C.

5,728,747

STABLE FREE RADICAL POLYMERIZATION PROCESSES AND COMPOSITIONS THEREOF

Peter M. Kazmaier, Mississauga; Barkev Keoshkerian, Thornhill; Rafik O. Loutfy, Willowdale; Karen A. Moffat, Brantford; Michael K. Georges, Guelph; Gordon K. Hamer, and Richard P. N. Veregin, both of Mississauga, all of Canada, assignors to Xerox Corporation, Stamford, Conn.

Filed Aug. 8, 1996, Ser. No. 700,328

Int. Cl.[6] C08F *2/48;2/50;293/00*

U.S. Cl. 522—11 **37 Claims**

1. A free radical polymerization process for the preparation of polymer having a narrow polydispersity from about 1.05 to about 1.95 comprising;

photoinitiating with ultraviolet (UV) light in the presence of a first heating of a mixture comprised of a stable free radical agent, and at least one polymerizable monomer compound, and wherein said first heating is at a temperature of from about a −40° C. to about 110° C.;

cooling said mixture;

a second heating of said mixture at a temperature of from about 100° C. to about 160° C.;

isolating the polymer product formed; and

optionally washing and drying said polymer.

5,728,748

NON OXIDIZING POLYMERIC MEDICAL IMPLANT

Deh-Chuan Sun, Rockaway, and Casper F. Stark, Pompton Lakes, both of N.J., assignors to Howmedica Inc., New York, N.Y.

Continuation of Ser. No. 439,028, May 11, 1995, Pat. No. 5,650,485, which is a division of Ser. No. 320,705, Oct. 7, 1994, Pat. No. 5,449,745, which is a division of Ser. No. 70,074, Jun. 1, 1993, Pat. No. 5,414,049. This application Oct. 16, 1996, Ser. No. 733,067

Int. Cl.[6] C08F *2/46*

U.S. Cl. 522—65 **12 Claims**

1. A medical implant comprising a formed olefinic material having a molecular weight greater than 400,000, said material irradiated in an atmosphere with no more than 1% oxygen in the absence of a free radical generation catalyst to form free radicals in the material and using heat to form cross-links between free radicals in neighboring polymeric chains in an atmosphere having no more than 1% oxygen at a temperature of at least 25° C. for a sufficient time to inactivate any residual free radicals by producing cross-links therebetween.

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5,728,749

PHOTOCROSSLINKABLE COMPOSITIONS BASED ON CRAFTED REACTIVE TELOMER OF TRIFLUOROETHYL METHACRYLATE AND PROCESSES FOR THEIR PREPARATION

Didier Vanhoye, Bernay; Elsa Ballot, Perigny-sur-Yerres; Robert Legros, Monceaux; Olivier Loubet, Servian; Bernard Boutevin, and Bruno Ameduri, both of Montpellier, all of France, assignors to Elf Atochem S.A., Puteaux, France

Filed Nov. 30, 1995, Ser. No. 564,980

Claims priority, application France, Nov. 30, 1994, 94 14367

Int. Cl.[6] C08F *2/50;2/38;* **C08G** *75/04*

U.S. Cl. 522—141 **19 Claims**

1. A thermally or photochemically curable fluorinated resin composition, comprising:

(A) from 50 to 90 parts by weight of a grafted reactive telomer obtained by telomerization of:

(a) 15 to 80% by weight of trifluoroethyl methacrylate;

(b) 5 to 40% by weight of at least one reactive monomer from the group consisting of:

(b1) acrylic acid, metnacrylic acid;

(b2) epoxidized (meth)acrylic monomers, hydroxylated (meth)acrylic monomers, acryloyl chloride, methacryloyl chloride, and (meth)acryloyloxyalkyl isocyanates;

(c) 0 to 60% by weight of at least one (meth)acrylic monomer devoid of any reactive functional group other than a double bond; and

(d) 5 to 25% by weight of at least one thiol selected from the group consisting of aliphatic thiols having a linear or branched alkyl chain having at least 6 carbon atoms, fluorinated thiols having a perfluoroalkylalkylene chain, and thioglycolic acid;

said telomerization being followed by a grafting reaction with the provisos that:

(i) when said at least one monomer (b1) is employed to produce said reactive telomer, the reactive telomer is grafted by 1–25% by weight of said at least one monomer (b2);

(ii) when said at least one monomer (b2) is employed to produce said reactive monomer, the reactive monomer is grafted by 1–25% by weight of said at least one monomer (b1), or when (b2) is an epoxidized (meth)acrylic monomer, the telomer is optionally grafted by cinnamic acid; and

(B) from 50 to 10 parts by weight of at least one monofunctional or polyfunctional reactive diluent.

5,728,750

RADIATION-CURABLE COMPOSITIONS COMPRISING POLYFUNCTIONAL ACRYLATES AND CAPPED AMINES

Reinhold Schwalm, Wachenheim; Wolfgang Reich, Maxdorf; Lukas Häussling, Bad Dürkheim, and Erich Beck, Ladenburg, all of Germany, assignors to BASF Aktiengesellschaft, Ludwigshafen, Germany

Filed May 29, 1996, Ser. No. 654,732

Claims priority, application Germany, Jun. 8, 1995, 195 20 888.9

Int. Cl.[6] C08F *2/46;2/48;* **C08G** *69/44;* **C09D** *4/02*

U.S. Cl. 522—173 **8 Claims**

1. A radiation-curable composition in which the curable constituents consist essentially of:

(a) at least one ethylenically unsaturated copolymerizable compound which has at least two activated carbon-carbon double bonds characterized by the fact that it is possible for primary or secondary amino groups to form adducts in the form of a Michael-analogous addition reaction with each activated double bond, alone or with

(a') a monofunctional ethylenically unsaturated compound which has one acrylic group, and

(a") an other ethylenically unsaturated compound, constituent (a) constituting 50–100% by weight, constituent (a') constituting 0–20% by weight and constituent (a") constituting 0–50% by weight of the ethylenically unsaturated compounds, and

(b) at least one capped amino compound which on irradiation with high-energy light liberates an amino compound having at least one amino group selected from the group consisting of primary and secondary amino groups, the overall number of amine hydrogen atoms bonded in the amino groups of the compound being at least 2.

5,728,751

BONDING BIO-ACTIVE MATERIALS TO SUBSTRATE SURFACES

Birendra K. Patnaik, Chester, N.J., assignor to Meadox Medicals, Inc., Oakland, N.J.

Filed Nov. 25, 1996, Ser. No. 755,187

Int. Cl.[6] C08H *1/00;* **C08B** *37/10;* **A61F** *2/06*

U.S. Cl. 523—112 **28 Claims**

1. An implantable medical device comprising:

a bio-compatible polymeric substrate surface bonded to a pendent bio-active-containing moiety via the reaction of available functional groups on said substrate with said pendent bio-active-containing moiety, said moiety being represented by the formula:

$$-R^1-NH-\overset{\overset{O}{\|}}{C}-R^2-$$

wherein R^1 is a hydrophilic spacer selected from the group consisting of aliphatic hydrocarbons, poly(oxy olefins), hydrophilic polyethers, hydrophilic polyethylenes, polyolefins, aliphatic polyesters, polyamines, polysiloxanes, polysilazanes, hydrophilic acrylates, hydrophilic methacrylates, polyamino acids, and linear polysaccharides; and R^2 is a bio-active agent selected from the group consisting of antithrombogenic agents, antibiotics, antibacterial agents, antiviral agents, their pharmaceutical salts and mixtures thereof, which is linked to the carbonyl by O or NH, wherein R^1 does not contain urea or urethane linkages in its backbone.

5,728,752

INJECTABLE MICRODIPERSIONS FOR SOFT TISSUE REPAIR AND AUGMENTATION

Angelo G. Scopelianos, Whitehouse Station; Steven C. Arnold, Sparta; Rao S. Bezwada, Whitehouse Station; Mark B. Roller, North Brunswick, and Shawn T. Huxel, Lakehurst, all of N.J., assignors to Ethicon, Inc., Somerville, N.J.

Division of Ser. No. 324,543, Oct. 18, 1994, Pat. No. 5,599,852.

This application Mar. 15, 1996, Ser. No. 618,439

Int. Cl.[6] C08L *3/00;* **A61F** *2/00;* **A61M** *5/00*

U.S. Cl. 523—113 **21 Claims**

1. A method for repairing or augmenting soft tissue in animals comprising the steps of:

selecting the animal soft tissue to be repaired or augmented and

placing a fluid, injectable, bioabsorbable microdispersion suitable for use as a soft tissue repair or augmentation material composed of a fluid carrier that is a liquid polymer selected from the group consisting of liquid polymers composed of a plurality of at least two different first lactone repeating units and liquid polymers of a plurality of first lactone and second lactone repeating units; wherein the first lactone repeating units are selected from the group consisting of ϵ-caprolactone repeating units, trimethylene carbonate repeating units, ether lactone repeating units and combinations thereof and the second lactone repeating units are selected from the group consisting of glycolide repeating units, lactide repeating units, p-dioxanone repeating units and combinations thereof; and

a particulate material that is selected from the group consisting of solid homopolymers of poly(ϵ-caprolactone), solid homopolymers of poly(p-dioxanone), solid homopolymers of poly(trimethylene carbonate), solid copolymers of a plurality of ϵ-caprolactone repeating units and third lactone repeating units, solid copolymers of a plurality of trimethylene carbonate repeating units and second lactone repeating unit; wherein the third lactone repeating units are selected from the group consisting of glycolide repeating units, lactide repeating units, trimethylene carbonate repeating units, p-dioxanone repeating units, 1,4-dioxepan-2-one repeating units, 1-5-dioxepan-2-one repeating units and combinations thereof into the animal soft tissue.

5,728,753

BIOACTIVE COMPOSITE MATERIAL FOR REPAIR OF HARD AND SOFT TISSUES

William Bonfield, Herts; Min Wang, London, both of England, and Larry L. Hench, Gainesville, Fla., assignors to University of London, London, England, and University of Florida, Gainesville, Fla.

Filed Nov. 9, 1995, Ser. No. 556,016

Int. Cl.[6] C08K *3/32;* **C08L** *23/00*

U.S. Cl. 523—114 **10 Claims**

1. A bioactive composite material comprising a solid-phase homo- or copolyolefin binder with a weight-average molecular weight greater than about 100,000 and less than about 1,000,000 having dispersed therein about 5% to about 50% by volume of particulate bioactive glass material comprised of about 42% to about 52% silicon dioxide, the remainder comprised of oxides of sodium, calcium, and phosphorous and having an average particle size ranging from about 0.5 μm to about 500 μm sufficient to achieve in vivo attachment by in vivo formation of hydroxyapatite from said bioactive glass material, the composite material exhibiting a Young's modulus comparable to a soft tissue measured at human physiological temperature and pressure.

5,728,754

CABLE FILLING AND FLOODING COMPOUNDS

P. R. Lakshmanan, Houston, and Amir Tayebianpour, League City, both of Tex., assignors to The International Group, Inc., Wayne, Pa.

Continuation of Ser. No. 465,537, Jun. 5, 1995, abandoned.

This application Jul. 2, 1996, Ser. No. 675,390

Int. Cl.[6] C08L *23/16;* **C08K** *5/01*

U.S. Cl. 523—173 **5 Claims**

1. A modified wax composition comprising:

from about 45 to about 98 weight percent high density polyethylene wax ("HDPE wax");

from about 2 to about 50 weight percent of an ethylene polymer selected from the group consisting of homopolymers and partially crystalline copolymers of ethylene and an alphaolefin selected from the group consisting of 1-butene, 1-hexene, 1-octene and 1-decene; and

from about 0 to about 50 weight percent of a substantially amorphous homopolymer or copolymer of polypropylene.

said HDPE wax having a density of from about 0.93 to about 0.96 g/cm^3, a number average molecular weight ("Mn") of from 500 to 3,000 and a melt viscosity at 300° F. of from 5 centipoise to 500 centipoise, and said ethylene polymer having a density of from 0.88 to 0.93 g/cm^3 and a number average molecular weight ("Mn") of from 10,000 to 100,000.

said modified wax composition being noncross-linked and being suitable for use in the preparation of cable fill and flood compounds.

5,728,755

CURABLE EPOXY RESIN COMPOSITIONS WITH 9,9'-BIS(4-AMINOPHENYL)FLUORENES AS CURATIVES

Mark D. Weigel, Vadnais Heights; Steven C. Hackett, St. Paul, and Timothy J. Clemens, Maplewood, ..ll of Minn., assignors to Minnesota Mining and Manufacturing Company, St. Paul, Minn.

Filed Sep. 22, 1995, Ser. No. 532,941

Int. Cl.[6] C08G *59/50;* **C08L** *63/02;* **C08K** *3/40;3/10*

U.S. Cl. 523—457 **16 Claims**

1. A curable epoxy resin composition comprising:

(a) at least one aromatic polyepoxide compound having at least two 1,2-epoxide groups; and

(b) at least one 9,9-bis(4-aminophenyl)fluorene amine curative, wherein:

(i) at least 10% by weight of said fluorene amine curative is heat dissolved in said aromatic polyepoxide, based on the total amount of fluorene amine curative used; and

(ii) at least a portion of said fluorene amine curative is dispersed as a solid therein; and

(c) optionally at least one adjuvant;

wherein the combination of (a) and (b)(i) forms a homogeneous single phase resin having an initial resin glass transition temperature of less than or equal to 15° C., measured by differential scanning calorimetry at a heating rate of 10° C./minute.

5,728,756

ANTIPLAQUE ANTIBACTERIAL ORAL COMPOSITION

Abdul Gaffar, Princeton; Nuran Nabi, Brunswick; John Affiitto, Brookside, all of N.J., and Orum Stringer, Yardley, Pa., assignors to Colgate Palmolive Company, New York, N.Y.

Division of Ser. No. 161,033, Dec. 3, 1993, Pat. No. 5,538,715, which is a division of Ser. No. 981,723, Nov. 25, 1992, Pat. No. 5,344,641, which is a division of Ser. No. 754,887, Sep. 6, 1991, Pat. No. 5,192,530, which is a continuation of Ser. No. 398,606, Aug. 25, 1989, abandoned, which is a continuation-in-part of Ser. No. 291,712, Aug. 25, 1989, abandoned, which is a continuation-in-part of Ser. No. 291,712, Dec. 29, 1988, Pat. No. 4,894,220, and Ser. No. 346,258, May 1, 1989, Pat. No. 5,043,154, which is a continuation of Ser. No. 8,901, Jan. 30, 1987, abandoned, said Ser. No. 291,712 is a continuation-in-part of Ser. No. 8,901, Jan. 30, 1987, abandoned. This application Jun. 24, 1996, Ser. No. 668,754

Int. Cl.[6] C08K *5/51;* **A61K** *7/18*

U.S. Cl. 524—139 **2 Claims**

1. Beta styrene phosphonic acid/vinyl phosphonic acid copolymer, said copolymer being water-soluble and having a molecular weight of about 2,000 to about 30,000.

5,728,757

ZINC SALTS OF CITRACONAMIC ACID AND RUBBER COMPOUNDS CONTAINING SUCH SALTS

Richard Michael D'Sidocky, Ravenna; Lawson Gibson Wideman, Tallmadge; Bernard Matthew Bezilla, Jr., Stow, and Cheng Shaw, Copley, all of Ohio, assignors to The Goodyear Tire & Rubber Company, Akron, Ohio

Filed Aug. 9, 1996, Ser. No. 695,051

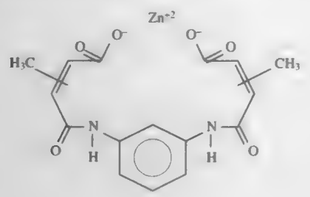
Int. Cl.[6] C08J *5/21*

U.S. Cl. 524—219 **6 Claims**

1. A vulcanized rubber composition comprising a sulfur-

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vulcanized rubber and from 0.1 to 10 phr of a zinc salt of the formula:



5,728,758

COATING COMPOSITION AND ARTICLES HAVING A CURED COATING

Robert A. Smith, Murrysville, Pa., assignor to Transitions Optical, Inc., Pinellas Park, Fla.

Continuation-in-part of Ser. No. 166,053, Dec. 13, 1993, abandoned. This application Apr. 19, 1996, Ser. No. 635,077
Int. Cl.[6] C08L *29/04;43/04*
U.S. Cl. 524—265 14 Claims

1. An aqueous coating composition consisting essentially of:
(a) 5 to 35 weight percent of a silane monomer mixture of (i) C_1–C_{12} alkyl tri(C_1–C_6)alkoxysilane and (ii) tetra(C_1–C_6)alkoxysilane, the weight ratio of (i) to (ii) being from 3:1 to 1:3;
(b) 1 to 9 weight percent of polyvinyl alcohol that is at least 72 percent hydrolyzed;
(c) a solvating amount of lower aliphatic alcohol;
(d) a catalytic amount of water-soluble acid;
(e) a leveling amount of nonionic surfactant; and
(f) water in an amount sufficient to form hydrolysates of said silane monomers and to solubilize said polyvinyl alcohol and water-soluble acid catalyst.

5,728,759

WATERBASE PRESSURE SENSITIVE ADHESIVES AND METHODS OF PREPARATION

Charles O. Pike, 15 Hillview Rd., Asheville, N.C. 28805

Filed Aug. 15, 1995, Ser. No. 515,395
Int. Cl.[6] C08L *31/04;7/00;27/00;* C09J *7/04;* B32B *7/06;7/12;15/04*
U.S. Cl. 524—270 15 Claims

1. A fluid water base pressure sensitive adhesive with capability of use in production of high temperature quality masking tape comprising an aqueous dispersion of the following mixture of components in the percentages by weight as specified based on the total combined weight of said components:

Component	Percentage
Adhesive component	45 to 65
Tackifier resin component	20 to 40
Plasticizer component	1 to 20
Stabilizer component	0.1 to 10
Curing component	0.1 to 10
Optional additives component	0 to 20

wherein:
a. said components constitute the disperse phase of said aqueous dispersion and have a combined weight of between about 30 to 70% of the total weight of said adhesive,
b. said curing component comprises three curing agents that exhibit different curing speeds for said mixture,
c. said adhesive component comprises a plurality of adhesive elastomers having different molecular weights selected from the group consisting of natural rubber latex, elastomeric block copolymers, polychloroprene, acrylic polymers and acrylic copolymers, and
d. said adhesive component is partially cured by said aqueous dispersion having been heated to a temperature above 150° F. for sufficient time to produce said partial cure.

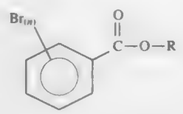
5,728,760

USE OF RING-BROMINATED BENZOATE COMPOUNDS AS FLAME RETARDANTS AND/OR PLASTICIZERS

Richard S. Rose, West Lafayette; Bhabatosh Bhattacharya, Lafayette, and Nicolai A. Favstritsky, W. Lafayette, all of Ind., assignors to Great Lakes Chemical Corporation, West Lafayette, Ind.

Filed Apr. 11, 1995, Ser. No. 419,814
Int. Cl.[6] C08J *5/10;* C08K *5/09;5/10;5/12;* C08L *75/04*
U.S. Cl. 524—292 31 Claims

1. A method of providing flame retarded polyurethanes, comprising including 2% to 50%, by weight, of a bromobenzoate compound of the formula:



wherein n is an integer from 1 to 5 and R is derived from an alcohol with a boiling point of between 160° C. and 230° C. as a component of the polyurethane mixture.

5,728,761

POLYLACTIC ACID-BASED RESIN COMPOSITION AND USE THEREFOR

Hiroki Kuyama, Kyoto; Masaaki Oota, Mukou; Akara Hashimoto, Uji, and Kenji Takeda, Kyoto, all of Japan, assignors to Shimadzu Corporation, Kyoto, Japan

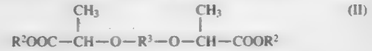
Filed Sep. 30, 1996, Ser. No. 723,307
Claims priority, application Japan, Oct. 3, 1995, 7-256520
Int. Cl.[6] C08K *5/10*
U.S. Cl. 524—306 6 Claims

1. A polylactic acid-based resin composition comprising:
(a) (i) 100 parts by weight of a poly-L-lactic acid;
(ii) 100 parts by weight of a poly-DL-lactic acid comprising L-lactic acid and D-lactic acid as its constituting units; and
(b) 5 to 120 parts by weight of at least one of a low-molecular weight lactic acid derivative represented by the following general formula (I):



(I)

wherein R^1 represents an alkyl group, an acyl group, an aryl group, or a silyl group; and a represents an alkyl group or an aryl group, and a low-molecular weight lactic acid derivative represented by the following general formula (II):



(II)

wherein R^2 represents an alkyl group or an aryl group; and R^3 represents a divalent connecting group.

5,728,762

POLYETHER POLYURETHANE POLYMERS, GELS, SOLUTIONS AND USES THEREOF

Murray H. Reich, Princeton; Ken Nelson, Lambertville, and Jirina Kuzma, Princeton, all of N.J., assignors to Tyndale Plains-Hunter, Ltd., Lawrenceville, N.J.

Division of Ser. No. 340,606, Nov. 16, 1994, Pat. No. 5,563,233. This application Aug. 14, 1996, Ser. No. 696,467
Int. Cl.[6] C08G *18/30*
U.S. Cl. 524—379 29 Claims

1. A gel of improved strength, absorption and integrity formed by the steps of:
mixing a gel forming polyurethane polymer reaction product of improved slip properties in a water solution, said water solution selected from the group consisting of a diol and water solution and a triol and water solution, the amount by weight of said diol or said triol in said water solution is at least 5%; said reaction product comprises a mixture of:
a diol comprising a long chain polyoxyalkylene glycol said polyoxyalkylene glycol selected from the group consisting of polyoxyethylene glycol having an average molecular weight of 400 to 20,000 and polyoxypropylene glycol having an average molecular weight of about 200 to about 4,000, the amount by weight of said polyoxyalkylene glycol in the reaction mixture being from about 20% to about 96%;
a low molecular weight alkylene glycol selected from the group consisting of ethylene glycol, propylene glycol, 2-ethyl-1,3-hexanediol, tripropylene glycol, triethylene glycol, 2,-4-pentanediol, 2-methyl-1,3-propanediol, cyclohexanediol, cyclohexanedimethanol, 2-methyl-1,3-pentanediol, dipropylene glycol, diethylene glycol, and mixtures thereof;
an organic diisocyanate; and
a urea equivalent, said urea equivalent is formed from an amount by weight of about 0.03% to about 0.2% water in the reaction mixture, the ratio of NCO to OH of the long chain polyoxyalkylene glycol, the alkylene glycol and the water being from about 0.84 to about 0.96;
heating the mixture with stirring until homogeneous; and
cooling the mixture;
wherein the amount by weight of the reaction product in the gel is about 0.05% to about 50% and the viscosity of said gel at room and body temperature impedes a 30 gram stainless steel ball.

5,728,763

THERMOSETTING RESIN COMPOSITION FOR SEMICONDUCTOR DEVICES

Miho Yamaguchi; Mitsuyoshi Shirai; Yoshitada Morikawa; Yoshiaki Mitsuoka, and Michio Komoto, all of Osaka, Japan, assignors to Nitto Denko Corporation, Osaka, Japan

Division of Ser. No. 424,195, Apr. 19, 1995, Pat. No. 5,624,989. This application Nov. 15, 1996, Ser. No. 748,911
Claims priority, application Japan, Aug. 20, 1993, 5-206632
Int. Cl.[6] C08K *3/22*
U.S. Cl. 524—430 2 Claims

1. A thermosetting resin composition comprising:
(I) a thermosetting resin;
(II) a hardener;
(III) a metal hydroxide represented by the following formula (1):

$$n(M_aO_b).cH_2O \quad (1)$$

wherein M represents a metallic element; a, b and c each represents a positive number; and n represents a positive number of 1 or more, with the proviso that when M_aO_b is repeated, the plurality of M's may be the same or different and that a and b may be the same or different; and
(IV) a metal oxide represented by the following formula (2):

$$n'(Q_dO_e) \quad (2)$$

wherein Q represents a metallic element selected from the group consisting of Groups IVa, Va, VIa, VIIa, VIII, Ib and IIb in the Periodic Table; d and e each represents a positive number; and n' represents a positive number of 1 or more, with the proviso that when Q_dO_e is repeated, the plurality of Q's may be the same or different and that d and e may be the same or different,
wherein the metal hydroxide (III) is at least one selected from the group represented by the following formulae (3) and (4):

$$x(A_aO_b).y(B_dO_e).cH_2O \quad (3)$$

wherein A and B represent different metallic elements; x, v, a, b, d and e each represents a positive number; and c represents a positive number of more than 1, with the proviso that x, y, a, b, d and e may be the same or different;

$$x(C_aO_b).y(D_dO_e).z(E_fO_g).cH_2O \quad (4)$$

wherein C, D and E represent different metallic elements; x, v, z, a, b, d, e, f and g each represents a positive number; and c represents a positive number of more than 1, with the proviso that x, y, z, a, b, d, e, f and g may be the same or different,
further comprising a metal hydroxide represented by the following formula (5):

$$M_aO_b.cH_2O \quad (5)$$

wherein M represents a metallic element; and a, b and c each represents a positive number, with the proviso that a and b may be the same or different.

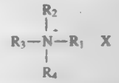
5,728,764

FORMULATIONS INCLUDING IMPROVED ORGANOCLAY COMPOSITIONS

Carl J. Bauer; John D. Boothe; Harry Ryan Dennis, all of Gonzales, and Clois E. Powell, Seguin, all of Tex., assignors to Southern Clay Products, Inc., Gonzales, Tex.

Filed Sep. 7, 1995, Ser. No. 524,900
Int. Cl.[6] C08K *5/19*
U.S. Cl. 524—451 9 Claims

1. An improved latex paint formulation containing about 2 to about 10% by weight of an organoclay composition comprising the reaction product of a smectite clay having an ion exchange capacity of at least 50 meq. wt. per 100 g. clay (active basis), and an alkoxylated quaternary ammonium compound having the following formula:



(I)

wherein R_1 and R_2 are alike or different, and are selected from the group consisting of C_1–C_8 alkyl, benzyl and 2-hydroxyethyl groups; R_3 is a C_1–C_8 alkyl, benzyl or 2-hydroxyethyl group, or an alkoxylated chain containing 0–10 moles of an ethylene oxide moiety and 3–15 moles of an alkylene oxide moiety selected from the group consisting of propylene oxide, butylene oxide and mixtures thereof; and R_4 is an alkoxylated chain containing 0–10 moles of an ethylene oxide moiety and 3–15 moles of an alkylene oxide moiety selected from the group consisting of propylene oxide, butylene oxide and mixtures thereof; and X is a salt anion.

5,728,765

GLASS FIBER-REINFORCED POLYCARBONATE MOLDING COMPOSITIONS HAVING IMPROVED IMPACT STRENGHT

James Y. J. Chung, Wexford, and Nelson R. Lazear, McMurray, both of Pa., assignors to Bayer Corporation, Pittsburgh, Pa.

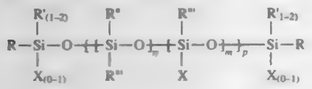
Filed Aug. 10, 1995, Ser. No. 511,333
Int. Cl.[6] C08K *3/40*
U.S. Cl. 524—494 11 Claims

1. A thermoplastic molding composition comprising (a) a polycarbonate resin, and (b) a positive amount of up to 40 percent glass

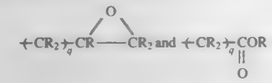
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fibers and (c) about 0.5 to 4 percent silicone rubber powder, said percent both occurrences being relative to the weight of the composition, said silicone rubber powder having an average particle size of about 1 to 1000 microns and containing

(i) 100 pbw of a polydiorganosiloxane having a viscosity at 25° C. is about 10^6 to 10^9 centipoise and siloxane structural units represented by the general formula



wherein R, R* and R** independently denote a hydrogen atom, C_{1-10}-alkyl, alkenyl, cycloalkyl radicals or aryl groups, and where p is about 1000 to 8000 and where the relative weight proportions of n and m is 98.5–100: 0–1.5, and where X denotes a member selected from the group consisting of



where R denotes hydrogen, C_{1-10}-alkyl, alkenyl, cycloalkyl radicals or aryl groups and where q is 1–10, and

(ii) about 10 to 80 pbw of a finely divided silica selected from among fumed silica, precipitated silica and silica gel having a surface area of at least 50 m^2/g, wherein said glass fibers do not, per se, adhere to the polycarbonate matrix in which they are incorporated.

5,728,766

ETHYLENE ELASTOMER COMPOUNDS HAVING GOOD PROCESSABILITY AND AGEING PROPERTIES

Jean-Roch Hector Schauder, Wavre, Belgium, and Timothy Arthur Mills, Southampton, United Kingdom, assignors to Exxon Chemical Co., Houston, Tex.

PCT No. PCT/EP93/00683, § 371 Date Jan. 9, 1995, § 102(e) Date Jan. 9, 1995, PCT Pub. No. WO93/21270, PCT Pub. Date Oct. 28, 1993

PCT Filed Mar. 19, 1993, Ser. No. 318,893

Claims priority, application United Kingdom, Apr. 8, 1992, 9207736

Int. Cl.[6] C08L *23/16;* **C08K** *3/04*

U.S. Cl. 524—496 **8 Claims**

1. An elastomer compound wherein the improvement comprises an elastomer selected from the group consisting of EPM and EPDM elastomer and a carbon black said carbon black having (i) an average particle size of from 70 to 120 nanometers, (ii) a particle size distribution including from 40 to 225 nanometers sized particles, (iii) a surface area of 16 to 30 m^2/g as measured by BET adsorption, and (iv) a structure of 90–125 ml/100 g as measured by DBP absorption; wherein said elastomer includes at least two fractions having different molecular weights; a) a first fraction constituting 70 to 95 weight percent of the total elastomer content, having a Mooney viscosity (ML)(1+8), 1250° C.) between 20 and 80, M_w/M_n between 1 and 8, an ethylene content of 45 to 65 weight percent, and a diene monomer content of 1 to 9 weight percent; and b) a second fraction constituting 5 to 30 weight percent of the total elastomer having a Mooney viscosity (ML)(1+8), 125° C. between 200 and 70,000 end M_w/M_n between 1 and 8, an ethylene content of 45 to 75 weight percent, and a diene monomer content of 0 to 9 weight percent.

5,728,767

AQUEOUS RESIN COMPOSITION, METHOD FOR PRODUCING THE SAME AND USE THEREOF

Noriyuki Kanetou; Kenichi Fujino; Hiroaki Namba, and Taro Abe, all of Iwakuni, Japan, assignors to Nippon Paper Industries Co., Ltd., Tokyo, Japan

PCT No. PCT/JP95/01012, § 371 Date Dec. 20, 1996, § 102(e) Date Dec. 20, 1996, PCT Pub. No. WO96/00249, PCT Pub. Date Jan. 4, 1996

PCT Filed May 26, 1995, Ser. No. 750,781

Claims priority, application Japan, Jun. 23, 1994, 6-164763; May 15, 1995, 7-139909

Int. Cl.[6] C08L *51/06*

U.S. Cl. 524—504 **14 Claims**

1. An aqueous resin composition consisting essentially of;

Component (A) 80 to 10 parts by weight of a modified polyolefin; and

Component (B) 20 to 90 parts by weight of an acrylic or methacrylic monomer or a mixture thereof;

wherein said modified polyolefin has weight average molecular weight of 1000 to 100000; and

wherein said modified polyolefin is modified by copolymerizing polypropylene, polyethylene, a copolymer of propylene or ethylene with an α-olefin or a degradation products thereof under heat or with an oxidizing agent, a radical-generating agent or the like, with 0.1 to 20% by weight of an acid anhydride; a carboxylic acid; an alcohol with radically polymerizable double bond; or a mixture thereof;

and wherein said component (A) and said component (B) are mixed or dissolved and polymerized in water in the presence of a surfactant and a polymerization initiator.

5,728,768

ADDITION CURABLE COMPOSITION HAVING INCREASED RESISTANCE TO DEGRADATION BY ULTRAVIOLET LIGHT

Anil Kumar Saxena, and Toshio Suzuki, both of Midland, Mich., assignors to Dow Corning Corporation, Midland, Mich.

Filed Dec. 24, 1996, Ser. No. 772,535

Int. Cl.[6] C08F *8/00*

U.S. Cl. 524—506 **26 Claims**

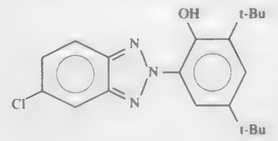
1. An addition curable composition comprising:

(A) 100 parts by weight of an organic polymer having on average at least 1.4 alkenyl groups per molecule;

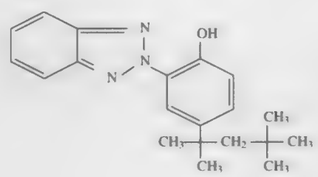
(B) an amount sufficient to cure the composition of a crosslinker having on average at least 2 hydrosilyl groups per molecule;

(C) a platinum group metal containing catalyst in an amount sufficient to effect curing of the composition; and

(D) 0.1 to 5 parts by weight of a benzotriazole derivative stabilizer which is selected from the group consisting of



and



where, t—Bu is a tertiary butyl group.

5,728,769

AQUEOUS URETHANE RESINS AND COATING COMPOSITINS HAVING ENHANCED HUMIDITY RESISTANCE

Anbazhagan Natesh, Marshall Township, Allegheny County; Shanti Swarup, Hampton Township, Allegheny County, both of Pa., and Mary Ellen Rosenberger, Bay Village, Ohio, assignors to PPG Industries, Inc., Pittsburgh, Pa.

Filed Jun. 24, 1996, Ser. No. 668,901

Int. Cl.[6] C08J *3/00;* **C08K** *3/20;* **C08L** *75/00*

U.S. Cl. 524—591 **6 Claims**

1. A dispersion in water of a chain extended polyurethane resin which consists essentially of the reaction product of:

(i) 8–25 percent by weight of a first polyisocyanate having a structure:



where R^1, R^2, R^3, and R^4 may be the same or different, R^1 and R^2 each contain alkylene groups greater than C_6 in length, and R^3 and R^4 each are H or an alkyl group

(ii) 15–50 percent by weight of at least one second isocyanate different from the first polyisocyanate and selected from the group consisting of: aliphatic polyisocyanates; cycloaliphatic polyisocyanates; araliphatic polyisocyanates; isophorone diisocyanate; 1,4-phenylene diisocyanate; 2,4-toluene diisocyanate; 2,6-toluene diisocyanate; 4,4'-diphenylmethane diisocyanate; 2,4-diphenylmethane diisocyanate; polymethylene polyphenyl polyisocyanates; 1,5-naphthylene diisocyanate; and mixtures thereof, where the weight percentages are based on total resin solids weight of the polyurethane reactants;

(iii) at least one polyol; and

(iv) at least one monomer having an anionic salt-forming group and functionality reactive with isocyanate.

5,728,770

SURFACE TREATMENT COMPOSITION AND SURFACE-TREATED RESIN MOLDING

Tetsuya Yamamoto, Suita; Akio Naka, Takatsuki; Yukiko Hori, Shita; Daijo Tomihisa, Moriguchi, and Tadahiro Yoneda, Ibaraki, all of Japan, assignors to Nippon Shokubai Co., Ltd., Osaka, Japan

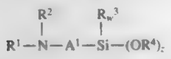
Continuation of Ser. No. 424,519, May 26, 1995, abandoned. This application Jan. 28, 1997, Ser. No. 777,940

Int. Cl.[6] C08K *5/06*

U.S. Cl. 524—755 **13 Claims**

1. A surface coating composition comprising:

(A) a silane compound of the formula (I),



wherein A^1 is an alkylene group; R^1 is a hydrogen atom, a lower alkyl group or



wherein A^2 is a direct bond or alkylene group, R^5 and R^6 each is a hydrogen atom or a lower alkyl group; R^2 is a hydrogen atom or a lower alkyl group; R^3 is the same or different lower alkyl groups, allyl groups or unsaturated aliphatic groups; R^4 is a hydrogen atom, a lower alkyl group or an acyl group; at least one of R^1, R^2, R^5 and R^6 is a hydrogen atom; w is 0, 1 or 2; z is an integer of 1 to 3; and w+z=3,

(B) an organometallic compound of the formula (II).

$M(OR^8)_4$ or $Al(OR^8)_3$

wherein M is Si, or Zr; R^8 is a hydrogen atom, a lower alkyl group or an acyl group;

(C) a compound having at least two functional groups selected from the group consisting of epoxy, isocyanate, carboxyl, oxazolinyl and mixtures thereof, and

(D) a solvent.

5,728,771

NON-FORMALDEHYDE DURABLE PRESS FINISHING FOR CELLULOSIC TEXTILES WITH PHOSPHINOCARBOXYLIC ACID

Robert H. Tang, Murrysville, and William A. Williams, Jr., Latrobe, both of Pa., assignors to PPG Industries, Inc., Pittsburgh, Pa.

Division of Ser. No. 247,949, May 24, 1994, Pat. No. 5,496,477, which is a continuation-in-part of Ser. No. 192,932, Feb. 7, 1994, abandoned, which is a continuation of Ser. No. 993,577, Dec. 21, 1992, abandoned. This application Nov. 28, 1995, Ser. No. 563,846

Int. Cl.[6] D06M *15/00*

U.S. Cl. 252—8.61 **10 Claims**

1. A formaldehyde-free durable press finish composition for treating cellulose-containing fibrous materials consisting essentially of an aqueous solution of polycarboxylic acid, said polycarboxylic acid aqueous solution comprising at least 10 mole percent polyphosphinocarboxylic acid, and from 4 to 12 weight percent of an esterification catalyst that catalyzes the esterification of the cellulose with the polycarboxylic acid.

5,728,772

THERMOPLASTIC ELASTOMER COMPOSITION

Kazuya Hori, and Yuji Takeda, both of Aichi-ken, Japan, assignors to Mitsubishi Chemical MKV Company, Tokyo, Japan

Filed May 21, 1996, Ser. No. 650,997

Claims priority, application Japan, Jul. 26, 1995, 7-190652

Int. Cl.[6] C08L *67/02;23/28*

U.S. Cl. 525—92 B **20 Claims**

1. A thermoplastic elastomer composition, comprising from 99 to 1 wt. % of a thermoplastic polyester elastomer comprising a high melting point segment having a melting point of at least 150° C., which comprises an aromatic dicarboxylic acid and an aliphatic diol, and a low melting point segment having a melting point of at most 80° C., which comprises a polyester glycol of polyoxyalkylene glycols or a C_2–C_{10} aliphatic or alicyclic glycol with a C_2–C_{12} aliphatic or alicyclic dicarboxylic acid, and from 1 to 99 wt. % of a crystalline chlorinated polyethylene having a chlorination degree of from about 20 to 45 wt. % and a heat of crystal fusion of from about 5 to 35 cal/g as measured by differential scanning calorimetry.

5,728,773

FLUOROELASTOMER COMPOSITION WITH ORGANONIUM AND BLOCKED-CARBONATE COMPOUNDS

Naiyong Jing, Woodbury, and Robert E. Kolb, Afton, both of Minn., assignors to Minnesota Mining and Manufacturing Company, St. Paul, Minn.

Filed Feb. 21, 1997, Ser. No. 804,447

Int. Cl.[6] C08L *27/16;27/18;27/22*

U.S. Cl. 525—146 **19 Claims**

1. A curable fluoroelastomer composition comprising:

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(a) fluorine-containing polymer or blend of fluorine-containing polymers each comprising interpolymerized units derived from one or more fluorine-containing ethylenically unsaturated monomers;
(b) organo-onium compound; and
(c) aryl, allyl or alkyl carbonate-blocked compound as a crosslinking agent.

5,728,774

PROCESS FOR THE CONTINUOUS PRODUCTION OF SUPERABSORBENT POLYMERS FROM PAN EMULSIONS

Günter Sackmann, Leverkusen; Sergej Schapowalow, Köln; Martin Ullrich, Leverkusen, and Helmut Brod, Köln, all of Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Germany

Filed Dec. 20, 1996, Ser. No. 771,575

Claims priority, application Germany, Jan. 4, 1996, 196 00 163.3

Int. Cl.[6] C08F *8/12;220/56;220/44*

U.S. Cl. 525—196 **8 Claims**

1. A process for the continuous production of superabsorbent polymers, which comprises hydrolyzing a reaction mixture comprising an aqueous emulsion of polyacrylonitrile homopolymers and/or copolymers, the reaction mixture containing 10–45% by weight of polyacrylonitrile, with aqueous alkali hydroxide at 50 to 100 degrees C, the reaction being carried out in a high viscosity reactor, to form a highly viscous gel, and recovering the superabsorbent polymer from the gel as a powder.

5,728,775

HEAT-RESISTANT HIGH-NITRILE POLYMER COMPOSITIONS AND PROCESS FOR PREPARING SAME

Hiroaki Narisawa; Masahiro Kaneko; Mitsuo Kawata; Syuichi Yamaguchi; Shinichi Asai, and Makoto Someda, all of Aichi, Japan, assignors to Mitsui Toatsu Chemicals, Inc., Tokyo, Japan

Filed Dec. 3, 1996, Ser. No. 759,961

Claims priority, application Japan, Dec. 11, 1995, 7-321668

Int. Cl.[6] C08L *51/04;33/20;* **C08F** *279/02*

U.S. Cl. 525—282 **16 Claims**

1. A heat-resistant high-nitrile polymer composition obtained by graft copolymerization of 100 parts by weight of monomers comprising (A) 50 to 80% by weight of an unsaturated nitrile monomer, (B) 5 to 25% by weight of a maleimide monomer, (C) 5 to 25% by weight of an aromatic vinyl monomer, and (D) 1 to 10% by weight of a monomer copolymerizable with monomers (A), (B) and (C), in the presence of 1 to 40 parts by weight of a conjugated diene-based synthetic rubber containing not less than 50% by weight of a conjugated diene monomer unit, wherein the concentration of residual maleimide monomer in the polymer composition is not greater than 200 ppm by weight.

5,728,776

PROCESS FOR PRODUCING GRAFT MODIFIED POLYOLEFINS

Kazuya Takemura; Kazumichi Sashi; Taichi Ogawa; Tadahiro Wakui, and Shigeru Takano, all of Chiba, Japan, assignors to Kawasaki Steel Corporation, Kobe, Japan

PCT No. PCT/JP94/01250, § 371 Date Jan. 25, 1996, § 102(e) Date Jan. 25, 1996, PCT Pub. No. WO95/04091, PCT Pub. Date Feb. 9, 1995

PCT Filed Jul. 29, 1994, Ser. No. 586,693

Claims priority, application Japan, Jul. 29, 1993, 5-188486; Aug. 3, 1993, 5-192110; Mar. 31, 1994, 6-063563

Int. Cl.[6] C08F *255/00;8/46*

U.S. Cl. 525—285 **20 Claims**

1. A process for producing a graft modified polyolefin by melting and kneading a polyolefin, a radical-polymerizable monomer and a radical-polymerization initiator, said process being characterized in that said radical-polymerizable monomer is an unsaturated carboxylic anhydride, and said unsaturated carboxylic anhydride as a starting material is preliminarily heated at 100° to 250° C. immediately prior to a grafting reaction, and then subjected immediately to said grafting reaction for producing said graft modified polyolefin.

5,728,777

WATER-REDUCIBLE RESINS FOR COATINGS AND INKS

Shao-Hua Guo, West Goshen, Pa., assignor to ARCO Chemical Technology, L.P., Greenville, Del.

Division of Ser. No. 645,393, May 13, 1996, Pat. No. 5,646,225. This application Apr. 3, 1997, Ser. No. 826,605

Int. Cl.[6] C08F *16/02*

U.S. Cl. 525—328.8 **6 Claims**

1. A neutralized resin which comprises the reaction product of:
a) a water-reducible resin comprising recurring units of:
(i) from about 50 to about 90 wt. % of a vinyl aromatic monomer;
(ii) from about 5 to about 50 wt. % of a propoxylated allyl alcohol of the formula:

$$CH_2{=}CR{-}CH_2{-}(A)_n{-}OH$$

in which A is an oxypropylene group, R is hydrogen or a C_1–C_4 alkyl group, and n, which is the average number of oxypropylene groups in the propoxylated allyl alcohol, has a value within the range of about 1 to about 2; and
(iii) from about 1 to about 50 wt. % of an acrylic acid monomer;
wherein the resin has a number average molecular weight within the range of about 500 to about 10,000, a hydroxyl number within the range of about 15 to about 250 mg KOH/g, and an acid number within the range of about 5 to about 330 mg KOH/g; and
b) a neutralizing agent, in an amount effective to convert at least some of the acid groups of the water-reducible resin to salts, and thereby to convert the water-reducible resin to a neutralized resin.

5,728,778

SULFUR VULCANIZABLE RUBBER CONTAINING SODIUM THIOSULFATE PENTAHYDRATE

Richard Michael D'Sidocky, Ravenna; David John Zanzig, Uniontown, and Shingo Futamura, Wadsworth, all of Ohio, assignors to The Goodyear Tire & Rubber Company, Akron, Ohio

Division of Ser. No. 526,183, Sep. 11, 1995, Pat. No. 5,616,655. This application Oct. 22, 1996, Ser. No. 734,814

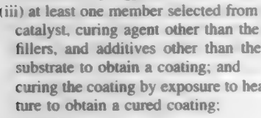
Int. Cl.[6] C08C *19/25;19/20*

U.S. Cl. 525—330.4 **6 Claims**

1. A sulfur-vulcanizable rubber composition which is prepared by a method of processing a rubber composition comprising at least one nonproductive stage and a productive stage wherein the nonproductive stage includes thermomechanically mixing at a rubber temperature in a range of 140° C. to 190° C. for a mixing time of 1 to 20 minutes
(i) 100 parts by weight of at least one sulfur vulcanizable elastomer selected from conjugated diene homopolymers and copolymers and from copolymers of at least one conjugated diene and aromatic vinyl compound;
(ii) 10 to 250 phr of particulate precipitated silica;
(iii) 0.01 to 1.0 parts by weight per part by weight of said silica of an organosilicon compound of the formula

$$Z{-}Alk{-}S_n{-}Alk{-}Z$$

in which Z is selected from the group consisting of



where R^1 is an alkyl group of 1 to 4 carbon atoms, cyclohexyl or phenyl;
R^2 is alkoxy of 1 to 8 carbon atoms, or cycloalkoxy of 5 to 8 carbon atoms;
Alk is a divalent hydrocarbon of 1 to 18 carbon atoms and n is an integer of 2 to 8; and
(iv) 0.05 to 10 phr of sodium thiosulfate pentahydrate and the productive stage includes addition of 0.5 to 8 phr of the sulfur vulcanizing agent.

5,728,779

POWDER PAINT OF EPOXY-REACTIVE POLYMER AND ALIPHATIC CHAIN-CONTAINING POLYEPOXIDE

Adrianus J. van de Werff, Zwolle; Leendert J. Molhoek, Nunspeet; Marten Houweling, Zwolle; Robert van den Berg Jeths, Apeldoorn; Dirk A. W. Stanssens, Lanaken; Robert van der Linde, and Tosko A. Misev, both of Zwolle, all of Netherlands, assignors to DSM N.V., Heerlen, Netherlands

Division of Ser. No. 151,304, Nov. 12, 1993, abandoned, which is a continuation-in-part of Ser. No. 59,329, May 11, 1993, abandoned. This application Jun. 5, 1995, Ser. No. 464,207

Claims priority, application Netherlands, Dec. 1, 1992, 9202080; Apr. 16, 1993, 9300649; Jul. 15, 1993, 9301239

Int. Cl.[6] C08L *33/02;67/02*

U.S. Cl. 525—438 **16 Claims**

1. A process for preparing a wholly or partially coated substrate by applying a powder plant consisting essentially of
(i) a polyester polymer having carboxyl functional groups capable of reacting with epoxy groups wherein said polymer has an acid number higher than 10 and less than 50,
(ii) a crosslinker containing epoxy groups and having an epoxy functionality greater than 1, wherein said crosslinker (ii) contains at least one epoxidized oil having at least one epoxy-functional C_5–C_{26} linear or branched aliphatic chain, and
(iii) at least one member selected from the group consisting of a catalyst, curing agent other than the epoxidized oil, pigment, fillers, and additives other than the pigment or fillers on a substrate to obtain a coating; and
curing the coating by exposure to heat at an elevated temperature to obtain a cured coating;
wherein
(a) the polymer capable of reacting with epoxy groups (i), the crosslinker (ii), optionally an amount of catalyst and optionally an amount of curing agent are selected so that the curing reaction is substantially complete within 30 minutes at 200° C., and
(b) the amount of said epoxidized oil is such that more than 35% of the crosslinking is obtained through said epoxidized oil.

5,728,780

METHOD OF PREVENTING SCALE ADHESION TO THE SURFACES OF A POLYMERIZATION TANK AND THE LIKE

Seiichi Masuko; Ichisaburo Nakamura, and Yasuyuki Hatakeyama, all of Osaka, Japan, assignors to Mitsui Toatsu Chemicals, Inc., Tokyo, Japan

Division of Ser. No. 53,974, Apr. 9, 1993, which is a continuation of Ser. No. 743,356, Aug. 20, 1991, abandoned. This application Jun. 6, 1995, Ser. No. 470,472

Claims priority, application Japan, Dec. 28, 1989, 338205; Jul. 11, 1990, 181538; Aug. 29, 1990, 225188; Aug. 31, 1990, 227952; Oct. 31, 1990, 291870; Nov. 28, 1990, 323139

Int. Cl.[6] C08F *2/18;2/02*

U.S. Cl. 526—62 **2 Claims**

1. A method of polymerizing vinyl chloride monomer in an aqueous medium or by mass polymerization, said polymerizing being conducted in an apparatus having surfaces that will come into contact with the vinyl chloride monomer, said method comprising coating the surfaces with a coating fluid comprised of an aqueous alkali solution containing a co-condensate obtained by reacting an initial resol condensate formed from a phenol and an aldehyde with at least one hindered phenol, at least one nitrogen compound and at least one polyvalent phenol, and thereafter polymerizing the vinyl chloride monomer in the apparatus.

5,728,781

POLYMER SCALE DEPOSTION PREVENTIVE AGENT AND A PROCESS FOR PRODUCING POLYMERS USING THE SAME

Masahiro Usuki, Annaka, and Toshihide Shimizu, Urayasu, both of Japan, assignors to Shin-Etsu Chemical Co., Ltd., Tokyo, Japan

Filed Aug. 30, 1996, Ser. No. 704,865

Claims priority, application Japan, Sep. 1, 1995, 7-248638

Int. Cl.[6] C08F *14/06*

U.S. Cl. 526—62 **14 Claims**

1. A process for producing a polymer comprising the step of polymerizing a monomer having an ethylenically unsaturated double bond in a polymerization vessel having a coating film on the inner wall surface thereof, wherein said coating film consists of the polymer scale deposition preventive agent comprising (a) an aromatic compound having at least eight conjugated π bonds and having a molecular weight of 1,000 or more, and (b) a polyalkylene oxide having a weight-average molecular weight of 2,000 or more, the weight ratio of the component (a) to the component (b) being 100/500 to 100/1.

5,728,782

GAS PHASE ANIONIC POLYMERIZATION OF DIENES AND VINYL-SUBSTITUTED AROMATIC COMPOUNDS

Monika Brady, Bound Brook; Kevin Joseph Cann, Rocky Hill, and David Joseph Dovedytis, South River, all of N.J., assignors to Union Carbide Chemicals & Plastics Technology Corporation, Danbury, Conn.

Filed Dec. 6, 1996, Ser. No. 761,797

Int. Cl.[6] C08F *4/48;2/34*

U.S. Cl. 526—63 **13 Claims**

1. A process comprising polymerizing a compound selected from the group consisting of a conjugated diene, a vinyl-substituted aromatic compound, and mixtures thereof in a gas phase polymerization vessel under polymerization conditions in the presence of at least one organolithium anionic initiator in the presence of at least one inert particulate material.

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5,728,783

PROCESS FOR PREPARING ETHYLENE-BASED POLYMERS HAVING LOW MOLECULAR WEIGHT

Paolo Falchi, Chieti, Italy, and Trevor John Russell, Bletchley, Great Britain, assignors to Societa 'Italiana Additivi Per Carburanti S.r.l., Pescara, Italy

Filed Oct. 30, 1996, Ser. No. 741,262
Claims priority, application Italy, Oct. 31, 1995, MI95A2262
Int. Cl.[6] C08F *6/24;6/02;2/06*
U.S. Cl. 526—124.2 **11 Claims**

1. A polymerization process for obtaining elastomeric copolymers or terpolymers based on ethylene as cold flow improvers (CFI) having a viscosimetric average molecular weight ranging between 600 and 16,000, comprising:

a) polymerizing monomers in suspension in a reaction slurry in the presence of an alpha-olefin having 3 to 12 carbon atoms, liquid in the reaction conditions, in the presence of an amount of solvent from about 5 to 30% by volume of the reactor volume, to dissolve or swell the polymer, in the presence of a polymerization catalyst able to generate X_2 and/or X_4 parameters, less than or equal to 0.02, X_2 and X_4 representing the fraction of uninterrupted methylenic sequences of 2 and 4 methylenic groups respectively in the polymeric chain, as computed with the uninterrupted total sequences of methylene groups determined by ^{13}C-NMR;

b) conveying the reaction slurry into a flash pipe for the removal of the unreacted monomers and solvent to produce a polymeric solution; and

c) recovering a polymeric product from the polymeric solution with solvent, said solvent being the same solvent as recited in step a) or being a second solvent of the same class as the solvent of step a) to obtain the desired polymer concentrations, and deactivating the catalyst by bubbling a wet air stream into the polymeric solution.

5,728,784

PROCESS FOR THE PREPARATION OF CRYSTALLINE VINYLAROMATIC POLYMERS WITH A PREDOMINANTLY SYNDIOTACTIC STRUCTURE

Riccardo Po' , Leghorn; Nicoletta Cardi, and Roberto Santi, both of Novara, all of Italy, assignors to Enichem S.p.A., Milan, Italy

Filed Nov. 27, 1996, Ser. No. 757,251
Claims priority, application Italy, Dec. 21, 1995, MI95A2701
Int. Cl.[6] C08F *4/646;12/04*
U.S. Cl. 526—133 **14 Claims**

1. A process for the preparation of crystalline vinylaromatic polymers with a predominantly syndiotactic structure which comprises polymerizing vinylaromatic monomers, alone or mixed with at least another copolymerizable ethylenically unsaturated monomer, in the presence of a catalytic system essentially consisting of:

a) a complex of titanium or zirconium selected from those having the formula:

$$MR_1R_2R_3R_4, A_1MR_1R_2R_3, A_1A_2MR_1R_2 \quad (I)$$

wherein the groups R_1, R_2, R_3 and R_4, the same or different, represent a C_1–C_{10} (iso)alkyl, (iso)alkoxyl, alkylamidic radical, a C_6–C_{10} aryl radical or a halogen whereas the A_1 and A_2 groups, the same or different, represent a cyclopentadienyl ligand, optionally substituted with C_1–C_{10} alkyl radicals, or an indenyl ligand; M represents a titanium or zirconium atom;

b) a cocatalyst selected from an alkylalumoxane and a compound of boron having the formula (II):

$$BX_1X_2X_3 \quad (II)$$

or one of its salts, wherein X_1, X_2 and X_3, the same or different, represent a C_1–C_{20} fluorinated hydrocarbon radical; and

c) a derivative of tin having the formula:

$$SnR_5R_6R_7R_8 \quad (III)$$

wherein the R_5, R_6, R_7 and R_8 groups, the same or different, represent a C_1–C_{10} (iso)alkyl or aryl radical.

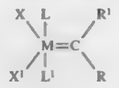
5,728,785

ROMP POLYMERIZATION IN THE PRESENCE OF PEROXIDE CROSSLINKING AGENTS TO FORM HIGH-DENSITY CROSSLINKED POLYMERS

Robert H. Grubbs, South Pasadena, Calif., and Charles S. Woodson, Jr., Monroe, La., assignors to California Institute of Technology, Pasadena, Calif.

Filed Jul. 2, 1996, Ser. No. 678,397
Int. Cl.[6] C08F *2/00*
U.S. Cl. 526—142 **22 Claims**

1. A method of forming a polycycloolefin comprising the step of polymerizing an olefin in the presence of a crosslinking agent and a catalyst, wherein said crosslinking agent comprises a peroxide selected from the group consisting of t-butyl peroxide, 2,5-dimethyl-2,5-di-(tert-butylperoxy) hexyne-3, di-tert-butyl peroxide, and 2,5-dimethyl-2,5-di-(tert-butylperoxy) hexane or mixtures thereof and said catalyst is a ruthenium or osmium carbene complex of the formula:



wherein:

M is Os or Ru;

R and R^1 are independently selected from hydrogen or a hydrocarbon selected from the group consisting of C_1–C_{20} alkyl, C_2–C_{20} alkenyl, C_2–C_{20} alkynyl, C_2–C_{20} alkoxycarbonyl, aryl, C_1–C_{20} carboxylate, C_1–C_{20} alkoxy, C_2–C_{20} alkenyloxy, C_2–C_{20} alkynyloxy and aryloxy;

X and X^1 are independently selected from any anionic ligand; and

L and L^1 are independently selected from any neutral electron donor.

5,728,786

STYRL-MODIFIED ACRYLATE POLYMER PRESSURE SENSITIVE ADHESIVE BEADS

Chung I. Young, Roseville; Albert I. Everaerts, Oakdale, and Stephen E. Krampe, Maplewood, all of Minn., assignors to Minnesota Mining and Manufacturing Company, St. Paul, Minn.

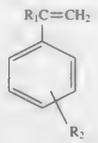
Filed Jul. 15, 1996, Ser. No. 680,092
Int. Cl.[6] C08F *2/00;218/00*
U.S. Cl. 526—206 **26 Claims**

1. A styryl-modified acrylate polymer pressure sensitive adhesive bead having a glass-transition temperature of 0° C. or less, the bead comprising:

(a) a major amount by weight of an acrylic acid ester monomer of a non-tertiary alcohol, the alcohol having from 1 to 14 carbon atoms, with the average number of carbon atoms being 4 to 12;

(b) a polar monomer; and

(c) a styryl-functional monomer having the structure:



wherein R_1 is hydrogen or an alkyl group having 1 to 10 carbon atoms; and R_2 is hydrogen, an alkl group having 1 to 10 carbon atoms, a halo group, or a nitro group.

5,728,787

RAPID CURING, NON-CORRODING ADHESIVE COMPOSITION, AND METHOD OF USE

Stephen E. Cantor, Cheshire, Conn., assignor to Dymax Corporation, Torrington, Conn.

Filed Jun. 19, 1996, Ser. No. 666,026
Int. Cl.[6] C08F *2/00*
U.S. Cl. 526—216 **9 Claims**

1. A liquid adhesive formulation that is catalytically polymerizable to an adhesive solid, comprising: a polymerizable acrylate component, in predominant amount; an active-oxygen free-radical catalyst, in catalytically effective amount; and about 1 to 10 weight percent of a mixture of itaconic acid and maleic acid, said catalyst being substantially non-volatile at temperatures below about 125° Centigrade, and said formulation being substantially free from any organic acid that is substantially volatile at said temperatures, substantially free from any catalyst that is substantially volatile at said temperatures, and substantially free from any in situ catalyst-forming ingredients that are substantially volatile at said temperatures.

5,728,788

PROCESS OF PRODUCING VINYL ACETATE POLYMER

Hiroshi Takachi, Okayama, and Kazuyori Yoshimi, Kurashiki, both of Japan, assignors to Kuraray Co., Ltd., Okayama, Japan

Filed Mar. 11, 1997, Ser. No. 814,710
Claims priority, application Japan, Mar. 29, 1996, 8-077829
Int. Cl.[6] C08F *2/00*
U.S. Cl. 526—216 **3 Claims**

1. A process of producing a vinyl acetate polymer by homopolymerization of a vinyl acetate monomer or copolymerization of a vinyl acetate monomer and another copolymerizable comonomer, wherein a polymerization initiator is an organic peroxide having a half life at 60° C. of 10 to 110 minutes, and a polymerization liquid contains at least one carboxylic acid or its salt, said carboxylic acid being selected from the group consisting of a hydroxycarboxylic acid and a polycarboxylic acid.

5,728,789

POWDER COATING COMPOSITIONS CONTAINING COPOLYMERS HAVING HYDROXYL AND CARBOXYLIC ACID ANHYDRIDE GROUPS AS BINDERS

Christian Wamprecht, Neuss; Hans-Joachim Kreuder, Tönisvorst; Armin Zenner, Dormagen, and Henning Klussmann, Rommerskirchenm, all of Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Germany

Continuation of Ser. No. 706,365, Aug. 30, 1996, abandoned, which is a continuation of Ser. No. 727,766, Jul. 10, 1991, abandoned. This application May 13, 1997, Ser. No. 855,347
Claims priority, application Germany, Jul. 18, 1990, 40 22 750.2
Int. Cl.[6] C08F *222/04;220/26;220/18*
U.S. Cl. 526—271 **8 Claims**

1. A process for preparing a coating which comprises

a) applying to a heat-resistant substrate a binder-containing powder coating composition wherein the binder consists essentially of one or more copolymers which

i) contain hydroxyl and anhydride groups as the only reactive groups,

ii) are solid below 30° C.,

iii) have a softening range of 30° to 150° C.,

iv) are prepared from olefinically unsaturated compounds and

v) have a weight average molecular weight (M_w) of 1500 to 75,000, a content of free hydroxyl groups of 0.2 to 6.0% by weight and a content of intramolecular carboxylic acid anhydride groups (calculated as $C_4H_2O_3$) of 1 to 30% by weight and

b) curing the coating at a temperature of 150° to 220° C.

5,728,790

THERMOSETTING POWDER PAINT, COATING METHOD USING SAID PAINT, AND ARTICLE COATED WITH SAID PAINT

Masashi Seki; Eiichi Kawasaki; Takayoshi Sekido; Mitsuyuki Mizoguchi; Takahisa Miyawaki, and Kousuke Suewaka, all of Kanagawa-ken, Japan, assignors to Mitsui Toatsu Chemicals, Inc, Tokyo, Japan

Filed Aug. 3, 1995, Ser. No. 510,848
Claims priority, application Japan, Aug. 11, 1994, 6-189208; Dec. 28, 1994, 6-327739
Int. Cl.[6] C08F *224/00;226/02;222/02;212/08;* **B05D** *1/06;* **B32B** *15/16*
U.S. Cl. 526—273 **28 Claims**

1. A thermosetting powder paint comprising:

(A) a copolymer obtained by polymerizing a system containing:

(a1) more than 20 parts by weight but not more than 60 parts by weight of an ethylenically unsaturated monomer having, in the molecule, at least one glycidyl group and at least one unsaturated double bond,

(a2) 1–30 parts by weight of styrene, and

(a3) 10–79 parts by weight of an ethylenically unsaturated monomer having, in the molecule, neither carboxyl group nor tert-butyl ester group, the total of the monomers (a1), (a2) and (a3) being 100 parts by weight,

(B) an aliphatic polycarboxylic acid,

(C) a linear anhydride of an aliphatic polycarboxylic acid, and

(D) a salt between a tertiary amine compound and an organic acid, and/or

(E) a tertiary amine compound having a melting point of about 20°–150° C.

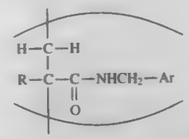
5,728,791

POLYVINYL GRAFT-POLYMERS AND MANUFACTURING METHOD THEREOF

Kazuhiko Tamai, and Kazuya Yonezawa, both of Kobe, Japan, assignors to Kanegafuchi Kagaku Kogyo Kabushiki Kaisha, Osaka, Japan

Continuation-in-part of Ser. No. 227,096, Apr. 13, 1994, abandoned, which is a continuation of Ser. No. 915,823, Jul. 28, 1992, abandoned. This application Nov. 14, 1995, Ser. No. 557,329
Claims priority, application Japan, Nov. 30, 1990, 2-339940
Int. Cl.[6] C08F *24/00;269/00;20/18;20/42;12/08;16/14*
U.S. Cl. 526—273 **4 Claims**

1. A polyvinyl graft-polymer having one structural unit of glycidyloxy groups represented by the following general formula (I) at side chains of the polyvinyl polymer per 2–1,000 repeating units of vinyl:



(I)

wherein Ar represents an aromatic hydrocarbon group 6–23 in carbon number having at least one glycidyloxy group, and R represents hydrogen atom or methyl group, said polyvinyl polymer being at least one selected from the group consisting of homopolymers of styrene, methyl methacrylate, butyl acrylate, α-hydroxy

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acrylate, trimethylolpropane triacrylate, ethylene glycol dimethacrylate, acrylonitrile, and vinyl ethers selected from the group consisting of methyl vinyl ether, ethyl vinyl ether, isopropyl vinyl ether, n-propyl vinyl ether, isobutyl vinyl ether, n-amyl vinyl ether, isoamyl vinyl ether and 2-ethylhexyl vinyl ether, and copolymers comprising two or more monomers selected from the above monomers.

5,728,792

METHOD FOR PREPARING WATER ABSORBENT RESIN

Keiji Tanaka, Kyoto-fu; Masashi Date, Osaka-fu; Kenjiro Tsubota; Tsuyoshi Yuki, both of Kyoto-fu, and Satoshi Tambuchi, Osaka-fu, all of Japan, assignors to Sanyo Chemical Industries, Ltd., Kyoto-Fu, Japan

Filed Jul. 2, 1996, Ser. No. 675,405

Claims priority, application Japan, Jul. 18, 1995, 7-205370

Int. Cl.[6] C08F *220/06;222/38;283/02;* **C08G** *83/00*

U.S. Cl. 526—307.6 **6 Claims**

1. A method for producing a water absorbent resin by polymerizing a water-soluble monomer (A) having a polymerizable unsaturated group and a crosslinking agent (B) by radical polymerization in the presence of water or, polymerizing a water-soluble monomer (A) having an unsaturated group and a crosslinking agent (B) by radical-graft copolymerization with a water-soluble polymer (C) as the backbone polymer in the presence of water, wherein a water-based solid material (D) capable of being endothermally fused or dissolved into water is added to a monomer-containing aqueous phase when initiating the polymerization, with at least a part of the solid material (D) in a solid state.

5,728,793

PROCESS FOR PRODUCTION OF METHACRYLATE POLYMERS

Takashi Kumagai; Masahiko Moritani; Toyomitsu Shimizu, and Satoshi Shimogama, all of Niihama, Japan, assignors to Sumitomo Chemical Company, Limited, Osaka-fu, Japan

Continuation-in-part of Ser. No. 335,392, Nov. 3, 1994, abandoned. This application Oct. 10, 1995, Ser. No. 540,483

Claims priority, application Japan, Nov. 5, 1993, 5-276993

Int. Cl.[6] C08F *2/02;20/12*

U.S. Cl. 526—329.7 **14 Claims**

1. A process for producing a methacrylate polymer, wherein a monomer feed composed of methyl methacrylate or a mixture of at least 70 weight % of methyl methacrylate and not more than 30 weight % of one or more vinyl monomers copolymerizable with methyl methacrylate is continuously bulk polymerized in a substantially perfect mixing state to give a polymer composition having a polymer content of 40–70% by weight in a continuous manner in a reactor, and wherein

(i) the reactor is filled up with the polymer composition leaving substantially no gas phase therein and the polymer composition is stirred,

(ii) the reactor is maintained in a thermally insulated state allowing substantially no exchange of heat with the external environment,

(iii) the polymerization is conducted at a polymerization temperature in the range of 120° to 180° C.,

(iv) the average residence time is maintained in the range of 15 minutes to 2 hours,

(v) a radical initiator having a half-life of not more than 1 minute at the polymerization temperature is used, and

(vi) the radical initiator is adjusted to a concentration C (mol/100 g monomer) satisfying the following relation:

$$1.1\times10^{-4}\cdot\exp(0.0197)<C\cdot\Theta<3\times10^{-8}\cdot\exp(0.0797) \quad (1)$$

where Θ represents average residence time (minute) and T represents polymerization temperature (°C.).

5,728,794

PROCESS FOR THE PRODUCTION OF POLY(DIORGANOSILOXANES) WITH DIORGANYLOXYORGANYLSILYL OR TRIORGANYLOXYSILYL END GROUPS, CROSSLINKABLE MIXTURES CONTAINING THEM AND USE THEREOF

Robert Friebe, and Karl-Heinz Sockel, both of Leverkusen, Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Germany

Filed Sep. 9, 1996, Ser. No. 709,950

Claims priority, application Germany, Sep. 13, 1995, 195 33 915.0

Int. Cl.[6] C08G *77/08*

U.S. Cl. 528—23 **10 Claims**

1. In a process wherein at least one α,ω-dihydroxypoly(diorganosiloxane) is reacted with at least one alkoxysilane in the presence of a catalyst to produce a poly(diorganosiloxane) with diorganyloxyorganylsilyl or triorganyloxysilyl end groups, the improvement which comprises employing at least one phosphoric acid ester as said catalyst.

5,728,795

PROCESS FOR THE PREPARATION OF BLOCKED POLYISOCYANATES, AND THEIR USE IN POLYURETHANE COATING SYSTEMS

Rainer Gras, Bochum, and Siegfried Brandt, Haltern, both of Germany, assignors to Huels Aktiengesellschaft, Marl, Germany

Division of Ser. No. 351,165, Nov. 30, 1994, Pat. No. 5,541,279. This application Mar. 25, 1996, Ser. No. 622,283

Claims priority, application Germany, Feb. 28, 1994, 44 06 443.8

Int. Cl.[6] C08G *18/81*

U.S. Cl. 528—45 **2 Claims**

1. A polyurethane coating powder comprising:

i) a totally or partially blocked polyisocyanate prepared by continuously reacting in an apparatus selected from the group consisting of an intensive kneading apparatus, a single screw extruder and a multi-screw extruder a blocking agent and a polyisocyanate containing at least two free NCO groups, wherein said reaction is solvent-free to result in a blocked polyisocyanate having a viscosity of ≧150,000 mPa s at 130° C.; and

ii) a hydroxy group containing co-reactant polymer.

5,728,796

PROCESS TO REACT EPOXIDE-CONTAINING COMPOUNDS AND ALIPHATIC ALCOHOLS

Zeng K. Liao, and James L. Bertram, both of Lake Jackson, Tex., assignors to The Dow Chemical Company, Midland, Mich.

Continuation-in-part of Ser. No. 171,054, Dec. 21, 1993, abandoned. This application May 31, 1996, Ser. No. 652,580

Int. Cl.° C07C *41/03;43/13*

U.S. Cl. 528—88 **14 Claims**

1. A process to react:

(1) an epoxide-containing compound that contains one or more epoxide moieties per molecule, and

(2) an aliphatic hydroxyl-containing compound that contains one or more aliphatic hydroxyl groups per molecule,

characterized in that:

(a) at least one or more of the aliphatic hydroxyl groups in Component (2) are bonded to a primary carbon atom;

(b) the reaction is carried out in the presence of a catalytic amount of a catalyst compound selected from any one of the following formulae:

(X)(Z); (I)

CM—$(XZ)_a$; or (II)

CM—$(SiR_2—X)_b$ (III)

wherein each "X" is a trifluoromethanesulfonate moiety, each "Z" is a silyl moiety, "CM" is a central organic moiety that does not interfere with the reaction, "a" is the number of pendant catalyst moieties bonded to the central organic moiety and is greater than 1, and "b" is the number of pendant catalyst moieties bonded to the central organic moiety and is greater than 1; and

(c) the reaction is carried out at a temperature of no more than 130° C.

5,728,797

METHOD OF MAKING CURED RESIN PARTICLES

Robin D. O'Dell, Pasadena; Jayesh Shah, and Alice M. Simon, both of Glen Burnie, all of Md., assignors to International Paper, Odenton, Md.

Filed Aug. 18, 1995, Ser. No. 516,738

Int. Cl.° C08G *59/50*

U.S. Cl. 528—120 **16 Claims**

1. A method of making cured aminoplast or phenoplast particles comprising providing an aqueous solution of an aminoplast or phenoplast resin having a water tolerance level, adding a mixture of water and a water-insoluble stabilizing agent to said aqueous solution of resin to exceed the water tolerance level of said resin and thus form an emulsion or suspension of resin particles in water, and advancing cure of said resin to form partially or fully cured resin particles.

5,728,798

PROCESS FOR PREPARING POLYACETAL COPOLYMER

Akira Nakai, and Kaoru Yamamoto, both of Shizuoka, Japan, assignors to Polyplastics Co., Ltd., Japan

PCT No. PCT/JP96/01933, § 371 Date Mar. 7, 1997, § 102(e) Date Mar. 7, 1997, PCT Pub. No. WO97/03100, PCT Pub. Date Jan. 30, 1997

PCT Filed Jul. 11, 1996, Ser. No. 809,046

Claims priority, application Japan, Jul. 13, 1995, 7-177225

Int. Cl.[6] C08G *2/10*

U.S. Cl. 528—230 **4 Claims**

1. A process for preparing a polyacetal copolymer by copolymerization of trioxane as a principal monomer with a cyclic ether or cyclic formal having at least one carbon-carbon bond as a comonomer, comprising the steps of:

(a) forming a liquid prepolymerization mixture comprised of at least a part or the entirety of said comonomer with between 0.05 to 100 ppm, based on the total weight of the monomers, of a heteropoly-acid polymerization catalyst or an acid salt thereof according to the following formula:

$$H_x[M_m\cdot M'_nO_l]\cdot yH_2O$$

wherein M represents an element selected from the group consisting of P and Si; M' represents a coordinating element selected from W, Mo or V; l is 10 to 100; m is 1 to 10; n is 6 to 40; x is an integer of at least 1; and y is 0 to 50;

(b) introducing the prepolymerization mixture with the principal monomer; and thereafter

(c) conducting copolymerization of the prepolymerization mixture and the principal monomer under polyacetal copolymerization conditions.

5,728,799

AROMATIC POLYAMIDE, OPTICAL ANISOTROPIC DOPE AND ARTICLES AND PREPARATION FOR THE SAME

Tae-Jin Oh, Daeku, Rep. of Korea, assignor to Kolon Industries, Inc., Seoul, Rep. of Korea

Filed Aug. 31, 1995, Ser. No. 522,103

Claims priority, application Rep. of Korea, Jul. 13, 1995, 95-20615

Int. Cl.[6] C08G *69/08;73/10*

U.S. Cl. 528—310 **36 Claims**

1. An aromatic polyamide of formula (I)

$$+NH—R—NHCR'C\overset{O}{\underset{O}{\|\|}}\!\!\!

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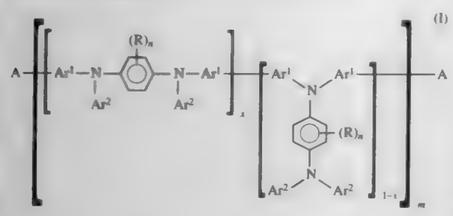
5,728,801

POLY (ARYLAMINES) AND FILMS THEREOF

Weishi Wu; Edmund P. Woo, and William R. Shiang, all of Midland, Mich., assignors to The Dow Chemical Company, Midland, Mich.

Filed Aug. 13, 1996, Ser. No. 696,281
Int. Cl.[6] C08G 73/00
U.S. Cl. 528—422 17 Claims

1. A poly(arylamine) composition comprising one or more compounds of Formula (I):



(I)

wherein:

R is independently in each occurrence a C_{1-24} hydrocarbyl, C_{1-24} hydrocarboxy, C_{1-24} hydrocarbylthiooxy, or C_{1-24} hydrocarbylcarboxyl;

Ar^1 and Ar^2 are independently in each occurrence a C_{6-18} aryl moiety optionally substituted with a C_{1-12} hydrocarbyl, C_{1-12} hydrocarbyloxy, C_{1-12} hydrocarbylthiooxy, or C_{1-12} hydrocarbylcarboxyl;

A is independently in each occurrence hydrogen or a halogen;

x is independently in each occurrence a positive number from 0 to 1;

n is independently in each occurrence a whole number of from 0 to 4; and

m is a number of from about 5 to about 1000.

5,728,802

PEPTIDES AND COMPOUNDS THAT BIND SELECTINS INCLUDING ENDOTHELIUM LEUKOCYTE ADHESION MOLECULE 1 (ELAM-1)

Ronald W. Barrett, Sunnyvale; Steven E. Cwirla; William J. Dower, both of Menlo Park; Kerry J. Koller, San Francisco; Jung Lee, Mountain View; Christine L. Martens, Portola Valley, and Beatrice Ruhland, Los Altos, all of Calif., assignors to Affymax Technologies N.V., Greenford, England

Continuation-in-part of Ser. No. 241,054, May 11, 1994, Pat. No. 5,643,873, which is a continuation-in-part of Ser. No. 57,295, May 5, 1993, abandoned, which is a continuation-in-part of Ser. No. 881,395, May 6, 1992, abandoned. This application May 12, 1995, Ser. No. 439,817
Int. Cl.[6] A61K 38/00; C07K 7/00;5/00
U.S. Cl. 530—324 1 Claim

1. Peptides and peptide mimetics comprising the following sequences:

YDDVCCELLF (SEQ ID NO 108)
DLPQWYTEWC (SEQ ID NO 109)
ENSHWCTCPC (SEQ ID NO 110)
DIEQDWVTWM (SEQ ID NO 111)
NEWCWPCRL (SEQ ID NO 112)
AITWDQLWDLNIeK (SEQ ID NO 137)
DATWDQLWDLNIeK (SEQ ID NO 138)
DITADQLWDLNIeK (SEQ ID NO 139)
DITWAQLWDLNIeK (SEQ ID NO 140)
DITWDALWDLNIeK (SEQ ID NO 141)
DITWDQAWDLNIeK (SEQ ID NO 142)
DITWDQLADLNIeK (SEQ ID NO 143)
DITWDQLWALNIeK (SEQ ID NO 144)
DITWDQLWDANIeK (SEQ ID NO 145)
DITWDQLWDLAK (SEQ ID NO 146)
DITWDQLWDLNIeA (SEQ ID NO 147)
WDLMK-C(O)NH_2 (SEQ ID NO 186)
Cbz-WDLM-C(O)NH_2 (SEQ ID NO 187)
Cbz-QLWD-C(O)NH_2 (SEQ ID NO 188)
Cbz-QLWDLM-C(O)NH_2 (SEQ ID NO 189)
Cbz-ITWDQ-C(O)NH_2 (SEQ ID NO 190)
Cbz-TWDQLW-C(O)NH_2 (SEQ ID NO 191)
Cbz-WDQLWD-C(O)NH_2 (SEQ ID NO 192)
Cbz-ITWAQ-C(O)NH_2 (SEQ ID NO 193)
Cbz-ITWDQL-C(O)NH_2 (SEQ ID NO 194)
N-Cbz, N-Me-ITW-C(O)NH_2
Cbz-IT-[(Me)(DL)W]-C(O)NH_2
N-Cbz, N-Me-ITWDQ-C(O)NH_2 (SEQ ID NO 197)
Cbz-ITW-N-Me-DQ-C(O)NH_2 (SEQ ID NO 198)
Cbz-IT-N-Me-WDQ-C(O)NH_2 (SEQ ID NO 199)
Cbz-I-(N-Me T)WDQ-C(O)NH_2 (SEQ ID NO 195)
Cbz-I-(N-Me-T)W-C(O)NH_2
Cbz-IT-[(aMe)(DL)W]-DQ-C(O)NH_2 or
Cbz-N-Me-I-T-[(aMe)(DL)W]-C(O)NH_2

where Aib is aminoisobutryic acid, Nal(1) is α-naphthylalanine, Nal(2) is β-naphthylalanine, M(SO_2CH_3) is methionine sulfone, M(OCH_3) is O-methylmethione, Cbz is benzoxycarbonyl, Ac is acetyl, Succ is succinimidyl, and N-Me is a methylated nitrogen on the amine or amide group as designated therein.

5,728,803

PANTROPIC NEUROTROPHIC FACTORS

Roman Urfer, Pacifica; Leonard G. Presta, San Francisco, and John W. Winslow, El Granada, all of Calif., assignors to Genentech, Inc., South San Francisco, Calif.

Continuation of Ser. No. 253,937, Jun. 3, 1994. This application May 12, 1995, Ser. No. 440,049
Int. Cl.[6] C07K 14/475;14/48
U.S. Cl. 530—350 3 Claims

1. A pantropic NT3 that is MNTS-1.

5,728,804

USE OF CYCLODEXTRINS FOR PROTEIN RENATURATION

Ajit Sharma, and Nadarajah Karuppiah, both of Mount Pleasant, Mich., assignors to Research Corporation Technologies, Inc., Tucson, Ariz.

Filed Jun. 2, 1995, Ser. No. 460,234
Int. Cl.[6] C07K 1/00; C12P 21/06
U.S. Cl. 530—350 10 Claims

1. A method for renaturing a unfolded or aggregated protein comprising contacting said unfolded or aggregated protein in a detergent-free aqueous medium with an amount of a cyclodextrin effective to renature said unfolded or aggregated protein.

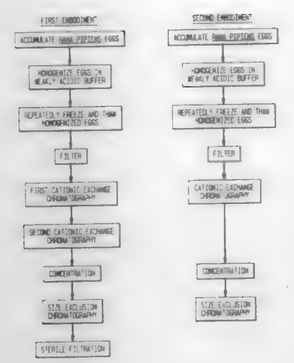
5,728,805

PHARMACEUTICALS AND METHOD FOR MAKING THEM

Wojciech J. Ardelt, New City, N.Y., assignor to Alfacell Corp., Bloomfield, N.J.

Continuation-in-part of Ser. No. 283,970, Aug. 1, 1994, Pat. No. 5,559,212, which is a continuation of Ser. No. 814,332, Feb. 3, 1992, abandoned, which is a continuation of Ser. No. 436,141, Nov. 13, 1989, abandoned, which is a continuation-in-part of Ser. No. 178,118, Apr. 6, 1988, Pat. No. 4,882,421. This application Jun. 6, 1995, Ser. No. 467,955
Int. Cl.[6] C07K 14/46; A61K 38/17
U.S. Cl. 530—350 5 Claims

2. A purified variant of the protein having the amino acid sequence shown in SEQ ID NO:1, wherein said variant has anti-tumor activity in humans, and wherein said variant differs from the protein of SEQ ID NO:1 solely by substitution of one or more of the amino acid residues at positions 11, 20, and 103 by any amino acid.



5,728,806

TIH1, PROTEIN THAT INTERACTS WITH CASEIN KINASE I

Anthony J. DeMaggio, Kirkland, and Merl F. Hoekstra, Shohomish, both of Wash., assignors to ICOS Corporation, Bothell, Wash.

Division of Ser. No. 184,605, Jan. 21, 1994, abandoned. This application Jun. 6, 1995, Ser. No. 468,036
Int. Cl.[6] C07K 14/395; C12N 15/31
U.S. Cl. 530—350 1 Claim

1. A purified and isolated TIH1 polypeptide consisting of the amino acid sequence comprising the sequence set out in SEQ ID NO: 3.

5,728,807

MUTATED PROTEINS ASSOCIATED WITH ATAXIA-TELANGIECTASIA

Yosef Shiloh, Tel Aviv, Israel; Danilo A. Tagle, Gaitherburg, and Francis S. Collins, Rockville, both of Md., assignors to Ramot-University Authority For Applied Research and Industrial Development, Ltd., Tel Aviv, Israel

Continuation-in-part of Ser. No. 441,822, May 16, 1995. This application Jun. 21, 1995, Ser. No. 493,092
Int. Cl.[6] C07K 14/00;14/435
U.S. Cl. 530—350 5 Claims

1. A purified ataxia-telangiectasia protein encoded by the nucleic acid sequence consisting of SEQ ID No:1 or SEQ ID No:3.

5,728,808

HUMAN PROSTAGLANDIN RECEPTOR IP

Mark Abramovitz, Dollard de Ormeaux; Yves Bole, Outremont; Richard Grygorczyk, Dollard des Ormeaux; Kathleen Metters, Montreal, all of Canada; Thomas H. Rushmore, Hatfield, Pa., and Deborah M. Slipetz, Outremont, Canada, assignors to Merck Frosst Canada, Inc., Kirkland, Canada

Division of Ser. No. 134,012, Oct. 6, 1993, Pat. No. 5,516,652. This application Aug. 29, 1995, Ser. No. 520,519
Int. Cl.[6] C07K 14/705; C12N 15/09
U.S. Cl. 530—350 6 Claims

1. A human prostaglandin receptor protein IP free from other human proteins which comprises the amino acid sequence set forth in SEQ ID NO:3.

5,728,809

Patent Not Issued For This Number

5,728,810

SPIDER SILK PROTEIN

Randolph V. Lewis, Laramie, Wyo.; Ming Xu, Calgary, Canada, and Michael B. Hinman, Laramie, Wyo., assignors to University of Wyoming, Laramie, Wyo.

Division of Ser. No. 317,844, Oct. 4, 1994, which is a continuation of Ser. No. 684,819, Apr. 15, 1991, abandoned, which is a continuation-in-part of Ser. No. 511,792, Apr. 20, 1990, abandoned. This application Apr. 19, 1995, Ser. No. 425,069
Int. Cl.[6] A61K 38/17; C07K 14/435
U.S. Cl. 530—353 24 Claims

1. A purified recombinant spider silk protein, having a molecular weight of at least 16,000 daltons, comprising a polypeptide selected from the group consisting of:

a polypeptide having the amino acid sequence of SEQ. ID. NO.:2;

a polypeptide having the amino acid sequence of SEQ. ID. NO.:4;

a polypeptide comprising tandem repeats of the amino acid sequence of SEQ. ID. NO.:5;

a polypeptide comprising tandem repeats of the amino acid sequence of SEQ. ID. NO.:6;

a polypeptide comprising tandem repeats of the amino acid sequence of SEQ. ID. NO.:7;

a polypeptide comprising tandem repeats of the amino acid sequence of SEQ. ID. NO.:12 linked by a peptide bond to the amino terminus of the amino acid sequence of SEQ. ID. NO.:13;

a polypeptide comprising tandem repeats of the amino acid sequence of SEQ. ID. NO.:8 linked by a peptide bond to the amino terminus of the amino acid sequence of SEQ. ID. NO.:12 in turn linked by a peptide bond to the amino acid sequence of SEQ. ID. NO.:9;

a polypeptide comprising tandem repeats of the amino acid sequence of SEQ. ID. NO.:8 linked by a peptide bond to the amino terminus of the amino acid sequence of SEQ. ID. NO.:12 in turn linked by a peptide bond to the amino acid sequence of SEQ. ID. NO.:10.

5,728,811

Patent Not Issued For This Number

5,728,812

ANTI-IDIOTYPIC ANTIBODY COMPOSITION FOR INHIBITING ACUTE COMPLEMENT-MEDIATED CYTOTOXICITY

Eugen Koren, and David K. C. Cooper, both of Oklahoma City, Okla., assignors to Oklahoma Medical Research Foundation, and Baptist Medical Center of Oklahoma, Inc., both of Oklahoma City, Okla.

Division of Ser. No. 133,934, Oct. 12, 1993, Pat. No. 5,560,911. This application Jun. 2, 1995, Ser. No. 458,274
Int. Cl.[6] C07K 16/42;16/18
U.S. Cl. 530—387.2 14 Claims

1. A composition for inhibiting the rejection of tissues from a donor animal of one species transplanted to a recipient animal of another species comprising anti-idiotypic antibodies, or antigen binding fragments thereof, specifically immunoreactive with the anti-donor animal antibodies which cause complement mediated cytolysis of cells from the donor animal of the recipient animal, in a pharmaceutically acceptable carrier.

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5,728,813

ANTIBODIES DIRECTED AGAINST ELK LIGAND

Stewart Lyman, Seattle; M. Patricia Beckmann, Poulsbo, and Peter R. Baum, Seattle, all of Wash., assignors to Immunex Corporation, Seattle, Wash.

Division of Ser. No. 460,741, Jun. 2, 1995, Pat. No. 5,670,625, which is a division of Ser. No. 213,403, Mar. 15, 1994, Pat. No. 5,512,457, which is a continuation-in-part of Ser. No. 977,693, Nov. 13, 1992, abandoned. This application Nov. 12, 1996, Ser. No. 747,240

Int. Cl.° C07K *16/24*

U.S. Cl. 530—387.9 4 Claims

1. An antibody that is immunoreactive with an elk ligand (elk-L) polypeptide, wherein the elk-L polypeptide which consists of the amino acid sequence of residues 1 to 322 of SEQ ID NO:2.

5,728,814

GC1Q RECEPTOR, HIV-1 GP120 REGION BINDING THERETO, AND RELATED PEPTIDES AND TARGETING ANTIBODIES

Michael S. C. Fung, Houston; Bill N. C. Sun; Cecily R. Y. Sun, both of Bellaire, all of Tex.; Young Woo Kim, Plainsboro, N.J., and Liming Yu, Houston, Tex., assignors to Tanox Biosystems, Inc., Houston, Tex.

Division of Ser. No. 410,360, Mar. 24, 1995. This application Sep. 4, 1996, Ser. No. 707,801

Int. Cl.° C07K *16/00;* C12D *21/08*

U.S. Cl. 530—388.35 2 Claims

2. The hybridoma cell line, ATCC HB 11863, producing the monoclonal antibody 99-12-1.

5,728,815

BONE AND PROSTATE-DERIVED PROTEIN FACTORS AFFECTING PROSTATE CANCER GROWTH, DIFFERENTIATION, AND METASTASIS

Leland W. K. Chung, Houston; James Chan, Sugarland; Christopher Logothetis, Houston, and Jer-Tsong Hsieh, Sugarland, all of Tex., assignors to Board of Regents, The University of Texas System, Austin, Tex.

Continuation-in-part of Ser. No. 859,228, Mar. 30, 1992, abandoned. This application Jan. 7, 1994, Ser. No. 179,569

Int. Cl.° C07K *14/475*

U.S. Cl. 530—399 15 Claims

1. An isolated human prostate cell growth factor which stimulates prostate cell growth, the factor being obtained by a process that comprises the steps of:

(a) culturing human bone stromal cells in serum-conditioned media to produce conditioned media;

(b) passing said conditioned media over a heparin-affinity column in a low salt-containing buffer to bind the growth factor to the column;

(c) washing the column to remove one or more contaminants;

(d) eluting bound growth factor from the column with a high salt buffer;

(e) fractionating according to size; and

(f) further purifying by subjecting said factor to non-reducing SDS-PAGE gel electrophoresis, and electroeluting the protein band having an apparent molecular weight of about 220 kD in said SDS-PAGE gel; and

wherein said protein stimulates prostate cell growth.

5,728,816

METHOD FOR POLYMERIZATION OF UNSATURATED MONOMERS USING HALOGENATED COMPLEXES OF GROUP IIIA METALS

Fabio Garbassi; Paolo Biagini, both of Novara; Piero Andreussi, Milan, and Gabriele Lugli, S. Donato Milanese, all of Italy, assignors to Enichem Elastomeri S.r.l., Milan, Italy

Continuation of Ser. No. 283,258, Aug. 1, 1994, Pat. No. 5,633,353. This application Feb. 27, 1996, Ser. No. 607,432

Claims priority, application Italy, Aug. 6, 1993, MI93A1794

Int. Cl.° C07F *5/00;* B01J *23/00;* C08F *4/06*

U.S. Cl. 534—15 5 Claims



1. Process for the polymerization of unsaturated monomers using a catalyst which can be represented with the general formula,

$$Me(Ar)(AlX_2R)_3 \quad (I),$$

and an alkylating agent, comprising the steps of

(a) forming a solution of catalyst (I) and said alkylating agent in a hydrocarbon solvent suitable for polymerization,

(b) maintaining said solution at a temperature between 0° and 70° C. under stirring,

(c) adding a polymerizable unsaturated monomer, and

(d) polymerizing said unsaturated monomer at the temperature of step (b), wherein:

Me represents a metal of group IIIA, having atomic number 21, 39, or an atomic number of between 57 and 71,

Ar represents benzene or a benzene substituted with from 1 to 3 alkyl groups containing from 1 to 10 carbon atoms,

X is a halogen atom, whereas,

R is a linear, cyclic or branched alkyl radical containing from 1 to 12 carbon atoms.

5,728,817

METHODS AND COMPOSITIONS FOR CONTROLLING PLANT DEVELOPMENT

John Neill, Des Moines; Dorothy A. Pierce, Urbandale, and Andrew M. Cigan, Des Moines, all of Iowa, assignors to Pioneer Hi-Bred International, Inc., Des Moines, Iowa

Division of Ser. No. 33,797, Mar. 18, 1993, Pat. No. 5,383,210. This application Jun. 7, 1995, Ser. No. 472,265

Int. Cl.° C07H *21/02;21/04;* C12Q *1/68*

U.S. Cl. 536—23.1 2 Claims

1. An isolated and purified nucleic acid the sequence of which is selected from the group consisting of:

a) the nucleic acid sequence of SEQ ID NO: 1;

b) a nucleic acid sequence fully complementary to SEQ ID NO: 1;

c) an oligonucleotide comprising 10–50 contiguous nucleotides of the nucleic acid sequences in a) or b) which is capable of performing in a amplification reaction wherein a portion of a plant QM gene is selectively amplified; and

d) a nucleic acid of a), b), or c) wherein the T bases are U bases.

5,728,818

CHEMICAL LINKAGE OF RIBOZYME PROTIONS

Francine Wincott, Longmont, and Nassim Usman, Boulder, both of Colo., assignors to Ribozyme Pharmaceuticals, Inc., Boulder, Colo.

Filed Jan. 16, 1996, Ser. No. 585,682

Int. Cl.° C07H *21/00;21/02;21/04*

U.S. Cl. 536—25.3 13 Claims

1. A method for synthesis of an enzymatic nucleic acid molecule, comprising the steps of:

providing a 3' and a 5' portion of said enzymatic nucleic acid having independent chemically reactive groups at the 5' and 3' positions, respectively, under conditions in which a covalent bond is formed between said 3' and 5' portions by said chemically reactive groups, said bond being selected from the group consisting of, disulfide, morpholino, amide, ether, thioether, amine, a double bond, sulfonamide, ester, carbonate, hydrazone, said bond not being a natural bond formed between a 5' phosphate group and a 3' hydroxyl group.

5,728,819

SECRETED PROTEINS AND POLYNUCLEOTIDES ENCODING THEM

Kenneth Jacobs, Newton; John M. McCoy, Reading; Edward R. LaVallie, Tewksbury; Lisa A. Racie; David Merberg, both of Acton; Maurice Treacy, Chestnut Hill; Cheryl Evans, Brookline, and Vikki Spaulding, Billerica, all of Mass., assignors to Genetics Institute, Inc., Cambridge, Mass.

Filed Aug. 2, 1996, Ser. No. 691,641

Int. Cl.° C12N *15/12;15/10;5/10;* C07K *14/435*

U.S. Cl. 536—23.5 21 Claims

1. An isolated polynucleotide selected from the group consisting of:

(a) a polynucleotide comprising the nucleotide sequence of SEQ ID NO:2;

(b) a polynucleotide comprising the nucleotide sequence of SEQ ID NO:2 from nucleotide 272 to nucleotide 424;

(c) a polynucleotide comprising the nucleotide sequence of SEQ ID NO:2 from nucleotide 395 to nucleotide 424;

(d) a polynucleotide comprising the nucleotide sequence of the full length protein coding sequence of clone BG511_30 deposited under accession number ATCC 98117;

(e) a polynucleotide encoding the full length protein encoded by the cDNA insert of clone BG511_30 deposited under accession number ATCC 98117;

(f) a polynucleotide comprising the nucleotide sequence of the mature protein coding sequence of clone BG511_30 deposited under accession number ATCC 98117;

(g) a polynucleotide encoding the mature protein encoded by the cDNA insert of clone BG511_30 deposited under accession number ATCC 98117;

(h) a polynucleotide encoding a protein comprising the amino acid sequence of SEQ ID NO:3;

(i) a polynucleotide encoding a protein comprising the amino acid sequence of SEQ ID NO:3 from amino acid 42 to amino acid 51; and

(j) a polynucleotide which is an allelic variant of a polynucleotide of (a)–(g) above.

5,728,820

HUMAN EOSINOPHIL-DERIVED BASIC PROTEIN

Ingrid E. Akerblom, Redwood City, Calif., assignor to Incyte Pharmaceuticals, Inc., Palo Alto, Calif.

Filed Oct. 23, 1996, Ser. No. 740,036

Int. Cl.° C07H *21/04;* C12N *15/63;* C12P *21/02*

U.S. Cl. 536—23.5 8 Claims

1. An isolated and purified polynucleotide sequence encoding the eosinophil-derived basic protein of SEQ ID NO:1.

5,728,821

MUTANT BR96 ANTIBODIES REACTIVE WITH HUMAN CARCINOMAS

Dale Yelton, Seattle, Wash.; Scott Glaser, San Diego; William Huse, Del Mar, both of Calif., and Mae Joanne Rosok, Seattle, Wash., assignors to Bristol-Myers Squibb Company, Princeton, N.J.

Filed Aug. 4, 1994, Ser. No. 285,936

Int. Cl.° C07H *21/04;* C12P *21/08*

U.S. Cl. 536—23.53 21 Claims

1. A nucleic acid sequence encoding a mutant polypeptide derived from BR96 (ATCC HO10036) comprising CDR1, CDR2, and CDR3, wherein CDR3 includes therein the sequence GGC CTG GCG GAC GGG GCC TGG (SEQ ID NO:56) beginning at nucleotide position 296 and ending with nucleotide position 327 as shown in FIG. 2 (SEQ ID NO:9).

4. A nucleic acid molecule encoding a mutant polypeptide derived from BR96 (ATCC HB10036) comprising CDR1, CDR2, and CDR3, wherein CDR1 includes therein the sequence Gly Phe Thr Phe Ser Asp Tyr Tyr Met Tyr (SEQ ID NO:51), wherein CDR2 includes therein the sequence Tyr Ile Ser Gln Xaa Gly Asp Ile Thr Asp Tyr Pro Asp Thr Val Lys Gly (SEQ ID NO:52), wherein CDR3 includes therein the sequence Gly Leu Ala Asp Gly Ala Trp (SEQ ID NO:53) as shown in FIG. 2 (SEQ ID NO:6), and wherein Xaa is alanine, arginine, serine, glycine, tyrosine or valine.

5,728,822

QUATERNARY AMINE SURFACTANTS AND METHODS OF USING SAME IN ISOLATION OF RNA

Donald E. Macfarlane, Iowa City, Iowa, assignor to Qiagen N.V., Amsterdam, Netherlands

Continuation of Ser. No. 113,727, Aug. 27, 1993, abandoned, which is a continuation-in-part of Ser. No. 13,419, Feb. 1, 1993, Pat. No. 5,300,635. This application Sep. 7, 1995, Ser. No. 525,818

Int. Cl.° C07H *21/00*

U.S. Cl. 536—25.41 8 Claims

1. A quaternary amine surfactant useful for isolating nucleic acid from a biological sample having the formula



wherein R1 through R4 are independently selected from an alkyl chain containing from 1 to 20 carbons, and an aryl group containing from 6 to 26 carbons and X^- is selected from the group consisting of oxalate, malonate, succinate and citrate.

5,728,823

CYCLODEXTRIN DERIVATIVES HAVING AT LEAST ONE NITROGEN-CONTAINING HETEROCYCLE, THEIR PREPARATION AND USE

Helmut Reuscher, Emmerting; Rolf Hirsenkorn, München, and Wolfgang Haas, Altoetting, all of Germany, assignors to Consortium für elektrochemische Industrie GmbH, München, Germany

Filed Aug. 8, 1995, Ser. No. 512,653

Claims priority, application Germany, Aug. 18, 1994, 44 29 229.5

Int. Cl.° C08B *30/18;37/16;* A61K *31/715*

U.S. Cl. 536—46 16 Claims

1. A reactive cyclodextrin derivative which contains covalently bound at least one nitrogen-containing heterocycle having at least one electrophilic center;

wherein electrophilic centers are identical or different and are carbon atoms to which is covalently bonded substituent

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selected from the group consisting of halogen, F, Cl, ammonium, trialkylammonium, substituted pyridinium and unsubstituted pyridinium.

5,728,824

MICROFIBER REINFORCED BIODEGRADABLE STARCH ESTER COMPOSITES WITH ENHANCED SHOCK ABSORBANCE AND PROCESSABILITY

Ramani Narayan, Okemos; Mahesh Kotnis, Lansing, both of Mich.; Hideyuki Tanaka, and Nobuo Miyachi, both of Aichi, Japan, assignors to Evercorn, Inc., Lansing, Mich.

Filed Feb. 1, 1996, Ser. No. 595,062
Int. Cl.° C08B *31/02;33/02;35/02*
U.S. Cl. 536—107 **14 Claims**

1. A thermoplastic composition comprising a starch ester having a d.s. in the range of about 1.0 to about 3.0 and about 5% to about 50% by weight of the composition of cellulosic microfibers having an average length of from about 75 to about 750 microns, an average diameter of about 10 to 80 microns and a L/D of about 3 to 60.

5,728,825

FAST HYDRATING DUST-FREE XANTHAN GUM

Philip Wong, Kendall Park, N.J., assignor to Rhone-Poulenc Inc., Cranbury, N.J.

Filed Dec. 18, 1995, Ser. No. 579,030
Int. Cl.° G07G *17/00;* **C08B** *37/00*
U.S. Cl. 536—114 **18 Claims**

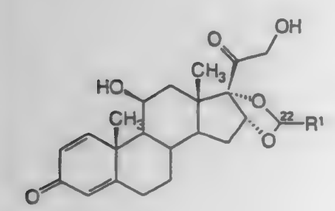
1. A composition comprising a mixture of xanthan gum, a surfactant and a chelating salt, wherein said surfactant is present in an amount of from about 0.1% to about 3.0% by weight of the total weight of the xanthan gum, surfactant and chelating salt, and wherein said chelating salt is present in an amount of from about 0.1% to about 3.0% by weight of the total weight of the xanthan gum, surfactant and chelating salt.

5,728,826

SILYL COMPOUNDS AND THEIR USE

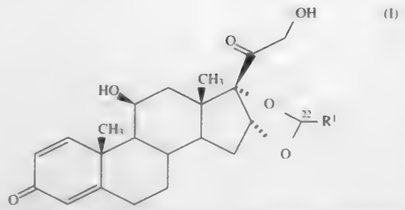
Beate Gutterer, Allensbach, Germany, assignor to Byk Gulden Lomberg Chemische Fabrik GmbH, Constance, Germany

PCT No. PCT/EP95/00836, § 371 Date Nov. 25, 1996, § 102(e) Date Nov. 25, 1996, PCT Pub. No. WO95/24416, PCT Pub. Date Sep. 14, 1995
PCT Filed Mar. 7, 1995, Ser. No. 704,574
Claims priority, application Switzerland, Mar. 9, 1994, [illegible]
Int. Cl.° C07J *71/00*
U.S. Cl. 540—61 **10 Claims**



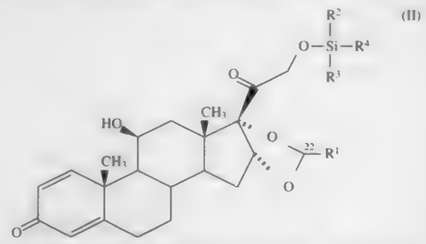
(I)

1. A process for enriching the R epimer in an R/S epimer mixture of compounds of the formula I,



(I)

in which R1 denotes 1–7C-alkyl or 3–8C-cycloalkyl, characterized in that the R/S epimer mixture of the compounds of the formula I is silylated with compounds X-Si(R2) (R3)R4, in which R2, R3 and R4 are identical or different and each signifies a 1–7C-alkyl radical or phenyl radical and X signifies a suitable leaving group, the resulting R/S mixture of the silyl derivative of the formula II



(II)

in which R1, R2, R3 and R4 have the meanings given above, is fractionally crystallized, and the R-epimer-enriched R/S-epimer mixture of compounds of the formula I is released by acid hydrolysis from the crystal fractions obtained first.

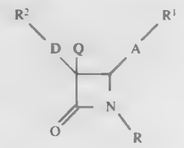
5,728,827

PROCESS FOR THE SYNTHESIS OF AZETIDINONES

Tiruvettipuram Kannapan Thiruvengadam, Edison; Timothy McAllister, Fords, and Chou-Hong Tann, Berkeley Heights, all of N.J., assignors to Schering Corporation, Kenilworth, N.J.

PCT No. PCT/US94/07291, § 371 Date Jan. 4, 1996, § 102(e) Date Jan. 4, 1996, PCT Pub. No. WO95/01961, PCT Pub. Date Jan. 19, 1995
Continuation-in-part of Ser. No. 89,357, Jul. 9, 1993, abandoned. This PCT application Jul. 1, 1994, Ser. No. 578,594
Int. Cl.° C07D *205/08;205/085;205/12*
U.S. Cl. 540—200 **12 Claims**

1. A process for preparing an azetidinone represented by the formula



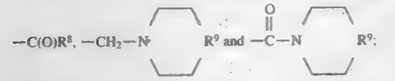
wherein

Q is hydrogen, lower alkyl, phenyl-$(CH_2)_{0-3}$- or (W-substituted)-phenyl-$(CH_2)_{0-3}$;

R is phenyl, W-substituted phenyl, naphthyl, W-substituted naphthyl, benzodioxolyl, heteroaryl, W-substituted heteroaryl, benzofused heteroaryl and W-substituted benzofused heteroaryl, wherein heteroaryl is selected from the group consisting of pyrrolyl, pyridinyl, pyrimidinyl, pyrazinyl, triazinyl, imidazolyl, thiazolyl, pyrazolyl, thienyl, oxazolyl and furanyl, and for nitrogen-containing heteroaryls, the N-oxides thereof;

R^1 and R^2 are independently selected from H or R;

W is 1 to 3 substituents independently selected from the group consisting of lower alkyl, hydroxy lower alkyl, lower alkoxy, alkoxyalkyl, alkoxyalkoxy, alkoxycarbonylalkoxy, (lower alkoxyimino)-lower alkyl, lower alkylenedioyl, lower alkyl lower alkylenedioyl, allyloxy, $—CF_3$, $—OCF_3$, benzyl, R^3-benzyl, benzyloxy, R^3-benzyloxy, phenoxy, R^3-phenoxy, dioxolanyl, NO_2, $—NR^4R^5$, NR^4R^5(lower alkyl)-, NR^4R^5(lower alkoxy)-, OH, halogeno, $—NHC(O)OR^6$, $—NHC(O)R^6$, $R^7O_2SNH—$, $(R^7O_2S)_2N—$, $—S(O)_2NH_2$, $—S(O)_{0-2}R^8$, tert-butyldimethyl-silyloxymethyl, $—C(O)R^8$,



A and D are independently a bond; C_3–C_6 cycloalkylene; C_1–C_{10} alkylene; C_2–C_{10} alkenylene; C_2–C_{10} alkynylene; an alkylene, alkenylene or alkynylene chain as defined substituted by one or more substituents independently selected from the group consisting of phenyl, W-substituted phenyl, heteroaryl and W-substituted heteroaryl, wherein heteroaryl is as defined above; an alkylene, alkenylene or alkynylene chain as defined interrupted by one or more groups independently selected from the group consisting of —O—, —S—, —SO—, $—SO_2—$, $—NR_8$, —C(O)—, C_3–C_6 cycloalkylene, phenylene, W-substituted phenylene, heteroarylene and W-substituted heteroarylene; or an interrupted alkylene, alkenylene or alkynylene chain as defined substituted by one or more substituents independently selected from the group consisting of phenyl, W-substituted phenyl, heteroaryl and W-substituted heteroaryl; or R^2-D is selected from the group consisting of halogeno, OH, lower alkoxy, $—OC(O)R^6$, $—NR^4R^5$, —SH and —S(lower alkyl);

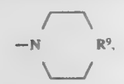
R^3 is 1–3 groups independently selected from the group consisting of lower alkyl, lower alkoxy, —COOH, NO_2, $—NR^4R^5$, OH or halogeno;

R^4 and R^5 are independently selected from H and lower alkyl;

R^6 is lower alkyl, phenyl, R^3-phenyl, benzyl or R^3-benzyl;

R^7 is OH, lower alkyl, phenyl, benzyl, R^3-phenyl or R^3-benzyl;

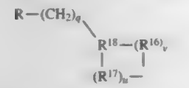
R^8 is H, OH, alkoxy, phenoxy, benzyloxy,



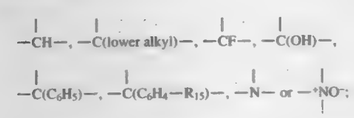
$—NR^4R^5$, lower alkyl, phenyl or R^3-phenyl;

R^9 is —O—, $—CH_2—$, —NH— or —N(lower alkyl)-;

or Q and R^2—D— together form the group



wherein R^{18} is

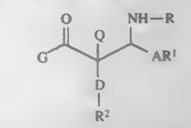


R^{16} and R^{17} are independently selected from the group consisting of $—CH_2—$, —CH(lower alkyl)-, —C(di-lower alkyl)-, —CH=CH— and —C(lower alkyl)=CH—; or R^{18} together with an adjacent R^{16}, or R18 together with an adjacent R^{17}, form a —CH=CH— or a —CH=C(lower alkyl)- group;

u and v are independently 0, 1, 2 or 3, provided both are not zero; provided that when R^{16} is —CH=CH— or —C(lower alkyl)=CH—, v is 1; provided that when R^{17} is —CH=CH— or —C(lower alkyl)=CH—, u is 1; provided that when v is 2 or 3, the R^{16}'s can be the same or different; and provided that when u is 2 or 3, the R^{17}'s can be the same or different; and

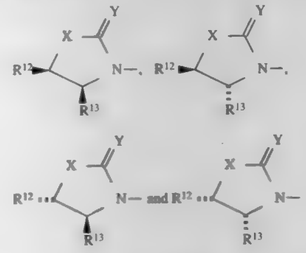
q is 0, 1,2, 3, 4, 5 or 6;

comprising reacting a compound of formula II



II

wherein A, D, Q, R, R^1 and R^2 are as defined above and G is B, wherein B is a deprotonated chiral auxiliary selected from the group consisting of



wherein X is —O—, —S— or $—N(C_1C_6alkyl)$-; Y is =O or =S; and R^{12} and R^{13} are independently selected from the group consisting of C_1–C_6 alkyl, phenyl, naphthyl, substituted phenyl, substituted naphthyl, lower alkoxycarbonyl and benzyl, wherein the substituents on the phenyl and naphthyl are 1–3 substituents selected from the group consisting of lower alkyl, phenyl and benzyl, or wherein one of R^{12} or R^{13} is as defined above and the other is hydrogen;

with a silylating agent and a fluoride ion catalyst cyclizing agent or, when B is a deprotonated chiral auxiliary as defined above, with a silylating agent and a salt of said chiral auxiliary, provided that where substituents A, D, Q, R, R^1 and R^2 include substituents selected from the group consisting of $—NH_2$, —SH and —OH, said substituents are suitably protected prior to reaction with the silylating agent.

5,728,828

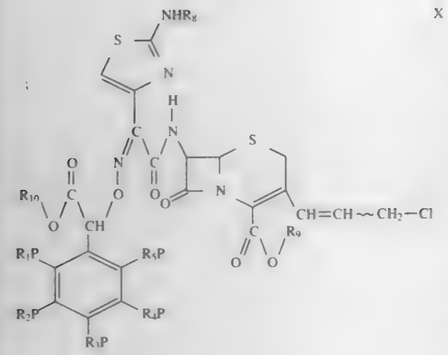
CEPHALOSPORINS

Jozsef Aszodi, Pontault Combault; Jean-Francois Chantot, Gressy en France; Patrick Fauveau, Livry Gargan; Solange Gouin D'Ambrieres, Paris; Daniel Humbert, Fonenay Sous Bois, and Christophe Dini, Le Plessis Pate, all of France, assignors to Roussel Uclaf, France

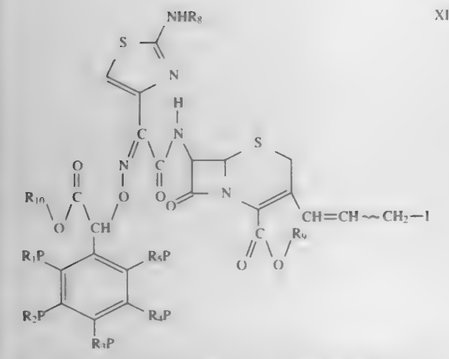
Division of Ser. No. 167,192, Dec. 13, 1993, Pat. No. 5,587,372, which is a continuation-in-part of Ser. No. 989,235, Dec. 11, 1992, Pat. No. 5,455,238. This application May 30, 1995, Ser. No. 453,990
Claims priority, application France, Dec. 21, 1991, 91 15416; Sep. 28, 1992, 92 11520
Int. Cl.° C07D *501/24*
U.S. Cl. 540—222 **1 Claim**

1. A compound having the structural formula selected from the group consisting of

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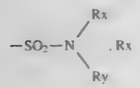


X



XI

wherein R_{1p}, R_{2p}, R_{3p}, R_{4p} and R_{5p} are either respectively R_1, R_2, R_3, R_4 and R_5; R_1, R_2, R_3 and R_5 being individually selected from the group consisting of hydrogen, halogen, hydroxy, alkyl of 1 to 4 carbon atoms optionally substituted with at least one member of the group consisting of halogen, alkoxy of 1 to 4 carbon atoms, alkylthio of 1 to 4 carbons, $—NO_2$, —CN, $—NH_2$, mono- and dialkylamino of 1 to 4 carbon atoms, carbamoyl, (alkylamino) carbonyl of 2 to 5 carbon atoms, (dialkylamino) carbonyl of 3 to 9 carbon atoms, carboxy, alkoxycarbonyl of 2 to 5 carbon atoms, acyloxy of 1 to 8 carbon atoms and



and Ry are individually hydrogen or alkyl of 1 to 4 carbon atoms and R_4 being selected from the group consisting of —OH and acyloxy of up to 8 carbon atoms, or a corresponding hydroxy or amino protected form of R_1, R_2, R_3, R_4 and R_5, the wavy line means the substituent can be in the E or Z position with the proviso that when R_{3p} is —OH or acyloxy of 1 to 8 carbon atoms or a protected form, at least one of R_{1p}, R_{2p} and R_{5p} is other than hydrogen. R_8 is hydrogen or a protective group for $—NH_2$, R_{10} and R_9 are the remainder of an easily clearable ester.

5,728,829

PROCESS OF PREPARING BENZODIAZEPINE COMPOUNDS USEFUL AS ANTAGONISTS OF CCK OR OF GASTRINE

Graeme Semple; Hamish Ryder; Michael Szelke, all of Hampshire, United Kingdom; Masato Satoh, Tsukubi, Japan; Mitsuaki Ohta, Tsukuba-gun, Japan; Keiji Miyata, Tsukuba, Japan; Akito Nishida, Niihari-gun, Japan, and Masato Ishii, Takahagi, Japan, assignors to Ferring-Research Limited, Middlesex, United Kingdom, and Yamanouchi Pharmaceutical Co. Ltd., Tokyo, Japan

PCT No. PCT/GB94/01859, § 371 Date May 2, 1996, § 102(e) Date May 2, 1996, PCT Pub. No. WO95/06040, PCT Pub. Date Mar. 2, 1995

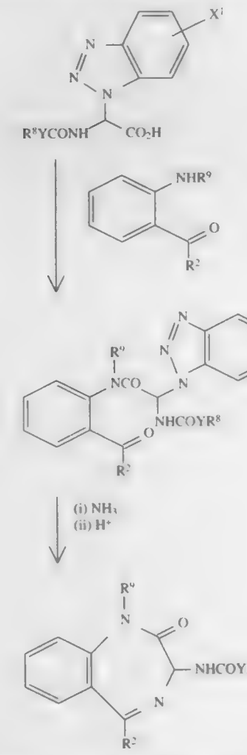
PCT Filed Aug. 25, 1994, Ser. No. 591,567

Claims priority, application United Kingdom, Aug. 25, 1993, 9317693

Int. Cl.[6] C07D *243/24;403/02;* **A61K** *31/33;31/55*

U.S. Cl. 540—509 **6 Claims**

1. A process for the production of benzodiazepines of general formula V or pharmaceutically active salts thereof which comprises the coupling reaction of an optionally substituted N-protected α-(1 -benzotriazolyl)glycine derivative (II) with an aromatic or heterocyclic amino ketone (III), followed by reaction of the intermediate (IV) with ammonia and then an acid catalyzed cyclisation of the resultant amino-ketone



wherein:

R^2 is an optionally substituted aromatic carbocyclic or heterocyclic group;

R^8 is a linear or branched C_1–C_6 alkyl, a C_3– C_8 cycloalkyl, or an optionally substituted aralkyl, optionally substituted aryl or heteroaryl group;

R^9 is H, a linear or branched C_1–C_6 alkyl, or CH_2COR^4 where R^4 is an alkyl, a cycloalkyl, or an optionally substituted aryl, heteroaryl or saturated heterocyclic group;

X^1 is H, C–C_3 alkyl, C_1–C_3 alkyloxy, F, Cl or Br; and

Y is —O—, —NH— or a single bond.

5,728,830

FARNESYLTRANSFERASE INHIBITOR

Yutaka Kanda; Yutaka Saitoh, both of Machida; Kazuhito Akasaka, Shizuoka; Tamio Mizukami, and Hirofumi Nakano, both of Machida, all of Japan, assignors to Kyowa Hakko Kogyo Co., Ltd., Tokyo, Japan

PCT No. PCT/JP94/01543, § 371 Date May 22, 1995, § 102(e) Date May 22, 1995, PCT Pub. No. WO95/08542, PCT Pub. Date Mar. 30, 1995

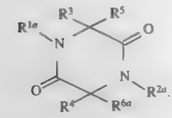
PCT Filed Sep. 20, 1994, Ser. No. 436,458

Claims priority, application Japan, Sep. 22, 1993, 5-236179

Int. Cl.[6] C07D *241/08;285/15*

U.S. Cl. 544—5 **5 Claims**

1. A piperazinedione derivative represented by formula (I-A):



(I-A)

wherein R^{1a} represents carbocyclic aryl of 6 to 10 carbon atoms optionally substituted with 1 to 3 substituents selected from the group consisting of halogen, lower alkyl of 1 to 6 carbon atoms, hydroxyl, and lower alkoxy of 1 to 6 carbon atoms; R^{2a} represents lower alkyl of 1 to 6 carbon atoms; R^{6a} represents lower alkoxyalkyl in which the two alkyl moieties are independently lower alkyl of 1 to 6 carbon atoms, hydroxyalkyl of 1 to 6 carbon atoms, lower alkanoyloxyalkyl in which the two alkyl moieties are independently lower alkyl of 1 to 6 carbon atoms, aroyloxyalkyl in which the aryl moiety is carbocyclic aryl of 6 to 10 carbon atoms and the alkyl moiety is lower alkyl of 1 to 6 carbon atoms, aralkyloxyalkyl in which the aryl moiety is carbocyclic aryl of 6 to 10 carbon atoms and the two alkyl moieties are independently lower alkyl of 1 to 6 carbon atoms, or aralkyl in which the aryl moiety is carbocyclic aryl of 6 to 10 carbon atoms and the alkyl moiety is lower alkyl of 1 to 6 carbon atoms; R^3 and R^4 independently represent mercapto, lower alkanoylthio of 2 to 7 carbon atoms, aroylthio in which the aryl moiety is carbocyclic aryl of 6 to 10 carbon atoms, lower alkoxycarbonylthio of 2 to 7 carbon atoms, or aryloxycarbonylthio in which the aryl moiety is carbocyclic aryl of 6 to 10 carbon atoms, or alternatively R^3 and R^4 are combined together to form disulfide; and R^5 represents hydrogen, lower alkyl of 1 to 6 carbon atoms, lower alkoxyalkyl in which the two alkyl moieties are independently lower alkyl of 1 to 6 carbon atoms, hydroxyalkyl of 1 to 6 carbon atoms, lower alkanoyloxyalkyl in which the two alkyl moieties are independently lower alkyl of 1 to 6 carbon atoms, aroyloxyalkyl in which the aryl moiety is carbocyclic aryl of 6 to 10 carbon atoms and the alkyl moiety is lower alkyl of 1 to 6 carbon atoms, aralkyloxyalkyl in which the aryl moiety is carbocyclic aryl of 6 to 10 carbon atoms and the two alkyl moieties are independently lower alkyl of 1 to 6 carbon atoms, or aralkyl in which the aryl moiety is carbocyclic aryl of 6 to 10 carbon atoms and the alkyl moiety is lower alkyl of 1 to 6 carbon atoms.

5,728,831

PROCESS FOR PREPARING OXAZINES

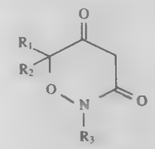
Shy-Fuy Lee, Sunnyvale, Calif., assignor to Sandoz Ltd., Basel, Switzerland

Division of Ser. No. 232,919, Apr. 25, 1994, Pat. No. 5,565,410, which is a division of Ser. No. 994,048, Dec. 14, 1992, Pat. No. 5,336,662, which is a continuation of Ser. No. 902,609, Jun. 23, 1992, abandoned, which is a continuation of Ser. No. 604,708, Oct. 25, 1990, abandoned, which is a continuation-in-part of Ser. No. 497,154, Mar. 20, 1990, abandoned, which is a continuation-in-part of Ser. No. 343,093, Apr. 25, 1989, abandoned. This application Jun. 12, 1996, Ser. No. 660,969

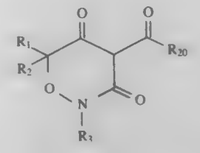
Int. Cl.[6] C07D *265/02*

U.S. Cl. 544—63 **5 Claims**

1. A process for preparing a compound of formula III



wherein R_1, R_2, and R_3 are independently hydrogen or C_{1-8}alkyl C_{1-8} which comprises decarboxylating a compound of formula V



wherein R^{20} is alkoxy and R_1, R_2, and R_3 are as defined above.

5,728,832

PHTHALIDE COMPOUND AND RECORDING MATERIAL USING THE SAME

Koji Wariishi, Minami-ashigara, Japan, assignor to Fuji Photo Film Co., Ltd., Kanagawa, Japan

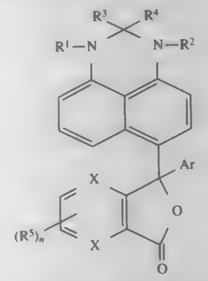
Filed Oct. 23, 1996, Ser. No. 734,953

Claims priority, application Japan, Oct. 23, 1995, 7-273984

Int. Cl.[6] C10M *105/72;* **C07D** *239/00*

U.S. Cl. 544—249 **20 Claims**

1. A phthalide compound represented by formula (I):

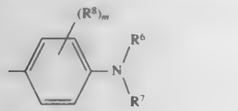


(1)

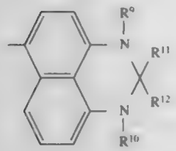
wherein R^1, R^2, R^3 and R^4 each represents a hydrogen atom, an alkyl group or an aryl group, R^5 represents a hydrogen atom, a halogen atom, a dialkylamino group or a carboxyl group, X represents a group of CH or a nitrogen atom, R^3 and R^4 may be bonded with each other to form a 5- or 6-membered ring, n represents an integer of from 1 to 4, provided that when n is 2 or greater, the R^5

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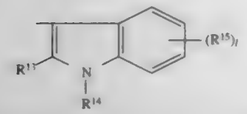
groups may be the same or different. Ar represents a substituent represented by one of formulas (II-1), (II-2) and (III):



(II-1)



(II-2)



(III)

wherein R^6 and R^7 each represents an alkyl group or an aryl group, R^6 and R^7 may be bonded with each other to form a 5-or 6-membered ring, R^8 represents a hydrogen atom, an alkyl group, an aryl group, an alkoxy group, an amino group, a hydroxyl group or a halogen atom, m represents an integer of from 1 to 4, provided that when m is 2 or greater, the R^8 groups may be the same or different, R^9, R^{10}, R^{11} and R^{12} each represents a hydrogen atom, an alkyl group or an aryl group, R^{11} and R^{12} may be bonded with each other to form a 5- or 6-membered ring, R^{13} and R^{14} each represents a hydrogen atom, an alkyl group or an aryl group, R^{15} represents a hydrogen atom, an alkyl group, an alkoxy group, an amino group or a hydroxy group, and l represents an integer of from 1 to 4, provided that when l is 2 or greater, the R^{15} groups may be the same or different.

5,728,833

PROCESS FOR THE PREPARATION OF FLUOROALKENYLTHIO HETEROCYCLIC DERIVATIVES

Michael Drysdale Turnbull, Reading; Nigel James Willetts, Camberley; Steven Fitzjohn, Bracknell; Prafula Govind Kholia, Hayes; Alison Mary Smith, Richmond; Roger Salmon, Bracknell; Harjinder Singh Bansal, Bracknell, and Alfred Glyn Williams, Binfield, all of United Kingdom, assignors to Zeneca Limited, London, England

Filed Aug. 4, 1994, Ser. No. 286,142

Claims priority, application United Kingdom, Aug. 5, 1993, 9316219; Aug. 5, 1993, 9316220; Dec. 13, 1993, 9325453; Dec. 13, 1993, 9325455

Int. Cl.[6] C07D *239/38;263/58;277/74*

U.S. Cl. 544—309 **5 Claims**

1. A process for the preparation of a compound of formula (I):

$$HetSCH_2CH_2CH{=}CF_2 \quad (I)$$

wherein Her is an optionally substituted 5- or 6-membered heterocyclic ring, which comprises reacting a compound of formula (II):

$$HetSH \quad (II)$$

with a compound of formula (III):

$$CF_2{=}CHCH_2CH_2L \quad (III)$$

wherein L is chlorine or bromine or a group —OSO_2R^a wherein R^a is a C1–4 alkyl group or a phenyl group optionally substituted by a C1–4 alkyl group.

5,728,834

PROCESS FOR PREPARATION OF 4-ARYL-1,2,4-TRIAZOL-3-ONES

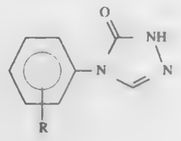
Krishnamurthy Nacharaju, Holland, and James J. Springer, Saugatuck, both of Mich., assignors to Wyckoff Chemical Company, Inc., South Haven, Mich.

Filed Nov. 14, 1996, Ser. No. 749,318

Int. Cl.[6] C07D *403/10;249/12*

U.S. Cl. 544—366 **20 Claims**

1. A process for preparing 4-aryl-1,2,4-triazol-3-ones of the formula



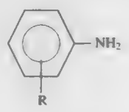
wherein R is hydrogen, a primary, secondary or tertiary amine, a straight chain, branched or cyclic alkyl group, an alkoxy group, or a substituted or unsubstituted aromatic group,

wherein aryl means phenyl or naphthyl; and

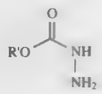
wherein substituted aromatic means an aryl group bearing a halogen, a primary, secondary or tertiary, amine, a straight chain, branched or cyclic alkyl group, or an alkoxy group;

the process comprising:

heating a reaction mixture comprising (1) a primary aromatic amine of the formula



wherein R is the same as described above; (2) an alkyl carbazate of the formula



wherein R' is an alkyl group; (3) a trialkyl orthoformate of the formula

$$HC(OR^*)_3$$

wherein R" is an alkyl group; (4) an acid catalyst; and (5) a polar solvent, at a temperature and for a period of time sufficient to drive the reaction substantially to completion;

adding an alkali metal alkoxide to the reaction mixture, and heating the mixture at a temperature and for a period of time sufficient to drive the reaction substantially to completion; and

separating the 4-aryl-1,2,4-triazol-3-one from the remainder of the mixture.

5,728,835

SUBSTITUTED CYCLIC AMINE COMPOUND, PRODUCTION PROCESS THEREOF AND PHARMACEUTICAL COMPOSITION FOR CIRCULATORY ORGAN USE CONTAINING THE SAME

Tsuyoshi Aoki; Atsuo Takahashi; Hiroyasu Sato; Eiji Shimanuki; Kaoru Gengyou; Toyoki Nishimata; Sachiko Ishigami; Shin-ichi Yamada; Takahiro Yamaguchi; Yoichi Manome; Isamu Sato, all of Fukushima; Kentaro Kogi, Miyagi, and Sen-ichi Narita, Saitama, all of Japan, assignors to Toa Eiyo, Ltd., Tokyo, Japan

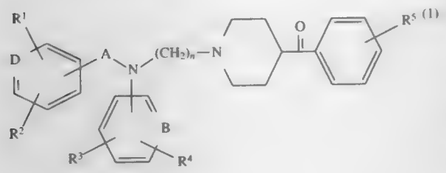
Continuation-in-part of Ser. No. 363,223, Dec. 23, 1994, abandoned. This application Dec. 19, 1995, Ser. No. 575,062

Claims priority, application Japan, Dec. 27, 1993, 5-346805

Int. Cl.[6] C07D *211/32;* **A61K** *31/445*

U.S. Cl. 546—194 **7 Claims**

1. A substituted cyclic amine compound represented by the following general formula (1)



(1)

wherein R^1 and R^2 may be the same or different from each other and each represents a hydrogen atom, a halogen atom, lower straight or branched-chain alkyl group which may be substituted with halogen atom(s), a hydroxy group, a lower alkoxy group, a five- or six-membered cycloalkyl group selected from the group consisting of piperazinyl, succinimide, and phthalimide, an amino group, a lower mono or dialkylamino group, a five- or six-membered cyclic amine group selected from the group consisting of pyrrolidine, piperidine and morpholine, a lower acylamino group, a substituted or unsubstituted benzyloxymethylcarbonylamino group or a phthalimide group, a lower alkoxy group, a cyano group, a formyl group, an oxyme group, a carboxyl group, a lower alkoxycarbonyl group, a carbamoyl group, a nitro group, an amino group which may be substituted with a lower mono or dialkyl group, a lower acyl group, a lower halogenated acyl group, a lower aminoacyl group, a lower alkoxycarbonyl group or a lower alkylsulfonyl group, an amidino group which may be substituted with a lower acyl group, a lower alkoxycarbonyl group or a lower alkylsulfonyl group, a ureido group which may be substituted with a lower alkyl group, and a thioureido group which may be substituted with a lower alkyl group or pyrrole ring, R^3 and R^4 may be the same or different from each other and each represents a hydrogen atom, a halogen atom, a lower alkyl group, a lower halogenated alkyl group, a hydroxy group, a lower alkoxy group, a lower alkylthio group, a cyano group, a lower alkoxycarbonyl group, a nitro group or an amino group which may be substituted with a lower acyl group, or R^3 and R^4 taken together form a methylenedioxy group, R^5 represents a hydrogen atom, a halogen atom or an amino group which may be substituted with a lower mono or dialkyl group, A represents a carbonyl group or a sulfonyl group, B represents a methine moiety or a nitrogen atom, D represents a methine moiety, a nitrogen atom or =N(→O)—, and n is the integer 2 or 3; or a pharmaceutically acceptable salt thereof.

5,728,836

PROCESS FOR PREPARING 4-ACYLAMINO-2,2,6,6-TETRAMETHYLPIPERIDINES

Manfred Kaufhold, Marl, Germany, assignor to Huels Aktiengesellschaft, Marl, Germany

Filed Aug. 30, 1996, Ser. No. 704,863

Claims priority, application Germany, Sep. 1, 1995, 195 32 215.0

Int. Cl.[6] C07D *211/98*

U.S. Cl. 546—244 **13 Claims**

1. A process for preparing a 4-acylamino-2,2,6,6-tetramethylpiperidine comprising:

contacting 4-amino-2,2,6,6-tetramethylpiperidine and an acid anhydride in the presence of added carboxylic acid thereby forming a carboxylate salt of the 4-acylamino-2,2,6,6-tetramethylpiperidine, and eliminating said carboxylic acid from the reaction mixture using water at elevated temperature.

5,728,837

METHOD OF OBTAINING NICOTINIC ACID

Evgenia Moiseevna Alkaeva; Tamara Vitalievna Andrushkevich; Galina Alexeevna Zenkovets, all of Novosibirsk, and Mikhail Grigorievich Makarenko, poselok Krasnoobsk, all of Russian Federation, assignors to Institut Kataliza Imeni G.K. Boreskova Sibirskogo Otdelenia Rossiiskoi Akademii Nauk, Russian Federation

PCT No. PCT/RU95/00013, § 371 Date Jul. 17, 1996, § 102(e) Date Jul. 17, 1996, PCT Pub. No. WO95/20577, PCT Pub. Date Aug. 3, 1995

PCT Filed Jan. 26, 1995, Ser. No. 676,352

Claims priority, application Russian Federation, Jan. 26, 1994, 94003019

Int. Cl.[6] C07D *213/127;213/80;213/79;213/803*

U.S. Cl. 546—320 **7 Claims**

1. A process for preparing nicotinic acid from β-picoline comprising:

a) oxidizing β-picoline with oxygen at a temperature of 250°–290° C. in the presence of aqueous vapor and a catalyst, said catalyst comprising oxides of vanadium and titanium and said catalyst having a specific surface area of 10–120 m^2/g and

b) isolating the nicotinic acid.

5,728,838

METHOD OF PREPARING PHOSPHODIESTERASE IV INHIBITORS

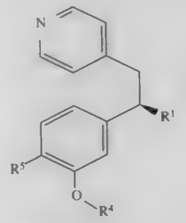
Ioannis Houpis, Plainfield; Audrey Molina, Clark, and Ralph P. Volante, Cranberry, all of N.J., assignors to Merck & Co., Inc., Rahway, N.J.

Filed Apr. 2, 1997, Ser. No. 832,484

Int. Cl.[6] C07D *213/38;213/30;213/26;213/24*

U.S. Cl. 546—339 **3 Claims**

1. A process for the preparation of a compound of structural formula I:

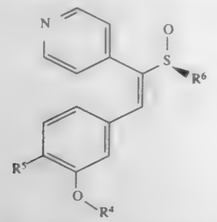


I

which comprises the steps of:

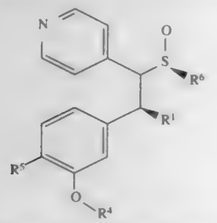
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1) treating a compound of structural formula 2:



2

with a catalyst, $Ni(acac)_2$, in a ethereal solvent at −35° to −15° C. followed by treatment with a zincate of formula $R^1{}_3M$ and aging for 20–30 hours to produce the adduct 4



4

2) treating the adduct 4 in an ethereal solvent and an organic acid with Zn metal to produce the product, 1, wherein:

R^1 is C_{1-6} alkyl, C_{2-6} alkenyl, phenyl, either unsubstituted or substituted with one or two substituents, which can be the same or different, selected from the group consisting of R^2 and $Alk1(R^2)m$ wherein

R^2 is

1) halo,
2) $—N(R^3)_2$,
3) $—NO_2$,
4) —CN,
5) $—OR^3$,
6) $—C_{3-6}$ cycloalkoxy,
7) $—CO(R^3)$,
8) $—COOR^3$,
9) $—SR^3$,
10) $—SO_3H$,
11) $—SO_2(R^3)$,
12) $—SO_2N(R^3)_2$,
13) $—CON(R^3)_2$,
14) $—NHSO_2R^3$,
15) $—N(SO_2R3)_2$,
16) $—NHSO_2N(R^3)_2$,
17) $—NHCOR^3$ or
18) $—NHCOOR^3$; wherein

Alk is straight or branched chain C_{1-6} alkylene, C_{2-6} alkenylene or C_{2-6} alkynylene, optionally interrupted by one, two or three —O—, —S—, —S(O)p or —N—(R^3)—;

R^3 is hydrogen or C_{1-6} alkyl or C_{2-6} alkenyl;

R^4 is

1) C_{3-6} cycloalkyl,
2) C_{1-6} alkyl, or
3) C_{1-6} alkenyl;

R^5 is

1) halo,
2) CF_3,
3) C_{1-3} alkyl, or
4) C_{1-3} alkoxy

R^6 is

1) tolyl,
2) phenyl,
3) t-butyl, or
4) mesityl;

M is ZnLi or ZnMgBr;

m is zero or an integer selected from 1, 2 and 3; and

p is an integer selected from 1 and 2.

5,728,839

METAL COMPLEXES WITH HETEROCYCLES CARBENES

Wolfgang A. Herrmann, Freising; Martina Elison, Munich; Jakob Fischer, Kirchdorf; Christian Kocher, Munich, and Karl Ofele, Puchheim, all of Germany, assignors to Hoechst Aktiengeselischaft, Germany

Filed Dec. 29, 1995, Ser. No. 581,029

Claims priority, application Germany, Dec. 29, 1994, 44 47 066.5

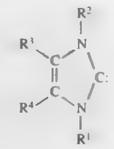
Int. Cl.[6] C07F *7/02;15/00*

U.S. Cl. 548—103 **12 Claims**

1. A metal complex of the formula

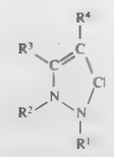
$$[L_cM_pX_c]^n(A)_n \qquad \text{I}$$

wherein M is ion of oxidation state of 1 to 8 of metals of groups 8, 9 and 10 of the periodic table as central atom, X is uni- or multidentate charged or uncharged ligands bound to the central atom, and L are ligands similarly bound to the central atom M. selected from the group consisting of monocarbenes of the formulae



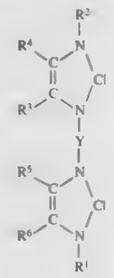
II

and



III

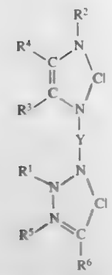
or dicarbenes of the formulae



IV

and

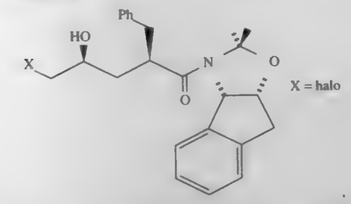
-continued



V

wherein R^1, R^2, R^3, R^4, R^5 and R^6 are individually selected from the group consisting of optionally sulfonated alkyl of 1 to 7 carbon atoms, optionally sulfonated aliphatic mono- or poly-cyclics of 5 to 18 carbon atoms, optionally sulfonated alkenyl of 2 to 5 carbon atoms, optionally sulfonated aryl of 6 to 14 carbon atoms and optionally sulfonated arylalkyl of 7 to 19 carbon atoms, or R^3, R^4, R^5 and R^6 also can be hydrogen, or R^3 and R^4 together and R^5 and R^6 together in each case with the carbon atoms to which they are attached individually form fused and optionally sulfonated groups of 3 to 7 carbon atoms, Y is an optionally unsaturated alkylidene of 1 to 4 carbon atoms or a dialkylsilylene or a tetraalkyldisilylene, A is a singly charged anion or the chemical equivalent of a multiply charged anion, b is an integer from 1 to 3, a is an integer from 1 to 5×b and c=0 or an integer from 1 to 4×b, n=0 or an integer from 1 to 6, and c+n>0, but not (N,N'-dimethyl-benzimidazolin-2-ylidene)-chloro-(1,5-cyclooctadiene)-rhodium.

with about one to two equivalents of a halogenating agent in solvent mixed with aqueous weak base, at a temperature range between about −40° C. and about 100° C., to form the halohydrin of formula III,



III

wherein the halogenating agent is selected from N-iodosuccinimide, N,bromosuccinimide in combination with an iodide salt, or N-chlorosuccinimide in combination with an iodide salt, 1,3-dichloro-5,5-dimethylhydantoin with an iodide salt, or iodine; said weak base is selected from sodium bicarbonate, calcium carbonate, magnesium hydroxide, basic alumina, neutral alumina, sodium acetate, dibasic sodium phosphate, dibasic potassium phosphate, potassium fluoride, or water in common organic solvents compatible with the reaction conditions selected from ethers, aromatic chlorinated hydrocarbons, esters, alcohols, MeCN, DMF, DMPU or ketones; and

(b) adding base in solvent or solvents to elicit formation of the epoxide of formula I, wherein the base is selected from the group consisting of hydroxides of lithium, sodium, potassium, magnesium, calcium, or tetraalkylammonium and alkoxides selected from the group consisting of lithium, sodium, potassium, magnesium, and tetraalkylammonium methoxide, ethoxide, n- and iso-propoxide, n-, iso-, sec-, and tert-butoxide.

5,728,840

PROCESS FOR MAKING AN EPOXIDE

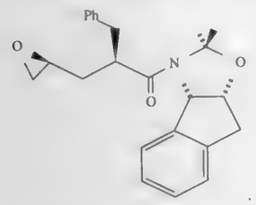
David Askin, Warren; Kan K. Eng, Jersey City; Peter E. Maligres, Scotch Plains; Paul J. Reider; Kai Rossen, both of Westfield; Ralph P. Volante, Cranbury; Veena Upadhyay, Edison, and Steven A. Weissman, Little Falls, all of N.J., assignors to Merck & Co., Inc., Rahway, N.J.

Continuation-in-part of Ser. No. 472,352, Jun. 7, 1995, abandoned, which is a continuation of Ser. No. 206,074, Mar. 4, 1994, abandoned. This application Aug. 8, 1995, Ser. No. 512,602

Int. Cl.[6] C07D *263/52*

U.S. Cl. 548—217 **13 Claims**

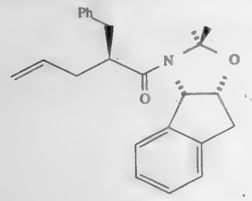
1. A process of synthesizing the epoxide of formula I,



I

comprising the steps of:

(a) contacting one equivalent of the allyl acetonide of formula II,



II

5,728,841

PROCESS FOR PREPARING 1-AMINO-1,2,3-TRIAZOLE

Kazuhiko Shigeno; Tomoyasu Ono, both of Hanno; Motoaki Tanaka, Tokorozawa; Shozo Yamada, Hanno, and Tetsuji Asao, Tokorozawa, all of Japan, assignors to Taiho Pharmaceutical Co., Ltd., Tokyo, Japan

PCT No. PCT/JP95/01727, § 371 Date Apr. 30, 1996, § 102(e) Date Apr. 30, 1996, PCT Pub. No. WO96/06835, PCT Pub. Date Mar. 7, 1996

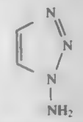
PCT Filed Aug. 30, 1995, Ser. No. 637,718

Claims priority, application Japan, Sep. 1, 1994, 6-232196; Jan. 30, 1995, 7-033028

Int. Cl.[6] C07D *249/04*

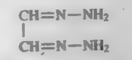
U.S. Cl. 548—255 **5 Claims**

1. A process for preparing 1-amino-1,2,3-triazole represented by formula (III):



(III)

comprising cyclizing glyoxal bishydrazone represented by formula (I):



(I)

by reaction with an aqueous hydrogen peroxide solution in the presence of a catalytic amount of a transition metal oxide represented by formula (II):

$$M_mO_n \qquad \text{(II)}$$

wherein M represents a transition metal atom; and m and n, which may be the same or different, each represent an integer of 1 to 5.

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5,728,842

SUBSTITUTED IMIDAZOLYL-ALKYLTHIO-ALKANOIC ACIDS

David Taylor Hill, North Wales; Joseph Weinstock, Phoenixville, and John Gerald Gleason, Downingtown, all of Pa., assignors to SmithKline Beecham Corporation, Philadelphia, Pa.

PCT No. PCT/US93/06246, § 371 Date Feb. 22, 1995, § 102(e) Date Feb. 22, 1995, PCT Pub. No. WO94/00120, PCT Pub. Date Jan. 6, 1994
PCT Filed Jun. 30, 1993, Ser. No. 351,443
Claims priority, application United Kingdom, Jun. 30, 1992, 9213934
Int. Cl.[6] C07D *233/60;233/84;235/02;403/06;403/04;* A61K *31/415*
U.S. Cl. 548—319.1 5 Claims

1. The compound which is:
methyl 4-[(2-n-butyl-5-{[(2-carbomethoxyphenyl)-thio]methyl}-1H-imidazol-5-yl)methyl]- 1-naphthalene-carboxylate;
S-[(2-n-butyl-1-{(4-carboxyphenyl)methyl}-4-chloro-1H-imidazol-5-yl)methyl]thiosalicylic acid;
S-[(2-n-butyl-1-{(4-carboxyphenyl)methyl}-1H-imidazol-5-yl)methyl]-4-thiobenzoic acid;
S-[(2-n-butyl-1-{4-carboxyphenyl)methyl}-1H-imidazol-5-yl)methyl]-3-thiobenzoic acid;
S-[(2-n-butyl-1-{(4-carboxyphenyl)methyl}-4-nitro-1H-imidazol-5-yl)methyl]thiosalicylic acid;
S-[(2-n-butyl-1-{(4-carboxyphenyl)methyl}-1H-imdazole-5-yl]thiosalicylic acid; or
S-[2-n-butyl-1-{(4-carboxyphenyl)methyl}-1H-imidazol-5-yl)ethyl]thiosalicyclic acid; or a pharmaceutically acceptable salt thereof.

5,728,843

(2'-NITRO-1'-IMIDAZOLYL)-2,3-ISOPROPYLIDENE-Y-TOSYLBUTANOL, A PRECURSOR TO [^{18}F]FLUOROERYTHRONITROIMIDAZOLE PET IMAGING AGENT

Sidney Wallace, Houston; David J. Yang, Sugarland, and Abdallah Cherif, Houston, all of Tex., assignors to Wallace Technologies, Houston, Tex.

Continuation-in-part of Ser. No. 131,484, Oct. 4, 1993, abandoned. This application Apr. 4, 1996, Ser. No. 624,574
Int. Cl.[6] C07D *233/28;233/91;233/54;513/00;* A61K *31/415*
U.S. Cl. 548—327.5 5 Claims

1. (2'-nitro-1'-imidazolyl)-2,3-isopropylidene-4-tosylbutanol.

2. A method for preparing (2'-nitro-1'-imidazolyl)-2,3-isopropylidene- 4-tosylbutanol comprising reacting 1,4-ditosyl-2,3-isopropylidene-D-threitol with 2-nitroimidazole.

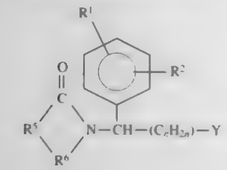
5,728,844

IMMUNOTHERAPEUTIC AGENTS

George W. Muller, Bridgewater, and Mary Shire, North Plainfield, both of N.J., assignors to Celgene Corporation, Warren, N.J.

Continuation-in-part of Ser. No. 520,710, Aug. 29, 1995. This application Dec. 26, 1995, Ser. No. 578,738
Int. Cl.[6] C07D *209/48;209/46;217/24;* A61K *31/40*
U.S. Cl. 548—472 4 Claims

1. A compound of the formula:



in which:
one of R^1 and R^2 is R^3—X— and the other is hydrogen, nitro, cyano, trifluoromethyl, carbo(lower)alkoxy, acetyl, carbamoyl, acetoxy, carboxy, hydroxy, amino, lower alkyl, lower alkoxy, halo, or R^3—X—;
R^3 is monocycloalkyl, bicycloalkyl, benzocycloalkyl of up to 18 carbon atoms;
X is a carbon-carbon bond, —CH_2—, or —O—;
R^5 is o-phenylene, unsubstituted or substituted with 1 to 3 substituents each selected independently from nitro, cyano, halo, trifluoromethyl, carbo(lower)alkoxy, acetyl, or carbamoyl, unsubstituted or substituted with lower alkyl, acetoxy, carboxy, hydroxy, amino, lower alkylamino, lower acylamino, aminoalkyl, or lower alkoxy;
R^6 is —CO—, —CH_2—, or —CH_2CO—;
Y is —COZ, —C≡N, —OR^8, lower alkyl, or aryl;
Z is —NH_2, —OH, —NHR, —R^9, or —OR^9;
R^8 is hydrogen or lower alkyl;
R^9 is lower alkyl or benzyl; and,
n has a value of 0, 1, 2, or 3.

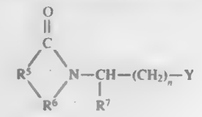
5,728,845

IMMUNOTHERAPEUTIC NITRILES

George W. Muller, Bridgewater, and Mary Shire, North Plainfield, both of N.J., assignors to Celgene Corporation, Warren, N.J.

Filed Aug. 29, 1995, Ser. No. 520,710
Int. Cl.[6] C07D *209/48;209/46;217/24;* A61K *31/40*
U.S. Cl. 548—477 16 Claims

1. A compound of the formula:



wherein:
Y is —C≡N or $CO(CH_2)_mCH_3$;
m is 0, 1, 2, or 3;
R^5 is:
o-phenylene, unsubstituted or substituted with 1 to 3 substituents each selected independently from nitro, cyano, trifluoromethyl, carbethoxy, carbomethoxy, carbopropoxy, acetyl, carbamoyl, carbamoyl substituted with and alkyl of 1 to 3 carbon atoms, acetoxy, carboxy, hydroxy, amino, amino substituted with an alkyl of 1 to 3 carbon atoms, alkyl of 1 to 4 carbon atoms, alkoxy of 1 to 4 carbon atoms, or halo;
R^6 is —CO—, —CH_2—, —CH_2CO—, or —SO_2—;
R^7 is
(i) cyclic or bicyclic alkyl of 4 to 12 carbon atoms;
(ii) pyridyl;
(iii) phenyl substituted with one or more substituents each selected independently of the other from nitro, cyano, trifluoromethyl, carbethoxy, carbomethoxy, carbopropoxy, acetyl, carbamoyl, acetoxy, carboxy, hydroxy, amino, straight or branched alkyl of 1 to 10 carbon atoms, straight or branched, alkoxy of 1 to 10 carbon atoms, or halo;
(iv) benzyl substituted with one to three substituents each selected independently from the group consisting of nitro, cyano, trifluoromethyl, carbethoxy, carbomethoxy, carbopropoxy, acetyl, carbamoyl, acetoxy, carboxy, hydroxy, amino, alkyl of 1 to 4 carbon atoms, alkoxy of 1 to 10 carbon atoms, or halo;
(v) naphthyl; or
(vi) benzyloxy; and
n has a value of 0, 1, 2, or 3.

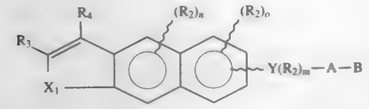
5,728,846

ARYL OR HETEROARYL SUBSTITUTED 3,4-DIHYDROANTHRACENE AND ARYL OR HETEROARYL SUBSTITUTED BENZO[1,2-G]-CHROM-3-ENE, BENZO[1,2-G]-THIOCHROM-3-ENE AND BENZO[1,2-G]-1,2-DIHYDROQUINOLINE DERIVATIVES HAVING RETINOID ANTAGONIST OR RETINOID INVERSE AGO

Vidyasagar Vuligonda, Irvine; Alan T. Johnson, Rancho Santa Margarita, and Roshantha A. Chandraratna, Mission Viejo, all of Calif., assignors to Allergan, Irvine, Calif.

Filed Dec. 12, 1996, Ser. No. 764,466
Int. Cl.[6] C07D *495/00;277/04;401/04;* A61K *31/38*
U.S. Cl. 549—16 22 Claims

1. A compound of the formula



wherein X_1 is —S—, —O—, —$C(R_1)_2$— O— or —$C(R_1)_2$—S—;
R_1 is independently H or alkyl of 1 to 6 carbons;
R_2 is optional and is defined as lower alkyl of 1 to 6 carbons, F, Cl, Br, I, CF_3, fluoro substituted alkyl of 1 to 6 carbons, OH, SH, alkoxy of 1 to 6 carbons, or alkylthio of 1 to 6 carbons;
m is an integer between 0 and 4;
n is an integer between 0 and 2;
o is an integer between 0 and 3;
R_3 is hydrogen, lower alkyl of 1 to 6 carbons, F, Cl, Br or I;
R_4 is phenyl, $(R_5)_p$-phenyl, naphthyl, $(R_5)_p$-naphthyl, pyridyl, $(R_5)_p$-pyridyl, thienyl or (R_5)-thienyl;
p is an integer having the values of 1–5;
R_5 is independently F, C, Br, I, NO_2, $N(R_8)_2$, $N(R_8)COR_8$, $NR_8CON(R_8)_2$, OH, $OCOR_8$, OR_8, CN, COOH, $COOR_8$ an alkyl group having 1 to 10 carbons, fluoro substituted alkyl group having 1 to 10 carbons, an alkenyl group having 1 to 10 carbons and 1 to 3 double bonds, alkynyl group having 1 to 10 carbons and 1 to 3 triple bonds, or a (trialkyl)silyl or (trialkyl)silyloxy group where the alkyl groups independently have 1 to 6 carbons;
Y is a phenyl or naphthyl group, or heteroaryl selected from a group consisting of pyridyl, thienyl, furyl, pyridazinyl, pyrimidinyl, pyrazinyl, thiazolyl, oxazolyl, imidazolyl and pyrrazolyl, said phenyl, naphthyl and heteroaryl groups being optionally substituted with one or two R_2 groups, or Y is —$(CR_3{=}CR_3)_r$—;
r is an integer between 1 and 3;
A is $(CH_1)_q$ where q is 0–5, lower branched chain alkyl having 3–6 carbons, cycloalkyl having 3–6 carbons, alkenyl having 2–6 carbons and 1 or 2 double bonds, alkynyl having 2–6 carbons and 1 or 2 triple bonds, with the proviso that when Y is —$(CR_3{=}CR_3)_r$— then A is $(CH_2)_q$ and q is 0;
B is hydrogen, COOH or a pharmaceutically acceptable salt thereof, $COOR_8$, $CONR_8R_{10}$, —CH_2OH, CH_2OR_{11}, CH_2OCOR_{11}, CHO, $CH(OR_{12})_2$, $CHOR_{13}O$, —COR_7, $CR_7(OR_{12})_2$, $CR_7OR_{13}O$, or $Si(C_{1-6}alkyl)_3$, where R_7 is an alkyl, cycloalkyl or alkenyl group containing 1 to 5 carbons, R_8 is an alkyl group of 1 to 10 carbons or (trimethylsilyl)alkyl where the alkyl group has 1 to 10 carbons, or a cycloalkyl group of 5 to 10 carbons, or R_8 is phenyl or lower alkylphenyl, R_9 and R_{10} independently are hydrogen, an alkyl group of 1 to 10 carbons, or a cycloalkyl group of 5–10 carbons, or phenyl or lower alkylphenyl, R_{11} is lower alkyl, phenyl or lower alkylphenyl, R_{12} is lower alkyl, and R_{13} is divalent alkyl radical of 2–5 carbons.

5,728,847

METHOD FOR RECOVERING LACTIDE FROM HIGH-MOLECULAR WEIGHT POLYLACTIC ACID

Hitomi Ohara, Kyoto, and Toshio Okamoto, Hirakata, both of Japan, assignors to Shimadzu Corporation, Kyoto, Japan

Filed Sep. 13, 1996, Ser. No. 713,653
Claims priority, application Japan, Sep. 14, 1995, 7-236278
Int. Cl.[6] C07D *319/00*
U.S. Cl. 549—274 13 Claims

1. A method for recovering lactide from a high-molecular weight polylactic acid, comprising the steps of:
(a) heat-treating a high-molecular weight polylactic acid to a temperature equal to or higher than a melting point of the polylactic acid to be treated in the presence of a catalyst comprising one or more metals selected from elements of Group IA, Group IVA, Group IVB, and Group VA of the Periodic Table, or compounds thereof; and
(b) reducing a pressure to equal to or less than a vapor pressure of lactide at said temperature, to thereby distill and recover the produced lactide.

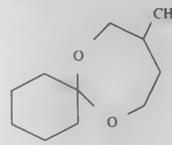
5,728,848

9-HYDROXYMETHYL-7,12 DIOXASPIRO[5,6]DODECANE, NOVEL 9-(2-HYDROXYETHYL-7,11-DIOXASPIRO[5,5]UNDECANE AND A PROCESS FOR PREPARING SAID 9-(2-HYDROXYETHYL-7,11 DIOXASPIRO [5,5]UNDECANE

Malladi Pardhasaradhi; Chembumkulam Kamalakshyamma Snehalatha Nair, and Arsid Satyanarayana, all of Hyderabad, India, assignors to Council of Scientific & Industrial Research, New Delhi, India

Filed Mar. 11, 1996, Ser. No. 613,979
Int. Cl.[6] C07D *319/08;321/10*
U.S. Cl. 549—333 2 Claims

1. The compound:



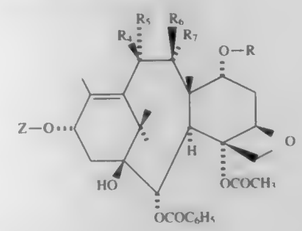
5,728,849

TAXOIDS THEIR PREPARATION AND PHARMACEUTICAL COMPOSITIONS CONTAINING THEM

Hervé Bouchard, Thiais, and Alain Commerçon, Vitry-sur-Seine, both of France, assignors to Rhone-Poulenc Rorer S.A., Antony, France

Filed Dec. 20, 1996, Ser. No. 771,751
Claims priority, application France, Dec. 22, 1995, 95 15379
Int. Cl.[6] C07D *305/14;307/93;* A61K *31/34;311/335*
U.S. Cl. 549—456 16 Claims

1. A taxoid of the formula (I):

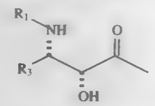


(I)

wherein:

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Z represents a hydrogen atom or a radical of the formula (II):



(II)

in which:

R_1 represents a benzoyl radical unsubstituted or substituted with at least one substituent selected from the group consisting of a halogen atom, an alkyl radical comprising 1 to 4 carbon atoms, an alkoxy radical comprising 1 to 4 carbon atoms, and a trifluoromethyl radical, a thenoyl radical, a furoyl radical, a radical R_2—O—CO— in which R_2 represents an alkyl radical comprising 1 to 8 carbon atoms, an alkenyl radical comprising 2 to 8 carbon atoms, an alkynyl radical comprising 3 to 8 carbon atoms, a cycloalkyl radical comprising 3 to 6 carbon atoms, a cycloalkenyl radical comprising 4 to 6carbon atoms, or a bicycloalkyl radical comprising 7 to 10 carbon atoms, these radicals being unsubstituted or substituted with at least one substituent selected from the group consisting of a halogen atom, a hydroxyl radical, an alkoxy radical comprising 1 to 4 carbon atoms, a dialkylamino radical in which each alkyl portion comprises 1 to 4 carbon atoms, a piperidino radical, a morpholino radical, a 1-piperazinyl radical (unsubstituted or substituted at position 4 with an alkyl radical comprising 1 to 4 carbon atoms or with a phenylalkyl radical in which the alkyl portion comprises 1 to 4 carbon atoms), a cycloalkyl radical comprising 3 to 6 carbon atoms, a cycloalkenyl radical comprising 4 to 6 carbon atoms, a phenyl radical (unsubstituted or substituted with at least one substituent selected from a halogen atom, an alkyl radical comprising 1 to 4 carbon atoms, and an alkoxy radical comprising 1 to 4 carbon atoms), a cyano radical, a carboxyl radical, and an alkoxycarbonyl radical in which the alkyl portion comprises 1 to 4 carbon atoms, a phenyl or α- or β-naphthyl radical unsubstituted or substituted with at least one substituent selected from the group consisting of a halogen atom, an alkyl radical comprising 1 to 4 carbon atoms, and an alkoxy radical comprising 1 to 4 carbon atoms, a 5-membered aromatic heterocyclic radical, or a saturated heterocyclic radical comprising 4 to 6 carbon atoms unsubstituted or substituted with at least one alkyl radical comprising 1 to 4 carbon atoms;

R_3 represents an unbranched or branched alkyl radical comprising 1 to 8 carbon atoms, an unbranched or branched alkenyl radical comprising 2 to 8 carbon atoms, an unbranched or branched alkynyl radical comprising 2 to 8 carbon atoms, a cycloalkyl radical comprising 3 to 6 carbon atoms, a cycloalkenyl radical comprising 4 to 6 carbon atoms, a phenyl or α- or β-naphthyl radical unsubstituted or substituted with at least one substituent selected from the group consisting of a halogen atom and alkyl, alkenyl, alkynyl, aryl, aralkyl, alkoxy, alkylthio, aryloxy, arylthio, hydroxyl, hydroxyalkyl, mercapto, formyl, acyl, acylamino, aroylamino, alkoxycarbonylamino, amino, alkylamino, dialkylamino, carboxyl, alkoxycarbonyl, carbamoyl, alkylcarbamoyl, dialkylcarbamoyl, cyano, nitro, and trifluoromethyl radicals, or a 5-membered aromatic heterocycle comprising at least one identical or different hetero atom selected from the group consisting of nitrogen, oxygen and sulphur atoms, and unsubstituted or substituted with at least one identical or different substituent selected from the group consisting of a halogen atom and alkyl, aryl, amino, alkylamino, dialkylamino, alkoxycarbonylamino, acyl, arylcarbonyl, cyano, carboxyl, carbamoyl, alkylcarbamoyl, dialkylcarbamoyl, and alkoxycarbonyl radicals, wherein for the substituents of the phenyl, α- or β-naphthyl, and aromatic heterocyclic radicals, the alkyl radicals and the alkyl portions of the other radicals comprise 1 to 4 carbon atoms, the alkenyl and alkynyl radicals comprise 2 to 8 carbon atoms, and the aryl radicals are phenyl or α- or β-naphthyl radicals; and

either R_4 represents a hydrogen atom;

R_6 and R_7 together form a ketone function; and

R and R_5 together form a bond; or

R_4 represents a hydrogen atom, a hydroxyl radical, an alkoxy radical comprising 1 to 6 carbon atoms in an unbranched or branched chain, an alkenyloxy radical comprising 3 to 6 carbon atoms in an unbranched or branched chain, an alkynyloxy radical comprising 3 to 6 carbon atoms in an unbranched or branched chain, a cycloalkyloxy radical comprising 3 to 6 carbon atoms, a cycloalkenyloxy radical comprising 3 to 6 carbon atoms, an alkanoyloxy radical in which the alkanoyl portion comprises 1 to 6 carbon atoms in an unbranched or branched chain, an aroyloxy radical in which the aryl portion comprises 6 to 10 carbon atoms, an alkenoyloxy radical in which the alkenoyl portion comprises 3 to 6 carbon atoms in an unbranched or branched chain, an alkynoyloxy radical in which the alkynoyl portion comprises 3 to 6 carbon atoms in an unbranched or branched chain, a cycloalkanoyloxy radical comprising 3 to 6 carbon atoms, an alkoxyacetyl radical in which the alkyl portion comprises 1 to 6 carbon atoms in an unbranched or branched chain, an alkylthioacetyl radical in which the alkyl portion comprises 1 to 6 carbon atoms in an unbranched or branched chain, an alkyloxycarbonyloxy radical in which the alkyl portion comprises 1 to 6 carbon atoms in an unbranched or branched chain, wherein these radicals are unsubstituted or substituted with at least one halogen atom, an alkoxy radical comprising 1 to 4 carbon atoms, an alkylthio radical comprising 1 to 4 carbon atoms, or a carboxyl radical, an alkyloxycarbonyl radical in which the alkyl portion comprises 1 to 4 carbon atoms, a cyano radical, a carbamoyl radical, an N-alkylcarbamoyl or N,N-dialkylcarbamoyl radical in which each alkyl portion comprises 1 to 4 carbon atoms or, with the nitrogen atom to which it is linked, forms a saturated 5- or 6-membered heterocyclic radical which can comprise a second hetero atom selected from the group consisting of oxygen, sulphur, and nitrogen atoms, and unsubstituted or substituted with an alkyl radical comprising 1 to 4 carbon atoms, a phenyl radical, or a phenylalkyl radical in which the alkyl portion comprises 1 to 4 carbon atoms, or alternatively R_4 represents a carbamoyloxy or alkylcarbamoyloxy radical in which the alkyl portion comprises 1 to 4 carbon atoms, a dialkylcarbamoyloxy radical in which each alkyl portion comprises 1 to 4 carbon atoms, a benzoyloxy radical, or a heterocyclylcarbonyloxy radical in which the heterocyclic portion comprises a 5- or 6-membered aromatic heterocycle comprising at least one hetero atom selected from the group consisting of oxygen, sulphur and nitrogen atoms;

R_5 represents a hydrogen atom; or

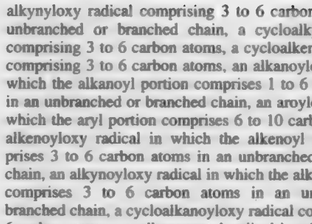
R_4 and R_5 together form a ketone function;

R_5 represents a hydrogen atom; and

R and R_7 together form a bond.

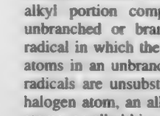
4. A process for preparing a taxoid according claim **1** in which Z is defined as in claim **1**, and either R_4 represents a hydrogen atom, R_6 and R_7 together form a ketone function, and R and R_5 together form a bond, or R_4 represents a hydroxyl radical, R_5 represents a hydrogen atom, R_6 represents a hydrogen atom, and R and R_7 together form a bond;

the process comprising reacting a reducing agent with a compound of formula (III)



(III)

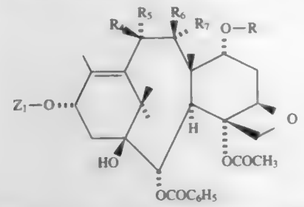
in which Z_1 represents a hydrogen atom, a group protecting the hydroxyl function, or a radical of the formula (IV):



(IV)

in which R_1 and R_3 are defined as in claim **1** and R_8 represents a group protecting the hydroxyl function; and

X represents, with the oxygen atom to which it is linked, a leaving group selected from alkylsulphonyl radicals comprising 1 to 4 carbon atoms unsubstituted or substituted with at least one halogen atom and arylsulphonyl radicals in which the aryl portion is a phenyl radical unsubstituted or substituted with at least one identical or different substituent selected from the group consisting of a halogen atom, an alkyl radical comprising 1 to 4 carbon atoms, a nitro radical, or a trifluoromethyl radical; to obtain a compound of the formula (V):



(V)

wherein Z_1, R, R_4, R_5, R_6 and R_7 are defined as above;

in the form of a mixture of a taxoid of formula (I) wherein R_4 represents a hydrogen atom, R_6 and R_7 together form a ketone function, and R and R_5 together form a bond and a taxoid of formula (I) wherein R_4 represents a hydroxyl radical, R_5 represents a hydrogen atom, R_6 represents a hydrogen atom, and R and R_7 together form a bond, followed by separating the mixture, and optionally replacing the protecting group represented by Z_1 or R_8 with a hydrogen atom.

5,728,850

TAXANES HAVING A BUTENYL SUBSTITUTED SIDE-CHAIN AND PHARMACEUTICAL COMPOSITIONS CONTAINING THEM

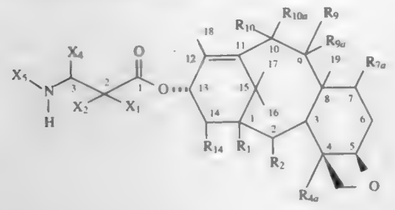
Robert A. Holton, Tallahassee, Fla.; Ki-byung Chai, Seoul, Rep. of Korea, and Hossain Nadizadeh, Tallahassee, Fla., assignors to Florida State University, Tallahassee, Fla.

Continuation of Ser. No. 94,719, Jul. 20, 1993, abandoned, which is a continuation-in-part of Ser. No. 34,247, Mar. 22, 1993, Pat. No. 5,430,160, and Ser. No. 975,705, Nov. 13, 1992, Pat. No. 5,284,864, said Ser. No. 34,247 and Ser. No. 975,705, each is a continuation-in-part of Ser. No. 949,107, Sep. 22, 1992, abandoned, which is a continuation-in-part of Ser. No. 863,849, Apr. 6, 1992, abandoned, which is a continuation-in-part of Ser. No. 862,955, Apr. 3, 1992, abandoned, which is a continuation-in-part of Ser. No. 763,805, Sep. 23, 1991, abandoned. This application Jun. 5, 1995, Ser. No. 463,704

Int. Cl.[6] C07D *305/14*; **A61K** *31/335*

U.S. Cl. 549—510 **29 Claims**

1. A taxane having the formula



wherein

X_1 is —OX_6, —SX_7, or —NX_8X_9;

X_2 is hydrogen; substituted, unsubstituted, straight, branch chained or cyclic alkyl; substituted, unsubstituted, straight or branch chained alkenyl; or alkynyl; or substituted or unsubstituted aryl or heteroaryl;

X_4 is substituted or unsubstituted butenyl;

X_5 is —COX_{10}, —$COOX_{10}$, —$COSX_{10}$, —$CONX_8X_{10}$, or —SO_2X_{11};

X_6 is hydrogen; substituted, unsubstituted, straight, branch chained or cyclic alkyl; substituted, unsubstituted, straight or branch chained alkenyl or alkynyl; substituted or unsubstituted aryl or heteroaryl; or hydroxy protecting group;

X_7 is substituted, unsubstituted, straight, branch chained or cyclic alkyl; substituted, unsubstituted, straight or branch chained alkenyl or alkynyl; substituted or unsubstituted aryl or heteroaryl; or sulfhydryl protecting group;

X_8 is hydrogen; substituted, unsubstituted, straight, branch chained or cyclic alkyl; substituted, unsubstituted, straight or branch chained alkenyl or alkynyl; substituted or unsubstituted aryl or heteroaryl; or heterosubstituted alkyl, alkenyl, alkynyl, aryl or heteroaryl;

X_9 is an amino protecting group;

X_{10} is substituted, unsubstituted, straight, branch chained or cyclic alkyl; substituted, unsubstituted, straight or branch chained alkenyl or alkynyl; substituted or unsubstituted heteroaryl; substituted aryl; or heterosubstituted alkyl, alkenyl, alkynyl, aryl or heteroaryl;

X_{11} is substituted, unsubstituted, straight, branch chained or cyclic alkyl; substituted, unsubstituted, straight or branch chained alkenyl or alkynyl; substituted or unsubstituted aryl or heteroaryl; —OX_{10}; or —NX_8X_{14};

X_{14} is hydrogen; substituted, unsubstituted, straight, branch chained or cyclic alkyl; substituted, unsubstituted, straight or branch chained alkenyl or alkynyl; or substituted or unsubstituted aryl or heteroaryl;

R_1 is hydroxy, protected hydroxy or together with R_{14} forms a carbonate;

R_2 is hydroxy or —$OCOR_{31}$;

R_{4a} is substituted, unsubstituted, straight, branch chained or cyclic alkyl; substituted, unsubstituted, straight or branch chained alkenyl or alkynyl; substituted or unsubstituted aryl or heteroaryl; cyano; hydroxy; or —$OCOR_{30}$;

R_{7a} is hydrogen, halogen, protected hydroxy, or —OR_{28};

R_9 is hydrogen or together with R_{9a} forms an oxo;

R_{9a} is hydrogen, hydroxy, protected hydroxy, acyloxy, or together with R_9 forms an oxo;

R_{10} is hydrogen or together with R_{10a} forms an oxo;

R_{10a} is hydrogen, —$OCOR_{29}$, hydroxy, or protected hydroxy, or together with R_{10} forms an oxo;

R_{14} is hydrogen, hydroxy, protected hydroxy or together with R_1 forms a carbonate;

R_{28} is hydrogen, acyl, or hydroxy protecting group or a functional group which increases the solubility of the taxane derivative; and

R_{29}, R_{30}, and R_{31} are independently hydrogen; substituted, unsubstituted, straight, branch chained or cyclic alkyl; substituted, unsubstituted, straight or branch chained alkenyl or alkynyl; or substituted or unsubstituted monocyclic aryl or monocyclic heteroaryl.

5,728,851

PROCESS FOR REMOVING OIL FROM DAIRY FOOD PRODUCTS

Henry L. Franke, Baton Rouge, La., assignor to University Research & Marketing, Baton Rouge, La.

Continuation-in-part of Ser. No. 815,700, Dec. 31, 1991, Pat. No. 5,281,732. This application Apr. 21, 1995, Ser. No. 425,893

Int. Cl.[6] C07C *1/00*

U.S. Cl. 554—16 **5 Claims**

1. A process for removing fat from cheese, which process comprises:

(a) introducing cheese into an extraction zone;

(b) introducing a normally gaseous solvent into said extraction zone;

(c) extracting oil from said cheese by maintaining the solvent in contact with the food product for an effective amount of time to extract a predetermined amount of fat;

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(d) collecting the resulting oil-laden solvent; and
(e) collecting said cheese having substantially less fats and oils.

5,728,852
METHOD FOR PRODUCING MONOHYDROXYALKYLAMIDES

Kenichi Nishikawa; Kazuhito Miyoshi; Yukiko Oshima, and Hiroyuki Imoto, all of Wakayama, Japan, assignors to KAO Corporation, Tokyo, Japan

Filed Aug. 8, 1996, Ser. No. 694,022
Claims priority, application Japan, Aug. 9, 1995, 7-225911; Dec. 28, 1995, 7-354491
Int. Cl.[6] C07C *231/02*
U.S. Cl. 554—66 **19 Claims**

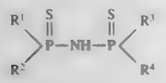
1. A method for producing a monoalkanol amide comprising the steps of:
(a) reacting a fatty acid with a first amount of a monoalkanol amine to yield a mixture comprising a monoalkanol amide and an amido monoester, said first amount of said monoalkanol amine being a molar amount of from 0.7 to 0.95 times a molar amount of said fatty acid; and
(b) reacting said mixture obtained in (a) with a second amount of said monoalkanol amine; wherein,
said first amount of monoalkanol amine is between 70–90% by weight of said first amount and said second amount of monoalkanol amine combined; and
wherein a molar ratio of said first amount and said second amount of monoalkanol amine combined to said fatty acid is 1.0 to 1.3.

5,728,853
CHEMICAL PROCESS

John Campbell, Rochdale; Raymond Frederick Dalton, Cheadle Hulme, and Peter Michael Quan, Rochdale, all of United Kingdom, assignors to Zeneca Limited, London, England

Continuation of Ser. No. 419,534, Apr. 10, 1995, Pat. No. 5,557,003, which is a division of Ser. No. 160,867, Dec. 3, 1993, Pat. No. 5,433,855, and a continuation-in-part of Ser. No. 70,951, Jun. 4, 1993, Pat. No. 5,393,431. This application Jul. 11, 1996, Ser. No. 678,712
Claims priority, application United Kingdom, Jun. 5, 1992, 9211906; Feb. 5, 1993, 9302332
Int. Cl.[6] C07F *9/36;9/44;9/6574;9/6578*
U.S. Cl. 556—17 **16 Claims**

1. An amido(bisthiophosphoryl) compound having the general chemical formula:

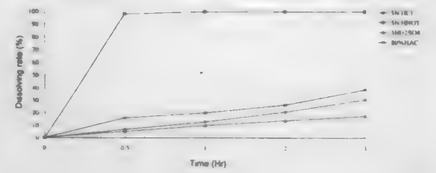


wherein R^1, R^2, R^3 and R^4 each independently is a substituted or unsubstituted hydrocarbyl or a substituted or unsubstituted hydrocarbyloxy group, and are selected such that:
(a) each of R^1, R^2, R^3 and R^4 independently represents an alkyl or alkoxy group, such that the total number of aliphatic carbon atoms in R^1, R^2, R^3 and R^4 is 16 or more, at least one of R^1, R^2, R^3 and R^4 being an alkyl group which is branched at the point of junction with phosphorus; or
(b) at least one of R^1, R^2, R^3 and R^4 is selected from the group consisting of
i) halo or alkoxy substituted aryl or halo or alkoxy substituted aryloxy;
ii) tertiary alkyl substituted aryl or tertiary alkyl substituted aryloxy; and
iii) alkyl substituted aryl or aryloxy wherein the total number of alkyl carbon atoms is >6; or
(c) at least one of R^1, R^2, R^3 and R^4 is an aryl or aryloxy group, at least one of R^1, R^2, R^3 and R^4 being an alkoxy group, the total number of alkoxy carbon atoms being at least 10; or
(d) R^1 and R^2 together with the phosphorus atom and/or R^3 and R^4 together with the phosphorus atom form a 5–8 membered heterocyclic group.

5,728,854
METHOD FOR SEPARATING IRON FROM NICKEL AND/OR CADMIUM FROM A WASTE CONTAINING THE SAME

Ching-Chyi Chen, and Fong-Ru Yang, both of Hsinchu, Taiwan, assignors to Industrial Technology Research Institute, Hsinchu, Taiwan

Filed Aug. 6, 1996, Ser. No. 693,348
Int. Cl.[6] C07F *15/02;15/04*
U.S. Cl. 556—149 **20 Claims**



17. A method for separating iron oxide from a mixture containing iron oxide and nickel oxide and/or cadmium oxide, said method comprising the steps of:
(A) mixing said mixture with an acetic acid aqueous solution containing said acetic acid in a quantity sufficient to convert substantially all metallic oxides contained in said mixture into metallic acetates;
(B) removing said acetic acid and water from the resulting mixture of said step (a) by evaporation or distillation so as to produce a residue containing said metallic acetates;
(C) dissolving said residue with water to form an aqueous solution containing water soluble metallic acetates of said metallic acetates including Fe^{+} acetate, Fe^{++} acetate and nickel acetate and/or cadmium acetate;
(D) adding an oxidant to said aqueous solution of step (C) when or after said residue was dissolved with said water so as to convert said Fe^{+} acetate and Fe^{++} acetate into a water insoluble basic ferric acetate, $Fe(CH_3COO)_2OH$; and
(E) recovering said basic ferric acetate from the resulting mixture of step (D) by a solid-liquid separation means.

5,728,855
MODIFIED POLYALKYLALUMINOXANE COMPOSITION FORMED USING REAGENT CONTAINING CARBON-OXYGEN DOUBLE BOND

Gregory M. Smith, Danbury, Conn., and Dennis B. Malpass, La Porte, Tex., assignors to Akzo Nobel NV, Arnhem, Netherlands

Continuation-in-part of Ser. No. 545,078, Oct. 19, 1995, abandoned. This application May 22, 1996, Ser. No. 651,290
Int. Cl.[6] C07F *5/06;* **B01J** *31/00*
U.S. Cl. 556—179 **27 Claims**

1. A process for forming a composition comprising oligomeric alkylaluminoxane and moieties having the structure $—OC(R)_3$, where R is either the same or different and is hydrocarbyl, which comprises initially treating a composition comprising trialkylaluminum with a reagent containing a carbon-oxygen double bond at greater than 10 mole %, followed by hydrolysis of the resulting composition.

13. A composition comprising oligomeric methylaluminoxane and greater than 10 mole % of moieties of the structure $—OC(R)_3$, where R is hydrocarbyl, which, when such composition is hydrolyzed, produces hydrolysis products comprising methane and at least one C_2 or higher alkane.

15. A process for forming a composition comprising oligomeric alkylaluminoxane and moieties having the structure $—OC(R)_3$, where R is alkyl, which comprises initially treating a composition comprising trialkylaluminum with carbon dioxide, followed by hydrolysis of the resulting composition.

5,728,856
SILYLENE, A PROCESS FOR ITS PRODUCTION AND ITS USE

Michael Denk, Lautererstrasse 14, D-81545 München, Germany

PCT No. PCT/EP94/01578, § 371 Date Jan. 18, 1996, § 102(e) Date Jan. 18, 1996, PCT Pub. No. WO94/26752, PCT Pub. Date Nov. 24, 1994
PCT Filed May 16, 1994, Ser. No. 553,320
Claims priority, application Germany, May 19, 1993, 43 16 883.3
Int. Cl.[6] C07F *7/08;7/10*
U.S. Cl. 556—407 **35 Claims**

1. Silylenes of the general formula I

$$[(R^1R^2R^3E)R^7N]—Si—[NR^8(ER^4R^5R^6)] \quad (I)$$

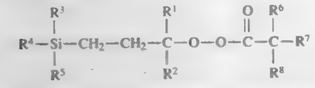
in which R^1,R^2,R^3,R^4,R^5,R^6,R^7 and R^8 are the same or different and each mean a hydrogen or halogen atom or an alkyl, aryl, alkoxy, aryloxy, amido or heteroaryl residue, and R^7 and R^8 can also represent the residue $—ER^1R^2R^3$ or $—ER^4R^5R^6$, and E means an element of the fourth main group of the periodic system of elements with the exception of lead, and R^7 and R^8 can jointly form with the mutually adjacent nitrogen atoms and the central silicon atom a heterocyclic ring with 4 ring atoms or an optionally unsaturated heterocyclic ring with at least 5 ring atoms.

5,728,857
SILICON-CONTAINING PEROXYESTERS

Takashi Kobayashi; Tadashi Amano, both of Kamisu-machi; Hideshi Kurihara, Yokohama; Tomohisa Suzuki, Urawa; Toshio Shinohara, Takasaki, and Tohru Nishikawa, Taketoyo-machi, all of Japan, assignors to Shin-Etsu Chemical Co., Ltd., Tokyo, Japan

Filed Mar. 7, 1997, Ser. No. 813,588
Claims priority, application Japan, Mar. 26, 1996, 8-096084
Int. Cl.[6] C07F *7/08*
U.S. Cl. 556—437 **2 Claims**

1. A silicon-containing peroxyester compound represented by the general formula (1):



(1)

wherein R^1 and R^2 are the same or different and are a straight-chain alkyl group having 1 to 6 carbon atoms or a branched chain alkyl group having 3 to 6 carbon atoms; R^3, R^4 and R^5 are the same or different and are a straight-chain alkyl group having 1 to 6 carbon atoms, a branched chain alkyl group having 3 to 6 carbon atoms or an aryl group having 6 to 9 carbon atoms; and R^6, R^7 and R^8 are the same or different and are a straight-chain alkyl group having 1 to 9 carbon atoms, provided that the total number of the carbon atoms of R^6, R^7 and R^8 is 11 or less.

5,728,858
ACTIVATION OF COPPER-SILICON SLURRIES FOR THE DIRECT SYNTHESIS OF TRIALKOXYSILANES

Kenrick M. Lewis, Rego Park, and Hua Yu, White Plains, both of N.Y., assignors to OSi Specialties, Inc., Greenwich, Conn.

Filed Oct. 10, 1996, Ser. No. 728,228
Int. Cl.[6] C07F *7/18;7/04*
U.S. Cl. 556—470 **15 Claims**

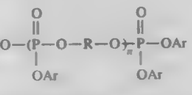
1. A process for producing trialkoxysilane of the formula $HSi(OR)_3$ wherein R is an alkyl group containing 1 to 6 carbon atoms inclusive, comprising
(a) slurrying silicon metal in a thermally stable solvent in the presence of a catalyst precursor which is halogen-free and which comprises copper at least part of which is not in the Cu° state and is reducible to the Cu° state.
(b) fully reducing said copper which is not in the Cu° state to the Cu° state, thereby generating a catalyst for the reaction of step (c), and
(c) reacting said silicon metal with an alcohol of the formula ROH in the presence of the catalyst generated in step (b) to form said trialkoxysilane.

5,728,859
PROCESS FOR MAKING MONOHYDROXY-TERMINATED PHOSPHATE COMPOSITIONS

Danielle A. Bright, New City, and Ronald L. Pirrelli, Mahopac, both of N.Y., assignors to Akzo Nobel N.V., Arnhem, Netherlands

Filed Oct. 31, 1996, Ser. No. 742,079
Int. Cl.[6] C07F *9/09*
U.S. Cl. 558—99 **8 Claims**

1. A process for forming a monohydroxy-terminated aromatic phosphate of the formula



with Ar being unsubstituted or substituted aryl, or being a hydrocarbyl group, and n ranging from 0 to about 10 which comprises the reaction of a reagent composition comprising a diaryl halophosphate, optionally in the presence of monoaryl dihalophosphate, with an aromatic diol.

5,728,860

Patent Not Issued For This Number

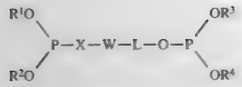
5,728,861
BISPHOSPHITE COMPOUND AND METHOD FOR PRODUCING ALDEHYDES

Keiichi Sato; Eitaro Takahashi; Yoshifumi Tanihara, and Yasuhiro Wada, all of Yokohama, Japan, assignors to Mitsubishi Chemical Corporation, Tokyo, Japan

Division of Ser. No. 588,390, Jan. 18, 1996, Pat. No. 5,663,403. This application Mar. 12, 1997, Ser. No. 820,434
Claims priority, application Japan, Jan. 24, 1995, 7-008924
Int. Cl.[6] C07C *45/34*
U.S. Cl. 568—454 **6 Claims**

1. A method for producing aldehydes, which comprises reacting an olefinic compound with carbon monoxide and hydrogen in the presence of a catalyst containing a Group VIII metal and a phosphite compound to obtain the corresponding aldehydes, wherein a bisphosphite compound of the following formula (I) is used as the phosphite compound:

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(I)

wherein W is a substituted or unsubstituted arylene group, L is a substituted or unsubstituted alkylene or alkenylene group, X is an oxygen atom, and each of R^1 to R^4 which are the same or different, is a substituted or unsubstituted alkyl, aryl, alkylaryl, arylalkyl or alicyclic group, or R^1 and R^2, and/or R^3 and R^4, bond to each other to form a ring.

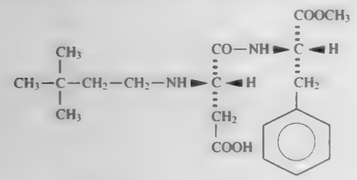
5,728,862

METHOD FOR PREPARING AND PURIFYING AN N-ALKYLATED ASPARTAME DERIVATIVE

Indra Prakash, Hoffman Estates, Ill., assignor to The NutraSweet Company, Deerfield, Ill.

Filed Jan. 29, 1997, Ser. No. 790,113
Int. Cl.[6] C07C *229/00*
U.S. Cl. 560—40 **21 Claims**

1. A method for purifying N-[N-(3,3-dimethylbutyl)-L-α-aspartyl]-L-phenylalanine 1-methyl ester of the formula



comprising the steps of:

(i) preparing an organic solvent solution of N-[N-(3,3-dimethylbutyl)-L-α-aspartyl]-L-phenylalanine 1-methyl ester and (ii) thereafter forming an aqueous/organic solvent solution from the organic solvent solution to precipitate the N-[N-(3,3-dimethylbutyl)-L-α-aspartyl]-L-phenylalanine 1-methyl ester from the aqueous/organic solvent solution, wherein said aqueous/organic solvent solution has an amount of organic solvent of about 17% to about 30% by weight of the aqueous/organic solvent solution, and wherein said organic solvent is methanol, tetrahydrofuran, or ethyl acetate.

5,728,863

PROCESS FOR PRODUCING α-L-ASPARTYL-L-PHENYLALANINE METHYL ESTER

Takehiko Kataoka; Shinichi Kishimoto, and Osahiro Sato, all of Kawasaki, Japan, assignors to Ajinomoto Company, Inc., Tokyo, Japan

Continuation of Ser. No. 339,190, Nov. 10, 1994, abandoned. This application Feb. 15, 1996, Ser. No. 601,673
Claims priority, application Japan, Nov. 19, 1993, 5-290452
Int. Cl.[6] C07K *5/075*
U.S. Cl. 560—41 **7 Claims**

1. A low-heat-load process for drying α-L-aspartyl-L-phenylalanine methyl ester by solid liquid separation comprising:

separating water from an aqueous suspension of α-L-aspartyl-L-phenylalanine methyl ester by filtering said aqueous suspension under compression which reaches a final pressure of not less than 20 kg/cm^2;

and drying the wet crystals after compression.

2. A process according to claim 1, wherein the final pressure for compression is not less than 50 kg/cm^2.

5,728,864

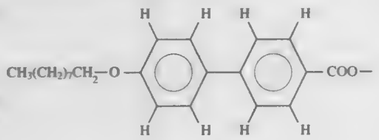
LIQUID CRYSTAL COMPOUND HAVING FERRIELECTRIC PHASE AND LIQUID CRYSTAL COMPOSITION

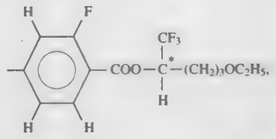
Yuki Motoyama; Tomoyuki Yui; Masahiro Johno; Maki Ito; Takahiro Matsumoto, and Hiroshi Mineta, all of Tsukuba, Japan, assignors to Mitsubishi Gas Chemical Company, Inc., Tokyo, Japan

Filed Apr. 12, 1996, Ser. No. 631,092
Claims priority, application Japan, Apr. 14, 1995, 7-089207; May 19, 1995, 7-121679; May 19, 1995, 7-121680
Int. Cl.[6] C07C *69/76;* **C09K** *19/34;19/30;19/12;19/20;19/22*
U.S. Cl. 560—59 **28 Claims**

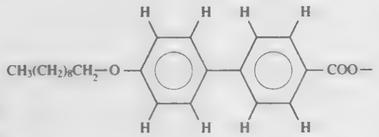
1. A liquid crystal compound having a ferrielectric phase selected from the group consisting of

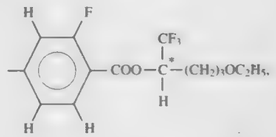
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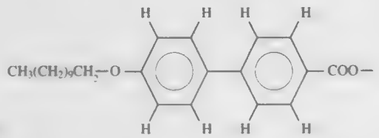


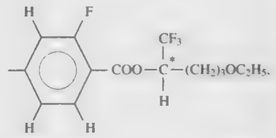
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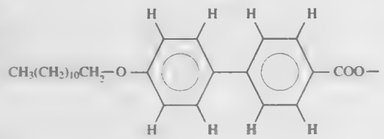


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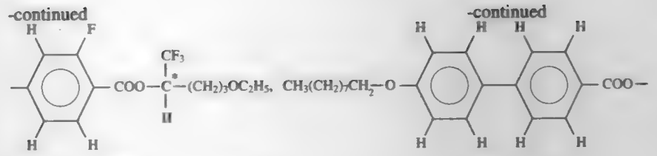


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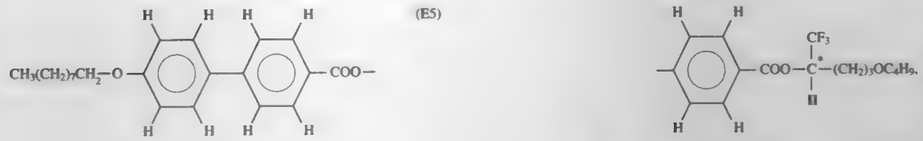


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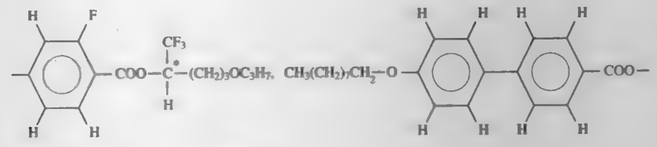
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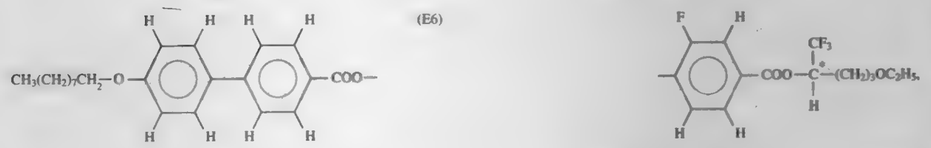
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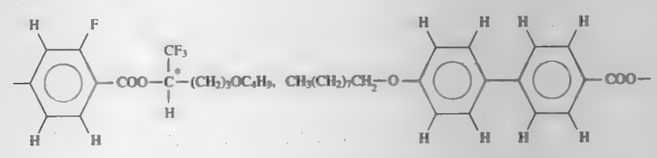
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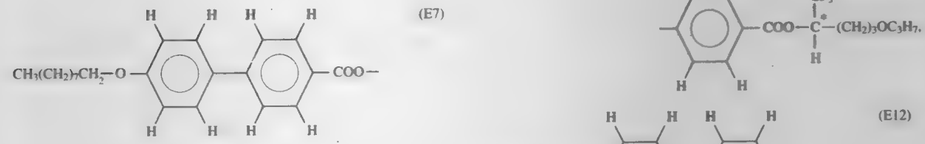
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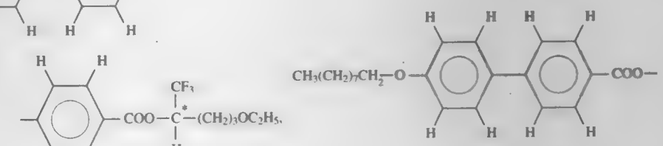
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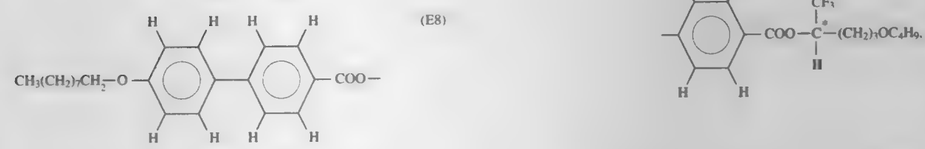
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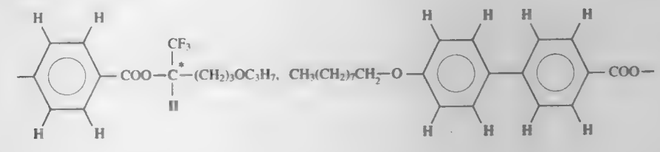
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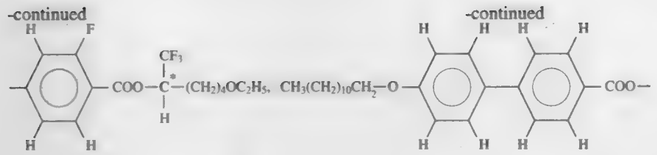


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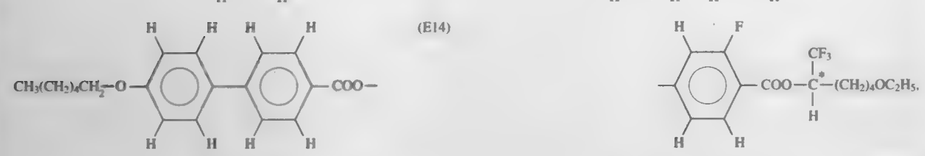


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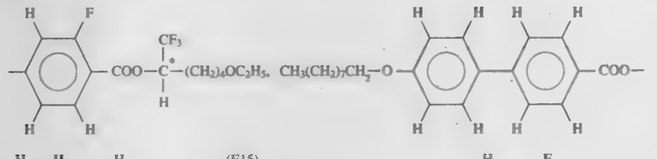
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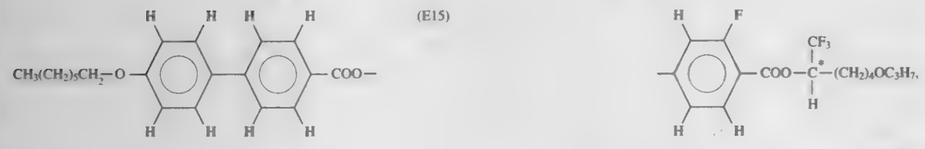
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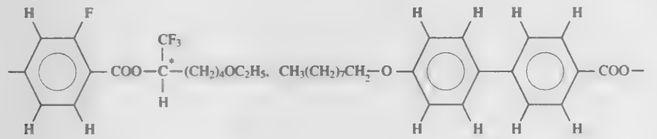
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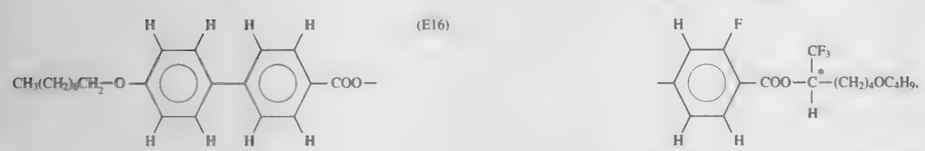
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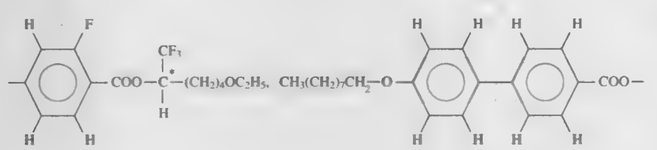
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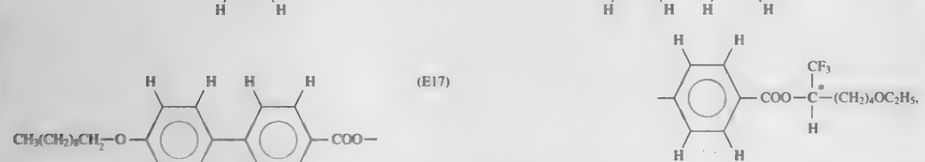
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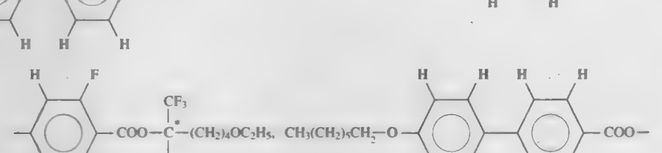
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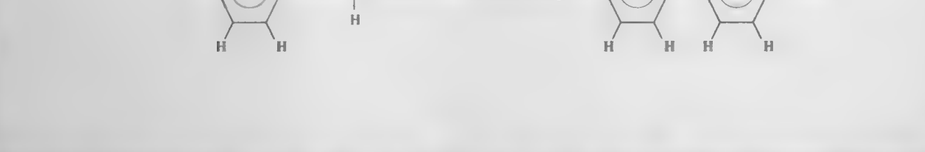
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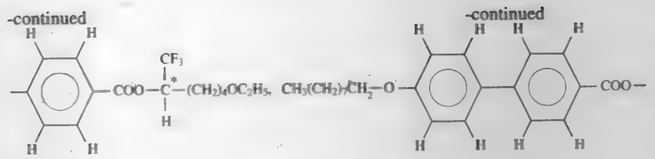
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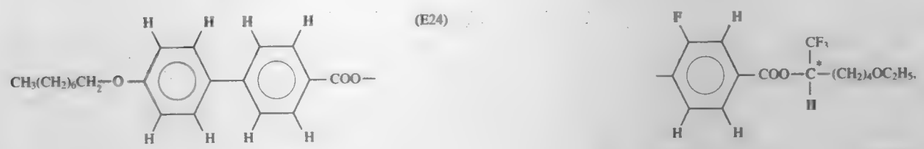
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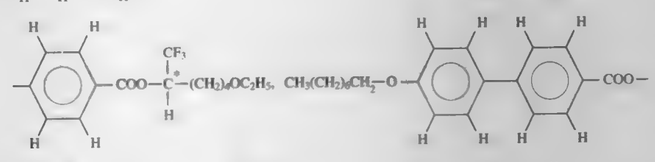
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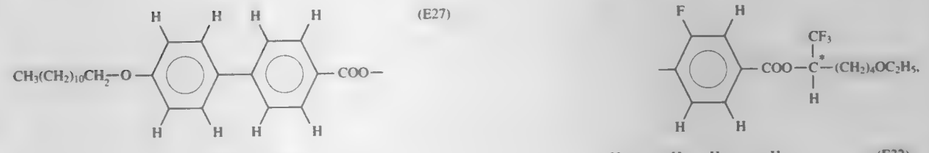
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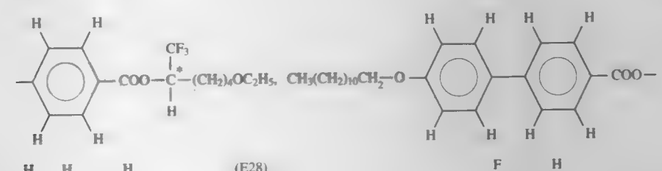
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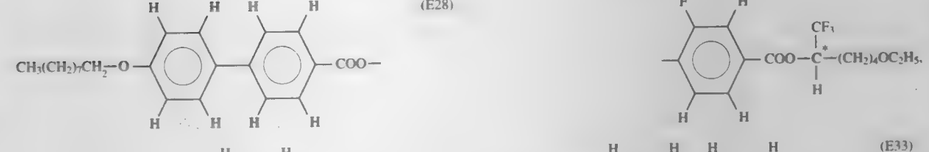
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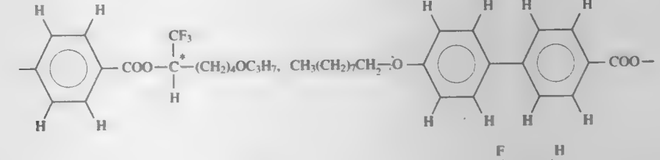
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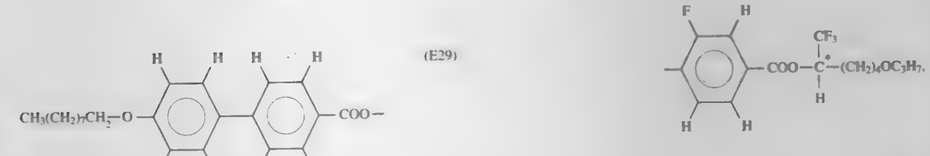
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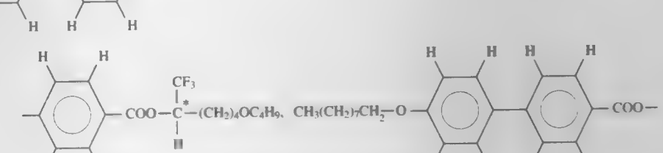
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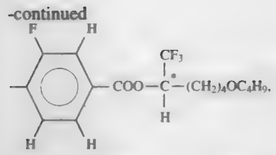


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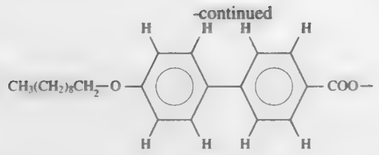


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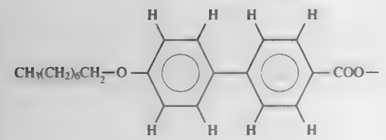
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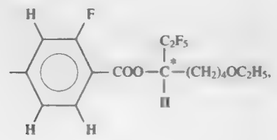
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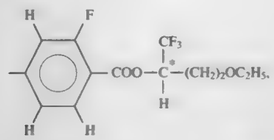


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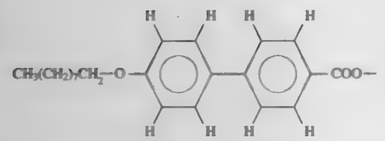


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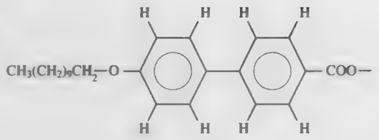




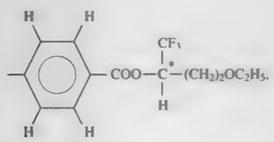
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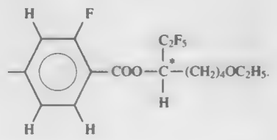


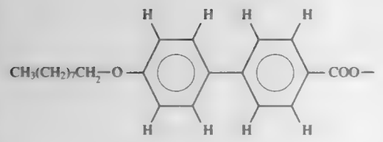
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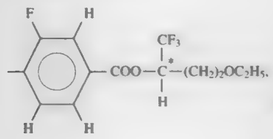
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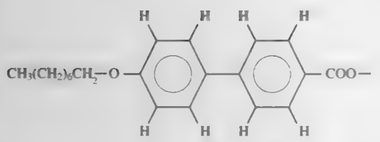




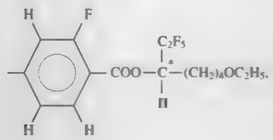


(E37)





(E38)



5. A ferrielectric liquid crystal composition which contains a liquid crystal compound having a ferrielectric phase as recited in claim 1, has at least a ferrielectric phase in a temperature range of from 0° to 40° C. and has at least a smectic A phase at a temperature higher than that of said ferrielectric phase.

5,728,865

PROCESS FOR THE PREPARATION OF OCTYL P-METHOXY CINNAMATE

Ariel Ewenson, Omer; Bertha Croitoru, and Asher Shushan, both of Beer-Sheva, all of Israel, assignors to Bromine Compounds Ltd., Beer-Sheva, Israel

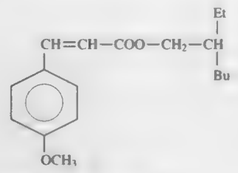
Filed Aug. 20, 1996, Ser. No. 700,106

Claims priority, application Israel, Aug. 24, 1995, 115060; Jul. 8, 1996, 118817

Int. Cl.[6] C07C *69/76*

U.S. Cl. 560—104 **50 Claims**

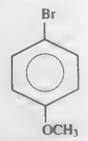
1. A process for the preparation of octyl p-methoxy cinnamate of formula I,



(I)

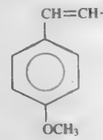
which comprises the following steps:

a) reacting p-bromo anisole of formula II,



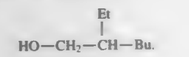
(II)

with acrylic acid or salts thereof in water as a solvent, the molar concentration of each of said reactants is higher than 0.1M, in the presence of a base and a palladium-based catalytic system, the molar ratio of the palladium catalyst of said catalytic system and the p-bromo anisole being in the range of 1:200 to 1:90000, under elevated temperature and autogenous pressure, to obtain p-methoxy cinnamic acid of formula III.



(III)

b) esterifying the p-methoxy cinnamic acid of formula III with a 2-ethyl hexanol of formula IV:



(IV)

5,728,866

PROCESS FOR THE PREPARATION OF (+)-(1R) -CIS-3-OXO-2-PENTYL-1-CYCLOPENTANEACETIC ACID

Valentin Rautenstrauch, Bernex, and Jean-Jacques Riedhauser, Certoux, both of Switzerland, assignors to Firmenich SA, Geneva, Switzerland

PCT No. PCT/IB95/00505, § 371 Date Feb. 7, 1996, § 102(e) Date Feb. 7, 1996, PCT Pub. No. WO96/00206, PCT Pub. Date Jan. 4, 1996

PCT Filed Jun. 21, 1995, Ser. No. 591,509

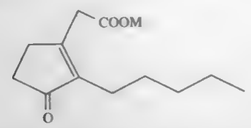
Claims priority, application Switzerland, Jun. 23, 1994, 2006/94

Int. Cl.[6] C07C *69/74;61/06*

U.S. Cl. 560—122 **18 Claims**

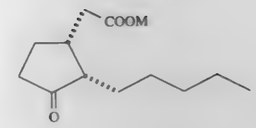
1. Process for the preparation of 3-oxo-2-pentyl-1-cyclopentaneacetic acid, or of methyl 3-oxo-2-pentyl-1-cyclopentaneacetate, essentially in the form of their (+)-(1R)-cis configuration isomer, characterized in that it comprises the following steps:

a) the catalytic hydrogenation, in an appropriate solvent and in the presence of a catalyst composed of a Ru (II) complex comprising chiral ligands which contain a 2,2'-bis(diphenylphosphino)-1,1'-binaphthyl (BINAP) type ligand or a 1,2-bis(2,5-dialkylphospholano)benzenyl (DuPHOS) type ligand, wherein the alkyl is a C_2 or C_3 radical, of a compound of formula



(I)

wherein M represents a hydrogen atom, an atom of an alkaline or alkaline-earth metal, or a NR_4 group, R representing hydrogen or a lower alkyl radical, to obtain a compound of formula



(II)

wherein M has the meaning indicated above, essentially in the form of an isomer of (+)-(1R)-cis configuration;

b) if necessary, the acidification, in a generally known manner, of the compound of formula (II) wherein M represents an atom of an alkaline or alkaline-earth metal or a NR_4 group, R representing hydrogen or a lower alkyl radical, to obtain (+)-(1R)-cis-3-oxo-2-pentyl-1-cyclopentaneacetic acid; and

c) if necessary, the esterification, under appropriate conditions, of the (+)-(1R)-cis-3-oxo-2-pentyl-1-cyclopentaneacetic acid thus obtained to form methyl (+)-(1R)-cis-3-oxo-2-pentyl-1-cyclopentaneacetate.

5,728,867

CARBONYLOXY-SUBSTITUTED AZULENESQUARIC ACID DYES, INTERMEDIATES THEREFOR AND OPTICAL RECORDING MEDIUM

Michael Schmitt, Weinheim; Wolfgang Schrott, Lugwigshafen; Peter Neumann, Mannheim; Sibylle Brosius; Klaus Dieter Schomann, both of Ludwigshafen, and Harald Kuppelmaier, Goennheim, all of Germany, assignors to BASF Aktiengesellschaft, Ludwigshafen, Germany

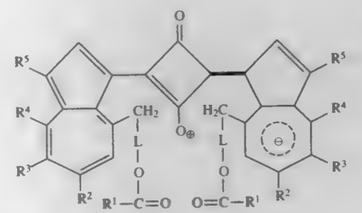
Filed Oct. 25, 1990, Ser. No. 603,025

Claims priority, application Germany, Oct. 25, 1989, 39 35 524.1

Int. Cl.[6] C07C *69/52*

U.S. Cl. 560—221 **4 Claims**

1. A carbonyloxy-substituted azulenesquaric acid dye of the formula I



(I)

where

L is C_1–C_{12}-alkylene which may be substituted by phenyl,

R is monounsaturated or polyunsaturated C_1–C_{12}-alkenyl, which may be phenyl-substituted, C_5–C_7-cycloalkenyl, pyrrolyl, furanyl, thienyl or pyridyl and

R^2, R^3, R^4 and R^5 are identical or different and each is independently of the others hydrogen or C_1–C_{12}-alkyl, which may be substituted by halogen, C_1–C_{12}-alkoxy, phenyl, substituted phenyl, C_1–C_{12}-alkoxycarbonyl or by cyano,

with the proviso that when R^5 is hydrogen the positions of the substituents CH_2—L—O—CO—R^1 and R^4 on either or both azulene rings may also be interchanged with each other within an azulene ring.

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5,728,868

PRODRUGS OF PROTEIN TYROSINE KINASE INHIBITORS

Caroline Joy Springer, Sutton, and Richard Marais, London, both of United Kingdom, assignors to Cancer Research Campaign Technology Limited, London, United Kingdom

PCT No. PCT/GB94/01532, § 371 Date Jul. 1, 1996, § 102(e) Date Jul. 1, 1996, PCT Pub. No. WO95/02420, PCT Pub. Date Jan. 26, 1995

PCT Filed Jul. 15, 1994, Ser. No. 591,494

Claims priority, application United Kingdom, Jul. 15, 1993, 9314702; Jul. 15, 1993, 9314703

Int. Cl.[6] C07C *275/00*

U.S. Cl. 562—439 **3 Claims**

1. A compound of the formula (VII):

$$HOH_2C—ph—NH—CO—NH—glu \qquad (VII)$$

where Ph is .an optionally substituted phenyl group and glu is the residue of glutamic acid of the formula:

$$—CH(CO_2H)(CH_2CH_2CO_2H)$$

or a di—C_{1-6} alkyl ester thereof, and wherein the optionally substituted phenylene group is substituted at the 4-position by the glu-containing moiety relative to the hydroxymethyl group.

5,728,869

PROCESSES FOR THE PREPARATION OF PESTICIDES AND INTERMEDIATES

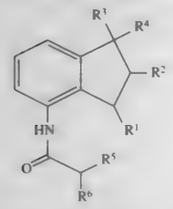
Paul Howard Briner, Chipping Norton, England, assignor to American Cyanamid Company, Madison, N.J.

Continuation of Ser. No. 322,044, Oct. 12, 1994, Pat. No. 5,521,317. This application Jun. 1, 1995, Ser. No. 457,203

Int. Cl.[6] C07C *229/56;233/01*

U.S. Cl. 562—452 **6 Claims**

1. A compound of the formula



wherein R^1 represents a C_{1-2} alkyl group; R^2 represents a hydrogen atom or a C_{1-2} alkyl group; R^3 and R^4 each independently represent a hydrogen atom or a C_{1-2} alkyl group; R^5 represents a C_{1-6} alkyl group; and R^6 represents a halogen atom or a C_{1-6} alkylcarboxy group.

5,728,870

PROCESS FOR PREPARING PURIFIED 2,6-NAPHTHALENEDICARBOXYLIC ACID

Juergen K. Holzhauer; Rusins Albertins, both of Naperville; Stephen V. Hoover, Aurora, and David L. Sikkenga, Wheaton, all of Ill., assignors to Amoco Corporation, Chicago, Ill.

Continuation of Ser. No. 206,517, Mar. 4, 1994, Pat. No. 5,563,294, which is a continuation of Ser. No. 65,486, May 19, 1993, abandoned, which is a continuation of Ser. No. 900,637, Jun. 18, 1992, abandoned, which is a continuation-in-part of Ser. No. 810,481, Dec. 19, 1991, abandoned. This application Oct. 7, 1996, Ser. No. 726,678

Int. Cl.[6] C07C *51/09*

U.S. Cl. 562—483 **16 Claims**

1. A process for preparing purified 2,6-naphthalenedicarboxylic acid comprising:

a) hydrolyzing a dialkyl-2,6-naphthalenedicarboxylate with water at a reaction temperature of at least about 450° F. under liquid phase conditions and for a time sufficient to convert a major portion of the dialkyl-2,6-naphthalenedicarboxylate to 2,6-naphthalenedicarboxylic acid thereby forming a reaction product mixture, the amount of water present being sufficient to solubilize, at the reaction temperature, at least about 10 weight percent of the 2,6-naphthalenedicarboxylic acid formed; and

b) recovering 2,6-naphthalenedicarboxylic acid from the reaction product mixture.

5,728,871

PROCESS FOR THE PREPARATION OF ACETIC ACID

Finn Joensen, Hørsholm; Bodil Voss, Virum, and Ib Dybkjær, Copenhagen, all of Denmark, assignors to Haldor Topsoe A/S, Lyngby, Denmark

Filed Apr. 4, 1997, Ser. No. 832,880

Claims priority, application Denmark, Apr. 10, 1996, 0407/96

Int. Cl.[6] C07C *51/12*

U.S. Cl. 562—519 **5 Claims**

1. A process for the preparation of acetic acid by catalytic conversion of a synthesis gas being rich in hydrogen and carbon monoxide, comprising steps of:

(i) introducing a stream of the synthesis gas into a first reaction step at a predetermined pressure and temperature and reacting the synthesis gas in the presence of a catalyst being active in formation of methanol and dehydration of methanol, so as to obtain a gaseous process phase containing methanol, dimethyl ether, and water;

(ii) cooling the gaseous process phase of step (i) and obtaining a liquid phase with the methanol, dimethyl ether and water and a gaseous phase comprising carbon dioxide and residual amounts of dimethyl ether;

(iii) introducing the liquid phase formed in step (ii) into a second reaction step at a predetermined pressure and temperature and adding a predetermined amount of carbon monoxide; and

(iv) carbonylating methanol and dimethyl ether in the liquid phase with carbon monoxide by contact with a catalyst being active in the carbonylation of alcohols and ethers with carbon monoxide; and

(v) recovering from effluent of step (iv) a product stream mainly consisting of the acetic acid product.

5,728,872

STABILIZED ACRYLIC ACID COMPOSITIONS

Lutz Riemenschneider, Am Schenkenfeld 29, 97209 Veitshochheim, Germany

Filed Jun. 27, 1994, Ser. No. 266,330

Int. Cl.[6] C07C *57/02*

U.S. Cl. 562—598 **12 Claims**

1. A monomer composition, stabilized against premature polymerization, said composition comprising a mixture of

(a) acrylic acid; and

(b) an effective amount, sufficient to inhibit premature polymerization of the acrylic acid, of a combination of

(i) a compound selected form the group consisting of a stable nitroxyl radical, its corresponding hydroxylamine and combinations thereof, and

(ii) a dihetero-substituted benzene compound having at least one transferable hydrogen.

5,728,873

PROCESS FOR THE PREPARATION OF CYCLOPROPANAMINE

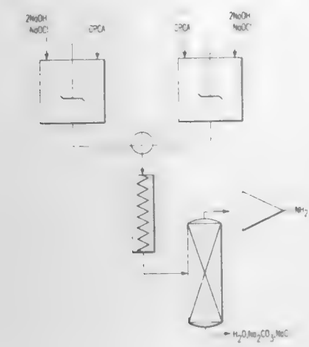
Wolfgang Kleemiss, Haltern, and Thomas Kalz, Herne, both of Germany, assignors to Huels Aktiengesellschaft, Marl, Germany

Filed Jun. 14, 1996, Ser. No. 663,989

Claims priority, application Germany, Jun. 30, 1995, 195 23 868.0

Int. Cl.[6] C07C *209/56*

U.S. Cl. 564—1 **17 Claims**



1. A process for the preparation of cyclopropanamine by Hofmann degradation of cyclopropanecarboxamide, comprising the following steps:

(1) suspending cyclopropanecarboxamide, either (A) in 1.1 to 4 mol of sodium hydroxide, in solution whose concentration is 10 to 50%, per mol of amide, or (B) in a sparing amount of water,

(2) adding 1 to 1.5 mol of hypochlorite, per mol of amide, from a 5 to 15% strength hypochlorite solution at a temperature of 0° to 20° C.,

(3) adding 1.1 to 4 mol of sodium hydroxide, in solution whose concentration is 10 to 50%, per mol of amide, in the case where a suspension has been formed according to step (1)(B),

(4) reacting the amide, hypochlorite, and sodium hydroxide for 10 to 60 minutes to form a homogeneous reaction mixture,

(5) continuously passing the homogeneous reaction mixture through a tubular reactor at a temperature of 45° to 260° C.,

(6) feeding the reaction output from the tubular reactor into a distillation column and keeping it under reflux with water, wherein cyclopropanamine is distilled off.

5,728,874

ANTI-HIV ACHIRAL POLYUREA OLIGOMERS, A PROCESS FOR CREATING THEM, FORMULATIONS USING THEM, AND THEIR USE IN THE TREATMENT OF AIDS

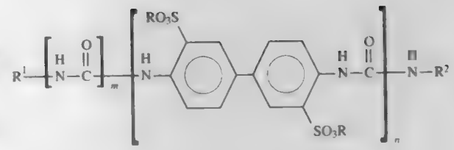
Michael J. Mullins; Ray E. Drumright, both of Midland, Mich.; Alan D. Cardin, and Norton P. Peet, both of Cincinnati, Ohio, assignors to Merrell Pharmaceuticals, Inc., Cincinnati, Ohio, and The Dow Chemical Co., Midland, Mich.

Continuation-in-part of Ser. No. 710,370, Jun. 10, 1991, Pat. No. 5,276,182, which is a continuation-in-part of Ser. No. 549,782, Jul. 9, 1990, abandoned. This application Dec. 27, 1993, Ser. No. 174,597

Int. Cl.[6] C07C *273/00;* **C61K** *31/17*

U.S. Cl. 564—49 **50 Claims**

1. A water-soluble, rigid backbone, achiral, polyurea oligomer having a number average molecular weight of <20,000 and of the Formula:



wherein:

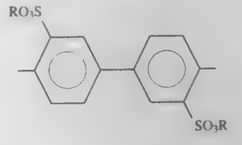
R is hydrogen or a pharmaceutically acceptable cation;

R^1 is hydrogen, C_1–C_4 alkyl, phenyl, or a phenyl with 1 or 2 SO_3R substituents and up to 3 additional substituents independently selected from a group consisting of a chloro, bromo and C_1–C_4 alkyl radical;

R^2 is —R^1 or —X—NHR^1, wherein R^1 is as defined above;

X is a divalent radical of the formula:

m is 0 or 1, with the proviso that when m is 0,



R^1 is hydrogen; and

n is an integer from 3 to 50.

5,728,875

MICROBICIDES

Martin Zeller, Baden, Switzerland, assignor to Novartis Corporation, Summit, N.J.

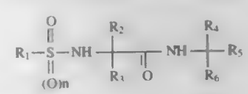
Division of Ser. No. 431,230, Apr. 28, 1995, Pat. No. 5,585,519. This application Aug. 26, 1996, Ser. No. 703,300

Claims priority, application Switzerland, May 4, 1994, 1407/94; Mar. 1, 1995, 584/95

Int. Cl.[6] C07C *233/76;303/35;303/40;* **A61K** *31/18*

U.S. Cl. 564—79 **3 Claims**

1. A process for the preparation of a compound of the formula I:



in which

n is the number zero or one;

R_1 is C_1–C_{12}alkyl, which is unsubstituted or can be substituted by C_1–C_4alkoxy, C_1–C_4alkylthio, C_1–C_4alkylsulfonyl, C_3–C_8cycloalkyl, cyano, C_1–C_6alkoxycarbonyl, C_3–C_6alkenyloxycarbonyl or C_3–C_6alkynyloxycarbonyl; C_3–C_8cycloalkyl; C_2–C_{12}alkenyl; C_2–C_{12}alkynyl; C_1–C_{12}halogenoalkyl or a group $NR_{13}R_{14}$, in which

R_{13} and R_{14} independently of one another are hydrogen or C_1–C_6alkyl or together are tetra- or pentamethylene;

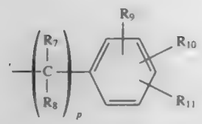
R_2 and R_3 independently of one another are hydrogen; C_1–C_8alkyl; C_1–C_8alkyl which is substituted by hydroxyl, C_1–C_4alkoxy, mercapto or C_1–C_4alkylthio; C_3–C_8alkenyl; C_3–C_8alkynyl; C_3–C_8cycloalkyl or C_3–C_8cycloalkyl-C_1–C_4alkyl, or in which the two groups R_2 and R_3, together with the carbon atom to which they are bonded, form a three- to eight-membered carbocyclic ring;

R_4 is hydrogen or C_1–C_6alkyl;

R_5 is hydrogen; C_1–C_6alkyl or phenyl, which is unsubstituted or can be substituted by halogen, nitro, C_1–C_4alkyl, C_1–C_4halogenoalkyl, C_1–C_4alkoxy or C_1–C_4alkylthio; and

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R_6 is a group G



G

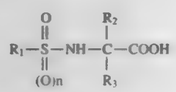
in which

R_7 and R_8 independently of one another are hydrogen or C_1–C_6alkyl;

p is the number zero or one; and

R_9, R_{10} and R_{11} independently of one another are hydrogen, C_1–C_6alkyl, C_1–C_6halogenoalkyl, C_3–C_6alkenyl, C_3–C_6alkynyl, C_1–C_6alkoxy, C_3–C_6alkenyloxy, C_3–C_6alkynyloxy, C_1–C_6alkylthio, halogen or nitro, which comprises

a) allowing a substituted amino acid of the formula II



II

to react with an amine of the formula III



III

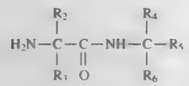
with or without a diluent, in the presence or absence of an acid-binding agent, at temperatures of −80° C. to 150° C., or

b) allowing a sulfonic acid derivative or sulfinic acid derivative of the formula IV



IV

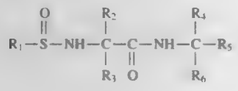
to react with an amine of the formula V



V

with or without a diluent, in the presence or absence of an acid-binding agent, at temperatures of −80° C. to 150° C., or

c) oxidizing a compound of the formula I'



I'

with an oxidizing agent, with or without a diluent, in the presence or absence of an acid or base, at temperatures of between −80° C. and 150° C..

in which, in formulae II, III, IV, V and I', the substituents R_1, R_2, R_3, R_4, R_5, R_6 and n are as defined in formula I and

X is halogen, R_1—SO_2—O— or R_1—SO—O—.

5,728,876

RESOLUTION OF THE RACEMATES OF PRIMARY AND SECONDARY AMINES BY ENZYME-CATALYZED ACYLATION

Friedhelm Balkenhohl, Limburgerhof; Bernhard Hauer; Wolfgang Ladner, both of Fussgoenheim; Uwe Pressler, Altrip, and Christoph Nübling, Hassloch, all of Germany, assignors to BASF Aktiengesellschaft, Ludwigshafen, Germany

PCT No. PCT/EP94/03102, § 371 Date Mar. 11, 1996, § 102(e) Date Mar. 11, 1996, PCT Pub. No. WO95/08636, PCT Pub. Date Mar. 30, 1995

PCT Filed Sep. 16, 1994, Ser. No. 596,238

Claims priority, application Germany, Sep. 25, 1993, 43 32 738.9

Int. Cl.[6] C07C *231/02;231/16*

U.S. Cl. 564—136 **17 Claims**

1. A process for preparing acylated primary and secondary amines which comprises reacting the amines with an ester in the presence of a protease or lipase, wherein the acid component of the ester has a oxygen atom in the α, β or γ position relative to the carbonyl carbon.

5,728,877

PROCESS FOR THE MANUFACTURING OF IODINATED CONTRAST AGENTS

Pier Lucio Anelli; Marino Brocchetta; Ornella Gazzotti, and Fulvio Uggeri, all of Milan, Italy, assignors to Dibra S.p.A., Italy

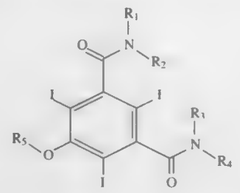
Filed Jul. 23, 1996, Ser. No. 685,034

Claims priority, application Italy, Jul. 25, 1995, MI95A1612

Int. Cl.[6] C07C *233/65*

U.S. Cl. 564—153 **5 Claims**

1. A process for the preparation of compounds of general formula (I)

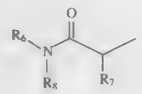


(I)

wherein

R1, R2, R3, R4, which can be the same or different, are, independently, H or a linear or branched (C1–C10) alkyl group, optionally substituted by 1–6 hydroxy and/or alkoxy groups, or a polyoxaalkyl group comprising from 1 to 10 oxygen atoms and from 3 to 30 carbon atoms, or R1 and R2 or R3 and R4, taken together, form a (C2–C8) chain optionally interrupted by one or more N, O, S atoms,

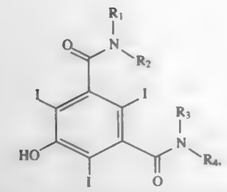
R5 is the group



wherein

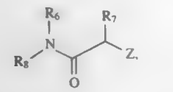
R_6 and R_8 are H,

R7 is H or a (C1–C3) alkyl, hydroxyalkyl or alkoxyalkyl group, characterized in that the corresponding derivatives of general formula (II)



(II)

wherein R1, R2, R3 and R4 are as previously defined and the hydroxy group on the benzene ring can be also present as salt of alkali metal or alkaline-earth metal or a (C2–C6) trialkylamine, are reacted with the compounds of general formula (III)



(III)

wherein

Z is halogen atom or a reactive residue of a sulfonic acid selected from the group consisting of methanesulfonyloxy, benzenesulfonyloxy and toluenesulfonyloxy or a —N+(R9)3 cation wherein R9 is a (C1–C6) alkyl group and

R6 R7 and R8 are as previously defined;

and the reaction is carried out in a reaction solvent selected from the group consisting of protic solvents and dipolar aprotic solvents.

5,728,878

FUNCTIONAL N-VINYLFORMAMIDES

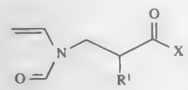
Ning Chen, Allentown; Walter Louis Renz, Macungie; Robert Krantz Pinschmidt, Jr., Allentown, and William Eamon Carroll, Orefield, all of Pa., assignors to Air Products and Chemicals, Inc., Allentown, Pa.

Filed Jul. 2, 1996, Ser. No. 674,412

Int. Cl.[6] C07C *233/03*

U.S. Cl. 564—159 **10 Claims**

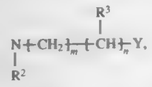
1. N-vinyl compositions corresponding to the general structural formula:



where

R^1 is hydrogen or methyl;

X is diaminomethyl cyclohexane, aminomethyl cyclohexane or



where R^2 is hydrogen, methyl, ethyl, 2-aminoethyl, 2-hydroxyethyl, 2-[3-(N-vinylformamido-propionamido] ethyl, or C_3–C_{20} alkyl; R^3 is hydrogen or methyl; Y is a hydroxyl, amino, alkylamino, alkanol substituted amino, 3-(N-vinylformamido)propionamido, or 2-methyl-3-(N-vinylformamido)propionamido group; and m and n are positive integers such that m+n is from 2 to 12.

5,728,879

BISGUANIDINE SALTS AND A METHOD FOR RELEASING A BASE USING THE SAME SALTS

Jiro Tsukahara; Kiyoshi Takeuchi; Hideaki Satoh; Shun-ichi Ishikawa; Keizo Ogawa, and Tomomi Ishino, all of Kanagawa, Japan, assignors to Fuji Photo Film Co., Ltd., Kanagawa, Japan

Continuation of Ser. No. 527,532, Sep. 13, 1995, abandoned. This application Mar. 25, 1997, Ser. No. 829,814

Claims priority, application Japan, Oct. 19, 1994, 6-253637; Mar. 13, 1995, 7-052774

Int. Cl.[6] C07C *277/00;* **C07D** *241/00*

U.S. Cl. 564—241 **2 Claims**

1. A bisguanidine salt selected from the group consisting of a 4-(phenylsulfonyl)phenylsulfonylacetic acid salt of N,N'-bis(1,3-diethylguanyl)ethylenediamine, a 4-(phenylsulfonyl)phenylsulfonylacetic acid salt of N,N'-bis(1,3-diisopropylguanyl)ethylenediamine, a 4-(phenylsulfonyl)phenylsulfonylacetic acid salt of N,N'-bis-(imidazoline-2-yl)ethylenediamine, a 4-(phenylsulfonyl)-phenylsulfonylacetic acid salt of 1,4-bis(1,3-diisopropylguanyl)piperazine, a 4-(phenylsulfonyl)phenylsulfonylacetic acid salt of 1,4-bis(1,3-diethylguanyl)piperazine, a 4-(4-methylphenylsulfonyl)phenylsulfonylacetic acid salt of N,N'-bis(1,3-diethylguanyl)ethylenediamine and a 4-(4-ethylphenylsulfonyl)phenylsulfonylacetic acid salt of 1,4-bis(1,3-diethylguanyl)piperazine.

5,728,880

PROCESS FOR THE SEPARATION OF HIGH-BOILING MATERIALS FROM THE REACTION MIXTURE GENERATED DURING THE PRODUCTION OF DIAMINOTOLUENE

Heiko Beckhaus, Leverkusen; Harro Witt, Kuden; Uwe-Jens Zarnack, Brunsbüttel, and Gerd Greger, Kempen, all of Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Germany

Filed Feb. 25, 1997, Ser. No. 806,139

Claims priority, application Germany, Mar. 5, 1996, 196 08 443.1

Int. Cl.[6] C07C *209/84;209/86*

U.S. Cl. 564—305 **9 Claims**

1. A process for separating low-boiling isomers of toluene diamine from an amine mixture produced by hydrogenating dinitrated aromatic compounds comprising:

a) removing any water of reaction and any solvent present in the amine mixture,

b) introducing the mixture treated in accordance with a) into a distillation column,

c) separating pure, low-boiling meta and ortho isomers of toluene diamine from a bottom phase containing meta-toluene diamine and high-boiling materials,

d) concentrating the bottom phase from c) until the high boiling materials are present in an amount of from about 25 to about 60% by weight,

e) mixing the concentrated bottom phase from d) with ortho-toluene diamine in an amount such that the ratio of concentrated bottom phase to ortho-toluene diamine is from about 1:1 to about 1:5,

f) distilling the mixture from e) to remove a mixture of meta- and ortho-toluene diamine, and

g) introducing the meta- and ortho-toluene diamine mixture removed in f) to the distillation column used in b).

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5,728,881

PROCESS FOR PREPARING TRIFLURALIN

Stefan Kwiatkowski; Krzysztof Pupek; Miroslaw J. Golinski, all of Richmond, Ky.; Paul D. Smith, League City, Tex., and Lowell J. Lawrence, Richmond, Ky., assignors to SRM Chemical, Ltd. Co., League City, Tex.

Filed Mar. 5, 1997, Ser. No. 810,883
Int. Cl.[6] C02C *209/10*
U.S. Cl. 564—406 11 Claims

1. A process for preparing 2,6-dinitro-N,N-dipropyl-4-(trifluoromethyl)benzenamine from 4 -chlorotrifluoromethylbenzene, comprising:

(a) mononitrating 4 -chlorotrifluoromethylbenzene substantially completely to 4-chloro-3-nitro-trifluoromethylbenzene with a mixture of nitric acid and oleum;

(b) separating said 4-chloro-3-nitrotrifluoromethylbenzene from waste acid mixture by adding ethylene dichloride;

(c) dinitrating said 4-chloro-3-nitrotrifluoromethylbenzene with a fresh mixture of nitric acid and oleum;

(d) separating said 4-chloro-3,5-dinitrotrifluoromethylbenzene from said mixture of nitric acid and oleum; and

(e) aminating said 4-chloro-3,5-dinitrotrifluoromethylbenzene with dipropylamine to produce 2,6-dinitro-N,N-dipropyl-4-(trifluoromethyl) benzenamine.

5,728,882

PREPARATION OF SUBSTITUTED AROMATIC AMINES

Edward Lockwood Wheeler, Watertown, and Russell Edward Malz, Jr., Naugatuck, both of Conn., assignors to Uniroyal Chemical Company, Inc., Middlebury, Conn.

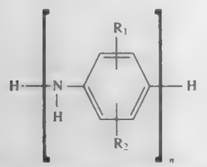
Filed Apr. 4, 1996, Ser. No. 628,181
Int. Cl.[6] C07C *209/02*
U.S. Cl. 564—408 15 Claims

1. A method for preparation of substituted aromatic amines of formula (I) comprising the steps of:

(a) oxidizing a solution of an aromatic amine of formula (II) in the presence of an oxidizing agent and a metal pentacyano ferrate (II) complex of a water soluble type having complex of a water souble type having water soluble ligands as part of the complex to form an arylenediaminopentacyanoferrate complex, said metal being selected from the group consisting of potassium and sodium; and

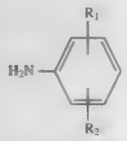
(b) catalytically reducing said arylenediaminopentacyanoferrate complex with hydrogen using a heterogeneous metal catalyst, producing the corresponding substituted aromatic amine of formula (I)

(I)



wherein n equals 2 to 5, and R_1 and R_2 are as set forth below:

(II)



R_1 and R_2 may be the same or different, must be ortho or meta to the amino group, and may be hydrogen, C_1–C_4 alkyl, C_1–C_4 alkoxy, halogen, cyano, carboxylate salts and amides of carboxylic acids or mixtures thereof.

5,728,883

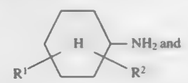
PROCESS FOR PREPARING A MIXTURE OF CYCLOHEXYLAMINE AND DICYCLOHEXYLAMINE

Gerhard Darsow; Wilfried Niemeier, both of Krefeld, and Gerd-Michael Petruck, Erkrath, all of Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Germany

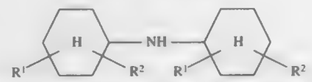
Filed Feb. 5, 1997, Ser. No. 795,924
Claims priority, application Germany, Feb. 15, 1996, 196 05 585.7
Int. Cl.[6] C07C *209/72*
U.S. Cl. 564—450 14 Claims

1. A process for preparing a mixture of a cyclohexylamine and a dicyclohexylamine of the formulae

(I)

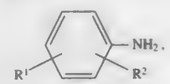


(II)



by catalytic hydrogenation of an aniline of the formula

(III)



where, in the formulae,

R^1 and R^2 are, independently of one another, hydrogen, C_1–C_4-alkyl or C_1–C_4-alkoxy,

at a reaction temperature of from 140° to 240° C. and an H_2 pressure of from 10 to 400 bar, wherein the catalyst used comprises support-free shaped bodies which are obtainable by reduction of shaped bodies comprising pressed powders of cobalt, manganese and alkaline earth metal (hydr)oxides and of (hydr)oxides of elements of transition groups V, VI or both of the Periodic Table of the Elements (Mendeleev).

5,728,884

PROCESS FOR THE WORK-UP OF COMPLEX AMINE HYDROFLUROIDES

Ulrich Hahn, Frankfurt; Raimund Franz, Kelkheim, and Günter Siegemund, Hofheim, all of Germany, assignors to Solvay, Belgium

Filed Dec. 18, 1995, Ser. No. 574,221
Claims priority, application Germany, Dec. 20, 1994, 44 45 529.1
Int. Cl.° C07C *209/84*
U.S. Cl. 564—468 19 Claims

1. A process for the work-up of a impurities containing liquid complex hydrofluoride of a tertiary amine of the formula (I)

$$(R^1R^2R^3N \cdot n\ HF) \qquad (I)$$

where

the radicals of R^1, R^2 and R^3 are identical or different and am straight-chain or branched C_1–C_8-alkyl groups which together have at least 7 carbon atoms and

n is an integer or fractional number where $1.5 < n < 3$, comprising

(a) reacting said complex hydrofluoride of formula (I) with a halogenated alkene of the formula (II)

$$R^4CF{=}CR^5R^6 \qquad (II)$$

wherein

R^4 is F, CF_3 or C_2F_5

R^5 is F, Cl or CF_3

R^6 is H, F or perfluorinated C_1–C_6-alkyl, under such conditions that HF contained in the complex hydrofluoride of formula (I) is consumed by molecular addition to the halogenated alkene of formula (II), so inducing the formation of the two liquids phases, a first phase containing the remaining complex hydrofluoride and substantially all the impurities, and a further, lower density, liquid phase, which consists essentially of virtually pure amine;

(b) separating off said further, low density, liquid phase and

(c) eliminating the phase containing the remaining complex hydrofluoride and the impurities accumulated therein.

5,728,885

METHOD OF PREPARING THE ENANTIOMERS OF O-DIMETHYLTRAMADOL

Helmut Buschmann; Werner Winter, both of Aachen; Ivars Graudums, Stolberg; Peter Jansen, deceased, late of Eschweiler, by Ursula Jansen, Heiress; Wolfgang Werner Alfred Strassburger, Wuerselen, and Elmar Josef Friederichs, Stolberg, all of Germany, assignors to Gruenenthal GmbH, Aachen, Germany

Filed Jan. 17, 1997, Ser. No. 784,078
Claims priority, application Germany, Jan. 19, 1996, 196 01 744.0
Int. Cl.[6] C07C *209/88*
U.S. Cl. 564—304 8 Claims

1. A method of preparing enantiomers of O-demethyltramadol, comprising the steps of:

providing a racemic solution of (−)- and (+)-tramadol enantiomers in free base form;

precipitating (−)-tramadol enantiomer with L-(+)-tartaric acid and separating precipitate from mother liquor;

releasing the (−)-tramadol enantiomer from the precipitate as a (−)-tramadol enantiomer free base;

reacting the (−)-tramadol enantiomer free base with diisobutylaluminium hydride to convert it into (−)-enantiomer of O-demethyltramadol;

releasing the (+)-tramadol enantiomer from the mother liquor as a (+)-tramadol enantiomer free base, and

reacting the (+)-tramadol enantiomer free base with diisobutylaluminium hydride to convert it into (+)-enantiomer of O-demethyltramadol.

5,728,886

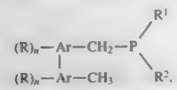
COMPOUNDS OF THE PHOSPHINE GROUP, THEIR PREPARATION AND THEIR USE

Christoph Naumann, Niedernhausen, and Dieter Regnat, Eppstein, both of Germany, assignors to Hoechst AG, Frankfurt, Germany

Filed Aug. 3, 1995, Ser. No. 510,789
Claims priority, application Germany, Aug. 5, 1994, 44 27 836.5
Int. Cl.[6] C07F *9/02*
U.S. Cl. 568—17 35 Claims

1. A phosphine of the formula (I)

(I)



where Ar—Ar is a biphenyl radical, a 1-phenylnaphthyl radical or a 1,1'-binaphthyl radical, the CH_2 group and the CH_3 radical are each in the ortho position to the Ar—Ar bond, R is F, an alkyl radical or alkoxy radical each having from 1 to 8 carbon atoms, n is an integer from 0 to 4, R^1 and R^2 are identical or different and are each, independently of one another, an alkyl radical having from 1 to 10 carbon atoms, a cycloaliphatic radical having from 5 to 10 carbon atoms, or a radical Ar^1–$(R^3)_m$, where Ar^1 is a phenyl or naphthyl radical, R^3 is F, Cl, CF_3, SO_3H, SO_3Me (Me=Li, Na or K), a dialkylamino radical having from 2 to 8 carbon atoms, an alkyl radical or alkoxy radical each having from 1 to 8 carbon atoms and m is an integer from 0 to 5, or R^1 and R^2 together with the phosphorus atom form a 4-membered to 8-membered ring to which can be fused, if desired, one or two aromatic rings or ring systems comprising from 6 to 10 carbon atoms.

5,728,887

CATALYTIC HYDROGENOLYSIS OF ORGANIC THIOCYANATES AND DISULFIDES TO THIOLS

Stephen Ernest Jacobson, Princeton Junction, N.J., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del.

Filed Apr. 10, 1996, Ser. No. 629,824
Int. Cl.[6] C07C *319/00*
U.S. Cl. 568—65 9 Claims

1. A process for the preparation of a thiol of formula I or formula II

R_1—$(X)_a$—SH, or I

II

whereln

X is (CH_2)m wherein m is 1 or 2;

a is zero or 1;

R_1 is:

C_1–C_{30} linear, branched, or cyclic alkyl optionally substituted with a C_1–C_{30} perfluororalkyl;

C_1–C_{30} perfluoroalkyl;

H—D—G or F—E—G wherein

D is —$(CH_2)_b$—;

E is —$(CF_2)_b$—;

G is —[A—$(CH_2)_c]_d$—$(CH_2)_e$—, —[A—$(CF_2)_c]_d$—$(CF_2)_e$—, —[A—$(CF_2)_c]_d$—$(CH_2)_e$—, or —[A—$(CH_2)_c]_d$—$(CF_2)_e$—;

wherein each A is independently selected from the group consisting of —$N(R_3)$—, —$C(O)N(R_3)$—, —CO_2—, —$SO_2N(R_3)$—, —O—, and —S—; wherein R_3 is H, C_1–C_{30} alkyl, or C_1–C_{30} perfluoralkyl; each b and e is independently zero or a positive integer of 1 to 29, and each c and d is independently a positive integer of 1 to 30, provided that b+e+(c×d) is less than or equal to 30; and

C_6–C_{30} aryl optionally substituted with C_1–C_{24} alkyl, C_1–C_{24}perfluoroalkyl, F, Br, Cl N(R3)2, CON(R3)2, CO2(R3), CO(R3), SO2N(R3)2, O(R3), or $S(R_3)$ wherein R_3 is H, C_1–C_{30} alkyl, or C_1–C_{30} perfluoroalkyl; and

R_2 is —D—G— or —E— G—wherein D, E and G are as defined above provided that b+e+(c×d) is less than or equal to 8;

said process comprising reacting hydrogen with

A. a thiocyanate of formula III

R—$(X)_a$—SCN III or

B. a disulfide of formula IV

R—$(X)_a$—S—S—$(X)_a$—R IV

wherein R is R_1 or R_2 as defined above and X and a are as defined above, wherein the reaction with thiocyanate is conducted in the presence of a catalyst comprising a Group VIII metal or a mixture thereof; and the reaction with thiocyanate or with disulfide is conducted in the presence of a catalyst comprising a Group VIII metal or mixture thereof in the presence of a modifier metal selected from a group consisting of Group IB, Group IIB, Group IIIA, Group IVA, Group VA and Group VIA metal or mixture thereof, said catalyst being on a porous insoluble support.

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5,728,888

PREPARATION OF HYDROXYLATED BENZOPHENONES

Alexander Aumüller, Neustadt; Gunter Brill, Hassloch, and Peter Böttcher, Carlsberg, all of Germany, assignors to BASF Aktiengesellschaft, Ludwigshafen, Germany

Filed Feb. 21, 1997, Ser. No. 806,257

Claims priority, application Germany, Mar. 1, 1996, 196 07 809.1

Int. Cl.[6] C07C *45/65*

U.S. Cl. 568—315 **9 Claims**

1. A process for preparing hydroxylated benzophenones from completely or partially methylated hydroxybenzophenones by reaction of these methyl ethers with $AlCl_3$ and subsequent hydrolysis with water, wherein the reaction with $AlCl_3$ is carried out in the presence of one or more compounds from the class of ureas or carboxamides.

5,728,889

PROCESS FOR THE PRODUCTION OF 2-(SUBSTITUTED BENZOYL)-1,3 CYCLOHEXANEDIONES

Howard Rawlinson, Sowery Bridge; Jonathan William Wiffen, Rodley, and Stephen Martin Brown, Upper Cumberworth, all of United Kingdom, assignors to Zeneca Limited, London, England

PCT No. PCT/GB96/00081, § 371 Date Jun. 24, 1997, § 102(e) Date Jun. 24, 1997, PCT Pub. No. WO96/22957, PCT Pub. Date Aug. 1, 1996

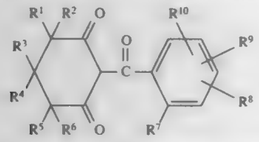
PCT Filed Jan. 16, 1996, Ser. No. 860,334

Claims priority, application United Kingdom, Jan. 25, 1995, 9501433

Int. Cl.[6] C07C *49/23;49/213*

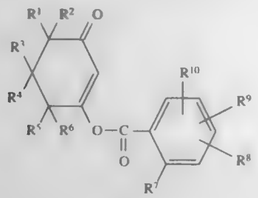
U.S. Cl. 568—329 **9 Claims**

1. A process for preparing a compound of formula (I):



(I)

where R^1, R^2, R^3, R^4, R^5 and R^6 are independently hydrogen or C_{1-6} alkyl; R^7 is halogen, cyano, NO_2, C_{1-4} alkyl, C_{1-4} haloalkyl, C_{1-4} alkoxy or R_aS in which R_a is C_{1-4} alkyl; R^8, R^9 and R^{10} independently are hydrogen, halogen, C_{1-4} alkyl, C_{1-4} alkoxy, C_{1-4} haloalkyl, C_{1-4} haloalkoxy, CN, NO_2, phenoxy or substituted phenoxy; $R_bS(O)n$ Om in which m is 0 or 1, n is 0, 1 or 2 and R_b is C_{1-4} alkyl, C_{1-4} haloalkyl, phenyl or benzyl, $NHCOR_c$ in which R_c is C_{1-4} alkyl, NRdRe in which R_d and R_e independently are hydrogen or C_{1-4} alkyl; $R_fC(O)$— in which R_f is hydrogen, C_{1-4} alkyl, C_{1-4} haloalkyl or C_{1-4} alkoxy; $SO_2NR_gR_h$ in which R_g and R_h independently are hydrogen or C_{1-4} alkyl; or any two of R^8, R^9 and R^{10} together with the carbon atoms to which they are attached form a 5 or 6 membered heterocyclic ring containing up to three heteroatoms selected from O, N or S and which may be optionally substituted by C_{1-4} alkyl, C_{1-4} haloalkyl, C_{1-4} alkoxy, $=NOC_{1-4}$ alkyl, or halogen; which process comprises the rearrangement of a compound of formula (II):



(II)

where R^1, R^2, R^3, R^4, R^5, R^6, R^7, R^8, R^9 and R^{10} are as defined in relation to formula (I), in the presence of a base and a polar aprotic solvent characterised in that the process is carried out in a reaction medium substantially free of hydrogen cyanide or cyanide anion.

5,728,890

PROCESS FOR PRODUCING A CYCLOALKANOL AND CYCLOALKANONE

Toshikazu Hamamoto; Mitsuo Yamanaka; Takato Nakamura, and Tetsuro Shimano, all of Ube, Japan, assignors to Ube Industries, Ltd., Ube, Japan

PCT No. PCT/JP95/01165, § 371 Date Jan. 30, 1996, § 102(e) Date Jan. 30, 1996, PCT Pub. No. WO95/34523, PCT Pub. Date Dec. 21, 1995

PCT Filed Jun. 9, 1995, Ser. No. 600,981

Claims priority, application Japan, Jun. 10, 1994, 6-128828

Int. Cl.[6] C07C *45/53;35/08;* **C07F** *15/00;17/02*

U.S. Cl. 568—361 **7 Claims**

1. A process for producing a cycloalkanol and cycloalkanone, comprising decomposing a cycloalkylhydroperoxide by bringing it into contact with a ruthenium complex represented by the general formula (I):

$$[RuCl_2L_n]_m$$

in which formula (I), L represents a neutral ligand coordinate-bonded to a ruthenium atom, n represents an integer of 1 to 4 and m represents an integer of 1 or more.

5,728,891

PROCESS FOR THE PREPARATION OF 3,3,5-TRIMETHYLCYCLOHEXANONE

Wilfried Bueschken, Haltern, and Juergen Hummel, Marl, both of Germany, assignors to Huels Aktiengesellschaft, Marl, Germany

Filed Jun. 26, 1996, Ser. No. 668,356

Claims priority, application Germany, Jul. 8, 1990, 195 24 969.0

Int. Cl.[6] C07C *49/303*

U.S. Cl. 568—376 **21 Claims**

1. A process for the preparation of 3,3,5-trimethylcyclohexanone by catalytic hydrogenation of isophorone, wherein the hydrogenation is carried out in a plurality of two or more series-connected loops, wherein each loop involves the use of one reactor, which comprises:

(a) feeding isophorone and hydrogen to an upper part of a reactor to catalytically hydrogenate said isophorone to produce a hydrogenation product,

(b) recycling a portion of said hydrogenation product back into said upper part of said reactor,

(c) feeding the remainder of said hydrogenation product from said reactor to an upper part of a subsequent reactor wherein isophorone is catalytically hydrogenated to produce a subsequent hydrogenation product, and wherein a portion of said subsequent hydrogenation product has been recycled and is fed with said remainder of said hydrogenation product to said upper part of said subsequent reactor,

(d) repeating step (c) until the subsequent reactor is the last reactor,

(e) recovering the remainder of said subsequent hydrogenation product from said last reactor, and

(f) obtaining 3,3,5-trimethylcyclohexanone from the product of step (e).

5,728,892

METHOD FOR PREPARING AN ALPHA-ALKYCINNAMALDEHYDE

Alie Kuiterman, Sittard; Hubertus J. A. Dielemans, Beek; Richard Green, Geleen, and Anna M. C. F. Castelijns, Beek, all of Netherlands, assignors to DSM N.V., Heerlen, Netherlands

Filed Nov. 6, 1996, Ser. No. 746,162

Claims priority, application Belgium, Nov. 6, 1995, 9500910

Int. Cl.[6] C07C *45/00*

U.S. Cl. 568—433 **14 Claims**

1. A method for preparing an α-alkylcinnamaldehyde comprising effecting aldol condensation of a benzaldehyde and an alkanal in the presence of a base as a catalyst, wherein the catalyst is pyrrolidine.

5,728,893

PROCESS USING MULTISTAGED REACTORS

Michael Carl Becker, League City, Tex.; David Robert Bryant; Donald LeRoy Bunning, both of South Charleston, W. Va.; James Clair Nicholson, St. Albans, and Ernst Billig, Huntington, both of W. Va., assignors to Union Carbide Chemicals & Plastics Technology Corporation, Danbury, Conn.

Filed Nov. 26, 1996, Ser. No. 757,743

Int. Cl.[6] C07C *45/50*

U.S. Cl. 568—454 **14 Claims**

1. A process for producing one or more products in a multistaged reactor which process comprises reacting in said multistaged reactor one or more reactants with carbon monoxide in the presence of a metal-organophosphorus ligand complex catalyst and optionally free organophosphorus ligand to produce said one or more products, wherein said metal-organophosphorus ligand complex catalyst does not undergo substantial deactivation in the presence of solely carbon monoxide and/or effects a change in normal product selectivity of less than 0.2 percent of normal product per 1 pound per square inch of carbon monoxide partial pressure.

5,728,894

METHOD FOR PRODUCING METHACROLEIN

Osamu Nagano, and Toru Watanabe, both of Yokohama, Japan, assignors to Ashahi Kasei Kogyo Kabushiki Kaisha, Osaka, Japan

PCT No. PCT/JP95/01234, § 371 Date Aug. 26, 1996, § 102(e) Date Aug. 26, 1996, PCT Pub. No. WO95/35273, PCT Pub. Date Dec. 28, 1995

PCT Filed Jun. 21, 1995, Ser. No. 700,469

Claims priority, application Japan, Jun. 22, 1994, 6-140151

Int. Cl.[6] C07C *45/34*

U.S. Cl. 568—479 **9 Claims**

1. A method for producing methacrolein, which comprises subjecting at least one member selected from the group consisting of isobutylene and tert-butanol to gas phase catalytic oxidation with a molecular oxygen-containing gas in the presence of an oxide catalyst composition represented by the formula (I):

$$Mo_{12}Bi_aCe_bK_cFe_dA_eB_fO_g \quad (I)$$

wherein:

A is cobalt solely, or a mixture of cobalt and magnesium wherein the atomic ratio of magnesium to cobalt is not more than 0.7,

B is rubidium, cesium or a mixture thereof, and a, b, c, d, e, f and g are, respectively, the atomic ratios of bismuth, cerium, potassium, iron, A, B and oxygen, relative to twelve atoms of molybdenum,

wherein

$0<a\leqq 8$,

$0<b\leqq 8$,

$0<c\leqq 1.2$,

$0<d\leqq 2.5$,

$1.0\leqq e\leqq 12$,

$0<f\leqq 2.0$, and

g is the number of oxygens required to satisfy the valence requirements of the other elements present; and

wherein a, b, c and d satisfy the requirements of the following fomulae:

$$0.05\leqq b/(a+b+c)\leqq 0.7,$$

$$0<c/(a+b+c)\leqq 0.4,$$

and

$$0<d/(a+b+d)\leqq 0.9.$$

5,728,895

POLYMERIC THICKENERS FOR AQUEOUS COMPOSITIONS

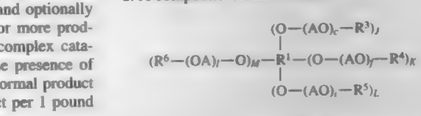
Michael S. Wiggins, Ambler; Reuben Grinstein, Blue Bell, and Stephen A. Fischer, Yardley, all of Pa., assignors to Henkel Corporation, Plymouth Meeting, Pa.

Continuation of Ser. No. 350,496, Dec. 6, 1994, abandoned, which is a continuation of Ser. No. 74,695, Jun. 8, 1993, abandoned, which is a continuation of Ser. No. 787,905, Nov. 7, 1991, abandoned, which is a continuation-in-part of Ser. No. 611,206, Nov. 8, 1990, abandoned. This application Oct. 9, 1996, Ser. No. 727,983

Int. Cl.[6] C07C *43/30;43/11*

U.S. Cl. 568—601 **9 Claims**

1. A compound of the formula:



wherein R^1 is a member selected from the group consisting of straight chain or branched aliphatic groups having from 3 to about 50 carbon atoms, cycloalkyl groups having from 4 to 20 carbon atoms, straight chain or branched unsaturated aliphatic groups having from 3 to about 40 carbon atoms, cycloalkenyl groups having from 5 to about 20 carbon atoms, and aromatic groups having from 6 to about 21 carbon atoms having a valence of 3 or 4; each of c, f, i, and l is independently 0 or any integer from about 50 to about 200 with the proviso that at least two of c, f, i and l cannot be 0; each of J, K, L and M is 0 or 1, provided that at least three of J, K, L and M are 1; each of R^3–R^6 is independently an aliphatic or aromatic group having from 1 to 50 carbon atoms; and each AO is independently an ethyleneoxy, 1, 2 propyleneoxy, 1, 2 butyleneoxy group or combinations thereof and when one of J, K, L or M is 0, the valence is filled by hydrogen.

5,728,896

PROCESS FOR THE PREPARATION OF HYDROXYMETHYL-CYCLOPROPANE

Lutz Frohn, Erkrath; Reinhard Langer; Gerhard Darsow, both of Krefeld; Eberhard Zirngiebl, Köln; Jörg-Dietrich Jentsch, Mülheim a.d. Ruhr; Bernd Pennemann, and Christoph Tiburtius, both of Köln, all of Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Germany

Filed Feb. 15, 1996, Ser. No. 601,931

Claims priority, application Germany, Feb. 21, 1995, 195 05 939.5

Int. Cl.[6] C07C *29/136*

U.S. Cl. 568—700 **12 Claims**

1. A process for the preparation of hydroxymethyl-cyclopropane from a cyclopropanecarboxylic acid C_1–C_{10}-alkyl ester, in which the cyclopropanecarboxylic acid ester is hydrogenated with excess hydrogen in the presence of a chromium-free catalyst comprising zinc oxide under 50 to 350 bar at 150° to 350° C.

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5,728,897

PROCESS FOR THE PREPARATION OF BENZYL ALCOHOL

Hans-Josef Buysch, Krefeld; Erhard-Günther Hoffmann, Ratingen; Ursula Jansen; Pieter Ooms, both of Krefeld, and Bernd-Ulrich Schenke, Bottrop, all of Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Germany

Filed May 30, 1996, Ser. No. 655,719

Claims priority, application Germany, Jun. 6, 1995, 195 20 612.6

Int. Cl.[6] C07C *33/34*

U.S. Cl. 568—715 **1 Claim**

1. Process for the preparation of benzyl alcohol by the hydrolysis of benzyl chloride with water at elevated temperature, characterized in that the hydrolysis is performed at a molar ratio of benzyl chloride to water of from 1:10 to 1:70, at temperatures of from 80° to 180° C. and for a reaction time of 2 to 240 minutes until the conversion of benzyl chloride is from 35 to 99% and the yield is over 90% without addition of a base and without addition of a water-soluble organic solvent.

5,728,898

PROCESS FOR MAKING WATER-SOLUBLE DERIVATIVES OF QUINONES

Mark Harry Krackov, West Chester, Pa., assignor to Bio-Technical Resources, L.P., Manitowoc, Wis.

Filed Jun. 27, 1996, Ser. No. 690,371

Int. Cl.[6] C07C *39/10*

U.S. Cl. 568—763 **7 Claims**

1. A process for the preparation of water-soluble salts of hydroquinones comprising reacting an aqueous liquid solution of (a) a formamidinesulfinic acid corresponding to the formula $R_2N—C(=NH)—SO_2H$, in which the R groups are independently selected from the group consisting of H and C_{1-4} alkyl, and (b) alkali metal or quaternary ammonium hydroxide having dispersed therein (c) a quinone at a temperature of 10°–70° C. under an inert gaseous atmosphere, wherein the molar ratio of (b) to (a) is at least 4, and the molar ratio of (a) to (c) is at least 1.

5,728,899

PREPARATION OF CIS-4-O-PROTECTED-2-CYCLOPENTENOL DERIVATIVES

Timothy T. Curran, Cincinnati, Ohio; David A. Hay, Indianapolis, Ind., and Jonathan C. Evans, Midland, Mich., assignors to Hoechst Marion Roussel Inc., Cincinnati, Ohio

Continuation-in-part of Ser. No. 411,136, Mar. 27, 1995, abandoned. This application Feb. 1, 1996, Ser. No. 588,584

Int. Cl.[6] C07C *35/06*

U.S. Cl. 568—838 **12 Claims**

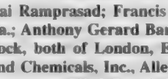
1. A process for preparing a CIS compound of the formula



formula (II)

wherein Pg is selected from the group consisting of benzyl, substituted benzyl, $—CH_2OCH_3$, $—CH_2SCH_3$, $—OCH_2OCH_2$phenyl, $—CH_2OCH_2CH_2OCH_3$, $—CH_2OCH_2CCl_3$, $—CH(OCH_2CH_2CH_3)_2$, $—CH_2OCH_2CH_2Si(CH_3)_3$, $—CH(OC_2H_5)CH_3$, $—C(OCH_3)(CH_3)_2$, $—CH(CH_3)OCH(CH_3)_2—CH_2CCl_3$, $—C(CH_3)_3$, $—CH_2CH=CH_2$, $—CH_2CH=CH$phenyl, $—CH(phenyl)_2$, $—C(phenyl)_3$, tetrahydropyranyl, 4-methoxytetrahydropyranyl, 3-bromotetrahydropyranyl, tetrahydrothiopyranyl, 4-methoxytetrahydrothiopyranyl, tetrahydrofuranyl, tetrahydrothiofuranyl, and $SiR_1R_2R_3$, wherein R_1, R_2 and R_3 are each independently C_1–C_4 alkyl, phenyl, benzyl, substituted phenyl or substituted benzyl, comprising:

a) dissolving a compound of the formula



formula (I)

wherein Pg is defined as above, in a suitable organic solvent; and

b) treating the solution with a suitable Lewis acid and a suitable reducing agent at a temperature of from about −100° C. to about 20° C.

5,728,900

PROCESS FOR THE SELECTIVE HYDROGENATION OF BUTYNE-1,4-DIOL TO BUTENE-2-DIOL-1,4

Franz Josef Bröcker, Ludwigshafen; Rainer Becker, Bad Dürkheim; Volkmar Menger, Neustadt, and Peter Stops, Altrip, all of Germany, assignors to BASF Aktiengesellschaft, Ludwigshafen, Germany

Division of Ser. No. 315,922, Sep. 30, 1994, Pat. No. 5,521,139. This application Feb. 29, 1996, Ser. No. 608,647

Claims priority, application Germany, Sep. 30, 1993, 43 33 293.5

Int. Cl.[6] C07C *29/56*

U.S. Cl. 568—857 **7 Claims**

1. In a process for the preparation of butene-2-diol-1,4 by the hydrogenation of butyne-2-diol-1,4 in aqueous solution over a palladium-containing catalyst, the improvement which comprises:

carrying out the hydrogenation at low temperatures favoring the selective production of the cis form of said butenediol over a fixed-bed catalyst which has been prepared by using a metal gauze or metal foil as a catalyst support material onto which there has been successively applied by vapor phase deposition,

first, palladium as the active catalyst component, and thereafter, at least

one of the metals lead or cadmium as a catalyst inhibitor, followed by thermally forming the fully coated catalyst material at an elevated temperature in air to provide a monolithic catalyst structure, and

subsequently reducing the resulting thermally formed catalyst with hydrogen at an elevated temperature.

5,728,901

NITRATION PROCESS WHICH EMPLOYS WATER TOLERANT LEWIS ACID CATALYSTS

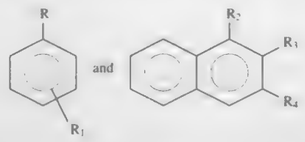
Dorai Ramprasad; Francis Joseph Waller, both of Allentown, Pa.; Anthony Gerard Barrett, and David Christopher Braddock, both of London, England, assignors to Air Products and Chemicals, Inc., Allentown, Pa.

Filed Oct. 4, 1996, Ser. No. 720,938

Int. Cl.[6] C07C *205/00*

U.S. Cl. 568—930 **9 Claims**

1. A process for preparing a nitrated arene which comprises reacting an arene represented by the formulae



wherein R and R_1 are independently selected from a hydrogen atom, a primary, secondary or tertiary alkyl having from 1 to 4 carbon atoms, a halide, CO_2H, OCH_3, $NHCOCH_3$, C_6H_5, OH, NH_2 and NO_2 with the proviso that when R is a hydrogen atom then R_1 cannot be NO_2; and R_2R_3 and R_4 are independently selected from a hydrogen atom, a primary, secondary or tertiary alkyl having from 1 to 4 carbon atoms, a halide, CO_2H, OCH_3, $NHCOCH_3$, C_6H_5, OH, NH_2 and NO_2 and wherein each of R_2, R_3 and R_4 is a hydrogen atom; R_2 is a hydrogen atom and R_3 and R_4 form a connecting CHCHCHCH bridge; and R_2 and R_3 form a connecting CHCHCHCH bridge and R_4 is a hydrogen atom; and nitric acid in the presence of a catalyst under process conditions sufficient to form the nitrated arene and recovering the nitrated arene wherein the catalyst is represented by the formula $M^n(A_1)_x(A_2)_{n-x}$ wherein

M is selected from the group consisting of La, Pr, Nd, Sm, Eu, Gd, Dy, Ho, Er, Tm, Yb, Sc, Hf, Lu and Li;

A_1 and A_2 are independently selected from a perfluoroalkylsulfonate, a fluorosulfonate, a hexafluorophosphate or a nitrate;

n is the common oxidation state of M and

x is 1, 2, 3 or 4 with the proviso that x is never greater than n with a proviso that $(A_1)_x(A_2)_{n-x}$ is not trinitrate under process conditions sufficient to form the nitrated arene and recovering the nitrated arene.

5,728,902

METHOD FOR MANUFACTURING 1,1,1,3,3-PENTAFLUOROPROPENE

Hirokazu Aoyama; Akinori Yamamoto, and Noriaki Shibata, all of Settsu, Japan, assignors to Daikin Industries Ltd., Osaka, Japan

Filed Aug. 14, 1996, Ser. No. 696,527

Claims priority, application Japan, Sep. 1, 1995, 7-248608

Int. Cl.[6] C07C *17/363*

U.S. Cl. 570—136 **8 Claims**

1. A method for manufacturing 1,1,1,3,3-pentafluoropropene by the reaction of 2-trifluoromethyl-3,3,3-trifluoropropionic acid under the presence of metal carbonate and/or metal hydrogencarbonate in an aprotic solvent and under the presence of a desiccating agent.

5,728,903

METHOD FOR PRODUCING FLOURINE-CONTAINING SILICONE COMPOUND

Yutaka Furukawa; Mami Kotera; Seisaku Kumai; Kazuya Oharu, and Toshihiko Toma, all of Yokohama, Japan, assignors to Asahi Glass Company Ltd., Tokyo, Japan

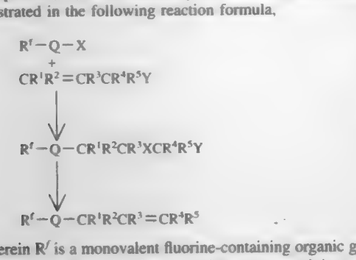
Division of Ser. No. 547,923, Oct. 25, 1995, Pat. No. 5,663,399. This application Jan. 6, 1997, Ser. No. 779,370

Claims priority, application Japan, Oct. 28, 1994, 6-265334; Sep. 29, 1995, 7-254028; Sep. 29, 1995, 7-254032

Int. Cl.[6] C07C *17/15*

U.S. Cl. 570—155 **20 Claims**

1. A method for preparing a fluorine-containing unsaturated compound of the formula (I), which comprises reacting a compound of the formula (1A) with a compound (2A) to obtain a compound (3A) and eliminating XY from the compound (3A), as illustrated in the following reaction formula,



(1A)

+

(2A)

(3A)

(I)

wherein R^f is a monovalent fluorine-containing organic group, Q is a single bond or a bivalent organic group containing no fluorine atom, each of R^1 to R^5 is independently a hydrogen atom or a monovalent organic group, X is an iodine atom, a bromine atom or a chlorine atom, and Y is a monovalent group to be eliminated.

5,728,904

PROCESS FOR THE PREPARATION OF 1,1,1,3,3-PENTAFLUOROPROPANE

Michael Van Der Puy; Richard E. Eibeck; Lois A. S. Ellis, and G. V. Bindu Madhavan, all of Erie, N.Y., assignors to Allied-Signal Inc., Morristown, N.J.

Continuation of Ser. No. 361,005, Dec. 21, 1994, abandoned, which is a continuation of Ser. No. 099,676, Jul. 29, 1993, abandoned. This application Jul. 15, 1996, Ser. No. 679,938

Int. Cl.[6] C07C *19/08; 17/08*

U.S. Cl. 570—176 **12 Claims**

1. A process for the preparation of 1,1,1,3,3-pentafluoropropane ($CF_3CH_2CF_2H$) comprising the steps of:

a) reacting $CCl_3CH_2CCl_3$ with HF in the presence of a catalyst selected from the group consisting of tetravalent tin and tetravalent titanium, in a fluorination reaction step, to produce $CF_3CH_2CF_2Cl$; and

b) reacting said $CF_3CH_2CF_2Cl$ with hydrogen, in the presence of a heterogeneous hydrogenation catalyst, in a reduction step to produce said 1,1,1,3,3 -pentafluoropropane.

5,728,905

VINYL CHLORIDE PRODUCTION PROCESS

Ian Michael Clegg, Middlewich, and Ray Hardman, Chester, both of United Kingdom, assignors to EVC Technology AG, Zug, Switzerland

PCT No. PCT/GB94/01944, § 371 Date Aug. 15, 1995, § 102(e) Date Aug. 15, 1995, PCT Pub. No. WO95/07251, PCT Pub. Date Mar. 16, 1995

PCT Filed Sep. 7, 1994, Ser. No. 433,384

Claims priority, application United Kingdom, Sep. 7, 1993, 9318507

Int. Cl.[6] C07C *17/15*

U.S. Cl. 570—224 **4 Claims**

1. In a method for the production of vinyl chloride monomer by the catalytic oxychlorination of ethane which comprises causing reaction to occur in a reactor between ethane, an oxygen source and a chlorine source in the presence of a copper and alkali metal-containing catalyst and at a temperature of up to about 491° C., and thereafter recovering vinyl chloride monomer, the improvement comprising controlling the incidence of burning products by supplying HCl to the oxychlorination reaction in excess of the stoichiometric requirement for chlorine in the reaction and recycling HCl exhausted from the reactor to the reactor.

5,728,906

METHOD AND MEANS FOR RECOVERING HEAT IN THE PYROLYSIS OF 1,2-DICHLOROETHANE

Atsushi Eguchi; Fumio Akiya, and Shohei Kojima, all of Ibaraki-ken, Japan, assignors to Kashima Vinyl Chloride Monomer Co., Ltd., Ibaraki-ken, and Shin-Etsu Chemical Co., Ltd., Tokyo, both of Japan

Filed Mar. 11, 1997, Ser. No. 815,123

Claims priority, application Japan, Mar. 11, 1996, 8-082119

Int. Cl.[6] C07C *21/00*

U.S. Cl. 570—226 **4 Claims**

1. In a process for the pyrolysis of 1,2-dichloroethane in a pyrolysis furnace including a convection heat transfer region and a radiation heat transfer region by feeding liquid 1,2-dichloroethane into the convection heat transfer region where the liquid 1,2-dichloroethane is heated, channeling an intermediate flow of heated 1,2-dichloroethane into the radiation heat transfer region where the 1,2-dichloroethane is further heated, thereby pyrolyzing at least a part of 1,2-dichloroethane into vinyl chloride monomer, and discharging a decomposition gas containing the vinyl chloride monomer from the pyrolysis furnace,

a method for recovering potential heat from the decomposition gas comprising the steps of:

channeling the intermediate flow to a heat exchanger provided outside the pyrolysis furnace,

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introducing the decomposition gas into the heat exchanger whereby heat exchange takes place between the intermediate flow and the decomposition gas, and

feeding the heat acquired intermediate flow into the radiation heat transfer region,

wherein the heat exchanger is a double tube type heat exchanger including an outer tube having an inlet and an outlet and an inner tube having an inlet and an outlet, the outer tube inlet is connected to an outlet of the convection heat transfer region through a single tube, the outer tube outlet is connected to an inlet of the radiation heat transfer region through a single tube, thereby forming a single flowpath extending from the outlet of the convection heat transfer region to the inlet of the radiation heat transfer region through the outer tube,

the intermediate flow is passed through the single flowpath, and the decomposition gas is passed through the inner tube of said double tube type heat exchanger.

5,728,907

TETRAALKYLMETHANES AS SYNTHETIC LUBRICANTS

Michael P. Squicciarini, Spring, and William J. Heilman, Houston, both of Tex., assignors to Pennzoil Products Company, Houston, Tex.

Filed Oct. 27, 1995, Ser. No. 549,485
Int. Cl.[6] C07C *7/20;9/00*
U.S. Cl. 585—1 **43 Claims**

15. A lubricating composition comprising at least one compound of the formula:



wherein R_1, R_2, R_3 and R_4 are the same or different and are straight chain alkyl groups having 1 to 2 or 5 to 14 carbon atoms and an additive acceptable for use in said lubricating composition.

5,728,908

PROCESS FOR PREPARING A BRIDGED LIGAND AND SAID BRIDGED LIGAND

M. Bruce Welch, Bartlesville, Okla.; Bernd Peifer, and Helmut G. Alt, both of Bayreuth, Germany, assignors to Phillips Petroleum Company, Bartlesville, Okla.

Division of Ser. No. 434,807, May 4, 1995, Pat. No. 5,631,203. This application Dec. 6, 1996, Ser. No. 761,255
Int. Cl.[6] C07C *13/00;13/465;13/615;15/12*
U.S. Cl. 585—23 **6 Claims**

4. A bridged ligand, where said bridged ligand has an alkynyl group, and said bridged ligand being represented by the formula QRQ

wherein each Q is individually selected and is a cyclopentadienyl-type group,

wherein R is a hydrocarbyl group bridging between the two Q groups containing from 3 to 20 carbon atoms,

wherein either Q or R contains a terminal alkynyl group, wherein the cyclopentadienyl-type group is a cyclopentadienyl, substituted cyclopentadienyl, indenyl, substituted indenyl, tetrahydroindenyl, fluorenyl, substituted fluorenyl, or octahydrofluorenyl group, wherein the substituents are hydrocarbyl groups containing from 1 to 20 carbon atoms, alkoxy groups containing from 1 to 12 carbon atoms, silyl groups, alkyl halide groups where the alkyl contains from 1 to 12 carbon atoms, or halide.

5,728,909

METHOD OF CRACKING POLYMERIC MATERIALS CATALYZED BY COPPER

Jared A. Butcher, Jr., Athens, Ohio, assignor to Ohio University, Athens, Ohio

Continuation of Ser. No. 998,327, Dec. 30, 1992, Pat. No. 5,315,055. This application Feb. 14, 1994, Ser. No. 195,232
Int. Cl.[6] C07C *17/00*
U.S. Cl. 585—241 **11 Claims**

1. A method of depolymerizing a polymeric material, said method comprising the steps:

(a) preparing a molten mixture comprising:

(i) a basic material capable of producing hydroxide ions;

(ii) a source of copper selected from the group consisting of copper metal, univalent copper, divalent copper, and mixtures thereof; and

(iii) said polymeric material selected from the group consisting of thermoplastic polymeric material, thermosetting polymeric material and mixtures thereof; and

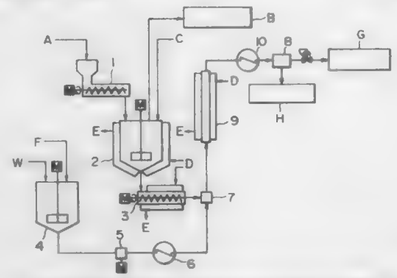
(b) maintaining said molten mixture at a temperature sufficient to reflux said molten mixture so as to produce a vapor and at a temperature, as measured from said vapor, below about 250° C. for sufficient time to depolymerize said polymeric material.

5,728,910

OIL-FORMING METHOD OF CHLORINE-CONTAINING PLASTIC REFUSE

Wataru Matsubara; Hiroshi Makihara, and Shigeo Hasegawa, all of Hiroshima-ken, Japan, assignors to Mitsubishi Jukogyo Kabushiki Kaisha, Tokyo, Japan

Filed Oct. 22, 1996, Ser. No. 735,420
Claims priority, application Japan, Oct. 23, 1995, 7-274189
Int. Cl.[6] C07C *1/00;1/26;7/152*
U.S. Cl. 585—241 **17 Claims**



1. An oil-forming method of chlorine-containing plastic refuse for decomposing chlorine-containing plastic refuse using water in supercritical region as reaction medium and forming into oil, wherein silver nitrate of 0.8 to 2.0 times the reaction equivalent amount of hydrogen chloride generated by decomposition of chlorine-containing plastic refuse is added in the water as reaction medium to decompose and form into oil, and generated hydrogen chloride is removed in a form of silver chloride.

5,728,911

PROCESS FOR THE PREPARATION OF LOW MOLECULAR WEIGHT COPOLYMERS OF ETHYLENE WITH AT LEAST ONE OTHER 1-ALKENE

James R. Hall, Baton Rouge, La., assignor to DSM Copolymer, Inc., Baton Rouge, La.

Continuation of Ser. No. 80,556, Jun. 21, 1993, abandoned. This application Nov. 27, 1995, Ser. No. 562,910
Int. Cl.[6] C07C *2/32;2/22;2/38*
U.S. Cl. 585—508 **12 Claims**

1. In a process for the solution copolymerization of ethylene, at least one other 1-alkene and up to 20 percent by weight of an

aliphatic or alicyclic polyunsaturated monomer containing at least two carbon-to-carbon double bonds and 3–20 carbon atoms in the presence of a catalyst system comprising (1) a compound of vanadium, (2) at least one alkyl aluminum halide containing at least one alkyl group bonded directly to the aluminum, (3) an α-halo, ketoaromatic promoter and (4) a chain transfer agent, the improvement comprising carrying out the polymerization with at least one alkyl aluminum halide in which the molar ratio of alkyl groups to halogen atoms is at least 1.5 to produce a liquid copolymer having an RSV less than 0.6 in the presence of a nitrogen-containing Lewis base.

5,728,912

BUTENE-1 PRODUCTION BY DIMERIZATION OF ETHYLENE COMPRISING AN IMPROVED SPENT CATALYST REMOVAL SECTION

Syed Saqualain Haider Rizvi, Hicksville, N.Y.; Fahad Abdulaziz Al Sherehy; Moayyed Issa Al-Qurtas, both of Riyadh, Saudi Arabia; Alain Forestiere, Vernaison, and Jean Gaillard, Lyons, both of France, assignors to Institut Francais du Petrole, Rueil Malmaison, France, and Saudi Basic Industries Corp., Riyadh, Saudi Arabia

Filed Apr. 29, 1996, Ser. No. 639,610
Claims priority, application France, Apr. 28, 1995, 95 05252
Int. Cl.[6] C07C *3/21*
U.S. Cl. 585—512 **8 Claims**

1. Process of making butene-1 by liquid phase homogeneous catalytic dimerization of ethylene, under a pressure between 0.5 MPa and 8 MPa with a temperature between 20° C. and 150° C., comprising a step of contacting a dimerization reactor effluent with a catalyst inhabiter and a step of recovering a substantially catalyst free reactor effluent and a concentrated inactivated catalyst solution, characterized in that said process comprises the steps of:

a) sending a inhibited catalyst containing reactor effluent to a flash section where the pressure is decreased by about 0.1 MPa to about 2 MPa, and obtaining a first gaseous phase containing ethylene and butene-1 and a first liquid phase containing the inhibited catalyst,

b) sending the first liquid phase from step a) to at least one vaporisation section where it is vaporised under substantially the same pressure as in step a) and under a temperature which allows the separation of a second gaseous phase containing butene-1 and ethylene from a second liquid phase containing the inhibited catalyst,

c) sending the second liquid phase from step b) to at least one thin film evaporation section where it is evaporated under substantially the same pressure as in steps b) under conditions which allow the separation of a third gaseous phase containing ethylene, butene-1 and some other heavier hydrocarbon products from a concentrated inactivated catalyst solution and,

d) collecting the first, second and third gaseous phases to form a gaseous reactor effluent substantially free of spent catalyst.

5,728,913

MOISTURE BASED METHOD OF IMPROVING THE PERFORMANCE OF HYDROCARBON FUELS

Anthony W. Finkl, 445 E. Royal Flamingo Dr., Sarasota, Fla. 34236

Continuation-in-part of Ser. No. 498,854, Jul. 6, 1995, Pat. No. 5,625,118. This application Dec. 19, 1996, Ser. No. 769,553
Int. Cl.[6] C07C *7/20;* **B01J** *23/02;* **C22C** *30/00;* **F02B** *75/12*
U.S. Cl. 585—899 **13 Claims**

1. A method of improving the performance of post-refined liquid hydrocarbon fuels consisting of the step of contacting a refined liquid hydrocarbon fuel with a base metal alloy catalyst having the following components in weight percent:

Sn from about 60 to 70
Sb from about 15 to 25
Pb from about 3 to 7
Hg from about 10 to 16
Tl from about 0.05 to 1

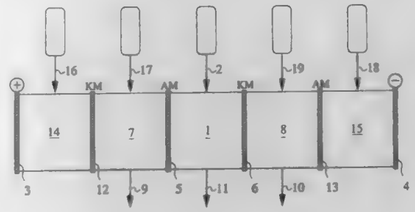
in the presence of a source of H ions which have a greater affinity for short chain hydrogen depleted hydrocarbons than for their pre-treatment form.

5,728,914

METHOD AND APPARATUS FOR DISPOSING OF ORGANIC HALOGEN COMPOUNDS

Eduard Buzetzki, Wolkaprodersdorf, Austria, assignor to Franz Howorka, Vienna, Austria

Filed Feb. 23, 1996, Ser. No. 606,049
Claims priority, application Austria, Mar. 8, 1995, A402/95
Int. Cl.[6] B01D *61/44*
U.S. Cl. 588—204 **23 Claims**



1. A method for disposing of an organic halogen compound comprising carbon, hydrogen and oxygen, in atomic bond, which comprises the steps of

(a) ionizing the compound to obtain ionization products,

(b) splitting up the ionization products by electrodialysis to obtain ionic end products and residual organic substances, and

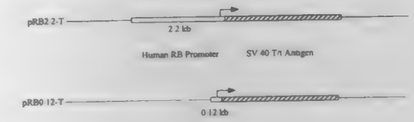
(c) disposing of the ionic end products and residual organic substances.

5,728,915

TRANSGENIC MICE WHICH EXPRESS SIMIAN SV 40 T-ANTIGEN UNDER CONTROL OF THE RETINOBLASTOMA GENE PROMOTER

Long-Sheng Chang, and Lingyun Zhu, both of Hilliard, Ohio, assignors to Children's Hospital, Inc., Columbus, Ohio

Filed May 8, 1995, Ser. No. 436,730
Int. Cl.[6] C07H *21/04;* **C12N** *5/18;15/00*
U.S. Cl. 800—2 **5 Claims**



1. A transgenic mouse whose germ cells and somatic cells contain an SV40 T-antigen oncogene which is operably linked to a fragment of the promoter sequence of a human retinoblastoma susceptibility gene which is a 119-base sequence between the Sac II and BamH I restriction sites of said promoter sequence, said SV40 T-antigen oncogene and said operably linked fragment of said promoter sequence being introduced into said mouse or an ancestor of said mouse at an embryonic stage and being effective to produce osteosarcomas or soft-tissue tumors in said mouse when said SV40 T-antigen oncogene is expressed.

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5,728,916

THERMAL CRACKING

Arthur Gough, Northallerton, and Colin Ramshaw, Norley, both of United Kingdom, assignors to Imperial Chemical Industries PLC, London, England

PCT No. PCT/GB93/00920, § 371 Date Feb. 10, 1995, § 102(e) Date Feb. 10, 1995, PCT Pub. No. WO93/23498, PCT Pub. Date Nov. 25, 1993

PCT Filed Apr. 30, 1993, Ser. No. 347,374

Claims priority, application United Kingdom, May 19, 1992, 9210653

Int. Cl.[6] C07C *4/04*

U.S. Cl. 585—648 **10 Claims**

1. A process for the cracking of hydrocarbons comprising passing a feedstock containing saturated hydrocarbons containing 2 or more carbon atoms and that is substantially free from steam through a catalyst-free reaction zone externally heated to a temperature in the range 700° to 1100° C. and having a heated surface to volume ratio above 3 cm^{-1} at a rate such that the flow through the reaction zone is laminar having a Reynolds No. below 3000.

5,728,917

POLYMER DEPOLYMERIZATION USING RUTHENIUM AND OSMIUM CARBENE COMPLEXES

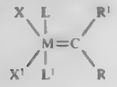
Robert H. Grubbs, South Pasadena, and SonBinh T. Nguyen, Pasadena, both of Calif., assignors to California Institute of Technology, Pasadena, Calif.

Division of Ser. No. 282,827, Jul. 29, 1994, which is a continuation-in-part of Ser. No. 106,292, Aug. 13, 1993, Pat. No. 5,342,909, which is a division of Ser. No. 863,606, Apr. 3, 1992, Pat. No. 5,312,940. This application Oct. 30, 1995, Ser. No. 550,300

Int. Cl.[6] C08F *8/50*

U.S. Cl. 585—653 **17 Claims**

1. A process for depolymerizing an unsaturated polymer, the process comprising contacting an unsaturated polymer with a compound of the formula



in the presence of an acyclic olefin or a modified acyclic olefin-containing a functional group selected from the group consisting of alcohol, thiol, ketone, aldehyde, ester, ether, amine, amide, imine, nitro acid, carboxylic acid, disulfide, carbonate, isocyanate, carbodiimide, carboalkoxy, and halogen, wherein:

M is selected from the group consisting of Os and Ru;

R and R^1 are independently selected from the group consisting of hydrogen and a substituent group selected from the group consisting of C_1–C_{20} alkyl, C_2–C_{20} alkenyl, C_2–C_{20} alkynyl, C_2–C_{20} alkoxycarbonyl, aryl, C_1–C_{20} carboxylate, C_1–C_{20} alkoxy, C_2–C_{20} alkenyloxy, C_2–C_{20} alkynyloxy and aryloxy;

X and X^1 are anionic ligands; and

L and L^1 are independently selected from $PR^3R^4R^5$, wherein R^3 is selected from the group consisting of secondary alkyl, cycloalkyl, isobutyl, neopentyl, and neophyl and wherein R^4 and R^5 are independently selected from aryl, C_1–C_{10} primary alkyl, secondary alkyl, cycloalkyl, isobutyl, neopentyl, and neophyl.

5,728,918

CATALYST TREATMENT

Barry Nay, Woking; Mark Royston Smith, Sunbury-on-Thames, and Clive David Telford, Sunninghill, all of England, assignors to The British Petroleum Company p.l.c., London, England

Division of Ser. No. 245,067, May 17, 1994, Pat. No. 5,585,316, which is a division of Ser. No. 907,889, Jul. 2, 1992, abandoned. This application Nov. 12, 1996, Ser. No. 747,234

Claims priority, application United Kingdom, Jul. 2, 1991, 9114314

Int. Cl.[6] C07C *1/04;27/00*

U.S. Cl. 585—733 **11 Claims**

1. A process for the conversion of synthesis gas into hydrocarbons over a treated cobalt containing catalyst under Fischer Tropsch conditions characterized in that prior to performing said conversion the catalyst is contacted at a temperature between 200° C. and 350° C. with a gas containing carbon monoxide, substantially free of hydrogen, to produce said treated cobalt containing catalyst.

5,728,919

INBRED MAIZE LINE PHBF0

James Milton Livesey, Woodstock, Canada, assignor to Pioneer Hi-Bred International, Inc., Des Moines, Iowa

Filed Jan. 31, 1995, Ser. No. 381,177

Int. Cl.[6] A01H *5/00;4/00;1/00;* **C12N** *5/04*

U.S. Cl. 800—200 **13 Claims**

1. Seed of maize inbred line designated PHBF0 and having ATCC Accession No. 209267.

5,728,920

HYBRID MAIZE PLANT AND SEED (3970)

Roy Luedtke, Jr., Thompson, N. Dak., assignor to Pioneer Hi-Bred International, Inc., De Moines, Iowa

Filed Mar. 14, 1996, Ser. No. 614,615

Int. Cl.[6] A01H *5/00;4/00;* **C12N** *5/04*

U.S. Cl. 800—200 **7 Claims**

1. Hybrid maize seed designated 3970, representative seed of said hybrid 3970 having been deposited under ATCC accession number 209293.

5,728,921

HYBRID MAIZE PLANT & SEED (3260)

Thomas Charles Barker, Princeton, Ind., and Stephen William Noble, Jr., Johnston, Iowa, assignors to Pioneer Hi-Bred International, Inc., Des Moines, Iowa

Filed Mar. 14, 1996, Ser. No. 616,126

Int. Cl.[6] A01H *5/00;4/00;* **C12N** *5/04*

U.S. Cl. 800—200 **7 Claims**

1. Hybrid maize seed designated 3260, representative seed of said hybrid 3260 having been deposited under ATCC accession number 209295.

2. A maize plant, or its parts, produced by the seed of claim 1.

5,728,922

INBRED MAIZE LINE CG5NA01

Albert R. Hornbrook, Normal, Ill., assignor to Novartis Corporation

Filed Jun. 28, 1996, Ser. No. 671,888

Int. Cl.[6] A01H *5/00;4/00;5/10;* **C12N** *5/04*

U.S. Cl. 800—200 **17 Claims**

1. An inbred maize line designated CG5NA01 (ATCC Designation 97477).

5,728,923

INBRED MAIZE LINE CG3ND97

Robert Miller, 1071 Paralta Rd., Springville, Iowa 52336

Filed Jun. 28, 1996, Ser. No. 672,835

Int. Cl.[6] A01H *5/00;* **A10H** *4/00;* **C12N** *5/04*

U.S. Cl. 800—200 **17 Claims**

1. An inbred maize line designated CG3ND97 (ATCC Designation 97475).

5,728,924

INBRED CORN LINE NP 934

Allen R. Henson, 3393 County Rd. 800 E., Dewey, Ill. 61840

Continuation of Ser. No. 375,033, Jan. 19, 1995. This application Jul. 24, 1996, Ser. No. 690,252

Int. Cl.[6] A01H *5/00;4/00;* **C12N** *5/04*

U.S. Cl. 800—200 **16 Claims**

1. Inbred corn seed designated NP 934 having ATCC Accession No. 209452.

10. A first generation (F1) hybrid corn plant produced by the process of:

a. planting in pollinating proximity seeds of inbred corn line NP 934 having ATCC Accession No: 209452 and a second inbred line;

b. cultivating corn plants resulting from said planting until time of flowering;

c. emasculating the flowers from the second inbred line;

d. allowing cross pollination to occur between said inbreds;

e. harvesting the seeds produced on said plants of the second inbred line; and

f. growing the harvested seeds produced in step e.

5,728,925

CHIMAERIC GENE CODING FOR A TRANSIT PEPTIDE AND A HETEROLOGOUS POLYPEPTIDE

Luis Herrera-Estrella; Guido Van Den Broeck, both of Gent; Marc Van Montagu, Brussel, all of Belgium; Peter Schreier; Jeff Schell, both of Cologne, Germany; Hans J. Bohnert, Tucson, Ariz.; Anthony R. Cashmore, Woodside; Michael P. Timko, New York, both of N.Y., and Albert P. Kausch, Durham, N.H., assignors to Plant Genetic Systems, N.V., Brussels, Belgium, and Bayer A.G., Leverkusen, Germany

Continuation of Ser. No. 267,306, Jun. 29, 1994, abandoned, which is a continuation of Ser. No. 26,213, Mar. 1, 1993, abandoned, which is a continuation of Ser. No. 794,635, Nov. 18, 1991, abandoned, which is a continuation of Ser. No. 480,343, Feb. 14, 1990, abandoned, which is a continuation of Ser. No. 755,173, Jul. 15, 1985, abandoned. This application Apr. 28, 1995, Ser. No. 430,257

Claims priority, application United Kingdom, Dec. 28, 1984, 8432757; Jan. 7, 1985, 8500336

Int. Cl.[6] A01H *5/00;5/10;* **C12N** *15/62;15/82*

U.S. Cl. 800—205 **43 Claims**

1. A plant containing in its nuclear genome a chimaeric DNA sequence, comprising:

a) a nucleic acid sequence coding for a chimaeric protein or polypeptide comprising in sequence:

1) a transit peptide of a cytoplasmic precursor of a chloroplast protein or chloroplast polypeptide of a plant species, and

2) a protein or polypeptide of interest which is different from a mature chloroplast protein or chloroplast polypeptide derived from a natural cytoplasmic precursor thereof, and,

b) a promoter upstream of said nucleic acid sequence recognized by polymerases endogenous to said plant,

wherein the chimaeric DNA sequence can be expressed in cells of said plant under the control of said promoter, and said protein or polypeptide of interest is translocated into the chloroplasts of said cells of said plant.

5,728,926

ANTISENSE GENE SYSTEMS OF POLLINATION CONTROL FOR HYBRID SEED PRODUCTION

Steven F. Fabijanski, Ottawa, and Paul G. Arnison, Georgetown, both of Canada, assignors to Pioneer Hi-Bred International, Inc., Des Moines, Iowa

Division of Ser. No. 288,734, Aug. 12, 1994, which is a division of Ser. No. 892,635, Jun. 2, 1992, Pat. No. 5,356,799, which is a continuation of Ser. No. 306,438, Feb. 3, 1989, abandoned, which is a continuation-in-part of Ser. No. 151,906, Feb. 3, 1988, abandoned. This application Jun. 7, 1995, Ser. No. 483,960

Int. Cl.[6] A01H *1/02;5/00;* **C12N** *15/29;15/82*

U.S. Cl. 800—205 **20 Claims**

1. A method of producing hybrid seed from plants of a species of pollen-producing plants that is capable of being genetically transformed, comprising the steps of:

(a) producing a genetically transformed plant by:

(i) inserting into the genome of a plant cell of said species a recombinant DNA molecule comprising

(I) an antisense DNA sequence the transcript of which renders developing pollen grains susceptible to an herbicide or antibiotic and

(II) a promoter that functions in said plant cell to cause transcription of said antisense DNA sequence into RNA preferentially in cells critical to pollen formation or function,

(ii) obtaining a transformed plant cell of said plant and

(iii) regenerating from said transformed plant cell a plant that is genetically transformed with said recombinant DNA molecule such that said plant produces said RNA to render developing pollen grains susceptible to said herbicide or antibiotic;

(b) increasing the number of genetically transformed plants by:

(i) fertilizing said genetically transformed plant with pollen produced by a suitable male fertile plant and obtaining seed which, when germinated, yields a plurality of genetically transformed plants, or

(ii) clonally propagating said genetically transformed plant to obtain a plurality of genetically transformed plants; and

(c) effecting a hybrid cross by pollinating said genetically transformed plants with pollen from suitable male fertile plant donors.

10. A transformed plant containing a recombinant DNA molecule which comprises (1) an antisense DNA sequence the transcript of which renders developing pollen grains susceptible to an herbicide or antibiotic, and (2) a promoter that functions in said plant cell to cause transcription of said antisense DNA sequence into RNA preferentially in cells critical to pollen formation or function.

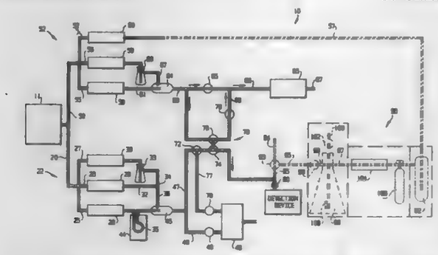
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5,728,927

CONTROLLED MULTI-PURPOSE CHEMICAL AGENT VAPOR GENERATOR SYSTEM

Kwok Y. Ong, Aberdeen, Md., assignor to The United States of America as represented by the Secretary of the Army, Washington, D.C.

Filed Aug. 13, 1996, Ser. No. 696,085
Int. Cl.° G01D *18/00*
U.S. Cl. 73—1 G **16 Claims**



1. A system for testing a chemical agent detection device, comprising:

(a) means for generating and directing a first airstream comprising a chemical agent airstream;

(b) means for generating and directing a second airstream having a controlled relative humidity;

(c) means for contacting said chemical agent airstream with said airstream having a controlled relative humidity creating a conditioned chemical agent airstream;

(d) means for generating a preconditioning airstream having a relative humidity approximately equal to that of said conditioned chemical agent airstream, so that said preconditioning airstream can be used for calibrating or preconditioning the chemical agent detection device prior to challenging the chemical agent detection device with the conditioned chemical agent airstream; and

(e) means for instantaneously switching the delivery of said preconditioning airstream and said conditioned chemical agent airstream to said chemical agent detection device so that no flow disturbance occurs within the system and a steady state flow equilibrium is maintained throughout the system when flow to the detection device is switched between said preconditioning airstream and said conditioned chemical agent airstream.

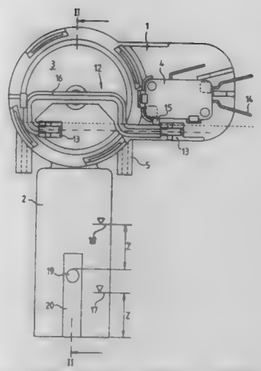
5,728,928

CALIBRATION METHOD FOR LEVEL SENSORS WITH PRESSURE TRANSDUCER

Michael Wisskirchen, Neukirch, Germany, assignor to AWECO Kunststofftechnik Geraetebau GmbH & Co. KG, Neukirch, Germany

Filed Jul. 9, 1996, Ser. No. 679,400
Claims priority, application Germany, Jul. 15, 1995, 195 25 895.9
Int. Cl.° G01F *23/12*
U.S. Cl. 73—1.73 **8 Claims**

1. A calibration method for sensors for recording a liquid level, which sensors have a housing, an immersion tube, a pressure transducer and an electrical switch, a closed-off air volume forming in the immersion tube, from a closure limit, when the liquid rises, the pressure of said air volume being recorded by the pressure transducer which actuates the switch via mechanical transmission means, wherein a new closure limit is placed on the insertion tube above the closure limit in the direction of height as a result of a variation in the immersion tube and the original actual switching level determined by random production differences thereby being brought into coincidence with a desired switching level identical for all sensors.

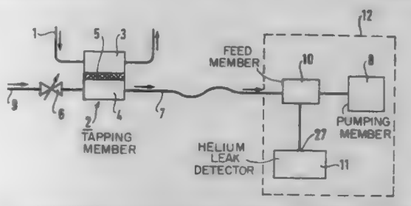


5,728,929

INSTALLATION FOR DETECTING THE PRESENCE OF HELIUM IN A FLUID CIRCUIT

Roland Gevaud, Argonay, France, assignor to Alcatel Cit, Paris, France

Filed May 22, 1996, Ser. No. 651,748
Claims priority, application France, May 24, 1995, 95 06220
Int. Cl.° G01M *3/20*
U.S. Cl. 73—19.12 **5 Claims**



1. An installation for detecting the presence of helium in a fluid circuit, said installation including a tapping member constituting a volume comprising a first internal space and a second internal space separated from each other by a semi-permeable partition through which helium can pass, said first space of said tapping member being inserted in series in said fluid circuit, said second space being connected both to a gas source via an orifice having an adjustable aperture, and also to a pumping member via a pipe, the flow pumped through said pipe conveying the flow under viscous conditions towards a feed member connected to a helium leak detector.

5,728,930

METHOD AND DEVICE FOR MEASURING THE PERMEABILITY OF A DRYING WIRE TO AIR

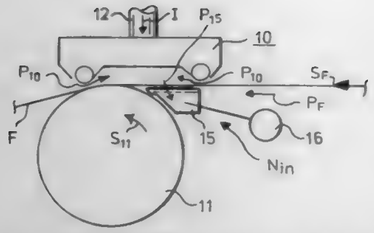
Raimo Virta, Turku, Finland, assignor to Valmet Corporation, Helsinki, Finland

Filed Oct. 23, 1996, Ser. No. 735,782
Claims priority, application Finland, Oct. 23, 1995, 955039; Jan. 17, 1996, 960220
Int. Cl.° G01N *815/08*
U.S. Cl. 73—38 **20 Claims**

12. A device for measuring the permeability of a drying wire to air while the drying wire is moving, comprising

a blow box arranged in the vicinity of and spaced from the drying wire such that the drying wire passes over said blow box without contacting said blow box,

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a measurement box spaced from the drying wire such that a gap is formed between said measurement box and the drying wire and the drying wire passes over said measurement box without contacting said measurement box, said blow box being arranged to generate a pressure differential between said blow box and said measurement box whereby the pressure in said measurement box is relative to the permeability of the drying wire, and

measurement means for measuring at least one of the pressure in said measurement box and a relative change in the pressure in said measurement box, the permeability of the drying wire being determinable from said measured pressure in said measurement box and said measured relative change in the pressure in said measurement box.

5,728,931

Patent Not Issued For This Number

5,728,932

METHOD FOR DIAGNOSING PERFORMANCE OF INTAKE AIR AMOUNT DETECTION DEVICE AND APPARATUS THEREOF

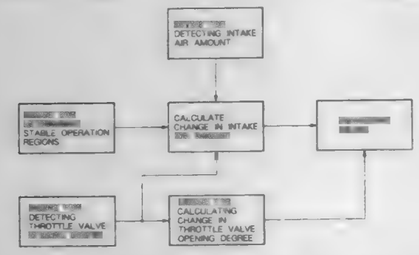
Akira Uchikawa, Atsugi, Japan, assignor to Unisia Jecs Corporation, Kanagawa-ken, Japan

Filed Dec. 5, 1996, Ser. No. 761,090

Claims priority, application Japan, Dec. 8, 1995, 7-320900

Int. Cl.[6] G01M *15/00;* **F02D** *45/00*

U.S. Cl. 73—118.2 **21 Claims**



1. A method for diagnosing performance of an intake air amount detection device of an internal combustion engine comprising:

determining an operation region in which the internal combustion engine equipped with an intake air amount detection device stably operates;

detecting the opening degree of a throttle valve interposed in an intake system of said engine;

calculating a change amount of the throttle valve opening degree when the opening degree of the throttle valve is changed in said determined stable operation region;

calculating an intake air change amount detected by said intake air amount detection device when the opening degree of said throttle valve is changed; and

diagnosing performance of the intake air amount detection device based upon a relationship between the change amount of the opening degree of said throttle valve and the intake air change amount.

5,728,933

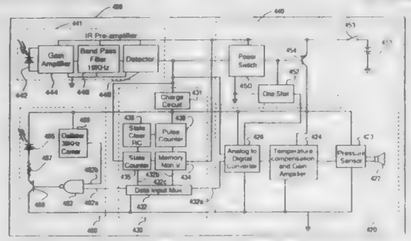
SYSTEM AND METHOD FOR REMOTE SENSING AND RECEIVING

Thomas J. Schultz, Neenah, and Alan J. Campbell, New Berlin, both of Wis., assignors to Sentech Corporation, Appleton, Wis.

Division of Ser. No. 226,664, Apr. 11, 1994, Pat. No. 5,483,826, which is a division of Ser. No. 792,134, Nov. 13, 1991, Pat. No. 5,301,553, which is a continuation-in-part of Ser. No. 453,785, Dec. 20, 1989, Pat. No. 5,083,457. This application Sep. 20, 1995, Ser. No. 530,938

Int. Cl.[6] B60C *23/02*

U.S. Cl. 73—146.5 **30 Claims**



29. A method for communicating between a sensor and a receiver in a remote detect and display system using a carrier wave, the sensor being spatially separate from the receiver, said method comprising the steps of:

sending an activation signal having at least one pulse of the carrier wave from the receiver to the sensor;

sending first pulses of the carrier wave to the sensor for initiating transmission of first data by the sensor;

receiving a first signal from the sensor indicative of the first data;

sending the carrier wave to the sensor for enabling the sensor to read second data;

sending the activation signal from the receiver to the sensor;

sending second pulses of the carrier wave to the sensor for initiating transmission of the second data; and

receiving a second signal from the sensor indicative of the second data.

5,728,934

Patent Not Issued For This Number

5,728,935

METHOD AND APPARATUS FOR MEASURING GRAVITY WITH LEVER ARM CORRECTION

Jozsef Czompo, #409, 100 Varley Lane, Kanata, Ontario, Canada, K2K 1E5

Filed Aug. 14, 1996, Ser. No. 689,827

Int. Cl.[6] G01V *7/16*

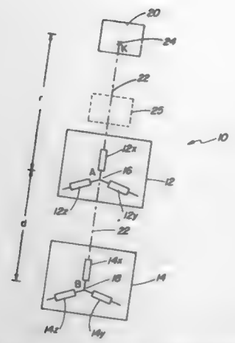
U.S. Cl. 73—382 G **18 Claims**

1. An apparatus for measuring the magnitude of gravity comprising:

a. means for measuring specific force at a first nominal center;

b. means for measuring specific force at a second nominal center;

c. kinematic acceleration measurement means for measuring kinematic acceleration at a kinematic reference point (KRP)



wherein the first nominal center, second nominal center and kinematic reference point are collinear and the first nominal center and the second nominal center are each a fixed and known distance from the kinematic reference point wherein measurement of the specific force at the first and second nominal centers and kinematic acceleration at the KRP are made independently of each other;

d. means for calculating gravitational acceleration at the kinematic reference point on the basis of said independent measurement of the specific force at the first and second nominal centers and kinematic acceleration at the KRP.

5,728,936

ROTARY SPEED SENSOR

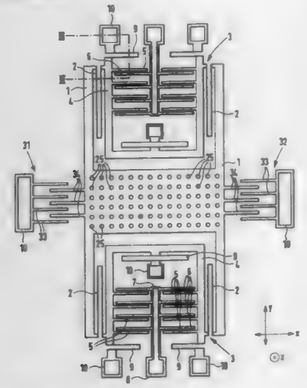
Markus Lutz, Reutlingen, Germany, assignor to Robert Bosch GmbH, Stuttgart, Germany

Filed Aug. 15, 1996, Ser. No. 700,732

Claims priority, application Germany, Aug. 16, 1995, 1 95 30 907.6

Int. Cl.[6] G01P *9/04*

U.S. Cl. 73—504.14 **11 Claims**



1. A rotary speed sensor, comprising:

at least one oscillator (**1**) and a substrate (**21**), wherein the oscillator can be excited to perform oscillations relative to the substrate in a first direction (X direction) and, upon a rotation, can be deflected by incident Coriolis forces in a second direction (Y direction) that is perpendicular to the first direction;

at least one elastic element (**2**) coupling the oscillator to at least one detection element (**3**), wherein the elastic element (**2**) has a low spring constant in the first direction (X) and a high spring constant in the second direction (Y); and

at least two deflection springs (**9**) anchoring the at least one detection element (**3**) to said substrate (**21**), wherein the deflection springs (**9**) have a high spring constant in the first direction (X) and a low spring constant in the second direction (Y).

5,728,937

ARRANGEMENT FOR TESTING THE MATERIAL OF FORMED PARTS

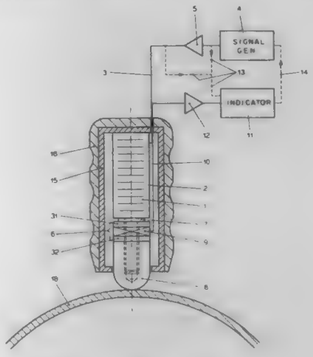
Ralf Reichau, Berlin, Germany; Claudio Cavalloni, Regensdorf, Switzerland; Andreas Kirchheim, Hettlingen, Switzerland, and Peter Wolfer, Kleinandelfingen, Switzerland, assignors to K. K. Holding AG, Winterthur, Switzerland

Filed Sep. 11, 1996, Ser. No. 712,200

Claims priority, application Switzerland, Sep. 15, 1995, 02601/95

Int. Cl.[6] G01M *7/02*

U.S. Cl. 73—579 **16 Claims**



1. An arrangement for testing the material of formed parts in order to detect material defects and/or properties, whereby the frequency spectrum of mechanical excitation vibrations of a formed part to be tested are compared with the frequency spectrum of a similar formed part having known properties as reference spectrum, the arrangement comprising:

a piezoelectric actuator, an electromechanical sensor and a coupling element, which are combined into one assembly unit;

a signal generator supplying individual pulses or vibrations of variable frequency within a certain range and of constant shape and amplitude to and exciting the actuator;

means of detecting the shape and amplitude of the actuator excitation;

an electronic charge amplifier with an indicator detecting at least the mechanical excitation vibrations of the actuator measured by the sensor; and

means for exciting the actuator only after a threshold is exceeded by the pressing force of the assembly unit on the formed part, whereby the pressing force is determined by the sensor.

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5,728,938

NOISE MEASURING DEVICE FOR A DIFFERENTIAL GEAR ASSEMBLY

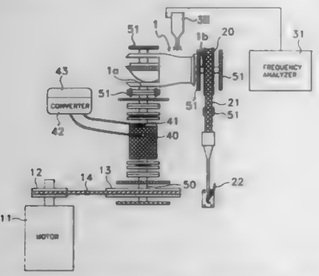
Eun-O Choi, Kwach'ŏn, and Han-Song Jong, Seoul, both of Rep. of Korea, assignors to Kia Motors Corporation, Seoul, Rep. of Korea

Filed Aug. 21, 1996, Ser. No. 697,240

Claims priority, application Rep. of Korea, Jul. 26, 1996, 96-30565

Int. Cl.[6] G01M *13/02*

U.S. Cl. 73—593 1 Claim



1. A noise measuring device for a differential gear assembly which generates a noise under simulated driving conditions, comprising

a fixed jig for fixing front and rear parts of the differential gear assembly having a differential gear;

a driving motor for rotating a drive shaft of said differential gear;

a torque sensor and a revolutions per minute (RPM) sensor attached between said drive shaft and said driving motor;

a computer displaying torque and RPM of said drive shaft after receiving through an analog-to-digital (A/D) converter signals from said torque sensor and said RPM sensor;

an analog-to-digital (A/D) converter, connected to said torque sensor and RPM sensor, for conveying a signal to said computer representative of torque and RPM;

braking means for providing a load to a driven shaft of said differential gear;

a sound sensing means installed adjacent said differential gear for generating an electrical signal proportional to a magnitude of said noise; and

a frequency analyzer which receives an output signal from said sound sensing means to analyze a characteristic of sound from said sound sensing means;

wherein said braking means includes a brake drum coupled with said drive shaft as one body;

a brake lining for covering a peripheral surface of said brake drum; and

a brake controller which provides a load to said differential gear by imparting a tensile stress to said brake lining.

5,728,939

PROBE, DEVICE AND METHOD FOR TESTING EGGS

Hossein Moayeri, Soest, Netherlands, assignor to FPS Food Processing Systems B.V., Netherlands

Filed Apr. 15, 1996, Ser. No. 632,062

Claims priority, application Netherlands, Apr. 19, 1995, 1000177

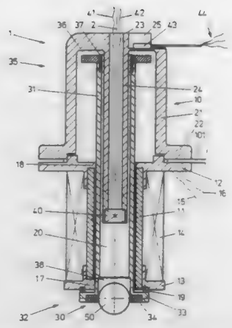
Int. Cl.[6] G01M *7/00*; G01H *1/00*

U.S. Cl. 73—595 23 Claims

1. A probe for testing an egg, comprising:

a hollow, tubular probe body;

an excitation member disposed adjacent a first end of the probe body; and



retaining means comprising a magnetic field for retaining the excitation member relative to the probe body in such a manner that the excitation member is free to carry out a vibrating movement in a direction parallel to a center line of the probe body.

5,728,940

LEAKAGE GAS DETECTOR FOR SEMICONDUCTOR DEVICE AND LEAKAGE GAS DETECTING METHOD USING THE SAME

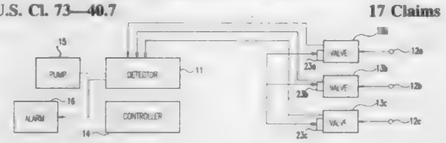
Dae-woo Kim; Jae-kyung Lee; Bon-rip Koo, and Sang-woon Kim, all of Suwon, Rep. of Korea, assignors to Samsung Electronics Co., Ltd., Suwon, Rep. of Korea

Filed Nov. 7, 1996, Ser. No. 739,729

Claims priority, application Rep. of Korea, Nov. 8, 1995, 95-40266

Int. Cl.[6] G01M *3/18*; G01N *31/08*

U.S. Cl. 73—40.7 17 Claims



1. A leakage gas detector for a semiconductor device comprising:

a plurality of inflow apertures into which a leakage gas may flow;

a detector for detecting the leakage gas, if any, transferred thereto via each inflow aperture;

a pump disposed downstream of said inflow apertures for drawing any of said leakage gas towards and through said detector by applying a suction pressure to any of said leakage gas emanating from said semiconductor device;

a plurality of valves, each connected to corresponding ones of said plurality of inflow apertures for increasing the suction pressure of any leakage gas flowing into said detector from said corresponding ones of said plurality of inflow apertures; and

a controller connected to said plurality of valves for sequentially opening and then closing each of said plurality of valves in turn.

5,728,941

MISFIRE DETECTING APPARATUS USING DIFFERENCE IN ENGINE ROTATION SPEED VARIANCE

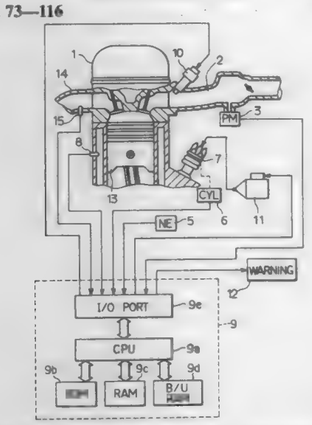
Kenji Yamamoto, Anjo; Akira Ichikawa, Chiryu, and Keiji Wakahara, Kariya, all of Japan, assignors to Denso Corporation, Kariya, Japan

Filed Oct. 9, 1996, Ser. No. 731,050

Claims priority, application Japan, Oct. 9, 1995, 7-261677; Oct. 16, 1995, 7-266058; Jun. 20, 1996, 8-160138; Aug. 9, 1996, 8-211619

Int. Cl.[6] G01M *15/00*

U.S. Cl. 73—116 29 Claims



1. A misfire detection apparatus for a multi-cylinder internal combustion engine, said apparatus comprising:

means for outputting a signal representing rotation of a crankshaft of said multi-cylinder internal combustion engine;

means for calculating a rotational speed of each cylinder from said signal; and

a misfire detecting means for finding a difference in rotational-speed variance defined as a difference in rotational speed between a pair of cylinders to detect a misfire occurring in said multi-cylinder internal combustion engine,

wherein the improvement comprises:

a difference calculating means for calculating a difference in rotational-speed variance between cylinder pairs in each of a plurality of combinations of cylinder pairs operationally separated from each other by a multiple of smallest units which are each defined by division of a crank angle required by each cylinder for accomplishing one combustion cycle by the number of cylinders of said multicylinder internal combustion engine; and

a comparison means for comparing said difference in rotational-speed variance with a predetermined misfire criterion value for each of said combinations of cylinder pairs.

5,728,942

FLUID PRESSURE MEASURING SYSTEM FOR CONTROL VALVES

Henry W. Boger, 58 Cannon Forge Dr., Foxborough, Mass. 02035

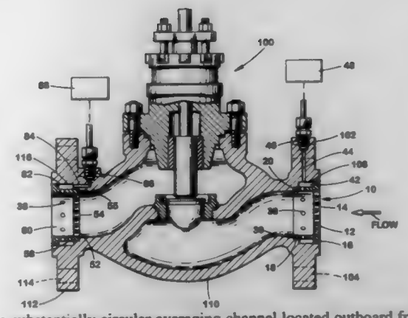
Filed Nov. 28, 1995, Ser. No. 563,982

Int. Cl.[6] G01L *7/00*

U.S. Cl. 73—756 15 Claims

1. A system for improving the fluid pressure measurement at both the inlet and the outlet of a control valve, said control valve being constructed and arranged to utilize said fluid pressure measurement to control flow through said control valve, said system for improving fluid pressure measurement at both the inlet and the outlet of a control valve comprising:

fluid flow conditioners constructed and arranged to fit within the inlet and the outlet of the control valve;



a substantially circular averaging channel located outboard from and downstream from said fluid flow conditioners;

said substantially circular averaging channels constructed and arranged to surround the inlet and the outlet of the control valve; and

conduits for conducting flowing fluid from said substantially circular averaging channels to a fluid pressure measurement device.

5,728,943

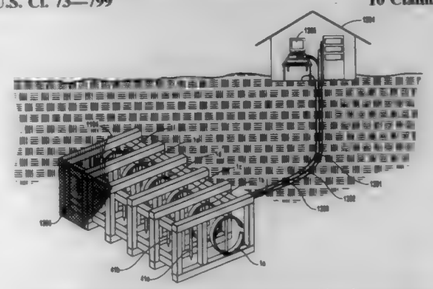
METHOD AND SYSTEM FOR DETECTION AND PREVENTION OF STRESS CORROSION CRACKING IN BURIED STRUCTURES

Leslie G. Colter, Jr., Montgomery, Tex.; David C. Katz, Salt Lake City, Utah, and Frank E. Rizzo, Spring, Tex., assignors to Northwest Pipeline Corporation, Salt Lake City, Utah

Filed Mar. 15, 1996, Ser. No. 620,763

Int. Cl.[6] G01N *17/00*

U.S. Cl. 73—799 10 Claims



1. A method of detecting stress corrosion cracking in a structure, comprising the steps of:

a) placing a plurality of test coupons adjacent to said structure;

b) applying a different level of cathodic protection to each of said test coupons;

c) applying a stress to each of said test coupons which is at least as great as the maximum stress which can occur in said structure;

d) monitoring the temperature of said structure and controlling the temperature of each of said test coupons so that it matches the temperature of said structure;

e) measuring the electrical resistance of each of said test coupons over time;

f) detecting the occurrence of stress corrosion cracking in any of said test coupons as an increase in said electrical resistance;

wherein the levels of cathodic protection applied to said plurality of test coupons form a range which includes the level of cathodic protection at which stress corrosion cracking is expected to occur.

8. A sensor for detecting stress corrosion cracking in buried pipelines, comprising:

a) a three-dimensional framework constructed of a sturdy, nonconductive structural material;

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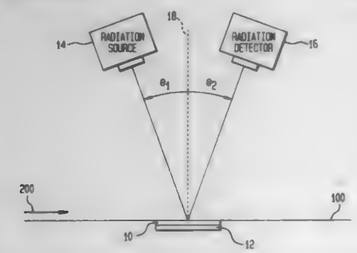
b) a plurality of C-ring coupons supported by said framework, each C-ring coupon having associated therewith:
i) a temperature monitoring device for monitoring the temperature of test C-ring coupon;
ii) a heating element affixed to said C-ring coupon;
iii) an impressed current anode affixed to said framework in the vicinity of said C-ring coupon;
iv) a reference electrode affixed to said framework in the vicinity of said C-ring coupon;
v) a mechanism for applying a stress to said C-ring coupon.

5,728,944

PHOTOELASTIC STRESS SENSOR

Richard H. Nadolink, Portsmouth, R.I., assignor to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

Filed Jan. 17, 1996, Ser. No. 605,291
Int. Cl.[6] G01L *1/24*
U.S. Cl. 73—800 **17 Claims**



1. An apparatus for detecting shear stress in a material, comprising:
a piece of single crystal silicon mounted on the material;
a mirror mounted between said piece of single crystal silicon and the material;
an infrared source for illuminating said piece of single crystal silicon with radiation having a wavelength in the range of 800–1100 nanometers; and
an infrared detector focused on the illuminated portion of said piece of single crystal silicon for monitoring birefringence induced phase change effects in light emergent therefrom.

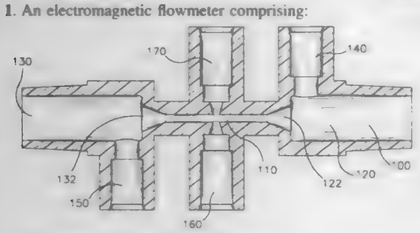
5,728,945

ELECTROMAGNETIC FLOWMETER WITH INTERNALLY PLACED, LAMINAR FLOW SUPPORTING, GROUNDING ELECTRODES

James W. Davis, New Britain; Herbert A. Shauger, Jr., Doylestown, and Gabor E. Vass, Hatfield, all of Pa., assignors to Elsag International N.V., Amsterdam, Netherlands

Filed Jan. 21, 1997, Ser. No. 781,352
Int. Cl.[6] G01F *1/58*
U.S. Cl. 73—861.12 **2 Claims**

1. An electromagnetic flowmeter comprising:



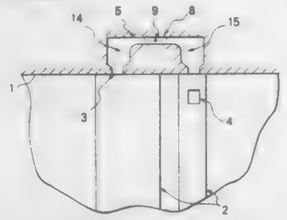
a body having a central channel having:
(a) a measuring region,
(b) an inlet region and an outlet region, relative to liquid flow through said central channel, upstream and downstream of said measuring region, respectively, said inlet region and said outlet region having diameters substantially greater than the diameter of said measuring region, and
(c) a transition region extending between said inlet region and said measuring region and a transition region extending between said measuring region and said outlet region;
first and second cavities, respectively, extending from said inlet region and said outlet region of said central channel;
third and fourth diametrically opposed cavities extending from said measuring region of said central channel;
means for developing a magnetic field extending through said measuring region of said central channel;
first and second grounding electrodes, respectively, positioned in said first and second cavities; and
third and fourth measuring electrodes, respectively, positioned in said third and fourth cavities.

5,728,946

KARMAN VORTEX FLOW METER

Shu Sasaki; Sakae Kiguchi, both of Tokyo; Toru Hashimoto, Kyoto; Shoji Hashimoto, Kyoto, and Hiroshi Tanaka, Kyoto, all of Japan, assignors to Mitsubishi Denki Kabushiki Kaisha, and Mitsubishi Jidosha Kogyo Kabushiki Kaisha, both of Tokyo, Japan

Filed Feb. 24, 1997, Ser. No. 805,053
Claims priority, application Japan, Feb. 28, 1996, 8-069045
Int. Cl.[6] G01F *1/32*
U.S. Cl. 73—861.22 **3 Claims**



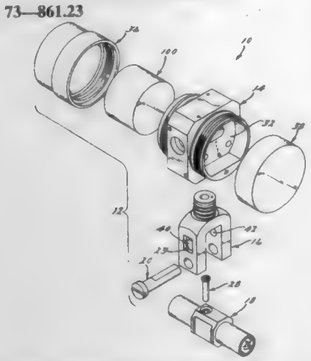
1. A Karman vortex flow meter including a duct in which a fluid flows, and a vortex generator in the duct, said flow meter detecting a period of Karman vortexes generated by the vortex generator in order to measure a flow velocity or a flow rate of the fluid, said flow meter comprising:
a detection passage communicating with the duct and having an outflow opening in an end surface of the vortex generator and an inflow opening on an upstream side of said outflow opening; and
a detection section disposed in said detection passage to detect variation of a flow velocity of the fluid within said detection passage which occurs due to a negative pressure of the Karman vortexes,
wherein a first space section of the detection passage is disposed between and communicates said detection section and said inflow opening, said first space having a cross-sectional area larger than a cross-sectional area of said inflow opening and larger than a cross-sectional area of said detection section, and further a second space section of the detection passage is disposed between and communicates said detection section and said outflow opening, said second space having a cross-sectional area larger than a cross-sectional area of said outflow opening and larger than said cross-sectional area of said detection section.

5,728,947

ULTRASONIC VORTEX FLOWMETER HAVING CLAMP-ON HOUSING

David Winsor Marsh, N. Scituate, R.I.; Lars Oscar Rosaen, Plymouth, and Eric J. Rosaen, Ann Arbor, both of Mich., assignors to Asahi/America, Inc., Malden, Mass.

Filed Jun. 12, 1996, Ser. No. 662,037
Int. Cl.[6] G01F *1/32*
U.S. Cl. 73—861.23 **18 Claims**



10. A vortex flowmeter for measuring the flow rate of a fluid in a fluid flow conduit, said vortex flowmeter comprising:
a bluff body conduit connector coupled into said fluid flow conduit and containing a bluff body disposed to produce vortices in the flow of fluid;
a single-piece yoke dimensioned to slip about and removably mate with said bluff body conduit connector, said yoke being formed to slip about and removably mate with said bluff body conduit connector in a direction transverse to the direction of the fluid flow;
an ultrasonic transmitter and receiver disposed within said yoke so as to be respectively positioned on opposing sides of said bluff body conduit connector, and with said transmitter propagating an ultrasonic wave through said vortices for receipt by said receiver;
a phase detector means connected to said transmitter and receiver for producing an output representative of any phase difference between the transmitted wave and the received wave; and
a processor means responsive to said phase detector means output for determining the fluid flow rate as a function of the phase difference caused by said vortices.

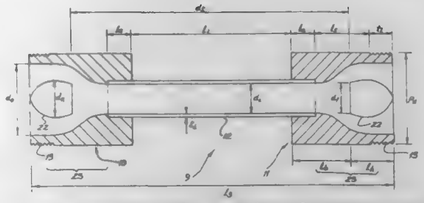
5,728,948

FLUID METER CONSTRUCTION

Noel Bignell, Annandale; Anthony Francis Collings, Turramurra; Kenneth James Hews-Taylor, West Pymble; Alan William Brew, St. Ives; Michael Ross Peterson, Ryde, and Suszanne Thwaites, Lindfield, all of Australia, assignors to Commonwealth Scientific and Industrial Research Organisation, Campbell, and AGL Consultancy Pty. Ltd., North Sydney, both of Australia

PCT No. PCT/AU94/00112, § 371 Date Jan. 10, 1996, § 102(e) Date Jan. 10, 1996, PCT Pub. No. WO94/20822, PCT Pub. Date Sep. 15, 1994
PCT Filed Mar. 9, 1994, Ser. No. 513,922
Claims priority, application Australia, Mar. 9, 1995, PL7725
Int. Cl.[6] G01F *1/66*
U.S. Cl. 73—861.28 **16 Claims**

1. A fluid meter comprising:
a pipe section adapted for the measurement of fluid flow through a pipeline into which the pipe section is insertable, the pipe section comprising a first and second end portions each having an end opening, and an intermediate portion arranged between the end portions, the pipeline and end openings



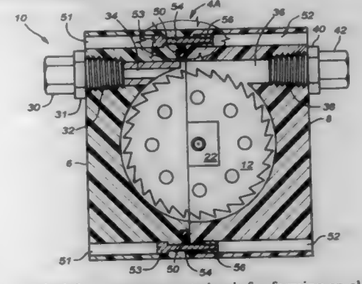
having substantially the same internal transverse cross-sectional areas, the intermediate portion having an internal transverse cross-sectional area smaller than that of the end openings and the pipeline, there being a transitional portion of non-constant transverse cross-sectional area in each end portion between the respective end opening and the intermediate portion;
first and second transducer housings each enclosing a respective acoustic transducer, each housing:
(a) being locatable within the pipe section in respective ones of the end portions to define a measurement portion therebetween;
(b) being externally fluid dynamically shaped to substantially reduce pressure drop of the fluid as the fluid passes through the measurement portion; and
(c) having a compartment for housing the respective acoustic transducer, the compartment comprising an acoustic signal transparent window facing towards the window of the other transducer through the intermediate portion thereby permitting signals to be passed between the transducers; and
a control module electronically connected to the transducers to cause transmission and reception of acoustic signals through the intermediate section between the transducers to determine the velocity of fluid flowing in the intermediate section; and wherein
in order to reduce acoustic back reflections from the transitional portions to the transducers and to reduce pressure drop along the transitional portions, each of the transducer housings is positioned at least partly within the corresponding one of the transitional portions, which are constructed such that a minimum transverse cross-sectional area about each transducer housing is not less than the transverse cross-sectional area of the intermediate portion.

5,728,949

FLUID FLOW RATE MEASURING CIRCUIT

Robert D. McMillan, and Robert M. McMillan, both of Georgetown, Tex., assignors to McMillan Company, Georgetown, Tex.

Continuation-in-part of Ser. No. 377,148, Jan. 24, 1995, Pat. No. 5,542,302. This application Apr. 12, 1996, Ser. No. 631,372
Int. Cl.[6] H01B *1/00*
U.S. Cl. 73—861.77 **12 Claims**

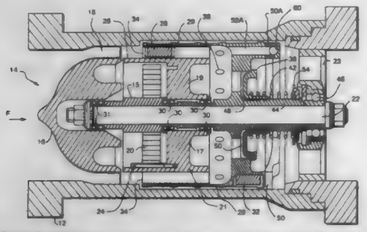


1. An optical flow measurement circuit for forming an electrical signal indicative of fluid flow, comprising:

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a light source mounted for emitting light to pass through the fluid;
a light detector in optical alignment with said light source to sense the amount of light passing through the fluid; and
a pulsed power source for energizing said light source at a duty cycle of about ten percent to thereby reduce power consumption.

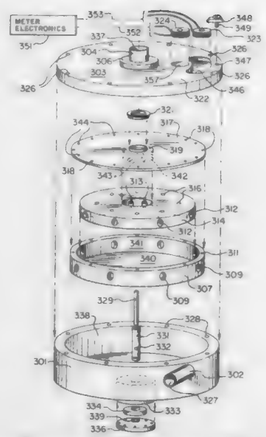
5,728,950
FLUID FLOWMETER
Michael P. Boulanger, Pelham, N.H., assignor to Ametek Aerospace Products, Inc., Wilmington, Mass.
Filed May 20, 1996, Ser. No. 650,654
**Int. Cl.[6] G01F *1/05*
U.S. Cl. 73—861.79 24 Claims**



1. A fluid flowmeter, and comprising, a turbine for imparting an angular momentum to a main flow of fluid that is related to a flow of fluid through said turbine, an impeller for undergoing an angular deflection in response to said angular momentum of said main flow, said angular deflection being indicative of flowrate of said main flow, a viscous shroud surrounding said impeller and having at least one opening, and a poppet valve for opening substantially as a function of pressure of said main flow to provide a bypass flow of fluid, through said at least one opening, the flow of fluid through said turbine being at most equal to said main flow reduced by said bypass flow, said valve being adapted such that said bypass flow varies so as to ensure that the flow through said turbine maintains substantially constant rotational speed of said turbine independent of flowrate of said main flow, said valve including a member for reciprocating relative to said opening whereby to control said bypass flow through said at least one opening.

5,728,951
CORIOLIS EFFECT MASS FLOWMETER USING CONCENTRIC ROTORS
Craig Brainerd Van Cleve, Lyons, and Roger Scott Loving, Boulder, both of Colo., assignors to Micro Motion, Inc., Boulder, Colo.
Continuation of Ser. No. 404,340, Mar. 15, 1995, abandoned. This application Nov. 18, 1996, Ser. No. 744,224
Int. Cl.[6] G01F *1/05; 1/84*
U.S. Cl. 73—861.354 40 Claims

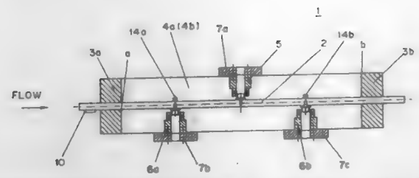
2. A Coriolis flowmeter comprising:
a fluid containment housing;
an outer rotor positioned within said housing and having a center axis of rotation,
a recess in said outer rotor coaxial with said center axis of rotation;
a Coriolis rotor at least a part of which is positioned in said recess and having a center of rotation coaxial with said center axis of rotation;
a plurality of openings in said Coriolis rotor with each of said openings extending from an outer periphery of said Coriolis rotor to a center recess of said Coriolis rotor;
a plurality of openings in said outer rotor with each of said openings extending from the outer periphery of said outer



rotor to said recess of said outer rotor with at least some of said openings in said outer rotor being substantially aligned with corresponding ones of said plurality of said openings in said Coriolis rotor;
a fluid inlet for applying received fluid to an inner chamber of said housing;
a fluid outlet for discharging said fluid from said housing;
means including said housing and said outer rotor and Coriolis rotor responsive to a receipt of said fluid by said fluid inlet for extending said fluid through said openings of both said outer rotor and said Coriolis rotor to said fluid outlet;
means including said means for extending for rotating both said outer rotor and said Coriolis rotor about said center axis of rotation using energy derived from said fluid while said fluid is extended through said openings in said Coriolis rotor and in said outer rotor;
said means for rotating comprising means for causing said outer rotor and said Coriolis rotor to rotate in response to said extension of said fluid;
means responsive to Coriolis forces generated by said fluid extension and to a concurrent rotation of said outer rotor and said Coriolis rotor for causing said Coriolis rotor to assume an angular offset from said outer rotor about said center axis of rotation;
means for generating output signals indicative of the magnitude of said angular offset; and
means for receiving said output signals to derive the mass flow rate of said fluid.

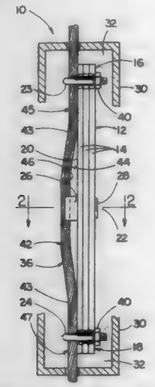
5,728,952
VIBRATION MEASURING INSTRUMENT
Hironobu Yao; Hiroyuki Yoshimura; Masato Takahashi; Michihiko Tsuruoka; Iwao Matsumoto; Masakazu Kawakami, and Keita Okawa, all of Kawasaki, Japan, assignors to Fuji Electric Co., Ltd., Kanagawa, Japan
Filed Sep. 8, 1995, Ser. No. 525,466
Claims priority, application Japan, Sep. 9, 1994, 6-215663; Feb. 6, 1995, 7-017588
Int. Cl.[6] G01F *1/84*
U.S. Cl. 73—861.357 13 Claims

13. A vibration measuring instrument comprising:
a straight measurement pipe;
supporting means for supporting said measurement pipe;
vibration generator means for vibrating said measurement pipe;
first and second vibration detecting means, provided symmetrically about an axial center of said measurement pipe, for detecting vibration of said measurement pipe;
temperature detecting means for measuring a temperature of said measurement pipe;



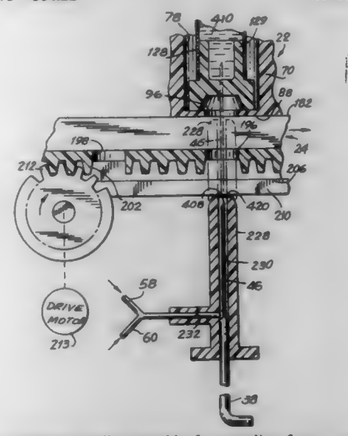
frequency ratio calculating means for calculating a ratio of a resonant frequency of a first vibration mode to the resonant frequency of a second vibration mode of the measurement pipe, according to at least one output from said first and second vibration detecting means;
phase difference calculating means for obtaining a phase difference in a vibration generated on said measurement pipe, based on outputs of said first and second vibration detecting means; and
correcting means for correcting the phase difference, based on a temperature measured by said temperature detecting means and a resonant frequency ratio obtained by said frequency ratio calculating means; and
adjustment masses provided in symmetry with mounting positions of said first and second vibration detecting means, such that a change in resonant frequency ratio approaches zero when density of a fluid through the measurement pipe changes.

5,728,953
CABLE LOAD SENSING DEVICE
Michael J. Beus, and William G. McCoy, both of Spokane, Wash., assignors to United States Department of Energy, Washington, D.C.
Filed Oct. 4, 1996, Ser. No. 726,226
Int. Cl.[6] G01L *1/04*
U.S. Cl. 73—862.472 10 Claims



1. Load sensor apparatus for sensing the magnitude of a load on a cable as the cable is employed to support the load, comprising;
(a) a non-load bearing beam structure, wherein the beam structure does not bear a load in the axial direction of the cable;
(b) means for slidably attaching said beam structure to said cable so that a length of cable lies along said beam structure;
(c) spacer means associated with said beam structure for forcing a slight curvature in a portion of said length of cable under a no-load condition so that said portion of said length of cable is spaced from said beam structure to define a cable curved portion; and
(d) sensing means secured to said beam structure; whereby as said cable is employed to support a load the load causes said cable curved portion to exert a force normal to said cable through said spacer means and on said beam structure to deform said beam structure as said cable curved portion attempts to straighten under the load and said sensing means detects the magnitude of the normal strain on said beam structure during said deformation which is proportional to the magnitude of the load on said cable.

5,728,954
APPARATUS AND METHOD FOR INTEGRATED SAMPLING FROM CLOSED AND OPEN SAMPLE CONTAINERS
Kenneth F. Uffenheimer, Mahopac, N.Y., assignor to Technicon Instruments Corporation, Tarrytown, N.Y.
Division of Ser. No. 988,074, Dec. 9, 1992, which is a division of Ser. No. 671,713, Apr. 4, 1991, Pat. No. 5,201,232. This application Feb. 17, 1995, Ser. No. 390,619
Int. Cl.[6] G01N *1/14*
U.S. Cl. 73—864.22 10 Claims

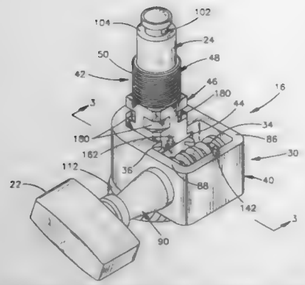


1. In a sampling needle assembly for sampling from a sample liquid container which is closed by a pierceable stopper through use of a sampling needle which is moveable from a retracted needle position wherein the same does not pierce the container stopper to an extended needle position wherein the container stopper is pierced by the needle for withdrawal of sample liquid therefrom through the needle passage, the improvements comprising, sleeve means operatively associated with the sampling needle and moveable relative thereto from a retracted to an extended sleeve means position wherein said sleeve means insure that said sampling needle may be moved into said extended position thereof to pierce said container stopper without obstruction, and means operatively associated with said sleeve means and said sampling needle for preventing movement of said sampling needle into said extended position thereof unless said sleeve means have been moved into said extended sleeve means position.

5,728,955
TUNING DEVICE
Robert J. Sperzel, 7810 Lake Ave., Cleveland, Ohio 44102
Filed Sep. 6, 1996, Ser. No. 706,665
Int. Cl.[6] G10D *3/14*
U.S. Cl. 84—306 46 Claims

1. A device for use in tuning a stringed musical instrument, said device comprising a rotatable shaft having a first end portion adapted to be connected with a string of the musical instrument and a second end portion, a pinion gear connected with the second end portion of said shaft, a worm disposed in meshing engagement with said pinion gear, said worm being rotatable to rotate said pinion gear and shaft to vary tension in the string connected with

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the first end portion of said shaft, and a housing at least partially enclosing said worm, pinion gear and shaft, said housing including a first housing member which at least partially encloses said worm and a second housing member which is formed separately from said first housing member and which at least partially encloses said shaft, said second housing member including a head end portion which is disposed in said first housing member and a shank portion which extends outward from said head end portion of said second housing member along said shaft, said head end portion of said second housing member having a side surface which faces toward said shank portion of said second housing member and is disposed in engagement with an inner surface of said first housing member, said shaft having an annular groove disposed intermediate said first and second end portions, said shank portion of said second housing member including an indentation which extends into said groove to retain said shaft against axial movement relative to said shank portion of said second housing member.

5,728,956

METHOD AND APPARATUS FOR FULLY ADJUSTING AND INTONATING AN ACOUSTIC GUITAR

Howard B. Feiten, 12501 Mitchell Ave., Los Angeles, Calif. 90066, and Gregory T. Back, 16000 Sunset Blvd. #1, Pacific Palisades, Calif. 90272

Division of Ser. No. 376,601, Jan. 23, 1995, Pat. No. 5,600,079, which is a continuation of Ser. No. 896,685, Jun. 10, 1992, Pat. No. 5,404,783. This application Jul. 30, 1996, Ser. No. 688,432

Int. Cl.[6] G10D *3/06*

U.S. Cl. 84—314 R **6 Claims**



1. A string musical instrument comprising:

(a) a body having a fingerboard and a bridge;

(b) a nut located near the end of the fingerboard;

(c) at least one saddle located near to said bridge;

(d) strings stretched between said saddle and nut over said fingerboard;

(e) a plurality of frets located at designated intervals placed using the so-called Rule of 18, on said fingerboard between the saddle and nut;

(f) wherein the distance between the nut and the first fret is in the range of 3.3% shorter than standard in accordance with the Rule of 18 (e.g., 1.4312 on a 25½" scale) while maintaining a nut so as to permit unplayed or open strings to vibrate sympathetically and allowing for natural sound and tone on any fretted stringed instrument.

5,728,957

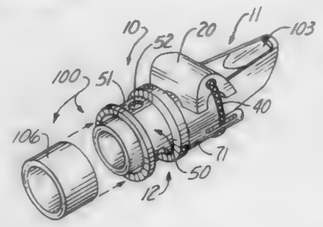
CLARINET LIGATURE AND MOUTHPIECE GRASPING RING

Konstantin L. Valtchev, 43 Cosmic Drive, North York, Ontario, Canada, M3B 3G11

Continuation-in-part of Ser. No. 512,360, Aug. 8, 1995, Pat. No. 5,578,776, which is a continuation-in-part of Ser. No. 248,914, May 25, 1994, Pat. No. 5,440,962. This application Jun. 20, 1996, Ser. No. 667,173

Int. Cl.[6] G10D *9/02*

U.S. Cl. 84—383 R **4 Claims**



1. A clarinet ligature and grasping ring device for use with a mouthpiece/reed assembly which includes a mouthpiece member having a replaceable reed element wherein the device comprises

a ligature unit including a reed clamp member and an elongated spring member operatively associated with the reed clamp member for securing the ligature unit to said mouthpiece member

a grasping ring unit including a hollow cylindrical grasping ring member having a proximal end and a distal end, and dimensioned to surround said mouthpiece member; and,

connecting means operatively associated with the distal end of the grasping ring member and portions of the spring member for operatively connecting the ligature unit to the grasping ring unit for relative movement with respect to one another; wherein, said connecting means comprise

a pair of post members having one end operatively connected to the distal end of the grasping ring member and the other end operatively engaged with spaced locations on said elongated spring member.

5,728,958

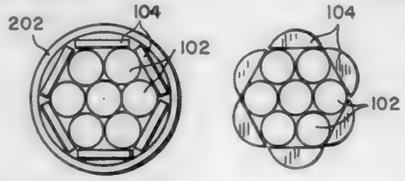
MULTI-DOWEL DRUMSTRICK WITH PROTECTIVE SHEATH

Alan Vater, East Weymouth, Mass., assignor to Vater Percussion, Inc., Norwood, Mass.

Filed Sep. 30, 1996, Ser. No. 722,974

Int. Cl.[6] G10D *13/02*

U.S. Cl. 84—422.4 **21 Claims**



1. A drumstick, comprising:

a plurality of dowels disposed in a bundle along an axis, each dowel having a first cross-sectional shape, a first dowel end and a second dowel end; and

a plurality of strips disposed circumferentially around the bundle of dowels, each strip having a second cross-sectional shape different from the first cross-sectional shape, a first strip end and a second strip end.

5,728,959

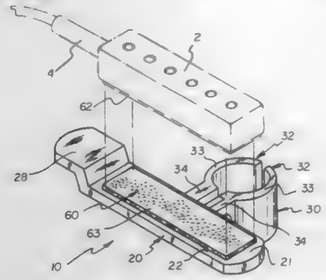
GUITAR TUNER HOLDER

John D. O'Rorke, 1226 Prospect St., Westfield, N.J. 07090

Filed Nov. 6, 1996, Ser. No. 764,062

Int. Cl.[6] G10G *7/02*

U.S. Cl. 84—453 **16 Claims**



1. A Guitar Tuner Holder for holding an electronic guitar tuner on a microphone stand, comprising:

a tuner bracket including a shelf portion having a top surface and a stepped-up portion at one end of said shelf portion, said shelf portion supporting said electronic guitar tuner; and

a clamping means attached to said tuner bracket for clamping said tuner bracket to said microphone stand.

5,728,960

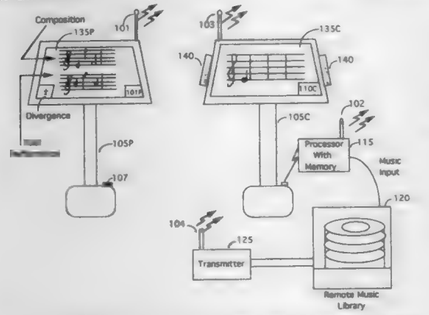
MULTI-DIMENSIONAL TRANSFORMATION SYSTEMS AND DISPLAY COMMUNICATION ARCHITECTURE FOR MUSICAL COMPOSITIONS

David H. Sitrick, 820 Burchell, Highland Park, Ill. 60035

Filed Jul. 10, 1996, Ser. No. 677,469

Int. Cl.[6] G10G *1/00*

U.S. Cl. 84—477 R **64 Claims**



1. A musical display networked system for producing a display presentation, the system comprising:

means for receiving an original musical composition;

a memory, for selectively storing the received original musical composition;

selection means for determining a selected operating mode;

a controller responsive to the selection means, the controller providing means for selectively controlling the storing of the original musical composition in memory and selectively altering the stored original musical composition responsive to the selected operating mode to produce a derivative musical composition; and

a plurality of display subsystems, at least one of said plurality of display subsystems responsive to communication from the controller wherein at least one of the display subsystems provide for displaying a display presentation of the derivative musical composition in accordance with the selected operating mode.

5,728,961

METHOD AND DEVICE FOR EXECUTING TONE GENERATING PROCESSING DEPENDING ON A COMPUTING CAPABILITY OF A PROCESSOR USED

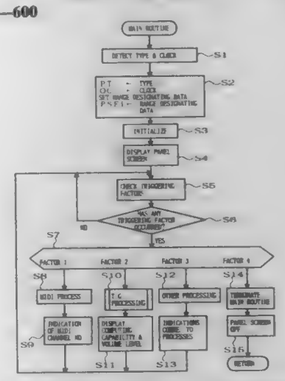
Motoichi Tamura, Hamamatsu, Japan, assignor to Yamahn Corporation, Japan

Filed Oct. 15, 1996, Ser. No. 731,414

Claims priority, application Japan, Oct. 20, 1995, 7-297871

Int. Cl.[6] G10H *7/00*

U.S. Cl. 84—600 **24 Claims**



1. A tone generating device using a processor device to execute tone generating processing comprising:

detecting means for detecting computing capability of said processor device; and

control means for, depending on the computing capability detected by said detecting means, controlling content of the tone generating processing to be executed by said processor device,

wherein said processor device executes the tone generating processing with the content controlled by said control means.

5,728,962

REARRANGING ARTISTIC COMPOSITIONS

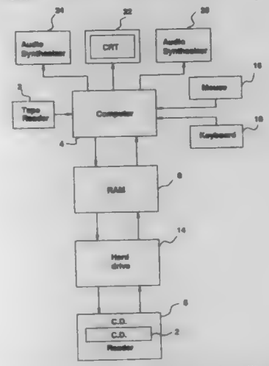
Darryl Goede, Edmonton, Canada, assignor to Airworks Corporation, Nassau, Bahamas

PCT No. PCT/US94/02716, § 371 Date Jun. 7, 1996, § 102(e) Date Jun. 7, 1996, PCT Pub. No. WO95/25312, PCT Pub. Date Sep. 21, 1995

PCT Filed Mar. 14, 1994, Ser. No. 454,128

Int. Cl.[6] G10H *7/00;7/02*

U.S. Cl. 84—609 **18 Claims**



1. A process for forming a digital instruction file from a digital information file of an artistic composition having artistic continuity and structure comprising the steps of:

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(a) analyzing the artistic structure of said digital information file by observing a video display of the waveform of the digital information file, said video display having a horizontal axis and a vertical axis;

(b) determining appropriate edit points within said digital information file, said appropriate edit points being the points where the positive portion of the waveform crosses the horizontal axis of the video display to become negative, said edit points dividing said artistic composition into a plurality of units, each of said plurality of units having artistic continuity and structure;

(c) arbitrarily as signing marker points to selected ones of said edit points; and

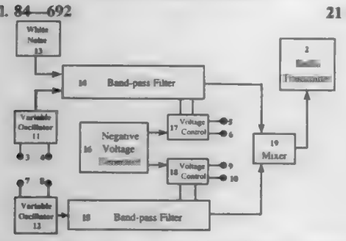
(d) storing said assigned marker points, said stored assigned marker points forming a digital instruction file.

5,728,963

LOW-POWER MUSIC SYNTHESIZER AND TRANSMITTER

Peter B. Reintjes, 3324 Chatelaine Blvd., Delray Beach, Fla. 33445

Filed Jun. 22, 1996, Ser. No. 669,986
Int. Cl.[6] G10H *1/06;5/00*
U.S. Cl. 84—692 **21 Claims**



15. A portable, low-power audio synthesizer and transmitter apparatus comprising:

a) a direct current power supply having inherent thermal noise present at an output thereof;

b) amplification means, coupled to the power supply output for amplifying at least a portion of the thermal noise to create a signal;

c) a touch-sensitive filter, operatively coupled to the amplification means for selectively modifying the signal, and

d) a radio-frequency transmitter, operatively coupled to the touch-sensitive filter.

5,728,964

ELECTRICAL INITIATOR

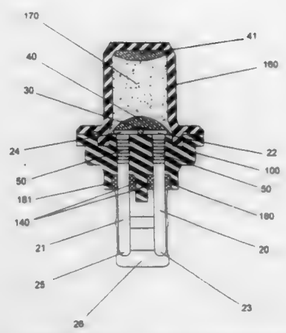
Mark Lucas Avory, Foster City; William David Fahey, Cupertino; Stewart Shannon Fields, Redwood City; Charles Joyce Moore, Jr., Redwood Shores; Charles John Piper, III, Pleasant Hill, and David Whang, San Jose, all of Calif., assignors to Quantic Industries, Inc., San Carlos, Calif.

Division of Ser. No. 140,650, Oct. 20, 1993, abandoned. This application Jun. 7, 1995, Ser. No. 477,719
Int. Cl.[6] F42B *33/00*
U.S. Cl. 86—1.1 **15 Claims**

1. A method for constructing an electrical initiator comprising the steps of:

inserting a first non-insulated pin having a knurled section through a first hole in a plastic header and a second non-insulated pin having a knurled section through a second hole in the plastic header wherein the first pin and the first hole provide a first interference fit and wherein the second pin and the second hole provide a second interference fit;

connecting an electrically resistive device to the first pin and the second pin;



applying a resilient primer to the electrically resistive device such that the electrical initiator satisfies an automotive all-fire, an automotive no-fire and an automotive function time requirement;

at least partially filling a plastic output cup with an output charge, the output charge being positioned to be ignited in response to ignition of the primer;

attaching by one of thermal welding and ultrasonic welding the at least partially filled output cup to the plastic header to form a first reliable environmental seal between the output cup and the plastic header, wherein the resilient primer withstands any mechanical shock caused by the one of thermal welding and ultrasonic welding;

establishing and maintaining a first sealing force between the plastic header and the first pin using the first interference fit wherein the first sealing force is sufficient to form a second reliable environmental seal between the plastic header and the first pin;

establishing and maintaining a second sealing force between the plastic header and the second pin using the second interference fit wherein the second sealing force is sufficient to form a third reliable environmental seal between the plastic header and the second pin;

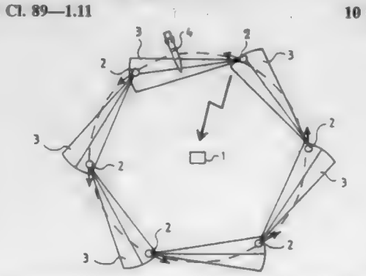
using the header, the pins, the output cup and the first, second and third reliable environmental seals to form a reliable environmentally sealed enclosure around the primer, the output charge and the electrically resistive device.

5,728,965

METHOD AND DEVICE FOR THE SCATTERING OF DRONES ON CURVED PATHS AROUND ONE OR MORE REFERENCE POINTS

Sylvain Fesland, Montlouis S/Loire, and Pascal Nigron, Fresnes, both of France, assignors to Thomson-CSF, Paris, France

Filed Apr. 9, 1996, Ser. No. 628,108
Claims priority, application France, Apr. 13, 1995, 95 04457
Int. Cl.[6] F41G *7/00*
U.S. Cl. 89—1.11 **10 Claims**



1. A method for controlling flight paths of a plurality of drones, each of said plurality of drones being in flight about at least one

radio-control transmitter and each comprising a transmitter and a receiver, said method comprising the steps of:

transmitting a control signal from respective of the at least one radio-control transmitter, each control signal being transmitted at a different frequency corresponding to the at least one radio-control transmitter from which the control signal was transmitted, each control signal having a frequency which corresponds to an instructive value of radius of curvature to be generally followed by at least a subset of said, drones and which increases and decreases with said instructed value of radius of curvature;

receiving each control signal with said receiver in respective of said drones;

detecting at respective of said drones instructive values of radius of curvature corresponding to the different apparent frequencies of the control signals;

weighting at each of said drones the instructive values of radius of curvature and forming a weighted instruction value of radius of curvature; and

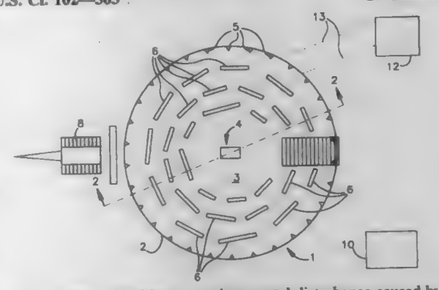
actuating a rudder unit in respective of said drones so as to guide respective of said drones along respective paths corresponding to said weighted instruction value of radius of curvature that was formed in each of said drones in said weighting step.

5,728,967

SUPPRESSING EXPLOSIONS AND INSTALLATION

John H. Parkes, Redhall Mill Cottage, Colinton Dell, Edinburgh, United Kingdom, EH14 1JF

Filed Nov. 7, 1996, Ser. No. 744,982
Claims priority, application United Kingdom, Nov. 8, 1995, 9522880
Int. Cl.[6] F42D *5/00*
U.S. Cl. 102—303 **17 Claims**



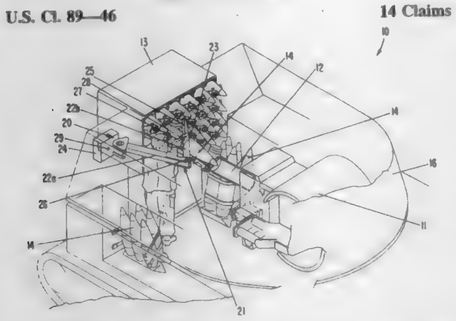
1. A method of limiting an environmental disturbance caused by exploding explosive material, comprising generating a liquid dispersion which at least partly surrounds a body of explosive material and detonating the explosive material so that it explodes in the dispersion, wherein the liquid dispersion is created by spraying liquid towards the body of explosive material from at least one spray nozzle.

5,728,966

LIFTING DEVICE IN AN ARMOURED VEHICLE

Rudolf Bobinger, Nordendorf; Andreas Riegl, Wertingen, and Wilhelm Strasser, Obermeitingen, all of Germany, assignors to KUKA Wehrtechnik GmbH, Augsburg, Germany

Filed Jan. 24, 1996, Ser. No. 590,906
Claims priority, application Germany, May 6, 1995, 195 16 786.6
Int. Cl.[6] F41A *9/42*
U.S. Cl. 89—46 **14 Claims**



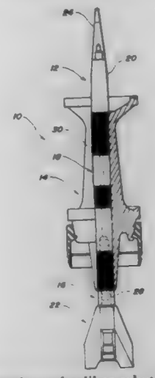
1. Lifting device in an interior of an armoured vehicle, which comprises a holder which is engageable with a body to be moved and a driven lifting element by means of which the holder can be moved, the lifting element comprising a cable which is drivable by a winch, which is guided on a pivotable, multicomponent articulated arm and which is secured at a lower end to the holder; the multicomponent articulated arm being mounted in a freely projecting manner in a roof area of the interior of the armoured vehicle and being pivotable substantial in a horizontal plane relative to the interior of the armoured vehicle and the holder being raised and lowered by the cable.

5,728,968

ARMOR PENETRATING PROJECTILE

Joseph Gannon Buzzett, Tampa; David A. Edmonds, Palm Harbor, and Earl R. Edmondson, St. Petersburg, all of Fla., assignors to Primex Technologies, Inc., St. Petersburg, Fla.

Filed Aug. 24, 1989, Ser. No. 398,022
Int. Cl.[6] F42B *12/04*
U.S. Cl. 102—364 **18 Claims**



1. An armor penetrating subcaliber saboted kinetic energy penetrator projectile comprising:

a generally rod shaped penetrator core body of a hard metal material having one solid end portion for impacting and penetrating an armor plate;

self oxidizing pyrotechnic means within said body for producing a forwardly directed molten jet of metal from within said body during impact of said end portion of said body with said armor plate;

conduit means within said core body for directing said molten jet forwardly to and through said end portion impacting said armor plate so as to increase the frontal destruction of said armor and behind said armor by said molten jet; and

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means located within said conduit means for igniting said pyrotechnic means.

5,728,969

PREPARATION OF AN-DNT-AL EXPLOSIVE

Koichi Otani; Seiichi Yoshida, both of Kitakyushu; Yoshiyuki Ikeda, and Hiroyuki Taniguchi, both of Ube, all of Japan, assignors to Mitsubishi Chemical Corporation, and Nippon Kayaku Kabushiki Kaisha, both of Tokyo, Japan

Division of Ser. No. 509,989, Aug. 1, 1995, Pat. No. 5,675,119.
This application Mar. 7, 1997, Ser. No. 813,854
Claims priority, application Japan, Dec. 8, 1994, 190423/94
Int. Cl.[6] C06B *21/00*
U.S. Cl. 149—109.6 5 Claims

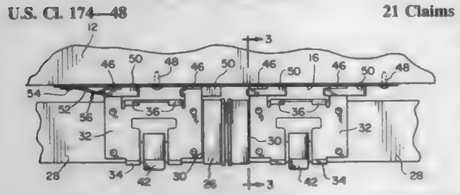
1. A method of preparing a granular explosive comprising porous prill ammonium nitrate having an average particle size of 0.5 to 3.0 mm a metal powder and an aromatic dinitro compound having a melting point of 50° to 100° C., said method comprising:
melting said aromatic dinitro compound;
mixing said porous prill ammonium nitrate with said melted aromatic dinitro compound;
cooling the resultant mixture; and
further mixing the cooled mixture with said metal powder.

5,728,970

MODULAR ELECTRICAL SYSTEM

Ronald E. Karst, and Shawn J. Kondas, both of Kendallville, Ind., assignors to Pent Assemblies, Inc., Kendallville, Ind.

Filed May 7, 1996, Ser. No. 646,087
Int. Cl.[6] H02G *3/26*
U.S. Cl. 174—48 21 Claims



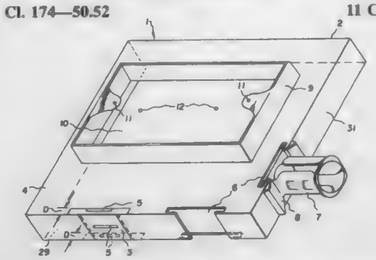
1. A modular electrical system attachable to a modular office partition, comprising:
an electrical distribution assembly including at least two projections extending from one side thereof;
at least two projection receiving members associated with the partition, each said projection being engageable with a corresponding one of said receiving members, said at least two projections being movable relative to said at least two projection receiving members in at least one predetermined direction such that said each of said at least two projections is engageable with a respective one of said at least two projection receiving members; and
at least one resilient retainer means including a distal edge biased to a retaining position for securably and releasably positively locking at least one of said projections in engagement with a respective one of said receiving members, said at least one resilient retainer means also being movable to a disengaging position allowing said at least one projection to be disengaged from said corresponding one of said receiving members, at least one of said electrical distribution assembly and said modular office partition including a surface extending transverse to each said at least one predetermined direction, said distal edge of said retainer means abutting said transverse surface, and thereby effecting said positive locking.

5,728,971

ELECTRIC OUTLET BOX AND CONNECTOR ASSEMBLY

William L. Nash, 4069 NE. 8th Ave., Oakland Park, Fla. 33334

Filed Jul. 23, 1996, Ser. No. 686,206
Int. Cl.[6] H02G *3/18*
U.S. Cl. 174—50.52 11 Claims



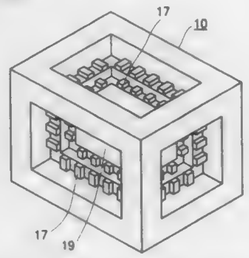
1. An electrical outlet box and connector assembly, comprising;
an outlet box housing having a plurality of cavities formed therein;
said outlet box housing having a wall finishing support top and a side wall and, one of said cavities being formed of a slot in said wall finishing support top and a slot in said side wall; and
a connector having a one-piece fastener for immobilizing said connector with said connector mounted in said one of said cavities.

5,728,972

MULTIPLE CHIP MODULE FOR PACKAGING INTEGRATED CIRCUITS

Chen-Chung Hsu, Taichung, Taiwan, assignor to United Microelectronics Corporation, Taiwan

Filed Apr. 22, 1996, Ser. No. 635,592
Int. Cl.[6] H01L *23/04*
U.S. Cl. 174—52.1 16 Claims



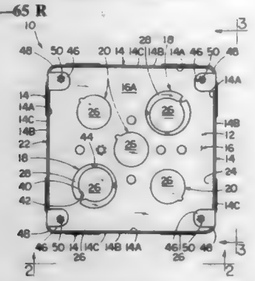
1. A multiple chip module for packaging integrated circuit chips having pad windows, the module comprising:
a module body having at least three faces and a center, one of said faces having a plurality of conduction pads, each of said faces having a chip receiving compartment, each chip receiving compartment including at least one chip receiving section having a bottom boundary facing the center of said module body and a base surrounding said bottom boundary for locating a respective chip, and a plurality of conduction areas provided on said base of said chip receiving section and being connectable with pad windows of the respective chip, and a layout connecting said conduction areas with corresponding ones of said conduction pads.

5,728,973

KNOCKOUT ARRANGEMENT PROVIDING CONNECTION PATTERN CHOICE ON ELECTRICAL JUNCTION BOX AND COVER PLATE ARRANGEMENT FOR MOUNTING DYNAMIC LOADS

Robert W. Jorgensen, Niles, Mich., assignor to Hubbell Incorporated, Orange, Conn.

Filed Aug. 22, 1996, Ser. No. 701,641
Int. Cl.[6] H02G *3/10*
U.S. Cl. 174—65 R 5 Claims



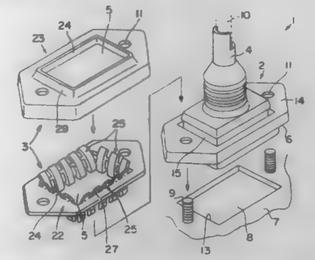
1. An electrical junction box defined by a back wall having four planar side walls connected to and extending outwardly from said back wall and a knockout arrangement on at least one of said side walls for accepting two different diameter size conduits, said knockout arrangement comprising:
(a) a pair of first knockout structures being spaced apart along said at least one side wall, each of said first knockout structures including a first circular knockout and a second annular knockout completely surrounding said first circular knockout and having regions of maximum and minimum width angularly spaced from each other on opposite sides of said first knockout along a diameter of said second knockout, said first and second knockouts having centers spaced apart such that said second knockout is defined in an eccentric relation to said first knockout whereby each of said first and second knockouts can be selectively removed to create an opening for accepting a conduit of either of said two different diameter size conduits; and
(b) a second knockout structure disposed on said at least one side wall and being spaced from said first knockout structures and containing only said first knockout;
(c) said first and second knockouts of said first and second knockout structures are respectively defined by areas of weakness along first and second substantially circular punch lines, said first punch line being completely contained within and spaced from said second punch line;
(d) said first knockout including a first bridge member interrupting said first punch line and constituting the sole junction between said first knockout and said second knockout, said first bridge being disposed within said region of maximum width of said second knockout;
(e) said second knockout including a second bridge member interrupting said second punch line and a pair of pseudo-bridge members which do not interrupt said second punch line, said second bridge being disposed within said region of maximum width of said second knockout and said pair of pseudo-bridge members being disposed within said region of minimum width of said second knockout;
(f) said second bridge member and said pair of pseudo-bridge members constituting a junction between said second knockout and said at least one side wall and providing a first retention strength greater than a second retention strength provided by said first bridge member for said first knockout such that said first knockout can be removed from said second knockout without said second knockout being removed from said at least one side wall.

5,728,974

SEALING GROMMET

Shunji Kitoh, and Chigusa Ichio, both of Yokkaichi, Japan, assignors to Sumitomo Wiring Systems, Ltd., Japan

Filed Apr. 26, 1995, Ser. No. 427,898
Claims priority, application Japan, Jun. 17, 1994, 6-159407
Int. Cl.[6] H02G *3/18*
U.S. Cl. 174—65.55 7 Claims



1. A grommet for sealing an opening in a partition comprising a main body and a fixture, said fixture comprising a retainer and an inner body,
said main body comprising a plate; a lip, depending from an under side of said plate, adapted to substantially surround said opening, and adapted to seal against said partition under the influence of a compressive force; and a flexible pocket, adapted to be substantially complementary to a sealing edge of said opening and adapted to project into said opening when said lip seals against said partition,
said retainer comprising a first planar element having a retainer window therethrough and a window edge on its periphery,
said inner body comprising a second planar element, substantially complementary to said plate and adapted to fit thereover; a body window complementary to said retainer window and having a body edge on its periphery; a plurality of skirt pieces mounted vertically on said body edge and spaced apart peripherally, each of said skirt pieces having a sealing member extending downwardly from said inner body, an actuator projecting upwardly from said inner body, and a hinge between said sealing member and said actuator, an operating portion of said window edge adapted to bear against said actuator to cause said member to urge said pocket sealingly against said sealing edge under said compressive force, and
a compressive element adapted to exert said compressive force on said fixture, said main body, and said partition to cause said skirt pieces to urge a portion of said pocket sealingly against said sealing edge and said lip sealingly against said partition.

5,728,975

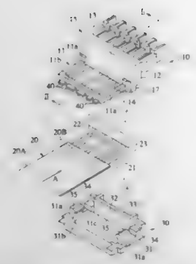
CONNECTING STRUCTURE FOR FLAT CABLE

Yoshiyuki Tanaka, Shizuoka-ken, Japan, assignor to Yazaki Corporation, Tokyo, Japan

Filed Dec. 27, 1995, Ser. No. 580,451
Claims priority, application Japan, Dec. 27, 1994, 6-325938
Int. Cl.[6] H01R *43/04*
U.S. Cl. 174—88 B 26 Claims

1. A connecting structure, comprising:
a flat cable having a plurality of conductors arranged at predetermined intervals and an insulator overlying said conductors; and
a bus-bar unit having a plurality of bus bars corresponding to said conductors of said flat cable;
wherein said flat cable further includes an exposed conductive part provided by eliminating said insulator partially and an ear part arranged on a tip of said flat cable and composed of uneliminated insulator, said ear part being arranged perpendicular to an extending direction of said flat cable by bending

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said conductors at said exposed conductive part in a direction perpendicular to a plane of said flat cable;

wherein said bus-bar unit further includes first and second setting surfaces perpendicular to each other so as to follow a longitudinal direction of said flat cable, a plurality of exposed parts of said bus bars arranged on said first setting surface and supported thereon at predetermined intervals, and an ear holding part arranged on said second setting surface for supporting said ear part of said flat cable;

wherein said ear part of said flat cable is attached to said ear holding part;

wherein said exposed conductive part of said flat cable is mounted on said first setting surface so that said conductors at said exposed conductive part correspond to said exposed parts of said bus bars, respectively; and

said structure further comprising joint means for joining said exposed conductors at said exposed conductive part of said flat cable in a mounted condition to said exposed parts of said bus bars.

5,728,976

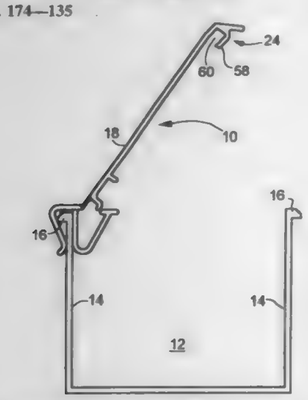
DETACHABLE COVER FOR WIRE DUCTS HAVING A LIVING HINGE

Donald Santucci, and Mark Page, both of Naperville, Ill., assignors to DEK, Inc., St. Charles, Ill.

Filed May 22, 1996, Ser. No. 653,956

Int. Cl.[6] H01B *7/00*

U.S. Cl. 174—135 **13 Claims**



8. A reclosable cover for converting a two-piece wire and cable duct system having a generally U-shaped elongate channel defined by a base and two opposed sidewalls, into a multiple re-access and reclosable integral duct system, said reclosable cover defining first and second edges along respective opposed sides thereof and including clip means integrally associated with the reclosable cover, said clip means disposed along said first edge for attaching the cover to one of said two opposed sidewalls of the U-shaped channel; an elongate, generally planar, top cover means for covering and enclosing the U-shaped channel; hinge means between and integrally formed with the clip means and the top cover means, said hinge means being adjacent said reclosable cover first edge, the hinge means permitting the pivotal rotation of the top cover means between a first closed position whereby the top cover means is generally parallel to the U-shaped channel base and substantially bridges said two opposed sidewalls thereby closing the U-shaped channel and a second open position whereby the top cover means is pivoted upwardly to expose the U-shaped channel whereby cables and wires may be added and removed from the channel; means for supporting the hinge means against deformation caused by the application of a lateral or downward force against the cover.

5,728,977

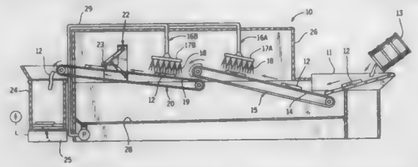
APPARATUS AND METHODS FOR DETERMINING THE QUANTITY OF AND STABILIZING A PLURALITY OF SOILED INDUSTRIAL TOWELS

Thomas W. Juday, 1060 Lower Ridgeway, Elm Grove, Wis. 53122; Mervyn H. Edwardsen, 5180 Magellan Dr., New Berlin, Wis. 53151; James M. Leef, 1155 Gray Fox Hollow, Brookfield, Wis. 53045, and David B. Leef, 1411 Genesee St., Delafield, Wis. 53018

Filed Apr. 9, 1996, Ser. No. 629,674

Int. Cl.[6] G01G *19/42;* **D06F** *29/00*

U.S. Cl. 177—25.17 **10 Claims**



1. A method for safely determining the quantity of towels in a plurality of soiled towels, said method comprising removing any undesirable foreign objects from an unknown plurality of towels; saturating the plurality of soiled towels with a liquid which prevents the evaporation of any volatile organic compounds present in the towels; compressing the saturated towels to remove substantially all the unabsorbed liquid therefrom; weighing said plurality of compressed soiled towels, to obtain their total weight; and, then dividing the total weight by the known weight of a single compressed towel containing the absorbed liquid to obtain the approximate quantity of towels in said plurality of soiled towels.

5,728,978

ACOUSTIC ISOLATOR FOR ACOUSTIC WELL LOGGING TOOL

Edwin K. Roberts, and Enrique Elizondo, both of Fort Worth, Tex., assignors to Computalog U.S.A., Inc., Fort Worth, Tex.

Filed Aug. 2, 1996, Ser. No. 691,572

Int. Cl.[6] G01V *1/40*

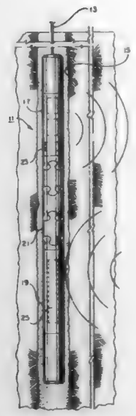
U.S. Cl. 181—102 **11 Claims**

1. An acoustic well tool having an elongate body, comprising:

a dipole transmitter section located on the elongate body for transmitting acoustic signals to a surrounding borehole formation;

a receiver section located on the elongate body and spaced apart from the dipole transmitter section for receiving return acoustic signals from the dipole transmitter section;

a semi-rigid housing located between the transmitter section and receiver section of the acoustic well tool on the elongate body for delaying and attenuating acoustic energy passing from the transmitter section to the receiver section of the acoustic well tool, the semi-rigid housing comprising at least two rigid tubular members having end regions joined by a plurality of interlocking lobes which permit relative movement between the rigid tubular members but which prevent the separation thereof



wherein each end region of each rigid tubular member has at least three interlocking lobes; and

wherein the interlocking lobes of the at least two rigid tubular members making up the semi-rigid housing have gaps formed therebetween, the gaps being filled with a connecting medium which differs in acoustic impedance from that of the semi-rigid housing.

5,728,979

AIR HANDLING STRUCTURE FOR FAN INLET AND OUTLET

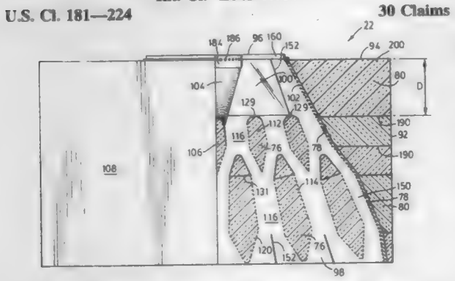
Muammer Yazici, Etobicoke, and Werner Richarz, Ottawa, both of Canada, assignors to Air Handling Engineering Ltd., Buffalo, N.Y.

Continuation-in-part of Ser. No. 260,753, Jun. 16, 1994, Pat. No. 5,587,563, which is a division of Ser. No. 72,590, Jun. 4, 1993, Pat. No. 5,426,268. This application Jul. 2, 1996, Ser. No. 675,404

Claims priority, application Canada, Apr. 5, 1993, 2093534

Int. Cl.[6] E04F *17/04*

U.S. Cl. 181—224 **30 Claims**



1. A sound attenuating duct unit for placement at an outlet of an air supply fan unit for a building or other large structure, said duct unit comprising an exterior housing having a number of sides and formed by exterior sidewalls, internal walls mounted in said housing and defining a substantially curved, main airflow passageway, a circular air inlet for said passageway in one of said sides of the housing for arrangement next to an outlet of said fan unit, said one side of the housing being located on the housing opposite one of said exterior sidewalls, and a rectangular air outlet for said passageway in another of said sides of said housing, said another side extending at a substantial angle to said one side, said internal walls providing a gradual transition in the transverse cross-section of the main airflow passageway from circular to rectangular, said main airflow passageway extending only from said circular air inlet to said rectangular air outlet, sound absorbing material arranged between said internal walls and said exterior sidewalls of the housing and surrounding said airflow passageway, and splitter apparatus mounted in said main airflow passageway and extending from one side of said passageway to an opposite side thereof, said splitter apparatus splitting said main airflow passageway into smaller passageways, wherein air flow through all of said smaller passageways leaves said duct unit through said rectangular air outlet during use of said duct unit.

5,728,980

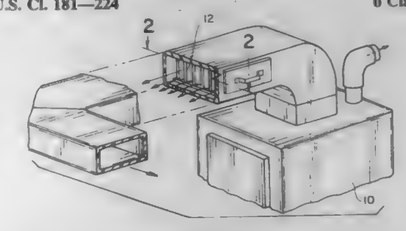
DUCT SILENCER

Bernard Zarnick, 5309 Hamilton Ave., Cleveland, Ohio 44114-3908

Continuation of Ser. No. 426,928, Apr. 21, 1995, abandoned. This application Feb. 19, 1997, Ser. No. 801,342

Int. Cl.[6] E04F *17/04*

U.S. Cl. 181—224 **6 Claims**



1. A silencer for gas flowing through a duct comprising:

a plurality of acoustical flat panels mounted in a duct and spaced from each other across the width of the duct;

each of said panels comprising a core of rigid acoustical material encapsulated and heat sealed in polyvinyl fluoride to form opposed sides and opposed edges, all having smooth exterior surfaces.

5,728,981

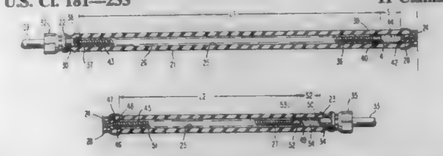
POWER STEERING ATTENUATION HOSE CONSTRUCTION AND METHOD OF MAKING THE SAME

Matthew van Ruiten, Farmington Hills, Mich., assignor to Dayco Products, Inc., Dayton, Ohio

Division of Ser. No. 354,398, Dec. 12, 1994, Pat. No. 5,539,164. This application May 24, 1996, Ser. No. 653,577

Int. Cl.[6] F16K *47/02*

U.S. Cl. 181—233 **11 Claims**



1. In a power steering attenuation hose construction comprising an outer flexible hose means having an inlet end and an outlet end, restrictor means disposed in said outer hose means and dividing the interior of said outer hose means into an inlet chamber and an outlet chamber interconnected together by said restrictor means, each of said chambers having an inlet end and an outlet end, a first flexible tuning cable means being interconnected to said inlet end and being disposed in said inlet chamber, and a second flexible tuning cable means being interconnected to said restrictor means and being disposed in said outlet chamber, each of said tuning cable means having an open outlet end spaced from said outlet end of its respective chamber, the improvement wherein the ratio of the effective length of said first tuning cable means to the effective

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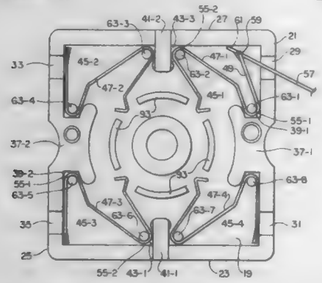
length of said second tuning cable means results in a quotient that is approximately 3 to 2 or higher.

5,728,982

MINIATURE ROTARY ELECTRIC SWITCH

Chepur P. Rao, Kingstown; Bryan A. Thurston, Johnston, and Robert J. Carreiro, East Providence, all of R.I., assignors to Tower Manufacturing Corporation

Filed Jan. 29, 1996, Ser. No. 593,647
Int. Cl.[6] H01H *21/18;1/12;9/28;19/58*
U.S. Cl. 200—6 R **22 Claims**



1. A rotary electric switch comprising:
a. a housing having a plurality of wire receiving openings;
b. a plurality of stationary contacts positioned within said housing, each stationary contact comprising a locking tongue, a spring finger and an intermediate arm, the intermediate arm linking the locking tongue to the spring finger, the locking tongue being connected to the intermediate arm at a first bend and the intermediate arm being connected to the spring finger at a second bend, each stationary contact being positioned in said housing so that its locking tongue overlies at least a portion of one of said wire receiving openings for locking engagement with a wire to be inserted therethrough;
c. said housing being configured to include a plurality of pairs of posts, one pair of posts for each stationary contact, one post of each pair being located within the first bend of each stationary contact and the other post of each pair being located within the second bend of each stationary contact, said posts serving to hold said stationary contacts in place in the housing; and
d. a rotatable contactor mounted inside said housing for selectively contacting said stationary contacts.

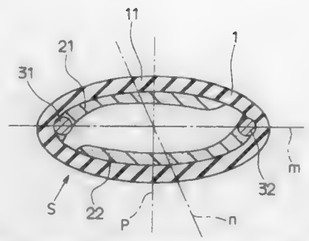
5,728,983

ELONGATED TUBE-LIKE PRESSURE SENSITIVE CABLE SWITCH

Hidenori Ishihara, Hamamatsu; Tomoyuki Kikuta, and Takeshi Tanaka, both of Toyohashi, all of Japan, assignors to ASMO Co., Ltd., Kosai, Japan

Filed Aug. 20, 1996, Ser. No. 699,729
Claims priority, application Japan, Dec. 27, 1995, 7-341274
Int. Cl.[6] H01H *3/16;35/00*
U.S. Cl. 200—61.43 **5 Claims**

1. A pressure-sensitive cable switch comprising:
a tube having flexure;
a pair of metallic conductors extending in a longitudinal direction of said tube, said metallic conductors being disposed opposite each other and each being disposed on a neutral axis for bending of said tube, said neutral axis being generally perpendicular to a direction of application of a load; and
a pair of belt-shaped electrodes made of conductive material and disposed in opposing relation on an inner circumferential surface of said tube, said electrodes extending in said longitudinal direction and opposing each other with respect to said neutral axis for bending.

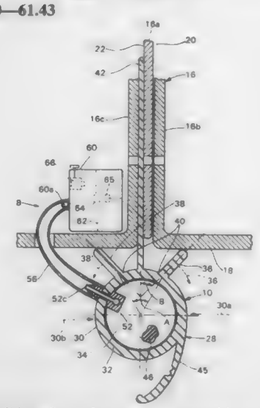


5,728,984

SENSING SAFETY EDGE SYSTEMS

Bearge D. Miller, West Grove, Pa., assignor to Miller Edge, Inc., Concordville, Pa.

Filed Nov. 20, 1996, Ser. No. 754,769
Int. Cl.[6] H01H *3/16*
U.S. Cl. 200—61.43 **22 Claims**



1. In a flexible safety edge system mountable to a leading edge of a movable door or the like, an improvement comprising:
an elongated, one-piece extrusion of a flexible and resilient material, the extrusion including an elongated tubular member having an air impervious tubular wall, the extrusion further including a pair of laterally-spaced apart support legs extending outwardly from an outer side of the tubular wall, the support legs being spaced apart along an arc of the tubular wall extending over an angle of less than 180°, the extrusion further including an elongated mounting strip extending radially outwardly from the tubular wall along the arc of the angle between the pair of support legs and to a greater radial extent than either of the pair of support legs.

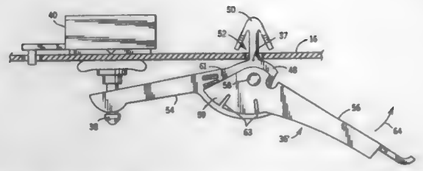
5,728,985

WASHING MACHINE LID SWITCH ASSEMBLY

Kenyon A. Hapke, Libertyville, Ill., and Spencer C. Schantz, Dousman, Wis., assignors to U.S. Controls Corporation, New Berlin, Wis.

Division of Ser. No. 425,760, Apr. 20, 1995, Pat. No. 5,600,976.
This application Nov. 20, 1996, Ser. No. 752,922
Int. Cl.[6] H01H *3/16*
U.S. Cl. 200—61.62 **2 Claims**

1. A method of adjusting a switch assembly for a top-loading washing machine or the like, the washing machine having a lid



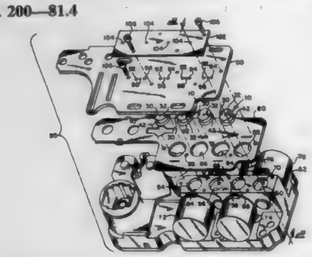
hinged at one edge to move about a hinge axis between a closed position with the lid substantially aligned with the top surface of the washing machine and an open position where an edge of the lid opposite the hinged edge is raised with respect to its position when the lid is closed, the switch assembly including: (a) a switch having a contact assembly linked with an operator, the operator having a switch point position where contacts of the switch are actuated, and a mechanical stop position beyond which the operator does not move, the operator moving a known distance between the stop position and switch point position; (b) an adjustment element having a first and second configuration providing a mechanical linkage between the switch operator and the lid to move the operator with movement of the lid, the adjustment element moving from the first to the second configuration only at a predetermined release force, the first configuration providing earlier movement of the operator as the lid is closed than the second configuration, the method comprising the steps of:
(i) setting the adjustment element to the first configuration;
(ii) moving the lid from the open position to move the operator to the stop position without applying a force on the adjustment element greater than the predetermined release force;
(iii) closing the lid to apply a force on the adjustment element greater than the predetermined release force to move the adjustment element to the second configuration with the operator remaining in the stop position;
whereby the contacts are activated when the lid is next opened by a predetermined amount determined by the known distance the operator moves between the stop position and switch point position.

5,728,986

BLOCK MOUNTING OF PRESSURE SWITCH CARTRIDGE

Larry P. Bennett, Franklin; Maria T. Warzecha, Shelby Township, and Harold L. Bowman, Lapeer, all of Mich., assignors to Eaton Corporation, Cleveland, Ohio

Filed Dec. 20, 1996, Ser. No. 771,077
Int. Cl.[6] H01H *35/34*
U.S. Cl. 200—81.4 **15 Claims**



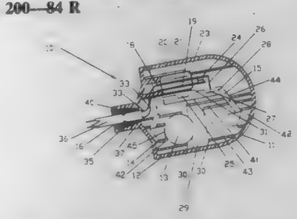
1. A fluid pressure sensing manifold assembly comprising:
(a) a manifold body defining a fluid pressure passage having an inlet and a plurality of outlet ports spaced thereon, with each outlet communicating with said passage and each outlet port having an enlarged cavity formed thereon opening to an exterior surface of said body;
(b) a plurality of self contained pressure switch cartridges each having a pressure responsive member with an annular seal ring formed thereon, said cartridges having a plurality of connector terminals with one of said cartridges received in each of said outlet port cavities with said seal ring providing a fluid pressure seal thereon and with said terminals extending outwardly of said cavity;
(c) a conductor lead frame formed of dielectric material and having a plurality of electrical conductor strips thereon, said frame having a plurality of sockets therein with each of said terminals received in one of said sockets and connecting with one of said conductor strips; and,
(d) a cover received over said lead frame and secured to said body wherein said lead frame and said cartridges are retained by said cover.

5,728,987

GRAVITY OPERATED CAM SWITCH

Gene H. Utke, 9650 SW. Marina Dr., Arcadia, Fla. 34266

Filed Aug. 20, 1996, Ser. No. 700,091
Int. Cl.[6] H01H *35/18*
U.S. Cl. 200—84 R **6 Claims**



1. A gravity operated float switch for starting and stopping electric pump motors comprising:
a float housing having a cup, and a cover, said cup having molded therein, a raceway, switch mounting means having a first and second contact substrates with opposed contacts, a contact tension spring pressing said first contact substrate downwardly together, a contact arm formed in said first contact substrate for pressing said first contact substrate upwardly to open said contacts and an electric wire input,
an operating rod slidably mounted in said guideways, said rod having a "U"-shape with a center longitudinal portion having switch operating surfaces, and having angular legs at each end, each of said angular legs having a ball contact point formed thereon and a dowel fastened thereon, said operating rod mounted to press said contact arm for operating said contacts,
a ball mounted to travel within said raceway and between said angular legs for impacting said ball contact points for moving said operating rod between two operating positions under the influence of gravity, and
seal installation means mounted in said cover for sealing said electric input wire, consisting of a two piece plastic part, said plastic part having a tapered end, locking tabs, and an internal raised rib, and a rubber bushing around said wire for gripping said wire, said seal installation means having a conical area for compressing said plastic part and locking holes in said cover for gripping said locking tabs.

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5,728,988

HIGH-VOLTAGE POWER SWITCH WITH A FIELD ELECTRODE

Manfred Meinherz; Günther Gilmozzi; Edelhard Kynast, and Lutz-Rüdiger Jänicke, all of Berlin, Germany, assignors to Siemens Aktiengesellschaft, München, Germany

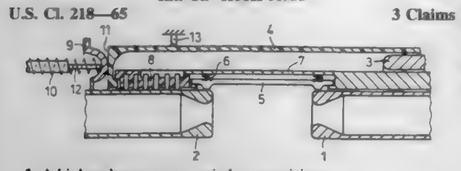
PCT No. PCT/DE94/01501, § 371 Date Sep. 24, 1996, § 102(e) Date Sep. 24, 1996, PCT Pub. No. WO95/17001, PCT Pub. Date Jun. 22, 1995

PCT Filed Dec. 7, 1994, Ser. No. 663,244

Claims priority, application Germany, Dec. 17, 1993, 43 43 786.9

Int. Cl.[6] H01H *33/88*

U.S. Cl. 218—65 3 Claims



1. A high-voltage power switch, comprising:

a first contact and a second contact with a gap therebetween;

a movable compression cylinder surrounding the second contact in a switched-on state, the movable compression cylinder being positioned at a predefined distance from the second contact in the switched-off state;

a first field electrode surrounding the second contact and being axially movable relative to the second contact, the first field electrode being insulated from the movable compression cylinder and being axially movable relative to the movable compression cylinder, the first field electrode being axially spring-loaded toward the compression cylinder;

a compression piston configured as a second field electrode, the second field electrode coupled to the movable compression cylinder and surrounding the first contact, the second field electrode moving in conjunction with the movable compression cylinder; and

a stop member limiting a movement of the first field electrode toward the gap,

wherein the movable compression cylinder and the second field electrode are drivable toward the second contact.

5,728,989

INSULATION GAS FILLED CIRCUIT BREAKER

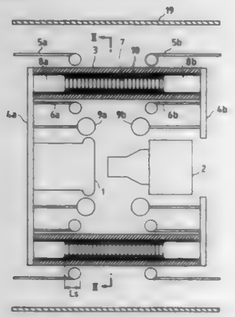
Tomoaki Utsumi; Fumihiro Endo; Takuya Sugawara; Goro Daimon, and Kenji Tsuchiya, all of Hitachi, Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Filed Sep. 11, 1995, Ser. No. 526,662

Claims priority, application Japan, Sep. 19, 1994, 6-222957

Int. Cl.[6] H01H *33/16*

U.S. Cl. 218—145 15 Claims



1. An insulation gas filled circuit breaker comprising: a closed metal container filled with gas having insulating property; a circuit breaking portion including separably opposing first and second contacts disposed in said closed metal container; an impedance means connected in parallel with said circuit breaking portion and disposed between an inner wall of said closed metal container and said circuit breaking portion; and an inner shield provided near said impedance means between said circuit breaking portion and said impedance and an outer shield provided near said impedance means between said inner wall of said closed metal container and said impedance means for relaxing electric field concentration at said impedance means, and wherein each inner end of said inner and outer shields is positioned so as to extend from a contacting face between said impedance means and an electrode for said impedance means by a predetermined distance, said predetermined distance being determined in a range from 0.5 to 3 times a distance from said inner ends of said inner and outer shields to said impedance means.

5,728,990

METHOD AND APPARATUS FOR ELECTRIC DISCHARGE MACHINING STEEL-BALL GUIDE GROOVES IN LINEAR-MOTION STAGE

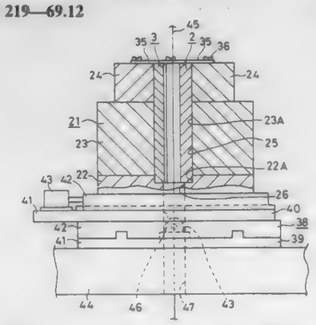
Mitsuo Kobayashi, Hidaka, Japan, assignor to Sigma Koki Co., Ltd., Saitama, Japan

Filed Oct. 16, 1996, Ser. No. 732,992

Claims priority, application Japan, Jun. 20, 1996, 8-159744

Int. Cl.[6] B23H *1/00;7/06*

U.S. Cl. 219—69.12 5 Claims



1. A method for machining steel-ball guide grooves in a linear-motion stage, which comprising the steps of:

establishing a fixation-state positional relation between an immovable member and a movable member that are in a fixation state in which guide rail portions being respectively provided in the movable member and the immovable member and being used for guiding a linear motion of the movable member with respect to the immovable member are faced with respect to each other;

using a wire, which is inserted into a space between the guide rail portions, as one of electrodes for electric discharge machining, and using the immovable member and the movable member as the other of the electrodes; and

forming guide grooves, which are used for guiding steel balls to be inserted the guide rail portions, by electric discharge machining in surface parts of guide rail portions, which face each other, by causing the immovable member and the movable member to perform two-dimensional motions on a plane perpendicular to a direction, in which the wire extends, by maintaining the fixation-state position relation therebetween.

5,728,991

PLASMA ARC WELDING APPARATUS AND WELDING METHOD USING THE SAME

Hiroshi Takada; Masamitsu Kitahashi; Kunio Horiai; Iwao Kurokawa, and Mikio Minonishi, all of Kanagawa-ken, Japan, assignors to Kabushiki Kaisha Komatsu Seisakusho, Japan

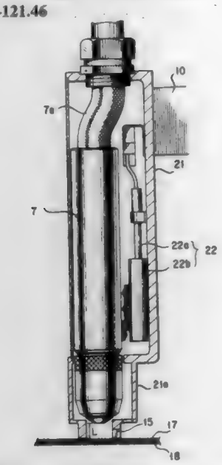
PCT No. PCT/JP94/00745, § 371 Date Oct. 31, 1995, § 102(e) Date Oct. 31, 1995, PCT Pub. No. WO94/26456, PCT Pub. Date Nov. 24, 1994

PCT Filed May 6, 1994, Ser. No. 537,913

Claims priority, application Japan, May 7, 1993, 5-106345; Jul. 27, 1993, 5-40858 U

Int. Cl.[6] B23K *10/00*

U.S. Cl. 219—121.46 33 Claims



1. A plasma arc welding apparatus, comprising:

a plasma torch; and

a spacing retention member which is coupled to said plasma torch and of which a frontal end is located between a frontal end of said plasma torch and a weld workpiece and is adapted to be pressed against said workpiece while the latter is being welded,

said spacing retention member being constituted by a torch holder which is so threaded with said plasma torch as to be capable of advancing and retreating axially relative to said plasma torch to establish an optimum standoff between the front end of the plasma torch and said workpiece, said torch holder constituting said spacing retention member being mounted on an arm of a welding robot.

5,728,992

APPARATUS AND METHOD FOR REAL TIME EVALUATION OF LASER WELDS ESPECIALLY IN CONFINED SPACES SUCH AS WITHIN HEAT EXCHANGER TUBING

Kenneth J. Swidwa, N. Huntingdon, Pa., assignor to Westinghouse Electric Corporation, Pittsburgh, Pa.

Filed Feb. 29, 1996, Ser. No. 609,082

Int. Cl.[6] B23K *26/02*

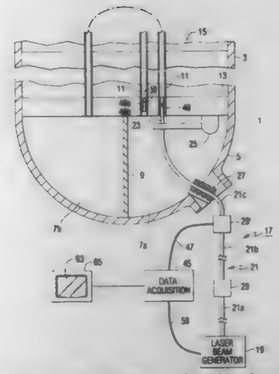
U.S. Cl. 219—121.64 15 Claims

1. A method of making and simultaneously monitoring a laser weld at a weld site, said method comprising the steps of:

generating pulses of laser energy remote from said weld site;

delivering at least one of said pulses of laser energy to said weld site through optic fiber means; and

analyzing light from said weld site during delivery of said at least one of said pulses of laser energy to said weld site by generating a display of both a wave shape of said light from said weld site during delivery of said at least one of said pulses of laser energy and a base wave shape, comparing said wave shape of said light from said weld site during delivery of said at least one of said pulses of laser energy to said base wave shape, with substantial deviations from said base wave shape being indicative of a weld defect and determining a heat-up rate of said weld site from said display of said wave shape of said light from said weld site during delivery of said pulses of laser energy to said weld site and comparing said heat-up rate to a heat up rate of said base wave shape.



5,728,993

LASER CUTTING OF MATERIALS WITH PLURAL BEAMS

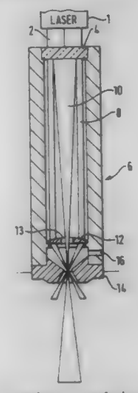
William O'Neill, Liverpool, England, assignor to The BOC Group plc, Windlesham, England

Filed Aug. 5, 1996, Ser. No. 693,930

Claims priority, application United Kingdom, Aug. 5, 1995, 95 16099

Int. Cl.[6] B23K *26/06*

U.S. Cl. 219—121.67 5 Claims



1. An apparatus for cutting a workpiece by impinging a laser beam on an area of a surface of the workpiece, comprising a source of laser energy, optical means for splitting a beam of laser energy when emanating from said source into first and second separate beams and focusing each beam when so split at a predetermined location relative to the workpiece, the second of said beams having a greater depth of focus than the first beam, characterized in that the optical means is located in a single cutting head which includes an inlet for oxygen or an oxygen-rich gas under pressure and a nozzle for the outlet of the oxygen or oxygen-rich gas such that the oxygen or oxygen-rich gas is impinged on a portion of the area on

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the surface of the workpiece, and that the optical means includes a beam splitting means located at one of two opposed ends of the cutting head and a lens located adjacent the other opposed end of the cutting head, wherein the optical means focuses the first beam at a location above the surface of the workpiece and focuses the second beam to pass unaltered through an opening in the lens.

5,728,994

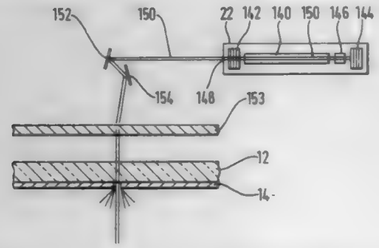
LASER ABLATION METHOD FOR MAKING A LIGHT PATTERN GENERATOR ON A TRANSPARENT SUBSTRATE

Richard W. Hutton, Irving, Tex., assignor to Vari-Lite, Inc., Dallas, Tex.

Division of Ser. No. 147,496, Nov. 5, 1993, abandoned. This application Jun. 7, 1995, Ser. No. 473,149

Int. Cl.[6] **B23K** *26/00*; **F21V** *9/00*

U.S. Cl. 219—121.69 **11 Claims**



8. A method of making a colored light pattern generator, comprising the steps of:

applying a layer of dichroic filter material to a transparent substrate; and

ablating selected areas of the filter material with an infra-red laser beam to create an opening of desired shape.

5,728,995

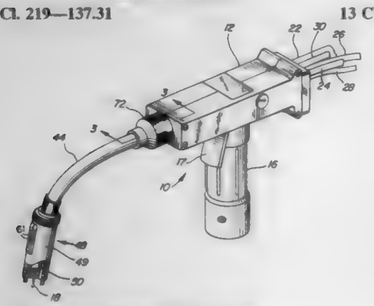
ARC WELDING TORCH

Milo M. Kensrue, Palm Desert, Calif., assignor to M.K. Products, Inc., Irvine, Calif.

Filed Jun. 3, 1996, Ser. No. 655,252

Int. Cl.[6] **B23K** *9/173*

U.S. Cl. 219—137.31 **13 Claims**



1. A welding torch apparatus comprising:

a) a mounting block assembly of current conducting material having a cylindrical open-ended receiving socket portion terminating at the front end thereof in a collet, the mounting block assembly being provided with passageways opening into the socket portion which are connectable with gas, water, and welding wire sources, the mounting block assembly being connected to a welding current source;

b) an elongated torch barrel of current conducting material mounting a welding tip at one end thereof and being provided at its other end with a mounting end adapted for endwise axial insertion into a seated position in said socket to establish operative connections with the gas, water and welding wire sources;

c) a current conducting cone-shaped collar carried by and slidable along the torch barrel adjacent the mounting end thereof for insertion into a seated position in the collet and for extraction from the collet to an unseated position, the collar carrying current to the barrel and preventing relative movement between the barrel and the mounting block assembly when in a seated position and for allowing relative movement between the barrel and the mounting block assembly when in an unseated position; and

d) manually operable means for seating and unseating the collar in the collet.

5,728,996

OPERATIONAL SWITCH FOR A MICROWAVE OVEN

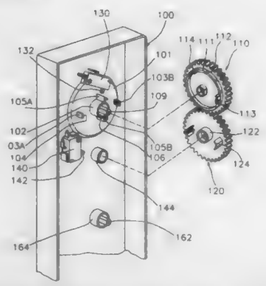
Yu-Soo Park, Seoul, Rep. of Korea, assignor to Daewoo Electronics Co., Ltd., Seoul, Rep. of Korea

Filed Jan. 31, 1996, Ser. No. 594,970

Claims priority, application Rep. of Korea, Jun. 23, 1995, 95-17207

Int. Cl.[6] **H05B** *6/68*

U.S. Cl. 219—702 **10 Claims**



1. An operational switch for a microwave oven comprising

a knob inserted rotatably into a control panel;

a first gear, the knob having a shaft being inserted into the center of the first gear, and a pair of pushing pieces being protrudingly formed on one face of the first gear;

a first switch for controlling a magnetron by means of the pushing pieces of the first gear;

a second gear meshed with the first gear by teeth, a pair of pushing pieces being protrudingly formed on one face of the second gear, and a small sized gear meshed with a gear of the magnetron for controlling the magnetron power is provided on an opposite face of the second gear; and

a second switch for controlling an electric heater by means of the pushing pieces of the second gear,

whereby the rotation of the knob is transmitted to the first gear, the rotational position of the pushing piece of the first gear turning on/off the first switch, the rotation of the first gear is transmitted to the second gear, and the rotational position of the pushing piece of the second gear turning on/off the second switch and simultaneously rotates the power controlling gear.

5,728,997

APPARATUS FOR CONTROLLING POWER OF A MICROWAVE OVEN

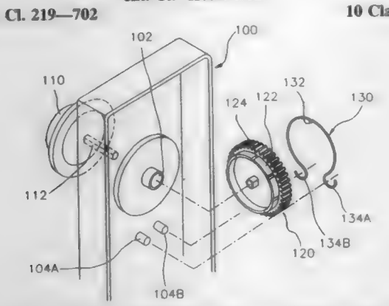
Sang-Jin Kim, Incheon, and Heung-Dae Kang, Kyunggi-Do, both of Rep. of Korea, assignors to Daewoo Electronics Co., Ltd., Seoul, Rep. of Korea

Filed Jul. 25, 1996, Ser. No. 686,372

Claims priority, application Rep. of Korea, Jul. 26, 1995, 95-18653; Jul. 26, 1995, 95-18655

Int. Cl.[6] **H05B** *1/02*

U.S. Cl. 219—702 **10 Claims**



1. An apparatus for controlling power of a microwave oven, the apparatus comprising:

(a) a control panel having an installing hole formed thereon;

(b) a control knob having a knob shaft which is inserted through the installing hole on the control panel;

(c) a planar coupler fixedly secured to the knob shaft of the control knob through the installing hole, the planar coupler being rotatably installed on the control panel together with the control knob for controlling the output of a microwave generator of the microwave oven;

(d) an annular projection integrally formed on one side surface of the coupler facing the control panel and including a plurality of V-grooves formed at circumferentially interspaced distances in a peripheral surface of the annular projection;

(e) a resilient means for restricting a free rotation of the planar coupler and including a protrusion at a longitudinally intermediate position thereof, and the protrusion engaging any one of the plurality of V-grooves under the elasticity of the resilient means during the rotation of the coupler; and

(f) a fixing means for mounting the resilient means on the control panel, whereby the protrusion of the resilient member remains in resilient contact on the peripheral surface of the annular projection of the planar coupler.

5,728,998

SECURE SMART CARD READER WITH VIRTUAL IMAGE DISPLAY AND PULL-DOWN OPTIONS

Scott R. Novis, Tempe; Karen E. Jachimowicz, Laveen; Dennis Barry, Phoenix, all of Ariz.; Jack Van Zile, Lake Worth, Fla., and George W. Rhyne, Cary, N.C., assignors to Motorola, Inc., Schaumburg, Ill.

Filed Mar. 29, 1996, Ser. No. 625,654

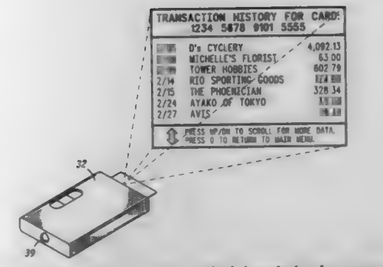
Int. Cl.[6] **G06K** *5/00*

U.S. Cl. 235—380 **7 Claims**

1. A smart card reader comprising:

a portable housing including a viewing aperture;

a virtual image display mounted in the housing and positioned to provide an image for viewing at the viewing aperture, the virtual image display including a data input terminal designed to receive image data thereon, the virtual image display further including a plurality of optical elements having a light inlet and a light outlet directed at an angle to the inlet, with a reflecting surface optically positioned between the inlet and the outlet so as to direct light from the inlet to the outlet, the plurality of optical elements include at least one aspheric surface for aberration correction, the plurality of optical elements defining a light path from the light inlet to the light outlet with a total average optical length in the range of approximately 20 to 35 millimeters, and at least one diffractive optical element positioned in the light path so as to provide further aberration correction, and the plurality of optical elements being constructed to angularly magnify an image source at the light inlet of the plurality of optical elements by greater than ten;



sensor structure mounted in the housing and constructed to have a smart card having data stored thereon positioned adjacent thereto in data sensing juxtaposition, the sensor structure including an output terminal having sensed data thereon; and

electronics mounted in the housing and connected to the output terminal of the sensor structure for receiving the sensed data and further connected to the input terminal of the virtual image display for supplying image data thereto.

5,728,999

VENDING MACHINE, A VENDING SYSTEM AND METHODS FOR OPERATING SAME

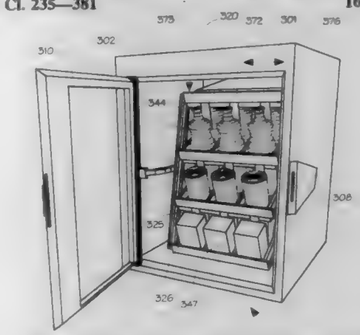
Mordechai Teicher, Kfar Saba, Israel, assignor to Advanced Retail Systems Ltd., Kiriat Ono, Israel

Filed Jun. 6, 1995, Ser. No. 476,548

Claims priority, application Israel, Jun. 14, 1994, 110017; Sep. 25, 1994, 111055; Jun. 1, 1995, 113980

Int. Cl.[6] **G06K** *5/00*; **G06F** *7/08*

U.S. Cl. 235—381 **16 Claims**



1. A vending machine offering for sale at least two different items, at least one item being a low cost item, to a plurality of customers each having a payment card, said payment card being operative to pay from both a local account and a remote account, said remote account being unsuited for payment of said low cost item, said vending machine comprising:

a vending unit for storing an accessible inventory of said at least two items and for selectively enabling and barring free access of a customer to said accessible inventory; and

a card payment unit cooperating with said vending unit, which upon receipt of said payment card, validates, prior to said enabling, that said payment card can charge said remote account for the value of said accessible inventory, and which, after said barring, receives from said payment card a payment sum in accordance with the price of the items removed from

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said accessible inventory, by automatically selecting, according to said payment sum and the status of said local account, whether:

to receive said payment sum from said local account; or

to receive said payment sum from said remote account; or

to both replenish said local account from said remote account and receive said payment sum from said local account.

5,729,000

IC CARD READER

Yasuki Sugimoto, Tokyo, Japan, assignor to Oki Electric Industry Co., Ltd., Tokyo, Japan

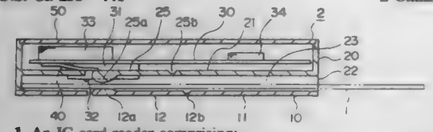
PCT No. PCT/JP95/01710, § 371 Date Apr. 30, 1996, § 102(e) Date Apr. 30, 1996, PCT Pub. No. WO96/07160, PCT Pub. Date Mar. 7, 1996

PCT Filed Aug. 29, 1995, Ser. No. 637,719

Claims priority, application Japan, Aug. 31, 1994, 6-232112

Int. Cl.[6] G06F *7/06*

U.S. Cl. 235—441 **2 Claims**



1. An IC card reader comprising:

a lower cover (**10**) provided with a swingable depressing part (**12**),

an upper cover (**20**) which is provided with an insertion slit (**22**) for an IC card, an insertion passage (**23**) communicated with said insertion slit (**22**), a window (**24**) opposing to an external terminal (**1***a*) of the IC card (**1**) inserted into said insertion passage (**23**) and a swingable card protection arm (**25**), installed on said lower cover **10**, and

a circuit board (**30**) which is provided with a card connector (**31**) on its underside surface and installed on said upper cover (**20**) so that said card connector (**31**) is opposed to the external terminal (**1***a*) of the IC card (**1**) inserted into said insertion passage (**23**) through said window (**24**).

5,729,001

METHOD FOR EVALUATING A SUCCESSION OF BAR CODE SYMBOLS

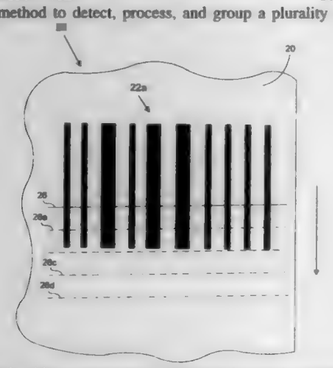
Glenn Steven Spitz, Northport, N.Y., assignor to Webscan, Inc., Brentwood, N.Y.

Filed Jan. 11, 1996, Ser. No. 584,242

Int. Cl.[6] G06K *7/10*

U.S. Cl. 235—462 **28 Claims**

1. A method to detect, process, and group a plurality of scans



associated with a succession of spaced bar code symbols, the symbols disposed on a substrate moving past a scanner unit arranged to scan each respective symbol, one after the other, with the detecting, processing, and grouping of the scans associated with each respective symbol useful in monitoring the quality and quality trends of a plurality of the bar code symbols disposed on the moving substrate, the method comprising the steps of:

a) continuously scanning the moving substrate to enable the detection bar code symbols disposed thereon;

b) detecting the presence of a bar code symbol moving into the field of view of the scanner unit by scanning the symbol and determining a valid decode;

c) processing the first decoded scan and a plurality of subsequent decodable and non-decodable scans associated with the bar code symbol to determine at least one evaluation attribute for each scan processed;

d) conducting step c) until a predetermined number of consecutive non-decodable scans are processed, thereby indicating the absence of the bar code symbol from the field of view of the scanner unit and that the symbol has moved past the scanner unit;

e) repeating steps b), c), and d) for a chosen plurality of bar code symbols in the succession of bar code symbols.

5,729,002

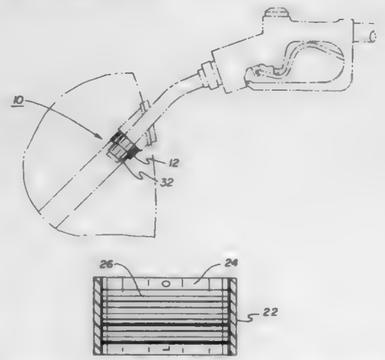
ELECTRONIC BAR ENCODED GASOLINE SCANNER DEVICE

Geary Samples, 1827 Autumn Way, Lodi, Calif. 95242

Filed Apr. 8, 1996, Ser. No. 628,988

Int. Cl.[6] G06K *7/00;5/00;* **G06F** *7/08*

U.S. Cl. 235—462 **1 Claim**



1. An electronic bar encoded gasoline scanner device for automatically reading bank and credit cards within a gasoline tank comprising, in combination:

a first cylindrical sleeve having an open first end and an open second end, the first cylindrical sleeve having a slit formed between the first and second end allowing the circumference thereof to be temporarily reduced for insertion and securement within a top portion of a gasoline tank fill pipe, the first cylindrical sleeve thus being adapted for securement within a top portion of a gasoline tank fill pipe, the open first end permitting a gasoline nozzle passage through the first cylindrical sleeve, the open second end permitting dispensed gasoline from the gasoline nozzle to enter into and fill the gasoline tank, the first cylindrical sleeve having an outer surface and an inner surface, the outer surface being adapted to be permanently sealed within the top portion of the gasoline fill pipe by means of a gasoline insoluble adhesive thereby precluding movement within the tank fill pipe, the inner surface having a bar code including parallel concentric lines imprinted thereon, wherein the bar code contains information pertaining to at least one of a credit card and bank card; and

a laser scanner secured within a second cylindrical sleeve, the second cylindrical sleeve being adapted for securement to a gasoline dispensing nozzle, the laser scanner having wiring extending outwardly therefrom, the wiring serving to couple with an existing computer network;

whereby once the gasoline dispensing nozzle is inserted into the gasoline tank fill pipe, the laser scanner will automatically read the bar code therewithin despite the angle of rotation of the dispensing nozzle, the laser scanner will then send a signal to the existing computer network to either bill the at least one of the credit card and bank card for a dollar amount of gasoline pumped into the gasoline tank.

5,729,003

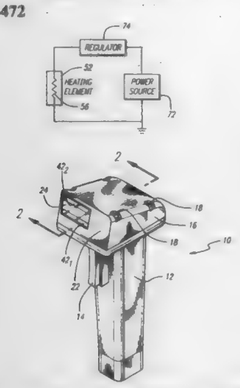
APPARATUS FOR PREVENTING FORMATION OF CONDENSATION ON AN ELECTROOPTICAL SCANNER WINDOW

Templeton Briggs, III, Snohomish, Wash., assignor to Intermec Corporation, Everett, Wash.

Filed Dec. 27, 1995, Ser. No. 579,292

Int. Cl.[6] G06K *7/10*

U.S. Cl. 235—472 **16 Claims**



1. A portable, handheld scanner having an electro-optical element for scanning a one or two-dimensional symbology, comprising:

a housing having an enclosed compartment containing said electro-optical element, said compartment further having a window permitting said electro-optical element to collect reflected light therethrough; and

a heating element coupled to at least a portion of an inner surface of said window, wherein said heating element precludes condensation from forming on said inner surface of said window.

5,729,004

DATA COMMUNICATION DEVICE AND METHOD OF A SMART CARD

Jong-Chul Kim, Suwon, and Sang-Joe Ra, Seoul, both of Rep. of Korea, assignors to Samsung Electronics Co., Ltd., Suwon, Rep. of Korea

Filed Oct. 2, 1995, Ser. No. 537,962

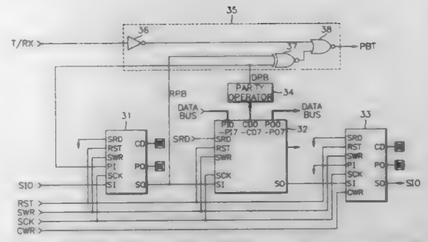
Claims priority, application Rep. of Korea, Sep. 30, 1994, 1994-25042

Int. Cl.[6] G06K *19/06*

U.S. Cl. 235—492 **11 Claims**

1. An input/output device of a smart card for performing serial data communication asynchronously with a card reader comprising:

a first register having a first serial input terminal connected to a serial input/output terminal;



a second register having parallel detection terminals, parallel input/output terminals connected to a data bus, and a second serial input terminal connected to a first serial output terminal of said first register;

a third register having a parallel input terminal connected to a ground, a third serial input terminal connected to a second serial output terminal of said second register, and a third serial output terminal connected to said serial input/output terminal;

a parity generator which receives parallel data from said parallel detection terminals of said second register, logically operates upon said parallel data to generate an operation parity bit which is applied to a parallel input indicator terminal of said first register; and

a parity detector which receives a reception parity bit from said first register and said operation parity bit from said parity generator and, in a reception mode, compares the logic states of said reception parity bit and said operation parity bit to obtain a parity detection signal indicating whether parity is correct.

5,729,005

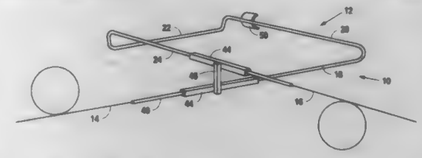
FIBER OPTIC CURRENT SENSOR WITH BEND BIREFRINGENCE COMPENSATION

Trevor W. MacDougall, Cedar Park; Jay W. Dawson, Round Rock, and Leonard A. Johnson, Austin, all of Tex., assignors to Minnesota Mining and Manufacturing Company, St. Paul, Minn.

Filed Jul. 12, 1996, Ser. No. 683,519

Int. Cl.[6] G02F *1/01*

U.S. Cl. 250—227.17 **22 Claims**



1. A fiber optic subassembly for a Faraday-effect sensor, the subassembly comprising:

an optical fiber having first and second ends and an intermediate sensing portion; and

means for maintaining said sensing portion of said optical fiber in a substantially closed path wherein said sensing portion is formed into four straight sections generally defining a rectangle having four corners, at least one of said corners having a turn of said sensing portion with an effective angle of approximately 90°, said turn being configured to compensate for bend-induced birefringence.

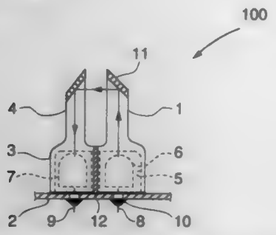
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5,729,006

REEL ROTATION DETECTING DEVICE IN A VIDEO CASSETTE RECORDER

Osamu Maeda, Daito, Japan, assignor to Funai Electric Co., Ltd., Osaka, Japan

Continuation of Ser. No. 511,464, Aug. 4, 1995, abandoned. This application Mar. 28, 1997, Ser. No. 827,531
Claims priority, application Japan, Aug. 5, 1994, 6-009657 U
Int. Cl.[6] G01D *5/34*
U.S. Cl. 250—231.13 **17 Claims**



1. A reel sensor arranged to sense rotation of a reel in a video cassette recorder, said reel sensor being mounted on a printed circuit board in the video cassette recorder and having an optical path which crosses rotation loci of sensing projections of said reel, comprising:

a light conductive element formed of a light transmissible material and including a base portion mounted on the printed circuit board and a pair of light conductive portions respectively erected on said base portion;

two element storage pockets separately formed in said base portion in such a manner that they respectively correspond to said light conductive portions;

a light emitting element stored in one of said two element storage pockets for emitting light;

a light receiving element stored in the other of said two element storage pockets for receiving the light;

two reflecting surfaces respectively formed in end portions of said light conductive portions for causing light passing through one of said light conductive portions to be reflected into the other of said light conductive portions; and

light shield means for preventing passage of light between said two element storage pockets formed in said base portion so as to prevent passage of light from said light emitting element to said light receiving element except through said light conductive element.

5,729,007

POSITION DETECTING APPARATUS AND POSITION DETECTING METHOD USING THE SAME

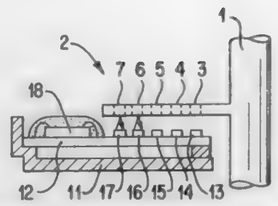
Takao Taniguchi, Okazaki; Nobuaki Miki, Kariya; Takenori Kano, Toyota; Toshiya Morishita, Hekinan; Ken Kiyama, Nishio; Naoto Ogasawara, Chiryu, and Naotaka Murakami, Nishio, all of Japan, assignors to Aisin AW Co., Ltd., Aichi-ken, Japan

Filed May 24, 1996, Ser. No. 653,442
Claims priority, application Japan, May 31, 1995, 7-133008
Int. Cl.[6] G01D *5/34*
U.S. Cl. 250—231.13 **20 Claims**

1. A position detecting apparatus, comprising:

means for detecting a signal indicating a position of a shift lever;

means for outputting incremental pulse signals that increment throughout an entire positional range of the shift lever; and



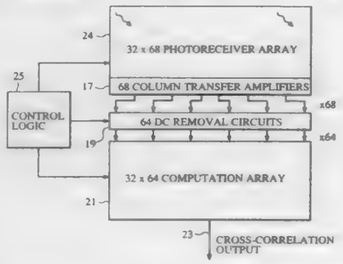
a control unit for establishing a predetermined correct position on the basis of the signal indicating the position of the shift lever and a count of the incremental pulse signals.

5,729,008

METHOD AND DEVICE FOR TRACKING RELATIVE MOVEMENT BY CORRELATING SIGNALS FROM AN ARRAY OF PHOTOELEMENTS

Travis N. Blalock, Santa Clara; Richard A. Baumgartner, Palo Alto; Thomas Hornak, Portola Valley, and Mark T. Smith, San Mateo, all of Calif., assignors to Hewlett-Packard Company, Palo Alto, Calif.

Filed Jan. 25, 1996, Ser. No. 591,847
Int. Cl.[6] H01J *40/14*
U.S. Cl. 250—208.1 **20 Claims**



17. A scanner for forming an image of a surface of interest comprising:

a housing;

an imaging sensor fixed to said housing for capturing image information of said surface of interest;

a two-dimensional array of photoelements fixed to said housing for forming navigation information, each photoelement in said array having at least one nearest-neighbor photoelement adjacent to said each photoelement;

frame means for capturing successive frames of said navigation information from said photoelements in an arrangement such that each frame includes pixel values in which each pixel value is responsive to received light energy at a corresponding photoelement at a time of capturing said each frame;

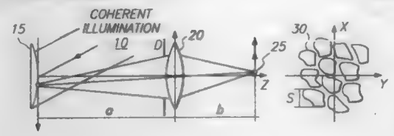
means, connected to said frame means, for correlating each pixel value of a first frame with those pixel values of a second frame that correspond to nearest-neighbor photoelements of a photoelement with which said each pixel value corresponds.

5,729,009

METHOD FOR GENERATING QUASI-SINUSOIDAL SIGNALS

René Dändliker, Corcelles, and Marc Bidiville, Pully, both of Switzerland, assignors to Logitech, Inc., Fremont, Calif.

Continuation-in-part of Ser. No. 424,125, Apr. 19, 1995, which is a continuation-in-part of Ser. No. 199,982, Feb. 18, 1994, abandoned, which is a continuation of Ser. No. 956,907, Oct. 5, 1992, Pat. No. 5,288,993. This application Jun. 7, 1995, Ser. No. 478,191
Int. Cl.[6] H01J *40/14*; **G01V** *9/04*
U.S. Cl. 250—208.2 **16 Claims**



1. A system for generating a first and second quasi-sinusoidal signals comprising the steps of:

a coherent light source for transmitting coherent light toward a surface of an object that diffusely reflects light;

an aperture, having an opening that is disposed to receive said reflected light, for enabling some of said reflected light to pass through said opening;

a lens, disposed to receive said reflected light that has passed through said opening, for focusing said reflected light to form an image having speckles representing frequency interference of said reflected light;

a detector array, disposed to receive said image, said detector array having at least twelve detector elements for receiving said image and filtering said image according to a spatial frequency, said detector array generating four phase signals; and

an analog unit, disposed to receive said four phase signals, for generating two quasi-sinusoidal signals representing a direction and a distance of a displacement in a first dimension;

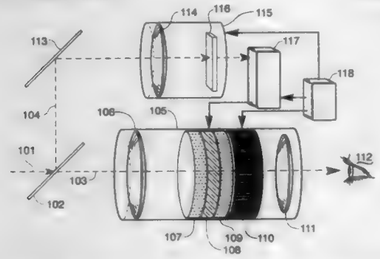
wherein said aperture and said lens are substantially optically matched with said detector array.

5,729,010

NIGHT VISION DEVICE LOCALIZED IRRADIANCE ATTENUATION

Alan R. Pinkus, Bellbrook; Harry L. Task, Dayton, and Peter L. Marasco, Kettering, all of Ohio, assignors to The United States of America as represented by the Secretary of the Air Force, Washington, D.C.

Filed Sep. 11, 1996, Ser. No. 712,506
Int. Cl.[6] H01J *31/50*
U.S. Cl. 250—214 VT **18 Claims**



1. Bright object immune night vision apparatus comprising the combination of:

a night vision device having a viewed-scene collecting optical input port, an electrical charge signal generating retina member in optical communication with said viewed-scene collecting optical input port, an electrical charge signal transducing output image generator and an optical output port in optical communication with said electrical charge signal transducing output image generator; and

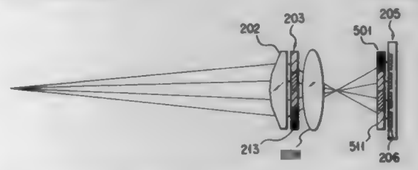
selectable pattern optical attenuation apparatus disposed intermediate said input scene collecting optical input port and said electrical charge signal generating retina member, said selectable pattern optical attenuation apparatus including optical signal attenuation means, responsive to shape and intensity characteristics of a bright object input image portion received by said night vision device, for spatially selected radiance attenuation of said bright object spatial portion from said input image.

5,729,011

SPECTROSCOPIC APPARATUS AND SPECTROSCOPIC IMAGE RECORDING APPARATUS

Nobutoshi Sekiguchi, Hidaka, Japan, assignor to Olympus Optical Co., Ltd., Tokyo, Japan

Filed Jan. 25, 1996, Ser. No. 591,090
Claims priority, application Japan, Feb. 24, 1995, 7-060101
Int. Cl.[6] G01J *3/51*
U.S. Cl. 250—226 **22 Claims**



1. A spectroscopic apparatus comprising;

an image producing unit for producing a plurality of same images from a single input image by dividing a pupil of an optical system;

a first spectroscopic unit for producing a plurality of first spectroscopic images corresponding to said plurality of same images by extracting a predetermined wavelength component corresponding to each of said plurality of same images; and

a second spectroscopic unit for producing a plurality of second spectroscopic images corresponding to respective ones of said first spectroscopic images by extracting a predetermined wavelength component corresponding to each of said first spectroscopic images corresponding to said plurality of same images.

5,729,012

PHOTOLUMINESCENCE BUILT-IN-TEST FOR OPTICAL SYSTEMS

Lance A. Wood, Winter Park; Paul J. Caldwell, Highlands Ranch, both of Colo., and Terrance L. Worchesky, Columbia, Md., assignors to Lockheed Martin Corporation, Bethesda, Md.

Continuation-in-part of Ser. No. 428,377, Apr. 25, 1995, Pat. No. 5,572,016. This application Oct. 30, 1996, Ser. No. 739,641
Int. Cl.[6] H01J *5/16*; **G02B** *5/14*
U.S. Cl. 250—227.15 **18 Claims**

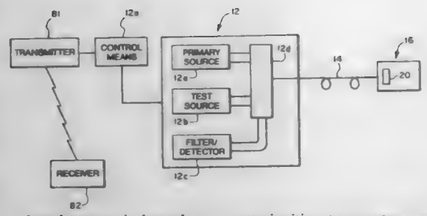
1. An apparatus for testing the integrity of an optical fiber in a test mode and for confirming initiation of ordnance coupled to said fiber in an initiation mode, said apparatus comprising:

an optical fiber having a first end and a second end;

a light source for selectively transmitting light energy within a first wavelength range into said first end of said optical fiber in said test mode, and for transmitting light energy within a second wavelength range into said first end of said optical fiber in said initiation mode;

optically-initiated ordnance coupled to said second end of said optical fiber which, when exposed to light in said first wave-

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length range, is heated to an auto-ignition temperature and then emits initiation light energy that is coupled into said second end of said optical fiber for passage through said optical fiber to said first end;

a photoluminescent material disposed at a junction of said ordnance and said second end of optical fiber that is substantially transparent to said first wavelength range and at least a portion of said initiation light, said photoluminescent material being photoluminescent when exposed to said second wavelength range at a different wavelength from either said first or said second wavelength range, said photoluminescent light being coupled into said second end of said optical fiber for passage through said optical fiber to said first end; and

a detector coupled to said first end of said optical fiber for responding to said photoluminescent light to indicate continuity of said optical fiber in said test mode, and for responding to said initiation light to confirm initiation of said ordnance in said initiation mode.

5,729,013

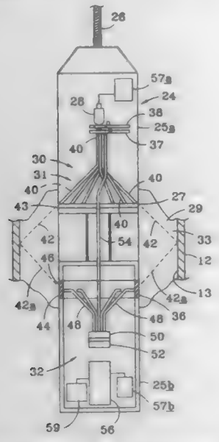
WELLBORE INFRARED DETECTION DEVICE AND METHOD

Frank E. Bergren, III, Anchorage, Ak., assignor to Atlantic Richfield Company, Los Angeles, Calif.

Filed Nov. 4, 1996, Ser. No. 740,875

Int. Cl.[6] G01V *9/00;* **G01N** *21/17*

U.S. Cl. 250—255 **21 Claims**



1. A production logging device insertable into a wellbore casing for determining concentration of specified components in flowing production fluid comprising:

a. a tool body sized smaller in diameter than said wellbore casing so that said flowing fluid production is not blocked;

b. a line connected to said tool body by which movement of said body within said wellbore casing can be selectably controlled from a remote location and by which information signals can be communicated from said tool body to said remote location;

c. an infrared radiation source operatively connected to said tool body;

d. a plurality of infrared transmission sites circumferentially spaced around said tool body directed so that infrared radiation from said infrared radiation source is transmitted through said flowing production fluid;

e. a plurality of infrared reception sites circumferentially spaced around said tool body positioned so that said infrared radiation transmitted through said flowing production fluid is received at said plurality of reception sites; and

f. an infrared analyzer carried by said tool body operatively connected to said infrared reception sites so that the spectrum of infrared radiation transmitted through said production fluid can be determined.

5,729,014

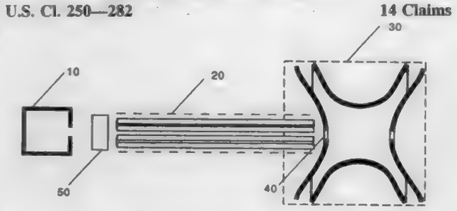
METHOD FOR INJECTION OF EXTERNALLY PRODUCED IONS INTO A QUADRUPOLE ION TRAP

Alex Mordehai, Mountain View, and Sidney E. Buttrill, Jr., Palo Alto, both of Calif., assignors to Varian Associates, Inc., Palo Alto, Calif.

Filed Jul. 11, 1996, Ser. No. 678,742

Int. Cl.[6] B01D *59/44;* **H01J** *49/00*

U.S. Cl. 250—282 **14 Claims**



1. A method of ion introduction and trapping comprising the steps of:

(a) providing a radio frequency (RF) ion trap with a buffer gas;

(b) producing a continuous ion beam from an external ion source;

(c) directing said beam to said RF ion trap through a gating device for a predetermined period of accumulation time to allow said ion beam to enter said ion trap;

(d) applying an RF voltage to said ion trap to create a main RF trap field therein for trapping ions over a range of masses; and

(e) changing an amplitude of said RF voltage adiabatically for achieving a uniform trapping efficiency for ions of said ion beam over a predetermined mass range.

5,729,015

POSITION CONTROL SYSTEM FOR SCANNING PROBE MICROSCOPE

Yi Tong, Hachioji, Japan, assignor to Olympus Optical Co., Ltd., Tokyo, Japan

Filed Jan. 25, 1996, Ser. No. 591,092

Claims priority, application Japan, Jan. 30, 1995, 7-012472; Mar. 27, 1995, 7-067916

Int. Cl.[6] H01J *37/00*

U.S. Cl. 250—306 **17 Claims**

1. A scanning probe microscope comprising:

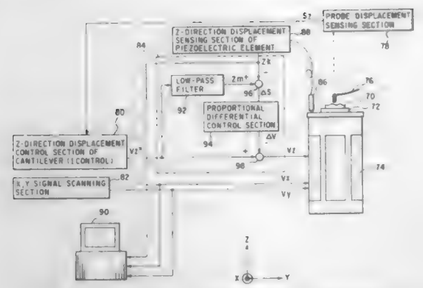
a cantilever having a fixed end portion and a free end portion;

a probe provided at said free end portion of said cantilever;

moving means for holding one of said probe and a specimen, and for moving relative positions of said probe and said specimen;

scanning signal output means for outputting a scanning signal for scanning said moving means;

moving amount detecting means for detecting a moving amount of said moving means based on said scanning signal, and for



outputting a movement signal which corresponds to said detected moving amount;

a feedback control system including first correction signal generating means for generating a first correction signal for canceling a deviation between said movement signal and said scanning signal; and

a follow-up control system including: (i) a reference model unit for outputting a theoretical movement signal of said moving means based on said first correction signal; and (ii) a second correction signal generating means for generating a second correction signal for canceling a deviation between said movement signal and said theoretical movement signal, and for outputting said second correction signal to said moving means.

5,729,016

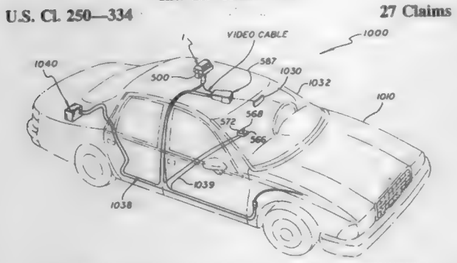
LOW COST NIGHT VISION SYSTEM FOR NONMILITARY SURFACE VEHICLES

Stuart H. Klapper, Rancho Palos Verdes; Howard Laitin, Torrance; Alex L. Kormos, Los Angeles; Lacy G. Cook, El Segundo; David M. Masarik, Laguna Beach, and Paul R. Salvio, Palos Verdes Estates, all of Calif., assignors to Hughes Aircraft Company, Los Angeles, Calif.

Continuation of Ser. No. 304,981, Sep. 13, 1994, abandoned, which is a continuation-in-part of Ser. No. 226,728, Apr. 12, 1994, abandoned. This application Aug. 26, 1996, Ser. No. 702,999

Int. Cl.[6] H04N *3/02*

U.S. Cl. 250—334 **27 Claims**



1. A night vision system for a surface vehicle comprising:

an infrared camera mounted on the surface vehicle, said infrared camera comprising:

a first housing having an aperture;

a window disposed on the first housing at the aperture, the window being transmissive to infrared energy;

an array of detectors disposed within the first housing, each detector providing an electrical output signal when illuminated with infrared energy;

reflective optical means for focusing infrared radiation onto said array;

a chopper disposed between the reflective optical means and the array; and

signal processing means for providing electrical output signals from the array;

pointing means for adjusting a pointing angle of the camera, said pointing means comprising:

a tilt gimbal adaptable to support the camera and allow the camera to rotate about a first axis of rotation that extends through the center of gravity of the camera;

a pan gimbal supporting the tilt gimbal and rotating about a second axis of rotation;

a second housing for supporting the pan gimbal and the tilt gimbal, the second housing being mountable to the surface vehicle;

means, responsive to a first control signal, for rotating the pan gimbal;

means, responsive to a second control signal, for rotating the tilt gimbal;

means for generating the first and second control signals, wherein the means for rotating the pan gimbal includes a pan gear attached to the pan gimbal, a longitudinal axis of the pan gear being coaxial with the second axis of rotation; and

an electric motor and at least one gear for allowing the electric motor to drive the tilt gear,

wherein the means for rotating the pan gimbal further includes means for sensing the position of the pan gimbal, the sensing means including a magnetized portion on the pan gear and at least one magnetic sensor proximate the pan gear, and

wherein the means for rotating the pan gimbal further includes a circuit board mounted proximate the pan gear and a circuit for driving the motor, the circuit and the at least one magnetic sensor being mounted on the board;

control means for providing position control signals to said pointing means, said pointing means adjusting said pointing angle in response to said control signals; and

display means for displaying the electrical output signals from said array in the camera.

5,729,017

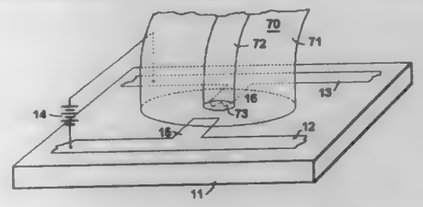
TERAHERTZ GENERATORS AND DETECTORS

Igal M. Brener, Westfield, N.J., and Douglas Raymond Dykaar, Waterloo, Canada, assignors to Lucent Technologies Inc., Murray Hill, N.J.

Filed May 31, 1996, Ser. No. 656,000

Int. Cl.[6] G01J *5/10;5/00*

U.S. Cl. 250—338.1 **10 Claims**



1. A device for generating or detecting far infra-red pulsed radiation in the pulse frequency range of 10^{10} to 10^{13} Hz comprising:

a photoconductor substrate,

at least two spaced apart electrodes formed on the surface of the photoconductor substrate thus forming an electrode gap therebetween,

DC bias means for biasing said at least two spaced apart electrodes, and optical pump means comprising at least one laser with its output beam indent on said electrode gap,

the said electrode gap further defined as having a first edge of a first electrode spaced from and facing a second edge of a second electrode with each of said edges having a first end and a second end, the first and second ends approximately facing one another

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thus forming therebetween an electrode gap, said electrode gap having a geometric area defined by:

a. the edge of said first electrode,

b. an imaginary line connecting the first end of the first edge with the first end of the second edge.

c. the edge of the second electrode, and

d. an imaginary line connecting the second end of the first edge with the second end of the second edge, the invention characterized in that the said geometric area has at least five sides.

5,729,018

AIR CRYSTAL AND ASSEMBLY FOR INFRARED MICROSPECTROSCOPY

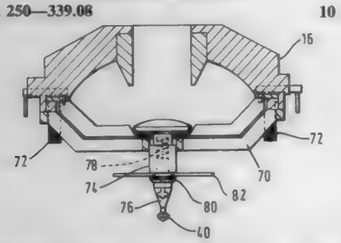
Simon A Wells, Wendover, and David Gosbee, Leighton Buzzard, both of England, assignors to Perkin-Elmer Ltd., Beaconsfield, England

Filed Feb. 29, 1996, Ser. No. 608,653

Claims priority, application European Pat. Off., Mar. 3, 1995, 95301402

Int. Cl.[6] G01N *21/01*

U.S. Cl. 250—339.08 **10 Claims**



1. A mounting assembly for an ATR type crystal which comprises a frame having generally radially extending limbs attachable to an objective lens of an apparatus for carrying out spectroscopic analysis, an axially depending support element carried by said frame, said support element including first and second relatively movable members, the second of which carries on its lower end an ATR type crystal and means biasing said second member to its lowermost position and means allowing movement of the second member upwardly against said bias means.

5,729,019

SPLIT FIELD-OF-VIEW UNCOOLED INFRARED SENSOR

Brian C. Kraftbefer, Stillwater; Michael L. Rhodes, Richfield, and Thomas G. Stratton, Roseville, all of Minn., assignors to Honeywell Inc., Minneapolis, Minn.

Filed Dec. 29, 1995, Ser. No. 586,016

Int. Cl.[6] G01J *5/06;5/08;* **G08B** *13/193*

U.S. Cl. 250—353 **13 Claims**

1. An occupancy sensor comprising:

a primary infrared radiation sensor formed on a substrate;

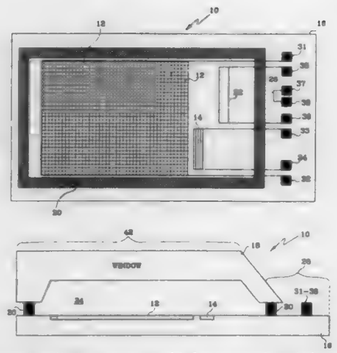
a first secondary infrared radiation sensor formed on the substrate;

a second secondary infrared radiation sensor formed on the substrate;

a vacuum seal situated on the substrate and around the said primary infrared radiation sensor, and said first and second secondary infrared radiation sensors; and

a window situated as a top cap on said vacuum seal to form an integrated vacuum package containing said primary infrared radiation sensor, and said first and second secondary infrared radiation sensors; and

wherein said window has at least one etched facet to provide different fields of view of a monitored space for said primary



infrared radiation sensor, said first secondary infrared radiation sensor and said second secondary infrared radiation sensor, respectively.

5,729,020

HYBRID TYPE INFRARED DETECTOR

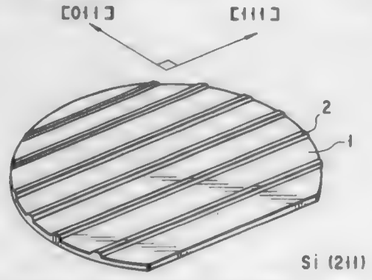
Keiichi Matsushita, Yokohama; Keitaro Shigenaka, Tokyo, and Katsuyoshi Fukuda, Yokosuka, all of Japan, assignors to Kabushiki Kaisha Toshiba, Kawasaki, Japan

Filed Aug. 23, 1996, Ser. No. 697,447

Claims priority, application Japan, Aug. 25, 1995, 7-217085

Int. Cl.[6] H01L *33/00*

U.S. Cl. 250—370.08 **9 Claims**



1. A hybrid type infrared detector comprising:

a plurality of photodiodes comprised of p-n junctions made of compound semiconductor material on a silicon substrate;

a signal processing portion formed on another substrate; and

a connecting member for electrically connecting the plurality of photodiodes with the signal processing portion, and for injecting carriers generated by the photodiodes into the signal processing portion,

wherein partitioning portions are formed along a cleavage plane of the compound semiconductor material, and

wherein the cleavage plane is (n11).

5,729,021

X-RAY IMAGE SENSOR

Andreas Brauers, and Ulrich Schiebel, both of Aachen, Germany, assignors to U.S. Philips Corporation, New York, N.Y.

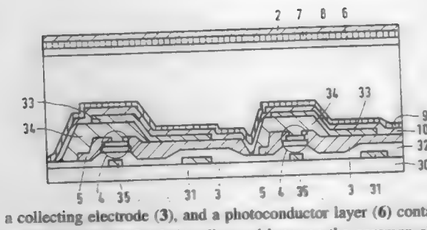
Filed Sep. 11, 1996, Ser. No. 712,031

Claims priority, application European Pat. Off., Sep. 12, 1995, 95202471

Int. Cl.[6] G01T *1/24;1/29*

U.S. Cl. 250—370.09 **20 Claims**

1. An x-ray image sensor (**1**) comprising a common electrode (**2**), a plurality of x-ray sensitive sensor elements each comprising



a collecting electrode (**3**), and a photoconductor layer (**6**) containing lead-oxide (PbO_x) being disposed between the common electrode (**2**) and the collecting electrodes (**3**), characterized in that a passivation layer (**7**) is disposed between the photoconductor layer (**6**) and the common electrode (**2**) for impeding chemical reactions between the photoconductor layer (**6**) and the common electrode (**2**) while allowing charge carriers generated by absorption of x-rays in the photoconductor layer to pass to the common electrode (**2**).

5,729,022

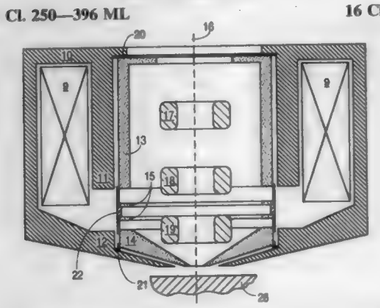
COMPOSITE CONCENTRIC-GAP MAGNETIC LENS AND DEFLECTOR WITH CONICAL POLE PIECES

Lee H. Veneklasen, Castro Valley, and William J. DeVore, Hayward, both of Calif., assignors to Etec Systems, Inc., Hayward, Calif.

Filed Sep. 26, 1996, Ser. No. 721,287

Int. Cl.[6] H01J *3/22*

U.S. Cl. 250—396 ML **16 Claims**



1. A composite lens and magnetic deflector for a particle beam comprising deflection coils and having an upper inner pole piece and a lower inner pole piece, the lower inner pole piece being spaced apart by a gap from the upper inner pole piece; and the upper inner pole piece surrounding a deflection coil;

further comprising:

an outer pole structure having an outer upper pole surrounding the upper inner pole piece and an outer lower pole surrounding the lower inner pole piece, wherein the lower inner pole piece defines a conical structure having an opening concentric to the particle beam and having its base nearer the upper inner pole piece than is the opening.

5,729,023

Patent Not Issued For This Number

5,729,024

ORIGINAL EDGE DETECTING SYSTEM AND OPTICAL SENSOR

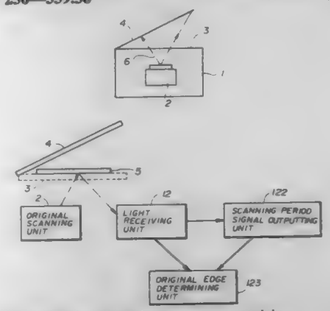
Nobuyuki Baba, Yokohama; Toshiharu Murai, Kawasaki; Sumiaki Aoki, and Koichi Kudo, both of Yokohama, all of Japan, assignors to Ricoh Company, Ltd., Tokyo, Japan

Filed May 1, 1996, Ser. No. 640,692

Claims priority, application Japan, May 8, 1995, 7-109234; Jul. 31, 1995, 7-194610; Oct. 3, 1995, 7-255923; Oct. 31, 1995, 7-283531; Mar. 18, 1996, 8-060678

Int. Cl.[6] G01N *21/47;* **H01J** *3/14;* **G02B** *26/08;5/32*

U.S. Cl. 250—559.36 **7 Claims**



1. An original edge detecting system comprising:

an original placement table, on which an original sheet is placed;

original scanning means for causing a light beam to scan the original sheet placed on said original placement table;

light receiving means for receiving a light beam which has been reflected by the original sheet placed on said original placement table after being emitted by said original scanning means; and

original edge determining means for monitoring light intensity of the light beam received by said light receiving means,

said original edge determining means determining that the light beam currently being received by said light receiving means is a light beam reflected by an edge of the original sheet placed on said original placement table when a significant variation is detected in the light intensity either for the first time or for the last time in one scanning operation of said original scanning means.

5,729,025

ELECTROMECHANICALLY ACTUATED TURBIDITY SENSOR FOR A MACHINE FOR WASHING ARTICLES

Timothy E. Erickson, Lena; Brady J. Hammond; Gary R. O'Brien, both of Freeport, and Ian F. Reeve, Rockford, all of Ill., assignors to Honeywell Inc., Minneapolis, Minn.

Filed Jul. 9, 1996, Ser. No. 677,260

Int. Cl.[6] G01N *21/47;* **D06F** *33/02;* **A47L** *15/46*

U.S. Cl. 250—574 **20 Claims**

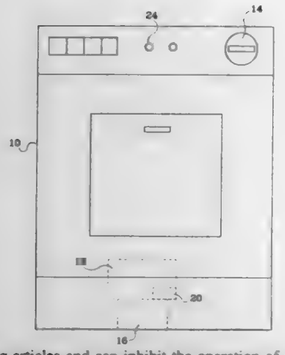
1. A machine for washing articles, comprising:

a turbidity sensor disposed in said machine for determining a magnitude of turbidity of water within said machine;

means for removing water from said machine, said turbidity sensor being connected in association with said removing means to permit said turbidity sensor to inhibit said removing means from removing water from said machine; and

a timer comprising a plurality of switches, said plurality of switches being controllable by said timer in a preselected chronological sequence, one of said plurality of switches being connected in association with said turbidity sensor to activate said turbidity sensor at one or more predetermined intervals during a wash cycle of said machine, whereby said timer can activate said turbidity sensor at one or more preselected intervals during the operation of said machine and, when activated, said turbidity sensor can determine said magnitude of the turbidity of said water within said machine for

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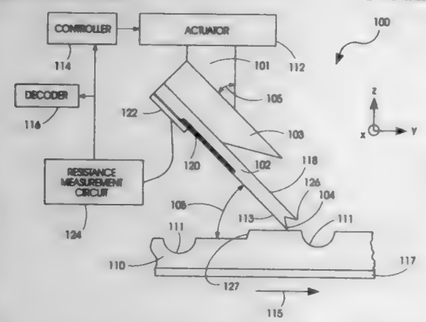
washing articles and can inhibit the operation of said removing means as a function of said magnitude of turbidity.

5,729,026

ATOMIC FORCE MICROSCOPE SYSTEM WITH ANGLED CANTILEVER HAVING INTEGRAL IN-PLANE TIP

Harry Jonathon Mamin, Palo Alto; Robert Paul Ried, San Jose; Daniel Rugar, Los Altos, and Bruce David Terris, Sunnyvale, all of Calif., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Aug. 29, 1996, Ser. No. 712,739
Int. Cl.[6] H01J *37/26*
U.S. Cl. 250—492.2 **25 Claims**



1. An atomic force microscope system for scanning the surface of a sample, the system comprising:

a sample holder;

a cantilever formed of single-crystal silicon and having a fixed end, generally parallel top and bottom surfaces, and a length terminated at the free end to form a tip, the tip being integral with the single-crystal silicon forming the cantilever and being the convergence of three planes, a first of said three planes being the top or bottom surface of the cantilever, a second of said three planes other than the top and bottom surfaces of the cantilever being a {111} crystalline plane, and a third of said three planes being a plane generally perpendicular to the top and bottom surfaces of the cantilever;

a support connected to the fixed end of the cantilever for supporting the cantilever with the cantilever's top and bottom surfaces forming an acute angle with the surface of said sample when said sample is held in the sample holder; and

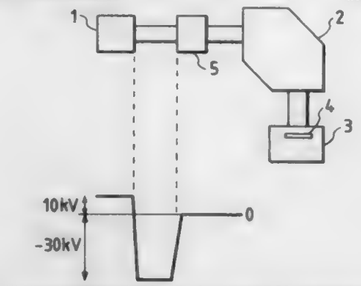
an actuator for moving the cantilever support and the sample holder relative to one another, whereby the cantilever tip scans the surface of said sample held by the sample holder.

5,729,027

ION IMPLANTER

Katsumi Tokiguchi, Mito; Takayoshi Seki, Hitachi, and Tetsunori Kaji, Tokuyama, all of Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Filed May 30, 1995, Ser. No. 454,548
Claims priority, application Japan, May 31, 1994, 6-117909
Int. Cl.[6] H01J *37/317*
U.S. Cl. 250—492.21 **39 Claims**



1. An ion implanter having an ion source for generating an ion beam, a mass separator for mass-separating said ion beam extracted from said ion source, and a beam irradiation chamber in which a particular species of ions mass-separated in said mass separator are implanted into a target substrate comprising:

a decelerator provided between said ion source and said mass separator, and

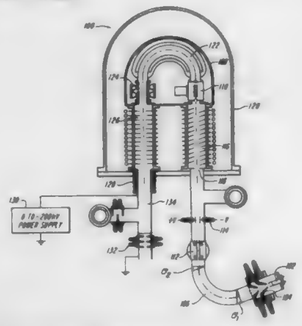
an ion beam transport region disposed between said ion source and said decelerator, the ion beam transport region being maintained at a negative voltage.

5,729,028

ION ACCELERATOR FOR USE IN ION IMPLANTER

Peter H. Rose, 89 Phillips Ave., Rockport, Mass. 01966

Filed Jan. 27, 1997, Ser. No. 789,629
Int. Cl.[6] H01J *23/10*
U.S. Cl. 250—492.21 **22 Claims**



1. An ion accelerator, comprising:

a neutral ion beam injector assembly for generating a neutral ion beam; and

a high voltage terminal containing:

a high voltage neutral beam tube which receives said neutral ion beam from said injector assembly;

a beam converter for receiving said neutral ion beam from said neutral beam tube and converting portions of said neutral ion beam to beams of positive ions;

a charge state selector directly connected to said beam converter for selecting a beam of a single charge state from said beams of positive ions emerging from said beam converter; and

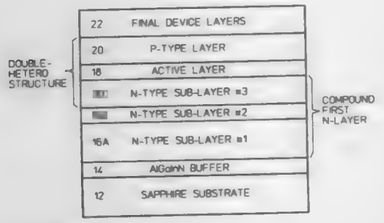
a high voltage acceleration tube directly connected to said charge state selector for accelerating said single charge state beam to ground potential.

5,729,029

MAXIMIZING ELECTRICAL DOPING WHILE REDUCING MATERIAL CRACKING IN III-V NITRIDE SEMICONDUCTOR DEVICES

Serge L. Rudaz, Sunnyvale, Calif., assignor to Hewlett-Packard Company, Palo Alto, Calif.

Filed Sep. 6, 1996, Ser. No. 709,355
Int. Cl.[6] H01L *29/06*
U.S. Cl. 257—13 **21 Claims**



1. A device comprising:

a substrate;

a compound device layer of $(Al_xGa_{1-x})_yIn_{1-y}N$, positioned over the substrate, including a first and second sub-layer, wherein each sub-layer has an associated composition, thickness, and doping level; and

an active layer, positioned over the compound device layer;

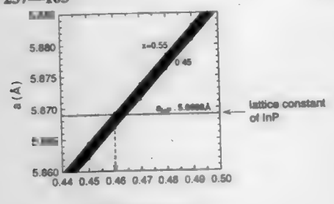
wherein the composition and thickness associated with each of the sub-layers is adjusted to minimize material cracking, for each sub-layer the doping level is inversely proportional to the thickness.

5,729,030

SEMICONDUCTOR DEVICE

Yoshitsugu Yamamoto, and Norio Hayafuji, both of Tokyo, Japan, assignors to Mitsubishi Denki Kabushiki Kaisha, Tokyo, Japan

Filed May 24, 1996, Ser. No. 653,245
Claims priority, application Japan, Nov. 6, 1995, 7-287273
Int. Cl.[6] H01L *33/00*
U.S. Cl. 257—103 **15 Claims**



y in $Al_xGa_{1-x}As_{1-y}Sb_y$

1. A semiconductor device including:

a semiconductor substrate; and

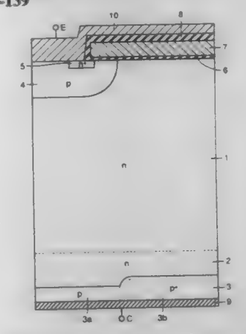
an $Al_xGa_{1-x}As_yP_zSb_{1-y-z}$ ($0 \leq x \leq 1$, $0 \leq y < 1$, $0 < z \leq 1$) layer disposed on the semiconductor substrate.

5,729,031

HIGH BREAKDOWN VOLTAGE SEMICONDUCTOR DEVICE

Akio Uenishi, Hyogo, Japan, assignor to Mitsubishi Denki Kabushiki Kaisha, Tokyo, Japan

Filed Jul. 10, 1996, Ser. No. 677,753
Claims priority, application Japan, Jan. 16, 1996, 8-004811
Int. Cl.[6] H01L *29/74;31/111*
U.S. Cl. 257—139 **6 Claims**



1. A semiconductor device in which main current flows between first and second main surfaces with an intrinsic substrate or a substrate of a first conductivity type therebetween, comprising:

a first impurity region of a second conductivity type formed selectively at said first main surface of said semiconductor substrate;

a second impurity region of the first conductivity type formed selectively at said first main surface in said first impurity region;

a gate electrode layer formed on a channel region which is said first ipurity region between a region of the first conductivity type of said semiconductor substrate and said second impurity region, with a gate insulating layer therebetween;

a third impurity region of the second conductivity type formed at said second main surface so as to sandwich said region of the first conductivity type of said semiconductor substrate with said first impurity region;

a fourth impurity region of the first conductivity type located between said third impurity region and said region of the first conductivity type of said semiconductor substrate, having an impurity concentration higher than that of said region of the first conductivity type of said semiconductor substrate, wherein

said third impurity region has a fifth impurity region having a first impurity concentration at said second main surface and a sixth impurity region having a second impurity concentration higher than said first impurity concentration at said second main surface,

a relationship expressed as:

$$C_{S(p)} \leqq 1.1\sqrt{C_{S(nbuf)} \times \{C_{S(p+)} + C_{S(p)}\}}$$

is satisfied, wherein said first impurity concentration of said fifth impurity region is $C_{s(p)}$, said second impurity concentration of said sixth impurity region is $C_{s(p+)}$, the impurity concentration of said fourth impurity region at said second main surface is $C_{s(nbuf)}$,

diffusion depth of said fifth impurity region from said second main surface toward said fourth impurity region is not lower than 2.0 μm, and

said fifth impurity region has a diffusion depth from said second main surface toward said fourth impurity region which is shallower than the diffusion depth of said sixth impurity region from said second main surface toward said fourth impurity region.

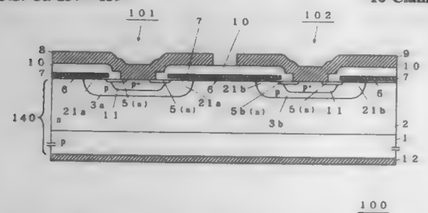
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5,729,032

FIELD EFFECT TYPE SEMICONDUCTOR DEVICE AND MANUFACTURING METHOD THEREOF

Yoshifumi Tomomatsu, and Youichi Ishimura, both of Fukuoka, Japan, assignors to Mitsubishi Denki Kabushiki Kaisha, Tokyo, Japan

Filed Feb. 7, 1995, Ser. No. 386,059
Claims priority, application Japan, Feb. 28, 1994, 6-029516
Int. Cl.[6] H01L 29/74
U.S. Cl. 257—139 10 Claims



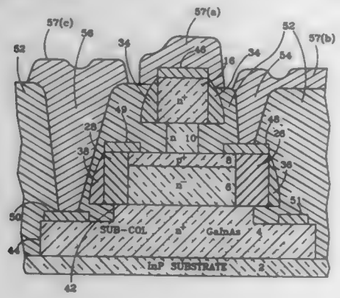
1. A field effect type semiconductor device, comprising:
a first, field effect type, semiconductor element; and
a second, field effect type, semiconductor element;
each of said first and second semiconductor elements having:
a semiconductor body which is integrally contiguous from said first semiconductor element to said second semiconductor element;
a gate electrode facing to said semiconductor body with an insulating film therebetween; and
a pair of main electrodes contacting said semiconductor body across which a main current flows, wherein said main current is larger in said first semiconductor element than in said second semiconductor element,
said semiconductor body having a first channel region facing at least part of said gate electrode of said first semiconductor element and a second channel region facing at least part of said gate electrode of said second semiconductor element,
wherein a concentration of an impurity is set higher in said second channel region than in said first channel region so that a gate threshold voltage is larger in said second semiconductor element than in said first semiconductor element,
whereby a rise of said main current of said second semiconductor element is delayed from a rise of said main current of said first semiconductor element when said device turns on.

5,729,033

FULLY SELF-ALIGNED SUBMICRON HETEROJUNCTION BIPOLAR TRANSISTOR

Madjid Hafizi, Santa Monica, Calif., assignor to Hughes Electronics, Los Angeles, Calif.

Division of Ser. No. 470,811, Jun. 6, 1995, Pat. No. 5,665,614.
This application Oct. 31, 1996, Ser. No. 740,581
Int. Cl.[6] H01L 29/737;29/41
U.S. Cl. 257—198 2 Claims



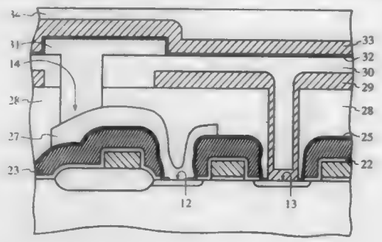
1. A heterojunction bipolar transistor (HBT), comprising:
a semiconductor substrate,
a semiconductor subcollector layer formed on said substrate, said subcollector having an upper portion and a wider lower portion with respective surfaces,
a semiconductor collector layer on said upper subcollector portion and having lateral edges recessed from the lateral edges of said subcollector upper portion,
a semiconductor base layer formed on said collector layer, said base layer establishing a junction with said collector layer that is smaller than said upper subcollector portion,
a dielectric base contact platform formed on and overhanging said upper subcollector portion but spaced inward from said lower subcollector portion,
an emitter layer formed on said base layer of a semiconductor material with a wider bandgap than said base layer semiconductor, said emitter layer having a submicron width and positioned inward from said base layer,
a semiconductor emitter cap layer formed on and overhanging said emitter layer,
an emitter contact formed on the surface of said emitter cap layer,
a base contact formed on said base layer and said dielectric base contact platform in alignment with said emitter cap layer, and
a collector contact formed on said lower subcollector portion in alignment with said base contact platform.

5,729,034

SEMICONDUCTOR DRAM CELL HAVING A CAPACITOR

Gum-Jin Park, Incheon-si, Rep. of Korea, assignor to LG Semicon Co., Ltd., Cheongju, Rep. of Korea

Division of Ser. No. 420,546, Apr. 12, 1995, Pat. No. 5,501,999.
This application Jan. 23, 1996, Ser. No. 599,469
Claims priority, application Rep. of Korea, Apr. 12, 1994, 94-7590
Int. Cl.[6] H01L 27/108
U.S. Cl. 257—296 14 Claims



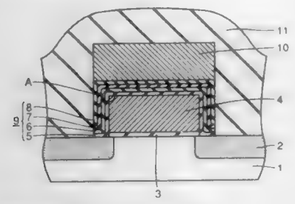
1. A memory cell of a semiconductor memory device having a source region, a drain region, a gate electrode and a capacitor on a semiconductor substrate, comprising:
a lower plate electrode comprising a first conductive layer formed upon a first inter-layer insulating layer, the first inter-layer insulating layer being formed over the memory cell, wherein a contact hole to the source region is formed in the first inter-layer insulating layer;
a capacitor dielectric layer formed on the lower plate electrode;
a capacitor lower node electrode comprising a second conductive layer formed on the dielectric layer and contacting the source region through the contact hole;
a bit line layer disposed upon a second insulating layer and connected to the drain region through a contact hole formed in the second inter-layer insulating layer;
a fourth insulating layer disposed over the bit line layer, a capacitor upper node electrode comprising a third conductive layer and connected to the capacitor lower node electrode through a via hole formed in the second inter-layer insulating layer and the fourth insulating layer, wherein the capacitor upper node electrode extends to a height greater than the bit line layer;
a capacitor dielectric layer formed upon the capacitor upper node electrode; and
a capacitor upper plate electrode comprising a fourth conductive layer formed on the capacitor dielectric layer.

5,729,035

NON-VOLATILE SEMICONDUCTOR DEVICE WITH MULTI-LAYERED CAPACITOR INSULATING FILM

Masatoshi Anma, Hyogo, Japan, assignor to Mitsubishi Denki Kabushiki Kaisha, Tokyo, Japan

Filed Sep. 10, 1996, Ser. No. 716,847
Claims priority, application Japan, Nov. 7, 1995, 7-288767
Int. Cl.[6] H01L 29/792
U.S. Cl. 257—324 2 Claims



1. A semiconductor device, comprising:
a first gate electrode formed on a semiconductor substrate with an insulating film interposed therebetween;
a pair of impurity regions formed at said semiconductor substrate on both sides of said first gate electrode;
a multi-layered film formed on an upper surface and opposing side surfaces of said first gate electrode so as to continuously extend from one of the opposing side surfaces to the other of the opposing side surfaces via the upper surface, the multi-layered film including a nitride film and an oxide film; and
a second gate electrode formed on said multi-layered film and having opposing side surfaces; wherein
said multi-layered film has opposing side surfaces substantially in parallel to the opposing side surfaces of said first gate electrode, and an upper surface substantially in parallel to the upper surface of said first gate electrode,
said second gate electrode is formed only on the upper surface of said multi-layered film, and
said opposing side surfaces of said second gate electrode are substantially coplanar with said opposing side surfaces of said multi-layered film.

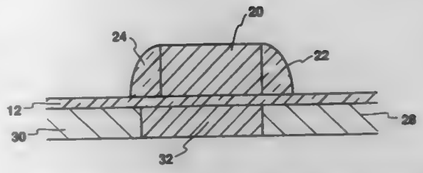
5,729,036

INTEGRATED CIRCUIT TRANSISTOR HAVING DRAIN JUNCTION OFFSET

Frank Randolph Bryant, Denton, and Robert Louis Hodges, Euless, both of Tex., assignors to SGS-Thomson Microelectronics, Inc., Carrollton, Tex.

Continuation of Ser. No. 226,755, Apr. 12, 1994, abandoned, which is a division of Ser. No. 114,754, Aug. 31, 1993, Pat. No. 5,344,790. This application Sep. 5, 1995, Ser. No. 523,366
Int. Cl.[6] H01L 29/76
U.S. Cl. 257—327 20 Claims

1. An integrated circuit device, comprising:
a conductive layer;
a gate insulating layer and a gate electrode overlying the conductive layer, wherein a channel region is defined in the conductive layer beneath the gate electrode;
a source region, within the conductive layer, containing a first dopant having a first diffusion coefficient; and



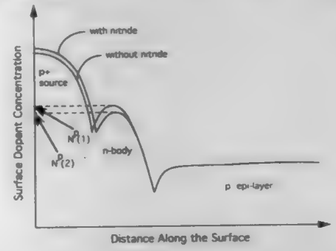
a drain region, within the conductive layer, which contains a second dopant having a second diffusion coefficient lower than the first diffusion coefficient, wherein no first dopant is contained within the drain region, and wherein the source region is positioned closer to the channel region than is the drain region.

5,729,037

MOSFET STRUCTURE AND FABRICATION PROCESS FOR DECREASING THRESHOLD VOLTAGE

Fwu-Iuan Hshieh, Saratoga; Yan Man Tsui, Union City; True-Lon Lin, Cupertino; Danny Chi Nim, and Koon Chong So, both of San Jose, all of Calif., assignors to MegaMOS Corporation, San Jose, Calif.

Filed Apr. 26, 1996, Ser. No. 638,639
Int. Cl.[6] H01L 29/76;29/94;31/062;31/113
U.S. Cl. 257—329 7 Claims



1. A vertical MOSFET cell formed in a semiconductor substrate with a drain region of a first conductivity type formed at a bottom surface of said substrate, said MOSFET cell comprising:
a gate supported on a top surface of said substrate disposed substantially in a central portion of said cell;
a source region of said first conductivity disposed in said substrate surrounding edges of said gate with an inner source portion thereof underneath said gate;
a body region of a second conductivity type disposed in said substrate encompassing said source region, supporting a vertical channel extended from said source region to said drain, said body region having an inner body portion underneath said gate and extending away from said edges of gate for defining an outer boundary of said MOSFET cell and said body region further;
an insulation layer covering said gate constituting a peak-body dopant concentration reducing means whereby a peak-body dopant concentration under said gate near an interface point between said body region and said source region is reduced relative to said peak-body-dopant concentration without said insulation layer.

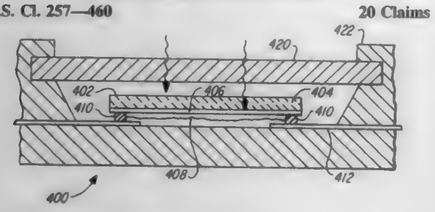
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5,729,038

SILICON-GLASS BONDED WAFERS

William Ronald Young, and Anthony L. Rivoli, both of Palm Bay, Fla., assignors to Harris Corporation, Melbourne, Fla.

Filed Dec. 15, 1995, Ser. No. 573,099
Int. Cl.[6] H01L 27/15;31/12;31/00
U.S. Cl. 257—460 20 Claims



1. An integrated circuit, comprising:

a glass substrate;

a single crystal semiconductor layer bonded to said glass substrate by a bonding layer therebetween to form a bonded wafer, said bonding layer comprising a compound of a first material different from said single crystal semiconductor layer and said glass substrate, and a second material of which each of said semiconductor layer and said glass substrate is comprised, and wherein said bonding layer is transparent to light; [illegible]

semiconductor devices formed in said single crystal semiconductor layer of said bonded wafer.

a gate extension connected to said gate and also disposed above said gate insulator and above a collection portion of said silicon layer, said body portion and said collection portion being in proximity,

whereby minority carriers may flow from said body portion to said collection portion;

raised source and drain contact members capped with cap dielectric having a cap top surface above said gate top surface;

a collection electrode doped with said second polarity and disposed in contact with said silicon layer on a collection side of said gate extension opposite said gate, whereby minority carriers may flow from said body through said collection portion of said silicon layer to said collection electrode, said gate extension having gate sidewall support members connected to said gate and disposed between said collection electrode and said source and drain, said collection electrode being isolated from said gate by at least one insulating sidewall; and

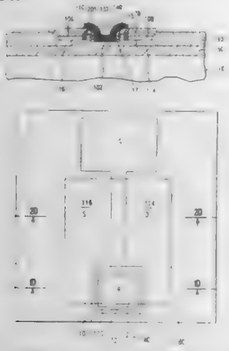
conductive source and drain members disposed above said source and drain and being isolated from said gate sidewall members by an insulating sidewall, in which said gate extension extends along said first axis by an extension length greater than said gate length, said gate extension having a self-aligned aperture therein and having isolating sidewalls on an interior of said aperture, whereby said minority carriers are guided to said collection electrode by said gate extension in electrical contact with said gate and insulated from said silicon layer by said gate insulator.

5,729,039

SOI TRANSISTOR HAVING A SELF-ALIGNED BODY CONTACT

Klaus Dietrich Beyer, Poughkeepsie; Taqi Nasser Buti, Millbrook; Chang-Ming Hsieh, and Louis Lu-Chen Hsu, both of Fishkill, all of N.Y., assignors to International Business Machines Corporation, Armonk, N.Y.

Division of Ser. No. 336,956, Nov. 10, 1994, which is a division of Ser. No. 268,380, Jun. 29, 1994, Pat. No. 5,405,795.
This application May 3, 1996, Ser. No. 642,834
Int. Cl.[6] H01L 27/12
U.S. Cl. 257—347 3 Claims



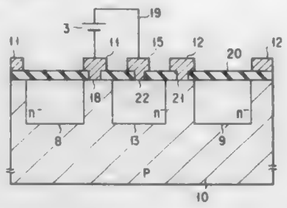
1. An SOI field effect transistor having a self-aligned body contact and comprising a source and drain doped with a first polarity and formed in a silicon layer doped with a second polarity and disposed above an insulating substrate, and a gate insulator and gate disposed above a body portion of said silicon layer between said source and drain and extending a gate length along a first axis passing between said source and drain, further comprising:

5,729,040

SEMICONDUCTOR DEVICE HAVING GROUPS OF ELEMENT REGIONS IN THE SEMICONDUCTOR SUBSTRATE

Yoshiyuki Sano, Yokohama, Japan, assignor to Kabushiki Kaisha Toshiba, Kawasaki, Japan

Filed Aug. 28, 1996, Ser. No. 704,081
Claims priority, application Japan, Sep. 1, 1995, 7-248420
Int. Cl.[6] H01L 29/00
U.S. Cl. 257—504 6 Claims



1. A semiconductor device having the grounds of element regions are provided in a semiconductor substrate, comprising:

a semiconductor substrate of a first conductivity type;

at least two element regions of a second conductivity type, provided in said semiconductor substrate and having grounds connected to said semiconductor substrate when said semiconductor substrate is set at a fixed potential; and

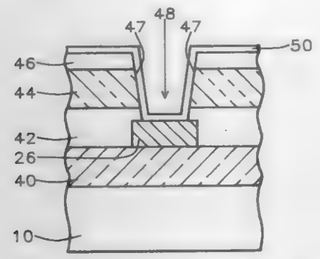
at least one ground-isolating well region of the second conductivity type, provided between said at least two element regions to electrically isolate said at least two element regions by forming a depletion layer between said at least two element regions when applied with a reverse bias voltage.

5,729,041

PROTECTIVE FILM FOR FUSE WINDOW PASSIVATION FOR SEMICONDUCTOR INTEGRATED CIRCUIT APPLICATIONS

Chue-San Yoo, and Jin-Yuan Lee, both of Hsin-Chu, Taiwan, assignors to Taiwan Semiconductor Manufacturing Company, Ltd, Hsin-Chu, Taiwan

Division of Ser. No. 328,587, Oct. 24, 1994, Pat. No. 5,578,517.
This application Jul. 19, 1996, Ser. No. 684,162
Int. Cl.[6] H01L 27/02
U.S. Cl. 257—529 18 Claims



1. An integrated circuit having a patterned metal level formed on a first layer of insulating material, at least a second layer of insulating material covering portions of said patterned metal level, wherein said pattern level contains at least one fusible link portion, an opening at least partially through the second layer over the fusible link, said opening having a bottom and sidewall surfaces, a protective layer of silicon nitride overlying the second layer, the bottom and sidewall surfaces of the opening, and the fusible link portions; and

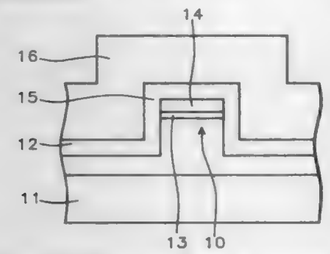
characterized in that said protective layer of silicon nitride material has a ratio of silicon to nitrogen in the range from 1.2 to 1.6 and said protective layer having a transmittance to laser irradiation of greater than 50%.

5,729,042

RAISED FUSE STRUCTURE FOR LASER REPAIR

Yung-Song Lou, Ruey-Tung; Ching-Cherng Rou, Shan-Wang Shiang; Ting Chou, Ne-Hu; Chao-Ming Koh, Pao-Shan; Shin-Chi Lee, Chu-Tung, and Chuen-Nan Chen, Hsin chu, all of Taiwan, assignors to Vanguard International Semiconductor Corporation, Hsinchu, Taiwan

Continuation of Ser. No. 514,800, Aug. 14, 1995, abandoned.
This application Apr. 2, 1997, Ser. No. 831,877
Int. Cl.[6] H01L 29/00
U.S. Cl. 257—529 6 Claims



1. A method for manufacturing a fusible link structure comprising:

providing a silicon integrated circuit;

depositing a first insulating layer;

depositing a fusible link layer;

patterning said fusible link layer into a shape that is suitable for it to be part of the integrated circuit;

using said patterned fusible link layer as a mask, removing between 4,000 and 9,000 Angstroms of said first insulating layer, thereby forming a pedestal on which said patterned fusible link layer lies; and

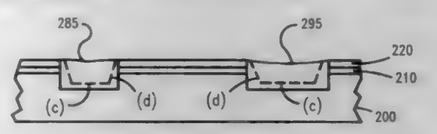
then coating the structure with a second insulating layer.

5,729,043

SHALLOW TRENCH ISOLATION WITH SELF ALIGNED PSG LAYER

Joseph F. Shepard, Hopewell Junction, N.Y., assignor to International Business Machines Corporation, Armonk, N.Y.

Division of Ser. No. 457,084, Jun. 1, 1995, Pat. No. 5,616,513.
This application Oct. 11, 1996, Ser. No. 729,559
Int. Cl.[6] H01L 29/76;29/00;23/58
U.S. Cl. 257—519 5 Claims



1. A semiconductor device comprising:

substrate having a surface;

a plurality of trenches, extending from the surface into the substrate, having a sidewall and a bottom surface;

said trenches filled with a silicon dioxide body, said silicon dioxide body in contact with said sidewall and bottom surface; and,

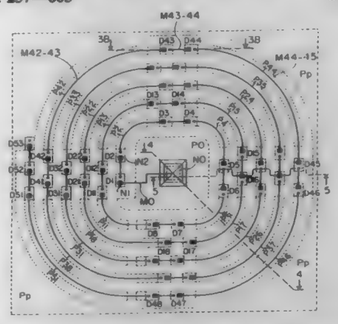
said silicon dioxide body having a phosphorus dopant region, wherein said phosphorus dopant region is predominantly buried within the silicon dioxide body.

5,729,044

PROTECTION DIODE FOR A VERTICAL SEMICONDUCTOR COMPONENT

Jacques Mille, and Philippe Meunier, both of Aix-en-Provence, France, assignors to SGS-Thomson Microelectronics S.A., Saint Genis, France

Continuation of Ser. No. 306,653, Sep. 15, 1994, abandoned, which is a continuation of Ser. No. 85,310, Jun. 29, 1993, Pat. No. 5,349,232. This application Sep. 12, 1996, Ser. No. 713,956
Claims priority, application France, Jun. 30, 1992, 92 08483
Int. Cl.[6] H01L 29/861;29/74;23/62
U.S. Cl. 257—603 6 Claims



1. A method of protecting against breakdown a semiconductor element formed in a semiconductor wafer, comprising the steps of:

forming on a surface of the semiconductor wafer a series connection of elemental avalanche diodes; and

arranging the series connection of elemental avalanche diodes in a geometric pattern of elements in which voltage transitions are minimized between elements which are both physically

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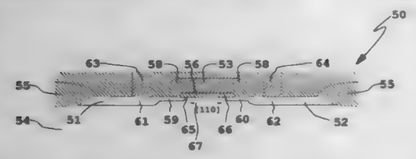
adjacent and electrically isolated by structures restricting conduction therebetween, and further arranging the geometric pattern for geometric compactness.

5,729,045

FIELD EFFECT TRANSISTOR WITH HIGHER MOBILITY

Matthew S. Buynoski, Palo Alto, Calif., assignor to Advanced Micro Devices, Inc., Sunnyvale, Calif.

Filed Apr. 2, 1996, Ser. No. 626,340
Int. Cl.[6] H01L *29/04;31/036*
U.S. Cl. 257—627 **12 Claims**



1. In an integrated circuit with at least one field effect transistor (FET) having a source, drain and gate with the source and drain separated by a channel under the gate, comprising:

a {100}, monocrystalline silicon substrate having (100) and (110) crystal planes and [100] and [110] crystal directions;

a FET gate having a length and a width and being insulated from the substrate by a silicon oxide layer thermally grown in the silicon substrate and aligned with the [100] crystal direction, said gate being patterned with the gate width in the [110] crystal direction so that the gate width is aligned approximately orthogonal to the (110) crystal plane and parallel with the [110] crystal direction;

a source on one side of said patterned gate width and a drain on the other side of the patterned gate width, with impurities of the source and drain being disposed in the silicon substrate aligned with the [100] crystal direction; and

a channel being formed under the gate between the source and drain when voltage is applied and being aligned in a direction parallel with the direction of the gate width, whereby the performance of the FET is enhanced due to a higher mobility of the carriers in the [110] crystal direction and due to the high quality of the silicon oxide layer insulating the gate from the substrate by being disposed in the [100] crystal direction.

5,729,046

SUPERCONDUCTING DEVICE HAVING PINNING REGIONS

Toshikazu Nishino, Kawasaki; Ushio Kawabe, Tokyo; Yoshinobu Tarutani, Yamanashi; Shinya Kominami, Tokorozawa; Toshiyuki Aida, Chofu; Tokuumi Fukazawa, Tachikawa, and Mutsuko Hatano, Kodaira, all of Japan, assignors to Hitachi, Ltd., Tokyo, Japan

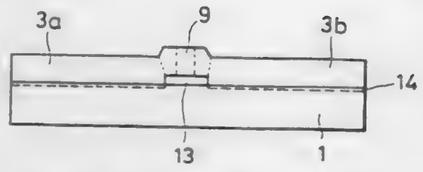
Division of Ser. No. 192,573, Feb. 7, 1994, Pat. No. 5,552,375, which is a continuation of Ser. No. 853,593, Mar. 17, 1992, Pat. No. 5,326,745, which is a division of Ser. No. 155,806, Feb. 16, 1988, Pat. No. 5,126,315. This application Jun. 5, 1995, Ser. No. 462,356
Claims priority, application Japan, Feb. 27, 1987, 62-42558; Jun. 15, 1987, 62-147043; Jun. 29, 1987, 62-159596
Int. Cl.[6] H01L *39/00*
U.S. Cl. 257—661 **10 Claims**

1. A superconductor formed of an oxide crystal, comprising:

an input part of said superconductor to which a current is inputted;

an output part of said superconductor from which said current is outputted; and

pinning regions, for fixing vortices developing with conduction of the current, said pinning regions being located between said input part and said output part and being arranged perpendicular to a direction of current flow of said current in said superconductor, said pinning regions being selected from the group consisting of grain boundaries and twin boundaries.

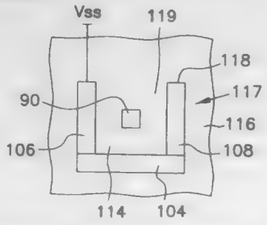


5,729,047

METHOD AND STRUCTURE FOR PROVIDING SIGNAL ISOLATION AND DECOUPLING IN AN INTEGRATED CIRCUIT DEVICE

Manny K. F. Ma, Boise, Id., assignor to Micron Technology, Inc., Boise, Id.

Filed Mar. 25, 1996, Ser. No. 622,465
Int. Cl.[6] H01L *29/40;29/00*
U.S. Cl. 257—664 **18 Claims**



1. A signal isolation and decoupling structure fabricated in an integrated circuit device for providing electrical isolation between first and second signal carrying conductors, portions of which extend in close proximity to one another in said integrated circuit device, at least one of said conductors carrying fast switching signals, and said integrated circuit device having an electrically conductive substrate, said signal isolation and decoupling structure comprising:

first and second elements of an electrically conductive material spaced apart from one another, said first and second elements extending along at least a portion of the length of said first conductor, said second element not coextensive with said substrate and insulated from said substrate by an insulating material;

dielectric material located between said first and second elements of conductive material, with at least said first conductor being embedded in said dielectric material; and

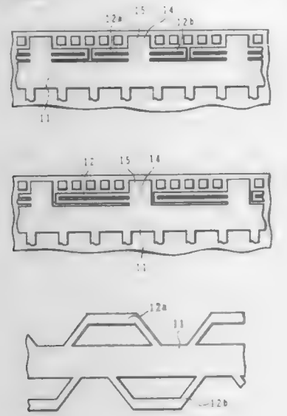
interconnecting means including a third element of a continuous segment of an electrically conductive material electrically interconnecting said first and second elements, said third element extending along at least said portion of the length of said first conductor, forming an enclosure of electrically conductive material that extends around said first conductor leaving the first conductor partially exposed along at least said portion of the length, for electrically isolating said first conductor from at least said second conductor which is located externally of said enclosure.

5,729,048

CMOS IC DEVICE SUPPRESSING SPIKE NOISE

Masato Tatsuoka, and Tomio Sato, both of Kawasaki, Japan, assignors to Fujitsu Limited, Kawasaki, Japan

Continuation of Ser. No. 265,218, Jun. 24, 1994, abandoned. This application Dec. 5, 1996, Ser. No. 759,642
Claims priority, application Japan, Sep. 17, 1993, 5-231945
Int. Cl.[6] H01L *29/417*
U.S. Cl. 257—665 **18 Claims**



1. A CMOS IC device comprising:

a semiconductor substrate;

a power supply pad formed on said semiconductor substrate;

circuit elements including CMOS elements formed on said semiconductor substrate;

power supply wirings for interconnecting at least one of said circuit elements and said power supply pad; and

phase-shifting split wirings, each phase shifting wiring of said phase-shifting split wirings being connected solely to a corresponding power supply wiring of said power supply wirings and having a width which is different from a width of said corresponding power supply wiring at a position of connection between said each phase shifting split wiring and said corresponding power supply wiring, for producing a noise phase difference between noises on said power supply wirings and on said phase-shifting split wirings.

5,729,049

TAPE UNDER FRAME FOR CONVENTIONAL-TYPE IC PACKAGE ASSEMBLY

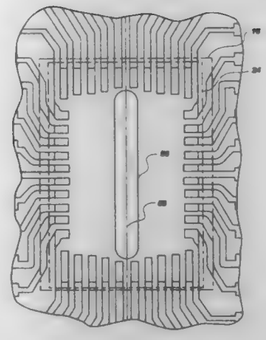
David J. Corisis, Meridian; Larry D. Kinsman, Boise, and Jerry M. Brooks, Caldwell, all of Id., assignors to Micron Technology, Inc., Boise, Id.

Filed Mar. 19, 1996, Ser. No. 618,359
Int. Cl.[6] H01L *23/48;23/50;23/12*
U.S. Cl. 257—666 **60 Claims**

1. A lead frame connected to a semiconductor device, the lead frame comprising:

a lead frame including a plurality of lead fingers, the plurality of lead fingers each having a proximal end inwardly extending to define a semiconductor device opening in the lead frame, the lead frame having no die paddle for supporting said semiconductor device; and

a section of tape having a periphery and a central portion, the section of tape attached to at least a portion of the proximate ends of the plurality of lead fingers of the lead frame, the section of tape having at least one slot therein extending across a portion thereof.

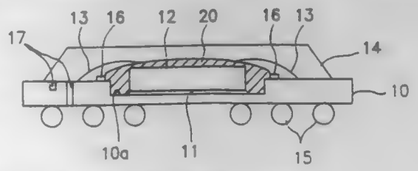


5,729,050

SEMICONDUCTOR PACKAGE SUBSTRATE AND BALL GRID ARRAY (BGA) SEMICONDUCTOR PACKAGE USING SAME

Jin Sung Kim, Cheongju, Rep. of Korea, assignor to LG Semicon Co., Ltd., Cheongju, Rep. of Korea

Filed Nov. 18, 1996, Ser. No. 751,672
Claims priority, application Rep. of Korea, Mar. 11, 1996, 1996/6374
Int. Cl.[6] H01L *23/28;23/52*
U.S. Cl. 257—667 **25 Claims**



1. A substrate for a chip package comprising:

a cavity formed in the substrate;

a bumper and a plurality of leads for conductive connections to the chip package formed on the substrate adjacent to said cavity; and

at least one of a plurality of holes and a plurality of recesses formed on the substrate interdispersed between conductive leads for receiving a molding resin.

5,729,051

TAPE AUTOMATED BONDING TYPE SEMICONDUCTOR DEVICE

Tsuguo Nakamura, Tokyo, Japan, assignor to NEC Corporation, Tokyo, Japan

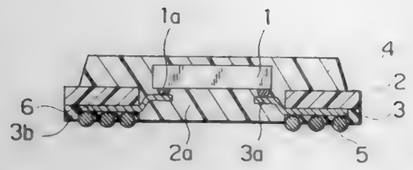
Filed Sep. 22, 1995, Ser. No. 532,117
Claims priority, application Japan, Sep. 22, 1994, 6-252739
Int. Cl.[6] H01L *23/495;23/48*
U.S. Cl. 257—668 **5 Claims**

1. A tape carrier type semiconductor device comprising:

a flexible resin substrate having a first surface and a second surface, said flexible resin substrate having a device hole at the center thereof;

wiring leads formed on said second surface of said flexible resin substrate, said wiring leads having inner leads formed at the

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portion extended into said device hole and lands formed on said second surface of said flexible resin substrate, which lands are arranged in a form of a grid array;

a semiconductor chip having electrodes connected to said inner leads and arranged within said device hole;

bumps formed on said lands;

sealing resin for covering at least a surface of said semiconductor chip where said electrodes are formed, and inner leads, said sealing resin being deposited on a part of said first surface of said flexible resin substrate in a uniform thickness and filling said device hole; and

an insulative resin layer covering the second surface of said flexible resin substrate and partly covering said bumps such that said bumps project partially outwardly from said insulative resin layer but are held therein so as to prevent accidental short circuiting therebetween.

5,729,052

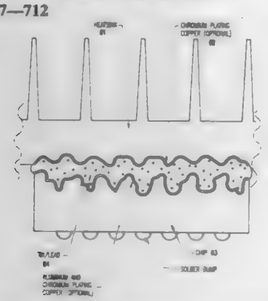
INTEGRATED ULSI HEATSINK

William R. Tonti, Essex Junction, Vt.; Jack A. Mandelman, Stormville, N.Y.; Jerzy M. Zalesinski; Toshiharu Furukawa, both of Essex Junction, Vt.; Son V. Nguyen, Hopewell Junction, N.Y., and Dureseti Chidambarrao, Sandy Hook, Conn., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Jun. 20, 1996, Ser. No. 667,210

Int. Cl.[6] H01L *23/34*

U.S. Cl. 257—712 **6 Claims**



1. An integrated package of an integrated circuit and a heatsink comprising:

an integrated circuit chip having a front side and a backside, the front side including an interconnect structure and the backside being covered with a metal interlayer, wherein the backside includes an irregular rough surface, the metal conforming to the irregular rough surface and forming a plated backside of said integrated circuit chip; and

a heatsink directly joined to the plated backside of the integrated circuit chip with a thermally conductive reflowable material.

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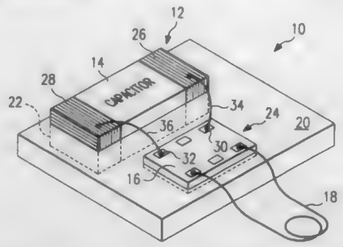
APPARATUS AND METHOD FOR FLAT CIRCUIT ASSEMBLY

Kurt Orthmann, Munich, Germany, assignor to Texas Instruments Incorporated, Dallas, Tex.

Division of Ser. No. 281,867, Jul. 27, 1994, Pat. No. 5,600,175. This application Jul. 3, 1996, Ser. No. 676,876

Int. Cl.[6] H01L *27/02*

U.S. Cl. 257—724 **22 Claims**



1. A batteryless flat integrated circuit assembly, comprising:

at least one integrated circuit;

a capacitor;

a carrier having a thickness less than that of the integrated circuit and capacitor, said carrier defining shallow cavities for accommodating each of said integrated circuit and capacitor; and

electrical connectors connecting said at least one integrated circuit and capacitor.

5,729,054

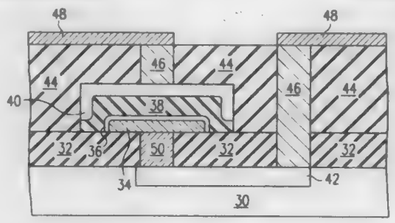
CONDUCTIVE NOBLE-METAL-INSULATOR-ALLOY BARRIER LAYER FOR HIGH-DIELECTRIC-CONSTANT MATERIAL ELECTRODES

Scott R. Summerfelt, Dallas, Tex.; Jason Reid; Marc Nicolet, both of Pasadena, Calif., and Elzbieta Kolawa, Sierra Madre, Calif., assignors to Texas Instruments Incorporated, Dallas, Tex.

Division of Ser. No. 283,454, Aug. 1, 1994, Pat. No. 5,622,893. This application Jun. 7, 1995, Ser. No. 473,464

Int. Cl.[6] H01L *23/48*

U.S. Cl. 257—751 **14 Claims**



1. A microelectronic structure comprising:

an oxidizable layer, wherein said oxidizable layer is substantially conductive and unoxidized;

a noble-metal-insulator-alloy layer overlying said oxidizable layer;

an oxygen stable layer overlying said noble-metal-insulator-alloy layer; and

a layer of a high-dielectric-constant material overlying said oxygen stable layer, whereby the noble-metal-insulator-alloy layer substantially inhibits diffusion of oxygen to the oxidizable layer.

5,729,055

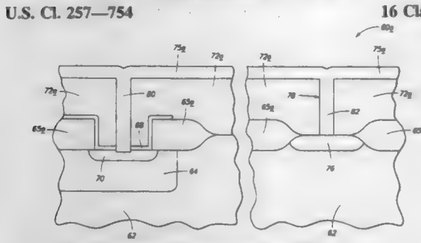
INTEGRATED CIRCUITRY HAVING A THIN FILM POLYSILICON LAYER IN OHMIC CONTACT WITH A CONDUCTIVE LAYER

Monte Manning, Kuna, Id., assignor to Micron Technology, Inc., Boise, Id.

Continuation of Ser. No. 445,664, May 22, 1995, Pat. No. 5,578,873, which is a division of Ser. No. 321,560, Oct. 12, 1994, abandoned. This application Sep. 30, 1996, Ser. No. 724,567

Int. Cl.[6] H01L *29/04;27/11;29/54*

U.S. Cl. 257—754 **16 Claims**



1. An integrated circuit component comprising:

a first conductivity type substrate diffusion region;

a thin film polysilicon layer overlying the diffusion region said thin film polysilicon layer having a portion in ohmic electrical contact with the diffusion region, said polysilicon layer portion having a first cross-sectional area; and

a pillar of electrically conductive material extending outwardly from the thin film polysilicon layer over the diffusion region, the pillar having a second cross sectional second area where the pillar joins the thin film polysilicon layer, the second cross sectional second area being received entirely within said first cross sectional area.

5,729,056

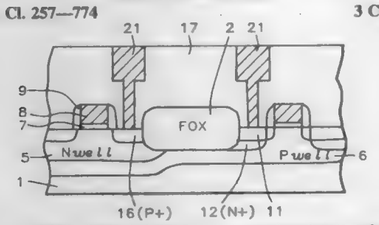
LOW CYCLE TIME CMOS PROCESS

Janmye Sung, Yang-Mei, Taiwan, assignor to Vanguard International Semiconductor Corporation, Hsin-Chu, Taiwan

Continuation of Ser. No. 697,701, Aug. 27, 1996, abandoned, which is a division of Ser. No. 572,810, Dec. 15, 1995, Pat. No. 5,573,962. This application Jul. 14, 1997, Ser. No. 892,335

Int. Cl.[6] H01L *23/48*

U.S. Cl. 257—774 **3 Claims**



1. A CMOS device structure, on a semiconductor substrate, comprising:

field oxide regions on the surface of said semiconductor substrate;

a first device region between said field oxide regions;

a second device region between said field oxide regions;

a polysilicon gate structure on said semiconductor substrate, in center of said first device region;

a polysilicon gate structure on said semiconductor substrate, in center of said second device region;

an insulator sidewall spacer located on sides of said polysilicon gate structures;

source and drain region in surface of said semiconductor substrate, between said polysilicon gate structure, in said first device region, and said field oxide region;

source and drain region in surface of said semiconductor substrate, between said polysilicon gate structure, in said second device region, and said field oxide region;

an insulator layer, between about 10000 to 13000 Angstroms in thickness, on said polysilicon gate structures, on said source and drain region in said first device region, on said source and drain region in said second device region, and on said field oxide regions;

contact holes, in said insulator layer, to said source and drain region, in said first device region, and to said source and drain region, in said second device region, with each contact hole exhibiting two shapes, a first shape of the contact hole, to a depth between about 4000 to 6000 Angstroms, in said insulator layer, with entire first shape of the contact hole having a diameter between about 1.0 to 1.3 μM, and a second shape of said contact hole, extending between about 6000 to 7000 Angstroms in depth, below said first shape of contact hole, to underlying, said source and drain region, with entire second shape of the contact hole having a diameter between about 0.4 to 0.6 μM; and

a metallization structure, completely filling said contact hole, contacting said source and drain regions of said first device region, and contacting said source and drain regions of said second device region, with the top surface of said metallization structure, in said contact hole, at the same level as the top surface of said insulator layer.

5,729,057

VEHICLE ANTITHEFT DEVICE USING TRANSPONDER AND HAVING ILLUMINATED KEYHOLE

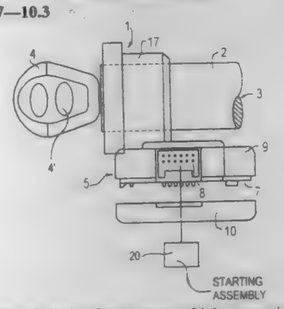
Henryk Frenzel, Regensburg, and Helmut Kraus, Altertheim, both of Germany, assignors to Siemens Aktiengesellschaft, Munich, Germany

Filed Jul. 31, 1996, Ser. No. 690,070

Claims priority, application Germany, Jul. 31, 1995, 195 28 093.8

Int. Cl.[6] B60R *25/00*

U.S. Cl. 307—10.3 **8 Claims**



1. An anti-theft device for a motor vehicle, comprising:

a key having a transponder;

a lock having a keyhole for receiving said key;

an antenna in the vicinity of said lock;

a control unit for controlling said antenna to send starting signals to said transponder and to receive answer signals from said transponder;

an assembly being turned on and off if the answer signals correspond to set-point signals;

said antenna having a lighting device being controlled by said control unit for illuminating a region around said keynole, at least before said key is inserted; and

said antenna being formed as an annular coil having a photoconducting coil body wound with a plurality of windings, said photoconducting coil body being simultaneously part of said lighting device.

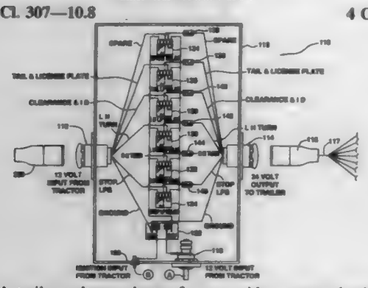
VOL 1208 ISS 3 MR 17 1998 UMI

5,729,058

TRAILER VOLTAGE ADAPTER

Charles J. Groeller, Allentown, Pa., assignor to Mack Trucks, Inc., Allentown, Pa.

Filed Aug. 12, 1996, Ser. No. 689,490
Int. Cl.[6] B60L 1/14
U.S. Cl. 307—10.8 4 Claims



1. A trailer voltage adapter for use with a tractor having an electrical system for operating at a first voltage and a trailer having an electrical system for operating at a second voltage, comprising:

a voltage converter configured to receive electrical power at a first voltage from the tractor and to provide an output of electrical power at a second voltage;

a plurality of relays, each of said plurality of relays having a power input, a power output and a control input, with the power input electrically coupled to the power output according to a signal provided at said control input, each power input of each of said plurality of relays being coupled to said output of said voltage converter; and

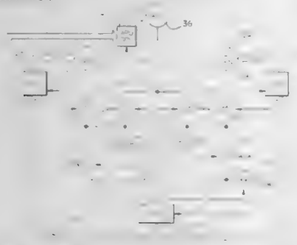
said adapter configured to receive input signals from the tractor for said signals provided at said control inputs, whereby said relays couple said power inputs to said power outputs based on the input signals received from the tractor to power the electrical system of the trailer at the second voltage.

5,729,059

DIGITAL NO-BREAK POWER TRANSFER SYSTEM

Donald G. Kilroy, 7703 Laurel Cherry Dr., Rockford, Ill. 61108, and Frank Joseph Ludicky, 1016 Ashdown Pl., Machesney Park, Ill. 61115

Filed Jun. 7, 1995, Ser. No. 481,012
Int. Cl.[6] H02J 1/00;7/00
U.S. Cl. 307—84 18 Claims



1. A power transfer control system for use in an AC electric power generation and distribution system having at least a first source and a second source of AC power, each of the sources being connectable to a load distribution bus through an associated switchable contactor, the second source being initially connected to the load distribution bus and supplying power thereto, the output power of at least the first source being sensed and controlled by a first generator control unit (GCU), the opening and closing of at least one of the switchable contactors being controlled by a bus power control unit (BPCU), comprising:

first means within the BPCU for communicating with the GCU, said first means transmitting information to the first GCU including master power control information and a synchronizing signal indicating a zero phase reference point;

second means within the first GCU for communicating with the BPCU;

third means within the first GCU for comparing parameters of the output power of the first source with said master power control information and said synchronizing signal, said third means generating delta phase information representing the phase displacement between said synchronizing signal and the output power of the first source, said third means further generating a power ready signal when a difference between said sensed parameters of the output power and said master power control information is less than a predetermined threshold; and

wherein said second means transmits said delta phase information and said power ready signal to the BPCU; and

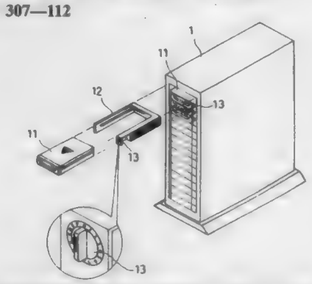
wherein a no-break power transfer is accomplished in response to the receipt of said power ready signal and said delta phase information being less than a predetermined threshold.

5,729,060

HARD DISKDRIVE ADDRESS ADJUSTING DEVICE OF AN ARRAY HARD DISKDRIVE SYSTEM

Steven Shih, 1/F., No. 14, Alley 13, Lane 245, Sec. 4, Pa-Teh Rd., Taipei City, Taiwan

Filed Jan. 23, 1996, Ser. No. 590,197
Int. Cl.[6] H02B 1/24; H05K 5/00
U.S. Cl. 307—112 1 Claim



1. A hard diskdrive address adjusting device for use in an array hard diskdrive system, wherein each of a plurality of hard diskdrives includes a plurality of jumper terminals arranged in two rows for establishing a binary address by selectively coupling across the two rows selected pairs of the jumper terminals, the device comprising:

a housing;

a plurality of hard diskdrive mounting frames arranged at different elevations within said housing, each of said plurality of hard diskdrive mounting frames having a respective one of said plurality of hard diskdrives mounted therein;

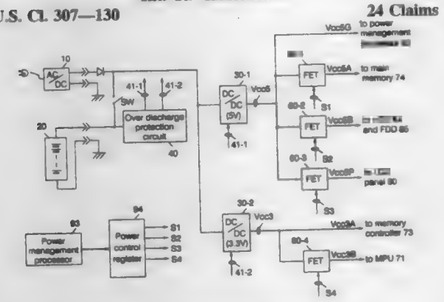
a plurality of rotary switches respectively electrically coupled to said plurality of hard diskdrives, each of said rotary switches having (1) a common terminal coupled in parallel relation with one of said two rows of jumper terminals of a respective hard diskdrive, and (2) a plurality of switched terminals coupled respectively to said plurality of jumper terminals of the other of said two rows of jumper terminals, each said rotary switch providing a connection between said common terminal and one or more of said plurality of switched terminals in accordance with a binary code responsive to a rotary position of an actuator of said rotary switch, wherein each of said plurality of rotary switches is switched to provide a different binary code for selectively addressing said plurality of hard diskdrives.

5,729,061

OVER DISCHARGE PROTECTION CIRCUIT FOR A RECHARGEABLE BATTERY

Izuru Narita, Sagamihara, Japan, assignor to International Business Machines Corporation, Armonk, N.Y.

Filed May 31, 1996, Ser. No. 656,512
Claims priority, application Japan, Jun. 2, 1995, 7-137042
Int. Cl.[6] H01H 83/12
U.S. Cl. 307—130 24 Claims



1. An over discharge protection circuit comprising:

a battery selectively powering an electrical apparatus;

a selector selecting a threshold voltage in response to the operating condition of said electrical apparatus;

a comparitor comparing the output terminal voltage of said battery with the threshold voltage selected by said selector;

a switch opening or closing a power feed line along which said battery supplies power; and

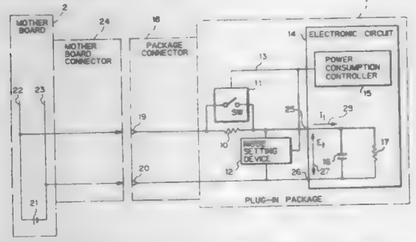
a controller controlling said switch in response to the comparison result by said comparitor.

5,729,062

ACTIVE PLUG-IN CIRCUIT

Shunji Satoh, Tokyo, Japan, assignor to NEC Corporation, Tokyo, Japan

Filed Aug. 7, 1996, Ser. No. 693,504
Claims priority, application Japan, Aug. 9, 1995, 7-202643
Int. Cl.[6] H01H 35/00
U.S. Cl. 307—130 10 Claims



1. An active plug-in circuit to be plugged into an active apparatus, said active plug-in circuit comprising:

an electronic circuit with a power source terminal;

a connector with a power source pin;

a mode selecting means for selecting one of a plug-in mode and a regular mode, said mode selecting means selecting a mode depending on a power source voltage in said electronic circuit;

a power consumption control means for controlling said electronic circuit to be in a low power consumption mode when said mode selecting means selects said plug-in mode;

a resistor connected between said power source pin of said connector and said power source terminal of said electronic circuit; and

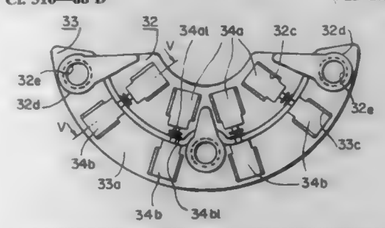
switching means for short-circuiting said resistor when said mode selecting means selects said regular mode.

5,729,063

VEHICLE AC GENERATOR

Katsumi Adachi; Kazunori Tanaka, and Kyoko Kurusu, all of Himeji, Japan, assignors to Mitsubishi Denki Kabushiki Kaisha, Tokyo, Japan

Filed Sep. 8, 1995, Ser. No. 525,145
Claims priority, application Japan, Dec. 27, 1994, 6-325305
Int. Cl.[6] H02K 11/00;1/32
U.S. Cl. 310—68 D 23 Claims



1. A vehicle AC generator having a main unit comprising:

a rotor disposed in the main unit of said generator and journaled at a rotary shaft;

a rectifier unit for rectifying AC current, having a plurality of unidirectionally conducting devices, and positive-electrode and negative-electrode side support members having respective surfaces for respectively supporting a positive-electrode and a negative-electrode side of said unidirectionally conducting devices, said support members supporting said unidirectionally conducting devices which are positioned on substantially the same plane, which plane is perpendicular to the longitudinal axis of said rotary shaft, wherein said first and second support members are provided with overlap-joint sections which overlap each other in the axial direction of said rotary shaft, protruding cooling fins disposed on said respective support members at sides opposed to respective sides on which said unidirectional conducting devices are supported, and a circuit board having portions which respectively overlap said support members for electrically connecting said unidirectionally conducting devices; and

a casing member covering at least one of said support members.

5,729,064

MULTI-POLE ELECTRIC MOTOR WITH BRUSH HOLDER DEVICE HAVING TWO TERMINAL ASSEMBLIES

Hideaki Noguchi; Masashi Fukui, both of Tochigi-ken, and Atsushi Shimura, Gunma-ken, all of Japan, assignors to Mitsuba Corporation, Gunma-ken, Japan

Filed Apr. 5, 1996, Ser. No. 628,366
Claims priority, application Japan, Apr. 24, 1995, 7-124213; Apr. 24, 1995, 7-124214
Int. Cl.[6] H02K 11/00
U.S. Cl. 310—68 R 14 Claims

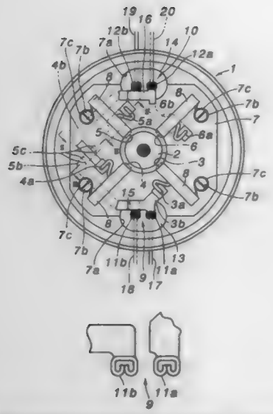
1. A multi-pole electric motor having four or more poles, comprising:

an end bracket carrying a plurality of brush holders arranged around a commutator of a motor armature of said electric motor, each brush holder receiving a motor brush therein;

at least a pair of terminal assemblies, each terminal assembly including at least two terminal pieces of the same polarity which are individually connected to different ones of said brushes and which are located radially across from each other;

leads which are connected between said motor brushes and said terminal assemblies; and

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separable shunts for selectively connecting or disconnecting said two terminal pieces of each of said terminal assemblies.

5,729,065

MAGNETIC BEARING CELL WITH ROTOR AND STATOR

Johan K. Fremery, Bonn; Helmut Schneider, Zulpich; Peter Reimer, Hurth, and Josef Hodapp, Euskirchen, all of Germany, assignors to Leybold Aktiengesellschaft, Germany

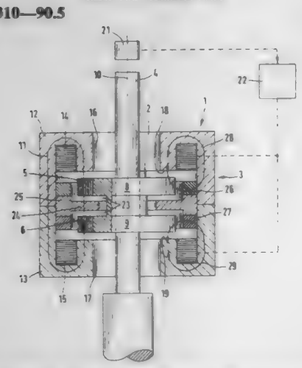
PCT No. PCT/EP93/03540, § 371 Date Sep. 13, 1995, § 102(e) Date Sep. 13, 1995, PCT Pub. No. WO94/16235, PCT Pub. Date Jul. 21, 1994

PCT Filed Dec. 15, 1993, Ser. No. 491,987

Claims priority, application Germany, Jan. 16, 1993, 43 01 076.8

Int. Cl.[6] H02K *7/09*

U.S. Cl. 310—90.5 **3 Claims**



1. A rotationally symmetrical magnetic bearing cell (1) comprising:

a rotor (2) arranged to rotate about a central axis (10) of the cell (1) and having a shaft (4) and at least two axially magnetised permanent magnetic rings (5, 6, 30) fitted an axial distance apart on the shaft, as well as

a stator (3), which has a first plurality of pole components (12, 13, 16, 17) and two annular coils (14, 15) which are associated with a respective rotor end face,

whereby the rotor and stator are arranged with respect to each other in such a manner that the permanent magnetic rings (5, 6, 30) produce a magnetic flux (11) which toroidally surrounds the central axis (10) and embraces the annular coils (14, 15)

wherein

a second plurality of pole components (26, 27, 38) made of a magnetically well conducting material are associated with respective peripheral regions of each of the two axially outer permanent magnetic rings (5, 6 or 5, 30), whereby said second plurality of pole components direct a magnetic flux generated by the annular coils (14, 15) into two substantially independent magnetic flux circuits (28, 29).

5,729,066

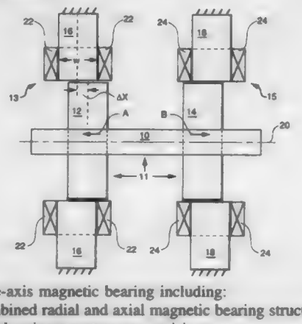
COMBINED RADIAL AND AXIAL MAGNETIC BEARINGS

Wen Liang Soong, Schenectady; James Patrick Lyons, and Gerald Burt Kliman, both of Niskayuna, all of N.Y., assignors to General Electric Company, Schenectady, N.Y.

Filed Sep. 22, 1995, Ser. No. 532,288

Int. Cl.[6] H02K *7/09*

U.S. Cl. 310—90.5 **12 Claims**



1. A five-axis magnetic bearing including:

two combined radial and axial magnetic bearing structures, each of the bearing structures comprising

a radial stator, and

a radial rotor,

the rotor and stator having an asymmetrical orientation such that the bearing structure is capable of creating a force in an axial direction when the bearing structure is excited; and

a shaft assembly including a shaft supporting the rotors of the bearing structures,

wherein the magnetic bearing structures are capable of producing opposing axial forces which can be controlled to maintain the shaft assembly in a desired axial position.

5,729,067

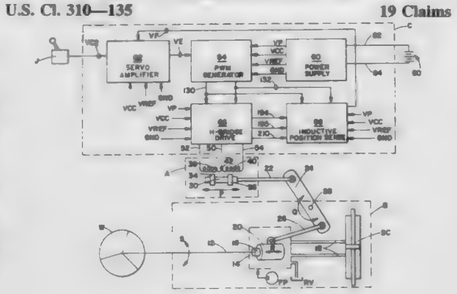
METHOD AND APPARATUS FOR CLOSED LOOP POSITION CONTROL IN A LINEAR MOTOR SYSTEM

William J. Janutka, West Allis, Wis., assignor to Eaton Corporation, Cleveland, Ohio

Filed Aug. 30, 1995, Ser. No. 521,613

Int. Cl.[6] H02K *41/00;* **H02P** *1/46*

U.S. Cl. 310—135 **19 Claims**



1. A method of developing a position feedback signal in a linear actuator including a pair of coils series connected at a node and disposed on an armature or stator of the linear actuator, each of the pair of coils being magnetically influenced by a magnetic field generating member disposed on the other of the armature or stator for causing relative movement between the armature and the stator, the magnetic field generating member being powered by a modulated signal, the method comprising the steps of:

generating a first current flow through said pair of coils during a first portion of the modulated signal;

generating a second current flow through said pair of coils during a second portion of the modulated signal;

sensing a first voltage signal at said node during said first portion of the modulated signal;

sensing a second voltage signal at said node during said second portion of the modulated signal; and,

combining said first voltage signal with said second voltage signal as said position feedback signal.

5,729,068

ELECTRIC MACHINE WITH DEFORMABLE INSULATION ON SOLDERING LUGS

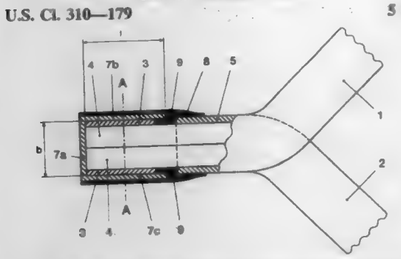
Rico Gasparini, Rieden; Kurt Herzog, Oberengstringen, and Roland Schuler, Wettingen, all of Switzerland, assignors to Asea Brown Boveri AG, Baden, Switzerland

Filed Oct. 30, 1995, Ser. No. 550,235

Claims priority, application Germany, Nov. 17, 1994, 44 40 950.8

Int. Cl.[6] H02K *1/00;3/00*

U.S. Cl. 310—179 **5 Claims**



1. An electric machine having a stator winding which may be impregnated by total immersion, said stator winding have bar ends with soldering lugs in a winding overhang which are insulated from one another, wherein the soldering lugs are surrounded on all sides by a deformable insulating material which is pervious to impregnating resin, the deformable insulating material being fitted to the lugs by shrinking of a shrinkable fabric before being impregnated, the shrinkable fabric also being pervious to impregnating resin.

5,729,069

Patent Not Issued For This Number

5,729,070

COMMUTATOR ASSEMBLY FOR SMALL MOTOR, METHOD FOR PRODUCING THE SAME, AND COMMUTATOR PIECE JOINT BODY FOR THE SMALL MOTOR

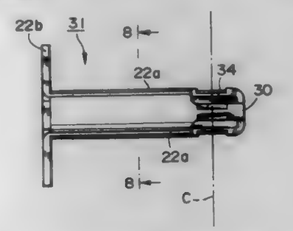
Toshihide Okuyama; Kenji Tabata; Masahiro Kaneko, and Morimasa Tsuzuki, all of Sayama, Japan, assignors to Sayama Precision Industries Co., Ltd., Sayama, Japan

Filed Mar. 30, 1995, Ser. No. 413,407

Claims priority, application Japan, Mar. 31, 1994, 6-062438

Int. Cl.[6] H01R *39/16;39/52*

U.S. Cl. 310—235 **7 Claims**



1. A commutator assembly for a small motor, comprising a plurality of commutator pieces for supplying an electric current from a brush fixed to a motor housing to a coil to be rotated together with the rotor shaft of the small motor, and a commutator holder of a plastic material fixed to the rotor shaft for supporting the commutator pieces, said commutator holder having a plurality of recesses located at its outer periphery, wherein said commutator pieces are cut out of a commutator piece joint body which has the commutator pieces radially extending from a single temporary connection and is molded into the commutator holder during molding process.

5,729,071

LOW COST MULTI-POLE MOTOR CONSTRUCTIONS AND METHODS OF MANUFACTURE

Robert E. Steiner, 1760 Horseshoe Ridge, Chesterfield, Mo. 63005

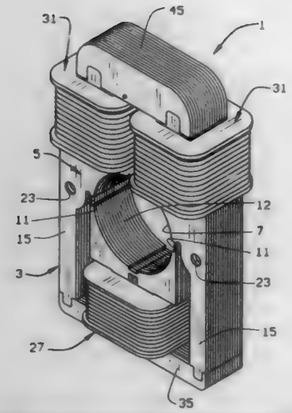
Continuation-in-part of Ser. No. 381,187, Jan. 31, 1995, Pat. No. 5,619,086, and a continuation-in-part of Ser. No. 381,188, Jan. 31, 1995, Pat. No. 5,627,424. This application Dec. 7, 1995, Ser. No. 568,966

Int. Cl.[6] H02K *1/12*

U.S. Cl. 310—254 **55 Claims**

1. A motor comprising:

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magnetically conductive stacked laminations each having a one-piece multi-pole central portion with a rotor opening and at least three spaced pairs of adjacent side legs extending outwardly from circumferentially spaced areas of said central portion, each side leg of the spaced pairs of adjacent side legs being connected at one end to one circumferentially spaced area of the central portion and terminating in an outer free extremity at a second end, the combined stacked laminations providing at least three spaced pairs of stacked adjacent side legs in circumferentially spaced areas of stacked central portions with aligned rotor openings for receiving a rotor, the first end of each of said stacked adjacent side legs at its associated circumferentially spaced area around the central portion having a different polarity from the first end of each stacked adjacent side leg in order to provide an alternating polarity of poles around the central portion, the second end of each stacked adjacent side leg having a different polarity than its first end;

each side leg of the stacked adjacent side legs having a combined predetermined outer cross sectional coil winding area;

an electrically conductive coil operably positioned relative to the coil winding area of at least three of the stacked adjacent side legs; and

separate magnetically conductive stacked laminations for attachment to the outer free extremities of the stacked adjacent side legs.

5,729,072

STATOR FOR AN ELECTRIC MOTOR

Mikio Hirano, Tondabayashi; Seiji Kikuchi, Nishinomiya; Manabu Takeuchi, Daito; Hiroshi Kawazoe; Kouzi Fukuda, both of Hirakata; Takashi Akiyama, Osaka; Koichi Nakatsukasa, Sanda; Hideki Yamanaka, Kadoma, and Kazunori Morita, Ikoma, all of Japan, assignors to Matsushita Electric Industrial Co., Ltd.; Osaka, Japan

Filed Sep. 20, 1993, Ser. No. 123,383

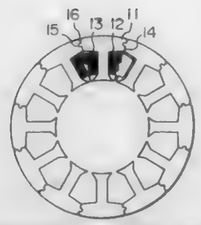
Claims priority, application Japan, Sep. 24, 1992, 4-254321

Int. Cl.[6] H02K *1/16*

U.S. Cl. 310—258 **7 Claims**

1. A stator for an electric motor, said stator comprising:

a plurality of cores, each of the plurality of cores corresponding to a pole-tooth unit of the electric motor and comprising a pole-tooth portion and an outer portion with an outer surface and dividing surfaces, said dividing surfaces extending parallel to a longitudinal axis of said electric motor, said plurality of cores being arranged in a cylindrical configuration, and adjacent ones of said plurality of cores being rigidly fixed together along said dividing surfaces; and



windings wound around the pole-tooth portions of the plurality of cores such that each of the windings is wound around a single one of the pole-tooth portions;

wherein the plurality of cores are bonded at the dividing surfaces.

5,729,073

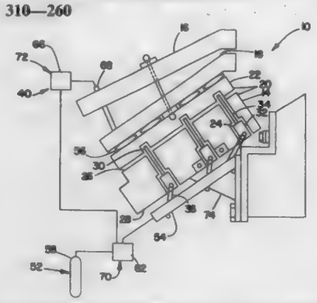
REMOTE FREQUENCY CONTROL SYSTEM FOR CONTROLLING THE VIBRATIONAL FREQUENCY OF COILS OF A TURBINE GENERATOR STATOR

Charles Monroe Rowe, Orlando, and John Barry Sargeant, Oviedo, both of Fla., assignors to Westinghouse Electric Corporation, Pittsburgh, Pa.

Filed Oct. 17, 1996, Ser. No. 734,378

Int. Cl.[6] H02K *3/46*

U.S. Cl. 310—260 **19 Claims**



9. A remote frequency adjustment system for adjusting a characteristic vibrational frequency of coils of a stator, said system comprising:

a bottom coil;

a top coil;

a coil support brace;

a push block resting on said coil support brace and supporting said bottom coil and said top coil; and

a frequency adjustment means for adjusting the vibrational frequency of the coils.

5,729,074

MICRO MECHANICAL COMPONENT AND PRODUCTION PROCESS THEREOF

Hiromu Shiomi; Yoshiki Nishibayashi, and Shin-ichi Shikata, all of Itami, Japan, assignors to Sumitomo Electric Industries, Ltd., Japan

Filed Mar. 20, 1995, Ser. No. 407,155

Claims priority, application Japan, Mar. 24, 1994, 6-054047

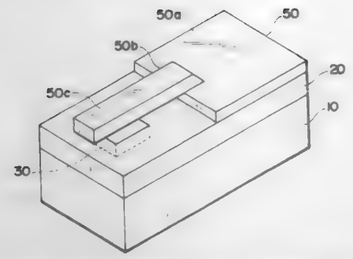
Int. Cl.[6] G01C *19/56*

U.S. Cl. 310—309 **4 Claims**

1. A micro mechanical component comprising:

a base including a diamond layer; and

at least one drive portion supported on said diamond layer of said base and driven relative to said base, said drive portion including a diamond layer;



a thin film made of a ceramic material containing carbide and sandwiched between said diamond layer of said base and said diamond layer of said drive portion, said base and said drive portion being joined through said thin film to be integrally formed.

5,729,075

TUNEABLE MICROELECTROMECHANICAL SYSTEM RESONATOR

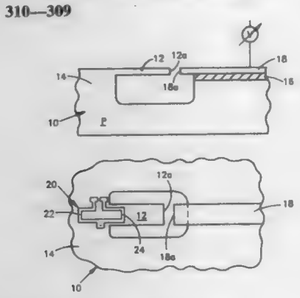
Robert J. Strain, San Jose, Calif., assignor to National Semiconductor Corporation, Santa Clara, Calif.

Continuation of Ser. No. 490,500, Jun. 12, 1995, abandoned.

This application May 23, 1997, Ser. No. 862,571

Int. Cl.[6] G01L *1/10;* **G01H** *9/00*

U.S. Cl. 310—309 **13 Claims**



1. A vibratory structure comprising:

a substrate portion;

a flexible cantilever connected to the substrate portion, at least a portion of the cantilever capable of carrying an electrical charge of a first polarity, the cantilever having an inherent rest position relative to the substrate portion, and, when deflected from such rest position to a deflected position relative to the substrate portion, having an inherent mechanical restoring force which varies with a displacement between said deflected position and said rest position;

an electrode adjacent the cantilever for generating an electric charge of a second polarity in accordance with an input voltage to said electrode so that an electric field may be generated by the electrical charge of said first polarity and said electrical charge of said second polarity, for applying a force to the so-charged cantilever portion with the cantilever in said deflected position so that the net restoring force on the cantilever is different from the inherent mechanical restoring force of the cantilever; and

a piezoelectric sensor sensing said displacement for providing said input voltage, said input voltage varying with said displacement.

5,729,076

SURFACE ACOUSTIC WAVE DEVICE, EQUIPMENT INCLUDING THE SAME WITH ELECTRIC CIRCUIT CONNECTED THERETO AND MEASURING METHOD OF PARAMETERS THEREOF

Yoshihiro Yamada; Takashi Shiba, and Katsumi Itoh, all of Kanagawa, Japan, assignors to Hitachi, Ltd., Tokyo, Japan

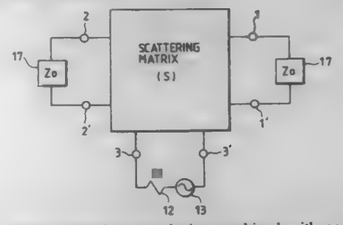
Continuation of Ser. No. 115,740, Sep. 3, 1993, abandoned.

This application May 30, 1995, Ser. No. 452,704

Claims priority, application Japan, Sep. 9, 1992, 4-240977

Int. Cl.[6] H03H *9/64*

U.S. Cl. 310—313 R **6 Claims**



1. A surface acoustic wave device combined with an electric circuit connected thereto, said surface acoustic wave device comprising a surface acoustic wave substrate and at least two interdigital transducers formed on said surface acoustic wave substrate, at least one of said interdigital transducers and/or said electric circuit having an internal dissipation of input signal energy, wherein said at least one interdigital transducer includes electrode means which together with said electric circuit, connected thereto, satisfies the following equation pertaining to mechanical reflection:

$$\left\{ \mu\cos\Theta_3 - \Gamma\cos\Theta_1 + \sqrt{\begin{array}{c}(\Gamma\cos\Theta_1 - \mu\cos\Theta_3)^2 - \\ \Gamma^2 + (\kappa+1)\,(2\mu\Gamma\cos\Theta_2 + \\ \kappa\alpha_{11} - \mu^2) - \kappa\alpha_{33}\end{array}} \right\} /(1+\kappa) \leq 1/3$$

where (α) is a matrix resulting from a multiplication of a scattering matrix (S) with a complex conjugate matrix (S^*) thereof when a unidirectional interdigital transducer is represented by an equivalent circuit of said at least one interdigital transducer combined with said electric circuit connected thereto, which has a first, forward acoustic terminal, a second, backward acoustic terminal and a third, electric terminal, $\kappa=(|S_{23}|^2/|S_{13}|^2)$ is a directionality coefficient, Θ_1 is $\arg(S_{13}{}^2S_{33}{}^*S_{11}{}^*)$, Θ_2 is $\arg(\alpha_{13}{}^*S_{33}S_{13}{}^*)$, Θ_3 is $\arg(\alpha_{13}{}^*S_{13}S_{11}{}^*)$, μ is $\alpha_{13}/|S_{13}|$ and $\Gamma=|S_{33}|$ is indicative of electric reflection.

5,729,077

METAL-ELECTROACTIVE CERAMIC COMPOSITE TRANSDUCER

Robert E. Newnham, and Aydin Dogan, both of State College, Pa., assignors to The Penn State Research Foundation, University Park, Pa.

Filed Dec. 15, 1995, Ser. No. 572,983

Int. Cl.[6] H01L *41/08*

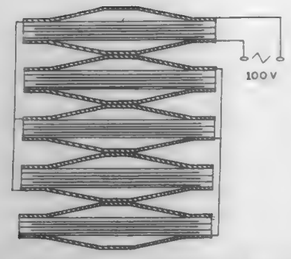
U.S. Cl. 310—328 **15 Claims**

1. An electroactive device comprising:

electroactive ceramic substrate means having a disc-shaped, solid ceramic substrate of uniform radius and a pair of opposed, continuous planar surfaces and a thickness aspect, said ceramic substrate having a d_{33} direction parallel to said thickness aspect, and d_{31} and d_{32} directions parallel to said planar surfaces;

conductive electrodes sandwiching said ceramic substrate a first metal cap having a truncated conical shape and formed from a sheet metal stamping and a rim portion joined to a first planar surface of said ceramic substrate;

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a second metal cap having a truncated conical shape and formed from a sheet metal stamping and a rim portion joined to a second planar surface of said ceramic substrate, said second planar surface opposed to said first planar surface; and

means for applying a potential across said conductive electrodes to enable a field in the d_{33} direction that causes a dimension change in the radius of said ceramic substrate and through said rim portions, a flexure of said first metal cap and second metal cap.

5,729,078

ELECTRIC LAMP WITH CONTAINMENT SLEEVE HAVING A HELICALLY COILED METAL WIRE

Henrikus J. H. Pragt, Eindhoven, Netherlands, assignor to U.S. Philips Corporation, New York, N.Y.

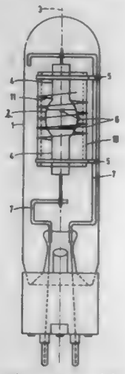
Continuation of Ser. No. 994,572, Dec. 22, 1992, abandoned.

This application Mar. 14, 1996, Ser. No. 855,759

Claims priority, application European Pat. Off., Dec. 23, 1991, 91203379

Int. Cl.[6] H01J *5/02*

U.S. Cl. 313—25 **10 Claims**



1. An electric discharge lamp, comprising:

an outer bulb closed in a gastight manner;

a discharge vessel closed in a gastight manner and having an axis and seals on its axis, a pair of electrodes being arranged in said discharge vessel;

a glass tube axially surrounding the discharge vessel;

current conductors which extend from outside the outer bulb to the pair of electrodes and are connected thereto; and

a helically coiled metal wire surrounding the glass tube and fixed around said tube so as to be electrically floating, said helically coiled metal wire having a plurality of turns extending in the axial direction of said discharge vessel, said helically coiled metal wire defining a single helix and said coil turns not crossing each other.

5,729,079

COMPACT FLUORESCENT LIGHT BULB

Günter Franck, Ebenhausen, Germany, assignor to Patent-Treuhand-Gesellschaft für elektrische Glühlampen mbH, Munich, Germany

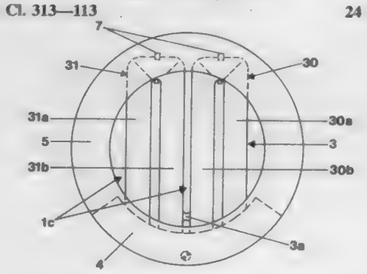
PCT No. PCT/DE94/00464, § 371 Date Oct. 23, 1995, § 102(e) Date Oct. 23, 1995, PCT Pub. No. WO94/25978, PCT Pub. Date Nov. 10, 1994

PCT Filed Apr. 27, 1994, Ser. No. 535,150

Claims priority, application Germany, May 4, 1993, 43 14 744.5

Int. Cl.[6] H01J *61/30*

U.S. Cl. 313—113 **24 Claims**



1. A compact fluorescent light bulb, which is suitable for use in suspended operating position in a ceiling light fixture or chandelier, comprising:

a housing (**1**, **1'**);

a rotationally symmetrical reflector (**1***a*, **1***a'*) secured to the housing,

said reflector being formed with an unsealed, open light emission opening (**1***c*, **1***c'*) and defining a lamp axis(A);

a base (**2**, **2'**) mounted on the housing (**1**, **1'**), and aligned with said axis;

a light-transmissive, planar discharge vessel (**3**) having at least one gas-tight-closed discharge chamber, said vessel enclosing an ionizable fill and electrodes for producing a low-pressure gas discharge,

wherein said discharge vessel (**3**) comprises at least two adjacently located U-shaped glass tubes (**30**, **31**), which glass tubes (**30**, **31**) are located parallel side by side in the same plane and at right angles to the lamp axis (A); and

wherein said electrodes are fused into said glass tubes.

5,729,080

ELECTRIC LAMP WITH MOUNTING MEMBERS

Godefridus N. M. Verspaget; Hendrikus A. M. Van Dulmen, both of Eindhoven, Netherlands, and Mathijs H. Loomans, Turnhout, Belgium, assignors to U.S. Philips Corporation, New York, N.Y.

Filed Jul. 10, 1996, Ser. No. 700,700

Claims priority, application European Pat. Off., Jul. 11, 1995, 95201891

Int. Cl.[6] H01J *5/48*

U.S. Cl. 313—318.01 **10 Claims**

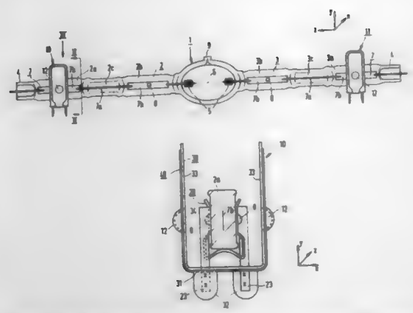
1. An electric lamp comprising:

a light-transmitting lamp vessel which is closed in a vacuum tight manner and which has a first and a second neck in mutual opposition, each neck having an end portion;

an electric element having an axis in the direction of said necks and arranged in the lamp vessel;

current conductors extending from the electric element through the first and second neck from the respective end portions to the exterior;

a first and a second mounting member fastened to the first and the second neck, respectively, which mounting members each have reference portions which in a direction z parallel to the axis and in directions x, y transverse to the axis have predetermined positions relative to the electric element,



wherein the first and the second mounting member are present at a distance from the end portion and

each comprise a first metal body which is mounted on the associated neck in a region at a distance from the end portion, and

each comprise a second metal body which is fastened to the first metal body, the second metal body having an aligned surface which is aligned relative to the electric element in at least one of the directions x, y and z, and

each have a third metal body which is provided with the reference portions and which is fastened against said aligned surface of the second metal body such that the reference portions have the predetermined positions relative to the electric element.

5,729,081

ELECTRODE COIL FOR DISCHARGE LAMPS AND METHOD FOR PRODUCING SUCH AN ELECTRODE COIL

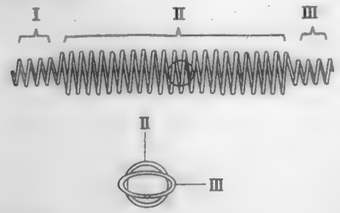
Roland Hoffmann, Augsburg, and Erolf Weinhardt, Diedorf, both of Germany, assignors to Osram Sylvania Inc., Danvers, Mass.

Filed Jul. 10, 1996, Ser. No. 678,022

Claims priority, application Germany, Jul. 28, 1995, 195 27 653.1

Int. Cl.[6] H01K *1/14*; **H01J** *61/06*

U.S. Cl. 313—344 **6 Claims**



1. Electrode coil for discharge lamps having a coiled wire (**1**) which is wound around by a braiding wire (**2**), the electrode coil having a longitudinal axis, characterized in that the coiled wire (**1**) has both turns (II) with an essentially circular cross-section with respect to the longitudinal axis and turns (I, III) with an oval cross-section with respect to the longitudinal axis.

5,729,082

CATHODE STRUCTURE COMPRISING A HEATING ELEMENT

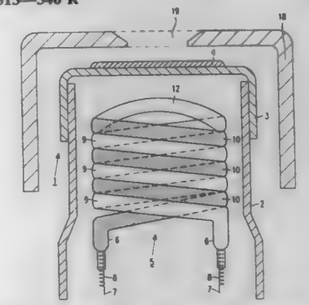
Franciscus M. M. Snijkers, Eindhoven, Netherlands, assignor to U.S. Philips Corporation, New York, N.Y.

Filed Jul. 9, 1996, Ser. No. 677,243

Claims priority, application European Pat. Off., Jul. 11, 1995, 95201890

Int. Cl.[6] H01J *1/22*

U.S. Cl. 313—346 R **10 Claims**



1. A cathode structure which comprises an electron-emitting material at an end portion, and in which there is a filamentary heating element comprising a plurality of primary, helical turns with which a first series of secondary turns is formed, which are wound in a first direction with a pitch and which extend in the direction of said end portion, and with which a second series of secondary turns is formed which extend from said end portion and which are wound in the opposite direction yet with the same pitch, said first and second series of turns being interconnected at the end portion by a connecting portion with primary turns, characterized in that the connecting portion is arc-shaped with a span S_a and a rise r_a, the ratio r_a/S_a ranging from 0.1 to 1.0.

5,729,083

PICTURE DISPLAY DEVICE PROVIDED WITH AN INTERNAL VACUUM SUPPORT

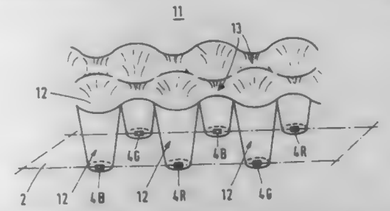
Remko Horne; Gerardus N. A. Van Veen, and Petrus J. M. Peters, all of Eindhoven, Netherlands, assignors to U.S. Philips Corporation, New York, N.Y.

Filed Oct. 18, 1995, Ser. No. 544,796

Claims priority, application European Pat. Off., Oct. 31, 1994, 94203157; Feb. 24, 1995, 95200466

Int. Cl.[6] H01J *29/70*

U.S. Cl. 313—422 **12 Claims**



1. A picture display device comprising an evacuated envelope including a first, at least substantially flat transparent wall provided with a display screen having a regular pattern of electroluminescent pixels, and a second, at least substantially flat wall extending parallel to the first wall, at least one electron source, while in a gap between the first and the second wall an internal vacuum support is arranged having apertures for passing electrons to the pixels, wherein at least the side of the internal vacuum support facing the display screen comprises a dielectric plate which is arranged opposite the display screen and is provided with cavities, each

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cavity facing at least one pixel, in that the internal vacuum support comprises a lateral system of ducts, each cavity communicating with at least one duct, each duct communicating with an exhaust connection, and in that at least the surface of the internal vacuum support consists of an inorganic material.

5,729,084

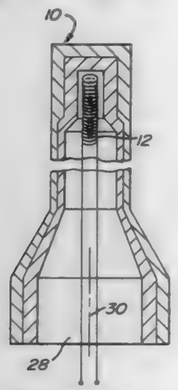
THERMIONIC CATHODE WITH CONTINUOUS BIMETALLIC WALL

John Richard Hale, Lancaster; Jeffrey M. Farina, Zionsville; Philip J. Koehler, St. Davids, and Nicholas Maropis, Baden, all of Pa., assignors to UTI Corporation, Collegeville, Pa.

Filed Jan. 8, 1993, Ser. No. 2,286

Int. Cl.[6] H01J *29/46*

U.S. Cl. 313—446 **20 Claims**



1. A cathode sheath for a thermionic electron-gun cathode, the sheath being substantially in the form of a hollow cylinder having an outer surface and an inner surface, a central axis, a closed end and an axially-opposite open end, and a side wall extending between the closed end and the open end, the sheath comprising a continuous bimetallic laminate having a first layer of material forming the inner surface and a second layer of electron-emissive material overlying substantially the entirety of the first layer and forming the outer surface, the laminate having a preselected thickness at the closed end and having a thickness at the side wall which varies along the central axis.

5,729,085

FLUORESCENT LAMP WITH A PROTECTIVE ASSEMBLY

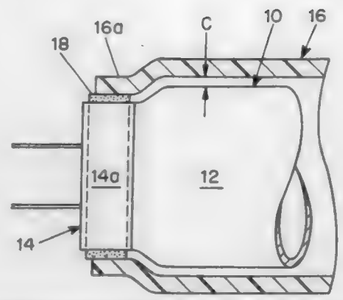
Michael F. Sica, Greenwich, Conn.; Herbert Needham, Toms River, and James Parascondola, Franklin Lakes, both of N.J., assignors to Royal Lite Manufacturing and Supply Corp., Belleville, N.J.

Filed Mar. 22, 1996, Ser. No. 620,506

Int. Cl.[6] H01J *17/18*

U.S. Cl. 313—493 **9 Claims**

1. A fluorescent lamp with a protective assembly, the lamp having an elongated glass tube and a metal terminal cap at each end of the glass tube and each cap having a flange portion adjacent the glass tube, comprising an adhesive layer on the flange portion of each terminal cap, and a protective tube preformed from a semi-rigid non-frangible polymeric transparent or translucent material that is stabilized against ultraviolet radiation, the protective tube having a body portion received over the glass tube with a clearance sufficient to enable the glass tube to be slid into the protective tube and a necked-down closure portion at each end that is mechanically and thermally deformed permanently to engage the adhesive layer and form a bond therewith.



5,729,086

FIELD EMISSION DISPLAY PANEL HAVING A MAIN SPACE AND AN AUXILIARY SPACE

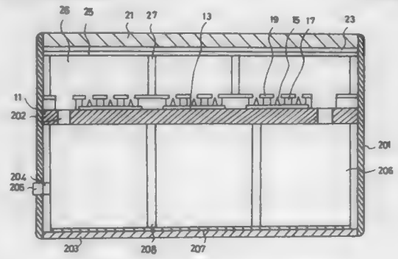
Hyo Soo Jeong, Seoul; Young Rae Cho, Kyonggi-do; Jae Yeol Oh, Kyounggi-do, and Je Do Mun, Kyounggi-do, all of Rep. of Korea, assignors to Institute for Advanced Engineering, Seoul, Rep. of Korea

Filed Feb. 20, 1996, Ser. No. 603,303

Claims priority, application Rep. of Korea, Feb. 28, 1995, 95-4080; Apr. 18, 1995, 95-9061; Apr. 18, 1995, 95-9062

Int. Cl.[6] H01J *19/42*

U.S. Cl. 313—495 **34 Claims**



1. A field emission display panel comprising:

a face plate on which anode electrodes and a fluorescent material layer are formed in sequence on one side of said face plate;

a base plate which is placed oppositely to said face plate and on which cathode electrodes and emitters are formed;

spacers formed between said face plate and said base plate and thus forming a main space inbetween said face plate and said base plate;

a number of first openings for evacuation formed at desired portions of said base plate on which said cathode electrodes are not formed;

an auxiliary tank arranged to be connected to said base plate in order to form an auxiliary space which is connected spatially to said main space through said first openings for exhaustion;

auxiliary spacers formed between said base plate and said auxiliary tank in order to enhance the strength of said display panel; and

a second opening for exhaustion formed on one side wall of said auxiliary space.

5,729,087

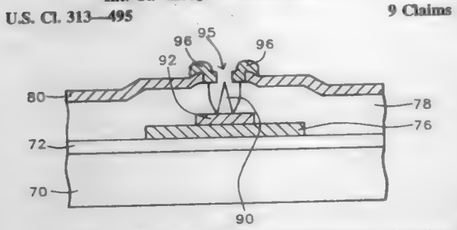
INVERSION-TYPE FED STRUCTURE HAVING AUXILIARY METAL ELECTRODES

Ho-Ching Chien, Hsinchu, Taiwan, assignor to Industrial Technology Research Institute, Hsin-Chi, Taiwan

Division of Ser. No. 374,900, Jan. 19, 1995, Pat. No. 5,578,225. This application Aug. 28, 1996, Ser. No. 697,715

Int. Cl.[6] H01J *1/62;63/04;1/02;1/16*

U.S. Cl. 313—495 **9 Claims**



1. A field emission display having a baseplate and a faceplate, comprising:

a glass substrate acting as a base for said faceplate;

a reflective, conductive layer over said glass substrate;

a phosphor layer over said reflective, conductive layer;

a second glass substrate, acting as a transparent base for said baseplate, which is mounted opposite and parallel to said faceplate;

a first transparent insulating layer formed over said second glass substrate;

parallel, transparent cathode electrodes over said first transparent insulating layer;

metallic auxiliary cathode electrodes over said parallel, transparent cathode electrodes, having a width less than said parallel, transparent cathode electrodes;

parallel, transparent gate electrodes formed over, separate from, and orthogonally to said parallel, transparent cathode electrodes;

metallic auxiliary gate electrodes over said parallel, transparent gate electrodes, having a width less than said parallel, transparent gate electrodes;

a metal pad under each said field emission microtip, over said parallel, transparent cathode electrodes, and separated from said metallic auxiliary cathode electrodes;

a metal gate ring within each of said plurality of openings and connected to said parallel, transparent gate electrodes, separated from said metallic auxiliary gate electrodes;

a second transparent insulating layer between said parallel, transparent gate electrodes and said parallel, transparent cathode electrodes;

a plurality of openings extending through said second insulating layer and said parallel, transparent gate electrodes; and

at each of said openings is a field emission microtip connected to and extending up from one of said parallel, transparent cathode electrodes, whereby electrons may be selectively emitted from each said field emission microtip to form a display image, on said phosphor layer of said faceplate, which is viewable through said baseplate.

5,729,088

Patent Not Issued For This Number

5,729,089

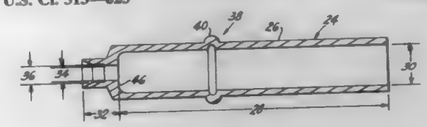
ELECTRODE ASSEMBLY FOR HIGH PRESSURE SODIUM LAMP AND METHOD OF MAKING SAME

Huiling Zhu, Londonderry; Paul H. Ingalls, Penacook, and Robert B. Dolan, Manchester, all of N.H., assignors to Osram Sylvania Inc., Danvers, Mass.

Filed May 17, 1996, Ser. No. 649,378

Int. Cl.[6] H01J *61/36*

U.S. Cl. 313—623 **4 Claims**



1. An electrode base for an electrode for an arc discharge lamp, said electrode base comprising: a tubular, electrically conductive body having a first end having a first diameter and a second end having second and third diameters, said second and third diameters being smaller than said first diameter and said second diameter being smaller than said third diameter; and a positioning ring formed about an intermediate portion of said first end.

5,729,090

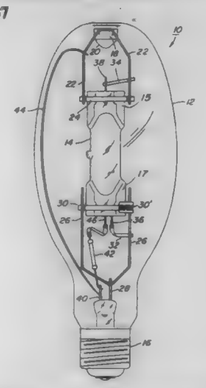
SODIUM HALIDE DISCHARGE LAMP

Curtis E. Scott, Mentor; Joseph A. Shrawder, Solon, and Mohan Rajaram, Mentor, all of Ohio, assignors to General Electric Company, Schenectady, N.Y.

Filed Feb. 21, 1995, Ser. No. 391,819

Int. Cl.[6] H01J *17/16;17/20*

U.S. Cl. 313—637 **20 Claims**



1. A lamp containing a fill including sodium halide comprised of an arc chamber comprised of a predominantly a fused silica including between greater than 0 and about 0.05 parts per million sodium.

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5,729,091

METAL HALIDE DISCHARGE LAMP

Clemens Barthelmes; Andreas Hohlfeld; Jürgen Vom Scheidt, all of Berlin, and Dietrich Fromm, Warngau, all of Germany, assignors to Patent-Treuhand-Gesellschaft F. Electrische Gluehlampen mbH, Munich, Germany

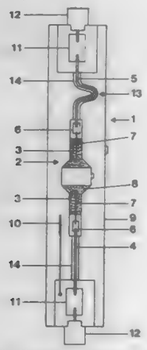
PCT No. PCT/DE94/00753, § 371 Date Jun. 20, 1996, § 102(e) Date Jun. 20, 1996, PCT Pub. No. WO95/10120, PCT Pub. Date Apr. 13, 1995

PCT Filed Jun. 30, 1994, Ser. No. 619,536

Claims priority, application Germany, Oct. 6, 1993, 43 34 074.1

Int. Cl.[6] H01J *61/82*

U.S. Cl. 313—638 10 Claims



1. A long-life, metal halogenide discharge lamp having

a discharge vessel (2) closed on both ends, which contains two electrodes and defines a discharge volume therein;

a fill in said discharge volume of metals with a tendency to diffusion, which diffusion-metals, in operation of the lamp, have a tendency to form ions with a short ion radius, wherein the ion radius is in the order of magnitude of Na^+ ion; and

a cylindrical outer bulb (9) surrounding the discharge vessel (2), which defines an axis and is closed on both ends;

wherein the discharge vessel (2) is located approximately axially in the outer bulb (9) and is retained therein by two current supply leads (4, 5) located in the outer bulb (9),

characterized by the combination of:

the specific diffusion metal content in the discharge volume being less than 6 μmols/cm^3; and

a photoionization, and hence diffusion-metal diffusion-inhibiting arrangement, which arrangement comprises a UV-shielding jacket or sheath (14) surrounding the current supply leads (4, 5) located in the outer bulb (9) over a great portion of their length.

5,729,092

CRT FOCUS MASK DEGAUSSING ARRANGEMENT RESPONSIVE TO A BREAKDOWN EVENT

Istvan Gorog, Lancaster, Pa.; Roger Pieri, Dijon, France; John Alan Holtzapple, Leola, Pa.; Richard William Nosker, Princeton, N.J., and Paul Kuczer, Failsington, Pa., assignors to Thomson Consumer Electronics, Inc., Indianapolis, Ind.

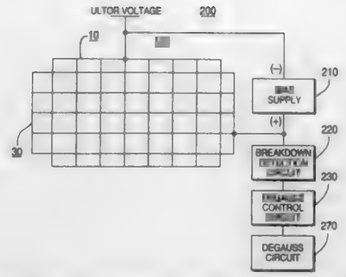
Filed Aug. 22, 1996, Ser. No. 704,003

Int. Cl.[6] H01J *29/07*

U.S. Cl. 315—8 19 Claims

1. An arrangement for eliminating discoloration bands in a cathode ray tube having a focus mask structure, said arrangement comprising:

a breakdown detection circuit for detecting a breakdown event in said focus mask structure; and,



a degauss circuit responsive to said breakdown detection circuit for degaussing said focus mask structure.

5,729,093

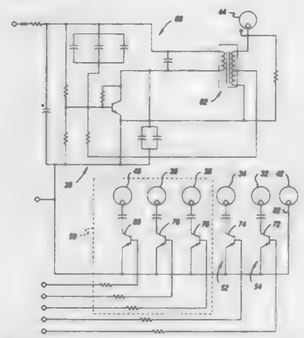
CONTROL FOR MULTIPLE CIRCUIT ELECTROLUMINESCENT LAMP PANEL

David Scott Cheney, White Lake, Mich., assignor to Ford Motor Company, Dearborn, Mich.

Filed Aug. 8, 1995, Ser. No. 512,499

Int. Cl.[6] G09G *3/10*

U.S. Cl. 315—169.3 17 Claims



1. A method for equalizing light intensity from a plurality of electroluminescent panel segments formed on an electroluminescent lamp panel, each segment having shaped and sized conductive surfaces aligned with indicia related to a multifunctional control panel having a plurality of functional modes and a plurality of indicia locations related to each mode, the method comprising,

defining a group of electroluminescent panel segments to be illuminated for each functional mode including,

selecting at least one first set of electroluminescent panel segments from each said group that is associated with an indicia location unique to one of said functional modes,

selecting at least one second set of electroluminescent segments from each said group that is associated with at least one common indicia location for at least two functional modes of said control panel, and

combining the first and second sets related to a functional mode to form a mode group for each functional mode;

sizing portions of each set for illumination of said indicia or actuator locations;

determining the mode group having a target area;

adjusting the load of each mode group to match the load of said target group; and

switching a supply voltage to each said mode group upon selection of a respective functional mode.

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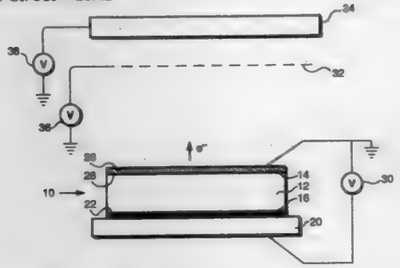
ENERGETIC-ELECTRON EMITTERS

Michael W. Geis; Jonathan C. Twichell, both of Acton, and Theodore M. Lyszczarz, Concord, all of Mass., assignors to Massachusetts Institute of Technology, Cambridge, Mass.

Filed Apr. 15, 1996, Ser. No. 632,026

Int. Cl.[6] H01J *19/02*

U.S. Cl. 315—169.1 111 Claims



1. An electron-emissive device comprising:

a. a cathode body of diamond, the body having a surface with first and second locations separated by a thickness;

b. first and second conductive materials disposed respectively on the first and second locations; and

c. a voltage source, electrically connected to the cathode body by means of the first and second conductive materials so as to impose a body electric field having a body average amplitude greater than 10^5 V/m across the thickness, the imposition of the body electric field causing the cathode body to emit electrons having kinetic energies.

5,729,095

HIGH FREQUENCY LIGHTING APPARATUS HAVING AN INTERMEDIATE POTENTIAL APPLIED TO THE TRIGGER ELECTRODE TO REDUCE LEAKAGE CURRENT

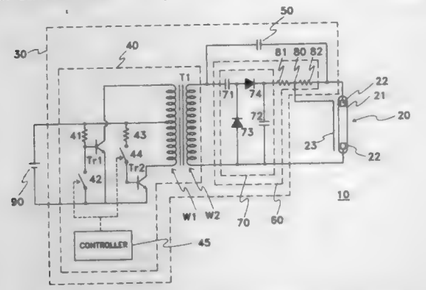
Teiji Shimokawa, Yokohama, and Akio Ishizuka, Yokosuka, both of Japan, assignors to Toshiba Lighting & Technology Corporation, Tokyo, Japan

Filed Sep. 27, 1995, Ser. No. 534,593

Claims priority, application Japan, Sep. 28, 1994, 6-233402

Int. Cl.[6] H05B *37/00*

U.S. Cl. 315—176 12 Claims



1. A power supply for a rare gas discharge lamp having an envelope, a pair of electrodes disposed in said envelope and an external conductor provided near said envelope, comprising:

a high frequency electric power circuit to generate a high frequency electric power, having an output whose crest factor is 2.3 or more;

a ballast means coupled between said high frequency electric power circuit and said rare gas discharge lamp for applying stabilized high frequency current to said electrodes; and

a DC supply circuit including a rectifier for rectifying said high frequency electric power to DC power, and a voltage divider means disposed between said rare gas discharge lamp and said rectifier for applying a predetermined electric potential to said external conductor, said predetermined electric potential being maintained by said voltage divider at an intermediate potential between potentials of said electrodes, and for adding a direct current to said stabilized high frequency current.

5,729,096

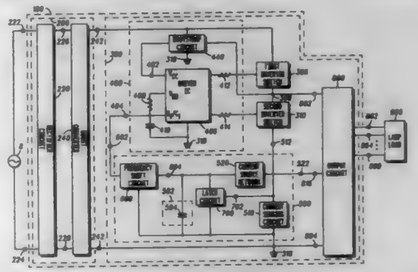
INVERTER PROTECTION METHOD AND PROTECTION CIRCUIT FOR FLUORESCENT LAMP PREHEAT BALLASTS

Guang Liu, Lake Zurich, and Anand K. Upadhyay, Libertyville, both of Ill., assignors to Motorola Inc., Schaumburg, Ill.

Filed Jul. 24, 1996, Ser. No. 686,639

Int. Cl.[6] H05B *37/02*

U.S. Cl. 315—225 14 Claims



1. An electronic preheat type ballast comprising:

a voltage source having a first output terminal and a second output terminal, the voltage source providing a substantially DC voltage between the first and second output terminals; and

an inverter that is coupled to the output terminals of the voltage source, the inverter comprising:

a first inverter switch that is coupled between the first output terminal of the voltage source and a first node, and a second inverter switch that is coupled between the first node and a second node;

an output circuit comprising:

a first input connection that is coupled to the first node;

a second input connection;

a ground connection that is coupled to a circuit ground node, the circuit ground node being coupled to the second output terminal of the voltage source;

a resonant circuit having a resonant frequency; and

a plurality of output wires that are adapted to being coupled to a lamp load that includes at least one fluorescent lamp having a pair of lamp filaments;

an inverter driver circuit that is coupled to the first and second inverter switches and that is operable to provide a drive signal for switching the inverter switches, the drive signal having a drive frequency, the driver circuit including a frequency control input, a frequency determining resistance, and a frequency determining capacitance; and

a protection circuit for protecting the inverter in the event of a lamp fault, the protection circuit comprising:

a frequency shift circuit having a frequency shift output and a DC supply input, the frequency shift output being coupled to the frequency control input of the inverter driver circuit, the DC supply input having a DC supply voltage, the frequency shift circuit being operable to control the inverter drive frequency by controlling at least one of the frequency determining capacitance and the frequency determining resistance;

a DC supply capacitance comprising at least one capacitor that is coupled between the DC supply input and the circuit ground node; and

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a current sensing circuit that is coupled between a current sense input and the circuit ground node, the current sense input being coupled to the second node of the inverter;

a current source network that is coupled between a current source input and the DC supply input of the frequency shift circuit, the current source input being coupled to the second input terminal of the output circuit; and

a latch circuit that is coupled between the DC supply input and the circuit ground node, the latch circuit including a latch input that is coupled to the current sense input.

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METHOD AND DEVICE FOR CONTROLLING ELECTRIC DISCHARGE LAMPS WITH ELECTRONIC FLUORESCENT LAMP BALLASTS

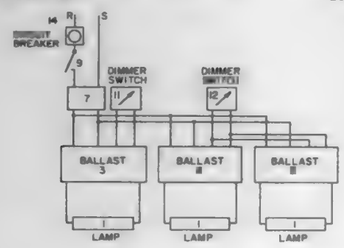
Walter Holzer, 7758 Meersburg, Germany

Continuation-in-part of Ser. No. 800,497, Nov. 29, 1991, abandoned. This application Jun. 17, 1993, Ser. No. 79,003

Claims priority, application Germany, Nov. 29, 1990, 40 37 948.5

Int. Cl.[6] **H02B** *37/02*

U.S. Cl. 315—307 **16 Claims**



1. An electronic switching apparatus to control the brightness of at least one gas discharge lamp which is connected to an electric current source via an on/off switch and an electronic ballast, said switching apparatus being interposed between the gas discharge lamp and the electric current source and comprising:

means for introducing a short interruption in the electric current source of less than one second such that the gas discharge lamp is not extinguished;

means for reducing the level of current delivered to the gas discharge lamp; and

a bistable changeover system having a first and a second switching state and being sensitive to said interrupting means, whereby with the on/off switch in an on position for activating the gas discharge lamp said bistable changeover system is at said first switching state wherein the electric current is delivered to the gas discharge lamp via the ballast, upon sensing a short interruption in the electric current, as introduced by said interrupting means, said bistable changeover system changing state to said second switching state wherein a reduced level of electric current, as provided by said current reducing means, is delivered to the gas discharge lamp via the ballast, said bistable changeover system switching between said first and second switching states upon sensing each subsequent short interruption in electric current thereby effectuating brightness control over the gas discharge lamp.

5,729,098

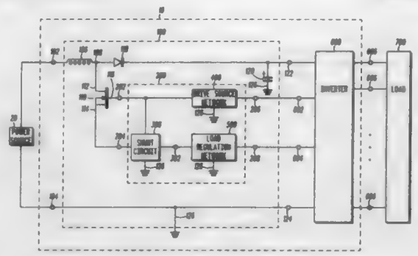
POWER SUPPLY AND ELECTRONIC BALLAST WITH A NOVEL BOOST CONVERTER CONTROL CIRCUIT

John G. Konopka, Barrington, and Dennis L. Stephens, Niles, both of Ill., assignors to Motorola, Inc., Schaumburg, Ill.

Filed Jun. 4, 1996, Ser. No. 659,099

Int. Cl.[6] **H05B** *37/00*

U.S. Cl. 315—307 **19 Claims**



1. An electronic power supply circuit, comprising:

a boost converter having a pair of input terminals and a pair of output terminals, the input terminals being adapted to receive a source of electrical power, the boost converter being operable to provide a substantially dc output voltage between the boost converter output terminals;

an inverter that is coupled across the boost converter output terminals, the inverter including:

a plurality of output connections adapted to be coupled to a load;

a first inverter node having a periodically varying voltage; and

a second inverter node having a voltage with a peak value that is substantially proportional to the dc output voltage of the boost converter;

the boost converter comprising:

a boost inductor that is coupled between a first node and a first input terminal of the boost converter;

a boost field-effect transistor (FET) having a drain terminal, a source terminal, and a gate terminal, the drain terminal being coupled to the first node;

a boost rectifier that is coupled between the first node and a first output terminal of the boost converter;

a bulk capacitance comprising at least one capacitor that is coupled across the boost converter output terminals;

a circuit ground node that is coupled to a second input terminal and a second output terminal of the boost converter; and

a control circuit for driving the boost FET, the control circuit including:

a current sense input that is coupled to the source terminal of the boost FET, a drive output that is coupled to the gate terminal of the boost FET, a drive source input that is coupled to the first inverter node, and a load regulation input that is coupled to the second inverter node;

a shunt circuit that is coupled to the drive output and the current sense input, the shunt circuit having a voltage sense input and being operable to periodically switch the boost FET off;

a low-impedance drive source network that is coupled between the drive source input and the drive output, the drive source network being operable to supply to the drive output a voltage that periodically assumes a predetermined dc level; and

a load regulation network that is coupled between the load regulation input and the voltage sense input of the shunt circuit, the load regulation network being operable to supply to the voltage sense input a voltage that is substantially proportional to the boost converter dc output voltage.

5,729,099

ELECTRON GUN HAVING IMPROVED FOCUS AND CONVERGENCE, AND COLOR CATHODE-RAY TUBE AND IMAGE DISPLAY DEVICE

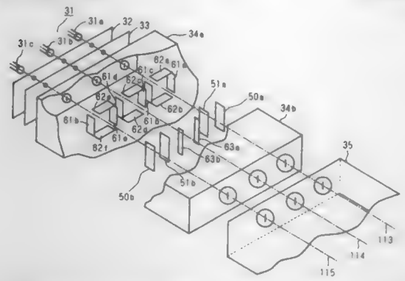
Hisakazu Yamane, Nagaokakyo; Souichirou Okuda, and Tadahisa Yoshida, both of Amagasaki, all of Japan, assignors to Mitsubishi Denki Kabushiki Kaisha, Tokyo, Japan

Continuation of Ser. No. 225,701, Apr. 11, 1994, abandoned. This application May 21, 1996, Ser. No. 651,126

Claims priority, application Japan, Aug. 3, 1993, 5-192349

Int. Cl.[6] **H01J** *29/58*

U.S. Cl. 315—382 **18 Claims**



1. An electron gun comprising:

a cathode for emitting three electron beams including a center electron beam and two side electron beams on a horizontal plane;

a control electrode for controlling the electron beams emitted from said cathode;

an accelerating electrode for accelerating the beams controlled by said control electrode;

a focusing electrode for focusing the beams accelerated by said accelerating electrode;

a high voltage electrode forming a main electron lens with the focusing electrode; and

pairs of convergence electrodes disposed in said focusing electrode in the same direction as that of arrangement of three electron beams emitted by said cathode to hold respective said two side electron beams therebetween;

wherein only a direct-current focusing voltage is applied to the convergence electrodes adjacent the center electron beam, and a voltage obtained by superposing an alternating current voltage synchronized with a deflection current to said direct current focusing voltage is applied to the others of said convergence electrodes adjacent to only respective said two side electron beams.

5,729,100

METHOD AND APPARATUS FOR CONTROLLING BACKLASH IN MOTOR DRIVE SYSTEMS

Barry R. Rothstein, Oxnard, and Bradley E. Paden, Santa Barbara, both of Calif., assignors to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

Filed Feb. 3, 1997, Ser. No. 790,884

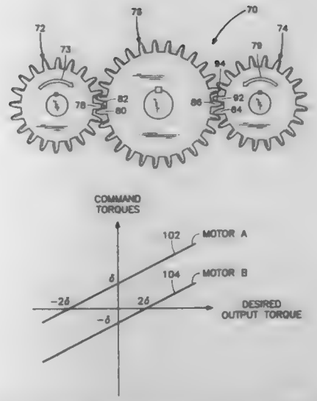
Int. Cl.[6] **G05B** *11/01*

U.S. Cl. 318—7 **7 Claims**

1. A method for substantially eliminating backlash from a gear train having first and second drive gears which engage a driven gear, each of said first and second drive gears and said driven gear having a plurality of gear teeth, said method comprising the steps of:

calculating a first motor torque, responsive to an input voltage, and providing a first electrical signal representative thereof, said first motor torque having a first constant slope torque curve with respect to said input voltage;

calculating a second motor torque, responsive to said input voltage, and providing a second electrical signal representative thereof, said second motor torque having a second constant slope torque curve with respect to said input voltage, said first constant voltage torque curve being offset from said second constant slope torque curve by an offset voltage δ;



actuating a first motor, responsive to said first electrical signal, said first motor being coupled to said first drive gear to transmit said first motor torque through said first drive gear to said driven gear;

actuating a second motor, responsive to said second electrical signal, said second motor being coupled to said second drive gear to transmit said second motor torque through said second drive gear to said driven gear, said backlash minimization improving motion of said first and second drive gears whenever one of said first and second motor torques changes a sign;

reshaping said first and second constant slope torque curves whenever one of said first and second constant slope torque curves changes a sign by increasing and then decreasing the slope of one of said first and second constant slope torque curves while simultaneously decreasing and then increasing the slope of the other of said first and second constant slope torque curves to minimize impact loading on the gear teeth of said first and second drive gears and the gear teeth of said driven gear.

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GATE OPERATOR AND METHOD USING AUTOMATIC LIMIT ADJUSTMENT

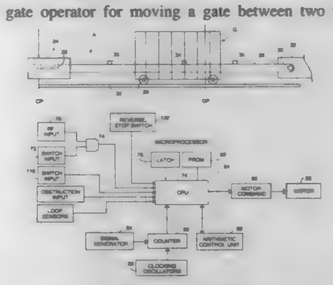
Moscow K. Richmond, 120 Glascow Ave., Inglewood, Calif. 90301; Thomas R. Richmond, 2320 N. Park Blvd., Santa Ana, Calif. 92706, and Patrick S. Kochie, 6337 Cory, Simi Valley, Calif. 93063

Filed Mar. 11, 1994, Ser. No. 212,711

Int. Cl.[6] **H02P** *1/22*

U.S. Cl. 318—282 **43 Claims**

1. A gate operator for moving a gate between two fixed end



positions and one of which may constitute a gate opened end position and the other of which may constitute a gate closed end position and automatically compensating for external conditions

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which affect gate movement to minimize contact with a fixed structure at the end positions, said apparatus comprising:

a) means for driving a gate under power and measuring counts representative of a distance between a first fixed end position to a second and opposite fixed end position continuously during the gate movement and commencing with the starting movement of the gate; and

b) control means for measuring a count representative of a movement distance on the next movement of the gate from the first fixed end position to the second fixed end position and automatically adding a control count to increase the driving movement and hence driving distance for still subsequent powered movements of the gate from the first fixed end position to the second fixed end position if the gate stopped short of the second fixed end position, said control means further measuring the counts representative of distance of movement for still subsequent movements from the first fixed end position to the second fixed end position and adding still additional control counts to increase driving movement and hence driving distance if the gate still stopped short of the second fixed end position said control means automatically subtracting counts to reduce driving movement and hence driving distance for each subsequent powered movement to the second fixed end position of the gate if the gate still contacted a fixed structure at the second end position, said control means also subtracting still additional counts to reduce driving movement and hence driving distance for still subsequent movements from the first fixed end position to the second fixed end position if the gate still contacted a fixed structure at the second fixed end position.

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BRUSHLESS MOTOR

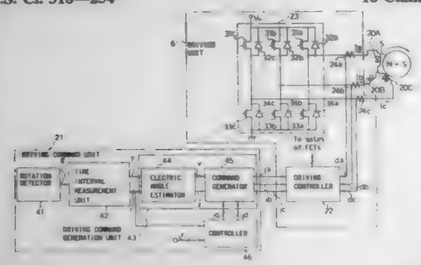
Makoto Gotou, Nishinomiya; Kazushige Narazaki, Katano, and Tomokuni Iijima, Moriguchi, all of Japan, assignors to Matsushita Electric Industrial Co., Ltd., Osaka-fu, Japan

Filed Jun. 28, 1996, Ser. No. 673,399

Claims priority, application Japan, Jun. 30, 1995, 7-165060

Int. Cl.[6] H02P *7/00*

U.S. Cl. 318—254 **18 Claims**



1. A brushless motor comprising:

a field means having a permanent magnet type rotor for producing P field poles (P is an even number integer not less than 2);

K-phase driving windings (K is an integer not less than 2) fixed to a stator;

driving commanding means for generating a substantially sinusoidal driving command signal; and

driving control means for supplying a substantially sinusoidal driving current to said driving windings responding to said driving command signal,

said driving commanding means comprising:

rotation detecting means for obtaining a pulse signal in synchronization with rotation of said rotor;

time interval measurement means for measuring a timing interval of said pulse signal; and

driving command generating means for estimating an estimated electric angle at an estimating interval shorter than said timing interval and responsive to a measurement result of said time interval measurement means, and generating the substantially sinusoidal driving command signal corresponding to said estimated electric angle.

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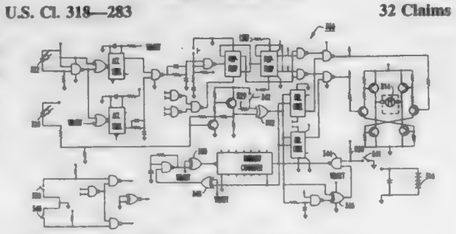
HEAD RAIL-MOUNTED ACTUATOR FOR WINDOW COVERINGS

Douglas R. Domel, Chatsworth, and Winston G. Walker, Irvine, both of Calif., assignors to Harmonic Design, Inc., Chatsworth, Calif.

Continuation-in-part of Ser. No. 559,467, Nov. 15, 1995, Pat. No. 5,698,958, which is a continuation-in-part of Ser. No. 342,130, Nov. 18, 1994, Pat. No. 5,495,153, which is a continuation-in-part of Ser. No. 94,570, Jul. 20, 1993, Pat. No. 5,391,967, which is a continuation-in-part of Ser. No. 76,556, Jun. 11, 1993, Pat. No. 5,444,339. This application Nov. 16, 1995, Ser. No. 559,073

Int. Cl.[6] H02P *1/00*

U.S. Cl. 318—283 **32 Claims**



1. A window blind with actuator, comprising:

a horizontal window blind having slats, a head rail defining a long dimension, and a rod rotatably mounted in the head rail parallel to the long dimension, the rod defining an open position and a closed position;

a sensor for detecting a light signal and generating a control signal in response thereto;

a coupling engaged with the rod for rotating the rod;

a reversible electric direct current (dc) motor operably engaged with the coupling to move the coupling;

a dc battery electrically connected to the motor; and

an electronic circuit electrically connected to the light sensor and the battery for processing the control signal from the light sensor to energize the motor to rotate the rod toward the open and closed positions, thereby rotating the slats.

5,729,104

POWER WINDOW APPARATUS FOR VEHICLE

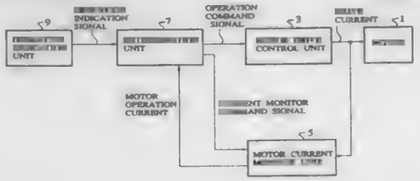
Hiroyuki Kamishima, Yokohama, and Toshimasa Miwa, Zama, both of Japan, assignors to Nissan Motor Co., Ltd., Kanagawa-ken, Japan

Filed Nov. 27, 1995, Ser. No. 563,036

Claims priority, application Japan, Dec. 2, 1994, 6-299722; Dec. 26, 1994, 6-322703

Int. Cl.[6] G05B *5/00*

U.S. Cl. 318—446 **18 Claims**



1. A vehicle power window apparatus comprising:

a motor for vertically moving a vehicle window glass;

instruction output means for outputting a signal providing instructions for moving said vehicle window glass upward or downward or stopping said vehicle window glass;

drive control means responsive to the instructions from said instruction output means for executing control of said motor;

load amount detection means for detecting a load amount when said motor is operated;

threshold value setting means for setting a threshold value for comparison with the load amount detected by said load amount detection means;

current detection means for detecting a current flowing in said motor when said motor is operated, including:

inrush current detection means for detecting an inrush current from the detected current;

peak value detection means for detecting a peak value of the detected inrush current; and

threshold change means for changing the threshold value on the basis of the peak value detected by said peak value detection means;

said instruction output means operating for providing in said signal one of:

a first instruction to said drive control means for moving said window glass upwardly and

a second instruction, provided to said drive control means in place of the first instruction when the load amount detected by said load amount detection means is larger than the threshold value, wherein said instruction output means selects for said second instruction one of an instruction for stopping said window glass and an instruction for moving said window glass downwardly;

said instruction output means replacing said second instruction by another instruction outputted to said drive control means, for neither stopping said window glass nor moving said window glass downwardly, when the peak value detected by said peak value detection means exceeds a predetermined value corresponding to an environmental temperature which is not higher than a freezing point temperature, and the load amount detected by said load amount detection means is larger than the threshold value.

5,729,105

DEVICE FOR THE AUTOMATIC CONTROL OF A WINDSCREEN WIPER MOTOR

Bernhard Dröge, Neuberg, Germany, assignor to Etablissement Voralp, Schaan, Liechtenstein

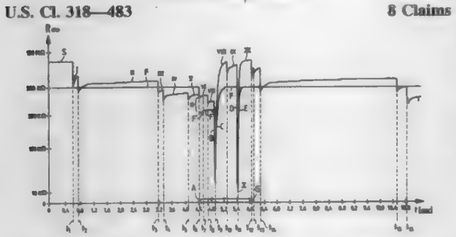
PCT No. PCT/DE94/01134, § 371 Date Apr. 4, 1996, § 102(e) Date Apr. 4, 1996, PCT Pub. No. WO95/10434, PCT Pub. Date Apr. 20, 1995

PCT Filed Sep. 27, 1994, Ser. No. 624,594

Claims priority, application Germany, Oct. 8, 1993, 43 34 381.3

Int. Cl.[6] H02P *7/00*

U.S. Cl. 318—483 **8 Claims**



1. A device for the automatic control of a windshield wiper motor, having

a) a moisture sensor which, in dependence on the moisture, emits a signal (S);

b) an evaluating device which evaluates the signal (S), changing over time, from the moisture sensor;

c) a signal source which, in dependence on the changing signal (S) from the moisture sensor, emits a threshold function curve (F), the threshold function curve (F) only being changed once the signal (S) from the moisture sensor has a new extreme value; characterized in that

d) all the changes in the signal (S) which reach or exceed a predetermined amount once the signal (S) from the moisture sensor exceeds or has exceeded the threshold function curve (F) are counted; and

e) once these changes in the signal (S) are equal to a predetermined number (Z), the windshield wiper motor is activated.

5,729,106

DEVICE FOR OPERATING A WIPER

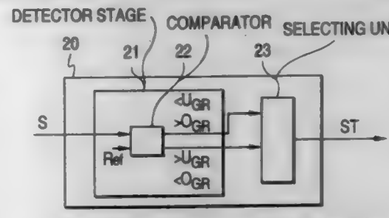
Rainer Pientke, Achern; Hans Meier, Ottersweier, and Henry Blitzke, Buehl, all of Germany, assignors to Robert Bosch GmbH, Stuttgart, Germany

Filed May 28, 1996, Ser. No. 654,069

Claims priority, application Germany, May 27, 1995, 195 19 471.3

Int. Cl.[6] B60S *1/08*

U.S. Cl. 318—483 **18 Claims**



1. In a device for operating a windshield wiper, the device including a sensor for detecting the degree of moistness of a windshield, an evaluator for receiving a signal from the sensor, and a control unit, which receives a control signal from the evaluator, for operating the windshield wiper if a difference between a reference value and values derived from the sensor signal exceeds a predetermined threshold value, the evaluator comprising:

a detector stage for determining whether the sensor signal or the values derived therefrom lie within a normal total range (UGR, OGR) in which an equilibrium level (RP) of the sensor signal can be adjusted by the device of the evaluator; and,

a selector stage for switching to a predetermined base interval when the detector stage determines that the sensor signal or the values derived therefrom lie outside of the normal range.

5,729,107

CONTROL DEVICE FOR AN ELECTRIC ACTUATOR OF A STEERING SYSTEM

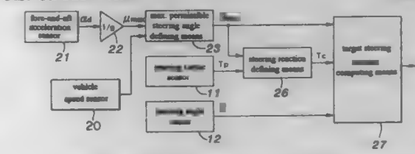
Yasuo Shimizu, and Yoshito Nakamura, both of Wako, Japan, assignors to Honda Giken Kogyo Kabushiki Kaisha, Tokyo, Japan

Filed Aug. 28, 1996, Ser. No. 704,968

Claims priority, application Japan, Aug. 29, 1995, 7-245408

Int. Cl.[6] B62D *6/00;5/04*

U.S. Cl. 318—489 **6 Claims**



1. A control device for an electric actuator of a steering system of a vehicle, comprising:

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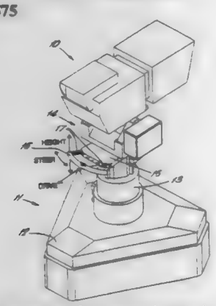
steering torque detecting means for detecting a steering input torque applied to an input end of a steering system;
steering angle detecting means for detecting a steering angle of a road wheel;
means for estimating a frictional coefficient of a road surface on which said vehicle is traveling;
maximum steering angle defining means for defining a maximum permissible steering angle according to a frictional coefficient estimated by said frictional coefficient estimating means; and
target torque computing means for determining a target output torque of said electric actuator according to outputs from said steering torque detecting means, said steering angle detecting means, and said maximum steering angle defining means;
whereby said target output torque of said electric actuator is reduced from a normal value according to a magnitude of the detected steering angle in relation with said maximum permissible steering angle.

5,729,108

MANUAL CONTROL SYSTEM FOR CAMERA MOUNTINGS

Stephen John Steele, Suffolk, United Kingdom, assignor to Vitec Group PLC, Suffolk, United Kingdom

PCT No. PCT/GB94/01237, § 371 Date Dec. 8, 1995, § 102(e) Date Dec. 8, 1995, PCT Pub. No. WO94/29637, PCT Pub. Date Dec. 22, 1994
PCT Filed Jun. 8, 1994, Ser. No. 564,086
Claims priority, application United Kingdom, Jun. 8, 1993, 9311830
Int. Cl.[6] G05B *19/33*
U.S. Cl. 318—575 **5 Claims**



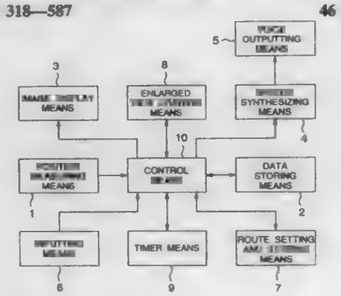
1. A camera mounting for supporting and moving a camera supported on the mounting, the mounting comprising:
a motor system for driving the mounting in directions along and about a plurality of axes;
a pedestal including a base supported on motorised steerable wheel units;
a motorised column, vertically adjustable along a column axis, wherein the platform is coupled to an upper end of the column;
a control unit mounted on the column for rotation about the column axis to energise the motor system;
an arcuate control member coupled to the control unit for applying controlling forces manually to the control unit so that the control unit produces movement of the mounting corresponding to forces applied to the control member;
wherein the control unit includes first force responsive means responsive to forces applied to the control member parallel to the column axis to control the motor system to extend and retract the column along the column axis, and second force responsive means responsive to horizontal forces applied to the arcuate control member to control the motorised wheel units to move the pedestal horizontally and wherein the control unit includes movement responsive means responsive to rotation of the control unit about the column axis for controlling the steering of the motorised wheel units.

5,729,109

NAVIGATION SYSTEM AND INTERSECTION GUIDANCE METHOD

Shigehiko Kaneko, Kasuya-gun; Akitoshi Aritaka, Kasuga, and Yuji Hirai, Fukuoka, all of Japan, assignors to Matsushita Electric Industrial Co., Ltd., Osaka, Japan

Filed Jul. 9, 1996, Ser. No. 679,399
Claims priority, application Japan, Jul. 19, 1995, 7-182477
Int. Cl.[6] G09B *29/10*
U.S. Cl. 318—587 **46 Claims**



1. A navigation system comprising:
position measuring means for measuring a position of a motor vehicle;
map storing means for storing road map data;
image display means for indicating an image signal including said road map data;
sound storing means for storing guidance information on intersections as sound data;
speech synthesizing means for performing a speech synthesizing process for said sound data to output a sound signal;
voice outputting means for outputting as a voice said sound signal from said speech synthesizing means;
inputting means for inputting various kinds of data from a user;
route setting means for setting a drive route on said road map data on the basis of starting point information and destination information inputted through said inputting means;
route storing means for storing said drive route set by said route setting means; and
control means for, when from said inputting means demanding output of guidance information on a first intersection on a drive route for next change of its advancing direction while said motor vehicle is running according to said drive route stored in said route storing means, retrieving said first intersection on the basis of said drive route to read out sound data corresponding to the retrieved result from said sound storing means and output the read sound data to said speech synthesizing means.

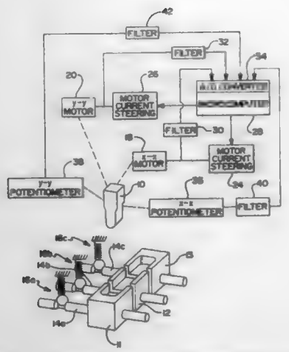
5,729,110

METHOD FOR CONTROLLING AN ELECTRONIC X-Y SHIFTING MECHANISM FOR A VEHICLE TRANSMISSION

Jon A. Steeby, Schoolcraft; Bruce A. Vincent, Kalamazoo; John M. Nowicke, Marshall; Daniel P. Janecke, Kalamazoo, and Leo A. Kominek, Portage, all of Mich., assignors to Eaton Corporation, Cleveland, Ohio

Filed Oct. 10, 1995, Ser. No. 541,837
Int. Cl.[6] G05B *11/20*
U.S. Cl. 318—599 **5 Claims**

1. A method for adaptively controlling the voltage applied to an electronically actuable X-Y shifting mechanism for a vehicle transmission wherein said shifting mechanism includes a shift finger movable by motor means into and out of engagement with at least one shift block, said engagement of said finger with said block effecting gear changes in said transmission, said motor means being driven by a control signal, said motor control signal being



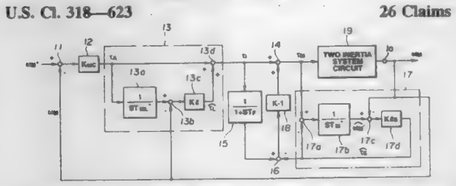
substantially at or below a preferred voltage level, said method comprising the steps of:
receiving an electrical input signal from a power supply, said input signal being substantially at a nominal input voltage;
applying a duty cycle to said input signal, said duty cycle having a nominal duty cycle percentage equal to the ratio of said preferred motor control signal voltage level to the nominal voltage of said electrical input signal;
identifying an initial movement of said shift finger;
upon said identification raising said duty cycle percentage above said nominal duty cycle percentage level;
identifying a position of said shift finger wherein said shift finger is about to engage another said shift block; and
returning said duty cycle percentage to said nominal duty cycle percentage.

5,729,111

INERTIA LOWERING CONTROL APPARATUS CAPABLE OF SUPPRESSING AXIALLY TORSIONAL VIBRATION OCCURRING ON FLEXIBLE DRIVE SHAFT OF TWO-MASS INERTIA RESONANT SYSTEM

Kazuya Ogura; Yasuhiro Yoshida, and Tetsuo Yamada, all of Tokyo, Japan, assignors to Kabushiki Kaisha Meidensha, Tokyo, Japan

Filed Apr. 3, 1995, Ser. No. 415,740
Claims priority, application Japan, Nov. 10, 1979, 6-271645; Apr. 4, 1994, 6-065763
Int. Cl.[6] G05B *5/01*
U.S. Cl. 318—623 **26 Claims**



1. An inertia lowering control apparatus used for suppressing an axially torsional vibration occurring on a flexible drive shaft in a two-mass inertia resonant system, said two-mass inertia resonant system having a motor, a load of the motor, and a flexible drive shaft interconnecting the load with the motor, the two-mass inertia resonant system having four transfer functions as:

$$G_{MM}(S)=\omega_M/\tau_M=1/T_M S\cdot\{S^2+1/(T_{S\cdot TL})\}/\{S^2+1/T_S\cdot(1/T_M+1/T_L)\},$$

$$G_{LM}(S)=\omega_M/\tau_L=-1/T_L S\cdot\{(1/T_M)\cdot(1/T_S)\}/\{S^2+1/T_S(1/T_M+1/T_L)\},$$

$$G_{ML}(S)=\omega_L/\tau_M=1/T_M S\cdot\{(1/T_S)\cdot(1/T_L)\}/\{S^2+1/T_S(1/T_M+1/T_L)\}.$$

$$G_{LL}(S)=\omega_L/\tau_L=-1/T_L S\cdot\{S^2+1/(T_M\cdot 1/T_S)\}/\{S^2+1/T_S(1/T_M+1/T_L)\}.$$

wherein S=σ+j ω and denotes a Laplace transform operator, con denotes a motor angular velocity, τ_M denotes a motor generation torque, τ_L denotes a load applied torque, ω_L denotes a load angular velocity, T_M denotes a motor mechanical time constant, T_S denotes a shaft spring time constant, T_M denotes a motor mechanical time constant, T_L denotes a load mechanical time constant, $G_{MM}(S)$ denotes a first transfer function to transfer τ_M to ω_M in a model of said two-inertia resonant system, $G_{LM}(S)$ denotes a second transfer function to transfer τ_L to ω_M in the model thereof, $G_{ML}(S)$ denotes a third transfer function to transfer τ_M to ω_L in the model thereof, and $G_{LL}(S)$ denotes a fourth transfer function to transfer τ_L to ω_L in the model thereof, said inertia lowering control apparatus comprising:
a) a motor angular velocity detector arranged for detecting the motor angular velocity (ω_M) of the motor in said two-inertia resonant system and outputting the detected motor angular velocity;
b) a velocity amplifier for amplifying, by at least a proportional control gain (Kωc), a difference between a motor angular velocity instruction value (ω_M*) and the detected motor angular velocity, and for outputting the amplified difference (τ_A);
c) a disturbance suppressing circuit for receiving the amplified difference (τ_A) from said velocity amplifier and the detected motor angular velocity (ω_M), and for providing an input torque (τ_i) for the motor constituting the two-mass inertia resonant system so that a disturbance is prevented from being input to the motor;
d) an axially torsional vibration suppressing circuit, for receiving the motor input torque (τ_i) from said disturbance suppressing circuit, and for filtering the input torque (τ_i) of said disturbance suppressing circuit so as to suppress the axially torsional vibration in the two-mass inertia resonant system and so as to provide the motor generation torque (τ_M) supplied to the motor of the two-mass resonant system; and
e) a shaft applied torque estimating observer for receiving the detected motor angular velocity (ω_M) and the motor generation torque (τ_M) supplied to the motor of the two-inertia resonant system and for estimating a shaft applied torque value ($\hat{}\tau_S$), said estimated shaft applied torque value being supplied to said vibration suppressing circuit, wherein said vibration suppressing circuit also receives the estimated shaft applied torque value ($\hat{}\tau_i$) to filter the estimated shaft applied torque value together with the motor input torque (τ_i) to suppress the axially torsional vibration in the two-mass inertia resonant system and so as to provide the motor generation torque (τ_M) supplied to the motor of the two-mass resonant system.

5,729,112

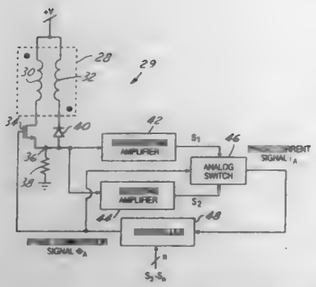
PHASE CURRENT SENSING IN A BIFILAR-WOUND SWITCHED RELUCTANCE MOTOR DRIVE TOPOLOGY

Scott E. Blackburn, Temperance, Mich., assignor to Dana Corporation, Toledo, Ohio

Filed Jul. 26, 1996, Ser. No. 693,820
Int. Cl.[6] H02K *29/02*
U.S. Cl. 318—701 **12 Claims**

1. An apparatus for generating a phase current signal representative of a phase current flowing through a bifilar phase winding having a primary coil and a secondary coil, said apparatus comprising:
means for generating a first signal indicative of a primary coil current;
means for generating a second signal indicative of a secondary coil current; and
means for generating said phase current signal using said first signal and said second signal,

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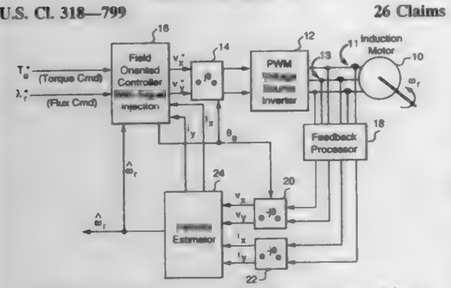
wherein said phase current signal generating means is configurable to generate said phase current signal of a continuously positive polarity to thereby provide for improved phase commutation of a motor.

5,729,113

SENSORLESS ROTOR VELOCITY ESTIMATION FOR INDUCTION MOTORS

Patrick Lee Jansen, Alplaus; William James Premerlani, Scotia, both of N.Y., and Neil Richard Garrigan, Madison, Wis., assignors to General Electric Company, Schenectady, N.Y.

Filed Jan. 21, 1997, Ser. No. 786,583
Int. Cl.[6] H02P *5/40*
U.S. Cl. 318—799 **26 Claims**



1. A method for estimating rotor shaft velocity comprising:
adding two counter rotating signal components to a fundamental motor control signal to provide a combined control signal;
sensing at least one motor phase signal;
determining an extracted portion of the at least one motor phase signal representative of the two counter rotating signal components; and
using the extracted portion to estimate rotor shaft velocity.

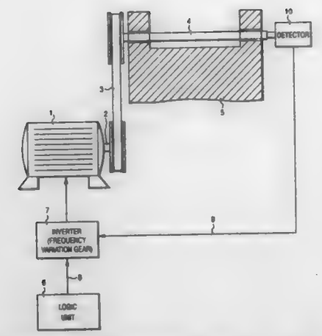
5,729,114

ELECTRONIC FAST-STARTING SYSTEM, PARTICULARLY SUITABLE FOR AN AIR LOOM

Gianluigi Sora; Ruggero Manzardo; Vittorio Apolloni, and Lucio Sardella, all of Vicenza, Italy, assignors to Nuovopignone Industrie Meccaniche E Fonderia S.p.A., Florence, Italy

Filed Dec. 23, 1994, Ser. No. 362,869
Claims priority, application Italy, Jan. 20, 1994, MI94A0071
Int. Cl.[6] D03D *51/34*
U.S. Cl. 318—801 **1 Claim**

1. An electronic system for fast starting of a textile loom, said system comprising:
a loom main crankshaft;
a main asynchronous driving motor;



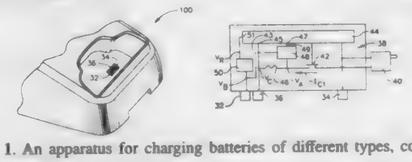
an inverter/controller connected directly to said motor, said inverter/controller controlling motor torque during a start-up inertia period to ensure fast starting of said loom;
a logic control unit connected to said motor via said inverter/controller, wherein said asynchronous motor is mechanically connected to said crankshaft and wherein said motor has phase windings triangularly connected; and
a speed detector system mounted on said main crankshaft and outputting an outlet signal to said inverter/controller, wherein said inverter/controller controls said motor to provide fast starting of said loom by increasing a starting torque of said motor in accordance with a difference in values between a set speed value provided by said logic unit and a loom main crankshaft speed value provided by said outlet signal of said speed detector system.

5,729,115

APPARATUS AND METHOD FOR IDENTIFYING AND CHARGING BATTERIES OF DIFFERENT TYPES

Ivan Nelson Wakefield, Cary, N.C., assignor to Ericsson Inc., RTP, N.C.

Filed Jun. 11, 1996, Ser. No. 664,277
Int. Cl.[6] H01M *10/44;10/46*
U.S. Cl. 320—2 **49 Claims**



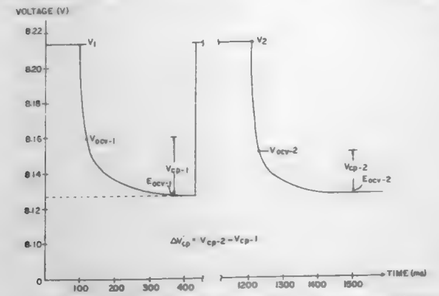
1. An apparatus for charging batteries of different types, comprising:
(a) a support for receiving a battery having a positive terminal and a negative terminal;
(b) a battery interface for electrically coupling said battery charging apparatus to said received battery, further comprising:
(1) a positive contact positioned within said support so as to engage said positive terminal of said received battery;
(2) a negative contact positioned within said support so as to engage said negative terminal of said received battery; and
(3) at least one sensing contact positioned within said support; and
(c) a circuit for identifying the particular type of said received battery by whether said positive terminal of said received battery contacts said sensing contact in addition to said positive contact and supplying a charging current to said received battery in accordance with a specified charging algorithm applicable to the particular battery type identified.

5,729,116

SHUNT RECOGNITION IN LITHUIM BATTERIES

Boris Tsenter, Rosswell, Ga., assignor to Total Battery Management, Inc., Georgia, Pa.

Filed Dec. 20, 1996, Ser. No. 771,030
Int. Cl.[6] H01M *10/44;* **H02J** *7/04*
U.S. Cl. 320—30 **16 Claims**



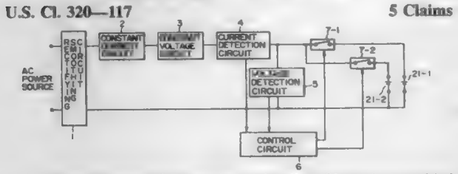
1. A method of recognizing a shunt in a rechargeable lithium battery comprising:
charging the battery with a charging current;
sampling the voltage of the battery at pre-determined time intervals, wherein the step of sampling the voltage of the battery includes interrupting the charging current to sample an open circuit voltage, said open circuit voltage being sampled in a range of 5–5,000 ms after the charging current has been interrupted in order to obtain a steady open circuit voltage;
identifying one or more points indicating onset of shunting, wherein the point indicating onset of shunting is identified by a drop in the steady open circuit voltage of the battery;
continuing charging if the point is not identified; and
terminating charging if the point indicating shunting is identified.

5,729,117

APPARATUS AND METHOD FOR CHARGING A PLURALITY OF BATTERIES USING A COMBINATION OF INDIVIDUAL AND PARALLEL CONNECTIONS

Motohiko Fukuda, Tokyo, Japan, assignor to Sony Corporation, Japan

Filed Oct. 2, 1996, Ser. No. 720,619
Claims priority, application Japan, Oct. 4, 1995, 7-257324
Int. Cl.[6] H02J *7/021;* **H01M** *10/44*
U.S. Cl. 320—117 **5 Claims**



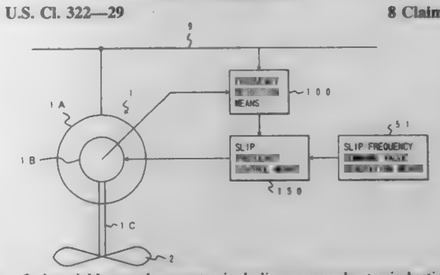
1. A battery charger for charging a plurality of batteries provided with;
charging means for charging a plurality of batteries,
detecting means for detecting charging condition of the plurality of batteries, and
switching means for switching the connection condition of said plurality of batteries to
(a) the condition in which said plurality of batteries are charged one by one, or
(b) the condition in which said plurality of batteries are charged simultaneously in parallel connection,
correspondingly to the detected result of said detecting means.

5,729,118

VARIABLE SPEED INDUCTION GENERATOR-MOTOR WITH CONTROLLABLE EXCITATION FREQUENCY

Tadahiro Yanagisawa, Fuchu, and Takahisa Kageyama, Suginami-ku, both of Japan, assignors to Kabushiki Kaisha Toshiba, Kawasaki, Japan

Filed Jun. 7, 1995, Ser. No. 475,652
Claims priority, application Japan, Jun. 17, 1994, 6-135257
Int. Cl.[6] H02P *9/00*
U.S. Cl. 322—29 **8 Claims**



1. A variable speed apparatus including a wound-rotor induction generator-motor having a primary winding connected to a power system, a secondary winding excited by an alternating current (AC) and a generator-motor shaft, and a turbine/pump united with the generator-motor shaft, the generator-motor being operable as a generator and as a motor, the apparatus comprising:
an AC excitation frequency detection unit connected to the power system and configured to detect an AC excitation frequency on the basis of power data including a frequency and a voltage phase in the power system and data of the generator-motor shaft, the AC excitation frequency detection unit configured to output an AC excitation frequency signal as a result thereof;
a slip frequency generating unit connected to the AC excitation frequency detection unit and configured to generate a slip frequency command value for the generator-motor; and
a slip frequency control unit connected to the AC excitation frequency detection unit and the slip frequency generating unit, said slip frequency control unit configured to receive the slip frequency command value from the slip frequency generating unit and the AC excitation frequency signal from the AC excitation frequency detection unit, said slip frequency control unit configured to control the generator-motor by sending a control signal to the generator-motor to cause a slip frequency of the generator-motor to coincide with the slip frequency command value, even in a case when the AC excitation frequency changes as determined by the AC excitation frequency signal.

5,729,119

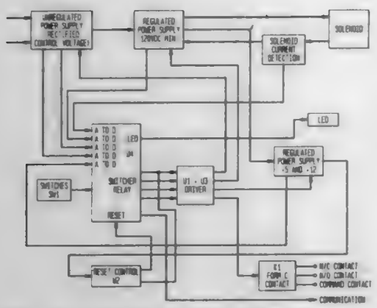
DUAL MODE POWER SUPPLY AND UNDER VOLTAGE TRIP DEVICE

Erskine Barbour, Benson, N.C., assignor to Siemens Energy & Automation, Inc., Alpharetta, Ga.

Filed Jun. 28, 1996, Ser. No. 675,442
Int. Cl.[6] G05F *1/40;1/652;1/613*
U.S. Cl. 323—222 **29 Claims**

1. A dual mode power supply for use with an undervoltage trip device, comprising:
unidirectional voltage clamp means for producing a first voltage thereacross based on an input voltage during a linear mode of said dual mode power supply;
oscillator means connected to said unidirectional voltage clamp means and to a first energy storage means, said oscillator means charging said first energy storage means to produce a second voltage;
a second energy storage means connected to said first energy storage means for passing at least a portion of said charge at a

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third voltage greater than said input voltage during a switching mode of said dual mode power supply;

voltage generation means for generating a fourth voltage based on said third voltage;

unidirectional coupling means for coupling said second energy storage means and said voltage generation means; and

energization means connected to i) said oscillator means, ii) said voltage generation means, and iii) said unidirectional voltage clamp means;

wherein said energization means energizes said oscillator means to allow said voltage generation means to maintain a substantially constant voltage when said input voltage is below a first predetermined level and said fourth voltage is greater than a second predetermined level.

5,729,120

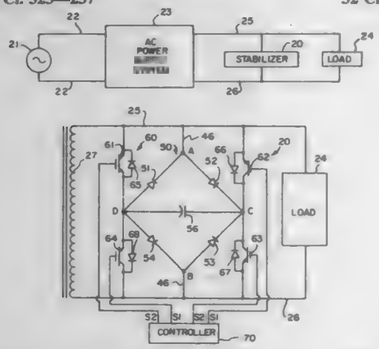
DYNAMIC VOLTAGE REGULATION STABILIZATION FOR AC POWER SUPPLY SYSTEMS

Frederick A. Stich, Wisconsin Rapids; Donald K Zahrte, Sr., Necedah; Gregory C. Kohls, Nekoosa, and Robert R. Davidson, Mauston, all of Wis., assignors to General Signal Corporation, Stamford, Conn.

Filed Dec. 30, 1996, Ser. No. 781,896

Int. Cl.[6] G05F *1/613*

U.S. Cl. 323—237 **32 Claims**



1. A dynamic voltage regulation stabilizer apparatus for use in an AC electrical power system of the type including a power supply providing AC power on output lines and a load connected to the output lines to receive power from the power supply, the stabilizer apparatus adapted to be connected in parallel with the load for suppressing instabilities of output power supplied from the power supply to the load, the stabilizer apparatus comprising:

(a) rectifier means for rectifying an AC voltage waveform on the output lines and having AC input nodes which are connected across the output lines from the AC power supply and which provides a unidirectional voltage at DC output nodes when the AC voltage is applied to the output lines;

(b) a clamping capacitor connected across the DC output nodes of the rectifier means, the size of the capacitor selected so that the charge on the capacitor is not substantially dissipated between peaks of the waveform of the AC voltage applied to the input nodes and the voltage across the capacitor remains at substantially the peak voltage of the AC voltage waveform, and wherein the capacitor serves to clamp the maximum voltage across the output lines to a selected voltage level near the steady state peak voltage on the output lines when the peak voltage on the output lines exceeds the steady state peak voltage;

(c) electronic switching devices connected between the clamping capacitor and the output lines, the switching devices being responsive to switching control signals which turn on the switching devices to apply the charge on the capacitor in either polarity to the output lines; and

(d) switching device controller means for providing the switching control signals to turn on selected ones of the switching devices for a selected duration encompassing the time of the peak of each half-cycle of the AC voltage waveform to apply the charge on the capacitor to the output lines in alternating polarities at the peaks of alternating half-cycles such that the charge on the capacitor serves to raise the peak voltage across the output lines to a selected voltage level near the steady state peak voltage on the output lines when the peak voltage on the output lines drops below the steady state peak voltage.

5,729,121

POWER SUPPLY APPARATUS

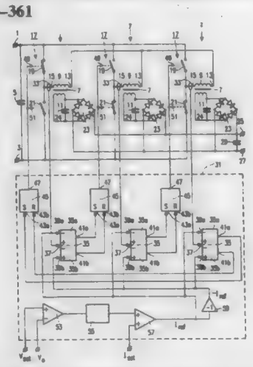
Johannes W. Coenders, and Engbert B. G. Nijhof, both of Eindhoven, Netherlands, assignors to U.S. Philips Corporation, New York, N.Y.

Filed Dec. 6, 1996, Ser. No. 759,665

Claims priority, application European Pat. Off., Dec. 14, 1995, 95203484

Int. Cl.[6] H01F *30/12*; **H02M** *7/00*

U.S. Cl. 323—361 **15 Claims**



1. A power supply apparatus for converting an electric direct voltage, acting as an input voltage, into an output voltage, comprising first and second input terminals for receiving the input voltage, at least a first transformer and a second transformer, each of which comprises a primary winding having first and second ends and a secondary winding, at least one of the ends of each primary winding being connectable to the first input terminal via an associated first switching element, at least one end of each secondary winding being connected to a rectifier element in order to form a secondary circuit, said apparatus further comprising a control unit for cyclically setting the first switching elements to the open state and the closed state at different instants of time, characterized in that each end of a primary winding connected to the first controllable switching element is switchably connectable to the second input terminal via a second switching element based on the switching state of a switching member, the first switching element and the second switching element being closed and open in a first state and open and closed in a second state of the switching member, respectively.

5,729,122

UNIT USING IC DEVICE HAVING CONSTANT-CURRENT CIRCUITRY

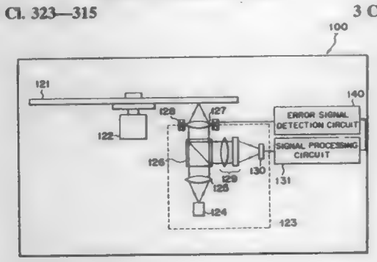
Hiroyuki Nakamura, Atsugi, Japan, assignor to Canon Kabushiki Kaisha, Tokyo, Japan

Division of Ser. No. 483,883, Jun. 7, 1995, Pat. No. 5,570,009, which is a continuation of Ser. No. 371,611, Jan. 12, 1995, abandoned, which is a continuation of Ser. No. 79,834, Jun. 22, 1993, abandoned, which is a continuation of Ser. No. 614,497, Nov. 16, 1990, abandoned. This application Jul. 31, 1996, Ser. No. 695,216

Claims priority, application Japan, Nov. 22, 1989, 1-302223; Nov. 8, 1990, 2-301092

Int. Cl.[6] G05F *3/22*; *3/26*

U.S. Cl. 323—315 **3 Claims**



1. A recording and reproducing apparatus comprising:

a head for recording information on and reproducing the information from a recording medium;

retention means for retaining the recording medium; and

a signal processing circuit,

wherein said head has plural photosensor sections receiving light from the recording medium, and

wherein said signal processing circuit processes an output signal from said plural photosensor sections, and comprises a semiconductor integrated circuit which has a constant voltage circuit comprising:

plural driving sections having transistors for driving respectively plural loads;

plural transistors for supplying a constant current to said plural driving sections respectively, wherein each of said transistors has a base and said bases of said plural transistors are commonly connected;

a constant current source provided between said bases of said plurality transistors and a first reference voltage source; and

a transistor having a base connected to said bases of said plural transistors and which constitutes, in combination with said plural transistors, a current mirror circuit,

wherein said plural driving circuits of said semiconductor integrated circuit are connected to the plural loads respectively, not through said plural transistors therebetween, and

wherein said plural transistors supply the constant current from emitters thereof to said driving units.

5,729,123

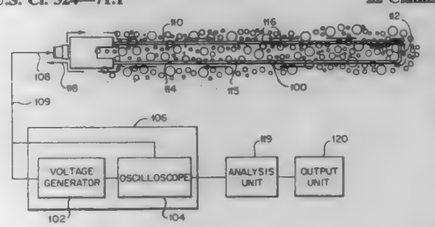
METHOD AND APPARATUS FOR PROBING RELATIVE VOLUME FRACTIONS

Walter G. Jandrasits, Pittsburgh, and Thomas J. Kikta, Upper St. Clair, both of Pa., assignors to The United States of America as represented by the United States Department of Energy, Washington, D.C.

Filed Apr. 11, 1996, Ser. No. 635,425

Int. Cl.[6] G01N *27/06*

U.S. Cl. 324—71.1 **22 Claims**



1. A relative volume fraction probe assembly for use in a multiphase system comprising first and second phases having significantly different dielectric properties, said probe comprising:

first and second conductive paths defining therebetween a sample zone within the multiphase system;

generating means for generating a time varying electrical signals;

injecting means for injecting said time varying electrical signals into said first conductive path;

a time domain reflectometer for receiving said time varying electrical signals returned by said second conductive path and for producing a curve of impedance versus distance in response thereto; and

calculating means for calculating the area under said curve, for subtracting the calculated area from an area produced when said sample zone consists entirely of material of the first phase so as to produce an area difference value, and for dividing said area difference value by the difference between a curve area produced when said sample zone consists entirely of material of said first phase and a curve area produced when said sample zone consists entirely of material of the second phase to thereby produce the relative volume fraction.

5,729,124

ESTIMATION OF SIGNAL FREQUENCY USING FAST WALSH TRANSFORM

Chun-Chian Lu, Hsinwu Taoyuan, Taiwan, assignor to Industrial Technology Research Institute, Hsin-Chu, Taiwan

Filed Mar. 14, 1994, Ser. No. 209,962

Int. Cl.[6] G06F *15/332*

U.S. Cl. 324—76.24 **4 Claims**

1. A method for identifying an estimate of the frequency of a signal, comprising the steps of:

(a) receiving an input signal having an unknown frequency,

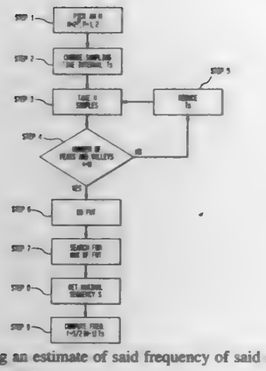
(b) obtaining N samples of the signal, using a sampling time interval Ts, said step (b) further comprising the step of insuring that the number of peaks and valleys in the obtained samples is less than N,

(c) applying a Walsh transform to said samples,

(d) identifying the single Walsh transformed sample with the maximal absolute value,

(e) obtaining the sequency S of a Walsh function corresponding to said maximal absolute value, and

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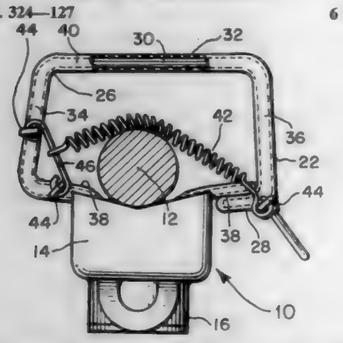
(f) identifying an estimate of said frequency of said signal from said sequency S.

5,729,125

BRIDGED CLAMPING MECHANISM FOR USE WITH CIRCUIT CONDITION MONITORING DEVICES

Edmund O. Schweitzer, Jr., 2433 Center St., Northbrook, Ill. 60062

Filed Jul. 8, 1996, Ser. No. 677,649
Int. Cl.[6] G01R *31/02;19/165*
U.S. Cl. 324—127 6 Claims



1. A clamping mechanism for mounting a circuit condition monitoring device to an electrical cable, comprising:

a housing for said monitoring device;

a core member having a first side portion extending generally from the housing, said first side portion being integral with a second side portion generally parallel to the housing, said second side portion integral with a third side portion generally parallel to said first side portion, said core having mating ends in said third side portion-forming, when separated, a gap for passing the cable through, one of said ends being fixedly positioned relative to said housing and the other end being movable relative to said housing;

at least one resilient member with a first end anchored to said movable end of said third side portion;

a cable mounting surface on said housing;

at least one bridge member with a first end anchored near said housing space between said first side portion and said cable mounting surface, and with a second end anchored at a position spaced on said first side portion; and

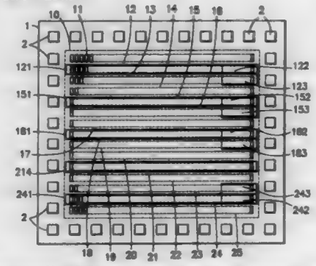
a second end of said resilient member being slidably attached to said bridge member.

5,729,126

MASTER SLICE LSI WITH INTEGRATED FAULT DETECTION CIRCUITRY

Michio Komoda, and Yoshio Inoue, both of Itami, Japan, assignors to Mitsubishi Denki Kabushiki Kaisha, Tokyo, Japan

Continuation of Ser. No. 432,924, May 1, 1995, abandoned, which is a continuation-in-part of Ser. No. 907,054, Jul. 1, 1992, abandoned. This application Dec. 2, 1996, Ser. No. 757,109
Int. Cl.[6] G01R *31/00*
U.S. Cl. 324—158.1 23 Claims



7. A master slice LSI with fault detection circuitry, comprising:

a packed transistor area consisting of a plurality of rows of semiconductor devices packed on a surface of a substrate;

at least two active rows within said plurality of rows providing a particular function to be performed by said master slice LSI;

a remainder of said plurality of rows;

each of said at least two active rows being separated from another of said at least two active rows by at least one of said remainder of said plurality of rows;

a decoder for distributing a test signal among said at least two active rows;

said decoder being on at least one of said remainder of said plurality of rows;

a plurality of sense amplifiers formed of said semiconductor devices for detecting said test signal;

a first portion of at least one of said plurality of rows including at least one of said plurality of sense amplifiers;

a plurality of shift registers formed of said semiconductor devices for detecting a location of a fault; and

a second portion of said at least one of said plurality of rows having a first portion including at least one of said plurality of shift registers.

5,729,127

MAGNETISM DETECTING APPARATUS HAVING GEAR TEETH DIMENSIONS FOR MINIMAL PULSE SIGNAL DISTORTION

Tatsuo Tamura, Kuwana; Kenji Yagi, Nagoya; Yasuaki Makino, Okazaki, and Ichiro Izawa, Anjo, all of Japan, assignors to Nippondenso Co., Ltd., Kariya, Japan

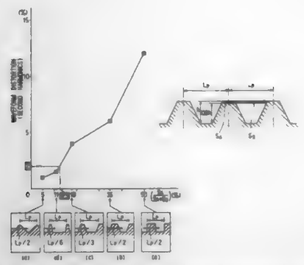
Filed Sep. 12, 1995, Ser. No. 527,200
Claims priority, application Japan, Sep. 13, 1994, 6-218929
Int. Cl.[6] G01P *3/488;* G01R *33/06;* G01B *7/30*
U.S. Cl. 324—174 9 Claims

1. A magnetism detecting apparatus comprising:

a movable object under detection having a plurality of teeth made of a magnetic material and a plurality of notches formed between said teeth;

a bias magnet having a magnetizing surface disposed adjacent to the teeth of said object for producing a biasing magnetic field toward said object;

a magnetoresistance element formed by at least one pair of magnetoresistance patterns disposed at approximately +45 degrees and −45 degrees, respectively, with respect to said magnetic field and arranged within a plane within said biasing magnetic field direction and a direction along which said teeth



are aligned, magnetic vectors from said one pair of magnetoresistance patterns being parallel to one another, said magnetoresistance element being separated from said object by a predetermined distance, said magnetoresistance element producing a resistance change in response to a state change in the biasing magnetic field exerted upon said object by said bias magnet resulting from movement of said object within said magnetic field; and

waveform shaping means for digitizing an output waveform of said magnetoresistance element based upon high and low threshold values, and for producing a pulse signal corresponding to a rising edge of the digitized output waveform and a falling edge of the digitized output waveform,

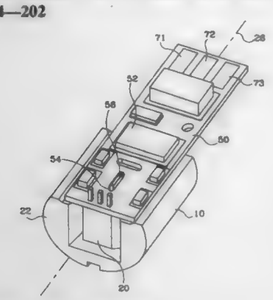
wherein each of said teeth satisfies SA/(SA+SB)<0.125, where SA denotes a cross-sectional area of a tip portion of each of said teeth, which tip portion has a height of 10% of a total height of each of said teeth as measured from a tip of each of said teeth, and SB denotes a cross-sectional area of a notch portion of each of said notches, which notch portion has a height corresponding to the height of said tip portion as measured from an outer extremity of said notches aligned with the tip of said teeth.

5,729,128

MAGNETIC SENSOR WITH A MAGNETICALLY SENSITIVE COMPONENT THAT IS MOVABLE DURING CALIBRATION AND RIGIDLY ATTACHABLE TO A FORMED MAGNET

Scott L. Bunyer; Nicholas F. Busch, and Joel D. Stolfus, all of Freeport, Ill., assignors to Honeywell Inc., Minneapolis, Minn.

Filed Nov. 22, 1996, Ser. No. 754,483
Int. Cl.[6] G01B *7/14;7/30;* H01L *43/06;* G01R *35/00*
U.S. Cl. 324—202 15 Claims



1. A magnetic sensor, comprising:

a permanent magnet having first and second pole faces, said first and second pole faces being generally perpendicular to an axial centerline;

a channel formed in said permanent magnet along said centerline;

a magnetically sensitive component disposed at least partially within said channel;

a substrate having an opening formed therethrough, said magnetically sensitive component being attached to said substrate; and

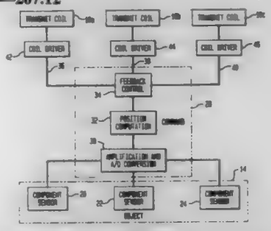
a post attached to said permanent magnet and disposed through said opening of said substrate, said post being attached to said substrate to locate said magnetically sensitive component at a preselected position relative to said permanent magnet, said preselected position being determined by monitoring an output from said magnetically sensitive component as said substrate is moved relative to said permanent magnet, said post being rigidly attached to said substrate when said output is generally equal to a predetermined magnitude.

5,729,129

MAGNETIC LOCATION SYSTEM WITH FEEDBACK ADJUSTMENT OF MAGNETIC FIELD GENERATOR

David E. Acker, Setauket, N.Y., assignor to Biosense, Inc., Setauket, N.Y.

Filed Jun. 7, 1995, Ser. No. 476,380
Int. Cl.[6] G01B *7/14;* G01S *5/04;* A61B *5/05*
U.S. Cl. 324—207.12 22 Claims



1. Apparatus for determining position comprising:

(a) field generating means for producing a plurality of magnetic fields, each said field having parameters varying with location within a sensing volume according to a known pattern of variation, said patterns of variation being different for different ones of said fields;

(b) at least one sensor adapted to detect one or more of said parameters of said fields generated by said field generating means prevailing at such sensor when said sensor is at an unknown location within said sensing volume and to provide one or more sensor signals representing said one or more parameters;

(c) calculation means for determining a calculated location of said sensor based upon said sensor signals and said known patterns of variation; and

(d) feedback control means for adjusting said field generating means to alter said known pattern of variation of at least one of said fields responsive to said sensor signals, said calculated location or both so as to maintain said parameters of each such altered field prevailing at said sensor within a preselected range.

5,729,130

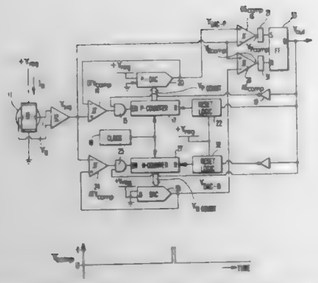
TRACKING AND HOLDING IN A DAC THE PEAKS IN THE FIELD-PROPORTIONAL VOLTAGE IN A SLOPE ACTIVATED MAGNETIC FIELD SENSOR

Kristann L. Moody, 77 Priest Rd., Barrington, N.H. 03825; Ravi Vig, 27 Longview Dr., Bow, N.H. 03304; Jay M. Towne, RRI Box 1957, Andover, N.H. 03216, and Teri L. Tu, 15 Clough St., Bow, N.H. 03304

Filed Jan. 17, 1996, Ser. No. 587,405
Int. Cl.[6] G01B *7/14;* G01R *33/00;* G01N *27/72*
U.S. Cl. 324—207.12 11 Claims

1. A method for detection of passing magnetic articles at speeds down to zero comprising:

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a) sensing an ambient magnetic field that is influenced by the passing of magnetic articles and generating a voltage, Vsig, that is proportional to the magnetic field;

b) converting positive slope portions only of the analog signal Vsig to a digital signal V_{Pcount};

c) converting the digital signal V_{Pcount} to a positive Vsig-tracking analog signal V_{DAC-P};

d) at each peak positive excursion in Vsig, holding V_{Pcount} so that the analog signal V_{DAC-P} is also held; and

e) when, at time t_{ppk} after each positive peak in Vsig, Vsig has fallen below V_{DAC-P} by a predetermined amount, producing one detector pulse (Vpcomp) indicating the detection of approach of a passing magnetic article.

5,729,131

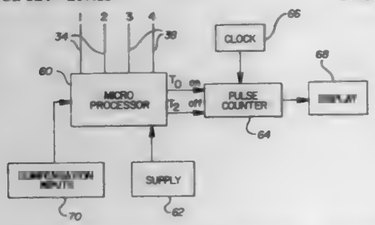
POSITION MEASUREMENT APPARATUS AND METHOD OF USING SAME WITH SONIC PULSE PROPAGATION DELAY INTERVAL

John D. Begin, Sterling Heights, Mich., assignor to Patriot Sensors & Controls Corporation, Clawson, Mich.

Filed Mar. 12, 1996, Ser. No. 615,487

Int. Cl.[6] G01R *33/18*

U.S. Cl. 324—207.13 **19 Claims**



1. In a position measurement device including a magnetostrictive wire waveguide extending through a measurement field and a user magnet movable relative to and in operative association with the waveguide in accordance with the position of a quantity to be monitored thereby to produce sonic disturbances in the waveguide, the improvement which comprises:

a pick up associated with the wire waveguide for generating electrical signal impulses upon arrival of sonic pulses traveling said waveguide at said pick up;

means for calculating a delay interval based on a variable affecting the operation of said wave guide; and

means for adding said delay interval to the propagation time of a sonic impulse from said user magnet to said pick up.

5,729,132

MAGNETOELECTRIC CONVERSION DEVICE

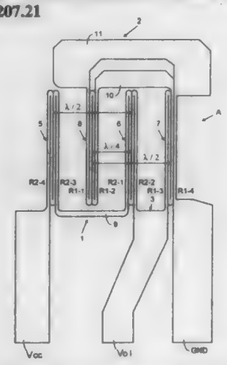
Teruhiko Otaki, Nagano, Japan, assignor to Sankyo Seiki Mfg. Co., Ltd., Nagano-ken, Japan

Filed Mar. 25, 1996, Ser. No. 621,229

Claims priority, application Japan, Mar. 30, 1995, 7-073624

Int. Cl.[6] G01R *33/06;* **G01B** *7/14;* **H03K** *17/90;19/18*

U.S. Cl. 324—207.21 **5 Claims**



1. A magnetoelectric conversion device comprising:

a magnetic recording medium magnetized with a repetitive signal in N and S poles that occur alternately at certain intervals and wherein said repetitive signal has a predetermined wavelength λ;

a magnetic sensor, facing said magnetic recording medium, changing its resistivity according to the magnetic flux of said magnetic signals;

wherein said magnetic sensor has a first current path and a second current path connected in series and forming at least one current path interconnect; an output terminal is connected to each current path interconnect while a terminal of a power source is connected to both ends of each current path;

each of said current paths comprising two unitary segments and a plurality of magnetic resistor elements formed by turning a magnetic resistance strip n times where n is an integer selected from integers of 0 and greater;

said first current path comprising a first unitary segment and a second unitary segment and each unitary segment being spaced by λ/2;

said second current path comprising a third unitary segment and a fourth unitary segment wherein the third unitary segment comprises a magnetic resistance element, one end of said magnetic resistance element being connected to a terminal of a power source and the other end being connected to the fourth unitary segment and another magnetic resistance element one end of which is connected to an output terminal while the other end is connected to the fourth unitary segment; the fourth unitary segment being spaced from the third unitary segment by λ/2 and positioned in the middle of said first unitary segment and said second unitary segment.

5,729,133

NONCONTACT TYPE MAGNETIC HEAD FOR DETECTING RATE-OF-WEAR IN A ROTATING MAGNETIC HEAD

Seiichi Sakai, Tokyo, and Teruyuki Yoshida, Kanagawa, both of Japan, assignors to Sony Corporation, Tokyo, Japan

Filed Sep. 9, 1996, Ser. No. 708,853

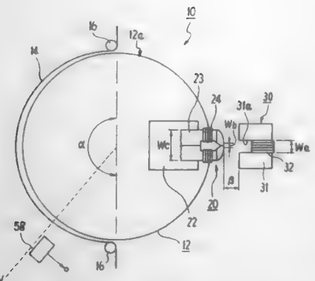
Claims priority, application Japan, Sep. 13, 1995, 7-235235

Int. Cl.[6] G11B *5/00;* **G01R** *33/12;* **G01N** *27/72*

U.S. Cl. 324—237 **9 Claims**

1. A noncontact type magnetic head wear-rate measuring apparatus, comprising;

a magnetic sensor opposed to a rotating magnetic head device with a magnetic head mounted thereon and disposed in non-



contact with the rotating magnetic head device so as to fall outside an angle at which a magnetic tape is wound around the rotating magnetic head device; and

rate-of-wear calculating means for calculating a rate of wear of the magnetic head in response to an output produced from said magnetic sensor, wherein said magnetic sensor is a part of a variable oscillator circuit and said rate-of-wear calculating means measures the rate of wear of the magnetic head according to a variation in oscillating frequency of said variable oscillator circuit at a position of rotation of said rotating magnetic head device where said magnetic sensor is opposed to said magnetic head.

5,729,134

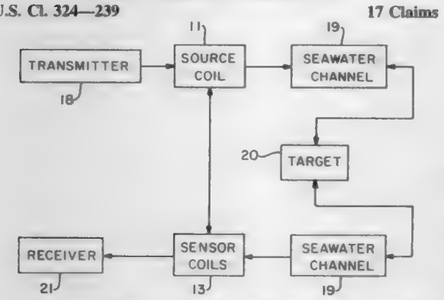
APPARATUS FOR DETECTING UNDERWATER MAGNETIC SOURCES WITH IMPULSE SIGNALING

Charles K. Lavan, Jr., Medina, and Susan E. Hall, Wadsworth, both of Ohio, assignors to Lockheed Martin Tactical Defense Systems, Inc., Akron, Ohio

Filed Sep. 5, 1995, Ser. No. 523,293

Int. Cl.[6] G01N *27/72;* **G01R** *33/12*

U.S. Cl. 324—239 **17 Claims**



1. In a magnetic influence system for an underwater system, the underwater system having a hull, comprising:

impulse source means for generating a broad-band impulsive magnetic dipole field in the vicinity of the underwater system; and,

impulse sensor means for detecting a returning scattered signal generated by a reflection of said broad-band magnetic dipole field off of a target, wherein said impulse source means is carded by a non-conductive section of a hull and includes a low-inductance source coil and a high-voltage power source, said high-voltage power source adapted to provide a transient voltage pulse to said source coil, resulting in a rapid current pulse rise time in said source coil and wherein said returning scattered signal provides a bandwidth approaching 1, wherein the impulse source means and the impulse sensor means are carried by the hull.

5,729,135

NON-DESTRUCTIVE TESTING EQUIPMENT EMPLOYING SQUID-TYPE MAGNETIC SENSOR IN MAGNETIC SHIELD CONTAINER

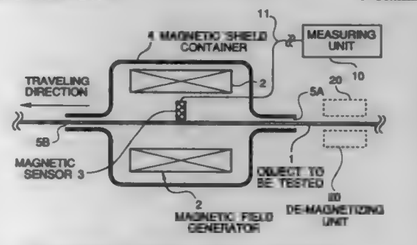
Hirokazu Kugai, Hyogo, Japan, assignor to Sumitomo Electric Industries, Ltd., Osaka, Japan

Filed Jul. 11, 1994, Ser. No. 273,433

Claims priority, application Japan, Jul. 12, 1993, 5-195124

Int. Cl.[6] G01N *27/90;27/82;* **G01R** *33/035;33/12*

U.S. Cl. 324—240 **6 Claims**



1. A non-destructive testing equipment comprising:

a magnetic shield container defining an inspection zone within an internal space of said magnetic shield container, so that an object to be tested can be positioned in said inspection zone, said magnetic shield container preventing an environment magnetic field from invading said internal space of said magnetic shield container;

a magnetic field generator located within said magnetic shield container, for generating a stable magnetic field in said inspection zone; and

a magnetic sensor located in said magnetic shield container and having at least one SQUID, for detecting the magnetic field generated by said magnetic field generator in said inspection zone, so that said magnetic sensor detects a variation of the stable magnetic field generated by said magnetic field generator which variation is caused by impurities or defects contained in said object to be tested in said inspection zone.

5,729,136

Patent Not Issued For This Number

5,729,137

MAGNETIC FIELD SENSORS INDIVIDUALIZED FIELD REDUCERS

James M. Daughton, Edina, and Theodore M. Hermann, Eden Prairie, both of Minn., assignors to Nonvolatile Electronics, Incorporated, Eden Prairie, Minn.

Filed Oct. 22, 1996, Ser. No. 735,218

Int. Cl.[6] G01R *33/09;* **H01L** *43/00*

U.S. Cl. 324—252 **10 Claims**

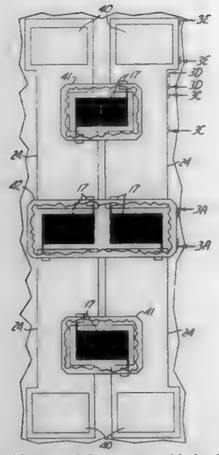
1. A magnetic field sensor comprising:

a substrate having a major surface portion;

a pair of magnetoresistive thin-film layered structures provided on said substrate electrically connected to one another and with each also being electrically connected to an interconnection means suited for electrical connection to a source of electrical energy;

a magnetically permeable shield material mass provided on said substrate having at least a first thickness with one of said pair of electrically connected structures being positioned adjacent to a side of said shield material mass which faces said substrate as supported thereon so as to permit only shielding fractions of magnitudes of at least some external magnetic fields applied to said sensor to affect that one of said pair of electrically connected structures through directing portions of those said externally applied magnetic fields therearound; and

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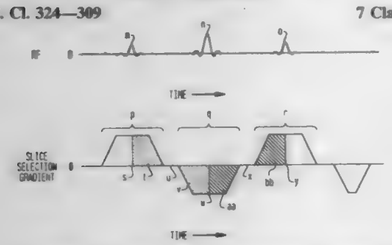
a shunt permeable material mass provided adjacent to at least one side of that remaining one of said pair of electrically connected structures so as to permit only shunting fractions of magnitudes of at least some of said external magnetic fields applied to said sensor to affect that said remaining electrically connected structure through directing portions of those said externally applied magnetic fields therearound with said shunting fractions selectively differing from said shielding fraction for said externally applied magnetic fields.

5,729,138

SLICE-BY-SLICE VARIATION OF PULSE SEQUENCE PARAMETERS IN MULTISLICE TWO-DIMENSIONAL IMAGE ACQUISITIONS

David E. Purdy, East Windsor, and David M. Thomasson, Edison, both of N.J., assignors to Siemens Medical Systems, Inc., Iselin, N.J.

Filed Aug. 18, 1995, Ser. No. 516,662
Int. Cl.[6] G01R *33/56*
U.S. Cl. 324—309 7 Claims



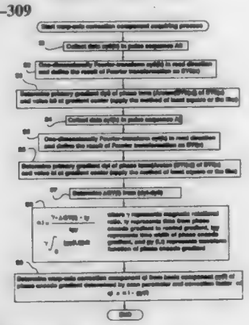
1. A method of conducting a two-dimensional multislice MR study of a patient, comprising the steps of subjecting each slice of the patient to a spatially and spectrally selective excitation as part of an MR pulse sequence and varying at least one RF characteristic of said excitation on a slice-by-slice basis in such a manner that the same undesired signal in each slice does not contribute to the MR image.

5,729,139

MRI APPARATUS

Takao Goto, Tokyo, Japan, assignor to GE Yokogawa Medical Systems, Ltd., Tokyo, Japan

Filed Feb. 20, 1996, Ser. No. 603,672
Claims priority, application Japan, Mar. 28, 1995, 7-069082; Sep. 21, 1995, 7-242857
Int. Cl.[6] G01V *3/00*
U.S. Cl. 324—309 10 Claims



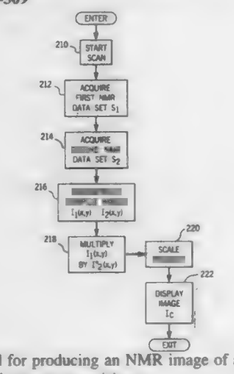
1. An MRI apparatus comprising:
RF pulse transmitting means for transmitting an RF pulse;
gradient magnetic field applying means for applying a phase encode gradient to a warp axis; and
NMR signal receiving means for receiving an NMR signal; wherein
said gradient magnetic field applying means comprises:
means for applying a rewind gradient to said warp axis after said RF pulse is transmitted, said phase encode gradient is applied, and said NMR signal is received, and
means for obtaining said rewind gradient by adding a warp correction axis component or equivalent thereof to a basic component of said phase encode gradient or equivalent thereof, said rewind gradient being of opposite polarity and equal in time integral value to said phase encode gradient so that adverse influence of eddy currents or residual magnetization by said phase encode gradient is corrected.

5,729,140

SUPPRESSION OF ARTIFACTS IN NMR IMAGES BY CORRELATION OF TWO NEX ACQUISTIONS

David G. Kruger, Nelson, Wis., and Stephen J. Riederer, Rochester, Minn., assignors to Mayo Foundation for Medical Education and Research, Rochester, Minn.

Filed Oct. 4, 1996, Ser. No. 726,892
Int. Cl.[6] G01V *3/00*
U.S. Cl. 324—309 7 Claims



1. A method for producing an NMR image of a subject with an MRI system, the steps comprising:

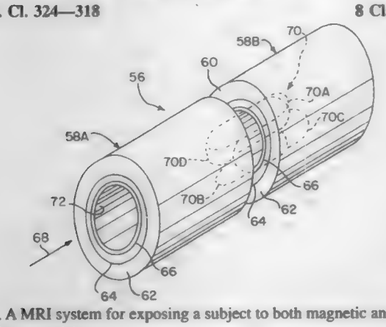
a) acquiring a first NMR data set S_1 indicative of the subject using the MRI system;
b) acquiring a second NMR data set S_2 indicative of the subject using the MRI system;
c) calculating the correlation between the two NMR data sets S_1 and S_2 to produce correlation data in a correlation array Γ; and
d) producing a corrected image from the correlation data in the correlation array Γ.

5,729,141

SPLIT GRADIENT COILS FOR MRI SYSTEM

Mathew Arnold Hass, and Paul Domigan, both of Andover, Mass., assignors to Intermagnetics General Corporation, Latham, N.Y.

Filed Mar. 19, 1996, Ser. No. 616,492
Int. Cl.[6] G01V *3/00*
U.S. Cl. 324—318 8 Claims



1. A MRI system for exposing a subject to both magnetic and RF fields, comprising:
a magnetic assembly having a bore with a longitudinal axis for receiving the subject, the magnet assembly producing a magnetic field within the bore;
a RF shield within said bore said shield having a split;
an excitation coil between said axis and said RF shield for exciting an RF field within the bore; and
a set of gradient coils, said set including individual ones of coils in separate coil sections, clearance spaces being provided between said sections in said gradient coil set, image currents of said shield and said gradient coils being inhibited by said split and said clearance spaces, said image currents being caused by said RF field.

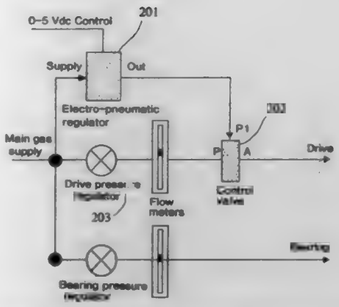
5,729,142

USE OF AUDIO SIGNALS FOR MONITORING AND REMEDIATING SPINNING IRREGULARIDES IN NMR SPECTROMETERS

Laima Baltusis, Cupertino, Calif., assignor to Varian Associates, Inc., Palo Alto, Calif.

Division of Ser. No. 475,112, Jun. 7, 1995. This application May 20, 1996, Ser. No. 650,676
Int. Cl.[6] G01V *3/00*
U.S. Cl. 324—321 8 Claims

1. In an NMR spectrometer for acquiring magnetic resonance information, a method for preventing damage to an NMR probe, said probe incorporating a gas driven, gas bearing supported spinning sample, comprising the steps of,
(a) acquiring an acoustic spectrum of said spinning sample,
(b) comparing selected features of said acoustic spectrum to pre-defined criteria to ascertain differences therebetween whereby irregularities of spinning of said spinning sample are recognized, and



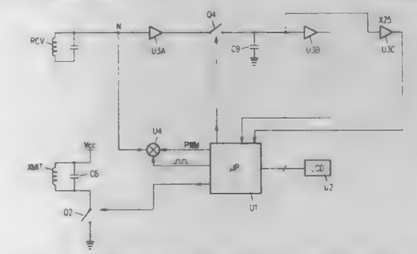
(c) adjusting the gas pressure at said gas bearing in accord with said differences to reduce same.

5,729,143

METAL DETECTOR WITH NULLING OF IMBALANCE

Russell E. Tavernetti, San Carlos, and Paul W. Dodd, San Jose, both of Calif., assignors to Zircon Corporation, Campbell, Calif.

Filed Jun. 3, 1996, Ser. No. 657,343
Int. Cl.[6] G01V *3/08;3/10;* G01N *33/12;* G01R *27/72*
U.S. Cl. 324—329 14 Claims



1. A method of detecting presence of a metal body using a transmitter coil connected in an induction bridge with a receive coil, whereby in the absence of a metal body an output signal from the receive coil is zero, and in the presence of a metal body an output signal from the receive coil is shifted in phase angle from a phase of a signal applied to the transmit coil, the method comprising the steps of:
applying a periodically varying signal to the transmit coil;
sampling a resulting output signal from the receive coil in synchronization with the periodically varying signal;
determining a phase of a zero amplitude point of the sampled output signal;
generating a signal that is shifted by 180° in phase angle from a phase angle of the sampled output signal; and
applying the generated signal to the receive coil, thereby nulling any imbalance in the inductive bridge.

5,729,144

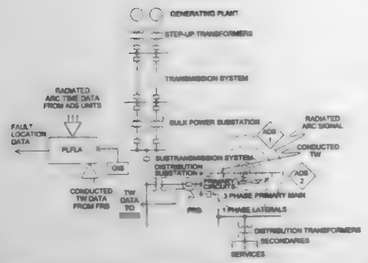
SYSTEMS AND METHODS FOR DETERMINING LOCATION OF A FAULT ON AN ELECTRIC UTILITY POWER DISTRIBUTION SYSTEM

Kenneth L. Cummins, 7772 E. Oakwood Pl., Tucson, Ariz. 85715

Filed Dec. 2, 1996, Ser. No. 759,297
Int. Cl.[6] G01R *31/08*
U.S. Cl. 324—535 18 Claims

1. A power distribution line fault locating system, said system comprising:

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at least one first data manipulation unit for manipulating conducted fault signal data resulting from a fault on a power distribution line and producing and communicating a first set of fault location data;

at least one second data manipulation unit for manipulating electromagnetic radiated signal data emanating from said fault on said power distribution line and producing and communicating a second set of fault location data; and

a fault location center responsive to said first and second set of fault location data produced by said at least one first and said at least one second data manipulation units for determining a location of said fault.

5,729,145

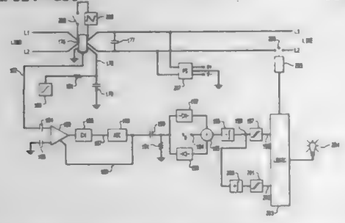
METHOD AND APPARATUS FOR DETECTING ARCING IN AC POWER SYSTEMS BY MONITORING HIGH FREQUENCY NOISE

Frederick K. Blades, Boulder, Colo., assignor to Siemens Energy & Automation, Inc., Alpharetta, Ga.

Continuation-in-part of Ser. No. 316,169, Sep. 6, 1994, Pat. No. 5,434,509, which is a continuation of Ser. No. 100,632, Aug. 30, 1993, abandoned, which is a continuation-in-part of Ser. No. 35,231, Mar. 22, 1993, abandoned, which is a continuation-in-part of Ser. No. 921,829, Jul. 30, 1992, Pat. No. 5,223,795. This application May 2, 1995, Ser. No. 433,717

Int. Cl.[6] G01R *31/08;19/00*

U.S. Cl. 324—536 **51 Claims**



34. Apparatus for detecting contact arcing in an electrical network having AC power supply lines, such that arcing in the network superimposes wide bandwidth high frequency noise on the power supply lines, the amplitude of the superimposed noise exhibiting patterns of regular variation substantially synchronized to the AC power waveform, comprising:

a swept-frequency bandpass filter, for filtering high frequency noise from the power lines, and for discriminating wide bandwidth noise on the power lines from impulse and specular noise; and

means for examining an output signal from the swept-frequency bandpass filter to determine whether said output signal exhibits patterns characteristic of arcing on the power lines.

5,729,146

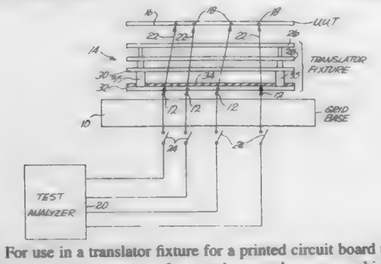
QUICK STACKING TRANSLATOR FIXTURE

Mark A. Swart, Upland, Calif., assignor to Everett Charles Technologies, Inc., Pomona, Calif.

Filed Sep. 21, 1995, Ser. No. 531,720

Int. Cl.[6] G01R *31/02*

U.S. Cl. 324—754 **14 Claims**



1. For use in a translator fixture for a printed circuit board tester of the type having a pattern of test probes on a base upon which the translator fixture is mounted, the translator fixture comprising a plurality of essentially parallel and vertically spaced apart rigid translator plates supported in a fixed position in the translator fixture and having selected patterns of holes aligned in the translator plates for containing and supporting translator pins extending through the translator plates for positioning the translator pins for contacting test points on a printed circuit board supported in an essentially horizontally position at one end of the translator fixture, the pins translating electrical test signals between the test points on the printed circuit board and the test probes on the base of the tester, the improvement in which the translator fixture includes a plurality of translator plate stacking towers of identical construction for supporting the translator plates in their fixed position in the translator fixture, each stacking tower comprising a rigid unitary support member formed as an integral piece and having a plurality of vertically spaced apart translator plate support surfaces with corresponding upright alignment posts at spaced apart levels of the stacking tower, the translator plate support surfaces and their corresponding alignment posts having respective diameters at each level which are progressively shorter along the length of the tower to define a stair-step arrangement in which translator plates can be assembled onto the stacking towers at predetermined levels in a progressive stacking sequence so that each translator plate is supported by a corresponding translator plate support surface and retained thereon in a fixed position by engagement with the related alignment post.

5,729,147

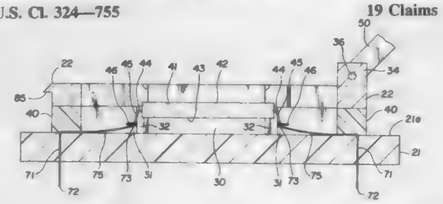
HOUSING FOR SURFACE MOUNTABLE DEVICE PACKAGES

Robert J. Schaff, Phoenix, Ariz., assignor to Aries Electronics, Inc., Frenchtown, N.J.

Filed Aug. 22, 1995, Ser. No. 517,918

Int. Cl.[6] G01R *31/02*

U.S. Cl. 324—755 **19 Claims**



1. A support housing for electronic device packages having terminal feet extending therefrom comprising:

(a) a plurality of elongated, resilient, electrically conductive terminal beams;

(b) an abrasive surface on each said beam aligned to slideably engage at least one of the terminal feet of an electronic device package when the device package is positioned in the support housing, each said abrasive surface being formed with a plurality of grooves, each said groove defining at least one sharp edge generally facing the center of the support housing; and

(c) means to cause relative movement between said terminal feet and the abrasive surface of said terminal beams while maintaining physical contact therebetween.

5,729,148

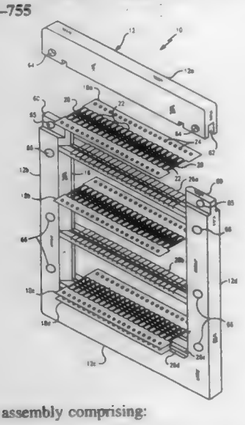
PROBE ASSEMBLY

Joseph M. Sullivan, Wappingers Falls, and Emanuele F. Lopergolo, Marlboro, both of N.Y., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Jun. 28, 1996, Ser. No. 672,877

Int. Cl.[6] G01R *31/02*

U.S. Cl. 324—755 **12 Claims**



1. A probe assembly comprising:

a frame;

at least one contact carrier within the frame, the carrier having a plurality of tie strips and a plurality of contacts, each contact being contiguous with a corresponding group of tie strips, each contact becoming discontiguous from the corresponding group of tie strips when a force is applied to the tie strips; and

at least two rails attached to the frame, each rail having a top portion for receiving the contacts and tie strips and a bottom portion having a plurality of regions for contacting the tie strips, the carrier being positioned between the top portion of one of the rails and the bottom portion of the other rail, when a compressive force is applied to the rails and carrier, the regions forcibly contact the tie strips such that all the contacts simultaneously become discontiguous from the tie strips.

5,729,149

APPARATUS FOR HOLDING A TESTING SUBSTRATE IN A SEMICONDUCTOR WAFER TESTER AND METHOD FOR USING THE SAME

Richard S. Bradshaw; Kenneth E. Adams, both of Austin; Cyrus M. Earl, Austin, and Curtis H. Youngblood, Georgetown, all of Tex., assignors to Motorola, Inc., Schaumburg, Ill.

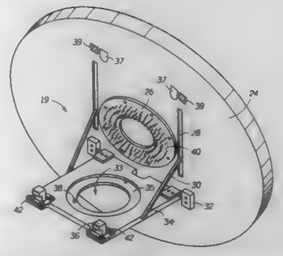
Filed Sep. 29, 1995, Ser. No. 536,825

Int. Cl.[6] G01R *31/02*

U.S. Cl. 324—758 **21 Claims**

1. An apparatus for testing a semiconductor wafer comprising:

a semiconductor wafer tester having a wafer stage for supporting a semiconductor wafer and a test head stage;



a first plate attached to the test head stage and having a defined area for electrically contacting a probe card;

a second plate hingeably connected to the first plate, the second plate having a thickness, a first substantially central aperture through a first portion of the thickness and a second substantially concentric aperture through a remainder portion of the thickness, such that a ledge is formed within the first substantially central aperture for holding the probe card within the first substantially central aperture, at least two locating pins which are asymmetrically disposed on the ledge for alignment of the probe card; and

means for locking the second plate rigidly in a closed position against the first plate, whereupon the probe card would be held in contact against the defined area on the first plate;

wherein during use of the tester the test head stage is positioned such that the probe card can make electrical contact to a semiconductor wafer on the wafer stage of the tester.

5,729,150

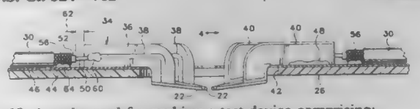
LOW-CURRENT PROBE CARD WITH REDUCED TRIBOELECTRIC CURRENT GENERATING CABLES

Randy J. Schwindt, Portland, Oreg., assignor to Cascade Microtech, Inc., Beaverton, Oreg.

Filed Dec. 1, 1995, Ser. No. 566,137

Int. Cl.[6] G01R *1/06*

U.S. Cl. 324—762 **13 Claims**



10. A probe card for probing a test device comprising:

(a) a dielectric board forming an opening;

(b) a plurality of probing devices for probing a corresponding plurality of probing sites on said test device, each probing device including a dielectric substrate having first and second sides, an elongate conductive path on said first side and an elongate probing element connected to one end of said elongate conductive path so as to extend in a cantilevered manner beyond said substrate, said probing devices being edge-mounted in radial arrangement about said opening so that said probing elements terminate below said opening in a pattern suitable for probing said sites;

(c) a plurality of cables for connecting each probing device to a corresponding channel of a test instrument, each cable including an inner conductor, an inner dielectric and an outer conductor, each inner conductor being electrically connected to a corresponding one of said conductive paths, each cable further including an inner layer of material between said inner dielectric and said outer conductor of suitable composition for reducing triboelectric current generation between said inner dielectric and said outer conductor to less than that which would occur were said inner dielectric and said outer conductor to directly adjoin each other;

(d) a conductive cover positioned over said dielectric board; and

(e) said dielectric board includes an outer conductive area surrounding a plurality of inner conductive areas in spaced

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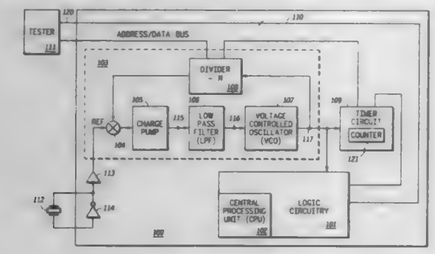
relationship thereto, and said cover includes a lower edge along which said cover is connected electrically to said outer conductive area.

5,729,151

SYSTEM AND METHOD FOR TESTING A PHASE LOCKED LOOP IN AN INTEGRATED CIRCUIT

Glen J. Zoerner, and Danny H. Nguyen, both of Austin, Tex., assignors to Motorola Inc., Schaumburg, Ill.

Filed Mar. 11, 1996, Ser. No. 610,783
Int. Cl.[6] G01R *31/28*
U.S. Cl. 324—765 **11 Claims**



1. A method for testing a phase locked loop ("PLL") circuit embedded in a chip, said method comprising the steps of:

setting said PLL to output a signal having a predetermined frequency;

enabling a counter circuit embedded in said chip and coupled to an output of said PLL circuit to count a number of pulses of said signal for a selected time period;

stopping said counter circuit at an end of said selected time period;

reading a count value produced by said counter circuit during said selected time period, wherein said count value is equal to a count of said number of pulses of said signal during said selected time period, wherein N least significant bits of said count value are ignored; and

coupling an external test device to an address/data bus coupled to said PLL circuit and to said counter circuit, wherein said, external test device controls an operation of said setting, enabling, stopping, and reading steps.

5,729,152

TERMINATION CIRCUITS FOR REDUCED SWING SIGNAL LINES AND METHODS FOR OPERATING SAME

Wingyu Leung, Cupertino; Winston Lee, South San Francisco, and Fu-Chieh Hsu, Saratoga, all of Calif., assignors to Monolithic System Technology, Inc., Sunnyvale, Calif.

Division of Ser. No. 270,856, Jul. 5, 1994. This application Oct. 27, 1995, Ser. No. 549,610
Int. Cl.[6] H03K *17/16*
U.S. Cl. 326—21 **20 Claims**

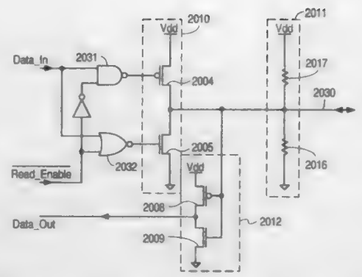
1. A passive termination circuit for controlling the termination voltage of a bus comprising:

a first terminal for receiving a first supply voltage;

a second terminal for receiving a second supply voltage;

a bus driver circuit having a first transistor of a first conductivity type coupled between said first terminal and said bus and a second transistor of a second conductivity type opposite said first conductivity type coupled between said second terminal and said bus;

a first clamping resistor coupled between said bus and said second terminal; and



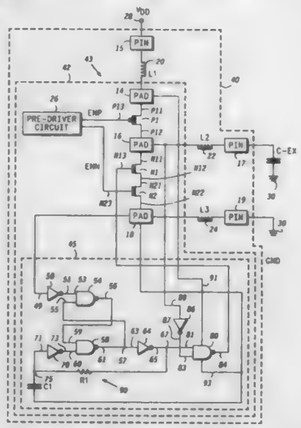
a second clamping resistor coupled between said bus and said first terminal, wherein the termination voltage of the bus is equal to one half of the difference between the first and second supply voltages, and wherein said bus is coupled to CMOS circuitry having a threshold voltage equal to one half of the difference between said first and second supply voltages.

5,729,153

OUTPUT BUFFER WITH OSCILLATION DAMPING

Yachin Afek, Kfar-Saba; Vladimir Koifman, Rishon-Lezion; Natan Baron, St. Oranit, and Eytan Engel, Rosh-Haain, all of Israel, assignors to Motorola, Inc., Schamburg, Ill.

Filed Nov. 20, 1995, Ser. No. 559,864
Int. Cl.[6] H03K *19/0948*
U.S. Cl. 326—27 **17 Claims**



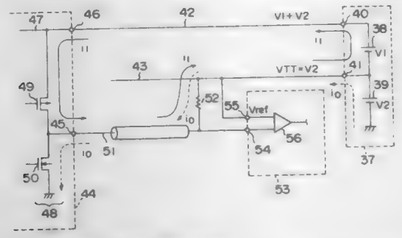
11. An electronic device comprising a microchip having one or more output buffer deriving power from a common power connection pad and from a common reference potential connection pad, where the one or more output buffer has an output connection pad, and wherein the one or more output buffer has a first transistor coupled between the common power connection pad and the output connection pad and a second transistor coupled between the output connection pad and the common reference potential connection pad and a third transistor coupled between the second transistor and the output connection pad, wherein the third transistor itself adds a time varying resistance to the one or more output buffer when the output connection pad does undergo a rapid voltage change.

5,729,154

TERMINATION CIRCUITS AND RELATED OUTPUT BUFFERS

Masao Taguchi, and Tsuyoshi Higuchi, both of Kawasaki, Japan, assignors to Fujitsu Limited, Kanagawa, Japan

Division of Ser. No. 351,064, Nov. 28, 1994. This application Sep. 10, 1996, Ser. No. 715,358
Claims priority, application Japan, Nov. 29, 1993, 5-297669; Feb. 28, 1994, 6-030470; Feb. 28, 1994, 6-030501
Int. Cl.[6] H03K *17/16;19/0175*
U.S. Cl. 326—30 **90 Claims**



1. An electronic system comprising:

a plurality of electronic circuits each having a signal input and output function;

a bus to which the plurality of electronic circuits are connected;

first termination resistors connected to ends of the bus; and

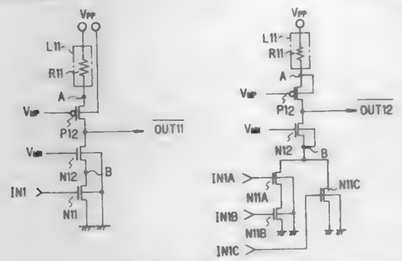
a termination voltage circuit having a first part generating a first voltage and a second part generating a second voltage, a sum of the first voltage and the second voltage being supplied, as a power supply voltage, to output circuits of the plurality of electronic circuits connected to the bus, the second voltage being supplied to the first termination resistors as a termination voltage.

5,729,155

HIGH VOLTAGE CMOS CIRCUIT WHICH PROTECTS THE GATE OXIDES FROM EXCESSIVE VOLTAGES

Hiroyuki Kobatake, Tokyo, Japan, assignor to NEC Corporation, Tokyo, Japan

Filed Sep. 21, 1995, Ser. No. 531,480
Claims priority, application Japan, Sep. 21, 1994, 6-225445
Int. Cl.[6] H03K *19/0185*
U.S. Cl. 326—68 **12 Claims**



1. A voltage level shift circuit for generating, in response to a logical input having a given level of amplitude, a logical output with an amplitude of Vpp, which is greater than the logical input, said circuit comprising:

a load device maintained in a conductive state;

a first uniconductivity type MOS transistor having a gate to which a voltage substantially equal to Vpp/2 is applied, said first uniconductivity type MOS transistor having a substrate electrode connected to a power supply voltage Vpp;

a second reverse-conductivity type MOS transistor having a gate to which a voltage substantially equal to Vpp/2 is applied; and

a third reverse-conductivity type MOS transistor having a gate to which the logical input is applied,

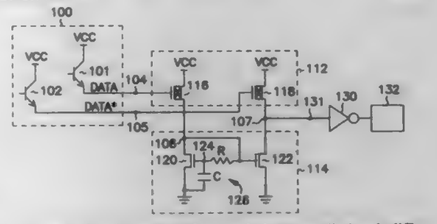
wherein the load device and the first through third MOS transistors are connected in series in the cited order between the power supply voltage Vpp and a ground and the logical output is taken out of the junction of the first and second MOS transistors.

5,729,156

ECL TO CMOS LEVEL TRANSLATOR USING DELAYED FEEDBACK FOR HIGH SPEED BICMOS APPLICATIONS

Hank H. Lim, Mountain View, Calif., assignor to Micron Technology, Boise, Id.

Filed Jun. 18, 1996, Ser. No. 664,875
Int. Cl.[6] H03K *19/0185*
U.S. Cl. 326—73 **8 Claims**



1. A voltage level translator for translating a small-signal, differential input signal to a large-signal, single-ended output signal, said differential input signal including first and second complementary input signal portions, said voltage level translator comprising:

an input stage including a first input transistor having an input connected to receive said first input signal portion, and an output coupled to an intermediate node; and a second input transistor having an input connected to receive said second input signal portion and an output coupled to an output node;

an output stage including an output transistor having an input coupled to said intermediate node, and an output coupled to said output node; and a control transistor having an output coupled to said intermediate node and an input; said control transistor and said output transistor being connected for operation as a current mirror, and said control transistor and said output transistor being responsive to a transition in a signal at said intermediate node to cause a transition in the output signal; and

a signal feedback network for coupling said intermediate node to said input of said control transistor for delaying the response of said control transistor to transitions in said signal at said intermediate node.

5,729,157

OFF-CHIP DRIVER CIRCUIT

Trevor Monk, Chepstow, United Kingdom, and Curtis Dicke, Colorado Springs, Colo., assignors to SGS-Thomson Microelectronics Limited, Bristol, United Kingdom

Filed Jul. 25, 1995, Ser. No. 506,879
Claims priority, application United Kingdom, Jul. 25, 1994, 9414928
Int. Cl.[6] H03K *19/0175;19/094*
U.S. Cl. 326—80 **29 Claims**

9. An off-chip driver circuit comprising:

a first input terminal;

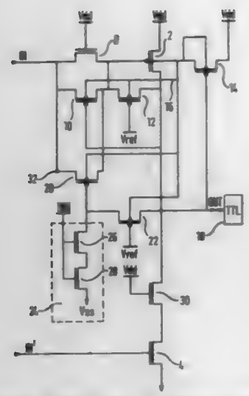
an output terminal;

means for pulling up said output terminal to a source of a first voltage level responsive to a first signal received at a control terminal;

means for passing a signal from the first input terminal to the control terminal of said pull-up means, said passing means being responsive to a second signal and to a voltage at said output terminal;

control means for coupling said output terminal to the control terminal of said pull-up means to supply the first signal when said output terminal has an applied voltage equal to or greater

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than a second voltage level, the second voltage level being higher than the first voltage level; and

first pull-down means for controlling said passing means to pass a signal from the first input terminal to the control terminal of said pull-up means when said output terminal has an applied voltage less than the second voltage level;

wherein at least the passing means passes or the control means couples when a voltage between the first voltage level and the second voltage level is applied to the output terminal.

5,729,158

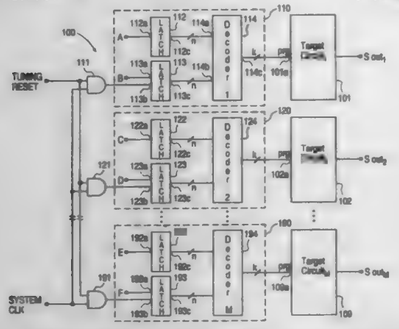
PARAMETRIC TUNING OF AN INTEGRATED CIRCUIT AFTER FABRICATION

Sathyanandan Rajivan, San Jose, and Raoul B. Salem, Redwood City, both of Calif., assignors to Sun Microsystems, Inc., Palo Alto, Calif.

Filed Jul. 7, 1995, Ser. No. 499,716

Int. Cl.° H03K *19/0175*

U.S. Cl. 326—87 **3 Claims**



1. A tuning controller useful in tuning a target circuit of an integrated circuit (IC), which has at least one target parameter functioning outside of a proper operating range of values due to the IC fabrication process comprising:

a decoder for generating a tuning signal from a tuning pattern provided to said decoder;

a storage element coupled to said target circuit configured to receive said tuning signal and hold said tuning signal while said target circuit operates;

a tunable portion coupled to said storage element configured to receive said tuning signal and generate a desired circuit parameter to modify said tunable portion; and

a functional portion coupled to said tunable portion which generates target parameters within the proper operating range of values when said tunable portion is modified.

5,729,159

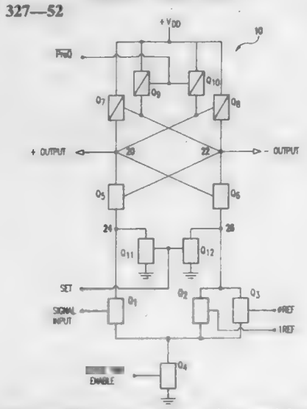
MULTIPLE REFERENCE SENSE AMPLIFIER

John E. Gersbach, Burlington, Vt., assignor to International Business Machines Corporation, Armonk, N.Y.

Continuation of Ser. No. 582,222, Jan. 3, 1996, abandoned, which is a continuation of Ser. No. 386,238, Feb. 9, 1995, abandoned. This application Sep. 4, 1996, Ser. No. 707,366

Int. Cl.° G01R *19/00*

U.S. Cl. 327—52 **2 Claims**



2. A sense amplifier for amplifying a bit signal from a memory array, comprising:

a first current path connected between a voltage source and ground;

a second current path connected between said voltage source and ground;

an input transistor connected in said first current path for receiving said bit signal from the memory array;

a plurality of reference transistors connected in parallel in said second current path and each connected to receive a respective reference voltage, wherein each of said plurality of reference transistors has a channel dimension smaller than that of said input transistor such that a current flow through said first current path is greater than a current flow through said second current path according to a value of said bit signal;

a latch connected to be discharged through said first current path and through said second current path for outputting a full logic level output for said bit signal and a full logic level complement for said bit signal; and

a pair of transistors for resetting said latch.

5,729,160

SELF-TIMED CIRCUIT CONTROL DEVICE AND METHOD

Graham A. Allan, Stittsville, Canada, assignor to Mosaid Technologies Incorporated, Kanata, Canada

Filed Jul. 20, 1994, Ser. No. 277,580

Int. Cl.° H03K *3/356;0/013;* **G11C** *8/00*

U.S. Cl. 327—54 **18 Claims**

1. A self-timed electric circuit, comprising:

a first electric circuit portion having a plurality of output terminals with corresponding output signals, each of the output signals representing a logic state, the first electric circuit portion having a switch means for enabling said first electric circuit portion when the switch means is turned on and for disabling said first electric circuit portion when the switch means is turned off

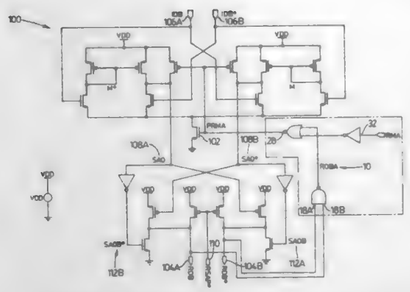
an external input terminal, the external input terminal having a corresponding external input signal;

a second electric circuit portion having:

(a) sensing means for detecting a change in any one of said output signals of the first electric circuit portion, the change corresponding to a change in the logic state represented by said any one output signal, the sensing means having input terminals and an output terminal, said input terminals each being connected to a respective output terminal of said first circuit portion, each of said connected input terminals of the sensing means receiving an input signal constituting the respective output signal corresponding to each output terminal of the first electric circuit portion, the sensing means constituting means for performing the equivalent of a NAND logic function on each logic state corresponding to the respective input signal of the sensing means; and

(b) immobilizing means responsive to said sensing means for disabling the first electric circuit portion by turning off the switch means, the immobilizing means having an input terminal connected to the output terminal of the sensing means and having an output terminal connected to the switch means of said first electric circuit portion;

wherein the immobilizing means disables the first electric circuit portion when the sensing means detects said change in the logic state represented by said any one output signal of the first electric circuit portion and when said any one output signal has acquired a value corresponding to a predetermined logic state, the sensing means constituting means for overriding the effect of the external input signal to the switch means of the first electric circuit portion, which external input signal would otherwise be effective to turn on the switch means.



a second current source coupled to said second differential pair, said second current source generating temperature-independent current for driving said second differential pair.

5,729,162

INTEGRATED CIRCUIT MEMORY WITH COLUMN VOLTAGE HOLDING CIRCUIT

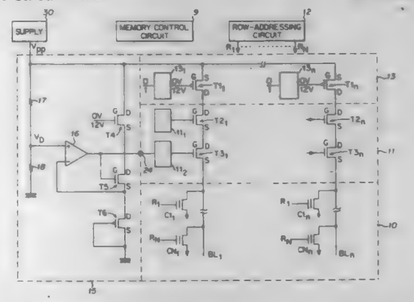
Olivier Rouy, Brossolette, France, assignor to SGS-Thomson Microelectronics S.A., Saint Genis, France

Division of Ser. No. 402,519, Mar. 10, 1995, Pat. No. 5,610,860. This application Mar. 4, 1997, Ser. No. 811,358

Claims priority, application France, Mar. 31, 1994, 94 03844

Int. Cl.° G11C *16/06*

U.S. Cl. 327—103 **10 Claims**



1. A voltage-holding circuit connected to a gate of a transistor for controlling a source voltage of said transistor, said transistor having a drain connected to a transistor voltage source and a source connected to an application circuit, said voltage-holding circuit comprising:

a voltage source providing a signal representing said source voltage;

representing means for representing the voltage and current characteristics of said application circuit; and

a comparison means, having inputs connected to said voltage source and said representing means and having an output connected to said representing means and said gate, for outputting a signal reducing a difference between a voltage of said voltage source and a voltage of said representing means.

5,729,161

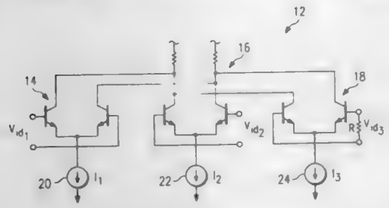
TEMPERATURE-COMPENSATED SUMMING COMPARATOR

Marco Corsi, Dallas, Tex., assignor to Texas Instruments Incorporated, Dallas, Tex.

Filed Aug. 16, 1996, Ser. No. 698,601

Int. Cl.° H03K *5/22;* **H01L** *35/00*

U.S. Cl. 327—65 **10 Claims**



1. A summing comparator, comprising:

a summing comparator output;

at least one first differential pair each receiving a differential voltage input and having an output coupled to the summing comparator output;

a second differential pair receiving a differential voltage input dependent of temperature and having an output coupled to the summing comparator output;

at least one first current source coupled to said at least one first differential pair, said at least one first current source generating temperature-dependent current for driving said at least one first differential pair; and

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5,729,163

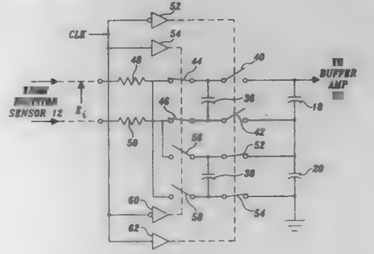
SYNCHRONOUS AC TO DC CONVERSION OF DIFFERENTIAL AC SIGNALS

Rex McCleary, Anacortes, and Daniel Dean Thacker, Sultan, both of Wash., assignors to The Boeing Company, Seattle, Wash.

Continuation of Ser. No. 324,873, Oct. 18, 1994, abandoned. This application Apr. 3, 1996, Ser. No. 627,957

Int. Cl.° G05F *1/10*

U.S. Cl. 327—104 **16 Claims**



VOL 1208 ISS 3 MR 17 1998 UMI

1. A circuit for synchronous AC to DC conversion of a differential AC input signal, said circuit including first and second input terminals and first and second output terminals, said circuit comprising:

first and second capacitors, each having first and second electrodes, said second electrode of said first capacitor being electrically connected to said first electrode of said second capacitor to connect said first and second capacitors in series with one another between said first and second output terminals of said circuit;

first and second switched circuit means, each having first and second input terminals and first and second output terminals, said second output terminal of said first switched circuit means and said first output terminal of said second switched circuit means each being connected to the electrically connected first electrode of said second capacitor and second electrode of said first capacitor, said first output terminal of said first switched circuit means being connected to said first output terminal of said circuit without direct electrical connection to said first output terminal of said second switched circuit means, said second output terminal of said second switched circuit means being connected to said second output terminal of said circuit, said first and second input terminals of said first switched circuit means being connected to said first and second input terminals of said circuit for continuously receiving said differential AC signal supplied to said first and second input terminals of said circuit, said first and second input terminals of said second switched input means being connected to said first and second input terminals of said circuit for continuously receiving said differential AC signal substantially 180° out of phase with said differential AC signal that is supplied to said first and second input terminals of said first switched circuit means, said first and second switched circuit means each being switchable between a first operational state in which the switched circuit means senses the amplitude of the differential AC signal applied to the input terminals of the switched circuit means and a second operational state in which the switched circuit means provides a quantity of electrical charge representative of the signal amplitude sensed during operation in the immediately preceding first operational state, each said first and second switched circuit means being switched between said first and second operational states in response to an applied switch actuator signal, said first switched circuit means further including a third capacitor and said second switched circuit means further including a fourth capacitor, said first switched circuit means further including means for switching said third capacitor into a signal path in which a signal applied between said first and second input terminals of said first switched circuit means causes current to flow through said third capacitor when said first switched circuit means is in said first operational state and for switching said third capacitor so that charge stored in said third capacitor is transferred to said first capacitor each time said first switched circuit means is switched to said second operational state, said second switched circuit means further including means for switching said fourth capacitor into a signal path in which a signal applied between said first and second input terminals of said second switched circuit means causes current to flow through said fourth capacitor when said second switched circuit means is in said first operational state and for switching said fourth capacitor so that charge stored in said fourth capacitor is transferred to said second capacitor each time said second switched circuit means is switched to said second operational state; and

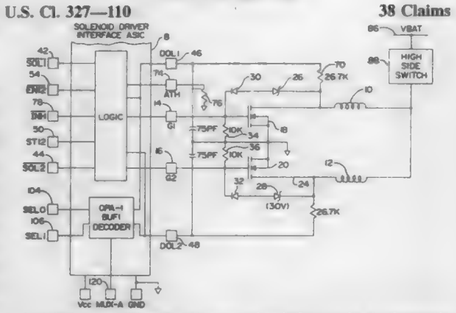
switch drive means for supplying said switch actuator signal to said first and second switched circuit means to switch said first and second switched circuit means between said first and second operational states with said first and second switched circuit means being switched to opposite ones of said first and second operational states in synchronization with said differential AC signal applied to said first and second input terminals of said circuit.

5,729,164

SOLENOID DRIVER INTERFACE CUSTOM INTEGRATED CIRCUIT

Tamas Imre Pattantyus, North Olmsted, Ohio, assignor to AlliedSignal Truck Brake Systems Co., Elyria, Ohio

Filed Jan. 11, 1996, Ser. No. 583,946
Int. Cl.[6] H03K *3/00*
U.S. Cl. 327—110 **38 Claims**



1. An electronic interface custom circuit for use in an electronic control unit used in an anti-lock brake system comprising:

a power field effect transistor for controlling a solenoid valve, said solenoid valve modulating a pressure in brake chambers or brake cylinders in said anti-lock brake system;

a micro-controller device for controlling the operation of said solenoid valve; and

a solenoid driver interface circuit for interfacing between said micro-controller device and said power transistor, said solenoid driver interface circuit including:

a circuit for dynamically attenuating the drain voltage of the power transistor such that the drain voltage is attenuated by a first factor when the power transistor is turned off and by a second factor when the power transistor is turned on.

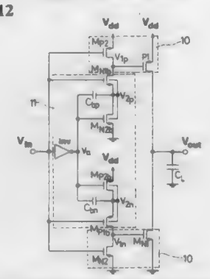
said circuit for dynamically attenuating including a feedback path connected intermediate the drain of the power transistor and logic within said solenoid driver interface circuit.

5,729,165

1.5V FULL-SWING BOOTSTRAPPED CMOS LARGE CAPACITIVE-LOAD DRIVER CIRCUIT SUITABLE FOR LOW-VOLTAGE DEEP-SUBMICRON CMOS VLSI

Jea Hong Lou, Taipei, and James B. Kuo, Yi-Lan, both of Taiwan, assignors to National Science Council, Taipei, Taiwan

Filed Apr. 4, 1996, Ser. No. 627,482
Int. Cl.[6] H03B *1/00*
U.S. Cl. 327—112 **3 Claims**



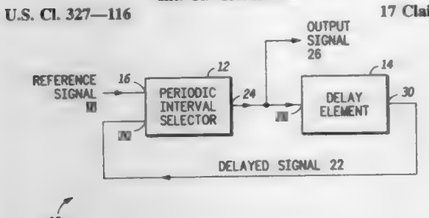
1. A full-swing bootstrapped CMOS large capacitive-load circuit, comprising a fundamental segment and a bootstrapped segment in which the fundamental segment comprises two first P-type metal oxide semiconductor (PMOSs) devices and two first N-type metal oxide semiconductor (NMOSs) devices, and the bootstrapped segment comprises two second PMOSs, two second NMOSs and a first and a second bootstrap capacitors, said two first PMOS of the fundamental segment are driven by said second N-type metal oxide semiconductors (NMOSs) and said first bootstrap capacitor of the bootstrapped segment and said first NMOS of the fundamental segment are driven by the second PMOSs and the second bootstrap capacitor of the bootstrapped segment; the bootstrapped further comprises an inverter of which the output is used to control either one of said second NMOS or one of said second PMOS of the bootstrapped segment to be conducted.

5,729,166

DIGITALLY IMPLEMENTED FREQUENCY MULTIPLICATION CIRCUIT HAVING ADJUSTABLE MULTIPLICATION RATIO AND METHOD OF OPERATION

Michael R. May, Austin, and Michael D. Cave, Pflugerville, both of Tex., assignors to Motorola, Inc., Schaumburg, Ill.

Filed Jun. 10, 1996, Ser. No. 660,779
Int. Cl.[6] H03K *3/72*
U.S. Cl. 327—116 **17 Claims**



1. A digital frequency multiplier, comprising:

a periodic interval selector having a reference signal input for receiving a reference signal, a delayed signal input, and a periodic interval selector output; and

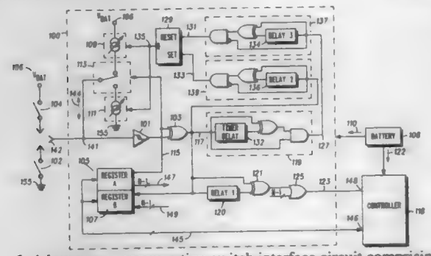
a delay element having an input connected to the periodic interval selector output and a delayed signal output connected to the delayed signal input, the delay element comprising an adjustable plurality of logic gates operably connected to produce an adjustable delayed output signal at the delayed signal output with respect to a periodic interval selector output signal at the input of the delay element.

5,729,167

LOW POWER CONSUMPTION SWITCH INTERFACE CIRCUIT

Gregory A. Kujawa, St. Charles; Paul Moraghan, Chicago, and Eugene L. Wineinger, Carol Stream, all of Ill., assignors to Motorola, Inc., Schaumburg, Ill.

Filed Feb. 1, 1996, Ser. No. 595,324
Int. Cl.[6] A01H *1/60*
U.S. Cl. 327—137 **4 Claims**



1. A low power consumption switch interface circuit comprising:

a current source for providing switch current having a magnitude dependent on a state of a current range signal;

an input terminal for conducting the switch current provided by the current source through a switch;

a change-of-state detector for detecting a voltage present at the input terminal, and for providing a sensed switch signal having a state dependent on a magnitude of the voltage;

an interrupt generation circuit for generating an interrupt signal dependent on the sensed switch signal;

a timer that outputs a measured pulse, triggered by the sensed switch signal; and

a current range selector, coupled between the timer and the current source, for outputting a first state of the current range signal while the measured pulse is outputted from the timer, and a second state of the current range signal while the measured pulse is not outputted from the timer, wherein responsive to the first state of the current range signal the current source provides the switch current at a first magnitude, and responsive to the second state of the current range signal the current source provides the switch current at a second magnitude.

5,729,168

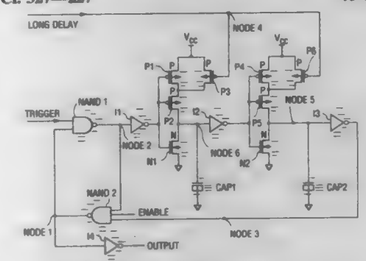
Patent Not Issued For This Number

5,729,169

CONTROLLABLE ONE-SHOT CIRCUIT AND METHOD FOR CONTROLLING OPERATION OF MEMORY CIRCUIT USING SAME

Frankie Roohparvar, Cupertino, Calif., assignor to Micron Quantum Devices, Inc., Santa Clara, Calif.

Filed Jul. 10, 1996, Ser. No. 677,810
Int. Cl.[6] H03K *3/033*
U.S. Cl. 327—227 **40 Claims**



1. A controllable one-shot circuit, including:

a trigger circuit, having a trigger input for receiving a trigger signal and a trigger output for asserting a control signal, and which is configured to produce a first transition of the control signal at the trigger output in response to the trigger signal; and

a reconfigurable delay circuit, having a delay stage input connected to the trigger circuit, a delay stage output connected to the trigger circuit, and a control input which receives a delay selection signal, wherein the reconfigurable delay circuit is configured to assert a delayed trigger signal at the delay stage output with a first delay after the first transition of the control signal when the delay selection signal has a first state and to assert the delayed trigger signal at the delay stage output with a second delay after the first transition of the control signal when the delay selection signal has a second state, and wherein the trigger circuit is configured to produce a second transition of the control signal at the trigger output in response to the delayed trigger signal.

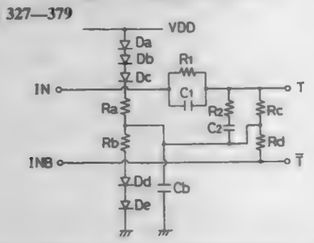
VOL 1208 ISS 3 MR 17 1998 UMI

5,729,170

FREQUENCY DIVIDER

Kazuya Yamamoto, Itami, Japan, assignor to Mitsubishi Denki Kabushiki Kaisha, Tokyo, Japan

Filed Dec. 9, 1992, Ser. No. 987,700
Claims priority, application Japan, May 28, 1992, 4-164232
Int. Cl.[6] H03K 5/00;21/02
U.S. Cl. 327—379 11 Claims



1. An input buffer circuit for a frequency divider comprising:

a bias circuit including a first plurality of diodes connected in series, the series-connected first plurality of diodes having first and second end terminals, the first end terminal being connected to a power supply voltage terminal, at least first and second resistors connected in series to each other at a first junction, the series-connected first and second resistors having third and fourth end terminals, the third end terminal being connected to the second end terminal, and a second plurality of diodes connected in series, the second plurality of diodes having fifth and sixth end terminals, the fifth end terminal being connected to the fourth end terminal, and the sixth end terminal being connected to a ground;

an input signal terminal for receiving an input signal to be supplied to a frequency divider;

a reference input terminal for receiving a reference signal;

an output signal terminal;

a reference output terminal connected to the reference input terminal;

an analog filter connected between the input signal, reference input, and reference output terminals, the analog filter having a 3 dB cut-off frequency approximately equal to a self-running oscillation frequency of a frequency divider to which signals at the output signal and reference output signal terminals are supplied;

third and fourth resistors connected in series to each other at a second junction, the series-connected third and fourth resistors having seventh and eighth end terminals, the seventh end terminal being connected to the output signal terminal and the eighth end terminal being connected to the reference output terminal, the first and second junctions being connected together; and

a capacitor connecting the first and second junctions to ground.

5,729,171

PREAMPLIFIER WITH ADJUSTABLE INPUT RESISTANCE

Timothy B. Straw, New London, and Patricia M. Eno, Noank, both of Conn., assignors to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

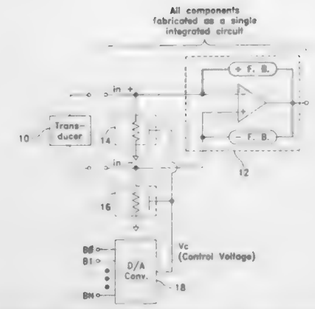
Filed Jun. 1, 1992, Ser. No. 891,119
Int. Cl.[6] H03B 1/00
U.S. Cl. 327—581 2 Claims

1. Underwater sounds apparatus for the processing of acoustical signals comprising:

a capacitive sensor for transforming the acoustical signals to an electrical signal, said sensor having an impedance on the order of 10 to 1000 picofarads;

preamplifier means;

a first metal oxide semiconductor field effect transistor (MOSFET) connected to a first of a pair of input terminals of said



preamplifier means, said transistor also being connected to an output of said sensor;

control signal generator means connected to said first MOSFET, said control signal generator means providing a selectively variable gate voltage which causes said MOSFET to operate in the triode region whereby the transistor is effectively a variable resistance, said first MOSFET being of one of the n-enhancement and p-enhancement types; and

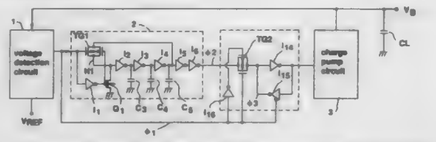
second and third MOSFETs of the other enhancement type with the second MOSFET having its source and back gate directly connected to said control signal generator and its gate connected to the gate of the first MOSFET with the third MOSFET having its drain connected to ground and its source and back gate connected to the gate of the first MOSFET, said second and third MOSFETs defining an active MOSFET linearization network to thereby enhance linearization of said first MOSFET's triode operation region, said first MOSFET, said linearization network, and said sensor mutually cooperating to provide a substantially distortionless high-pass filter at frequencies above the inverse product of the capacitance of said sensor and the resistance of said first MOSFET wherein said high-pass filter provides a distortion roll-off of approximately 20 db per decade of frequency at frequencies greater than said inverse product and distortion no greater than 0.014% at frequencies greater than said inverse product.

5,729,172

BOOSTER CIRCUIT CAPABLE OF SUPPRESSING FLUCTUATIONS IN THE BOOSTED VOLTAGE

Shyuichi Tsukada, Tokyo, Japan, assignor to NEC Corporation, Tokyo, Japan

Filed Jan. 31, 1996, Ser. No. 594,170
Claims priority, application Japan, Feb. 1, 1995, 7-014843
Int. Cl.[6] G05F 1/10
U.S. Cl. 327—536 3 Claims



1. A booster circuit for obtaining a boosted voltage for use in a semiconductor integrated circuit device, comprising:

a voltage detection circuit for detecting the level of a boosted voltage with respect to a reference voltage;

a pulse oscillation circuit that generates an oscillating pulse when the boosted voltage is lower than the reference voltage and halts generation of an oscillating pulse when the boosted voltage is higher than the reference voltage in accordance with a detection output signal received from the voltage detection circuit;

a transfer circuit receiving the oscillating pulse from the pulse oscillation circuit and controlling transfer of the oscillating

pulse through the transfer circuit in accordance with the detection output signal received from the voltage detection circuit; and

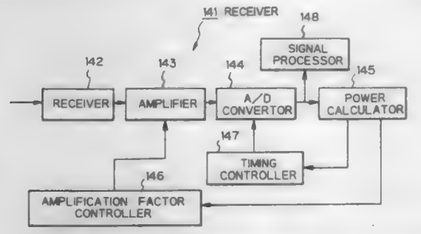
a charge pump circuit located downstream of the transfer circuit, said charge pump circuit operable for charging capacitors using the oscillating pulse transferred by said transfer circuit to thereby generate said boosted voltage.

5,729,173

DEMODULATION OF QUADRATURE AMPLITUDE MODULATED SIGNALS

Yoichi Sato, Chiba-ken, Japan, assignor to Taisei Electric Incorporation, Itami, Japan

Filed Jun. 18, 1996, Ser. No. 668,374
Claims priority, application Japan, Sep. 20, 1995, 7-241270; Mar. 29, 1996, 8-092393
Int. Cl.[6] H04L 27/38
U.S. Cl. 329—308 10 Claims



7. A method of detecting transmitted symbols from a received signal comprising the steps of:

calculating a sum of the power of a first discrete signal produced by sampling the received signal at periods equal to transmission intervals of transmitted symbols and the power of a second discrete signal produced by sampling the received signal at sampling timing shifted by one half of the transmission interval with respect to said first discrete signal; and

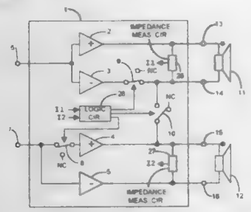
controlling an amplification factor for the received signal based on said sum.

5,729,174

CIRCUIT ARRANGEMENT FOR TRANSMITTING AUDIO SIGNALS

Joachim Dünnebacke, Herborn, and Dirk Schwantes-Roy, Wetzlar, both of Germany, assignors to U.S. Philips Corporation, New York, N.Y.

Filed Jun. 27, 1996, Ser. No. 673,832
Claims priority, application European Pat. Off., Jul. 12, 1995, 19525410
Int. Cl.[6] H03F 3/68
U.S. Cl. 330—51 6 Claims



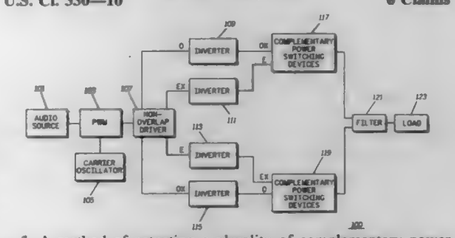
1. A circuit arrangement for transmitting audio signals, having a signal amplifier comprising four power amplifiers each having an input and an output, of which a first and a third of said four power amplifiers are non-inverting for applied audio signals and a second and a fourth of said four power amplifiers are inverting, the inputs of the first and second power amplifiers receiving a first audio signal and the inputs of the third and fourth power amplifiers receiving a second audio signal, wherein, in a first configuration mode for audio signals of low amplitude, the first and fourth power amplifiers each form a single-ended amplifier and the outputs of the second and/or the third power amplifier carry a reference potential, and wherein, in a second configuration mode for audio signals of higher amplitude, the first and second power amplifiers form a first bridge amplifier and the third and fourth power amplifiers form a second bridge amplifier, the outputs of the first and second power amplifiers being connectable to a first signal sink and the outputs of the third and fourth power amplifiers being connectable to a second signal sink, said circuit arrangement further comprising means for automatically changing over said circuit arrangement to the second configuration mode if the signal sinks include further amplifier arrangements.

5,729,175

METHOD OF DRIVING A CLASS D AUDIO POWER AMPLIFIER USING NON-OVERLAPPING EDGE DRIVE SIGNALS

Enrique Ferrer, Miami, Fla., assignor to Motorola Inc., Schaumburg, Ill.

Filed Apr. 26, 1996, Ser. No. 638,626
Int. Cl.[6] H03F 3/38
U.S. Cl. 330—10 6 Claims



1. A method of actuating a plurality of complementary power devices in an audio switching amplifier for preventing current spikes comprising the steps of:

actuating and deactuating at least one power device in a first complementary amplifier pair used for amplifying an audio signal;

actuating and deactuating at least one power device in a second complementary amplifier pair used for amplifying an audio signal; and

wherein the at least one power device in the first complementary pair and the at least one power device in the second complementary pair are actuated and deactuated in a predetermined sequence using a plurality of logic state transposing inverters for preventing more than one power device within the first complementary pair and the second complementary pair from being simultaneously actuated during a switching transition to reduce current spikes through either complementary pair.

5,729,176

LINEAR DIFFERENTIAL GAIN STAGE

William Eric Main, Mesa, and Jeffrey C. Durec, Chandler, both of Ariz., assignors to Motorola, Inc., Schaumburg, Ill.

Filed May 3, 1996, Ser. No. 642,378
Int. Cl.[6] H03F 3/45;1/14
U.S. Cl. 330—252 15 Claims

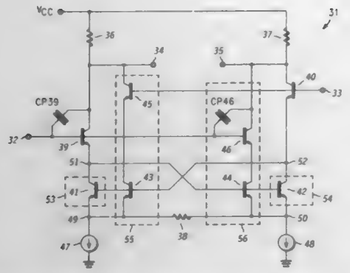
15. A method of canceling a complex impedance of a linear transconductance stage without affecting a gain of the stage, the method comprising the steps of:

generating a first compensation current in response to a change in voltage at a second output;

canceling a first input current of a first input by coupling said first compensation current to the first input;

generating a second compensation current in response to a change in voltage at a first output; and

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canceling a second input current of a second input by coupling said second compensation current to the second input.

5,729,177

COMMON MODE RAIL-TO-RAIL AMPLIFIER WITH A CONSTANT TRANSCONDUCTANCE

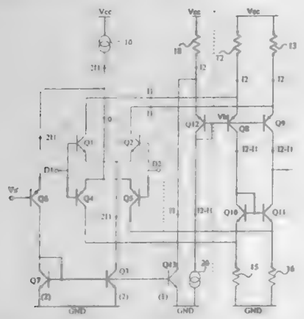
Frédéric Goutti, Grenoble, France, assignor to SGS-Thomson Microelectronics S.A., Saint Genis, France

Filed Dec. 18, 1995, Ser. No. 574,027

Claims priority, application France, Dec. 21, 1994, 94 15672

Int. Cl.° H03F *3/45*

U.S. Cl. 330—257 **6 Claims**



5. A method for biasing an amplifier, comprising steps of:

selectively establishing and disestablishing a quiescent current in an input stage;

providing to an output stage a bias current dependent on the quiescent current in the input stage;

maintaining the bias current constant during the step of selectively establishing and disestablishing.

5,729,178

FULLY DIFFERENTIAL FOLDED CASCODE CMOS OPERATIONAL AMPLIFIER HAVING ADAPTIVE BIASING AND COMMON MODE FEEDBACK CIRCUITS

Hong-June Park, Pohang-shi, and Jae-Yoon Sim, Kwangju, both of Rep. of Korea, assignors to Postech Foundation, Rep. of Korea

Filed Apr. 3, 1996, Ser. No. 626,817

Claims priority, application Rep. of Korea, Apr. 4, 1995, 95-7824

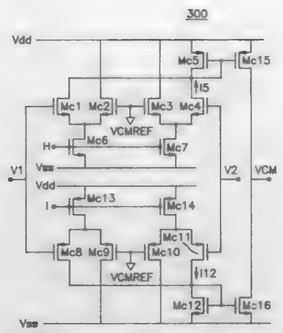
Int. Cl.° H03F *3/45*

U.S. Cl. 330—258 **4 Claims**

1. A common mode detector, in response to a first input signal, a second input signal and a common mode reference voltage, for providing an output voltage signal proportional to a common mode voltage which is an average value of the first and the second input signals subtracted by the common mode reference signal, the detector comprising:

a nMOS input stage differential amplifier and a pMOS input stage differential amplifier which are connected in parallel, wherein the nMOS and the pMOS input stage differential amplifiers provide a first and a second current outputs, respectively, which are proportional to the common mode voltage; and

a push-pull CMOS amplifier for converting the first and the second current outputs to the output voltage signal.



5,729,179

VARIABLE FREQUENCY DIVIDER

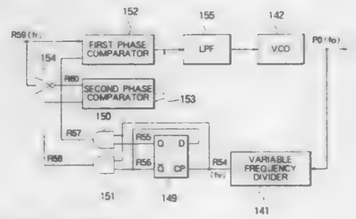
Yasuaki Sumi, Tottori, Japan, assignor to Sanyo Electric Co., Ltd., Moriguchi, and Tottori Sanyo Electric Co., Ltd., Tottori-ken, both of Japan

Filed Sep. 26, 1996, Ser. No. 718,000

Claims priority, application Japan, Sep. 28, 1995, 7-251453; Nov. 22, 1995, 7-304341; Jan. 9, 1996, 8-001644; Jan. 12, 1996, 8-004215; Jan. 17, 1996, 8-005769

Int. Cl.° H03L *7/087;7/18;* **H03K** *21/00*

U.S. Cl. 331—12 **17 Claims**



17. A PLL comprising:

a voltage controlled oscillator;

a variable frequency divider for frequency dividing an output of the voltage controlled oscillator by a frequency division ratio N+½ (N being an integer);

a separating means for separating output pulses from said variable frequency divider into odd-numbered pulses and even-numbered pulses;

a first phase comparator for comparing a phase of a reference signal with a phase of said odd-numbered pulses;

an inverter for inverting said reference signal;

a second phase comparator for comparing a phase of an output of said inverter and a phase of said even-numbered pulses; and

a low-pass filter for converting outputs of said first and second phase comparators into a control voltage and applying the control voltage to said voltage-controlled oscillator.

5,729,180

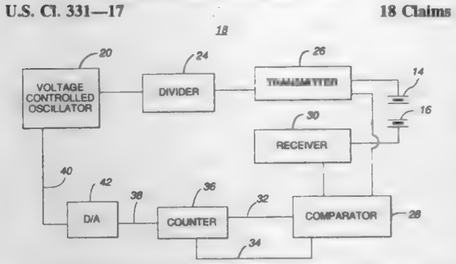
CONTROL OF VCO IN ULTRASONIC FLOW METER

Alvin E. Brown, Santa Cruz, Calif., assignor to Dieterich Technology Holding Corp., Boulder, Colo.

Filed Oct. 4, 1996, Ser. No. 726,094

Int. Cl.° G01F *1/66;* **H03L** *7/00*

U.S. Cl. 331—17 **18 Claims**



1. An apparatus for controlling a voltage controlled oscillator in an ultrasonic flow meter, comprising:

a comparator comparing a received signal and an estimate signal;

a counter receiving an early-late signal from the comparator; and

a digital to analog converter receiving a count signal from the counter and having a control voltage output coupled to the voltage controlled oscillator.

5,729,181

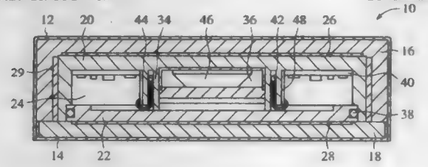
HIGH THERMAL GAIN OVEN WITH REDUCED PROBABILITY OF TEMPERATURE GRADIENT FORMATION FOR THE OPERATION OF A THERMALLY STABLE OSCILLATOR

Leonard S. Cutler, Los Altos; Richard K. Karlquist, Cupertino; James R. Collin, Palo Alto; James L. Johnson, Morgan Hill; Theodore Parisek, San Jose, and Robin P. Giffard, Los Altos, all of Calif., assignors to Hewlett-Packard Company, Palo Alto, Calif.

Filed Aug. 23, 1996, Ser. No. 702,075

Int. Cl.° H03B *5/32;* **H03L** *1/04*

U.S. Cl. 331—69 **18 Claims**



1. An oven assembly for an oscillator comprising:

a cylindrical encasement defining a sealed oven chamber having a substantially circular cross section to promote thermal symmetry along said cross section;

a thermally conductive cylindrical oven mass located within said oven chamber to provide a thermal reservoir, said oven mass having a substantially circular cross section that is generally concentric with said circular cross section of said encasement, said oven mass being unitary with a portion of said encasement;

a crystal located within said oven mass in thermal engagement with said thermal reservoir;

a heater connected to said encasement to heat said oven chamber; and

at least one heat sensor located within said oven chamber for monitoring temperature.

5,729,182

DEVICE FOR CONTINUOUS PHASE MODULATION BY FREQUENCY SYNTHESIZER WITH PHASE-LOCKED LOOP

Lionel Fousset, Athis-Mons; Marc Chelouche, Sannois; Jean-Luc De Gouy, Briis sous Forges, and Laurent Collin, Paris, all of France, assignors to Thomson-CSF, Paris, France

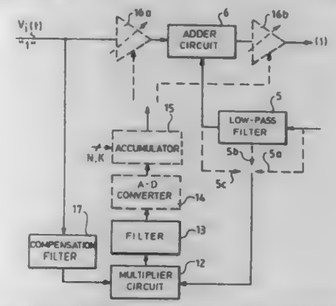
PCT No. PCT/FR95/00129, § 371 Date Aug. 7, 1996, § 102(e) Date Aug. 7, 1996, PCT Pub. No. WO95/22196, PCT Pub. Date Aug. 17, 1995

PCT Filed Feb. 2, 1995, Ser. No. 687,327

Claims priority, application France, Feb. 11, 1994, 94 01580

Int. Cl.° H03C *3/00;* **H03L** *7/085;7/16;27/12*

U.S. Cl. 332—100 **5 Claims**



1. A modulation device for continuous phase modulation by a frequency synthesizer, including

an adder circuit with a modulation input, a control input and an output,

a variable oscillator with a control input coupled to the output of the adder circuit to receive a control voltage, and an output,

a slaving loop with an input coupled to the output of the oscillator and an output coupled to the control input of the adder circuit, the slaving loop including

a reference oscillator and, successively between the output and the input of the loop,

a frequency division circuit,

a phase comparator and

a loop filter of low-pass type, having an output in which the comparator compares the output signals of the division circuit and of the reference oscillator, and the loop including at least one of a first modulation access and a second modulation access, wherein said first modulation access consists of an input coupled to the input of the loop filter and said second modulation access consists of a control input for the control of the division circuit, said device further including

means for continuous correction of the modulation residues in the loop, these means including a compensation filter with an input coupled to the modulation input, this compensation filter producing the same filtering effect as the loop, and a correlation circuit with two inputs coupled respectively to the compensation filler and to the loop filter and an output coupled to the control input of the variable oscillator, in order to supply a correction signal.

5,729,183

TUNED GUARD CIRCUIT FOR CONDUCTIVE TRANSMISSION LINES ON A PRINTED CIRCUIT BOARD

Erik A. Schuchmann; Stuart W. Hayes, and Joseph A. Vivio, all of Austin, Tex., assignors to Dell USA, L.P., Round Rock, Tex.

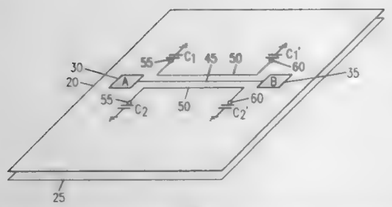
Filed Nov. 27, 1996, Ser. No. 757,359

Int. Cl.° H01P *5/00*

U.S. Cl. 333—1 **15 Claims**

1. For use on a printed circuit board having at least one ground plane and at least two circuit components coupled by a conductive transmission line having an impedance, a guard circuit device comprising:

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two etched conducting guard bands on said printed circuit board disposed on opposite sides of said transmission line and affixed in a spaced parallel relation to said transmission line, said guard bands being of substantially constant width and substantially constant distance from said ground plane and having substantially the same length as said transmission line, and each guard band having a first and a second terminal end; and

a capacitor coupled to said ground plane and connected at each of said first and second terminal ends of each said guard band wherein said guard bands are connected to said ground plane through said capacitors, and wherein said guard circuit device controls the impedance level of said transmission line by varying the capacitance value of said capacitors.

5,729,184

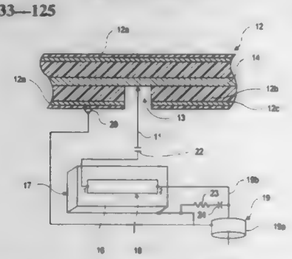
TAP FOR EXTRACTING ENERGY FROM TRANSMISSION LINES USING IMPEDANCE TRANSFORMERS

Wesley R. Paxman, Richardson, and Richard P. Stein, Princeton, both of Tex., assignors to Andrew Corporation, Orland Park, Ill.

Continuation-in-part of Ser. No. 595,362, Feb. 1, 1996. This application May 2, 1996, Ser. No. 640,546

Int. Cl.[6] H03H *7/48*

U.S. Cl. 333—125 **3 Claims**



1. A coaxial tap for coupling electromagnetic energy between first and second coaxial cables, said tap comprising:

a probe extending through the outer conductor of the first cable into contact with the inner conductor of the first cable,

an impedance transformer connecting the probe with the inner conductor of the second cable for coupling electromagnetic signals between the first and second cables, said impedance transformer including a ground plane, said impedance transformer contained in a single housing;

a connector coupled to said second cable, said connector having a shield;

shielding means for shielding the ground plane of the transformer, said shielding means connected between said ground plane and said shield of said connector;

a capacitor coupled to said shield of said connector; and

a resistor connected to said capacitor and to said ground plane for increasing the return loss by lowering the input impedance of the connector.

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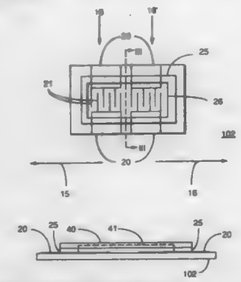
ACOUSTIC WAVE FILTER PACKAGE LID ATTACHMENT APPARATUS AND METHOD UTILIZING A NOVOLAC EPOXY BASED SEAL

Gary Carl Johnson, Tempe; David Patrick Stumbo, Scottsdale; Steven Richard Young, Gilbert, and Michael Anderson, Phoenix, all of Ariz., assignors to Motorola Inc., Schaumburg, Ill.

Filed Apr. 29, 1996, Ser. No. 639,673

Int. Cl.[6] H03H *9/64;* **H01L** *41/00*

U.S. Cl. 333—193 **19 Claims**



9. An acoustic wave filter comprising:

a first wafer, said first wafer capable of supporting acoustic wave transduction and propagation;

transducer patterns disposed on said first wafer; and

a seal ring comprising a novolac epoxy, casting solvent and onium salts in suitable proportions disposed on a surface of said first wafer about an active area of said transducer patterns, said seal ring completely enclosing said active area such that portions of each bond pad of said transducer patterns extend outside of said seal ring.

5,729,186

RESONATOR LADDER SURFACE ACOUSTIC WAVE FILTER SUPPRESSING SPURIOUS SIGNALS

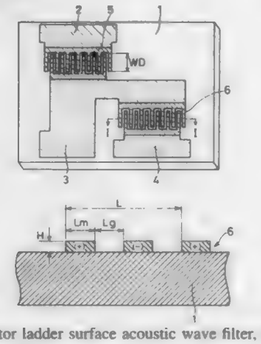
Shun-ichi Seki, Hyogo; Kazuo Eda, Nara; Yutaka Taguchi, Osaka; Keiji Onishi, Osaka; Hiroki Sato, Osaka, and Osamu Kawasaki, Kyoto, all of Japan, assignors to Matsushita Electric Industrial Co., Ltd., Osaka, Japan

Filed Apr. 9, 1996, Ser. No. 629,978

Claims priority, application Japan, Apr. 12, 1995, 7-086840; Aug. 21, 1995, 7-211744

Int. Cl.[6] H03H *9/64*

U.S. Cl. 333—194 **20 Claims**



1. A resonator ladder surface acoustic wave filter, comprising:

a 41°-rotated Y-cut X-propagation lithium niobate substrate;

a serial arm surface acoustic wave resonator on the substrate, having interdigital transducers for exciting a surface acoustic wave;

a parallel arm surface acoustic wave resonator on the substrate, having interdigital transducers for exciting a surface acoustic wave, the interdigital transducers having an electrode cycle;

the interdigital transducers of both the serial arm surface acoustic wave resonator and the parallel arm surface acoustic wave resonator being formed from films of a metal selected from the group consisting of aluminum and aluminum alloy, the films having a thickness ranging from 2.5% to 7.5% of the electrode cycle of the interdigital transducers of the parallel arm surface acoustic wave resonator.

5,729,187

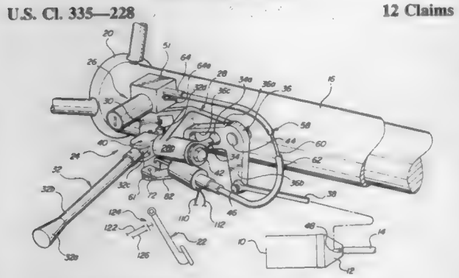
TRANSMISSION SHIFT INTERLOCK

John W. Moody, and Steve R. Hojnacki, both of Clarkston, Mich., assignors to Pontiac Coil, Inc., Waterford, Mich.

Filed Dec. 1, 1995, Ser. No. 565,687

Int. Cl.[6] H01F *7/08*

U.S. Cl. 335—228 **12 Claims**



1. An electromagnetic holding device comprising:

a housing;

an annular electromagnet positioned within the housing and having a central passage therethrough;

an annular armature formed of a ferromagnetic material and having a central aperture;

an elongated tubular stem formed of a non-magnetic material, having a reduced diameter as compared to the armature, centrally secured at one end thereof to the armature with the central passage of the stem coaxial with the aperture of the armature, and positioned slidably in the central passage of the electromagnet with the annular outer portion of the armature radially outwardly of the stem positioned proximate a rear annular face of the electromagnet and the free end of the stem extending forwardly beyond a front annular face of the electromagnet and defining an abutment surface;

a cable extending slidably through the armature aperture and through the tubular stem; and

abutment means on the cable defining an abutment surface rigid with the cable proximate the stem abutment surface, whereby with the electromagnet deenergized the cable is free to move in either axial direction relative to the housing by axial sliding movement within the stem but, with the electromagnet energized and the annular outer portion of the armature held magnetically against the rear annular face of the electromagnet, the cable is free to move axially forwardly relative to the housing by axial sliding movement within the stem but is precluded from moving axially rearwardly relative to the housing by engagement of the abutment surfaces and the magnetic attraction of the armature to the electromagnet.

5,729,188

HOMOGENEOUS FIELD MAGNET WITH AT LEAST ONE POLE PLATE TO BE MECHANICALLY ALIGNED

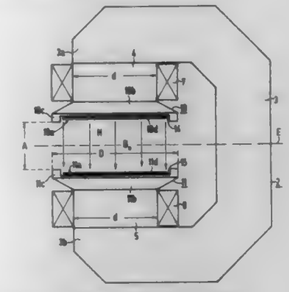
Horst Siebold; Günter Ries, and Rudolf Röckelein, all of Erlangen, Germany, assignors to Siemens Aktiengesellschaft, München, Germany

Filed Nov. 26, 1991, Ser. No. 798,495

Claims priority, application Germany, Nov. 30, 1990, 40 38 265.6

Int. Cl.[6] H01F *7/00*

U.S. Cl. 335—298 **27 Claims**



1. A homogeneous field magnet comprising:

a yoke for carrying a magnetic flux; and

two opposing pole shoes with pole surfaces,

between which an active volume with a magnetic field of great homogeneity is formed, and

which are each profiled on the side facing the active volume,

wherein at least one of the pole shoes contains a pole plate and a base part

said base part faces said yoke, and

said pole plate being axially separated from the base part and forming the pole surface of said at least one of the pole shoes, facing the active volume and can be tilted to correct the magnetic field,

wherein each pole shoe has an edge piece which reduces the reciprocal distance between the pole shoes at its edge area, and the tiltable pole plate of the pole shoe is arranged radially separated from a lateral inner area of the edge piece by a lateral gap.

5,729,189

POSITIVE TCR THERMISTOR DEVICE HAVING SURFACE ROUGHNESS AND FILLING OIL FOR HIGH HEAT TRANSFER CHARACTERISTICS

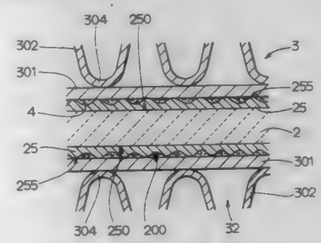
Yasuhiro Oya, Nagoya; Keiichi Yamada, Toyoake; Yasuaki Tsujimura, Okazaki, and Naoto Miwa, Tsushima, all of Japan, assignors to Nippondenso Co., Ltd., Kariya, Japan

Filed Apr. 11, 1996, Ser. No. 630,506

Claims priority, application Japan, Apr. 11, 1995, 7-111143

Int. Cl.[6] H01C *7/10;7/13*

U.S. Cl. 338—22 SD **12 Claims**



1. A positive temperature coefficient of resistance thermistor comprising:

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a heat generator having a positive temperature coefficient of resistance;

an electrode made of metallic paste provided on at least one major surface of said heat generator, said electrode having concave and convex portions at a surface of said electrode and a surface roughness of not more than 20 μm;

an oil layer provided at said concave portions of said electrode, said oil layer including oil having a viscosity of less than 1 m^2/s (1,000,000 cSt) at 25 ° C., and a boiling point, volatiling temperature and decomposing temperature which are higher than a heat generating temperature of said heat generator;

a metallic plate facing a surface of said heat generator, said metallic plate being in electrical contact with said electrode; and

a heat radiating block disposed proximate to said metallic plate, said heat radiating block heating a medium by receiving heat generated by said heat generator.

5,729,190

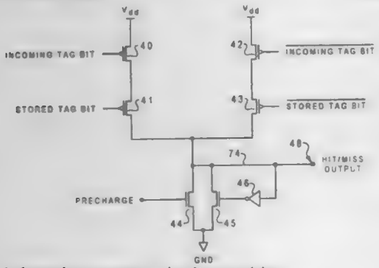
DYNAMIC COMPARATOR CIRCUIT FOR CACHE MEMORIES

Narasimhan Iyengar, and Scott Eliot McCormack, both of Austin, Tex., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Jul. 29, 1996, Ser. No. 688,638

Int. Cl.[6] G06F *7/02*

U.S. Cl. 340—146.2 **11 Claims**



1. A dynamic comparator circuit comprising:

a first transistor connected between an output and a ground, wherein the gate of said first transistor is connected to a precharge signal;

a first set of two transistors connected in series between a power supply and said output, wherein the gates of said first set of two transistors are separately connected to a first bit signal and a second bit signal;

a second set of two transistors connected in series between said power supply and said output, wherein the gates of said second set of two transistors are separately connected to a complement of said first bit signal and a complement of said second bit signal, wherein a transition occurs in an output signal in response to said first bit signal matching said second bit signal.

5,729,191

VEHICLE SECURITY SYSTEM HAVING ENHANCED CONTROL FEATURES

Geoffrey C. Allen, Symrna, and Kenneth E. Flick, Douglasville, both of Ga., assignors to Kenneth E. Flick, Douglasville, Ga.

Filed Apr. 14, 1995, Ser. No. 422,517

Int. Cl.[6] B60R *25/10*

U.S. Cl. 340—426 **25 Claims**

1. A vehicle security system comprising:

a controller for performing a predetermined one of a plurality of functions responsive to receipt of a predetermined command signal; and



a remote transmitter for sending to said controller a predetermined command signal from a plurality of banks of command signals, said remote transmitter comprising

command means comprising a plurality of first momentary contact switches and means associated with each switch of said plurality of first momentary contact switches for transmitting a first respective command signal responsive to depressing each switch for less than a first time period and for transmitting a second respective command signal responsive to depressing each switch for more than the first time period, respective first and second command signals for said plurality of first switches defining a corresponding bank of command signals from the plurality of banks of command signals, and

bank selector means operatively connected to said command means and comprising a second switch and means associated therewith for selecting one of the plurality of banks of command signals for said command means.

5,729,192

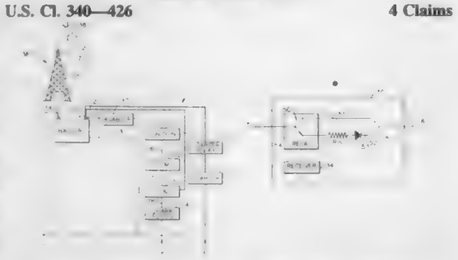
REMOTE AUTOMOBILE DISABLER DEVICE AND ASSOCIATED METHOD

Berkley C. Badger, 324 Westgate Rd., Tarpon Springs, Fla. 34689

Continuation-in-part of Ser. No. 484,234, Jun. 7, 1995, abandoned. This application Dec. 1, 1995, Ser. No. 566,397

Int. Cl.[6] B60R *25/10*

U.S. Cl. 340—426 **4 Claims**



1. A remote disablement device enabling remote disablement of an automobile having an ignition system including ignition components associated with ignition functions of an engine, said remote disablement device comprising:

an ignition circuit connecting electrical power to said ignition components a disabler is connected in the ignition circuit between the positive terminal of a battery and an ignition circuit portion such that a low current capacity portion of the ignition circuit is located between the battery and the disabler;

said disabler having said ignition circuit portion passing current to said ignition components, an obstructing circuit

comprising a bypass circuit bypassing said ignition circuit portion,

including a resistor and a Zener diode for preventing feedback currents disposed within said bypass circuit, and

disposed to be connectable to said ignition components, a selectively operative switch selectively connecting said ignition circuit portion and said bypass circuit to said ignition components, and selectively operable switch means for restoring operation of said ignition circuit in the normal manner; and

a receiver controllably connected to said obstructing circuit within said disabler, said receiver disposed to activate said obstructing circuit to interfere with connection of operating voltage to said ignition components responsive to an external signal received by said receiver.

5,729,193

METHOD OF MONITORING A VEHICLE INTERIOR

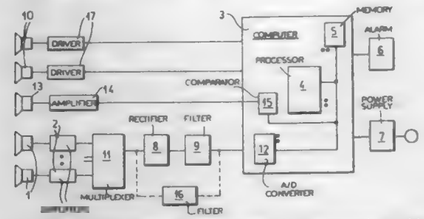
Ullrich Grasmann, Düsseldorf; Michael Bollerott, Essen; Bertram Bresser, Dillingen/Dieffien, and Frank Obergriesser, Spiesen, all of Germany, assignors to Kiekert Aktiengesellschaft, Heilingenhaus, Germany

Continuation of Ser. No. 503,150, Jul. 17, 1995, Pat. No. 5,598,141. This application Jul. 5, 1996, Ser. No. 675,956

Claims priority, application Germany, Jul. 16, 1994, 44 25 177.7

Int. Cl.[6] B60R *25/10*

U.S. Cl. 340—426 **13 Claims**



1. A method of monitoring an interior of an automotive vehicle against an incursion, said method comprising the steps of:

(a) detecting sound waves in said interior;

(b) converting detected sound waves into electrical measurement signals representing the detected sound waves;

(c) amplifying said electrical measurement signals and supplying amplified electrical measurement signals to a computer;

(d) storing in said computer sample signals representing incursion conditions;

(e) automatically in said computer comparing said amplified electrical signals with the stored sample signals in accordance with a test function constituting at least one of an identity test function and a similarity test function; and

(f) automatically with said computer triggering an alarm upon determination of an incursion determined by said test function by comparison of said amplified electrical signals with at least one of the stored sample signals.

5,729,194

BACKUP SYSTEM TO POSITION VEHICLE RELATIVE TO STATIONARY TRAILER DURING BACKING PROCEDURE

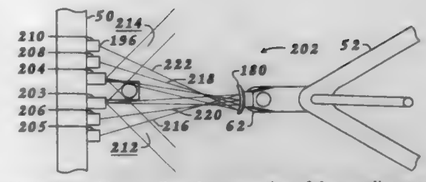
Dan E. Spears, 3515 Westfield Dr., Brandon, Fla. 33511, and Gerald J. Carey, II, 3525 Washington Rd., Valrico, Fla. 33594

Filed Nov. 26, 1996, Ser. No. 756,436

Int. Cl.[6] G08B *21/00*

U.S. Cl. 340—431 **12 Claims**

1. A vehicle backup guidance system to provide for an operator of a vehicle to be informed of a distance measurement and an angular orientation measurement, both measurements indicative of a relative position of a coupling ball member and a coupling member during a backing procedure, the coupling ball member mounted on a rearward end of the vehicle, the coupling member mounted on a forward end of a stationary trailer, the backing procedure to position the vehicle relative to the stationary trailer in



a hitchable position to allow the connection of the coupling member to the coupling ball member, the coupling member of the stationary trailer being a closest object of the stationary trailer to the vehicle during the backing procedure, the vehicle backup guidance system comprising:

a) an autofocus assembly to provide for identifying a closest object within a predetermined sight zone, the sight zone having a center projection line, a maximum angular vertical limit upward from the center projection line, a maximum angular vertical limit downward from the center projection line, a maximum angular horizontal limit right of the center projection line and a maximum angular horizontal limit left of the center projection line, the autofocus assembly mounted on the rearward end of the vehicle in close proximity to the coupling ball member, the sight zone extending rearward from the vehicle with the center projection line horizontally aligned with a center longitudinal axis of the vehicle, the autofocus assembly comprising:

1) distance measurement means to provide for a calculation of a distance measurement from the autofocus assembly to the closest object within the predetermined sight zone during the backing procedure, the calculation returning a distance measurement;

2) angular orientation measurement means to provide for a calculation of an angular offset measurement from the center projection line of the sight zone to the closest object within the predetermined sight zone during the backing procedure, the calculation returning an angular orientation measurement;

b) transfer means to provide for electronically transferring the distance measurement and for electronically transferring the angular orientation measurement;

c) receiving means to provide for receiving the electronically transferred distance measurement and the electronically transferred angular orientation measurement;

d) indication means to provide for informing the operator of the positional placement of the autofocus assembly relative to the closest object within the sight zone during the backing procedure, the indication means receiving the electronically transferred distance measurement and the electronically transferred angular orientation measurement from the receiving means;

whereby the operator is informed of the positional placement of the autofocus assembly, and therefore of the vehicle upon which the autofocus assembly is mounted, and the closest object within the sight zone, and therefore of the coupling member of the stationary trailer, during the backing procedure.

5,729,195

SYSTEM FOR PREVENTING SCATTERING OF FRONT GLASS PIECES DURING A VEHICLE ACCIDENT

Jung-Koo Kang, Kyungki-Do, Rep. of Korea, assignor to Hyundai Motor Company, Seoul, Rep. of Korea

Filed Dec. 27, 1996, Ser. No. 773,701

Claims priority, application Rep. of Korea, Dec. 27, 1995, 95-59722

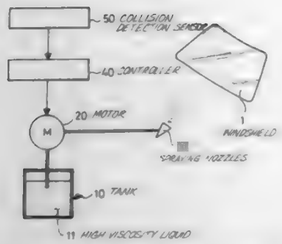
Int. Cl.[6] B60Q *1/00*

U.S. Cl. 340—436 **2 Claims**

1. A system for preventing scattering of glass pieces during a vehicle accident, comprising:

a high viscosity liquid tank disposed in an engine room and filled with a high viscosity liquid;

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a motor for pumping the high viscosity liquid from the high viscosity liquid tank;

a collision detection sensor for detecting a collision of a vehicle;

a controller which receives a signal from the collision detection sensor and controls the motor; and

a plurality of spraying nozzles for spraying the high viscosity liquid pumped and compressed by the motor toward a windshield.

5,729,196

PERSONAL LOCATION AND MESSAGE SYSTEM AND UNIT

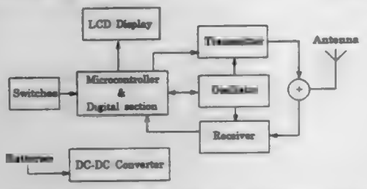
Daniel Aljadeff, Kiriat Ono; Shalom Tsruya, Rishon Lezion; Zohar Azani, Ramat Gan, and Zohar Livni, Raanana, all of Israel, assignors to Tadiran Ltd., Holon, Israel

Continuation of Ser. No. 333,049, Nov. 1, 1994, abandoned. This application Oct. 17, 1996, Ser. No. 733,122

Claims priority, application Israel, Nov. 1, 1993, 107461

Int. Cl.° G08B *26/00*

U.S. Cl. 340—505 **13 Claims**



1. A portable receiving/transmitting unit adapted for cooperation with a Master Station, a plurality of Base Stations, and a plurality of Pagers, said Master Station being capable of broadcasting through the Pagers an identifying signal for identifying an addressee, and first messages appended to said signal, and the Base Stations being capable of receiving an answer-back signal from said addressee and second messages appended thereto and transmitting the answer-back signal and second messages to the Master Station, said portable receiving/transmitting unit comprising:

means for receiving and recognizing the identifying signal identifying the portable receiving/transmitting unit as the addressed and for receiving the first messages appended thereto:

means for conveying said first messages to an operator of the receiving/transmitting unit;

means for the operator to generate said second messages; and

means for transmitting the second messages to the Base Stations, together with the answer-back signal;

wherein said means for receiving and recognizing, said means for conveying, said means for the operator to generate, and said means for transmitting are integrated into said portable receiving/transmitting unit.

5,729,197

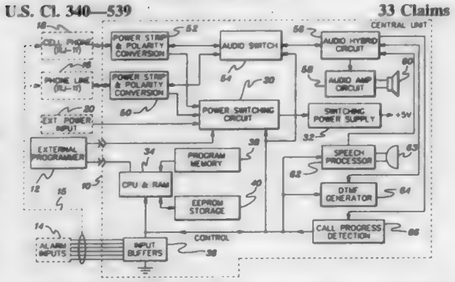
AUTOMATIC, SELF-TRIGGERING ALARM PROCESSING SYSTEM AND METHOD

Jeffrey M. Cash, Bradford, Pa., assignor to Ultra Communications Corporation, Canada

Filed Feb. 22, 1996, Ser. No. 604,849

Int. Cl.° G08B *1/08*

U.S. Cl. 340—539 **33 Claims**



1. An alarm processing system for monitoring at least one sensor unit, each sensor unit providing an alarm signal upon occurrence of a corresponding predefined condition, said alarm processing system comprising:

means for receiving an alarm signal generated by a sensor unit of the at least one sensor unit upon occurrence of the sensor unit's corresponding predefined condition;

means for triggering powering of said alarm processing system upon receipt of said alarm signal, said means for triggering comprising means for automatically transitioning said alarm processing system from a dormant, unpowered state to an active, at least partially powered state, said means for automatically transitioning being responsive to receipt of said alarm signal;

a central processing unit for retrieving from a memory connected thereto a predefined alarm message in response to said alarm signal;

means for designating a selected telecommunications medium from at least two telecommunications medium coupled to said alarm processing system; and

means for automatically sending said predefined alarm message across said selected telecommunications medium.

5,729,198

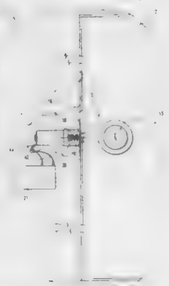
WIRELESS RESIDENTIAL DOOR UNLATCH SYSTEM

Kim Ramsey Gorman, 810 S. Curve St., Alexandria, Ind. 46001

Filed Oct. 25, 1996, Ser. No. 735,978

Int. Cl.° G08B *1/08*

U.S. Cl. 340—539 **16 Claims**



1. A wireless system for hands-free opening of a residential door, comprising:

a door mounted in an opening of a residence, the door having a latch having an extended position for placing the door in a closed, latched condition, and a retracted position for placing the door in a closed, unlatched condition from which the door can be pivoted open, the latch being spring-biased to the extended position; the door further having a handle manually operable to overcome the spring bias of the latch to convert the door from its closed, latched condition to its closed, unlatched condition;

a door jamb adjacent the opening and, mounted in the door jamb, a remotely-operable solenoid/strike plate assembly for converting the door from its closed, latched condition to its closed, unlatched condition without manually operating the handle, the assembly including:

a strike plate having an opening for receiving the door latch when in its extended position, and for releasing the door latch when in its retracted position;

a solenoid unit having a push rod and arranged such that when the solenoid is energized with the door in its closed, latched condition, the push rod extends into the opening of the strike plate, overcomes the spring bias of the door latch and forces the same to its retracted position thereby placing the door in its unlatched condition, and when the solenoid is de-energized the spring bias of the door latch is sufficient to move the push rod to a retracted position and secure the door in its closed, latched condition;

a signal receiver unit operable to energize the solenoid upon receiving a predetermined electromagnetic wave signal, and to de-energize the solenoid in the absence of the signal; and

a transmitter adapted to transmit the electromagnetic signal when actuated;

whereby a user of the system can unlatch the door by manually operating the handle or by actuating the transmitter to allow hands-free opening of the door.

5,729,199

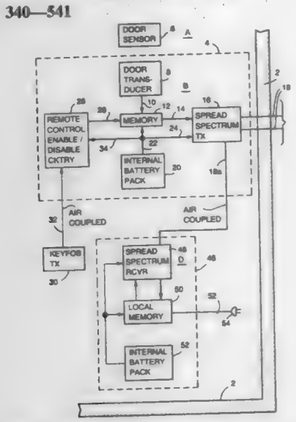
SECURITY SYSTEM FOR A METALLIC ENCLOSURE

Michael N. Cooper, Hewlett, N.Y., and Erik Hoffer, Somerset, N.J., assignors to Consolidated Graphic Materials, Inc., N.J.

Filed Jun. 6, 1996, Ser. No. 656,932

Int. Cl.° G08B *13/00*

U.S. Cl. 340—541 **11 Claims**



1. A system for monitoring the occurrence of an event occurring with respect to an essentially metallic enclosure and adversely affecting the security of said enclosure which comprises means for detecting the occurrence of said event, means within said enclosure operatively connected to said detector means for producing a radiation signal of the spread spectrum type indicative of the occurrence and/or non-occurrence of said event, and means outside said enclosure for receiving said signal through the air and providing an indication in the event that the status of said signal reveals that the security of said enclosure is in question.

5,729,200

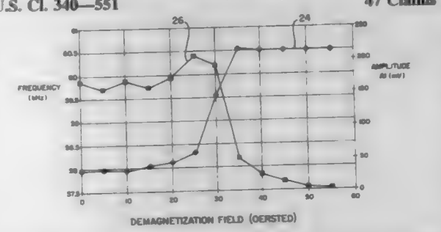
MAGNETOMECHANICAL ELECTRONIC ARTICLE SURVEILLIANCE MARKER WITH BIAS ELEMENT HAVING ABRUPT DEACTIVATION/MAGNETIZATION CHARACTERISTIC

Richard L. Copeland, Boca Raton, and Kevin R. Coffey, Delray Beach, both of Fla., assignors to Sensormatic Electronics Corporation, Boca Raton, Fla.

Filed Aug. 28, 1996, Ser. No. 697,629

Int. Cl.° G08B *23/181*

U.S. Cl. 340—551 **47 Claims**



30. A marker for use in a magnetomechanical electronic article surveillance system, comprising:

(a) an amorphous magnetostrictive element; and

(b) a biasing element located adjacent said magnetostrictive element;

wherein said biasing element is formed of a semi-hard magnetic material having an AC demagnetization field characteristic such that, if said biasing element is exposed to an AC field having a certain peak amplitude when fully magnetized and not mounted in said marker, said AC field causes a substantial reduction in the level of magnetization of said biasing element; and

when said biasing element is fully magnetized and is mounted in said marker adjacent said magnetostrictive element, and said marker is exposed to an AC field having said certain peak amplitude, said magnetostrictive element diverts magnetic flux from said biasing element so that the magnetization of said biasing element is substantially unaffected by said AC field.

5,729,201

IDENTIFICATION TAGS USING AMORPHOUS WIRE

Christopher Jahnes, Monsey; Richard Joseph Gambino, Stony Brook; Milan Paunovic, Port Washington; Alejandro Gabriel Schrott, and Robert Jacob von Gutfeld, both of New York, all of N.Y., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Jun. 29, 1995, Ser. No. 496,838

Int. Cl.° G08B *13/14*

U.S. Cl. 340—572 **5 Claims**

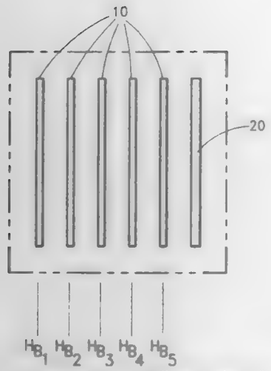
1. A multibit identification tag comprising:

a plurality of magnetic structures, and

one or more bias structures;

each of said magnetic structures being of amorphous metal in the shape of a wire, each of said magnetic structures having the same value of coercive force and wherein each of said plurality of magnetic structures produces a discontinuous

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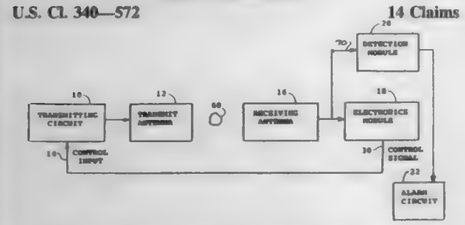
change in magnetization at a different value of an externally applied magnetic field.

5,729,202

ELECTRONIC ARTICLE-SURVEILLANCE APPARATUS AND METHOD OF OPERATING SAME

David P. Klaehn, 104 Three Valleys Drive, Don Mills,Ontario, Canada, M3A 3B9

Filed Aug. 22, 1996, Ser. No. 701,758
Int. Cl.[6] G08B *13/14*
U.S. Cl. 340—572 **14 Claims**



1. For detecting the presence of a marker having low coercivity and high permeability, an electronic article-surveillance apparatus comprising:

a transmitting circuit;

a transmit antenna coupled to said transmitting circuit;

a receiving antenna in operative juxtaposition with respect to the transmit antenna, whereby the transmit antenna under the control of the transmitting circuit can generate, within a controlled area, an electromagnetic signal which is received by the receiving antenna, such that when the marker is located within said controlled area, a disturbance is created in said electromagnetic signal and is picked up by the receiving antenna, the disturbance being the marker signal;

an electronics module receiving the electromagnetic signal picked up by the receiving antenna;

a feedback conduit linking the electronics module with the transmitting circuit, by which the electronics module can provide an input to the transmitting circuit which controls the amplitude of said electromagnetic signal in such a way as to maintain the marker signal at a substantially constant amplitude and shape;

a detection module connected so as to receive said marker signal, said detection module being adapted to analyze the marker signal in accordance with predetermined criteria;

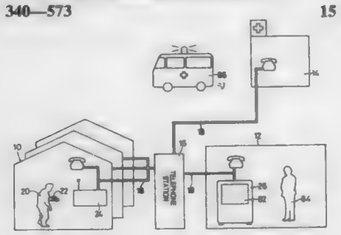
and an alarm circuit connected so as to be actuated by said detection module when the detection module confirms the presence of the marker signal in accordance with said predetermined criteria.

5,729,203

EMERGENCY CALL SYSTEM

Tohru Oka, Ichinomiya, and Hidenori Suzuki, Nagoya, both of Japan, assignors to Colin Corporation, Aichi, Japan

PCT No. PCT/JP94/01036, § 371 Date May 24, 1995, § 102(e) Date May 24, 1995
PCT Filed Jun. 28, 1994, Ser. No. 436,427
Int. Cl.[6] G08B *23/00;* **A61B** *5/04*
U.S. Cl. 340—573 **15 Claims**



1. An emergency call system for transmitting an emergency call of a subscriber to an emergency call center via a communication channel, comprising:

a portable transmitting device having a call button which is operable for transmitting said emergency call of said subscriber, a physical information sensor which obtains a physical information of said subscriber, a memory which stores a batch of physical information detected by said physical information sensor for a predetermined time duration, and a signal transmitter which transmits a signal at a predetermined modulation frequency, said portable transmitting device being adapted to be worn on said subscriber, and transmitting from said signal transmitter an emergency call signal indicative of an operation of said call button and a physical information signal representing said batch of physical information stored in said memory for said predetermined time duration in response to said operation of said call button; and

a signal receiving and call device having a signal receiver which receives said emergency call and physical information signals transmitted from said signal transmitter of said portable transmitting device, and a communication apparatus which transmits the emergency call signal and the physical information signal received by said signal receiver to said emergency call center via said communication channel, in response to reception of the signals by the signal receiver, said signal receiving and call device being disposed in a place where said subscriber,

said portable transmitting device further comprising a wearing sensor which identifies whether said portable transmitting device is worn on said subscriber and outputs a wearing signal indicating that the portable transmitting device is worn on the subscriber, wherein said signal transmitter transmits said wearing signal and said emergency call and physical information signals in response to said operation of said call button.

5,729,204

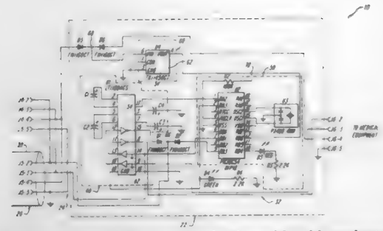
INTELLIGENT CABLE FOR CONTROLLING DATA FLOW

James C. Fackler, Boston; Isaac Kohane, Brookline, both of Mass., and Alton C. Liu, Columbus, Ohio, assignors to Children's Medical Center Corporation, Boston, Mass.

Filed Feb. 15, 1995, Ser. No. 389,311
Int. Cl.[6] H04Q *5/00*
U.S. Cl. 340—825.04 **5 Claims**

1. A cable, for use with a host device and at least one peripheral device, for establishing a data communication pathway therebetween, said host device generating in one mode of operation an identifier signal designating a selected peripheral device, said cable comprising

at least one conductor for carrying said identifier signal,



at least one controller in communication with said conductor and having at least one respective associated peripheral device, for controlling a flow of data signals between the host and peripheral devices,

each said controller being responsive to said identifier signal designating said associated peripheral device, for establishing a bi-directional communication pathway between the host device and the selected peripheral device, and for allowing data to be bi-directionally exchanged between the host and peripheral devices upon establishment of said pathway, and

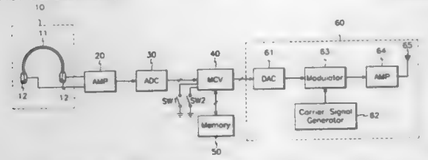
a cable header in circuit with said controller and having transceiver means for converting a data signal traveling along said communication pathway into a format compatible with the host device, and means for supplying back-up power to said cable.

5,729,205

AUTOMATIC TRANSMISSION SYSTEM OF AN EMERGENCY SIGNAL AND A METHOD THEREOF USING A DRIVER'S BRAIN WAVE

Young-Wook Kwon, Kyeongsangnam-do, Rep. of Korea, assignor to Hyundai Motor Company, Seoul, Rep. of Korea

Filed Mar. 7, 1997, Ser. No. 813,656
Int. Cl.[6] G08B *23/00*
U.S. Cl. 340—573 **4 Claims**



1. An automatic transmission system for sending an emergency signal based on a current condition of a human driver's brain wave, comprising:

means for sensing a brain wave generated by the human driver and for converting the brain wave into an electric brain wave signal;

an amplifier for amplifying the electric brain wave signal inputted from the brain wave sensing means;

an analog/digital converter for converting the analog brain wave signal inputted from the amplifier into a digital brain wave signal;

a memory for storing a digitized reference brain wave emergency signal representing a condition when the life of the driver is in danger;

a micro-controller for comparing the digital brain wave signal inputted from the analog/digital converter with the reference brain wave emergency signal stored in the memory, and for producing a first information signal representing the current location of the automatic transmission system and a second information signal representing emergency information when the life of the driver is in danger; and

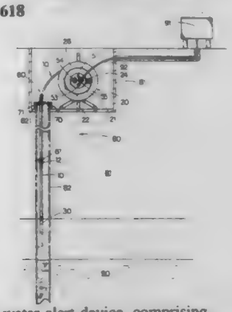
a transmission block for transmitting the first information signal and the second information signal by adding the information signals on a carrier signal of a high frequency.

5,729,206

GROUND WATER ALERT DEVICE

Gary H. Divens, 11650 Moonridge Dr., Whittier, Calif. 90601

Filed Jan. 17, 1997, Ser. No. 784,047
Int. Cl.[6] G08B *21/00*
U.S. Cl. 340—618 **20 Claims**



1. A ground water alert device, comprising

an elongated water proof cable member which has a predetermined length and is inserted into a water level monitoring pipe of a well for a predetermined depth above a water table;

a cable housing for delivering and collecting said cable member;

a water sensor which is electrically connected to a free end of said cable member for lowering into said monitoring pipe to said predetermined depth above said water table; a depth indicator having a plurality of length scales uniformly provided along said cable member to indicate a length of said cable member from said water sensor;

a cable supporter for securing said cable member in place at a top end of said monitoring pipe so as to ensure said predetermined length of said cable member retaining in said monitoring pipe; and

a control circuitry for generating alert signals when said water sensor detects water, in which said control circuitry comprises a function switch for electrically connecting with said cable member and a telephone socket electrically connected with said function switch for selectively connecting with an alarm box by an alarm cable, so that said alarm box is activated to generate an alarm signal when said alarm box detects an electrical short during said water sensor being in contact with water, said function switch comprising a resistor electrically connected between said cable member and said telephone socket, wherein when said function switch is positioned at a monitor position, said resistor is placed in a parallel circuit with said water sensor, so that a low level current is set to flow through said alarm cable, said resistor, and back to said alarm box to form a circuit which is constantly monitored by said alarm box for a resistapce of said resistor, and that said alarm box is activated when said resistance of said resistor is not detected, so that a break in said alarm cable activates said alarm box to generate said alarm signal, moreover when said function switch is not set to said monitor position, said alarm box is also activated to provide said alarm signal.

5,729,207

CORROSIVE GAS DETECTING SENSOR

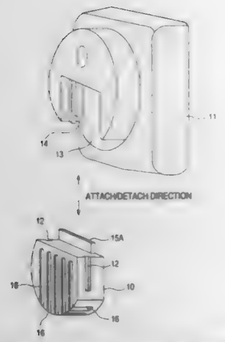
Naoto Yamano, Tokyo, Japan, assignor to Hochiki Corporation, Tokyo, Japan

Filed Dec. 23, 1996, Ser. No. 774,073
Claims priority, application Japan, Dec. 26, 1995, 7-339725
Int. Cl.[6] G08B *17/10*
U.S. Cl. 340—628 **5 Claims**

1. A corrosive gas detecting sensor comprising:

a cartridge having a sensor element and a memory device, said sensor element changing its characteristic property when said sensor element contacts a corrosive gas, said memory storing an initial value of the characteristic property of said sensor element;

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a sensor body having outputting means for detecting a change of the characteristic property of said sensor element when said cartridge is connected to said body and for outputting an indication of a fire when a rate of the change exceeding a preset reference value, said cartridge being detachably attached to said sensor body; and

connecting means for electrically connecting said cartridge with said sensor body when said cartridge is attached to said sensor body.

5,729,208

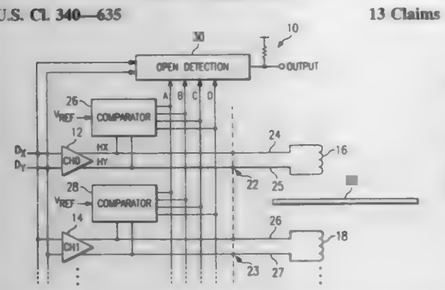
APPARATUS FOR DETECTING OPEN CIRCUIT IN HARD DISK DRIVE

Hisao Ogiwara, Plano, Tex., assignor to Texas Instruments Incorporated, Dallas, Tex.

Filed Oct. 2, 1996, Ser. No. 724,749

Int. Cl.[6] G08B *21/00*

U.S. Cl. 340—635 **13 Claims**



1. An open circuit detection circuit for a hard disk drive magnetic write coil coupled to the output of a write driver, said write driver generating a write head signal in response to write data, comprising:

a comparator coupled to the output of said write driver for comparing said write head signal to a predetermined reference level and generating a comparison output indicative of whether said write head signal is more or less than said predetermined reference level;

a first latch coupled to said comparator, said latch being clocked by said write data for latching said comparison output just prior to a predetermined polarity change in said write head signal, said output from said latch indicative of an open circuit condition.

5,729,209

RADIO SELECTIVE CALL RECEIVER WITH HAVING ELECTRONIC POCKET NOTEBOOK FUNCTION FOR ORGANIZING MESSAGES

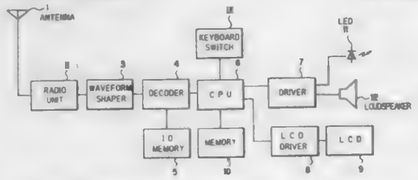
Teruyuki Motohashi, Tokyo, Japan, assignor to NEC Corporation, Tokyo, Japan

Continuation of Ser. No. 139,523, Oct. 20, 1993, abandoned. This application Jul. 13, 1995, Ser. No. 501,910

Claims priority, application Japan, Oct. 26, 1992, 4-287205

Int. Cl.[6] H04Q *7/18*

U.S. Cl. 340—825.44 **20 Claims**



1. A radio selective call receiver with a display, comprising:

storing means for storing at least received messages and retrieval attributes, wherein said retrieval attributes are previously and arbitrarily set by an operator thereof when viewing the received messages, said received messages for retrieval not requiring therein said retrieval attributes wherein a retrieval attribute is selectively added at any time of reading out a received message or when displaying the message at a time of reception;

display means for displaying said received messages and said retrieval attributes;

associating means for associating said retrieval attributes with said received messages; and

retrieving means for selectively retrieving said received messages on the basis of said retrieval attributes,

wherein an added retrieval attribute is selectively changeable or deletable at any time after reception of said message, and

wherein received message, not requiring retrieval, has no retrieval attribute set, thereby to exclude said received message from retrieval messages.

5,729,210

REMOTE OPERATING SYSTEM

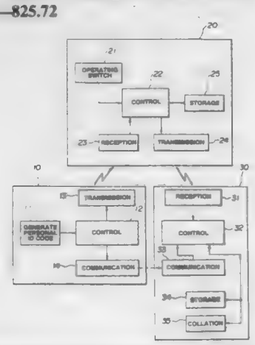
Tetsuaki Kiriyama, Kanagawa, Japan, assignor to Sony Corporation, Japan

Filed Sep. 26, 1995, Ser. No. 533,865

Claims priority, application Japan, Sep. 30, 1994, 6-237049

Int. Cl.[6] H04Q *1/00*; **H04B** *10/00*

U.S. Cl. 340—825.72 **4 Claims**



1. A remote control system for commanding at least one predetermined function in a slave unit, the system comprising:

a user-operable remote control unit for effecting a controlled function in at least one slave unit;

a master control unit having means for generating a unique identification code and for communicating the identification code to the user-operable remote control unit and to said at least one slave unit;

the remote control unit having means for receiving and storing the identification code communicated from the master control unit, means for generating a remote operating signal that includes a function code for executing a user-requested function and the stored ID code, and means for transmitting the remote operating signal over a first communications pathway to said at least one slave unit;

the said at least one slave unit having a first means for receiving the remote operating signal including the identification code and a functional code from the remote control unit via the first communications pathway and having a second means for receiving the identification code from the master control unit via a second communications pathway, the slave unit having means for storing the identification code received via the second communications pathway and for collating the stored identification code with the identification code received via the first communications pathway, the slave unit executing the function commanded by the function code upon successful collation of the identification code received via the first communications pathway and the stored identification code received via the second communications pathway;

the master unit providing another unique identification code to the remote control unit and to the slave unit as a function of the use of the remote control unit.

5,729,211

ASSEMBLY FOR TRANSFERRING DATA

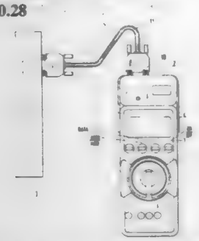
Edmund Reichler; Karl Hochreuther, both of Nürnberg; Uwe Spiess, Amberg; Erhard Lang, Schmidgaden, and Reinhard Staudte, Hirschau, all of Germany, assignors to Gossen Metrawatt GmbH, Nuermberg, Germany

Continuation of Ser. No. 874,534, Apr. 27, 1992, abandoned. This application Mar. 19, 1996, Ser. No. 618,112

Claims priority, application Germany, Apr. 25, 1991, 91 05 087 U; Jul. 6, 1991, 91 08 362 U; Mar. 31, 1992, 42 10 526.9

Int. Cl.[6] G08C *17/00*

U.S. Cl. 340—870.28 **11 Claims**



1. An assembly for transferring data, comprising a portable hand-held multimeter, a measurement data processing unit, and an auxiliary unit for transferring data between said multimeter and said processing unit, contact-less coupling elements operatively associated with said multimeter and said auxiliary unit respectively for transferring data between said multimeter and said auxiliary unit by contact-less coupling, and means for transferring data between said auxiliary unit and said processing unit, said auxiliary unit including a connecting member for mechanically detachably connecting said auxiliary unit with said multimeter such that said contact-less coupling elements face one another at a predetermined spacing and such that said connected multimeter and said auxiliary unit together form a portable unit, wherein said auxiliary unit includes a housing, said connecting member is in the form of an adapter base formed onto said housing, guide and notch elements formed in said adapter base, and wherein said multimeter includes deformations in a surface thereof proportionally corresponding to said guide and notch elements for retaining said multimeter in said adapter base, wherein said coupling elements are opto-electric coupling elements said opto-electric coupling elements operate in an infrared wavelength range and include at least one phototransmitter and at least one photoreceiver, one of said phototransmitter and photoreceiver being associated with said multimeter and said other one with said auxiliary unit, wherein said contact-less coupling elements allow for bidirectional data flow between said multimeter and said auxiliary unit, and wherein said multimeter has a multimeter housing with a contour and a groove formed therein extending parallel to a bottom of said housing, and said adapter base including said walls and a bottom wall forming a clamp-like U-shell, said adapter base further including mutually facing guide rails formed onto free ends of said side walls for slidably engaging in said groove formed in said multimeter housing, and wherein said multimeter housing is formed of infrared translucent material for enabling optical transmission between said coupling elements through a wall of said multimeter housing.

5,729,212

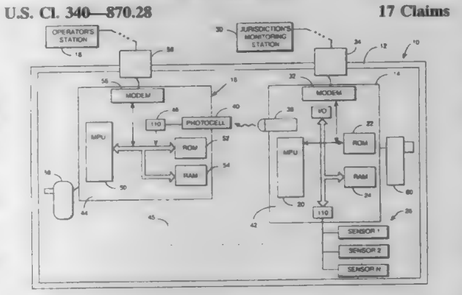
GAMING DEVICE PROVIDING HIGH SECURITY COMMUNICATIONS WITH A REMOTE STATION

John R. Martin, Rockford, Ill., assignor to Arachnid, Inc., Rockford, Ill.

Continuation of Ser. No. 853,503, Mar. 18, 1992, abandoned. This application Nov. 20, 1996, Ser. No. 754,019

Int. Cl.[6] G08B *23/00*

U.S. Cl. 340—870.28 **17 Claims**



1. A gaming device comprising:

a game controller for controlling an operation of said gaming device and for monitoring the operation of said gaming device to provide game operation information representative thereof;

first storage means communicatively coupled to said game controller for storing game operation information;

a transmitter responsive to said game controller for transmitting encoded signals representing selected game operation information;

a receiver for receiving said encoded signals from said transmitter, said receiver being responsive to said encoded signals to generate an electrical signal representative of said selected game operation information;

second storage means communicatively coupled to said receiver for storing said selected game operation information;

first remote communication means communicatively coupled to said first storage means for transmitting game operation information stored in said first storage means to a first remote operator station; and

second remote communication means communicatively coupled to said second storage means for transmitting game operation information stored in said second storage means to a second remote operator station, said second storage means being electrically isolated from said first storage means such that an operator at said second remote operator station cannot access said selected game operation information stored in said first storage means.

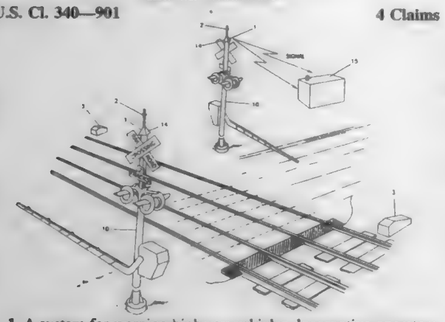
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5,729,213

TRAIN WARNING SYSTEM

John S. Ferrari, and David S. McFarland, both of 8448 W. Union Ave. #24, Littleton, Colo. 80123

Filed Aug. 21, 1995, Ser. No. 517,188
Int. Cl.[6] G08G 1/00
U.S. Cl. 340—901 4 Claims



1. A system for warning highway vehicles, locomotive operators and motorists of the approach of a locomotive and train into a nearby rail/highway crossing, comprising;

a duality of rail trackage mounted pressure sensor electrical switch arrays, said pressure sensor switch array is mounted to the rail trackage, one sensor switch is mounted to the trackage fore and one sensor switch is mounted to the trackage aft of said rail highway crossing, said sensor switch array is connected to an electrical wiring circuit provided at a rail/highway crossing, said sensor switch array completes an electrical circuit when rail traffic enters the rail crossing, and interrupts the electrical circuit when rail traffic exits the crossing; and

a miniature, intermittently active, encased and weatherproofed MHZ multiplex radio frequency transmitter "beacon" unit, powered and hardwired in conjunction with said pressure sensor electrical switch and existing railroad crossing electrical circuitry, the transmitter beacon is mounted to the railroad crossing "crossbuck pole", and said transmitter beacon unit is electrically activated and deactivated by rail traffic activity detected by said rail mounted pressure sensor electrical switch array, said transmitter beacon unit communicates with nearby sympathetic in-vehicle and in-locomotive receivers, said transmitter beacon has a microchip video camera attached, active upon transmitter activation, said transmitter beacon simultaneously provides a companion recordable signal to a centralized, dedicated recording station, which station monitors system performance and fulfillment; and

an encased, miniature sympathetic MHZ radio frequency microprocessor receiver unit for highway motor vehicle use, said receiver unit is provided with an enlarged faceplate, said faceplate fully comprises a motor vehicle rearview mirror, said faceplate contains a multiplicity of symbolic illuminated visual display icons with a series of accompanying simulated electronic voice audio warning messages therewithin, upon receiver receipt of the coded radio signal emanating from said rail crossing transmitter beacon, the visual iconic and audio warning messages are coordinated and displayed to present a combined alert signal to the motor vehicle operator, said receiver is a retrofit to fully replace a motor vehicle rear view mirror, and is hardwired to the motor vehicle primary electrical system; and

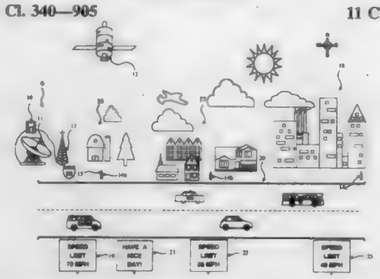
an encased, miniature sympathetic MHZ radio frequency microprocessor receiver unit for in-locomotive use, said receiver unit is provided with a faceplate containing a multiplicity of symbolic illuminated visual display icons, and accompanying simulated electronic voice audio warning messages, upon receiver receipt of the coded radio signal emanating from said rail crossing transmitter beacon, the iconic visual and audio warning messages are co-ordinated and displayed at said receiver to present a combined alert signal to the locomotive and train operator, said receiver is a retrofit for mounting within the cabin of the lead locomotive, and is hardwired to the locomotive electrical system, and said locomotive receiver has an accompanying system event recording means provided, with removable data storage.

5,729,214

CONDITION REACTIVE DISPLAY MEDIUM

Steven Jerome Moore, 9 Sonoma Rd., Cortlandt Manor, N.Y. 10566

Filed Jan. 2, 1996, Ser. No. 581,802
Int. Cl.[6] G08G 1/09
U.S. Cl. 340—905 11 Claims



1. A display system comprising:

a plurality of display mediums; said display mediums having a display transceiver means for receiving aerially-transmitted digitized signal bit streams and for transmitting aerial signals, display medium memory storage means for storing digital data, a display medium processor means electronically coupled with said transceiver means and said display medium memory storage means, said display medium processor means under control of a display medium data program routine stored in said display medium memory storage means for processing and storing data encoded in said digitized signal bit stream, a display means electronically coupled to said display medium processor means capable of visually displaying a non-preset number of images in response to said aerially-transmitted digitized signal bit stream, and a data recognition means electronically coupled to said display processor means for determining if a received transmission contains one or more data keys which are in accordance with a key protocol stored in said display memory storage means and permitting input of data encoded in said digitized signal bit stream into said display processor means only upon verification that such one or more data keys is in accord with said key protocol;

a plurality of condition monitor means for monitoring conditions in the vicinity of said condition monitor means and transmitting an aerial signal with respect to said conditions, said condition monitor means having a transceiver means for transmitting and receiving aerial signals, and a detection means electronically coupled to said transceiver means for detecting ambient conditions;

a central processing means disposed at a remote location from said plurality of mediums having a central processing transceiver means for aerially-transmitting a digitized signal bit stream to, and receiving aerial signals from, said condition monitor means, a central processing memory storage means for storing digital data, a central processing means co-processing means electronically coupled to said transceiver means and said central processing memory storage means, said central processing means co-processing means under control of a central processing data program routine stored in said central processing memory storage means for co-processing said aerial signals from said condition monitor means and effectuating transmission of said digitized signal bit stream in accordance with said central processing data program routine to said display mediums;

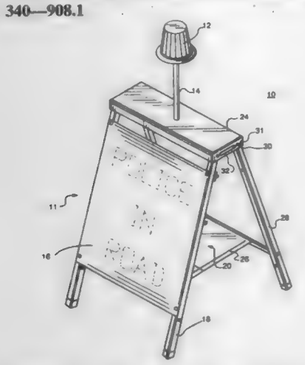
wherein one or more portions of said digital signal bit stream correspond to a command instruction data set interpretable by said display processor means and a data key data set interpretable by said data recognition means, said data key data set portion for unlocking said one or more display medium processor means responsive to said data key data set portion so as to permit reprogramming of said display medium data program routine or broadcast of a message or messages encoded in said digital signal bit stream signal in accordance with said command instruction data set portion of said digitized signal bit stream signal onto said display means of said unlocked display mediums and wherein said data key data set and command instruction data set of said digitized signal bit stream generated by said central processing means is generated in accordance with said central processing data program routine using data transmitted aerially to said central processing means from said plurality of condition monitor means.

5,729,215

BATTERY OPERATED SAFETY STROBE BARRICADE

Richard A. Jutras, 17 Autumn Pond Park, Greenland, N.H. 03840

Filed Aug. 15, 1996, Ser. No. 695,979
Int. Cl.[6] B60Q 7/00; E01F 9/00; G08G 1/00
U.S. Cl. 340—908.1 13 Claims



1. A barricade for providing a warning when a potentially hazardous condition is present, said barricade comprising:

a) a stand comprising:

a substantially rectangular top shelf having four corners;

four substantially identical legs, wherein each leg is pivotally attached to one of said corners of said shelf;

a foldable shelf having an open position and a closed position, said foldable shelf further having two substantially identical sections connected by a hinge, said foldable shelf pivotally connected to said legs, such that when said shelf is in the open position, said stand is self-supporting in an A-frame type of configuration, and when said shelf is in the closed position, said stand may be transported to another location;

a strobe light having an electrical connection;

a telescoping assembly slidably attached between said top shelf and said strobe light such that said strobe light may be raised above said top shelf by pulling on said strobe light to improve the visibility of said strobe light, said telescoping assembly comprising a single sleeve that is rigidly attached to said top shelf and a single post rigidly attached to said strobe light and slidably attached to said sleeve;

a sign, rigidly connected to one pair of legs of said stand; and

b) a battery pack, connectable to said stand via an electrical connection, said battery pack comprising:

a lead acid battery capable of storing an electrical charge, said battery adapted for providing electrical power to said strobe light;

a battery charger connected to said battery for recharging said battery once battery has been discharged from supplying electrical power to said strobe light;

an outlet for providing electrical power from said battery to said strobe light via the electrical connection of said strobe light;

a low voltage disconnect board connected between said outlet and said battery, wherein said disconnect board disconnects said battery from said outlet, once the voltage of said battery drops below a predetermined value;

wherein when said stand is in the open position and said battery pack is electrically connected to said strobe light via the electrical connection connected to said outlet, said sign is capable of displaying a warning message and said strobe light is able to provide a flashing warning light at substantial distances, thus enabling said barricade to provide the warning that the potentially hazardous condition is present; and

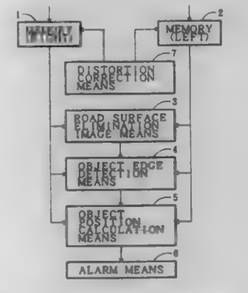
when said stand is in the closed position and said battery pack is disconnected from said outlet, said stand and said battery pack can be separately transported to a new location.

5,729,216

APPARATUS FOR MONITORING VEHICLE PERIPHERY

Kazuyuki Sasaki; Naoto Ishikawa, and Kazutomo Fujinami, all of Susono, Japan, assignors to Yazaki Corporation, Tokyo, Japan

Continuation of Ser. No. 402,179, Mar. 13, 1995, abandoned. This application Apr. 22, 1997, Ser. No. 847,989
Claims priority, application Japan, Mar. 14, 1994, 6-042433
Int. Cl.[6] G08G 1/017
U.S. Cl. 340—937 13 Claims



1. A monitoring apparatus for monitoring the periphery of a vehicle, comprising:

first camera means which outputs first image data representing a view at a first position, and second camera means which outputs second image data to representing a view at a second position, said first camera means and said second camera means being mounted on the vehicle at said first and second positions, respectively, and spaced apart a predetermined distance;

a first memory and a second memory for respectively storing said first image data and said second image data;

road surface image elimination means, for preparing transformed first image data by transforming said first image data stored in said first memory to transformed first image data representing a view at said second position of images of said first image data with the assumption that all the images of said first image data are of no height, and for eliminating road surface images by computing a difference between said transformed first image data and said second image data, producing difference image data;

differentiation means for deriving differential image data differentiated in a horizontal direction from said second image data;

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object edge detection means for detecting edge of an object by executing an AND operation of said difference image data and said differential image data;

object position calculation means for calculating a position of said object from said first and second image data stored in said first and second memories and said edges detected by said object edge detection means; and

alarm means for creating an alarm depending on the position calculated by said object position detection means.

5,729,217

VEHICLE ROUTE GUIDANCE APPARATUS FOR RESEACHING FOR A ROUTE WHEN VEHICLE GOES OUT OF ROUTE

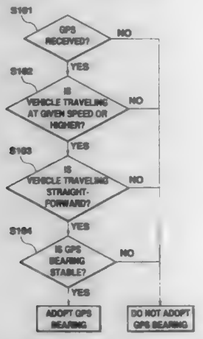
Toru Ito, Nagoya; Akimasa Nanba, Chiryu; Kiyohide Katoh, Chiryu; Shinichi Katoh, Anjo, and Koji Hashimoto, Kariya, all of Japan, assignors to Aisin AW Co., Ltd., Anjo, Japan

Continuation of Ser. No. 95,449, Jul. 23, 1993, Pat. No. 5,559,511. This application Jul. 31, 1996, Ser. No. 688,728

Claims priority, application Japan, Jul. 23, 1992, 4-195777; Aug. 19, 1992, 4-219886; Aug. 19, 1992, 4-219887; Aug. 19, 1992, 4-219913; Aug. 19, 1992, 4-220062; Aug. 19, 1992, 4-220063; Aug. 19, 1992, 4-220092

Int. Cl.[6] G08G *1/123*

U.S. Cl. 340—988 **14 Claims**



1. A vehicle bearing detection system installed on a vehicle for detecting a bearing of the vehicle, comprising:

a plurality of bearing detectors for individually detecting the bearing of the vehicle; and

a switching apparatus for carrying out switching operations to selectively output detection signals from the plurality of bearing detectors as the vehicle bearing responsive to a determination that the vehicle is traveling along a straight line.

5,729,218

ENCODER

Gotthard Lepperdinger, St. Georgen, Austria, assignor to RSF Elektronik Ges.M.b.H, Tarsdorf, Austria

Filed Mar. 20, 1996, Ser. No. 618,695

Claims priority, application Germany, Mar. 23, 1995, 95104264.7

Int. Cl.[6] H03M *1/22*

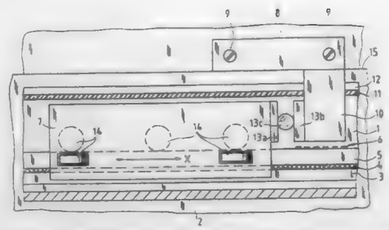
U.S. Cl. 341—15 **8 Claims**

1. An encoder for measuring a relative position between two objects, comprising:

a scale support connected with one of the two objects;

a scanning unit for scanning a scale provided on the scale support;

guide means for supporting the scanning unit for displacement along the scale support independently of displacement of the two objects relative to each other; and



a coupling for rigidly connecting the scanning unit with one of another of the two objects and a carrier connected to the another of the two objects in the measuring direction and for flexibly connecting the scanning unit with the one of another of the two objects and the carrier in directions other than measuring direction;

wherein the coupling comprises a first coupling part connected with the scanning unit, a second coupling part connected with the one of another of the two objects and the carrier, and a third coupling part formed as a ball arranged between the first and second coupling parts, and

wherein the first and second coupling parts have surfaces spaced from each other and extending substantially parallel to each other and substantially transverse to the measuring direction, and the ball is in constant contact with the spaced from each other surfaces of the first and second coupling parts, the ball being held between the spaced from each other surfaces of the first and second coupling parts by magnetic forces.

5,729,219

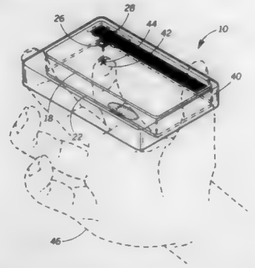
SELECTIVE CALL RADIO WITH CONTRAPOSED TOUCHPAD

Douglas L. Armstrong; Stephen W. Braun, both of Atlanta, and Bradley M. Wilkinson, Decatur, all of Ga., assignors to Motorola, Inc., Schaumburg, Ill.

Filed Aug. 2, 1996, Ser. No. 691,764

Int. Cl.[6] H03K *17/94*

U.S. Cl. 341—20 **9 Claims**



1. A selective call radio, comprising:

a housing having a first surface and a second surface, the first surface being approximately parallel to the second surface;

a display mounted to the housing at the first surface; and

a touchpad mounted to the housing at the second surface.

9. A system for controlling a selective call radio, comprising:

a selective call radio housing;

a touchpad fixed to the selective call radio housing and electrically coupled to the selective call radio, the touchpad having an axis;

a display for displaying a pointer of a graphical user interface, the display fixed to the selective call radio housing and electrically coupled to the selective call radio, the display having a corresponding axis; and

means for interconnecting the display and the touchpad such that a component of touching movement on the touchpad along the axis produces a component of movement of the pointer on the display along the corresponding axis in a reverse direction.

5,729,220

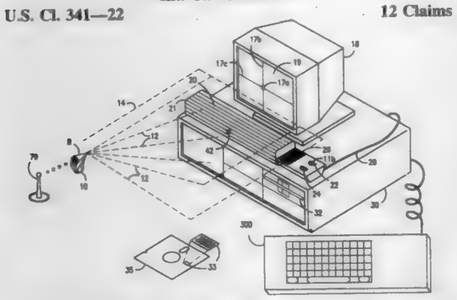
ERGONOMIC CUSTOMIZABLE USER/COMPUTER INTERFACE DEVICE

David C. Russell, 2967 Aldgate Dr., Bloomfield Hill, Mich. 48013

Continuation of Ser. No. 879,374, May 7, 1992, Pat. No. 5,481,265, which is a continuation-in-part of Ser. No. 440,771, Nov. 22, 1989, abandoned. This application Dec. 29, 1995, Ser. No. 581,429

Int. Cl.[6] G06F *3/30*

U.S. Cl. 341—22 **12 Claims**



1. A security system in connection with a wireless user/computer interface device, comprising:

a user interface device for generating and transmitting computer control signals, including:

identifying means for transmitting a unique identifying signal, and

disabling means for disabling transmission of said computer control signals upon receipt of a kill signal; and

a receiver device for receiving said computer control signals, including:

receiving means for receiving said unique identifying signal;

comparison means for comparing said unique identifying signal with a predetermined set of authorized signals,

transmission means for transmitting said kill signal if said unique identifying signal does not match one of said predetermined set of authorized signals, and

control means for transferring said computer control signals to a computer if said unique identifying signal does match one of said predetermined set of authorized signals.

5,729,221

KEYPAD CONFIGURATION

Rudy Krolopp, Lake Zurich; Dominic Errichiello, Roselle, and Thomas C. Reardon, deceased, late of Marengo, all of Ill., by Mary Ann K. Reardon, Legal Representative, assignors to Motorola, Inc., Schaumburg, Ill.

Filed Apr. 1, 1996, Ser. No. 625,382

Int. Cl.[6] H03K *17/94*

U.S. Cl. 341—22 **9 Claims**

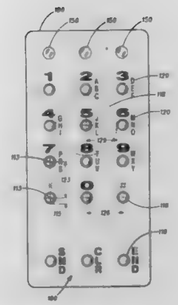
1. A keypad configuration comprising:

a housing;

a push button having a center and a maximum radius situated in the housing; and

a specific area of the housing surrounding the push button having a minimum radius measured from the center of the push button that is at least five times as long as the maximum radius of the push button,

wherein no additional push button lies inside the specific area of the housing.



8. A keypad configuration comprising:

a housing;

an outwardly-projecting push button having a center and a maximum height situated in the housing;

a specific area of the housing surrounding the push button having a minimum radius measured from the center of the push button that is at least two-and-a-half times as long as the maximum height of the push button; and

an illuminated alphanumeric label situated inside the specific area of the housing,

wherein no additional push button lies inside the specific area of the housing.

9. A keypad configuration comprising:

a housing;

a push button having a center situated in the housing;

a specific area of the housing surrounding the push button having a minimum radius of at least 0.250 inches measured from the center of the push button; and

an illuminated alphanumeric label situated inside the specific area of the housing,

wherein no additional push button lies inside the specific area of the housing.

5,729,222

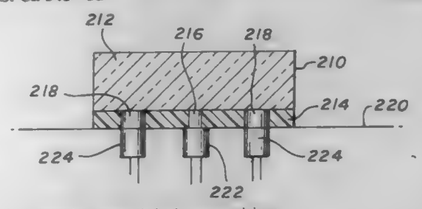
USER-CONFIGURABLE CONTROL DEVICE

Jerry Igguiden, 6345 Balboa Blvd., Suite 175, Encino, Calif. 91316; Richard Crack, Burnaby, Canada; Nigel Taylor, Maple Ridge, Canada; Bruce Stevens; Keith Constable, both of Coquitlam, Canada, and Derek Pyner, Delta, Canada, assignors to Jerry Igguiden, Burbank, Calif.

Continuation of Ser. No. 479,835, Jun. 7, 1995, Pat. No. 5,579,002, which is a continuation of Ser. No. 147,855, Nov. 5, 1993, abandoned, which is a continuation-in-part of Ser. No. 65,598, May 21, 1993, abandoned. This application Nov. 25, 1996, Ser. No. 756,274

Int. Cl.[6] H03K *17/94*

U.S. Cl. 341—31 **6 Claims**



1. A function control device comprising:

a housing having a key receiving surface;

a plurality of optical sensors disposed within the housing for sensing radiation at the key receiving surface;

a plurality of function control keys, each having an opaque base portion with a plurality of apertures therein, each of said apertures disposed for operative alignment with a corresponding one of the plurality of optical sensors when the function

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control key is placed on the key receiving surface, said plurality of apertures being arranged in a predetermined pattern that is unique for each one of the plurality of function control keys;

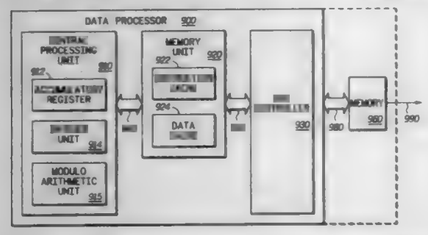
whereby illumination of a selected one of the plurality of function control keys causes a unique pattern of radiation to be incident upon the plurality of optical sensors.

5,729,223

METHOD AND APPARATUS FOR DATA COMPRESSION AND RESTORATION

David W. Trissel, Austin, Tex., assignor to Motorola Inc., Schaumburg, Ill.

Filed Mar. 20, 1996, Ser. No. 619,051
Int. Cl.[6] H03M 7/00
U.S. Cl. 341—51 20 Claims



1. A method of data compression, the method comprising the steps of:

(a) identifying a group of data to be compressed, the group of data having a plurality of data locations, where each data location of the plurality of data locations references an individual data value and a beginning of a data block, the plurality of data locations includes a current location which references a first data block and a match location which references a second data block;

(b) using an address generator to identify the match location, the match location having a match offset from the current location that is a multiple of N, where N is based on a repetitive characteristic of the group of data; and

(c) determining if a match occurs between the first data block and the second data block.

5,729,224

CODE CONVERSION AND DEMODULATION APPARATUS, A METHOD THEREOF, AND A RECORDING MEDIUM

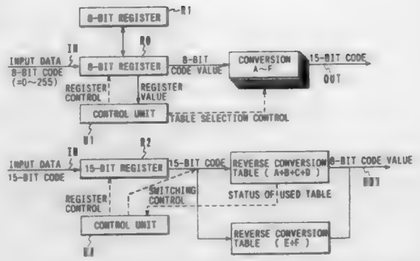
Koichi Hirayama; Yoshiyuki Ishizawa, both of Yokohama; Shinichi Tanaka, Kyoto, and Toshiyuki Shimada, Kobe, all of Japan, assignors to Kabushiki Kaisha Toshiba, Kanagawa-ken, Japan

Filed Apr. 12, 1996, Ser. No. 629,941
Claims priority, application Japan, Apr. 12, 1995, 7-086873
Int. Cl.[6] H03M 7/00
U.S. Cl. 341—59 13 Claims

4. A code conversion apparatus comprising:

first conversion means for converting all 2^m sorts of source data each consisting of m bits into 2^m sorts of first conversion codes which are predetermined in correspondence with the source data, which are different from each other, and each of which consists of n bits;

second conversion means for selecting one or more codes which are different from each other, from all the 2^m sorts of source data, to predetermine a plurality of sorts of codes which belong to each of first to k-th groups where k is an integer of 2 or more, and for converting source data belonging to the first to k-th groups into second conversion codes each consisting of n bits, such that the source data belonging to the first to k-th groups are all different from the first conversion codes; and



third to (k+1)-th conversion means for converting source data belonging to the second to k-th groups, which are subsequently converted after conversion of source data belonging to the first group by the second conversion means, into third to (k+1)-th conversion codes predetermined so as to include conversion codes having the same contents as the first conversion codes, wherein

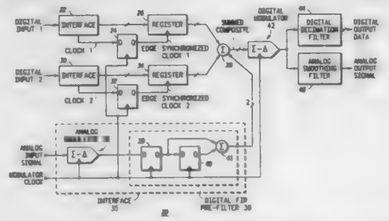
conversion is performed so as to satisfy a limitation condition that the run length in a bit sequence of conversion codes sequentially outputted from the conversion means does not deviate from a range between predetermined minimum and maximum numbers.

5,729,225

METHOD AND APPARATUS FOR ASYNCHRONOUS DIGITAL MIXING

Robert C. Ledzius, Austin, Tex., assignor to Motorola, Inc., Schaumburg, Ill.

Filed Sep. 23, 1996, Ser. No. 710,792
Int. Cl.[6] H03M 7/00
U.S. Cl. 341—61 13 Claims



1. An apparatus for mixing asynchronous digital audio signals, the apparatus comprising:

a first summing element coupled to receive a first digital audio signal having a first sampling rate, and a second digital audio signal having a second sampling rate, and for providing a composite digital audio signal, wherein the first digital audio signal and the second digital audio signal are edge synchronized to a modulator clock having a modulator frequency at a rate higher than the first sampling rate and the second sampling rate, and wherein the first digital audio signal and the second digital audio signal are generated from sources asynchronous to each other and asynchronous to the modulator clock; and

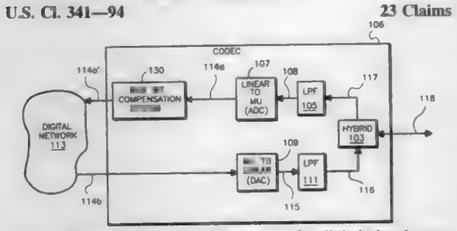
a digital modulator, coupled to receive the composite digital audio signal, the digital modulator for providing an oversampled digital audio output signal sampled at the modulator frequency sampling rate.

5,729,226

ROB BIT COMPENSATION SYSTEM AND METHOD ASSOCIATED WITH A TRANSMITTER OR CODEC

William Lewis Betts, St. Petersburg, and Keith Alan Souders, Tampa, both of Fla., assignors to Paradyne Corporation, Largo, Fla.

Filed Aug. 23, 1996, Ser. No. 701,849
Int. Cl.[6] H03M 13/00
U.S. Cl. 341—94 23 Claims



12. A system for improving accuracy of a digital signal transmitted to a digital network that periodically robs a bit, comprising:

means for receiving digital data;

means for detecting a frame in said digital data having rob bit;

means for modifying said frame so that error associated with said frame resulting from said rob bit is reduced; and

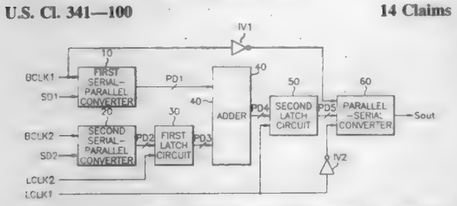
means for transmitting said modified frame to a digital network.

5,729,227

DIGITAL AUDIO SIGNAL MIXING CIRCUIT

Pan-Ki Park, Ahnsan, Rep. of Korea, assignor to Samsung Electronics Co., Ltd., Kyungki-do, Rep. of Korea

Filed Dec. 29, 1995, Ser. No. 581,489
Claims priority, application Rep. of Korea, Dec. 29, 1994, 38498/1994
Int. Cl.[6] H03M 9/00
U.S. Cl. 341—100 14 Claims



1. A circuit for mixing two digital audio signals which have sampling frequencies different from each other and for generating the mixed data in an analog format, comprising:

first serial-parallel converting means for converting first serial digital audio data into first parallel data in synchronism with a first bit clock;

second serial-parallel converting means for converting second serial digital audio data into second parallel data in synchronism with a second bit clock;

first and second latching means for converting continually varying second parallel data into parallel data stabilized in one channel area, for respectively separating said converted parallel data into third data of a left channel and fourth data of a right channel, and for temporarily storing said separated data;

first selecting means for selectively outputting one of said third and fourth data as fifth data in response to a signal representing whether said first parallel data is data of said left channel or data of said right channel, thereby mixing said data associated with a respective channel;

adding means for mixing said first and fifth parallel data and outputting said mixed data as unitary sixth parallel data;

parallel-serial converting means for converting said sixth parallel data into serial data in synchronism with said first bit clock; and

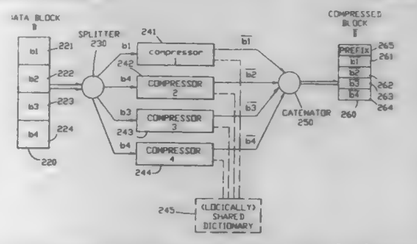
digital/analog converting means for converting data outputted in said parallel-serial converting means into an analog format.

5,729,228

PARALLEL COMPRESSION AND DECOMPRESSION USING A COOPERATIVE DICTIONARY

Peter Anthony Franaszek, Mt. Kisco; John Timothy Robinson, Yorktown Heights, and Joy Aloysius Thomas, White Plains, all of N.Y., assignors to International Business Machines Corp., Armonk, N.Y.

Filed Jul. 6, 1995, Ser. No. 498,948
Int. Cl.[6] H03M 7/00
U.S. Cl. 341—106 22 Claims



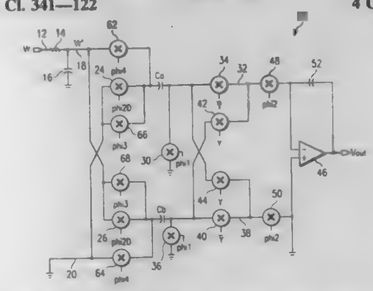
20. A method of data compression where a set of at least two compressors operating in parallel, each on a possibly distinct data stream, cooperate in constructing a dictionary to be used in compression, so that decompression of each output stream produced by a compressor accesses at least one other output stream produced by the set.

5,729,229

DATA INDEPENDENT LOADING OF A REFERENCE IN A SAMPLED DATA INTEGRATOR

Dan B. Kasha, and Donald A. Kerth, both of Austin, Tex., assignors to Cirrus Logic, Inc., Fremont, Calif.

Continuation of Ser. No. 532,991, Sep. 25, 1995, Pat. No. 5,541,599, which is a continuation of Ser. No. 410,943, Mar. 27, 1995, abandoned, which is a continuation of Ser. No. 85,503, Jun. 30, 1993, abandoned. This application Jul. 26, 1996, Ser. No. 690,282
Int. Cl.[6] H03M 3/02
U.S. Cl. 341—122 4 Claims



1. A fully differential discrete time circuit which samples a first reference voltage and a second reference voltage onto two charging capacitors respectively during a sample phase of each sampling period, and which transfers the charge on both of the capacitors onto an integrator during a transfer phase of said discrete time circuit, the improvement comprising timing the sample and transfer of said reference voltages to said integrator such that the charge on both of said charging capacitors will be essentially zero at the beginning of said sample period.

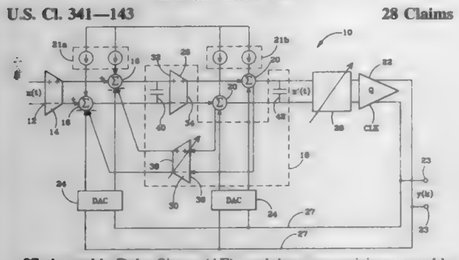
VOL 1208 ISS 3 MR 17 1998 UMI

5,729,230

DELTA-SIGMA Δ-Σ MODULATOR HAVING A DYNAMICALLY TUNABLE CONTINUOUS TIME GM-C ARCHITECTURE

Joseph F. Jensen, Malibu; Gopal Raghavan, Canoga Park, and Albert E. Cosand, Agoura Hills, all of Calif., assignors to Hughes Aircraft Company, Los Angeles, Calif.

Filed Jan. 17, 1996, Ser. No. 588,666
Int. Cl.[6] H03M *3/00*
U.S. Cl. 341—143 **28 Claims**



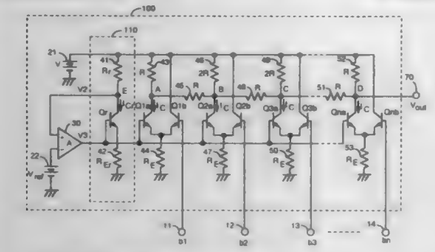
27. A tunable Delta Sigma (ΔΣ) modulator comprising a tunable Gm-C resonator and a quantizer having an associated quantization noise spectrum that are connected in a feedback loop and together convert an analog input signal having a signal spectrum into a digital output signal, said quantizer oversampling the input signal to expand the bandwidth of the modulator so that the signal spectrum occupies a portion of the expanded bandwidth, said tunable resonator comprising a positive current source (PCS) that supplies a common mode current, a fixed Gm cell having a transconductance G_p and a current divider and recombination circuit that modulates a differential mode current imposed on said common mode current to multiply transconductance Gf by a scale factor α without affecting the common mode current to shape the quantizer's quantization noise spectrum so that the bulk of the quantization noise in the digital output signal occurs outside the signal spectrum, said PCS having a low common mode impedance that stabilizes the modulator's common mode operating point and having a high differential mode impedance that maintains a high quality factor.

5,729,231

DIGITAL-TO-ANALOG CONVERTER HAVING IMPROVED RESISTANCE TO VARIATIONS IN DC CURRENT GAIN

Kazuyuki Kikuchi, Tokyo, Japan, assignor to Mitsubishi Denki Kabushiki Kaisha, Tokyo, Japan

Filed Oct. 8, 1996, Ser. No. 727,004
Claims priority, application Japan, Apr. 18, 1996, 8-97086
Int. Cl.[6] H03M *1/66*
U.S. Cl. 341—144 **15 Claims**



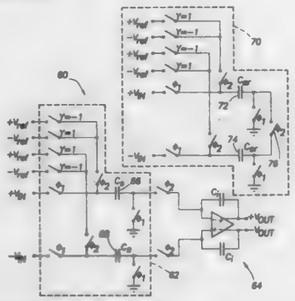
1. A digital-to-analog converter comprising:
a ladder circuit including:
a first direct current reference voltage source producing a first reference voltage,
a plurality of first resistive elements, each first resistive element having a first end connected to the first direct current reference voltage source and a second end,
a plurality of second resistive elements, each second resistive element being connected between second ends of a respective pair of the first resistive elements, and
a plurality of switching elements, each switching element being connected to the second end of a respective first resistive element, the respective switching elements having respective control electrodes and being turned on and off by corresponding digital input bits applied to the control electrodes; and
a control voltage generating circuit including:
a second direct current reference voltage source producing a second reference voltage,
first and second resistors,
a transistor including a first electrode connected to the first direct current reference voltage source through the first resistor, a second electrode connected to ground through the second resistor, and a third electrode, and
an operational amplifier for comparing a voltage across the first and third electrodes of the transistor with the second reference voltage wherein an output of the operational amplifier is used for controlling the switching elements, the operational amplifier including a non-inverting terminal connected to the first electrode of the transistor, an inverting terminal connected to the second direct current reference voltage source, and an output terminal commonly connected to the third electrode of the transistor and the control electrodes of the switching elements.

5,729,232

COMBINATION SHARED CAPACITOR INTEGRATOR AND DIGITAL-TO-ANALOG CONVERTER CIRCUIT WITH DATA DEPENDENCY CANCELLATION

Ichiro Fujimori, Kanagawa, Japan, assignor to Asahi Kasei Microsystems Ltd., Tokyo, Japan, and Oasis Design, Inc., Austin, Tex.

Filed Apr. 10, 1996, Ser. No. 630,436
Int. Cl.[6] H03M *1/66*
U.S. Cl. 341—172 **27 Claims**



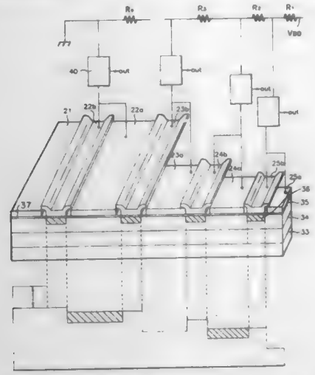
1. An A/D system, comprising:
a shared capacitor coupled to sample a first analog input voltage of first polarity during a first clock cycle and to sample a reference voltage during a second clock cycle subsequent to the first clock cycle;
an integrator coupled to the shared capacitor for receiving the reference voltage and the sampled first analog input voltage during the second clock cycle; and
a load circuit coupled to sample a second analog input voltage of second polarity opposite the first polarity during the first clock cycle, and wherein said load circuit samples said reference voltage during the second clock cycle in order to cancel loading of said first and second input voltages upon said reference voltage.

5,729,233

ANALOG/DIGITAL CONVERTER USING A CHARGE COUPLED DEVICE WITH POLY-GATES RELATIVELY SIZED

Yong Gwan Kim, Kyungki-do, Rep. of Korea, assignor to LG Semicon Co., Ltd., Chungcheongbuk-do, Rep. of Korea

Filed Sep. 22, 1995, Ser. No. 532,100
Int. Cl.[6] H03M *1/38*
U.S. Cl. 341—172 **20 Claims**



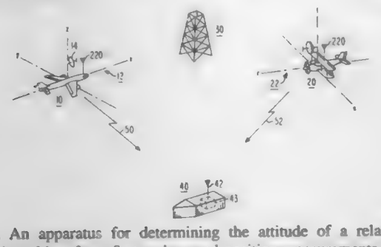
1. An analog-to-digital (A/D) converter using a charge-coupled device (CCD) for converting analog data to digital data, the CCD comprising:
a plurality of gates each having a potential well, a number of gates corresponding to a number of bits of the digital data (n), and a size of each potential well corresponding to a given significant bit and being one-half the size of the potential well corresponding to the next most significant bit;
a buried charge coupled device (BCCD) area under said plurality of gates for transmitting charges of the analog signal to respective potential wells; and,
a plurality of driving circuits corresponding to said plurality of gates for applying a voltage to the respective potential wells and for outputting the charges stored in the respective potential wells as digital data, wherein each one of the plurality of gates is connected to a different one of the plurality of driving circuits.

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REMOTE ALIGNMENT SYSTEM

John Batterson Stetson, Jr., New Hope, Pa.; Randall Deen Morris, Medford, and Naresh Raman Patel, Bellmawr, both of N.J., assignors to Lockheed Martin Corp., Moorestown, N.J.

Filed Sep. 23, 1996, Ser. No. 717,962
Int. Cl.[6] G01S *13/46*
U.S. Cl. 342—62 **3 Claims**



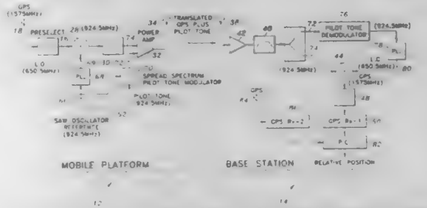
1. An apparatus for determining the attitude of a relatively moving object from first and second position measurements made at itself and at another object, said apparatus comprising:
a first object having a first coordinate system including mutually orthogonal x,y and z coordinate axes;
a second object, remote from said first object, and which may be in compound motion relative thereto, said second object having a second coordinate system including mutually orthogonal r,s and t coordinate axes, which may not correspond with said first coordinate system;
a reference object displaced from both said first and second objects;
signal generating means coupled to said first, second, and reference objects for generating, first and second position signals representative of the position of said reference object relative to said first and second objects, respectively, and a third position signal representative of the position of said second object relative to said first object at a first instant of time, and for generating fourth and fifth position signals representative of the position of said reference object relative to said first and second objects, respectively, at a second instant of time at which said second object is at a different position relative to said first object than at said first instant, and a sixth position signal representative of the position of said second object relative to said first object, said first, third, fourth and sixth position signals being measured in said first coordinate system, and said second and fifth position signals being measured in said second coordinate system, and;
processing means coupled to said signal generating means for estimating the position of said second object relative to said reference object based upon said first and third reference signals, and for comparing said estimate of said position of said second object relative to said reference object with said second position signal for generating first and second angles of a three-angle transformation matrix representative of the attitude of said second coordinate system relative to said first coordinate system, and for estimating said third angle of said transformation matrix from said fourth, fifth, and sixth position signals.

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COHERENT GPS TRANSLATOR WITH SPREAD SPECTRUM PILOT TONE

Warren E. Guthrie, Glen Ellyn; Robert Rozak, Evanston, and Thomas E. Szmurlo, Palatine, all of Ill., assignors to Northrop Grumman Corporation, Los Angeles, Calif.

Filed Dec. 13, 1995, Ser. No. 571,815
Int. Cl.[6] G01S *5/02*
U.S. Cl. 342—357 **10 Claims**



8. A method for translating Global Positioning System (GPS) signals received by a platform for transmission to a base station, said method comprising the steps of:
a) receiving a raw GPS signal, said raw GPS signal being a spread spectrum signal with a first center frequency;
b) translating said raw GPS signal into a translated GPS signal with a different center frequency, said translating circuitry including a local oscillator whose output, when mixed with said raw GPS signal, produces said translated GPS signal;
c) generating a pilot tone phase-locked to said local oscillator output;
d) changing the phase of said pilot tone in a predetermined pattern to produce a spread spectrum pilot tone; and
e) transmitting said translated GPS signal and said spread spectrum pilot tone.

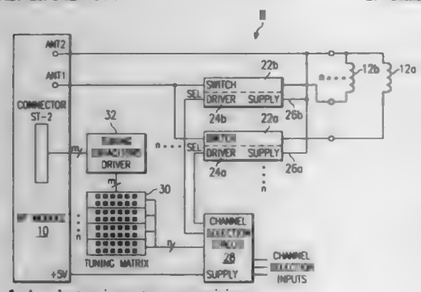
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5,729,236

IDENTIFICATION SYSTEM READER WITH MULTIPLEXED ANTENNAS

Thomas Flaxl, Train, Germany, assignor to Texas Instruments Incorporated, Dallas, Tex.

Filed Apr. 28, 1995, Ser. No. 431,249
Int. Cl.[6] H01Q *3/02*
U.S. Cl. 342—374 **19 Claims**



1. An electronic system comprising:

circuitry for processing a signal;

a plurality of antennas;

a plurality of switches wherein each of said switches is coupled between said circuitry for processing and a corresponding one of said antennas, each of said switches including first and second power MOSFETs each having a source and a drain, wherein the source of the first MOSFET is coupled to the source of the second MOSFET; and

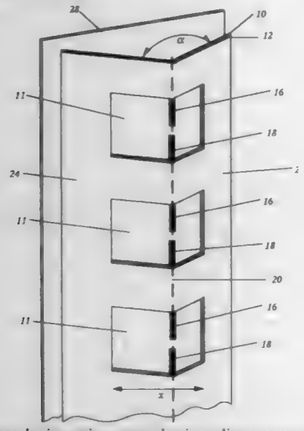
circuitry for selecting at most one of said plurality of switches to be on.

5,729,237

PROBE FED LAYERED ANTENNA

Roger Charles Webb, Paignton, United Kingdom, assignor to Northern Telecom Limited, Montreal, Canada

Filed Jan. 17, 1995, Ser. No. 373,007
Claims priority, application United Kingdom, Feb. 10, 1994, 9402550
Int. Cl.[6] H01Q *1/38;13/10*
U.S. Cl. 343—700 MS **21 Claims**



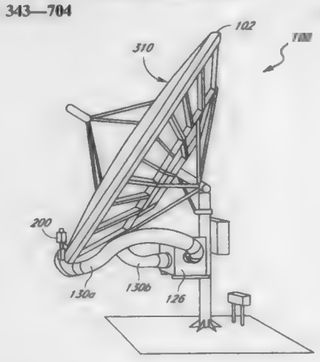
1. A layered microstrip antenna having a linear array of radiating elements aligned in a spaced manner in the antenna, wherein each radiating element comprises an aperture having at least one probe extending into the area defined by the aperture, and wherein the elements have a shape about an axis parallel with a longitudinal axis of the linear array, which shape is non-planar and determines the beamwidth of the array.

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HOT AIR DE-ICING OF SATELLITE ANTENNA WITH COVER

William B. Walton, Jr., 5607 Ave. Juan Bautista, Riverside, Calif. 92509

Continuation-in-part of Ser. No. 530,588, Sep. 19, 1995. This application Jul. 16, 1996, Ser. No. 680,777
Int. Cl.[6] H01Q *1/02*
U.S. Cl. 343—704 **19 Claims**



1. A system for reducing accumulations of moisture on a front reflecting surface of a satellite antenna having an outer lip comprising:

a flexible cover having an opening which is dimensioned to mount on said outer lip of said antenna with the cover positioned over said front reflecting surface of said satellite antenna so as to define a space between said front reflecting surface of said antenna and said cover whereby said cover reduces accumulations of frozen precipitation on said front reflecting surface of said satellite antenna while permitting satellite signals to pass therethrough;

an air supply system which provides unheated air to said space between said cover and said front reflecting surface so as to induce positive pressure in said space with respect to said surrounding atmosphere so as to reduce the accumulation of moisture within said space;

a heating system that provides heat to said space between said front surface of said antenna and said cover so as to maintain said cover at a temperature sufficient to reduce accumulations of frozen precipitation on said cover;

a sensing system which senses the temperature and the presence of moisture of the atmosphere surrounding said satellite antenna; and

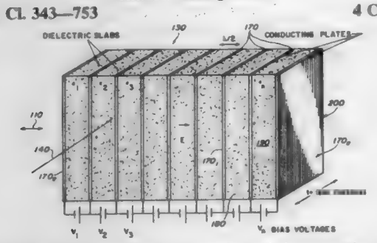
a controller which receives signals from said sensing system wherein said controller activates said air supply system upon said sensing system detecting the presence of a preselected quantity of moisture and wherein said controller activates said heating system upon detecting that said temperature of said atmosphere surrounding said satellite antenna is in a predetermined range of temperatures.

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VOLTAGE CONTROLLED FERROELECTRIC LENS PHASED ARRAY

Jaganmohan B. L. Rao, College Park, Md., assignor to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

Filed Aug. 31, 1995, Ser. No. 521,847
Int. Cl.[6] H01Q *19/06*
U.S. Cl. 343—753 **4 Claims**



1. A device for scanning in a scanning axis in a scanning plane, said device comprising:

(a) a periodic array of conductive plates disposed along the scanning axis, each conductive plate being substantially rectangular and substantially perpendicular to the scanning axis, adjacent plates being disposed about half a wavelength apart;

(b) a periodic array of slabs disposed along the scanning axis, each slab comprising ferroelectric material, being disposed between a pair of adjacent conductive plates of said periodic array of conductive plates, adjacent slabs being separated by one of said conductive plates, each of said slabs having a receiving face and a radiating faces substantially parallel to each other, each of said slabs being for transmission of an electromagnetic signal from said receiving face to said radiating face responsive to an electromagnetic signal received at said receiving face, and each of said radiating faces, scanning plane, and said conductive plates being substantially mutually perpendicular;

(c) input transmission means for feeding an input electromagnetic signal to said periodic array of slabs in a propagation direction so that the input electromagnetic signal is incident on the receiving faces of each of said slabs and so that the electrical component of the input electromagnetic signal received at each receiving face has a component parallel to the scanning axis;

(d) output transmission means for transmitting an output signal from said periodic array of slabs responsive to the electromagnetic signal transmitted from each receiving face in said corresponding slab and received at the corresponding radiating face; and

(e) a plurality of means for selectively applying a voltage across each of said pairs of conductive plates disposed about a slab so as to selectively control the phase of the electromagnetic signal received at each of said radiating faces having been transmitted from said receiving face in said corresponding slab.

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METHOD OF CONTROLLING A NON-GEOSTATIONARY SATELLITE ANTENNA POSITIONER

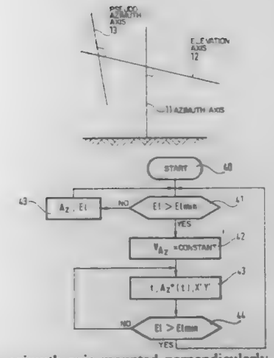
Alain Bourgeois, Eaubonne, France, assignor to Alcatel Telspace, Nanterre Cedex, France

Filed Jul. 23, 1996, Ser. No. 681,506
Claims priority, application France, Jul. 24, 1995, 95 08950
Int. Cl.[6] H01Q *3/00*
U.S. Cl. 343—763 **4 Claims**

1. Method of pointing a tracking antenna for non-geostationary satellites, said antenna being mounted on a three-axis positioner comprising:

an azimuth axis;

an elevation axis mounted perpendicularly on said azimuth axis;



a pseudo-azimuth axis mounted perpendicularly on said elevation axis and supporting said antenna, the positions of said axes being controlled by a pointing unit, said method consisting in carrying out the following steps simultaneously when the position of said satellite is such that the elevation axis exceeds a predetermined elevation value:

-a- modifying the position of said azimuth axis at constant speed;

-b- modifying the position of said elevation axis and said pseudo-azimuth axis to track said satellite,

wherein said step -b- consists in utilizing the following equations:

$$X' = -\text{Arctan}\frac{\tan[El(t)]}{\cos[Az(t) - Az^*(t)]}$$

$$Y' = -\text{Arcsin}[\cos El(t) \cdot \sin(Az(t) - Az^*(t))]$$

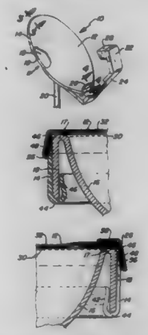
in which X' and Y' are respectively the positions of said elevation axis and of said pseudo-azimuth axis, Az(t) and El(t) are respectively the azimuth and elevation coordinates of said satellite relative to said antenna, the coordinates Az(t) and El(t) are obtained from ephemeris tables, $Az^*(t)$ is equal to $Az(ti)+V_{Az}\cdot(t-ti)$, V_{Az} is the rotation speed of said azimuth axis and ti is the time at which the initial position of said satellite is such that said elevation axis exceeds a predetermined elevation angle.

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DIRECT BROADCAST SATELLITE ANTENNA COVER

Charles W. Ergen, 90 Inverness Cir. East, Englewood, Colo. 80155, and Bruce A. McKenzie, 6129 Round Lake Rd., Apopka, Fla. 32712

Filed Nov. 7, 1996, Ser. No. 744,971
Int. Cl.[6] H01Q *1/42*
U.S. Cl. 343—872 **20 Claims**



12. A protective cover for a direct broadcast satellite antenna having a parabolic reflective surface, said antenna having a back-

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ward flange extending at least partially around the perimeter of the antenna, said cover comprising:

a. a cover member fabricated from a flexible, water impervious sheet material, having an outer face surface and a perimeter configuration which is the same as the outer dimensions of the antenna with an additional margin of one-half of the width of the antenna flange extending around the entire outside perimeter of said cover member;

b. a "J" strip having a hook shaped lip along one edge, a shank portion having a flat surface opposite said hook shaped lip and a straight edge along the opposite edge of said strip, the width of the strip being approximately the same or slightly less than the width of the antenna flange; and

c. attaching means for attaching said cover member to said "J" strip with said "J" strip extending substantially around the circumference of said cover member with the flat shank portion of said strip being positioned in contact with the face surface of said cover member and the straight edge aligned with the perimeter edge of said cover member, said strip and cover member being attached by at least one stitch line spaced approximately one-third to one-fifth of the width of said "J" strip from the straight edge of said strip so that the cover member can be mounted on the antenna in a taut condition by engaging the hooked end of the strip over the edge of the flange so as to protect the reflective surface and prevent the accumulation of ice, snow, leaves and other deleterious objects on the antenna.

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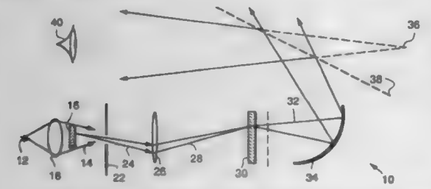
DUAL PDLC-PROJECTION HEAD-UP DISPLAY

J. David Margerum, Woodland Hills, Calif.; John H. Erdmann, Phoenix, Ariz., and Khoon-Cheng Lim, Los Angeles, Calif., assignors to Hughes Electronics, Los Angeles, Calif.

Filed May 8, 1996, Ser. No. 646,576

Int. Cl.[6] G09G *5/00*; **G03H** *1/00*

U.S. Cl. 345—7 **20 Claims**



1. An optical system providing a head-up display virtual image, comprising:

(a) a light source system capable of producing a focusable light beam;

(b) an image source comprising a segmented polymer-dispersed liquid crystal (PDLC)-type fill onto which said focused light beam is projected, said image source transmitting a portion of said focused light beam and scattering the balance of said focused light beam, thereby partitioning said focused light beam into transmitted light and scattered light, said transmitted light comprising a real image;

(c) a light blocking means capable of blocking said scattered light and transmitting said real image;

(d) an image screen comprising a uniform PDLC-type fill onto which said transmitted real image is projected and through which said transmitted real image is transmitted; and

(e) a projection means to project said real image as a virtual image.

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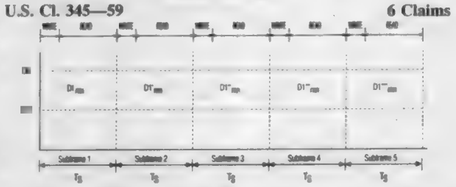
MULTI-FRAME-RATE OPERATION OF DIGITAL LIGHT-MODULATORS

Alan P. Cavallerano, and Claudio Ciacci, both of White Plains, N.Y., assignors to Philips Electronics North-America Corporation, New York, N.Y.

Filed Dec. 21, 1995, Ser. No. 576,548

Int. Cl.[6] G09G *3/00*

U.S. Cl. 345—59 **6 Claims**



1. A method of operating a display apparatus comprising a light source, a screen for displaying successive images represented by respective sets of multi-bit codes successively received by said apparatus during respective frame periods at a predetermined frame rate, an array of digital light modulating elements interposed in an optical path between the light source and the screen, and means for activating each of the digital light modulating elements into either a first state, in which said element enables the light to illuminate a corresponding pixel of an image area of the display screen, or a second state, in which said element impedes the light from illuminating said pixel, said method comprising:

a. successively storing the sets of multi-bit codes in memory means at the received frame rate, each of said codes being associated with a respective one of the digital light modulating elements; and

b. reading each of the codes from the memory means during a plurality of subframes at a subframe rate which is an integral multiple of the predetermined frame rate and activating the respective digital light modulating element into the states represented by said read codes.

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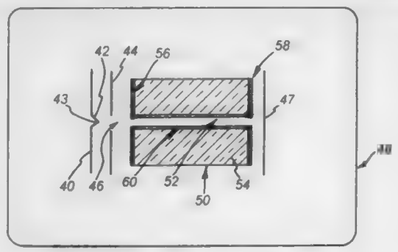
FIELD EMISSION DEVICE WITH MICROCHANNEL GAIN ELEMENT

Harry F. Lockwood, 21 White Oak Rd., Waban, Mass. 02168

Filed Apr. 4, 1995, Ser. No. 416,079

Int. Cl.[6] G09G *3/22*

U.S. Cl. 345—74 **22 Claims**



1. A field emission device comprising:

a vacuum enclosure;

a plurality of field emission cathodes for generating a plurality of streams of electrons in the vacuum enclosure, each of the plurality of field emission cathodes comprising a tapered emitter tip constructed and arranged to define a local electric field at the tip;

a gate structure positioned relative to each of the field emission cathodes for modulating the stream of electrons generated by each of the field emission cathodes, thereby varying the current of each of the streams;

a microchannel gain element, located so that the gate structure is positioned between the plurality of field emission cathodes and the microchannel gain element, the microchannel gain element having a first dynode side adjacent the gate structure, an opposing, second dynode side and having a plurality of microchannels each located adjacent each of the plurality of field emission cathodes for providing a gain to each of the streams of electrons, each of the microchannels having a continuous emissive layer disposed on an internal surface thereof, the emissive layer extending between each of the first dynode side and the second dynode side, each of the first dynode side and the second dynode side being separated by a predetermined distance and defining therebetween a bias voltage differential that is equal with respect to each of the plurality of microchannels; and

an anode positioned adjacent the second dynode side, the anode absorbing electrons from each of the plurality of streams of electrons.

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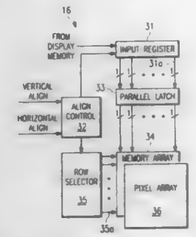
ALIGNMENT FOR DISPLAY HAVING MULTIPLE SPATIAL LIGHT MODULATORS

Robert J. Gove; Richard C. Meyer, both of Plano; Stephen W. Marshall, Richardson, and Gary L. Sextro, McKinney, all of Tex., assignors to Texas Instruments Incorporated, Dallas, Tex.

Continuation of Ser. No. 216,193, Mar. 21, 1994, abandoned. This application Mar. 14, 1995, Ser. No. 403,532

Int. Cl.[6] G09G *3/34*

U.S. Cl. 345—84 **12 Claims**



1. A spatial light modulator for use in a display system that combines images from multiple spatial light modulators to generate a display image, comprising:

an array of pixel elements, wherein said array has more pixel elements per row than are to be displayed as said display image;

an array of memory cells for storing data representing a voltage to be applied to said pixel elements; an input register operable to receive a display row of data for said display image, and deliver said display row of data for said display image to a selected row of said array of memory cells, said input register having an output tap for delivering data down a column line for each column of said memory cells;

a row decoder for providing a row enable signal to said selected row of said array of memory cells; and

an alignment control unit having means for controlling which of said column lines shall deliver said display row to said array of memory cells thereby determining horizontal position of said display row, wherein which of said column lines shall deliver said display row is determined by the comparison between said display image and an image created by at least one other spatially separate SLM.

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LIQUID CRYSTAL DISPLAY DEVICE AND DRIVE CIRCUIT THEREFOR

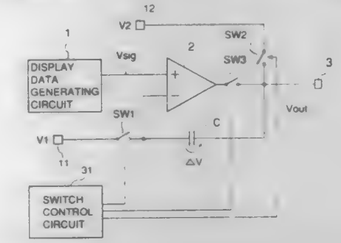
Akira Masuko, Katsushika-Ku, Japan, assignor to Kabushiki Kaisha Toshiba, Kawasaki, Japan

Filed Jul. 10, 1996, Ser. No. 679,751

Claims priority, application Japan, Jul. 10, 1995, 7-173422

Int. Cl.[6] G09G *3/36*

U.S. Cl. 345—98 **16 Claims**



1. A drive circuit for a liquid crystal display device, comprising:

an operational amplifier supplied at one input terminal with display data used for liquid crystal display;

a capacitor connected between the other input terminal of the operational amplifier and an external output terminal;

a first switching element connected between a first external input terminal supplied with a first voltage and the other input terminal of the operational amplifier;

a second switching element connected between a second external input terminal supplied with a second voltage and the external output terminal;

a third switching element connected between an output terminal of the operational amplifier and the external output terminal;

a switch control circuit connected to the first, second and third switching elements,

the switch control circuit being operative to allow the first and second switching elements to be turned ON for a first time period within each liquid crystal display cycle to produce a predetermined potential difference across the both ends of the capacitor, and to allow those first and second switching elements to be turned OFF for a second time period within the liquid crystal display cycle,

the switch control circuit being operative to allow the third switching element to be turned OFF for the first time period, and to allow the third switching element to be turned ON for the second time period to thereby output, from the external output terminal, for the second time period, a voltage in which the predetermined potential difference and a voltage on the one input terminal of the operational amplifier are added.

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SCREEN DISPLAY DEVICE

Takeshi Shibasaki, Tokyo, Japan, assignor to Mitsubishi Denki Kabushiki Kaisha, Tokyo, Japan

Filed Dec. 14, 1995, Ser. No. 572,024

Claims priority, application Japan, Jul. 26, 1995, 7-190872

Int. Cl.[6] G09G *5/00*

U.S. Cl. 345—113 **14 Claims**

1. A screen display device for displaying a video image having a superimposition of additional information, comprising:

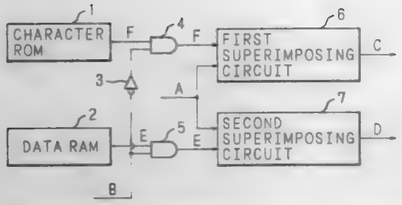
a first memory for storing first information;

first superimposing means for superimposing a first additional signal representing the first information read out from the first memory on a single composite video signal inputted from outside a vertical blanking period thereof;

a second memory for storing second information; and

second superimposing means for superimposing a second additional signal representing the second information read out

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from the second memory on the single composite video signal during the vertical blanking period thereof;

wherein two kinds of superimposition composite video signals are obtained by the first and second superimposing means, with respect to the single composite video signal.

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CHARACTER INFORMATION PROCESSING CIRCUIT AND METHOD THEREFOR

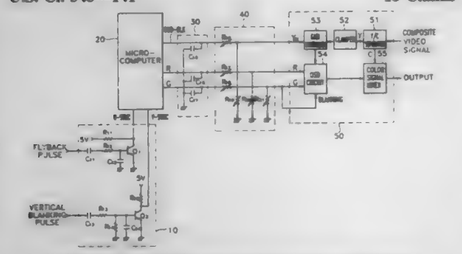
Yong-ki Hwang, Seoul, Rep. of Koren, assignor to Samsung Electronics Co., Ltd., Kyungki-do, Rep. of Korea

Filed Sep. 26, 1994, Ser. No. 312,529

Claims priority, application Rep. of Korea, Sep. 25, 1993, 93-19772

Int. Cl.° G09G *5/22*

U.S. Cl. 345—141 **13 Claims**



1. A character information processing circuit comprising:

gain controlling means for variably adjusting a signal level for a received video signal according to a control signal to thereby provide a background input video signal;

character information generating means for generating character information responsive to color information, for mixing the background input video signal provided by said gain controlling means with said character information, and for providing a mixed signal; and

controlling means for generating said color information corresponding to said character information applied to said character information generating means and for producing said control signal applied to said gain controlling means.

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TOUCH SENSITIVE INPUT CONTROL DEVICE

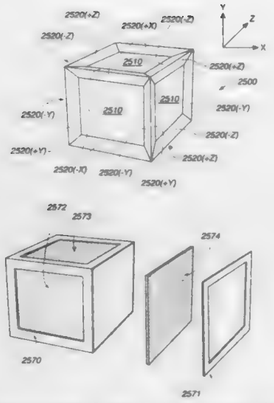
Taizo Yasutake, Cupertino, Calif., assignor to ITU Research, Inc., Cupertino, Calif.

Continuation of Ser. No. 238,257, May 3, 1994, abandoned, which is a continuation-in-part of Ser. No. 798,572, Nov. 26, 1991, Pat. No. 5,335,557. This application Aug. 1, 1995, Ser. No. 509,797

Int. Cl.° G09G *5/00; G06F 3/14*

U.S. Cl. 345—173 **28 Claims**

1. A touch-sensitive manually operable controller for providing positive and negative control information relative to each of three axes, the controller having six touch-sensitive sensors mounted on its outer surface, the sensors oriented to detect manual touches on the outer surface, two sensors mounted on opposing sides of the controller relative to each axis of a Cartesian coordinate system,



the controller providing positive X-axis control information in response to touch pressure applied in the positive X direction to a first sensor mounted parallel to a Y–Z plane, and providing Y-axis and Z-axis control information in response to translation of the touch pressure on the first sensor in the Y axis and Z-axis directions, respectively,

providing negative X-axis control information in response to touch pressure applied in the negative X direction to a second sensor mounted parallel to the Y–Z plane, and providing Y-axis and Z-axis control information in response to translation of the touch pressure applied to the second sensor in the Y axis and Z-axis directions, respectively,

providing positive Y-axis control information in response to touch pressure applied in a positive Y direction to a third sensor mounted parallel to an X–Z plane, and providing X-axis and Z-axis control information in response to translation of the touch pressure applied to the third sensor in the X axis and Z-axis directions, respectively,

providing negative Y-axis control information in response to touch pressure applied in a negative Y direction to a fourth sensor mounted parallel to the X–Z plane, and providing X-axis and Z-axis control information in response to translation of the touch pressure applied to the fourth sensor in the X axis and Z-axis directions, respectively,

providing positive Z-axis control information in response to touch pressure applied in a positive Z direction to a fifth sensor mounted parallel to an X–Y plane, and providing X-axis and Y-axis control information in response to translation of the touch pressure applied to the fifth sensor in the X axis and Y-axis directions, respectively, and

providing negative Z-axis control information in response to touch pressure applied in a negative Z direction to a sixth sensor mounted parallel to the X–Y plane, and providing X-axis and Y-axis control information in response to translation of the touch pressure applied to the sixth sensor in the X axis and Y-axis directions, respectively.

5,729,250

FRONT COVER ASSEMBLY FOR A TOUCH SENSITIVE DEVICE

Edward H. Bishop, Durham; Alfred William Connor; Aaron Roger Cox, both of Raleigh; Dennis Crompton, Apex, and Mark Gehres McDonald, Clayton, all of N.C., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed May 8, 1995, Ser. No. 437,008

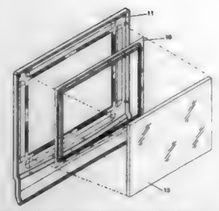
Int. Cl.° G09G *5/00*

U.S. Cl. 345—175 **23 Claims**

1. A front cover assembly for an infrared touch sensitive device comprising:

a top cover;

a piece of glass;



an integral bezel for securing said glass to said top cover wherein said bezel is formed by injection molding polyurethane between said glass and said top cover while said glass and said top cover are held in a fixed relationship to each other, wherein said bezel forms a mechanical lock between the top cover and the glass that provides a liquid tight seal, said bezel compensating for the different rates of expansion and contraction of the top cover and glass in maintaining the mechanical lock and liquid seal;

tab members formed in the bezel providing a small gap between the touch sensitive device and the glass to reduce bleeding or puddling of the touch sensitive device when a touch force is applied to the glass; and

a frame surrounding the touch sensitive device and receiving touch forces transferred thereto by the tab members.

5,729,251

INFORMATION INPUT/OUTPUT SYSTEM

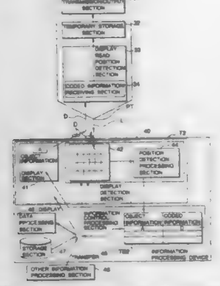
Tadashi Nakashima, Kanagawa, Japan, assignor to Fuji Xerox Co., Ltd., Tokyo, Japan

Filed Feb. 5, 1996, Ser. No. 596,486

Claims priority, application Japan, Feb. 9, 1995, 7-021961

Int. Cl.° G06F *17/00*

U.S. Cl. 395—200.2 **27 Claims**



1. An information input/output system comprising:

(1) an information processing device including:

display means for displaying an object to be processed at a desired position;

position detection means for detecting positional information based on indication information from outward;

code extraction means for extracting coded information from the indication information;

information control means for storing the detected positional information and the extracted coded information by associating with each other; and

information processing means for carrying out predetermined processing; and

(2) a wireless coordinate indicator including:

storage means for storing the coded information; and

signal transmission means for transmitting the coded information and the positional information to said information processing device;

wherein the coded information is transmitted from said wireless coordinate indicator to said information processing device on the basis of positional relationship associated with coordinate indicating points of the object on said display means.

5,729,252

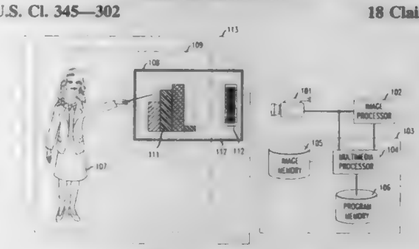
MULTIMEDIA PROGRAM EDITING SYSTEM AND METHOD

Alexander Gibson Fraser, Bernardsville, N.J., assignor to Lucent Technologies, Inc., Murray Hill, N.J.

Continuation of Ser. No. 364,629, Dec. 27, 1994, abandoned. This application Feb. 28, 1997, Ser. No. 807,945

Int. Cl.° G06T *1/00*

U.S. Cl. 345—302 **18 Claims**



1. A method for editing a multimedia program, comprising the steps:

presenting individual ones of a plurality of presented images with each of the presented images being associated with a particular identifier code;

storing within a memory a plurality of high-resolution images corresponding to respective ones of said plurality of presented images and the particular identifier code associated therewith;

monitoring a video signal to detect a signal corresponding to a pattern representing one of said particular identifier codes;

retrieving from said memory, in response to detection of a signal corresponding to a pattern representing a particular identifier code, one or more high-resolution images associated with said particular identifier code;

interposing the one or more high-resolution images associated with said particular identifier code into the multimedia program; and

recording the multimedia program with the one or more interposed high-resolution images while excluding the one or more corresponding presented images in the recorded multimedia program.

5,729,253

METHOD FOR INPUTTING AND ACQUIRING REQUIREMENT

Yuichi Mashita, Yokohama; Hisashi Takahashi, Sagamihara; Shoichi Kubo, Tokyo; Katsuhiko Yuura, Kodaira, and Miho Saito, Sagamihara, all of Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Continuation-in-part of Ser. No. 852,768, Mar. 17, 1992, Pat. No. 5,517,604. This application Sep. 25, 1995, Ser. No. 533,380

Claims priority, application Japan, Mar. 20, 1991, 3-056470; May 29, 1991, 3-124350; Sep. 28, 1994, 6-232776

Int. Cl.° G06F *3/100*

U.S. Cl. 345—352 **37 Claims**

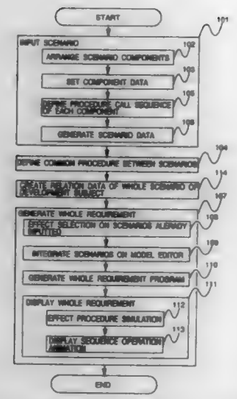
1. A requirement input method comprising the steps of:

arranging components of a development subject on a screen of a computer terminal;

specifying, for each of the arranged components, a name and a data item name and a procedure name to be held by said component;

displaying, for each procedure of the component, a list of procedures held by a component as a menu, selecting from said menu a procedure call sequence between components or

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a procedure call sequence within the component, repeating said displaying operation and said selecting operation, and thereby specifying a procedure call sequence held by the component, wherein said specified procedure call sequence is an order of calling procedures held by components; and

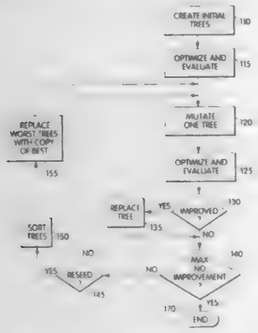
generating component data, procedure call sequence data and scenario data, said component data having a record of said specified component name, data item name and procedure name, said procedure call sequence data having a record of said procedure call sequence, said scenario data holding names and peculiar numbers for said component data and said procedure call sequence data.

5,729,254

METHOD AND APPARATUS FOR DIFFERENTIAL OBJECT MODELING USING AUTOMATICALLY GENERATED CONSTRUCTIVE SOLID GEOMETRY (CSG) THROUGH AN EVOLUTIONARY PROCESS

Joseph Marks, Belmont, and Sarah Gibson, Arlington, both of Mass., assignors to Mitsubishi Electric Information Technology Center America, Inc., Cambridge, Mass.

Filed Dec. 27, 1995, Ser. No. 579,548
Int. Cl.[6] G06T *5/00*
U.S. Cl. 345—420 **20 Claims**



1. A method for generating a constructive solid geometry (CSG) representation of an object comprising the steps of:

mutating at least one defining feature of one of a plurality of CSG trees to create a new CSG tree;

locally optimizing said new tree to represent said object by small adjustments to primitives in said new tree; and

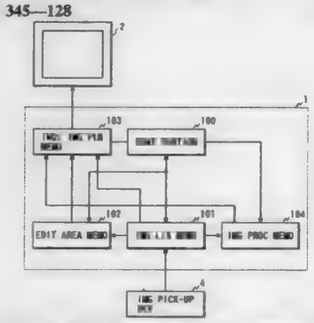
replacing said one of said plurality of trees with said new tree, if said new tree represents said object better than said one of said plurality of CSG trees.

5,729,255

IMAGE EDIT METHOD AND APPARATUS HAVING ALARM INDICATION

Yasuo Aoki, Yokohama, Japan, assignor to Nikon Corporation, Tokyo, Japan, and Nikon Systems Inc., Yokohama, Japan

Filed Sep. 18, 1995, Ser. No. 529,721
Claims priority, application Japan, Sep. 22, 1994, 6-227977
Int. Cl.[6] G06T *3/40*
U.S. Cl. 345—128 **8 Claims**



5. An image edit apparatus for forming an edited image file by pasting an image file into an edit area indicated on an indication means for indicating an image while observing the edit area, and for outputting the edited image file to output means, comprising:

enlargement designation means for designating an enlarged size of an image file pasted in the edit area;

comparison means for comparing an image resolution of the image file whose size is designated by said enlargement designation means with a resolution of said output means; and

alarm means for generating an alarm when said comparison means determines that the resolution of said output means becomes higher than the image resolution.

5,729,256

INK REMAIN DETECTOR HAVING A BIASED FLEXIBLE FILM MEMBER WITH LIMITED DEFORMATION

Akihiro Yamanaka, Hiratsuka; Hiroshi Iida, Machida, and Minoru Nozawa, Atsugi, all of Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan

Continuation of Ser. No. 824,880, Jan. 24, 1992, which is a continuation of Ser. No. 579,613, Sep. 10, 1990, abandoned, which is a continuation of Ser. No. 423,746, Oct. 19, 1989, Pat. No. 4,977,413, which is a continuation of Ser. No. 179,867, Apr. 11, 1988, abandoned. This application Sep. 1, 1993, Ser. No. 114,243
Claims priority, application Japan, Apr. 15, 1987, 62-92822; Apr. 15, 1987, 62-92823; Apr. 15, 1987, 62-92824
Int. Cl.[6] B41J *2/17*
U.S. Cl. 347—7 **5 Claims**

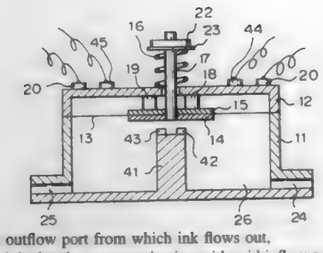
1. An ink jet recording apparatus for recording using a recording head capable of discharging ink to a recording medium, said apparatus comprising:

ink storing means for storing ink to be supplied to said recording head;

an ink path provided between said recording head and said ink storing means; and

ink remain detecting means provided in said ink path, said ink remain detecting means comprising:

an inflow port into which ink flows,



an outflow port from which ink flows out,

an ink chamber communicating with said inflow port and said outflow port,

a flexible-film member which comprises at least a portion of a wall forming said ink chamber, said flexible film member displacing in accordance with a pressure change in said ink chamber,

a plate member moving in accordance with a displacement of said flexible film member,

detecting means for detecting a separation of said flexible film member responsive to a pressure decrease in said ink chamber, said detecting means comprising an electrically conductive member integral with said flexible film member and an electrode provided correspondingly to said electrically conductive member and fixed to said detecting means, and wherein said electrically conductive member is in contact with said electrode when the pressure in said ink chamber is within a desired value and is not in contact with said electrode when the pressure in said ink chamber is not within a desired value,

biasing means for biasing said flexible film member toward the electrodes, and

displacement limiting means provided in said ink chamber for limiting said flexible film member from being displaced over a predetermined amount, wherein said displacement limiting means limits the displacement of said flexible film member by contacting said plate member in accordance with the displacement of said flexible film member when said flexible film member displaces over said predetermined amount as a negative pressure in the ink chamber increases.

5,729,257

INK JET RECORDING HEAD WITH IMPROVED INK JETTING

Takuro Sekiya, Yokohama, and Kyuhachiro Iwasaki, Fujisawa, both of Japan, assignors to Ricoh Company, Ltd., Tokyo, Japan

Continuation of Ser. No. 127,951, Sep. 27, 1993, Pat. No. 5,610,637. This application Jun. 7, 1995, Ser. No. 484,662
Claims priority, application Japan, Sep. 29, 1992, 4-259521; Feb. 17, 1993, 5-028019; May 7, 1993, 5-106706
Int. Cl.[6] B41J *29/38*
U.S. Cl. 347—9 **4 Claims**

DRIVING VOLTAGE (V)	PULSE WIDTH Pw(μs)	RATIO OF LENGTH (L) TO DIAMETER (D) (L/D)	FLYING VELOCITY V(m/s)	ACCURACY OF DOTTED POSITION ON RECORDING MEDIUM (DOT SIZE 30μm)
3.8	4	1.0(SPHERICAL SHAPE)	0.8	WITHIN 1/2DOTS
3.9	4	1.5(EGG SHAPE)	2.7	WITHIN 1/3DOTS
4.0	4	2.8	3.1	WITHIN 1/3DOTS
4.1	4	3.1	5.2	WITHIN 1/3DOTS
4.2	4	4.0	6.0	WITHIN 1/4DOTS
4.3	4	4.8	7.6	WITHIN 1/4DOTS
4.4	4	6.0	9.0	WITHIN 1/4DOTS
4.5	4	8.1	9.4	WITHIN 1/4DOTS
5.0	4	8.4	10.2	WITHIN 1/4DOTS
6.0	4	9.5	11.9	WITHIN 1/4DOTS
7.0	4	10.0	10.8	WITHIN 1/4DOTS
8.0	4	9.9	11.5	WITHIN 1/4DOTS

1. An ink jet recording head for jetting ink droplets to a recording medium and forming a dot image on said recording medium, said ink jet recording head comprising:

ink jetting orifices from which ink droplets are jetted;

ink paths connected to said ink jet orifices, said ink paths being filled with ink; and

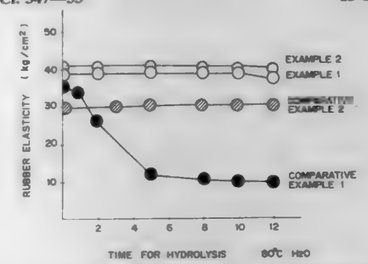
energy applying members, provided in said ink paths, for applying energy to the ink in said ink paths on demand so that ink droplets are jetted from said ink jetting orifices, wherein a cross sectional area of each of said ink jetting orifices is within a range from 200 μm^2 to 500 μm^2, and wherein said energy applying members apply the energy to the ink so that the ink droplets, each of which has a flying velocity equal to or greater than 5.2 m/second, are jetted at a frequency which is within a range from 10 kHz to 40 kHz.

5,729,258

CLEANING MEMBER USED FOR AN INK-JET RECORDING APPARATUS AND THE INK-JET RECORDING APPARATUS USING THE AFORESAID CLEANING MEMBER

Masahiro Watabe, and Noriyuki Yanai, both of Yokohama, Japan, assignors to Canon Kabushiki Kaishn, Tokyo, Japan

Continuation of Ser. No. 757,481, Sep. 10, 1991, abandoned. This application Feb. 15, 1995, Ser. No. 389,627
Claims priority, application Japan, Sep. 14, 1990, 2-242532; Jan. 18, 1991, 3-004385; Aug. 22, 1991, 3-210571
Int. Cl.[6] B41J *2/165*
U.S. Cl. 347—33 **11 Claims**



1. An ink jet recording apparatus for recording by discharging ink from a discharging surface of an ink jet recording means onto a recording medium, said apparatus comprising:

a cleaning member for contacting and cleaning the discharge surface of the ink jet recording means which ejects an acid or alkaline aqueous composition, said cleaning member being comprised of a polyether urethane rubber having units of (a) a polyether urethane prepolymer comprised of moieties of polyoxyalkyline glycol and polyisocyanate and (b) a hardening agent comprising a mixture of a first compound selected from the group consisting of 1,4-butanediol, 1,6-hexanediol, ethyleneglycol, propyleneglycol, polyethyleneglycol, hydroquinonethylolether, bisphenol A and mixtures thereof and a second compound selected from the group consisting of trimethylolpropane, trimethylolethane and mixtures thereof, wherein said polyether urethane rubber has a hardness of JIS A 35–80.

5,729,259

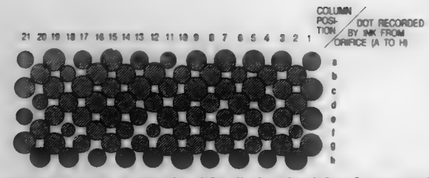
RANDOM JET RECORDING APPARATUS AND METHOD BY THICK AND THIN INKS

Fumihiro Gotoh, Kawasaki; Hiromitsu Hirabayashi, Yokohama; Noribumi Koitabashi, Yokohama; Yuji Akiyama, Yokohama; Hitoshi Sugimoto, Yokohama; Miyuki Matsubara, Tokyo, and Hidehiko Kanda, Yokohama, all of Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan

Filed May 31, 1994, Ser. No. 252,162
Claims priority, application Japan, May 31, 1993, 5-129564
Int. Cl.[6] B41J *2/21; G01D 11/00*
U.S. Cl. 347—43 **16 Claims**

1. An ink jet recording apparatus for recording an image formed from a plurality of pixels by discharging ink onto a recording

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medium from a recording head for discharging inks of a same color system but different densities, including an ink of a lowest density, from a plurality of discharge ports disposed in an arrangement direction, comprising:

scan means for scanning said recording head in a scan direction relative to said recording medium in a record mode; and

control means for randomly controlling sizes of dots recorded on said recording medium by the ink discharged by said recording head as said recording head is scanned by said scan means when the image is recorded using at least the ink of the lowest density of the inks having different densities, said control means randomly changing, in the relative scan direction, a size area of a respective dot formed on said recording medium by the ink of the lowest density discharged from said recording head in units of one drop for each pixel,

wherein the image is recorded by performing a single ink discharge for each pixel.

5,729,260

INK JET PRINTER WITH HIGH POWER, SHORT DURATION PULSE

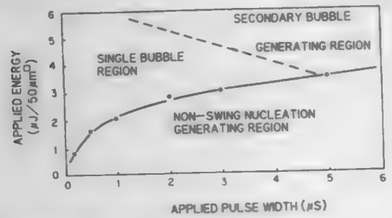
Masao Mitani; Kenji Yamada; Kazuo Shimizu, and Osamu Machida, all of Katsuta, Japan, assignors to Hitachi Koki Co., Ltd., Tokyo, Japan

Filed Oct. 31, 1994, Ser. No. 331,742

Claims priority, application Japan, Oct. 29, 1993, 5-272451

Int. Cl.[6] B41J *29/38;2/05*

U.S. Cl. 347—57 **18 Claims**



1. An ink ejection recording device comprising:

an ink channel filled with a water-based ink;

a nozzle for fluid-connecting said ink channel with an outside atmosphere;

a thermal resistor formed in said ink channel adjacent the nozzle, said thermal resistor comprising a protection-layer-less thermal resistor; and

means for applying a pulse of voltage connected to said thermal resistor,

said means for applying a pulse of voltage controlling a heat flux applied to the ink by said thermal resistor to no less than 1×10^8 W/m^2,

said pulse causing said thermal resistor to heat so that a portion of the ink in said ink channel is vaporized by subcool boiling, which is caused by swing nucleation, to produce a bubble and so as not to form secondary bubbles, expansion of the bubble ejecting an ink droplet from said nozzle.

5,729,261

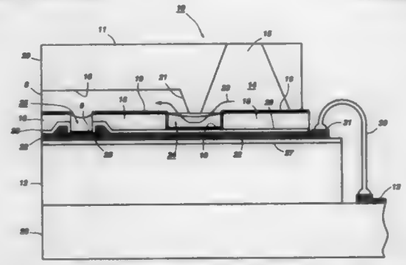
THERMAL INK JET PRINTHEAD WITH IMPROVED INK RESISTANCE

Cathie J. Burke, Rochester; Daniel E. Kuhman, Fairport; Daniel O. Roll, Pittsford, and Alan D. Raisanen, Sodus, all of N.Y., assignors to Xerox Corporation, Stamford, Conn.

Filed Mar. 28, 1996, Ser. No. 623,081

Int. Cl.[6] B41J *2/05*

U.S. Cl. 347—64 **10 Claims**



1. A printhead for ejecting a recording liquid onto a recording medium, the printhead having an internal structure which includes at least a channel for holding said recording liquid,

at least one nozzle for ejecting liquid onto the recording medium,

channel means providing a liquid flow path between said chamber and said nozzle,

an energy generator for introducing energy into the liquid contained in said channel,

means for selectively energizing said energy generating means so as to cause periodic ejections of said liquid through said nozzle onto said recording medium and

a cured polymer formed in at least a portion of said internal structure and

an ink resistant tantalum film formed on at least a portion of said polymer.

5,729,262

INK JET HEAD INCLUDING PHASE TRANSITION MATERIAL ACTUATORS

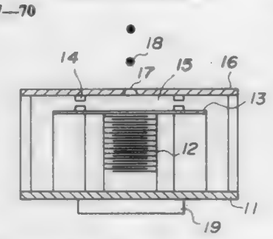
Yoshikazu Akiyama, Yokohama; Tomoyuki Yamaguchi, Chiba; Kakuji Murakami, Kawasaki, and Yasuo Miyoshi, Yokohama, all of Japan, assignors to Ricoh Company, Ltd., Tokyo, Japan

Filed Aug. 30, 1994, Ser. No. 298,035

Claims priority, application Japan, Aug. 31, 1993, 5-238963; Sep. 1, 1993, 5-217382; Oct. 29, 1993, 5-271481; Dec. 22, 1993, 5-346510

Int. Cl.[6] B41J *2/045*

U.S. Cl. 347—70 **20 Claims**



1. An ink jet printing head comprising:

a nozzle plate including a plurality of nozzles;

an oscillating plate spaced from said nozzle plate;

a plurality of ink cavities positioned between said nozzle plate and said oscillating plate such that one of said ink cavities corresponds to one of said nozzles, and wherein each of said ink cavities contains ink and said oscillating plate has a top surface with which the ink in each of said ink cavities is brought into contact;

a plurality of actuators bonded to a bottom surface of said oscillating plate such that a corresponding one of said actuators is aligned with one of said cavities, wherein each of said actuators is made of a phase transition material capable of transition between an antiferroelectric phase and a ferroelectric phase that includes a solid solution of composite ceramics which upon actuation causes said oscillating plate to deflect so as to press the ink within each of said ink cavities in association with said actuators to discharge ink drops from said nozzles; and

electric field applicator to apply an electric field to each of the plurality of actuators,

wherein said oscillating plate deflects in accordance with volumetric charges of each of said actuators, said volumetric changes being developed by applying the electric field to each of said actuators at a given electric field intensity, wherein an increase of said given electric field intensity causing a transition of said phase transition material from an antiferroelectric phase into a ferroelectric phase and wherein a decrease of said given electric field intensity causing a transition of said phase transition material from the ferroelectric phase into the antiferroelectric phase, wherein said solid solution of composite ceramics includes lead zirconate, lead stannate and lead titanates, and lanthanum partially substituting for a lead site thereof, and wherein a composition of said phase transition material is defined by:

$$Pb_{1-3/2Z}La_Z((Zr_{1-X}Sn_X)_{1-Y}Ti_Y)O_3$$

where $0\leqq X\leqq0.5$, $0\leqq Y\leqq0.2$, $0\leqq Z\leqq0.02$ and where X, Y and Z are rational numbers.

5,729,263

ARRANGEMENT FOR PLATE-SHAPED PIEZOACTUATORS AND METHOD FOR THE MANUFACTURE THEREOF

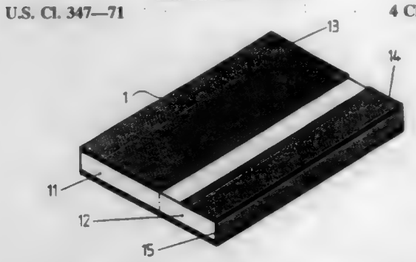
Wolfgang Thiel, and Junming Zhang, both of Berlin, Germany, assignors to Francotyp-Postalia AG & Co., Birkenwerder, Germany

Filed Jul. 26, 1995, Ser. No. 507,214

Claims priority, application Germany, Aug. 3, 1994, 44 28 847.6

Int. Cl.[6] H01L *41/08*

U.S. Cl. 347—71 **4 Claims**



1. In an ink jet printer head having a plurality of stacked modules, including a piezoactuator plate having a plurality of piezoactuators disposed on a diaphragm plate in registry with respect ink chambers each piezoactuator having first and second electrodes with piezoelectric material disposed therebetween, and each piezoactuator further having first and second electrical leads respectively connected to said first and second electrodes, the improvement of each piezoactuator comprising:

an active region with said first and second electrodes disposed on opposite sides thereof;

an inactive region covered only by said second electrode, with said second electrode of said inactive region being disposed on a same side of said piezoactuator as the first electrode of said active region and said electrical leads being respectively connected to said first electrode and to said second electrode on said same side of said piezoactuator.

5,729,264

INK JET RECORDING DEVICE WITH PRESSURE CHAMBER HAVING AN ACTIVE DIRECTION NORMAL TO THE RECORDING HEAD ACTUATOR PLATE

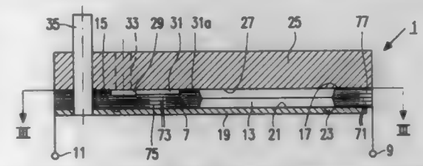
Joseph R.R. Pankert, Aachen, Germany, and Johannes R. Roulaux, Nieuwstadt, Netherlands, assignors to U.S. Philips Corporation, New York, N.Y.

Filed Nov. 13, 1995, Ser. No. 556,691

Claims priority, application European Pat. Off., Nov. 14, 1994, 94203301

Int. Cl.[6] B41J *21/045;* **H01L** *41/04*

U.S. Cl. 347—71 **12 Claims**



1. An ink jet recording device having a recording head which comprises:

a pressure chamber which is coupled to an ink reservoir by an ink supply channel;

a nozzle plate having a nozzle opening for emitting droplets of ink, said nozzle plate forming a wall of said pressure chamber;

a piezoelectric actuator element having an active direction and comprising at least one layer of piezoelectric material interleaved between electrode layers arranged such that a dimension of the actuator element in the active direction is varied upon application of an electric voltage between terminals which are electrically connected to the electrode layers, the actuator element being arranged in relation to the pressure chamber so the volume of the pressure chamber changes when the dimension of the actuator element in the active direction is varied; and

a base plate:

wherein, the piezoelectric actuator element is formed as an actuator plate having a first face and a second opposite face parallel to said first face, said piezoelectric actuator element further having a thickness in a direction perpendicular to said first face and said second face, said active direction coincides with the thickness direction thereof, said base plate adjoins to said second face of said actuator plate, said pressure chamber is formed by a recess provided in at least one of the first face and the second face of said actuator plate, and said ink reservoir and said ink channel are formed by recesses provided in said base plate, said nozzle plate, or said actuator plate.

5,729,265

RECORDING PAPER AND INK-JET RECORDING PROCESS MAKING USE OF THE SAME

Mamoru Sakaki, Yamoto, and Masato Katayama, Yokohama, both of Japan, assignors to Canon Kabushiki Kaishu, Tokyo, Japan

Division of Ser. No. 183,808, Jan. 21, 1994, abandoned. This application Jan. 29, 1996, Ser. No. 593,424

Claims priority, application Japan, Jan. 25, 1993, 5-10001

Int. Cl.[6] B41J *2/01*

U.S. Cl. 347—100 **12 Claims**

1. An ink-jet recording process comprising the steps of:

providing a neutral or alkaline recording paper, and

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applying droplets of a water-based ink containing a dye which varies from water-soluble to water-insoluble according to the change of pH, to conduct recording,

wherein the recording paper has a pH adjusting agent on the surface thereof to set the surface pH of the paper to a value not higher than the pH at which the dye turns water-insoluble, and the dye is insolubilized on the surface of the recording paper.

5,729,266

RECORDING SHEETS CONTAINING OXAZOLE, ISOOXAZOLE, OXAZOLIDINONE, OXAZOLINE SALT, MORPHOLINE, THIAZOLE, THIAZOLIDINE, THIADIAZOLE AND PHENOTHIAZINE COMPOUNDS

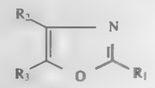
Shadi L. Malhotra, Mississauga, Canada, assignor to Xerox Corporation, Stamford, Conn.

Division of Ser. No. 196,672, Feb. 15, 1994, and a continuation-in-part of Ser. No. 34,943, Mar. 19, 1993, Pat. No. 5,314,747. This application May 31, 1995, Ser. No. 455,611

Int. Cl.[6] B05D *5/04;* **B41M** *5/00*

U.S. Cl. 347—102 **16 Claims**

4. A process which comprises applying an aqueous recording liquid in an imagewise pattern to a recording sheet which comprises a substrate and an additive material selected from the group consisting of (a) oxazole compounds of the formula



wherein R_1, R_2, and R_3 each, independently of one another, are hydrogen, alkyl, substituted alkyl, aryl, substituted aryl, arylalkyl, substituted arylalkyl, amine, or carboxyl, (b) oxazolidinone compounds, (c) 2 -methyl-5-phenyl-2-oxazoline-4-methanol, (d) N'-(4,5-dimethyloxazol-2-yl)sulfanilamide, and (e) mixtures thereof.

5,729,267

IMAGE FORMING APPARATUS HAVING IMAGE TRANSFER WITH TONER CLEANING FUNCTION

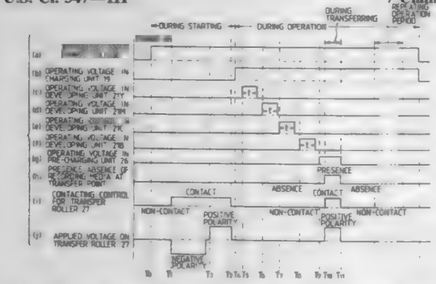
Akira Shimada; Masashi Yamamoto, and Hiroyuki Tadokoro, all of Hitachi, Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Filed Apr. 29, 1994, Ser. No. 235,809

Claims priority, application Japan, Apr. 30, 1993, 5-104376

Int. Cl.[6] B41J *2/385;2/41;* **G01D** *15/06;* **G03G** *15/14*

U.S. Cl. 347—111 **7 Claims**



1. An image forming apparatus comprising an image holding member, charging means for uniformly charging said image holding member, exposing means for forming an electro-static latent image on said image holding member when said image holding member is charged uniformly, visual image forming means for forming a visual image by developing the electro-static latent image, transfer means for transferring the visual image to a printing medium, transport means for transporting the printing medium to said transfer means, a voltage source, and control means for controlling said voltage source so as to be operative during an interval after starling of operation of said image forming apparatus and before the printing medium is transported to said transfer means to apply to said transfer means during said interval a sequence of (1) voltage of one polarity for a first period of time, followed by (2) voltage of opposite polarity for a second period of time.

5,729,268

PRINTING APPARATUS AND METHOD OF CONTROLLING THE SAME

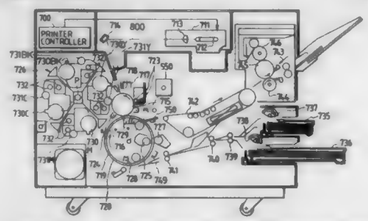
Koichiro Akimoto, Fujisawa, Japan, assignor to Canon Kabushiki Kaisha, Tokyo, Japan

Filed Feb. 11, 1993, Ser. No. 16,459

Claims priority, application Japan, Feb. 14, 1992, 4-028486; Jan. 29, 1993, 5-013549

Int. Cl.[6] B41J *2/385;* **G03G** *15/01;* **G01D** *15/06;* **H04N** *1/21*

U.S. Cl. 347—119 **6 Claims**



1. A printing apparatus for superposing and recording images of respective basic color components constituting one page on a recording medium to form a color image in response to printing data received from an external apparatus, comprising:

instruction receiving means for receiving an instruction for stopping printing processing from the external apparatus;

converting means for converting the input printing data into pattern images of the respective color components and storing the pattern images in a conversion memory;

recording means for superposing and recording the pattern images converting by said converting means on the recording medium in units of recording color components;

discriminating means for discriminating whether said instruction means has instructed to stop the printing processing; and

control means for controlling said recording means to stop upon completion of the recording if said discriminating means discriminates that said instruction means has instructed to stop the printing process.

5,729,269

EXPOSURE DEVICE UTILIZING LEDS EACH HAVING A PLURALITY OF LUMINESCENCE PORTIONS

Kazuyuki Ohnishi, Yamatokoriyama; Toshiaki Kobayashi, Tenri; Hideo Matsuda, Nara, and Osamu Fujimoto, Yamatokoriyama, all of Japan, assignors to Sharp Kabushiki Kaisha, Osaka, Japan

Filed Dec. 12, 1995, Ser. No. 571,186

Claims priority, application Japan, Dec. 27, 1994, 6-326369

Int. Cl.[6] B41J *2/45*

U.S. Cl. 347—130 **32 Claims**

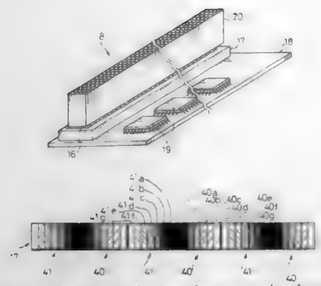
1. An image forming apparatus comprising:

a photoreceptor; and

exposure means for exposing said photoreceptor based on image data so as to form an electrostatic latent image on said photoreceptor, said exposure means including

a plurality of light emitting devices aligned in a main scanning direction of said photoreceptor, the plurality of light emitting devices each having a plurality of luminescence portions, and

light emitting device driving means for applying respective voltages to the plurality of light emitting devices in accordance with the image data so that respective luminescence areas of the plurality of light emitting devices increase step by step each time the respective applied voltages increase by a predetermined voltage.



5,729,270

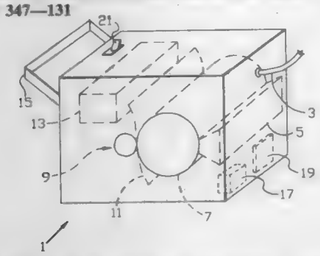
TONER CONSERVATION BY PEL MODULATION WITH OPERATOR CONTROL

Phillip Byron Wright; Dale Randal Danner; Martin Victor DiGirolamo; Gary Scott Overall, and John Parker Richey, all of Lexington, Ky., assignors to Lexmark International, Inc., Lexington, Ky.

Filed Jul. 27, 1994, Ser. No. 280,957

Int. Cl.[6] B41J *2/415;2/385;* **H04N** *1/21;* **G02B** *26/08*

U.S. Cl. 347—131 **2 Claims**



1. Imaging apparatus comprising electrostatic image forming apparatus means to develop images formed by said electrostatic image forming apparatus with toner, and means to transfer said toned images to paper or other substrate as permanent images, said electrostatic image forming apparatus including an electrostatic discharge printhead operative to discharge a charged electrostatic surface to form image areas to be toned, each of said image areas being located at different bit locations of said images formed by said electrostatic image forming apparatus, first ones of said image areas being of one size less than or equal to a first size, said first size being a size of bits in said images formed by said electrostatic image forming apparatus, and second ones of said image areas being a second size less in size than said one size, electronic data processing apparatus to form an electronic bit map defining a dark or light significance of bits of an image, each bit of said electronic bit map defining a bit in said image formed by said electrostatic image forming apparatus of said first size, and electronic logic and control apparatus to receive as inputs a dark or light significance of bits in a selected contiguous region of bits in said electronic bit map and to define a size of said discharge by said printhead for individual bits of said electronic bit map, said electronic logic and control apparatus defining discharge by said printhead of image bits forming edges of images to be charged when charged areas are toned or to be discharged when discharged areas are toned in said one size to form said first ones of said image areas to produce a dark outline and defining discharge by said printhead of image bits internal to said bits forming edges to be charged when charged areas are toned or to be discharged when discharged areas are toned in said second size to form said second ones of said image areas to produce images less dark than said dark outline within a dark outline.

5,729,271

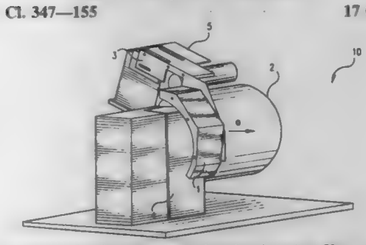
DEVICE TO DESENSITIZE MIGRATION IMAGING FILM AND ALLOW DAYLIGHT FILM HANDLING

Irena Makarchuk, Fairfield; Sandra Graveson, Waterbury, both of Conn.; Robert J. Kleckner, Yorktown Hgts., N.Y.; Leo Chin, Bronx, N.Y., and Abu S. Islam, Mt. Vernon, N.Y., assignors to Xerox Corporation, Stamford, Conn.

Filed May 4, 1995, Ser. No. 434,961

Int. Cl.[6] B41J *2/385;* **G03G** *9/08*

U.S. Cl. 347—155 **17 Claims**



1. A device for desensitizing migration imaging film, comprising:

an imaging member having the film disposed on an outer surface;

a scanner for exposing the film; and

a desensitizing device for desensitizing the film by changing a surface charge on the film without causing migration of the migration marking particles.

5,729,272

THERMAL TRANSFER PRINTING METHOD AND APPARATUS

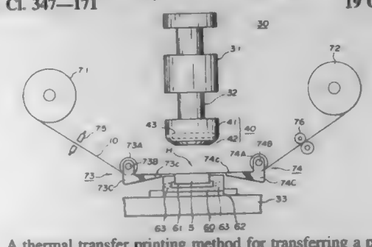
Shuichi Kikuchi, Miyagi, Japan, assignor to Sony Corporation, Tokyo, Japan

Division of Ser. No. 440,140, May 12, 1995, Pat. No. 5,600,359, which is a continuation-in-part of Ser. No. 272,004, Jul. 8, 1994, abandoned. This application Jul. 31, 1996, Ser. No. 688,872

Claims priority, application Japan, Jul. 14, 1993, 5-195565; May 12, 1994, 6-098497

Int. Cl.[6] B41J *2/32;3/413;3/407;* **B41F** *16/00*

U.S. Cl. 347—171 **19 Claims**



1. A thermal transfer printing method for transferring a printing layer from a thermal transfer film onto a metal or ceramic material by a thermal transfer head, the thermal transfer film having a base film, a printing layer and a heat sensitive adhesive layer, both of which layers are formed on the base film, the method comprising the steps of:

(a) heating the material;

(b) shifting the material to a thermal transfer printing position;

(c) pressing the thermal transfer film onto the material with the thermal transfer head;

(d) separating the thermal transfer head away from the thermal transfer film;

(e) cooling the thermal transfer film; and

(f) peeling the base film of the thermal transfer film away from the material while leaving the printing layer and adhesive layer on the material;

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wherein, in step (f), the base film of the thermal transfer film is peeled off from one side of the material; and

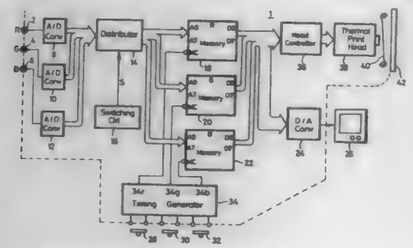
wherein said peeling step comprises positioning a peeling member between the base film and the material so that the peeling member moves relative to the material in a direction parallel to a printing surface of the material.

5,729,273

COLOR VIDEO PRINTER

Sadao Maeyama, Chiba, Japan, assignor to Sony Corporation, Tokyo, Japan

Filed Mar. 2, 1995, Ser. No. 397,650
Claims priority, application Japan, Mar. 8, 1994, 6-037301
Int. Cl.[6] B41J 2/325
U.S. Cl. 347—172 4 Claims



2. A video printing apparatus comprising:

first and second input means to which first and second video signals are supplied respectively;

first and second memory means for respectively storing said first and second video signals in response to respective trigger signals supplied thereto;

distributing means for supplying said first video signal supplied thereto from said first input means to said first memory means and said second video signal supplied thereto from said second input means to said second memory means in a first mode and supplying one of said first and second video signals supplied thereto from one of said first and second input means to said first and second memory means in a second mode;

timing generating means for supplying said trigger signals to said first and second memory means simultaneously in said first mode and supplying said trigger signals to said first and second memory means at arbitrary timings in said second mode; and

printing means for printing an image of a first color based on said first video signal stored in said first memory means and printing an image of a second color based on said second video signal stored in said second memory means.

5,729,274

COLOR DIRECT THERMAL PRINTING METHOD AND THERMAL HEAD OF THERMAL PRINTER

Masamichi Sato, Saitama, Japan, assignor to Fuji Photo Film Co., Ltd., Kanagawa, Japan

Continuation of Ser. No. 145,187, Nov. 3, 1993, abandoned.
This application Apr. 17, 1996, Ser. No. 633,557
Claims priority, application Japan, Nov. 5, 1992, 4-296116; Nov. 18, 1992, 4-308784
Int. Cl.[6] B41J 2/32
U.S. Cl. 347—173 23 Claims

1. A color thermal printing method for printing a multi-color image comprising the steps of:

passing a color thermal recording medium once through a transport path along which first to third thermal heads and first and second light sources are arranged, the color thermal recording medium having first to third thermosensitive coloring layers each developing a different color,

the first to third thermosensitive coloring layers being arranged in a predetermined order having the first thermosensitive coloring layer being an uppermost layer and the third thermosensitive coloring layer being a lowermost layer with the second thermosensitive coloring layer being disposed between the first and third thermosensitive coloring layers;

thermally recording the first thermosensitive coloring layer using the first thermal head;

optically fixing the first thermosensitive coloring layer by radiating electromagnetic rays specific to the first thermosensitive coloring layer from the first light source;

thermally recording the second thermosensitive coloring layer using the second thermal head;

optically fixing the second thermosensitive coloring layer by radiating electromagnetic rays specific to the second thermosensitive coloring layer from the second light source;

thermally recording the third thermosensitive coloring layer using the third thermal head; and

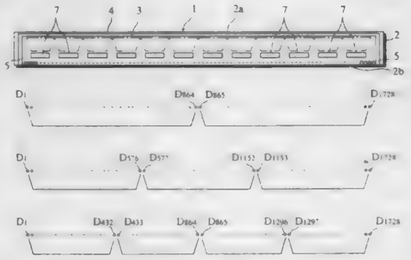
driving the first to third thermal heads in time-sharing fashion such that respective driving times of the first, second and third thermal heads for thermally recording the first, second and third thermosensitive coloring layers are shifted from one another so as not to overlap with one another, thereby reducing maximum instantaneous power consumption of said driving step.

5,729,275

THERMAL PRINTHEAD, DRIVE IC FOR THE SAME AND METHOD FOR CONTROLLING THE THERMAL PRINTHEAD

Takaya Nagahata, Kyoto, Japan, assignor to Rohm Co. Ltd., Kyoto, Japan

PCT No. PCT/JP95/00723, § 371 Date Dec. 7, 1995, § 102(e) Date Dec. 7, 1995, PCT Pub. No. WO95/28283, PCT Pub. Date Oct. 26, 1995
PCT Filed Apr. 13, 1995, Ser. No. 556,967
Claims priority, application Japan, Apr. 15, 1994, 6-077671; Oct. 3, 1994, 6-239281; Oct. 6, 1994, 6-281094; Oct. 6, 1994, 6-281096
Int. Cl.[6] B41J 2/34
U.S. Cl. 347—210 19 Claims



1. A drive IC for mounting on a thermal printhead having a predetermined number of heating dots,

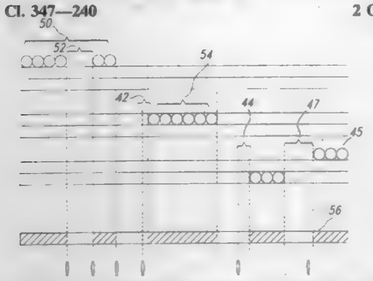
wherein the drive IC has output bits in a number which is set to be both a divisor of ¼ of the predetermined number of the heating dots and a multiple of 8 no less than 48.

5,729,276

METHOD FOR PRINTING USING HORIZONTAL OFFSET

William E. Nelson, Dallas, Tex., assignor to Texas Instruments Incorporated, Dallas, Tex.

Division of Ser. No. 97,419, Jul. 26, 1993, Pat. No. 5,510,824.
This application Jun. 7, 1995, Ser. No. 472,155
Int. Cl.[6] H04N 1/21
U.S. Cl. 347—240 2 Claims



1. A method of resolution enhancement of a print image, comprising the steps of:

establishing a first row of pixels of a spatial light modulator array at an original dots-per-inch resolution;

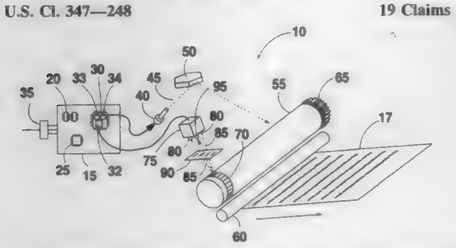
determining a desired multiple of the original dots-per-inch resolution; and horizontally offsetting the pixels of successive rows of the array in fractional increments wherein each successive row is offset a horizontal distance substantially equal to an inverse of said multiple from a just previous row.

5,729,277

SYSTEM AND METHOD FOR MODIFYING AN OUTPUT IMAGE SIGNAL TO COMPENSATE FOR DRUM VELOCITY VARIATIONS IN A LASER PRINTER

Robert D. Morrison, Star, Id., assignor to Hewlett-Packard Company, Palo Alto, Calif.

Filed Jul. 19, 1995, Ser. No. 504,010
Int. Cl.[6] B41J 2/47
U.S. Cl. 347—248 19 Claims



1. A system for modifying an output image signal for reducing aberrations in an output image of an image transfer apparatus, the system comprising:

(a) sensing apparatus for sensing a velocity of a scanning surface associated with the image transfer apparatus;

(b) error generating apparatus coupled to the sensing apparatus for generating a velocity error value signal for the scanning surface; and.

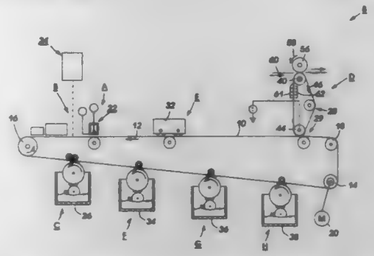
(c) output image signal corrector apparatus coupled to the error generating apparatus for correcting an output image signal in response to the velocity error value signal thereby reducing aberrations in the output image caused by variations in the velocity of the scanning surface.

5,729,278

SIDEWINDER RASTER OUTPUT SCANNER

James J. Appel, Rochester; Edward C. Bock, and David P. Wind, both of Webster, all of N.Y., assignors to Xerox Corporation, Stamford, Conn.

Filed Jul. 1, 1996, Ser. No. 674,071
Int. Cl.[6] B41J 2/47
U.S. Cl. 347—259 10 Claims



1. A raster output scanner assembly for sweeping a spot on a photoreceptor in a fast scan direction, the raster output scanner assembly comprising:

a laser for generating laser light;

a photoreceptor moving in a process direction which is substantially perpendicular to the fast scan direction;

a rotating polygon having at least one facet for receiving the laser light and for sweeping the laser light in a sweep plane;

an F-θ scan lens positioned in the sweep plane for receiving the swept laser light and for focusing the received laser light onto said photoreceptor; and

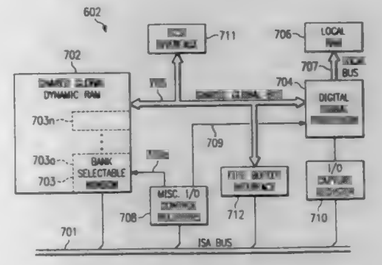
a first folding mirror positioned between said F-θ scan lens and said photoreceptor and aligned along a first axis which is at a first angle with the fast scan direction, said first folding mirror for reflecting laser light passing through said F-θ scan lens toward said photoreceptor along a first sweep path.

5,729,279

VIDEO DISTRIBUTION SYSTEM

William H. Fuller, Plano, Tex., assignor to SpectraVision, Inc., Richardson, Tex.

Filed Jan. 26, 1995, Ser. No. 378,616
Int. Cl.[6] H04N 7/173
U.S. Cl. 348—8 11 Claims



1. A system for merging screen images originating from at least two different sources and outputting the merged screen images on selected transmission channels to selected televisions, the system comprising:

means for writing picture element (PEL) data originating from a first source to a selected window of a memory, said memory having multiple windows each associated with a separate one of said channels, each said window comprising sufficient memory space to store a first screen comprised of multiple PELs;

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means for encoding said first screen written to said selected window from a first digital format to a second digital format;

multiple buffer means each of which is associated with a designated one of said channels;

means for transferring a second screen of data originating from a second source to a selected one of said buffers, said second screen being already encoded in said second format;

means for transferring said encoded first screen to said selected one of said buffers and merging said encoded first screen with said second screen already in said selected buffer, thereby producing a merged screen in said selected one of said buffers;

means for decoding said merged screen from said second format to a third format; and

means for transmitting on said selected channel said decoded merged screen for display on said selected television.

5,729,280

NEAR VIDEO-ON-DEMAND SIGNAL RECEIVER HAVING A MEMORY WHICH PROVIDES FOR VCR LIKE FUNCTIONS

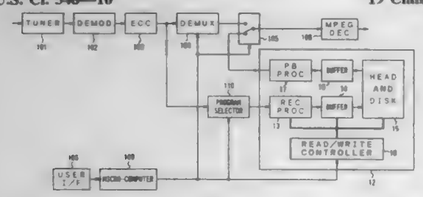
Hajime Inoue, Chiba; Yukio Kubota, Kanagawa; Toshimichi Nagashima, Kanagawa; Akira Shimazu, Kanagawa, and Keiji Kanota, Kanagawa, all of Japan, assignors to Sony Corporation, Tokyo, Japan

Filed Aug. 28, 1995, Ser. No. 520,564

Claims priority, application Japan, Aug. 31, 1994, 6-230281; Oct. 14, 1994, 6-275936

Int. Cl.[6] H04N *7/14*

U.S. Cl. 348—10 **19 Claims**



1. A video signal receiver for receiving a plurality of video channels simultaneously carrying a single video program comprised of video signals, each transmission of said video program on one of said channels being offset by a time interval with respect to the transmission of said video program on another one of said channels, comprising:

memory means for receiving video signals for storage and reproducing stored video signals;

channel selecting means, coupled to said memory means, for selecting one of said video channels and for supplying the video signals carried on the one channel to said memory means and to a display device;

user input means for providing commands from a user; and

control means, coupled to said memory means, said channel selecting means and said user input means, for controlling said channel selecting means to supply a selected channel of video signals to said display device and, in response to a pause command received from said user input means, for controlling said channel selecting means to supply said selected channel of video signals to said memory means and for controlling said memory means to store the video signals carried on said selected channel as a stored segment and, in response to a resume command received from said user input means, for controlling said memory means to reproduce the video signals of said stored segment.

5,729,281

CATV SYSTEM IN WHICH CHANEL SELECTION SIGNAL IS TRANSMITTED FROM THE SUBSCRIBER LOCATION

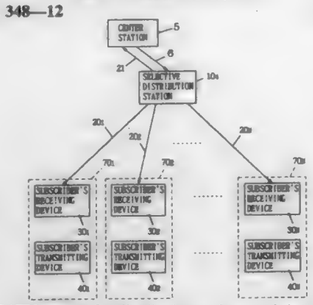
Kuniaki Utsumi, Sanda; Hiroyuki Sasai, Ikoma; Hiroaki Yamamoto, Higashiosaka; Manabu Tanabe, Tanabe, and Katsuyuki Fujito, Higashiosaka, all of Japan, assignors to Matsushita Electric Industrial Co., Ltd., Osaka, Japan

Filed May 18, 1995, Ser. No. 443,699

Claims priority, application Japan, May 23, 1994, 6-108704

Int. Cl.[6] H04N *7/173;7/14*

U.S. Cl. 348—12 **19 Claims**



1. A CATV system for distributing and transmitting signals of a plurality of channels to a plurality of subscribers, said system comprising:

a center station for generating the signals of the plurality of channels;

a plurality of subscriber's receiving devices respectively provided for said plurality of terminals;

a plurality of subscriber's transmitting devices corresponding to said plurality of subscriber's receiving devices, wherein said plurality of subscriber's transmitting devices independently transmits requests to receive predetermined channels from the plurality of channels, as up-signals by radio frequencies; and

a selective distribution station, interposed between said center station and said plurality of subscriber's receiving devices, for selectively distributing and transmitting the signals for the requested channels generated in said center station and requested by said subscriber's transmitting devices, wherein the signals for the requested channels are received by respective ones of said plurality of subscriber's receiving devices.

5,729,282

VIDEO CAMERA SYSTEM

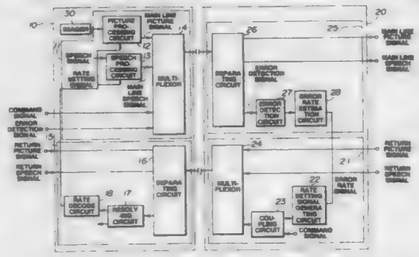
Hiroshi Okawa, Kanagawa, Japan, assignor to Sony Corporation, Tokyo, Japan

Filed Dec. 13, 1995, Ser. No. 571,353

Claims priority, application Japan, Dec. 19, 1994, 6-314632

Int. Cl.[6] H04N *7/14;5/225*

U.S. Cl. 348—13 **6 Claims**



1. A digital video communication system for bidirectional communication between a first station and a second station, said first station including a first transmitting portion and a first receiving portion, said first transmitting portion having video data processing means supplied with video data and adapted for outputting processed video data at a variable transmission bit rate controlled by a first rate controlling signal, and first multiplexing means for multiplexing audio data and an error detection signal besides said processed video data, said first receiving portion having separating means for separating video data, a control signal and audio data from received multiplexed data, generating means for generating said rate control signal from said control signal and means for supplying said rate signal to said video data processing means, said second station including a second receiving portion and a second transmitting portion, said second receiving portion having separating means for separating the video data, the audio data and the error detecting signal from said multiplexed data and error detecting means supplied with said error detecting signal for detecting the error rate and generating error rate detecting signal, said second transmitting portion having control signal generating means supplied with said error rate detecting signal and for generating said control signal and second multiplexing means for multiplexing the video data, audio data and said control signal.

5,729,283

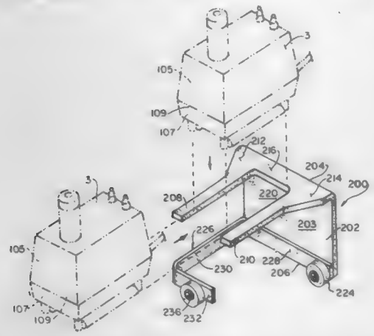
HOLDER FOR READING DEVICE FOR THE VISUALLY IMPAIRED

Daniel M. Meyer, and James Trulaske, both of St. Louis, Mo., assignors to Vision Technology, Inc., Town & Country, Mo.

Continuation-in-part of Ser. No. 353,801, Dec. 12, 1994, Pat. No. 5,633,674. This application Mar. 11, 1996, Ser. No. 613,493

Int. Cl.[6] H04N *7/18*

U.S. Cl. 348—63 **19 Claims**



1. A magnifying device for magnifying an object and displaying an object on a monitor, the device including:

a hand-held unit which, when used, is placed in close proximity to the object to be magnified, the hand-held unit having:

a housing including a top, a bottom, and side walls; said bottom defining an opening;

legs depending from the bottom;

rollers rotatably connected to the legs at a bottom end of the legs to facilitate movement of the hand-held unit over the object;

a mobile hand-held unit holder removably attached to the hand-held unit for elevating said hand-held unit above the object to be read and for increasing mobility of said hand-held unit over the object;

said mobile hand-held unit holder having an upper support member, a bottom support member, and a side support structurally connected between said upper and bottom support members, for holding said hand-held unit to said upper support member;

a solid state camera housed in said hand-held unit above said opening which converts an optical signal to an electric signal, said camera including a lens, said lens being focusable;

a focusing control for focusing said camera lens;

a zoom control for altering the size of the image displayed on the monitor; and

a base unit, said hand-held unit being electrically connected to said base unit to transmit the signal produced by said camera to said base unit, said base unit being connectable to the monitor to display the signal produced by the camera on the monitor.

5,729,284

APPARATUS FOR REPRODUCING PHOTOGRAPHED IMAGES

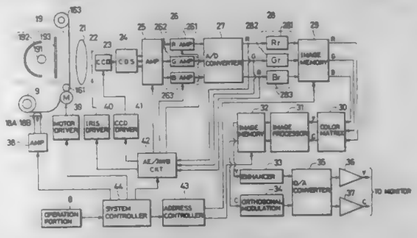
Toru Ishii, Hirakata; Hiroaki Kubo, Kyoto; Gen Sasaki, Toyonaka; Hiroshi Ootsuka, Fukuroi, and Hiroshi Kiten, Minoo, all of Japan, assignors to Minolta Co., Ltd., Osaka, Japan

Division of Ser. No. 394,760, Feb. 27, 1995, Pat. No. 5,623,303. This application Feb. 10, 1997, Ser. No. 797,130

Claims priority, application Japan, Feb. 28, 1994, 6-030547; Feb. 28, 1994, 6-030560; Feb. 28, 1994, 6-030588; Mar. 14, 1994, 6-042665

Int. Cl.[6] H04N *5/253*

U.S. Cl. 348—96 **20 Claims**



1. An image reading apparatus comprising:

an image pick-up device which picks up images recorded on a recording medium;

a mover which moves the image pick-up device and the recording medium relative to each other at one of a first speed and a second speed, the second speed being faster than the first speed; and

an exposure controller which controls an exposure of the image pick-up device, the exposure controller including:

a light adjuster which is operable to adjust the amount of light reaching the image pick-up device from an image, and to fixedly hold a predetermined light amount when the mover moves the image pick-up device and the recording medium relative to each other at the second speed.

5,729,285

FOCAL PLANE ARRAY INTEGRATED CIRCUIT WITH INDIVIDUAL PIXEL SIGNAL PROCESSING

Kirk D. Peterson, Plano; Dana Dudley, Dallas, and Kevin N. Sweetser, Garland, all of Tex., assignors to Texas Instruments Incorporated, Dallas, Tex.

Continuation of Ser. No. 97,522, Jul. 27, 1993. This application Jun. 7, 1995, Ser. No. 474,229

Int. Cl.[6] H04N *5/33;5/335*

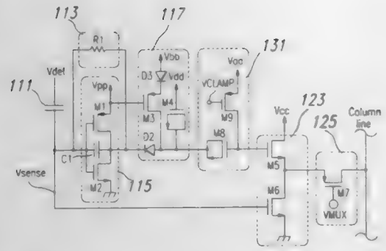
U.S. Cl. 348—162 **15 Claims**

7. A method for simultaneously processing image information within a detector circuit, the detector circuit having an array of unit cells, comprising:

simultaneously clamping a voltage on an input of a buffer of each of the unit cells to a predetermined reference voltage while exposing a sensing element of each of the unit cells to a reference energy flux;

exposing the sensing element of each of the unit cells to a scene energy flux emanating from a scene so that the voltage on the buffer input of each of the unit cells is changed to a first scene

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voltage by an amount that is indicative of the difference in intensity of the scene energy flux and the reference energy flux;

connecting a first buffered scene voltage from each of the unit cells to a video output terminal;

simultaneously re-clamping the voltage on the buffer input of each of the unit cells to the predetermined reference voltage;

exposing the sensing element of each of the unit cells to the reference energy flux so that the voltage on the buffer input of each of the unit cells is changed to a second scene voltage by an amount that is indicative of the difference in intensity of the reference energy flux and the scene energy flux; and

connecting a second buffered scene voltage from each of the unit cells to the video output terminal so that a resulting video output signal has an amplitude that is approximately twice the magnitude of the first buffered scene voltage of each of the unit cells and a noise component that is approximately the same as in the first buffered scene voltage.

5,729,286

AUTOMATIC WHITE BALANCE REGULATING DEVICE HAVING INTERCHANGEABLE SYSTEMS

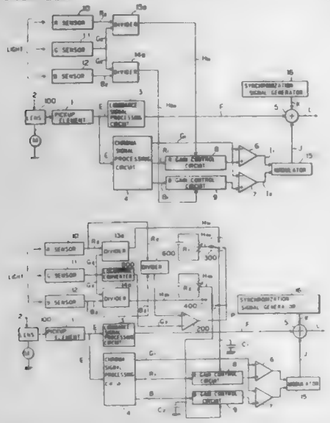
Kohji Shinomiya, Itami, Japan, assignor to Mitsubishi Denki Kabushiki Kaisha, Tokyo, Japan

Division of Ser. No. 433,951, May 4, 1995, Pat. No. 5,528,373, which is a continuation of Ser. No. 176,015, Dec. 30, 1993, abandoned, which is a division of Ser. No. 954,044, Sep. 30, 1992, Pat. No. 5,298,980, which is a division of Ser. No. 644,559, Jan. 23, 1991, Pat. No. 5,185,658. This application Mar. 6, 1996, Ser. No. 611,852

Claims priority, application Japan, Feb. 5, 1990, 2-26802

Int. Cl.[6] H04N *9/73*

U.S. Cl. 348—224 **6 Claims**



1. An automatic white balance regulating device built in an image pickup device for shooting an object and provided with a color temperature sensor system and a camera color signal processing system, comprising:

a plurality of color sensors receiving light around a place where said image pickup device is set in position to output a plurality of first color signals;

image pickup means for shooting said object to output a plurality of second color signals;

first control signal producing means for producing a first white balance control signal of said color temperature sensor system; using said first color signals;

second control signal producing means for producing a second white balance control signal of said camera color signal processing system, using said second color signals;

system selecting means for selecting said first white balance control signal when it is brighter around the place where said image pickup device is set in position than it is around said object, and selecting said second white balance control signal when it is not; and

level regulating means for regulating a level of predetermined one of said second color signals in response to said first or second white balance control signal selected by said system selecting means;

said system selecting means comprising:

a comparator for receiving a specified one color signal within said plurality of first color signals and a specified one color signals within said plurality of second color signals to compare magnitudes thereof to output a system changeover signal in accordance with a comparison result, and

a switch for receiving said first and second white balance control signals and said system changeover signal to selectively output said first or second white balance control signal in accordance with said system changeover signal.

5,729,287

DRIVING METHOD FOR DRIVING A SOLID STATE IMAGE PICK-UP DEVICE

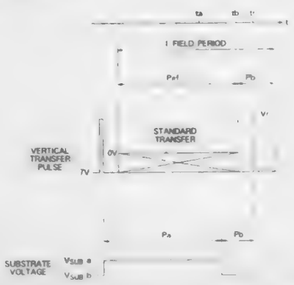
Michihiro Morimoto, Tokyo, Japan, assignor to NEC Corporation, Tokyo, Japan

Filed Aug. 19, 1996, Ser. No. 699,389

Claims priority, application Japan, Aug. 22, 1995, 7-213546

Int. Cl.[6] H04N *5/335*

U.S. Cl. 348—241 **5 Claims**



5. A driving method for driving a solid state image pick-up device including:

a first conductive type semiconductor substrate;

a second conductive type impurity well layer;

a plurality of photodiodes;

a vertical CCD register receiving a charge of said photodiodes for transferring the same;

a horizontal CCD register receiving a charge from said vertical CCD register and transferring the same;

a charge detecting portion formed within said impurity well layer and detecting the charge from said horizontal CCD register;

an output amplifier provided within said semiconductor substrate; and

vertical overflow drain means for sweeping an excessive charge within respective photodiode to said semiconductor substrate, the method comprising a step of:

applying a pulse voltage to said semiconductor substrate for sweeping a part of charge in said photodiode to said semiconductor substrate during an arbitrary horizontal blanking period in a period in which a charge photoelectrically converted by said photodiode is accumulated in said photodiode, wherein said pulse voltage applied to said semiconductor substrate is higher than a blooming restriction voltage for preventing occurrence of photodiode blooming.

5,729,288

ELECTRONIC IMAGE PICK UP APPARATUS EMPLOYING A COMPARISON TECHNIQUE FOR REDUCING THE EFFECT OF NOISE ON THE IMAGE

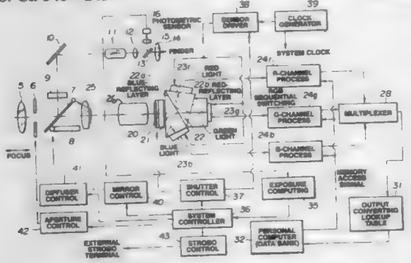
Kuniaki Saito, Tokorozawa, Japan, assignor to Olympus Optical Co., Ltd., Tokyo, Japan

Filed Aug. 1, 1995, Ser. No. 510,105

Claims priority, application Japan, Aug. 3, 1994, 6-182667

Int. Cl.[6] H04N *9/64*

U.S. Cl. 348—243 **25 Claims**



1. An electronic image pickup apparatus comprising:

an image pickup device;

light-cutting mask means for controlling light from an object to the image pickup device so as to let the light in or cut the light off,

memory means for temporarily storing output image data from said image pickup device, and

computing and control means for determining an optimum exposure setting appropriate for photographing, and in connection with first image data corresponding to an output signal that is read from said image pickup device after photographing and second image data corresponding to an output signal that is read from said image pickup device during light cutoff, said computing and control means deriving final image data by subjecting to computation both said first and second image data, after making both said first and second image data on each cell match in time using said memory means.

5,729,289

IMAGE PICK-UP DEVICE AND DETACHABLE DISPLAY DEVICE EACH INCLUDING MEANS FOR CONTROLLING A PREDETERMINED FUNCTION

Kazuhiko Etoh, Tokyo, Japan, assignor to Canon Kabushiki Kaisha, Tokyo, Japan

Filed Nov. 6, 1995, Ser. No. 553,922

Claims priority, application Japan, Nov. 8, 1994, 6-298993

Int. Cl.[6] H04N *5/222;5/225*

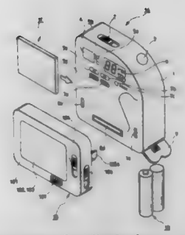
U.S. Cl. 348—333 **6 Claims**

1. An image pick-up device comprising:

image pick-up means having a manipulation member that generates an input signal for controlling a predetermined function of said image pick-up means;

display means removably mountable on a body of said image pick-up means for reproducing a video output from said image pick-up means, for displaying a predetermined image corresponding to the predetermined function, and for generating an input signal for controlling the predetermined function; and

manipulation switching means for switching between the input signal received from the manipulation member of said image pick-up means and the input signal received from said display means upon mounting said display means on said image pick-up means, wherein said manipulation switching means switches from the input signal received from the manipulation member of said image pick-up means to the input signal received from said display means when operation of the manipulation member becomes difficult to manipulate or impossible to manipulate when said display means is mounted on said image pick-up means.



5,729,290

MOVEMENT DETECTION DEVICE AND FOCUS DETECTION APPARATUS USING SUCH DEVICE

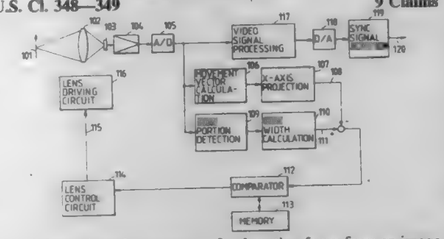
Jun Tokumitsu, Sagamihara; Masayoshi Sekine, Tokyo; Toshiaki Kondo, Atsugi; Koji Takahashi; Isao Harigaya, both of Yokohama; Minoru Yoshii, Tokyo, and Shigeyuki Suda, Yokohama, all of Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan

Division of Ser. No. 161,444, Dec. 6, 1993, Pat. No. 5,526,044, which is a continuation of Ser. No. 983,277, Nov. 30, 1992, abandoned, which is a continuation of Ser. No. 691,785, Apr. 26, 1991, abandoned. This application Jun. 7, 1995, Ser. No. 473,333

Claims priority, application Japan, Apr. 29, 1990, 2-112663; Apr. 29, 1990, 2-112664

Int. Cl.[6] H04N *5/232*

U.S. Cl. 348—349 **9 Claims**



1. A focus detection apparatus for detecting focus from an image pick-up signal received from an image pick-up device, said apparatus comprising:

(A) movement detection means for detecting movement of an image from the received image pick-up signal;

(B) movement correction means for electronically correcting the movement of the image by selecting a different portion of the image pick-up signal based on the output of said movement detection means; and

(C) focus detection means for performing focus detection by extracting a signal component varying with a focusing state from the selected image pick-up signal of which the movement is corrected by said movement correction means.

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5,729,291

VIDEO CAMERA WITH COMPACT ARRANGEMENT OF PARTS

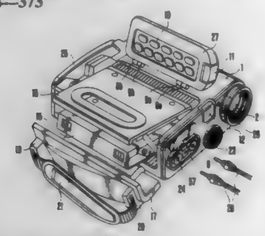
Chifuyu Tanaka, Tokyo; Kenichi Nagasawn, and Takeshi Abe, both of Kanagawa-ken, all of Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan

Continuation of Ser. No. 894,242, Jun. 8, 1992. This application Oct. 18, 1994, Ser. No. 324,539

Claims priority, application Japan, Jun. 18, 1991, 3-145993; Jul. 11, 1991, 3-171289

Int. Cl.[6] H04N *5/225;5/222*

U.S. Cl. 348—373 **9 Claims**



1. A video camera comprising:

an imaging optical system disposed above a recorder mechanism;

an imaging element for converting an optical image obtained from said imaging optical system to an electric signal, and disposed above said recorder mechanism and arranged positionally behind said imaging optical system in the optical path of the light rays emerging from said imaging optical system; and

an electronic viewfinder disposed above said recorder mechanism and arranged positionally directly behind said imaging optical system and said imaging element in the optical path of the light rays emerging from said imaging optical system in the state of photography.

5,729,292

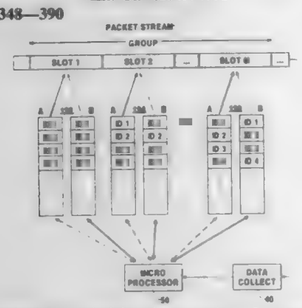
OPTIMIZING PERFORMANCE IN A PACKET SLOT PRIORITY PACKET TRANSPORT SYSTEM

Alfonse Anthony Acampora, Staten Island, N.Y.; Richard Michael Bunting, Hamilton Square, N.J.; Steven Kennedy Evans, Holland, Pa.; Paul Wallace Lyons, New Egypt, N.J.; Nicola John Fedele, Kingston, N.J., and Victor Vincent D'Alessandro, Berkeley Heights, N.J., assignors to Thomson Multimedia, S.A., Boulogne, France

Filed Dec. 21, 1995, Ser. No. 576,527

Int. Cl.[6] H04N *7/12*

U.S. Cl. 348—390 **14 Claims**



1. A method for optimizing the operation of a transport stream encoder producing a stream of packets carrying data representing a plurality of component signals from more than one source, comprising the steps of:

partitioning the packet stream into successive groups containing a plurality of packet slots;

maintaining a plurality of lists, respectively associated with the plurality of packet slots, each list containing a plurality of entries, each entry containing data identifying a respective one of the plurality of component signals;

generating the packet stream in response to the entries in the plurality of lists; and

modifying the plurality of lists based on a predetermined parameter.

5,729,293

METHOD AND DEVICE FOR TRANSCODING A SEQUENCE OF CODED DIGITAL SIGNALS

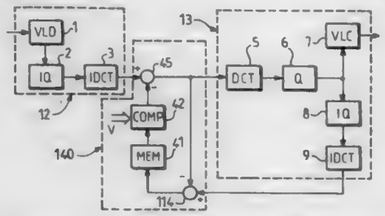
Gerrit J. Keesman, Eindhoven, Netherlands, assignor to U.S. Philips Corporation, New York, N.Y.

Filed Jun. 29, 1995, Ser. No. 496,344

Claims priority, application France, Jun. 30, 1994, 94 08105; Sep. 2, 1994, 94 10583

Int. Cl.[6] H04N *7/36*

U.S. Cl. 348—401 **11 Claims**



1. A method of transcoding coded digital signals corresponding to a sequence of images, which method comprises a decoding step of the input digital signals which are associated with each current image, followed by an encoding step, said method being characterized in that it also comprises, between said decoding and encoding steps, a prediction step comprising in cascade:

(a) a first subtracting sub-step provided for determining an encoding error during said encoding step;

(b) a storing sub-step of said encoding error;

(c) a motion compensation sub-step between said current image and a previous image;

(d) a second subtracting sub-step between the decoded signals obtained after said decoding step and the motion-compensated signals obtained after said motion compensation sub-step, the output of said second subtracting sub-step corresponding to the input of said encoding step.

5,729,294

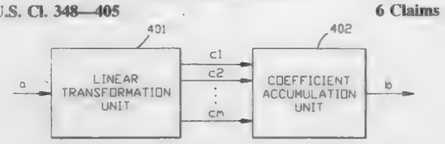
MOTION VIDEO COMPRESSION SYSTEM WITH NOVEL ADAPTIVE QUANTIZATION

Elliot Neil Linzer, Bronx, and Heidi Aarlien Peterson, New York, both of N.Y., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Apr. 5, 1995, Ser. No. 418,141

Int. Cl.[6] H04N *7/12*

U.S. Cl. 348—405 **6 Claims**



1. A method for coding a digital picture, comprising the steps of:

dividing the picture into a plurality of regions;

dividing each region into a plurality of subregions;

determining linear combinations of pixels in each subregion, each of said linear combinations representing an accumulation of values related to a plurality of pixels of said subregion;

determining a subregional adaptive quantization parameter for each of the subregions as a function of the linear combinations, the function establishing coarseness tolerance for each subregion;

determining a regional quantization parameter for each region as a function of the subregional adaptive quantization parameters;

determining a quantization level for each of the regions based on the regional quantization parameter;

transform encoding each of the regions using the quantization level; and

concatenating a transform encoded representation of each region to obtain an encoded representation of an entire picture.

5,729,295

IMAGE SEQUENCE ENCODING DEVICE AND AREA EXTRACTING DEVICE

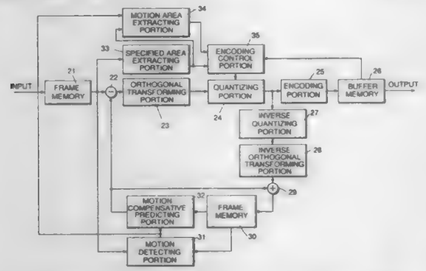
Hiroyuki Okada, Ashikaga, Japan, assignor to Sharp Kabushiki Kaisha, Osaka, Japan

Filed Nov. 27, 1995, Ser. No. 563,003

Claims priority, application Japan, Dec. 27, 1994, 6-325489

Int. Cl.[6] H04N *7/36*

U.S. Cl. 348—416 **8 Claims**



1. An image sequence encoding device comprising:

first means for dividing a frame of an image sequence into blocks, each including N×M pixels, N and M being natural numbers;

second means for detecting a motion vector of a block of a current input frame by comparing said block with a corresponding block of a preceding frame;

third means for obtaining a motion compensative prediction value of the current frame block from the detected motion vector by interframe prediction or intraframe prediction;

fourth means for calculating a difference between the motion compensative prediction value and the current input frame value;

fifth means for obtaining a transform coefficient by orthogonal transformation of the calculated difference;

quantizing means for quantizing the transform coefficient;

encoding means for encoding the quantized transform coefficient to produce coded information;

transmission means for transmitting the encoded information to a receiving terminal over a communication line, which is provided with a buffer memory for matching the encoded information with a transmission rate on the communication line;

specified area extracting means for extracting a specified area from an input image;

motion area extracting means for extracting a motion area by determining a difference between a block of a current input frame from a block of a preceding frame; and

encoding control means for controlling the quantizing means and the encoding means to respectively quantize and then encode the area extracted by the specified area extracting means and the area extracted by the motion area extracting means, wherein the encoding control means controls the quantizing means to quantize only the areas extracted by the motion area extracting means and the specified area extracting means and to vary the encoding rate for the area extracted by the motion area extracting means based upon significance of the area extracted by the specified area extracting means.

5,729,296

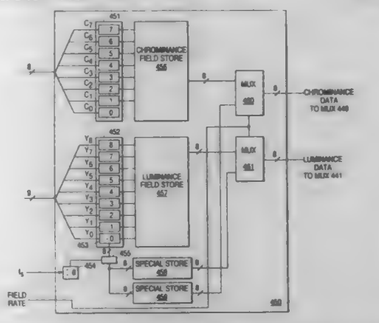
BI-DIRECTIONAL TELEVISION FORMAT DIGITAL SIGNAL CONVERTER WITH IMPROVED LUMINANCE SIGNAL-TO-NOISE RATIO WHICH CHANGES THE NUMBER OF BITS PER BYTE

Charles W. Rhodes, Alexandria, Va., assignor to Advanced Television Test Center, Alexandria, Va.

Division of Ser. No. 53,230, Apr. 28, 1993, Pat. No. 5,504,532, which is a continuation-in-part of Ser. No. 404,190, Sep. 7, 1989, Pat. No. 5,280,397. This application Jun. 7, 1995, Ser. No. 478,051

Int. Cl.[6] H04N *5/76*

U.S. Cl. 348—441 **8 Claims**



1. An apparatus for bi-directionally converting a first television signal between a first television signal format and a second television signal format, the apparatus comprising:

a sampling means for sampling at least a portion of the first television signal to form a first digitized signal having a first predetermined number of bits per byte when the first television signal format is being converted to the second television signal format;

a first shift register means, coupled to the sampling means, for receiving the first digitized signal when the first television signal format is being converted to the second television signal format;

a first memory, coupled to the first shift register means, for storing the first digitized signal, the first memory including a field store and a special store when the first television signal format is being converted to the second television signal format, the field store configured to store a, second predetermined number of bits of each byte of the first digitized signal, the second predetermined number being less than the first predetermined number, and the special store configured to store a third predetermined number of bits of each byte of the first digitized signal, the third predetermined number plus the second predetermined number equalling the first predetermined number;

a first read circuit for outputting the rust digitized signal stored in the field store and the special store as a second digitized signal in the second television signal format when the first television signal format is being convened to the second television signal format, the second digitized signal having said second predetermined number of bits per byte; and

a first write circuit, coupled to the first memory, for receiving a third digitized signal in the second television signal format and storing the received third digitized signal in the field store and in the special store of the fast memory when the second television signal format is being converted to the first television signal format, the third digitized signal having said second predetermined number of bits per byte;

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a second shift register means, coupled to the first memory, for receiving the third digitized signal stored in the field store and the special store of the first memory and forming a fourth digitized signal when the second television signal format is being converted to the first television signal format, the fourth digitized signal having said first predetermined number of bits per byte;

an output circuit, coupled to the second shift register means, for outputting the fourth digitized signal in the first television signal format when the second television signal format is being converted to the first television signal format; and

control means, coupled to the first shift register means, the first memory, the first read circuit, the first write circuit, the second shift register means and the output circuit, for controlling the first shift register means to receive the first digitized signal, the first memory for storing the first digitized signal in the field store and the special store, and the fast read circuit for outputting the second digitized signal in the second television signal format, when the first television signal format is being converted to the second television signal format, and for controlling the first write circuit for receiving the third digitized signal and storing the third digitized signal in the first memory, the second shift register means for receiving the fourth digitized signal from the first memory and forming the fourth digitized signal and the output circuit for outputting the fourth digitized signal in the first television signal format when the second television signal format is being converted to the first television signal format.

5,729,297

SCANNING LINE INTERPOLATOR USING GAMMA CORRECTION MEMORY

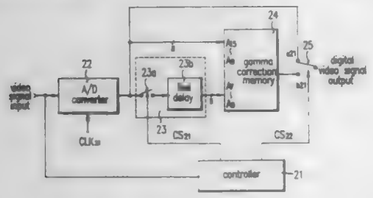
Byong Hwun Kwon, Seoul, Rep. of Korea, assignor to LG Electronics Inc., Seoul, Rep. of Korea

Filed Dec. 1, 1995, Ser. No. 564,678

Claims priority, application Rep. of Korea, Dec. 8, 1994, 33322/1994

Int. Cl.[6] **H04N** *5/202*

U.S. Cl. 348—458 **2 Claims**



1. A scanning line interpolator using a gamma correction memory comprising:

a controller for outputting switching control signals according to an input video signal;

an analog/digital converter for converting the input video signal into a digital signal;

a first multiplexer for allowing the output signal of said analog/digital converter to pass according to said switching control signal output from said controller;

a line buffer having a 1H delay for delaying the digital video signal having passed through said first multiplexer;

a gamma correction memory for previously storing the scanning line interpolated digital video signal and then outputting it with the output signals of said analog/digital converter and 1H delay being taken as its addresses; and

a second multiplexer for selectively outputting the output signals of said analog/digital converter and gamma correction memory according to said switching control signal output from said controller;

wherein said gamma correction memory calculates the average of the output signal of said analog/digital converter and 1H delay in advance by rounding off, and said average is stored and output while taking the output signal of said analog/digital converter as the upper byte addresses and the output signal of said 1H delay as lower byte addresses.

5,729,298

TELETEXT DECODER WITH PAGE UPDATE INDICATION

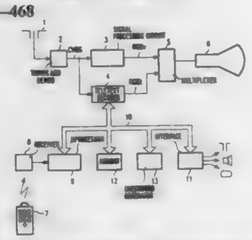
Rogatus H. H. Wester, Eindhoven, Netherlands, assignor to U.S. Philips Corporation, New York, N.Y.

Continuation of Ser. No. 396,359, Feb. 28, 1995, which is a continuation of Ser. No. 187,886, Jan. 28, 1994. This application Jun. 14, 1996, Ser. No. 668,427

Claims priority, application European Pat. Off., Feb. 1, 1993, 93200251

Int. Cl.[6] **H04N** *7/087*

U.S. Cl. 348—468 **6 Claims**



1. A television receiver including a teletext decoder for displaying a teletext page, said teletext page including a plurality of data codes, said teletext decoder comprising:

means for forming a checkword from said data codes upon receiving said teletext page in a first session;

a memory for storing said checkword upon displaying of said teletext page;

means for forming a further checkword from said data codes upon again selecting and receiving said teletext page in a further session; and

means for comparing said checkword and said further checkword and for generating a control signal in conformity with the comparison.

5,729,299

KNEE CORRECTION

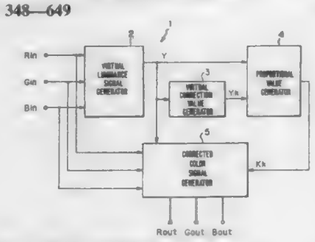
Fuminori Suzuki, and Hiroshi Kitagawa, both of Tokyo, Japan, assignors to U.S. Philips Corporation, New York, N.Y.

Filed Apr. 14, 1995, Ser. No. 422,372

Claims priority, application Japan, Apr. 18, 1994, 6-103313

Int. Cl.[6] **H04N** *9/64*

U.S. Cl. 348—649 **17 Claims**



1. A knee circuit comprising:

a virtual luminance signal generating means for generating a virtual luminance signal Y on the basis of two signals selected from a group of input signals including a red color signal Rin, a green color signal Gin and a blue color signal Bin;

a virtual correction value generating means for generating a virtual correction value Yk by performing a knee correction with respect to the virtual luminance signal Y when a level of the virtual luminance signal Y is equal to or greater than a knee point NP at which the knee correction is to be started;

a proportional value generating means for generating a proportional value Kk indicating a ratio of the virtual correction value Yk to the virtual luminance signal Y; and

a corrected color signal generating means for generating corrected color signals Rout, Gout and Bout by multiplying each of the input color signals Rin, Gin and Bin by the proportional value Kk when the level of the virtual luminance signal Y is equal to or greater than the knee point NP.

5,729,300

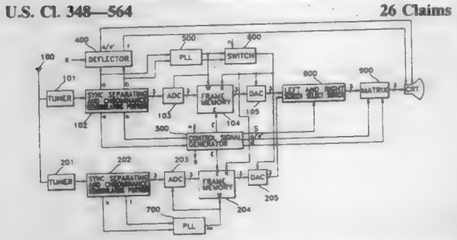
DOUBLE-SCREEN SIMULTANEOUS VIEWING CIRCUIT OF A WIDE-TELEVISION

Deok-Yong Ahn, Suwon, Rep. of Korea, assignor to Samsung Electronics Co., Ltd., Kyungki-do, Rep. of Korea

Filed Jun. 7, 1995, Ser. No. 481,079

Int. Cl.[6] **H04N** *5/45;5/445*

U.S. Cl. 348—564 **26 Claims**



1. A double-screen simultaneous viewing circuit for respectively displaying two pictures on left and right subscreens of a main screen in a television, wherein the double-screen simultaneous viewing circuit comprises:

first and second analog-to-digital converting means for respectively converting first and second video signals into first and second digital signals, wherein said first and second digital signals are respectively output from said first and second analog-to-digital converting means based on first and second clock signals and wherein said first and second clock signals are respectively synchronized with synchronizing signals of said first and second video signals;

first and second memory means for respectively storing said first and second digital video signals output from said first and second analog-to-digital converting means, wherein said first and second digital signals are respectively stored based on said first and second clock signals, wherein said first and second digital signals are respectively read from said first and second memory means based on a third clock signal which is synchronized with said synchronizing signals of said first video signal;

first and second digital-to-analog converting means for respectively converting said first and second digital signals output from said first and second memory means into first and second analog signals, wherein said first and second digital-to-analog converting means output said first and second analog signals based on said third clock signal; and

switching means for receiving said first and second analog signals output from said first and second digital-to-analog converting means and for alternately outputting said first and second analog signals based on a left and right screen switching signal.

5,729,301

METHOD AND DEVICE FOR REDUCING MOIRE WHEN DISPLAYING A VIDEO SIGNAL

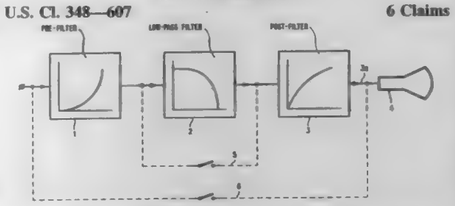
Albertus A. S. Sluyterman, Eindhoven, Netherlands, assignor to U.S. Philips Corporation, New York, N.Y.

Filed Sep. 4, 1996, Ser. No. 707,452

Claims priority, application European Pat. Off., Sep. 7, 1995, 95202416

Int. Cl.[6] **H04N** *5/21*

U.S. Cl. 348—607 **6 Claims**



1. A method of reducing a moiré phenomenon upon display of a video signal on a display device, comprising the steps:

low-pass filtering said video signal with a cut-off frequency substantially corresponding to a maximum frequency of a baseband portion of said video signal, to obtain a low-pass filtered video signal;

filtering the low-pass filtered video signal in accordance with a transfer function substantially corresponding to the inverse of the transfer function of the display device, to obtain a filtered signal; and

applying the filtered signal to the display device.

5,729,302

METHOD AND APPARATUS FOR DETECTING MOTION VECTORS OF PIXEL BLOCKS OF A DIGITIZED VIDEO SIGNAL

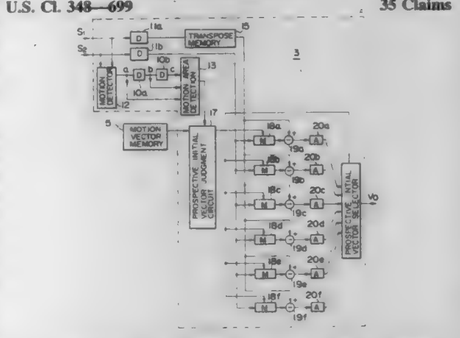
Tatsuo Yamauchi, Tokyo, Japan, assignor to Oki Electric Industry Co., Ltd., Tokyo, Japan

Filed Sep. 16, 1994, Ser. No. 306,919

Claims priority, application Japan, Sep. 17, 1993, 5-231539; May 13, 1994, 6-099699

Int. Cl.[6] **H04N** *7/18*

U.S. Cl. 348—699 **35 Claims**

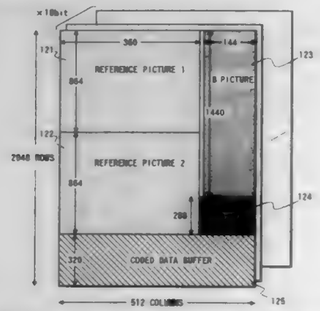


1. A true motion vector detecting method, including dividing a digitized video signal into plural blocks, producing plural prospective initial vectors from previously detected true motion vectors in respect to said block in which the true motion vector is to be detected in order to detect the true motion vector in respect to each of said blocks between signals located at least one field away from one another, seeking a shift vector based on an optimum vector as an initial vector selected from among said plural prospective initial vectors, and rendering a summation of said initial vector and said shift vector as the true motion vector of said block, said detecting method comprising the steps that:

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a) a further prospective initial vector is produced independently of the prospective initial vectors produced from previously detected true motion vectors in respect to each block; and
b) said produced motion vector is used along with the plural prospective initial vectors for detecting the true motion vector for said each block.

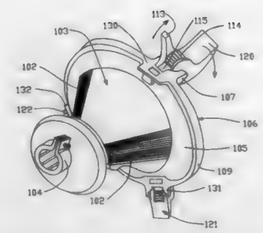
5,729,303
MEMORY CONTROL SYSTEM AND PICTURE DECODER USING THE SAME
Masuo Oku, Kamakura; Yukitoshi Tsuboi, Yokohama; Hiroshi Gunji, Tokyo, and Yoshinobu Igarashi, Niiza, all of Japan, assignors to Hitachi, Ltd., Tokyo, Japan
Filed Feb. 23, 1996, Ser. No. 606,535
Claims priority, application Japan, Feb. 23, 1995, 7-034910
Int. Cl.[6] H04N *7/26*
U.S. Cl. 348—716 **19 Claims**



1. A memory control system for use in a picture decoding device for decoding a coded data obtained by inter-frame coding an interlaced picture of a television, comprising:
a memory means having a predetermined capacity and a plurality of memory area patterns corresponding to sizes of coded pictures, each memory area pattern including two reference picture data memory areas each having a capacity of at least 1 frame, at least a display data memory area for transforming a frame structure data into a field structure data, a coded data buffer area for temporarily storing the coded data and an OSD data area for storing on-screen-data to be overlaid on a decoded picture; and
a control means for automatically selecting one of said memory area patterns of said memory means according to the size of coded pictures, such that, when a size of a coded picture is equal to or less than 480 effective lines in vertical picture size, a capacity of said display data area corresponds to at least 1 frame and, when a size of coded picture is more than 480 effective lines in vertical picture size, the capacity of said display data area corresponds to a value smaller than 1 frame.

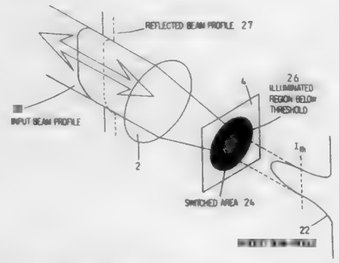
5,729,304
DEVICE FOR FIXING DEFLECTION YOKE TO BRAUN TUBE
Jong Ho Lim, Daeku, Rep. of Koren, assignor to Goldstar Co., Ltd., Seoul, Rep. of Korea
Filed Oct. 27, 1994, Ser. No. 330,307
Claims priority, application Rep. of Korea, Sep. 28, 1993, 20023/1993
Int. Cl.[6] H04N *5/64*
U.S. Cl. 348—830 **8 Claims**

1. A device for fixing a deflection yoke to a Braun tube comprising:
holder means for supporting the deflection yoke on the Braun tube; and



a plurality of cam-shaped deflection yoke adjusting means rotatably mounted on said holder means for adjusting a fixing of said deflection yoke with respect to the Braun tube and also for releasably affixing said deflection yoke to said Braun tube.

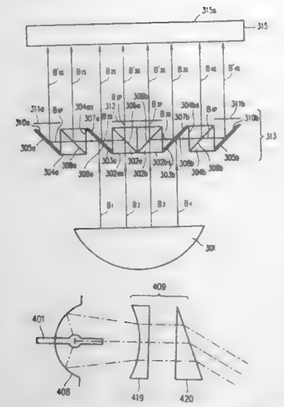
5,729,305
OPTICAL DEVICE INCLUDING A SPATIAL OPTICAL MODULATOR AND AN OPTICAL ELEMENT
Michael Geraint Robinson, and Craig Tombling, both of Oxfordshire, United Kingdom, assignors to Sharp Kabushiki Kaisha, Osaka, Japan
Filed Jun. 20, 1995, Ser. No. 492,893
Claims priority, application United Kingdom, Jun. 20, 1994, 9412347
Int. Cl.[6] G02F *1/13;1/135*
U.S. Cl. 349—2 **21 Claims**



1. An optical device comprising:
a spatial optical modulator and an optical element,
wherein the spatial optical modulator has a write mode which the modulator is reversibly optically switched between a first optical state and a second optical state where the optical radiation intensity exceeds a predetermined threshold, and in which the optical element is arranged to convert spatially uniform radiation to a local spatially varying intensity distribution at the spatial optical modulator.

5,729,306
LIGHT SPLITTING AND SYNTHESIZING DEVICE AND LIQUID CRYSTAL DISPLAY APPARATUS INCLUDING THE SAME
Takahiro Miyake, Kyoto, and Kazuhiko Ueda, Nara-ken, both of Japan, assignors to Sharp Kabushiki Kaisha, Osaka, Japan
Filed Sep. 29, 1995, Ser. No. 536,779
Claims priority, application Japan, Sep. 30, 1994, 6-237587; Jan. 25, 1995, 7-009440; Feb. 20, 1995, 7-030324; Feb. 23, 1995, 7-035011; Jun. 29, 1995, 7-163988
Int. Cl.[6] G02F *1/1335*
U.S. Cl. 349—9 **7 Claims**

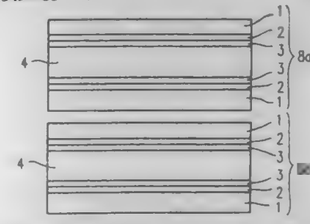
1. A liquid crystal display apparatus including a liquid crystal display panel, a light source for illuminating the liquid crystal



display panel with light and a polarization conversion optical system for linearly polarizing the light in one direction, the polarization conversion optical system comprising:
a pair of first polarized beam splitters for splitting a part of the light from the light source into P-polarized light and S-polarized light by transmitting the P-polarized light and reflecting the S-polarized light, the first polarized beam splitters being adjacent to each other and being arranged to direct the S-polarized light in opposite directions;
a pair of first reflectors, disposed to sandwich the pair of first polarized beam splitters, for reflecting the S-polarized light toward the liquid crystal display panel, each of the first reflectors being formed integrally with a corresponding one of the first polarized beam splitters;
a pair of second reflectors for reflecting the remaining part of the light from the light source, each of the second reflectors being arranged substantially in parallel with and apart from a respective one of the first reflectors;
a pair of second polarized beam splitters, disposed to sandwich the pair of the second reflectors, for splitting the remaining part of the light reflected by the second reflectors into further P-polarized light and further S-polarized light by transmitting the further P-polarized light and reflecting the further S-polarized light toward the liquid crystal display panel;
a pair of third reflectors, disposed to sandwich the pair of second polarized beam splitters, for reflecting the further P-polarized light transmitted through the second polarized beam splitters toward the liquid crystal display panel, each of the third reflectors being formed integrally with a corresponding one of the second polarized beam splitters and a corresponding one of the second reflectors; and
polarization changing means, disposed in optical paths of either the P-polarized light and the further P-polarized light or the S-polarized light and the further S-polarized light, for rotating a polarization direction by 90 degrees.

6. A liquid crystal display apparatus including:
a light splitting and synthesizing device comprising polarization splitting means for splitting white light into linearly polarized light beams, polarization aligning means for aligning polarization directions of the linearly polarized light beams in one polarization direction, synthesizing means for receiving the linearly polarized light beams arranged in one direction and for emitting the linearly polarized light beams as one light beam, and shaping means for shaping the white light to have an ellipsoidal cross section before the white light is incident on the polarization splitting means, wherein a direction of a minor axis in the ellipsoidal cross section coincides with the direction in which the linearly polarized light beams are arranged when the linearly polarized light beams are synthesized;
a light source for emitting the white light;
a liquid crystal light valve having a liquid crystal display panel, wherein the liquid crystal display panel has a profile in which a ratio of a horizontal length to a vertical length is M to N;
and wherein a ratio of a major axis to the minor axis in the ellipsoidal cross section of the white light to be incident on the polarization splitting means is N to M/2.

5,729,307
ANTIFERROELECTRIC LCD IN WHICH A NORMAL TO AN ANTIFERROELECTRIC LIQUID CRYSTAL LAYER IS ORTHOGONAL TO A NORMAL TO A SECOND ANTIFERROELECTRIC LIQUID CRYSTAL LAYER
Mitsuhiro Koden, and Kazuhiko Tamai, both of Kashiwa, Japan, assignors to Sharp Kabushiki Kaisha, Japan
Filed Oct. 25, 1995, Ser. No. 548,272
Claims priority, application Japan, Oct. 25, 1994, 6-260568
Int. Cl.[6] G02F *1/133;1/1347;1/13;* **G09G** *3/36*
U.S. Cl. 349—33 **12 Claims**

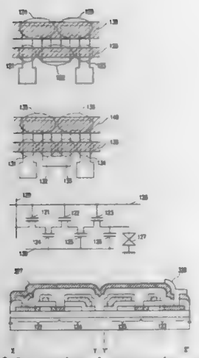


1. An antiferroelectric liquid crystal device comprising at least a first antiferroelectric liquid crystal cell and a second antiferroelectric liquid crystal cell,
wherein the first and second antiferroelectric liquid crystal cells respectively have an antiferroelectric liquid crystal material interposed between a pair of electrode substrates each having an electrode film and an alignment layer, and
the first and second antiferroelectric liquid crystal cells are disposed so that a normal to an antiferroelectric liquid crystal layer of the first antiferroelectric liquid crystal cell is orthogonal to a normal to an antiferroelectric liquid crystal layer of the second antiferroelectric liquid crystal cell.

5,729,308
ACTIVE MATRIX DISPLAY DEVICE
Sunpei Yamazaki, Tokyo; Jun Koyama, and Yasuhiko Takemura, both of Kanagawa, all of Japan, assignors to Semiconductor Energy Laboratory Co., Ltd., Kanagawa-ken, Japan
Filed Feb. 15, 1996, Ser. No. 602,017
Claims priority, application Japan, Feb. 15, 1995, 7-050526; May 30, 1995, 7-155274; Jul. 31, 1995, 7-215408
Int. Cl.[6] G02F *1/136;1/1343*
U.S. Cl. 349—39 **11 Claims**

9. An active matrix display device comprising:
a pair of adjacent pixel electrodes;
a pair of gate signal lines arranged between the pixel electrodes;
a capacitance line arranged between the gate signal lines; and
a pair of island semiconductor regions each connected to a corresponding one of the pixel electrodes,
wherein one end of each of the island semiconductor regions is connected to the corresponding one of pixel electrodes, each of the gate signal lines overlaps at least three portions of each of the island semiconductor regions, and the capacitance line overlaps at least two portions of each of the island semiconductor regions, and

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wherein each of the semiconductor regions comprises a lightly doped drain region.

5,729,309

LIQUID CRYSTAL DISPLAY SUBSTRATE HAVING REPAIR LINES

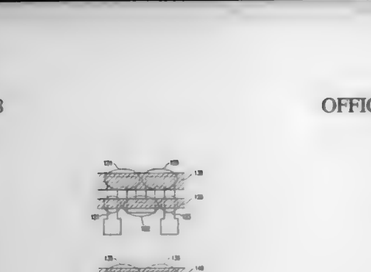
Byoung-Sun Na, and Dong-Kyu Kim, both of Kyungki-do, Rep. of Korea, assignors to Samsung Electronics Co., Ltd., Suwon, Rep. of Korea

Filed Dec. 5, 1996, Ser. No. 760,253

Claims priority, application Rep. of Korea, Dec. 5, 1995, 95-46791

Int. Cl.[6] G02F *1/1343;1/13*

U.S. Cl. 349—54 **13 Claims**



1. A liquid crystal display panel, comprising:

a substrate;

a plurality of gate lines on said substrate;

a plurality of data lines on said substrate extending transverse to said plurality of gate lines, said plurality of data lines including first and second groups of data lines;

a first repair line on said substrate which crosses said first group of data lines on respective opposite first and second sides of said plurality of gate lines; and

a second repair line on said substrate which crosses said first and second groups of data lines on said first side of said plurality of gate lines, which crosses said second group of data lines on said second side of said plurality of gate lines, and which avoids crossing said first group of data lines on said second side of said plurality of gate lines.

5,729,310

LIGHTING APPARATUS

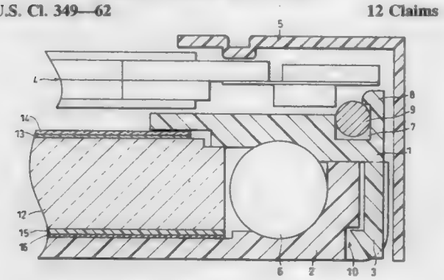
Kenji Horiuchi, Tsuzuki-gun, and Akira Murakami, Yamatokoriyama, both of Japan, assignors to Sharp Kabushiki Kaisha, Osaka, Japan

Filed Oct. 3, 1996, Ser. No. 725,396

Claims priority, application Japan, Nov. 20, 1995, 7-301058

Int. Cl.[6] G02F *1/1333;1/1335*

U.S. Cl. 349—62 **12 Claims**



1. A lighting apparatus comprising:

a linear light source;

a light guiding plate having an incident surface on which light from said linear light source is incident, and an emergent surface from which the incident light emerges; and

an upper frame and a lower frame for holding said linear light source and said light guiding plate therebetween,

wherein said upper frame and said lower frame are fixed to each other by at least a pair of protrusions produced on one of said upper and lower frames and a recession formed on the other frame to engage with said protrusion, each said protrusion having a barb at its end.

5,729,311

ILLUMINATION SYSTEM FOR A FLAT-PANEL PICTURE DISPLAY DEVICE

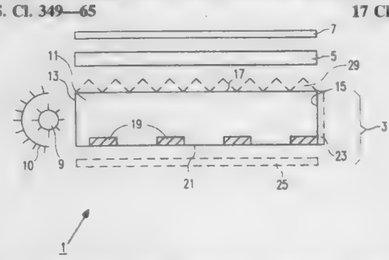
Dirk J. Broer, Eindhoven, Netherlands; Constance J. E. Seppen, Orléans, France, and Henri M. J. Boots, Eindhoven, Netherlands, assignors to U.S. Philips Corporation, New York, N.Y.

Filed Aug. 23, 1996, Ser. No. 702,301

Claims priority, application European Pat. Off., Aug. 23, 1995, 95202280

Int. Cl.[6] G02F *1/1335;* **F21V** *9/14;7/04;* **G01D** *11/28*

U.S. Cl. 349—65 **17 Claims**



1. An illumination system comprising an optical waveguide of an optically transparent material having an exit surface and a plurality of end faces, opposite at least one of which a light source is situated, whose light can be coupled in at said end face of the optical waveguide, and polarizing means for polarizing the light emitted by the light source, characterized in that the optical waveguide has a plurality of recesses comprising a material which is different from that of the optical waveguide, and in that the polarizing means are constituted by interfaces between the recesses and the optical waveguide, while the material of the optical waveguide or the material in the recesses is optically anisotropic and the other material is isotropic.

5,729,312

LCD AND METHOD FOR PRODUCING THE SAME IN WHICH A LARGER NUMBER OF SUBSTRATE GAP CONTROL MATERIALS IS LARGER IN THE POLYMER WALLS THAN IN THE LIQUID CRYSTAL REGIONS

Shinji Yamagishi, Osaka; Tokihiko Shinomiya, Nara; Kohichi Fujimori, Nabari, and Kenji Nishiguchi, Osaka, all of Japan, assignors to Sharp Kabushiki Kaisha, Osaka, Japan

Filed Mar. 15, 1995, Ser. No. 404,539

Claims priority, application Japan, Mar. 18, 1994, 6-049335; Sep. 26, 1994, 6-229946; Mar. 8, 1995, 7-048872

Int. Cl.[6] G02F *1/1333;1/1339*

U.S. Cl. 349—86 **21 Claims**



1. A liquid crystal display device comprising: a pair of substrates disposed so as to be opposed to each other; and a display medium interposed between the pair of substrates, the display medium having liquid crystal regions comprising one or a plurality of pixels, and the liquid crystal regions being surrounded by polymer walls,

wherein a number of substrate gap control materials which are disposed in a gap between the pair of substrates is larger in the polymer walls than in the liquid crystal regions.

5,729,313

REFLECTION-TYPE LIQUID CRYSTAL DISPLAY DEVICE HAVING HOLOGRAPHIC COLOR REFLECTIVE FILM BONDED TO LIGHT ABSORBING LAYER

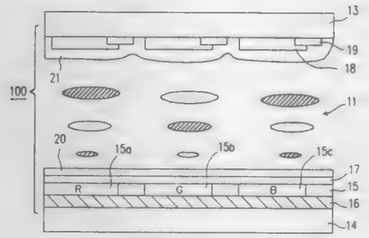
Seiichi Mitsui, Kashiwa, Japan, assignor to Sharp Kabushiki Kaisha, Osaka, Japan

Filed May 17, 1996, Ser. No. 649,309

Claims priority, application Japan, May 19, 1995, 7-121926

Int. Cl.[6] G02F *1/1335*

U.S. Cl. 349—106 **4 Claims**



1. A reflection-type liquid crystal display device, comprising:

a first substrate formed of a material which allows transmission of visible light therethrough;

a second substrate opposed to the first substrate;

a liquid crystal layer interposed between the first substrate and the second substrate;

a light absorbing layer provided on the second substrate for absorbing the visible light; and

a holographic color reflective film bonded to the light absorbing layer and having a light reflecting area for reflecting light of a prescribed wavelength range of the visible light.

5,729,314

LIQUID CRYSTAL DEVICE HAVING ORIENTATION LAYER WITH NEUTRAL MOLECULES ABSORBED AT LIQUID CRYSTAL INTERFACE

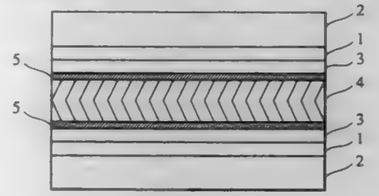
Takeo Tsukamoto, Atsugi, and Masaaki Shibata, Naka-gun, both of Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan

Division of Ser. No. 220,048, Mar. 30, 1994, Pat. No. 5,539,553. This application Apr. 4, 1996, Ser. No. 627,579

Claims priority, application Japan, Apr. 9, 1993, 5-083411

Int. Cl.[6] G02F *1/1333*

U.S. Cl. 349—122 **13 Claims**



1. A liquid crystal device, comprising a liquid crystal and an orientation layer for orienting the liquid crystal, said liquid crystal device further comprising neutral molecules adsorbed at an interface between said liquid crystal and said orientation layer.

5,729,315

CIRCUIT ASSEMBLY AND PROCESS FOR PRODUCTION THEREOF

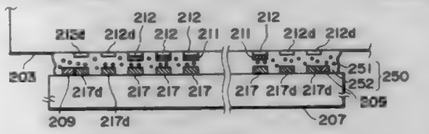
Masanori Takahashi, Chigasaki; Tetsuro Saito, Isehara; Hideo Mori; Toshimichi Ouchi, both of Yokohama, and Kenji Niibori, Chigasaki, all of Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan

Filed Nov. 28, 1995, Ser. No. 563,827

Claims priority, application Japan, Nov. 28, 1994, 6-293508

Int. Cl.[6] G02F *1/136;1/1345;1/13*

U.S. Cl. 349—149 **45 Claims**



1. A circuit assembly, comprising:

a transparent first substrate having thereon a plurality of first electrodes and a first alignment mark, and

a second substrate having thereon a plurality of second electrodes and a second alignment mark, said second substrate being at least partially superposed with the first substrate so that the mutually corresponding first and second electrodes are superposed and electrically connected with each other,

wherein the first electrode has a light-transmissive layer and an opaque layer laminated with the light transmissive layer, and a portion of the first electrode superposed with the second substrate at least partially includes a light-transmissive portion,

the second alignment mark is disposed at a position of the second substrate corresponding to the light-transmissive portion of the first electrode, and

said first alignment mark and second alignment mark are disposed at such positions that they are not superposed with each other in a state where the first and second substrates are normally connected with each other.

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5,729,316

LIQUID CRYSTAL DISPLAY MODULE

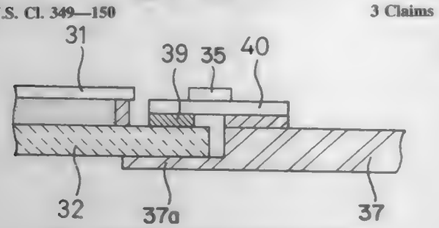
Nobuyuki Yamamura, and Seok-Tae Kim, both of Kyungki-do, Rep. of Korea, assignors to Samsung Electronics Co., Ltd., Suwon, Rep. of Korea

Filed Jul. 3, 1995, Ser. No. 497,479

Claims priority, application Rep. of Korea, Jul. 7, 1994, 94-16226

Int. Cl.[6] G02F *1/1345*

U.S. Cl. 349—150 3 Claims



1. A liquid crystal display (LCD) module comprising:

an LCD panel;

a driver integrated circuit for driving the LCD panel; and

a printed circuit board for mounting the driver integrated circuit thereon, said printed circuit board having a stepped extension on one side of said printed circuit board, said extension extending to an inert area of said LCD panel and containing a plurality of wires of said driver integrated circuit.

5,729,317

LIQUID CRYSTAL DISPLAY PANEL AND LIQUID CRYSTAL DISPLAY APPARATUS

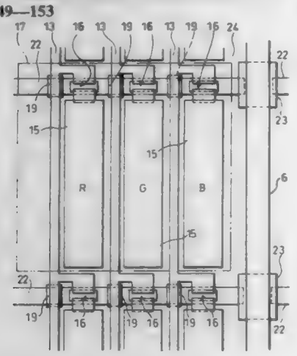
Yoshihiro Izumi, Kashihara, Japan, assignor to Sharp Kabushiki Kaisha, Osaka, Japan

Division of Ser. No. 555,830, Nov. 13, 1995, Pat. No. 5,654,781. This application Mar. 14, 1997, Ser. No. 818,341

Claims priority, application Japan, Dec. 15, 1994, 6-312157; Dec. 15, 1994, 6-312160; Sep. 14, 1995, 7-237446

Int. Cl.[6] G02F *1/133;1/1343;1/1339*

U.S. Cl. 349—153 9 Claims



1. A liquid crystal display panel comprising:

a pair of substrates;

an electric wiring provided at least on one of said substrates; and

a seal member, applied to said substrate so as to partially cross said electric wiring, for combining said pair of substrates so that a liquid crystal is filled between said pair of substrates, said seal member being made of a ultraviolet ray hardening resin or a ultraviolet ray hardening resin used in combination with heat hardening,

wherein an area where said seal member crosses said electric wiring is made of a transparent electrode which a ultraviolet ray can transmit.

5,729,318

LIQUID CRYSTAL DISPLAY DEVICE HAVING POLYMERIC WALLS

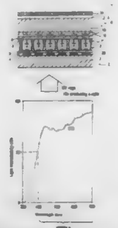
Nobuaki Yamada, Higashiosaka; Masahiko Kondo, Kitakatsuragi-gun; Masayuki Okamoto, Tenri, and Shuichi Kozaki, Nara, all of Japan, assignors to Sharp Kabushiki Kaisha, Osaka, Japan

Division of Ser. No. 324,976, Oct. 18, 1994. This application May 25, 1995, Ser. No. 450,978

Claims priority, application Japan, Oct. 19, 1993, 5-261356; Oct. 27, 1993, 5-268612; Jul. 25, 1994, 6-172740

Int. Cl.[6] G02F *1/1339;1/1337*

U.S. Cl. 349—156 6 Claims



1. A liquid crystal display device comprising liquid crystal regions that are formed between a pair of electrode substrates and at least partly surrounded by a polymeric wall formed in a pattern, wherein the liquid crystal regions and the polymeric wall are aligned in accordance with an alignment regulating force on the electrode substrates under application of no voltage and wherein the polymeric wall and the liquid crystal regions include a chiral agent.

5,729,319

LIQUID CRYSTAL DISPLAY DEVICE AND METHOD FOR FABRICATING THE SAME

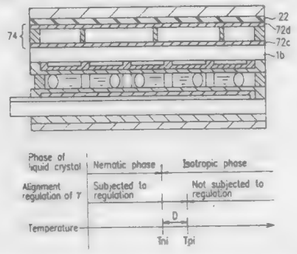
Ippei Inou, Nara; Yoshihiro Shirai, Yamatokoriyama, and Makoto Shiomi, Tenri, all of Japan, assignors to Sharp Kabushiki Kaisha, Osaka, Japan

Filed Apr. 1, 1996, Ser. No. 625,885

Claims priority, application Japan, Apr. 4, 1995, 7-079036

Int. Cl.[6] G02F *1/1339*

U.S. Cl. 349—156 13 Claims



1. A liquid crystal display device comprising a pair of substrates opposed to each other, polymeric walls patterned in a predetermined pattern, and a liquid crystal layer at least a part of which is surrounded by the polymeric walls, the polymeric walls and the liquid crystal layer being interposed between the substrates, wherein the polymeric walls have a predetermined rotatory polarization corresponding to an alignment regulating force of the substrates, and

wherein a rotatory polarization monomer forming the polymeric walls comprises an alignment regulating portion and a polymerizable portion located on at least one end of the alignment regulating portion.

5,729,320

LIQUID CRYSTALLINE MEDIUM INCLUDING CLOSELY PACKED PARTICLES AND METHOD FOR GENERATING IMAGES USING SAME

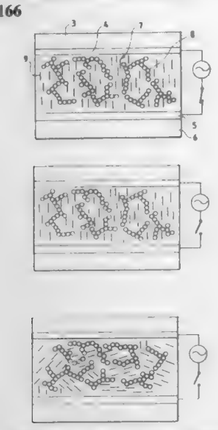
Rudolf Eidenschink, Mohnstrasse 6 D-6500, Mainz, and Britta Nagel, Bingen, both of Germany, assignors to Rudolf Eidenschink, Mainz, Germany

Continuation of Ser. No. 149,128, Nov. 5, 1993, abandoned, which is a continuation of Ser. No. 770,174, Oct. 2, 1991, abandoned. This application Dec. 19, 1994, Ser. No. 359,009

Claims priority, application Germany, Oct. 12, 1990, 40 32 392.7; Dec. 21, 1990, 40 41 209.1; Jun. 18, 1991, 41 19 969.3

Int. Cl.[6] G02F *1/133;1/13*

U.S. Cl. 349—166 42 Claims



1. A liquid crystalline medium for the generation of bistable images comprising a nematic liquid crystalline phase containing solid particles dispersed therein, forming a free space between the particles, said liquid crystalline medium having a ratio of V_1 to V_2 in the range of 0.005 to 0.15, inclusive, where V_1 is the partial volume displaced by said solid particles and V_2 is the sum of V_1 plus the partial volume of the liquid crystalline phase that occupies the free space between the particles, said solid particles being movable toward each other by external influence;

the packing of said solid particles being sufficiently close that a radial acceleration of said dispersion, between 13,800 m/sec^2 and 21,600 m/sec^2 for five minutes, produces a ratio of V_1/V_2 which is no greater than 1.7 times said ratio before said radial acceleration.

5,729,321

COMBINED SUNGLASSES AND SUNSHIELD

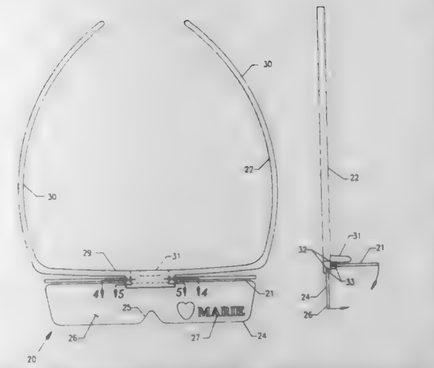
Linda F. Wielhouwer, 100 Teggerdine, White Lake, Mich. 48386

Filed Jun. 12, 1996, Ser. No. 662,800

Int. Cl.[6] G02C *7/10;9/00;* E03D *11/00*

U.S. Cl. 351—44 10 Claims

1. A pair of sunglasses, comprising: a slender horizontal headband formed from a single piece of a resilient plastic material for mounting a pair of sunglasses and an opaque sunshield on a forehead of a user, said headband having a transverse front portion, a pair of adjoining arcuate side portions extending rearwardly from opposite end portions of said front portion, an adjoining nose piece portion extending downwardly from a center portion of said transverse front portion for supporting said headband on said user's nose and a means for mounting a tinted transparent panel and an opaque sunshield; a generally rectangular tinted transparent panel mounted for rotation on said center portion of said headband; and a generally rectangular opaque sunshield mounted for rotation on said center portion of said headband, said opaque sunshield being



in covering relationship to said tinted transparent panel when said opaque sunshield and said tinted transparent panel are in vertical or horizontal positions.

5,729,322

OCCULAR DEVICE COMPRISING A UV-ABSORBING BENZOTRIAZOLES HAVING A STYRENE GROUP

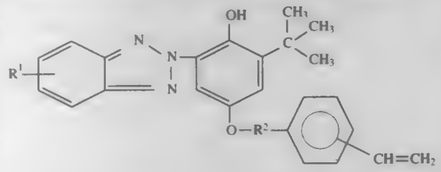
Theresa A. Collins, Park Ridge, Ill., and John T. Mulvihill, Collon, Ireland, assignors to Wesley-Jessen Corporation, Chicago, Ill.

Division of Ser. No. 535,086, Feb. 7, 1996, Pat. No. 5,637,726, which is a continuation-in-part of Ser. No. 052,020, Apr. 22, 1993, abandoned. This application Nov. 27, 1996, Ser. No. 757,807

Int. Cl.[6] G02C *7/04;* A61F *2/16;* C08G *73/06;* C08F *283/00*

U.S. Cl. 351—160 H 19 Claims

1. An ocular device comprising a polymer containing an ultraviolet absorbing amount of a compound having the formula:



wherein R^1 is a halogen or C_1–C_6 straight or branched chain alkoxy group; and R^2 is a $-(CH_2)_3O-$, $-(CH_2)_2O-$, $-CH(CH_3)CH_2O-$, $-CH_2CH(CH_3)O-$, $-(CH_2)_3OCH_2-$, $-(CH_2)_2OCH_2-$, $-CH(CH_3)CH_2OCH_2-$, or $-CH_2CH(CH_3)OCH_2-$ group, and wherein the compound is a copolymer, reacted with pendant reactive groups on the polymer or dispersed as an additive within the polymer as a melt.

5,729,323

LIGHT-ABSORBING AND ANTI-REFLECTIVE COATING FOR SUNGLASSES

Amy J. Arden, and Michael J. Cumbo, both of Rochester, N.Y., assignors to Baush & Lomb Incorporated, Rochester, N.Y.

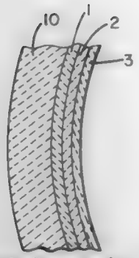
Filed Jul. 29, 1994, Ser. No. 283,009

Int. Cl.[6] G02C *7/10;* G02B *1/10*

U.S. Cl. 351—163 12 Claims

1. A sunglass lens comprising a substrate in the shape of a lens which substrate has a concave surface and a convex surface, the concave surface having a coating comprising:

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a first layer deposited adjacent to the concave surface of the substrate, said first layer comprising TiO_x wherein x is about 0.2 to 1.5;

a second layer deposited adjacent to the first layer, said second layer comprising a material having a refractive index of about 1.80 to 2.50; and

a third layer deposited adjacent to the second layer, said second layer comprising a material having a refractive index of about 1.35 to 1.60, wherein said first layer reduces transmittance of light therethrough by at least 10% and wherein the luminous reflectance at an interface of said coating with air is no greater than 2%.

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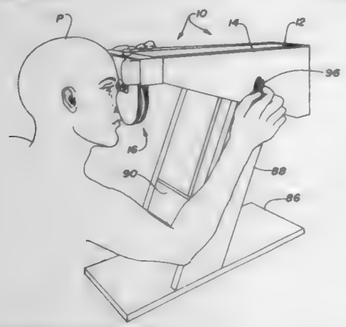
PRESBYOMETER INCLUDING LOCKSTEP MEANS

Robert C. Harbour, 3115 Brittany Pl., Pensacola, Fla. 32504

Filed Sep. 28, 1995, Ser. No. 535,928

Int. Cl.[6] A61B *3/02*

U.S. Cl. 351—223 **12 Claims**



1. A presbyometer comprising:

a first plate and a second plate each having ocular openings for two eyes, an indentation for a nose, a top, and a pair of sides;

a first adjustment arm and a second adjustment arm each pivotally attached to one of the pair of plates;

a first lens wheel, having a first set of optical lens of differing optical strengths, rotatably attached to the first adjustment arm and extending beyond one of the sides of the first plate and the second plate and a second lens wheel, having a second set of optical lens in similar optical strengths to the optical strengths of the first set of optical lens, rotatably attached to the second adjustment arm and extending beyond the other of the sides of the first plate and the second plate;

a visual stimulus, disposed in spaced apart relation to the first plate and the second plate and in the visual path of the ocular openings; and

lockstep means for rotating, in equal and opposite angular distance, one of the first lens wheel or the second lens wheel when the other of the first lens wheel or the second lens wheel is rotated.

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PELLICLE FOR A MASK OR SUBSTRATE

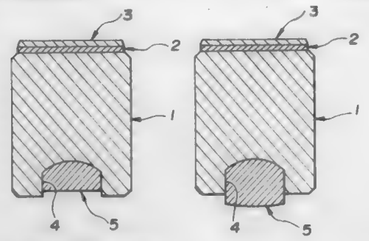
Meguru Kashida, Annaka, Japan, assignor to Shin-Etsu Chemical Co., Ltd., Tokyo, Japan

Filed Jan. 29, 1997, Ser. No. 789,425

Claims priority, application Japan, Jan. 30, 1996, 8-035536

Int. Cl.[6] G03B *27/52;11/04;* **G02B** *7/00*

U.S. Cl. 355—30 **8 Claims**



1. A pellicle comprising

a frame having one end surface and another end surface,

a membrane extended over said frame on the one end surface side,

a channel formed in the other end surface of said frame, and

a layer of a tackifier capable of expanding upon heating and/or light irradiation filled in said channel such that the tackifier layer does not protrude outward beyond the other end surface of the frame in an unexpanded state, but protrudes outward beyond the other end surface of the frame when expanded,

no liner being attached to the tackifier layer.

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IMAGE PRINTER HAVING IMAGE EXPOSING MEANS

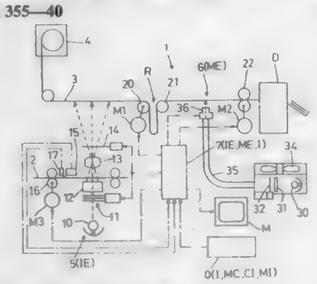
Junji Yamada, Wakayama, Japan, assignor to Noritsu Koki Co., Ltd., Wakayama, Japan

Filed Feb. 22, 1995, Ser. No. 391,848

Claims priority, application Japan, Mar. 2, 1994, 6-032084

Int. Cl.[6] G03B *27/52;27/80*

U.S. Cl. 355—40 **19 Claims**



1. An image printer comprising

image exposure means for exposing a first area of a photosensitive material with an image of a film;

recording data input means including reading means for reading recording data which are recorded in a magnetic recording portion of the film, said recording data input means inputting the recording data to be exposed on the photosensitive material in accordance with the image;

recording data exposure means for exposing the photosensitive materials with said recording data inputted from said recording data input means at a second area of said photosensitive material which is distinct from said first area;

monitor means for displaying the recording data inputted from said recording data input means; and

correction input means for correcting the recording data to be exposed by said recording data exposure means.

5,729,327

PHOTOGRAPHIC PRINTER FOR FORMING INDEX PRINTS

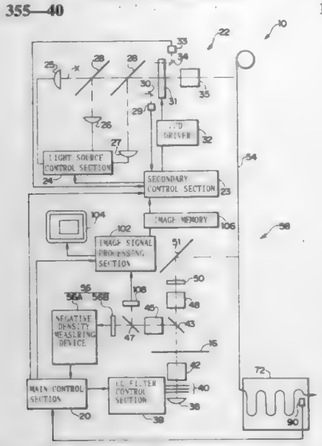
Toshihiko Narita, Kanagawa, Japan, assignor to Fuji Photo Film Co., Ltd., Kanagawa, Japan

Filed Jun. 18, 1996, Ser. No. 664,621

Claims priority, application Japan, Jul. 31, 1995, 7-194923

Int. Cl.[6] G03B *27/52*

U.S. Cl. 355—40 **12 Claims**



1. A photographic printer having:

a main exposure section which successively positions at a printing position a plurality of image frames recorded on a developed photographic film, and prints transmitted images onto a photographic printing paper; and

a secondary exposure section for forming, on a sheet, an index print in which images, which are recorded on the plurality of image frames, are arranged lengthwise and breadthwise,

said secondary exposure section comprising:

storing means for reading image data of the plurality of image frames positioned successively at the printing position, and for storing the image data;

editing means for editing, to a predetermined format, the image data of the plurality of image frames which image data is stored in said storing means;

a liquid crystal panel in which pixels, whose transmission density is changeable in predetermined gradations, are arranged in a matrix form;

display control means for color-separating each image of the plurality of image frames into an R color density, a G color density and a B color density in accordance with the image data edited by said editing means, and for displaying the R color density, the G color density and the B color density on said liquid crystal panel; and

a light source section emitting R, G and B colors which are transmitted through respective pixels of said liquid crystal panel and which are used for exposing a transmitted image onto the sheet.

5,729,328

PHOTOGRAPHIC FILM INSPECTION APPARATUS

Tsutomu Kimura, and Junji Sugano, both of Kanagawa, Japan, assignors to Fuji Photo Film Co., Ltd., Kanagawa, Japan

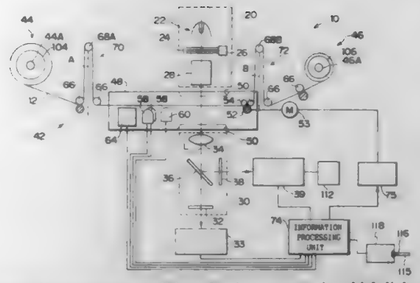
Filed Jun. 18, 1996, Ser. No. 665,684

Claims priority, application Japan, Jul. 14, 1995, 7-178571

Int. Cl.[6] G03B *27/52;27/72*

U.S. Cl. 355—40 **19 Claims**

1. A photographic film inspection apparatus for inspecting a photographic film before it undergoes exposure in order to obtain appropriate exposure conditions for the exposure in which light is irradiated onto a photosensitive material through the photographic film, thereby reproducing on the photosensitive material images recorded on the photographic film, said photographic film inspection apparatus comprising:



exposure condition reading means for reading from said photographic film information regarding exposure conditions necessary for exposure including information regarding each picture frame;

digital image information capturing means for dividing an image recorded on each picture frame of said photographic film into a plurality of pixels and for capturing them so as to output digital data representing the captured image;

image presence/absence detection means for detecting whether or not an image is recorded in a predetermined photographable area of said photographic film;

exposure condition calculation means for calculating exposure conditions used during exposure based on the exposure condition information read by said exposure condition reading means; and

digital image information correction means for correcting the digital image information so as to permit images captured by said digital image information capturing means to be properly reproduced on the photosensitive material though exposed under standard exposure conditions.

5,729,329

IMAGE PRINTING METHOD

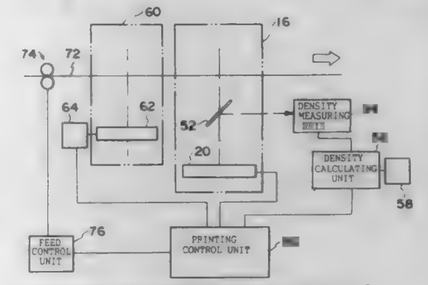
Shuji Ajimu, and Mitsukazu Hosoya, both of Kanagawa, Japan, assignors to Fuji Photo Film Co., Ltd., Kanagawa

Filed Jun. 26, 1996, Ser. No. 670,579

Claims priority, application Japan, Jun. 30, 1995, 7-165998; Jun. 30, 1995, 7-165999

Int. Cl.[6] G03B *27/32;27/52*

U.S. Cl. 355—40 **8 Claims**



1. An image printing method comprising the steps of:

disposing two exposure stages above a common photosensitive material, said two stages being separated from each other by a predetermined distance;

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printing images sequentially at the stage disposed downstream in the feed direction of said photosensitive material;

locating, at the stage disposed upstream in the feed direction of said photosensitive material, an image to be printed adjacent to the last image to be printed last at said downstream exposure stage;

wherein the image at said upstream exposure stage is located such that the near edge of the image is located at a position separated from the optical axis of said downstream exposure stage by at least a minimum distance of $L_1+L_2/2$, where L_1 is the length of the last image to be printed last at said downstream stage and L_2 is the length of an image preceding the last image; and

determining based on L_1 and L_2, an image to be printed at said upstream exposure stage prior to the last image to be printed at said downstream exposure stage.

5,729,330

NEGATIVE FILM MASK APPARATUS WITH MAGNETIC PROPERTIES

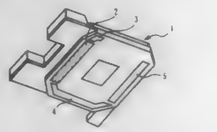
Kouji Nishi, Wakayama, and Mitsuhiko Itojima, Naga-gun, both of Japan, assignors to Noritsu Koki Co., Ltd., Wakayama, Japan

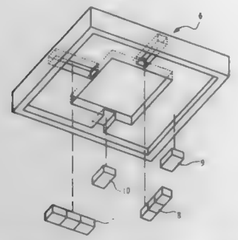
Filed Jan. 19, 1996, Ser. No. 589,004

Claims priority, application Japan, Jan. 20, 1995, 7-026278

Int. Cl.[6] G03B *27/62*

U.S. Cl. 355—75 **2 Claims**





1. A negative film mask apparatus used for cropping exposure in which a negative film mask is held in place on a negative film mask table by magnetic force, wherein said negative film mask has a stopper which is provided with a pressing mechanism and a closely-contacting member so as to prevent the negative film mask from sliding, and said closely-contacting member includes a magnetic material so that the closely-contacting member of said stopper is pressed, by magnetic force and pressing force, against a surface of said negative film mask table on which said negative film mask slides.

5,729,331

EXPOSURE APPARATUS, OPTICAL PROJECTION APPARATUS AND A METHOD FOR ADJUSTING THE OPTICAL PROJECTION APPARATUS

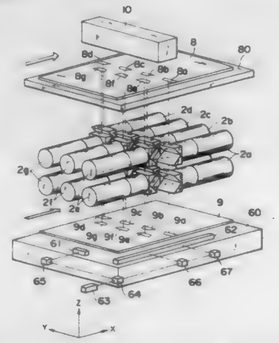
Masashi Tanaka, Yokohama; Masato Kumazawa, Kawasaki; Kinya Kato, Yokohama; Masaki Kato, Yokohama; Hiroshi Chiba, Yokohama, and Hiroshi Shirasu, Yokohama, all of Japan, assignors to Nikon Corporation, Japan

Continuation-in-part of Ser. No. 391,944, Feb. 21, 1995, abandoned, which is a continuation of Ser. No. 259,771, Jun. 14, 1994, abandoned. This application May 30, 1995, Ser. No. 453,538

Claims priority, application Japan, Jun. 30, 1993, 5-161588; Dec. 22, 1993, 5-345619; May 30, 1994, 6-116800; Jun. 6, 1994, 6-123762; Jun. 23, 1994, 6-141326; Jul. 29, 1994, 6-177898; Aug. 25, 1994, 6-200494

Int. Cl.[6] H01L *21/27; G03F 7/20;7/22*

U.S. Cl. 355—53 **74 Claims**



1. An exposure apparatus for, while moving a first object and a second object in a certain moving direction, effecting projection exposure of an image of said first object onto said second object, comprising:

a first projection optical system for forming a real-size erect image of said first object on said second object, which is telecentric at least on an image side;

a second projection optical system for forming a real-size erect image of said first object on said second object, which is telecentric at least on the image side and which is disposed next to said first projection optical system;

a first field stop for limiting an exposure region to be formed on said second object by said first projection optical system, within a certain shape; and

a second field stop for limiting an exposure region to be formed on said second object by said second projection optical system, within a certain shape;

wherein a sum of a length along said moving direction, of the first exposure region limited by said first field stop and a length along said moving direction, of the second exposure region limited by said second field stop is constant over a direction perpendicular to said moving direction.

5,729,332

DEPTH IMAGE PRINTING METHOD ON PRECOATED LENTICULAR MATERIAL

Sergei V. Fogel, Rochester, and Roy Y. Taylor, Scottsville, both of N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.

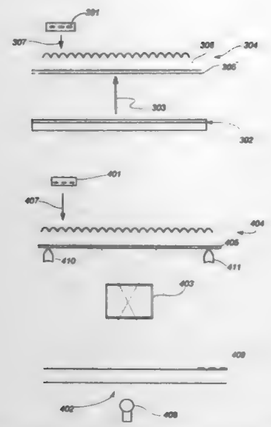
Filed May 11, 1995, Ser. No. 439,397

Int. Cl.[6] G03B *27/32;35/14*

U.S. Cl. 355—77 **18 Claims**

1. A method of producing a photographic print from a negative, said method comprising the steps of:

(a) affixing a lenticular material to a light sensitive material;



(b) aligning the light sensitive material on an exposure plane: said step of aligning includes the step of providing an optically transmittable reference grid on the lenticular side of the lenticular material, and aligning said reference grid to a fixed reference located at a measuring position relative to the exposure plane; and

(c) effecting the exposure of the light sensitive material from the side of the light sensitive material opposite the lenticular material, by light from the negative.

5,729,333

CHARACTERIZING BIOLOGICAL MATTER IN A DYNAMIC CONDITION USING NEAR INFRARED SPECTROSCOPY SPECTRUM

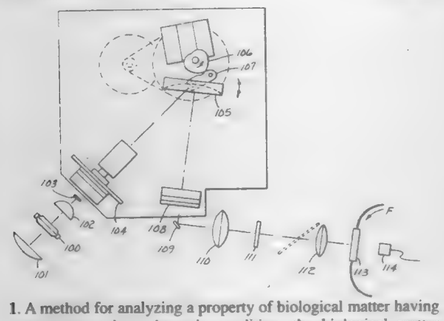
David W. Osten; Hatim M. Carim, both of St. Paul, Minn., and James B. Callis, Seattle, Wash., assignors to Minnesota Mining and Manufacturing Company, St. Paul, Minn., and The Board of Regents of The University of Washington, Seattle, Wash.

Continuation of Ser. No. 408,890, Sep. 18, 1989, abandoned. This application Dec. 22, 1992, Ser. No. 995,951

The portion of the term of this patent subsequent to Dec. 22, 2012, has been disclaimed.

Int. Cl.[6] A61J *1/05*

U.S. Cl. 356—39 **70 Claims**



1. A method for analyzing a property of biological matter having a water content in a dynamic condition, the biological matter approximated to comprise a first compartment related to the property to be analyzed and a second compartment having a proportionally larger or smaller amount of water than the first compartment, the method comprising:

(a) observing multiple samples of biological matter in a dynamic condition;

(b) irradiating with near infrared light said multiple samples of the biological matter;

(c) detecting the near infrared absorption spectrum of each of said multiple samples as spectral data consisting of absorbance intensities;

(d) applying a ratio pre-processing technique to the spectral data of absorbance intensities of the spectrum of each of said multiple samples to identify a multiplicity of ratio wavelength pairs;

(e) independently quantifying the property to be analyzed for each of said multiple samples;

(f) establishing a training set from said near infrared absorption spectra of step (d) of said multiple samples using the multiplicity of ratio wavelength pairs; and

(g) statistically identifying the nature of a best two compartment mathematical correlation between the property to be analyzed in the first compartment and the water content in the biological matter (1) by correlating values obtained during step (e) with values obtained during step (f) and (2) by selecting a ratio wavelength pair of absorbance intensities in which one wavelength is a strong near infrared wavelength absorbance peak of the water content and in which the second wavelength of the ratio wavelength pair is another near infrared wavelength absorbance measuring point having absorbances in the first compartment which minimize variability in the property to be analyzed.

5,729,334

FRAUD-PROOF IDENTIFICATION SYSTEM

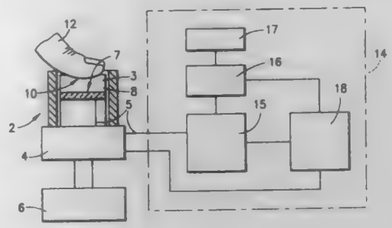
Lodewijk Johan Van Ruyven, POB 338, 5300 AH Zaltbommel, Netherlands

Continuation of Ser. No. 295,828, Mar. 6, 1995, abandoned. This application Feb. 18, 1997, Ser. No. 801,892

Claims priority, application Netherlands, Mar. 10, 1992, 9200439

Int. Cl.[6] G06K *9/74*

U.S. Cl. 356—71 **16 Claims**



1. A fraud-proof identification system, comprising:

a) means for sensing a skin line profile, said means for sensing including a servo-line tracking system to track along a plurality of sensing points at least one selected skin line of said skin line profile;

b) means for deriving distinctive geometrical characteristics from said skin line profile to be compared with characteristics stored in a memory; and

c) means to generate at each of said plurality of sensing points a refocussed measuring of said distinctive geometrical characteristics of said skin line profile along said skin line.

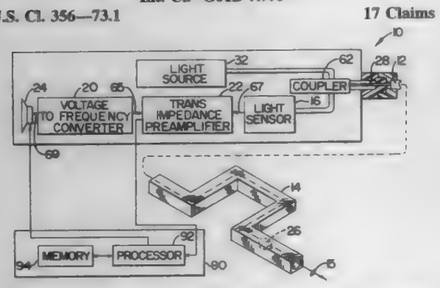
VOL 1208 ISS 3 MR 17 1998 UMI

5,729,335

OPTICAL FIBER MONITORING APPARATUS AND AN ASSOCIATED METHOD FOR MONITORING BENDING OR STRAIN ON AN OPTICAL FIBER DURING INSTALLATION

Samuel I. Green, St. Louis, Mo., assignor to McDonnell Douglas Corporation, St. Louis, Mo.

Filed Aug. 23, 1996, Ser. No. 701,976
Int. Cl.[6] G01B 11/16
U.S. Cl. 356—73.1 17 Claims



1. An apparatus for monitoring signal loss along an optical fiber during installation of the optical fiber, the apparatus comprising:

an optical fiber;

a jig connected to one end of said optical fiber for facilitating installation of said optical fiber;

a light source, disposed within said jig and optically connected to said optical fiber, for providing a light signal to said optical fiber;

a light sensor, optically connected to the other end of said optical fiber, for detecting the light signal following propagation through said optical fiber and for providing an output signal based upon the detected light signal;

a converter, operably connected to said light sensor, for converting the output signal provided by said light sensor to an audio signal having a frequency which varies in relation to the detected light signal; and

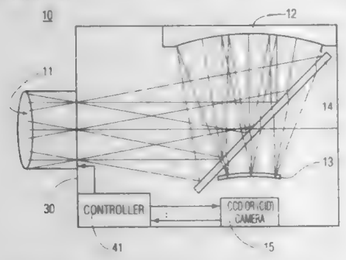
an audio transducer for outputting the audio signal such that signal loss along said optical fiber, introduced by bending of said optical fiber during installation, can be monitored based upon frequency variations in the audio signal.

5,729,336

APPARATUS AND METHOD FOR CHARACTERIZING THE LUMINOUS INTENSITY OF A LAMP USING A CURVED MIRROR AND CURVED SCREEN

Keith N. Prettyjohns; Stephen L. Marcus, and Kevin J. Garcia, all of Tucson, Ariz., assignors to Photometrics, Ltd, Tucson, Ariz.

Filed May 6, 1996, Ser. No. 643,574
Int. Cl.[6] G01J 1/00
U.S. Cl. 356—121 14 Claims



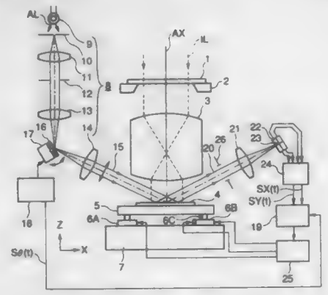
1. Apparatus for characterizing the luminous intensity of a lamp, said apparatus comprising a black box with a port into which light output from a lamp to be characterized is directed, said apparatus including a curved mirror positioned in said box to receive the light output from a lamp at said port, said apparatus also including a curved screen positioned in said box in a position to receive the light output focused by said mirror for providing a luminous intensity pattern of said light output and a solid state camera positioned to acquire said pattern from said screen.

5,729,337

INCLINATION DETECTING APPARATUS

Yasuaki Tanaka, Chigasaki, Japan, assignor to Nikon Corporation, Tokyo, Japan

Filed Nov. 8, 1995, Ser. No. 555,176
Claims priority, application Japan, Nov. 28, 1994, 6-292656
Int. Cl.[6] G01C 3/06
U.S. Cl. 356—139.1 11 Claims



1. An inclination detecting apparatus which detects an inclination of a partial area within an area of a substrate relative to a predetermined plane, comprising:

an irradiating optical system which irradiates a portion of the surface of said partial area with parallel light flux obliquely relative to an optical axis;

a condensing optical system which condenses light flux reflected from said substrate;

a photoelectric detecting device which generates a detection signal corresponding to a position of the condensed light flux, said detection signal varying in accordance with an inclination of said portion of said partial area relative to said predetermined plane;

a relative scanning device which relatively moves said parallel light flux and said substrate so that the entire surface of said partial area is scanned with said parallel light flux; and

a calculating circuit which obtains an inclination of said partial area relative to said predetermined plane based on detection signals from said photoelectric detecting device that are generated in sequence during the relative movement.

5,729,338

COMPUTER CONTROLLED OPTICAL TRACKING SYSTEM

Christian L. Houlberg, Ventura, and James S. Hochstetler, Camarillo, both of Calif., assignors to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

Continuation-in-part of Ser. No. 641,131, Apr. 22, 1996. This application Jul. 1, 1996, Ser. No. 673,889
Int. Cl.[6] H04N 7/18; F41G 1/00
U.S. Cl. 356—139.04 20 Claims

1. An airborne video tracking system for establishing and maintaining a line of sight to a moving target, said airborne video tracking system being mounted within an aircraft, said airborne video tracking system comprising:

an acquisition sight positioned within said aircraft, said acquisition sight allowing a pilot of said aircraft to acquire and begin tracking said moving target, said acquisition sight having a newton ring, said moving target being acquired when said pilot observes said moving target within the newton ring of said acquisition sight, said acquisition sight providing first analog position signals indicative of azimuth and elevation sight angles for said acquisition sight when said acquisition sight is tracking said moving target;

a track handle positioned within said aircraft, said track handle having a trigger switch, said track handle allowing an observer within said aircraft to take control of tracking said moving target from said pilot when said observer activates said trigger switch, said track handle providing second analog position signals indicative of azimuth and elevation sight angles for said track handle when said track handle is tracking said moving target;

a computer connected to said acquisition sight to receive said first analog position signals from said acquisition sight and said track handle to receive said second analog position signals from said track handle, said computer processing said first analog position signals and said second analog position signals to generate gimbal orientation signals;

a gimballed mirror having a gimbal interface, said gimbal interface being connected to said computer to receive said gimbal orientation signals from said computer, said gimbal interface responsive to said gimbal orientation signals steering said gimballed mirror to said moving target to establish and then maintain said line of sight to said moving target;

said gimballed mirror receiving image forming light from said moving target and then redirecting said image forming light along a first light path;

a first turning mirror positioned on said first light path to receive a portion of said image forming light from said gimballed mirror and then direct the portion of said image forming light received thereby along a second light path;

a first video camera positioned on said second light path to receive said image forming light directed along said second light path by said first turning mirror, said first video camera responsive to said image forming light received from said first turning mirror generating a first video signal;

a first video monitor connected to said first video camera to receive said first video signal, said first video monitor responsive to said first video signal displaying a wide field of view scene including said moving target, said first video monitor being positioned within said aircraft to allow said observer to monitor said moving target when said observer is using said track handle to track said moving target;

a second turning mirror positioned on said first light path downstream from said first turning mirror, said second turning mirror receiving a remainder of said image forming light from said gimballed mirror and then directing the remainder of said image forming light received thereby along a third light path;

a zoom telescope positioned on said third light path to receive said image forming light directed along said third light path by said second turning mirror, said zoom telescope modifying said image forming light to define a narrow field of view scene;

a second video camera positioned downstream from said zoom telescope on said third light path to receive said image forming light from zoom telescope, said second video camera responsive to said image forming light received from said zoom telescope generating a second video signal;

a second video monitor connected to said second video camera to receive said second video signal, said second video monitor responsive to said second video signal displaying said narrow field of view scene, said narrow field of view scene having said moving target displayed therein whenever said gimballed mirror is aligned with said line of sight to said moving target, said second video monitor being positioned within said aircraft to allow said observer to monitor said moving target when said observer is using said track handle to track said moving target;

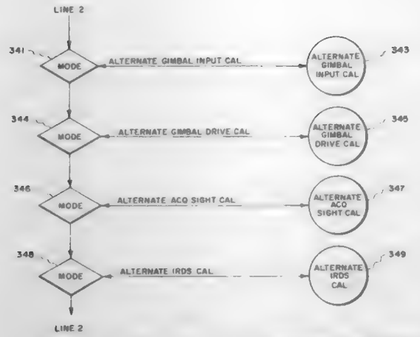
said computer containing a keyboard.c computer software module, said keyboard.c computer software module automatically calibrating said gimbal orientation signals;

a keyboard coupled to said computer, said keyboard having a plurality of alpha-numeric and function keys; and

a third video monitor coupled to said computer, said third video monitor being position to allow said observer to monitor said third video monitor, said third video monitor displaying a plurality of calibration menus, each of said plurality of calibration menus having a set of calibration instructions, one of said plurality of calibration menus being associated with calibrating said gimbal orientation signals;

the alpha-numeric and function keys of said keyboard first being utilized by said observer to access said set of calibration instructions for the one of said plurality of calibration menus associated with calibrating said gimbal orientation signals;

the alpha-numeric and function keys of said keyboard next being utilized by said observer to implement said set of calibration instructions for the one of said plurality of calibration menus associated with calibrating said gimbal orientation signals, said keyboard.c computer software module being activated to automatically calibrate said gimbal orientation signals when said observer implements said set of calibration instructions for the one of said plurality of calibration menus associated with calibrating said gimbal orientation signals.



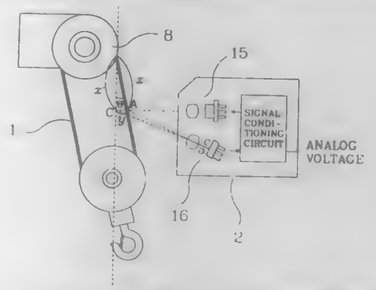
5,729,339

SWING ANGLE MEASURING APPARATUS FOR SWING FREE OPERATION OF CRANE

Byung-Suk Park; Ji-Sup Yoon; Jae-Sol Lee, and Hyun-Soo Park, all of Daejeon-Si, Rep. of Korea, assignors to Korea Atomic Energy Research Institute, Daejeon-Si, Rep. of Korea

Continuation-in-part of Ser. No. 192,291, Feb. 4, 1994, abandoned. This application Apr. 17, 1996, Ser. No. 633,340
Claims priority, application Rep. of Korea, Sep. 2, 1993, 93-17481
Int. Cl.[6] G01B 11/26; G01C 3/00; B66C 13/06
U.S. Cl. 356—152.2 3 Claims

1. A swing angle measuring apparatus for generating feedback signals in closed loop regulation of load swinging motion in a crane operation, said apparatus comprising:



a rope with one end thereof fixed at a hinged point to a hoisting device;

two laser displacement sensors; and

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two laser reflecting plates configured to reflect a laser beam emitted from said laser displacement sensors,

wherein said two laser reflecting plates are installed along a periphery of said rope, with reflecting surfaces thereof disposed perpendicular to each other,

wherein said two laser displacement sensors are installed in a rectangular box which is attached to the hoisting device, in such a way that a laser emitting face of a first sensor perpendicularly intersects the reflecting surface of a first one of said two laser reflecting plates and wherein a laser emitting face of a second sensor perpendicularly intersects the reflecting surface of a second one of said two laser reflecting plates,

wherein said two laser reflecting plates are placed at a standoff position located a predetermined offset distance away from the two laser displacement sensors at which a sensor signal of 0 volt is obtained,

wherein said laser reflecting plates are placed at a certain distance (x) below the hinged point of the rope and x is determined based on a trigonometric formula $x=y_{max}/\sin\theta_{max}$ where y_{max} is a maximum measurable distance of said laser displacement sensor and θ_{max} is a maximum swing angle of the load,

and wherein swing angles (θ) of the rope in both travelling and traverse directions are determined from the distances (y) between the stand-off position at which said laser displacement sensors output 0 volts and said laser reflecting plates based on a trigonometric formula $\theta=\arcsin(y/x)$.

5,729,340

BOTTLE INSPECTION MACHINE

Karl Griesbeck, Regensburg; Franz Häring, Neutraubling; Wolfgang Ruppelt, Beratzhausen, and Hermann Kronseder, Regensburger, all of Germany, assignors to Krones AG Hermann Kronseder Maschinenfabrik, Neutraubling, Germany

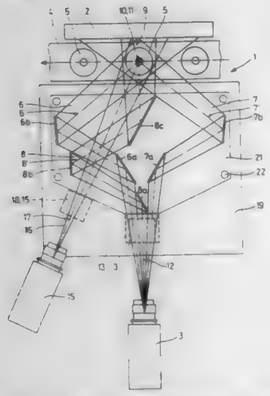
PCT No. PCT/EP94/02523, § 371 Date Mar. 27, 1995, § 102(e) Date Mar. 27, 1995, PCT Pub. No. WO95/04267, PCT Pub. Date Feb. 9, 1995

PCT Filed Jul. 29, 1994, Ser. No. 406,911

Claims priority, application Germany, Jul. 30, 1993, 93 11 405 U; Sep. 1, 1993, 93 13 115 U

Int. Cl.° C01N *21/32*

U.S. Cl. 356—240 **22 Claims**



1. Apparatus for inspecting transilluminatable bottles comprising:

a source of light arranged on one side of a bottle that is positioned for being transilluminated in at least three directions by light emanating from said source,

a single camera positioned at a side opposite of the bottle from said source of light, said camera having an optical axis that is directed to the axis of symmetry of a bottle that is positioned for being inspected and the axis of symmetry of the bottle and said optical axis of the camera are intersected by a common imaginary plane,

first and second beams that contain images of the bottle respectively, after having passed through the bottle have their paths from the bottle to said camera defined, respectively, by first and second mirror systems where the mirror systems and the beams reflected thereby are symmetrical to opposite sides of said plane,

a third beam that contains an image of the bottle after having passed through the bottle has its path from the bottle to said camera defined by a third mirror system arranged between said two mirror systems,

each of said first, second and third images that are contained in the beams defined by the respective mirror systems have a central axis which intersect each other and said axis of symmetry of the bottle in a common point, and

the lengths of said central axes of the beams from said common point of intersection to said camera are equal.

5,729,341

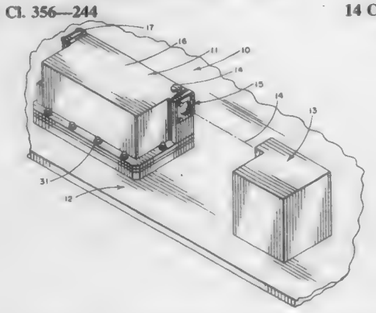
METHOD AND APPARATUS FOR TESTING MATERIALS FOR USE IN A LASER RESONATOR

Floyd E. Hovis, Apopka; Bart A. Shepherd, Winter Park; Chris Radcliffe, Orlando, and Steve Guch, Jr., Longwood, all of Fla., assignors to Litton Systems, Inc., Woodland Hills, Calif.

Filed Mar. 13, 1996, Ser. No. 614,528

Int. Cl.° G01N *21/01;21/00*

U.S. Cl. 356—244 **14 Claims**



1. A method of testing materials for use in a laser resonator comprising the steps of:

selecting a sealable test fixture for testing materials for use in a laser resonator, said fixture having a housing having an internal chamber volume selected to approximate the internal volume of a laser resonator, and said housing having a window therein removably attached thereto, said window having a coating selected to match the coating on the optics of a laser and said housing having a sealable cover covering an opening into said housing;

mounting said selected test fixture adjacent a laser of predetermined wavelength and power and positioned for directing a laser beam through said window;

placing a material to be tested into said selected test fixture through said sealable cover; and

directing a laser beam from said laser through said window into said fixture internal chamber; and

examining said window for damage thereto or contamination thereon; whereby a material for use in a predetermined laser can be tested for potential damage or contamination to a laser.

5,729,342

METHOD OF ANALYZING THE CONCENTRATION OF COMPONENTS IN A SOLUTION

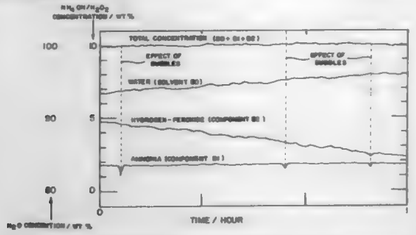
Issei Yokoyama, and Masaru Inoue, both of Miyanohigashimachi, Japan, assignors to Horiba, Ltd., Kyoto, Japan

Filed Jan. 23, 1997, Ser. No. 787,648

Claims priority, application Japan, Jan. 24, 1996, 8-029951

Int. Cl.° G01N *21/59;21/90*

U.S. Cl. 356—319 **10 Claims**



1. A method of analyzing the concentrations of components in a fluid solution with a source of light, a test cell for holding a sample fluid solution, a detector for measuring the intensity of light passing through the test cell and means for data processing the measured intensity of light, comprising the steps of:

inserting into the test cell a gas of the type that would be found in the sample fluid solution;

directing light of a predetermined range of wavelengths through the test cell with the gas to the detector to obtain a reference spectrum;

inserting into the test cell the sample fluid solution;

directing light of the predetermined range of wavelengths through the test cell with the fluid solution to obtain a sample spectrum;

deriving a light absorbance spectrum from the reference spectrum and the sample spectrum;

determining the percentage of concentrations of each component from the light absorbance spectrum;

adding the determined percentages of concentration to provide a total amount; and

comparing the total amount with a predetermined value to verify the accuracy of the concentration of components.

5,729,343

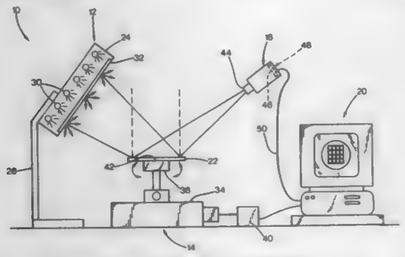
FILM THICKNESS MEASUREMENT APPARATUS WITH TILTING STAGE AND METHOD OF OPERATION

Arun A. Aiyer, Fremont, Calif., assignor to Nikon Precision Inc., Belmont, Calif.

Continuation-in-part of Ser. No. 559,544, Nov. 16, 1995, abandoned. This application Oct. 22, 1996, Ser. No. 734,958

Int. Cl.° G01B *9/02*

U.S. Cl. 356—355 **29 Claims**



1. A film measurement apparatus comprising:

a stage having a support surface on which a substrate coated with a film may rest;

an extended light source facing the stage;

an imager aimed at the stage and having a receiver upon which an image of at least an extended portion of the substrate may be generated;

a tilting mechanism connected to the stage and operable to tilt the film through a range of angular dispositions; and

a processor in communication with the imager and operable to calculate the thickness of the film at a plurality of locations, the processor being operably connected to the tilting mechanisms.

5,729,344

METHOD AND APPARATUS FOR FORMING AN OPTICAL SURFACE BY OPTICAL ETCHING

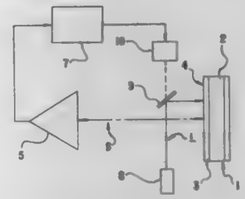
Takahisa Jitsuno, Mino; Nobuaki Nakashima, Suita; Masahiro Nakatsuka, Ikoma, and Keiu Tokumura, Osaka, all of Japan, assignors to Nippon Aspherical Lens Co., Ltd., Osaka, Japan

Filed Apr. 2, 1996, Ser. No. 626,423

Claims priority, application Japan, Apr. 10, 1995, 7-083604

Int. Cl.° G01B *9/02*

U.S. Cl. 356—359 **8 Claims**



1. A method for forming an optical plane into a shape to provide a most appropriate transmissive wavefront or reflective wavefront, the optical plane being a coating of an optical resin material applied to the surface of a matrix of optical glass or fused quartz, said method comprising the steps of: monitoring the transmissive wavefront or reflective wavefront of said optical plane so as to provide monitoring information, and etching said optical plane by means of irradiation of short wavelength, ultraviolet ray in non-contact manner in accordance with said monitoring information.

5,729,345

APPARATUS AND METHOD FOR DETERMINING DISTORTION OF A WELDED MEMBER

Howard W. Ludewig, Groveland, Ill.; Adam Q. Moore, Davenport, Iowa, and Ilhan Varol, Peoria, Ill., assignors to Caterpillar Inc., Peoria, Ill.

Filed Sep. 11, 1996, Ser. No. 710,099

Int. Cl.° G01B *11/14*

U.S. Cl. 356—394 **15 Claims**

1. A method for determining distortion of a member which results from the member being subjected to a welding operation, comprising:

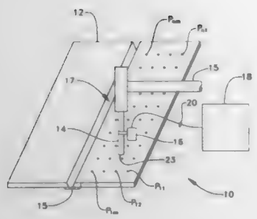
locating the member so that the member assumes a first position;

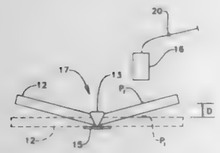
obtaining first data measurements of the member while the member is located in the first position;

performing the welding operation on the member whereby the member distorts and assumes a second position;

obtaining second data measurements of the member while the member is located in the second position; and

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calculating distortion of the member based on the first data measurements and the second data measurements.

5,729,346

METHOD AND APPARATUS FOR TESTING AUTOMATIC INSERTION STATE OF ELECTRONIC COMPONENT IN PRINTED CIRCUIT BOARD

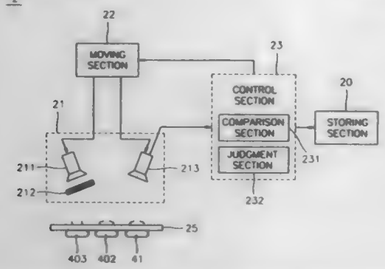
Iel-Kwen Joo, Seoul, Rep. of Korea, assignor to Daewoo Electronics Co., Ltd., Seoul, Rep. of Korea

Filed Sep. 18, 1996, Ser. No. 715,240

Claims priority, application Rep. of Korea, Sep. 19, 1995, 95-30528

Int. Cl.[6] G01B *11/00*

U.S. Cl. 356—394 **15 Claims**



1. A method for testing an automatic insertion state of electronic components in a printed circuit board, said method comprising the steps of:

a) storing automatic insertion state data with respect to the electronic components in the printed circuit board;

b) moving a light source into a first testing area of the printed circuit board and irradiating a first testing light beam generated beam from the light source to the first testing area of the printed circuit board;

c) receiving a light reflected from the first testing area according to the irradiated light beam in said step b) and converting the received light into a pulse signal for judging an automatic insertion state having high and low levels;

d) analyzing characteristics of the converted pulse signal for judging an automatic insertion state in said step c);

e) comparing the analyzing characteristics of the converted pulse signal for judging an automatic insertion state with the stored automatic insertion state data in said step a), and judging an automatic insertion state with respect to one of the electronic components corresponding to the first testing area according to a result of the comparison;

f) moving the light source into a second testing area of the printed circuit board and judging whether or not an automatic insertion state test for all testing areas of the printed circuit board is completed; and

g) irradiating a second testing light beam to the second testing area, repeating said steps c), d), e) and f) when the automatic insertion state test for all testing areas of the printed circuit board is not completed in said step e), and completing all routine when the automatic insertion state test for all testing areas of the printed circuit board is not completed in said step f).

5,729,347

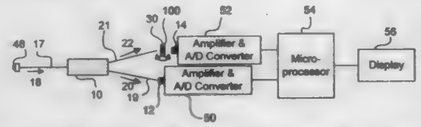
OPTICAL WAVELENGTH MEASUREMENT SYSTEM

Vincent So, 529 Chapel Street, Ottawa, Ontario, Canada, K1N 8A1

Filed Nov. 8, 1996, Ser. No. 744,420

Int. Cl.[6] G01J *3/26*

U.S. Cl. 356—416 **3 Claims**



1. An optical wavelength measurement system for measuring wavelengths in a predetermined wavelength range near a predetermined centre wavelength, the system comprising:

coupling means for receiving an incoming optical signal and splitting it into a measurement signal and a control signal;

a thin film interference filter having a transition region of wavelengths including said predetermined range, the thin film interference filter being situated such that the measurement signal must pass through the filter so as to produce a filtered signal, the thin film filter having in the transition region a steep transmission ratio vs. wavelength characteristic;

first detector means for producing a first value proportional to the power of the control signal; second detector means for producing a second value proportional to the power of the filtered signal;

processing means for computing a transmission ratio consisting of the second value divided by the first value and for computing a measured wavelength as a function of the transmission ratio;

a mechanism for rotating the optical filter, through at least a 30° range of angles such that the optical filter is progressively tilted at an increasing angle to the incident measurement signal;

memory means for storing a transmission ratio table as a function of the angle of that optical filter through its entire range and for storing a known frequency response table of the thin film filter; and

computation means for computing a spectrum of the incoming signal.

5,729,348

FLUORESCENCE DOT AREA METER

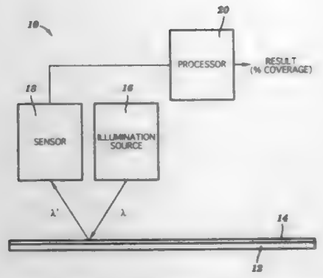
David J. Romano, Lowell, Mass., assignor to Agfa Division, Bayer Corporation, Wilmington, Mass.

Filed Aug. 21, 1996, Ser. No. 701,028

Int. Cl.[6] G01N *2/64*

U.S. Cl. 356—417 **24 Claims**

1. An apparatus for measuring halftone dot area on a printing plate, comprising:



an illumination source for illuminating said printing plate;

a sensor for detecting light reemitted by said printing plate; and

processor means, coupled to said sensor, for determining halftone dot area based on the light reemitted by said printing plate.

5,729,349

METHOD AND DEVICE FOR DETERMINING FIBER ORIENTATION OF PAPER, AND APPARATUS FOR REMOVING IMAGE FORMING SUBSTANCE FROM PAPER

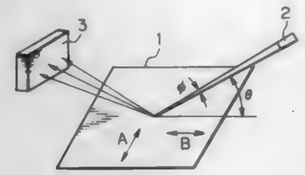
Kan Tomita; Nobuo Sakuma, both of Tokyo, and Takashi Mama, Yokohama, all of Japan, assignors to Ricoh Company, Ltd., Tokyo, Japan

Filed Feb. 9, 1996, Ser. No. 596,860

Claims priority, application Japan, Feb. 10, 1995, 7-022705

Int. Cl.[6] G01N *21/86;* **G03G** *21/00*

U.S. Cl. 356—429 **10 Claims**



1. An apparatus for removing an image forming substance from fibers constituting a surface of an image holding medium, said apparatus comprising:

first medium stacking means for stacking the image holding medium;

liquid applying means for applying to the image holding medium an unstabilizing liquid which unstabilizes adhesion between the image forming substance and the image holding medium;

fiber orientation sensing means for sensing an orientation of the fibers of the image holding medium conveyed from said first medium stacking means;

determining means for determining, based on the orientation sensed by said fiber orientation sensing means, whether or not the image holding medium can be subjected to a removal of the image forming substance and including an application of the unstabilizing liquid; and

second medium stacking means for stacking the image holding medium which cannot be subjected to the removal, as determined by said determining means.

5,729,350

USING INFORMATION ON AN INPUT SHEET TO CHANGE APPARATUS SETTINGS

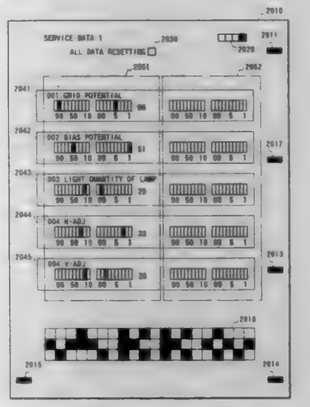
Hidenori Ozaki, Kawasaki, Japan, assignor to Canon Kabushiki Kaisha, Tokyo, Japan

Filed Dec. 19, 1995, Ser. No. 574,924

Claims priority, application Japan, Dec. 20, 1994, 6-316484

Int. Cl.[6] G03G *15/00*

U.S. Cl. 358—296 **21 Claims**



1. An image processing apparatus comprising:

reading means for reading data from an information inputting sheet;

discrimination means for discriminating the data read by said reading means;

setting means for setting a predetermined setting item on the basis of the data discriminated by said discrimination means; and

output means for printing and outputting the information inputting sheet on which the data set by said setting means is marked,

wherein the information inputting sheet has a first data section in which presently-set data set by said setting means has been marked and a second data section in which setting can be changed.

5,729,351

METHOD FOR PROCESSING PRINT INFORMATION OF PAGE PRINT APPARATUS

Young-Dall Oh, Seoul, Rep. of Korea, assignor to SamSung Electronics Co., Ltd., Paldal-ku, Rep. of Korea

Filed Apr. 10, 1996, Ser. No. 630,209

Claims priority, application Rep. of Korea, Jun. 17, 1995, 16168/1995

Int. Cl.[6] H04N *1/00*

U.S. Cl. 358—296 **16 Claims**

1. A method for processing print information of a page printing apparatus, said method comprising the steps of:

storing print data corresponding to one page in a page memory upon initiation of a print mode;

determining a print ratio of black pixels relative to an overall area of print paper in said print data corresponding to one page;

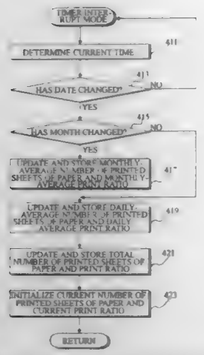
updating the number of printed sheets of paper and the print ratio of black pixels thereto;

accumulatively storing the current number of printed sheets of paper and the current print ratio in a statistic memory;

checking a current time upon initiation of a timer interrupt mode;

updating the daily-average number of printed sheets of paper and the daily-average print ratio on the basis of the current

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number of printed sheets of paper and the current print ratio stored in said statistic memory at the end of each day;

storing the updated daily-average number of printed sheets of paper and the updated daily-average print ratio of black pixels in said statistic memory;

updating the monthly-average number of printed sheets of paper and the monthly-average print ratio on the basis of the daily-average number of printed sheets of paper and the daily print ratio stored in said statistic memory at the end of each month; and

displaying the monthly-average number of printed sheets of paper and the monthly-average print ratio, the daily-average number of printed sheets of paper and the daily-average print ratio, and the current number of printed sheets of paper and the current print ratio stored in said statistic memory upon initiation of an output mode.

5,729,352

METHOD OF MANFACTURING SUBSTRATE FOR ELECTROPHOTOGRAPHIC PHOTORECEPTOR AND ELECTROPHOTOGRAPHIC PHOTORECEPTOR

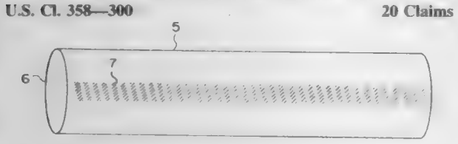
Junichi Shibata, Minami-ashigara, and Arimichi Fukuda, Ashigawa-kami-gun, both of Japan, assignors to Fuji Xerox Co., Ltd., Tokyo, Japan

Filed Jan. 21, 1997, Ser. No. 785,276

Claims priority, application Japan, Jan. 24, 1996, 8-010243

Int. Cl.[6] H04N *1/29;* **G03G** *5/00;* **H01F** *7/06*

U.S. Cl. 358—300 **20 Claims**



1. A method of manufacturing a substrate for an electrophotographic photoreceptor, comprising the steps of:

bending a metal strip, which is fed continuously;

welding opposite ends of said metal strip to form said metal strip into a pipe; and

grinding said pipe to form said pipe into said substrate, wherein said pipe is subjected to heat treatment after said pipe has been manufactured by welding and before said grinding operation is performed.

5,729,353

METHOD AND DEVICE FOR CORRECTING A POSITION FOR WRITING AN IMAGE ON A TRANSPORT BELT

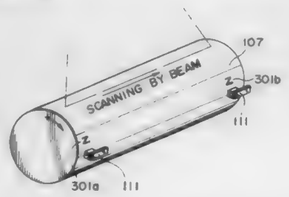
Noboru Sawayama, Tokyo, and Takashi Mama, Yokohama, both of Japan, assignors to Ricoh Company, Ltd., Tokyo, Japan

Continuation of Ser. No. 77,381, Jun. 17, 1993, Pat. No. 5,627,649, which is a continuation-in-part of Ser. No. 959,094, Oct. 9, 1992, abandoned. This application Mar. 4, 1997, Ser. No. 811,351

Claims priority, application Japan, Oct. 11, 1991, 3-292128; Jun. 17, 1992, 4-158246

Int. Cl.[6] H04N *1/29;* **G01D** *15/06;* **G03G** *15/00*

U.S. Cl. 358—300 **9 Claims**



1. A method of correcting a position for writing an image on a transport belt included in an image forming apparatus, said method comprising the steps of:

a) electrostatically writing at least two latent images to be developed into different colors having a substantially same shape on the transport belt in a substantially same area by optical writing devices;

b) developing each of the latent images by a toner of particular color by developers to form corresponding toner images;

c) illuminating the resulting toner images and sensing reflections from the toner images by a single optical sensor; and

d) correcting a position at which an image is written on the transport belt by at least one of the optical writing devices on the basis of the sensed reflections.

5,729,354

DEVICE CONTROL APPARATUS AND METHOD STORING HISTORICAL SETTING DATA

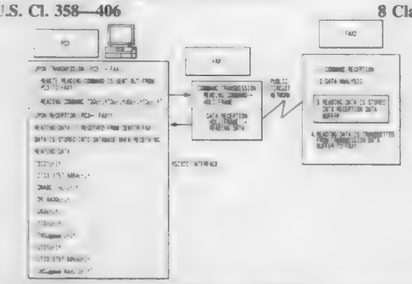
Kazuhiro Sugawara, Tokyo; Toru Maeda, Mitaka; Hitoshi Saito, Yokohama; Akemi Sato, Kawasaki, and Akira Matsui, Tokyo, all of Japan, assignors to Canon Kabushiki Kaisha, Japan

Continuation of Ser. No. 472,422, Jun. 7, 1995, abandoned, which is a division of Ser. No. 143,137, Oct. 29, 1993, Pat. No. 5,477,339. This application Jan. 29, 1997, Ser. No. 790,522

Claims priority, application Japan, Oct. 30, 1992, 4-315883; Dec. 11, 1992, 4-331958; Dec. 11, 1992, 4-331959; Dec. 11, 1992, 4-331960

Int. Cl.[6] H04N *1/00;1/32*

U.S. Cl. 358—406 **8 Claims**



1. A device control apparatus for controlling a device in accordance with set data previously set, comprising:

reception means for receiving said set data from an external apparatus;

setting means for setting said set data received by said reception means;

storing means for storing historical data indicative of a history of setting by said setting means; and

transmission means for transmitting said historical data stored in said storing means in accordance with a request command from the external apparatus, to the external apparatus.

5,729,355

FACSIMILE MACHINE HAVING A PHASE/AMPLITUDE FLUCTUATION DETECTOR

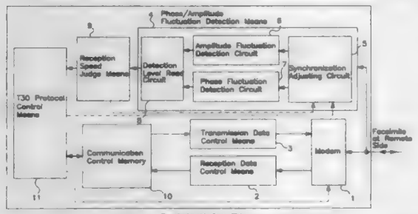
Naoki Cho, Kasuga; Tokio Imahayashi, Fukuoka, and Kenichi Uemura, Nakagawa-machi, all of Japan, assignors to Matsushita Electric Industrial Co. Ltd., Osaka, Japan

Filed Jan. 30, 1995, Ser. No. 381,092

Claims priority, application Japan, Jan. 28, 1994, 6-008273

Int. Cl.[6] H04N *1/36*

U.S. Cl. 358—412 **10 Claims**



1. A facsimile machine with a) modulation means for modulating and transmitting a plurality of data values to a remote site facsimile machine and b) demodulation means for receiving and demodulating a signal received from said remote site facsimile machine at a communication speed, comprising:

phase/amplitude fluctuation detection means for detecting from said received signal a) a phase fluctuation value representing an amount of phase deviation from a predetermined phase reference point and b) an amplitude fluctuation value representing an amount of amplitude deviation from a predetermined amplitude reference point, of said received signal;

communication speed determination means for determining if the communication speed should be changed, based on each of said phase fluctuation value and said amplitude fluctuation value detected by said phase/amplitude fluctuation detection means; and

protocol control means, for

a) starting communication of a video signal when a bit-pattern extracted from a training signal demodulated at said demodulation means is error free and said communication speed determination means determines that the communication speed should be maintained, and

b) signaling said remote site facsimile machine to reduce the communication speed if at least one of

1) the bit-pattern extracted from the training signal contains errors and

2) said communication speed determination means determines that the communication speed should be changed.

5,729,356

FACSIMILE MACHINE

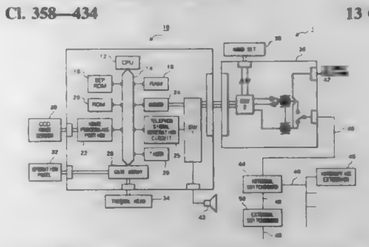
Yutaka Nonomura, Iwakura, Japan, assignor to Brother Kogyo Kabushiki Kaisha, Nagoya, Japan

Filed May 11, 1995, Ser. No. 439,368

Claims priority, application Japan, May 12, 1994, 6-123027

Int. Cl.[6] H04N *1/00*

U.S. Cl. 358—434 **13 Claims**



1. A facsimile machine capable of forwarding image information received from any remote facsimile machine to any desired target facsimile machine, the facsimile machine comprising:

reception means capable of receiving a telephone number of a target facsimile machine, to which image information is desired to be forwarded, and incoming image information transmitted from a remote facsimile machine and desired to be forwarded to the target facsimile machine;

storage means capable of storing the received telephone number of the target facsimile machine;

telephone number signal generating means capable of generating a telephone number signal corresponding to the telephone number of the target facsimile machine stored in the storage means and capable of connecting a telephone line to the target facsimile machine;

image information transmission means capable of transmitting image information to the target facsimile machine through the connected telephone line;

target facsimile machine telephone number input control means for performing a telephone number input control operation in response to receiving the telephone number of the target facsimile machine at the reception means, to control the storage means to store the received telephone number, to control the telephone number signal generating means to generate the telephone number signal corresponding to the telephone number of the target facsimile machine newly stored in the storage means to thereby connect a telephone line to the target facsimile machine, and to control the image information transmission means to transmit, to the target facsimile machine, information on a confirmation image indicating that the facsimile machine capable of forwarding image information is put into a forwarding state capable of forwarding incoming image information transmitted from remote facsimile machines to the target facsimile machine; and

image information forward control means for performing an image forward control operation, in response to receiving incoming image information at the reception means after the target facsimile machine number input control means performs the telephone number input control operation, to control the telephone number signal generating means to generate the telephone number signal corresponding to the telephone number of the target facsimile machine, which is presently stored in the storage means, to thereby connect a telephone line to the target facsimile machine and then to control the image information transmission means to transmit the received incoming image information to the target facsimile machine.

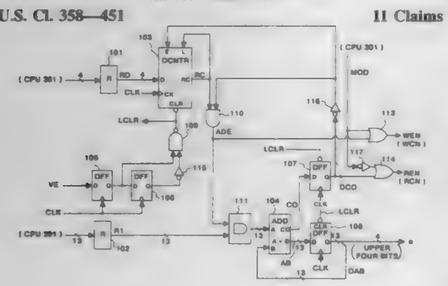
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5,729,357

IMAGE PROCESSING APPARATUS

Masahiro Funada; Shinobu Arimoto, and Michio Kawase, all of Yokohama, Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan

Continuation of Ser. No. 561,098, Aug. 1, 1990, abandoned.
This application Dec. 22, 1994, Ser. No. 361,470
Claims priority, application Japan, Aug. 2, 1989, 1-199344; Aug. 2, 1989, 1-199345
Int. Cl.[6] H04N *1/393*
U.S. Cl. 358—451 11 Claims



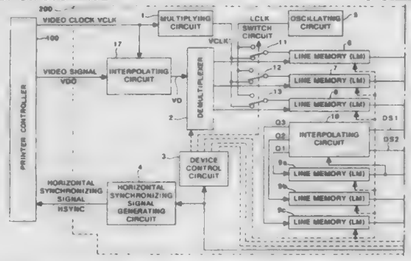
1. An image processing apparatus comprising:
input means for inputting image data in synchronism with a predetermined clock;
designation means for designating a reduction ratio of an image represented by said image data input by said input means;
generating means for generating a first value and a second value in accordance with the reduction ratio designated by said designation means, the first value indicating a basic interval of thinning out, the second value being used for adjusting the interval of thinning out;
storage means for storing image data;
counting means for counting said predetermined clock until a count value of said counting means corresponds to the first value and then outputting a signal;
addition means for cumulatively adding the second value whenever said counting means outputs the signal and holding a predetermined number of lower digits of the value added by said addition means;
deactivating means for deactivating said counting means so as to stop counting by said counting means when the value added by said addition means exceeds a predetermined value;
interpolation means for interpolating data of neighboring pixels of the image data inputted by said input means in accordance with the value added by said addition means and generating interpolated pixel data;
thinning out means for generating a write address in synchronism with the signal outputted by said counting means and for storing the interpolated pixel data into said storage means in accordance with the generated write address, said thinning out means being performed substantially concurrently with said interpolation means; and
outputting means for outputting image data stored in said storage means as reduced image data.

5,729,358

IMAGE RECORDING APPARATUS

Seiji Uchiyama; Atsushi Kashihara, both of Tokyo; Kaoru Seto, Chigasaki; Hiroshi Mano; Tetsuo Saito, both of Tokyo, and Takashi Kawana, Yokohama, all of Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan

Division of Ser. No. 290,078, Aug. 15, 1994, which is a continuation of Ser. No. 577,340, Sep. 4, 1990, abandoned. This application Jun. 7, 1995, Ser. No. 473,358
Claims priority, application Japan, Sep. 6, 1989, 1-229120; Jan. 9, 1990, 2-001006; Jan. 24, 1990, 2-016100
Int. Cl.[6] H04N *1/393*
U.S. Cl. 358—451 6 Claims



1. An image processing apparatus which outputs dot data to an image forming mechanism which forms an image scan by scan, with a predetermined scan line interval, and outputs a predetermined signal for each scan, said apparatus comprising:
input means for inputting information sent from an external apparatus;
means for generating a horizontal synchronizing signal, a period of which is larger than that of the predetermined signal, in accordance with the predetermined signal;
converting means for converting the input information into first dot data and outputting one line of the first dot data in response to the horizontal synchronizing signal;
pixel generating means for generating, on the basis of at least one pixel of the first dot data in a line, second dot data having more pixels than said at least one pixel of the first dot data;
memory means for storing at least one line of the second dot data generated by said pixel generating means;
line generating means for generating, on the basis of one or more lines of the second dot data, lines of third dot data having more lines than said one or more lines of the second dot data; and
means for outputting the third dot data generated by said line generating means in response to the predetermined signal from the image forming mechanism.

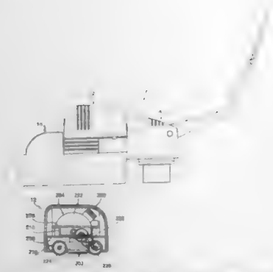
5,729,359

IMAGE READING APPARATUS

Eiji Nakazawa, Nirasaki, and Satoshi Nezu, Yamanashi-ken, both of Japan, assignors to Nisca Corporation, Yamanashi-ken, Japan

Filed Nov. 13, 1995, Ser. No. 558,141
Claims priority, application Japan, Nov. 11, 1994, 6-302765
Int. Cl.[6] H04N *1/04*
U.S. Cl. 358—498 20 Claims

1. An image reading apparatus comprising:
a main portion having an image reading function;
a driving source provided in the main portion;
reversing means, on which said main portion is detachably mounted, said reversing means having means to reverse a document fed from said main portion in a state where the main portion is mounted thereto and return the document back to the main portion; and
driving power transmitting means to be connected to the driving source, said driving power transmitting means driving said reversing means by transmitting a driving power from said



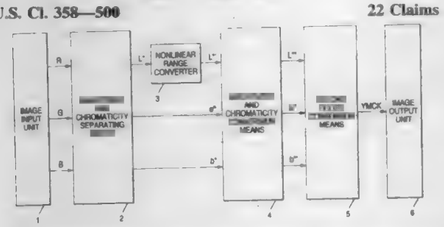
driving source under a condition that said main portion is mounted on the reversing means.

5,729,360

COLOR IMAGE PROCESSING METHOD AND SYSTEM

Shinji Kita; Hitoshi Ogatsu; Noriyuki Kazama; Kazumasa Murai, and Yuzuru Suzuki, all of Ebina, Japan, assignors to Fuji Xerox Co., Ltd., Tokyo, Japan

Filed Jan. 13, 1995, Ser. No. 371,982
Claims priority, application Japan, Jan. 14, 1994, 6-014948; Jan. 14, 1994, 6-14949
Int. Cl.[6] H04N *1/46*
U.S. Cl. 358—500 22 Claims



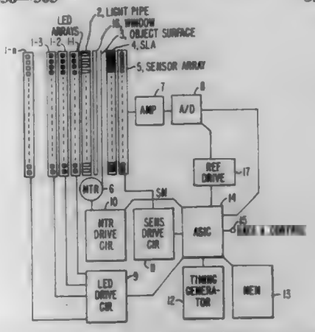
1. A color image processing system for generating image signals containing color information of four colors, including black, the four-color image signals generated from original image signals containing color information of three colors, said color image processing system comprising:
means for converting the original three-color image signals into separated brightness and chromaticity signals;
range conversion means for converting the brightness signal into a range converted brightness signal that is within a record color reproduction range;
edge detection means for detecting edges and generating an edge amount signal from the range converted brightness signal;
chroma detection means for detecting chroma from the chromaticity signal;
edge enhancement means for enhancing edges of an image represented by the range converted brightness signal;
smoothing means for smoothing the range converted brightness signal;
brightness and chromaticity conversion means comprising means for executing brightness conversion by mixing an output of said edge enhancement means and an output of said smoothing means according to the edge amount signal, and means for executing chromaticity conversion that generates a chromaticity signal corresponding to compression/expansion of the chroma according to an output of said edge detection means and an output of said chroma detection means; and
record color conversion means connected to receive an output of said brightness and chromaticity conversion means and for generating the four-color image signals containing India ink using a color conversion table.

5,729,361

COLOR SCANNER USING BOTH VARIABLE LED EXPOSURE TIME AND PHOTO DETECTOR OUTPUT COMPENSATION

Bradley N. Suggs, and Ali Moayer, both of Fremont, Calif., assignors to Logitech, Inc., Fremont, Calif.

Filed Jun. 30, 1995, Ser. No. 497,459
Int. Cl.[6] H04N *1/04;1/46;1/00;* H01J *5/16*
U.S. Cl. 358—505 32 Claims



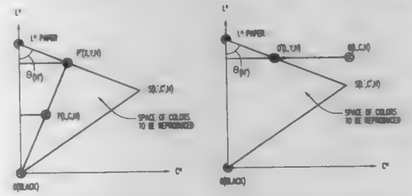
1. A color image scanner for reading a document, comprising:
an array of light emitters in at least three groups, each group having a plurality of emitters of at least one color;
a plurality of light detectors;
a converter configured to convert a sensed exposure of each of said light detectors for each of said light emitter groups into a digital value;
a timer configured to vary the sensed exposures of all of said light detectors to each of said light emitter groups in accordance with the emitter color or colors within each group for at least one activation of light emitter groups;
an initialization unit configured to measure a variation in a sensed exposure using a test target for each of said light detectors for each of said light emitter groups;
a calibration memory for storing an adjustment value corresponding to said variation for each of said light detectors for each of said light emitter groups; and
an initialization adjuster configured to adjust said digital value for each of said light detectors with said adjustment value in said memory.

5,729,362

METHOD FOR DETERMINING COLOR DATA

Satoshi Deishi, Ibaraki, and Hiroshi Goto, Itami, both of Japan, assignors to Minolta Co., Ltd., Japan

Filed Jul. 7, 1995, Ser. No. 499,352
Claims priority, application Japan, Jul. 7, 1994, 6-155844
Int. Cl.[6] G03F *3/08*
U.S. Cl. 358—520 14 Claims



1. A method for reproducing a color image using coloring materials of yellow (Y), magenta (M), cyan (C), and black (K) based on image data representing chroma, luminosity, and hue, comprising the steps of:

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determining a density ratio of at most two coloring materials among YMC corresponding to a given hue;

determining density data for each of said two coloring materials and a density data for black (K) corresponding to chroma and luminosity on the condition that said density ratio of two determined coloring materials is maintained constant; and

generating a color image with said coloring materials using the density data for each of said two color materials and the density data for black.

5,729,363

IMAGING PARAMETER RECORDING APPARATUS, IMAGING METHOD AND EDITING SYSTEM

Kenichi Aihara, Tokyo; Yoshio Chiba, and Taku Kihara, both of Kanagawa, all of Japan, assignors to Sony Corporation, Tokyo, Japan

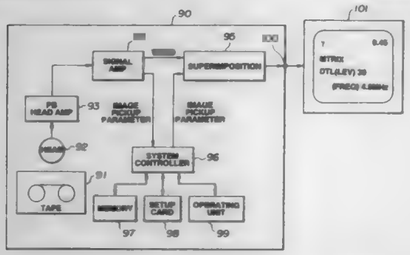
PCT No. PCT/JP94/01175, § 371 Date Mar. 10, 1995, § 102(e) Date Mar. 10, 1995, PCT Pub. No. WO95/02939, PCT Pub. Date Jan. 26, 1995

PCT Filed Jul. 18, 1994, Ser. No. 397,227

Claims priority, application Japan, Jul. 16, 1993, 5-176761

Int. Cl.[6] H04N *5/76*

U.S. Cl. 358—906 11 Claims



1. Apparatus for recording imaging parameters comprising:

imaging means for producing pictures comprised of imaging signals by imaging an object under imaging conditions which are based on said imaging parameters, a plurality of pictures having different imaging parameters;

recording means for recording said imaging signals and imaging parameters relating to said imaging signals on the same recording medium;

reproducing means for reproducing the imaging signals and said imaging parameters recorded on the recording medium;

display means for displaying said imaging signals as said pictures in accordance with said imaging parameters and displaying the imaging parameters reproduced by said reproducing means;

means for changing the values of the imaging parameters for a respective picture displayed on the display means and automatically changing said imaging parameters for said plurality of pictures in accordance with the same imaging parameters of the respective picture such that imaging may be performed under the same imaging conditions for said plurality of pictures; and

means for recording imaging parameters changed in value by said changing means on a removable parameter recording medium.

5,729,364

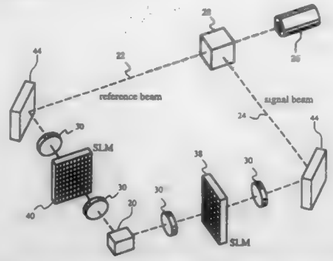
ION AND IMPURITY CONCENTRATION OPTIMIZATION IN PHOTOREFRACTIVE MEDIA FOR DYNAMIC AND FIXED HOLOGRAPHY

Matthew C. Bashaw, Menlo Park; John F. Heanue, San Mateo, and Lambertus Hesselink, Woodside, all of Calif., assignors to The Board of Trustees of the Leland Stanford Junior University, Palo Alto, Calif.

Filed Jul. 5, 1996, Ser. No. 676,010

Int. Cl.[6] G03H *1/28;1/04;1/18*

U.S. Cl. 359—7 22 Claims



1. A holographic recording method comprising the steps of:

a) establishing a reference beam and a signal beam incident on a photorefractive holographic storage medium at a recording temperature T_r, for recording in said medium a holographic grating characterized by a grating wave number K, wherein said grating wave number K is substantially equal to an electronic Debye number $k_{D_e}(N_R,T_r)$ characterizing said medium, wherein N_R is an effective impurity density of said medium, and

a density of reduced impurities N^* in said medium is substantially equal to a density of oxidized impurities N° in said medium; and

b) fixing said grating in said medium by establishing a fixing temperature T_f within said medium.

5,729,365

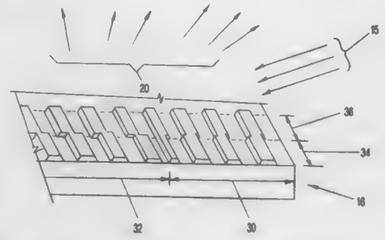
COMPUTER GENERATED HOLOGRAPHIC MICROTAGS

William C. Sweatt, Albuquerque, N. Mex., assignor to Sandia Corporation, Albuquerque, N. Mex.

Filed Jan. 11, 1996, Ser. No. 583,889

Int. Cl.[6] G03H *1/00;* G02B *5/18*

U.S. Cl. 359—2 21 Claims



1. A microtag for placement on an object comprising a microscopic computer generated hologram comprising an array of individual phase grating patches in a diffractive Littrow readout geometry with feature spacings between the individual diffractive elements in the patches in the array being a value of between about 250 nanometers and about 75 nanometers.

5,729,366

HEADS-UP DISPLAY FOR VEHICLE USING HOLOGRAPHIC OPTICAL ELEMENTS

Bong Won Yang, Seoul, Rep. of Korea, assignor to Hyundas Electronics Industries Co., Ltd., Kyoungki-Do, Rep. of Korea

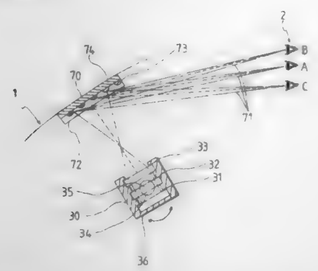
Continuation of Ser. No. 361,990, Dec. 22, 1994, abandoned.

This application Apr. 24, 1996, Ser. No. 638,990

Claims priority, application Rep. of Korea, Dec. 23, 1993, 93-29299

Int. Cl.[6] G03H *1/00*

U.S. Cl. 359—13 7 Claims



1. A heads-up display device for use in a vehicle by a viewer to view a hologram image and scenery through said image, said vehicle having dashboard support and a front window, comprising:

a holographic combiner attached to said window for projecting a hologram image of a measuring and indicating panel of said vehicle on said window at a projection angle such that a diverse driving scenery and state of road can be seen through said image, said combiner including a reflective holographic optical element, adhesive for fastening said reflective holographic optical element to said window and a buffer between said reflective holographic optical element and said adhesive;

a holographic projection optical system for disposition in said dashboard support, said holographic projection optical system including means for illuminating light to a viewer's eye position; and

means for changing position of said holographic projection optical system to alter said image from said holographic combiner relative to said viewer.

5,729,367

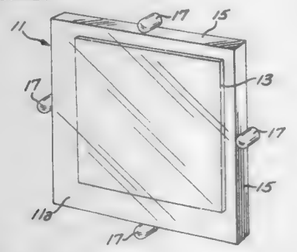
MULTIPLE-IMAGE MULTIPLEXED HOLOGRAPHIC DISPLAY

Ronald T. Smith, Corona Del Mar, Calif., assignor to Hughes Electronics, Los Angeles, Calif.

Filed Oct. 2, 1996, Ser. No. 725,111

Int. Cl.[6] G03H *1/24;1/28*

U.S. Cl. 359—24 4 Claims



1. A holographic display comprising:

a light pipe having first and second opposing surfaces and a plurality of input surfaces;

a plurality of light sources respectively adjacent said plurality of input surfaces for providing respective input beams to respective input surfaces, such that respective injected beams propagate within said light pipe; and

a multiple image hologram structure attached in an index matching manner to said first side of said light pipe, said multiple image hologram structure having a plurality of holographic images recorded therein for respective reconstruction by said respective injected beams.

5,729,368

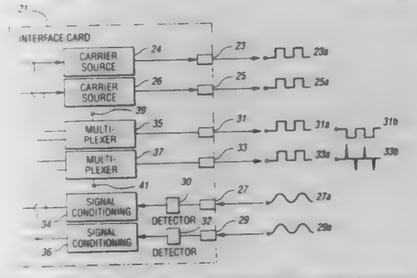
METHOD OF PROVIDING NON-INTRUSIVE OPTICAL TEST ACCESS WITHOUT OPTICAL LOSS

John T. Pugaczewski, White Bear Lake, Minn., assignor to U S West, Inc., Englewood, Colo.

Filed May 15, 1996, Ser. No. 648,465

Int. Cl.[6] H04B *10/08*

U.S. Cl. 359—110 12 Claims



1. A method for the non-intrusive testing of an optical communications signal without incurring optical loss, said method comprising:

a) selecting an optical cable whose signal is desired of testing, said optical cable transmitting a first optical signal;

b) identifying a signal source associated with said first optical signal, said signal source useful for generating a parallel electrical signal corresponding to said first optical signal, said signal source one which does not diminish the intensity of said first optical signal;

c) generating from said signal source a parallel electrical or parallel optical signal; and

d) directing said parallel electrical signal or said parallel optical signal to test equipment designed to receive same.

5,729,369

METHOD OF TRACKING A PLURALITY OF DISCRETE WAVELENGTHS OF A MULTIFREQUENCY OPTICAL SIGNAL FOR USE IN A PASSIVE OPTICAL NETWORK TELECOMMUNICATIONS SYSTEM

Martin Zirngibl, Middletown, N.J., assignor to Lucent Technologies Inc., Murray Hill, N.J.

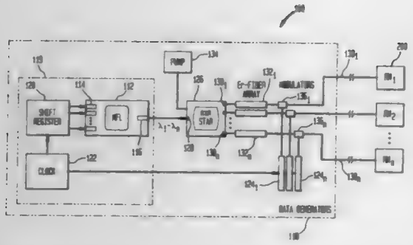
Filed May 31, 1996, Ser. No. 656,025

Int. Cl.[6] H04B *10/08*

U.S. Cl. 359—110 10 Claims

1. A method of tracking a plurality of discrete wavelengths of a multifrequency optical signal generated by a pseudo-chirped multifrequency optical source and provided to a modulator for modulating at least one of the discrete wavelengths with a data signal intended for receipt by a select user, the plurality of wavelengths being provided to a multifrequency wavelength router which is susceptible to temperature-induced drift, the router having fewer output channels than the plurality of discrete wavelengths, and the router passing more than one adjacent-in-wavelength wavelengths from each output channel at any given time, said method comprising the steps of:

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measuring a power level of a discrete wavelength passed by the router;

comparing the measured power level to a threshold power level to determine whether a sufficient power level for said discrete wavelength exists to transmit said data signal to said select user; and

communicating, as a function of at least one of said comparison and said measured power level, a signal indicative of the measured power to a host terminal complex (HTC) for use in determining at least one of a presence and an amount of temperature-induced frequency drift of the router for correction through tuning of said modulator to modulate, with said data signal, a discrete wavelength adjacent-in-wavelength to said discrete wavelength for transmitting said data signal to said select user.

5,729,370

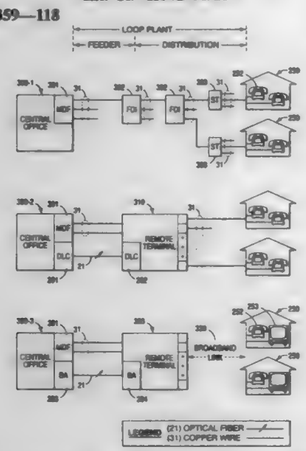
METHOD FOR UPGRADING A COMMUNICATIONS NETWORK

Lawrence Bernstein, Short Hills, and Brent E. Coy, Morristown, both of N.J., assignors to Lucent Technologies Inc., Murray Hill, N.J.

Filed Feb. 22, 1996, Ser. No. 605,429

Int. Cl.[6] H04B *10/20*

U.S. Cl. 359—118 **8 Claims**



1. A method for upgrading a narrowband communications network to a broadband communications network; said narrowband network comprising metallic wire pairs that conduct analog voice signals between a telephone office and a plurality of telephone customers, said broadband network comprising optical fibers that extend between the telephone office and a remote terminal, and a broadband link—other than optical fibers—that extends between the remote terminal and the telephone customers; the method including the steps of:

selecting a location that is suitable for distributing video signals such as CATV over the broadband link to a predetermined number of the telephone customers;

installing a remote terminal at the selected location;

installing an optical cable between the telephone office and the remote terminal, said optical cable comprising a plurality of optical fibers;

installing digital loop carrier (DLC) equipment at the telephone office and at the remote terminal, said DLC equipment including multiplexers for combining a number of voice signals and digitally transmitting same over a lesser number of optical fibers;

removing the DLC equipment at the telephone office and at the remote terminal, and replacing same with broadband access equipment for transmitting voice and video signals; and

installing the broadband link between the remote terminal and one or more of the telephone customers for transmitting said video signals.

5,729,371

OPTICAL COMMUNICATIONS DEVICE

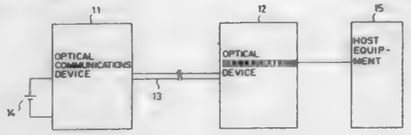
Takashi Yoshida; Noboru Kanzaki; Kenji Asanuma, and Eiichi Nabeta, all of Kawasaki, Japan, assignors to Fuji Electric Co., Ltd., Kawasaki, Japan

Filed Jul. 10, 1995, Ser. No. 500,437

Claims priority, application Japan, Jul. 11, 1994, 6-158752

Int. Cl.[6] H04B *10/00*

U.S. Cl. 359—154 **16 Claims**



1. An optical communications device comprising:

a transmission unit for transmitting binary-coded electrical pulse signals to an external optical communications device in the form of optical pulse signals,

a receiving unit for converting optical pulse signals received from an external optical communications device into electrical pulse signals, said transmission unit comprising:

modulation means for producing an electrical pulse signal at each of rising and falling edges of said binary-coded electrical pulse signals said electrical pulse signal being narrow in pulse width; and

electro-optic conversion means for converting said electrical pulse signal into an optical pulse signal that is narrow in pulse width;

said receiving unit comprising:

opto-electrical conversion means for converting optical pulse signals having a narrow pulse width, received from outside, into electrical pulse signals having a narrow pulse width,

demodulation means for recovering original binary-coded electrical pulse signals from said electrical pulse signals having a narrow pulse width by providing a level-inverted electrical pulse signal each time an electrical pulse signal of a narrow pulse width is output from said opto-electrical conversion means, and

noise countermeasure means for enabling said demodulation means to output said original binary-coded electrical pulse signals despite the presence of noise.

5,729,372

OPTICAL TRANSMISSION METHOD AND APPARATUS AND OPTICAL AMPLIFICATION METHOD AND APPARATUS FOR OPTICAL COMMUNICATION SYSTEM

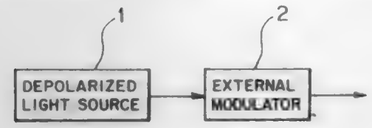
Takafumi Terahara; Terumi Chikama; Masuo Suyama, and Takao Naito, all of Kawasaki, Japan, assignors to Fujitsu Limited, Kanagawa, Japan

Continuation of Ser. No. 216,263, Mar. 21, 1994, abandoned. This application Sep. 12, 1996, Ser. No. 712,958

Claims priority, application Japan, Jun. 28, 1993, 5-157159; Jan. 13, 1994, 6-002079

Int. Cl.[6] H04B *10/04*

U.S. Cl. 359—180 **22 Claims**



1. An optical transmission method for an optical communication system having an optical transmission apparatus, comprising the steps of:

providing light depolarization means on an optical transmission apparatus side in said communication system and producing depolarized light;

providing a modulator on said optical transmission apparatus side and connecting said modulator to said depolarization means such that the depolarized light outputted from said depolarization means is inputted to said modulator in such polarization directions that polarization dependencies of said depolarization means and said modulator are cancelled with each other;

modulating depolarized light produced by said depolarization means, to produce modulated depolarized signal light by said modulator; and

transmitting the modulated depolarized signal light, said signal light being amplified by an optical amplifier including a rare earth metal doped fiber.

5,729,373

REPRODUCING CIRCUIT OF MONITOR SIGNAL

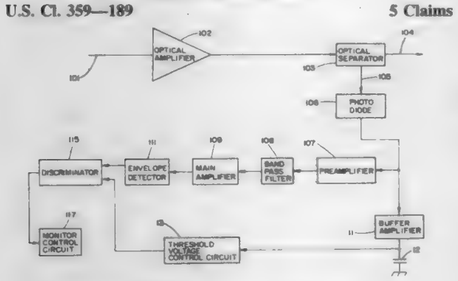
Hiroshi Sakuyama, Tokyo, Japan, assignor to NEC Corporation, Tokyo, Japan

Filed Nov. 16, 1995, Ser. No. 559,556

Claims priority, application Japan, Nov. 16, 1994, 6-281683

Int. Cl.[6] H04B *10/06*

U.S. Cl. 359—189 **5 Claims**



3. A reproducing circuit comprising:

optoelectric converting means for receiving an optical signal in which a predetermined monitor signal is superimposed, and for outputting an electric signal having an amplitude in correspondence to an intensity of the received optical signal;

monitor signal component extracting means for extracting said monitor signal from said electric signal output from said optoelectric converting means;

smoothing means for smoothing the variation of amplitude of the electric signal output from said optoelectric converting means;

threshold voltage generating means for generating a threshold voltage that varies in accordance to the voltage of the smoothed electric signal; and

binary signal producing means for converting the monitor signal extracted by said monitor component extracting means into a binary signal using the threshold voltage as a reference.

5,729,374

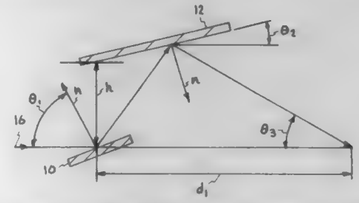
SPECKLE AVERAGING SYSTEM FOR LASER RASTER-SCAN IMAGE PROJECTION

Detlev H. Tiszauer, Tracy, and Lloyd A. Hackel, Livermore, both of Calif., assignors to The Regents of the University of California, Oakland, Calif.

Filed Jul. 3, 1995, Ser. No. 497,965

Int. Cl.[6] G02B *26/08*

U.S. Cl. 359—212 **35 Claims**



1. A method for reducing the speckle observed in an image formed by laser illumination, comprising rotating the speckle field created at an object point, wherein said speckle field is rotated about an optic axis located between said object point and an image point, wherein multiple uncorrelated fields are averaged to give a smooth intensity at said image point, said method further comprising the step of adjusting the axial position of an axial mirror to control the focus of said speckle field at said image point.

5,729,375

OPTICAL AMPLIFICATION SYSTEM WITH NON-ORTHOGONAL SIGNAL AND DISTRIBUTED MULTI-PUMP BEAMS AND PHOTOREFRACTIVE CLEANUP

Marvin B. Klein, Pacific Palisades; Barry Wechsler, Newbury Park; Jack L. Feinberg, Manhattan Beach, and Stuart MacCormack, Venice, all of Calif., assignors to Hughes Electronics, Los Angeles, and University of Southern California, University Park, both of Calif.

Filed Mar. 1, 1996, Ser. No. 609,200

Int. Cl.[6] H01S *3/08*; **G02B** *5/23*; **G02F** *1/01*

U.S. Cl. 359—244 **36 Claims**

1. An optical amplification system, comprising:

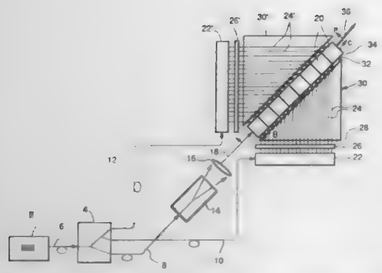
a photorefractive medium,

a signal beam source arranged to direct an optical signal beam through said photorefractive medium from a location outside the medium, said photorefractive medium comprising at least one crystal, with each crystal oriented so that its C-axis is substantially parallel to the signal beam, and

a pump beam source arranged to direct a plurality of optical pump beams through said photorefractive medium from respective locations outside the medium,

said signal beam being directed along a path outside the medium that is substantially non-parallel to the paths of said pump beams outside the medium, said pump beams intersecting said signal beam at respective beam crossings that are distributed along the signal beam path within the medium, and at beam

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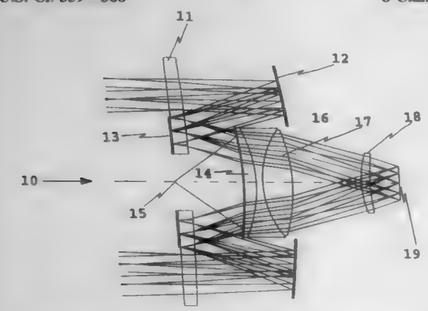


crossing angles that are substantially less than 90° to amplify the signal beam by a pump beam at each successive beam crossing.

5,729,376
CATADIOPTRIC MULTI-FUNCTIONAL OPTICAL ASSEMBLY

John M. Hall, Alexandria; Dallas N. Barr, Woodbridge, and Richard Utano, Springfield, all of Va., assignors to The United States of America as represented by the Secretary of the Army, Washington, D.C.

Filed Jul. 1, 1996, Ser. No. 674,007
Int. Cl.° G02B *17/00;27/14;5/10*
U.S. Cl. 359—366 **8 Claims**

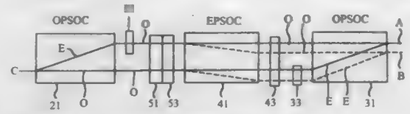


1. A catadioptic optical assembly for providing two different focal planes within the assembly, the assembly comprising:
an objective lens element with first and second surfaces, the element including an inner annular portion cut-out, and the element further having a mirrored reflectance coating on an annular portion of said first surface;
an annular mirror having a reflective surface facing the objective lens element, the mirror including an inner annular portion cut-out;
a lens group with a first and last surface, the first surface including a wavelength selectable reflective coating for focusing wavelength selected radiation onto a first focal plane in front of the lens group, the lens group positioned in between the objective lens element and the annular mirror, and the lens group also positioned concentric to the inner annular portion cut-outs of both objective lens element and annular mirror, so that wavelength selected radiation not diverted by the wavelength selectable coating pass through the last surface onward to a field lens element;
a field lens element for focusing exit radiation from the lens group onto a second focal plane;
a first optical path extending from the objective lens element to the reflective surface of the annular mirror, backward through the objective lens element to the mirrored reflectance coating, forward to the wavelength-selectable reflectance coating, and backward to the first focal plane;
a second optical path extending from the objective lens element to the reflective surface of the annular mirror, backward through the objective lens element to the mirrored reflectance coating, forward through the lens group and field lens element to the second focal plane, whereby there is focused radiation of a selected wavelength onto the first focal plane located approximate the objective lens inner annular portion cut-out, and radiation of other selected wavelengths is focused onto the second focal plane located after the field lens element.

5,729,377
OPTICAL APPARATUS

Ernest Eisenhardt Bergmann, Fountain Hill, Pa., assignor to Lucent Technologies, Inc., Murray Hill, N.J.

Filed Dec. 26, 1995, Ser. No. 578,721
Int. Cl.° G02B *5/30*
U.S. Cl. 359—249 **14 Claims**

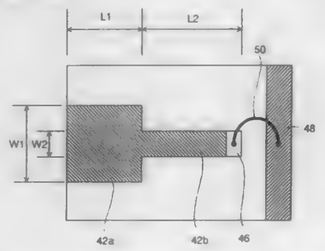


1. Optical apparatus comprising:
at least a first walk-off device, said first walk-off device capable of separating an incoming beam into two parallel outgoing beams of orthogonal polarization, or combining two incoming parallel beams of orthogonal polarization into one outgoing beam;
at least a first polarization flipper positioned to change the polarization of one of the two beams from the first walk-off plate so that the polarizations of both beams exiting from the first polarization flipper are essentially the same, or to change the polarization of one of the two incoming beams so that the beam exiting from the first walk-off device is unpolarized; and,
a nonreciprocal element positioned to receive said two polarized beams;
in which said nonreciprocal element comprises a Faraday rotator; and
said nonreciprocal element further comprises a half-wave plate positioned to receive said two beams.

5,729,378
OPTICAL DEVICE

Hideaki Tanaka, and Yuichi Matsushima, both of Tokyo, Japan, assignors to Kokusai Densin Denwa Kabusiki Kaisha, Tokyo, Japan

Filed Nov. 4, 1996, Ser. No. 742,400
Claims priority, application Japan, Nov. 10, 1995, 7-292704
Int. Cl.° G02F *1/03*
U.S. Cl. 359—254 **15 Claims**



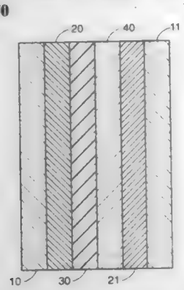
1. An optical device including an optical element and a high-frequency line connecting the optical element to an external transmission line, comprising:

said high-frequency line comprising a signal line having a plurality of line portions whose characteristic impedances vary stepwise from the characteristic impedance of said external transmission line to the impedance of said optical element; and
each of said line portions comprising a length substantially equal to an integer multiple of ¼ of its own guide wavelength.

5,729,379
ELECTROCHROMIC DEVICES

Pierre-Marc Allemand; F. Randall Grimes; Anoop Agrawal; Barbara A. Bigelow, and Andrew R. Ingle, all of Tucson, Ariz., assignors to Donnelly Corporation, Holland, Mich.

Continuation-in-part of Ser. No. 329,502, Oct. 26, 1994, abandoned. This application Oct. 24, 1995, Ser. No. 547,578
Int. Cl.° G02F *1/153*
U.S. Cl. 359—270 **43 Claims**

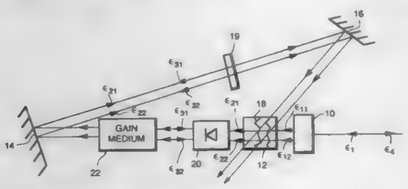


1. An electrochromic device comprising a conducting electrode opposing a counter conducting electrode with an electrochemically active polymeric material layer disposed on an opposing surface of one of said electrodes and a nonaqueous electrolyte containing at least one electrochromically reversible redox active material contactingly disposed between said electrochemically active polymeric material layer and an other opposing surface of one of said electrodes, wherein at least one of said electrodes is transparent.

5,729,380
LOOP PHASE-CONJUGATE MIRROR FOR DEPOLARIZED BEAMS

Alexander A. Betin, Calabasas, and Metin S. Mangir, Santa Monica, both of Calif., assignors to Hughes Electronics, Los Angeles, Calif.

Filed Oct. 30, 1996, Ser. No. 741,275
Int. Cl.° G02B *26/08*
U.S. Cl. 359—300 **12 Claims**

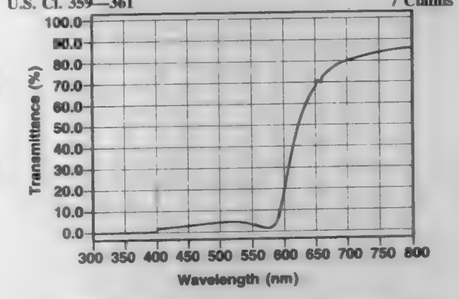


1. A loop phase conjugator, comprising:
an optically nonlinear medium,
a polarization separator that separates a signal beam ϵ_1 into two orthogonally polarized signal beam components ϵ_{11} and ϵ_{12}, and directs said components to said optically nonlinear medium, said signal beam components propagating through said nonlinear medium and emerging from said medium as loop beam ϵ_2 with orthogonally polarized components ϵ_{21} and ϵ_{22},
a polarization mixer positioned to receive said loop beam, said polarization mixer mixing the energy from said orthogonally polarized loop beam components ϵ_{21} and ϵ_{22} to output loop beam components ϵ_{51} and ϵ_{52},
relay optics that directs loop beam ϵ_2 back to said nonlinear medium so that loop beam components ϵ_{51} and ϵ_{52} intersect and optically interfere with signal beam components ϵ_{11} and ϵ_{12}, respectively, at said nonlinear medium to form gratings in said nonlinear medium, said relay optics and gratings forming an optical loop,
an optical diode positioned in said optical loop, said optical diode producing a non-reciprocal optical loss in said optical loop that is greater for optical beams propagating along the propagation direction of loop beam ϵ_2 than for optical beams propagating in the opposite direction, and
an optical gain medium positioned in said optical loop, said gain medium and optical loop forming a ring laser resonator,
said optical diode and gain medium positioned in said optical loop so that an oscillation beam ϵ_3, with orthogonally polarized components ϵ_{31} and ϵ_{32}, builds up from optical noise in said resonator and oscillates in a direction counter to the propagation direction of loop beam ϵ_2, with a portion of oscillation beam ϵ_3 being transmitted by said gratings and exiting said optical loop as phase conjugate output beam ϵ_4.

5,729,381
GLASSES FOR LASER PROTECTION

Thomas G. Havens, Painted Post; David J. Kerko, Corning, and JoAnn Morrell, Horseheads, all of N.Y., assignors to Corning Incorporated, Corning, N.Y.

Division of Ser. No. 334,932, Nov. 7, 1994, Pat. No. 5,540,745. This application Nov. 13, 1995, Ser. No. 555,652
Int. Cl.° G02B *1/08*
U.S. Cl. 359—361 **7 Claims**



1. A shield for laser radiation comprising a cuprous halide- or a cuprous-cadmium halide-containing glass body which is essentially completely opaque to ultraviolet radiation and to radiation below a given wavelength within the region of wavelengths up to 550 nm, but is transparent to visible radiation having a wavelength longer than the radiation within the region of opacity, said glass body having at least an exposed front surface having an integral reduced layer therein, the depth of that layer being sufficient to effectively prevent the transmission therethrough of radiation having wavelengths up to the given wavelength within the region of wavelengths up to 550 nm.

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5,729,382

LARGE EXIT-PUPIL STEREOSCOPIC MICROSCOPE

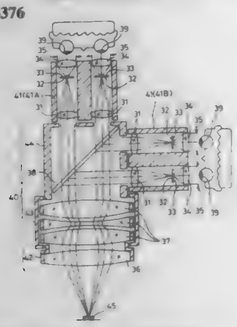
Kazuo Morita, Hachioji, and Toyoharu Hanzawa, Mitaka, both of Japan, assignors to Olympus Optical Co., Ltd., Tokyo, Japan

Filed Jul. 7, 1995, Ser. No. 499,131

Claims priority, application Japan, Jul. 8, 1994, 6-179752; Oct. 24, 1994, 6-282474; May 12, 1995, 7-114872

Int. Cl.[6] G02B 21/22

U.S. Cl. 359—376 28 Claims



1. A stereoscopic microscope comprising:

right and left eyepiece lens systems for magnified observation of two aerial images which are formed with parallax therebetween and independently of each other at locations different from each other,

wherein said stereoscopic microscope comprises a main body housing, and an eyepiece body housing which is attachable and detachable to and from said body housing,

wherein transmission type light diffusing devices are disposed proximate to right and left aerial images formed nearest an observer's eyes in an observation optical system of said stereoscopic microscope, and

wherein an eyepiece body optical system of the observation optical system ranges from imaging lenses for forming said aerial images nearest said observer's eyes to said eyepiece lens system, and said light diffusing devices being disposed in said eyepiece body housing.

5,729,383

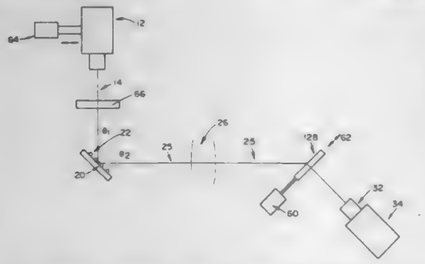
OBLIQUE VIEWING MICROSCOPE SYSTEM

Jean-Claude Andre Chastang, Mahopac; Kathryn Barr Kirtley, Katonah, and Alan Edward Rosenbluth, Yorktown Heights, all of N.Y., assignors to International Business Machines Corporation, Armonk, N.Y.

Division of Ser. No. 306,238, Sep. 14, 1994. This application Jul. 15, 1996, Ser. No. 680,006

Int. Cl.[6] G02B 21/06; G01B 9/02

U.S. Cl. 359—385 17 Claims



1. An oblique viewing microscope system for providing a high-resolution image of an object, comprising:

means for reflecting an image of an object at a first oblique angle with the normal to the object;

relay means for projecting the reflected image with a magnification of magnitude substantially unity;

a diffraction grating for diffracting the projected image into a plurality of orders in each of one or more wavelengths, said diffraction grating having a period in the range of about 30 lines per mm to about 600 lines per mm, said diffraction grating being tilted so that said relay means projects the image onto said grating at a second oblique angle to the normal of the grating, said plurality of orders being diffracted substantially parallel to the normal of said grating;

means for illuminating the object through a filter means having a plurality of slits and means for oscillating the illumination means so that said reflected image is an array of parallel slit-like images; and

detection means for capturing at least two orders in at least one of said wavelengths and projecting said orders into a display means for combining said orders into a high-resolution, high contrast image of said object.

5,729,384

COMPACT TELESCOPE

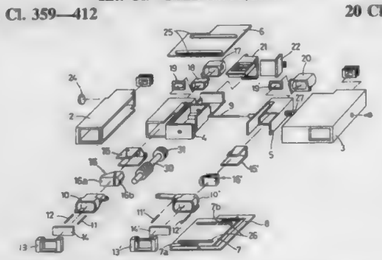
Kiyoshi Nishitani, Sakai, and Yasumasa Sugihara, Hashimoto, both of Japan, assignors to Minolta Co., Ltd., Osaka, Japan

Filed Aug. 28, 1996, Ser. No. 704,164

Claims priority, application Japan, Aug. 29, 1995, 7-219929

Int. Cl.[6] G02B 23/00;23/18

U.S. Cl. 359—412 20 Claims



1. A telescope comprising:

an objective lens disposed closest to an object and formed in a circular shape with its upper and lower portions cut off;

an eyepiece optical system including a lens formed in a circular shape with its upper and lower portions cut off; and

a third lens disposed between said objective lens and said eyepiece optical system and formed in a circular shape.

5,729,385

MICROSCOPE OPTICAL SYSTEM

Hiroyuki Nishida, and Hideyuki Takaoka, both of Hachioji, Japan, assignors to Olympus Optical Co., Ltd., Tokyo, Japan

Filed Nov. 26, 1996, Ser. No. 756,529

Claims priority, application Japan, Nov. 29, 1995, 7-310885

Int. Cl.[6] G03B 13/06; G02B 21/06

U.S. Cl. 359—434 9 Claims

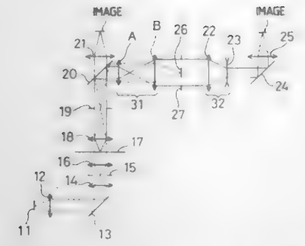
1. A microscope optical system comprising:

an illumination system for radiating light from a light source toward an object;

an objective lens and an imaging lens for forming an image of said object; and

one of an observing optical system for observing the image of said object and a photographing optical system for photographing the image of said object,

wherein a relay system constructed as an afocal system with a first positive lens unit and a second positive lens unit is disposed between said objective lens and said imaging lens, and means for pupil modulation can be disposed at a position



substantially conjugate with a pupil of said objective lens relayed by said relay system, said relay system satisfying a condition:

$$f2/f1>1.2$$

where f1 is a focal length of the first positive lens unit of said relay system and f2 is a focal length of the second positive lens unit of said relay system.

5,729,386

LIGHT PROJECTION METHOD AND A PROJECTION TYPE IMAGE DISPLAY APPARATUS FOR PERFORMING THE SAME

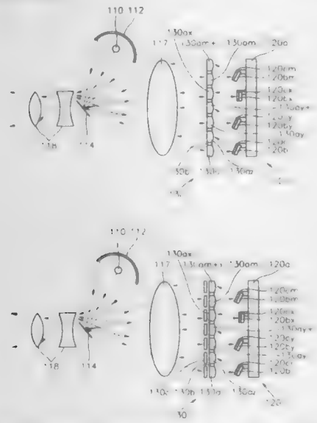
Jin Hwang, Incheon, Rep. of Korea, assignor to Daewoo Electronics Co., Ltd., Seoul, Rep. of Korea

Filed Oct. 28, 1996, Ser. No. 738,867

Claims priority, application Rep. of Korea, Oct. 27, 1995, 95-37474

Int. Cl.[6] G02B 27/10; F21V 29/00

U.S. Cl. 359—618 16 Claims



1. A light projection method in a projection type image display apparatus, the light projection method comprising the steps of:

(a) reflecting a light generated from a light source of optical energy;

(b) collimating the reflected light to transform the reflected light into a parallel light;

(c) condensing the parallel light in a pixel unit by using a first micro lens of a micro lens array comprising peripheries;

(d) controlling a light path of the condensed light by using a mirror of an actuated mirror array so that the condensed light corresponds to the pixel unit; and

(e) passing the condensed light which has the controlled light path through a second micro lens adjacent to the first micro lens to form an image on a screen.

5,729,387

SOLAR LIGHTING APPARATUS AND CONTROLLER FOR CONTROLLING THE SOLAR LIGHTING APPARATUS

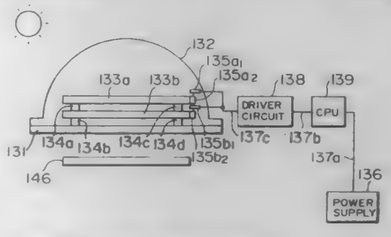
Kazuo Takahashi, Ota; Norioki Fujimoto, Kumagaya; Masashi Takazawa, Oizumi-machi; Takashi Odaira; Tomohito Koizumi, both of Ota; Kiyondo Kobayashi, Ashikaga; Syozo Kato; Tetsuo Miyamoto, both of Ota, and Mamoru Kubo, Sakai-machi, all of Japan, assignors to Sanyo Electric Co., Ltd., Moriguchi, Japan

Continuation of Ser. No. 450,782, May 25, 1995, abandoned. This application Apr. 2, 1997, Ser. No. 831,182

Claims priority, application Japan, Feb. 17, 1899, 7-052116; May 31, 1994, 6-118935; May 31, 1994, 6-118936; Jun. 29, 1994, 6-148036; Jun. 29, 1994, 6-148038; Jul. 29, 1994, 6-179152; Jul. 29, 1994, 6-179157; Feb. 7, 1995, 7-041434; Feb. 7, 1995, 7-041436; Feb. 20, 1995, 7-053793; Feb. 24, 1995, 7-060007

Int. Cl.[6] F04B 7/18; G02B 17/00

U.S. Cl. 359—591 24 Claims



1. A solar lighting apparatus comprising:

at least first and second lighting prism plates rotatably arranged and spaced apart by a predetermined distance, wherein prism angles of said lighting prism plates are controlled correspondingly to a height and azimuth of the sun so that sunlight refracted by said lighting prism plates is output in a predetermined direction; and

wherein said first and second lighting prism plates satisfy at least one of the following conditions (1) and (2):

$$(|\theta H|+|\theta L|)/2 \geqq (90°-\theta\alpha) \quad (1)$$

$$|\theta H|=|\theta L| \quad (2)$$

wherein θL represents a first outgoing angle between outgoing light and a line normal to the first lighting prism plate when objective light rays at a first height of the sun are output from said first lighting prism plate, θH represents a second outgoing angle between outgoing light and a line normal to the second lighting prism plate when light rays at a second height of the sun are output from said second lighting prism plate, and θα represents a permissible range of incident angles through which said second lighting prism plate can be controlled.

5,729,388

SYSTEM EMPLOYING DISSIPATIVE PSEUDORANDUM DYNAMICS FOR COMMUNICATIONS AND MEASUREMENT

Neil Gershenfeld, Somerville, Mass., assignor to Massachusetts Institute of Technology, Cambridge, Mass.

Division of Ser. No. 491,789, Jun. 19, 1995, Pat. No. 5,579,337. This application Sep. 12, 1996, Ser. No. 713,017

Int. Cl.[6] H04B 10/04

U.S. Cl. 359—637 3 Claims

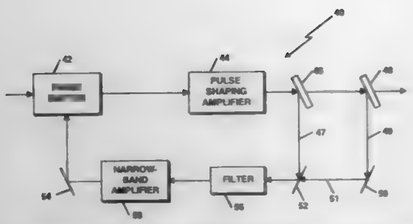
1. An analog feedback shift register including:

A. a controllable phase shifter;

B. a pulse-shaping amplifier for producing pulses in response to an incoming signal;

C. a plurality of beam splitters spaced in accordance with an associated pseudorandom code, for deflecting light along predetermined paths;

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D. combining means for coherently combining the deflected light;

E. means for steering the combined light to the phase shifter, which responds by shifting the phase on the incoming signal by an amount that is proportional to the intensity of the combined light.

5,729,389

OBJECTIVE LENS SYSTEM FOR MICROSCOPES

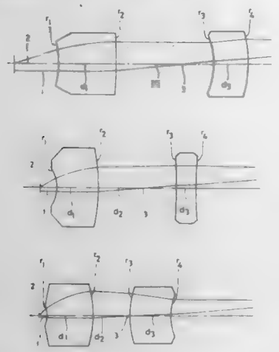
Toshiyuki Nagaoka, Tokyo, Japan, assignor to Olympus Optical Co., Ltd., Tokyo, Japan

Continuation of Ser. No. 079,282, Jun. 21, 1993, abandoned. This application Jun. 12, 1996, Ser. No. 662,820

Claims priority, application Japan, Jun. 22, 1992, 4-185754

Int. Cl.[6] G02B *3/00;21/02*

U.S. Cl. 359—654 **20 Claims**



1. An objective lens system for a microscope comprising, in order from an object side:

a first lens component; and

a second lens component;

each of said first lens component and said second lens component being a radial type graded refractive index lens component having a refractive index distribution N(r) satisfying the following condition:

$$N(r)=N_{00}+N_{10}r^2+N_{20}r^4+$$

said reference symbol r representing a distance as measured from an optical axis in a radial direction, said reference symbol N_{00} representing a refractive index of said lens component as measured on said optical axis thereof, and said reference symbols N_{10}, N_{20}, . . . denoting refractive index distribution coefficients of second, fourth, . . . orders respectively;

said first lens component being disposed on the most object side in said lens system;

said first lens component and said second lens component each satisfying the following condition (1), and said first lens component further satisfying the following conditions (2) and (7):

$$\phi_1/\phi_2>1 \quad (1)$$

$$N_{10}<0 \quad (2)$$

$$-0.05<1/V_{10}<1/V_{00} \quad (7)$$

said reference symbols ϕ_1 and ϕ_2 represent refractive powers of said first lens component and said second lens component, respectively, and said reference symbols V_{00} and V_{10} represent Abbe's numbers which are determined by the following formulas:

$$V_{00}=(N_{00d}-1)/(N_{00F}-N_{00C})$$

$$V_{10}=N_{10d}/(N_{10F}-N_{10C})$$

wherein said reference symbols N_{00d}, N_{00F} and N_{00C} represent refractive indices for the d-line, F-line and C-line, respectively, as measured on said optical axis, and said reference symbols N_{10d}, N_{10F} and N_{10C} represent the second order refractive index distribution coefficients for the d-line, F-line and C-line, respectively.

5,729,390

OBJECTIVE LENS SYSTEM

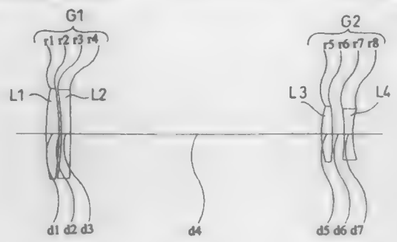
Tetsuya Abe, Hokkaido, Japan, assignor to Asahi Kogaku Kogyo Kabushiki Kaisha, Tokyo, Japan

Filed Jun. 19, 1996, Ser. No. 666,791

Claims priority, application Japan, Jun. 19, 1995, 7-175520

Int. Cl.[6] G02B *21/02;9/06*

U.S. Cl. 359—661 **6 Claims**



1. An objective lens system, comprising:

a positive first lens group; and

a positive second lens group, in this order from an object side, said positive first lens group having a positive lens element and a negative lens element

wherein said objective lens system satisfies the following relationships:

$$1.10<f_1/f<2.00$$

$$|\theta p-\theta n|<0.02$$

$$0.3<L/f<0.6$$

wherein f represents a focal length of the objective lens system, f_1, represents a focal length of said first lens group, θp, θn respectively represent a mean value of partial dispersion ratio of said positive and negative lens elements, represented by (nF–nF)/(nF–nc), wherein ng, nF, and nc respectively represent a refractive index at a g-line, an F-line and a C-line, and L represents a distance between said first and second lens groups.

5,729,391

MICROSCOPE OBJECTIVE LENS

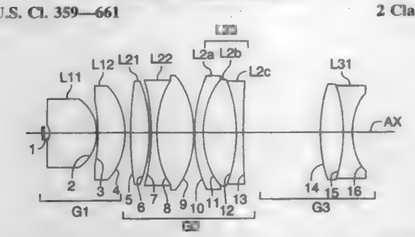
Itoe Ito, Kawasaki, Japan, assignor to Nikon Corporation, Tokyo, Japan

Filed Jan. 31, 1997, Ser. No. 792,539

Claims priority, application Japan, Feb. 15, 1996, 8-052439

Int. Cl.[6] G02B *21/02;9/12*

U.S. Cl. 359—661 **2 Claims**



1. A microscope objective lens, comprising, on an optical axis in order from the object side:

(a) a first lens group **G1** comprising a meniscus lens **L11** having a focal length **f11** and a concave surface oriented toward the object side, and a positive meniscus lens **L12** having a concave surface oriented toward the object side;

(b) a second lens group **G2** having a focal length **f2** and comprising a simple lens **L21**, a cemented lens **L22** including a negative lens cemented to a positive lens and having an imagewise surface with curvature radius **r7**, and a cemented lens **L23** including a positive lens cemented to two negative lenses;

(c) a third lens group **G3** having a focal length **f3** and comprising a cemented lens **L31** having an overall weak refractive power including a positive lens cemented to a negative lens; and

(d) the objective lens having an overall focal length F and satisfying the conditions:

$$|F/f11|+|F/f3|<0.1$$

$$3<f2/F<5$$

$$|F/r7|<0.7$$

5,729,392

COMPACT ZOOM LENS SYSTEM

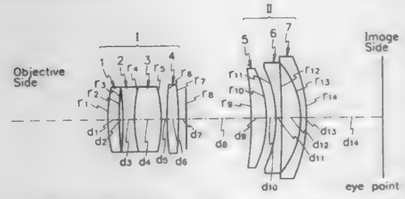
Young-Kyu Yoon, Changwon-si, Rep. of Korea, assignor to Samsung Aerospace Industries, Ltd., Kyeongsangnam-do, Rep. of Korea

Filed Dec. 11, 1996, Ser. No. 763,896

Claims priority, application Rep. of Korea, Dec. 11, 1995, 95-48399

Int. Cl.[6] G02B *15/14*

U.S. Cl. 359—692 **3 Claims**



1. A compact zoom lens system, from an object side to an image side, comprising:

a first lens group which has an overall positive refractive power, the first lens group comprising:

a first lens unit which is a meniscus lens that is convex toward an object, and which has a positive refractive power with respect to the object;

a second lens unit which has a negative refractive power with respect to the object;

a third lens unit which is a biconvex lens having a positive refractive power with respect to the object, and which is fixed to the second lens unit; and

a fourth lens unit which is a biconvex lens having a positive refractive power with respect to the object;

a second lens group which has an overall negative refractive power, the second lens group comprising:

a fifth lens unit which is meniscus lens that is convex toward an image side, and which has a positive refractive power with respect to the object;

a sixth lens unit that is convex toward the image side; and

a seventh lens unit which is a meniscus lens that is convex toward the image side, and which has a negative refractive power with respect to the object; and

wherein the magnification of the system can be varied by varying a distance between the first lens group and the second lens group, and wherein the following conditions are satisfied:

$$0.59<f_I/f_w<0.67,$$

$$0.17<D_v/f_w<0.22,$$

$$-0.63<f_{II}/f_w<-0.55,$$

where:

f_I represents the focal length of the first lens group;

f_{II} represents the focal length of the second lens group;

D_v represents a distance the first lens group is shifted from a wide angle position to the telephoto position during zooming; and

f_w represents the focal length of the system at the wide angle position.

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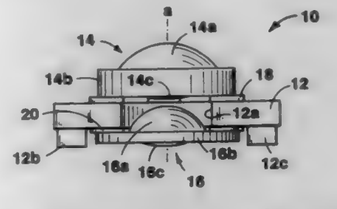
OPTICAL FLYING HEAD WITH SOLID IMMERSION LENS HAVING RAISED CENTRAL SURFACE FACING MEDIUM

Neville K. S. Lee, Kowloon, Hong Kong, and John S. Berg, Bellingham, Mass., assignors to Digital Papyrus Corporation, Holliston, Mass.

Filed Apr. 26, 1996, Ser. No. 638,349

Int. Cl.[6] G02B *7/02*

U.S. Cl. 359—819 **25 Claims**



1. An optical air bearing carrying an optical element through which an optical path is defined, the optical element having a bottom surface facing a recording medium contoured such that a central region where the optical path exits the bottom surface is closest to the medium regardless of perturbations in the attitude of the air bearing and neighboring points on the surface surrounding the central region recede but function at least partly as an air bearing.

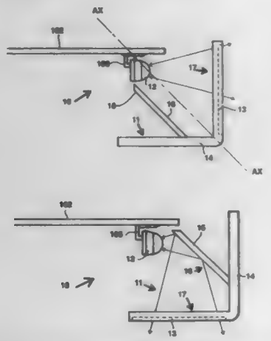
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5,729,394

MULTI-DIRECTION OPTICAL DATA PORT

Richard G. Sevier, Boise, and Eric L. Andersen, Meridian, both of Id., assignors to Hewlett-Packard Company, Palo Alto, Calif.

Filed Jan. 24, 1996, Ser. No. 590,537
Int. Cl.[6] G02B *7/00;7/182*
U.S. Cl. 359—726 **12 Claims**



1. An optical system to provide alternate data transfer directions which comprises:

an infrared optical data port having a predefined light path;

a lens panel; and

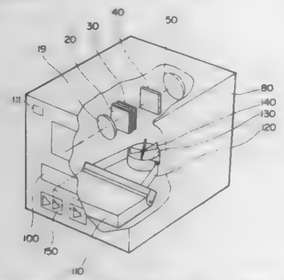
a mirror panel positionable between at least first and second positions where the first position has the mirror panel positioned out of the light path so as not to interfere with incoming or out going light and the second position has the mirror panel positioned in the light path to reflect and thereby redirect incoming or out going light.

5,729,395

VIDEO TAPE RECORDER WITH LIQUID CRYSTAL DISPLAY PROJECTOR HAVING A HEAD DRUM WITH FINS

Sumio Tanaka, Tokyo, Japan, assignor to Goldstar Co., Ltd., Seoul, Rep. of Korea

Filed Nov. 15, 1994, Ser. No. 341,889
Claims priority, application Japan, Nov. 19, 1993, 5-62145 U
Int. Cl.[6] G11B *15/60*
U.S. Cl. 360—69 **13 Claims**



1. A video tape recorder with liquid crystal display projector having a power switch, comprising:

an LCD projector part including a lamp for generating light, an infrared ray blocking filter, a polarizing plate, an LCD plate, and a projection lens, which are arranged a housing of said video tape recorder with liquid crystal display projector; and

a video cassette tape recorder part provided horizontally in a lower portion of said housing and including a rotary head drum onto which a tape extended from a tape cassette is wound, said rotary head drum provided with a plurality of fins on an upper surface thereof so as to directly cool said polarizing plate by agitating air above the rotary head drum,

wherein said fins are adapted to agitate air in cooperation with a rotation force of the rotary head drum, and

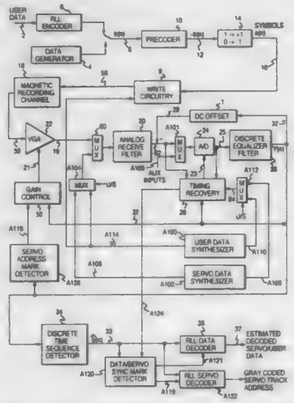
wherein a dry drum mode is automatically started after the power switch is turned on to rotate said fins for cooling said polarizing plate.

5,729,396

FAULT TOLERANT SYNC MARK DETECTOR ENABLED RELATIVE TO A FREQUENCY OF AN ACQUISITION PREAMBLE FOR SAMPLED AMPLITUDE RECORDING

Trent O. Dudley, Littleton; Richard T. Behrens, Louisville, and Christopher P. Zook, Longmont, all of Colo., assignors to Cirrus Logic, Inc., Fremont, Calif.

Filed May 12, 1995, Ser. No. 440,268
Int. Cl.[6] G11B *5/09*
U.S. Cl. 360—51 **25 Claims**



1. A fault tolerant sync mark detector in a sampled amplitude read channel for reading data from a magnetic disc medium by detecting digital data from a sequence of discrete time sample values generated by sampling pulses in an analog read signal from a magnetic read head positioned over the magnetic disc medium, wherein:

the read channel generates channel values in response to the sample values; and

the magnetic disc medium comprises a preamble field recorded at a predetermined frequency;

the sync mark detector comprising:

(a) a comparator for comparing the channel values to a target sync mark; and

(b) an input for receiving a sample period interval control signal for enabling operation of the sync mark detector relative to the frequency of the preamble.

5,729,397

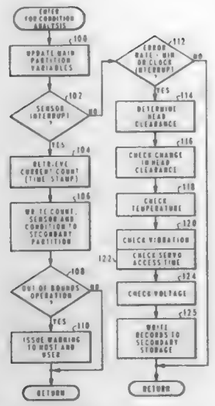
SYSTEM AND METHOD FOR RECORDING DIRECT ACCESS STORAGE DEVICE OPERATING STATISTICS

Hal Hjalmar Ottesen, and Gordon James Smith, both of Rochester, Minn., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Dec. 31, 1992, Ser. No. 999,502
Int. Cl.[6] G11B *15/18*
U.S. Cl. 360—69 **6 Claims**

1. A secondary data storage system for a host computer system comprising:

a rotatable data storage medium;



transducer means positionable with respect to the rotatable data storage medium for physically altering the rotatable data storage medium and for generating a read back signal in response to detection of physical alterations of the rotatable data storage medium;

processing means connected to the transducer means for filtering data from of the read back signal and generating indication of error in the data;

a plurality of operating condition monitoring devices including, means for measuring ambient temperature around the secondary data storage system, means for measuring vibration of the secondary data storage system, means for measuring power supply output voltage, means responsive to the read back signal for determining clearance between the read and write transducer and the recording medium;

a device controller having access to a clock and the plurality of operating condition monitoring devices and receiving indications of error from the processing means for generating a plurality of types of operating records;

a non-volatile, non-moving storage connected to the device controller for receiving the operating records and for storing the operating records sorted by type into partitions of the non-volatile, non-moving storage, the partitions including a main partition for storage of cumulative operating statistics, a secondary partition for logging time stamped operating condition records and a last in last out partition for storing time stamped error occurrence records; and

an external connection port to the non-volatile, non-moving storage allowing read access to the partitions while bypassing the device controller.

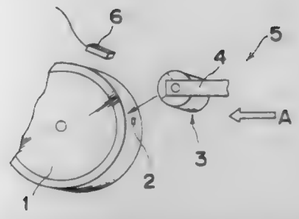
5,729,398

HEAD CLEANING DEVICE

Norimoto Nouchi, Katano; Masaya Sakaguchi, Neyagawa; Hiroshi Yoda, Hirakata, and Yoshiaki Mizoh, Neyagawa, all of Japan, assignors to Matsushita Electric Industrial Co., Ltd., Osaka, Japan

Division of Ser. No. 417,646, Apr. 5, 1995, Pat. No. 5,602,705, which is a continuation of Ser. No. 76,571, Jun. 14, 1993, Pat. No. 5,453,893. This application Dec. 12, 1996, Ser. No. 764,532
Claims priority, application Japan, Jun. 15, 1992, 4-154645; Dec. 22, 1992, 4-341915
Int. Cl.[6] G11B *5/41*
U.S. Cl. 360—69 **10 Claims**

1. A head cleaning device used for cleaning the circumference surface of a rotating magnetic head of a magnetic recording and reproducing apparatus to prevent and remove brown stain formed thereon, said device comprising:



cleaning roller means having a soft material, said soft material being impregnated with abrasive particles such that the abrasive particles are distributed throughout the soft material by adhering to fibers on the surface and internal to the soft material;

support means for rotatably supporting said cleaning roller means along an axis thereof and pressing said cleaning roller means with a predetermined rotational resistance against the circumference surface of said magnetic head such that the circumference surface of the cleaning roller means cleans the surface of said magnetic head while said cleaning roller means is rotated by said magnetic head in rotation;

driver means for driving said support means to press said cleaning roller means against said magnetic head;

humidity sensor means provided beside said magnetic head for detecting humidity therearound to produce a humidity signal;

comparator means for comparing said humidity signal with a predetermined reference humidity; and

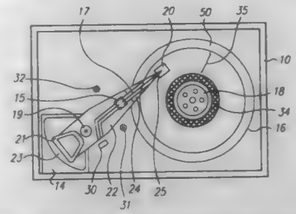
controller means for controlling said driver means when said humidity signal is less than said predetermined reference humidity.

5,729,399

CONTACT START/STOP DISK DRIVE WITH MINIMIZED HEAD-DISK WEAR IN TEXTURED LANDING ZONE

Thomas Robert Albrecht, and Thao Anh Nguyen, both of San Jose, Calif., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Dec. 13, 1995, Ser. No. 572,285
Int. Cl.[6] G11B *5/54*
U.S. Cl. 360—75 **21 Claims**



1. A contact start/stop data recording disk drive comprising:

a data disk having a textured landing zone and an untextured data region with a plurality of data tracks the surface of the textured landing zone being higher than the surface of the untextured data region;

a spindle motor connected to the disk for rotating the disk;

a transducer for writing data to or reading data from the data tracks;

a carrier for the transducer, the carrier having an air-bearing surface for supporting at least a portion of the carrier above the surface of the untextured data region when the disk is rotating at its operating speed;

an actuator connected to the carrier for moving the carrier generally radially across the disk so the transducer may access the data tracks and for maintaining the transducer on a data

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track, the actuator being parked with the carrier in contact with the surface of the textured landing zone when the disk is not rotating; and

control circuitry coupled to the actuator and responsive to commencement of disk rotation for moving the carrier, while the air-beating surface of the carrier is still in contact with the surface of the textured landing zone, from the textured landing zone to the untextured data region, the control circuitry moving the actuator so the air-bearing surface of the carrier is supporting the carrier above the surface of the untextured data region when the carrier enters the untextured data region before the disk reaches its operating speed, whereby the air-beating surface of the carrier is never in contact with the surface of the untextured data region.

5,729,400

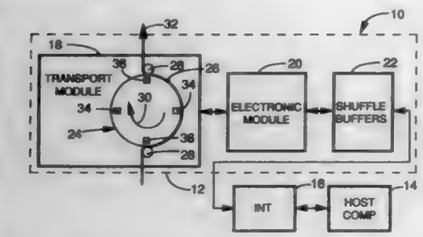
DATA RECORDER USING STILL FRAMING TECHNIQUES FOR INFORMATION RETRIEVAL AND METHOD

Keith A. Kambies, Foster City, Calif., assignor to Ampex Corporation, Redwood City, Calif.

Division of Ser. No. 322,800, Oct. 13, 1994, abandoned, which is a continuation of Ser. No. 867,268, Apr. 10, 1992, abandoned. This application Jul. 20, 1995, Ser. No. 504,822

Int. Cl.[6] G11B *15/467*

U.S. Cl. 360—77.13 **24 Claims**



1. A method of retrieving data from a magnetic recording tape with an automatic scan tracking data recorder, wherein the data is retrieved from said recording tape by said rotating scanner assembly as the recording tape moves at a nominal read speed relative to the scanner assembly, the improvement comprising the step of:

causing said rotating scanner assembly to retrieve data retrieval information from a segment of said recording tape while said recording tape is moving at a speed less than the nominal read speed, wherein said segment of said recording tape in which said data retrieval information is retrieved is a region in which no data is recorded.

5,729,401

AUTOMATIC CASSETTE CHANGER INCLUDING SHIFTABLE DRIVEN ROLLERS FOR A FRONT LOADING TYPE MAGNETIC RECORDING-REPRODUCTION APPARATUS

Mikiharu Imazaike, Osaka, Japan, assignor to Imazaike Seiko Kabushiki Kaisha, Osaka-fu, Japan

Filed Mar. 28, 1996, Ser. No. 623,258

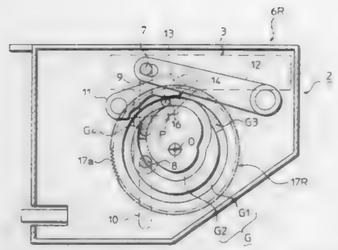
Claims priority, application Japan, Apr. 10, 1995, 7-084164

Int. Cl.[6] G11B *15/68*

U.S. Cl. 360—92 **19 Claims**

8. A cassette changer mountable on a cassette receiving apparatus, the cassette receiving apparatus having a cassette inlet-outlet opening, the cassette changer comprising:

a cassette shifter which shifts a cassette holder from a stand-by position displaced from facing the cassette inlet-outlet opening to an insertion position facing the cassette inlet-outlet opening;



said cassette shifter including a cassette holder cam operable to move the cassette holder from the stand-by position to the insertion position and to the stand-by position again during one turn in the forward direction while maintaining the cassette changer at the stand-by position during one turn in the reverse direction;

said cassette shifter including a cam follower, said cassette holder cam including two cam ways, said cam follower engaging one of said cam ways during one turn of said cam in said forward direction, said cam follower engaging the other of said cam ways during said one turn of said cam in the reverse direction; and

a cassette mover which inserts and withdraws the cassette holder into and from the cassette receiving apparatus through the cassette inlet-outlet opening.

5,729,402

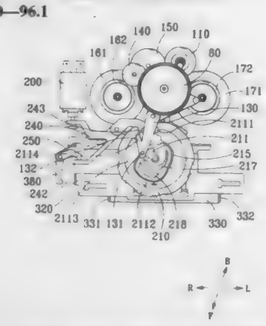
LOGIC CONTROLLED CASSETTE TAPE RECORDING AND/OR REPRODUCING APPARATUS

Chyi-Fwu Chiou, and Ming-Jer Chiu, both of Hsin-Chu, Taiwan, assignors to Industrial Technology Research Institute, Hsinchu, Taiwan

Filed Mar. 13, 1996, Ser. No. 596,917

Int. Cl.[6] G11B *15/18*

U.S. Cl. 360—96.1 **4 Claims**



1. A logic controlled cassette tape recording and/or reproducing apparatus, comprising:

a single motor;

a rapid rotation rocker arm having a pinion and playback gear mounted thereon, said playback gear and pinion being driven by the motor, and said rocker arm being arranged to be moved between positions in which one of the playback gear and pinion engages a tape winding reel for respective forward play and fast forward winding, and positions in which one of the playback gear and pinion engages a tape take-up reel;

a playback torsion limiter including a playback rocking lower gear, pad, and playback rocking upper gear;

a rapid rotation rocker arm torsion limiter including said pad, a disk base, a spring, and a belt pulley;

a capstan driven by the motor and having an idler gear mounted thereon;

a partially toothed cam gear having teeth arranged to mesh with those of the idler gear, and gaps in the teeth which, when adjacent the idler gear and the partially toothed cam gear, prevent power from being transmitted between the idler gear and the partially toothed cam gear, driving of the partially toothed cam gear being stopped at one of four predetermined positions by engagement of a cam controlling rocking arm driven by a single solenoid;

means for controlling a playback rocking arm, said means for controlling the playback rocking arm including an arm-controlling slide plate arranged to move in a left/right direction together with a directional slide plate, and in a forward/backward direction in response to movement of a forward slide plate on which a head is mounted, such that when the head is in a forward position, the arm-controlling slide plate causes the playback rocking arm to move the playback gear to engage the winding reel, and when said head is in a backwards position, the arm-controlling slide plate causes the playback gear to engage the take-up reel, said playback rocking arm being thereby driven by the arm-controlling slide plate and also guided by a slide groove in a magnetic head slide plate when the apparatus is not in a playback mode;

wherein all positions of the rapid rotation rocker arm are controlled by a cam mounted on a surface of the partially toothed cam gear, said positions including a neutral position utilized during playback or stoppage in which the pinion engages neither of the winding and take-up reels;

and wherein the forward slide plate is positioned by means of a drive rudder whose position is determined by a head position controlling cam on the partially toothed cam gear, the drive rudder passing through the slide plate to also cause the arm-controlling plate to move together with the forward slide plate.

5,729,403

DISK STORAGE DRIVE

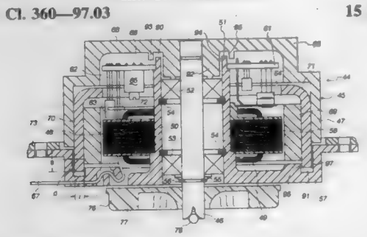
Bernhard Schuh, Baindt, Germany, assignor to Papst Licensing GmbH, Spaighingen, Germany

Division of Ser. No. 106,801, Aug. 16, 1993, Pat. No. 5,424,887, which is a continuation of Ser. No. 799,363, Nov. 27, 1991, abandoned, which is a continuation of Ser. No. 764,941, Sep. 24, 1991, abandoned, which is a continuation of Ser. No. 517,623, May 1, 1990, abandoned, which is a continuation of Ser. No. 208,864, Jun. 15, 1988, Pat. No. 4,922,406, which is a continuation of Ser. No. 16,469, Feb. 17, 1987, abandoned, which is a continuation of Ser. No. 765,376, Aug. 13, 1985, abandoned, which is a continuation of Ser. No. 335,483, Dec. 29, 1981, Pat. No. 4,535,373, which is a continuation-in-part of Ser. No. 127,404, Mar. 5, 1980, abandoned. This application Apr. 17, 1995, Ser. No. 422,846

Claims priority, application Germany, Dec. 29, 1980, 30 49 334.6

Int. Cl.[6] G11B *5/012*

U.S. Cl. 360—97.03 **15 Claims**



1. A disk storage device, comprising in combination:

a clean room enclosed within at least one containment wall;

at least one storage disk positioned in said clean room;

at least one read/write head mounted in said clean room for movement in operative relation to said at least one disk;

a brushless direct current motor for moving said at least one disk in operative relation to said at least one read/write head to allow information to be stored on and retrieved from said at least one disk, said motor including a bearing tube with an integral radially extending base flange connected to said containment wall, a bearing system contained within said bearing tube, an annular stator with an axial dimension surrounding the bearing tube, a rotor shaft journalled in said rotor bearing system in said tube, and an outer rotor including a rotor casing, said rotor having a permanent magnet on the inner surface thereof, said rotor surrounding the stator with the permanent magnet opposing the stator to provide a magnetic field therearound and spaced therefrom and defining a cylindrical air-gap between the magnet and the stator with at least a portion of the rotor extending axially beyond the axial extent of the stator, the motor being mounted with the rotor located in the contaminant-free environment;

a detachable coupling for connecting said at least one disk to said rotor for rotation therewith; and

a labyrinth seal defined between a stationary element and an element rotatable with said rotor, said labyrinth seal being located between the rotor bearing system and the contaminant-free environment to prevent contaminant particles from leaving the rotor bearing system and entering the contaminant-free environment.

5,729,404

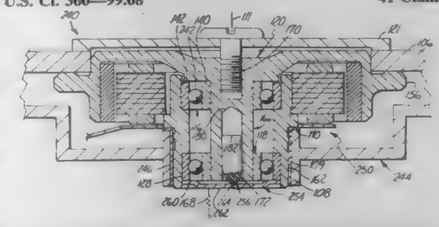
DISC DRIVE SPINDLE MOTOR WITH ROTOR ISOLATION AND CONTROLLED RESISTANCE ELECTRICAL PATHWAY FROM DISC TO GROUND

John C. Dunfield, Aptos; Klaus Kloeppel, Watsonville; Robert M. Peistring, Santa Cruz; Michael Raffetto, Scotts Valley; Donald J. MacLeod, Santa Cruz; Frederick F. Kazmierczak, San Jose, and Clifford T. Jue, Santa Cruz, all of Calif., assignors to Seagate Technology, Inc., Scotts Valley, Calif.

Continuation of Ser. No. 188,479, Jan. 28, 1994, abandoned, which is a continuation-in-part of Ser. No. 129,655, Sep. 30, 1993, Pat. No. 5,485,331. This application Mar. 6, 1996, Ser. No. 611,285

Int. Cl.[6] G11B *17/02;33/14*

U.S. Cl. 360—99.08 **41 Claims**



1. A disc drive spindle motor for rotatably driving at least one memory storage disc confronting at least one magnetoresistive head having a sensing current, the spindle motor comprising:

a drive base at ground;

a rotor hub for supporting said at least one memory storage disc above the base;

means for rotatably supporting the rotor hub above the drive base while electrically insulating the rotor hub from the base to prevent electrical short circuiting between the magnetoresistive head and ground; and

means establishing a controlled resistance electrical pathway from the rotor hub to ground for draining static charge from the disc to the ground at a rate such that static charge remaining on the disc maintains the disc above ground potential during all periods in which the disc is rotating and the magnetoresistive head is in electrical contact with the rotating disc without thereby short circuiting the sensing current to ground through the electrical pathway.

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DISK APPARATUS

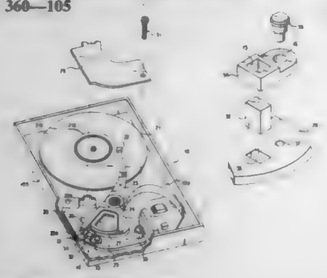
Akihiro Isomura, Fussa, and Isao Morita, Akishima, both of Japan, assignors to Kabushiki Kaisha Toshiba, Kawasaki, Japan

Continuation of Ser. No. 688,821, Jul. 31, 1996, abandoned, which is a continuation of Ser. No. 505,994, Jul. 21, 1995, abandoned, which is a continuation of Ser. No. 357,095, Dec. 15, 1994, abandoned, which is a continuation of Ser. No. 173,179, Dec. 27, 1993, abandoned. This application Jun. 17, 1997, Ser. No. 877,374

Claims priority, application Japan, Dec. 28, 1992, 4-349433

Int. Cl.[6] G11B *5/54*

U.S. Cl. 360—105 **3 Claims**



1. A disk apparatus comprising:

a case containing a record medium;

a carriage arranged in the case and rotatable about a central axis;

head means supported on the carriage, for seeking over the record medium and processing data in the record medium as the carriage moves;

drive means for moving the carriage so that the head means is moved to a desired position on the record medium, the drive means including a yoke arranged in the case and having first and second main yokes which face each other with a predetermined distance therebetween and extend in a direction substantially perpendicular to the central axis, means for connecting the first and second main yokes to each other, a coil fixed to the carriage and located between the first and second main yokes, and a drive magnet fixed to one of the first and second main yoke to face the coil, the drive magnet cooperating with the coil to drive the carriage;

an elongated permeable magnetic member provided on the carriage, the magnetic member extending from the carriage and having a longitudinal axis extending in a direction substantially parallel to the central axis of rotation of the carriage; and

a locking magnet, independent from the drive magnet, for attracting the magnetic member to lock the carriage in a stop position, whereby the head means is situated in a predetermined position on the record medium when the carriage is moved to the stop position, the locking magnet having a narrower range of action of magnetic force than that of the drive magnet and being fixed directly to one of the first and second main yokes by fitting an end portion of the locking magnet in one of the first and second main yokes.

5,729,406

LIGHTWEIGHT ACTUATOR IN A COMPUTER MASS MEMORY STORAGE DEVICE

Jeffrey E. Faris, Richardson, Tex., assignor to Texas Instruments Incorporated, Dallas, Tex.

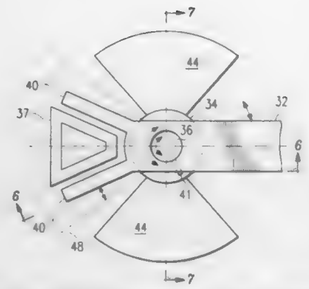
Filed Dec. 24, 1996, Ser. No. 772,540

Int. Cl.[6] G11B *5/55*

U.S. Cl. 360—106 **29 Claims**

1. An actuator for a disk drive, comprising:

a first actuator arm having top and bottom surfaces and an opening therethrough proximate a first end of said first actuator arm;



a second actuator arm having top and bottom surfaces and an opening therethrough proximate a first end of said second actuator, said second actuator arm being securely spaced from said first actuator arm in an arrangement such that there is a void between said bottom surface of said first actuator arm and said top surface of said second actuator arm proximate said openings;

a bearing in said void between said bottom surface of said first actuator arm and said top surface of said second actuator arm proximate said openings;

a pivot pin extending through the openings in said first and second actuator arms and coupling said bearing to said first and second actuator arms; and

a motor, attached to said second actuator arm, for exerting a torque upon said first and second actuator arms relative to a rotational axis of the pivot pin.

5,729,407

ROTARY HEAD DRUM WITH INTEGRATED YOKE AND VIBRATION RESISTANT BASE

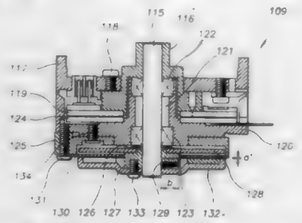
Young Gil Koh, Gyung Gi-Do; Sung Hwan Hong, Seoul, and Yong Chai Choi, Gyung Gi-Do, all of Rep. of Korea, assignors to Goldstar Co., Ltd., Seoul, Rep. of Korea

Continuation of Ser. No. 340,433, Nov. 14, 1994, abandoned, which is a continuation of Ser. No. 76,852, Jun. 15, 1993, abandoned. This application Mar. 25, 1996, Ser. No. 621,322

Claims priority, application Rep. of Korea, Jun. 20, 1992, 10784/1992

Int. Cl.[6] G11B *5/52;21/04*

U.S. Cl. 360—107 **3 Claims**



1. A rotary head drum including a rotatable shaft, an upper rotary drum and a lower stationary drum, said upper and lower drums being respectively mounted on upper and lower parts of said rotatable shaft, comprising:

a motor rotor being connected about the rotatable shaft and to a ring collar;

first means for securing a back yoke against the ring collar to form a single unitary body, said unitary body being mounted about said rotatable shaft with said back yoke positioned between a motor stator and said lower stationary drum;

second securing means, cooperating with said first securing means, for further securing the back yoke against the ring collar such that the combination of the first and second securing means improve the performance and durability of the rotary head drum by effectively reducing any vibration or other movement of the back yoke independent of the ring collar,

said unitary body maintaining a small predetermined gap between the motor stator and the motor rotor, wherein a support step and an annular protrusion of the ring collar eliminate the need for spacers by assisting in maintaining the small predetermined gap.

5,729,408

MAGNETIC RECORDING/REPRODUCING APPARATUS HAVING A MAGNETIC HEAD WITH A LINEARLY MOVABLE ARM PROVIDED WITH A PLURALITY OF RECORDING/REPRODUCING ELEMENTS

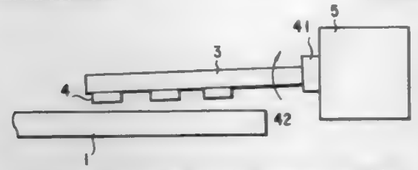
Akira Kikitsu, Yokohama, Japan, assignor to Kabushiki Kaisha Toshiba, Kawasaki, Japan

Filed Jan. 3, 1996, Ser. No. 582,392

Claims priority, application Japan, Jan. 11, 1995, 7-002521

Int. Cl.[6] G11B *5/48*

U.S. Cl. 360—104 **13 Claims**



1. A magnetic recording/reproducing apparatus comprising:

a disk-like magnetic recording medium provided with tracks for recording/reproducing information;

an arm associated with the disk-like magnetic recording medium along a radial direction of the disk-like magnetic recording medium so as to cross said tracks;

an arm driver for linearly driving the arm in a longitudinal direction of the arm;

a plurality of recording/reproducing elements for recording/reproducing information on said tracks, said recording/reproducing elements being arranged on the arm along the longitudinal direction of the arm at an interval less than a maximum movement amount of the arm moved by the arm driver; and

an arm support member, provided outside of the disk-like magnetic recording medium, for supporting a proximal end portion of said arm such that a distance between a distal end portion of the arm and the disk-like magnetic recording medium is less than a distance between the proximal end portion of the arm and the disk-like magnetic recording medium.

5,729,409

MAGNETIC DISK DEVICE HAVING A CORROSION RESISTANT MAGNETORESISITIVE HEAD

Kenya Ohashi; Kiyoshi Miyake; Noriyuki Ohnaka, all of Katsuta, and Moriaki Fuyama, Hitachi, all of Japan, assignors to Hitachi, Ltd., Tokyo, Japan

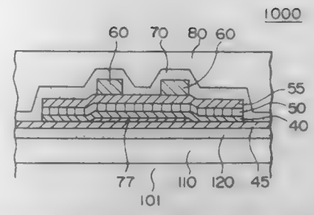
Division of Ser. No. 118,640, Sep. 10, 1993, Pat. No. 5,514,477. This application Jan. 19, 1996, Ser. No. 588,920

Claims priority, application Japan, Sep. 11, 1992, 4-243028

Int. Cl.[6] G11B *5/64*

U.S. Cl. 360—113 **4 Claims**

1. A magnetic disk device with a magnetoresistant effect magnetic head provided thereon, said magnetic head having a structure in which a magnetic shield film, a lower gap film, a domain control film, a magnetoresistant effect film for converting a magnetic signal into an electrical signal utilizing a magnetoresistant effect, a shunt film, a soft film and a pair of electrodes for supplying a signal detection current to said magnetoresistant effect film are formed sequentially on a ceramic substrate, at least one of said films being made of either a metal having a single mass number or an alloy or a compound composed of a plurality of elements each of which has a single mass number.



5,729,410

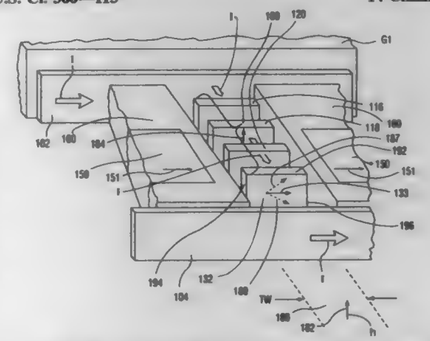
MAGNETIC TUNNEL JUNCTION DEVICE WITH LONGITUDINAL BIASING

Robert Edward Fontana, Jr., and Stuart Stephen Papworth Parkin, both of San Jose, Calif., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Nov. 27, 1996, Ser. No. 757,422

Int. Cl.[6] G11B *5/39;* **G11C** *11/00;* **H01L** *41/12*

U.S. Cl. 360—113 **14 Claims**



1. A magnetic tunnel junction device for connection to sense circuitry for detecting changes in electrical resistance within the device, the device comprising:

a substrate;

a first electrically conductive lead formed on the substrate;

a magnetic tunnel junction stack formed on the first lead and comprising a fixed ferromagnetic layer having its magnetic moment fixed in a preferred direction in the absence of an applied magnetic field, an insulating tunnel barrier layer in contact with the fixed ferromagnetic layer, and a sensing ferromagnetic layer in contact with the insulating tunnel barrier layer, the sensing ferromagnetic layer having a generally rectangular shape and two opposite side edges;

a second electrically conductive lead formed on and in contact with the magnetic tunnel junction stack;

a biasing ferromagnetic layer formed on the substrate on opposite sides of said stack and spaced from the side edges of the sensing ferromagnetic layer, the biasing ferromagnetic layer having a magnetic moment for biasing the magnetic moment of the sensing ferromagnetic layer in substantially the same direction as the moment of the biasing ferromagnetic layer in the absence of an applied magnetic field;

an electrically insulating layer separating the biasing ferromagnetic layer and the sensing ferromagnetic layer from contact with one another at said side edges of the sensing ferromagnetic layer;

whereby when the electrical leads are connected to the sense circuitry the electrical resistance to current flow perpendicularly through the layers in said stack is determined by the

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relative magnetic moments of the fixed and sensing ferromagnetic layers, and sense current is prevented by said insulating layer from shunting to said biasing ferromagnetic layer.

5,729,411

MAGNETORESISTIVE HEAD AND MAGNETORESISTIVE RECORDING/REPRODUCING DRIVE WITH AN ANTIFERROMAGNETIC LAYER OF HIGH CORROSION RESISTANCE

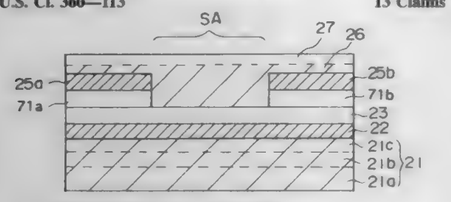
Hitoshi Kishi; Kazuo Kobayashi; Atsushi Tanaka; Yasuhiro Kitade; Yuko Miyake, and Mitsuru Otagiri, all of Kanagawa, Japan, assignors to Fujitsu Limited, Kawasaki, Japan

Filed Jul. 9, 1996, Ser. No. 677,612

Claims priority, application Japan, Jul. 12, 1995, 7-176425; Mar. 28, 1996, 8-073782

Int. Cl.[6] G11B *5/39*

U.S. Cl. 360—113 **13 Claims**



1. A magnetoresistive head comprising:

a soft magnetic layer;

an antiferromagnetic layer which is made of a PdMn alloy and is in contact with the soft magnetic layer, wherein said PdMn alloy has an Mn atomic fraction greater than 52 and up to approximately 56 at % and has been provided with an antiferromagnetic property by a heating process.

5,729,412

MAGNETIC HEAD INCLUDING A RECESSED MAGNETIC METAL FILM

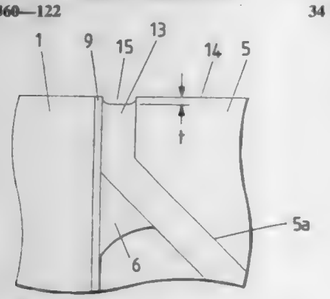
Seiko Uemura, Yamaga; Hiroshi Okayama, and Seishi Tomari, both of Kumamoto, all of Japan, assignors to Matsushita Electric Industrial Co., Ltd., Osaka, Japan

Continuation of Ser. No. 983,027, Nov. 30, 1992, abandoned. This application Oct. 27, 1994, Ser. No. 330,237

Claims priority, application Japan, Dec. 2, 1991, 3-317697

Int. Cl.[6] G11B *5/127*

U.S. Cl. 360—122 **34 Claims**



1. A magnetic head apparatus comprising:

a magnetic material constituting a magnetic circuit in a magnetic head;

a magnetic gap being provided at a part of said magnetic circuit;

a magnetic metal material layer constituting at least a part of said magnetic material constituting the magnetic circuit;

a medium confronting surface being made on one side of said magnetic head so as to be brought into slidable contact with a surface of a medium;

said medium confronting surface having a recessed portion which is formed by etching a region of said metal material layer, so that said metal material layer is wholly spaced from the surface of said medium when said magnetic gap is brought into contact with said medium, said recessed portion having a depth of 2 nm to 20 nm, in such a manner that a clearance to said surface of said medium at the center of said recessed portion is farther than a clearance at the edge of said recessed portion.

5,729,413

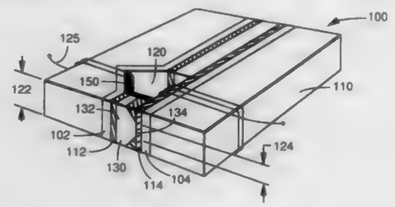
TWO-GAP MAGNETIC READ/WRITE HEAD

Beverley R. Gooch, Sunnyvale, and George Varian, Palo Alto, both of Calif., assignors to Ampex Corporation, Redwood City, Calif.

Filed Dec. 20, 1995, Ser. No. 575,563

Int. Cl.[6] G11B *5/23;5/265*

U.S. Cl. 360—125 **4 Claims**



1. A magnetic head for writing magnetic signals to and reading magnetic signals from a storage medium within a high-density magnetic storage system comprising:

a high permeability magnetic core structure defining a single magnetic circuit path associated with a single winding and having separate write and read gaps within the core,

said core structure further including a high permeability, magnetically saturable element disposed in proximity to a rear portion of the write gap with the thickness and saturation field density of said element being selected so that said element acts as a low reluctance path for mmf existing at the write gap during read mode operation of the head and becomes saturated during write mode of the head whereby mmf at each gap is substantially equal.

5,729,414

RECORDING DISK HAVING A NON-MAGNETIZABLE HUB COVER

Wolfgang Goede, and Martina Effenberg, both of Kehl, Germany, assignors to EMTEC Magnetics GmbH, Germany

Filed Jul. 21, 1992, Ser. No. 915,639

Claims priority, application Germany, Jul. 23, 1991, 9109036 U

Int. Cl.[6] G11B *51/82;23/02*

U.S. Cl. 360—133 **3 Claims**



1. A recording disk having an enclosure, the enclosure having at least one opening for the entry of a drive member and the at least one opening providing access to a hub which is connected to the recording disk, said hub comprising a magnetizable metal plate and at least one non-magnetizable thermoplastic cover, wherein the non-magnetizable cover substantially covers the complete surface of the metal plate in order to prevent recording/reproducing errors

due to a possible presence of magnetization of metal particles from said magnetizable surface.

5,729,415

Patent Not Issued For This Number

5,729,416

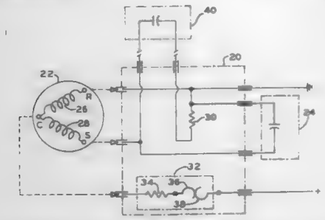
MOTOR STARTER AND PROTECTOR MODULE

Kenneth Ray Renkes, and Robert William Damerow, both of Morrison, Ill., assignors to General Electric Company, Fort Wayne, Ind.

Filed May 30, 1995, Ser. No. 453,278

Int. Cl.[6] H02H *5/04*

U.S. Cl. 361—23 **39 Claims**



1. A combination motor starter and motor protector module configured to couple to an electric motor having a run winding and a start winding, a housing enclosing the motor and having a plurality of pins extending therefrom including at least a first pin in electrical circuit with the run winding, a second pin in electrical circuit with the start winding, and a third pin in electrical circuit with a common connection between the run and start winding, said module comprising:

a base member having a base surface and sidewalls forming at least a partial enclosure, a first aperture formed in said base surface and configured to be aligned with the first pin in electrical circuit with the motor run winding, a second aperture formed in said base surface and configured to be aligned with the second pin in electrical circuit with the motor start winding, and a third aperture formed in said base surface and configured to be aligned with the third pin in electrical circuit with the motor run and start winding common connection;

a motor starter at least partially disposed within said partial enclosure;

a motor protector at least partially disposed within said partial enclosure;

a first electrical conductor member including a first pin receiving receptacle aligned with said first aperture and configured to receive and be in electrical contact with the first pin, said first electrical conductor member being in electrical circuit with said motor starter;

a second electrical conductor member including a second pin receiving receptacle aligned with said second aperture and configured to receive and be in electrical contact with the second pin, said second electrical conductor member being in electrical circuit with said motor starter;

a third electrical conductor member including a third pin receiving receptacle aligned with said third aperture and configured to receive and be in electrical contact with the third pin, said third electrical conductor member being in electrical circuit with said motor protector;

a first capacitor receptacle at least partially disposed within said partial enclosure and in electrical circuit with said first electrical conductor member;

a second capacitor receptacle at least partially disposed within said partial enclosure and in electrical circuit with said second electrical conductor member;

first and second power terminals at least partially disposed within said partial enclosure, said first power terminal being in electrical circuit with said motor protector and said second power terminal being in electrical circuit with said first electrical conductor member; and

a cover for mating with said base member to form an enclosure in combination with said base member, said cover including first and second capacitor receptacle openings formed therein and configured to align with said first and second capacitor receptacles, respectively.

5,729,417

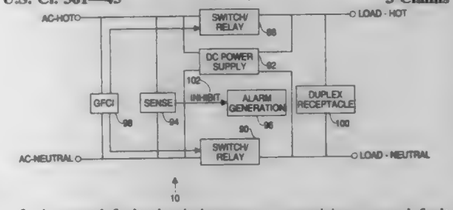
GROUND FAULT CIRCUIT INTERRUPTER INCORPORATING MISWIRING PREVENTION CIRCUITRY

Benjamin Neiger, Floral Park; Saul Rosenbaum, East Meadow, and Bernard Gershen, Centerport, all of N.Y., assignors to Leviton Manufacturing Co., Inc., Little Neck, N.Y.

Continuation of Ser. No. 89,149, Jul. 8, 1993, Pat. No. 5,477,412. This application Dec. 15, 1995, Ser. No. 572,811

Int. Cl.[6] H02H *3/28*

U.S. Cl. 361—45 **3 Claims**



1. A ground fault circuit interrupter comprising: ground fault current interrupter means electrically connected between a source of electrical power and a load for interrupting the flow of electrical current from said source of electrical power to said load when a ground fault condition exists; sensing means electrically connected between a source of electrical power and a load for sensing a ground fault condition and for generating an inhibit signal;

indicating means responsive to said inhibit signal for automatically indicating when said ground fault current interrupter means is not properly electrically connected to said source of electrical power.

5,729,418

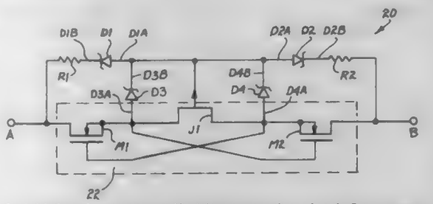
HIGH VOLTAGE CURRENT LIMITING PROTECTION CIRCUIT AND METHOD THEREFOR

Jimes Lei, Milpitas, Calif., assignor to Supertex, Inc., Sunnyvale, Calif.

Filed Aug. 29, 1996, Ser. No. 705,139

Int. Cl.[6] H02H *9/00*

U.S. Cl. 361—58 **22 Claims**



1. A high voltage current limiting protection circuit for measurement equipment comprising, in combination:

variable resistance means coupled between a first terminal and a second terminal of said high voltage current limiting protection circuit for generating low resistance to allow a fast response by said measurement equipment to measure current

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flowing between said first terminal and said second terminal and for generating a high resistance to limit current flow to a minimum level between said first terminal and said second terminal when a predetermined maximum voltage level across said first terminal and said second terminal is exceeded; and

voltage trip point means coupled to said variable resistance means for setting said predetermined maximum voltage level to trigger said variable resistance means to generate said high resistance to limit current flow between said first terminal and said second terminal to said minimum level;

said voltage trip point means comprising:

a first zener diode having a first terminal coupled to said variable resistance means; and

a second zener diode having a first terminal coupled to said variable resistance means and to said first terminal of said first zener diode.

5,729,419

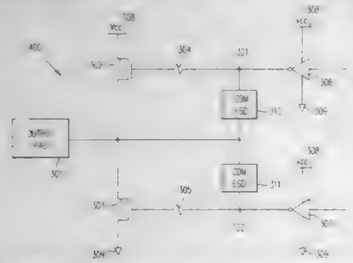
CHANGED DEVICE MODEL ELECTROSTATIC DISCHARGE PROTECTION CIRCUIT FOR OUTPUT DRIVERS AND METHOD OF IMPLEMENTING SAME

Chuen-Der Lien, Los Altos Hills, Calif., assignor to Integrated Device Technology, Inc., Santa Clara, Calif.

Filed Nov. 20, 1995, Ser. No. 560,608

Int. Cl.[6] H02H *9/00*

U.S. Cl. 361—111 **26 Claims**



1. An output circuit for an integrated circuit comprising:

an output pad;

a first voltage supply rail for receiving a first voltage during normal operation of the integrated circuit;

a second voltage supply rail for receiving a second voltage during normal operation of the integrated circuit, wherein the first voltage is greater than the second voltage;

a first field effect transistor connected between the first voltage supply rail and the output pad;

a first driving circuit connected to a gate of the first transistor, wherein the first driving circuit is connected across the first and second voltage supply rails; and

a first protection circuit connected between the gate of the first transistor and the output pad, the first protection circuit comprising a second field effect transistor having a gate coupled to the second voltage supply rail.

5,729,420

HIGH VOLTAGE RECOVERABLE INPUT PROTECTION CIRCUIT AND PROTECTION DEVICE

Jun-Ho Joung, Seoul, Rep. of Korea, assignor to Samsung Electronics Co., Ltd., Kyungki-do, Rep. of Korea

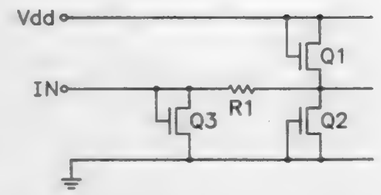
Filed Dec. 9, 1996, Ser. No. 761,855

Claims priority, application Rep. of Korea, Dec. 20, 1995, 95-52856

Int. Cl.[6] H02H *3/22*

U.S. Cl. 361—111 **21 Claims**

1. An input protection circuit for protecting an input, comprising:



a first transistor of a first conductivity type having a pair of controlled electrodes serially connected between a ground and said input and having a controlling electrode connected to said input;

a second transistor of a second conductivity type having a pair of controlled electrodes serially connected between a reference voltage and said input and having a controlling electrode connected to said reference voltage; and

a third transistor of said first conductivity type having a pair of controlled electrodes serially connected between ground and said input and having a controlling electrode connected to ground.

5,729,421

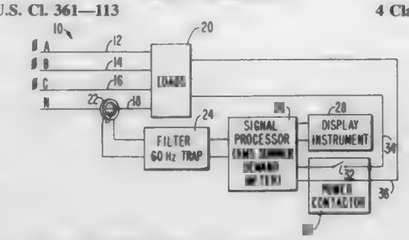
CIRCUIT ANALYZING SYSTEM

Bernard Gershen, Centerport; Alfred J. Lombardi, LaGrangeville, both of N.Y.; James E. Meehan, Ste. Veronique, Canada, and Saul Rosenbaum, East Meadow, N.Y., assignors to Leviton Manufacturing Co., Inc., Little Rock, N.Y.

Continuation of Ser. No. 373,684, Jan. 17, 1995, Pat. No. 5,499,155, which is a continuation of Ser. No. 1,885, Jan. 8, 1993, Pat. No. 5,383,084. This application Feb. 21, 1996, Ser. No. 604,625

Int. Cl.[6] H02H *3/26*

U.S. Cl. 361—113 **4 Claims**



1. A circuit analyzing system comprising:

a) at least one load to be supplied with current from a three phase AC power supply;

b) three phase conductors and one neutral conductor connecting an AC power supply to said at least one load;

c) means in said three phase conductors to open said three phase conductors to said at least one load in response to an actuating signal;

d) means for extracting current from said neutral conductor;

e) a high pass Twin-T filter coupled to said means for extracting current to block the passage therethrough of current at the fundamental frequency of said AC power supply and pass harmonic frequency currents which are harmonics of the fundamental frequency;

f) said high pass Twin-T filter having an input coupled to said means for extracting current, an output at which said harmonic frequency currents are provided, and a feedback input;

g) a first operational amplifier having first negative and first positive input terminals, a first output terminal and a first feedback resistor coupled between said first output terminal and said first negative input terminal, said first negative input terminal further coupled to said Twin-T filter output through a resistor;

h) a second operational amplifier having a second negative and a second positive input terminal, a second output terminal and a second feedback resistor coupled between said second output terminal and said second negative input terminal, said second negative input terminal also coupled to said first output terminal of said first operational amplifier through a coupling resistor and said second output terminal coupled to said feedback input of said Twin-T filter;

i) a signal processor coupled to said output of said Twin-T filter to add all the harmonic frequency currents together and provide an actuating signal to said means to open said three phase conductors when the total of said harmonic frequency currents exceeds a preset value.

5,729,422

DEVICE AND METHOD FOR TRIGGERING AN ELECTROMAGNETIC CONSUMER

Torsten Henke, Waiblingen, Germany, assignor to Robert Bosch GmbH, Germany

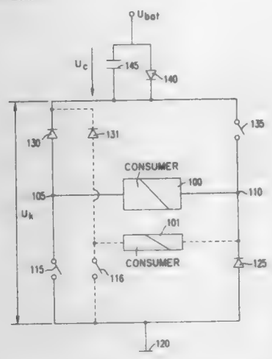
PCT No. PCT/DE95/00408, § 371 Date Dec. 4, 1995, § 102(e) Date Dec. 4, 1995, PCT Pub. No. WO95/28721, PCT Pub. Date Oct. 26, 1995

PCT Filed Mar. 24, 1995, Ser. No. 553,709

Claims priority, application Germany, Apr. 16, 1994, 44 13 240.9

Int. Cl.[6] H01H *47/36*

U.S. Cl. 361—156 **12 Claims**



1. A device for triggering an electromagnetic consumer, comprising:

a half-bridge circuit including a first switching element and a second switching element, wherein the electromagnetic consumer is coupled to ground by the first switching element and to a voltage source by the second switching element; and

an energy-storing element coupled between the second switching element of the half-bridge circuit and the voltage source.

5,729,423

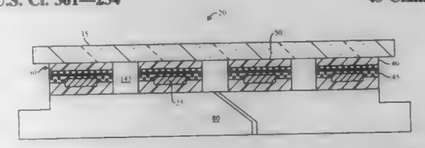
PUNCTURE RESISTANT ELECTROSTATIC CHUCK

Arik Donde, Austin, Tex.; Hyman J. Levinstein, Berkeley Heights, N.J.; Robert W. Wu, Pleasanton, Calif.; Andreas Hegedus, San Francisco, Calif.; Edwin C. Weldon, Los Gatos, Calif., and Shamouil Shamouilian, San Jose, Calif., assignors to Applied Materials, Inc., Santa Clara, Calif.

Continuation-in-part of Ser. No. 381,786, Jan. 31, 1995, which is a continuation-in-part of Ser. No. 189,562, Jan. 31, 1994, abandoned. This application Nov. 25, 1996, Ser. No. 755,716

Int. Cl.[6] H02N *13/00*

U.S. Cl. 361—234 **45 Claims**



1. A puncture resistant electrostatic chuck having a holding surface for holding a substrate in a process environment, the chuck comprising:

(a) at least one electrode; and

(b) a composite insulator covering the electrode, the composite insulator comprising (i) a matrix material having a conformal holding surface capable of conforming to the substrate under application of an electrostatic force generated by the electrode to reduce leakage of heat transfer fluid held between the substrate and the holding surface, and (ii) at least one layer of fibers in the matrix material, the layer of fibers positioned below the holding surface, and the layer of fibers being sufficiently hard to increase the puncture resistance of the composite insulator.

5,729,424

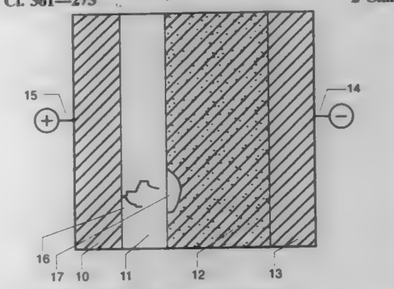
AUTOGENOUS ELECTROLYTE, NON-PYROLYTICALLY PRODUCED SOLID CAPACITOR STRUCTURE

Donald J. Sharp, Albuquerque, N. Mex.; Pamela S. Armstrong, Abingdon, Md., and Janda Kirk G. Panitz, Edgewood, N. Mex., assignors to The United States of America as represented by the United States Department of Energy, Washington, D.C.

Filed Sep. 27, 1995, Ser. No. 534,437

Int. Cl.[6] H01G *4/015;9/02*

U.S. Cl. 361—273 **2 Claims**



1. A solid electrolytic capacitor comprising:

a first electrode made of a valve metal having an anodic oxide film thereon,

a second electrode opposite to said first electrode,

a solid electrolyte layer disposed between said electrodes, said layer comprising manganese dioxide dispersed in a solid partially polymerized mixture of an aromatic polycarboxylic anhydride and an aromatic polyamine.

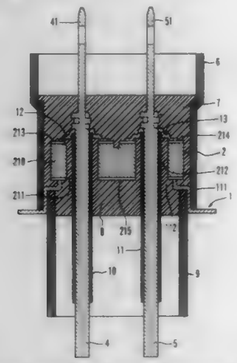
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5,729,425

HIGH VOLTAGE CAPACITOR AND MAGNETRON HAVING PORCELAIN DIELECTRIC MATERIAL

Isao Fujiwara, and Setsuo Sasaki, both of Yuri-gun, Japan, assignors to TDK Corporation, Tokyo, Japan

Filed May 16, 1996, Ser. No. 648,764
Claims priority, application Japan, May 22, 1995, 7-122835
Int. Cl.[6] H01G *4/12;4/06*
U.S. Cl. 361—345 **4 Claims**



1. A low signal noise high voltage capacitor comprising one grounding member, at least one capacitor, at least one through conductor and at least one type of insulating resin, wherein;

said grounding member is provided with at least one through hole;

said capacitor is constituted of dielectric porecelain, provided with at least one through hole passing through said dielectric porcelain with electrodes on two surfaces where said through hole opens, said capacitor is positioned on said grounding member with one of said electrodes secured to one surface of said grounding member;

said through conductor passes through said capacitor and said grounding member and is connected with electrical continuity to another of said electrodes;

said insulating resin is filled around said capacitor; and

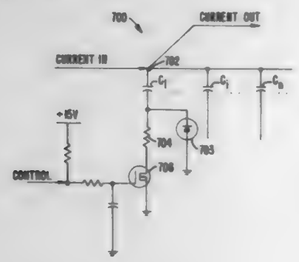
said dielectric porcelain constituting said capacitor has a relative dielectric constant greater than 3000 and less than 6000 in order to reduce weeping noise in said capacitor and to permit said capacitor to adequately function as a filter.

5,729,426

TRANSFECTION HIGH-VOLTAGE CONTROLLER

Charles W. Ragsdale, Concord, Calif., assignor to Bio-Rad Laboratories, Hercules, Calif.

Division of Ser. No. 260,654, Jun. 16, 1994, Pat. No. 5,564,035. This application Apr. 10, 1996, Ser. No. 630,308
Int. Cl.[6] H01G *4/38*
U.S. Cl. 361—328 **3 Claims**



2. A capacitor expansion module, comprising:

a plurality of capacitors, each having a first terminal adapted to be coupled in parallel to a charging node; and

means for individually selecting selected ones of said plurality of capacitors;

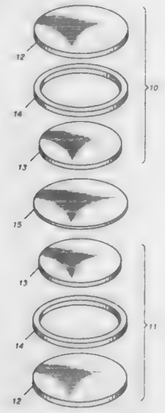
means, coupled to a second terminal of each of said plurality of capacitors, for charging only said selected ones of said plurality of capacitors while permitting all charged capacitors to be discharged.

5,729,427

MACROCYCLIC COMPLEX MODIFIED ELECTRODES AND CAPACITORS MADE THEREFROM

Changming Li, Vernon Hills; Ke Keryn Lian, Palatine, both of Ill., and Anaba A. Anani, Lawrenceville, Ga., assignors to Motorola, Inc., Schaumburg, Ill.

Filed Jan. 8, 1997, Ser. No. 780,557
Int. Cl.[6] H01G *9/00*
U.S. Cl. 361—503 **9 Claims**



1. A surface modified electrode for a electrochemical capacitor, comprising:

an electrically conductive base selected from the group consisting of Al, Ta, Ti, Zr, Bi, W, Fe, Ni, Cu and alloys thereof, and graphite;

a portion of said base having a coating of one or more materials selected from the group consisting of Ru, Ir, Pt, Co, W, V, Fe, Ni, Mo, Ag, Zn, Pb, Mn, alloys thereof, oxides thereof, nitrides thereof, carbides thereof, conductive polymers and combinations thereof; and

said coating modified with a metal macrocyclic complex comprising phthalocyanine or porphyrin ligands bound to a metal selected from the group consisting of Co, Ni, Fe, Cu, Zn, Mn, Ti, Ru, Al, Ag, Cd, Cr, In, Mg, Pd, Pt, Rh, Si, Sn and V.

5,729,428

SOLID ELECTROLYTIC CAPACITOR WITH CONDUCTIVE POLYMER AS SOLID ELECTROLYTE AND METHOD FOR FABRICATING THE SAME

Koji Sakata; Yuji Aoki; Toshihiko Nishiyama; Satoshi Arai, and Syuichi Nagashima, all of Toyama, Japan, assignors to NEC Corporation, Tokyo, Japan

Filed Apr. 24, 1996, Ser. No. 639,111
Claims priority, application Japan, Apr. 25, 1995, 7-100958
Int. Cl.[6] H01G *9/00*
U.S. Cl. 361—523 **26 Claims**

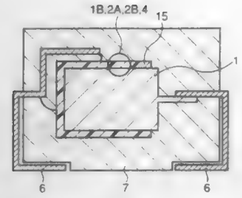
13. A method for fabricating a solid electrolytic capacitor having a valve action metal body as an anode side electrode, an oxide film as a dielectric obtained by oxidizing a surface of said valve action metal body, an electron donor organic compound layer formed of an organic compound having an electron donor group and covering an entire surface of said oxide film, and a conductive polymer layer as a solid electrolyte layer covering an entire surface of said electron donor organic compound layer, said method comprising:

forming said oxide film;

forming said electron donor electron compound layer on said oxide film; and

forming said conductive polymer layer on said electron donor organic compound layer;

said forming said electron donor organic compound layer being carried out such that said valve action metal layer with the oxide film is dipped in a solution of said organic compound.

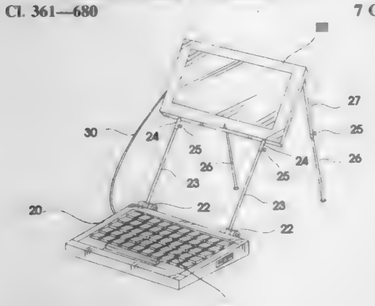


5,729,429

ERGONOMIC LAPTOP COMPUTER HAVING DISPLAY POSITIONING SUPPORTS

Georgios Margaritis, 620 Iris Ave., Apt #205, Sunnyvale, Calif. 94086, and Mark V. Brillhart, 1891 Kobuk Valley Common, San Jose, Calif. 95131

Filed Feb. 20, 1996, Ser. No. 603,726
Int. Cl.[6] G06F *1/16;* **H05K** *7/14*
U.S. Cl. 361—680 **7 Claims**



1. A portable computer comprising:

(a) a main computer body with embedded keyboard,

(b) a display unit,

(c) means for connecting electrically said display unit to said main computer body,

(d) display position control means that includes a lower point pivotally attached to said main computer body and an upper point attached to said display unit and that can controllably be extended and contracted along the line defined by the lower point and the upper point for structurally connecting said main computer body to said display unit and the independently adjusting the distance and angle of said display unit from and with respect to said main computer body and,

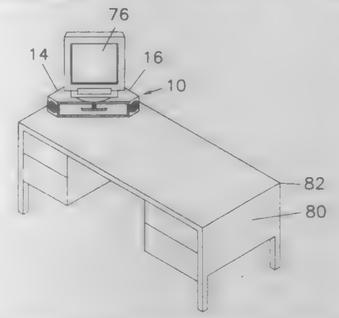
(b) display back support means that includes a display attachment point pivotally attached to said display unit and an unconstrained point and that can controllably be extended and contracted along the line defined by the display attachment point and the unconstrained point for providing in combination with said display position control means a structurally stable support base to said display unit and for adjusting the height of said display unit above said main computer body, whereby the display unit can be positioned at a comfortable height, angle and distance above, with respect to and from said main computer body and the portable computer including the support means can be folded compactly for storage or transportation thereby saving weight and space.

5,729,430

CORNER PLACEMENT MONITOR STAND

Joni Kay Johnson, Sioux City, Iowa, assignor to Gateway 2000, Inc., North Sioux City, S. Dak.

Filed Oct. 21, 1996, Ser. No. 734,503
Int. Cl.[6] G06F *1/16;* **H05K** *5/02*
U.S. Cl. 361—682 **8 Claims**



4. A portable riser for supporting a computer monitor thereon, comprising:

a generally triangular base having two rear side panels extending from an apex a user interface surface; said rear side panels being angularly disposed with respect to each other such that said riser fits within a corner, the rear side panels being angularly disposed at an angle of about 90 degrees to each other;

a top support surface supported by the two rear side panels and said user interface surface, wherein the rear side panels are angularly disposed at an angle of about 90 degrees to each other; and

two media mounting surfaces; each media mounting surface extending from the rear side panel to the end of a user interface surface.

5,729,431

HEAT SINK FOR A PORTABLE PERSONAL COMPUTER

Ramesh Marwah, San Diego, Calif., and Elisa E. Zappacosta, Issaquah, Wash., assignors to Packard Bell NEC, Sacramento, Calif.

Continuation-in-part of Ser. No. 415,229, Mar. 24, 1995. This application Apr. 7, 1995, Ser. No. 420,377
Int. Cl.[6] H05K *7/20*
U.S. Cl. 361—687 **2 Claims**

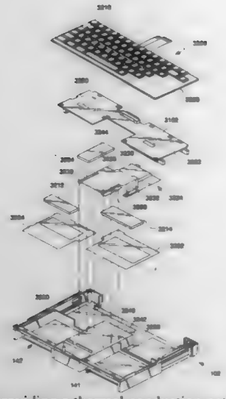
1. An apparatus in a portable personal computer system that includes a keyboard, central processing unit (CPU) and other integrated circuits for passively removing heat from said CPU and said other integrated circuits within said portable personal computer, the apparatus comprising:

a heat sink, said heat sink including a first predetermined thermal mass;

a thermally conductive support plate supporting said keyboard, said keyboard spaced away from said CPU;

first means providing a thermal conduction path between said CPU and said first predetermined thermal mass, said first means including a thermally conductive spacer formed in a generally T-shape;

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second means providing a thermal conduction path between said first predetermined thermal mass and said thermally conductive support plate, said thermally conductive support plate forming a second predetermined thermal mass for operating as a heat sink for said CPU to dissipate heat towards said keyboard.

5,729,432

BALL GRID ARRAY SEMICONDUCTOR PACKAGE WITH IMPROVED HEAT DISSIPATION AND DEHUMIDIFICATION EFFECT

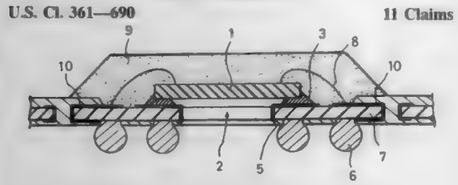
Il Kwon Shim, Seoul, and Young Wook Heo, Kyungki-Do, both of Rep. of Korea, assignors to Anam Industrial Col, Ltd., Rep. of Korea, and Amkor Electronics, Inc., Ariz.

Filed Jan. 18, 1996, Ser. No. 588,172

Claims priority, application Rep. of Korea, Jul. 6, 1995, 1995-19582

Int. Cl.[6] H05K *7/20*

U.S. Cl. 361—690 **11 Claims**



1. A ball grid array semiconductor package comprising:

a printed circuit board having a chip mounting portion and provided with at least one open through slot on the chip mounting portion;

a solder ball in welded connection to said printed circuit board;

a semiconductor chip having a first surface including a pad for attachment of a bonding wire and an opposite second surface, said chip being bonded to the chip mounting portion of said printed circuit board such that a part of the second surface of said chip is directly exposed to the outside of the package through said open through slot, said open through slot not being occluded, thus improving heat dissipation and dehumidification effect of the package.

5,729,433

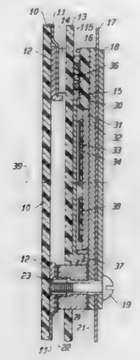
MULTIPLE CHIP MODULE ASSEMBLY FOR TOP OF MOTHER BOARD

Sammy L. Mok, Cupertino, Calif., assignor to MicroModule Systems, Inc., Cupertino, Calif.

Filed Jan. 30, 1996, Ser. No. 593,897

Int. Cl.[6] H05K *7/20*

U.S. Cl. 361—704 **41 Claims**



1. An assembly for mounting electronic components, comprising: a board on which to mount electronic components, having an interconnect structure for the electronic components mounted on the board, the board having a first side including an array of board contacts connected with the interconnect structure, and having a second side;

a multiple chip integrated circuit module, having a first side including an array of circuit contacts facing the first side of the board and having a second side;

a connector including an array of conductors to provide electrical connection between the array of circuit contacts and the array of board contacts;

a thermally conductive member extending from the multiple chip integrated circuit module through the second side of the board;

a bottom heat sink opposite the second side of the board and contacting the thermally conductive member

a top heat sink in thermal contact with the second side of the multiple chip integrated circuit module; and

a clamp mechanism which clamps the, multiple chip integrated circuit module, connector, and board between the top heat sink and bottom heat sink to establish thermal contact between the top and bottom heat sink and the multiple integrated circuit chip module and to establish electrical contact, through the connector, between the array of circuit contacts and the array of board contacts.

5,729,434

Patent Not Issued For This Number

5,729,435

SEMICONDUCTOR DEVICE AND ASSEMBLY BOARD HAVING THROUGH-HOLES FILLED WITH FILLING CORE

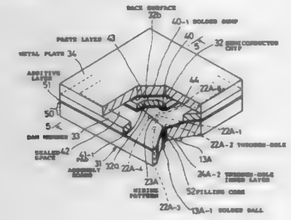
Makoto Iijima; Tetsushi Wakabayashi; Toshio Hamano; Masaharu Minamizawa; Masashi Takenaka, all of Kawasaki; Tatsurou Yamashita, Satsuma-gun, and Masataka Mizukoshi, Kawasaki, all of Japan, assignors to Fujitsu Limited, Kawasaki, Japan

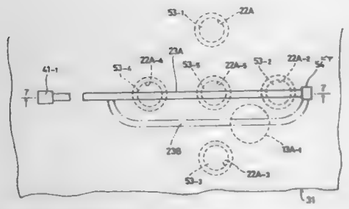
Continuation of Ser. No. 423,632, Apr. 17, 1995, abandoned. This application Jan. 13, 1997, Ser. No. 782,381

Claims priority, application Japan, Apr. 28, 1994, 6-092155; Mar. 17, 1995, 7-059562

Int. Cl.[6] H05K *7/20*

U.S. Cl. 361—704 **6 Claims**





1. A semiconductor device comprising:

a board base having through-holes including an inner layer and filled with a filling core of a resin, said board base being a printed board;

an additive layer provided on an upper surface of said board base as well as an upper surface of said filling core providing support for said additive layer, said additive layer including a wiring pattern having one or more paths electrically connected with said inner layer, said support allowing said one or more paths to be laid out without a passage restriction posed by said through-holes;

a semiconductor chip fixed on an upper surface of said additive layer and having solder balls electrically connected with said one or more paths; and

nodes provided on a lower surface of said board base, said nodes being electrically connected with said solder balls via said inner layer and said one or more paths.

5,729,436

WIRING BOARD FOR ELECTRICAL CONNECTION

Toshimasn Yoshigi; Toshiharn Kawashima, and Takayoshi Endo, all of Shizuoka-ken, Japan, assignors to Yazaki Corporation, Tokyo, Japan

Filed Aug. 15, 1996, Ser. No. 698,248

Claims priority, application Japan, Aug. 16, 1995, 7-208736; Feb. 20, 1996, 8-032344

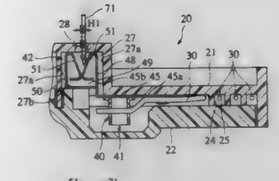
Int. Cl.[6] H05K *5/02;* **H01R** *9/03*

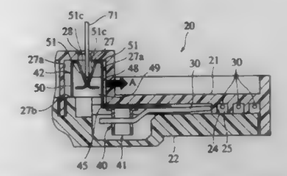
U.S. Cl. 361—752 **11 Claims**

1. A wiring board for electrical connection, comprising:

a base plate of an insulating material, said base plate being formed with a plurality of recessed portions;

a cover for covering a surface of the base plate;





a plurality of female terminals, each being received in the corresponding recessed portion of the base plate while being permitted to move in the recessed portion in directions of a major plane of the base plate; and

a plurality of circuit members provided between the base plate and the cover, each of the circuit members electrically connecting one female terminal to another female terminal via a flexible conductor.

5,729,437

ELECTRONIC PART INCLUDING A THIN BODY OF MOLDING RESIN

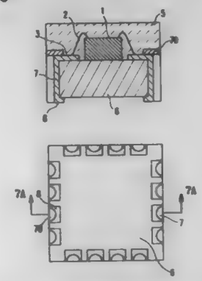
Nobuaki Hashimoto, Suwa, Japan, assignor to Seiko Epson Corporation, Tokyo, Japan

Filed Jun. 6, 1995, Ser. No. 466,020

Claims priority, application Japan, Jun. 22, 1994, 6-140473; Aug. 10, 1994, 6-188267; Mar. 31, 1995, 7-100599

Int. Cl.[6] H05K *7/02;* **H01L** *23/04*

U.S. Cl. 361—760 **10 Claims**



1. An electronic part of a leadless package type comprising:

a rectangular substrate having a top surface and a periphery and provided along the periphery with a plurality of through holes that extend to the top surface and with a plurality of external electrodes which extend along said through holes;

an element part placed on the top surface of said substrate and electrically connected to said external electrodes;

a body of molding resin molded around said element part and to said top surface of said substrate; and

a flow preventing member covering at least a portion of said through holes for preventing flow of molding resin into the portion of said through holes;

wherein said molding resin is a material having low thixotropy, said body of molding resin has an upper surface which is coextensive with, and faces away from, said substrate and side surfaces which are coextensive with the periphery of said substrate, the entirety of said upper surface of said body of

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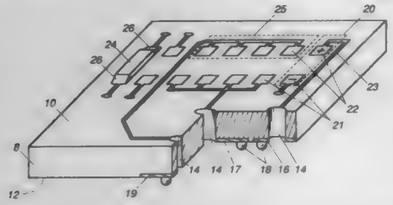
molding resin is flat, and the entirety of said side surfaces of said body of molding resin is flush with the entire periphery of said substrate.

5,729,438

DISCRETE COMPONENT PAD ARRAY CARRIER

Kevin J. Pieper, Coral Springs; Mitra E. Geeban, Margate, and Richard J. Kolcz, Davie, all of Fla., assignors to Motorola, Inc., Schaumburg, Ill.

Filed Jun. 7, 1996, Ser. No. 660,389
Int. Cl.° H05K *1/16*
U.S. Cl. 361—760 **29 Claims**



1. A ball grid array module with non-semiconductor discrete electronic components, comprising:

a circuit substrate having opposing first and second sides electrically connected by a plurality of conductive vias in said substrate, and terminal solder pads on the second side, displaced away from said vias and connected to the vias;

a plurality of component-mounting pad pairs disposed on said first side, each of said pad pairs consisting of a ground pad and a power pad, said power pads connected to the vias by a circuit trace;

some of the ground pads on said first side electrically connected to a circuit ground solder pad on said second side by one or more of the vias;

some of the power pads on said first side electrically connected to a supply voltage solder pad on said second side by one or more of the vias;

solder spheres attached to said terminal solder pads;

a plurality of discrete components, each component conductively coupled to a component-mounting pad pair, all of said discrete components being non-semiconducting: and

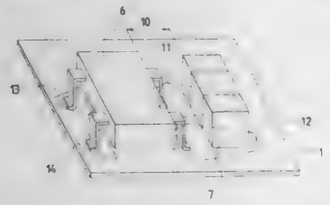
wherein an integrated circuit is not attached to said circuit substrate.

5,729,439

PRINTED WIRING SUBSTRATE

Ichiro Saito, Fukushima-ken, Japan, assignor to Alps Electric Co., Ltd., Tokyo, Japan

Filed Sep. 11, 1996, Ser. No. 712,535
Claims priority, application Japan, Sep. 18, 1995, 7-263450
Int. Cl.° H05K *1/16*
U.S. Cl. 361—760 **6 Claims**



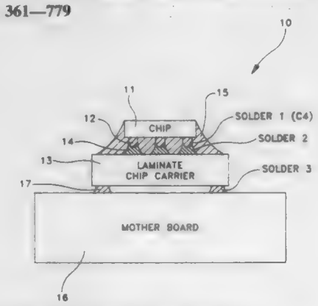
1. A printed wiring substrate comprising a printed substrate on which a first soldering land and a second soldering land are formed, a first face-mounted part soldered by a reflow method to each of the soldering lands, and a second face-mounted part soldered by the reflow method to the first soldering land, in which the first soldering land has a width larger at an intermediate portion than at both ends, one of the electrodes of the first face-mounted part is soldered to one end while one of the electrodes of the second face-mounted part is soldered to the other end of the first soldering land.

5,729,440

SOLDER HIERARCHY FOR CHIP ATTACHMENT TO SUBSTRATES

Miguel Angel Jimarez, Newark Valley; Amit Kumar Sarkhel, Endicott, both of N.Y., and Lawrence Harold White, Corvallis, Oreg., assignors to International Business Machines Corporation, Armonk, N.Y.

Division of Ser. No. 449,747, May 25, 1995, Pat. No. 5,655,703. This application Jan. 16, 1997, Ser. No. 784,796
Int. Cl.° H05K *7/02;1/11;* **H01L** *23/48*
U.S. Cl. 361—779 **5 Claims**



1. An organic chip package, comprising:

a substrate formed of at least one layer of organic dielectric material, with an electrical circuit of a predetermined arrangement with points for connecting either to an external power source or to an external circuit;

a chip with connection points of first solder material with a predetermined melting temperature of at least 300 degrees C. and formed of either 95% Pb and 5% Sn or 96.5% Pb and 3.5% Sn: and

second solder material formed in the range of 2.0% to 3.5% Ag–98% to 96.5% Sn solder selected from a group of solders with a melting temperature in the range of 220 to 240 degrees C. attaching said first solder material to said substrate.

5,729,441

ELECTROMAGNETIC SHIELDING DEVICE FOR USE IN ELECTRONIC APPLIANCES

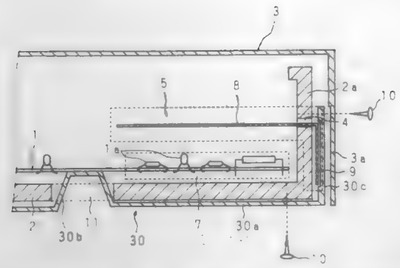
Takuo Murakami, Tokyo, Japan, assignor to Mitsubishi Denki Kabushiki Kaisha, Tokyo, Japan

Filed Dec. 28, 1995, Ser. No. 580,318
Claims priority, application Japan, May 31, 1995, 7-134209
Int. Cl.° H05K *5/00*
U.S. Cl. 361—818 **23 Claims**

1. An electromagnetic shielding device for use in an electronic appliance, comprising:

a chassis having a slot therein; and

an electromagnetic wave shield member, a tongue portion of said electromagnetic wave shield member protruding through the slot of said chassis so as to be over a source generating an



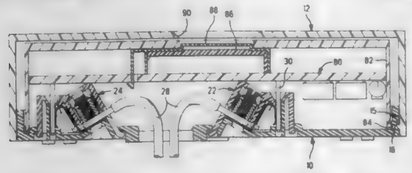
electromagnetic wave, a leg portion of said electromagnetic wave shield member being located outside of said chassis.

5,729,442

THERMOSTAT HOUSING WITH REMOVABLE TERMINAL BLOCK

Robert Houston Frantz, Newville, Pa., assignor to The Whitaker Corporation, Wilmington, Del.

Filed May 31, 1996, Ser. No. 656,109
Int. Cl.° H01R *9/00;9/22*
U.S. Cl. 361—823 **4 Claims**



1. A thermostat housing which provides a protective enclosure for electronic components of a thermostat assembly, the thermostat housing comprising:

a base;

a terminal block removably attached to the base, the terminal block having terminals each including a cage which defines a wire reception zone for a respective wire of a building climate control system, a clamp which is movably mounted for clamping the respective wire in the wire reception zone, and an arm which is electrically connected to the respective wire when the respective wire is clamped in the wire reception zone, the terminal block having apertures each in registration with a respective said arm;

a circuit board having the electronic components mounted thereon, and header posts which are electrically joined to the electronic components, each of the header posts being received in a respective said aperture and engaged with a respective said arm, wherein the terminal block provides an interface between the electronic components and the wires of the building climate control system; and

a cover attachable to the base and cooperable with the base to define the enclosure.

5,729,443

SWITCHED CURRENT REGULATOR WITH IMPROVED POWER SWITCH CONTROL MECHANISM

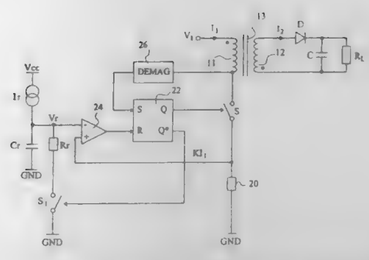
Antoine Pavlin, Puyricard, France, assignor to SGS-Thomson Microelectronics S.A., Saint Genis, France

Filed Sep. 27, 1995, Ser. No. 534,497
Claims priority, application France, Sep. 30, 1994, 94 11973
Int. Cl.° H02M *3/335*
U.S. Cl. 363—21 **36 Claims**

1. A flyback-type switched current regulator, comprising:

a first winding;

a second winding coupled to the first winding;



a current sensor, coupled to the first winding, that senses an instantaneous current flowing through the first winding and outputs a current sensor signal indicative of the instantaneous current;

connecting means for connecting the first winding to a voltage source when a second current flowing through the second winding is substantially zero;

disconnecting means for disconnecting the first winding from the voltage source when the current sensor signal indicates that the instantaneous current flowing through the first winding is greater than or equal to a variable reference value, whereby the first winding is connected to and disconnected from the voltage source according to a switching duty cycle; and

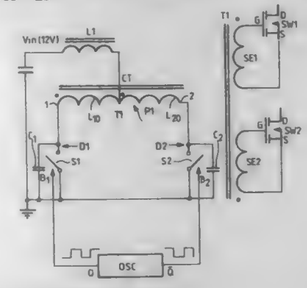
varying means, coupled to a supply voltage, for varying the variable reference value with variations of the switching duty cycle.

5,729,444

HIGH-EFFICIENCY DC-DC CONVERTER

Philippe Alfred Perol, PD Den Haag, Netherlands, assignor to Agence Spatiale Europeenne, Paris, France

Filed May 26, 1995, Ser. No. 451,190
Claims priority, application France, May 27, 1994, 94 06458
Int. Cl.° H02M *3/335*
U.S. Cl. 363—25 **23 Claims**



1. A DC-DC converter comprising:

a transformer having two oppositely-wound primary windings, one on each side of a center tap, and at least one secondary winding connected to a load having a first capacitance;

a reference voltage source connected to said center tap of said transformer via an inductor so that said transformer is driven by a current source;

two switching devices, each connected in a return path of said reference voltage, wherein said two switching devices are respectively connected in series with said primary windings; and

control means for alternately and periodically connecting said return path of said reference voltage to one or other of said primary windings,

wherein said control means comprises an oscillator generating squarewave signals and having two complementary outputs

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which are respectively connected to control terminals of said two switching devices, and

wherein a frequency of said oscillator is substantially equal to a resonant frequency of a circuit comprising a secondary inductance of the transformer and said first capacitance of said load.

5,729,445

REGULATED POWER SUPPLY UNIT WITH AN ELECTRONIC TRANSFORMER

Dieter Huelsmann, Solms, Germany, assignor to Leica Mikroskopie Und Systeme GmbH, Wetzlar, Germany

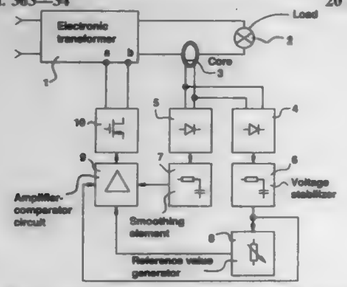
PCT No. PCT/DE95/00149, § 371 Date Sep. 6, 1996, § 102(e) Date Sep. 6, 1996, PCT Pub. No. WO95/21514, PCT Pub. Date Aug. 10, 1995

PCT Filed Jan. 31, 1995, Ser. No. 687,422

Claims priority, application Germany, Feb. 7, 1994, 44 03 707.4

Int. Cl.[6] H02J *3/00;* **H02M** *3/24*

U.S. Cl. 363—34 **20 Claims**



1. Regulated power supply unit with an "electronic transformer", which comprises an input on the primary side for a transformer supply voltage, an output on the secondary side for an AC operating voltage, which has a higher-frequency component, for a load, and a control device having a variable resistance element, by means of which the AC operating voltage can be adjusted, characterized by an inductive or capacitive output element (3), by means of which the higher-frequency component of the AC operating voltage can be output, the higher frequency component being supplied as the input voltage to in each case one first rectifier circuit (4) and one second rectifier circuit (5), an amplifier-comparator circuit (9), to which the output voltage of the first rectifier circuit (4) is applied, after smoothing, as its supply voltage, and a reference value generator circuit (8) which is connected to the first rectifier circuit (4) and to the amplifier-comparator circuit (9) and by means of which a reference value for the AC operating voltage can be adjusted, and an actual value being derived from the output voltage of the second rectifier circuit (5) and being supplied to the amplifier-comparator circuit (9), at whose output an error signal can be picked off, and a transistor (10) which forms the variable resistance element and is driven by the error signal from the amplifier-comparator circuit (9).

5,729,446

CONVERTER CIRCUIT ARRANGEMENT WITH ACTIVELY CONTROLLABLE CURRENT AND VOLTAGE RISE LIMITING MEANS

Horst Grüning, Wettingen, Switzerland, assignor to Asea Brown Boveri AG, Baden, Switzerland

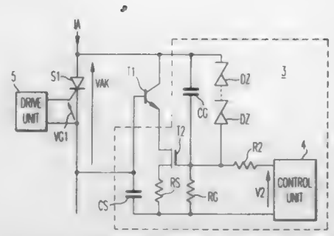
Filed Jun. 26, 1996, Ser. No. 670,899

Claims priority, application Germany, Jun. 26, 1995, 195 23 [illegible]

Int. Cl.[6] H02H *7/122*

U.S. Cl. 363—58 **5 Claims**

1. A converter circuit arrangement, comprising:



at least one branch circuit connected to an intermediate circuit, including,

at least two series connected semiconductor switches comprising GTOs, each having an actively controllable current and voltage rise limiting means connected in parallel thereto, and

at least one load terminal formed by a central node of the series connected semiconductor switches;

wherein the current and voltage rise limiting means comprise a bipolar transistor and a control circuit, a base of the bipolar transistor being connected to a cathode of a respective semiconductor switch and a collector of the bipolar transistor being connected to an anode of the respective semiconductor switch, and the bipolar transistor being driven by the control circuit arranged between an emitter and the base of the respective semiconductor switch.

5,729,447

SWITCHED-MODE POWER SUPPLY

Manfred Albach, and Thomas Dürbaum, both of Aachen, Germany, assignors to U.S. Philips Corporation, New York, N.Y.

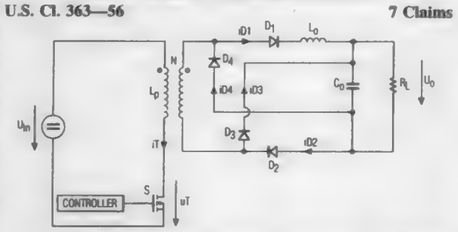
PCT No. PCT/IB95/00730, § 371 Date Apr. 30, 1996, § 102(e) Date Apr. 30, 1996, PCT Pub. No. WO96/08071, PCT Pub. Date Mar. 14, 1996

PCT Filed Sep. 5, 1995, Ser. No. 637,704

Claims priority, application Germany, Sep. 9, 1994, 44 32 077.9

Int. Cl.[6] H02H *7/122;* **H02M** *3/335;7/00*

U.S. Cl. 363—56 **7 Claims**



1. A switched-mode power supply comprising a transformer having a primary winding for receiving electric energy from an energy source in periodically recurring time intervals, and at least one secondary winding enabling the energy to be taken from the transformer for application to a storage inductance and a load impedance by means of a rectifier arrangement,

characterized in that the rectifier arrangement comprises a first current path for supplying energy to the storage inductance and to the load impedance during said periodically recurring time intervals, a second current path for demagnetizing the transformer via the secondary winding and the load impedance, and a third current path for demagnatizing the storage inductance via the load impedance, the second current path and the third current path being formed in such a manner that the demagnetizations of the transformer and the storage inductance are effected outside said periodically recurring time intervals and simultaneously and are not influenced by one another.

5,729,448

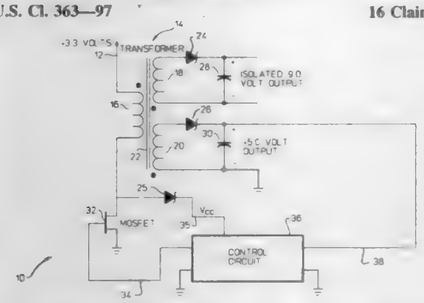
LOW COST HIGHLY MANUFACTURABLE DC-TO-DC POWER CONVERTER

Carl R. Haynie, Pilot Hill, and Mathew A. Nieberger, Rocklin, both of Calif., assignors to Hewlett-Packard Company, Palo Alto, Calif.

Filed Oct. 31, 1996, Ser. No. 741,801

Int. Cl.[6] H02M *3/335*

U.S. Cl. 363—97 **16 Claims**



1. A control circuit for use in a power converter, the power converter having a switch for alternately energizing and de-energizing a primary winding of a transformer, wherein the switch has a gate input for receiving a gate control signal, and the power converter produces a regulated voltage output signal, the control circuit comprising:

a feedback circuit coupled to the regulated voltage output signal, the feedback circuit producing a feedback control signal based on a comparison between a compare signal derived from the regulated voltage output signal and a reference signal;

a control window circuit coupled to the feedback control signal, wherein the control window circuit produces an upper control signal and a lower control signal from the feedback control signal;

a first resistive network coupled to a first energy storage device, wherein a charge time of the first energy storage device is equal to a time interval required to change an electrical state of the first energy storage device from that of the lower control signal to that of the upper control signal such that the charge time varies with the feedback signal;

a second resistive network coupled to a second energy storage device, wherein a discharge time of the second energy storage device is equal to a time interval required to discharge an electrical state of the second storage device from that of the upper control signal to that of the lower control signal such that the discharge time varies with the feedback signal; and

a switching circuit coupled to the upper and lower control signals and the first and second resistive networks, for alternately charging the first energy storage device through the first resistive network and discharging the second energy storage device through the second resistive network, and forming the gate control signal, wherein the gate control signal assumes a first state based on the charge time and a second state based on the discharge time.

5,729,449

CURRENT COMMAND TYPE PWM INVERTER APPARATUS WITH LOGIC CIRCUIT FOR GENERATING SWITCHING COMMAND SIGNALS AT PERIODICAL TIMINGS

Kazuyuki Takada, Hirakata; Yoshinori Isomura, Itami, and Toshiki Tsubouchi, Takefu, all of Japan, assignors to Matsushita Electric Industrial Co., Ltd., Osaka-fu, Japan

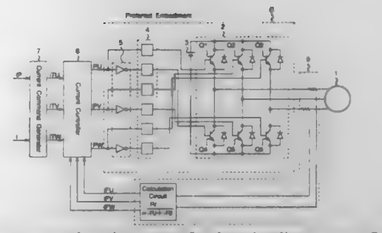
Filed Jul. 15, 1996, Ser. No. 680,756

Claims priority, application Japan, Jul. 19, 1995, 7-182484

Int. Cl.[6] H02M *3/24*

U.S. Cl. 363—98 **20 Claims**

1. A current command type PWM inverter apparatus comprising:



motor current detecting means for detecting line currents flowing from respective lines of said PWM inverter apparatus into a three-phase motor and outputting a first detected line current, a second detected line current and a third detected line current;

current command generating means for generating and outputting a first line current command signal, a second line current command signal and a third line current command signal for commanding the line currents to be sent from said respective lines into the three-phase motor;

first comparing means for comparing the first line current command signal with the first detected line current, outputting a first line current comparison signal having a first level when the first detected line current is equal to or greater than the first line current command signal, and outputting the first line current comparison signal having a second level when the first detected line current is smaller than the first line current command signal;

second comparing means for comparing the second line current command signal with the second detected line current, outputting a second line current comparison signal having a first level when the second detected line current is equal to or greater than the second line current command signal, and outputting the second line current comparison signal having a second level when the second detected line current is smaller than the second line current command signal;

third comparing means for comparing the third line current command signal with the third detected line current, outputting a third line current comparison signal having a first level when the third detected line current is equal to or greater than the third line current command signal, and outputting the third line current comparison signal having a second level when the third detected line current is smaller than the third line current command signal;

a main circuit DC power source;

a main circuit power device circuit having a three-phase bridge connection and comprising first, second, third, fourth, fifth and sixth main circuit switching power devices, and six reflux diodes respectively connected in parallel with said first, second, third, fourth, fifth and sixth main circuit switching power devices;

a logic circuit for receiving the first line current comparison signal, the second line current comparison signal and the third line current comparison signal, and generating and outputting first, second, third, fourth, fifth and sixth switching command signals for turning on or off said first, second, third, fourth, fifth and sixth main circuit switching power devices, to said first, second, third, fourth, fifth and sixth main circuit switching power devices, respectively; and

timing generating means for generating and outputting a periodical state updating first timing to said logic circuit,

wherein said first main circuit switching power device is connected to a positive electrode of said main circuit DC power source and supplies a first line current to said three-phase motor from said main circuit DC power source based on the first switching command signal,

wherein said second main circuit switching power device is connected to the positive electrode of said main circuit DC power source and supplies a second line current to said three-phase motor from said main circuit DC power source based on the second switching command signal.

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wherein said third main circuit switching power device is connected to the positive electrode of said main circuit DC power source and supplies a third line current to said three-phase motor from said main circuit DC power source based on the third switching command signal,

wherein said fourth main circuit switching power device is connected to a negative electrode of said main circuit DC power source and supplies the first line current to said three-phase motor from said main circuit DC power source based on the fourth switching command signal,

wherein said fifth main circuit switching power device is connected to the negative electrode of said main circuit DC power source and supplies the second line current to said three-phase motor from said main circuit DC power source based on the fifth switching command signal,

wherein said sixth main circuit switching power device is connected to the negative electrode of said main circuit DC power source and supplies the third line current to said three-phase motor from said main circuit DC power source based on the sixth switching command signal,

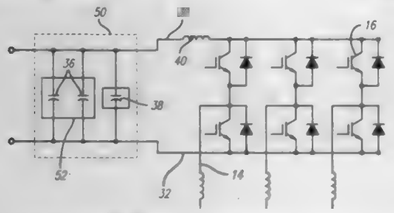
wherein, at the state updating first timing, and at least one second timing when any one of the first, second and third comparison signals change after the state updating first timing, said logic circuit generates and outputs the first, second, third, fourth, fifth and sixth switching command signals.

5,729,450

POWER CONVERTER WITH RIPPLE CURRENT AND BULK FILTERING SUPPLIED BY HIGH-CURRENT, HIGH-MICROFARAD FILM CAPACITOR ARRANGEMENT

Christopher A. Dimino, New Berlin, and James A. Pomes, Shorewood, both of Wis., assignors to MagneTek, Inc., Nashville, Tenn.

Filed Jun. 14, 1995, Ser. No. 490,409
Int. Cl.[6] H02M *7/5387*
U.S. Cl. 363—132 **4 Claims**



1. An integrally packaged bulk capacitance for use in a power converter circuit, comprising:

a bulk film capacitor section having a pair of low-inductance terminals; and

a high-frequency film capacitor having a capacitance of less than 2 microfarads and having a pair of low-inductance terminals connected with minimal inductance to the terminals of the bulk film capacitor section, the high-frequency film capacitor being tuned based on stray capacitance in the power converter circuit and on the switching speed of the power converter circuit,

the bulk film capacitor and the high-frequency film capacitor being manufactured as an integral package, the terminals of the bulk film capacitor protruding from the package,

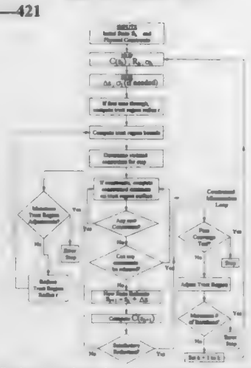
the integrally packaged bulk capacitance supplying the ripple amps and bulk filtering required by the power converter circuit, as well as protecting the power converter circuit from repetitive transient voltages arising during operation of the power converter circuit.

5,729,451

APPARATUS AND METHOD FOR FUSING DIVERSE DATA

Bruce P. Gibbs, New Carrollton; David W. Porter, Annapolis, and William E. Yancey, Columbia, all of Md., assignors to Coleman Research Corporation, Orlando, Fla.

Filed Dec. 1, 1995, Ser. No. 566,353
Int. Cl.[6] G06F *17/17*
U.S. Cl. 364—421 **7 Claims**



1. A data fusion workstation for creating a reconstruction of a site from measurement data and computerized models, comprising:

means for storing measurement equations describing at least one physical characteristic of a site;

means for storing pseudomeasurement equations describing said at least one physical characteristic;

means for generating a site model comprising a computer reconstuction of said site;

means for optimizing said site model, comprising:

means for comparing data produced by said site model to data produced by said measurement equations and for generating a first quantification of error based upon differences therebetween;

means for comparing data produced by said site model to data produced by said pseudomeasurement equations and for generating a second quantification of error based upon differences therebetween;

means for calculating a least squares solution which reduces a cost function related to said first and second quantifications of error, said means for calculating comprising means for executing a trust region algorithm which limits Gauss-Newton steps;

means for using said least squares solution to adjust said site model;

means for displaying a graphical representation of said site model.

5,729,452

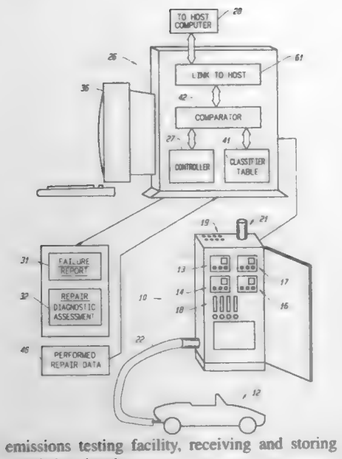
METHOD AND SYSTEM FOR DIAGNOSING AND REPORTING FAILURE OF A VEHICLE EMISSION TEST

Mary V. Smith, San Antonio, Tex., and Mark D. Frost, Piedmont, Calif., assignors to Envirotest Acquisition Co., Sunnyvale, Calif.

Filed Mar. 31, 1995, Ser. No. 414,925
Int. Cl.[6] G06F *7/06*
U.S. Cl. 364—424.03 **18 Claims**

1. A method for generating a diagnosis of a vehicle's cause of failure of an emissions test, wherein data is obtained relating to a plurality of vehicles which had failing emissions tests results and for which a prediction report was generated and wherein each of said plurality of vehicles has particular vehicle characteristics and also has passing emissions test results and a repair report, comprising the steps of:

in a storage media, storing a classifier table composed of a set of rules;



in an emissions testing facility, receiving and storing vehicle characteristics signals;

in said emissions testing facility, sampling emissions of said vehicle to create emission test results to generate a series of emission test signals;

transmitting to a processor said emissions test signals;

transmitting to said processor said vehicle characteristics signal; and

comparing said emission test signals and said vehicle characteristics signals to said classifier table's set of rules in a manner in which forms said diagnoses of said vehicle's cause of failure and generating a prediction report thereof;

receiving said vehicle characteristics signals, said failing emission test signals and said passing emission test signals of said plurality of vehicles;

dividing said vehicle characteristics signals and said failing and passing emission test signals of said plurality of vehicles to generate a training dataset and a testing dataset; and

correlating said plurality of repair reports with said training dataset to form new rules; and

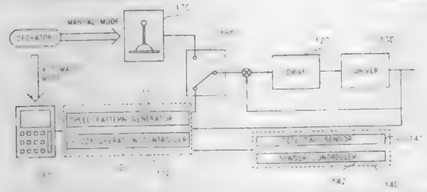
from said new rules, forming new classifiers.

5,729,453

UNMANNED OPERATING METHOD FOR A CRANE AND THE APPARATUS THEREOF

Hyeong-rok Lee, Kumi; Jae-hoon Kim, TaeJeon, and Moon-hyun Kang, Pusan, all of Rep. of Korea, assignors to Samsung Heavy Industries Co., Ltd., Seoul, Rep. of Korea

Filed Mar. 30, 1995, Ser. No. 413,512
Claims priority, application Rep. of Korea, Mar. 30, 1994, 94-6497; Mar. 30, 1994, 94-6542; May 4, 1994, 94-9817; Sep. 30, 1994, 94-25062; Dec. 31, 1994, 94-40280
Int. Cl.[6] G06F *19/00*
U.S. Cl. 364—424.07 **22 Claims**



1. An unmanned driving apparatus for a crane having a spreader for holding/releasing a container being in a first target position and for moving the container to a second target position, said apparatus comprising:

position information inputting means for inputting the position information of said first target position and said second target position;

a fuzzy logic controller having a speed pattern generator for calculating the reference driving speed pattern of said crane according to said position information and a fuzzy operation controller for performing a compensation of said reference driving speed pattern at each point of time depending on external error factors and a predetermined spreader sway information when driving said crane according to said reference driving speed pattern, for allowing said spreader to stop at said second target position with less sway utilizing said compensated reference driving speed pattern, wherein said fuzzy operation controller executes said compensation of said reference driving speed pattern according to a difference between the present state of a trolley and a corresponding target state, a difference between the present state of a hoist and a corresponding target state, a difference between the present driving speed of said trolley and said hoist and the driving speed obtained from said reference driving speed pattern, and a difference between the present sway angle supplied by a position detector and the target sway angle; and

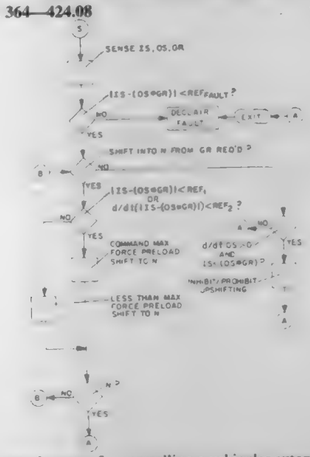
said position detector further providing said sway information of said spreader to said fuzzy logic controller during the movement of said spreader and detecting the positions of said spreader and said container when said spreader reaches one of said first target position and said second target position so that said fuzzy logic controller precisely controls said spreader to attach/detach said container based on the detected positions of said spreader and said container.

5,729,454

CONTROL SYSTEM/METHOD FOR AUTOMATED MECHANICAL TRANSMISSION SYSTEMS

Marcel Amsallen, Kalamazoo, Mich., assignor to Eaton Corporation, Cleveland, Ohio

Division of Ser. No. 143,230, Oct. 29, 1993, Pat. No. 5,487,004. This application Jul. 13, 1995, Ser. No. 501,837
Int. Cl.[6] G06G *7/70;* **F16H** *59/48*
U.S. Cl. 364—424.08 **7 Claims**



1. A control system for controlling a vehicular automated change gear transmission system comprising a fuel throttle controlled engine (E), a multispeed change gear transmission (**10**) having an input shaft (**16**) and an output shaft (**90**), said transmission having a plurality of selectably engageable gear ratios (GR), a non-positive coupling (C) drivingly interposed between the engine and the transmission, a first sensor (**98**) for providing a first input signal (IS) indicative of input shaft rotational speed, a second sensor (**100**) for providing a second input signal (OS) indicative of output

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shaft rotational speed, a means (**70/110**) for determining currently engaged gear ratio and for providing a third input signal indicative thereof (GR), a transmission actuator (**112, 70, 96**) for controlling shifting of the transmission, and a central processing unit (**106**) for receiving said first, second and third input signals and for processing same in accordance with predetermined logic rules to issue command output signals, said central processing unit including:

means (i) for comparing said input signal indicative of input shaft speed (IS) to a product of said input signal indicative of output shaft speed multiplied by said determined currently engaged gear ratio (OS*GR) to determine a comparison result value equal to the difference between said input signal indicative of input shaft rotational speed and said product, (ii) for declaring a system fault if an absolute value of said difference exceeds a first reference value (REF_1) corresponding to an expected value of said absolute value in the absence of a fault in said first, second or third input signals, and (iii) if said absolute value of said difference does not exceed said first reference value, for controlling said transmission system on the basis of said comparison result value or a rate of change of said comparison result value.

5,729,455

TRACTION CONTROL SYSTEM FOR A VEHICLE RESPONSIVE TO A POSITION OF AN ACCELERATOR PEDAL

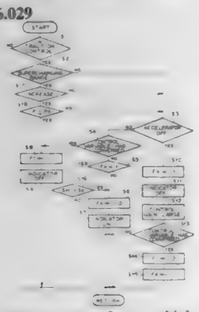
Tetsuhiro Yamashita; Koji Hirai; Kazuaki Nada, and Hideharu Sateu, all of Hiroshima-ken, Japan, assignors to Mazda Motor Corporation, Hiroshima-ken, Japan

Division of Ser. No. 272,083, Jul. 8, 1994, Pat. No. 5,600,560. This application Nov. 12, 1996, Ser. No. 745,319

Claims priority, application Japan, Jul. 9, 1993, 5-194123; Mar. 31, 1994, 6-87878

Int. Cl.[6] B60K *31/00*

U.S. Cl. 364—426.029 **5 Claims**



1. A traction control system for a vehicle provided with an engine comprising a wheel speed detecting means for detecting the wheel speeds of the vehicle, a slip rate calculating means for calculating the rate of slip of the driving wheels on the basis of the wheel speeds detected by the wheel speed detecting means and an engine output controller which when the rate of slip of the driving wheels is larger than a predetermined value, feedback-controls the engine output so that the rate of slip of the driving wheels converges on a predetermined target value, wherein the improvement comprises an accelerator position detecting means which detects depression of the accelerator pedal and a control gain changing means which increases a control gain of a feedback control variable of the feedback control of the engine output controller when the accelerator position detecting means detects that the accelerator pedal is released.

5,729,456

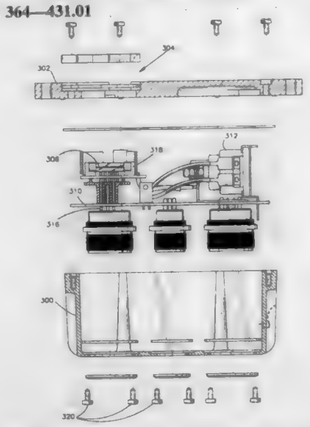
GLOW PLUG CONTROLLER

Mario P. Boisvert, Reed City; Stephen R.W. Cooper, Tustin, and David Shank, Big Rapids, all of Mich., assignors to Nartron Corporation, Reed City, Mich.

Continuation-in-part of Ser. No. 42,239, Apr. 1, 1993, Pat. No. 5,570,666, which is a continuation-in-part of Ser. No. 785,462, Oct. 31, 1991, abandoned. This application Jul. 27, 1995, Ser. No. 508,063

Int. Cl.[6] G06F *19/00;* **F02B** *9/08*

U.S. Cl. 364—431.01 **11 Claims**



1. A glow plug controller for a diesel engine comprising:

a) a temperature sensor for monitoring the temperature of a portion of a diesel engine; and

b) glow plug controller circuitry coupled to said temperature sensor for controlling operation of one or more diesel engine glow plugs of the combustion chambers of the diesel engine as a function of temperature; said glow plug controller circuitry comprising: i) oscillator means to provide a clock signal for operations in conjunction with the glow plug controller circuitry; ii) digital logic means used in conjunction with said oscillator means to monitor time intervals for control functions of said glow plug controller circuitry; and iii) output circuitry coupled to the digital logic means for applying current to the one or more diesel engine glow plugs before or after starting the diesel engine.

5,729,457

ROUTE ENTRY LOCATION APPARATUS

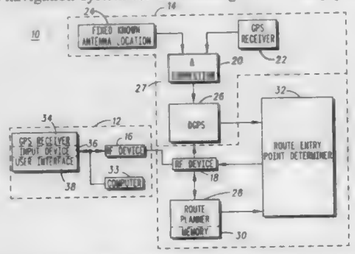
Leslie Gabor Seymour, Barrington, Ill., assignor to Motorola, Inc., Schaumburg, Ill.

Filed Jul. 10, 1995, Ser. No. 500,210

Int. Cl.[6] G06F *165/00*

U.S. Cl. 364—449.9 **11 Claims**

7. A navigation system for determining a route entry point of a



remotely located mobile device from an unmatched location to a known route, the navigation system comprising:

a central navigation control system including,

a database of navigation route segments;

an absolute position reverse differential corrector for determining a corrected position of the mobile device at an unmatched location based on uncorrected absolute position data received from the mobile device;

a route entry determiner operably coupled to a network and the reverse differential corrector for determining an accurate entry point of the mobile device onto the navigation route segments;

a first two-way communications apparatus operably coupled to the central navigation control system for communicating data between the central navigation control system and the mobile device;

wherein the mobile device includes.

a user data input device for entering data to be sent to the central navigation control system;

a user interface for receiving data from the central navigation control system;

a GPS receiver for receiving absolute position data; and

a second two-way communications apparatus operably couple to the input device, the user interface, and the GPS receiver for transmitting and receiving data between the mobile device and the central navigation control system.

5,729,458

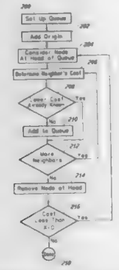
COST ZONES

Richard Frederick Poppen, San Jose, Calif., assignor to Etak, Inc., Menlo Park, Calif.

Filed Dec. 29, 1995, Ser. No. 581,169

Int. Cl.[6] G06F *19/00*

U.S. Cl. 364—464.1 **29 Claims**



1. A method of creating a cost zone about an origin on an electronic map, comprising the steps of:

identifying a set of nodes on said electronic map that are within a predetermined factor of a desired cost of said origin;

triangulating said set of nodes to create a set of triangles, said triangles having sides; and

interpolating along a subset of said sides of said triangles to estimate locations on said sides having said desired cost, said locations defining a boundary of said cost zone.

5,729,459

CARRIER MANAGEMENT SYSTEM HAVING A CAPABILITY TO DETERMINE WEIGHT BASED HANDLING CHARGES

Clint Francis Brandien, Prospect, and Barbara Ellen Campbell, New Haven, both of Conn., assignors to Pitney Bowes Inc., Stamford, Conn.

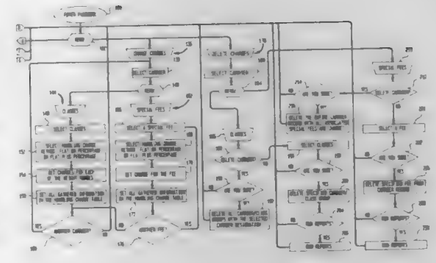
Filed May 22, 1992, Ser. No. 887,620

Int. Cl.[6] G07B *17/00*

U.S. Cl. 364—464.12 **20 Claims**

1. A carrier management system comprising:

a) first means for input of weight for a parcel to be shipped;



b) second means for input of data, said data including shipment data for selecting a class of service from a plurality of classes, handling charge data, and a configuration signal;

c) a first memory for storing rate data;

d) second memory for storing said handling charge data, said handling charge data including weight range data defining a plurality of weight ranges for at least one of said classes, and charge data defining said handling charges for each of said weight ranges;

e) data processing means, responsive to said weight, said shipment data and said rate data, for determining shipment charges, and, if said at least one of said classes is said selected class and said weight is within one of said weight range for said selected class, for determining said handling charges for said parcel, and further responsive to said configuration signal for entering a configuration set-up mode and inputting new weight range data redefining said plurality of weight ranges for at least a selected one of said classes.

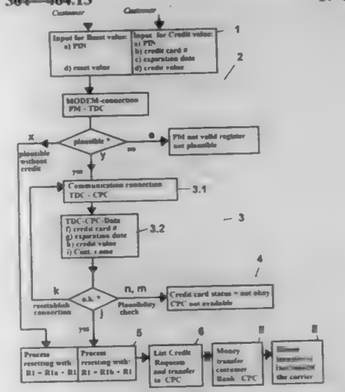
5,729,460

METHOD FOR PAYMENT OF THE RECREDITING OF AN ELECTRONIC POSTAGE METER AND ARRANGEMENT FOR THE OPERATION OF A DATA CENTRAL

Margaret Plett, Westmont; George G. Gelfer, Glen Ellyn; Jakob Zimmermann, Yorkville, all of Ill., and Enno Bischoff, Berlin, Germany, assignors to Francotyp-Postalia AG & Co., Birkenwerder, Germany

Filed Dec. 14, 1995, Ser. No. 572,615

U.S. Cl. 364—464.13 **17 Claims**



1. A method for paying for recrediting an electronic postage meter machine switchable into a credit reloading mode, comprising the steps of:

entering data into an electronic postage meter machine and switching said postage meter machine into one of a communication mode or a credit inquiry mode;

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establishing communication between said electronic postage meter machine and a data central;

conducting a plausibility check at the data central of the data entered into the postage meter machine;

beginning a reloading sequence by entering one of a credit card number of a user of said postage meter machine or a prepaid credit;

establishing communication between said data central and a credit card processing center and transmitting information relating to said credit card number of said user from said data central to said credit card processing center for verification of a credit card status of said user;

receiving authorization to proceed at said data central from said credit card processing center if said credit card status is acceptable at said credit card processing center, or displaying an error and discontinuing said reloading sequence if said credit card status is not acceptable at said credit card processing center;

processing said reloading sequence at said data central to reload funds on said electronic postage meter machine including making an entry in a list of successful credit inquiries if said credit card status is acceptable at said credit card processing center;

electronically transferring funds between said credit card processing center and a bank of said user of said postage meter machine at least equal to funds reloaded in said electronic postage meter machine; and

transferring funds at least equal to the funds reloaded into said electronic postage meter machine from said bank of said user to a bank of a nationally authorized postal carrier.

5,729,461

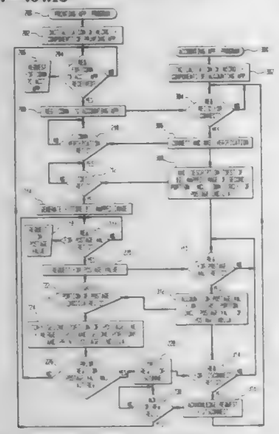
POSTAGE METERING SYSTEM INCLUDING MEANS FOR CONTROLLING THE RESOLUTION OF PRINTING A PORTION OF A POSTAGE INDICIA

Thomas A. D'Andrea, Middlebury, and Edward J. Naclerio, Madison, both of Conn., assignors to Pitney Bowes Inc., Stamford, Conn.

Filed Nov. 6, 1995, Ser. No. 554,207

Int. Cl.° G07B *17/00*

U.S. Cl. 364—464.18 **10 Claims**



1. A postage metering system comprising:

(a) printing apparatus, the printing apparatus including means for printing a postage indicia having a first portion including a postage value and a second portion including a town circle;

(b) accounting apparatus, the accounting apparatus including means for accounting for the postage value, the accounting apparatus including means for storing data descriptive of a bit mapped image of the second portion having a predetermined resolution, the accounting apparatus including means for transferring the descriptive data to the printing apparatus;

(c) the printing apparatus including means for requesting the postage value from the accounting apparatus and receiving therefrom the first portion and thus the postage value, the printing apparatus including means for generating the bit mapped image of the second portion based on the descriptive data thereof, and the printing apparatus including means for merging the first portion and the bit mapped image of the second portion for printing the postage indicia and thus the postage value and town circle.

5,729,462

METHOD AND APPARATUS FOR CONSTRUCTING A COMPLEX TOOL SURFACE FOR USE IN AN AGE FORMING PROCESS

Todd L. Newkirk, Hurst, Tex., and Mitchell C. Holman, Savannah, Ga., assignors to Northrop Grumman Corporation, Los Angeles, Calif., and Gulfstream Aerospace Corporation, Savanah, Ga.

Filed Aug. 25, 1995, Ser. No. 519,460

Int. Cl.° G06F *19/00*

U.S. Cl. 364—468.03 **20 Claims**



15. Apparatus for constructing a complex tool surface for use in an age forming process, the apparatus comprising:

a. A computer model of a flat panel representing a component where the part has been broken down into finite elements connected by a plurality of nodes;

b. A computer model of a tool having a complex shape;

c. A routine for assigning characteristics to all of the finite elements;

d. Means for simulating the flat panel model constrained to the tool model in an age forming process to produce a simulated component;

e. Means for adjusting the tool model in response to the differences between the component and the simulated component; and

f. Means for constructing the tool in accordance with the adjusted tool model.

5,729,463

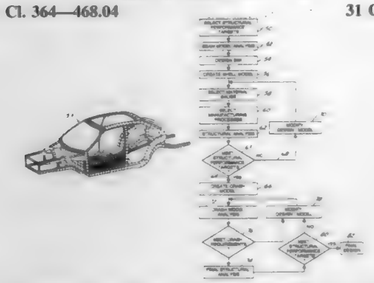
DESIGNING AND PRODUCING LIGHTWEIGHT AUTOMOBILE BODIES

Gerhard Koenig, Birmingham; Robert Koehr, Mt. Clemens; Felix Kybart, Birmingham, all of Mich.; Sigfried Walter, Leonberg, Germany; John Catterall, Troy; John Krumbach, Plymouth, both of Mich.; Rolf Heyll, Renningen, Germany, and Andrew Wolf, Parkland, Fla., assignors to ULSAB Trust, Washington, D.C.

Filed Sep. 1, 1995, Ser. No. 522,676

Int. Cl.° G06F *19/00*

U.S. Cl. 364—468.04 **31 Claims**



1. A process for producing a light-weight vehicle body comprising a plurality of components, said process comprising the steps of:

a. selecting at least one type of material for said components;

b. selecting structural performance targets;

c. conducting a beam model analysis;

d. designing a body-in-white;

e. creating a shell model;

f. selecting material gauges for said components;

g. selecting manufacturing processes for said components;

h. conducting a first structural analysis;

i. determining whether said shell model meets said selected structural performance targets;

j. selecting crash requirements;

k. creating a crash model;

l. conducting a crash model analysis;

m. determining whether said crash model meets said selected crash requirements;

n. conducting a second structural analysis; and

o. determining for at least a second time whether said shell model meets said selected structural performance targets.

5,729,464

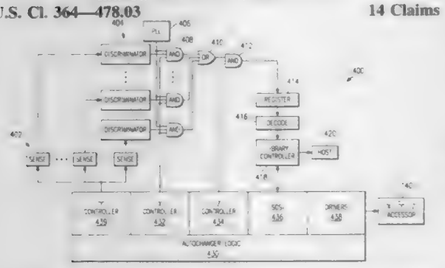
MEDIA IDENTIFICATION IN AN AUTOMATED DATA LIBRARY

Kamal Emile Dimitri, Tucson, Ariz., assignor to International Business Machines Corporation, Armonk, N.Y.

Filed Sep. 29, 1995, Ser. No. 537,037

Int. Cl.° G06F *17/00;* **G11B** *17/22*

U.S. Cl. 364—478.03 **14 Claims**



6. An automated library system for storing and retrieving removable data cartridges, each data cartridge having a bar code on a surface thereof identifying the data cartridge and characteristics thereof, the library system comprising:

a plurality of cartridge-retaining storage cells arranged in at least one column;

an data drive unit capable of loading a selected one of the plurality of cartridges;

an accessor for transporting a selected cartridge between a storage cell and said drive unit and inserting and removing the selected cartridge into and from a storage cell and said drive unit;

a first bar code reader fixed proximate a first end of each column of storage cells and aimed to read the bar code on the surface of a cartridge when the cartridge is inserted into or removed from a storage cell in the column, said first bar code reader operable to generate a first information signal identifying the cartridge and characteristics thereof; and

an accessor logic module coupled to receive the first information signal from said first bar code reader about a cartridge to be mounted in said drive unit and transmit the identifying and characteristic information to said drive unit, enabling said drive unit to prepare to mount the cartridge.

5,729,465

METHOD AND DEVICE TO DETERMINE THE FREQUENCY SPECTRUM OF A SIGNAL

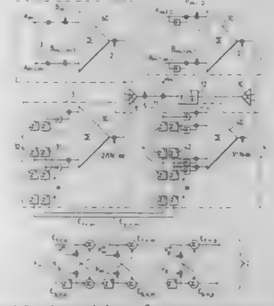
Frédéric Barbaresco, Montgeron, France, assignor to Thomson-CSF, Paris, France

Filed Jun. 13, 1996, Ser. No. 661,790

Claims priority, application France, Jun. 13, 1995, 95 06983

Int. Cl.° G06F *19/00;17/10*

U.S. Cl. 364—485 **4 Claims**



1. A method for determining a frequency spectrum of a sampled signal $\{x_n\}$, comprising the steps of:

sensing the sampled signal $\{x_n\}$ with a sensor, said sampled signal $\{x_n\}$ being representative of an analog signal produced from a signal source;

assessing a coefficient $\{a_{p,k}\}$ of a p order prediction model that correspond to a law of prediction of an nth sample x_n from n−p previous samples $\{x_{n-k}\}$, with k varying from 1 to p, having a form:

$$x_n = \epsilon_{f,n,p} - \sum_{k=1}^{p} a_{p,k} \cdot x_{n-k}$$

where $\epsilon_{f,n,p}$ is a forward prediction error, by the p order model, of the sample x_n

giving an estimation of the energy of the frequency spectrum of the signal sampled with said coefficients $\{a_{p,k}\}$, in a form:

$$|X(f)|^2 = \frac{P_p}{\left| \sum_{k=0}^{p} a_{p,k} \cdot e^{-j2\pi kf} \right|^2}$$

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where $a_{p,0}$ is equal to 1 and where P_p is an energy of a forward prediction error of the p order model for the sample x_n when the model is reliable, namely when said error is a white noise, on the basis of a recursive law on the p order of the model having the form:

$$a_{p,k}=a_{p-1,k}+\mu_p a^*_{p-1,p-k}$$

* designating the conjugate operator, with:

$$a_{p,0}=1$$

$$a_{p-1,0}=1$$

$$k\epsilon[1, \ldots p-1]$$

μ_p being a reflection coefficient determined from the terms:

$$\begin{cases} D_p=\frac{2}{N-p}\sum_{n=p+1}^{N}\epsilon_{b,n-1,p-1}\cdot\epsilon^*_{f,n,p-1} \\ G_p=\frac{1}{N-p}\sum_{n=p+1}^{N}[|\epsilon_{f,n,p-1}|^2+|\epsilon_{b,n-1,p-1}|^2] \end{cases}$$

where $\epsilon_{f,b,p-1}$ designates the forward prediction error by the p–1 order prediction model on the sample x_n and $\epsilon_{b,n-1,p-1}$ designates the backward prediction error by the p–1 order model on the sample x_{n-p}:

$$x_{n-p}=\epsilon_{b,n-1,p-1}-\sum_{k=1}^{p-1}a^*_{p-1,k}\cdot x_{n-p+k};$$

and determining the reflection coefficient μ_p by a relationship having a form:

$$\mu_p=\frac{D^*_p+2\sum_{k=1}^{p-1}[\lambda_0+\lambda_1\cdot(2\pi)^2\cdot(k-p)^2]\cdot a_{p-1,k}\cdot a_{p-1,p-k}}{G_p+2\sum_{k=0}^{p-1}[\lambda_0+\lambda_1\cdot(2\pi)^2\cdot(k-p)^2]\cdot|a_{p-1,k}|^2}$$

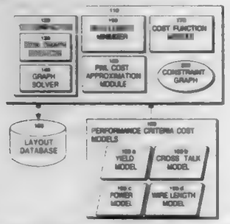
where λ_0 and λ_1 are positive real coefficients.

5,729,466

OPTIMIZATION MULTIPLE PERFORMANCE CRITERIA BY SIMULATING THE BEHAVIOR OF A CONSTRAINT GRAPH EXPANDED BY SUBGRAPHS DERIVED FROM PWL CONVEX COST FUNCTIONS

Cyrus S. Bamji, Fremont, Calif., assignor to Cadence Design Systems, Inc., San Jose, Calif.

Filed Apr. 3, 1996, Ser. No. 627,144
Int. Cl.° G06F *17/50*
U.S. Cl. 364—488 **11 Claims**



1. In a computer aided design system for designing integrated circuits, a computer memory including a constraint graph of an integrated circuit including a plurality of circuit elements, each circuit element having a binary relationship with at least one other circuit element, the memory readable by a processor in the system for optimizing the placement of circuit elements as a function of at least one performance criteria cost model, the constraint graph in the computer memory comprising:

a) a plurality of vertices, each vertex corresponding to at least one circuit element, each vertex having a weight, the plurality of vertices including terminal vertices and non-terminal vertices;

b) a plurality of edges, each edge coupling the vertices corresponding circuit elements having a binary relationship, each edge further including a convex piecewise linear cost function for at least one performance criteria cost model, each convex piecewise linear cost function comprising a list of offsets between the circuit elements, each offset associated with the weight equ[illegible] to a function of the slope of the piecewise linear cost function at the offset; and;

c) each non-terminal vertex:

having at least one fanin edge and at least one fanout edge;

for each fanin edge there is a first list of zero or more offsets included in the piecewise linear cost function of the fanin edge of the vertex that are associated with the vertex;

for each fanout edge there is a second list of zero or more offsets included in the piecewise linear cost function of a fanout edge of the vertex that are associated with the vertex; and,

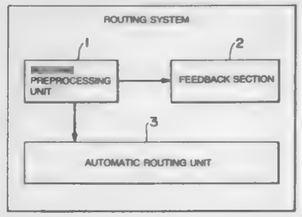
the weight of the vertex is a function of a difference between the combined weights of the first list of offsets and the combined weights of the second list of offsets.

5,729,467

METHOD OF AND SYSTEM FOR ROUTING

Akira Katsumata, and Toshiyasu Sakata, both of Kawasaki, Japan, assignors to Fujitsu Limited, Kawasaki, Japan

Filed May 15, 1995, Ser. No. 441,023
Claims priority, application Japan, Jun. 16, 1994, 6-134500
Int. Cl.° G06F *17/50*
U.S. Cl. 364—489 **26 Claims**



1. A routing system for wiring parts, each part having a plurality of connection lines, of an original circuit together on a multilayer circuit board having a plurality of layers, the routing system comprising:

connection allocating means for setting an allocation of connection lines, for each part having a signal assignment that can be arbitrarily set, to minimize intersections by making directional vectors of each of the plurality of connection lines extending from a part to have approximately the same direction;

part arranging means for setting an arrangement of the parts to minimize intersections of synthetic vectors of the connection lines based on data output by said connection allocating means;

pin assigning means for changing an inter-part pin assignment of parts having a changeable inter-part pin assignment so as to avoid an intersection of the connection lines based on data output by said part arranging means;

layer allocating means for creating route bundles of parts having a positional relationship without intersections or overlaps based on data output by said pin assigning means and allocating the route bundle to the same routing layer on the multilayer circuit board;

order setting means for setting a routing order for each routing layer based on data output by said layer allocating means; and

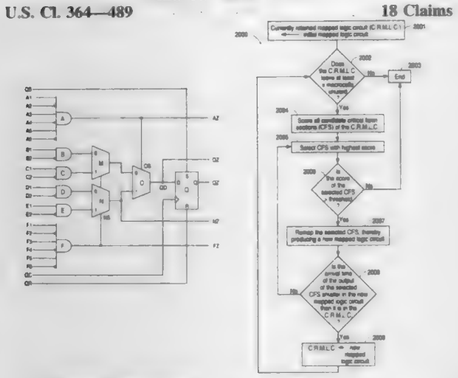
pattern creating means creating wiring patterns on the multilayer circuit board by setting routing positions within each routing layer in accordance with the routing order set by said order setting means.

5,729,468

REDUCING PROPAGATION DELAYS IN A PROGRAMMABLE DEVICE

William D. Cox, San Jose, Calif., assignor to QuickLogic Corporation, Sunnyvale, Calif.

Continuation-in-part of Ser. No. 231,595, Apr. 21, 1994, Pat. No. 5,526,276. This application Aug. 29, 1995, Ser. No. 520,441
Int. Cl.° G06F *17/10*
U.S. Cl. 364—489 **18 Claims**



1. A method, comprising:

determining select sets of a logic function corresponding to an output of a first logic circuit, said first logic circuit also having an input, a first propagation delay existing from said input to said output; and

using said select sets to determine a second logic circuit, said logic function corresponding to an output of said second logic circuit, said second logic circuit also having an input, a second propagation delay existing from said input to said output of said second logic circuit, said second propagation delay being smaller than said first propagation delay.

5,729,469

WIRING METHOD AND SYSTEM FOR INTEGRATED CIRCUIT

Yoshiyuki Kawakami, Neyagawa, Japan, assignor to Matsushita Electric Industrial Co., Ltd., Osaka, Japan

Filed Dec. 7, 1993, Ser. No. 162,353
Claims priority, application Japan, Dec. 7, 1992, 4-326602
Int. Cl.° G06F *17/50*
U.S. Cl. 364—490 **17 Claims**

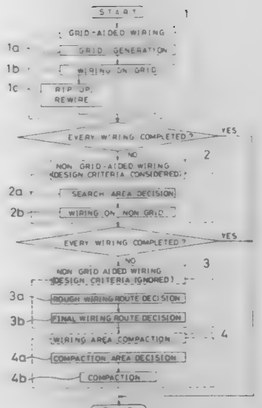
1. A wiring method of establishing connections between aggregates having a given function according to connection information requirements, said wiring method comprising:

(a) a grid-routing step of defining grids in such a manner that a part of predetermined design criteria are automatically met if wiring patterns being generated take their route over said grids, and of generating wiring patterns of nets in such a manner that each of said design criteria is met;

(b) a non grid-routing step following said design criteria of generating, without taking into consideration said grids, wiring patterns of other nets which have not been connected at said grid-routing step, in such a manner that each of said design criteria is met;

(c) another non grid-routing step ignoring said design criteria of deciding wiring routes of still other nets which have not been connected at said non grid-routing step (b), in such a manner that said design criteria is not met; and

(d) a wiring area compaction step of shoving a part of the wiring patterns generated at said grid-routing step (a) and said non grid-routing step (b) in such a manner that each of said design criteria is met, and of generating wiring patterns with respect to the aforesaid wiring routes decided at said non grid-routing step (c) in such a manner that each of said design criteria is met.

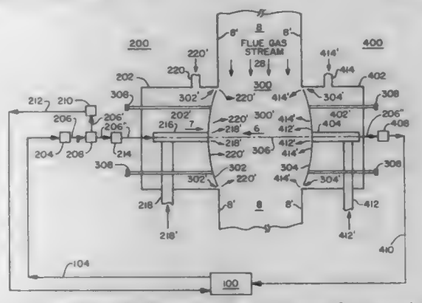


5,729,470

SYSTEM FOR CONTINUOUS IN-SITU MEASUREMENT OF CARBON IN FLY ASH

Gunar Baier, Mannheim; Armin Gasch, Heidelberg; Dietmar Treibert, Heddesheim, all of Germany; Juris G. Labrencis, Vernon, Conn.; James M. Niziolek, Enfield, Conn., and Joseph W. Quinn, Bloomfield, Conn., assignors to Combustion Engineering, Inc., Windsor, Conn.

Filed May 1, 1996, Ser. No. 641,663
Int. Cl.° G01N *22/00*
U.S. Cl. 364—497 **15 Claims**



1. In a solid fuel-fired steam generator a system for measuring in-situ and in real time the Carbon content of the flue gas entrained fly ash that is produced from the combustion occurring within the solid fuel-fired steam generator comprising:

a. means defining a flue gas flow path through the solid fuel-fired steam generator;

b. an inspection volume area located within the solid fuel-fired steam generator along the length of the flue gas flow path therethrough, said inspection volume area including a first spherical mirror and a second spherical mirror separated one from another by a fixed distance and so arranged as to be aligned along a common optical axis with their respective

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reflecting sides facing one another, and an imaginary boundary delimited by a spot size;

c. resonant cavity means including data processing means, signal transmission means, signal reception means including a first waveguide, and repetitive signal reflection means, said data processing means being connected in signal communication with said signal transmission means and in signal communication with said signal reception means, said data processing means selectively being further capable of being connected in signal communication with a signal display means and a boiler control means, said repetitive signal reflection means being connected in signal communication with said signal transmission means and in signal communication with said signal reception means, said repetitive signal reflection means including an inspection volume means; and

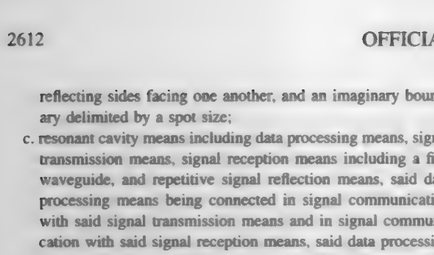
d. means supporting said resonant cavity means in said inspection volume area such that said resonant cavity is operative for measuring the Carbon content of the flue gas entrained fly ash in the course of the passage of the flue gas entrained fly ash through said inspection volume area.

5,729,471

MACHINE DYNAMIC SELECTION OF ONE VIDEO CAMERA/IMAGE OF A SCENE FROM MULTIPLE VIDEO CAMERAS/IMAGES OF THE SCENE IN ACCORDANCE WITH A PARTICULAR PERSPECTIVE ON THE SCENE, AN OBJECT IN THE SCENE, OR AN EVENT IN THE SCENE

Ramesh Jain, San Diego, Calif., and Koji Wakimoto, Kanagawa, Japan, assignors to The Regents of the University of California, Oakland, Calif.

Filed Mar. 31, 1995, Ser. No. 414,437
Int. Cl.[6] H04N *1/42*
U.S. Cl. 364—514 A 30 Claims



1. A method of presenting to a viewer a particular two-dimensional video image of a real-world three dimensional scene containing an object comprising:

imaging in multiple video cameras each at a different spatial location multiple two-dimensional images of a real-world scene each at a different spatial perspective not all of which scene perspectives may always and invariably show the object in the scene;

combining in a computer the multiple two-dimensional images of the scene into a three-dimensional model of the scene so as to generate a three-dimensional model of the scene in which model the object in the scene is identified;

selecting in the computer from the three-dimensional model a particular two-dimensional image of the scene, corresponding to one of the images of the real-world scene that is imaged by one of the multiple video cameras, showing the object; and

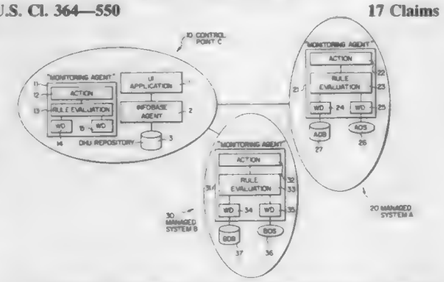
displaying in a video display the particular two-dimensional image of the real-world scene showing the object to the viewer.

5,729,472

MONITORING ARCHITECTURE

Roland Seiffert, Morgan Hill, and Stan Wong, San Jose, both of Calif., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed May 17, 1996, Ser. No. 650,903
Int. Cl.[6] H04L *12/26*
U.S. Cl. 364—550 17 Claims



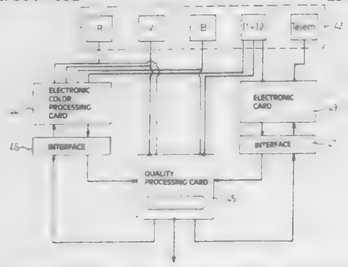
1. A method of monitoring a computer system having a plurality of subsystems, in which one of the subsystems is defined as a central subsystem and another one of the subsystems is defined as a managed subsystem, said method comprising the steps of defining a set of watchdog checks for monitoring said subsystems; defining one or more watchdog rules for evaluating at least one of said watchdog checks, each rule being based on a predetermined algorithm; and optimizing the processing of said watchdog rules based on the subsystems monitored by said watchdog checks which are evaluated by each of said watchdog rules.

5,729,473

METHOD AND DEVICE FOR GENERATING COLORIMETRIC DATA FOR USE IN THE AUTOMATIC SORTING OF PRODUCTS, NOTABLY FRUITS OR VEGETABLES

Philippe Blanc, and Gilles Romero, both of Montauban, France, assignors to Materiel Pour L'Arboriculture Fruitiere, Montauban, France

Filed Apr. 4, 1994, Ser. No. 222,302
Claims priority, application France, Apr. 16, 1993, 93 04605
Int. Cl.[6] B07C *5/342*; G06F *19/00*
U.S. Cl. 364—552 25 Claims



1. A method for generating colorimetric data for use in the automatic colorimetric sorting of products, notably fruits or vegetables, which comprises:

illuminating each product by means of at least one beam suitable for producing a line of light on the surface of said product,

moving the line of light and the product relative to each other so as to illuminate successively the maximum number of points observable on the surface of said product,

splitting each line of light into a succession of points and, for each of said points, reconstituting, in preselected wavelengths, at least part of the light energy reflected by the product,

for each preselected wavelength, measuring the light intensity of each point on each line of light, and supplying analog data representing said intensity,

for one of the preselected wavelengths and for each point on each line of light, supplying data, referred to as the distance data, representing the distance between the point of origin and an area situated in the immediate vicinity of the point of impact of the beam on the product,

for each line of light, converting the analog data representing the light intensity into a series of numerical values, each representing the gray level, in the wavelength in question, of the point corresponding to said line of light, so that each of the series of values corresponds to the light intensity curve, in said wavelength, of said line of light,

converting each item of distance data so as to obtain a series of numerical values representing the physical profile of the product such that any natural cavities on the surface of said product can be distinguished,

storing the series of numerical data corresponding to each preselected wavelength and to each line of light, and

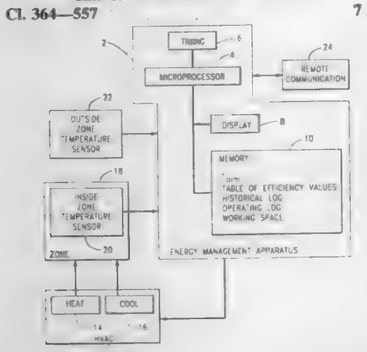
processing, by computing, the series of numerical data in accordance with programmed criteria based on a comparison of the values of the homologous points of said series, so as to generate colorimetric data which can be used by taking into account only the points of the numerical series which do not correspond to a cavity.

5,729,474

METHOD OF ANTICIPATING POTENTIAL HVAC FAILURE

Paul N. Hildebrand; W. John Light, both of Tulsa; T. Frank Knight, Owasso, and Kelley A. Lawrence, Tulsa, all of Okla., assignors to Excel Energy Technologies, Ltd., Tulsa, Okla.

Filed Dec. 9, 1994, Ser. No. 353,536
Int. Cl.[6] G01K *7/00*; G05D *16/70*
U.S. Cl. 364—557 7 Claims



7. A method of anticipating potential failure within an HVAC system operated by a digital computer to heat or cool a zone, comprising steps of:

energizing an HVAC system to provide a selected one of heated air or cooled air to a zone, including:

storing in a digital computer a value, T_{aim}, for a desired temperature setpoint;

storing in the digital computer a value, T_{start}, of an actual temperature in the zone;

determining a difference between the stored desired temperature setpoint value and the stored actual temperature value and determining whether the difference indicates the need for the selected one of heated air or cooled air; and

generating a control signal for energizing the HVAC system in response to the difference indicating the need for the selected one of heated air or cooled air so that heated air or cooled air is provided to the zone for changing the temperature in the zone from T_{start} to T_{aim};

determining whether the efficiency of the HVAC system changes over time, including performing the following steps contemporaneously at least once during each of a plurality of predetermined periods of time during which said step of energizing is repeatedly performed:

determining the amount of time, Δt, it takes for the energized HVAC system to change the actual temperature in the zone from the respective T_{start} to the respective T_{aim};

computing an efficiency value, $\Delta t/|T_{start}-T_{aim}|$, for the HVAC system;

sensing an ambient temperature outside the zone and storing a value, T_{out}, thereof in the digital computer; and

comparing a present computed efficiency value with a prior computed efficiency value which was computed contemporaneously with sensing ambient temperature outside the zone at the same value of T_{out} and which was stored in the digital computer in relation to a marker identifying said same value of T_{out}, wherein the present computed efficiency value exceeding the prior computed efficiency value represents a decrease in efficiency of the HVAC system and wherein the prior computed efficiency value exceeding the present computed efficiency value represents an increase in efficiency of the HVAC system;

storing the present computed efficiency value in the digital computer in place of the prior computed efficiency value for the same value of T_{out} in response to said step of comparing indicating an increase in efficiency; and

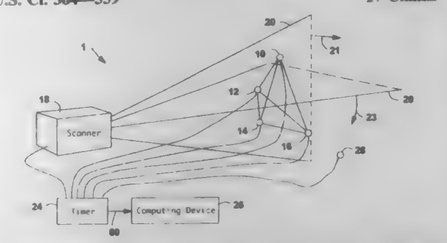
generating and transmitting from the digital computer a control signal for initiating inspection of the HVAC system in response to said step of comparing indicating a decrease in efficiency exceeding a predetermined tolerance.

5,729,475

OPTICAL SYSTEM FOR ACCURATE MONITORING OF THE POSITION AND ORIENTATION OF AN OBJECT

Carl J. Romanik, Jr., 34231 Maybird Cir., Fremont, Calif. 94555

Filed Dec. 27, 1995, Ser. No. 579,120
Int. Cl.[6] G06F *15/20*; G01B *11/00*
U.S. Cl. 364—559 17 Claims



1. An optical system for monitoring the position and orientation of an object in a frame of reference, the system comprising:

at least four light sensors fixed on the object in a non-coplanar arrangement, each sensor generating a position signal in response to a variation in incident light, and each sensor having known coordinates in the frame of reference of the object;

an optical scanner that generates a fan-shaped light beam that scans a volume containing the object in a direction substantially perpendicular to the longitudinal axis of the beam, alternately in a first direction, and then in a second direction substantially perpendicular to the first direction;

a signal generator that generates a time signal synchronized with a specific point in the scan;

a timer that records the times of position signals generated by the light sensors and time signals generated by the signal generator; and

a computing device comprising a memory and a processor, wherein the computing device is electronically linked to the

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light sensors, the signal generator, and the timer, and wherein the memory is electronically linked to the processor;

wherein the memory stores a program for calculating the position and orientation of the object based on the times recorded by the timer and the coordinates of the light sensors, the processor calculates the position and orientation of the object from the times recorded by the timer, and the memory stores the results of the calculation, thereby monitoring the position and orientation of the object.

5,729,476

METHOD OF ERROR RECOGNITION FOR ROTARY SPEED SENSORS

Martin Pfau, Weissach, Germany, assignor to Robert Bosch GmbH, Stuttgart, Germany

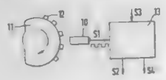
PCT No. PCT/DE95/01615, § 371 Date Oct. 28, 1996, § 102(e) Date Oct. 28, 1996, PCT Pub. No. WO96/18908, PCT Pub. Date Jun. 20, 1996

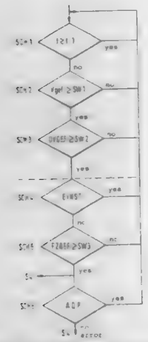
PCT Filed Nov. 21, 1995, Ser. No. 669,292

Claims priority, application Germany, Dec. 14, 1994, 44 44 [illegible].7

Int. Cl.[6] B60T *8/32*

U.S. Cl. 364—565 **8 Claims**





1. A method for error recognition in rotary speed sensors which output an output signal that comprises a train of pulses, in which it is first checked whether in a preceding time interval no pulse edge has arrived, characterized in that further comparisons are done in which filtered variables and unfiltered variables are evaluated jointly, and if at least one of the conditions is met an error signal is output.

5,729,477

METHOD AND APPARATUS FOR ELIMINATING A DISTURBING COMPONENT FROM A PERIODIC SIGNAL, AND APPLICATION TO AN ELECTRONIC CAPACITOR VOLTAGE TRANSFORMER

Christophe Baudart, and Jean-Paul Gris, both of Lyons, France, assignors to GEC Alsthom T & D SA, Paris, France

Filed May 16, 1995, Ser. No. 442,408

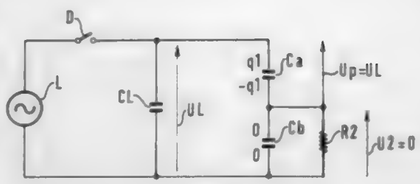
Claims priority, application France, May 25, 1994, 94 06322

Int. Cl.° G01R *19/25*

U.S. Cl. 364—574 **8 Claims**

1. A method of eliminating a disturbing component from a periodic signal, the method comprising the following operations:

performing at least two measurements on the signal at two distinct instants;



calculating the parameters of the disturbing component on the basis of said measurements; and

subtracting said disturbing component from the signal.

5,729,478

NOTEBOOK COMPUTER WITH INSERTABLE EXPANSION DEVICES

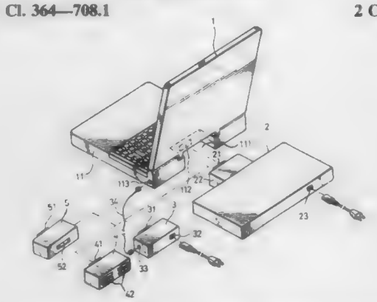
Hsi-Kuang Ma, 4F, No. 48, Sec. 2, Chung Cherng Rd., Taipei, and Yung-Fa Cheng, 3F, No. 8, Alley 2, Lane 30, Deng Gong Rd., Dan Shui, Taipei Hsien, both of Taiwan

Filed Dec. 4, 1995, Ser. No. 567,105

Claims priority, application China, Nov. 13, 1995, 95224641.4

Int. Cl.[6] G06F *1/16*

U.S. Cl. 364—708.1 **2 Claims**



1. A notebook computer having insertable expansion devices and including a motherboard, a display and a keyboard, which computer comprises:

a) a computer body having a rear end, an expansion notch formed in the rear end, the expansion notch including an inner wall, an expansion connector formed in the inner wall for connection with a motherboard disposed inside the computer body; and

b) an expansion connection device including a box body having a front end, a plurality of expansion units disposed within the box body, a connector at the front end of the box body for connection to the expansion connector of the computer body, a case corresponding in size to the expansion notch and extending outwardly from the front end of the box body, the case being positioned between the connector and the box body, and an electrical socket for receiving an electric plug of a power supply source.

5,729,479

MULTIFUNCTIONAL DIET CALCULATOR

Yafa Golan, Tel Aviv, Israel, assignor to Diet-Deal Ltd., Tel Aviv, Israel

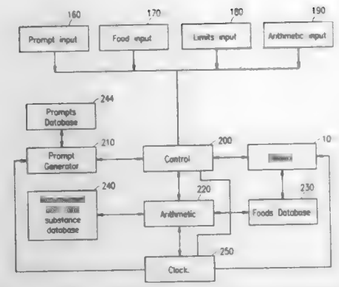
Filed Dec. 12, 1995, Ser. No. 571,120

Claims priority, application Israel, Sep. 14, 1995, 115316

Int. Cl.° G06F *15/00;15/42*

U.S. Cl. 364—709.02 **12 Claims**

1. A multifunctional diet calculator comprising:



a user operable input for receiving at least one target amount of at least one food substance to be consumed by a user and information regarding actual consumption of food substances by the user;

a memory for storing target amounts of the at least one food substance and cumulative actual consumption thereof over a given period;

a computation unit for determining the relationship between the target amounts and the cumulative actual consumption;

an output device showing the relationship between the target amounts and the cumulative actual consumption;

a prompt unit responsive to the relationship between the target amounts and the cumulative actual consumption for providing at least one user sensible prompt during the given period for reminding the user to consume a food substance; and

a clock for providing timing information for at least the computation unit and the prompt unit.

5,729,480

PORTABLE INFORMATION PROCESSING APPARATUS

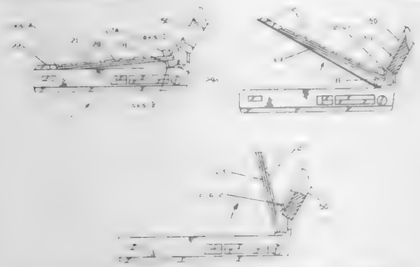
Katsutoshi Katoh, Tokyo, and Michio Suzuki, Yokohama, both of Japan, assignors to International Business Machine Corporation, Armonk, N.Y.

Filed Jul. 2, 1996, Ser. No. 673,867

Claims priority, application Japan, Sep. 20, 1995, 7-241102

Int. Cl.° G06F *3/00;1/16*

U.S. Cl. 364—709.12 **22 Claims**



1. A portable information processing apparatus comprising:

(a) a main body,

(b) a keyboard unit mounted on the top surface of said main body,

(c) a lid pivotally attached to the rear end of said main body for covering said main body and keyboard unit,

(d) a keyboard base of said keyboard unit for covering the top surface of said main body;

(e) a keyboard portion of said keyboard unit which is attached to the front end of said keyboard base, and which is rotatable in a first direction; and

(d) a lever of said keyboard unit, which is attached to the rear end of said keyboard base, and which is rotatable in a second direction opposite to said first direction, for supporting said keyboard portion at a still position whereat said keyboard portion is tilted at a predetermined angle.

5,729,481

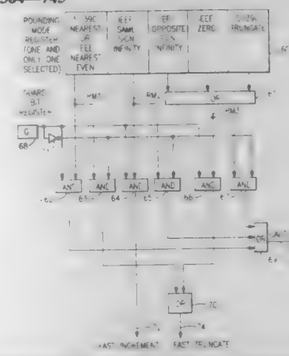
METHOD AND SYSTEM OF ROUNDING FOR QUADRATICALLY CONVERGING DIVISION OR SQUARE ROOT

Eric Mark Schwarz, Gardiner, N.Y., assignor to International Business Machines Corporation, Armonk, N.Y.

Filed Mar. 31, 1995, Ser. No. 414,867

Int. Cl.° G06F *7/38*

U.S. Cl. 364—745 **9 Claims**



1. A system that provides, for a designated rounding mode, an exactly rounded result having a predetermined number of bits for a square root or a division operation, the exactly rounded result representing rounding in the designated rounding mode of an infinitely precise result to the division or square root operation, the system comprising:

a first storage unit that contains information indicative of the designated rounding mode;

a second storage unit that contains an approximate result to the division or square root operation, the approximate result having one more bit of precision than the exactly rounded result to the division or square root operation, and having an error with a magnitude less than the weight of the least significant bit of the approximate result and with an arbitrary sign, the least significant bit of the approximate result called a guard bit, the approximate result exclusive of the guard bit called a truncated approximate result;

a remainder circuit that provides a remainder output signal representative of a difference between the infinitely precise result and the approximate result to the division or square root operation;

a selection signal generating circuit that generates a selection signal, wherein for a predetermined combination of said guard bit and the information indicative of the designated rounding mode said selection signal is generated independently of said remainder output signal, and wherein for another predetermined combination of said guard bit and the information indicative of the designated rounding mode said selection signal is generated in response to the information indicative of the designated rounding mode and the remainder output signal; and

a rounding circuit that provides the exactly rounded result in response to said selection signal, the exactly rounded result being generated from the approximate result and having a value dependent on the selection signal, the exactly rounded result thereby being provided without dependence on said remainder output signal for said predetermined combination of said guard bit and the information indicative of the designated rounding mode.

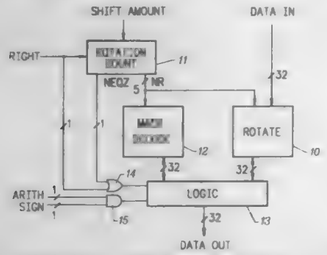
VOL 1208 ISS 3 MR 17 1998 UMI

5,729,482

MICROPROCESSOR SHIFTER USING ROTATION AND MASKING OPERATIONS

Frank Worrell, San Jose, Calif., assignor to LSI Logic Corporation, Milpitas, Calif.

Filed Oct. 31, 1995, Ser. No. 550,922
Int. Cl.° G06F 9/305
U.S. Cl. 364—715.08 13 Claims



1. In a microprocessor a shifter moving input bits in a word right or left by a specified amount in response to an instruction, said shifter comprising

a rotation count unit receiving signals specifying an amount of shift of said input bits right or left in said instruction and generating rotational control bits;

a rotation unit receiving said input data bits and rotating said input bits by a specified amount responsive to said rotational control bits;

a mask decode unit responsive to said rotational control bits generating masking bits; and

a logic unit connected to said mask decode unit and said rotation unit combining said masking bits and rotated input bits;

said logic unit performing a shift right by performing a logic AND of inverted masking bits and rotated input data bits, said logic unit performing a shift left by performing a logic AND of uninverted masking bits and rotated input data bits,

said logic unit performing a shift right arithmetic with a sign bit of zero by performing a logic AND of inverted masking bits and rotated input data bits, and said logic unit performing a shift right arithmetic with a sign bit of one by performing a logic OR of masking bits and rotated input bits,

whereby said shifter operates on said input bits in one clock cycle.

5,729,483

IMPLEMENTATION OF A DIGITAL INTERPOLATION FILTER AND METHOD

Glen Brown, Austin, Tex., assignor to Advanced Micro Devices, Sunnyvale, Calif.

Filed Nov. 14, 1995, Ser. No. 557,592
Int. Cl.° G06F 17/10
U.S. Cl. 364—724.1 9 Claims

2. A digital interpolation circuit, comprising:

(a) a multi-bit digital input signal;

(b) a coefficient memory device having a plurality of digital filter coefficients stored therein, wherein each said coefficient comprises a plurality of bits;

(c) a coefficient decode circuit having an output, wherein at least a portion of each plurality of bits of each said filter coefficient is provided to said decode circuit;

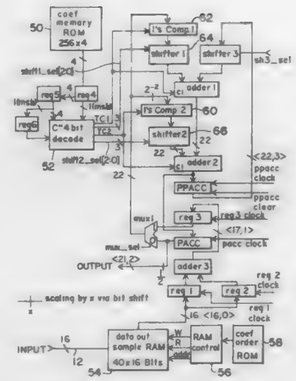
(d) a multiplication block, wherein said decode circuit output is input to and controls the operation of said multiplication block;

(e) an input signal memory device having a first location and a second location;

(f) a first register;

(g) a second register; and

(h) an adder having an output and an input;



wherein said multiplication block has an input which is connected to said coefficient decode circuit output;

wherein said multi-bit input signal is stored in said input signal memory device;

wherein a first selected value of said input signal is stored in said first location in said input signal memory device and is provided to said first register;

wherein a second selected value of said input signal is stored in said second location in said input signal memory device and is provided to said second register;

wherein the contents of said first register and said second register is provided to said adder input; and

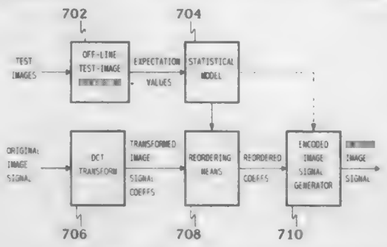
wherein said adder output is provided to said multiplication block input.

5,729,484

PROCESSES, APPARATUSES, AND SYSTEMS OF ENCODING AND DECODING SIGNALS USING TRANSFORMS

Walter Mack, Chandler; J. C. Korta, Mesa, both of Ariz., and Mark Walker, Hillsboro, Oreg., assignors to Intel Corporation, Santa Clara, Calif.

Continuation-in-part of Ser. No. 202,529, Feb. 28, 1994, abandoned. This application May 22, 1995, Ser. No. 446,321
Int. Cl.° G06F 17/14; G06K 9/36
U.S. Cl. 364—725 36 Claims



1. A computer-implemented process for encoding image signals, comprising the steps of:

(a) providing an original image signal corresponding to a particular type of image;

(b) applying a transform to the original image signal to generate a transformed image signal, the transformed image signal comprising a plurality of transformed signal coefficients;

(c) ordering the transformed signal coefficients in accordance with a statistical model generated empirically by applying the transform to one or more test images of the particular type; and

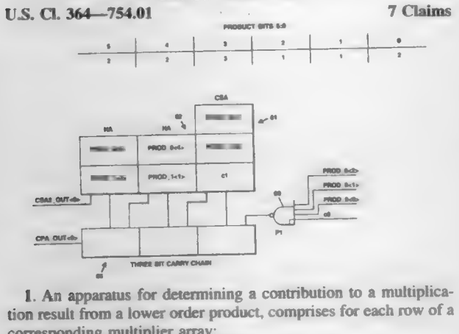
(d) generating an encoded image signal in accordance with the ordered coefficients.

5,729,485

FAST DETERMINATION OF CARRY INPUTS FROM LOWER ORDER PRODUCT FOR RADIX-8 ODD/EVEN MULTIPLIER ARRAY

Gilbert M. Wolrich, Framingham, Mass.; Sribalan Santhanam, San Carlos, Calif., and Andrew S. Olesin, Princeton, Mass., assignors to Digital Equipment Corporation, Maynard, Mass.

Filed Sep. 11, 1995, Ser. No. 526,255
Int. Cl.° G06F 7/52
U.S. Cl. 364—754.01 7 Claims



1. An apparatus for determining a contribution to a multiplication result from a lower order product, comprises for each row of a corresponding multiplier array:

a half adder fed by shifted corresponding bits from a multiplier array;

means, responsive to shifted bits from the array and the output bits from the half adder, for producing a sum and a carry vector for the corresponding row of the multiplier array; and

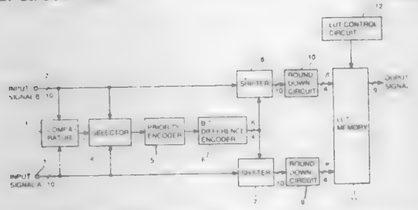
means, responsive to a carry out for a one of said rows preceding a last one of said rows, for combining a last one of the sum and carry vectors corresponding to a last one of the rows of the multiplier array to provide the contribution to the multiplication product from the lower order product.

5,729,486

DIGITAL DIVIDING APPARATUS USING A LOOK-UP TABLE

Hidefumi Okada, Daito, Japan, assignor to Sanyo Electric Co., Ltd., Osaka, Japan

Filed Sep. 8, 1995, Ser. No. 525,982
Claims priority, application Japan, Sep. 13, 1994, 6-219059
Int. Cl.° G06F 7/52
U.S. Cl. 364—764 4 Claims



1. A digital dividing apparatus responsive to a first M-bit digital input signal A and a second N-bit digital input signal B, where M and N are positive integers and M is greater than N, for producing a digital output signal of B/(A+B), comprising:

first multiplying means for multiplying said first digital input signal A by 2^K, where K is a positive integer;

second multiplying means for multiplying said second digital input signal B by said 2^K;

first round-down means for rounding down at least one predetermined lower bit of a first digital product signal $A\times2^K$ generated by said first multiplying means to produce a first m-bit digital round-down signal α, where m is a positive integer smaller than said M;

second round-down means for rounding down at least one predetermined lower bit of a second digital product signal $B\times2^K$ generated by said second multiplying means to produce a second n-bit digital round-down signal β, where n is a positive integer smaller than said N;

look-up table storage means for storing a look up table having 2^{m+n} digital quotient data for $\beta/(\alpha+\beta)$ corresponding to 2^{m+n} combinations of 2^m possible values of said first digital round-down signal α and 2^n possible values of said second digital round-down signal β;

supplementing means for supplementing an upper side of said second digital input signal B with at least one bit set to a value of "0" such that the number of bits N of said second digital input signal equals the number of bits M of said first digital input signal; and

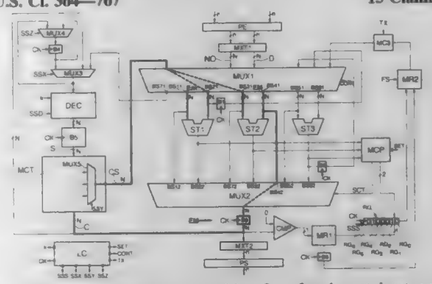
control means responsive to said first and second digital round-down signals α and β for controlling said look-up table storage means to read therefrom a corresponding one of said 2^{m+n} digital quotient data as said digital output signal.

5,729,487

ELECTRONIC COMPONENT CAPABLE, IN PARTICULAR, OF PERFORMING A DIVISION OF TWO NUMBERS TO THE BASE 4.

Frédéric Dufal, Grenoble, and Xavier Robert, Tournefeuille, both of France, assignors to France Telecom, France

Filed Dec. 8, 1995, Ser. No. 569,819
Claims priority, application France, Dec. 22, 1994, 94 15504
Int. Cl.° G06F 7/52
U.S. Cl. 364—767 15 Claims



1. Electronic component, capable of performing at least one binary division of two numbers to the base 2^b, b being an integer greater than one, comprising 2^b-1 subtracters connected to the input of the component, controllable means of shifting binary words, connected to the input of the component, controllable means concatenating binary words, connected up between the output of the shifting means and the output and the input of the subtracters, and a shift register for receiving in succession partial-result words of b bits together forming a final-result word representative of the division to the base 2^b of the two numbers and further comprising thresholding means delivering in response to a base word threshold by two threshold words representing minimum and maximum threshold values.

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5,729,488

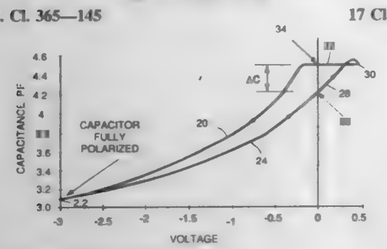
NON-DESTRUCTIVE READ FERROELECTRIC MEMORY CELL UTILIZING THE RAMER-DRAB EFFECT

John J. Drab, Encitas, and O. Glenn Ramer, Los Angeles, both of Calif., assignors to Hughes Electronics, Los Angeles, Calif.

Filed Aug. 26, 1994, Ser. No. 296,835

Int. Cl.[6] G11C *11/22*

U.S. Cl. 365—145 **17 Claims**



1. A memory unit, comprising:

a ferroelectric capacitor having an insulator formed of a ferroelectric material characterized by a zero field capacitance which is controllably variable between a full capacitance state and a partial capacitance state according to the electrical charge path by which the zero field capacitance is reached;

means for writing a full capacitance state to the ferroelectric capacitor at a first time and a partial capacitance state to the ferroelectric capacitor at a second time, the different capacitance states reflecting different stored data values; and

means for reading the capacitance of the ferroelectric capacitor.

5,729,489

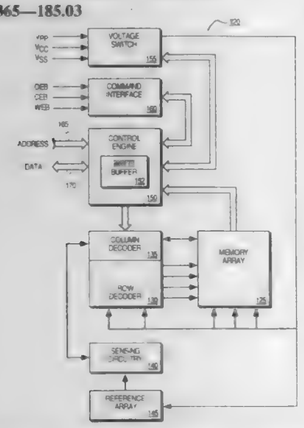
PROGRAMMING FLASH MEMORY USING PREDICTIVE LEARNING METHODS

Albert Fazio, Los Gatos; Gregory E. Atwood, San Jose; James O. Mi, Sunnyvale, and Paul Ruby, Folsom, all of Calif., assignors to Intel Corporation, Santa Clara, Calif.

Filed Dec. 14, 1995, Ser. No. 572,757

Int. Cl.[6] G11C *11/34*

U.S. Cl. 365—185.03 **29 Claims**



1. A method for programming a memory cell having more than two possible states to a desired state, comprising:

applying a first programming pulse to the memory cell;

sensing a change in an amount of charge stored by the memory cell caused by applying the first programming pulse to the memory cell;

in response to the sensed change in the amount of charge stored by the memory cell, a control engine determining characterization information to predict programming characteristics of the memory cell; and

the control engine using the characterization information to directly program the memory cell to approximately the desired state without performing a program verify operation.

5,729,490

PARALLEL-DICHOTOMIC SERIAL SENSING METHOD FOR SENSING MULTIPLE-LEVEL NON-VOLATILE MEMORY CELLS, AND SENSING CIRCUIT FOR ACTUATING SUCH METHOD

Cristiano Calligaro, Torre D'Isola; Vincenzo Daniele, Brugherio; Roberto Gastaldi, Agrate Brianza; Alessandro Manstretta, Broni; Nicola Telecco, Monleale, and Guido Torelli, S. Alessio Con Vialone, all of Italy, assignors to SGS-Thomson Microelectronics S.r.l., Agrate Brianza, Italy

Filed Jul. 31, 1996, Ser. No. 690,059

Claims priority, application European Pat. Off., Jul. 31, 1995, 95830347

Int. Cl.[6] G11C *7/00*

U.S. Cl. 365—185.03 **18 Claims**

1. A method for reading a memory cell that stores one of a possible three or more data values, the method comprising:

activating said cell to provide a current equal to one of a possible three or more current levels that corresponds to said stored data value, each of said current levels corresponding to a different one of said data values;

substantially simultaneously comparing said current from said cell with a first plurality of reference currents that are each between a lowest and a highest of said current levels, said reference currents defining groups of said current levels;

determining to which group of current levels said current belongs;

substantially simultaneously comparing said current from said cell with a second plurality of reference currents that are each between a lowest and a highest of those of said current levels that are within said determined group, said second plurality of reference currents defining subgroups of those of said current levels that are within said determined group; and

determining to which subgroup of current levels said current belongs.

5,729,491

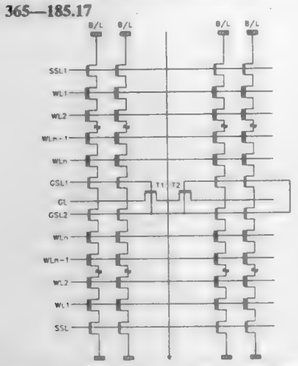
NONVOLATILE INTEGRATED CIRCUIT MEMORY DEVICES HAVING GROUND INTERCONNECT LATTICES WITH REDUCED LATERAL DIMENSIONS

Dong-jun Kim, Kyungki-do, and Jeong-hyuk Choi, Seoul, both of Rep. of Korea, assignors to Samsung Electronics Co., Ltd., Suwon, Rep. of Korea

Filed Nov. 12, 1996, Ser. No. 745,731

Int. Cl.[6] G11C *11/40;16/06*

U.S. Cl. 365—185.17 **14 Claims**



1. An integrated circuit memory device, comprising:

a semiconductor substrate;

a first NAND string of EEPROM cells in said substrate, said first NAND string containing first string select and ground select transistors at first and second ends thereof;

a first ground line electrically coupled to a source of the first ground select transistor;

a second ground line adjacent the first NAND string; and

a first field effect transistor electrically connected in series between said first and second ground lines and having a gate electrode electrically coupled to a gate electrode of the first ground select transistor.

5,729,492

SENSE AMPLIFIER HAVING CAPACITIVELY COUPLED INPUT FOR OFFSET COMPENSATION

Giovanni Campardo, Bergamo, Italy, assignor to SGS-Thomson Microelectronics S.r.l., Agrate Brianza, Italy

Filed Apr. 26, 1996, Ser. No. 639,192

Claims priority, application European Pat. Off., Apr. 28, 1995, 95830166

Int. Cl.[6] G11C *16/06*

U.S. Cl. 365—185.21 **18 Claims**

1. A sense amplifier circuit for reading one of a plurality of memory cells that are coupled to a bit line, the circuit comprising:

a supply terminal;

a reference memory cell;

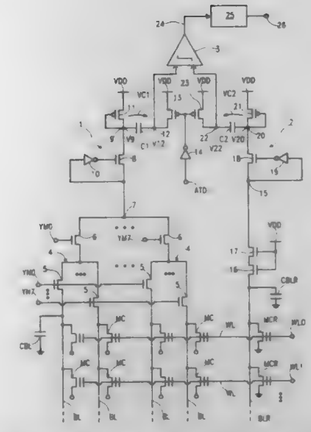
a comparator having first and second input terminals and having an output terminal that provides a read signal;

a first load device having a first terminal coupled to said supply terminal and having a second terminal coupled to said bit line;

a second load device having a first terminal coupled to said supply terminal and having a second terminal coupled to said reference memory cell and to said second input terminal of said comparator;

a first capacitive component having a first terminal coupled to said second terminal of said first load device and having a second terminal coupled to said first input terminal of said comparator; and

a first switch having a control terminal, a first terminal coupled to said supply terminal, and a second terminal coupled to said second terminal of said first capacitive component, said first switch operable to allow an offset-compensation charging current to flow through said first capacitive component to said bit line.



5,729,493

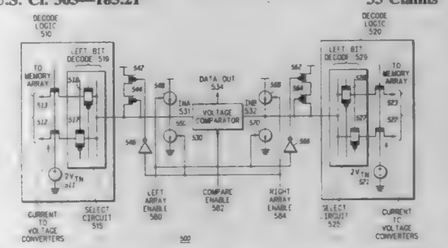
MEMORY SUITABLE FOR OPERATION AT LOW POWER SUPPLY VOLTAGES AND SENSE AMPLIFIER THEREFOR

Bruce L. Morton, Austin, Tex., assignor to Motorola Inc., Schaumburg, Ill.

Filed Aug. 23, 1996, Ser. No. 703,176

Int. Cl.° G11C *16/06;16/04*

U.S. Cl. 365—185.21 **35 Claims**



1. A combined column select circuit and sense amplifier for a memory, comprising:

a plurality of current-to-voltage converters each having an input terminal coupled to a corresponding one of a plurality of bit lines, and an output terminal;

a plurality of selection elements each having an input terminal coupled to said output terminal of a corresponding one of said plurality of current-to-voltage converters, a control terminal for receiving a corresponding one of a plurality of column select signals, and an output terminal coupled to a node;

a load element having a first terminal coupled to a power supply voltage terminal, and a second terminal coupled to said node;

a reference voltage generator having an output terminal for providing a reference voltage; and

a voltage comparator having a first input terminal coupled to said node, a second input terminal coupled to said output terminal of said reference voltage generator, and an output terminal for providing a data output signal representative of a voltage stored in a selected memory cell located at an intersection of a selected word line and a bit line which is selected by said corresponding one of said plurality of column select signals.

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5,729,494

NON-VOLATILE MEMORY WITH FLOATING GATE TYPE CELL TRANSISTORS AND METHOD FOR ADJUSTING THRESHOLD VALVES OF THESE TRANSISTORS

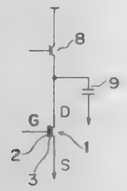
Hiroshi Gotou, and Toshifumi Asakawa, both of Tokyo, Japan, assignors to NKK Corporation, Tokyo, Japan

Continuation of Ser. No. 381,944, Dec. 20, 1994. This application Sep. 19, 1996, Ser. No. 716,527

Claims priority, application Japan, May 11, 1993, 5-109573; Aug. 25, 1993, 5-210295; Nov. 29, 1993, 5-298103; Dec. 24, 1993, 5-327213

Int. Cl.[6] G11C *11/34*

U.S. Cl. 365—185.24 **67 Claims**



1. A non-volatile memory device provided with transistors each having a drain, a source, a floating gate, and a control gate, and each said transistor having a given threshold value which determines a drain-source-path turn-on voltage at the control gate thereof, said memory device comprising:

first means for setting one of the drain and source of at least one of said transistors at a floating state having a higher potential than the other of the drain and source thereof; and

second means for varying the threshold value of at least one of said transistors using a voltage difference between said one of the drain and source and the floating gate, to thereby cancel the floating state by electrical conduction between the drain and source of said at least one transistor, wherein said at least one transistor is located at a crossing point of a bit line electrically connected to said one of drain and source thereof and a word line electrically connected to the control gate thereof, and wherein said second means includes voltage generating means for generating an AC voltage formed of a positive voltage pulse and a negative voltage pulse to said control gate.

5,729,495

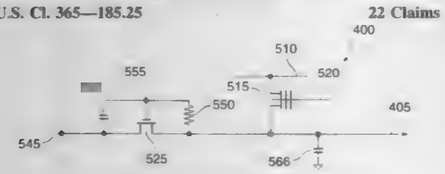
DYNAMIC NONVOLATILE MEMORY CELL

Raminda U. Madurawe, Sunnyvale, Calif., assignor to Altera Corporation, San Jose, Calif.

Filed Sep. 29, 1995, Ser. No. 536,026

Int. Cl.[6] G11C *7/02*

U.S. Cl. 365—185.25 **22 Claims**



1. A memory cell for an integrated circuit comprising:

a charge pumping node;

a charging device coupled between said charge pumping node and an output node, wherein a precharge signal is coupled to said charge pumping node to charge said output node to a first voltage level through said charging device; and

a memory element, coupled between a voltage source at a second voltage level and said output node, wherein said second voltage level is below said first voltage level, wherein said memory element stores data and retains said data when power is removed from said integrated circuit.

5,729,496

NONVOLATILE SEMICONDUCTOR MEMORY ELEMENT AND METHOD FOR FABRICATING THE SAME

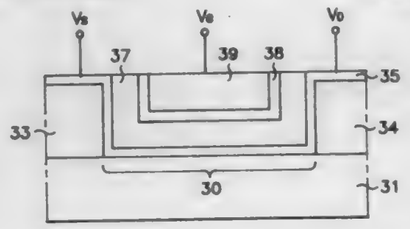
Won Young Jung, Seoul, Rep. of Korea, assignor to LG Semicon Co., Ltd., Chungcheongbuk-do, Rep. of Korea

Division of Ser. No. 418,283, Apr. 7, 1995, Pat. No. 5,583,066. This application Aug. 15, 1996, Ser. No. 698,247

Claims priority, application Rep. of Korea, Jul. 30, 1994, 18891/1994

Int. Cl.[6] G11C *13/00*

U.S. Cl. 365—185.26 **8 Claims**



1. A nonvolatile semiconductor memory element comprising:

a substrate of a first impurity type having a channel region;

elevated source and drain regions of a second impurity type formed above the substrate, the elevated source and drain regions separated by the channel region;

a floating gate insulation film formed on exposed surfaces of the substrate corresponding to the channel region and the source and drain regions;

a well-shaped floating gate formed on the floating gate insulation film, the well-shaped floating gate having a fixed depth and a fixed thickness;

a control gate formed within the well of the well-shaped floating gate, the control gate having a fixed thickness; and

an interlayer insulation film formed between the well-shaped floating gate and the control gate insulating the well-shaped floating gate from the control gate.

5,729,497

METHOD OF USING PARITY AND ECC BITS TO INCREASE THE YIELD OF NON-PARITY ECC DEVICES

J. Thomas Pawlowski, Boise, Id., assignor to Micron Technology Inc., Boise, Id.

Filed Feb. 27, 1996, Ser. No. 607,704

Int. Cl.[6] G11C *29/00*

U.S. Cl. 365—200 **21 Claims**

17. A memory device, comprising:

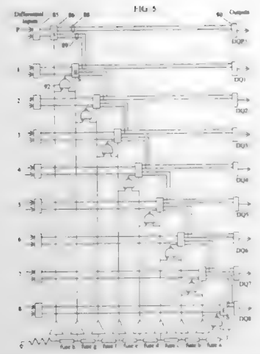
an array of memory cells including data and non-data cells;

an input/output data bus comprised of a plurality of input/output lines;

input support logic responsive to said input/output data bus for controlling the writing of data into said array of memory cells;

output support logic responsive to said array of memory cells for reading information out of said array of memory cells onto said input/output data bus; and

a connection device for establishing a plurality of physical paths within said output support logic between said array of cells and said input/output lines whereby said non-data cells may be used in place of said data cells.



5,729,498

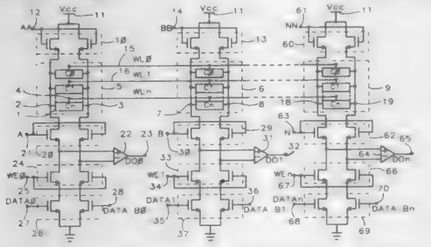
REDUCED POWER CONSUMPTION SRAM

Jian-Yau Yih, Chung Li City; Yung-Yuan Ho, Chutung; Nang-Ping Tu, Hsinchu; Jung-Dar Ho, Chutung; Chien-Cheng Tu, Hsinchn, and Shaw-Jia Hor, Chung Li City, all of Taiwan, assignors to Industrial Technology Research Institute, Hsinchu, Taiwan

Filed Jun. 25, 1996, Ser. No. 670,376

Int. Cl.[6] G11C *7/00;7/02;8/00;11/00*

U.S. Cl. 365—203 **14 Claims**



1. A static random access memory, SRAM, and comprising:

a) memory cells, precharge circuits, bit access circuits, sense amplifiers, write enable circuits and data in circuits,

b) said memory cells divided into groups of memory cells and within each group said memory cells connected in parallel by means of bit lines,

c) memory cells connected between each group of said groups of memory cells by word lines with only one memory cell within each group of said groups of memory cells connected to a same word line,

d) said bit lines within each group of said groups of memory cells connected to Vcc through a precharge circuit,

e) said precharge circuit within each group of said groups of memory cells controlled by a separate control signal,

f) said precharge circuit connected to each different group of said groups of memory cells and timed such that each said precharge circuit is controlled to be active at a different time,

g) the bit lines in each group of said groups of memory cells connected to a bit access circuit through which is connected a sense amplifier and a write enable circuit for each group of said groups of memory cells,

h) said write enable circuit further connected to a data input circuit,

i) said bit access circuit controlled by a bit access control signal,

j) the bit access control signal timed to fall within a timing of a precharge circuit control signal,

k) said write enable circuit, when active, connecting input data to the bit access circuit and through to a memory cell activated by a word line signal when the bit access circuit is active.

5,729,499

SENSE AMPLIFIER AND READING CIRCUIT WITH SENSE AMPLIFIER

Hideo Fujiwara; Seiji Yamanaka, both of Ikeda; Toshihisa Nagata, Takarazuka, and Hiizu Okubo, Nishinomiya, all of Japan, assignors to Ricoh Company, Ltd., Tokyo, Japan

Division of Ser. No. 630,929, Apr. 5, 1996. This application Jan. 29, 1997, Ser. No. 790,953

Claims priority, application Japan, Apr. 6, 1995, 7-081274; Jul. 5, 1995, 7-194263

Int. Cl.[6] G11C *11/40*

U.S. Cl. 365—207 **2 Claims**

	DATA	BL	BLB	Sout1,2	STATIC DASSING-THROUGH CURRENT
SA5	DATA "1"	H	L	H	FLOWS
	DATA "0"	L	H	L	DOES NOT FLOW
SA6	DATA "1"	≅	L	L	FLOWS
	DATA "0"	L	≅	≅	DOES NOT FLOW

1. A reading circuit which reads an output signal output from a memory cell which is provided at a point of points at which a plurality of word lines cross a plurality of bit lines in a semiconductor memory, said reading circuit comprising:

a pair of sense amplifiers for inputting thereinto said output signal from said memory cell in parallel, said pair of sense amplifiers comprising respective inverters, which inverters have respective logical threshold voltages different from each other; and

an output selecting circuit for selecting outputs of said pair of sense amplifiers so that an output of a sense amplifier of said pair of sense amplifiers having a lower logical threshold voltage of said respective logical threshold voltages is selected if a previous output signal output from said memory cell has a Low level, and an output of a sense amplifier of said pair of sense amplifiers having a higher logical threshold voltage of said respective logical threshold voltages is selected if a previous output signal output from said memory cell has a High level.

5,729,500

DRAW WITH VARIABLE INTERNAL OPERATION FREQUENCY

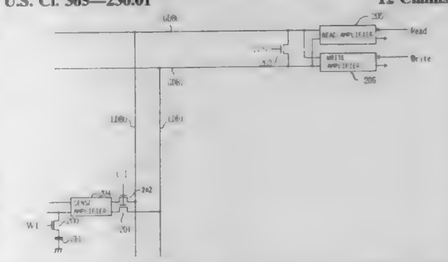
Naoharu Shinozaki, Kawasaki, Japan, assignor to Fujitsu Limited, Kanagawa, Japan

Filed Jan. 28, 1997, Ser. No. 789,803

Claims priority, application Japan, Aug. 29, 1996, 8-228996

Int. Cl.[6] G11C *13/00*

U.S. Cl. 365—230.01 **12 Claims**



10. A method of setting an internal operation frequency of a DRAM, said DRAM having sense amplifiers writing data to and reading data from a memory cell array and having a pair of data-bus lines connected to said sense amplifiers via gates, wherein a period of said gate opening to provide said pair of data-bus lines with access to said amplifiers is determined by a first pulse length,

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and a period of said pair of said data-bus lines being short-circuited is determined by a second pulse length, said method comprising the steps of:

a) storing a parameter in a mode register, said parameter defining an operation mode of said DRAM; and

b) determining said first pulse length and said second pulse length based on said parameter, each of said first pulse length and said second pulse length being different for a different setting of said parameter.

5,729,501

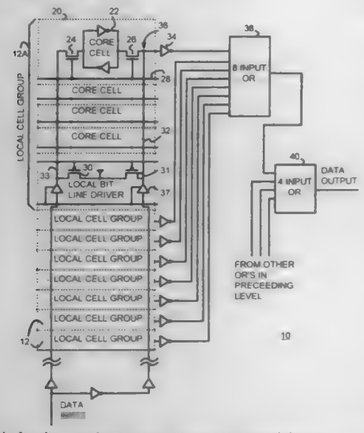
HIGH SPEED SRAM WITH OR-GATE SENSE

Larry Bryce Phillips; Robert Paul Masleid, and John Stephen Muhich, all of Austin, Tex., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Sep. 8, 1995, Ser. No. 525,939

Int. Cl.[6] G11C *8/00*

U.S. Cl. 365—230.03 **15 Claims**



1. A domino random access memory comprising:

a plurality of local cell groups, at least one of the plurality of local cell groups further comprising

a plurality of core cells for storing information, and

a local bit line coupled to the plurality of core cells;

a domino circuit coupled to the local bit line for sensing information stored in the plurality of core cells;

a precharge device coupled to the local bit line; and

an inverter coupled to the local bit line, wherein the local bit line, the precharge device, and the inverter form a dynamic node for sensing information stored in the plurality of core cells and wherein the inverter is coupled to a tree hierarchy of Or-gates.

5,729,502

SEMICONDUCTOR MEMORY DEVICE THAT CAN READ OUT DATA AT HIGH SPEED

Kiyohiro Furutani, and Hiroshi Miyamoto, both of Hyogo, Japan, assignors to Mitsubishi Denki Kabushiki Kaisha, Tokyo, Japan

Division of Ser. No. 435,691, May 5, 1995, Pat. No. 5,600,607. This application Dec. 31, 1996, Ser. No. 775,762

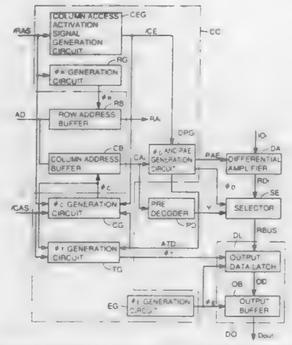
Claims priority, application Japan, May 31, 1994, 6-118653

Int. Cl.[6] G11C *8/00*

U.S. Cl. 365—233 **4 Claims**

1. A semiconductor memory device including a plurality of memory cells, comprising:

a plurality of data buses each for transmitting data from a selected one of said plurality memory cells;



an address circuit for sampling an external address signal and decoding the external address signal into a decoded address signal for provision, said decoded address signal making a transition in response to a first control signal and to said external address signal, said address circuit latching said external address signal in response to an address strobe signal attaining a first level, said decoded address signal being independent of the latched external address signal during a period which the external address signal is latched;

a plurality of selecting circuits provided corresponding to said plurality of data buses respectively, for selecting a data bus out of said plurality of data buses in accordance with said decoded address signal received from said address circuit;

a data latching circuit for sampling and latching data transmitted by the selected data bus selected by the selecting circuits out of said plurality of data buses;

a data output buffer for receiving and outputting the data sampled by said data latching circuit in response to a second control signal; and

a control circuit for generating said first and second control signals, to control said address circuit and said data latching circuit such that said data latching circuit samples the data transmitted by the selected data bus out of said plurality of data buses in response to said address strobe signal attaining the first level and to an elapse of a first predetermined time period since a transition of the external address signal, that said decoded address signal is dependent on said external address signal in response to said address strobe signal attaining a second level different from said first level and to an elapse of a second predetermined time period since the transition of the external address signal, and that said data latching circuit latches the data transmitted by the selected data bus before said decoded address signal, is rendered dependent on said external address signal, said second predetermined longer than said first predetermined time period.

5,729,503

ADDRESS TRANSITION DETECTION ON A SYNCHRONOUS DESIGN

Troy A. Manning, Boise, Id., assignor to Micron Technology, Inc., Boise, Id.

Continuation-in-part of Ser. No. 386,894, Feb. 10, 1995, Pat. No. 5,610,864, which is a continuation-in-part of Ser. No. 370,761, Dec. 23, 1994, Pat. No. 5,526,320. This application Jul. 24, 1995, Ser. No. 506,438

Int. Cl.[6] G11C *8/00*

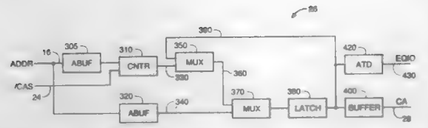
U.S. Cl. 365—233.5 **8 Claims**

1. A circuit comprising:

an address buffer providing a first address;

an input adapted to receive an access cycle strobe signal;

a memory array;



an address generator coupled to said address buffer and to said input, said address generator adapted to provide a series of addresses in response to receipt of the first address and receipt of the access cycle strobe signal; and

an address transition detection circuit coupled to said address buffer and to said address generator, said address transition detection circuit having an output coupled to said memory array, providing a first equilibration signal to said memory array in response to the first address in a first mode of operation, and said address transition detection circuit providing a second equilibration signal to said memory array in response to each subsequent address of the series of addresses in a second mode of operation.

5,729,504

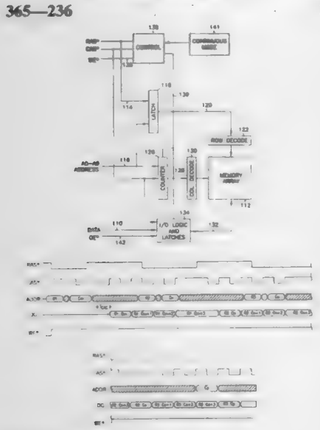
CONTINUOUS BURST EDO MEMORY DEVICE

Timothy B. Cowles, Boise, Id., assignor to Micron Technology, Inc., Boise, Id.

Filed Dec. 14, 1995, Ser. No. 572,487

Int. Cl.[6] G11C *8/00*

U.S. Cl. 365—236 **20 Claims**



1. A memory device comprising:

a plurality of addressable memory elements;

a plurality of external address inputs;

address counter circuitry for receiving a first address on the plurality of external address inputs, and for generating a sequence of addresses in response to the first address; and

output buffer circuitry adapted to drive a sequence of data from the memory device, the output buffer circuitry further adapted to continue to drive the sequence of data from the memory device while a new address is received by the address counter circuitry.

5,729,505

IGNITION DEVICE FOR AN INTERNAL COMBUSTION ENGINE

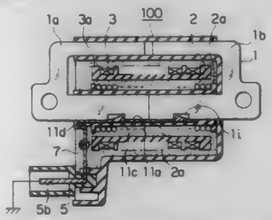
Shigemi Murata, and Mitsuru Koiwa, both of Tokyo, Japan, assignors to Mitsubishi Denki Kabushiki Kaisha, Tokyo, Japan

Filed Feb. 23, 1996, Ser. No. 605,897

Claims priority, application Japan, May 8, 1995, 7-109607

Int. Cl.[6] H01F *27/30;* **F02P** *11/00*

U.S. Cl. 336—178 **11 Claims**



1. An ignition device for an internal combustion engine which generates high voltage in a secondary coil based on a primary current passing through a primary coil of an ignition coil, and supplies the high voltage to an ignition plug of the internal combustion engine, wherein said ignition coil comprises:

an iron core formed by laminating a plurality of cut steel plates;

a primary coil including a primary bobbin wound around said iron core; and

a conductive plate being arranged between said iron core and said primary bobbin of said primary coil, said conductive plate having a contact surface with which sections of said steel plates of said iron core are in contact and being electrically connected to an external ground terminal.

5,729,506

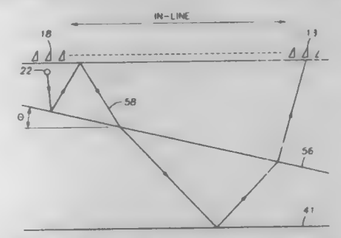
3-D MULTIPLE ATTENUATION

William Henry Dragoset, Jr., and Louis Joseph Ward, both of Houston, Tex., assignors to Western Atlas International, Inc., Houston, Tex.

Filed Nov. 18, 1996, Ser. No. 751,640

Int. Cl.[6] G01V *1/36;1/38*

U.S. Cl. 367—24 **5 Claims**



1. A method for attenuating surface multiple wavefields resident in a multi-dimensional marine seismic-signal data set derived from seismic wavefield signals as recorded on each of a plurality of spaced-apart substantially parallel common shot gathers distributed in a cross-line configuration, comprising:

a) for every nth common shot gather, counted in the cross-line direction, n being a small number greater than 2, defining a predicted surface-multiple wavefield as a function of time and offset due to a source wavelet having preselected fixed attributes of amplitude, phase and frequency;

b) selecting an initial common shot gather from among said plurality of parallel common shot gathers;

c) adaptively filtering the predicted surface-multiple wavefield nearest said selected common shot gather, thereby to match

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said predicted surface-multiple wavefield to the surface-multiple wavefield resident in said selected common shot gather;

d) subtracting the so-matched predicted surface-multiple wavefield from said resident surface-multiple wavefield.

5,729,507

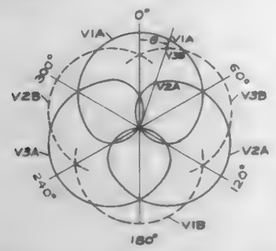
DIRECTIONAL ENERGY RECEIVING SYSTEMS FOR USE IN THE INDICATION OF THE DIRECTION OF ARRIVAL OF THE RECEIVED SIGNAL

Frank Massa, and Donald P. Massa, both of Hingham, Mass., assignors to Massa Products Corporation, Hingham, Mass.

Filed May 13, 1985, Ser. No. 733,456

Int. Cl.° G01S *3/80*

U.S. Cl. 367—124 **6 Claims**



1. In combination in a directional energy receiving system, a plurality of N identical directional receiving transducers, each transducer having a vertical axis, each transducer characterized in that its directional pattern in a horizontal plane perpendicular to said vertical axis is defined by its receiving sensitivity S as a function of angle θ from its principal axis of maximum sensitivity by the approximate relationship $S=(1+\cos\theta)$ over an angle of $\pm 360/2N°$ from its principal axis, a first electronic circuit means for producing from said transducers a duplicate mirror image of the directional pattern of each of said N directional receiving transducers, said mirror images characterized in that the principal axes of maximum sensitivity of each of said mirror images of said N directional patterns are rotated 180° from each of the corresponding principal axes of each of the original patterns of said N receiving transducers, structural support means for mounting said directional receiving transducers, said structural means characterized in that the principal axes of maximum sensitivity of each of said mounted directional transducers together with the principal axes of maximum sensitivity of each of the mirror images of each of said mounted N directional transducers are equally spaced in a symmetrical array such that the combined axes of maximum sensitivity of said N directional transducers and said N mirror images of said directional transducers are oriented $360/2N°$ from one another in said horizontal plane.

5,729,508

ENVIRONMENTALLY SEALED ACOUSTIC TRANSDUCER COUPLING

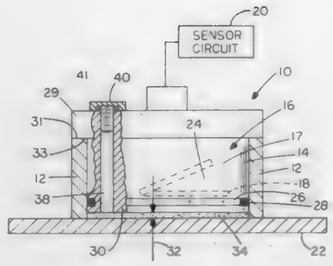
Anthony D. Baker, Eagan, and Michael A. Schugt, Minneapolis, both of Minn., assignors to Rosemount Aerospace Inc., Burnsville, Minn.

Filed May 24, 1996, Ser. No. 653,309

Int. Cl.° H04R *1/28*

U.S. Cl. 367—176 **12 Claims**

1. An environmentally sealed acoustic transducer having a transducer case with an outer peripheral surface, comprising;



an end surface of the transducer case bounded by the outer peripheral surface, the end surface comprising a region of transmission of acoustic energy from a vibration producing transducer element in the transducer case to a structure;

an outer housing having a chamber defined by a surface for receiving the transducer case outer peripheral surface, and having a first end and a second end positionable adjacent a structure, a seal around the periphery of the outer surface of the transducer case spaced from the end surface to seal the transducer case relative to the surface defining the chamber and enclose a space between the end surface and the second end of the chamber; and

a passageway opening into the chamber between the seal and the second end of the chamber, and extending to a location that is to the exterior of the outer housing when the transducer case is positioned in the chamber to permit flowable material engaged by the end surface of the transducer case to escape through such passageway as the transducer casing is moved into the chamber from the first end toward the second end.

5,729,509

TRACK CROSSING CONTROL FOR DOUBLE OPTICAL DISK DRIVE DEVICE

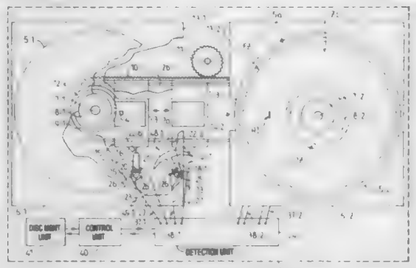
Hiroshi Takahashi, 17-G- Wisteria Mansion, Taikoo Shing, Hong Kong

Filed Jul. 8, 1996, Ser. No. 677,573

Claims priority, application France, Sep. 1, 1995, 95 10314

Int. Cl.° G11B *17/22*

U.S. Cl. 369—32 **12 Claims**



1. An improved positioning device for an optical unit (3) in a apparatus having a chassis (1), a first rotatable support (8-1) for a first optical disc (5-1) and a second rotatable support (8-2) for a second optical disc (5-2), a disc management unit (41), and guide means (2) integral with the chassis (1) for permitting displacement of the optical unit (3) between the first disc (5-1) and the second disc (5-2), and control means (40) for causing displacement of the optical unit (3) on the guide means (2) as a function of commands received from the disc management unit (41), each of the optical

discs having an information zone (ZL) defined by a start of zone region (DZ) and an end of zone region (FZ) and the optical unit (3) having an optical head (4) to cooperate with the information zones (ZL) of the optical discs, wherein the improvement comprises:

detection means (16–18. 23, 24, 27, 37, 38) mounted in the chassis (1) for indicating to the control means (40) that the optical unit (3) is passing at at least a first (47-*i*) and a second (48-*i*) passage points associated respectively with positioning of the optical head (4) substantially adjacent the end of the zone region (FZ) and an intermediate region (RI) of the information zone (ZL) of each disc, said intermediate region (RI) being disposed between the start and the end zone regions, and

wherein the control means (40) comprises means for varying the speed of displacement of the optical unit (3) as a function of the passage point detected, and of commands received from the disc management unit (41), so as to minimise the necessary time for the optical unit (3) to pass from a track of information on one of the first and second optical discs to a track of information on the other of the first and second optical discs.

5,729,510

OPTICAL HEAD USED FOR RECORDING ON OPTICAL RECORDING MEDIUM HAVING VARIOUS THICKNESSES, WARPAGE AND THE LIKE

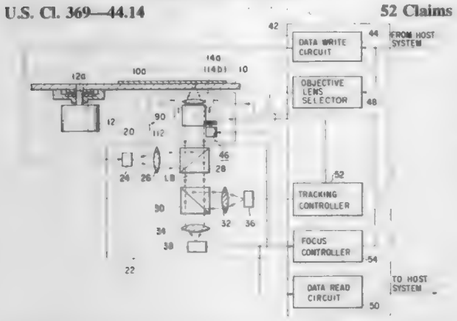
Akihiro Kasahara, Chiba-ken; Isao Hoshino, and Hisashi Yamada, both of Yokohama, all of Japan, assignors to Kabushiki Kaisha Toshiba, Kawasaki, Japan

Filed Jan. 19, 1995, Ser. No. 374,992

Claims priority, application Japan, Jan. 19, 1994, 6-004212; Mar. 31, 1994, 6-083788; Sep. 14, 1994, 6-220095

Int. Cl.° G11B *7/095*

U.S. Cl. 369—44.14 **52 Claims**



1. An optical head apparatus used for an optical data recording/reproducing device, comprising:

plural movable objective lenses for irradiating light in an optical path of a common light source onto a recording medium; and

means for selecting a desired objective lens among said plural objective lenses and moving the selected desired objective lens to locate the selected desired objective lens in the optical path of the common light source to receive light from the common light source and irradiate the received light through the selected desired objective lens onto the recording medium.

5,729,511

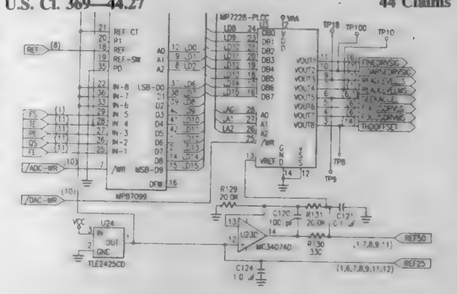
OPTICAL DISC SYSTEM HAVING SERVO MOTOR AND SERVO ERROR DETECTION ASSEMBLY OPERATED RELATIVE TO MONITORED QUAD SUM SIGNAL

David L. Schell, Fort Collins; Randolph S. Crupper, Palmer Lake; Marvin B. Davis, Colorado Springs, all of Colo.; Kurt W. Getreuer, Fairport, N.Y.; Leonardus J. Grassens, Loveland, and David E. Lewis, Black Forest, both of Colo., assignors to Discovision Associates, Irvine, Calif.

Continuation-in-part of Ser. No. 105,866, Aug. 11, 1993, abandoned, which is a continuation of Ser. No. 657,155, Feb. 15, 1991, Pat. No. 5,265,079. This application Jan. 25, 1995, Ser. No. 376,882

Int. Cl.° G11B *7/00*

U.S. Cl. 369—44.27 **44 Claims**



1. An optical drive system comprising:

an optical assembly;

a light source capable of transmitting light through said optical assembly;

an objective lens subassembly for directing light from said light source between said optical assembly and a respective information storage medium;

an objective lens disposed in said objective lens subassembly;

an actuator assembly which suspends said objective lens subassembly for relative motion thereof with respect to said actuator assembly;

a photodetector disposed in a path of light returning from the respective medium, said photodetector for measuring return light received from the respective medium;

means for monitoring a Quad Sum signal associated with said return light;

a first servomotor for moving said objective lens subassembly in a tracking direction relative to said actuator assembly and for moving said objective lens during focus capture relative to the respective medium being read while a maximum Quad Sum signal is searched for;

a second servomotor for moving said objective lens subassembly in a focusing direction relative to said actuator assembly;

first electronic means for controlling said first and second servomotors;

a motor for moving the respective medium relative to said objective lens subassembly, said motor having a hub assembly for supporting the respective medium;

second electronic means responsive to an output signal of said photodetector for decoding information carried in said light returning from the respective medium;

third electronic means for enabling said light source to emit light at a first intensity to encode information on the respective medium and at a second intensity to read information encoded thereon;

data receiving means for accepting data that is storable on the respective medium;

data encoding means being responsive to said data receiving means for representing said data to be stored in a predetermined format, said data encoding means also for directing data to said third electronic means;

a magnetic field generator for producing a magnetic field on a portion of the respective medium and for coacting with said third electronic means and said light source to write and erase information on the respective medium;

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a cartridge loading assembly for removably positioning the respective medium on said hub assembly of said motor;

servo error detecting means including said photodetector, said servo error detecting means being coupled to said first electronic means for determining when said return light exceeds a predetermined value, for searching for a first zero crossing determining when said Quad Sum signal exceeds a predetermined amplitude, and for indicating to said first electronic means to direct close of focus by said second servomotor when said Quad Sum signal exceeds said predetermined amplitude.

5,729,512

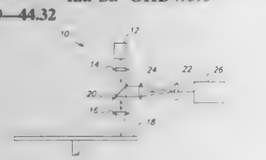
MAGNIFICATION AND TRACKING ERROR CORRECTION SYSTEM FOR MULTIPLE TRACK OPTICAL DISK READER

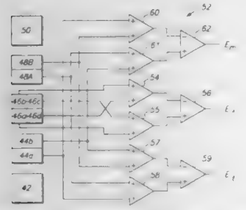
Amir Alon, Sunnyvale, Calif., assignor to Zen Research N.V., Curacao, Netherlands Antilles

Filed Jul. 3, 1996, Ser. No. 675,526

Int. Cl.° G11B *7/095*

U.S. Cl. 369—44.32 **30 Claims**





1. An optical pickup assembly for reading multiple adjacent tracks of an optical disk, the optical pickup assembly comprising:

sensing means;

means for illuminating a region of a surface of the optical disk;

means for projecting an image of the illuminated region onto the sensing means;

means for providing a magnification error signal responsive to the presence of a magnification error in the image projected on the sensing means; and

means for compensating for the magnification error of the image projected on the sensing means responsive to the magnification error signal.

5,729,513

DATA STORAGE APPARATUS FOR RECORDING AND REPRODUCING INFORMATION ON A RECORDING MEDIUM BY ROTATING THE RECORDING MEDIUM AT DIFFERENT ANGULAR VELOCITIES

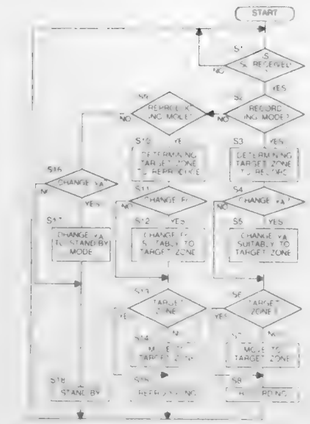
Nobuo Akahira, Yawata; Kenichi Nishiuchi, Moriguchi; Eiji Ohno, Hirakata; Kenichi Nagata, Nishinomiya, and Noboru Yamada, Hirakata, all of Japan, assignors to Matsushita Electric Industrial Co., Ltd., Osaka, Japan

Continuation of Ser. No. 54,006, Apr. 26, 1993, abandoned. This application May 10, 1995, Ser. No. 438,501

Claims priority, application Japan, Apr. 24, 1992, 4-106342

Int. Cl.° G11B *7/00*

U.S. Cl. 369—54 **11 Claims**



crystalline state of a predetermined recording portion thereof, said phase change optical recording medium having a circularly shaped recording data area which is circularly divided into at least a first recording section and a second recording section, said apparatus comprising:

rotating means for rotating said recording medium at an angular velocity selected from at least first and second angular velocities;

write/read means for writing and reading said data on and from the recording medium, said write/read means applying the laser beam having a first strength to induce an amorphous state of said predetermined recording portion for writing data on the recording medium, applying the laser beam at a second strength smaller than said first strength to induce a crystalline state of said predetermined recording portion for erasing data recorded on the recording medium, and applying the laser beam at a third strength smaller than said second strength not to induce a state change of said predetermined recording portion for reading data recorded on the recording medium;

position detection means for detecting a physical location of the write/read means in at least a first position corresponding to said first recording section and a second position of the write/read means corresponding to said second recording section;

memory means for storing a recording clock frequency, a first clock frequency, and a second clock frequency;

driving means for moving said write/read means in the radial direction to access one of said first and second recording sections;

mode detection means for detecting either one of a recording mode and a reproducing mode; and

control means, coupled to the memory means and the position detection means, for controlling said rotating means and said write/read means such that,

during said recording mode:

(a) said rotating means is rotated (1) at said first angular velocity when said write/read means accesses said first recording section, and (2) at said second angular velocity when said write/read means accesses said second recording section, and

(b) when the position detection means detects the physical location of said write/read means in the first position or the second position, said control means retrieves the recording clock frequency from said memory means; and

during said reproducing mode:

(a) said rotating means is rotated at the same angular velocity for both cases when said write/read means accesses said first recording section and when the write/read means accesses said second recording section, and

(b) when the position detection means detects the physical location of said write/read means in either one of said first

position and said second position, said control means respectively retrieves one of the first clock frequency and the second clock frequency from said memory means.

5,729,514

CROSS TALK REMOVING DEVICE UTILIZING SIGNAL FROM MAIN TRACK TO SUBTRACT AMPLITUDE ADJUSTED SIGNALS FROM ADJACENT TRACKS

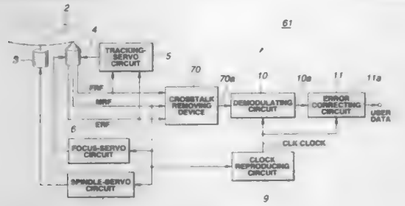
Toshihiro Horigome, and Seiji Kobayashi, both of Kanagawa, Japan, assignors to Sony Corporation, Japan

Filed Dec. 13, 1996, Ser. No. 764,861

Claims priority, application Japan, Dec. 26, 1995, 7-339674

Int. Cl.° G11B *7/00*

U.S. Cl. 369—58 **6 Claims**



1. A crosstalk removing device comprising:

a means for generating a crosstalk component signal by adjusting an amplitude of a reproduction signal of an adjacent track to a target track based on a coefficient;

a means for subtracting said crosstalk component signal from said reproduction signal of the target track and outputting a crosstalk component removing signal;

a means for operating a correlation between said crosstalk component removing signal output from said subtracting means and said reproduction signal of said adjacent track; and

a means for increasing or decreasing said coefficient for generating said crosstalk component signal on the basis of said correlation operated by said correlation operating means.

5,729,515

DISC DATA REPRODUCING APPARATUS AND SIGNAL PROCESSING CIRCUIT FOR REPRODUCING AND PROCESSING DISC DATA HAVING A PLURALITY OF TYPE DATA

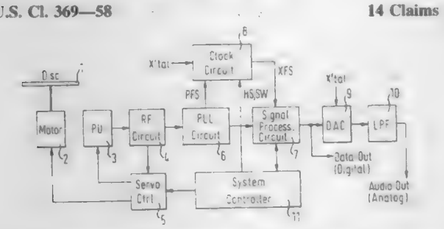
Jun Inagawa; Yasuhiro Hayashi, and Makoto Kubo, all of Kanagawa-ken, Japan, assignors to Kabushiki Kaisha Toshiba, Kanagawa-ken, Japan

Filed May 25, 1995, Ser. No. 450,657

Claims priority, application Japan, May 26, 1994, 06-136451; Jul. 7, 1994, 06-177753

Int. Cl.° G11B *20/10*

U.S. Cl. 369—58 **14 Claims**



1. An apparatus for reproducing disc data capable of being classified into at least a first type data and a second type data, the apparatus comprising: a disc motor to rotate a disc storing the disc data;

an optical pickup to read the disc data to be reproduced from the disc;

a demodulation circuit to demodulate the disc data read from the disc;

a buffer memory to store the demodulated data;

a digital-to-analog converter to convert the demodulated data of the first type read from the buffer memory in response to a reference clock signal; and

a frame clock signal generating circuit to generate a frame clock signal for use in accessing the buffer memory, the frame clock signal generator including:

a division control circuit to generate a division control signal in accordance with an amount of the demodulated data stored in the buffer memory;

a first divider to divide a constant clock signal in accordance with the division control signal, and to output a first divided clock signal;

a second divider to output a second divided clock signal, a division factor in the second divider being fixed;

a phase comparator to generate a phase control signal representative of a phase difference between the first and second divided clock signals;

a voltage controlled oscillator to generate a controlled clock signal in response to the phase control signal so that a frequency of the controlled clock signal is varied in accordance with the amount of the demodulated data stored in the buffer memory, the controlled clock signal being supplied to the second divider;

a selector to receive the constant clock signal and the controlled clock signal, to select one of the constant and controlled clock signals, and to output the selected clock signal; and

a third divider to divide the selected clock signal to provide the frame clock signal,

wherein, when the disc data to be reproduced is the first type data, a frequency of the reference clock signal is set to a first value, and the selector selects the constant clock signal, and when the disc data to be reproduced is the second type data, the frequency of the reference clock signal is set to a second value lower than the first value so as to reduce power consumption of the digital-to-analog converter, and the selector selects the controlled clock signal.

5,729,516

INFORMATION RECORDING MEDIUM, APPARATUS FOR RECORDING THE SAME AND APPARATUS FOR REPRODUCING THE SAME

Akihiro Tozaki, Tsurugashima; Takao Sawabe, Tokyo-to; Ryuichiro Yoshimura, Tokorozawa; Yoshiaki Moriyama; Kaoru Yamamoto, both of Tsurugashima, and Junichi Yoshio, Tokorozawa, all of Japan, assignors to Pioneer Electronic Coporation, Tokyo-to, Japan

Filed Mar. 11, 1997, Ser. No. 815,162

Claims priority, application Japan, Mar. 12, 1996, 8-055159

Int. Cl.° G11B *3/90*

U.S. Cl. 369—58 **9 Claims**



9. An information recording apparatus comprising:

a first information producing means for producing a plurality of recorded information pieces each of which being independent of each other;

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a second information producing means for producing a plurality of individual copy information pieces prescribing whether or not said individual recorded information pieces are copy-prohibited;

a third information producing means for producing a plurality of control information pieces prescribing a control method of reproducing said plurality of recorded information pieces;

a hierarchical layer structure producing means for aggregating said plurality of control information pieces to form a multiple layer hierarchical structure of said control information pieces;

a fourth information producing means for referring to said individual copy information pieces to produce aggregate copy information pieces prescribing for each of said control information pieces whether or not said plurality of recorded information pieces controlled by said control information piece include copy-prohibited recorded information piece; and

an arranging means for arranging said recorded information pieces, said individual copy information pieces, said control information pieces and said aggregate copy information pieces on an information recording medium.

5,729,517

DATA DETECTING CIRCUIT

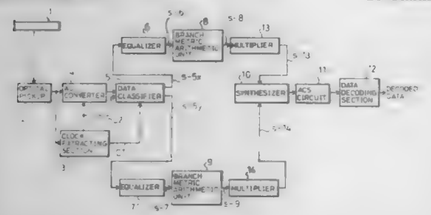
Tsuneo Fujiwara, Nara, and Tomiyuki Numata, Tenri, both of Japan, assignors to Sharp Kabushiki Kaisha, Osaka, Japan

Filed Oct. 28, 1996, Ser. No. 740,308

Claims priority, application Japan, Oct. 30, 1995, 7-281519; Jun. 25, 1996, 8-164191

Int. Cl.[6] H04N *5/76*

U.S. Cl. 369—59 **21 Claims**



1. A data detecting circuit for detecting data from a signal representing a data stream, comprising:

data stream generating means for quantizing and equalizing the signal at sampling points with different phases so as to generate a plurality of data streams having different partial response characteristics;

branch metric generating means for generating branch metrics representing probability of each state transition of the signal based upon the corresponding data stream and the partial response characteristic of the data stream;

branch metric synthesizing means for generating synthetic branch metrics corresponding to each state transition based upon the branch metrics generated by said branch metric generating means; and

data decoding means for Viterbi-decoding data based upon each of the synthetic branch metrics.

5,729,518

DIGITAL SIGNAL REPRODUCING APPARATUS AND METHOD FOR CORRECTLY REPRODUCING RECORDED DATA EVEN IF BOTH RANDOM NOISE AND SIGNAL DISTORTION CO-EXIST

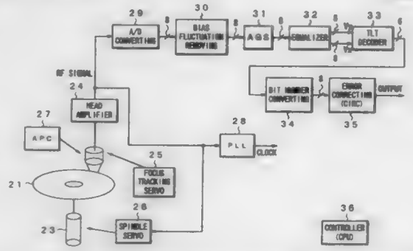
Seiji Kobayashi, Kanagawa, Japan, assignor to Sony Corporation, Tokyo, Japan

Filed Dec. 19, 1996, Ser. No. 770,589

Claims priority, application Japan, Dec. 22, 1995, 7-350142

Int. Cl.[6] H04N *5/76*

U.S. Cl. 369—59 **4 Claims**



1. A digital signal reproducing apparatus for reproducing a multiple-record medal recorded on a record medium, comprising:

a plurality of recorded information assuming means for assuming record information and determining virtually recorded information;

reproduced signal estimating means for estimating the amplitude of a reproduced signal corresponding to the virtually recorded signal;

distance calculating means for calculating the distance between the estimated reproduced signal and a real reproduced signal; and

decoding means for calculating the sum of a plurality of outputs of said distance calculating means, the plurality of outputs chronologically varying, detecting the minimum output from the sum, and outputting reproduced data corresponding to the detected result.

5,729,519

OPTICAL HEAD INCLUDING A SEMICONDUCTOR LASER HAVING A NON-SCATTER AREA TO DIFFUSE INCIDENT LIGHT BEAMS

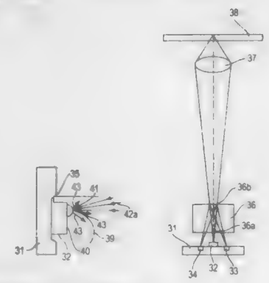
Hideyuki Nakanishi, Kyoto; Akira Ueno, Katano; Hideo Nagai, Takatsuki, and Akio Yoshikawa, Ibaraki, all of Japan, assignors to Matsushita Electronics Corporation, Takatsuki, Japan

Division of Ser. No. 217,722, Mar. 25, 1994, Pat. No. 5,517,479. This application May 13, 1996, Ser. No. 645,488

Claims priority, application Japan, Mar. 26, 1993, 5-068335

Int. Cl.[6] G11B *7/00;* **G02B** *5/32*

U.S. Cl. 369—109 **4 Claims**



1. An optical head comprising:

a semiconductor laser;

a substrate having a hollow thereon, mounting the semiconductor laser in the hollow;

a mirror for reflecting a light beam emitted from said semiconductor laser so as to reflect an optical path of said light beam, said mirror formed on a side wall of the hollow;

a diffraction grating for dividing said light beam reflected from said mirror into three beams in which there are zero-order, plus first-order, and minus first-order beams;

a holographic diffraction grating being arranged at an optical path of said three beams divided by said diffraction grating;

an objective lens for focusing said three beams on an optical recording medium;

a photodetector for detecting a tracking error signal by receiving said three beams diffracted by said holographic diffraction grating;

wherein,

said semiconductor laser is mounted on the substrate faced to said diffraction grating, at a place where either of said plus first-order beam or said minus first-order beam reflected from said optical recording medium illuminates a surface of the semiconductor laser,

said surface of the semiconductor laser illuminated by either of said first order beams is made to deflect light.

5,729,520

INSPECTION OF AN OPTICAL DISC WITH A LIGHT BEAM WHICH IS REFLECTED BY THE DISC AND EXPOSED TO TWO PHOTOSENSITIVE RECEIVERS

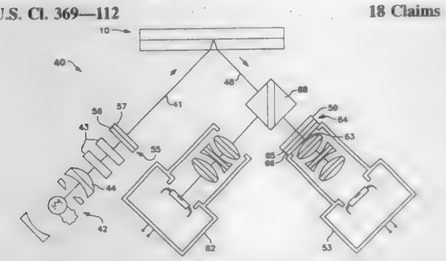
Jürgen Klicker, Hoisdorf, Germany, assignor to Basler GmbH, Ahrensburg, Germany

Filed Sep. 21, 1995, Ser. No. 531,693

Claims priority, application Germany, Sep. 27, 1994, 44 34 474.0

Int. Cl.[6] G11B *7/125*

U.S. Cl. 369—112 **18 Claims**



1. A method for optically testing an optical disc, a compact disc or the like which has a transparent layer, comprising the steps of:

emitting a light beam from a light source;

polarizing said light beam with a type of polarization;

projecting said light beam, after said light beam is polarized, onto the optical disc such that said light beam is reflected by the optical disc;

splitting said light beam reflected by the optical disc into a first part and a second part;

exposing said first part of said splitted light beam to a first photosensitive receiver;

filtering from said second part of said splitted light beam a portion which corresponds in polarization to said type of polarization used to polarize said light beam before said light beam was projected onto the optical disc; and

exposing said portion of said second part of said splitted light beam to a second photosensitive receiver.

5,729,521

OPTICAL HEAD UNIT FOR GUIDING A LIGHT BEAM MORE RELIABLE TO A CENTER OF A TRACK OF AN OPTICAL DISK

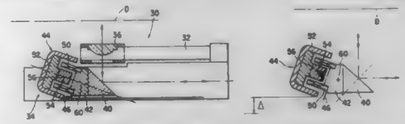
Hideki Otsuka, Hiratsuka, Japan, assignor to Kabushiki Kaisha Toshiba, Kawasaki, Japan

Filed Mar. 19, 1996, Ser. No. 617,629

Claims priority, application Japan, Jul. 31, 1995, 7-195115

Int. Cl.[6] G11B *7/00*

U.S. Cl. 369—112 **19 Claims**



1. An optical head unit for use in a data read/write apparatus comprising:

means for reflecting light emitted from a light source, to a recording medium;

means for supporting the reflecting means such that said reflecting means has a center of rotation located on a point on an extended portion of an optical axis between said reflecting means and the light source, the extended portion being defined by extending the optical axis through the reflecting means such that the optical axis and the extended portion are on a single line; and

means for rotating said supporting means about the center of rotation.

5,729,522

OPTICAL PICKUP APPARATUS

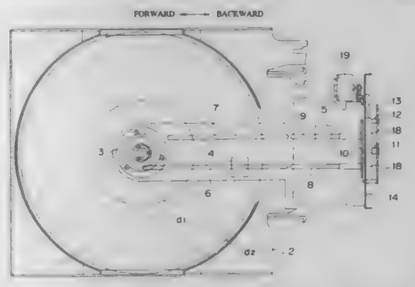
Yusuke Akama; Isami Kenmotsu; Tomonari Ishikawa; Osamu Yagisawa, and Katsuhiko Tanimoto, all of Tokorozawa, Japan, assignors to Pioneer Electronic Corporation, Tokyo, Japan

Filed Nov. 12, 1996, Ser. No. 748,029

Claims priority, application Japan, Nov. 13, 1995, 7-294611

Int. Cl.[6] G11B *7/00; 11/00*

U.S. Cl. 369—112 **7 Claims**



1. An optical pickup apparatus for an optical disk recording and/or reproducing apparatus, which records and/or reproduces information on an information record surface of an optical disk loaded thereto, said optical pickup apparatus comprising:

a base having a pair of plate portions opposed to each other between which said loaded optical disk is positioned;

two types of optical pickups for at least two types of optical disks respectively;

first and second guiding rails arranged substantially parallel to each other and disposed on said plate portions of said base respectively such that the information record surface of said loaded optical disk is disposed between said first and second guiding rails, for respectively guiding said optical pickups along the information record surface of said loaded optical disk in a radial direction of said loaded optical disk;

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first and second retracting rails respectively connected to said first and second guiding rails, for retracting thereonto said optical pickups from said first and second guiding rails through linkages with said first and second guiding rails respectively;

a rotator frame for holding said first and second retracting rails;

a swinger frame, for holding said rotator frame through a first spindle parallel to said first and second retracting rails, held by said base through a second spindle parallel to said first spindle;

a swinging mechanism for swinging said swinger frame around said second spindle; and

a rotating mechanism for rotating said rotator frame and for swapping said first and second retracting rails to each other after said swinging mechanism swings said swinger frame toward one direction.

5,729,523

RECORDING MEDIUM, RECORDING METHOD, RECORDING/REPRODUCING APPARATUS, AND CUTTING APPARATUS

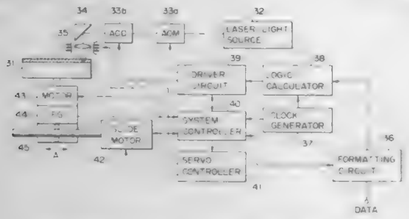
Hideyoshi Horimai, Kanagawa, Japan, assignor to Sony Corporation, Tokyo, Japan

Continuation of Ser. No. 623,056, Mar. 28, 1996, which is a continuation of Ser. No. 430,183, Apr. 27, 1995, abandoned, which is a continuation of Ser. No. 118,635, Sep. 10, 1993, abandoned. This application Jan. 24, 1997, Ser. No. 786,982

Claims priority, application Japan, Sep. 11, 1992, 4-269234

Int. Cl.[6] G11B *7/00*

U.S. Cl. 369—124 **1 Claim**



1. A recording/reproducing apparatus comprising:

a light source for irradiating a light output to a recording medium including a recording track having a data area having data pits formed therein at a predetermined clock frequency, and a servo area, said servo area having a plurality of pits longitudinally arranged substantially collinearly along a centerline of the recording track wherein each servo area a phase deviation π is formed between said clock pit and said wobbling pits and one of said clock pit and said wobbling pits is in phase with said predetermined clock frequency to enable detection of said servo area;

a photoelectric conversion means for receiving the light emitted from said light source and reflected from or transmitted through said recording medium, and converting the received light into an output RF signal;

a signal conversion means for converting the output RF signal of said photoelectric conversion means into a first binary signal corresponding to said plurality of pits formed on said recording medium; and

a detection means for detecting the phase deviation of the first binary signal outputted from said signal conversion means to detect said servo area on said recording medium;

said detection means includes a delay circuit for delaying the first binary signal by a time length equivalent to an odd multiple of one half of the period between data pits formed at said predetermined clock frequency, and producing a delayed binary signal, and an AND gate for receiving the delayed binary signal and said first binary signal and creating a logic signal product therefrom;

a timing generation for receiving said logic product signal and creating a control signal;

a servo circuit for receiving said RF signal in response to said control signal outputted from said timing generator and for executing a servo action in response to said RF signal;

wherein data is recorded or reproduced while a servo action is executed in accordance with the plurality of pits in the servo area detected by said detection means.

5,729,524

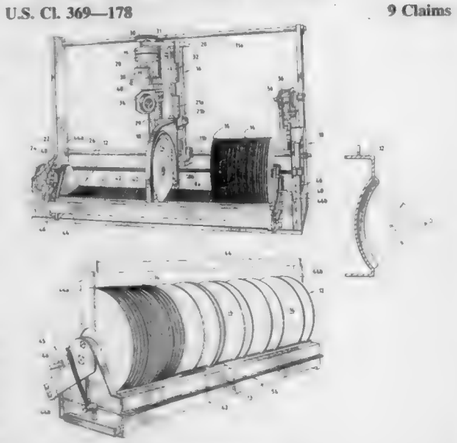
OPTICAL DISC CHANGER ASSEMBLY

Andrew J. Pines, Highland Park, and Edward E. Pellegrini, Palatine, both of Ill., assignors to P & P Marketing, Inc., Chicago, Ill.

Division of Ser. No. 281,515, Jul. 28, 1994, Pat. No. 5,586,094. This application May 20, 1996, Ser. No. 650,742

Int. Cl.[6] G11B *17/04;17/22*

U.S. Cl. 369—178 **9 Claims**



1. An optical disc changer comprising:

an optical disc player;

a magazine for holding discs in a substantially vertical position;

a disc transporter for moving an optical disc from said magazine to said optical disc player for play, and for returning said disc to said magazine after said disc has been played;

said magazine comprising a tray having a plurality of grooves, each of said grooves having a generally v-shaped cross-section, said grooves defining an arc having substantially the same radius as the radius of the optical disc;

said grooves being positioned to underlie the disk on both sides of an imaginary vertical line extending through the center of the disc substantially below and not above an imaginary horizontal line extending through the center of the disc so that the discs are picked up and moved by the disc transporter;

said grooves being defined to enable discs to rest within the grooves and be held only by gravity and friction.

5,729,525

TWO-LAYER OPTICAL DISK

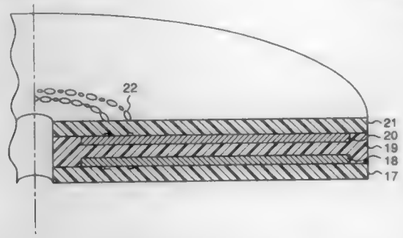
Takashi Ishida, Yawata; Mamoru Shoji, Takatsuki; Shunji Ohara, Higashiosaka; Shinichi Konishi, Hirakata; Yoshito Aoki, Moriguchi; Yoshiyuki Miyabata; Yuji Hisakado, both of Osaka, and Hironori Deguchi, Kadoma, all of Japan, assignors to Matsushita Electric Industrial Co., Ltd., Osaka, Japan

Filed Jun. 20, 1996, Ser. No. 666,945

Claims priority, application Japan, Jun. 21, 1995, 7-154306

Int. Cl.[6] G11B *7/00*

U.S. Cl. 369—275.3 **15 Claims**



1. A two-layer optical disk, comprising:

a first layer of a disk-shaped recording medium for storing data;

a second layer of a disk-shaped recording medium, positioned over said first layer, for storing data;

a plurality of data blocks stored in said first layer; and

a plurality of data blocks stored in said second layer, said data blocks in said first layer and in said second layer being alternately linked to present one stream of information, odd data blocks being stored in one of said first layer and said second layer, and even data blocks being stored in an other of said first layer and said second layer, wherein a seek distance is less than a radius of a total recording area of said optical disk.

5,729,526

ASYNCHRONOUS TRANSFER MODE TYPE MULTIMEDIA RADIOCOMMUNICATION SYSTEM

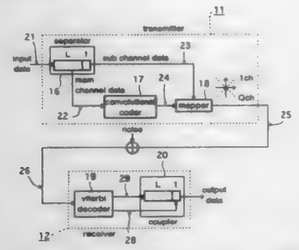
Makoto Yoshida, Kawasaki, Japan, assignor to Fujitsu Limited, Kanagawa, Japan

Filed Jun. 14, 1996, Ser. No. 663,895

Claims priority, application Japan, Oct. 31, 1995, 7-282982

Int. Cl.[6] H04J *3/02*

U.S. Cl. 370—206 **7 Claims**



1. An asynchronous transfer mode type multimedia radiocommunication system including a transmitter and a receiver connected to the transmitter via an asynchronous transfer mode network and wherein accesses to two channel data which are communicated by radio and have different levels of communication quality, are performed by the asynchronous transfer mode network, said transmitter comprising:

a separator for separating input data into L-bit main channel data and one-bit sub channel data;

a convolutional coder for convolutionally coding the main channel data; and

a mapper for mapping the convolutionally-coded binary information of the main channel onto crossed I and Q channel axes by switching every L bits of the main channel data in response to the sub channel data, thereby enabling transmission of an additional information corresponding to the sub channel data of 1/L of a transmission rate.

5,729,527

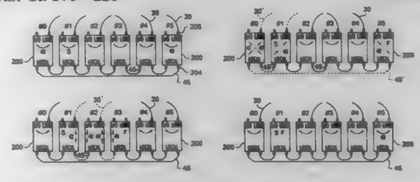
FAULT MANAGEMENT IN A MULTICHANNEL TRANSMISSION SYSTEM

Ornan Alexander Gerstel, Riverdale, N.Y.; William Eric Hall, Clinton, Conn.; Rajiv Ramaswami, Ossining, N.Y., and Galen Hajime Sasaki, Honolulu, Hi., assignors to Tellabs Operations, Inc., Lisle, Ill.

Filed Mar. 19, 1996, Ser. No. 618,652

Int. Cl.[6] H04L *12/50*

U.S. Cl. 370—228 **11 Claims**



1. A fault tolerant multichannel communications system having a plurality of communication channels transmitted over a transmission medium, said communications system comprising:

(a) a plurality of line cards 0.1, . . . ,N−1 at each end of a transmission medium, with one of said line cards at each end of said transmission medium for each of said channels and with one of said line cards s at each end of said medium being designated as a spare line card, each said line card having a plurality of local ports, a link port, and a input/output port;

(b) a plurality of switches with one switch at each end of said medium for each of said line cards, each switch capable for interconnecting a link port of a corresponding one of said line cards to an I/O port or a local port of said corresponding one line card, and each switch also capable of interconnecting said I/O port to either said link port or a local port of said corresponding one line card, with a local port of each line card i being hard wired to a local port of line card i+1 mod N and a local port of line card i−1 mod N; and

(c) means for rerouting the I/O of a failed line card f as follows: for each line card i belonging to a set {s,f) of line cards, switching the I/O port of line card (i+1) mod N to a link port of line card i, where s≠f, where said set {s,f) is the set of all line cards such that

$$\{s,f) = \begin{cases} \{s, s+1, \ldots, f-1\}, & \text{if } s<f; \\ \{s, s+1, \ldots, N-1, 0, 1, \ldots, f-1\}, & \text{if } s>f; \\ \emptyset, & \text{if } s=f. \end{cases}$$

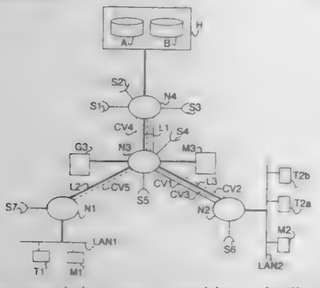
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5,729,528

DATA TRANSMISSION SYSTEM HAVING A MONITORING FUNCTION FOR MONITORING THE CONGESTION OF LINKS AND NODE INTENDED TO BE USED IN SUCH A SYSTEM

Daniel Salingre, 77, rue Toulouse-Lautrec, 91300 Massy, France, and Armel Davoult, 14, rue Paul Fort, 78140 Velizy, France

Filed Sep. 6, 1995, Ser. No. 523,832
Claims priority, application France, Sep. 7, 1994, 94 10724
Int. Cl.° H04J *3/14;* **H04L** *12/56*
U.S. Cl. 370—230 **6 Claims**



1. A data transmission system comprising a plurality of nodes interconnected by links for establishing communications that relate at least to file transfer applications and transaction applications, certain ones of said plurality of nodes having at least one access to a switched network, wherein each of the certain ones of said plurality of nodes comprises:

stream splitting means for establishing separate communications for file transfer applications and for transaction applications,

means for forming a group of at least one communication that corresponds to a local file transfer application,

measuring means for measuring a load caused by a formation of a group by said group forming means, and

means for switching, at least partly, said group onto the switched network when said load is higher than a first level called high level, and as long as said load remains higher than a second level called low level.

5,729,529

TIMING AND SYNCHRONIZATION TECHNIQUE FOR ATM SYSTEM

Lars Olle Martinsson, Vanersborg, Sweden, assignor to Telefonaktiebolaget LM Ericsson (publ.), Stockholm, Sweden

Filed Dec. 29, 1995, Ser. No. 581,325
Claims priority, application Sweden, Jul. 6, 1995, 9502468-3
Int. Cl.° H04L *12/56*
U.S. Cl. 370—235 **38 Claims**

1. In an Asynchronous Transfer Mode (ATM) telecommunications network, a method for regulating the time of transmission of ATM cells over several virtual connections operating at various data rates, said method comprising the steps of:

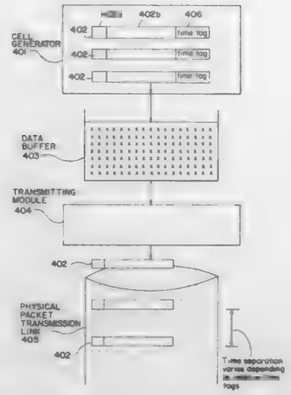
generating an extended ATM cell by relating each ATM cell to be transmitted to a timing tag, each ATM cell having a data portion and a header portion, said timing tag being indicative of the time at which the ATM cell is to be transmitted relative to the time of transmission of the immediately preceding ATM cell;

storing each ATM cell in a sequentially-accessible buffer;

generating an empty cell position (ECP) pattern containing information indicative of a user-selectable delay time for the transmission of the next ATM cell;

storing zero or more ECP patterns in said buffer after each ATM cell, the number and contents of said ECP patterns corresponding to the desired time delay before the transmission of the next ATM cell in said buffer;

reading data from the output of said buffer; and



transmitting each ATM cell emerging from said buffer towards its destination after a delay time period that is determined by the number and contents of the ECP patterns preceding that ATM cell.

5,729,530

ATM SWITCH

Kenji Kawaguchi, Chigasaki; Kenji Kawakita, Urawa, and Hiroshi Izuha, Yokohama, all of Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Filed Dec. 6, 1995, Ser. No. 568,363
Claims priority, application Japan, Dec. 7, 1994, 6-303343
Int. Cl.° H04L *12/56*
U.S. Cl. 370—236 **6 Claims**

4. An ATM switch which is designed in such a way that an input cell which has been received through an input line is temporarily stored, and then is outputted to one of output lines which is determined on the basis of header information of said input cell, said ATM switch comprising:

a cell discard controlling circuit for determining whether a cell is to be discarded or not for each input cell; and

a transmission circuit, responsive to discarding of a first cell by said discard controlling circuit, for sending a second cell to a reception terminal of said first cell to inform the reception terminal of the first cell discard.

5,729,531

BANDWIDTH ALLOCATION

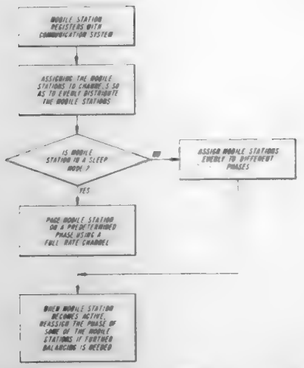
Alex Krister Raith, Durham, N.C.; Alan Eric Sicher, Garland, Tex.; Lars Billström, Solna, Sweden; John Diachina, Garner; Raymond C. Henry, Wake Forest, both of N.C.; Karl-Erik Andersson, Stockholm, Sweden, and Steven Prokup, Cary, N.C., assignors to Telefonaktiebolaget LM Ericsson, Stockholm, Sweden

Filed Oct. 18, 1995, Ser. No. 544,490
Int. Cl.° H04Q *7/36*
U.S. Cl. 370—252 **9 Claims**

1. A method for assigning mobile stations to phases within a channel in a communication system, comprising the steps of:

distributing mobile stations among available channels prior to or after registration so that said mobile stations are approximately evenly distributed before said mobile stations begin communicating with the system;

assigning mobile stations to predetermined phases within their assigned channel; and



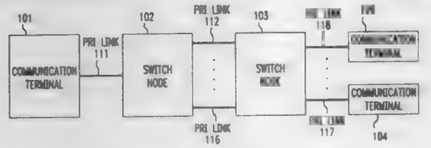
reassigning mobile stations to different phases within their assigned channel to further distribute the mobile stations once the mobile stations begin communicating with the system.

5,729,532

SELECTIVE PARTICIPATION IN A MULTIMEDIA COMMUNICATION CONFERENCE CALL

Bruce Merrill Bales, Louisville, and Stephen Max Thieler, Boulder, both of Colo., assignors to Lucent Technologies Inc., Murray Hill, N.J.

Filed May 26, 1995, Ser. No. 451,297
Int. Cl.° H04J *3/12*
U.S. Cl. 370—261 **10 Claims**



1. A method for controlling participation in a multimedia conference call through a plurality of switch nodes by a telecommunication terminal via a telecommunications call path, and the multimedia conference call includes a plurality of telecommunication terminals and has a plurality of participation functions, the method comprising the steps of:

detecting an indication from a user of the telecommunication terminal to modify the number of the plurality of participation functions utilized by the telecommunication terminal;

modifying the number of the plurality of participation functions utilized by the telecommunication terminal by transmission of a message for changing the telecommunication bandwidth through out the telecommunication call path interconnecting the telecommunication terminal into the multimedia conference call whereby each of the plurality of switch nodes in the call path is responsive to that message to change the telecommunication bandwidth; and

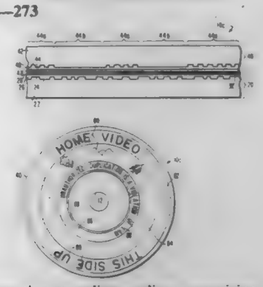
signaling completion of the modification of the number of the plurality of participation functions to the user of the telecommunication terminal.

5,729,533

TWO-SIDED, LIGHT-READABLE INFORMATION RECORDING DISC STACKS AND METHODS OF MAKING SAME

Richard C. Marquardt, Olyphant, Pa., assignor to WAE Manufacturing Inc., Olyphant, Pa.

Filed Dec. 27, 1995, Ser. No. 579,302
Int. Cl.° G11B *3/70;7/26*
U.S. Cl. 369—273 **4 Claims**



1. An information recording medium comprising:

a first substantially transparent plastic disc having a first substantially planar surface and a second surface opposite to said first surface, said second surface having information recorded on it by means of local changes in the distance of said second surface from said first surface;

a first light reflecting coating on said second surface for reflecting light passed through said first disc back through said first disc, said first coating conforming to said local changes of said second surface so that said light is reflected back through said first disc in accordance with the information recorded by means of said local changes;

a second substantially transparent plastic disc of approximately the same thickness as said first disc, said second disc having opposite, substantially planar, third and fourth surfaces, said second disc being stacked on and secured to said first disc so that said third surface faces toward said second surface; and

indicia on said second disc that are visible by viewing said fourth surface for visibly providing a user of said recording medium with identifying information related to the recording medium, said indicia being formed by means of variations in the thickness of the plastic of said second disc produced via local changes in the distance of said third surface from said fourth surface; wherein said indicia comprise local modifications of said third surface.

5,729,534

DYNAMIC ALLOCATION OF RADIO CAPACITY IN A TDMA SYSTEM

Harri Jokinen, Hiisi; Jari Hamalainen, Tampere, and Harri Posti, Oulu, all of Finland, assignors to Nokia Mobile Phones Limited, Finland

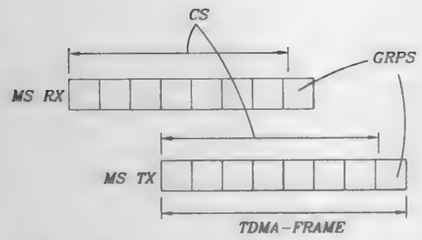
Filed Jan. 4, 1996, Ser. No. 582,915
Claims priority, application Finland, Jan. 9, 1995, 950097
Int. Cl.° H04B *7/212*
U.S. Cl. 370—280 **20 Claims**

1. A method for dynamic division of radio capacity between packet radio service and circuit switched service in a TDMA system in which two-way traffic between base transceiver stations and mobile stations takes place in time slots on predetermined channels, characterized in that:

in a basic mode a base transceiver station reserves a first predetermined number of time slots for packet radio service and a second predetermined number of time slots for circuit-switched service on said predetermined channels, and that

on the basis of a predetermined criterion, said base transceiver station allocates at least one additional time slot to one of the packet radio service and circuit switched service, said predetermined criterion comprising any one of the following:

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a new packet radio connection is set up; an existing packet radio connection is terminated;

a new packet radio session is set up; an existing packet radio session is terminated;

a handover concerning a certain mobile station is performed; and

a certain threshold value is reached in a traffic measurement performed at said base transceiver station.

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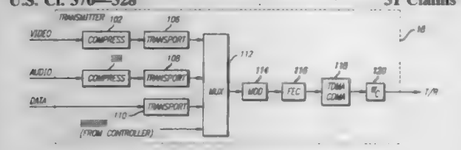
METHOD AND APPARATUS FOR ADAPTING A COMPUTER FOR WIRELESS COMMUNICATIONS

Michael D. Rostoker, Boulder Creek; John Daane, Saratoga, and Sandeep Jaggi, San Jose, all of Calif., assignors to LSI Logic Corporation, Milpitas, Calif.

Filed Dec. 29, 1995, Ser. No. 581,676

Int. Cl.° H04N *7/04*

U.S. Cl. 370—328 **31 Claims**



1. A computer, comprising:

digital transceiver means operable to transmit and receive compressed video signals and compressed audio signals over a fixed bandwidth;

bandwidth determination means coupled to said transceiver means and responsive to a received transmission request signal for determining the fixed bandwidth for effecting wireless communications;

bandwidth allocation means coupled to said transceiver means for allocation of a certain portion of the determined fixed bandwidth for the compressed audio signals and another certain portion of the determined fixed bandwidth for the compressed video signals;

variable audio compression means responsive to said bandwidth allocation means for varying the compression rate of audio signals to be transmitted over said fixed bandwidth;

variable video compression means responsive to said bandwidth allocation means for varying the compression rate of video signals to be transmitted over said fixed bandwidth;

microprocessor means coupled to said transceiver means and responsive to a received transmission request signal for determining what portion of the determined fixed bandwidth to allocate to said compressed audio signals and to said compressed video signals; and wherein

said bandwidth allocation means includes a computer memory for programming the microprocessor means to dynamically allocate the determined fixed bandwidth among the video and audio signals, the dynamic allocation being performed by varying the rates at which the audio and video signals are compressed.

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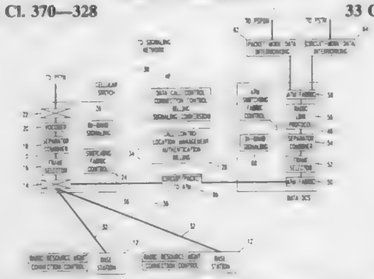
CELLULAR SYSTEM ARCHITECTURES SUPPORTING DATA SERVICES

Bharat Tarachand Doshi, Holmdel; Subrahmanyam Dravida, Freehold, both of N.J.; Richard Paul Ejzak, Wheaton, Ill.; Sanjiv Nanda, Plainsboro, N.J.; Anil Sawkar, Bedminster, N.J., and Philip Andrew Treventi, Murray Hill, N.J., assignors to Lucent Technologies, Murray Hill, N.J.

Filed Apr. 10, 1996, Ser. No. 630,147

Int. Cl.° H04Q *7/28*

U.S. Cl. 370—328 **33 Claims**



1. A method for introducing data and integrated voice/data services to a legacy digital cellular network having a plurality of base stations that communicate over an air interface with a plurality of terminal devices, a cellular switch having circuit-switching fabric in communication with a public switched telephone network (PSTN) and said base stations, where said cellular switch includes vocoders for voice calls, and a cellular call control processor that handles voice calls routed through said cellular switch, comprising the steps of:

deploying a data digital cellular switch (DCS) having ATM switching fabric and a radio link protocol processor, and deploying an associated data call control processor for handling data calls routed through said data DCS and said cellular switch;

deploying a plurality of radio ports having ATM interfaces, and deploying one or more standard hardware platforms implementing ATM transport that perform a plurality of call control functions including the handling of data calls from/to said base stations and radio ports, where data calls involving said radio ports are not routed through said cellular switch; and

deploying vocoders in said data DCS for processing voice calls involving said radio ports.

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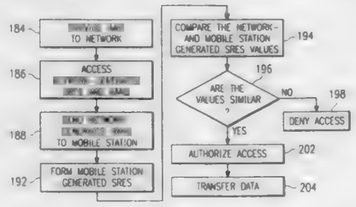
METHOD AND APPARATUS FOR PROVIDING ANONYMOUS DATA TRANSFER IN A COMMUNICATION SYSTEM

Lars Axel Billström, Solna, Sweden, assignor to Telefonaktiebolaget L M Ericsson (publ), Stockholm, Sweden

Filed Jun. 14, 1996, Ser. No. 664,571

Int. Cl.° H04L *9/32*

U.S. Cl. 370—329 **32 Claims**



31. In a communication system having a communication network for effectuating communication, an improvement of a first communication station, said first communication station for communicating with the communication network and being a group-identified communication station of a group of group-identified communication stations, each group-identified communication station of the group identified by a common group identifier, said first communication station comprising:

a group identifier signal generator for generating a group identifier signal of a value representative of at least the group identifier and not including any indicia of identity from which the communication network can ascertain the specific personal identity of the first communication station, said generator also transmitting the group identifier signal to the communication network;

a receiver for receiving communication network-generated response signals generated by the communication network responsive to transmission to the communication network of the group identifier signal by said group identifier signal generator; and

a station-coded signal generator coupled to receive indications of the communication-network generated response, said station-coded signal generator for forming a first station-coded signal responsive to reception of a second network-coded signal at the first communication station.

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DUAL MODE SATELLITE/CELLULAR TERMINAL

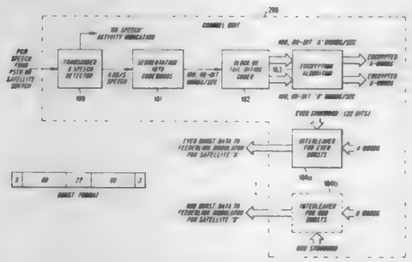
Paul W. Dent, Stehag, Sweden, assignor to Ericsson Inc., Research Triangle Park, N.C.

Division of Ser. No. 501,575, Jul. 12, 1995, Pat. No. 5,663,957.

This application Mar. 11, 1997, Ser. No. 816,046

Int. Cl.° H04B *7/212*

U.S. Cl. 370—347 **4 Claims**



1. A communications system for relaying digitally coded voice signals to each of a plurality of remote stations, comprising:

voice coding means for digitizing and coding voice signals to produce frames of digital data containing a fixed number of bits representing a segment of the voice signal over a time period and producing an associated voice/no voice flag;

error correction coding means for coding each of said voice frames to produce a first coded symbol block and a second coded symbol block each representing a respective one of said speech frames;

TDMA burst transmission means for relaying said first coded symbol blocks to respectively intended remote stations using an allocated timeslot in a repetitive TDMA frame period; and

control means for controlling said burst transmission means to replace a first coded symbol block when said associated flag indicates the no-voice condition by a second coded symbol block intended for a different remote station.

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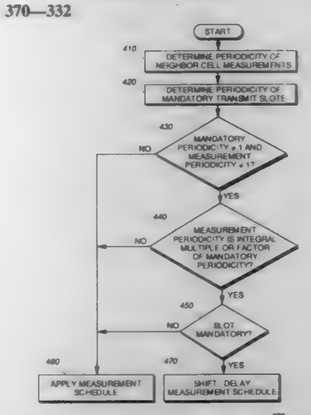
METHOD OF SCHEDULING SIGNAL QUALITY MEASUREMENTS IN A TDMA COMMUNICATION SYSTEM

David R. Heeschen, Coconut Creek; Jean Khawand, Miami, and Gordon W. James, Boynton Beach, all of Fla., assignors to Motorola, Inc., Schaumburg, Ill.

Filed May 3, 1996, Ser. No. 642,740

Int. Cl.° H04Q *7/00*

U.S. Cl. 370—332 **6 Claims**



4. In a time division multiple access communication system having communication frames with corresponding transmit time slots allocated to a transceiver, the transmit time slots including mandatory transmit slots, a method in the transceiver, comprising the steps of:

determining a timing pattern for the mandatory transmit slots; and

taking neighbor cell signal based measurements according to a schedule shifted based at least in part on the timing pattern of the mandatory transmit slots, including the steps of:

determining a measurement periodicity, with respect to the communication frames, for the neighbor cell measurements;

determining a mandatory transmit slot periodicity with respect to the communication frames;

delaying initiation of neighbor cell signal based measurements until a subsequent communication frame, when:

the transmit time slot for a current communication frame is a mandatory time slot; and

the measurement periodicity is an integral multiple of the mandatory transmit slot periodicity.

5,729,540

SYSTEM AND METHOD FOR SCHEDULING MESSAGES ON A COMMON CHANNEL

Jan K. Wegrzyn, San Diego, Calif., assignor to Qualcomm Incorporated, San Diego, Calif.

Continuation of Ser. No. 545,415, Oct. 19, 1995, abandoned.

This application Jan. 8, 1997, Ser. No. 780,473

Int. Cl.° H04J *3/16*

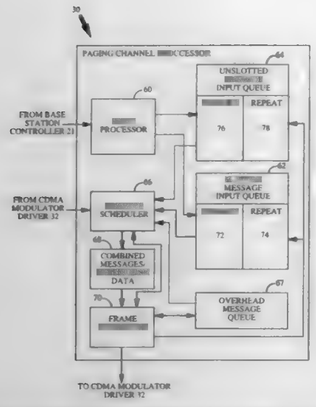
U.S. Cl. 370—336 **87 Claims**

1. A message processor apparatus that schedules messages for transmission in a telecommunications system, the apparatus comprising:

a slotted message input queue in which received slotted messages that must be sent during one of a subset of predetermined system time slots are stored prior to scheduling;

an unslotted message input queue in which received unslotted messages are stored prior to scheduling;

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a message scheduler that determines the sequence in which said slotted and unslotted messages are sent, such that no message remains indefinitely in either said slotted or said unslotted message input queue, by assembling a plurality of said slotted and unslotted input messages into a temporary combined messages block, wherein said message scheduler first considers said slotted messages in said slotted message input queue and then considers said unslotted messages in said unslotted message input queue for a current system time slot for which it is scheduling messages; and

a formatter that assembles said slotted and unslotted messages from said temporary combined messages block into data frames for transmission over a channel of said telecommunications system.

5,729,541

SYSTEM FOR TRANSMITTING PACKET DATA IN RADIO TELEPHONE TDMA SYSTEMS

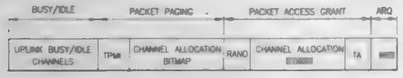
Jari Hamalainen, Tampere; Arto Karppanen, Helsinki; Zhi Chun Honkasalo, Vantaa; Harri Jokinen, Hiisi, and Wang Ling, Espoo, all of Finland, assignors to Nokia Mobile Phones Ltd., Salo, Finland

Filed Jun. 5, 1995, Ser. No. 462,160

Claims priority, application Finland, Jun. 8, 1994, 942702

Int. Cl.° H04Q *7/38;* **H04B** *7/212*

U.S. Cl. 370—337 **39 Claims**



1. A time division multiple access (TDMA) radio telephone system for transmitting packet data including:

a base station and a mobile station, and

at least one logical channel comprising TDMA slots for transmitting packet data communication between the base station and the mobile station, individual ones of the TDMA slots of the at least one logical channel occurring in a succession of physical TDMA frames,

the at least one logical channel having a control channel (C) comprising slots that are temporally spaced apart by a group of consecutive slots, and an information channel (I) comprising the group of consecutive slots that occur in successive physical TDMA frames and that separate the slots comprising the control channel (C), wherein the control channel (C) includes an acknowledge/retransmission request burst (ARQ) for indicating error-free received data.

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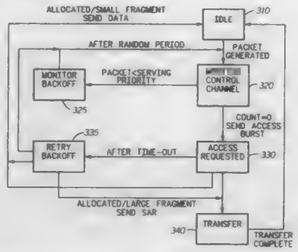
METHOD AND APPARATUS FOR COMMUNICATION SYSTEM ACCESS

Pierre B. Dupont, Whistler, Canada, assignor to Motorola, Inc., Schaumburg, Ill.

Continuation-in-part of Ser. No. 495,385, Jun. 28, 1995, and Ser. No. 522,649, Sep. 1, 1995. This application Nov. 21, 1995, Ser. No. 560,258

Int. Cl.° H04Q *7/30*

U.S. Cl. 370—346 **25 Claims**



1. A method of controlling access to a communication resource comprising:

(a) determining from system parameters a first persistence value for a first group of communication units and a second persistence value for a second group of communication units, the first group having a higher priority for communication than the second group; and

(b) transmitting an access control message including the first and second persistence values.

5,729,543

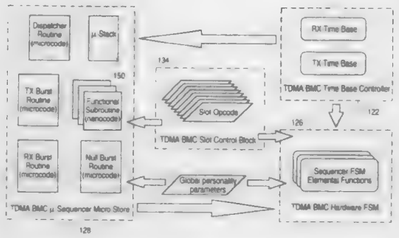
SEQUENCER EMPLOYING CONDITIONAL LOGIC IN A TDMA BURST MODE CONTROLLER

David L. Weigand, Sunnyvale, Calif., and Charles J. Malek, Crystal Lake, Ill., assignors to National Semiconductor Corporation, Santa Clara, Calif.

Continuation-in-part of Ser. No. 502,875, Jul. 17, 1995, Pat. No. 5,598,419. This application Mar. 21, 1996, Ser. No. 620,090

Int. Cl.° H04Q *07/20*

U.S. Cl. 370—347 **17 Claims**



1. A system for use in a TDMA communication network, said system transmitting and receiving bursts of data within time slots, said data in a slot being arranged in accordance with one or more protocols, said system including a sequencer comprising:

a microcode memory containing instructions;

a conditional logic circuit for receiving said instructions:

an operations code (opcode) memory for storing an opcode for one or more of said slots;

an opcode fetch circuit for conveying a selected opcode to said conditional logic circuit, said conditional logic circuit causing said microcode memory to proceed to

a selected address in said microcode memory based on said opcode; and

a logic circuit for carrying out said microcode instructions.

5,729,544

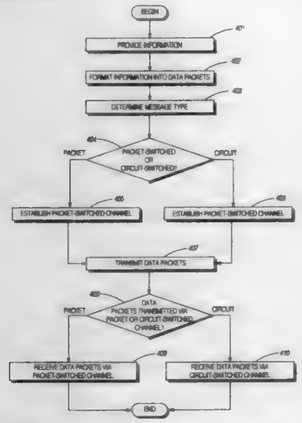
METHOD FOR TRANSMITTING DATA PACKETS BASED ON MESSAGE TYPE

Valy Lev; Rod Averbuch, and Israel A. Cimet, all of Buffalo Grove, Ill., assignors to Motorola, Inc., Schaumburg, Ill.

Filed May 9, 1994, Ser. No. 239,656

Int. Cl.° H04L *12/56*

U.S. Cl. 370—352 **6 Claims**



1. A method comprising the steps of:

providing information to be transmitted, which information comprises one message type of a plurality of message types as indicated by a TCP session header included in the information;

formatting the information into a plurality of data packets;

automatically selecting as between a circuit switched network and a packet switched network based on the one message type indicated by the TCP session header, wherein the circuit switched network is selected when a long type is indicated by the one message type, and wherein the packet switched network is selected when a short type is indicated by the one message type;

when the circuit switched network is selected, establishing a circuit switched channel and transmitting the plurality of data packets via the circuit switched channel;

when the packet switched network is selected, establishing a packet switched channel and transmitting the plurality of data packets via the packet switched channel.

5,729,545

CONTROL OF VIDEO DIALTONE CONNECTIONS

Roger Edward Libman, Naperville, Ill., assignor to Lucent Technolgies Inc., Murray Hill, N.J.

Filed Jan. 17, 1996, Ser. No. 588,673

Int. Cl.° H04L *12/00*

U.S. Cl. 370—384 **16 Claims**

1. A method of establishing a telecommunications connection from a terminal connected to an access switch, the access switch being connected to a broadband switch of a backbone network, to a server system connected to that backbone network, comprising the steps of:

in a communications controller separate from said backbone network and for controlling a plurality of switches of the backbone network, receiving via the access switch a first request message set from said terminal, the first request message set comprising data for identifying said server system;

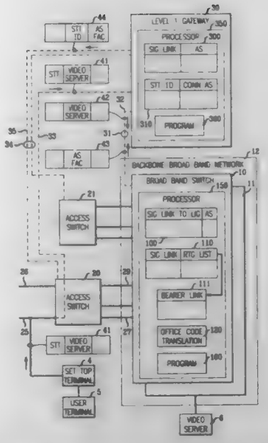
in said communications controller, identifying said access switch to which said terminal is connected;

from said communications controller, signaling via a second request message set to said broadband switch to establish a connection between said access switch and said server system, the request being transmitted over a first logical signaling link treated by said broadband switch as if it originated in the access switch;

responsive to receipt of said second request message set by said broadband switch, controlling establishment of the requested connection;

sending a response message set, over said first logical link, for identifying a path used for said connection to said access switch, from said broadband switch to said communications controller; and

over a second logical signaling link specific to said access switch, sending a third request message set from said communications controller to the access switch to connect the identified path to the terminal.



5,729,546

EXPANDABLE COMMUNICATION CELL BUS FOR MULTIPLEXING AND CONCENTRATING COMMUNICATION CELL TRAFFIC ONTO HIGH SPEED LINES

Amar Gupta, Cupertino; Joel Craig Naumann, Morgan Hill; Eduard Allen Price, Mountain View, and Shrish K. Sathe, Cupertino, all of Calif., assignors to Cisco Systems, Inc., San Jose, Calif.

Filed Jun. 21, 1995, Ser. No. 492,922

Int. Cl.° H04Q *11/00*

U.S. Cl. 370—434 **8 Claims**

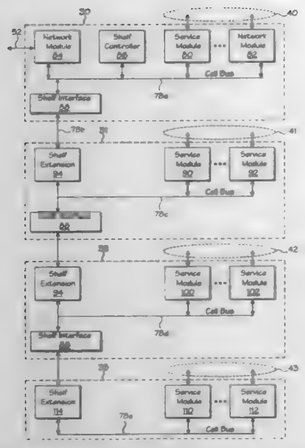
1. A communication interface, comprising:

a set of service modules each configured to accept communication traffic received over a set of low speed or narrow band communication links according to a first communication protocol and to convert the communication traffic to a series of first communication cells according to a second communication protocol;

a network module configured to receive the first communication cells and to transfer the first communication cells over a high speed communication link according to the second communication protocol; and

a cell bus coupling the network module to each of the service modules and configured as a unidirectional synchronous transmit bus, a unidirectional synchronous receive bus and a

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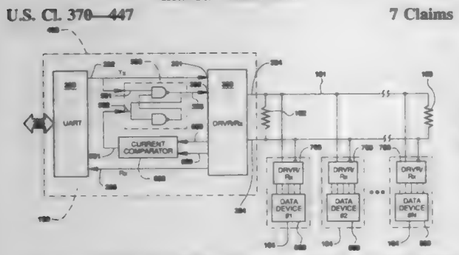
synchronous poll/grant bus, the cell bus adapted to transport the first communication cells according to the second communication protocol.

5,729,547

AUTOMATIC DRIVER/RECEIVER CONTROL FOR HALF-DUPLEX SERIAL NETWORKS

John C. Dute, Concord, Mich., assignor to Dutec, Inc., Jackson, Mich.

Filed Feb. 7, 1996, Ser. No. 597,939
Int. Cl.[6] H04B 1/38
U.S. Cl. 370—447 7 Claims



1. An apparatus for controlling a data communication data driver in a half-duplex serial network, wherein signals are transmitted in series formed of a first logic low start bit, a plurality of data bits, and a last logic high stop bit, the apparatus comprising:

at least first and second independent data driver means for driving data signals to be transferred, each having an enable input capable of two opposed logic states, the first state enabling data transmission by the respective first and second data driver means, and the second state disabling data transmission by the respective first and second data driver means;

first and second latch means, connected to the enable input of the first and second data driver means, respectively, for latching the state of a data driver means enable signal in one of two opposed logic states, the first and second latch means supplying the data driver means enable signal to the enable input of the first and second data drivers means, respectively, and maintaining the respective enable input in an enabling state when a start bit of data transmission is detected;

first and second receiver means, associated with the first and second data driver means, respectively, for receiving data signals transferred from one other of the first and second data driver means;

signal communication means shared by the first and second data driver means and the first and second receiver means for communicating data between one of the first and second data driver means and one of the first and second receiver means; and

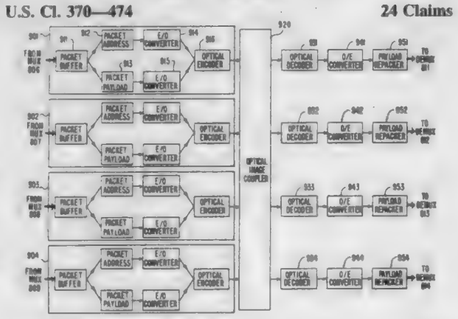
means, associated with the first and second data driver means, for detecting a start of data transmission on the signal communication means from the other of the first and second data driver means and for resetting to a second state the first and second latch means connected to another of the first and second data driver means which was the last data driver means to transmit signals on the signal communication means.

5,729,548

HIGH-SPEED OPTICAL DATA SWITCHING SYSTEM

Wlodek Holender, Lund, Sweden, assignor to Telefonaktiebolaget LM Ericsson (publ.), Stockholm, Sweden

Filed Dec. 29, 1995, Ser. No. 581,159
Int. Cl.[6] H04J 3/24
U.S. Cl. 370—474 24 Claims



1. A method for the high-speed switching of electronic data packets from one of a plurality of input ports of a switch to a selected one of a plurality of output ports, said method comprising the steps of:

separating a signal packet incoming at each port into a first time-domain electronic representation of the data-carrying portion of the signal and second time-domain electronic representation of the address-carrying portion of the signal;

transforming the time-domain electronic representations of each of said data portions and said address portions into separate first and second spatial optical image representations thereof, respectively;

modulating said first spatial optical image representation with said second spatial optical image representation to form a unified image that is associated with a specific packet received at each of said plurality of input ports;

multiplexing each of said unified images associated with an input port into a single composite image;

broadcasting said single composite image to a plurality of target sensors, each sensor being associated with a specific destination address of the incoming signal packet;

demultiplexing said composite image into a plurality of separate unified images each being associated with a specific output port, said demultiplexing being done by filtering said composite image using the address image portion corresponding to each destination data port for the incoming signal packet; and

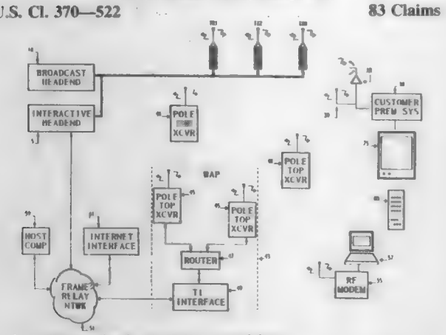
transforming each of said plurality of separate unified images received at each output port back into time-domain electronic form comprising an address portion and a data portion.

5,729,549

SIMULCASTING DIGITAL VIDEO PROGRAMS FOR BROADCAST AND INTERACTIVE SERVICES

Bruce Kostreski, Wheaton, Md., and Allan Schneider, Falls Church, Va., assignors to Bell Atlantic Network Services, Inc., Arlington, Va.

Continuation-in-part of Ser. No. 405,558, Mar. 16, 1995, Pat. No. 5,651,010. This application Jun. 19, 1995, Ser. No. 491,515
Int. Cl.[6] H04B 7/005; H04J 4/00
U.S. Cl. 370—522 83 Claims



1. A communication system comprising:

a headend system producing a signal containing multiplexed channels, each channel carrying a transport stream comprising multiplexed streams of digitized broadband information;

at least one broadband wireless transmitter for broadcasting the signal into a service area;

a two-way wireless packet data network;

a plurality of receiver systems within the service area, each receiver system comprising:

(i) an antenna for receiving a wireless transmission of the signal,

(ii) an interface module processing the received signal to select one of the channels and acquire a transport stream from the selected channel,

(iii) a digital signal processing section for processing digitized data from a selected stream of digitized broadband information contained in the acquired transport stream to present selected broadband information, and

(iv) an RF modem for two-way communication of signaling messages to and from the receiver system via the wireless packet data network,

wherein the interface module comprises:

means for selectively receiving the selected channel; and

means for demodulating a signal from the selected channel to acquire the transport stream from the selected channel,

wherein the RF modem is an element of the interface module.

5,729,550

DATA TRANSMITTER-RECEIVER

Kazunori Nakajima, Hadano; Noboru Masuda, Tokorozawa; Tadaaki Isobe, Hadano; Masamori Kashiyama, Isehara; Bunichi Fujita, and Masakazu Yamamoto, both of Hadano, all of Japan, assignors to Hitachi, Ltd., Tokyo, Japan

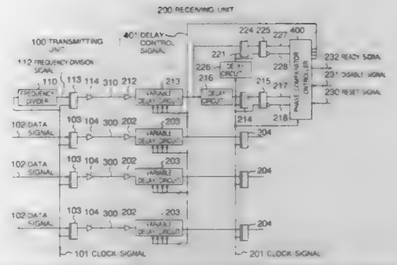
Filed Mar. 20, 1996, Ser. No. 618,787
Claims priority, application Japan, Mar. 24, 1995, 7-065545
Int. Cl.[6] G06K 5/04; G11B 5/00;20/20
U.S. Cl. 371—5.1 19 Claims

1. An information processing system comprising:

a first circuit for outputting a first digital signal in synchronism with a first clock;

a second circuit for retrieving said first digital signal in synchronism with a second clock of the same frequency as said first clock;

a signal communication path for transmitting said first digital signal from said first circuit to said second circuit;



a third circuit for retrieving said first digital signal in response to said second clock signal at a timing different from said second circuit;

a fourth circuit for changing the propagation time of said signal communication path;

a fifth circuit for comparing the first digital signal retrieved by said second circuit with the first digital signal retrieved by said third circuit and controlling said fourth circuit in accordance with said comparison; and

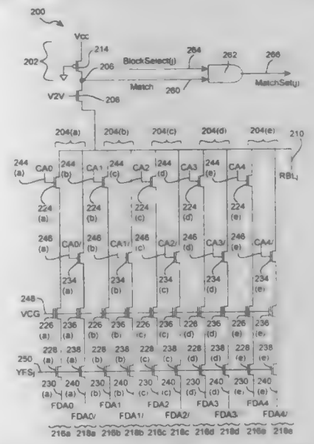
a sixth circuit for retrieving selected one of said first digital signal and a second digital signal transmitted together with said first digital signal at a timing intermediate between the timing of said second circuit retrieving said first digital signal and the timing of said third circuit retrieving said first digital signal.

5,729,551

SPACE EFFICIENT COLUMN DECODER FOR FLASH MEMORY REDUNDANT COLUMNS

Eung Joon Park, and Hsi-Hsien Hung, both of Fremont, Calif., assignors to Integrated Silicon Solution, Inc., Santa Clara, Calif.

Filed Dec. 17, 1996, Ser. No. 768,914
Int. Cl.[6] G11C 29/00
U.S. Cl. 371—10.3 5 Claims



1. A redundant column decoder circuit for comparing a n-bit stored defective address with a n-bit presented address and generating an output signal, said circuit comprising:

a pull-up path, and

a parallel combination of n pairs of complementary pull-down paths, connected to said pull-up path at an output node, said output signal being taken at said output node,

wherein each of said pair of pull-down paths comprises,

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a first pull-down path comprising a first non-volatile memory cell in series with and connected to a first address transistor, said first address transistor further connected to said output node, and

a second pull-down path comprising a second non-volatile memory cell in series with and connected to a second address transistor, said second address transistor further connected with said output node,

wherein at least one of said pull-down paths is conductive when said stored defective address does not match said presented address, and all of said pull-down paths are non-conductive when said stored defective address matches said presented address.

5,729,552

PROCESS CONTROL SYSTEM FOR ACTIVATING STORAGE DEVICE

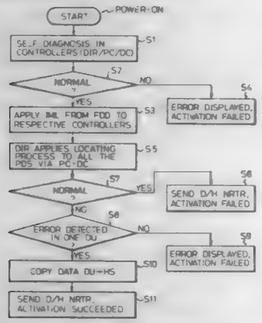
Keiichi Yorimitsu, Kawasaki, Japan, assignor to Fujitsu Limited, Kawasaki, Japan

Continuation of Ser. No. 435,082, May 4, 1995, abandoned, which is a continuation of Ser. No. 987,616, Dec. 9, 1992. This application Feb. 7, 1997, Ser. No. 796,954

Claims priority, application Japan, Dec. 13, 1991, 3-330342

Int. Cl.° G06F *11/00*

U.S. Cl. 371—21.1 **3 Claims**



1. An array storage device comprising:

a plurality of physical devices and a spare physical device;

distribution means for dividing a data block into a group of sub-data blocks;

parity means for generating an error correction code as a respectively corresponding additional sub-data block for each group of sub-data blocks, said distribution means respectively storing said group of sub-data blocks and said corresponding additional sub-data blocks on said plurality of physical devices;

reconstruction means for reconstructing a given sub-data block from said group of sub-data blocks into the spare physical device, when one of said physical devices storing the given sub-data block has failed, using remaining sub-data blocks from said group of sub-data blocks and the respectively corresponding additional sub-data block; and

means for executing an activation process during a background operation in said array storage device and for placing said array storage device in an on-line status after said activation process has been successfully completed, wherein said activation process includes a defect location process for moving a head in each of the physical devices to a specific location and determining if a failure occurs in one of said physical devices, and a data reconstruction process by said means for reconstructing the given sub-data block into said spare physical device.

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SEMICONDUCTOR INTEGRATED CIRCUIT WITH A TESTABLE BLOCK

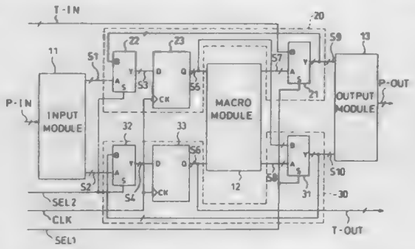
Akira Motohara, Hyogo, Japan, assignor to Matsushita Electric Industrial Co., Ltd., Osaka, Japan

Division of Ser. No. 518,961, Aug. 24, 1995. This application Jul. 19, 1996, Ser. No. 684,066

Claims priority, application Japan, Aug. 29, 1994, 6-203842

Int. Cl.° G01R *31/28*

U.S. Cl. 371—22.5 **1 Claim**



1. A semiconductor integrated circuit comprising a first block, a second block and a third block that are cascaded to one another and a test unit for testing the first, second and third blocks,

wherein the test unit includes:

a first multiplexer for selecting one of a test input signal supplied from an outside of the semiconductor integrated circuit and a part of an output signal of the second block, and supplying the selected signal to the third block;

a second multiplexer for selecting one of the signal selected by the first multiplexer and a part of an output signal of the first block;

a first control register for latching the signal selected by the second multiplexer synchronously with a clock signal and supplying the latched signal to the second block;

a third multiplexer for selecting one of the signal latched by the first control register and another part of the output signal of the second block, and supplying the selected signal to the third block;

a fourth multiplexer for selecting one of the signal selected by the third multiplexer and another part of the output signal of the first block; and

a second control register for latching the signal selected by the fourth multiplexer synchronously with the clock signal and supplying the latched signal to the second block.

5,729,554

SPECULATIVE EXECUTION OF TEST PATTERNS IN A RANDOM TEST GENERATOR

Duncan Weir, and Russell C. Brockmann, both of Fort Collins, Colo., assignors to Hewlett-Packard Co., Palo Alto, Calif.

Filed Oct. 1, 1996, Ser. No. 720,604

Int. Cl.° G06F *11/00*

U.S. Cl. 371—27 **10 Claims**

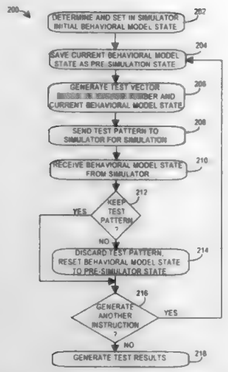
1. A computer-based test system for generating and improving the effectiveness of test cases for a model or an implementation of a computer architecture, comprising:

an architectural model configured to model the requirements of the computer architecture;

a behavioral model configured to model the implementation of the computer architecture, the behavioral model designed to conform with the computer architecture;

a simulator configured to simulate the operation of the behavioral model in response to a test pattern and to provide a behavioral model state;

a random test generator configured to test aspects of the architectural model and to generate and provide the test pattern to the simulator according to the behavioral model state provided by the simulator, wherein said random test generator



includes the ability to store a pre-simulation behavioral model state and reset said simulator to said pre-simulation behavioral model state at a later time;

whereby the random test generator has the ability to set an initial behavioral model state, control execution of the simulator, and produce a test case comprising an initial behavioral model state, a sequence of test patterns, and an expected final behavioral model state.

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METHOD AND APPARATUS FOR TESTING OUTPUT DEVICE

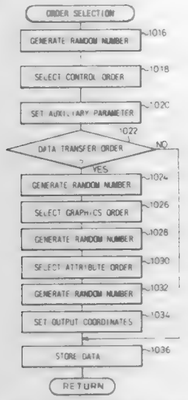
Hiroyasu Ichikawa, Yokohama, Japan, assignor to Fujitsu Limited, Kawasaki, Japan

Continuation of Ser. No. 274,690, Jul. 14, 1994, abandoned. This application May 12, 1997, Ser. No. 854,478

Claims priority, application Japan, Oct. 7, 1993, 5-251804

Int. Cl.° G01R *31/28*

U.S. Cl. 371—27 **8 Claims**



1. A method of testing an output device which operates based on a plurality of orders, the method comprising the steps of:

a) generating a random number;

b) setting a frequency of occurrence for each of the plurality of orders;

c) determining a random number range for each of the orders based on the frequency of occurrence;

d) selecting one order from among the plurality of orders when the random number falls within a random number range corresponding to the selected order;

e) repeating steps a) through d) a predetermined number of times to generate a test pattern containing a plurality of orders; and

f) storing the generated test pattern.

5,729,556

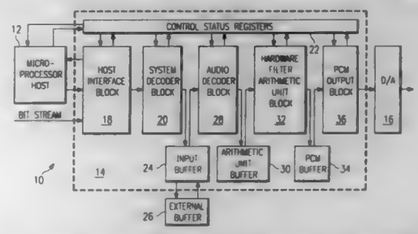
SYSTEM DECODER CIRCUIT WITH TEMPORARY BIT STORAGE AND METHOD OF OPERATION

Gerard Benbassat, St. Paul de Vence, France; Frank L. Laczko, Sr., Allen, Tex.; Stephen H. Li, Garland, Tex.; Karen L. Walker, and Shiu Wai Kam, both of Richardson, Tex., assignors to Texas Instruments, Dallas, Tex.

Continuation-in-part of Ser. No. 21,007, Feb. 22, 1993. This application Apr. 26, 1993, Ser. No. 54,127

Int. Cl.° G06F *11/00;* **H04N** *7/68*

U.S. Cl. 371—31 **26 Claims**



1. A data processing system for processing an encoded bit stream retrieved from storage in a first buffer circuit as frames of data containing at least encoded audio data with scale factor information and for outputting processed data to a second buffer circuit, comprising:

an arithmetic logic unit for performing arithmetic and logical operations;

an execution control state machine coupled to said arithmetic logic unit for directing the performance of said arithmetic and logical operations;

an instruction memory for storing sequences of microcode instructions executable by said system to process the encoded bit stream by retrieving one of said frames of data from said first buffer circuit and decoding said retrieved data and outputting said scale factor information and coded sample information for said retrieved data to said second buffer circuit; and

wherein said instruction memory stores error concealment routines selectable and executable by said system to output data other than the frame currently being processed when it is determined by said system that said current frame contains an error.

5,729,557

CELLULAR COMMUNICATION SYSTEM WITH MULTIPLE CODE RATES

Steven H. Gardner, San Diego; James E. Petranovich, and C. Thomas Hardin, both of Encinitas, all of Calif., assignors to Pacific Communication Systems, Inc., San Diego, Calif.

Filed Oct. 12, 1995, Ser. No. 542,541

Int. Cl.° H03M *13/00;13/12*

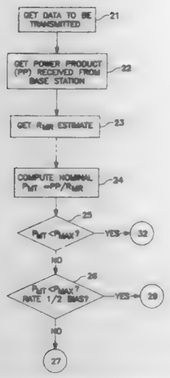
U.S. Cl. 371—41 **16 Claims**

1. A method of improving transmission performance in a cellular digital data radio communication system, comprising the steps of:

(a) transmitting error-correction encoded data from a mobile unit to a base station using a first code rate;

(b) at the base station, determining the first code rate for error-correction encoded data received from the mobile unit by analyzing a characteristic of the encoded data;

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(c) determining if the transmitted error-correction encoded data using the first code rate will be satisfactorily received by the base station, and if not, selecting a second code rate, less than the first code rate, for the mobile unit; and

(d) transmitting error-correction encoded data from the mobile unit to the base station using the second code rate.

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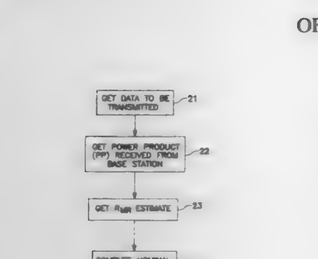
METHOD OF COMPENSATING FOR DOPPLER ERROR IN A WIRELESS COMMUNICATIONS SYSTEM, SUCH AS FOR GSM AND IS54

Mohammad Shafiul Mobin, Whitehall, Pa., assignor to Lucent Technologies Inc., Murray Hill, N.J.

Filed Mar. 8, 1995, Ser. No. 401,058

Int. Cl.[6] G06F *11/10*

U.S. Cl. 371—43 **11 Claims**



1. A method of compensating for Doppler error in a wireless communications system employing Viterbi decoding, said method comprising the steps of:

for each signal sample in a first predetermined-sized grouping of received signal samples,

performing a parallel Viterbi update and short traceback decode; for a second predetermined-sized grouping,

forming by pipeline processing an estimate of the Doppler error in accordance with the parallel short traceback decoding performed for the first grouping, and

adjusting each signal sample in the second grouping in accordance with the estimated Doppler error.

5,729,559

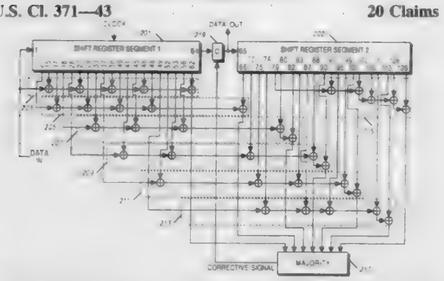
METHOD AND APPARATUS FOR CORRECTING ERRORS USING MULTIPLE ESTIMATES

Michael W. Bright, Arlington Heights, and Eric F. Ziolko, Schaumburg, both of Ill., assignors to Motorola, Inc., Schaumburg, Ill.

Filed Mar. 27, 1995, Ser. No. 411,243

Int. Cl.[6] H03M *13/12*

U.S. Cl. 371—43 **20 Claims**



1. An apparatus for correcting errors in a rate-one orthogonal convolutional code, comprising:

a shift register having a plurality of stages;

a multiplicity of estimators, coupled to at least some of the plurality of stages, providing a multiplicity of estimates of a received signal;

a majority decoder, coupled to the multiplicity of estimators, arranged and constructed to yield a corrected received signal from the multiplicity of estimates.

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METHOD AND CODING MEANS FOR PROTECTED TRANSMISSION OF DATA ON THE BASIS OF MULTI-COMPONENT CODING

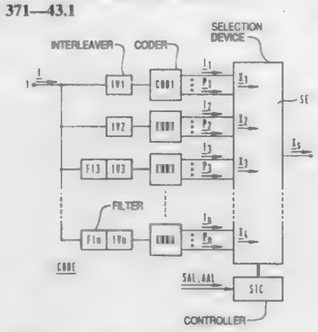
Joachim Hagenauer, Seefeld; Frank Burkert, Munich, and Martin Werner, Fulda, all of Germany, assignors to Siemens Aktiengesellschaft, Munich, Germany

Filed Jun. 12, 1996, Ser. No. 662,072

Claims priority, application Germany, Jun. 12, 1995, 195 21 328.9

Int. Cl.[6] H03M *13/12*

U.S. Cl. 371—43.1 **10 Claims**



1. A method for protected transmission of information with multi-component coding, comprising the steps of:

supplying chained information sequences to a plurality of component coders, said chained information sequences having code symbols;

selecting important bits or bit sequences from the information sequences according to a selection algorithm;

supplying said selected important bits or bit sequences to further component coders; and

protecting said selected important bits or bit sequences with further component codes.

5,729,561

SEMICONDUCTOR LASER DEVICE

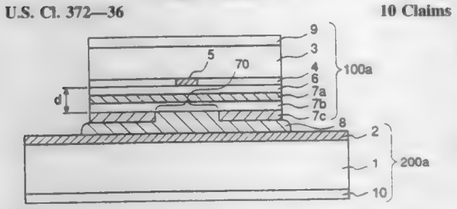
Misao Hironaka, Tokyo, Japan, assignor to Mitsubishi Denki Kabushiki Kaisha, Tokyo, Japan

Filed May 2, 1996, Ser. No. 641,737

Claims priority, application Japan, Aug. 28, 1995, 7-218913

Int. Cl.[6] H01S *3/19*

U.S. Cl. 372—36 **10 Claims**



1. A semiconductor laser device comprising:

a semiconductor laser chip having a central light emitting region;

a solder layer;

a heat sink on which the semiconductor laser chip is fixedly mounted by the solder layer; and

a lower electrode disposed on the semiconductor laser chip, the lower electrode comprising a non-alloying layer not alloyed with the solder layer and located at a region of the heat sink directly opposite a projection of a center line in a longitudinal direction of the light emitting region of the semiconductor laser chip on the lower electrode, and an alloying layer on the lower electrode, except for the region including the non-alloying layer, alloyed with the solder layer.

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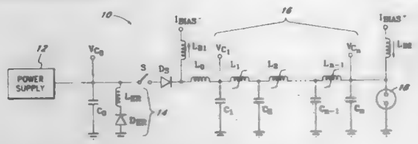
PULSE POWER GENERATING CIRCUIT WITH ENERGY RECOVERY

Daniel L. Birx, Oakley; Palash P. Das, Vista; Igor V. Fomenkov; William N. Partlo, both of San Diego, and Tom A. Watson, Carlsbad, all of Calif., assignors to Cymer, Inc., San Diego, and Advanced Pulse Power Technologies, Inc., Oakley, both of Calif.

Continuation of Ser. No. 390,709, Feb. 17, 1995. This application Oct. 31, 1996, Ser. No. 739,873

Int. Cl.[6] H01S *3/00*

U.S. Cl. 372—38 **64 Claims**



1. A pulse power generating circuit comprising:

a capacitor for storing a charge;

a magnetic pulse compressor circuit having at least one stage, said at least one stage comprising a capacitor and a saturable inductor;

a biasing circuit for encouraging the inductor of the at least one stage into reverse saturation;

a switch coupled at one end to said capacitor and another end to said magnetic pulse compressor circuit, for periodically applying the charge stored in said capacitor as an input to said compressor circuit, the compressor circuit providing a forward current output pulse in response to the input, said compressor circuit maintaining a forward current while resonantly providing a reverse charge which is reflected from a load coupled to said compressor circuit; and

an inverting circuit coupled in parallel with said capacitor for storing and inverting said reverse charge to obtain an inverted charge, said inverting circuit also providing said inverted charge to said capacitor through said switch during a next pulse.

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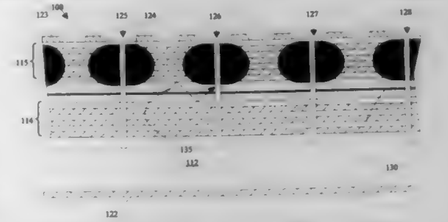
METHOD AND APPARATUS FOR OPTICALLY AND THERMALLY ISOLATING SURFACE EMITTING LASER DIODES

Shih-Yuan Wang, Palo Alto, and Michael R. T. Tan, Menlo Park, both of Calif., assignors to Hewlett-Packard Company, Palo Alto, Calif.

Filed Jul. 7, 1994, Ser. No. 271,606

Int. Cl.[6] H01S *3/18*

U.S. Cl. 372—50 **6 Claims**



1. An SEL array comprising a plurality of SELs, said SEL array comprising:

a light generation layer for generating light in response to light passing therethrough;

first mirror means for reflecting light generated in said light generation layer toward said light generation layer;

second mirror means for reflecting light generated in said light generation layer toward said light generation layer, said first and second mirror means being located on opposite sides of said light generation layer; and

a plurality of light isolation regions, each said light isolation region extending through said first mirror means to said second mirror means, said light isolation dividing said light generation layer into a plurality of light generation regions, each said light generation region corresponding to one of said SELs, each said light isolation region preventing light generated in one of said light generation regions from propagating into a neighboring light generation region, wherein one of said light isolation regions comprises a trench extending through said light generation layer.

5,729,564

ELECTROSTATIC PRECIPITATOR FOR A GAS DISCHARGE LASER

David I. Cullumber, Fremont, Calif., assignor to VISX, Incorporated, Santa Clara, Calif.

Filed Jul. 31, 1996, Ser. No. 688,715

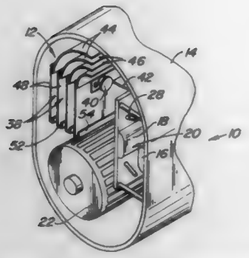
Int. Cl.[6] H01S *3/22*

U.S. Cl. 372—58 **32 Claims**

1. An electrostatic precipitator for a gas discharge laser having a lasing gas within a substantially closed housing, a pair of main electrodes mounted within said housing and defining a laser discharge zone therebetween for firing the lasing gas and producing ionization and fluorescent discharge associated therewith at said laser discharge zone, and means for circulating the lasing gas through the laser discharge zone, said electrostatic precipitator comprising:

charged collector means mounted within said housing for flow passage of the lasing gas circulated through the laser dis-

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charge zone, said charged collector means and said ionization and fluorescent discharge defining opposite poles of the electrostatic precipitator.

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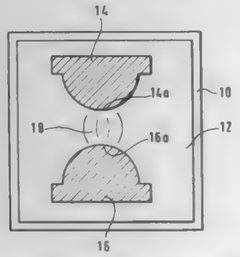
DISCHARGE UNIT AND ELECTRODE FOR A PULSED DISCHARGE LASER

Anton Meller, and Frank Voss, both of Göttingen, Germany, assignors to Lambda Physik Gesellschaft zur Herstellung von Lasern MBH, Germany

Continuation of Ser. No. 627,000, Apr. 3, 1996, abandoned, which is a continuation of Ser. No. 285,063, Aug. 3, 1994, abandoned. This application Nov. 7, 1996, Ser. No. 827,973

Int. Cl.[6] H01S *3/097*

U.S. Cl. 372—87 **8 Claims**



1. A high pressure excimer or molecular laser comprising:

a chamber for holding a gas mixture;

a gas mixture, located in said chamber, said mixture including a halogen gas selected from the group consisting of fluorine and chlorine, wherein said lasing gas mixture has a pressure in excess of 1.5 bar; and

a pair of electrodes located within said chamber for generating a pulsed gas discharge therebetween and wherein said electrodes are formed from a substantially non-oxidized and uncoated material selected from the group consisting of zirconium, yttrium, hafnium, lanthanum and alloys thereof.

5,729,566

LIGHT EMITTING DEVICE HAVING AN ELECTRICAL CONTACT THROUGH A LAYER CONTAINING OXIDIZED MATERIAL

Jack L. Jewell, Boulder, Colo., assignor to Picolight Incorporated, Boulder, Colo.

Filed Jun. 7, 1996, Ser. No. 659,942

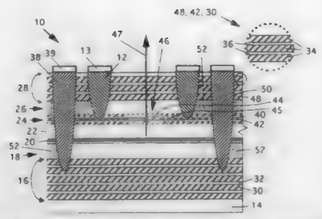
Int. Cl.[6] H01S *3/038*

U.S. Cl. 372—96 **49 Claims**

1. A light emitting device comprising:

a first conductive layer having a first conductivity type;

a light emitting material, said light emitting material disposed above said first conductive layer and in electrical communication therewith;



a current aperture region, said current aperture region comprising at least one layer of oxidizable material, said layer of oxidizable material having a first region which is non-oxidized surrounded by a second region which is oxidized in order to form a current aperture in said oxidizable material, said current aperture region further comprising a third region being non-oxidized and at least adjacent to said second region, said current aperture region disposed above said light emitting material and in electrical communication therewith;

a second conductive layer having a second conductivity type, said second conductive layer being disposed above said current aperture region and in electrical communication therewith;

at least one electrically conductive channel for providing electrical communication to said light emitting material, said channel extending through said third region of said oxidizable material.

5,729,567

MULTILAYER FILM STRUCTURE AND VERTICAL CAVITY SURFACE EMITTING LASERS

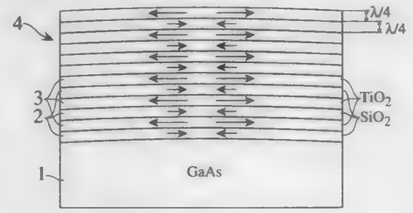
Shigeru Nakagawa, Kawasaki, Japan, assignor to Hewlett-Packard Company, Palo Alto, Calif.

Filed Apr. 25, 1996, Ser. No. 637,955

Claims priority, application Japan, Apr. 28, 1995, 7-129595

Int. Cl.[6] H01S *3/08;* **H01L** *21/20*

U.S. Cl. 372—99 **20 Claims**



1. A multilayer structure, comprising:

a semiconductor substrate; and

a pair of layers comprising a first layer and a second layer having prescribed thicknesses determined by a desired optical property of said layers, said first and second layers formed by deposition on said semiconductor substrate, wherein said first layer is formed to exhibit a residual compressive stress and said second layer is formed to exhibit a residual tensile stress having a magnitude that is approximately equal to the magnitude of the residual compressive stress of the first layer so that said first layer and said second layer collectively impose a substantially zero stress on said semiconductor substrate.

11. A method for forming a multilayer structure, comprising:

providing a semiconductor substrate; and

forming a pair of layers comprising a first layer and a second layer having prescribed thicknesses determined by a desired optical property of said layers, said first and second layers formed by deposition on said semiconductor substrate, wherein said first layer is formed under deposition conditions

that generate a residual compressive stress in said first layer, and said second layer is formed under deposition conditions that generate in said second layer a residual tensile stress having a magnitude that is approximately equal to the residual compressive stress of the first layer so that said first layer and said second layer collectively impose a substantially zero stress on said semiconductor substrate.

5,729,568

POWER-CONTROLLED, FRACTAL LASER SYSTEM

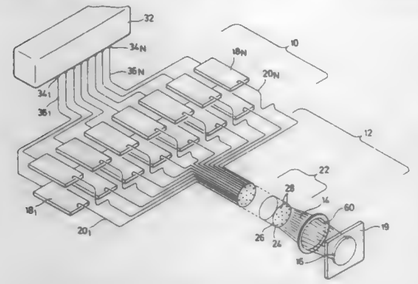
Hans Opower, Krailling; Helmut Huegel, Sindelfingen; Adolf Giesen, and Friedrich Dausinger, both of Stuttgart, all of Germany, assignors to Deutsche Forschungsanstalt fuer Luft-und Raumfahrt e.V., Bonn, and Universitaet Stuttgart Institut fur Strahlwerkzeuge, Stuttgart, both of Germany

Continuation of Ser. No. 302,940, Sep. 21, 1994, abandoned. This application May 30, 1996, Ser. No. 655,555

Claims priority, application Germany, Jan. 22, 1993, 43 01 639.8

Int. Cl.[6] H01S *3/08*

U.S. Cl. 372—108 **31 Claims**



1. A semiconductor laser system, comprising:

a plurality of groups of semiconductor laser units;

each group comprising a plurality of semiconductor laser units;

each of said laser units comprising a laser oscillator;

each of the laser units in a group being adapted to operate in the same transversal basic mode and the same longitudinal single mode to generate coherent laser radiation having the same wavelength;

a single mode light-conducting fiber associated with each of said laser units;

a coupling element for coupling the laser radiation exiting from each of said laser units into the respective single mode light-conducting fiber;

said fibers having respective fiber end faces;

said fibers forming a fiber bundle such that said fiber end faces form a bundle end face of said fiber bundle;

all of said fiber end faces corresponding to one of said groups of laser units for emitting the same wavelength being combined to form an irradiation group, each of said irradiation groups being adapted to emit laser radiation with a different wavelength;

said fiber end faces within each of said irradiation groups being arranged adjacent to one another in said bundle end face;

said coherent laser radiation being generated by the respective laser units and exiting from said bundle end face to form a total laser radiation which illuminates a target surface on an object to be irradiated during laser activity of all the laser units; and

a control for controlling the power of each individual laser unit in a defined manner to provide an irradiation of different surface elements of the target surface with an individually definable intensity for each surface element.

5,729,569

SUBMERGED ARC FURNACE WITH VERTICALLY MOVABLE FRAME

Luciano Ambrosi, Moers; Franz Schulze-Hagen, Dinslaken, and Hermann Cepin, Duisburg, all of Germany, assignors to Mannesmann Aktiengesellschaft, Düsseldorf, Germany

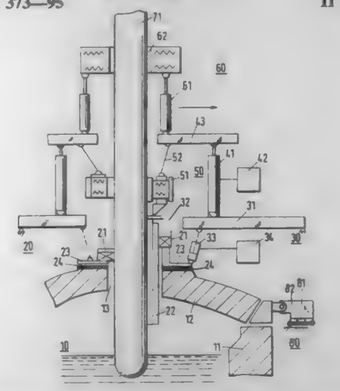
PCT No. PCT/DE94/01469, § 371 Date Jul. 11, 1996, § 102(e) Date Jul. 11, 1996, PCT Pub. No. WO95/16335, PCT Pub. Date Jun. 15, 1995

PCT Filed Nov. 30, 1994, Ser. No. 652,587

Claims priority, application Germany, Dec. 8, 1993, 43 42 511.9

Int. Cl.[6] H05B *7/12*

U.S. Cl. 373—95 **11 Claims**



1. A submerged arc furnace with open slag bath, comprising: a furnace vessel; a cover arranged on the furnace vessel and having at least one opening therein; a vertically movable frame arranged above the vessel; an electrode mount arranged on the frame; an electrode charging device arranged on the frame; at least one electrode held by the electrode mount and the electrode charging device so as to pass through the cover opening at a distance from edge surfaces of the opening; a maintenance platform arranged above the cover; at least three regulating cylinders arranged to support the frame on the platform; and, sealing means provided for each electrode for sealing opposing free surfaces between the electrode and the cover opening in both horizontal and vertical directions.

5,729,570

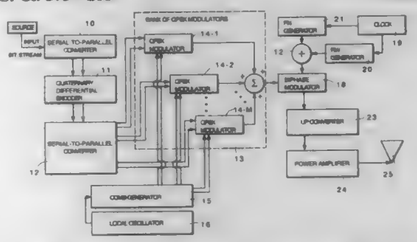
ORTHOGONAL CODE DIVISION MULTIPLE ACCESS COMMUNICATION SYSTEM HAVING MULTICARRIER MODULATION

David T. Magill, Palo Alto, Calif., assignor to Stanford Telecommunications, Inc., Sunnyvale, Calif.

Filed Dec. 8, 1994, Ser. No. 352,313

Int. Cl.[6] H04B *1/707;1/713;* **H04L** *27/32*

U.S. Cl. 375—206 **7 Claims**



1. In an orthogonal code division multiple access (OCDMA) communication system having at least one base station and a

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plurality of remote subscriber terminals, a modulation system for reducing sensitivity of OCDMA to access noise created by time base error and delay spread, comprising: means to divide an incoming data stream into multiple parallel data streams, means providing a corresponding plurality of frequency division multiplexed carriers, means providing a corresponding plurality of carrier channels connected to receive respective ones of said multiple parallel data stream, modulator means in each of said channels, each carrier channel having an output, means to sum the outputs of each modulator of the modulator means to produce a composite multicarrier waveform signal, means spreading said composite multicarrier waveform signals with a selected PN/RW code, and means to convert the spread composite multicarrier waveform signal to a desired broadcast frequency, amplify and transmit to remote subscriber terminals.

5,729,571

NON-COHERENT DIGITAL RECEIVER OF A SPREAD SPECTRUM COMMUNICATION SYSTEM

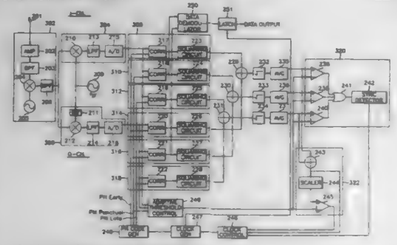
Jong-Hyeon Park, Seoul, and Je-Woo Kim, Suwon, both of Rep. of Korea, assignors to SamSung Electronics Co. Ltd., Kyungki-do, Rep. of Korea

Filed Jun. 29, 1995, Ser. No. 496,473

Claims priority, application Rep. of Korea, Jun. 29, 1994, 1994-15259

Int. Cl.[6] H04B *1/707*

U.S. Cl. 375—206 **22 Claims**



1. A receiver, comprising:

means for receiving a spread spectrum signal having a received pseudo-noise code sequence modulated therein, and for generating an in-phase signal and a quadrature-phase signal;

a pseudo-noise code generator for generating a reference pseudo-noise code sequence comprising a pseudo-noise early code, a pseudo-noise punctual code, and a pseudo-noise late code in response to a pseudo-noise clock signal;

correlator means for correlating said in-phase signal and said quadrature-phase signal with said pseudo-noise early code, said pseudo-noise punctual code, and said pseudo-noise late code, respectively, to generate an early correlation signal, a punctual correlation signal, and a late correlation signal, respectively, each comprising both in-phase and quadrature-phase components;

an adaptive threshold controller for receiving said in-phase signal and said quadrature-phase signal to adaptively generate a variable threshold in response to said pseudo-noise punctual code;

synchronization detecting and tracking means for comparing said early, punctual and late correlation signals with said variable threshold, respectively, to produce an initial synchronization detection signal, for combining said early and late correlation signals to produce an error signal proportional to a phase difference between said received pseudo-noise code sequence modulated in said spread spectrum signal and said reference pseudo-noise code sequence, and for comparing said error signal with said variable threshold to produce a synchronization tracking control signal;

means for generating said pseudo-noise clock signal to control generation of said reference pseudo-noise code sequence and synchronization between said received pseudo-noise code sequence modulated in said spread spectrum signal and said reference pseudo-noise code sequence based upon reception of said initial synchronization detection signal, said error signal and said synchronization tracking control signal; and

a demodulator coupled to receive said punctual correlation signal comprising said in-phase and quadrature-phase components, for demodulating said spread spectrum signal into a baseband signal.

5,729,572

TRANSMITTING AND RECEIVING SIGNAL SWITCHING CIRCUIT FOR WIRELESS COMMUNICATION TERMINAL

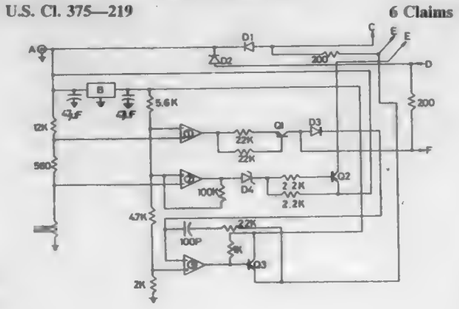
Kyoung Bong Oh, Kyoungki-do, Rep. of Korea, assignor to Hyundai Electronics Industries Co., Ltd., Kyoungki-Do, Rep. of Korea

Filed Jun. 5, 1995, Ser. No. 464,066

Claims priority, application Rep. of Korea, Dec. 30, 1994, 94-39859

Int. Cl.[6] H04B *1/38*

U.S. Cl. 375—219 **6 Claims**



1. A circuit for switching transmitting and receiving signals for a wireless communication terminal, comprising:

a terminal for receiving output from a power source;

a voltage regulator for adjusting the output received by said terminal into a reference voltage;

first, second and third OP amplifiers for receiving voltages from said voltage regulator respectively;

a first transistor switched by a voltage from said first OP amplifier;

a first bias terminal for a low noise amplifier which receives signals, wherein power is supplied to said first bias terminal according to switching operations of said first transistor;

a second transistor switched by a voltage from said second OP amplifier;

a second bias terminal for a high output amplifier which transmits signals, wherein power is supplied to said second bias terminal according to switching operations of said second transistor;

a first diode for adjusting transmitted signals;

a second diode for adjusting received signals;

a third diode switched by switching operations of said first transistor;

said third OP amplifier turned on/off by said third diode; and

a third transistor switched by an output from said third OP amplifier.

5,729,573

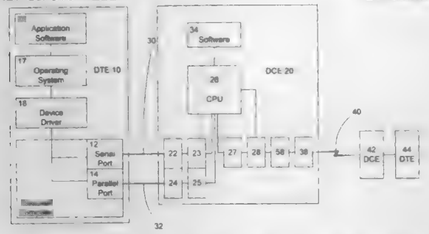
HIGH PERFORMANCE COMMUNICATIONS INTERFACE

Jay Patrick Bailey, North Easton; Brian J. Copley, Mansfield, and Mark J. Freitas, East Walpole. all of Mass., assignors to Microcom Systems, Inc., Norwood, Mass.

Continuation of Ser. No. 300,490, Sep. 2, 1994, Pat. No. 5,644,593. This application Jun. 5, 1995, Ser. No. 461,506

Int. Cl.[6] H04B *1/38*

U.S. Cl. 375—222 **20 Claims**



1. A data communications system having at least one mode of operation for bidirectionally transferring data at a high performance rate between said system and data terminal equipment, said data terminal equipment including at least one equipment parallel port, said system comprising:

at least one system parallel port for coupling said communications system to said equipment parallel port of said data terminal equipment so as to create a parallel interface through which data can be transferred in parallel data units between said communications system and said data terminal equipment;

means for transmitting data in said parallel data units through said system parallel port to said equipment parallel port, and for receiving data in said parallel data units through said system parallel port from said equipment parallel port;

a system communications port for coupling said communications system to a telephone network so that parallel data units received from said data terminal equipment can be transmitted over said telephone network, and data received from said telephone network can be transmitted in said parallel data units through said system parallel port;

means for transmitting data to and receiving data from said data terminal equipment in accordance with a packetized data protocol, said packetized data protocol including transmitting data to and receiving data from said data terminal equipment in the form of packets comprising at least one command parallel data unit and at least one parameter parallel data unit.

said at least one command parallel data unit including (a) means for indicating whether said packet is a control-status packet or a data packet, (b) means for indicating the type of control-status packet if said command parallel data unit indicates that the packet is a control status packet and (c) means for indicating the length of the packet if said command parallel data unit indicates that the packet is a data packet; and

said at least one parameter parallel data unit including (i) control-status parameter information if said command parallel data unit indicates that the packet is a control-status packet and (ii) data if said command parallel data unit indicates that the packet is a data packet.

5,729,574

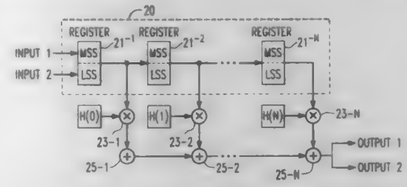
SINGLE CHANNEL FIR FILTER ARCHITECTURE TO PERFORM COMBINED/PARALLEL FILTERING OF MULTIPLE (QUADRATURE) SIGNALS

Michael Suchoff, Chapel Hill, N.C., and Andrew C. Barber, Venice, Calif., assignors to Harris Corporation, Melbourne, Fla.

Filed Oct. 8, 1996, Ser. No. 727,349

Int. Cl.[6] H04L *5/12*

U.S. Cl. 375—261 **16 Claims**



12. A method of processing a signal comprising the steps of:

(a) storing, in a plurality of data register stages, respective digitally encoded data values of said signal;

(b) processing contents of respective ones of said data register stages in accordance with prescribed signal processing operations to produce an output representative of a prescribed combination of results of said signal processing operations; and wherein

said signal to be processed contains a plurality of signal portions, each of which is encoded to a code width less than the data capacity of a respective register stage of said plurality of data register stages, and wherein said plurality of encoded signal portions are coupled through respectively different portions of each respective register stage of said cascaded arrangement of data register stages, in the course of step (b) performing said signal processing operations on said encoded data values, so that step (b) produces a plurality of outputs respectively associated with said plurality of encoded signal portions.

5,729,575

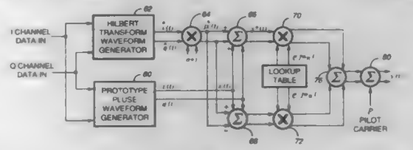
TRANSMITTER AND RECEIVER SYSTEM AND METHOD UTILIZING A PILOT CARRIER NOTCH DATA ENCODED SIGNAL

Clifford Dana Leitch, Coral Springs, Fla., assignor to Motorola, Inc., Schaumburg, Ill.

Filed Jun. 20, 1995, Ser. No. 492,542

Int. Cl.[6] H03C *5/00;* **H04L** *27/02;* **H03D** *5/00*

U.S. Cl. 375—268 **29 Claims**



26. A method for transmitting digital message data in a selective call message communication system comprising:

generating a data waveform representing said message data;

generating a Hilbert transform of said message data;

combining said data waveform and Hilbert transform to generate a positive frequency component and a negative frequency component;

shifting said positive and negative frequency components apart;

adding said shifted positive and negative frequency components and a component representing a pilot carrier to form a message data encoded signal; and

amplitude modulating said message data encoded signal for transmission thereof.

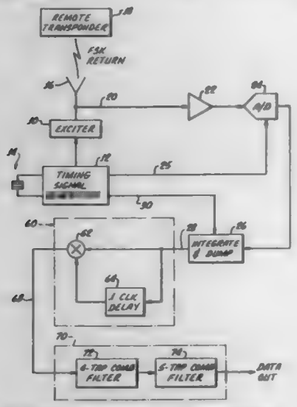
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5,729,576

INTERFERENCE CANCELING RECEIVER

Wade J. Stone, New York, N.Y.; Robert Tso, South San Gabrial, and John M. Burns, Harbor City, both of Calif., assignors to Hughes Electronics, Los Angeles, Calif.

Continuation of Ser. No. 357,462, Dec. 16, 1994. This application Apr. 30, 1996, Ser. No. 641,452
Int. Cl.[6] H04L *27/14*; H04B *1/10*;*15/04*
U.S. Cl. 375—334 16 Claims



1. A signal receiver for receiving and demodulating a modulated information bearing signal in the presence of an interference signal having a singular interference frequency comprising:

an analog signal conditioner having an input for receiving said modulated information bearing signal and said interference signal, and having an analog output;

an analog to digital converter responsive to said analog signal conditioner for converting said analog output to a digital signal having a series of digital words transmitted at a first clock rate;

an integrating digital signal processor responsive to said analog to digital converter for repetitively integrating a predetermined number of words of said digital signal to provide an integrated digital signal having a series of integrated digital words transmitted at a second clock rate that is lower than said first clock rate, said first and second clock rates both being integer related to said singular interference frequency of said interference signal, wherein a transmission zero is caused to occur at the singular interference frequency;

demodulator means for demodulating said integrated digital signal;

means for determining said singular interference frequency of the interference signal; and

means for adjusting the first clock rate in integer proportion to said singular interference frequency.

5,729,577

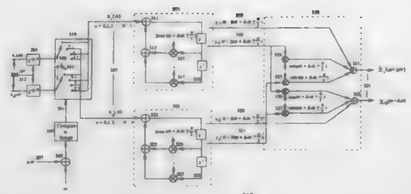
SIGNAL PROCESSOR WITH IMPROVED EFFICIENCY

Weizhong Chen, Keller, Tex., assignor to Motorola, Inc., Schaumburg, Ill.

Filed May 21, 1996, Ser. No. 646,804
Int. Cl.[6] H03D *3/00*; H04L *27/14*
U.S. Cl. 375—334 17 Claims

1. A signal processor arranged and constructed to provide a discrete time Fourier transform (DTFT) corresponding to a sequence of samples, including a current sample, of a signal, the signal processor comprising in combination;

a recursive structure, coupled to the signal and operating on the sequence of samples, for providing an output and a first



previous output, said output proportional to a combination of the current sample of the signal and the first previous output weighted by a sinusoidal function, less a second previous output, said sinusoidal function having an argument corresponding to an arbitrary frequency, and

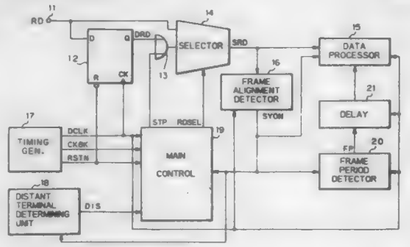
a combiner coupled to said output and said first previous output for providing a DTFT signal proportional to a DTFT evaluated at said arbitrary frequency for said sequence of samples.

5,729,578

DATA RECEIVER FOR REARRANGING THE FRAME PATTERN OF DATA RECEIVED

Shun Oshita, Tokyo, Japan, assignor to Oki Electric Industry Co., Ltd., Tokyo, Japan

Filed Sep. 18, 1995, Ser. No. 529,547
Claims priority, application Japan, Sep. 26, 1994, 6-229406
Int. Cl.[6] H04L *7/00*
U.S. Cl. 375—363 6 Claims



1. A data receiving apparatus for receiving data into which a stuff pulse for frequency synchronization is inserted, comprising:

a frame alignment information detecting unit for detecting frame alignment information to establish a frame alignment from received data;

a stuff pulse insertion position detecting circuit for detecting an insertion position of the stuff pulse which has been inserted into the received data; and

a frame pattern rearranging circuit for rearranging a frame pattern of the received data so that the insertion position of the stuff pulse is fixed at a predetermined position, on the basis of a first detection output of said frame alignment information detecting unit and a second detection output of said stuff pulse insertion position detecting circuit,

wherein said frame pattern rearranging circuit comprises

a received data delaying unit for delaying the received data by a period corresponding to one clock of a data clock signal synchronized with the received data,

a stuff pulse insertion circuit for inserting the stuff pulse into either the received data delayed by said received data delaying unit or non-delayed received data on the basis of the first detection output, and

a data selector for selecting alternately the received data into which the stuff pulse is inserted by said stuff pulse insertion position detecting circuit and non-inserted received data, on the basis of the first detection output and the second detection output, to obtain the received data rearranged in the

frame pattern so that the insertion position of the stuff pulse is fixed at the predetermined position.

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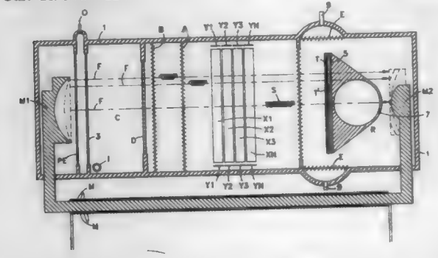
Patent Not Issued For This Number

5,729,580

HYDROGEN ION ARRAY ACCELERATION GENERATOR AND METHOD

Gregory L. Millspaugh, P.O. Box 11106, Las Vegas, Nev. 89111

Continuation of Ser. No. 279,256, Jul. 21, 1994, abandoned. This application Nov. 12, 1996, Ser. No. 745,697
Int. Cl.[6] G21B *1/02*
U.S. Cl. 376—114 29 Claims



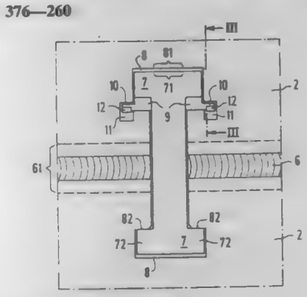
15. A system for producing and controlling energy that comprises, a longitudinally extending housing provided with magnetic field producing means for providing magnetic flux lines directed longitudinally along the housing; means for producing hydrogen ions and diffusing or emitting the same as an array of ions along the inherent interstitial sites of a diffusion/emission grid means transversely disposed across the housing; a transversely extending target lattice surface of a heavy metal of atomic radius between about 1.23 and 1.31 Angstroms disposed at a distance along the housing longitudinally displaced from the diffusion/emission grid means; the said interstitial sites of the said diffusion/emission grid means being adjusted to correspond to the interstitial sites of the said target lattice surface; further transversely extending grid means disposed between the diffusion/emission grid and the target lattice surface for accelerating and focusing the array of ions precessing along the magnetic flux lines to impact the hydrogen ions array upon the corresponding target lattice surface interstitial sites so as to bombard ions that may be already positioned at the corresponding target lattice interstitial sites; or, to penetrate to impact the Hydrogen ion array located in corresponding target lattice interior interstitial sites so as to bombard ions that may be already positioned at the corresponding target lattice interior interstitial sites; or, if no such ion is already positioned, to insert an ion into such interior interstitial site of the target lattice for future reaction with a bombarding ion, and in which the said further grid means comprise one or more of a transverse bombardment control grid disposed following the said diffusion/emission grid means to preclude the passage of positively charged particles therebeyond; acceleration control grid means; focusing grid means; expulsion control grid means disposed near the target lattice surface for stimulating the diffusion or emission of helium and other end products from the surface of the target lattice surface.

5,729,581

CORE SHROUD, IN PARTICULAR FOR CLADDING A REACTOR CORE IN A BOILING-WATER NUCLEAR REACTOR AND A METHOD FOR REPAIRING A CORE SHROUD

Ralf Loock, Baiersdorf; Theo Käufl, Neumarkt, and Herbert Schramm, Höchstadt, all of Germany, assignors to Siemens Aktiengesellschaft, Munich, Germany

Filed Mar. 14, 1997, Ser. No. 818,318
Claims priority, application Germany, Sep. 14, 1994, 44 32 616.5
Int. Cl.[6] G21C *19/00*
U.S. Cl. 376—260 10 Claims



1. A core shroud, comprising:

cylindrical parts and annular flanges connected to one another by weld seams;

a region thermally influenced during welding;

a core shroud surface having at least one groove-like recess formed therein, said at least one recess having a middle part passing through said thermally influenced region, said middle part having ends, and said at least one recess having a widening disposed in front of said ends of said middle part and lying outside said thermally influenced region; and

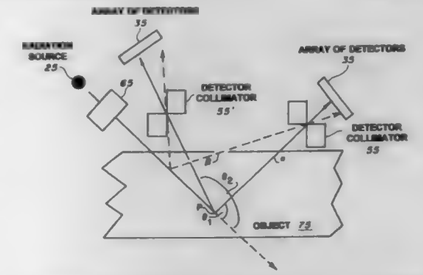
a clamp fitted into said at least one recess, disposed approximately flush with said shroud surface and wedged in said at least one recess.

5,729,582

METHOD AND APPARATUS FOR DETERMINING BOTH DENSITY AND ATOMIC NUMBER OF A MATERIAL COMPOSITION USING COMPTON SCATTERING

Young S. Ham, Safeguards Division TCNC. , Korea Atomic Energy Research Institute, Taejum, Rep. of Korea, and Chester F. Poranski, Gainer St., Annandale, Va. 22003

Filed May 31, 1996, Ser. No. 656,528
Int. Cl.[6] G01N *23/201*
U.S. Cl. 378—89 18 Claims



1. A method for determining both density and atomic number of a material of an object using Compton scattering, said method

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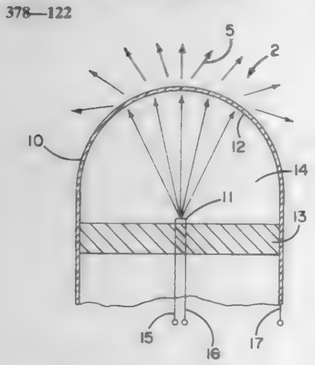
simultaneously employing at least two detector/collimators for detecting photons having been Compton scattered, said first detector/collimator collecting photons scattered through angle θ_1, and said second detector/collimator collecting photons scattered through θ_2, said method further employing a means for obtaining two expressions associated with said first and second detector/collimators wherein said expressions are solved to determine both the density and atomic number of the material of an object.

5,729,583

MINIATURE X-RAY SOURCE

Cha-Mei Tang, Potomac, and Richard D. Deslattes, Rockville, both of Md., assignors to The United States of America as represented by the Secretary of Commerce, Washington, D.C.

Filed Sep. 29, 1995, Ser. No. 536,364
Int. Cl.° H01J *35/06*
U.S. Cl. 378—122 12 Claims



1. An x-ray source including:

a head comprising an evacuated envelope having an outer wall and containing an anode made of a metal producing x-rays in response to the impact of electrons, a cathode including an array of cathode elements respectively producing electrons accelerated toward the anode in response to an electric field between the anode and the cathode elements, the cathode not exceeding ten centimeters in maximum dimension so that the x-ray source can be inserted into a cavity of the human body, the anode being spaced sufficiently far from the cathode for applying an accelerating voltage between the cathode and the anode without voltage break-down and producing x-rays of wavelengths suitable for diagnosis and treatment of a human, and a gate electrode for controlling the flow of electrons from the cathode to the anode; and

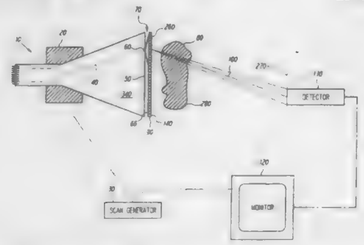
respective electrical leads extending from the anode and the cathode and out of the envelope.

5,729,584

SCANNING-BEAM X-RAY IMAGING SYSTEM

Jack W. Moorman, Los Gatos; Brian Skillicorn, Saratoga; Edward G. Solomon, Menlo Park; Peter J. Fiekowsky, Los Altos; John W. Wilent, deceased, late of Aptos, by Virginia B. Wilent, executrix; Abigail A. Moorhouse, San Jose, and Robert E. Melen, Saratoga, all of Calif., assignors to Cardiac Mariners, Inc., Los Gatos, Calif.

Division of Ser. No. 421,212, Apr. 10, 1995, which is a continuation of Ser. No. 386,861, Feb. 10, 1995, Pat. No. 5,651,047, which is a continuation-in-part of Ser. No. 375,501, Jan. 17, 1995, abandoned, and a continuation-in-part of Ser. No. 342,641, Nov. 21, 1994, abandoned, which is a continuation of Ser. No. 8,455, Jan. 25, 1993, abandoned, said Ser. No. 375,501 is a continuation of Ser. No. 42,742, Apr. 5, 1993, abandoned. This application Sep. 20, 1996, Ser. No. 718,207
Int. Cl.° G21K *5/10*
U.S. Cl. 378—146 23 Claims



1. An imaging system comprising an x-ray source, an x-ray detector array, a monitor and a scan generator; said x-ray source comprising an electron beam generator and an anode; said anode comprising a target layer which emits x-ray photons when stimulated by a beam of electrons; said scan generator comprising circuitry for controlling an electron beam generated by said electron beam generator;

said x-ray detector array comprising a plurality of detection elements, said detection elements arranged in an array forming a generally planar detection surface having a center;

said anode and said x-ray detector array positioned such that when said electron beam stimulates said target layer at a first spot, emitted x-ray photons strike a plurality of said detection elements of said x-ray detector array and when said electron beam stimulates said target layer at a second spot, emitted x-ray photons strike a plurality of said detection elements of said x-ray detector array; said scanning beam generator including circuitry for positioning said electron beam at selected spots and causing said electron beam to dwell at said selected spots for a predetermined time period in a predetermined pattern;

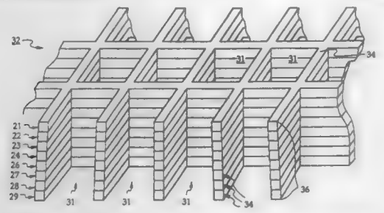
said detection elements comprising means for measuring the intensity of said x-ray photons which strike said detection elements and said detector array generating an electrical signal indicative of said intensity of each of said x-ray photons striking said detection elements, said electrical signals from each of said detection elements are discretely output from said x-ray detector array; a group of discrete electrical output is output from each of said detection elements for selected positionings of said electron beam at said selected spots on said target layer, said monitor comprising processing circuitry which generates a visual image based upon a non-successive combining of said groups of discrete electrical outputs.

5,729,585

AIR CROSS GRIDS FOR MAMMOGRAPHY AND METHODS FOR THEIR MANUFACTURE AND USE

Anthony J. Pellegrino, New Fairfield; Daniel N. Lyke, New Milford, both of Conn.; David P. Lieb, Lexington; Joseph A. Buturlia, West Boxford, both of Mass., and Michael P. Appleby, Charlottesville, Va., assignors to ThermoTrex Corporation, San Diego, Calif.

Division of Ser. No. 438,172, May 9, 1995, Pat. No. 5,606,589. This application Dec. 6, 1996, Ser. No. 761,538
Int. Cl.° G21K *1/00*
U.S. Cl. 378—154 4 Claims



1. A method for imparting edgewise translation movement to an air cross grid panel having two large pluralities of partition walls extending in substantially transverse respective directions and forming large pluralities of open passages extending through the grid panel, for absorbing scattered secondary radiation in an X-ray mammography exposure procedure, including the steps of:

positioning the grid panel with one plurality of partition walls oriented at an acute angle to the direction of said translation movement, said angle being selected to have a tangent constituting a ratio between two integers, each integer being less than 20;

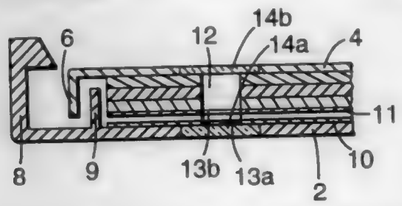
moving said grid panel in said edgewise translation direction during the entire X-ray exposure at a uniform velocity selected to assure that an integral number of partition walls in both transverse pluralities of walls will pass each point in the image during the entire time of the X-ray exposure.

5,729,586

RADIOGRAPHIC CASSETTES AND APPARATUS AND METHOD FOR LOADING/UNLOADING THEREOF

Renato Bolognese, Savona; Gian Carlo Pastorino, Mallare, and Maurizio Salvadori, Carcare, all of Italy, assignors to Imation Corp., Oakdale, Minn.

Filed Jan. 29, 1997, Ser. No. 791,078
Claims priority, application European Pat. Off., Feb. 1, 1996, 96101382
Int. Cl.° G03B *42/04*
U.S. Cl. 378—182 8 Claims



1. A radiographic cassette for exposing a radiographic film to X-ray radiation, said radiographic cassette comprising:

a base element having a base element inner portion;

an upper element having an upper element inner portion;

a front phosphor screen adhered to said base element inner portion;

a back phosphor screen adhered to said upper element inner portion; and

means for absorbing the radiation to which said radiographic film is sensitive;

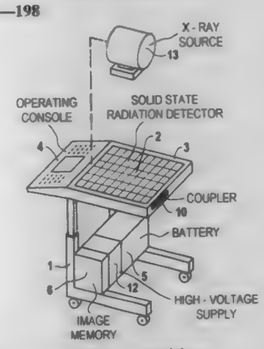
wherein said radiographic cassette has a hole passing through each of said base and upper elements and said front and back phosphor screens, said hole being closed with said absorbing means.

5,729,587

X-RAY EXPOSURE APPARATUS

Roland Betz, Viereth-Trunstadt, Germany, assignor to Siemens Aktiengeselischaft, Munich, Germany

Filed Jan. 28, 1997, Ser. No. 789,851
Claims priority, application Germany, Mar. 25, 1996, 196 11 706.2
Int. Cl.° H05G *1/02*
U.S. Cl. 378—198 3 Claims



1. An x-ray imaging system comprising:

an x-ray imaging apparatus comprising a cart having an image receiver formed by a solid state detector oriented in a horizontal plane on said cart an electronic image memory carried by said cart, a battery carried by said cart for supplying power to said image receiver and to said electronic image memory, and a first coupling electrically connected at least to said battery and to said detector, and means for mounting said image receiver on said cart for sliding said image receiver beneath a patient for producing an x-ray exposure of said patient with said x-ray imaging apparatus being self-powered exclusively by said battery; and

a docking station having a second coupling, which is mateable with said first coupling, for charging said battery for allowing operation of said x-ray imaging apparatus independently of said docking station to produce an x-ray exposure and for receiving information from said image memory, after production of said x-ray exposure, when said first and second couplings are mated.

5,729,588

ENHANCED RECORDING VERIFICATION SYSTEM

Yi Chin, Freehold, and Martin P. McEnroe, Jackson, both of N.J., assignors to Lucent Technologies Inc., Murray Hill, N.J.

Filed Dec. 28, 1994, Ser. No. 365,266
Int. Cl.° H04M *1/24;15/00*
U.S. Cl. 379—14 21 Claims

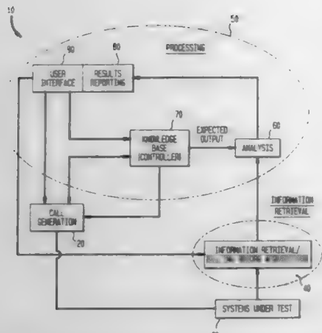
10. A recording verification method, comprising:

generating a plurality of test calls, including at least one new feature in at least one test call;

generating records of said test calls through at least one switch in a network;

tapping into records generated by said at least one switch to extract copies of said records; and

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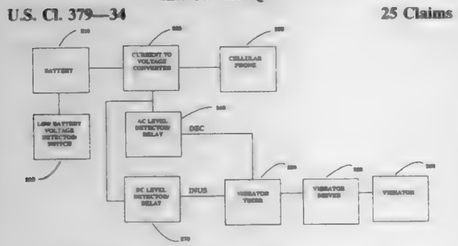
performing a regression analysis of said copies of said records by comparing recorded and expected information at multiple levels to determine if data contained within said records is correct.

5,729,589

APPARATUS AND METHOD FOR INCOMING CALL DETECTION AND ALARM CIRCUITRY FOR CELLULAR TELEPHONES

Alex D. Samson, Marina, Calif., assignor to Oraelectronics, Inc., Del.

Filed Dec. 14, 1995, Ser. No. 572,530
Int. Cl.[6] H04Q *7/32*
U.S. Cl. 379—34 **25 Claims**



1. An apparatus, monitoring the electrical power demands made by operation of a cellular telephone on a source of electrical power, for indicating an incoming telephone call to a user, comprising:

monitoring means operatively coupled to the source of electrical power for providing an electrical state signal representative of the electrical current being drawn by operation of the cellular telephone;

means, operatively coupled to said monitoring means to receive said electrical state signal, for generating a voltage state signal having a value representative of the electrical current being drawn by the operation of the cellular telephone from the source of electrical power;

status determination means for receiving and monitoring said voltage state signal and for generating a powered up state signal whenever the value of said voltage state signal increases from a first selected lower value to a first selected higher value for a first preselected period of time;

incoming call detection means for receiving said powered up state signal and monitoring said voltage state signal, and for generating an alarm start signal whenever said powered up state signal is present and said voltage state signal is representative of a first selected current transient in the current being drawn by the cellular telephone for a second preselected period of time;

alarm means operative upon receipt of said alarm start signal for indicating an incoming call to a user;

alarm cutoff means for monitoring said voltage state signal and disabling said alarm means from further operation whenever the value of said voltage state signal is representative of a second selected current transient in the current being drawn by the cellular telephone; and,

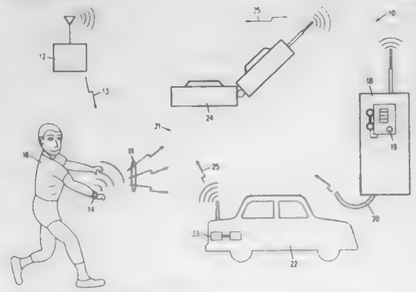
cutoff means for monitoring said voltage state signal and disabling said status determination means from further operation whenever the value of said voltage state signal drops below a preselected cutoff value.

5,729,590

ACKNOWLEDGE BACK PAGER USING SECONDARY TRANSMISSION SOURCE

Dimitri Dimitriadis, Lake Oswego, and Garold B. Gaskill, Tualatin, both of Oreg., assignors to Seiko Communications Holding N.V., Netherlands Antilles

Continuation of Ser. No. 304,728, Sep. 12, 1994, abandoned. This application Aug. 12, 1996, Ser. No. 695,747
Int. Cl.[6] H04Q *7/00*
U.S. Cl. 379—57 **5 Claims**



1. An acknowledge-back paging system comprising:

a low power portable selective call receiver,

a central station which includes means for transmitting messages to said selective call receiver;

a first transponder having first radio reception characteristics, a second transponder having second radio reception characteristics, said first radio reception characteristics differing from said second radio reception characteristics,

said selective call receiver including a low power transmitter for generating a low power radio signal for transmitting information,

message acknowledgment means operative when a selective call receiver receives a message, said message acknowledgment means including,

means in said selective call receiver for generating and transmitting through said low power transmitter a polling signal,

means in said first and second transponders for receiving a polling signal if said transponders are within range of said lower power transmitter which transmitted said polling signal, and means in said first and second transponders for generating and transmitting a polling acknowledgment signal when a polling signal is receiving,

means in said selective call receiver for receiving said polling acknowledgment signal and for generating and transmitting a message acknowledgment signal in response thereto,

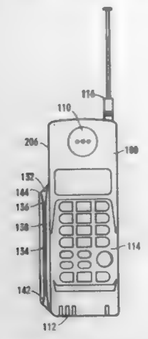
whereby said paging receiver conserves power by only transmitting a message acknowledgment signal when a polling message transmitted by said selective call receiver has been received by said first or said second transponders.

5,729,591

CREDIT CARD OPERATED CELLULAR PHONE

Ken Bailey, c/o Spec Tron Communications Corporation, 18003 Sky Park Cir., Bldg. #53, Irvine, Calif. 92714

Continuation of Ser. No. 308,521, Sep. 19, 1994, abandoned, which is a continuation-in-part of Ser. No. 291,036, Aug. 15, 1994, abandoned. This application Sep. 3, 1996, Ser. No. 707,096
Int. Cl.[6] H04Q *7/22*
U.S. Cl. 379—59 **1 Claim**



1. A cellular pay telephone assembly comprising:

a cellular telephone body, including a front surface, a second surface including an electrical contact set, and first and second side surfaces, each said side surface extending between said front surface and said second surface, said front surface including at least a keypad, said telephone also including a receiver, a transmitter and an antenna;

a slot assembly including first and second substantially flat side surfaces which are substantially parallel to one another and which define a reading area therebetween, and said slot assembly also including and having its inside area bounded by a bottom surface which is a substantially flat surface extending between first portions of respective first and second side surfaces of said slot assembly, said slot assembly located adjacent and bordering said first side of said cellular telephone body and attached to said cellular telephone body;

a reader assembly, extending into said inside area of said slot assembly, said reader assembly having a reading surface positioned to read information from an element which is passed through said inside area of said slot assembly;

an electronic assembly, including electronic circuitry thereon which drives the reader assembly and receives and interprets information therefrom;

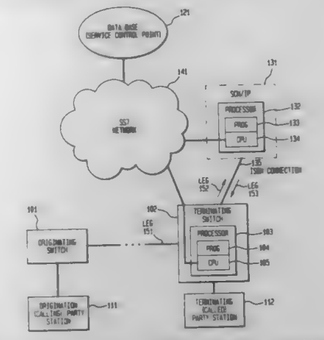
a battery electrically in contact with said electrical contact on said second surface, said battery providing electrical power for said electronic circuitry; an interface assembly, connected to said slot assembly, said interface assembly coupled to said second surface of said body of said cellular telephone and including a planar plastic sheet connected to said slot assembly, said planar plastic sheet defining two parallel surfaces, a first of said parallel surfaces having a clip and slot assembly, said clip and slot assembly mating with corresponding structures on the battery to hold the battery in place and having an electrical contact set which is electrically coupled to said electrical contact on said second surface, and receiving the battery connected thereto, and a second of said parallel surfaces connected against said second surface of said cellular telephone body, said slot assembly extending above said second parallel surface in a plane perpendicular to said first and second parallel surfaces, in a direction away from said first parallel surface and located bordering said telephone body.

5,729,592

CALLING PARTY IDENTIFICATION ANNOUNCEMENT SERVICE

Dewey Alcott Frech, Aurora; John Brian Reid, Naperville, both of Ill.; Anton Johannes Roug, Glen Allen, Va., and Timothy Jerome Scale, Downers Grove, Ill., assignors to Lucent Technologies Inc., Murray Hill, N.J.

Filed Jul. 25, 1996, Ser. No. 686,001
Int. Cl.[6] H04M *1/57; 1/66*
U.S. Cl. 379—67 **6 Claims**



6. Apparatus for providing CPIAS (calling party identification announcement service) comprising:

a terminating switch; and

a SCN/IP (service circuit node/intelligent peripheral);

said terminating switch, operative under program control, responsive to receipt of a call, for controlling determination of whether a called station having a called directory number of said call has CPIAS, and, responsive to a determination that said called station has CPIAS, routing said call to said SCN/IP;

said SCN/IP, operative under program control, for querying a data base to determine a textual version of a name assigned to a calling number of said call, for establishing a connection to said terminating switch, and for requesting said terminating switch to establish a connection between that connection from the SCN/IP and said called station;

said terminating switch establishing a connection between said SCN/IP and said called station in response to the request from the SCN/IP;

said SCN/IP responsive to an answer signal from said called station to synthesize and play an announcement of said name, and responsive to receipt of an accept signal, to request said terminating switch to extend said call from said terminating switch to said called station.

5,729,593

ANNOUCEMENT SYSTEM AND METHOD IN A TELEPHONE CALL SWITCHING SYSTEM

Daniel F. Baker, Rolling Meadows; Noreen A. Harrington, Naperville, and Paul E. Van Berkum, Winfield, all of Ill., assignors to Rockwell International Corporation, Costa Mesa, Calif.

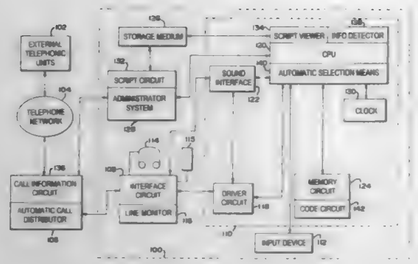
Filed Aug. 8, 1996, Ser. No. 689,472
Int. Cl.[6] H04M *3/50*
U.S. Cl. 379—67 **22 Claims**

12. A method for playing recorded announcements during an incoming telephone call routed by a telephonic switch of an automatic call distributor to an agent comprising the steps of:

recording announcements in a voice of an agent from a script dictated through an administrator system and displayed on a screen of a personal computer used by the agent;

storing the announcements in a memory of the personal computer;

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selecting one of the announcements based upon announcement selection data forwarded to the personal computer from one of an agent's keyboard and the administrator system; and

playing the selected one of the announcements in the voice of the agent substantially any time during the incoming telephone call.

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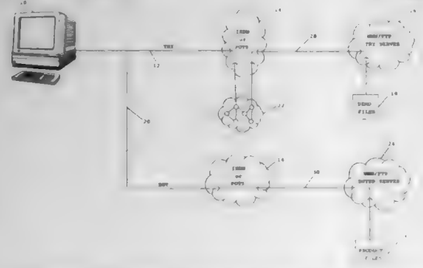
ON-LINE SECURED FINANCIAL TRANSACTION SYSTEM THROUGH ELECTRONIC MEDIA

Edwin E. Klingman, 3000 Hwy. 84, San Gregorio, Calif. 94074

Filed Jun. 7, 1996, Ser. No. 660,529

Int. Cl.[6] H04M *11/00*

U.S. Cl. 379—93.12 **22 Claims**



1. A method of establishing on-line secure financial transactions for purchasing goods through electronic media, said method comprising:

providing a local subsystem disposed at a local location accessible to a user and responsive to a user input;

providing a remote subsystem located at a remote location, said remote location having at least one identifiable product remotely selectable by the user;

establishing a first communication link between the local subsystem and the remote subsystem;

selecting at least one of said identifiable products through the first communication link;

retrieving through the first communication link a telephone toll number from a predetermined numbering system associated with the selected product;

using said retrieved telephone number to establish a telephone toll connection through a second communication link between the local subsystem and the remote subsystem; and

downloading the selected product through the second communication link from the remote subsystem to the local subsystem,

whereby during said downloading of the product a fee is assessed and charged at a rate determined by the toll connection provider.

5,729,595

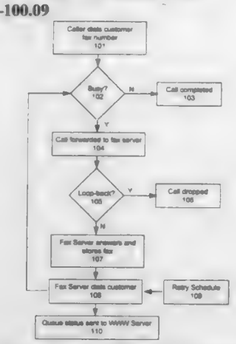
NEVER-BUSY FACSIMILE SERVICE

Stanley Kugell, Newton Highlands, and David Friend, Boston, both of Mass., assignors to Faxnet Corp., Boston, Mass.

Filed Jul. 9, 1996, Ser. No. 677,151

Int. Cl.[6] H04M *11/00*

U.S. Cl. 379—100.09 **6 Claims**



1. A method of providing never-busy fax service, comprising the steps of:

activating a forward on busy or a forward on busy/no-answer service on a customer's fax telephone line to forward to a fax server;

receiving a fax forwarded from the customer's fax telephone line and storing the fax at the fax server;

providing a ring-back tone with an imbedded signature at the fax server that uniquely identifies the fax server;

calling the customer's fax telephone line according to a retry schedule;

analyzing the ring-back tone received by the fax server when calling the customer's fax telephone line to detect if the unique signature is present; and

disconnecting the telephone call to the customer's fax telephone line if the unique signature is detected or transmitting the stored fax from the fax server to the customer's fax telephone line if the unique signature is not detected.

5,729,596

SECURITY SYSTEM

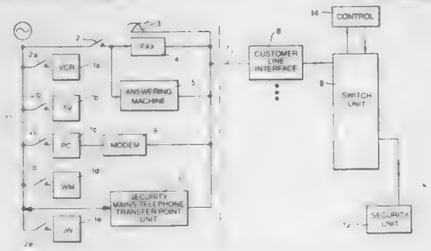
Stephen M. Reeder, Ipswich; Jonathan Hopkins, Saxmundham, and David McGlaughlin, Ipswich, all of England, assignors to British Telecommunications public limited company, London, England

Filed May 17, 1994, Ser. No. 243,659

Claims priority, application European Pat. Off., Mar. 28, 1994, 94302211

Int. Cl.[6] H04M *11/00*

U.S. Cl. 379—102.04 **30 Claims**



1. Electrically powered apparatus including:

storage means for holding a stored identity code,

means connected to said storage means, to compare the stored identity code with a received identity code, and

control means connected to the means to compare and between the apparatus and a source of electrical power to prevent power being supplied to operate the apparatus unless the received identity code and the stored identity code are compatible,

said control means causing a request to be transmitted to a remote location for a return transmission of said received identity code on reconnection of the apparatus following interruption of electrical power.

5,729,597

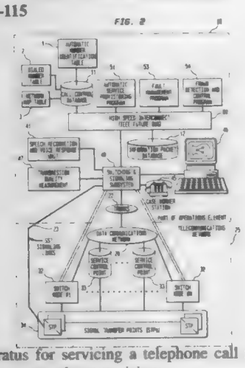
SERVICE AND INFORMATION MANAGEMENT SYSTEM FOR A TELECOMMUNICATIONS NETWORK

Gurcharan S. Bhusri, Holmdel, N.J., assignor to AT&T Corp, Middletown, N.J.

Filed May 16, 1995, Ser. No. 442,529

Int. Cl.[6] H04M *15/00;7/00*

U.S. Cl. 379—115 **4 Claims**



2. An apparatus for servicing a telephone call made in a telecommunications network, comprising:

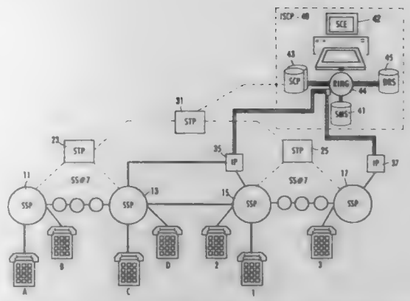
an interconnect bus;

a database for storing information relating to the telephone call, said database in communication with said interconnect bus; and

a communications unit in communication with a plurality of interconnected network elements in the telecommunications network and in communication with said interconnect bus,

wherein said communications unit instructs the network elements as to routing of the calls originating at the network elements.

wherein information associated with each call is transmitted to said communications unit for storage in said database and wherein said communications unit creates a record of the calls originating at the network elements for billing purposes including end-user billing.



a plurality of interconnected central office switching systems connected to said local communication lines;

a central control separate from the central offices, said central control comprising a database storage storing call processing data associated with said communication lines for control of call processing through one or more of said central office switching systems; and

a peripheral platform connected to at least one of the central office switching systems and providing at least one auxiliary-call processing capability for said central office switching system, said peripheral platform including a database storage;

a call processing method comprising the steps of:

storing in database storage in said communications network for each of a plurality of said residence directory numbers at least one first identification parameter;

storing in database storage in said communications network for each of said first identification parameters a business billing directory number;

storing in database storage in said communications network for each of said business billing directory numbers at least one of said system administrator directory numbers for a system administrator associated with said business billing directory number; and

activating a billing service for a business associated with one of said business billing directory numbers by (a) connecting to said peripheral platform via one of said local communication lines associated with a system administrator directory number identified with said business billing directory number in said storage of business billing directory numbers and system administrator directory numbers in said communications network, and (b) identifying via said one of said local communication lines associated with a system administrator directory number a residence directory number and a first identifying parameter which are identified with said business billing directory numbers in said storage of billing business directory numbers and first identifying parameters in said communications network.

5,729,598

TELEPHONE NETWORK WITH TELECOMMUTING FEATURES

William A. Kay, Glendora, N.J., assignor to Bell Atlantic Network Services, Inc., Arlington, Va.

Filed Mar. 11, 1996, Ser. No. 613,560

Int. Cl.[6] H04M *15/00*

U.S. Cl. 379—115 **19 Claims**

1. In a communications network comprising:

local communication lines, a first plurality of said lines being connected to residences and having residence directory numbers and a second plurality of said lines being connected to businesses and having business directory numbers including business billing numbers and system administrator directory numbers for system administrators associated with said businesses;

5,729,599

METHOD AND SYSTEM OF FORWARDING CALLS IN A REMOTE ACCESS CALL FORWARDING SERVICE OF A TELEPHONE SYSTEM

Karen L. Plomondon, Lafayette, Colo.; Lotus Anne Mardick, Scottsdale, Ariz., and Joshua D. Stailer, Littleton, Colo., assignors to U S West, Inc., Englewood, Colo.

Filed Jun. 11, 1996, Ser. No. 664,207

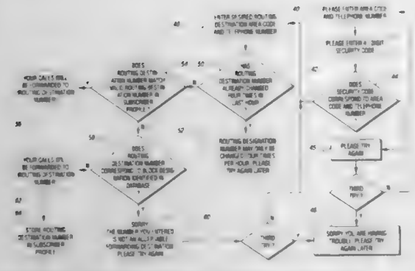
Int. Cl.[6] H04M *3/42;3/00;1/66;7/00*

U.S. Cl. 379—211 **24 Claims**

1. For use in an Advanced Intelligent Network, a method for validating a routing destination number in a call forwarding system for forwarding a call incoming to a subscriber's telephone number to the routing destination number, the method comprising:

receiving each routing destination number to which the call incoming to the subscriber's telephone number is to be forwarded;

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searching a database having a plurality of blocked destination identifiers stored therein to determine that the routing destination number does not correspond to a blocked destination identifier in the database; and

allowing the forwarding of the call incoming to the subscriber's telephone number in response to the routing destination number when the routing destination number does not correspond to a blocked destination identifier found in the database.

5,729,600

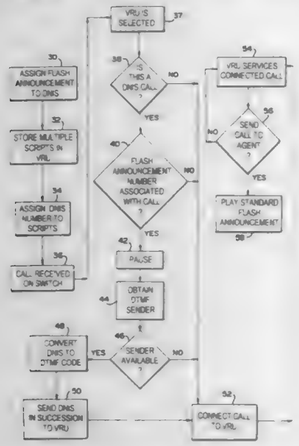
AUTOMATIC CALL DISTRIBUTOR WITH AUTOMATED VOICE RESPONSIVE CALL SERVICING SYSTEM AND METHOD

David L. Blaha, Aurora, and Brian J. Shapley, Woodridge, both of Ill., assignors to Rockwell International Corporation, Costa Mesa, Calif.

Filed Jun. 25, 1992, Ser. No. 904,410

Int. Cl.[6] H04Q *3/64;* **H04M** *1/64;15/00;3/00*

U.S. Cl. 379—265 **31 Claims**



1. In an automatic call distributor with a switch for selectively interconnecting a plurality of customer units of an external telephonic network with a plurality of agent units of an internal network of the call distributor, the improvement being an automated voice responsive call servicing system, comprising:

a voice response unit having a plurality of different stored scripts corresponding to a plurality of different types of connected calls;

means for associating different call type identification signals from the external network with different ones of the stored scripts of the voice response unit;

means for causing the voice response unit to operate in accordance with the different ones of the stored scripts automatically in response to receipt of the different call type identification signals associated with the different stored scripts to automatically respond to the plurality of different types of connected calls; and

means for providing an agent with a standard flash announcement in response to one of the plurality of different types of connected calls being transferred to the agent.

5,729,601

ELECTRONIC EXCHANGE APPARATUS HAVING SEPARATED EXCHANGE UNIT AND GENERAL-PURPOSE CONTROL UNIT

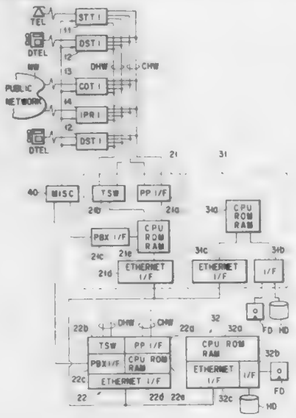
Toshio Murai, Ichikawa, Japan, assignor to Kabushiki Kaisha Toshiba, Kawasaki, Japan

Filed Dec. 5, 1995, Ser. No. 567,586

Claims priority, application Japan, Dec. 7, 1994, 6-303871

Int. Cl.[6] H04M *3/00;* **G05R** *15/00;* **G11C** *7/00*

U.S. Cl. 379—269 **75 Claims**



1. An electronic exchange apparatus comprising:

exchange means connected to a plurality of communication terminal devices and for performing an exchange operation between said plurality of communication terminal devices based on a control signal in a first format;

control means for generating a control signal in a second format necessary for the exchange operation by said exchange means;

control signal transmission means connected between said control means and said exchange means for bidirectionally transmitting a control signal in a third format;

first interface means connected between said exchange means and said control signal transmission means for converting the control signal in the first format to a control signal in the third format and vice versa; and

second interface means connected between said control means and said control signal transmission means for converting the control signal in the second format to a control signal in the third format and vice versa;

wherein said exchange means further comprises a time switch, a port processor interface, and a CPU connected to said time switch, port processor interface, and said first interface means.

5,729,602

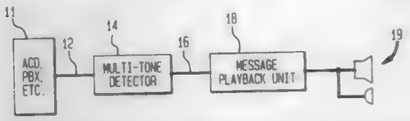
PROGRAMMABLE MULTI-TONE VOICE MESSAGE STARTING SYSTEM

Thomas Sullivan, Milford, N.H., and Herman Schnell, Davie, Fla., assignors to Comex Systems, Inc., Miami, Fla.

Filed Apr. 11, 1995, Ser. No. 420,088

Int. Cl.[6] H04M *1/00*

U.S. Cl. 379—282 **2 Claims**



1. A tone detection system for detecting the presence of a tone on an audio channel containing one or more voice spectrum signals superimposed thereon, the tone having a predetermined frequency selectable from among a plurality of frequencies within the bandwidth of the audio channel, the tone detection system configured to be implemented in a voice messaging system having a message playback unit, the system comprising:

a bandpass filter having a center frequency selectable in response to a control signal, said bandpass filter receiving as input an input audio signal and generating a band-limited output signal indicative of the presence of a tone at approximately said center frequency of said bandpass filter;

a band-stop filter, having the same center frequency as said bandpass filter, and providing an output representing the difference between the input audio signal and said band-limited output signal;

a first detector circuit for generating, responsive to said band-limited output, a first output indicating when said band-limited output contains a tone having substantial energy at approximately said center frequency;

a second detector circuit for generating, responsive to the otuput of the band-stop filter, a second output indicating when said band-stop filter output signal indicates the presence of substantial energy at frequencies other than said center frequency and within the passband of the bandpass filter; and

a controller configured to provide said control signal to set said center frequencies of said filters, said controller receiving said first and second output signals and generating a third output signal, for use by the message playback unit, indicating when a tone has been detected at said center frequency, said controller generating said third output when said first output signal indicates a presence of a tone for a predetermined time duration and said second output signal indicates a lack of presence of substantial energy at frequencies other than said center frequency for said predetermined time duration.

5,729,603

SELF-CONFIGURING TELEPHONE INTERFACE UNIT

David Huddart, Bristol, United Kingdom, and Robert M. Khamashta, Los Gatos, Calif., assignors to Plantronics, Inc., Santa Cruz, Calif.

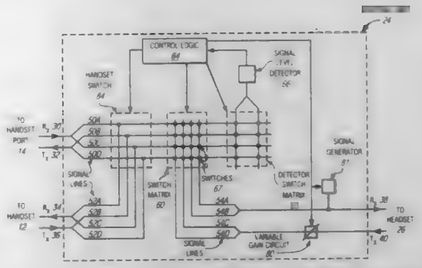
Filed Sep. 30, 1996, Ser. No. 719,815

Int. Cl.[6] H04M *1/00*

U.S. Cl. 379—387 **23 Claims**

16. A self-configuring headset and telephone interface unit, comprising:

a headset; a switch matrix, settable to any of a plurality of switch configurations, each switch configuration coupling a plurality of signal lines from a handset port of a telephone to a plurality of signal lines from a headset, the plurality of signal lines from the handset port including a handset port receive path, the plurality of signal lines from the headset including a headset receive path; and, a control logic, coupled to the switch matrix, that automatically determines which of the plurality of signal lines from the handset port comprise the handset port receive path, determines a preferred switch configuration from among the plurality of switch configurations based on which of the plurality of signal lines from the handset port comprise the handset port receive path, and sets the switch matrix to the preferred switch configuration, the preferred switch configuration coupling the handset port receive path to the headset receive path.



5,729,604

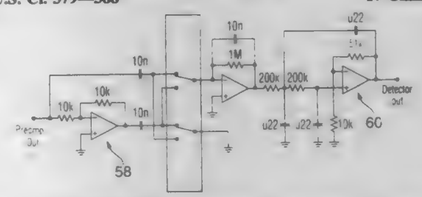
SAFETY SWITCH FOR COMMUNICATION DEVICE

Andre John Van Schyndel, Kanata, Canada, assignor to Northern Telecom Limited, Montreal, Canada

Filed Mar. 14, 1996, Ser. No. 615,908

Int. Cl.[6] H04M *1/60*

U.S. Cl. 379—388 **17 Claims**



1. A communication device having a housing and a receiving means, said receiving means being operable in a receiver mode and in a loudspeaker mode, said device further having switching means for switching said receiving means between the receiver mode and the loudspeaker mode, and a proximity sensor for activating said switching means to operate said receiving means in loudspeaker mode when said device is separated by at least a predetermined distance from a user's ear and in the receiver mode when said device is separated by less than said predetermined distance from the user's ear, said sensor providing an output signal having a first value under quiescent conditions, a second value when said sensor is less than said predetermined distance for activating said switching means, and a third value which is other than between the first and second values in the event of malfunction of said sensor, and means for switching said receiving means to said receiver mode in the event of the output signal reaching the third value.

5,729,605

HEADSET WITH USER ADJUSTABLE FREQUENCY RESPONSE

James F. Bobisuthi, Boulder Creek; Kangsee Woo, Freedom; Thomas T. Czepowicz, Santa Cruz, and Scott F. Burr, Felton, all of Calif., assignors to Plantronics, Inc., Santa Cruz, Calif.

Filed Jun. 19, 1995, Ser. No. 460,282

Int. Cl.[6] H04M *1/00;* **H04R** *25/00*

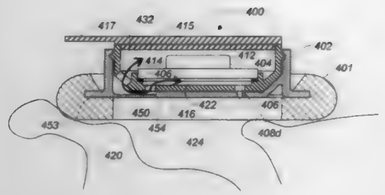
U.S. Cl. 379—430 **3 Claims**

1. A headset comprising:

a transducer having first and second surfaces, the first surface acoustically coupled to an air volume in the ear canal;

a housing having a first interior volume coupled to the second surface of the transducer, and further having a first port to the first interior volume;

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a covering movably coupled to the housing and having a second port to the air volume exterior to the first interior volume, the covering having:

a user selectable first position with respect to the housing where the second port communicates with the first port to couple the first interior volume to the air volume in the ear canal such that acoustic energy from both the first and second surfaces of the transducer is provided to the ear canal, producing a first predetermined frequency response for the headset; and

a user selectable second position with respect to the housing where the first port does not communicate with the second port, and the first interior volume is sealed with respect to the air volume in the ear canal, such that acoustic energy from only the first surface of the transducer is provided to the ear canal, producing a second predetermined frequency response for the headset that is perceptually different from the first predetermined frequency response.

5,729,606

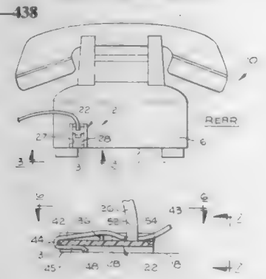
TELEPHONE CORD HOLDER

David R. Linderholm, 2431 Huron Rd., Waukegan, Ill. 60087

Filed Jun. 24, 1996, Ser. No. 668,919

Int. Cl.[6] H04M *1/00*

U.S. Cl. 379—438 **7 Claims**



1. A cord holder for a telephone instrument having a fitting with a socket therein for receiving a plug on a cord, the fitting having a leaf element with an outer exposed surface and the plug when in the socket having an outer surface adjacent the outer surface of the leaf element,

the cord holder comprising,

a clip in the form of a flat elongate strip, having a central body portion, a U-shape grip hook at a trailing end and a blocking portion at a leading end, and

the cord holder being capable of being put in active position on the fitting by placing the grip hook under the leaf element, the body portion over the leaf element, and the blocking portion over the plug,

whereby the grip hook grips the leaf element and holds the clip on the fitting and the blocking extension bears tightly against the plug and prevents the plug from being pulled out of the socket.

5,729,607

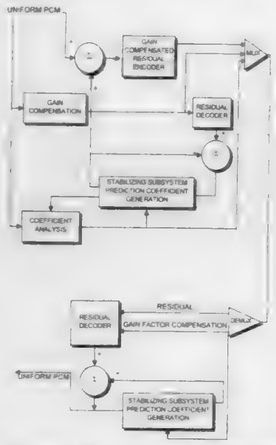
NON-LINEAR DIGITAL COMMUNICATIONS SYSTEM

Anthony DeFries, Oyster Bay, and Andrew Denis, Glencove, both of N.Y., assignors to Neosoft A.G., Zug, Switzerland

Continuation of Ser. No. 288,708, Aug. 12, 1994, abandoned. This application May 16, 1996, Ser. No. 649,976

Int. Cl.[6] H04K *1/02;* **H04L** *9/28*

U.S. Cl. 380—6 **6 Claims**



2. A receiver in communication with a transmitter over a communication conduit having chaotic noise, the transmitter having a transmitter subsystem that outputs noise codes in response to the chaotic noise of the conduit and having a modulator to modulate the noise codes with a desired signal, the receiver comprising:

an input to receive the modulated signals from the transmitter;

a receiver subsystem matched to the transmitter subsystem to output the noise codes in synch with the noise the transmitter subsystem in response to the chaotic noise of the conduit;

a demodulator, in electrical communication with the input and the receiver subsystem, to receive the noise codes from the receiver subsystem and demodulate the desired signal from the received modulated signals; and

an output, in electrical communication with the demodulator, to output the desired signal.

5,729,608

METHOD AND SYSTEM FOR PROVIDING SECURE KEY DISTRIBUTION IN A COMMUNICATION SYSTEM

Philippe Janson, Waedenswil, and Gene Tsudik, Thalwil, both of Switzerland, assignors to International Business Machines Corp., Armonk, N.Y.

PCT No. PCT/EP93/01989, § 371 Date Jan. 24, 1996, § 102(e) Date Jan. 24, 1996, PCT Pub. No. WO95/04416, PCT Pub. Date Feb. 9, 1995

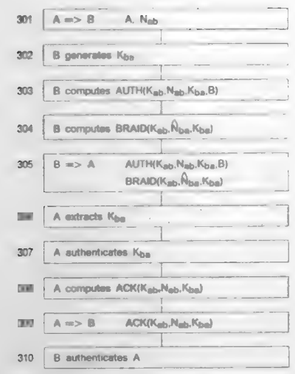
PCT Filed Jul. 27, 1993, Ser. No. 591,638

Int. Cl.[6] H04L *9/32*

U.S. Cl. 380—21 **22 Claims**

1. A method for providing secure, authenticated distribution in a communication system of a key to be used by a group of selected users, the key being distributed from a server to a sub-group consisting of the users of said group other than said server, each user of said sub-group sharing a secret user key with said server, said method comprising the steps of:

transmitting (**501**,**511**) the user's identification (A), a user's nonce (N_{as}) and an identification (B) of a user of said sub-group other than said transmitting user from each user of said sub-group to said server through an available path of said system;



generating (**502**) a new, common group key (K_{ab}) for all users of said group by said server;

computing (**503**,**512**) the value of a first function for each user of said sub-group by said server, said first function depending upon at least said user's key (K_{as}), said user's nonce (N_{as}), said group key (K_{ab}) and the identification (B) of the user of said group other than said user;

computing (**504**,**513**) the value of a second function for each user of said sub-group by said server, said second function depending upon at least said user's key (K_{as}), the value of said user's first function and said group key (K_{ab});

transmitting (**505**,**514**) the values of said user's first and second functions from said server to each user of said sub-group through an available path of said system;

extracting (**506**,**515**) said group key, by each user of said sub-group, from the value of said user's second function, employing said user's key and the value of said user's first function; and

re-computing (**507**,**516**) the value of said user's first function by each user of said sub-group and considering authenticated said extracted group key (K_{ab}) if said re-computed value is equal to the value of said user's first function received by said server.

5,729,609

METHOD FOR PRODUCING A COMMON KEY IN TWO DEVICES, IN ORDER TO IMPLEMENT A COMMON CRYPTOGRAPHIC PROCEDURE, AND ASSOCIATED APPARATUS

Yves Moulart, Bruxelles; Michel Dawirs, Wezembeek, both of Belgium, and Michel Hazard, Mareil Sur Mauldre, France, assignors to CP8 Transac, Paris, France

PCT No. PCT/FR95/00607, § 371 Date Jan. 11, 1996, § 102(e) Date Jan. 11, 1996, PCT Pub. No. WO95/30976, PCT Pub. Date Nov. 16, 1995

PCT Filed May 9, 1995, Ser. No. 592,350

Claims priority, application France, May 10, 1994, 94 05883

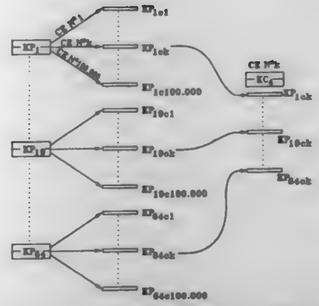
Int. Cl.[6] H04L *9/08*

U.S. Cl. 380—21 **16 Claims**

1. A method for producing a common key (K) assigned to an arbitrary device (CE_k) of a set of first devices (CE) and to an arbitrary device (PME_i) of a set of second devices (PME) so that these two devices will implement a common cryptographic procedure, characterized in that it includes the steps comprising:

assigning a first mother key (KC) to each of said first devices (CE), and a second mother key (KP) to each of said second devices (PME);

assigning at least one daughter key (KP_{ck}) to each first device (CE_k), based on the second mother key (KP) relating to the second devices (PME_i) and on an identification datum (ck) assigned to this first device (CE_k);



assigning at least one daughter key (KC_{pi}) to each second device (PME_i), based on the first mother key (KC) relating to the first devices (CE_k) and on an identification datum (pi) assigned to the second device (PME_i), and each time a cryptographic procedure between a first device (PME_i) and a second device (CE_k) is requested;

transmitting the identification datum (pi, ck) from each of these two devices to the other device;

in each of these two devices, developing a daughter key (KP_{ck}, KC_{pi}), based on the mother key (KP, KC) of the applicable device and on the identification datum (ck, pi) received from the other device;

in each of these two devices, selecting the daughter key (KC_{pi}, KP_{ck}) corresponding to the identification datum (pi, ck) received from the other device; and

associating the two daughter keys constituted by the daughter key (KP_{ck}; KC_{pi}) developed on the occasion of this procedure and the daughter key selected (KC_{pi}; KP_{ck}) to form a pair constituting said common key (K).

5,729,610

RADIO PAGING UNIT

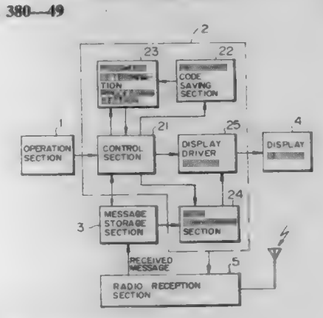
Hiromichi Ishida, Shizuoka, Japan, assignor to NEC Corporation, Tokyo, Japan

Filed Apr. 15, 1996, Ser. No. 632,625

Claims priority, application Japan, Apr. 20, 1995, 7-094985

Int. Cl.[6] H04K *1/00*

U.S. Cl. 380—49 **2 Claims**



1. A radio paging unit comprising:

input means adapted to be operated by a user to input pieces of various setting information;

radio reception means for receiving control information and message information transmitted from a radio base station;

message storage means for saving received message information from said radio reception means;

encryption means for converting the received message information into encrypted message information;

display means for visually displaying the received message information and the encrypted message information to the user;

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password registration means for registering a common password in advance which is used to disclose all message contents to limited users; password collation means for collating an input password from said input means with the password registered in said password registration means, and control means,

wherein said control means receives and stores encryption control information indicating whether setting of encryption destination information to the message information is executed by a user's selection or by an automatic selection, to set encryption designation information to each of the received message information selected by the user and the message information which is not to be disclosed when the encryption control information indicates the selection by the user, to automatically set the encryption designation information to all of the message information received thereafter when the encryption control information indicates the automatic selection, to cause said display means to display the received message information for which the encryption designation information is set after the information is converted into encrypted message information by said encryption means, to cause said display means to display the received message information, without any conversion, for which the encryption designation information is not set, and to cancel all of the encryption designation information set to the received message information to enable the display means to display the message information upon reception of a collation result indicating password coincidence from said password collation means.

5,729,611

LOUDSPEADER OVERLOAD PROTECTION

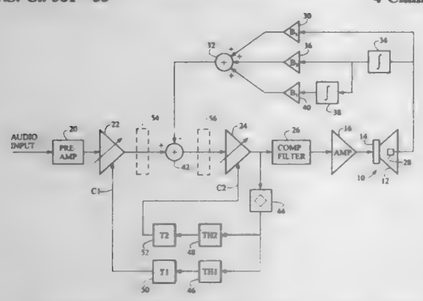
Marc Etienne Bonneville, 13 Parkwood Crescent, Gloucester, Ontario, Canada, K1B 3J5

Filed Jan. 24, 1997, Ser. No. 788,580

Claims priority, application Canada, Feb. 7, 1996, 2169029

Int. Cl.[6] H03G *11/00*; **H04R** *3/00*

U.S. Cl. 381—55 **4 Claims**



1. A loudspeaker unit comprising an electroacoustic transducer, input means for an audio signal to be reproduced by the electroacoustic transducer, a power amplifier connected between the input means and the electroacoustic transducer, sensor means for providing a motion signal in dependence upon motion of the electroacoustic transducer, feedback means for providing a feedback signal in dependence upon the motion signal, and subtracting means connected between the input means and the power amplifier for subtracting the feedback signal from the audio signal and supplying the resulting difference signal to the power amplifier, the loudspeaker unit comprising control means for providing a first gain control signal and a second gain control signal in response to the audio signal amplitude exceeding first and second predetermined levels, respectively, the first predetermined threshold level being lower than the second predetermined threshold level, first variable gain amplifier means connected between the input means and the subtracting means and responsive to the first gain control signal to decrease amplification of the audio signal and second variable gain amplifier means connected within the feedback loop comprising the subtracting means, power amplifier and feedback path, the second variable gain amplifier being responsive to the second gain control signal to decrease gain within the feedback loop, the arrangement being such that the rate of change of gain of the first variable gain amplifier means in response to the audio signal exceeding the first predetermined level is significantly slower than the rate of change of the gain of the second variable gain amplifier means in response to the audio signal exceeding the second predetermined level.

5,729,612

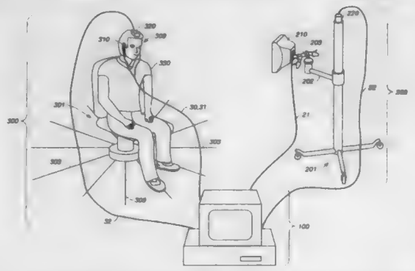
METHOD AND APPARATUS FOR MEASURING HEAD-RELATED TRANSFER FUNCTIONS

Jonathan Stuart Abel, Palo Alto, and Scott Haines Foster, Groveland, both of Calif., assignors to Aureal Semiconductor Inc., Fremont, Calif.

Filed Aug. 5, 1994, Ser. No. 286,873

Int. Cl.[6] H04R *29/00*

U.S. Cl. 381—56 **10 Claims**



1. A method for deriving an acoustic transfer function comprising the steps of

generating a test signal,

generating a sound field at a first position in response to said test signal,

measuring said sound field at a second position using a blocked-meatus microphone installed at or near the opening of an ear canal of a live test subject to generate a measured signal,

obtaining a raw system impulse response from said measured signal and said test signal,

obtaining a raw direct-path impulse response by removing effects of reflections from said raw system impulse response, and

deriving said acoustic transfer function from said raw direct-path impulse response, wherein said acoustic transfer function represents acoustic levels and phase of said soundfield at said second position.

5,729,613

REVERBERATORS FOR USE IN WIDE BAND ASSISTED REVERBERATION SYSTEMS

Mark Poletti, Wellington, New Zealand, assignor to Industrial Research Limited, New Zealand

PCT No. PCT/NZ94/00110, § 371 Date Apr. 15, 1996, § 102(e) Date Apr. 15, 1996, PCT Pub. No. WO95/10831, PCT Pub. Date Apr. 20, 1995

PCT Filed Oct. 17, 1994, Ser. No. 624,547

Claims priority, application New Zealand, Oct. 15, 1993, 248970

Int. Cl.[6] H03G *3/00*

U.S. Cl. 381—63 **3 Claims**

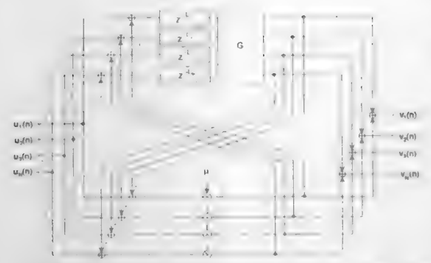
1. A multi-channel reverberation system comprising:

multiple signal inputs, one for each input channel;

a number of feed back comb filter networks connected one to each signal input, each comb filter network including a feed forward stage to provide a substantially constant multi-channel power gain at audio frequencies;

a cross-coupling network cross-coupling the comb filters to increase the reverberation echo density;

and multiple signal outputs, one for each output channel.



5,729,614

HOWLING REMOVER COMPOSED OF ADJUSTABLE EQUALIZERS FOR ATTENUATING COMPLICATED NOISE PEAKS

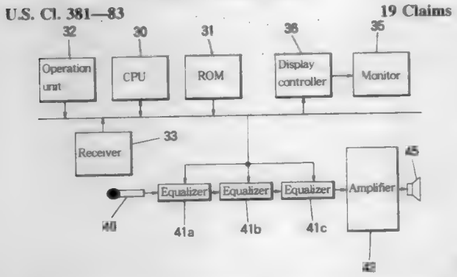
Yuichi Nagata; Satoshi Suzuki; Morito Yamada; Masao Yoshida; Mikio Kitano; Kiyoto Kuroiwa, and Shigenobu Kimura, all of Hamamatsu, Japan, assignors to Yamaha Corporation, Hamamatsu, Japan

Filed Sep. 11, 1995, Ser. No. 526,261

Claims priority, application Japan, Sep. 9, 1994, 6-216292; Apr. 7, 1995, 7-082459

Int. Cl.[6] H04R *27/00*

U.S. Cl. 381—83 **19 Claims**



1. An apparatus for amplifying a sound while suppressing a howling noise, the apparatus comprising:

collecting means for collecting a sound and for converting the collected sound into a corresponding input signal;

generating means for amplifying the input signal to generate the sound;

a plurality of attenuating means interposed between the collecting means and the generating means, each attenuating means each attenuating means being comprised of a digital equalizer having a variable attenuation frequency for attenuating filtering the input signal around the attenuation frequency;

detection means operative to individually sweep variable attenuation frequencies of the plurality of the digital equalizers for detecting a plurality of noise spectrum peaks of the howling noise contained in the collected sound; and

adjusting means for adjusting respective variable attenuation frequencies of the plurality of the attenuating means corresponding to the plurality of the detected noise spectrum peaks to remove the howling noise from the generated sound.

5,729,615

IN-EAR TYPE EARPHONE HAVING AN EAR HANGER

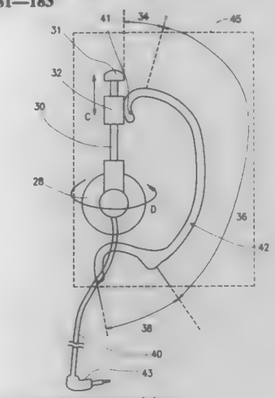
Bill Yang, Taipei, Taiwan, assignor to Cotron Corporation, Taiwan

Filed Jan. 27, 1997, Ser. No. 789,618

Claims priority, application Taiwan, Dec. 28, 1996, 85220239

Int. Cl.[6] H04R *25/00*

U.S. Cl. 381—183 **10 Claims**



1. An in-ear earphone comprising:

an in-ear type speaker element;

a cable disposed external of the speaker element, the cable being coupled at one end to the speaker element such that the cable hangs freely from the speaker element and coupled at an opposite end to a plug, the plug being configured to operatively connect the earphone to a sound signal source;

a sliding shaft having a longitudinal axis mounted at one end to the speaker element;

a sliding sleeve receiving an opposite end of the sliding shaft and allowing the sliding shaft to move along the longitudinal axis thereof; and

an ear hanger comprising a helix stopper end, a curved hook section, and a lobule stopper end integrally formed and contoured to a general shape of a human ear, the helix stopper end being mounted to the sliding sleeve in a fixed manner,

wherein the speaker element rotates with respect to the longitudinal axis of the sliding shaft.

5,729,616

CENTERING DIAPHRAGM

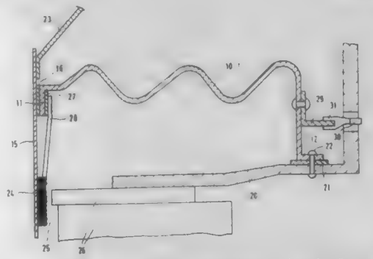
Stefan Geisenberger, Straubing, Germany, assignor to Nokia Technology GmbH, Pforzheim, Germany

Filed May 23, 1995, Ser. No. 447,731

Claims priority, application Germany, Jun. 1, 1994, 44 19 311.4; Jun. 18, 1994, 44 21 418.9

Int. Cl.[6] H04R *25/00*

U.S. Cl. 381—197 **10 Claims**



1. A centering diaphragm for loudspeakers, wherein the centering diaphragm (**10**) is made of a nonmagnetic metal, a means is

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provided to enable the exchange of air between the areas above and below the centering diaphragm (**10**), the centering diaphragm contains openings (**13**), wherein at least the surfaces of one of the rim areas (**11**; **12**), by which the centering diaphragm (**10**) is joined to the other loudspeaker components (**15**; **20**; **23**), is made of an ultrasonically weldable metal, and wherein each rim area (**11**; **12**) of centering diaphragm (**10**) containing such a surface, is joined by ultrasonically welding this surface to another loudspeaker component (**15**, **20**), which also has a surface made of an ultrasonically weldable metal.

5,729,617

MAGNET SYSTEM

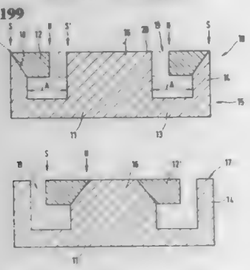
Hermann Gruber, Hunderdorf, Germany, assignor to Nokia Technology GmbH, Pforzheim, Germany

Filed Jul. 25, 1996, Ser. No. 690,322

Claims priority, application Germany, Jul. 27, 1995, 29512102 U

Int. Cl.[6] **H04R** *25/00*

U.S. Cl. 381—199 **2 Claims**



1. Magnet system for electromagnetic converters, which is formed of at least one permanent magnet (**12**) and one yoke (**11**), and contains an air gap (**19**), wherein the yoke (**11**) is a one-piece pot (**15**), formed of an edge wall (**14**), a bottom (**13**), and a core (**16**) which extends inside the pot (**15**) and is surrounded by a space (**A**) at a distance from the edge wall (**14**);

wherein the permanent magnet (**12**) is magnetized crosswise to the extended direction of the core (**16**), and is inserted into the space (**A**) so that a remaining space between the permanent magnet (**12**) and a part (**16**) of the magnet system which is not connected to the permanent magnet (**12**), forms the air gap (**19**) of the magnet system (**10**) and wherein an upper end (**17**) of the edge wall (**14**) is formed at an angle for mating with a respective angled edge of the permanent magnet thereby forming complementary mating means;

wherein the complementary mating means for the yoke part that is formed on the edge wall is connected to the permanent magnet (**12**), the permanent magnet having an annular form with said respective angled edge of the permanent magnet (**12**) located in an outer edge thereof;

wherein the permanent magnet (**12**) has a shape of a frustrum of a right circular cone oriented on the edge wall of the yoke with a top radius larger than a bottom radius and with a right circular cylindrical hole in a center of the permanent magnet with a diameter smaller than an inside diameter of the edge wall and larger than an outside diameter of the core.

5,729,618

IMAGE FORMING APPARATUS FOR OUTPUTTING EQUIVALENTS OF WORDS SPELLED IN A FOREIGN LANGUAGE

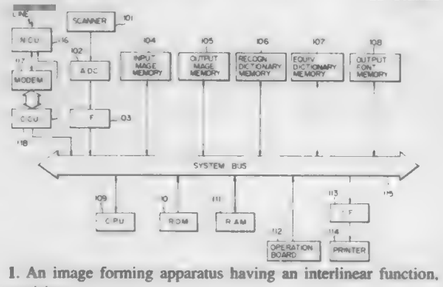
Tetsuo Fujisawa, Urawa, and Takako Sato, Yokohama, both of Japan, assignors to Ricoh Company, Ltd., Tokyo, Japan

Continuation of Ser. No. 60,543, May 13, 1993, abandoned. This application Mar. 17, 1995, Ser. No. 407,054

Claims priority, application Japan, May 13, 1993, 4-146213

Int. Cl.[6] **G06K** *9/00*; **G06F** *17/28*

U.S. Cl. 382—100 **12 Claims**



1. An image forming apparatus having an interlinear function, comprising:

image reading means for optically reading a document image to convert said document image to corresponding image data;

image storing means for storing the image data read by said image reading means or image data received over a communication line;

image processing means for executing various kinds of image processing with the image data to produce an image signal;

image recording means for recording an image on a recording medium in response to the image signal from said image processing means;

character recognizing means for recognizing characters included in the image data read by said image reading means or the image data received over the communication line;

word separating means for separating words on the basis of the characters recognized by said character recognizing means;

equivalent storing means for storing the words separated by said word separating means and equivalents of said words;

equivalent searching means for searching for the equivalent of words read out from said equivalent storing means;

output image generating means for outputting the equivalent searched for by said equivalent searching means together with the word corresponding to said equivalent;

paragraph separating means for separating paragraphs included in the image data;

paragraph mark adding means for adding paragraph marks to the paragraphs separated by said paragraph separating means; and

image generating means for generating an image by adding the paragraph marks to the image data.

5,729,619

OPERATOR IDENTITY, INTOXICATION AND DROWSINESS MONITORING SYSTEM AND METHOD

Samuel C. Puma, Torrance, Calif., assignor to Northrop Grumman Corporation, Los Angeles, Calif.

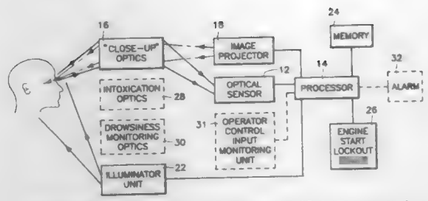
Filed Aug. 8, 1995, Ser. No. 512,593

Int. Cl.[6] **G06K** *9/00*

U.S. Cl. 382—115 **50 Claims**

1. An integrated vehicle operator monitoring system for a vehicle, comprising:

an optical operator intoxication monitor optically capable of monitoring reflected and emitted light patterns from an eye of the vehicle operator and comparing the monitored light patterns to reflected and emitted light patterns indicative of an intoxicated operator so as to determine if the operator is too intoxicated to operate the vehicle.



5,729,620

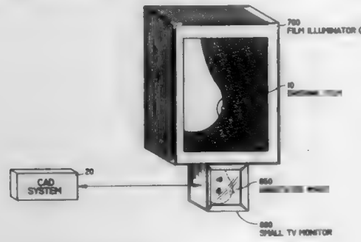
COMPUTER-AIDED DIAGNOSIS SYSTEM AND METHOD

Shih-Ping Wang, 409 Becker Ln., Los Altos, Calif. 94022

Continuation-in-part of Ser. No. 129,255, Sep. 29, 1993, abandoned. This application May 10, 1995, Ser. No. 438,432

Int. Cl.[6] **G06K** *9/00*

U.S. Cl. 382—128 **29 Claims**



1. A system comprising:

a source of digitized image data representing x-ray film characterized by high spatial resolution;

a processor coupled with said source to receive said digitized image data, to process said data to detect abnormal anatomical features meeting selected criteria, and to generate lower resolution annotation maps identifying image portions meeting said selected criteria; and

a display coupled with said processor and displaying said x-ray film for viewing at full analog spatial and contrast resolution and at a high brightness level while selectively superposing thereon said annotation maps in registration therewith;

wherein, said x-ray film is annotated with a scanning high intensity light beam.

5,729,621

METHOD AND APPARATUS FOR MAGNETIC INK CHARACTER RECOGNITION USING A MAGNETO-RESISTIVE READ HEAD

Gary R. Marshall; Gene R. Franklin, and Benedict C-M Ho, all of Waterloo, Canada, assignors to NCR Corporation, Dayton, Ohio

Filed Aug. 31, 1995, Ser. No. 522,444

Int. Cl.[6] **G06K** *7/08; 9/20*

U.S. Cl. 382—139 **20 Claims**

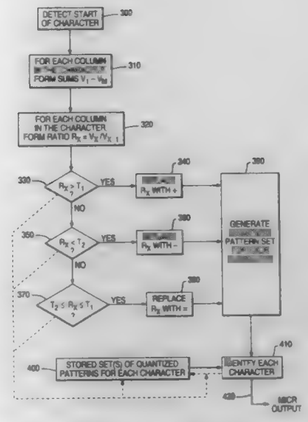
1. In a system for sensing ink-printed E13B font characters with a read head responsive to said ink, wherein each of said characters to be read is defined to occupy at least part of a matrix of cells including M columns, a method for recognizing said characters comprising the following steps:

(a) examining a column-sum read head output signal V_x as said read head senses each of said M columns for each of said characters, where $1 \leq x \leq M$, and V1 is a first read non-zero signal strength signal preceded by a zero signal strength signal **V0**;

(b) for each of said characters, forming a set of M ratios $R_x = V_x/(V_{x-1})$, where $1 \leq x \leq M$;

(c) for each of said characters, quantizing said ratios R_x into one of three values;

(d) based upon said values, forming a set of quantized code patterns that each contain M pattern members and that each permit unique correlation to one of said characters to be read; and (e) recognizing said characters to be read from said quantized code patterns.



5,729,622

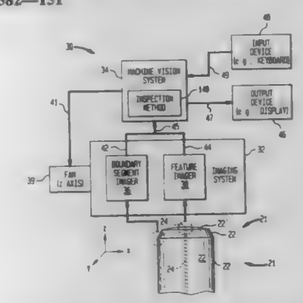
AUTOMATIC INSPECTION SYSTEM FOR CONTACTLESSLY MEASURING AN OFFSET OF A CENTRAL FEATURE OF AN OBJECT

Andrei Csipkes, Lawrenceville, and John Mark Palmquist, Lilburn, both of Ga., assignors to Lucent Technologies Inc., Murray Hill, N.J.

Filed Aug. 2, 1995, Ser. No. 510,226

Int. Cl.[6] **G06K** *9/00*; **G01B** *11/27*

U.S. Cl. 382—151 **15 Claims**



1. An inspection system for contactlessly measuring an offset, of an optical fiber core of an optical fiber termination endface, comprising:

an imaging system including an optical fiber core imager and a boundary segment imager, said imaging system to be exposed to said optical fiber termination endface, said optical fiber core imager configured to capture an optical fiber core image of said optical fiber core, said boundary segment imager configured to capture a boundary segment image of a boundary segment of said optical fiber termination endface while

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said optical fiber core imager captures said optical fiber core image and without rotation of said endface; and

a machine vision system interfaced with said imaging system and configured to determine said offset based upon said optical fiber core image and said boundary segment image.

5,729,623

PATTERN RECOGNITION APPARATUS AND METHOD OF OPTIMIZING MASK FOR PATTERN RECOGNITION ACCORDING TO GENETIC ALGORITHM

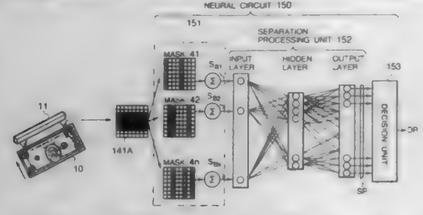
Sigeru Omatu, Tokushima; Fumiaki Takeda, Himeji; Saizo Onami, Himeji, and Takashi Kadono, Himeji, all of Japan, assignors to Glory Kogyo Kabushiki Kaisha, Hyogo, Japan

Filed Oct. 3, 1994, Ser. No. 316,446

Claims priority, application Japan, Oct. 18, 1993, 5-282166; Oct. 21, 1993, 5-285527

Int. Cl.[6] G06K *9/62;9/00;* **G06F** *15/18*

U.S. Cl. 382—155 **16 Claims**



1. A pattern recognition apparatus comprising:

an image sensor for optically detecting a pattern image of an object to be recognized;

a pre-processing unit for converting pattern image data detected by said image sensor into a plurality of representative values of the pattern image, using a plurality of area masks each having a plurality of rectangular segments wherein random rectangular segments are closed;

a memory unit for storing weights which have been adjusted to optimum representative values for decision images to be recognized;

a separation processing unit for receiving in parallel said plurality of representative values of the pattern image, and then calculating separation values corresponding to respective decision images within the pattern image using the weights stored in said memory unit; and

a decision unit for detecting the maximum or minimum value of said separation values and then outputting a decision corresponding to the maximum or minimum value as the pattern image of the object.

5,729,624

IMAGE PROCESSING METHOD AND APPARATUS

Hiroshi Tanioka, and Yasuhiro Yamada, both of Yokohama, Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan

Continuation of Ser. No. 717,907, Jun. 19, 1991, abandoned. This application Sep. 1, 1993, Ser. No. 115,253

Claims priority, application Japan, Jun. 20, 1990, 2-163601; Jun. 20, 1990, 2-163602; Jun. 20, 1990, 2-163603

Int. Cl.[6] G06K *9/00*

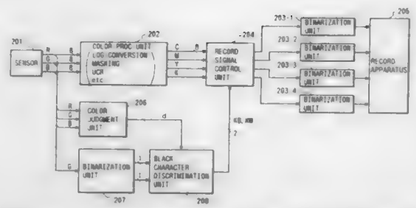
U.S. Cl. 382—162 **24 Claims**

1. An image processing apparatus comprising:

a) input means for inputting a plurality of color component signals for each pixel;

b) first discrimination means for discriminating whether or not a pixel of interest has a predetermined color, based on the color component signals;

c) second discrimination means for discriminating whether or not the pixel of interest belongs to a line image portion, based on the color component signals;



d) first judgement means for judging whether or not the pixel of interest belongs to a line image portion of the predetermined color, based on the discrimination results of said first and second discrimination means, a result of said first judgement means being positive when the pixel of interest belongs to the line image portion of the predetermined color and being negative when the pixel of interest does not belong to the line image portion of the predetermined color;

e) second judgement means for judging whether or not the pixel of interest is outside a line image portion of the predetermined color but in the vicinity of a pixel which belongs to a line image portion of the predetermined color, based on the discrimination results of said first and second discrimination means, a result of said second judgement means being positive when the pixel of interest is outside the line image portion of the predetermined color, but in the vicinity of the pixel which belongs to a line image portion, and being negative when not in the vicinity of a pixel which belongs to a line image portion of the predetermined color; and

f) control means for controlling recording of the pixel of interest (i) in a first manner, when the result of said first judgement means is positive, (ii) in a second manner, when the result of said second judgement means is positive and the result of said first judgement means is negative, and (iii) in a third manner when the results of both the first and the second judgement means are negative.

5,729,625

IMAGE PROCESSING METHOD AND APPARATUS WHICH EXPAND A PIXEL INTO MULTIPLE PIXELS, WITH A CHANGE IN THE NUMBER OF GRAY LEVELS

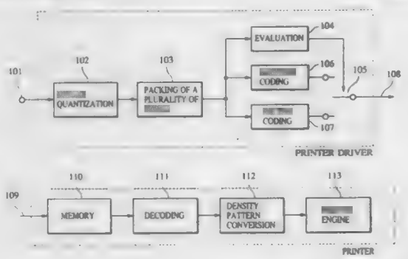
Nobutaka Miyake, Yokohama, Japan, assignor to Canon Kabushiki Kaisha, Tokyo, Japan

Filed Jul. 2, 1996, Ser. No. 675,415

Claims priority, application Japan, Jul. 14, 1995, 7-178707; Apr. 4, 1996, 8-082482

Int. Cl.[6] G06K *9/00*

U.S. Cl. 382—169 **19 Claims**



1. An image processing apparatus for converting image information each pixel of which has n gray levels into image information with an increased number of pixels each having m gray levels, so that one pixel of the original image information is expanded to A×B pixels in the converted image information (where n and m are integers which satisfy the condition n>m≧2 and where A and B are positive integers at least one of which is greater than 1), said image processing apparatus comprising:

quantization means for scalar-quantizing the image information with n gray levels into image information with p gray levels, wherein said scalar quantizing is performed in units of pixels (where n>p>m);

coding means for coding the image information with p gray levels supplied by said quantization means into a compressed code having a value less than p to the power of C, wherein said coding is performed in units of C pixels (where C≧2);

decoding means for decoding the code supplied by said coding means, wherein said decoding is performed in units of C pixels; and

gradation pattern producing means for producing a pixel arrangement pattern representing gradation on the basis of the decoded signal supplied by said decoding means, wherein each pixel of said pixel arrangement pattern has m gray levels.

5,729,626

DIGITAL IMAGE FORMING APPARATUS

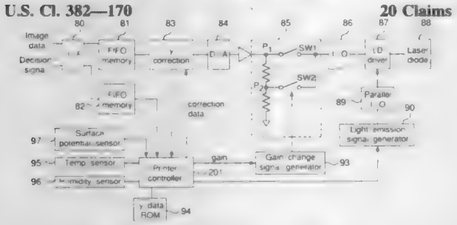
Yoshinobu Hada, Aichi-Ken; Kazuyuki Fukui, Toyohashi, and Takanobu Yamada, Toyokawa, all of Japan, assignors to Minolta Co., Ltd., Osaka, Japan

Filed Dec. 28, 1994, Ser. No. 365,507

Claims priority, application Japan, Dec. 28, 1993, 5-335168

Int. Cl.[6] G03F *3/08;* **H04N** *1/04*

U.S. Cl. 382—170 **20 Claims**



1. A digital image forming apparatus comprising:

an image sensor which receives light reflected from an original document and outputs signals according to the thus received reflected light;

a photoconductor;

an exposure means for exposing a surface of said photoconductor with a beam in raster scan so as to form an electrostatic latent image thereon;

an exposure control means for controlling an intensity of the beam of said exposure means according to the signals outputted by said image sensor;

a light-emission control means for inhibiting said exposure means to expose said photoconductor every predetermined period so that a non-light-emitting time interval is formed between light-emitting periods wherein said exposure means exposes the surface of said photoconductor;

a discriminating means for determining a type of an image in the original document; and

a ratio changing means for changing a ratio of the light-emitting period to the interval in accordance to the type of image determined by said discriminating means.

5,729,627

APPARATUS FOR AND METHOD OF JUDGING DOTTED IMAGE AREA

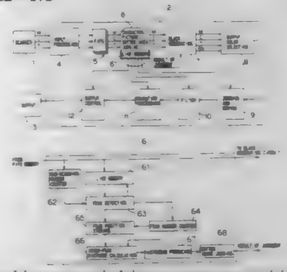
Masayuki Mizuno; Masaya Fujimoto; Haruo Yamamoto, and Hidechika Kumamoto, all of Osaka, Japan, assignors to Mita Industrial Co., Ltd., Osaka, Japan

Filed Nov. 2, 1995, Ser. No. 556,839

Claims priority, application Japan, Nov. 16, 1994, 6-282223; Nov. 16, 1994, 6-282224; Nov. 16, 1994, 6-282225

Int. Cl.[6] H04N *1/387;1/40*

U.S. Cl. 382—173 **21 Claims**



1. A dotted image area judging apparatus comprising:

storing means for storing image data corresponding to at least one line, the image data representing a density of each of pixels of an original image which is represented by a plurality of lines, each of the lines including a plurality of pixels;

detecting means for detecting peculiar point pixels on the basis of the image data stored in the storing means, the detecting means including means for successively setting a target pixel along a main scanning direction, comparing means for comparing image data corresponding to the target pixel with image data corresponding to pixels around the target pixel, and means for judging whether or not the target pixel is a peculiar point pixel on the basis of a result of a comparison made by the comparing means;

distance operating means for determining and operation on a distance between peculiar point pixels which are detected by the detecting means; and

judging means for referring the distance between the peculiar point pixels which is operated on by the distance operating means to a predetermined judgment basis to judge whether or not a judging area including a finite number of pixels belongs to a dotted image area.

5,729,628

IMAGE SEGMENTING METHOD AND APPARATUS

Takeshi Tokuyama, Machida, Japan, assignor to International Business Machines Corporation, Armonk, N.Y.

Filed Apr. 30, 1996, Ser. No. 640,304

Claims priority, application Japan, Jun. 15, 1995, 7-148562; Feb. 2, 1996, 8-017249

Int. Cl.[6] G06K *9/34*

U.S. Cl. 382—173 **9 Claims**

1. A method for segmenting a partial image from a whole image having a plurality of pixels with gray levels, comprising the steps of:

inputting a number k of pixels of the partial image to be segmented;

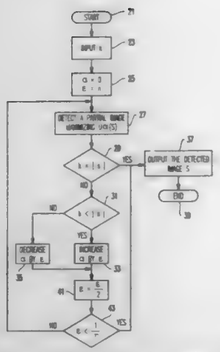
detecting a partial image maximizing

$$U_\alpha(S) = n \sum_{(i,j)\in S} g(i,j) - \alpha|S|$$

where n is the number of pixels of said whole image, g(i,j) is the gray level of a pixel (i, j), α is a parameter, and |S| is the number of pixels of the partial image S;

comparing the number |S| of pixels of the partial image S maximizing $U_\alpha(S)$ with the inputted number k;

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increasing a value of α if |S|>k and decreasing the value of α if |S|<k;

again executing said steps subsequent to said inputting step using the updated α; and

outputting said partial image S which maximizes $U_\alpha(S)$ if |S|=k.

5,729,629

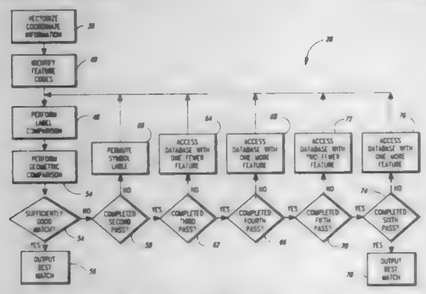
HANDWRITTEN SYMBOL RECOGNIZER

Xiwei Dai, Bellevue, Wash., assignor to Microsoft Corporation, Redmond, Wash.

Continuation of Ser. No. 452,660, May 25, 1995, abandoned, which is a continuation of Ser. No. 86,333, Jun. 30, 1993, abandoned. This application Nov. 18, 1996, Ser. No. 744,218

Int. Cl.[6] G06K *9/00;9/48*

U.S. Cl. 382—187 **61 Claims**



1. An automatic handwritten symbol recognizer that recognizes a handwritten input symbol having sequential features written according to a time sequential order, comprising:

a symbol analyzer that receives a time sequence of coordinate information representing the sequential features of the input symbol according to the time sequential order in which the sequential features were written, translates the coordinate information for each written sequential feature into a feature code representing one of a predetermined number of feature models, and produces an input label of feature codes ordered according to the time sequential order in which the features were written, the symbol analyzer also creates a geometric representation of the input symbol, the geometric representation including data representing positions of the features of the input symbol;

a memory storing reference symbol information including a plurality of label models and a plurality of geometric models, each label model including a plurality of feature codes in a predetermined order and corresponding to one of the geometric models, each geometric model storing data representing positions of features of a reference symbol represented by the geometric model;

a label comparator that compares the input label with the label models without regard for positions of the features represented by the feature codes of the input label and identifies a most closely matching subset of the stored label models by identifying the label model or models that most closely match the input label regardless of the positions of the features represented by the feature codes of the input label; and

a geometric comparator that compares only the geometric models corresponding to the label models of the most closely matching subset with the geometric representation of the input symbol and identifies the geometric model or models that most closely match the geometric representation of the input symbol.

5,729,630

IMAGE PROCESSING METHOD AND APPARATUS HAVING CHARACTER RECOGNITION CAPABILITIES USING SIZE OR POSITION INFORMATION

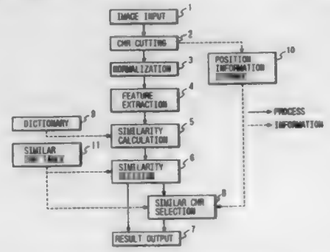
Hiroaki Ikeda, Yokohama, Japan, assignor to Canon Kabushiki Kaisha, Tokyo, Japan

Continuation of Ser. No. 22,437, Feb. 16, 1993, abandoned, which is a continuation of Ser. No. 698,274, May 10, 1991, abandoned. This application Nov. 29, 1994, Ser. No. 348,833

Claims priority, application Japan, May 14, 1990, 2-124891; Aug. 24, 1990, 2-221023

Int. Cl.[6] G06K *9/62*

U.S. Cl. 382—229 **36 Claims**



1. An image processing apparatus comprising:

memory means for storing a plurality of character images;

similar character table means for storing in advance, a plurality of image categories, each image category containing images different in relative position characteristic from each other;

recognition means for recognition-processing each of the plurality of character images stored in said memory means so as to obtain a candidate image category for each character image;

determining means for determining whether the obtained candidate category is included in one of the plurality of image categories stored in said similar character table means;

selection means, responsive to a determination by said determining means that the candidate image category obtained for one character image is included in one of the stored image categories, for identifying relative position characteristics of the one character image to a line which includes the one character image and for selecting one image from the plurality of image categories based on the obtained candidate image category and the identified relative position characteristics; and

output means, responsive to a determination by said determining means that the candidate image category obtained for one character image is not included in the stored image categories, for outputting the candidate image category obtained by said recognition means as a recognition result for the one character image.

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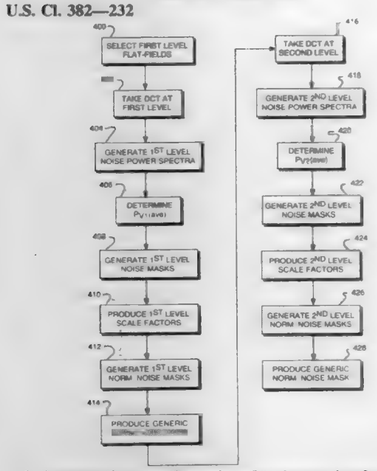
IMAGE NOISE REDUCTION SYSTEM USING A WIENER VARIANT FILTER IN A PYRAMID IMAGE REPRESENTATION

Munib A. Wober, Haverhill; Yibing Yang, Arlington; Ibrahim Hajjahmad, Malden; Lon E. Sunshine, Boston, and Michael L. Reisch, Carlisle, all of Mass., assignors to Polaroid Corporation, Cambridge, Mass.

Continuation-in-part of Ser. No. 159,795, Nov. 30, 1993, abandoned. This application May 15, 1995, Ser. No. 440,639

Int. Cl.[6] G60K *9/36*

U.S. Cl. 382—232 **9 Claims**



1. A system for modeling noise of an image signal source, said system comprising:

a gray target of uniform illuminance defined as a flat-field;

said image signal source for capturing an image signal representing an image of said flat-field;

a preamplifier for amplifying said captured image signal;

an analog-to-digital converter for digitally formatting said amplified image signal;

a digital interface for interfacing said digital image signal with a microprocessor;

said microprocessor for processing said digital image signal using discrete cosine transforms to produce a noise mask and values for a lookup table; and

memory for storing said noise mask and said lookup table values, wherein said microprocessor processes said digital image signal by

selecting a plurality of flat-fields at a first level, each said first level flat-field having a different luminance level,

partitioning each said first level flat-field into a plurality of first segments, each said first segment having a predetermined number of elements,

performing a forward discrete even cosine transformation (DCT) on each said first segment to yield first level DCT coefficients characterizing first level noise in each said first segment,

setting to zero a first element, defined as a DC element, of said first level DCT coefficients for each said first segment,

generating a first segment power spectrum for each said first segment of each said first level flat-field by squaring said first level DCT coefficients from step (*9d*),

generating an average first segment power spectrum of each said first level flat-field by averaging corresponding elements of said first segment power spectra within each said first level flat-field,

generating a first level noise mask for each said first level flat-field by taking the square mot of each element of said average first segment power spectrum for each said flat-field,

generating a first level scale factor for each said first level flat-field by squaring each element of each said first level noise mask, summing the squared elements of each said first level noise mask, dividing the sum by said predetermined number to produce a quotient, then taking the square root of the quotient, wherein said values of said lookup table comprise said first level scale factors,

generating a normalized first level noise mask for each said first level flat-field by dividing each element of said first level noise masks by said corresponding first level scale factor, and

generating a generic normalized first level noise mask by averaging corresponding elements of said normalized first level noise masks.

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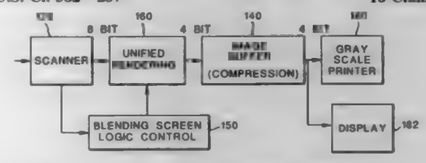
REPRODUCTION APPARATUS AND METHOD FOR ADJUSTING RENDERING WITH TONERS OF DIFFERENT PARTICLE SIZES

Hwai-Tzuu Tai, Rochester, N.Y., assignor to Eastman Kodak Company, Rochester, N.Y.

Filed Dec. 8, 1994, Ser. No. 353,649

Int. Cl.[6] G06K *9/36;9/46;* **H04N** *1/40*

U.S. Cl. 382—237 **18 Claims**



1. An apparatus for producing an image, comprising:

means for providing first signals representing gray level unrendered pixel values of an image to be rendered;

rendering means for rendering the image by comparing the unrendered pixel values with corresponding threshold values associated with one of plural different respective halftone threshold mask sets and generating second signals representing gray level rendering pixel values for the image;

means responsive to said second signals for producing with a toner a gray level reproduction of the image; and

wherein said rendering means selects a threshold mask set in response to a parameter related to toner particle size.

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PICTURE DATA COMPRESSION CODING DEVICE AND METHOD THEREOF

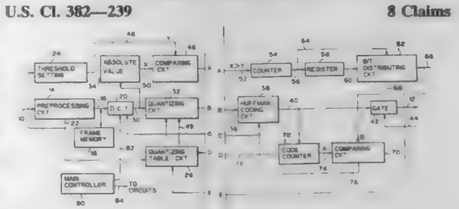
Mikio Watanabe; Kenji Ito, and Kenji Moronaga, all of Tokyo, Japan, assignors to Fuji Photo Film, Co. Ltd, Kanagawa, Japan

Continuation of Ser. No. 396,894, Mar. 1, 1995, which is a continuation of Ser. No. 917,354, Jul. 23, 1992, abandoned. This application Jun. 7, 1996, Ser. No. 659,882

Claims priority, application Japan, Aug. 30, 1991, 3-244103

Int. Cl.[6] G06K *9/36*

U.S. Cl. 382—239 **8 Claims**



1. A device for coding first picture data by compression to produce corresponding second picture data, comprising:

orthogonal transforming means for dividing one frame of the first picture data into a plurality of blocks each having a

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predetermined size, and executing an orthogonal transform on each of said plurality of blocks;

target calculating means for calculating, prior to dividing the one frame of the first picture data into the plurality of blocks by said orthogonal transforming means, a target number of bits using a roughly estimated quantization scaling factor for the one frame of the first picture data;

actual calculating means for correcting the roughly estimated quantization scaling factor based on the target number of bits and for calculating an allowed number of bits for each of the plurality of blocks by determining a block activity for each of the plurality of blocks, determining a total block activity for the one frame of the first picture data, and assigning the allowed number of bits for each of the plurality of blocks based on a ratio of the block activity of each of the plurality blocks to the total block activity of the one frame of the first picture data and the target number of bits, wherein the block activity for each of the plurality of blocks and the total block activity for the one frame of the first picture data are determined independent of the roughly estimated quantization scaling factor; and

encoding means for encoding each of the plurality of blocks based on the allowed number of bits for each of the plurality of blocks to produce the corresponding send picture data; said target calculating means including

edge extracting means for extracting an edge signal from the one frame of the first picture data, and

quantizing table setting means for setting the roughly estimated quantization scaling factor based on the edge signal.

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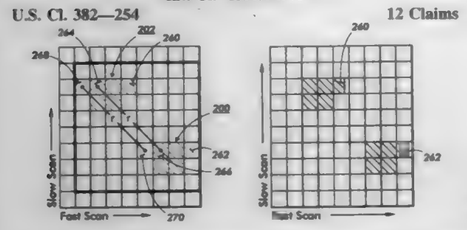
DOCUMENT PROCESSING SYSTEM FOR ENHANCING HALFTONE IMAGES INCLUDING MULTIPLE CENTERED DOTS

David C. Robinson, Penfield, N.Y., assignor to Xerox Corporation, Stamford, Conn.

Filed Mar. 29, 1996, Ser. No. 624,276

Int. Cl.[6] H04N *1/40*

U.S. Cl. 382—254 **12 Claims**



1. A document processing system for processing a job having one or more electronic pages with at least one of the electronic pages including a set of pixels defining a halftone image, each pixel being disposed in one of a first state and a second state, and the halftone image including a plurality of halftone areas with each halftone area including a first dot having one or more pixels disposed in the first state and a second dot having one or more pixels disposed in the first state, comprising:

a) an image examination system for examining each of the plurality of halftone areas to determine whether the first dot includes more or less pixels disposed in the first state than the second dot; and

b) an image manipulation system for,

i) adding a first pixel portion to the first dot and subtracting a second pixel portion from the second dot when it is determined, with said image examination system, that the first dot includes at least one pixel disposed in the first state than the second dot, wherein a size of the second pixel portion varies as a function of a size of the first pixel portion, and

(ii) subtracting a third pixel portion from the first dot and adding a fourth pixel portion to the second dot when it is determined, with said image examination system, that the second dot includes at least one pixel disposed in the first state than the first dot, wherein a size of the third pixel portion varies as a function of a size of the fourth pixel portion, wherein a disparity in size between the first and second dots is alleviated.

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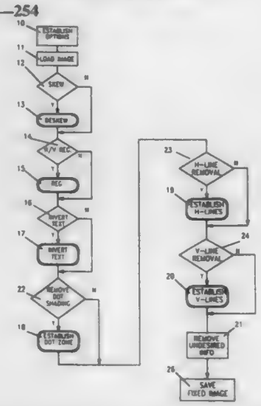
OCR IMAGE FREE-PROCESSING METHOD FOR IMAGE ENHANCEMENT OF SCANNED DOCUMENTS

Bruce B. Fast, San Carlos, and Dana R. Allen, Redwood City, both of Calif., assignors to TMSSequoia, Burlingame, Calif.

Continuation of Ser. No. 447,215, May 22, 1995, Pat. No. 5,594,815, which is a division of Ser. No. 963,051, Oct. 19, 1992, abandoned. This application Oct. 17, 1996, Ser. No. 733,208

Int. Cl.[6] G06K *9/40*

U.S. Cl. 382—254 **9 Claims**



1. A process for enhancing an image of a scanned document, said image including a plurality of lines of textual matter, said plurality of lines potentially being skewed relative to boundaries of said image, requiring registration, containing inverted text matter and undesired dots, vertical and horizontal lines, said process comprising

a step for providing a primary scan line run-length coded image of said document;

a sub-step for determining and reducing a skew,

a sub-step for determining said registration

a sub-step for detecting said inverted text matter and reversing said inverted text matter,

a sub-step for detecting said undesired dots and listing said undesired dots as items to be deleted in a map,

a sub-step for detecting said vertical lines and listing said detected vertical lines as items to be deleted in said map,

a sub-step for detecting and listing said detected horizontal lines as items to be deleted in said map;

a step for deleting said a step for selectively activating one or more of the last three substeps; and items to be deleted listed in said map.

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METHOD AND APPARATUS FOR PERFORMING TONE CONVERSION

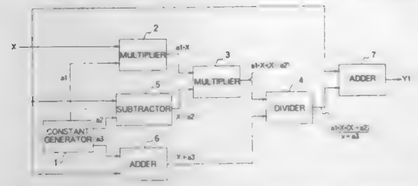
Shuichi Kagawa; Kazuhiro Chiba; Noriko Bamba, and Yoshiaki Okuno, all of Nagaokakyo, Japan, assignors to Mitsubishi Denki Kabushiki Kaisha, Tokyo, Japan

Division of Ser. No. 600,204, Feb. 12, 1996, Pat. No. 5,588,050, which is a continuation of Ser. No. 292,012, Aug. 18, 1994, abandoned. This application Jun. 24, 1996, Ser. No. 667,931

Claims priority, application Japan, Aug. 27, 1993, 5-212781; Oct. 19, 1993, 5-260943; Jun. 10, 1994, 6-129003

Int. Cl.[6] G06K *9/40*

U.S. Cl. 382—274 **102 Claims**



1. An image processing method for performing tone calculation on input image data X to produce converted data Y, comprising the steps of:

setting a functional formula including at least two of a first-order term of the input image data X, a third-order term of the input image data X, and a fraction term of the input image data X; and

outputting said converted data Y in accordance with said functional formula.

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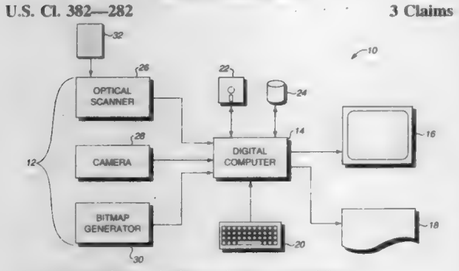
METHOD AND APPARATUS FOR PRODUCING A HYBRID DATA STRUCTURE FOR DISPLAYING A RASTER IMAGE

Dennis G. Nicholson, Atherton; James C. King, San Jose, and David M. Emmett, Palo Alto, all of Calif., assignors to Adobe Systems, Inc., San Jose, Calif.

Continuation-in-part of Ser. No. 298,655, Aug. 31, 1994. This application Apr. 10, 1995, Ser. No. 420,827

Int. Cl.[6] G06K *9/00*

U.S. Cl. 382—282 **3 Claims**



1. A system for producing an image comprising:

a data processing apparatus;

means for performing recognition on an input bitmap that is stored within the data processing apparatus to detect objects within the input bitmap and to create coded portions therefrom for identifiable and non-identifiable objects;

means for creating a data structure including coded portions corresponding to identifiable objects and links to portions of the input bitmap that correspond to the identifiable objects and other coded portions corresponding to the non-identifiable objects and links to portions of the input bitmap that correspond to the non-identifiable objects;

an output device for developing a visually perceptible image from the input bitmap, and

means for displaying an editing window and the coded portions of the data structure, wherein the data structure can be changed when displayed in the editing window, and wherein the means for displaying an editing window including a means for comparing each of the coded objects with a portion of the input bitmap corresponding to the coded object and a means for adjusting the size of the coded object when the coded object is within a threshold size of the corresponding input bitmap portion.

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DEVICE AND METHOD FOR GENERATING PATTERNS

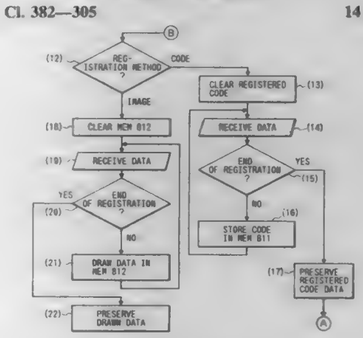
Hiroshi Sumio, Tokyo, and Hideto Kohtani, Yokohama, both of Japan, assignors to Canon Kabushiki Kaisha, Japan

Filed Dec. 27, 1994, Ser. No. 363,894

Claims priority, application Japan, Dec. 28, 1993, 5-338190; Dec. 14, 1994, 6-310556

Int. Cl.[6] G06K *9/20*

U.S. Cl. 382—305 **14 Claims**



1. A pattern generating device comprising:

deciding means for deciding whether form information in a code data format input externally is to be registered in a code data format, or whether a form pattern which is created from the form information in the code data format is to be registered, based on form registration information;

registration control means for registering the form information into memory means when said deciding means decides that the form information is to be registered in the code data format, and for creating the form pattern from the form information and then registering the form pattern into said memory means when said deciding means decides that the form pattern is to be created from the form information; and

output control means for either (1), if the form information was registered, creating a form pattern based on the form information in the code data format registered in said memory means, superimposing the form pattern with a second pattern to form a form overlay image, and then outputting the composite form overlay image, or (2), if the form pattern was registered, for superimposing the form pattern registered in said memory means with the second pattern to form the form overlay image and outputting the form overlay image, the second pattern being created from data input externally.

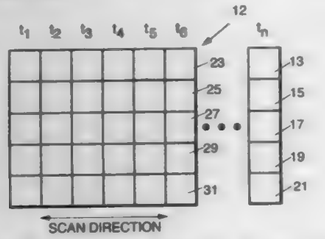
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SENSOR SYSTEM HAVING DETECTOR TO DETECTOR RESPONSIVITY CORRECTION FOR PUSHBROOM SENSOR

E. E. Russell, Goleta, Calif., assignor to Santa Barbara Research Center, Goleta, Calif.

Filed May 16, 1995, Ser. No. 442,291
Int. Cl.° G06K 9/00
U.S. Cl. 382—312 9 Claims



1. A responsivity calibration system for use with an array of detectors aligned in a first orientation, the system comprising:

first means for changing the orientation of the detector array from the first orientation, during an operational mode, to a second orientation, during a calibration mode, in which each detector sequentially samples portion of the same scene and

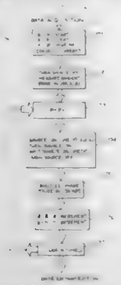
second means for adjusting the output generated by each of the detectors in the first orientation in response to an associated signal generated by the respective detector in the second orientation.

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PROCESS OF ACQUIRING WITH AN X=Y SCANNABLE ARRAY CAMERA LIGHT EMANTED FROM A SUBJECT

Raymond Joseph Castonguay, Tucson, Ariz., assignor to Breault Research Organization, Tucson, Ariz.

Division of Ser. No. 230,546, Apr. 20, 1994, Pat. No. 5,475,617, which is a division of Ser. No. 983,470, Nov. 30, 1992, Pat. No. 5,313,542. This application Jun. 7, 1995, Ser. No. 472,473
Int. Cl.° G06K 9/00
U.S. Cl. 382—321 6 Claims



1. The process of acquiring, with a camera having an x-y scannable array of pixels, light emanated from a subject comprising the steps of:

a) measuring the ambient light and storing the measurement in a first frame which is a reference frame,

b) illuminating the subject with a laser diode light source having a selectable power level for a selectable time on period,

c) collecting the light beams scattered from the subject during the time on period and simultaneously transmitting the collected light beams to all of the pixels of the camera array,

d) digitizing the collected light beams by x-y scanning the camera array and converting the light beam collected at each pixel to electrical data representative of the collected light beam,

e) storing the digitized data in the next frame, and

f) repeating steps (b) to (e) while increasing the on time or the power level of the laser diode by a predetermined amount during each repetition,

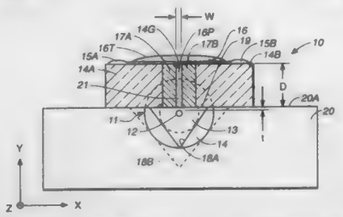
whereby a reference frame and a number of data frames are collected and stored in N+1 sequential frames where N is the number of data frames.

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OPTICAL DEVICE EMPLOYING EDGE-COUPLED WAVEGUIDE GEOMETRY

Alain Chandonnet, Cap-Rouge; Andre Fougeres; Gilles Larose, both of Québec City, and Yves Painchaud, Sainte-Marie, all of Canada, assignors to SDL, Inc., San Jose, Calif.

Filed May 30, 1996, Ser. No. 657,705
Int. Cl.° G02F 1/035
U.S. Cl. 385—2 53 Claims



1. An optical device for modulating or interacting with radiation guided and propagating along an optical longitudinal axis of an optical waveguide comprising:

a pair of spatially disposed electrodes positioned adjacent to said waveguide and extending substantially parallel with and outward from said longitudinal axis;

an electro-optic medium between said electrodes having one end thereof in juxtaposed relation with said optical waveguide, said electro-optic medium having a refractive index close to the minimum value required to couple said radiation from said optical waveguide into said electro-optic medium;

said electro-optic medium having a portion thereof exposed to an evanescent field of said propagating radiation; and

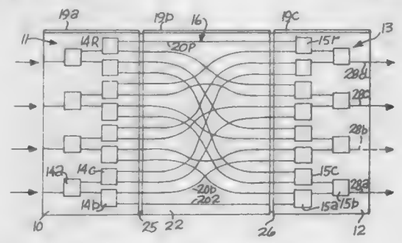
an electric field applied between said electrodes to vary a refractive index of said electro-optic medium affecting the amount of loss of said propagating radiation via said optical device.

5,729,642

N×N OPTICAL SWITCH ARRAY USING ELECTRO-OPTIC AND PASSIVE WAVEGUIDE CIRCUITS ON PLANAR SUBSTRATES

Suwat Thaniyavarn, Bellevue, Wash., assignor to The Boeing Company, Seattle, Wash.

Filed Oct. 2, 1995, Ser. No. 538,143
Int. Cl.° G02B 6/26
U.S. Cl. 385—17 26 Claims



1. An optical switching device comprising:

a switching component comprising a first planar substrate, with a first optical waveguide switching array comprising integrated optical switches formed on said first substrate;

a waveguide component comprising a second planar substrate butt-coupled co-planar to said first substrate with a plurality of optical waveguides formed on said second substrate, the input ends of said waveguides being disposed along the edge of said second substrate which is butt-coupled co-planar to said first substrate;

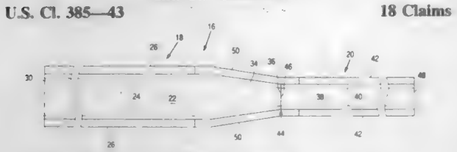
said switching array being coupled co-planar to said input ends of said plurality of waveguides to direct an optical signal through a selected one or more of said waveguides.

5,729,643

TAPERED COMPOSITE OPTICAL FIBER AND METHOD OF MAKING THE SAME

Michael Hmelar, Palo Alto; Ron C. Mehl, Mountain View, and Paul Lovato, Sunnyvale, all of Calif., assignors to Coherent, Inc., Santa Clara, Calif.

Continuation of Ser. No. 628,296, Apr. 5, 1996, abandoned. This application May 12, 1997, Ser. No. 855,770
Int. Cl.° G02B 6/255
U.S. Cl. 385—43 18 Claims



1. A composite optical fiber, comprising:

a first optical fiber having a first core made of a first core material surrounded by a first cladding made of a first cladding material, said first core and cladding having a main body and a tapered end section that terminates in an output end, with the output end having first core and cladding diameters that are smaller than the first core and cladding diameters respectively of the main body; and

a second fiber having a second core made of a second core material surrounded by a second cladding made of a second cladding material with second core and cladding diameters that are substantially equal to or greater than the first core and cladding diameters respectively of the output end of the first optical fiber, but are less than the first core and cladding diameters respectively of the first optical fiber main body, and having an input end that isoptically fused to the output end of the first fiber:

wherein each of said first and second fibers having an intrinsic numerical aperture of at least 0.29 as defined by: $(n^2_{core}-n^2_{cladding})^{1/2}$, where n_{core} is the refractive index of the fiber core material for light having a wavelength of 2.1 um, and $n_{cladding}$ is the refractive index of the fiber cladding material for light having a wavelength of 2.1 um.

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RECEPTACLE FOR MULTI-FIBER CONNECTOR

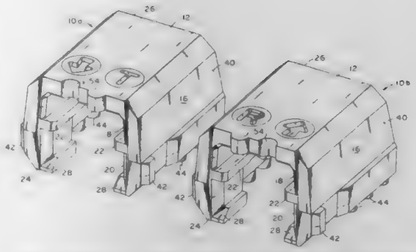
Elbert O. Shiflett, Simpsonville, S.C., and James M. Wittes, Bernardsville, N.J., assignors to Alcoa Fujikura Limited, Brentwood, Tenn.

Filed Feb. 26, 1996, Ser. No. 607,062
Int. Cl.° G02B 6/38
U.S. Cl. 385—59 4 Claims

1. A receptacle for aligning and mating a multi-fiber lightguide means and a connector, said connector having an upper surface having a groove and said connector containing a multi-fiber ferrule having apertures, said receptacle comprising:

a front end and a rear end:

an upper chamber for receiving a portion of said connector, said upper chamber having a top surface provided with a longitudinal rail extending from the front end to near the rear end of the receptacle for mating with said groove when said connector is inserted into said receptacle such that the ferrule of said connector is aligned with said lightguide means; and



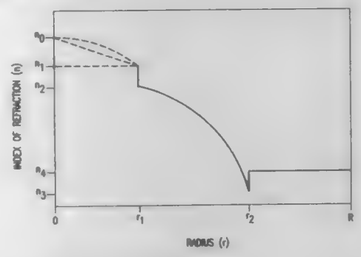
a lower chamber for housing said lightguide means and for receiving the ferrule of said connector in a position opposite said lightguide means, said lightguide means having a pair of guide pins for insertion into corresponding said apertures of the ferrule such that said lightguide means and said ferrule are properly aligned.

5,729,645

GRADED INDEX OPTICAL FIBERS

A. F. Garito, Radnor; Rui-Fang Shi, King of Prussia; Chris Koeppen, Philadelphia, all of Pa., and Weidong Chen, Sunnyvale, Calif., assignors to The Trustees of the University of Pennsylvania, Philadelphia, Pa.

Filed Aug. 13, 1996, Ser. No. 696,369
Int. Cl.° G02B 6/02
U.S. Cl. 385—127 29 Claims



1. An optical fiber comprising:

an inner core:

an outer core on the inner core; and

a cladding layer on the outer core:

wherein:

the inner core has a refractive index which is greater than the refractive index of the outer core:

the outer core has a refractive index which decreases smoothly, monotonically and nonlinearly with increasing radius from the boundary of the inner core and the outer core to the boundary of the inner core and the cladding layer;

there is a step in the refractive index at the boundary of the inner core and the outer core; and

the cladding layer has a refractive index which is greater than or equal to the lowest refractive index of the outer core.

VOL 1208 ISS 3 MR 17 1998 UMI

5,729,646

OPTICAL HOLLOW WAVEGUIDE, METHOD FOR FABRICATING THE SAME, AND LASER TRANSMISSION APPARATUS USING THE SAME

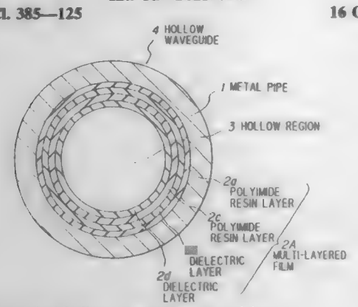
Mitsunobu Miyagi, 3-32, Sunaoshi-machi, Taihaku-ku, Sendai-shi, Miyagi-ken; Yuji Kato, Miyagi-Ken; Akihito Hongo, Ibaraki-Ken, and Yoshihide Okagami, Kyoto-Fu, all of Japan, assignors to Hitachi Cable Ltd., Tokyo; Mitsunobu Miyagi, Miyagi-Ken, and J. Morita Manugacituring Corporation, Kyoto-Fu, all of Japan

Continuation of Ser. No. 422,564, Apr. 14, 1995, abandoned. This application Jan. 15, 1997, Ser. No. 783,195

Claims priority, application Japan, Apr. 15, 1994, 6-113339; Feb. 27, 1995, 7-038129

Int. Cl.[6] G02B *6/02*

U.S. Cl. 385—125 **16 Claims**



4. An optical hollow waveguide, comprising:

a hollow pipe member; and

a polyimide resin layer formed on an inner surface of said hollow pipe member, said polyimide resin layer being transparent relative to a wavelength band of a transmission light of said optical hollow waveguide, wherein said polyimide resin layer comprises a plurality of polyimide resin layers, a dielectric layer being interposed between two adjacent layers of said plurality of polyimide resin layers, said dielectric layer being transparent relative to said wavelength band.

5,729,647

ERROR-CORRECTION-CODE CODING AND DECODING PROCEDURES FOR THE TRANSMISSION AND RECEPTION OF DIGITAL VIDEO DATA

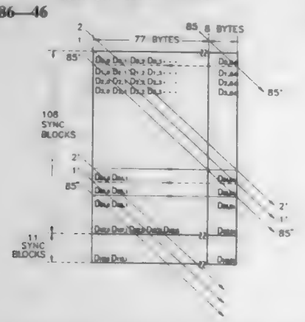
Tae-eung Kim, Kyungki-do, Rep. of Korea, assignor to Samsung Electronics Co., Ltd., Suwon, Rep. of Korea

Continuation of Ser. No. 401,498, Mar. 10, 1995, Pat. No. 5,627,935. This application Aug. 16, 1996, Ser. No. 689,633

Claims priority, application Rep. of Korea, Nov. 11, 1994, 94-29595

Int. Cl.[6] H04N *5/91;5/917*

U.S. Cl. 386—46 **4 Claims**



1. A transmitting method of providing for error-correction of bytes of data in electric signal form that are transmitted through a transmission medium subject to sustained burst error, said method comprising the steps of:

parsing said bytes of data into a first two-dimensional data structure having bytes arrayed by row and by column;

outer coding the bytes in each of said columns of said first two-dimensional data structure with a first Reed-Solomon code to generate a second two-dimensional data structure having bytes arrayed by row and by column, said second two-dimensional data structure including a respective row of bytes corresponding to each row of bytes in said first two-dimensional data structure;

inner coding the bytes in each of said rows of said second two-dimensional data structure with a second Reed-Solomon code to generate a third two-dimensional data structure having bytes arrayed by row and by column, said third two-dimensional data structure including a respective column of bytes corresponding to each column of bytes in said second two-dimensional data structure;

interleaving the data arrayed by row and by column in said third two-dimensional data structure by diagonally scanning them to generate a one-dimensional data structure; and

converting said one-dimensional data structure to a signal for transmission through said medium.

5,729,648

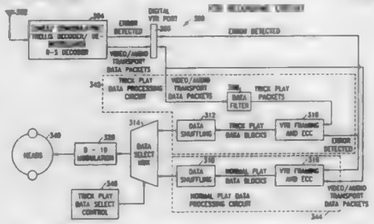
METHOD AND APPARATUS FOR SELECTING ENCODED VIDEO DATA FOR USE DURING VIDEO RECORDER TRICK PLAY OPERATION

Jill MacDonald Boyce, East Windsor; John Goodchilde Norie Henderson, Princeton; Frank Anton Lane, Cranbury, all of N.J., and Michael Allen Plotnick, Southampton, Pa., assignors to Hitachi America, Ltd., Tarrytown, N.Y.

Division of Ser. No. 228,949, Apr. 18, 1994, which is a continuation of Ser. No. 4,158, Jan. 13, 1993. This application Feb. 3, 1995, Ser. No. 383,273

Int. Cl.[6] H04N *5/91;5/917*

U.S. Cl. 386—68 **24 Claims**



1. A method of operating a digital video recording device, comprising the steps:

receiving a first set of digital video data including data which has been encoded using a transform encoding process and a variable length encoding process;

variable length decoding the first set of digital video data to produce a second set of digital video data including transform encoded data;

selecting, from the second set of digital video data, a subset of said transform encoded data, said subset of transform encoded data including less transform encoded data than the second set of digital video data; and

recording said subset of transform encoded data.

5,729,649

METHODS AND APPARATUS FOR RECORDING DATA ON A DIGITAL STORAGE MEDIUM IN A MANNER THAT FACILITATES THE READING BACK OF DATA DURING TRICK PLAY OPERATION

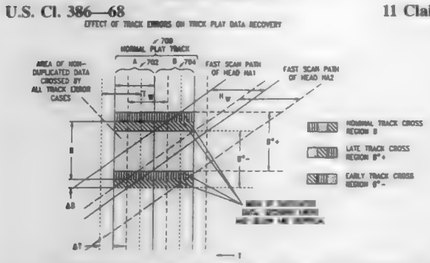
Frank Anton Lane, Medford Lakes; Joseph Ellis Augenbraun, Princeton; Jill MacDonald Boyce, Manalapan; Jack Selig Fuhrer; John Goodchilde Norie Henderson, both of Princeton, all of N.J.; Katsuo Mohri, Yokosuka, Japan; Masafumi Nakamura, Yokohama, Japan; Takaharu Noguchi, Yokohama, Japan; Hiroo Okamoto, Yokohama, Japan; Masuo Oku, Kamakura, Japan, and Michael Allen Plotnick, Southampton, Pa., assignors to Hitachi America, Ltd., Tarrytown, N.Y., and Hitachi, Ltd., Tokyo, Japan

Continuation of Ser. No. 293,639, Aug. 19, 1994, Pat. No. 5,623,344, which is a continuation-in-part of Ser. No. 3,887, Jan. 13, 1993, abandoned, Ser. No. 3,930, Jan. 13, 1993, abandoned, and Ser. No. 109,236, Aug. 19, 1993, abandoned. This application Sep. 5, 1996, Ser. No. 716,784

Claims priority, application Japan, Sep. 1, 1992, 4-233340; Sep. 1, 1992, 4-233341; Sep. 7, 1992, 4-238031

Int. Cl.[6] H04N *5/91*

U.S. Cl. 386—68 **11 Claims**



1. A method of recording digital video data in a fast scan track segment on a tape, wherein each fast scan track on the tape includes a plurality of fast scan track segments arranged in a series to form a fast scan track located on a diagonal relative to the length of the tape, the method comprising the steps of:

receiving video data packets for recording in fast scan track segments;

prioritizing the selected video data packets as a function of the utility of the received data packets for generating an image during trick play operation;

recording the highest priority received data packets at the center of a particular fast scan track segment, the particular fast scan track segment being located above or below the center of the fast scan track; and

recording the lower priority received data packets above and below the selected data packets recorded at the center of the particular fast scan track segment.

5,729,650

MULTI-SCENE RECORDING MEDIUM AND APPARATUS FOR REPRODUCING DATA THEREFROM

Koichi Hirayama, Yokohama; Masatoshi Nakai, Kawasaki, and Kenji Shimoda, Yokohama, all of Japan, assignors to Kabushiki Kaisha Toshiba, Kawasaki, Japan

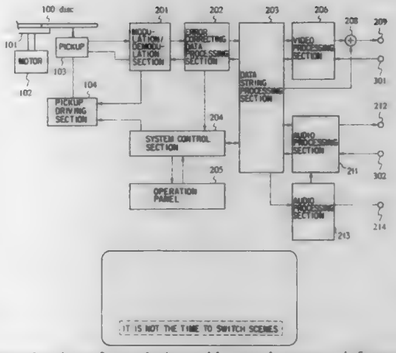
Division of Ser. No. 454,289, Jun. 15, 1995. This application Aug. 8, 1996, Ser. No. 694,334

Claims priority, application WIPO, Oct. 29, 1993, PCT/JP93/01570

Int. Cl.[6] H04N *5/91;7/08;5/781*

U.S. Cl. 386—92 **4 Claims**

1. An apparatus for reproducing information from a multi-scene recording medium including a disk having a management area and a data area, said data area recording a first program information item, a second program information item following said first program information item, a third program information item following said second program information item, and a fourth program information item for replacing said second program information item, said management area recording multi-scene configuration information indicating that said second and fourth program information items are linked to each other, data units of said second program information item and data units of said fourth program information item being alternatively and continuously recorded on said recording medium, said apparatus comprising:



pickup means for generating signals based on information recorded on said disk;

demodulation means for generating multi-scene configuration data by demodulating signals generated by said pickup means, said multi-scene configuration data being based on said multi-scene configuration information recorded in said management area of said disk;

management data storage means for storing said multi-scene configuration data generated by said demodulation means; and

menu generating means for generating a menu indicating that it is impossible for a user to switch to a scene represented by a program information item being decoded if said multi-scene configuration data indicates that said second or fourth program information items are not being reproduced when a scene switching signal is input by a user, where

when reproduction is to be switched from one of the second and fourth program information items to another of the second and fourth program information items while the one program information item is being reproduced, reproduction of the other program information item starts from a head portion of a data unit of the other program information item.

5,729,651

VIDEO SIGNAL WITH SUPER IMPOSE CHARACTER DATA REPRODUCING APPARATUS

Tokikazu Matsumoto, Osaka, Japan, assignor to Matsushita Electric Industrial Co., Ltd., Osaka, Japan

Continuation of Ser. No. 423,157, Apr. 17, 1995, abandoned. This application Jan. 9, 1997, Ser. No. 781,597

Claims priority, application Japan, Apr. 18, 1994, 6-078343

Int. Cl.[6] H04N *9/80*

U.S. Cl. 386—95 **10 Claims**

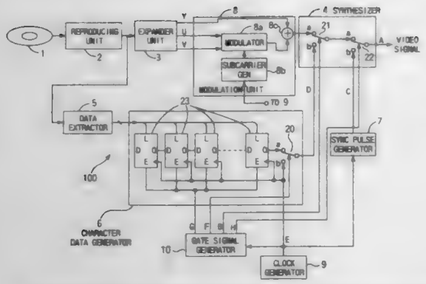
1. A reproducing apparatus for reproducing a video signal and superimpose character data from a compressed video signal on a recording medium, said compressed signal including a plurality of blocks having character data, said apparatus comprising:

reproducing means for reproducing said compressed video signal from said recording medium;

expander means for expanding said compressed video signal to a plurality of component signals;

modulation means for modulating said plurality of component signals to a composite video signal, said modulating means modulating at least one of said plurality of component signals

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by a subcarrier, and adding said modulated at least one of said plurality of component signals to another of said plurality of component signals;

extraction means for extracting the character data from at least one of said plurality of blocks of the reproduced compressed video signal; and

inserting means for inserting said extracted character data to a predetermined horizontal line in said composite video signal.

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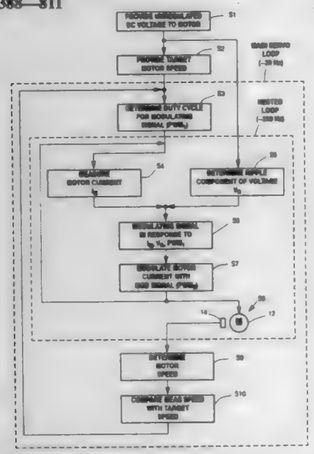
SYSTEM FOR CONTROLLING THE SPEED OF A MOTOR DRIVEN BY AN UNREGULATED VOLTAGE

Kirk D. Hanson, San Diego, Calif., assignor to Iomega Corporation, Roy, Utah

Division of Ser. No. 520,366, Aug. 28, 1995. This application Jan. 8, 1997, Ser. No. 780,401

Int. Cl.[6] G11B *19/28;* **H02P** *5/17*

U.S. Cl. 388—811 **11 Claims**



1. A system for use in writing/reading to/from a computer readable storage medium, wherein said system controls the speed of a DC capstan motor, comprising said DC capstan motor and:

(a) an unregulated voltage supply, said voltage supply providing a motor current (I_M) and supply voltage (V_{IN}) having a substantially constant DC component and a ripple component;

(b) means for obtaining a ripple signal (V_R) representative of said ripple component of the supply voltage; and

(c) means for modulating the motor current (I_M) in response to at least said ripple signal to maintain the speed of the motor at a prescribed target speed, whereby said system for use in writing/reading to/from a computer readable storage medium operates without a voltage regulator.

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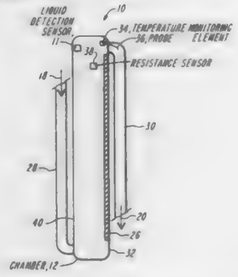
FLUID WARMING SYSTEM

Michael J. Magliochetti, and Carolyn Pals, both of Iowa City, Iowa, assignors to Urosurge, Inc., Coralville, Iowa

Filed Jun. 7, 1995, Ser. No. 487,852

Int. Cl.[6] H05B *3/78;1/02;* **F24H** *1/10*

U.S. Cl. 392—485 **26 Claims**



1. A fluid heating apparatus for warming an infusion or irrigation liquid prior to delivery of the liquid to a patient, the apparatus comprising:

a flow-through polymeric chamber through which the liquid flows, the polymeric flow-through chamber having a fluid inlet port and a fluid outlet port;

at least one electrically resistive heating element disposed in a wall of the chamber for heating the liquid, the heating element having a surface area of at least about 15 cm^2; and

an electrical connection element for connecting the heating element to a controller for power and temperature control.

5,729,654

VECTOR ENCODING METHOD, IN PARTICULAR FOR VOICE SIGNALS

Jörg-Martin Müller, Schwaikheim, and Bertram Wächter, Allmersbach/Tal, both of Germany, assignors to Ant Nachrichtentechnik GmbH, Germany

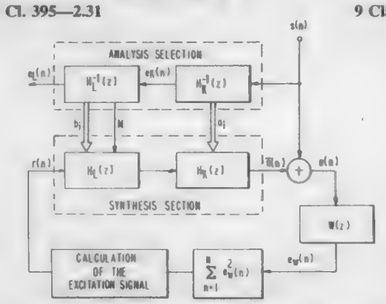
PCT No. PCT/DE94/00436, § 371 Date Nov. 7, 1996, § 102(e) Date Nov. 7, 1996, PCT Pub. No. WO94/27285, PCT Pub. Date Nov. 24, 1994

PCT Filed Apr. 20, 1994, Ser. No. 535,107

Claims priority, application Germany, May 7, 1993, 43 15 313.5

Int. Cl.[6] G10L *7/02*

U.S. Cl. 395—2.31 **9 Claims**



1. A vector encoding method using a codebook method, said vector encoding method comprising the steps of:

a) storing one of combination patterns for excitation signals of an excitation filter for generating synthetic signals with n amplitude values other than 0 and having the same magnitudes but differing only in operational sign and addresses for storing said amplitude values in a first codebook;

b) storing respectively associated autocorrelation coefficients in another codebook; and

c) performing a logic operation on said autocorrelation coefficients with an autocorrelation function for pulse response of said excitation filter to give an energy of a filtered excitation signal;

wherein only ones of said combination patterns having three autocorrelation coefficients other than zero are allowed and amplitude values other than 0 of the autocorrelation coefficients beyond a correlation maximum ($AKF_{(0)}$) differ only in an operational sign thereof.

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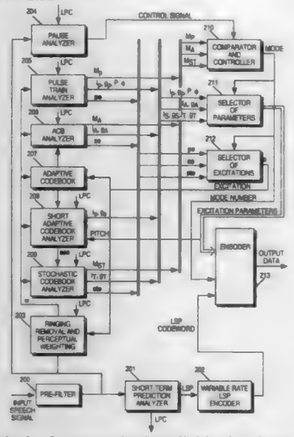
METHOD AND APPARATUS FOR SPEECH COMPRESSION USING MULTI-MODE CODE EXCITED LINEAR PREDICTIVE CODING

Victor D. Kolesnik; Andrey N. Trofimov; Irina E. Bocharova; Victor Yu Krachkovsky; Boris D. Kudryashov; Eugeny P. Ovsjannikov; Boris K. Trojanovsky, and Sergei I. Kovalov, all of St. Petersburg, Russian Federation, assignors to Alaris, Inc., Fremont, and G.T. Technology, Inc., Saratoga, both of Calif.

Continuation of Ser. No. 251,471, May 31, 1994, Pat. No. 5,602,961. This application Sep. 24, 1996, Ser. No. 716,771

Int. Cl.[6] G10L *3/02*

U.S. Cl. 395—2.32 **25 Claims**



1. A method of communicating digitized voice signals in a computer system, said computer system including an analyzer coupled to a synthesizer, said method comprising the steps of:

dividing said digitized voice signals into a plurality of frames, each frame of said plurality of frames including a plurality of subframes;

for at least one frame of said plurality of frames performing the steps of:

calculating a set of linear prediction coefficients (LPCs) corresponding to said frame; and

for at least one subframe in said frame performing the steps of:

determining a previous search mode for a previous subframe;

selecting from a plurality of modes a currently selected set of modes based on said previous search mode;

selecting a current search mode from said currently selected set of modes;

encoding a set of selected parameters for said current search mode;

transmitting said selected parameters from said analyzer to said synthesizer;

decoding said selected parameters according to said current search mode; and

generating a synthesized voice signal from said selected parameters, said synthesized voice signal corresponding to said digitized voice signals.

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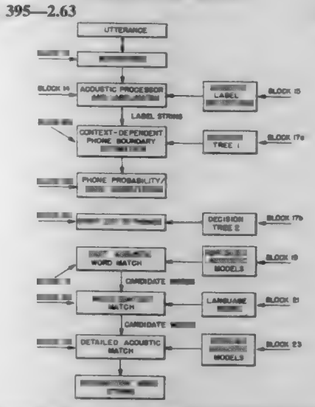
REDUCTION OF SEARCH SPACE IN SPEECH RECOGNITION USING PHONE BOUNDARIES AND PHONE RANKING

David Nahamoo, White Plains, and Mukund Padmanabhan, Ossining, both of N.Y., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Nov. 30, 1994, Ser. No. 347,013

Int. Cl.[6] G10L *5/06*

U.S. Cl. 395—2.63 **10 Claims**



1. A method of recognizing speech, comprising the steps of:

a) inputting a plurality of words of training data;

b) training a plurality of first binary decision trees to ask a maximally informative question at each node based upon contextual information in the training data, wherein each first binary decision tree corresponds to a different time in a sequence of the training data;

c) traversing one of the first binary decision trees for every time frame of an input sequence of speech to determine a probability distribution for every time frame, the probability distribution being the probability that a node is a phone boundary;

d) comparing the probabilities associated with the time frames with a threshold for identifying some time frames as boundaries between phones;

e) providing an acoustic score for all phones between every given pair of boundaries to generate a second binary decision tree of such acoustic scores;

f) traversing the second binary decision tree of such acoustic scores for all phones to rank the phones from best to worst on the basis of this score; and

g) outputting a recognition result in response to the score.

5,729,657

TIME COMPRESSION/EXPANSION OF PHONEMES BASED ON THE INFORMATION CARRYING ELEMENTS OF THE PHONEMES

Tomas Svensson, Stockholm, Sweden, assignor to Telia AB, Farsta, Sweden

Continuation of Ser. No. 345,750, Nov. 22, 1994, abandoned. This application Apr. 16, 1997, Ser. No. 834,391

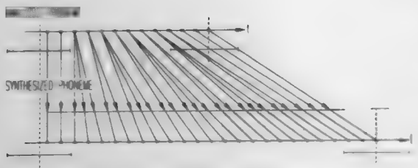
Claims priority, application Sweden, Nov. 25, 1993, 9303902

Int. Cl.[6] G10L *5/04*

U.S. Cl. 395—2.76 **10 Claims**

1. A speech-synthesis method for transforming a phoneme from a first timescale to a second timescale, comprising the steps of:

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determining a set of points indicative of said phoneme;

identifying a first part of said set of points occurring at a boundary of said phoneme and having a first amount of information uniquely characterizing said phoneme, said first part corresponding to a first period in said first timescale;

identifying a second part of said set of points occurring at an interior of said phoneme and having a lesser amount of information than said first part, said second part corresponding to a second period in said first timescale;

transforming said second part to said second timescale to create a transformed second part having a third period that is different than said second period; and

transforming said first part to said second timescale to create a transformed first part having a fourth period that is equivalent or nearly equivalent to said first period so as to retain said information carried by said first part not carried by said second part.

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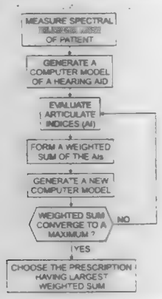
EVALUATING INTELLIGIBILITY OF SPEECH REPRODUCTION AND TRANSMISSION ACROSS MULTIPLE LISTENING CONDITIONS

Zezhang Hou, Cambridge, and Aaron R. Thornton, Boston, both of Mass., assignors to Massachusetts Eye and Ear Infirmary, Boston, Mass.

Filed Jun. 17, 1994, Ser. No. 261,929

Int. Cl.° G10L *3/00*

U.S. Cl. 395—2.79 **18 Claims**



1. A method for selecting an acoustic device for an individual, said method comprising the steps of:

(a) obtaining intelligibility measurements for speech signals transmitted from or reproduced by each of a plurality of devices under a plurality of listening conditions;

(b) forming a weighted sum of said intelligibility measurements for each device;

(c) comparing said weighted sums; and

(d) selecting the device with the largest corresponding weighted sum, said device being the best suited to said individual under said plurality of listening conditions.

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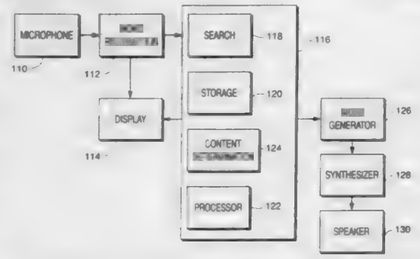
METHOD AND APPARATUS FOR CONTROLLING A DIGITAL COMPUTER USING ORAL INPUT

Jerry L. Potter, 3251 Waterford, N.E., Canton, Ohio 44708

Filed Jun. 6, 1995, Ser. No. 471,787

Int. Cl.° G10L *9/00*

U.S. Cl. 395—2.79 **27 Claims**



1. A method for controlling a digital computer using oral input, comprising:

(a) providing receiving means and a digital computer;

(b) receiving oral input comprising a plurality of words;

(c) generating input information corresponding to said oral input;

(d) associatively searching a tabular data structure comprising labels using at least a first part of said input information to locate at least a first label in such tabular data structure relating to said input information; and

(e) determining content information relating to said oral input.

5,729,660

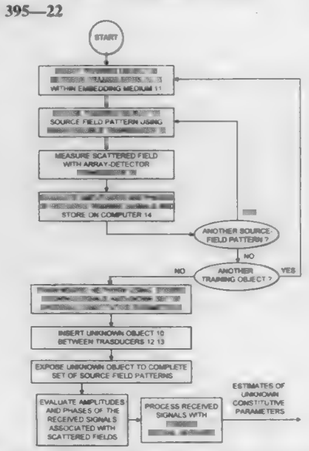
3-D INVERSE SCATTERING BY ARTIFICIAL INTELLIGENCE : APPARATUS AND METHOD

Alessandro Chiabrera, Viale Cambiaso 1/15, 16145 Genoa; Bruno Bianco, Via Cabella 22/3, 16122 Genoa, both of Italy, and Jonathan J. Kaufman, 112 Willow St., Bklyn, N.Y. 11201

Continuation-in-part of Ser. No. 237,617, May 3, 1994. This application Oct. 16, 1996, Ser. No. 733,003

Int. Cl.° G06E *1/00;3/00*

U.S. Cl. 395—22 **16 Claims**



1. Apparatus for non-destructively and quantitatively determining the three-dimensional spatial distribution of a set of material constitutive parameters of an unknown object, said apparatus comprising:

(a) a set of computer simulated training objects for which the three-dimensional spatial distribution of a set of their material constitutive parameters is known;

(b) computer-software means for computationally simulating a set of scattered fields, whereby to produce a set of training signals associated with said set of computer simulated training objects;

(c) a neural network connected for response to said set of training signals;

(d) array-source transducer means for producing a set of source-field patterns for exposure to said unknown object in response to a set of electrical input signals;

(e) signal-generator means connected to said array-source transducer means for producing said set of electrical input signals to thereby expose said unknown object to a set of source-field patterns associated with said electrical input signals, whereby to produce a scattered field for said exposed unknown object for each source-field pattern;

(f) exposed array-detector transducer means for receiving said scattered fields and signal processing means associated with said array-detector transducer means thereby producing a set of input signals; and

(g) means for comparatively processing said training signals and said known constitutive parameters to train said neural network, whereby said neural network becomes optimally conditioned to quantitatively determine material constitutive properties of the unknown object upon substitution of said set of input signals for the set of training signals.

5,729,661

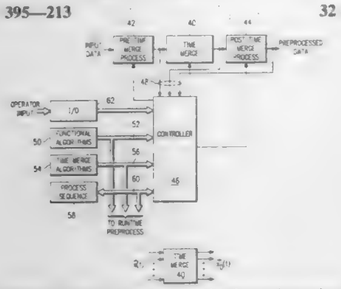
METHOD AND APPARATUS FOR PREPROCESSING INPUT DATA TO A NEURAL NETWORK

James D. Keeler; Eric J. Hartman, both of Austin; Steven A. O'Hara, Round Rock; Jill L. Kempf, and Devendra B. Godbole, both of Austin, all of Tex., assignors to Pavilion Technologies, Inc., Austin, Tex.

Continuation-in-part of Ser. No. 980,664, Nov. 24, 1992, abandoned. This application Jan. 25, 1993, Ser. No. 8,170

Int. Cl.° G06F *15/18*

U.S. Cl. 395—213 **32 Claims**



1. A data preprocessor for preprocessing input data prior to input to a system model having multiple inputs, each of the inputs associated with a portion of the input data, comprising:

an input buffer for receiving and storing the input data, the input data associated with at least two of the inputs being on different time scales relative to each other;

a time merge device for selecting a predetermined time scale and reconciling the input data stored in the input buffer such that all of the input data for all of the inputs is on the same time scale; and

an output device for outputting the data reconciled by the time merge device as reconciled data, said reconciled data comprising the input data to the system model.

5,729,662

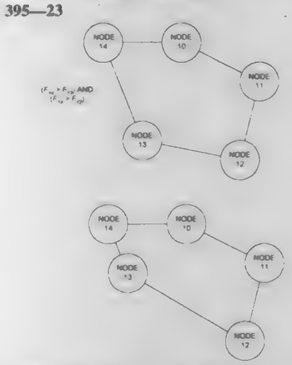
NEURAL NETWORK FOR CLASSIFICATION OF PATTERNS WITH IMPROVED METHOD AND APPARATUS FOR ORDERING VECTORS

J. Michael Rozmus, 4 Laura La., Marlton, N.J. 08053

Filed Jun. 7, 1995, Ser. No. 487,062

Int. Cl.° G06F *15/18*

U.S. Cl. 395—23 **26 Claims**



9. In a neural network for the classification of a plurality of patterns, wherein each of said plurality of patterns is represented by a respective multi-dimensional vector in a multi-dimensional space to form a training set of multi-dimensional input vectors corresponding to said plurality of input patterns, said neural network having a plurality of nodes in an ordered array corresponding to a topological ordering of said plurality of input patterns, a method for improving the ordering of said plurality of multi-dimensional input vectors, said method comprising:

determining the frequency that each node in said multi-dimensional space has been previously determined as the closest node to some portion of said plurality of input vectors forming said training set of multi-dimensional input vectors corresponding to said plurality of input patterns, to form a determined frequency for each of said plurality of nodes; and

comparing the determined frequency of a given node to the determined frequency of an adjacent node; and

changing the position of said given node to form a moved node based on said determined frequency of said given node and said determined frequency of said adjacent node.

5,729,663

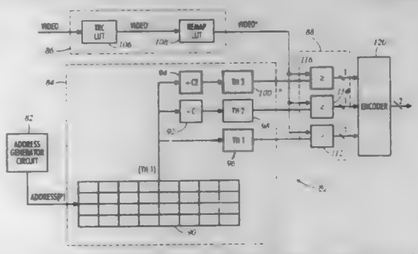
METHOD AND APPARATUS FOR GRAY SCREENING

Ying-wei Lin, Penfield, and Leon C. Williams, Walworth, both of N.Y., assignors to Xerox Corporation, Stamford, Conn.

Filed Dec. 7, 1995, Ser. No. 569,036

Int. Cl.° H04N *1/40*

U.S. Cl. 395—109 **20 Claims**



1. A system for processing a bitmap image consisting of a plurality of multi-bit image signals representing pixels in the bitmap image, comprising:

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a halftone cell address generation circuit, said circuit generating an address, on a pixel-by-pixel basis, indicative of the relative position of a pixel within the halftone cell;

means for generating a plurality of thresholds for each pixel position within the halftone cell, said generating means being responsive to the address generated by the halftone cell address generation circuit and outputting one of the unique threshold values in response thereto;

means for comparing at least two of the plurality of thresholds associated with the relative position of the pixel within the halftone cell to a single multi-bit image signal for the pixel; and

output means, responsive to the results of said comparing means, for outputting a multi-bit gray-scale code indicative of the results.

5,729,664

IMAGE PROCESSING APPARATUS AND METHOD FOR CONVERTING AN INPUT COLOR IMAGE SIGNAL FROM ONE COLOR SPACE TO ANOTHER

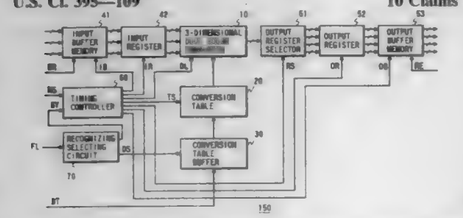
Hiroshi Ishikawa, Kanagawa, Japan, assignor to Fuji Xerox Co., Ltd., Tokyo, Japan

Filed Aug. 3, 1995, Ser. No. 510,968

Claims priority, application Japan, Aug. 12, 1994, 6-212108

Int. Cl.[6] G06K *15/00*

U.S. Cl. 395—109 **10 Claims**



10. An image processing method for converting an input color image signal containing a plural number of color components, which define a first color space into an output color image signal containing a plural number of other color components, which define a second color space, the image processing method comprising the steps of:

generating a reference clock signal to transfer the input color image signal and the output color image signal pixel by pixel, and a converting clock signal, which is synchronized with the reference clock signal and has a frequency as the result of multiplying the frequency of the reference clock signal by the number of the color components of the second color space;

selecting, every conversion clock signal, a conversion data set from plural conversion data sets generated for each color component of the second color space for one pixel of the input color image signal transferred every reference clock signal on the basis of each of the color components of the first color space and one color component of the second color space; and

converting, every conversion clock signal, each of the color components of the first color space into one color component of the second color space in accordance with the selected conversion data set.

5,729,665

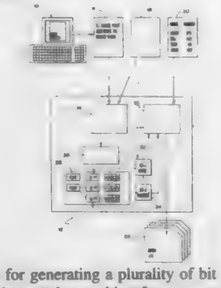
METHOD OF UTILIZING VARIABLE DATA FIELDS WITH A PAGE DESCRIPTION LANGUAGE

Forrest P. Gauthier, Maineville, Ohio, assignor to Varis Corporation, Mason, Ohio

Filed Jan. 18, 1995, Ser. No. 373,582

Int. Cl.[6] G06F *15/00*

U.S. Cl. 395—117 **20 Claims**



20. A method for generating a plurality of bit maps suitable for high-speed printing or plate-making from a page description code representing a template and defining at least one variable data area, and from a merge file containing a plurality of data records of at least one variable data field type, the method comprising the steps of:

executing a page description code interpretive program, said interpretive program generates graphics states for each data area defined by said page description code;

executing a control task in conjunction with said interpretive program, said control task identifies said variable data area defined by said page description code and reserves said graphics states generated by said interpretive program for said variable data area, said control task generates a template bit map defined by said page description code, and after the completion of said interpretive program, said control task saves said template bit map in memory; and

executing a merge task upon completion of said interpretive program, said merge task generates variable data bit maps for said data records in said merge file by applying said reserved graphics states to said data records, and said merge task merges said variable data bit maps with a separate copy of said template bit map to create the plurality of bit maps suitable for high-speed printing or plate making;

whereby said reserved graphics states are applied repeatedly to said data records to generate said variable data bit maps for said data records without the need to repeat said steps of executing a page description code interpretive program and executing a control task in conjunction with said interpretive program.

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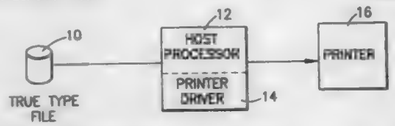
EFFICIENT METHOD AND APPARATUS FOR DOWNLOADING OF FONTS FROM A PROCESSOR TO A PRINTER

Shane Konsella, and Chris R. Gunning, both of Boise, Id., assignors to Hewlett-Packard Company, Palo Alto, Calif.

Filed Aug. 5, 1996, Ser. No. 692,662

Int. Cl.[6] G06K *15/00*

U.S. Cl. 395—110 **8 Claims**



1. A data processing apparatus comprising:

a font memory including font header data which includes data which defines spacing metrics for each glyph stored in said font memory;

a printer; and

a host processor coupling said font memory to said printer and further including printer driver means for enabling communications with said printer, said printer driver means downloading said font header data to said printer when a first glyph of a corresponding font is downloaded thereto, said font header data excluding said data which defines spacing metrics except for said first glyph and, in response to a requirement to download a further selected font glyph to said printer, downloading a glyph data structure corresponding to said further selected font glyph, said glyph data structure including said spacing metric data for only said further selected font glyph.

5,729,667

POWER SAVING FACSIMILE DEVICE

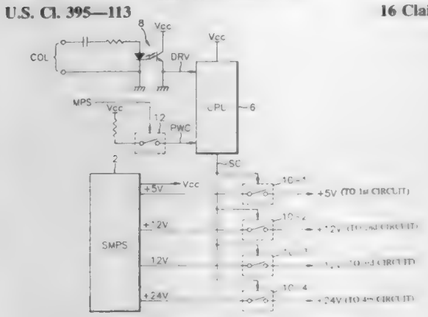
Gang-Bock Lee, Goomi, Rep. of Korea, assignor to SamSung Electronics Co., Ltd., Kyungki-do, Rep. of Korea

Filed Jan. 29, 1996, Ser. No. 593,403

Claims priority, application Rep. of Korea, Jan. 27, 1995, 1626/1995

Int. Cl.[6] H04N *1/02*

U.S. Cl. 395—113 **16 Claims**



1. A power saving facsimile device, comprising:

power supply means for supplying a plurality of voltages having various magnitudes;

switching means for disconnecting said power supply means from corresponding circuits in response to a first switching control signal, and for connecting said power supply means to said corresponding circuits in response to a second switching control signal;

driving signal output means for outputting a driving signal in response to a ring signal provided via an office line; and

power control means for detecting when said facsimile device has not been used for a predetermined time period and for generating said first switching control signal in response thereto, and for generating said second switching control signal in response to said driving signal.

5,729,668

OPTIMIZED HARDWARE COMPRESSION AND DECOMPRESSION ARCHITECTURE FOR USE BY AN IMAGE PROCESSOR IN A LASER PRINTER

Carrie Lee Claflin; Gary D. Zimmerman, and Gregory Lonnon, all of Boise, Id., assignors to Hewlett-Packard Company, Palo Alto, Calif.

Filed Sep. 15, 1995, Ser. No. 528,590

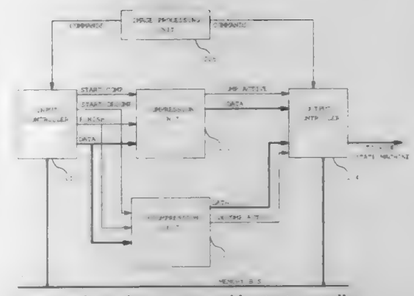
Int. Cl.[6] G06K *15/00*

U.S. Cl. 395—114 **5 Claims**

1. An apparatus for compressing an original data into a compressed data, said apparatus further arranged to decompress said compressed data into said original data, said apparatus comprising:

a random access memory, said original data being stored in said random access memory;

an output controller connected to said random access memory;



a compression unit connect to said output controller;

a decompression unit connect to said output controller;

an input controller connected to said compression unit and said decompression unit and said random access memory, said input controller arranged to receive a start compression indication and a start decompression indication from a controller means, upon receiving said start compression indication, said input controller making said compression unit an active unit, upon receiving said start decompression indication, said input controller making said decompression unit said active unit, said input controller arranged to receive an input buffer count from said controller means, said input buffer count indicates to said input controller a number of input data to retrieve from said random access memory, when said input controller completes retrieving said number, said input controller signals said controller means that said number were retrieved; and

said controller means connected to said random access memory, said input controller, and said output controller, said controller means for controlling said input controller to retrieve input data from said random access memory and transfer said retrieved data to said active unit, said controller means determining which unit is said active unit, said controller means controls said output controller to retrieve output data from said active unit, said active unit being said compression unit for compressing said original data into said compressed data and said active unit being said decompression unit for decompressing said compressed data into said original data.

5,729,669

METHOD AND APPARATUS FOR DISPLAYING MOVIES USING Z-DATA INFORMATION

William C. Appleton, Knoxville, Tenn., assignor to Cyberflix, Inc., Knoxville, Tenn.

Filed Nov. 3, 1994, Ser. No. 333,847

Int. Cl.[6] G06F *15/00*

U.S. Cl. 395—122 **29 Claims**

1. An apparatus for displaying movies comprising:

a memory for storing the movies,

a display for displaying the movies,

at least one movie stored in the memory, each movie having at least one movie frame, each movie frame further comprising:

a plurality of image frames, each image frame including a plurality of pixels representing an image, and

a plurality of z frames, one z frame being associated with each image frame for indicating a z value for each pixel in the image frame,

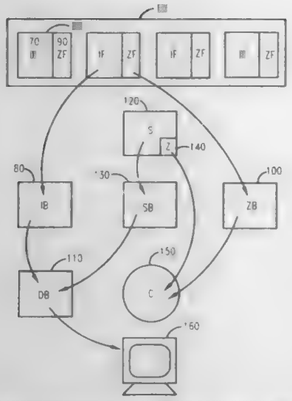
a processor for:

reading the image frames from the movie stored in the memory in a predetermined order,

transferring the image frames to the display in succession, giving the appearance of motion,

determining selected z values in the associated z frames for selected pixels in the image frames, and

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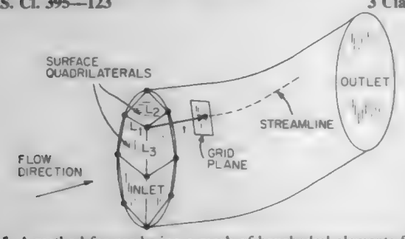
selectively modifying the image frame being displayed based in part on the selected z values.

5,729,670

METHOD FOR PRODUCING A MESH OF QUADRILATERAL/HEXAHEDRAL ELEMENTS FOR A BODY TO BE ANALYZED USING FINITE ELEMENT ANALYSIS

Gary Steven Strumolo, Beverly Hills, and Nagendra Palle, Ann Arbor, both of Mich., assignors to Ford Global Technologies, Inc., Dearborn, Mich.

Filed Jan. 16, 1996, Ser. No. 586,533
Int. Cl.[6] G06T *17/20*
U.S. Cl. 395—123 **3 Claims**



1. A method for producing a mesh of hexahedral elements for a body to be analyzed using finite element analysis comprising the steps of:

generating a solid model of a body to be analyzed; defining bounding surfaces of said body;

selecting an inlet surface and an outlet surface from said bounding surfaces for said body;

discretizing edges of said inlet surface of said body;

assigning an inlet end and an outlet end for said inlet surface;

solving for the potential flow from said inlet end to said outlet end for said inlet surface;

computing inlet streamlines for potential flows from said inlet end to said outlet end for said inlet surface;

defining a series of inlet grid lines which are generally transverse to said inlet streamlines and progressively spaced from said inlet end of said inlet surface to said outlet end of said inlet surface;

defining inlet nodes where said grid lines intersect said inlet streamlines and said edges of said inlet surface outside of said inlet end of said inlet surface;

building quadrilaterals by connecting said inlet nodes to one another;

solving for the potential flow from said inlet surface to said outlet surface for said body;

computing solid streamlines for potential flows from said inlet nodes of said inlet surface to said outlet surface;

defining a series of grid planes which are generally transverse to said solid streamlines and progressively spaced from said inlet surface to said outlet surface;

defining flow nodes where said solid streamlines intersect said grid planes and said outlet surface; and

connecting said inlet nodes and said flow nodes to define hexahedra elements for said body.

5,729,671

OBJECT-ORIENTED METHOD AND APPARATUS FOR RENDERING A 3D SURFACE IMAGE ON A TWO-DIMENSIONAL DISPLAY

John Peterson, Menlo Park, and Rajiv Jain, Sunnyvale, both of Calif., assignors to Object Technology Licensing Corp., Cupertino, Calif.

Continuation of Ser. No. 97,602, Jul. 27, 1993, abandoned. This application Mar. 8, 1996, Ser. No. 612,675
Int. Cl.[6] G06T *11/20;17/00*
U.S. Cl. 395—123 **21 Claims**



1. In a computer having a memory and a 2D display, a system for rendering on the display an image of a 3D surface, the image being defined by point data stored in the memory, the system comprising:

(a) subclassable surface object class information, stored in the memory and having segment data logic for generating vertices data from stored point data and for storing the vertices data in the memory, and shard iteration logic for generating a plurality of indices into the stored vertices data, the plurality of indices selecting three vertices defining a shard;

(b) surface object means for constructing a plurality of 3D surface objects from the surface object class information, each surface object corresponding to a chunk of the 3D surface image, each chunk defined by a plurality of shards, wherein each surface object includes means for invoking shard iteration logic peculiar to the surface object class from which it was constructed; and

(c) a rendering object, stored in the memory and having

first means for iterating over the surface objects to select one surface object corresponding to a chunk to be rendered, the first means including means for generating a block of vertices data corresponding to the selected surface object,

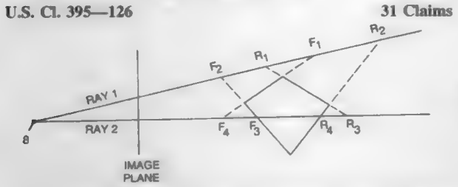
second means for generating 2D display data from the vertices data, third means for invoking the shard iteration logic to retrieve indices defining the plurality of shards for the selected surface image chunk, and fourth means for rendering the shards defining the chunk on the display using the 2D display data and the retrieved shard indices.

5,729,672

RAY TRACING METHOD AND APPARATUS FOR PROJECTING RAYS THROUGH AN OBJECT REPRESENTED BY A SET OF INFINITE SURFACES

Martin Ashton, Berkhamstead, United Kingdom, assignor to Videologic Limited, Hertfordshire, United Kingdom

Continuation-in-part of Ser. No. 280,649, Jul. 26, 1994, Pat. No. 5,596,685. This application Jun. 6, 1995, Ser. No. 468,382
Claims priority, application United Kingdom, Jul. 30, 1993, 9315852; Jan. 31, 1995, 9501834
Int. Cl.[6] G06T *15/60*
U.S. Cl. 395—126 **31 Claims**



1. A method for shading a three dimensional image for display on a screen comprising the steps of:

representing each object in the image by a group of infinite surfaces;

for each elementary area of the screen projecting a ray into the 3-dimensional image;

determining the location of the intersection of the ray with each surface;

determining whether any intersected surface is visible at that elementary area; and

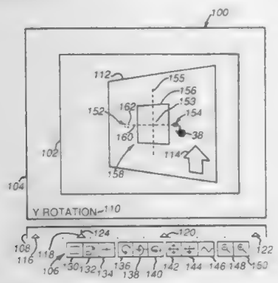
shading the elementary area for display in dependence on the result of the determination.

5,729,673

DIRECT MANIPULATION OF TWO-DIMENSIONAL MOVING PICTURE STREAMS IN THREE-DIMENSIONAL SPACE

Brian C. Cooper, Sharon; Robert A. Gonsalves, Wellesley, both of Mass., and Daniel C. Robbins, Providence, R.I., assignors to Avid Technology, Inc., Tewksbury, Mass.

Filed Apr. 7, 1995, Ser. No. 418,632
Int. Cl.[6] H04N *5/262*
U.S. Cl. 395—127 **50 Claims**



1. A video editing method, comprising:

displaying on a display screen a first two-dimensional projection of a representation of a projection surface, the two-dimensional projection being derived from a first three-dimensional position of the projection surface,

displaying a first handle attached to the first two-dimensional protection,

detecting displacement at the first handle of a cursor responsive to a pointing device,

updating the first three-dimensional position of the projection surface in a manner corresponding to the amount and direction of the displacement of the cursor,

displaying on a display screen a second two-dimensional projection of the representation of the projection surface, the second two-dimensional projection being derived from the updated first three-dimensional position of the projection surface, and

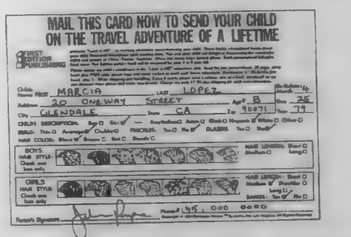
redisplaying the first handle attached to the second two-dimensional projection, wherein the step of redisplaying redisplays the cursor at the first handle in the position the handle occupies after the step of redisplaying the first handle.

5,729,674

METHOD AND APPARATUS FOR PRODUCING PERSONALIZED GRAPHICS AND PERSONALIZED TEXT PRINTED MATERIALS

Fenton Rosewarne, Orinda, Calif.; Mary Rose Keller, Kennett Square, Pa.; Walter Winter, Sacramento, and James Schuyler, San Francisco, both of Calif., assignors to Computer Humor Systems, Inc., Los Angeles, Calif.

Filed Apr. 7, 1995, Ser. No. 418,790
Int. Cl.[6] G06T *11/00*
U.S. Cl. 395—135 **18 Claims**



1. A method for producing personalized graphics and personalized text printed materials comprising the steps of:

a) generating a plurality of facial feature drawings including a variety of each feature;

b) storing said facial feature drawings in a digital computer;

c) generating in the computer a plurality of multicolor background scenes including standard text and figures having featureless exposed areas of a predetermined color intensity;

d) generating codes corresponding to in size and shape with discrete exposed areas of said basic background multicolor drawings;

e) storing said codes in a digital computer;

f) inputting to said digital computer personalized data including features corresponding to a person intended to be illustrated in said scene;

g) selecting features corresponding to the features inputted as a part of said personalized data;

h) selecting codes which correspond to the variation in coloration of the exposed areas from the basic background as compared with the personalized data inputted; and

i) printing background scenes, said selected features and color variations to produce an illustration of the person whose personalized data was inputted into said digital computer;

including the steps of:

j) storing codes in said computer corresponding to said facial feature drawings in a plurality of sizes;

k) storing said codes corresponding to said facial features drawings in a plurality of angles and perspectives in a digital computer;

l) selecting a code corresponding to the size of facial features corresponding to the size of the background drawing;

m) producing at least one skin tone darkening code for changing the color of an area to be printed;

n) storing said size codes;

o) selecting a set of human features;

p) selecting a code corresponding to the area including the human features; and

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q) controlling the printing of a graphical representation of the person combining the selected human features and the selected angle, perspective and color.

5,729,675

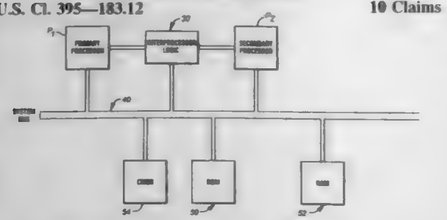
APPARATUS FOR INITIALIZING A MULTIPLE PROCESSOR COMPUTER SYSTEM USING A COMMON ROM

David A. Miller, Houston; Kenneth A. Jansen; Montgomery C. McGraw, both of Spring, and Darren J. Cepulis, Houston, all of Tex., assignors to Compaq Computer Corporation, Houston, Tex.

Continuation of Ser. No. 539,779, Oct. 3, 1995, Pat. No. 5,596,759, which is a continuation of Ser. No. 51,601, Apr. 22, 1993, Pat. No. 5,497,497, which is a continuation of Ser. No. 431,743, Nov. 3, 1989, abandoned. This application Aug. 20, 1996, Ser. No. 700,300

Int. Cl.° G06F *1/24;9/24*

U.S. Cl. 395—183.12 10 Claims



1. A multiprocessor computer system, comprising:

at least two processors, one of which is considered a primary processor during initialization, said processors being powered up together;

a common storage element containing processor executable initialization code used during start-up of the computer system, the common storage element being common to each processor, said initialization code having processor and common peripheral initialization code;

a common peripheral including a hard disk;

interprocessor logic coupling said at least two processors;

random access memory coupled to said at least two processors;

wherein said initialization code when executed by said processors causes said processors to perform the steps of:

(a) each processor executing said initialization code stored in the common storage element;

(b) each processor performing said processor initialization code to initialize itself; and

(c) each processor determining if it is the primary processor and performing said common peripheral initialization code only if it is said primary processor.

5,729,676

METHOD OF GENERATING DATA FOR EVALUATING PROGRAMS

Masaharu Inoue, Tokyo, Japan, assignor to NEC Corporation, Tokyo, Japan

Filed Nov. 8, 1994, Ser. No. 337,469

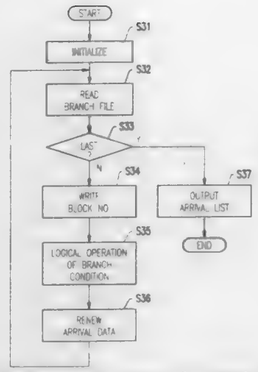
Claims priority, application Japan, Dec. 10, 1993, 5-310237

Int. Cl.° G06F *9/42*

U.S. Cl. 395—183.14 8 Claims

1. A method of generating data for evaluating a source program, comprising the following processes:

a program dividing process of reading the source program for controlling the operation of an information processing system, dividing the source program into program blocks each time a branch instruction is detected and dividing the source program into said program blocks each time a label is detected and generating basic block data for every program block;



a branch data generating process of generating branch data between the program blocks, for shifting from one program block to another program block, based on the basic block data and storing said generated branch data;

an arrival data generating process of generating an arrival data, by connecting said branch data, for allowing said source program to continue from the beginning to the individual program blocks and outputting the generated arrival data; and

a test data generating process of generating data for testing said source program based on said arrival data.

5,729,677

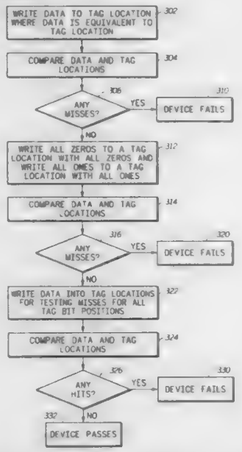
METHOD OF TESTING A CACHE TAG MEMORY ARRAY

Robert Han Wu, Austin; Jerome A. Gerner, Pflugerville, and Richard A. Wheelus, Austin, all of Tex., assignors to Motorola Inc., Schaumburg, Ill.

Filed Jul. 31, 1995, Ser. No. 509,549

Int. Cl.° G06F *11/22*

U.S. Cl. 395—183.18 16 Claims



1. A method of testing a comparator of a cache tag memory array having a tag section that has tag locations that include a plurality of bit positions, the method comprising the steps of:

writing a first datum into a first tag location and a second datum into a second tag location within the tag section, wherein:

the first datum has a value equivalent to the first tag location;

the second datum has a value equivalent to the second tag location; and

each bit position of the second datum has an opposite state of a same bit position of the first datum;

writing data into tag locations within the tag section, wherein:

a third datum is mitten into a third tag location and a fourth datum is written into a fourth tag location;

for a first particular bit position of the third and fourth data and tag locations:

the first particular bit position of the third tag location has a first state;

the first particular bit position of the third datum has a second state that is opposite the first state;

the first particular bit position of the fourth tag location has the second state; and

the first particular bit position of the fourth datum has the first state; and

for a second particular bit position of the third and fourth data and tag locations:

the second particular bit position of the third tag location and the second particular bit position of the third datum have a same state; and

the second particular bit position of the fourth tag location and the second particular bit position of the fourth datum have a same state; and

for each tag location in which datum is written during the steps of writing, comparing each of the data to its corresponding tag location:

to confirm that hits are detected for the first and second tag locations; and

to confirm that misses are detected for the third and fourth tag locations.

5,729,678

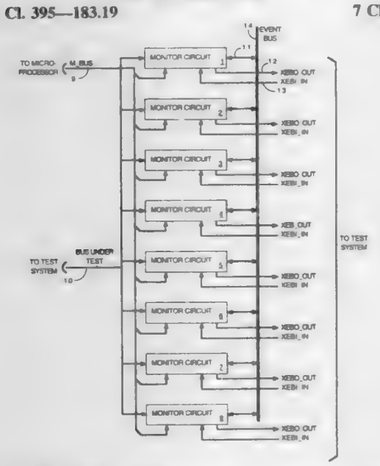
BUS MONITOR SYSTEM

Jeffrey Glenn Hunt, Glendale; Thomas Jay Perry, Phoenix; Michael Gilbert, Glendale; Randall Lew Brown, Phoenix, and James B. Southway, Jr., Glendale, all of Ariz., assignors to AG Communication Systems Corporation, Phoenix, Ariz.

Filed Mar. 4, 1996, Ser. No. 611,984

Int. Cl.° G06F *11/00*

U.S. Cl. 395—183.19 7 Claims



1. A bus monitor system for use in a test system having a monitored bus comprising a plurality of parallel bits, and a microprocessor operated to generate a plurality of predetermined comparison bit patterns, predetermined match enable bit patterns, predetermined match interface output bit patterns, and predetermined output enable bit patterns, said bus monitor system comprising:

a plurality of monitor circuits; and

an event bus having a plurality of parallel bits;

each of said monitor circuits connected to said event bus, said monitored bus and said microprocessor;

each of said monitor circuits operated to receive an associated one of said comparison bit patterns, an associated one of said match enable bit patterns, an associated one of said match interface output bit patterns, and an associated one of said output enable bit patterns;

each of said monitor circuits further operated in response to a match between said associated match enable bit pattern and said event bus bits and a match between said associated comparison bit pattern and said monitored bus bits to apply said associated match interface output bit pattern to said event bus; and

each of said monitor circuits further operated in response to a match between said associated output enable bit pattern and said event bus bits to generate an associated monitor system output signal,

whereby said associated monitor system output signal indicates a match between said associated comparison bit pattern and said monitored bus bits.

5,729,679

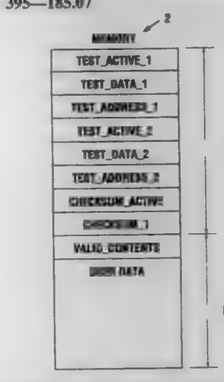
POWERFAIL DURABLE NVRAM TESTING

Marvin D. Nelson, Boise, Id., assignor to Hewlett-Packard Company, Palo Alto, Calif.

Continuation of Ser. No. 376,322, Jan. 19, 1995, Pat. No. 5,553,238. This application Apr. 17, 1996, Ser. No. 633,592

Int. Cl.° G06F *11/00*

U.S. Cl. 395—185.07 16 Claims



1. A method for providing powerfail durable testing of a memory device having data in a first subset of a plurality of storage locations in the memory device, the method comprising the steps of:

(a) copying a first word of the data and its address from a selected target location within the first subset of storage locations to a first and second reserved test storage location, respectively, in a second subset of the plurality of locations in the memory device;

(b) setting a test-status signal in a third reserved test storage location within the second subset, the test-status indicative of a memory test in progress for the target location;

(c) testing the target location; and,

(d) replacing the first word from the first reserved test storage location back to the target location, and wherein each reserved test storage location is used exclusively for storing respective data and state information during testing and through powerfail.

VOL 1208 ISS 3 MR 17 1998 UMI

5,729,680

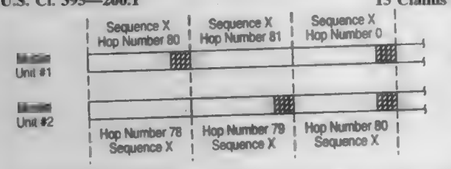
AD HOC INITIALIZATION FOR WIRELESS LOCAL AREA NETWORK

Philip H. Belanger, Saratoga; William N. Baugh, Milpitas, and David B. Rosen, Agoura Hills, all of Calif., assignors to Netwave Technologies Limited, Pleasanton, Calif.

Division of Ser. No. 82,313, Jun. 25, 1993, abandoned. This application May 11, 1995, Ser. No. 439,337

Int. Cl.[6] G06F *15/16;* **H04L** *9/00*

U.S. Cl. 395—200.1 **15 Claims**



1. A method of initializing a wireless area network, comprising the step of:

using a hop number of a current hop period of a first unit to determine whether said first unit scans or transmits during a portion of said current hop period, said current hop period being one of a sequence of hop periods, each of said hop periods of said sequence having a different hop number.

5,729,681

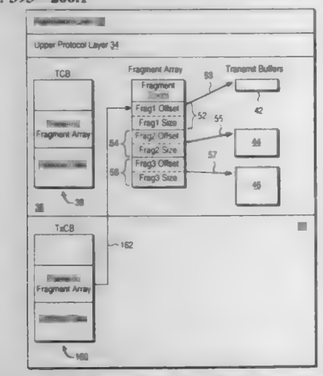
METHOD OF COMMUNICATING DATA FROM A HOST TO A NETWORK CONTROLLER

Vikas Aditya, and Prakash Iyer, both of Hillsboro, Oreg., assignors to Intel Corporation, Santa Clara, Calif.

Filed Oct. 10, 1995, Ser. No. 541,925

Int. Cl.[6] G06F *9/00*

U.S. Cl. 395—200.1 **9 Claims**



6. In a method of transmitting data from a main memory in a host computer over a system bus to a buffer memory located in a controller that is connected between said system bus and a network physical layer, and wherein said host is operating under a network operating system having a protocol stack which includes a lower protocol layer that provides transmit control blocks and transmit control block fragment arrays in a lower protocol space of said main memory and communicates with a driver layer which in turn communicates with said controller, the method comprising the following steps:

causing the loading of said transmit control block fragment arrays with physical addresses at initialization;

creating transmit command blocks in driver a space in said main memory at initialization;

acquiring a transmit command block;

copying predetermined fields from said transmit control block to said transmit command block;

setting up a pointer in said transmit command block to said transmit control block fragment array; and

issuing a transmit command.

5,729,682

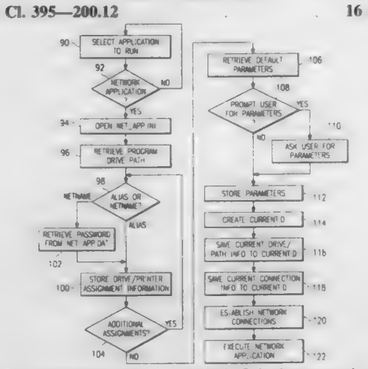
SYSTEM FOR PROMPTING PARAMETERS REQUIRED BY A NETWORK APPLICATION AND USING DATA STRUCTURE TO ESTABLISH CONNECTIONS BETWEEN LOCAL COMPUTER, APPLICATION AND RESOURCES REQUIRED BY APPLICATION

Eduardo Omar Marquis; James Randolph Pickering, both of Austin; Douglas Cooper Speice, and Russell Arthur Young, both of Round Rock, all of Tex., assignors to International Business Machines Corporation, Austin, Tex.

Filed Jun. 7, 1995, Ser. No. 484,229

Int. Cl.[6] G06F *13/00*

U.S. Cl. 395—200.12 **16 Claims**



1. In a computer network, a method of sharing network applications without use of a central repository of network application data, comprising the steps of:

storing a data structure at each of a plurality of computers in the computer network, the data structure containing information on network applications residing remotely in the network;

in response to a user selection of a network application at a local computer, prompting the user to enter one or more parameters required by the network application, and using in the data structure stored at the local computer to establish connections between the local computer and the computer where the network application resides and between the local computer and respective ones of the plurality of computers where network resources required by the network application reside; and

having the local computer communicate over the connections as required to thereby run the network application.

5,729,683

PROGRAMMING MEMORY DEVICES THROUGH THE PARALLEL PORT OF A COMPUTER SYSTEM

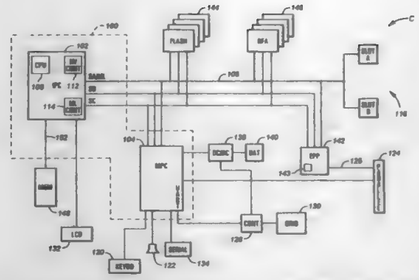
Hung Quang Le, and Patrick R. Cooper, both of Houston, Tex., assignors to Compaq Computer Corporation, Houston, Tex.

Filed May 18, 1995, Ser. No. 444,068

Int. Cl.[6] G06F *13/12*

U.S. Cl. 395—200.01 **31 Claims**

1. A method of loading data provided by an external computer into a memory device located in a computer system having a microprocessor, a parallel port and a system bus, wherein the external data is loaded into the memory device without intervention by the microprocessor, wherein a circuit and the memory device are coupled to the system bus, and wherein the external data is provided to the computer system through the parallel port, the method comprising the steps of:



receiving command signals from the parallel port, wherein said command signals include information representing one of a plurality of commands, and wherein one of said plurality of commands is a memory write command;

decoding said command signals to determine if said memory write command is asserted;

obtaining control of the system bus when said memory write command is decoded;

receiving the external data from the parallel port; and

writing the external data into the memory device when control of the system bus has been obtained.

5,729,684

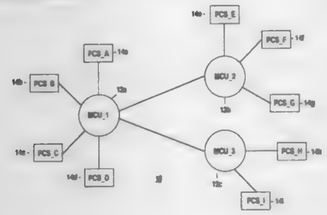
METHOD AND APPARATUS FOR HETEROGENEOUS MULTIMEDIA CONFERENCING USING MULTIPOINT REFERENCES

Andrew Kuzma, Portland, Oreg., assignor to Intel Corporation, Santa Clara, Calif.

Filed May 16, 1995, Ser. No. 442,350

Int. Cl.[6] G06F *11/00*

U.S. Cl. 395—200.34 **27 Claims**



1. A personal conferencing system (PCS) comprising a personal conference manager (PCM) having a first function to send data to other PCSs in conference with the PCS through a multi-point control unit (MCU), wherein the first function sends data and multi-point references specified for the data to the MCU, wherein the MCU is directed to use the multi-point references to select data routing matrices from enrolled data routing matrices, wherein the MCU is operative to perform evaluations and apply results of the evaluations to determine which data routing matrix among the enrolled data routing matrices is an appropriate one to select using said multi-point references, and ascertain destinations of the data being sent using the selected data routing matrix, wherein the MCU send the data to the ascertained destinations accordingly, and wherein each data routing matrix specifies a particular data routing pattern among the PCSs.

5,729,685

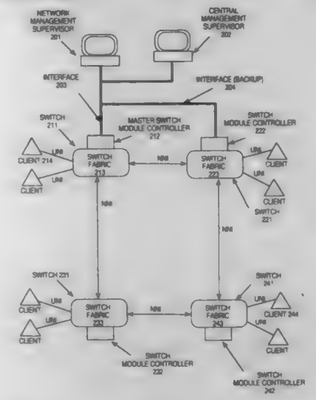
APPARATUS FOR DETERMINING THE TOPOLOGY OF AN ATM NETWORK OR THE LIKE VIA COMMUNICATION OF TOPOLOGY INFORMATION BETWEEN A CENTRAL MANAGER AND SWITCHES IN THE NETWORK OVER A VIRTUAL SERVICE PATH

Dilip Chatwani; Rajan Subramanian, both of Newark; Winnis Chiang, Los Altos Hills; Jonathan Davar, San Jose; Ayal Opher, Mountain View, and Shiva Sawant, Santa Clara, all of Calif., assignors to Bay Networks, Inc., Santa Clara, Calif.

Continuation of Ser. No. 667,322, Jun. 20, 1996, abandoned, which is a continuation of Ser. No. 86,431, Jun. 29, 1993, abandoned. This application Sep. 13, 1996, Ser. No. 712,679

Int. Cl.[6] G06F *13/00*

U.S. Cl. 395—200.11 **11 Claims**



1. An apparatus for determining topology of a switching network, said apparatus comprising: (a) a central manager coupled in communication with a first switch over a first virtual service path and a second switch over a second virtual service path; (b) said first switch switching network topology information transmitted from said second switch over said first virtual service path; and (c) said second switch switching network topology information transmitted by said first switch over said second virtual service path.

5,729,686

METHOD FOR INITIALIZING A NETWORK HAVING A PLURALITY OF NETWORK SUBSCRIBERS CAPABLE OF ACTING AS MASTERS

Patrick Heck, Durmersheim, and Herbert Hetzel, Weingarten, both of Germany, assignors to Becker GmbH, Karlsbad, Germany

Filed Feb. 2, 1996, Ser. No. 597,508

Claims priority, application Germany, Feb. 2, 1995, 195 03 209.8

Int. Cl.[6] G06F *12/00*

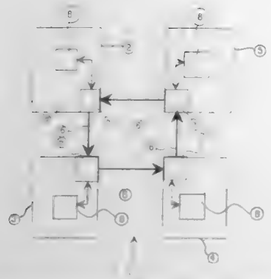
U.S. Cl. 395—200.38 **11 Claims**

1. In a method for initializing a network having a plurality of network subscribers being capable of acting as masters, which includes assigning a function of acting as a master to the network subscriber being capable of acting as a master that is turned on first, the improvement which comprises:

in the event of a collision when the master function is assigned substantially simultaneously to a plurality of substantially simultaneously turned-on network subscribers, generating a random value differing in magnitude in the plurality of network subscribers;

comparing magnitudes of the generated random values in the affected network subscribers;

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finally assigning the master function to the network subscriber having generated the best value, in the sense of being the highest or the lowest value; and

causing the affected network subscribers to exchange the random values they have generated with one another, and causing each network subscriber to drop out of the comparison process when it receives a better value than the random value it generated itself.

5,729,687

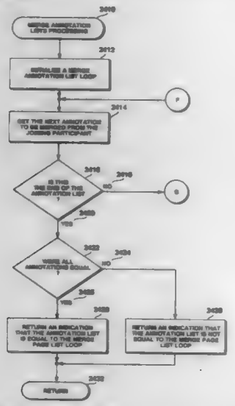
SYSTEM FOR SENDING DIFFERENCES BETWEEN JOINING MEETING INFORMATION AND PUBLIC MEETING INFORMATION BETWEEN PARTICIPANTS IN COMPUTER CONFERENCE UPON COMPARING ANNOTATIONS OF JOINING AND PUBLIC MEETING INFORMATION

Lewis V. Rothrock, Beaverton, and Tyler R. Thessin, Portland, both of Oreg., assignors to Intel Corporation, Santa Clara, Calif.

Filed Dec. 20, 1993, Ser. No. 170,398

Int. Cl.[6] G06F *15/16;15/40;13/10*

U.S. Cl. 395—200.34 **22 Claims**



1. In a computer conferencing system having a plurality of participants coupled by a communication medium, each participant of said plurality of participants having a meeting manager, said meeting manager comprising:

means for collecting public meeting information generated by any of said plurality of participants, said public meeting information including zero or more pages of annotations;

means for receiving joining meeting information from a joining participant;

means for comparing an annotation in said public meeting information with a second annotation in said joining meeting information from said joining participant and generating a set of differences; and

means for selectively sending said set of differences to at least one participant in said plurality of participants.

5,729,688

NETWORK ELEMENT MANAGING SYSTEM

Moowan Kim, Kawasaki; Masaaki Wakamoto; Mitsunori Fukazawa, both of Yokohama; Kenichi Fukuda; Kazumasa Ushiki, both of Kawasaki, and Shinichi Matsumoto, Yokohama, all of Japan, assignors to Fujitsu Limited, Kanagawa, Japan

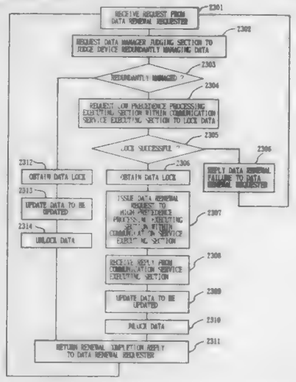
PCT No. PCT/JP94/01619, § 371 Date Dec. 7, 1995, § 102(e) Date Dec. 7, 1995, PCT Pub. No. WO95/09501, PCT Pub. Date Apr. 6, 1995

PCT Filed Sep. 29, 1994, Ser. No. 448,361

Claims priority, application Japan, Sep. 29, 1993, 5-242993

Int. Cl.[6] G06F *13/14*

U.S. Cl. 395—200.56 **16 Claims**



13. A network element managing system, comprising the steps of:

upon receiving a renewal request of an object managing table from a manager means, discriminating data to be updated to discriminate whether the data is in an access prohibition state, or not;

if said data is in an accessible state, then prohibiting access to said data from the interior of the communication control section and access to said data from the exterior of the communication control section;

transmitting the processing request to a network element to receive a reply therefrom if necessary;

updating said data on the basis of said renewal request;

releasing the prohibition of access to said access from the interior of the communication control section;

notifying said manager means of the completion of said data renewal;

transferring said data renewal request to a management control section; and

upon receiving the completion of execution of the renewal request from said management control section, releasing the prohibition of access to said data from the exterior of said communication control section.

5,729,689

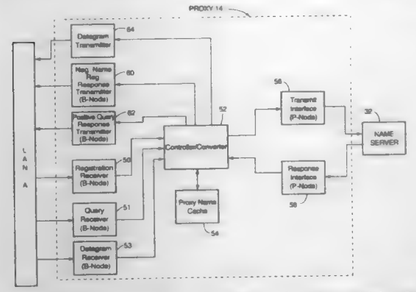
NETWORK NAMING SERVICES PROXY AGENT

James E. Allard, Seattle; James Stewart, Woodinville; Pradeep Bahl, and David M. Thompson, both of Redmond, all of Wash., assignors to Microsoft Corporation, Redmond, Wash.

Filed Apr. 25, 1995, Ser. No. 428,582

Int. Cl.[6] H04L *12/00*

U.S. Cl. 395—200.58 **13 Claims**



1. A network including a plurality of nodes which obtain addresses of other nodes in the network by transmitting names according to naming protocols and receiving addresses corresponding to the names, said network comprising:

a first node comprising means for facilitating obtaining network addresses corresponding to node names according to a first naming protocol;

a second node having a name and comprising means for facilitating obtaining network addresses corresponding to node names according to a second naming protocol that is incompatible with the first naming protocol;

a name server for responding to naming queries according to the second naming protocol; and

a naming proxy agent comprising:

means for converting a first naming query including a name transmitted from the first node according to the first naming protocol into a second naming query that also includes the name;

means for transmitting the second naming query according to the second naming protocol to the name server;

means for receiving from the name server, according to the second naming protocol, an address corresponding to the second naming query; and

means for passing, according to the first naming protocol, the address to the first node.

5,729,690

VARIABLE LENGTH ENCODING METHOD AND APPARATUS FOR DIFFERENTIAL MOTION VECTOR VALUES USING AN IMPROVED DIFFERENTIAL MOTION CODE TABLE

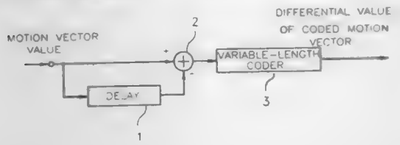
Jechang Jeong, Seoul, and Joohan Kwon, Suwon, both of Rep. of Korea, assignors to Samsung Electronics Co., Ltd., Kyungki-Do, Rep. of Korea

Filed May 5, 1995, Ser. No. 436,012

Claims priority, application Rep. of Korea, May 11, 1994, 94-10304

Int. Cl.[6] G06F *17/00*

U.S. Cl. 395—200.76 **9 Claims**



1. A method for variable-length-encoding a motion vector value within a range of motion vector values in an image for use in motion compensation, comprising the steps of:

(i) generating a differential motion code table by a method comprising the steps of:

(a) one of adding and subtracting a modulus, determined based on the range of motion vector values, to first differential motion vector values outside the range of motion vector values, thereby producing second differential motion vector values;

(b) maintaining third differential motion vector values from the first differential motion vector values which are not outside the range of motion vector values, thereby altering the range of motion vector values so that all first differential motion vector values are within the range of motion vector values;

(c) assigning a variable-length codeword to each of said second and third differential motion vector values by using a predetermined residual code in correspondence with a variable-length code of a reference difference motion code table;

(ii) altering the differential motion code table by assigning relatively short variable-length codes to second differential motion vector values outside the range of motion vector values as the magnitudes of the second differential motion vector values become smaller, and assigning relatively long variable-length codes to the second differential motion vector values outside the range of the motion vector values as the magnitudes of the second differential motion vector values become larger;

(iii) delaying a received motion vector value until a next motion vector value is applied and outputting the delayed motion vector value;

(iv) calculating a differential motion vector value from the delayed motion vector value and the next motion vector value; and

(v) receiving the differential motion vector value calculated in step (iv) and variable-length-encoding the received differential motion vector value according to the differential motion code table altered in step (ii).

5,729,691

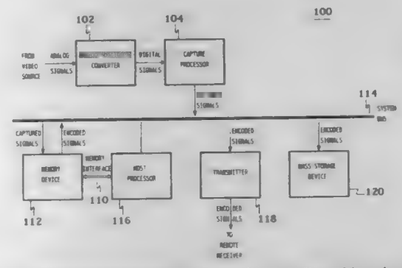
TWO-STAGE TRANSFORM FOR VIDEO SIGNALS

Robit Agarwal, Hillsboro, Oreg., assignor to Intel Corporation, Santa Clara, Calif.

Filed Sep. 29, 1995, Ser. No. 536,343

Int. Cl.[6] G06K *9/56*

U.S. Cl. 395—200.77 **30 Claims**



1. A computer-implemented process for encoding video signals, comprising the steps of:

(a) applying a forward transform to the video signals to generate transformed video signals, wherein the forward transform comprises:

(1) a first stage that exploits local redundancies in the video signals; and

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(2) a second stage, following the first stage, that exploits remote redundancies in results of the first stage; and

(b) encoding the transformed video signals to generate an encoded video bitstream.

5,729,692

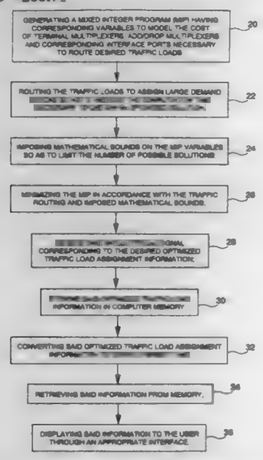
METHOD FOR ASSIGNING INTER-NODAL TRAFFIC LOADS TO CHANNELS IN SONET RINGS

Yuping Qiu, Louisville; Jennifer Ryan, Boulder; Xiaorong Sun, Boulder, and Youngho Lee, Boulder, all of Colo., assignors to U. S. West Technologies, Inc., Boulder, Colo.

Continuation of Ser. No. 252,035, May 31, 1994, Pat. No. 5,564,021, which is a continuation of Ser. No. 131,045, Oct. 1, 1993, Pat. No. 5,508,999, which is a continuation-in-part of Ser. No. 944,515, Sep. 10, 1992, abandoned, which is a continuation-in-part of Ser. No. 520,676, May 8, 1990, abandoned. This application Jun. 5, 1996, Ser. No. 659,172

Int. Cl.° G06F *13/368;* **H04J** *3/26*

U.S. Cl. 395—200.71 **2 Claims**



1. For use in cooperation with a computer having memory, a method of assigning inter-nodal traffic loads to channels in SONET rings, comprising:

generating a Mixed Integer Program (MIP) having corresponding variables to model the cost of SONET Terminal multiplexers, SONET Add/Drop Multiplexers and corresponding interface ports necessary to route said traffic loads;

routing said traffic loads to assign large demand blocks and imposing mathematical bounds on said MIP variables so as to limit the number of possible solutions;

minimizing said MIP in accordance with said traffic routing and said imposed mathematical bounds;

storing in the memory of the computer optimized traffic load assignment information corresponding to the minimized MIP; and

assigning inter-nodal traffic loads to channels in said SONET rings in accordance with said optimized traffic load assignment information.

5,729,693

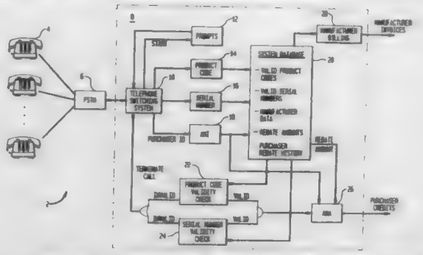
SYSTEM AND METHOD TO AUTOMATICALLY PROVIDE AN ELECTRONIC CONSUMER REBATE

Marilyn A. Holda-Fleck, Westfield, N.J., assignor to Lucent Technologies, Inc., Murray Hill, N.J.

Continuation of Ser. No. 174,570, Dec. 28, 1993, abandoned. This application May 3, 1996, Ser. No. 781,177

Int. Cl.° G06F *17/60*

U.S. Cl. 395—214 **14 Claims**



1. A method for crediting to a purchaser of a manufacturer's product a rebate correlated to the purchase, said method comprising the steps of:

a) providing to the purchaser a rebate system access telephone number;

b) upon connection of a telephone call initiated by the purchaser to a telephone station corresponding to the rebate system access telephone number, prompting the purchaser to enter into the system a product code;

c) accepting the purchaser's input of a product code correlated to the purchased product and storing said product code in a product code register;

d) verifying the validity of the accepted product code and terminating the call if the product code is invalid,

wherein said product code verifying step comprises the steps of:

i) accessing a first computer data base using said product code as an address, said first computer data base comprising product code valid flag data for determining the propriety of issuing a rebate for a product corresponding to said product code, manufacturer data for identifying the particular manufacturer of the product corresponding to said product code, and rebate data for setting the rebate amount for the product corresponding to said product code; and

ii) terminating the call when said product code valid flag is false;

e) prompting the purchaser to enter into the system a serial number unique to the particular product purchased by the purchaser;

f) accepting the purchaser's input of a serial number and storing said serial number in a serial number register;

g) verifying the validity of the accepted serial number and that said serial number has not been previously rebated and terminating the call if said serial number is invalid or has been previously rebated,

wherein said serial number verifying step comprises the steps of:

i) accessing a second computer data base using said serial number and said product code as an address, said second computer data base comprising serial number valid flag data for verifying that the serial number entered by the purchaser has not been previously rebated; and

ii) terminating the call when said serial number valid flag is false; and

h) crediting an account dedicated to the purchaser with the rebate amount corresponding to the product code;

whereby the purchaser is immediately provided with a rebate in the form of a credit to a dedicated account and the need for merchant participation and paper processing of the rebate is eliminated.

5,729,694

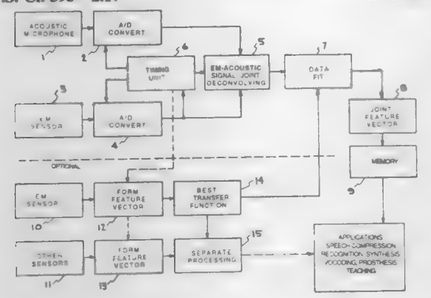
SPEECH CODING, RECONSTRUCTION AND RECOGNITION USING ACOUSTICS AND ELECTROMAGNETIC WAVES

John F. Holzrichter, Berkeley, and Lawrence C. Ng, Danville, both of Calif., assignors to The Regents of the University of California, Oakland, Calif.

Filed Feb. 6, 1996, Ser. No. 597,589

Int. Cl.° G10L *3/02;9/00*

U.S. Cl. 395—2.17 **43 Claims**



1. A method for characterizing speech, comprising:

directing EM radiation toward speech organs of a speaker;

detecting EM radiation scattered from the speech organs to obtain speech organ information;

detecting acoustic speech output from the speaker to obtain acoustic speech information;

combining the EM speech organ information with the acoustic speech information using a speech coding algorithm to obtain the speaker's excitation function and speech tract transfer function.

5,729,695

METHOD AND DEVICE FOR ACKNOWLEDGEMENT OF TRANSMITTED INFORMATION

Roger Ahlm, Motala, and Ola Odmark, Upsala, both of Sweden, assignors to Pricer Inc., Norwalk, Conn.

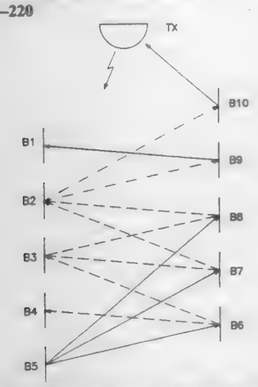
PCT No. PCT/SE93/00935, § 371 Date Nov. 17, 1995, § 102(e) Date Nov. 17, 1995, PCT Pub. No. WO94/11832, PCT Pub. Date May 26, 1994

PCT Filed Nov. 8, 1993, Ser. No. 432,187

Claims priority, application Sweden, Nov. 9, 1992, 92-03339

Int. Cl.° G06F *153/00*

U.S. Cl. 395—220 **19 Claims**



1. A method for acknowledgement of information transmitted by a transmitting device (A) in a shop data system to an electronic label/information module (B) for price marking, comprising a presentation display having price indicating items of information and relevant items of information relating to a certain article, said information module (B) preferably being operated by a solar cell, and said information module (B) further comprising electronics for interpretation and storage of data information transmitted from a system computer and for presentation of said data information on said display, said information module being arranged having an electronically defined unique address or an ID, characterized in

that said information module (**B1–B10**) transmitting an electromagnetic signal of acknowledgement having a wavelength preferably corresponding to that of said transmitting device (A),

that each thus addressed data information from said transmitting device (A, TX) is transmitted in the form of a data package comprising a predetermined number of data bits followed by a time slot for registration of said signal of acknowledgement,

that a primary signal of acknowledgement transmitted by an addressed information module (**B5**) is repeated by other information modules (**B1–B4, B6–B10**), which are not addressed at that time, whereby a further propagation of said transmitted signal of acknowledgement is obtained, such that even if the coverage of said acknowledgement in the primarily addressed information module (**B5**), which transmitted said primary signal of acknowledgement, is not sufficient to reach a receiver device (A, TX) in a system, this receiver device is reached by said secondary signal of acknowledgement repeated by other information modules (**B1–B4, B6–B10**), whereby the acknowledgement signal by said addressed information module (**B5**) has correctly been received by said system computer.

5,729,696

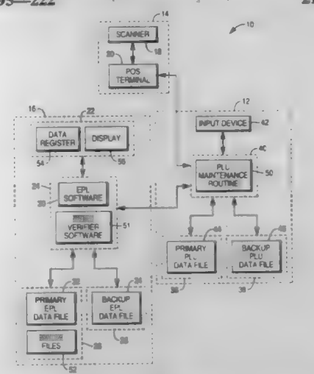
TRANSACTION DATA RECOVERY SYSTEM AND METHOD

John C. Goodwin, III, Suwanee, and Terry L. Zimmerman, Lawrenceville, both of Ga., assignors to NCR Corporation, Dayton, Ohio

Filed Jun. 13, 1995, Ser. No. 490,042

Int. Cl.° G06F *151/00*

U.S. Cl. 395—222 **21 Claims**



1. An electronic price label (EPL) system data recovery method comprising the steps of:

(a) providing a primary EPL data file containing a list of items and information identifying EPLs associated with the items, wherein the primary EPL data file changes over time as new EPLs are removed and added to the system;

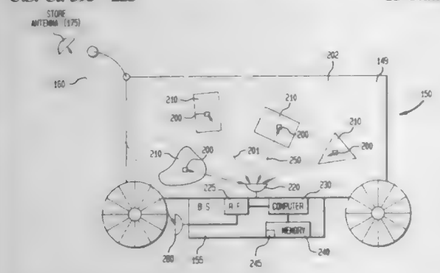
(b) providing a backup EPL data file containing another list of items and information identifying EPLs associated with the items by copying the primary EPL data file at a predetermined point in time;

(c) loading the backup EPL data file by a computer terminal upon a loss of the primary EPL data file;

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(d) determining whether the backup EPL data file contains information on all of the EPLs within the system; and
(e) modifying the backup EPL data file if the backup EPL data file lacks information on at least one of the EPLs within the system.

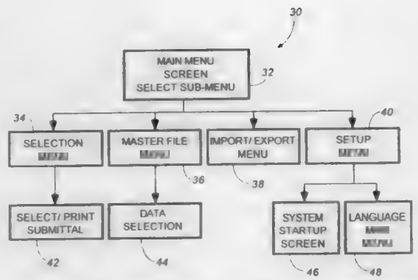
5,729,697
INTELLIGENT SHOPPING CART
Mario Schkolnick, San Jose, Calif., and Robert Jacob von Gutfeld, New York, N.Y., assignors to International Business Machines Corporation, Armonk, N.Y.
Filed Apr. 24, 1995, Ser. No. 428,802
Int. Cl.[6] G08B *13/24;* **G06F** *17/60*
U.S. Cl. 395—223 **11 Claims**



1. A mobile shopping cart comprising:
a. a radio frequency cart base station having a cart antenna connected to a radio frequency cart transceiver, the cart transceiver controlled by a cart computer with a cart memory, the cart antenna capable of creating a radio frequency field within the shopping cart;
b. an interrogator executed by the cart computer that controls the can transceiver to periodically interrogate radio frequency tags within the radio frequency field, one or more of the radio frequency tags being attached to an object in the shopping cart; and
c. a data structure in the cart memory that is periodically updated by the interrogator to have an entry for one or more objects in the shopping cart, where the data structure includes an object price for each of the entries and a running total of the prices for one or more of the objects in the shopping cart and where a paid memory location is located in a memory on each of the radio frequency tags and paid information is written on the paid memory location as a result of one or more cart signals sent from the cart antenna after the shopper pays the running total.

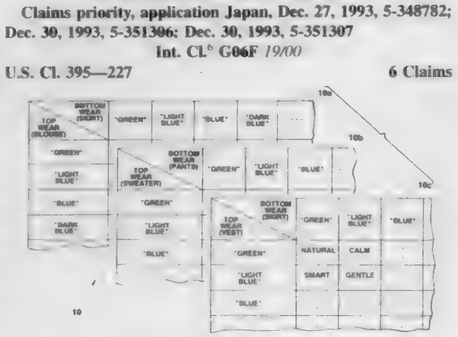
5,729,698
FIRE PUMP DATA SYSTEM FOR PRODUCING SUBMITTALS
William F. Stelter, Libertyville, Ill., assignor to Master Control Systems, Inc., Lake Bluff, Ill.
Filed May 16, 1995, Ser. No. 441,862
Int. Cl.[6] G06F *15/22*
U.S. Cl. 395—226 **28 Claims**

1. A system for producing submittals for a fire pump system including a fire pump, driver, and control equipment, the system comprising:
a computer having a storage device and an input device;
a printer coupled to said computer;
a master file stored in said storage device, said master file having data representing fire pump, driver, and control equipment drawings and information related to said fire pump, driver, and control equipment drawings;
a means for deriving selected information and selected drawings from said storage device of said computer and printing a



submittal for a fire pump system on said printer including drawings and information for a fire pump system including a selected fire pump, driver and control equipment.

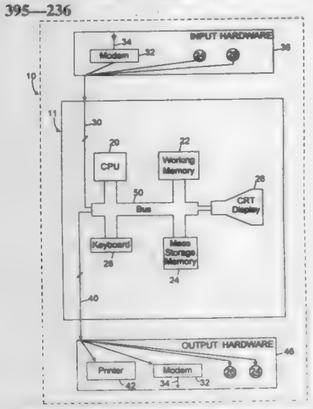
5,729,699
DISPLAY APPARATUS WHICH IS CAPABLE OF DISPLAYING EVALUATION DATA WITH RESPECT TO COLORS
Kayoko Hashimoto, Ome; Yukihiro Nakano; Kyoko Lin, both of Akishima, and Susumu Onodera, Ome, all of Japan, assignors to Casio Computer Co., Ltd., Tokyo, Japan
Filed Dec. 19, 1994, Ser. No. 359,079
Claims priority, application Japan, Dec. 27, 1993, 5-348782; Dec. 30, 1993, 5-351306; Dec. 30, 1993, 5-351307
Int. Cl.[6] G06F *19/00*
U.S. Cl. 395—227 **6 Claims**



1. A display system comprising:
a display;
an evaluation data memory for storing a plurality of evaluation data relating to a plurality of types of top wear and a plurality of types of bottom wear, wherein each type of top wear has a respective plurality of colors and each type of bottom wear has a respective plurality of colors, and wherein each of said plurality of evaluation data respectively corresponds to a combination of one of the plurality of types of top wear having one of the respective plurality of colors thereof with one of the plurality of types of bottom wear having one of the respective plurality of colors thereof;
top wear display means for displaying the plurality of types of top wear and the respective plurality of colors thereof on said display;
a top wear designating device for designating one of the displayed plurality of types of top wear and one of the displayed respective plurality of colors of the designated type of top wear;
a top wear data storage device for storing top wear data corresponding to the type and color of top wear designated by said top wear designating device;
bottom wear display means for displaying the plurality of types of bottom wear and the respective plurality of colors thereof on said display;

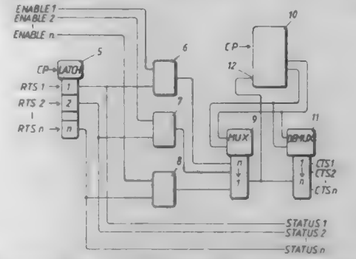
a bottom wear designating device for designating one of the displayed plurality of types of bottom wear and one of the displayed respective plurality of colors of the designated type of bottom wear;
a bottom wear data storage device for storing bottom wear data corresponding to the type and color of bottom wear designated by said bottom wear designating device; and
evaluation display means for reading from said evaluation data memory one of the plurality of evaluation data corresponding to the combination of the designated type and color of top wear designated by said top wear designating device with the designated type and color of bottom wear designated by said bottom wear designating device, and for displaying the read out evaluation data on said display; and
wherein the image represented by the evaluation data is expressed in terms of a plurality of scaled image items.

5,729,700
METHODS AND APPARATUS FOR FACILITATING EXECUTION OF ASSET TRADES BASED ON NONNEGATIVE INVESTMENT RISK, USING OVERLAPPING TIME PERIODS
Meyer Melnikoff, 1 Claridge Dr., Apt. 507, Verona, N.J. 07044, assignor to Meyer Melnikoff, Verona, N.J.
Filed Feb. 24, 1995, Ser. No. 393,910
Int. Cl.[6] G06F *17/60*
U.S. Cl. 395—236 **55 Claims**



11. A portfolio selector for selecting, for an investor, an investment portfolio comprising one or more assets from a plurality of assets, each of said assets having market value data observable on a periodic basis, selection of said investment portfolio being based on asset value data for said plurality of assets, on target value data for a target asset, and on investment preference data for said investor, said portfolio selector comprising:
(a) a multiplexer, responsive to one or more select lines, for selecting an asset, or a set of assets and their relative proportions, from said plurality of assets, to form a tentative investment portfolio;
(b) a processor module, for determining an average relative performance of said tentative portfolio, said processor module comprising:
(i) means for using said target value data and said asset value data for said assets comprising said tentative portfolio to compute a plurality of nonnegative extents and a plurality of segment performances by computing, for each of a plurality of time segments of equal duration:
a nonnegative extent to which said tentative portfolio underperforms said target asset over said time segment; and
a segment performance of said tentative portfolio over said time segment; and
(ii) means for computing a function of said nonnegative extents and said segment performances to yield said average relative performance;
(c) a tester, for testing whether said tentative portfolio selected by said multiplexer satisfies criteria derived from said investor preference data, based on said average relative performance calculated by said processor module;
(d) an initializer, for initially engaging said multiplexer select line or lines and said processor module;
(e) an iterator, for iteratively engaging said multiplexer select line or lines and said processor module until said tester determines that said tentative portfolio satisfies said criteria and is therefore to be designated as said investment portfolio; and
(f) communication means, for communicating to said investor said investment portfolio, which, if approved by said investor, results in execution of one or more asset trades.

5,729,701
METHOD AND ARRANGEMENT TO CONTROL A DATA NETWORK
Mats Ebbe Eriksson, Mölndal, Sweden, assignor to Telefonaktiebolaget LM Ericsson, Stockholm, Sweden
Filed Sep. 12, 1995, Ser. No. 526,906
Claims priority, application Sweden, Sep. 13, 1994, 9403045
Int. Cl.[6] H04L *12/40;* **G06F** *13/362*
U.S. Cl. 395—290 **13 Claims**

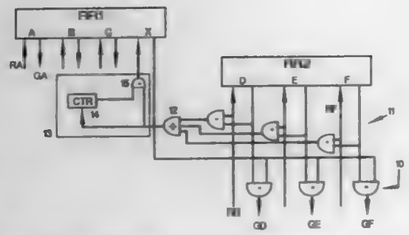


1. A method for controlling access to a bus connecting a plurality of slaves to a master in a data network, wherein a slave having information to send transfers a request for permission to send to the master to control access, the method comprising the steps of:
when no slave has permission to send, searching in the master for a request for permission to send information from a slave;
interrupting searching in the master when a request for permission to send is found; and
transferring a permission to send only to the slave whose request for permission to send was found;
wherein the permission to send is transferred only as long as the slave transfers the found request for permission to send.

5,729,702
MULTI-LEVEL ROUND ROBIN ARBITRATION SYSTEM
Tadhg Creedon; Richard A. Gahan, and Fearghal Morgan, all of County Galway, Ireland, assignors to Digital Equipment Corporation, Maynard, Mass.
Continuation of Ser. No. 209,852, Mar. 11, 1994, abandoned. This application Dec. 24, 1996, Ser. No. 772,782
Claims priority, application Ireland, Jun. 21, 1993, 930466
Int. Cl.[6] G06F *13/14;13/37*
U.S. Cl. 395—291 **19 Claims**

1. An arbiter for a computer system, comprising:
a first round-robin unit;
a second round-robin unit having a device coupled thereto, the device issuing a bus access request to the second round-robin unit, the second round-robin unit issuing a grant signal to the device in response to the bus access request; and

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logic circuitry, coupled to the round-robin units, issuing a request signal to the first round-robin unit in response to the bus access request issued by the device and the grant signal issued by the second round-robin unit.

5,729,703

BUS CONTROL OPERATING SYSTEM HAVING BI-DIRECTIONAL ADDRESS LINES, INTEGRATED ONTO SAME CHIP AS MAIN CONTROLLER

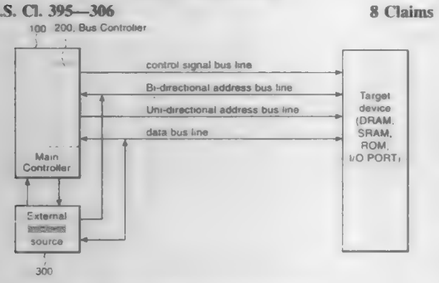
Yong-ho Onn, Seoul, and Wook Koh, Suweon, both of Rep. of Korea, assignors to Samsung Electronics Co., Ltd., Suwon, Rep. of Korea

Continuation of Ser. No. 394,200, Feb. 24, 1995, abandoned, which is a continuation of Ser. No. 812,033, Dec. 23, 1991, abandoned. This application Apr. 29, 1996, Ser. No. 638,867

Claims priority, application Rep. of Korea, Sep. 20, 1991, 91-16509

Int. Cl.[6] G06F *13/40*

U.S. Cl. 395—306 **8 Claims**



1. A bus controller operating system comprising:

a main controller;

a bus controller integrated on a single integrated circuit chip with said main controller;

an external address source;

an external target device;

a bi-directional address bus lines constructed and arranged to carry address signals from said bus controller to said external target device and external source address signals from said external address source to said bus controller;

an internal address bus connected between said main controller and said bus controller for carrying internal address signals; and

internal data bus lines connected between said main controller and said bus controller for carrying data signals; wherein said bus controller comprises:

an input register for storing one of said external address signals and said internal address signals received from at least one address source through one of said external bi-directional address bus lines connected to said external address source and said internal address bus;

an address decoder for decoding address signals transmitted from said input register and transmitting a decoded signals to designate the target device;

a control signal buffer for transmitting a second internal control signal in correspondence with a first internal control signal generated by said main controller;

a bus interface controller constructed and arranged to transmit a characteristic control signal to said at least one address source in correspondence with said second control signal transmitted from said control signal buffer and said decoded signal from said address decoder;

a data controller constructed and arranged to transmit a fourth control signal in correspondence with said characteristic control signal received from said bus interface controller;

a data buffer constructed and arranged to receive said fourth control signal transmitted by said data controller and receiving and transmitting data through said internal data bus lines and external data bus lines; and

an address bus controller constructed and arranged to transmit said address signals to the target device through said bi-directional address bus line, after receiving a signal from said input register and said characteristic control signal transmitted from said bus interface controller.

5,729,704

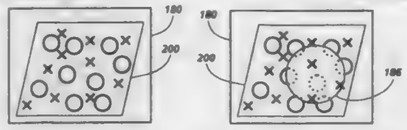
USER-DIRECTED METHOD FOR OPERATING ON AN OBJECT-BASED MODEL DATA STRUCTURE THROUGH A SECOND CONTEXTUAL IMAGE

Maureen C. Stone, Los Altos; Eric A. Bier, Mountain View, both of Calif., and Anthony DeRose, Seattle, Wash., assignors to Xerox Corporation, Stamford, Conn.

Continuation of Ser. No. 95,974, Jul. 21, 1993, abandoned. This application Jan. 16, 1996, Ser. No. 587,890

Int. Cl.[6] G06T *11/00*

U.S. Cl. 395—346 **22 Claims**



1. A method of operating a machine: the machine including:

input circuitry connected to a user input device; the input circuitry receiving signals from the user input device indicating actions of a machine user;

output circuitry connected to a display having a display area for presenting images; the display area having a first image displayed in a present image position therein;

a processor connected for receiving the signals from the input circuitry, and connected for providing image definition data defining images to the output circuitry; and

memory for storing data; the data stored in the memory including:

instruction data indicating instructions the processor executes and defining an application operation; the application operation being a model-based operation; and

a first image model data structure used by the application operation to produce the first image;

the application operation further including application function instruction data for performing an application function using the first image model data structure;

the processor further being connected for accessing the data stored in the memory;

the processor further executing the application operation; the method comprising:

operating the processor to receive first signal data from the input circuitry indicating a display request by the machine user to present a viewing operation region in a present viewing position in the display area coextensive with the present image position of a first image segment of the first image;

the viewing operation region having a viewing operation associated therewith; the viewing operation being a model-based operation producing image definition data defining a second image; the viewing operation using the present viewing position of the viewing operation region to determine a present input portion of the first image model data structure for use in producing the second image;

operating the processor to respond to the first signal data indicating the display request by

performing the viewing operation using the present input portion of the first image model data structure to produce the image definition data defining the second image; the second image having size and shape dimensions substantially identical to size and shape dimensions of the viewing operation region; the second image providing to the machine user a visual perception of results of performing the viewing operation using the present input portion of the first image model data structure; and

providing the image definition data defining the second image to the output circuitry connected to the display so that the display presents the second image in the viewing operation region substantially at the same time as the first image is being displayed in the display area;

operating the processor to receive second signal data from the input circuitry indicating an application function request by the machine user to perform an application function using the first image model data structure according to the application function instruction data; the application function request including a second image position included in the second image indicating display features representing application input data for use in performing the application function; and

operating the processor to respond to the second signal data indicating the application function request by

obtaining the application input data represented by the display features included in the second image using the second image position; and

performing the application function according to the application function instruction data using the first image model data structure and the application input data obtained using the second image position.

5,729,705

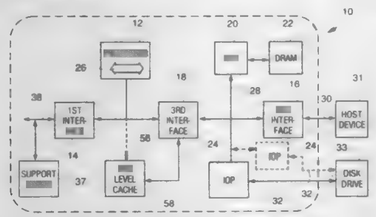
METHOD AND APPARATUS FOR ENHANCING THROUGHPUT OF DISK ARRAY DATA TRANSFERS IN A CONTROLLER

Bret S. Weber, Wichita, Kans., assignor to Symbios Logic Inc., Fort Collins, Colo.

Filed Jul. 24, 1995, Ser. No. 506,148

Int. Cl.[6] G06F *13/12*

U.S. Cl. 395—308 **17 Claims**



1. A method for transferring data in a controller connected between a host device and a disk drive, comprising the steps of:

transferring from the host device to the controller a first scatter/gather list that indicates where a block of data is located in a host memory;

generating a second scatter/gather list indicating where to store the block of data in a controller memory; and

transferring the block of data from the host memory to the controller memory in accordance with the first scatter/gather list and the second scatter/gather list.

5,729,706

MICROCOMPUTER WITH IMPROVED DATA PROCESSING AND DATA TRANSFER CAPABILITIES

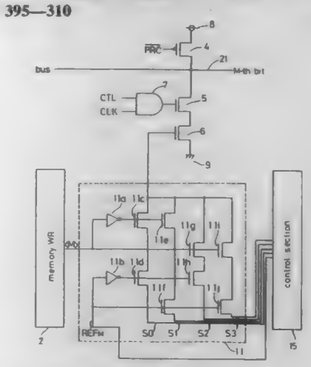
Hideyuki Terane, Itami, Japan, assignor to Mitsubishi Denki Kabushiki Kaisha, Tokyo, Japan

Filed Nov. 29, 1993, Ser. No. 158,286

Claims priority, application Japan, Nov. 30, 1992, 4-345404

Int. Cl.[6] G06F *17/14;19/00*

U.S. Cl. 395—310 **23 Claims**



1. A microcomputer comprising:

a bus for transferring data;

a data operator connected to said bus for operating on data taken in from said bus;

memory means connected to said data operator for storing the output of said data operator; and

data processing means connected to said memory means and said bus for performing data processing on data stored in said memory means while transferring the data from said memory means to said bus.

5,729,707

INSTRUCTION PREFETCH CIRCUIT AND CACHE DEVICE WITH BRANCH DETECTION

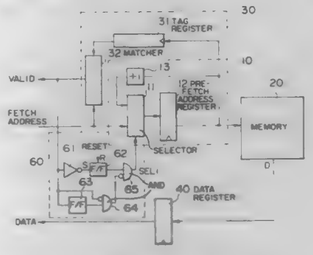
Kazuhiko Maki, Tokyo, Japan, assignor to Oki Electric Industry Co., Ltd., Tokyo, Japan

Filed Oct. 5, 1995, Ser. No. 539,683

Claims priority, application Japan, Oct. 6, 1994, 6-242553

Int. Cl.[6] G06F *9/38*

U.S. Cl. 395—383 **6 Claims**



1. An instruction prefetch circuit comprising:

a memory prestoring instructions to be used in a processor, said memory prestoring said instructions corresponding to addresses;

address generating means for incrementing a first instruction address inputted from said processor so as to generate a prefetch address for sending to said memory;

data sending means for reading out the instruction corresponding to said prefetch address from said memory and for sending said readout instruction to said processor;

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determination signal generating means for detecting whether or not said prefetch address agrees with a second instruction address inputted from said processor after said first instruction address, said determination signal generating means supplying to said processor a determination signal indicative of said instruction sent from said data sending means being valid when said prefetch address agrees with said second instruction address, while supplying to said processor a determination signal indicative of said instruction sent from said data sending means being invalid when said prefetch address disagrees with said second instruction address; and

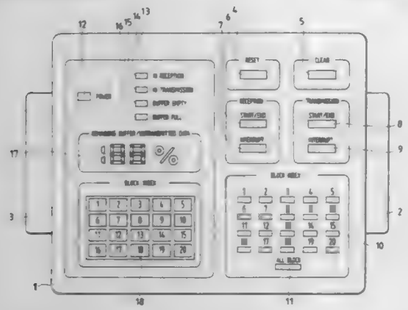
selection signal generating means for sending a selection signal to said address generating means, said selection signal causing said address generating means to select said second instruction address as a new prefetch address other than an address derived by incrementing said first instruction address, only upon change of said determination signal from valid to invalid.

5,729,708

PORTABLE DATA BUFFER APPARATUS WITH MANUALLY CONTROLLED RECEPTION/TRANSMISSION

Makoto Satoh, Tokyo, and Takahiro Onsen, Kawasaki, both of Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan

Continuation of Ser. No. 622,011, Dec. 4, 1990, abandoned.
This application Mar. 28, 1994, Ser. No. 218,831
Claims priority, application Japan, Dec. 4, 1989, 1-315065; Dec. 4, 1989, 1-315066; Dec. 4, 1989, 1-315067; Dec. 4, 1989, 1-315068; Dec. 4, 1989, 1-315069; Dec. 4, 1989, 1-315070
Int. Cl.° G06F *3/00;13/00*
U.S. Cl. 395—250 **10 Claims**



1. A portable data buffer apparatus comprising:

reception means for receiving data transmitted from a separate data transmitting apparatus;

transmission means for transmitting data to a separate data receiving apparatus;

accumulation means for accumulating data;

means for, in response to a manual instruction operation by an operator, inhibiting transmission of data by said transmission means while enabling reception of data by said reception means;

means for, in response to a different manual instruction operation by an operator, inhibiting reception of data by said reception means while enabling transmission of data by said transmission means;

manually-actuated reception interrupting means connected to said reception means for interrupting a reception of data in accordance with a first control procedure of said apparatus; and

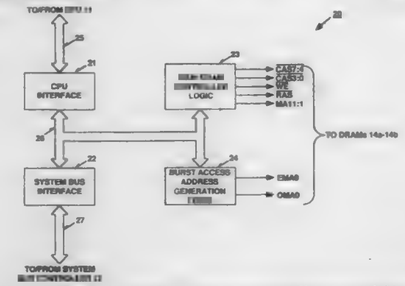
manually-actuated reception re-starting means connected to said reception means for re-starting the interrupted reception in accordance with a second control procedure of said apparatus.

5,729,709

MEMORY CONTROLLER WITH BURST ADDRESSING CIRCUIT

Jeffrey F. Harness, Hillsboro, Oreg., assignor to Intel Corporation, Santa Clara, Calif.

Continuation of Ser. No. 150,850, Nov. 12, 1993, abandoned.
This application Mar. 21, 1996, Ser. No. 618,611
Int. Cl.° G11C *7/00;* **G06F** *13/28*
U.S. Cl. 395—405 **44 Claims**



41. A method of operating a memory controller, comprising the steps of:

(a) receiving at an input of the memory controller a first memory address to a memory having a first memory bank and a second memory bank; and

(b) outputting to the memory from an address generation and control circuit a first enable signal for the first memory bank and a second enable signal for the second memory bank in response to the first memory address, wherein the first and second enable signals are alternately output to enable each of the first and second memory banks, respectively, to be addressed by the first memory address and to output data addressed by the first memory address.

5,729,710

METHOD AND APPARATUS FOR MANAGEMENT OF MAPPED AND UNMAPPED REGIONS OF MEMORY IN A MICROKERNEL DATA PROCESSING SYSTEM

James Michael Magee, Lake Worth; Freeman Leigh Rawson, III, Boca Raton, and Guy Gil Sotomayor, Jr., West Palm Beach, all of Fla., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Jun. 22, 1994, Ser. No. 263,710
Int. Cl.° G06F *12/00*
U.S. Cl. 395—413 **57 Claims**

11. A microkernel architecture data processing system, comprising:

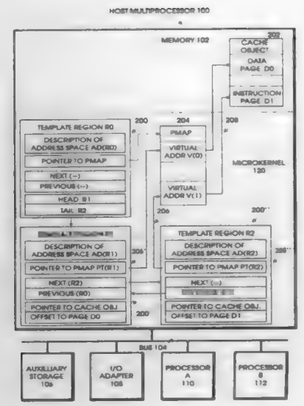
a microkernel in a memory of the data processing system, for creating task containers in said memory;

a template region as a special object in said memory, said template region having a set of attributes defining a virtual address space and having a template pointer to a memory object;

a task container in said memory having said set of attributes and having a task pointer to said template region, formed by means of mapping said template region into said task container;

said template pointer and said task pointer establishing a first relationship between said task container and said memory object;

means for performing virtual memory operations on said template region to modify said template pointer to said memory



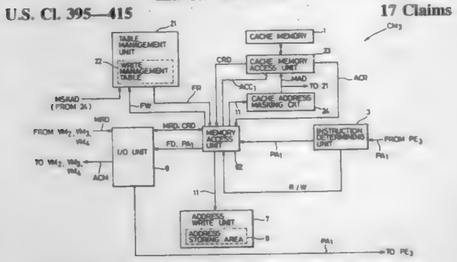
object, thereby establishing a second relationship between said task container and said memory object.

5,729,711

DATA DRIVEN INFORMATION PROCESSING SYSTEM USING ADDRESS TRANSLATION TABLE TO KEEP COHERENT CACHE AND MAIN MEMORIES AND PERMITTING PARALLEL READINGS AND WRITINGS

Toshiya Okamoto, Souraku-gun, Japan, assignor to Sharp Kabushiki Kaisha, Osaka, Japan

Filed May 31, 1994, Ser. No. 251,372
Claims priority, application Japan, Jun. 2, 1993, 5-132201
Int. Cl.° G06F *12/10*
U.S. Cl. 395—415 **17 Claims**



1. A data driven information processing system, comprising:

a data driven processor;

a main memory for storing data to be processed by said data driven processor;

cache memory means accessible at higher speed than said main memory, provided between said data driven processor and said main memory for storing at least a part of contents of said main memory; and

memory access means connected to said data driven processor, to said cache memory means and to said main memory, responsive to an access instruction from said data driven processor to said main memory, for accessing said cache memory means, said main memory or both for inputting/outputting data between said data driven processor and said main memory or said cache memory means, and for maintaining said cache memory means such that contents in said cache memory means are coherent with the contents of said main memory, said memory access means including address translation means having a table storing an address of said main memory in relation to an address of said cache memory where a copy of the contents of the main memory address is stored, operative in response to an access instruction applied from said data driven processor, for providing a determination result signal indicative of which of said main memory and said cache is to be accessed based on address information included in the access instruction applied from said data driven processor and on the contents of said table, and for providing an address to be accessed of said main memory or said cache memory,

wherein said memory access means further includes:

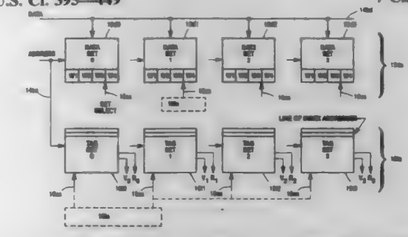
means for storing information specifying an access mode for each predetermined unit area of said cache memory means, the access mode inhibiting writing to a corresponding unit area when the access mode specifies that data has been written to but not yet read from the corresponding unit area, and inhibiting reading from the corresponding unit area when the access mode specifies that data has been read from but not yet overwritten at the corresponding unit area.

5,729,712

SMART FILL SYSTEM FOR MULTIPLE CACHE NETWORK

Bruce Ernest Whittaker, Mission Viejo, Calif., assignor to Unisys Corporation, Blue Bell, Pa.

Filed Jan. 26, 1996, Ser. No. 592,092
Int. Cl.° G06F *12/08*
U.S. Cl. 395—449 **7 Claims**



1. A smart-fill system for selecting a cache address of a multi-set second level cache structure which will be utilized for a cache fill cycle, and wherein a central processor generates an index address to select a line of addresses across each set of said multi-set second level cache structure, said system comprising:

(a) a small first level cache holding copies of a portion of address words and data words held in a second level cache;

(b) a large second level cache structure having N sets of cache units wherein each addressed location selected by said central processor holds a word having an address index portion and two status bits, said status bits including:

(b1) a valid status bit V to indicate validity (V= 1) or invalidity (V=0) of said address index word in said second level cache;

(b2) a Reflection bit R to indicate that the corresponding copy in said first level cache is valid (R=1) or invalid (R=0);

(c) means to check, after a cache miss cycle, the value of V and R for each selected address index of each one of said N sets of cache units;

(d) means to select, for a cache fill operation, that address index of the cache set which minimizes the probability of overwriting valid useful data in the said cache structure.

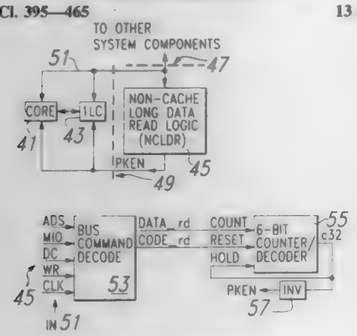
VOL 1208 ISS 3 MR 17 1998 UMI

5,729,713

DATA PROCESSING WITH FIRST LEVEL CACHE BYPASSING AFTER A DATA TRANSFER BECOMES EXCESSIVELY LONG

Thomas Leyrer, Freising, Germany, assignor to Texas Instruments Incorporated, Dallas, Tex.

Filed Mar. 27, 1995, Ser. No. 411,257
Int. Cl.[6] G06F *12/12*
U.S. Cl. 395—465 **13 Claims**



1. A data processing device, comprising:

a cache memory circuit;

a bus for providing control information which indicates that a data transfer of a block of data into said data processing device is occurring; and

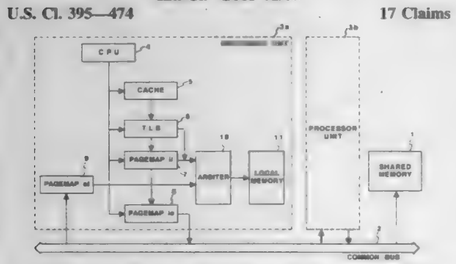
logic circuitry having an input connected to said control information, said logic circuitry having an output connected to said cache memory circuit to disable said cache memory circuit from storing therein data from said block after said block reaches a predetermined block size during said data transfer.

5,729,714

SHARED MEMORY ACCESS METHOD AND APPARATUS WITH ADDRESS TRANSLATION

Katsuhito Dei, Yokohama, Japan, assignor to Canon Kabushiki Kaisha, Tokyo, Japan

Continuation of Ser. No. 827,435, Jan. 29, 1992, abandoned. This application Jun. 5, 1995, Ser. No. 465,194
Claims priority, application Japan, Feb. 1, 1991, 3-011967
Int. Cl.[6] G06F *12/08*
U.S. Cl. 395—474 **17 Claims**



1. A processing apparatus in a system in which a plurality of such processing apparatuses are interconnected via a transmission medium, said processing apparatus comprising:

processing means for requesting an access by outputting a virtual address;

local memory means connected to said processing means without an intermediary of the transmission medium;

first address converting means for converting the virtual address from said processing means into a first real address for accessing said local memory means;

second address converting means for converting the virtual address form said processing means into a first intermediate address so that said processing means can access said local memory means included in a different one of said processing apparatuses, and for outputting the first intermediate address to the transmission medium; and

third address converting means for converting a second intermediate address brought via the transmission medium to said processing apparatus from another one of said plurality of processing apparatuses, into a second real address for accessing said local memory means,

wherein said first and second address converting means receive the same virtual address, and perform respective conversions in parallel, and

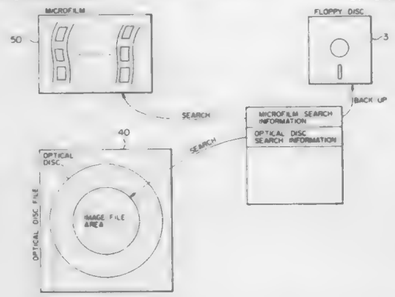
wherein said first address converting means instructs said second address converting means to stop performing the conversion if an entry corresponding to the virtual address is found in said local memory means during the conversion performed by said first address conversion means.

5,729,715

FILING SYSTEM WITH MULTIPLE FORMS OF STORAGE

Kenzo Ina, and Tamotsu Nakazawa, both of Yokohama, Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan

Continuation of Ser. No. 940,736, Sep. 8, 1992, abandoned, which is a continuation of Ser. No. 650,987, Feb. 4, 1991, abandoned, which is a continuation of Ser. No. 926,522, Nov. 4, 1986, abandoned. This application Sep. 9, 1994, Ser. No. 302,942
Claims priority, application Japan, Nov. 6, 1985, 60-248584; Nov. 6, 1985, 60-248585; Nov. 6, 1985, 60-248586; Nov. 6, 1985, 60-248587; Nov. 6, 1985, 60-248588; Nov. 6, 1985, 60-248589; Nov. 6, 1985, 60-248590
Int. Cl.[6] G06F *12/16*
U.S. Cl. 395—489 **15 Claims**



1. A filing system comprising:

first random access file means for recording image information;

second file means for recording image information, said first random access file means being larger in capacity than said second file means; and

memory means for storing a plurality of pieces of search information each used for searching said first and/or second file means for corresponding image information; each piece of the search information including identification information identifying said first and/or second file means which stores the corresponding image information,

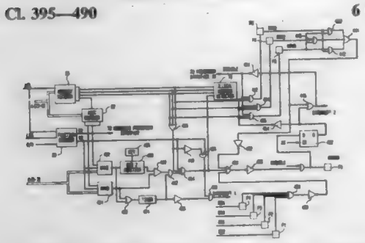
wherein at least one of the plurality of pieces of search information stored in said memory means are sent to and stored in said first file means if its identification information identifies said first file means, and at least one of the plurality of pieces of search information stored in said memory means are sent to and stored in an external storage means if its identification information identifies said second file means.

5,729,716

MEMORY MONITORING CIRCUIT FOR DETECTING UNAUTHORIZED MEMORY ACCESS

Young W. Lee, Orange; Sungwon Moh, Wilton, and Arno Muller, Westport, all of Conn., assignors to Pitney Bowes Inc., Stamford, Conn.

Continuation of Ser. No. 163,811, Dec. 9, 1993, abandoned. This application May 15, 1996, Ser. No. 648,454
Int. Cl.[6] G06F *12/16*
U.S. Cl. 395—490 **6 Claims**



1. A memory security circuit in electronic bus communication with a memory access circuit for detecting when memory units have been accessed independently of said memory access circuit, said memory access circuit having circuit means programmed to provide a unique address signal for write enabling a discrete memory unit, said discrete memory unit having a write enable pin and chip select pin, which when enabled concurrently, permits writing into said discrete memory unit, comprising:

address decoding means for receiving said unique address signal and causing a write enable signal and chip select signal to be generated for said discrete memory unit,

means for electrically communicating said generated write enable signal and chip select signal to be received respectively by said write enable pin and said chip select pin of said discrete memory unit,

means for monitoring said write enable pin and said chip select pin of said discrete memory unit and having a first output signal when said discrete memory unit has been addressed by said memory access circuit pursuant to the issuance of said unique address and having a second output signal when said memory unit has not been addressed by said memory access circuit and said write enable and said chip select signals have been generated,

means responsive to said second output signal to record said occurrence of said second output signal.

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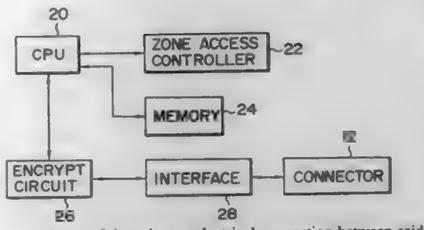
IC CARD AND ISSUING APPARATUS ALLOWING MULTIPLE APPLICATIONS

Masuo Tamada, Yokohama; Hitoshi Kokuryo, Sagamihara; Shinsuke Tamura, and Hiroshi Ozaki, both of Yokohama, all of Japan, assignors to Kabushiki Kaisha Toshiba, Kawasaki, Japan

Continuation of Ser. No. 979,432, Nov. 20, 1992, abandoned, which is a continuation of Ser. No. 717,175, Jun. 18, 1991, abandoned, which is a continuation of Ser. No. 506,562, Apr. 9, 1990, abandoned, which is a continuation of Ser. No. 288,871, Dec. 23, 1988, abandoned, which is a division of Ser. No. 696,099, Jan. 29, 1985, abandoned. This application Jun. 7, 1995, Ser. No. 479,462
Claims priority, application Japan, Jan. 31, 1984, 59-15489
Int. Cl.[6] G06F *12/00*
U.S. Cl. 395—491 **18 Claims**

1. A method for issuing an integrated circuit IC card which includes a memory, said IC card issued by an IC card issuing apparatus and an IC card reader/writer, and which method enables use of said IC card, said method comprising the steps of:

a first step of inserting said IC card into said IC card read/writer coupled to said IC card issuing apparatus;



a second step of detecting an electrical connection between said IC card read/writer and said IC card inserted therein in the first step;

a step of dividing the memory of the IC card into a plurality of zones by writing zone data indicating, for each of the plurality of zones, a zone name designating the zone, a head address of the zone, and a size of the zone into the memory such that each of the plurality of zones includes a first memory means for storing data and a second memory means for storing a plurality of passwords and a plurality of access condition data corresponding to said plurality of zones, each of said passwords corresponding to each of a plurality of users and each of said access condition data respectively corresponding to each of said passwords, each said access condition data including a plurality of fields, said plurality of fields including a field for indicating whether the corresponding password is to be verified before data is read out or written into the first memory means of the corresponding zone and any of a plurality of fields for indicating an authorized user, for indicating an authorized access terminal, for indicating whether data read out from said first memory means is to be encrypted;

a third step of inputting to said IC card issuing apparatus, responsive to detection of said electrical connection, said access condition data for each of the plurality of zones, at least two of said plurality of fields in the access condition data for each zone indicating that a password corresponding to said field is to be verified;

a fourth step of writing into said second memory means the access condition data for each of the zones;

a fifth step of writing into the second memory means the passwords corresponding to said plurality of users;

a sixth step of, before data is read out or written into a given one of said zones after issue of said IC card in response to a user request, checking whether or not a field corresponding to that user in the access condition data stored in said second memory means indicates the password corresponding to that user is to be verified before data is read out or written into the given zone;

a seventh step of reading/writing data from/into said given zone without verification of the password, only when it is determined in the sixth step that the corresponding field in the access condition data indicates that the user's password does not need to be verified;

an eighth step of inputting an input password to said IC card when it is determined in the sixth step that the corresponding field in the access condition data indicates that the user's password needs to be verified;

a ninth step of determining whether the input password is identical with the password corresponding to the user stored in the second memory means; and

a tenth step of reading/writing data from/into said given zone when the ninth step determines that the input password is identical to the user's password stored in the second memory means.

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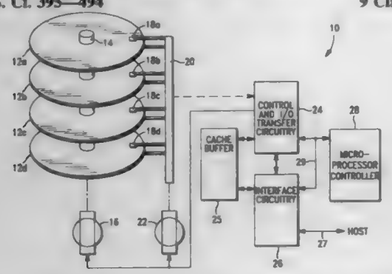
SYSTEM FOR DETERMINING LEAD TIME LATENCY AS FUNCTION OF HEAD SWITCH, SEEK, AND ROTATIONAL LATENCIES AND UTILIZING EMBEDDED DISK DRIVE CONTROLLER FOR COMMAND QUEUE REORDERING

Wing Yee Au, Sunnyvale, Calif., assignor to Quantum Corporation, Milpitas, Calif.

Continuation of Ser. No. 149,982, Nov. 10, 1993, abandoned. This application May 1, 1996, Ser. No. 641,662

Int. Cl.[6] G06F *13/28*; **G11B** *5/012*

U.S. Cl. 395—494 **9 Claims**



1. A method for reordering a queue of disk storage input/output transfer commands with respect to an active command within a disk drive data storage device having an on-board embedded programmed digital controller and an interface for receiving the commands, the method comprising the steps of:

(a) receiving a first plurality of arbitrary length input/output transfer commands into the interface, and decoding and queuing each of the commands within the device by the embedded controller initially in order of receipt from a host computer as a real time process;

(b) determining a lead time latency for the first plurality of the commands in the queue relative to completion of the active command as a non-real time, background process by the embedded controller wherein the lead time latency is determined as a function of head switch, seek, and rotational latencies of the disk drive data storage device;

(c) determining which of the first plurality of the commands has a least lead time latency as a non-real time, background process by the embedded controller;

(d) promoting within the queue as a non-real time, background process by the embedded controller a command determined in step (c) to have the least lead time latency to a position within the queue to be executed immediately following completion of execution of the active command as a real time process by the embedded controller,

(e) executing the command promoted in step (d) as a real time process by the embedded controller immmediately following execution of the active command,

(f) receiving an additional command from the host at the interface, and decoding and queuing the additional command within the queue to form a second plurality of the commands awaiting execution as a real time process by the embedded controller,

(g) redetermining a command within the second plurality having the least lead time latency as a non-real time, background process by the embedded controller,

(h) promoting a command determined in step (g) to have the least lead time latency to a position within the queue of the second plurality to be executed immediately following execution the command promoted in step (d) as a non-real time, background process by the embedded controller.

5,729,719

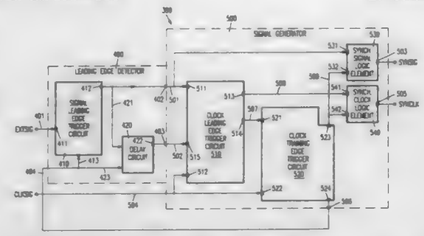
SYNCHRONIZATION CIRCUIT FOR CLOCKED SIGNALS OF SIMILAR FREQUENCIES

Stillman F. Gates, Los Gatos, Calif., assignor to Adaptec, Inc., Milpitas, Calif.

Filed Sep. 7, 1994, Ser. No. 301,510

Int. Cl.[6] G06F *1/12*

U.S. Cl. 395—550 **23 Claims**



1. A synchronization circuit comprising:

a leading edge detector having a signal input line, a reset input line, a first output terminal and a second output terminal;

wherein said leading edge detector drives a signal on said first output terminal active in response to a leading edge on said signal input line; and

said leading edge detector drives a signal on said second output terminal active after passage of a predetermined time period measured from the time said first output terminal signal is driven active; and

a signal generator having:

a first input line coupled to said leading edge detector first output terminal;

a second input line;

an enable input line coupled to said leading edge detector second output terminal;

a synchronized signal output terminal; and

a synchronized clock output terminal;

wherein said signal generator drives a leading edge on said signal generator synchronized clock output terminal in response to a leading edge on said signal generator second input line, if said signal generator enable input line has an active signal; and

said signal generator provides a trailing edge on said synchronized signal output terminal and simultaneously on said synchronized clock output terminal in response to a trailing edge on said signal generator second input line after said signal generator drives said leading edge on said synchronized clock output terminal.

5,729,720

POWER MANAGEMENT MASKED CLOCK CIRCUITRY, SYSTEMS AND METHODS

Weiyuen Kau, Dallas, and James J. Walsh, Plano, both of Tex., assignors to Texas Instruments Incorporated, Dallas, Tex.

Continuation of Ser. No. 486,423, Jun. 7, 1995, abandoned, which is a continuation of Ser. No. 362,669, Dec. 22, 1994, abandoned. This application Dec. 4, 1996, Ser. No. 759,396

Int. Cl.[6] G06F *1/04*

U.S. Cl. 395—555 **43 Claims**

1. A personal computer comprising:

provision for user input;

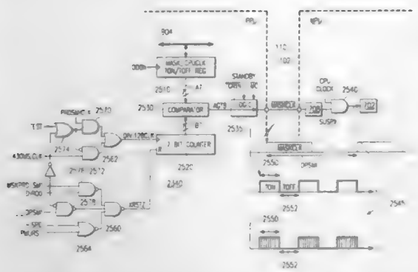
a memory;

provision for user output; and

a microprocessor coupled to said provision for user input, said memory, and said provision for user output;

a register for duty cycle data; and

a clock circuit coupled to said microprocessor and said register, said clock circuit comprising first circuitry and second circuitry wherein said first circuitry provides a first circuitry signal and said second circuitry combines said duty cycle data and said first circuitry signal into a second circuitry signal



having a duty cycle defined by said duty cycle data and a frequency defined by said first circuitry signal.

5,729,721

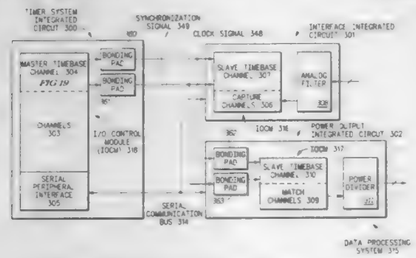
TIMEBASE SYNCHRONIZATION IN SEPARATE INTEGRATED CIRCUITS OR SEPARATE MODULES

Rudolf Bettelheim, Buda; Vernon Bernard Goler, Austin, and Gary Lynn Miller, Round Rock, all of Tex., assignors to Motorola, Inc., Schaumburg, Ill.

Filed Nov. 13, 1995, Ser. No. 555,965

Int. Cl.[6] G06F *1/04*

U.S. Cl. 395—557 **15 Claims**



1. An integrated circuit timer, comprising:

a first timer module having a first timebase bus for transferring a first timebase value;

a second timer module having a second timebase bus for transferring a second timebase value;

a clock conductor for transferring a clock signal, said clock conductor being coupled to said first and second timer modules; and

a synchronization conductor for transferring a synchronization signal, the synchronization signal being asserted by one of said first and second timer modules, said synchronization conductor being coupled to said first and second timer modules;

wherein said first timer module comprises:

a first timebase counter for generating the first timebase value, said first timebase counter being one of incremented and decremented by the clock signal, said first timebase counter being loaded with a predetermined value when the synchronization signal is asserted; and

wherein said second timer module comprises:

a second timebase counter for generating the second timebase value, said second timebase counter being one of incremented and decremented by the clock signal, said second timebase counter being loaded with the predetermined value when the synchronization signal is asserted.

5,729,722

SEMICONDUCTOR INTEGRATED CIRCUIT AND COMMUNICATION CONTROL APPARATUS

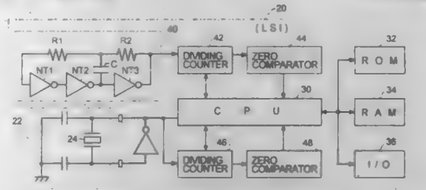
Manabu Matsumoto, Handa, Japan, assignor to Nippondenso Co., Ltd., Kariya, Japan

Filed Jan. 26, 1996, Ser. No. 592,533

Claims priority, application Japan, Jan. 27, 1995, 7-011643

Int. Cl.[6] G06F *1/32*

U.S. Cl. 395—560 **18 Claims**



1. A semiconductor integrated circuit comprising:

a CPU having a control program which causes said CPU to:

process data using reference clock pulses from an externally connected oscillator,

automatically cut off said reference clock pulses to said CPU when a specified condition is satisfied during the performance of said processing so that said CPU enters a sleep state, and

resume said process by applying said reference clock pulses to said CPU upon receiving a start signal so that said CPU exits said sleep state; and

a timer circuit, coupled to said CPU comprising:

an oscillation circuit composed of at least a capacity element, a resistance element and a semiconductor element, said oscillation circuit generating second clock pulses without using an externally connected oscillator; and

sleep time determining means for counting said second clock pulses from a start count value, and generating said start signal when a count value reaches a specified value;

wherein said CPU includes sleep time calibrating means for correcting said start count value before said CPU enters said sleep state based on a time error contained in said second clock pulses with respect to said reference clock pulses or reference signals externally inputted at a specified time interval.

5,729,723

DATA PROCESSING UNIT

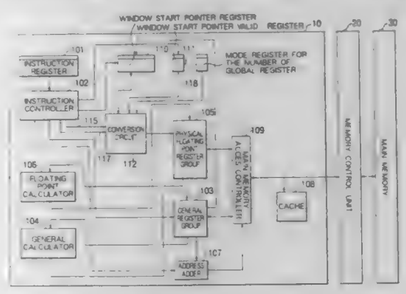
Hideo Wada; Katsumi Takeda, both of Hadano; Yasuhiro Inagami, Kodaira, and Hiroaki Fujii, Hadano, all of Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Continuation-in-part of Ser. No. 162,252, Dec. 7, 1993, Pat. No. 5,581,721, and Ser. No. 977,298, Nov. 16, 1992, Pat. No. 5,438,669. This application Jul. 15, 1994, Ser. No. 275,347

Claims priority, application Japan, Dec. 7, 1992, 4-326435; Jul. 16, 1993, 5-176886

Int. Cl.[6] G06F *3/00*

U.S. Cl. 395—563 **13 Claims**



1. A data processing unit comprising:

a main memory; and

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an instruction execution unit for executing load instructions, store instructions and arithmetic instructions each having at least one register designation field of a first length for use with data held in said main memory, said instruction execution unit comprising:

registers called physical registers larger in number than registers addressable by said register designation field of the first length,

a register called a window start pointer register having a plurality of bits,

a register called a window start pointer valid register,

a conversion circuit which, when the window start pointer valid register has a value of 1, converts a register number in the instruction to a physical register number and changes a pattern of said conversion in accordance with a value of said window start pointer register, and

means for executing (i) a window pointer set instruction for setting a value of the window start pointer register, (ii) a register pre-load instruction having a register designation field of a second length for converting a register number in the register designation field to a physical register number by the conversion circuit according to the value of said window start pointer register and for storing data from the main memory to the physical register designated by the physical register number, (iii) a register post-store instruction having a register designation field of a second length for converting a register number in the register designation field to a physical register number by the conversion circuit according to the value in said window start pointer register and for storing data from the physical register indicative of said physical register number to the main memory, and

wherein said register number specified by the register designation field in said load instruction having the register designation field of the first length, said store instruction having the register designation field of the first length, and said arithmetic instruction having the register designation field of the first length is converted by the conversion circuit to a physical register number according to the value of said window start pointer register to refer to the physical register indicative of said physical register number,

wherein conversion from the register number in said instruction to said physical register number is conversion to the same said physical register number called a global register number regardless of the value in said window start pointer register,

wherein, when a local register number is defined as a value corresponding to a subtraction of the number of registers called global registers numbered by said global register numbers from the number of said physical registers, wherein the number of bits in said window start pointer register is defined as a window start pointer register width, an integer value exceeding said window start pointer register width and selected to be determinative of the number of physical registers is defined as a pointer width maximum value, and 2 to the power of a value corresponding to subtraction of said window start pointer register width from said pointer width maximum value is defined as a window cut width, and wherein the register number other than the register number numbered by the global register number in said load, stored and arithmetic instructions each having said register designation field of the first length except for said register pre-load and post-store instructions is converted to the physical register number expressed by a value corresponding to addition of (i) the register number in the instruction to (ii) a product of the value of said window start pointer register and said window cut width.

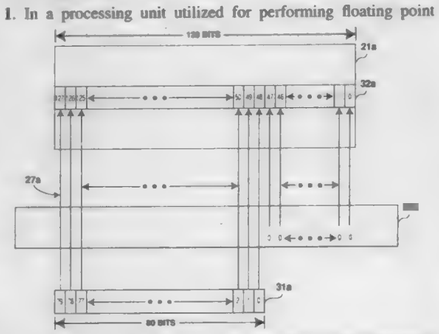
5,729,724

ADAPTIVE 128-BIT FLOATING POINT LOAD AND STORE OPERATIONS FOR QUADRUPLE PRECISION COMPATIBILITY

Harshvardhan Sharangpani; Donald Alpert, both of Santa Clara, and Hans Mulder, San Francisco, all of Calif., assignors to Intel Corporation, Santa Clara, Calif.

Filed Dec. 20, 1995, Ser. No. 580,035
Int. Cl.[6] G06F *7/00*
U.S. Cl. 395—563 **20 Claims**

1. In a processing unit utilized for performing floating point



numeric calculations, an apparatus for transferring data between a floating point unit and a memory in which said memory is mapped to receive a floating point word of a first precision format comprising:

a floating point register, having a register bit length for supporting a floating point word length of a second precision format, but in which said second precision format is of lower precision format and shorter in bit-length than said first precision format;

a load/store unit coupled to said memory and to said register for providing a store operation in response to a store instruction and a load operation in response to a load instruction for transferring data between said memory and said register;

wherein during a store operation, data bits in said register are stored into a location in said memory at most significant bit positions of a memory boundary based on said first precision format; and

during a load operation, data bits in said location in memory corresponding to said bits from said register are restored to said register.

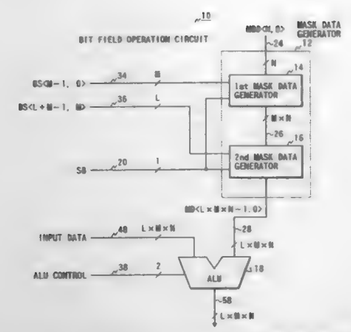
5,729,725

MASK DATA GENERATOR AND BIT FIELD OPERATION CIRCUIT

Koji Kato, Nagoya; Harutsugu Fukumoto, Anjo, and Hiroaki Tanaka, Okazaki, all of Japan, assignors to Denso Corporation, Kariya, Japan

Filed Oct. 17, 1996, Ser. No. 733,734
Claims priority, application Japan, Oct. 19, 1995, 7-270894
Int. Cl.[6] G06F *7/00*
U.S. Cl. 395—565 **8 Claims**

1. A mask data generator for generating mask data comprising L super-blocks each comprising M blocks of N bits for use in a bit field operation from mask bit data of N bits and a stuffing bit (L, M and N are natural numbers other than unity) wherein a block containing the mask bit data and a super-block containing said block is specified by block selection data BS<M−1, 0> and a super-block selection data BS<L+M−1, M>, the mask data generator comprising:



a first mask bit generator responsive to said block selection data for generating first mask data by disposing said mask bit data in one of said N blocks which is specified by said block selection data and filling each bit of the other blocks with said stuffing bit; and

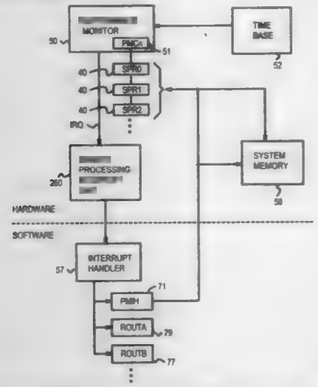
a second mask bit generator responsive to said super-block selection data for generating said mask data by disposing said first mask data in one of L super-blocks of M blocks which is specified by said super-block selection data and filling each bit of the other super-blocks with said stuffing bit.

5,729,726

METHOD AND SYSTEM FOR PERFORMANCE MONITORING EFFICIENCY OF BRANCH UNIT OPERATION IN A PROCESSING SYSTEM

Frank Eliot Levine; Charles Philip Roth, and Edward Hugh Welbon, all of Austin, Tex., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Oct. 2, 1995, Ser. No. 538,509
Int. Cl.[6] G06F *11/34*
U.S. Cl. 395—580 **34 Claims**



1. A method for determining the effectiveness of operation of a branch unit in a processing system, the processing system including at least one performance monitor counter (PMC) and at least one monitor mode control register (MMCR) to configure the operations of the at least one PMC, the method comprising:

(a) accumulating count data during branch unit operation with the at least one PMC during a predetermined sampling period with branch unit operation including execution and cancellation of basic blocks for branch prediction; and

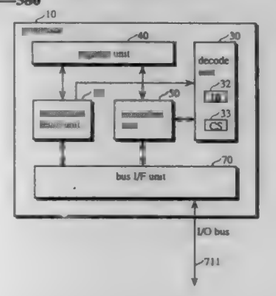
(b) determining branch prediction effectiveness based on the accumulated count data.

5,729,727

PIPELINED PROCESSOR WHICH REDUCES BRANCH INSTRUCTION INTERLOCKS BY COMPENSATING FOR MISALIGNED BRANCH INSTRUCTIONS

Masato Suzuki, Osaka, Japan, assignor to Matsushita Electric Industrial Co., Ltd., Osaka-fu, Japan

Filed Nov. 22, 1995, Ser. No. 562,069
Claims priority, application Japan, Dec. 6, 1994, 6-301828
Int. Cl.[6] G06F *9/38*
U.S. Cl. 395—580 **15 Claims**



1. A processor for executing branch instructions, each branch instruction including a branch procedure and another procedure, by performing pipeline processing comprising at least three stages including an instruction fetch state, an instruction decode stage, and an instruction execution stage, said other procedure including data transmission or operation,

said processor comprising:

a prefetch means for prefetching instructions from memory and storing the instructions into an instruction buffer, and updating a prefetch address which is held in said prefetch means, if the instruction stored at the address targeted by a branch instruction is situated at an alignment address in the memory, n (n is an integer of 1 or larger) times of memory access being necessary for fetching the branch target instruction, and if the branch target instruction is situated at a misalignment address in the memory, n plus 1 times of memory access being necessary for fetching the branch target instruction;

an execution means for executing an instruction in the instruction execution stage, and if the instruction includes a plurality of procedures, said execution means sequentially performs the procedures, the period of time required for the instruction execution stage varying depending on the number of procedures;

a branch means for controlling said execution means so as to first perform said branch procedure when the branch instruction is decoded, said branch procedure including the step of replacing the prefetch address held in said prefetch means with a branch target address; and

a control means for controlling said execution means so as to perform said other procedure of the branch instructions,

in accordance with the result of the replacement by said branch means, said prefetch means completing fetching branch target instructions from the memory during said other procedure of the branch instructions.

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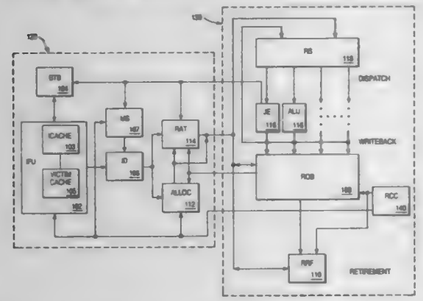
5,729,728

METHOD AND APPARATUS FOR PREDICTING, CLEARING AND REDIRECTING UNPREDICTED CHANGES IN INSTRUCTION FLOW IN A MICROPROCESSOR

Robert P. Colwell; Atiq Bajwa, both of Portland; Michael A. Fetterman; Andrew F. Glew, both of Hillsboro; Glenn J. Hinton, Portland, and David B. Papworth, Beaverton, all of Oreg., assignors to Intel Corporation, Santa Clara, Calif.

Continuation of Ser. No. 204,469, Mar. 1, 1994, abandoned.
This application Sep. 6, 1996, Ser. No. 706,684
Int. Cl.[6] G06F *9/38*
U.S. Cl. 395—581 49 Claims

1. In a pipelined microprocessor for processing instructions,



wherein the processor has at least one pipeline and fetches instructions sequentially according to a predicted instruction flow, the processor having a first section and a second section, the first section for fetching instructions in program order and issuing the instructions to the second section, the second section speculatively executing the instructions out-of-order, a method for redirecting instruction flow resulting from mispredicted branch operations comprising the steps of:

receiving a flow control indicator in the form of an instruction inserted into the processor pipeline by associating the flow control indicator with an existing instruction in the pipeline, wherein;

recognizing, during retirement of speculatively executed result data to a committed architectural state, whether the flow control indicator indicates an unpredicted change in instruction flow, the flow control indicator causing an interrupt indicating an unpredicted change in instruction flow;

if an unpredicted change is indicated:

clearing the processor of state caused by instructions that do not follow a correct instruction flow, wherein the correct instruction flow is the instruction flow following the change of instruction flow indicated by the flow control indicator;

determining an instruction pointer indicating where instruction flow is to be redirected according to the flow control indicator; and

if an unpredicted change is not indicated, continuing predicted instruction flow.

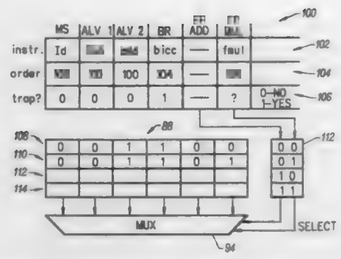
5,729,729

SYSTEM FOR FAST TRAP GENERATION BY CREATION OF POSSIBLE TRAP MASKS FROM EARLY TRAP INDICATORS AND SELECTING ONE MASK USING LATE TRAP INDICATORS

Arthur T. Leung, Sunnyvale, Calif., assignor to Sun Microsystems, Inc., Palo Alto, Calif.

Filed Jun. 17, 1996, Ser. No. 664,477
Int. Cl.[6] G06F *9/00*
U.S. Cl. 395—591 20 Claims

1. A microprocessor comprising:



a plurality of pipelined execution units, including a first group of early trap generation execution units and a second group of late trap generation execution units;

ordering registers, coupled to said pipelined execution units, configured to store an order of issuance of instructions into said execution units;

mask generation logic, coupled to said first group of said execution units and to said ordering registers, configured to generate a plurality of possible enable masks from a first set of trap outputs generated by said plurality of execution units; and

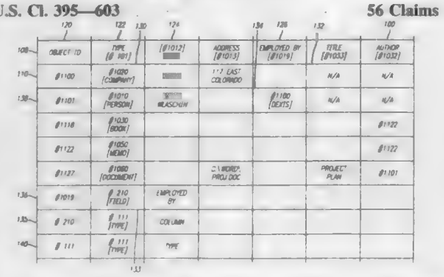
selection logic, coupled to said mask generation logic and at least one trap output of a second set of trap outputs from said second group of execution units, configured to select a single enable mask from said plurality of possible enable masks.

5,729,730

METHOD AND APPARATUS FOR IMPROVED INFORMATION STORAGE AND RETRIEVAL SYSTEM

Scott Wlaschin; Robert M. Gordon, both of Los Angeles; Louise J. Wannier, La Canada, all of Calif., and Clay Gordon, New York, N.Y., assignors to Dex Information Systems, Inc., Pasadena, Calif.

Filed Mar. 28, 1995, Ser. No. 383,752
Int. Cl.[6] G06F *17/30*
U.S. Cl. 395—603 56 Claims



1. A storage and retrieval system for data in a computer system including a memory, a central processing unit and a display, said storage and retrieval system including:

memory configuring means for configuring said memory according to a logical table, said logical table including:

a plurality of rows, each said row including an object identification number (OID) to identify each said row, each said row corresponding to a record of information;

a plurality of columns intersecting said plurality of rows to define a plurality of cells, each said column including an OID to identify each said column; and wherein

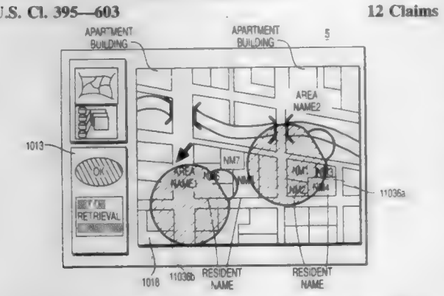
at least one of said rows has an OID equal to the OID of a corresponding one of said columns, and at least one of said rows includes column information defining each of said columns.

5,729,731

METHOD OF RETRIEVING IN A DATABASE THROUGH IMAGE INFORMATION

Hiroshi Yajima, Suita; Hiroyuki Okuda, Ikeda; Noritsugu Kagaya, Hiroshima; Maki Tamano, Minoo, and Shunsuke Akifuji, Wako, all of Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Filed Mar. 16, 1995, Ser. No. 406,222
Claims priority, application Japan, Mar. 18, 1994, 6-048331; Mar. 18, 1994, 6-048336
Int. Cl.[6] G06F *17/30*
U.S. Cl. 395—603 12 Claims



1. A method for retrieving in a database through image information, comprising the steps of:

(a) reading a first image information of a database in which text information linked with the first image information is stored from a storage device

(b) retrieving said text information corresponding to a specified area of a second image information linked with and displayed overlaying said first image information displayed on a display device from said database on the basis of a first user instruction from an input device and storing the retrieved text information into a work file together with said first image information corresponding to said retrieved text information; and

(c) composing a retrieval condition and an area range of application thereof as an image data on the basis of a second user instruction from said input device, retrieving text information corresponding to said image data displayed overlaying said first image information displayed on said display device from said work file, and outputting the result of retrieval to said display device.

5,729,732

SYSTEM AND METHOD FOR SORTING DATA IN A COMPUTER SYSTEM USING EDGE BUCKETS FOR KEY VALUES HAVING A MAXIMUM AND MINIMUM RANGE WITHIN A SUBINTERVAL

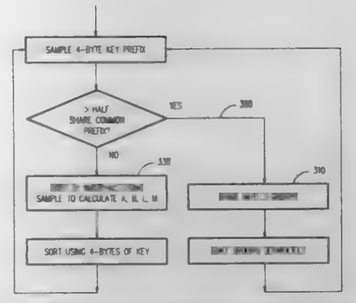
Shmuel Gal, Haifa, Israel; Igal Galperin, Cambridge, Mass., and Zvi Yehudai, Haifa, Israel, assignors to International Business Machines Corporation, Armonk, N.Y.

Filed May 25, 1995, Ser. No. 452,590
Claims priority, application United Kingdom, Sep. 3, 1994, 9417857
Int. Cl.[6] G06F *17/30*
U.S. Cl. 395—607 14 Claims

1. A method for operating a computer having a processor and memory to sort a set of data records stored in the memory each record having an associated key for governing the sort process, the method comprising the steps performed by the computer of:

(a) determining a calculated minimum and maximum for the key values by sampling the key values;

(b) defining a plurality of buckets, each bucket corresponding to a respective one of a plurality M of subintervals between the calculated minimum and maximum, and two edge buckets for key values outside the range, each subinterval having a respective index;



(c) distributing the keys among the buckets by determining directly from each key value, the index of the subinterval into which the key value falls; and

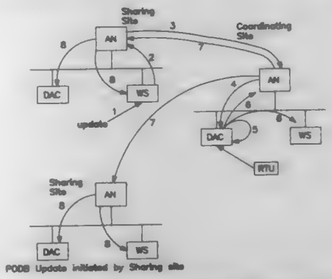
(d) processing the buckets in sequence in order to sort the records, sorting the keys in each bucket when the bucket contains more than one key.

5,729,733

METHOD OF OPERATING A DISTRIBUTED DATABSE BASED ON OBJECT OWNERSHIP AND TRANSACTION CLASSIFICATION UTILIZING AN AGGRESSIVE REVERSE ONE PHASE COMMIT PROTOCOL

Jamshid Sharif-Askary, Palm Bay, Fla., assignor to Harris Corporation, Melbourne, Fla.

Filed May 5, 1995, Ser. No. 435,872
Int. Cl.[6] G06F *17/30*
U.S. Cl. 395—608 28 Claims



5. A method of maintaining a distributed database at plural independently operable sites each of which independently use the entire distributed database for its operation, the method comprising the steps of:

(a) defining plural transactions, each of the transactions comprising the identification of a transaction coordinator and one or more actions which act on the data in the distributed database at one or more of the plural sites;

(b) receiving at the one of the plural sites identified as a transaction coordinator a transactions provided by one of the plural sites;

(c) providing from the transaction coordinator the received transaction to each of the other of the plural sites;

(d) attempting at the other plural sites to which the transaction is provided to execute the provided transaction;

(e) transmitting from each of the other plural sites to which the transaction was provided a commit status report to the transaction coordinator indicating whether or not the transaction was executed or executed without error;

(f) continuing at each of the plural sites to use the distributed database regardless of whether or not the transaction was executed or executed without error; and

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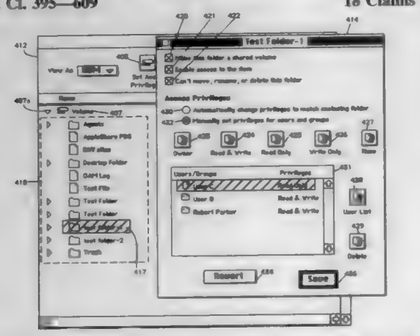
(g) storing at the transaction coordinator (i) the identities of the other plural sites to which the transaction was provided, (ii) the identities of the other plural sites from which commit status reports were not received, and (iii) the commit status reports.

5,729,734

FILE PRIVILEGE ADMINISTRATION APPARATUS AND METHODS

Robert D. Parker, and Matthew S. Holloway, both of San Jose, Calif., assignors to Apple Computer, Inc., Cupertino, Calif.

Filed Nov. 3, 1995, Ser. No. 552,942
Int. Cl.[6] G06F *15/16*
U.S. Cl. 395—609 18 Claims



1. In a computer network having an administrator account and a user account, said administrator account having an administrator privilege, said user account having a user privilege different from said administrator privilege, said computer network further including at least one sharepoint that is selectively accessible by said user account, a method of assigning access privilege on a computer display screen to said sharepoint for said user account, comprising:

displaying, in accordance with said administrator privilege and through said administrator account, said sharepoint on said computer display screen;

modifying, through said administrator account, said access privilege for said user account; and

displaying, in accordance with said user privilege through said administrator account, said sharepoint and said access privilege for said user account, such that said sharepoint and said access privilege that is displayed through said administrator account is viewed substantially in the same manner as said sharepoint would have been represented had said sharepoint been displayed through said user account, and said sharepoint, when displayed in accordance with said user privilege, is represented in a first state when said access privilege for said user account to said sharepoint is enabled, said sharepoint, when displayed in accordance with said user privilege, is represented in a second state when said access privilege for said user account to said sharepoint is not enabled.

5,729,735

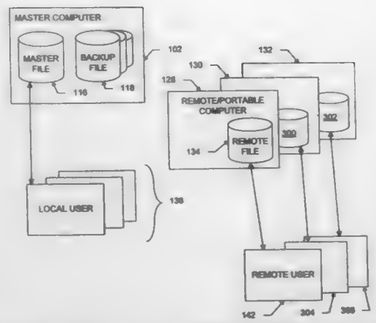
REMOTE DATABASE FILE SYNCHRONIZER

Samuel C. Meyering, Zandpad 28, 3601 NA Maarssen, Netherlands

Filed Feb. 8, 1995, Ser. No. 385,319
Int. Cl.[6] G06F *17/30*
U.S. Cl. 395—610 13 Claims

1. Apparatus for synchronizing a master file and a remote file, the apparatus comprising:

(a) a backup file reflecting contents of the remote file at an earlier time;



(b) comparing means for ascertaining relative currency of data in the master file and corresponding data in the remote file by comparing corresponding data in the master, remote, and backup files; and

(c) updating means cooperating with the comparing means for:

(i) updating the remote file when data in the master file is more current than corresponding data in the remote file; and

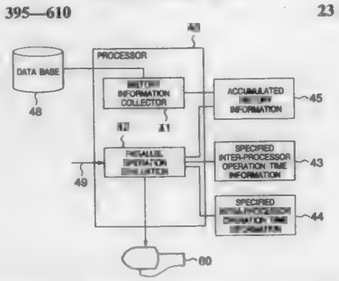
(ii) updating the master file when data in the remote file is more current than corresponding data in the master file.

5,729,736

ACCESS ANALYSIS METHOD AND SYSTEM IN PARALLEL DATA BASE SYSTEM

Fumio Gomi; Kazutoshi Amano; Tomohiro Sakaue, all of Yokohama; Hiroyuki Shinozaki; Masahiko Hashimoto, both of Fujisawa; Takafumi Nogami, Yokohama; Shigehiro Hatakeyama, Yokohama, and Takenori Iwato, Yokohama, all of Japan, assignors to Hitachi, Ltd., Tokyo, and Hitachi Software Engineering Co., Ltd., Yokohama, both of Japan

Filed Jun. 10, 1996, Ser. No. 660,762
Claims priority, application Japan, Jun. 13, 1995, 7-145847
Int. Cl.[6] G06F *17/30*
U.S. Cl. 395—610 23 Claims



1. A method for analyzing the operation of a parallel data base system, comprising the steps of:

executing an access to a plurality of data bases connected to a plurality of processors respectively from a second processor that has received a request for accessing said data bases from a first processor;

collecting history information of access to the data bases executed by said second processor, an ID of said second processor and data amount of said access;

storing in a memory a predetermined specified time for the access to a unit amount of data in a data base; and

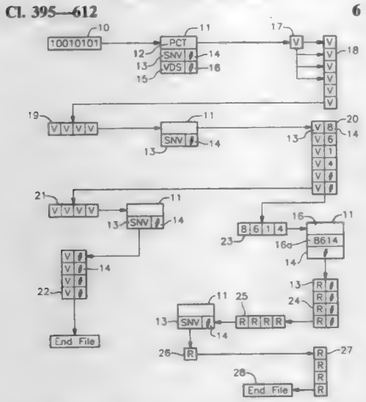
deciding whether said history information for said accessed data amount is reasonable or longer than the time assumed from said predetermined specified time for said unit amount of data.

5,729,737

SELECTIVE DATA COMPRESSION SYSTEM

William M. Armour, 112 Clinton St., Youngstown, Ohio 44506

Filed Jul. 13, 1995, Ser. No. 502,135
Int. Cl.[6] G06F *17/30*
U.S. Cl. 395—612 6 Claims



1. A database compression and decompression system for data storage comprising; encoding a binary data stream into a selective substitution variable from a precoded table, assembling said substitution variables into original variable strings, storage means for storing said original variable strings, comparing said original variable strings with said data string to a plurality of related tables in a main database, and determining an associated name variable and name variable position therefrom, assembling said string name variables into new original variable data strings, means for sequential compression of the new original variable data string with said related tables in said main database to achieve compression of said binary data stream, said plurality of related tables in said main database comprising; precoding tables in multiple combinations of single string of said selective variables, said string of variables of a pre-determined length and occurrence number and position number, means for recording said original variable string by said occurrence number and means for decompression of said binary data.

5,729,738

DATA MANAGEMENT SYSTEM UTILIZING BEHAVIORAL OBJECTS WITH LINKING RELATIONSHIPS

Yoshiki Watanabe, and Hiroshi Hayata, both of Kanagawa, Japan, assignors to Fuji Xerox Co., Ltd., Tokyo, Japan

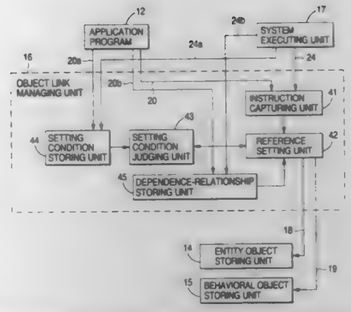
Filed Jun. 7, 1995, Ser. No. 478,761
Claims priority, application Japan, Jun. 29, 1994, 6-170083
Int. Cl.[6] G06F *17/30*
U.S. Cl. 395—614 4 Claims

3. A data management system for managing data stored in a storage device, comprising:

first storing means for storing behavioral objects defining processing procedures;

second storing means for separately storing entity objects, each of the entity objects referring to at least one of the behavioral objects;

object link managing means, configured to receive setting instructions defining the reference relationships between the entity objects and the behavioral objects, for setting the reference relationships between each of the entity objects and associated ones of the behavioral objects on the basis of the setting instructions, and managing the reference relationships; and



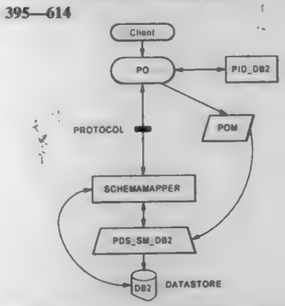
executing means for executing a processing procedure defined in a behavioral object referred to by an entity object.

5,729,739

PERSISTENT OBJECT MAPPING SYSTEM AND METHOD WITH ABSTRACT SCHEMA MAPPER

Guylaine Cantin, Toronto, Canada; George P. Copeland, Austin, Tex.; Ahmed M. Gheith, Round Rock, Tex., and Roger H. Sessions, Austin, Tex., assignors to International Business Machines Corporation, Armonk, N.Y.

Continuation of Ser. No. 234,434, Apr. 26, 1994, abandoned.
This application Dec. 8, 1995, Ser. No. 569,550
Int. Cl.[6] G06F *7/00*
U.S. Cl. 395—614 16 Claims



1. A data processing system for mapping data between a dynamic state and a persistent state of a persistent object, wherein said dynamic state exists within a first environment and said persistent state exists within one of a plurality of persistent media, and further wherein said one of a plurality of persistent media exists within a second environment, comprising:

means for associating said persistent object with at least one of said plurality of persistent media;

means for constructing a mapping method for each of said plurality of persistent media associated with said persistent object, in response to said persistent object and said first and second environments, wherein each said constructed mapping method includes language usable by a type of said each of said plurality of persistent media; and

means for mapping data between a dynamic state and a persistent state of a persistent object utilizing said mapping method constructing means, wherein said dynamic state exists within a first environment and said persistent state exists within said at least one of said plurality of persistent media, and further wherein said at least one of said plurality of persistent media exists within a second environment.

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5,729,740

INFORMATION SERVICE BILLING SYSTEM USING RADIO COMMUNICATIONS

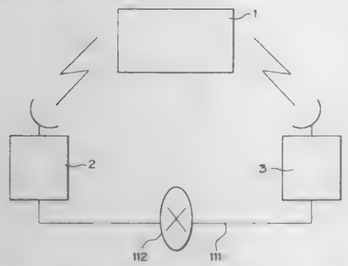
Mihoji Tsumura, Osaka, Japan, assignor to Ricos Co., Ltd., Japan

Filed Dec. 8, 1993, Ser. No. 163,933

Claims priority, application Japan, Dec. 10, 1992, 4-352932; Dec. 25, 1992, 4-358308; Mar. 3, 1993, 5-069337; Mar. 26, 1993, 5-092072; Mar. 26, 1993, 5-092073

Int. Cl.[6] G06F *17/30*

U.S. Cl. 395—615 10 Claims



1. A billing system in radio communications comprising:

a main unit having a host computer with a database for storing data of various types and a transceiver for transmitting and receiving said data of various types via radio communications, and

a plurality of terminal units for receiving said data of various types, each of said terminal units having a unique terminal identification code,

said main unit being configured to add to data to be transmitted a data identification code unique to said data type of said data to be transmitted, and said main unit being configured to transmit said data with said data identification code,

said main unit being further configured to transmit at regular intervals a control signal to request transfer of utilization information, and

each of said plurality of terminal units including a processor for sequentially storing the data identification codes of said data transmitted from said main unit and received by said terminal unit, and, upon receiving said control signal, for forming a data stream comprising said stored data identification codes and said terminal identification code corresponding to said terminal unit.

5,729,741

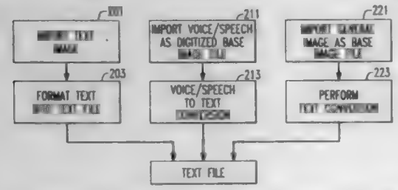
SYSTEM FOR STORAGE AND RETRIEVAL OF DIVERSE TYPES OF INFORMATION OBTAINED FROM DIFFERENT MEDIA SOURCES WHICH INCLUDES VIDEO, AUDIO, AND TEXT TRANSCRIPTIONS

Anthony Shawn Liaguno, Melbourne Beach, and Andrew Frank Connor, Melbourne, both of Fla., assignors to Golden Enterprises, Inc., Melbourne, Fla.

Filed Apr. 10, 1995, Ser. No. 419,152

Int. Cl.[6] G06F *17/30*

U.S. Cl. 395—615 12 Claims



1. A method of processing information contained in different types of media, comprising the steps of:

(a) processing each and every of said different types of media by storing in memory a first, index storage file, which contains a text description of the contents of information contained in said any medium, and an identification of said first, index storage file; and

(b) for each respective medium processed in step (a), analyzing the contents of information of said respective medium, regardless of the type of the subject matter of said contents of information, for the presence of text, and generating a second, text file, that contains all text found in said medium and storing said second, text file in memory in association with said first, index storage file; and wherein

said respective medium comprises a video recording medium containing video and voice information signals associated with a video recorded activity, and a further medium containing a separate transcription of said voice information, and wherein

step (b) comprises processing said voice information signals through an automated voice recognition-to-text conversion mechanism, so as to generate a voice-converted text file, and processing said further medium containing said separate transcription of said voice information to generate a transcribed voice text file, and correlating successive words of said voice-converted text file and successive words of said transcribed voice text file to associate contents of said transcribed voice text file with said video information.

5,729,742

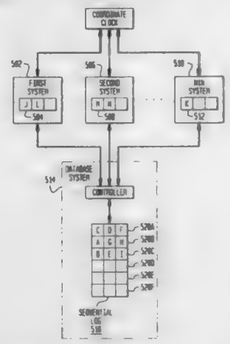
SYSTEM AND METHOD FOR ENABLING MULTIPLE COMPUTER SYSTEMS TO SHARE A SINGLE SEQUENTIAL LOG

Mark Walter Harbinski, and Francis Joseph Ricchio, both of San Jose, Calif., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Feb. 27, 1995, Ser. No. 394,582

Int. Cl.[6] G06F *17/30*

U.S. Cl. 395—618 20 Claims



1. A database system, comprising:

a sequential log being shared among a plurality of computer systems including a first computer system and a second computer system;

means for receiving data records from said computer systems, said data records including a first plurality of data records created by said first computer system and a second plurality of data records created by said second computer system;

means for storing said data records in said sequential log; and

reorganizing means for periodically reorganizing said data records in said sequential log such that said first plurality of data records and said second plurality of data records are stored in sequential physical memory locations of said sequential log by order of creation of said first plurality of data records and said second plurality of data records, irrespective of which computer system created said data records.

5,729,743

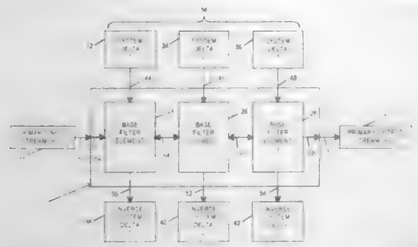
COMPUTER APPARATUS AND METHOD FOR MERGING SYSTEM DELTAS

Mark Squibb, Republic, Mo., assignor to DeltaTech Research, Inc., Montreal, Canada

Continuation-in-part of Ser. No. 559,975, Nov. 18, 1995, abandoned. This application Nov. 30, 1995, Ser. No. 565,486

Int. Cl.[6] G06F *17/30*

U.S. Cl. 395—619 19 Claims



1. In a programmable computer, a method of merging a number of system deltas with a primary input stream to build a primary output stream, said primary input stream being associated with a primary input stream directory, the method comprising the steps of:

a) setting up a system filter;

b) processing each element of a physical element set through the system filter, in an order dictated by the primary input stream directory; and

c) either before or after step b), processing each element of a new-in-scope element set through the system filter, pursuant to a new-in-scope directory order.

5,729,744

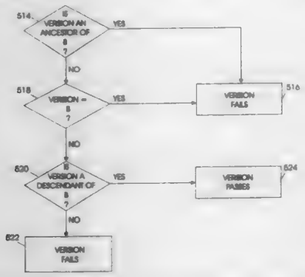
METHOD AND SYSTEM OF ENHANCED VERSIONING CONTROL OF OBJECTS IN A DATA PROCESSING SYSTEM USING CHANGE CONTROL INFORMATION WHICH INCLUDES REASONS FOR CHANGES

Christopher Henry Gerken, Apex, and Stacy Renee Joines, Raleigh, both of N.C., assignors to International Business Machine Corp., Armonk, N.Y.

Filed Jun. 10, 1996, Ser. No. 665,030

Int. Cl.[6] G06F *17/30*

U.S. Cl. 395—619 12 Claims



1. A method for selecting in a data processing system one target version out of a plurality of versions, the one target version containing exactly those user designated changes to a baseline version, comprising the steps of:

specifying a set of reasons for change;

determining a set of all versions associated with at least one reason in said set of reasons for change, said set of all versions comprising a subset of said plurality of versions;

determining a set of targets comprising any version in said set of all versions with no descendant in said set of all versions;

determining a set of missing versions comprising any version in said plurality of versions but not in said set of all versions that is a descendant of the baseline version and has one version in said set of targets as an ancestor; and

successfully determining said one target version if said set of targets comprises only a single version and said set of missing versions is empty, wherein said single version in said set of versions is said one target version.

5,729,745

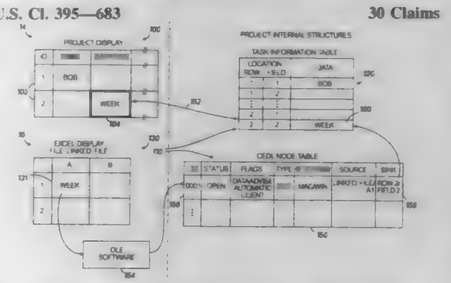
METHODS AND APPARATUS FOR CREATING A BASE CLASS FOR MANIPULATING EXTERNAL DATA CONNECTIONS IN A COMPUTER GENERATED DOCUMENT

Cory Alan Reina, Kirkland, and Girish Bablani, Issaquah, both of Wash., assignors to Microsoft Corporation, Redmond, Wash.

Filed Nov. 14, 1994, Ser. No. 339,983

Int. Cl.[6] G06F *9/44*

U.S. Cl. 395—683 30 Claims



1. A method for transferring data between a first data region in a computer program application and a second data region in a computer program application, comprising the computer-implemented steps of:

defining said first data region;

identifying said first data region as containing linked data from an external data connection node, said external data connection node utilizing a predetermined one of a plurality of data transfer mechanisms;

in response to establishment of said external data connection node, creating at least one instance of a base class, said instance having associated data members and function members and corresponding to a predetermined first type of external data connection, said function members being common to each of the plurality of data transfer mechanisms;

defining said second data region and said linked data stored in said second data region;

identifying said second data region as providing linked data; and

transferring the linked data from said second data region to said first data region by implementing said predetermined data transfer mechanism in response to the application program initiating the execution of corresponding functions associated with said instance of said base class;

wherein data corresponding to said external data connection node are stored as a set of predefined entries in a CEDL Node Table.

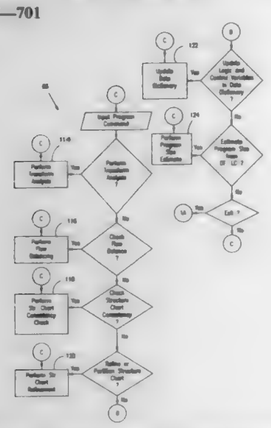
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5,729,746

COMPUTERIZED INTERACTIVE TOOL FOR DEVELOPING A SOFTWARE PRODUCT THAT PROVIDES CONVERGENT METRICS FOR ESTIMATING THE FINAL SIZE OF THE PRODUCT THROUGHOUT THE DEVELOPMENT PROCESS USING THE LIFE-CYCLE MODEL

Ricky Jack Leonard, 1076 Sandy Springs Rd., Huntsville, Ala. 35806

Continuation-in-part of Ser. No. 443,391, May 17, 1995, abandoned, which is a continuation of Ser. No. 987,712, Dec. 8, 1992, abandoned. This application Oct. 23, 1995, Ser. No. 551,939
Int. Cl.[6] G06F *9/455*
U.S. Cl. 395—701 10 Claims



1. An interactive computerized tool for estimating the final lines of code of the software product being developed at various phases of the development process using a life cycle model, including a requirements definition phase, requirements analysis phase, preliminary design phase and detailed design phase, said tool comprising:

a) a computer system including an interactive software operating in said computer system;

b) said software comprising the steps of asking the user whether the user is in the requirements definition phase, requirements analysis phase, preliminary design phase, or detailed design phase;

b) if at the requirements definition phase, said software including the steps of drawing data flow diagrams, leveling the data flow diagrams to generate a data dictionary data variables and calculating the final lines of code for the software product being developed from the data flows diagrams;

c) if at the requirements analysis phase, said software including the steps of updating the data dictionary data variables and calculating the final lines of code for the software product being developed from the number of data flow diagrams and the data dictionary;

d) if at the preliminary design phase, said software including the steps of transforming the data flow diagrams into structure charts to generate logic and control variables and calculating the final lines of code for the software product being developed from the data flow diagrams and the number of logic and control variables; and

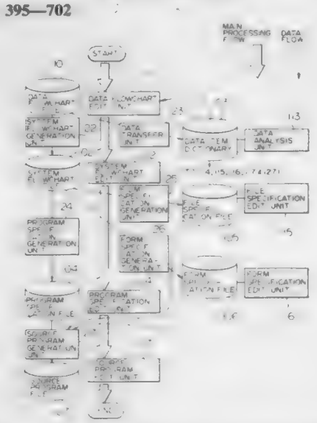
e) if at the detailed design phase, said software including the steps of translating the mini-specs into pseudocode to generate static variables and calculating the final lines of code for the software product being developed from the data dictionary, logic and control variables and static variables.

5,729,747

DESIGN METHOD AND APPARATUS OF COMPUTER PROGRAM FOR BUSINESS PROCESSING

Toshiharu Tsukakoshi, Kawasaki, Japan, assignor to Hitachi, Ltd., Tokyo, Japan

Continuation of Ser. No. 29,599, Mar. 11, 1993, Pat. No. 5,414,847. This application Mar. 10, 1995, Ser. No. 402,302
Claims priority, application Japan, Mar. 13, 1992, 4-054654
Int. Cl.[6] G06F *9/44*
U.S. Cl. 395—702 4 Claims



1. A computer-implemented method for designing an application program, said method comprising the steps of:

editing a data flowchart designating a flow of data for a sequence of a plurality of processes in a data processing operation, for which said application program is designed by interactive operation on said computer by an operator, said data including names of said processes, names of data items to be input to said processes and corresponding attributes of said data items;

producing a system flowchart on the basis of said data flowchart by concatenating symbols representing programs for executing said processes and symbols representing files and forms processed in said programs in a processing sequence;

editing program specifications by further interactive operation on said computer by the operator on the basis of said system flowchart, wherein said program specifications indicate a program name, a program pattern name, input file name and output file name; and

producing a source program on the basis of a program pattern designated by said program specifications and the attributes corresponding to the program pattern name.

5,729,748

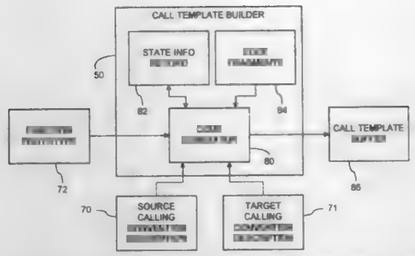
CALL TEMPLATE BUILDER AND METHOD

Jeffrey C. Robbins; David G. Bradlee, both of Seattle, and Timothy L. Paterson, Redmond, all of Wash., assignors to Microsoft Corporation, Redmond, Wash.

Filed Apr. 3, 1995, Ser. No. 417,066
Int. Cl.[6] G06F *9/445*
U.S. Cl. 395—705 15 Claims

1. In a computer system, a builder of call templates for making function calls across calling conventions, the call template builder comprising:

a memory for storing information defining a source calling convention and a target calling convention, the calling conventions determining different selections out of a plurality of storage locations of the computer system in which any arguments and return values of functions are to be passed in calls to the functions; and



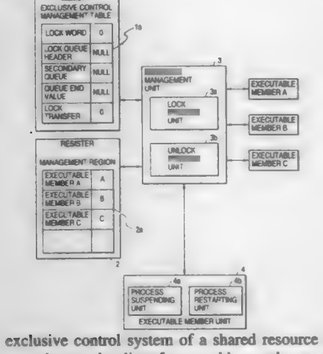
a code generator for receiving a prototype of a function and for generating a call template to translate a call to the function from the source calling convention to the target calling convention, the function prototype determining any arguments and return value of the function, the call template consisting of a linear code block including code for moving said any arguments and said any return value of the function from said selection of storage locations according to the source calling convention to said selection of storage locations according to the target calling convention.

5,729,749

EXCLUSIVE CONTROL SYSTEM FOR SHARED RESOURCE

Atsuki Ito, Aichi, Japan, assignor to Fujitsu Ltd., Kawasaki, Japan

Filed Jul. 25, 1996, Ser. No. 684,907
Claims priority, application Japan, Sep. 29, 1995, 7-254129
Int. Cl.[6] G06F *13/14*
U.S. Cl. 395—726 6 Claims



1. An exclusive control system of a shared resource in a computer system where a plurality of executable members are executed in a parallel manner, comprising:

an exclusive control management table constructed of a lock word and a lock queue header, said lock word storing therein executable member identifying information for specifying an executable member that has acquired a use right of the shared resource, and said lock queue header storing therein executable member identifying information of such an executable member that has finally requested to acquire the use right of the shared resource among executable members that have requested to acquire the use right while another executable member acquires the use right;

a management region allocated to each of said executable members, for storing therein each executable member identifying information of the allocated executable member;

resource management means for swapping a content of a management region allocated to a requesting executable member for a content of the lock queue header of said exclusive control management table upon receipt of the request to acquire the use right of said shared resource from the executable member, or a request to release the use right from the executable member, thereby producing a quasi-queue for chaining the executable members that have requested to acquire the use right while another executable member acquires the use right; and

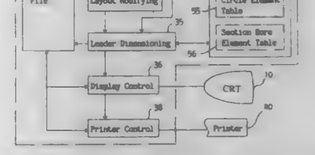
executable member control means for suspending a process operation of such an executable member which is brought into a waiting state in order to acquire the use right of said shared resource, and for restarting the process operation of the executable member when the executable member under waiting state has acquired the use right.

5,729,750

AUTOMATIC DIMENSIONING IN COMPUTER AIDED DESIGN

Tsutomu Ishida, Kyoto, Japan, assignor to Rohm Co. Ltd., Kyoto, Japan

Filed Jun. 7, 1995, Ser. No. 474,196
Claims priority, application Japan, Jun. 11, 1994, 6-152642
Int. Cl.[6] G06F *17/50*
U.S. Cl. 395—763 20 Claims



1. A method of performing substantially automatic dimensioning in computer aided design for a design item which comprises a plurality of line segments stored in a geometric element file, each of the line segments having both ends defined respectively by end point coordinates, the method comprising:

(a) an area defining step for defining: an area which encompasses the design item to be automatically dimensioned;

(b) table forming steps including: automatically extracting horizontal line segments from the geometric element file and automatically registering the end point coordinates of the horizontal line segments in an X-dimensioning table together with extension line orientation data for the horizontal line segments; and automatically extracting vertical line segments from the geometric element file and automatically registering the end point coordinates of the vertical line segments in a Y-dimensioning table together with extension line orientation data for the vertical line segments;

(d) provisional dimensioning steps including: automatically generating provisional X-dimensioning lines for the horizontal line segments in different stages by referring to the X-dimensioning table; and automatically generating provisional Y-dimensioning lines for the vertical line segments in different stages by referring to the Y-dimensioning table; and

(e) layout modifying steps including: automatically rearranging the provisional X-dimensioning lines so that larger valued X-dimensioning lines are located farther from the design item than smaller valued X-dimensioning lines; and automatically rearranging the provisional Y-dimensioning lines so that

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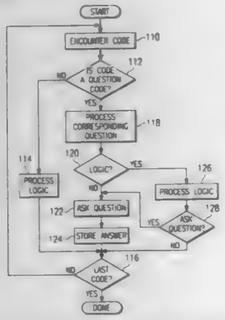
larger valued Y-dimensioning lines are located farther from the design item than smaller valued Y-dimensioning lines.

5,729,751

DOCUMENT ASSEMBLY SYSTEM WITH ASSEMBLY LOGIC

Alan L. Schoolcraft, Universal City, Tex., assignor to Automated Legal Systems, Inc., Universal City, Tex.

Filed Mar. 15, 1995, Ser. No. 404,379
Int. Cl.[6] G06F *7/00*
U.S. Cl. 395—792 **26 Claims**



1. A document assembly system for interactively assembling a document, comprising:

a run time module memory in which run time programming is stored;

a document memory in which a document is stored, said document including a plurality of manipulation codes and a plurality of question codes;

a question database including a plurality of question records, each of said question records including question information associated with each respective question code;

a logic database including a plurality of logic expressions, each of said logic expressions indexed by a corresponding question code or manipulation code and representing programming to be executed as said document is being assembled;

wherein said run time programming instructs said run time module to sequence through said document and to identify said codes, and to execute the following tasks: (1) upon encountering any one of said question codes, evaluating the associated question information to determine whether an associated logic record exists, and, if no associated logic record exists, using the question information to present a question and receive an answer, and if an associated logic record exists, evaluating the associated logic record to determine whether to execute a logical expression in the action field of the associated logic record, and (2) upon encountering any one of said manipulation codes, evaluating the associated logic record to determine whether to execute a logic expression contained in the logic record, execution of the logic expression, if performed, resulting in manipulation of one or more of said answers or the generation of new content of said document.

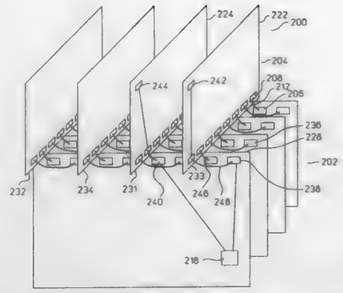
5,729,752

NETWORK CONNECTION SCHEME

Gregory S. Snider, Mountain View, and Philip J. Kuekes, Atherton, both of Calif., assignors to Hewlett-Packard Company, Palo Alto, Calif.

Filed Feb. 19, 1993, Ser. No. 19,499
Int. Cl.[6] G06F *1/00*
U.S. Cl. 395—800 **16 Claims**

1. A network comprising:



a plurality of first level circuit boards, each board physically having a connecting edge and at least one processing means; and

a plurality of second level circuit board, each board physically having a connecting edge and at least one processing means; wherein:

the connecting edge of each first level circuit board physically crosses the connecting edges of all the second level circuit boards; and

every processing means in a first level circuit board is coupled to at least two processing means that are on two second level circuit boards.

5,729,753

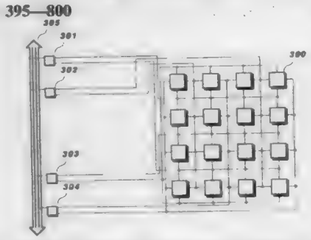
Patent Not Issued For This Number

5,729,754

ASSOCIATIVE NETWORK METHOD AND APPARATUS

Mark D. Estes, 4509 Bunny Run Vl, Austin, Tex. 78746

Continuation-in-part of Ser. No. 218,333, Mar. 28, 1994. This application May 17, 1995, Ser. No. 443,282
Int. Cl.[6] G06F *13/00*
U.S. Cl. 395—800 **26 Claims**



1. An associative network apparatus for enabling a plurality of elements arranged in a fixed physical configuration to be dynamically reconfigured, responsive to user preferences, into a plurality of logical configurations for recall based on user-selected associations, comprising:

a plurality of input circuits for providing a plurality of input signals, with each of the plurality of input signals having a value corresponding to one of a logical one and a logical zero;

a plurality of electrically-activated elements including,

a first set of elements, electrically coupled to each of said plurality of input circuits, having an input signal corresponding to a logical one; and

a second set of elements, electrically coupled to each of said plurality of input circuits, having an input signal corresponding to a logical zero;

a data bus, electrically coupled to each of said plurality of input circuits, for conveying the plurality of input signals to said plurality of electrically-activated elements;

a control bus, electrically coupled to each of said plurality of input circuits, for controlling the plurality of input signals;

an input control circuit, electrically coupled to each of said plurality of input circuits and to said control bus, for controlling the plurality of input circuits; and

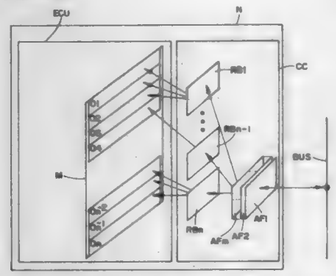
means for switching a logical polarity of the plurality of input circuits to select, responsive to said input control circuit, a set of elements, the set of elements selected being one of the first set of elements and the second set of elements.

5,729,755

PROCESS FOR TRANSMITTING DATA IN A DATA PROCESSING SYSTEM WITH DISTRIBUTED COMPUTER NODES, COMMUNICATING VIA A SERIAL DATA BUS, BETWEEN WHICH DATA MESSAGES ARE EXCHANGED, TESTED FOR ACCEPTANCE IN A COMPUTER NODE, AND STORED TEMPORARILY

Klaus Turski, Düsseldorf, Germany, assignor to NEC Corporation, Tokyo, Japan

Continuation of Ser. No. 50,196, May 4, 1993, abandoned. This application Apr. 2, 1996, Ser. No. 629,995
Claims priority, application Germany, Sep. 4, 1991, 41 29 412.2
Int. Cl.[6] G06F *15/00*
U.S. Cl. 395—800 **6 Claims**



1. A method for transmitting data in a data processing system which comprises distributed computer nodes communicating with one another via a serial data bus, said data being transmitted to each of the computer nodes over said serial data bus to be stored in a memory included in each of the computer nodes, said method comprising the steps of:

delivering each of said data to a plurality of digital acceptance filters which are arranged in a hierarchy;

controlling said digital acceptance filters in response to each of said data so as to selectively render said digital acceptance filters into digital band pass and digital band rejection filters and to define a digital band pass field for each of said data which is determined by a combination of the digital band pass and the digital band rejection filters and which is divisible into at least one partial field;

sending said at least one partial field to a register section which comprises a plurality of receive buffers, storing said at least one partial field in at least one of said receive buffers corresponding to said at least one partial field and producing the at least one partial field as an accepted object field; and

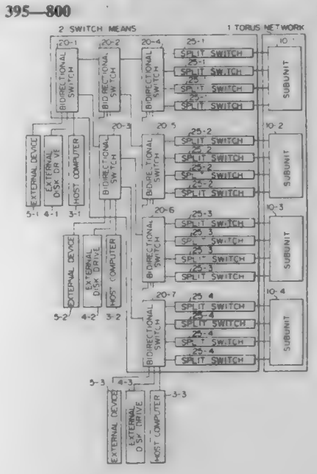
storing said accepted object field in said memory.

5,729,756

TORUS NETWORKING METHOD AND APPARATUS HAVING A SWITCH FOR PERFORMING AN I/O OPERATION WITH AN EXTERNAL DEVICE AND CHANGING TORUS SIZE

Kenichi Hayashi, Kawasaki, Japan, assignor to Fujitsu Limited, Kawasaki, Japan

Continuation of Ser. No. 216,425, Mar. 23, 1994, abandoned. This application May 2, 1996, Ser. No. 641,694
Claims priority, application Japan, May 14, 1993, 5-113446
Int. Cl.[6] G06F *13/00*
U.S. Cl. 395—800 **18 Claims**



1. A reconfigurable torus network system, connectable to external devices, comprising:

a plurality of subunits, each subunit having plural processor elements and a processor element side; and

reconfiguration switch means, coupled to the external devices and said subunits including a first subunit adjacent to a second subunit, for interconnecting said subunits and the external devices, said reconfiguration switch means including

a first terminal unit coupled to the processor side of the first subunit,

a second terminal unit coupled to a return path of the first subunit,

a third terminal unit coupled to the processor element side of the second subunit,

a fourth terminal unit coupled to a return path of the second subunit,

a fifth terminal unit coupled to at least one of the external devices to provide output from at least one of the first and second subunits,

a sixth terminal unit coupled to at least one of the external devices to provide input from the at least one of the external devices to at least one of the first and second subunits, and

connection means for electrically connecting said first and fourth terminal units together and said second and third terminal units together when said first and second subunits are connected, and for electrically connecting said first and second terminal units together, said third and fourth terminal units together and either said first and second terminal units or said third and fourth terminal units to said fifth and sixth terminal units when said first and second subunits are disconnected.

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5,729,757

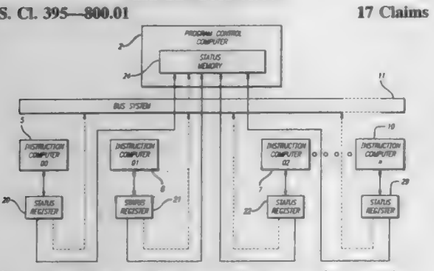
SUPER-COMPUTER SYSTEM ARCHITECTURES USING STATUS MEMORY TO ALTER PROGRAM

Howard D. Shekels, 8619 N. Cardinal Dr., Phoenix, Ariz. 85028

Continuation of Ser. No. 2,204, Jan. 8, 1993, abandoned, which is a continuation-in-part of Ser. No. 533,679, Jun. 5, 1990, abandoned, which is a continuation-in-part of Ser. No. 735,641, May 20, 1985, abandoned. This application Jan. 12, 1996, Ser. No. 586,207

Int. Cl.[6] G06F *15/16*

U.S. Cl. 395—800.01 17 Claims



1. A general purpose data processing system for executing a program, said data processing system comprising:

communication means for transferring signals thereon;

a program control computer coupled to said communication means for controlling execution of said program, said program control computer including a status memory; and

a plurality of instruction computers coupled to said communication means, said instruction computers executing portions of said program assigned thereto by said program control computer, each of said instruction computers including adaptive means for altering the execution of said program portion assigned thereto in response to instruction modification signals including a) internal control signals generated by computation of said instruction computer and b) program control signals generated by said program control computer in response to status information stored in said status memory; said adaptive means including instruction decoding means responsive to said instruction modification signals for altering microtasks performed during execution of said program portion assigned to said instruction computer; each said instruction computer including a status register bank for storing status signals indicative of parameters of said assigned program portion being executed by said instruction computer, said status signals stored in said status register bank being transferred to said status memory to update said status information stored therein, wherein predetermined program control signals are applied to a selected instruction computer by said program control computer in response to updated status information stored in said status memory.

5,729,758

SIMD PROCESSOR OPERATING WITH A PLURALITY OF PARALLEL PROCESSING ELEMENTS IN SYNCHRONIZATION

Yoshitsugu Inoue; Hiroyuki Kawai, and Robert Streitenberger, all of Hyogo, Japan, assignors to Mitsubishi Denki Kabushiki Kaisha, Tokyo, Japan

Filed Jun. 5, 1995, Ser. No. 465,245

Claims priority, application Japan, Jul. 15, 1994, 6-164333

Int. Cl.[6] G06F *15/80*

U.S. Cl. 395—800.22 2 Claims

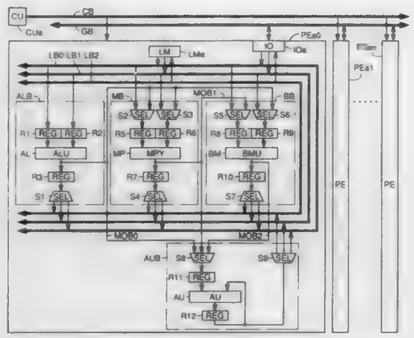
1. A SIMD processor comprising:

overall control means;

a plurality of processing elements;

a global bus for connecting unidimensionally each of said plurality of processing elements in parallel; and

a control bus for connecting said overall control means with each of said plurality of processing elements, wherein



each of said plurality of processing elements comprises

a local memory,

plurality of operation means,

data input/output means,

a local bus connected to said local memory, said plurality of operation means, and said data input/output means for transferring data, and

a composite operation bus connected to each of said plurality of operation means for transferring data to carry out a composite operation,

said overall control means controls each operation of said plurality of processing elements so as to carry out the same operation,

said local bus comprises

two data input local buses for entering data of said plurality of operation means, and

one data output local bus for providing data from said plurality of operation means,

said plurality of operation means comprises

arithmetic logic operation means including an arithmetic logic unit,

multiply means including a multiplier, bit operation means including a bit operator

and

accumulation means including an accumulator,

and

said composite operation bus comprises

a first composite operation bus for providing an output data of said arithmetic logic unit to said multiplier, said bit operator, and said accumulator,

a second composite operation bus for providing an output data of said multiplier to said bit operator and said accumulator, and

a third composite operation bus for providing an output data of said bit operator to said accumulator.

5,729,759

DATA PROCESSING APPARATUS FOR PERFORMING CUMULATIVE PROCESSING ON TIME SERIES DATA

Kiyofumi Kawamoto, and Shinichi Nakagawa, both of Hyogo, Japan, assignors to Mitsubishi Denki Kabushiki Kaisha, Tokyo, Japan

Filed Jun. 23, 1995, Ser. No. 494,064

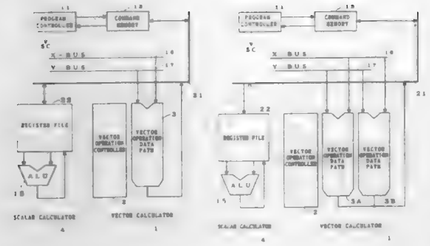
Claims priority, application Japan, Mar. 24, 1995, 7-066131

Int. Cl.[6] G06F *17/10*

U.S. Cl. 395—800.36 20 Claims

1. A data processing apparatus comprising:

a cumulative processing section including a cumulative calculator for sequentially receiving plural cumulative data as time series data, and obtaining a cumulative result by operation processing and cumulative processing of said plural cumulative data, and



a judgment processing section provided independently of said cumulative processing section for judging said cumulative result,

wherein said cumulative calculator comprises:

differential means for outputting plural differential data in each pair composed of differential values between at least one pair of cumulative data of three cumulative data continuous in time series in said plural cumulative data, and

cumulative result calculating means for obtaining said cumulative result by cumulative calculation on data based on one of said plural cumulative data and said plural differential data.

5,729,760

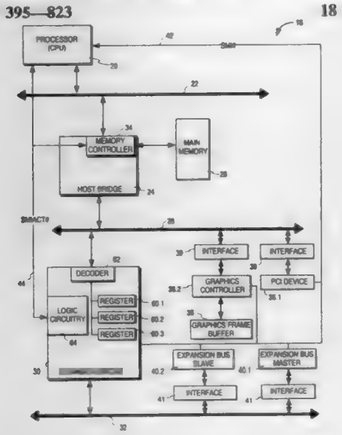
SYSTEM FOR PROVIDING FIRST TYPE ACCESS TO REGISTER IF PROCESSOR IN FIRST MODE AND SECOND TYPE ACCESS TO REGISTER IF PROCESSOR NOT IN FIRST MODE

David I. Poisner, Folsom, Calif., assignor to Intel Corporation, Santa Clara, Calif.

Filed Jun. 21, 1996, Ser. No. 667,789

Int. Cl.[6] G06F *15/02*

U.S. Cl. 395—823 18 Claims



1. A method of providing access to an input/output (I/O)-mapped register of a computer system, the computer system including a processor operable in first and second modes of operation, the method including the steps of:

receiving a request for access to the I/O-mapped register;

determining whether the processor is operating in the first mode of operation;

providing a first type of access to the I/O-mapped register if the processor is operating in the first mode of operation; and

providing a second type of access to the I/O-mapped register if the processor is not operating in the first mode of operation.

5,729,761

SYSTEM FOR SELECTING ONE CLUSTER OF PROCESSORS AND UPGRADING THE VERSION OF THE PROGRAM TO BE EXECUTED BY THE PROCESSORS BELONGING TO THE SELECTED CLUSTER

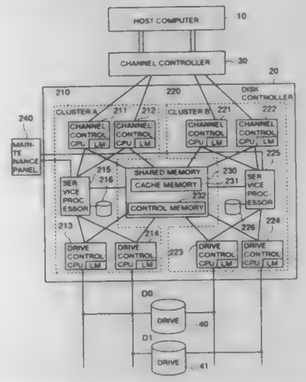
Tomohiro Murata, Yokohama; Mitsuaki Niida, Chigasaki, and Kenzo Kurihara, Tokyo, all of Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Filed May 8, 1995, Ser. No. 436,859

Claims priority, application Japan, May 13, 1994, 6-099705

Int. Cl.[6] G06F *15/02*

U.S. Cl. 395—834 1 Claim



1. A disk controller connected between a host computer and a disk drive, comprising:

a plurality of processors, each belonging to one of a plurality of predetermined clusters, for controlling data transfer between said host computer and said disk drive;

execution cluster indication means for indicating whether processing for an access request of said disk drive issued from said host computer is to be executed in a cluster non-restricted processing mode in which distributed processing of the access request among all processors is permitted or in a cluster restricted processing mode in which distributed processing of the access request by processors belonging to different clusters is restricted;

wherein said plurality of processors process the access request in accordance with the processing mode designated by said execution cluster indication means;

processor designation information provided for each access request to designate the processors which can execute the processing of the access request;

a terminal device for accepting a program version upgrading command from an operator;

control means for controlling said execution cluster indication means to indicate the cluster restricted processing mode in accordance with the program version upgrading command accepted by said terminal device;

version upgrading means for selecting one of said plurality of clusters, suspending processing of the access request in the processors belonging to the selected cluster and upgrading the version of the program to be executed by the processors belonging to the selected cluster;

a memory for storing a copy of data stored in said disk drive;

wherein said plurality of processors includes:

a first plurality of processors for controlling the data transfer between said memory and said host computer, and

a second plurality of processors for controlling the data transfer between said memory and said disk drive,

wherein each of said clusters includes at least one of said first processors and at least one of said second processors; and

cluster combination information for indicating a combination of clusters to which the processors which can distributedly process a job belong;

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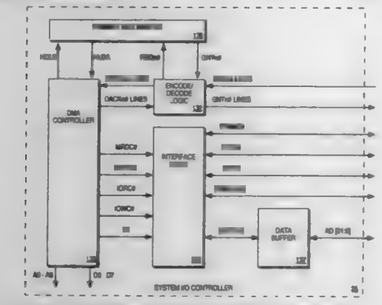
wherein said processors each set information for designating the processors which can distributedly process the job to be executed by its own processor in accordance with said processor designation information.

5,729,762

INPUT OUTPUT CONTROLLER HAVING INTERFACE LOGIC COUPLED TO DMA CONTROLLER AND PLURALITY OF ADDRESS LINES FOR CARRYING CONTROL INFORMATION TO DMA AGENT

James P. Kardach, Saratoga; Sung-Soo Cho; Debra T. Cohen, both of Sunnyvale; John W. Horigan, Mountain View, and Neil W. Songer, Santa Clara, all of Calif., assignors to Intel Corporation, Santa Clara, Calif.

Filed Apr. 21, 1995, Ser. No. 426,818
Int. Cl.[6] G06F *15/40*
U.S. Cl. 395—842 **9 Claims**



4. A system input/output (I/O) controller comprising:

a direct memory access (DMA) controller;

interface logic coupled to the DMA controller and configured to communicate over a local bus according to a local bus protocol;

a plurality of control/byte enable lines coupled to the interface logic wherein the control/byte enable lines carry control and byte enable information in a time multiplexed manner; and

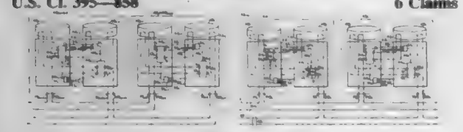
a plurality of address lines coupled to the interface logic, including address lines that carry DMA control information from the DMA controller to a DMA agent through the interface logic, including a type of DMA cycle.

5,729,763

DATA STORAGE SYSTEM

Eli Leshem, Brookline, Mass., assignor to EMC Corporation, Hopkinton, Mass.

Filed Aug. 15, 1995, Ser. No. 515,243
Int. Cl.[6] G06F *11/20*
U.S. Cl. 395—858 **6 Claims**



1. A disk interface adapted for coupling a disk drive to a fiber channel to control the disk drive, such interface having:

an interface input port;

an interface output port;

a first switch having a pair of input ports and a pair of output ports, such first switch, in response to one state of a control signal coupling a first one of the pair of input ports to a first one of the pair of output ports and a second one of the pair of input ports to a second one of the pair of output ports, and in response to a second state, coupling the first one of the pair of input ports to the second one of the pair of output ports;

a second switch having a pair of input ports and a pair of output ports, such second switch, in response to one state of a control signal coupling a first one of the pair of input ports to a first one of the pair of output ports and a second one of the pair of input ports to a second one of the pair of output ports, and in response to a second state, coupling the first one of the pair of input ports to the second one of the pair of output ports;

a first one of the pair of first switch input ports being serially coupled to the interface through the disk drive;

one of the pair of first switch output ports being coupled to a first one of the pair of second switch input ports;

a first one of the second switch output ports being coupled to the interface output port;

the other one of the pair of first switch input ports and the other one of the pair of first switch output ports being adapted for coupling to another disk interface; and,

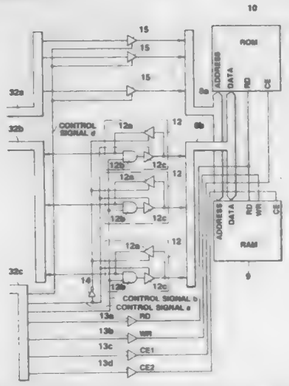
the other one of the pair of second switch input ports and the other one of the pair of second switch output ports being adapted for coupling to the fiber channel.

5,729,764

BUS INTERFACE CIRCUIT OF INTEGRATED CIRCUIT AND INPUT/OUTPUT BUFFER CIRCUIT

Satoshi Sato, Tokyo, Japan, assignor to Casio Computer Co., Ltd., Tokyo, Japan

Filed Mar. 29, 1995, Ser. No. 412,759
Claims priority, application Japan, Mar. 31, 1994, 6-063258
Int. Cl.[6] G06F *3/00*
U.S. Cl. 395—872 **3 Claims**



1. A bus interface circuit for connecting an internal bus of an integrated circuit device to an external bus arranged outside of the integrated circuit device, said bus interface circuit comprising:

(i) a plurality of input/output buffers each connected between corresponding signal lines of the internal bus and the external bus, each of said respective input/output buffers including:

a data inputting tri-state buffer having an input terminal connected to the corresponding signal line of the external bus, and an output terminal connected to the corresponding signal line of the internal bus;

a data outputting tri-state buffer having an input terminal connected to the corresponding signal line of the internal bus through a control gate, and an output terminal connected to the corresponding signal line of the external bus; and

a control circuit for setting one of the data inputting and outputting tri-state buffers in an ON state and the other of the data inputting and outputting tri-state buffers in an OFF state, with respect to a single control signal; and

(ii) control means for controlling the input/output buffers, said control means including:

means for outputting a first control signal to the control circuit for setting the data outputting tri-state buffer in an operative state, and for setting the data inputting tri-state buffer in a limited operation state whereby the data inputting tri-state buffer operates only when the integrated circuit device receives data from an external device connected to the external bus; and

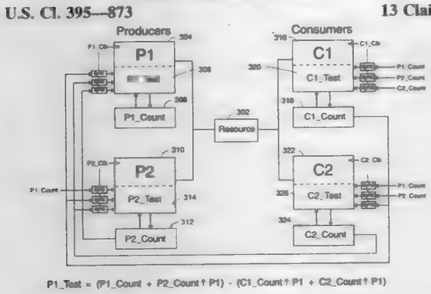
means for outputting a second control signal to the control gate for causing the control gate to be closed when the data outputting tri-state buffer is set in the operative state, and for causing the control gate to be opened when the integrated circuit device outputs data to the external device connected to the external bus.

5,729,765

METHOD AND APPARATUS FOR DETERMINING THE STATUS OF A SHARED RESOURCE

Marco Y.C. Cheng, Fountain Valley, Calif., assignor to Samsung Electronics Co., Ltd., Seoul, Rep. of Korea

Filed Dec. 7, 1995, Ser. No. 568,149
Int. Cl.[6] G06F *1/12;5/06*
U.S. Cl. 395—873 **13 Claims**



P1_Test = (P1_Count + P2_Count ↑ P1) - (C1_Count ↑ P1 + C2_Count ↑ P1)

1. A method for determining the status of a resource of a digital system, wherein a first subsystem operating in synchronism with a first clock writes data to said resource, wherein a second subsystem operating in synchronism with a second clock reads data from said resource, said second clock being asynchronous with respect to said first clock, said resource being unavailable for writing additional data from said first subsystem until previously written data is read from said resource by said second subsystem, said method comprising the steps of:

generating a first quantity representing a number of write accesses to said resource made by said first subsystem, said first quantity generated in synchronism with said first clock;

generating a second quantity representing a number of read accesses to said resource made by said second subsystem, said second quantity generated in synchronism with said second clock;

synchronizing said first quantity with said second clock to generate a third quantity;

synchronizing said second quantity with said first clock to generate a fourth quantity;

comparing said first quantity to said fourth quantity to generate a first resource-available signal for said first subsystem, said first resource-available signal being active when said first quantity is equal to said fourth quantity, said first resource-available signal generated in synchronism with said first clock; and

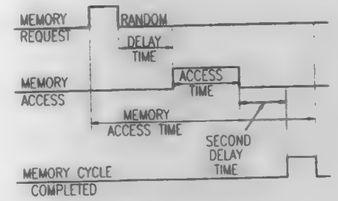
comparing said second quantity and said third quantity to generate a second resource-available signal for said second subsystem, said second resource-available signal being active when said second quantity is different from said third quantity, said second resource-available signal generated in synchronism with said second clock.

5,729,766

SYSTEM FOR MEMORY UNIT RECEIVING PSEUDO-RANDOM DELAY SIGNAL OPERATIVE TO ACCESS MEMORY AFTER DELAY AND ADDITIONAL DELAY SIGNAL EXTENDING FROM TERMINATION OF MEMORY ACCESS

Michael Cohen, Jersusalem, Israel, assignor to Softchip Israel Ltd., Israel

Filed Jun. 30, 1995, Ser. No. 496,351
Claims priority, application Israel, Jun. 30, 1994, 110181
Int. Cl.[6] G06F *13/00*
U.S. Cl. 395—878 **7 Claims**



1. Memory access apparatus comprising:

a pseudo-random access delay signal generator generating an access delay signal which is at least pseudo-random and which determines the number of clock cycles to elapse from a memory access instruction clock cycle to actual memory access;

a memory access unit receiving said access delay signal and operative to access the memory after said number of clock cycles has elapsed; and

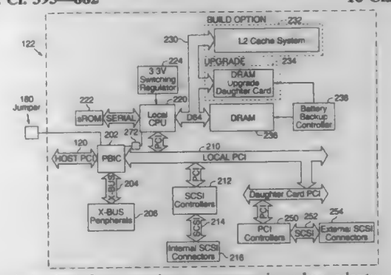
an additional delay signal generator which is coupled to the memory access unit and is operative to generate delay signal extending from termination of said actual memory access to a beginning of a memory cycle completion signal.

5,729,767

SYSTEM AND METHOD FOR ACCESSING PERIPHERAL DEVICES ON A NON-FUNCTIONAL CONTROLLER

Craig S. Jones; Victor K. Pecone, and Jay Lory, all of Austin, Tex., assignors to Dell USA, L.P., Round Rock, Tex.

Filed Oct. 7, 1994, Ser. No. 319,689
Int. Cl.[6] G06F *13/00*
U.S. Cl. 395—882 **16 Claims**



1. A method for accessing a memory in a bus adapter of a computer system, the computer system comprising a CPU, a first bus coupled to the CPU, and the bus adapter coupled to the first bus, wherein the bus adapter comprises a bus interface for coupling to said first bus, a second bus coupled to said bus interface, a local processor coupled to said second bus, a peripheral bus coupled to said bus interface, and the memory coupled to said peripheral bus, the method comprising:

configuring said memory coupled to said peripheral bus to map to said bus interface, wherein said memory is accessible by said CPU when said memory is mapped to said bus interface;

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said CPU beginning a startup routine after said configuring said memory, wherein said CPU detects said memory coupled to said peripheral bus as being mapped to said bus interface;

said CPU accessing said memory coupled to said peripheral bus in said bus adapter after said CPU beginning said startup routine;

reconfiguring said memory to unmap said memory from said bus interface after said CPU accessing said memory, wherein said memory is accessible to said local processor comprised in said bus adapter in response to said reconfiguring; and

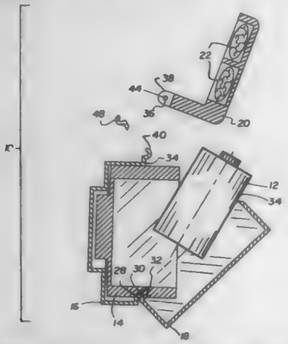
said CPU restarting after said reconfiguring said memory.

5,729,768

ONE-TIME USE CAMERA PROVIDED WITH FRANGIBLE FLASH SUPPORT DESTROYED BY OPENING LIGHTTIGHT ENCLOSURE TO REMOVE EXPOSED FILM

Roger Alan Fields, Pittsford, and Stanley Ward Stephenson, III, Spencerport, both of N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.

Filed Apr. 3, 1996, Ser. No. 627,297
Int. Cl.[6] G03B *17/02;15/05*
U.S. Cl. 396—6 **9 Claims**



5. A one-time-use camera comprising a film cartridge, a lighttight enclosure which contains said film cartridge and can be opened to remove the film cartridge, and a flash unit, is characterized in that:

a frangible support for said flash unit is located to be destroyed when said lighttight enclosure is opened to remove said film cartridge;

said lighttight enclosure includes a main body portion for said film cartridge and a rear cover portion;

a front cover portion and said rear cover portion have a common separation seam along which they can be separated from each other; and

said frangible support is located adjacent said separation seam to be destroyed when said front and rear cover portions are separated along the separation seam.

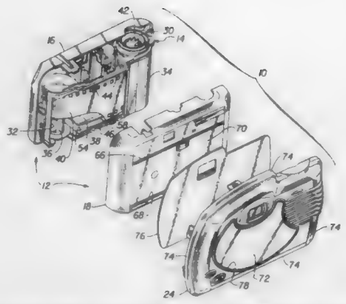
5,729,769

WATER-RESISTANT CAMERA

James G. Rydelek, Henrietta, N.Y., assignor to Eastman Kodak Company, Rochester, N.Y.

Filed Jan. 10, 1997, Ser. No. 781,636
Int. Cl.[6] G03B *17/08*
U.S. Cl. 396—29 **7 Claims**

1. A water-resistant camera in which a film clearance space is provided to permit movement of successive sections of a filmstrip across a backframe opening following each exposure, and a water-resistant casing part having a perimeter is spaced opposite said film clearance space, is characterized in that:



said water-resistant casing part is non-transparent except for a limited transparent viewing portion that is opposite said film clearance space;

a label is positioned between said film clearance space and said limited transparent viewing portion to permit said label to be viewed; and

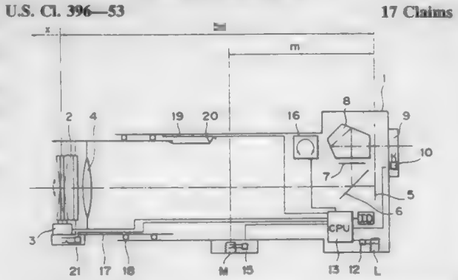
said water-resistant casing part has a multi-directional stiffener-rib located within said perimeter, which at least partially borders said limited transparent viewing portion of the water-resistant casing part, to prevent said limited transparent viewing portion from being bent inwardly towards said label when said water-resistant camera is underwater.

5,729,770

IMAGE MOVEMENT CORRECTING DEVICE EFFECTING IMAGE MOVEMENT CORRECTION DEPENDING ON POSITION OF CENTER OF ROTATION OF ANGULAR FLUCTUATION

Tadao Kai, Kawasaki; Etsuo Tanaka, Tokyo, and Akira Katayama, Koganei, all of Japan, assignors to Nikon Corporation, Tokyo, Japan

Continuation of Ser. No. 408,949, Mar. 23, 1995, abandoned, which is a division of Ser. No. 156,926, Nov. 24, 1993, abandoned, which is a continuation of Ser. No. 900,491, Jun. 18, 1992, abandoned. This application Mar. 7, 1997, Ser. No. 813,578
Claims priority, application Japan, Jun. 21, 1991, 3-177214
Int. Cl.[6] G03B *17/00*
U.S. Cl. 396—53 **17 Claims**



5. An image movement correcting device for a photographing apparatus, comprising:

an angular displacement detector for detecting angular fluctuation of a housing of the photographing apparatus and producing a corresponding output;

a photo-taking lens;

an image movement correcting section for correcting movement of an image formed through said photo-taking lens;

a lens position detecting section for detecting a position of a portion of said photo-taking lens in an optical axis direction and producing a corresponding output;

a focal length information outputting section for producing an output corresponding to a focal length of said photo-taking lens;

a first calculating section for calculating components of a distance to an object to be photographed based on the output from said lens position detecting section and the output from said focal length information outputting section;

a second calculating section for calculating image movement correction amounts, corresponding to a predetermined direction of corrective movement, according to a plurality of different functions each corresponding to a different center of angular fluctuation of the housing, said functions being based on the output of said angular displacement detector and including at least one function based additionally on a component of the distance to the object; and

a selecting section for selecting among said functions;

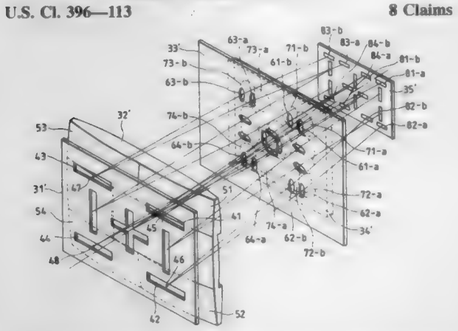
said image movement correcting section effecting image movement correction in accordance with the correction amount calculated according to the selected function.

5,729,771

FOCUS DETECTING APPARATUS AND OPTICAL APPARATUS USING IT

Keiji Ohtaka, Yokohama, Japan, assignor to Canon Kabushiki Kaisha, Tokyo, Japan

Filed Jan. 18, 1996, Ser. No. 588,420
Claims priority, application Japan, Jan. 20, 1995, 7-026058; Mar. 28, 1995, 7-069625
Int. Cl.[6] G03B *13/00;13/34*
U.S. Cl. 396—113 **8 Claims**



1. A focus detecting apparatus for detecting a focal point of an object present at a position spaced obliquely from a center of a view field of an objective lens having a square-shaped view field, said focus detecting apparatus comprising:

a field mask disposed near a prescribed image plane of the objective lens and having an aperture provided at a predetermined position spaced in an oblique direction from the center of the view field of the objective lens for restricting a field area, said aperture extending in a direction along at least a side of the square-shaped view field;

a field lens also disposed near the prescribed image plane of the objective lens;

a pair of secondary imaging lenses corresponding to said aperture, for re-imaging an image formed by the objective lens;

a stop disposed adjacent to said pair of secondary imaging lenses and having a pair of apertures for restricting light passing through said pair of secondary imaging lenses; and

a sensor for detecting light quantity distributions of images formed by said pair of secondary imaging lenses so as to detect a focal point by calculating a phase difference of the light quantity distributions,

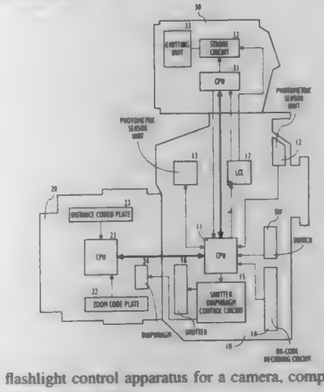
wherein when centers of the paired apertures on said stop and apexes of said pair of secondary imaging lenses corresponding to the paired apertures on said stop are projected onto a plane perpendicular to the optical axis of the objective lens, relative positional relations therebetween are not coincident with each other and are shifted in both directions of two sides orthogonal to each other of the square-shaped view field.

5,729,772

FLASHLIGHT CONTROL APPARATUS

Osamu Sato, and Nobuhiko Matsudo, both of Tokyo, Japan, assignors to Asahi Kogaku Kogyo Kabushiki Kaisha, Tokyo, Japan

Filed Dec. 28, 1995, Ser. No. 580,530
Claims priority, application Japan, Dec. 28, 1994, 6-328783; Dec. 28, 1994, 6-328784; Feb. 10, 1995, 7-022960
Int. Cl.[6] G03B *15/05*
U.S. Cl. 396—159 **9 Claims**



1. A flashlight control apparatus for a camera, comprising:

a strobe that emits light;

an integrating light detector, operative during said light emission of said strobe to integrate a quantity of detected light over time;

a controller that starts and stops light emission of said strobe, said controller selecting an optimum light emission quantity according to a selected film speed of said camera and a predicted optimum light emission duration according to combinations of at least aperture settings and object distance settings of said camera, and said controller setting a time limit shorter than said predicted optimum light emission duration;

said controller stopping emission of said strobe only when both said optimum light emission quantity has been received by said detector since said start of said light emission and said time limit has passed since said start of said light emission.

5,729,773

CAMERA WITH MULTI-LAMP FLASH WHEEL

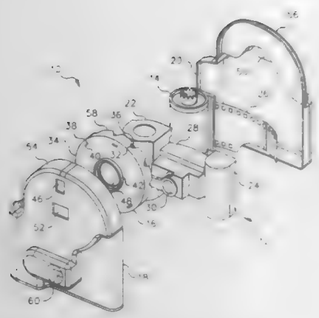
Joel Sherwood Lawther, and Ralph Merwin Lyon, both of Rochester, N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.

Filed Jun. 28, 1996, Ser. No. 674,220
Int. Cl.[6] G03B *15/03;15/02*
U.S. Cl. 396—197 **7 Claims**

1. A camera comprising an optical viewfinder with a pair of aligned front and rear lenses for viewing a subject to be photographed, and a multi-lamp flash wheel rotatable to move respective one-time-use flash lamps to a use position for illuminating the subject, is characterized in that:

said multi-lamp flash wheel has a lamp cover wheel which is transparent to transmit the illumination from each of said flash

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lamps in the use position, and said front lens is an integral centered portion of said lamp cover wheel.

5,729,774

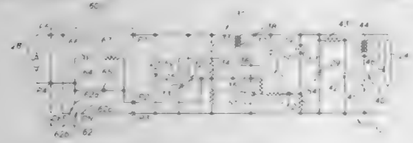
LOW COST MOTORIZED CAMERA WITH FLASH CONTROL CIRCUIT

Douglas W. Constable, Rochester, N.Y., assignor to Eastman Kodak Company, Rochester, N.Y.

Filed Jan. 8, 1997, Ser. No. 779,552

Int. Cl.[6] G03B *7/26*

U.S. Cl. 396—206 **9 Claims**



1. A photographic camera comprising:

a flash circuit including a flash illumination circuit, having a flash capacitor, and a self oscillating flash charging circuit responsive to momentary applied energy to initiate oscillations therein for charging of said flash capacitor and adapted to sustain such oscillations after removal of said applied energy;

a film drive motor;

a motor power control switch for controlling operation of the film drive motor, the switch having a motor ON position and a motor OFF position; and

control circuit means, coupled to said switch and said flash charging circuit, responsive to said switch in the motor ON position for preventing said charging circuit from initiating self oscillations in response to any momentary applied energy and responsive to changeover of said motor control switch from the motor ON to the motor OFF position to provide momentary energy to the flash charging circuit to initiate said self oscillations therein.

5,729,775

CAMERA HAVING FILM COUNTER

Hidefumi Ohta, Kawasaki; Kiyosada Machida, Urawa, and Hiroshi Wakabayashi, Yokohama, all of Japan, assignors to Nikon Corporation, Tokyo, Japan

Filed Sep. 30, 1996, Ser. No. 723,758

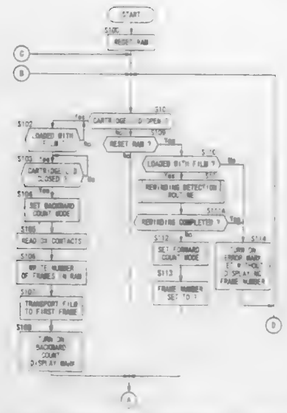
Claims priority, application Japan, Sep. 29, 1995, 7-253910

Int. Cl.[6] G03B *17/36*

U.S. Cl. 396—284 **7 Claims**

1. A camera having a film counter in which a number of remaining unexposed frames of a film is displayed, comprising:

a display device which displays information related to frames of a film;



a detector which detects that a battery has been replaced while the camera is loaded with the film;

a volatile memory which stores information related to the number of remaining unexposed frames of the film; and

a controller which causes said display device to display the number of remaining unexposed frames according to said information stored in said volatile memory until the battery is replaced, and switches said display device to display a frame number in a forward count display in response to a signal generated by said detector upon replacement of the battery, said forward count being a count in which said frame number increases for each exposure.

5,729,776

CAMERA HAVING MULTIPLE IMPRINTING AND PHOTOGRAPHIC MODE SETTING AND METHOD FOR PERFORMING SAME

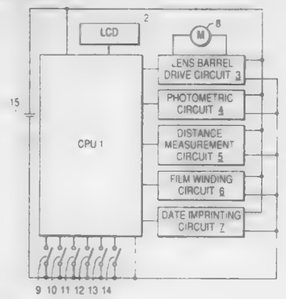
Toshiyuki Nakamura, Tokyo; Hidenori Miyamoto, Urayasu, and Isao Soshi, Tokyo, all of Japan, assignors to Nikon Corporation, Tokyo, Japan

Continuation of Ser. No. 179,191, Jan. 10, 1994, abandoned. This application Dec. 22, 1995, Ser. No. 578,057

Claims priority, application Japan, Jan. 8, 1993, 5-001772

Int. Cl.[6] G03B *17/24*

U.S. Cl. 396—310 **16 Claims**



1. A camera, comprising:

a date imprinting circuit for setting multiple imprinting modes;

a photographic mode setting circuit for setting multiple photographic modes;

an operational circuit, connected to said date imprinting circuit and said photographic mode setting circuit, for modifying the settings of the imprinting modes and the photographic modes;

a movable lens barrel having a first state and a second state;

a detection device to detect whether the lens barrel of the camera is in the first state or the second state; and

a selection circuit, operatively connected to said operational circuit, for modifying the imprinting modes by operating said operational circuit when said detection device detects that the camera is in the first state, and for modifying the photographic modes by operating said operational circuit when said detection device detects that the camera is in the second state.

5,729,777

PHOTOGRAPHIC CAMERA SYSTEM

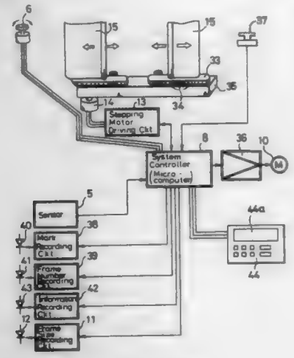
Takahiko Saito, Kanagawa; Akira Nakanishi; Shunzi Obayashi, both of Tokyo, and Hideki Toshikage, Saitama, all of Japan, assignors to Sony Corporation, Tokyo, Japan

Division of Ser. No. 444,681, May 19, 1995, Pat. No. 5,600,386, which is a continuation-in-part of Ser. No. 329,546, Oct. 26, 1994, Pat. No. 5,583,591, which is a continuation-in-part of Ser. No. 26,415, Mar. 4, 1993, abandoned. This application Nov. 27, 1996, Ser. No. 756,599

Claims priority, application Japan, Mar. 17, 1992, 4-060684; Mar. 23, 1992, 4-065304

Int. Cl.[6] G03B *17/24*

U.S. Cl. 396—311 **23 Claims**



1. A photographic system comprising:

a photographic camera including

a camera body,

a first housing disposed in said camera body for housing a photographic film cartridge containing a photographic film,

a second housing disposed in said camera body for housing said photographic film drawn from said photographic film cartridge,

film drive means disposed in said camera body for driving said photographic film between said first and second housings,

recording means disposed in said camera body for recording first and second type signals in a marginal area along an edge of said photographic film in a film drive direction, said first type signal indicating aspect information and having a bar code as a first recording pattern and said second type signal indicating a frame number and having a second recording pattern other than a bar code; and

a photographic film printer for printing on photosensitive paper a processed photographic film photographed using said photographic camera, said printer including

a printer body,

light source and mask means for exposing said photosensitive paper,

detecting means disposed in said printer body for detecting said first and second type signals recorded in said processed photographic film,

processed photographic film drive means disposed in said printer body for driving said processed photographic film,

logic circuit means for determining whether a signal detected by said detecting means is said first type signal indicating said aspect information or said second type signal indicating said frame number, and

printing means disposed in said printer body for printing an image of a subject exposed on said processed photographic film onto said photosensitive paper, said printing means controlled by said logic circuit means.

5,729,778

MAGNETIC RECORDING METHOD AND DEVICE FOR MAGNETIC RECORDING BINARY CODE DATA ON PHOTO FILM

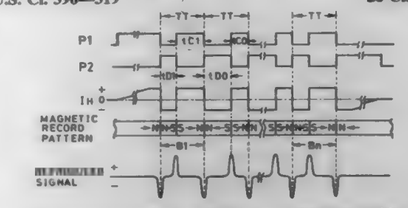
Wataru Sasaki, Saitama, Japan, assignor to Fuji Photo Film Co., Ltd., Kanagawa, and Fuji Photo Optical Co., Ltd., Saitama, both of Japan

Filed May 24, 1996, Ser. No. 653,275

Claims priority, application Japan, May 26, 1995, 7-128234; May 26, 1995, 7-128235

Int. Cl.[6] G03B *17/24*

U.S. Cl. 396—319 **28 Claims**



1. A magnetic recording method for recording binary bits on a magnetic recording track of photo film while moving said photo film in a direction, said method comprising the steps of:

A. recording a first kind of magnetic zone magnetized in a first direction for a first or a second time period which is selected depending upon binary value of each bit of said binary bits;

B. recording a second kind of magnetic zone magnetized in reverse to said first direction behind said first kind of magnetic zone for a time period given by subtracting said first or said second time period from a bit recording interval predetermined for recording one bit;

C. repeating steps A and B from a first bit to a last bit of said binary bits, such that each bit of said binary bits is recorded as a bit segment of a constant length constituted of said first kind of magnetic zone magnetized in said first direction and said second kind of magnetic zone magnetized in a direction reverse to said first direction and disposed behind said first kind of magnetic zone within said bit segment; and

D. recording an additional magnetic zone of said second kind for a third time period determined based on said first or said second time period, immediately before recording said first bit of said binary bits.

5,729,779

FILM TRANSPORT SYSTEM WITH ONE MOTOR FOR THE ADVANCED PHOTO SYSTEM CARTRIDGE FILM

Shigeru Oshima, Chofu, Japan, assignor to Arc Design Room Ltd., Tokyo, Japan

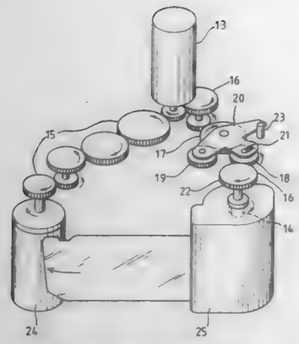
Continuation of Ser. No. 560,337, Nov. 17, 1995, abandoned. This application Jul. 16, 1996, Ser. No. 683,109

Int. Cl.[6] G03B *1/00*

U.S. Cl. 396—418 **9 Claims**

1. A film transport system for an Advanced Photo System cartridge which can transport film in advance and rewind directions, without a rewind gear train, and accommodate differences between the velocity of a cartridge driver for film feed and the circumferential velocity of a film take-up spool, said film transport system comprising:

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a motor drivable in opposite directions; and

a film driving gear train including a sun gear driven by said motor, a first planet gear for film advance, a second planet gear for film rewind, and a pivotable lever supporting said sun gear and said first and second planet gears, said pivotable lever having an arc-shaped slot slidably receiving an axle of said first planet gear, said lever being pivotable in response to direction of drive of said motor to selectively and drivingly engage said first and second planet gears respectively with said cartridge driver.

5,729,780

CAMERA WITH MAGNETIC HEAD PREVENTED FROM CONTACTING FILM DURING IMAGE RECORDING

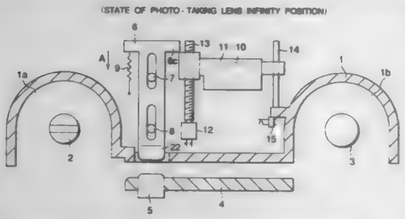
Chikara Aoshima, Zama, Japan, assignor to Canon Kabushiki Kaisha, Tokyo, Japan

Continuation of Ser. No. 266,741, Jun. 28, 1994, abandoned. This application Nov. 7, 1996, Ser. No. 744,505

Claims priority, application Japan, Jun. 30, 1993, 5-183167

Int. Cl.[6] G03B *17/24*

U.S. Cl. 396—320 **42 Claims**



1. A camera using a lens unit, the camera comprising:

(A) an operation device that performs at least one of writing information to and reading information from an image recording medium; and

(B) an interlocking device interlockable with and responsive to a focusing movement of the lens unit for preventing said operation device from contacting the image recording medium at least while an image is being recorded on the image recording medium.

5,729,781

FOLDING STEREOSCOPIC CAMERA

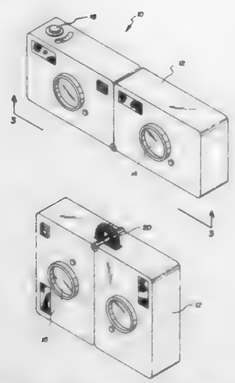
Barry L. Warren, 13378 Kay Dr., Corona, Calif. 91719

Filed Oct. 21, 1996, Ser. No. 734,495

Int. Cl.[6] G03B *35/08*

U.S. Cl. 396—325 **1 Claim**

1. A folding camera for allowing photographs to be taken in portrait and landscape orientation comprising, in combination:



a pair of cameras, each camera being formed in a generally rectilinear configuration with parallel rectangular short edge faces and with parallel rectangular long edge faces, each camera having a centrally disposed lens with central parallel axes, a shutter release button synchronizing the release of a shutter of each of the pair of cameras, the pair of cameras each containing film therein whereupon taking of a picture will produce a pair of developable slides and a hinge at the junction of a short edge face and a long edge face, the hinge having an axis of rotation parallel with the axes of the lenses for rotating the cameras between a first orientation wherein short edge faces of the two cameras are in contact for taking a landscape type picture and a second orientation wherein long edge faces of the two cameras are in contact for taking a portrait type picture.

5,729,782

CAMERA FILM FEED DRIVE SYSTEM REDUCING VIBRATION AND NOISE

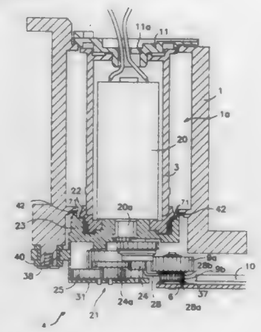
Hiroshi Murakami, Utsunomiya, Japan, assignor to Nikon Corporation, Tokyo, Japan

Filed Sep. 6, 1995, Ser. No. 524,178

Claims priority, application Japan, Nov. 2, 1994, 6-269643

Int. Cl.[6] G03B *1/18*

U.S. Cl. 396—418 **21 Claims**



12. A camera comprising:

a body;

a spool disposed within said body for winding film;

a motor disposed within said spool;

a drive unit which supports said spool and said motor, and which transmits force from said motor to said spool;

a first vibration absorber, having a first hardness, disposed between said drive unit and said body;

a second vibration absorber, having a second hardness less than the first hardness, disposed between said drive unit and said body; and

a third vibration absorber, having a third hardness less than said first hardness, disposed between said drive unit and said body.

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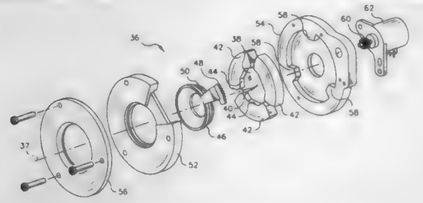
STRETCHED DIAPHRAGM APERTURE FOR AN OPTICAL SYSTEM

Jean F. Depatie, Albion, and James A. Schmieder, Wayland, both of N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.

Filed Jan. 21, 1997, Ser. No. 786,071

Int. Cl.[6] G03B *9/02*

U.S. Cl. 396—508 **13 Claims**



1. An aperture mechanism for controlling the aperture of an optical system, said aperture mechanism comprising:

a flexible planar diaphragm having a circular opening at its center for forming a first aperture value for the optical system; and

means for stretching the diaphragm uniformly from its outer periphery to enlarge the opening and form at least one additional aperture value for the optical system.

5,729,784

PHOTOGRAPHIC CAMERA

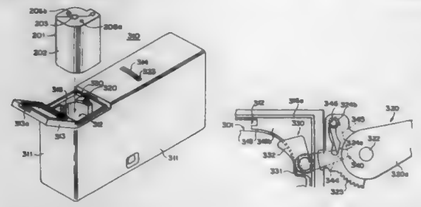
Yoji Naka; Toshio Yoshida, and Takashi Kamoda, all of Saitama-ken, Japan, assignors to Fuji Photo Optical Co., Ltd., Saitama-Ken, and Fuji Photo Film Co., Ltd., Kanagawa, both of Japan

Division of Ser. No. 689,265, Aug. 6, 1996, Pat. No. 5,664,248. This application Mar. 27, 1997, Ser. No. 825,051

Claims priority, application Japan, Aug. 8, 1995, 7-201980; Aug. 8, 1995, 7-201981; Sep. 6, 1995, 7-229196; Sep. 7, 1995, 7-230348

Int. Cl.[6] G03B *17/26;17/30;17/02*

U.S. Cl. 396—538 **6 Claims**



1. In a photographic camera comprising; a cartridge chamber in which is loaded a film cartridge having a roll film entirely rolled to its leading end around a spool in a cartridge body, a light-shielding shutter member for opening and closing a film exit slit formed in the cartridge body and an exposure condition indicator which can take a first position where it indicates that the roll film is not exposed yet and a second position where it indicates that the roll film has been exposed; an entrance opening to the cartridge chamber; a chamber lid which is mounted on the camera to be movable between an opening position where it opens the entrance opening and a closed position where it closes the entrance opening; a spool driver which is engaged with the spool of the film cartridge loaded in the cartridge chamber and rotates the spool to feed out and rewind the film from and into the cartridge body; and a shutter member opening/closing member which is engaged with the light-shielding shutter member of the film cartridge and opens and closes the film exit slit,

a film cartridge loading mechanism comprising

an ejector on which the film cartridge inserted into the cartridge chamber is rested and which is movable between a loaded position in which the spool and the light-shielding shutter member of the film cartridge resting thereon are respectively brought into engagement with the spool driver and the shutter member opening/closing member and a lifted position which is away from the loaded position toward the entrance opening of the cartridge chamber and in which the spool and the light-shielding shutter member of the film cartridge resting thereon are disengaged from the spool driver and the shutter member opening/closing member,

an ejector spring which urges the ejector toward the lifted position, and

an engagement member which is adapted to .engage with a part of the film cartridge to hold the film cartridge in an engaged position when said indicator is in the second position and is not adapted to engage with the film cartridge when the indicator is in the first position,

the engaged position being nearer to the entrance opening of the cartridge chamber than the position where the film cartridge is held by the ejector when the ejector is in the lifted position, and

the force of the ejector spring being set so that when the chamber lid is opened, the film cartridge is jumped toward the entrance opening of the cartridge chamber beyond the engaged position but is not jumped outside the cartridge chamber.

5,729,785

IMAGE FORMING APPARATUS WITH INK JET AND ELECTROPHOTOGRAPHIC IMAGE FORMING MEANS

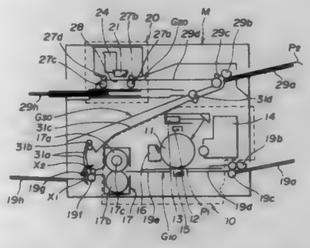
Katsuhiro Sakaizawa; Yasushi Sato, both of Kawasaki; Yukihiro Ohzeki, Yokohama; Kenya Ogawa, Yokohama, and Yasunori Chigono, Yokohama, all of Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan

Filed Nov. 28, 1995, Ser. No. 563,289

Claims priority, application Japan, Dec. 7, 1994, 6-303825

Int. Cl.[6] G03G *15/00*

U.S. Cl. 399—2 **37 Claims**



1. An image forming apparatus for forming an image on a recording medium with first image forming means for forming an image according to a first image forming method and second image forming means for forming an image according to a second image forming method different from the first image forming method, said apparatus comprising:

a first conveying path for conveying a recording medium in order to form an image thereon using the first image forming means;

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a second conveying path for conveying a recording medium in order to form an image thereon using the second image forming means;

a third conveying path for conveying a recording medium in order to form an image thereon using the first image forming means and the second image forming means; and

setting means for selectively setting one of a first conveying mode using said first conveying path, a second conveying mode using said second conveying path, and a third conveying mode using said third conveying path, wherein only said first conveying path is used in the first conveying mode and only said second conveying path is used in the second conveying mode.

5,729,786

IMAGE FORMING CONTROL APPARATUS WHICH RETREIVES CONTROL RULES VIA CONTROL CASES STORED IN CONTROL CLUSTERS

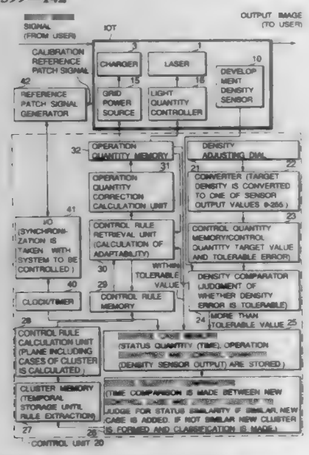
Kunio Yamada, and Kiyotaka Ishikawa, both of Kanagawa, Japan, assignors to Fuji Xerox Co., Ltd., Tokyo, Japan

Filed Sep. 12, 1995, Ser. No. 526,876

Claims priority, application Japan, Sep. 13, 1994, 6-218824

Int. Cl.[6] G03G *15/00*

U.S. Cl. 399—142 **19 Claims**



1. An image forming apparatus comprising:

image quality varying means for varying a quality of an output image in accordance with an operation quantity;

control case storing means for storing a plurality of control cases;

control rule extracting means for extracting from the control case storing means a control rule while referring to a plurality of the control cases that are defined as points in a coordinate system with coordinate axes representing the operation quantity and a control quantity and while computing a new operation quantity;

detecting means for detecting the quality of the output image, and outputting a detection result as the control quantity; and

operation quantity computing means for computing a new operation quantity to be supplied to the image quality varying means so that the control quantity becomes a value corresponding to target image quality, by using the control rule extracted by the control rule extracting means.

5,729,787

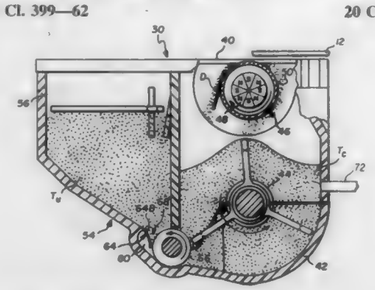
TONER CONCENTRATION MONITOR AND METHOD

William A. Resch, III, Pittsford, N.Y., assignor to Eastman Kodak Company, Rochester, N.Y.

Filed Jul. 23, 1996, Ser. No. 685,261

Int. Cl.[6] G03G *15/10*

U.S. Cl. 399—62 **20 Claims**



1. A toner monitor, comprising:

an electrically conductive probe mounted in a wall of a development apparatus, the apparatus including plural components forming a multicomponent development mixture, the probe not extending substantially into the development mixture;

means for generating a first signal so that electromagnetic energy is carried along said probed and modified by an impedance mismatch of said probe and the mixture to form a modified signal said probe;

means for sampling the modified signal on said probe and generating a second signal representing a sample of the modified sample on said probe; and

means responsive to said second signal for generating a third signal relative to adjustment of composition content of the development mixture.

5,729,788

IMAGE FORMING APPARATUS HAVING CONTROL STRUCTURE FOR CLEANING THE TRANSFER DEVICE

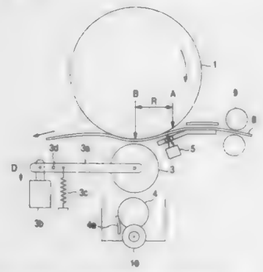
Norichika Hirohashi; Tsukasa Inao; Kazuhisa Masuko, and Toshihiro Kanematsu, all of Ebina, Japan, assignors to Fuji Xerox Co., Ltd., Tokyo, Japan

Filed Mar. 13, 1996, Ser. No. 614,717

Claims priority, application Japan, Mar. 16, 1995, 7-056948; Jan. 17, 1996, 8-006134

Int. Cl.[6] G03G *15/16;21/00*

U.S. Cl. 399—66 **9 Claims**



1. An image forming apparatus, comprising:

an image carrier for forming thereon an electrostatic latent image corresponding to image information;

a developing device for developing said electrostatic latent image formed on the surface of said image carrier to thereby form a toner image;

a transfer member contactable with said image carrier through a transfer sheet being fed for transferring said toner image carried on said image carrier to said transfer sheet;

a registration roller for deciding the supply timing of said transfer sheet to be supplied into between said image carrier and said transfer member and also for feeding said transfer sheet to a tucking point provided on the surface of said image carrier;

a transfer sheet detect sensor disposed downstream of said tucking point in the feeding direction of said transfer sheet and upstream of a point of contact at which said image carrier and said transfer member are contacted with each other; and,

a contacting and separating means, when said transfer sheet is detected by said transfer sheet detect sensor, for bringing said transfer member into contact with said image carrier.

5,729,789

THERMAL FIXING DEVICE FOR AN IMAGE FORMING APPARATUS

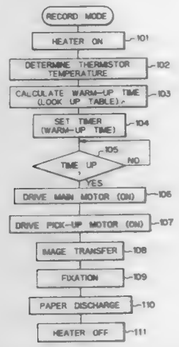
Syunpei Tamaki, Hadano, Japan, assignor to Ricoh Company, Ltd., Tokyo, Japan

Filed Jan. 2, 1996, Ser. No. 581,995

Claims priority, application Japan, Mar. 3, 1995, 7-068908

Int. Cl.[6] G03G *15/20*

U.S. Cl. 399—70 **3 Claims**



1. A thermal fixing device having a standby mode during idle periods, and a record mode for fixing a toner image on a paper by heating a heat roller by setting up a particular power supply condition to said heat roller, said device comprising:

temperature sensing means for sensing a temperature of said heat roller;

storing means storing a table listing a relation between a temperature of said heat roller after the power supply condition has been switched to the record mode and a period of time necessary for said heat roller to reach a temperature at which a recording operation can be executed;

time counting means for counting a period of time elapsed after the power supply condition has been switched to the record mode; and

recording operation starting means for causing a recording operation to start on determining that the period of time elapsed has reached the period of time necessary for said heat roller to reach the temperature at which a recording operation can be executed, and determined by an instantaneous temperature of said heat roller;

whereby an exact period of time for the heat roller to reach an operational temperature is determined for a wide range of initial heat roller temperatures.

5,729,790

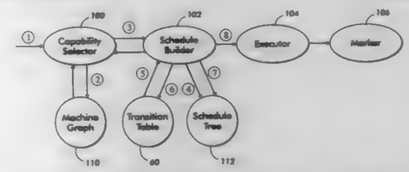
OPERATION SCHEDULING SYSTEM FOR A DIGITAL PRINTING APPARATUS USING A TREE OF POSSIBLE SCHEDULES

John H. Conley, Rochester, N.Y.; Markus P. J. Fromherz, Palo Alto, Calif., and Susan B. Layer, Fairport, N.Y., assignors to Xerox Corporation, Stamford, Conn.

Filed Jan. 21, 1997, Ser. No. 787,188

Int. Cl.[6] G03G *15/00*

U.S. Cl. 399—77 **9 Claims**



1. A method of developing a schedule for operations in an apparatus for outputting prints, comprising the steps of:

providing a schedule space defining a series of pitches, the apparatus being capable of performing an operation within each pitch;

for a print to be output, entering to the schedule space a block representative of the apparatus outputting the print;

for a first print to be output, creating a plurality of possible schedule extensions forming a first generation of schedule extensions, each schedule extension being a block representative of the first print to be output, each schedule extension having a predetermined offset relative to an ending of a schedule of previously-scheduled blocks in the schedule space.

5,729,791

IMAGE FORMING APPARATUS WITH CONTROL TO ALLOW IMAGING OF SECOND GROUP TO INTERRUPT IMAGING OF FIRST GROUP

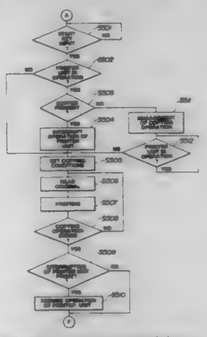
Satoru Kutsuwada, Kawasaki; Yoshihiko Suzuki, and Kenji Kobayashi, both of Tokyo, all of Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan

Continuation of Ser. No. 715,385, Sep. 13, 1996, abandoned, which is a continuation of Ser. No. 498,783, Jul. 5, 1995, abandoned. This application Mar. 10, 1997, Ser. No. 812,668

Claims priority, application Japan, Jul. 6, 1994, 6-154667

Int. Cl.[6] G03G *21/00*

U.S. Cl. 399—82 **19 Claims**



6. An image forming apparatus comprising:

image forming means for forming images on sheets;

determination means for determining whether sorting of the sheets by sorting means is possible, said sorting means operating interrelatedly with said image forming apparatus; and

control means for allowing an image formation job before a preceding image formation job is completed when said deter-

VOL 1208 ISS 3 MR 17 1998 UMI

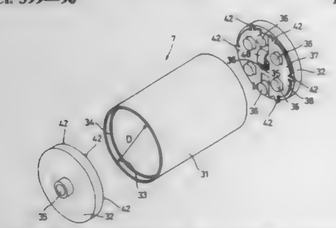
mination means determines that sorting by said sorting means is possible, and for inhibiting an image formation job before the preceding image formation job is completed when said determination means determines that sorting by said sorting means is not possible.

5,729,792

PHOTOSENSITIVE DRUM UNIT AND A GROUND PLATE USED THEREWITH

Masao Ikehara, Osaka, Japan, assignor to Mita Industrial Co., Ltd., Osaka, Japan

Filed Oct. 25, 1996, Ser. No. 736,877
Claims priority, application Japan, Nov. 21, 1995, 7-302941
Int. Cl.° G03G 21/00
U.S. Cl. 399—90 16 Claims



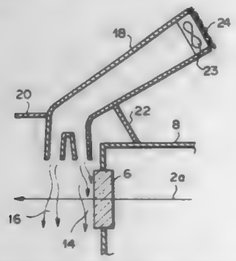
1. A photosensitive drum unit for an image forming device, comprising:
a tubular member having two openings at opposite ends thereof, said tubular member having a diameter D;
at least one flange member connectable with said openings of said tubular member, and
at least one ground plate connectable to said flange member, said ground plate comprising a disc-shaped substrate and at least one projection which extends beyond an outer circumference of said disc-shaped substrate, and said ground plate having a diameter d;
wherein X is defined as a thickness of said ground plate, Y is defined as said diameter d minus said diameter D, and X and Y satisfy inequalities 0.2 mm≦X≦0.4 mm and 0.1 mm≦Y≦−2.5X+1.2 mm.

5,729,793

DUST ADHESION PREVENTION SYSTEM FOR IMAGE SCANNING SYSTEM

Toshiyuki Inoue, Kanagawa-ken, Japan, assignor to Fuji Photo Film Co. Ltd., Kanagawa-ken, Japan

Filed Jul. 2, 1996, Ser. No. 674,733
Claims priority, application Japan, Jul. 10, 1995, 7-173592
Int. Cl.° G03G 21/00
U.S. Cl. 399—92 8 Claims



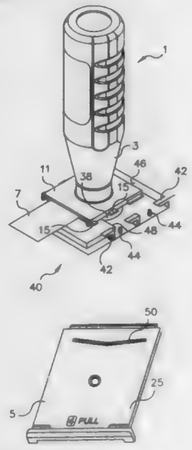
1. A dust adhesion prevention system for an image scanning system having a deflector contained in a casing, comprising:
a cover glass transmitting a scanning light beam; and
means for forming an air flow in front of the cover glass;
wherein said means for forming an air flow in front of the cover glass includes a bifurcated air outlet which forms an air curtain in front of the cover glass and an air flow blown on the surface of the cover glass.

5,729,794

TONER CONTAINER HAVING A WEB SEAL

Scott H. Schwallie; Ronald R. Holland, both of Rochester, and Linn C. Hoover, Webster, all of N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.

Filed May 20, 1996, Ser. No. 650,673
Int. Cl.° G03G 15/08
U.S. Cl. 399—106 5 Claims



1. A toner container comprising:
a containing portion for containing toner and having an opening through which toner can be dispensed and a flange extending in at least a first direction from the opening,
a cover slidable in the first direction from a position covering the opening to a position uncovering the opening, and
a web seal in a sealing condition over the opening and extending in the first direction between the cover and the flange and removable from the sealing condition by movement in the first direction, one of the cover and the flange having a cleaning edge positioned to scrape toner off one side of the web seal as the web seal moves in the first direction, said cleaning edge being V-shaped, with the point of the V directed in the first direction.

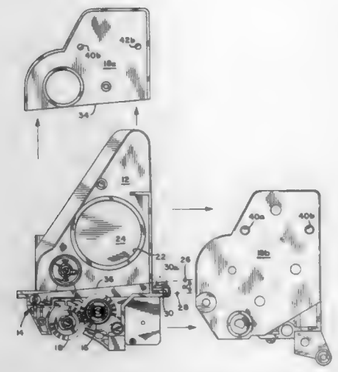
5,729,795

RECONDITIONING OF ELECTROSTATOGRAPHIC CARTRIDGES

Vytas A. Kavolius, Charlottesville; Joseph E. White, Mt. Crawford, and Edward D. Furrow, Waynesboro, all of Va., assignors to Genicom Corporation, Chantilly, Va.

Filed Sep. 19, 1996, Ser. No. 716,092
Int. Cl.° G03G 15/00
U.S. Cl. 399—109 14 Claims

1. A method of reconditioning an electrostatographic cartridge having a cartridge base, a toner hopper having a toner fill hole attached to the cartridge base and a gear housing assembly which blocks access to the toner fill hole and which is comprised of an interior gear housing component integral with the cartridge base, and a removable exterior gear housing component, said method comprising the steps of:



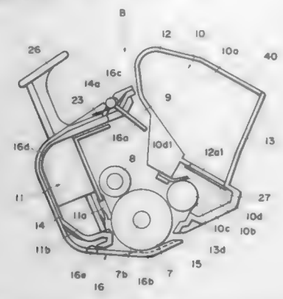
(i) removing the exterior gear housing component from the interior gear housing component;
(ii) severing the interior gear housing component from the cartridge base to allow access to the toner fill hole of the toner hopper;
(iii) reattaching the severed interior gear housing component to an exterior gear housing component to form a completed gear housing assembly; and
(iv) attaching the gear housing assembly to the cartridge base.

5,729,796

SHUTTER HAVING FIRST AND SECOND SHUTTER MEMBERS, PROCESS CARTRIDGE AND IMAGE FORMING APPARATUS HAVING THE SHUTTER

Kouji Miura, Sagamihara; Tsutomu Nishiuwatoko, Tokyo, and Kazuhiko Kanno, Urawa, all of Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan

Continuation of Ser. No. 429,099, Apr. 26, 1995, abandoned.
This application Jan. 28, 1997, Ser. No. 789,061
Claims priority, application Japan, Apr. 28, 1994, 6-091183; Apr. 21, 1995, 7-096886
Int. Cl.° G03G 21/18
U.S. Cl. 399—114 50 Claims



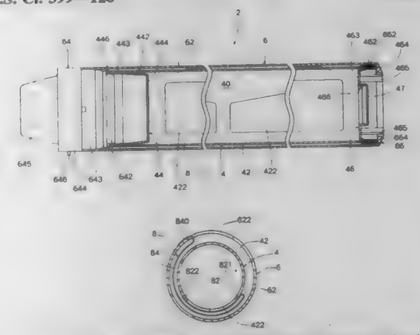
1. A shutter for a process cartridge, said process cartridge including an electrophotographic photosensitive member, process means actable on said photosensitive member, a frame, an exposure opening for permitting exposure of said photosensitive member to image information light, an image transfer opening for permitting transfer of a toner image from said photosensitive member to a recording material, and said process cartridge being detachably mountable to a main assembly of an image forming apparatus, said shutter comprising:
an engaging portion for engaging said shutter with said frame;
a first shutter portion for opening and closing the exposure opening; and
a second shutter portion for opening and closing the transfer opening,
wherein said first shutter portion and said second shutter portion are interrelated.

5,729,797

TONER CARTRIDGE

Mitsuharu Okada, and Katsumi Okamoto, both of Osaka, Japan, assignors to Mita Industrial Co., Ltd., Osaka, Japan

Filed Feb. 25, 1997, Ser. No. 805,932
Claims priority, application Japan, Mar. 29, 1996, 8-076302
Int. Cl.° G03G 15/08
U.S. Cl. 399—120 2 Claims



1. A toner cartridge comprising an inner tubular container having a longitudinally extending toner discharge opening and accommodating a toner; an outer tubular case having a toner passage opening corresponding to said toner discharge opening provided in said inner tubular container, and being fitted around said inner tubular container so as to be capable of relative rotation; and a seal member having a sealing portion for covering said toner discharge opening formed in said inner tubular container, said sealing portion being strippably bonded to the outer peripheral surface of said inner tubular container, and an action portion formed as a continuum of said sealing portion and having a front end part secured to said outer tubular case; wherein
said sealing portion of said seal member has a longitudinal bond portion and a peripheral bond portion defined along the surroundings of said toner discharge opening, and a cut groove provided inwardly of said peripheral bond portion at the peel start side end part thereof.

5,729,798

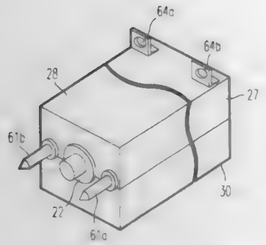
HEAT ROLLER FIXING DEVICE HAVING POSITIONING MEMBERS

Motokazu Yasui, and Yasuhisa Kato, both of Yokohama, Japan, assignors to Ricoh Company, Ltd., Tokyo, Japan

Continuation of Ser. No. 487,641, Jun. 7, 1995, abandoned, which is a continuation of Ser. No. 190,495, Feb. 2, 1994, Pat. No. 5,481,350. This application Feb. 20, 1997, Ser. No. 803,216
Claims priority, application Japan, Apr. 12, 1993, 5-084221; Apr. 12, 1993, 5-084222
Int. Cl.° G03G 15/16
U.S. Cl. 399—122 13 Claims

1. A heat roller fixing device in a recording device having a main body, said heat roller fixing device comprising:
a first unit including a heated fixing roller and a frame rotatably supporting the fixing roller;
a second unit mounted to said first unit and including a pressing roller and a frame rotatably supporting the pressing roller;
a driving element mounted at a driving side of said fixing roller; and

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two first positioning members provided on a side surface of said first unit at said driving side and at least one second positioning member provided on a top surface of said first unit, said first positioning members and said at least one second positioning member being engageable with the main body, said first positioning members being positioned substantially on a horizontal line passing through a center of the fixing roller, wherein a positioning of the first unit and the second unit mounted to the first unit relative to the main body is based on an engagement of said first positioning members and said at least one second positioning member with the main body.

5,729,799

IMAGE FORMING METHOD AND APPARATUS HAVING A SEMICONDUCTIVE INTERMEDIATE TRANSFER MEMBER

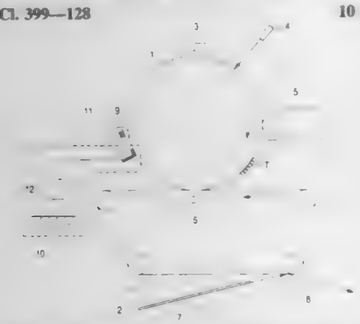
Kazunori Numao; Noriaki Kojima; Masao Okubo, and Nobukazu Takahashi, all of Ebina, Japan, assignors to Fuji Xerox Co., Ltd., Tokyo, Japan

Filed Oct. 15, 1996, Ser. No. 730,760

Claims priority, application Japan, Oct. 17, 1995, 7-293355; Oct. 11, 1996, 8-289383

Int. Cl.[6] G03G *21/00;15/16*

U.S. Cl. 399—128 **10 Claims**



1. An image forming method, comprising the steps of:

uniformly electrically charging a photoconductive layer on a surface of a photosensitive member with charging means;

exposing the surface of said photosensitive member to form an electrostatic latent image corresponding to image information with exposure means;

forming a toner image to visualize said electrostatic latent image with developing means which is stored with toner identical in polarity to said photosensitive member;

making a primary transfer of said toner image to a semiconductive intermediate transfer member by electrically charging said semi-conductive intermediate transfer member at a first potential opposite in polarity to a second potential at said photosensitive member with primary transfer means;

contact-eliminating a residual electric charge of said photosensitive member after the primary transfer of said toner image using a conductive member that makes contact with said photosensitive member, said conductive member having an electric charge opposite in polarity to said photosensitive member; and

optically removing the electric charge from said photosensitive member with optical charge-eliminating means after said contact charge eliminating step.

5,729,800

ELECTROPHOTOGRAPHIC APPARATUS HAVING AN A-SI PHOTOSENSITIVE DRUM ASSEMBLED THEREIN

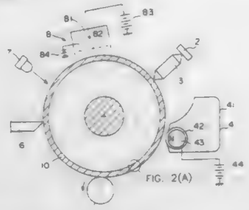
Tadashi Ohbo; Norio Tomiie; Keiji Itsukushima, all of Tokyo, and Hisashi Higuchi, Shiga, all of Japan, assignors to Kyocera Corporation, Tokyo, Japan

Filed Oct. 27, 1994, Ser. No. 332,481

Claims priority, application Japan, Oct. 29, 1993, 5-294359; Oct. 29, 1993, 5-294365; Jul. 29, 1994, 6-197225; Jul. 29, 1994, 6-198001

Int. Cl.[6] G03G *15/02*

U.S. Cl. 399—159 **18 Claims**



1. An electrophotographic apparatus with exposure means disposed on a photosensitive drum, the drum being supported on a support or disposed inside the support, wherein: the photosensitive drum is an a-Si photosensitive drum having a thickness below a surface layer of substantially 2 to 25 μm, wherein the thickness d of a photoconductive layer in the photosensitive drum is set to 2 to 24 μm, the relative dielectric constant r of the photoconductive layer is set to 2 or above, and d/er is set to 9 or below.

5,729,801

ELECTROPHOTOGRAPHIC APPARATUS AND PROCESS CARTRIDGE

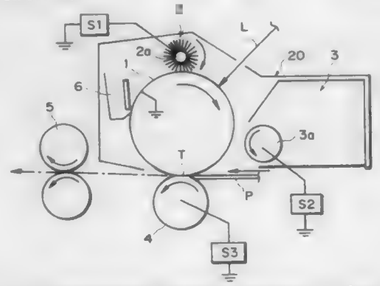
Akio Maruyama, Tokyo; Noboru Kashimura, Kawasaki; Toshihiro Kikuchi; Kazushige Nakamura, both of Yokohama; Shoji Amamiya, Kawasaki, and Hiroyuki Tanaka, Yokohama, all of Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan

Filed Aug. 30, 1996, Ser. No. 697,793

Claims priority, application Japan, Sep. 1, 1995, 7-225295

Int. Cl.[6] G03G *15/00*

U.S. Cl. 399—159 **13 Claims**



1. An electrophotographic apparatus comprising an electrophotographic photosensitive member, a charging member provided in contact therewith for charging the electrophotographic photosensitive member by being applied with a voltage, a light exposure means, a developing means, and a transfer means, wherein the electrophotographic photosensitive member has a surface layer containing an organic compound having a reduction potential of 0.5 V or lower, and the charging is injection charging.

5,729,802

CONTACT CHARGER FOR CHARGING A PHOTOSENSITIVE MEMBER

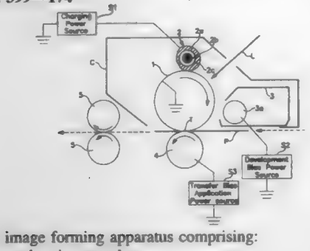
Jun Hirabayashi, Kawaski; Nobuyuki Ito, Oume; Harumi Ishiyama, Yokohama; Tadashi Furuya, Kawasaki; Yasunori Chigono, Yokohama, and Seiji Mashimo, Tokyo, all of Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan

Filed Sep. 9, 1996, Ser. No. 709,739

Claims priority, application Japan, Sep. 8, 1995, 7-231830; Aug. 29, 1996, 8-228523

Int. Cl.[6] G03G *15/02*

U.S. Cl. 399—174 **8 Claims**



1. An image forming apparatus comprising:

an image bearing member;

a charging member contactable to said image bearing member for effecting contact charging of said image bearing member, said charging member being supplied with a voltage having a DC component and an AC component, and said charging member being provided with an electrode for receiving the voltage;

wherein the following is satisfied:

when an electric field formed between said image bearing member and said electrode is not more than $|E/d_{SD}|$(V/m), a resistance of said charging member per unit area of contact between said image bearing member and said charging member is larger than

$$20E/(wCV_{DC})(\Omega m^2)$$

and is larger than the resistance when the electric field is more than $|E/d_{SD}|$(V/m), and not more than $|(E+V_{DC})/d_{SD}|$(V/m)

where E(V) is an amplitude of the AC component; w(rad) is an angular velocity of the AC component; d_{SD} (m) is a minimum distance between said electrode and said image bearing member; C(F/m^2) is an electrostatic capacity per unit area of said image bearing member; and V_{DC} (V) is a voltage of the DC component.

5,729,803

DEVICE FOR DEVELOPING ELECTROSTATIC LATENT IMAGE WHICH PREVENTS SOLIDIFICATION OF DEVELOPING AGENT BY VIBRATION

Takahisa Nakaue; Masanobu Maeshima; Akinobu Nakahata; Takeshi Aoki, and Hiroshi Inui, all of Osaka, Japan, assignors to Mita Industrial Co., Ltd., Osaka, Japan

Filed Oct. 23, 1996, Ser. No. 734,856

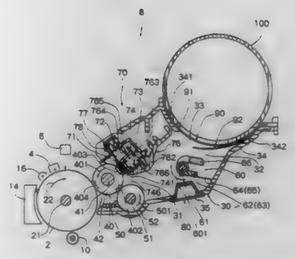
Claims priority, application Japan, Nov. 10, 1995, 7-317186

Int. Cl.[6] G03G *15/08*

U.S. Cl. 399—261 **2 Claims**

1. A device for developing an electrostatic latent image, said device comprising:

a developing housing having a developing chamber,



a stirrer chamber and a developing agent-feeding port communicable with said stirrer chamber,

a developing roller disposed in said developing chamber to hold, on the peripheral surface thereof, a developing agent in a developing agent-holding zone, and convey the thus held developing agent to a developing zone to apply it to the electrostatic latent image,

a replenishing means for feeding the developing agent onto the peripheral surface of said developing roller in the developing agent-holding zone,

a stirring means disposed in said stirrer chamber to stir the developing agent that is fed through said developing agent-feeding port and to send the stirred developing agent to said developing chamber, and

a vibration plate having a plurality of developing agent-flow ports disposed at said developing agent-feeding port of said developing housing, said stirring means acting on said vibration plate,

said vibration plate having a vibration portion and a mounting portion that define a developing agent-flow port therebetween, and

said vibration portion having end portions with slits connected with said developing agent-flow port.

5,729,804

TONER STORAGE DEVICE AND SUPPLY MECHANISM FOR IMAGE FORMING

Tomoe Aruga; Kiyoharu Momose; Junichi Okada; Junichiro Shinozaki; Yoshiro Koga; Hiroshi Niki, and Toshiaki Ohno, all of Nagano, Japan, assignors to Seiko Epson Corporation, Tokyo, Japan

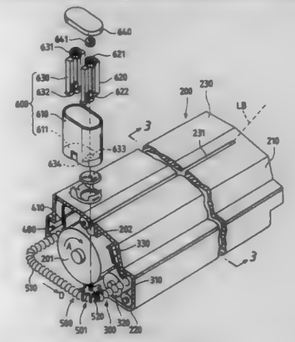
Division of Ser. No. 285,465, Aug. 3, 1994, Pat. No. 5,537,191. This application Dec. 28, 1995, Ser. No. 581,642

Claims priority, application Japan, Aug. 5, 1993, 5-194957; Aug. 11, 1993, 5-219059; Oct. 19, 1993, 5-284474

Int. Cl.[6] G03G *15/08*

U.S. Cl. 399—263 **22 Claims**

1. A toner tank for an image forming apparatus, comprising:



a toner container for storing toner:

toner stirring means which is housed in said toner container and which has a vertical rotating shaft;

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engaging means for receiving an external vertical rotating power shaft for driving said toner stirring means, passing through said toner container;

a toner transport mechanism for transporting toner to and from said toner container;

a toner supply port for supplying said toner to said image forming apparatus; and

a lower portion of an inner wall of said toner container having a section shape being almost coincident with an outer periphery of the rotation locus of said toner stirring means.

5,729,805

IMAGE DEVELOPING METHOD USING SPECIFIC TYPE TONER AND DEVELOPING SLEEVE ROUGHNESS

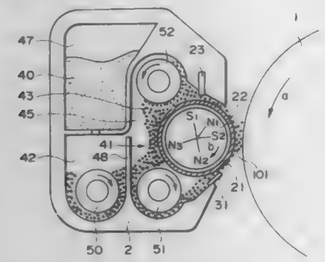
Tatsuhiko Chiba, Kamakura, and Masuo Yamazaki, Yokohama, both of Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan

Filed Apr. 27, 1995, Ser. No. 429,869

Claims priority, application Japan, Apr. 28, 1994, 6-111855

Int. Cl.[6] G03G *15/09*

U.S. Cl. 399—276 **13 Claims**



1. An image forming method comprising:

(a) conveying a developer carried on a developer-carrying member to a developing region, wherein the developer comprises a non-magnetic toner having a weight-average molecular particle size of 4–8 μm and a number-basis particle size variation coefficient of at most 35%, and the non-magnetic toner comprises toner particles containing 5–30 wt. % of a low-softening point compound and having a shape factor SF-1 of 100–130; the developer-carrying member having a developer-carrying surface satisfying the conditions of:

$$0.2\ \mu m \leqq Ra \leqq 5.0\ \mu m$$

$$10\ \mu m \leqq Sm \leqq 80\ \mu m,$$

and

$$0.05 \leqq Ra/Sm \leqq 0.5$$

wherein Ra denotes a center line-average roughness and Sm denote an average spacing between unevenness;

(b) developing an electrostatic latent image formed on an electrostatic latent image-bearing member with the developer in the developing region to form a toner image on the electrostatic image-bearing member;

(c) transferring the toner image to a transfer-receiving material; and

(d) fixing the toner image on the transfer-receiving material.

5,729,806

CURVED DEVELOPER AMOUNT CONTROLLING MEMBER, DEVELOPING APPARATUS, AND PROCESS CARTRIDGE USING THE SAME

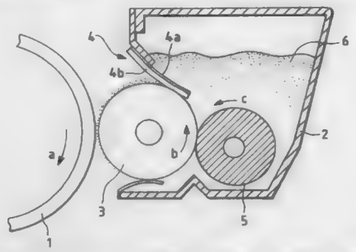
Kentaro Niwano, Yamato; Masahiro Watabe, Yokohama, and Arihiro Yamamoto, Tokyo, all of Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan

Filed May 30, 1996, Ser. No. 655,147

Claims priority, application Japan, May 31, 1995, 7-155512

Int. Cl.[6] G03G *15/08*

U.S. Cl. 399—284 **5 Claims**



1. A developer amount controlling member comprising a support layer for controlling pressure and an elastic layer for controlling triboelectricity provided thereon,

wherein both end portions of said developer amount controlling member are curved from the central portion thereof towards said elastic layer side; and

wherein both end portions are curved with a height of each end of 5 to 50 mm when measured on a level plate with said support layer down.

5,729,807

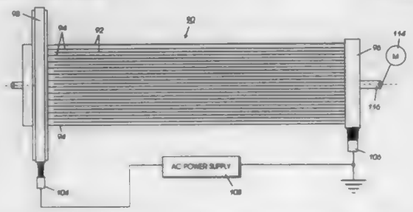
OPTICALLY SWITCHED COMMUTATOR SCHEME FOR HYBRID SCAVENGELESS SEGMENTED ELECTRODED DONOR ROLLS

Delmer G. Parker, Rochester, N.Y., assignor to Xerox Corporation, Stamford, Conn.

Filed Jan. 21, 1997, Ser. No. 785,674

Int. Cl.[6] G03G *15/06*

U.S. Cl. 399—285 **8 Claims**



1. Structure for developing latent electrostatic images on a charge retentive surface with toner particles, said structure comprising:

two sets of interdigitated electrodes carried by a donor roll member used for depositing toner particles on said latent electrostatic images;

a source of electrical power;

means for effecting movement of said structure in an endless path such that a surface thereof passes through a development zone intermediate said charge retentive surface and said donor member;

means for electrically connecting said source of power simultaneously to all electrodes in one of said two sets of interdigitated electrodes;

a switch arrangement having a plurality of individual conductive elements, one conductive element for each electrode of another of said two sets of interdigitated electrodes, each of said conductive elements contacting one electrode of said other set of electrodes, said individual conductive elements being spatially supported on a disk carried by said donor member;

a photoconductive member contactinfi all of said conductive elements, said photoconductive member havinq an annular confiquration that covers all of said individual conductive elements; and

illumination means for activating said photoconductive member in a limited area for applying a bias voltage to a corresponding number of electrodes of said another set of said two sets of interdigitated electrodes set which cooperate with adjacent electrodes of said one of said two sets of interdigitated electrodes for enabling liberation of toner from the surface of said donor member only said limited area corresponding to a development zone between said donor member and said charge retentive surface.

5,729,808

IMAGE FORMING METHOD AND APPARATUS WHICH CONTROLS THE DISCHARGING OF TONER IMAGES BEFORE TRANSFER

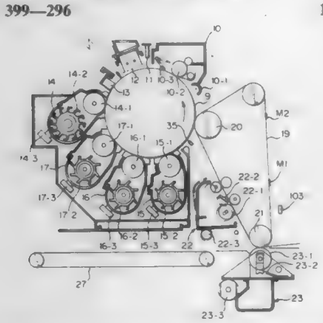
Takashi Bisaiji, Yokohama, Japan, assignor to Ricoh Company, Ltd., Tokyo, Japan

Filed Sep. 26, 1995, Ser. No. 533,749

Claims priority, application Japan, Sep. 29, 1994, 6-235567

Int. Cl.[6] G03G *15/16*

U.S. Cl. 399—296 **18 Claims**



1. A method for forming a multi-color image, comprising the steps of:

forming a first toner image on an image carrier;

discharging the first toner image which is on the image carrier;

transferring the first toner image to a transfer member;

forming a second toner image on the image carrier; and

transferring the second toner image to the transfer member which carries the first toner image, without discharging the second toner image which is on the image carrier.

5,729,809

COLOR IMAGE FORMING APPARATUS WITH INTERMEDIATE TRANSFER

Satoshi Haneda; Hisayoshi Nagase; Hiroyuki Tokimatsu; Shuta Hamada, all of Hachioji, and Toshihide Miura, Koganei, all of Japan, assignors to Konica Corporation, Tokyo, Japan

Filed Jun. 6, 1996, Ser. No. 659,366

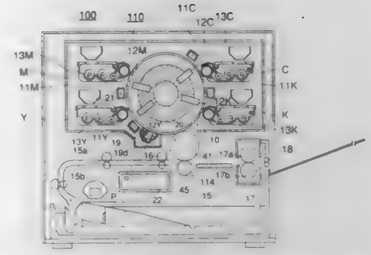
Claims priority, application Japan, Jun. 16, 1995, 7-150293; Nov. 17, 1995, 7-299960

Int. Cl.[6] G03G *15/01;15/00*

U.S. Cl. 399—308 **21 Claims**

1. A color image forming apparatus comprising:

(a) a drum type image forming body;



(b) charging means for charging the image forming body;

(c) a plurality of exposure means each for imagewise exposing the charged image forming body to form a latent image;

(d) a plurality of developing means each provided around the image forming body for developing the latent image to form a different colored toner image,

wherein operations by the charging means, the exposure means and the developing means are repeated to superimpose the different colored toner images on the image forming body; and

(e) transfer means including an intermediate transferring member and a transfer member in contact with the intermediate transferring member, for transferring the superimposed colored toner images onto a recording material.

5,729,810

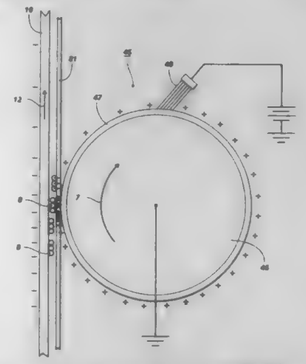
OVERCOATED TRANSFER ROLLER FOR TRANSFERRING DEVELOPED IMAGES FROM ONE SURFACE TO ANOTHER

Richard F. Bergen, Ontario, and Amy M. Opela, Penfield, both of N.Y., assignors to Xerox Corporation, Stamford, Conn.

Continuation-in-part of Ser. No. ,208, Jan. 22, 1993, abandoned. This application Jun. 7, 1995, Ser. No. 479,237

Int. Cl.[6] G03G *15/16*

U.S. Cl. 399—313 **31 Claims**



1. An apparatus for transferring a developed image from a moving charge retentive surface to a moving copy sheet at a transfer nip, including:

non-pivotable, biasable grounded transfer roller means fixedly positioned in a predetermined relationship with respect to the charge retentive surface for charging the copy sheet to attract the developed image from the photoconductive surface to the copy sheet, said transfer roller means having a core member and an insulating overcoating material positioned on said core member; and

means for charging said transfer roller means by contact therewith without generating and maintaining current in pre-transfer nip, transfer nip or post-transfer nip regions, thereby

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transferring charges that migrate through the copy sheet to enable transfer of the developed image to the copy sheet, said means for charging said transfer roller means being positioned at a point removed from where transfer of the developed images occurs.

5,729,811

CONTACT TRANSFER DEVICE AND IMAGE FORMING EQUIPMENT

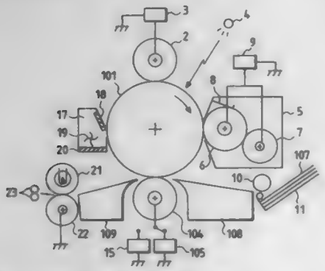
Toshiya Takahata; Tatsuro Ohsawa; Yasuhito Hirashima, and Yoshiro Koga, all of Nagano, Japan, assignors to Seiko Epson Corporation, Tokyo, Japan

Division of Ser. No. 322,427, Oct. 13, 1994, Pat. No. 5,563,693. This application Apr. 26, 1996, Ser. No. 638,052

Claims priority, application Japan, Oct. 13, 1993, 5-256061; Oct. 15, 1993, 5-258760; Jul. 25, 1994, 6-172690

Int. Cl.[6] G03G *15/16*

U.S. Cl. 399—316 **4 Claims**



1. Image forming equipment, comprising:

a latent image carrier; and

a transfer member, contactable with said latent image carrier, having a bias used to transfer a toner from said latent image carrier to a recording member located between said latent image carrier and said transfer member to thereby form an image at a given process speed; and

a constant current supply source for applying the bias to said transfer member;

wherein, when a resistance value of each member, other than said transfer member, contactable with said recording member in contact transfer is expressed as R' (Ω), and said process speed is expressed as V_p (mm/s), the following relationship is satisfied:

$$R' \geq 2.4 \times 10^{10} / V_p$$

5,729,812

HEAT AND PRESSURE FUSER UTILIZING RIGID ROLLS AND BELTS TO FORM AN EXTENDED CONTACT ZONE BETWEEN THE BELTS INCLUDING PREHEAT AND PRESSURE ZONES

Rabin Moser, Victor, N.Y., assignor to Xerox Corporation, Stamford, Conn.

Filed Oct. 2, 1996, Ser. No. 720,640

Int. Cl.[6] G03G *15/20*

U.S. Cl. 399—329 **7 Claims**

1. A heat and pressure fuser apparatus, said apparatus comprising:

a first pair of rigid rolls:

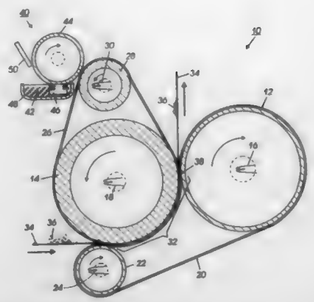
a first belt structure entrained about said first pair of rigid rolls;

a second pair of rigid rolls;

a second belt structure entrained about said second pair of rigid rolls;

means for heating said first and second belts;

said first and second pairs of rolls and said and said first and second belt structures being supported such that a roll of one of said first and second pairs of rolls is pressure engaged, through both of said belts, with each roll of another pair of said first and second pairs of rolls to thereby form an extended contact zone including a preheat zone and a pressure zone.



5,729,813

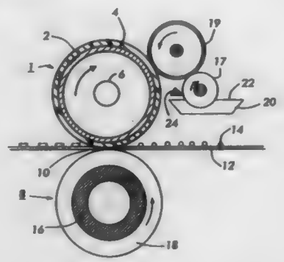
THIN, THERMALLY CONDUCTIVE FLUOROELASTOMER COATED FUSER MEMBER

Clifford O. Eddy, Webster; Louis D. Fratangelo, Fairport; George J. Heeks, Rochester; Arnold W. Henry, Pittsford; Alan R. Kuntz, Webster; Rabin Moser, Victor; David Battat, Rochester; Samuel Kaplan, Walworth; Santokh S. Badesha, Pittsford; Che Chung Chow, Penfield; David H. Pan, Rochester; David J. J. Fraser, and Yu-Hsing Chin, both of Webster, all of N.Y., assignors to Xerox Corporation, Stamford, Conn.

Continuation-in-part of Ser. No. 411,199, Mar. 27, 1995, abandoned. This application Dec. 13, 1995, Ser. No. 572,212

Int. Cl.[6] G03G *15/20*

U.S. Cl. 399—333 **13 Claims**



1. A thermally conductive fuser member comprising base member and a surface layer, wherein said surface layer comprises a fluoroelastomer and an alumina filler having an average particle size of from about 0.5 to about 15 micrometers, said alumina being present in an amount of from about 30 to about 55 parts by weight per 100 parts by weight of said fluoroelastomer, to provide a thermal conductivity of at least about 0.24 watts/meter °Kelvin in said surface layer.

5,729,814

HEATING ROLLER FOR FIXATION AND METHOD FOR FABRICATING SAME

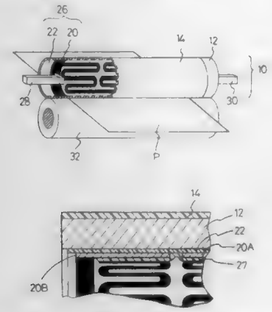
Makoto Suzuki, and Takemi Yamamoto, both of Nagoya, Japan, assignors to Brother Kogyo Kabushiki Kaisha, Nagoya, Japan

Filed May 10, 1996, Ser. No. 644,262

Claims priority, application Japan, May 12, 1995, 7-114413

Int. Cl.[6] G03G *15/20*

U.S. Cl. 399—333 **17 Claims**



1. A heating roller for heating and fixing toner attached to a recording medium, comprising:

a cylindrical roller having an inner surface;

a heat-resistant resin sheet arranged inside said cylindrical roller;

a resistance heating element formed on said heat-resistant resin sheet at one side thereof; and

an expandable pressing member for fixing said heat-resistant resin sheet and said resistance heating element integrally onto the inner surface of said cylindrical roller.

5,729,815

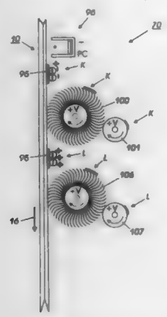
CORRECT BRUSH BIAS POLARITY FOR SINGLE AND DUAL ESB CLEANERS WITH TRIBOELECTRIC NEGATIVE TONERS

Nero R. Lindblad, Ontario; Christopher W. Curry, and Darryl L. Pozzanghera, both of Rochester, all of N.Y., assignors to Xerox Corporation, Stamford, Conn.

Filed Mar. 27, 1996, Ser. No. 622,978

Int. Cl.[6] G03G *21/00*

U.S. Cl. 399—354 **10 Claims**



1. An apparatus for removing charged triboelectric negative particles from a surface, the surface being capable of movement, comprising:

a preclean corotron having a first bias of negative charge; and

a first cleaning means comprising a first conductive brush for cleaning the charged triboelectric negative particles from the surface, having a second bias different from said first bias of said preclean corotron;

a second means of cleaning the charged triboelectric negative particles from the surface, having said second bias, said second cleaning means being located downstream from said first cleaning means, in the direction of motion of the surface; and

a housing, said first cleaning means and said second cleaning means being partially enclosed therein.

5,729,816

SHEET CONVEY APPARATUS

Kazuhiro Matsumoto, Yokohama; Kenichi Suzuki, Isehara, and Hajime Nakajima, Tokyo, all of Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan

Filed Jul. 20, 1995, Ser. No. 504,787

Claims priority, application Japan, Jul. 25, 1994, 6-192941

Int. Cl.[6] G03G *21/00*; **B65H** *9/16*

U.S. Cl. 399—381 **13 Claims**



1. A sheet convey apparatus comprising:

a first pair of convey means at least one of which has a driving force and which are adapted to pinch and convey a sheet;

a second pair of convey means at least one of which has a driving force and which are adapted to pinch and convey the sheet, said second pair of convey means being disposed at a downstream side of and adjacent to said first pair of convey means; and

a third pair of convey means at least one of which has a driving force and which are adapted to pinch and convey the sheet, said third pair of convey means being disposed at a downstream side of and adjacent to said second pair of convey means,

wherein the sheet is conveyed by at least one of said first, second and third pair of convey means, and a conveying direction of said second pair of convey means is different from those of said first and third pair of convey means without being perpendicular to the conveying directions of either one of said first and third pairs of convey means, and

wherein each of said first pair of convey means, said second pair or convey means and said third pair of convey means is constructed so that any selected pair of convey means may be spacingly disposed so as not to be able to contribute to conveyance of said sheet.

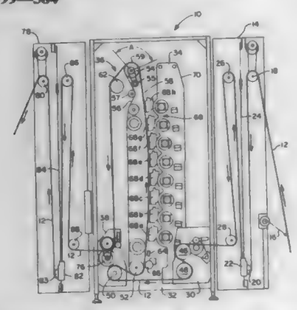
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5,729,817

ACCENT PRINTER FOR CONTINUOUS WEB MATERIAL

Michael W. Raymond, Bolton, and Damian P. Bianchi, Durham, both of Conn., assignors to Accent Color Sciences, Inc., East Hartford, Conn.

Filed Oct. 17, 1996, Ser. No. 732,936
Int. Cl.[6] G03G *15/00;* B41J *13/08*
U.S. Cl. 399—384 8 Claims



7. A method for transporting and printing on a continuous web comprising the steps:

placing the web on a conveyor belt;

moving the belt to define a transport path having a curvilinear print region and an arcuate portion having a radius less than said print region;

printing on said web at said print region;

removing said web from said belt at said arcuate portion of said transport path;

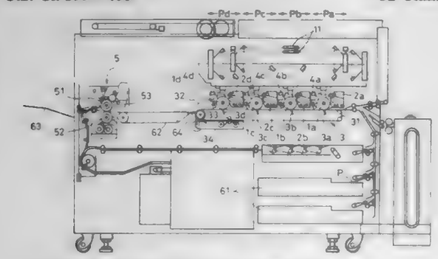
placing a tension on said web removed from said belt to define a capstan wrap of said web with said belt at said arcuate portion of said transport path wherein said tension of said web at said print region is greater than said tension in said removed web.

5,729,818

IMAGE FORMING APPARATUS HAVING A FIXING DEVICE AND A CONVEYER MEANS FOR CONVEYING A RECORDING MEMBER TO THE FIXING DEVICE

Jiro Ishizuka, Chiba, and Rie Saito, Yokohama, both of Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan

Filed Jul. 2, 1996, Ser. No. 674,736
Claims priority, application Japan, Jul. 7, 1995, 7-172069; May 20, 1996, 8-124626
Int. Cl.[6] G03G *15/00;15/20*
U.S. Cl. 399—400 32 Claims



18. An image forming apparatus, comprising:

unfixed image forming means for forming an unfixed image on a recording member conveyed at a first speed;

fixing means for fixing the unfixed image on the recording member; and

conveyor means for conveying the recording member to said fixing means.

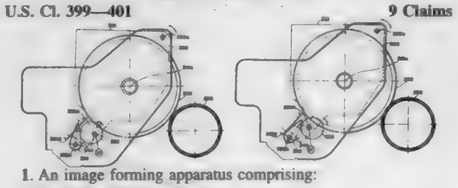
wherein said conveyor means selectively conveys the recording member at one of the first speed and a second speed which is faster than the first speed.

5,729,819

IMAGE FORMING APPARATUS

Kazunobu Maekawa, and Kuniaki Ishiguro, both of Toyokawa, Japan, assignors to Minolta Co., Ltd., Osaka, Japan

Filed Nov. 13, 1996, Ser. No. 748,403
Claims priority, application Japan, Nov. 13, 1995, 7-294309
Int. Cl.[6] G03G *21/00*
U.S. Cl. 399—401 9 Claims



1. An image forming apparatus comprising:

an image bearing member

a transfer sheet supporting member which supports a transfer sheet thereon so as to transfer an image to a surface of the transfer sheet by driving the transfer sheet supporting member in contact with the image bearing member;

separating means for separating the transfer sheet from the transfer sheet supporting member;

a fixing device for fixing an image formed on the transfer sheet separated from the transfer sheet supporting member;

a supply member for supplying a separation agent to the fixing device;

inverting means for inverting and retransporting the transfer sheet fixed toner image thereon to said transfer sheet supporting member;

a mechanism for making said image bearing member and said transfer sheet supporting member contact with or separate from each other; and

control means for controlling said mechanism to separate the transfer sheet supporting member from the image bearing member after an image has been transferred onto a rear surface of the transfer paper retransported by said inverting means.

5,729,820

METHOD AND APPARATUS FOR PRODUCING HIGH QUALITY GREETING CARDS OR THE LIKE

Feraydoon Shahjahan Jamzadeh, Fairport; James Raymond Flick, and David James Reed, both of Rochester, all of N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.

Filed Jun. 11, 1996, Ser. No. 661,675
Int. Cl.[6] G03G *21/00*
U.S. Cl. 399—407 30 Claims

1. A method for producing a high quality folded printed card, the method comprising:

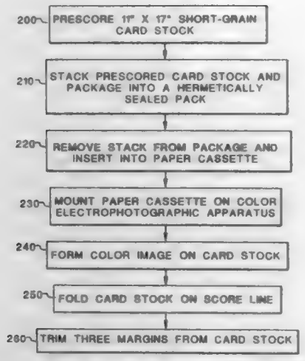
forming a toned electrostatographic image on an image supporting member of an electrostatographic recording apparatus;

feeding a discrete receiver sheet into engagement with the image supporting member for transfer of the image to the receiver sheet, the receiver sheet being of a card stock of the type having a weight of no less than 28# bond and having a pair of generally parallel first longer edges longer than a pair of generally parallel second shorter edges located generally perpendicular to the first edges, the grain of the sheet being in the grain short direction and the receiver sheet being fed into transfer relationship with the image supporting member by movement of the sheet in a direction coincident with the direction of the longer edges of the sheet, the receiver sheet including a score line which extends generally parallel to and intermediate the shorter edges to facilitate folding of the receiver sheet after formation of an image thereon;

transferring the image on the image supporting member to the receiver sheet;

fusing the image transferred to the receiver sheet; and

folding the receiver sheet or a portion thereof having a border area removed with a fold line being along the score line.

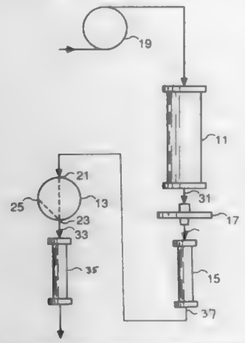


5,729,821

CONCENTRATION OF PERRHENATE AND PERTECHNETATE SOLUTIONS

Fern F. Knapp, Oak Ridge; Arnold L. Beets, Clinton; Saed Mirzadeh, Knoxville, all of Tenn., and Stefan Guhlke, Bonn, Germany, assignors to Lockheed Martin Energy Research Coirporation, Oak Ridge, Tenn.

Filed Dec. 10, 1996, Ser. No. 770,072
Int. Cl.[6] C01G *41/00*
U.S. Cl. 423—2 8 Claims



1. A method of preparing a concentrated solution of a carrier-free radioisotope comprising the steps of:

a. providing a generator column loaded with a composition containing a parent radioisotope;

b. eluting said generator column with an eluent solution comprising a salt of a weak acid to elute a target daughter radioisotope from said generator column in a first eluate;

c. eluting a cation-exchange column with said first eluate to exchange cations of said salt for hydrogen ions to form a weak acid and to elute said target daughter radioisotope and said weak acid in a second eluate;

d. eluting an anion-exchange column with said second eluate to trap and concentrate said target daughter radioisotope and to elute said weak acid solution therefrom; and

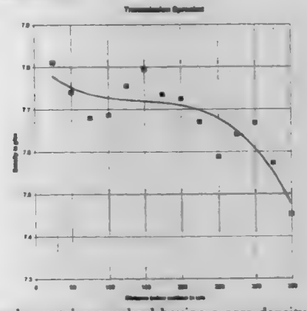
e. eluting said concentrated target daughter radioisotope from said anion-exchange column with a saline solution.

5,729,822

GEARS

Rohith Shivanath, and Peter Jones, both of Toronto, Canada, assignors to Stackpole Limited, Mississauga, Canada

Filed May 24, 1996, Ser. No. 653,044
Int. Cl.[6] B22F *5/08*
U.S. Cl. 428—551 7 Claims



1. A powder metal gear wheel having a core density of at least 7.3 g/cc and a hardened carburized surface.

5,729,823

CEMENTED CARBIDE WITH BINDER PHASE ENRICHED SURFACE ZONE

Per Gustafson, Huddinge, and Leif Åkesson, Älvsjö, both of Sweden, assignors to Sandvik AB, Sandviken, Sweden

Filed Mar. 14, 1996, Ser. No. 616,095
Claims priority, application Sweden, Apr. 12, 1995, 9501383
Int. Cl.[6] B22F *3/00*
U.S. Cl. 428—552 8 Claims

1. A cutting insert for machining of sticky work piece materials comprising a cemented carbide substrate with a binder phase enriched surface zone and a coating, said substrate comprising 6–14 atom-% Co binder phase, WC and a cubic carbonitride phase of W, 8–20 atom-% of Ti and at least one of the metals Ta and Nb, such that the Ti/(Ta+Nb) atomic ratio is >2 and that the nitrogen content of the carbonitride phase expressed as x in the formula, (Ti, Nb, Ta) (N_x, C_{1-x}), is >0.2 said binder phase enriched surface zone being essentially free of said cubic phase, the thickness of said binder phase enriched surface zone being 15–45 μm on a flat surface of said insert and 5–30 μm on the cutting edge.

5,729,824

DISTRIBUTED DIGITAL LOOP CARRIERS SYSTEM USING COAXIAL CABLE

John F. O'Neill; J. Mark Elder, both of Boulder, Colo.; Stephen H. Diaz, Palo Alto, Calif.; Joseph M. Carey, Longmont, Colo., and James A. Pinyan, Los Altos, Calif., assignors to Raychem Corporation, Menlo Park, Calif.

Filed Dec. 9, 1994, Ser. No. 353,541
Int. Cl.[6] H04N *7/10;7/14;* H04J *15/00;* H03H *7/46*
U.S. Cl. 455—3.1 26 Claims

1. A distributed digital loop (DDL) system providing video and telephone services to a plurality of subscribers, comprising:

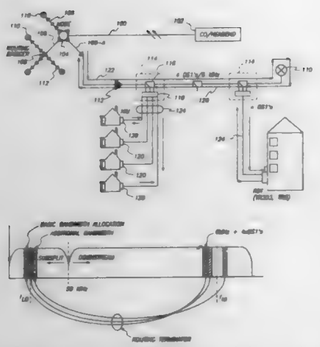
a plurality of taps placed at intervals along a coaxial cable carrying video and telephone signals, each one of said plurality of taps having a passive module coupled to an active distribution unit;

a routing terminator coupled at an end of said coaxial cable; and

a network interface unit located at a subscriber premises, said network interface unit coupling subscriber video and telephone equipment to said active distribution unit via a drop cable,

wherein, telephone signals travelling down toward said routing terminator pass through said plurality of taps, and are con-

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verted into low frequency telephone signals by said routing terminator for transmission back to said plurality of taps in a subsplit frequency channel of said coaxial cable.

5,729,825

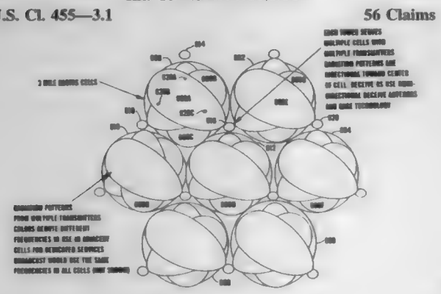
TELEVISION DISTRIBUTION SYSTEM AND METHOD USING TRANSMITTING ANTENNAS ON PERIPHERIES OF ADJACENT CELLS WITHIN A SERVICE AREA

Bruce Kostreski, Wheaton, Md., and Allan Schneider, Falls Church, Va., assignors to Bell Atlantic Network Services, Inc., Arlington, Va.

Continuation-in-part of Ser. No. 405,685, Mar. 17, 1995, Pat. No. 5,659,353. This application Mar. 24, 1995, Ser. No. 409,443

Int. Cl.[6] H04N *7/00;5/38*

U.S. Cl. 455—3.1 **56 Claims**



1. A system comprising:

a plurality of groups of spaced transmitting antennas disposed substantially on the peripheries of adjacent cells within a service area;

each of said transmitting antennas being directional and directed to propagate substantially simulcast broadband signals in a first directional pattern into at least the cell bounded by the periphery with which the antenna is associated;

the propagation patterns of the transmitting antennas of a cell with whose periphery they are associated being of a shape and extent so as to overlap over substantially a major portion of the area enclosed within said periphery;

plural receivers in each of multiple cells receiving multiple time separated versions of said broadband signals and having a signal processing device processing said versions of said broadband signals to provide a substantially single output signal; and

display devices connected to receive said substantially single output signal and provide a sensorially perceptible display corresponding to at least a portion of said substantially single output signal.

5,729,826

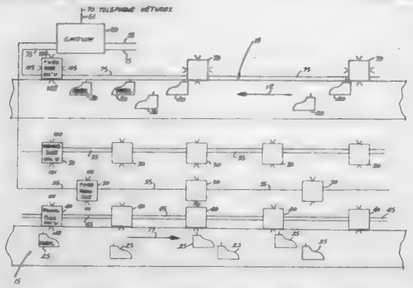
MOBILE COMMUNICATION SYSTEM WITH MOVING BASE STATION

Charles D. Gavrilovich, 7 S. 533 Plainfield Rd., Naperville, Ill. 60540

Filed Jul. 26, 1996, Ser. No. 687,722

Int. Cl.[6] H04B *7/26;* **H04Q** *7/22*

U.S. Cl. 455—11.1 **38 Claims**



1. Interface apparatus for establishing signal connections between a telephone office connected to a telephone network and mobile telephone units transmitting radio signals and moving in a specified direction, the interface apparatus comprising:

a stationary interface unit connected to the telephone office via a signal transmission connection;

a plurality of spaced apart movable base stations, each of the movable base stations uniquely associated with the telephone office and supported on a conveying device for limited movement in the specified direction independent of movement of the mobile telephone units and within an area defined relative to the stationary interface, the movable base stations each having an associated geographical service area defined relative to the stationary interface and operative to perform a plurality of call handling functions relative to mobile units in the associated geographical service area, the movable base stations each responsive to radio signals transmitted by the mobile telephone units to transmit corresponding radio signals to the stationary interface unit and the stationary interface unit responsive to the radio signals transmitted from the movable base stations to transmit signals corresponding to the signals transmitted from the movable base stations to the telephone office via the signal transmission connection.

5,729,827

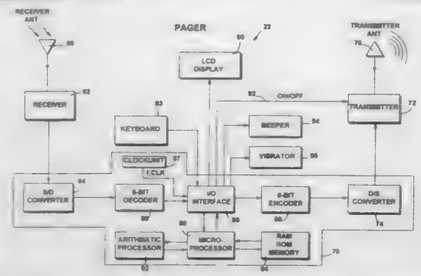
PAGER WITH STATION SWITCH REQUEST

Gabriel K. Y. Wong, and Po S. Tsui, both of Honolulu, Hi., assignors to Digicomm, Ltd., Central, Hong Kong

Division of Ser. No. 264,973, Jun. 24, 1994, Pat. No. 5,542,115. This application Feb. 29, 1996, Ser. No. 608,629

Int. Cl.[6] H04B *7/12*

U.S. Cl. 455—31.3 **5 Claims**



1. A two-way paging unit capable acquiring radio communication with a control station, the paging unit comprising:

a first receiver for receiving a clock-modulated first frequency transmitted by the control station;

a clocking unit and a clock alignment circuit which aligns the clocking unit with the clock-modulated first frequency;

a second receiver which receives a second frequency, the second frequency being at least intermittently modulated to include station identifying information which identifies the control station;

a processor which determines if the station identifying information received by the processor has changed and which, upon determination of such change, generates a station switch request signal, the station switch request signal including a frame of information comprising a plurality of time divided slots related to the clock-modulated first frequency, and wherein one of the plurality of time slots is selected by the processor as a time slot to be at least temporarily associated with the paging unit;

a transmitter for transmitting the station switch request signal to the central station.

5,729,828

FREQUENCY PROCESSING CIRCUIT WITH LOWER SIDEBAND SUPPRESSION AND EMPHASIS

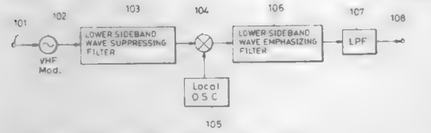
Makoto Goda, and Shinichi Yamashita, both of Yokohama, Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan

Continuation of Ser. No. 586,141, Sep. 21, 1990, abandoned. This application Mar. 7, 1994, Ser. No. 206,271

Claims priority, application Japan, Oct. 2, 1989, 1-258351

Int. Cl.[6] H04B *7/00*

U.S. Cl. 455—43 **12 Claims**



8. A signal processing apparatus comprising:

(a) a first means for converting an input first frequency signal into a second frequency signal;

(b) a second means, coupled to an input of said first means, for suppressing a lower sideband portion in said first frequency signal; and

(c) a third means, coupled to an output of said first means, for emphasizing frequency elements corresponding to said lower sideband portion suppressed by said second means, said third means emphasizing the suppressed lower sideband portion relatively more than unsuppressed frequency elements.

5,729,829

INTERFERENCE MITIGATION METHOD AND APPARATUS FOR MULTIPLE COLLOCATED TRANSCEIVERS

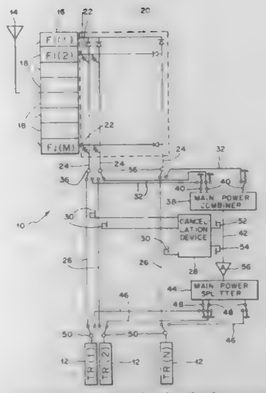
Ashok Kumar Talwar, Westlake Village, and Barry Francis Fitzgerald, Agoura Hills, both of Calif., assignors to American Nucleonics Corporation, Westlake Village, Calif.

Filed Feb. 29, 1996, Ser. No. 609,042

Int. Cl.[6] H04B *15/02*

U.S. Cl. 455—63 **12 Claims**

1. Apparatus for mitigating interference between a plurality of collocated radio transceivers operating through a common antenna,



at least some of said transceivers having both a transmit mode and a receive mode, said apparatus comprising:

(a) a filter bank having a plurality of filters, said filter bank being electrically coupled to said common antenna, each of said plurality of filters corresponding to one of a plurality of desired operating frequency bands;

(b) a switch matrix having a plurality of first ports electrically connected to said plurality of filters and a plurality of second ports corresponding to said plurality of transceivers, each of said plurality of second ports being capable of selective electrical interconnection with each of said plurality of first ports, whereby at least one of said plurality of second ports may be electrically interconnected with said common antenna through at least one of said plurality of filters of said filter bank, for at least one of transmission and reception in the desired frequency band to which said filter corresponds;

(c) a plurality of transmission path pairs for selective electrical interconnection of said plurality of transceivers and said plurality of corresponding second ports, at least one of said plurality of transmission path pairs including a transmitted signal transmission line and a received signal transmission path, each of said transceivers being connected to its corresponding switch matrix second port through said transmitted signal transmission line when in transmit mode and through said received signal transmission path when in receive mode; and

(d) a cancellation device, said cancellation device being electrically coupled to each of said transmitted signal transmission lines of said plurality of transmission path pairs for receipt of a transmitted signal sample from each of said plurality of transceivers that is operating in said transmit mode, said cancellation device being electrically coupled to said received signal transmission paths of said plurality of transmission path pairs for both receipt of a received signal sample and injection of an interference cancellation signal, said received signal sample having an interference portion and a non-interference portion, said cancellation device being responsive to said transmitted signal samples and said received signal sample and generating in response thereto said interference cancellation signal, said interference cancellation signal having substantially the same frequency and amplitude as said interference portion of said received signal sample, said interference cancellation signal being substantially 180° out-of-phase with said interference portion of said received signal sample.

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DESIGNS

GRANTED March 17, 1998

ERRATA

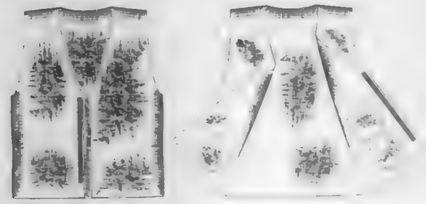
For CLASS	See PATENT NO.
D25–114	D392,385

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392,085
REAR SAGGING DOUBLE PANTS WITH POUCH
James Head, 1627 D. St., Apt. 1, Hayward, Calif. 94541; Thurston Bilal, 6253 Hollywood Blvd., #914, Hollywood, Calif. 90026, and Robert Lee Rodgers, 37053 Cherry Ct., RLR 208E, Newark, Calif. 94560
Continuation-in-part of Ser. No. 23,935, Jun. 3, 1994. This application Sep. 29, 1995, Ser. No. 46,557
Term of patent 14 years
LOC (6) Cl. 02 - *02*
U.S. Cl. D2—742



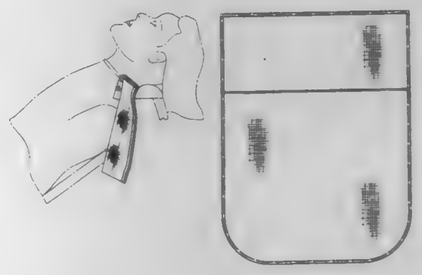
392,086
POCKETED SECURITY I.D. UNDERGARMENT
Virginia Bostick-McZeno, 1446 N. Alta Ave., Upland, Calif. 91786-2813
Filed Mar. 19, 1997, Ser. No. 68,046
Term of patent 14 years
LOC (6) Cl. 02 - *02*
U.S. Cl. D2—830



392,087
MULTI-COMPARTMENTED SKIRT
Linda Stokes, 20010 Calvert St., Woodland Hills, Calif. 91367
Filed Oct. 11, 1995, Ser. No. 45,166
Term of patent 14 years
LOC (6) Cl. 02 - *02*
U.S. Cl. D2—851

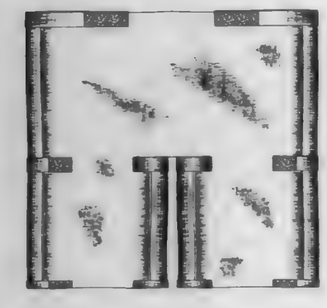


392,088
RINSE GUARD
Marc Giaquinto, 22 High Ridge Rd., Ellington, Conn. 06029
Filed Mar. 19, 1997, Ser. No. 68,240
Term of patent 14 years
LOC (6) Cl. 02 - *02*
U.S. Cl. D2—860



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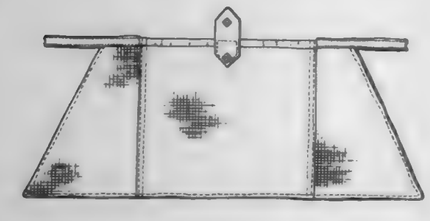
392,089
WATERPROOF SHIELD FOR THE BACKSIDE OF A SKIER
Thomas E. Draper, 1446 9th St., Clarkston, Wash. 99403
Filed Mar. 3, 1997, Ser. No. 67,428
Term of patent 14 years
LOC (6) Cl. 02 - *02*
U.S. Cl. D2—861



392,091
SHOE SOLE
Norio Takaoka, and Riho Murayama, both of Kobe, Japan, assignors to Asics Corporation, Japan
Filed Sep. 22, 1995, Ser. No. 44,316
Term of patent 14 years
LOC (6) Cl. 02 - *04*
U.S. Cl. D2—954



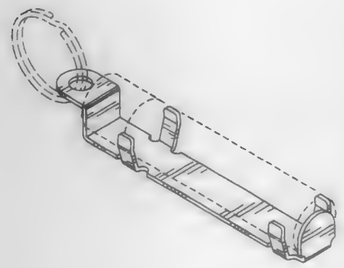
392,090
ATTACHMENT FOR A CAP
Lyne Monkhouse, 140 McKee Ave., North York, Ontario, Canada, M2N 4C4, and Joanne Nicol, 89 Olive Ave., North York, Ontario, Canada, M2N 4N9
Division of Ser. No. 44,713, Sep. 29, 1995, Pat. No. Des. 381,191. This application Dec. 31, 1996, Ser. No. 64,410
Claims priority, application Canada, Mar. 31, 1995, 1995-0726
Term of patent 14 years
LOC (6) Cl. 02 - *03*
U.S. Cl. D2—891



392,092
SIDE ELEMENT OF A SHOE UPPER
Aaron Alexander Cooper, Portland, Oreg., assignor to Nike, Inc., Beaverton, Oreg.
Filed May 31, 1996, Ser. No. 55,180
Term of patent 14 years
LOC (6) Cl. 02 - *94*
U.S. Cl. D2—972



392,093
VIAL HOLDER
James R. Dierking, Portland, Oreg., assignor to Liberty Natural Products, Inc., Portland, Oreg.
Filed Sep. 3, 1996, Ser. No. 59,657
Term of patent 14 years
LOC (6) Cl. 03 - *01*
U.S. Cl. D3—208



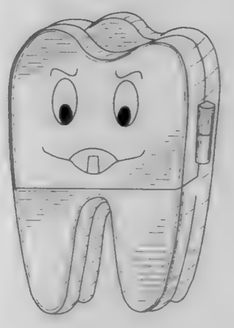
392,095
BOTTLE BAG
D. Lee Myers, 2120 Larkin St., #202, San Francisco, Calif. 94109, and Erika Meyerovich, 942 W. California St., Mill Valley, Calif. 94941
Filed Jun. 19, 1996, Ser. No. 56,016
Term of patent 14 years
LOC (6) Cl. 03 - *01*
U.S. Cl. D3—229



392,094
COMPUTER PACK
Jenai K. Lane, 2790 Pine St., #3, San Francisco, Calif. 94115
Continuation-in-part of Ser. No. 57,971, Aug. 5, 1996. This application Sep. 13, 1996, Ser. No. 59,586
Term of patent 14 years
LOC (6) Cl. 03 - *01*
U.S. Cl. D3—217

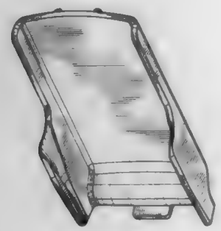


392,096
COMPARTMENT FOR A TOOTH, COIN OR CURRENCY
Barbara T. De Sapio, and Fred P. De Sapio, both of 2112 Algeria St. NE., Palm Bay, Fla. 32905
Filed Feb. 26, 1996, Ser. No. 50,804
Term of patent 14 years
LOC (6) Cl. 03 - *01*
U.S. Cl. D3—271

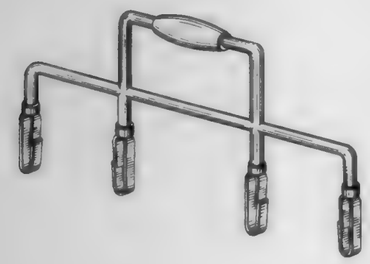


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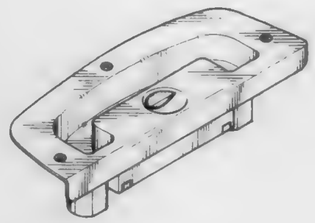
392,097
COMMUNICATION EQUIPMENT HOLDER
James V. Pottala, Ft. Lauderdale; Eduardo J. Marabotto, Miami, and Scott H. Richards, Plantation, all of Fla., assignors to Motorola, Inc., Schaumburg, Ill.
Filed Dec. 26, 1996, Ser. No. 64,278
Term of patent 14 years
LOC (6) Cl. 03 - *01*
U.S. Cl. D3—218



392,098
HANGER
Jack Finkelman, 26-10 Union St., Flushing, Queens, N.Y. 11354
Filed Jan. 14, 1997, Ser. No. 64,910
Term of patent 14 years
LOC (6) Cl. 03 - *01*
U.S. Cl. D3—315



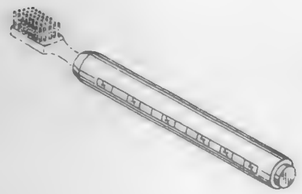
392,099
HANDLE RECEIVING BRACKET FOR A SUITCASE
Jin-Jiao Wang, No. 18, Lane 116, Ta An Gan Rd., Tachia Chen, Taichung Hsien, Taiwan
Filed Mar. 25, 1997, Ser. No. 68,597
Term of patent 14 years
LOC (6) Cl. 03 - *99*
U.S. Cl. D3—318



392,100
HANDLE END OF THE CARRYING CASE
Joe Kipton Pohlman, Los Angeles, Calif., assignor to Mattel, Inc., El Segundo, Calif.
Filed Oct. 30, 1996, Ser. No. 61,765
Term of patent 14 years
LOC (6) Cl. 03 - *99*
U.S. Cl. D3—323



392,101
COMBINED TOOTHBRUSH HANDLE WITH WINDOW AND TOOTHPASTE DISPENSER
Mauricio Garcia Travesi, 4209 Oak Lawn, Suite 207, Dallas, Tex. 75219
Filed Jul. 3, 1996, Ser. No. 56,605
Term of patent 14 years
LOC (6) Cl. 04 - *02*
U.S. Cl. D4—114



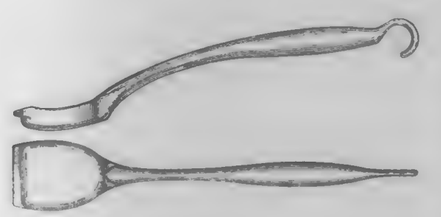
392,102
ARTICULATED ARM WITH INTERNAL FEED AND EDGE GUIDE FOR A PAINT ROLLER UNIT
Mark E. Snetting; Steven A. Anderson, both of Eden Prairie; Richard C. Schoenert, Hopkins, and Neil T. Amundson, Eden Prairie, all of Minn., assignors to Wagner Spray Tech Corporation, Minneapolis, Minn.
Filed Aug. 9, 1996, Ser. No. 58,169
Term of patent 14 years
LOC (6) Cl. 08 - *05*
U.S. Cl. D4—122



392,103
REEFER TRAILER BROOM
Matthew Zaccheria, P.O. Box 1202, Rising Sun, Md. 21911
Filed Jul. 21, 1997, Ser. No. 73,297
Term of patent 14 years
LOC (6) Cl. 04 - *01*
U.S. Cl. D4—132



392,104
LONG SCRUB BRUSH HANDLE
Enzo Berti, Venice, Italy, assignor to The Libman Company, Arcola, Ill.
Filed Sep. 27, 1996, Ser. No. 60,400
Term of patent 14 years
LOC (6) Cl. 04 - *01*
U.S. Cl. D4—138

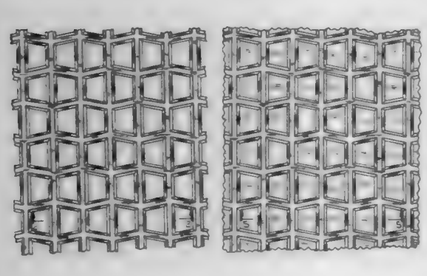


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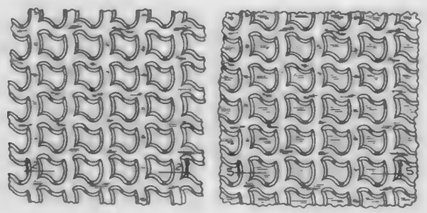
392,105
CAMOUFLAGE FABRIC
David W. Goforth, 17328 Brittle Rd., Brooksville, Fla. 34601
Filed Jan. 17, 1997, Ser. No. 65,440
Term of patent 14 years
LOC (6) Cl. 05 - *05*
U.S. Cl. D5—32



392,106
PORTION OF A PATTERNED FILM
Paul E. Thomas, Terre Haute, Ind., assignor to Tredegar Industries, Inc., Richmond, Va.
Filed Dec. 2, 1996, Ser. No. 63,206
Term of patent 14 years
LOC (6) Cl. 05 - *06*
U.S. Cl. D5—53



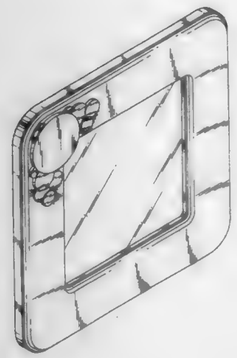
392,107
PORTION OF A PATTERNED FILM
Paul E. Thomas, Terre Haute, Ind., assignor to Tredegar Industries, Inc., Richmond, Va.
Filed Dec. 2, 1996, Ser. No. 63,208
Term of patent 14 years
LOC (6) Cl. 05 - *06*
U.S. Cl. D5—53



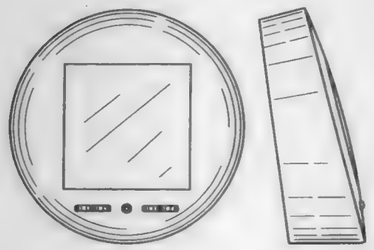
392,108
PORTION OF A SHEET OF PAPER TOWELING
John J. Diggins, Palatka, and Bernard E. Dodge, Satsuma, both of Fla., assignors to Georgia-Pacific Corporation, Atlanta, Ga.
Filed Sep. 30, 1996, Ser. No. 60,483
Term of patent 14 years
LOC (6) Cl. 05 - *06*
U.S. Cl. D5—57



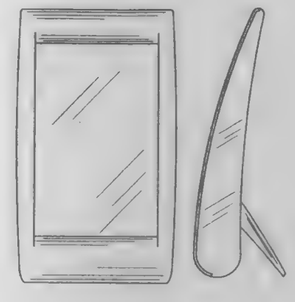
392,109
BATH MIRROR
Gail B. Frankel, Dallas, Tex., assignor to Kel-Gar, Inc., Dallas, Tex.
Filed Feb. 25, 1997, Ser. No. 66,829
Term of patent 14 years
LQC (6) Cl. 06 - *07*
U.S. Cl. D6—300



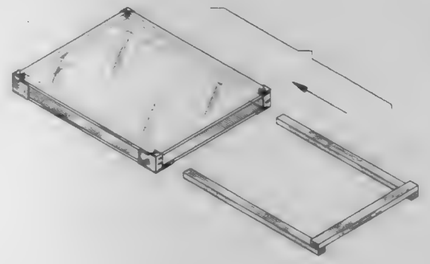
392,110
PHOTO/PICTURE FRAME
Chi Fai Tsui, Chai Wan, Hong Kong, assignor to Magnum Industries Limited, Hong Kong
Filed Mar. 17, 1997, Ser. No. 68,724
Claims priority, application United Kingdom, Oct. 3, 1996, 2059822
Term of patent 14 years
LOC (6) Cl. 06 - *07*
U.S. Cl. D6—309



392,111
PHOTO FRAME
Chi Fai Tsui, Chai Wan, Hong Kong, assignor to Magnum Industries Limited, Kowloon, Hong Kong
Filed Dec. 2, 1996, Ser. No. 62,907
Claims priority, application United Kingdom, Jun. 3, 1996, 2056741
Term of patent 14 years
LOC (6) Cl. 06 - *07*
U.S. Cl. D6—310



392,112
PICTURE FRAME FOR MOUNTING ON THE CEILING
Jerome Cynkar, and Adele D. Cynkar, both of 4291 Hawk Trail, Deforest, Wis. 53532
Filed Feb. 14, 1997, Ser. No. 66,544
Term of patent 14 years
LOC (6) Cl. 06 - *07*
U.S. Cl. D6—314

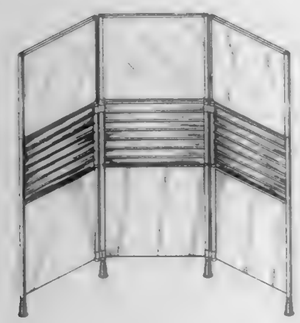


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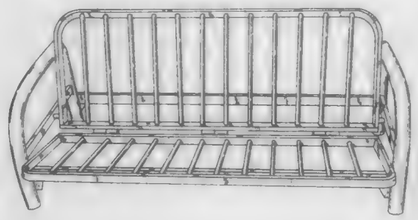
392,113
GARMENT HANGER
Stanley F. Gouldson, Northport, N.Y., assignor to Spotless Plastics Pty. Ltd., Victoria, Australia
Filed May 9, 1996, Ser. No. 54,319
Term of patent 14 years
LOC (6) Cl. 06 - *08*
U.S. Cl. D6—326



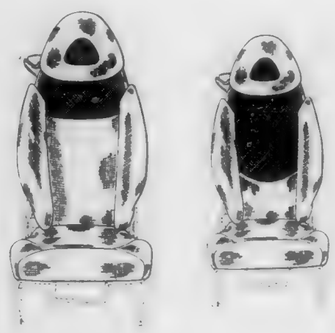
392,114
UPRIGHT SPACE DIVIDING SCREEN
Clarkson S. Thorp, Wayland; Robert C. Weener, and Wayne B. Miedema, both of Holland, all of Mich., assignors to Haworth, Inc., Holland, Mich.
Division of Ser. No. 39,980, Jun. 7, 1995, Pat. No. Des. 382,122. This application Jan. 14, 1997, Ser. No. 64,926
Term of patent 14 years
LOC (6) Cl. 06 - *01*
U.S. Cl. D6—332



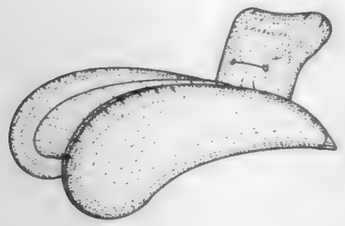
392,115
JUVENILE FUTON BED/COUCH FRAME
Richard D. Olender, 6416 Scheel Dr., Woodbury, Minn. 55125
Filed Jul. 1, 1997, Ser. No. 72,839
Term of patent 14 years
LOC (6) Cl. 06 - *01*
U.S. Cl. D6—335



392,116
SEAT FOR A VEHICLE
Johann Tomforde, Sindelfingen; Jans Manske, Weil der Stadt, and Olivier de Vries, Stuttgart, all of Germany, assignors to MC Micro Compact Car, Biel, Switzerland
Continuation-in-part of Ser. No. 63,381, Dec. 6, 1996. This application May 8, 1997, Ser. No. 70,480
Term of patent 14 years
LOC (6) Cl. 06 - *01*
U.S. Cl. D6—356



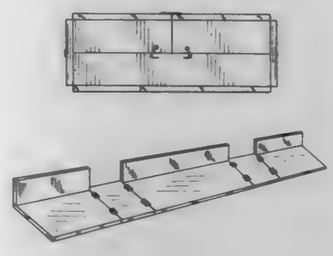
392,117
CHAISE LOUNGE
Rick C. Lee, San Francisco, Calif., assignor to American West Furniture Manufacturers, Inc., Santa Clara, Calif.
Filed Apr. 9, 1997, Ser. No. 69,376
Term of patent 14 years
LOC (6) Cl. 06 - *01*
U.S. Cl. D6—361



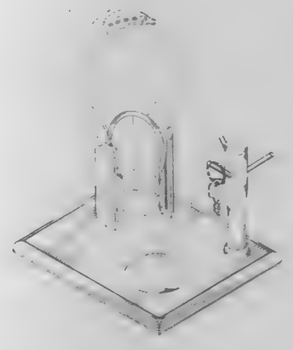
392,118
GARDEN CHAIR
Camillo Proserpio, Como, Italy, assignor to Progarden S.p.A., Como, Italy
Filed Jan. 6, 1997, Ser. No. 64,560
Claims priority, application Hague Agreement, Sep. 26, 1996, DM/037654
Term of patent 14 years
LOC (6) Cl. 06 - *01*
U.S. Cl. D6—369



392,119
TOY STORAGE AND DISPLAY BOX
Elaine F. Montoya, 26311 Cascade St., Hayward, Calif. 94544
Filed Nov. 22, 1996, Ser. No. 63,040
Term of patent 14 years
LOC (6) Cl. 06 - *04*
U.S. Cl. D6—397



392,120
COMBINATION ORGANIZER AND BASEBALL-CAP SHAPER
Joseph E. DaSilva, 142 Pleasant St., Seekonk, Mass. 02877
Filed Jul. 15, 1997, Ser. No. 73,673
Term of patent 14 years
LOC (6) Cl. 06 - *04*
U.S. Cl. D6—412

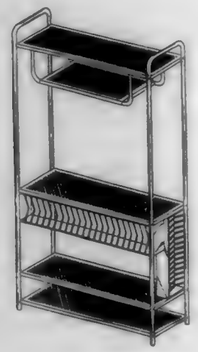


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392,121
SHELF UNIT WITH CABINET
John Robert Newkirk, Bonita Springs, Fla., and Paul Henry Winter, Wilmington, Del., assignors to Zenith Products Corporation, New Castle, Del.
Filed Aug. 29, 1996, Ser. No. 58,944
Term of patent 14 years
LOC (6) Cl. 06 - *04*
U.S. Cl. D6—437



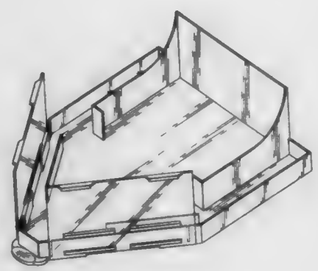
392,122
STAND
Pan Peng-Hui, P.O. Box 453, Taichung, Taiwan
Filed Apr. 23, 1997, Ser. No. 69,010
Term of patent 14 years
LOC (6) Cl. 06 - *04*
U.S. Cl. D6—465



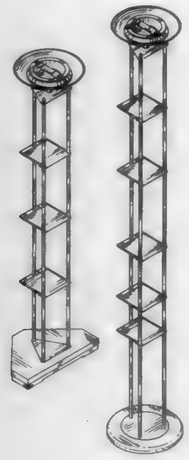
392,123
STAND FOR A STRINGED INSTRUMENT
Peter A. Lynch, 43 Belcher Rd., Blairstown, N.J. 07825
Filed Feb. 8, 1996, Ser. No. 50,118
Term of patent 14 years
LOC (6) Cl. 06 - *06*
U.S. Cl. D6—466



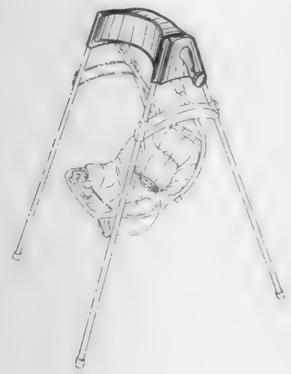
392,124
STORING AND DISPLAY CONTAINER
Walter M. Poterbin, Santa Cruz, Calif., assignor to Santa Cruz Industries, Santa Cruz, Calif.
Filed Mar. 25, 1997, Ser. No. 68,505
Term of patent 14 years
LOC (6) Cl. 06 - *04*
U.S. Cl. D6—475



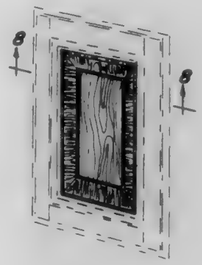
392,125
STORAGE AND DISPLAY STAND
Shahriar Dardashti, c/o Atlantic Representations, Inc., P.O. Box 2399, Santa Fe Springs, Calif. 90670
Division of Ser. No. 50,639, Feb. 20, 1996. This application Aug. 6, 1996, Ser. No. 58,034
Term of patent 14 years
LOC (6) Cl. 06 - *04*
U.S. Cl. D6—479



392,126
HOUSING FOR A CHILD SWING MOTOR
James A. Sack, Elverson, Pa., assignor to Graco Children's Products Inc., Elverson, Pa.
Filed Nov. 9, 1995, Ser. No. 46,240
Term of patent 14 years
LOC (6) Cl. 06 - *06*
U.S. Cl. D6—491



392,127
FURNITURE PANEL
Michael J. Paus, High Point, N.C., assignor to Universal Furniture Industries, Inc., High Point, N.C.
Continuation of Ser. No. 36,515, Mar. 21, 1995, abandoned. This application Nov. 18, 1996, Ser. No. 62,555
Term of patent 14 years
LOC (6) Cl. 06 - *06*
U.S. Cl. D6—492



392,128
BAR STOOL LEG ASSEMBLY
Vittorio Infanti, 149 B. Disbrow Rd., Mattawan, N.J. 07747
Filed Apr. 21, 1997, Ser. No. 68,975
Term of patent 14 years
LOC (6) Cl. 06 - *06*
U.S. Cl. D6—495



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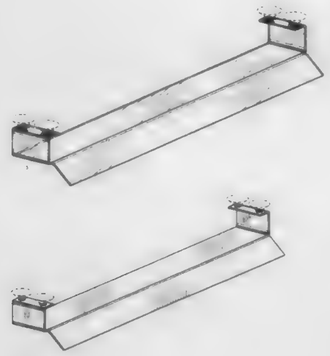
392,129
TOP PORTION OF A SPRING CORE
Thomas J. Wells, Carthage, Mo., assignor to L&P Property Management Company, Chicago, Ill.
Filed Mar. 15, 1996, Ser. No. 51,686
Term of patent 14 years
LOC (6) Cl. 06 - *06*
U.S. Cl. D6—504



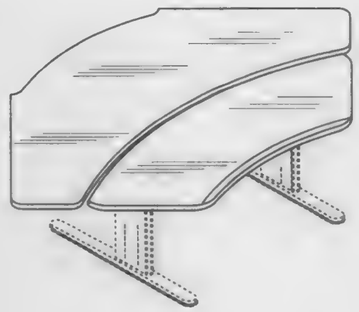
392,130
SET OF SHELVES WITH SLIDING TRACK FOR HANGING ORNAMENTS
Mary Wangler, Campbellsport, Wis., assignor to The Ashton-Drake Galleries, Niles, Ill.
Filed Sep. 13, 1996, Ser. No. 59,575
Term of patent 14 years
LOC (6) Cl. 06 - *04*
U.S. Cl. D6—511



392,131
REMOVABLE SHELF FOR A DISPLAY CASE
Douglas B. Flagg, West Linn, Oreg., assignor to Kai U.S.A., Ltd., Wilsonville, Oreg.
Filed Jan. 27, 1997, Ser. No. 65,379
Term of patent 14 years
LOC (6) Cl. 06 - *04*
U.S. Cl. D6—511



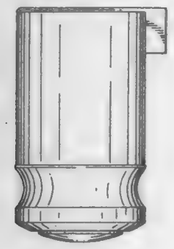
392,132
FURNITURE TOP
Stephen Barlow-Lawson, 129 W. 22nd, New York, N.Y. 10011
Filed Mar. 5, 1997, Ser. No. 67,381
Term of patent 14 years
LOC (6) Cl. 06 - *04*
U.S. Cl. D6—511



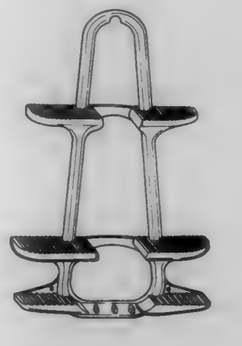
392,133
ROUND CEILING RACK
Chih-Hong Chen, No. 120, Tai Kang Tsun, Liu Ying Hsiang, Tainan Hsien, Taiwan
Filed Jun. 26, 1997, Ser. No. 72,939
Term of patent 14 years
LOC (6) Cl. 06 - *04*
U.S. Cl. D6—513



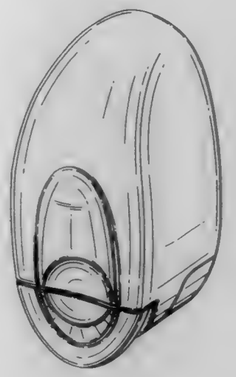
392,134
CUP DISPENSER
Frederick Hadtke, New Providence, and Jonathan E. Rush, Phillipsburg, both of N.J., assignors to James River Corporation, Richmond, Va.
Division of Ser. No. 50,985, Mar. 1, 1996, Pat. No. Des. 386,338. This application Jan. 22, 1997, Ser. No. 65,468
Term of patent 14 years
LOC (6) Cl. 07 - *06*
U.S. Cl. D6—516



392,135
SHOWER CADDY
Marlene Pagán-Demirtas, Brookhaven, Pa., and Timothy O'Hara, Delran, N.J., assignors to Zenith Products Corp., New Castle, Del.
Filed Sep. 17, 1996, Ser. No. 59,906
Term of patent 14 years
LOC (6) Cl. 07 - *07*
U.S. Cl. D6—525

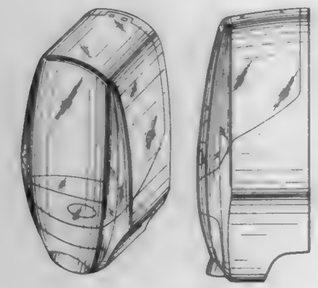


392,136
SOAP DISPENSER
Allan G. Ross, Masury; William E. Bartasevich, Kent, and Michael J. Maczuzak, Mentor, all of Ohio, assignors to GOJO Industries, Inc., Cuyahoga Falls, Ohio
Filed Apr. 7, 1997, Ser. No. 69,355
Term of patent 14 years
LOC (6) Cl. 23 - *02*
U.S. Cl. D6—542

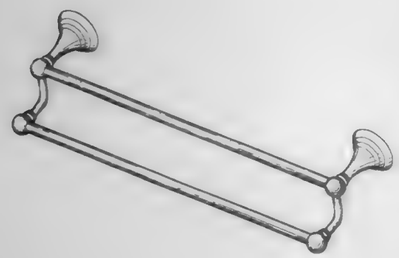


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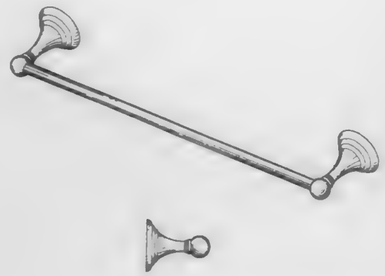
392,137
LIQUID SOAP DISPENSER
Eric Vignot, Paris, France, assignor to Laboratoires Prodene-Klint, Mitry Mory, France
Filed Mar. 25, 1997, Ser. No. 69,284
Claims priority, application Hague Agreement, Sep. 30, 1996, DM/037678
Term of patent 14 years
LOC (6) Cl. 07 - *07*
U.S. Cl. D6—545



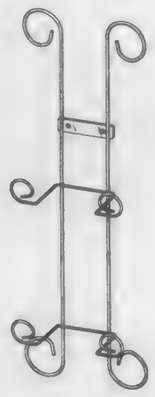
392,138
TOWEL RACK
Pauli Wu, 2F, 23 Shao-Hsing N. Rd., Taipei, Taiwan
Filed Apr. 11, 1997, Ser. No. 69,124
Term of patent 14 years
LOC (6) Cl. 07 - *06*
U.S. Cl. D6—549



392,139
TOWEL RACK
Pauli Wu, 2F, 23 Shao-Hsing N. Rd., Taipei, Taiwan
Filed Apr. 11, 1997, Ser. No. 69,125
Term of patent 14 years
LOC (6) Cl. 07 - *07*
U.S. Cl. D6—549



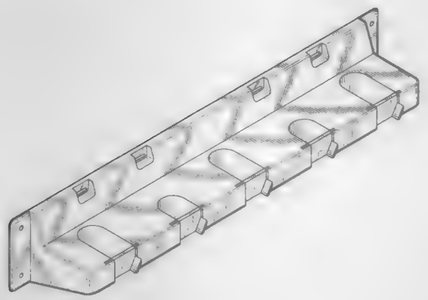
392,140
PLATE RACK
Sheldon H. Goodman, 30905 Stratford, Solon, Ohio 44139
Filed May 8, 1997, Ser. No. 70,438
Term of patent 14 years
LOC (6) Cl. 06 - *04*
U.S. Cl. D6—553



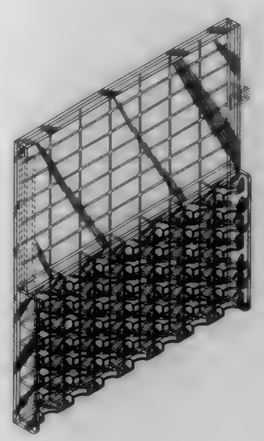
392,141
DESIGN FOR STAND FOR HANGING PLANTS
William J. Cavanaugh, P.O. Box 70, Canton Center, Conn. 06020
Filed May 8, 1997, Ser. No. 70,500
Term of patent 14 years
LOC (6) Cl. 11 - *02*
U.S. Cl. D6—556



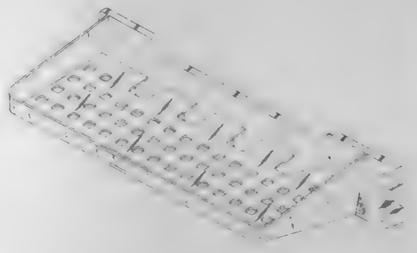
392,142
TOOL STORAGE RACK
James T. Weisburn, 902 Marion Ave. NW., Massillon, Ohio 44646; Craig Saunders, 21260 Stratford Ave., Rocky River, Ohio 44166; Dale A. Panasewicz, 15439 Sassafras, Strongsville, Ohio 44136, and Jeffrey M. Kalman, 1849 Cadwell Ave., Cleveland Heights, Ohio 44118
Filed Jan. 6, 1997, Ser. No. 64,549
Term of patent 14 years
LOC (6) Cl. 06 - *04*
U.S. Cl. D6—567



392,143
COMBINED BUSINESS CARD DISPLAY AND DISPENSING UNIT
Lorene Farrell, 2592 Fox Point Rd., Quinlan, Tex. 75474
Continuation-in-part of Ser. No. 37,917, Apr. 24, 1995. This application Oct. 30, 1996, Ser. No. 61,780
Term of patent 14 years
LOC (6) Cl. 20 - *02*
U.S. Cl. D6—570

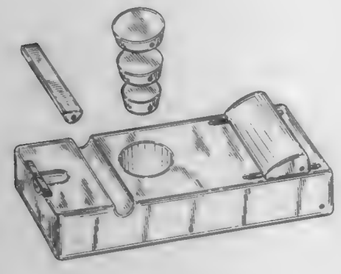


392,144
UTILITY SHELF
Michael R. Vogler, Aurora, Ill., assignor to Suncast Corporation, Batavia, Ill.
Filed Sep. 18, 1996, Ser. No. 59,925
Term of patent 14 years
LOC (6) Cl. 06 - *04*
U.S. Cl. D6—574

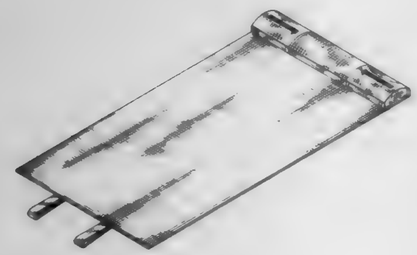


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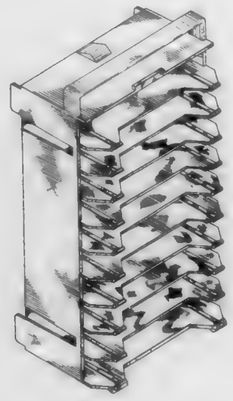
392,145
AIR MATTRESS FOR PREGNANT WOMEN
Diane Thurston, 10455 Oakdale Ave., Chatsworth, Calif. 91311
Filed Nov. 6, 1996, Ser. No. 62,074
Term of patent 14 years
LOC (6) Cl. 06 - *09*
U.S. Cl. D6—604



392,146
COMBINED BEACH TOWEL AND PILLOW
Kristopher W. Gregg, 713 Malo Ct., Simi Valley, Calif. 93065
Continuation-in-part of Ser. No. 22,118, May 2, 1994, abandoned. This application Jan. 11, 1996, Ser. No. 48,841
Term of patent 14 years
LOC (6) Cl. 06 - *13*
U.S. Cl. D6—608



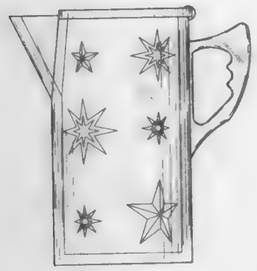
392,147
SIMPLIFIED TAPE CARTRIDGE RACK
William J. Gervais, Northridge; William J. Lurie, Jr., Calabasas, and Mark H. Helmick, Ventura, all of Calif., assignors to Qualstar Corporation, Canoga Park, Calif.
Filed Apr. 4, 1997, Ser. No. 68,907
Term of patent 14 years
LOC (6) Cl. 06 - *04*
U.S. Cl. D6—630



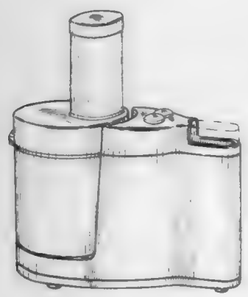
392,148
SPOON/STRAW COMBINATION
Stuart A. Lewis, Syosset, N.Y., assignor to High Point Accessories, Inc., New York, N.Y.
Filed Nov. 7, 1996, Ser. No. 62,099
Term of patent 14 years
LOC (6) Cl. 07 - *06*
U.S. Cl. D7—300.2



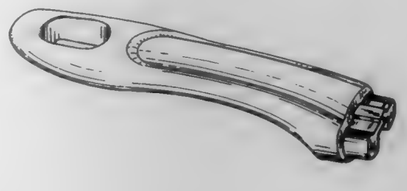
392,149
THERMAL PITCHER
Ted S. Smith, 42393 Heidersceit Rd., Holy Cross, Iowa 52053
Filed Dec. 30, 1996, Ser. No. 64,349
Term of patent 14 years
LOC (6) Cl. 07 - *01*
U.S. Cl. D7—302



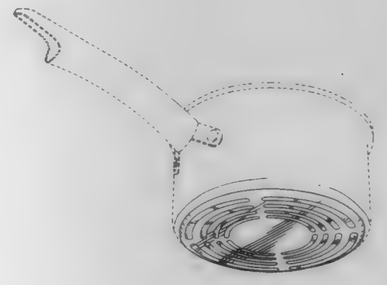
392,150
FOOD PROCESSOR
Yosuke Tanaka, Kobe; Toshio Hara, Moriguchi, and Kazuo Takada, Nara, all of Japan, assignors to Sanyo Electric Co., Ltd., Osaka, Japan
Filed Sep. 23, 1996, Ser. No. 60,104
Claims priority, application Japan, Apr. 8, 1996, 8-10012
Term of patent 14 years
LOC (6) Cl. 31 - *00*
U.S. Cl. D7—384



392,151
PAN HANDLE
Francesco Munari, Varese, Italy, assignor to La Termoplastic F.B.M. S.R.L., Arsago Seprio, Italy
Filed Mar. 31, 1997, Ser. No. 69,654
Claims priority, application Hague Agreement, Oct. 7, 1996, DM/037 819
Term of patent 14 years
LOC (6) Cl. 07 - *02*
U.S. Cl. D7—395

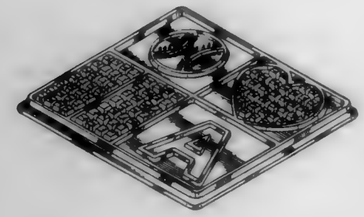


392,152
COOKWARE ARCUATELY GROOVED EXTERIOR BOTTOM SURFACE
Robert Allan Rae, Kowloon, Hong Kong, assignor to Meyer Marketing Company Limited, Kowloon, Hong Kong
Filed May 24, 1996, Ser. No. 54,908
Term of patent 14 years
LOC (6) Cl. 07 - *02*
U.S. Cl. D7—402



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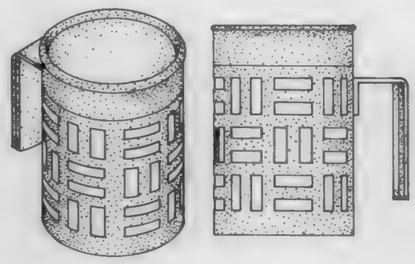
392,153
INTERCHANGEABLE WAFFLE PLATES
Charles V. Wright, 109 Prentice Rd., Whitinsville, Mass. 01588
Filed Jan. 31, 1997, Ser. No. 65,647
Term of patent 14 years
LOC (6) Cl. 07 - *02*
U.S. Cl. D7—410



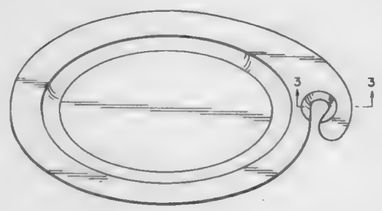
392,154
UTILITY LIGHTER
Daniel A. Ferrara, Jr., Bantam, Conn., assignor to BIC Corporation, Milford, Conn.
Filed Aug. 5, 1996, Ser. No. 57,939
Term of patent 14 years
LOC (6) Cl. 27 - *05*
U.S. Cl. D7—416



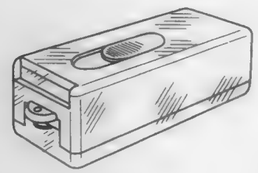
392,155
COFFEE/TEA MUG
Carsten Joergensen, Kriens, Switzerland, assignor to PI-Design AG, Triengen, Switzerland
Filed Apr. 2, 1997, Ser. No. 69,895
Claims priority, application Denmark, Oct. 11, 1996, 982/96
Term of patent 14 years
LOC (6) Cl. 07 - *01*
U.S. Cl. D7—533



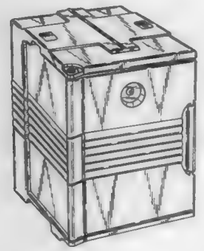
392,156
COMBINED FOOD AND GLASS HOLDER FOR STEMWARE
Emad Michael, 97 Seville Drive, Dollard-des-Ormeaux P. Quebec, Canada, H9B 2V9
Continuation of Ser. No. 749,410, Nov. 15, 1996. This application Jun. 23, 1997, Ser. No. 72,711
Term of patent 14 years
LOC (6) Cl. 07 - *01*
U.S. Cl. D7—546



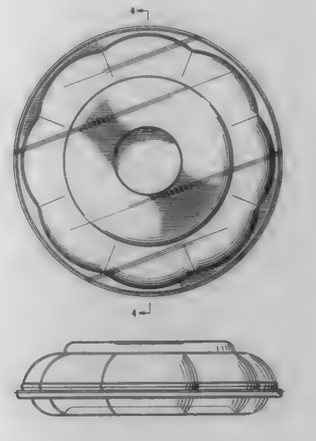
392,157
CHEWING GUM DISPENSER
Atsushi Shibuya, Tokyo, Japan, assignor to Von Traumer Co., Ltd., Japan
Filed Jul. 3, 1996, Ser. No. 56,618
Term of patent 14 years
LOC (6) Cl. 07 - *06*
U.S. Cl. D7—589



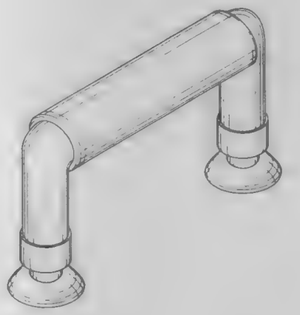
392,158
STACKABLE MEAL DELIVERY CONTAINER
Larry D. Maddux, Westminster, Calif., assignor to Cambro Manufacturing Company, Huntington Beach, Calif.
Filed Mar. 27, 1997, Ser. No. 69,317
Term of patent 14 years
LOC (6) Cl. 07 - *01*
U.S. Cl. D7—601



392,159
CAKE PLATE
James R. Longstreth, 14254 E. Ridge Dr., Whittier, Calif. 90602
Division of Ser. No. 52,647, Apr. 4, 1996. This application Sep. 16, 1996, Ser. No. 59,773
Term of patent 14 years
LOC (6) Cl. 07 - *07*
U.S. Cl. D7—610



392,160
ATTACHABLE HANDLE
James L. Schmidt, P.O. Box 1269, Milton, Wash. 98354
Filed Mar. 26, 1997, Ser. No. 68,289
Term of patent 14 years
LOC (6) Cl. 07 - *06*
U.S. Cl. D7—622

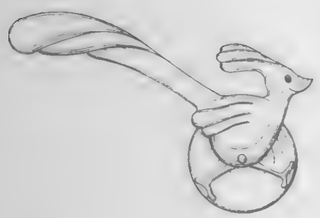


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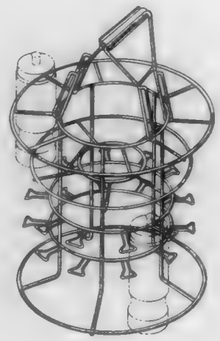
392,161
SELF-ADJUSTING CHILD'S SPOON
Harry F. Falkenstein, Jr., 1588 S. Pennsylvania Ave., Morrisville, Pa. 19067
Filed May 6, 1997, Ser. No. 69,865
Term of patent 14 years
LOC (6) Cl. 07 - *03*
U.S. Cl. D7—653



392,162
ROADRUNNER SHAPED PIZZA CUTTER
Louis F. Henry, and Bruce Ancona, both of New York, N.Y., assignors to B. Via International Housewares, Inc., Englewood Cliffs, N.J.
Filed Oct. 25, 1996, Ser. No. 61,531
Term of patent 14 years
LOC (6) Cl. 07 - *06*
U.S. Cl. D7—694



392,163
BOTTLE CARRIER
Jim Jenkinson, Scarborough, Canada, assignor to Jasper Productions Inc., Scarborough, Canada
Filed Jul. 23, 1996, Ser. No. 57,379
Term of patent 14 years
LOC (6) Cl. 07 - *06*
U.S. Cl. D7—704



392,164
LIMB TRIMMER
William E. Bomgaars, Jr., 4218 Chaminade Dr. SW., Grandville, Mich. 49418, assignor to William E. Bomgaars, Jr., Grandville, Mich.
Filed Apr. 13, 1995, Ser. No. 37,474
Term of patent 14 years
LOC (6) Cl. 08 - *01*
U.S. Cl. D8—9

392,165
CORNER TRIMMING BLADE
Kai Ti Wang, 4607 Osage Dr., Baytown, Tex. 77521
Filed Jul. 14, 1997, Ser. No. 73,480
Term of patent 14 years
LOC (6) Cl. 08 - *01*
U.S. Cl. D8—9



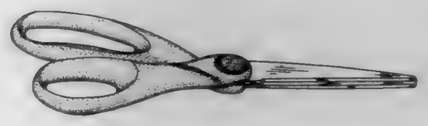
392,166
PAIR OF PLIERS
Hui-Man Yang, No. 23, Alley 6, Lane 202, Chung-Ghon Road, Ghia-Lee Town, Tainan County, Taiwan
Filed Oct. 2, 1996, Ser. No. 60,603
Term of patent 14 years
LOC (6) Cl. 08 - *05*
U.S. Cl. D8—52



392,167
PLIER-WRENCH TOOL
William S. Cockrell, Sacramento, and Henry Orlosky, Cameron Park, both of Calif., assignors to Tool Research Corporation, El Dorado Hills, Calif.
Filed May 19, 1997, Ser. No. 69,883
Term of patent 14 years
LOC (6) Cl. 08 - *05*
U.S. Cl. D8—52

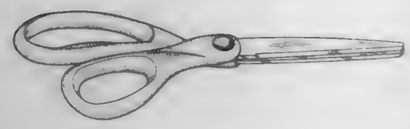


392,168
SCISSORS
Emmanuel Jacquet, Annecy, France, assignor to Manufacture D'Articles De Precision Et De Dessin, France
Filed Feb. 8, 1996, Ser. No. 50,073
Term of patent 14 years
LOC (6) Cl. 08 - *03*
U.S. Cl. D8—57

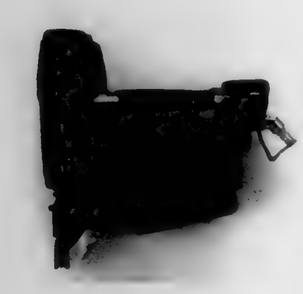


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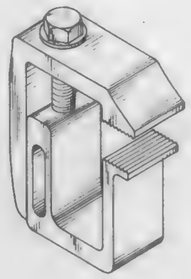
392,169
SCISSORS
Emmanuel Jacquet, Annecy, France, assignor to Manufacture d'Articles de Precision et de Dessin, France
Filed Feb. 8, 1996, Ser. No. 52,441
Claims priority, application WIPO, Sep. 25, 1995, DM/034 204
Term of patent 14 years
LOC (6) Cl. 08 - *03*
U.S. Cl. D8—57



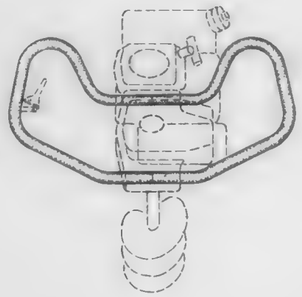
392,170
PNEUMATIC NAILING MACHINE
Takeo Hattori, Tokyo, Japan, assignor to Max Co., Ltd., Tokyo, Japan
Filed May 19, 1997, Ser. No. 71,028
Claims priority, application Japan, Nov. 20, 1996, 8-35206
Term of patent 14 years
LOC (6) Cl. 08 - *03*
U.S. Cl. D8—68



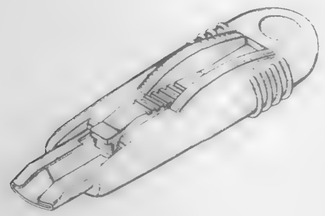
392,171
ADJUSTABLE CLAMP
Timothy J. Miller, Ligonier, Ind., assignor to Universal Consolidated Methods, Inc., Topeka, Ind.
Filed Dec. 11, 1996, Ser. No. 63,624
Term of patent 14 years
LOC (6) Cl. 08 - *05*
U.S. Cl. D8—72



392,172
HANDLE FOR A POWERED ICE AUGER
Randall L. Havel, Big Lake, Minn., assignor to StrikeMaster Corporation, Big Lake, Minn.
Filed Mar. 19, 1997, Ser. No. 68,239
Term of patent 14 years
LOC (6) Cl. 08 - *04*
U.S. Cl. D8—87



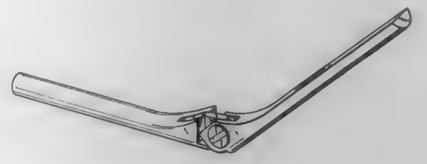
392,173
RETRACTABLE KNIFE
Shoji Okada, Osaka, Japan, assignor to Olfa Kabushiki Kaisha, Japan
Filed Dec. 16, 1996, Ser. No. 62,782
Term of patent 14 years
LOC (6) Cl. 08 - *03*
U.S. Cl. D8—99



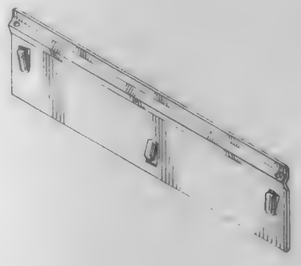
392,174
FURNITURE PULL
David Zeiss, Greensboro, N.C., assignor to Liberty Hardware Mfg. Corp., Boca Raton, Fla.
Division of Ser. No. 63,615, Dec. 11, 1996. This application Jun. 6, 1997, Ser. No. 71,788
Term of patent 14 years
LOC (6) Cl. 08 - *06*
U.S. Cl. D8—305



392,175
SPRING HINGE
Klaus Beck, Kämpfelbach, Germany, assignor to Obe-Werk Ohnmacht & Baumgartner GmbH & Co. KG, Ispringen, Germany
Filed Sep. 18, 1995, Ser. No. 44,103
Claims priority, application Germany, Mar. 16, 1995, M 95 02 550.2
Term of patent 14 years
LOC (6) Cl. 08 - *06*
U.S. Cl. D8—323

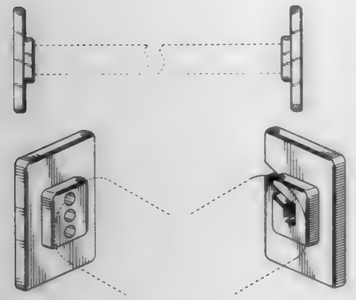


392,176
ANTI-SLIP PICTURE WIRE HANGER BRACKET
Garry Orser, P.O. Box 163, Hartland, New Brunswick, Canada, E0J 1N0
Filed Dec. 31, 1996, Ser. No. 64,442
Term of patent 14 years
LOC (6) Cl. 08 - *05*
U.S. Cl. D8—373

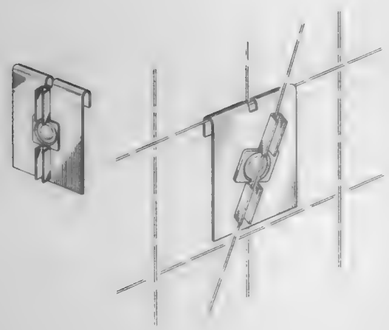


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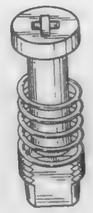
392,177
PAIR OF BRACKETS
Robert A. J. Ouellette, Sr., 61 Arlington St., Nashua, N.H. 31353
Filed Apr. 11, 1997, Ser. No. 69,402
Term of patent 14 years
LOC (6) Cl. 08 - *05*
U.S. Cl. D8—380



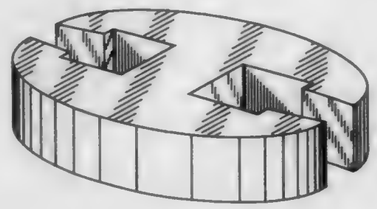
392,178
PARTITION LOCKING METAL ATTACHMENT FOR WIRE GAUZE
Seiji Hirano, Shizuoka, Japan, assignor to Yazaki Industrial Chemical Co. Ltd., Shizuoka-Ken, Japan
Filed Jul. 3, 1996, Ser. No. 56,617
Term of patent 14 years
LOC (6) Cl. 08 - *08*
U.S. Cl. D8—382



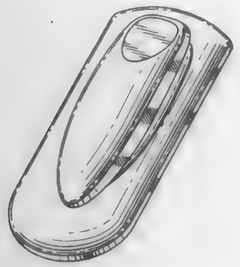
392,179
SPRING SCREW
Matti Ropponen, Espoo, and Heikki Meriläinen, Helsinki, both of Finland, assignors to Fibox Oy AB, Jorvas, Finland
Filed May 31, 1996, Ser. No. 55,167
Claims priority, application Rep. of Korea, Dec. 1, 1995, 95-23363
Term of patent 14 years
LOC (6) Cl. 08 - *08*
U.S. Cl. D8—387



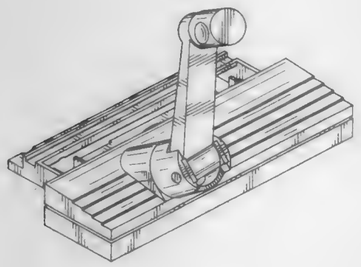
392,180
CHAIR CLIP
Melvin Bilow, 115 S. Lamer St., Burbank, Calif. 91506
Filed Apr. 18, 1995, Ser. No. 37,689
Term of patent 14 years
LOC (6) Cl. 08 - *08*
U.S. Cl. D8—395



392,181
CLIP
James L. Bries, Cottage Grove; Johannes N. Gaston, Minnetonka; Douglas J. VanOrnum, Minnetonka; Paul E. Raber, North Saint Paul, and Pauline A. Pieper, Saint Paul, all of Minn., assignors to Minnesota Mining and Manufacturing Company, St. Paul, Minn.
Filed Mar. 10, 1997, Ser. No. 67,745
Term of patent 14 years
LOC (6) Cl. 08 - *08*
U.S. Cl. D8—395



392,182
ROTARY WINDOW OPERATOR
Nigel Alan Colebrooke Taylor, and Philip James Walters, both of Wellington, New Zealand, assignors to Interlock Industries Limited, New Zealand
Filed Jun. 1, 1994, Ser. No. 23,839
Claims priority, application New Zealand, Dec. 3, 1993, 25614
Term of patent 14 years
LOC (6) Cl. 08 - *09*
U.S. Cl. D8—400



392,183
DOOR KNOCKER
Adam S. Burris, 606 1/2 W. Liberty St., Rome, N.Y. 13440
Filed Jul. 15, 1996, Ser. No. 57,027
Term of patent 14 years
LOC (6) Cl. 10 - *06*
U.S. Cl. D8—401

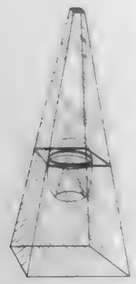


392,184
VIAL WITH A FRANGIBLE CLOSURE
Gerhard H. Weiler, South Barrington, Ill., assignor to Automatic Liquid Packaging, Inc., Woodstock, Ill.
Filed Feb. 21, 1996, Ser. No. 50,503
Term of patent 14 years
LOC (6) Cl. 09 - *01*
U.S. Cl. D9—302

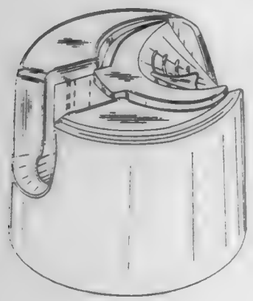


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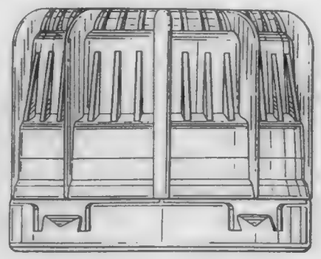
392,185
JEWELRY BOX
Wayne D. Husted, 73 California Ave., Mill Valley, Calif. 94911
Filed May 1, 1997, Ser. No. 70,259
Term of patent 14 years
LOC (6) Cl. 09 - *07*
U.S. Cl. D9—418



392,186
LIGHT WEIGHT SPRAY THROUGH OVERCAP
Jeremy Smith, Loudon, N.H., assignor to Summit Packaging Systems, Inc., Manchester, N.H.
Filed Jan. 27, 1997, Ser. No. 65,376
Term of patent 14 years
LOC (6) Cl. 09 - *07*
U.S. Cl. D9—448



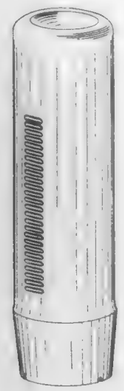
392,187
CONTAINER CLOSURE
Roger Milner King, Latimer Bucks, United Kingdom, assignor to Beeson and Sons Limited, Herts, United Kingdom
Filed Nov. 17, 1995, Ser. No. 46,524
Claims priority, application United Kingdom, May 18, 1995, 2047564; Sep. 7, 1995, 2050213
Term of patent 14 years
LOC (6) Cl. 09 - *07*
U.S. Cl. D9—453



392,188
CONTAINER HAVING HANDLE
Richard C. Darr, Seville, and Ralph D. Satterfield, Ashland, both of Ohio, assignors to Plastipak Packaging, Inc., Plymouth, Mich.
Filed Apr. 24, 1996, Ser. No. 53,558
Term of patent 14 years
LOC (6) Cl. 09 - *01*
U.S. Cl. D9—520



392,189
COMBINED DISPENSING BOTTLE AND CAP
Linda C. Nash, Wayzata; Timothy E. Fitten, Chaska, and Thomas M. Redmond, Sr., Victoria, all of Minn., assignors to Redmond Products, Inc., Chanhassen, Minn.
Filed May 9, 1996, Ser. No. 54,298
Term of patent 14 years
LOC (6) Cl. 09 - *01*
U.S. Cl. D9—520



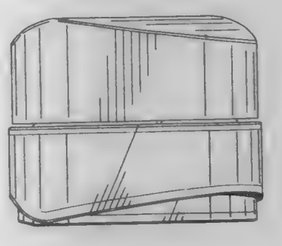
392,190
BOTTLE
Linda C. Nash, Wayzata; Timothy E. Fitten, Chaska, and Thomas M. Redmond, Sr., Victoria, all of Minn., assignors to Redmond Products, Inc., Chanhassen, Minn.
Filed May 9, 1996, Ser. No. 54,299
Term of patent 14 years
LOC (6) Cl. 09 - *01*
U.S. Cl. D9—520



392,191
BOTTLE
Linda C. Nash, Wayzata; Timothy E. Fitten, Chaska, and Thomas M. Redmond, Sr., Victoria, all of Minn., assignors to Redmond Products, Inc., Chanhassen, Minn.
Filed May 9, 1996, Ser. No. 54,300
Term of patent 14 years
LOC (6) Cl. 09 - *01*
U.S. Cl. D9—520



392,192
COMBINED JAR AND CLOSURE
Trevor Fiore, Sheffield, United Kingdom, assignor to Amway Corporation, Ada, Mich.
Continuation-in-part of Ser. No. 20,216, Mar. 22, 1994, abandoned. This application Sep. 1, 1995, Ser. No. 43,400
Term of patent 14 years
LOC (6) Cl. 09 - *01*
U.S. Cl. D9—529

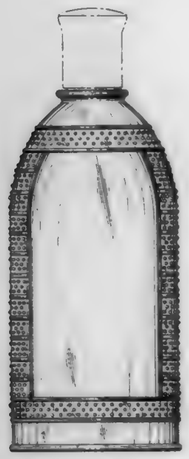


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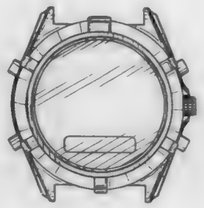
392,193
COMBINED CONTAINER AND CAP
John Clifford Crawford, Mahopac, N.Y., assignor to Colgate-Palmolive Company, New York, N.Y.
Filed May 2, 1996, Ser. No. 53,946
The portion of the term of this patent subsequent to Jul. 1, 2011, has been disclaimed.
Term of patent 14 years
LOC (6) Cl. 09 - *01*
U.S. Cl. D9—542



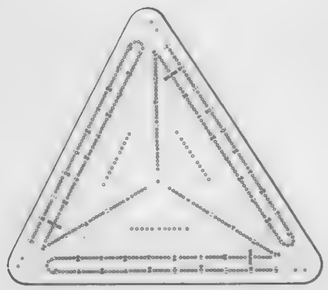
392,194
BOTTLE WITH PATTERN AREAS
Patricia Leunis, Darien, Conn., assignor to Bath & Body Works, Inc., Reynoldsburg, Ohio
Filed Aug. 25, 1997, Ser. No. 76,139
Term of patent 14 years
LOC (6) Cl. 09 - *01*
U.S. Cl. D9—545



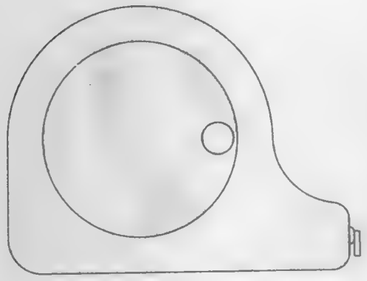
392,195
BEZEL AND CASING FOR A WATCH
Judith Reichel Riley, 251 Beach St., Goshen, Conn. 06756
Filed Jul. 23, 1997, Ser. No. 74,026
Term of patent 14 years
LOC (6) Cl. 10 - *02*
U.S. Cl. D10—30



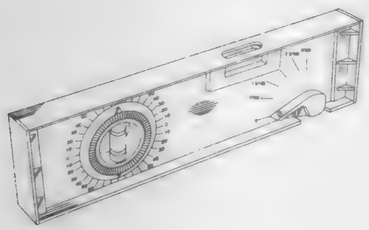
392,196
CRIBBAGE BOARD
John W. Mixer, 367 Bent Twig Ave., Camarillo, Calif. 93012
Filed May 2, 1997, Ser. No. 70,226
Term of patent 14 years
LOC (6) Cl. 21 - *01*
U.S. Cl. D20—46.1



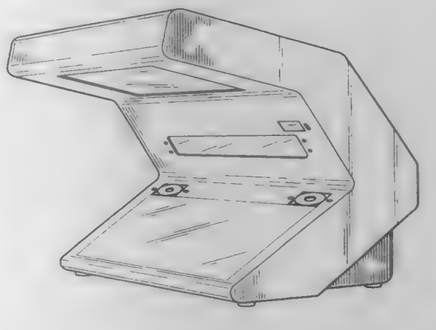
392,197
ADJUSTABLE DUAL LINE CHAULK BOX APPARATUS
Joseph R. Reynolds, 5101-281 S. Monterey Hwy., San Jose, Calif. 95111
Filed Dec. 16, 1996, Ser. No. 63,817
Term of patent 14 years
LOC (6) Cl. 10 - *04*
U.S. Cl. D10—65



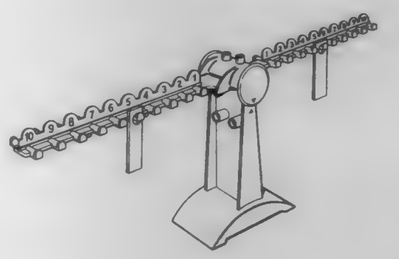
392,198
SPIRIT LEVEL
Philip George Doust, 33 Parnell Ave, Marmion 6020, Western Australia, Australia
Filed Oct. 29, 1996, Ser. No. 61,701
Term of patent 14 years
LOC (6) Cl. 10 - *04*
U.S. Cl. D10—69



392,199
REPAIR STATION CABINET
Evan J. Evans, Alvord, and Raymond DeWine Heistand, II, Flower Mound, both of Tex., assignors to Electronic Packaging Co., Dallas, Tex.
Filed Dec. 27, 1996, Ser. No. 64,316
Term of patent 14 years
LOC (6) Cl. 10 - *04*
U.S. Cl. D10—75



392,200
MATHEMATICAL BALANCE
James Dorian Gibson, and Stephen Reginald Thompson, both of Leicester, England, assignors to Invicta Plastics Limited, Leicester, United Kingdom
Filed Mar. 5, 1996, Ser. No. 51,203
Claims priority, application United Kingdom, Sep. 18, 1995, 2050464
Term of patent 14 years
LOC (6) Cl. 10 - *04*
U.S. Cl. D10—90

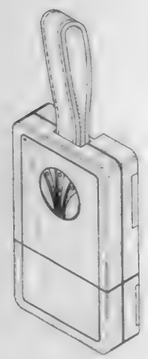


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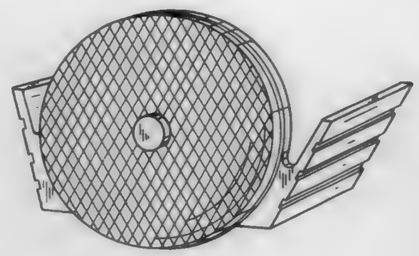
392,201
COMBINED KEY CHAIN AND TRANSMITTER FOR LOCATING KEYS
Mike Chen, P.O. Box 55-846, Taipei, Taiwan
Filed Aug. 13, 1997, Ser. No. 74,938
Term of patent 14 years
LOC (6) Cl. 10 - *05*
U.S. Cl. D10—104



392,202
COMBINED TRANSMITTER AND RECEIVER FOR A PORTABLE COMPUTER ALARM
Mark Nitzberg, 43 Lorrie La., Lawrenceville, N.J. 08648
Continuation-in-part of Ser. No. 61,184, Oct. 17, 1996. This application Jun. 11, 1997, Ser. No. 71,998
Term of patent 14 years
LOC (6) Cl. 10 - *05*
U.S. Cl. D10—106



392,203
FLEXIBLE GUARDRAIL REFLECTOR
Karl Weid, 1276 Robinwood Dr., Elgin, Ill. 60123
Filed Apr. 23, 1997, Ser. No. 69,517
Term of patent 14 years
LOC (6) Cl. 10 - *05*
U.S. Cl. D10—111



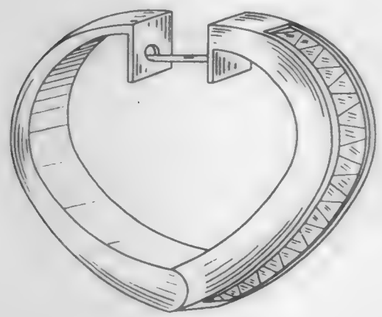
392,204
FIVE STONE DIAGONAL RIBBON NECKLACE PENDANT
Jerry Morrison, Austin, Tex., assignor to Commemorative Brands, Inc, Austin, Tex.
Filed Jul. 23, 1996, Ser. No. 57,366
The portion of the term of this patent subsequent to Oct. 14, 2011, has been disclaimed.
Term of patent 14 years
LOC (6) Cl. 11 - *01*
U.S. Cl. D11—6



392,205
JEWELRY CHAIN
Sergio Graser, Mussolente, Italy, assignor to Graser Pietro & Figli S.p.A., Italy
Continuation of Ser. No. 31,531, Nov. 30, 1994, abandoned. This application Dec. 13, 1996, Ser. No. 65,449
Claims priority, application Italy, Jun. 2, 1994, PD9400029
Term of patent 14 years
LOC (6) Cl. 11 - *01*
U.S. Cl. D11—13



392,206
HEART SHAPED EARRING
Ashish Kothari, Bombay, India, assignor to Jewelex New York Ltd., New York, N.Y.
Filed Feb. 4, 1997, Ser. No. 66,072
Term of patent 14 years
LOC (6) Cl. 11 - *01*
U.S. Cl. D11—56



392,207
JEWELRY PENDANT WITH STONE
Afram Koumi, 17 Alwyn Ter., Rutherford, N.J. 07070
Filed May 23, 1996, Ser. No. 54,848
The portion of the term of this patent subsequent to Sep. 16, 2011, has been disclaimed.
Term of patent 14 years
LOC (6) Cl. 11 - *01*
U.S. Cl. D11—83

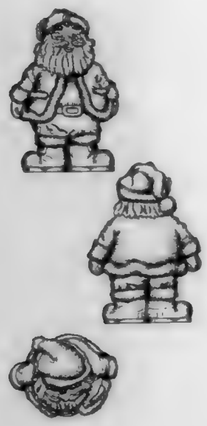


392,208
DECORATIVE WIRE FRAME
Kao Cheung Chong, Chai Wan, Hong Kong, assignor to Boto (Licenses) Limited, Isle of Man
Filed Mar. 27, 1997, Ser. No. 68,303
Term of patent 14 years
LOC (6) Cl. 11 - *02*
U.S. Cl. D11—177

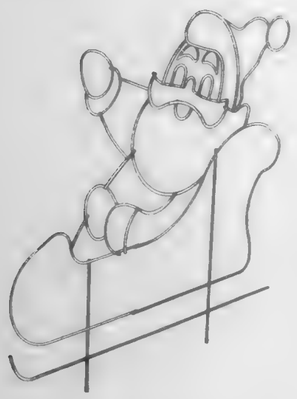


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392,209
WINKING SANTA CLAUS FIGURINE
David Hergert, Kansas City, Mo., assignor to Transfar International Corp., Kansas City, Mo.
Filed May 22, 1996, Ser. No. 54,788
Term of patent 14 years
LOC (6) Cl. 11 - *05*
U.S. Cl. D11—129



392,210
DECORATIVE WIRE FRAME
Kao Cheung Chong, Chai Wan, Hong Kong, assignor to Boto (Licenses) Limited, Isle of Man
Filed Mar. 27, 1997, Ser. No. 68,681
Term of patent 14 years
LOC (6) Cl. 11 - *02*
U.S. Cl. D11—129



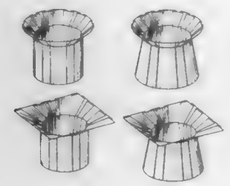
392,211
FLOWER VASE
Fabio F. Puccinelli, 5435 Middlebury Dr., Mississauga, Ontario, Canada, L5M 5E8
Filed Mar. 20, 1997, Ser. No. 69,051
Term of patent 14 years
LOC (6) Cl. 11 - *02*
U.S. Cl. D11—149



392,212
DOME DISPLAY FIXTURE
Ofer Nissim, 49 White Birch Rd., Pound Ridge, N.Y. 10576
Filed Feb. 4, 1997, Ser. No. 66,004
Term of patent 14 years
LOC (6) Cl. 11 - *02*
U.S. Cl. D11—157



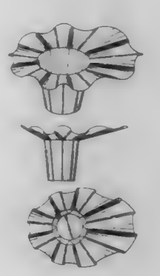
392,213
FLOWER POT COVER
Donald E. Weder, and Joseph G. Straeter, both of Highland, Ill., assignors to Southpac Trust International, Inc.
Division of Ser. No. 3,581, Jan. 8, 1993, Pat. No. Des. 366,630, which is a continuation-in-part of Ser. No. 807,684, Dec. 16, 1991, Pat. No. Des. 358,565, which is a continuation-in-part of Ser. No. 710,272, Jun. 4, 1991, Pat. No. Des. 365,302, which is a continuation-in-part of Ser. No. 617,454, Nov. 21, 1990, abandoned, which is a continuation-in-part of Ser. No. 411,249, Sep. 22, 1989, Pat. No. Des. 358,113, which is a continuation-in-part of Ser. No. 411,247, Sep. 22, 1989, abandoned, which is a continuation-in-part of Ser. No. 411,245, Sep. 22, 1989, abandoned. This application Nov. 7, 1995, Ser. No. 46,126
The portion of the term of this patent subsequent to Nov. 29, 2008, has been disclaimed.
Term of patent 14 years
LOC (6) Cl. 11 - *02*
U.S. Cl. D11—164



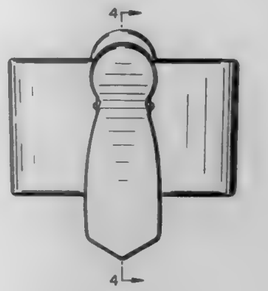
392,214
OPEN MESH PLANT COVER
Donald E. Weder, Highland, Ill., assignor to Southpac Trust International, Inc, Oklahoma City, Okla., not individually, but as trustee of The Family Trust U/T/A dated December 8, 1995, Charles A. Codding, Authorized Signatory for Southpac Trust International, Inc. Trustee
Division of Ser. No. 13,226, Sep. 21, 1993, Pat. No. Des. 369,990, which is a continuation-in-part of Ser. No. 906,119, Jun. 26, 1992, Pat. No. Des. 343,594, which is a division of Ser. No. 603,825, Oct. 24, 1990, Pat. No. Des. 329,405, which is a division of Ser. No. 357,103, May 25, 1989, Pat. No. Des. 319,991, which is a continuation-in-part of Ser. No. 108,316, Oct. 13, 1987, Pat. No. Des. 316,838, which is a continuation-in-part of Ser. No. 613,053, May 22, 1984, Pat. No. Des. 293,224. This application Feb. 29, 1996, Ser. No. 50,902
Term of patent 14 years
LOC (6) Cl. 11 - *02*
U.S. Cl. D11—164



392,215
FLOWER POT COVER
Donald E. Weder, and Joseph G. Straeter, both of Highland, Ill., assignors to Southpac Trust International, Inc., Oklahoma City, Okla., not individually, but as trustee of The Family Trust U/T/A dated December 8, 1995, Charles A. Codding, Authorized Signatory for Southpac Trust International, Inc. Trustee
Division of Ser. No. 3,339, Jan. 5, 1993, Pat. No. Des. 369,325, which is a continuation-in-part of Ser. No. 808,360, Dec. 16, 1991, which is a continuation-in-part of Ser. No. 710,272, Jun. 4, 1991, which is a continuation-in-part of Ser. No. 617,454, Nov. 21, 1990, each which is a continuation-in-part of Ser. No. 411,249, Sep. 22, 1989, each which is a continuation-in-part of Ser. No. 411,247, Sep. 22, 1989, abandoned, each which is a continuation-in-part of Ser. No. 411,245, Sep. 22, 1989, abandoned. This application Jan. 31, 1996, Ser. No. 51,325
Term of patent 14 years
LOC (6) Cl. 11 - *02*
U.S. Cl. D11—164

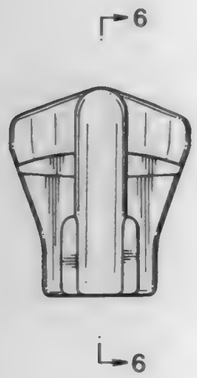


392,216
NECKTIE FORM
Matthew M. Helfer, 2225 Branner Ave.-#29, Jefferson City, Tenn. 37760
Filed Feb. 6, 1997, Ser. No. 68,086
Term of patent 14 years
LOC (6) Cl. 02 - *07*
U.S. Cl. D11—202

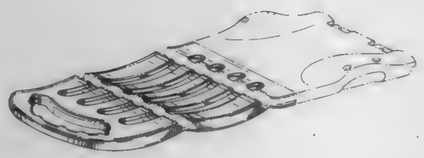


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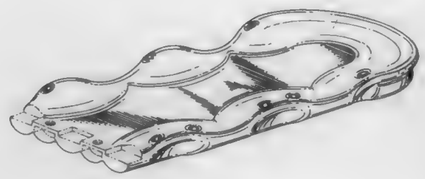
392,217
SLIDER BODY OF SLIDE FASTENER
Kenji Yuki, Toyama, Japan, assignor to YKK Corporation, Tokyo, Japan
Filed Dec. 20, 1996, Ser. No. 64,050
Term of patent 14 years
LOC (6) Cl. 02 - *07*
U.S. Cl. D11—221



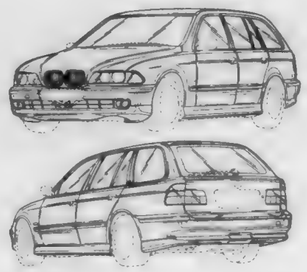
392,218
TOBOGGAN PANEL
Kevin Rausch, Wooster, Ohio, assignor to Rubbermaid Specialty Products Inc., Wooster, Ohio
Filed Jan. 10, 1997, Ser. No. 64,806
Term of patent 14 years
LOC (6) Cl. 12 - *14*
U.S. Cl. D12—11



392,219
SLED PANEL
Kevin Rausch, Wooster, Ohio, assignor to Rubbermaid Specialty Products Inc., Wooster, Ohio
Filed Jan. 10, 1997, Ser. No. 64,807
Term of patent 14 years
LOC (6) Cl. 12 - *14*
U.S. Cl. D12—11

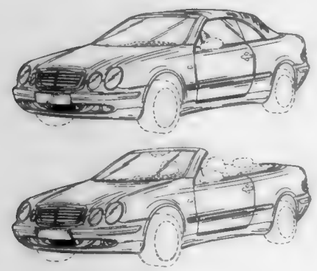


392,220
EXTERIOR BODY OF A MOTOR VEHICLE
Juergen Haussmann, Garching, Germany, assignor to Bayerische Motoren Werke Aktiengesellschaft, Munich, Germany
Filed Aug. 1, 1996, Ser. No. 57,857
Claims priority, application Germany, Feb. 1, 1996, M96 01 103.3
Term of patent 14 years
LOC (6) Cl. 12 - *08*
U.S. Cl. D12—91

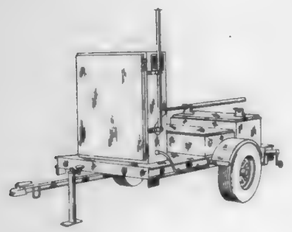


392,221
Patent Not Issued For This Number

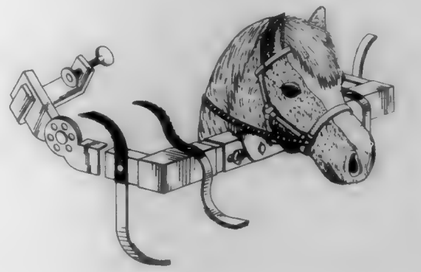
392,222
AUTOMOBILE BODY
Bruno Sacco, Sindelfingen, and Peter Pfeiffer, Böblingen, both of Germany, assignors to Mercedes-Benz AG, Stuttgart, Germany
Filed Feb. 18, 1997, Ser. No. 66,093
Term of patent 14 years
LOC (6) Cl. 12 - *08*
U.S. Cl. D12—92



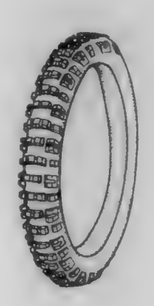
392,223
MOBILE RADIO BROADCAST TRAILER
Joanne D. Alpiser, Hillsborough, and John R. Alpiser, Cary, both of N.C., assignors to Transportation Intelligence, Inc., Raleigh, N.C.
Filed Jun. 27, 1997, Ser. No. 73,010
Term of patent 14 years
LOC (6) Cl. 12 - *10*
U.S. Cl. D12—101



392,224
STUFFED ANIMAL TYPE PONY HEAD AND FRAME FOR MOUNTING ON A STROLLER OR THE LIKE WITH REINS FOR RIDER TO HOLD
Hatholynd C. Maher, 10917 Citreon Ct., North Potomac, Md. 20878
Filed Aug. 2, 1996, Ser. No. 57,884
Term of patent 14 years
LOC (6) Cl. 12 - *12*
U.S. Cl. D12—133

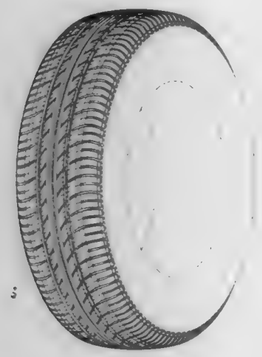


392,225
TIRE
Tsai-Jen Lo, No.215,Meei-Kong Road,Ta-Suen, Chang-Hwa, Taiwan
Filed Apr. 12, 1996, Ser. No. 52,974
Term of patent 14 years
LOC (6) Cl. 12 - *15*
U.S. Cl. D12—140



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392,226
TIRE TREAD
John Alan Howald, Uniontown; Jerold Robert Buenger, Hartville, and Karl Eric Sundkvist, Akron, all of Ohio, assignors to The Goodyear Tire & Rubber Company, Akron, Ohio
Filed Mar. 25, 1997, Ser. No. 68,623
Term of patent 14 years
LOC (6) Cl. 12 - *15*
U.S. Cl. D12—141



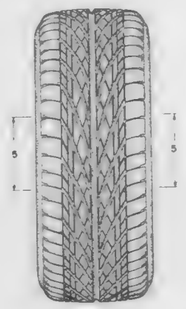
392,227
PNEUMATIC TIRE FOR VEHICLES
Nack-Hyun Lim, and Dong-Ju Park, both of Kwangju, Rep. of Korea, assignors to Kumbo and Co., Inc., Seoul, Rep. of Korea
Filed Mar. 25, 1996, Ser. No. 52,186
Claims priority, application Rep. of Korea, Jan. 23, 1996, 913/1996
Term of patent 14 years
LOC (6) Cl. 12 - *15*
U.S. Cl. D12—147



392,228
TIRE
Pentti Eromäki, Nokia, Finland, assignor to Nokian Tyres Limited, Nokia, Finland
Filed Apr. 30, 1996, Ser. No. 53,778
Claims priority, application Finland, Nov. 1, 1995, 739/95
Term of patent 14 years
LOC (6) Cl. 12 - *15*
U.S. Cl. D12—147



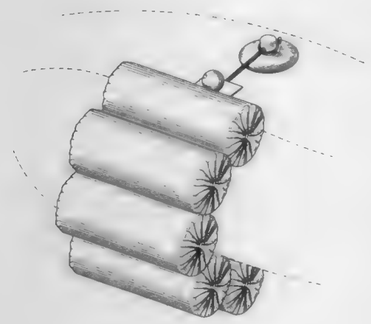
392,229
AUTOMOBILE TIRE
Kenichi Shirai; Masahiro Ishida; Tetsuya Kuze, and Toshihiko Suzuki, all of Kanagawa-ken, Japan, assignors to The Yokohama Rubber Co. Ltd., Tokyo, Japan
Filed Oct. 1, 1996, Ser. No. 60,588
Claims priority, application Japan, Apr. 3, 1996, 8-9223
Term of patent 14 years
LOC (6) Cl. 12 - *15*
U.S. Cl. D12—147



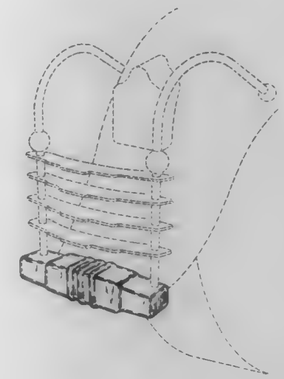
392,230
TIRE TREAD
Richard Heinen, Habay-la-Neuve, Belgium, assignor to The Goodyear Tire & Rubber Company, Akron, Ohio
Filed Mar. 21, 1997, Ser. No. 67,845
Term of patent 14 years
LOC (6) Cl. 12 - *15*
U.S. Cl. D12—147



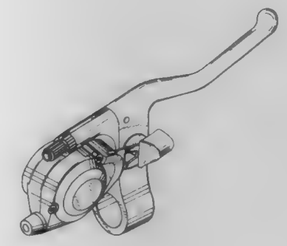
392,231
FENDER FOR PERSONAL WATERCRAFT
Leni A. Vaughn, 7 Blue Teal Ct., Lodi, Calif. 95242
Filed Nov. 25, 1996, Ser. No. 63,062
Term of patent 14 years
LOC (6) Cl. 12 - *16*
U.S. Cl. D12—168



392,232
MOTORCYCLE BUMPER
Doreen Lucht, Franklin, and William G. Davidson, Delafield, both of Wis., assignors to Harley-Davidson Motor Company, Milwaukee, Wis.
Filed Jul. 26, 1996, Ser. No. 57,544
Term of patent 14 years
LOC (6) Cl. 12 - *16*
U.S. Cl. D12—169

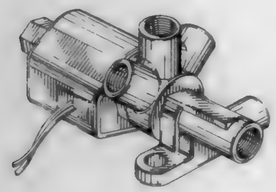


392,233
COMBINED GEAR SHIFTER AND BRAKE LEVER FOR BICYCLES
Takuji Masui, Sakai, Japan, assignor to Shimano, Inc., Osaka, Japan
Filed Feb. 5, 1996, Ser. No. 49,941
Term of patent 14 years
LOC (6) Cl. 12 - *16*
U.S. Cl. D12—179

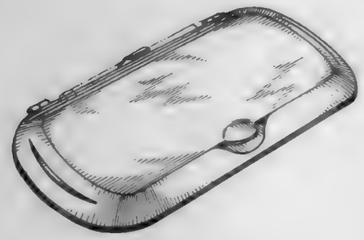


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392,234
COMBINED HYDRAULIC BRAKE AND LINE LOCKING UNIT
George Wallace, Calabasas, Calif., assignor to B&M Automotive Products, Chatsworth, Calif.
Filed Sep. 3, 1996, Ser. No. 59,078
Term of patent 14 years
LOC (6) Cl. 12 - *16*
U.S. Cl. D12—180



392,235
LIGHTED VISOR MIRROR
Thomas R. Steinhagen; John E. Schenken, both of West Des Moines; Charles A. Haas, Des Moines, and Jerome Hartmann, Carlisle, all of Iowa, assignors to Cobbs Manufacturing Company, Des Moines, Iowa
Filed Jul. 1, 1996, Ser. No. 56,499
Term of patent 14 years
LOC (6) Cl. 12 - *16*
U.S. Cl. D12—191



392,236
COMOSITE CENTER CASTING FOR A WHEEL RIM
Frank Noriega, 9246 Claymore St., Pico Rivera, Calif. 90660
Filed Nov. 5, 1996, Ser. No. 62,366
Term of patent 14 years
LOC (6) Cl. 12 - *16*
U.S. Cl. D12—209

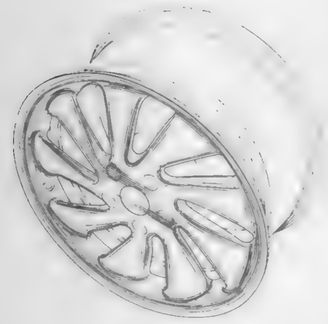


392,237
VEHICLE WHEEL
Steve Kelley, Irvine, Calif., assignor to Wheel Components, Inc., Fullerton, Calif.
Filed Apr. 14, 1997, Ser. No. 68,166
Term of patent 14 years
LOC (6) Cl. 12 - *16*
U.S. Cl. D12—209



392,238
Patent Not Issued For This Number

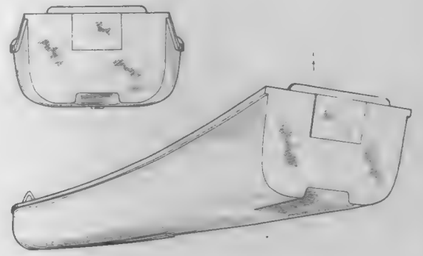
392,239
VEHICLE-WHEEL FRONT FACE
Murray S. Cullen, Irvine, Calif., assignor to Mobile Hi-Tech Wheels, Torrance, Calif.
Filed May 19, 1997, Ser. No. 71,854
Term of patent 14 years
LOC (6) Cl. 12 - *16*
U.S. Cl. D12—211



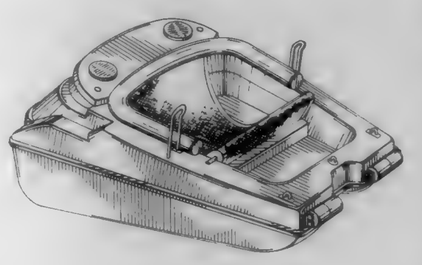
392,240
VEHICLE WHEEL CENTER CAP
Larry R. Kingsland, Riverside, Calif., assignor to Progressive Custom Wheels, Riverside, Calif.
Filed Mar. 14, 1997, Ser. No. 69,231
Term of patent 14 years
LOC (6) Cl. 12 - *16*
U.S. Cl. D12—213



392,241
TUNNEL-HULL CANOE
James Patrick Kierstead, Jr., 35 MacBeath, Tidehead, P.O. Box 815, Atholville, New Brunswick, Canada, E0K 1A0
Filed Aug. 5, 1996, Ser. No. 57,963
Term of patent 14 years
LOC (6) Cl. 12 - *06*
U.S. Cl. D12—302

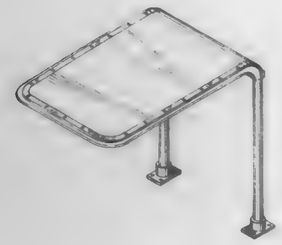


392,242
AERIAL RECLINER FOR PARASAILING
Mark McCulloh, 5003 Delvin Ct., Orlando, Fla. 32821
Filed Dec. 19, 1995, Ser. No. 48,082
Term of patent 14 years
LOC (6) Cl. 12 - *06*
U.S. Cl. D12—316



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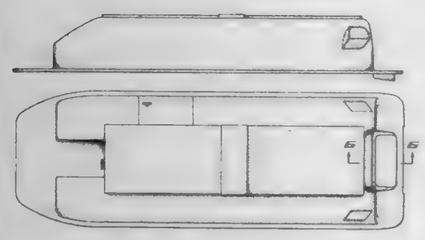
392,243
CANOPY FOR WATER-CRAFT
Carl Anderson, 1011 Capouse Ave., Scranton, Pa. 18509
Filed Aug. 1, 1996, Ser. No. 57,809
Term of patent 14 years
LOC (6) Cl. 12 - *06*
U.S. Cl. D12—317



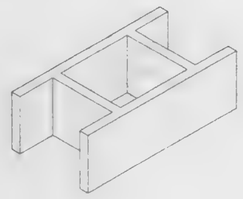
392,245
OUTBOARD MOTOR SUPPORT
Calvin D. Johnson, Sr., 7701 Samet Dr., High Point, N.C. 27265
Filed May 27, 1997, Ser. No. 71,315
Term of patent 14 years
LOC (6) Cl. 12 - *06*
U.S. Cl. D12—317



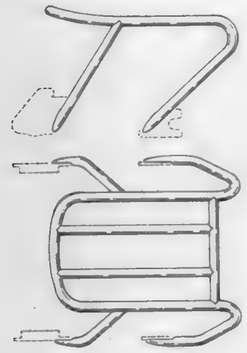
392,244
EXTERNAL SURFACE OF A DUCK BLIND BOAT COVER
James A. Cripe, 102 E. 1st Ave., Post Falls, Id. 83854
Continuation-in-part of Ser. No. 46,277, Nov. 13, 1995, Pat. No. Des. 379,961. This application Aug. 28, 1996, Ser. No. 58,950
Term of patent 14 years
LOC (6) Cl. 12 - *06*
U.S. Cl. D12—317



392,246
TRUCK BALLAST APPARATUS
Robin E. Anderson, 2731 E. 6th St., Superior, Wis. 54880
Filed Mar. 5, 1997, Ser. No. 67,359
Term of patent 14 years
LOC (6) Cl. 12 - *16*
U.S. Cl. D12—400



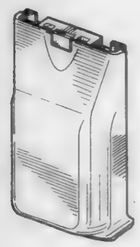
392,247
LUGGAGE RACK
Donald M. Gogan, Brookfield, and Thomas G. Parsons, Dousman, both of Wis., assignors to Harley-Davidson Motor Company, Milwaukee, Wis.
Continuation-in-part of Ser. No. 41,653, Jul. 20, 1995, abandoned. This application Oct. 9, 1996, Ser. No. 60,867
Term of patent 14 years
LOC (6) Cl. 12 - *16*
U.S. Cl. D12—407



392,249
BATTERY
Manami Nakazawa, and Eiji Egami, both of Tokyo, Japan, assignors to Toshiba Battery Co., Ltd., Tokyo, Japan
Filed Mar. 29, 1996, Ser. No. 52,404
Claims priority, application Japan, Sep. 29, 1995, 7-28835
Term of patent 14 years
LOC (6) Cl. 13 - *02*
U.S. Cl. D13—103



392,248
BATTERY
Panu Johansson, Tampere, Finland, assignor to Nokia Mobile Phones Limited, Espoo, Finland
Filed Mar. 12, 1996, Ser. No. 51,990
Claims priority, application Finland, Sep. 13, 1995, 612/95
Term of patent 14 years
LOC (6) Cl. 13 - *02*
U.S. Cl. D13—103

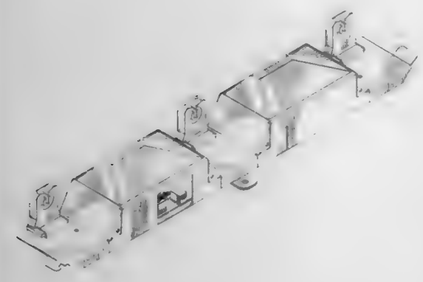


392,250
CAR'S BATTERY CHARGER
Chin-Kuan Yiin, 9F3R, No. 210, Chung Hsueh Rd., Tainan, Taiwan
Filed Jul. 15, 1996, Ser. No. 57,023
Term of patent 14 years
LOC (6) Cl. 13 - *02*
U.S. Cl. D13—107

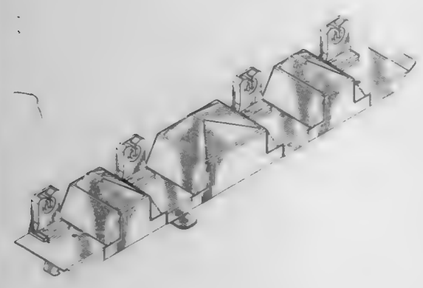


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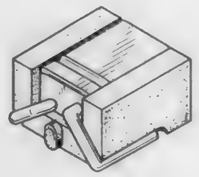
392,251
FLUORESCENT LAMP BALLAST ENCLOSURE
Barry Eddington Altman, Mechanicsburg, Pa.; John Francis Turner, Clemmons, N.C., and Kimberly Ann Ketelsleger, Mechanicsburg, Pa., assignors to The Whitaker Corporation, Wilmington, Del.
Filed Feb. 24, 1997, Ser. No. 67,049
Term of patent 14 years
LOC (6) Cl. 13 - *03*
U.S. Cl. D13—110



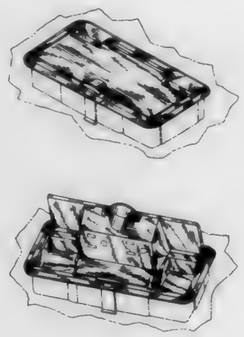
392,252
FLUORESCENT LAMP BALLAST ENCLOSURE
Barry Eddington Altman, Mechanicsburg, Pa.; John Francis Turner, Clemmons, N.C., and Kimberly Ann Ketelsleger, Mechanicsburg, Pa., assignors to The Whitaker Corporation, Wilmington, Del.
Filed Feb. 24, 1997, Ser. No. 67,070
Term of patent 14 years
LOC (6) Cl. 13 - *03*
U.S. Cl. D13—110



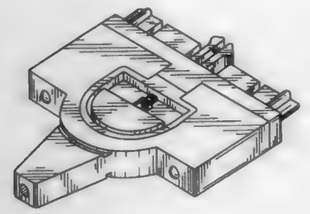
392,253
ELECTROLYTIC CAPACITOR
Kaname Kurihara; Izumi Ishii, and Yutaka Muto, all of Fujisawa, Japan, assignors to Elna Kabushiki Kaisha, Fujisawa, Japan
Filed Feb. 5, 1996, Ser. No. 49,936
Claims priority, application Japan, Dec. 4, 1995, 7-36616
Term of patent 14 years
LOC (6) Cl. 13 - *03*
U.S. Cl. D13—125



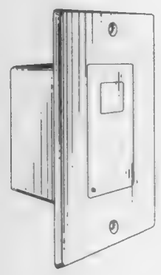
392,254
POWER/DATA MODULE
Steven C. Gevaert, Green Bay, Wis., assignor to Krueger International, Inc., Green Bay, Wis.
Filed Jun. 7, 1996, Ser. No. 55,601
Term of patent 14 years
LOC (6) Cl. 13 - *03*
U.S. Cl. D13—143



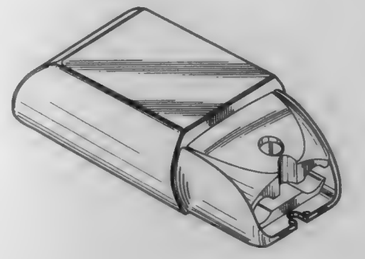
392,255
IC CARD CONNECTOR
Gary Cain Bethurum, Laguna Niguel, Calif., assignor to ITT Corporation, New York, N.Y.
Continuation-in-part of Ser. No. 169,682, Dec. 17, 1993, Pat. No. 5,411,402, and Ser. No. 21,260, Apr. 12, 1994, abandoned. This application Feb. 9, 1996, Ser. No. 50,143
Term of patent 14 years
LOC (6) Cl. 13 - *03*
U.S. Cl. D13—147



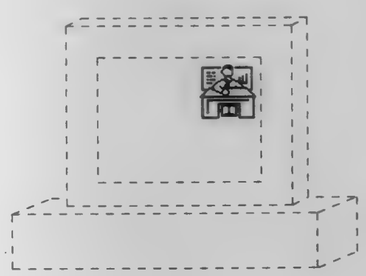
392,256
WALL MOUNTED ELECTRIC SWITCH
Pierre Saint-Cyr; Normand Saint-Cyr, both of Ile des Soeurs; Marc Saint-Cyr, Brossard, and Louis Bacon, La Salle, all of Canada, assignors to La Société NRJ Electronique Inc., Montreal, Canada
Filed Aug. 30, 1996, Ser. No. 58,993
Term of patent 14 years
LOC (6) Cl. 13 - *03*
U.S. Cl. D13—158



392,257
HOUSING FOR A LAMP OPERATION CIRCUIT
Reinhard Lecheler, Neuburg an der Donau, and Theodor Kiermeier, München, both of Germany, assignors to Osram Sylvania Inc., Danvers, Mass.
Filed Sep. 19, 1996, Ser. No. 60,017
Claims priority, application Germany, Mar. 28, 1996, M 96 02 967.6
Term of patent 14 years
LOC (6) Cl. 13 - *03*
U.S. Cl. D13—184



392,258
ICON FOR A DISPLAY SCREEN
Deanna M. Thomas, San Jose, Calif., assignor to Apple Computer, Inc., Cupertino, Calif.
Filed Sep. 9, 1992, Ser. No. 942,709
Term of patent 14 years
LOC (6) Cl. 14 - *02*
U.S. Cl. D14—114.7

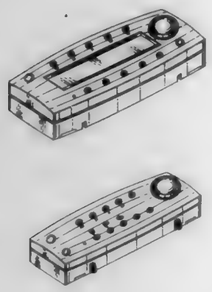


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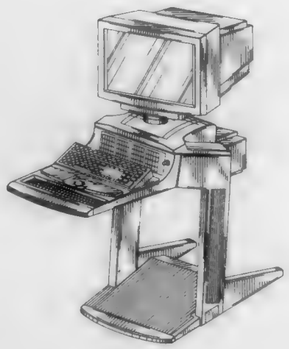
392,259
ERGONOMICAL HOUSING FOR PORTABLE COMPUTER
Arnulf Ivan Simmon, 127 Tedesco St., Marblehead, Mass. 01945
Filed May 17, 1996, Ser. No. 54,607
Term of patent 14 years
LOC (6) Cl. 14 - *02*
U.S. Cl. D14—100



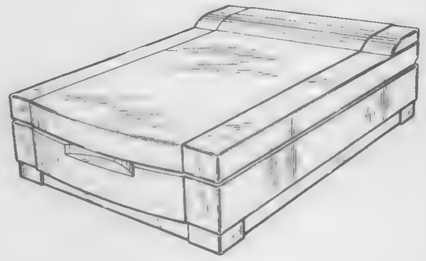
392,260
CONTROL UNIT
Robert Brunner, Los Gatos, Calif., assignor to Kabushiki Kaisha Toshiba, Kawasaki, Japan
Filed Aug. 27, 1996, Ser. No. 58,872
Term of patent 14 years
LOC (6) Cl. 14 - *02*
U.S. Cl. D14—100



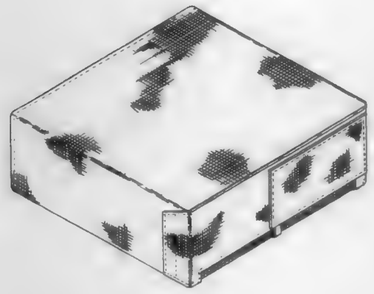
392,261
ERGONOMIC OPERATOR'S CONTROL CONSOLE
Dennis A. Kodimer, 12502 E. Doubletree Ranch Rd., Scottsdale, Ariz. 85259
Filed Jul. 23, 1996, Ser. No. 57,315
Term of patent 14 years
LOC (6) Cl. 14 - *02*
U.S. Cl. D14—103



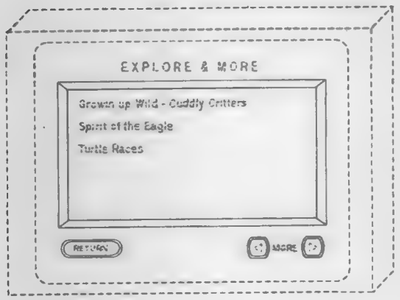
392,262
IMAGE INPUTTING DEVICE
Masayuki Iimura, Kunitachi, Japan, assignor to Canon Kabushiki Kaisha, Tokyo, Japan
Filed May 2, 1996, Ser. No. 53,923
Claims priority, application Japan, Nov. 8, 1995, 7-33644
Term of patent 14 years
LOC (6) Cl. 14 - *02*
U.S. Cl. D14—107



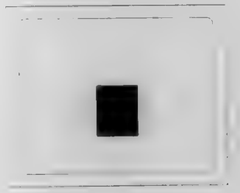
392,263
CENTRAL PROCESSING UNIT COVER
Edward W. Carlson, and Steven Lee Gaynor, both of 3009 E. Lake St., Minneapolis, Minn. 55406
Continuation-in-part of Ser. No. 34,932, Feb. 9, 1995, Pat. No. Des. 377,788. This application Feb. 4, 1997, Ser. No. 66,070
Term of patent 14 years
LOC (6) Cl. 14 - *02*
U.S. Cl. D14—114



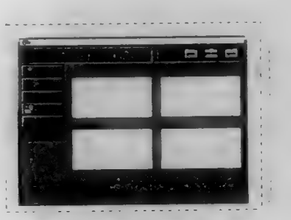
392,264
SET OF ICONS FOR THE DISPLAY SCREEN OF A VIDEO MONITOR
Marsh S. Marshall, Jr., Washington, D.C.; Morgan C. J. Almeida, London, England; Peter C. Stonier, Washington, D.C., and George D. Escobar, Herndon, Va., assignors to Bell Video Services Company, Reston, Va.
Filed Oct. 5, 1994, Ser. No. 29,432
Term of patent 14 years
LOC (6) Cl. 14 - *02*
U.S. Cl. D14—114.1



392,265
UTILITY WINDOW FOR A COMPUTER DISPLAY SCREEN
Patricia J. Coleman, P.O. Box 370238, Montara, Calif. 94037-0238
Filed May 5, 1995, Ser. No. 38,450
Term of patent 14 years
LOC (6) Cl. 14 - *02*
U.S. Cl. D14—114.2

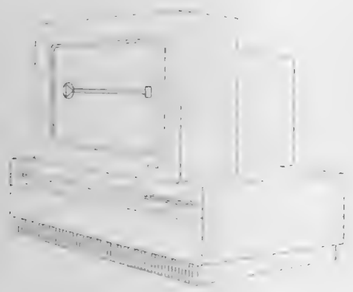


392,266
WINDOW SCREEN FOR A COMPUTER DISPLAY
Steven J. Snyder, 4121 Wendover Ct., Minnetonka, Minn. 55345; Susan H. Gebelein, 525 Radisson Rd., Golden Valley, Minn. 55416; David A. Gardiner, 14809 Hallmark Dr., Apple Valley, Minn. 55124; Jimmy D. Reinarz, Jr., 13012 Oliver Ave. South, Burnsville, Minn. 55337; Per D. Sorensen, 48 Groveland Ter., Apt 301, Minneapolis, Minn. 55403; Joel A. Langenfeld, 2607 Hayes St. Northeast, Minneapolis, Minn. 55418; Victor X. Gonzales, 3105 Dupont Ave. South, Minneapolis, Minn. 55408; Frances M. Duncan, 9760 Primrose Ave. North, Stillwater, Minn. 55082; Barbara K. Iscarella, 3243 Pierce St. Northeast, Minneapoliss, Minn. 55418; Karen A. Christian, 6710 Cahill Rd., Edina, Minn. 55439; James W. Warner, 15901 Garrett Dr., Apple Valley, Minn. 55124; Ronald J. Dedrick, 3032 Patton Rd., Roseville, Minn. 55113-1068; John L. Bruner, 23996 Olinda, Scandia, Minn. 55073; Gary R. Lindberg, 1200 N. Ferndale Rd., Plymouth, Minn. 55447; David A. Stillman, 10521 Cedar Lake Rd., #204, Minnetonka, Minn. 55305; Stafanie Harner, 7560 Chippewa Trail, Chanhassen, Minn. 55317; Lynn Feilman, 121 Washington Ave. South, Minneapolis, Minn. 55401, and Bret M. Beckman, 5316 40th Ave. South, Minneapolis, Minn. 55417
Filed Oct. 4, 1995, Ser. No. 44,965
Term of patent 14 years
LOC (6) Cl. 14 - *02*
U.S. Cl. D14—114.2

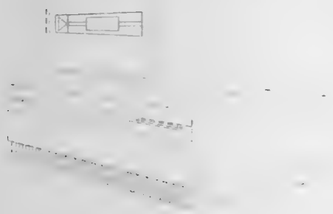


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392,267
ICON FOR A DISPLAY SCREEN
Philip Mason, Nashua, N.H.; John S. Robotham, Belmont, and Philip R. Moorby, Boxford, both of Mass., assignors to Avid Technology, Inc., Tewksbury, Mass.
Filed Apr. 6, 1995, Ser. No. 37,190
Term of patent 14 years
LOC (6) Cl. 14 - *02*
U.S. Cl. D14—114.3



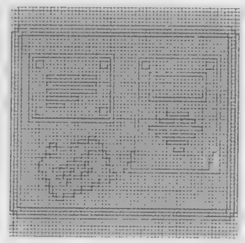
392,268
ICON FOR A DISPLAY SCREEN
Philip Mason, Nashua, N.H.; John S. Robotham, Belmont, and Philip R. Moorby, Boxford, both of Mass., assignors to Avid Technology, Inc., Tewksbury, Mass.
Filed Apr. 6, 1995, Ser. No. 37,191
Term of patent 14 years
LOC (6) Cl. 14 - *02*
U.S. Cl. D14—114.3



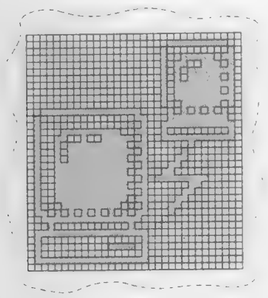
392,269
ICON FOR A DISPLAY SCREEN
Philip Mason, Nashua, N.H.; John S. Robotham, Belmont, and Philip R. Moorby, Boxford, both of Mass., assignors to Avid Technology, Inc., Tewksbury, Mass.
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Term of patent 14 years
LOC (6) Cl. 14 - *02*
U.S. Cl. D14—114.3



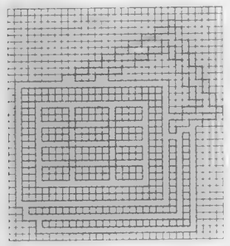
392,270
"BULLETIN BOARD ACCESS" ICON FOR A DISPLAY SCREEN
Makoto Wanishi, Tokyo; Masato Ikemori, Kawasaki; Kaeko Kariya, Inagi; Hiroshi Matsuda, Yokohama; Makoto Morioka, Kawasaki; Kazuo Hattori, Yokohama; Hiroshi Suzuki, Kawasaki, and Daisaburo Murai, Tokyo, all of Japan, assignors to Fujitsu Limited, Kawasaki, Japan
Division of Ser. No. 592,317, Oct. 1, 1990. This application May 27, 1997, Ser. No. 71,270
Term of patent 14 years
LOC (6) Cl. 14 - *99*
U.S. Cl. D14—114.3



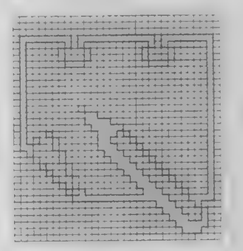
392,271
"COMMUNICATION BETWEEN PERSONAL COMPUTERS" ICON FOR A DISPLAY SCREEN
Makoto Wanishi, Tokyo; Masato Ikemori, Kawasaki; Kaeko Kariya, Inagi; Hiroshi Matsuda, Yokohama; Makoto Morioka, Kawasaki; Kazuo Hattori, Yokohama; Hiroshi Suzuki, Kawasaki, and Daisaburo Murai, Tokyo, all of Japan, assignors to Fujitsu Limited, Kawasaki, Japan
Division of Ser. No. 592,317, Oct. 1, 1990. This application May 27, 1997, Ser. No. 71,274
Term of patent 14 years
LOC (6) Cl. 14 - *99*
U.S. Cl. D14—114.3



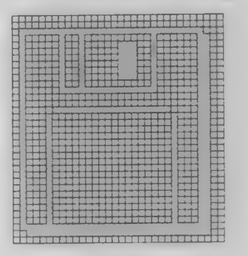
392,272
CARD TYPE DATABASE ACTIVATION ICON FOR A DISPLAY SCREEN
Makoto Wanishi, Tokyo; Masato Ikemori, Nakahara-ku; Kaeko Kariya, Inagi; Hiroshi Matsuda, Yokohama; Makoto Morioka, Kawasaki; Kazuo Hattori, Yokohama; Hiroshi Suzuki, Kawasaki, and Daisaburo Murai, Tokyo, all of Japan, assignors to Fujitsu Limited, Kawasaki, Japan
Division of Ser. No. 592,317, Oct. 1, 1990. This application May 27, 1997, Ser. No. 71,275
Term of patent 14 years
LOC (6) Cl. 14 - *99*
U.S. Cl. D14—114.3



392,273
MEMO FUNCTION ACTIVATION ICON FOR A DISPLAY SCREEN
Makoto Wanishi, Tokyo; Masato Ikemori, Kawasaki; Kaeko Kariya, Inagi; Hiroshi Matsuda, Yokohama; Makoto Morioka, Kawasaki; Kazuo Hattori, Yokohama; Hiroshi Suzuki, Kawasaki, and Daisaburo Murai, Tokyo, all of Japan, assignors to Fujitsu Limited, Kawasaki, Japan
Division of Ser. No. 592,317, Oct. 1, 1990. This application May 27, 1997, Ser. No. 71,284
Term of patent 14 years
LOC (6) Cl. 14 - *99*
U.S. Cl. D14—114.3

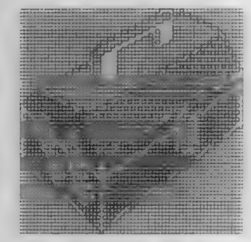


392,274
"FLOPPY DISK" ICON FOR A DISPLAY SCREEN
Makoto Wanishi, Tokyo; Masato Ikemori, Kawasaki; Kaeko Kariya, Inagi; Hiroshi Matsuda, Yokohama; Makoto Morioka, Kawasaki; Kazuo Hattori, Yokohama; Hiroshi Suzuki, Kawasaki, and Daisaburo Murai, Tokyo, all of Japan, assignors to Fujitsu Limited, Kawasaki, Japan
Division of Ser. No. 592,317, Oct. 1, 1990. This application May 27, 1997, Ser. No. 71,290
Term of patent 14 years
LOC (6) Cl. 14 - *99*
U.S. Cl. D14—114.3

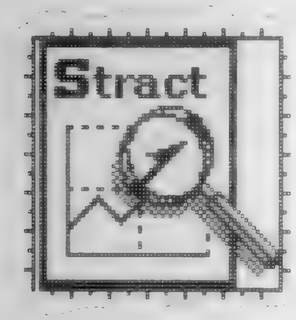


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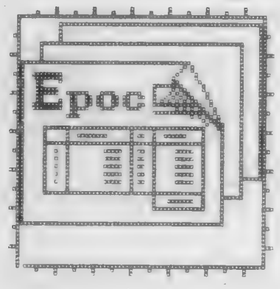
392,275
TOOLBOX ICON FOR A DISPLAY SCREEN
Makoto Wanishi, Tokyo; Masato Ikemori, Kawasaki; Kaeko Kariya, Inagi; Hiroshi Matsuda, Yokohama; Makoto Morioka, Kawasaki; Kazuo Hattori, Yokohama; Hiroshi Suzuki, Kawasaki, and Daisaburo Murai, Tokyo, all of Japan, assignors to Fujitsu Limited, Kawasaki, Japan
Division of Ser. No. 592,317, Oct. 1, 1990, Pat. No. Des. 386,166. This application May 27, 1997, Ser. No. 71,304
Term of patent 14 years
LOC (6) Cl. 14 - *99*
U.S. Cl. D14—114.3



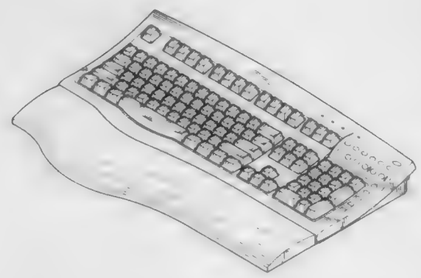
392,276
"ACTIVATION " ICON FOR A DISPLAY SCREEN
Makoto Wanishi, Tokyo; Kazuo Hattori, Yokohama, and Daisaburo Murai, Tokyo, all of Japan, assignors to Fujitsu Limited, Kawasaki, Japan
Division of Ser. No. 588,819, Sep. 27, 1990. This application May 27, 1997, Ser. No. 71,331
Term of patent 14 years
LOC (6) Cl. 14 - *99*
U.S. Cl. D14—114.3



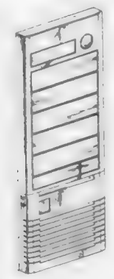
392,277
"DATA" ICON FOR A DISPLAY SCREEN
Makoto Wanishi, Tokyo; Kazuo Hattori, Yokohama, and Daisaburo Murai, Tokyo, all of Japan, assignors to Fujitsu Limited, Kawasaki, Japan
Division of Ser. No. 588,819, Sep. 27, 1990. This application May 27, 1997, Ser. No. 71,335
Term of patent 14 years
LOC (6) Cl. 14 - *99*
U.S. Cl. D14—114.3



392,278
KEYBOARD
Frank Chen, Taipei, Taiwan, assignor to Silitek Corporation, Taipei, Taiwan
Filed Jan. 31, 1997, Ser. No. 65,288
Term of patent 14 years
LOC (6) Cl. 14 - *02*
U.S. Cl. D14—115



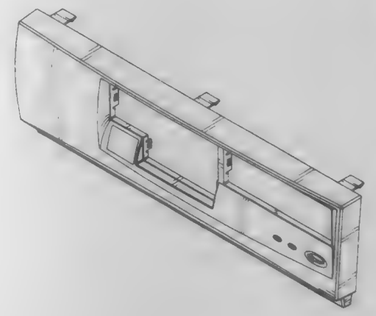
392,279
COMPUTER CABINET FRONT PANEL
Hermann Lin, 6095-D Northbelt Dr., Norcross, Ga. 30071
Filed Mar. 10, 1997, Ser. No. 67,632
Term of patent 14 years
LOC (6) Cl. 14 - *02*
U.S. Cl. D14—115



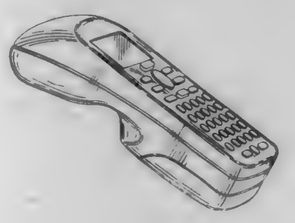
392,280
COMPUTER CABINET FRONT PANEL
Hermann Lin, 6095-D Northbelt Dr., Norcross, Ga. 30071
Filed Mar. 10, 1997, Ser. No. 67,633
Term of patent 14 years
LOC (6) Cl. 14 - *02*
U.S. Cl. D14—115



392,281
FRONT BEZEL FOR A DESKTOP PERSONAL COMPUTER
Anton Poole, and James P. Collas, both of Dakota Dunes, S. Dak., assignors to Gateway 2000, Inc., North Sioux City, S. Dak.
Filed May 7, 1997, Ser. No. 71,003
Term of patent 14 years
LOC (6) Cl. 14 - *02*
U.S. Cl. D14—115

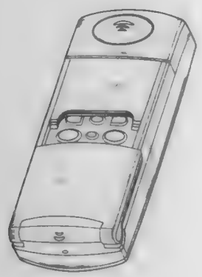


392,282
CONTOURED HOUSING FOR A HAND HELD TERMINAL
Kevin J. Ahearn, Matthews; Lawrence R. Ober, Pineville, and Michiel Reineir Ausems, Charlotte, all of N.C., assignors to Hand Held Products, Inc., Charlotte, N.C.
Continuation-in-part of Ser. No. 51,739, Mar. 18, 1996, abandoned. This application Sep. 6, 1996, Ser. No. 60,284
Term of patent 14 years
LOC (6) Cl. 14 - *02*
U.S. Cl. D14—116

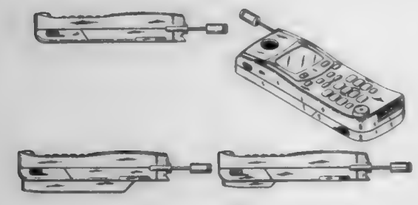


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392,283
PORTABLE TELEPHONE HANDSET
Joseph James Giordano, Jr., Belle Mead; James R. Graham, Bedminster; Joel Thomas Holl, Holmdel; William Vincent Jackwicz, Spring Lake Heights; Pratod V. Kasbekar, Manalapan; Harish Shankar Mangrulkar, Colonia; Michael L. Moroze, New Egypt, all of N.J.; Michael John Nuttall, Portola Valley, Calif.; Joseph J. Rizzo, Cliffwood Beach, N.J.; Christopher A. Robinette, Woodside, Calif.; John Henry Schaffeld, New Vernon, N.J.; Susan L. Tuttle, East Windsor, N.J.; William E. Venth, Union Beach, N.J.; Karl Edward Werner, Norristown, Pa., and Romano M. Zambon, Sea Bright, N.J., assignors to Lucent Technologies Inc., Murray Hill, N.J.
Filed Dec. 30, 1994, Ser. No. 32,963
Term of patent 14 years
LOC (6) Cl. 14 - *03*
U.S. Cl. D14—138



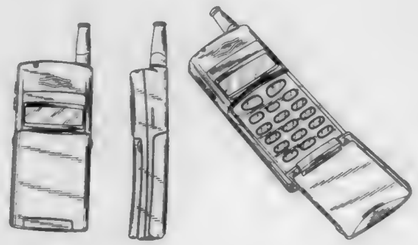
392,284
TELEPHONE
Joel Q. Adams, Pflugerville, Tex.; Harald F. Bader, Peiting, Germany; David E. Bryant, Austin, Tex.; Erich C. Elkins, San Francisco, Calif.; Doug A. Erwin, Austin; Wayne E. McKinnon, Georgetown, both of Tex., and Ulrich Skrypalle, München, Germany, assignors to Siemens Business Communications Systems, Iselin, N.J.
Filed Jul. 12, 1996, Ser. No. 56,939
The portion of the term of this patent subsequent to Jan. 13, 2012, has been disclaimed.
Term of patent 14 years
LOC (6) Cl. 14 - *03*
U.S. Cl. D14—138



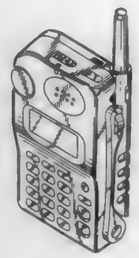
392,285
SATELLITE TELEPHONE
James D. MacDonald, Apex, and Yawei Ma, Cary, both of N.C., assignors to Telefonaktiebolaget LM Ericsson, Stockholm, Sweden
Filed Sep. 12, 1996, Ser. No. 59,485
Claims priority, application Sweden, Mar. 13, 1996, 96-0591
Term of patent 14 years
LOC (6) Cl. 14 - *03*
U.S. Cl. D14—138



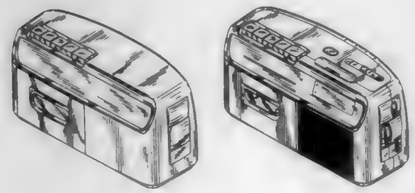
392,286
MOBILE TELEPHONE
Hans Fredrik Eckholm, Minneapolis, Minn., assignor to Telefonaktiebolaget LM Ericsson, Stockholm, Sweden
Filed Sep. 12, 1996, Ser. No. 59,490
Claims priority, application Sweden, Mar. 13, 1996, 96-0588
Term of patent 14 years
LOC (6) Cl. 14 - *03*
U.S. Cl. D14—138



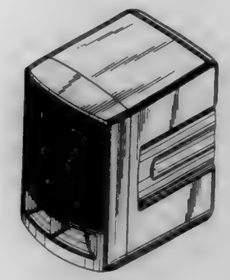
392,287
WIRELESS TELEPHONE
Ichiro Hino, Tokyo, Japan, assignor to Sony Corporation, Tokyo, Japan
Division of Ser. No. 46,232, Nov. 9, 1995, Pat. No. Des. 378,816. This application Dec. 31, 1996, Ser. No. 64,425
Claims priority, application Japan, Jul. 26, 1995, 7-21463
Term of patent 14 years
LOC (6) Cl. 14 - *03*
U.S. Cl. D14—138



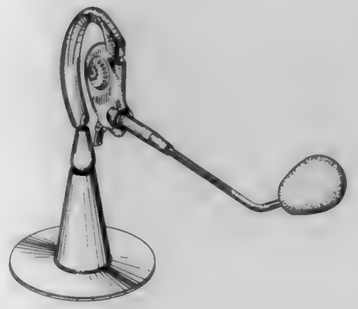
392,288
COMBINED RADIO AND TAPE PLAYER
Takayuki Kobayashi, Tokyo, Japan, assignor to Sony Corporation, Tokyo, Japan
Filed Feb. 21, 1997, Ser. No. 67,004
Term of patent 14 years
LOC (6) Cl. 14 - *01*
U.S. Cl. D14—162



392,289
SPEAKER BOX
Yasuaki Isonaga, Tokyo, Japan, assignor to Sony Kabushiki Kaisha, Tokyo, Japan
Filed Aug. 8, 1996, Ser. No. 58,145
Claims priority, application Japan, Feb. 16, 1996, 8-3657
Term of patent 14 years
LOC (6) Cl. 14 - *01*
U.S. Cl. D14—214

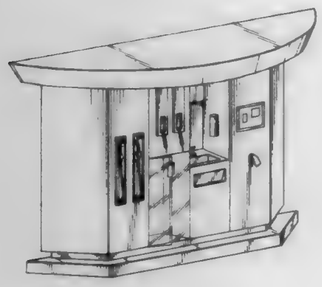


392,290
COMBINED BOOM MICROPHONE HEADSET AND STAND
Douglas Andrea, New York, N.Y., assignor to Andrea Electronics Corporation, Long Island City, N.Y.
Filed Oct. 27, 1995, Ser. No. 45,740
Term of patent 14 years
LOC (6) Cl. 14 - *01*
U.S. Cl. D14—223

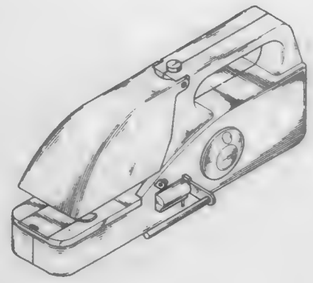


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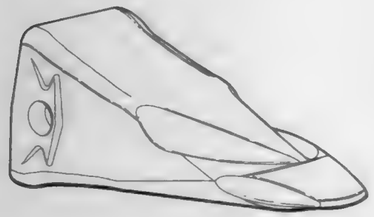
392,291
COMBINED FUEL, AIR, OIL AND WINDSHIELD WASHER FLUID DISPENSING UNIT WITH WASHING FACILITIES
Stein Alvern, Oslo, and Øyvind Alvern, Hjellestad, both of Norway, assignors to Alvern Norway AS, Norway
Filed Oct. 16, 1996, Ser. No. 61,129
Claims priority, application Norway, Apr. 24, 1996, D96269
Term of patent 14 years
LOC (6) Cl. 15 - *02*
U.S. Cl. D15—9.1



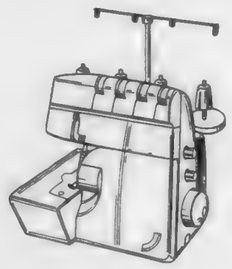
392,293
HAND-HELD ELECTRIC SEWING MACHINE
Shi-chour Tsay, and Jen-hsin Ho, both of Taoyuan Hsien, Taiwan, assignors to Airtek Industry Corp., Taipei, Taiwan
Filed Jul. 29, 1996, Ser. No. 57,627
Term of patent 14 years
LOC (6) Cl. 15 - *06*
U.S. Cl. D15—69



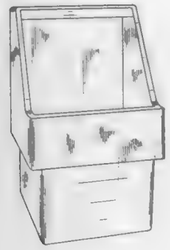
392,292
DIGGER TOOTH
Jorge Pallas Moreno, Premia de Mar, Spain, assignor to Metalogenia, S.A., Premia de Mar, Spain
Filed Jun. 14, 1996, Ser. No. 55,897
Claims priority, application Spain, Dec. 14, 1995, 136465
Term of patent 14 years
LOC (6) Cl. 15 - *03*
U.S. Cl. D15—29



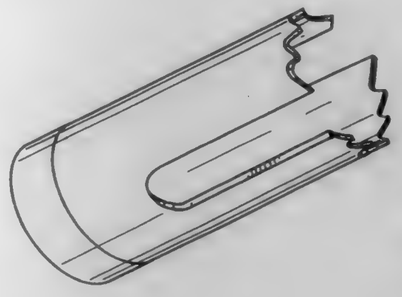
392,294
SEWING MACHINE
Shigemasa Kato, and Sanae Takada, both of Chofu, Japan, assignors to Juki Corporation, Chofu, Japan
Filed Nov. 6, 1996, Ser. No. 62,050
Claims priority, application Japan, May 7, 1996, 8-13098
Term of patent 14 years
LOC (6) Cl. 15 - *06*
U.S. Cl. D15—69



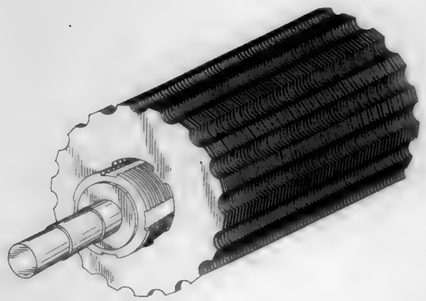
392,295
REFRIGERATED DISPLAY UNIT
Terry Johnson, Chicago, Ill., assignor to Gamon International, Inc., Elk Grove Village, Ill.
Filed Mar. 14, 1997, Ser. No. 67,980
Term of patent 14 years
LOC (6) Cl. 15 - *07*
U.S. Cl. D15—81



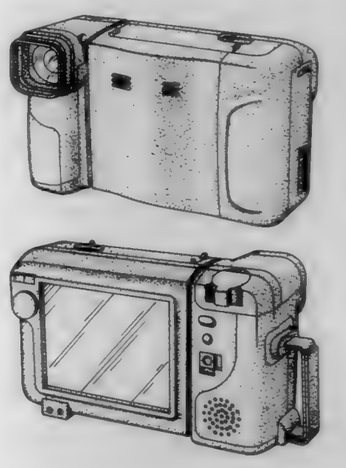
392,297
HOLE SAW
David T. Brutscher, Louisville, Ky., assignor to Credo Tool Company, Woodburn, Oreg.
Filed Aug. 9, 1996, Ser. No. 58,212
The portion of the term of this patent subsequent to Mar. 10, 2012, has been disclaimed.
Term of patent 14 years
LOC (6) Cl. 15 - *09*
U.S. Cl. D15—139



392,296
DISC SCREEN ROTOR INCLUDING SHAFT AND DISCS
Gustav Fredriksson, Sundsvall, Sweden, assignor to Rotom Verkstäder AB, Sundsvall, Sweden
Filed Mar. 5, 1996, Ser. No. 51,453
Claims priority, application Sweden, Sep. 6, 1995, 95-1683
Term of patent 14 years
LOC (6) Cl. 15 - *09*
U.S. Cl. D15—123

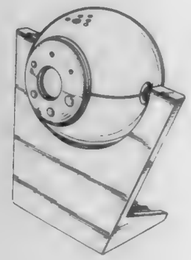


392,298
COMBINED MONITOR, VIDEO TAPE RECORDER AND VIDEO CAMERA
Hiroshi Ohi; Seiji Kurokawa, and Katsunori Kume, all of Tochigi-ken, Japan, assignors to Sharp Kabushiki Kaisha, Osaka, Japan
Filed Mar. 10, 1997, Ser. No. 67,525
Claims priority, application Japan, Sep. 27, 1996, 8-29021
Term of patent 14 years
LOC (6) Cl. 16 - *01*
U.S. Cl. D16—202

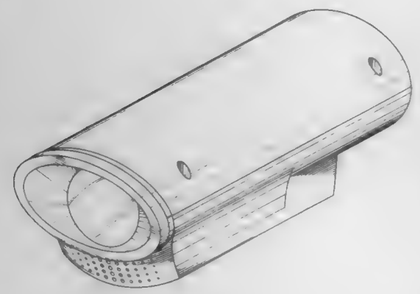


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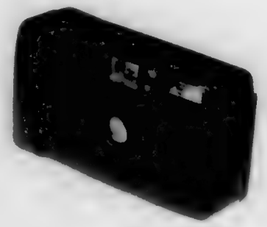
392,299
PC CAMERA
Ming-Te Lin, Taipei, Taiwan, assignor to Asia Microelectronic Development Inc., Taiwan
Filed Apr. 28, 1997, Ser. No. 69,553
Term of patent 14 years
LOC (6) Cl. 16 - *01*
U.S. Cl. D16—202



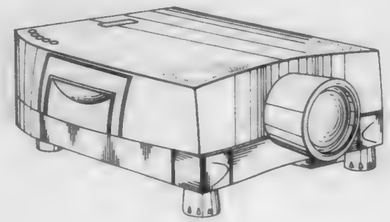
392,300
CAMERA HOUSING
Cary Robert Chow; Juan Pablo Cilia, both of Los Angeles; Christopher Warren Glupker, Van Nuys; Donald Joseph Huntting, Moorpark; Lance Gordon Hussey, Sherman Oaks; Ravi Kumar Sawhney, Calabasas, and John Frank Zinni, Capistrano Beach, all of Calif., assignors to Zero Corporation, Los Angeles, Calif.
Filed Mar. 4, 1997, Ser. No. 67,092
Term of patent 14 years
LOC (6) Cl. 16 - *01*
U.S. Cl. D16—203



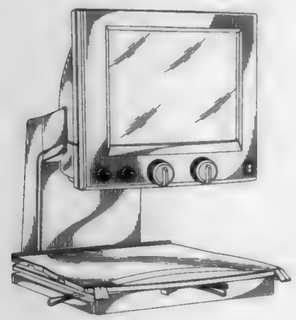
392,301
CAMERA
Jun Akabane, Yokohama, and Masaaki Yanagisawa, Chigasaki, both of Japan, assignors to Nikon Corporation, Tokyo, Japan
Filed Jan. 26, 1995, Ser. No. 34,048
Term of patent 14 years
LOC (6) Cl. 16 - *01*
U.S. Cl. D16—209



392,302
LIQUID CRYSTAL PROJECTOR
Yukihiko Oota, Osaka; Yoshinari Horimoto, Tokyo, and Hideo Miura, Osaka, all of Japan, assignors to NEC Corporation, Tokyo, Japan
Filed Dec. 2, 1996, Ser. No. 62,904
Claims priority, application Japan, May 31, 1996, 8-16032
Term of patent 14 years
LOC (6) Cl. 16 - *02*
U.S. Cl. D16—221



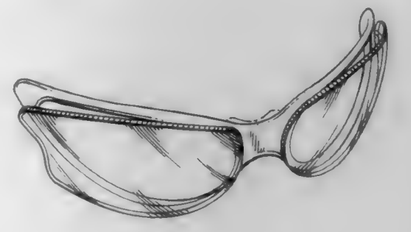
392,303
CLOSED CIRCUIT TELEVISION VISION ASSISTANCE SYSTEM
Matthew D. Hern, San Francisco, Calif., assignor to Xerox Corporation, Stamford, Conn.
Filed Feb. 14, 1997, Ser. No. 66,507
Term of patent 14 years
LOC (6) Cl. 16 - *02*
U.S. Cl. D16—225



392,304
SUNGLASS
Jerome Jacques Marie Mage, Carlsbad, Calif., assignor to Spy Optic, Inc., Carlsbad, Calif.
Filed Oct. 28, 1996, Ser. No. 61,610
Term of patent 14 years
LOC (6) Cl. 16 - *06*
U.S. Cl. D16—319



392,305
EYEGLASSES
David K. Peschel, San Francisco, and Alexander Z. Nosler, Santa Clara, both of Calif., assignors to Nike, Inc., Beaverton, Oreg.
Filed May 3, 1996, Ser. No. 53,989
Term of patent 14 years
LOC (6) Cl. 16 - *06*
U.S. Cl. D16—326



392,306
EYEWEAR
Gregory F. Arnette, South Laguna Beach, Calif., assignor to Bausch & Lomb Incorporated, Rochester, N.Y.
Filed Oct. 31, 1996, Ser. No. 61,801
Term of patent 14 years
LOC (6) Cl. 16 - *06*
U.S. Cl. D16—326



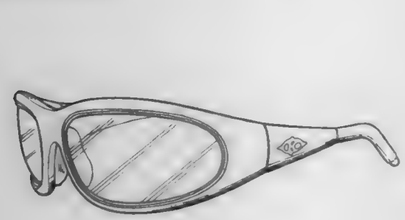
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392,307
SUNGLASSES
Ken Wilson, 12925 BrookPrinter, Pl. #200, Poway, Calif. 92064
Filed Apr. 7, 1997, Ser. No. 67,910
Term of patent 14 years
LOC (6) Cl. 16 - *06*
U.S. Cl. D16—326



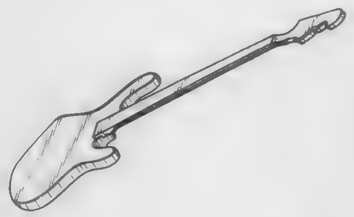
392,308
SUNGLASSES
Luciano Simioni, Montebelluna, Italy, assignor to Killer Loop Eyewear S.p.A., Pederobba, Italy
Filed May 16, 1997, Ser. No. 70,788
Claims priority, application Italy, Nov. 19, 1996, TV9600063
Term of patent 14 years
LOC (6) Cl. 16 - *06*
U.S. Cl. D16—326



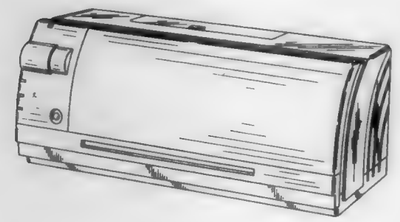
392,309
EYEGLASS TEMPLE
Jörg Elsweiler, Essen, Germany, assignor to Optik Elsweiler GmbH, Essen, Germany
Filed Jun. 24, 1996, Ser. No. 56,137
Term of patent 14 years
LOC (6) Cl. 16 - *06*
U.S. Cl. D16—335



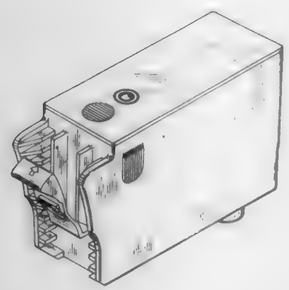
392,310
GUITAR
Michael D. McGuire, Lebanon, Tenn., assignor to Gibson Guitar Corp., Nashville, Tenn.
Filed Jan. 17, 1996, Ser. No. 48,998
Term of patent 14 years
LOC (6) Cl. 17 - *03*
U.S. Cl. D17—20



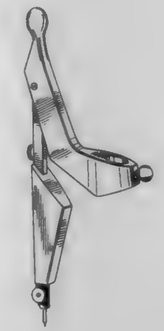
392,311
PRINTER
Hiroshi Takano, Saijo, Japan, assignor to Matsushita Electric Industrial Co., LTd., Japan
Filed May 5, 1997, Ser. No. 69,609
Claims priority, application Japan, Nov. 12, 1996, 8-034350
Term of patent 14 years
LOC (6) Cl. 14 - *02*
U.S. Cl. D18—50



392,312
INK TANK FOR PRINTER
Manabu Inoue, Yokohama; Hajime Kishida, Tokyo, and Osamu Sato, Chigasaki, all of Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan
Filed Apr. 11, 1997, Ser. No. 69,118
Claims priority, application Japan, Oct. 16, 1996, 8-30934
Term of patent 14 years
LOC (6) Cl. 18 - *02*
U.S. Cl. D18—56



392,313
COMPASS
Ernest Hofmann-Igl, Davos, Switzerland, assignor to Scompas Kern AG, Switzerland
Filed Oct. 30, 1996, Ser. No. 61,759
Claims priority, application Switzerland, May 1, 1996, 123246
Term of patent 14 years
LOC (6) Cl. 19 - *06*
U.S. Cl. D19—38

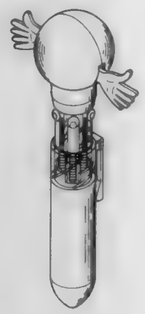


392,314
HIGHLIGHTER WITH PAGE TABS
Lawrence W. Wilkerson, 345 Florence St., Sharon, Pa. 16146
Filed May 13, 1997, Ser. No. 70,665
Term of patent 14 years
LOC (6) Cl. 19 - *06*
U.S. Cl. D19—35

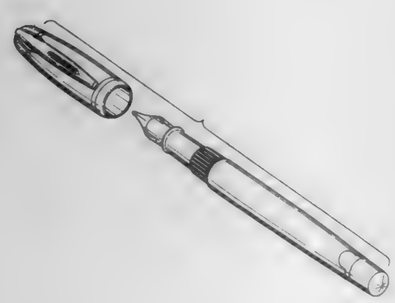


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392,315
PEN
Chin-Chen Yang, 1F, No. 3, Lane 530, Min Tsu Rd., Lu Chou, Taipei Hsien, Taiwan
Filed May 2, 1997, Ser. No. 70,878
Term of patent 14 years
LOC (6) Cl. 19 - *06*
U.S. Cl. D19—42



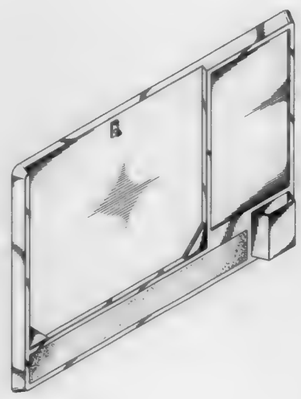
392,316
PEN
Jean-Paul Verhaeghe, Herblain, France, assignor to Waterman S.A., Paris, France
Filed Jan. 17, 1997, Ser. No. 65,031
Term of patent 14 years
LOC (6) Cl. 19 - *06*
U.S. Cl. D19—49



392,317
WRITING INSTRUMENT
Heinz Rüffer, Rastatt, Germany, assignor to Zeppelin Museum Friedrichshafen GmbH, Friedrichshafen, Germany
Filed Feb. 5, 1997, Ser. No. 66,117
Claims priority, application Germany, Aug. 5, 1996, M 96 06 696.2
Term of patent 14 years
LOC (6) Cl. 19 - *06*
U.S. Cl. D19—51



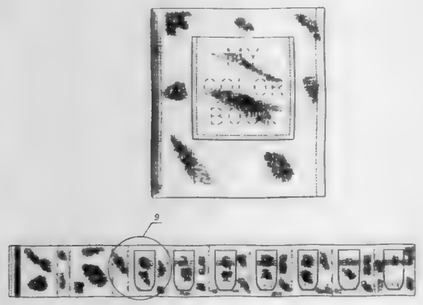
392,318
MULTI-PURPOSE INFORMATION CENTER
Douglas M. Jack, Fullerton, Calif., assignor to Day Runner, Inc., Fullerton, Calif.
Filed Nov. 18, 1996, Ser. No. 62,993
Term of patent 14 years
LOC (6) Cl. 19 - *06*
U.S. Cl. D19—52



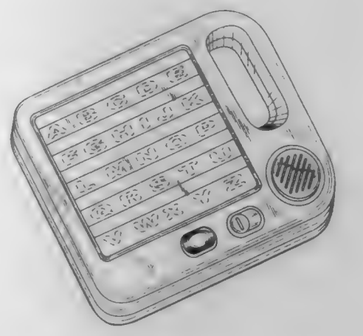
392,319
WOODEN BLOCK
Bruce K. Boundy, 6543 Thornapple River Dr., Alto, Mich. 49302
Filed Sep. 23, 1993, Ser. No. 13,413
Term of patent 14 years
LOC (6) Cl. 19 - *07*
U.S. Cl. D19—59



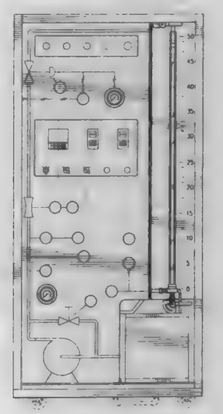
392,320
FAN-FOLDABLE EDUCATIONAL BOOK FOR STORING COLORS
Kimberly Ann Weed, 217 S. Charles St. #3, Belleville, Ill. 62220
Continuation-in-part of Ser. No. 90,160, Feb. 9, 1996, abandoned. This application Feb. 8, 1997, Ser. No. 66,269
Term of patent 14 years
LOC (6) Cl. 19 - *07*
U.S. Cl. D19—59



392,321
TOY TEACHING DEVICE
Ying Kit Chan, Chaiwan, Hong Kong, assignor to Scientific Toys Ltd., Chaiwan, Hong Kong
Filed Jun. 12, 1996, Ser. No. 55,744
Term of patent 14 years
LOC (6) Cl. 19 - *07*
U.S. Cl. D19—60

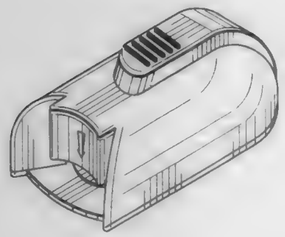


392,322
FRONT FACE OF A PANEL ON AN EDUCATIONAL CONSOLE
Maurice Pouliot, St-Etienne-Lauzon, Canada, assignor to Automation R.P. Inc., St-Etienne-de-Lauzon, Canada
Filed Sep. 27, 1995, Ser. No. 44,586
Term of patent 14 years
LOC (6) Cl. 19 - *07*
U.S. Cl. D19—64

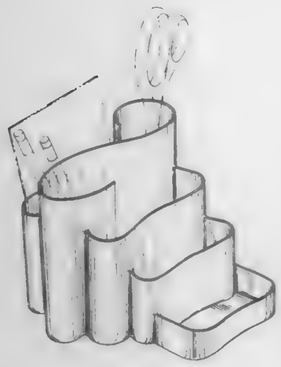


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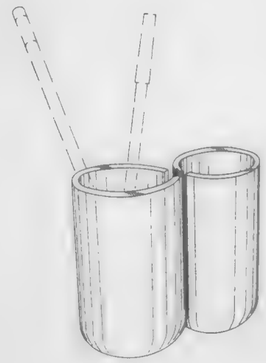
392,323
CORNER ROUNDER PUNCH CUTTER
Richard M. Appelbaum, 21 Maitland Grove Rd., Maitland, Fla. 32751
Filed Mar. 24, 1997, Ser. No. 68,267
Term of patent 14 years
LOC (6) Cl. 19 - *02*
U.S. Cl. D19—72



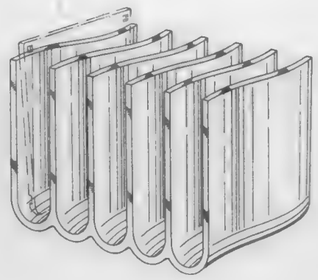
392,324
DESKTOP ORGANIZER
Albert B. Cheris, Highland Park, and Mark Dziersk, Chicago, both of Ill., assignors to Tenex Corporation, Elk Grove Village, Ill.
Filed Apr. 1, 1997, Ser. No. 68,603
Term of patent 14 years
LOC (6) Cl. 19 - *06*
U.S. Cl. D19—78



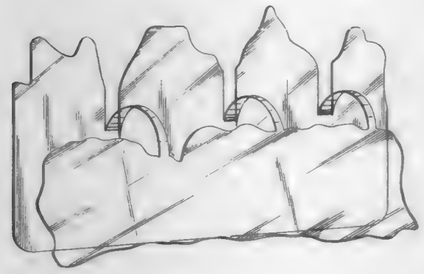
392,325
HOLDER FOR PENS, PENCILS AND THE LIKE
Albert B. Cheris, Highland Park, and Mark Dziersk, Chicago, both of Ill., assignors to Tenex Corporation, Elk Grove Village, Ill.
Filed Apr. 1, 1997, Ser. No. 68,558
Term of patent 14 years
LOC (6) Cl. 19 - *06*
U.S. Cl. D19—85



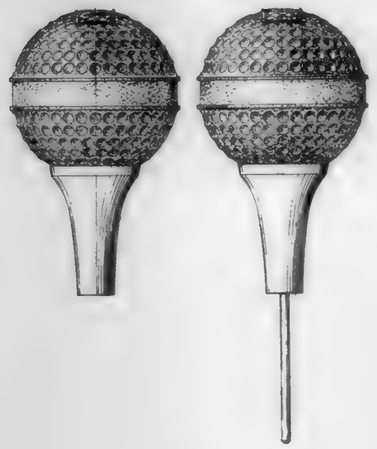
392,326
SORTER FILE FOR NOTES, DISCS AND THE LIKE
Albert B. Cheris, Highland Park, and Mark Dziersk, Chicago, both of Ill., assignors to Tenex Corporation, Elk Grove Village, Ill.
Filed Apr. 1, 1997, Ser. No. 68,602
Term of patent 14 years
LOC (6) Cl. 19 - *02*
U.S. Cl. D19—90



392,327
DECORATION
Kenneth L. Krattiger, 2512 Methil Dr., Birchwood, Wis. 54817
Filed Feb. 25, 1997, Ser. No. 66,827
Term of patent 14 years
LOC (6) Cl. 19 - *08*
U.S. Cl. D20—23



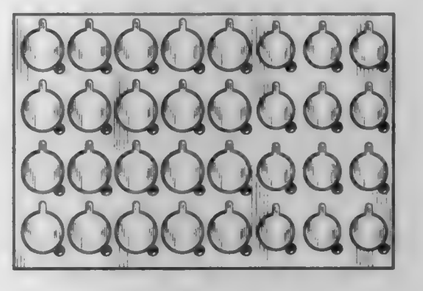
392,328
SIGN
Micael Johansson, Jönköping, Sweden, assignor to TeeMas AB, Jonkoping, Sweden
Filed Aug. 5, 1996, Ser. No. 57,962
Term of patent 14 years
LOC (6) Cl. 20 - *02*
U.S. Cl. D20—29



392,329
DISPLAY DEVICE
Kirk Douglas Harrington, 631 Conestoga Trail, Chanhassen, Minn. 55317
Filed Jan. 31, 1997, Ser. No. 65,657
Term of patent 14 years
LOC (6) Cl. 20 - *03*
U.S. Cl. D20—29

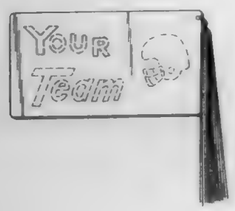


392,330
MEDALLION HOLDING PLATE WITH ECCENTRICALLY HEADED SCREWS
Michael J. Sucese, 14 Brentwood Dr., Rochester, N.Y. 14624
Filed Apr. 1, 1996, Ser. No. 52,503
Term of patent 14 years
LOC (6) Cl. 20 - *02*
U.S. Cl. D20—42

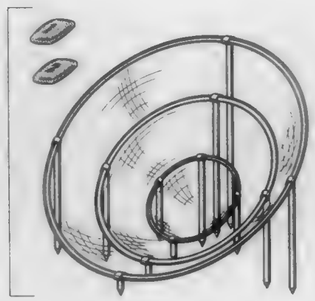


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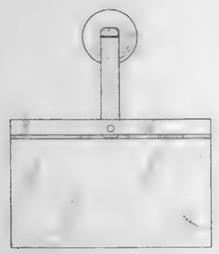
392,331
MAGNETIC POSTER WITH STREAMERS
Marvin Lacoste, P.O. Box 292, Kiln, Miss. 39556
Filed Nov. 6, 1996, Ser. No. 62,037
Term of patent 14 years
LOC (6) Cl. 20 - *02*
U.S. Cl. D20—42



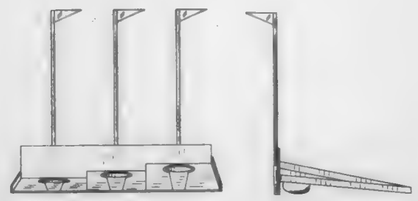
392,333
YARD GAME
William Griggie, 150 Bellevue Rd., Pittsburgh, Pa. 15229
Filed Sep. 30, 1996, Ser. No. 60,450
Term of patent 14 years
LOC (6) Cl. 21 - *01*
U.S. Cl. D21—5



392,332
RECIPE CARD DISPLAY APPARATUS
Daniel Ruprecht, 56 Nicks Rock Rd., Plymouth, Mass. 02360
Filed May 8, 1997, Ser. No. 70,484
Term of patent 14 years
LOC (6) Cl. 20 - *02*
U.S. Cl. D20—43

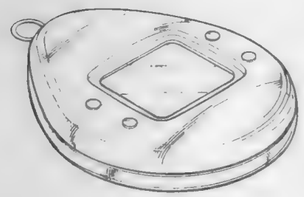


392,334
GOLF GAME
Horace J. Taylor, 349 N. Homan Ave., Chicago, Ill. 60624
Filed Apr. 14, 1997, Ser. No. 69,411
Term of patent 14 years
LOC (6) Cl. 21 - *01*
U.S. Cl. D21—8



392,335
Patent Not Issued For This Number

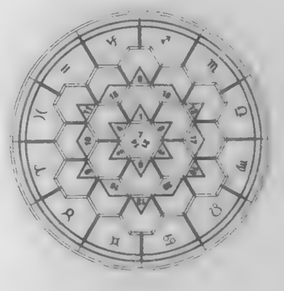
392,336
VIDEO GAME
Da-Ming Liu, 5F., No. 13, Pao Kao Rd., Hsin Tien, Taipei Hsien, Taiwan
Filed May 12, 1997, Ser. No. 70,629
Term of patent 14 years
LOC (6) Cl. 21 - *01*
U.S. Cl. D21—13



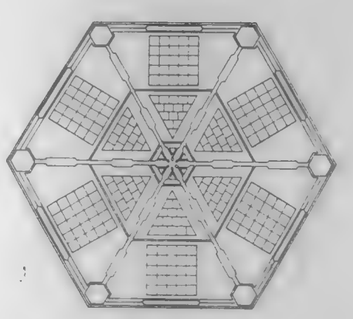
392,337
BOARD GAME
John T. Devin, Jr., 74 Holly Ridge Dr., Sandwich, Mass. 02563
Filed Oct. 5, 1995, Ser. No. 44,991
Term of patent 14 years
LOC (6) Cl. 21 - *01*
U.S. Cl. D21—32



392,338
BOARD GAME
Michel Déry, 4171, Rang St-Martin, Chicoutimi, Québec, Canada, G7H 5A7
Filed Dec. 20, 1996, Ser. No. 64,049
Claims priority, application Canada, Oct. 21, 1996, 1996-2419
Term of patent 14 years
LOC (6) Cl. 21 - *01*
U.S. Cl. D21—32

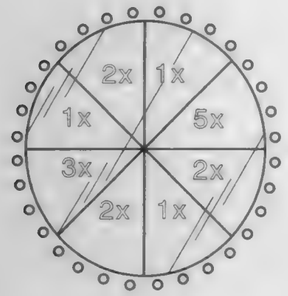


392,339
BOARD GAME
Donald James Truman, 18 Banool Street, Kareela, New South Wales 2232, Australia
Filed Aug. 1, 1996, Ser. No. 57,814
Claims priority, application Australia, Feb. 1, 1996, 259/96; Jul. 30, 1996, 2477/96
Term of patent 14 years
LOC (6) Cl. 21 - *01*
U.S. Cl. D21—33



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392,340
DISPLAY GLASS FOR SLOT MACHINE SHOWING AWARD MULTIPLICATION VALUES
Frank DeSimone, Henderson, Nev., assignor to Sigma Game, Inc., Las Vegas, Nev.
Filed Apr. 8, 1997, Ser. No. 70,020
Term of patent 14 years
LOC (6) Cl. 21 - *02*
U.S. Cl. D21—37



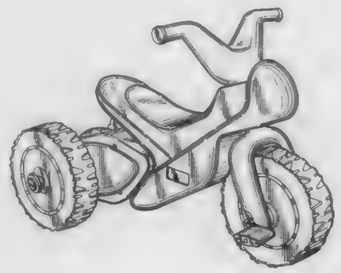
392,341
SEPARATOR RING FOR A ROULETTE WHEEL
Jeffrey Paul Lindsay, London, United Kingdom, assignor to John Huxley Limited, London, United Kingdom
Filed Dec. 5, 1996, Ser. No. 63,310
Term of patent 14 years
LOC (6) Cl. 21 - *01*
U.S. Cl. D21—40



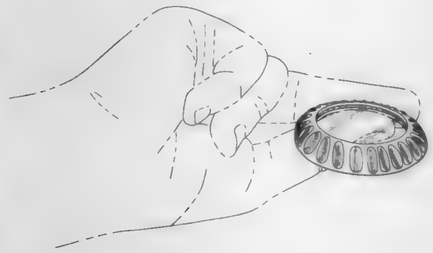
392,342
CONTROL PAD
Kelly D. Tyler, Box 841, Jamul, Calif. 91935
Filed May 15, 1997, Ser. No. 72,313
Term of patent 14 years
LOC (6) Cl. 21 - *01*
U.S. Cl. D21—48



392,343
CHILD'S RIDE-ON TOY
Christopher W. Sloss, Olney, Ill., assignor to Roadmaster Corporation, Olney, Ill.
Continuation of Ser. No. 34,324, Feb. 1, 1995, abandoned.
This application Aug. 24, 1995, Ser. No. 43,056
Term of patent 14 years
LOC (6) Cl. 16 - *06*
U.S. Cl. D21—80



392,344
THROWING OBJECT
Harold W. Salisian, 2 S. Golden West Ave., Arcadia, Calif. 91007
Filed Feb. 26, 1996, Ser. No. 50,939
Term of patent 14 years
U.S. Cl. D21—82



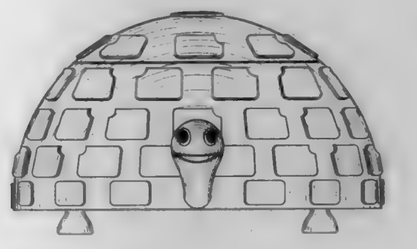
392,345
ILLUMINATED KITE
Julie A. Burghardt, 8 Sunnyside Ter., Staten Island, N.Y. 10301
Filed Jun. 5, 1997, Ser. No. 71,674
Term of patent 14 years
LOC (6) Cl. 21 - *01*
U.S. Cl. D21—88



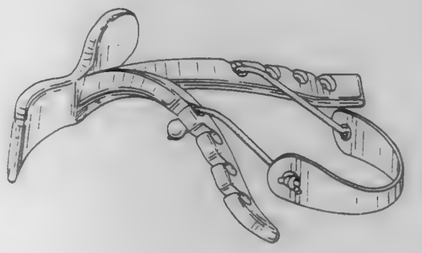
392,346
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392,347
Patent Not Issued For This Number

392,348
COMPOSITE TURTLE TOY
Boris Khaimov, 77-34 Austin St., Apt. 2E, Forest Hills, N.Y. 11375
Filed Dec. 23, 1996, Ser. No. 64,185
Term of patent 14 years
LOC (6) Cl. 21 - *01*
U.S. Cl. D21—157

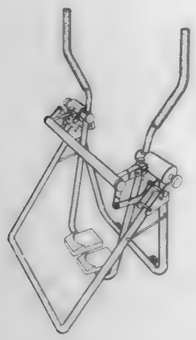


392,349
MUSCLE EXERCISER
Neil Summers, 63 New Inn Lane, Guildford, Surrey GU4 7HT, United Kingdom
Filed Nov. 27, 1996, Ser. No. 63,141
Term of patent 14 years
LOC (6) Cl. 21 - *02*
U.S. Cl. D21—191

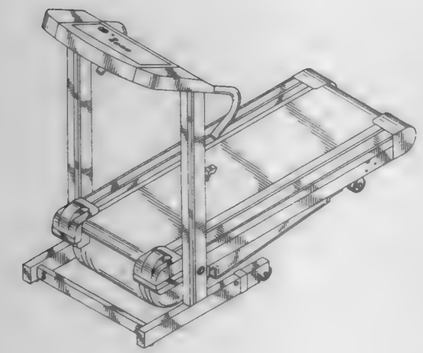


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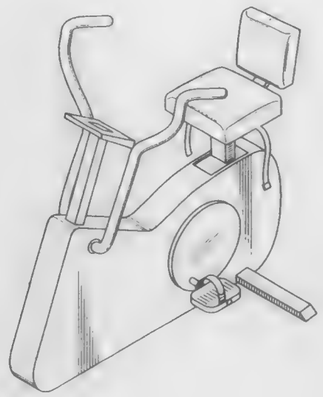
392,350
JOGGER EXERCISER
Hui-Mei Huang, No. 266, Tung Hsin Road, Tung Leh Village, Yuan San Hsiang, I Lan Hsien, Taiwan
Filed Feb. 6, 1997, Ser. No. 68,085
Term of patent 14 years
LOC (6) Cl. 21 - *02*
U.S. Cl. D21—191



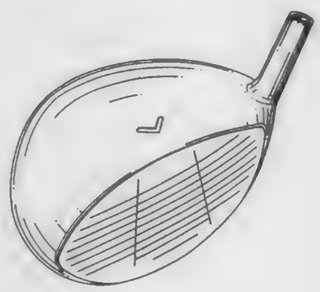
392,351
FOLDABLE TREADMILL BASE
Bruce F. Coody, Auburn, and Greg Harris, Opelika, both of Ala., assignors to Roadmaster Corporation, Olney, Ill.
Filed May 13, 1996, Ser. No. 56,397
Term of patent 14 years
LOC (6) Cl. 21 - *02*
U.S. Cl. D21—192



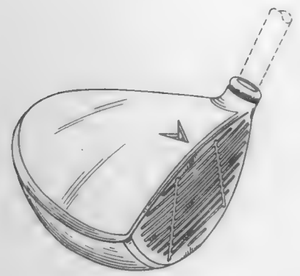
392,352
CHILDRENS EXERCISE BICYCLE
Nancy Hill, 200 Rhame Ave., East Rockaway, N.Y. 11518, and Indardaye Chan, 113-05 Liberty Ave., Richmond Hill, N.Y. 11419
Filed Jan. 28, 1997, Ser. No. 65,526
Term of patent 14 years
LOC (6) Cl. 21 - *02*
U.S. Cl. D21—194



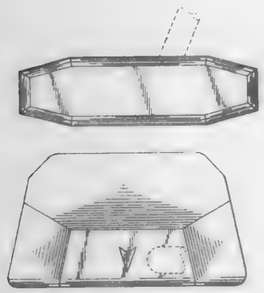
392,353
GOLF CLUB HEAD
Timothy A. Willhite, Sr., 18832 N. 40th Pl., Phoenix, Ariz. 85024
Filed Sep. 9, 1996, Ser. No. 59,363
Term of patent 14 years
LOC (6) Cl. 21 - *02*
U.S. Cl. D21—214



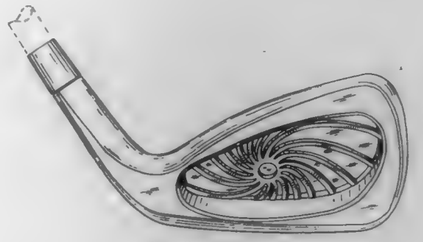
392,354
WOOD-TYPE HEAD FOR A GOLF CLUB
Bruce D. Burrows, 25555 W. Avenue Stanford, Valencia, Calif. 91355-1101
Filed Mar. 31, 1997, Ser. No. 68,739
Term of patent 14 years
LOC (6) Cl. 21 - *02*
U.S. Cl. D21—214



392,355
GOLF CLUB PUTTER HEAD
Stan L. Ramirez, 7005 Santa Rita Ct., Fort Worth, Tex. 76133, and Louis P. Spartin, P.O. Box 16704, Forth Worth, Tex. 76162
Filed Aug. 5, 1996, Ser. No. 57,933
Term of patent 14 years
LOC (6) Cl. 21 - *02*
U.S. Cl. D21—219



392,356
IRON-TYPE GOLF CLUB HEAD
Bruce D. Burrows, 24844 Anza Dr., Valencia, Calif. 91355
Filed Sep. 23, 1996, Ser. No. 60,107
Term of patent 14 years
LOC (6) Cl. 21 - *02*
U.S. Cl. D21—220



392,357
GOLF PUTTER GRIP
Arthur C. P. Chou, Oceanside, Calif.; Angela Livesey, Scottsdale, and Danny Edwards, Paradise Valley, both of Ariz., assignors to Acushnet Company, Fairhaven, Mass.
Continuation of Ser. No. 30,900, Nov. 14, 1994, abandoned.
This application Jul. 12, 1996, Ser. No. 56,961
Term of patent 14 years
LOC (6) Cl. 21 - *02*
U.S. Cl. D21—222

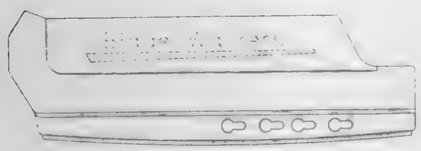


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392,358
CHASSIS DESIGN FOR INLINE SKATES
Alain Brouillard, and Daniel Thibault, both of Montreal, Canada, assignors to Sport Maska, Inc., Quebec, Canada
Filed Dec. 26, 1995, Ser. No. 48,347
Term of patent 14 years
LOC (6) Cl. 21 - *02*
U.S. Cl. D21—226



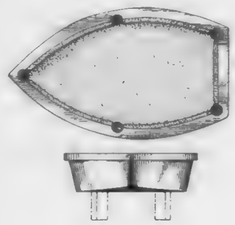
392,359
WALKING ATTACHMENT FOR IN-LINE SKATE
Michael Gallegos, 8342 Summerfield Ave., Whittier, Calif. 90606
Filed May 7, 1996, Ser. No. 54,155
Term of patent 14 years
LOC (6) Cl. 21 - *02*
U.S. Cl. D21—226



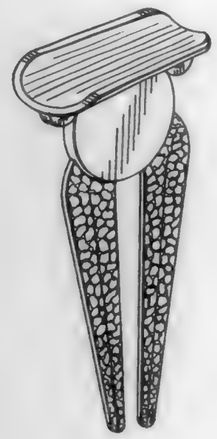
392,360
IN-LINE SKATE
Robert A. Iverson, Eden Prairie, Minn., assignor to First Team Sports, Inc., Anoka, Minn.
Filed Jun. 12, 1996, Ser. No. 55,837
Term of patent 14 years
LOC (6) Cl. 21 - *02*
U.S. Cl. D21—226



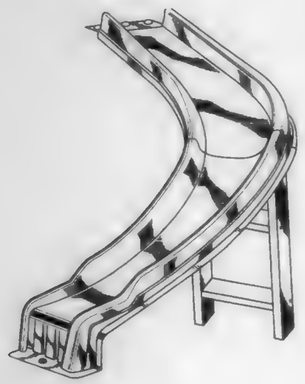
392,361
POOL TABLE IN SHAPE OF BOAT WITH FIVE POCKETS
Steven G. Cooper, 130 W. 7th St., Media, Pa. 19063
Filed Jun. 23, 1997, Ser. No. 72,715
Term of patent 14 years
LOC (6) Cl. 21 - *01*
U.S. Cl. D21—232



392,362
COMBINED CIGAR STAND AND GOLF BALL DIVOT REPAIR TOOL
Bill Ridgeway, 5633 Sorrento Dr., Long Beach, Calif. 90803
Filed Nov. 19, 1996, Ser. No. 61,246
Term of patent 14 years
LOC (6) Cl. 21 - *02*
U.S. Cl. D21—234



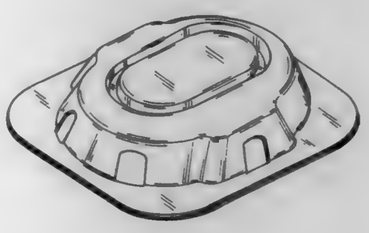
392,363
CHILDREN'S SLIDE
Kenneth J. Jonas, Janesville, Wis., assignor to Swing-N-Slide Corp., Janesville, Wis.
Division of Ser. No. 514,210, Aug. 11, 1995, abandoned. This application Feb. 28, 1997, Ser. No. 67,329
Term of patent 14 years
LOC (6) Cl. 21 - *03*
U.S. Cl. D21—244



392,364
GUN SAFETY SHIELD
Kim W. Neal; Donald E. Trapps, and Edward Harvey, all of Trotwood, Ohio, assignors to GBG Corporation, Trotwood, Ohio
Filed Mar. 14, 1997, Ser. No. 68,122
Term of patent 14 years
LOC (6) Cl. 22 - *01*
U.S. Cl. D22—108

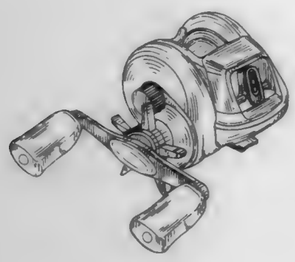


392,365
CRAWLING INSECT BAIT STATION
Scott W. Demarest, Caledonia, and Charles Austen Angell, Madison, both of Wis., assignors to S. C. Johnson & Son, Inc., Racine, Wis.
Filed Sep. 18, 1996, Ser. No. 60,302
Term of patent 14 years
LOC (6) Cl. 22 - *06*
U.S. Cl. D22—122

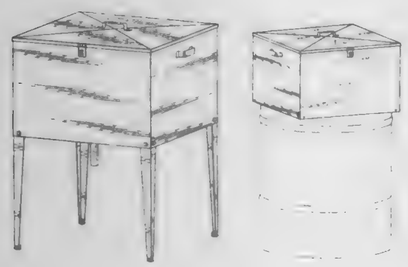


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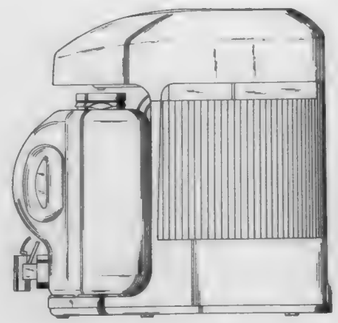
392,366
FISHING REEL
Shin-ichi Asano, Musashino; Takeo Miyazaki, and Toshiro Ono, both of Higashikurume, all of Japan, assignors to Daiwa Seiko, Inc., Tokyo, Japan
Filed May 10, 1996, Ser. No. 54,233
Claims priority, application Japan, Nov. 13, 1995, 7-34184
Term of patent 14 years
LOC (6) Cl. 22 - *05*
U.S. Cl. D22—140



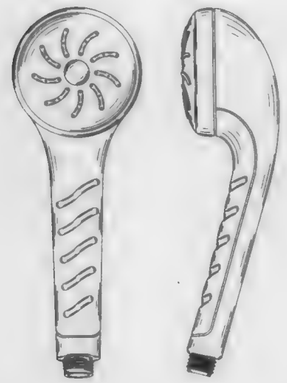
392,367
OIL CONTAINER
Clifford Foster, P.O. Box 353, Orland, Calif. 95963
Filed Jun. 13, 1996, Ser. No. 55,798
Term of patent 14 years
LOC (6) Cl. 23 - *01*
U.S. Cl. D23—202



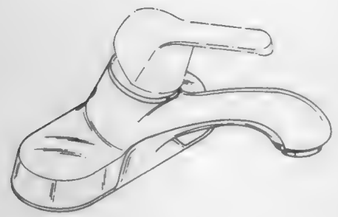
392,368
COUNTERTOP DISTILLER
Scott H. Micoley, Cedarburg, Wis., assignor to The West Bend Company, West Bend, Wis.
Filed Mar. 18, 1997, Ser. No. 69,047
Term of patent 14 years
LOC (6) Cl. 23 - *01*
U.S. Cl. D23—207



392,369
HAND HELD SHOWER HEAD
Raymond W. M. Chan, 6263 Balsam St., Vancouver, B.C., Canada, V6M 4C4
Filed Aug. 9, 1996, Ser. No. 58,229
Term of patent 14 years
LOC (6) Cl. 23 - *01*
U.S. Cl. D23—223



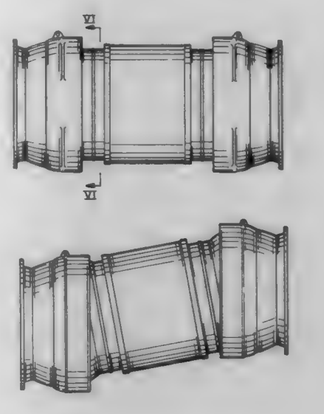
392,370
FAUCET
Hsi-Chia Ko, Changhua Hsien, Taiwan, assignor to Chung Cheng Faucet Co., Ltd., Changhua Hsien, Taiwan
Filed Apr. 23, 1997, Ser. No. 69,776
Term of patent 14 years
LOC (6) Cl. 23 - *01*
U.S. Cl. D23—238



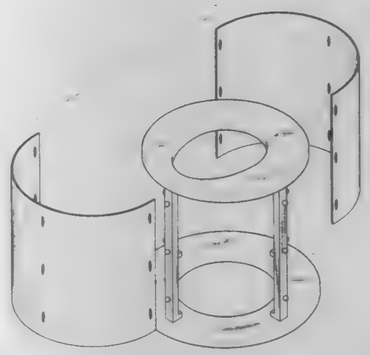
392,371
COMBINATION DRAIN STOPPER AND FLOATING TOY
Debbie J. Holcombe, 2509 Tanbark Ct., Las Vegas, Nev. 89108
Filed Nov. 13, 1995, Ser. No. 46,362
Term of patent 14 years
LOC (6) Cl. 23 - *01*
U.S. Cl. D23—261



392,372
PIPE JOINT
Kikuo Saito, and Takashi Takeda, both of Sanda, Japan, assignors to Yano Giken Co., Ltd., Japan
Filed Mar. 29, 1996, Ser. No. 53,018
Claims priority, application Japan, Dec. 25, 1995, 7-39092
Term of patent 14 years
LOC (6) Cl. 23 - *01*
U.S. Cl. D23—264



392,373
PORTABLE TOILET
Godfrey T. Wilson, 21 Knightsbridge Rd Apt 1003, Brampton, Ontario, Canada, L6T 3Y1
Filed Apr. 29, 1997, Ser. No. 70,090
Term of patent 14 years
LOC (6) Cl. 23 - *01*
U.S. Cl. D23—299

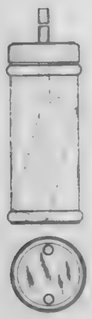


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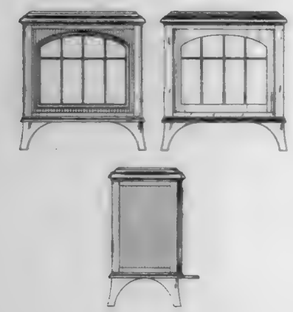
392,374

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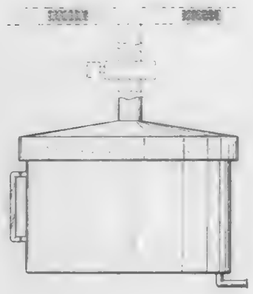
392,375
TOILET BOWL CHLORINATOR
Frank Armanno, Sr., 14399 Picea Ct., Fort Pierce, Fla. 34951
Filed Feb. 19, 1997, Ser. No. 66,998
Term of patent 14 years
LOC (6) Cl. 23 - *02*
U.S. Cl. D23—309



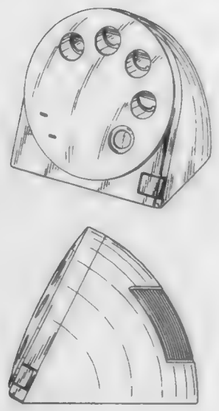
392,376
STOVE
Jeffrey P. Greene, Wickford, R.I., assignor to Nu-Tec Incorporated, East Greenwich, R.I.
Filed Mar. 20, 1996, Ser. No. 51,981
Term of patent 14 years
LOC (6) Cl. 23 - *03*
U.S. Cl. D23—346



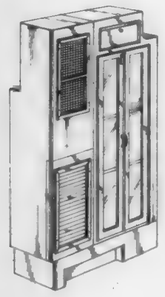
392,377
AIR CLEANING SYSTEM UNIT
Charles G. Hicks, 728 W. Main St., Lebanon, Ind. 46052-2315
Filed Feb. 26, 1997, Ser. No. 66,896
Term of patent 14 years
LOC (6) Cl. 23 - *04*
U.S. Cl. D23—364



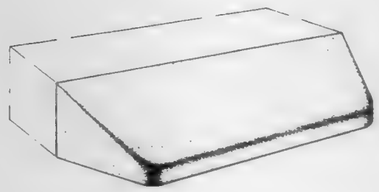
392,378
AIR CLEANER
Hisashi Sato, Tokyo, Japan, assignor to Circland Corp., Tokyo, Japan
Filed Aug. 8, 1997, Ser. No. 74,833
Term of patent 14 years
LOC (6) Cl. 23 - *04*
U.S. Cl. D23—364



392,379
AIR FILTRATION UNIT FOR AN EMERGENCY VEHICLE
Rodney T. Nash, Hutchinson, Kans.; Ronald G. Lavicott, Oviedo, and Herschel W. Davis, Jr., Winter Springs, both of Fla., assignors to Wheeled Coach Industries, Inc., Winter Park, Fla.
Filed May 9, 1997, Ser. No. 70,554
Term of patent 14 years
LOC (6) Cl. 23 - *04*
U.S. Cl. D23—365



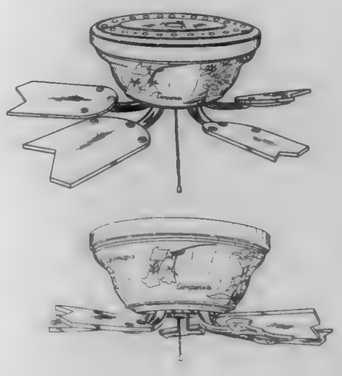
392,380
KITCHEN RANGE HOOD
Anthony L. Schrank, Fairfield, and Walter L. Bohl, Jr., Cincinnati, both of Ohio, assignors to Nutone Inc., Cincinnati, Ohio
Filed Jul. 7, 1994, Ser. No. 25,638
Term of patent 14 years
LOC (6) Cl. 23 - *04*
U.S. Cl. D23—372



392,381
CEILING FAN
Scott Searle, Malibu, Calif., assignor to Minka Lighting, Inc., Corona, Calif.
Filed Apr. 4, 1995, Ser. No. 37,115
Term of patent 14 years
LOC (6) Cl. 23 - *04*
U.S. Cl. D23—377

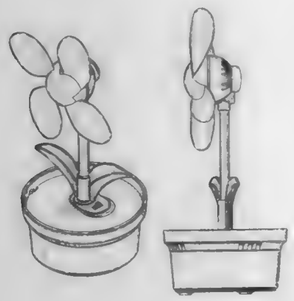


392,382
CEILING FAN
Mark Pickett, Rancho Palos Verdes, Calif., assignor to Minka Lighting, Inc., Corona, Calif.
Filed Oct. 16, 1996, Ser. No. 61,093
Term of patent 14 years
LOC (6) Cl. 23 - *04*
U.S. Cl. D23—377



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392,383
FAN
Stephen Phillips, Newton, and Brian Flood, Sudbury, both of Mass., assignors to Phillips Design Group, and Brian Flood, Inc., both of Boston, Mass.
Filed May 9, 1997, Ser. No. 70,564
Term of patent 14 years
LOC (6) Cl. 23 - *04*
U.S. Cl. D23—378



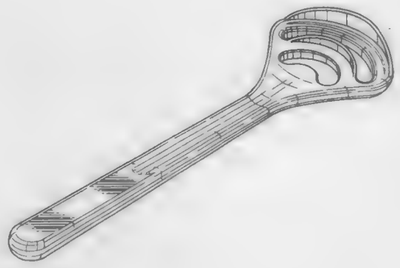
392,384

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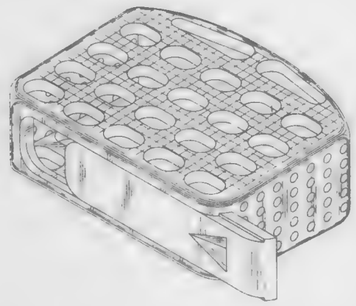
392,385
CONSTRUCTION BLOCK FACE
Lawrence W. Sumerlin, 3852 Woodglen Blvd., Thornton, Colo. 80233
Filed Mar. 7, 1997, Ser. No. 67,434
Term of patent 14 years
LOC (6) Cl. 25 - *01*
U.S. Cl. D25—114



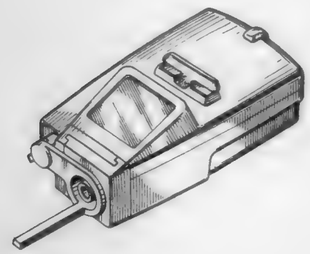
392,386
TONGUE CLEANER
Daniel V. Nguyen, 2740 N. Pine Grove Ave. #4E, Chicago, Ill. 60614
Filed Feb. 5, 1997, Ser. No. 66,062
Term of patent 14 years
LOC (6) Cl. 25 - *02*
U.S. Cl. D24—147



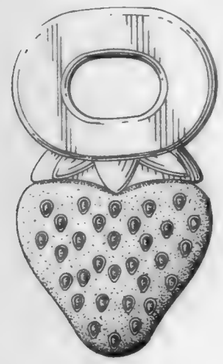
392,387
LORDOTIC ARTIFICIAL SPINAL FUSION IMPLANT
Gary Karlin Michelson, 438 Sherman Canal, Venice, Calif. 90291
Continuation-in-part of Ser. No. 23,922, Jun. 3, 1994, Pat. No. Des. 377,527, and Ser. No. 263,952, Jun. 22, 1994, abandoned, said Ser. No. 263,952 is a continuation of Ser. No. 52,211, Apr. 22, 1993, abandoned, which is a continuation of Ser. No. 546,849, Jul. 2, 1990, abandoned, which is a continuation of Ser. No. 212,480, Jun. 28, 1988, abandoned. This application Jun. 7, 1995, Ser. No. 40,661
Term of patent 14 years
LOC (6) Cl. 24 - *03*
U.S. Cl. D24—155



392,388
ELECTRONICALLY CONTROLLED CONTRAST MEDIA INJECTOR FOR MEDICAL DIAGNOSTIC IMAGING
John C. Coons, Cincinnati, and Robert G. Bergen, Westchester, both of Ohio, assignors to Liebel-Flarsheim Company, Cincinnati, Ohio
Filed Nov. 26, 1996, Ser. No. 63,096
Term of patent 14 years
LOC (6) Cl. 24 - *01*
U.S. Cl. D24—160



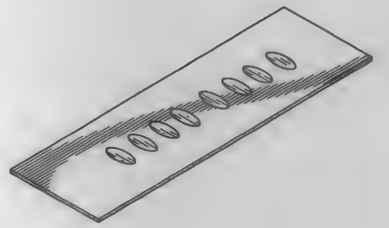
392,389
INFANT TEETHER
Tim Pinckney Fletcher, Acworth, Ga., assignor to Lisco, Inc., Tampa, Fla.
Filed Apr. 29, 1997, Ser. No. 70,359
Term of patent 14 years
LOC (6) Cl. 24 - *04*
U.S. Cl. D24—195



392,390
NURSING BOTTLE
Edwin Chan, Brooklyn, N.Y.; Mari H. Ando, Stamford, Conn., and Thomas M. Dair, Yorktown Heights, N.Y., assignors to Johnson & Johnson Consumer Products, Inc., Skillman, N.J.
Filed Aug. 9, 1996, Ser. No. 58,251
Term of patent 14 years
LOC (6) Cl. 07 - *01*
U.S. Cl. D24—197



392,391
DISPOSABLE BLOOD TESTING DEVICE
Joel S. Douglas, Santa Clara, and Karen R. Drexler, Los Altos Hills, both of Calif., assignors to Mercury Diagnostics Inc., Mountain View, Calif.
Filed Feb. 23, 1996, Ser. No. 50,707
Term of patent 14 years
LOC (6) Cl. 24 - *01*
U.S. Cl. D24—225

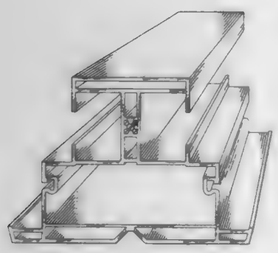


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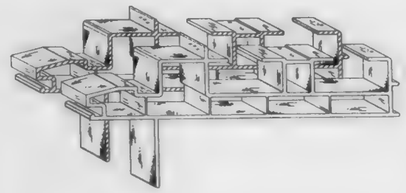
392,392
HOUSE FACADE
William J. Rist, Dublin, Ohio, assignor to Dominion Homes, Inc., Dublin, Ohio
Filed Jun. 30, 1995, Ser. No. 40,957
Term of patent 14 years
LOC (6) Cl. 25 - *02*
U.S. Cl. D25—59



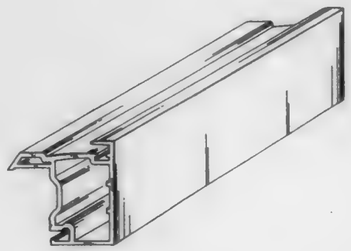
392,393
WINDOW COMPONENT EXTRUSION
Jeffrey B. Hersh, Wayne; Chandrahas Gandhi, Butler, both of Pa., and Jerome C. Habeck, Holt, Mich., assignors to CertainTeed Corporation, Valley Forge, Pa.
Filed Dec. 9, 1996, Ser. No. 63,501
Term of patent 14 years
LOC (6) Cl. 25 - *01*
U.S. Cl. D25—122



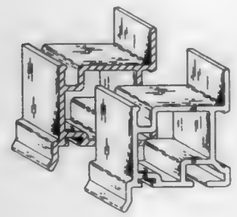
392,394
WINDOW COMPONENT EXTRUSION
Lorane Goss, Slippery Rock, Pa., assignor to Mikron Industries, Inc., Kent, Wash.
Filed Oct. 18, 1996, Ser. No. 61,254
Term of patent 14 years
LOC (6) Cl. 25 - *01*
U.S. Cl. D25—124



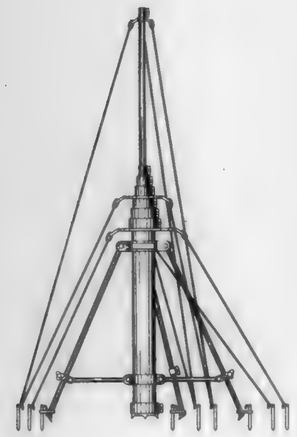
392,395
WINDOW FRAME COMPONENT
Peggy O. Porter, Cincinnati; Michael T. Chaney, Middletown, both of Ohio, and Harold Kuritzky, Hillside, N.J., assignors to Dayton Technologies, Inc., Monroe, Ohio
Filed Nov. 15, 1996, Ser. No. 62,481
Term of patent 14 years
LOC (6) Cl. 25 - *01*
U.S. Cl. D25—124



392,396
WINDOW COMPONENT EXTRUSION
Lorane Goss, Slippery Rock, Pa., assignor to Mikron Industries, Inc., Kent, Wash.
Filed Mar. 20, 1997, Ser. No. 69,256
Term of patent 14 years
LOC (6) Cl. 25 - *01*
U.S. Cl. D25—124



392,397
TELESCOPIC MAST
Manuel M. Werber, 41 Brookside terr, N. Caldwell, N.J. 07006
Filed Jul. 6, 1990, Ser. No. 530,725
Term of patent 14 years
LOC (6) Cl. 25 - *01*
U.S. Cl. D25—126



392,398
PYLON
Jean-Michel Wilmotte, Paris, France, assignor to Electricite de France, Paris, France
Continuation of Ser. No. 44,419, Sep. 25, 1995, abandoned.
This application Mar. 25, 1996, Ser. No. 52,130
Claims priority, application France, Mar. 23, 1995, 951745
Term of patent 14 years
LOC (6) Cl. 25 - *01*
U.S. Cl. D25—127

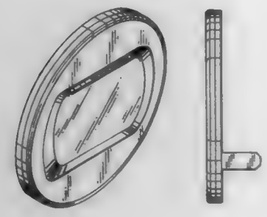


392,399
CHRISTMAS TINSEL LIGHTS
Norman Yates, 29 Abernant Rd., Markham Blackwood Gwent, United Kingdom, NP2 OPR
Filed Mar. 28, 1997, Ser. No. 69,324
Term of patent 14 years
LOC (6) Cl. 26 - *04*
U.S. Cl. D26—25

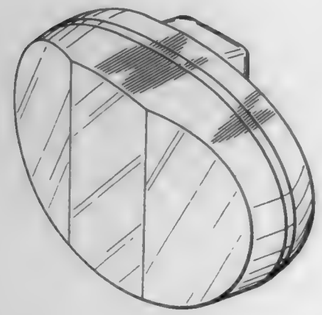


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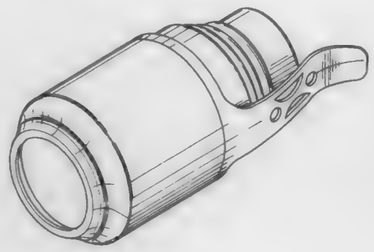
392,400
NIGHT LIGHT
Ronald A. Emmerling, Glen Ridge, N.J., assignor to American Tack & Hardware Co. Ltd., Monsey, N.Y.
Filed Apr. 8, 1996, Ser. No. 52,830
Term of patent 14 years
LOC (6) Cl. 26 - *05*
U.S. Cl. D26—26



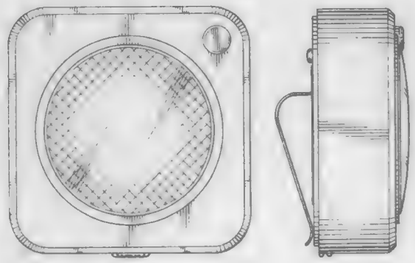
392,401
TAILLAMP FOR A BICYCLE
Toshiyuki Nagano, Takarazuka, Japan, assignor to Cateye Co., Ltd., Osaka, Japan
Filed Oct. 10, 1995, Ser. No. 45,101
Claims priority, application Japan, Apr. 12, 1995, 7-10310
Term of patent 14 years
LOC (6) Cl. 26 - *06*
U.S. Cl. D26—28



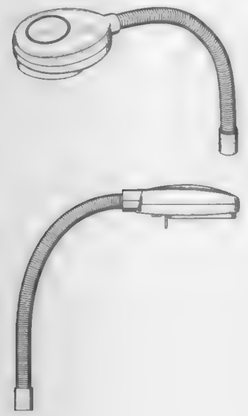
392,402
BULB HOUSING OF FLASHLIGHT
Chin-Hsiang Chen, No. 10, Lane 398, Sec. 2, Fu Chiang Road, Yung Kang City, Taiwan
Filed Jun. 23, 1997, Ser. No. 73,161
Term of patent 14 years
LOC (6) Cl. 26 - *02*
U.S. Cl. D26—37



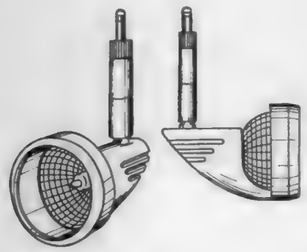
392,403
LIGHTING FIXTURE
Sanford H. Benensohn, Valencia, Calif., assignor to Lusa Lighting, Inc., Valencia, Calif.
Filed Jun. 30, 1997, Ser. No. 72,782
Term of patent 14 years
LOC (6) Cl. 26 - *02*
U.S. Cl. D26—39



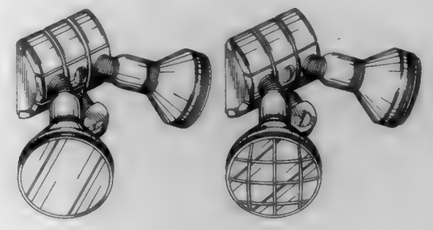
392,404
LAMP
Tobias A. Brown, Greenwich, Conn., assignor to Specialty Lighting, Inc., Shelby, N.C.
Continuation-in-part of Ser. No. 60,374, Sep. 27, 1996, Pat. No. Des. 386,272. This application Jan. 10, 1997, Ser. No. 64,794
Term of patent 14 years
LOC (6) Cl. 26 - *05*
U.S. Cl. D26—62



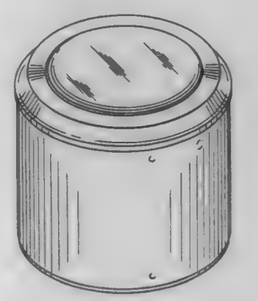
392,405
SPOTLIGHT
Shih-Chuan Tang, No. 92, Hou-Hu-Tzi, Hou-Hu Village, Shing-Fon Hsiang, Shing-Chu Hsien, Taiwan
Filed Jul. 2, 1996, Ser. No. 56,558
Term of patent 14 years
LOC (6) Cl. 25 - *06*
U.S. Cl. D26—63



392,406
SECURITY LIGHTING FIXTURE
James Morrow, Oak Park; Brian Day, Des Plaines, both of Ill., and Gary Van Deursen, Evergreen, Colo., assignors to Coleman Safety and Security Products, Inc., Downers Grove, Ill.
Filed May 21, 1997, Ser. No. 71,127
Term of patent 14 years
LOC (6) Cl. 26 - *05*
U.S. Cl. D26—65

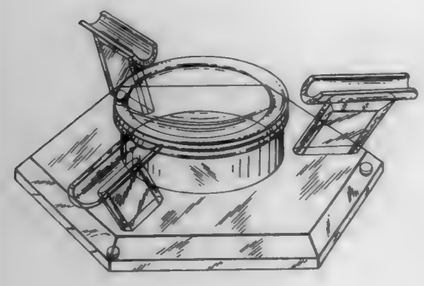


392,407
LIGHT FIXTURE
Richard A. Johnson, Milwaukee; Rupert O. Yantz, West Bend; Mark T. Dane, Milwaukee, and Richard C. Mayer, Brookfield, all of Wis., assignors to Phoenix Products Company, Inc., Milwaukee, Wis.
Filed Aug. 30, 1995, Ser. No. 43,390
Term of patent 14 years
LOC (6) Cl. 26 - *05*
U.S. Cl. D26—67

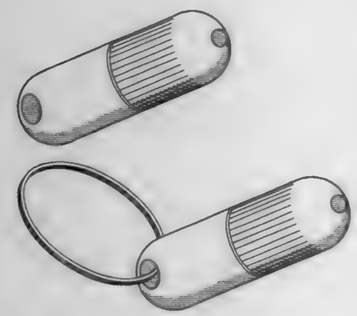


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392,408
ASH TRAY
David R. Perkins, Manchester, Mass., assignor to Glass Dimensions, Inc., Essex, Mass.
Filed Aug. 7, 1997, Ser. No. 74,643
Term of patent 14 years
LOC (6) Cl. 27 - *06*
U.S. Cl. D27—103



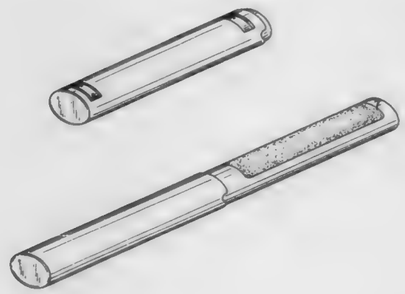
392,409
CIGAR BORING DEVICE
Paul Davidoski, 28954 Bardell Dr., Agoura, Calif. 91301
Filed May 2, 1997, Ser. No. 70,257
Term of patent 14 years
LOC (6) Cl. 27 - *99*
U.S. Cl. D27—195



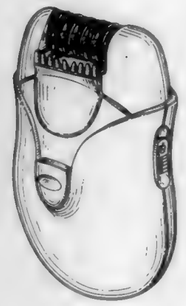
392,410
STAKE-TYPE SUPPORT FOR AN ELONGATED OBJECT SUCH AS A CIGAR
Andrew J. Lukach, 7723 W. Stickney Ave., Wauwatosa, Wis. 53213
Filed Apr. 10, 1997, Ser. No. 68,921
Term of patent 14 years
LOC (6) Cl. 27 - *06*
U.S. Cl. D27—183



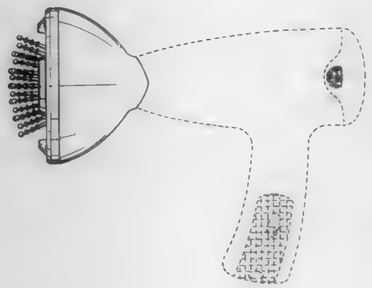
392,411
LOTION APPLICATOR
Jane Y. Mayo, 456 Pine Grove Rd., Airville, Pa. 17302
Filed Aug. 5, 1996, Ser. No. 57,912
Term of patent 14 years
LOC (6) Cl. 28 - *02*
U.S. Cl. D28—7



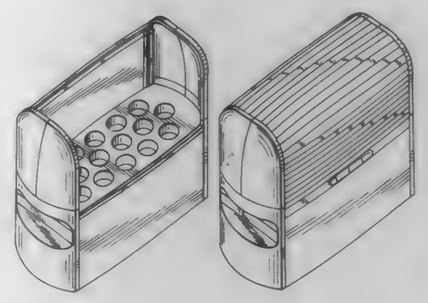
392,412
ELECTRIC EPILATOR DEVICE
Albart Johannes Kip, Groningen, Netherlands, assignor to U.S. Philips Corporation, New York, N.Y.
Filed Jan. 14, 1997, Ser. No. 64,908
Claims priority, application Switzerland, Jul. 15, 1996, DMA/003384
Term of patent 14 years
LOC (6) Cl. 28 - *03*
U.S. Cl. D28—10



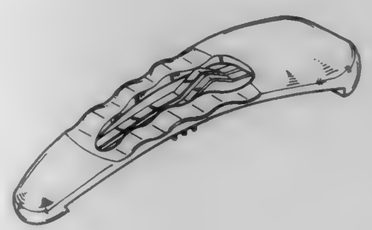
392,413
DIFFUSER NOZZLE FOR HAIR DRYER
Jacques Gudefin, Saint-Priest, France, assignor to Calor S.A., Lyon Cedex, France
Filed Apr. 17, 1995, Ser. No. 37,542
Claims priority, application France, Oct. 17, 1994, 94 5666
Term of patent 14 years
LOC (6) Cl. 28 - *03*
U.S. Cl. D28—18



392,414
COMBINED HAIR-ROLLER CASE AND HEATER
Henri Smal, Blegny, Belgium, assignor to Faco S.A., Wandre, Belgium
Filed Sep. 22, 1995, Ser. No. 44,331
Claims priority, application WIPO, Mar. 24, 1995, DM032522
Term of patent 14 years
LOC (6) Cl. 28 - *03*
U.S. Cl. D28—38



392,415
HAIR CLIP
Ching Chen Liao, 2nd Fl., No. 72-1, Lin Yuan St., Panchiao City, Taiwan
Filed Mar. 3, 1997, Ser. No. 67,031
Term of patent 14 years
LOC (6) Cl. 28 - *03*
U.S. Cl. D28—40



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392,416
RAZOR HANDLE
Jeffrey W. Wonderley, Ft. Defiance, Va., assignor to American Safety Razor, Verona, Va.
Filed Jul. 17, 1995, Ser. No. 41,522
Term of patent 14 years
LOC (6) Cl. 28 - *03*
U.S. Cl. D28—48



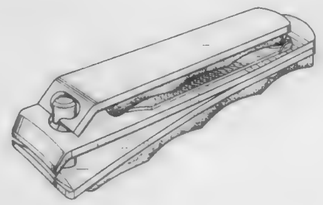
392,417
RAZOR HANDLE
Michael J. Gray, Duxbury, Mass., assignor to The Gillette Company, Boston, Mass.
Filed Apr. 10, 1996, Ser. No. 52,943
Term of patent 14 years
LOC (6) Cl. 28 - *03*
U.S. Cl. D28—48



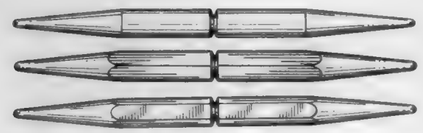
392,418
RAZOR HANDLE
Michael J. Gray, Duxbury, Mass., assignor to The Gillette Company, Boston, Mass.
Filed Feb. 19, 1997, Ser. No. 66,738
Term of patent 14 years
LOC (6) Cl. 28 - *03*
U.S. Cl. D28—48



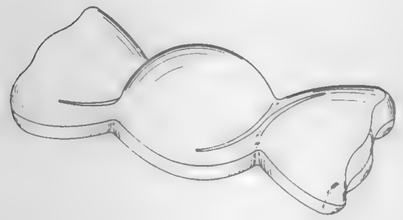
392,419
FINGERNAIL CLIPPER
Garfield Litton, Glenrock, N.J., assignor to Revlon Consumer Products Corporation, New York, N.Y.
Filed Aug. 28, 1996, Ser. No. 59,712
Term of patent 14 years
LOC (6) Cl. 28 - *03*
U.S. Cl. D28—60



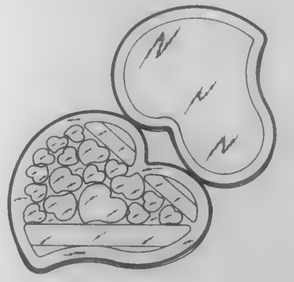
392,420
TOOTHPICK
Zeev Ram, 9 Yaacov St., Rehovot 76262, Israel
Filed Jul. 23, 1996, Ser. No. 57,313
Term of patent 14 years
LOC (6) Cl. 28 - *03*
U.S. Cl. D28—64



392,421
CONTAINER FOR HYGIENIC AND COSMETIC PRODUCTS
Pierre Dinand, Levallois Perret, France, assignor to Euroitalia S.R.L., Monza, Italy
Filed Nov. 28, 1995, Ser. No. 47,179
Claims priority, application Italy, Jun. 23, 1995, MI95O0372
Term of patent 14 years
LOC (6) Cl. 28 - *03*
U.S. Cl. D28—78



392,422
CONTAINER FOR HYGIENIC AND COSMETIC PRODUCTS
Pierre Dinand, Levallois Perret, France, assignor to Euroitalia S.R.L., Monza, Italy
Filed Nov. 28, 1995, Ser. No. 47,180
Claims priority, application Italy, Jun. 23, 1995, MI9500371
Term of patent 14 years
LOC (6) Cl. 28 - *03*
U.S. Cl. D28—80

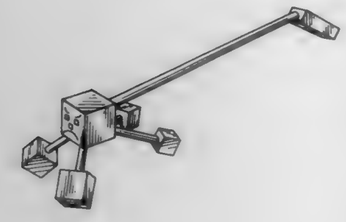


392,423
LIPSTICK CASE
Joël Lerolle, Paris, France, assignor to Lancome Parfums et Beaute & Cie, France
Filed Oct. 21, 1996, Ser. No. 61,287
Term of patent 14 years
LOC (6) Cl. 28 - *03*
U.S. Cl. D28—90



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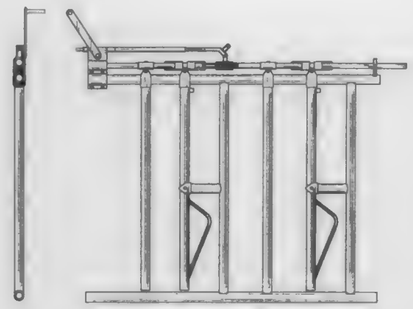
392,424
BACK SCRATCHER
John L. Burys, 7204 S. Sacramento, Chicago, Ill. 60629
Filed Jan. 31, 1997, Ser. No. 65,644
Term of patent 14 years
LOC (6) Cl. 28 - *99*
U.S. Cl. D28—99



392,425
COMBINED PROTECTIVE GARMENT AND SUPPORT
Myron L. Sturms, 148 Tammy Gaines La., Huntsville, Ala. 35811
Filed Feb. 21, 1996, Ser. No. 50,491
Term of patent 14 years
LOC (6) Cl. 24 - *04*
U.S. Cl. D29—100



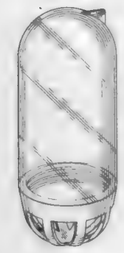
392,426
ADJUSTABLE STANCHION
John A. DaSilveira, P.O. Box 1408, Lovington, N. Mex. 88260
Continuation-in-part of Ser. No. 347,714, Dec. 1, 1994, Pat. No. 5,645,015. This application Mar. 31, 1995, Ser. No. 38,150
Term of patent 14 years
LOC (6) Cl. 30 - *02*
U.S. Cl. D30—119



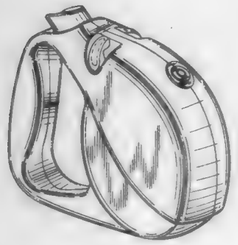
392,427
BIRD CHAIN
Debbie Edlebeck, and David J. Day, both of 10270 Atchison Rd., Dayton, Ohio 45458
Filed May 14, 1996, Ser. No. 54,469
Term of patent 14 years
LOC (6) Cl. 30 - *02*
U.S. Cl. D30—119



392,428
COMBINED FOOD HOPPER AND DISPENSER FOR SMALL ANIMALS
Frank Atchley, Napa, Calif., assignor to Lixit Corporation, Napa, Calif.
Filed Nov. 14, 1996, Ser. No. 62,421
Term of patent 14 years
LOC (6) Cl. 30 - *07*
U.S. Cl. D30—121



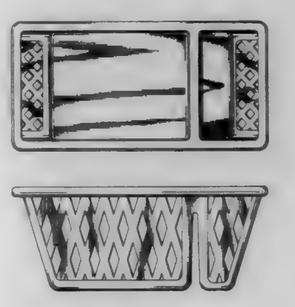
392,429
HOUSING FOR A RETRACTABLE ANIMAL LEASH
Jens Plewa, Hamburg, Germany, and Hartmut Esslinger, Los Gatos, Calif., assignors to Bogdahn-Technik GmbH, Bargteheide, Germany
Filed Jul. 31, 1995, Ser. No. 42,053
Claims priority, application Germany, Jan. 31, 1995, 95 00 613.3
Term of patent 14 years
LOC (6) Cl. 30 - *09*
U.S. Cl. D30—153



392,430
VACUUM CLEANER
Francesco Piccaluga, and Aldo Piccaluga, both of Toronto, Canada, assignors to Fantom Technologies Inc., Welland, Canada
Continuation-in-part of Ser. No. 25,133, Jun. 28, 1994. This application Mar. 16, 1995, Ser. No. 36,289
Claims priority, application Canada, Apr. 27, 1994, 1994-0857
Term of patent 14 years
LOC (6) Cl. 15 - *05*
U.S. Cl. D32—31

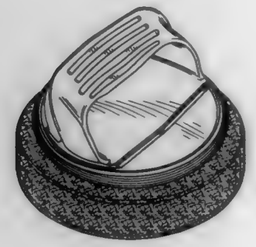


392,431
TWO SECTION LAUNDRY BASKET
John R. Schallern, 4422 Cherokee Dr., Madison, Wis. 53711
Filed Apr. 14, 1997, Ser. No. 69,214
Term of patent 14 years
LOC (6) Cl. 07 - *07*
U.S. Cl. D32—37

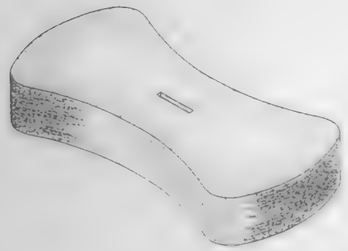


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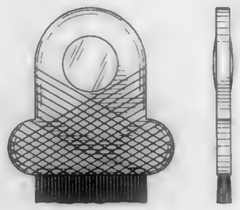
392,432
APPARATUS FOR CLEANING POLISHING AND/OR BUFFING SURFACES
James L. Henrie, 746 E. 100 North, Orem, Utah 84057
Filed Nov. 27, 1996, Ser. No. 62,845
Term of patent 14 years
LOC (6) Cl. 08 - *05*
U.S. Cl. D32—40



392,433
SPONGE WITH SOAP RESERVOIR
Carl William Norris, 17 Daniel Dr., Stockbridge, Ga. 30281
Filed Feb. 21, 1997, Ser. No. 66,795
Term of patent 14 years
LOC (6) Cl. 08 - *05*
U.S. Cl. D32—45



392,434
LOTTERY TICKET SCRATCHER
Larry Garner, 2784 Martin St., Sarasota, Fla. 34237
Filed Feb. 6, 1997, Ser. No. 66,172
Term of patent 14 years
LOC (6) Cl. 08 - *05*
U.S. Cl. D32—46



LIST OF PATENTEES

TO WHOM

PATENTS WERE ISSUED ON THE 17th DAY OF MARCH, 1998

NOTE— Arranged in accordance with the first significant character or word of the name (in accordance with city and telephone directory practice).

A.E. Bishop & Associates Pty Limited: *See—*
Baxter, John; Dyer, Geoff; and Murdock, Donald G., 5,727,443, Cl. 91-375.00A.

Aandewiel, Leendert. Method and installation for bringing a gas and a liquid into contact with one another. 5,728,273, Cl. 203-49.000.

AB IDL Immunodeveloplab: *See—*
Silén, Åke; and Wiklund, Bo, 5,728,537, Cl. 435-7.230.

ABB Air Preheater, Inc.: *See—*
O'Boyle, Kevin J., 5,727,617, Cl. 165-9.000.

ABB Flexible Automation, Inc.: *See—*
Holter, Carl F., 5,727,832, Cl. 294-64.100.

ABB Research Ltd.: *See—*
Knöpfel, Hans Peter, 5,727,938, Cl. 431-285.000.

ABB Vetco Gray Inc.: *See—*
Brammer, Ashley N. M., 5,727,630, Cl. 166-355.000.

Abbas, Saeed A.; Dasgupta, Falguni; Asa, Darwin; Musser, John H.; and Nashed, Mina A., to Glycomed Incorporated. Methods of treating inflammation using cell adhesion inhibitors. 5,728,685, Cl. 514-53.000.

Abbott, Emerson L. Golf cart. 5,727,642, Cl. 180-65.100.

Abdulaziz Al Sherehy, Fahad: *See—*
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Konishi, Masaya; Fuke, Hiroyuki; Enomoto, Youichi; Shiohara, Yuh; and Tanaka, Shoji, to Sumitomo Electric Industries, Ltd.; Kabushiki Kaisha Toshiba; and International Superconductivity Technology Center. Surface treatment of an oxide LNBA2CU307-X single crystal. 5,728,214, Cl. 117-94.000.

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Kono, Masakatsu; Oota, Yositaka; and Yamamoto, Masayuki, to Honda Giken Kogyo Kabushiki Kaisha. Hitch structure for work machine. 5,727,637, Cl. 172-272.000.

Konopka, John G.; and Stephens, Dennis L., to Motorola, Inc. Power supply and electronic ballast with a novel boost converter control circuit. 5,729,098, Cl. 315-307.000.

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Kostreski, Bruce; and Schneider, Allan, to Bell Atlantic Network Services, Inc. Television distribution system and method using transmitting antennas on peripheries of adjacent cells within a service area. 5,729,825, Cl. 455-3.100.

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O'Quinn, Jeffrey Lee; and O'Quinn, James Lee. Cooler and seat system. 5,727,844, Cl. 297-217.100.
Oraelectronics, Inc.: *See—*
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Riner, Wolfgang; Zanas-Huber, Rudolf; Ruscheinsky, Emil, deceased; and Ortanderl, Stefanie, 5,728,313, Cl. 252-8.570.

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Oshima, Katsuyuki; Ando, Jitsuhiko; and Torii, Masanori, to Dai Nippon Insatsu K.K. Heat transfer cover films. 5,728,645, Cl. 503-204.000.

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Park, Jong-Hyeon; and Kim, Je-Woo, to SamSung Electronics Co. Ltd. Non-coherent digital receiver of a spread spectrum communication system. 5,729,571, Cl. 375-206.000.

Park, Moon-han, to Samsung Electronics Co., Ltd. Isolation method of semiconductor device. 5,728,620, Cl. 438-425.000.

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Sarris, Andreas H.; Broxmeyer, Hal E.; and Ravetch, Jeff V., to Board of Regents, The University of Texas System; Indiana University Foundation; and Sloan-Kettering Institute for Cancer Research. Methods and compositions incorporating IP-10. 5,728,377, Cl. 424-85.100.

Sartor, Luigi; Huff, Stephen C.; and Kishi, Craig N., to Avery Dennison Corporation. Method for multilayer coating using pressure gradient regulation. 5,728,430, Cl. 427-356.000.

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Sasaki, Shu; Kiguchi, Sakae; Hashimoto, Toru; Hashimoto, Shoji; and Tanaka, Hiroshi, to Mitsubishi Denki Kabushiki Kaisha; and Mitsubishi Jidosha Kogyo Kabushiki Kaisha. Karman vortex flow meter. 5,728,946, Cl. 73-861.220.

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Sato, Masamichi, to Fuji Photo Film Co., Ltd. Color direct thermal printing method and thermal head of thermal printer. 5,729,274, Cl. 347-173.000.

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Sugimoto, Kiyoshi; Yamaguchi, Koshiro; and Sugiyama, Yutaka, to Brother Kogyo Kabushiki Kaisha. Printer and a composite cassette including a tape cassette and a ribbon cassette used in the printer. 5,727,888, Cl. 400-586.000.

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Wangler, Mary, to Ashton-Drake Galleries, The. Set of shelves with sliding track for hanging ornaments. 392,130, Cl. D6-511.000.

Wanishi, Makoto; Ikemori, Masato; Kariya, Kaeko; Matsuda, Hiroshi; Morioka, Makoto; Hattori, Kazuo; Suzuki, Hiroshi; and Murai, Daisaburo, to Fujitsu Limited. "Bulletin board access" icon for a display screen. 392,270, Cl. D14-114.300.

Wanishi, Makoto; Ikemori, Masato; Kariya, Kaeko; Matsuda, Hiroshi; Morioka, Makoto; Hattori, Kazuo; Suzuki, Hiroshi; and Murai, Daisaburo, to Fujitsu Limited. "Communication between personal computers" icon for a display screen. 392,271, Cl. D14-114.300

Wanishi, Makoto; Ikemori, Masato; Kariya, Kaeko; Matsuda, Hiroshi; Morioka, Makoto; Hattori, Kazuo; Suzuki, Hiroshi; and Murai, Daisaburo, to Fujitsu Limited. Card type database activation icon for a display screen. 392,272, Cl. D14-114.300

Wanishi, Makoto; Ikemori, Masato; Kariya, Kaeko; Matsuda, Hiroshi; Morioka, Makoto; Hattori, Kazuo; Suzuki, Hiroshi; and Murai, Daisaburo, to Fujitsu Limited. Memo function activation Icon for a display screen. 392,273, Cl. D14-114.300.

Wanishi, Makoto; Ikemori, Masato; Kariya, Kaeko; Matsuda, Hiroshi; Morioka, Makoto; Hattori, Kazuo; Suzuki, Hiroshi; and Murai, Daisaburo, to Fujitsu Limited. "Floppy disk" icon for a display screen. 392,274, Cl. D14-114.300.

Wanishi, Makoto; Ikemori, Masato; Kariya, Kaeko; Matsuda, Hiroshi; Morioka, Makoto; Hattori, Kazuo; Suzuki, Hiroshi; and Murai, Daisaburo, to Fujitsu Limited. Toolbox icon for a display screen. 392,275, Cl. D14-114.300.

Wanishi, Makoto; Hattori, Kazuo; and Murai, Daisaburo, to Fujitsu Limited. "Activation " icon for a display screen. 392,276, Cl. D14-114.300.

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Weder, Donald E., to Southpac Trust International, Inc. Open mesh plant cover. 392,214, Cl. D11-164.000

Weder, Donald E.; and Straeter, Joseph G., to Southpac Trust International, Inc. Flower pot cover. 392,215, Cl. D11-164.000.

Weed, Kimberly Ann. Fan-foldable educational book for storing colors. 392,320, Cl. D19-59.000.

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Wilson, Godfrey T. Portable toilet. 392,373, Cl. D23-299.000.

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Zary, Keith W., to Bear Creek Gardens, Inc. Floribunda rose plant named 'JACezz'. 10,284, Cl. Plt.-28.000.

CLASSIFICATION OF PATENTS

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640 5,727,549
5,727,550
648 5,727,551
653.1 5,727,552
5,727,553
5,727,554
658 5,727,555
660.03 5,727,556
672 5,727,558
5,727,559
681 5,727,560
691 5,727,561
721 5,727,562
[illegible] 5,727,564
857 5,727,565
5,727,566
5,727,567
885 5,727,568
898 5,727,569
5,727,570

CLASS 131
194 5,727,571
235.1 5,727,572
341 5,727,573

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210 5,727,574

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32 5,728,229
61 5,727,578
95.2 5,727,579
104.4 5,727,581
115 R 5,727,580
140 5,727,582

CLASS 135

20.1 5,727,583
77 5,727,584

CLASS 136

246 5,727,585
251 5,728,230

CLASS 137

68.11 5,727,586
100 5,727,587
116.5 5,727,588
240 5,727,589
296 5,727,590
554 5,727,591
614.05 5,727,592
846 5,727,593
859 5,727,594
876 5,727,595
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CLASS 138

98 5,727,597
129 5,727,598
156 5,727,599

CLASS 139

55.1 5,727,600
449 5,727,601

CLASS 140

102 5,727,602

CLASS 141

1 5,727,603
1.1 5,727,604
20 5,727,605
40 5,727,606
67 5,727,607
94 5,727,608
129 5,727,609

CLASS 144

4.1 5,727,610
329 5,727,611

CLASS 148

33 5,728,231
105 5,728,232
247 5,728,233
251 5,728,234
257 5,728,235
270 5,728,236
304 5,728,237
337 5,728,238
549 5,728,239
563 5,728,240
694 5,728,241

CLASS 149

109.6 5,728,969

CLASS 152

523 5,728,242

CLASS 156

75 5,728,243
89 5,728,244
110.1 5,728,245
211 5,728,246
256 5,728,247
257 5,728,248
275.1 5,728,249
275.7 5,728,250
307.5 5,728,251
324 5,728,252
345 5,728,253
5,728,254
367 5,728,255
472 5,728,256
555 5,728,257
580 5,728,258
646.1 5,728,259
5,728,260
662.1 5,728,261

CLASS 160

84.01 5,727,612
178.3 R 5,727,613
201 5,727,614

CLASS 162

4 5,728,262
5 5,728,263
48 5,728,264
72 5,728,265
99 5,728,266
109 5,728,268
148 5,728,269
189 5,728,270

CLASS 164

502 5,727,615

CLASS 165

4 5,727,616
9 5,727,617
45 5,727,621
80.3 5,727,622
80.4 5,727,618
104.33 5,727,619
113 5,727,623
121 5,727,624
150 Re.35,742
151 5,727,625
166 5,727,620
173 5,727,626

CLASS 166

241.3 5,727,627
249 5,727,628
298 5,727,629
355 5,727,630
379 5,727,631
387 5,727,632

CLASS 168

24 5,727,633

CLASS 169

60 5,727,634
62 5,727,635

CLASS 172

271 5,727,636
272 5,727,637
414 5,727,638

CLASS 173

132 5,727,639

CLASS 174

48 5,728,970
50.52 5,728,971
52.1 5,728,972
65 R 5,728,973
65.55 5,728,974
88 B 5,728,975
135 5,728,976

CLASS 175

7 5,727,640
76 5,727,641

CLASS 177

25.17 5,728,977

CLASS 180

65.1 5,727,642
193 5,727,643
409 5,727,644

CLASS 181

102 5,728,978
224 5,728,979
5,728,980
233 5,728,981

CLASS 182

2.1 5,727,645
45 5,727,646
82 5,727,647
93 5,727,648
129 5,727,649
224 5,727,650

CLASS 184

1.5 5,727,651
5,727,652

CLASS 185

40 R 5,727,653

CLASS 186

40 5,727,654

CLASS 187

211 5,727,655
221 5,727,656
356 5,727,657

CLASS 188

36 5,727,658
73.36 5,727,659
218 XL 5,727,660
315 5,727,662
378 5,727,663
382 5,727,664

CLASS 192

70.14 5,727,665
70.25 5,727,666

CLASS 194

207 5,727,667

CLASS 198

431 5,727,668
468.6 5,727,669
497 5,727,670
740 5,727,671
774.3 5,727,673
809 5,727,674

CLASS 200

6 R 5,728,982
61.43 5,728,983
5,728,984
61.62 5,728,985
81.4 5,728,986
84 R 5,728,987
524 5,727,675

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CLASS 203

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CLASS 204

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293 5,728,277
298.11 5,728,276
5,728,278
298.13 5,728,279
298.18 5,728,280
403 5,728,281
455 5,728,282
499 5,728,283

CLASS 205

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182 5,728,285
640 5,728,286
743 5,728,287
763 5,728,288
775 5,728,289
783 5,728,290

CLASS 206

204 5,727,676
205 5,727,677
217 5,727,678
222 5,727,679
308.1 5,727,680
5,727,681
354 5,727,682
387.11 5,727,683
439 5,727,684
455 5,727,685
459.1 5,727,686
532 5,727,687
724 5,727,688

CLASS 208

45 5,728,291

CLASS 209

139.1 5,727,689
5,727,690
235 5,727,691
603 5,727,692

CLASS 210

136 5,728,292
151 5,728,293
164 5,728,294
195.1 5,728,295
198.2 5,728,296
321.67 5,728,267
407 5,728,297
491 5,728,298
497.01 5,728,299
602 5,728,300
635 5,728,301
679 5,728,302
695 5,728,303
703 5,728,304
760 5,728,305
767 5,728,306
791 5,728,307

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13.1 5,727,693
33 5,727,694
40 5,727,695
51 5,727,696
70.6 5,727,701
87.01 5,727,698
89 5,727,697
113 5,727,699
119 5,727,700

CLASS 212

273 5,727,702

CLASS 215

214 5,727,703
223 5,727,704
252 5,727,705

CLASS 216

88 5,728,308

CLASS 218

65 5,728,988
145 5,728,989

CLASS 219

69.12 5,728,990
121.46 5,728,991
121.64 5,728,992
121.67 5,728,993
121.69 5,728,994
137.31 5,728,995
633 5,728,309
679 5,728,310
702 5,728,996
5,728,997

CLASS 220

3.2 5,727,706
288 5,727,707
410 5,727,708
560 5,727,709
609 5,727,710
676 5,727,711
703 5,727,712

CLASS 221

2 Re.35,743

CLASS 222

145.6 5,727,713
175 5,727,714
189.09 5,727,715
321.8 5,727,716

CLASS 223

66 5,727,717
94 5,727,718

CLASS 224

148.4 5,727,719
664 5,727,720

CLASS 225

106 5,727,721

CLASS 226

19 5,727,722
119 5,727,723
181 5,727,724
200 5,727,725

CLASS 227

119 5,727,726

CLASS 228

123.1 5,727,727

CLASS 229

117.16 5,727,728

CLASS 235

380 5,728,998
381 5,728,999
441 5,729,000
462 5,729,001
5,729,002
472 5,729,003
492 5,729,004

CLASS 236

34.5 5,727,729

CLASS 237

12.3 B 5,727,731
12.3 C 5,727,730

CLASS 239

1 5,727,732
33 5,727,734
99 5,727,733
112 5,727,735
333 Re.35,744
345 5,727,736
504 5,727,737
533.4 5,727,738
600 5,727,739

CLASS 241

20 5,727,740
157 5,727,741
199.12 5,727,742
261.3 5,727,743

CLASS 242

18.1 5,727,744
364 5,727,746
400.1 5,727,745
527 5,727,747
538.2 5,727,748
538.3 5,727,749
596.3 5,727,750
599.1 5,727,751
608.6 5,727,752
615.1 5,727,753

CLASS 244

8 5,727,754
53 R 5,727,755
153 R 5,727,756
221 5,727,757

CLASS 246

124 5,727,758

CLASS 248

118 5,727,759
217.3 5,727,760
222.12 5,727,761
231.61 5,727,762
295.11 5,727,764
325 5,727,763
329 5,727,765
346.01 5,727,766
354.3 5,727,767
429 5,727,768

CLASS 249

65 5,728,311
165 5,728,312

CLASS 250

208.1 5,729,008
208.2 5,729,009
214 VT 5,729,010
226 5,729,011
227.15 5,729,012
227.17 5,729,005
231.13 5,729,006
5,729,007
255 5,729,013
282 5,729,014
306 5,729,015
334 5,729,016
338.1 5,729,017
339.08 5,729,018
353 5,729,019
370.08 5,729,020
370.09 5,729,021
396 ML 5,729,022
492.2 5,729,026
492.21 5,729,027
5,729,028
559.36 5,729,024
574 5,729,025

CLASS 251

129.15 5,727,769
149.1 5,727,770
184 5,727,771
229 5,727,772
325 5,727,773
328 5,727,775
368 5,727,776

CLASS 252

8.57 5,728,313
8.61 5,728,771
67 5,728,314
5,728,315
70 5,728,316
182.29 5,728,317
299.62 5,728,318
299.63 5,728,319
312 5,728,320
500 5,728,321
511 5,728,322
601 5,728,323

CLASS 254

134.3 R 5,727,777

CLASS 257

13 5,729,029
103 5,729,030
139 5,729,031
5,729,032
198 5,729,033
296 5,729,034
324 5,729,035
327 5,729,036
329 5,729,037
347 5,729,039
460 5,729,038
504 5,729,040
519 5,729,043
529 5,729,041
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603 5,729,044
627 5,729,045
661 5,729,046
664 5,729,047
665 5,729,048
666 5,729,049
667 5,729,050
668 5,729,051
712 5,729,052
724 5,729,053
751 5,729,054
754 5,729,055
774 5,729,056

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5,728,326
39 5,728,327
5,728,328
40.1 5,728,329
40.7 5,728,330
44 5,728,331
46.4 5,728,332
5,728,333
82 5,728,334
83 5,728,335
101 5,728,336
102 5,728,337
129 5,728,338
134 5,728,339
216 5,728,340
222 5,728,341
259 5,728,342
275 5,728,343
318 5,728,344
401 5,728,345
437 5,728,346
512 5,728,347

CLASS 266

275 5,728,348

CLASS 269

43 5,727,778
158 5,727,779

CLASS 270

58.23 5,727,781

CLASS 271

121 5,727,782
185 5,727,783
265.01 5,727,784
271 5,727,785

CLASS 273

269 5,727,786
284 5,727,787
303 5,727,788
371 5,727,789

CLASS 277

1 5,727,790
5,727,791
9 5,727,792
105 5,727,793
152 5,727,794
235 B 5,727,795

CLASS 280

7.13 5,727,796
14.2 5,727,797
30 5,727,798
47.3 5,727,799
87.051 5,727,800
231 5,727,801
250.1 5,727,802
416.2 5,727,803
476.001 5,727,804
478.1 5,727,805
494 5,727,806
609 5,727,807
615 5,727,808
650 5,727,809
711 B1 4,871,189
728.2 5,727,810
731 5,727,811
5,727,812
736 5,727,813

748 5,727,814
784 5,727,815

CLASS 281

29 5,727,816

CLASS 283

51 5,727,817
81 5,727,818
5,727,819

CLASS 285

139.2 5,727,820
318 5,727,821

CLASS 292

202 5,727,822
289 5,727,823
336.3 5,727,824
341.12 5,727,825

CLASS 293

102 5,727,826
155 5,727,827

CLASS 294

50.8 5,727,828
51 5,727,829
54.5 5,727,830
59 5,727,831
64.1 5,727,832
74 5,727,833
82.19 5,727,834

CLASS 296

37.16 5,727,836
37.6 5,727,835
97.1 5,727,837
180.1 5,727,838
213 5,727,839
216 5,727,840

CLASS 297

188.06 5,727,841
5,727,842
188.13 5,727,843
217.1 5,727,844
257 5,727,845
373 5,727,846
375 5,727,847
423.36 5,727,848
440.16 5,727,849

CLASS 301

111 5,727,850

CLASS 303

113.4 5,727,852
117.1 5,727,851
140 5,727,853
155 5,727,854
168 5,727,855
195 5,727,856

CLASS 307

10.3 5,729,057
10.8 5,729,058
84 5,729,059
112 5,729,060
130 5,729,061
5,729,062

CLASS 310

68 D 5,729,063
68 R 5,729,064
90.5 5,729,065
5,729,066
135 5,729,067
179 5,729,068
186 5,729,069
235 5,729,070
254 5,729,071
258 5,729,072
260 5,729,073
309 5,729,074
5,729,075
313 R 5,729,076
328 5,729,077

CLASS 312

114 5,727,857
348.6 5,727,858
404 5,727,859

CLASS 313

25 5,729,078
113 5,729,079
318.01 5,729,080
344 5,729,081
346 R 5,729,082
422 5,729,083
446 5,729,084
493 5,729,085
495 5,729,086
5,729,087
623 5,729,089
637 5,729,090
638 5,729,091

CLASS 315

8 5,729,092
169.1 5,729,094
169.3 5,729,093
176 5,729,095
225 5,729,096
276 B1 5,568,018
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254 5,729,102
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222 5,729,119
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239 5,729,134
240 5,729,135
252 5,729,137
309 5,729,138
5,729,139
5,729,140
318 5,729,141
321 5,729,142
329 5,729,143
535 5,729,144
536 5,729,145
754 5,729,146
755 5,729,147
5,729,148
758 5,729,149
762 5,729,150
765 5,729,151

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21 5,729,152
27 5,729,153
30 5,729,154
68 5,729,155
73 5,729,156
80 5,729,157
87 5,729,158
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52 5,729,159
54 5,729,160
65 5,729,161
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104 5,729,163
110 5,729,164
112 5,729,165
116 5,729,166
137 5,729,167
227 5,729,169
379 5,729,170
536 5,729,172
581 5,729,171

CLASS 329

308 5,729,173

CLASS 330

10 5,729,175
51 5,729,174
252 5,729,176
257 5,729,177
258 5,729,178

CLASS 331

12 5,729,179
17 5,729,180
69 5,729,181

CLASS 332

100 5,729,182

CLASS 333

1 5,729,183
125 5,729,184
193 5,729,185
194 5,729,186

CLASS 335

228 5,729,187
298 5,729,188

CLASS 336

178 5,729,505

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CLASS 340

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551 5,729,200
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628 5,729,207
635 5,729,208
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825.44 5,729,209
825.72 5,729,210
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20 5,729,219
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59 5,729,224
5,729,225
94 5,729,226
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CLASS 342

62 5,729,234
357 5,729,235
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CLASS 343

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753 5,729,239
763 5,729,240
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CLASS 345

7 5,729,242
59 5,729,243
74 5,729,244
84 5,729,245
98 5,729,246
113 5,729,247
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141 5,729,248
173 5,729,249
175 5,729,250
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7 5,729,256
9 5,729,257
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70 5,729,262
71 5,729,263
5,729,264
100 5,729,265
102 5,729,266
111 5,729,267
119 5,729,268
130 5,729,269
131 5,729,270
155 5,729,271
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259 5,729,278

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8 5,729,279
10 5,729,280
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13 5,729,282
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241 5,729,287
243 5,729,288
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349 5,729,290
5,729,291
390 5,729,292
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405 5,729,294
416 5,729,295
441 5,729,296
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564 5,729,300
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649 5,729,299
699 5,729,302
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9 5,729,306
33 5,729,307
39 5,729,308
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62 5,729,310
65 5,729,311
86 5,729,312
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166 5,729,320

CLASS 351

44 5,729,321
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20 5,727,860

CLASS 355

30 5,729,325
40 5,729,326
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5,729,329
53 5,729,331
75 5,729,330
77 5,729,332

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71 5,729,334
73.1 5,729,335
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244 5,729,341
319 5,729,342
355 5,729,343
359 5,729,344
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5,729,346
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417 5,729,348
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5,729,351
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5,729,353
406 5,729,354
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451 5,729,357
5,729,358
498 5,729,359
500 5,729,360
505 5,729,361
520 5,729,362
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CLASS 359

2 5,729,365
7 5,729,364
13 5,729,366
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110 5,729,368
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5,729,372
5,729,373
212 5,729,374
244 5,729,375
249 5,729,377
254 5,729,378
270 5,729,379
5,729,380
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376 5,729,382
385 5,729,383
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434 5,729,385
591 5,729,387
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654 5,729,389
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96.1 5,729,402
97.03 5,729,403
99.08 5,729,404
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273 5,729,424
328 5,729,426
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523 5,729,428
680 5,729,429
682 5,729,430
687 5,729,431
690 5,729,432
704 5,729,433
5,729,435
752 5,729,436
760 5,729,437
5,729,438
5,729,439
779 5,729,440
5,729,441
823 5,729,442

CLASS 362

16 5,727,861
27 5,727,862
62 5,727,863
72 5,727,864
80 5,727,865
86 5,727,866
147 5,727,867
5,727,868
217 5,727,869
225 5,727,870
5,727,871
252 5,727,872
294 5,727,873
305 5,727,874
414 5,727,875

CLASS 363

21 5,729,443
25 5,729,444
34 5,729,445
5,729,447
5,729,446
5,729,448
98 5,729,449
132 5,729,450

CLASS 364

421 5,729,451
424.03 5,729,452
424.07 5,729,453
424.08 5,729,454
426.029 5,729,455
431.01 5,729,456
449.9 5,729,457
464.1 5,729,458
464.12 5,729,459
464.13 5,729,460
464.18 5,729,461
468.03 5,729,462
468.04 5,729,463
478.03 5,729,464
485 5,729,465
488 5,729,466
5,729,467
5,729,468
5,729,469
497 5,729,470
514 A 5,729,471
550 5,729,472
552 5,729,473
557 5,729,474
559 5,729,475
565 5,729,476
574 5,729,477
708.1 5,729,478
709.02 5,729,479
709.12 5,729,480
715.08 5,729,482
724.1 5,729,483
725 5,729,484
745 5,729,481
754.01 5,729,485
764 5,729,486
767 5,729,487
5,729,488
185.03 5,729,489
5,729,490
185.17 5,729,491
185.21 5,729,492
5,729,493
185.24 5,729,494
185.25 5,729,495
185.26 5,729,496
200 5,729,497
203 5,729,498
207 5,729,499
230.01 5,729,500
230.03 5,729,501
233 5,729,502
233.5 5,729,503
236 5,729,504

CLASS 366

85 5,727,876
132 5,727,877
247 5,727,878
271 5,727,879

CLASS 367

24 5,729,506
124 5,729,507
176 5,729,508

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CLASS 369

32 5,729,509
44.14 5,729,510
44.27 5,729,511
44.32 5,729,512
54 5,729,513
5,729,514
5,729,515
5,729,516
59 5,729,517
5,729,518
5,729,519
112 5,729,520
5,729,521
5,729,522
124 5,729,523
178 5,729,524
273 5,729,533
275.3 5,729,525

CLASS 370

206 5,729,526
228 5,729,527
5,729,528
235 5,729,529
5,729,530
252 5,729,531
261 5,729,532
280 5,729,534
328 5,729,535
5,729,536
329 5,729,537
332 5,729,539
336 5,729,540
337 5,729,541
5,729,542
347 5,729,538
5,729,543
352 5,729,544
5,729,545
434 5,729,546
447 5,729,547
474 5,729,548
522 5,729,549

CLASS 371

5.1 5,729,550
10.3 5,729,551
21.1 5,729,552
22.5 5,729,553
27 5,729,554
5,729,555
31 5,729,556
41 5,729,557
43 5,729,558
5,729,559
43.1 5,729,560

CLASS 372

36 5,729,561
38 5,729,562
50 5,729,563
5,729,564
5,729,565
5,729,566
99 5,729,567
5,729,568

CLASS 373

95 5,729,569

CLASS 374

121 5,727,880

CLASS 375

206 5,729,570
5,729,571
219 5,729,572
222 5,729,573
261 5,729,574
268 5,729,575
334 5,729,576
5,729,577
363 5,729,578

CLASS 376

114 5,729,580
260 5,729,581

CLASS 378

5,729,582
122 5,729,583
146 5,729,584
154 5,729,585
182 5,729,586
5,729,587

CLASS 379

14 5,729,588
34 5,729,589
57 5,729,590
5,729,591
67 5,729,592
5,729,593
93.12 5,729,594
100.09 5,729,595
102.04 5,729,596
115 5,729,597
5,729,598
211 5,729,599
265 5,729,600
269 5,729,601
282 5,729,602
5,729,603
388 5,729,604
5,729,605
438 5,729,606

CLASS 380

6 5,729,607
21 5,729,608
5,729,609
49 5,729,610

CLASS 381

55 5,729,611
5,729,612
5,729,613
83 5,729,614
183 5,729,615
197 5,729,616
199 5,729,617

CLASS 382

100 5,729,618
115 5,729,619
5,729,620
139 5,729,621
151 5,729,622
155 5,729,623
162 5,729,624
169 5,729,625
170 5,729,626
173 5,729,627
5,729,628
187 5,729,629
229 5,729,630
232 5,729,631
237 5,729,632
239 5,729,633
254 5,729,634
5,729,635
274 5,729,636
282 5,729,637
305 5,729,638
312 5,729,639
321 5,729,640

CLASS 383

103 5,727,881

CLASS 384

45 5,727,884
294 5,727,885
537 5,727,886
611 5,727,882

CLASS 385

2 5,729,641
17 5,729,642
43 5,729,643
59 5,729,644
125 5,729,646
127 5,729,645

CLASS 386

46 5,729,647
68 5,729,648
5,729,649
92 5,729,650
95 5,729,651

CLASS 388

811 5,729,652

CLASS 392

485 5,729,653

CLASS 395

2.17 5,729,694
2.31 5,729,654
2.32 5,729,655
2.63 5,729,656
2.76 5,729,657
2.79 5,729,658
5,729,659
22 5,729,660
23 5,729,662
109 5,729,663
5,729,664
110 5,729,666
113 5,729,667
114 5,729,668
117 5,729,665
122 5,729,669
123 5,729,670
126 5,729,672
127 5,729,673
135 5,729,674
183.12 5,729,675
183.14 5,729,676
183.18 5,729,677
183.19 5,729,678
185.07 5,729,679
200.01 5,729,683
200.1 5,729,680
5,729,681
200.11 5,729,685
200.12 5,729,682
200.2 5,729,251
5,729,684
5,729,687
200.38 5,729,686
200.56 5,729,688
200.58 5,729,689
200.71 5,729,692
200.76 5,729,690
200.77 5,729,691
213 5,729,661
214 5,729,693
220 5,729,695
222 5,729,696
223 5,729,697
226 5,729,698
227 5,729,699
236 5,729,700
250 5,729,708
290 5,729,701
291 5,729,702
306 5,729,703
308 5,729,705
310 5,729,706
5,729,704
383 5,729,707
405 5,729,709
413 5,729,710
415 5,729,711
449 5,729,712
465 5,729,713
474 5,729,714
5,729,715
490 5,729,716
491 5,729,717
494 5,729,718
550 5,729,719
555 5,729,720
557 5,729,721
560 5,729,722
563 5,729,723
5,729,724
565 5,729,725
580 5,729,726
5,729,727
581 5,729,728
591 5,729,729
603 5,729,730
5,729,731
607 5,729,732
608 5,729,733
609 5,729,734
610 5,729,735
5,729,736
612 5,729,737
614 5,729,738
5,729,739
615 5,729,740
5,729,741
618 5,729,742
619 5,729,743
5,729,744
683 5,729,745
701 5,729,746
702 5,729,747
705 5,729,748
726 5,729,749
763 5,729,750
792 5,729,751
800 5,729,752
5,729,755
5,729,756
800 01 5,729,757
800 22 5,729,758
800 36 5,729,759
823 5,729,760
834 5,729,761
842 5,729,762
858 5,729,763
872 5,729,764
873 5,729,765
878 5,729,766
882 5,729,767

CLASS 396

6 5,729,768
29 5,729,769
53 5,729,770
113 5,729,771
159 5,729,772
197 5,729,773
206 5,729,774
5,729,775
752 5,729,776
789.9 5,729,923
790 5,727,924
795.3 5,727,925

CLASS 416

5,727,926
5,727,927

CLASS 417

44.11 5,727,928
49 5,727,929
392 5,727,931
417 5,727,932
525 5,727,930

CLASS 418

2 5,727,933
55.2 5,727,934
55.5 5,727,935
88 5,727,936

CLASS 420

513 5,728,349

CLASS 422

61 5,728,350
73 5,728,351
82.05 5,728,352
145 5,728,353
177 5,728,354

CLASS 423

2 5,729,821
21.1 5,728,355
239.1 5,728,356
5,728,357
244.01 5,728,358
306 5,728,359
307 5,728,360
449.6 5,728,361
593 5,728,362
5,728,363
5,728,364
5,728,365
5,728,366
5,728,367
659 5,728,368

CLASS 424

9.3 5,728,370
59 5,728,371
5,728,372
5,728,373
70.51 5,728,374
78.31 5,728,375
84 5,728,376
85.1 5,728,377
85.7 5,728,378
93.2 5,728,379
93.48 5,728,380
94.6 5,728,381
94.61 5,728,382
149 5,728,369
183.1 5,728,383
195.1 5,728,384
201.1 5,728,385
230.1 5,728,386
234.1 5,728,387
237.1 5,728,388
400 5,728,389
401 5,728,390
5,728,391
5,728,392
5,728,393
405 5,728,394
422 5,728,395
5,728,396
5,728,397
442 5,728,398
450 5,728,399
464 5,728,400
466 5,728,401
481 5,728,402
486 5,728,403
642 5,728,404
682 5,728,405

CLASS 425

4 C 5,728,406
7 5,728,407
116 5,728,408
130 5,728,409
5,728,410
142 5,728,411

CLASS 426

11 5,728,412
16 5,728,413
104 5,728,414
112 5,728,415
113 5,728,416
231 5,728,417
557 5,728,418
565 5,728,419

CLASS 427

2.12 5,728,420
126.3 5,728,421
163.2 5,728,422
5,728,424
231 5,728,423
248.1 5,728,425
282 5,728,426
5,728,427
292 5,728,428
345 5,728,429
356 5,728,430
388.1 5,728,431
389.8 5,728,432
437 5,728,433
5,728,434
535 5,728,435

CLASS 428

35.7 5,728,437
36.1 5,728,438
36.91 5,728,439
40.1 5,728,440
64.1 5,728,441
65.3 5,728,442
67 5,728,443
97 5,728,444
113 5,728,445
167 5,728,446
182 5,728,447
193 5,728,448
195 5,728,449
5,728,450
5,728,451
209 5,728,453
212 5,728,454
216 5,728,455
5,728,456
310.5 5,728,457
312.4 5,728,458
318.6 B1 4,690,862
349 5,728,460
372 5,728,461
393 5,728,462
402 5,728,463
403 5,728,464
5,728,465
5,728,466
411.1 5,728,467
415 5,728,468
418 5,728,469
426 5,728,470
432 5,728,471
437 5,728,472
448 5,728,473
458 5,728,474
469 5,728,475
500 5,728,476
524 5,728,477
542.8 5,728,478
551 5,729,822
552 5,729,823
654 5,728,479
690 5,728,480
694 ML 5,728,481

CLASS 429

10 5,728,482
12 5,728,483
35 5,728,484
41 5,728,485
97 5,728,486
111 5,728,487
120 5,728,488
127 Re.35,746
192 5,728,489
235 5,728,490

CLASS 430

5 5,728,491
5,728,492
5,728,493
30 5,728,495
47 5,728,496
49 5,728,497
59 5,728,498
67 5,728,499
83 5,728,500
110 5,728,501
126 5,728,502
158 5,728,503
192 5,728,504
271.1 5,728,505
311 5,728,506
313 5,728,507
315 5,728,508

321 5,728,509
323 5,728,510
356 5,728,511
455 5,728,512
505 5,728,513
557 5,728,514
567 5,728,515
5,728,516
5,728,517

CLASS 431

158 5,727,937
285 5,727,938

CLASS 432

205 5,727,939

CLASS 433

5 5,727,940
17 5,727,941
173 5,727,942
174 5,727,943
214 5,727,944
215 5,727,945

CLASS 434

159 5,727,946
258 5,727,947
267 5,727,948
5,727,949
350 5,727,950
362 5,727,951
408 5,727,952

CLASS 435

5 5,728,518
5,728,519
5,728,520
6 Re.35,747
5,728,521
5,728,522
5,728,523
5,728,524
5,728,525
5,728,526
5,728,527
5,728,528
5,728,529
5,728,530
5,728,531
7.1 5,728,532
5,728,533
5,728,534
7.2 5,728,535
7.21 5,728,536
7.23 5,728,537
14 5,728,539
23 5,728,540
29 5,728,541
5,728,542
68.1 5,728,543
5,728,544
69.1 5,728,545
5,728,546
5,728,547
5,728,548
69.2 5,728,549
69.5 5,728,552
69.6 5,728,553
70.1 5,728,550
91.41 5,728,551
97 5,728,554
106 5,728,555
129 5,728,556
172.3 5,728,557
5,728,558
183 5,728,559
5,728,560
190 5,728,561
191 5,728,562
196 5,728,563
215 5,728,564
226 5,728,565
5,728,566
5,728,567
232 5,728,568
235.1 5,728,569
252.3 5,728,570
252.31 5,728,571
254.1 5,728,572
5,728,573
260 5,728,574
280 5,728,575
283.1 5,728,576
299.1 5,728,577
320.1 5,728,578
325 5,728,579
348 5,728,580
385 5,728,581

CLASS 436

10 5,728,582
69 5,728,583
106 5,728,584
133 5,728,585
153 5,728,586
518 5,728,587
532 5,728,588
543 5,728,589
547 5,728,590

CLASS 437

21 5,728,591
5,728,592
29 5,728,593
40 5,728,594
44 5,728,595
52 5,728,596
60 5,728,597
5,728,598
182 5,728,599
207 5,728,600
5,728,601
225 5,728,602
235 5,728,603

CLASS 438

41 5,728,605
41 TFI 5,728,604
122 5,728,606
135 5,728,607
149 5,728,608
5,728,609
162 5,728,610
5,728,611
5,728,612
5,728,613
225 5,728,614
238 5,728,615
240 5,728,616
253 5,728,617
5,728,618
297 5,728,619
425 5,728,620
427 5,728,621
443 5,728,622
455 5,728,623
459 5,728,624
5,728,625
608 5,728,626
618 5,728,627
5,728,628
5,728,629
763 5,728,630
787 5,728,631

CLASS 439

21 5,727,953
5,727,954
71 5,727,955
74 5,727,956
5,727,957
5,727,958
136 5,727,959
157 5,727,960
165 5,727,961
287 5,727,962
344 5,727,963
358 5,727,964
372 5,727,965
402 5,727,966
418 5,727,967
5,727,968
594 5,727,969
607 5,727,970
610 5,727,971
655 5,727,972

CLASS 441

24 5,727,974

CLASS 442

43 5,728,632
148 5,728,633
237 5,728,634

CLASS 445

22 5,727,975
24 5,727,976
5,727,977
50 5,727,978

CLASS 446

5,727,979
217 5,727,980
315 5,727,981
352 5,727,982
428 5,727,983
431 5,727,984
437 5,727,985
5,727,986

CLASS 451

5 5,727,987
28 5,727,988
41 5,727,989
44 5,727,990
48 5,727,991
56 5,727,992
59 5,727,993
359 5,727,994
463 5,727,995

CLASS 452

57 5,727,996
170 5,727,997

CLASS 454

143 5,727,998
162 5,727,999
260 5,728,000
369 5,728,001

CLASS 455

3.1 5,729,824
5,729,825
11.1 5,729,826
31.3 5,729,827
43 5,729,828
63 5,729,829

CLASS 463

17 5,728,002
47.2 5,728,003

CLASS 464

70 5,728,004

CLASS 472

116 5,728,005

CLASS 473

151 5,728,006
244 5,728,007
308 5,728,008
313 5,728,009
324 5,728,010
357 5,728,011
386 5,728,012
396 5,728,013
422 5,728,014
485 5,728,015
563 5,728,016

CLASS 474

70 5,728,017
80 5,728,018
94 5,728,019
199 5,728,020
206 5,728,023
229 5,728,021

CLASS 475

205 5,728,022
252 5,728,024
5,728,025

CLASS 479

110 5,728,026

CLASS 482

4 5,728,027
11 5,728,028
61 5,728,029
66 5,728,030
83 5,728,031
105 5,728,032
111 5,728,033
131 5,728,034
140 5,728,035

CLASS 492

8 5,728,036

CLASS 493

217 5,728,037

CLASS 494

16 5,728,038
29 5,728,039
48 5,728,040

CLASS 501

98.4 5,728,635
105 5,728,636
127 5,728,637
5,728,638

CLASS 502

33 5,728,639
107 5,728,640
114 5,728,641
224 5,728,642
302 5,728,643
322 5,728,644
706 5,728,738
725 5,728,739
764 5,728,740

CLASS 521

40 5,728,741
57 5,728,742
64 5,728,743
95 5,728,744
159 5,728,745
169 5,728,746

CLASS 522

11 5,728,747
65 5,728,748
141 5,728,749
173 5,728,750

CLASS 523

112 5,728,751
113 5,728,752
114 5,728,753
173 5,728,754
457 5,728,755

CLASS 524

139 5,728,756
219 5,728,757
265 5,728,758
270 5,728,759
292 5,728,760
306 5,728,761
379 5,728,762
430 5,728,763
451 5,728,764
494 5,728,765
496 5,728,766
504 5,728,767
506 5,728,768
591 5,728,769
755 5,728,770

CLASS 525

92 B 5,728,772
146 5,728,773
196 5,728,774
282 5,728,775
285 5,728,776
328.8 5,728,777
330.4 5,728,778
438 5,728,779

CLASS 526

62 5,728,780
5,728,781
63 5,728,782
124.2 5,728,783
133 5,728,784
142 5,728,785
206 5,728,786
216 5,728,787
5,728,788
271 5,728,789
273 5,728,790
5,728,791
307.6 5,728,792
329.7 5,728,793

CLASS 528

23 5,728,794
45 5,728,795
88 5,728,796
120 5,728,797
230 5,728,798
310 5,728,799
5,728,800
422 5,728,801

CLASS 530

324 5,728,802
350 5,728,803
5,728,804
5,728,805
5,728,806
5,728,807

CLASS 534

15 5,728,816

CLASS 536

23.1 5,728,817
23.5 5,728,819
5,728,820
23.53 5,728,821
24.1 Re.35,749
25.3 5,728,818
25.41 5,728,822
5,728,823
107 5,728,824
114 5,728,825

CLASS 540

5,728,826
200 5,728,827
222 5,728,828
5,728,829

CLASS 544

5 5,728,830
63 5,728,831
249 5,728,832
5,728,833
5,728,834

CLASS 546

194 5,728,835
244 5,728,836
320 5,728,837
339 5,728,838

CLASS 548

103 5,728,839
217 5,728,840
255 5,728,841
319.1 5,728,842
327.5 5,728,843
472 5,728,844
477 5,728,845

CLASS 549

16 5,728,846
274 5,728,847
333 5,728,848
456 5,728,849
510 5,728,850

CLASS 554

16 5,728,851
5,728,852

CLASS 556

17 5,728,853
149 5,728,854
179 5,728,855
5,728,856
437 5,728,857
470 5,728,858

CLASS 558

5,728,859

CLASS 560

40 5,728,862
5,728,863
59 5,728,864
104 5,728,865
122 5,728,866
221 5,728,867

CLASS 562

439 5,728,868
452 5,728,869
5,728,870
519 5,728,871
5,728,872

CLASS 564

1 5,728,873
49 5,728,874
79 5,728,875
136 5,728,876
153 5,728,877
159 5,728,878
241 5,728,879
5,728,885
5,728,880
5,728,881
5,728,882
5,728,883
5,728,884

CLASS 568

17 5,728,886
5,728,887
315 5,728,888
329 5,728,889
361 5,728,890
376 5,728,891
433 5,728,892
454 5,728,861
5,728,893
5,728,894
5,728,895
5,728,896
715 5,728,897
763 5,728,
838 5,728,899
857 5,728,900
5,728,901

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CLASS 570

136 5,728,902
155 5,728,903
176 5,728,904
224 5,728,905
226 5,728,906

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	5,727,682	5,727,503	5,728,091	5,728,599	5,729,230	5,729,603
	5,727,701	5,727,542	5,728,092	5,728,608	5,729,238	5,729,605
	5,727,741	5,727,547	5,728,093	5,728,612	5,729,242	5,729,612
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	5,728,387	5,727,562	5,728,102	5,728,633	5,729,338	5,729,620
	5,728,451	5,727,566	5,728,110	5,728,637	5,729,343	5,729,635
	5,729,746	5,727,575	5,728,119	5,728,648	5,729,361	5,729,637
02	5,729,013	5,727,578	5,728,131	5,728,650	5,729,364	5,729,639
04	5,727,757	5,727,594	5,728,143	5,728,656	5,729,367	5,729,643
	5,727,871	5,727,618	5,728,144	5,728,657	5,729,374	5,729,652
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	5,727,977	5,727,684	5,728,151	5,728,685	5,729,380	5,729,674
	5,728,028	5,727,695	5,728,158	5,728,697	5,729,399	5,729,680
	5,728,100	5,727,718	5,728,176	5,728,726	5,729,400	5,729,685
	5,728,200	5,727,719	5,728,177	5,728,785	5,729,404	5,729,694
	5,728,236	5,727,733	5,728,182	5,728,802	5,729,410	5,729,697
	5,728,925	5,727,802	5,728,183	5,728,803	5,729,413	5,729,704
	5,728,998	5,727,816	5,728,208	5,728,820	5,729,418	5,729,712
	5,729,144	5,727,817	5,728,248	5,728,831	5,729,419	5,729,718
	5,729,147	5,727,822	5,728,260	5,728,846	5,729,426	5,729,719
	5,729,176	5,727,824	5,728,266	5,728,917	5,729,429	5,729,724
	5,729,185	5,727,848	5,728,267	5,728,956	5,729,431	5,729,729
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	5,729,464	5,727,873	5,728,285	5,729,002	5,729,458	5,729,742
	5,729,484	5,727,882	5,728,289	5,729,004	5,729,466	5,729,752
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	5,729,678	5,727,903	5,728,294	5,729,016	5,729,471	5,729,762
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06	Re.35,748	5,727,960	5,728,359	5,729,026	5,729,475	5,729,781
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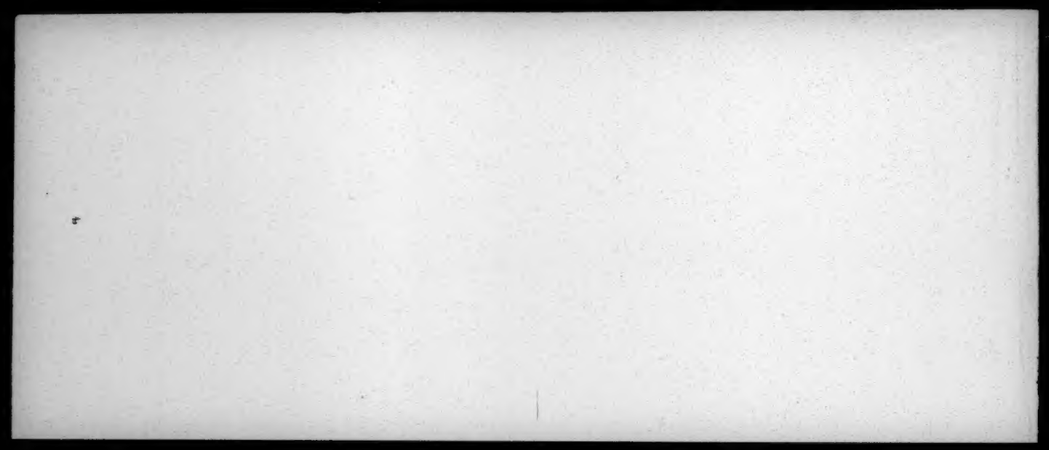
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